5256C 5G 终端综合测试仪
程控手册

中电科仪器仪表有限公司

前言

非常感谢您选择、使用中电科仪器仪表有限公司研制、生产的 5256C 终端综合测试仪！该仪器自动化程度高、操作便捷，在同类产品中，拥有较高的性价比。为方便您使用，请仔细阅读本手册。我们将以最大限度满足您的需求为己任，为您提供高品质的测量仪器，同时带给您一流的售后服务。我们的一贯宗旨是"质量优良，服务周到"，提供满意的产品和服务是我们对用户的承诺。

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中电科仪器仪表有限公司

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产品质保

本产品从出厂之日起保修期为 18 个月。质保期内仪器生产厂家会根据实际情况维修或替换损坏部件。为此用户需要将产品返回厂家并预付邮寄费用，厂家维护产品后会同产品一并返回用户此费用。

产品质量证明

本产品从出厂之日起确保满足手册中的指标。校准衡量由具备国家资质的计量单位予以完成，并提供相关资料以备用户查阅。

质量/环境管理

本产品从研发、制造和测试过程中均遵守质量和环境管理体系，中电科仪器仪表有限公司已经具备资质并通过 ISO 9001 和 ISO 14001 管理体系。

安全事项

⚠ **小心**

小心标识表示危险。它提示用户注意某一操作过程、操作方法或者类似情况。若不能遵守规则或者正确操作，则可能造成轻度或中度人身和设备伤害。在完全理解和满足所指出的小心条件之前，不要继续下一步。

注意

注意标识代表重要的信息提示，但不会导致危险。它提示用户注意某一操作过程、操作方法或者类似情况。若不能遵守规则或者正确操作，则可能引起的仪器损坏或丢失重要数据。在完全理解和满足所指出的注意条件之前，不要继续下一步。

!

1 手册导航

本章介绍了 5256C 5G 终端综合测试仪的编程手册功能、章节构成和主要内容，并介绍了提供给用户使用的仪器关联文档。

1.1 关于手册

本手册介绍了5256C 5G终端综合测试仪的远程控制和SCPI命令使用方法，同时，为方便用户快速掌握编程方法。为方便您熟练使用该仪器，请在操作仪器前，仔细阅读本手册，然后按手册指导正确操作。

SCPI(Standard Commands for Programmable Instruments)定义了如何远程控制仪器的标准和方法，也是程控电子测试和测量仪器使用的程控编程语言。SCPI 标准基于IEEE-488.2标准和形式，具体请浏览http://www.scpiconsortium.org。该手册详细说明了5256C程控命令。

编程手册的章节包括：

- **远程控制**

概述了仪器远程控制的NI MAX操作方法，目的使用户对远程控制操作快速上手。

- **程控命令**

分类介绍了通用命令、仪器命令及兼容命令，逐条说明SCPI命令的功能、参数。

- **附录**

给出了5256C终端综合测试仪关于程控的必要的指令详细列表及各模式测试流程相关指令过程。

1.2 关联文档

5256C终端综合测试仪的产品文档包括：

- 快速使用指南
- 用户手册
- 程控手册
- 在线帮助

编程手册

本手册介绍了仪器的远程编程基础、SCPI基础、SCPI命令、编程示例和I/O驱动函数库等，目的是：指导用户如何使快速、全面的掌握仪器的程控命令和程控方法。包含的主要章节是：

- 远程控制
- 程控命令
- 附录

2 远程控制

2.1 仪器远程 NI 控制操作步骤

NI MAX 软件可以用来进行 5256C 仪表的 SCPI 指令控制，主要包括以下步骤：
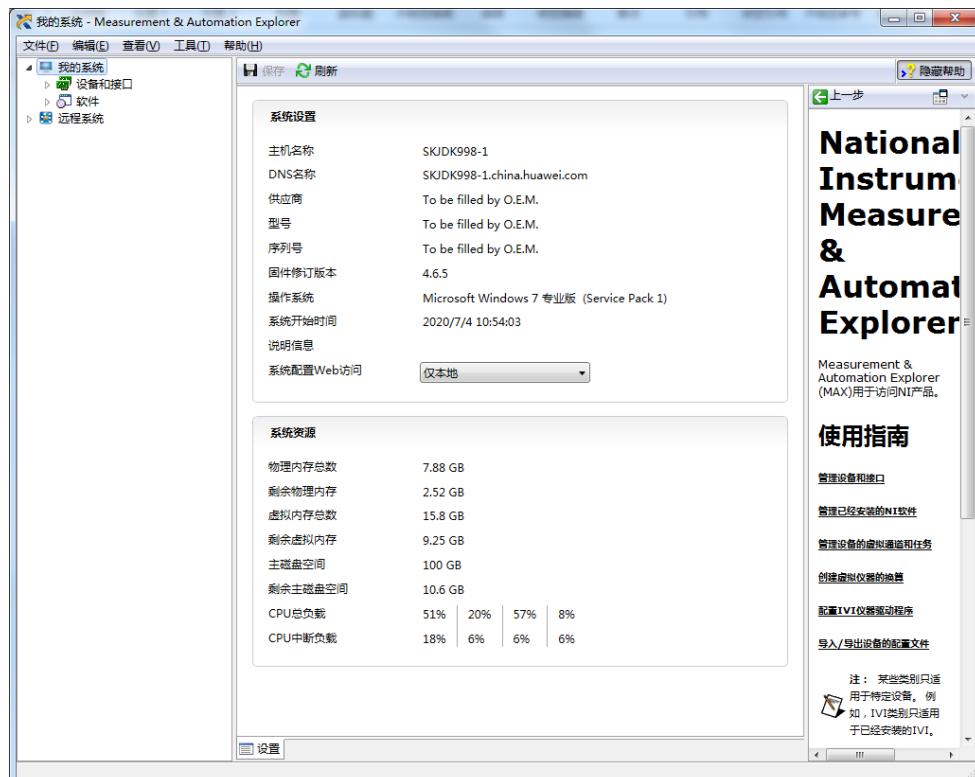
图 1 NI MAX 软件主界面

1. 右键点击左上角我的系统➔设备和接口，如图 2 所示 ；
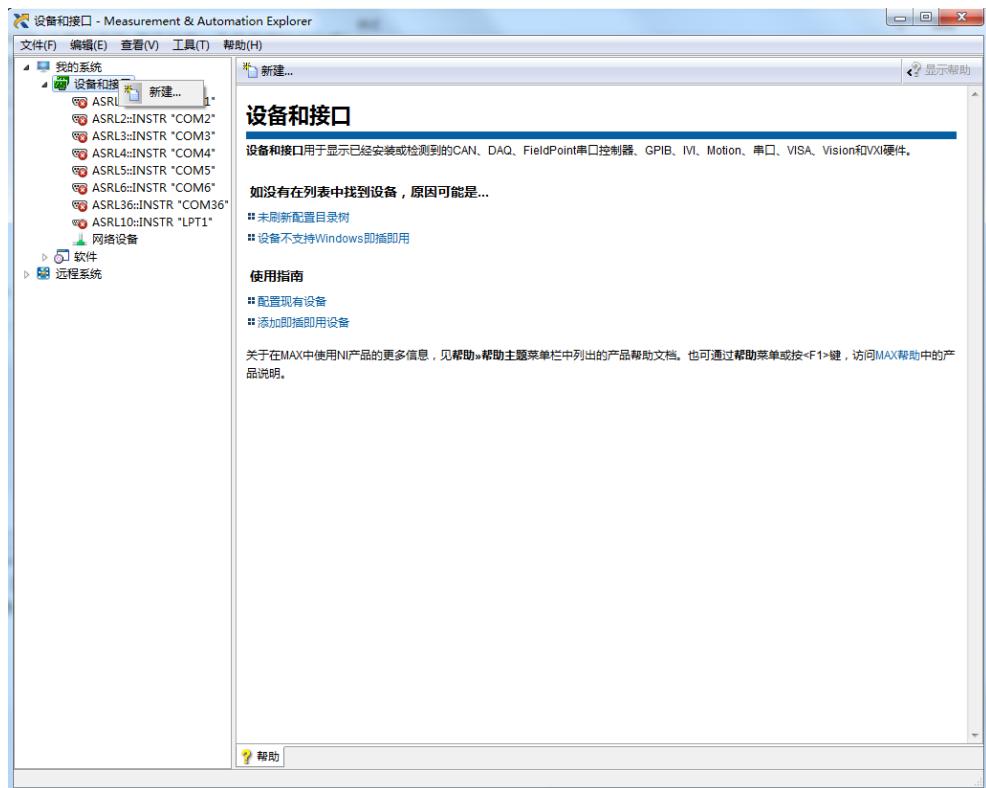
图 2 设备和接口
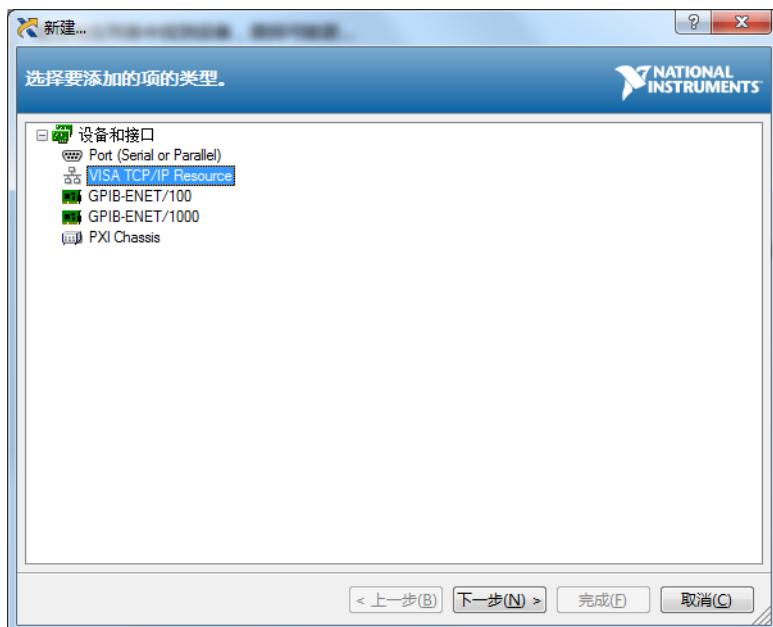
图 3 VISA TCP/IP Resource

2．选中 VISA TCP/IP Resource，点击下一步；
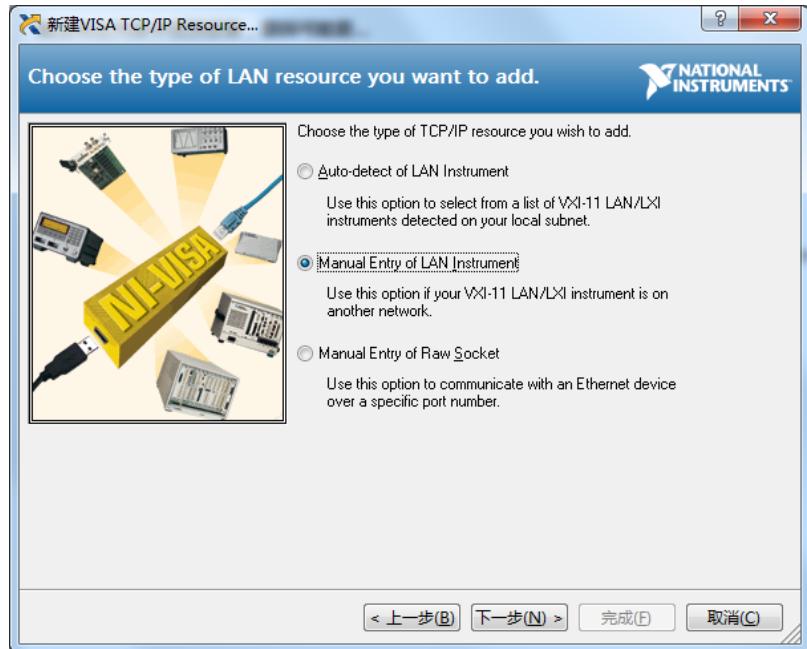
图 4 手动配置模式

3．选取 Manual Entry of LAN Instrument 模式；
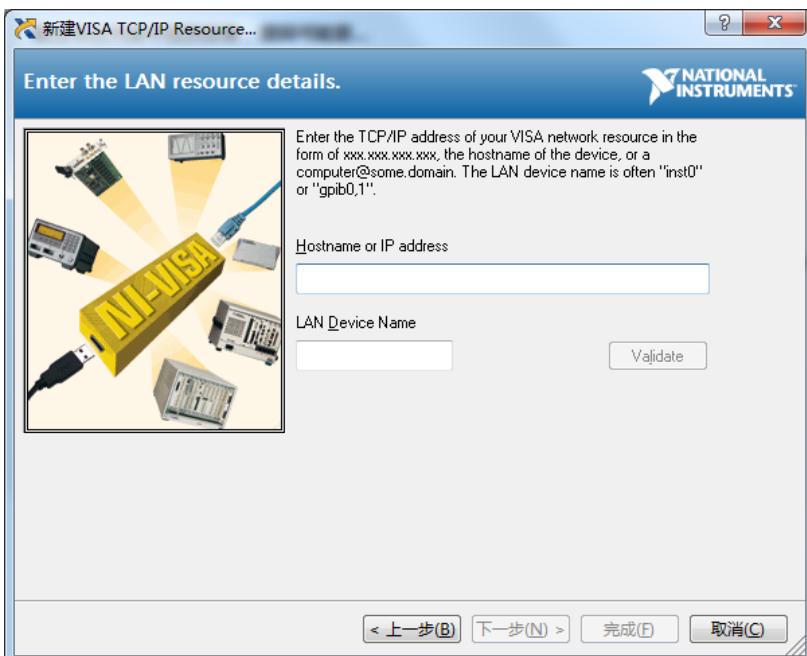
图 5 输入仪表 IP 地址和设备名称

4．输入仪表 IP 地址和设备名称，如"127.0.0.1"和"inst98"
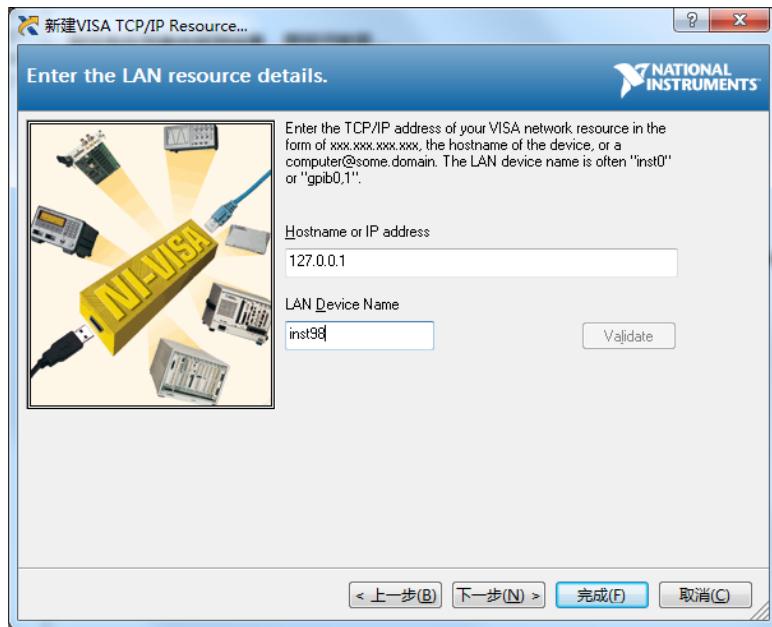
图 6 仪表 IP 地址和设备名称

注：IP address 和 Device Name 名称和本机的"http://127.0.0.1:8888/"网页下 Auto Test Configuration 的设备编号、设备地址、自动化地址等项匹配起来，才能够正确运行；

5．成功建立连接后，如图 7 所示；
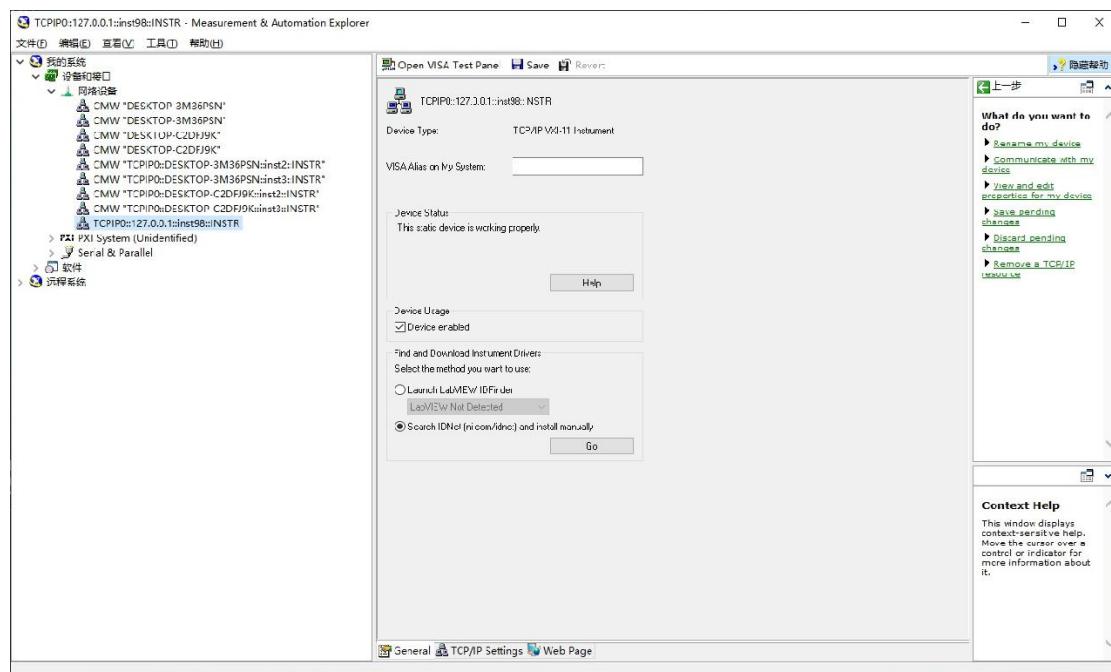
图 7 建立连接

6.右键建立的目标连接上，点击 Open VISA Panel 进行通信，如图 8 所示；
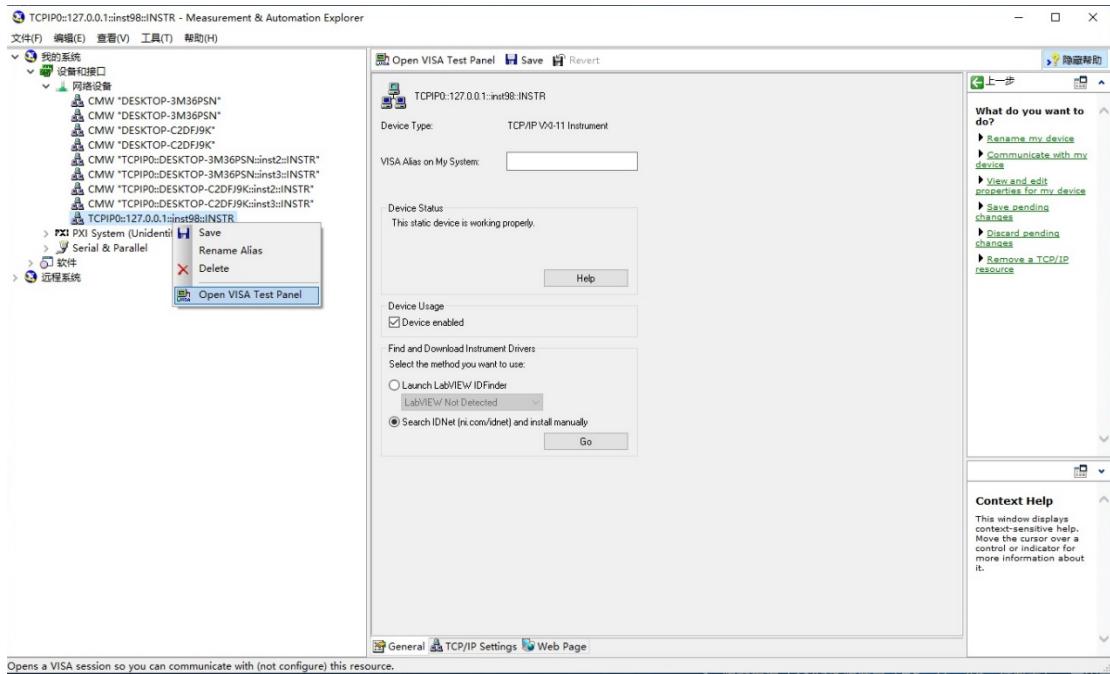
图 8 Open VISA Test Panel

7.点击 viWrite 属性页，输入指令，如"*IDN?"，再单击右下角的"Execute"，执行指令；
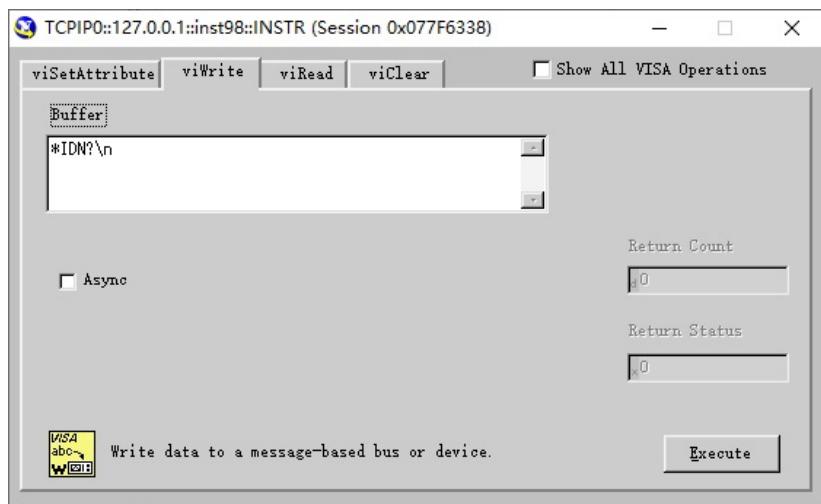
图 9 发送执行指令

8.点击 viRead 属性页，再点击右下角的"Execute"，执行指令，此时可以获取上一条命令返回的内容，如图 10 所示。
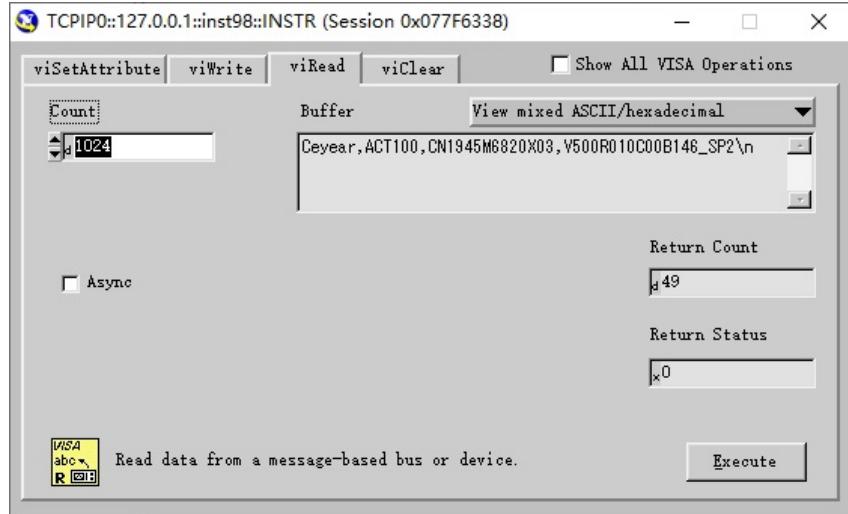
图 10 接收执行指令

3 公共通用程控命令

1) *IDN?

Queries the instrument identification string.

2) *DEV?

Queries the device number, as shown in the Remote Settings
section of the setup dialog as "Assigned Instrument".

3) *RST

RESET, resets the sub-instrument.

4) *OPC

Sets bit 0 in the event status register when all preceding commands have been executed. This
bit can be used to initiate a service request. The query form writes a "1" into the output buffer
as soon as all preceding commands have been executed. This is used for command synchronization.

To perform this command for all sub-instruments, use *GOPC instead.

5) *CLS

Sets the status byte (STB), the standard event register (ESR) and the EVENt part of the
QUEStionable and the OPERation register to zero. The command does not alter the mask and
transition parts of the registers. It clears the output buffer. To perform this command for all sub-
instruments, use *GCLS instead.

6) SYSTem:PRESet ['<Application>']

A PRESet sets the parameters of the current sub-instrument to default values suitable
for local/manual interaction. A RESet sets them to default values suitable for remote
operation.

The commands can be applied to the complete sub-instrument or to a specific application

instance of the sub-instrument.

Parameters:

'<Application>' 	String specifying an application and instance to be reset/preset Example: 'LTE Meas1' for LTE UE measurements instance 1 Omitting the instance(e.g. 'LTE Meas') selects instance 1.The supported strings are listed in the table below. Depending on your model and installation, only a subset is relevant for you.

7) SYSTem:BASE:OPTion:VERSion? [<Application>]

Returns version information for installed software packages. The "Setup" dialog provides this information in section "SW/HW-Equipment > Installed Software".

You can either query a list of all installed packages and their versions or you can query the version of a single package specified via parameter <Application>:

● <Application> specified: A string is returned, indicating the version of the <Application>. If the specified <Application> is unknown / not installed, "0" is returned.

● <Application> omitted: A string is returned, containing a list of all installed software packages and their version in the format "<PackageName1>,<Version1>;<PackageName2>,<Version2>;..."

Query parameters:

<Application> 	String selecting the software package for which the version shall be queried
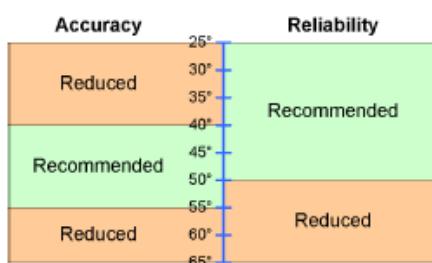
Return values:

<SoftwareVersion> String containing a single version or a list of applications and Versions

8) SENSe:BASE:TEMPerature:OPERating:INTernal?

Queries the temperature within the instrument. The returned value indicates the average of the temperatures measured at the individual RF modules.

The recommended temperature range is illustrated in the following figure.

Accuracy		Reliability
Reduced	25°–40°	Recommended
Recommended	40°–55°	
Reduced	55°–65°	Reduced

Return values:

<Temperature> 	Temperature in degrees
Default unit: °C

9) SYSTem:BASE:DEVice:SUBinst?

Queries the number of the addressed sub-instrument and the total number of subinstruments.

Return values:

<CurSubInst> 	Number of the addressed sub-instrument, as indicated in a VISA resource string for VXI-11

0: instrument 1

1: instrument 2

2: instrument 3

3: instrument 4

<SubInstCount>   Total number of sub-instruments

1: all hardware resources are assigned to a single sub-instrument

2: the physical instrument is split into two sub-instruments

4: the physical instrument is split into four sub-instruments

10) SYSTem:BASE:OPTion:LIST? [<OptionType>[, <Validity>]]

Returns a list of installed software options (licenses), hardware options, software packages and firmware applications.

The list can be filtered using the described parameters. If this results in an empty list, a "0" is returned.

The meaning of the filter <Validity> depends on the <OptionType> as follows:

● A software option is valid if there is an active license key for it. The value "FUNCtional" is not relevant.

● A hardware option is functional if the corresponding hardware and all its components can be used (no defect detected). The value "VALid" is not relevant.

● A firmware application is functional if the required hardware, software and license keys are available and functional. The value "VALid" is not relevant.

● For software packages the filter has no effect.

Parameters:

<OptionType>   SWOPtion | HWOPtion | SWPackage | FWA | ALL

List only software options, hardware options, software packages

or firmware applications. By default or if ALL is selected, all types are listed.

<Validity>   FUNCtional | VALid | ALL

List only functional entries or only valid entries. By default or if ALL is selected, the list is not filtered according to the validity.

11) CONFigure:FDCorrection:DEACtivate<Connector>[,<Direction>[,<RFConverter>]]

Deactivates any correction tables for a specific RF connector or a specific connector / converter combination. For bidirectional connectors, the tables can be deactivated for both directions or for one direction.

Setting parameters:

<Connector>   Selects a single RF connector

<Direction>   RXTX | RX | TX

Specifies the direction for which the tables shall be deactivated.RX means input and TX means output. For a pure output connector,RX is ignored.

RXTX: both directions (for output connector same effect as TX)

RX: input (not allowed for output connector)

TX: output

Default: RXTX

<RFConverter>   RF1 | RF2 | RF3 | RF4

RX and TX module in the path (RFn = RXn, TXn)

12) CONFigure:FDCorrection:ACTivate <Connector>, <TableName>[, <Direction>[, <RFConverter>]]

Activates a correction table for one or more signal paths using a specific RF connector.
For bidirectional connectors, the table can be applied to both directions or to one direction.
It is possible to assign different tables to the directions of a bidirectional connector.
A table can be assigned to all paths using the connector or to paths with a specific connector
/ converter combination.
Setting parameters:

<Connector>	Selects a single RF connector
<TableName>	String parameter identifying the table. To display a list of existing tables, use the command CONFigure:BASE:FDCorrection:CTABle:CATalog?.
<Direction>	RXTX | RX | TX
	Specifies the direction to which the correction table shall be applied. RX means input and TX means output. For a pure output connector, RX is ignored.
	RXTX: both directions (for output connector same effect as TX)
	RX: input (not allowed for output connector)
	TX: output
	Default: RXTX
<RFConverter>	RF1 | RF2 | RF3 | RF4
	RX or TX module in the path (RFn = RXn / TXn)
	If omitted, the table is activated for any paths using the specified connector, independent of the used RX/TX module.

13) CONFigure:FDCorrection:USAGe? <Connector>[, <RFConverter>]

Lists the correction tables assigned to a specific RF connector or a specific connector / converter combination.
Setting parameters:

<Connector>	Selects a single RF connector

Query parameters:

<RFConverter>	RF1 | RF2 | RF3 | RF4
	RX and TX module in the path (RFn = RXn, TXn)
	If the specified converter value is incompatible with the connector or the results are ambiguous because this parameter is omitted,NAV is returned.

Return values:

<RXTableName>	String identifying the table assigned to the RX direction. If no table is active, an empty string is returned. For pure output connectors,the RX string is empty.
<TXTableName>	String identifying the table assigned to the TX direction. If no table is active, an empty string is returned. For pure input connectors, the TX string is empty.

14) CONFigure: FDCorrection:CTABle:CREate <TableName>{, <Frequency>, <Correction>}...

Creates a new correction table for frequency-dependent attenuation and stores it in the

RAM. If a table with the given name already exists for the addressed sub-instrument, it is overwritten.

The parameter pairs <Frequency>, <Correction> are used to fill the table. At least one parameter pair has to be entered. A command with an incomplete pair (e.g. <Frequency> without <Correction>) is ignored completely. To add entries to an existing table, see CONFigure:BASE:FDCorrection:CTABle:ADD.

You can enter parameter pairs in any order. The table entries (pairs) are automatically sorted from lowest to highest frequency.

Setting parameters:

<TableName>   String parameter used to identify the table by other commands and to store the table on the system drive. The string must comply to Windows™ file name conventions, see Mass Memory Commands.

<Frequency>   Range: 100E+6 Hz to 6E+9 Hz

               Increment: 0.1 Hz

               Default unit: Hz

<Correction>   Range: -50 dB to 90 dB

               Increment: 0.01 dB

               Default unit: dB

4 NR Sub 程控命令

4.1 General Configuration

4.1.1 I/O Port Configuration

4.1.2 Analysis Setting

1) **CONFigure:NRSub:MEAS<i>:BAND <Band>**

Selects the operating band (OB). The allowed input range depends on the duplex mode (FDD or TDD).

Parameters:

<Band>FDD: OB1 | OB2 | OB3 | OB5 | OB7 | OB8 | OB12 | OB20 | OB25 | OB28 | OB66 | OB70
     | OB71 | OB74 | OB80 | ... | OB84 | OB86
     TDD: OB34 | OB38 | ... | OB41 | OB50 | OB51 | OB77 | ... | OB84 | OB86
     *RST:OB1

Example: CONFigure:NRSub:MEASurement:BAND OB1

2) **CONFigure:NRSub:MEAS<i>:RFSettings:EATTenuation <RFinputExtAtt>**

Defines an external attenuation (or gain, if the value is negative), to be applied to the RF input connector.

Parameters:

<RFinputExtAtt>numeric

               Range: -50 dB   to   90 dB
               *RST: 0 dB

Default unit: dB

Example: CONFigure:NRSub:MEAS:RFSettings:EATTenuation 2

3) CONFigure:NRSub:MEAS<i>:RFSettings:ENPower <ExpNomPow>

Sets the expected nominal power of the measured RF signal.

Parameters:

<ExpNomPow>numeric

        The range of the expected nominal power can be calculated as follows:

        Range (Expected Nominal Power) = Range (Input Power) + External Attenuation - User Margin

        *RST: 0 dBm

        Default unit: dBm

Example: CONFigure:NRSub:MEAS:RFSettings:ENPower 7

4) CONFigure:NRSub:MEAS<i>:RFSettings:FREQuency <AnalyzerFreq>

Selects the center frequency of the measured carrier.

Using the unit CH, the frequency can be set via the channel number. The allowed channel number range depends on the operating band.

Parameters:

<AnalyzerFreq>numeric

        Default unit: Hz

Example: CONFigure:NRSub:MEAS:RFSettings:FREQuency 1850E+6

5) CONFigure:NRSub:MEAS<i>:RFSettings:UMARgin <UserMargin>

Sets the margin that the measurement adds to the expected nominal power to determine the reference power. The reference power minus the external input attenuation must be within the power range of the selected input connector.

Parameters:

<UserMargin>numeric

        Range: 0 dB to (55 dB + external attenuation - expected nominal power)

        *RST: 0 dB

        Default unit: dB

Example: CONFigure:NRSub:MEAS:RFSettings:UMARgin 5

4.2 Multi-Field Measurement Configuration

4.2.1 Measurement Control And State

1) INITiate:NRSub:MEAS<i>:MEValuation

Starts, stops, or aborts the measurement:

·INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.

·STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.

·ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.

Use FETCh...STATe? to query the current measurement state.

Example:INIT:NRSub:MEAS:MEValuation

2) CONFigure:NRSub:MEAS<i>:MEValuation:REPetition <Repetition>

Specifies the repetition mode of the measurement. The repetition mode specifies whether the measurement is stopped after a single shot or repeated continuously. Use CONFigure:..:MEAS<i>:...:SCOunt to determine the number of measurement intervals per single shot.

Parameters:

<Repetition>SINGleshot | CONTinuous

        SINGleshot: Single-shot measurement

        CONTinuous: Continuous measurement

        *RST:SING

Example:CONFigure:NRSub:MEASurement:MEValuation:REPetition SING

3) CONFigure:NRSub:MEAS<i>:MEValuation:MOEXception <MeasOnException>

Specifies whether measurement results identified as faulty or inaccurate are rejected.

Parameters:

<MeasOnException>OFF | ON

        OFF: Faulty results are rejected.

        ON: Results are never rejected.

        *RST:OFF

Example: CONFigure:NRSub:MEAS:MEValuation:MOEXception ON

4.2.2 Enabling Result And Views

1) CONFigure:NRSub:MEAS<i>:MEValuation:RESult[:ALL] <EVM>, <MagnitudeError>, <PhaseError>, <InbandEmissions>, <EVMversusC>, <IQ>, <EquSpecFlatness>, <TXMeasurement>, <SpecEmMask>, <ACLR>[, <PowerMonitor>, <PowerDynamics>]

Enables or disables the evaluation of results in the multi-evaluation measurement. This command combines most other CONFigure:NRSub:MEAS<i>:MEValuation:RESult... commands.

Parameters:

<EVM>   OFF | ON

        Error vector magnitude

        OFF: Do not evaluate results

        ON: Evaluate results

        *RST:ON

<MagnitudeError> OFF | ON

        *RST:OFF

<PhaseError>   OFF | ON

        *RST:OFF

<InbandEmissions>OFF | ON

        *RST:ON

<EVMversusC>   OFF | ON

        EVM vs. subcarrier

        *RST:OFF

<IQ>   OFF | ON

        I/Q constellation diagram

        *RST:OFF

<EquSpecFlatness>OFF | ON
                Equalizer spectrum flatness
                *RST:ON

<TXMeasurement>OFF | ON
                TX measurement statistical
                overview
                *RST:ON

<SpecEmMask>   OFF | ON
                Spectrum emission mask
                *RST:ON

<ACLR>   OFF | ON
                Adjacent channel leakage
                power ratio
                *RST:ON

<PowerMonitor> OFF | ON
                *RST:OFF

<PowerDynamics> OFF | ON
                *RST:OFF
Example:
CONF:NRSub:MEAS:MEValuation:RESult:ALL ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON

4.2.3 Measurement Parameters

1) **CONFigure:NRSub:MEAS<i>:MEValuation:DMODe <Mode>**
Selects the duplex mode of the signal: FDD or TDD.
Parameters:
<Mode>FDD | TDD
       *RST:FDD
Example: CONFigure:NRSub:MEAS:MEV:DMODe FDD

2) **CONFigure:NRSub:MEAS<i>:MEValuation:BWConfig<SubCarrSpacing>, <ChannelBW>**
Specifies the subcarrier spacing and the channel bandwidth.
Parameters:
<SubCarrSpacing>   S15K | S30K | S60K
                      Subcarrier spacing 15 kHz, 30 kHz, 60 kHz.
                      *RST:S30K

<ChannelBW>   B005 | B010 | B015 | B020 | B025 | B030 | B040 | B050 | B060 |
                      B080 | B090 | B100
                      Channel bandwidth 5 MHz to 100 MHz (Bxxx = xxx MHz).
                      *RST:B020
Example: CONFigure:NRSub:MEAS:MEValuation:BWConfig S15K, B010

3) **CONFigure:NRSub:MEAS<i>:MEValuation:PCOMp <PhaseComp>, <UserDefFreq>**
Specifies the phase compensation applied by the UE during the modulation and upconversion.
Parameters:

<PhaseComp> OFF | CAF | UDEF
              OFF: no phase compensation
              CAF: phase compensation for carrier frequency
              UDEF: phase compensation for frequency
              *RST:OFF
<UserDefFreq>numeric
              Frequency for <PhaseComp> = UDEF
              Range: 0 Hz to 10E+9 Hz
              *RST: 1.95E+9 Hz
              Default unit: Hz
Example: CONFigure:NRSub:MEAS:MEValuation:PCOMp UDEF, 1955E+6

4) **CONFigure:NRSub:MEAS<i>:MEValuation:PLCid <PhsLayerCellID>**

Specifies the physical cell ID.
Parameters:
<PhsLayerCellID>integer
                Range: 0 to 1007
                *RST: 0
Example: CONFigure:NRSub:MEAS:MEValuation:PLCid 5

4.2.4 Modulation Measurement Setting

1) **CONFigure:NRSub:MEAS<i>:MEValuation:SCOunt:MODulation <StatisticCount>**

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.
Parameters:
<StatisticCount>numeric
              Range: 1 slot to 1000 slots
              *RST: 20 slots
Example: CONFigure:NRSub:MEAS:MEValuation:SCOunt:MODulation 20

4.2.5 Spectrum Measurement Setting

1) **CONFigure:NRSub:MEAS<i>:MEValuation:SCOunt:SPECtrum:ACLR <StatisticCount>**

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.
Separate statistic counts for ACLR and spectrum emission mask measurements are supported.
Parameters:
<StatisticCount>numeric
              Number of measurement intervals (slots)
              Range: 1 slot to 1000 slots
              *RST: 20 slots
Example: CONFigure:NRSub:MEAS:MEValuation:SCOunt:SPECtrum:ACLR 30

2) **CONFigure:NRSub:MEAS<i>:MEValuation:SCOunt:SPECtrum:**

SEMask <StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.

Separate statistic counts for ACLR and spectrum emission mask measurements are supported.

Parameters:

<StatisticCount>numeric

     Number of measurement intervals (slots)

     Range: 1 slot to 1000 slots

     *RST: 20 slots

Example: CONFigure:NRSub:MEAS:MEValuation:SCOunt:SPECtrum:SEMask 30

4.2.6 Power Measurement Setting

1) CONFigure:NRSub:MEAS<i>:MEValuation:SCOunt:POWer <StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.

Parameters:

<StatisticCount>numeric

     Number of measurement intervals

     Range: 1 subframe to 1000 subframes

     *RST: 20 subframes

Example: CONFigure:NRSub:MEAS:MEValuation:SCOunt:POWer 30

4.2.7 Receiver Test Configuration

4.2.8 List Mode Setting

1) CONFigure:NRSub:MEAS<i>:MEValuation:LIST <Enable>

Enables or disables the list mode.

Parameters:

<Enable>OFF | ON

   OFF: Disable list mode

   ON: Enable list mode

   *RST:OFF

Example: CONFigure:NRSub:MEAS:MEValuation:LIST ON

2) CONFigure:NRSub:MEAS<i>:MEValuation:LIST:LRANge<StartIndex>, <NrSegments>

Select a range of measured segments. The segments must be configured using CONFigure: NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:SETup.

Parameters:

<StartIndex> numeric

     First measured segment in the range of configured segments

     Range: 1 to 2000

     *RST: 1

<NrSegments>numeric

     Number of measured segments

Range: 1 to 1000
*RST: 10
Example: CONFigure:NRSub:MEAS:MEValuation:LIST:LRANge 1,2

3) **CONFigure:NRSub:MEAS\<i>:MEValuation:LIST:SEGMent\<no>:ACLR \<ACLRstatistics>, \<ACLRenable>, \<UTRA1enable>, \<UTRA2enable>, \<NRenable>**

Defines settings for ACLR measurements in list mode for segment \<no>.
Suffix:
\<no>   1..2000
                  Segment number
Parameters:
\<ACLRstatistics>integer
                  Statistical length in slots
                  Range: 1 to 1000
                  *RST: 20

\<ACLRenable> OFF | ON
                  Enable or disable the measurement of ACLR results
                  ON: ACLR results are measured according to the other enable flags in this
                  command. ACLR results for which there is no explicit enable flag are also
                  measured (e.g. power in assigned NR channel).
                  OFF: No ACLR results at all are measured. The other enable flags in this
                  command are ignored.
                  *RST:OFF

\<UTRA1enable>OFF | ON
                  Enable or disable evaluation of first adjacent UTRA channels
                  *RST:OFF

\<UTRA2enable>OFF | ON
                  Enable or disable evaluation of second adjacent UTRA channels
                  *RST:OFF

\<NRenable>   OFF | ON
                  Enable or disable evaluation of first adjacent NR channels
                  *RST:OFF
Example: CONFigure:NRSub:MEAS:MEValuation:LIST:SEGMent2:ACLR 10,ON,OFF,OFF,ON

4) **CONFigure:NRSub:MEAS\<i>:MEValuation:LIST:SEGMent\<no>: MODulation \<ModStatistics>, \<ModEnable>, \<EVMenable>, \<MagErrorEnable>, \<PhaseErrEnable>, \<IBEenable>, \<EqSpFlatEnable>**

Defines settings for modulation measurements in list mode for segment \<no>.
Suffix:
\<no>   1..2000
                  Segment number
Parameters:
\<ModStatistics> integer
                  Statistical length in slots
                  Range: 1 to 1000
                  *RST: 20

\<ModEnable>   OFF | ON
                  Enable or disable the measurement of modulation results

ON: Modulation results are measured according to the other enable flags in this command. Modulation results for which there is no explicit enable flag are also measured (e.g. I/Q offset, frequency error and timing error).
OFF: No modulation results at all are measured. The other enable flags in this command are ignored.
*RST:OFF

<EVMenable>   OFF | ON
Enable or disable measurement of EVM
*RST:OFF

<MagErrorEnable>OFF | ON
Enable or disable measurement of magnitude error
*RST:OFF

<PhaseErrEnable> OFF | ON
Enable or disable measurement of phase error
*RST:OFF

<IBEenable>   OFF | ON
Enable or disable measurement of inband emissions
*RST:OFF

<EqSpFlatEnable> OFF | ON
Enable or disable measurement of equalizer spectrum flatness results
*RST:OFF
Example: CONF:NRSub:MEAS:MEValuation:LIST:SEGMent1:MODulation 10,ON,ON,ON,OFF,ON,ON

5) CONFigure:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:PMONitor <Enable>

Enables or disables the measurement of power monitor results for segment <no>.
Suffix:
<no>   1..2000
        Segment number
Parameters:
<Enable>OFF | ON
       *RST:OFF
Example: CONFigure:NRSub:MEAS:MEValuation:LIST:SEGMent2:PMONitor ON

6) CONFigure:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:POWer <PowerStatistics>, <PowerTXEnable>

Defines settings for the measurement of the total TX power for segment <no>.
Suffix:
<no>   1..2000
               Segment number
Parameters:
<PowerStatistics>integer
               Statistical length in subframes
               Range: 1 to 1000
               *RST: 20

<PowerTXEnable>OFF | ON
               Enables or disables the measurement of the total TX power
               *RST:OFF
Example: CONFigure:NRSub:MEAS:MEValuation:LIST:SEGMent1:POWer 5,ON

7) CONFigure:NRSub:MEAS\<i>:MEValuation:LIST:SEGMent\<no>:PUSChconfig
\<ModScheme>, \<MappingType>, \<NRBAuto>, \<NoRB>, \<StartRB>, \<NoSymbols>,
\<StartSymbol>, \<ConfigType>, \<MaxLength>, \<AddPosition>, \<lZero>
Specifies settings related to the PUSCH, for segment \<no>.
Suffix:
\<no>   1..2000
                   Segment number
Parameters:
\<ModScheme>   AUTO | BPSK | BPWS | QPSK | Q16 | Q64 | Q256
                   Modulation scheme
                   AUTO: Auto-detection
                   BPSK, BPWS: $\pi/2$-BPSK, $\pi/2$-BPSK with shaping
                   QPSK, Q16, Q64, Q256: QPSK, 16-QAM, 64-QAM, 256-QAM
                   *RST:QPSK

\<MappingType>A | B
                   *RST:A

\<NRBAuto>   OFF | ON
                   Automatic detection of \<NoRB> and \<StartRB>
                   *RST:ON

\<NoRB>   integer
                   Number of allocated RBs in the measured slot.
                   The allowed values depend on the SC spacing and on the channel bandwidth
                   *RST:51

\<StartRB>   integer
                   Index of the first allocated RB in the measured slot.
                   Range: 0   to   max(\<NoRB>) - \<NoRB>
                   *RST: 0

\<NoSymbols>   integer
                   Number of allocated OFDM symbols in the measured slot.
                   The allowed values depend on the mapping type.
                   *RST:14

\<StartSymbol> integer
                   Index of the first allocated symbol in the measured slot.
                   The input range depends on the mapping type and the number of symbols.
                   *RST:0

\<ConfigType>   T1 | T2
                   DM-RS setting "dmrs-Type".
                   *RST:T1

\<MaxLength>   SINGle
                   DM-RS setting "maxLength".
                   *RST:SING

\<AddPosition> integer
                   DM-RS setting "dmrs-AdditionalPosition".

Range: 0 to 3
*RST: 1

<lZero>   integer
                 DM-RS setting l_0.
                 Range: Mapping type A: 2 to 3, type B: 0
                 *RST: 3
Example: CONF:NRSub:MEAS:MEV:LIST:SEGM1:PUSChconfig AUTO,A,OFF,20,10,11,0,T1,SING,1,3

8) CONFigure:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:SEMask <SEMstatistics>, <SEenable>, <OBWenable>, <SEMenable>

Defines settings for spectrum emission measurements in list mode for segment <no>.
Suffix:
<no>   1..2000
                 Segment number
Parameters:
<SEMstatistics>integer
                 Statistical length in slots
                 Range: 1 to 1000
                 *RST: 20

<SEenable>   OFF | ON
                 Enable or disable the measurement of spectrum emission results
                 ON: Spectrum emission results are measured according to the other enable flags
                 in this command. Results for which there is no explicit enable flag are also
                 measured.
                 OFF: No spectrum emission results at all are measured. The other enable flags in
                 this command are ignored.
                 *RST:OFF

<OBWenable>   OFF | ON
                 Enable or disable measurement of occupied bandwidth
                 *RST:OFF

<SEMenable>   OFF | ON
                 Enable or disable measurement of spectrum emission trace and margin results
                 *RST:OFF
Example: CONFigure:NRSub:MEAS:MEValuation:LIST:SEGMent2:SEMask 10,ON,ON,ON

9) CONFigure:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:

SETup <SegmentLength>, <Level>, <DuplexMode>, <Band>, <Frequency>, <SubCarrSpacing>, <ChBandwidth>, <CyclicPrefix>, <ChannelType>, <DFTPre>, <RetriggerFlag>, <EvaluatOffset>[, <NetworkSigVal>]

Defines the length and analyzer settings of segment <no>. This command must be sent for all
segments to be measured
Suffix:
<no>   1..2000

                      Segment number
Parameters:
<SegmentLength>integer

Number of subframes in the segment

Range: 1 to 1000
*RST: 1

<Level>   Numeric
Expected nominal power in the segment. The range can be calculated as follows:
Range (Expected Nominal Power) = Range (Input Power) + External Attenuation
- User Margin
*RST: 0 dBm
Default unit: dBm

<DuplexMode>   FDD | TDD
Duplex mode used in the segment
*RST:FDD

<Band>   FDD: OB1 | OB2 | OB3 | OB5 | OB7 | OB8 | OB12 | OB20 | OB25 | OB28 | OB66
| OB70 | OB71 | OB74 | OB80 | ... | OB84 | OB86
TDD: OB34 | OB38 | ... | OB41 | OB50 | OB51 | OB77 | ... | OB84 | OB86
Operating band used in the segment
*RST:OB1

<Frequency>   Numeric
Center frequency used in the segment
Default unit: Hz

<SubCarrSpacing>S15K | S30K | S60K

Subcarrier spacing used in the segment: 15 kHz, 30 kHz, 60 kHz

*RST:S30K

<ChBandwidth>   B005 | B010 | B015 | B020 | B025 | B030 | B040 | B050 | B060 | B080 | B090
| B100

Channel bandwidth used in the segment, 5 MHz to 100 MHz (Bxxx = xxx MHz)

*RST:B020

<CyclicPrefix>   NORMal | EXTended

Type of cyclic prefix used in the segment

*RST:NORM

<ChannelType>   PUSCh

Channel type used in the segment

*RST:PUSC

<DFTPre>   OFF | ON

DFT precoding used in the segment or not

*RST:OFF

<RetriggerFlag>   OFF | ON | IFPower

Specifies whether the measurement waits for a trigger event before measuring the segment, or not.
For the first segment, the value OFF is always interpreted as ON.
For subsequent segments, the retrigger flag is ignored for trigger mode ONCE and evaluated for trigger mode SEGMent
OFF: measure the segment without retrigger
ON: wait for a trigger event from the trigger source configured
IFPower: wait for a trigger event from the trigger source "IF Power"

*RST:ON

<EvaluatOffset>   integer

Number of subframes at the beginning of the segment that are not evaluated

Range: 0 to 1000
*RST: 0

<NetworkSigVal> NS01 | NS02 | NS03 | NS04 | NS05 | NS06 | NS07 | NS08 | NS09 | NS10 | NS11 | NS12 | NS13 | NS14 | NS15 | NS16 | NS17 | NS18 | NS19 | NS20 | NS21 | NS22 | NS23 | NS24 | NS25 | NS26 | NS27 | NS28 | NS29 | NS30 | NS31 | NS32 | NS35

Network signaled value to be used for the segment

*RST:NS01

Example:
CONF:NRS:MEAS:MEV:LIST:SEGM1:SET 10,1,FDD,OB1,2E+9,S30K,B100,NORM,PUSCh,OFF,OFF,0,NS10

4.2.9 Trigger Setting

1) **TRIGger:NRSub:MEAS<i>:MEValuation:LIST:MODE <Mode>**
Specifies the trigger mode for list mode measurements. For configuration of retrigger flags,
Parameters:
<Mode>ONCE | SEGMent
     ONCE: A trigger event is only required to start the measurement. As a result, the entire range of segments to be measured is captured without additional trigger event. The retrigger flag of the first segment is evaluated. The other retrigger flags are ignored.
     SEGMent: The retrigger flag of each segment is evaluated. It defines whether the measurement waits for a trigger event before capturing the segment, or not.
     *RST:ONCE
Example: TRIGger:NRSub:MEAS:MEValuation:LIST:MODE ONCE

2) **TRIGger:NRSub:MEAS<i>:MEValuation:SLOPe <Slope>**

Qualifies whether the trigger event is generated at the rising or at the falling edge of the trigger pulse (valid for external and power trigger sources).
Parameters:
<Slope>REDGe | FEDGe
        REDGe: Rising edge
        FEDGe: Falling edge
        *RST:REDG
Example: TRIGger:NRSub:MEAS:MEValuation:SLOPe FEDGe

3) TRIGger:NRSub:MEAS<i>:MEValuation:SOURce <Source>

Selects the source of the trigger events. Some values are always available. They are listed below. Depending on the installed options, additional values are available. You can query a list of all supported values via TRIGger:...:CATalog:SOURce?.
Parameters:
<Source>string
        'Free Run (Fast Sync)'
        Free run with synchronization
        'Free Run (No Sync)'
        Free run without synchronization
        'IF Power'
        Power trigger (received RF power)
        *RST:'IF Power'
Example: TRIGger:NRSub:MEAS:MEValuation:SOURce 'IF Power'

4) TRIGger:NRSub:MEAS<i>:MEValuation:THReshold <TrigThreshold>

Defines the trigger threshold for power trigger sources.
Parameters:
<TrigThreshold>numeric
        Range: -50 dB to 0 dB
        *RST: -20 dB
        Default unit: dB (full scale, i.e. relative to reference level minus external
                      attenuation)
 Example: TRIGger:NRSub:MEAS:MEValuation:THReshold -30

5) TRIGger:NRSub:MEAS<i>:MEValuation:TOUT <TriggerTimeOut>

Selects the maximum time that the measurement waits for a trigger event before it stops in remote control mode or indicates a trigger timeout in manual operation mode. This setting has no influence on "Free Run" measurements.
Parameters:
<TriggerTimeOut>numeric | ON | OFF
        Range: 0.01 s to 167772.15 s
        *RST: 0.1 s
        Default unit: s
        ON | OFF enables or disables the timeout check.
Example: TRIGger:NRSub:MEAS:MEValuation:TOUT 1

4.2.10 Querying Measurement Result

1) FETCh:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:ACLR:AVERage?

Return ACLR single value results for segment <no> in list mode.
The values described below are returned by FETCh commands. The first four values (reliability to out-of-tolerance result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Suffix:
<no>   1..1000
Return values:
<1_Reliability>   Decimal

<2_SegReliability> Decimal
                    Reliability indicator for the segment

<3_StatistExpired> Decimal
                    Reached statistical length in slots

<4_OutOfTol>   Decimal
                    Percentage of measured subframes with failed limit check
                    Default unit: %

<5_UTRA2neg>   Float
                    ACLR for the second UTRA channel with lower frequency
                    Default unit: dB

<6_UTRA1neg>   Float
                    ACLR for the first UTRA channel with lower frequency
                    Default unit: dB

<7_NRneg>   Float
                    ACLR for the first NR channel with lower frequency
                    Default unit: dB

<8_Carrier>   Float
                    Power in the allocated NR channel
                    Default unit: dBm

<9_NRpos>   Float
                    ACLR for the first NR channel with higher frequency
                    Default unit: dB

<10_UTRA1pos>   Float
                    ACLR for the first UTRA channel with higher frequency
                    Default unit: dB

<11_UTRA2pos>   Float
                    ACLR for the second UTRA channel with higher frequency
                    Default unit: dB
Example: FETCh:NRSub:MEAS:MEValuation:LIST:SEGMent2:ACLR:AVERage?

2) **FETCh:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:ESFLatness:AVERage?**
Return equalizer spectrum flatness single value results for segment <no> in list mode.
Suffix:
<no>   1..1000
Return values:
<1_Reliability>   Decimal

<2_SegReliability> Decimal
                    Reliability indicator for the segment

<3_StatistExpired> Decimal

Reached statistical length in slots

<4_OutOfTol>   Decimal
                  Percentage of measured subframes with failed limit check
                  Default unit: %

<5_Ripple1>   Float
                  Max (range 1) - min (range 1)
                  Default unit: dB

<6_Ripple2>   Float
                  Max (range 2) - min (range 2)
                  Default unit: dB

<7_MaxR1MinR2>   Float
                  Max (range 1) - min (range 2)
                  Default unit: dB

<8_MaxR2MinR1>   Float
                  Max (range 2) - min (range 1)
                  Default unit: dB

<9_MinR1>   Float
                  Min (range 1)
                  Default unit: dB

<10_MaxR1>   Float
                  Max (range 1)
                  Default unit: dB

<11_MinR2>   Float
                  Min (range 2)
                  Default unit: dB

<12_MaxR2>   Float
                  Max (range 2)
                  Default unit: dB

Example: FETCH:NRSub:MEAS:MEValuation:LIST:SEGMent1:ESFLatness:AVERage?

3) FETCh:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:IEMission:MARGin:EXTReme:RBINdex?

Return resource block indices of the inband emission measurement for segment <no> in list mode.
At these RB indices, the CURRent, AVERage and EXTReme margins have been detected.
Suffix:
<no>   1..1000
Return values:
<Reliability>   Decimal

<SegReliability> Decimal
                  Reliability indicator for the segment

<StatistExpired> Decimal
                  Reached statistical length in slots

<OutOfTolerance> Decimal

Percentage of measured subframes with failed limit check
Default unit: %

<RBindex>   Decimal
                     Resource block index for the general margin (at non-allocated RBs)

<IQImage>   Decimal
                     Resource block index for the IQ image margin (at image frequencies of allocated RBs)

<CarrLeakage>   Decimal
                     Resource block index for the carrier leakage margin (at carrier frequency)
Example: FETCh:NRSub:MEAS:MEValuation:LIST:SEGMent1:IEMission:MARGin:EXTReme:RBINdex?

4) FETCh:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:IEMission:MARGin: EXTReme?

Return the inband emission limit line margin results for segment <no> in list mode.
The CURRent margins indicate the minimum (vertical) distance between the limit line and the current trace. A negative result indicates that the limit is exceeded.
The AVERage, EXTReme and SDEViation values are calculated from the current margins.
Suffix:
<no>   1..1000
Return values:
<Reliability>   Decimal

<SegReliability>   Decimal
                     Reliability indicator for the segment

<StatistExpired>   Decimal
                     Reached statistical length in slots

<OutOfTolerance>Decimal
                     Percentage of measured subframes with failed limit check
                     Default unit: %

<Margin>   Float
                     Margin over all non-allocated RBs (scope of general limit component)
                     Default unit: dB

<IQImage>   Float
                     Margin at image frequencies of allocated RBs (scope of IQ image limit component)
                     Default unit: dB

Example: FETCh:NRSub:MEAS:MEValuation:LIST:SEGMent2:IEMission:MARGin:EXTReme?

5) FETCh:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:MODulation:AVERage?

Returns modulation single value results for segment <no> in list mode.
The values described below are returned by FETCh commands. The first four values (reliability to out-of-tolerance result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.
Suffix:
<no>   1..1000
Return values:
<1_Reliability>   Decimal

<2_SegReliability>   Decimal
                      Reliability indicator for the segment

<3_StatistExpired>   Decimal
                      Reached statistical length in slots

<4_OutOfTol>   Decimal
                      Percentage of measured subframes with failed limit check
                      Default unit: %

<5_EVM_RMSlow>   Float
                      EVM RMS value, low EVM window position
                      Default unit: %

<6_EVM_RMShigh>   Float
                      EVM RMS value, high EVM window position
                      Default unit: %

<7_EVMpeakLow>   Float
                      EVM peak value, low EVM window position
                      Default unit: %

<8_EVMpeakHigh>   Float
                      EVM peak value, high EVM window position
                      Default unit: %

<9_MErr_RMSlow>   Float
                      Magnitude error RMS value, low EVM window position
                      Default unit: %

<10_MErr_RMShigh>Float
                      Magnitude error RMS value, high EVM window position
                      Default unit: %

<11_MErrPeakLow>   Float
                      Magnitude error peak value, low EVM window position
                      Default unit: %

<12_MErrPeakHigh>   Float
                      Magnitude error peak value, high EVM window position
                      Default unit: %

<13_PErr_RMSlow>   Float
                      Phase error RMS value, low EVM window position
                      Default unit: deg

<14_PErr_RMSh>   Float
                      Phase error RMS value, high EVM window position
                      Default unit: deg

<15_PErrPeakLow>   Float
                      Phase error peak value, low EVM window position
                      Default unit: deg

<16_PErrPeakHigh>   Float

| | Phase error peak value, high EVM window position
Default unit: deg |

| <17_IQoffset> | Float
I/Q origin offset
Default unit: dBc |

| <18_FreqError> | Float
Carrier frequency error
Default unit: Hz |

| <19_TimingError> | Float
Transmit time error
Default unit: Ts (basic time unit) |

| <20_TXpower> | Float
User equipment power
Default unit: dBm |

| <21_PeakPower> | Float
User equipment peak power
Default unit: dBm |

| <22_RBpower> | Float
RB power
Default unit: dBm |

| <23_EVM_DMRSl> | Float
EVM DMRS value, low EVM window position
Default unit: % |

| <24_EVM_DMRSh> | Float
EVM DMRS value, high EVM window position
Default unit: % |

| <25_MErr_DMRSl> | Float
Magnitude error DMRS value, low EVM window position
Default unit: % |

| <26_MErr_DMRSh> | Float
Magnitude error DMRS value, high EVM window position
Default unit: % |

| <27_PErr_DMRS> | Float
Phase error DMRS value, low EVM window position
Default unit: deg |

| <28_PErr_DMRSh> | Float
Phase error DMRS value, high EVM window position
Default unit: deg |

Example: FETCh:NRSub:MEAS:MEValuation:LIST:SEGMent2:MODulation:AVERage?

6) **FETCh:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:POWer:AVERage?**
Return total TX power results for segment <no> in list mode.
Suffix:

<no>	1..1000

Return values:

<Reliability>	Decimal

<SegReliability>	Decimal
	Reliability indicator for the segment

<StatistExpired>	Decimal
	Reached statistical length in subframes

<OutOfTolerance>	Decimal
	Percentage of measured subframes with failed limit check
	Default unit: %

<TXpower>	Float
	Total TX power of all component carriers
	Default unit: dBm

Example: FETCh:NRSub:MEAS:MEValuation:LIST:SEGMent2:POWer:AVERage?

7) **FETCh:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:SEMask:AVERage?**

Return spectrum emission single value results for segment <no> in list mode.
The values described below are returned by FETCh commands. The first four values (reliability to out-of-tolerance result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Suffix:

<no>	1..1000

Return values:

<Reliability>	Decimal

<SegReliability>	Decimal
	Reliability indicator for the segment

<StatistExpired>	Decimal
	Reached statistical length in slots

<OutOfTolerance>	Decimal
	Percentage of measured subframes with failed limit check
	Default unit: %

<OBW>	Float
	Occupied bandwidth
	Default unit: Hz

<TXpower>	Float
	Total TX power in the slot
	Default unit: dBm

Example： FETCh:NRSub:MEAS:MEValuation:LIST:SEGMent2:SEMask:AVERage?

8) **FETCh:NRSub:MEAS<i>:MEValuation:LIST:SEGMent<no>:SEMask:MARGin:ALL?**

Return limit line margin values, i.e. vertical distances between the spectrum emission mask limit line and a trace, for segment <no> in list mode.

Suffix:

<no>	1..1000

Return values:

<1_Reliability>	Decimal
<2_SegReliability>	Decimal
	Reliability indicator for the segment
<3_StatistExpired>	Decimal
	Reached statistical length in slots
<4_OutOfTol>	Decimal
	Percentage of measured subframes with failed limit check
	Default unit: %

<5_CurrNeg1>   ...Float
<16_CurrNeg12>   Margin results for current trace, negative offsets
                      Default unit: dB

<17_CurrPos1>   ...Float
<28_CurrPos12>   Margin results for current trace, positive offsets
                      Default unit: dB

<29_AvgNeg1>   ...Float
<40_AvgNeg12>   Margin results for average trace, negative offsets
                      Default unit: dB

<41_AvgPos1>   ...Float
<52_AvgPos12>   Margin results for average trace, positive offsets
                      Default unit: dB

<53_MinNeg1>   ...Float
<64_MinNeg12>   Margin results for maximum trace (resulting in minimum margins),
                      negative offsets
                      Default unit: dB

<65_MinPos1>   ...Float
<76_MinPos12>   Margin results for maximum trace (resulting in minimum margins),
                      positive offsets
                      Default unit: dB

Example: FETCh:NRSub:MEAS:MEValuation:LIST:SEGMent2:SEMask:MARGin:ALL?

4.2.11 Signal Routing

1) **ROUTe:NRSub:MEAS<i>:SCENario:SALone <RXConnector>, <RFConverter>**
Activates the standalone scenario and selects the RF input path for the measured RF signal.
Parameters:
<RXConnector>RF connector for the input path

<RFConverter> RX module for the input path
Example: ROUTe:NRSub:MEAS:SCENario:SALone RA1, RX1

5 LTE 程控命令

5.1 General Configuration

5.1.1 General Measurement Settings

1) CONFigure:LTE:MEAS<I>:BAND <Band>

Selects the operating band (OB). The allowed input range depends on the duplex mode (FDD or TDD).

Parameters:

<Band>FDD: OB1 | ... | OB28 | OB30 | OB31 | OB65 | OB66 | OB68 | OB70 | ... | OB74

TDD: OB33 | ... | OB45 | OB48 | OB50 | OB51 | OB250

*RST: OB1 (OB33 for TDD)

2) CONFigure:LTE:MEAS<i>:DMODe <Mode>

Selects the duplex mode of the LTE signal: FDD or TDD.

For the combined signal path scenario, use:

•CONFigure:LTE:SIGN<i>[:PCC]:DMODe

•CONFigure:LTE:SIGN<i>:SCC<c>:DMODe

•CONFigure:LTE:SIGN<i>[:PCC]:DMODe:UCSPecific

Parameters:

<Mode>   FDD | TDD

➤

5.1.2 Multi-Evaluation Measurement Commands

1) INITiate:LTE:MEAS<i>:MEValuation

Starts, stops, or aborts the measurement:

•INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.

•STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.

•ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.Use FETCh...STATe? To query the current measurement state.

2) CONFigure:LTE:MEAS<i>:MEValuation:CPRefix <CyclicPrefix>

Selects the type of cyclic prefix of the LTE signal.

For the combined signal path scenario, use CONFigure:LTE:SIGN<i>:CELL:CPRefix.

Parameters:

<CyclicPrefix>   NORMal | EXTended

*RST: NORM

3) CONFigure:LTE:MEAS<i>:MEValuation:CTYPe <ChannelType>

Configures the channel type detection for the measured subframe.

Parameters:

<ChannelType>   AUTO | PUSCh | PUCCh
                 AUTO: automatic detection of channel type
                 PUSCh: only PUSCH in measured subframe
                 PUCCh: only PUCCH in measured subframe
                 *RST: PUSC

4) CONFigure:LTE:MEAS<i>:MEValuation:DSSPusch <DeltaSeqShift>

Specifies the delta sequence shift value (Δss) used to calculate the sequence shift pattern for PUSCH.

Parameters:

<DeltaSeqShift>   Range: 0 to 29
                  *RST: 0

5) CONFigure:LTE:MEAS<i>:MEValuation:GHOPping <Value>

Specifies whether group hopping is used or not.

For the combined signal path scenario, use CONFigure:LTE:SIGN<i>:CONNection:GHOPping.

Parameters:

<Value>   OFF | ON
                 *RST: OFF

6) CONFigure:LTE:MEAS<i>:MEValuation:LIST <Enable>

Enables or disables the list mode.

Parameters:

<Enable>   OFF | ON
                 OFF: Disable list mode
                 ON: Enable list mode
                 *RST: OFF

7) CONFigure:LTE:MEAS<i>:MEValuation:LIST:LRANge <StartIndex>, <NrSegments>

Select a range of measured segments. The segments must be configured using CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:SETup.

Parameters:

<StartIndex>   First measured segment in the range of configured segments
                 Range: 1 to 2000
                 *RST: 1

<NrSegments>   Number of measured segments
                 Range: 1 to 1000
                 *RST: 10

8) CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:ACLR<ACLRstatistics>, <ACLRenable>, <UTRA1enable>, <UTRA2enable>, <EUTRAenable>

Defines settings for ACLR measurements in list mode for segment <no>.

Suffix:

<no> 1..2000Segment number

Parameters:

<ACLRstatistics>	Statistical length in slots
	Range: 1 to 1000
	*RST: 20
<ACLRenable>	OFF | ON
	Enable or disable the measurement of ACLR results
	ON: ACLR results are measured according to the other enable flags in this command. ACLR results for which there is no explicit enable flag are also measured (e.g. power in assigned E-UTRA channel).
	OFF: No ACLR results at all are measured. The other enable flags in this command are ignored.
	*RST: OFF
<UTRA1enable>	OFF | ON
	Enable or disable evaluation of first adjacent UTRA channels
	*RST: OFF
<UTRA2enable>	OFF | ON
	Enable or disable evaluation of second adjacent UTRA channels
	*RST: OFF
<EUTRAenable>	OFF | ON
	Enable or disable evaluation of first adjacent E-UTRA channels
	*RST: OFF

9) CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:PMONitor <Enable>

Enables or disables the measurement of power monitor results (power of one carrier) for segment <no>.

Suffix:

<no>   1..2000Segment number

Parameters:

<Enable>	OFF | ON
	*RST: OFF

10) CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:POWer<PowerStatistics>, <PowerEnable>

Defines settings for the measurement of the total TX power of all carriers for segment <no>.

Suffix: <no>   1..2000Segment number

Parameters:

<PowerStatistics>	Statistical length in subframes

Range: 1   to   1000

*RST: 20

<PowerEnable>   OFF | ON

Enables or disables the measurement of the total TX power

*RST: OFF

11) CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:SEMask <SEMstatistics>, <SEenable>, <OBWenable>, <SEMenable>

Defines settings for spectrum emission measurements in list mode for segment <no>.

Suffix:

<no>   1..2000 Segment number

Parameters:

<SEMstatistics>   Statistical length in slots

Range: 1   to   1000

*RST: 20

<SEenable>   OFF | ON

Enable or disable the measurement of spectrum emission results

ON: Spectrum emission results are measured according to the other enable flags in this command. Results for which there is no explicit enable flag are also measured.

OFF: No spectrum emission results at all are measured. The other enable ，flags in this command are ignored.

*RST: OFF

<OBWenable>   OFF | ON

Enable or disable measurement of occupied bandwidth

*RST: OFF

<SEMenable>   OFF | ON

Enable or disable measurement of spectrum emission trace and margin results

*RST: OFF

12) CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:TDD <UplinkDownlink>, <SpecialSubframe>

Defines segment settings only relevant for the duplex mode TDD.

For general segment configuration, see CONFigure:LTE:MEAS<i>:MEValuation:LIST: SEGMent<no>:SETup.

Suffix:

<no>   1..2000   Segment number

Parameters:

<UplinkDownlink>   UL-DL configuration, defining the combination of uplink, downlink and special subframes within a radio frame

Range: 0   to   6

*RST: 0

<SpecialSubframe>   Special subframe configuration, defining the inner structure of special

subframes

Range: 0 to 8

*RST: 0

13) CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:MODulation <ModStatistics>, <ModEnable>, <EVMenable>, <MagErrorEnable>, <PhaseErrEnable>, <IBEenable>, <EqSpFlatEnable>, <ModScheme>

Defines settings for modulation measurements in list mode for segment <no>.

Suffix:

<no>   1..2000 Segment number

Parameters:

<ModStatistics>   Statistical length in slots

Range: 1 to 1000

*RST: 20

<ModEnable>   OFF | ON

Enable or disable the measurement of modulation results

ON: Modulation results are measured according to the other enable flags in this command. Modulation results for which there is no explicit enable flag are also measured (e.g. I/Q offset, frequency error and timing error).

OFF: No modulation results at all are measured. The other enable flags in this command are ignored.

*RST: OFF

<EVMenable>   OFF | ON

Enable or disable measurement of EVM

*RST: OFF

<MagErrorEnable>   OFF | ON

Enable or disable measurement of magnitude error

*RST: OFF

<PhaseErrEnable>   OFF | ON

Enable or disable measurement of phase error

*RST: OFF

<IBEenable>   OFF | ON

Enable or disable measurement of inband emissions

*RST: OFF

<EqSpFlatEnable>   OFF | ON

Enable or disable measurement of equalizer spectrum flatness results

*RST: OFF

<ModScheme>   AUTO | QPSK | Q16 | Q64 | Q256

Modulation scheme used by the LTE uplink signal

AUTO: automatic detection

QPSK: QPSK

Q16: 16-QAM

Q64: 64-QAM

Q256: 256-QAM

*RST: QPSK

14) CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:RBALlocation <Auto>, <NoRB>, <Offset>

Allows you to define the resource block allocation manually for segment <no>. By default, the RB allocation is detected automatically.

Suffix:

<no>   1..2000 Segment number

Parameters:

<Auto>   OFF | ON
                        OFF: manual definition via <NoRB> and <Offset>
                        ON: automatic detection of RB allocation
                        *RST: ON

<NoRB>   Number of allocated resource blocks in each measured slot
                        Range: see table below
                        *RST: 100

<Offset>   Offset of first allocated resource block from edge of allocated UL
                        transmission bandwidth
                        Range: 0   to   max(<NoRB>) - <NoRB>
                        *RST: 0

15) CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:SETup   <SegmentLength>, <Level>, <DuplexMode>, <Band>, <Frequency>, <ChBandwidth>, <CyclicPrefix>, <ChannelType>, <RetriggerFlag>, <EvaluatOffset>[, <NetworkSigValue>]

Defines the length and analyzer settings of segment <no>. This command must be sent for all segments to be measured (CONFigure:LTE:MEAS<i>:MEValuation:LIST:LRANge).

For the TDD mode, see also CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:TDD.For SCC-specific settings, see CONFigure:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:SCC<c>.The supported frequency range depends on the instrument model and the available options. The supported range can be smaller than stated here. Refer to the preface of your model-specific base unit manual.

Suffix:

<no>   1..2000 Segment number

Parameters:

<SegmentLength>   Number of subframes in the segment
                        Range: 1   to   2000
                        *RST: 1

<Level>   Expected nominal power in the segment. The range can be calculated as
                        follows:
                        Range (Expected Nominal Power) = Range (Input Power) + External
                        Attenuation - User Margin
                        The input power range is stated in the data sheet.
                        *RST: 0 dBm

	Default unit: dBm
<DuplexMode>	FDD | TDD
	Duplex mode used in the segment
<Band>	FDD: OB1 | ... | OB28 | OB30 | OB31 | OB65 | OB66 | OB68 | OB70 | ... | OB74
	TDD: OB33 | ... | OB45 | OB48 | OB50 | OB51 | OB250
	Operating band used in the segment
	*RST: OB1 (OB33 for TDD)
<Frequency>	
	PCC center frequency used in the segment
	Range: 70E+6 Hz to 6E+9 Hz
	*RST: 1.95E+9 Hz
	Default unit: Hz
<ChBandwidth>	B014 | B030 | B050 | B100 | B150 | B200
	PCC channel bandwidth used in the segment
	B014: 1.4 MHz
	B030: 3 MHz
	B050: 5 MHz
	B100: 10 MHz
	B150: 15 MHz
	B200: 20 MHz
	*RST: B200
<CyclicPrefix>	NORMal | EXTended
	Type of cyclic prefix used in the segment
	*RST: NORM
<ChannelType>	AUTO | PUSCh | PUCCh
	AUTO: automatic detection of channel type
	PUSCh: only PUSCH in measured subframe
	PUCCh: only PUCCH in measured subframe
	*RST: PUSC
<RetriggerFlag>	OFF | ON | IFPower
	Specifies whether the measurement waits for a trigger event before measuring the segment, or not.For the first segment, the value OFF is always interpreted as ON.For subsequent segments, the retrigger flag is ignored for trigger mode ONCE and evaluated for trigger mode SEGMent, see TRIGger:LTE:MEAS<i>:MEValuation:LIST:MODE.
	OFF: measure the segment without retrigger
	ON: wait for a trigger event from the trigger source configured via TRIGger: LTE:MEAS<i>:MEValuation:SOURce
	IFPower: wait for a trigger event from the trigger source "IF Power"
	*RST: ON
<EvaluatOffset>	Number of subframes at the beginning of the segment that are not evaluated
	Range: 0 to 1000

<NetworkSigValue> NS01 | NS02 | NS03 | NS04 | NS05 | NS06 | NS07 | NS08 | NS09 | NS10
| NS11 | NS12 | NS13 | NS14 | NS15 | NS16 | NS17 | NS18 | NS19 | NS20
| NS21 | NS22 | NS23 | NS24 | NS25 | NS26 | NS27 | NS28 | NS29 | NS30
| NS31 | NS32 | NS35

Network signaled value to be used for the segment

*RST: NS01

16) CONFigure:LTE:MEAS<i>:MEValuation:MODulation:EEPeriods:PUSCh:LEADing <Leading>

Specifies an EVM exclusion period at the beginning of a subframe (detected channel type "PUSCH"). The specified period is excluded from the calculation of EVM, magnitude error and phase error results.

Parameters:

<Leading>   OFF | MS25

OFF: no exclusion

MS25: 25 µs excluded

*RST: OFF

17) CONFigure:LTE:MEAS<i>:MEValuation:MODulation:MSCHeme <ModScheme>

Selects the modulation scheme used by the LTE uplink signal.

Parameters:

<ModScheme>   AUTO | QPSK | Q16 | Q64 | Q256

Auto-detection, QPSK, 16-QAM, 64-QAM, 256-QAM

*RST: QPSK

18) CONFigure:LTE:MEAS<i>:MEValuation:MOEXception <MeasOnException>

Specifies whether measurement results that the 5256C identifies as faulty or inaccurate are rejected.

Parameters:

<MeasOnException>   OFF | ON

OFF: Faulty results are rejected

ON: Results are never rejected

*RST: OFF

19) CONFigure:LTE:MEAS<i>:MEValuation:NSValue <Value>

Selects the "network signaled value" for measurements without carrier aggregation.

For the combined signal path scenario, useCONFigure:LTE:SIGN<i>:CONNection:ASEMission.

Parameters:

<Value>   NS01 | NS02 | NS03 | NS04 | NS05 | NS06 | NS07 | NS08 | NS09 |
                       NS10 | NS11 | NS12 | NS13 | NS14 | NS15 | NS16 | NS17 | NS18 |
                       NS19 | NS20 | NS21 | NS22 | NS23 | NS24 | NS25 | NS26 | NS27 |
                       NS28 | NS29 | NS30 | NS31 | NS32 | NS35

Value NS_01 to NS_32, NS_35

20) CONFigure:LTE:MEAS<i>:MEValuation:PFORmat <PUCCHFormat>

Specifies the PUCCH format (only relevant for signals containing a PUCCH). The formats are defined in 3GPP TS 36.211.

Parameters:

<PUCCHFormat>   F1 | F1A | F1B | F2 | F2A | F2B | F3

                *RST: F1

21) CONFigure:LTE:MEAS<i>:MEValuation:CC<no>:PLCid <PhsLayerCellID>

Specifies the physical layer cell ID of component carrier CC<no>. Without carrier aggregation, you can omit <no>.For the combined signal path scenario, use:

•CONFigure:LTE:SIGN<i>:CELL[:PCC]:PCID

•CONFigure:LTE:SIGN<i>:CELL:SCC<c>:PCID

Suffix:

<no>   1..4

Parameters:

<PhsLayerCellID>   Range: 0   to   503

                *RST: 0

22) CONFigure:LTE:MEAS<i>:MEValuation:RBALlocation:NRB <NoRB>

Specifies the number of allocated RBs in the measured slot. For manual RB allocation definition without multi-cluster allocation.

Parameters:

<NoRB>   For the allowed input range, see "Resource Block Allocation".

                *RST: 100

23) CONFigure:LTE:MEAS<i>:MEValuation:RBALlocation:ORB <OffsetRB>

Specifies the offset of the first allocated resource block for manual RB allocation definition without multi-cluster allocation.

Parameters:

<OffsetRB>   For the maximum number of RBs depending on the channel BW, see "Resource Block Allocation".

                Range: 0 to maximum number of RBs minus 1

                *RST: 0

24) CONFigure:LTE:MEAS<i>:MEValuation:REPetition <Repetition>

Specifies the repetition mode of the measurement. The repetition mode specifies whether the measurement is stopped after a single shot or repeated continuously. Use CONFigure:..:MEAS<i>:...:SCOunt to determine the number of measurement intervals per single shot.See also: "Statistical Settings"

Parameters:

<Repetition>   SINGleshot | CONTinuous

                SINGleshot: Single-shot measurement

CONTinuous: Continuous measurement

*RST: SING

25) CONFigure:LTE:MEAS<i>:MEValuation:RESult[:ALL]   <EVM>, <MagnitudeError>, <PhaseError>, <InbandEmissions>, <EVMversusC>, <IQ>, <EquSpecFlatness>, <TXMeasurement>, <SpecEmMask>, <ACLR>[, <RBAllocTable>, <PowerMonitor>, <BLER>, <PowerDynamics>]

Enables or disables the evaluation of results and shows or hides the views in the multi evaluation measurement. This command combines most other CONFigure:LTE:MEAS<i>:MEValuation:RESult... commands.

Parameters:

<EVM>	OFF | ON
	Error vector magnitude
	OFF: Do not evaluate results, hide the view
	ON: Evaluate results and show the view
	*RST: ON
<MagnitudeError>	OFF | ON
	*RST: OFF
<PhaseError>	OFF | ON
	*RST: OFF
<InbandEmissions>	OFF | ON
	*RST: ON
<EVMversusC>	OFF | ON
	EVM vs. subcarrier
	*RST: OFF
<IQ>	OFF | ON
	I/Q constellation diagram
	*RST: OFF
<EquSpecFlatness>	OFF | ON
	Equalizer spectrum flatness
	*RST: ON
<TXMeasurement>	OFF | ON
	TX measurement statistical overview
	*RST: ON
<SpecEmMask>	OFF | ON
	Spectrum emission mask
	*RST: ON
<ACLR>	OFF | ON
	Adjacent channel leakage power ratio
	*RST: ON
<RBAllocTable>	OFF | ON
	Resource block allocation table
	*RST: OFF

```
<PowerMonitor>    OFF | ON
                  *RST: OFF
<BLER>            OFF | ON
                  Block error ratio
                  *RST: OFF
<PowerDynamics> OFF | ON
                  *RST: OFF
```

26) CONFigure:LTE:MEAS\<i>:MEValuation:RESult:EVMagnitude \<Enable>

Enables or disables the evaluation of results and shows or hides the views in the multi-evaluation measurement.

Mnemonic	View type	Mnemonic	View type
EVMagnitude	Error vector magnitude	EVMC	EVM vs. subcarrier
MERRor	Magnitude error	PERRor	Phase error
IEMissions	Inband emissions	IQ	I/Q constellation diagram
ESFLatness	Equalizer spectrum flatness	TXM	TX meas. statistical overview
SEMask	Spectrum emission mask	ACLR	Adj. channel leakage power ratio
RBATable	Resource block allocation table	PMONitor	Power monitor
BLER	Block error ratio	PDYNamics	Power dynamics

Parameters:

<Enable>   OFF | ON

                  OFF: Do not evaluate results, hide the view

                  ON: Evaluate results and show the view

                  *RST:Depends on measurement

27) CONFigure:LTE:MEAS\<i>:MEValuation:RESult:PDYNamics \<Enable>

Enables or disables the evaluation of results and shows or hides the views in the multi-evaluation measurement.

Mnemonic	View type	Mnemonic	View type
EVMagnitude	Error vector magnitude	EVMC	EVM vs. subcarrier
MERRor	Magnitude error	PERRor	Phase error
IEMissions	Inband emissions	IQ	I/Q constellation diagram
ESFLatness	Equalizer spectrum flatness	TXM	TX meas. statistical overview
SEMask	Spectrum emission mask	ACLR	Adj. channel leakage power ratio
RBATable	Resource block allocation table	PMONitor	Power monitor
BLER	Block error ratio	PDYNamics	Power dynamics

Parameters:

<Enable>   OFF | ON

OFF: Do not evaluate results, hide the view

ON: Evaluate results and show the view

*RST:Depends on measurement

28) CONFigure:LTE:MEAS<i>:MEValuation:SCOunt:MODulation <StatisticCount>
Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.See also: "Statistical Settings"
Parameters:
<StatisticCount>   Number of measurement intervals (slots)
Range: 1 slot   to   1000 slots
*RST: 20 slots

29) CONFigure:LTE:MEAS<i>:MEValuation:SCOunt:POWer <StatisticCount>
Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.See also: "Statistical Settings"
Parameters:
<StatisticCount>   Number of measurement intervals
Range: 1 subframe   to   1000 subframes
*RST: 20 subframes

30) CONFigure:LTE:MEAS<i>:MEValuation:SCOunt:SPECtrum:ACLR

\<StatisticCount\>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.See also: "Statistical Settings"Separate statistic counts for ACLR and spectrum emission mask measurements are supported.

Parameters:

\<StatisticCount\>   Number of measurement intervals (slots)

Range: 1 slot   to   1000 slots

*RST: 20 slots

31) CONFigure:LTE:MEAS\<i\>:MEValuation:SCOunt:SPECtrum:SEMask \<StatisticCount\>

Specifies the statistic count of the measurement. The statistic count is equal to the numberof measurement intervals per single shot.See also: "Statistical Settings"

Separate statistic counts for ACLR and spectrum emission mask measurements are supported.

Parameters:

\<StatisticCount\>   Number of measurement intervals (slots)

Range: 1 slot   to   1000 slots

*RST: 20 slots

32) CONFigure:LTE:MEAS\<i\>:MEValuation:SSUBframe \<SpecialSubframe\>

Selects a special subframe configuration, defining the inner structure of special subframes. This parameter is only relevant for frame structure "Type 2" (CONFigure:LTE: MEAS\<i\>:FSTRucture?).The special subframe configurations are defined in 3GPP TS 36.211, chapter 4, "Frame Structure".For the combined signal path scenario, use CONFigure:LTE: SIGN\<i\>:CELL[:PCC]:SSUBframe.

Parameters:

\<SpecialSubframe\>   Range: 0   to   8

*RST: 0

33) CONFigure:LTE:MEAS\<i\>:MEValuation:ULDL \<UplinkDownlink\>

Selects an UL-DL configuration, defining the combination of uplink, downlink and special subframes within a radio frame. This parameter is only relevant for frame structure "Type 2" (CONFigure:LTE:MEAS\<i\>:FSTRucture?).The UL-DL configurations are defined in 3GPP TS 36.211, chapter 4, "Frame Structure".For the combined signal path scenario, use CONFigure:LTE:SIGN\<i\>:CELL[:PCC]:ULDL.

Parameters:

\<UplinkDownlink\>   Range: 0   to   6

*RST: 0

34) CONFigure:LTE:MEAS\<i\>:RFSettings:CC\<no\>:FREQuency \<AnalyzerFreq\>

Selects the center frequency of component carrier CC\<no\>. Without carrier aggregation, you can omit \<no\>.Using the unit CH, the frequency can be set via the channel number. The allowed channel number range depends on the operating band, see "Frequency Bands".

For the combined signal path scenario, use:

•CONFigure:LTE:SIGN<i>:RFSettings[:PCC]:CHANnel:UL
•CONFigure:LTE:SIGN<i>:RFSettings:SCC<c>:CHANnel:UL

The supported frequency range depends on the instrument model and the available options. The supported range can be smaller than stated here. Refer to the preface of your model-specific base unit manual.

Suffix:

<no>   1..4

Parameters:

<AnalyzerFreq>   Range: 70E+6 Hz   to   6E+9 Hz
                             *RST: Depends on <no>
                             Default unit: Hz

35) CONFigure:LTE:MEAS<i>:RFSettings:ENPower <ExpNomPow>

Sets the expected nominal power of the measured RF signal.

For the combined signal path scenario, use:

•CONFigure:LTE:SIGN<i>:RFSettings[:PCC]:ENPMode
•CONFigure:LTE:SIGN<i>:RFSettings[:PCC]:ENPower
•CONFigure:LTE:SIGN<i>:RFSettings:SCC<c>:ENPMode
•CONFigure:LTE:SIGN<i>:RFSettings:SCC<c>:ENPower

Parameters:

<ExpNomPow>   The range of the expected nominal power can be calculated as follows:
                 Range (Expected Nominal Power) = Range (Input Power) + External Attenuation - User Margin
                 The input power range is stated in the data sheet.
                 *RST: 0 dBm
                 Default unit: dBm

36) CONFigure:LTE:MEAS<i>:RFSettings:UMARgin <UserMargin>

Sets the margin that the 5256C adds to the expected nominal power to determine its reference power. The reference power minus the external input attenuation must be within the power range of the selected input connector; refer to the data sheet.

For the combined signal path scenario, use:

•CONFigure:LTE:SIGN<i>:RFSettings[:PCC]:UMARgin
•CONFigure:LTE:SIGN<i>:RFSettings:SCC<c>:UMARgin

Parameters:

<UserMargin>   Range: 0 dB to (55 dB + external attenuation - expected nominal power)
                 *RST: 0 dB
                 Default unit: dB

37) FETCh:LTE:MEAS<i>:MEValuation:ACLR:AVERage?

Returns the relative ACLR values as displayed in the table below the ACLR diagram. The current and average values can be retrieved.

See also "View Spectrum ACLR".

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

Parameters:

<1_Reliability>   "Reliability Indicator"

<2_UTRA2neg>

<3_UTRA1neg>   ACLR for the second and first adjacent UTRA channels with lowerfrequency

                    Range: 0 dB   to   100 dB

                    Default unit: dB

<4_EUTRAneg>   ACLR for the first adjacent E-UTRA channel with lower frequency

                    Range: 0 dB   to   100 dB

                    Default unit: dB

    <5_EUTRA>   Power in the allocated E-UTRA channel

                    Range: -100 dBm   to   55 dBm

                    Default unit: dBm

    <6_EUTRApos>   ACLR for the first adjacent E-UTRA channel with higher frequency

                    Range: 0 dB   to   100 dB

                    Default unit: dB

    <7_UTRA1pos>

    <8_UTRA2pos>   ACLR for the first and second adjacent UTRA channels with higher frequency

                    Range: 0 dB   to   100 dB

                    Default unit: dB

38) FETCh:LTE:MEAS<i>:MEValuation:ESFLatness:AVERage?

Return current, average, extreme and standard deviation single value results of the equalizer spectrum flatness measurement. See also "Equalizer Spectrum Flatness Limits".

The ranges indicated below apply to all results except standard deviation results. The minimum for standard deviation results equals 0. The maximum equals the width of the indicated range divided by two. Exceptions are explicitly stated.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>   "Reliability Indicator"

<2_OutOfTol>   Out of tolerance result, i.e. percentage of measurement intervals of the statistic count for modulation measurements exceeding the specified equalizer spectrum flatness limits.

                    Range: 0 %   to   100 %

                    Default unit: %

<3_Ripple1>   Max (range 1) - min (range 1)

                    Range: 0 dB   to   40 dB

                    Default unit: dB

<4_Ripple2>   Max (range 2) - min (range 2)

                    Range: 0 dB   to   40 dB

	Default unit: dB

<5_MaxR1MinR2> Max (range 1) - min (range 2)

              Range: -40 dB to 40 dB

              Default unit: dB

<6_MaxR2MinR1> Max (range 2) - min (range 1)

              Range: -40 dB to 40 dB

              Default unit: dB

<7_MinR1> Min (range 1)

              Range: -20 dB to 20 dB

              Default unit: dB

<8_MaxR1> Max (range 1)

              Range: -20 dB to 20 dB

              Default unit: dB

<9_MinR2> Min (range 2)

              Range: -20 dB to 20 dB

              Default unit: dB

<10_MaxR2> Max (range 2)

              Range: -20 dB to 20 dB

              Default unit: dB

39) FETCh:LTE:MEAS<i>:MEValuation:EVMagnitude:AVERage?

Returns the values of the EVM RMS bar graphs for the SC-FDMA symbols in the measured slot. The results of the current, average and maximum bar graphs can be retrieved.

See also "View Error Vector Magnitude".

Return values:

<Reliability>   "Reliability Indicator"

<EVMlow0> <EVMhigh0> ...

<EVMlow5/6> <EVMhigh5/6>   EVM values, low and high EVM window position. Normal cyclic prefix: values for SC-FDMA symbol 0 to 6, including the reference symbol as symbol number 3.Extended cyclic prefix: values for SC-FDMA symbol 0 to 5, including the reference symbol as symbol number 2.

                                      Range: 0 % to 100 %

                                      Default unit: %

40) FETCh:LTE:MEAS<i>:MEValuation:LIST:ACLR:EUTRa:AVERage?

Return the power in the allocated E-UTRA channel for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>   "Reliability Indicator"

<EUTRA>   Comma-separated list of values, one per measured

segment

Range: -100 dBm to 55 dBm

Default unit: dBm

41) FETCh:LTE:MEAS<i>:MEValuation:LIST:ACLR:EUTRa:NEGativ:AVERage?

Return the ACLR for the first adjacent E-UTRA channel above (POSitiv) or below (NEGativ) the carrier frequency for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	"Reliability Indicator"
<EUTRA>	Comma-separated list of values, one per measured segment
	Range: 0 dB to 100 dB
	Default unit: dB

42) FETCh:LTE:MEAS<i>:MEValuation:LIST:ACLR:EUTRa:POSitiv:AVERage?

Return the ACLR for the first adjacent E-UTRA channel above (POSitiv) or below (NEGativ) the carrier frequency for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	"Reliability Indicator"
<EUTRA>	Comma-separated list of values, one per measured segment
	Range: 0 dB to 100 dB
	Default unit: dB

43) FETCh:LTE:MEAS<i>:MEValuation:LIST:ACLR:UTRA<no>:NEGativ:AVERage?

Return the ACLR for the first or second adjacent UTRA channel above (POSitiv) or below (NEGativ) the carrier frequency for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Suffix:

<no>	1..2

Selects first or second adjacent UTRA channel

Return values:

<Reliability>	"Reliability Indicator"
<UTRA>	Comma-separated list of values, one per measured segment
	Range: 0 dB to 100 dB
	Default unit: dB

44) FETCh:LTE:MEAS\<i>:MEValuation:LIST:ACLR:UTRA\<no>:POSitiv:AVERage?

Return the ACLR for the first or second adjacent UTRA channel above (POSitiv) or below (NEGativ) the carrier frequency for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Suffix:

\<no>	1..2

Selects first or second adjacent UTRA channel

Return values:

\<Reliability>	"Reliability Indicator"
\<UTRA>	Comma-separated list of values, one per measured segment
	Range: 0 dB to 100 dB
	Default unit: dB

45) FETCh:LTE:MEAS\<i>:MEValuation:LIST:ESFLatness:DIFFerence\<no>:AVERage?

Return equalizer spectrum flatness single value results (differences between ranges) for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Suffix:

\<no>	1..2
	DIFFerence1 = max (range 1) - min (range 2)
	DIFFerence2 = max (range 2) - min (range 1)

Return values:

\<Reliability>	"Reliability Indicator"
\<Difference>	Comma-separated list of values, one per measured segment
	Range: -40 dB to 40 dB
	Default unit: dB

46) FETCh:LTE:MEAS\<i>:MEValuation:LIST:ESFLatness:MAXR\<no>:AVERage?

Return equalizer spectrum flatness single value results (maximum within a range) for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Suffix:

\<no>	1..2
	Selects the range for which the maximum is returned

Return values:

\<Reliability>	"Reliability Indicator"
\<MaxR>	Comma-separated list of values, one per measured segment

Range: -20 dB   to   20 dB

Default unit: dB

47) FETCh:LTE:MEAS<i>:MEValuation:LIST:ESFLatness:MINR<no>:AVERage?

Return equalizer spectrum flatness single value results (minimum within a range) for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Suffix:

<no>	1..2
	Selects the range for which the minimum is returned

Return values:

<Reliability>	"Reliability Indicator"
<MinR>	Comma-separated list of values, one per measured segment
	Range: -20 dB to 20 dB
	Default unit: dB

48) FETCh:LTE:MEAS<i>:MEValuation:LIST:ESFLatness:RIPPle<no>:AVERage?

Return equalizer spectrum flatness single value results (ripple 1 or ripple 2) for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Suffix:

<no>	1..2
	Ripple 1 = max (range 1) - min (range 1)
	Ripple 2 = max (range 2) - min (range 2)

Return values:

<Reliability>	"Reliability Indicator"
<Ripple>	Comma-separated list of values, one per measured segment
	Range: 0 dB to 40 dB
	Default unit: dB

49) FETCh:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:ACLR:AVERage?

Return ACLR single value results for segment <no> in list mode.

The values described below are returned by FETCh commands. The first four values (reliability to out-of-tolerance result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Suffix:

<no>	1..1000

Return values:

<1_Reliability>	"Reliability Indicator"

	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Reached statistical length in slots
	Range: 0 to 1000
<4_OutOfTol>	Percentage of measured subframes with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<5_UTRA2neg> <6_UTRA1neg>	ACLR for the second and first adjacent UTRA channels below the carrier frequency
	Range: 0 dB to 100 dB
	Default unit: dB
<7_EUTRAneg>	ACLR for the first adjacent E-UTRA channel below the carrier frequency
	Range: 0 dB to 100 dB
	Default unit: dB
<8_EUTRA>	Power in the allocated E-UTRA channel
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<9_EUTRApos>	ACLR for the first adjacent E-UTRA channel above the carrier frequency
	Range: 0 dB to 100 dB
	Default unit: dB
<10_UTRA1pos>	
<11_UTRA2pos>	ACLR for the first and second adjacent UTRA channels above the carrier frequency
	Range: 0 dB to 100 dB
	Default unit: dB

50) FETCh:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:ESFLatness:AVERage?

Return equalizer spectrum flatness single value results for segment <no> in list mode.

Suffix:

<no>	1..1000

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least

	one of the measured segments.
<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Reached statistical length in slots
	Range: 0 to 1000
<4_OutOfTol>	Percentage of measured subframes with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<5_Ripple1>	Max (range 1) - min (range 1)
	Range: 0 dB to 40 dB
	Default unit: dB
<6_Ripple2>	Max (range 2) - min (range 2)
	Range: 0 dB to 40 dB
	Default unit: dB
<7_MaxR1MinR2>	Max (range 1) - min (range 2)
	Range: -40 dB to 40 dB
	Default unit: dB
<8_MaxR2MinR1>	Max (range 2) - min (range 1)
	Range: -40 dB to 40 dB
	Default unit: dB
<9_MinR1>	Min (range 1)
	Range: -20 dB to 20 dB
	Default unit: dB
<10_MaxR1>	Max (range 1)
	Range: -20 dB to 20 dB
	Default unit: dB
<11_MinR2>	Min (range 2)
	Range: -20 dB to 20 dB
	Default unit: dB
<12_MaxR2>	Max (range 2)
	Range: -20 dB to 20 dB
	Default unit: dB

51) FETCh:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:IEMission:MARGin:AVERage?

Return the PCC inband emission limit line margin results for segment <no> in list mode.

The CURRent margins indicate the minimum (vertical) distance between the limit line and the current trace. A negative result indicates that the limit is exceeded.

The AVERage, EXTReme and SDEViation values are calculated from the current margins.

Suffix:

<no>   1..1000

Return values:

<Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<StatistExpired>	Reached statistical length in slots
	Range: 0 to 1000
<OutOfTolerance>	Percentage of measured subframes with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<Margin>	
	Range: -50 dB to 110 dB
	Default unit: dB

52) FETCh:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:IEMission:MARGin:EXTReme:RBINdex?

Return resource block indices of the PCC inband emission measurement for segment <no> in list mode. At these RB indices, the CURRent and EXTReme margins have been detected.

Suffix:

| <no> | 1..1000 |

Return values:

<Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<StatistExpired>	Reached statistical length in slots
	Range: 0 to 1000
<OutOfTolerance>	Percentage of measured subframes with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<RBindex>	Resource block index of margin
	Range: 0 to 99

53) FETCh:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:MODulation:AVERage?
Returns modulation single value results for segment <no> in list mode.

The values described below are returned by FETCh commands. The first four values (reliability to out-of-tolerance result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Suffix:

<no>   1..1000

Return values:

<1_Reliability>   "Reliability Indicator"

In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.

<2_SegReliability>   Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.

<3_StatistExpired>   Reached statistical length in slots

Range: 0   to   1000

<4_OutOfTol>   Percentage of measured subframes with failed limit check

Range: 0 %   to   100 %

Default unit: %

<5_EVM_RMSlow>
<6_EVM_RMShigh>
<7_EVMpeakLow>
<8_EVMpeakHigh>   Error vector magnitude RMS and peak values for low and high EVM window position

Range: 0 %   to   100 %

Default unit: %

<9_MErr_RMSlow>
<10_MErr_RMShigh>   Magnitude error RMS value for low and high EVM window position

Range: 0 %   to   100 %

Default unit: %

<11_MErrPeakLow>
<12_MErrPeakHigh>   Magnitude error peak value for low and high EVM window position

Range: -100 % to 100 % (AVERage: 0 % to 100 %, SDEViation: 0 % to 50 %)

Default unit: %

<13_PErr_RMSlow>
<14_PErr_RMSh>   Phase error RMS value for low and high EVM window position

Range: 0 deg   to   180 deg

Default unit: deg

<15_PErrPeakLow>

<16_PErrPeakHigh>   Phase error peak value for low and high EVM window
                                   position
                                   Range: -180 deg to 180 deg (AVERage: 0 deg to 180
                                   deg, SDEViation: 0 deg to 90 deg)
                                   Default unit: deg

<17_IQoffset>   I/Q origin offset
                                   Range: -100 dBc   to   0 dBc
                                   Default unit: dBc

<18_FreqError>   Carrier frequency error
                                   Range: -80000 Hz   to   80000 Hz
                                   Default unit: Hz

<19_TimingError>   Transmit time error
                                   Range: -32000 Ts   to   32000 Ts
                                   Default unit: Ts (basic LTE time unit)

<20_TXpower>   User equipment power
                                   Range: -100 dBm   to   55 dBm
                                   Default unit: dBm

<21_PeakPower>   User equipment peak power
                                   Range: -100 dBm   to   55 dBm
                                   Default unit: dBm

<22_RBpower>   RB power
                                   Range: -100 dBm   to   55 dBm
                                   Default unit: dBm

<23_EVM_DMRSl>

<24_EVM_DMRSh>   Error vector magnitude DMRS values for low and high
                                   EVM window position
                                   Range: 0 %   to   100 %
                                   Default unit: %

<25_MErr_DMRSl>

<26_MErr_DMRSh>   Magnitude error DMRS values for low and high EVM
                                   window position
                                   Range: 0 %   to   100 %
                                   Default unit: %

<27_PErr_DMRS>

<28_PErr_DMRSh>   Phase error DMRS values for low and high EVM
                                   window position
                                   Range: 0 deg   to   180 deg
                                   Default unit: deg

54) FETCh:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:POWer:AVERage?

Return total TX power results for segment <no> in list mode.

To enable the calculation of the results, see CONFigure:LTE:MEAS<i>:MEValuation:LIST:
SEGMent<no>:POWer.

Suffix:

\<no>	1..1000

Return values:

\<Reliability>	"Reliability Indicator" In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
\<SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
\<StatistExpired>	Reached statistical length in subframes Range: 0 to 1000
\<OutOfTolerance>	Percentage of measured subframes with failed limit check Range: 0 % to 100 %
\<TXpower>	Total TX power of all component carriers Range: -100 dBm to 55 dBm Default unit: dBm

55) FETCh:LTE:MEAS\<i>:MEValuation:LIST:SEGMent\<no>:SEMask:AVERage?

Return spectrum emission single value results for segment \<no> in list mode.

The values described below are returned by FETCh commands. The first four values (reliability to out-of-tolerance result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Suffix:

\<no>	1..1000

Return values:

\<Reliability>	"Reliability Indicator" In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
\<SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
\<StatistExpired>	Reached statistical length in slots Range: 0 to 1000
\<OutOfTolerance>	Percentage of measured subframes with failed limit check Range: 0 % to 100 % Default unit: %
\<OBW>	Occupied bandwidth

	Range: 0 MHz to 40 MHz
	Default unit: Hz
<TXpower>	Total TX power in the slot
	Range: -100 dBm to 55 dBm
	Default unit: dBm

56) FETCh:LTE:MEAS<i>:MEValuation:LIST:SEGMent<no>:SEMask:MARGin:ALL?

Return limit line margin values, i.e. vertical distances between the spectrum emission mask limit line and a trace, for segment <no> in list mode.

Suffix:

<no>	1..1000

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Reached statistical length in slots
	Range: 0 to 1000
<4_OutOfTol>	Percentage of measured subframes with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<5_CurrNeg1> ... <16_CurrNeg12>	
<17_CurrPos1> ... <28_CurrPos12>	Margin results for current trace
	Range: -160 dB to 160 dB
	Default unit: dB
<29_AvgNeg1> ... <40_AvgNeg12>	
<41_AvgPos1> ... <52_AvgPos12>	Margin results for average trace
	Range: -160 dB to 160 dB
	Default unit: dB
<53_MinNeg1> ... <64_MinNeg12>	
<65_MinPos1> ... <76_MinPos12>	Margin results for maximum trace (i.e. minimum margins)
	Range: -160 dB to 160 dB
	Default unit: dB

57) FETCh:LTE:MEAS<i>:MEValuation:LIST:SEMask:OBW:AVERage?

Return the occupied bandwidth for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	"Reliability Indicator"
<OBW>	Comma-separated list of values, one per measured segment
	Range: 0 MHz to 40 MHz
	Default unit: Hz

58) FETCh:LTE:MEAS<i>:MEValuation:MODulation:AVERage?

Return the current, average and standard deviation single value results.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The ranges indicated below apply to all results except standard deviation results. The minimum for standard deviation results equals 0. The maximum equals the width of the indicated range divided by two. Exceptions are explicitly stated.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>	"Reliability Indicator"
<2_OutOfTol>	Out of tolerance result, i.e. percentage of measurement intervals of the statistic count for modulation measurements exceeding the specified modulation limits.
	Range: 0 % to 100 %
	Default unit: %
<3_EVM_RMSlow> <4_EVM_RMShigh> <5_EVMpeakLow> <6_EVMpeakHigh>	Error vector magnitude RMS and peak values for low and high EVM window position
	Range: 0 % to 100 %
	Default unit: %
<7_MErr_RMSlow> <8_MErr_RMShigh>	Magnitude error RMS value for low and high EVM window position
	Range: 0 % to 100 %
	Default unit: %
<9_MErrPeakLow> <10_MErrPeakHigh>	Magnitude error peak value for low and high EVM window position
	Range: -100 % to 100 % (AVERage: 0 % to 100 %, SDEViation: 0 % to 50 %)
	Default unit: %
<11_PErr_RMSlow> <12_PErr_RMSh>	Phase error RMS value for low and high EVM window position
	Range: 0 deg to 180 deg
	Default unit: deg

<13_PErrPeakLow> <14_PErrPeakHigh>	Phase error peak value for low and high EVM window position
	Range: -180 deg to 180 deg (AVERage: 0 deg to 180 deg, SDEViation: 0 deg to 90 deg)
	Default unit: deg
<15_IQoffset>	I/Q origin offset
	Range: -100 dBc to 0 dBc
	Default unit: dBc
<16_FreqError>	Carrier frequency error
	Range: -80000 Hz to 80000 Hz
	Default unit: Hz
<17_TimingError>	Transmit time error
	Range: -32000 Ts to 32000 Ts
	Default unit: Ts (basic LTE time unit)
<18_TXpower>	User equipment power
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<19_PeakPower>	User equipment peak power
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<20_RBpower>	RB power
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<21_EVM_DMRSl> <22_EVM_DMRSh>	Error vector magnitude DMRS values for low and high EVM window position
	Range: 0 % to 100 %
	Default unit: %
<23_MErr_DMRSl> <24_MErr_DMRSh>	Magnitude error DMRS values for low and high EVM window position
	Range: 0 % to 100 %
	Default unit: %
<25_PErr_DMRS> <26_PErr_DMRSh>	Phase error DMRS values for low and high EVM window position
	Range: 0 deg to 180 deg
	Default unit: deg
<27_GainImbal>	Gain imbalance
	Range: -256 dB to 256 dB
	Default unit: dB
<28_QuadError>	Quadrature error
	Range: -180 deg to 180 deg
	Default unit: deg
<29_EVM_SRS>	Error vector magnitude result for SRS signals
	Range: 0 % to 100 %
	Default unit: %

59) FETCh:LTE:MEAS<i>:MEValuation:SEMask:AVERage?

Return the current, average and standard deviation single value results of the spectrum emission measurement.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The ranges indicated below apply to all results except standard deviation results. The minimum for standard deviation results equals 0. The maximum equals the width of the indicated range divided by two. Exceptions are explicitly stated.

Return values:

<Reliability>	"Reliability Indicator"
<OutOfTolerance>	Out of tolerance result, i.e. percentage of measurement intervals of the statistic count for spectrum emission measurements exceeding the specified spectrum emission mask limits. Range: 0 % to 100 % Default unit: %
<OBW>	Occupied bandwidth Range: 0 MHz to 40 MHz Default unit: Hz
<TXpower>	Total TX power in the slot over all component carriers Range: -100 dBm to 55 dBm Default unit: dBm

60) INITiate:LTE:MEAS<i>:MEValuation

Starts, stops, or aborts the measurement:

•INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.

•STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.

•ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.

Use FETCh...STATe? to query the current measurement state.

61) ROUTe:LTE:MEAS<i>:SCENario:SALone <RXConnector>, <RFConverter>

Activates the standalone scenario and selects the RF input path for the measured RF signal.

For possible connector and converter values, see "Values for RF Path Selection".

Parameters:

<RXConnector>	RF connector for the input path
<RFConverter>	RX module for the input path

62) TRIGger:LTE:MEAS<i>:MEValuation:DELay <Delay>

Defines a time delaying the start of the measurement relative to the trigger event. This setting has no influence on free run measurements.

Parameters:

\<Delay\>	Range: -250E-6 s to 250E-6 s
	*RST: 0 s
	Default unit: s

63) TRIGger:LTE:MEAS\<i\>:MEValuation:LIST:MODE \<Mode\>

Specifies the trigger mode for list mode measurements. For configuration of retrigger flags, see CONFigure:LTE:MEAS\<i\>:MEValuation:LIST:SEGMent\<no\>:SETup.

Parameters:

\<Mode\>   ONCE | SEGMent

ONCE: A trigger event is only required to start the measurement. As a result, the entire range of segments to be measured is captured without additional trigger event. The retrigger flag of the first segment is evaluated. The other retrigger flags are ignored.

SEGMent: The retrigger flag of each segment is evaluated. It defines whether the measurement waits for a trigger event before capturing the segment, or not.

*RST: ONCE

64) TRIGger:LTE:MEAS\<i\>:MEValuation:SLOPe \<Slope\>

Qualifies whether the trigger event is generated at the rising or at the falling edge of the trigger pulse (valid for external and power trigger sources).

Parameters:

\<Slope\>   REDGe | FEDGe

REDGe: Rising edge

FEDGe: Falling edge

*RST: REDG

65) TRIGger:LTE:MEAS\<i\>:MEValuation:SOURce \<Source\>

Selects the source of the trigger events. Some values are always available in this firmware application. They are listed below. Depending on the installed options, additional values are available. A complete list of all supported values can be displayed using TRIGger:...:CATalog:SOURce?.

Parameters:

\<Source\>   'Free Run (Fast Sync)'

Free run with synchronization

'Free Run (No Sync)'

Free run without synchronization

'IF Power'

Power trigger (received RF power)

*RST: 'IF Power'

66) TRIGger:LTE:MEAS<i>:MEValuation:THReshold <TrigThreshold>

Defines the trigger threshold for power trigger sources.

Parameters:

<TrigThreshold>	Range: -50 dB to 0 dB
	*RST: -20 dB
	Default unit: dB (full scale, i.e. relative to reference level minus external attenuation)

67) TRIGger:LTE:MEAS<i>:MEValuation:TOUT <TriggerTimeOut>

Selects the maximum time that the 5256C waits for a trigger event before it stops the measurement in remote control mode or indicates a trigger timeout in manual operation mode. This setting has no influence on "Free Run" measurements.

Parameters:

<TriggerTimeOut>	Range: 0.01 s to 167772.15 s
	*RST: 0.1 s
	Default unit: s

Additional parameters: OFF | ON (disables | enables the timeout)

6 CDMA 程控命令

6.1 General Measurement Settings

6.1.1 Signal Routing

1）CONFigure:CDMA:MEAS<i>:RFSettings:EATTenuation <RFInputExtAtt>

Defines an external attenuation (or gain, if the value is negative), to be applied to the RF input connector.

This command is only relevant for the standalone scenario. For the combined signal path scenario, use *CONFigure:CDMA:SIGN<i>:RFSettings:EATTenuation*.

Parameters:

<RFInputExtAtt>	Range:	-50 dB to 90 dB
	*RST:	0 dB
	Default unit:	dB

Example: CONFigure:CDMA:MEAS:RFSettings:EATTenuation 2

2）ROUTe:CDMA:MEAS<i>:SCENario:SALone <RXConnector>, <RFConverter>

Activates the standalone scenario and selects the RF input path for the measured RF signal.

Parameters:

<RXConnector>   RF connector for the input path

<RFConverter>   RX module for the input path

Example: ROUTe:CDMA:MEAS:SCENario:SALone RA1, RX1

6.1.2Analyzer Settings

1）CONFigure:CDMA:MEAS<i>:RCONfig <RConfig>

Selects the radio configuration which determines for **Example** the modulation type.

This command is only relevant for the standalone scenario.

Parameters:

<RConfig>   R12Q | R36H | R3Q

                    R12Q: RC1 or 2 (O-QPSK)

                    R36H: RC3 to 6 (H-PSK)

                    R3Q: RC3 (QPSK)

                    *RST: R36H

2）CONFigure:CDMA:MEAS<i>:RFSettings:BCLass <BandClass>

Selects the Band Class (BC).

If the current center frequency (*CONFigure:CDMA:MEAS<i>:RFSettings: FREQuency*) is valid for this band class, the corresponding channel number (*CONFigure:CDMA:MEAS<i>:RFSettings:CHANnel*) is also calculated and set.

This command is only relevant for the standalone scenario. For the combined signal path scenario, use *CONFigure:CDMA:SIGN<i>:RFSettings:BCLass.*

Parameters:

<BandClass>   USC | KCEL | NAPC | TACS | JTAC | KPCS | N45T | IM2K | NA7C | B18M | NA8S | PA4M | PA8M | IEXT | USPC | AWS | U25B | NA9C | PS7C | LO7C

                    USC: BC 0, US-Cellular

                    KCEL: BC 0, Korean Cellular

                    NAPC: BC 1, North American PCS

                    TACS: BC 2, TACS Band

                    JTAC: BC 3, JTACS Band

                    KPCS: BC 4, Korean PCS

                    N45T: BC 5, NMT-450

                    IM2K: BC 6, IMT-2000

                    NA7C: BC 7, Upper 700 MHz

                    B18M: BC 8, 1800 MHz Band

                    NA9C: BC 9, North American 900 MHz

                    NA8S: BC 10, Secondary 800 MHz

                    PA4M: BC 11, European 400 MHz PAMR

                    PA8M: BC 12, 800 MHz PAMR

                    IEXT: BC 13, IMT-2000 2.5 GHz Extension

                    USPC: BC 14, US PCS 1900 MHz

AWS: BC 15, AWS Band

U25B: BC 16, US 2.5 GHz Band

PS7C: BC 18, Public Safety Band 700 MHz

LO7C: BC 19, Lower 700 MHz

*RST: USC

Example: CONFigure:CDMA:MEAS:RFSettings:BCLass KCEL

3）CONFigure:CDMA:MEAS<i>:RFSettings:ENPower <ExpNomPwr>

Sets the expected nominal power of the measured RF signal.

This command is only relevant for the standalone scenario.

Parameters:

<ExpNomPwr>   The range of the expected nominal power can be calculated as
                  follows:
                  Range (Expected Nominal Power) = Range (Input Power) +
                  External Attenuation - User Margin
                  The input power range is stated in the data sheet.
                  *RST: 0 dBm
                  Default unit: dBm

Example: CONFigure:CDMA:MEAS:RFSettings:ENPower 7

4）CONFigure:CDMA:MEAS<i>:RFSettings:FREQuency <Frequency>

Selects the center frequency of the RF analyzer.

If the center frequency is valid for the current band class the corresponding channel
number is also calculated and set.

This command is only relevant for the standalone scenario.

Parameters:

<Frequency>   Range: 100E+6 Hz to 6E+9 Hz
                  *RST: 833.49E+6 Hz
                  Default unit: Hz

Example: CONFigure:CDMA:MEAS:RFSettings:FREQuency 833.49E+6

5）CONFigure:CDMA:MEAS<i>:RFSettings:UMARgin <UserMargin>

Sets the margin that the 5256C adds to the expected nominal power in order to
determine its reference power. The reference power minus the external input attenuation
must be within the power range of the selected input connector; refer to the data
sheet.

Parameters:

<UserMargin>   Range: 0 dB to (55 dB + External Attenuation – Expected
                              NominalPower)
                  *RST: 0 dB
                  Default unit: dB

Example: CONFigure:CDMA:MEAS:RFSettings:UMARgin 5

6.2 Trigger Settings

1）TRIGger:CDMA:MEAS<i>:MEValuation:CATalog:SOURce?

Lists all trigger source values that can be set using TRIGger:CDMA:MEAS<i>:
MEValuation:SOURce.

Return values:

<TriggerList>   Comma separated list of all supported values. Each value is represented as a
                    string.

2）TRIGger:CDMA:MEAS<i>:MEValuation:SOURce <TriggerName>

Selects the source of the trigger events. Some values are always available in this firmware
application. They are listed below. Depending on the installed options additional
values may be available. A complete list of all supported values can be displayed using
TRIGger:...:CATalog:SOURce?.

Parameters:

<TriggerName>   **'Free Run':**   Free Run (untriggered)

                    'IF Power':   Power trigger (received RF power)

                    'IF Auto Sync':   Power trigger auto synchronized

                    *RST: 'Free Run'

Example: TRIGger:CDMA:MEAS: MEValuation :SOURce 'Free Run'

3）TRIGger:CDMA:MEAS<i>:MEValuation:TOUT <Time>

Selects the maximum time that the 5256C will wait for a trigger event before it
stops the measurement in remote control mode or indicates a trigger timeout in manual
operation mode. This setting has no influence on "Free Run" measurements.

Parameters:

<Time>   Range: 0 s to 83.88607E+3 s

                    *RST: 1 s

                    Default unit: s

                    Additional values: OFF | ON (disables timeout | enables timeout
                                        using the previous/default values)

Example: TRIGger:CDMA:MEAS:MEValuation:TOUT 1000

4）TRIGger:CDMA:MEAS<i>:MEValuation:THReshold <Threshold>

Defines the trigger threshold for power trigger sources.

Parameters:

<Threshold>   Range: -50 dB to 0 dB

                    *RST: -30 dB

                    Default unit: dB

Example: TRIGger:CDMA:MEAS:MEValuation:THReshold -30

6.3 Multi Evaluation Measurement Commands

6.3.1 Measurement Control and States

1）INITiate:CDMA:MEAS<i>:MEValuation
**   STOP:CDMA:MEAS<i>:MEValuation**
**   ABORt:CDMA:MEAS<i>:MEValuation**

Starts, stops, or aborts the measurement:

INITiate... starts or restarts the measurement;

STOP... causes a running measurement to stop after the current evaluation

period is terminated and valid results are available;

ABORt... causes a running measurement to stop immediately;

6.3.2 Enabling Results and Views

1）CONFigure:CDMA:MEAS<i>:MEValuation:RESult:ACP <Enable>
**   CONFigure:CDMA:MEAS<i>:MEValuation:RESult:EVMagnitude <Enable>**
**   CONFigure:CDMA:MEAS<i>:MEValuation:RESult:POWer <Enable>**

Enables or disables the evaluation of results and shows or hides the views in the multi evaluation measurement. The mnemonic after "RESult" denotes the view type: Error Vector Magnitude, Magnitude Error, Phase Error, Adjacent Channel Power, Code Domain Power, Code Domain Error, Channel Power, Channel Phase Offset, Channel Time Offset, IQ, Power and Modulation Quality.

Parameters:

<Enable>	OFF | ON
	ON: Evaluate results and show view
	OFF: Do not evaluate results, hide view
	*RST: ACP, OBW, Power and Modulation Quality ON, all others OFF

2）CONFigure:CDMA:MEAS<i>:MEValuation:RESult[:ALL] <EVM>,<MagnitudeError>,
<PhaseError>, <ACP>, <CDP>, <CDE>, <Power>,<TXMeasurements>[, <ChPower>,
<OBW>, <ChPhaseOffset>,<ChTimeOffset>, <IQ>]

Enables or disables the evaluation of results and shows or hides the views in the multi evaluation measurement.

Parameters:

<EVM>	OFF | ON
	Error Vector Magnitude
	ON: Evaluate results and show the view
	OFF: Do not evaluate results, hide the view
	*RST: OFF
<MagnitudeError>	OFF | ON
	Magnitude Error

	*RST: OFF
<PhaseError>	OFF | ON
	Phase Error
	*RST: OFF
<ACP>	OFF | ON
	Adjacent Channel Power
	*RST: ON
<CDP>	OFF | ON
	Code Domain Power
	*RST: OFF
<CDE>	OFF | ON
	Code Domain Error
	*RST: OFF
<Power>	OFF | ON
	Power
	*RST: ON
<TXMeasurements>	OFF | ON
	Modulation Quality
	*RST: ON
<ChPower>	OFF | ON
	Channel Power
	*RST: OFF
<OBW>	OFF | ON
	Occupied Bandwidth
	*RST: ON
<ChPhaseOffset>	OFF | ON
	Channel Phase Offset
	*RST: OFF
<ChTimeOffset>	OFF | ON
	Channel Time Offset
	*RST: OFF
<IQ>	OFF | ON
	IQ
	*RST: OFF

6.3.3 Measurement Parameters

1）CONFigure:CDMA:MEAS<i>:MEValuation:ACP:FOFFsets <FreqOffset0>, …, <FreqOffset9>

Defines the frequency offsets to be used for ACP measurements. The offsets are defined relative to the analyzer frequency. Up to 10 offsets can be defined and enabled.

Parameters:

<FreqOffset0> ...	Range:	0 MHz to 4 MHz
<FreqOffset9>	*RST:	Offset 0 to 9 [MHz]:
		0, 0, 0, 0,0,0, 0, 0, 0, 0
	Default unit:	MHz
	Additional parameters:	OFF | ON (disables the offset | enables
		the offset using the previous defined value)

Example: CONFigure:CDMA:MEAS:MEValuation:ACP:FOFFsets 1,1.1,1.2,1.3,OFF,
OFF,OFF,OFF,OFF,OFF

2）CONFigure:CDMA:MEAS<i>:MEValuation:MOEXception <MeasOnException>

Specifies whether measurement results that the 5256C identifies as faulty or inaccurate are rejected.

Parameters:

<MeasOnException> OFF | ON

　　　　　　　　　ON:　　Results are never rejected

　　　　　　　　　OFF:　　Faulty results are rejected

　　　　　　　　　*RST:　　OFF

Example: CONFigure:CDMA:MEAS:MEValuation:MOEXception ON

3）CONFigure:CDMA:MEAS<i>:MEValuation:REPetition <Repetition>

Specifies the repetition mode of the measurement. The repetition mode specifies
whether the measurement is stopped after a single-shot or repeated continuously. Use
CONFigure:..:MEAS<i>:....:SCOunt　to determine the number of measurement
intervals per single shot.

Parameters:

<Repetition>　　　SINGleshot | CONTinuous

　　　　　　　　SINGleshot:　Single-shot measurement

　　　　　　　　CONTinuous:　Continuous measurement

　　　　　　　　*RST:　　　　SING

Example: CONFigure:CDMA:MEAS:MEValuation:REPetition CONTinuous

4）CONFigure:CDMA:MEAS<i>:MEValuation:SCOunt:MODulation <SCountMod>

Specifies the statistic count of the measurement. The statistic count is equal to the number of
measurement intervals per single shot. Use
CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or
continuous measurements.

Parameters:

<SCountMod>　　　Number of measurement intervals.

　　　　　　　　Range:　　1 to 1000

　　　　　　　　*RST:　　　1

Example: CONFigure:CDMA:MEAS:MEValuation:SCOunt:MODulation 20

5）CONFigure:CDMA:MEAS<i>:MEValuation:SCOunt:SPECtrum <SCountSpectrum>

Specifies the statistic count of the measurement. The statistic count is equal to the

number of measurement intervals per single shot. Use
CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or
continuous measurements.

Parameters:

<SCountSpectrum>   Number of measurement intervals.

        Range: 1 to 1000

        *RST: 1

6）CONFigure:CDMA:MEAS<i>:MEValuation:SFACtor <SpreadingFactor>

Selects the spreading factor for the code domain power and code domain error measurements.

Parameters:

<SpreadingFactor>   SF16 | SF32 | SF64

        SF16:   spreading factor 16

        SF32:   spreading factor 32

        SF64:   spreading factor 64

        *RST: SF32

Example: CONFigure:CDMA:MEAS:MEValuation:SFACtor SF16

6.3.4 Limits (Code Domain)

1）CONFigure:CDMA:MEAS<i>:MEValuation:LIMit:CDP <LimitCDP>

Defines an upper limit for the code domain power of inactive channels.

Parameters:

<LimitCDP>   Range: -   70 dB to 0 dB

        *RST: -23 dB

        Default unit: dB

        Additional Parameters**:**   OFF | ON (disables the limit check | enables the limit check using the previous/default limit values)

Example: CONFigure:CDMA:MEAS:MEValuation:LIMit:CDP -20

6.3.5 IQ Constellation Results (Traces)

1）FETCh:CDMA:MEAS<i>:MEValuation:TRACe:IQ:CURRent?

Returns the results in the I/Q constellation diagram. Every fourth value corresponds to a
constellation point. The other values are located on the path between two constellation points.

Return values:

<Reliability>   Reliability Indicator

<I_1> <Q_1> ...   10240 pairs of normalized I and Q amplitudes, four values per

<I_10240>   symbol period

<Q_10240>   Range: -2.0 to 2.0

6.3.6 CDP and CDE Results (Traces)

1)CALCulate:CDMA:MEAS<i>:MEValuation:TRACe:CDP:ISIGnal:AVERage?
CALCulate:CDMA:MEAS<i>:MEValuation:TRACe:CDP:QSIGnal:AVERage?

Returns the values of the code domain power (CDP) I-Signal and Q-Signal traces. The results of the current, average, maximum and minimum traces can be retrieved.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	Reliability Indicator
<CDPcode0> ...	The number of results corresponds to the selected spreading
<CDPcodeSF>	factor (CONFigure:CDMA:MEAS<i>:MEValuation:SFACtor). E.g. 16 results for SF16.
	Range: -70 dB to 0 dB
	Default unit: dB

2）FETCh:CDMA:MEAS<i>:MEValuation:TRACe:CDP:ISIGnal:AVERage?
FETCh:CDMA:MEAS<i>:MEValuation:TRACe:CDP:QSIGnal:AVERage?

Returns the values of the code domain power (CDP) I-Signal and Q-Signal traces. The results of the current, average, maximum and minimum traces can be retrieved.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	Reliability Indicator
<CDPcode0>…	The number of results corresponds to the selected spreading
<CDPcodeSF>	factor (CONFigure:CDMA:MEAS<i>:MEValuation:SFACtor). E.g. 16 results for SF16.
	Range: -70 dB to 0 dB
	Default unit: dB

Example: FETCh:CDMA:MEAS:MEValuation:TRACe:CDP:ISIGnal: AVERage?

3）FETCh:CDMA:MEAS<i>:MEValuation:TRACe:CDP:ISIGnal:STATe?
FETCh:CDMA:MEAS<i>:MEValuation:TRACe:CDP:QSIGnal:STATe?

Return the states of the code domain power (CDP) I-Signal and Q-Signal bar graphs.

Return values:

<Reliability>	Reliability Indicator
<CDPState0> ...	INVisible | ACTive | IACTive
<CDPState(SF-1)>	The number of results depends on the selected spreading factor: SF=16, 32, 64.
	INV: No channel available
	ACTive: Active code channel
	IACtive: Inactive code channel

6.3.7 ACP Results (Traces)

1）FETCh:CDMA:MEAS<i>:MEValuation:TRACe:ACP:AVERage?

Returns the relative adjacent channel power measured at a series of frequencies. The frequencies are determined by the offset values defined via the command CONFigure:CDMA:MEAS<i>:MEValuation:ACP:FOFFsets. All defined offset values are considered (irrespective of their activation status). The current, average and maximum traces can be retrieved.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<1_Reliability>	Reliability Indicator
<2_PowOffsetM9>...	<PowOffsetMn>/<PowOffsetPn> refers to the average
<11_PowOffsetM0>	relative power at the carrier frequency minus/plus the
<12_PowCarrier>	requency offset value number n.
<13_PowOffsetP0>...	Range: -100 dBc to 20 dBc
<22_PowOffsetP9>	Default unit: dBc

Example: FETCh:CDMA:MEAS:MEValuation:TRACe:ACP: AVERage:RELative?

6.3.8 Modulation Results (Single Values)

1）FETCh:CDMA:MEAS<i>:MEValuation:MODulation:AVERage?

Return the current, average, minimum, maximum and standard deviation modulation single value results.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The ranges indicated below apply to all results except standard deviation results. The minimum for standard deviation results equals 0. The maximum equals the width of the indicated range divided by two. Exceptions are explicitly stated.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>	Reliability Indicator
<2_EVMRMS>	Error vector magnitude RMS value
	Range: 0 % to 100 %
	Default unit: %
<3_EVMPeak>	Error vector magnitude peak value
	Range: 0 % to 100 %
	Default unit: %
<4_MErrRMS>	Magnitude error RMS value
	Range: 0 % to 100 %

	Default unit: %
<5_MErrPeak>	Magnitude error peak value
	Range: -100 % to 100 % (AVERage: 0% to 100 %, SDEViation:0 % to 50 %)
	Default unit: %
<6_PErrRMS>	Phase error RMS value
	Range: 0 deg to 180 deg
	Default unit: deg
<7_PErrPeak>	Phase error peak value
	Range: -180 deg to 180 deg (AVERage: 0 deg to 180 deg, SDEViation: 0 deg to 90 deg)
	Default unit: deg
<8_IQOffset>	I/Q origin offset
	Range: -100 dB to 0 dB
	Default unit: dB
<9_IQImbalance>	I/Q imbalance
	Range: -100 dB to 0 dB
	Default unit: dB
<10_CFreqError>	Carrier frequency error
	Range: -5000 Hz to 5000 Hz
	Default unit: Hz
<11_TransTimeErr>	Transmit time error
	Range: -100 µs to 100 µs
	Default unit: µs
<12_MSPow1M23>	Mobile station power, measured with a filter bandwidth of 1.23MHz
	Range: -100 dBm to 50 dBm
	Default unit: dBm
<13_MSPowWide>	Mobile station power, measured with a filter bandwidth of 8 MHz
	Range: -100 dBm to 50 dBm
	Default unit: dBm
<14_WavQuality>	Waveform quality
	Range: 0 to 1
<15_WavQualMaxP>	Waveform quality at maximum power
	Range: 0 to 1
<16_WavQualMinP>	Waveform quality at minimum power
	Range: 0 to 1
<17_OutOfTolCount>	Out of tolerance result, i.e. percentage of measurement intervals of the statistic count (CONFigure:CDMA:MEAS<i>: MEValuation:SCOunt:MODulation) exceeding the specified limits, see Limits (Power and Modulation).
	Range: 0 % to 100 %
	Default unit: %

7 WCDMA 程控命令

7.1 General Configuration

7.1.1 I/O Port Configuration

7.1.2 Analysis Setting

1) CONFigure:WCDMa:MEAS<i>:RFSettings:ENPower <ExpNomPower>
Sets the expected nominal power of the measured RF signal.
For the combined signal path scenario, use:
- CONFigure:WCDMa:SIGN<i>:RFSettings:ENPMode
- CONFigure:WCDMa:SIGN<i>:RFSettings:ENPower

Parameters:
<ExpNomPower>The range of the expected nominal power can be calculated as follows:

Range (Expected Nominal Power) = Range (Input Power) + External Attenuation - User Margin

The input power range is stated in the data sheet.

*RST: 0 dBm

Default unit: dBm

Example: CONFigure:WCDMA:MEAS:RFSettings:ENPower 7

2) CONFigure:WCDMa:MEAS<i>:RFSettings:UMARgin <UserMargin>
Sets the margin that the 5256C adds to the expected nominal power to determine its reference power. The reference power minus the external input attenuation must be within the power range of the selected input connector; refer to the data sheet.
For the combined signal path scenario, use CONFigure:WCDMa:SIGN<i>:RFSettings:MARGin.

Parameters:
<UserMargin>Range: 0 dB to (55 dB + external attenuation - expected nominal power)

*RST: 0 dB

Default unit: dB

Example: CONFigure:WCDMA:MEAS:RFSettings:UMARgin 5

7.2 Multi-Field Measurement Configuration

7.2.1 Measurement Control And State

1) ABORt:WCDMa:MEAS<i>:MEValuation
Starts, stops, or aborts the measurement:
- INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.
- STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.

- ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.

Use FETCh...STATe? to query the current measurement state.

Example: ABORt:WCDMa:MEASurement:MEValuation

2) **FETCh:WCDMa:MEAS<i>:MEValuation:STATe?**

Queries the main measurement state. Use FETCh:...:STATe:ALL? to query the measurement state including the substates. Use INITiate..., STOP..., ABORt...to change the measurement state.

Return values:

<State>OFF | RUN | RDY

OFF: measurement switched off, no resources allocated, no results available (when entered after ABORt...)

RUN: measurement running (after INITiate..., READ...), synchronization pending or adjusted, resources active or queued

RDY: measurement has been terminated, valid results are available

*RST:OFF

Example: FETCh:WCDMa:MEAS:MEValuation:STATe?

3) **INITiate:WCDMa:MEAS<i>:MEValuation**

Starts, stops, or aborts the measurement:

- INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.
- STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.
- ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.

Use FETCh...STATe? to query the current measurement state.

Example: INITiate:WCDMa:MEAS:MEValuation

7.2.2 Enabling Result And Views

1) **CONFigure:WCDMa:MEAS<i>:MEValuation:RESult:ACLR <EnableACLR>**

Enables or disables the evaluation of results and shows or hides the adjacent channel leakage power ratio view in the multi-evaluation measurement.

Parameters:

<EnableACLR>OFF | ON

OFF: Do not evaluate results, hide the view

ON: Evaluate results and show the view

*RST:ON

Example: CONFigure:WCDMa:MEAS:MEValuation:RESult:ACLR ON

2) *CONFigure:WCDMa:MEAS<i>:MEValuation:RESult[:ALL] <EnableEVM>, <EnableMagError>, <EnablePhaseErr>, <EnableACLR>, <EnableEMask>, <EnableCDmonitor>, <EnableCDP>, <EnableCDE>, <EnableEVMchip>, <EnableMErrChip>, <EnablePhErrChip>, <EnableUEpower>, <EnableFreqError>, <EnablePhaseDisc>, <EnablePowSteps>, <EnableBER>[, <EnableIQ>, <EnableRCDE]*

Enables or disables the evaluation of results and shows or hides the views in the multi-evaluation measurement. This command combines all other CONFigure:WCDMa:MEAS<i>:MEValuation:RESult... commands.

Parameters:

<EnableEVM> OFF | ON
Error vector magnitude
OFF: Do not evaluate results, hide the view
ON: Evaluate results and show the view
*RST:ON

<EnableMagError> OFF | ON
Magnitude error
*RST:OFF

<EnablePhaseErr> OFF | ON
Phase error
*RST:OFF

<EnableACLR> OFF | ON
Adjacent channel leakage power ratio
*RST:ON

<EnableEMask> OFF | ON
Spectrum emission mask
*RST:ON

<EnableCDmonitor> OFF | ON
Code domain monitor
*RST:ON

<EnableCDP> OFF | ON
Code domain power
*RST:ON

<EnableCDE> OFF | ON
Code domain error
*RST:OFF

<EnableEVMchip> OFF | ON
EVM vs. chip
*RST:ON

<EnableMErrChip> OFF | ON
Magnitude error vs. chip
*RST:OFF

<EnablePhErrChip> OFF | ON
Phase error vs. chip
*RST:OFF

<EnableUEpower> OFF | ON
UE power
*RST:ON

<EnableFreqError> OFF | ON

Frequency error
                              *RST:ON

<EnablePhaseDisc> OFF | ON
                   Phase discontinuity
                   *RST:OFF

<EnablePowSteps> OFF | ON
                  Power steps
                  *RST:ON

<EnableBER>   OFF | ON
                   Bit error rate
                   *RST:OFF

<EnableIQ>   OFF | ON
                   I/Q constellation diagram
                   *RST:OFF

<EnableRCDE>   OFF | ON
                   Relative CDE
                   *RST:OFF
Example:CONF:WCDM:MEAS:MEV:RES:ALL
ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON,ON

3) **CONFigure:WCDMa:MEAS<i>:MEValuation:RESult:BER <EnableBER>**
Enables or disables the evaluation of results and shows or hides the bit error rate view in the
multi-evaluation measurement.
Parameters:
<EnableBER>OFF | ON
            OFF: Do not evaluate results, hide the view
            ON: Evaluate results and show the view
            *RST:OFF
Example: CONFigure:WCDMa:MEAS:MEValuation:RESult:BER OFF

4) **CONFigure:WCDMa:MEAS<i>:MEValuation:RESult:IQ <EnableIQ>**
Enables or disables the evaluation of results and shows or hides the I/Q constellation diagram
view in the multi-evaluation measurement.
Parameters:
<EnableIQ>OFF | ON
            OFF: Do not evaluate results, hide the view
            ON: Evaluate results and show the view
            *RST:OFF
Example: CONFigure:WCDMa:MEAS:MEValuation:RESult:IQ OFF

5) **CONFigure:WCDMa:MEAS<i>:MEValuation:RESult:UEPower <EnableUEpower>**
Enables or disables the evaluation of results and shows or hides the UE power view in the multi-
evaluation measurement.
Parameters:
<EnableUEpower>OFF | ON
                OFF: Do not evaluate results, hide the view
                ON: Evaluate results and show the view
                *RST:ON
Example: CONFigure:WCDMa:MEAS<i>:MEValuation:RESult:UEPower ON.

7.2.3 Measurement Parameters

1) **CONFigure:WCDMa:MEAS<i>:MEValuation:MOEXception <MeasOnException>**

Specifies whether measurement results that the 5256C identifies as faulty or inaccurate are rejected.

Parameters:

<MeasOnException>OFF | ON

               OFF: Faulty results are rejected.

               ON: Results are never rejected.

               *RST:OFF

Example: CONFigure:WCDMa:MEAS:MEValuation:MOEXception ON

2) **CONFigure:WCDMa:MEAS<i>:MEValuation:MSCount <SlotCount>**

Selects the total number of measured slots.

Parameters:

<SlotCount>Range: 1 slot   to   120 slots

        *RST: 1 slot

Example: CONFigure:WCDMa:MEAS:MEValuation:MSCount 30

3) **CONFigure:WCDMa:MEAS<i>:MEValuation:PSLot <SlotNumber>**

Selects the slot where the 5256C calculates the results of single slot measurements: ACLR, emission mask, EVM vs. chip, CD monitor. The number of the preselected slot must be smaller than the number of measured slots (CONFigure:WCDMa:MEAS<i>:MEValuation:MSCount).

Parameters:

<SlotNumber>Range: 0   to   119

          *RST: 0

Example: CONFigure:WCDMa:MEAS:MEValuation:PSLot 3

4) **CONFigure:WCDMa:MEAS<i>:MEValuation:REPetition <Repetition>**

Specifies the repetition mode of the measurement. The repetition mode specifies whether the measurement is stopped after a single shot or repeated continuously. Use CONFigure:..:MEAS<i>:....:SCOunt to determine the number of measurement intervals per single shot.

Parameters:

<Repetition>SINGleshot | CONTinuous

          SINGleshot: Single-shot measurement

          CONTinuous: Continuous measurement

          *RST:SING

Example: CONFigure:WCDMa:MEAS:MEValuation:REPetition CONTinuous

5) **CONFigure:WCDMa:MEAS<i>:PRACh:MPReamble <Preambles>**

Specifies the number of preambles to be measured.

Parameters:

<Preambles>Range: 1   to   5

        *RST: 5

Example: CONFigure:WCDMa:MEAS:PRACh:MPReamble 5

7.2.4 Modulation Measurement Setting

1) CONFigure:WCDMa:MEAS<i>:MEValuation:DSFactor:MODulation <SpreadingFactor>
Selects the spreading factor for the displayed code domain monitor results.
Parameters:
<SpreadingFactor>SF4 | SF8 | SF16 | SF32 | SF64 | SF128 | SF256
     Spreading factor 4 to 256
     *RST:SF4
Example: CONFigure:WCDMa:MEAS:MEValuation:DSFactor:MODulation SF16

2) CONFigure:WCDMa:MEAS<i>:MEValuation:SCOunt:MODulation <StatisticCount>
Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot. Use CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or continuous measurements.

Parameters:
<StatisticCount>Number of measurement intervals
     Range: 1 to 1000
     *RST: 10
Example: CONFigure:WCDMa:MEAS:MEValuation:SCOunt:MODulation 20

7.2.5 Spectrum Measurement Setting

1) CONFigure:WCDMa:MEAS<i>:MEValuation:SCOunt:SPECtrum <StatisticCount>
Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot. Use CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or continuous measurements.

Parameters:
<StatisticCount>Number of measurement intervals
     Range: 1 to 1000
     *RST: 10
Example: CONFigure:WCDMa:MEAS:MEValuation:SCOunt:SPECtrum 30

7.2.6 Power Measurement Setting

7.2.7 Receiver Test Configuration

7.2.8 List Mode Setting

1) CONFigure:WCDMa:MEAS<i>:MEValuation:LIST <Enable>

Enables or disables the list mode.
Parameters:
<Enable>OFF | ON
　　　　OFF: Disable list mode
　　　　ON:　 Enable list mode
　　　　*RST:OFF
Example: CONFigure:WCDMa:MEAS:MEValuation:LIST ON

2) **CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:COUNt <Segments>**
Defines the number of segments in the entire measurement interval, including active and
inactive segments.
Parameters:
<Segments>Range: 1　to　1000
　　　　　*RST:　10
Example: CONFigure:WCDMa:MEAS:MEValuation:LIST:COUNt 2

3) **CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:EOFFset <Offset>**
Defines the evaluation offset. The specified number of slots at the beginning of each segment is
excluded from the evaluation.
Set the trigger delay to 0 when using an evaluation offset
Parameters:
<Offset>Range: 0 slots　to　1024 slots
　　　　*RST:　0 slots
Example: CONFigure:WCDMa:MEAS:MEValuation:LIST:EOFFset 0

4) **CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>:CDPower <ModStatistics>, <EnableCDP>, <EnableCDE>[, <EnablePCDE>]**
Defines the statistical length for the AVERage, MINimum, MAXimum and SDEViation calculation
and enables the calculation of the different code domain results in segment no. <no>
The statistical length for CDP, CDE, PCDE and modulation results is identical
Suffix:
<no>　　　　　1..1000
　　　　　　　The segment number must not exceed the total number of segments measured
Parameters:
<ModStatistics>The statistical length is limited by the length of the segment
　　　　　　Range: 1　to　1000
　　　　　　*RST:　10

<EnableCDP>　OFF | ON
　　　　　　OFF: Disable measurement
　　　　　　ON: Enable measurement of code domain power
　　　　　　*RST:OFF

<EnableCDE>　OFF | ON
　　　　　　Disable or enable measurement of code domain error
　　　　　　*RST:OFF

<EnablePCDE>　OFF | ON
　　　　　　Disable or enable measurement of peak code domain error
　　　　　　*RST:OFF
Example: CONFigure:WCDMa:MEAS:MEValuation:LIST:SEGMent1:CDPower 20,ON,ON,ON

5) **CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>:MODulation**

<ModStatistics>, <EnableUEpower>, <EnableEVM>, <EnableMagError>, <EnablePhaseErr>, <EnableFreqError>, <EnableIQ>

Defines the statistical length for the AVERage, MAXimum, and SDEViation calculation and enables the calculation of the different modulation results in segment no. <no>
The statistical length for CDP, CDE and modulation results is identical

Suffix:

<no>   1..1000
                   The segment number must not exceed the total number of segments
                   measured

Parameters:

<ModStatistics>   The statistical length is limited by the length of the segment
                   Range: 1   to   1000
                   *RST: 10

<EnableUEpower>OFF | ON
                   OFF: Disable measurement
                   ON: Enable measurement of UE power
                   *RST:OFF

<EnableEVM>   OFF | ON
                   Disable or enable measurement of EVM
                   *RST:OFF

<EnableMagError>OFF | ON
                   Disable or enable measurement of magnitude error
                   *RST:OFF

<EnablePhaseErr>   OFF | ON
                   Disable or enable measurement of phase error
                   *RST:OFF

<EnableFreqError>OFF | ON
                   Disable or enable measurement of frequency error
                   *RST:OFF

<EnableIQ>   OFF | ON
                   Disable or enable measurement of I/Q origin offset and imbalance
                   *RST:OFF
Example: CONFigure:WCDMa:MEAS:MEValuation:LIST:SEGMent2:MODulation
20,ON,ON,ON,ON,ON,ON

6) **CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>:SETup <SegmentLength>, <Level>, <Frequency>[, <Retrigger>]**

Defines the length and analyzer settings of a selected segment. In general, this command must be sent for all segments measured.

Suffix:

<no>   1..1000
                   The segment number must not exceed the total number of segments
                   measured

Parameters:

<SegmentLength>Number of measured timeslots in the segment.
                   The sum of the length of all active segments must not exceed 6000. Ignoring
                   this limit results in NCAPs for the remaining slots. The statistical length for
                   result calculation covers at most the first 1000 slots of a segment.

The sum of the length of all segments (active plus inactive) must not exceed 12000. "Inactive" means that no measurement at all is enabled for the segment.

Range: 1   to   12000
*RST: 1
Default unit: slot

<Level>   Expected nominal power in the segment. The range of the expected nominal power can be calculated as follows:
Range (Expected Nominal Power) = Range (Input Power) + External Attenuation - User Margin
The input power range is stated in the data sheet.
*RST: 0 dBm
Default unit: dBm

<Frequency>   Range: 100E+6 Hz   to   6E+9 Hz
*RST: 1.9226E+9 Hz
Default unit: Hz

<Retrigger>   OFF | ON | IFPower | IFPSync
Specifies whether a trigger event is required for the segment or not. The setting is ignored for the first segment of a measurement and for trigger mode ONCE
OFF: measure the segment without retrigger
ON: trigger event required, trigger source configured via TRIGger:WCDMa: MEAS<i>:MEValuation:SOURce
IFPower: trigger event required, "IF Power" trigger
IFPSync: trigger event required, "IF Power (Sync)" trigger
*RST:OFF

Example: CONFigure:WCDMa:MEAS:MEValuation:LIST:SEGMent2:SETup 20, -10, 19.42E+8, OFF

7) **CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>:SPECtrum <SpecStatistics>, <EnableACLR>, <EnableEMask>, <EnableOBW>**

Defines the statistical length for the AVERage and MAXimum calculation and enables the calculation of the different spectrum results in segment no. <no>.

Suffix:

<no>   1..1000
The segment number must not exceed the total number of segments measured

Parameters:

<SpecStatistics>The statistical length is limited by the length of the segment
Range: 1 to 1000
*RST: 10

<EnableACLR> OFF | ON
OFF: Disable measurement
ON: Enable measurement of ACLR
*RST:OFF

<EnableEMask>OFF | ON
Disable or enable measurement of spectrum emission mask
*RST:OFF

<EnableOBW> OFF | ON
Disable or enable measurement of occupied bandwidth
*RST:OFF

Example: CONFigure:WCDMa:MEAS:MEValuation:LIST:SEGMent2:SPECtrum 20,ON,ON,ON

8) CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>: UEPower <EnableUEpower>

Enables the calculation of the current UE power vs. slot results in segment no. <no>
Suffix:

<no>   1..1000
                    The segment number must not exceed the total number of segments
                    measured
Parameters:
<EnableUEpower>OFF | ON
                    OFF: Disable measurement
                    ON: Enable measurement of UE power
                    *RST:OFF
Example: CONFigure:WCDMa:MEAS:MEValuation:LIST:SEGMent1:UEPower ON

9) TRIGger:WCDMa:MEAS<i>:MEValuation:LIST:MODE <Mode>

Specifies the trigger mode for list mode measurements. For configuration of retrigger flags, see
CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>:SETup.
Parameters:
<Mode>ONCE | SEGMent

        ONCE: A trigger event is only required to start the measurement. As a result, the
        entire range of segments to be measured is captured without additional trigger event.
        The retrigger flags of the segments are ignored.
        SEGMent: The retrigger flag of each segment is evaluated. It defines whether the
        measurement waits for a trigger event before capturing the segment, or not.

        *RST:ONCE
Example: TRIGger:WCDMa:MEAS:MEValuation:LIST:MODE ONCE

7.2.9 Trigger Setting

1) TRIGger:WCDMa:MEAS<i>:MEValuation:DELay <Delay>

Defines a time delaying the start of the measurement relative to the trigger event. A delay is
useful if the trigger event and the uplink DPCH slot border are not synchronous. A measurement
starts always at an uplink DPCH slot border. Triggering a measurement at another time can yield
a synchronization error.
For internal trigger sources aligned to the downlink DPCH, an additional delay of 1024 chips is
automatically applied. It corresponds to the assumed delay between downlink and uplink slot.
This setting has no influence on free run measurements.
Parameters:
<Delay>Range: -666.7E-6 s to 0.24 s
        *RST: 0 s
        Default unit: s
Example: TRIGger:WCDMa:MEAS:MEValuation:DELay 0.001

2) TRIGger:WCDMa:MEAS<i>:MEValuation:SOURce <Source>

Selects the source of the trigger events. Some values are always available in this firmware application. They are listed below. Depending on the installed options, additional values are available. A complete list of all supported values can be displayed using TRIGger:...:CATalog:SOURce?.
Parameters:
<Source>'Free Run (Standard)': Free run (standard synchronization)
'Free Run (Fast Sync)': Free run (fast synchronization)
'IF Power': Power trigger (normal synchronization)
'IF Power (Sync)': Power trigger (extended synchronization)
*RST:'Free Run (Standard)'
Example: TRIGger:WCDMa:MEAS:MEValuation:SOURce 'IF Power'

3) TRIGger:WCDMa:MEAS<i>:MEValuation:THReshold <Level>
Defines the trigger threshold for power trigger sources.
Parameters:
<Level>Range: -47 dB to   0 dB
    *RST: -26 dB
    Default unit: dB (full scale, i.e. relative to reference level minus external attenuation)
Example: TRIGger:WCDMa:MEAS:MEValuation:THReshold -30

4) TRIGger:WCDMa:MEAS<i>:MEValuation:TOUT <TimeOut>
Selects the maximum time that the 5256C waits for a trigger event before it stops the measurement in remote control mode or indicates a trigger timeout in manual operation mode. This setting has no influence on "Free Run" measurements.
Parameters:
<TimeOut>Range: 0.01 s to   10 s
    *RST: 2 s
    Default unit: s
    Additional OFF | ON disables/enables the timeout
Example: TRIGger:WCDMa:MEAS:MEValuation:TOUT 1

5) TRIGger:WCDMa:MEAS<i>:PRACh:THReshold <Level>
Defines the trigger threshold for power trigger sources.
Parameters:
<Level>Range: -47 dB to   0 dB
    *RST: -26 dB
    Default unit: dB (full scale, i.e. relative to reference level minus external attenuation)
Example: TRIGger:WCDMa:MEAS:PRACh:THReshold -30

7.2.10 Querying Measurement Result

1) FETCh:WCDMa:MEAS<i>:MEValuation:BER?
Returns the bit error rate and the block error ratio.

<BER> Percentage of received data bits that were erroneous
    Range: 0 % to   100 %
    Default unit: %

<BLER>Percentage of received transport data blocks containing at least one erroneous bit
    Range: 0 % to   100 %
    Default unit: %

Example: FETCh:WCDMa:MEAS:MEValuation:BER?

2) **FETCh:WCDMa:MEAS<i>:MEValuation:LIST:CDPower:AVERage?**

Return the RMS CDP vs. slot results in list mode.

The values listed below in curly brackets {} are returned for the segments {...}$_{seg 1}$, {...}$_{seg 2}$, ..., {...}$_{seg n}$, with n determined by CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:COUNt.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
{<2_ReturnCode>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.

<3_DPCCH>	RMS CDP values for the indicated channels
<4_DPDCH>	Range: -100 dB to 0 dB (SDEViation 0 dB to 50 dB)
<5_HSDPCCH>	Default unit: dB
<6_EDPCCH>	
<7_EDPDCH1>	
<8_EDPDCH2>	
<9_EDPDCH3>	
<10_EDPDCH4>}	

Example: FETCh:WCDMa:MEAS:MEValuation:LIST:CDPower:AVERage?

3) **FETCh:WCDMa:MEAS<i>:MEValuation:LIST:MODulation:AVERage?**

Return modulation single value results in list mode.

The values listed below in curly brackets {} are returned for the segments {...}$_{seg 1}$, {...}$_{seg 2}$, ..., {...}$_{seg n}$, with n determined by CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:COUNt.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
{<2_ReturnCode>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.

<3_EVMrms>	Error vector magnitude RMS and peak value
<4_EVMpeak>	Range: 0 % to 100 %
	Default unit: %

<5_MagErrorRMS>	Magnitude error RMS value
	Range: 0 % to 100 %
	Default unit: %

<6_MagErrorPeak>	Magnitude error peak value
	Range: -100 % to 100 % (AVERage: 0% to 100 %, SDEViation: 0 % to 50 %)
	Default unit: %

<7_PhErrorRMS>   Phase error RMS value
                      Range: 0 deg   to   180 deg
                      Default unit: deg

<8_PhErrorPeak>   Phase error peak value
                      Range: -180 deg to 180 deg (AVERage: 0 deg to 180 deg, SDEViation:
                                    0 deg to 90 deg
                      Default unit: deg

<9_IQoffset>   I/Q origin offset
                      Range: -100 dB   to   0 dB
                      Default unit: dB

<10_IQimbalance>   I/Q imbalance
                      Range: -100 dB   to   0 dB
                      Default unit: dB

<11_CarrierFreqErr>   Carrier frequency error
                      Range: -60000 Hz   to   60000 Hz
                      Default unit: Hz

<12_TransTimeErr>   Transmit time error (for future use)
                      Range: -250 chips   to   250 chips
                      Default unit: chips

<13_UEpower>}   User equipment power
                      Range: -100 dBm   to   55 dBm
                      Default unit: dBm
Example: FETCh:WCDMa:MEAS:MEValuation:LIST:MODulation:AVERage?

4) **FETCh:WCDMa:MEAS<i>:MEValuation:LIST:PCDE:CURRent?**
Return the peak code domain error (PCDE) results in list mode.
The values listed below in curly brackets {} are returned for the segments {...}$_{seg\ 1}$, {...}$_{seg\ 2}$, ...,
{...}$_{seg\ n}$, with n determined by CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:COUNt.
The number to the left of each result parameter is provided for easy identification of the
parameter position within the result array.
Return values:
<1_Reliability>   In list mode, a zero reliability indicator indicates that the results in all
                      measured segments are valid. A non-zero value indicates that an error
                      occurred in at least one of the measured segments.

{<2_ReturnCode>   Reliability indicator for the segment. The meaning of the returned values is
                      the same as for the common reliability indicator, see previous parameter.

<3_PCDError>   Peak code domain error
                      Range: -100 dB   to   0 dB
                      Default unit: dB

<4_PCDE_Phase>   IPHase | QPHase
                      Phase where the peak code domain error was measured
                      IPHase: I-Signal
                      QPHase: Q-Signal

<5_PCDE_CodeNo>}Code number for which the PCDE was measured

Range: 0 to 255
Example: FETCh:WCDMa:MEAS<i>:MEValuation:LIST:PCDE:CURRent?

5) **FETCh:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>:MODulation:AVERage?**

Returns modulation single value results for segment <no> in list mode.
The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Suffix:

<no>	1..1000

Return values:

<1_Reliability>	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<2_ReturnCode>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_EVMrms>	Error vector magnitude RMS and peak value
<4_EVMpeak>	Range: 0 % to 100 % Default unit: %
<5_MagErrorRMS>	Magnitude error RMS value Range: 0 % to 100 % Default unit: %
<6_MagErrorPeak>	Magnitude error peak value Range: -100 % to 100 % (AVERage: 0% to 100 %, SDEViation: 0 % to 50 %) Default unit: %
<7_PhErrorRMS>	Phase error RMS value Range: 0 deg to 180 deg Default unit: deg
<8_PhErrorPeak>	Phase error peak value Range: -180 deg to 180 deg (AVERage: 0 deg to 180 deg, SDEViation: 0 deg to 90 deg) Default unit: deg
<9_IQoffset>	I/Q origin offset Range: -100 dB to 0 dB Default unit: dB
<10_IQimbalance>	I/Q imbalance Range: -100 dB to 0 dB Default unit: dB
<11_CarrFreqErr>	Carrier frequency error Range: -60000 Hz to 60000 Hz Default unit: Hz
<12_TransTimeErr>	Transmit time error (for future use) Range: -250 chips to 250 chips Default unit: chips

<13_UE Power>   User equipment power
                     Range: -100 dBm   to   55 dBm
                     Default unit: dBm
Example: FETCh:WCDMa:MEAS:MEValuation:LIST:SEGMent<no>:MODulation:AVERage?

6) **FETCh:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>:PCDE:MAXimum?**

Returns the peak code domain error (PCDE) results for segment <no> in list mode.
Suffix:
<no>   1..1000
Return values:
<Reliability>   In list mode, a zero reliability indicator indicates that the results in all measured
                segments are valid. A non-zero value indicates that an error occurred in at least
                one of the measured segments.

<ReturnCode>   Reliability indicator for the segment. The meaning of the returned values is the
                same as for the common reliability indicator, see previous parameter.

<PCDError>   Peak code domain error
                Range: -100 dB   to   0 dB
                Default unit: dB

<PCDE_Phase>   IPHase | QPHase
                Phase where the peak code domain error was measured
                IPHase: I-Signal
                QPHase: Q-Signal

<PCDE_CodeNo>Code number for which the PCDE was measured
                Range: 0   to   255
Example: FETCh:WCDMa:MEAS:MEValuation:LIST:SEGMent:PCDE:MAXimum?

7) **FETCh:WCDMa:MEAS<i>:MEValuation:LIST:SEGMent<no>:SPECtrum: AVERage? [<ACLRMode>]**

Returns the ACLR power and spectrum emission single value results for segment <no> in list
mode.
The number to the left of each result parameter is provided for easy identification of the
parameter position within the result array.
Suffix:
<no>   1..1000
Query parameters:
<ACLRMode>   ABSolute | RELative
                        ABSolute: ACLR power displayed in dBm as absolute value
                        RELative: ACLR power displayed in dB relative to carrier power

Return values:
<1_Reliability>   In list mode, a zero reliability indicator indicates that the results in
                        all measured segments are valid. A non-zero value indicates that
                        an error occurred in at least one of the measured segments.

<2_ReturnCode>   Reliability indicator for the segment. The meaning of the returned
                        values is the same as for the common reliability indicator, see
                        previous parameter.

<3_CarrierPower>   Power at the nominal carrier UL frequency
                        Range: -100 dBm   to   55 dBm

Default unit: dBm

<4_ACLRminus2>	Power of the adjacent channels (±1st adjacent channels at ±5 MHz from the UL frequency, ±2nd adjacent channels at ±10 MHz from the UL frequency)
<5_ACLRminus1>	Range: -100 dBm to 55 dBm
<6_ACLRplus1>	Default unit: dBm
<7_ACLRplus2>	
<8_OBW>	Occupied bandwidth
	Range: 0 MHz to 10 MHz
	Default unit: Hz
<9_MarginAB>	Limit line margin values in the 8 emission mask areas. A positive result indicates that the trace is located above the limit line, i.e. the limit is exceeded.
<10_MarginBC>	Range: -100 dB to 90 dB
<11_MarginCD>	Default unit: dB
<12_MarginEF>	
<13_MarginFE>	
<14_MarginDC>	
<15_MarginCB>	
<16_MarginBA>	
<17_UEpower>	User equipment power
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<18_MarginHAD>	Limit line margin values for limit line H. A positive result indicates that the trace is located above the limit line, i.e. the limit is exceeded.
<19_MarginHDA>	Range: -130 dB to 130 dB
	Default unit: dB

Example: FETCh:WCDMa:MEAS:MEValuation:LIST:SEGMent:SPECtrum:AVERage?

8) **FETCh:WCDMa:MEAS<i>:MEValuation:LIST:SPECtrum:AVERage? [<ACLRMode>]**

Returns the ACLR power and spectrum emission single value results in list mode.
The values listed below in curly brackets {} are returned for the segments {...}$_{seg\ 1}$, {...}$_{seg\ 2}$, ...,
{...}$_{seg\ n}$, with n determined by CONFigure:WCDMa:MEAS<i>:MEValuation:LIST:COUNt.
The number to the left of each result parameter is provided for easy identification of the
parameter position within the result array.
Query parameters:

<ACLRMode>	ABSolute | RELative
	ABSolute: ACLR power displayed in dBm as absolute value
	RELative: ACLR power displayed in dB relative to carrier power

Return values:

<1_Reliability>	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
{<2_ReturnCode>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_CarrierPower>	Power at the nominal carrier frequency in uplink Range: -100 dBm to 55 dBm Default unit: dBm
<4_ACLRminus2>	Power of the adjacent channels (±1st adjacent channels at ±5 MHz from the UL frequency, ±2nd adjacent channels at ±10 MHz from the UL frequency)
<5_ACLRminus1> <6_ACLRplus1> <7_ACLRplus2>	Range: -100 dBm to 55 dBm Default unit: dBm
<8_OBW>	Occupied bandwidth Range: 0 MHz to 10 MHz Default unit: Hz
<9_MarginAB>	Limit line margin values in the 8 emission mask areas. A positive result indicates that the trace is located above the limit line, i.e. the limit is exceeded.
<10_MarginBC> <11_MarginCD> <12_MarginEF> <13_MarginFE> <14_MarginDC> <15_MarginCB> <16_MarginBA>	Range: -100 dB to 90 dB Default unit: dB
<17_UEpower>	User equipment power Range: -100 dBm to 55 dBm Default unit: dBm
<18_MarginHAD>	Limit line margin values for limit line H. A positive result indicates that the trace is located above the limit line, i.e. the limit is exceeded.
<19_MarginHDA>}	Range: -130 dB to 130 dB Default unit: dB

Example: FETCh:WCDMa:MEAS<i>:MEValuation:LIST:SPECtrum:AVERage?

9) **FETCh:WCDMa:MEAS<i>:MEValuation:LIST:UEPower:CURRent?**

Returns the UE power vs. slot results in list mode.

Return values:

<Reliability>	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.

| {<UEpower_1> <UEpower_m>} | ...User equipment power, one value per slot. The list contains results for all active segments (segments for which any measurement has been enabled). |

If another measurement has been enabled for a segment, but the UE power vs. slot measurement is disabled, NCAPs are returned for that segment.
Example: segment 1 with 10 slots active, segment 2 with 50 slots inactive, segment 3 with 12 slots active. 22 power results are returned.

Range: -100 dBm   to   55 dBm
Default unit: dBm

Example: FETCh:WCDMa:MEAS<i>:MEValuation:LIST:UEPower:CURRent?

10) FETCh:WCDMa:MEAS<i>:MEValuation:TRACe:IQ:CURRent?

Returns the results in the I/Q constellation diagram. Every fourth value corresponds to a constellation point. The other values are located on the path between two constellation points.
Return values:
<Reliability>

<I_1>   <Q_1>   ...   <I_10240> 10240 pairs of normalized I and Q amplitudes, four values per
<Q_10240>   symbol period

Range: -2.0   to   2.0

Example: FETCh:WCDMa:MEAS:MEValuation:TRACe:IQ:CURRent?

7.2.11 Signal Routing

1) CONFigure:WCDMa:MEAS<i>:RFSettings:EATTenuation <RFInputExtAtt>

Defines an external attenuation (or gain, if the value is negative), to be applied to the RF input connector.
For the combined signal path scenario, use CONFigure:WCDMa:SIGN<i>:RFSettings:CARRier<c>:EATTenuation:INPut.
Parameters:
<RFInputExtAtt>Range: -50 dB   to   90 dB
                    *RST: 0 dB
                    Default unit: dB
Example: CONFigure:WCDMA:MEAS:RFSettings:EATTenuation 2

2) ROUTe:WCDMa:MEAS<i>:SCENario:SALone <RXConnector>, <RFConverter>

Activates the standalone scenario and selects the RF input path for the measured RF signal.
Parameters:
<RXConnector>RF connector for the input path

<RFConverter> RX module for the input path
Example: ROUTe:WCDMa:MEAS:SCENario:SALone RF1C, RX1

7.2.12 BER Configuration

1) CONFigure:WCDMa:MEAS<i>:MEValuation:SCOunt:BER <StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot. Use CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or continuous measurements.

Parameters:
<StatisticCount>Number of transport blocks
Range: 1   to   1000
*RST: 100
Example: CONFigure:WCDMa:MEAS:MEValuation:SCOunt:BER 30

7.2.13 Terminal Setting

1) **CONFigure:WCDMa:MEAS<i>:UESignal:DPDCh <DPDCH>**
Defines whether the UL DPCH contains a DPDCH.
For the combined signal path scenario, use CONFigure:WCDMa:SIGN<i>:DL:LEVel:DPCH.
Parameters:
<DPDCH>OFF | ON
OFF: DPCCH only
ON: DPCCH plus DPDCH
*RST:ON
Example: CONFigure:WCDMa:MEAS:UESignal:DPDCh ON

2) **CONFigure:WCDMa:MEAS<i>:UESignal:ULConfig <ULConfiguration>**
Selects the uplink signal configuration.
Parameters:
<ULConfiguration>QPSK | WCDMa | HSDPa | HSUPa | HSPA | HSPLus | DCHS | HDUPlus |
DDUPlus | DHDU | 3CHS | 3DUPlus | 3HDU | 4CHS | 4DUPlus | 4HDU
QPSK: QPSK signal
WCDMa: WCDMA R99 signal
HSDPa: signal with HSDPA-related channels
HSUPa: signal with HSUPA channels
HSPA: HSDPA related and HSUPA channels
HSPLus: HSDPA+ related channels
HDUPlus: HSDPA+ related and HSUPA channels
DHDU: dual carrier HSDPA+ and dual carrier HSUPA active
The following values cannot be set, but can be returned while the combined signal path scenario is active:
DCHS: dual carrier HSDPA+ active
DDUPlus: dual carrier HSDPA+ and HSUPA active
3CHS: three carrier HSDPA+ active
3DUPlus: three carrier HSDPA+ and HSUPA active
3HDU: three carrier HSDPA+ and dual carrier HSUPA active
4CHS: four carrier HSDPA+ active
4DUPlus: four carrier HSDPA+ and HSUPA active
4HDU: four carrier HSDPA+ and dual carrier HSUPA active
*RST:WCDM
Example: CONFigure:WCDMa:MEAS:UESignal:ULConfig HSUPa

8 GSM 程控命令

8.1 General Configuration

8.1.1 General Measurement Settings

1) **ROUTe:GSM:MEAS<i>:SCENario:SALone <RXConnector>, <RFConverter>**

Activates the standalone scenario and selects the RF input path for the measured RF signal.

For possible connector and converter values, see "Values for RF Path Selection".

Parameters:

<RXConnector>

  RF connector for the input path

<RFConverter>

  RX module for the input path

2) **CONFigure:GSM:MEAS<i>:BAND <Band>**

Selects the GSM frequency band.

For the combined signal path scenario, use:

• CONFigure:GSM:SIGN<i>:BAND:BCCH

• SENSe:GSM:SIGN<i>:BAND:TCH?

Parameters:

<Band>	G04 | G085 | G09 | G18 | G19 | GG08
	G04: GSM400
	G085: GSM850
	G09: GSM900
	G18: GSM1800
	G19: GSM1900
	GG08: GSMGT800
	*RST: G09

3) **CONFigure:GSM:MEAS<i>:RFSettings:FREQuency <Frequency>**

The supported frequency range depends on the instrument model and the available options. The supported range can be smaller than stated here. Refer to the preface of your model-specific base unit manual.

Parameters:

<Frequency>	Range: 70E+6 Hz to 6E+9 Hz
	*RST: 903E+6 Hz

8.1.2 **Multi-Evaluation Measurement Commands**

1) **ABORt:GSM:MEAS<i>:MEValuation**

Starts, stops, or aborts the measurement:

•INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.

•STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.

•ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.

Use FETCh...STATe? to query the current measurement state.

See also: "Measurement Control"

2) **CALCulate:GSM:MEAS<i>:MEValuation:LIST:PVTime:AVERage? [<SegmentStart>, <SegmentCount>]**

Returns the power vs. time results in list mode. By default results are returned for all measured segments. Use the optional parameters to query only a subset.

The values listed below in curly brackets {} are returned for each measured segment: {...}seg 1, {...}seg 2, ..., {...}seg n. The position of measured segments within the range of configured segments and their number n is determined by CONFigure:GSM:MEAS<i>: MEValuation:LIST:LRANge.

The values described below are returned by FETCh commands. The first six values ("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Query parameters:

<SegmentStart>	First segment to be returned
<SegmentCount>	Number of segments to be returned
	Return values:
<1_Reliability>	Reliability Indicator"
{<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Number of measured steps
	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | Q16 | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	Q16: Normal burst, 16-QAM-modulated
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range

<6_OutOfTolerance>	Percentage of measured bursts with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<7_AverBurstPow>}	Range: -100 dBm to 55 dBm
	Default unit: dBm

3) CALCulate:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SMODulation?

Returns the spectrum due to modulation results for segment <no> in list mode. The result is averaged over the statistical length.

The values described below are returned by FETCh commands. The first six values ("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Suffix:

<no>	1..512
	Relative number within the range of measured segments

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Number of measured steps
	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | Q16 | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	Q16: Normal burst, 16-QAM-modulated
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range
<6_OutOfTolerance>	Percentage of measured bursts with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<7_CarrierPower>	Measured carrier output power (reference power)
	Range: -100 dBm to 55 dBm

Default unit: dBm

<8_PowOffsetM19> ...

<27_PowOffsetM0>

<28_PowCarrier>

<29_PowOffsetP0> ...

<48_PowOffsetP19>   <PowOffset M/P n> refers to the average burst power
                                     at the carrier frequency minus/plus the frequency
                                     offset value number n.
                                     Range: -100 dB   to   100 dB
                                     Default unit: dB

4) CALCulate:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SSWitching?

Returns the spectrum due to switching results for segment <no> in list mode. The result
corresponds to the maximum over the statistical length (peak hold mode).

The values described below are returned by FETCh commands. The first six values
("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The
remaining values returned by CALCulate commands are limit check results, one value for each
result listed below.

Suffix:

<no>   1..512
                                     Relative number within the range of measured segments

Return values:

<1_Reliability>   "Reliability Indicator"
                                     In list mode, a zero reliability indicator indicates that the
                                     results in all measured segments are valid. A non-zero
                                     value indicates that an error occurred in at least one of the
                                     measured segments.

<2_SegReliability>   Reliability indicator for the segment. The meaning of the
                                     returned values is the same as for the common reliability
                                     indicator, see previous parameter.

<3_StatistExpired>   Number of measured steps
                                     Range: 0   to   <Statistical Length> (integer value)

<4_BurstType>   GMSK | EPSK | ACCess | Q16 | OFF
                                     Detected burst type of the last measured burst
                                     GMSK: Normal burst, GMSK-modulated
                                     EPSK: Normal burst, 8PSK-modulated
                                     ACCess: Access burst
                                     Q16: Normal burst, 16-QAM-modulated
                                     OFF: Inactive slot

<5_SlotStatistic>   ON | OFF
                                     ON: Averaging over different burst type
                                     OFF: Uniform burst type in the averaging range

<6_OutOfTolerance>   Percentage of measured bursts with failed limit check

	Range: 0 % to 100 %
	Default unit: %
<7_CarrierPower>	Measured carrier output power (reference power)
	Range: -100 dBm to 55 dBm
	Default unit: dBm

<8_PowOffsetM19> ...
<27_PowOffsetM0>
<28_PowCarrier>
<29_PowOffsetP0> ...

<48_PowOffsetP19>	<PowOffset M/P n> refers to the average burst power at the carrier frequency minus/plus the frequency offset value number n.
	Range: -100 dBm to 55 dBm
	Default unit: dBm

5)   CALCulate:GSM:MEAS<i>:MEValuation:PVTime[:ALL]?

Returns burst power values for slot 0 to slot 7. In addition to the current value statistical values are returned (average, minimum and maximum). The relative number of bursts out of tolerance is also returned.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>	"Reliability Indicator"
<2_BurstsOutTol>	Percentage of measurement intervals / bursts of the statistic count (CONFigure:GSM:MEAS<i>:MEValuation: SCOunt:PVTime) exceeding the specified limits, see "Limits (Power vs. Time)"
	Range: 0 % to 100 %
	Default unit: %
<3_AvgPow0> ... <10_AvgPow7>	"Average" burst power values for slot 0 to slot 7
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<11_CurPow0> ... <18_CurPow7>	"Current" burst power values for slot 0 to slot 7
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<19_MaxPow0> ... <26_MaxPow7>	"Maximum" burst power values for slot 0 to slot 7
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<27_MinPow0> ... <34_MinPow7>	"Minimum" burst power values for slot 0 to slot 7
	Range: -100 dBm to 55 dBm
	Default unit: dBm

6) CALCulate:GSM:MEAS<i>:MEValuation:SMODulation:FREQuency?

Returns the average burst power measured at a series of frequencies. The frequencies are determined by the offset values defined via the command CONFigure:GSM:MEAS<i>: MEValuation:SMODulation:OFRequence. All defined offset values are considered (irrespective of their activation status).

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>	"Reliability Indicator"
<2_PowOffsetM19> ...	
<21_PowOffsetM0>	
<22_PowCarrier>	
<23_PowOffsetP0> ...	
<42_PowOffsetP19>	<PowOffsetM/P n> refers to the average burst power at the carrier frequency minus/plus the frequency offset value number n.
	Range: -100 dB to 100 dB
	Default unit: dB

7) CALCulate:GSM:MEAS<i>:MEValuation:SSWitching:FREQuency?

Returns the maximum burst power measured at a series of frequencies. The frequencies are determined by the offset values defined via the command CONFigure:GSM:MEAS<i>: MEValuation:SSWitching:OFRequence. All defined offset values are considered (irrespective of their activation status).

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>	"Reliability Indicator"
<2_PowOffsetM19> ...	
<21_PowOffsetM0>	
<22_PowCarrier>	
<23_PowOffsetP0> ...	
<42_PowOffsetP19>	<PowOffset M/P n> refers to the maximum burst power at the carrier frequency minus/plus the frequency offset value number n.
	Range: -100 dBm to 55 dBm
	Default unit: dBm

8) CONFigure:GSM:MEAS<i>:MEValuation:AMODe <AcquisitionMode>

Selects the method that the 5256C uses for frame synchronization.

Parameters:

<AcquisitionMode>	GAP | PATTern
	GAP: Gap
	PATTern: Pattern
	*RST: GAP

9) CONFigure:GSM:MEAS<i>:MEValuation:APATtern <Timeslot0>, ..., <Timeslot7>

Defines the burst pattern that the 5256C expects in the TDMA frames of the received GSM signal. The pattern is used for frame synchronization if the pattern acquisition mode is active (see CONFigure:GSM:MEAS<i>:MEValuation:AMODe).

Parameters:

<Timeslot0> ...

<Timeslot7>	OFF | GMSK | EPSK
	Pattern selection for corresponding timeslot (0 to 7)
	OFF: No signal expected
	GMSK: GMSK-modulated normal bursts
	EPSK: 8PSK/16-QAM-modulated normal bursts
	*RST: GMSK (timeslot 0), OFF (timeslots 1 to 7)

10) CONFigure:GSM:MEAS<i>:MEValuation:LIST <Enable>

Enables or disables the list mode.

Parameters:

<Enable>	OFF | ON
	ON: Enable list mode
	OFF: Disable list mode
	*RST: OFF

11) CONFigure:GSM:MEAS<i>:MEValuation:LIST:IIFRames <Ignore>

Selects whether idle frames are ignored or cause a "signal low" error. For details, see "Idle frame evaluation".

Parameters:

<Ignore>	OFF | ON
	*RST: OFF

12) CONFigure:GSM:MEAS<i>:MEValuation:LIST:LRANge <StartIndex>, <NrSegments>

Select a range of measured segments. The segments must be configured using CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SETup.

Parameters:

<StartIndex>	First measured segment in the range of configured segments
	Range: 1 to 2000
	*RST: 1
<NrSegments>	Relative number within the range of measured segments

Range: 1   to   512
*RST: 10

13) CONFigure:GSM:MEAS<i>:MEValuation:LIST:OSINdex <OfflineSegIndex>

Selects the number of the segment to be displayed in the measurement diagram. The selected index must be within the range of measured segments (CONFigure:GSM:MEAS<i>: MEValuation:LIST:LRANge).

Setting a value also enables the offline mode.

Parameters:

<OfflineSegIndex>	Range: 1 to 200
	*RST: OFF
	Additional parameters: ON	OFF (enables | disables offline mode)

14) CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:MODulation <ModStatistics>, <EVMenable>, <MagErrorEnable>, <PhaseErrEnable>, <AMPMenable>[, <FramePattern>]

Defines the statistical length for the AVERage, MIN, and MAX calculation and enables the calculation of the different modulation results in segment no. <no>; see "List Mode".

Suffix:

<no>	1..2000
	Segment number

Parameters:

<ModStatistics>	The statistical length is defined in slots. It is limited by the number of evaluated slots (defined via step length or frame pattern).
	Range: 1 to 1000
	*RST: 100
<EVMenable>	OFF	ON
	ON: Enable measurement of EVM
	OFF: Disable measurement of EVM
	*RST: OFF
<MagErrorEnable>	OFF	ON
	Enable or disable measurement of magnitude error
	*RST: OFF
<PhaseErrEnable>	OFF	ON
	Enable or disable measurement of phase error
	*RST: OFF
<AMPMenable>	OFF	ON
	Enable or disable measurement of AM PM delay
	*RST: OFF
<FramePattern>	8-digit binary value, defines the evaluated timeslots in each TDMA frame. Used only if no step length is configured (see CONFigure:GSM:MEAS<i>:MEValuation:LIST:SLENgth).

Range: #B00000000 to #B11111111 (no slots ... all slots measured)

*RST: #B10000000 (first slot in each frame measured)

15) CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:PVTime <Statistic>, <Enable>[, <FramePattern>]

Defines the statistical length for averaging and enables the power vs. time measurement in segment no. <no>; see "List Mode".

Suffix:

<no>	1..2000 Segment number

Parameters:

<Statistic>	The statistical length is defined in slots. It is limited by the number of evaluated slots (defined via step length or frame pattern). Range: 1 to 1000 *RST: 1000
<Enable>	OFF | ON ON: Enable measurement of power vs. time OFF: Disable measurement *RST: OFF
<FramePattern>	8-digit binary value, defines the evaluated timeslots in each TDMA frame. Used only if no step length is configured (see CONFigure:GSM:MEAS<i>:MEValuation:LIST:SLENgth). Range: #B00000000 to #B11111111 (no slots ... all slots measured) *RST: #B10000000 (first slot in each frame measured)

16) CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SETup <SegmentLength>, <Level>, <Frequency>[, <PCL>, <RetriggerFlag>, <EvaluatOffset>]

Defines the length, the analyzer settings, the expected PCL, retrigger setting and evaluation offset of a selected segment. In general, this command must be sent for all measured segments (CONFigure:GSM:MEAS<i>:MEValuation:LIST:LRANge).

The PCL values are used if the global "PCL Mode: PCL" is set (CONFigure:GSM:MEAS<i>:MEValuation:PCLModePCL). They can affect the limit check results; see "PCL Mode".

The current GSM band setting (CONFigure:GSM:MEAS<i>:BAND) specifies the exact meaning of the PCL; see Table "GSM power control levels".

Suffix:

<no>	1..2000 Segment number

Parameters:

<SegmentLength>	Number of steps or frames in the segment, depending on the configured step length (CONFigure:GSM:MEAS<i>:

	MEValuation:LIST:SLENgth).
	If the step length is set to OFF, the segment length is defined in frames. So the number of slots in the segment equals 8 * <SegmentLength>.
	If a step length is defined (1 to 8), the segment length is defined in steps. So the number of slots in the segment equals <StepLength> * <SegmentLength>.
	Range: 1 to 3000
	*RST: 1
<Level>	Expected nominal power in the segment. The range of the expected nominal power can be calculated as follows:
	Range (Expected Nominal Power) = Range (Input Power) + External Attenuation - User Margin
	The input power range is stated in the data sheet.
	*RST: 0 dBm
	Default unit: dBm
<Frequency>	Range: 100E+6 Hz to 6E+9 Hz
	*RST: 903E+6 Hz
	Default unit: Hz
<PCL>	Expected power control level for the segment
	Range: 0 to 31
	*RST: 0
<RetriggerFlag>	OFF	ON
	Specifies whether a trigger event is required for the segment or not. The setting is ignored for the first segment of a measurement and for trigger mode ONCE (see TRIGger: GSM:MEAS<i>:MEValuation:LIST:MODE).
	OFF: measure the segment without retrigger
	ON: wait for trigger event before measuring the segment
	*RST: ON
<EvaluatOffset>	Number of steps at the beginning of the segment which are not measured
	Range: 0 to 1000
	*RST: 0

17) CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SMODulation <Statistic>, <Enable>[, <FramePattern>]

Defines the statistical length for averaging and enables the spectrum due to modulation measurement in segment no. <no>; see "List Mode".

Suffix:

<no>	1..2000
	Segment number

Parameters:

<Statistic>	The statistical length is defined in slots. It is limited by the

number of evaluated slots (defined via step length or frame pattern).

Range: 1 to 1000

*RST: 200

<Enable>
OFF | ON

ON: Enable measurement of spectrum due to modulation results (including the "spectrum modulation time" results in offline mode)

OFF: Disable measurement

*RST: OFF

<FramePattern>
8-digit binary value, defines the evaluated timeslots in each TDMA frame. Used only if no step length is configured (see CONFigure:GSM:MEAS<i>:MEValuation:LIST:SLENgth).

Range: #B00000000 to #B11111111 (no slots ... all slots measured)

*RST: #B10000000 (first slot in each frame measured)

18) CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SSWitching <Statistic>, <Enable>[, <FramePattern>]

Defines the statistical length for the maximum calculation (peak hold mode) and enables the spectrum due to switching measurement in segment no. <no>; see "List Mode".

Suffix:

<no>
1..2000

Segment number

Parameters:

<Statistic>
The statistical length is defined in slots. It is limited by the number of evaluated slots (defined via step length or frame pattern).

Range: 1 to 100

*RST: 10

<Enable>
OFF | ON

ON: Enable measurement of spectrum due to switching (including the "spectrum switching time" results in offline mode)

OFF: Disable measurement

*RST: OFF

<FramePattern>
8-digit binary value, defines the evaluated timeslots in each TDMA frame. Used only if no step length is configured (see CONFigure:GSM:MEAS<i>:MEValuation:LIST:SLENgth).

Range: #B00000000 to #B11111111 (no slots ... all slots measured)

*RST: #B10000000 (first slot in each frame measured)

19) CONFigure:GSM:MEAS<i>:MEValuation:LIST:SLENgth <StepLength>

Selects the step length, i.e. the time difference between two measured TDMA timeslots. A step length of 1 means that every slot is measured, a step length of 8 means that a single timeslot per TDMA frame is measured.

If the step length is set to OFF, an arbitrary number of slots in each TDMA frame can be measured. The measured slots are defined by the <FramePattern> parameter of the following commands:

•CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:MODulation
•CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:PVTime
•CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SMODulation
•CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SSWitching
•CONFigure:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:BER

Parameters:

<StepLength>	Step length as number of TDMA slots
	Range: 1 to 8
	*RST: 8
	Additional parameters: ON | OFF (enable step length | use <FramePattern>)

20) CONFigure:GSM:MEAS<i>:MEValuation:MODulation:DECode <Decode>

Defines whether the guard or tail bits are decoded.

Parameters:

<Decode>	STANdard | GTBits
	STANdard: Guard and tail bits are assumed to be in line with GSM and therefore not decoded.
	GTBits: Guard and tail bits are also decoded.
	*RST: STAN

21) CONFigure:GSM:MEAS<i>:MEValuation:MOEXception <MeasOnException>

Specifies whether measurement results that the 5256C identifies as faulty or inaccurate are rejected.

Parameters:

<MeasOnException>	ON | OFF
	ON: Results are never rejected
	OFF: Faulty results are rejected
	*RST: OFF

22) CONFigure:GSM:MEAS<i>:MEValuation:MSLots   <SlotOffset>,   <SlotCount>, <MeasSlot>

Defines settings for the measured slots.

For the combined signal path scenario, use CONFigure:GSM:SIGN<i>:MSLot:UL.

Parameters:

| <SlotOffset> | Start of the measurement interval relative to the GSM frame boundary |
| | Range: 0   to   7 |

*RST: 0

<SlotCount>   Number of slots to be measured

                                        Range: 1   to   8

                                        *RST: 1

<MeasSlot>   Slot to be measured for one-slot measurements

                                        Range: 0   to   7

                                        *RST: 0

23) CONFigure:GSM:MEAS<i>:MEValuation:MVIew <Timeslot0>, ..., <Timeslot7>

Defines the expected modulation scheme and burst type in all timeslots and adjusts the power/time template accordingly.

Parameters:

<Timeslot0> ... <Timeslot7>   ANY | OFF | GMSK | EPSK | ACCess | Q16

                                        Any burst type can be analyzed

                                        OFF: No signal expected

                                        GMSK: GMSK-modulated normal bursts

                                        EPSK: 8PSK-modulated normal bursts

                                        ACCess: Access bursts

                                        Q16: 16-QAM-modulated normal bursts

                                        *RST: ANY

24) CONFigure:GSM:MEAS<i>:MEValuation:REPetition <Repetition>

Specifies the repetition mode of the measurement. The repetition mode specifies whether the measurement is stopped after a single shot or repeated continuously. Use CONFigure:..:MEAS<i>:...:SCOunt to determine the number of measurement intervals per single shot.

See also: "Statistical Settings"

Parameters:

<Repetition>   SINGleshot | CONTinuous

                                        SINGleshot: Single-shot measurement

                                        CONTinuous: Continuous measurement

                                        *RST: SING

25) CONFigure:GSM:MEAS<i>:MEValuation:RESult[:ALL]   <PvT>,   <EVM>, <MagnitudeError>, <PhaseError>, <IQ>, <ACPModFrequency>, <ACPModTime>, <ACPSwitFreq>, <ACPSwitTime>, <ModScalar>, <BER>, <AMPM>

Enables or disables the evaluation of results and shows or hides the views in the multi-evaluation   measurement.   This   command   combines   all   other CONFigure:GSM:MEAS<i>:MEValuation:RESult... commands.

Parameters:

<PvT>   OFF | ON

                                        Power vs. time

                                        ON: Evaluate results and show the view

                                        OFF: Do not evaluate results, hide the view (if applicable)

	*RST: ON
<EVM>	OFF | ON
	Error vector magnitude
	*RST: ON
<MagnitudeError>	OFF | ON
	Magnitude error
	*RST: OFF
<PhaseError>	OFF | ON
	Phase error
	*RST: ON
<IQ>	OFF | ON
	I/Q constellation
	*RST: OFF
<ACPModFrequency>	OFF | ON
	ACP spectrum modulation frequency
	*RST: ON
<ACPModTime>	OFF | ON
	ACP spectrum modulation time
	*RST: OFF
<ACPSwitFreq>	OFF | ON
	ACP spectrum switching frequency
	*RST: ON
<ACPSwitTime>	OFF | ON
	ACP spectrum switching time
	*RST: OFF
<ModScalar>	OFF | ON
	Scalar modulation results
	*RST: ON
<BER>	OFF | ON
	Bit error rate
	*RST: OFF
<AMPM>	OFF | ON
	AM-PM
	*RST: OFF

26) CONFigure:GSM:MEAS<i>:MEValuation:RESult:BER <Enable>

Enables or disables the evaluation of the AM-PM results, the scalar modulation results, and the bit error rate (BER).

Parameters:

<Enable>	ON | OFF
	ON: Evaluate results
	OFF: Do not evaluate results
	*RST: OFF (all except MSCalar)

27) CONFigure:GSM:MEAS\<i>:MEValuation:RESult:IQ \<Enable>

Enables or disables the evaluation of results and shows or hides the views in the multi-evaluation measurement. The last mnemonic denotes the view type: Power vs. time, error vector magnitude, magnitude error, phase error, I/Q constellation, spectrum modulation frequency, spectrum modulation time, spectrum switching frequency, spectrum switching time.

Use READ...? queries to retrieve results for disabled views.

Parameters:

\<Enable>	ON | OFF
	ON: Evaluate results and show view
	OFF: Do not evaluate results, hide view
	*RST: ON (all except MERRor, SMTime, SSTime, IQ)

28) CONFigure:GSM:MEAS\<i>:MEValuation:RESult:MSCalar \<Enable>

Enables or disables the evaluation of the AM-PM results, the scalar modulation results, and the bit error rate (BER).

Parameters:

\<Enable>	ON | OFF
	ON: Evaluate results
	OFF: Do not evaluate results
	*RST: OFF (all except MSCalar)

29) CONFigure:GSM:MEAS\<i>:MEValuation:RESult:PVTime \<Enable>

Enables or disables the evaluation of results and shows or hides the views in the multi-evaluation measurement. The last mnemonic denotes the view type: Power vs. time, error vector magnitude, magnitude error, phase error, I/Q constellation, spectrum modulation frequency, spectrum modulation time, spectrum switching frequency, spectrum switching time.

Use READ...? queries to retrieve results for disabled views.

Parameters:

\<Enable>	ON | OFF
	ON: Evaluate results and show view
	OFF: Do not evaluate results, hide view
	*RST: ON (all except MERRor, SMTime, SSTime, IQ)

30) CONFigure:GSM:MEAS\<i>:MEValuation:RESult:SMFRequency \<Enable>

Enables or disables the evaluation of results and shows or hides the views in the multi-evaluation measurement. The last mnemonic denotes the view type: Power vs. time, error vector magnitude, magnitude error, phase error, I/Q constellation, spectrum modulation frequency, spectrum modulation time, spectrum switching frequency, spectrum switching time.

Use READ...? queries to retrieve results for disabled views.

Parameters:

<table>
<tr><td><Enable></td><td>ON | OFF</td></tr>
<tr><td></td><td>ON: Evaluate results and show view</td></tr>
<tr><td></td><td>OFF: Do not evaluate results, hide view</td></tr>
<tr><td></td><td>*RST: ON (all except MERRor, SMTime, SSTime, IQ)</td></tr>
</table>

31) CONFigure:GSM:MEAS<i>:MEValuation:RESult:SSFRequency <Enable>

Enables or disables the evaluation of results and shows or hides the views in the multi-evaluation measurement. The last mnemonic denotes the view type: Power vs. time, error vector magnitude, magnitude error, phase error, I/Q constellation, spectrum modulation frequency, spectrum modulation time, spectrum switching frequency, spectrum switching time.

Use READ...? queries to retrieve results for disabled views.

Parameters:

<table>
<tr><td><Enable></td><td>ON | OFF</td></tr>
<tr><td></td><td>ON: Evaluate results and show view</td></tr>
<tr><td></td><td>OFF: Do not evaluate results, hide view</td></tr>
<tr><td></td><td>*RST: ON (all except MERRor, SMTime, SSTime, IQ)</td></tr>
</table>

32) CONFigure:GSM:MEAS<i>:MEValuation:SCOunt:BER <StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot. Use CONFigure:...:MEAS<i>:...: REPetition SINGleshot | CONTinuous to select either single-shot or continuous measurements.

See also: "Statistical Settings"

Parameters:

<table>
<tr><td><StatisticCount></td><td>Number of measurement intervals (bursts) for the "BER" measurement</td></tr>
<tr><td></td><td>Range: 1   to   1000</td></tr>
<tr><td></td><td>*RST: 10</td></tr>
</table>

33) CONFigure:GSM:MEAS<i>:MEValuation:SCOunt:MODulation <StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot. Use CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or continuous measurements.

See also: "Statistical Settings"

Parameters:

<table>
<tr><td><StatisticCount></td><td>Number of measurement intervals for the modulation measurement</td></tr>
<tr><td></td><td>Range: 1   to   1000</td></tr>
<tr><td></td><td>*RST: 10</td></tr>
</table>

34) CONFigure:GSM:MEAS<i>:MEValuation:SCOunt:PVTime <StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot. Use CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or continuous measurements.

See also: "Statistical Settings"

Parameters:

<StatisticCount>   Number of measurement intervals for the power vs. time measurement

Range: 1 to 1000

*RST: 10

35) CONFigure:GSM:MEAS<i>:MEValuation:SCOunt:SMODulation <StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot. Use CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or continuous measurements.

See also: "Statistical Settings"

Parameters:

<StatisticCount>   Number of measurement intervals for the spectrum modulation measurement

Range: 1 to 1000

*RST: 20

36) CONFigure:GSM:MEAS<i>:MEValuation:SCOunt:SSWitching <StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot. Use CONFigure:...:MEAS<i>:...:REPetition SINGleshot | CONTinuous to select either single-shot or continuous measurements.

See also: "Statistical Settings"

Parameters:

<StatisticCount>   Number of measurement intervals for the spectrum switching measurement

Range: 1 to 100

*RST: 10

37) CONFigure:GSM:MEAS<i>:MEValuation:SMODulation:OFRequence <FreqOffset0>, ..., <FreqOffset19>

Defines the frequency offsets to be used for spectrum modulation measurements. The

offsets are defined relative to the analyzer frequency. Up to 20 offsets can be defined and enabled.

  Parameters:

  <FreqOffset0> ...

<FreqOffset19>	Set and enable frequency offset.
	Range: 0 Hz to 3E+6 Hz
	*RST: Offset 0 to 10 in MHz: 0.1, 0.2, 0.25, 0.4, 0.6, 0.8, 1, 1.2, 1.4, 1.6, 1.8 (all ON); Offset 11 to 19: 1.9 MHz (all OFF)
	Default unit: Hz
	Additional parameters: OFF	ON (disables / enables offset using the previous/default value)

38) CONFigure:GSM:MEAS\<i>:MEValuation:SSWitching:OFRequence \<FreqOffset0>, ..., \<FreqOffset19>

  Defines the frequency offsets to be used for spectrum switching measurements. The offsets are defined relative to the analyzer frequency. Up to 20 offsets can be defined and enabled.

Parameters:

<FreqOffset0> ...

<FreqOffset19>	Set and enable frequency offset.
	Range: 0 Hz to 3E+6 Hz
	*RST: Offset 0 to 3 in MHz: 0.4, 0.6, 1.2, 1.8 (all ON); Offset 4 to 19: 1.9 MHz (all OFF)
	Default unit: Hz
	Additional parameters: OFF	ON (disables / enables offset using the previous/default value)

39) CONFigure:GSM:MEAS\<i>:MEValuation:TSEQuence \<TSC>

 Selects the training sequence of the analyzed bursts.

For the combined signal path scenario, use CONFigure:GSM:SIGN\<i>:CELL:BCC.

Parameters:

<TSC>	OFF	TSC0	TSC1	TSC2	TSC3	TSC4	TSC5	TSC6	TSC7	TSCA	DUMM
	OFF: Analyze all bursts, irrespective of their training sequence
	TSC0 ... TSC7:Analyze bursts with a particular GSM training sequence
	TSCA: Analyze bursts with any of the GSM training sequences TSC0 to TSC7
	DUMMY: Analyze GSM-specific dummy bursts
	*RST: TSC0

40) CONFigure:GSM:MEAS\<i\>:RFSettings:EATTenuation \<ExternalAtt\>

Defines an external attenuation (or gain, if the value is negative), to be applied to the RF input connector.

For the combined signal path scenario, useCONFigure:GSM:SIGN\<i\>:RFSettings: EATTenuation:INPut.

Parameters:

\<ExternalAtt\>	Range: -50 dB to 90 dB
	*RST: 0 dB

41) CONFigure:GSM:SIGN\<i\>:RFSettings:ENPower \<ExpectedPower\>

Sets the expected nominal power of the UL signal in manual mode or queries the result if the expected nominal power is calculated automatically according to the UL power control.

To configure the expected nominal power mode, see CONFigure:GSM:SIGN\<i\>: RFSettings:ENPMode.

Parameters:

\<ExpectedPower\>	In manual mode the range of the expected nominal power can be calculated as follows:
	Range (Expected Nominal Power) = Range (Input Power) + External Attenuation - Margin
	The input power range is stated in the data sheet.
	*RST: 33 dBm
	Default unit: dBm

42) CONFigure:GSM:SIGN\<i\>:RFSettings:UMARgin \<Margin\>

Sets the margin that the 5256C adds to the expected nominal power to determine the reference level in manual mode. If the expected nominal power is calculated automatically according to the UL power control settings, a fix margin of 6 dB is used instead.

The reference level minus the external input attenuation must be within the power range of the selected input connector; refer to the data sheet.

Parameters:

\<Margin\>	Range: 0 dB to (55 dB + external attenuation - expected nominal power)
	*RST: 6 dB
	Default unit: dB

43) FETCh:GSM:MEAS\<i\>:MEValuation:BER?

Returns the measured bit error rate. The BER measurement must be enabled using CONFigure:GSM:MEAS\<i\>:MEValuation:RESult:BER.

Return values:

\<Reliability\>	"Reliability Indicator"
\<BER\>	% bit error rate
	Range: 0 % to 100 %

	Default unit: %
<BERabsolute>	Total number of detected bit errors
	The BER measurement evaluates 114 data bits per GMSK-modulated normal burst, 306 data bits per 8PSK-modulated burst.
	Range: 0 to <no. of measured bits>
<BERcount>	Total number of evaluated bits
	Range: 0 to <no. of measured bits>

44) FETCh:GSM:MEAS<i>:MEValuation:LIST:MODulation:AVERage?

Returns the modulation results in list mode.

The values listed below in curly brackets {} are returned for each measured segment: {...}seg 1, {...}seg 2, ..., {...}seg n. The position of measured segments within the range of configured segments and their number n is determined by CONFigure:GSM:MEAS<i>: MEValuation:LIST:LRANge.

The values described below are returned by FETCh commands. The first six values ("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
{<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Number of measured steps
	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | Q16 | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	Q16: Normal burst, 16-QAM-modulated
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range
<6_OutOfTolerance>	Percentage of measured bursts with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<7_EVMRMS>	

<8_EVMpeak>	Error vector magnitude RMS and peak value	
	Range: 0 % to 100 %	
	Default unit: %	
<9_MagErrorRMS>	Magnitude error RMS value	
	Range: 0 % to 100 %	
	Default unit: %	
<10_MagErrorPeak>	Magnitude error peak value	
	Range: -100 % to 100 % (AVERage: 0% to 100 %)	
	Default unit: %	
<11_PhErrorRMS>	Phase error RMS value	
	Range: 0 deg to 180 deg	
	Default unit: deg	
<12_PhErrorPeak>	Phase error peak value	
	Range: -180 deg to 180 deg (AVERage: 0 deg to 180 deg)	
	Default unit: deg	
<13_IQoffset>	I/Q origin offset	
	Range: -100 dB to 0 dB	
	Default unit: dB	
<14_IQimbalance>	I/Q imbalance	
	Range: -100 dB to 0 dB	
	Default unit: dB	
<15_FrequencyError>	Average carrier frequency error	
	Range: -56000 Hz to 56000 Hz	
	Default unit: Hz	
<16_TimingError>	Transmit time error	
	Range: -100 Symbol to 100 Symbol	
	Default unit: Symbol	
<17_BurstPower>	Burst power	
	Range: -100 dBm to 55 dBm	
	Default unit: dBm	
<18_AMPMdelay>}	AM-PM delay (determined for 8PSK and 16-QAM modulation only - for GMSK zeros are returned)	
	Range: -0.9225E-6 s to 0.9225E-6 s (a quarter of a symbol period)	
	Default unit: s	

45) FETCh:GSM:MEASurement:MEValuation:LIST:MODulation:EVM:PEAK:AVERage?

Return error vector magnitude peak values for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	"Reliability Indicator"
<EVMpeak>	Comma-separated list of values, one per measured segment
	Range: 0 % to 100 %

46) FETCh:GSM:MEAS<i>:MEValuation:LIST:MODulation:EVM:RMS:AVERage?

Return error vector magnitude RMS values for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	"Reliability Indicator"
<EVM_RMS>	Comma-separated list of values, one per measured segment
	Range: 0 % to 100 %

47) FETCh:GSM:MEAS<i>:MEValuation:LIST:MODulation:FERRor:AVERage?

Return carrier frequency error results for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	"Reliability Indicator"
<FrequencyError>	Comma-separated list of values, one per measured segment
	Range: -56000 Hz to 56000 Hz

48) FETCh:GSM:MEAS<i>:MEValuation:LIST:MODulation:IQOFfset:AVERage?

Return I/Q origin offset results for all measured list mode segments.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	"Reliability Indicator"
<IQoffset>	Comma-separated list of values, one per measured segment
	Range: -100 dB to 0 dB

49) FETCh:GSM:MEAS<i>:MEValuation:LIST:MODulation:MAXimum?

Returns the modulation results in list mode.

The values listed below in curly brackets {} are returned for each measured segment: {...}seg 1, {...}seg 2, ..., {...}seg n. The position of measured segments within the range of configured segments and their number n is determined by CONFigure:GSM:MEAS<i>:MEValuation:LIST:LRANge.

The values described below are returned by FETCh commands. The first six values ("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
{<2_SegReliability>	Reliability indicator for the segment. The meaning of the

returned values is the same as for the common reliability indicator, see previous parameter.

<3_StatistExpired>	Number of measured steps
	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | Q16 | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	Q16: Normal burst, 16-QAM-modulated
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range
<6_OutOfTolerance>	Percentage of measured bursts with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<7_EVMRMS>	
<8_EVMpeak>	Error vector magnitude RMS and peak value
	Range: 0 % to 100 %
	Default unit: %
<9_MagErrorRMS>	Magnitude error RMS value
	Range: 0 % to 100 %
	Default unit: %
<10_MagErrorPeak>	Magnitude error peak value
	Range: -100 % to 100 % (AVERage: 0% to 100 %)
	Default unit: %
<11_PhErrorRMS>	Phase error RMS value
	Range: 0 deg to 180 deg
	Default unit: deg
<12_PhErrorPeak>	Phase error peak value
	Range: -180 deg to 180 deg (AVERage: 0 deg to 180 deg)
	Default unit: deg
<13_IQoffset>	I/Q origin offset
	Range: -100 dB to 0 dB
	Default unit: dB
<14_IQimbalance>	I/Q imbalance
	Range: -100 dB to 0 dB
	Default unit: dB
<15_FrequencyError>	Average carrier frequency error
	Range: -56000 Hz to 56000 Hz
	Default unit: Hz
<16_TimingError>	Transmit time error
	Range: -100 Symbol to 100 Symbol

Default unit: Symbol

<17_BurstPower>   Burst power

Range: -100 dBm   to   55 dBm

Default unit: dBm

<18_AMPMdelay>}   AM-PM delay (determined for 8PSK and 16-QAM modulation only - for GMSK zeros are returned)

Range: -0.9225E-6 s   to   0.9225E-6 s (a quarter of a symbol period)

Default unit: s

50) FETCh:GSM:MEASurement:MEValuation:LIST:PVTime:AVERage?

Returns the power vs. time results in list mode. By default results are returned for all measured segments. Use the optional parameters to query only a subset.

The values listed below in curly brackets {} are returned for each measured segment: {...}seg 1, {...}seg 2, ..., {...}seg n. The position of measured segments within the range of configured segments and their number n is determined by CONFigure:GSM:MEAS<i>: MEValuation:LIST:LRANge.

The values described below are returned by FETCh commands. The first six values ("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Query parameters:

<SegmentStart>   First segment to be returned

<SegmentCount>   Number of segments to be returned

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Return values:

<1_Reliability>   "Reliability Indicator"

{<2_SegReliability>   Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.

<3_StatistExpired>   Number of measured steps

Range: 0   to   <Statistical Length> (integer value)

<4_BurstType>   GMSK | EPSK | ACCess | Q16 | OFF

Detected burst type of the last measured burst

GMSK: Normal burst, GMSK-modulated

EPSK: Normal burst, 8PSK-modulated

ACCess: Access burst

Q16: Normal burst, 16-QAM-modulated

OFF: Inactive slot

<5_SlotStatistic>   ON | OFF

ON: Averaging over different burst type

OFF: Uniform burst type in the averaging range

<6_OutOfTolerance>   Percentage of measured bursts with failed limit check

Range: 0 %   to   100 %

	Default unit: %
<7_AverBurstPow>}	Range: -100 dBm to 55 dBm
	Default unit: dBm

51) FETCh:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:BER?

Returns the BER results for segment <no> in list mode.

Suffix:

<no>   1..512

Relative number within the range of measured segments

Return values:

<1_Reliability>   "Reliability Indicator"

In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.

<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Number of measured steps
	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range
<6_BER>	% bit error rate
	Range: 0 % to 100 %
	Default unit: %
<7_BERabsolute>	Total number of detected bit errors
	The BER measurement evaluates:
	114 data bits per GMSK-modulated normal burst
	306 data bits per 8PSK-modulated burst.
	Range: 0 to <no. of measured bits>
<8_BERcount>	Total number of measured bursts
	Range: 0 to <StatisticCount>
	For <StatisticCount>, see CONFigure:GSM:MEAS<i>: MEValuation:SCOunt:BER

52) FETCh:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:MODulation:AVERage?

Returns the modulation results for segment <no> in list mode.

The values described below are returned by FETCh commands. The first six values ("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

The ranges indicated below apply to all results except standard deviation results. The minimum for standard deviation results equals 0. The maximum equals the width of the indicated range divided by two. Exceptions are explicitly stated.

Suffix:

<no>	1..512

Relative number within the range of measured segments

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Number of measured steps
	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | Q16 | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	Q16: Normal burst, 16-QAM-modulated
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range
<6_OutOfTolerance>	Percentage of measured bursts with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<7_EVMRMS>	
<8_EVMpeak>	Error vector magnitude RMS and peak value
	Range: 0 % to 100 %
	Default unit: %
<9_MagErrorRMS>	Magnitude error RMS value
	Range: 0 % to 100 %
	Default unit: %
<10_MagErrorPeak>	Magnitude error peak value
	Range: -100 % to 100 % (AVERage: 0% to 100 %, SDEViation: 0 % to 50 %)

	Default unit: %
<11_PhErrorRMS>	Phase error RMS value
	Range: 0 deg to 180 deg
	Default unit: deg
<12_PhErrorPeak>	Phase error peak value
	Range: -180 deg to 180 deg (AVERage: 0 deg to 180 deg, SDEViation: 0 deg to 90 deg)
	Default unit: deg
<13_IQoffset>	I/Q origin offset
	Range: -100 dB to 0 dB
	Default unit: dB
<14_IQimbalance>	I/Q imbalance
	Range: -100 dB to 0 dB
	Default unit: dB
<15_FrequencyError>	Carrier frequency error
	Range: -56000 Hz to 56000 Hz
	Default unit: Hz
<16_TimingError>	Transmit time error
	Range: -100 Symbol to 100 Symbol
	Default unit: Symbol
<17_BurstPower>	Burst power
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<18_AMPMdelay>	AM-PM delay, determined for 8PSK and 16-QAM modulation only - for GMSK zeros are returned
	Range: -0.9225E-6 s to 0.9225E-6 s (a quarter of a symbol period)
	Default unit: s

53) FETCh:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:PVTime:AVERage:SVECtor?

Returns special burst power results for segment <no> in list mode.

Suffix:

<no>	1..512
	Relative number within the range of measured segments

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Number of measured steps

	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | Q16 | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	Q16: Normal burst, 16-QAM-modulated
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range
<6_OutOfTolerance>	Percentage of measured bursts with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<7_UsefulPartMin>	
<8_UsefulPartMax>	Minimum and maximum power across the useful part of the burst
	Range: -100 dB to 100 dB
	Default unit: dB

<9_Subvector1> ... <20_Subvector12>

Burst power at position in µs: –28, –18, –10, 0, 2, 4, 538.2, 540.2, 542.8, 552.8, 560.8, 570.8.

Range: -100 dB to 100 dB

Default unit: dB

54) FETCh:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SMODulation?

Returns the spectrum due to modulation results for segment <no> in list mode. The result is averaged over the statistical length.

The values described below are returned by FETCh commands. The first six values ("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Suffix:

<no>   1..512

Relative number within the range of measured segments

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability indicator, see previous parameter.
<3_StatistExpired>	Number of measured steps

	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | Q16 | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	Q16: Normal burst, 16-QAM-modulated
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range
<6_OutOfTolerance>	Percentage of measured bursts with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<7_CarrierPower>	Measured carrier output power (reference power)
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<8_PowOffsetM19> ...	
<27_PowOffsetM0>	
<28_PowCarrier>	
<29_PowOffsetP0> ...	
<48_PowOffsetP19>	<PowOffset M/P n> refers to the average burst power at the carrier frequency minus/plus the frequency offset value number n.
	Range: -100 dB to 100 dB
	Default unit: dB

55) FETCh:GSM:MEAS<i>:MEValuation:LIST:SEGMent<no>:SSWitching?

Returns the spectrum due to switching results for segment <no> in list mode. The result corresponds to the maximum over the statistical length (peak hold mode).

The values described below are returned by FETCh commands. The first six values ("Reliability" to "Out of Tolerance" result) are also returned by CALCulate commands. The remaining values returned by CALCulate commands are limit check results, one value for each result listed below.

Suffix:

<no> 1..512

Relative number within the range of measured segments

Return values:

<1_Reliability>	"Reliability Indicator"
	In list mode, a zero reliability indicator indicates that the results in all measured segments are valid. A non-zero value indicates that an error occurred in at least one of the measured segments.
<2_SegReliability>	Reliability indicator for the segment. The meaning of the returned values is the same as for the common reliability

indicator, see previous parameter.

<3_StatistExpired>	Number of measured steps
	Range: 0 to <Statistical Length> (integer value)
<4_BurstType>	GMSK | EPSK | ACCess | Q16 | OFF
	Detected burst type of the last measured burst
	GMSK: Normal burst, GMSK-modulated
	EPSK: Normal burst, 8PSK-modulated
	ACCess: Access burst
	Q16: Normal burst, 16-QAM-modulated
	OFF: Inactive slot
<5_SlotStatistic>	ON | OFF
	ON: Averaging over different burst type
	OFF: Uniform burst type in the averaging range
<6_OutOfTolerance>	Percentage of measured bursts with failed limit check
	Range: 0 % to 100 %
	Default unit: %
<7_CarrierPower>	Measured carrier output power (reference power)
	Range: -100 dBm to 55 dBm
	Default unit: dBm
<8_PowOffsetM19> ...	
<27_PowOffsetM0>	
<28_PowCarrier>	
<29_PowOffsetP0> ...	
<48_PowOffsetP19>	<PowOffset M/P n> refers to the average burst power at the carrier frequency minus/plus the frequency offset value number n.
	Range: -100 dBm to 55 dBm
	Default unit: dBm

56) FETCh:GSM:MEAS<i>:MEValuation:LIST:SMODulation:CPOWer?

Return carrier output power results for all measured list mode segments, for spectrum due to modulation or spectrum due to switching measurement.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>	"Reliability Indicator"
<CarrierPower>	Comma-separated list of values, one per measured segment
	Range: -100 dBm to 55 dBm

57) FETCh:GSM:MEAS<i>:MEValuation:LIST:SMODulation:POFFset<no>?

Return the burst power at the carrier frequency minus/plus a selected frequency offset, for all measured list mode segments of the spectrum due to modulation measurement.

The values described below are returned by FETCh commands. CALCulate commands

return limit check results instead, one value for each result listed below.

Suffix:

<no>   1..41

                             Index selecting one of the configured frequency offsets:

                             1..20 = minus offset 19 to minus offset 0

                             21 = carrier frequency, no offset

                             22..41 = plus offset 0 to plus offset 19

Return values:

<Reliability>   "Reliability Indicator"

<Power>   Comma-separated list of values, one per measured segment

                             Range: -100 dB   to   100 dB

58) FETCh:GSM:MEAS<i>:MEValuation:LIST:SSWitching:CPOWer?

Return carrier output power results for all measured list mode segments, for spectrum due to modulation or spectrum due to switching measurement.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>   "Reliability Indicator"

<CarrierPower>   Comma-separated list of values, one per measured segment

                             Range: -100 dBm   to   55 dBm

59) FETCh:GSM:MEAS<i>:MEValuation:LIST:SSWitching:POFFset<no>?

Return the burst power at the carrier frequency minus/plus a selected frequency offset, for all measured list mode segments of the spectrum due to switching measurement.

The values described below are returned by FETCh commands. CALCulate commands return limit check results instead, one value for each result listed below.

Suffix:

<no>   1..41

                             Index selecting one of the configured frequency offsets:

                             1..20 = minus offset 19 to minus offset 0

                             21 = carrier frequency, no offset

                             22..41 = plus offset 0 to plus offset 19

Return values:

<Reliability>   "Reliability Indicator"

<Power>   Comma-separated list of values, one per measured segment

                             Range: -100 dBm   to   55 dBm

60) FETCh:GSM:MEAS<i>:MEValuation:MODulation:AVERage?

Returns the average single slot modulation results of the multi-evaluation measurement.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The number to the left of each result parameter is provided for easy identification of

the parameter position within the result array.

Return values:

<1_Reliability>   "Reliability Indicator"

<2_OutOfTolerance> Percentage of measurement intervals / bursts of the statistic count (CONFigure:GSM:MEAS<i>:MEValuation:SCOunt: MODulation) exceeding the specified modulation limits.

Range: 0 %   to   100 %

Default unit: %

<3_EVMRMS>

<4_EVMpeak>   Error vector magnitude RMS and peak value

Range: 0 %   to   100 %

Default unit: %

<5_MagErrorRMS>

<6_MagErrorPeak>   Magnitude error RMS and peak value

Range: 0 %   to   100 %

Default unit: %

<7_PhaseErrorRMS>

<8_PhaseErrorPeak> Phase error RMS and peak value

Range: 0 deg   to   180 deg

Default unit: deg

<9_IQoffset>   I/Q origin offset

Range: -100 dB   to   0 dB

Default unit: dB

<10_IQimbalance>   I/Q imbalance

Range: -100 dB   to   0 dB

Default unit: dB

<11_FrequencyError> Carrier frequency error

Range: -56000 Hz   to   56000 Hz

Default unit: Hz

<12_TimingError>   Transmit time error

Range: -100 Sym   to   100 Sym

Default unit: Symbol

<13_BurstPower>   Burst power

Range: -100 dBm   to   55 dBm

Default unit: dBm

<14_AMPMdelay>   AMPM delay (determined for 8PSK and 16-QAM modulation only - for GMSK zeros are returned)

Range: -0.9225E-6 s   to   0.9225E-6 s

Default unit: s

61) FETCh:GSM:MEAS<i>:MEValuation:MODulation:PERCentile?

Returns the 95th percentile results of the multi-evaluation measurement.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>   "Reliability Indicator"

<2_OutOfTolerance> Percentage of measurement intervals / bursts of the statistic count (CONFigure:GSM:MEAS<i>:MEValuation:SCOunt: MODulation) exceeding the specified modulation limits.
                     Range: 0 %   to   100 %
                     Default unit: %

<3_EVMRMS>   Error vector magnitude percentile
                     Range: 0 %   to   100 %
                     Default unit: %

<4_MagnitudeError> Magnitude error percentile
                     Range: 0 %   to   100 %
                     Default unit: %

<5_PhaseError>   Phase error percentile
                     Range: 0 deg   to   180 deg
                     Default unit: deg

62) FETCh:GSM:MEAS<i>:MEValuation:PVTime[:ALL]?

Returns burst power values for slot 0 to slot 7. In addition to the current value statistical values are returned (average, minimum and maximum). The relative number of bursts out of tolerance is also returned.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability>   "Reliability Indicator"

<2_BurstsOutTol>   Percentage of measurement intervals / bursts of the statistic count (CONFigure:GSM:MEAS<i>:MEValuation:SCOunt:PVTime) exceeding the specified limits, see "Limits (Power vs. Time)"
                     Range: 0 %   to   100 %
                     Default unit: %

<3_AvgPow0> ...
<10_AvgPow7>   "Average" burst power values for slot 0 to slot 7
                     Range: -100 dBm   to   55 dBm
                     Default unit: dBm

<11_CurPow0> ...
<18_CurPow7>   "Current" burst power values for slot 0 to slot 7
                     Range: -100 dBm   to   55 dBm
                     Default unit: dBm

<19_MaxPow0> ...
<26_MaxPow7>   "Maximum" burst power values for slot 0 to slot 7

Range: -100 dBm to 55 dBm

Default unit: dBm

<27_MinPow0> ...

<34_MinPow7> "Minimum" burst power values for slot 0 to slot 7

Range: -100 dBm to 55 dBm

Default unit: dBm

63) FETCh:GSM:MEAS<i>:MEValuation:SMODulation:FREQuency?

Returns the average burst power measured at a series of frequencies. The frequencies are determined by the offset values defined via the command CONFigure:GSM:MEAS<i>: MEValuation:SMODulation:OFRequence. All defined offset values are considered (irrespective of their activation status).

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability> "Reliability Indicator"

<2_PowOffsetM19> ...

<21_PowOffsetM0>

<22_PowCarrier>

<23_PowOffsetP0> ...

<42_PowOffsetP19> <PowOffsetM/P n> refers to the average burst power at the carrier frequency minus/plus the frequency offset value number n.

Range: -100 dB to 100 dB

Default unit: dB

64) FETCh:GSM:MEAS<i>:MEValuation:SSWitching:FREQuency?

Returns the maximum burst power measured at a series of frequencies. The frequencies are determined by the offset values defined via the command CONFigure:GSM: MEAS<i>:MEValuation:SSWitching:OFRequence. All defined offset values are considered (irrespective of their activation status).

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

The number to the left of each result parameter is provided for easy identification of the parameter position within the result array.

Return values:

<1_Reliability> "Reliability Indicator"

<2_PowOffsetM19> ...

<21_PowOffsetM0>

<22_PowCarrier>

<23_PowOffsetP0> ...

<42_PowOffsetP19> <PowOffset M/P n> refers to the maximum burst power at the

carrier frequency minus/plus the frequency offset value
number n.

Range: -100 dBm   to   55 dBm

Default unit: dBm

65) FETCh:GSM:MEAS<i>:MEValuation:STATe?

Queries the main measurement state. Use FETCh:...:STATe:ALL? to query the measurement state including the substates. Use INITiate..., STOP..., ABORt...to change the measurement state.

See also: "Measurement Control"

Return values:

<MeasStatus>   OFF | RUN | RDY

OFF: measurement switched off, no resources allocated, no results available (when entered after ABORt...)

RUN: measurement running (after INITiate..., READ...), synchronization pending or adjusted, resources active or queued

RDY: measurement has been terminated, valid results are available

*RST: OFF

66) FETCh:GSM:MEAS<i>:MEValuation:TRACe:EVMagnitude:CURRent?

Returns the values of the EVM traces. The results of the current, average and maximum traces can be retrieved.

Return values:

<Reliability>   "Reliability Indicator"

<Result_1> ...

<Result_n>   n EVM results, depending on the burst and modulation type

8PSK/16-QAM modulation: 142 values (one value per symbol period, symbol 3 to symbol 144)

GMSK modulation: 588 values (four values per symbol period, symbol 0.5 to symbol 147.5)

Access burst: 348 values (four values per symbol period, symbol 0.5 to symbol 87.5)

Range: 0 %   to   100 %

Default unit: %

67) FETCh:GSM:MEAS<i>:MEValuation:TRACe:IQ[:CURRent]?

Returns the results in the I/Q constellation diagram.

Return values:

<Reliability>   "Reliability Indicator"

<IPhase_1> ...

<IPhase_n>

<QPhase_1> ...

<QPhase_n>	n normalized I and Q amplitudes, depending on the burst and modulation type
	8PSK/16-QAM modulation: 568 values (four values per symbol period, symbol 3 to symbol 144)
	GMSK modulation: 588 values (four values per symbol period, symbol 0.5 to symbol 147.5)
	Access burst: 348 values (four values per symbol period, symbol 0.5 to symbol 87.5)
	Range: -2 to 2

68) FETCh:GSM:MEAS<i>:MEValuation:TRACe:PVTime:CURRent?

Returns the values of the power vs. time traces. 16 results are available for each symbol period of the measured slots (CONFigure:GSM:MEAS<i>:MEValuation:MSLots). The trace covers 18.25 symbol periods before the beginning of the first slot in the measured slot range, 10 symbol periods after the end of the last measured slot. The length of the trace is given as:

The first sample of the "Measurement Slot" is at position m in the trace, where:

The results of the current, average minimum and maximum traces can be retrieved.

Return values:

<Reliability>	"Reliability Indicator"
<Result_1> ...	
<Result_n>	Range: -100 dB to 100 dB
	Default unit: dBm

69) INITiate:GSM:MEAS<i>:MEValuation

Starts, stops, or aborts the measurement:

•INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.

•STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.

•ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.

Use FETCh...STATe? to query the current measurement state.

70) TRIGger:GSM:MEAS<i>:MEValuation:LIST:MODE <Mode>

Specifies whether a trigger event initiates a measurement of the entire measurement interval (comprising the number of segments defined via CONFigure:GSM:MEAS<i>: MEValuation:LIST:LRANge) or a measurement of single segment.

Parameters:

<Mode>	ONCE | SEGMent
	ONCE: A trigger event is only required to start the measurement. The entire range of segments to be measured is captured without additional trigger event. The retrigger flags of the segments are ignored.

SEGMent: The retrigger flag of each segment is evaluated. It defines whether the measurement waits for a trigger event before capturing the segment, or not.
*RST: ONCE

71) TRIGger:GSM:MEAS<i>:MEValuation:SOURce <Source>

Selects the source of the trigger events. Some values are always available in this firmware application. They are listed below. Depending on the installed options, additional values are available. A complete list of all supported values can be displayed using TRIGger:...:CATalog:SOURce?.

Parameters:

<Source>   'Power': Power trigger (received RF power)

'Acquisition': Frame trigger according to defined burst pattern

'Free Run': Free run (untriggered)

*RST: 'Power'

72) TRIGger:GSM:MEAS<i>:MEValuation:THReshold <Threshold>

Defines the trigger threshold for power trigger sources.

Parameters:

<Threshold>   Range: -50 dB   to   0 dB

*RST: -30 dB

Default unit: dB (full scale, i.e. relative to reference level minus external attenuation)

Additional parameters: OFF | ON (disables | enables the threshold)

73) TRIGger:GSM:MEAS<i>:MEValuation:TOUT <TriggerTimeOut>

Selects the maximum time that the 5256C waits for a trigger event before it stops the measurement in remote control mode or indicates a trigger timeout in manual operation mode. This setting has no influence on "Free Run" measurements.

Parameters:

<TriggerTimeOut> Range: 0.01 s   to   167.77215E+3 s

*RST: 0.1 s

Additional parameters: OFF | ON (disables timeout | enables timeout using the previous/default values)

9 GPRF 程控命令

9.1 General Measurement Settings

9.1.1 Signal Routing

1）CONFigure:GPRF:MEAS<i>:RFSettings:EATTenuation <RFInputExtAtt>

Defines an external attenuation (or gain, if the value is negative), to be applied to the RF input connector.

This command is only relevant for the standalone scenario. For the combined signal path scenario, use the corresponding ...:SIGN<i>:.. command.

Parameters:

<RFInputExtAtt>	Range:	-50 dB to 90 dB
	*RST:	0 dB
	Default unit:	dB

Example: CONFigure:GPRF:MEAS:RFSettings:EATTenuation 2

2）ROUTe:GPRF:MEAS<i>:SCENario:SALone <RXConnector>, <RFConverter>

Activates the standalone scenario and selects the RF input path for the measured RF signal.

Parameters:

<RXConnector>   RF connector for the input path

<RFConverter>   RX module for the input path

Example: ROUTe:GPRF:MEAS:SCENario:SALone RF1C, RX1

9.1.2 Analyzer Settings

1）CONFigure:GPRF:MEAS<i>:RFSettings:ENPower<ExpNomPwr>

Sets the expected nominal power of the measured RF signal.

This command is only relevant for the standalone scenario. For the combined signal path scenario, use the corresponding ...:SIGN<i>:.. command.

Parameters:

<ExpNomPwr>   The range of the expected nominal power can be calculated as follows:

Range (Expected Nominal Power) = Range (Input Power) + External Attenuation - User Margin

The input power range is stated in the data sheet.

*RST: 0 dBm

Default unit: dBm

Example: CONFigure:GPRF:MEAS:RFSettings:ENPower 20

2）CONFigure:GPRF:MEAS<i>:RFSettings:FREQuency<AnalyzerFreq>

Selects the center frequency of the RF analyzer.

This command is only relevant for the standalone scenario. For the combined signal path scenario, use the corresponding ...:SIGN<i>:.. command.

The supported frequency range depends on the instrument model and the available options. The supported range can be smaller than stated here. Refer to the preface of your model-specific base unit manual.

Parameters:

<AnalyzerFreq>   Range: 7   0E+6 Hz   to   6E+9 Hz

                    *RST: 1.685E+9 Hz

                    Default unit: Hz

Example: CONFigure:GPRF:MEAS:RFSettings:FREQuency 890.2E+6

3）**CONFigure:GPRF:MEAS<i>:RFSettings:MLOFfset<MixLevOffset>**

Varies the input level of the mixer in the analyzer path.

This command is only relevant for the standalone scenario. For the combined signal path scenario, use the corresponding ...:SIGN<i>:.. command.

Parameters:

<MixLevOffset>   The maximum value is limited to 10 dB for HW with less than 160 MHz
                    bandwidth (BB measurement board or K02/K03).

                    Range: -10 dB   to   16 dB

                    *RST: 0 dB

                    Default unit: dB

Example: CONFigure:GPRF:MEAS:RFSettings:MLOFfset 2

4）**CONFigure:GPRF:MEAS<i>:RFSettings:UMARgin<UserMargin>**

Sets the margin that the 5256C adds to the expected nominal power to determine its reference power. The reference power minus the external input attenuation must be within the power range of the selected input connector; refer to the data sheet.

This command is only relevant for the standalone scenario. For the combined signal path scenario, use the corresponding ...:SIGN<i>:.. command.

Parameters:

<UserMargin>   Range: 0 dB to (55 dB + External Attenuation - Expected
                                   Nominal Power)

                    *RST: 0 dB

                    Default unit: dB

Example: CONFigure:GPRF:MEAS:RFSettings:UMARgin 5

9.2 Power Measurement Commands

9.2.1 Measurement Control and States

1）**INITiate:GPRF:MEAS<i>:POWer**
ABORt:GPRF:MEAS<i>:POWer

Starts, or aborts the measurement:

•**INITiate**... starts or restarts the measurement. The measurement enters the "RUN" state.

•**ABORt**... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released

9.2.2 Measurement Control Parameters

1）**CONFigure:GPRF:MEAS<i>:POWer:FILTer:BANDpass:BWIDth<BandpassBW>**

Selects the bandwidth for a bandpass filter.

Parameters:

<BandpassBW>   Only the values listed in the table can be configured. Values in-between can be entered but are rounded to the listed values.

　　　　　　　　　Range:　　　　1 kHz　to　160 MHz

　　　　　　　　　*RST:　　　　300 kHz

　　　　　　　　　Default unit:　Hz

Example: CONFigure:GPRF:MEAS<i>:POWer:FILTer:BANDpass:BWIDth 30E+3

2）**CONFigure:GPRF:MEAS<i>:POWer:FILTer:TYPE<FilterType>**

Selects the IF filter type.

Parameters:

<FilterType>　　　BANDpass | GAUSs | WCDMa | CDMA | TDSCdma

　　　　　　　　BANDpass:　　Bandpass filter with selectable bandwidth

　　　　　　　　GAUSs:　　　　Filter of Gaussian shape with selectable bandwidth

　　　　　　　　WCDMA:　　　3.84 MHz RRC filter with a roll-off = 0.22 for WCDMA TX tests

　　　　　　　　CDMA:　　　　1.2288 MHz-wide channel filter for CDMA 2000 TX tests

　　　　　　　　TDSCdma:　　1.28 MHz RRC filter with a roll-off = 0.22 for TD-SCDMA TX tests

　　　　　　　　*RST:　　　　GAUS

Example: CONFigure:GPRF:MEAS:POWer:FILTer:TYPE GAUSs

3）**CONFigure:GPRF:MEAS<i>:POWer:MLENgth<MeasLength>**

Selects the length of the averaging intervals that the 5256C uses to calculate the power results for each measurement step. The measurement length must not exceed the step length (CONFigure:GPRF:MEAS<i>:POWer:SLENgth).

Parameters:

<MeasLength>　　　Range:　　　　10E-6 s　to　1 s

　　　　　　　　　*RST:　　　　300E-6 s

　　　　　　　　　Default unit:　s

Example: CONFigure:GPRF:MEAS:POWer:MLENgth 400E-6

4）**CONFigure:GPRF:MEAS<i>:POWer:PDEFset<PredefinedSet>**

This command is related to the global parameter set.

A setting command loads a predefined set of parameters into the global parameter set. A query returns the name of the predefined set assigned to the global parameter set.

Parameters:

<PredefinedSet>   Predefined set as string

5）CONFigure:GPRF:MEAS<i>:POWer:REPetition<Repetition>

Specifies the repetition mode of the measurement. The repetition mode specifies whether the measurement is stopped after a single shot or repeated continuously. Use CONFigure:..:MEAS<i>:...:SCOunt to determine the number of measurement intervals per single shot.

Parameters:

<Repetition>   SINGleshot | CONTinuous

                 SINGleshot: single-shot measurement

                 CONTinuous: continuous measurement

                 *RST: SING

6）CONFigure:GPRF:MEAS<i>:POWer:SCOunt<StatisticCount>

Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.

Parameters:

<StatisticCount>   Number of measurement intervals. A measurement interval comprises a single power/frequency **step (list m**ode switched off) or a sweep (list mode switched on).

                 Range: 1   to   100E+3

                 *RST: 10

Example: CONFigure:GPRF:MEAS:POWer:SCOunt 5

7）CONFigure:GPRF:MEAS<i>:POWer:SLENgth<StepLength>

Selects the time between the beginning of two consecutive measured power steps.

Parameters:

<StepLength>   Range: 50E-6 s   to   1 s

                 *RST: 576.9230769E-6 s (1 GSM timeslot)

                 Default unit: s

Example: CONFigure:GPRF:MEAS:POWer:SLENgth 577.9230769E-6

8）CONFigure:GPRF:MEAS<i>:POWer:TOUT<TCDTimeOut>

Defines a timeout for the measurement. The timer is started when the measurement is initiated via a READ or INIT command. It is not started if the measurement is initiated manually ([ON | OFF] key or [RESTART | STOP] key).

When the measurement has completed the first measurement cycle (first single shot), the statistical depth is reached and the timer is reset.

If the first measurement cycle has not been completed when the timer expires, the measurement is stopped. The measurement state changes to RDY. The reliability indicator is set to 1, indicating that a measurement timeout occurred. Still running READ, FETCh or CALCulate commands are completed, returning the available results. At least for some results, there are no values at all or the statistical depth has not been reached.

A timeout of 0 s corresponds to an infinite measurement timeout.

Parameters:

<TCDTimeOut>   Default unit: s

Example: CONFigure:GPRF:MEAS:POWer:TOUT 1

9.2.3 Trigger Settings

1） TRIGger:GPRF:MEAS<i>:POWer:MGAP<MinimumGap>

Sets a minimum time during which the IF signal must be below the trigger threshold before the trigger is armed so that an IF power trigger event can be generated.

Parameters:

<MinimumGap>   Range: 0 s to 0.01 s

                        *RST: 0 s

                        Default unit: s

Example: TRIGger:GPRF:MEAS:POWer:MGAP 0.0001

2） TRIGger:GPRF:MEAS<i>:POWer:MODE<Mode>

Selects the measurement sequence that is triggered by each single trigger event. This setting is not valid for free run measurements.

Parameters:

<Mode>   ONCE | SWEep | ALL | PRESelect

             ONCE: "Trigger Once"

             SWEep: "Retrigger Sweep"

             ALL: "Retrigger All"

             PRESelect: "Retrigger Preselect"

             *RST: SWE

Example: TRIGger:GPRF:MEAS:POWer:MODE ONCE

3） TRIGger:GPRF:MEAS<i>:POWer:OFFSet<Offset>

Defines a delay time for triggered measurements. The trigger offset delays the start of the measurement relative to the trigger event.

Parameters:

<Offset>   Range: 0 s   to   1 s

             *RST: 100E-6 s

             Default unit: s

Example: TRIGger:GPRF:MEAS:POWer:OFFSet 50E-6

4） TRIGger:GPRF:MEAS<i>:POWer:SOURce<Source>

Selects the source of the trigger events. Some values are always available in this firmware application. They are listed below. Depending on the installed options, additional values are available. A complete list of all supported values can be displayed using TRIGger:...:CATalog:SOURce?.

Parameters:

<Source>   'IF Power':   IF power trigger

'Free Run':   free run (untriggered)

　　　*RST: 'Free Run'

Example: TRIGger:GPRF:MEAS:POWer:SOURce 'IF Power'

5）TRIGger:GPRF:MEAS<i>:POWer:THReshold<Threshold>

Defines the trigger threshold for power trigger sources.

Parameters:

<Threshold>   Range: -50 dB   to   0 dB

　　　　　　　　　　　*RST: -30 dB

　　　　　　　　　　　Default unit: dB (full scale, i.e. relative to reference level minus external attenuation)

Example: TRIGger:GPRF:MEAS:POWer:THReshold -25

6）TRIGger:GPRF:MEAS<i>:POWer:TOUT<Timeout>

Selects the maximum time that the 5256C waits for a trigger event before it stops the measurement in remote control mode or indicates a trigger timeout in manual operation mode. This setting has no influence on "Free Run" measurements.

Parameters:

<Timeout>   Range: 0.01 s   to   300 s

　　　　　　　　　Increment: 0.01 s

　　　　　　　　　*RST: 1 s

　　　　　　　　　Default unit: s

　　　　　　　　　Additional values: OFF | ON (disables | enables the timeout check).

Example: TRIGger:GPRF:MEAS:POWer:TOUT 2

9.2.4 List Configuration

1）CONFigure:GPRF:MEAS<i>:POWer:LIST<EnableListMode>

Enables or disables the list mode for the power measurement.

Parameters:

<EnableListMode>   OFF | ON

　　　　　　　　　　　　　OFF: list mode off (single power step)

　　　　　　　　　　　　　ON: list mode on

　　　　　　　　　　　　　*RST: OFF

Example: CONFigure:GPRF:MEAS:POWer:LIST ON

2）CONFigure:GPRF:MEAS<i>:POWer:LIST:ENPower:ALL<ExpNomPower>

Defines the expected nominal power of all frequency/level steps.

Parameters:

<ExpNomPower>   Comma-separated list of up to 2000 expected powers, one value per frequency/level step

　　　　　　　　　　　A query returns 2000 values (maximum number of steps).

　　　　　　　　　　　Range: -55 dBm   to   55 dBm

	Increment:	0.001 dB
	*RST:	-10 dBm, -10 dBm, -10 dBm, -20 dBm, -20 dBm, -20 dBm, -
		20 dBm, -30 dBm, ..., -30 dBm
	Default unit:	dBm

Example: CONFigure:GPRF:MEAS:POWer:LIST:ENPower:ALL -5, -5

3）CONFigure:GPRF:MEAS<i>:POWer:LIST:FREQuency:ALL<Frequency>

Defines the frequencies of all frequency/level steps.

The supported frequency range depends on the instrument model and the available options. The supported range can be smaller than stated here. Refer to the preface of your model-specific base unit manual.

Parameters:

<Frequency>	Comma-separated list of up to 2000 frequencies, with one value per frequency/level step
	A query returns 2000 results (maximum number of steps).
	Range:	70E+6 Hz to 6E+9 Hz
	Increment:	0.1 Hz
	*RST:	value 0 to 19: 750 MHz to 940 MHz, value 20 to 1999: 940 MHz
	Default unit:	Hz

Example: CONFigure:GPRF:MEAS:POWer:LIST:FREQuency:ALL 7.55E+8, 7.56E+8

4）CONFigure:GPRF:MEAS<i>:POWer:LIST:IREPetition:ALL<Repetition>

Sets/gets the individual number of repetitions of all list segments.

Parameters:

<Repetition>	List of n comma-separated values, one per list segment, where n ≤ 2000. The query returns 2000 results.
	Range:	1 to 10000
	Increment:	The total number of results (segments with repetitions) in the selected list section must not be higher than 10000.
	*RST:	1

5）CONFigure:GPRF:MEAS<i>:POWer:LIST:STARt<StartIndex>

Start index, defines the first list segment to be measured.

The total number of results (segments with repetitions) in the selected list section must not be higher than 10000.

Parameters:

| <StartIndex> | Range: | 0 to 1999 |
| | *RST: | 0 |

Example: CONFigure:GPRF:MEAS:POWer:LIST:STARt 0

6）CONFigure:GPRF:MEAS<i>:POWer:LIST:STOP<StopIndex>

Stop index, defines the last list segment to be measured.

The total number of results (segments with repetitions) in the selected list section must not be higher than 10000.

Parameters:

<StopIndex>   Range: 0 to 3999

               *RST: 19

Example: CONFigure:GPRF:MEAS:POWer:LIST:STOP 7

9.2.5 Results for Single-Step Power Evaluation

1）FETCh:GPRF:MEAS<i>:POWer:AVERage?
    READ:GPRF:MEAS<i>:POWer:AVERage?

Returns RF power results, see "Measurement Results".

The following results can be retrieved:

•"Power Average RMS" (...:AVERage?)

Return values:

<Reliability>   See "Reliability Indicator"

<Value_1>,...,<Value_n>   If list mode is switched off, a single value is returned. In list mode, n is equal to the step count (CONFigure: GPRF:MEAS<i>:POWer:LIST: COUNt?).

                             CALCulate commands return error indicators for each measured power step.

                             FETCh/READ commands return RF power values for each measured power step.

                             Range: -100 dBm to 57 dBm

                             Default unit: dBm

Example: FETCh:GPRF:MEAS:POWer:AVERage?

9.3 FFT Spectrum Analyzer Commands

9.3.1 Measurement Control and States

1）ABORt:GPRF:MEAS<i>:FFTSanalyze
    INITiate:GPRF:MEAS<i>:FFTSanalyzer

Starts,aborts the measurement:

•**ABORt**... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released

•**INITiate**... starts or restarts the measurement. The measurement enters the "RUN" state.

Example: INITiate:GPRF:MEAS:FFTSanalyzer

9.3.2 Measurement Control Parameters

1）CONFigure:GPRF:MEAS<i>:FFTSanalyzer:FFTLength<Length>

Selects the number of samples (FFT length) for the FFT analysis.

Parameters:

<Length>   Range: 1024 | 2048 | 4096 | 8192 | 16384 (other values are
                                rounded to the closest possible FFT length)
                    *RST: 2048

Example: CONFigure:GPRF:MEAS:FFTSanalyzer:FFTLength MAX

2）CONFigure:GPRF:MEAS<i>:FFTSanalyzer:FSPan<FrequencySpan>

Selects the calculated and displayed frequency range (span) of the FFT spectrum analyzer.

Parameters:

<FrequencySpan>   Range: 25 MHz | 2.5 MHz | 5 MHz | 10 MHz | 20 MHz | 40
                                  MHz | 80 MHz | 160 MHz
                    *RST: 10 MHz
                    Default unit: Hz

Example: CONFigure:GPRF:MEAS:FFTSanalyzer:FSPan 2e+07

9.3.3 Measurement Results

1）FETCh:GPRF:MEAS<i>:FFTSanalyzer:PEAKs:AVERage?

Returns the results of the peak search. Separate commands retrieve current and average values.

There are results for search range no. 0 to 4:

<Reliability>, <Frequency0>, <Power0>, ..., <Frequency4>, <Power4>

Return values:

<Reliability>   See "Reliability Indicator"

<Frequency>   The range depends on the search range settings, see
                    CONFigure:GPRF:MEAS<i>:FFTSanalyzer:PSEarch.
                    Default unit: Hz

<Power>   Range: -100 dBm   to   57 dBm
                    Default unit: dBm

Example: FETCh:GPRF:MEAS:FFTSanalyzer:PEAKs:AVERage?

9.4 Pathloss Measurement Commands

9.4.1Measurement Control and States

1）ABORt:GPRF:MEAS<i>:PLOSs
**   STOP:GPRF:MEAS<i>:PLOSs**

Halts the measurement immediately. Results that have been available before this measurement are kept.

Stops or aborts the measurement:

• STOP...: The measurement enters the "RDY" state. The resources remain allocated to the measurement.

•ABORt...: The measurement enters the "OFF" state. Allocated resources are released.

2）FETCh:GPRF:MEAS<i>:PLOSs:STATe?

Queries the main measurement state. Use FETCh:...:STATe:ALL? to query the measurement state including the substates. Use INITiate..., STOP..., ABORt...to change the measurement state.

Return values:

<MeasState>   OFF | RUN | RDY

          OFF: measurement off, no resources allocated

          RUN: easurement running, synchronization pending or adjusted, resources active or queued

          RDY: easurement finished

          *RST: OFF

3）FETCh:GPRF:MEAS<i>:PLOSs:STATe:ALL?

Queries the main measurement state and the measurement substates. Both measurement substates are relevant for running measurements only. Use FETCh:...:STATe? to query the main measurement state only. Use INITiate..., STOP..., ABORt... to change the measurement state.

Return values:

<MainState>   OFF | RUN | RDY

          OFF: measurement off, no resources allocated

          RUN: measurement running, substates apply

          RDY: measurement finished

          *RST: FF

<SyncState>   PEND | ADJ | INV

          PEND: waiting for resource allocation, adjustment, hardware switching

          ADJ: adjusted, measurement running

          INV: state not applicable, <MainState> OFF or RDY

<ResourceState> QUE | ACT | INV

          QUE: measurement without resources

          ACT: resources allocated, acquisition of results in progress

          INV: state not applicable, <MainState> OFF or RDY

4）INITiate:GPRF:MEAS<i>:PLOSs:EVALuate<Connector>[, <PathIndex>]
INITiate:GPRF:MEAS<i>:PLOSs:OPEN<Connector>[, <PathIndex>]
INITiate:GPRF:MEAS<i>:PLOSs:SHORt<Connector>[, <PathIndex>]

Sets the measurement mode according to the last mnemonic ("Open", "Short" or "Eval"). Selects an RF connector and optionally a path of that connector. Starts the measurement.

Parameters:

<Connector>   RF connector of the path to be measured

<PathIndex>   P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8

                 Path index, default value P1

                 Skip the setting if you have only one path at the connector.

Example: INITiate:GPRF:MEAS:PLOSs:OPEN R11

9.4.2 Settings

1） CONFigure:GPRF:MEAS\<i>:PLOSs:LIST:FREQuency\<Connector>, \<NumEntries>, \<Frequency>...
    CONFigure:GPRF:MEAS\<i>:PLOSs:LIST:FREQuency? \<Connector>

Configures the frequency list for a selected RF connector, path index 1.

Use this command if you have only a single signal path at the RF connector.

The supported frequency range depends on the instrument model and the available options. The supported range can be smaller than stated here. Refer to the preface of your model-specific base unit manual.

Parameters:

\<NumEntries>	Configures the number of frequencies to be defined	
	Range:	1 to 200
	*RST:	1
\<Frequency>	Comma-separated list of \<NumEntries> frequencies	
	Range:	70E+6 Hz to 6E+9 Hz
	*RST:	70E+6 Hz
	Default unit:	Hz

Parameters for setting and query:

\<Connector>	RF connector for which the frequency list is configured

Example: CONF:GPRF:MEAS:PLOSs:LIST:FREQuency R11, 4, 100 MHz, 1.6 GHz, 3.6 GHz, 6 GHz

2）CONFigure:GPRF:MEAS\<i>:PLOSs:MPATh:LIST:FREQuency\<Connector>, \<PathIndex>,\<NumEntries>, \<Frequency>...
    CONFigure:GPRF:MEAS\<i>:PLOSs:MPATh:LIST:FREQuency?\<Connector>
    , \<PathIndex>

Configures the frequency list for a selected path of a selected RF connector.

Use this command if you have an external RF switch with several signal paths at the RF connector.

The supported frequency range depends on the instrument model and the available options. The supported range can be smaller than stated here. Refer to the preface of your model-specific base unit manual.

\<NumEntries>	Configures the number of frequencies to be defined	
	Range:	1 to 200
	*RST:	1
\<Frequency>	Comma-separated list of \<NumEntries> frequencies	
	Range:	70E+6 Hz to 6E+9 Hz
	*RST:	70E+6 Hz
	Default unit:	Hz

Parameters for setting and query:

\<Connector>	RF connector for which the frequency list is configured
\<PathIndex>	P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8

3）CONFigure:GPRF:MEAS\<i>:PLOSs:TRACe\<TraceMode>

Selects whether a result diagram is provided.

Parameters:

<TraceMode>   OFF | ON

                  OFF: no result diagram, faster measurement

                  ON: result diagram, slower measurement

                  *RST: ON

Example: CONFigure:GPRF:MEAS:PLOSs:TRACe OFF

4）CONFigure:GPRF:MEAS<i>:PLOSs:VIEW:AFTaps<AvgFilterTaps>

Configures the number of frequencies over which the gain results are averaged.

Parameters:

<AvgFilterTaps>   Range: 1 to 21

                     *RST: 11

Example: CONFigure:GPRF:MEAS:PLOSs:VIEW:AFTaps 15

9.4.3 Measurement Results

1）FETCh:GPRF:MEAS<i>:PLOSs:EVAL:FREQuency? <Connector>[, <PathIndex>]

Returns the frequency values of the result table for a selected path of a selected connector.

The order of the list entries is the same as in the command FETCh:GPRF:MEAS<i>:PLOSs:EVAL:GAIN?. Use this command to check at which frequencies the gain values have been measured.

For possible connector values, see "Values for RF Path Selection".

Query Parameters:

<Connector>   RF connector for which results are queried

<PathIndex>   P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8

                  Path index, default value P1

                  Skip the parameter if you have only one path at the connector.

Return values:

<Reliability>   See "Reliability Indicator"

<Frequency>   Comma-separated list of frequency values

                  Default unit: Hz

Example: FETCh:GPRF:MEAS:PLOSs:EVAL:FREQuency? R11

2）FETCh:GPRF:MEAS<i>:PLOSs:EVAL:GAIN? <Connector>[, <PathIndex>]

Returns the gain values of the result table for a selected path of a selected connector.

For possible connector values, see "Values for RF Path Selection".

Query Parameters:

<Connector>   RF connector for which results are queried

<PathIndex>   P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8

                  Path index, default value P1

                  Skip the parameter if you have only one path at the connector.

Return values:

<Reliability>   See "Reliability Indicator"
<Gain>   Comma-separated list of gain values
                         Default unit: dB
Example: FETCh:GPRF:MEAS:PLOSs:EVAL:GAIN? R11

3）FETCh:GPRF:MEAS<i>:PLOSs:EVAL:STATe? <Connector>[, <PathIndex>]

Queries the result state for all measurement modes and a selected path of a selected connector.

For possible connector values, see "Values for RF Path Selection".

Query Parameters:

<Connector>   RF connector for which the result state is queried
<PathIndex>   P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8
                         Path index, default value P1
                         Skip the parameter if you have only one path at the connector.

Return values:

<Reliability>   See "Reliability Indicator"
<ResultStateOpen>   NCAP | PEND | RDY
                         Result state for measurement mode "Open"
                         NCAP: no measurement results available
                         PEND: measurement running
                         RDY: measurement complete, results available
<ResultStateShort>   NCAP | PEND | RDY
                         Result state for measurement mode "Short"
<ResultStateEval>   NCAP | PEND | RDY
                         Result state for measurement mode "Eval"

Example: FETCh:GPRF:MEAS:PLOSs:EVAL:STATe? R11

4）FETCh:GPRF:MEAS<i>:PLOSs:EVAL:TRACe:FREQuency? <Connector>[, <PathIndex>]

Returns the frequency values of the result diagram for a selected path of a selected connector.

The order of the values is the same as in the command *FETCh:GPRF:MEAS<i>:PLOSs: EVAL: TRACe: GAIN?.* Use this command to check at which frequencies the gain values have been measured.

For possible connector values, see "Values for RF Path Selection".

Query Parameters:

<Connector>   RF connector for which results are queried
<PathIndex>   P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8
                         Path index, default value P1
                         Skip the parameter if you have only one path at the connector.

Return values:

<Reliability>   See "Reliability Indicator"
<Frequency>   Comma-separated list of frequency values
                         Default unit: Hz

Example: FETCh:GPRF:MEAS:PLOSs:EVAL:TRACe:FREQuency? R11

5）FETCh:GPRF:MEAS<i>:PLOSs:EVAL:TRACe:GAIN? <Connector>[, <PathIndex>]

Returns the gain values of the result diagram for a selected path of a selected connector.

For possible connector values, see "Values for RF Path Selection".

Query Parameters:

<Connector>	RF connector for which results are queried
<PathIndex>	P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8
	Path index, default value P1
	Skip the parameter if you have only one path at the connector.

Return values:

<Reliability>	See "Reliability Indicator"
<Gain>	Comma-separated list of gain values
	Default unit: dB

Example: FETCh:GPRF:MEAS:PLOSs:EVAL:TRACe:GAIN? R11

6）FETCh:GPRF:MEAS<i>:PLOSs:OPEN? <Connector>[, <PathIndex>]

Queries the result state for the measurement mode "Open" and a selected path of a selected connector.

Query Parameters:

<Connector>	RF connector for which the result state is queried
<PathIndex>	P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8
	Path index, default value P1
	Skip the parameter if you have only one path at the connector.

Return values:

<Reliability>	See "Reliability Indicator"
<ResultStateOpen>	NCAP | PEND | RDY
	NCAP: no measurement results available
	PEND: measurement running
	RDY: measurement complete, results available

Example: FETCh:GPRF:MEAS:PLOSs:OPEN? R11

7）FETCh:GPRF:MEAS<i>:PLOSs:SHORt? <Connector>[, <PathIndex>]

Queries the result state for the measurement mode "Short" and a selected path of a selected connector.

Query Parameters:

<Connector>	RF connector for which the result state is queried
<PathIndex>	P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8
	Path index, default value P1
	Skip the parameter if you have only one path at the connector.

Return values:

<Reliability>	See "Reliability Indicator"
<ResultStateShort>	NCAP | PEND | RDY
	NCAP: no measurement results available
	PEND: measurement running
	RDY: measurement complete, results available

Example: FETCh:GPRF:MEAS:PLOSs:SHORt? R11

8）INITiate:GPRF:MEAS<i>:PLOSs:CLEar

Discards all measurement results.

9.5 GPRF Sequencer Mode

9.5.1 Scenario Selection and Signal Routing

1）CONFigure:GPRF:GEN<i>:CEYE:USAGe:TX<TXConnector>, <Usage>

Activates or deactivates a single RF connector of a connector bench.

The generated signal is available at all active connectors of the currently selected connector bench.

Parameters:

<Usage>   OFF | ON

                          ON: Activates the selected connector

                          OFF: Deactivates the selected connector

Parameters for setting and query:

<TXConnector>   Selects a single connector of the bench

Example: CONFigure:GPRF:GEN<i>:CEYE:USAGe:TX R11, OFF

2）CONFigure:GPRF:GEN<i>:CEYE:USAGe:TX:ALL<TXConnBench>, <Usage>...

Activates or deactivates the individual RF connectors of a connector bench.

Parameters:

<Usage>   OFF | ON

                          Comma-separated list of 4 or 8 values, one for each connector of the bench

                          ON: activate the connector

                          OFF: deactivate the connector

Parameters for setting and query:

<TXConnBench>   Selects a bench with 4 or 8 connectors

Example:CONFigure:GPRF:GEN<i>:CEYE:USAGe:TX:ALL R118, ON, ON, ON, ON, OFF, OFF, OFF, OFF

3）ROUTe:GPRF:GEN<i>:SCENario:SALone <TXConnector>, <RFConverter>

Activates the standalone scenario and selects the output path for the generated RF signal.

Parameters:

<TXConnector>   RF connector for the output path

<RFConverter>   TX module for the output path

Example:ROUTe:GPRF:GEN<i>:SCENario:SALone R118, TX11

9.6 GPRF Generator Mode

9.6.1 Generator Control and States

1）SOURce:GPRF:GEN<i>:RELiability:ALL?

Reports if and why there are problems generating the configured signal.

This information is also displayed in the "Current State" view of the [INFO] dialog.

Return values:

<Reliability>	The reliability indicator
<ReliabilityMsg>	Contains the reason for a reliability value > 0 or the empty string "" for reliability = 0
<ReliabilityAddInfo>	Contains additional information for a reliability value > 0 or the empty string "" for reliability = 0

2）SOURce:GPRF:GEN<i>:STATe

Turns the generator on or off.

Setting Parameters:

<Control>	ON | OFF
	Switch generator ON or OFF
	*RST: OFF

Return values:

<GeneratorState>	OFF | PENDing | ON | RDY	
	OFF:	generator switched off
	PEND:	generator switched on but no signal available yet
	ON:	generator switched on, signal available
	RDY:	generator switched off, ARB file processing complete in smart channel mode
	*RST:	OFF

Example: SOURce:GPRF:GEN<i>:STATe ON; *OPC?

9.6.2 Scenario Selection and Signal Routing

1）SOURce:GPRF:GEN<i>:RFSettings:EATTenuation<ExtRFOutAtt>

Defines an external attenuation (or gain, if the value is negative), to be applied to the RF output connector.

Parameters:

<ExtRFOutAtt>	Range:	-50 dB to 90 dB
	*RST:	0 dB
	Default unit:	dB

Example: SOURce:GPRF:GEN<i>:RFSettings:EATTenuation 2

9.6.3 Constant-Frequency Settings

1）**SOURce:GPRF:GEN<i>:RFSettings:FREQuency<Frequency>**

Selects the frequency of the RF generator (generator frequency). Some of the baseband modes (modulation types) modify the generator frequency.

Parameters:

<Frequency>	Range:	70E+6 Hz to 6E+9 Hz
	*RST:	1.2E+9 Hz
	Default unit:	Hz

Example: SOURce:GPRF:GEN<i>:RFSettings:FREQuency 1.000000E+009

2）**SOURce:GPRF:GEN<i>:RFSettings:LEVel<Level>**

Sets the base RMS level of the constant-frequency RF generator.

Parameters:

<Level>	Range:	Depends on the instrument model, the connector and other settings; please notice the ranges quoted in the data sheet
	Increment:	0.01 dB
	*RST:	-30 dBm
	Default unit:	dBm

Example: SOURce:GPRF:GEN<i>:RFSettings:LEVel -70

9.6.4 Baseband Settings

1）**SOURce:GPRF:GEN<i>:BBMode<BaseBandMode>**

Selects the baseband mode for the generator signal.

Parameters:

<BaseBandMode>	CW | DTONe | ARB
	CW: Unmodulated CW signal
	DTONe: Dual-tone signal (see commands SOURce:GPRF:GEN<i>: DTONe...)
	ARB: ARB generator (waveform file; see SOURce:GPRF: GEN<i>: ARB:FILE)
	*RST: CW

Example: SOURce:GPRF:GEN<i>:BBMode DTON

2）**SOURce:GPRF:GEN<i>:DTONe:OFRequency<source> <Frequency>**

Selects a positive or negative offset frequency. The frequency of the modulated signal is equal to the base frequency (see SOURce:GPRF:GEN<i>:LIST:FREQuency) plus the offset frequency.

Suffix:

<source>	1..2
	No. of source signal

Parameters:

<Frequency>	Range:	-40E+6 Hz to 40E+6 Hz
	*RST:	0 Hz
	Default unit:	Hz

Example: SOURce:GPRF:GEN<i>:DTONe:OFRequency1 1000

9.6.5 ARB Settings

1）SOURce:GPRF:GEN<i>:ARB:FILE<ARBFile>
   SOURce:GPRF:GEN<i>:ARB:FILE? [<PathType>]

Selects a waveform file, to be used for the arbitrary waveform generator (see SOURce: GPRF: GEN<i>:BBMode).

This command supports path aliases (e.g. @WAVEFORM). Use MMEMory:ALIases? to discover the available path aliases.

If the selected file does not exist or no file has been selected yet, a query returns "No File Selected". If the selected file does exist, a query returns:

•Without <PathType>: The string that has been used to select the file. If an alias has been used, the alias is not substituted.

•With <PathType>: The absolute path of the file. If an alias has been used to select the file, the alias is substituted.

Parameters:

<ARBFile>   String parameter, specifies the name of the waveform file to be used (.wv).

Query Parameters:

<PathType>   ABSPath

              Optional parameter, specifying that a query returns the absolute path.

Example:SOURce:GPRF:GEN<i>:ARB:FILE'D: \Data\waveform\GSM1.bin'

2）SOURce:GPRF:GEN<i>:ARB:FILE:DATE?

Queries the date of the loaded waveform file.

Return values:

<Date>   String containing the date

Example: SOURce:GPRF:GEN<i>:ARB:FILE:DATE?

3）SOURce:GPRF:GEN<i>:ARB:FILE:VERSion?

Queries the version of the loaded waveform file.

Return values:

<Version>   String containing the version (or empty string, if no file version is defined)

4）SOURce:GPRF:GEN<i>:ARB:MSEGment:DURation?

Queries the durations (processing times) of all segments in the loaded multisegment waveform file. The duration is given by the number of samples divided by the clock rate.

Return values:

<Duration>   Comma-separated list of durations, one value for each segment

                 Range: 1E-9 s to 0.999999999999999E+15 s

*RST: n/a

Default unit: s

Example: SOURce:GPRF:GEN<i>:ARB:MSEGment:DURation?

5）SOURce:GPRF:GEN<i>:ARB:REPetition<Repetition>

Defines how often the ARB file is processed.

Parameters:

<Repetition>   CONTinuous | SINGle

CONTinuous: Unlimited, cyclic processing

SINGle: File is processed n times, where n is the number of cycles (see

SOURce:GPRF: GEN<i>:ARB:CYCLes)

*RST: CONT

9.6.6 ARB Trigger and Multi-Segment Settings

1）SOURce:GPRF:GEN<i>:ARB:SCOunt?

Queries the progress of ARB file processing.

If ARB file processing is complete, the command returns results for the previous ARB file processing.

Return values:

<CountTime>   Time elapsed since the start of the first cycle

If ARB file processing is stopped / completed, the counter stops.

Default unit: s

<Cycles>   Number of complete cycles

A cycle ends when the waveform file is restarted from the beginning.

<SamplesCurrent> Number of processed samples in the current / last cycle

2）SOURce:GPRF:GEN<i>:ARB:SEGMent:NEXT<SegmentNumber>

Selects a segment to be processed after the end of the currently processed segment.

Parameters:

<SegmentNumber>   Range: 0   to   not documented

*RST: n/a

Example: SOURce:GPRF:GEN<i>:ARB:SEGMents:NEXT?

3）SOURce:GPRF:GEN<i>:ARB:SEGMents:CURRent?

Queries the number and name of the currently processed segment.

For the repetition "Continuous Seamless", a trigger event has been received for the returned segment. The generator is still processing the previous segment or it is already processing the returned segment. For a distinction of the two cases, see SOURce:GPRF:GEN<i>:ARB:STATus?.

Return values:

<SegmentNumber>   Integer number. NAV is returned if no file is loaded.

Range: 0   to   1000

<SegmentName>   String parameter containing the name. NAV is returned if no file is loaded or no name is defined.

4）TRIGger:GPRF:GEN<i>:ARB:RETRigger<Retrigger>

Enables or disables the trigger system for waveform files.

Parameters:

<Retrigger>   OFF | ON

                     Trigger system disabled or enabled

                     *RST: ON

Example: TRIGger:GPRF:GEN<i>:ARB:RETRigger ON

5）TRIGger:GPRF:GEN<i>:ARB:SEGMents:MANual:EXECute

Generates a trigger event for the ARB segment trigger. The segment trigger causes the generator
to step to the beginning of the next segment in the multi-segment file.

Example: TRIGger:GPRF:GEN<i>:ARB:MANual:EXECute

6）TRIGger:GPRF:GEN<i>:ARB:SEGMents:MODE <Mode>

Selects a trigger mode for multi-segment waveform files.

Parameters:

<Mode>   CONTinuous | CSEamless | AUTO

             CONTinuous: A trigger event causes immediate switchover to the next
                          segment

             CSEamless: A trigger event causes switchover after the end of the segment has
                          been reached

             AUTO: The generator processes one segment after another

             *RST: CONT

Example: TRIGger:GPRF:GEN<i>:ARB:SEGMents:MODE CONTinuous

7）TRIGger:GPRF:GEN<i>:ARB:SOURce<Source>

Selects the source of the trigger events. Some values are always available in this firmware
application. They are listed below. Depending on the installed options, additional values can be
available. A complete list of all supported values can be displayed using
TRIGger:GPRF:GEN<i>:ARB:CATalog:SOURce?.

Parameters:

<Source>   "Manual"

             Manual trigger via GPRF generator GUI

             "Base1:Cont.10ms Trigger"

             Periodical trigger signal with a trigger pulse every 10 ms

             "Base1:User Trigger 1", "Base1: User Trigger 2"

             TRIGger: BASE:UINitiated<n>:EXECute

             *RST: "Manual"

9.6.7 List Mode Settings

1）**SOURce:GPRF:GEN<i>:LIST<EnableListMode>**

Enables or disables the list mode of the RF generator.

Parameters:

<EnableListMode>   ON | OFF

                  ON: List mode enabled

                  OFF: List mode disabled (constant-frequency generator)

                  *RST: OFF

Example: SOURce:GPRF:GEN<i>:LIST ON

2）**SOURce:GPRF:GEN<i>:LIST:DTIM:ALL**

Defines the transmission times for all frequency/level steps in "Dwell Time" mode. The value is not used in the other list modes (see SOURce:GPRF:GEN<i>:LIST:INCRement).

Parameters:

<AllDwelltimes>   Comma-separated list of n values, one per frequency/level step, where n < 2001. The query returns 2000 results.

                  Range: 200E-6 s   to   20 s

                  *RST: 0.5 s

                  Default unit: s

Example: SOURce:GPRF:GEN<i>:LIST:DTIMe:ALL 666.67E-6, 666.67E-6, 666.67E-6, 666.67E-6,666.67E-6

3）**SOURce:GPRF:GEN<i>:LIST:ESINgle**

Starts a single generator cycle through the frequency/level list.

This command is available only if:

•The list mode is enabled (*see SOURce:GPRF:GEN<i>:LIST*).

•And the "Single" list mode is set (*SOURce:GPRF:GEN<i>:LIST:REPetition*).

•And the increment "Dwell Time" is set (*SOURce:GPRF:GEN<i>:LIST:INCRement*).

Example: SOURce:GPRF:GEN<i>:LIST:ESINGle

4）**SOURce:GPRF:GEN<i>:LIST:FREQuency:ALL<AllFrequencies>**

Defines the frequencies of all frequency/level steps.

Parameters:

<AllFrequencies>   Comma-separated list of n values, one per frequency/level step, where n < 2001. The query returns 2000 results.

                  Range: 70E+6 Hz   to   6E+9 Hz

                  *RST: 800E+6 Hz

                  Default unit: Hz

Example: SOURce:GPRF:GEN<i>:LIST:FREQuency:ALL 1.9224E+9, 1.9224E+9, 1.9224E+9,1.9224E+9, 1.9224E+9

5）**SOURce:GPRF:GEN<i>:LIST:INCRement<ListIncrSrc>**

Defines how the RF generator steps through the list.

Parameters:

<ListIncrSrc>   String parameter, specifies the source for the list increment. **Example**s:'Dwell Time'

The generator transmits at each frequency/level step for the selected dwell time (SOURce:GPRF:GEN<i>:LIST:DTIMe)

'GPRF Gen<i>: <some marker>'

List incremented by a marker in the played-back ARB file (only for baseband mode ARB, see SOURce:GPRF:GEN<i>:BBMode)

'Some measurement' (e.g. 'GPRF Meas<i>: Power')

List incremented in line with a running measurement

Use SOURce:GPRF:GEN<i>:LIST:INCRement:CATalog? to query the list of possible sources for the current HW/SW configuration.

Example: SOURce:GPRF:GEN<i>:LIST:INCRement 'Dwell Time'

6）SOURce:GPRF:GEN<i>:LIST:MODulation:ALL<AllModulations>

Defines or queries the "Mod. On / Off" setting of all frequency/level steps. The setting is valid only in arbitrary baseband mode (see SOURce:GPRF:GEN<i>:BBMode).

Parameters:

<AllModulations>   OFF | ON

Comma-separated list of n values, one per frequency/level step, where n < 2001. The query returns 2000 results.

Each value switches the modulation of a step OFF or ON.

*RST: ON

7）SOURce:GPRF:GEN<i>:LIST:REPetition<Repetition>

Defines how often the RF generator runs through the list.

Parameters:

<Repetition>   CONTinuous | SINGle

CONTinuous:The generator cycles through the list.

SINGle: The generator runs through the list for a single time. The sequence is triggered via SOURce:GPRF:GEN<i>:

LIST:ESINgle.

*RST: CONT

Example: SOURce:GPRF:GEN<i>:LIST:REPetition SINGle

8）SOURce:GPRF:GEN<i>:LIST:RFLevel:ALL

Defines the levels of all frequency/level steps.

Parameters:

<AllLevels>   Comma-separated list of n values, one per frequency/level step, where n < 2001. The query returns 2000 results.

Range: Depends on the instrument model, the connector and other settings; please notice the ranges quoted in the data sheet

	Increment:	0.01 dBm
	*RST:	-30 dBm
	Default unit:	dBm
	Additional Parameters:	OFF | ON (disables | enables the frequency/level step)

Example:　　SOURce:GPRF:GEN<i>:LIST:RFLevel:ALL -20, -23, -26, -29, -32

9）SOURce:GPRF:GEN<i>:LIST:STARt<StartIndex>

Defines the number of the first measured frequency/level step in the list. The start index must not be larger than the stop index (see SOURce:GPRF:GEN<i>:LIST:STOP).

Parameters:

<StartIndex>　　Range:　0　to　1999

　　　　　　　　*RST:　　0

10）SOURce:GPRF:GEN<i>:LIST:STOP<StopIndex>

Defines the number of the last measured frequency/level step in the list. The stop index must not be smaller than the start index (see SOURce:GPRF:GEN<i>:LIST:STARt).

Parameters:

<StopIndex>　　Range:　0　to　1999

　　　　　　　　*RST:　　19

10　WLAN 程控命令

10.1 General Configuration

10.1.1 I/O Port Configuraion

10.1.2 Analysis Setting

1) CONFigure:WLAN:MEAS<i>:RFSettings:ENPower <ExpNomPwr>

Sets the expected nominal power of the measured RF signal.

For the combined signal path scenario, use CONFigure:WLAN:SIGN<i>:RFSettings:EPEPower.

Parameters:

<ExpNomPwr>The range of the expected nominal power can be calculated as follows:

　　　　　　Range (Expected Nominal Power) = Range (Input Power) + External Attenuation - User Margin

　　　　　　The input power range is stated in the data sheet.

　　　　　　*RST:　　0 dBm

　　　　　　Default unit: dBm

Example: CONFigure:WLAN:MEAS:RFSettings:ENPower 17

2) CONFigure:WLAN:MEAS<i>:RFSettings:FREQuency <Frequency>

Configures the center frequency of the RF analyzer. Set it to the center frequency of the received 20-MHz or 40-MHz WLAN channel.

For the combined signal path scenario, use:

- CONFigure:WLAN:SIGN<i>:RFSettings:FREQuency
- CONFigure:WLAN:SIGN<i>:RFSettings:CHANnel

The supported frequency range depends on the instrument model and the available options. The supported range can be smaller than stated here. Refer to the preface of your model-specific base unit manual.

Parameters:

<Frequency>Range: 70E+6 Hz to 6E+9 Hz

        *RST: 2.412E+9 Hz

        Default unit: Hz

Example: CONFigure:WLAN:MEAS:RFSettings:FREQuency 2422E+6

3) CONFigure:WLAN:MEAS<i>:RFSettings:FREQuency:BAND <FreqBand>

Selects the frequency band.

Parameters:

<FreqBand>B24Ghz | B5GHz | B4GHz

        B24Ghz: 2.4 GHz band

        B4GHz: 4 GHz band

        B5GHz: 5 GHz band

        *RST:B24G

Example: CONFigure:WLAN:MEAS:RFSettings:FREQuency:BAND B24Ghz

4) CONFigure:WLAN:MEAS<i>:RFSettings:MLOFfset <MLOffset>

Varies the input level of the mixer in the analyzer path.

For the combined signal path scenario, use CONFigure:WLAN:SIGN<i>:RFSettings:MLOFfset.

Parameters:

<MLOffset>Range: -10 dB to 10 dB, for 5256C with TRX160: -10 dB to 16 dB

        *RST: 8 dB, for 5256C with TRX160: 12 dB

        Default unit: dB

Example: CONFigure:WLAN:MEAS:RFSettings:MLOFfset 1

5) CONFigure:WLAN:MEAS<i>:RFSettings:UMARgin <UserMargin>

Sets the margin that the 5256C adds to the expected nominal power to determine its reference power. The reference power minus the external input attenuation must be within the power range of the selected input connector; refer to the data sheet.

Parameters:

<UserMargin>Range: 0 dB to (34 dB + external attenuation - expected nominal power)

        *RST: 0 dB

        Default unit: dB

Example: CONFigure:WLAN:MEAS:RFSettings:UMARgin 0

10.2 Multi-Field Measurement Configuraion

10.2.1 Measurement Control And State

1) ABORt:WLAN:MEAS<i>:MEValuation

Starts, stops, or aborts the measurement:

- INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.

- STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.
- ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.

Use FETCh...STATe? to query the current measurement state.

Example: ABORt:WLAN:MEAS:MEValuation

2) INITiate:WLAN:MEAS<i>:MEValuation

Starts, stops, or aborts the measurement:
- INITiate... starts or restarts the measurement. The measurement enters the "RUN" state.
- STOP... halts the measurement immediately. The measurement enters the "RDY" state. Measurement results are kept. The resources remain allocated to the measurement.
- ABORt... halts the measurement immediately. The measurement enters the "OFF" state. All measurement values are set to NAV. Allocated resources are released.

Use FETCh...STATe? to query the current measurement state.

Example: INITiate:WLAN:MEAS:MEValuation

10.2.2 Enabling Result And Views

1) CONFigure:WLAN:MEAS<i>:MEValuation:RESult[:ALL] <ModScalar>, <PvT>, <EVMvsChip>, <EVMvsSym>, <EVMvsCarr>, <IQConst>, <SpecFlatness>, <TranSpecMask>[, <UnusedToneErr>]

Enables or disables the evaluation of results and shows or hides the views. This command combines all other CONFigure:WLAN:MEAS<i>:MEValuation:RESult... commands.

Views can only be hidden for receive mode SISO.

Parameters:

<ModScalar>	OFF | ON
	Modulation scalar overview
	OFF: Do not evaluate results, hide the view
	ON: Evaluate results and show the view
	*RST:ON
<PvT>	OFF | ON
	Power vs. time
	*RST:OFF
<EVMvsChip>	OFF | ON
	EVM vs chip
	*RST:ON
<EVMvsSym>	OFF | ON
	EVM vs symbol
	*RST:ON
<EVMvsCarr>	OFF | ON
	EVM vs carrier
	*RST:ON
<IQConst>	OFF | ON
	I/Q constellation diagram
	*RST:OFF

<SpecFlatness>   OFF | ON
                  Spectrum flatness
                  *RST:OFF

<TranSpecMask> OFF | ON
                  Transmit spectrum mask
                  *RST:OFF

<UnusedToneErr>OFF | ON
                  Unused tone error
                  *RST:OFF
Example: CONFigure:WLAN:MEAS:MEValuation:RESult ON,ON,ON,ON,ON,ON,ON,ON,ON

2) **CONFigure:WLAN:MEAS<i>:MEValuation:RESult:EVM <EVMEnable>**
Enables or disables the evaluation of results and shows or hides the EVM vs. chip view.
Parameters:
<EVMEnable>OFF | ON
                  OFF: Do not evaluate results, hide the view
                  ON: Evaluate results and show the view
                  *RST:ON
Example: CONFigure:WLAN:MEAS:MEValuation:RESult:EVM OFF

3) **CONFigure:WLAN:MEAS<i>:MEValuation:RESult:EVMCarrier <EVMEnable>**
Enables or disables the evaluation of results and shows or hides the EVM vs. carrier view.
Parameters:
<EVMEnable>OFF | ON
                  OFF: Do not evaluate results, hide the view
                  ON: Evaluate results and show the view
                  *RST:ON
Example: CONFigure:WLAN:MEAS:MEValuation:RESult:EVMCarrier OFF

4) **CONFigure:WLAN:MEAS<i>:MEValuation:RESult:EVMSymbol <EVMEnable>**
Enables or disables the evaluation of results and shows or hides the EVM vs. symbol view.
Parameters:
<EVMEnable>OFF | ON
                  OFF: Do not evaluate results, hide the view
                  ON: Evaluate results and show the view
                  *RST:ON
Example: CONFigure:WLAN:MEAS:MEValuation:RESult:EVMSymbol OFF

5) **CONFigure:WLAN:MEAS<i>:MEValuation:RESult:IQConst <IQEnable>**
Enables or disables the evaluation of results and shows or hides the I/Q constellation diagram
view.
Parameters:
<IQEnable>OFF | ON
                OFF: Do not evaluate results, hide the view
                ON: Evaluate results and show the view
                *RST:OFF
Example: CONFigure:WLAN:MEAS:MEValuation:RESult:IQConst ON

6) **CONFigure:WLAN:MEAS<i>:MEValuation:RESult:MSCalar <ModEnable>**
Enables or disables the evaluation of results and shows or hides the modulation scalar view.
Parameters:
<ModEnable>OFF | ON

OFF: Do not evaluate results, hide the view
ON: Evaluate results and show the view
*RST:ON
Example: CONFigure:WLAN:MEAS:MEValuation:RESult:MSCalar ON

7) CONFigure:WLAN:MEAS<i>:MEValuation:RESult:PVTime <PvTEnable>
Enables or disables the evaluation of results and shows or hides the power vs. time view.
Parameters:
<PvTEnable>OFF | ON
OFF: Do not evaluate results, hide the view
ON: Evaluate results and show the view
*RST:OFF
Example: CONFigure:WLAN:MEAS:MEValuation:RESult:PVTime ON

8) CONFigure:WLAN:MEAS<i>:MEValuation:RESult:SFLatness <SpecFlatness>
Enables or disables the evaluation of results and shows or hides the spectrum flatness view.
Parameters:
<SpecFlatness>OFF | ON
OFF: Do not evaluate results, hide the view
ON: Evaluate results and show the view
*RST:OFF
Example: CONFigure:WLAN:MEAS:MEValuation:RESult:SFLatness ON

9) CONFigure:WLAN:MEAS<i>:MEValuation:RESult:TSMask <SpecEnable>
Enables or disables the evaluation of results and shows or hides the transmit spectrum mask view.
Parameters:
<SpecEnable>OFF | ON
OFF: Do not evaluate results, hide the view
ON: Evaluate results and show the view
*RST:OFF
Example: CONFigure:WLAN:MEAS:MEValuation:RESult:TSMask ON

10.2.3 Measuremet Parameters

1) CONFigure:WLAN:MEAS<i>:ISIGnal:BWIDth <BandWidth>
Selects the channel bandwidth. In the combined signal path scenario, the bandwidth is fixed to 20 MHz.
Parameters:
<BandWidth>BW05mhz | BW10mhz | BW20mhz | BW40mhz | BW80mhz | BW88mhz |
BW16mhz
BW05mhz: 5 MHz (802.11p, 802.11n, 802.11ac)
BW10mhz: 10 MHz (802.11p, 802.11n, 802.11ac)
BW20mhz: 20 MHz (all standards)
BW40mhz: 40 MHz (802.11n, 802.11ac, 802.11ax)
BW80mhz: 80 MHz (802.11ac, 802.11ax)
BW88mhz: 80+80 MHz (802.11ac)
BW16mhz: 160 MHz (802.11ac, 802.11ax)
*RST:BW20
Example: CONFigure:WLAN:MEAS:ISIGnal:BWIDth BW20

2) CONFigure:WLAN:MEAS<i>:ISIGnal:DSSS:ELENgth <EvaluationLength>[, <SkipPH>]

Specifies the evaluation length of the burst for DSSS signals. Only for 5256C with MUA.
Parameters:
<EvaluationLength>Number of payload chips
Range: 1000   to   362472
*RST: 1000

<SkipPH>   OFF | ON
                  OFF: measure also preamble and header
                  ON: skip preamble and header
                  *RST:ON
Example: CONFigure:WLAN:MEAS<i>:ISIGnal:DSSS:ELENgth 1500 ON

3) CONFigure:WLAN:MEAS<i>:ISIGnal:IQSWap <IQSwap>
Swaps the role of the I and Q axes in the baseband.
Parameters:
<IQSwap>ON | OFF
        *RST:OFF
Example: CONFigure:WLAN:MEAS:ISIGnal:IQSWap OFF

4) CONFigure:WLAN:MEAS<i>:ISIGnal:OFDM:ELENgth <EvaluationLength>
Specifies the evaluation length of the burst for OFDM signals. Only for 5256C with MUA.
Parameters:
<EvaluationLength>Number of payload symbols
Range: 16   to   1377
*RST: 1377
Example: CONFigure:WLAN:MEAS:ISIGnal:OFDM:ELENgth1000

5) CONFigure:WLAN:MEAS<i>:ISIGnal:RMODe <ReceiveMode>
Sets the receive mode.
Not all standards support MIMO. If you set a standard that is incompatible with the current receive mode, the receive mode automatically reverts to SISO.
Parameters:
<ReceiveMode>SISO | CMIMo | SMIMo | TMIMo
             SISO: SISO signal
             *RST:SISO
Example: CONFigure:WLAN:MEAS:ISIGnal:RMODe SISO

6) CONFigure:WLAN:MEAS<i>:ISIGnal:STANdard <Standard>
Selects the IEEE 802.11 standard. Several WLAN signal properties depend on the selected standard.
In the combined signal path scenario, selecting a standard that is not supported by the signaling application restores the standalone scenario.
Parameters:
<Standard>DSSS | LOFDm | HTOFdm | POFDm | VHTofdm | HEOFdm
          DSSS: 802.11b/g (DSSS)
          LOFDm: 802.11a/g (OFDM)
          HTOFdm: 802.11n
          POFDm: 802.11p
          VHTofdm: 802.11ac
          HEOFdm: 802.11ax
          *RST:LOFD
Example: CONFigure:WLAN:MEAS:ISIGnal:STANdard HTOFdm

7) CONFigure:WLAN:MEAS<i>:MEValuation:COMPensation:

CESTimation <ChannelEst>

Specifies whether channel estimation is done in payload or preamble.

Parameters:

<ChannelEst>PAYLoad | PREamble

　　　　　PAYLoad: Channel estimation in payload and preamble

　　　　　PREamble: Channel estimation in preamble only

　　　　　*RST:PRE

Example: CONFigure:WLAN:MEAS:MEValuation:COMPensation:CESTimation PAYL

8) CONFigure:WLAN:MEAS<i>:MEValuation:COMPensation:TRACking:LEVel <Level>

Activate or deactivate level tracking. With enabled tracking, fluctuations are compensated.

Parameters:

<Level>OFF | ON

　　　OFF: Tracking disabled

　　　ON: Tracking enabled

　　　*RST:OFF

Example: CONFigure:WLAN:MEAS:MEValuation:COMPensation:TRACking:LEVel OFF

9) CONFigure:WLAN:MEAS<i>:MEValuation:COMPensation:TRACking: PHASe <Phase>

Activate or deactivate phase tracking. With enabled tracking, fluctuations are compensated.

For composite MIMO and 802.11ac input signals, phase tracking is always enabled.

Parameters:

<Phase>OFF | ON

　　　OFF: Tracking disabled

　　　ON: Tracking enabled

　　　*RST:ON

Example: CONFigure:WLAN:MEAS:MEValuation:COMPensation:TRACking:PHASe OFF

10) CONFigure:WLAN:MEAS<i>:MEValuation:COMPensation:TRACking: TIMing <Timing>

Activate or deactivate timing tracking. With enabled tracking, fluctuations are compensated.

Parameters:

<Timing>OFF | ON

　　　OFF: Tracking disabled

　　　ON: Tracking enabled

　　　*RST:ON

Example: CONFigure:WLAN:MEAS:MEValuation:COMPensation:TRACking:TIMing OFF

11) CONFigure:WLAN:MEAS<i>:MEValuation:MOEXception <MeasOnException>

Specifies whether measurement results that the 5256C identifies as faulty or inaccurate are rejected.

Parameters:

<MeasOnException>OFF | ON

　　　　　　OFF: Faulty results are rejected

　　　　　　ON: Results are never rejected

　　　　　　*RST:OFF

Example: CONFigure:WLAN:MEAS:MEValuation:MOEXception ON

12) CONFigure:WLAN:MEAS<i>:MEValuation:REPetition <Repetition>

Specifies the repetition mode of the measurement. The repetition mode specifies whether the measurement is stopped after a single shot or repeated continuously. Use

CONFigure:..:MEAS<i>:...:SCOunt to determine the number of measurement intervals per single shot.
Parameters:
<Repetition>SINGleshot | CONTinuous
              SINGleshot: Single-shot measurement
              CONTinuous: Continuous measurement
              *RST:SING
Example: CONFigure:WLAN:MEAS<i>:MEValuation:REPetition SING

13) CONFigure:WLAN:MEAS<i>:MEValuation:SCOunt:MODulation <StatisticCount>
Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.
Parameters:
<StatisticCount>Number of measurement intervals for modulation measurements
              Range: 1 to   1000
              *RST: 10
Example: CONFigure:WLAN:MEAS:MEValuation:SCOunt:MODulation 20

14) CONFigure:WLAN:MEAS<i>:MEValuation:SCOunt:PVTime <StatisticCount>
Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.
Parameters:
<StatisticCount>Number of measurement intervals for the power vs. time measurement
              Range: 1 to   1000
              *RST: 10
Example: CONFigure:WLAN:MEAS:MEValuation:SCOunt:PVTime 20

15) CONFigure:WLAN:MEAS<i>:MEValuation:SCOunt:TSMask <StatisticCount>
Specifies the statistic count of the measurement. The statistic count is equal to the number of measurement intervals per single shot.
Parameters:
<StatisticCount>Number of measurement intervals for the transmit spectrum mask
              measurement
              Range: 1 to   1000
              *RST: 10
Example: CONFigure:WLAN:MEAS:MEValuation:SCOunt:TSMask 20

16) CONFigure:WLAN:MEAS<i>:MEValuation:TSMask:AFFTnum <AverFFTNum>
Specifies the number of FFT operations per burst.
Parameters:
<AverFFTNum>Range: 1   to   16
              *RST: 8
Example: CONFigure:WLAN:MEAS:MEValuation:TSMask:AFFTnum 5

17) CONFigure:WLAN:MEAS<i>:MEValuation:TSMask:TROTime <TriggerOffTime>
Specifies the trigger offset between trigger event and FFT operation.
Parameters:
<TriggerOffTime>Range: 0 s   to   0.1E-3 s
              *RST: 5E-6 s
              Default unit: s
Example: CONFigure:WLAN:MEAS:MEValuation:TSMask:TROTime 0.0001

10.2.4 Modulation Measurement Setting

10.2.5 Spectrum Measurement Setting

10.2.6 Power Measurement Setting

10.2.7 Receiver Test Configuration

10.2.8 List Mode Setting

10.2.9 Trigger Setting

1) TRIGger:WLAN:MEAS<i>:MEValuation:MGAP <MinTrigGap>
Sets a minimum time during which the IF signal must be below the trigger threshold before the
trigger is armed so that an IF power trigger event can be generated.
Parameters:
<MinTrigGap>Range: 5 µs   to   10 ms
                *RST: 50 µs
                Default unit: s
Example: TRIGger:WLAN:MEAS:MEValuation:MGAP 0.00002

2) TRIGger:WLAN:MEAS<i>:MEValuation:SLOPe <TrigSlope>
Qualifies whether the trigger event is generated at the rising or at the falling edge of the trigger
pulse (valid for external and power trigger sources).
Parameters:
<TrigSlope>REDGe | FEDGe
            REDGe: Rising edge
            FEDGe: Falling edge
            *RST:REDG
Example: TRIGger:WLAN:MEAS:MEValuation:SLOPe REDGe

3) TRIGger:WLAN:MEAS<i>:MEValuation:SOURce <TrigSource>
Selects the source of the trigger events. Some values are always available in this firmware
application. They are listed below. Depending on the installed options, additional values are
available. A complete list of all supported values can be displayed using
TRIGger:...:CATalog:SOURce?.
Parameters:
<TrigSource>'IF Power': Power trigger (received RF power)
            'Free Run': Only supported by 5256C with BB Meas for IEEE 802.11a/b/g/n SISO.
            *RST:'IF Power'
Example: TRIGger:WLAN:MEAS:MEValuation:SOURce 'IF Power'

4) TRIGger:WLAN:MEAS<i>:MEValuation:THReshold <TrigThreshold>
Defines the trigger threshold for power trigger sources.

Parameters:

<TrigThreshold>Range: -50 dB to 0 dB

             *RST: -30 dB

             Default unit: dB (full scale, i.e. relative to reference level minus external attenuation)

Example: TRIGger:WLAN:MEAS:MEValuation:THReshold -25

5) TRIGger:WLAN:MEAS<i>:MEValuation:TOUT <TrigTimeOut>

Selects the maximum time that the 5256C waits for a trigger event before it stops the measurement in remote control mode or indicates a trigger timeout in manual operation mode. This setting has no influence on "Free Run" measurements.

Parameters:

<TrigTimeOut>Range: 0.01 s to 300 s

            *RST: 1 s

            Default unit: s

            Additional values: OFF | ON (disables | enables the timeout)

Example: TRIGger:WLAN:MEAS:MEValuation:TOUT 1

10.2.10 Querying Measurement Result

1) FETCh:WLAN:MEAS<i>:MEValuation:MODulation:AVERage?

Return the single value results for OFDM SISO measurements. For MIMO measurements, the stream/antenna-independent values are returned. For 80+80 MHz signals, the segment-independent values are returned. There are current, average, minimum, maximum and standard deviation results.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<1_Reliability>

<2_OutOfTol>	Out of tolerance result, i.e. percentage of measurement intervals of the statistic count for modulation measurements exceeding the specified modulation limits.
	Range: 0 % to 100 %
	Default unit: %
<3_MCSIndex>	Modulation and coding scheme index
	Range: 0 to 76
<4_Modulation>	UNSPecified | BPSK14 | BPSK12 | BPSK34 | QPSK14 | QPSK12 | QPSK34 | 16Q14 | 16Q38 | 16Q12 | 16Q34 | 64Q12 | 64Q23 | 64Q34 | 64Q56 | 256Q34 | 256Q56 | 1KQ34 | 1KQ56 | BPSK | QPSK | 16Q | 64Q | 256Q | 1KQ
	Modulation scheme and coding rate, stream <n>
	UNSPecified: modulation unknown
	BPSK: BPSK, coding rate unknown
	BPSK12, BPSK34 (BPSKab): BPSK, coding rate a/b
	BPSK14: BPSK, coding rate 1/2 DCM
	QPSK: QPSK, coding rate unknown
	QPSK12, QPSK34 (QPSKab): QPSK, coding rate a/b
	QPSK14: QPSK, coding rate 1/2 DCM
	16Q: 16-QAM, coding rate unknown
	16Q12, 16Q34 (16Qab): 16-QAM, coding rate a/b

16Q14: 16-QAM, coding rate 1/2 DCM
16Q38: 16-QAM, coding rate 3/4 DCM
64Q: 64-QAM, coding rate unknown
64Q12, 64Q23, 64Q34, 64Q56 (64Qab): 64-QAM, coding rate a/b
256Q: 256-QAM, coding rate unknown
256Q34, 256Q56 (256Qab): 256-QAM, coding rate a/b
1KQ: 1024-QAM, coding rate unknown
1KQ34, 1KQ56 (1KQab): 1024-QAM, coding rate a/b

<5_PayloadSym>	Number of OFDM symbols in the payload of the measured burst Range: 1 symbol to 1366 symbols Default unit: symbol
<6_MeasuredSym>	Number of measured payload OFDM symbols Range: 1 symbol to 1366 symbols Default unit: symbol
<7_PayloadBytes>	Number of bytes in the payload of the measured burst Range: 1 byte to 4095 bytes Default unit: byte
<8_GuardInterval>	SHORt | LONG | GI08 | GI16 | GI32 SHORt, LONG: short or long guard interval (up to 802.11ac) GI08, GI16, GI32: 0.8 µs, 1.6 µs, and 3.2 µs guard interval durations (for 802.11ax)
<9_NoSS>	Number of spatial streams Range: 1 to 8
<10_NoSTS>	Number of space-time streams Range: 1 to 8
<11_BurstRate>	If a modulation filter is used (see CONFigure:WLAN:MEAS<i>:ISIGnal:MODFilter), the burst rate indicates the share of bursts of the selected modulation type in the bursts received. Otherwise, it returns 1. Default unit: %
<12_PowerBackoff>	Minimum distance of signal power to reference level since the start of the measurement Range: -100 dB to 0 dB Default unit: dB
<13_BurstPower>	RMS power of the measured burst Range: -100 dBm to 30 dBm Default unit: dBm
<14_PeakPower>	Peak power of the measured burst Range: -100 dBm to 30 dBm Default unit: dBm
<15_CrestFactor>	Range: 0 dB to 60 dB Default unit: dB
<16_EVMAllCarr>	EVM for all carriers Range: -100 dB to 0 dB

Default unit: dB

<17_EVMDataCarr>   EVM for data carriers
                   Range: -100 dB   to   0 dB
                   Default unit: dB

<18_EVMPilotCarr> EVM for pilot carriers
                   Range: -100 dB   to   0 dB
                   Default unit: dB

<19_FreqError>   Center frequency error
                   Range: -150E+6 Hz   to   150E+6 Hz
                   Default unit: Hz

<20_ClockError>   Symbol clock error
                   Range: -125 ppm   to   125 ppm
                   Default unit: ppm

<21_IQOffset>   Range: -100 dB   to   0 dB
                   Default unit: dB

<22_DCPower>   Power of the DC subcarriers
                   Range: -100 dBm   to   30 dBm
                   Default unit: dBm

<23_GainImbalance>Range: -100 dB   to   100 dB
                   Default unit: dB

<24_QuadError>   Quadrature error
                   Range: -180 deg   to   180 deg
                   Default unit: deg

<25_LTFPower>   Power of long training fields (LTF) portion
                   Default unit: dBm

<26_DataPower>   Power of data portion
                   Default unit: dBm
Example: FETCh:WLAN:MEAS:MEValuation:MODulation:AVERage?

2) FETCh:WLAN:MEAS<i>:MEValuation:MODulation:DSSS:AVERage?

Return the current, average, minimum, maximum and standard deviation single value results for DSSS signals.
The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.
Return values:
<1_Reliability>

<2_ModType>   DBPSk1 | DQPSk2 | CCK5 | CCK11
                   DBPSk1: 1 Mbps DBPSK
                   DQPSk2: 2 Mbps DQPSK
                   CCK5: 5.5 Mbps CCK
                   CCK11: 11 Mbps CCK

<3_PLCPType>   SHORtplcp | LONGplcp
                   Short or long PLCP

<4_PayloadLength>Range: 1 byte   to   4095 bytes
                 Default unit: byte

<5_BurstPower>   Range: -100 dBm   to   30 dBm
                 Default unit: dBm

<6_EVMPeak>   Error vector magnitude peak value
                 Range: 0 %   to   100 %
                 Default unit: %

<7_EVMRMS>   Error vector magnitude RMS value
                 Range: 0 %   to   100 %
                 Default unit: %

<8_FreqError>   Center frequency error
                 Range: -150E+6 Hz   to   150E+6 Hz
                 Default unit: Hz

<9_ClockError>   Chip clock error
                 Range: -125 ppm   to   125 ppm
                 Default unit: ppm

<10_IQOffset>   Range: -100 dB   to   0 dB
                 Default unit: dB

<11_GainImbal>   Gain imbalance
                 Range: -100 dB   to   100 dB
                 Default unit: dB

<12_QuadError>   Quadrature error
                 Range: -180 deg   to   180 deg
                 Default unit: deg

<13_OutOfTol>   Out of tolerance result, i.e. percentage of measurement intervals of the
                 statistic count for modulation measurements exceeding the specified
                 modulation limits.
                 Range: 0 %   to   100 %
                 Default unit: %

<14_BurstRate>   If a modulation filter is used, the burst rate indicates the share of bursts of
                 the selected modulation type in the bursts received. Otherwise, it returns 1.
                 Default unit: %

Example: FETCh:WLAN:MEAS:MEValuation:MODulation:DSSS:AVERage?

3) **FETCh:WLAN:MEAS<i>:MEValuation:TSMask:AVERage?**

Return the limit line margin values of the transmit spectrum mask for SISO measurements and bandwidths with one segment.

Margins for the current, average, minimum and maximum traces are returned. A positive result indicates that the trace is located above the limit line. The limit is exceeded.

The values described below are returned by FETCh and READ commands. CALCulate commands return limit check results instead, one value for each result listed below.

Return values:

<Reliability>

\<OutOfTol\>	Out of tolerance result, i.e. percentage of measurement intervals of the statistic count for spectrum emission measurements exceeding the specified transmit spectrum mask limits.
	Range: 0 % to 100 %
	Default unit: %

\<Margin_AB\> ...	Comma-separated list of margin values, one value per spectrum mask area
\<Margin_BA\>	The number of margin values depends on the selected standard
	Range: -100 dB to 100 dB
	Default unit: dB

Example: FETCh:WLAN:MEAS:MEValuation:TSMask:AVERage?

10.2.11 Signal Routing

1) **CONFigure:WLAN:MEAS\<i\>:RFSettings:EATTenuation \<RFInputExtAtt\>**

Defines an external attenuation (or gain, if the value is negative), to be applied to all RF input connectors (global external attenuation).

For the combined signal path scenario, use CONFigure:WLAN:SIGN\<i\>:RFSettings:EATTenuation:INPut.

Parameters:

\<RFInputExtAtt\>Range: -50 dB to 90 dB

　　　　　　*RST: 0 dB

　　　　　　Default unit: dB

Example: CONFigure:WLAN:MEAS:RFSettings:EATTenuation 2

2) **ROUTe:WLAN:MEAS\<i\>:SCENario:SALone \<RXConnector\>, \<RXConverter\>**

Activates the standalone scenario and selects the RF input path for the measured RF signal.

Parameters:

\<RXConnector\>RF connector for the input path

\<RXConverter\> RX module for the input path

Example: ROUTe:WLAN:MEAS:SCENario:SALone RF1C, RX1

附录 A SCPI 命令列表

A.1 公共通用 SCPI 指令列表

序号	公共通用指令
1	*IDN?
2	*DEV?
3	*OPC?
4	*RST
5	*CLS
6	SYSTem:PRESet
7	SYSTem:BASE:OPTion:VERSion?
8	SENSe:BASE:TEMPerature:OPERating:INTernal?

9	SYSTem:BASE:DEVice:SUBinst?
10	SYSTem:BASE:OPTion:LIST?
11	CONFigure:FDCorrection:DEACtivate
12	CONFigure:FDCorrection:ACTivate
13	CONFigure:FDCorrection:USAGe?
14	CONFigure: FDCorrection:CTABle:CREate

A.2 NR SCPI 指令列表

序号	NR 指令
1	CONFigure:NRSub:MEASurement:BAND
2	CONFigure:NRSub:MEASurement:MEValuation:BWConfig
3	CONFigure:NRSub:MEASurement:MEValuation:DMODe
4	CONFigure:NRSub:MEASurement:MEValuation:LIST
5	CONFigure:NRSub:MEASurement:MEValuation:LIST:LRANge
6	CONFigure:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:ACLR
7	CONFigure:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:MODulation
8	CONFigure:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:PMONitor
9	CONFigure:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:POWer
10	CONFigure:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:PUSChconfig
11	CONFigure:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:SEMask
12	CONFigure:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:SETup
13	CONFigure:NRSub:MEASurement:MEValuation:MODulation:MSCH
14	CONFigure:NRSub:MEASurement:MEValuation:MOEXception
15	CONFigure:NRSub:MEASurement:MEValuation:PCOMp
16	CONFigure:NRSub:MEASurement:MEValuation:PLCid
17	CONFigure:NRSub:MEASurement:MEValuation:REPetition
18	CONFigure:NRSub:MEASurement:MEValuation:RESult:ALL
19	CONFigure:NRSub:MEASurement:MEValuation:SCOunt:MODulation
20	CONFigure:NRSub:MEASurement:MEValuation:SCOunt:POWer
21	CONFigure:NRSub:MEASurement:MEValuation:SCOunt:SPECtrum:ACLR
22	CONFigure:NRSub:MEASurement:MEValuation:SCOunt:SPECtrum:SEMask
23	CONFigure:NRSub:MEASurement:RFSettings:EATTenuation
24	CONFigure:NRSub:MEASurement:RFSettings:ENPower
25	CONFigure:NRSub:MEASurement:RFSettings:FREQuency
26	CONFigure:NRSub:MEASurement:RFSettings:UMARgin
27	FETCh:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:ACLR:AVERage?
28	FETCh:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:ESFLatness:AVERage?
29	FETCh:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:IEMission:MARGin:EXTReme:RBINdex?

30	FETCh:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:IEMission:MARGin:EXTReme?
31	FETCh:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:MODulation:AVERage?
32	FETCh:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:POWer:AVERage?
33	FETCh:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:SEMask:AVERage?
34	FETCh:NRSub:MEASurement:MEValuation:LIST:SEGMent<i>:SEMask:MARGin:ALL?
35	INITiate:NRSub:MEASurement:MEValuation
36	ROUTe:NRSub:MEASurement:SCENario:SALone
37	SOURce:NRSub:GEN:LIST
38	SOURce:NRSub:GEN:LIST:FREQuency:ALL
39	SOURce:NRSub:GEN:LIST:RFLevel:ALL
40	TRIGger:NRSub:MEASurement:MEValuation:LIST:MODE
41	TRIGger:NRSub:MEASurement:MEValuation:SLOPe
42	TRIGger:NRSub:MEASurement:MEValuation:SOURce
43	TRIGger:NRSub:MEASurement:MEValuation:THReshold
44	TRIGger:NRSub:MEASurement:MEValuation:TOUT

A.3 LTE SCPI 指令列表

序号	LTE 指令
1	ABORt:LTE:MEASurement:MEValuation
2	CONFigure:LTE:MEASurement:BAND
3	CONFigure:LTE:MEASurement:DMODe
4	CONFigure:LTE:MEASurement:MEValuation:CBANdwidth
5	CONFigure:LTE:MEASurement:MEValuation:CPRefix
6	CONFigure:LTE:MEASurement:MEValuation:CTYPe
7	CONFigure:LTE:MEASurement:MEValuation:DMODe
8	CONFigure:LTE:MEASurement:MEValuation:DSSPusch
9	CONFigure:LTE:MEASurement:MEValuation:GHOPping
10	CONFigure:LTE:MEASurement:MEValuation:LIST
11	CONFigure:LTE:MEASurement:MEValuation:LIST:CMODe
12	CONFigure:LTE:MEASurement:MEValuation:LIST:LRANge
13	CONFigure:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:ACLR
14	CONFigure:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:PMONitor
15	CONFigure:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:POWer
16	CONFigure:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:SEMask
17	CONFigure:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:TDD
18	CONFigure:LTE:MEASurement:MEValuation:LIST:SEGMment<i>:MODulation
19	CONFigure:LTE:MEASurement:MEValuation:LIST:SEGMment<i>:RBALlocation
20	CONFigure:LTE:MEASurement:MEValuation:LIST:SEGMment<i>:SETup

21	CONFigure:LTE:MEASurement:MEValuation:MODulation:EEPeriods:PUSCh:LAGGing
22	CONFigure:LTE:MEASurement:MEValuation:MODulation:EEPeriods:PUSCh:LEADing
23	CONFigure:LTE:MEASurement:MEValuation:MODulation:MSCHeme
24	CONFigure:LTE:MEASurement:MEValuation:MOEXception
25	CONFigure:LTE:MEASurement:MEValuation:NSValue
26	CONFigure:LTE:MEASurement:MEValuation:PFORmat
27	CONFigure:LTE:MEASurement:MEValuation:PLCid
28	CONFigure:LTE:MEASurement:MEValuation:RBALlocation:NRB
29	CONFigure:LTE:MEASurement:MEValuation:RBALlocation:ORB
30	CONFigure:LTE:MEASurement:MEValuation:REPetion
31	CONFigure:LTE:MEASurement:MEValuation:RESult:ALL
32	CONFigure:LTE:MEASurement:MEValuation:RESult:EVMagnitude
33	CONFigure:LTE:MEASurement:MEValuation:RESult:PDYNamics
34	CONFigure:LTE:MEASurement:MEValuation:SCOunt:MODulation
35	CONFigure:LTE:MEASurement:MEValuation:SCOunt:POWer
36	CONFigure:LTE:MEASurement:MEValuation:SCOunt:SPECtrum:ACLR
37	CONFigure:LTE:MEASurement:MEValuation:SCOunt:SPECtrum:SEMask
38	CONFigure:LTE:MEASurement:MEValuation:SSUBframe
39	CONFigure:LTE:MEASurement:MEValuation:ULDL
40	CONFigure:LTE:MEASurement:RFSettings:CC:FREQuency
41	CONFigure:LTE:MEASurement:RFSettings:ENPower
42	CONFigure:LTE:MEASurement:RFSettings:FREQuency
43	CONFigure:LTE:MEASurement:RFSettings:UMARgin
44	FETCh:LTE:MEASurement:MEValuation:ACLR:AVERage? FETCh:LTE:MEASurement:MEValuation:ESFLatness:AVERage?
45	FETCh:LTE:MEASurement:MEValuation:EVMagnitude:AVERage?
46	FETCh:LTE:MEASurement:MEValuation:LIST:ACLR:EUTRa:AVERage?
47	FETCh:LTE:MEASurement:MEValuation:LIST:ACLR:EUTRa:NEGativ:AVERage?
48	FETCh:LTE:MEASurement:MEValuation:LIST:ACLR:EUTRa:POSitiv:AVERage?
49	FETCh:LTE:MEASurement:MEValuation:LIST:ACLR:UTRA:NEGativ:AVERage?
50	FETCh:LTE:MEASurement:MEValuation:LIST:ACLR:UTRA:POSitiv:AVERage?
51	FETCh:LTE:MEASurement:MEValuation:LIST:ESFLatness:DIFFerence:AVERage?
52	FETCh:LTE:MEASurement:MEValuation:LIST:ESFLatness:MAXR:AVERage?
53	FETCh:LTE:MEASurement:MEValuation:LIST:ESFLatness:MINR:AVERage?
54	FETCh:LTE:MEASurement:MEValuation:LIST:ESFLatness:RIPPle:AVERage?
55	FETCh:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:ACLR:AVERage?

56	FETCh:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:ESFLatness:AVERage?
57	FETCh:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:IEMission:MARGin:AVERage?
58	FETCh:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:IEMission:MARGin:EXTReme: RBINdex?
59	FETCh:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:MODulation:AVERage?
60	FETCh:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:POWer:AVERage?
61	FETCh:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:SEMask:AVERage?
62	FETCh:LTE:MEASurement:MEValuation:LIST:SEGMent<i>:SEMask:MARGin?
63	FETCh:LTE:MEASurement:MEValuation:LIST:SEMask:OBW:AVERage?
64	FETCh:LTE:MEASurement:MEValuation:MODulation:AVERage?
65	FETCh:LTE:MEASurement:MEValuation:SEMask:AVERage?
66	INITiate:LTE:MEASurement:MEValuation
67	ROUTe:LTE:MEASurement:SCENario:SALone
68	TRIGger:LTE:MEASurement:MEValuation:DELay
69	TRIGger:LTE:MEASurement:MEValuation:LIST:MODE
70	TRIGger:LTE:MEASurement:MEValuation:SLOPe
71	TRIGger:LTE:MEASurement:MEValuation:SOURce
72	TRIGger:LTE:MEASurement:MEValuation:THReshold
73	TRIGger:LTE:MEASurement:MEValuation:TOUT

A.4 CDMA SCPI 指令列表

序号	CDMA 指令集
1	ABORt:CDMA:MEASurement:MEValuation
2	CALCulate:CDMA:MEASurement:MEValuation:TRACe:CDP:ISIGnal:AVERage?
3	CALCulate:CDMA:MEASurement:MEValuation:TRACe:CDP:QSIGnal:AVERage?
4	CONFigure:CDMA:MEASurement:MEValuation:ACP:FOFFsets
5	CONFigure:CDMA:MEASurement:MEValuation:LIMit:CDP
6	CONFigure:CDMA:MEASurement:MEValuation:MOEXception
7	CONFigure:CDMA:MEASurement:MEValuation:REPetition
8	CONFigure:CDMA:MEASurement:MEValuation:RESult:ACP
9	CONFigure:CDMA:MEASurement:MEValuation:RESult:ALL
10	CONFigure:CDMA:MEASurement:MEValuation:RESult:EVMagnitude
11	CONFigure:CDMA:MEASurement:MEValuation:RESult:POWer
12	CONFigure:CDMA:MEASurement:MEValuation:SCOunt:MODulation
13	CONFigure:CDMA:MEASurement:MEValuation:SCOunt:SPECtrum

14	CONFigure:CDMA:MEASurement:MEValuation:SFACtor
15	CONFigure:CDMA:MEASurement:RCONfig
16	CONFigure:CDMA:MEASurement:RFSettings:BCLass
17	CONFigure:CDMA:MEASurement:RFSettings:EATTenuation
18	CONFigure:CDMA:MEASurement:RFSettings:ENPower
19	CONFigure:CDMA:MEASurement:RFSettings:FREQuency
20	CONFigure:CDMA:MEASurement:RFSettings:UMARgin
25	FETCh:CDMA:MEASurement:MEValuation:MODulation:AVERage?
26	FETCh:CDMA:MEASurement:MEValuation:TRACe:ACP:AVERage?
27	FETCh:CDMA:MEASurement:MEValuation:TRACe:CDP:ISIGnal:AVERage?
28	FETCh:CDMA:MEASurement:MEValuation:TRACe:CDP:ISIGnal:STATe?
29	FETCh:CDMA:MEASurement:MEValuation:TRACe:CDP:QSIGnal:AVERage?
30	FETCh:CDMA:MEASurement:MEValuation:TRACe:CDP:QSIGnal:STATe?
31	FETCh:CDMA:MEASurement:MEValuation:TRACe:IQ:CURRent?
32	INITiate:CDMA:MEASurement:MEValuation
33	ROUTe:CDMA:MEASurement:SCENario:SALone
34	ROUTe:TDSCdma:MEASurement:SCENario:SALone
35	TRIGger:CDMA:MEASurement:MEValuation:CATalog:SOURce?
36	TRIGger:CDMA:MEASurement:MEValuation:SOURce
37	TRIGger:CDMA:MEASurement:MEValuation:TOUT
38	TRIGger:CDMA:MEASurement:THReshold

A.5 WCDMA SCPI 指令列表

序号	WCDMA 指令
1	ABORt:WCDMa:MEASurement:MEValuation
2	CONFigure:WCDMa:MEASurement:MEValuation:DSFactor:MODulation
3	CONFigure:WCDMa:MEASurement:MEValuation:LIST
4	CONFigure:WCDMa:MEASurement:MEValuation:LIST:COUNt
5	CONFigure:WCDMa:MEASurement:MEValuation:LIST:EOFFset
6	CONFigure:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:CDPower
7	CONFigure:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:MODulation
8	CONFigure:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:SETup
9	CONFigure:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:SPECtrum
10	CONFigure:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:UEPower
11	CONFigure:WCDMa:MEASurement:MEValuation:LIST:UEPower
12	CONFigure:WCDMa:MEASurement:MEValuation:MOEXception
13	CONFigure:WCDMa:MEASurement:MEValuation:MSCount
14	CONFigure:WCDMa:MEASurement:MEValuation:PSLot
15	CONFigure:WCDMa:MEASurement:MEValuation:REPetition

16	CONFigure:WCDMa:MEASurement:MEValuation:RESult:ACLR
17	CONFigure:WCDMa:MEASurement:MEValuation:RESult:ALL
18	CONFigure:WCDMa:MEASurement:MEValuation:RESult:BER
19	CONFigure:WCDMa:MEASurement:MEValuation:RESult:IQ
20	CONFigure:WCDMa:MEASurement:MEValuation:RESult:UEPower
21	CONFigure:WCDMa:MEASurement:MEValuation:SCOunt:BER
22	CONFigure:WCDMa:MEASurement:MEValuation:SCOunt:MODulation
23	CONFigure:WCDMa:MEASurement:MEValuation:SCOunt:SPECtrum
24	CONFigure:WCDMa:MEASurement:PRACh:MPReamble
25	CONFigure:WCDMA:MEASurement:RFSettings:EATTenuation
26	CONFigure:WCDMa:MEASurement:RFSettings:ENPower
27	CONFigure:WCDMa:MEASurement:RFSettings:FREQuency
28	CONFigure:WCDMa:MEASurement:RFSettings:UMARgin
29	CONFigure:WCDMa:MEASurement:UESignal:DPDCh
30	CONFigure:WCDMa:MEASurement:UESignal:SCODe
31	CONFigure:WCDMa:MEASurement:UESignal:SFOR
32	CONFigure:WCDMa:MEASurement:UESignal:ULConfig
33	FETCh:WCDMa:MEASurement:MEValuation:BER?
34	FETCh:WCDMa:MEASurement:MEValuation:LIST:CDPower:AVERage?
35	FETCh:WCDMa:MEASurement:MEValuation:LIST:MODulation:AVERage?
36	FETCh:WCDMa:MEASurement:MEValuation:LIST:PCDE:CURRent?
37	FETCh:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:MODulation:AVERage?
38	FETCh:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:PCDE:AVERage?
39	FETCh:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:PCDE:MAXimum?
40	FETCh:WCDMa:MEASurement:MEValuation:LIST:SEGMent<i>:SPECtrum:AVERage?
41	FETCh:WCDMa:MEASurement:MEValuation:LIST:SPECtrum:AVERage?
42	FETCh:WCDMa:MEASurement:MEValuation:LIST:UEPower:AVERage?
43	FETCh:WCDMa:MEASurement:MEValuation:LIST:UEPower:CURRent?
44	FETCh:WCDMa:MEASurement:MEValuation:MODulation:AVERage?
45	FETCh:WCDMa:MEASurement:MEValuation:STATe?
46	FETCh:WCDMa:MEASurement:MEValuation:TRACe:EMASk:CURRent?
47	FETCh:WCDMa:MEASurement:MEValuation:TRACe:IQ:CURRent?
48	FETCh:WCDMa:MEASurement:MEValuation:TRACe:MODulation:EVM:CURRent?
49	INITiate:WCDMa:MEASurement:MEValuation
50	ROUTe:WCDMa:MEASurement:SCENario:SALone
51	TRIGger:WCDMa:MEASurement:MEValuation:DELay
52	TRIGger:WCDMa:MEASurement:MEValuation:LIST:MODE
53	TRIGger:WCDMa:MEASurement:MEValuation:SOURce
54	TRIGger:WCDMa:MEASurement:MEValuation:THReshold

55	TRIGger:WCDMa:MEASurement:MEValuation:TOUT
56	TRIGger:WCDMa:MEASurement:PRACh:THReshold

A.6 GSM SCPI 指令列表

序号	GSM 指令
1	ABORt:GSM:MEASurement:MEValuation
2	CALCulate:GSM:MEASurement:MEValuation:LIST:PVTime:AVERage?
3	CALCulate:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:SMODulation?
4	CALCulate:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:SSWitching?
5	CALCulate:GSM:MEASurement:MEValuation:PVTime:ALL?
6	CALCulate:GSM:MEASurement:MEValuation:SMODulation:FREQuency?
7	CALCulate:GSM:MEASurement:MEValuation:SSWitching:FREQuency?
8	CONFigure:GSM:MEASurement:BAND
9	CONFigure:GSM:MEASurement:MEValuation:AMODe
10	CONFigure:GSM:MEASurement:MEValuation:APATtern
11	CONFigure:GSM:MEASurement:MEValuation:LIST
12	CONFigure:GSM:MEASurement:MEValuation:LIST:CMODe
13	CONFigure:GSM:MEASurement:MEValuation:LIST:IIFRames
14	CONFigure:GSM:MEASurement:MEValuation:LIST:LRANge
15	CONFigure:GSM:MEASurement:MEValuation:LIST:OSINdex
16	CONFigure:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:CONNector
17	CONFigure:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:MODulation
18	CONFigure:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:PVTime
19	CONFigure:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:SETup
20	CONFigure:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:SMODulation
21	CONFigure:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:SSWitching
22	CONFigure:GSM:MEASurement:MEValuation:LIST:SLENgth
23	CONFigure:GSM:MEASurement:MEValuation:MODulation:DEC
24	CONFigure:GSM:MEASurement:MEValuation:MOEX
25	CONFigure:GSM:MEASurement:MEValuation:MSLots
26	CONFigure:GSM:MEASurement:MEValuation:MVIew
27	CONFigure:GSM:MEASurement:MEValuation:REPetition
28	CONFigure:GSM:MEASurement:MEValuation:RESult
29	CONFigure:GSM:MEASurement:MEValuation:RESult:ALL
30	CONFigure:GSM:MEASurement:MEValuation:RESult:BER
31	CONFigure:GSM:MEASurement:MEValuation:RESult:IQ
32	CONFigure:GSM:MEASurement:MEValuation:RESult:MSCalar
33	CONFigure:GSM:MEASurement:MEValuation:RESult:PVTime
34	CONFigure:GSM:MEASurement:MEValuation:RESult:SMFRequency
35	CONFigure:GSM:MEASurement:MEValuation:RESult:SSFRequency

36	CONFigure:GSM:MEASurement:MEValuation:SCOunt:BER
37	CONFigure:GSM:MEASurement:MEValuation:SCOunt:MODulation
38	CONFigure:GSM:MEASurement:MEValuation:SCOunt:PVT
39	CONFigure:GSM:MEASurement:MEValuation:SCOunt:SMODulation
40	CONFigure:GSM:MEASurement:MEValuation:SCOunt:SSWitching
41	CONFigure:GSM:MEASurement:MEValuation:SMODulation:OFRequence
42	CONFigure:GSM:MEASurement:MEValuation:SSWitching:OFRequence
43	CONFigure:GSM:MEASurement:MEValuation:TSEQ
44	CONFigure:GSM:MEASurement:RFSettings:EATTenuation
45	CONFigure:GSM:MEASurement:RFSettings:ENPower
46	CONFigure:GSM:MEASurement:RFSettings:FREQuency
47	CONFigure:GSM:MEASurement:RFSettings:UMARgin
48	FETCh:GSM:MEASurement:MEValuation:BER?
49	FETCh:GSM:MEASurement:MEValuation:LIST:MODulation:AVERage?
50	FETCh:GSM:MEASurement:MEValuation:LIST:MODulation:EVM:PEAK:AVERage?
51	FETCh:GSM:MEASurement:MEValuation:LIST:MODulation:EVM:PEAK:AVERage?
52	FETCh:GSM:MEASurement:MEValuation:LIST:MODulation:EVM:RMS:AVERage?
53	FETCh:GSM:MEASurement:MEValuation:LIST:MODulation:FERRor:AVERage?
54	FETCh:GSM:MEASurement:MEValuation:LIST:MODulation:IQOFfset:AVERage?
55	FETCh:GSM:MEASurement:MEValuation:LIST:MODulation:MAXimum?
56	FETCh:GSM:MEASurement:MEValuation:LIST:PVTime:AVERage?
57	FETCh:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:BER?
58	FETCh:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:MODulation:AVERage?
59	FETCh:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:PVTime:AVERage:SVECtor?
60	FETCh:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:SMODulation?
61	FETCh:GSM:MEASurement:MEValuation:LIST:SEGMent<i>:SSWitching?
62	FETCh:GSM:MEASurement:MEValuation:LIST:SMODulation:CPOWer?
63	FETCh:GSM:MEASurement:MEValuation:LIST:SMODulation:POFFset<i>?
64	FETCh:GSM:MEASurement:MEValuation:LIST:SSWitching:CPOWer?
65	FETCh:GSM:MEASurement:MEValuation:LIST:SSWitching:POFFset<i>?
66	FETCh:GSM:MEASurement:MEValuation:MODulation:AVERage?
67	FETCh:GSM:MEASurement:MEValuation:MODulation:PERC?
68	FETCh:GSM:MEASurement:MEValuation:PVTime:ALL?
69	FETCh:GSM:MEASurement:MEValuation:SMODulation:FREQuency?
70	FETCh:GSM:MEASurement:MEValuation:SSWitching:FREQuency?
71	FETCh:GSM:MEASurement:MEValuation:STATe?
72	FETCh:GSM:MEASurement:MEValuation:TRACe:EVM:CURRent?
73	FETCh:GSM:MEASurement:MEValuation:TRACe:IQ:CURRent?
74	FETCh:GSM:MEASurement:MEValuation:TRACe:PVTime:CURRent?
75	INITiate:GSM:MEASurement:MEValuation
76	ROUTe:GSM:MEASurement:SCENario:SALone
77	TRIGger:GSM:MEASurement:MEValuation:LIST:MODE
78	TRIGger:GSM:MEASurement:MEValuation:SOURce

79	TRIGger:GSM:MEASurement:MEValuation:THReshold
80	TRIGger:GSM:MEASurement:MEValuation:TOUT

A.7 GPRF SCPI 指令列表

序号	GPRF 指令
1	ABORt:GPRF:MEASurement:FFTSanalyze
2	ABORt:GPRF:MEASurement:MEValuation
3	ABORt:GPRF:MEASurement:PLOSs
4	ABORt:GPRF:MEASurement:POWer
5	CONFigure:GPRF:GEN:CEYE:USAGe:TX
6	CONFigure:GPRF:GEN:CEYE:USAGe:TX:ALL
7	CONFigure:GPRF:GEN:POWer:TRIGger:MODE
8	CONFigure:GPRF:GEN:USAGe:TX
9	CONFigure:GPRF:GEN:USAGe:TX:ALL
10	CONFigure:GPRF:MEASurement:FFTSanalyzer:FFTLength
11	CONFigure:GPRF:MEASurement:FFTSanalyzer:FSPan
12	CONFigure:GPRF:MEASurement:PLOSs:LIST:FREQuency
13	CONFigure:GPRF:MEASurement:PLOSs:LIST:FREQuency?
14	CONFigure:GPRF:MEASurement:PLOSs:MPATh:LIST:FREQuency
15	CONFigure:GPRF:MEASurement:PLOSs:MPATh:LIST:FREQuency?
16	CONFigure:GPRF:MEASurement:PLOSs:TRACe
17	CONFigure:GPRF:MEASurement:PLOSs:VIEW:AFTaps
18	CONFigure:GPRF:MEASurement:POWer:FILTer:BANDpass:BWIDth
19	CONFigure:GPRF:MEASurement:POWer:FILTer:TYPE
20	CONFigure:GPRF:MEASurement:POWer:LIST
21	CONFigure:GPRF:MEASurement:POWer:LIST:ENPower:ALL
22	CONFigure:GPRF:MEASurement:POWer:LIST:FREQuency:ALL
23	CONFigure:GPRF:MEASurement:POWer:LIST:IREPetition:ALL
24	CONFigure:GPRF:MEASurement:POWer:LIST:STARt
25	CONFigure:GPRF:MEASurement:POWer:LIST:STOP
26	CONFigure:GPRF:MEASurement:POWer:MLENgth
27	CONFigure:GPRF:MEASurement:POWer:PDEFset
28	CONFigure:GPRF:MEASurement:POWer:REPetition
29	CONFigure:GPRF:MEASurement:POWer:SCOunt
30	CONFigure:GPRF:MEASurement:POWer:SLENgth
31	CONFigure:GPRF:MEASurement:POWer:TOUT
32	CONFigure:GPRF:MEASurement:POWer:TRIGger:MODE
33	CONFigure:GPRF:MEASurement:POWer:TRIGger:SLOPe
34	CONFigure:GPRF:MEASurement:POWer:TRIGger:SOURce
35	CONFigure:GPRF:MEASurement:POWer:TRIGger:THReshold

36	CONFigure:GPRF:MEASurement:POWer:TRIGger:TOUT
37	CONFigure:GPRF:MEASurement:RFSettings:EATTenuation
38	CONFigure:GPRF:MEASurement:RFSettings:ENPower
39	CONFigure:GPRF:MEASurement:RFSettings:FREQuency
40	CONFigure:GPRF:MEASurement:RFSettings:MLOFfset
41	CONFigure:GPRF:MEASurement:RFSettings:UMARgin
42	CONFigure:GPRF:MEASurement:TMODe
43	FETCh:GPRF:MEASurement:FFTSanalyzer:PEAKs:AVERage?
44	FETCh:GPRF:MEASurement:PLOSs:EVAL:FREQuency?
45	FETCh:GPRF:MEASurement:PLOSs:EVAL:GAIN?
46	FETCh:GPRF:MEASurement:PLOSs:EVAL:STATe?
47	FETCh:GPRF:MEASurement:PLOSs:EVAL:TRACe:FREQuency?
48	FETCh:GPRF:MEASurement:PLOSs:EVAL:TRACe:GAIN?
49	FETCh:GPRF:MEASurement:PLOSs:OPEN?
50	FETCh:GPRF:MEASurement:PLOSs:SHORt?
51	FETCh:GPRF:MEASurement:PLOSs:STATe:ALL?
52	FETCh:GPRF:MEASurement:PLOSs:STATe?
53	FETCh:GPRF:MEASurement:POWer:AVERage?
54	INITiate:GPRF:MEASurement:CALibration
55	INITiate:GPRF:MEASurement:FFTSanalyzer
56	INITiate:GPRF:MEASurement:PLOSs:CLEar
57	INITiate:GPRF:MEASurement:PLOSs:EVALuate
58	INITiate:GPRF:MEASurement:PLOSs:OPEN
59	INITiate:GPRF:MEASurement:PLOSs:SHORt
60	INITiate:GPRF:MEASurement:POWer
61	READ:GPRF:MEASurement:POWer:AVERage?
62	ROUTe:GPRF:GEN:SCENario:SALone
63	ROUTe:GPRF:MEASurement:SCENario:SALone
64	SOURce:GPRF:GEN:ARB:CYCLes
65	SOURce:GPRF:GEN:ARB:CYCLes?
66	SOURce:GPRF:GEN:ARB:FILE
67	SOURce:GPRF:GEN:ARB:FILE:DATE?
68	SOURce:GPRF:GEN:ARB:FILE:VERSion?
69	SOURce:GPRF:GEN:ARB:FILE?
70	SOURce:GPRF:GEN:ARB:MSEGment:DURation?
71	SOURce:GPRF:GEN:ARB:REPetition
72	SOURce:GPRF:GEN:ARB:REPetition?
73	SOURce:GPRF:GEN:ARB:SCOunt?
74	SOURce:GPRF:GEN:ARB:SEGMent:NEXT
75	SOURce:GPRF:GEN:ARB:SEGMents:CURRent?
76	SOURce:GPRF:GEN:BBMode
77	SOURce:GPRF:GEN:DTONe:OFRequency<i>
78	SOURce:GPRF:GEN:LIST

79	SOURce:GPRF:GEN:LIST:DTIM:ALL
80	SOURce:GPRF:GEN:LIST:EATTenuation:ALL
81	SOURce:GPRF:GEN:LIST:ESINgle
82	SOURce:GPRF:GEN:LIST:FREQuency:ALL
83	SOURce:GPRF:GEN:LIST:INCRement
84	SOURce:GPRF:GEN:LIST:MODulation:ALL
85	SOURce:GPRF:GEN:LIST:REPetition
86	SOURce:GPRF:GEN:LIST:RFLevel:ALL
87	SOURce:GPRF:GEN:LIST:STARt
88	SOURce:GPRF:GEN:LIST:STOP
89	SOURce:GPRF:GEN:RELiability:ALL?
90	SOURce:GPRF:GEN:RFSettings:EATTenuation
91	SOURce:GPRF:GEN:RFSettings:FREQuency
92	SOURce:GPRF:GEN:RFSettings:LEVel
93	SOURce:GPRF:GEN:STATe
94	SOURce:GPRF:GEN:STATe:ALL?
95	SOURce:GPRF:GEN:STATe?
96	STOP:GPRF:MEASurement:PLOSs
97	TRIGger:GPRF:GEN:ARB:RETRigger
98	TRIGger:GPRF:GEN:ARB:SEGMent:MAN:EXEC
99	TRIGger:GPRF:GEN:ARB:SEGMent:MODE
100	TRIGger:GPRF:GEN:ARB:SOURce
101	TRIGger:GPRF:MEASurement:POWer:MGAP
102	TRIGger:GPRF:MEASurement:POWer:MODE
103	TRIGger:GPRF:MEASurement:POWer:OFFSet
104	TRIGger:GPRF:MEASurement:POWer:SOURce
105	TRIGger:GPRF:MEASurement:POWer:THReshold
106	TRIGger:GPRF:MEASurement:POWer:TOUT

A.8 WLAN SCPI 指令列表

序号	WLAN 指令
1	ABORt:WLAN:MEASurement:MEValuation
2	CONFigure:WLAN:MEASurement:ISIGnal:BWIDth
3	CONFigure:WLAN:MEASurement:ISIGnal:DSSS:ELENgth
4	CONFigure:WLAN:MEASurement:ISIGnal:IQSW
5	CONFigure:WLAN:MEASurement:ISIGnal:OFDM:ELENgth
6	CONFigure:WLAN:MEASurement:ISIGnal:RMOD
7	CONFigure:WLAN:MEASurement:ISIGnal:STANdard
8	CONFigure:WLAN:MEASurement:MEValuation:COMPensation:CESTimation
9	CONFigure:WLAN:MEASurement:MEValuation:COMPensation:TRACking:LEVel

10	CONFigure:WLAN:MEASurement:MEValuation:COMPensation:TRACking:PHASe
11	CONFigure:WLAN:MEASurement:MEValuation:COMPensation:TRACking:TIMing
12	CONFigure:WLAN:MEASurement:MEValuation:MOEXception
13	CONFigure:WLAN:MEASurement:MEValuation:REPetition
14	CONFigure:WLAN:MEASurement:MEValuation:RESult:ALL
15	CONFigure:WLAN:MEASurement:MEValuation:RESult:EVM
16	CONFigure:WLAN:MEASurement:MEValuation:RESult:EVMCarrier
17	CONFigure:WLAN:MEASurement:MEValuation:RESult:EVMSymbol
18	CONFigure:WLAN:MEASurement:MEValuation:RESult:IQConst
19	CONFigure:WLAN:MEASurement:MEValuation:RESult:MSCalar
20	CONFigure:WLAN:MEASurement:MEValuation:RESult:PVTime
21	CONFigure:WLAN:MEASurement:MEValuation:RESult:SFLatness
22	CONFigure:WLAN:MEASurement:MEValuation:RESult:TSMask
23	CONFigure:WLAN:MEASurement:MEValuation:SCOunt:MODulation
24	CONFigure:WLAN:MEASurement:MEValuation:SCOunt:PVTime
25	CONFigure:WLAN:MEASurement:MEValuation:SCOunt:TSMask
26	CONFigure:WLAN:MEASurement:MEValuation:TSMask:AFFTnum
27	CONFigure:WLAN:MEASurement:MEValuation:TSMask:TROTime
28	CONFigure:WLAN:MEASurement:RFSettings:EATTenuation
29	CONFigure:WLAN:MEASurement:RFSettings:ENPower
30	CONFigure:WLAN:MEASurement:RFSettings:FREQuency
31	CONFigure:WLAN:MEASurement:RFSettings:FREQuency:BAND
32	CONFigure:WLAN:MEASurement:RFSettings:MLOFfset
33	CONFigure:WLAN:MEASurement:RFSettings:UMARgin
34	FETCh:WLAN:MEASurement:MEValuation:MODulation:ACSiso:AVERage?
35	FETCh:WLAN:MEASurement:MEValuation:MODulation:AVERage?
36	FETCh:WLAN:MEASurement:MEValuation:MODulation:DSSS:AVERage?
37	FETCh:WLAN:MEASurement:MEValuation:MODulation:OFDM:AVERage?
38	FETCh:WLAN:MEASurement:MEValuation:TSMask:AVERage?
39	INITiate:WLAN:MEASurement:MEValuation
40	ROUTe:WLAN:MEAS:SCEN:SALone
41	TRIGger:WLAN:MEASurement:MEValuation:MGAP
42	TRIGger:WLAN:MEASurement:MEValuation:SLOPe
43	TRIGger:WLAN:MEASurement:MEValuation:SOURce
44	TRIGger:WLAN:MEASurement:MEValuation:THReshold
45	TRIGger:WLAN:MEASurement:MEValuation:TOUT

附录 B 各模式流程示例

B.1 NR 流程示例

1.1 采集分析

```
*DEV?
CONF:FDC:CTAB:CRE
'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11,
806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4
.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.
000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.3
6,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.00
0e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,
4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000
e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5
240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57
CONF:FDC:DEAC RA1,RX
CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX
CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX
SYST:PRES 'NR Sub-6 GHz1'
CONFigure:NRSub:MEAS:MEValuation:DMODe TDD
CONFigure:NRSub:MEAS:RFSettings:UMARgin 17
CONFigure:NRSub:MEAS:MEValuation:MOEXception ON
CONFigure:NRSub:MEAS:MEValuation:REPetition SINGleshot
CONFigure:NRSub:MEAS:MEValuation:SCOunt:SPECtrum:ACLR 2
CONFigure:NRSub:MEAS:MEValuation:SCOunt:SPECtrum:SEMask 2
CONFigure:NRSub:MEAS:MEValuation:SCOunt:POWer 1
CONFigure:NRSub:MEAS:MEValuation:SCOunt:MODulation 2
CONFigure:NRSub:MEAS:MEValuation:PLCid 0
TRIGger:NRSub:MEAS:MEValuation:LIST:MODE ONCE
TRIGger:NRSub:MEAS:MEValuation:SOUR 'IF Power'
TRIGger:NRSub:MEAS:MEValuation:SLOP REDG
TRIGger:NRSub:MEAS:MEValuation:THR -27
TRIGger:NRSub:MEAS:MEValuation:TOUT 6
CONFigure:NRSub:MEAS:BAND OB77
CONFigure:NRSub:MEAS:MEValuation:BWConfig S30k,B100
CONFigure:NRSub:MEAS:RFSettings:FREQuency 2350000000.0
CONFigure:NRSub:MEAS:RFSettings:ENPower 7.0
CONFigure:NRSub:MEAS:MEValuation:PCOMp OFF, 2350000000.0
CONF:NRSub:MEAS:MEV:LIST ON
CONFigure:NRSub:MEAS:MEValuation:LIST:SEGMent1:SETup 30,6,TDD,OB77,235000000
```

CONFigure:NRSub:MEAS:MEValuation:LIST:SEGMent1:PUSChconfig Q16,A,OFF,137,68,

CONF:NRSub:MEAS:MEV:LIST:SEGM1:PMON ON

CONFigure:NRSub:MEAS:MEValuation:LIST:SEGMent1:POWer 1,ON

CONF:NRSub:MEAS:MEV:LIST:SEGM1:MOD 2,ON,ON,ON,ON,ON,ON

CONF:NRSub:MEAS:MEV:LIST:SEGM1:SEM 2,ON,ON,ON

CONF:NRSub:MEAS:MEV:LIST:SEGM1:ACLR 2,ON,ON,ON,ON

CONFigure:NRSub:MEAS:RFSettings:ENPower 6.0

CONF:NRSub:MEAS:MEV:LIST:LRAN 1,1

ROUT:NRSub:MEAS:SCEN:SAL RA1,RX1

INIT:NRSub:MEAS:MEV

FETCh:NRSub:MEAS:MEValuation:LIST:SEGMent1:MODulation:AVERage?

B.2 LTE 流程示例

2.1 采集分析

*DEV?

CONF:FDC:CTAB:CRE

'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11, 806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4 .69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350. 000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.3 6,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.00 0e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01, 4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000 e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5 240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57

CONF:FDC:DEAC RA1,RX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX

B.3 CDMA 流程示例

3.1 采集分析

*DEV?

CONF:FDC:CTAB:CRE

'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11, 806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4

.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.36,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.000e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57

CONF:FDC:DEAC RA1,RX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX

ROUT:GPRF:MEAS:SCEN:SAL RA1,RX1

ROUT:GSM:MEAS:SCEN:SAL RA1,RX1

ROUT:WCDM:MEAS:SCEN:SAL RA1,RX1

ROUT:CDMA:MEAS:SCEN:SAL RA1,RX1

ROUT:LTE:MEAS:SCEN:SAL RA1,RX1

ROUT:TDSC:MEAS:SCEN:SAL RA1,RX1

ROUT:NRSub:MEAS:SCEN:SAL RA1,RX1

CONF:CDMA:MEAS:MEV:MOEX OFF

TRIG:CDMA:MEAS:MEV:TOUT 10S

CONF:CDMA:MEAS:RFS:UMAR 10

CONF:CDMA:MEAS:RCON R36H

CONF:CDMA:MEAS:MEV:SCO:MOD 10

CONF:CDMA:MEAS:MEV:SCO:SPEC 10

CONF:GPRF:MEAS:POW:REP SING

CONF:CDMA:MEAS:MEV:SFAC R36H

CONF:CDMA:MEAS:MEV:LIM:CDP -23.0

CONF:CDMA:MEAS:MEV:RES:ALL ON,OFF,ON,ON,ON,OFF,OFF,ON,OFF,OFF

CONF:CDMA:MEAS:RFS:BCL USC

TRIG:CDMA:MEAS:MEV:SOUR 'Free Run'

CONF:CDMA:MEAS:MEV:ACP:FOFF 0.885,1.980,OFF,OFF,OFF,OFF,OFF,OFF,OFF,OFF

CONF:CDMA:MEAS:RFS:ENP -55

CONF:CDMA:MEAS:RFS:FREQ 845.52MHz

INIT:CDMA:MEAS:MEV

FETC:CDMA:MEAS:MEV:MOD:AVER?

FETC:CDMA:MEAS:MEV:TRAC:ACP:AVER?

FETCh:CDMA:MEAS:MEValuation:TRACe:CDP:ISIGnal:AVERage?

FETCh:CDMA:MEAS:MEValuation:TRACe:CDP:QSIGnal:AVERage?

B.4 WCDMA 流程示例

4.1 LIST MODE 采集分析

*DEV?

```
CONF:FDC:CTAB:CRE
'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11,
806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4
.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.
000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.3
6,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.00
0e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,
4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000
e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5
240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57
CONF:FDC:DEAC RA1,RX
CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX
CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX
ROUT:GPRF:MEAS:SCEN:SAL RA1,RX1
ROUT:GSM:MEAS:SCEN:SAL RA1,RX1
ROUT:WCDM:MEAS:SCEN:SAL RA1,RX1
ROUT:CDMA:MEAS:SCEN:SAL RA1,RX1
ROUT:LTE:MEAS:SCEN:SAL RA1,RX1
ROUT:TDSC:MEAS:SCEN:SAL RA1,RX1
ROUT:NRSub:MEAS:SCEN:SAL RA1,RX1
CONF:GPRF:GEN:USAG:TX RA1,ON;
CONF:WCDM:MEAS:RFS:UMAR 7
CONFigure:WCDMa:MEAS:UESignal:ULConfig WCDM
CONF:WCDM:MEAS:MEV:SCO:SPEC 5
CONF:WCDM:MEAS:MEV:SCO:MOD 5
CONF:WCDM:MEAS:MEV:REP SING
CONF:WCDM:MEAS:MEV:MSC 1
CONFigure:WCDMa:MEAS:MEValuation:RESult:BER OFF
CONF:WCDM:MEAS:MEV:SCO:BER 41
CONFigure:WCDMa:MEAS:MEValuation:PSLot 0
TRIG:WCDM:MEAS:MEV:SOUR 'Free Run (Fast Sync)'
CONFigure:WCDMa:MEAS:MEValuation:LIST:EOFFset 0
ROUT:GPRF:MEAS:SCEN:SAL RA1,RX1
ROUT:GSM:MEAS:SCEN:SAL RA1,RX1
ROUT:WCDM:MEAS:SCEN:SAL RA1,RX1
ROUT:CDMA:MEAS:SCEN:SAL RA1,RX1
ROUT:LTE:MEAS:SCEN:SAL RA1,RX1
ROUT:TDSC:MEAS:SCEN:SAL RA1,RX1
ROUT:NRSub:MEAS:SCEN:SAL RA1,RX1
CONF:WCDM:MEAS:RFS:ENP 25.0
ROUT:GPRF:MEAS:SCEN:SAL RA1,RX1
ROUT:GSM:MEAS:SCEN:SAL RA1,RX1
ROUT:WCDM:MEAS:SCEN:SAL RA1,RX1
ROUT:CDMA:MEAS:SCEN:SAL RA1,RX1
```

```
ROUT:LTE:MEAS:SCEN:SAL RA1,RX1
ROUT:TDSC:MEAS:SCEN:SAL RA1,RX1
ROUT:NRSub:MEAS:SCEN:SAL RA1,RX1
CONF:WCDM:MEAS:RFS:ENP 25.0
SOUR:GPRF:GEN:ARB:SEGM:NEXT 3
TRIG:GPRF:GEN:ARB:SEGM:MAN:EXEC
CONF:WCDM:MEAS:UES:SCOD 0
CONF:WCDM:MEAS:UES:SFOR 0
CONF:WCDM:MEAS:UES:ULC WCDMa
CONF:WCDM:MEAS:UES:DPDC ON
CONF:WCDM:MEAS:RFS:UMAR 12.0
TRIG:WCDM:MEAS:MEV:DEL 0.0
CONF:WCDM:MEAS:MEV:LIST:UEP OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM1:SET              29,             24.0,1950.00e6,ON;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM2:SET              12,             -1.0,1950.00e6,OFF;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM3:SET   13,   -1.0,1950.00e6,OFF;MOD 1,ON, ON, ON, ON,
ON, ON;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,ON
CONF:WCDM:MEAS:MEV:LIST:SEGM4:SET              19,        -21.0,1950.00e6,OFF;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM5:SET              47,        -30.0,1950.00e6,OFF;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM6:SET              17,        -30.0,1950.00e6,OFF;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM7:SET              17,        -13.0,1950.00e6,OFF;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM8:SET              17,             0.0,1950.00e6,OFF;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM9:SET              12,             10.0,1950.00e6,OFF;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM10:SET           27,             24.0,1950.00e6,OFF;MOD
1,OFF,OFF,OFF,OFF,OFF,OFF;SPEC   1,OFF,OFF,OFF;CDP 1,OFF,OFF,OFF
CONF:WCDM:MEAS:MEV:LIST:SEGM11:SET 30,    24.0,1950.00e6,OFF;MOD 1,ON, ON, ON, ON,
ON, ON;SPEC   5,ON, ON, ON;CDP 1,OFF,OFF, ON
CONF:WCDM:MEAS:MEV:LIST:COUN 11
CONF:WCDM:MEAS:MEV:LIST ON
INIT:WCDM:MEAS:MEV
*OPC?
FETC:WCDMa:MEAS:MEV:LIST:SEGM2:MOD:AVER?
FETCh:WCDMa:MEAS:MEValuation:LIST:SEGM2:SPECtrum:AVERage?
FETCh:WCDMa:MEAS:MEValuation:LIST:SEGM2:PCDE:MAX?
```

B.5 GSM 流程示例

5.1 LIST MODE 采集分析

*DEV?

CONF:FDC:CTAB:CRE

'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11,806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.36,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.000e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57

CONF:FDC:DEAC RA1,RX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX

ROUT:GPRF:MEAS:SCEN:SAL RA1,RX1

ROUT:GSM:MEAS:SCEN:SAL RA1,RX1

ROUT:WCDM:MEAS:SCEN:SAL RA1,RX1

ROUT:CDMA:MEAS:SCEN:SAL RA1,RX1

ROUT:LTE:MEAS:SCEN:SAL RA1,RX1

ROUT:TDSC:MEAS:SCEN:SAL RA1,RX1

ROUT:NRSub:MEAS:SCEN:SAL RA1,RX1

CONF:GSM:MEAS:MEV:RES:ALL OFF,ON,ON,ON,ON,OFF,OFF,OFF,OFF,OFF,OFF,OFF

CONF:GSM:MEAS:MEV:RES:PVT OFF

CONF:GSM:MEAS:MEV:RES:SMFR ON;SSFR ON

CONF:GSM:MEAS:MEV:LIST OFF

TRIGger:GSM:MEAS:MEValuation:THReshold -30

TRIGger:GSM:MEASurement:MEValuation:SOURce 'Power'

CONF:GSM:MEAS:RFS:UMAR 5

CONF:GSM:MEAS:RFS:FREQ 836.6MHz

CONF:GSM:MEAS:RFS:ENP -10.0

CONF:GSM:MEAS:MEV:SCO:MOD 5

CONF:GSM:MEAS:MEV:SCO:PVT 5

CONF:GSM:MEAS:MEV:SCO:SMOD 100

CONF:GSM:MEAS:MEV:SCO:SSW 100

INIT:GSM:MEAS:MEV

5.2 非 LIST MODE 采集分析

*DEV?

CONF:FDC:CTAB:CRE

'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11,
806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4
.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.
000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.3
6,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.00
0e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,
4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000
e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5
240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57

CONF:FDC:DEAC RA1,RX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX

ROUT:GSM:MEAS:SCEN:SAL RA1,RX1

CONF:GSM:MEAS:RFS:FREQ 1000.0MHz

CONF:GSM:MEAS:RFS:ENP 0.0

CONF:GSM:MEAS:MEV:MOEX OFF

CONF:GSM:MEAS:MEV:RES:ALL OFF,ON,ON,ON,ON,OFF,OFF,OFF,OFF,OFF,OFF,OFF

CONF:GSM:MEAS:MEV:RES:MSC ON

CONF:GSM:MEAS:MEV:RES:PVT ON

TRIGger:GSM:MEAS:MEValuation:SOURce 'Power'

TRIG:GSM:MEAS:MEV:TOUT 10s

FPGA:DDR:ANALYSIS:SET:GSM:TIMEERROR 30720000,18432

TRIGger:GSM:MEAS:MEValuation:THReshold -30

CONF:GSM:MEAS:MEV:RES:SMFR ON;SSFR ON

CONF:GSM:MEAS:RFS:UMAR 10

*OPC?

INIT:GSM:MEAS:MEValuation

*OPC?

FETCh:GSM:MEAS:MEV:MOD:AVER?

FETCh:GSM:MEAS:MEV:TRACe:PVTime:CURRent?

FETC:GSM:MEAS:MEV:SMOD:FREQ?

FETC:GSM:MEAS:MEV:SSW:FREQ?

FETCh:GSM:MEASurement:MEValuation:TRACe:IQ:CURRent?

B.6 GPRF 流程示例

6.1 发送波形文件

*DEV?

CONF:FDC:CTAB:CRE

'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11,806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.36,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.000e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57

CONF:FDC:DEAC RA1,RX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX

SYST:PRES 'GPRF Gen'

SOUR:GPRF:GEN:ARB:REP CONT

TRIG:GPRF:GEN:ARB:SOUR 'Manual'

SOUR:GPRF:GEN:LIST OFF

SOUR:GPRF:GEN:STAT OFF

SOURce:GPRF:GEN:BBMode ARB

SOURce:GPRF:GEN:ARB:FILE 'KV118_LTE_V001_TDD_B200.bin'

CONF:GPRF:GEN:USAG:TX RA1,ON

SOUR:GPRF:GEN:RFS:FREQ 2610.000MHz

SOUR:GPRF:GEN:RFS:LEV -25.00

SOURce:GPRF:GEN:STATe:ALL?

SOUR:GPRF:GEN:STAT ON

SOURce:GPRF:GEN:STATe:ALL?

6.2 采集分析

*DEV?

CONF:FDC:CTAB:CRE

'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11,806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.36,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.00

0e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,
4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000
e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5
240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57

CONF:FDC:DEAC RA1,RX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX

CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX

SYST:PRES 'GPRF Gen'

SYST:PRES 'GPRF Meas'

SYST:PRES 'LTE Meas'

SOUR:GPRF:GEN:BBM CW

SOUR:GPRF:GEN:LIST ON

SOUR:GPRF:GEN:LIST:REP SING

CONF:GPRF:MEAS:POW:SCO 1

CONF:GPRF:MEAS:RFS:UMAR 17

CONF:GPRF:MEAS:POW:FILT:TYPE BAND

CONF:GPRF:MEAS:POW:FILT:BAND:BWID 2MHz

CONF:GPRF:MEAS:POW:TRIG:SOUR 'IF Power'

CONF:GPRF:MEAS:POW:TRIG:SLOP REDG

CONF:GPRF:MEAS:POW:TRIG:THR -27

CONF:GPRF:MEAS:POW:TRIG:TOUT 5

CONF:GPRF:MEAS:POW:TRIG:MODE ONCE

CONF:GPRF:MEAS:POW:LIST ON

CONF:GPRF:MEAS:POW:REP SING

TRIG:GPRF:MEAS:POW:MGAP 0

CONF:GPRF:MEAS:POW:SLEN 1000us

CONF:GPRF:MEAS:POW:MLEN 500us

TRIG:GPRF:MEAS:POW:OFFS 250us

CONF:GPRF:MEAS:POW:LIST:STAR 0

CONF:GPRF:MEAS:POW:LIST:STOP 222

CONF:GPRF:MEAS:POW:LIST:FREQ:ALL
838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,
838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,
838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,838.50MHz,835.00MHz,
835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,
835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,
835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,835.00MHz,
710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,
710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,
710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,710.00MHz,
710.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,
822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,
822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,822.00MHz,
822.00MHz,822.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,

837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,837.00MHz,847.00MHz,833.00MHz,897.00MHz,707.50MHz

CONF:GPRF:MEAS:POW:LIST:ENP:ALL   18.0,18.0,6.0,-6.0,-18.0,-33.5,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,-23.0,18.0,18.0,18.0,18.0,6.0,-6.0,-18.0,-33.5,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,-23.0,18.0,18.0,18.0,18.0,6.0,-6.0,-18.0,-33.5,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,-23.0,18.0,18.0,18.0,18.0,6.0,-6.0,-18.0,-33.5,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,-23.0,18.0,18.0,18.0,18.0,6.0,-6.0,-18.0,-33.5,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,-23.0,18.0,18.0,18.0,18.0,6.0,-6.0,-18.0,-33.5,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,-23.0,18.0,18.0,18.0,18.0,6.0,-6.0,-18.0,-33.5,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,22.0,16.0,10.0,4.0,-2.0,-8.0,-14.0,-23.0,-23.0

ROUT:GPRF:MEAS:SCEN:SAL RA5,RX1
INIT:GPRF:MEASurement:POWer
*OPC?
FETCh:GPRF:MEASurement:POWer:AVERage?

6.3 FFT 采集分析

*DEV?
CONF:FDC:CTAB:CRE
'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11,806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.3

6,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.00
0e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,
4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000
e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5
240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57
CONF:FDC:DEAC RA1,RX
CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX
CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX
SYST:PRES 'GPRF Meas'
CONFigure:GPRF:MEAS:FFTSanalyzer:FSPan 1250000
CONFigure:GPRF:MEAS:FFTSanalyzer:FFTLength 8192
CONFigure:GPRF:MEAS:RFSettings:FREQuency 838.98 MHz
CONFigure:GPRF:MEAS:RFSettings:ENPower 0.000000
CONFigure:GPRF:MEAS:RFSettings:UMARgin 15
CONFigure:GPRF:MEAS:RFSettings:MLOFfset 0
CONFigure:GPRF:MEAS:POWer:REPetition SINGleshot
CONFigure:GPRF:MEAS:POWer:SCOunt 100
ROUT:GPRF:MEAS:SCEN:SAL RA5,RX1
ROUT:GSM:MEAS:SCEN:SAL RA5,RX1
INIT:GPRF:MEAS:FFTS
*OPC?
FETCh:GPRF:MEAS:FFTSanalyzer:PEAKs:AVERage?

B.7 WLAN 流程示例

7.1 采集分析

*DEV?
CONF:FDC:CTAB:CRE
'Sub0_Both_Loss_port1_Index',650.000e6,3.78,680.000e6,3.90,710.000e6,3.99,750.000e6,4.11,
806.000e6,4.23,850.000e6,4.14,950.000e6,4.24,1561.000e6,4.56,1575.000e6,4.66,1602.000e6,4
.69,1750.000e6,4.87,1850.000e6,4.82,1900.000e6,4.79,1950.000e6,4.86,2140.000e6,4.84,2350.
000e6,5.11,2555.000e6,5.13,2595.000e6,5.17,2655.000e6,5.13,2700.000e6,5.11,2800.000e6,5.3
6,3300.000e6,5.45,3400.000e6,5.35,3500.000e6,5.60,3600.000e6,5.44,3700.000e6,5.22,3800.00
0e6,5.47,3850.000e6,5.71,3900.000e6,5.79,3950.000e6,5.85,4000.000e6,5.86,4050.000e6,6.01,
4100.000e6,5.90,4150.000e6,5.79,4200.000e6,5.72,4400.000e6,5.67,4500.000e6,5.89,4600.000
e6,5.81,4700.000e6,6.00,4800.000e6,6.08,4900.000e6,5.91,5000.000e6,5.89,5180.000e6,6.07,5
240.000e6,6.06,5320.000e6,6.05,5500.000e6,6.51,5680.000e6,6.14,5825.000e6,6.57
CONF:FDC:DEAC RA1,RX
CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',TX
CONF:FDC:ACT RA1,'Sub0_Both_Loss_port1_Index',RX
CONF:WLAN:MEAS:MEV:REPetition SING

```
CONF:WLAN:MEAS:MEV:COMP:CEST PAYL
CONF:WLAN:MEAS:MEV:COMPensation:TRACking:LEVel OFF
CONF:WLAN:MEAS:MEV:COMPensation:TRACking:PHAS ON
CONF:WLAN:MEAS:MEV:COMPensation:TRACking:TIMing ON
CONF:WLAN:MEAS:MEV:TSM:AFFTnum 16
CONF:WLAN:MEAS:MEV:TSM:TROT 5E-06
CONF:WLAN:MEAS:ISIG:OFDM:ELEN 64
CONF:WLAN:MEAS:ISIG:IQSW OFF
TRIG:WLAN:MEAS:MEV:TOUT 2s
CONF:WLAN:MEAS:MEV:SCO:MOD 3
CONF:WLAN:MEAS:MEV:SCO:TSM 3
CONF:WLAN:MEAS:MEV:SCO:PVT 3
TRIG:WLAN:MEAS:MEV:SOUR 'IF Power'
CONF:WLAN:MEAS:RFS:UMAR 14
TRIG:WLAN:MEAS:MEV:THR -20.0
TRIG:WLAN:MEAS:MEV:MGAP 5E-06
TRIG:WLAN:MEAS:MEV:SLOP REDG
CONF:WLAN:MEAS:MEV:RES:EVM ON
CONF:WLAN:MEAS:MEV:RES:EVMC ON
CONF:WLAN:MEAS:MEV:RES:EVMS ON
CONF:WLAN:MEAS:MEV:RES:IQC OFF
CONF:WLAN:MEAS:MEV:RES:MSC ON
CONF:WLAN:MEAS:MEV:RES:PVT OFF
CONF:WLAN:MEAS:MEV:RES:SFL OFF
CONF:WLAN:MEAS:MEV:RES:TSM ON
CONF:WLAN:MEAS:ISIG:STAN DSSS
CONF:WLAN:MEAS:ISIG:BWID BW20mhz
CONF:WLAN:MEAS:RFS:FREQ:BAND B24Ghz
ROUT:WLAN:MEAS:SCEN:SAL RA1,RX1
CONF:WLAN:MEAS:RFS:FREQ 2412MHz
CONF:WLAN:MEAS:RFS:ENP 3.26267
CONF:WLAN:MEAS:RFS:MLOF 10
CONF:WLAN:MEAS:ISIG:DSSS:ELEN 10000
CONF:WLAN:MEAS:ISIG:RMOD SISO
SOURce:GPRF:GEN:STATe:ALL?
INIT:WLAN:MEAS:MEV
*OPC?
FETC:WLAN:MEAS:MEV:MOD:DSSS:AVER?
FETC:WLAN:MEAS:MEV:TSM:AVER?
```