

# SRM-3006

## Selective Radiation Meter

Command Reference Guide V 1.6.2



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# 1 General information

## Backus-Naur format

Symbol	Meaning
< >	Defined element
	Exclusive OR
{..}	Element group, at least one element required
[..]	Optional field
( )	Comment

## Get commands (query)

Get commands are used above all to query measurement values and settings. They always include '?' in the body of the command. Commas separate the parameters.

Syntax: <COMMAND> <?> [PARA1] , [PARA2] , [PARAn] ;

## Set commands (send)

Set commands are used to configure and control the device and are characterized by the fact that there is no question mark in the body of the command. Commas separate the parameters.

Syntax: <COMMAND> [PARA1] , [PARA2] , [PARAn] ;

## Responses

A response from the device always follows a Set or a Get-command. The response always contains an error code and, optionally, the requested data.

Syntax [DATA1] , [DATA2] , [DATAn] , <error code> ;

## Remote ON operation

Almost all the commands can only be processed by the device when it is in Remote ON mode. The REMOTE ON; command activates remote operation. Once activated, remote operation can be deactivated by the REMOTE OFF; command.

### Data types

Abbreviation	Description	Example
String	ASCII character string	"Funny Fox"
Enum	Enumerator, fixed texts	ON, OFF, REMOTE
Float/Double	Floating point number	12.34 or 1.234e1
Byte	8 bit whole number without sign	123
ShortInt	16 bit whole number with sign	-1234
Integer	32 bit whole number with sign	-12345
DWord	32 bit whole number without sign	12345
LongInt	64 bit whole number with sign	-123456
Date	ASCII character string, format: dd:mm:yy	21.04.81
Time	ASCII character string, format: hh:mm:ss	10:08:59
VersionString	V[d]d.[d]d.[d]d[blankxxx]	"V0.0.0" ... "V99.99.99"

### Error codes

Code	Description
0	no error
401	remote command is not implemented in the remote module
402	invalid parameter
403	invalid count of parameters
404	invalid parameter range
405	last command is not completed
406	answer time between remote module and application module is too high
407	invalid or corrupt data
408	error while accessing the hardware
409	command is not supported in this version of the application module
410	remote is not activated (please send "REMOTE ON;" first)
411	command is not supported in the selected mode
412	memory of data logger is full
413	option code is invalid
414	incompatible version
415	subindex full
416	file counter full
417	data lost
418	checksum error
419	programming not successfull
420	path not found
421	break detected
422	low battery
423	file open error
424	data verify error

## 2 Command groups

### General

DEV_ID?	Queries the device identification number
DEV_INFO?	Queries device information that describes the individual device
DEV_OPTION	Activates a device option
DEV_OPTION?	Queries the options prepared and activated in the device
ERROR?	Queries the current error code
MEAS_START	Starts the cyclical measurement in the current operating mode
MEAS_STOP	Stops the cyclical measurement in the current operating mode
MODE	Sets the current operating mode
MODE?	Queries the current operating mode
MR_LIST?	Queries the current possible reference level settings
PROG_EXIT	Ends the measurements and switches the device to standby
RBW_LIST?	Queries the current possible RBW settings
REMOTE	Activates / deactivates remote communication
REMOTE?	Queries readiness for remote operation
RESULT_TYPE_RESET	Resets all measurement runs (traces) to default values
RESULT_TYPE_RESET_MIN_MAX	Resets the Min and Max traces to default values
UNIT	Sets the current unit setting
UNIT?	Queries the current unit setting
UNIT_LIST?	Queries the current possible unit settings
VBW_LIST?	Queries the current possible VBW settings
VERSION?	Queries the versions of the current firmware modules

### Mode LEVEL

LEVEL?	Queries the different measurement runs (traces)
LEVEL_AVG_CONFIG	Sets the current averaging method
LEVEL_AVG_CONFIG?	Queries the current averaging method
LEVEL_AVG_LIST?	Queries the current possible averaging settings
LEVEL_CONFIG	Sets the current measurement parameters for LEVEL mode
LEVEL_CONFIG?	Queries the current measurement parameters for LEVEL mode
SWEEP_STATE?	Queries the status and progress of the current measurement

### Mode SAFETY (Multi Channel Power)

SAFETY?	Queries one or more measurement runs (traces) in Safety mode
SAFETY_AVG_CONFIG	Sets the current averaging method
SAFETY_AVG_CONFIG?	Queries the current averaging method
SAFETY_AVG_LIST?	Queries the current possible averaging settings
SAFETY_CONFIG	Sets the current measurement parameters for Safety mode
SAFETY_CONFIG?	Queries the current measurement parameters for Safety mode
SWEEP_STATE?	Queries the status and progress of the current measurement

### Mode SPECTRUM

SPECTRUM?	Queries one or more measurement runs in Spectrum mode
SPECTRUM_AVG_CONFIG	Sets the current averaging method
SPECTRUM_AVG_CONFIG?	Queries the current averaging method
SPECTRUM_AVG_LIST?	Queries the current possible averaging settings
SPECTRUM_BI_VALUE?	Band Integration over Frequency
SPECTRUM_MRK_HIGHEST?	Queries the marker values for the highest measurement value
SPECTRUM_MRK_IDX_VALUE?	Queries the marker values for a selected marker
SPECTRUM_MRK_VALUE?	Queries the marker values for a specified frequency point
SPECTRUM_PEAK_TABLE?	Queries a configurable peak table
SPECTRUM_CONFIG	Sets the current measurement parameters for Spectrum mode
SPECTRUM_CONFIG?	Queries the current measurement parameters for Spectrum
SWEEP_STATE?	Queries the status and progress of the current measurement

### Mode UMTS - *Option required*

UMTS?	Queries the different measurement runs (traces)
UMTS_AVG_CONFIG	Sets the current averaging method
UMTS_AVG_CONFIG?	Queries the current averaging method
UMTS_AVG_LIST?	Queries the current possible averaging settings
UMTS_CONFIG	Sets the current measurement parameters for UMTS mode
UMTS_CONFIG?	Queries the current measurement parameters for UMTS mode
UMTS_RESET_TABLE	Resets the UMTS channel table
SWEEP_STATE?	Queries the status and progress of the current measurement

### Mode LTE - *Option required*



*The LTE commands applies for the LTE FDD optional mode*

LTE?	Queries the different measurement runs (traces)
LTE_AVG_CONFIG	Sets the current averaging method
LTE_AVG_CONFIG?	Queries the current averaging method
LTE_AVG_LIST?	Queries the current possible averaging settings
LTE_CONFIG	Sets the current measurement parameters for LTE mode
LTE_CONFIG?	Queries the current measurement parameters for LTE mode
LTE_RESET_TABLE	Resets the table for LTE results (Cell IDs)
SWEEP_STATE?	Queries the status and progress of the current measurement

**Mode LTE TDD - Option required**

LTE_TDD?	Queries the different measurement runs (traces)
LTE_TDD_AVG_CONFIG	Sets the current averaging method
LTE_TDD_AVG_CONFIG?	Queries the current averaging method
LTE_TDD_AVG_LIST?	Queries the current possible averaging settings
LTE_TDD_CONFIG	Sets the current measurement parameters for LTE TDD mode
LTE_TDD_CONFIG?	Queries the current measurement parameters for LTE TDD mode
LTE_TDD_RESET_TABLE	Resets the table for LTE TDD results (Cell IDs)
SWEEP_STATE?	Queries the status and progress of the current measurement

**Mode 5GNR - Option required**

5GNR?	Queries the different measurement runs (traces)
5GNR_AVG_CONFIG	Sets the current averaging method
5GNR_AVG_CONFIG?	Queries the current averaging method
5GNR_AVG_LIST?	Queries the current possible averaging settings
5GNR_CONFIG	Sets the current measurement parameters for 5GNR mode
5GNR_CONFIG?	Queries the current measurement parameters for 5GNR mode
5GNR_DECODE_SENSITIVITY_LIST?	Queries the current possible decode sensitivity settings
5GNR_RESET_TABLE	Resets the table for 5GNR results (Cell IDs)
5GNR_SCS_LIST?	Queries the current possible subcarrier spacing settings
SWEEP_STATE?	Queries the status and progress of the current measurement

**Clock**

DATE	Sets the current date setting for the device
DATE?	Queries the current date setting for the device
TIME	Sets the current system time of the device
TIME?	Queries the current system time of the device

**Data Logger**

DL_CLR	Deletes a selected data set
DL_CLR_ALL	Deletes all data sets
DL_DATA?	Queries a sub data set
DL_INFO?	Queries overview information for a data set
DL_INFO_SUB?	Queries overview information for a sub data set
DL_MEMORY?	Queries the free memory space available for storing data sets
DL_NUMBER?	Queries the number of saved data sets
DL_STORE	Saves a data set in the current measurement mode
DL_VOICE?	Queries the voice comment of a data set in PCM wave format
SCR_CLR	Deletes a selected screenshot
SCR_CLR_ALL	Deletes all screenshots
SCR_DATA?	Queries a selected screenshot
SCR_INFO?	Queries the additional information for a screenshot
SCR_NUMBER?	Queries the number of existing screenshots

### Setups

SU_CLR	Deletes a selected device setup
SU_CLR_ALL	Deletes all device setups
SU_DEFAULT	Resets the device to the default (works) settings
SU_DS	Transfers a setup file to the device
SU_DS?	Reads a setup file out of the device
SU_LIST?	Lists the names of the setups stored in the device
SU_RECALL	Activates a selected device setup
SU_STORE	Saves the current device settings as a new setup in the device

### Service tables (channel tables)

SRV_CLR	Deletes a service table
SRV_CLR_ALL	Deletes all service tables
SRV_DS	Creates a service table
SRV_DS?	Queries a service table
SRV_LIST?	Queries all service tables without details
SRV_SEL	Sets the current active service table
SRV_SEL?	Queries the current active service table

### Remote Desktop

LIVESCREEN?	Queries the current device display as a screenshot
SEND_KEY	Activates an operating panel key by remote communication
SEND_ROT_KNOB	Activates rotary control by remote communication

### 3 Command Descriptions

#### 5G NR?

##### Description

Queries the different measurement runs (traces) that are available in 5G NR mode. 5G NR must be selected as the current operating mode.

##### Input

5G NR? <Trace>;

##### Output

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfCellIDs>,  
{<CellID>,<NoOfSSS>,<CellIDSelected>,<NoOfTraces>},  
{<Trace>,<Overdriven>,<AnalogValue>,<AnalogNoiseFlag>,<NoOfSignals>},  
{<Signal>,<SignalSelected>,<TotalValue>,<NoOfValues>,{Value,}} } <Error>;

##### Input Parameter List

Parameter	Type	Description
<Trace>	Enum	ACT      Actual value
		AVG      Averaged value
		MAX      Maximum value
		MAX_AVG    Maximum of the averaged values
		MIN      Minimum value
		MIN_AVG    Minimum of the averaged values
		STD      Values of the selected standard
		ALL      All traces

## Command Reference Guide

### Output Parameter List

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Short	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfCellIDs>	Short	>= 0
<CellID>	Short	0 ... 1007
<NoOfSSS>	Short	>= 1
<CellIDSelected>	Enum	YES, NO
<NoOfTraces>	Short	Number of traces
<Trace>	Enum	Available traces: ACT            Actual value AVG            Averaged value MAX            Maximum value MAX_AVG       Maximum of the averaged values MIN            Minimum value MIN_AVG       Minimum of the averaged values STD            Values of the selected standard
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<AnalogValue>	Float	Analog power [Unit]
<AnalogNoiseFlag>	Enum	State of the analog noise flag: UNCHECKED, LOW, OK
<NoOfSignals>	Short	1...10
<Signal>	Enum	SSS Max, SSS Sum, SSS 0, SSS 1, SSS 2, SSS 3, SSS 4, SSS 5, SSS 6, SSS 7
<SignalSelected>	Enum	YES, NO
<TotalValue>	Float	Total power [Unit] of selected cell IDs
<NoOfValues>	Shorts	Number of values = NoOfCellIDs There is one value for each cell ID available.
<Value>	Float	Measured power for each cell ID and Signal [Unit]
<Error>	DWord	Error code



**Example**

---

<i>(Input)</i>	5GNR? ACT;
<i>(Output)</i>	193,1219,63,0, 1, ACT,NO,-67.92,UNCHECKED,10, SSS0,YES,-999.00,0, SSS1,YES,-999.00,0, SSS2,YES,-999.00,0, SSS3,YES,-999.00,0, SSS4,YES,-999.00,0, SSS5,YES,-999.00,0, SSS6,YES,-999.00,0, SSS7,YES,-999.00,0, SSSSUM,YES,-999.00,0, SSSMAX,YES,-999.00,0, 0;

---

# 5GNR\_AVG\_CONFIG

### Description

Sets the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

```
5GNR_AVG_CONFIG <AvgNumber>,<AvgTime>,<AvgPara>;
```

### Output

```
<Error>;
```

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

---

```
(Input) 5GNR_AVG_CONFIG NUMBER,64,240;
```

---

```
(Output) 0;
```

---

## 5GNR\_AVG\_CONFIG?

### Description

Queries the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

5GNR\_AVG\_CONFIG?;

### Output

<AvgMode>,<AvgNumber>,<AvgTime>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

<i>(Input)</i>	5GNR_AVG_CONFIG?;
<i>(Output)</i>	NUMBER,64,240,0;

### 5GNR\_AVG\_LIST?

#### Description

Queries the current possible averaging settings for 5GNR mode.

The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

The output is a complete list of valid settings for this mode. <DisplayString> can be easily used in list boxes and ensures the same look and feel across Narda's analyzers. <Value> can be used in other commands to change the setting.

#### Input

5GNR\_AVG\_LIST? <AvgMode>;

#### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

#### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER: Average over a number of individual measurements TIME: Average over a time period (in seconds)
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Averaging parameter as string including the unit
<Value>	Float	Averaging parameter as a numerical value
<Error>	DWord	Error code

#### Example

---

*(Input)* 5GNR\_AVG\_LIST? NUMBER;

---

*(Output)* 7,  
"4",4,  
"8",8,  
"16",16,  
"32",32,  
"64",64,  
"128",128,  
"256",256,  
0;

---

## 5GNR\_CONFIG

### Description

Sets the current measurement parameters for 5GNR mode.  
5GNR must be selected as the current operating mode.

### Input

5GNR\_CONFIG <FssbRef>,<SCS>,<DecodeSensitivity>,<RL>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<FssbRef>	Double	Center frequency of SSB Ref [Hz]
<SCS>	Double	Subcarrier Spacing [Hz] 15e3, 30e3
<DecodeSensitivity>	Enum	LOW, NORMAL, HIGH
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

<i>(Input)</i>	5GNR_CONFIG 2152900000,15000,HIGH,-10;
<i>(Output)</i>	0;

### 5GNR\_CONFIG?

#### Description

Queries the current measurement parameters for 5GNR mode.  
5GNR must be selected as the current operating mode.

#### Input

5GNR\_CONFIG?;

#### Output

<FssbRef>,<SCS>,<DecodeSensitivity>,<RL>,<Error>;

#### Parameter List

Parameter	Type	Description
<FssbRef>	Double	Center frequency of SSB Ref [Hz]
<SCS>	Double	Subcarrier Spacing [Hz] 15e3, 30e3
<DecodeSensitivity>	Enum	LOW, NORMAL, HIGH
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

#### Example

---

<i>(Input)</i>	5GNR_CONFIG?;
<i>(Output)</i>	1795000000,30000,LOW,-8,0;

---

## 5GNR\_RESET\_TABLE

### Description

Resets the table for 5GNR results (Cell IDs).

### Input

5GNR\_RESET\_TABLE;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)*      5GNR\_RESET\_TABLE;

---

*(Output)*    0;

---

## 5GNR\_DECODE\_SENSITIVITY\_LIST?

### Description

Queries the current possible decode sensitivity settings

The requested list reflects all the possible settings and guarantees consistency with the other device settings. The <DisplayString> parameter can be used directly in the application to produce the same appearance as in the device (e.g. in List boxes). The <Value> parameter is a numerical value, which can be transmitted to the device if required in order to produce the corresponding setting.

### Input

5GNR\_DECODE\_SENSITIVITY\_LIST?;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Decode sensitivity as string (LOW, NORMAL, HIGH)
<Value>	Float	Decode sensitivity as value (1, 2, 3)
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	5GNR_DECODE_SENSITIVITY_LIST?;
<i>(Output)</i>	3, LOW,1, NORMAL,2, HIGH,3, 0;

---



## 5GNR\_SCS\_LIST?

### Description

Queries the current possible subcarrier spacing settings.

The requested list reflects all the possible settings and guarantees consistency with the other device settings. The <DisplayString> parameter can be used directly in the application to produce the same appearance as in the device (e.g. in List boxes). The <Value> parameter is a numerical value, which can be transmitted to the device if required in order to produce the corresponding setting.

### Input

5GNR\_SCS\_LIST?;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Subcarrier spacing and unit as string (15 kHz, 30 kHz)
<Value>	Float	Subcarrier spacing as value [Hz]
<Error>	DWord	Error code

### Example

<i>(Input)</i>	5GNR_SCS_LIST?;
<i>(Output)</i>	2, "15 kHz",15000, "30 kHz",30000, 0;

# DATE

### Description

Sets the current date setting for the device

### Input

DATE <Date>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Date>	Date	dd.mm.yy
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	DATE 06.07.12;
<i>(Output)</i>	0;

---

## DATE?

### Description

Queries the current date setting for the device

### Input

DATE?;

### Output

<Date>,<Error>;

### Parameter List

Parameter	Type	Description
<Date>	Date	dd.mm.yy
<Error>	DWord	Error code

### Example

---

*(Input)*      DATE?;

---

*(Output)*     03.05.10,0;

---

### DEV\_ID?

#### Description

Queries the device identification number.

#### Input

DEV\_ID?;

#### Output

< DeviceID >,<Error>;

#### Parameter List

Parameter	Type	Description
< DeviceID>	String	Device identification number
<Error>	DWord	Error code

#### Example

---

*(Input)*      DEV\_ID?;

---

*(Output)*     "F89AEF31CD344840",0;

---

## DEV\_INFO?

### Description

Queries all device information that describes the individual device.

### Input

DEV\_INFO?;

### Output

<ProductName>,<ProductID>,<SerialNo>,<DeviceID>,  
<FirmwareVersion>,<FirmwareDate>,  
<CalDate>,<NextCalDate>,<Error>;

### Parameter List

Parameter	Type	Description
<ProductName>	String	Product name (e.g. "SRM-3006")
<ProductID>	String	Production identification number
<SerialNo>	String	Serial number
<DeviceID>	String	Device identification number
<FirmwareVersion>	VersionString	Firmware version
<FirmwareDate>	Date	Firmware date
<CalDate>	Date	Date of the calibration
<NextCalDate>	Date	Recommended date for recalibration
<Error>	DWord	Error code

### Example

*(Input)* DEV\_INFO?;

*(Output)* "SRM-3006","SW0003","A-1234","F89AEF31CD344840",  
"V1.1.2",29.04.10,12.03.10,12.03.11,0;

# DEV\_OPTION

### Description

Activates a device option.

Options are additional measurement modes that the device is prepared for. Each device needs a separate activation code for each option, which can be purchased. The current device firmware determines whether an option is prepared and can be activated.

### Input

```
DEV_OPTION <Index>,<ActivationCode>;
```

### Output

```
<Error>;
```

### Parameter List

Parameter	Type	Description
<Index>	Short	Option index, valid values: 0 to 63
<ActivationCode>	String	Key code provided by Narda for activation of an option. The code consists of 16 hexadecimal numbers. Use capital letters for A – F. Exact spelling required.
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	DEV_OPTION 2,"0123456789ABCDEF";
<i>(Output)</i>	0;

---

### Example

---

<i>(Input)</i>	DEV_OPTION 3,"0123456789ABCDEF";
<i>(Output)</i>	409;

---

## DEV\_OPTION?

### Description

Queries the options prepared and activated in the device.

Options are additional measurement modes that the device is prepared for. Each device needs a separate activation code for each option, which can be purchased. The current device firmware determines whether an option is prepared and can be activated.

### Input

DEV\_OPTION? <Index>;

### Output

<State>,<Name>,<Error>;

### Parameter List

Parameter	Type	Description
<Index>	Short	Option index, valid values: 0 to 63
<State>	Enum	FREE; CLOSED; UNKNOWN
<Name>	String	Option name
<Error>	DWord	Error code

### Example

*(Input)* DEV\_OPTION? 0;

*(Output)* FREE,"UMTS C-CPICH Demodulation",0;

### Example

*(Input)* DEV\_OPTION? 1;

*(Output)* FREE,"Scope",0;

### Example

*(Input)* DEV\_OPTION? 2;

*(Output)* UNKNOWN,"",0;

# DL\_CLR

### Description

Deletes a selected data set (DataLogger).  
All associated sub data sets are also deleted.

### Input

DL\_CLR <Index>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Index>	Integer	Index of the selected dataset
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	DL_CLR 3;
<i>(Output)</i>	0;

---



## DL\_CLR\_ALL

### Description

Deletes all data sets (DataLogger) and all associated sub data sets.

### Input

DL\_CLR\_ALL;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)* DL\_CLR\_ALL;

---

*(Output)* 0;

---

### DL\_DATA? (General)

#### Description

Queries a sub data set (DataLogger)

A data set always comprises one or more sub data sets. The store mode determines whether each data set is saved separately or as a group of sub data sets.

Data sets can be substantial in size and contain various types of information depending on the operating mode used to compile them.

#### Structure of DL information

Section	Description
GENERAL	Describes device specific information and is the same in all operating modes.
SETUP COMMON	Describes non-operating mode specific device settings and is the same in all operating modes.
SETUP MODE	Describes operating mode specific device settings.
TRACE COMMON	Describes information that is the same for all measurement runs in an operating mode.
TRACE SPECIFIC	Describes information that differs from one measurement run to another. This also includes the individual measured values in each measurement run, among other things.
ADDITIONAL DATA	Additional overload indication in SCOPE mode

## DL\_DATA? (LevelRecording)

### Description

Queries a sub data set (DataLogger) in LevelRecording mode

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
<GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
<GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
<VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
<CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,

<RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
<AntName>,

<Fcent>,<RBW>,<VBWMode>,<VBW>,<RMS\_AvgTime>,<NoiseSupprRatio>,<NoiseSuppr>,  
<Yref>,<Yrange>,

<SweepCounter>,<AVGProgress>,<NoOfSpatialAVG>,<NoOfTraces>,

{<Trace>,<OverdrivenTr>,<NoiseFlag>,<Value>},  
<Error>;

### Input Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

## Command Reference Guide

### Output Parameter List, Section: GENERAL

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	LEVEL
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment up to 40 characters
<DevSerNo>	String	Device serial number
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version
<CabSerNo>	String	Cable serial number
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy

**Output Parameter List, Section: SETUP COMMON**

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D A: Referred to RF Input 1 W (@ 50 Ohms) B: For connected antennas 1 W/m <sup>2</sup> (@ 377 Ohms) C: For connected antennas 1 (equal to 100%) and referred to a standard D: For connected current clamps 1 W (@ 1 Ohm)
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used
<ServTabName>	String	Name of the service table being used
<CabName>	String	Name of the cable being used
<AntName>	String	Name of the antenna being used

**Output Parameter List, Section: SETUP MODE**

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<VBWMode>	Enum	Video filter: ON, OFF;
<VBW>	Double	Video bandwidth [Hz]
<RMS_AvgTime>	Double	RMS averaging time [s]
<NoiseSupprRatio>	Integer	0, 3, 6, 10, 15, 20 [dB] Increase of the reference noise level related to the typical noise power level.
<NoiseSuppr>	Enum	OFF Measurement results are always provided. ON Measurement results are provided only when the reference noise level is exceeded. Otherwise the result is indicated as "< value of reference noise level".
<Yref>	Float	Upper limit of the display range [Unit]
<Yrange>	Float	Y-scale of the display range: 20, 40, 60, 80, 100, 120 [dB]

### Output Parameter List, Section: TRACE COMMON

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfSpatialAVG>	Long	0 – 999 999 Number of sweeps used for spatial averaging
<NoOfTraces>	Short	Number of traces

### Output Parameter List, Section: TRACE SPECIFIC

Parameter	Type	Description
<Trace>	Enum	RMS, MAX_RMS, PEAK, MAX_PEAK
<OverdrivenTr>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<NoiseFlag>	Enum	UNCHECKED When Noise Suppression is OFF LOW Result is below the reference noise level OK Result is equal or above the reference noise level
<Value>	Float	Measurement result [Unit]
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	DL_DATA? 29,1;
<i>(Output)</i>	20044097,LEVEL,MAN,10.05.10,15:04:58,NO,NO,GPS,2D,3,0,48.4579766667, 9.23011166667,NO,"", "SW-0003",12.03.10,"V0.0.2 beta1","",01.01.01,"",01.01.01, -30,dBm,A,0,SINGLE,"ICNIRP 1998 general public","Österreich UMTS","", 1500000000,5000000,OFF,50000,2.4,0,OFF,-30,120, 60,100,0,4, RMS,NO,UNCHECKED,-81.10704, MAX_RMS,NO,UNCHECKED,-81.10155, PEAK,NO,UNCHECKED,-69.45588, MAX_PEAK,NO,UNCHECKED,-67.52631, 0;

---

## DL\_DATA? (SafetyEvaluation, condensed)

### Description

Queries a sub data set (DataLogger) in SafetyEvaluation mode and in 'condensed' format. Services are grouped together as a result of service names with the same prefix.

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
 <GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
 <GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
 <VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
 <CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,

<RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
 <AntName>,

<IgnoringOthers>,<RBWMode>,<RBW>,<AvgMethod>,<AvgTime>,<AvgNumber>,  
 <NoiseSupprRatio >,<NoiseSuppr>,<Yref>,<Yrange>,<DispCond>,<Display>,

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfSpatialAVG>,  
 <NoOfServices>,

<ServName>,<RBW>,<Fmin>,<Fmax>,<GrpIndex>  
 <NoOfTraces>,

<Trace>,<OverdrivenTr>,<TotalValue>,<TotalNoiseFlag>,<OthersValue>,<OthersNoiseFlag>,  
 <NoOfValues>,{<Value>,<NoiseFlag>,<NameOfServGrp>},  
 <Error>;

### Input Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

## Command Reference Guide

### Output Parameter List, Section: GENERAL

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	SAFETY_CONDENSED
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment up to 40 characters
<DevSerNo>	String	Device serial number
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version
<CabSerNo>	String	Cable serial number
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy



**Output Parameter List, Section: SETUP COMMON**

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D See DL_Data? (Level) <WorldUnit>
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used
<ServTabName>	String	Name of the service table being used
<CabName>	String	Name of the cable being used
<AntName>	String	Name of the antenna being used

**Parameter List, Output Section: SETUP MODE**

Parameter	Type	Description
<IgnoringOthers>	Enum	YES Frequency gaps between channels will be ignored NO Frequency gaps between channels will be measured and summarized as "Others"
<RBWMode>	Enum	MANUAL, AUTO, INDIVIDUAL for more details see SAFETY_CONFIG <RBWMode>
<RBW>	Double	Resolution bandwidth setting [Hz]
<AvgMethod>	Enum	NUMBER, TIME Result averaging over a certain number of samples or over a certain period of time
<AvgTime>	Integer	Averaging time 60 – 1800 [s]
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<NoiseSupprRatio>	Integer	0, 3, 6, 10, 15, 20 [dB] Increase of the reference noise level related to the typical noise power level.
<NoiseSuppr>	Enum	OFF Measurement results are always provided. ON Measurement results are provided only when the reference noise level is exceeded. Otherwise the result is indicated as "< value of reference noise level".
<Yref>	Float	Upper limit of the display range [Unit]
<Yrange>	Float	Y-scale of the display range: 20, 40, 60, 80, 100, 120 [dB]
<DispCond>	Enum	DETAIL Separate results for each channel (service) CONDENSED Combined results for channels (services) having similar names
<Display>	Enum	TABLE Numerical results shown as a table BARGRAPH Results shown as a bar graph

## Command Reference Guide

### Output Parameter List, Section: TRACE COMMON

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Integer	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfSpatialAVG>	Long	0 – 999 999 Number of sweeps used for spatial averaging
<NoOfServices>	Integer	Number of channels (services) being measured and listed
<ServName>	String	Channel name (service name)
<RBW>	Double	Resolution bandwidth [Hz] being used for this channel (service)
<Fmin>	Double	Lower frequency of the channel (service) [Hz]
<Fmax>	Double	Upper frequency of the channel (service) [Hz]
<GrpIndex>	Integer	Index of the group the channel (service) is associated with
<NoOfTraces>	Short	Number of traces, 1 - 7

### Output Parameter List, Section: TRACE SPECIFIC

Parameter	Type	Description
<Trace>	Enum	ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG, STD
<OverdrivenTr>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<TotalValue>	Float	Total power level [Unit] for the frequency bands of all channels (services)
<TotalNoiseFlag>	Enum	Noise flag related to the total power of all channels: UNCHECKED When Noise Suppression is OFF LOW Result is below the reference noise level OK Result is equal or above the reference noise level
<OthersValue>	Float	Power level [Unit] of the frequency gaps between the channels
<OthersNoiseFlag>	Enum	Nose flag related to the power level of the gaps (Others): UNCHECKED, LOW, OK see above <TotalNoiseFlag>
<NoOfValues>	Long	Number of measurement values per trace
<Value>	Float	Power level [Unit] of the channel group (service group)
<NoiseFlag>	Enum	Noise flag related to a specific channel group: UNCHECKED When Noise Suppression is OFF LOW Result is below the reference noise level OK Result is equal or above the reference noise level
<NameOfServGrp>	String	Name of the channel group (service group)
<Error>	DWord	Error code

**Example**

---

<i>(Input)</i>	DL DATA? 25,1;
<i>(Output)</i>	8068156,SAFETY_CONDENSED,MAN,10.05.10,11:43:30,NO,NO,GPS,2D,0,0,0,0,NO,"", "SW-0003",12.03.10,"V0.0.2 beta1","",01.01.01,"Serial No",21.09.09, 0.0071,V/m,B,-13.0103,SINGLE,"ICNIRP 1998 general public","Österreich UMTS","", "Ant Zero", NO,AUTO,1000000,TIME,360,8,0,ON,0.07099999,120,CONDENSED,TABLE, 19974,118,100,0, 9, "Mobilkom",300000,1900100000,1910100000,1, "T-Mobile AT",300000,1910100000,1915100000,2, "Hutchison",300000,1915100000,1920100000,3, "T-Mobile AT",300000,2019900000,2024700000,2, "Mobilkom",300000,2110300000,2120100000,1, "Hutchison",300000,2120100000,2134900000,3, "Orange",300000,2134900000,2149700000,4, "Mobilkom",300000,2149700000,2154700000,1, "T-Mobile AT",300000,2154700000,2169700000,2, 3, ACT,NO,0.0001548696,OK,0.0001287497,OK,4, 5.234514E-005,OK,"Mobilkom", 3.428021E-005,LOW,"T-Mobile", 5.097328E-005,OK,"Hutchison", 3.365057E-005,OK,"Orange", MAX_AVG,NO,0.0001605316,OK,0.0001346133,OK,4, 5.080223E-005,OK,"Mobilkom", 4.21289E-005,OK,"T-Mobile", 4.570597E-005,OK,"Hutchison", 3.535929E-005,OK,"Orange", STD,NO,59.93644,OK,60.25105,OK,4, 59.93644,OK,"Mobilkom", 60.09395,OK,"T-Mobile", 60.17255,OK,"Hutchison", 61,OK,"Orange", 0;

---

## DL\_DATA? (SafetyEvaluation, detailed)

### Description

Queries a sub data set (DataLogger) in SafetyEvaluation mode and in 'detailed' format.

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
 <GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
 <GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
 <VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
 <CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,  
  
 <RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
 <AntName>,  
  
 <IgnoringOthers>,<RBWMode>,<RBW>,<AvgMethod>,<AvgTime>,<AvgNumber>,  
 <NoiseSupprRatio >,<NoiseSuppr>,<Yref>,<Yrange>,<DispCond>,<Display>,  
  
 <SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfSpatialAVG>,<NoOfTraces>,  
  
 <Trace>,<OverdrivenTr>,<TotalValue>,<TotalNoiseFlag>,<OthersValue>,<OthersNoiseFlag>,  
 <NoOfValues>,{<Value>,<NoiseFlag>,<ServName>,<RBW>,<Fmin>,<Fmax>},  
 <Error>;

### Input Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

**Output Parameter List, Section: GENERAL**

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	SAFETY
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment (up to 40 chr)
<DevSerNo>	String	Device serial number (up to 15 chr)
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version (up to 15 chr)
<CabSerNo>	String	Cable serial number (up to 15 chr)
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number (up to 15 chr)
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy

### Output Parameter List, Section: SETUP COMMON

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D See DL_Data? (Level) <WorldUnit>
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used (up to 35 chr)
<ServTabName>	String	Name of the service table being used (up to 35 chr)
<CabName>	String	Name of the cable being used (up to 35 chr)
<AntName>	String	Name of the antenna being used (up to 35 chr)

### Parameter List, Output Section: SETUP MODE

Parameter	Type	Description
<IgnoringOthers>	Enum	YES Frequency gaps between channels will be ignored NO Frequency gaps between channels will be measured and summarized as "Others"
<RBWMode>	Enum	MANUAL, AUTO, INDIVIDUAL for more details see SAFETY_CONFIG <RBWMode>
<RBW>	Double	Resolution bandwidth setting [Hz]
<AvgMethod>	Enum	NUMBER, TIME Result averaging over a certain number of samples or over a certain period of time
<AvgTime>	Integer	Averaging time 60 – 1800 [s]
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<NoiseSupprRatio>	Integer	0, 3, 6, 10, 15, 20 [dB] Increase of the reference noise level related to the typical noise power level.
<NoiseSuppr>	Enum	OFF Measurement results are always provided. ON Measurement results are provided only when the reference noise level is exceeded. Otherwise the result is indicated as " <i>&lt; value of reference noise level</i> ".
<Yref>	Float	Upper limit of the display range [Unit]
<Yrange>	Float	Y-scale of the display range: 20, 40, 60, 80, 100, 120 [dB]
<DispCond>	Enum	DETAIL Separate results for each channel (service) CONDENSED Combined results for channels (services) having similar names
<Display>	Enum	TABLE Numerical results shown as a table BARGRAPH Results shown as a bar graph

**Output Parameter List, Section: TRACE COMMON**

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Integer	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfSpatialAVG>	Long	0 – 999 999 Number of sweeps used for spatial averaging
<NoOfTraces>	Short	Number of traces, 1 - 7

**Output Parameter List, Section: TRACE SPECIFIC**

Parameter	Type	Description
<Trace>	Enum	ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG, STD
<OverdrivenTr>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<TotalValue>	Float	Total power level [Unit] for the frequency bands of all channels (services)
<TotalNoiseFlag>	Enum	Noise flag related to the total power of all channels: UNCHECKED When Noise Suppression is OFF LOW Result is below the reference noise level OK Result is equal or above the reference noise level
<OthersValue>	Float	Power level [Unit] of the frequency gaps between the channels
<OthersNoiseFlag>	Enum	Nose flag related to the power level of the gaps (Others): UNCHECKED, LOW, OK see above <TotalNoiseFlag>
<NoOfValues>	Long	Number of measurement values per trace
<Value>	Float	Power level [Unit] of the channel (service)
<NoiseFlag>	Enum	Noise flag related to a specific channel (service): UNCHECKED When Noise Suppression is OFF LOW Result is below the reference noise level OK Result is equal or above the reference noise level
<ServName>	String	Name of the channel (service), up to 15 chr
<RBW>	Double	Resolution bandwidth [Hz] being used for this channel (service)
<Fmin>	Double	Lower frequency of the channel (service) [Hz]
<Fmax>	Double	Upper frequency of the channel (service) [Hz]
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	DL_DATA? 22,1;
<i>(Output)</i>	2996901,SAFETY,MAN,10.05.10,10:01:34,NO,NO,GPS,2D,0,0,0,0,NO,"", "SW-0003",12.03.10,"V0.0.2 beta1","",01.01.01,"Serial No",21.09.09, 0.0071,V/m,B,-13.0103,SINGLE,"ICNIRP 1998 general public","Swisscom","", "Ant Zero", NO,AUTO,50000,TIME,360,8,0,ON,0.07099999,120,DETAIL,TABLE, 31,97,0,0,7, ACT,NO,1.392834E-005,OK,1.29509E-005,OK,2, 3.078454E-006,LOW,"BCCH1 - CH 12",50000,937400000,937600000, 4.102984E-006,OK,"BCCH2 - CH 17",50000,938400000,938600000, MAX,NO,1.744996E-005,OK,1.538582E-005,OK,2, 9.887214E-006,OK,"BCCH1 - CH 12",50000,937400000,937600000, 7.87721E-006,OK,"BCCH2 - CH 17",50000,938400000,938600000, MAX_AVG,NO,1.426396E-005,OK,1.174674E-005,OK,2, 6.181964E-006,OK,"BCCH1 - CH 12",50000,937400000,937600000, 5.22092E-006,OK,"BCCH2 - CH 17",50000,938400000,938600000, AVG,NO,1.426396E-005,OK,1.174674E-005,OK,2, 6.181964E-006,OK,"BCCH1 - CH 12",50000,937400000,937600000, 5.22092E-006,OK,"BCCH2 - CH 17",50000,938400000,938600000, MIN_AVG,NO,1.426396E-005,OK,1.174674E-005,OK,2, 6.181964E-006,OK,"BCCH1 - CH 12",50000,937400000,937600000, 5.22092E-006,OK,"BCCH2 - CH 17",50000,938400000,938600000, MIN,NO,1.049014E-005,OK,8.40833E-006,OK,2, 3.078454E-006,LOW,"BCCH1 - CH 12",50000,937400000,937600000, 3.078454E-006,LOW,"BCCH2 - CH 17",50000,938400000,938600000, STD,NO,42.09836,OK,42.10304,OK,2, 42.09836,OK,"BCCH1 - CH 12",50000,937400000,937600000, 42.12057,OK,"BCCH2 - CH 17",50000,938400000,938600000, 0;

---

### Example

---

<i>(Input)</i>	DL_DATA? 23,1;
<i>(Output)</i>	3402638,SAFETY,MAN,10.05.10,10:09:27,NO,NO,GPS,2D,0,0,0,0,NO,"", "SW-0003",12.03.10,"V0.0.2 beta1","",01.01.01,"Serial No",21.09.09, 0.0071,V/m,B,-13.0103,SINGLE,"ICNIRP 1998 general public","Swisscom","", "Ant Zero", NO,AUTO,50000,TIME,360,8,10,ON,0.07099999,120,DETAIL,TABLE, 839,115,22,0,2, ACT,NO,2.38456E-005,LOW,1.946985E-005,LOW,2, 9.734926E-006,LOW,"BCCH1 - CH 12",50000,937400000,937600000, 9.734926E-006,LOW,"BCCH2 - CH 17",50000,938400000,938600000, MAX_AVG,NO,2.38456E-005,LOW,1.946985E-005,LOW,2, 9.734926E-006,LOW,"BCCH1 - CH 12",50000,937400000,937600000, 9.734926E-006,LOW,"BCCH2 - CH 17",50000,938400000,938600000, 0;

---



## DL\_DATA? (Spectrum)

### Description

Queries a sub data set (DataLogger) in Spectrum mode.

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
 <GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
 <GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
 <VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
 <CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,

<RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
 <AntName>,

<Fmin>,<Fmax>,<RBW>,<VBWMode>,<VBW>,<AvgMethod>,<AvgTime>,<AvgNumber>,  
 <Yref>,<Yrange>,

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfSpatialAVG>,<df>,<NoOfTraces>,

<Trace>,<OverdrivenTr>,<NoOfValues>,{<Value>},  
 <Error>;

### Input Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

### Output Parameter List, Section: GENERAL

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	SPECTRUM
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment up to 40 characters
<DevSerNo>	String	Device serial number
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version
<CabSerNo>	String	Cable serial number
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy

**Output Parameter List, Section: SETUP COMMON**

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D See DL_Data? (Level) <WorldUnit>
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used
<ServTabName>	String	Name of the service table being used
<CabName>	String	Name of the cable being used
<AntName>	String	Name of the antenna being used

**Output Parameter List, Section: SETUP MODE**

Parameter	Type	Description
<Fmin>	Double	Lower limit of the frequency range [Hz]
<Fmax>	Double	Upper limit of the frequency range [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<VBWMode>	Enum	Video filter: ON, OFF;
<VBW>	Double	Video bandwidth [Hz]
<AvgMethod>	Enum	NUMBER, TIME
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<Yref>	Float	Upper limit of the display range [Unit]
<Yrange>	Float	Y-scale of the display range: 20, 40, 60, 80, 100, 120 [dB]

**Output Parameter List, Section: TRACE COMMON**

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Integer	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfSpatialAVG>	Long	0 – 999 999 Number of sweeps used for spatial averaging
<df>	Double	Frequency resolution of the FFT [Hz]
<NoOfTraces>	Short	Number of traces, 1 - 7

**Output Parameter List, Section: TRACE SPECIFIC**

Parameter	Type	Description
<Trace>	Enum	Available traces: ACT Actual value AVG Averaged value MAX Maximum value MAX_AVG Maximum of the averaged values MIN Minimum value MIN_AVG Minimum of the averaged values STD Values of the selected standard
<OverdrivenTr>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<NoOfValues>	Long	Number of measurement values per trace
<Value>	Float	Power level [Unit] of the channel group (service group)
<Error>	DWord	Error code

**Example**

<i>(Input)</i>	DL_DATA? 1,3;
<i>(Output)</i>	347188,SPECTRUM,TIME,28.04.10,14:30:22,NO,NO,GPS,2D,0,0,0,0,NO,"", "SW-0003",12.03.10,"V1.1.2 beta25","",01.01.01,"A-0015",13.09.04, -47,dBA/m,B,34.9055,RSS,"ICNIRP 1998 general public", "Singapore UMTS Downlink","", "Three-axis Antenna 25 MHz - 3GHz", 993282300,1006717700,1000000,OFF,10000,NUMBER,360,128,-27,120, 1,285,100,0,500000,3, ACT,NO,28, -99.03781,-94.57047,-95.16548,-98.94504,-100.8946,-100.7684,-104.6847,-100.5939, -98.37939,-100.0578,-103.2881,-100.1873,-97.25618,-97.85872,-97.76405,-96.51723, -97.82542,-99.08546,-100.5912,-104.1949,-102.8588,-98.62962,-97.80673,-99.97719, -103.6932,-103.6553,-102.5543,-103.196, MAX,NO,28, -99.03781,-94.57047,-95.16548,-98.94504,-100.8946,-100.7684,-104.6847,-100.5939, -98.37939,-100.0578,-103.2881,-100.1873,-97.25618,-97.85872,-97.76405,-96.51723, -97.82542,-99.08546,-100.5912,-104.1949,-102.8588,-98.62962,-97.80673,-99.97719, -103.6932,-103.6553,-102.5543,-103.196, STD,NO,28, -18.78984,-18.78765,-18.78547,-18.78329,-18.7811,-18.77892,-18.77674,-18.77456, -18.77238,-18.77021,-18.76803,-18.76586,-18.76369,-18.76151,-18.75934,-18.75717, -18.755,-18.75283,-18.75067,-18.7485,-18.74633,-18.74417,-18.74201,-18.73985, -18.73769,-18.73553,-18.73337,-18.73121, 0;

## DL\_DATA? (Scope)

### Description

Queries a sub data set (DataLogger) in Scope mode.

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
 <GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
 <GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
 <VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
 <CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,

<RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
 <AntName>,

<Fcent>,<RBW>,<VBWMode>,<VBW>,<Yref>,<Yrange>,  
 <TriggMode>,<TriggLevel>,<TriggDelay>,<TriggEdge>,<TriggStartDate>,<TriggStartTime>,  
 <TimeSpan>,<TimeResolution>,

<MaxNoOfValues>,<TriggState>,<NoOfTraces>,

{<Trace>,<OverdrivenTr>,<NoOfValues>,{<Value>}, }  
 <NoOfValues>,<TrcGrpOverdrivenAtValue>,  
 <Error>;

### Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

## Command Reference Guide

### Output Parameter List, Section: GENERAL

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	SCOPE
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment up to 40 characters
<DevSerNo>	String	Device serial number
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version
<CabSerNo>	String	Cable serial number
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy

**Output Parameter List, Section: SETUP COMMON**

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D See DL_Data? (Level) <WorldUnit>
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used
<ServTabName>	String	Name of the service table being used
<CabName>	String	Name of the cable being used
<AntName>	String	Name of the antenna being used

**Output Parameter List, Section: SETUP MODE**

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<VBWMode>	Enum	Video filter: ON, OFF;
<VBW>	Double	Video bandwidth [Hz]
<Yref>	Float	Upper limit of the display range [Unit]
<Yrange>	Float	Y-scale of the display range: 20, 40, 60, 80, 100, 120 [dB]
<TriggMode>	Enum	Trigger mode: FREE_RUN, USER, TIME, SINGLE, MULTI
<TriggLevel>	Float	Trigger level [Unit]
<TriggDelay>	Float	Trigger delay, -90 to 200 [%]
<TriggEdge>	Enum	Trigger edge: POSITIV, NEGATIV
<TriggStartDate>	Date	dd.mm.yy
<TriggStartTime>	Time	hh:mm:ss
<TimeSpan>	Double	Time span, 1e-9 bis 86400 [s]
<TimeResolution>	Double	Time resolution, 1e-9 bis 5400 [s]

**Output Parameter List, Section: TRACE COMMON**

Parameter	Type	Description
<MaxNoOfValues>	Integer	Number of measurement values per trace Reserved for storing of uncompleted datasets
<TriggState>	Enum	NO, TRIGGERED, STOPPED, WAIT_ARMING, ARMED Number of measurement values per trace
<NoOfTraces>	Short	Number of traces





## DL\_DATA? (UMTS)

### Description

Queries a sub data set (DataLogger) in UMTS mode.

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
 <GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
 <GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
 <VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
 <CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,

<RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
 <AntName>,

<Fcent>,<AvgMethod>,<AvgTime>;<AvgNumber>,<NoiseSupprRatio>,<NoiseSuppr>,  
 <Yref>,<Yrange>,<Display>,<PwrCorrFactor>,<PwrCorrMode>

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfTraces>,

{<Trace>,<OverdrivenTr>,<Total>,<Analog>,<AnalogNoiseFlag>,<NoOfValues>,  
 {<UMTSCode>,<UMTSValue>,<UMTSselected>}, }

<Error>;

### Input Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

### Output Parameter List, Section: GENERAL

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	UMTS
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment up to 40 characters
<DevSerNo>	String	Device serial number
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version
<CabSerNo>	String	Cable serial number
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy

**Output Parameter List, Section: SETUP COMMON**

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D See DL_Data? (Level) <WorldUnit>
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used
<ServTabName>	String	Name of the service table being used
<CabName>	String	Name of the cable being used
<AntName>	String	Name of the antenna being used

**Output Parameter List, Section: SETUP MODE**

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<AvgMethod>	Enum	NUMBER, TIME
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<NoiseSupprRatio>	Integer	0, 3, 6, 10, 15, 20 [dB] Increase of the reference noise level related to the typical noise power level.
<NoiseSuppr>	Enum	OFF Measurement results are always provided. ON Measurement results are provided only when the reference noise level is exceeded. Otherwise the result is indicated as "< value of reference noise level".
<Yref>	Float	Upper limit of the display range [Unit]
<Yrange>	Float	Y-scale of the display range: 20, 40, 60, 80, 100, 120 [dB]
<Display>	Enum	TABLE BARGRAPH (not yet available)
<PwrCorrFactor>		Power correction factor; Default: 1.0
<PwrCorrMode>		ON, OFF

### Output Parameter List, Section: TRACE COMMON

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Short	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfTraces>	Short	Number of traces

### Output Parameter List, Section: TRACE SPECIFIC

Parameter	Type	Description
<Trace>	Enum	Available traces: ACT            Actual value AVG            Averaged value MAX            Maximum value MAX_AVG      Maximum of the averaged values MIN            Minimum value MIN_AVG      Minimum of the averaged values STD            Values of the selected standard
<OverdrivenTr>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<Total>	Float	Total power [Unit]
<Analog>	Float	Analog power [Unit]
<AnalogNoiseFlag>	Enum	State of the analog noise flag: UNCHECKED, LOW, OK
<NoOfValues>	Integer	Number of values (UMTS codes)
<UMTSCode>	Short	UMTS code no., 0 – 511
<UMTSValue>	Float	Measured power for the current UMTS code [Unit]
<UMTSselected>	Enum	YES, NO
<Error>	DWord	Error code

### Example

---

```

(Input) DL_DATA? 31,1;
(Output) 25357286,UMTS,MAN,10.05.10,16:33:31,NO,NO,GPS,2D,0,0,48.4531683333,
9.220788333333,NO,"",
"SW-0003",12.03.10,"V0.0.2 beta1","",01.01.01,"",01.01.01,
-30,dBm,A,0,SINGLE,"ICNIRP 1998 general public","Österreich UMTS","",
2112800000,NUMBER,360,4,0,OFF,-30,120,TABLE,1,OFF,
7746,389,100,3,
ACT,NO,-83.22507,-76.62833,UNCHECKED,3,501,-84.0913,YES,339,
-90.65247,YES,34,-999,YES,
MAX,NO,-79.50149,-72.1468,UNCHECKED,3,501,-79.61308,YES,339,
-83.91263,YES,34,-92.3071,YES,
MAX_AVG,NO,-79.94458,-73.37815,UNCHECKED,3,501,-80.13036,YES,339,
-85.5185,YES,34,-97.9665,YES,
0;

```

---

## DL\_DATA? (LTE)



The LTE commands applies for the LTE FDD optional mode

### Description

Queries a sub data set (DataLogger) in LTE mode.

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
<GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
<GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
<VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
<CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,

<RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
<AntName>,

<Fcent>,<Cbw>,<AvgMethod>,<AvgTime>;<AvgNumber>,<NoiseSupprRatio>,<NoiseSuppr>,  
<PwrCorrFactor>,<PwrCorrMode>,<CPLength>,<CellSync>

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfCellIDs>,  
{<CellID>,<NoOfAntennas>,<CellIDSelected>,<NoOfTraces>},

{<Trace>,<Overdriven>,<AnalogValue>,<AnalogNoiseFlag>,<NoOfSignals>,  
{<Signal>,<SignalSelected>,<TotalValue>,<NoOfValues>,{Value,}} } <Error>;

### Input Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

### Output Parameter List, Section: GENERAL

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	LTE
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment up to 40 characters
<DevSerNo>	String	Device serial number
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version
<CabSerNo>	String	Cable serial number
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy

**Output Parameter List, Section: SETUP COMMON**

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D See DL_Data? (Level)
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used
<ServTabName>	String	Name of the service table being used
<CabName>	String	Name of the cable being used
<AntName>	String	Name of the antenna being used

**Output Parameter List, Section: SETUP MODE**

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<Cbw>	Double	Channel Bandwidth [Hz] 1.4e6, 3e6, 5e6, 10e6, 15e6, 20e6
<AvgMethod>	Enum	NUMBER, TIME
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<NoiseSupprRatio>	Integer	0, 3, 6, 10, 15, 20 [dB] Increase of the reference noise level related to the typical noise power level.
<NoiseSuppr>	Enum	OFF Measurement results are always provided. ON Measurement results are provided only when the reference noise level is exceeded. Otherwise the result is indicated as "< value of reference noise level".
<PwrCorrFactor>	Float	Power correction factor; Default: 1.0
<PwrCorrMode>	Enum	ON, OFF
<CPLength>	Enum	Cyclic Prefix Length: NORMAL, EXTENDED
<CellSync>	Enum	Cell Synchronization: SYNC, NO_SYNC

### Output Parameter List, Section: TRACE COMMON

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Short	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfCellIDs>	Short	>= 0
<CellID>	Short	0 ... 503
<NoOfAntennas>	Short	>= 1
<CellIDSelected>	Enum	YES, NO
<NoOfTraces>	Short	Number of traces

### Output Parameter List, Section: TRACE SPECIFIC

Parameter	Type	Description
<Trace>	Enum	Available traces: ACT            Actual value AVG            Averaged value MAX            Maximum value MAX_AVG      Maximum of the averaged values MIN            Minimum value MIN_AVG      Minimum of the averaged values STD            Values of the selected standard
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<AnalogValue>	Float	Analog power [Unit]
<AnalogNoiseFlag>	Enum	State of the analog noise flag: UNCHECKED, LOW, OK
<NoOfSignals>	Short	1...9
<Signal>	Enum	PSS,SSS,RS_AVG,RS_SUM,RS_MAX, RS_0,RS_1,RS_2,RS_3
<SignalSelected>	Enum	YES, NO
<TotalValue>	Float	Total power [Unit] of selected cell IDs
<NoOfValues>	Shorts	Number of values = NoOfCellIDs There is one value for each cell ID available.
<Value>	Float	Measured power for the current cell ID and Signal [Unit]
<Error>	DWord	Error code



**Example**

---

<i>(Input)</i>	DL_DATA? 7,1;
<i>(Output)</i>	1913414,LTE,MAN,18.06.14, 9:50:16,NO,ACTUAL,GPS,3D,6,504,48.4585316667,9.23057166667,NO,"", "D-0051",14.09.10,"V1.3.2","",01.01.01,"",01.01.01, -30,dBm,A,0,SINGLE,"ICNIRP 1998 General Public","Germany alle Funkdienste","","", 796000000,1400000,NUMBER,360,4,0,OFF,1,OFF,NORMAL,SYNC, 5,229,100,3, 335,2,YES, 334,2,YES, 333,2,YES, 1, ACT,YES,-62.13,UNCHECKED,9, PSS,YES,-72.78,3,-78.27,-74.23,-999.00, SSS,YES,-73.35,3,-79.88,-74.44,-999.00, RS_AVG,YES,-74.85,3,-80.51,-76.23,-999.00, RS_MAX,YES,-73.12,3,-78.10,-74.77,-999.00, RS_SUM,YES,-71.84,3,-77.50,-73.22,-999.00, RS_0,YES,-75.26,3,-78.10,-78.44,-999.00, RS_1,YES,-74.48,3,-86.37,-74.77,-999.00, RS_2,YES,-999.00,3,-999.00,-999.00,-999.00, RS_3,YES,-999.00,3,-999.00,-999.00,-999.00, 0;

---

**Example**

---

<i>(Input)</i>	DL_DATA? 8,1;
<i>(Output)</i>	1936150,LTE,MAN,18.06.14, 9:50:39,NO,ACTUAL,GPS,3D,6,511.5,48.4585966667,9.23044833333,NO,"", "D-0051",14.09.10,"V1.3.2","",01.01.01,"",01.01.01, -30,dBm,A,0,SINGLE,"ICNIRP 1998 General Public","Germany alle Funkdienste","","", 796000000,1400000,NUMBER,360,4,0,OFF,1,OFF,NORMAL,SYNC, 5,235,100,3, 335,2,YES, 334,2,NO, 333,2,NO, 1, ACT,NO,-60.91,UNCHECKED,9, PSS,NO,-74.29,3,-74.29,-72.72,-999.00, SSS,NO,-75.50,3,-75.50,-73.19,-999.00, RS_AVG,YES,-77.68,3,-77.68,-75.45,-999.00, RS_MAX,NO,-76.82,3,-76.82,-74.78,-999.00, RS_SUM,NO,-74.67,3,-74.67,-72.44,-999.00, RS_0,NO,-76.82,3,-76.82,-76.25,-999.00, RS_1,NO,-78.76,3,-78.76,-74.78,-999.00, RS_2,NO,-999.00,3,-999.00,-999.00,-999.00, RS_3,NO,-999.00,3,-999.00,-999.00,-999.00, 0;

---

## DL\_DATA? (LTE TDD)

### Description

Queries a sub data set (DataLogger) in LTE TDD mode.

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
 <GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
 <GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
 <VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
 <CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,  
  
 <RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
 <AntName>,  
  
 <Fcent>,<Cbw>,<AvgMethod>,<AvgTime>;<AvgNumber>,<NoiseSupprRatio>,<NoiseSuppr>,  
 <PwrCorrFactor>,<PwrCorrMode>,<UpDownLinkConfig>,<CPLength>,<CellSync>,  
  
 <SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfCellIDs>,  
 {<CellID>,<NoOfAntennas>,<CellIDSelected>,<NoOfTraces>},  
  
 {<Trace>,<Overdriven>,<AnalogValue>,<AnalogNoiseFlag>,<NoOfSignals>,  
 {<Signal>,<SignalSelected>,<TotalValue>,<NoOfValues>,{Value,}} } <Error>;

### Input Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

**Output Parameter List, Section: GENERAL**

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	LTE_TDD
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment up to 40 characters
<DevSerNo>	String	Device serial number
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version
<CabSerNo>	String	Cable serial number
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy

## Command Reference Guide

### Output Parameter List, Section: SETUP COMMON

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D See DL_Data? (Level)
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used
<ServTabName>	String	Name of the service table being used
<CabName>	String	Name of the cable being used
<AntName>	String	Name of the antenna being used

### Output Parameter List, Section: SETUP MODE

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<Cbw>	Double	Channel Bandwidth [Hz] 1.4e6, 3e6, 5e6, 10e6, 15e6, 20e6
<AvgMethod>	Enum	NUMBER, TIME
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<NoiseSupprRatio>	Integer	0, 3, 6, 10, 15, 20 [dB] Increase of the reference noise level related to the typical noise power level.
<NoiseSuppr>	Enum	OFF Measurement results are always provided. ON Measurement results are provided only when the reference noise level is exceeded. Otherwise the result is indicated as "< value of reference noise level".
<PwrCorrFactor>	Float	Power correction factor; Default: 1.0
<PwrCorrMode>	Enum	ON, OFF
<UpDownLinkConfig>	Enum	0,1,2,3,4,5,6
<CPLength>	Enum	Cyclic Prefix Length: NORMAL, EXTENDED
<CellSync>	Enum	Cell Synchronization: SYNC, NO_SYNC

**Output Parameter List, Section: TRACE COMMON**

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Short	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfCellIDs>	Short	>= 0
<CellID>	Short	0 ... 503
<NoOfAntennas>	Short	>= 1
<CellIDSelected>	Enum	YES, NO
<NoOfTraces>	Short	Number of traces

**Output Parameter List, Section: TRACE SPECIFIC**

Parameter	Type	Description
<Trace>	Enum	Available traces: ACT            Actual value AVG            Averaged value MAX            Maximum value MAX_AVG      Maximum of the averaged values MIN            Minimum value MIN_AVG      Minimum of the averaged values STD            Values of the selected standard
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<AnalogValue>	Float	Analog power [Unit]
<AnalogNoiseFlag>	Enum	State of the analog noise flag: UNCHECKED, LOW, OK
<NoOfSignals>	Short	1...9
<Signal>	Enum	PSS,SSS,RS_AVG,RS_SUM,RS_MAX, RS_0,RS_1,RS_2,RS_3
<SignalSelected>	Enum	YES, NO
<TotalValue>	Float	Total power [Unit] of selected cell IDs
<NoOfValues>	Shorts	Number of values = NoOfCellIDs There is one value for each cell ID available.
<Value>	Float	Measured power for the current cell ID and Signal [Unit]
<Error>	DWord	Error code

## Command Reference Guide

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### Example

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<i>(Input)</i>	DL_DATA? 7,1;
<i>(Output)</i>	1913414,LTE_TDD,MAN,18.06.14, 9:50:16,NO,ACTUAL,GPS,3D,6,504,48.4585316667,9.23057166667,NO,"", "D-0051",14.09.10,"V1.3.2","",01.01.01,"",01.01.01, -30,dBm,A,0,SINGLE,"ICNIRP 1998 General Public","Germany alle Funkdienste","", "", 796000000,1400000,NUMBER,360,4,0,OFF,1,OFF,0,NORMAL,SYNC, 5,229,100,3, 335,2,YES, 334,2,YES, 333,2,YES, 1, ACT,YES,-62.13,UNCHECKED,9, PSS,YES,-72.78,3,-78.27,-74.23,-999.00, SSS,YES,-73.35,3,-79.88,-74.44,-999.00, RS_AVG,YES,-74.85,3,-80.51,-76.23,-999.00, RS_MAX,YES,-73.12,3,-78.10,-74.77,-999.00, RS_SUM,YES,-71.84,3,-77.50,-73.22,-999.00, RS_0,YES,-75.26,3,-78.10,-78.44,-999.00, RS_1,YES,-74.48,3,-86.37,-74.77,-999.00, RS_2,YES,-999.00,3,-999.00,-999.00,-999.00, RS_3,YES,-999.00,3,-999.00,-999.00,-999.00, 0;

---

### Example

---

<i>(Input)</i>	DL_DATA? 8,1;
<i>(Output)</i>	1936150,LTE_TDD,MAN,18.06.14, 9:50:39,NO,ACTUAL,GPS,3D,6,511.5,48.4585966667,9.23044833333,NO,"", "D-0051",14.09.10,"V1.3.2","",01.01.01,"",01.01.01, -30,dBm,A,0,SINGLE,"ICNIRP 1998 General Public","Germany alle Funkdienste","", "", 796000000,1400000,NUMBER,360,4,0,OFF,1,OFF,0,NORMAL,SYNC, 5,235,100,3, 335,2,YES, 334,2,NO, 333,2,NO, 1, ACT,NO,-60.91,UNCHECKED,9, PSS,NO,-74.29,3,-74.29,-72.72,-999.00, SSS,NO,-75.50,3,-75.50,-73.19,-999.00, RS_AVG,YES,-77.68,3,-77.68,-75.45,-999.00, RS_MAX,NO,-76.82,3,-76.82,-74.78,-999.00, RS_SUM,NO,-74.67,3,-74.67,-72.44,-999.00, RS_0,NO,-76.82,3,-76.82,-76.25,-999.00, RS_1,NO,-78.76,3,-78.76,-74.78,-999.00, RS_2,NO,-999.00,3,-999.00,-999.00,-999.00, RS_3,NO,-999.00,3,-999.00,-999.00,-999.00, 0;

---

## DL\_DATA? (5GNR)

### Description

Queries a sub data set (DataLogger) in 5GNR mode.

### Input

DL\_DATA? <Index>,<SubIndex>;

### Output

<DataSetID>,<DataSetType>,<StoringMode>,<StoringDate>,<StoringTime>,<OverdrivenDS>,  
 <GPSFlag>,<GPSQuality>,<GPSFix>,<GPSSatellitesInUse>,  
 <GPSAltitude>,<GPSLatitude>,<GPSLongitude>,  
 <VoiceCommAvailable>,<TextComment>,<DevSerNo>,<DevCalDate>,<DevFWVersion>,  
 <CabSerNo>,<CabCalDate>,<AntSerNo>,<AntCalDate>,

<RL>,<Unit>,<WorldUnit>,<WorldUnitOffset>,<Axis>,<StdName>,<ServTabName>,<CabName>,  
 <AntName>,

<FssbRef>,<SCS>,<DecodeSensitivity>,<AvgMethod>,<AvgTime>;<AvgNumber>,<NoiseSupprRatio>,  
 <NoiseSuppr>,

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfCellIDs>,  
 {<CellID>,<NoOfSSS>,<CellIDSelected>,<NoOfTraces>},

{<Trace>,<Overdriven>,<AnalogValue>,<AnalogNoiseFlag>,<NoOfSignals>,  
 {<Signal>,<SignalSelected>,<TotalValue>,<NoOfValues>,{Value,}} } <Error>;

### Input Parameter List

Parameter	Type	Description
<Index>	Short	Index of the selected dataset
<SubIndex>	Short	Index of the selected sub-dataset

### Output Parameter List, Section: GENERAL

Parameter	Type	Description
<DataSetID>	DWord	Unique ID of the sub-dataset
<DataSetType>	Enum	N5G
<StoringMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MR_USER Storing triggered by measurement routine, with user interaction required MR_NUM Storing triggered by measurement routine, event controlled (numerical counter) MR_TIME Storing triggered by measurement routine, event controlled by timer
<StoringDate>	Date	dd.mm.yy
<StoringTime>	Time	hh:mm:ss
<OverdrivenDS>	Enum	YES, NO; Yes, if there is at least one result in the dataset exceeding the range limit. Overdriven results may have a very high uncertainty.
<GPSFlag>	Enum	NO No GPS signal available ACTUAL GPS signal available FROZEN GPS signal disappeared, using last valid coordinates
<GPSQuality>	Enum	GPS, DGPS (Differential GPS)
<GPSFix>	Enum	3D, 2D
<GPSSatellitesInUse>	Short	0 to 36
<GPSAltitude>	Double	-9999.9 to +9999.9 (meter)
<GPSLatitude>	Double	-90.000 00 to +90.000 00 (decimal degrees)
<GPSLongitude>	Double	-180.000 00 to +180.000 00 (decimal degrees)
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<TextComment>	String	Text comment up to 40 characters
<DevSerNo>	String	Device serial number
<DevCalDate>	Date	Device calibration date, dd.mm.yy
<DevFWVersion>	String	Device firmware version
<CabSerNo>	String	Cable serial number
<CabCalDate>	Date	Cable calibration date, dd.mm.yy
<AntSerNo>	String	Antenna serial number
<AntCalDate>	Date	Antenna calibration date, dd.mm.yy



**Output Parameter List, Section: SETUP COMMON**

Parameter	Type	Description
<RL>	Float	Reference level (Measurement Range) [Unit]
<Unit>	Enum	Unit
<WorldUnit>	Enum	Unit category: A, B, C, D See DL_Data? (Level)
<WorldUnitOffset>	Float	Value required to determine Yref when changing between unit categories
<Axis>	Enum	X, Y, Z: Measurement of one selected spatial axis using a 3-axis antenna RSS: Isotropic measurement using a 3-axis antenna (Root Sum Square) SINGLE: Measurement without antenna or with a single axis antenna
<StdName>	String	Name of the safety standard being used
<ServTabName>	String	Name of the service table being used
<CabName>	String	Name of the cable being used
<AntName>	String	Name of the antenna being used

**Output Parameter List, Section: SETUP MODE**

Parameter	Type	Description
<FssbRef>	Double	Center frequency of SSB Ref [Hz]
<SCS>	Double	15e3, 30e3 [Hz]
<DecodeSensitivity>	Double	LOW, NORMAL, HIGH
<AvgMethod>	Enum	NUMBER, TIME
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<NoiseSupprRatio>	Integer	0 [dB] RFU (Reserved for Future Use)
<NoiseSuppr>	Enum	OFF RFU (Reserved for Future Use)

### Output Parameter List, Section: TRACE COMMON

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Short	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfCellIDs>	Short	>= 0
<CellID>	Short	0 ... 1007
<NoOfSSS>	Short	>= 1
<CellIDSelected>	Enum	YES, NO
<NoOfTraces>	Short	Number of traces

### Output Parameter List, Section: TRACE SPECIFIC

Parameter	Type	Description
<Trace>	Enum	Available traces: ACT            Actual value AVG            Averaged value MAX            Maximum value MAX_AVG      Maximum of the averaged values MIN            Minimum value MIN_AVG      Minimum of the averaged values STD            Values of the selected standard
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<AnalogValue>	Float	Analog power [Unit]
<AnalogNoiseFlag>	Enum	State of the analog noise flag: RFU (Reserved for Future Use) UNCHECKED
<NoOfSignals>	Short	1...10
<Signal>	Enum	SSS Max, SSS Sum, SSS 0, SSS 1, SSS 2, SSS 3, SSS 4, SSS 5, SSS 6, SSS 7
<SignalSelected>	Enum	YES, NO
<TotalValue>	Float	Total power [Unit] of selected cell IDs
<NoOfValues>	Shorts	Number of values = NoOfCellIDs There is one value for each cell ID available.
<Value>	Float	Measured power for the current cell ID and Signal [Unit]
<Error>	DWord	Error code

**Example**

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<i>(Input)</i>	DL_DATA? 10,1;
<i>(Output)</i>	65102998,N5G,MAN,29.07.21, 9:49:46,NO,ACTUAL,GPS,3D,7,442.7,48.4582266667,9.23057666667,NO,"", "E-0020",01.01.00,"V1.6.0","",01.01.01,"",01.01.01, -30,dBm,A,0,SINGLE,"ICNIRP 1998 General Public","Ex.DECT Channels","", 2155350000,15000,NORMAL,NUMBER,360,4,0,OFF, 71658,744,100,3, 873,1,YES, 875,0,YES, 874,0,YES, 2, MAX,NO,-50.83,UNCHECKED,10, SSS0,NO,-86.26,3,-999.00,-86.26,-999.00, SSS1,NO,-85.92,3,-999.00,-85.92,-999.00, SSS2,NO,-86.02,3,-999.00,-86.02,-999.00, SSS3,NO,-71.56,3,-71.56,-84.81,-92.21, SSS4,NO,-999.00,3,-999.00,-999.00,-999.00, SSS5,NO,-999.00,3,-999.00,-999.00,-999.00, SSS6,NO,-999.00,3,-999.00,-999.00,-999.00, SSS7,NO,-999.00,3,-999.00,-999.00,-999.00, SSSUM,YES,-71.56,3,-71.56,-84.81,-92.21, SSSMAX,YES,-71.56,3,-71.56,-84.81,-92.21, AVG,NO,-58.90,UNCHECKED,10, SSS0,NO,-999.00,3,-999.00,-999.00,-999.00, SSS1,NO,-999.00,3,-999.00,-999.00,-999.00, SSS2,NO,-999.00,3,-999.00,-999.00,-999.00, SSS3,NO,-74.22,3,-74.22,-999.00,-999.00, SSS4,NO,-999.00,3,-999.00,-999.00,-999.00, SSS5,NO,-999.00,3,-999.00,-999.00,-999.00, SSS6,NO,-999.00,3,-999.00,-999.00,-999.00, SSS7,NO,-999.00,3,-999.00,-999.00,-999.00, SSSUM,YES,-74.22,3,-74.22,-999.00,-999.00, SSSMAX,YES,-74.22,3,-74.22,-999.00,-999.00, 0;

---

## DL\_INFO?

### Description

Queries overview information for a data set.

### Input

DL\_INFO? <DS\_Idx>;

### Output

<NoOfSubDS>,<Type>,<StoreMode>,<Date>,<Time>,<TextComm>,<VoiceCommAvailable>,<GPSDataAvailable>,<Error>;

### Parameter List

Parameter	Type	Description
<DS_Idx>	Integer	Index of the desired dataset
<NoOfSubDS>	Integer	Number of related sub-datasets
<Type>	Enum	SPECTRUM, SAFETY, UMTS, SCOPE, LEVEL, MIXED, SAFETY_CONDENSED, LTE, LTE_TDD, 5GNR
<StoreMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MEAS_ROUTINE Storing triggered by measurement routine (process controlled)
<Date>	Date	dd.mm.yy Storage date
<Time>	Time	hh:mm:ss Storage time
<TextComm>	String	Text comment up to 40 characters
<VoiceCommAvailable>	Enum	Voice comment available: YES, NO;
<GPSDataAvailable>	Enum	GPS data available: YES, NO;
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	DL_INFO? 33;
<i>(Output)</i>	1,SCOPE,MAN,11.05.10, 9:23:28,"my_text_00",NO,NO,0;

---

## DL\_INFO\_SUB?

### Description

Queries overview information for a sub data set.

### Input

DL\_INFO? <DS\_idx>,<>SubDS\_idx;

### Output

<Type>,<StoreMode>,<Date>,<Time>,<Error>;

### Parameter List

Parameter	Type	Description
<DS_idx>	Integer	Index of the desired dataset
<SubDS_idx>	Integer	Index of the desired sub-dataset
<Type>	Enum	SPECTRUM, SAFETY, UMTS, SCOPE, LEVEL, MIXED, SAFETY_CONDENSED, LTE, LTE_TDD, 5GNR
<StoreMode>	Enum	MAN Manual storing, executed by the user COND_FIRST Auto-Store at first TRUE condition COND_ALL Auto-Store for all TRUE conditions TIME Auto-Store, Timer controlled MEAS_ROUTINE Storing triggered by measurement routine (process controlled)
<Date>	Date	dd.mm.yy Storage date
<Time>	Time	hh:mm:ss Storage time
<Error>	DWord	Error code

### Example

*(Input)* DL\_INFO? 33,1;

*(Output)* SCOPE,MAN,11.05.10, 9:23:28,0;

### DL\_MEMORY?

#### Description

Queries the free memory space available for storing data sets.  
The response is a relative number expressed in %.

#### Input

DL\_MEMORY?;

#### Output

<FreeMem>,<Error>;

#### Parameter List

Parameter	Type	Description
<FreeMem>	Integer	Free memory space, 0 - 100 [%]
<Error>	DWord	Error code

#### Example

---

<i>(Input)</i>	DL_MEMORY?;
<i>(Output)</i>	37,0;

---

## DL\_NUMBER?

### Description

Queries the number of saved data sets.

### Input

DL\_NUMBER?;

### Output

<NoOfDS>,<Error>;

### Parameter List

Parameter	Type	Description
<NoOfDS>	Integer	Number of stored datasets
<Error>	DWord	Error code

### Example

---

*(Input)* DL\_NUMBER?;

---

*(Output)* 33,0;

---

# DL\_STORE

### Description

Saves a data set in the current measurement mode.

### Input

DL\_STORE;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	DL_STORE;
<i>(Output)</i>	0;

---





## ERROR?

### Description

Queries the current error code.

### Input

ERROR?;

### Output

<ErrorCode>,<Error>;

### Parameter List

Parameter	Type	Description
<ErrorCode>	Enum	Current error code: 0 no error 401 remote command is not implemented in the remote module 402 invalid parameter 403 invalid count of parameters 404 invalid parameter range 405 last command is not completed 406 answer time between remote module and application module is too high 407 invalid or corrupt data 408 error while accessing the hardware 409 command is not supported in this version of the application module 410 remote is not activated (please send "REMOTE ON;" first) 411 command is not supported in the selected mode 412 memory of data logger is full 413 option code is invalid 414 incompatible version 415 sub-index full 416 file counter full 417 data lost 418 checksum error 419 programming not successful 420 path not found 421 break detected 422 low battery 423 file open error 424 data verify error
<Error>	DWord	Error code for this command

### Example

<i>(Input)</i>	ERROR?;
<i>(Output)</i>	401,0;

## LEVEL?

### Description

Queries the different measurement runs (traces) that are available in LevelRecorder mode. LevelRecorder mode must be selected as the current operating mode.

### Input

LEVEL? <Trace>;

### Output

<SweepCounter>,<AVGProgress>,<NoOfSpatialAVG>,<NoOfTraces>,<Trace>,<Overdriven>,<NoiseFlag>,<Value>,<Error>;

### Parameter List

Parameter	Type	Description
<Trace>	Enum	RMS, MAX_RMS, PEAK, MAX_PEAK, STD, ALL
<SweepCounter>	Integer	Number of sweeps performed
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfSpatialAVG>	Integer	0 – 999 999 Number of sweeps used for spatial averaging
<NoOfTraces>	Short	Number of traces
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<NoiseFlag>	Enum	UNCHECKED Result has not been compared with noise level LOW Result is below the noise level OK Result is equal or above the noise level
<Value>	Float	Measurement result [Unit]
<Error>	DWord	Error code

### Example

*(Input)* LEVEL? RMS;

*(Output)* 74,100,0,1,  
RMS,NO,UNCHECKED,-31.07009,  
0;

### Example

*(Input)* LEVEL? ALL;

*(Output)* 20672,100,0,4,  
RMS,NO,UNCHECKED,-30.99041,  
MAX\_RMS,NO,UNCHECKED,-30.96372,  
PEAK,NO,UNCHECKED,-18.25535,  
MAX\_PEAK,NO,UNCHECKED,-16.39886,  
0;

# LEVEL\_AVG\_CONFIG

### Description

Sets the current averaging method.  
The device has 1 averaging method:

- Average over a time period (Time)

### Input

LEVEL\_AVG\_CONFIG <AvgTime>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<AvgTime>	Float	Time [s]: 0.48, 0.96, 1.2, 2.4, 3.6, 6, 12, 18, 30, 60, 120, 180, 300, 360, 600, 900, 1200, 1800
<Error>	DWord	Error code

### Example

---

*(Input)*      LEVEL\_AVG\_CONFIG 2.4;

---

*(Output)*     0;

---

## LEVEL\_AVG\_CONFIG?

### Description

Queries the current averaging method.  
The device has 1 averaging methods:

- Average over a time period (Time)

### Input

LEVEL\_AVG\_CONFIG?;

### Output

<AvgTime>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgTime>	Float	Time [s]: 0.48, 0.96, 1.2, 2.4, 3.6, 6, 12, 18, 30, 60, 120, 180, 300, 360, 600, 900, 1200, 1800
<Error>	DWord	Error code

### Example

---

*(Input)* LEVEL\_AVG\_CONFIG?;

---

*(Output)* 2.4,0;

---

# LEVEL\_AVG\_LIST?

### Description

Queries the current possible averaging time settings for LevelRecorder mode.

The averaging method for LevelRecorder mode is averaging over a time period.

The output is a complete list of valid settings for this mode. <DisplayString> can be easily used in list boxes and ensures the same look and feel across Narda's analyzers. <Value> can be used in other commands to change the setting.

### Input

LEVEL\_AVG\_LIST? ;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Averaging time and its unit as string (in „s“ or „min“)
<Value>	Float	Averaging time as value [s]
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	LEVEL_AVG_LIST?;
<i>(Output)</i>	18, "0.48 s",0.48, "0.96 s",0.96, "1.2 s",1.2, ... "15 min",900, "20 min",1200, "30 min",1800, 0;

---

## LEVEL\_CONFIG

### Description

Sets the current measurement parameters for LevelRecorder mode. LevelRecorder mode must be selected as the current operating mode.

### Input

LEVEL\_CONFIG <Fcent>,<RBW>,<VBWMode>,<VBW>,<RL>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<VBWMode>	Enum	Video filter: ON, OFF;
<VBW>	Double	Video bandwidth [Hz]
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

*(Input)* LEVEL\_CONFIG 333000000.7,250000,OFF,50000,0.4;

*(Output)* 0;

### LEVEL\_CONFIG?

#### Description

Queries the current measurement parameters for LevelRecorder mode. LevelRecorder mode must be selected as the current operating mode.

#### Input

LEVEL\_CONFIG?;

#### Output

<Fcent>,<RBW>,<VBWMode>,<VBW>,<RL>,<Error>;

#### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<VBWMode>	Enum	Video filter: ON, OFF;
<VBW>	Double	Video bandwidth [Hz]
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

#### Example

---

<i>(Input)</i>	LEVEL_CONFIG?;
<i>(Output)</i>	1500000000,5000000,OFF,50000,20,0;

---



## LIVESCREEN?

### Description

Queries the current device display as a screenshot in PNG format.

Individual values are themselves represented by binary numbers in the range 0-255 (0x00 – 0xFF). The values are transmitted in ASCII-HEX.

Example: the value 0x89 is transmitted as '8' '9', and the associated HEX representation is 0x38 0x39.

The complete and consistent quantity of all values can be converted back into binary data so that the device display can be shown straightaway on a monitor as a PNG file.

### Note

Command also useable in "Remote OFF" mode

### Input

LIVESCREEN? <Blocksize>;

### Output

<NumberOfBytes>,<BinaryValue>,<Error>;

### Parameter List

Parameter	Type	Description
<Blocksize>	Long	Number of characters per line (block-wise transfer) 0 no vertical format 64 64 characters per line up to 65533 characters per line
<NumberOfBytes>	Long	Number of binary bytes (before conversion to HEX)
<BinaryValue>	ASCII HEX	Binary bytes as HEX strings
<Error>	DWord	Error code

### Example

*(Input)* LIVESCREEN? 32;

*(Output)* 26453,  
89504E470D0A1A0A0000000D49484452  
00000320000001E00802000000D2659E  
A2000000017352474200AECE1CE90000  
...  
...  
011418A8C0FF076DBD652BB8F321CF00  
00000049454E44AE426082  
,0;

### LTE?



*The LTE commands applies for the LTE FDD optional mode*

#### Description

Queries the different measurement runs (traces) that are available in LTE mode. LTE must be selected as the current operating mode.

#### Input

LTE? <Trace>;

#### Output

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfCellIDs>,  
{<CellID>,<NoOfAntennas>,<CellIDSelected>,<NoOfTraces>},  
{<Trace>,<Overdriven>,<AnalogValue>,<AnalogNoiseFlag>,<NoOfSignals>},  
{<Signal>,<SignalSelected>,<TotalValue>,<NoOfValues>,{Value,}} } <Error>;

#### Input Parameter List

Parameter	Type	Description
<Trace>	Enum	ACT Actual value AVG Averaged value MAX Maximum value MAX_AVG Maximum of the averaged values MIN Minimum value MIN_AVG Minimum of the averaged values STD Values of the selected standard ALL All traces

**Output Parameter List**

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Short	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfCellIDs>	Short	>= 0
<CellID>	Short	0 ... 503
<NoOfAntennas>	Short	>= 1
<CellIDSelected>	Enum	YES, NO
<NoOfTraces>	Short	Number of traces
<Trace>	Enum	Available traces: ACT Actual value AVG Averaged value MAX Maximum value MAX_AVG Maximum of the averaged values MIN Minimum value MIN_AVG Minimum of the averaged values STD Values of the selected standard
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<AnalogValue>	Float	Analog power [Unit]
<AnalogNoiseFlag>	Enum	State of the analog noise flag: UNCHECKED, LOW, OK
<NoOfSignals>	Short	1...9
<Signal>	Enum	PSS,SSS,RS_AVG,RS_SUM,RS_MAX, RS_0,RS_1,RS_2,RS_3
<SignalSelected>	Enum	YES, NO
<TotalValue>	Float	Total power [Unit] of selected cell IDs
<NoOfValues>	Shorts	Number of values = NoOfCellIDs There is one value for each cell ID available.
<Value>	Float	Measured power for each cell ID and Signal [Unit]
<Error>	DWord	Error code

## Command Reference Guide

---

### Example

---

<i>(Input)</i>	LTE? ACT;
<i>(Output)</i>	5,229,100,3, 335,2,YES, 334,2,YES, 333,2,YES, 1, ACT,YES,-62.13,UNCHECKED,9, PSS,YES,-72.78,3,-78.27,-74.23,-999.00, SSS,YES,-73.35,3,-79.88,-74.44,-999.00, RS_AVG,YES,-74.85,3,-80.51,-76.23,-999.00, RS_MAX,YES,-73.12,3,-78.10,-74.77,-999.00, RS_SUM,YES,-71.84,3,-77.50,-73.22,-999.00, RS_0,YES,-75.26,3,-78.10,-78.44,-999.00, RS_1,YES,-74.48,3,-86.37,-74.77,-999.00, RS_2,YES,-999.00,3,-999.00,-999.00,-999.00, RS_3,YES,-999.00,3,-999.00,-999.00,-999.00, 0;

---

### Example

---

<i>(Input)</i>	LTE? ACT;
<i>(Output)</i>	5,235,100,3, 335,2,YES, 334,2,NO, 333,2,NO, 1, ACT,NO,-60.91,UNCHECKED,9, PSS,NO,-74.29,3,-74.29,-72.72,-999.00, SSS,NO,-75.50,3,-75.50,-73.19,-999.00, RS_AVG,YES,-77.68,3,-77.68,-75.45,-999.00, RS_MAX,NO,-76.82,3,-76.82,-74.78,-999.00, RS_SUM,NO,-74.67,3,-74.67,-72.44,-999.00, RS_0,NO,-76.82,3,-76.82,-76.25,-999.00, RS_1,NO,-78.76,3,-78.76,-74.78,-999.00, RS_2,NO,-999.00,3,-999.00,-999.00,-999.00, RS_3,NO,-999.00,3,-999.00,-999.00,-999.00, 0;

---

## LTE\_AVG\_CONFIG



The LTE commands applies for the LTE FDD optional mode

### Description

Sets the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

LTE\_AVG\_CONFIG <AvgNumber>,<AvgTime>,<AvgPara>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

*(Input)* LTE\_AVG\_CONFIG NUMBER,64,240;

*(Output)* 0;

### Example

*(Input)* LTE\_AVG\_CONFIG TIME,4,180;

*(Output)* 0;

# LTE\_AVG\_CONFIG?



The LTE commands applies for the LTE FDD optional mode

### Description

Queries the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

LTE\_AVG\_CONFIG?;

### Output

<AvgMode>,<AvgNumber>,<AvgTime>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

---

(Input) LTE\_AVG\_CONFIG?;

---

(Output) TIME,4,120,0;

---

### Example

---

(Input) LTE\_AVG\_CONFIG?;

---

(Output) NUMBER,256,180,0;;

---

## LTE\_AVG\_LIST?



The LTE commands applies for the LTE FDD optional mode

### Description

Queries the current possible averaging settings for LTE mode.

The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

The output is a complete list of valid settings for this mode. <DisplayString> can be easily used in list boxes and ensures the same look and feel across Narda's analyzers. <Value> can be used in other commands to change the setting.

### Input

LTE\_AVG\_LIST? <AvgMode>;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER: Average over a number of individual measurements TIME: Average over a time period (in seconds)
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Averaging parameter as string including the unit
<Value>	Float	Averaging parameter as a numerical value
<Error>	DWord	Error code

### Example

(Input) LTE\_AVG\_LIST? TIME;

(Output) 30,  
"1 min",60,  
"2 min",120,  
"3 min",180,  
...  
"28 min",1680,  
"29 min",1740,  
"30 min",1800,  
0;

## LTE\_CONFIG



The LTE commands applies for the LTE FDD optional mode

### Description

Sets the current measurement parameters for LTE mode.  
LTE must be selected as the current operating mode.

### Input

LTE\_CONFIG  
<Fcent>,<CBW>,<CPLength>,<CellSync>,<ExtrapolationMode>,<ExtrapolationFactor>,<RL>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<Cbw>	Double	Channel Bandwidth [Hz] 1.4e6, 3e6, 5e6, 10e6, 15e6, 20e6
<CPLength>	Enum	Cyclic Prefix Length: NORMAL, EXTENDED
<CellSync>	Enum	Cell Synchronization: SYNC, NO_SYNC
<ExtrapolationMode>	Enum	ON, OFF
<ExtrapolationFactor>	Float	1.0 to 10000.0
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

(Input) LTE\_CONFIG 806000000,1400000,NORMAL,SYNC,OFF,1.0,-10;

(Output) 0;



## LTE\_CONFIG?



The LTE commands applies for the LTE FDD optional mode

### Description

Queries the current measurement parameters for LTE mode.  
LTE must be selected as the current operating mode.

A list of all CBWs available can be queried with the RBW\_LIST? command.

### Input

LTE\_CONFIG?;

### Output

<Fcent>,<CBW>,<CPLength>,<CellSync>,<ExtrapolationMode>,<ExtrapolationFactor>,<RL>,  
<Error>;

### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<Cbw>	Double	Channel Bandwidth [Hz] 1.4e6, 3e6, 5e6, 10e6, 15e6, 20e6
<CPLength>	Enum	Cyclic Prefix Length: NORMAL, EXTENDED
<CellSync>	Enum	Cell Synchronization: SYNC, NO_SYNC
<ExtrapolationMode>	Enum	ON, OFF
<ExtrapolationFactor>	Float	1.0 to 10000.0
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

*(Input)* LTE\_CONFIG?;

*(Output)* 806000000,1400000,NORMAL,SYNC,OFF,1.0,-10,0;

# LTE\_RESET\_TABLE



*The LTE commands applies for the LTE FDD optional mode*

### Description

Resets the table for LTE results (Cell IDs).

### Input

LTE\_RESET\_TABLE;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	LTE_RESET_TABLE;
<i>(Output)</i>	0;

---

## LTE\_TDD?

### Description

Queries the different measurement runs (traces) that are available in LTE TDD mode. LTE TDD must be selected as the current operating mode.

### Input

LTE\_TDD? <Trace>;

### Output

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfCellIDs>,  
{<CellID>,<NoOfAntennas>,<CellIDSelected>,<NoOfTraces>,  
{<Trace>,<Overdriven>,<AnalogValue>,<AnalogNoiseFlag>,<NoOfSignals>,  
{<Signal>,<SignalSelected>,<TotalValue>,<NoOfValues>,{Value,}} } } <Error>;

### Input Parameter List

Parameter	Type	Description
<Trace>	Enum	ACT      Actual value
		AVG      Averaged value
		MAX      Maximum value
		MAX_AVG    Maximum of the averaged values
		MIN      Minimum value
		MIN_AVG    Minimum of the averaged values
		STD      Values of the selected standard
		ALL      All traces

### Output Parameter List

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Short	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfCellIDs>	Short	>= 0
<CellID>	Short	0 ... 503
<NoOfAntennas>	Short	>= 1
<CellIDSelected>	Enum	YES, NO
<NoOfTraces>	Short	Number of traces
<Trace>	Enum	Available traces: ACT            Actual value AVG            Averaged value MAX            Maximum value MAX_AVG      Maximum of the averaged values MIN            Minimum value MIN_AVG      Minimum of the averaged values STD            Values of the selected standard
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<AnalogValue>	Float	Analog power [Unit]
<AnalogNoiseFlag>	Enum	State of the analog noise flag: UNCHECKED, LOW, OK
<NoOfSignals>	Short	1...9
<Signal>	Enum	PSS,SSS,RS_AVG,RS_SUM,RS_MAX, RS_0,RS_1,RS_2,RS_3
<SignalSelected>	Enum	YES, NO
<TotalValue>	Float	Total power [Unit] of selected cell ids
<NoOfValues>	Shorts	Number of values = NoOfCellIDs There is one value for each cell ID available.
<Value>	Float	Measured power for each cell ID and Signal [Unit]
<Error>	DWord	Error code

**Example**

---

<i>(Input)</i>	LTE_TDD? ACT;
<i>(Output)</i>	5,229,100,3, 335,2,YES, 334,2,YES, 333,2,YES, 1, ACT,YES,-62.13,UNCHECKED,9, PSS,YES,-72.78,3,-78.27,-74.23,-999.00, SSS,YES,-73.35,3,-79.88,-74.44,-999.00, RS_AVG,YES,-74.85,3,-80.51,-76.23,-999.00, RS_MAX,YES,-73.12,3,-78.10,-74.77,-999.00, RS_SUM,YES,-71.84,3,-77.50,-73.22,-999.00, RS_0,YES,-75.26,3,-78.10,-78.44,-999.00, RS_1,YES,-74.48,3,-86.37,-74.77,-999.00, RS_2,YES,-999.00,3,-999.00,-999.00,-999.00, RS_3,YES,-999.00,3,-999.00,-999.00,-999.00, 0;

---

**Example**

---

<i>(Input)</i>	LTE_TDD? ACT;
<i>(Output)</i>	5,235,100,3, 335,2,YES, 334,2,NO, 333,2,NO, 1, ACT,NO,-60.91,UNCHECKED,9, PSS,NO,-74.29,3,-74.29,-72.72,-999.00, SSS,NO,-75.50,3,-75.50,-73.19,-999.00, RS_AVG,YES,-77.68,3,-77.68,-75.45,-999.00, RS_MAX,NO,-76.82,3,-76.82,-74.78,-999.00, RS_SUM,NO,-74.67,3,-74.67,-72.44,-999.00, RS_0,NO,-76.82,3,-76.82,-76.25,-999.00, RS_1,NO,-78.76,3,-78.76,-74.78,-999.00, RS_2,NO,-999.00,3,-999.00,-999.00,-999.00, RS_3,NO,-999.00,3,-999.00,-999.00,-999.00, 0;

---

# LTE\_TDD\_AVG\_CONFIG

### Description

Sets the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

LTE\_TDD\_AVG\_CONFIG <AvgNumber>,<AvgTime>,<AvgPara>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

---

*(Input)* LTE\_TDD\_AVG\_CONFIG NUMBER,64,240;

---

*(Output)* 0;

---

### Example

---

*(Input)* LTE\_TDD\_AVG\_CONFIG TIME,4,180;

---

*(Output)* 0;

---

## LTE\_TDD\_AVG\_CONFIG?

### Description

Queries the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

LTE\_TDD\_AVG\_CONFIG?;

### Output

<AvgMode>,<AvgNumber>,<AvgTime>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

*(Input)* LTE\_TDD\_AVG\_CONFIG?;

*(Output)* TIME,4,120,0;

### Example

*(Input)* LTE\_TDD\_AVG\_CONFIG?;

*(Output)* NUMBER,256,180,0;;

# LTE\_TDD\_AVG\_LIST?

### Description

Queries the current possible averaging settings for LTE TDD mode.

The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

The output is a complete list of valid settings for this mode. <DisplayString> can be easily used in list boxes and ensures the same look and feel across Narda's analyzers. <Value> can be used in other commands to change the setting.

### Input

LTE\_TDD\_AVG\_LIST? <AvgMode>;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER: Average over a number of individual measurements TIME: Average over a time period (in seconds)
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Averaging parameter as string including the unit
<Value>	Float	Averaging parameter as a numerical value
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	LTE_TDD_AVG_LIST? TIME;
<i>(Output)</i>	30, "1 min",60, "2 min",120, "3 min",180, ... "28 min",1680, "29 min",1740, "30 min",1800, 0;

---



## LTE\_TDD\_CONFIG

### Description

Set the current measurement parameters for LTE TDD mode.  
LTE TDD must be selected as the current operating mode.

### Input

LTE\_TDD\_CONFIG  
<Fcent>, <CBW>, <CPLength>, <CellSync>, <UpDownLinkConfig>, <ExtrapolationMode>, <ExtrapolationFactor>, <RL>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<Cbw>	Double	Channel Bandwidth [Hz] 1.4e6, 3e6, 5e6, 10e6, 15e6, 20e6
<UpDownLinkConfig>	integer	0,1,2,3,4,5,6
<CPLength>	Enum	Cyclic Prefix Length: NORMAL, EXTENDED
<CellSync>	Enum	Cell Synchronization: SYNC, NO_SYNC
<ExtrapolationMode>	Enum	ON, OFF
<ExtrapolationFactor>	Float	1.0 to 10000.0
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

<i>(Input)</i>	LTE_TDD_CONFIG 806000000,1400000,0,NORMAL,SYNC,OFF,1.0,-10;
<i>(Output)</i>	0;

## LTE\_TDD\_CONFIG?

### Description

Query the current measurement parameters for LTE TDD mode.  
 LTE TDD must be selected as the current operating mode.

A list of all CBWs available can be queried with the RBW\_LIST? command.

### Input

LTE\_TDD\_CONFIG?;

### Output

<Fcent>,<CBW>,<UpDownLinkConfig>,<CPLength>,<CellSync>,<ExtrapolationMode>,<Extrapolation  
 Factor>,<RL>,  
 <Error>;

### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<Cbw>	Double	Channel Bandwidth [Hz] 1.4e6, 3e6, 5e6, 10e6, 15e6, 20e6
<UpDownLinkConfig>	integer	0,1,2,3,4,5,6
<CPLength>	Enum	Cyclic Prefix Length: NORMAL, EXTENDED
<CellSync>	Enum	Cell Synchronization: SYNC, NO_SYNC
<ExtrapolationMode>	Enum	ON, OFF
<ExtrapolationFactor>	Float	1.0 to 10000.0
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

<i>(Input)</i>	LTE_TDD_CONFIG?;
<i>(Output)</i>	806000000,1400000,0,NORMAL,SYNC,OFF,1.0,-10,0;

## LTE\_TDD\_RESET\_TABLE

### Description

Resets the table for LTE TDD results (Cell IDs).

### Input

LTE\_TDD\_RESET\_TABLE;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)*     LTE\_TDD\_RESET\_TABLE;

---

*(Output)*    0;

---

# MEAS\_START

### Description

Starts the cyclical measurement in the current operating mode.

A started measurement is recognized by a query, e.g. SPECTRUM? and observation of the SweepCounter, which increments when the measurement is started.

### Input

MEAS\_START;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	MEAS_START;
<i>(Output)</i>	0;

---

## MEAS\_STOP

### Description

Stops the cyclical measurement in the current operating mode.

A stopped measurement is recognized by a query, e.g. SPECTRUM? and observation of the SweepCounter, which stops incrementing when the measurement is stopped.

### Input

MEAS\_STOP;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)* MEAS\_STOP;

---

*(Output)* 0;

---

# MODE

### Description

Sets the current operating mode.

### Input

MODE <Mode>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Mode>	Enum	SPECTRUM SAFETY UMTS SCOPE LEVEL LTE LTE_TDD 5GNR
<Error>	DWord	Error code

### Example

---

*(Input)*      MODE SPECTRUM;

---

*(Output)*     0;

---

## MODE?

### Description

Queries the current operating mode.

### Input

MODE?;

### Output

<Mode>,<Error>,

### Parameter List

Parameter	Type	Description
<Mode>	Enum	SPECTRUM SAFETY UMTS SCOPE LEVEL LTE LTE_TDD 5GNR
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	MODE?;
<i>(Output)</i>	SPECTRUM,0;

---

### MR\_LIST?

#### Description

Queries the current possible reference level settings (measurement range).

The requested list reflects all the possible settings and guarantees consistency with the other device settings. The <DisplayString> parameter can be used directly in the application to produce the same appearance as in the device (e.g. in List boxes). The <Value> parameter is a numerical value, which can be transmitted to the device if required in order to produce the corresponding setting.

#### Input

MR\_LIST?;

#### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

#### Parameter List

Parameter	Type	Description
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Reference level (measurement range) and unit as string
<Value>	Float	Reference level as value [Unit]
<Error>	DWord	Error code

#### Example

---

*(Input)* MR\_LIST?;

---

*(Output)* 51,  
"67 dBmV",67,  
"66 dBmV",66,  
"65 dBmV",65,  
"64 dBmV",64,  
...  
...  
"19 dBmV",19,  
"18 dBmV",18,  
"17 dBmV",17,  
0;

---



## PROG\_EXIT

### Description

Ends the measurement program and switches the device to standby mode.

### Input

PROG\_EXIT;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)*      PROG\_EXIT;

---

*(Output)*     0;

---

# RBW\_LIST?

### Description

Queries the current possible RBW settings.

The requested list reflects all the possible settings and guarantees consistency with the other device settings. The <DisplayString> parameter can be used directly in the application to produce the same appearance as in the device (e.g. in List boxes). The <Value> parameter is a numerical value, which can be transmitted to the device if required in order to produce the corresponding setting.

### Input

RBW\_LIST?

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Resolution bandwidth RBW and unit as string
<Value>	Double	Resolution bandwidth RBW as value [Hz]
<Error>	DWord	Error code

### Example

---

*(Input)* RBW\_LIST?;

*(Output)* 13,  
"100 kHz",100000,  
"50 kHz",50000,  
"30 kHz",30000,  
"20 kHz",20000,  
"10 kHz",10000,  
"5 kHz",5000,  
"3 kHz",3000,  
"2 kHz",2000,  
"1 kHz",1000,  
"500 Hz",500,  
"300 Hz",300,  
"200 Hz",200,  
"100 Hz",100,  
0;

---

## REMOTE

### Description

Activates / deactivates remote communication with the SRM.  
 "REMOTE ON" is the condition required for utilizing remote access through all device interfaces.

### Note

Command also useable in "Remote OFF" mode

### Input:

REMOTE <Status>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Status>	Enum	ON = Enable remote operation mode OFF = Disable remote operation mode
<Error>	DWord	Error code

### Example

<i>(Input)</i>	REMOTE ON;
<i>(Output)</i>	0;

# REMOTE?

### Description

Checks communication with the SRM, and queries readiness for remote operation.  
“REMOTE ON” is the condition required for utilizing remote access through all device interfaces.

### Note

Command also useable in “Remote OFF” mode

### Input

REMOTE?;

### Output

<Status>,<Error>;

### Parameter List

Parameter	Type	Description
<Status>	Enum	ON = Remote operation mode is enabled OFF = Remote operation mode is disabled
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	REMOTE?;
<i>(Output)</i>	OFF, 0;

---

## RESULT\_TYPE\_RESET

### Description

Resets all measurement runs (traces) to default values as is done at the start of the measurement.

### Input

RESULT\_TYPE\_RESET;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)*      RESULT\_TYPE\_RESET;

---

*(Output)*     0;

---

# RESULT\_TYPE\_RESET\_MIN\_MAX

### Description

Resets the Min and Max measurement runs (traces) to default values as is done at the start of the measurement.

### Input

RESULT\_TYPE\_RESET\_MIN\_MAX;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	RESULT_TYPE_RESET_MIN_MAX;
<i>(Output)</i>	0;

---

## SAFETY?

### Description

Queries one or more measurement runs (traces) in SafetyEvaluation mode.

A measurement run is the number of all the measurement values determined during a measurement cycle (sweep).

SafetyEvaluation must be selected as the current operating mode.

Traces can only be queried when the device is in "Detailed" table view mode. "Condensed" table view mode is not supported in remote operation.

### Input

SAFETY?<Trace>;

### Output

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfSpatialAVG>,  
<Others>,<RBWMode>,<NoOfTraces>,  
<ActTrace>,<Overdriven>,<TotalValue>,<TotalNoiseFlag>,<OthersValue>,<OthersNoiseFlag>,  
<NoOfValues>,{<Value>,<NoiseFlag>,<ServName>,<RBW>,<Fmin>,<Fmax>}<Error>;

## Command Reference Guide

### Parameter List

Parameter	Type	Description
<Trace>	Enum	Sets the desired traces: ACT            Actual value AVG            Averaged value MAX            Maximum value MAX_AVG      Maximum of the averaged values MIN            Minimum value MIN_AVG      Minimum of the averaged values STD            Values of the selected standard ALL            All traces
<SweepCounter>	Integer	Number of sweeps performed, 0 – 999 999 Device setting changes will reset the counter to „0“.
<SweepTime>	Integer	Current sweep time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfSpatialAVG>	Integer	0 – 999 999 Number of sweeps used for spatial averaging
<Others>	Enum	ON     The power level of gaps between the channels is measured OFF   The power level of gaps between the channels is ignored
<RBWMode>	Enum	Channel (Service) dependent RBW settings:  MANUAL        All channels will be measured using the same RBW. AUTO            Each channel will be measured using a dedicated and automatically determined RBW setting. INDIVIDUAL    Each channel will be measured using a dedicated and manually defined RBW setting. Only available for <Others> = OFF
<NoOfTraces>	Short	Number of traces, 1 - 7
<ActTrace>	Enum	Actual trace ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG, STD
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<TotalValue>	Float	Total power level [Unit] for the frequency bands of all channels (services)
<TotalNoiseFlag>	Enum	Noise flag related to the total power of all channels: UNCHECKED    When Noise Suppression is OFF LOW            Result is below the reference noise level OK             Result is equal or above the reference noise level
<OthersValue>	Float	Power level [Unit] of the frequency gaps between the channels
<OthersNoiseFlag>	Enum	Nose flag related to the power level of the gaps (Others): UNCHECKED, LOW, OK            see above <TotalNoiseFlag>
<NoOfValues>	Integer	Number of measurement values per trace
<Value>	Float	Power level [Unit] of the channel (service)
<NoiseFlag>	Enum	Noise flag related to a specific channel (service): UNCHECKED    When Noise Suppression is OFF LOW            Result is below the reference noise level OK             Result is equal or above the reference noise level



<ServName>	String	Name of the channel (service)
<RBW>	Double	Resolution bandwidth [Hz] being used for this channel (service)
<Fmin>	Double	Lower frequency of the channel (service) [Hz]
<Fmax>	Double	Upper frequency of the channel (service) [Hz]
<Error>	DWord	Error code

**Example**

---

<i>(Input)</i>	SAFETY? ACT;
<i>(Output)</i>	354,94,9,0,1, ACT,NO,-42.41999,UNCHECKED,-48.10715,UNCHECKED,3, -47.87732,UNCHECKED,"SingTel 1 UMTS",1000000,2120100000,2125100000, -47.02259,UNCHECKED,"SingTel 2 UMTS",1000000,2130300000,2135300000, -52.46815,UNCHECKED,"3G UMTS",1000000,2144900000,2149900000, 0;

---

**Example**

---

<i>(Input)</i>	SAFETY? ALL;
<i>(Output)</i>	156,93,4,0,7, ACT,NO,-42.60004,UNCHECKED,-48.12361,UNCHECKED,3, -50.79613,UNCHECKED,"SingTel 1 UMTS",1000000,2120100000,2125100000, -48.24742,UNCHECKED,"SingTel 2 UMTS",1000000,2130300000,2135300000, -47.89064,UNCHECKED,"3G UMTS",1000000,2144900000,2149900000, AVG,NO,-42.69821,UNCHECKED,-47.3951,UNCHECKED,3, -51.24933,UNCHECKED,"SingTel 1 UMTS",1000000,2120100000,2125100000, -47.77434,UNCHECKED,"SingTel 2 UMTS",1000000,2130300000,2135300000, -49.46403,UNCHECKED,"3G UMTS",1000000,2144900000,2149900000, MAX,NO,-38.26744,UNCHECKED,-42.48764,UNCHECKED,3, -45.92987,UNCHECKED,"SingTel 1 UMTS",1000000,2120100000,2125100000, -39.6349,UNCHECKED,"SingTel 2 UMTS",1000000,2130300000,2135300000, -44.88027,UNCHECKED,"3G UMTS",1000000,2144900000,2149900000, MAX_AVG,NO,-42.69821,UNCHECKED,-47.3951,UNCHECKED,3, -51.24933,UNCHECKED,"SingTel 1 UMTS",1000000,2120100000,2125100000, -47.77434,UNCHECKED,"SingTel 2 UMTS",1000000,2130300000,2135300000, -49.46403,UNCHECKED,"3G UMTS",1000000,2144900000,2149900000, MIN,NO,-45.52749,UNCHECKED,-51.67709,UNCHECKED,3, -58.2221,UNCHECKED,"SingTel 1 UMTS",1000000,2120100000,2125100000, -58.28917,UNCHECKED,"SingTel 2 UMTS",1000000,2130300000,2135300000, -54.28674,UNCHECKED,"3G UMTS",1000000,2144900000,2149900000, MIN_AVG,NO,-42.69821,UNCHECKED,-47.3951,UNCHECKED,3, -51.24933,UNCHECKED,"SingTel 1 UMTS",1000000,2120100000,2125100000, -47.77434,UNCHECKED,"SingTel 2 UMTS",1000000,2130300000,2135300000, -49.46403,UNCHECKED,"3G UMTS",1000000,2144900000,2149900000, STD,NO,35.7066,UNCHECKED,35.7066,UNCHECKED,3, 35.7066,UNCHECKED,"SingTel 1 UMTS",1000000,2120100000,2125100000, 35.7066,UNCHECKED,"SingTel 2 UMTS",1000000,2130300000,2135300000, 35.7066,UNCHECKED,"3G UMTS",1000000,2144900000,2149900000, 0;

---

# SAFETY\_AVG\_CONFIG

### Description

Sets the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

SAFETY\_AVG\_CONFIG <AvgNumber>,<AvgTime>,<AvgPara>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

---

(Input) SAFETY\_AVG\_CONFIG NUMBER,64,240;  
(Output) 0;

---

### Example

---

(Input) SAFETY\_AVG\_CONFIG TIME,4,180;  
(Output) 0;

---

## SAFETY\_AVG\_CONFIG?

### Description

Queries the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

SAFETY\_AVG\_CONFIG?;

### Output

<AvgMode>,<AvgNumber>,<AvgTime>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

*(Input)* SAFETY\_AVG\_CONFIG?;

*(Output)* TIME,4,120,0;

### Example

*(Input)* SAFETY\_AVG\_CONFIG?;

*(Output)* NUMBER,256,180,0;

# SAFETY\_AVG\_LIST?

### Description

Queries the current possible averaging settings for SafetyEvaluation mode.

The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

The output is a complete list of valid settings for this mode. <DisplayString> can be easily used in list boxes and ensures the same look and feel across Narda's analyzers. <Value> can be used in other commands to change the setting.

### Input

SAFETY\_AVG\_LIST? <AvgMode>;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER: Average over a number of individual measurements TIME: Average over a time period (in seconds)
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Averaging parameter as string including the unit
<Value>	Float	Averaging parameter as a numerical value
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	SAFETY_AVG_LIST? TIME;
<i>(Output)</i>	30, "1 min",60, "2 min",120, "3 min",180, ... "28 min",1680, "29 min",1740, "30 min",1800, 0;

---

## SAFETY\_CONFIG

### Description

Sets the current measurement parameters for SafetyEvaluation mode. SafetyEvaluation must be selected as the current operating mode.

### Input

SAFETY\_CONFIG? <Others>,<RBWMode>,<RBW>,<RL>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Others>	Enum	ON The power level of gaps between the channels is measured OFF The power level of gaps between the channels is ignored
<RBWMode>	Enum	Channel (Service) dependent RBW settings:  MANUAL All channels will be measured using the same RBW. AUTO Each channel will be measured using a dedicated and automatically determined RBW setting. INDIVIDUAL Each channel will be measured using a dedicated and manually defined RBW setting. Only available for <Others> = OFF
<RBW>	Double	Resolution bandwidth [Hz]
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

<i>(Input)</i>	SAFETY_CONFIG OFF,INDIVIDUAL,1000000,-32;
<i>(Output)</i>	0;

## SAFETY\_CONFIG?

### Description

Queries the current measurement parameters for SafetyEvaluation mode. SafetyEvaluation must be selected as the current operating mode.

### Input

SAFETY\_CONFIG?;

### Output

<Others>,<RBWMode>,<RBW>,<RL>,<Error>;

### Parameter List

Parameter	Type	Description
<Others>	Enum	ON The power level of gaps between the channels is measured OFF The power level of gaps between the channels is ignored
<RBWMode>	Enum	Channel (Service) dependent RBW settings:  MANUAL All channels will be measured using the same RBW. AUTO Each channel will be measured using a dedicated and automatically determined RBW setting.  INDIVIDUAL Each channel will be measured using a dedicated and manually defined RBW setting. Only available for <Others> = OFF
<RBW>	Double	Resolution bandwidth [Hz]
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	SAFETY_CONFIG?;
<i>(Output)</i>	OFF,INDIVIDUAL,1000000,-64,0;

---

### Example

---

<i>(Input)</i>	SAFETY_CONFIG?;
<i>(Output)</i>	OFF,MANUAL,300000,-64,0;

---

## SCR\_CLR

### Description

Deletes a selected screenshot.

### Input

SCR\_CLR <Index>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Index>	Integer	Index of the screen shot
<Error>	DWord	Error code

### Example

---

*(Input)* SCR\_CLR 3;

---

*(Output)* 0;

---

## SCR\_CLR\_ALL

### Description

Deletes all screenshots.

### Input

SCR\_CLR\_ALL;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	SCR_CLR_ALL;
<i>(Output)</i>	0;

---



## SCR\_DATA?

### Description

Queries a selected screenshot.

Individual values are themselves represented by binary numbers in the range 0-255 (0x00 – 0xFF). The values are transmitted in ASCII-HEX.

Example: the value 0x89 is transmitted as '8' '9', and the associated HEX representation is 0x38 0x39.

The complete and consistent quantity of all values can be converted back into binary data so that the device display can be shown straightaway on a monitor as a PNG file.

### Input

SCR\_DATA? <Index>,<BlockSize>;

### Output

<NumberOfBytes>,<BinaryValue>,<Error>;

### Parameter List

Parameter	Type	Description
<Index>	Integer	Index of the screen shot
<BlockSize>	Long	Number of characters per line (block-wise transfer) 0 no vertical format 64 64 characters per line up to 65533 characters per line
<NumberOfBytes>	Long	Number of binary bytes (before conversion to HEX)
<BinaryValue>	ASCII HEX	Binary bytes as HEX strings
<Error>	DWord	Error code

### Example

<i>(Input)</i>	SCR_DATA? 1,32;
<i>(Output)</i>	18285, 89504E470D0A1A0A0000000D49484452000002CA000001B40802000000A43496 3B000000017352474200AECE1CE90000000467414D410000B18F0BFC61050000 00206348524D00007A26000080840000FA00000080E8000075300000EA600000 3A98000017709CBA513C0000000C744558745469746C65005341464554595252 ... ... EB99D116498A133B2140CBB06B197E2D232F76AAD15D7CA157F8ADE8059EF39B 23BB14EA3E7ED03216149EBB259017FB54E83E9ED02BDC15F24A879117FB94EA 2E9ED0325656A097B59017BBD4E74E7ED02BBCD4EF237EFE7F76BE96C1EBBD14 A20000000049454E44AE426082 ,0;

### SCR\_INFO?

#### Description

Queries the additional information for a screenshot.

#### Input

SCR\_INFO? <Index>;

#### Output

<Type>,<Date>,<Time>,<TextComment>,<Error>;

#### Parameter List

Parameter	Type	Description
<Index>	Integer	Index of the screen shot
<Type>	Enum	SPECTRUM, SAFETY, UMTS, SCOPE, LEVEL; LTE, 5GNR
<Date>	Date	dd.mm.yy
<Time>	Time	hh:mm:ss
<TextComment>	String	Text comment up to 40 characters
<Error>	DWord	Error code

#### Example

---

*(Input)* SCR\_INFO? 7;

---

*(Output)* SAFETY,05.05.10,16:29:19,"MY\_SCREEN",0;

---

## SCR\_NUMBER?

### Description

Queries the number of existing screenshots.

### Input

SCR\_NUMBER?;

### Output

<NoOfScreenShots>,<Error>;

### Parameter List

Parameter	Type	Description
<NoOfScreenShots>	Integer	Number of screen shots available
<Error>	DWord	Error code

### Example

---

*(Input)* SCR\_NUMBER?;

---

*(Output)* 6,0;

---

# SEND\_KEY

### Description

Activates an operating panel key by remote communication.

### Note

Command also useable in "Remote OFF" mode

### Input

SEND\_KEY <Key>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Key>	Enum	HSK1 horizontal soft key 1, (HSK1 ... HSK6, from left to right) VSK1 vertical soft key 1, (VSK1 ... VSK6, top down) 0 number key 0, (keys 0 ...9) DOT decimal point MENU function key MENU OK function key OK ESC function key ESC SAVE function key SAVE HOLD function key HOLD LEFT arrow key < RIGHT arrow key > ON_OFF function key ON/OFF
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	SEND_KEY HSK1;
<i>(Output)</i>	0;

---

## SEND\_ROT\_KNOB

### Description

Activates the operating panel rotary control by remote communication.

### Note

Command also useable in “Remote OFF” mode

### Input

SEND\_ROT\_KNOB <Steps>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Steps>	Integer	Counter-clockwise rotation decrements (-1 to -20) or clockwise rotation increments (1 to 20)
<Error>	DWord	Error code

### Example

---

*(Input)* SEND\_ROT\_KNOB -5;

---

*(Output)* 0;

---

## SPECTRUM?

### Description

Queries one or more measurement runs (traces) in Spectrum mode.

A measurement run is the number of all the measurement values determined during a measurement cycle (sweep). Spectrum must be selected as the current operating mode.

### Input

SPECTRUM? <ResultType>;

### Output

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfSpatialAVG>,<Fmin>,<df>,<NoOfTraces>,<ActTrace>,<Overdriven>,<NoOfValues>,{<Value>},<Error>;

### Parameter List

Parameter	Type	Description
<ResultType>	Enum	Sets the desired traces: ACT            Actual value AVG            Averaged value MAX            Maximum value MAX_AVG       Maximum of the averaged values MIN            Minimum value MIN_AVG       Minimum of the averaged values STD            Values of the selected standard ALL            All traces
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Integer	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfSpatialAVG>	Long	0 – 999 999 Number of sweeps used for spatial averaging
<Fmin>	Double	Lower limit of the frequency range $F_{min}$ [Hz]
<df>	Double	Frequency steps (resolution) of the FFT [Hz]
<NoOfTraces>	Short	Number of traces, 1 - 7
<ActTrace>	Enum	Actual trace ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG, STD
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<NoOfValues>	Long	Number of measurement values per trace
<Value>	Float	Measurement value [Unit]
<Error>	DWord	Error code

**Example**

<i>(Input)</i>	SPECTRUM? ACT;
<i>(Output)</i>	397,27,100,0,993282300,52083.3333333,1, ACT,NO,21, -12.26127,-12.55294,-11.70693,-11.97045,-15.70837,-18.4338,-16.36422,-14.76947, -15.36936,-14.26438,-14.78028,-16.47095,-15.76123,-12.88897,-11.72068,-12.01601, -12.81733,-14.22661,-17.17279,-21.76791,-20.13429, 0;

**Example**

<i>(Input)</i>	SPECTRUM? ALL;
<i>(Output)</i>	115135,27,100,0,993282300,52083.3333333,7, ACT,NO,21, -13.20182,-13.39848,-17.17939,-19.34015,-18.08957,-15.61152,-14.93359,-17.82348, -19.91091,-18.09704,-14.42183,-14.93719,-17.56845,-16.17051,-17.81393,-17.1953, -17.31879,-14.8161,-16.23782,-18.70436,-19.43349, AVG,NO,21, -13.90337,-14.44005,-16.22732,-16.79163,-16.14999,-15.74472,-15.59394,-15.67954, -15.04876,-14.79186,-14.62804,-14.70216,-14.29844,-14.4878,-15.00878,-14.41671, -13.81039,-13.36284,-14.43957,-15.6391,-14.51957, MAX,NO,21, -6.102077,-5.895302,-4.961206,-5.150215,-5.674419,-6.256855,-5.717896,-5.847387, -5.598824,-6.680408,-6.045147,-5.374336,-4.285889,-3.144196,-5.574543,-6.559776, -6.257206,-6.219421,-4.877405,-6.034376,-6.011984, MAX_AVG,NO,21, -10.16473,-10.13559,-9.29932,-9.473587,-10.13955,-10.29768,-10.26222,-10.16678, -9.625584,-10.19563,-10.42009,-9.821373,-9.166531,-8.363728,-10.20413,-10.16017, -10.54428,-10.27439,-9.533039,-10.39424,-10.13087, MIN,NO,21, -32.93164,-33.26875,-34.99539,-33.88091,-32.05632,-33.11393,-34.37167,-32.94244, -34.86029,-32.68809,-33.97449,-32.60259,-31.73704,-33.94342,-31.77832,-33.40907, -35.1548,-36.55762,-39.29204,-32.71515,-34.26093, MIN_AVG,NO,21, -18.35072,-18.42081,-18.35322,-19.2639,-18.71375,-18.40811,-18.76067,-18.79287, -18.45266,-18.28624,-18.62754,-18.76075,-18.57296,-18.57253,-18.87147,-18.80415, -19.10171,-19.39378,-19.08729,-18.76574,-19.30312, STD,NO,21, 33.7421,33.74228,33.74246,33.74264,33.74282,33.743,33.74318,33.74336,33.74354, 33.74372,33.7439,33.74408,33.74426,33.74444,33.74463,33.7448,33.74499,33.74517, 33.74535,33.74553,33.74571, 0;

# SPECTRUM\_AVG\_CONFIG

### Description

Sets the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

```
SPECTRUM_AVG_CONFIG <AvgMode>,<AvgNumber>,< AvgTime >;
```

### Output

```
<Error>;
```

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

---

```
(Input) SPECTRUM_AVG_CONFIG NUMBER,64,240;  
(Output) 0;
```

---

### Example

---

```
(Input) SPECTRUM_AVG_CONFIG TIME,4,180;  
(Output) 0;
```

---



## SPECTRUM\_AVG\_CONFIG?

### Description

Queries the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

SPECTRUM\_AVG\_CONFIG?;

### Output

<AvgMode>,<AvgNumber>,<AvgTime>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

*(Input)* SPECTRUM\_AVG\_CONFIG?;

*(Output)* TIME,4,120,0;

### Example

*(Input)* SPECTRUM\_AVG\_CONFIG?;

*(Output)* NUMBER,256,180,0;

# SPECTRUM\_AVG\_LIST?

### Description

Queries the current possible averaging settings for Spectrum mode.

The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

The output is a complete list of valid settings for this mode. <DisplayString> can be easily used in list boxes and ensures the same look and feel across Narda's analyzers. <Value> can be used in other commands to change the setting.

### Input

SPECTRUM\_AVG\_LIST? <AvgMode>;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER: Average over a number of individual measurements TIME: Average over a time period (in seconds)
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Averaging parameter as string including the unit
<Value>	Float	Averaging parameter as a numerical value
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	SPECTRUM_AVG_LIST? TIME;
<i>(Output)</i>	30, "1 min",60, "2 min",120, "3 min",180, ... "28 min",1680, "29 min",1740, "30 min",1800, 0;

---

## SPECTRUM\_BI\_VALUE?

### Description

Band Integration over Frequency. This command is only available in Spectrum mode. The spectral power level is integrated over a selected frequency band.

The following conditions apply:

- The band limits must lie within the range Fmin to Fmax of the current measurement setting
- Bandwidth  $\Delta f \geq 4 \cdot \text{RBW}$ ,  
 $\Delta f = F_{\text{High}} - F_{\text{Low}}$ , RBW according to the current measurement setting

### Input

SPECTRUM\_BI\_VALUE? <FLow>,<FHigh>,<Trace>;

### Output

<SumValue>,<Error>;

### Parameter List

Parameter	Type	Description
<FLow>	Double	Lower limit of the frequency band [Hz] Number representations: 1001000, 1.001e6
<FHigh>	Double	Upper limit of the frequency band [Hz]
<Trace>	Enum	Trace selected for integration Valid values list: ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG
<SumValue>	Float	Total power within the frequency band
<Error>	DWord	Error code

### Example

(Input) SPECTRUM\_BI\_VALUE? 1e6,10e6,act;

(Output) -85.08733,0;

# SPECTRUM\_CONFIG

### Description

Sets the current measurement parameters for Spectrum mode. Spectrum must be selected as the current operating mode.

### Input

SPECTRUM\_CONFIG <Fcent>,<Fspan>,<RBW>,<VBWMode>,<VBW>,<RL>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<Fspan>	Double	Frequency span [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<VBWMode>	Enum	Video filter: ON, OFF;
<VBW>	Double	Video bandwidth [Hz]
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	SPECTRUM_CONFIG 1252500000,500000,50000,OFF,500,46;
<i>(Output)</i>	0;

---

## SPECTRUM\_CONFIG?

### Description

Queries the current measurement parameters for Spectrum mode. Spectrum must be selected as the current operating mode.

### Input

SPECTRUM\_CONFIG?;

### Output

<Fcent>,<Fspan>,<RBW>,<VBWMode>,<VBW>,<RL>,<Error>;

### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<Fspan>	Double	Frequency span [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<VBWMode>	Enum	Video filter: ON, OFF;
<VBW>	Double	Video bandwidth [Hz]
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

*(Input)* SPECTRUM\_CONFIG?;

*(Output)* 1252500000,1000000,50000,OFF,500,46,0;

# SPECTRUM\_MRK\_HIGHEST?

### Description

Queries the marker values for the highest measurement value.  
This command is only available in Spectrum mode.

### Input

SPECTRUM\_MRK\_HIGHEST? <Trace>;

### Output

<Frequency>,<Value>,<Error>;

### Parameter List

Parameter	Type	Description
<Trace>	Enum	ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG
<Frequency>	Double	Marker frequency [Hz]
<Value>	Float	Marker value [Unit]

### Example

---

<i>(Input)</i>	SPECTRUM_MRK_HIGHEST? ACT;
<i>(Output)</i>	995992204.549,-111.2536,0;

---

## SPECTRUM\_MRK\_IDX\_VALUE?

### Description

Queries the marker values for a selected marker.  
This command is only available in Spectrum mode.

The marker is selected by means of an index. The index describes a BIN (single measured value) in the spectrum. Up to 27,517 BINs may be present depending on the current measurement settings. The actual number of BINs can be determined using the <No. Of Values> parameter in the SPECTRUM? query.

### Input

SPECTRUM\_MRK\_IDX\_VALUE? <Index>,<Trace>;

### Output

<Frequency>,<Value>,<Error>;

### Parameter List

Parameter	Type	Description
<Index>	Long	Index of the marker
<Trace>	Enum	ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG
<Frequency>	Double	Marker frequency [Hz]
<Value>	Float	Marker value [Unit]

### Example

*(Input)* SPECTRUM\_MRK\_IDX\_VALUE? 3,ACT;

*(Output)* 994782300,-122.0921,0;

# SPECTRUM\_MRK\_VALUE?

### Description

Queries the marker values for a specified frequency point.  
This command is only available in Spectrum mode.

The discrete resolution of the spectrum means that the marker closest to the specified frequency point will be selected.

### Input

SPECTRUM\_MRK\_VALUE? <FrequencySet>,<Trace>;

### Output

<FrequencyGet>,<Value>,<Error>;

### Parameter List

Parameter	Type	Description
<FrequencySet>	Double	Desired frequency [Hz]
<Trace>	Enum	ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG
<FrequencyGet>	Double	Real marker frequency [Hz]
<Value>	Float	Marker value [Unit]

### Example

<i>(Input)</i>	SPECTRUM_MRK_VALUE? 1e9,ACT;
<i>(Output)</i>	999782300,-113.31,0;



## SPECTRUM\_PEAK\_TABLE?

### Description

Queries a configurable peak table.  
This command is only available in Spectrum mode.

### Input

SPECTRUM\_PEAK\_TABLE?  
<NoOfPeaksSet>,<Trace>,<EvaluatePeakThreshold>,<PeakThreshold>;

### Output

<NoOfPeaksGet>,{<Frequency>,<Value>,<Error>;

### Parameter List

Parameter	Type	Description
<NoOfPeaksSet>	Enum	Sets the maximum number of peaks for the peak table. 1 - 50 peaks
<Trace>	Enum	ACT, AVG, MAX, MAX_AVG, MIN, MIN_AVG
<EvaluatePeakThreshold>	Enum	ON, OFF
<PeakThreshold>	Float	Signal threshold for peak recognition default: 0 [Unit] for linear units default: -200 [Unit] for logarithmic units
<NoOfPeaksGet>	Short	Number of recognized peaks
<Frequency>	Double	Frequency of a peak [Hz]
<Value>	Float	Level of a peak [Unit]
<Error>	DWord	Error code

### Example

<i>(Input)</i>	SPECTRUM_PEAK_TABLE? 20,ACT,ON,-80;
<i>(Output)</i>	2, 999867304.766,-65.08998, 1000000008.11,-76.60297, 0;

# SRV\_CLR

### Description

Deletes a service table.

### Input

SRV\_CLR <ServTabLong>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
< ServTabLong >	String	Long Name of the channel (service) table, up to 35 chr
<Error>	DWord	Error code

### Example

---

*(Input)* SRV\_CLR "China\_Overview";

---

*(Output)* 0;

---

## SRV\_CLR\_ALL

### Description

Deletes all service tables.

### Input

SRV\_CLR\_ALL;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)* SRV\_CLR\_ALL;

---

*(Output)* 0;

---

### SRV\_DS

#### Description

Creates a service table.

#### Input

```
SRV_DS <ServTabShort>,<ServTabLong>,  
<NoOfServices>,{<Flow>,<Fhigh>,<RBW>,<ServName>};
```

#### Output

```
<Error>;
```

#### Parameter List

Parameter	Type	Description
<ServTabShort>	String	Short Name of the channel (service) table, up to 15 chr
<ServTabLong>	String	Long Name of the channel (service) table, up to 35 chr
<NoOfServices>	Short	Number of channels (services), 1 - 500
<Flow>	Double	Lower frequency limit of the channel (service), [Hz]
<Fhigh>	Double	Upper frequency limit of the channel (service), [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<ServName>	String	Name of the channel (service) , up to 15 chr
<Error>	DWord	Error code

#### Example

---

```
(Input)    SRV_DS "my_shortname","my_longname",2,1e5,1e6,1e4,"SrvA",2e5,2e6,2e4,"SrvB";  
(Output)  0;
```

---

## SRV\_DS?

### Description

Queries a service table.

### Input

SRV\_DS? <ServTabLongReq>;

### Output

<ServTabShort>,<ServTabLong>,  
<NoOfServices>,{<Flow>,<Fhigh>,<RBW>,<ServName>,<Error>;

### Parameter List

Parameter	Type	Description
<ServTabLongReq>	String	Requested Long Name of the channel (service) table, up to 35 chr
<ServTabShort>	String	Short Name of the channel (service) table, up to 15 chr
<ServTabLong>	String	Long Name of the channel (service) table, up to 35 chr
<NoOfServices>	Short	Number of channels (services), 1 - 500
<Flow>	Double	Lower frequency limit of the channel (service), [Hz]
<Fhigh>	Double	Upper frequency limit of the channel (service), [Hz]
<RBW>	Double	Resolution bandwidth [Hz]
<ServName>	String	Name of the channel (service) , up to 15 chr
<Error>	DWord	Error code

### Example

---

```
(Input)  SRV_DS? "China_Overview";
(Output) "China Over. ","China_Overview",
17,
87500000,108000000,200000,"FM Radio",
167000000,208000000,1000000,"TV Band IIIa",
208000000,215000000,1000000,"DAB",
215000000,223000000,1000000,"TV Band IIIb",
470000000,566000000,1000000,"TV Band IV",
606000000,790000000,1000000,"TV Band V",
790000000,798000000,1000000,"DVB-T",
825000000,835000000,2000000,"CDMA UL",
870000000,880000000,2000000,"CDMA DL",
885000000,890000000,1000000,"EGSM 900 OL",
890000000,915000000,500000,"GSM 900 OL",
930000000,935000000,500000,"EGSM 900 GL",
935000000,960000000,500000,"GSM 900 GL",
1710500000,1780100000,500000,"GSM 1800 OL",
1805000000,1875100000,500000,"GSM 1800 DL",
1880000000,1900000000,1000000,"DECT",
2010000000,2025000000,1000000,"TD-SCDMA",
0;
```

---

### SRV\_LIST?

#### Description

Queries all service tables without details.

#### Input

SRV\_LIST?;

#### Output

<NoOfServTab>,{<ServTabLong>,<Error>;

#### Parameter List

Parameter	Type	Description
<NoOfServTab>	Short	Total number of channel (service) tables available
<ServTabLong>	String	Long Name of the channel (service) table, up to 35 chr
<Error>	DWord	Error code

#### Example

---

*(Input)* SRV\_LIST?;

---

*(Output)* 29,  
"Germany GSM1800",  
"Ex.Cellular GSM 850+1900",  
"Ex.DECT Channels",  
"Germany Channels GSM-900 Downlink",  
"Ex.Digital Cordless Phones Overview",  
"Ex. Airport Radar",  
"Germany Ex. FM Radio Narda Pful.",  
"Ex.TETRA",  
"Germany UMTS",  
"Europe Full Band",  
"Germany alle Funkdienste",  
"Europe GSM 900+1800+UMTS",  
"Ex.ISM Band 2.4 GHz",  
"Japan+Korea Mobile Phone Services ",  
"Germany Mobilfunkbetreiber",  
"Germany Broadcast Overview ",  
"China\_Overview",  
"Swisscom",  
"Europe UMTS W-CDMA 3GPP/FDD",  
"USA FCC Frequencies",  
"Ex.WLAN 2.4 GHz",  
"Österreich Funkdienste",  
"Österreich UMTS",  
"Österreich GSM-900",  
"Österreich GSM-1800",  
"EN50492:2008\_Annex\_A\_no\_PMR+A.Radio",  
"GSM 900+1800+UMTS Europe",  
"Singapore UMTS Downlink",  
"my\_longname",  
0;

---

## SRV\_SEL

### Description

Sets the current active service table.

### Input

SRV\_SEL <ServTabLong>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<ServTabLong>	String	Long Name of the channel (service) table, up to 35 chr
<Error>	DWord	Error code

### Example

---

*(Input)* SRV\_SEL "my\_longname";

---

*(Output)* 0;

---

### SRV\_SEL?

#### Description

Queries the current active service table.

#### Input

SRV\_SEL?;

#### Output

<ServTabLong>,<ServTabShort>,<Error>;

#### Parameter List

Parameter	Type	Description
<ServTabLong>	String	Long Name of the channel (service) table, up to 35 chr
<ServTabShort>	String	Short Name of the channel (service) table, up to 15 chr
<Error>	DWord	Error code

#### Example

---

*(Input)* SRV\_SEL?;

---

*(Output)* "Germany GSM1800","Ger.GSM1800",0;

---



## SU\_CLR

### Description

Deletes a selected device setup.

### Input

SU\_CLR <SetupName>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<SetupName>	String	Name of the Setup, up to 35 chr
<Error>	DWord	Error code

### Example

---

*(Input)* SU\_CLR "aaa";

---

*(Output)* 0;

---

# SU\_CLR\_ALL

### Description

Deletes all device setups.

### Input

SU\_CLR\_ALL;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)* SU\_CLR\_ALL;

---

*(Output)* 0;

---

## SU\_DEFAULT

### Description

Resets the device to the default (works) settings. This affects all parameters that can be changed by a device setup. This command is useful for setting the device to a defined state.

### Input

```
SU_DEFAULT;
```

### Output

```
<Error>;
```

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

```
(Input) SU_DEFAULT;
```

```
(Output) 0;
```

# SU\_DS

### Description

Transfers a setup file to the device.

Setup files cannot be created or modified manually. They are always created by completely saving the current device settings on the device itself (SU\_SAVE). For this reason, the contents of a setup file are not described in detail.

### Input

SU\_DS <SetupAsIniFile>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<SetupAsIniFile>	String	Content of a device setup formatted as an Ini-File
<Error>	DWord	Error code

### Example

---

```
(Input)  SU_DS
         [Info]
         LName="MySetup"
         MeasMode=SAFETY

         [Common]
         MeasMode=SAFETY
         AxisMode=3CH_ISO_AUTO
         ...
         ...
         ...
         LastPTSrvTbl=""
         LastPTService=""
         ;
```

---

```
(Output) 0;
```

---

## SU\_DS?

### Description

Reads a setup file out of the device.

Setup files cannot be created or modified manually. They are always created by completely saving the current device settings on the device itself (SU\_SAVE). For this reason, the contents of a setup file are not described in detail.

### Input

SU\_DS <SetupName>;

### Output

<SetupAsIniFile>,<Error>;

### Parameter List

Parameter	Type	Description
<SetupName>	String	Name of the Setup, up to 35 chr
<SetupAsIniFile>	String	Content of a device setup formatted as an Ini-File
<Error>	DWord	Error code

### Example

---

```

(Input)  SU_DS? "MySetup";
(Output) [Info]
         LName="MySetup"
         MeasMode=SAFETY

         [Common]
         MeasMode=SAFETY
         AxisMode=3CH_ISO_AUTO
         ...
         ...
         ...
         LastPTSrvTbl=""
         LastPTService=""
         ,0;
    
```

---

### SU\_LIST?

#### Description

Lists the names of the setups stored in the device.

#### Input

SU\_LIST?;

#### Output

<NoOfSetups>,{<SetupName>,<Error>;

#### Parameter List

Parameter	Type	Description
<NoOfSetups>	Short	Number of setups available
<SetupName>	String	Name of the Setup, up to 35 chr
<Error>	DWord	Error code

#### Example

---

*(Input)* SU\_LIST?;

---

*(Output)* 18,  
"EU\_OVERVIEW",  
"EU\_MOBILE\_OVERVIEW\_SENSITIVE",  
"EU\_UMTS\_SENSITIVE",  
"DECT\_OVERVIEW\_SENSITIVE",  
"DECT\_CHANNELS\_SENSITIVE",  
"GERM\_OVERVIEW\_SENSITIVE",  
"GERM\_OVER.BROADCAST\_SENSITIVE",  
"GERM\_FM-RADIO\_SENSITIVE",  
"GERM\_MOBILE\_OVERVIEW\_SENSITIVE",  
"GERM\_MOBILE\_GSM-900\_SENSITIVE",  
"GERM\_MOBILE\_GSM-1800\_SENSITIVE",  
"GERM\_MOBILE\_UMTS\_SENSITIVE",  
"savg\_discret\_fehler",  
"3\*28\_bins",  
"27KBins\_7Traces\_mW/cm2",  
"123",  
"Test",  
"MySetup",  
0;

---

## SU\_RECALL

### Description

Activates a selected device setup.

### Input

SU\_RECALL <SetupName>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<SetupName>	String	Name of the Setup, up to 35 chr
<Error>	DWord	Error code

### Example

---

*(Input)* SU\_RECALL "3\*28\_bins";

---

*(Output)* 0;

---

# SU\_STORE

### Description

Saves the current device settings as a new setup in the device. A name that has not been used yet must be specified as the setup name.

### Input

SU\_STORE <SetupName>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<SetupName>	String	Name of the Setup, up to 35 chr
<Error>	DWord	Error code

### Example

---

*(Input)* SU\_STORE "MyNewSetup";

---

*(Output)* 0;

---



## SWEEP\_STATE?

### Description

Queries the status and progress of the current measurement.

The <SweepCounter> can be used to detect the start of a new measurement so that the measured values can be fetched only when required.

### Input

SWEEP\_STATE?;

### Output

<SweepCounter>,<SweepTime>,<SweepProgress>,<AVGProgress>,<Error>;

### Parameter List

Parameter	Type	Description
<SweepCounter>	Long	Number of sweeps performed
<SweepTime>	Short	Sweep Time [ms]
<SweepProgress>	Short	0 – 100 [%] Progress of the current sweep
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<Error>	DWord	Error code

### Example

*(Input)* SWEEP\_STATE?;

*(Output)* 28,316,100,100,0;

# TIME

### Description

Sets the current system time of the device.

### Input

TIME,<Time>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Time>	Time	hh:mm:ss
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	TIME 15:16:17;
<i>(Output)</i>	0;

---

## TIME?

### Description

Queries the current system time of the device.

### Input

TIME?;

### Output

<Time>,<Error>;

### Parameter List

Parameter	Type	Description
<Time>	Time	hh:mm:ss
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	TIME?;
<i>(Output)</i>	14:29:58,0;,0;

---

## UMTS?

### Description

Queries the different measurement runs (traces) that are available in UMTS mode. UMTS must be selected as the current operating mode.

### Input

UMTS? <Trace>;

### Output

<SweepCounter>,<SweepTime>,<AVGProgress>,<NoOfTraces>,  
<Trace>,<Overdriven>,<Total>,<Analog>,<AnalogNoiseFlag>,<NoOfValues>,  
{<UMTSCode>,<UMTSValue>,<UMTSselected>}<Error>;

### Parameter List

Parameter	Type	Description
<Trace>	Enum	ACT Actual value AVG Averaged value MAX Maximum value MAX_AVG Maximum of the averaged values MIN Minimum value MIN_AVG Minimum of the averaged values STD Values of the selected standard ALL All traces
<SweepCounter>	Integer	Number of sweeps performed
<SweepTime>	Integer	Sweep Time [ms]
<AVGProgress>	Short	0 – 100 [%] Progress of averaging
<NoOfTraces>	Short	Number of traces, 1 - 7
<Overdriven>	Enum	YES, NO; Yes, if at least one trace exceeded the range limit. Overdriven results may have a very high uncertainty.
<Total>	Float	Total power [Unit]
<Analog>	Float	Analog power [Unit]
<AnalogNoiseFlag>		State of the analog noise flag: UNCHECKED, LOW, OK
<NoOfValues>	Float	Number of values (UMTS codes)
<UMTS Code>	Short	UMTS code no., 0 – 511
<UMTS Value>	Float	Measured power for the current UMTS code [Unit]
<UMTS selected>	Enum	YES, NO
<Error>	DWord	Error code

**Example**

---

*(Input)* UMTS? ACT;  


---

*(Output)* 463,317,100,1,  
 ACT,NO,-84.3169,-76.30199,UNCHECKED,3,  
 501,-85.56746,YES,339,-90.33401,YES,34,-999,YES,  
 0;

---

**Example**

---

*(Input)* UMTS? ALL;  


---

*(Output)* 5464,298,100,6,  
 ACT,NO,-82.21515,-75.25188,UNCHECKED,3,  
 501,-84.02314,YES,339,-86.89369,YES,34,-999,YES,  
 AVG,NO,-81.76675,-75.49768,UNCHECKED,3,  
 501,-83.41101,YES,339,-86.78113,YES,34,-999,YES,  
 MAX,NO,-78.92064,-73.53566,UNCHECKED,3,  
 501,-80.36949,YES,339,-81.35152,YES,34,-91.19492,YES,  
 MAX\_AVG,NO,-80.20639,-74.44344,UNCHECKED,3,  
 501,-81.13689,YES,339,-82.75244,YES,34,-92.78497,YES,  
 MIN,NO,-92.3705,-79.78996,UNCHECKED,3,  
 501,-999,YES,339,-999,YES,34,-999,YES,  
 MIN\_AVG,NO,-89.87545,-79.07832,UNCHECKED,3,  
 501,-92.40841,YES,339,-209.7096,YES,34,-999,YES,  
 0;

---

# UMTS\_AVG\_CONFIG

### Description

Sets the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

```
UMTS_AVG_CONFIG <AvgNumber>,<AvgTime>,<AvgPara>;
```

### Output

```
<Error>;
```

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

---

```
(Input)  UMTS_AVG_CONFIG NUMBER,64,240;  
(Output) 0;
```

---

### Example

---

```
(Input)  UMTS_AVG_CONFIG TIME,4,180;  
(Output) 0;
```

---

## UMTS\_AVG\_CONFIG?

### Description

Queries the current averaging method.  
The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

There is one setting parameter for each method, which is selected from a basic set of values.

### Input

UMTS\_AVG\_CONFIG?;

### Output

<AvgMode>,<AvgNumber>,<AvgTime>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER TIME
<AvgNumber>	Integer	Number of averaging samples: 4, 8, 16, 32, 64, 128, 256
<AvgTime>	Integer	Time [s]: 60, 120, 180, 240, 300, 360, 420, 480, 540, 600, 660, 720, 780, 840, 900, 960, 1020, 1080, 1140, 1200, 1260, 1320, 1380, 1440, 1500, 1560, 1620, 1680, 1740, 1800
<Error>	DWord	Error code

### Example

*(Input)* UMTS\_AVG\_CONFIG?;

*(Output)* TIME,4,120,0;

### Example

*(Input)* UMTS\_AVG\_CONFIG?;

*(Output)* NUMBER,256,180,0;

# UMTS\_AVG\_LIST?

### Description

Queries the current possible averaging settings for UMTS mode.

The device has 2 averaging methods:

- Average over a number of individual measurements (Number)
- Average over a time period (Time)

The output is a complete list of valid settings for this mode. <DisplayString> can be easily used in list boxes and ensures the same look and feel across Narda's analyzers. <Value> can be used in other commands to change the setting.

### Input

UMTS\_AVG\_LIST? <AvgMode>;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<AvgMode>	Enum	NUMBER: Average over a number of individual measurements TIME: Average over a time period (in seconds)
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Averaging parameter as string including the unit
<Value>	Float	Averaging parameter as a numerical value
<Error>	DWord	Error code

### Example

---

*(Input)* UMTS\_AVG\_LIST? TIME;

---

*(Output)* 30,  
"1 min",60,  
"2 min",120,  
"3 min",180,  
...  
"28 min",1680,  
"29 min",1740,  
"30 min",1800,  
0;

---



## UMTS\_CONFIG

### Description

Sets the current measurement parameters for UMTS mode. UMTS must be selected as the current operating mode.

### Input

UMTS\_CONFIG? <Fcent>,<ExtrapolationMode>,<ExtrapolationFactor>,<RL>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<ExtrapolationMode>	Enum	ON, OFF
<ExtrapolationFactor>	Float	0.001 to 100
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

### Example

*(Input)* UMTS\_CONFIG 2.1128e9,OFF,0.05,-10;

*(Output)* 0;

### UMTS\_CONFIG?

#### Description

Queries the current measurement parameters for UMTS mode.  
UMTS must be selected as the current operating mode.

#### Input

UMTS\_CONFIG?;

#### Output

<Fcent>,<ExtrapolationMode>,<ExtrapolationFactor>,<RL>,<Error>;

#### Parameter List

Parameter	Type	Description
<Fcent>	Double	Center frequency [Hz]
<ExtrapolationMode >	Enum	ON, OFF
<ExtrapolationFactor>	Float	0.001 to 100
<RL>	Float	Reference level (Measurement Range) [Unit]
<Error>	DWord	Error code

#### Example

---

<i>(Input)</i>	UMTS_CONFIG?;
<i>(Output)</i>	2112800000,OFF,1,-30,0;

---

## UMTS\_RESET\_TABLE

### Description

Resets the table for UMTS results (scrambling codes). This command is commonly used at the beginning of a new measurement.

### Input

UMTS\_RESET\_TABLE;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Error>	DWord	Error code

### Example

---

*(Input)* UMTS\_RESET\_TABLE;

---

*(Output)* 0;

---

# UNIT

### Description

Sets the current unit setting.

### Input

UNIT <Unit>;

### Output

<Error>;

### Parameter List

Parameter	Type	Description
<Unit>	Enum	Measurement results can be displayed in one of the following units: dBm, dBV, dBmV, dBuV, dBV/m, dBmV/m, dBuV/m, dBA/m V/m, A/m, W/m <sup>2</sup> , W/cm <sup>2</sup> , %, A, dBA
<Error>	DWord	

### Example

---

<i>(Input)</i>	UNIT dBV/m;
<i>(Output)</i>	0;

---

## UNIT?

### Description

Queries the current unit setting.

### Input

UNIT?;

### Output

<Unit>,Error;

### Parameter List

Parameter	Type	Description
<Unit>	Enum	Measurement results can be displayed in one of the following units: dBm, dBV, dBmV, dBuV, dBV/m, dBmV/m, dBuV/m, dBA/m V/m, A/m, W/m <sup>2</sup> , W/cm <sup>2</sup> , %, A, dBA
<Error>	DWord	Error code

### Example

*(Input)*      UNIT?;

*(Output)*     V/m,0;

## UNIT\_LIST?

### Description

Queries the current possible unit settings (Unit).

The requested list reflects all the possible settings and guarantees consistency with the other device settings. The <DisplayString> parameter can be used directly in the application to produce the same appearance as in the device (e.g. in List boxes). The <Unit> parameter is a numerical value, which can be transmitted to the device if required in order to produce the corresponding setting.

### Input

UNIT\_LIST?;

### Output

<NumberOfElements>,{<DisplayString>, <Unit>,<Error>;

### Parameter List

Parameter	Type	Description
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Unit as a string
<Unit>	Enum	dBm, dBV, dBmV, dBuV, dBV/m, dBmV/m, dBuV/m, dBA/m V/m, A/m, W/m <sup>2</sup> , W/cm <sup>2</sup> , %, A, dBA
<Error>	DWord	Error code

### Example

---

<i>(Input)</i>	UNIT_LIST?;
<i>(Output)</i>	9, "dBV/m",dBV/m, "dBmV/m",dBmV/m, "dBμV/m",dBuV/m, "dBA/m",dBA/m, "V/m",V/m, "A/m",A/m, "W/m <sup>2</sup> ",W/m <sup>2</sup> , "W/cm <sup>2</sup> ",W/cm <sup>2</sup> , "%",%, 0;

---

## VBW\_LIST?

### Description

Queries the current possible VBW settings.

The requested list reflects all the possible settings and guarantees consistency with the other device settings. The <DisplayString> parameter can be used directly in the application to produce the same appearance as in the device (e.g. in List boxes). The <Value> parameter is a numerical value, which can be transmitted to the device if required in order to produce the corresponding setting.

### Input

VBW\_LIST?;

### Output

<NumberOfElements>,{<DisplayString>, <Value>,<Error>;

### Parameter List

Parameter	Type	Description
<NumberOfElements>	Short	Number of subsequent items
<DisplayString>	String	Video bandwidth and unit as string
<Value>	Double	Video bandwidth as value [Hz]
<Error>	DWord	Error code

### Example

*(Input)* VBW\_LIST?;

*(Output)* 9,  
 "10 kHz",10000,  
 "5 kHz",5000,  
 "3 kHz",3000,  
 "2 kHz",2000,  
 "1 kHz",1000,  
 "500 Hz",500,  
 "300 Hz",300,  
 "200 Hz",200,  
 "100 Hz",100,  
 0;

# VERSION?

### Description

Queries the versions of the current firmware modules.

### Input

VERSION? <ModuleType>;

### Output

<FW Version>,<Error>;

### Parameter List

Parameter	Type	Description
<ModuleType>	Enum	APP    Application Firmware BL     Bootloader OS     Operating System
<FW Version>	VersionString	"V0.0.0" to "V99.99.99"

### Example

---

<i>(Input)</i>	VERSION? APP;
<i>(Output)</i>	"V1.1.2",0;

---

### Example

---

<i>(Input)</i>	VERSION? BL;
<i>(Output)</i>	"V1.0.4",0;

---

### Example

---

<i>(Input)</i>	VERSION? OS;
<i>(Output)</i>	"V1.4.3",0;

---



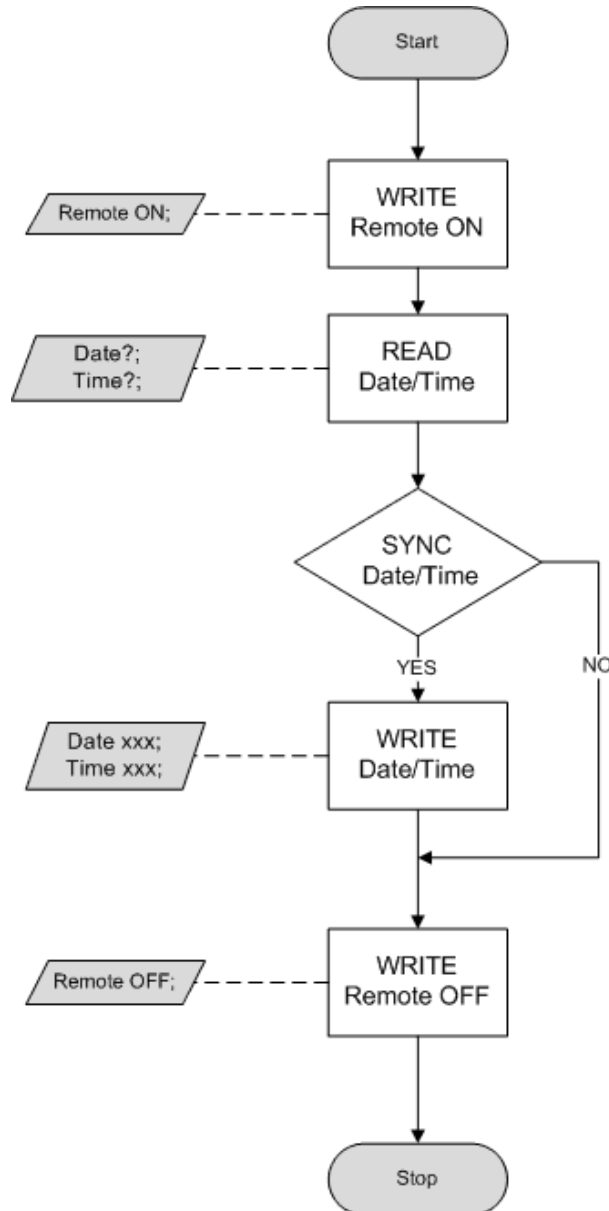
## 4 Remote application examples

### Time synchronization with a PC

The device system time can differ from the local time. In such cases, the device time should be synchronized with the PC clock to ensure that the measurements are time stamped correctly.

The following routine checks the date and time of the device and corrects the settings if necessary.

#### Flowchart



### Communications trace

---

<i>(Input)</i>	REMOTE ON;
<i>(Output)</i>	0;
<i>(Input)</i>	DATE?;
<i>(Output)</i>	01.01.10,0;
<i>(Input)</i>	TIME?;
<i>(Output)</i>	12:00:00,0;
<i>(Input)</i>	DATE 14.06.10;
<i>(Output)</i>	0;
<i>(Input)</i>	TIME 15:31:00;
<i>(Output)</i>	0;
<i>(Input)</i>	REMOTE OFF;
<i>(Output)</i>	0;

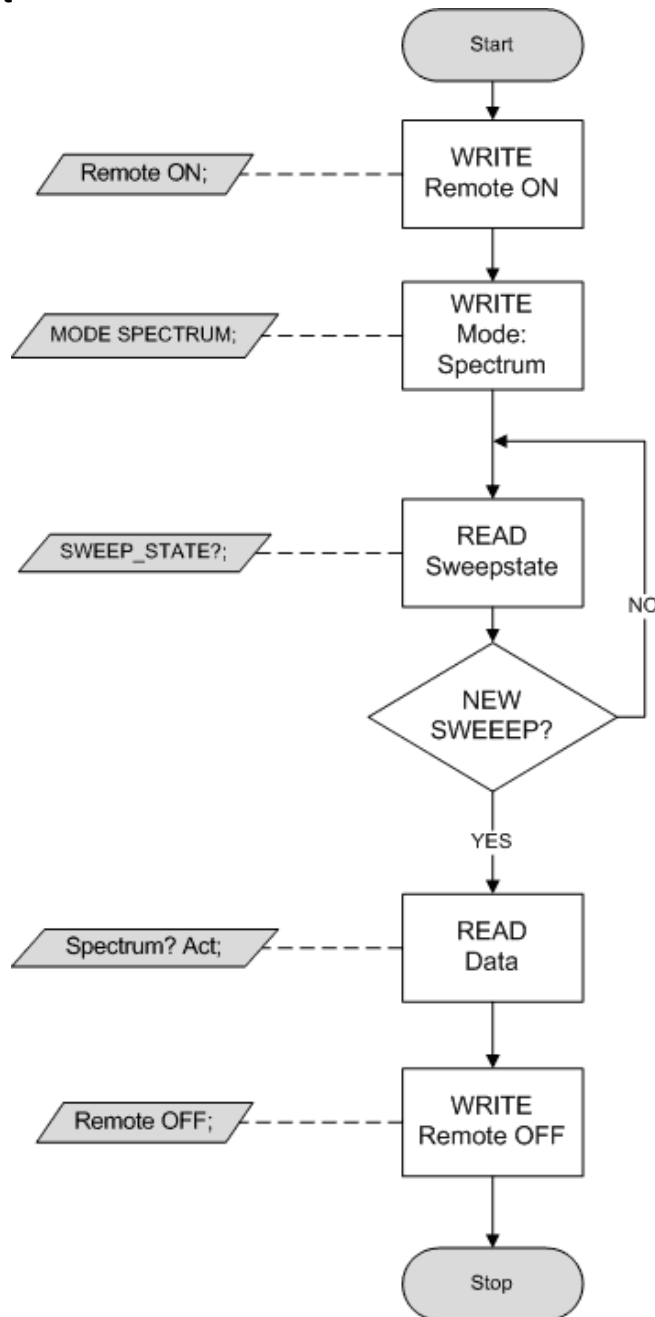
---

### Synchronizing queries of measured values with the sweep state

A large number of measured values can occur for certain device settings when a spectrum is queried. Synchronization with the device status (sweep state) is necessary to avoid reading the same measurement result several times.

The following routine determines the sweep state cyclically until the <Number of Runs> parameter increments. This ensures that new measurement results are available in the device, which can then be read out.

#### Flowchart



## Command Reference Guide

---

### Communications trace

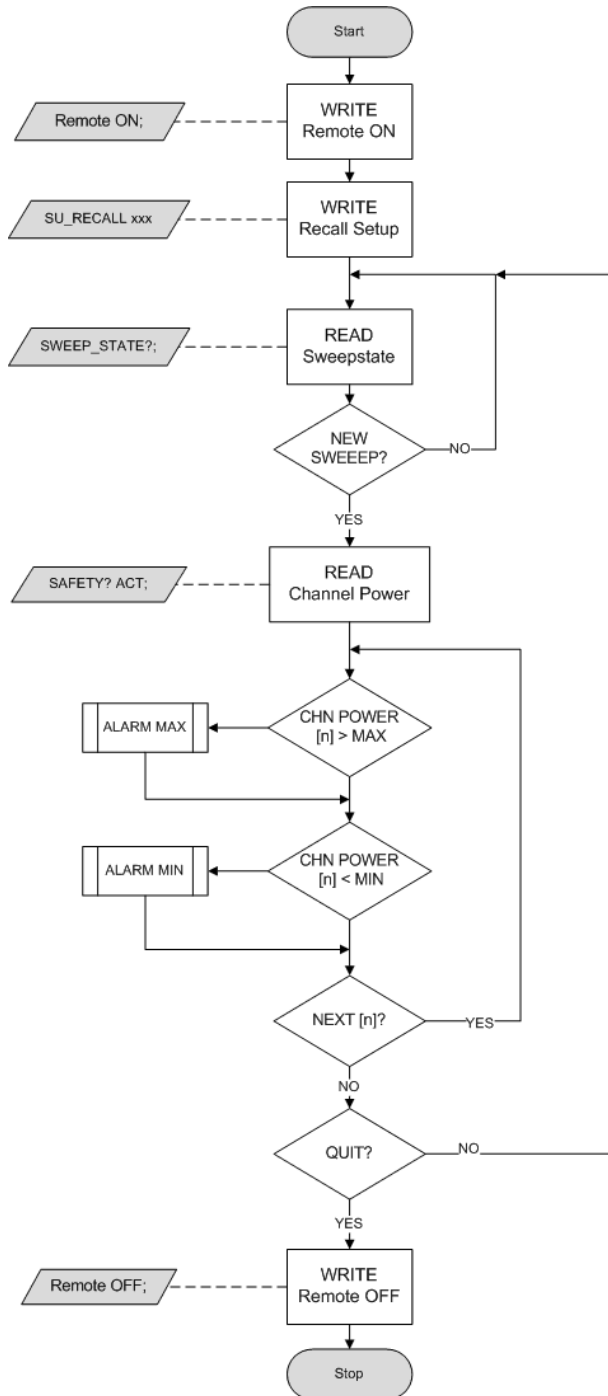
<i>(Input)</i>	REMOTE ON;
<i>(Output)</i>	0;
<i>(Input)</i>	MODE SPECTRUM;
<i>(Output)</i>	0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	26,383,26,100,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	26,383,36,100,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	26,383,54,100,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	26,383,72,100,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	26,383,90,100,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	27,384,2,100,0;
<i>(Input)</i>	SPECTRUM? ACT;
<i>(Output)</i>	27,384,100,0,9000,2500000,1, ACT,NO,1201, -15.87665,-18.99925,-29. ...,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	27,384,23,100,0
<i>(Input)</i>	REMOTE OFF;
<i>(Output)</i>	0;

### Carrier signal monitoring with alarms

Simultaneous monitoring of several carrier signals (services) is a typical application for Multi-Channel Power (Safety Evaluation) mode. The services are defined in a so-called service table for this. An alarm is to be generated if the power level of one or more services drops below a lower threshold or rises above an upper threshold.

The following routine monitors a number of carrier signals that are saved in a setup and issues alarms when the corresponding power levels occur.

#### Flowchart



## Command Reference Guide

---

### Communications trace

<i>(Input)</i>	REMOTE ON;
<i>(Output)</i>	0;
<i>(Input)</i>	SU_RECALL "TEST";
<i>(Output)</i>	0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	1,433,100,25,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	1,433,100,25,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	2,421,100,50,0
<i>(Input)</i>	SAFETY? ACT;
<i>(Output)</i>	2,421,50,0,ON,AUTO,1, ACT,NO,-50.02858,UNCHECKED,-64.05227,UNCHECKED,20, -85.84535,UNCHECKED,"Vodafone D2",100000,935000000,937600000, -66.03957,UNCHECKED,"T-Mobile",100000,937600000,945000000, -57.18788,UNCHECKED,"Vodafone D2",100000,945000000,951200000, -75.61623,UNCHECKED,"T-Mobile",100000,951200000,955600000, -51.96239,UNCHECKED,"Vodafone D2",100000,955600000,959400000, -84.6811,UNCHECKED,"T-Mobile",100000,959400000,960000000, -76.5588,UNCHECKED,"O2",100000,1825000000,1847600000, -63.81918,UNCHECKED,"E-Plus",100000,1847600000,1875600000, -90.20372,UNCHECKED,"Group 3G",100000,1900100000,1905100000, -87.98232,UNCHECKED,"Mobilcom Media",100000,1905100000,1910100000, -89.51995,UNCHECKED,"T-Mobile",100000,1910100000,1915100000, -76.09155,UNCHECKED,"Vodafone D2",100000,1915100000,1920100000, -88.14398,UNCHECKED,"E-Plus 3G",100000,2019700000,2024700000, -66.28833,UNCHECKED,"Vodafone D2",100000,2110300000,2120200000, -81.64407,UNCHECKED,"Group 3G",100000,2120200000,2130100000, -67.00497,UNCHECKED,"E-Plus 3G",100000,2130100000,2140000000, -75.81621,UNCHECKED,"Mobilcom Media",100000,2140000000,2149900000, -76.41513,UNCHECKED,"O2",100000,2149900000,2159800000, -79.86673,UNCHECKED,"T-Mobile",100000,2159800000,2169700000, -77.95309,UNCHECKED,"Group 3G",100000,2170000000,2179000000, 0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	2,421,100,50,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	2,421,100,50,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	2,421,100,50,0;
<i>(Input)</i>	SWEEP_STATE?;
<i>(Output)</i>	2,421,100,50,0;
<i>(Input)</i>	REMOTE OFF;
<i>(Output)</i>	0;



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