:TEST<hw>:ALL:STARt

Starts a self-test on all installed hardware options.

To query the result, use the command `:TEST<hw>:ALL:RESult?` on page 457.

Example: See `:TEST<hw>:ALL:RESult?` on page 457

Usage: Event

Manual operation: See "Start Selftest" on page 497

:TEST<hw>:ALL:RESult?

Queries the result of the performed self-test (command `:TEST<hw>:ALL:STARt` on page 457).

Return values:

<Result> 0 | 1 | RUNning | STOPped

0
Success

1
Fail

*RST: STOPped

Example:
```
TEST:ALL:STAR
```
Starts the self-test
```
TEST:ALL:RES?
```

Usage: Query only

Manual operation: See "Start Selftest" on page 497

:TEST<hw>:DIRect <HW_assembly>,<subadress>,<hex data string>
:TEST<hw>:DIRect? <HW_assembly>,<subadress>

The respective hardware assembly responds directly to the command; any safety mechanisms are bypassed. This function is only available via remote control.

Example:
```
TEST:DIR 'SSYN',0,#H12345678
TEST:DIR? 'SSYN',0
```
Response: `#H12345678`

6.17 TRIGger Subsystem

The `TRIGger` system contains the commands for selecting the trigger source for the RF and LF sweep. The trigger input connectors are configured in the `SOURce:INPut` subsystem.

The trigger system of the R&S SMB is a simplified implementation of the SCPI trigger system. The `TRIGger` system differs from the SCPI system as follows:

- No `INITiate` command; the instrument behaves as if `INITiate:CONTinuous ON` were set.
- Under `TRIGger` several sweep subsystems exist.

Other commands associated with the trigger system of the R&S SMB can be found in the modulation and RF signal subsystems.

`TRIGger<hw>`

- Suffix `TRIGger<1|2>` is not permitted
- `TRIGger0` activates the LF output.

Table 6-2: Cross-reference between the manual and remote control

R&S name	SCPI name	Command under manual control
AUTO	IMMediate	"Auto" mode
SINGle	BUS	"Single" mode.
EXTernal	EXTernal	"Ext Single" and "Ext Step" mode. Use command `LFO:SWEep:MODE` to select between the two sweep modes.
EAUTo	-	"Ext Start/Stop" mode.

:TRIGger<hw>:FSWeep:SOURce <Source>

Sets the trigger source for the RF frequency sweep.

The names of the parameters correspond directly to the various settings under manual control. SCPI uses other names for the parameters; these names are also accepted by the instrument. The SCPI names should be used if compatibility is an important consideration.

An overview of the various names is given in Table 6-2.

Parameters:

<Source> AUTO | IMMediate | SINGle | BUS | EXTernal | EAUTo

AUTO|IMMediate
The trigger is free-running, i.e. the trigger condition is fulfilled continuously. As soon as one sweep is finished, the next sweep is started.

SINGle|BUS
One complete sweep cycle is triggered by the GPIB commands `[:SOURce<hw>]:SWEep[:FREQuency]:EXECute`, `:TRIGger<hw>:FSWeep[:IMMediate]` or `*TRG`. The mode has to be set to `AUTO` (`:SOURce:SWEep:FREQuency:MODE AUTO`).

EXTernal
The sweep is triggered externally via the [INST TRIG] connector.

EAUTo
The sweep is triggered externally via the [INST TRIG] connector. As soon as one sweep is finished, the next sweep is started. A second trigger event stops the sweep at the current frequency, a third trigger event starts the trigger at the start frequency, and so on.

*RST: AUTO

Example: `TRIG:FSW:SOUR EXT`
selects triggering with an external trigger.

Manual operation: See "Mode - RF Frequency Sweep" on page 180

:TRIGger<hw>:FSWeep[:IMMediate]

Immediately starts an RF frequency sweep cycle.

The command is only effective for sweep mode "Single" (`SOUR:SWE:FREQ:MODE AUTO` in combination with `TRIG:FSW:SOUR SING`).

The command corresponds to the manual control "Execute Single Sweep".

Example: `SWE:FREQ:MODE AUTO`
sets the triggered sweep mode, i.e. a trigger is required to start the sweep.
`TRIG:FSW:SOUR SING`
sets the "Single" trigger mode, i.e. a trigger starts a single sweep.
`TRIG:FSW`
starts a single RF frequency sweep.

Usage: Event

Manual operation: See "Execute Single Sweep - Frequency Sweep" on page 183

:TRIGger<hw>:LFFSweep

Usage: Event

Manual operation: See "Execute Single Sweep" on page 228

Immediately starts an LF frequency sweep.

The command is effective in sweep mode "Single" (`LFO:SWE:MODE AUTO` in combination with `TRIG:LFFS:SOUR SING`).

:TRIGger<hw>:LFFSweep:SOURce <Source>

Sets the trigger source for the LF sweep. The trigger is triggered by the command `:SOURce:LFOutput:SWEep[:FREQuency]EXECute`.

The names of the parameters correspond directly to the various settings under manual control. SCPI uses other names for the parameters; these names are also accepted by the instrument. The SCPI names should be used if compatibility is an important consideration.

An overview of the various names is given in the Table 6-2.

Parameters:

<Source> AUTO | IMMediate | SINGle | BUS | EXTernal | EAUTo

AUTO|IMMediate
The trigger is free-running, i.e. the trigger condition is fulfilled continuously. As soon as one sweep is finished, the next sweep is started.

SINGle|BUS
One complete sweep cycle is triggered by the GPIB commands `[:SOURce<hw>]:LFOutput:SWEep[:FREQuency]:EXECute` or `*TRG`.
The mode has to be set to `AUTO` (`[:SOURce<hw>]:LFOutput:SWEep[:FREQuency]:MODE`).

EXTernal
The sweep is triggered externally via the [INST TRIG] connector.

EAUTo
The sweep is triggered externally via the [INST TRIG] connector. As soon as one sweep is finished, the next sweep is started. A second trigger event stops the sweep at the current frequency, a third trigger event starts the trigger at the start frequency, and so on.

*RST: AUTO

Example: `TRIG:LFFS:SOUR EXT`
selects triggering with an external trigger.

:TRIGger<hw>:LFFSweep:IMMediate

Immediately starts an LF frequency sweep.

The command is effective in sweep mode "Single" (`LFO:SWE:MODE AUTO` in combination with `TRIG:LFFS:SOUR SING`).

Usage: Event

Manual operation: See "Execute Single Sweep" on page 228

:TRIGger<hw>:PSWeep:SOURce <Source>

Sets the trigger source for the RF level sweep.

The names of the parameters correspond directly to the various settings under manual control. SCPI uses other names for the parameters; these names are also accepted by the instrument. The SCPI names should be used if compatibility is an important consideration.

An overview of the various names is given in Table 6-2.

Parameters:

<Source> AUTO | IMMediate | SINGle | BUS | EXTernal | EAUTo

AUTO|IMMediate
The trigger is free-running, i.e. the trigger condition is fulfilled continuously. As soon as one sweep is finished, the next sweep is started.

SINGle|BUS
One complete sweep cycle is triggered by the GPIB commands `[:SOURce<hw>]:SWEep:POWer:EXECute`, `:TRIGger<hw>:PSWeep[:IMMediate]` or `*TRG`. The mode has to be set to `AUTO` (`:SOURce:SWEep:LEVel:MODE AUTO`).

EXTernal
The sweep is triggered externally via the [INST TRIG] connector.

EAUTo
The sweep is triggered externally via the [INST TRIG] connector. As soon as one sweep is finished, the next sweep is started. A second trigger event stops the sweep at the current frequency, a third trigger event starts the trigger at the start frequency, and so on.

*RST: AUTO

Example: `TRIG:PSW:SOUR EXT`
selects triggering with an external trigger.

Manual operation: See "Mode - Level Sweep" on page 188

:TRIGger<hw>:PSWeep[:IMMediate]

Immediately starts an RF level sweep.

The command is only effective for sweep mode "Single" (`SOURce:SWEep:POWer:MODE AUTO` in combination with `TRIG:PSW:SOUR SING`).

The command corresponds to the manual control "Execute Single Sweep".

Example: `SWE:POW:MODE AUTO`
selects the triggered sweep mode, i.e. a trigger is required to start the sweep.
`TRIG:PSW:SOUR SING`
sets the single trigger mode, i.e. a trigger starts a single sweep.
`TRIG:PSW`
starts a single RF level sweep.

Usage: Event

Manual operation: See "Execute Single Sweep - Level Sweep" on page 190

:TRIGger<hw>[:SWEep]:SOURce <Source>

Sets the trigger source for all sweeps.

The names of the parameters correspond directly to the various settings under manual control. SCPI uses other names for the parameters; these names are also accepted by the instrument. The SCPI names should be used if compatibility is an important consideration.

An overview of the various names is given in the Table 6-2.

Setting parameters:

<Source> AUTO | IMMediate | SINGle | BUS | EXTernal | EAUTo

AUTO|IMMediate
The trigger is free-running, i.e. the trigger condition is fulfilled continuously. As soon as one sweep is finished, the next sweep is started.

SINGle|BUS
One complete sweep cycle is triggered by the GPIB commands `:SOURce:SWEep:POWer|FREQuency:EXEC`, `TRIGger:PSWeep|FSWeep:IMMediate` or `*TRG`.
If `:SOURce:SWEep:POWer:MODE` is set to `STEP`, one step is executed.
The mode has to be set to `AUTO`.

EXTernal
The sweep is triggered externally via the [INST TRIG] connector.

EAUTo
The sweep is triggered externally via the [INST TRIG] connector. As soon as one sweep is finished, the next sweep is started. A second trigger event stops the sweep at the current frequency, a third trigger event starts the trigger at the start frequency, and so on.

*RST: AUTO

Example: `TRIG0:SOUR EXT`
selects triggering with an external trigger. The trigger is input via the [INST TRIG] connector.

Usage: Setting only