

**ISA-30/80/132/265
Spectrum Analyzer
EMI Receiver Manual
Ver 1.0**

**Read this manual before using the equipment.
Keep this manual with the equipment**



TABLE OF CONTENTS

SECTION 1 GENERAL -----	1-1
INTRODUCTION -----	1-1
LICENSING THE EMC MEASUREMENT -----	1-1
SECTION 2 MENU TREE -----	2-1
MODE, SETUP -----	2-2
FILE -----	2-4
SCAN MODE (MEASURE, CONTROL) -----	2-5
SCAN MODE (FREQ, AMPL) -----	2-6
SCAN MODE (LIMIT, TRIGGER) -----	2-7
SCAN MODE (MARKER) -----	2-9
SCAN MODE (PEAK) -----	2-10
CISPR MODE (MEASURE) -----	2-11
DEBUG MODE (FREQ, SPAN) -----	2-12
DEBUG MODE (AMPL, BW) -----	2-13
SECTION 3 MENU DESCRIPTIONS -----	3-1
CONTROL WITH KEYBOARD AND MOUSE -----	3-1
ENTRY EMC MODE -----	3-2
SELECTION EMC MEASUREMENT MODE -----	3-2
SCAN MODE -----	3-3
ENTIRE SET -----	3-3
DISPLAY LIMIT -----	3-4
SUB-RANGE SET -----	3-4
MEASURE -----	3-8
DISPLAY ERROR -----	3-9
DISPLAY THE PEAK IN CERTAIN AREA -----	3-10
ONE POINT MEASUREMENT -----	3-12
CISPR MODE -----	3-13
MEASURE -----	3-13
DEBUG MODE -----	3-15

FREQUENCY -----	3-15
SPAN -----	3-16
AMPLITUDE -----	3-17
BW -----	3-18
LIMITATIONS -----	3-19
SECTION 4 OPERATING -----	4-1
EMC MEASUREMENTS -----	4-1
SCAN MODE -----	4-1
EMC SCAN MODE MEASUREMENT METHOD (EXAMPLE) -----	4-2
EMC CISPR MODE MEASUREMENT METHOD (EXAMPLE) -----	4-8
EMC DEBUG MODE MEASUREMENT METHOD -----	4-10
SECTION 5 DETAILED DESCRIPTION OF COMMANDS -----	5-1
GENERAL DESCRIPTION -----	5-1
AMPLITUDE -----	5-3
BANDWIDTH -----	5-12
DISPLAY -----	5-13
FILE -----	5-21
FREQUENCY -----	5-26
LIMIT LINE -----	5-31
MARKER -----	5-34
MEASUREMENT -----	5-40
MEAS. CONTROL -----	5-41
MODE -----	5-45
MODE SETUP -----	5-46
PEAK SEARCH -----	5-52
PRESET -----	5-60
PRINTER -----	5-61
SPAN -----	5-62
SWEEP -----	5-65
SYSTEM -----	5-68
TRACE -----	5-71
TRIGGER -----	5-75
GPIB COMMON COMMAND -----	5-77

OTHERS -----	5-81
APPENDIX A -----	A-1
REMOTE COMMAND – CATALOG ORDER -----	A-1
REMOTE COMMAND – SA COMMAND ORDER -----	A-2
REMOTE COMMAND – SCPI COMMAND ORDER -----	A-4
APPENDIX B -----	B-1
ERROR CODE -----	B-1
APPENDIX C -----	C-1
EXAMPLE – EMC LIMIT -----	C-1
EXAMPLE – EMC ANTENNA -----	C-1
EXAMPLE – EMC CABLE -----	C-2

SECTION 1 GENERAL

Introduction

This option is provided for conducted emission measurement of commercial electrical /electronic products, this operating manual will describe system setup method for EMC measurement and operation of each menu. (Notice: The EMC software must be installed to system for using EMC measurement options.)

The EMC measurement options are used purposes for emission about EMI Receiver functions. You can get information with this device itself not to use exterior PC but to have options are supplied by EMC Option Software.

※ EMC : Electro-Magnetic Compatibility

Licensing the EMC Measurement

EMC measurement of the two following options can be a way for the certification.

※ NOTE

When you add a new option, or update an existing option, you will get the updated version of all your current options since they are reloaded simultaneously. This process may also require you to update the signal analyzer program so that it is compatible with the new option.

If your analyzer came with the EMC measurement licensed, you can skip the licensing.

You must keep a copy of your license key number in a secure location. If you lose your license key number, call your nearest service or sales office for assistance.

<Activation Key Authentication Code with the way>

1. Connect keyboard and mouse to the PS2 ports or the USB ports.
2. Turn on the signal analyzer. And wait until the analyzer complete the power up sequence.
3. Press **System**, *Option Info.*, *Option Activate.*
4. Select “EMC” field in the license active dialog window.

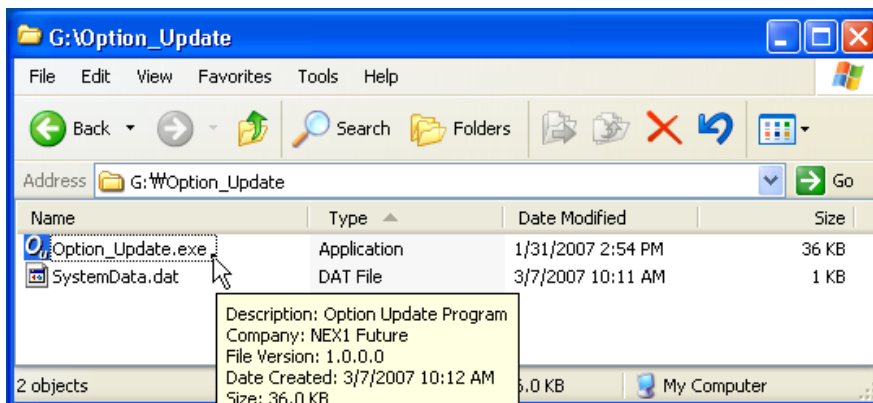
※ NOTE

All purchased options must be selected.

5. Enter the letters/digits of your 32 characters license code using the mouse or the keyboard. The license key number is a hexadecimal number.
6. Press *Activate.*
7. Licensing completed successfully then “Activation Success” dialog window was displayed. If “Invalid License!” was displayed, you enter the correct license code again.
8. Press *OK* or press any keypad, then you exit from the license menu.

<The external program using an authentication method >

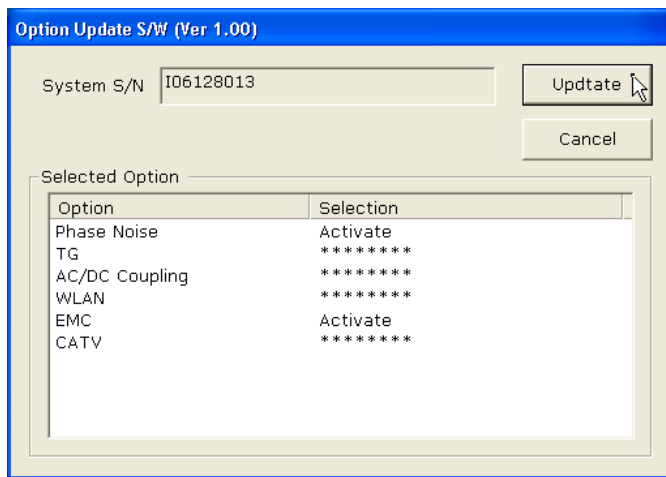
1. You should contact the service center or selling agencies to receiver updating program and Key Code.



2. Insert the option updating program and Key Code to USB Memory Stick or other storage devices, connect to the Signal Analyzer.

3. If Signal Analyzer program is the main driving, you are pressing the “Close” button to close the main program.

4. Execute Option_Update.com



5. After you check the equipment serial number and authentication options, then click Update.

6. If normally renewed replaced with a Cancel button is Done.

7. Press Done button.

8. Signal Analyzer desktop shortcut icon for the program, double click the main driving.

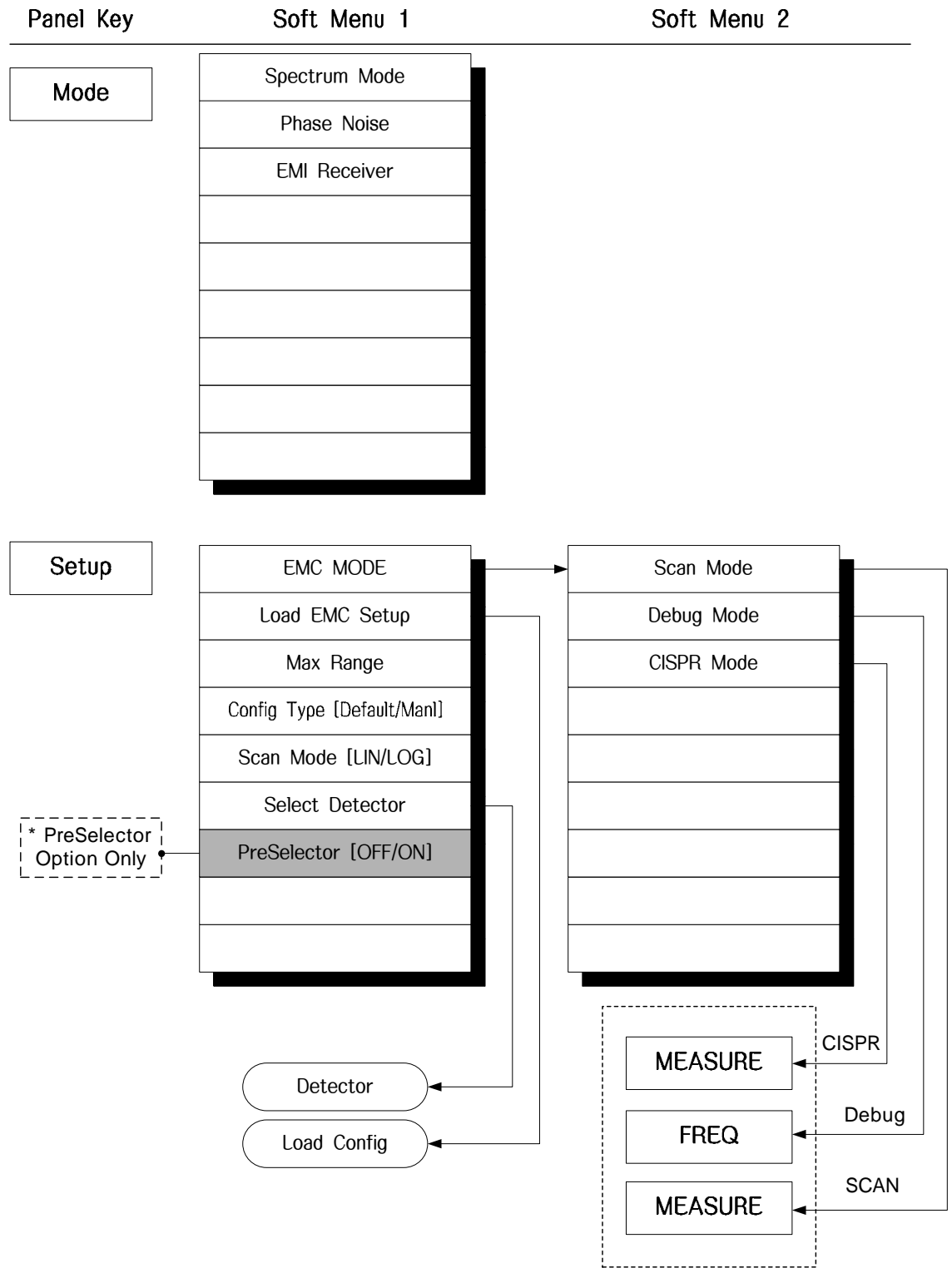
<Blank>

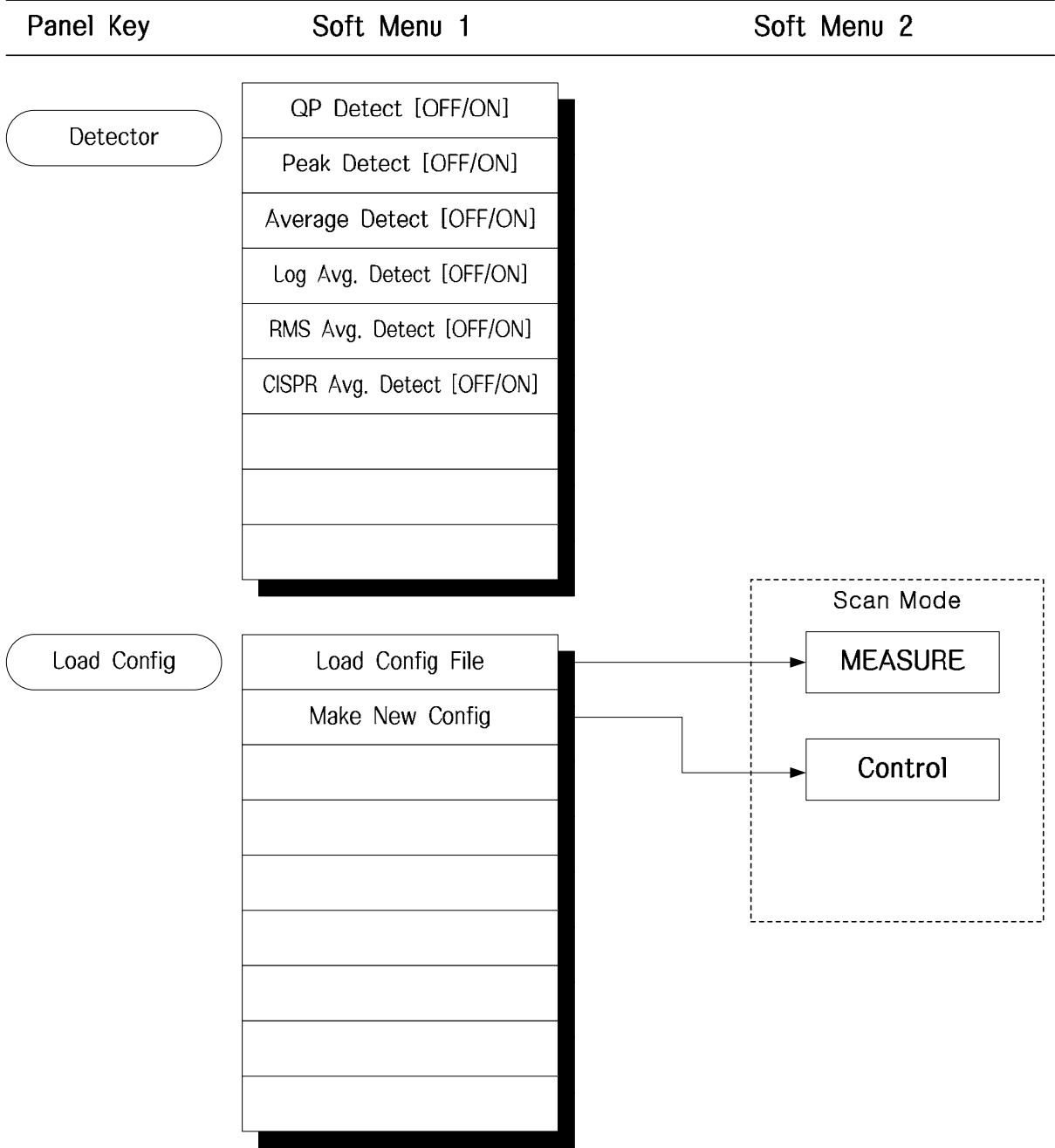
SECTION 2 MENU TREE

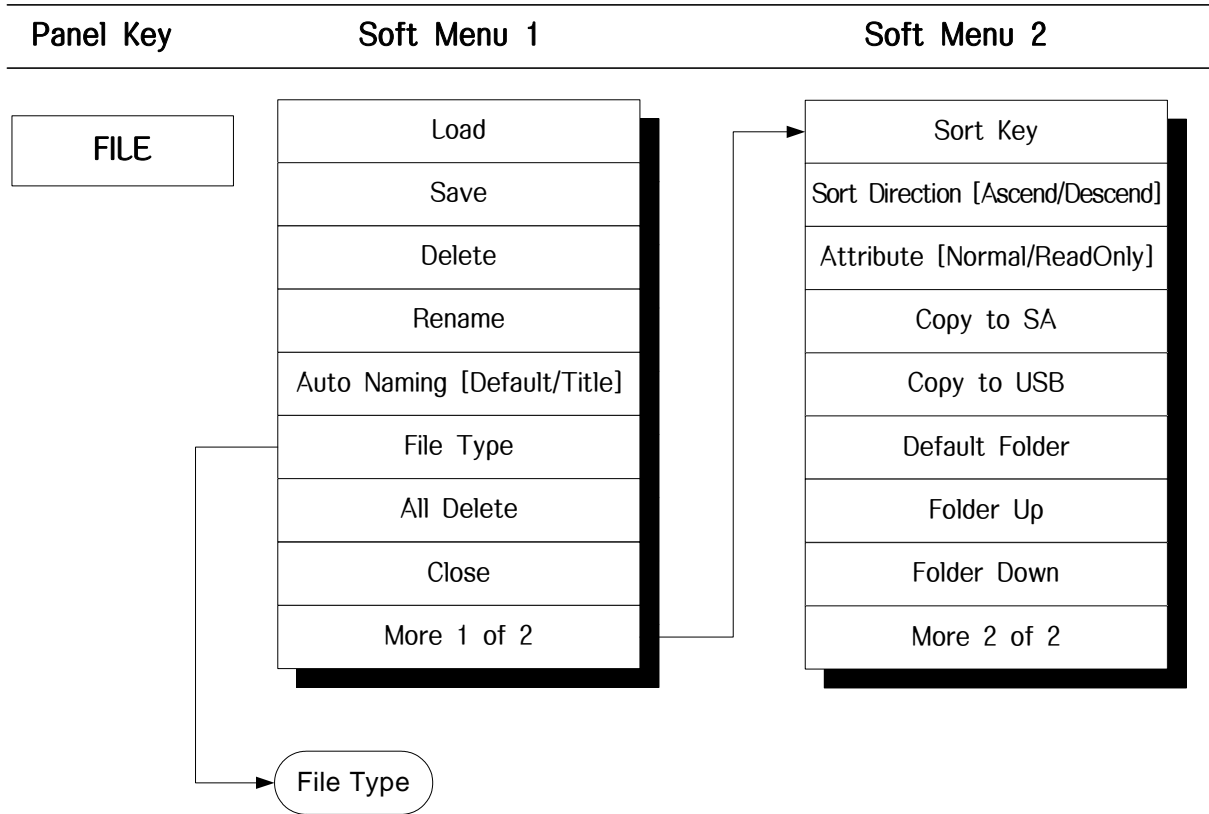
This section describes the structure of the soft menus used by the EMC option. It should be noted that the structure regarding follows.

- (1) Panel key point to the hard keys on the front panel.
- (2) Soft Menu 1 indicates soft-key menu to the screen when presses hard-key.
Soft Menu 2 indicates one of the sub menus of the Soft menu 1.
- (3) If you press Previous. Soft-key at Soft Menu2, return the soft Menu 1.
- (4) Option and unusable menu is represented to a gray background, and do not work.

MENU TREE







Panel Key

Soft Menu 1

Soft Menu 2

File Type

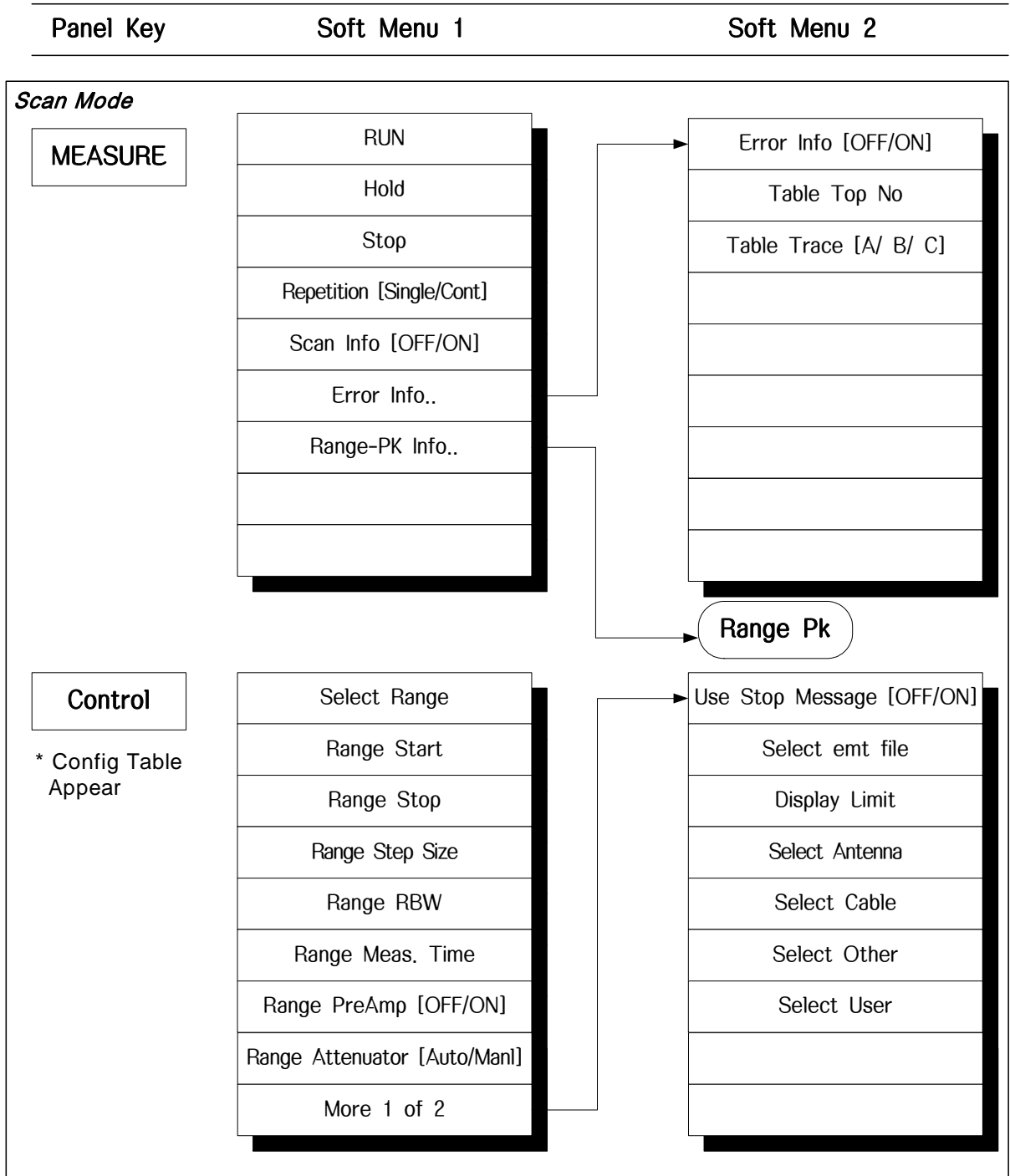
- All
- Bitmap (s)
- JPEG (s)
- PNG (s)
- Bitmap (F)
- JPEG (F)
- PNF (F)
- More 1 of 3

- Status
- Trace
- Limit
- Spur
- SEMask
- CSV
- Macro
- More 2 of 3

- Config
- Limit
- Antenna
- Cable
- Other
- User
- More 3 of 3

SCAN mode only

Spectrum mode only



Panel Key

Soft Menu 1

Soft Menu 2

Scan Mode

FREQ

Start Freq
Stop Freq

Scan/CISPR Mode

AMPL

Ref. Level
Scale/Div
Units..

Corrections..
Input Z [50 ohm/75 ohm]

Panel Key

Soft Menu 1

Soft Menu 2

Scan Mode

Limit

- Check TrcA Limit [OFF/ON]
- Check TrcB Limit [OFF/ON]
- Check TrcC Limit [OFF/ON]
- Make TrcA Line..
- Make TrcB. Line..
- Make TrcC Line..
- All Clear
- Alarm [OFF/ON]

- Select [Freq/Ampl]
- Insert Line
- Delete Line
- Clear

Limit Table appear

Scan/Debug Mode

Trigger

- Free Run
- External
- Trig Slop [Pos/Neg]

Panel Key

Soft Menu 1

Soft Menu 2

Scan Mode

Range-Pk

Range-Pk Info [OFF/ON]

Table Top No

Table Trace [A/ B/ C]

Range Cnt

Pk Cnt (1 Range)

Pk Excursion

Pk Threshold

More 1 of 2

Edit Range [Manual/Auto]

Active Range

Range Start Freq

Range Stop Freq

More 2 of 2

Marker

Select Marker

Normal

Delta

CISPR at Mkr [ON/OFF]

OFF

Marker Trace [A/ B/ C]

All OFF

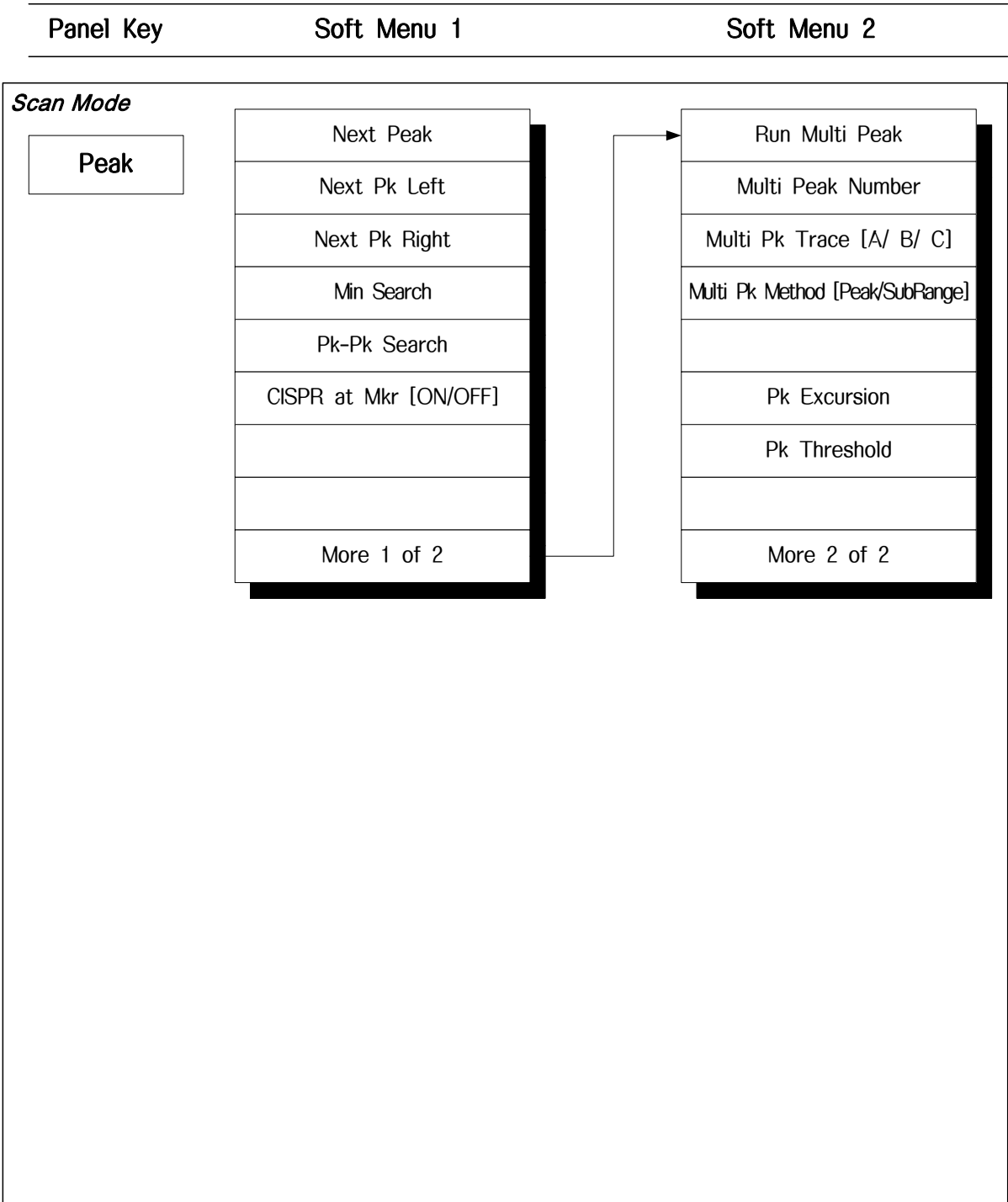
More 1 of 2

Marker Table [OFF/ON]

Edit Mkr Name

Default Mkr Name

More 2 of 2



Panel Key

Soft Menu 1

Soft Menu 2

CISPR Mode

MEASURE

- Meas. Freq
- Meas. Time
- Meas. BW [Auto/Man]
- Meas. Att [Auto/Man]
- Meas. Detector
- Set PreAmp [OFF/ON]
- GoTo Scan Mode
- Att. Adjust
- More 1 of 2

- Reset Value
-
-
-
-
-
-
-
- More 2 of 2

SCAN MODE

Detector



Panel Key	Soft Menu 1	Soft Menu 2
-----------	-------------	-------------

Debug Mode

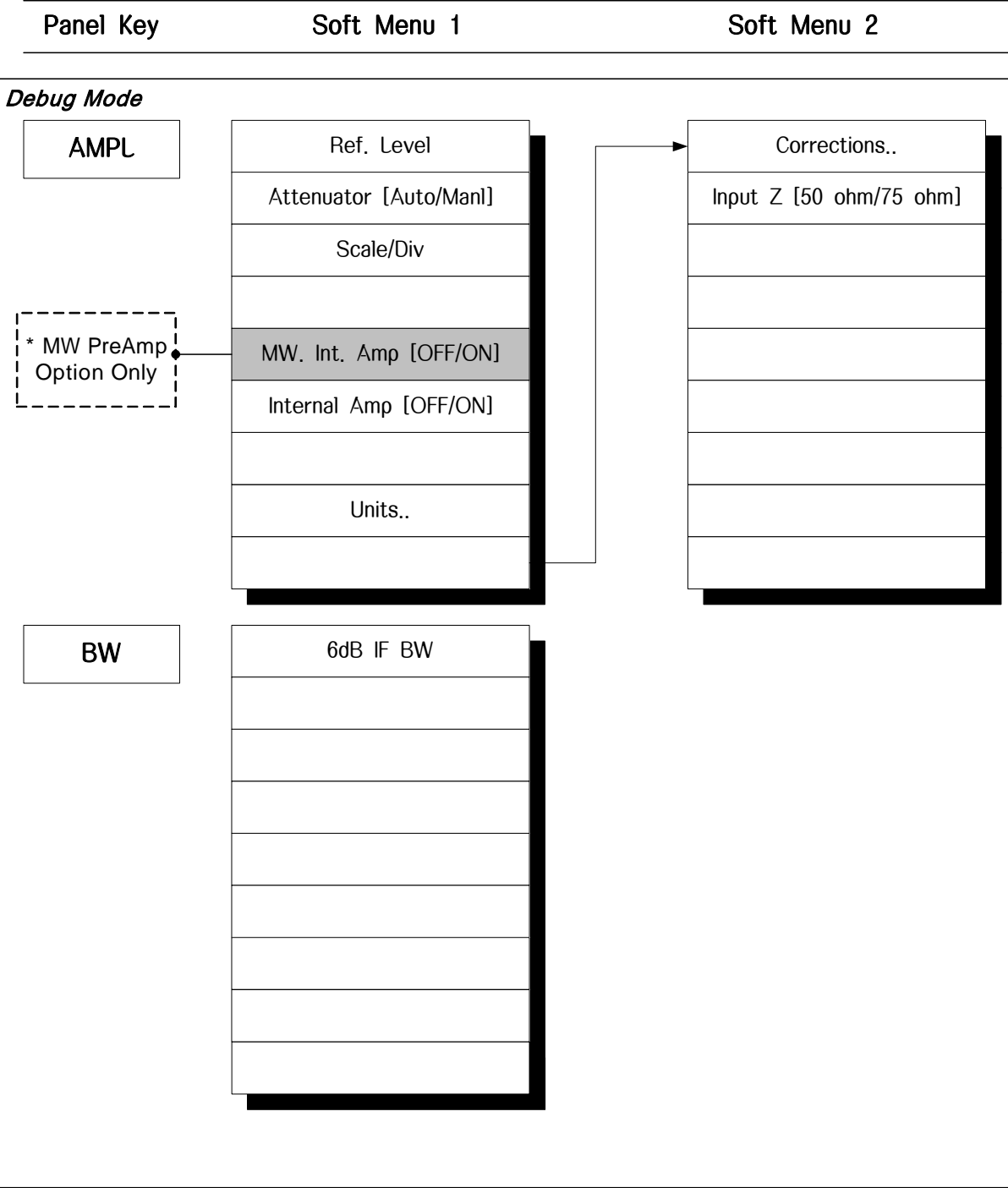
FREQ

- Center Freq
- Start Freq
- Stop Freq
- CF Step [Auto/Manl]
-
-
- Go To Scan Mode
-
-

SCAN Mode

SPAN

- Span Width
- Full Span
- Zero Span
- Last Span
- Zoom In
- Zoom Out
-
-
-



Comment : Other keys are the same key at Spectrum mode. About unmentioned on key, please refer to the Operation Manual.

<Blank>

SECTION 3 MENU DESCRIPTION

If you want to use the EMC measurement capabilities, read the content of the following precautions must be used after.

Control with Keyboard and Mouse

You can control this Signal Analyzer with keyboard if it connected.

(*Confirm selection **SYSTEM** menu >> *More 1 of 2* >> *Keyboard (Keypad)*)

Each key of keyboard indicates that following commands on keypad.

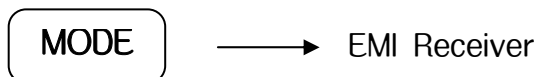
- F1~F9: Soft keys (F1~F8) and NEXT key(F9)
- 0~9 / - (minus) /.(dot) / ← (back space) : Numeric keys of keypad and equivalent key
- Left/Right key (← →): Scroll knob
- Up/Down Key(↑ ↓): Step key
- A~Z: Shortcut of Hard key

Hard key	Shortcut	Hard key	Shortcut	Hard key	Shortcut
FREQ	FR	DISPLAY	DI	BW	BW
SPAN	SP	TRACE	TRA	AUX	AU
AMPL	AM	Trig	TRI	SOURCE	SO
MEAS	ME	LIMIT	LI	SWEEP	SW
CONTROL	CON	COUPLE	COU	SYSTEM	SY
Preset	PRE	FUNC	FU	PRINT	PRI
File	FI	Save	SA	PEAK	PE
MARKER	MA	Single	SI		
MKE>	MK				

You can press soft key by mouse also. If you have a wheel mouse, wheel action match up to scroll knob.

Entry EMC Mode

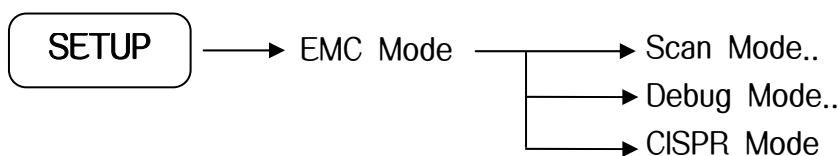
EMC measurement capability in the use of this equipment requires that a system must switch EMC Mode.



Signal Analyzer on the front panel, select the **Mode** key and on the right of the Soft function key to select the *EMI Receiver*. If *EMI Receiver* key is not activate, the current system is not installed EMC Option. (EMC added to the Option is available on request, please specify service providers.)

Selection EMC Measurement Mode

EMC measurement mode, depending on how to measurement, can be divided into Scan Mode, CISPR Mode and Debug Mode. If you entered EMC Mode, the early state is Scan Mode. You can change the measurement mode according following procedure.

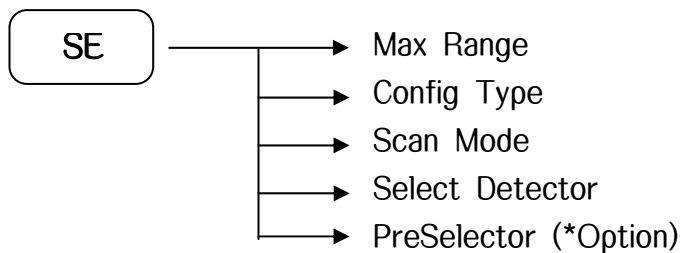


- Scan Mode.. : Measurement ranges divide into multiple ranges, a range that is set for each Scan based on the contents of the proceeding.
- Debug Mode.. : Only Peak detection mode is usable, the user enables to repeatedly sweep the frequency range.
- CISPR Mode : Only a specific frequency which is set by the user, continuous Scan is proceeds.

Scan Mode

Entire Set

In Scan mode, the whole set in order to use the following press.



- Max Range : Set the number of the entire range. (1~6 Up Currently)
- Config Type : When you select Default, the only action inside the system defaults and when you select Manl, a user specified value is set.
- Scan Mode : Moving a step-interval which is depending on the X axis can be designated as the linear or log scale.
- Select Detector : Positive, Average, Quasi-peak, Log Average, RMS Average, CISPR Average detection mode respectively can be ON/OFF.
- PreSelector : PreSelector built-in can decide whether to use. (Option)

Comment : You can choose one of the three detectors (Quasi-Peak, Log Average, and CISPR Average).
You can choose one detector between Average and RMS Average.

Display Limit

In Scan mode, in order to display the limit, the user set the following key.



Firstly, press *Select EMT File* key and select the desired file using scroll knob. Secondly by pressing *Display Limit*, display the limit line about the desired detector for the screen.

The Limit file creation and editing method refer to Operation Manual of Signal Analyzer.

Comment: It's possible creation or modification limit factor by editor. (ex: WordPad.exe on Windows XP)
Each limit file has maximum 8192 points available.

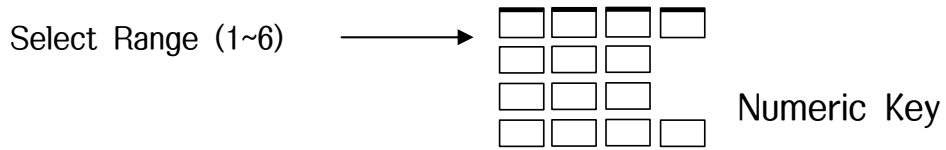
Sub-Range Set

In Scan Mode, several areas of the measurement range of each zone divided by different settings so that it can be set. In order to set up the sub-range, please note the following.

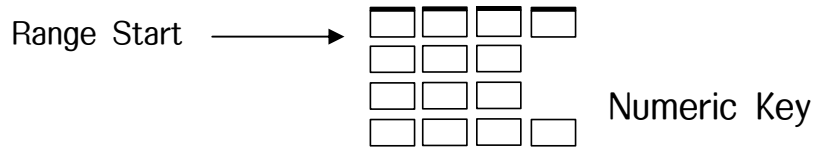
In order to set the details sub-range, press **CONTROL** key and display Config Table dialog window.



To select the range you want to change.

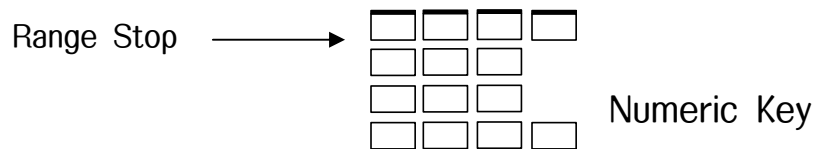


(1) Start Frequency



In EMC mode, available frequencies are 10Hz ~ 3GHz/ 8GHz/ 13.2GHz/ 26.5GHz.

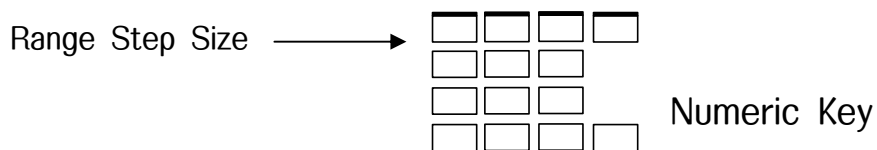
(2) Stop Frequency



In EMC mode, available frequencies are 20Hz ~ 3GHz/ 8GHz/ 13.2GHz/ 26.5GHz.

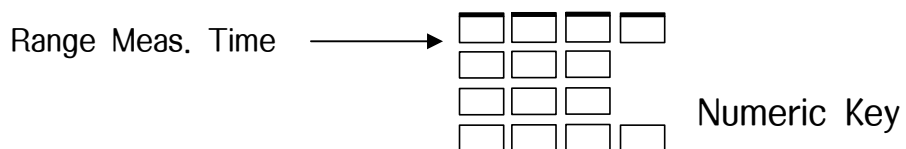
Comment : When setting up a range, we recommended for 1GHz to set boundaries.
Including the scope of 1GHz is internally adjustable the ranges.

(3) Step Frequency



Step frequency has a limit from 1Hz to maximum frequency range. (Stop Freq – Start Freq).

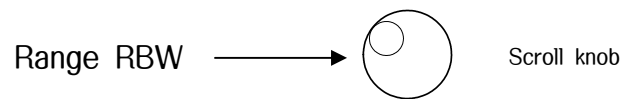
(4) Measurement time



The Measurement Time has constraints, as following table.

	Band A	Band B	Band C/D
Frequency	9 kHz ~ 150 kHz	150 kHz ~ 30 MHz	30 MHz ~ 1GHz
6dB IF BW	200 Hz	9 kHz	120 kHz
Meas. Time (QP Detect)	1sec ~ 100 sec	1sec ~ 100 sec	1sec ~ 100 sec
Meas. Time (Peak, Average)	2.5 msec ~ 100 sec	1 msec ~ 100 sec	1 msec ~ 100 sec

(5) RBW Filter (6dB IF BW)



IF filter is selectable, depending on the mode detects different kinds.

- QP Detector : 200Hz, 9kHz, 120kHz (3 frequencies)
- Log Detector: 1MHz, Impulse(1M) (2 frequencies)
- Peak, Average, RMS Average, CISPR Average Detect : 10Hz, 100Hz, 200Hz, 1kHz, 9kHz, 10kHz, 100kHz, 120kHz, 1MHz, Impulse (1M) (10 frequencies)

(6) Internal Pre-Amp

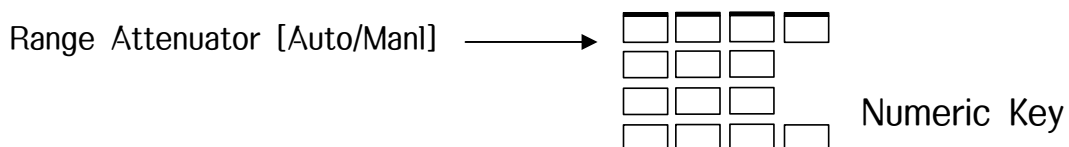
Signal Analyzer basically has the built-in pre-amp which is usable from 1MHz to 3GHz. You can select the pre-amp whether to use.

Range PreAmp [OFF/ON]

Comment : If MW PreAmp option is mounted, the MW PreAmp works above 1GHz frequencies.

(7) Attenuator

If the input signal is higher than the limit, damage could signal analyzer. In order to attenuate external signal, use the following key.

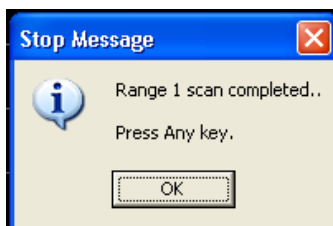


If you select Auto, attenuator will be readjusted according external signal when scanning,

(8) Scan completed Message

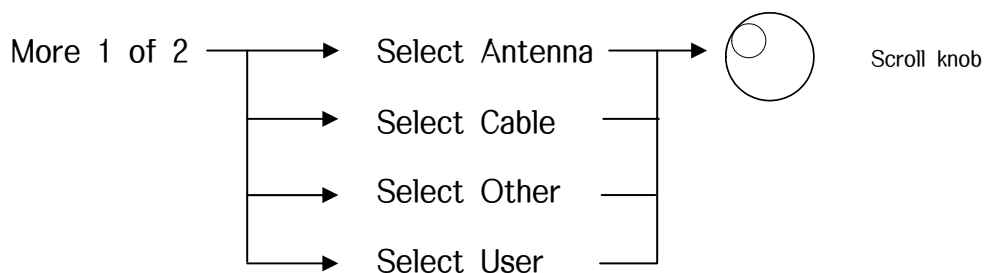
If you turn on this key, stop message appears when sub-range scan is completed.

More 1 of 2 → Use Stop Message [OFF/ON]



(9) Sub-range correction data

Four type (Antenna, Cable, Other, User) correction factors are available in each sub-range. Use these keys for apply each factors.

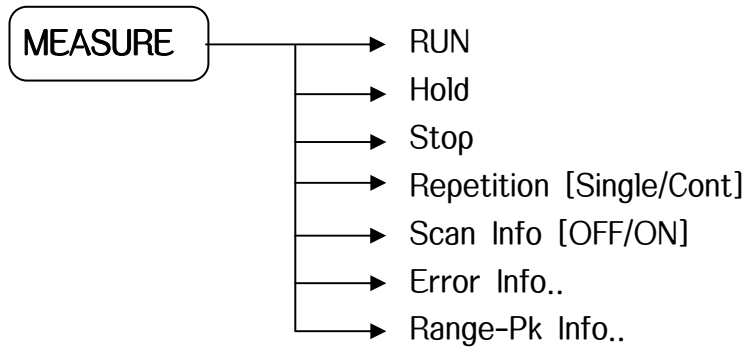


Correction data files generated in the amplitude of the signal analyzer's *Operation Manual: correction settings* section for details.

Comment : It's possible creation or modification correction factors by editor. (ex: WordPad.exe on Windows XP)
Each correction file has maximum 8192 points available, and you can save maximum 1000000 files about each factor.

Measure

In order to control Scan operation, use the following key.

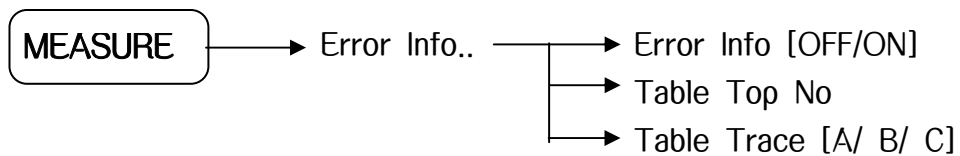


- RUN : Scan from start freq to stop freq.
- Hold : Ongoing action is temporary holded. If you want to resume, press RUN key.
- Stop : Stop the scanning action.
- Repetition : Select whether to repeat the entire range.
- Scan Info : Display the information of currently point in progress.
- Error Info.. : Set the display of information about the exceeded point over limit line (Error Points).
- Range-Pk Info : Divide screen with certain size area, then display peak information of each area.

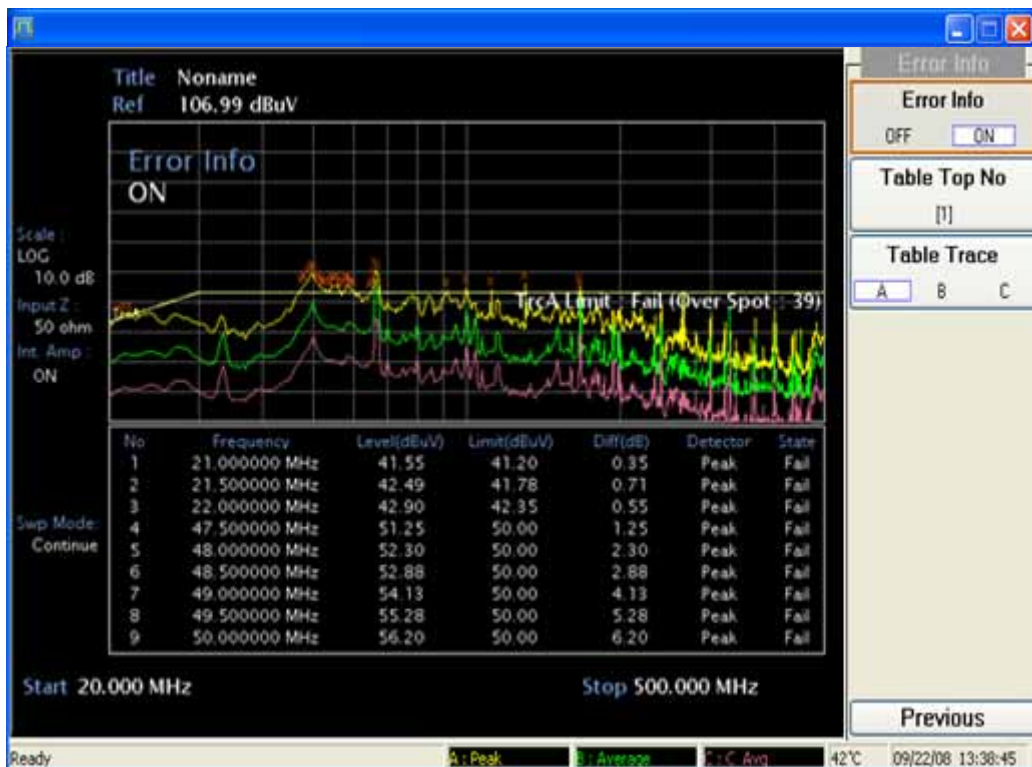
Comment : Scan operation is based on the on-screen information for Table Config start frequency of progress in stop frequency.

Display Error

In order to display about the error information that occurred during the Scan proceeding, use below key.



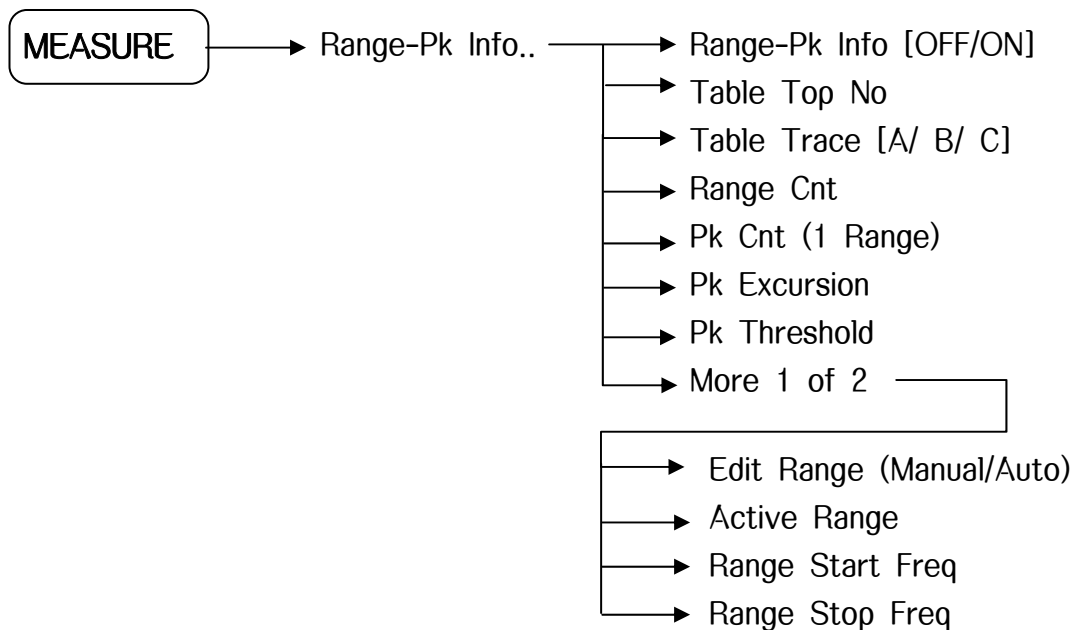
- Error Info : Set whether the display error information window.
- Table Top No : The number corresponds to the order in which to display the information in error.
- Table Trace : Select the trace to display error information.



Comment : The points that exceeded the limit line will appear as 'X' mark.

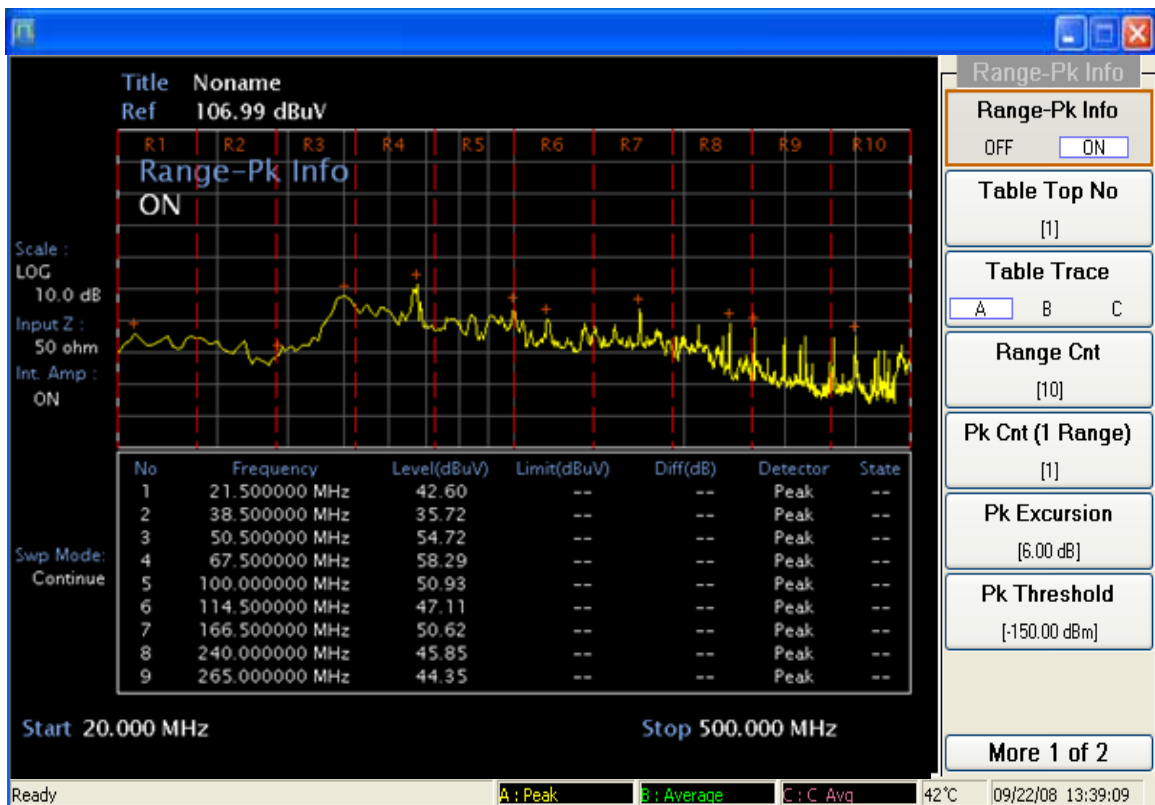
Display the peak in certain area

To find peak in certain area, use follow keys.



- Range-Pk Info : Display range-peak information on the screen.
- Table Top No : Display selected point on table.
- Table Trace : Select trace for display.
- Range Cnt : Set the maximum range number to display.
- Pk Cnt : Set the maximum number to find peaks in each range.
- Pk Excursion : Set the minimum amplitude variation of signals that the marker can identify as a peak.
- Pk Threshold : Sets a lower boundary to the active trace.
- Edit Range : You can modify frequency of range when select Manl.

- Active Range : Select any range to modify.
- Range Start Freq : Set the start frequency of selected range.
- Range Stop Freq : Set the stop frequency of selected range.



Comment : The peak points appear as '+' mark in Range-Pk display mode.

One point measurement

You can observe certain frequency after SCAN measurement by following procedure.

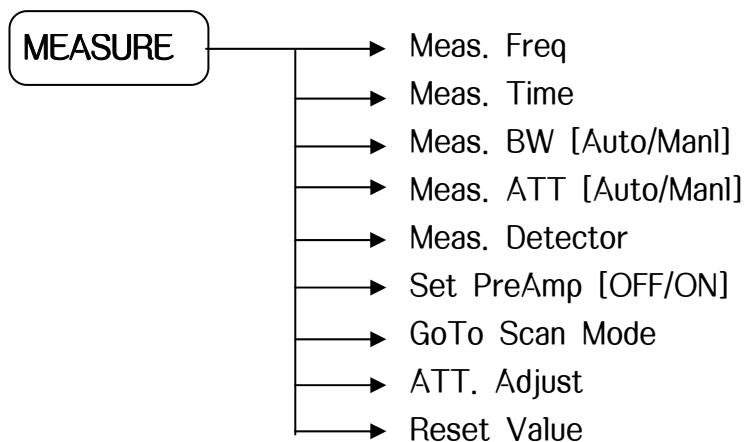
- 1) Stop SCAN measurement when entire scan completed. (Press **MEASURE** >> *Stop* key)
- 2) Display marker on trace and select a point what you want to measure. (Press **MARKER** or **PEAK** key)
- 3) Press *CISPR at Marker* key to enter the one point measurement.
- 4) The result of each detector will display lower of trace screen.
- 5) CISPR Measurement menu be presented at soft key area.
- 6) Press *CISPR at Mkr OFF* key to stop measurement.

CISPR Mode

In CISPR Mode, a frequency for continuous measurement is displayed to the screen. In this mode, using specific frequencies of the signal changes can be observed.

Measure

In order to measure in CISPR mode, use the following key.



- Meas. Freq : Set the frequency to measure.
- Meas. Time : Set the measure time each point. (At QP detection, if you want to measure accurate measurements, needed to above 1sec.)
- Meas. BW : Select 6dB Filter to measure.
- Meas. ATT : Select attenuator to measure. If you select 'Auto', the attenuator will be change according to input signal.
- Meas. Detector : Select signal detector.
- Set PreAmp : Whether you use the pre-amp.
 - * Operation range of the pre-amp : 1MHz~3GHz
 - MW PreAmp optional : 1GHz~26.5GHz

-
- GoTo Scan Mode : Stop measurement and move to Scan mode.
 - ATT. Adjust : According to current input signal, adjustable attenuator is selected.

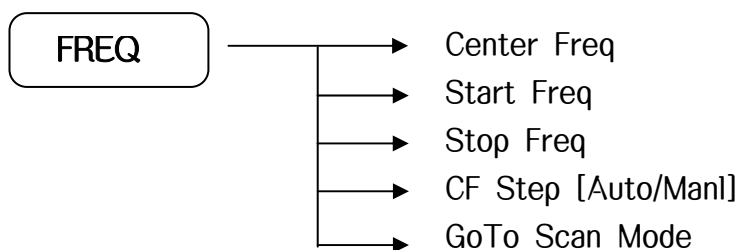
Comment : If you select auto about Meas. BW, it will be changed according to Meas. Frequency.

Debug Mode

Debug mode is almost similar to the behavior of the Spectrum mode. Peak portion of the signal is useful when you want to quickly.

FREQ Menu

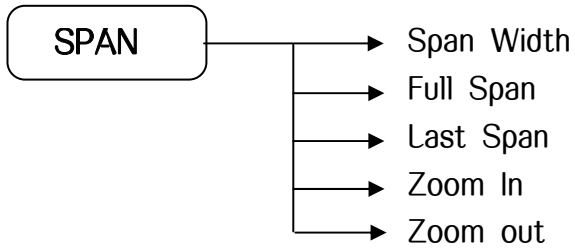
The frequency setting menu is displayed.



- Center Frequency : Set center frequency.
- Start Frequency : Set start frequency.
- Stop Frequency : Set stop frequency.
- CF Step : The CF step key is to move when the center frequency interval sets.
- GoTo Scan Mode : Move to Scan mode directly.

Span Menu

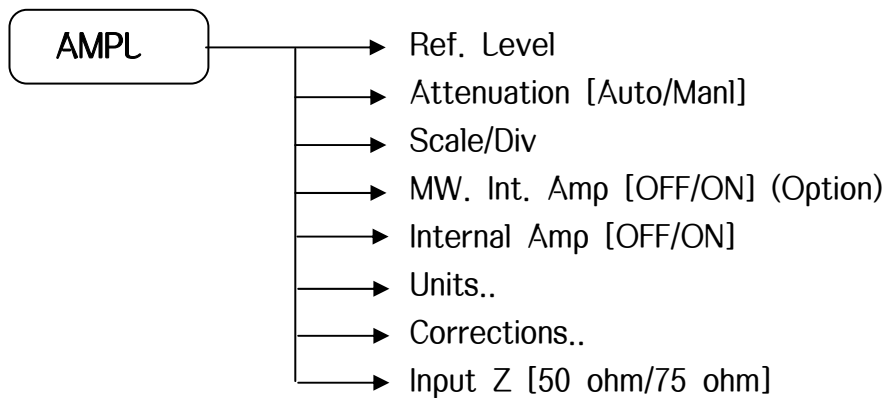
The frequency span setting menu is displayed.



- Span Width : Set span width.
- Full Span : Set maximum span.
- Last Span : Go back previous span.
- Zoom In : Current span is decrease to 1/2.
- Zoom Out : Current span is increase to 2.

Amplitude

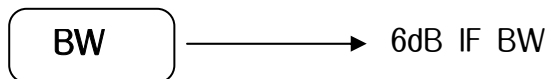
The amplitude setting menu is displayed.



- Ref. Level : Set the reference level.
- Attenuation : Set attenuation level according to input signal.
- Scale/Div : Set the grid spacing in y-axis.
- MW. Int. Amp : Ser MW PreAmp. (MW PreAmp Option)
- Internal Amp : Set internal amplifier.
- Units.. : Change the unit of the reference level.
- Corrections.. : Set the correction value of the measured value.
- Input Z : Set input impedance. (If you want to 75 ohm, must connect the external Pad.)

BW

6 dB bandwidth of the IF value, which sets the RBW.



- 6dB IF BW : Set RBW value.
You can select one of the 10/ 100/ 200/ 1k/ 9k/ 10k/
100k/ 120k/ 1MHz/ Impulse.

Limitations

- Scan mode, the following keys cannot available.

SPAN, TRACE, COUPLE, BW, AUX, TUNE, MKR>, FUNC

- CISPR mode, the following keys cannot available.

FREQ, SPAN, DISPLAY, TRACE, LIMIT, Trig, COUPLE, BW, AUX, TUNE, SWEEP,
Single, MARKER, PEAK, MKR>, FUNC

- Debug mode, the following keys cannot available.

MEASURE, CCONTROL, TRACE, LIMIT, COUPLE, AUX, TUNE, MKR>, FUNC

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SECTION 4 OPERATING

Read this manual and keep in mind contents before using the EMC measurement.

EMC Measurements

EMC measurement capability is largely consists of the following three modes.

- Scan mode
- Debug mode
- CISPR Authentication Mode

SCAN Mode

It is the main modes of the EMC measurement. Refer to the Config Table which is set by user, you can measure the signal from start frequency to stop frequency according to frequency steps. You can use frequency steps by a linear or log scale and set up some parameters (such as detector, range number, range parameter, limit table, correction table) by using a Config EMC table which can be saved by *.emc type.

EMC equipment can be measured 3 types (positive, average, quasi-peak) detectors at once and displayed in the screen. The TraceA becomes positive, the Trace B becomes average or RMS average, and the Trace C becomes quasi peak, log average, or CISPR average detector. You can set up a limit line by detector and compare 3 lines at once.

An enclosed CD with equipment has a manual and sample EMC files.

- EMC Config Table : *.emc
- EMC Limit Line : *.emt
- EMC Antenna Factor : *.ant
- EMC Cable Factor : *.cbl
- EMC Other Factor : *.oth
- EMC User Factor : *.usr

Sample files will be provided to easily modify or reuse. At this point, the contents of each file See Appendix C, the form must be modified to fit.

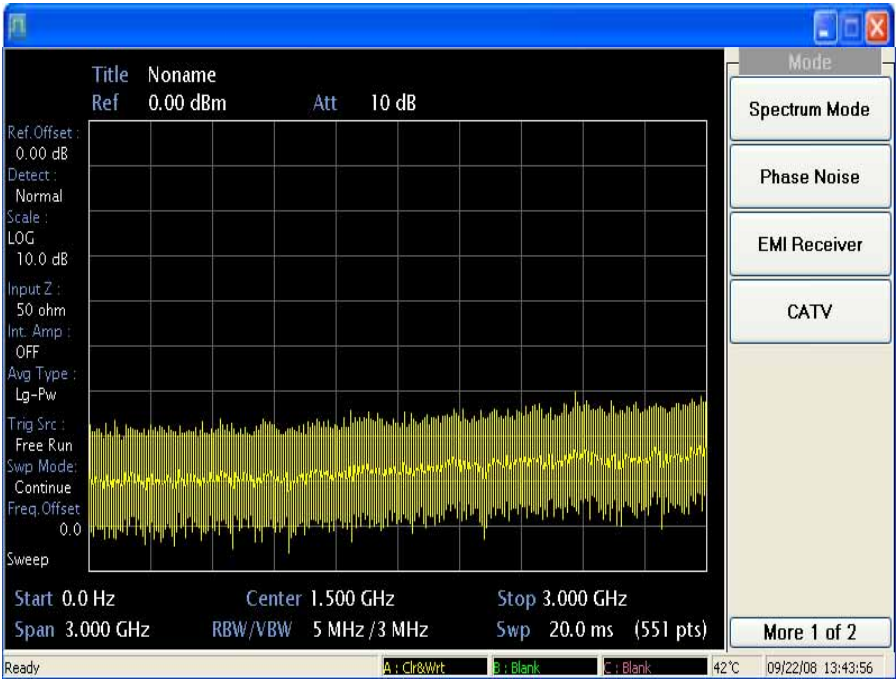
Comment : The EMC files must have related to the E:\UserData folder.

EMC SCAN mode measurement methods (Example)

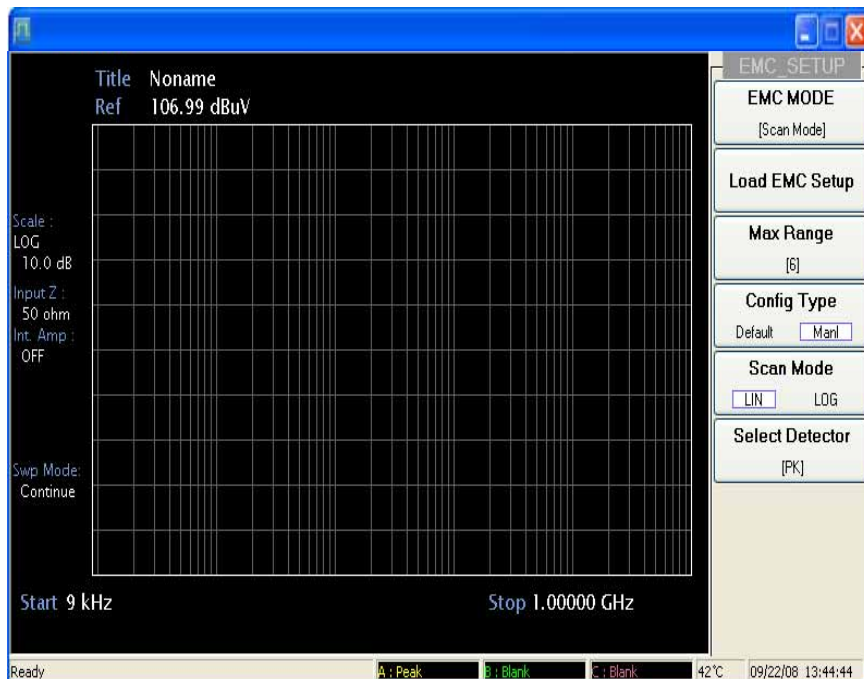
How to EMC Scan mode measurements using Signal analyzers are explained below with examples.

Comment : If you turn on the EMC Receiver Features, EMC Scan mode is a basic state.

- 1. Press a **MODE** key, EMI Receiver is selected by pressing a EMI Receiver key.

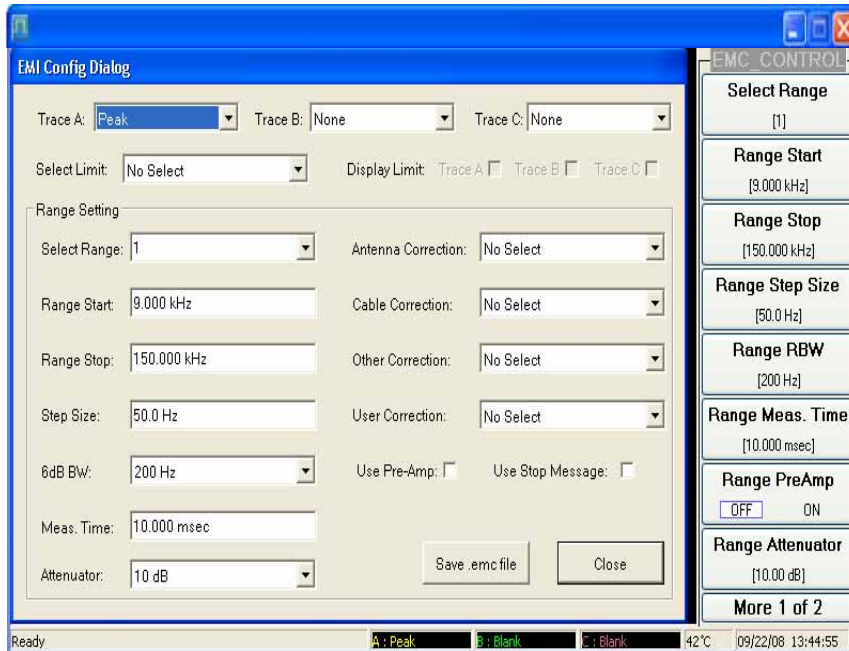


-
2. EMC entry mode, you press the **SETUP** key and Setup menu is displayed. Full Range can be used to measure, Type (Lin / Log) of measurement step and to measure detection modes, and whether to use PreSelector sets. Each setting has already saved files (*.emc) would put Load EMC Setup could not be questioned immediately.



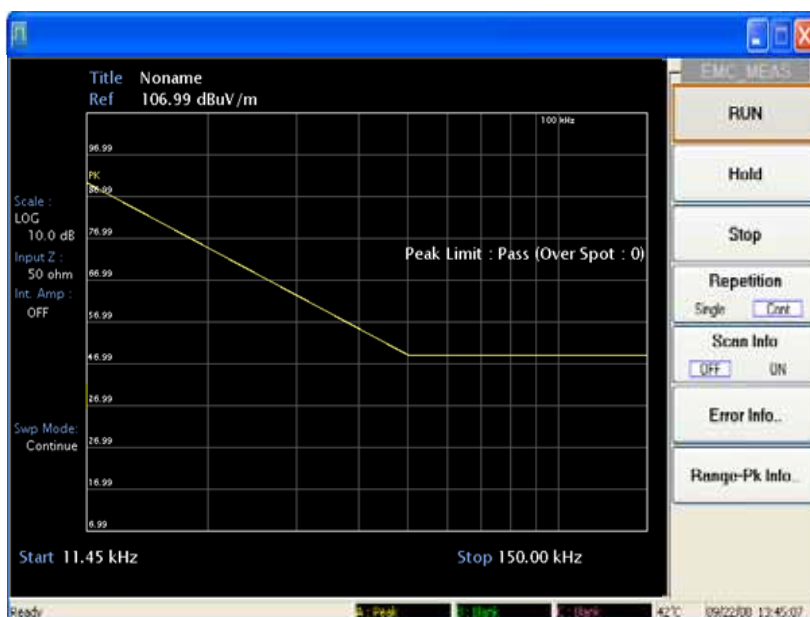
3. Multiple ranges of the target are measured in SCAN mode, divided by the measurement. Each zone can be set up every detail and actual measurements of SCAN have been set with reference to the contents of progress. Possible items for setting are as follows.
- Range Start Frequency : It means the start frequency for the range.
 - Range Stop Frequency : It means the stop frequency for the range.
 - Range Step Frequency : In the internal range, It means intervals for move.
 - Range Measurement Time : Every time you want to use for measuring point in the measurement is indicated.
 - 6dB IF BW Filter : It means IF BW filter.
 - Pre-Amplifier : Whether internal amplifier has been used.
 - Attenuator : Select usable attenuator.
 - Use Stop message : Whether sop message has been displayed.
 - Corrections (Antenna, Cable, Other, User Factor): Each file is used to correct the amplitude of each zone can be specified.

In order to adjust the settings in detail by pressing the **CONTROL** key, and EMC Config Table of contents for each area is changed. To use limit functions, you can use limit files in limit table feature.



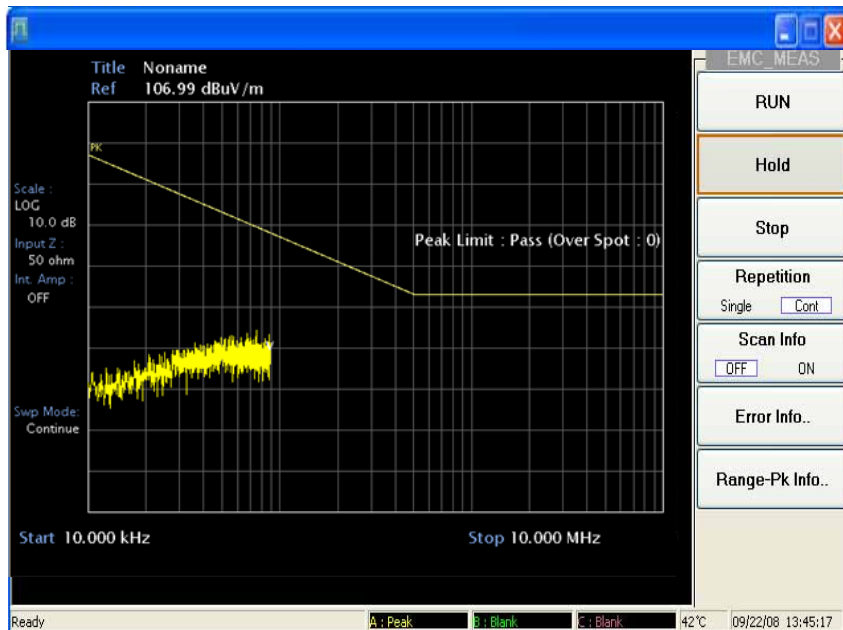
- Set the actual start and stop frequencies after press **FREQ** key. To display the measurement menu, **MEASURE** key press. Start scan by **RUN** key.

Comment : The start and stop frequency must remain of the start and stop of the entire area.

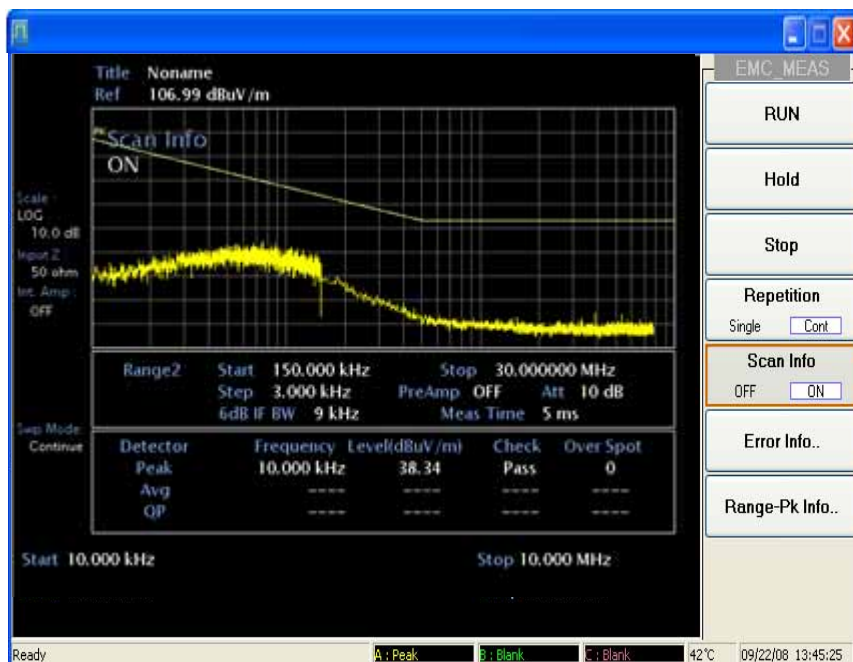


If you want to pause at measurement interval, it is possible by press *Hold* key.

Comment : Hold according to the settings on the screen more visible than it is to import the data.



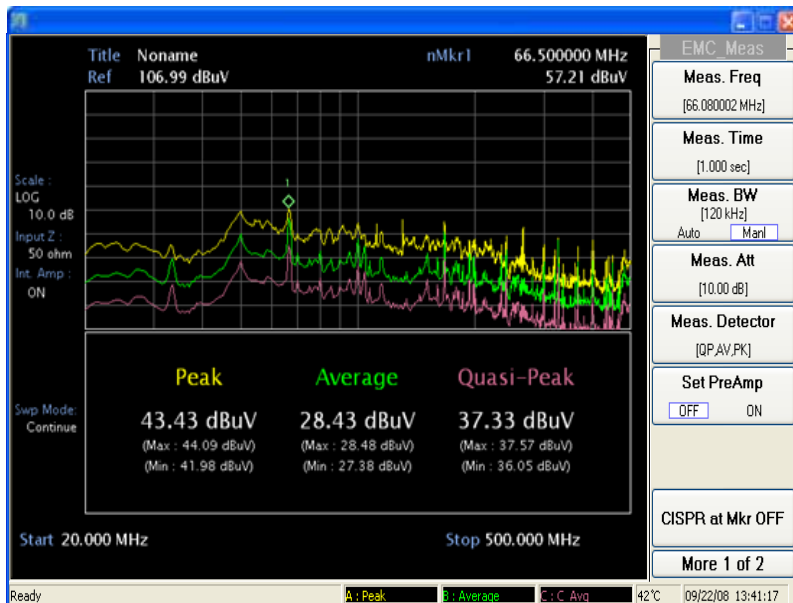
Press *Scan Info*, you can get information about the current location of progress.



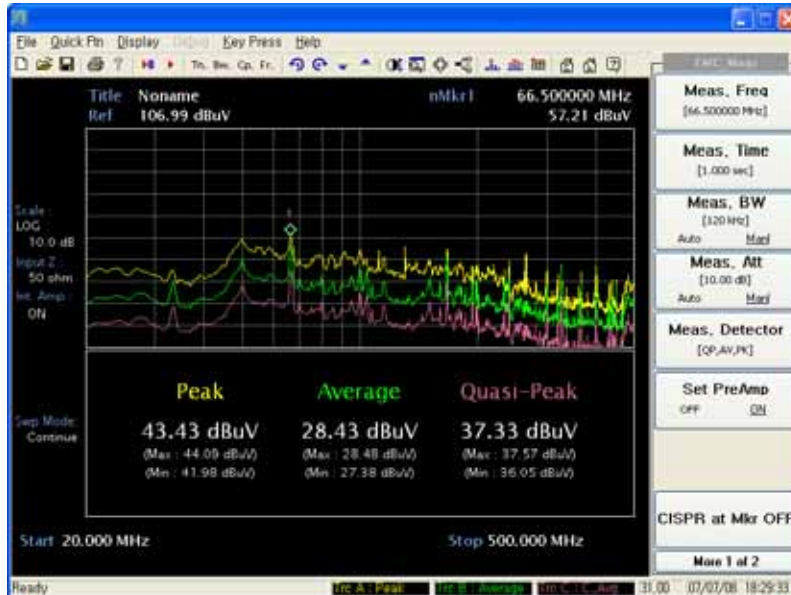
5. Depending on the selected output detection mode, signal is displayed an EMC screen. The limit is selected by comparing the level of signal lines and beyond the point where warranted display of the x. For more information on the display error, press *Error Info* key.



6. If you want find peaks at certain area, press *Range-Pk* key. This menu displays virtual line at screen and find peak at several area. You can change peak parameters and size of areas.



7. When scan action complete, you can observe certain frequency by One Point Measure. Press **MARKER** or **PEAK** key to display marker. Move activated marker to any point what you want. To measure, press *CISPR at Marker* key.

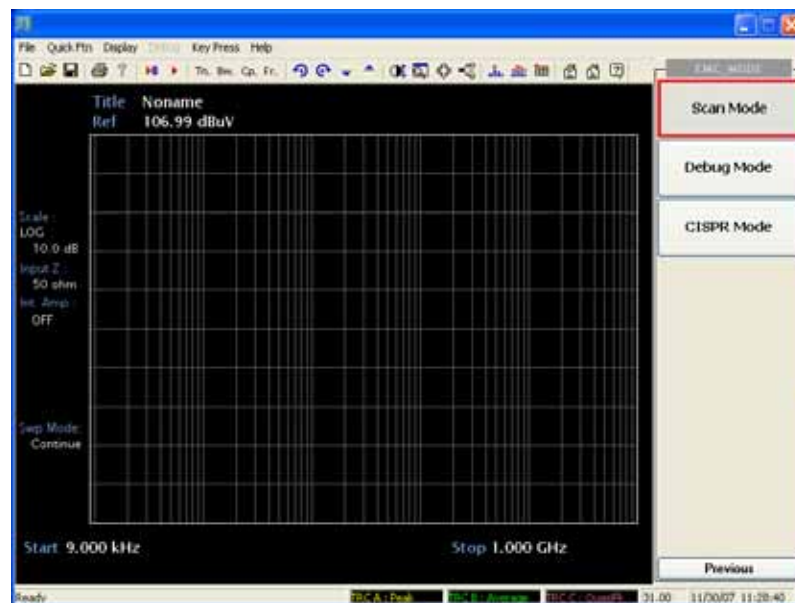


Press *CISPR at Mkr OFF* when you want to stop the measurement.

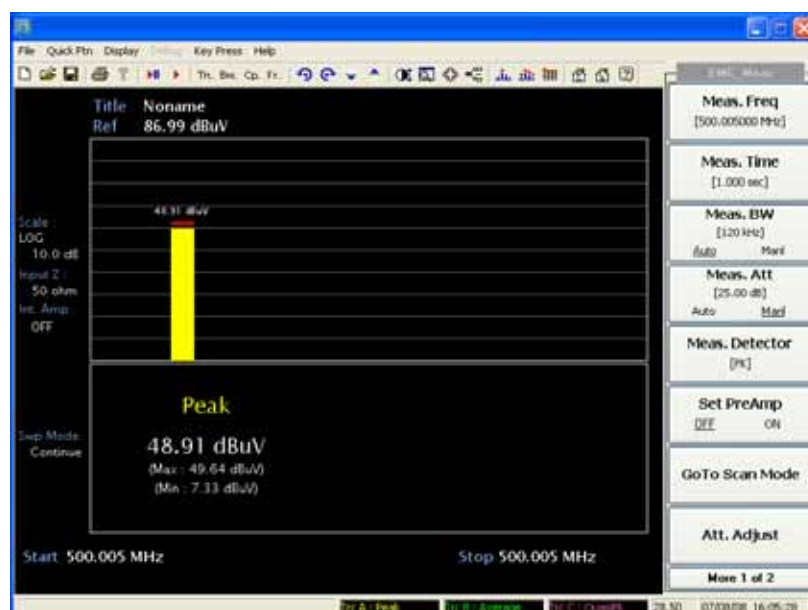
EMC CISPR Mode Measurement Method (Example)

For below example describes how to detect under a certain frequency of the signal analyzer using Peak, Average, and Quasi-peak value.

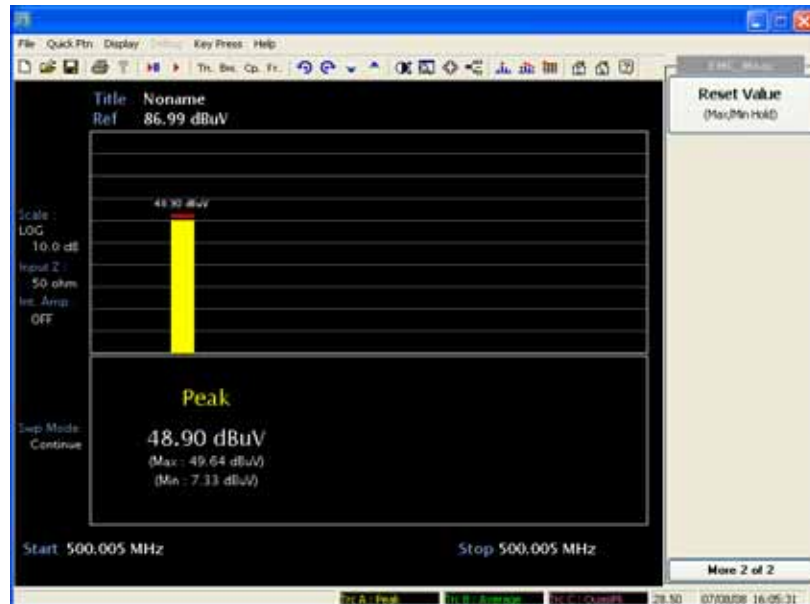
1. Set up **MODE** key and then press enter EMC mode. Set up **EMC Mode** key and press **CISPR Mode** then CISPR mode.



2. Select measuring frequency, measuring BW filter, preamp and attenuator. In order to change the detection mode press **Meas. Detector**. Turn on each detector what you want.



3. The result table displays maximum and minimum value since the starting of measurement. If you press *Reset Value* key (*More 1 of 2 >> Reset Value*), that will be reset to current value.



4. CISPR measurement will be stop when change measurement mode.

Comment : Attenuation will be realigned according to input signal by select Meas. ATT to auto.
If you set the Meas. BW to auto, BW filter be changed by Meas. Freq.

EMC Debug Mode Measurement Method

EMC Debug mode is normal mode of behavior Spectrum mode because the same methods. For more information, please refer to signal analyzer's Operation Manual

Comment : EMC mode, the Spectrum mode BW Unlike 3 db filter instead of the 6 db IF filter is used.

<Blank>

SECTION 5 DETAILED DESCRIPTION OF COMMANDS

General Description

This section gives detailed descriptions of the device messages for the signal analyzer in functional order.

SA Command

SCPI Command

	Command Name
■ Function	Here is the explanation of the command.
■ Remote Command	SA Command Δ sw SA Command Δ f SA Command? SCPI Command Δ sw SCPI Command Δ f SCPI Command? (Δ : Blank)
■ Response Message	sw or f (Depending on command)
■ Value of f	Range of sw or f (Depending on command)
■ Suffix code	Unit of f (Depending on command)

■ Initial setting Initial value for SA System

■ Example SA Command sw;
 SA Command f;
 SA Command?;
 SCPI Command sw;
 SCPI Command f;
 SCPI Command?;

Amplitude

RL

:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel

Reference Level

- **Function** Sets the reference level value.

- **Remote Command** *RL*Δ*f*
 RL?
 *:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel*Δ*f*
 :DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel?

- **Response Message** Reference Level (dBm)

- **Value of f** -170dBm to 30dBm (Step : 0.01dBm)

- **Suffix code** None : dBm
 DBM : dBm
 DBMV : dBmV
 DBUV : dBuV
 DBMA : dBmA
 DBUA : dBuA
 V : V
 MV : mV (10⁻³ V)
 UV : uV (10⁻⁶ V)
 NV : nV (10⁻⁹ V)
 PV : pV (10⁻¹² V)
 W : W
 MW : mW (10⁻³ W)
 UW : uW (10⁻⁶ W)
 NW : nW (10⁻⁹ W)
 PW : pW (10⁻¹² W)
 A : A

MA : mA (10^{-3} A)
 UA : uA (10^{-6} A)
 NA : nA (10^{-9} A)
 PA : pA (10^{-12} A)

- Initial setting 0 dBm

Example RL 10;
 RL 30DBM;
 RL ?;
 DISP:WIND:TRAC:Y:RLEV 10;
 DISP:WIND:TRAC:Y:RLEV 30DBM;
 DISP:WIND:TRAC:Y:RLEV?;

AT

[[:SENSe]:POWer[:RF]:ATTenuation

Attenuation (Only Debug / CISPR Mode)

- Function Sets the amount of attenuation for the input attenuator.
- Remote Command AT Δ f
 AT?
 [[:SENSe]:POWer[:RF]:ATTenuation Δ f
 [[:SENSe]:POWer[:RF]:ATTenuation?
- Response Message the amount of attenuation (dB)
- Value of f 0dB to 55dB (Step : 5dB)
- Suffix code None : dB
 DB : dB
- Initial setting 10 dB
- Example AT 10;

AT 10DB;
AT?;
POW:ATT 10;
POW:ATT 10DB;
POW:ATT?;

ATA

[[:SENSe]:POWer[:RF]:ATTenuation:AUTO

Attenuation Auto (Only Debug Mode)

- **Function** Sets input attenuation mode to the auto mode or the manual mode. If the auto mode is selected, the amount of attenuation is adjusted automatically. If the manual mode is selected, this affects Reference Level.

- **Remote Command** ATA Δ n
 ATA Δ sw
 ATA?
 [:SENSe]:POWer[:RF]:ATTenuation:AUTO Δ n
 [:SENSe]:POWer[:RF]:ATTenuation:AUTO Δ sw
 [:SENSe]:POWer[:RF]:ATTenuation:AUTO?

- **Response Message** 1 : ON
 0 : OFF

- **Value of n** 1 : ON
 0 : OFF

- **Value of sw** ON : ON
 OFF : OFF

- **Initial setting** 1

- **Example** ATA 1;

ATA ON;
ATA?;
POW:ATT:AUTO 1;
POW:ATT:AUTO ON;
POW:ATT:AUTO?;

SD

:DISPlay:LPLot:WINDow:TRACe:Y[:SCALe]:PDIVision

Scale/Divide

- Function Sets the scale/divide value.

- Remote Command SD Δ f
 SD?
 :DISPlay:LPLot:WINDow:TRACe:Y[:SCALe]:PDIVision Δ f
 :DISPlay:LPLot:WINDow:TRACe:Y[:SCALe]:PDIVision?

- Response Message Scale/Divide (dB/div)

- Value of f 0.1dB to 1dB (step : 0.1dB)
 1dB to 20dB (step : 1dB)

- Suffix code None : dB/div
 DB : dB/div

- Initial setting 10 dB/div

- Example SD 5;
 SD 10DB;
 SD?;
 DISP:LPL:WIND:TRAC:Y:PDIV 5;
 DISP:LPL:WIND:TRAC:Y:PDIV 10DB;
 DISP:LPL:WIND:TRAC:Y:PDIV?;

AU

:UNIT:POWer

Amplitude Units

-
- **Function** Sets the absolute amplitude units for the input signal display.

 - **Remote Command** AU△sw
AU?
:UNIT:POWer△sw
:UNIT:POWer?

 - **Response Message** DBM : dBm
DBMV : dBmV
DBUV : dBuV
DBMA : dBmA
DBUA : dBuA
V : V
W : W
A : A

 - **Value of sw** None : dBm
DBM : dBm
DBMV : dBmV
DBUV : dBuV
DBMA : dBmA
DBUA : dBuA
V : V
W : W
A : A

 - **Initial setting** DBM

 - **Example** AU DBM;
AU?
UNIT:POW DBM;
UNIT:POW?;

IA
[.:SENSe]:POWer[:RF]:GAIN[:STATe]

Internal Amplifier (Only Debug / CISPR Mode)

- Function Activates the internal amplifier.

- Remote Command IA Δ n
IA Δ sw
IA?
[:SENSe]:POWer[:RF]:GAIN[:STATe] Δ n
[:SENSe]:POWer[:RF]:GAIN[:STATe] Δ sw
[:SENSe]:POWer[:RF]:GAIN[:STATe]?

- Response Message 1 : ON
0 : OFF

- Value of n 1 : ON
0 : OFF

- Value of sw ON : ON
OFF : OFF

- Initial setting 0

- Example IA 1;
IA ON;
IA?;
POW:GAIN 1;
POW:GAIN ON;
POW:GAIN?;

IA2

MW-LNA (Option, Only Debug / CISPR Mode)

- Function Activates the internal amplifier(MW-LNA).

-
- Remote Command IA Δ n
 IA Δ sw
 IA?
 [:SENSe]:POWer[:RF]:GAIN[:STATe] Δ n
 [:SENSe]:POWer[:RF]:GAIN[:STATe] Δ sw
 [:SENSe]:POWer[:RF]:GAIN[:STATe]?

 - Response Message 1 : ON
 0 : OFF

 - Value of n 1 : ON
 0 : OFF

 - Value of sw ON : ON
 OFF : OFF

 - Initial setting 0

 - Example IA 1;
 IA ON;
 IA?;
 POW:GAIN 1;
 POW:GAIN ON;
 POW:GAIN?;

COAS

[:SENSe]:CORRection:CSET:ALL[:STATe]

All Correction State (Only Debug Mode)

- Function Selects all correction(1:Antenna, 2:Cable, 3:Other, 4:User) state to ON or OFF.

- Remote Command COAS Δ n

-
- COAS Δ sw
COAS?
[:SENSe]:CORRection:CSET:ALL[:STATe] Δ n
[:SENSe]:CORRection:CSET:ALL[:STATe] Δ sw
[:SENSe]:CORRection:CSET:ALL[:STATe]?
- Response Message 1 : ON
 0 : OFF

 - Value of n 1 : ON
 0 : OFF

 - Value of sw ON : ON
 OFF : OFF

 - Initial setting 0

 - Example COAS 1;
 COAS ON;
 COAS?;
 CORR:CSET:ALL 1;
 CORR:CSET:ALL ON;
 CORR:CSET:ALL?;

COA1|2|3|4
[:SENSe]:CORRection:CSET1|2|3|4[:STATe]

Correction State (Only Debug Mode)

- Function Selects correction state to ON or OFF.
 (1:Antenna, 2:Cable, 3:Other, 4:User)

- Remote Command COA1|2|3|4 Δ n
 COA1|2|3|4sw
 COA1|2|3|4?

[::SENSe]:CORRection:CSET1|2|3|4[:STATe]△n
[::SENSe]:CORRection:CSET1|2|3|4[:STATe]△sw
[::SENSe]:CORRection:CSET1|2|3|4[:STATe]?

- Response Message 1 : ON
 0 : OFF

- Value of n 1 : ON
 0 : OFF

- Value of sw ON : ON
 OFF : OFF

- Initial setting 0

- Example COA1 1;
 COA2 ON;
 COA3?;
 CORR:CSET1 1;
 CORR:CSET2 ON;
 CORR:CSET3?;

COAD
[::SENSe]:CORRection:CSET:ALL:DELeTe

All Correction OFF (Only Debug Mode)

- Function Sets all correction state and data to OFF.

- Remote Command COAD
 [::SENSe]:CORRection:CSET:ALL:DELeTe?

- Example COAD;
 CORR:CSET:ALL:DEL;

Bandwidth

RB

[[:SENSe]:BANDwidth|BWIDth[:RESolution]]

Resolution Bandwidth (Only Debug / CISPR Mode)

- **Function** Sets the RBW value.
- **Remote Command** RB Δ f
RB?
[:SENSe]:BANDwidth|BWIDth[:RESolution] Δ f
[:SENSe]:BANDwidth|BWIDth[:RESolution]?
- **Response Message** Resolution Bandwidth (Hz)
- **Value of f** IMPULSE, 1 MHz, 120 kHz, 100 kHz, 10 kHz, 9 kHz, 1 kHz, 200 Hz, 100 Hz, 10 Hz
- **Suffix code f**
None : Hz (10^0)
HZ : Hz (10^0)
KHZ : kHz (10^3)
MHZ : MHz (10^6)
GHZ : GHz (10^9)
- **Initial setting** 1 MHz
- **Example**
RB IMPULSE;
RB 1MHZ;
RB?
BAND IMPULSE;
BAND 1MHZ;
BAND?;

Display

FSCR

:DISPlay:FSCReen[:STATe]

Full Screen (Only Debug Mode)

- **Function** Sets the full screen mode.

- **Remote Command**
 - FSCR△n
 - FSCR△sw
 - FSCR?
 - :DISPlay:FSCReen[:STATe]△n
 - :DISPlay:FSCReen[:STATe]△sw
 - :DISPlay:FSCReen[:STATe]?

- **Response Message**
 - 1 : ON
 - 0 : OFF

- **Value of n**
 - 1 : ON
 - 0 : OFF

- **Value of sw**
 - ON : ON
 - OFF : OFF

- **Initial setting** 1

- **Example**
 - FSCR 1;
 - FSCR ON;
 - FSCR?
 - DISP:FSCR 1;
 - DISP:FSCR ON;
 - DISP:FSCR?;

DL

:DISPlay:WINDow:TRACe:Y:DLINe

Display Line Amplitude (Only Debug Mode)

- **Function** Sets the amplitude of Display Line.

- **Remote Command** DL Δ f
 DL?
 :DISPlay:WINDow:TRACe:Y:DLINe Δ f
 :DISPlay:WINDow:TRACe:Y:DLINe?

- **Response Message** Amplitude of Display Line

- **Value of f** Reference Level to (Reference Level-10*Scale/DIV)
 (Step : 0.01dBm)

- **Suffix code** None : dBm
 DBM : dBm
 DBMV : dBmV
 DBUV : dBuV
 DBMA : dBmA
 DBUA : dBuA
 V : V
 MV : mV (10⁻³ V)
 UV : uV (10⁻⁶ V)
 NV : nV (10⁻⁹ V)
 PV : pV (10⁻¹² V)
 W : W
 MW : mW (10⁻³ W)
 UW : uW (10⁻⁶ W)
 NW : nW (10⁻⁹ W)
 PW : pW (10⁻¹² W)
 FW : fW (10⁻¹⁵ W)
 A : A

MA : mA (10^{-3} A)
 UA : uA (10^{-6} A)
 NA : nA (10^{-9} A)
 PA : pA (10^{-12} A)

- Initial setting Reference Level

- Example DL 0;
 DL -50DBM;
 DL?;
 DISP:WIND:TRAC:Y:DLIN 0;
 DISP:WIND:TRAC:Y:DLIN -50DBM;
 DISP:WIND:TRAC:Y:DLIN?;

DLS

:DISPlay:WINDow:TRACe:Y:DLINe:STATe

Display Line State (Only Debug Mode)

- Function Turns Display Line to ON or OFF.

- Remote Command DLS△n
 DLS△sw
 DLS?
 :DISPlay:WINDow:TRACe:Y:DLINe:STATe△n
 :DISPlay:WINDow:TRACe:Y:DLINe:STATe△sw
 :DISPlay:WINDow:TRACe:Y:DLINe:STATe?

- Response Message 1 : ON
 0 : OFF

- Value of n 1 : ON
 0 : OFF

- Value of sw ON : ON

-
- OFF : OFF
 - Initial setting 0
 - Example DLS 1;
DLS ON;
DLS?
DISP:WIND:TRAC:Y:DLIN:STAT 1;
DISP:WIND:TRAC:Y:DLIN:STAT ON;
DISP:WIND:TRAC:Y:DLIN:STAT?;

TH

:DISPlay:WINDow:TRACe:Y:TLINe

Threshold Line Amplitude (Only Debug Mode)

- Function Sets the threshold level and ignores data below this value.
- Remote Command TH Δ f
TH?
:DISPlay:WINDow:TRACe:Y:TLINe Δ f
:DISPlay:WINDow:TRACe:Y:TLINe?
- Response Message Threshold line amplitude
- Value of f Reference Level to Reference Level-10*Scale/DIV
(Step : 0.01dBm)
- Suffix code None : dBm
DBM : dBm
DBMV : dBmV
DBUV : dBuV
DBMA : dBmA
DBUA : dBuA
V : V
MV : mV (10⁻³ V)

UV : μV (10^{-6} V)
 NV : nV (10^{-9} V)
 PV : pV (10^{-12} V)
 W : W
 MW : mW (10^{-3} W)
 UW : μW (10^{-6} W)
 NW : nW (10^{-9} W)
 PW : pW (10^{-12} W)
 FW : fW (10^{-15} W)
 A : A
 MA : mA (10^{-3} A)
 UA : μA (10^{-6} A)
 NA : nA (10^{-9} A)
 PA : pA (10^{-12} A)

■ Initial setting Reference Level-10*Scale/Div

■ Example TH 0;
 TH -50DBM;
 TH?;
 DISP:WIND:TRAC:Y:TLIN 0;
 DISP:WIND:TRAC:Y:TLIN -50DBM;
 DISP:WIND:TRAC:Y:TLIN?;

THS
:DISPlay:WINDow:TRACe:Y:TLINe:STATe

Threshold Line State (Only Debug Mode)

■ Function Turns Threshold Line to ON or OFF.

■ Remote Command THS Δ n
 THS Δ sw
 THS?
 :DISPlay:WINDow:TRACe:Y:TLINe:STATe Δ n
 :DISPlay:WINDow:TRACe:Y:TLINe:STATe Δ sw

:DISPlay:WINDow:TRACe:Y:TLINe:STATe?

■ Response Message 1 : ON
 0 : OFF

■ Value of n 1 : ON
 0 : OFF

■ Value of sw ON : ON
 OFF : OFF

■ Initial setting 0

■ Example THS 1;
 THS ON;
 THS?
 DISP:WIND:TRAC:Y:TLIN:STAT 1;
 DISP:WIND:TRAC:Y:TLIN:STAT ON;
 DISP:WIND:TRAC:Y:TLIN:STAT?;

TITLE

:DISPlay:ANNotation:TITLe:DATA

Screen Title (Only Debug Mode)

■ Function Places the character data on the title area of the display.
 Available characters are Alpha-numeric.

■ Remote Command TITLE△text
 TITLE?
 :DISPlay:ANNotation:TITLe:DATA△text
 :DISPlay:ANNotation:TITLe:DATA?

■ Response Message Title

-
- Value of text String
 - Initial setting Noname
 - Example TITLE SignalAnalyzer;
TITLE?;
DISP:ANN:TITL:DATA SignalAnalyzer;
DISP:ANN:TITL:DATA?;

GRAT

:DISPlay:WINDow:TRACe:GRATicule:GRID[:STATe]

Graticule (Only Scan / Debug Mode)

- Function Sets the display graticule to Type1 or Type2 or OFF.
- Remote Command GRAT△sw
GRAT?
:DISPlay:WINDow:TRACe:GRATicule:GRID[:STATe]△sw
:DISPlay:WINDow:TRACe:GRATicule:GRID[:STATe]?
- Response Message TYPE1 : Type1
TYPE2 : Type2
OFF : OFF
- Value of sw TYPE1 : Type1
TYPE2 : Type2
OFF : OFF
- Initial setting TYPE1
- Example GRAT TYPE1;
GRAT?
DISP:WIND:TRAC:Y:GRAT:GRID TYPE1;
DISP:WIND:TRAC:Y:GRAT:GRID?;

WH

:DISPlay:WINDow:WHITe

White Mode

- **Function** Turns the white mode to ON or OFF.

- **Remote Command** WH Δ n
WH Δ sw
WH?
:DISPlay:WINDow:WHITe Δ n
:DISPlay:WINDow:WHITe Δ sw
:DISPlay:WINDow:WHITe?

- **Response Message** 1 : ON
0 : OFF

- **Value of n** 1 : ON
0 : OFF

- **Value of sw** ON : ON
OFF : OFF

- **Initial setting** 0

- **Example** WH 1;
WH ON;
WH?
DISP:WIND:WHIT 1;
DISP:WIND:WHIT ON;
DISP:WIND:WHIT?;

File

FREAD

:MMEMory:CATalog

File Read

- Function Reads files in selected folder.
- Remote Command FREAD?△'file_folder'
:MMEMory:CATalog?△'file_folder'
- Value of file_folder File Folder
- Response Message File Name,,File Size.
- Example FREAD? 'C:';
FREAD? 'D:\Temp';
MMEM:CAT? 'C:';
MMEM:CAT? 'D:\Temp';

FSAVE

:MMEMory:STORe

File Save

- Function Saves the file which type was defined by the extension.
- Remote Command FSAVE△'file_name'
:MMEMory:STORe△'file_name'
- Value of file_name File Path + File Name
- Supported Extension bmp : Bitmap
jpg : jpeg

png : png
ant : Antenna
cbl : Cable
oth : Other
usr : User
emc : EMC Config
emt : EMC Limit
sts : Debug Status

- Example
FSAVE 'C:\demo1.emc';
FSAVE 'C:\demo2.emt';
MMEM:STRO 'C:\demo1.emc';
MMEM:STRO 'C:\demo2.emt';

FLOAD *:MMEMory:LOAD*

File Load

- Function Loads the selected file.
- Remote Command FLOAD△ 'file_name'
:MMEMory:LOAD△ 'file_name'
- Value of file_name File Path + File Name
- Supported Extension
ant : Antenna
cbl : Cable
oth : Other
usr : User
emc : EMC Config
emt : EMC Limit
sts : Debug Status
- Example
FLOAD 'C:\demo1.emc';
FLOAD 'C:\demo2.emt';
MMEM:LOAD 'C:\demo1.emc';

MMEM:LOAD 'C:\demo2.emt';

FDEL

:MMEMory:DElete

File Delete

- **Function** Deletes the selected file.
- **Remote Command** FDEL△'file_name'
:MMEMory:DElete△'file_name'
- **Value of file_name** File Path + File Name
- **Example** FDEL 'C:\demo1.emc';
FDEL 'C:\demo2.emt';
MMEM:DEL 'C:\demo1.emc';
MMEM:DEL 'C:\demo2.emt';

FCOPY

:MMEMory:COPIY

File Copy

- **Function** Copies the selected file.
- **Remote Command** FCOPY△'src_file_name', 'dest_file_name'
:MMEMory:COPIY△'src_file_name', 'dest_file_name'
- **Value of src_file_name, dest_file_name**
File Path + File Name
- **Example** FCOPY 'C:\demo1.emc', 'D:\demo1.emc';
FCOPY 'C:\demo2.emt', 'D:\demo2.emt';
MMEM:COPIY 'C:\demo1.emc', 'D:\demo1.emc';
MMEM:COPIY 'C:\demo2.emt', 'D:\demo2.emt';

FRENAME
:MMEMory:MOVE

File Rename

- **Function** Rename the selected file.
- **Remote Command** `FRENAME△‘src_file_name’,‘dest_file_name’`
`:MMEMory:MOVE△‘src_file_name’,‘dest_file_name’`
- **Value of src_file_name, dest_file_name**
File Path + File Name
- **Example**
`FRENAME ‘C:\demo1.emc’,‘C:\demo1_1.emc’;`
`FRENAME ‘C:\demo2.emt’,‘C:\demo2_1.emt’;`
`MMEM:MOVE ‘C:\demo1.emc’,‘C:\demo1_1.emc’;`
`MMEM:MOVE ‘C:\demo2.emt’,‘C:\demo2_1.emt’;`

FMOVE
MMEMory:DATA

File Move

- **Function** Sends or Received Binary Data of Selected File. Maximum Size of Sended File is 2MByte, and Maximum Size of Received File is 30MByte.
- **Remote Command** `FMOVE△‘file_name’,definite_length_block`
`FMOVE?△‘file_name’`
`MMEMory:DATA△‘file_name’,definite_length_block`
`MMEMory:DATA?△‘file_name’`
- **Value of file_name** File Path + File Name
- **Value of definite_length_block**

+ number of file size + file size + file data

■ Example

FMOVE 'C:\Sended_Sample.txt',#14abcd; cf) #+1+4+abcd

FMOVE? 'C:\Received_Sample.txt';

MMEM:DATA 'C:\ Sended_Sample.txt',#14abcd;

MMEM:DATA? 'C:\ Received_Sample.txt';

Frequency

CF

[[:SENSe]:FREQuency:CENTer

Center Frequency (Only Debug / CISPR Mode)

- **Function** Sets the center frequency. If the center frequency is set to near the frequency of boundary, the span value would not be satisfied. In case of this, the span value would be adjusted automatically.
- **Remote Command** CF Δ f
CF?
[:SENSe]:FREQuency:CENTer Δ f
[:SENSe]:FREQuency:CENTer?
- **Response Message** Center Frequency (Hz)
- **Value of f** 20 Hz to 3.0 GHz / 20 Hz to 13.2 GHz / 20 Hz to 26.5 GHz
- **Suffix code**
None : Hz (10^0)
HZ : Hz (10^0)
KHZ : kHz (10^3)
MHZ : MHz (10^6)
GHZ : GHz (10^9)
- **Example**
CF 123456;
CF 50MHZ;
CF?;
FREQ:CEN7T 123456;
FREQ:CENT 50MHZ;
FREQ:CENT?;

FA

[[:SENSe]:FREQuency:STARt

Start Frequency (Only Scan / Debug Mode)

- **Function** Sets the start frequency. If the start frequency is set to near the frequency of boundary, the span value would not be satisfied. In case of this, the span value would be adjusted automatically

- **Remote Command** FA Δ f
FA?
[:SENSe]:FREQuency:STARt Δ f
[:SENSe]:FREQuency:STARt?

- **Response Message** Start Frequency (Hz)

- **Value of f** 20 Hz to 3.0 GHz-10 Hz / 20 Hz to 13.2 GHz-10 Hz / 20 Hz to 26.5 GHz-10 Hz

- **Suffix code**
None : Hz (10^0)
HZ : Hz (10^0)
KHZ : kHz (10^3)
MHZ : MHz (10^6)
GHZ : GHz (10^9)

- **Example** FA 123456;
FA 50MHZ;
FA?;
FREQ:STAR 123456;
FREQ:STAR 50MHZ;
FREQ:STAR?;

FB

[[:SENSe]:FREQuency:STOP

Stop Frequency (Only Scan / Debug Mode)

-
- **Function** Sets the stop frequency. If the stop frequency is set to near the frequency of boundary, the span value would not be satisfied. In case of this, the span value will be adjusted automatically.

 - **Remote Command** FB Δ f
 FB?
 [:SENSe]:FREQuency:STOP Δ f
 [:SENSe]:FREQuency:STOP?

 - **Response Message** Stop Frequency (Hz)

 - **Value of f** 20 Hz+10 Hz to 3.0 GHz / 20 Hz+10 Hz to 13.2 GHz / 20 Hz+10 Hz to 26.5 GHz

 - **Suffix code** None : Hz (10⁰)
 HZ : Hz (10⁰)
 KHZ : kHz (10³)
 MHZ : MHz (10⁶)
 GHZ : GHz (10⁹)

 - **Example** FB 123456;
 FB 50MHZ;
 FB?;
 FREQ:STOP 123456;
 FREQ:STOP 50MHZ;
 FREQ:STOP?;

SS
[:SENSe]:FREQuency:CENTer:STEP[:INCRement]

CF Step (Only Debug Mode)

- **Function** Sets the center frequency step size.

- **Remote Command** SS Δ f

SS?
[:SENSe]:FREQUency:CENTer:STEP[:INCRement]Δf
[:SENSe]:FREQUency:CENTer:STEP[:INCRement]?

- Response Message CF Step (Hz)
- Value of f 1 Hz to 3.0 GHz / 13.2 GHz / 26.5 GHz
- Suffix code
None : Hz (10⁰)
HZ : Hz (10⁰)
KHZ : kHz (10³)
MHZ : MHz (10⁶)
GHZ : GHz (10⁹)
- Initial setting 10% of Span
- Example
SS 123456;
SS 50MHZ;
SS?;
FREQ:CENT:STEP 123456;
FREQ:CENT:STEP 50MHZ;
FREQ:CENT:STEP?;

SSA

[:SENSe]:FREQUency:CENTer:STEP:AUTO

CF Step Auto (Only Debug Mode)

- Function Sets the cf step to the auto mode or the manual mode.
- Remote Command
SSAΔn
SSAΔsw
SSA?
[:SENSe]:FREQUency:CENTer:STEP:AUTOΔn
[:SENSe]:FREQUency:CENTer:STEP:AUTOΔsw

[[:SENSe]:FREQuency:CENTer:STEP:AUTO?

- Response Message 1 : Auto
 0 : Manual

- Value of n 1 : Auto
 0 : Manual

- Value of sw ON : Auto
 OFF : Manual

- Initial setting 1

- Example SSA 1;
 SSA ON;
 SSA?;
 FREQ:CENT:STEP:AUTO 1;
 FREQ:CENT:STEP:AUTO ON;
 FREQ:CENT:STEP:AUTO?;

Limit Line

LLCS[1~3]

:CALCulate:LLINe[1~3]:CHECK:STATe

Limit Line Check State (Only Scan / Debug Mode)

- **Function** Turns the limit line checking to on or off.

- **Remote Command**
LLCS[1~3]△n
LLCS[1~3]△sw
LLCS[1~3]?
:CALCulate:LLINe[1~3]:CHECK:STATe△n
:CALCulate:LLINe[1~3]:CHECK:STATe△sw
:CALCulate:LLINe[1~3]:CHECK:STATe?

- **Response Message**
1 : ON
0 : OFF

- **Value of n**
1 : ON
0 : OFF

- **Value of sw**
ON : ON
OFF : OFF

- **Initial setting** 0

- **Example**
LLCS 1;
LLCS2 ON
LLCS2?
CALC:LLIN:CHEC:STAT 1;
CALC:LLIN2:CHEC:STAT ON;
CALC:LLIN2:CHEC:STAT?

LLFC[1~3]

:CALCulate:LLINe[1~3]:FAIL:COUNT

Limit Line Fail Count (Only Scan / Debug Mode)

- Function Returns the limit line Fail Count.
- Remote Command LLFC[1~3]?
:CALCulate:LLINe[1~3]:FAIL:COUNT?
- Response Message Fail Count
- Initial setting 0
- Example LLFC?;
LLFC2?;
CALC:LLIN:FAIL:COUNT?;
CALC:LLIN2:FAIL:COUNT?;

ALARM

:CALCulate:LLINe:ALARM

Alarm State (Only Scan / Debug Mode)

- Function Turns the alarm state on or off
- Remote Command ALARM△n
ALARM△sw
ALARM?
:CALCulate:LLINe:ALARM△n
:CALCulate:LLINe:ALARM△sw
:CALCulate:LLINe:ALARM?
- Response Message 1 : ON

-
- 0 : OFF
 - Value of n
 - 1 : ON
 - 0 : OFF
 - Value of sw
 - ON : ON
 - OFF : OFF
 - Initial setting 0
 - Example
 - ALARM 1;
 - ALARM ON
 - ALARM?
 - CALC:LLIN:ALARM 1;
 - CALC:LLIN2:ALARM ON;
 - CALC:LLIN2:ALARM?

LLAO

:CALCulate:LLINe:AOff

Clear Limit Line (Only Scan / Debug Mode)

- Function Clear Limit Line.
- Remote Command
 - LLAO
 - :CALCulate:LLINe:AOff?
- Example
 - LLAO;
 - CALC:LLIN:AOff?;

[Reference]

You can insert X, Y Data of Limit Line after loading EMC Limit File(*.emt).

Marker

MS[1~9]

:CALCulate:MARKer[1~9]:STATe

Marker State (Only Scan / Debug Mode)

- **Function** Sets the selected marker state.

- **Remote Command**
MS[1~9]△n
MS[1~9]△sw
MS[1~9]?
:CALCulate:MARKer[1~9]:STATe△n
:CALCulate:MARKer[1~9]:STATe△sw
:CALCulate:MARKer[1~9]:STATe?

- **Response Message**
1 : ON
0 : OFF

- **Value of n**
1 : ON
0 : OFF

- **Value of sw**
ON : ON
OFF : OFF

- **Initial setting** 0

- **Example**
MS 1;
MS5 1;
MS5?;
CALC:MARK:STAT 1;
CALC:MARK5:STAT ON;
CALC:MARK5:STAT?

MM[1~9]

:CALCulate:MARKer[1~9]:MODE

Marker Mode (Only Scan / Debug Mode)

- Function Sets the selected marker to Normal, Delta Mode.
- Remote Command MM[1~9]△sw
MM[1~9]?
:CALCulate:MARKer[1~9]:MODE△sw
:CALCulate:MARKer[1~9]:MODE?
- Response Message POS : Normal
DELT : Delta
OFF : OFF
- Value of sw POSition: Normal
DELTa : Delta
OFF : OFF
- Initial setting OFF
- Example MM POS;
MM5 DELT;
MM5?;
CALC:MARK:MODE POS;
CALC:MARK5:MODE DELT;
CALC:MARK5:MODE?

MF[1~9]

:CALCulate:MARKer[1~9]:X

Marker Frequency (Only Scan / Debug Mode)

- Function Sets the marker frequency of the selected marker. If the marker mode is the delta mode, Sets the difference value of

the marker frequency and the delta marker frequency.

- Remote Command MF[1~9]Δf
MF[1~9]?
:CALCulate:MARKer[1~9]:XΔf
:CALCulate:MARKer[1~9]:X?
- Response Message Marker Frequency (Hz)
- Value of f Start Frequency to Stop Frequency
- Suffix code
None : Hz (10⁰)
HZ : Hz (10⁰)
KHZ : kHz (10³)
MHZ : MHz (10⁶)
GHZ : GHz (10⁹)
- Initial setting Center Frequency
- Example
MF 123456;
MF5 1GHZ;
MF5?;
CALC:MARK:X 123456;
CALC:MARK5:X 1GHZ;
CALC:MARK5:X?

MA[1~9]

:CALCulate:MARKer[1~9]:Y

Marker Amplitude (Only Scan / Debug Mode)

- Function Returns on the amplitude data.
- Remote Command MA[1~9]?
:CALCulate:MARKer[1~9]:Y?

■ Response Message Marker Amplitude (Hz in FREQ or ITIME, sec in PER or TIME)

■ Example MA?;
 MA5?
 CALC:MARK:Y?
 CALC:MARK5:Y?

MT[1~9]

:CALCulate:MARKer[1~9]:TRACe

Select Marker Trace (Only Scan / Debug Mode)

■ Function Selects the marker trace.

■ Remote Command MT[1~9]△n
 MT[1~9]?
 :CALCulate:MARKer[1~9]:MKT△n
 :CALCulate:MARKer[1~9]:MKT?

■ Response Message 1 : Trace A
 2 : Trace B
 3 : Trace C

■ Value of n 1 : Trace A
 2 : Trace B
 3 : Trace C

■ Initial setting 1

■ Example MT 2;
 MT5 2;
 MT5?;
 CALC:MARK:TRAC 2;
 CALC:MARK5:TRAC 2;
 CALC:MARK5:TRAC?;

MTB

:CALCulate:MARKer:TABLE:STATE

Marker Table State (Only Debug Mode)

- **Function** Sets the marker table state.

- **Remote Command** MTB Δ n
 MTB Δ sw
 MTB?
 :CALCulate:MARKer:TABLE:STATE Δ n
 :CALCulate:MARKer:TABLE:STATE Δ sw
 :CALCulate:MARKer:TABLE:STATE?

- **Response Message** 1 : ON
 0 : OFF

- **Value of n** 1 : ON
 0 : OFF

- **Value of sw** ON : ON
 OFF : OFF

- **Initial setting** 0

- **Example** MTB 1;
 MTB ON;
 MTB?;
 CALC:MARK:TABL:STAT 1;
 CALC:MARK:TABL:STAT ON;
 CALC:MARK:TABL:STAT?;

MAO

:CALCulate:MARKer:AOFF

Marker All OFF (Only Scan / Debug Mode)

- **Function** Turns off All of the marker.

■ Remote Command MAO
 :CALCulate:MARKer:AOff

■ Example MAO;
 CALC:MARK:AOff;

Measurement

MEA

:MEASure:START

Measure Start

- **Function** Starts the measurement.
- **Remote Command** MEA Δ sw
MEA?
:MEASure:STARt Δ sw
:MEASure:STARt?
- **Response Message** SCAN : Scan Mode
DEBUG : Debug Mode
CISPR : CISPR Mode
- **Value of sw** SCAN : Scan Mode
DEBUG : Debug Mode
CISPR : CISPR Mode
- **Example** MEA SCAN;
MEA?;
MEAS:STAR SCAN;
MEAS:STAR?;

[Reference]

You can insert Data of EMC Config after loading EMC Config File(*.emc) in SCAN Mode.

Meas. Control

SCAN

:MEASure:SCAN

Scan (Only Scan Mode)

- Function Starts or Stop Scan Mode.
- Remote Command `SCAN△sw`
`:MEASure:SCAN△sw`
- Value of sw
RUN : Start Scan
HOLD : Hold Scan
STOP : Stop Scan
- Example
`SCAN START;`
`MEAS:SCAN START;`

RTYPE

Repetition (Only Scan Mode)

- Function Sets Run Type to Single or Continuous.
- Remote Command RTYPE Δ sw
RTYPE?
- Response Message SING : Single Mode
CONT : Continuous Mode
- Value of sw SINGle : Single Mode
CONT : Continuous Mode
- Example RTYPE SING;
RTYPE?;

SINFO

Scan Info (Only Scan Mode)

- Function Sets Scan Info to ON or OFF.
- Remote Command SINFO Δ n
SINFO Δ sw
SINFO?
- Response Message 1 : ON
0 : OFF
- Value of n 1 : ON
0 : OFF
- Value of sw ON : ON
OFF : OFF

■ Initial setting 0

■ Example SINFO 1;
 SINFO ON;
 SINFO?;

<Blank>

Mode

MODE

:INSTrument[:SElect]

Mode

- **Function** Sets Current Mode.

- **Remote Command** MODE Δ sw
 MODE?
 :INSTrument[:SElect] Δ sw
 :INSTrument[:SElect]?

- **Response Message** SA : Spectrum Mode
 EMC : EMC Mode

- **Value of sw** SA : Spectrum Mode
 EMC : EMC Mode

- **Initial setting** SA

- **Example** MODE SA;
 MODE?;
 INST SA;
 INST?;

Mode Setup

TRANGE

Max Range (Only Scan Mode)

- Function Sets the total range number.
- Remote Command TRANGE△n
 TRANGE?
- Response Message Total Range Number
- Value of n 1 to 6
- Initial setting 3
- Example TRANGE 3;
 TRANGE?;

STYPE

Config Type (Only Scan Mode)

- Function Sets Scan Type of Scan Mode.
- Remote Command STYPE△sw
 STYPE?
- Response Message DFLT : Default Mode
 MANL : Manual Mode
- Value of sw DFLT : Default Mode
 MANL : Manual Mode

- Initial setting MANL
- Example STYPE MANL;
 STYPE?;

FSTEP

Scan Mode (Only Scan Mode)

- Function Sets Freq Step of Scan Mode.
- Remote Command FSTEP Δ sw
 FSTEP?
- Response Message LIN : Linear Mode
 LOG : Logarithmic Mode
- Value of sw LINear : Linear Mode
 LOGarithmic : Logarithmic Mode
- Initial setting LOG
- Example FSTEP LOG;
 FSTEP?;

DETPK

Peak Detector (Only Scan / CISPR Mode)

- Function Sets Peak Detector to ON or OFF.
- Remote Command DETPK Δ n
 DETPK Δ sw
 DETPK?
- Response Message 1 : ON

-
- 0 : OFF
 - Value of n 1 : ON
 0 : OFF
 - Value of sw ON : ON
 OFF : OFF
 - Initial setting 1
 - Example DETPK 1;
 DETPK ON;
 DETPK?;

DETAV

Average Detector (Only Scan / CISPR Mode)

- Function Sets Average Detector to ON or OFF.
- Remote Command DETAV△n
 DETAV△sw
 DETAV?
- Response Message 1 : ON
 0 : OFF
- Value of n 1 : ON
 0 : OFF
- Value of sw ON : ON
 OFF : OFF
- Initial setting 0
- Example DETAV 1;
 DETAV ON;
 DETAV?;

DETLOG

Log-Average Detector (Only Scan / CISPR Mode)

- Function Sets Log-Average Detector to ON or OFF.

- Remote Command DETLOG△n
 DETLOG△sw
 DETLOG?

- Response Message 1 : ON
 0 : OFF

- Value of n 1 : ON
 0 : OFF

- Value of sw ON : ON
 OFF : OFF

- Initial setting 0

- Example DETLOG 1;
 DETLOG ON;
 DETLOG?;

DETRMS

RMS-Average Detector (Only Scan / CISPR Mode)

- Function Sets RMS-Average Detector to ON or OFF.

- Remote Command DETRMS△n
 DETRMS△sw
 DETRMS?

- Response Message 1 : ON
 0 : OFF

-
- Value of n 1 : ON
 0 : OFF
 - Value of sw ON : ON
 OFF : OFF
 - Initial setting 0
 - Example DETRMS 1;
 DETRMS ON;
 DETRMS?;

DETCISPR

CISPR-Average Detector (Only Scan / CISPR Mode)

- Function Sets CISPR-Average Detector to ON or OFF.
- Remote Command DETCISPR△n
 DETCISPR△sw
 DETCISPR?
- Response Message 1 : ON
 0 : OFF
- Value of n 1 : ON
 0 : OFF
- Value of sw ON : ON
 OFF : OFF
- Initial setting 0
- Example DETCISPR 1;
 DETCISPR ON;
 DETCISPR?;

DETQP

Quasi-Peak Detector (Only Scan / CISPR Mode)

- Function Sets Quasi-Peak Detector to ON or OFF.

- Remote Command DETQP△n
 DETQP△sw
 DETQP?

- Response Message 1 : ON
 0 : OFF

- Value of n 1 : ON
 0 : OFF

- Value of sw ON : ON
 OFF : OFF

- Initial setting 0

- Example DETQP 1;
 DETQP ON;
 DETQP?;

Peak Search

MPK[1~9]

:CALCulate:MARKer[1~9]:MAXimum

Peak Search (Only Scan / Debug Mode)

- **Function** Places the selected marker on the highest point of the marker trace.
- **Remote Command** MPK[1~9]
:CALCulate:MARKer[1~9]:MAXimum
- **Example** MPK;
MPK5;
CALC:MARK:MAX;
CALC:MARK5:MAX;

MPKN[1~9]

:CALCulate:MARKer[1~9]:MAXimum:NEXT

Next Peak Search (Only Scan / Debug Mode)

- **Function** Places the selected marker on the next highest point of the marker trace.
- **Remote Command** MPKN[1~9]
:CALCulate:MARKer[1~9]:MAXimum:NEXT
- **Example** MPKN;
MPKN5;
CALC:MARK:MAX:NEXT;
CALC:MARK5:MAX:NEXT;

MPKL[1~9]

:CALCulate:MARKer[1~9]:MAXimum:LEFT

Next Left Peak Search (Only Scan / Debug Mode)

- **Function** Places the selected marker on the next-left peak point of the marker trace.
- **Remote Command** MPKL[1~9]
:CALCulate:MARKer[1~9]:MAXimum:LEFT
- **Example** MPKL;
MPKL5;
CALC:MARK:MAX:LEFT;
CALC:MARK5:MAX:LEFT;

MPKR[1~9]
:CALCulate:MARKer[1~9]:MAXimum:RIGHT

Next Right Peak Search (Only Scan / Debug Mode)

- **Function** Places the selected marker on the next-right peak point of the marker trace.
- **Remote Command** MPKR[1~9]
:CALCulate:MARKer[1~9]:MAXimum:RIGHT
- **Example** MPKR;
MPKR5;
CALC:MARK:MAX:RIGH;
CALC:MARK5:MAX:RIGH;

MPKM
:CALCulate:MARKer[1~9]:MINimum

Minimum Search (Only Scan / Debug Mode)

- **Function** Places the selected marker on the minimum level point of the marker trace.

-
- Remote Command MPKM[1~9]
:CALCulate:MARKer[1~9]:MINinum

- Example MPKM;
MPKM5;
CALC:MARK:MIN;
CALC:MARK5:MIN;

MPKP

:CALCulate:MARKer[1~9]:PTPeak

Peak to Peak Search (Only Scan / Debug Mode)

- Function Places the selected reference marker on the minimum level point and places the selected delta marker on the maximum level point.

- Remote Command MPKP[1~9]
:CALCulate:MARKer[1~9]:PTPeak

- Example MPKP;
MPKP5;
CALC:MARK:PTP;
CALC:MARK5:PTP;

MMPKN

:CALCulate:MARKer:PEAK:MULTi:NUMBER

Marker Multi Peak Number (Only Scan / Debug Mode)

- Function Sets the multi peak number.
- Remote Command MKPKN Δ n
MKPKN?
:CALCulate:MARKer:PEAK:MULTi:NUMBER Δ n

:CALCulate:MARKer:PEAK:MULTi:NUMber?

- Response Message Multi Peak Number
- Value of n 1 to 9
- Initial setting 9
- Example MMPKN 5;
MMPKN?;
CALC:MARK:PEAK:MULT:NUM 5;
CALC:MARK:PEAK:MULT:NUM?;

MMPK

:CALCulate:MARKer:PEAK:MULTi

Marker Multi Peak (Only Scan / Debug Mode)

- Function Searches Multi Peak and places each marker.
- Remote Command MMPK
:CALCulate:MARKer:PEAK:MULTi
- Example MMPK;
CALC:MARK:PEAK:MULT;

MMPKT

:CALCulate:MARKer:PEAK:MULTi:TRACe

Marker Multi Peak Trace (Only Scan / Debug Mode)

- Function Sets the multi peak trace.
- Remote Command MKPKT△n
MKPKT?

-
- :CALCulate:MARKer:PEAK:MULTi:TRACe Δ n
:CALCulate:MARKer:PEAK:MULTi:TRACe?
 - Response Message Multi Peak Trace
 - Value of n 1 to 3
 - Initial setting 1
 - Example MMPKT 1;
 MMPKT?;
 CALC:MARK:PEAK:MULT:TRAC 1;
 CALC:MARK:PEAK:MULT:TRAC?;

MPKE

:CALCulate:MARKer:PEAK:EXCursion

Marker Peak Search Excursion (Only Debug Mode)

- Function Sets the peak least amplitude for peak search.
 It is valid when MPKPA is set to PAR.
- Remote Command MPKE Δ f
 MPKE?
 :CALCulate:MARKer:PEAK:EXCursion Δ f
 :CALCulate:MARKer:PEAK:EXCursion?
- Response Message Marker Peak Search Excursion (dB)
- Value of f 0.03dB to 210dB
- Initial setting 3 dB
- Example MPKE 3;
 MPKE 6DB?;

MPKE?
CALC:MARK:PEAK:EXC 3;
CALC:MARK:PEAK:EXC 6DB;
CALC:MARK:PEAK:EXC?;

MPKTH

:CALCulate:MARKer:PEAK:THReshold

Marker Peak Search Threshold (Only Debug Mode)

- **Function** Sets the low limit line for peak search.
It is valid when MPKPA is set to PAR.

- **Remote Command** MPKTH Δ f
MPKTH?
:CALCulate:MARKer:PEAK:THReshold Δ f
:CALCulate:MARKer:PEAK:THReshold?

- **Response Message** Marker Peak Search Threshold (dBm)

- **Value of f** Ref level to -210dB

- **Suffix code**
 - None : dBm
 - DBM : dBm
 - DBMV : dBmV
 - DBUV : dBuV
 - DBMA : dBmA
 - DBUA : dBuA
 - V : V
 - MV : mV (10^{-3} V)
 - UV : μ V (10^{-6} V)
 - NV : nV (10^{-9} V)
 - PV : μ V (10^{-12} V)
 - W : W
 - MW : mW (10^{-3} W)
 - UW : μ W (10^{-6} W)

NW : nW (10^{-9} W)
PW : pW (10^{-12} W)
FW : fW (10^{-15} W)
A : A
MA : mA (10^{-3} A)
UA : uA (10^{-6} A)
NA : nA (10^{-9} A)
PA : pA (10^{-12} A)

- Initial setting -100 dBm

- Example MPKTH -80;
 MPKTH -100DBM?;
 MPKTH?;
 CALC:MARK:PEAK:THR -80;
 CALC:MARK:PEAK:THR -100DBM;
 CALC:MARK:PEAK:THR?;

MPKPA

:CALCulate:MARKer:PEAK:SEARch:MODE

Marker Peak Mode (Only Debug Mode)

- Function Sets Peak Mode to Parameter Or Maximum.

- Remote Command MPKPA Δ sw
 MPKPA?
 :CALCulate:MARKer:PEAK:SEARch:MODE Δ sw
 :CALCulate:MARKer:PEAK:SEARch:MODE?

- Response Message PAR : Parameter
 MAX : MAXimum

- Value of sw PARAmeter : Parameter
 MAXimum : Maximum

■ Initial setting

PAR

■ Example

MPKPA PAR;

MPKPA?;

CALC:MARK:PEAK:SEAR:MODE PAR;

CALC:MARK:PEAK:SEAR:MODE?;

Preset

PRST

:SYSTem:PRESet

Preset

- **Function** Executes preset. All instrument parameters are set to default values.
- **Remote Command** PRST
:SYSTem:PRESet
- **Example** PRST;
SYST:PRES;

Printer

HCOPY
:HCOPY[:IMMediate]

Hard Copy

- Function Prints entire screen image.
- Remote Command *HCOPY*
 :HCOPY[:IMMediate]
- Example *HCOPY;*
 HCOP;

Span

SP

[[:SENSe]:FREQuency:SPAN

Span (Only Debug Mode)

- **Function** Sets the span.
- **Remote Command** SP Δ f
SP?
[:SENSe]:FREQuency:SPAN Δ f
[:SENSe]:FREQuency:SPAN?
- **Response Message** Span (Hz)
- **Value of f** 0 Hz, 10 Hz to 3.0 GHz-10 Hz
/ 0 Hz, 10 Hz to 13.2 GHz-10 Hz
/ 0 Hz, 10 Hz to 26.5 GHz-10 Hz
- **Suffix code** None : Hz (10^0)
HZ : Hz (10^0)
KHZ : kHz (10^3)
MHZ : MHz (10^6)
GHZ : GHz (10^9)
- **Example** SP 123456;
SP 50MHZ;
SP ?;
FREQ:SPAN 123456;
FREQ:SPAN 50MHZ;
FREQ:SPAN?;

FS

[::SENSe]:FREQuency:SPAN:FULL

Full Span (Only Debug Mode)

- **Function** Sets the full span.
- **Remote Command** FS
[::SENSe]:FREQuency:SPAN:FULL
- **Example** FS;
FREQ:SPAN:FULL;

LS

[::SENSe]:FREQuency:SPAN:PREVious

Last Span (Only Debug Mode)

- **Function** Changes to two times the previous span. Span is varied in the range that allows holding the center frequency.
- **Remote Command** LS
[::SENSe]:FREQuency:SPAN:PREVious
- **Example** LS;
FREQ:SPAN:PREV;

ZI

[::SENSe]:FREQuency:SPAN:ZIN

Zoom-In (Only Debug Mode)

- **Function** Changes to 50% of the current span.
- **Remote Command** ZI

[::SENSE]:FREQUENCY:SPAN:ZIN

- Example ZI;
FREQ:SPAN:ZIN;

ZO

[::SENSE]:FREQUENCY:SPAN:ZOUT

Zoom-Out (Only Debug Mode)

- Function Changes to 200% of the current span.
- Remote Command ZO
[::SENSE]:FREQUENCY:SPAN:ZOUT
- Example ZO;
FREQ:SPAN:ZOUT;

Sweep

ST

[[:SENSe]:SWEep:TIME

Sweep Time (Only Debug / CISPR Mode)

- **Function** Sets the sweep time or measurement time.
- **Remote Command** ST Δ f
ST?
[:SENSe]:SWEep:TIME Δ f
[:SENSe]:SWEep:TIME?
- **Response Message** Sweep Time (s)
- **Value of f** 5 ms to 2000 s : Sweep mode
1 μ s to 2000 s : Zero Span mode
- **Suffix code t** None : s (10^0)
KSEC : ks (10^3)
SEC : s (10^0)
MSEC : ms (10^{-3})
USEC : μ s (10^{-6})
NSEC : ns (10^{-9})
PSEC : ps (10^{-12})
- **Initial setting** 100 ms
- **Example** ST 100;
ST 50MSEC
ST?;
SWE:TIME 100;

SWE:TIME 50MSEC;
SWE:TIME?;

STA

[[:SENSe]:SWEep:TIME:AUTO

Sweep Time Auto (Only Debug Mode)

- Function Sets the sweep time mode to the auto mode or the manual mode..

- Remote Command STA△n
 STA△sw
 STA?
 [:SENSe]:SWEep:TIME:AUTO△n
 [:SENSe]:SWEep:TIME:AUTO△sw
 [:SENSe]:SWEep:TIME:AUTO?

- Response Message 1 : ON
 0 : OFF

- Value of n 1 : ON
 0 : OFF

- Value of sw ON : ON
 OFF : OFF

- Initial setting 1

- Example STA 1;
 STA ON;
 STA?
 SWE:TIME:AUTO 1;
 SWE:TIME:AUTO ON;
 SWE:TIME:AUTO?;

CO

:INITiate:CONTinuous

Continuous Sweep

- Function Sets the continuous sweep mode. Repeats acting sweep
- Remote Command CO
 :INITiate:CONTinuous
- Example CO;
 INIT:CONT;

SI

:INITiate[:IMMediate]

Single Sweep

- Function Sets the single sweep mode. After acting sweep, stop repeating sweep.
- Remote Command SI
 :INITiate[:ImMediate]
- Example SI;
 INIT;

System

BEEP

Beep

- Function Turns Beep to ON or OFF when pressing key pad..

- Remote Command BEEP△n
 BEEP△sw
 BEEP?

- Response Message 1 : ON
 0 : OFF

- Value of n 1 : ON
 0 : OFF

- Value of sw ON : ON
 OFF : OFF

- Initial setting 0

- Example BEEP 1;
 BEEP ON;
 BEEP?;

ECHO

Echo

- Function Turns Echo to ON or OFF when controlled by hyper terminal..

-
- Remote Command ECHO△n
ECHO△sw
ECHO?

 - Response Message 1 : ON
0 : OFF

 - Value of n 1 : ON
0 : OFF

 - Value of sw ON : ON
OFF : OFF

 - Initial setting 1

 - Example ECHO 1;
ECHO ON;
ECHO?;

Trace

TRF[1~3]
:TRACe[1~3]:MODE

Trace Status (Only Debug Mode)

- **Function** Sets the trace status.

- **Remote Command** TRF△sw
 TRF?
 :TRACe[1~3]:MODE△sw
 :TRACe[1~3]:MODE?

- **Response Message** WRIT : Clear & Wirte
 MAXH : Max Hold
 MINH : Min Hold
 VIEW : View
 BLAN : Blank

- **Value of sw** WRITe : Clear & Wirte
 MAXHold : Max Hold
 MINHold : Min Hold
 VIEW : View
 BLANK : Blank

- **Initial setting** WRIT : Trace A
 BLAN : Trace B
 BLAN : Trace C

- **Example** TRF WRIT;
 TRF3 MAXH;
 TRF3?

TRAC:MODE WRIT;
TRAC3:MODE MAXH;
TRAC3:MODE?;

TRD
:TRACe[:DATA]

Query Trace Data (Only Scan Mode)

- **Function** Queries the scan level data. in Scan Mode

- **Remote Command** TRD? Δ sw
 :TRACe[:DATA]? Δ sw

- **Response Message** Data[0],Data[1],Data[2].....

- **Value of sw** TRACE1 : Trace A
 TRACE2 : Trace B
 TRACE3 : Trace C

- **Example** TRD? TRACE1;
 TRAC? TRACE1;

TRDF
:TRACe[:DATA]:FREQuency

Query Trace Data (Only Scan Mode)

- **Function** Queries the scan frequency data. in Scan Mode

- **Remote Command** TRD? Δ sw
 :TRACe[:DATA]? Δ sw

- **Response Message** Data[0],Data[1],Data[2].....

-
- Value of sw TRACE1 : Trace A
 TRACE2 : Trace B
 TRACE3 : Trace C
 - Example TRDF? TRACE1;
 TRAC:FREQ? TRACE1;

TRD
:TRACe[:DATA]

Send/Query Trace Data (Only Debug Mode)

- Function Sends the trace data or Queries the trace data. The number of Send/Query Data is changed depend on Sweep Point.
- Remote Command TRD Δ sw,data1,data2,data3.....
 TRD? Δ sw
 :TRACe[:DATA] Δ sw
 :TRACe[:DATA]? Δ sw
- Response Message Data[0],Data[1],Data[2].....(Num : Points)
- Value of sw TRACE1 : Trace A
 TRACE2 : Trace B
 TRACE3 : Trace C
- Example TRD TRACE1,-80,-70,-50,-40,-50,-60,-70,-80;
 TRD? TRACE1;
 TRAC TRACE1,-80,-70,-50,-40,-50,-60,-70,-80;
 TRAC? TRACE1;

TRD
:TRACe[:DATA]

Query Trace Data (Only CISPR Mode)

-
- **Function** Queries the detector level data. in CISPR Mode

 - **Remote Command** TRD?△sw
 :TRACe[:DATA]?△sw

 - **Response Message** Peak, Average, Quasi-Peak(Hold), Quasi-Peak(Present)

 - **Value of sw** CISPR : Detector

 - **Example** TRD? CISPR;
 TRAC? CISPR;

TDF
:TRACe:FORMat

Trace Format

- **Function** Sets the trace format.

- **Remote Command** TDF△sw
 TDF?
 :TRACe:FORMat△sw
 :TRACe:FORMat?

- **Response Message** ASC : Ascii Code
 REAL,64 : 8 Byte Real
 INT,32 : 4 Byte Integer
 REAL,32 : 4 Byte Real

- **Value of sw** ASCii : Ascii Code
 REAL,64 : 8 Byte Real
 INTger,32 : 4 Byte Integer
 REAL,32 : 4 Byte Real

-
- Initial setting Ascii Code

 - Example TDF ASC;
 TDF?
 TRAC:FORM ASC;
 TRAC:FORM?;

Trigger

TSO

:TRIGger[:SEQuence]:SOURce

Trigger Source

- **Function** Sets the trigger switch and the trigger source.
- **Remote Command** TSO Δ sw
TSO?
:TRIGger[:SEQuence]:SOURce Δ sw
:TRIGger[:SEQuence]:SOURce?
- **Response Message** IMM : Selects the Free-run mode
EXT : Selects the External mode
- **Value of sw** IMMEDIATE : Selects the Free-run mode
EXTERNAL : Selects the External mode
- **Initial setting** IMM
- **Example** TSO IMM;
TSO?;
TRIG:SOUR IMM;
TRIG:SOUR?;

TSL

:TRIGger[:SEQuence]:SLOPe

Trigger Slope

-
- Function Selects the trigger slope type.

 - Remote Command TSL△sw
 TSL?
 :TRIGger[:SEQuence]:SLOPe△sw
 :TRIGger[:SEQuence]:SLOPe?

 - Response Message POS
 NEG

 - Value of sw POSitive
 NEGative

 - Initial setting POS

 - Example TSL POS;
 TSL?;
 TRIG:SLOP POS;
 TRIG:SLOP?;

GPIB Common Command

**CLS*

Clear Status Command

- Function Clears the status byte register.
- Remote Command *CLS
- Example *CLS;

**ESE*

Standard Event Status Enable

- Function Sets the standard event status enable register.
- Remote Command *ESE Δ n
*ESE?
- Response Message Register Value
- Value of n 0 to 255 : Represents the sum of the bit-weighted values.
- Example *ESE 20:
*ESE?;

**ESR?*

Standard Event Status Register Query

- Function Returns the current value in the standard event status register.

-
- Remote Command *ESR?
 - Response Message Register Value
 - Example *ESR?;

**IDN?*

Identification Query

- Function Returns the model name, etc of the equipment
- Remote Command *IDN?
- Response Message Company, Model, Serial, Version
- Example *IDN?;

**OPC*

Operation Complete Command

- Function Sets the standard event register bit 0 to 1 when the requested action was completed.
- Remote Command *OPC
- Example *OPC;

**OPC?*

Operation Complete Query

- Function Sets the output queue to 1 to generate a MAV summary message when all pending select device operations have been completed.

-
- Remote Command *OPC?
 - Response Message 1
 - Example *OPC?;

****RST***

Rest Command

- Function Resets the device
- Remote Command *RST
- Example *RST;

****SRE***

Service Request Enable Command

- Function Sets the bits in the service request enable register.
- Remote Command *SRE Δ n
 *SRE?
- Response Message Register Value
- Value of n 0 to 255 : Represents the sum of the bit-weighted values.
- Example *SRE 32;
 *SRE?;

****STB?***

Returns Status Byte Command

- **Function** Returns the current values of the status bytes including the MSS bit.
- **Remote Command** *STB?
- **Response Message** Register Value

Bit	Bit Weight	Bit Name	Condition of status byte register
7	128	----	0 = Not used
6	64	MSS	0 = Service not requested 1 = Service requested
5	32	ESB	0 = Event status not generated 1 = Event status generated
4	16	MAV	0 = No data in output queue 1 = Data in output queue
3	8	ESB2	0 = Event status not generated 1 = Event status generated
2	4	----	0 = Not used
1	2	----	0 = Not used
0	1	----	0 = Not used

- **Example** *STB?;

GPIB Common Command - Others

ESE2

Event Status Enable (End)

- **Function** Allows the End Event Status Enable Register to select which bit in the corresponding Event Register cause a TRUE ESB summary message bit 3 when set.
- **Remote Command** ESE2△n
ESE2?
- **Response Message** Register Value
- **Value of n** 0 to 255 : Represents the sum of the bit-weighted values.
- **Example** ESE2 1;
ESE2?;

ESR2?

Event Status Register (End) Query

- **Function** Allows the sum of binary-weighted event bit values of the End Event Status Register to be read out by converting them to decimal. After readout, the End Event status Register is reset to 0.
- **Remote Command** ESR2?
- **Response Message** Register Value

Bit	Bit Weight	Event	Description
7	128	Not used	Not used
6	64	Not used	Not used
5	32	Not used	Not used
4	16	Measurement completed	Measurement has been completed (Peak search, OBW, X dB, Noise marker, Freq. Counter, Limit Pass/Fail..)
3	8	AUTO TUNE completed	AUTO TUNE has been completed.
2	4	Averaging completed	Sweeping according to the specified AVERAGE number has been completed.
1	2	Calibration completed	Temp Cal, Pre-Filter Cal, ZNC Cal., Level Cal.. has been completed.
0	1	Sweep completed	A single sweep has been completed or is in standby.

- Example ESR2?;

ERR

:SYSTem:ERRor[:NEXT]

Error Code

- Function Returns the error code of the current function. And the error code is cleared.
- Remote Command ERR?
 :SYSTem:ERRor[:NEXT]?
- Response Message Error Code
- Example ERR?;
 SYST:ERR?

APPENDIX A – Remote Command

< Catalog Order >

Index	Description	SA Command	SCPI Command	Suffix	Page
Amplitude	Reference Level	RL	:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel	<amplitude> ?	5-3
Amplitude	Attenuation	AT	[:SENSe]:POWer[:RF]:ATTenuation	<amplitude> ?	5-4
Amplitude	Attenuation Auto	ATA	[:SENSe]:POWer[:RF]:ATTenuation:AUTO	OFF ON 0 1 ?	5-5
Amplitude	Scale/Divide	SD	:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIvision	<amplitude> ?	5-6
Amplitude	Amplitude Units	AU	:UNIT:POWer	DBM DBM[V] DBMA[V] W[A] DBU[V] DBUA ?	5-6
Amplitude	Internal Amplifier	IA	[:SENSe]:POWer[:RF]:GAIN[:STATe]	OFF ON 0 1 ?	5-7
Amplitude	MW-LNA	IA2		OFF ON 0 1 ?	5-8
Amplitude	Apply Corrections	COAS	[:SENSe]:CORRection:CSET:ALL[:STATe]	OFF ON 0 1 ?	5-9
Amplitude	Correction State	COA1 2 3 4	[:SENSe]:CORRection:CSET1 2 3 4[:STATe]	OFF ON 0 1 ?	5-10
Amplitude	Delete All Corrections	COAD	[:SENSe]:CORRection:CSET:ALL:DELeTe	none	5-11
Bandwidth	Resolution Banswidth	RB	[:SENSe]:BANDwidth BWIDTH[:RESolution]	<frequency> ?	5-12
Display	Full Screen	FSCR	:DISPlay:FSCReen[:STATe]	OFF ON 0 1 ?	5-13
Display	Display Line Ampl	DL	:DISPlay:WINDow:TRACe:Y:DLINe	<amplitude> ?	5-15
Display	Display Line State	DLS	:DISPlay:WINDow:TRACe:Y:DLINe:STATe	OFF ON 0 1 ?	5-15
Display	Threshold Line Ampl	TH	:DISPlay:WINDow:TRACe:Y:TLINe	<amplitude> ?	5-16
Display	Threshold Line State	THS	:DISPlay:WINDow:TRACe:Y:TLINe:STATe	OFF ON 0 1 ?	5-17
Display	Title	TITLE	:DISPlay:ANNotation:TITLe:DATA	<string> ?	5-18
Display	Graticule	GRAT	:DISPlay:WINDow:TRACe:GRATicule:GRID[:STATe]	TYPE1 TYPE OFF ?	5-19
Display	White Mode	WH	:DISPlay:WINDow:WHITe	OFF ON 0 1 ?	5-19
File	Read	FREAD	:MMEMory:CATalog	? <'directory_name'>	5-21
File	Save	FSAVE	:MMEMory:STORe	<'file_name'>	5-21
File	Load	FLOAD	:MMEMory:LOAD	<'file_name'>	5-22
File	Delete	FDEL	:MMEMory:DELeTe	<'file_name'>	5-23
File	Copy	FCOPY	:MMEMory:COpy	<'file_name1'>,<'file_name2'>	5-23
File	Rename	FRENAME	:MMEMory:MOVe	<'file_name1'>,<'file_name2'>	5-23
File	Move	FMOVE	:MMEMory:DATA	<'file_name'>,<definite_length?> <'file_name'>	5-24
Frequency	Center Frequency	CF	[:SENSe]:FREQuency:CENTer	<frequency> ?	5-26
Frequency	Start Frequency	FA	[:SENSe]:FREQuency:STARt	<frequency> ?	5-27
Frequency	Stop Frequency	FB	[:SENSe]:FREQuency:STOP	<frequency> ?	5-27
Frequency	CF Step	SS	[:SENSe]:FREQuency:CENTer:STEP[:INCRement]	<frequency> ?	5-28
Frequency	CF Step Auto	SSA	[:SENSe]:FREQuency:CENTer:STEP:AUTO	OFF ON 0 1 ?	5-29
Limit Line	Limit Line Check State	LLCS[1-3]	:CALCulate:LLINe[1-3]:CHECK:STATe	OFF ON 0 1 ?	5-31
Limit Line	Limit Line Fail Count	LLFC[1-3]	:CALCulate:LLINe[1-3]:FAIL:COUNt	?	5-32
Limit Line	Pass/Fail Alarm	ALARM	:CALCulate:LLINe:ALARm	OFF ON 0 1 ?	5-32
Limit Line	Clear Limit Line	LLAO	:CALCulate:LLINe:AOFF	none	5-33
Marker	Marker State	MS[1-9]	:CALCulate:MARKer[1-9]:STATe	OFF ON 0 1 ?	5-34
Marker	Marker Mode	MM[1-9]	:CALCulate:MARKer[1-9]:MODE	POSItion DELTA OFF ?	5-35
Marker	Marker Freq	MF[1-9]	:CALCulate:MARKer[1-9]:X	<frequency> ?	5-35
Marker	Marker Amplitude	MA[1-9]	:CALCulate:MARKer[1-9]:Y	?	5-36
Marker	Marker Trace	MT[1-9]	:CALCulate:MARKer[1-9]:TRACe	1 2 3 ?	5-37
Marker	Marker Table	MTB	:CALCulate:MARKer:TABLE:STATe	OFF ON 0 1 ?	5-38
Marker	Marker All Off	MAO	:CALCulate:MARKer:AOFF	none	5-38
Measurement	Meas. Start	MEA	:MEASure:STARt	SCAN DEBUG CISPR ?	5-40
Meas - Control	Scan	SCAN	:MEASure:SCAN	RUN HOLD STOP ?	5-41
Meas -	Repetition	RTYPE		SINGLE CONTINuous ?	5-41

Control					
Meas - Control	Scan Info	SINFO		OFF ON 0 1 ?	5-42
Meas - Control	Reset Max/Min Hold	RESETCISPR		none	5-43
Mode	Mode	MODE	:INSTrument[:SElect]	SA EMC ?	5-45
Mode - Setup	Max Range	TRANGE		<integer> ?	5-46
Mode - Setup	Config Type	STYPE		DFLT MANL ?	5-46
Mode - Setup	Scan Mode	FSTEP		LINear LOGarithmic ?	5-47
Mode - Setup	Detector - Peak	DETPK		OFF ON 0 1 ?	5-57
Mode - Setup	Detector - Average	DETAV		OFF ON 0 1 ?	5-48
Mode - Setup	Detector - Log-Avg	DETLOG		OFF ON 0 1 ?	5-49
Mode - Setup	Detector - RMS-Avg	DETRMS		OFF ON 0 1 ?	5-49
Mode - Setup	Detector - CISPR-Avg	DETCISPR		OFF ON 0 1 ?	5-50
Mode - Setup	Detector - QuasiPeak	DETPQ		OFF ON 0 1 ?	5-51
Peak Search	Peak Search	MPK[1-9]	:CALCulate:MARKer[1-9]:MAXinum	none	5-52
Peak Search	Next Peak Search	MPKN[1-9]	:CALCulate:MARKer[1-9]:MAXinum:NEXT	none	5-52
Peak Search	Next Left Peak Search	MPKL[1-9]	:CALCulate:MARKer[1-9]:MAXinum:LEFT	none	5-52
Peak Search	Next Right Peak Search	MPKR[1-9]	:CALCulate:MARKer[1-9]:MAXinum:RIGHT	none	5-53
Peak Search	Minimum Search	MPKM[1-9]	:CALCulate:MARKer[1-9]:MINinum	none	5-53
Peak Search	Peak to Peak Search	MPKP[1-9]	:CALCulate:MARKer[1-9]:PTPeak	none	5-54
Peak Search	Multi Peak Number	MMPKN	:CALCulate:MARKer:PEAK:MULTi:NUMBER	<integer> ?	5-54
Peak Search	Multi Peak	MMPK	:CALCulate:MARKer:PEAK:MULTi	none	5-55
Peak Search	Multi Peak Trace	MMPKT	:CALCulate:MARKer:PEAK:MULTi:TRACe	<integer> ?	5-55
Peak Search	Peak Excursion	MPKE	:CALCulate:MARKer:PEAK:EXCURsion	<amplitude> ?	5-56
Peak Search	Peak Threshold	MPKTH	:CALCulate:MARKer:PEAK:THREShold	<amplitude> ?	5-57
Peak Search	Peak Parameter	MPKPA	:CALCulate:MARKer:PEAK:SEARch:MODE	MAX PARAmeter ?	5-58
Preset	Preset	PRST	:SYSTem:PRESet	none	5-60
Printer	Hard Copy	HCOPY	:HCOPY[:IMMediate]	none	5-60
Span	Span	SP	[:SENSe]:FREQuency:SPAN	<frequency> ?	5-62
Span	Full Span	FS	[:SENSe]:FREQuency:SPAN:FULL	none	5-63
Span	Last Span	LS	[:SENSe]:FREQuency:SPAN:PREVious	none	5-63
Span	Zoom In	ZI	[:SENSe]:FREQuency:SPAN:ZIN	none	5-63
Span	Zoom Out	ZO	[:SENSe]:FREQuency:SPAN:ZOUT	none	5-64
Sweep	Sweep Time	ST	[:SENSe]:SWEep:TIME	<time> ?	5-65
Sweep	Sweep Time Auto	STA	[:SENSe]:SWEep:TIME:AUTO	OFF ON 0 1 ?	5-66
Sweep	Continuous	CO	:INITiate:CONTInuous	OFF ON 0 1 ?	5-67
Sweep	Single	SI	:INITiate[:IMMediate]	none	5-67
System	Beep	BEEP		OFF ON 0 1 ?	5-68
System	Echo	ECHO		OFF ON 0 1 ?	5-68
Trace	Trace Function	TRF[1-3]	:TRACe[1-3]:MODE	WRITe MAXHold MINHold VIEW BLANK ?	5-70
Trace	Query Trace Data	TRD	:TRACe[:DATA]	? TRACE1 TRACE2 TRACE3	5-71
Trace	Query Trace Data	TRDF	:TRACe[:DATA]:FREQuency	? TRACE1 TRACE2 TRACE3	5-71
Trace	Send/Query Trace Data	TRD	:TRACe[:DATA]	? TRACE1 TRACE2 TRACE3	5-72
Trace	Query Trace Data	TRD	:TRACe[:DATA]	? CISPR	5-72
Trace	Trace Data Format	TDF	:TRACe:FORMat	ASCIi REAL,64 INT,32 REAL,32 ?	5-73
Trigger	Trigger Source	TSO	:TRIGger[:SEQuence]:SOURce	IMMediate EXTernal ?	5-75
Trigger	Trigger Slope	TSL	:TRIGger[:SEQuence]:SLOPe	POSITive NEGAtive ?	5-75
Common	*CLS	*CLS	*CLS	none	5-77
Common	*ESE	*ESE	*ESE	<integer> ?	5-77
Common	*ESR	*ESR	*ESR	?	5-77
Common	*IDN	*IDN	*IDN	?	5-78

Common	*OPC	*OPC	*OPC	?	5-78
Common	*RST	*RST	*RST	none	5-79
Common	*SRE	*SRE	*SRE	<integer> ?	5-79
Common	*STB	*STB	*STB	?	5-79
Others	ESE2	ESE2		<integer> ?	5-80
Others	ESR2	ESR2		?	5-80
Others	Error Code	ERR	:SYSTem:ERRor[:NEXT]	?	5-82

< SA Command Order >

Index	Description	SA Command	SCPI Command	Suffix	Page
Common	*CLS	*CLS	*CLS	none	5-77
Common	*ESE	*ESE	*ESE	<integer> ?	5-77
Common	*ESR	*ESR	*ESR	?	5-77
Common	*IDN	*IDN	*IDN	?	5-78
Common	*OPC	*OPC	*OPC	?	5-78
Common	*RST	*RST	*RST	none	5-79
Common	*SRE	*SRE	*SRE	<integer> ?	5-79
Common	*STB	*STB	*STB	?	5-79
Limit Line	Pass/Fail Alarm	ALARM	:CALCulate:LLIne:ALARm	OFF ON 0 1 ?	5-32
Amplitude	Attenuation	AT	[:SENSe]:POWer[:RF]:ATTenuation	<amplitude> ?	5-4
Amplitude	Attenuation Auto	ATA	[:SENSe]:POWer[:RF]:ATTenuation:AUTO	OFF ON 0 1 ?	5-5
Amplitude	Amplitude Units	AU	:UNIT:POWer	DBM DBMV DBMA V W A DBUV DBUA ?	5-6
System	Beep	BEEP		OFF ON 0 1 ?	5-68
Frequency	Center Frequency	CF	[:SENSe]:FREQuency:CENTer	<frequency> ?	5-26
Sweep	Continuous	CO	:INITiate:CONTinuous	OFF ON 0 1 ?	5-67
Amplitude	Correction State	COA1 2 3 4	[:SENSe]:CORRection:CSET1 2 3 4[:STATe]	OFF ON 0 1 ?	5-10
Amplitude	Delete All Corrections	COAD	[:SENSe]:CORRection:CSET:ALL:DELeTe	none	5-11
Amplitude	Apply Corrections	COAS	[:SENSe]:CORRection:CSET:ALL[:STATe]	OFF ON 0 1 ?	5-9
Mode - Setup	Detector - Average	DETAV		OFF ON 0 1 ?	5-48
Mode - Setup	Detector - CISPR - Avg	DETCISPR		OFF ON 0 1 ?	5-50
Mode - Setup	Detector - Log - Avg	DETLOG		OFF ON 0 1 ?	5-49
Mode - Setup	Detector - Peak	DETPK		OFF ON 0 1 ?	5-57
Mode - Setup	Detector - QuasiPeak	DETQP		OFF ON 0 1 ?	5-51
Mode - Setup	Detector - RMS - Avg	DETRMS		OFF ON 0 1 ?	5-49
Display	Display Line Ampl	DL	:DISPlay:WINDow:TRACe:Y:DLIne	<amplitude> ?	5-15
Display	Display Line State	DLS	:DISPlay:WINDow:TRACe:Y:DLIne:STATe	OFF ON 0 1 ?	5-15
System	Echo	ECHO		OFF ON 0 1 ?	5-68
Others	Error Code	ERR	:SYSTem:ERRor[:NEXT]	?	5-82
Others	ESE2	ESE2		<integer> ?	5-80
Others	ESR2	ESR2		?	5-80
Frequency	Start Frequency	FA	[:SENSe]:FREQuency:STARt	<frequency> ?	5-27
Frequency	Stop Frequency	FB	[:SENSe]:FREQuency:STOP	<frequency> ?	5-27
File	Copy	FCOPY	:MMEMory:COpy	<'file_name1'>,<'file_name2'>	5-23
File	Delete	FDEL	:MMEMory:DELeTe	<'file_name'>	5-23
File	Load	FLOAD	:MMEMory:LOAD	<'file_name'>	5-22
File	Move	FMOVE	:MMEMory:DATA	<'file_name'>,<definite_length ? <'file_name'>	5-24
File	Read	FREAD	:MMEMory:CATalog	? <'directory_name'>	5-21
File	Rename	FRENAME	:MMEMory:MOVE	<'file_name1'>,<'file_name2'>	5-23

Span	Full Span	FS	:SENSe]:FREQuency:SPAN:FULL	none	5-63
File	Save	FSAVE	:MMEMory:STORe	<file_name>	5-21
Display	Full Screen	FSCR	:DISPlay:FSCR:reen[:STATe]	OFF ON 0 1 ?	5-13
Mode - Setup	Scan Mode	FSTEP		LNear LOGarithmic ?	5-47
Display	Graticule	GRAT	:DISPlay:WINDow:TRACe:GRATICule:GRID[:STATe]	TYPE1 TYPE OFF ?	5-19
Printer	Hard Copy	HCOPY	:HCOPY[:IMMediate]	none	5-60
Amplitude	Internal Amplifier	IA	:SENSe]:POWer[:RF]:GAIN[:STATe]	OFF ON 0 1 ?	5-7
Amplitude	MW-LNA	IA2		OFF ON 0 1 ?	5-8
Limit Line	Clear Limit Line	LLAO	:CALCulate:LLINe:AOff	none	5-33
Limit Line	Limit Line Check State	LLCS[1-3]	:CALCulate:LLINe[1-3]:ChECk:STATe	OFF ON 0 1 ?	5-31
Limit Line	Limit Line Fail Count	LLFC[1-3]	:CALCulate:LLINe[1-3]:FAIL:COUnT	?	5-32
Span	Last Span	LS	:SENSe]:FREQuency:SPAN:PREVious	none	5-63
Marker	Marker Amplitude	MA[1-9]	:CALCulate:MARKer[1-9]:Y	?	5-36
Marker	Marker All Off	MAO	:CALCulate:MARKer:AOff	none	5-38
Measurement	Meas. Start	MEA	:MEASure:STARt	SCAN DEBUg CISPR ?	5-40
Marker	Marker Freq	MF[1-9]	:CALCulate:MARKer[1-9]:X	<frequency> ?	5-35
Marker	Marker Mode	MM[1-9]	:CALCulate:MARKer[1-9]:MODE	POsition DELTA OFF ?	5-35
Peak Search	Multi Peak	MMPK	:CALCulate:MARKer:PEAK:MULTI	none	5-55
Peak Search	Multi Peak Number	MMPKN	:CALCulate:MARKer:PEAK:MULTI:NUMBER	<integer> ?	5-54
Peak Search	Multi Peak Trace	MMPKT	:CALCulate:MARKer:PEAK:MULTI:TRACe	<integer> ?	5-55
Mode	Mode	MODE	:INSTrument[:SELect]	SA EMC ?	5-45
Peak Search	Peak Search	MPK[1-9]	:CALCulate:MARKer[1-9]:MAXimum	none	5-52
Peak Search	Peak Excursion	MPKE	:CALCulate:MARKer:PEAK:EXCURsion	<amplitude> ?	5-56
Peak Search	Next Left Peak Search	MPKL[1-9]	:CALCulate:MARKer[1-9]:MAXimum:LEFT	none	5-52
Peak Search	Minimum Search	MPKM[1-9]	:CALCulate:MARKer[1-9]:MINimum	none	5-53
Peak Search	Next Peak Search	MPKN[1-9]	:CALCulate:MARKer[1-9]:MAXimum:NEXT	none	5-52
Peak Search	Peak to Peak Search	MPKP[1-9]	:CALCulate:MARKer[1-9]:PTPeak	none	5-54
Peak Search	Peak Parameter	MPKPA	:CALCulate:MARKer:PEAK:SEARch:MODE	MAX PARAmeter ?	5-58
Peak Search	Next Right Peak Search	MPKR[1-9]	:CALCulate:MARKer[1-9]:MAXimum:RIGHT	none	5-53
Peak Search	Peak Threshold	MPKTH	:CALCulate:MARKer:PEAK:THREShold	<amplitude> ?	5-57
Marker	Marker State	MS[1-9]	:CALCulate:MARKer[1-9]:STATe	OFF ON 0 1 ?	5-34
Marker	Marker Trace	MT[1-9]	:CALCulate:MARKer[1-9]:TRACe	1 2 3 ?	5-37
Marker	Marker Table	MTB	:CALCulate:MARKer:TABLE:STATe	OFF ON 0 1 ?	5-38
Preset	Preset	PRST	:SYSTem:PRESet	none	5-60
Bandwidth	Resolution Bandwidth	RB	:SENSe]:BANDwidth BWDIth[:RESolution]	<frequency> ?	5-12
Meas - Control	Reset Max/Min Hold	RESETCISPR		none	5-43
Amplitude	Reference Level	RL	:DISPlay:WINDow:TRACe:Y[:SCALE]:RLEVel	<amplitude> ?	5-3
Meas - Control	Repetition	RTYPE		SINGLE CONTINuous ?	5-41
Meas - Control	Scan	SCAN	:MEASure:SCAN	RUN HOLD STOP ?	5-41
Amplitude	Scale/Divide	SD	:DISPlay:WINDow:TRACe:Y[:SCALE]:PDIvIson	<amplitude> ?	5-6
Sweep	Single	SI	:INITiate[:IMMediate]	none	5-67
Meas - Control	Scan Info	SINFO		OFF ON 0 1 ?	5-42
Span	Span	SP	:SENSe]:FREQuency:SPAN	<frequency> ?	5-62
Frequency	CF Step	SS	:SENSe]:FREQuency:CENTer:STEP[:INCRement]	<frequency> ?	5-28
Frequency	CF Step Auto	SSA	:SENSe]:FREQuency:CENTer:STEP:AUTO	OFF ON 0 1 ?	5-29
Sweep	Sweep Time	ST	:SENSe]:SWEp:TIME	<time> ?	5-65
Sweep	Sweep Time Auto	STA	:SENSe]:SWEp:TIME:AUTO	OFF ON 0 1 ?	5-66
Mode - Setup	Config Type	STYPE		DFLT MANL ?	5-46
Trace	Trace Data Format	TDF	:TRACe:FORMat	ASCIi REAL,64 INT,32 REAL,32 ?	5-73
Display	Threshold Line Ampl	TH	:DISPlay:WINDow:TRACe:Y:TLINe	<amplitude> ?	5-16
Display	Threshold Line State	THS	:DISPlay:WINDow:TRACe:Y:TLINe:STATe	OFF ON 0 1 ?	5-17

Display	Title	TITLE	:DISPlay:ANNotation:TITLe:DATA	<string> ?	5-18
Mode - Setup	Max Range	TRANGE		<integer> ?	5-46
Trace	Query Trace Data	TRD	:TRACe[:DATA]	? TRACE1 TRACE2 TRACE3	5-71
Trace	Send/Query Trace Data	TRD	:TRACe[:DATA]	? TRACE1 TRACE2 TRACE3	5-72
Trace	Query Trace Data	TRD	:TRACe[:DATA]	? CISPR	5-72
Trace	Query Trace Data	TRDF	:TRACe[:DATA]:FREQuency	? TRACE1 TRACE2 TRACE3	5-71
Trace	Trace Function	TRF[1-3]	:TRACe[1-3]:MODE	WRITe MAXHold MINHold VIEW BLANK ?	5-70
Trigger	Trigger Slope	TSL	:TRIGger[:SEQUence]:SLOPe	POSitive NEGative ?	5-75
Trigger	Trigger Source	TSO	:TRIGger[:SEQUence]:SOURce	IMMediate EXTernal ?	5-75
Display	White Mode	WH	:DISPlay:WINDow:WHITe	OFF ON 0 1 ?	5-19
Span	Zoom In	ZI	[:SENSe]:FREQuency:SPAN:ZIN	none	5-63
Span	Zoom Out	ZO	[:SENSe]:FREQuency:SPAN:ZOUT	none	5-64

< SCPI Command Order >

Index	Description	SA Command	SCPI Command	Suffix	Page
Common	*CLS	*CLS	*CLS	none	5-77
Common	*ESE	*ESE	*ESE	<integer> ?	5-77
Common	*ESR	*ESR	*ESR	?	5-77
Common	*IDN	*IDN	*IDN	?	5-78
Common	*OPC	*OPC	*OPC	?	5-78
Common	*RST	*RST	*RST	none	5-79
Common	*SRE	*SRE	*SRE	<integer> ?	5-79
Common	*STB	*STB	*STB	?	5-79
Limit Line	Pass/Fail Alarm	ALARM	:CALCulate:LLINe:ALARm	OFF ON 0 1 ?	5-32
Limit Line	Clear Limit Line	LLAO	:CALCulate:LLINe:AOff	none	5-33
Limit Line	Limit Line Check State	LLCS[1-3]	:CALCulate:LLINe[1-3]:CHECK:STATe	OFF ON 0 1 ?	5-31
Limit Line	Limit Line Fail Count	LLFC[1-3]	:CALCulate:LLINe[1-3]:FAIL:COUNT	?	5-32
Marker	Marker All Off	MAO	:CALCulate:MARKer:AOff	none	5-38
Peak Search	Peak Excursion	MPKE	:CALCulate:MARKer:PEAK:EXCURsion	<amplitude> ?	5-56
Peak Search	Multi Peak	MMPK	:CALCulate:MARKer:PEAK:MULTI	none	5-55
Peak Search	Multi Peak Number	MMPKN	:CALCulate:MARKer:PEAK:MULTI:NUMBER	<integer> ?	5-54
Peak Search	Multi Peak Trace	MMPKT	:CALCulate:MARKer:PEAK:MULTI:TRACe	<integer> ?	5-55
Peak Search	Peak Parameter	MPKPA	:CALCulate:MARKer:PEAK:SEARch:MODE	MAX PARameter ?	5-58
Peak Search	Peak Threshold	MPKTH	:CALCulate:MARKer:PEAK:THReshold	<amplitude> ?	5-57
Marker	Marker Table	MTB	:CALCulate:MARKer:TABLE:STATe	OFF ON 0 1 ?	5-38
Peak Search	Peak Search	MPK[1-9]	:CALCulate:MARKer[1-9]:MAXinum	none	5-52
Peak Search	Next Left Peak Search	MPKL[1-9]	:CALCulate:MARKer[1-9]:MAXinum:LEFT	none	5-52
Peak Search	Next Peak Search	MPKN[1-9]	:CALCulate:MARKer[1-9]:MAXinum:NEXT	none	5-52
Peak Search	Next Right Peak Search	MPKR[1-9]	:CALCulate:MARKer[1-9]:MAXinum:RIGHT	none	5-53
Peak Search	Minimum Search	MPKM[1-9]	:CALCulate:MARKer[1-9]:MINinum	none	5-53
Marker	Marker Mode	MM[1-9]	:CALCulate:MARKer[1-9]:MODE	POSition DELTA OFF ?	5-35
Peak Search	Peak to Peak Search	MPKP[1-9]	:CALCulate:MARKer[1-9]:PTPeak	none	5-54
Marker	Marker State	MS[1-9]	:CALCulate:MARKer[1-9]:STATe	OFF ON 0 1 ?	5-34
Marker	Marker Trace	MT[1-9]	:CALCulate:MARKer[1-9]:TRACe	1 2 3 ?	5-37
Marker	Marker Freq	MF[1-9]	:CALCulate:MARKer[1-9]:X	<frequency> ?	5-35
Marker	Marker Amplitude	MA[1-9]	:CALCulate:MARKer[1-9]:Y	?	5-36
Display	Title	TITLE	:DISPlay:ANNotation:TITLe:DATA	<string> ?	5-18
Display	Full Screen	FSCR	:DISPlay:FSCRen[:STATe]	OFF ON 0 1 ?	5-13

Display	Graticule	GRAT	:DISPlay:WINDow:TRACe:GRATicule:GRID[:STATe]	TYPE1 TYPE OFF ?	5-19
Display	Display Line Ampl	DL	:DISPlay:WINDow:TRACe:Y:DLINe	<amplitude> ?	5-15
Display	Display Line State	DLS	:DISPlay:WINDow:TRACe:Y:DLINe:STATe	OFF ON 0 1 ?	5-15
Display	Threshold Line Ampl	TH	:DISPlay:WINDow:TRACe:Y:TLINe	<amplitude> ?	5-16
Display	Threshold Line State	THS	:DISPlay:WINDow:TRACe:Y:TLINe:STATe	OFF ON 0 1 ?	5-17
Amplitude	Scale/Divide	SD	:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision	<amplitude> ?	5-6
Amplitude	Reference Level	RL	:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel	<amplitude> ?	5-3
Display	White Mode	WH	:DISPlay:WINDow:WHITe	OFF ON 0 1 ?	5-19
Printer	Hard Copy	HCOPIY	:HCOPIY[:IMMediate]	none	5-60
Sweep	Continuous	CO	:INITiate:CONTINuous	OFF ON 0 1 ?	5-67
Sweep	Single	SI	:INITiate[:IMMediate]	none	5-67
Mode	Mode	MODE	:INSTrument[:SElect]	SA EMC ?	5-45
Meas - Control	Scan	SCAN	:MEASure:SCAN	RUN HOLD STOP ?	5-41
Measurement	Meas. Start	MEA	:MEASure:STARt	SCAN DEBUG CISPR ?	5-40
File	Read	FREAD	:MMEMory:CATalog	? <'directory_name'>	5-21
File	Copy	FCOPY	:MMEMory:COPIY	<'file_name1'>,<'file_name2'>	5-23
File	Move	FMOVE	:MMEMory:DATA	<'file_name'>,definite_length ? <'file_name'>	5-24
File	Delete	FDEL	:MMEMory:DELeTe	<'file_name'>	5-23
File	Load	FLOAD	:MMEMory:LOAD	<'file_name'>	5-22
File	Rename	FRENAME	:MMEMory:MOVE	<'file_name1'>,<'file_name2'>	5-23
File	Save	FSAVE	:MMEMory:STORe	<'file_name'>	5-21
Others	Error Code	ERR	:SYSTem:ERRor[:NEXT]	?	5-82
Preset	Preset	PRST	:SYSTem:PRESet	none	5-60
Trace	Trace Data Format	TDF	:TRACe:FORMat	ASCIi REAL,64 INT,32 REAL,32 ?	5-73
Trace	Query Trace Data	TRD	:TRACe[:DATA]	? TRACE1 TRACE2 TRACE3	5-71
Trace	Send/Query Trace Data	TRD	:TRACe[:DATA]	? TRACE1 TRACE2 TRACE3	5-72
Trace	Query Trace Data	TRD	:TRACe[:DATA]	? CISPR	5-72
Trace	Query Trace Data	TRDF	:TRACe[:DATA]:FREQuency	? TRACE1 TRACE2 TRACE3	5-71
Trace	Trace Function	TRF[1-3]	:TRACe[1-3]:MODE	WRITe MAXHold MINHold VIEW BLANK ?	5-70
Trigger	Trigger Slope	TSL	:TRIGger[:SEQuence]:SLOPe	POSitive NEGative ?	5-75
Trigger	Trigger Source	TSO	:TRIGger[:SEQuence]:SOURce	IMMediate EXTernal ?	5-75
Amplitude	Amplitude Units	AU	:UNIT:POWer	DBM DBMV DBMA V W A DBUV DBUA ?	5-6
Bandwidth	Resolution Banship	RB	[:SENSe]:BANDwidth BWIDTH[:RESolution]	<frequency> ?	5-12
Amplitude	Delete All Corrections	COAD	[:SENSe]:CORRection:CSET:ALL:DELeTe	none	5-11
Amplitude	Apply Corrections	COAS	[:SENSe]:CORRection:CSET:ALL[:STATe]	OFF ON 0 1 ?	5-9
Amplitude	Correction State	COA1 2 3 4	[:SENSe]:CORRection:CSET1 2 3 4[:STATe]	OFF ON 0 1 ?	5-10
Frequency	Center Frequency	CF	[:SENSe]:FREQuency:CENTer	<frequency> ?	5-26
Frequency	CF Step Auto	SSA	[:SENSe]:FREQuency:CENTer:STEP:AUTO	OFF ON 0 1 ?	5-29
Frequency	CF Step	SS	[:SENSe]:FREQuency:CENTer:STEP[:INCRement]	<frequency> ?	5-28
Span	Span	SP	[:SENSe]:FREQuency:SPAN	<frequency> ?	5-62
Span	Full Span	FS	[:SENSe]:FREQuency:SPAN:FULL	none	5-63
Span	Last Span	LS	[:SENSe]:FREQuency:SPAN:PREVious	none	5-63
Span	Zoom In	ZI	[:SENSe]:FREQuency:SPAN:ZIN	none	5-63
Span	Zoom Out	ZO	[:SENSe]:FREQuency:SPAN:ZOUT	none	5-64
Frequency	Start Frequency	FA	[:SENSe]:FREQuency:STARt	<frequency> ?	5-27
Frequency	Stop Frequency	FB	[:SENSe]:FREQuency:STOP	<frequency> ?	5-27
Amplitude	Attenuation	AT	[:SENSe]:POWer[:RF]:ATTenuation	<amplitude> ?	5-4
Amplitude	Attenuation Auto	ATA	[:SENSe]:POWer[:RF]:ATTenuation:AUTO	OFF ON 0 1 ?	5-5
Amplitude	Internal Amplifier	IA	[:SENSe]:POWer[:RF]:GAIN[:STATe]	OFF ON 0 1 ?	5-7
Sweep	Sweep Time	ST	[:SENSe]:SWEp:TIME	<time> ?	5-65
Sweep	Sweep Time Auto	STA	[:SENSe]:SWEp:TIME:AUTO	OFF ON 0 1 ?	5-66



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APPENDIX B - ERROR CODE

CODE		DESCRIPTION
990	:	Not supported in current mode
991	:	Not installed (option)
992	:	System is Busy
993	:	Execution Error (EXE)
994	:	Query Error (QYE)
995	:	Suffix Error
996	:	Input Data Size Over Error
997	:	Undefined Command
998	:	Unnecessary Suffix Insertion
999	:	Undefined Suffix

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APPENDIX C - Example

< EMC Limit : *.emt >

<<< EMC Limit Data for ISA Series Spectrum Analyzer >>>

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- Explanation :

Frequency	Level
MHz	dBuV

*** TraceA Limit Line ***

0.150000	59.00
0.500000	46.00
5.000000	46.00
5.000000	50.00
30.000000	50.00

*** TraceB Limit Line ***

0.150000	66.00
0.500000	56.00
5.000000	56.00
5.000000	60.00
30.000000	60.00

< EMC Antenna : *.ant >

<<< Antenna Correction Data for ISA Series Spectrum Analyzer >>>

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Frequency	Level
MHz	dB
0.010000	2.20
2.000000	2.30
3.000000	2.30
4.000000	2.20
5.000000	2.20

8.000000	2.20
10.000000	2.40
15.000000	2.40
20.000000	2.40
30.000000	2.40

< EMC Cable : *.cbl >

<<< Cable Correction Data for ISA Series Spectrum Analyzer >>>

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Frequency	Level
MHz	dB
0.010000	6.20
2.000000	6.30
3.000000	6.30
4.000000	6.20
5.000000	6.20
8.000000	6.20
10.000000	6.40
15.000000	6.40
20.000000	6.40
30.000000	6.40



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