MX269030A
W-CDMA BS Measurement Software
Operation Manual
Remote Control

Ninth Edition

- **For safety and warning information, please read this manual before attempting to use the equipment.**
- **Additional safety and warning information is provided within the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe operation), MS2830A Signal Analyzer Operation Manual (Mainframe operation), and MX269030A W-CDMA BS Measurement Software Operation Manual (Operation). Please also refer to this document before using the equipment.**
- **Keep this manual with the equipment.**

ANRITSU CORPORATION

Document No.: M-W2861AE-9.0

Safety Symbols

To prevent the risk of personal injury or loss related to equipment malfunction, Anritsu Corporation uses the following safety symbols to indicate safety-related information. Ensure that you clearly understand the meanings of the symbols BEFORE using the equipment. Some or all of the following symbols may be used on all Anritsu equipment. In addition, there may be other labels attached to products that are not shown in the diagrams in this manual.

Symbols used in manual

⚠ DANGER This indicates a very dangerous procedure that could result in serious injury or death if not performed properly.

⚠ WARNING This indicates a hazardous procedure that could result in serious injury or death if not performed properly.

⚠ CAUTION This indicates a hazardous procedure or danger that could result in light-to-severe injury, or loss related to equipment malfunction, if proper precautions are not taken.

Safety Symbols Used on Equipment and in Manual

The following safety symbols are used inside or on the equipment near operation locations to provide information about safety items and operation precautions. Ensure that you clearly understand the meanings of the symbols and take the necessary precautions BEFORE using the equipment.

This indicates a prohibited operation. The prohibited operation is indicated symbolically in or near the barred circle.

This indicates an obligatory safety precaution. The obligatory operation is indicated symbolically in or near the circle.

This indicates a warning or caution. The contents are indicated symbolically in or near the triangle.

This indicates a note. The contents are described in the box.

These indicate that the marked part should be recycled.

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Operation Manual Remote Control

8 May 2007 (First Edition)
30 July 2015 (Ninth Edition)

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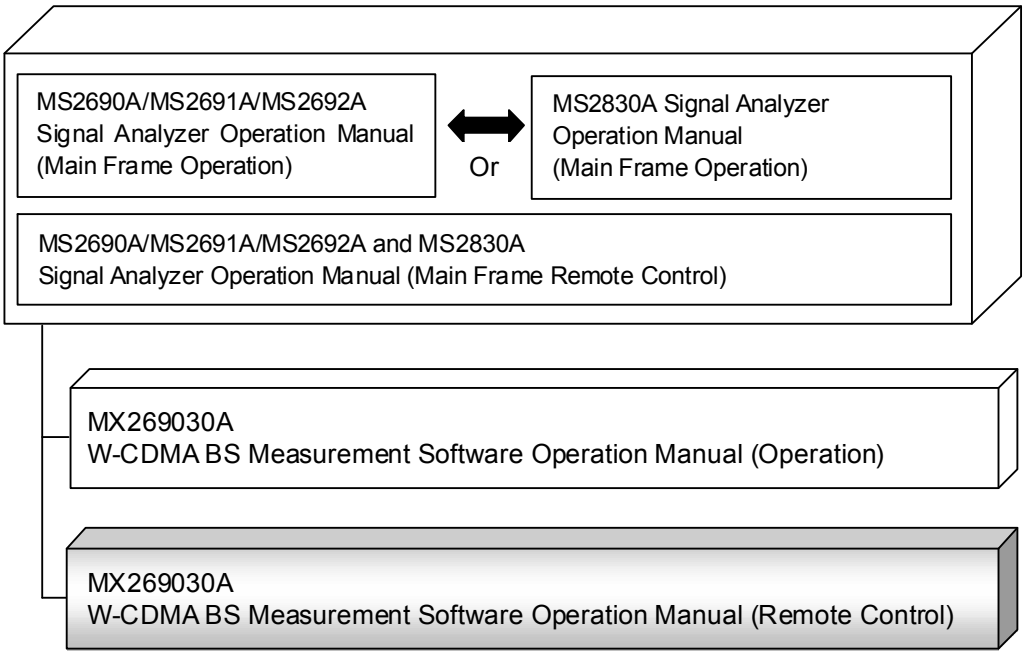
About This Manual

■ Composition of Operation Manuals

The operation manuals for the MX269030A W-CDMA BS Measurement Software are comprised as shown in the figure below.



- Signal Analyzer Operation Manual (Mainframe Operation)
- Signal Analyzer Operation Manual (Mainframe Remote Control)

These manuals describe basic operating methods, maintenance procedures, common functions, and common remote control of the signal analyzer mainframe.

- W-CDMA BS Measurement Software Operation Manual (Operation)
- W-CDMA BS Measurement Software Operation Manual (Remote Control) <This document>

These manuals describe basic operating methods, functions, and remote control of the W-CDMA BS Measurement Software.

In this document,  indicates a panel key.

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IV.

Chapter 1 Device Message List

This chapter describes remote control commands for executing the MX269030A W-CDMA BS Measurement Software (hereinafter, referred to as "MX269030A") using a list organized by functions. Refer to Chapter 2 "Device Message Details" for detailed specifications for each command. Refer to the *MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer Operation Manual (Mainframe Remote Control)* for detailed specifications on IEEE488.2 common device messages and application common device messages.

1.1 IEEE488.2 Common Device Messages

IEEE488.2 common device messages available in the MX269030A are shown in Table 1.1-1.

Table 1.1-1 IEEE488.2 common device messages

Function	Command	Query	Response	Remarks
Identification	---	*IDN?	ANRITSU,model,serial,version	model: Main unit model name serial: Main unit serial number version: Software package version
Operation Complete	*OPC	*OPC?	1	
Preset (All Applications)	*RST	---	---	
Self Test	---	*TST?	result	result: Self test result = 0 | 1
Wait to Continue	*WAI	---	---	
Clear Status	*CLS	---	---	
Service Request Enable Register	*SRE byte	*SRE?	byte	byte = bit7: EESB7 bit6: Not used bit5: ESB bit4: MAV bit3: EESB3 bit2: EESB2 (END Event) bit1: EESB1 bit0: EESB0

Table 1.1-1 IEEE488.2 common device messages (Cont'd)

Function	Command	Query	Response	Remarks
Status Byte Register	---	*STB?	byte	byte = bit7: EESB7 bit6: MSS/RQS bit5: ESB bit4: MAV bit3: EESB3 bit2: EESB2 (END Event) bit1: EESB1 bit0: EESB0
Standard Event Status Enable Register	*ESE byte	*ESE?	byte	byte = bit7: Power on bit6: User request bit5: Command error bit4: Execution error bit3: Device error bit2: Query error bit1: Not used bit0: Operation complete
Standard Event Status Register	---	*ESR?	byte	

1.2 Application Common Device Messages

Application common device messages available in the MX269030A are shown in Table 1.2-1.

Table 1.2-1 Application common device messages

Function	Command	Query	Response	Remarks
Application Switch	SYS apl,window	SYS? apl	stauts,window	apl: Application name = SIGANA | SPECT | CONFIG | WCDMA_BS window: Window status = ACT | INACT | MIN | NON status: Application execution status = CURRENT | IDLE | RUN | UNLOAD
Preset (All Applications)	*RST	---	---	
Preset (Active Application only)	PRE	---	---	
	INI	---	---	
System Restart	REBOOT	---	---	
LCD Power	DISPLAY on_off	DISPLAY?	on_off	
Error Display Mode	REMDISP mode	REMDISP?	mode	mode: Display mode = NORMAL | REMAIN | REMAIN_LAST
Save Parameter	SVPRM file,device	---	---	file: File name device: Drive name = D | E | F| ...
	SVPRM	---	---	

Table 1.2-1 Application common device messages (Cont'd)

Function	Command	Query	Response	Remarks
Recall Parameter	RCPRM file,device	---	---	file: File name device: Drive name = D | E | F| ... apl: Target application = ALL | CURR
	RCPRM file,device,apl	---	---	
Hard Copy	PRINT file,device	---	---	file: Filename device: Drive name = D | E | F| ...
	PRINT	---	---	
Hard Copy Mode	PMOD format	PMOD?	format	format: Specifies file format = BMP | PNG
	PMOD	PMOD?	BMP	
END Event Status Enable Register	ESE2 n	ESE2?	byte	byte = Status bit bit7: Not used bit6: End of Average bit5: Not used bit4: End of Average bit3: End of SG Synchronize bit2: Not used bit1: Not used bit0: Not used
END Event Status Register	---	ESR2?	byte	
Calibration	CAL mode	---	---	mode: Calibration mode = ALL | LEVEL | LOLEAK SUPPRESS | BAND Asynchronous command

1.3 Common Command Settings

Device messages for setting common commands are shown in Table 1.3-1.

Table 1.3-1 Common command setting messages

Function		Command	Query	Response	Remarks
Measure Status	Measure End	---	MSTAT?	0	
	Level Over	---	MSTAT?	2	
	Signal Abnormal	---	MSTAT?	4	
	CRC Error	---	MSTAT?	5	
	SG Synchronize Error	---	MSTAT?	7	
	No Measure	---	MSTAT?	9	
	Measuring	---	MSTAT?	11	
	Adjust Range	---	MSTAT?	12	
	SG Synchronize	---	MSTAT?	13	
Single Measure	No Sync	SNGLS	---	---	
		S2	---	---	
	Sync	SWP	---	---	
		TS	---	---	
Continuous Measure	No Sync	CONTS	---	---	
		S1	---	---	
All Meas Items		ALLMEASITEMS s1,n1,s2,n2,s3,n3,s4,n4	ALLMEASITEMS?	s1,n1,s2,n2,s3,n3,s4,n4	s1,s2,s3,s4: ON | OFF n1,n2,n3,n4: 1 to 3000
Adjust Range		ADJRNG	---	---	
SG Synchronize		SGSYNC	---	---	

Table 1.3-1 Common command setting messages (Cont'd)

Function		Command	Query	Response	Remarks
All Meas	Reading all measurement results	---	ALLMEAS?	on_off1,res1_1,...res1_27,on_off2,res2_1,...res2_3,on_off3,res3_1,...res3_21,on_off4,res4_1,...res4_12,on_off1,res1_28,...res1_40	meas: Measurement field = MODANA = OBW = SMASK = ACLR item: Measurement item corresponding to measurement field
	Reading by specifying measurement target	---	ALLMEAS? meas	on_off,res1,res2,...resn	
	Reading by specifying measurement item	---	ALLMEAS? meas,item1,item2,...itemn	on_off,res1,res2,...resn	

1.4 Common Parameter Settings

Device messages for setting common parameters are shown in Table 1.4-1.

Table 1.4-1 Common parameter setting messages

Function		Command	Query	Response	Remarks
Frequency		FREQ f	FREQ?	f	f: 50000000 to 6000000000
Trigger	Free Run	TRG FREE	TRG?	FREE	
	External	TRG EXT	TRG?	EXT	
Trigger Edge	Rise	TRGEDGE RISE	TRGEDGE?	RISE	
	Fall	TRGEDGE FALL	TRGEDGE?	FALL	
Trigger Delay		TRGDLY r	TRGDLY?	r	r: -3840000 to 3840000
Input Level		INPUTLVL l	INPUTLVL?	l	For Pre-amp Off l: (30.00 + Level Offset) to (-24.00 + Level Offset) For Pre-amp On l: (10.00 + Level Offset) to (-44.00 + Level Offset)
Level Offset		LVLOFS l	LVLOFS?	l	l: -99.99 to 99.99
Pre-Amp	Off	PREAMP OFF	PREAMP?	OFF	
	On	PREAMP ON	PREAMP?	ON	
Noise Cancel	Off	NOISECANCEL OFF	NOISECANCEL?	OFF	
	On	NOISECANCEL ON	NOISECANCEL?	ON	
SG Synchronize User Delay		SGSYNCDLY r	SGSYNCDLY?	r	r: 0 to 307200

1.5 Modulation Analysis Settings

Device messages for setting modulation analysis are shown in Table 1.5-1.

Table 1.5-1 Modulation analysis setting messages

Function		Command	Query	Response	Remarks
Measure Count		AVR_MOD n	AVR_MOD?	n	n: 1 to 3000
CH Detection	Auto	CHDET AUTO	CHDET?	AUTO	
	Test Model1 16DPCH	CHDET T11		T11	
	Test Model1 32DPCH	CHDET T12		T12	
	Test Model1 64DPCH	CHDET T13		T13	
	Test Model1 4DPCH	CHDET T14		T14	
	Test Model1 8DPCH	CHDET T15		T15	
	Test Model2	CHDET T21		T21	
	Test Model3 16DPCH	CHDET T31		T31	
	Test Model3 32DPCH	CHDET T32		T32	
	Test Model3 4DPCH	CHDET T33		T33	
	Test Model3 8DPCH	CHDET T34		T34	
	Test Model4	CHDET T41		T41	
	Test Model4 include CPICH	CHDET T42		T42	
	Test Model5 6DPCH 2HS-PDSCH	CHDET T51		T51	
	Test Model5 14DPCH 4HS-PDSCH	CHDET T52		T52	
	Test Model5 30DPCH 8HS-PDSCH	CHDET T53		T53	
	Test Model5 4DPCH 4HS-PDSCH	CHDET T54		T54	
	Test Model6 30DPCH 8HS-PDSCH	CHDET T61		T61	
	Test Model6 4DPCH 4HS-PDSCH	CHDET T62		T62	

Table 1.5-1 Modulation analysis setting messages (Cont'd)

Function			Command	Query	Response	Remarks
DTX setup	Off		DTXSETUP_MOD OFF	DTXSETUP_MOD?	OFF	
	On		DTXSETUP_MOD ON	DTXSETUP_MOD?	ON	
PICH Channelization Code			PICHNO_MOD n	PICHNO_MOD?	n	n: 0 to 255
PICH Timing Offset			PICHTIMINGOFS_MOD n	PICHTIMINGOFS_MOD?	n	n: 0 to 149
Scrambling Code Sync	AUTO		SCRSYNC AUTO	SCRSYNC?	AUTO	
	User Define		SCRSYNC USER	SCRSYNC?	USER	
Scrambling Code			SCRCODE n	SCRCODE?	n	n:0 to 8191
Graph View	Constellation	Off	GRAPHVIEW CONSTELLATION,OFF	GRAPHVIEW? CONSTELLATION	OFF	
		On	GRAPHVIEW CONSTELLATION,ON	GRAPHVIEW? CONSTELLATION	ON	
	Code Domain Power	Off	GRAPHVIEW CODEDOMAIN,OFF	GRAPHVIEW? CODEDOMAIN	OFF	
		On	GRAPHVIEW CODEDOMAIN,ON	GRAPHVIEW? CODEDOMAIN	ON	
Marker Position			MKP_CDP n	MKP_CDP?	n	n: 0 to number of the bars counted from the origin of Code Domain bar graph
Graph Copy	Constellation		GRAPHCOPY CONSTELLATION	---	---	fname: File name drive: Drive name = D | E | F| ...
			GRAPHCOPY CONSTELLATION,fname,drive	---	---	
	Code Domain Power		GRAPHCOPY CODEDOMAIN	---	---	
			GRAPHCOPY CODEDOMAIN,fname,drive	---	---	

Table 1.5-1 Modulation analysis setting messages (Cont'd)

Function			Command	Query	Response	Remarks
Measure Result (Cont'd)	Tx Power	AVG	---	AVG_TXPWR? DBM	l	
			---	AVG_TXPWR? WATT	l	
		MAX	---	MAX_TXPWR? DBM	l	
			---	MAX_TXPWR? WATT	l	
		MIN	---	MIN_TXPWR? DBM	l	
			---	MIN_TXPWR? WATT	l	
	Carrier Frequency Error	AVG	---	AVG_CARRFERR?	f	
			---	AVG_CARRFERR? HZ	f	
			---	AVG_CARRFERR? PPM	r	
		MAX	---	MAX_CARRFERR?	f	
			---	MAX_CARRFERR? HZ	f	
			---	MAX_CARRFERR? PPM	r	
		MIN	---	MIN_CARRFERR?	f	
			---	MIN_CARRFERR? HZ	f	
			---	MIN_CARRFERR? PPM	r	
	Carrier Frequency	AVG	---	AVG_CARRF?	f	
		MAX	---	MAX_CARRF?	f	
		MIN	---	MIN_CARRF?	f	
	EVM	AVG	---	AVG_VECTERR?	r	
		MAX	---	MAX_VECTERR?	r	
		MIN	---	MIN_VECTERR?	r	
	Peak Code Domain Error	AVG	---	AVG_PPCDPERR?	l	
			---	AVG_PPCDPERR? ERR	l	
		MAX	---	MAX_PPCDPERR?	l	
			---	MAX_PPCDPERR? ERR	l	
		MIN	---	MIN_PPCDPERR?	l	
			---	MIN_PPCDPERR? ERR	l	

Table 1.5-1 Modulation analysis setting messages (Cont'd)

Function			Command	Query	Response	Remarks
Measure Result (Cont'd)	CPICH Power	AVG	---	AVG_CPICHPWR? REL	1	
			---	AVG_CPICHPWR? ABS	1	
		MAX	---	MAX_CPICHPWR? REL	1	
			---	MAX_CPICHPWR? ABS	1	
		MIN	---	MIN_CPICHPWR? REL	1	
			---	MIN_CPICHPWR? ABS	1	
	Relative Code Domain Error	AVG	---	AVG_RCDPERR? ERR	1	
		MAX	---	MAX_RCDPERR? ERR	1	
		MIN	---	MIN_RCDPERR? ERR	1	
	Peak EVM	AVG	---	AVG_PKEVM?	1	
		MAX	---	MAX_PKEVM?	1	
		MIN	---	MIN_PKEVM?	1	
	IQ Origin Offset	AVG	---	AVG_ORGOFS?	1	
		MAX	---	MAX_ORGOFS?	1	
		MIN	---	MIN_ORGOFS?	1	
	Scrambling Code		---	RSCRCODE?	1	
	Parameters of Peak Code Domain Error		---	PCDECODE?	ch,sf,slot	
	Marker Level	Relative	---	MKCDP?	pwr_rel	
		Absolute	---	MKCDPABS	pwr_abs	
		Error	---	MKCDPERR?	err	
		Rel Error	---	MKCDPERRREL?	err_rel	
		Symbol EVM	---	MKCDPEVM?	evm	

Table 1.5-1 Modulation analysis setting messages (Cont'd)

Function			Command	Query	Response	Remarks
Measure Result (Cont'd)	Code Domain Power (Cont'd)	PWR	---	CDANAL? PWR	sf1,code1,pwr_rel1,sf2,...	sf: 4,8,16,32,64,128,256 code: 0 to (sf-1)
		ERR	---	CDANAL? ERR	sf1,code1,err1,sf2,...	
		PWRABS	---	CDANAL? PWRABS	sf1,code1,pwr_abs1,sf2,...	
		PWRCH	---	CDANAL? PWRCH,sf,code	pwr_rel,err,pwr_abs	
		ALL	---	CDANAL? ALL	sf1,code1,pwr_abs1,err1,pwr_abs1,sf2,...	
		ERRREL	---	CDANAL? ERRREL	sf1,code1,err_rel1,sf2,...	
		EVM	---	SYMANAL? EVM	sf1,code1,evm1,sf2,...	

Table 1.5-1 Modulation analysis setting messages (Cont'd)

Function			Command	Query	Response	Remarks
Wave Data	EVM		---	XMV? addr,n	data(addr),data(addr+1),...data(addr+n-1)	addr: 0 to 2559 (Data read address) n: 1 to (2560 - addr) (Data read count)
	Constellation ,Eye Diagram	I phase	---	XMC? 0,addr,n	data(addr),data(addr+1),...data(addr+n-1)	
		Q phase	---	XMC? 1,addr,n	data(addr),data(addr+1),...data(addr+n-1)	

1.6 Occupied Bandwidth Settings

Device messages for setting occupied bandwidth are shown in Table 1.6-1.

Table 1.6-1 Occupied bandwidth setting messages

Function		Command	Query	Response	Remarks
Measure Count		AVR_OBW n	AVR_OBW?	n	n: 1 to 3000
Measure Result	AVG	---	AVG_OBW?	f	
	MAX	---	MAX_OBW?	f	
	MIN	---	MIN_OBW?	f	
Wave Data		---	XME? addr,n	data(addr),data(addr+1),...data(addr+n-1)	addr: 0 to 1638 (Data read address) n: 1 to (1639 - addr) (Data read count)

1.7 Spectrum Emission Mask Settings

Device messages for setting spectrum emission mask are shown in Table 1.7-1.

Table 1.7-1 Spectrum emission mask setting messages

Function		Command	Query	Response	Remarks
Measure Count		AVR_SMASK n	AVR_SMASK?	n	n: 1 to 3000
Template	Template Type Auto	TEMPMODE_SMASK AUTO	TEMPMODE_SMASK?	AUTO	
	Template Type Auto (Additional)	TEMPMODE_SMASK AUTOADD	TEMPMODE_SMASK?	AUTOADD	
	Template Type P < 31 dBm	TEMPMODE_SMASK DNLNK	TEMPMODE_SMASK?	DNLNK	
	Template Type P ≥ 43 dBm	TEMPMODE_SMASK DNLNK1	TEMPMODE_SMASK?	DNLNK1	
	Template Type 39 dBm ≤ P < 43 dBm	TEMPMODE_SMASK DNLNK2	TEMPMODE_SMASK?	DNLNK2	
	Template Type 31 dBm ≤ P < 39 dBm	TEMPMODE_SMASK DNLNK3	TEMPMODE_SMASK?	DNLNK3	
	Range Frequency	TEMPFREQ_SMASK_START a,b,c,d,e	TEMPFREQ_SMASK_START?	a,b,c,d,e	a: 2.500 to 4.000 b: 2.500 to 4.000 c: 2.500 to 4.000 d: 4.000 to 12.500 e: 4.000 to 12.500
		TEMPFREQ_SMASK_STOP a,b,c,d,e	TEMPFREQ_SMASK_STOP?	a,b,c,d,e	
	Range Absolute Mode	TEMPABS_SMASK_MODE a,b,c,d,e	TEMPABS_SMASK_MODE?	a,b,c,d,e	a: ON | OFF b: ON | OFF c: ON | OFF d: ON | OFF e: ON | OFF

Table 1.7-1 Spectrum emission mask setting messages(Cont'd)

Function		Command	Query	Response	Remarks
Template (Cont'd)	Range Absolute Level	TEMPABS_SMASK_START a,b,c,d,e	TEMPABS_SMASK_START ?	a,b,c,d,e	a: -999.99 to 999.99 b: -999.99 to 999.99 c: -999.99 to 999.99 d: -999.99 to 999.99 e: -999.99 to 999.99
		TEMPABS_SMASK_STOP a,b,c,d,e	TEMPABS_SMASK_STOP?	a,b,c,d,e	
	Range Relative Mode	TEMPREL_SMASK_MODE a,b,c,d,e	TEMPREL_SMASK_MODE?	a,b,c,d,e	a: ON | OFF b: ON | OFF c: ON | OFF d: ON | OFF e: ON | OFF
	Range Relative Level	TEMPREL_SMASK_START a,b,c,d,e	TEMPREL_SMASK_START ?	a,b,c,d,e	a: -99.99 to 99.99 b: -99.99 to 99.99 c: -99.99 to 99.99 d: -99.99 to 99.99 e: -99.99 to 99.99
		TEMPREL_SMASK_STOP a,b,c,d,e	TEMPREL_SMASK_STOP?	a,b,c,d,e	
	Range Additional Mode	TEMPADD_SMASK_MODE a,b,c,d,e	TEMPADD_SMASK_MODE?	a,b,c,d,e	a: ON | OFF b: ON | OFF c: ON | OFF d: ON | OFF e: ON | OFF
	Range Additional Level	TEMPADD_SMASK_START a,b,c,d,e	TEMPADD_SMASK_START ?	a,b,c,d,e	a: -999.99 to 999.99 b: -999.99 to 999.99 c: -999.99 to 999.99 d: -999.99 to 999.99 e: -999.99 to 999.99

Table 1.7-1 Spectrum emission mask setting messages(Cont'd)

Function		Command	Query	Response	Remarks
Template (Cont'd)	Range All	TEMP_SMASK_ALL f1sta,f1stop,level1,l1sta,l1stop, add1on_off,add1level,f2sta,...f3sta,...f4sta,...f5sta,...add5level	TEMP_SMASK_ALL?	f1sta,f1stop,level1,l1sta,l1stop, add1on_off,add1level,f2sta,...f3sta,...f4sta,...f5sta,...add5level	f1sta,f1stop:2.500 to 4.000 f2sta,f2stop:2.500 to 4.000 f3sta,f3stop:2.500 to 4.000 f4sta,f4stop:4.000 to 12.500 f5sta,f5stop:4.000 to 12.500 level#: (# is 1, 2, 3, 4, or 5) = ABS | REL l#sta,l#stop: (# is 1, 2, 3, 4, or 5) = -999.99 to 999.99 (when ABS is selected at level) = -99.99 to 99.99 (when REL is selected at level) add#on_off: (# is 1, 2, 3, 4, or 5) = ON | OFF add#level: (# is 1, 2, 3, 4, or 5) = -999.99 to 999.99

Table 1.7-1 Spectrum emission mask setting messages(Cont'd)

Function		Command	Query	Response	Remarks
Measure Result	ALL	---	AVG_PEAK_SMASK? ALL,b	c(L5),d(L5),e(L5),c(L4),...e(U5)	b: Unit of c = DB | DBM L5: -12.5 to -8 MHz L4: -8 to -4 MHz L3: -4 to -3.515 MHz L2: -3.515 to -2.715 MHz L1: -2.715 to -2.515 MHz U1: 2.515 to 2.715 MHz U2: 2.715 to 3.515 MHz U3: 3.515 to 4 MHz U4: 4 to 8 MHz U5: 8 to 12.5 MHz
	PEAK	---	AVG_PEAK_SMASK? PEAK,u	c,d,e	
	Range E (- range)	---	AVG_PEAK_SMASK? L5,b	c,d,e	
	Range D (- range)	---	AVG_PEAK_SMASK? L4,b	c,d,e	
	Range C (- range)	---	AVG_PEAK_SMASK? L3,b	c,d,e	
	Range B (- range)	---	AVG_PEAK_SMASK? L2,b	c,d,e	
	Range A (- range)	---	AVG_PEAK_SMASK? L1,b	c,d,e	
	Range A (+ range)	---	AVG_PEAK_SMASK? U1,b	c,d,e	
	Range B (+ range)	---	AVG_PEAK_SMASK? U2,b	c,d,e	
	Range C (+ range)	---	AVG_PEAK_SMASK? U3,b	c,d,e	
	Range D (+ range)	---	AVG_PEAK_SMASK? U4,b	c,d,e	
	Range E (+ range)	---	AVG_PEAK_SMASK? U5,b	c,d,e	
Measure Result (Frequency)	ALL	---	AVG_FREQ_SMASK? ALL	f(L5),f(L4),...,f(U5)	Unit = MHz L5: -12.5 to -8 MHz L4: -8 to -4 MHz L3: -4 to -3.515 MHz L2: -3.515 to -2.715 MHz L1: -2.715 to -2.515 MHz U1: 2.515 to 2.715 MHz U2: 2.715 to 3.515 MHz U3: 3.515 to 4 MHz U4: 4 to 8 MHz U5: 8 to 12.5 MHz
	PEAK	---	AVG_FREQ_SMASK? PEAK	f	
	Range E (- range)	---	AVG_FREQ_SMASK? L5	f	
	Range D (- range)	---	AVG_FREQ_SMASK? L4	f	
	Range C (- range)	---	AVG_FREQ_SMASK? L3	f	
	Range B (- range)	---	AVG_FREQ_SMASK? L2	f	
	Range A (- range)	---	AVG_FREQ_SMASK? L1	f	
	Range A (+ range)	---	AVG_FREQ_SMASK? U1	f	
	Range B (+ range)	---	AVG_FREQ_SMASK? U2	f	
	Range C (+ range)	---	AVG_FREQ_SMASK? U3	f	
	Range D (+ range)	---	AVG_FREQ_SMASK? U4	f	
	Range E (+ range)	---	AVG_FREQ_SMASK? U5	f	
Wave Data		---	XMFN? addr,n	data(addr),data(addr+1),...data(addr+n-1)	addr: 0 to 4096 (Data read address) n: 1 to (4097 - addr) (Data read count)

1.8 Adjacent Channel Leakage Power Ratio Settings

Device messages for setting adjacent channel leakage power ratio are shown in Table 1.8-1.

Table 1.8-1 Adjacent channel leakage power ratio setting messages

Function			Command	Query	Response	Remarks
Measure Count			AVR_ADJ n	AVR_ADJ?	n	n: 1 to 3000
Measure Result	AVG	–10 MHz	---	AVG_ACPRRC? LOW2,u	l	la: –10 MHz lb: –5 MHz lc: 5 MHz ld: 10 MHz u: DB
		–5 MHz	---	AVG_ACPRRC? LOW1,u	l	
		5 MHz	---	AVG_ACPRRC? UP1,u	l	
		10 MHz	---	AVG_ACPRRC? UP2,u	l	
		All	---	AVG_ACPRRC? ALL,u	la,lb,lc,ld	
	MIN	–10 MHz	---	MIN_ACPRRC? LOW2,u	l	
		–5 MHz	---	MIN_ACPRRC? LOW1,u	l	
		5 MHz	---	MIN_ACPRRC? UP1,u	l	
		10 MHz	---	MIN_ACPRRC? UP2,u	l	
		All	---	MIN_ACPRRC? ALL,u	la,lb,lc,ld	
	MAX	–10 MHz	---	MAX_ACPRRC? LOW2,u	l	
		–5 MHz	---	MAX_ACPRRC? LOW1,u	l	
		5 MHz	---	MAX_ACPRRC? UP1,u	l	
		10 MHz	---	MAX_ACPRRC? UP2,u	l	
		All	---	MAX_ACPRRC? ALL,u	la,lb,lc,ld	
Wave Data			---	XMB? addr,n	data(addr),data(addr+1),...data(addr+n-1)	addr: 0 to 4096 (Data read address) n: 1 to (4097 – addr) (Data read count)

Chapter 2 Device Message Details

This chapter describes detailed specifications on remote control commands for executing functions of the MX269030A in alphabetical order. Refer to the *MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer Operation Manual (Mainframe Remote Control)* for detailed specifications on IEEE488.2 common device messages and application common device messages.

ADJRNG

Adjust Range

Function

Executes the Adjust Range function.

Command

```
ADJRNG
```

Example of Use

To execute Adjust Range function.

```
ADJRNG
```

ALLMEAS?

All Measure Results

Function

Queries the specified measurement result among all the measurement results.

Command

None

■ Reading of all measurement results

Query

```
ALLMEAS?
```

Response

```
on_off1,res1_1,res1_2,...res1_27,on_off2,res2_1,...
res2_3,...,on_off4,res4_1,...res4_12,on_off1,res1_28
,...res1_40
```

■ Reading by specifying measurement field

Query

```
ALLMEAS? meas
```

Response

```
on_off,res1,res2,...resn
```

Parameter

meas

MODANA	Modulation Analysis
OBW	Occupied Bandwidth
SMASK	Spectrum Emission Mask
ACLR	Adjacent Channel Power

■ Reading by specifying measurement item

Query

```
ALLMEAS? meas,item1,item2,...itemn
```

Response

```
on_off,res1,res2,...resn
```

Parameter

`on_off1`	Whether to perform Modulation Analysis measurement
`on_off2`	Whether to perform Occupied Bandwidth measurement
`on_off3`	Whether to perform Spectrum Emission Mask measurement
`on_off4`	Whether to perform Adjacent Channel Power measurement
`on_off`	Whether to perform a measurement specified by `meas` of query.
`ON`	Performs a measurement
`OFF`	Does not perform a measurement
`meas`	
`MODANA`	Modulation Analysis
`OBW`	Occupied Bandwidth
`SMASK`	Spectrum Emission Mask
`ACLR`	Adjacent Channel Power

`item`

`1`	ON
`0`	OFF

`res` Measurement result of the corresponded measurement item. (When it is set to off, a value is not returned but omitted.)

The relationship between `item` and `res` are shown below.

Measurement item	All measurement items	Specifying measurement item	Response and measurement item	
MODANA	res1_1	item1	res1	TX Power (Ave) [dBm]
	res1_2	item2	res2	TX Power (Max) [dBm]
	res1_3	item3	res3	TX Power (Min) [dBm]
	res1_4	item4	res4	TX Power (Ave) [mW]
	res1_5	item5	res5	TX Power (Max) [mW]
	res1_6	item6	res6	TX Power (Min) [mW]
	res1_7	item7	res7	Carrier Frequency (Ave) [Hz]
	res1_8	item8	res8	Carrier Frequency (Max) [Hz]
	res1_9	item9	res9	Carrier Frequency (Min) [Hz]
	res1_10	item10	res10	Carrier Frequency Error (Ave) [Hz]
	res1_11	item11	res11	Carrier Frequency Error (Max) [Hz]
	res1_12	item12	res12	Carrier Frequency Error (Min) [Hz]
	res1_13	item13	res13	Carrier Frequency Error (Ave) [ppm]
	res1_14	item14	res14	Carrier Frequency Error (Max) [ppm]
	res1_15	item15	res15	Carrier Frequency Error (Min) [ppm]
	res1_16	item16	res16	RMS EVM (Ave) [%]
	res1_17	item17	res17	RMS EVM (Max) [%]
	res1_18	item18	res18	RMS EVM (Min) [%]
	res1_19	item19	res19	Peak Code Domain Error (Ave) [dB]
	res1_20	item20	res20	Peak Code Domain Error (Max) [dB]
	res1_21	item21	res21	Peak Code Domain Error (Min) [dB]
	res1_22	item22	res22	CPICH Power (Ave) [dB]
	res1_23	item23	res23	CPICH Power (Max) [dB]
	res1_24	item24	res24	CPICH Power (Min) [dB]
	res1_25	item25	res25	CPICH Power (Ave) [dBm]
	res1_26	item26	res26	CPICH Power (Max) [dBm]
	res1_27	item27	res27	CPICH Power (Min) [dBm]
OBW	res2_1	item1	res1	Occupied Bandwidth (Ave) [Hz]
	res2_2	item2	res2	Occupied Bandwidth (Max) [Hz]
	res2_3	item3	res3	Occupied Bandwidth (Min) [Hz]

Measurement item	All measurement items	Specifying measurement item	Response and measurement item	
SMASK	res3_1	item1	res1	RangeE (–Range) (Ave) [dBm]
	res3_2	item2	res2	RangeE (–Range) (Ave) [dB]
	res3_3	item3	res3	RangeD (–Range) (Ave) [dBm]
	res3_4	item4	res4	RangeD (–Range) (Ave) [dB]
	res3_5	item5	res5	RangeC (–Range) (Ave) [dBm]
	res3_6	item6	res6	RangeC (–Range) (Ave) [dB]
	res3_7	item7	res7	RangeB (–Range) (Ave) [dBm]
	res3_8	item8	res8	RangeB (–Range) (Ave) [dB]
	res3_9	item9	res9	RangeA (–Range) (Ave) [dBm]
	res3_10	item10	res10	RangeA (–Range) (Ave) [dB]
	res3_11	item11	res11	RangeA (+Range) (Ave) [dBm]
	res3_12	item12	res12	RangeA (+Range) (Ave) [dB]
	res3_13	item13	res13	RangeB (+Range) (Ave) [dBm]
	res3_14	item14	res14	RangeB (+Range) (Ave) [dB]
	res3_15	item15	res15	RangeC (+Range) (Ave) [dBm]
	res3_16	item16	res16	RangeC (+Range) (Ave) [dB]
	res3_17	item17	res17	RangeD (+Range) (Ave) [dBm]
	res3_18	item18	res18	RangeD (+Range) (Ave) [dB]
	res3_19	item19	res19	RangeE (+Range) (Ave) [dBm]
	res3_20	item20	res20	RangeE (+Range) (Ave) [dB]
	res3_21	Item21	res21	PASS/FAIL
ACLR	res4_1	item1	res1	–10 MHz (Ave) [dB]
	res4_2	item2	res2	–10 MHz (Max) [dB]
	res4_3	item3	res3	–10 MHz (Min) [dB]
	res4_4	item4	res4	–5 MHz (Ave) [dB]
	res4_5	item5	res5	–5 MHz (Max) [dB]
	res4_6	item6	res6	–5 MHz (Min) [dB]
	res4_7	item7	res7	5 MHz (Ave) [dB]
	res4_8	item8	res8	5 MHz (Max) [dB]
	res4_9	item9	res9	5 MHz (Min) [dB]
	res4_10	item10	res10	10 MHz (Ave) [dB]
	res4_11	item11	res11	10 MHz (Max) [dB]
	res4_12	item12	res12	10 MHz (Min) [dB]

Measurement item	All measurement items	Specifying measurement item	Response and measurement item	
MODANA (Additional From Package2.07.00)	res1_28	item28	res28	Peak EVM (Ave) [%]
	res1_29	item29	res29	Peak EVM (Max) [%]
	res1_30	item30	res30	Peak EVM (Min) [%]
	res1_31	item31	res31	IQ Origin (Ave) [dB]
	res1_32	item32	res32	IQ Origin (Max) [dB]
	res1_33	item33	res33	IQ Origin (Min) [dB]
	res1_34	item34	res34	Scrambling Code (Decimal)
	res1_35	item35	res35	PCDE CH
	res1_36	item36	res36	PCDE SF
	res1_37	item37	res37	PCDE Slot
MODANA (Additional From Package 4.11.00)	res1_38	item38	res38	Relative Code Domain Error (Ave) [dB]
	res1_39	item39	res39	Relative Code Domain Error (Max) [dB]
	res1_40	Item40	res40	Relative Code Domain Error (Min) [dB]

Example of Use

(1) To measure all the measurement items in order to query the measurement results.

```
ALLMEASITEMS ON,1,ON,1,ON,1,ON,1
SWP
ALLMEAS?
```

(2) To query all the measurement results of Occupied Bandwidth.

```
ALLMEASITEMS OFF,1,ON,1,OFF,1,OFF,1
SWP
ALLMEAS? OBW
> ON,4800000,4900000,4700000
```

(3) To query the average value of transmission power of Modulation Analysis in dBm unit.

```
ALLMEASITEMS ON,1,OFF,1,OFF,1,OFF,1
SWP
ALLMEAS?
MODANA,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
> ON,43.00
```

ALLMEASITEMS/ALLMEASITEMS?

Setup All Measure Items

Function

Sets all measurement items.

Command

```
ALLMEASITEMS s1,n1,s2,n2,s3,n3,s4,n4
```

Query

```
ALLMEASITEMS?
```

Response

```
s1,n1,s2,n2,s3,n3,s4,n4
```

Parameter

s1	Modulation analysis measurement ON/OFF
ON	Executes measurement.
OFF	Does not execute measurement.
n1	Modulation analysis measurement count
Range	1 to 3000
Resolution	1
s2	Occupied bandwidth measurement ON/OFF
ON	Executes measurement.
OFF	Does not execute measurement.
n2	Occupied bandwidth measurement count
Range	1 to 3000
Resolution	1
s3	Spectrum emission mask measurement ON/OFF
ON	Executes measurement.
OFF	Does not execute measurement.
n3	Spectrum emission mask measurement count
Range	1 to 3000
Resolution	1
s4	Adjacent channel leakage power ratio measurement ON/OFF
ON	Executes measurement.
OFF	Does not execute measurement.
n4	Adjacent channel leakage power ratio measurement count
Range	1 to 3000
Resolution	1

Example of Use

To execute all measurement items 10 times.

```
ALLMEASITEMS ON,10,ON,10,ON,10,ON,10
ALLMEASITEMS?
>ON,10,ON,10,ON,10,ON,10
```

AVG_ACPRRC?

Adjacent Channel Leakage power Ratio with Root Raised Cosine Filtering – Average Value

Function

Queries the average value of adjacent channel leakage power ratio measurement results weighted by the RRC filter.

Query

`AVG_ACPRRC? a`	Queries the average value of measurement results at the specified frequency.
`AVG_ACPRRC? a,b`	Queries the average value of measurement results at the specified frequency in the specified output unit.
`AVG_ACPRRC? ALL`	Queries the average value of measurement results at all frequencies.
`AVG_ACPRRC? ALL,b`	Queries the average value of measurement results at all frequencies in the specified output unit.

Response

`c`	When the first parameter of query is `a`
`d,e,f,g`	When the first parameter of query is `ALL`

Parameter

a		Offset frequency
	LOW2	–10 MHz
	LOW1	–5 MHz
	UP1	5 MHz
	UP2	10 MHz
b		Output unit
	DB	dB
	When omitted	dB
c		Power at the frequency specified in a
	Resolution	0.01
	Unit	dB
d		Power at –10 MHz
	Resolution	0.01
	Unit	dB
e		Power at –5 MHz
	Resolution	0.01
	Unit	dB
f		Power at 10 MHz
	Resolution	0.01
	Unit	dB
g		Power at 5 MHz
	Resolution	0.01
	Unit	dB

Example of Use

To query the average power at each offset frequency.

```
AVG_ACPRRC? ALL,DB
>-50.00,-45.00,-50.00,-45.00
```

AVG_CARRF?

Carrier Frequency – Average Value

Function

Queries the average value of carrier frequency measurement results during modulation analysis measurement.

Query

```
AVG_CARRF?
```

Response

```
freq
```

Parameter

`freq`	Carrier frequency measurement result
Resolution	0.1
Unit	Hz

Example of Use

To query the average value of carrier frequency measurement results.

```
AVG_CARRF?
> 1922499857.2
```

AVG_CARRFERR?

Carrier Frequency Error – Average Value

Function

Queries the average value of carrier frequency error measurement results during modulation analysis measurement.

Query

```
AVG_CARRFERR? unit
```

Response

```
freq
```

Parameter

`unit`	Output unit
`HZ`	Hz
`PPM`	ppm
When omitted	Hz
`freq`	Carrier frequency error measurement result
Resolution	0.1 (unit = Hz) 0.01 (unit = ppm)

Example of Use

To query the average value of carrier frequency error measurement results in Hz units.

```
AVG_CARRFERR? Hz
> 17.2
```

AVG_CPICHPWR?

CPICH power – Average Value

Function

Queries the average value of CPICH code domain power measurement results during modulation analysis measurement.

Query

```
AVG_CPICHPWR? a
```

Response

`pwr_rel`	When the first parameter of query is `REL`
`pwr_abs`	When the first parameter of query is `ABS`

Parameter

`a`

`REL`	Queries the average value of CPICH power relative values.
`ABS`	Queries the average value of CPICH power absolute values.
`pwr_rel`	The average value of CPICH power relative values
Resolution	0.01
Unit	dB
`pwr_abs`	The average value of CPICH power absolute values
Resolution	0.01
Unit	dBm

Example of Use

To query the average value of CPICH power absolute values.

```
AVG_CPICHPWR? ABS
> -30.00
```

AVG_FREQ_SMASK?

Spectrum Emission Mask – Average Value (Frequency)

Function

Queries the frequency at the peak level (Corresponds to the response to "AVG_PEAK_SMASK?") for the specified template during the spectrum emission mask measurement.

Query

```
AVG_FREQ_SMASK? a
```

Response

```
f
```

Parameter

`a` Selection of data

- `ALL` Queries the frequency at the peak level at each frequency band in the order of `L5, L4, L3, L2, L1, U1, U2, U3, U4, U5`.
- `PEAK` Queries the frequency at the peak level of all measurement values.
- `L5,L4,L3,L2,L1,U1,U2,U3,U4,U5` Queries the frequency at the peak level at the specified frequency band.

Band	Frequency (MHz)	Band	Frequency (MHz)
L5	–12.5 to –8	U1	2.515 to 2.715
L4	–8 to –4	U2	2.715 to 3.515
L3	–4 to –3.515	U3	3.515 to 4
L2	–3.515 to –2.715	U4	4 to 8
L1	–2.715 to –2.515	U5	8 to 12.5

`f` Frequency at the peak level

- Resolution 0.001
- Unit MHz (Relative to center frequency)

Example of Use

To query the frequency at the peak level of all measurement bands.

```
AVG_FREQ_SMASK? PEAK
> -3.003
```

AVG_OBW?

Occupied Bandwidth – Average Value

Function

Queries the average value of occupied bandwidth measurement results.

Query

```
AVG_OBW?
```

Response

```
freq
```

Parameter

`freq`	Average value of occupied bandwidth measurement results
Resolution	1
Unit	Hz

Example of Use

To query the average value of occupied bandwidth measurement results.

```
AVG_OBW?
> 4000000
```

AVG_ORGOFS?

IQ Origin Offset – Average Value

Function

Queries the average value of the IQ Origin Offset measurement results during Modulation Analysis measurement.

Query

```
AVG_ORGOFS?
```

Response

```
ofs
```

Parameter

`ofs`		IQ Origin Offset
	Resolution	0.01
	Units	dB

Example of Use

To query the average value of IQ Origin Offset.

```
AVG_ORGOFS?
> 1.61
```

AVG_PEAK_SMASK?

Spectrum Emission Mask – Average Value

Function

Queries the average value of peak values for the specified template and the pass/fail judgment result during spectrum emission mask measurement.

Query

```
AVG_PEAK_SMASK? a,b
```

Response

```
c,d,e
```

Parameter

`a` Selection of data

- `ALL` Queries the peak value at each frequency band in the order of `c(L5), d(L5), e(L5), c(L4), d(L4), e(L4),..., c(U5), d(U5), e(U5).`
- `PEAK` Queries the peak value of all measurement values.

`L5,L4,L3,L2,L1,U1,U2,U3,U4,U5`

Queries the peak value at the specified frequency band.

Band	Frequency (MHz)	Band	Frequency (MHz)
L5	–12.5 to –8	U1	2.515 to 2.715
L4	–8 to –4	U2	2.715 to 3.515
L3	–4 to –3.515	U3	3.515 to 4
L2	–3.515 to –2.715	U4	4 to 8
L1	–2.715 to –2.515	U5	8 to 12.5

`b` Unit of `c`

- `DB` dB (Relative value to carrier transmitter power)
- `DBM` dBm (Absolute peak value)

`c` Absolute peak value of measurement results, or relative peak value to carrier transmitter power

- Resolution 0.01

`d` Relative peak value of measurement results to pass/fail judgment template

- Resolution 0.01
- Unit dB

`e` Pass/fail judgment template result

- `PASS` Passed
- `FAIL` Failed

Example of Use

To query the average peak value of all measurement values in dBm units.

```
AVG_PEAK_SMASK? PEAK,DBM
> -13.00,0.00,FAIL
```

AVG_PKEVM?

Peak EVM – Average Value

Function

For Modulation Analysis Measurement, this command returns the average measurement results of Peak EVM.

Query

```
AVG_PKEVM?
```

Response

```
evm
```

Parameter

`evm`	Peak EVM
Resolution	0.01
Units	%

Example of Use

To query the average value of Peak EVM.

```
AVG_PKEVM?
> 9.61
```

AVG_PPCDPERR?

Peak Code Domain Error – Average Value

Function

Queries the average value of Channelization Code Number, Spreading Factor and measurement result of Peak Code Domain Error during modulation analysis measurement.

Query

```
AVG_PPCDPERR? a
```

Response

`err`	When the first parameter of query is `ERR`

Parameter

`a`

`ERR`	Queries the average Peak Code Domain Error value.
When omitted	Queries the average Peak Code Domain Error value.

`err`

Resolution	0.01
Unit	dB

Example of Use

To query the average Peak Code Domain Error value.

```
AVG_PPCDPERR?
> -56.78
```

AVG_RCDPERR?

Relative Code Domain Error – Average Value

Function

Queries the average Relative Code Domain Error value from the Modulation Analysis measurement results.

Query

```
AVG_RCDPERR? a
```

Response

`err_rel` When the first parameter of query is `ERR`

Parameter

`a`

`ERR`	Queries the average Relative Code Domain Error
When omitted	Queries the average Relative Code Domain Error

`err_rel`

Resolution	0.01
Unit	dB

Example of Use

To query the average Relative Code Domain Error.

```
AVG_RCDPERR?
> -56.78
```

AVG_TXPWR?

Transmitter Power – Average Value

Function

Queries the average carrier transmitter power (TX power) in 5-MHz frequency band during modulation analysis measurement.

Query

```
AVG_TXPWR? unit
```

Response

```
txpwr
```

Parameter

`unit`	Unit
`DBM`	dBm
`WATT`	mW
`txpwr`	Average value of the carrier transmitter power
Resolution	0.01 (When `unit` is `DBM`)
	Displayed as an exponent of a number having four significant digits (When `unit` is `WATT`).

Example of Use

To query the average TX power value in dBm units.

```
AVG_TXPWR? DBM
>30.00
```

AVG_VECTERR?

RMS EVM – Average Value

Function

Queries the average value of EVM's RMS measurement results during modulation analysis measurement.

Query

```
AVG_VECTERR?
```

Response

```
rms
```

Parameter

`rms`	RMS EVM
Resolution	0.01
Unit	%

Example of Use

To query the average value of RMS EVM.

```
AVG_VECTERR?
> 17.51
```

AVR_ADJ/AVR_ADJ?

Measure Count for Adjacent Channel Leakage power Ratio

Function

Sets the measurement count for adjacent channel leakage power ratio measurement.

Command

```
AVR_ADJ count
```

Query

```
AVR_ADJ?
```

Response

```
count
```

Parameter

`count`	Measurement count
Range	1 to 3000
Resolution	1

Example of Use

To set the measurement count to 500.

```
AVR_ADJ 500
AVR_ADJ?
> 500
```

AVR_MOD/AVR_MOD?

Measure Count for Modulation Analysis

Function

Sets the measurement count for modulation analysis measurement.

Command

```
AVR_MOD count
```

Query

```
AVR_MOD?
```

Response

```
count
```

Parameter

`count`	Measurement count
Range	1 to 3000
Resolution	1

Example of Use

To set the measurement count to 500.

```
AVR_MOD 500
AVR_MOD?
> 500
```

AVR_OBW/AVR_OBW?

Measure Count for Occupied Bandwidth

Function

Sets the measurement count for occupied bandwidth measurement.

Command

```
AVR_OBW count
```

Query

```
AVR_OBW?
```

Response

```
count
```

Parameter

`count`	Measurement count
Range	1 to 3000
Resolution	1

Example of Use

To set the measurement count to 500.

```
AVR_OBW 500
AVR_OBW?
> 500
```

AVR_SMASK/AVR_SMASK?

Measure Count for Spectrum Emission Mask

Function

Sets the measurement count for spectrum emission mask measurement.

Command

```
AVR_SMASK count
```

Query

```
AVR_SMASK?
```

Response

```
count
```

Parameter

`count`	Measurement count
Range	1 to 3000
Resolution	1

Example of Use

To set the measurement count to 500.

```
AVR_SMASK 500
AVR_SMASK?
> 500
```

CDANAL?

All Code Domain Power and Error

Function

Queries the measurement results of Code Domain Power and Code Domain Error for Modulation Analysis measurement.

Query

```
CDANAL? a,sf,code
```

Response

```
sf1,code1,pwr_rel1,sf2,...          when a is PWR.

sf1,code1,err1,sf2,...              when a is ERR.

sf1,code1,pwr_abs1,sf2,...          when a is PWRABS.

sf1,code1,err_rel1,sf2,...          when a is ERRREL.

pwr_rel1,err1,pwr_abs1,err_rel1,...
                                    when a is PWRCH.

sf1,code1,pwr_rel1,err1,pwr_abs1,err_rel1,sf2...
                                    when a is ALL.
```

Parameter

a	
PWR	Queries Code Domain Power relative value
ERR	Queries Code Domain Error value
PWRABS	Queries Code Domain Power absolute value
PWRCH	Queries Code Domain Power of the specified Channelization Code Number
ALL	Queries all results
sf	Spreading Factor Specifies only when a is PWRCH
Range	4, 8, 16, 32, 64, 128, 256
code	Channelization Code Number Specifies only when a is PWRCH
Range	0 to (sf–1)
Resolution	1
pwr_rel	Code Domain Power relative value
Resolution	0.01
Unit	dB
err	Code Domain Error
Resolution	0.01
Unit	dB
pwr_abs	Code Domain Power absolute value

Resolution	0.01
Unit	dBm
`err_rel`	Relative Code Domain Error
Resolution	0.01
Unit	dB

Example of Use

To query Code Domain Error measurement result in each Spreading Factor and Channelization Code Number.

```
CDANAL? ERR
> 256,0,-42.45,256,1,-52.34,...
```

CHDET/CHDET?

Channel Detection for Modulation Analysis

Function

Sets the active channel detection method for modulation analysis measurement.

Command

```
CHDET a
```

Query

```
CHDET?
```

Response

```
a
```

Parameter

a

AUTO	Detects active channels automatically.
T11	Detects Test Model1 16DPCH as an active channel.
T12	Detects Test Model1 32DPCH as an active channel.
T13	Detects Test Model1 64DPCH as an active channel.
T14	Detects Test Model1 4DPCH as an active channel.
T15	Detects Test Model1 8DPCH as an active channel.
T21	Detects Test Model2 as an active channel.
T31	Detects Test Model3 16DPCH as an active channel.
T32	Detects Test Model3 32DPCH as an active channel.
T33	Detects Test Model3 4DPCH as an active channel.
T34	Detects Test Model3 8DPCH as an active channel.
T41	Detects Test Model4 as an active channel.
T42	Detects Test Model4 include CPICH as an active channel.
T51	Detects Test Model5 6DPCH as an active channel.
T52	Detects Test Model5 14DPCH as an active channel.
T53	Detects Test Model5 30DPCH as an active channel.
T54	Detects Test Model5 4DPCH as an active channel.
T61	Detects Test Model6 30DPCH as an active channel.
T62	Detects Test Model6 4DPCH as an active channel.

Example of Use

To detect active channels automatically.

```
CHDET AUTO
CHDET?
> AUTO
```

CONTS

Continuous Measure/Sweep

Function

Performs measurement and sweep continuously (continuous measurement/sweep). Other commands can be received even during measurement. This command functions the same as the `S1` command. When a measurement execution command, such as this command, is received during measurement started by this command, the current measurement is stopped temporarily and a new measurement is started.

When a command not related to measurement, such as a query message, is received during measurement started by this command, the received command is executed while the current measurement continues.

Command

```
CONTS
```

Example of Use

To perform continuous measurement/sweep.

```
CONTS
```

DTXSETUP_MOD/DTXSETUP_MOD?

DTX Setup

Function

Enables (On) or disables (Off) the PICH correction function for modulation analysis measurement.

Command

```
DTXSETUP_MOD on_off
```

Query

```
DTXSETUP_MOD?
```

Response

```
on_off
```

Parameter

```
on_off
```

ON	Enables the PICH correction function.
OFF	Disables the PICH correction function.

Example of Use

To enable the PICH correction function.

```
DTXSETUP_MOD ON
DTXSETUP_MOD?
> ON
```

ESE2/ESE2?

End Event Status Enable Command/Query

Function

Sets the END event status enable register. The END event status enable register value is returned to a query.

Command

```
ESE2 n
```

Query

```
ESE2?
```

Response

```
n
```

Parameter

n	END event status enable register	
Value	bit0 + bit1 + bit2 + bit3 + bit4 + bit5 + bit6 + bit7	
	bit0: $2^0 = 1$	(Not used)
	bit1: $2^1 = 2$	(Not used)
	bit2: $2^2 = 4$	(Not used)
	bit3: $2^3 = 8$	End of SG Synchronize
	bit4: $2^4 = 16$	End of Average
	bit5: $2^5 = 32$	(Not used)
	bit6: $2^6 = 64$	End of Average
	bit7: $2^7 = 128$	(Not used)
Range	0 to 255	

Example of Use

To enable end of measurement.

```
ESE2 1
ESE2?
> 1
```

ESR2?

End Event Status Register Query

Function

Returns the END event status register value. Clears the END event status register after readout.

Query

```
ESR2?
```

Response

```
n
```

Parameter

`n` END event status enable register

Value	bit0 + bit1 + bit2 + bit3 + bit4 + bit5 + bit6 + bit7	
	bit0: $2^0 = 1$	(Not used)
	bit1: $2^1 = 2$	(Not used)
	bit2: $2^2 = 4$	(Not used)
	bit3: $2^3 = 8$	End of SG Synchronize
	bit4: $2^4 = 16$	End of Average
	bit5: $2^5 = 32$	(Not used)
	bit6: $2^6 = 64$	End of Average
	bit7: $2^7 = 128$	(Not used)
Range	0 to 255	

Example of Use

To query the END event status register value.

```
ESR2?
> 64
```

FREQ/FREQ?

Frequency

Function

Sets the carrier frequency of the measured signal.

Command

```
FREQ freq
```

Query

```
FREQ?
```

Response

```
freq
```

Parameter

`freq`		Carrier frequency
	Range	MS269x Series: 50000000 to 6000000000 MS2830A: 50000000 to 3600000000 (MS2830A-040) 50000000 to 6000000000 (MS2830A-041/043/044/045)
	Resolution	1
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.

Example of Use

To set the carrier frequency to 1 GHz.

```
FREQ 1GHZ
FREQ?
> 1000000000
```

GRAPHCOPY

Graph Copy

Function

Produces a hard copy of either of Constellation graph or Code Domain Power waveform of the Modulation Analysis measurement results and saves it as a file.

This function can be executed only for remote command.

Command

```
GRAPHCOPY param,fname,drive
```

Parameter

`param`	Type of graph
`CONSTELLATION`	Constellation graph display
`CODEDOMAIN`	Code Domain Power waveform display
`fname`	File name (Up to 32 words can be used for the name, and the extension is automatically set as below.) When omitted, the allotted number is automatically set to the file name. The extension will be automatically set according to the type (BMP/PNG) set in Config.
`drive`	Name of drive to save.[d to z] When omitted, the drive set in Config is set.

Files are created in [d to z]:\Anritsu Corporation\Signal Analyzer\User Data\Copy File folder.

Example of Use

To make a hard copy of Code Domain Power waveform.

```
*RST
SWP
GRAPHCOPY CODEDOMAIN,"code_domain_power_graph",d
```

GRAPHVIEW/GRAPHVIEW?

Graph View

Function

Switches the view of the Modulation Analysis measurement results between Constellation graph and Code Domain Power waveform.

Command

```
GRAPHVIEW param,sw
```

Query

```
GRAPHVIEW? param
```

Response

```
sw
```

Parameter

param	Type of graph
CONSTELLATION	Constellation graph
CODEDOMAIN	Code Domain Power waveform
sw	Display setting
OFF	Does not display
ON	Displays

Example of Use

To set “displaying Code Domain Power waveform”.

```
GRAPHVIEW CONSTELLATION,ON
GRAPHVIEW? CONSTELLATION
> ON
```

INPUTLVL/INPUTLVL?

Input Level

Function

Sets the input level.

Command

```
INPUTLVL inputlevel
```

Query

```
INPUTLVL?
```

Response

```
inputlevel
```

Parameter

`inputlevel`	Input level
Range	For Pre-Amp Off (30.00 + Level offset) to (–24.00 + Level offset) For Pre-Amp On (10.00 + Level offset) to (–44.00 + Level offset)
Resolution	0.01
Unit	dBm
Suffix code	DBM dBm is used even when omitted.

Example of Use

To set the input level to 0 dBm.

```
INPUTLVL 0
INPUTLVL?
> 0
```

LVLOFS/LVLOFS?

Level Offset

Function

Sets the level offset.

Command

```
LVLOFS offset
```

Query

```
LVLOFS?
```

Response

```
offset
```

Parameter

`offset`	Level offset
Range	–99.99 to 99.99
Resolution	0.01
Suffix code	dB
	dB is used even when omitted.

Example of Use

To set the level offset to 0 dB.

```
LVLOFS 0.00
LVLOFS?
> 0.00
```

MAX_ACPRRC?

Adjacent Channel Leakage power Ratio with Root Raised Cosine Filtering – Maximum Value

Function

Queries the maximum value of adjacent channel leakage power ratio measurement results weighted by the RRC filter.

Query

`MAX_ACPRRC? a`	Queries the maximum value of measurement results at the specified frequency.
`MAX_ACPRRC? a,b`	Queries the maximum value of measurement results at the specified frequency in the specified output unit.
`MAX_ACPRRC? ALL`	Queries the maximum value of measurement results at all frequencies.
`MAX_ACPRRC? ALL,b`	Queries the maximum value of measurement results at all frequencies in the specified output unit.

Response

`c`	When the first parameter of query is `a`
`d,e,f,g`	When the first parameter of query is `ALL`

Parameter

a		Offset frequency
	LOW2	–10 MHz
	LOW1	–5 MHz
	UP1	5 MHz
	UP2	10 MHz
b		Output unit
	DB	dB
	When omitted	dB
c		Power at the frequency specified in a
	Resolution	0.01
	Unit	dB
d		Power at –10 MHz
	Resolution	0.01
	Unit	dB
e		Power at –5 MHz
	Resolution	0.01
	Unit	dB
f		Power at 10 MHz
	Resolution	0.01
	Unit	dB
g		Power at 5 MHz
	Resolution	0.01
	Unit	dB

Example of Use

To query the maximum power at each offset frequency.

```
MAX_ACPRRC? ALL,DB
> -50.00,-45.00,-50.00,-45.00
```

MAX_CARRF?

Carrier Frequency – Maximum Value

Function

Queries the maximum value of carrier frequency measurement results during modulation analysis measurement.

Query

```
MAX_CARRF?
```

Response

```
freq
```

Parameter

`freq`	Carrier frequency measurement result
Resolution	0.1
Unit	Hz

Example of Use

To query the maximum value of carrier frequency measurement results.

```
MAX_CARRF?
> 1922499857.2
```

MAX_CARRFERR?

Carrier Frequency Error – Maximum Value

Function

Queries the maximum value of carrier frequency error measurement results during modulation analysis measurement.

Query

```
MAX_CARRFERR? unit
```

Response

```
freq
```

Parameter

`unit`	Output unit
`HZ`	Hz
`PPM`	ppm
When omitted	Hz
`freq`	Carrier frequency error measurement result
Resolution	0.1 (unit = Hz) 0.01 (unit = ppm)

Example of Use

To query the maximum value of carrier frequency error measurement results in Hz units.

```
MAX_CARRFERR? Hz
> 17.2
```

MAX_CPICHPWR?

CPICH power – Maximum Value

Function

Queries the maximum value of CPICH code domain power measurement results during modulation analysis measurement.

Query

```
MAX_CPICHPWR? a
```

Response

pwr_rel	When the first parameter of query is REL
pwr_abs	When the first parameter of query is ABS

Parameter

a

REL	Queries the maximum value of CPICH power relative values.
ABS	Queries the maximum value of CPICH power absolute values.
pwr_rel	The maximum value of CPICH power relative values
Resolution	0.01
Unit	dB
pwr_abs	The maximum value of CPICH power absolute values
Resolution	0.01
Unit	dBm

Example of Use

To query the maximum value of CPICH power absolute values.

```
MAX_CPICHPWR? ABS
> -30.00
```

MAX_OBW?

Occupied Bandwidth – Maximum Value

Function

Queries the maximum value of occupied bandwidth measurement results.

Query

```
MAX_OBW?
```

Response

```
freq
```

Parameter

`freq`	Maximum value of occupied bandwidth measurement results
Resolution	1
Unit	Hz

Example of Use

To query the maximum value of occupied bandwidth measurement results.

```
MAX_OBW?
> 4000000
```

MAX_ORGOFS?

IQ Origin Offset – Maximum Value

Function

For Modulation Analysis Measurement, this command returns the maximum measurement result of IQ Origin Offset.

Query

```
MAX_ORGOFS?
```

Response

```
ofs
```

Parameter

`ofs`		IQ Origin Offset
	Resolution	0.01
	Units	dB

Example of Use

To query the maximum value of IQ Origin Offset.

```
MAX_ORGOFS?
> 2.92
```

MAX_PKEVM?

Peak EVM – Maximum Value

Function

For Modulation Analysis Measurement, this command returns the maximum measurement result of Peak EVM.

Query

```
MAX_PKEVM?
```

Response

```
evm
```

Parameter

evm	Peak EVM
Resolution	0.01
Units	%

Example of Use

To query the maximum value of Peak EVM.

```
MAX_PKEVM?
> 14.86
```

MAX_PPCDPERR?

Peak Code Domain Error – Maximum Value

Function

Queries the maximum value of Channelization Code Number, Spreading Factor and measurement result of Peak Code Domain Error during modulation analysis measurement.

Query

```
MAX_PPCDPERR? a
```

Response

err	When the first parameter of query is ERR

Parameter

a

ERR	Queries the maximum Peak Code Domain Error value.
When omitted	Queries the maximum Peak Code Domain Error value.

err

Resolution	0.01
Unit	dB

Example of Use

To query the maximum Peak Code Domain Error value.

```
MAX_PPCDPERR?
> -56.78
```

MAX_RCDPERR?

Relative Code Domain Error – Maximum Value

Function

Queries the maximum Relative Code Domain Error value from the Modulation Analysis measurement results.

Query

```
MAX_RCDPERR? a
```

Response

`err`	When the first parameter of query is `ERR`

Parameter

`a`

`ERR`	Queries the maximum Relative Code Domain Error value.
When omitted	Queries the maximum Relative Code Domain Error value.

`err`

Resolution	0.01
Unit	dB

Example of Use

To query the maximum Relative Code Domain Error value.

```
MAX_RCDPERR?
> -56.78
```

MAX_TXPWR?

Transmitter Power – Maximum Value

Function

Queries the maximum carrier transmitter power (TX power) in 5-MHz frequency band during modulation analysis measurement.

Query

```
MAX_TXPWR? unit
```

Response

```
txpwr
```

Parameter

`unit`	Unit
`DBM`	dBm
`WATT`	mW
`txpwr`	Maximum value of the carrier transmitter power
Resolution	0.01 (When `unit` is `DBM`)
	Displayed as an exponent of a number having four significant digits (When `unit` is `WATT`).

Example of Use

To query the maximum TX power value in dBm units.

```
MAX_TXPWR? DBM
> 30.00
```

MAX_VECTERR?

RMS EVM – Maximum Value

Function

Queries the maximum value of EVM's RMS measurement results during modulation analysis measurement.

Query

```
MAX_VECTERR?
```

Response

```
rms
```

Parameter

`rms`	RMS EVM
Resolution	0.01
Unit	%

Example of Use

To query the maximum value of RMS EVM.

```
MAX_VECTERR?
> 17.51
```

MIN_ACPRRC?

Adjacent Channel Leakage power Ratio with Root Raised Cosine Filtering – Minimum Value

Function

Queries the minimum value of adjacent channel leakage power ratio measurement results weighted by the RRC filter.

Query

`MIN_ACPRRC? a`	Queries the minimum value of measurement results at the specified frequency.
`MIN_ACPRRC? a,b`	Queries the minimum value of measurement results at the specified frequency in the specified output unit.
`MIN_ACPRRC? ALL`	Queries the minimum value of measurement results at all frequencies.
`MIN_ACPRRC? ALL,b`	Queries the minimum value of measurement results at all frequencies in the specified output unit.

Response

`c`	When the first parameter of query is `a`
`d,e,f,g`	When the first parameter of query is `ALL`

Parameter

a		Offset frequency
	LOW2	–10 MHz
	LOW1	–5 MHz
	UP1	5 MHz
	UP2	10 MHz
b		Output unit
	DB	dB
	When omitted	dB
c		Power at the frequency specified in a
	Resolution	0.01
	Unit	dB
d		Power at –10 MHz
	Resolution	0.01
	Unit	dB
e		Power at –5 MHz
	Resolution	0.01
	Unit	dB
f		Power at 10 MHz
	Resolution	0.01
	Unit	dB
g		Power at 5 MHz
	Resolution	0.01
	Unit	dB

Example of Use

To query the minimum power at each offset frequency.

```
MIN_ACPRRC? ALL,DB
> -50.00,-45.00,-50.00,-45.00
```

MIN_CARRF?

Carrier Frequency – Minimum Value

Function

Queries the minimum value of carrier frequency measurement results during modulation analysis measurement.

Query

```
MIN_CARRF?
```

Response

```
freq
```

Parameter

`freq`	Carrier frequency measurement result
Resolution	0.1
Unit	Hz

Example of Use

To query the minimum value of carrier frequency measurement results.

```
MIN_CARRF?
> 1922499857.2
```

MIN_CARRFERR?

Carrier Frequency Error – Minimum Value

Function

Queries the minimum value of carrier frequency error measurement results during modulation analysis measurement.

Query

```
MIN_CARRFERR? unit
```

Response

```
freq
```

Parameter

`unit`	Output unit
`HZ`	Hz
`PPM`	ppm
When omitted	Hz
`freq`	Carrier frequency error measurement result
Resolution	0.1 (unit = Hz)
	0.01 (unit = ppm)

Example of Use

To query the minimum value of carrier frequency error measurement results in Hz units.

```
MIN_CARRFERR? Hz
> 17.2
```

MIN_CPICHPWR?

CPICH power – Minimum Value

Function

Queries the minimum value of CPICH code domain power measurement results during modulation analysis measurement.

Query

```
MIN_CPICHPWR? a
```

Response

pwr_rel	When the first parameter of query is REL
pwr_abs	When the first parameter of query is ABS

Parameter

a

REL	Queries the minimum value of CPICH power relative values.
ABS	Queries the minimum value of CPICH power absolute values.

pwr_rel	The minimum value of CPICH power relative values.
Resolution	0.01
Unit	dB
pwr_abs	The minimum value of CPICH power absolute values.
Resolution	0.01
Unit	dBm

Example of Use

To query the minimum value of CPICH power absolute values.

```
MIN_CPICHPWR? ABS
> -30.00
```

MIN_OBW?

Occupied Bandwidth – Minimum Value

Function

Queries the minimum value of occupied bandwidth measurement results.

Query

```
MIN_OBW?
```

Response

```
freq
```

Parameter

`freq`		Minimum value of occupied bandwidth measurement results
	Resolution	1
	Unit	Hz

Example of Use

To query the minimum value of occupied bandwidth measurement results.

```
MIN_OBW?
> 4000000
```

MIN_ORGOFS?

IQ Origin Offset – Minimum Value

Function

For Modulation Analysis measurement, this command returns the minimum measurement result of IQ Origin Offset.

Query

```
MIN_ORGOFS?
```

Response

```
ofs
```

Parameter

`ofs`		IQ Origin Offset
	Resolution	0.01
	Units	dB

Example of Use

To query the minimum value of IQ Origin Offset.

```
MIN_ORGOFS?
> 0.43
```

MIN_PKEVM?

Peak EVM –Minimum Value

Function

For Modulation Analysis measurement, this command returns the minimum measurement result of Peak EVM.

Query

```
MIN_PKEVM?
```

Response

```
evm
```

Parameter

evm	Peak EVM
Resolution	0.01
Units	%

Example of Use

To query the minimum value of Peak EVM.

```
MIN_PKEVM?
> 6.29
```

MIN_PPCDPERR?

Peak Code Domain Error – Minimum Value

Function

Queries the minimum value of Channelization Code Number, Spreading Factor and measurement result of Peak Code Domain Error during modulation analysis measurement.

Query

```
MIN_PPCDPERR? a
```

Response

`err`	When the first parameter of query is `ERR`

Parameter

`a`

`ERR`	Queries the minimum Peak Code Domain Error value.
When omitted	Queries the minimum Peak Code Domain Error value.

`err`

Resolution	0.01
Unit	dB

Example of Use

To query the minimum Peak Code Domain Error value.

```
MIN_PPCDPERR?
> -56.78
```

MIN_RCDPERR?

Relative Code Domain Error – Minimum Value

Function

Queries the minimum Relative Code Domain Error value from the Modulation Analysis measurement results.

Query

```
MIN_RCDPERR? a
```

Response

`err`	When the first parameter of query is `ERR`

Parameter

`a`

`ERR`	Queries the minimum Relative Code Domain Error value.
When omitted	Queries the minimum Relative Code Domain Error value.

`err` The minimum Relative Code Domain Error value

Resolution	0.01
Unit	dB

Example of Use

To query the minimum Relative Code Domain Error value.

```
MIN_RCDPERR?
> -56.78
```

MIN_TXPWR?

Transmitter Power – Minimum Value

Function

Queries the minimum carrier transmitter power (TX power) in 5-MHz frequency band during modulation analysis measurement.

Query

```
MIN_TXPWR? unit
```

Response

```
txpwr
```

Parameter

`unit`	Unit
`DBM`	dBm
`WATT`	mW
`txpwr`	Minimum value of the carrier transmitter power
Resolution	0.01 (When `unit` is `DBM`)
	Displayed as an exponent of a number having four significant digits (When `unit` is `WATT`).

Example of Use

To query the minimum TX power value in dBm units.

```
MIN_TXPWR? DBM
> 30.00
```

MIN_VECTERR?

RMS EVM – Minimum Value

Function

Queries the minimum value of EVM's RMS measurement results during modulation analysis measurement.

Query

```
MIN_VECTERR?
```

Response

```
rms
```

Parameter

`rms`	RMS EVM
Resolution	0.01
Unit	%

Example of Use

To query the minimum value of RMS EVM.

```
MIN_VECTERR?
> 17.51
```

MKCDP?

Marker Code Domain Power Relative Value

Function

Queries Code Domain Power relative value of the marker position in Code Domain Power waveform for Modulation Analysis measurement.

Query

```
MKCDP?
```

Response

```
pwr
```

Parameter

pwr		Code Domain Power relative value in Marker position
	Resolution	0.01
	Unit	dB

Example of Use

To query Code Domain Power relative value in Marker position.

```
MKCDP?
> -10.12
```

MKCDPABS?

Marker Code Domain Power Absolute Value

Function

Queries Code Domain Power absolute value of Marker position in Code Domain Power waveform for Modulation Analysis measurement.

Query

```
MKCDPABS?
```

Response

```
pwr
```

Parameter

pwr	Code Domain Power absolute value in Marker position
Resolution	0.01
Unit	dBm

Example of Use

To query Code Domain Power absolute value in Marker position.

```
MKCDPABS?
> 65.21
```

MKCDPERR?

Marker Code Domain Error Value

Function

Queries the Code Domain Error value of the marker position on Code Domain Power waveform for Modulation Analysis measurement.

Query

```
MKCDPERR?
```

Response

```
err
```

Parameter

err	Code Domain Error value in Marker position
Resolution	0.01
Unit	dBm

Example of Use

To query the Code Domain Error value in Marker value.

```
MKCDPERR?
> -12.64
```

MKCDPERRREL?

Marker Relative Code Domain Error Value

Function

Queries the Relative Code Domain Error value of the marker position on Code Domain Power waveform for Modulation Analysis measurement.

Query

```
MKCDPERRREL?
```

Response

```
err_rel
```

Parameter

`err`	Relative Code Domain Error value in Marker position
Resolution	0.01
Unit	dBm

Example of Use

To query the Relative Code Domain Error value in Marker value.

```
MKCDPERRREL?
> -12.64
```

MKCDPEVM?

Marker Code Domain Symbol EVM Value

Function

Queries the Symbol EVM value at the marker position on the Code Domain Power waveform for Modulation Analysis measurement.

Query

```
MKCDPEVM?
```

Response

```
evm
```

Parameter

evm		The Symbol EVM value for the marker position.
	Resolution	0.01
	Units	%

Details

The Symbol EVM value of Inactive channel is –999.0.

Example of Use

To query the Symbol EVM value for the marker position.

```
MKCDPEVM?
> 0.13
```

MKP_CDP/MKP_CDP?

Marker Position Code Domain Power

Function

Sets the Marker position in Code Domain Power waveform for Modulation Analysis measurement.

Command

```
MKP_CDP num
```

Query

```
MKP_CDP?
```

Response

```
num
```

Parameter

`num`		Marker position
	Range	Number of bars counted from the origin of 0 to Code Domain bar graph.
	Resolution	1

Example of Use

To set the marker position in Code Domain Power waveform to 128.

```
MKP_CDP 128
MKP_CDP?
> 128
```

MSTAT?

Measure Status

Function

Queries the current measurement status.

Query

```
MSTAT?
```

Response

```
status
```

Parameter

status	Measurement status
0	Normal end
2	Level over
4	Signal abnormal
5	CRC error
7	SG Synchronize execution error
9	Not measured
11	Under measurement
12	Executing Adjust Range function
13	Under SG Synchronize

When the active channel detection method is set to Auto by the CHDET command, the “Signal abnormal” status occurs if the number of active channels becomes 0 in measurement result due to signal synchronization failure, etc.

Example of Use

To query the measurement status.

```
MSTAT?
> 0
```

NOISECANCEL/NOISECANCEL?

Noise Cancel

Function

Sets whether to enable/disable the noise cancel function for Occupied Bandwidth measurement, Spectrum Emission Mask measurement, and Adjacent Channel Leakage Ratio measurement.

Executes the noise measurement in the first measurement, when the noise cancel function is enabled. The noise measurement result will be retained until the setting of the center frequency, input level, or noise cancel function is changed or until Recall, Cal, and system change are executed.

Command

```
NOISECANCEL sw
```

Query

```
NOISECANCEL?
```

Response

```
sw
```

Parameter

`sw`	Enables or disables the noise cancel function
`Off`	Disables the noise cancel function
`On`	Enables the noise cancel function

Example of Use

To enable the noise cancel function.

```
NOISECANCEL ON
NOISECANCEL?
> ON
```

PCDECODE?

Parameters of Peak Code Domain Error

Function

For Modulation Analysis measurement, this command returns the Channelization Code, Spreading Factor, and slot number of the Peak Code Domain Error.

Query

```
PCDECODE?
```

Response

```
code,sf,slot
```

Parameter

code	Channelization Code of Peak Code Domain Error
Resolution	1
Units	None
sf	Spreading Factor of Peak Code Domain Error
Resolution	1
Units	None
slot	Slot number of Peak Code Domain Error
Resolution	1
Units	None

Example of Use

To query the Channelization Code, Spreading Factor, and slot number of the Peak Code Domain Error.

```
PCDECODE?
> 254,256,14
```

PICHNO_MOD/PICHNO_MOD?

PICH Channelization Code Number for Modulation Analysis

Function

Sets the PICH Channelization Code Number for modulation analysis measurement.

Command

```
PICHNO_MOD a
```

Query

```
PICHNO_MOD?
```

Response

```
a
```

Parameter

a		PICH Channelization Code Number
	Range	0 to 255
	Resolution	1

Example of Use

To set the PICH Channelization Code Number to 10.

```
PICHNO_MOD 10
PICHNO_MOD?
> 10
```

PICHTIMINGOFS_MOD/PICHTIMINGOFS_MOD?

PICH Timing Offset for Modulation Analysis

Function

Sets the PICH Timing Offset for modulation analysis measurement.

Command

```
PICHTIMINGOFS_MOD a
```

Query

```
PICHTIMINGOFS_MOD?
```

Response

```
a
```

Parameter

a		PICH Timing Offset
	Range	0 to 149
	Resolution	1

Example of Use

To set the PICH Timing Offset to 10.

```
PICHTIMINGOFS_MOD 10
PICHTIMINGOFS_MOD?
> 10
```

PREAMP/PREAMP?

Pre-Amp

Function

Enables (On) or disables (Off) the Pre-Amp function.

Command

```
PREAMP on_off
```

Query

```
PREAMP?
```

Response

```
on_off
```

Parameter

`on_off`	Enables or disables the Pre-Amp function
`Off`	Disables the Pre-Amp function
`On`	Enables the Pre-Amp function

Details

(MS269xA)
This function becomes effective only when MS269xA-008/108 Pre-Amp Option is loaded.
(MS2830A)
This function becomes effective only when MS2830A-008/108/068/168 Pre-Amp Option is loaded.

Example of Use

To enable the Pre-Amp function.

```
PREAMP ON
PREAMP?
> ON
```

RSCRCODE?

Scrambling Code Number

Function

Queries the Scrambling Code used in analysis during Modulation Analysis measurement.

Query

```
RSCRCODE?
```

Response

code	Decimal

Parameter

code	Scrambling Code
Resolution	1
Units	None

Example of Use

To query the Scrambling Code used in analysis.

```
RSCRCODE?
> 8191
```

S1

Continuous Measure/Sweep

Function

Performs measurement and sweep continuously (continuous measurement/sweep). Other commands can be received even during measurement. This command functions the same as the CONTS command. When a measurement execution command, such as this command, is received during measurement started by this command, the current measurement is stopped temporarily and a new measurement is started.

When a command not related to measurement, such as a query message, is received during measurement started by this command, the received command is executed while the current measurement continues.

Command

```
S1
```

Example of Use

To perform continuous measurement/sweep.

```
S1
```

S2

Single Measure/Sweep

Function

Performs measurement and sweep once (single measurement/sweep). Other commands can be received even during measurement. This command functions the same as the SNGLS command. When a measurement execution command, such as this command, is received during measurement started by this command, the current measurement is stopped temporarily and a new measurement is started.

When a command not related to measurement, such as a query message, is received during measurement started by this command, the received command is executed while the current measurement continues.

Command

```
S2
```

Example of Use

To perform single measurement/sweep.

```
S2
```

SCRCODE/SCRCODE?

Scrambling Code for Modulation Analysis

Function

For Modulation Analysis measurement, this command sets the Scrambling Code when Scrambling Code Sync is USER.

Command

```
SCRCODE a
```

Query

```
SCRCODE?
```

Response

a	Decimal

Parameter

a	Scrambling Code
Range	0 to 8191 (0x0 to 0x1FFF)
Resolution	1

Details

Scrambling Code consists of Primary Scrambling Code (PSC: 0 to 511) and Secondary Scrambling Code (SSC: 0 to 15). Use the following expression to set the Scrambling Code.

Scrambling Code = PSC × 16 + SSC

When specifying the Scrambling Code in hexadecimal format, prefix "#H" to the setting value.

Example of Use

To set the Scrambling Code to 8191 (0x1FFF).

```
SCRCODE #H1FFF
SCRCODE?
> 8191
```

SCRSYNC/SCRSYNC?

Scrambling Code Sync for Modulation Analysis

Function

Sets the scrambling code synchronization method for the Modulation Analysis measurement.

Command

```
SCRSYNC a
```

Query

```
SCRSYNC?
```

Response

```
a
```

Parameter

a

AUTO	Automatically detects the scrambling code.
USER	Uses the user-specific scrambling code.

Details

To automatically detect the scrambling code.

```
SCRSYNC AUTO
SCRSYNC?
> AUTO
```

SGSYNC

SG Synchronize

Function

Synchronizes a signal output of MS2690A/MS2691A/MS2692A Option 020 Vector Signal Generator or MS2830A Vector Signal Generator (hereinafter, referred as Vector Signal generator option) with TTI cycle of an input signal. Other commands can be received even during execution. When SGSYNC command is received again during the execution, the current execution is stopped temporarily and a new execution is started. In addition, when a command not related to measurement, such as a query message, is received during executing SG Synchronize, the received command is executed while the current SG Synchronize execution continues. On the other hand, when a command related to measurement is received during executing SG Synchronize, the execution is stopped and the received command is executed.

Note:

This function can be executed only when Vector Signal generator option is loaded.

Command

```
SGSYNC
```

Example of Use

To execute SG Synchronize function.

```
SGSYNC
```

SGSYNCDLY/SGSYNCDLY?

SG Synchronize User Delay

Function

Sets the offset time between TTI cycle of an input signal in SG Synchronize function and the output signal start time of Vector Signal generator option.

Command

```
SGSYNCDLY chip
```

Query

```
SGSYNCDLY?
```

Response

```
chip
```

Parameter

chip	User delay
Range	0 to 307200
Resolution	1
Unit	chip

Example of Use

To set the user delay to 50 chip.

```
SGSYNCDLY 50
SGSYNCDLY?
> 50
```

SNGLS

Single Measure/Sweep

Function

Performs measurement and sweep once (single measurement/sweep). Other commands can be received even during measurement. This command functions the same as the `S2` command. When a measurement execution command, such as this command, is received during measurement started by this command, the current measurement is stopped temporarily and a new measurement is started.

When a command not related to measurement, such as a query message, is received during measurement started by this command, the received command is executed while the current measurement continues.

Command

```
SNGLS
```

Example of Use

To perform single measurement/sweep.

```
SNGLS
```

SWP

Single Measure/Sweep

Function

Performs measurement and sweep once (single measurement/sweep). This command functions the same as the TS command.

Unlike the SNGLS command, when another command is received during measurement started by this command, the received command is not executed until the current measurement completes. In other words, commands following the SWP command are processed after the measurement completes, and the measuring instrument operation and the program that transmits the command are thus synchronized.

Command

```
SWP
```

Example of Use

To perform single measurement/sweep.

```
SWP
```

SYMANAL?

All Code Domain Power

Function

For Modulation Analysis, this command returns the measurement result for Code Domain Power.

Query

```
SYMANAL? a
```

Response

```
sf1,code1,evm1,sf2, ...
```
When `a` is `EVM`.

Parameter

`a`

EVM	Returns the Symbol EVM value.

sf	Spreading Factor
Range	4, 8, 16, 32, 64, 128, 256
code	Channelization Code Number
Range	0 to (sf–1)
Resolution	1
evm	Symbol EVM
Resolution	0.01
Units	%

Details

The Symbol EVM value of Inactive channel is –999.0.

Example of Use

To query the Symbol EVM measurement result.

```
SYMANAL? EVM
> 256,0,0.35,256,1,9.02,256,2,-999.0,...
```

SYS/SYS?

Application Switch/Status

Function

Switches the target application for operation/control. Also queries the status of the specified application.

Command

```
SYS apl,window
```

Query

```
SYS? apl
```

Response

```
status,window
```

Parameter

apl	Target application name
SIGANA	Signal Analyzer
SPECT	Spectrum Analyzer
CONFIG	Config
WCDMA_BS	W-CDMA BS Measurement Software

Any optional installed software other than those above can be specified. Refer to the operation manual (remote control) for each application for details.

window	Application window status
ACT	Operation enabled (displayed on top screen)
INACT	Operation disabled
MIN	Minimized
NON	Not displayed (query only)
When omitted	Same as ACT

status	Application status
CURRENT	Executed and targeted for operation
RUN	Executed but not targeted for operation
IDLE	Loaded but not executed
UNLOAD	Not loaded

Details

This function is used to switch the operation/control target application.

Example of Use

To switch the operation target application to the W-CDMA BS Measurement Software.

```
SYS WCDMA_BS,ACT
SYS? WCDMA_BS
> CURRENT,ACT
```

TEMP_SMASK_ALL/TEMP_SMASK_ALL?

Setup ALL Template

Function

Sets all measurement template items of Spectrum Emission Mask.

Command

```
TEMP_SMASK_ALL     f1sta,f1stop,level1,l1sta,l1stop,
addon_off1,add1level,f2sta,...f3sta,...f4sta,...f5sta,..
.add5level
```

Query

```
TEMP_SMASK_ALL?
```

Response

```
f1sta,f1stop,level1,l1sta,l1stop,addon_off1,add1level,f2
sta,...f3sta,...f4sta,...f5sta,...add5level
```

Parameter

f1sta	Start Offset frequency of Range A
f2sta	Start Offset frequency of Range B
f3sta	Start Offset frequency of Range C
Range	2.500 to 4.000
Resolution	0.001
Unit	MHz
f4sta	Start Offset frequency of Range D
f5sta	Start Offset frequency of Range E
Range	4.000 to 12.500
Resolution	0.001
Unit	MHz
f1stop	Stop Offset frequency of Range A
f2stop	Stop Offset frequency of Range B
f3stop	Stop Offset frequency of Range C
Range	2.500 to 4.000
Resolution	0.001
Unit	MHz
f4stop	Stop Offset frequency of Range D
f5stop	Stop Offset frequency of Range E
Range	4.000 to 12.500
Resolution	0.001
Unit	MHz

`level1`	Level of Range A
`level2`	Level of Range B
`level3`	Level of Range C
`level4`	Level of Range D
`level5`	Level of Range E
`ABS`	Sets to Absolute
`REL`	Sets to Relative

`l1sta`	Start Level of Range A
`l2sta`	Start Level of Range B
`l3sta`	Start Level of Range C
`l4sta`	Start Level of Range D
`l5sta`	Start Level of Range E
Range	–999.99 to 999.99 (when ABS is selected in Level)
	–99.99 to 99.99 (when REL is selected in Level Level)
Resolution	0.01
Unit	dBm (when ABS is selected in Level)
	dB (when REL is selected in Level)

`l1stop`	Stop Level of Range A
`l2stop`	Stop Level of Range B
`l3stop`	Stop Level of Range C
`l4stop`	Stop Level of Range D
`l5stop`	Stop Level of Range E
Range	–999.99 to 999.99 (when ABS is selected in Level)
	–99.99 to 99.99 (when REL is selected in Level)
Resolution	0.01
Unit	dBm (when ABS is selected in Level)
	dB (when REL is selected in Level)

`addon_off1`	Additional level judgment for Range A
`addon_off2`	Additional level judgment for Range B
`addon_off3`	Additional level judgment for Range C
`addon_off4`	Additional level judgment for Range D
`addon_off5`	Additional level judgment for Range E
`ON`	Sets to On.
`OFF`	Sets to Off.

`add1level`	Additional Level of Range A
`add2level`	Additional Level of Range B
`add3level`	Additional Level of Range C
`add4level`	Additional Level of Range D
`add5level`	Additional Level of Range E

Range	–999.99 to 999.99
Resolution	0.01
Unite	dBm

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To set all measurement template items of Spectrum Emission Mask.

```
TEMP_SMASK_ALL
2.515,2.715,ABS,-12.50,-12.50,OFF,-15.00 ,2.715,3.515,AB
S,-12.50,-24.50,ON,-15.00,3.515,4.000,ABS,-24.50,-24.50,
OFF,-15.00,4.000,8.000,ABS,-11.50,-11.50,OFF,-13.00,8.00
0,12.500,ABS,-11.50,-11.50,OFF,-13.00
TEMP_SMASK_ALL?
>
2.515,2.715,ABS,-12.50,-12.50,OFF,-15.00,2.715,3.515,ABS
,-12.50,-24.50,ON,-15.00,3.515,4.000,ABS,-24.50,-24.50,O
FF,-15.00,4.000,8.000,ABS,-11.50,-11.50,OFF,-13.00,8.000
,12.500,ABS,-11.50,-11.50,OFF,-13.00
```

TEMPABS_SMASK_MODE/TEMPABS_SMASK_MODE?

Template Absolute Level Mode for Spectrum Emission Mask

Function

Sets the absolute value level judgment of Spectrum Emission Mask measurement template.

Command

```
TEMPABS_SMASK_MODE a,b,c,d,e
```

Query

```
TEMPABS_SMASK_MODE?
```

Response

```
a,b,c,d,e
```

Parameter

a	Absolute value level judgment of Range A
ON	Sets to On.
OFF	Sets to Off.
b	Absolute value level judgment of Range B
ON	Sets to On.
OFF	Sets to Off.
c	Absolute value level judgment of Range C
ON	Sets to On.
OFF	Sets to Off.
d	Absolute value level judgment of Range D
ON	Sets to On.
OFF	Sets to Off.
e	Absolute value level judgment of Range E
ON	Sets to On.
OFF	Sets to Off.

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To Set the absolute value level judgment of Spectrum Emission Mask measurement template.

```
TEMPABS_SMASK_MODE ON,ON,ON,ON,ON
TEMPABS_SMASK_MODE?
> ON,ON,ON,ON,ON
```

TEMPABS_SMASK_START/TEMPABS_SMASK_START?

Template Absolute Start Level for Spectrum Emission Mask

Function

Sets the absolute value start level of Spectrum Emission Mask measurement template.

Command

```
TEMPABS_SMASK_START a,b,c,d,e
```

Query

```
TEMPABS_SMASK_START?
```

Response

```
a,b,c,d,e
```

Parameter

a		Absolute Level of Range A
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
b		Absolute Level of Range B
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
c		Absolute Level of Range C
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
d		Absolute Level of Range D
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
e		Absolute Level of Range E
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To set the absolute value start level of Spectrum Emission Mask measurement template.

```
TEMPABS_SMASK_START -12.5,-12.5,-24.5,-11.5,-11.5
TEMPABS_SMASK_START?
> -12.5,-12.5,-24.5,-11.5,-11.5
```

TEMPABS_SMASK_STOP/TEMPABS_SMASK_STOP?

Template Absolute Stop Level for Spectrum Emission Mask

Function

Sets the absolute value stop level of Spectrum Emission Mask measurement template.

Command

```
TEMPABS_SMASK_STOP a,b,c,d,e
```

Query

```
TEMPABS_SMASK_STOP?
```

Response

```
a,b,c,d,e
```

Parameter

a		Absolute Level of Range A
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
b		Absolute Level of Range B
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
c		Absolute Level of Range C
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
d		Absolute Level of Range D
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
e		Absolute Level of Range E
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To set the absolute value stop level of Spectrum Emission Mask measurement template.

```
TEMPABS_SMASK_STOP -12.5,-12.5,-24.5,-11.5,-11.5
TEMPABS_SMASK_STOP?
> -12.5,-12.5,-24.5,-11.5,-11.5
```

TEMPADD_SMASK_MODE/TEMPADD_SMASK_MODE?

Template Additional Level Mode for Spectrum Emission Mask

Function

Sets Additional level judgment of Spectrum Emission Mask measurement template.

Command

```
TEMPADD_SMASK_MODE a,b,c,d,e
```

Query

```
TEMPADD_SMASK_MODE?
```

Response

```
a,b,c,d,e
```

Parameter

a	Additional level judgment of Range A
ON	Sets to On.
OFF	Sets to Off.
b	Additional level judgment of Range B
ON	Sets to On.
OFF	Sets to Off.
c	Additional level judgment of Range C
ON	Sets to On.
OFF	Sets to Off.
d	Additional level judgment of Range D
ON	Sets to On.
OFF	Sets to Off.
e	Additional level judgment of Range E
ON	Sets to On.
OFF	Sets to Off.

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To set Additional level judgment of Spectrum Emission Mask measurement template.

```
TEMPADD_SMASK_MODE ON,ON,ON,ON,ON
TEMPADD_SMASK_MODE?
> ON,ON,ON,ON,ON
```

TEMPADD_SMASK_START/TEMPADD_SMASK_START?

Template Additional Start Level for Spectrum Emission Mask

Functions

Sets Additional level of Spectrum Emission Mask measurement template.

Command

```
TEMPADD_SMASK_START a,b,c,d,e
```

Query

```
TEMPADD_SMASK_START?
```

Response

```
a,b,c,d,e
```

Parameter

a		Additional Level of Range A
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
b		Additional Level of Range B
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
c		Additional Level of Range C
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
d		Additional Level of Range D
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm
e		Additional Level of Range E
	Range	–999.99 to 999.99
	Resolution	0.01
	Unit	dBm

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To set Additional level of Spectrum Emission Mask measurement template.

```
TEMPADD_SMASK_START -15.0,-15.0,-15.0,-13.0,-13.0
TEMPADD_SMASK_START?
> -15.0,-15.0,-15.0,-13.0,-13.0
```

TEMPFREQ_SMASK_START/TEMPFREQ_SMASK_START?

Template start Frequency for Spectrum Emission Mask

Function

Sets the template start frequency of Spectrum Emission Mask measurement.

Command

```
TEMPFREQ_SMASK_START a,b,c,d,e
```

Query

```
TEMPFREQ_SMASK_START?
```

Response

```
a,b,c,d,e
```

Parameter

a		Offset frequency of Range A
	Range	2.500 to 4.000
	Resolution	0.001
	Unit	MHz
b		Offset frequency of Range B
	Range	2.500 to 4.000
	Resolution	0.001
	Unit	MHz
c		Offset frequency of Range C
	Range	2.500 to 4.000
	Resolution	0.001
	Unit	MHz
d		Offset frequency of Range D
	Range	4.000 to 12.500
	Resolution	0.001
	Unit	MHz
e		Offset frequency of Range E
	Range	4.000 to 12.500
	Resolution	0.001
	Unit	MHz

Details

Possible to set the value which meets the same value as Stop, or Stop –100 kHz.
Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To set the template start frequency of Spectrum Emission Mask measurement.

```
TEMPFREQ_SMASK_START 2.515,2.715,3.515,4.0,8.0
TEMPFREQ_SMASK_START?
> 2.515,2.715,3.515,4.0,8.0
```

TEMPFREQ_SMASK_STOP/TEMPFREQ_SMASK_STOP?

Template stop Frequency for Spectrum Emission Mask

Function

Sets the stop frequency of Spectrum Emission Mask measurement template.

Command

```
TEMPFREQ_SMASK_STOP a,b,c,d,e
```

Query

```
TEMPFREQ_SMASK_STOP?
```

Response

```
a,b,c,d,e
```

Parameter

a		Offset frequency of Range A
	Range	2.500 to 4.000
	Resolution	0.001
	Range	MHz
b		Offset frequency of Range B
	Range	2.500 to 4.000
	Resolution	0.001
	Range	MHz
c		Offset frequency of Range C
	Range	2.500 to 4.000
	Resolution	0.001
	Range	MHz
d		Offset frequency of Range D
	Range	4.000 to 12.500
	Resolution	0.001
	Range	MHz
e		Offset frequency of Range E
	Range	4.000 to 12.500
	Resolution	0.001
	Range	MHz

Details

Possible to set the value which meets the same value as Start or Stop+100 kHz.
Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To set the stop frequency of Spectrum Emission Mask measurement template.

```
TEMPFREQ_SMASK_STOP 2.715,3.515,4.0,8.0,12.5
TEMPFREQ_SMASK_STOP?
> 2.715,3.515,4.0,8.0,12.5
```

TEMPMODE_SMASK/TEMPMODE_SMASK?

Select Template Mode for Spectrum Emission Mask

Function

Sets the template judgment mode of Spectrum Emission Mask measurement.

Command

```
TEMPMODE_SMASK a
```

Query

```
TEMPMODE_SMASK?
```

Response

```
a
```

Parameter

a

AUTO	Automatically sets the template of the specified value to judge.
AUTOADD	Automatically sets the template of the specified value whose Additional is valid to judge.
DNLNK	Sets the template of P < 31 dBm to judge. The table value is user-configurable.
DNLNK1	Sets the template of P ≥ 43 dBm to judge. The table value is user-configurable.
DNLNK2	Sets the template of 39 dBm ≤ P < 43 dBm to judge. The table value is user-configurable.
DNLNK3	Sets the template of 31 dBm ≤ P < 39 dBm to judge. The table value is user-configurable.

Details

Sets the template to its initialization value when DNLNK, DNLNK1, DNLNK2, or DNLNK3 is selected.

Example of Use

To set the template of P < 31 dBm manually.

```
TEMPMODE_SMASK DNLNK
TEMPMODE_SMASK?
> DNLNK
```

TEMPREL_SMASK_MODE/TEMPREL_SMASK_MODE?

Template Relative Level Mode for Spectrum Emission Mask

Function

Enables or disables the relative value level of Spectrum Emission Mask measurement template.

Command

```
TEMPREL_SMASK_MODE a,b,c,d,e
```

Query

```
TEMPREL_SMASK_MODE?
```

Response

```
a,b,c,d,e
```

Parameter

a	Relative value level judgment of Range A
ON	Sets to On.
OFF	Sets to Off.
b	Relative value level judgment of Range B
ON	Sets to On.
OFF	Sets to Off.
c	Relative value level judgment of Range C
ON	Sets to On.
OFF	Sets to Off.
d	Relative value level judgment of Range D
ON	Sets to On.
OFF	Sets to Off.
e	Relative value level judgment of Range E
ON	Sets to On.
OFF	Sets to Off.

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To enable the relative value level of Spectrum Emission Mask measurement template.

```
TEMPREL_SMASK_MODE ON,ON,ON,ON,ON
TEMPREL_SMASK_MODE?
> ON,ON,ON,ON,ON
```

TEMPREL_SMASK_START/TEMPREL_SMASK_START?

Template Relative Start Level for Spectrum Emission Mask

Function

Sets the relative value start level of Spectrum Emission Mask measurement template.

Command

```
TEMPREL_SMASK_START a,b,c,d,e
```

Query

```
TEMPREL_SMASK_START?
```

Response

```
a,b,c,d,e
```

Parameter

a		Relative Level of Range A
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB
b		Relative Level of Range B
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB
c		Relative Level of Range C
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB
d		Relative Level of Range D
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB
e		Relative Level of Range E
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to `DNLNK`, when the template judgment mode of Spectrum Emission Mask measurement is set to `AUTO` or `AUTOADD`.

Example of Use

To set the relative value start level of Spectrum Emission Mask measurement template.

```
TEMPREL_SMASK_START 51.5,51.5,63.5,50.5,54.5
TEMPREL_SMASK_START?
> 51.5,51.5,63.5,50.5,54.5
```

TEMPREL_SMASK_STOP/TEMPREL_SMASK_STOP?

Template Relative Stop Level for Spectrum Emission Mask

Function

Sets the relative value stop level of Spectrum Emission Mask measurement template.

Command

```
TEMPREL_SMASK_STOP a,b,c,d,e
```

Query

```
TEMPREL_SMASK_STOP?
```

Response

```
a,b,c,d,e
```

Parameter

a		Relative Level of Range A
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB
b		Relative Level of Range B
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB
c		Relative Level of Range C
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB
d		Relative Level of Range D
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB
e		Relative Level of Range E
	Range	–99.99 to 99.99
	Resolution	0.01
	Unit	dB

Details

Sets the template judgment mode of Spectrum Emission Mask measurement to DNLNK, when the template judgment mode of Spectrum Emission Mask measurement is set to AUTO or AUTOADD.

Example of Use

To set the relative value stop level of Spectrum Emission Mask measurement template.

```
TEMPREL_SMASK_STOP 51.5,51.5,63.5,50.5,54.5
TEMPREL_SMASK_STOP?
> 51.5,51.5,63.5,50.5,54.5
```

TRG/TRG?

Trigger

Function

Sets the measurement start trigger type.

Command

```
TRG trg
```

Query

```
TRG?
```

Response

```
trg
```

Parameter

`trg`	Trigger type
`FREE`	Free Run: Does not use a trigger.
`EXT`	External: Uses an external trigger.

Example of Use

To use an external trigger.

```
TRG EXT
TRG?
> EXT
```

TRGDLY/TRGDLY?

Trigger Delay

Function

Sets the trigger delay (time difference from the trigger occurrence to start of measurement).

Command

```
TRGDLY chip
```

Query

```
TRGDLY?
```

Response

```
chip
```

Parameter

`chip`	Trigger delay
Range	–3840000 to 3840000
Resolution	1
Unit	chip

Example of Use

To set the trigger delay to 50 chips.

```
TRGDLY 50
TRGDLY?
> 50
```

TRGEDGE/TRGEDGE?

Trigger Edge

Function

Sets the trigger edge.

Command

```
TRGEDGE edge
```

Query

```
TRGEDGE?
```

Response

```
edge
```

Parameter

`edge`	Trigger edge
`RISE`	Sets the rising edge as a trigger.
`FALL`	Sets the falling edge as a trigger.

Example of Use

To set the trigger edge to RISE.

```
TRGEDGE RISE
TRGEDGE?
> RISE
```

TS

Single Measure/Sweep

Function

Performs measurement and sweep once (single measurement/sweep). This command functions the same as the SWP command.

Unlike the SNGLS command, when another command is received during measurement started by this command, the received command is not executed until the current measurement completes. In other words, commands following the TS command are processed after the measurement completes, and the measuring instrument operation and the program that transmits the command are thus synchronized.

Command

```
TS
```

Example of Use

To perform single measurement/sweep.

```
TS
```

XMB?

Adjacent Channel Leakage power Ratio Waveform

Function

Queries a spectrum waveform during adjacent channel leakage power ratio measurement.

Query

```
XMB? addr,n
```

Response

```
data(addr),data(addr+1),...data(addr+n-1)
```

Parameter

`addr`	Waveform data read start address
Range	0 to 4096
Resolution	1
`n`	Number of waveform data to be read
Range	1 to (4097 – `addr`)
Resolution	1
`data(addr)`	Waveform data saved in addr
Resolution	0.01
Unit	dBm

Example of Use

To query a spectrum waveform of adjacent channel leakage power ratio.

```
XMB? 0,4097
> -7.00,-7.01 ...
```

XMC?

Constellation Waveform

Function

Queries the waveform of IQ signal for Modulation Analysis measurement.

Query

```
XMC? iq,addr,n
```

Response

```
data(addr),data(addr+1),...data(addr+n-1)
```

Parameter

`iq`	Query waveform selection
`0`	Q phase
`1`	I phase
`addr`	Waveform data read start address
Range	0 to 2559
Resolution	1
`n`	Number of waveform data to be read
Range	1 to (2560 – `addr`)
Resolution	1
`data(addr)`	Waveform data saved in addr
Resolution	1
	Queries an integer whose ideal data is 10000.

Example of Use

To query Q phase waveform of IQ signal.

```
XMC? 0,0,2559
> 10000,-10000,10001, ...
```

XME?

Occupied Bandwidth Waveform

Function

Queries a spectrum waveform during occupied bandwidth measurement.

Query

```
XME? addr,n
```

Response

```
data(addr),data(addr+1),...data(addr+n-1)
```

Parameter

`addr`	Waveform data read start address
Range	0 to 1638
Resolution	1
`n`	Number of waveform data to be read
Range	1 to (1639 – `addr`)
Resolution	1
`data(addr)`	Waveform data saved in addr
Resolution	0.01
Unit	dBm

Example of Use

To query a spectrum waveform of occupied bandwidth.

```
XME? 0,1639
> -7.00,-7.01 ...
```

XMFN?

Spectrum Emission Mask Waveform

Function

Queries a spectrum waveform during spectrum emission mask measurement.

Query

```
XMFN? addr,n
```

Response

```
data(addr),data(addr+1),...data(addr+n-1)
```

Parameter

addr	Waveform data read start address
Range	0 to 4096
Resolution	1
n	Number of waveform data to be read
Range	1 to (4097 – addr)
Resolution	1
data(addr)	Waveform data saved in addr
Resolution	0.01
Unit	dBm

Example of Use

To query a spectrum waveform of spectrum emission mask.

```
XMFN? 0,4097
> 7.30,7.31 ...
```

XMV?

EVM Waveform

Function

Queries an EVM waveform during modulation analysis measurement.

Query

```
XMV? addr,n
```

Response

```
data(addr),data(addr+1),...data(addr+n-1)
```

Parameter

`addr`	Waveform data read start address
Range	0 to 2559
Resolution	1
`n`	Number of waveform data to be read
Range	1 to (2560 – `addr`)
Resolution	1
`data(addr)`	Waveform data saved in addr
Resolution	0.01
Unit	%

Example of Use

To query an EVM waveform.

```
XMV? 0,2560
> 17.50,17.51 ...
```