

**Anritsu** envision : ensure

# Signal Analyzer

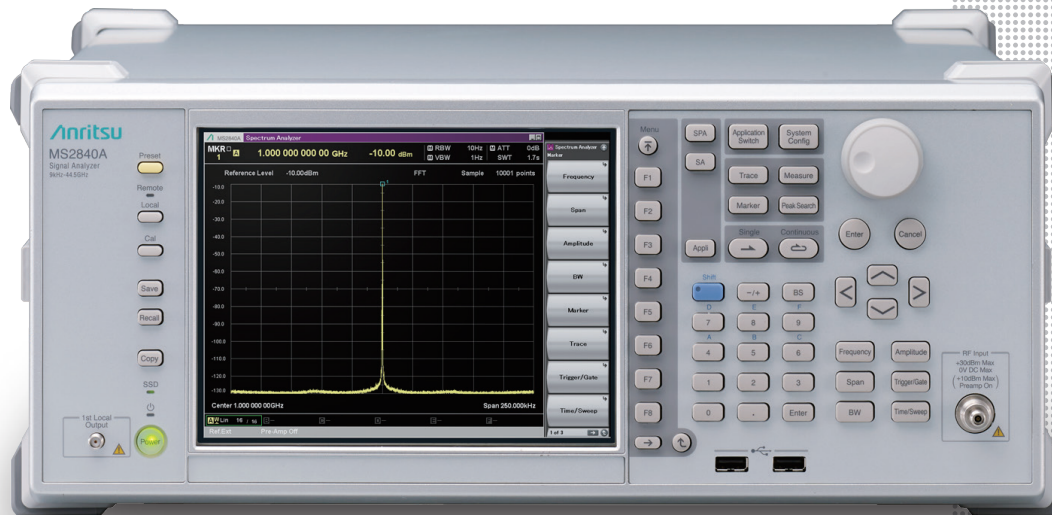
## MS2840A

MS2840A-040: 9 kHz to 3.6 GHz

MS2840A-041: 9 kHz to 6 GHz

MS2840A-044: 9 kHz to 26.5 GHz

MS2840A-046: 9 kHz to 44.5 GHz



# Signal Analyzer MS2840A

This explains how to order the new MS2840A and MS2840A retrofit options and measurement software. Follow the steps below to select the MS2840A configuration. Functions marked “standard” are built-in. Options and measurement software can be added as necessary.

## Steps for New Purchase

### Step 1. Select Maximum Frequency Range (Required option; Frequency range not upgradeable.)

Outline	Option No.	Additional Information
Frequency range: 9 kHz to 3.6 GHz	MS2840A-040	Spectrum Analyzer/Signal Analyzer (Analysis Bandwidth 31.25 MHz)
Frequency range: 9 kHz to 6 GHz	MS2840A-041	
Frequency range: 9 kHz to 26.5 GHz	MS2840A-044	
Frequency range: 9 kHz to 44.5 GHz	MS2840A-046	

The following options are installed as standard and do not require separate orders when ordering the MS2840A-040/041/044.

Standard Software	MX269000A
Analysis Bandwidth 10 MHz	MS2840A-006
Bandwidth Extension to 31.25 MHz	MS2840A-005

The following options are installed as standard and do not require separate orders when ordering the MS2840A-046.

Standard Software	MX269000A
Analysis Bandwidth 10 MHz	MS2840A-006
Bandwidth Extension to 31.25 MHz for Millimeter-wave	MS2840A-009

### Step 2. Choose Frequency Reference

Outline	Option No.	Additional Information
Frequency Reference	Standard	Aging rate: MS2840A-040/041: $\pm 1 \times 10^{-6}$ /year MS2840A-044/046: $\pm 1 \times 10^{-7}$ /year
Rubidium Reference Oscillator	MS2840A-001	Aging rate: $\pm 1 \times 10^{-10}$ /month, $\pm 1 \times 10^{-9}$ /year, Start-up characteristics: $\pm 1 \times 10^{-9}$ (7 minutes after power-on,)
Rubidium Reference Oscillator	MS2840A-037	Aging rate: $\pm 1 \times 10^{-10}$ /month, $\pm 1 \times 10^{-9}$ /year, Start-up characteristics: $\pm 1 \times 10^{-9}$ (15 minutes after power-on,)
High Stability Reference Oscillator	MS2840A-002	Aging rate: $\pm 1 \times 10^{-7}$ /year ★: Dedicated option for MS2840A-040/041 Equivalent function installed as standard in MS2840A-044/046

### Step 3. Choose Analysis Bandwidth

Outline	Option No.	Additional Information
Bandwidth Extension to 31.25 MHz	Standard	
Analysis Bandwidth Extension to 62.5 MHz	MS2840A-077	Extends analysis bandwidth to 62.5 MHz ★: An image response is received when setting the bandwidth to more than 31.25 MHz. This can be used when not inputting a signal frequency outside the MS2840A analysis bandwidth (62.5 MHz max.). The Signal Analyzer series MS2690A/91A/92A is recommended for other measurement purposes.
Analysis Bandwidth Extension to 125 MHz	MS2840A-078	Extends analysis bandwidth to 125 MHz ★: Requires MS2840A-077 An image response is received when setting the bandwidth to more than 31.25 MHz. This can be used when not inputting a signal frequency outside the MS2840A analysis bandwidth (125 MHz max.). The Signal Analyzer series MS2690A/91A/92A is recommended for other measurement purposes.

### Step 4. Add Preamplicifier

Outline	Option No.	Additional Information
Preamplicifier for all frequency options	MS2840A-008	Improves level sensitivity from 100 kHz to 6 GHz. Supports all frequency options. 3.6 GHz upper frequency limit with MS2840A-040.
26.5 GHz Microwave Preamplicifier for MS2840A-044 (26.5 GHz)	MS2840A-069	For MS2840A-044 (26.5 GHz) Increases level sensitivity from 100 kHz to 26.5 GHz
Microwave Preamplicifier for MS2840A-046 (44.5 GHz)	MS2840A-068	For MS2840A-046 (44.5 GHz) Increases level sensitivity from 100 kHz to 44.5 GHz

### Step 5. Add microwave preselector bypass

Outline	Option No.	Additional Information
Microwave Preselector Bypass	MS2840A-067	Bypassing the preselector used for the microwave band improves RF frequency characteristics and in-band frequency characteristics. Supports signal analyzer measurement functions up to main-frame upper limit frequency. ★: Dedicated option for MS2840A-044/046. Add MS2840A-067 when using the signal analyzer measurement functions at bandwidth: >31.25 MHz and frequency: >6 GHz.

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## Step 6. Improve phase noise performance

Outline	Option No.	Additional Information
Low Phase Noise Performance	MS2840A-066	Greatly improves SSB phase noise performance at offset frequencies from the carrier of 1 kHz to 1 MHz for RF input signals of 3.7 GHz or less ★: Dedicated option for MS2840A-040/041

## Step 7. Add Measurement Software

Outline	Option No.	Additional Information
Vector Modulation Analysis Software	MX269017A	Supports evaluation of RF Tx characteristics of digital radio equipment and components for wide range of applications such as digital private mobile radio (PMR), wireless backhaul, aerospace and satellite
Analog Measurement Software	MX269018A	For measurement of analog wireless Tx characteristics and output of demodulated audio. Requires USB Audio A0086C. Separate speakers or earphones required to hear demodulated audio.

## Step 8. Add Other Signal Analyzer Options

Outline	Option No.	Additional Information
Phase Noise Measurement	MS2840A-010	Adds frequency offset range 10 Hz to 10 MHz phase noise measurement.
Secondary SSD	MS2840A-011	This removable secondary SSD is installed in the secondary HDD/SSD Option Slot of the MS2840A main frame to expand the user data storage space. It does not have the Windows OS installed. The MS2840A ships with it installed. Only one expansion SSD can be installed in the MS2840A.
Precompliance EMI Function	MS2840A-016	This option adds an EMI measurement detection mode and RBW to the spectrum analyzer function. Both the detection mode used for CISPR standards (Quasi-Peak, CISPR-AVG, RMS-AVG) and RBW (200 Hz (6 dB), 9 kHz (6 dB), 120 kHz (6 dB), 1 MHz (Imp)) as well as conventional settings can be selected.
Noise Figure Measurement Function	MS2840A-017	Adds Noise Figure Measurement function. Noise Figure is measured with the measurement method of Y-factor method which uses a Noise Source*. ★: Noisecom, NC346 series
2 dB Step Attenuator for Millimeter-wave	MS2840A-019	For MS2840A-046 (44.5 GHz) Expand attenuator steps to 2 dB (Standard: 10 dB steps) and input level for internal mixer can be adjusted with high resolution.
Noise Floor Reduction	MS2840A-051	The Noise Floor Reduction (NFR) function increases the measurement accuracy for low-level signals. It subtracts the internal noise components (11 dB max. nominal) of the measuring instrument itself from the displayed measurement result.
BER Measurement Function	MS2840A-026	Adds BER Measurement Function for input bit rates of 100 bps to 10 Mbps. It supports Rx sensitivity tests by inputting the receiver-demodulated Data/Clock/Enable to the back of the MS2840A. ★: The Aux Conversion Adapter J1556A is a standard accessory supplied with MS2840A-026.

## Step 9. Add built-in signal generator (Dedicated options for MS2840A-040/041)

Outline	Option No.	Additional Information
3.6 GHz Vector Signal Generator	MS2840A-020	Covers 250 kHz to 3.6 GHz frequency range and adds waveform generator with 120 MHz wide vector modulation bandwidth.
6 GHz Vector Signal Generator	MS2840A-021	Covers 250 kHz to 6 GHz frequency range and adds waveform generator with 120 MHz wide vector modulation bandwidth.
Analog Signal Generator	MS2840A-088	Covers 100 kHz to 3 GHz frequency range. Requires Analog Measurement Software and USB Audio A0086C.

Order the following options at new orders when requiring an vector signal generator and analog signal generator.

3.6 GHz Vector Signal Generator MS2840A-020 or 6 GHz Vector Signal Generator MS2840A-021

Low Power Extension for Vector Signal Generator MS2840A-022

Analog Function Extension for Vector Signal Generator MS2840A-029

Analog Measurement Software MX269018A

USB Audio A0086C

The following options are installed as standard and do not require separate orders when ordering the MS2840A-020/021.

Standard waveform pattern MX269099A

# Signal Analyzer MS2840A

## Step 9-1. Add options for vector signal generator (Requires MS2840A-020 or MS2840A-021)

Outline	Option No.	Additional Information
Vector Signal Generator Low-power Extension	MS2840A-022	Expands lower limit of output level from -40 to -136 dBm. (Note: 5-dB drop in upper output level.)
Vector Signal Generator ARB Memory Extension 256 Msample	MS2840A-027	Expands ARB memory capacity from 64 to 256 Msamples.
AWGN	MS2840A-028	Adds AWGN generator function.
Analog Function Extension for Vector Signal Generator	MS2840A-029	Adds analog signal generation function using Analog Measurement Software MX269018A to Vector Signal Generator option (MS2840A-020/021). Can calibrate lower limit frequency up to 100 kHz (MS2840A-020/021 lower limit frequency is 250 kHz). Requires MX269018A, MS2840A-020 or 021, MS2840A-022, and A0086C

## Step 9-2. Add vector waveform generation tool (IQproducer) license (Requires MS2840A-020 or MS2840A-021)

Outline	Option No.	Additional Information
TDMA IQproducer	MX269902A	Outputs waveform pattern created by setting TDMA parameter with TDMA IQproducer from vector signal generator option.
Multi-carrier IQproducer	MX269904A	Outputs multi-carrier waveform pattern of tone signal and various communication method modulated signals from vector signal generator option.

## Step 10. Add Accessories

Outline	Option No.	Additional Information
Inline Peak Power Sensor (350 MHz to 4 GHz)	MA24105A	Supports 350 MHz to 4 GHz and operates on Windows.
USB Power Sensor (50 MHz to 6 GHz)	MA24106A	Supports 50 MHz to 6 GHz and operates on Windows.
Microwave USB Power Sensor (10 MHz to 8 GHz)	MA24108A	Supports 10 MHz to 8 GHz and operates on Windows.
Microwave USB Power Sensor (10 MHz to 18 GHz)	MA24118A	Supports 10 MHz to 18 GHz and operates on Windows.
Microwave USB Power Sensor (10 MHz to 26 GHz)	MA24126A	Supports 10 MHz to 26 GHz and operates on Windows.
High Performance Waveguide Mixer (50 GHz to 75 GHz)	MA2806A	It has the good features of both a harmonic mixer and a down converter and is ideal for spectrum analysis of millimeter-wave (50 GHz to 75 GHz) wireless transmitters now being used for future wider-band applications, such as IEEE 802.11ad W-LAN modules and wireless backhaul, etc.
High Performance Waveguide Mixer (60 GHz to 90 GHz)	MA2808A	It has the good features of both a harmonic mixer and a down converter and is ideal for spectrum analysis of millimeter-wave (60 GHz to 90 GHz) wireless transmitters now being used for future wider-band applications, such as wireless backhaul, automotive radar, etc.
External Mixer (26.5 GHz to 40 GHz)	MA2741C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (33 GHz to 50 GHz)	MA2742C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (40 GHz to 60 GHz)	MA2743C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (50 GHz to 75 GHz)	MA2744C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (60 GHz to 90 GHz)	MA2745C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (75 GHz to 110 GHz)	MA2746C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (90 GHz to 140 GHz)	MA2747C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (110 GHz to 170 GHz)	MA2748C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (140 GHz to 220 GHz)	MA2749C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (170 GHz to 260 GHz)	MA2750C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
External Mixer (220 GHz to 325 GHz)	MA2751C	It is a harmonic mixer for spectrum analysis of millimeter-wave transmitters.
AUX Conversion Adaptor	J1556A	AUX Conversion Adaptor J1556A Adapter for converting from AUX to BNC. Used for MARKER output from vector signal generator option, pulse modulation signals, baseband reference clock signals and Clock, Data and Enable signals for BER Measurement Function option. ✳: The Aux Conversion Adapter J1556A is a standard accessory supplied with the BER Measurement Function MS2840A-026.

Nominal (nom.): Values not warranted. Included to facilitate application of product.

# Signal Analyzer MS2840A

## Retrofit to Current MS2840A

### Hardware Option Retrofit

The following hardware options can be retrofitted. Order the Z1932A Installation Kit as well. The MS2840A must be returned to the Anritsu plant for hardware retrofitting.

Model/Order No.	Name	ReferenceSteps	
Hardware Options	MS2840A-101	Rubidium Reference Oscillator Retrofit	2
	MS2840A-137	Rubidium Reference Oscillator Retrofit	
	MS2840A-102	High Stability Reference Oscillator Retrofit	3
	MS2840A-177	Analysis Bandwidth Extension to 62.5 MHz Retrofit	
	MS2840A-178	Analysis Bandwidth Extension to 125 MHz Retrofit	4
	MS2840A-108	Preamplifier Retrofit	
	MS2840A-169	26.5 GHz Microwave Preamplifier Retrofit	8
	MS2840A-168	Analysis Bandwidth Extension to 125 MHz Retrofit	
	MS2840A-110	Phase Noise Measurement Function Retrofit	6
	MS2840A-111	2ndary SSD Retrofit	
	MS2840A-116	Precompliance EMI Function Retrofit	5
	MS2840A-117	Noise Figure Measurement Function Retrofit	
	MS2840A-119	2 dB Step Attenuator for Millimeter-wave	9
	MS2840A-151	Noise Floor Reduction Retrofit	
	MS2840A-126	BER Measurement Function Retrofit	9-1
	MS2840A-166	Low Phase Noise Performance Retrofit	
	MS2840A-167	Microwave Preselector Bypass Retrofit	9
	MS2840A-120	3.6 GHz Vector Signal Generator Retrofit	
	MS2840A-121	6 GHz Vector Signal Generator Retrofit	9-1
	MS2840A-122	Low Power Extension for Vector Signal Generator Retrofit	
MS2840A-127	ARB Memory Upgrade 256 Msa for Vector Signal Generator Retrofit	9	
MS2840A-128	AWGN Retrofit		
MS2840A-129	Analog Function Extension for Vector Signal Generator Retrofit	9-1	
MS2840A-188	3.6 GHz Analog Signal Generator Retrofit		
MS2840A-189	Vector Function Extension for Analog Signal Generator Retrofit	-	
Application Parts	Z1932A	Installation Kit (Required when retrofitting options or installing software)	

The Rubidium Reference Oscillator can be retrofitted to the MS2840A-040/041 with installed High Stability Reference Oscillator. In this case, the Rubidium Reference Oscillator is functional.

The 26.5 GHz Microwave Preamplifier or Microwave Preamplifier can be retrofitted to the MS2840A-044/046 with installed Preamplifier. In this case, the 26.5 GHz Microwave Preamplifier or Microwave Preamplifier are functional.

The following options are installed as standard and do not require separate orders when ordering the MS2840A-120/121/189.

Standard waveform pattern MX269099A

### Software Option Retrofit

The following software options can be retrofitted. Order the Z1932A Installation Kit as well.

The MS2840A does not require return to the Anritsu plant for software retrofitting.

Model/Order No.	Name	Reference Steps	
Measurement Software	MX269017A	Vector Modulation Analysis Software	3
	MX269018A	Analog Measurement Software*	
Waveform generation tools (IQproducer)	MX269902A	TDMA IQproducer	9-2
	MX269904A	Multi-Carrier IQproducer	
Application Parts	Z1932A	Installation Kit (Required when retrofitting options or installing software)	-

\*: Requires USB Audio A0086C

## Software Update

Software is updated regularly to add new functions, improve performance and fix bugs. Download the latest software from the following URL. Register before use.

### Software Download Site URL

<https://my.anritsu.com>



# Signal Analyzer MS2840A

## Options Configuration Guide

### Hardware Configuration

Frequency range (MS2840A-040/041/044/046) not upgradable.

✓ = Can be installed, No = Cannot be installed, R = Require, U = Upgrade

Opt.	Name	Retrofit	Addition to Main frame				Combination with "Opt." (Refer to the left line)																														
			040 (3.6 GHz)	041 (6 GHz)	044 (26.5 GHz)	046 (44.5 GHz)	001	037	002	005 (standard install)	006 (standard install)	009 (standard install)	077	078	008	069	068	019	010	011	016	017	026	051	066	067	020	021	189	022	027	028	088	029			
001	Rubidium Reference Oscillator	Yes	✓	✓	✓	✓	✗	No	*4																												
037	Rubidium Reference Oscillator	Yes	✓	✓	✓	✓	No	✗	*4																												
002	High Stability Reference Oscillator	Yes	✓	✓	Equivalent function installed		*4	*4	✗		No			No	No	No	No							No													
005	Analysis Bandwidth Extension to 31.25 MHz	-	Standard install	Standard install	Standard install	No			✗	✗	✗	✗	No		No																						
006	Analysis Bandwidth 10 MHz	-	Standard install	Standard install	Standard install	Standard install			✗	✗	✗	✗																									
009	Bandwidth Extension to 31.25 MHz for Millimeter-wave	-	No	No	No	Standard install			No	No														No	No	No	No	No	No	No	No	No	No	No	No	No	
077	Analysis Bandwidth Extension to 62.5 MHz*1	Yes	✓	✓	✓	✓			✗	✗	✗	✗																									
078	Analysis Bandwidth Extension to 125 MHz*1	Yes	✓	✓	✓	✓			✗	✗	✗	✗	R																								
008	Preamplifier	Yes	✓	✓	✓	✓									✗	✗	*5	*5																			
069	26.5 GHz Microwave Preamplifier	Yes	No	No	✓	No			No		No			*5	✗	No							No	No	No	No	No	No	No	No	No	No	No	No	No	No	
068	Microwave Preamplifier	Yes	No	No	No	✓			No		No			*5	✗	✗							No	No	No	No	No	No	No	No	No	No	No	No	No	No	
019	2 dB Step Attenuator for Millimeter-wave	Yes	No	No	No	✓			No		No				✗	✗							No	No	No	No	No	No	No	No	No	No	No	No	No	No	
010	Preamplifier	Yes	✓	✓	✓	✓																															
011	2ndary SSD	Yes	✓	✓	✓	✓																															
016	Precompliance EMI Function	Yes	✓	✓	✓	✓																															
017	Noise Figure Measurement Function	Yes	✓	✓	✓	✓									U	U	U																				
026	BER Measurement Function	Yes	✓	✓	✓	✓																															
051	Noise Floor Reduction	Yes	✓	✓	✓	✓																															
066	Low Phase Noise Performance	Yes	✓	✓	No	No					No			No	No								No	No													
067	Microwave Preselector Bypass	Yes	No	No	✓	✓			No													No	✗	No	No	No	No	No	No	No	No	No	No	No	No	No	
020	3.6 GHz Vector Signal Generator	Yes	✓	✓	No	No					No			No	No								No	✗	No	No	No	No	No	No	No	No	No	No	No	No	
021	6 GHz Vector Signal Generator	Yes	✓	✓	No	No					No			No	No								No	✗	No	No	No	No	No	No	No	No	No	No	No	No	
189	Vector Function Extension for Analog Signal Generator Retrofit	Yes	✓	✓	No	No					No			No	No								No	No	No	✗	No							R	No		
022	Low Power Extension for Vector Signal Generator	Yes	✓	✓	No	No					No			No	No								No	R	No	✗											
027	ARB Memory Upgrade 256 Msa for Vector Signal Generator*2	Yes	✓	✓	No	No					No			No	No								No	R	No	✗											
028	AWGN*2	Yes	✓	✓	No	No					No			No	No								No	R	No	✗											
088	3.6 GHz Analog Signal Generator*3	Yes	✓	✓	No	No					No			No	No								No	No	No	No	No	No	No	No	No	No	No	No	No		
029	Analog Function Extension for Vector Signal Generator*3	Yes	✓	✓	No	No					No			No	No								No	R	No	R	No	✗									

- \*1: An image response is received when setting the bandwidth to more than 31.25 MHz. This can be used when not inputting a signal frequency outside the MS2840A analysis bandwidth (125 MHz max.). The Signal Analyzer series MS2690A/91A/92A is recommended for other measurement purposes.
- \*2: The ARB Memory Upgrade 256 Msa for Vector Signal Generator (MS2840A-027) and AWGN (MS2840A-028) are non-functional in the Analog Signal Generator (MS2840A-029/088).
- \*3: Requires Analog Measurement Software (MX269018A).
- \*4: The Rubidium Reference Oscillator can be retrofitted to the MS2840A-040/041 with installed High Stability Reference Oscillator. In this case, the Rubidium Reference Oscillator is functional.
- \*5: The 26.5 GHz Microwave Preamplifier or Microwave Preamplifier can be retrofitted to the MS2840A-044/046 with installed Preamplifier. In this case, the 26.5 GHz Microwave Preamplifier or Microwave Preamplifier are functional.

### Software Configuration

✓ = Can be installed, No = Cannot be installed, R = Require, U = Upgrade

Model	Name	Addition to Main frame				Analysis Bandwidth	
		040 (3.6 GHz)	041 (6 GHz)	044 (26.5 GHz)	046 (44.5 GHz)	077 (62.5 MHz)	078 (125 MHz)
MX269017A	Vector Modulation Analysis Software	✓	✓	✓	✓	✓	✓
MX269018A	Analog Measurement Software*	✓	✓	✓	✓		

\*: Requires USB Audio A0086C

# Ordering Information

Please specify the model/order number, name and quantity when ordering.  
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

Model/Order No	Name
MS2840A	<b>Main frame</b> Signal Analyzer
P0031A Z0541A	<b>Standard accessories</b> Power Cord: 1 pc USB Memory (≥256 MB, USB2.0 Flash Driver): 1 pc USB Mouse: 1 pc Install CD-ROM (Application software, instruction manual CD-ROM): 1 pc
MS2840A-040 MS2840A-041 MS2840A-044 MS2840A-046	<b>Options</b> 3.6 GHz Signal Analyzer 6 GHz Signal Analyzer 26.5 GHz Signal Analyzer 44.5 GHz Signal Analyzer
MS2840A-001 MS2840A-037 MS2840A-002	Rubidium Reference Oscillator Rubidium Reference Oscillator High Stability Reference Oscillator
MS2840A-077 MS2840A-078	Analysis Bandwidth Extension to 62.5 MHz Analysis Bandwidth Extension to 125 MHz (Requires MS2840A-077)
MS2840A-008 MS2840A-069 MS2840A-068	Preamplifier 26.5 GHz Microwave Preamplifier (for MS2840A-044 ) Microwave Preamplifier (for MS2840A-046)
MS2840A-010 MS2840A-011 MS2840A-016 MS2840A-017 MS2840A-019 MS2840A-051 MS2840A-026	Phase Noise Measurement Function 2ndary SSD Precompliance EMI Function Noise Figure Measurement Function 2 dB Step Attenuator for Millimeter-wave (for MS2840A-046) Noise Floor Reduction BER Measurement Function (AUX Conversion Adapter J1556A as standard accessory)
MS2840A-066 MS2840A-067	Low Phase Noise Performance Microwave Preselector Bypass
MS2840A-020 MS2840A-021 MS2840A-022 MS2840A-027 MS2840A-028 MS2840A-029 MS2840A-088	3.6 GHz Vector Signal Generator 6 GHz Vector Signal Generator Low Power Extension for Vector Signal Generator ARB Memory Upgrade 256 Msa for Vector Signal Generator AWGN Analog Function Extension for Vector Signal Generator 3.6 GHz Analog Signal Generator
MS2840A-101 MS2840A-137 MS2840A-102	<b>Retrofit options</b> Rubidium Reference Oscillator Retrofit Rubidium Reference Oscillator Retrofit High Stability Reference Oscillator Retrofit
MS2840A-177 MS2840A-178	Analysis Bandwidth Extension to 62.5 MHz Retrofit Analysis Bandwidth Extension to 125 MHz Retrofit (Requires MS2840A-077 or 177)
MS2840A-108 MS2840A-169 MS2840A-168	Preamplifier Retrofit 26.5 GHz Microwave Preamplifier Retrofit Microwave Preamplifier Retrofit
MS2840A-110 MS2840A-111 MS2840A-116 MS2840A-117 MS2840A-119	Phase Noise Measurement Function Retrofit 2ndary SSD Retrofit Precompliance EMI Function Retrofit Noise Figure Measurement Function Retrofit 2 dB Step Attenuator for Millimeter-wave Retrofit (for MS2840A-046)
MS2840A-151 MS2840A-126	Noise Floor Reduction Retrofit BER Measurement Function Retrofit (AUX Conversion Adapter J1556A as standard accessory)
MS2840A-166 MS2840A-167	Low Phase Noise Performance Retrofit Microwave Preselector Bypass Retrofit
MS2840A-120 MS2840A-121 MS2840A-122 MS2840A-127	3.6 GHz Vector Signal Generator Retrofit 6 GHz Vector Signal Generator Retrofit Low Power Extension for Vector Signal Generator Retrofit ARB Memory Upgrade 256 Msa for Vector Signal Generator Retrofit
MS2840A-128 MS2840A-129 MS2840A-188 MS2840A-189	AWGN Retrofit Analog Function Extension for Vector Signal Generator Retrofit 3.6 GHz Analog Signal Generator Retrofit Vector Function Extension for Analog Signal Generator Retrofit

Model/Order No	Name
	<b>Software options</b> DVD-ROM with license and operation manuals Vector Modulation Analysis Software Analog Measurement Software (Requires A0086C)
MX269017A MX269018A	
MX269902A MX269904A	TDMA IQproducer Multi-Carrier IQproducer
MS2840A-ES210 MS2840A-ES310 MS2840A-ES510	<b>Warranty service</b> 2 years Extended Warranty Service 3 years Extended Warranty Service 5 years Extended Warranty Service
A0086C J1556A	<b>Application parts</b> USB Audio (for MX269018A) AUX Conversion Adapter (AUX → BNC), for vector signal generator option and BER measurement function option, standard accessory with BER Measurement Function MS2840A-026
MA24105A MA24106A MA24108A MA24118A MA24126A	Inline Peak Power Sensor (350 MHz to 4 GHz, with USB A to mini B cable) USB Power Sensor (50 MHz to 6 GHz, with USB A to mini B Cable) Microwave USB Power Sensor (10 MHz to 8 GHz, with USB A to micro B Cable) Microwave USB Power Sensor (10 MHz to 18 GHz, with USB A to micro B Cable) Microwave USB Power Sensor (10 MHz to 26 GHz, with USB A to micro B Cable)
MA2806A MA2808A MA2741C MA2742C MA2743C MA2744C MA2745C MA2746C MA2747C MA2748C MA2749C MA2750C MA2751C Z1932A	High Performance Waveguide Mixer (50 GHz to 75 GHz) High Performance Waveguide Mixer (60 GHz to 90 GHz) External Mixer (26.5 GHz to 40 GHz) External Mixer (33 GHz to 50 GHz) External Mixer (40 GHz to 60 GHz) External Mixer (50 GHz to 75 GHz) External Mixer (60 GHz to 90 GHz) External Mixer (75 GHz to 110 GHz) External Mixer (90 GHz to 140 GHz) External Mixer (110 GHz to 170 GHz) External Mixer (140 GHz to 220 GHz) External Mixer (170 GHz to 260 GHz) External Mixer (220 GHz to 325 GHz) Installation Kit (required when retrofitting options or installing software)

The following options are installed as standard and do not require separate orders when ordering the MS2840A-040/041/044.

Standard Software	MX269000A
Analysis Bandwidth 10 MHz	MS2840A-006
Bandwidth Extension to 31.25 MHz	MS2840A-005

The following options are installed as standard and do not require separate orders when ordering the MS2840A-046.

Standard Software	MX269000A
Analysis Bandwidth 10 MHz	MS2840A-006
Bandwidth Extension to 31.25 MHz for Millimeter-wave	MS2840A-009

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