

# Agilent ESA/EMC Spectrum Analyzer

**Configuration Guide** 



This configuration guide will help you optimize an ESA/EMC analyzer for your application, and shows upgrade paths for adding options after the purchase of the instrument. Use table 1 to determine availability and compatibility of options. For additional product and application information, please see the information list at the end of this guide.

## Models

- E4401B ESA-E Series Spectrum Analyzer (9 kHz to 1.5 GHz)
- E4402B ESA-E Series Spectrum Analyzer (30 Hz<sup>+</sup> to 3 GHz)
- E4403B ESA-L Series Spectrum Analyzer (9 kHz to 3 GHz)
- E4404B ESA-E Series Spectrum Analyzer (30 Hz<sup>+</sup> to 6.7 GHz)
- E4405B ESA-E Series Spectrum Analyzer (30 Hz<sup>+</sup> to 13.2 GHz)
- E4407B ESA-E Series Spectrum Analyzer (30 Hz<sup>+</sup> to 26.5 GHz)
- E4408B ESA-L Series Spectrum Analyzer (9 kHz to 26.5 GHz)
- E4411B ESA-L Series Spectrum Analyzer (9 kHz to1.5 GHz)
- E7401A EMC Analyzer (9 kHz to  $1.5~\mathrm{GHz}$ )\*
- E7402A EMC Analyzer (30 Hz<sup>+</sup> to 3 GHz)\*
- E7403A EMC Analyzer (30 Hz<sup>+</sup> to 6.7 GHz)\*
- E7404A EMC Analyzer (30 Hz<sup>+</sup> to 13.2 GHz)\*
- E7405A EMC Analyzer (30 Hz+ to 26.5 GHz)\*
- \* Includes peak, quasi-peak, and average detection standard.
- + Characteristic

# **Ordering information**

# **Options**

To add options to an ESA, use the following ordering scheme:

Model: E44XXB

(XX = 01, 02, 03, 04, 05, 07, 08 or 11)

Model Options: E44XXB-Option (Option = 3 character

option designation)

To add options to an EMC analyzer, use the following ordering scheme:

Model: E740XA (X = 1, 2, 3, 4 or 5)

Model options: E740XA-Option (Option = 3 character

option designator)

# **Upgrading a model**

Some options that you choose not to purchase with your instrument can be added later. To order upgrade options, add a "U" to the model number of the instrument to be upgraded, and specify the options you wish to add.

#### **Upgrade** notes

- Additional options can be added as shown in table 1, an "R" indicates a retrofit is available.
- For any upgrades not listed, please contact your Agilent sales representative for a special quote.
- Upgrade options are customer installable unless otherwise indicated.

#### **Upgrading an Agilent E4411A**

If you have an E4411A and want to upgrade to a B model, contact your Agilent sales representative for a trade-in quote.

Table 1. Option availability and compatibility	ESA-L series					ESA- serie					7400. /IC se				
	E4411B 1.5 GHz	E4403B 3 GHz	E4408B 26.5 GHz	E4401B 1.5 GHz	E4402B 3 GHz	E4404B 6.7 GHz	E4405B 13.2 GHz	E4407B 26.5 GHz	E7401A 1.5 GHz	E7402A 3 GHz	E7403A 6.7 GHz	E7404A 13.2 GHz	E7405A 26.5 GHz	Requires	Not compatible with the following option(s)
Available card slots	n/a	n/a	n/a	6	6	5	5	5	4	4	3	3	3		
Performance		,										1			
Narrow resolution bandwidths for better resolving power (10 Hz) <sup>6</sup> Option 1DR				R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	S	S	S	S	S		
Narrow resolution bandwidths for resolving power (1 Hz, 3 Hz) <sup>6</sup> • Option 1DR				R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	S	S	S	S	S	Option1D5	
Preamplifier built-in for enhanced sensitivity <sup>6</sup> Option 1DS				R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	S	S	S	S	S		
High stability frequency reference <sup>6</sup> □ <b>Option 1D5</b>				R <sup>2</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>2</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>		
ACPR dynamic range extension  Option 120					R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>						One available card slot	
100 Hz (30 Hz useable) frequency range extension  Option UKB					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>4</sup>		R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>4</sup>		
External mixing (to 325 GHz)  Option AYZ								R 4						External mixer and two SMA cables (5061-5458)	
Fast zero-span sweep plus functionality of Option A4J  Option AYX				R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R1	R <sup>1</sup>	R <sup>1</sup>	R1	R <sup>1</sup>	One available card slot	Option A4J
APC 3.5 mm input connector			R <sup>3</sup>					R <sup>3</sup>					R <sup>4</sup>	0.000	
Memory extension to 10 MB  Option B72	R 1, 12	R 1, 12	R 1, 12	R 1, 12	R 1, 12	R 1, 12	R 1, 12	R 1, 12	S	S	S	S	S		
Performance bundle is Options 1DR, 1DS and 1D5  Option B75				Х	Х	Х	Х	Х							
Low emissions shielding  Option 060				R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	S	S	S	S	S		Options B7B, 1DP
Flexible Demodulation					1								1		
ESA to 89601A vector signal analysis software link utility   • Option 231+					R	R	R	R						B7D, B7E,A4H 1D5 and B72* (or B74 and A4H)	Option 229
Modulation analysis															
Modulation analysis measurement personality  ☐ Option 229 <sup>+</sup>					R	R	R	R						Options B7D, B7E, 1D5 and B72* or B74	Option 231
RF and digital comms hardware bundle includes options B7D, B7E, 1D6, 1D5, 1DR, 1DS, B72*  • Option B74 11					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Two available card slots	
Digital processing and fast ADC  Option B7D 11					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Options B7E, 1D5, and one available card slot	
RF communications hardware  Option B7E 11					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Options B7D, 1D5 and one available card slot	
Bluetooth	-			•				-				I		<u>,</u>	I.
Bluetooth premium bundle including Options 228, 106, B7D, B7E, B72*, 1DS, 1D5  Option 304					R <sup>4</sup>	R <sup>4</sup>	R 4	R <sup>4</sup>						Three available card slots	Option BAA, B7B
Bluetooth measurement personality  Option 228					R	R	R	R						(Minimum) Options 106, B72*, AYX	
Bluetooth FSK demodulator  Option 106					R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>						(Minimum) Options 228, B72*, AYX and one available card slot	Option BAA, B7B
Digital signal processing and fast ADC  Option B7D 11					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Options B7E, 1D5 and one available card slot	
RF communication hardware  Option B7E 11					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Options B7D, 1D5 and one available card slot	

**X** - Available only at time of new instrument purchase.

 $<sup>\</sup>boldsymbol{S}$  - Standard.

 $<sup>\</sup>boldsymbol{R}$  - Available at time of purchase or as a retrofit. Customer installation except where noted.

 $<sup>^</sup>st$  - Option B72 is standard if the serial prefix number is equal to or greater than US4144 or MY4144.

<sup>+ -</sup> Funtionality of 231 is included in option 229. A4H must be ordered to take advantage of Link to 89601A VSA software.

Table 1. Option availability and compatibility	ESA-L series					ESA-l serie:	_			_	7400 /IC se					
(continued)	E4411B 1.5 GHz	E4403B 3 GHz	E4408B 26.5 GHz	E4401B 1.5 GHz	E4402B 3 GHz	E4404B 6.7 GHz	E4405B 13.2 GHz	E4407B 26.5 GHz	E7401A 1.5 GHz	E7402A 3 GHz	E7403A 6.7 GHz	E7404A 13.2 GHz	E7405A 26.5 GHz	Requires	Not compatible with the following option(s)	
cdma0ne																
cdmaOne measurement personality  Option BAC					R	R	R	R						Option B72*		
RF and digital comms hardware bundle includes options B7D, B7E, 1D6, 1D5, 1DR, 1DS, B72*  Option B74 11					R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>						Two available card slots		
Digital signal processing and fast ADC  Option B7D 11					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Options B7E, 1D5 and one available card slot		
RF communications hardware  Option B7E					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Options B7D, 1D5 and one available card slot		
Cable fault measurement personality  Option 225				R	R	R	R	R						Option 1DN or 1DQ and B72*		
Cable fault location accessory kit (50 Ohm)  Option B7K				R	R	R	R	R						Options 1DN, 225	Options 1DP, 1DQ	
50 Ohm tracking generator  Option 1DN	R1	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>		Options 1DP, 1DQ	
GSM/GPRS																
GSM/GPRS measurement personality plus functionality of Option 225  Option BAH					R	R	R	R						Options B72*, 1D6		
RF and digital comms hardware bundle includes options B7D, B7E, 1D6, 1D5, 1DR, 1DS, B72*  Option B74 11					R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>						Two available card slots		
Digital processing and fast ADC  Option B7D 11					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Options B7E, 1D5 and one available card slot		
RF communications hardware  Option B7E <sup>11</sup>					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						Options B7D, 1D5 and one available card slot		
Cable fault location accessory kit (50 Ohm)  Option B7K				R	R	R	R	R						Options 1DN, 225	Options 1DP, 1DQ	
50 Ohm tracking generator  Option 1DN	R1	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R1	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>		Options 1DP, 1DQ	
Component test																
50 Ohm tracking generator (9 kHz to 1.5 GHz)  Option 1DN	R1			R <sup>1</sup>					R <sup>1</sup>						Options 1DP, 1DQ	
50 Ohm tracking generator (9 kHz to 3 GHz)  Option 1DN		R1	R1		R1	R <sup>1</sup>	R1	R1		R <sup>1</sup>	R1	R <sup>1</sup>	R <sup>1</sup>		Options 1DP, 1DQ	
75 Ohm tracking generator (1 MHz to 1.5 GHz)  Option 1D0	R <sup>1</sup>			R <sup>1</sup>										Option 1DP	Option 1DN	
Phase noise measurement personality  Option 226				R	R	R	R	R						Option B72*		

**Blank** - not available for model.

 $<sup>\</sup>boldsymbol{R}$  - Available at time of purchase or as a retrofit. Customer installation except where noted.

 $<sup>^{\</sup>star}\,$  - Option B72 is standard if the serial prefix number is equal to or greater than US4144 or MY4144

Table 1.  Option availability and compatibility  ESA-				ESA-E series							7400 /IC se				
(continued)	E4411B 1.5 GHz	E4403B 3 GHz	E4408B 26.5 GHz	E4401B 1.5 GHz	E4402B 3 GHz	E4404B 6.7 GHz	E4405B 13.2 GHz	E4407B 26.5 GHz	E7401A 1.5 GHz	E7402A 3 GHz	E7403A 6.7 GHz	E7404A 13.2 GHz	E7405A 26.5 GHz	Requires	Not compatible with the following option(s)
Cable TV				•					•					•	
Cable TV service and installation measurement personality  Option 227				R	R	R	R	R						Option B72**	
Cable fault location measurement personality  Option 225				R	R	R	R	R						Option 1DN or 1DQ and B72**	
If, sweep, and video output ports  Option A4J	R1	R1	R <sup>1</sup>	R1	R1	R1	R1	R <sup>1</sup>	R1	R1	R <sup>1</sup>	R1	R <sup>1</sup>	One available card slot (for ESA-E and E7400A)	AYX +
75 Ohm input impedance  Option 1DP	X			Х											Option 060
50 to 75 0hm minimum loss pad  Option 1D7	R	R	R	R	R	R	R	R	R	R	R	R	R		
Pre-amplifier built-in  Option 1DS  CNIS and a control originate interference	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	S	S	S	S	S	One available card slot	Ontine 1AV
GPIB and parallel printer interfaces  Option A4H <sup>13</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	8 R 1.7	8 R 1.7	8 R 1.7	8 R 1.7	8 R <sup>1.7</sup>	(for ESA-E and E7400A)	
RS-232 and parallel printer interfaces  Option 1AX <sup>13</sup>	K'	K.	K.	K.	K.	K'	K'	K.	К "	К "	К 1.7	К "	К	One available card slot (for ESA-E and E7400A)	Uption A4H
Portability		_					_	_			_		_	1	
12 Vdc power cable  Option A5D	R	R	R	R	R	R	R	R	R	R	R	R	R		
Hard transit case ☐ Option AXT	R	R	R	R	R	R	R	R	R	R	R	R	R		
Soft carrying /operation vase (gray)  Option AYT	R	R	R	R	R	R	R	R	R	R	R	R	R		
Soft carrying /operation vase (yellow)  Option AYU	R	R	R	R	R	R	R	R	R	R	R	R	R		
Custom Backpack (gray)  Option 042	R	R	R	R	R	R	R	R	R <sup>8</sup>	R <sup>8</sup>	R <sup>8</sup>	R <sup>8</sup>	R <sup>8</sup>		
Custom Backpack (gray)  Option 044	R	R	R	R	R	R	R	R	R <sup>8</sup>	R <sup>8</sup>	R <sup>8</sup>	R <sup>8</sup>	R <sup>8</sup>		
Front panel cover  Option UK9	R	R	R	R	R	R	R	R	R	R	R	R	R		
PC Connectivity		-	-												
GPIB and parallel printer interfaces  Option A4H 13	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	S	S	S	S	S	Available card slot (for ESA-E and E7400A)	Option 1AX
RS-232 and parallel printer interfaces  Option 1AX 13	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1.7</sup>	R 1.7	R 1.7	R 1.7	R <sup>1.7</sup>	Available card slot (for ESA-E and E7400A)	Option A4H
*IntuiLink PC connectivity software  Standard	S	S	S	S	S	S	S	S	S	S	S	S	S		
BenchLink spectrum analyzer, PC software (Agilent E4444A)  Option B70	R	R	R	R	R	R	R	R						Option A4H or Option 1AX	
BenchLink web remote control software  Option 230	R	R	R	R	R	R	R	R	R 10	R 10	R 10	R 10	R 10	Option A4H	

**X** - Available only at time of new instrument purchase.

S - Standard.

**R** - Available at time of purchase or as a retrofit. Customer installation except where noted.

 $<sup>^{\</sup>ast}\,$  - Standard with Options A4H and 1AX

 $<sup>^{\</sup>star\star}\text{-}$  Option B72 is standard if the serial prefix number is equal to or greater than US4144 or MY4144.

<sup>+ -</sup> Option AYX includes functionality of A4J

Table 1. Option availability and compatibility	ESA-L series			ESA-E series						_	7400 /IC se				
(continued)	E4411B 1.5 GHz	E4403B 3 GHz	E4408B 26.5 GHz	E4401B 1.5 GHz	E4402B 3 GHz	E4404B 6.7 GHz	E4405B 13.2 GHz	E4407B 26.5 GHz	E7401A 1.5 GHz	E7402A 3 GHz	E7403A 6.7 GHz	E7404A 13.2 GHz	E7405A 26.5 GHz	Requires	Not compatible with the following option(s)
Pulsed measurements															
Time-gated spectrum analysis  Option 1D6				R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	Х	Х	Х	Х	Х		
FM demodulation/deviation  Option BAA				R <sup>1</sup>	R <sup>1</sup>	R1	R <sup>1</sup>	R <sup>1</sup>	S 5	S 5	S 5	S 5	S 5	One available card slot	Options 106, 304
TV trigger and picture on screen  Option B7B				R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>						Option BAA	Options 106, 304
Fast zero-span sweep plus functionality of Option A4J  Option AYX				R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	One available card slot	Option A4J
50 to 75 Ohm minimum loss pad  Option 1D7	R	R	R	R	R	R	R	R	R	R	R	R	R		
75 Ohm input impedance  Option 1DP	Х			Х											Option 060
If, sweep, and video output ports  Option A4J	R1	R1	R1	R1	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R1	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	One available card slot (for ESA-E and E7400A)	Option AYX*
Peripherals and accessories	•								•					•	
Rackmount and handle kit with slides  Option 1CP	R	R	R	R	R	R	R	R	R	R	R	R	R		
Documentation															
Add manual set  Option 0B1	R	R	R	R	R	R	R	R	Х	Х	Х	Х	Х		
Commercial calibration certificate with test data  Option UK6	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		
Delete manual set (retains CD-Rom version)  Option 0B0	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		
Service documentation, component level CLIP (component level information package)  Option 0BV	R	R	R	R	R	R	R	R							
Service documentation, assembly level (performance verification and adjustment software included)  Option 0BW	R	R	R	R	R	R	R	R							

 $<sup>\</sup>boldsymbol{X}$  - Available only at time of new instrument purchase.

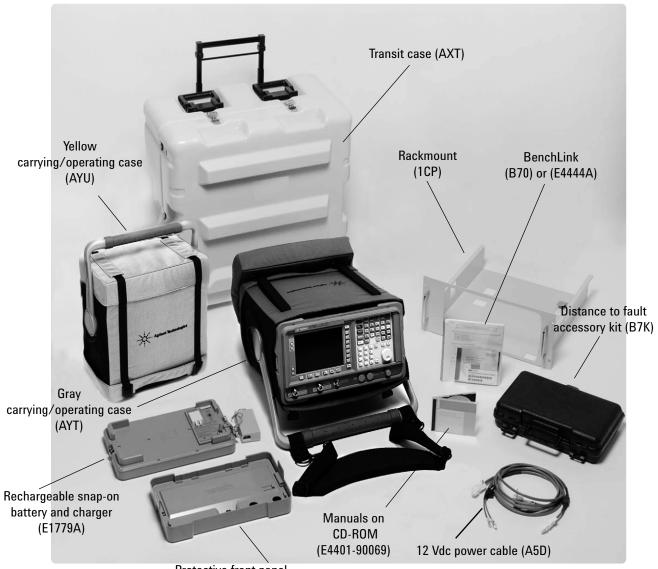
R - Available at time of purchase or as a retrofit. Customer installation except where noted.
 \* - Option AYX includes functionality of Option A4J.

Table 1. Option availability and compatibility		ESA- serie	_			ESA-l serie:	_			_	7400 /IC se				
	E4411B 1.5 GHz	E4403B 3 GHz	E4408B 26.5 GHz	E4401B 1.5 GHz	E4402B 3 GHz	E4404B 6.7 GHz	E4405B 13.2 GHz	E4407B 26.5 GHz	E7401A 1.5 GHz	E7402A 3 GHz	E7403A 6.7 GHz	E7404A 13.2 GHz	E7405A 26.5 GHz	Requires	Not compatible with the following option(s)
Warranty, service and calibration options															
Standard calibration <sup>14</sup> Option R-50C-001	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		
Standards compliant calibration <sup>14</sup> Option R-50C-002	Х	Х	Х	Х	Х	Х	Х	Х							
Return-to-Agilent warranty and service plan <sup>15</sup> Option R-51B	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		
Localization	•		-												-
Taiwan-Chinese user's guide □ Option AB0	R	R	R	R	R	R	R	R							
Korea-Korean user's guide  Option AB1	R	R	R	R	R	R	R	R							
China-Chinese user's guide  Option AB2	R	R	R	R	R	R	R	R							
Germany-German user's guide  Option ABD	R	R	R	R	R	R	R	R							
Spain-Spanish user's guide  Option ABE	R	R	R	R	R	R	R	R							
France-French user's guide  Option ABF	R	R	R	R	R	R	R	R							
Japan-Japanese user's guide   Option ABJ	R	R	R	R	R	R	R	R							
Italy-Italian user's guide  Option ABZ	R	R	R	R	R	R	R	R							
Russia-Russian user's guide  Option ABT	R	R	R	R	R	R	R	R							
Firmware/software	Firmware/software														
Firmware upgrade  Option UE2	R	R	R	R	R	R	R	R	R <sup>9</sup>	R <sup>9</sup>	R <sup>9</sup>	R <sup>9</sup>	R <sup>9</sup>	B72*	
ESA to 89601A vector signal analysis software link utility  Option 231					R	R	R	R						B7D, B7E,A4H 1D5 and B72* (or B74 and A4H)	Option 229
8590-series programming code compatibility  Option 290	R	R	R	R	R	R	R	R						Option A4H or Option 1AX	

<sup>X - Available only at time of new instrument purchase.
R - Available at time of purchase or as a retrofit. Customer installation except where noted.
\* - Option B72 is required when upgrading to firmware revision A.08.00 and above.</sup> 

<sup>&</sup>lt;sup>+</sup> - Functionality of 231 is included in option 229. A4H must be ordered to take advantage of Link to 89601A VSA software.

# **ESA/EMC** accessories



Protective front panel covers (UK9)



Custom backpack for carrying the ESA series analyzer (042, 044)

# **ESA/EMC** accessories (continued)

# For field service and portability

• E1779A Battery pack

#### **PC** software

- IntuiLink PC connectivity software\* (standard with Option A4H or 1AX)
- E4444A BenchLink spectrum analyzer PC software
- Option 230 BenchLink web remote control software
- Option 231 ESA to 89601A vector signal analysis software link utility

# **Programming Code Compatibility**

 Option 290 8590–series programming code compatibility

#### **Printer**

- HP DeskJet 690C (C4562A) Color printer
- HP DeskJet 932C (C6427B) Color printer
- HP DeskJet 970C (C6429A) Color printer
- HP DeskJet 895C (C6410B) Color printer

Your Agilent ESA spectrum analyzer must be equipped with either Option A4H (GPIB and parallel interface) standard on EMC analyzers or Option 1AX (RS-232 and parallel interface), and an IEEE 1284 compliant printer cable. A supported printer is one that is equipped with a parallel interface and accepts printer control language (PCL) level 3 or 5. PCL3 printers include most HP DeskJet printers. PCL5 printers include most HP LaserJet printers and the HP 1600C DeskJet printer. Visit the Agilent Web site for the latest printer compatibility information at www.agilent.com/find/pcg

# **Preamplifiers**

	-	
•	87405A	Preamplifier (10 MHz to

3 GHz, 24 dB gain) (fastened to RF input, powered from analyzer)

• 85905A 75 Ohm preamplifier

(45 MHz to 1 GHz 20 dB gain) (powered from analyzer)

• 11909A 9 kHz to 1 GHz preamplifier

# **External mixing**

• 11970 Series Non-preselected waveguide,

harmonic mixers (26.5 to 110 GHz)

• 11974 Series Preselected waveguide,

harmonic mixers (26.5 to 75 GHz)

• 5061-5458 SMA cables

• R/Q/U/V281A,B mm-Wave-to-coax adaptors

(26.5 to 65 GHz)

#### Other accessories

• 85024A

• 41800A Active probe

(5 Hz to 500 MHz) High frequency active probe

(300 kHz to 3GHz)

• 5182-4794 RS-232 cable (9-pin F to

9-pin F) for serial

9-pin PC connection to

analyzer

• 10833A GPIB cable (1 meter)

• 11940A/11941A Closefield probe

## **Agilent ESA manuals**

Included with an Agilent ESA spectrum analyzer are a Reference Guide, User's Guide, Programmer's Guide (if either Option 1AX or Option A4H is ordered), Calibration Guide, and Specification Guide. You may order additional manual sets by ordering Option 0B1. Localized user guides are also available for the ESA family.

For on-line manuals, visit our Web site at www.agilent.com/find/manuals

<sup>\*</sup> For more information about IntuiLink software, visit our Web site at: http://www.agilent.com/find/intuilink

# **Agilent ESA product and application information**

#### **Product literature**

Modulation Analysis Measurement Personality,

**Product Overview** 

literature number 5988-2116EN

Bluetooth RF Measurement Solution, Product Overview

literature number 5980-2786EN

Cable Fault Location Measurement Personality,

**Product Overview** 

literature number 5980-1915E

Cable TV Service and Installation Analyzer,

**Product Overview** 

literature number 5980-0845E

cdmaOne Measurement Solutions for ESA-E Series

Spectrum Analyzers, Product Overview

literature number 5968-6869E 8590-E Series, Brochure literature number 5963-6908E

8590-E Series, Technical Specifications

literature number 5963-6909E 8560-EC Series, Brochure literature number 5968-9571E

8560-EL Series, Technical Specifications

literature number 5966-1496E

8560-EC Series, Technical Specifications

literature number 5968-8156E

11970 Series Harmonic Mixers, Technical Specifications

literature number 5968-1445E

EMC Precompliance Solutions, Brochure,

literature number 5968-2516E

EMC Precompliance Systems, Ordering Information,

literature number 5968-5157E

 ${\it E7400A-Series~EMC~Analyzers}, \ {\it Technical~Specifications}$ 

literature number 5968-3662E

ESA BenchLink Spectrum Analyzer Software,

**Product Overview** 

literature number 5966-0676E

BenchLink Web Remote Control Software

Product Overview

literature number 5988-2610EN

ESA Snap-On Battery Pack, Product Overview

literature number 5966-1851E

ESA-E Series Spectrum Analyzer, Brochure

literature number 5968-3278E

ESA-E Series, Technical Specifications

literature number 5968-3386E

ESA-E Series Self-Guided Demo, Product Note

literature number 5968-3658E

ESA-E Series TV Transmission Quality Measurements,

**Product Overview** 

literature number 5968-6874E

ESA-E Series Measuring Signals Above 26.5 GHz,

**Product Overview** 

literature number 5968-6873E *ESA-L Series*, Product Overview literature number 5965-6309E

Select the Right Spectrum Analyzer for Your Needs,

Selection Guide

literature number 5968-3413E

GSM Measurement Solutions for ESA-E Series Spectrum Analyzers, Product Overview

literature number 5968-6871E

N2717A Performance Verification and Adjustment

Software, Product Overview literature number 5968-5478E

Phase Noise Measurement Personality Product, Product

Overview

literature number 5980-1191E

R/Q/U/V281A, B mm-Wave-to-Coax-Adapters, Product

Overview

literature number 5965-1225E IntuiLink Software, Data Sheet literature number 5980-3115EN

## **Application notes**

 $8\ Hints\ for\ Making\ Better\ Spectrum\ Analyzer\ Measurements,$ 

literature number 5965-7009E

 $Cookbook\ for\ EMC\ Precompliance\ Measurements,$ 

literature number 5968-3661E

Optimizing Spectrum Analyzer Amplitude Accuracy,

literature number 5968-3659E

Optimizing Spectrum Analyzer Dynamic Range,

literature number 5968-4545E

Optimizing Spectrum Analyzer Measurement Speed,

literature number 5968-3411E Spectrum Analysis Basics-150,

literature number 5952-0292E

#### See the Agilent ESA and EMC internet pages for the latest information.

Get the latest news, product, and support information, application literature and more. The internet address for the Agilent ESA family is

www.agilent.com/find/esa.

For the latest EMC products and information visit

www.agilent.com/find/emc

#### Notes:

- 1. Retrofit requires post verification test.
- 2. Retrofit requires post verification test and adjustments (Option OBW required).
- 3. Retrofit by Agilent service center only.
- 4. Retrofit by Agilent factory only.
- FM and AM demodulation capability similar to Option BAA is standard.
   See Agilent E7401A technical specifications for differences.
- 6. See also performance bundle Option B75.
- 7. This is not compatible with Agilent E7415A EM1 software.
- 8. Available as a retrofit only.
- 9. Option B72 is standard and, is therefore not required for firmware upgrades.
- 10. For E7400A BenchLink web remote software upgrades, order equivalent ESA upgrade.
- Fast ADC functionality of AYX is included in Options B7D, B7E, and B74. IF, video, and sweep ports functionality is not included.
- 12. Option B72 is available as an upgrade and is required when upgrading to firmware revision A.08.00 and above.
- 13. Option A4H or 1AX must be ordered at time of purchase.
- 14. For 3 years, order 36 months of the appropriate calibration plan. For 5 years, specify 60 months.
- 15. For warranty and service of 5 years, please order 60 months of R-51B (quantity = 60). Standard warranty is 36 months.

#### Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

#### **Our Promise**

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Draduat anneifications and description

Product specifications and descriptions in this document subject to change without notice.

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