



# 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.



**Agilent Technologies**

## Models

- E4401B ESA-E Series Spectrum Analyzer (9 kHz to 1.5 GHz)
- E4402B ESA-E Series Spectrum Analyzer (100 Hz<sup>1,4</sup> to 3 GHz)
- E4403B ESA-L Series Spectrum Analyzer (9 kHz to 3 GHz)
- E4404B ESA-E Series Spectrum Analyzer (100 Hz<sup>1,4</sup> to 6.7 GHz)
- E4405B ESA-E Series Spectrum Analyzer (100 Hz<sup>1,4</sup> to 13.2 GHz)
- E4407B ESA-E Series Spectrum Analyzer (100 Hz<sup>1,4</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 to 1.5 GHz)
- E7401A EMC Analyzer (9 kHz to 1.5 GHz)<sup>3</sup>
- E7402A EMC Analyzer (30<sup>1,2</sup> Hz to 3 GHz)<sup>3</sup>
- E7403A EMC Analyzer (30<sup>1,2</sup> Hz to 6.7 GHz)<sup>3</sup>
- E7404A EMC Analyzer (30<sup>1,2</sup> Hz to 13.2 GHz)<sup>3</sup>
- E7405A EMC Analyzer (30<sup>1,2</sup> Hz to 26.5 GHz)<sup>3</sup>

## 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.**

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1. Optional

2. Characteristic

3. Includes peak, quasi-peak, and average detection standard.

4. 30 Hz characteristic

**Table 1.**  
**Option availability and compatibility**

	ESA-L series			ESA-E series					E7400A EMC series					Requires	Not compatible with the following option(s)
	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		
<b>Available card slots</b>	n/a	n/a	n/a	6	6	5	5	5	4	4	3	3	3		
<b>Performance</b>															
Narrow resolution bandwidths for better resolving power (100 Hz) <input type="checkbox"/> <b>Option 1DR</b>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</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		
Narrow resolution bandwidths for better resolving power (10 Hz) <sup>1</sup> <input type="checkbox"/> <b>Option 1DR</b>				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		
Narrow resolution bandwidths for resolving power (1 Hz, 3 Hz) <sup>1</sup> <input type="checkbox"/> <b>Option 1DR</b>				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	Option1D5	
Preamplifier built-in for enhanced sensitivity <sup>1</sup> <input type="checkbox"/> <b>Option 1DS</b>				R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	S	S	S	S	S		
High stability frequency reference <sup>1</sup> <input type="checkbox"/> <b>Option 1D5</b>				R <sup>3</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>3</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>		
ACPR dynamic range extension <input type="checkbox"/> <b>Option 120</b>					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						One available card slot	
100 Hz (30 Hz useable) frequency range extension <input type="checkbox"/> <b>Option UKB</b>					R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>4</sup>		R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>4</sup>	1DR	
External mixing (to 325 GHz) <input type="checkbox"/> <b>Option AYZ</b>								R <sup>4</sup>						External mixer and two SMA cables (5061-5458)	
Fast time domain sweep plus functionality of Option A4J <input type="checkbox"/> <b>Option AYX</b>				R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	One available card slot	Options A4J, B7D, B74, 304
APC 3.5 mm input connector <input type="checkbox"/> <b>Option BAB</b>			R <sup>5</sup>					R <sup>5</sup>					R <sup>4</sup>		
Memory extension to 10 MB <input type="checkbox"/> <b>Option B72</b>	S <sup>2,6,8</sup>	S <sup>2,6,8</sup>	S <sup>2,6,8</sup>	S <sup>2,6,8</sup>	S <sup>2,6,8</sup>	S <sup>2,6,8</sup>	S <sup>2,6,8</sup>	S <sup>2,6,8</sup>	S	S	S	S	S		
Performance bundle is Options 1DR, 1DS and 1D5 <input type="checkbox"/> <b>Option B75</b>				X	X	X	X	X							
Low emissions shielding <input type="checkbox"/> <b>Option 060</b>				R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	S	S	S	S	S		Options B7B, 1DP
<b>Flexible Demodulation</b>															
ESA to 89601A vector signal analysis software link utility <input type="checkbox"/> <b>Option 231<sup>7</sup></b>					R	R	R	R						B7D, B7E, A4H 1D5 and B72 <sup>8</sup> (or B74 and A4H)	Options 229, AYX
<b>Modulation analysis</b>															
Modulation analysis measurement personality <input type="checkbox"/> <b>Option 229<sup>7</sup></b>					R	R	R	R						Options B7D, B7E, 1D5 and B72 <sup>8</sup> or B74	Option 231
RF and digital comms hardware bundle includes Options B7D, B7E, 1D6, 1D5, 1DR, 1DS, B72 <sup>8</sup> <input type="checkbox"/> <b>Option B74<sup>9</sup></b>					R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>						Two available card slots	Option AYX
Digital processing and fast ADC <input type="checkbox"/> <b>Option B7D<sup>9</sup></b>					R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>						Options B7E, 1D5, and one available card slot	Option AYX
RF communications hardware <input type="checkbox"/> <b>Option B7E<sup>9</sup></b>					R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>						Options B7D, 1D5 and one available card slot	
<b>Bluetooth</b>															
Bluetooth premium bundle including Options 228, 106, B7D, B7E, B72 <sup>8</sup> , 1DS, 1D5 <input type="checkbox"/> <b>Option 304</b>					R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>	R <sup>4</sup>						Three available card slots	Options BAA, B7B, AYX
Bluetooth measurement personality <input type="checkbox"/> <b>Option 228</b>					R	R	R	R						(Minimum) Options 106, B72 <sup>8</sup> , AYX	
Bluetooth FSK demodulator <input type="checkbox"/> <b>Option 106</b>					R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>	R <sup>2</sup>						(Minimum) Options 228, B72 <sup>8</sup> , AYX and one available card slot	Options BAA, B7B
Digital signal processing and fast ADC <input type="checkbox"/> <b>Option B7D<sup>9</sup></b>					R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>						Options B7E, 1D5 and one available card slot	Option AYX
RF communication hardware <input type="checkbox"/> <b>Option B7E<sup>9</sup></b>					R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>	R <sup>3</sup>						Options B7D, 1D5 and one available card slot	

Blank	Not available for model.
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.

1. See also performance bundle Option B75.
2. Retrofit requires post verification test.
3. Retrofit requires post verification test and adjustments (Option OBW required).
4. Retrofit by Agilent factory only.
5. Retrofit by Agilent service center only.
6. Option B72 is available as an upgrade and is required when upgrading to firmware revision A.08.00 and above.
7. Functionality of 231 is included in Option 229. A4H must be ordered to take advantage of Link to 89601A VSA software.
8. Option B72 is standard if the serial prefix number is equal to or greater than US4144 or MY4144.
9. Fast ADC functionality of AYX is included in Options B7D, B7E, and B74. IF, video, & sweep ports functionality is not included.

**Table 1.**  
**Option availability and compatibility**  
**(continued)**

	ESA-L series			ESA-E series				E7400A EMC series					Requires	Not compatible with the following option(s)		
	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	
<b>cdmaOne</b>																
cdmaOne measurement personality <input type="checkbox"/> <b>Option BAC</b>					R	R	R	R							Option B72 <sup>1</sup>	
RF and digital comms hardware bundle includes Options B7D, B7E, 1D6, 1D5, 1DR, 1DS, B72 <sup>1</sup> <input type="checkbox"/> <b>Option B74<sup>2</sup></b>					R3	R3	R3	R3							Two available card slots	Option AYX
Digital signal processing and fast ADC <input type="checkbox"/> <b>Option B7D<sup>2</sup></b>					R4	R4	R4	R4							Options B7E, 1D5 and one available card slot	Option AYX
RF communications hardware <input type="checkbox"/> <b>Option B7E</b>					R4	R4	R4	R4							Options B7D, 1D5 and one available card slot	
Cable fault measurement personality <input type="checkbox"/> <b>Option 225</b>				R	R	R	R	R							Option 1DN or 1DQ and B72 <sup>1</sup>	
Cable fault location accessory kit (50 Ohm) <input type="checkbox"/> <b>Option B7K</b>				R	R	R	R	R							Options 1DN, 225	Options 1DP, 1DQ
50 Ohm tracking generator <input type="checkbox"/> <b>Option 1DN</b>	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5		Options 1DP, 1DQ
<b>GSM/GPRS</b>																
GSM/GPRS measurement personality plus functionality of Option 225 <input type="checkbox"/> <b>Option BAH</b>					R	R	R	R							Options B72 <sup>1</sup> , 1D6	
RF and digital comms hardware bundle includes Options B7D, B7E, 1D6, 1D5, 1DR, 1DS, B72 <sup>1</sup> <input type="checkbox"/> <b>Option B74<sup>2</sup></b>					R3	R3	R3	R3							Two available card slots	Option AYX
Digital processing and fast ADC <input type="checkbox"/> <b>Option B7D<sup>2</sup></b>					R4	R4	R4	R4							Options B7E, 1D5 and one available card slot	Option AYX
RF communications hardware <input type="checkbox"/> <b>Option B7E<sup>2</sup></b>					R4	R4	R4	R4							Options B7D, 1D5 and one available card slot	
Cable fault location accessory kit (50 Ohm) <input type="checkbox"/> <b>Option B7K</b>				R	R	R	R	R							Options 1DN, 225	Options 1DP, 1DQ
50 Ohm tracking generator <input type="checkbox"/> <b>Option 1DN</b>	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5		Options 1DP, 1DQ
<b>Component test</b>																
50 Ohm tracking generator (9 kHz to 1.5 GHz) <input type="checkbox"/> <b>Option 1DN</b>	R5			R5					R5							Options 1DP, 1DQ
50 Ohm tracking generator (9 kHz to 3 GHz) <input type="checkbox"/> <b>Option 1DN</b>		R5	R5		R5	R5	R5	R5		R5	R5	R5	R5			Options 1DP, 1DQ
75 Ohm tracking generator (1 MHz to 1.5 GHz) <input type="checkbox"/> <b>Option 1DQ</b>	R5			R5											Option 1DP	Option 1DN
Phase noise measurement personality <input type="checkbox"/> <b>Option 226</b>				R	R	R	R	R							Option B72 <sup>1</sup>	
<b>Noise figure</b>																
Noise figure measurement personality and hardware <input type="checkbox"/> <b>Option 219</b>				R5	R5	R5	R5	R5							Option 1DS <sup>6</sup>	Options 1DP, 1DQ
Preamplifier built-in for enhanced sensitivity <sup>6</sup> <input type="checkbox"/> <b>Option 1DS</b>				R4	R4	R4	R4	R4	S	S	S	S	S			
Low emissions shielding <input type="checkbox"/> <b>Option 060</b>				R4	R4	R4	R4	R4	S	S	S	S	S			Options B7B, 1DP

Blank	Not available for model.
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.

- Option B72 is standard if the serial prefix number is equal to or greater than US4144 or MY4144.
- Fast ADC functionality of AYX is included in Options B7D, B7E, and B74. IF, video, and sweep ports functionality is not included.
- Retrofit by Agilent factory only.
- Retrofit requires post verification test and adjustments (Option OBW required).
- Retrofit requires post verification test.
- See also performance bundle Option B7S.

**Table 1.**  
**Option availability and compatibility**  
**(continued)**

	ESA-L series			ESA-E series					E7400A EMC series					Requires	Not compatible with the following option(s)	
	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			
<b>Cable TV</b>																
Cable TV service and installation measurement personality ❑ <b>Option 227</b>				R	R	R	R	R							Option B721	
Cable fault location measurement personality ❑ <b>Option 225</b>				R	R	R	R	R							Option 1DN or 1DQ and B721	
FM demodulation/deviation ❑ <b>Option BAA</b>				R2	R2	R2	R2	R2	S3	S3	S3	S3	S3	One available card slot	Options 106, 304	
TV trigger and picture on screen ❑ <b>Option B7B</b>				R2	R2	R2	R2	R2						Option BAA	Options 106, 304	
Fast time domain sweeps, plus functionality of A4J ❑ <b>Option AYX</b>				R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	One available card slot	Options A4J, B7D, B74, 304	
RF and digital comms hardware bundle, includes Options B7D, B7E, 1D6, 1D5, 1DR, 1DS, B72 ❑ <b>Option B744</b>				R5	R5	R5	R5	R5						Two available card slots	Option AYX	
IF, sweep, and video output ports ❑ <b>Option A4J</b>	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	R2	One available card slot (for ESA-E and E7400A)	Option AYX6	
75 Ohm input impedance ❑ <b>Option 1DP</b>	X			X											Option 060	
50 to 75 Ohm minimum loss pad ❑ <b>Option 1D7</b>	R	R	R	R	R	R	R	R	R	R	R	R	R			
Pre-amplifier built-in ❑ <b>Option 1DS</b>				R5	R5	R5	R5	R5	S	S	S	S	S			
GPIO and parallel printer interfaces ❑ <b>Option A4H7</b>	R2	R2	R2	R2	R2	R2	R2	R2	S	S	S	S	S	One available card slot (for ESA-E and E7400A)	Option 1AX	
RS-232 and parallel printer interfaces ❑ <b>Option 1AX7</b>	R2	R2	R2	R2	R2	R2	R2	R2	R2.8	R2.8	R2.8	R2.8	R2.8	One available card slot (for ESA-E and E7400A)	Option A4H	
<b>Portability</b>																
12 Vdc power cable ❑ <b>Option A5D</b>	R	R	R	R	R	R	R	R	R	R	R	R	R			
Hard transit case ❑ <b>Option AXT</b>	R	R	R	R	R	R	R	R	R	R	R	R	R			
Soft carrying /operation vase (gray) ❑ <b>Option AYT</b>	R	R	R	R	R	R	R	R	R	R	R	R	R			
Soft carrying /operation vase (yellow) ❑ <b>Option AYU</b>	R	R	R	R	R	R	R	R	R	R	R	R	R			
Custom Backpack (gray) ❑ <b>Option 042</b>	R	R	R	R	R	R	R	R	R	R	R	R	R			
Custom Backpack (yellow) ❑ <b>Option 044</b>	R	R	R	R	R	R	R	R	R	R	R	R	R			
Front panel cover ❑ <b>Option UK9</b>	R	R	R	R	R	R	R	R	R	R	R	R	R			
<b>PC Connectivity</b>																
GPIO and parallel printer interfaces ❑ <b>Option A4H7</b>	R2	R2	R2	R2	R2	R2	R2	R2	S	S	S	S	S	Available card slot (for ESA-E and E7400A)	Option 1AX	
RS-232 and parallel printer interfaces ❑ <b>Option 1AX7</b>	R2	R2	R2	R2	R2	R2	R2	R2	R2.8	R2.8	R2.8	R2.8	R2.8	Available card slot (for ESA-E and E7400A)	Option A4H	
IntuiLink PC connectivity software ❑ <b>Standard</b>	S	S	S	S	S	S	S	S	S	S	S	S	S			
BenchLink spectrum analyzer, PC software (Agilent E4444A) ❑ <b>Option B70</b>	R	R	R	R	R	R	R	R						Option A4H or Option 1AX		
BenchLink web remote control software ❑ <b>Option 230</b>	R	R	R	R	R	R	R	R	R	R	R	R	R	Option A4H		

Blank	Not available for model.
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.

- Option B72 is standard if the serial prefix number is equal to or greater than US4144 or MY4144.
- Retrofit requires post verification test.
- FM and AM demodulation capability similar to Option BAA is standard. See Agilent E7401A technical specifications for differences.
- Fast ADC functionality of AYX is included in Options B7D, B7E, and B74. IF, video, and sweep ports functionality is not included.
- Retrofit requires post verification test and adjustments (Option OBW required).
- Option AYX includes functionality of A4J
- Option A4H or 1AX must be ordered at time of purchase.
- This is not compatible with Agilent E7415A EM1 software.

**Table 1.**  
**Option availability and compatibility**  
**(continued)**

	ESA-L series			ESA-E series					E7400A EMC series					Requires	Not compatible with the following option(s)
	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		
<b>Pulsed measurements</b>															
Time-gated spectrum analysis <input type="checkbox"/> <b>Option 1D6</b>				R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	X	X	X	X	X		
FM demodulation/deviation <input type="checkbox"/> <b>Option BAA</b>				R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	S <sup>2</sup>	S <sup>2</sup>	S <sup>2</sup>	S <sup>2</sup>	S <sup>2</sup>	One available card slot	Options 106, 304
TV trigger and picture on screen <input type="checkbox"/> <b>Option B7B</b>				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 time domain sweep plus functionality of Option A4J <input type="checkbox"/> <b>Option AYX</b>				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, B7D, B74, 304
50 to 75 Ohm minimum loss pad <input type="checkbox"/> <b>Option 1D7</b>	R	R	R	R	R	R	R	R	R	R	R	R	R		
75 Ohm input impedance <input type="checkbox"/> <b>Option 1DP</b>	X			X											Option 060
If, sweep, and video output ports <input type="checkbox"/> <b>Option A4J</b>	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>	R <sup>1</sup>	One available card slot (for ESA-E and E7400A)	Option AYX <sup>3</sup>
<b>Peripherals and accessories</b>															
Rackmount and handle kit with slides <input type="checkbox"/> <b>Option 1CP</b>	R	R	R	R	R	R	R	R	R	R	R	R	R		
<b>Documentation</b>															
Add manual set <input type="checkbox"/> <b>Option 0B1</b>	R	R	R	R	R	R	R	R	X	X	X	X	X		
Commercial calibration certificate with test data <input type="checkbox"/> <b>Option UK6</b>	X	X	X	X	X	X	X	X	X	X	X	X	X		
Delete manual set (retains CD-Rom version) <input type="checkbox"/> <b>Option 0B0</b>	X	X	X	X	X	X	X	X	X	X	X	X	X		
Service documentation, component level CLIP (component level information package) <input type="checkbox"/> <b>Option 0BV</b>	R	R	R	R	R	R	R	R							
Service documentation, assembly level (performance verification and adjustment software included) <input type="checkbox"/> <b>Option 0BW</b>	R	R	R	R	R	R	R	R							

Blank	Not available for model.
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.

1. Retrofit requires post verification test.
2. FM and AM demodulation capability similar to Option BAA is standard. See Agilent E7401A technical specifications for differences.
3. Option AYX includes functionality of Option A4J.

**Table 1.**  
**Option availability and compatibility**

	ESA-L series			ESA-E series				E7400A EMC series					Requires	Not compatible with the following option(s)	
	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
<b>Warranty, service and calibration options</b>															
Standard calibration <sup>1</sup>	X	X	X	X	X	X	X	X	X	X	X	X	X		
<input type="checkbox"/> <b>Option R-50C-001</b>															
Standards compliant calibration <sup>1</sup>	X	X	X	X	X	X	X	X							
<input type="checkbox"/> <b>Option R-50C-002</b>															
Return-to-Agilent warranty and service plan <sup>2</sup>	X	X	X	X	X	X	X	X	X	X	X	X	X		
<input type="checkbox"/> <b>Option R-51B</b>															
<b>Localization</b>															
Taiwan-Chinese user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option AB0</b>															
Korea-Korean user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option AB1</b>															
China-Chinese user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option AB2</b>															
Germany-German user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option ABD</b>															
Spain-Spanish user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option ABE</b>															
France-French user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option ABF</b>															
Japan-Japanese user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option ABJ</b>															
Italy-Italian user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option ABZ</b>															
Russia-Russian user's guide	R	R	R	R	R	R	R	R							
<input type="checkbox"/> <b>Option ABT</b>															
<b>Firmware/software</b>															
Firmware upgrade	U	U	U	U	U	U	U	U	U	U	U	U	U	B723.5	
<input type="checkbox"/> <b>Option UE2</b>															
ESA to 89601A vector signal analysis software link utility					R	R	R	R						B7D, B7E,A4H 1D5 and B72 <sup>4</sup> (or B74 and A4H)	Option 229
<input type="checkbox"/> <b>Option 231</b>															
8590-series programming code compatibility	R	R	R	R	R	R	R	R						Option A4H or Option 1AX	
<input type="checkbox"/> <b>Option 290</b>															
HP 8566/68 programming code compatibility				R	R	R	R	R						Option A4H or Option 1AX	
<input type="checkbox"/> <b>Option 266</b>															
<b>ESA-L Series color display upgrade</b>															
Color display upgrade	U	U	U											B723.5	
<input type="checkbox"/> <b>Option 049</b>															

Blank	Not available for model.
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.
U	Available as a retrofit only.

- For 3 years, order 36 months of the appropriate calibration plan. For 5 years, specify 60 months.
- For warranty and service of 5 years, please order 60 months of R-51B (quantity = 60). Standard warranty is 36 months.
- Option B72 is required when upgrading to firmware revision A.08.00 and above.
- Functionality of 231 is included in Option 229. A4H must be ordered to take advantage of Link to 89601A VSA software.
- Option B72 is standard on ESA's if the serial prefix number is equal to or greater than US4144 or MY4144. Option B72 is standard on all E7400A Series.

# ESA/EMC accessories



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<sup>1</sup>  
(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/pg](http://www.agilent.com/find/pg)

### 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

- 41800A Active probe  
(5 Hz to 500 MHz)
- 85024A 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](http://www.agilent.com/find/manuals)

<sup>1</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

*E7400A-Series EMC Analyzers,* 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

*IntwiLink 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.**

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