
네트워크 분석기

2017



CRAECA

https://www.youtube.com/watch?v=oLmtu1Gerps&list=PLXEz-plhu9hI4o3QANm6OC20A6lK_KbdH

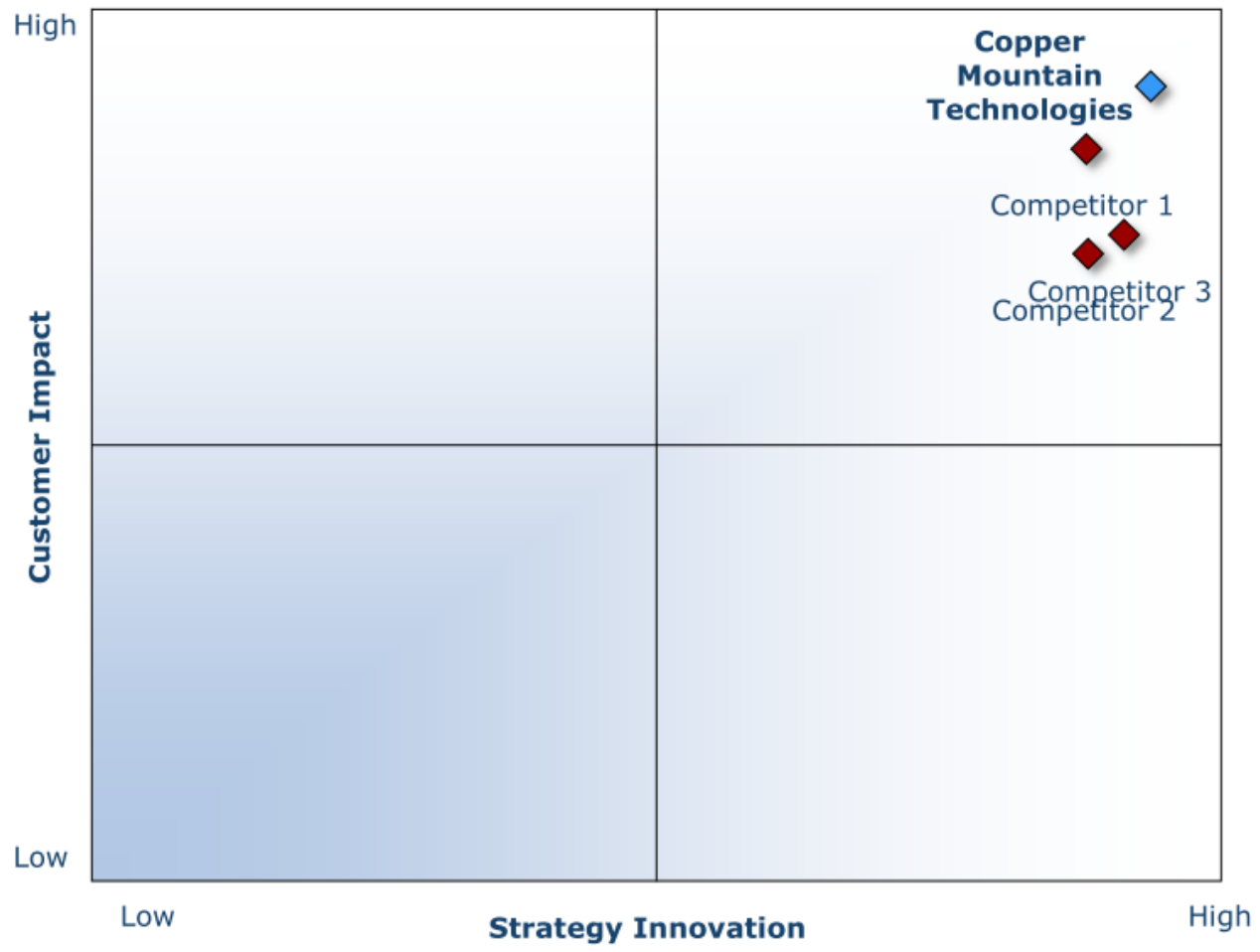
<https://www.youtube.com/watch?v=bQCbphvIRUI>

DISPLAYLESS

COMPACT SIZE

COST EFFECTIVE

**PERPECT
MEASUREMENT**



Engineers Using our USB VNAs



Recognized Global Leader

DECISION SUPPORT SCORECARD FOR COMPETITIVE STRATEGY INNOVATION AND LEADERSHIP AWARD

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
Competitive Strategy Innovation and Leadership	Strategy Innovation	Customer Impact	Average Rating
Copper Mountain Technologies	9.6	9.0	9.3
Competitor 1	8.2	7.8	8.0
Competitor 2	8.2	7.4	7.8
Competitor 3	8.6	7.8	8.2



“The small form factor of CMT’s VNAs makes them particularly well suited for field applications, such as antenna testing, enabling customers to bring laboratory-grade instruments to hard-to-reach places. Their compactness and low weight also make them ideal for applications in the manufacturing industries, as they enable more machines to be deployed in plants.”

Jessy Cavazos
Industry Director | Frost & Sullivan

Product Families



Reflectomete

85 MHz to 14 GHz
Operates without
the use of a test
cable



Compact

20 kHz to 8.5 GHz
50 Ω and 75 Ω
models available



Planar

100 kHz to 8 GHz
4-port and direct
receiver access
models available



Cobalt

100 kHz to 20 GHz
Unmatched
combination of size,
speed and wide
dynamic range

◆ CobaltFX 시리즈



구성

-본체: C4209

-Extender



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◆ CobaltFX 시리즈 (Extender type)

Specification	FEV-15-TR-0006				FEV-12-TR-0006				FEV-10-TR-0006			
	Unit	Min	Typ	Max	Unit	Min	Typ	Max	Unit	Min	Typ	Max
System Operating Frequency	GHz	50		75	GHz	60		90	GHz	75		110
Test Port Output Power	dBm	+5	+8		dBm	+2	+5		dBm	0	+5	
System Dynamic Range (2)	dB	110	120		dB	100	110		dB	100	110	
Raw Coupler Directivity	dB	40	45		dB	40	45		dB	40	45	
Trace Stability Magnitude (3)	dB		±0.2		dB		±0.2		dB		±0.2	
Trace Stability Phase (3)	degree		2		degree		2		degree		2	
Test Port Input 0.1dB Compression Point	dBm		+15		dBm		+15		dBm		+10	
RF Input Frequency	GHz	6.25		9.375	GHz	5		7.5	GHz	6.25		9.17
RF Input Power	dBm		0		dBm		0		dBm		0	
LO Input Frequency	GHz	4.17		6.25	GHz	5		7.5	GHz	4.688		6.875
LO Input Power	dBm		0		dBm		0		dBm		0	
IF Output Frequency	MHz		7.5		MHz		7.5		MHz		7.5	
Test Port Damage Level	dBm	+20			dBm	+20			dBm	+20		
RF/LO Port Damage Level	dBm	+10			dBm	+10			dBm	+10		
Test Port Interface	-	WR-10 IEEE 1785-2a compatible with UG-387/UM			-	WR-10 IEEE 1785-2a compatible with UG-387/UM			-	WR-10 IEEE 1785-2a compatible with UG-387/UM		
RF/LO/IF Conenctor	-	SMA (F)			-	SMA (F)			-	SMA (F)		
DC Power Requirements	-	+6V at 2200 mA			-	+6V at 2200 mA			-	+6V at 2200 mA		
Weight	kg	3.5			kg	3.5			kg	3.5		
Dimensions (L x W x H)	-	220 x 105 x 80			-	220 x 105 x 80			-	220 x 105 x 80		
Operating Temperatures	°C	0		30	°C	0		30	°C	0		30

◆ CobaltFX 시리즈(Waveguide Calibration Kits)



General Data: Waveguide Calibration Kits

Specification	FEK-15-0006				FEK-12-0006				FEK-10-0006			
	Unit	Min	Typ	Max	Unit	Min	Typ	Max	Unit	Min	Typ	Max
Operating Frequency Range	GHz	50		75	GHz	60		90	GHz	75		110
Waveguide Designation		WR-15, WG-25				WR-12, WG-26				WR-10, WG-27		
Flange Type		IEEE 1785-2a (Precision style)				IEEE 1785-2a (Precision style)				IEEE 1785-2a (Precision style)		
Cut Off Frequency	GHz		39.8765		GHz		48.3692		GHz		59.0143	
Fixed Load VSWR			<1.035:1				<1.04:1				<1.04:1	
Flush Short Flatness	mm		<0.016		mm		<0.012		mm		<0.012	
Operating Temperature Range	°C	+20		+30	°C	+20		+30	°C	+20		+30
Content		Quantity			Quantity				Quantity			
Broadband Termination		1 off			1 off				1 off			
Flush Short		1 off			1 off				1 off			
1/4 Lambda Offset		1 off			1 off				1 off			
Accessories												
Hex Driver 5/64" A/F		1 off			1 off				1 off			
Flange Screws - Short		4 off			4 off				4 off			
Flange Screws - Long		4 off			4 off				4 off			
Alignment Pins		4 off			4 off				4 off			
USB Flash Memory		1 off			1 off				1 off			

◆ Cobalt 시리즈



Frequency Range:

C1209 • 0.1 MHz - 9 GHz • 2-port

C1220 • 0.1 MHz - 20 GHz • 2-port

C2220 • 0.1 MHz - 20 GHz • 2-port Direct Receiver Access

Dynamic range: 145 dB typ. (1 Hz IF)

Wide output power range: -60 dBm to +15 dBm

Measurement time per point: 10 μ s min typ.

	Measurement Range		
	C1209	C1220	C2220
Impedance	50 Ω	50 Ω	50 Ω
Test port connector	N-type female	NMD 3.5 mm male	NMD 3.5 mm male
Number of test ports	2	2	2
Frequency Range	0.1 MHz to 9 GHz	0.1 MHz to 20 GHz	0.1 MHz to 20 GHz
Full CW Frequency	$\pm 2 \times 10^{-6}$	$\pm 2 \times 10^{-6}$	$\pm 2 \times 10^{-6}$
Frequency Setting Resolution	1 Hz	1 Hz	1 Hz
Number of Measurement Points	1 to 500,001	1 to 500,001	1 to 500,001
Measurement Bandwidths (with 1/1.5/2/3/5/7 steps)	1 Hz to 1 MHz	1 Hz to 1 MHz	1 Hz to 1 MHz
Dynamic Range	1 MHz to 8 GHz 8 GHz to 9 GHz (IF bandwidth 1 Hz)	100 kHz-1 MHz 1 MHz-20 GHz (IF bandwidth 10 Hz)	100 kHz to 1 MHz 1 MHz to 20 GHz (IF bandwidth 10 Hz)
	162 dB typ. (IF bandwidth 10 Hz) 148 dB	110 dB 133 dB	110 dB 130 dB

◆ S5048 & TR5048



KEY FEATURES

- ▶ Frequency range: 20 kHz – 4.8 GHz
- ▶ Measured parameters:
 - S11, S12, S21, S22 (S5048)
 - S11, S21 (TR5048)
- ▶ Wide output power adjustment range: -50 dBm to +5 dBm
- ▶ >123 dB dynamic range (10 Hz IF bandwidth)
- ▶ Measurement time per point: 200 μ s per point
- ▶ Up to 16 logical channels with 16 traces each
- ▶ COM/DCOM compatible for LabView and automation programming
- ▶ Time domain and gating conversion included
- ▶ Fixture simulation
- ▶ Frequency offset mode, including vector mixer calibration measurements
- ▶ Up to 200,001 measurement points
- ▶ Multiple precision calibration methods and automatic calibration

◆ S5085 & S5065



KEY FEATURES

- **Frequency range:** 20 kHz - 6.5 or 8.5 GHz
- **Measured parameters:** S11, S12, S21, S22
- **Wide output power adjustment range:** -50 dBm to +5 dBm
- **Dynamic Range:** >138 dB (1 Hz IF bandwidth) typ.
- **Measurement time per point:** 70 μ s per point, min typ.
- Up to **16 logical channels with 16 traces** each
- **COM/DCOM compatible** for LabView, Python, MATLAB, .NET and automation programming
- **Time domain and gating** conversion included
- **Fixture simulation**
- **Frequency offset mode**, including vector mixer calibration measurements
- Up to **200,001 measurement points**
- Multiple **precision calibration** methods and automatic calibration

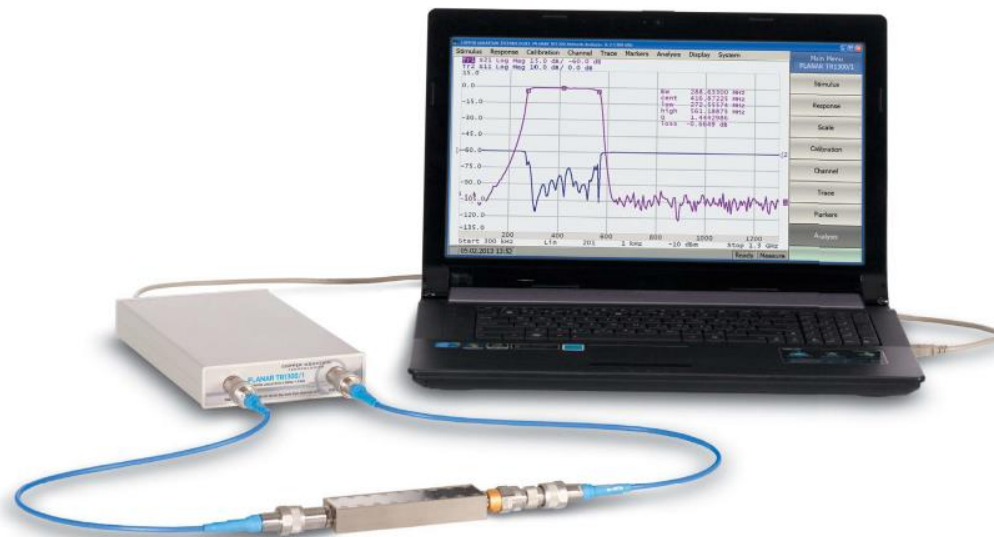
◆ S7530 & TR7530



KEY FEATURES

- ▶ Frequency range: 20 kHz – 3 GHz
- ▶ Measured parameters:
 - S11, S12, S21, S22 (S7530)
 - S11, S21 (TR7530)
- ▶ 75 Ω impedance
- ▶ Wide output power adjustment range: -50 dBm to +5 dBm
- ▶ >123 dB dynamic range (10 Hz IF bandwidth)
- ▶ Measurement time per point: 200 μ s per point
- ▶ Up to 16 logical channels with 16 traces each
- ▶ COM/DCOM compatible for LabView and automation programming
- ▶ Time domain and gating conversion included
- ▶ Fixture simulation standard
- ▶ Frequency offset mode, including vector mixer calibration measurements
- ▶ Up to 200,001 measurement points
- ▶ Multiple precision calibration methods and automatic calibration

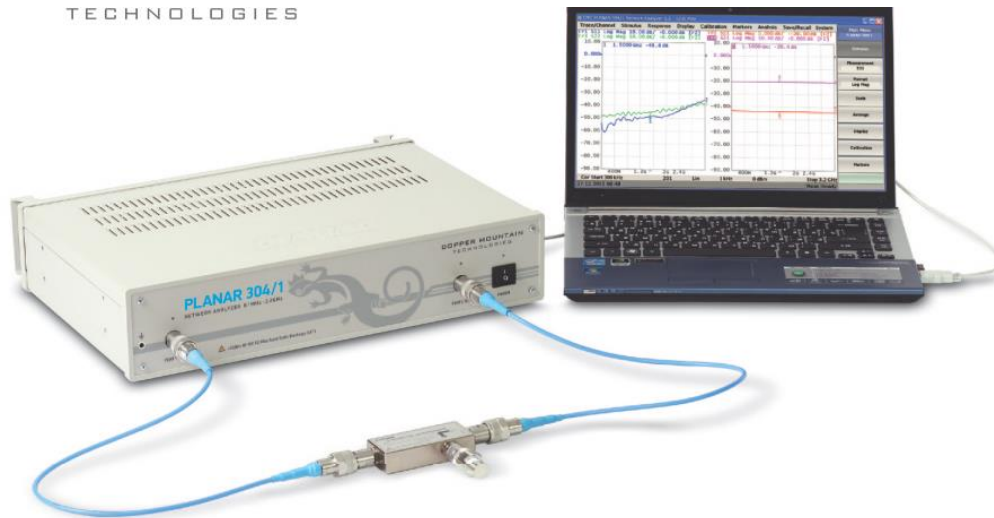
◆ PLANAR TR1300/1



KEY FEATURES

- ▶ Frequency range: 300 kHz – 1.3 GHz
- ▶ Measured parameters: S11, S21
- ▶ Wide output power adjustment range: -55 dBm to +3 dBm
- ▶ >130 dB dynamic range
- ▶ Measurement time per point: 150 μ s per point
- ▶ Up to 4 logical channels with 8 traces each
- ▶ COM/DCOM compatible for LabView and automation programming
- ▶ Time domain and gating conversion included
- ▶ Fixture simulation
- ▶ Frequency offset mode, including vector mixer calibration measurements
- ▶ Up to 10,001 measurement points
- ▶ Multiple precision calibration methods and automatic calibration

◆ PLANAR 304/1

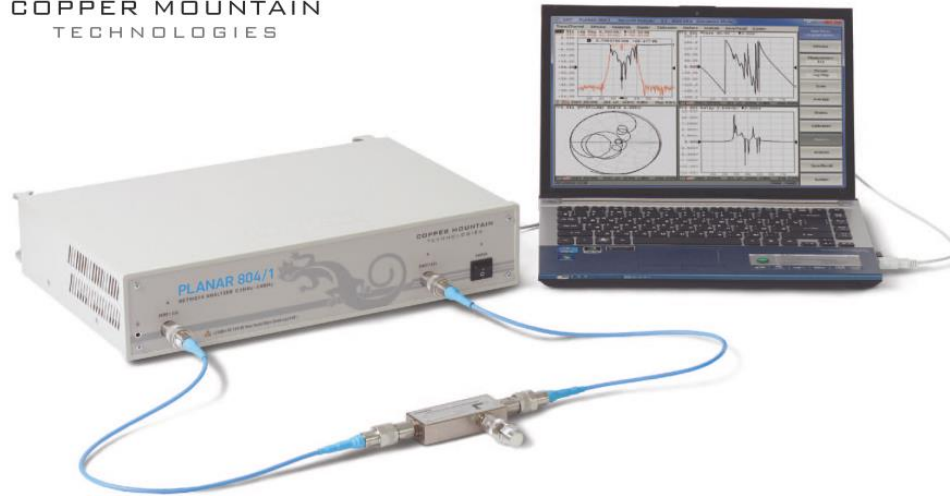


KEY FEATURES

- ▶ Frequency range: 100 kHz – 3.2 GHz
- ▶ Measured parameters: S11, S12, S21, S22
- ▶ Wide output power range: -55 dBm to +10 dBm
- ▶ >135 dB dynamic range (1 Hz IF bandwidth)
- ▶ Time domain and gating conversion included
- ▶ Fixture simulation
- ▶ Frequency offset mode, including vector mixer calibration measurements
- ▶ Up to 200,001 measurement points
- ▶ Measurement time per point: 120 μ s per point
- ▶ Up to 16 logical channels with 16 traces each
- ▶ Multiple precision calibration methods and automatic calibration
- ▶ COM/DCOM compatible for LabView and automation programming

◆ PLANAR 804/1

COPPER MOUNTAIN
TECHNOLOGIES



KEY FEATURES

- ▶ Frequency range: 100 kHz – 8 GHz
- ▶ Measured parameters: S11, S12, S21, S22
- ▶ Wide output power range: -60 dBm to +10 dBm
- ▶ >145 dB dynamic range (1 Hz IF bandwidth)
- ▶ Time domain and gating conversion included
- ▶ Fixture simulation
- ▶ Frequency offset mode, including vector mixer calibration measurements
- ▶ Up to 500,001 measurement points
- ▶ Measurement time per point: 100 μ s per point
- ▶ Up to 16 logical channels with 16 traces each
- ▶ Multiple precision calibration methods and automatic calibration
- ▶ COM/DCOM compatible for LabView and automation programming

◆ PLANAR 808/1



KEY FEATURES

- ▶ Frequency range: 100 kHz – 8 GHz
- ▶ Measured parameters: S_{11} , S_{21} ... S_{44}
- ▶ Two independent signal sources
- ▶ Wide output power range:
-60 dBm to +10 dBm
- ▶ >150 dB dynamic range (1 Hz IF bandwidth)
- ▶ Time domain and gating conversion included
- ▶ Frequency offset mode, including vector mixer calibration measurements
- ▶ Measurement time per point:
100 μ s per point
- ▶ Up to 16 logical channels with 16 traces each
- ▶ Multiple precision calibration methods and automatic calibration
- ▶ Up to 500,001 measurement points
- ▶ Fixture simulation
- ▶ COM/DCOM compatible for LabView and automation programming

◆ PLANAR 814/1



KEY FEATURES

- ▶ Frequency range: 100 kHz – 8 GHz
- ▶ Measured parameters: S11, S12, S21, S22
- ▶ Wide output power range: -60 dBm to +10 dBm
- ▶ >150 dB dynamic range (1 Hz IF bandwidth)
- ▶ Direct access to receivers
- ▶ Time domain and gating conversion included
- ▶ Fixture simulation
- ▶ Frequency offset mode, including vector mixer calibration measurements
- ▶ Up to 500,001 measurement points
- ▶ Measurement time per point: 100 μ s per point
- ▶ Up to 16 logical channels with 16 traces each
- ▶ Multiple precision calibration methods and automatic calibration
- ▶ COM/DCOM compatible for LabView and automation programming

◆ R54/R60/R140



1.R54

2.R60

3.R140

KEY FEATURES

Patent: US 9,291,657 No test cable needed

Frequency range: 1 MHz - 6.0 GHz or 85 MHz – 5.4 or 14 GHz

Measurement time per point: 100 or 200 μ s min typ.

Number of measurement points: 2-100,001

Time domain with gating included standard