

Data Sheet

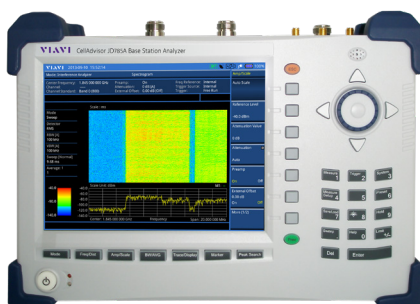
**VIAVI**
**CellAdvisor™**

JD785A Base Station Analyzer

**Spectrum Analyzer (standard)**

Frequency		
Frequency range	9 kHz to 8 GHz	
Frequency accuracy	± (Readout frequency x Internal 10MHz Frequency reference accuracy + RBW centering + 2 Hz + 0.5 x Horizontal resolution)	
Internal 10 MHz Frequency Reference		
Accuracy	±0.05 ppm + aging (0 to 50°C) ±0.01 ppm, after 15 minutes of GPS Lock (0 to 50°C)	
Aging	±0.5 ppm/year	
Frequency Span		
Range	0 Hz (zero span) 10 Hz to 8 GHz	
Resolution	1 Hz	
Resolution Bandwidth (RBW)		
-3 dB bandwidth	1 Hz to 3 MHz	1-3-10 sequence
Accuracy	±10% (nominal)	
Video Bandwidth (VBW)		
-3 dB bandwidth	1 Hz to 3 MHz	1-3-10 sequence
Accuracy	±10% (nominal)	
Single Sideband (SSB) Phase Noise		
Fc 1 GHz, RBW 10 kHz, VBW 1 kHz, RMS detector		
<b>Carrier Offset:</b>		
30 kHz	-100 dBc/Hz (-102 dBc/Hz, typical)	
100 kHz	-105 dBc/Hz (-112 dBc/Hz, typical)	
1 MHz	-115 dBc/Hz (-120 dBc/Hz, typical)	
Measurement Range		
	DANL to +25 dBm	
Input attenuator range	0 to 55 dB, 5 dB steps	
Maximum Input Level		
Average continuous power	+25 dBm	
DC voltage	±50 V DC	

\*All specifications are subject to change without notice.


**Spectrum Analyzer: 9 kHz to 8 GHz**
**Cable and Antenna Analyzer:  
5 MHz to 6 GHz**
**Power Meter: 10 MHz to 8 GHz**
**Specification\* Conditions**

The JD785A specifications apply under these conditions:

- The instrument has been turned on for at least 15 minutes
- The instrument is operating within a valid calibration period
- Data with no tolerance are considered typical values
- Cable and antenna measurements apply after calibration to the OSL standard
- Typical and nominal values are defined as
  - Typical: expected performance of the instrument operating at 20 to 30°C after being at this temperature for 15 minutes
  - Nominal: a general, descriptive term or parameter

Displayed Average Noise Level (DANL)		
1 Hz RBW, 1 Hz VBW, 50 $\Omega$ termination, 0 dB attenuation, RMS detector		
<b>Preamplifier Off</b>		
10 MHz to 2.4 GHz	-140 dBm (-145 dBm, typical)	
>2.4 GHz to 6 GHz	-136 dBm (-140 dBm, typical)	
>6 GHz to 7 GHz	-134 dBm (-138 dBm, typical)	
>7 GHz to 8 GHz	-128 dBm (-134 dBm, typical)	
<b>Preamplifier On</b>		
10 MHz to 3 GHz	-160 dBm (-165 dBm, typical)	
>3 GHz to 5 GHz	-158 dBm (-162 dBm, typical)	
>5 GHz to 7 GHz	-155 dBm (-158 dBm, typical)	
>7 GHz to 8 GHz	-150 dBm (-155 dBm, typical)	
Display Range		
Log scale and units (10 divisions displayed)	1 to 20 dB/division in 1 dB steps dBm, dBV, dBmV, dB $\mu$ V	
Linear scale and units (10 divisions displayed)	V, mV, mW, W	
Detectors	Normal, positive peak, sample, negative peak, RMS	
Number of traces	6	
Trace functions	Clear/write, maximum hold, minimum hold, capture, load view on/off	
Total Absolute Amplitude Accuracy		
Preamplifier off, power level >-50 dBm, auto-coupled		
1 MHz to 8 GHz	$\pm 1.3$ dB ( $\pm 0.5$ dB typical)	20 to 30°C after 60-minute warm up
	Add $\pm 1.0$ dB	-10 to 55°C after 60-minute warm up
Reference Level		
Setting range	-120 to +100 dBm	
<b>Setting Resolution</b>		
Log scale	0.1 dB	
Linear scale	1% of reference level	
Markers		
Marker types	Normal, delta, delta pair, noise, frequency count marker	
Number of markers	6	
Marker functions	Peak, next peak, peak left, peak right, minimum search marker to center/start/stop	
RF Input VSWR		
1 MHz to 8 GHz	1.5:1 (typical)	Atten >20 dB
Second Harmonic Distortion		
Mixer level	-25 dBm	
50 MHz to 2.6 GHz	< -65 dBc (typical)	
>2.6 GHz to 8 GHz	< -70 dBc (typical)	

Third-Order Inter-Modulation (third-order intercept: TOI)		
200 MHz to 3 GHz	+10 dBm (typical)	
>3 GHz to 8 GHz	+12 dBm (typical)	
Spurious		
Inherent residual response		
Input terminated, 0 dB attenuation, preamplifier off, RBW at 10 kHz, Sweep mode	-90 dBm (nominal)	
Exceptions	-85 dBm at 164.1 MHz, 2.57264, 3.2, and 4.5 GHz -80 dBm at 4.8/7.8 GHz -75 dBm at 85.6 MHz and 428 MHz -70 dBm at 256.8 MHz and 770.4 MHz	
Input-related spurious	< -70 dBc (nominal)	
Dynamic Range		
2/3 (TOI-DANL) in 1 Hz RBW	>104 dB	at 2 GHz
Sweep Time		
Range	0.4 ms to 1000 s 24 $\mu$ s to 200 s	Span = 0 Hz (zero span)
Accuracy	$\pm 2\%$	Span = 0 Hz (zero span)
Mode	Continuous, single	
Gated Sweep		
Trigger source	External, video, and GPS	
Gate length	1 $\mu$ s to 100 ms	
Gate delay	0 to 100 ms	
Trigger		
Trigger source	Free run, video, external	
Trigger Delay		
Range	0 to 200 s	
Resolution	6 $\mu$ s	
Measurements*		
Channel power		
Occupied bandwidth		
Spectrum emission mask		
Adjacent channel power		
Spurious emissions		
Field strength		
AM/FM audio demodulation		
Route map		
PIM detection		
Dual spectrum		

\* High-Power CW Signal Generator (Option 003) can be set up simultaneously.

## Cable and Antenna Analyzer (standard)

Frequency	
Range	5 MHz to 6 GHz
Resolution	10 kHz
Accuracy	±1 ppm
Data Points	
126, 251, 501, 1001, 2001	
Measurement Speed	
Reflection/DTF	1.0 ms/point (typical)
Measurement Accuracy	
Corrected directivity	40 dB
Reflection uncertainty	±(0.3 +  20log(1+10-EP/20) ) (typical) EP = directivity – measured return loss
Output Power	
High	5 MHz to 5.5 GHz, 0 dBm (typical) 5.5 GHz to 6 GHz, –5 dBm (typical)
Low	5 MHz to 6 GHz, –30 dBm (typical)
Dynamic Range	
Reflection	60 dB
Maximum Input Level	
Average continuous power	+25 dBm (nominal)
DC voltage	±50 V DC
Interference Immunity	
On channel	+17 dBm at >1.4 MHz from carrier frequency (nominal)
On frequency	0 dBm within ±10 kHz from the carrier frequency (nominal)
Measurements	
Reflection (VSWR)	
VSWR range	1 to 65
Return loss range	0 to 60 dB
Resolution	0.01
Distance to Fault (DTF)	
Vertical VSWR range	1 to 65
Vertical return loss range	1 to 60 dB
Vertical resolution	0.01
Horizontal range	0 to (# of data points – 1) x horizontal resolution Maximum = 1500 m (4921 ft)
Horizontal resolution	(1.5 x 108) x (V <sub>p</sub> )/delta V <sub>p</sub> = propagation velocity Delta = stop freq – start freq (Hz)
Cable Loss (1-Port)	
Range	0 to 30 dB
Resolution	0.01 dB
1-Port Phase	
Range	–180 to +180°
Resolution	0.01°
Smith Chart	
Resolution	0.01

## RF Power Meter (standard)

General Parameters			
Display range	100 to +100 dBm		
Offset range	0 to 60 dB		
Resolution	0.01 dB or 0.1 x W (x = m, u, p)		
Internal RF Power Sensor			
Frequency range	10 MHz to 8 GHz		
Span	1 kHz to 100 MHz		
Dynamic range	–120 to +25 dBm		
Maximum power	+25 dBm		
Accuracy	Same as spectrum analyzer		
External RF Power Sensors			
Directional	JD731B	JD733A	
Frequency range	300 MHz to 3.8 GHz	150 MHz to 3.5 GHz	
Dynamic range	0.15 to 150 W (average) 4 to 400 W (peak)	0.1 to 50 W (average) 0.1 to 50 W (peak)	
Connector type	Type-N female on both ends		
Measurement type	Forward/reverse average power, forward peak power, VSWR		
Accuracy	±(4% of reading + 0.05 W) <sup>1,2</sup>		
Terminating	JD732B	JD734B	JD736B
Frequency range	20 MHz to 3.8 GHz		
Dynamic range	–30 to +20 dBm		
Connector type	Type-N male		
Measurement type	Average	Peak	Average and peak
Accuracy	±7% <sup>1</sup>		

## Optical Power Meter (Standard)

Optical Power Meter			
Display range	–100 to +100 dBm		
Offset range	0 to 60 dB		
Resolution	0.01 dB or 0.1 mW		
External Optical Power Sensors			
	MP-60A	MP-80A	
Wavelength range	780 to 1650 nm		
Max permitted input level	+10 dBm	+23 dBm	
Connector type	Type-N female on both ends		
Connector input	Universal 2.5 and 1.25 mm		
Accuracy	±5%		

1. CW condition at 25°C ±10°C

2. Forward power

## 2-Port Transmission Measurements (Option 001)

Frequency	
Frequency range	5 MHz to 6 GHz
Frequency resolution	10 kHz
Output Power	
High	5 MHz to 5.5 GHz, 0 dBm (typical) 5.5 GHz to 6 GHz, -5 dBm (typical)
Low	5 MHz to 6 GHz, -30 dBm (typical)
Measurement Speed	
Vector	1.6 ms/point (typical)
Scalar	3.4 ms/point (typical)
Dynamic Range	
Vector	5 MHz to 3 GHz, 80 dB >3 GHz to 6 GHz, 75 dB
Scalar	5 MHz to 4.5 GHz, >110 dB 4.5 GHz to 6 GHz, >105 dB
at average 5 at average 5	
Measurements	
Insertion Loss/Gain	
Range	-120 to 100 dB
Resolution	0.01 dB
2-Port Phase	
Range	-180 to +180°
Resolution	0.01°

## Bias-Tee (Option 002)

Voltage	
Voltage range	+12 to +32 V
Voltage resolution	0.1 V
Power	
8 W Max	

## CW Signal Generator (Option 003) / High Power CW Signal Generator (Option 007)

Frequency	
Frequency range	5 MHz to 6 GHz
Frequency reference	<±1 ppm maximum
Frequency resolution	10 kHz
Output Power	
Range (Option 003)	5 MHz to 5.5 GHz, -60 to 0 dBm >5.5 to 6 GHz, -60 to -5 dBm
Range (Option 003 & 007)	5 MHz to 3.5 GHz, -60 to +10 dBm 3.5 to 5.5 GHz, -60 to +5 dBm >5.5 to 6 GHz, -60 to -5 dBm
Step	1 dB
Accuracy	±1.5 dB (20 to 30°C)

## E1 Analyzer (Option 004)

Electrical Interface	
Connectors RX/TX	RJ45 (120 Ω)
Output	0 dB, -6 dB (ITU-T Rec.G.703)
Line code	AMI, HDB3
Impedance	Term, monitor 120 Ω, bridge >1000 Ω
Input	
Term/bridge/monitor	0 to -20 dB Transmitter and Receiver
Framing	PCM-30, PCM-30 with CRC PCM-31, PCM-31 with CRC
Channel formats	Full E1
Test pattern	1-4, 1-8, ALL1, ALLO, 0101
Additional Functions	
Reference clock	Received or internal
Event log capability	Internal memory
Error insertion	1, 1E-3, 1E-4, 1E-5
Error rate count	CRC, Frame, Code, Bit
Measurements	
Monitoring	BERT
Indicators E1 signal Frame sync Pattern sync Code sync FAS RAI AIS HDB3 Bit error <sup>2</sup>	Indicators E1 signal Frame sync Pattern sync Code sync FAS RAI AIS HDB3 Bit error <sup>2</sup>
Error Count/Rate	Error Count/Rate
Frame error Code error Bit error <sup>2</sup>	CRC error <sup>1</sup> Frame error Code error Bit error <sup>2</sup>
Alarm Count	Alarm Count
FAS AIS	FAS AIS
Loss Count	Loss Count
Frame sync	
Pattern sync	Frame sync
Pattern sync	

1. When CRC-4 is set to On.

2. When PCM31 is set to On.

## T1 Analyzer (Option 005)

Electrical Interface	
Connectors RX/TX	RJ45 (120 $\Omega$ )
Output	0 dB, -7.5 dB, -15 dB
Line code	AMI, B8ZS
Impedance	100 $\Omega$ or 1000 $\Omega$ (bridge)
Input	
Term/bridge/monitor	0 to -20 dB
Transmitter and Receiver	
Framing	D4, ESF
Channel formats	Full T1
Test pattern	1-8, 1-16, ALL1, ALLO, 0101 2E-24, QRSS, 2E-23, 2E-15, 2E-23 inverse, 2E-15 inverse
Additional Functions	
Reference clock	Received or internal
Event log capability	Internal memory
Error insertion	1, 1E-3, 1E-4, 1E-5
Alarm insertion	AIS, RAI
Error/alarm count	Bit RAI, AIS, BPV, BER
Loopback modes	Self, CSU, NIU, line, network
Measurements	
Monitoring/BERT/Loop Test	RX Signal Level
Indicators T1 signal Frame sync Pattern sync B8ZS Red alarm RAI (yellow alarm) AIS (blue alarm) BPV indicator	Indicators T1 signal Frame sync Pattern sync B8ZS Red alarm RAI (yellow alarm) AIS (blue alarm) BPV indicator
Loss Count	$V_{p-p}$
Signal loss	$V_{p-p}$ Max
Frame sync loss	$V_{p-p}$ Min
Patten sync loss	$dBd_{sx}$
Alarm Count	
RAI	
AIS	
BPV	
Error Rate	
Bit error rate	
Bit error count	

## GPS Receiver and Antenna (Option 010)

GPS Indicator		
Latitude, longitude, altitude		
High-Frequency Accuracy		
Spectrum, interference, and signal analyzer		
GPS lock	$\pm 10$ ppb	
Hold over (for 3 days)	$\pm 50$ ppb (0 to 50°C)	15 minutes after satellite locked
Connector	SMA, female	

## Interference Analyzer (Option 011)

Measurements	
Spectrum analyzer	Sound indicator, AM/FM audio demodulation, interference ID, spectrum recorder
Spectrogram	Collect up to 72 hours of data
RSSI	Collect up to 72 hours of data
Interference finder	
Spectrum replayer	
Dual spectrogram	

## Channel Scanner (Option 012)

Frequency Range	
	1 MHz to 8 GHz
Measurement Range	
	-110 to +25 dBm
Measurements	
Channel scanner	1 to 20 channels
Frequency scanner	1 to 20 frequencies
Custom scanner	1 to 20 channels or frequencies

## Bluetooth® Connectivity (Option 013)

Personal Area Network (PAN)
File Transfer Profile (FTP)

## Wi-Fi Connectivity (Option 016)

Interface type	USB LAN Card
Interface standard	IEEE 802.11 b/g/n
Chipset	RealTek, Ralink
USB wireless mode	Infrastructure mode
Web-based remote control	Internet Explorer, Chrome, Safari
Internet protocol version	IPv4, IPv6

## GSM/GPRS/EDGE Signal Analyzer (Options 022 and 042)

General Parameters					
Frequency range	450 MHz to 500 MHz 820 MHz to 965 MHz 1.705 GHz to 1.995 GHz				
Input signal range	-40 to +20 dBm				
Burst power	±1.0 dB				
Frequency error	±10 Hz + reference-frequency accuracy	99% confidence level			
GMSK modulation quality					
<b>Phase RMS Accuracy</b>					
Residual error	±1.0 degrees	(0 < Phase RMS < 8)			
Phase peak accuracy	0.7 degrees (typical)				
8 PSK modulation quality	±2.0 degrees	(0 < Phase peak < 30)			
<b>EVM Accuracy</b>					
Residual error	±1.5%	(2% < EVM < 8%)			
RF power vs. time	2.5%				
	±0.25 symbol				
Measurements					
Option 022					
<i>Channel Power</i>	Reference power	Frame average power	I/Q origin offset*	Occupied bandwidth	EVM RMS*
Channel power	Peak level at defined range	Burst power (Slot 0 to 7)	TSC	Spectrum emission mask	EVM Peak*
Spectral density	<i>Spurious Emissions</i>	TSC (Slot 0 to 7)	BSIC	Spurious emission mask	I/Q origin offset
Peak to average power	Peak frequency at defined range	<i>Constellation</i>	C/I*	Burst power	C/I*
<i>Occupied Bandwidth</i>	Peak level at defined range	Burst power	EVM RMS*	PvsT – Mask	
Occupied bandwidth	<i>Power vs. Time (slot)</i>	Modulation type	EVM Peak*	Frame average power	
Integrated power	Burst power	Frequency error	EVM 95th*	Frequency error	
Occupied power	Max/min point	Phase error RMS	<i>Auto Measure</i>	Phase error RMS	
<i>Spectrum Emission mask</i>	<i>Power vs. Time (frame)</i>	Phase error peak	Channel power	Phase error peak	
Option 042					
<i>Channel/Frequency Scanner</i>	Group (traffic, control)	(10 strongest)	<i>Modulation Analyzer</i>	Frame average power	Burst power
Channels or frequencies	BSIC (NCC, BCC)	Frame average power	Frame avg power trend	BSIC, frame no. and time	Modulation type
Absolute power	<i>Multipath Profile</i>	SNR, delay	C/I trend	C/I, frequency error	

Longitude, latitude, and satellite in all screens

\* Measurements performed for 8PSK modulation signals (edge) only.

## WCDMA/HSPA+ Signal Analyzer (Options 023 and 043)

General Parameters		
Frequency range	Band 1 to 14, 19 to 22, 25, 26	
Input signal range	-40 to +20 dBm	
RF channel power accuracy	±1.0 dB, ±0.7 dB (typical)	
Occupied bandwidth accuracy	±100 kHz	
Adjacent channel leakage ratio (ACLR)	< -56 dB, ±0.7 dB at 5 MHz offset, < -58 dB, ±0.8 dB at 10 MHz offset	
WCDMA modulation	QPSK	
HSPA+ modulations	QPSK, 16 QAM, 64 QAM	
Frequency error	±10 Hz + reference-frequency accuracy	99% confidence level
EVM accuracy	±2.0%	2% ≤ EVM ≤ 20%
Residual EVM	2.5% (typical)	
Code domain power	±0.5 dB relative power ±1.5 dB absolute power	Code channel power > -25 dB Code channel power > -25 dB
CPICH power accuracy	±0.8 dB (typical)	

### Measurements

#### Option 023

<i>Channel Power</i>	Abs power at defined range	Peak CDE	Scramble code	Reference power	Frequency error
Channel power	Rel power at defined range	Frequency error	<b>Relative Code Domain Error</b>	Code utilization	EVM
Spectral density	<i>Multi-ACLR</i>	Frequency error	Abs/Rel code power	Code, spreading factor	Peak CDE
Peak to average power	Lowest reference power	Time offset	Code error	Allocation (channel type)	Carrier feed-through
<i>Occupied Bandwidth</i>	Highest reference power	Carrier feed-through	Individual code EVM, RCDE, and its constellation	EVM, modulation type	CPICH absolute power
Occupied bandwidth	Abs power at defined range	Scramble code	Channel power	Relative, absolute power	CPICH relative power
Integrated power	Rel power at defined range	<i>Code Domain Power</i>	Power bar graph (Abs/Rel/Delta power) CPICH, P-CCPCH, S-CCPCH, PICH, P-SCH, S-SCH	<i>Auto Measure</i>	Max inactive power
Occupied power	<i>Spurious Emissions</i>	Abs/Rel code power	Avg RCDE QPSK, 16 QAM, 64 QAM	Channel power	Scramble code
<i>Spectrum Emission Mask</i>	Peak frequency at defined range	Individual code EVM and its constellation	<b>Codogram</b>	Occupied bandwidth	<i>Power Statistics CCDF</i>
Reference power	Peak level at defined range	Channel power	Code utilization	Spectrum emission mask	
Peak level at defined range	<b>Constellation</b>	Power bar graph (Abs/Rel/Delta power) CPICH, P-CCPCH, S-CCPCH PICH, P-SCH, S-SCH	<b>RCSI</b>	ACLR	
ACLR	CPICH power	Max, avg active power	CPICH, P-CCPCH, S-CCPCH, PICH, P-SCH, S-SCH	Multi-ACLR	
Reference power	Rho, EVM	Max, avg inactive power	<b>CDP Table</b>	Spurious emission mask	

Measurements					
Option 043					
<i>Channel Scanner (up to 6)</i>	Scramble code	Abs/Rel code power	Max, avg inactive power	Amplifier capacity	CPICH power, Ec/Io
Frequencies or channels	Ec/Io, CPICH power, delay	Individual code EVM	Frequency error	Peak amplifier capacity	
Channel power, scramble code, CPICH power, Ec/Io	<b>Multipath Profile</b>	Channel power	Time offset, Rho	Average amplifier capacity	
<b>Scramble Scanner (up to 6)</b>	Channel, multipath power	Scramble code	Carrier feed-through	Code, peak utilization	
Channel power	Ec/Io, delay	CPICH, P-CCPCH, S-CCPCH, PICH, P-SCH, S-SCH	(Composite) EVM	Average utilization	
CPICH dominance	<i>Code Domain Power</i>	Max, avg active power	CPICH EVM, P-CCPCH EVM	<i>Route Map</i>	

Longitude, latitude, and satellite in all screens



## cdmaOne/cdma2000® Signal Analyzer (Options 020 and 040)

General Parameters					
Frequency range	Band 0 to 10				
Input signal level	-40 to +20 dBm				
RF channel power accuracy	±1.0 dB (typical)				
CDMA compatibility	cdmaOne and cdma2000				
Frequency error	±10 Hz + ref freq accuracy	99% confidence level			
Rho accuracy	±0.005	0.9 < Rho < 1.0			
Residual Rho	>0.995 (typical)				
PN offset	1 x 64 chips				
Code domain power	±0.5 dB relative power ±1.5 dB absolute power	Code channel power >-25 dB Code channel power >-25 dB			
Pilot power accuracy	±1.0 dB (typical)				
Time offset	±1.0 µs, ±0.5 µs (typical)	External trigger			
Measurements					
Option 020					
<b>Channel Power</b>	<b>ACPR</b>	Peak level at defined range	Channel power	Reference power	Rho
Channel power	Reference power	<b>Constellation</b>	Power bar graph (Abs/Rel)	Code utilization	Frequency error
Spectral density	Abs power at defined range	Pilot power	Pilot, Paging, Sync, Q-Paging	Code, spreading factor	Time offset
Peak to average power	Rel power at defined range	Rho	Max, avg active power	Allocation (channel type)	Carrier feed-through
<b>Occupied Bandwidth</b>	<b>Multi-ACPR</b>	EVM	Max, avg inactive power	Relative, absolute power	Pilot power
Occupied bandwidth	Lowest reference power	Frequency error	PN offset	<b>Auto Measure</b>	Max inactive power
Integrated power	Highest reference power	Time offset	<b>Codogram</b>	Channel power	PN offset
Occupied power	Abs power at defined range	Carrier feed-through	Code utilization	Occupied bandwidth	<b>Power Statistics CCDF</b>
<b>Spectrum Emission Mask</b>	Rel power at defined range	PN offset	<b>RCSI</b>	Spectrum emission mask	
Reference power	<b>Spurious Emissions</b>	<b>Code Domain Power</b>	Pilot, Paging, Sync, Q-Paging	ACPR	
Peak level at defined range	Peak freq at defined range	Abs/Rel code power	<b>CDP Table</b>	Multi-ACPR	
Option 040					
<b>Channel Scanner (up to 6)</b>	Pilot dominance	Ec/Io, delay	Max, avg active power	Peak amplifier capacity	Ec/Io
Frequencies or channels	PN offset	<b>Code Domain Power</b>	Max, avg inactive power	Average amplifier capacity	
Channel power, PN offset	Ec/Io, pilot power, delay	Abs/Rel code power	Frequency error	Code utilization	
Pilot power, Ec/Io	<b>Multipath Profile</b>	Channel power	Time offset, Rho, EVM	Average utilization	
<b>PN Scanner (up to 6)</b>	Channel power	PN offset	Carrier feed-through	<b>Route Map</b>	
Channel power	Multipath power	Pilot, Paging, Sync, Q-Paging power	Amplifier capacity	Pilot power	

Longitude, latitude, and satellite in all screens

## EV-DO Signal Analyzer (Options 021 and 041)

General Parameters					
Frequency range	Band 0 to 10				
Input signal level	-40 to +20 dBm				
RF channel power accuracy	±1.0 dB (typical)				
EV-DO compatibility	Rev 0, Rev A and Rev B				
Frequency error	±10 Hz + ref freq accuracy	99% confidence level			
Rho accuracy	±0.005	0.9 < Rho < 1.0			
Residual Rho	>0.995 (typical)				
PN offset	1 x 64 chips				
Code domain power	±0.5 dB relative power ±1.5 dB absolute power	Code channel power >-25 dB Code channel power >-25 dB			
Pilot power accuracy	±1.0 dB (typical)				
Time offset	±1.0 µs, ±0.5 µs (typical)	External trigger			
Measurements					
Option 021					
<b>Channel Power</b>	<b>Multi-ACPR</b>	Rho, EVM, Peak CDE	<b>Code Domain Power (pilot and MAC 64/128)</b>	<b>MAC Codogram</b>	ACPR
Channel power	Lowest reference power	Frequency error	Pilot/MAC channel power	Code utilization	Pilot, MAC, data power
Spectral density	Highest reference power	Time offset	Slot average power	<b>RCSI</b>	On/off ratio
Peak to average power	Abs power at defined range	Carrier feed-through	Max active I/Q power	Slot, pilot, MAC, data	PvsT mask (idle slot) or PvsT mask (active slot)
<b>Occupied Bandwidth</b>	Rel power at defined range	PN offset	Avg active I/Q power	<b>MAC CDP table</b>	Frequency error
Occupied bandwidth	<b>Spurious Emissions</b>	Pilot, MAC, data power	Max inactive I/Q power	Reference power	Time offset
Integrated power	Peak frequency at defined range	Pilot, MAC, data EVM	Avg inactive I/Q power	Code utilization	Carrier feed-through
Occupied power	Peak level at defined range	<b>Constellation (pilot, MAC 64/128, and data)</b>	PN offset	Code, spreading factor	Pilot, MAC, data Rho
<b>Spectrum Emission Mask</b>	<b>Power vs. Time (idle and active slot)</b>	Channel power	<b>Code Domain Power (data)</b>	Allocation (channel type)	Max inactive I/Q power
Reference power	Slot average power	Rho, EVM, peak CDE	Data channel power	Relative, absolute power	PN offset
Peak level at defined range	On/off ratio	Frequency error	Slot average power	<b>Auto Measure</b>	<b>Power Statistics CCDF</b>
<b>ACPR</b>	Idle activity	Time offset	Max, avg active power	Channel power	
Reference power	Pilot, MAC, data power	Carrier feed-through	Max, avg inactive power	Occupied bandwidth	
Abs power at defined range	<b>Constellation (composite 64/128)</b>	PN offset	PN offset	Spectrum emission mask	
Option 041					
<b>Channel scanner (up to 6)</b>	Channel power	Channel power	PN offset	Time offset	Peak utilization
Frequencies or channels	Pilot dominance	Multipath power	Pilot, MAC, data power	Carrier feed-through	Average utilization
PN offset	PN offset	Ec/Io, delay	Pilot, MAC, data Rho	Max active I/Q power	<b>Route Map</b>
Pilot, MAC, data power	Ec/Io, pilot power, delay	<b>Code Domain Power</b>	(Composite) EVM	Avg active I/Q power	Pilot power
<b>PN Scanner (up to 6)</b>	<b>Multipath Profile</b>	Slot average power	Frequency error	Code utilization	Ec/Io

Longitude, latitude, and satellite in all screens

\*Measurement is performed in Data Constellation only.

## TD-SCDMA Signal Analyzer (Options 025 and 045)

General Parameters					
Frequency range	1.785 GHz to 2.22 GHz				
Input signal level	-40 to +25 dBm				
Channel power (RRC) accuracy	±1.0 dB (typical)				
Modulations	QPSK, 8 PSK, 16 QAM, 64 QAM				
Frequency error	±10 Hz + ref freq accuracy	99% confidence level			
Residual EVM (RMS)	2.0% (typical)	P-CCPCH slot and 1 channel			
Time error (Tau)	±1.0 μs (typical)	External trigger			
Spreading factor	Auto (DL, UL), 1, 2, 4, 8, 16				
Measurements					
Option 025					
<b>Channel Power</b>	<b>Multi-ACLR</b>	UpPTS power	Frequency error	Avg Active Code Power	Spectrum emission mask
Channel power	Lowest reference power	On/off slot ratio	I/Q origin offset	Ave Inactive Code Power	ACLR
Spectral density	Highest reference power	Slot PAR	Time offset	<b>Code Error</b>	Multi-ACLR
Peak to average power	Abs power at defined range	DwPTS code	<b>Midamble Power</b>	Abs/Rel code power (Bar Chart)	Slot power
<b>Occupied Bandwidth</b>	Rel power at defined range	<b>Power vs. Time (frame)</b>	Slot power	Constellation diagram for Individual code	DWPTS power
Occupied bandwidth	<b>Code Error</b>	Slot Power, Data Power (L), Midamble Power, Data Power (R), Time offset of all TS (from TS0 to TS7) and DwPTS, UpPTS	DwPTS power	Slot Power, DWPTS Power	UpPTS power
Integrated power	Code power and error	<b>Power vs. Time (mask)</b>	Midamble power (1 to 16)	No. of Active Code	On/Off Ratio
Occupied power	Individual code EVM and its constellation	Slot power	<b>Code Power</b>	Scramble Code	Frequency Error
<b>Spectrum Emission Mask</b>	Data format	On/off slot ratio	Abs/Rel code power (Bar Chart)	Max Active Code Power	EVM RMS
Reference power	<b>Spurious Emissions</b>	Off power	Constellation diagram for Individual code	Max Inactive Code Power	Peak CDE
Peak level at defined range	Peak frequency at defined range	<b>Timogram</b>	Slot Power, DWPTS Power	Avg Active Code Power	Max Inactive
<b>ACLR</b>	Peak level at defined range	<b>Constellation</b>	No. of Active Code	Ave Inactive Code Power	Spurious Emission
Reference power	<b>Power vs. Time (slot)</b>	Rho	Scramble Code	<b>Auto Measure</b>	
Abs power at defined range	Slot power	EVM RMS, EVM peak	Max Active Code Power	Channel Power	
Rel power at defined range	DwPTS power	Peak CDE	Max Inactive Code Power	Occupied bandwidth	
Option 045					
<b>Sync-DL ID Scanner (32)</b>	Pilot dominance	Pilot dominance	Pilot dominance	Pilot dominance	DwPTS Power
Scramble code group	<b>Sync-DL ID vs. Tau (up to 6)</b>	<b>Sync-DL ID Multipath</b>	<b>Sync-DL ID Analyzer</b>	EVM, frequency error	
Ec/Io, Tau	ID, power, Ec/Io, Tau	Ec/Io, Tau	DwPTS power, Ec/Io trend	Ec/Io, CINR	
DwPTS power	DwPTS power	DwPTS power	DwPTS power	<b>Route Map</b>	

Longitude, latitude, and satellite in all screens

## Mobile WiMAX Signal Analyzer (Options 026 and 046)

General Parameters		
Frequency range	2.1 GHz to 2.7 GHz 3.4 GHz to 3.85 GHz	
Input signal level	-40 to +20 dBm	
Channel power accuracy	±1.0 dB (typical)	
Supported bandwidth	7 MHz, 8.75 MHz, and 10 MHz	
Frequency error	±10 Hz + reference-frequency accuracy	99% confidence level
Residual EVM (RMS)	1.5% (typical)	

### Measurements

#### Option 026

<i>Channel Power</i>	<i>Spurious Emissions</i>	<i>Constellation</i>	Max, min, avg power	<i>Auto Measure</i>	Spectral flatness
Channel power	Peak frequency at defined range	Channel power	<i>EVM vs. Subcarrier</i>	Channel power	Frequency error
Spectral density	Peak level at defined range	RCE RMS, RCE peak	RCE RMS, RCE peak	Occupied bandwidth	RCE RMS
Peak to average power	<i>Power vs. Time (frame)</i>	EVM RMS, EVM peak	EVM RMS, EVM peak	Spectrum emission mask	RCE peak
<i>Occupied Bandwidth</i>	Channel power	Frequency error	Segment ID, cell ID	Spurious emission mask	EVM RMS
Occupied bandwidth	Frame average power	Time offset	Preamble index	Preamble power	EVM peak
Integrated power	Preamble power	Segment ID, cell ID	<i>EVM vs. Symbol</i>	DL burst power	<i>Power Statistics CCDF</i>
Occupied power	DL burst power	Preamble index	RCE RMS, RCE peak	UL burst power	
<i>Spectrum Emission Mask</i>	UL burst power	<i>Spectral Flatness</i>	EVM RMS, EVM peak	Frame average power	
Reference power	I/Q origin offset	Average subcarrier power	Segment ID, cell ID	Time offset	
Peak level at defined range	Time offset	Subcarrier power variation	Preamble index	I/Q origin offset	

#### Option 046

<i>Preamble Scanner (up to 6)</i>	Time offset	Relative power, delay	Preamble power	Preamble	Preamble power
Total preamble power	<i>Multipath Profile</i>	Preamble power trend	Frame avg power	Cell ID, sector ID	
Preamble, relative power	Total preamble power	<i>Preamble Power Trend</i>	Relative power	Time offset	
Cell ID, sector ID	Multipath power	Relative power trend	C/I	<i>Route Map</i>	

Longitude, latitude, and satellite in all screens

## LTE/LTE-Advanced — FDD Signal Analyzer (Options 028/030/032 and 048)

General Parameters		
Frequency range	Band 1 to 14, 17 to 26	
Input signal level	-40 to +20 dBm	
Channel power accuracy	±1.0 dB (typical)	
Supported bandwidths	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, and 20 MHz	
Frequency error	±10 Hz + reference-frequency accuracy	99% confidence level
Residual EVM (RMS)	2.0% (typical)	Data EVM

### Measurements

#### Option 028/030/032

Channel Power	Power vs. Time (frame)	Control Channel	Data EVM RMS, peak RS EVM RMS, peak	Antenna 1 RS power and EVM	PDSCH/Data* 64 QAM EVM
Channel power	Frame average power	Control channel summary (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*)	Cell, group, sector ID	Antenna 2 RS power and EVM**	PDSCH 256QAM EVM
Spectral density	Subframe power		<b>Frame</b>		Data EVM RMS, peak
Peak to average power	First slot power		MBSFN*	Antenna 3 RS power and EVM**	RS, P-SS, S-SS EVM
<b>Occupied Bandwidth</b>	Second slot power	EVM, relative or absolute power, modulation type	Frame summary table (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/ Data* QPSK, PDSCH/ Data* 16 QAM, PDSCH/ Data* Data* 64 QAM, PDSCH 256QAM)	<b>Data Allocation Map</b>	RS, P-SS, S-SS power
Occupied bandwidth	Cell ID, I/Q origin offset		Data allocation vs frame		PBCH power
Integrated power	Time offset	Each control channels'	Data* 16 QAM, PDSCH/ Data* Data* 64 QAM, PDSCH 256QAM)	Resource block power	Subframe power
Occupied power	<b>Constellation</b>	I/Q diagram	EVM, relative or absolute power, modulation type	Data utilization	OFDM power
<b>Spectrum Emission Mask</b>	MBSFN*	Modulation format	Time alignment error trend	OFDM symbol power	Time error
Reference power	RS TX power	Frequency error	Time alignment error	OFDM symbol power	I/Q origin offset
Peak level at defined range	PDSCH/Data* QPSK EVM	I/Q origin offset	Time alignment error	Data utilization	<b>Carrier Aggregation**</b>
<b>ACLR</b>	PDSCH/Data* 64 QAM EVM	EVM RMS, EVM peak	Time alignment error	Data allocation vs subframe	Component carriers: up to 5
Reference power	PDSCH 256QAM EVM	<b>Subframe</b>	Time alignment error	Resource block power	
Abs power at defined range	Data EVM RMS	MBSFN*	Time alignment error	<b>Auto Measure</b>	Subframe power
Rel power at defined range	Data EVM peak	Subframe summary table (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/ Data* QPSK, PDSCH/ Data* 16 QAM, PDSCH/ Data* 64 QAM, PDSCH 256QAM)	Time alignment error	Channel power	
<b>Multi-ACLR</b>	Frequency error	EVM, relative or absolute power, modulation type	Time alignment error	Occupied bandwidth	PDSCH/Data* QPSK power and EVM
Lowest reference power	Time error		EVM RMS, peak	Time alignment error	Spectrum emission mask
Highest reference power	<b>Data Channel</b>	EVM, relative or absolute power, modulation type	Time alignment error	ACLR	PDSCH/Data* 16 QAM power and EVM
Abs power at defined range	MBSFN*		EVM RMS, peak	Time alignment error	Multi-ACLR
Rel power at defined range	Resource block power	EVM, relative or absolute power, modulation type	Time alignment error	Spurious emission mask	PDSCH/Data* 64 QAM power and EVM
<b>Spurious Emissions</b>	I/Q diagram		EVM, relative or absolute power, modulation type	Time alignment error	Frame average power
Peak frequency at defined range	RB power	EVM, relative or absolute power, modulation type	Time alignment error	Time alignment error	Cell ID
Peak level at defined range	Modulation format		EVM, relative or absolute power, modulation type	Time alignment error	Frequency error
	I/Q origin offset	Subframe power	Time alignment error	MBSFN*	Time alignment error
	EVM RMS, EVM peak	OFDM symbol power	Time alignment error	PDSCH/Data* QPSK EVM	Antenna port
		Frequency, time error	Time alignment error	PDSCH/Data* 16 QAM EVM	<b>Power Statistics CCDF</b>

#### Option 048

Channel Scanner (up to 6)	ID Scanner (up to 6)	Multipath Profile	Control channel table	PMCH subframe power*	Route Map
Frequency or channels	RSRP/RSRQ dominance	Cell, group, sector ID	(P-SS, S-SS, PBCH, PCFICH, RS 0, RS 1, RS 2**, RS 3**, MBSFN RS*)	Time alignment error	RSRP
Cell, group, sector ID	S-SS RSSI dominance	Ant 0 RS Ec/Io, delay	Absolute power	Time offset	RSRQ
Channel power	S-SS Ec/Io dominance	Ant 1 RS Ec/Io, delay		Relative power	<b>Datagram</b>
RSRP/RSRQ	Cell, group, sector ID	Ant 2 RS Ec/Io**, delay**	EVM RSM, phase	Datagram	S-SS RSSI
RS-SINR	RSRP/RSRQ	Ant 3 RS Ec/Io**, delay**		Frequency error	Resource block power
Antenna port	RS-SINR/S-SS RSSI	<b>Control Channel</b>		Data utilization	S-SS Ec/Io
	P-SS/S-SS Power	RS power trend			
	S-SS Ec/Io	Cell, group, sector ID			

Longitude, latitude, and satellite in all screens

\*Measurement is performed when MBMS is enabled.

\*\*Measurement is performed when option 030 is enabled.

## LTE/LTE-Advanced — TDD Signal Analyzer (Options 029/031/033 and 049)

General Parameters					
Frequency range	Band 33 to 43				
Input signal level	-40 to +20 dBm				
Channel power accuracy	±1.0 dB (typical)				
Supported bandwidth	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, and 20 MHz				
Frequency error	±10 Hz + reference-frequency accuracy	99% confidence level			
Residual EVM (RMS)	2.0% (typical)	Data EVM			
Measurements					
Option 029/031/033					
<b>Channel Power</b>	<b>Spurious Emissions</b>	Data EVM peak	<b>Subframe</b>	Antenna 3 RS power and EVM**	PDSCH/Data* 64 QAM EVM
Channel power	Peak frequency at defined range	Frequency error	MBSFN*		PDSCH 256QAM EVM
Spectral density		Time error	Subframe summary table	Cell, group, sector ID	Data EVM RMS, peak
Peak to average power	Peak level at defined range	<b>Data Channel</b>	(P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/Data* QPSK, PDSCH/Data* 16 QAM, PDSCH/Data* 64 QAM, PDSCH 256QAM)	<b>Data Allocation Map</b>	RS, P-SS, S-SS EVM
<b>Occupied Bandwidth</b>	<b>Power vs. Time (frame)</b>	MBSFN*		Data allocation vs frame	RS, P-SS, S-SS power
Occupied bandwidth	Resource block power	I/Q diagram		Resource block power	PBCH power
Integrated power	Frame average power	RB power		OFDM symbol power	Subframe power
Occupied power	Subframe power			Data utilization	OFDM power
<b>Spectrum Emission Mask</b>	First slot power	Modulation format	EVM, relative or absolute power, modulation type	Data allocation vs subframe	Time error
Reference power	Second slot power	I/Q origin offset			I/Q origin offset
Peak level at defined range	Cell ID, I/Q origin offset	EVM RMS, EVM peak	Subframe power	Resource block power	<b>Carrier Aggregation**</b>
	Time offset	<b>Control Channel</b>	OFDM symbol power	Data utilization	Component carriers: up to 5
<b>ACLR</b>	<b>Power vs. Time (slot)</b>	Control channel summary	Frequency, time error	<b>Auto Measure</b>	
Reference power	Slot average power	(P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*)	Data EVM RMS, peak	Channel power	Subframe power
Abs power at defined range	Transient period length		RS EVM RMS, peak	Occupied bandwidth	P-SS, S-SS, PBCH, RS power and EVM
	Off power		Cell, group, sector ID	Spectrum emission mask	
Rel power at defined range	<b>Constellation</b>	EVM, relative or absolute power, modulation type	<b>Time Alignment Error</b>	ACLR	PDSCH/Data* QPSK power and EVM
	MBSFN*		Time alignment error trend	Multi-ACLR	
<b>Multi-ACLR</b>	RS TX power	Each control channels'	Time alignment error	Spurious emission mask	PDSCH/Data* 16 QAM power and EVM
Lowest reference power	PDSCH/Data* QPSK EVM	I/Q diagram	RS power difference	Slot average power	
Highest reference power	PDSCH/Data* 16 QAM EVM	Modulation format	Antenna 0 RS power and EVM	Off power	PDSCH/Data* 64 QAM power and EVM
Abs power at defined range		Frequency error		Transition period	PDSCH 256QAM EVM
	PDSCH/Data* 64 QAM EVM	I/Q origin offset	Antenna 1 RS power and EVM	Time alignment error	Cell ID
Rel power at defined range	PDSCH 256QAM EVM	EVM RMS, EVM peak	Antenna 2 RS power and EVM**	MBSFN*	Frequency error
				PDSCH/Data* QPSK EVM	Time alignment error
				PDSCH/Data* 16 QAM EVM	Antenna port
					<b>Power Statistics CCDF</b>
Option 049					
<b>Channel Scanner (up to 6)</b>	<b>ID Scanner (up to 6)</b>	<b>Multipath Profile</b>	<b>Control Channel</b>	EVM RSM, phase	<b>Route Map</b>
Frequency or channels	RSRP/RSRQ dominance	Cell, group, sector ID	RS power trend	Frequency error	RSRP
Cell, group, sector ID	S-SS RSSI dominance	Ant 0 RS Ec/Io, delay	Cell, group, sector ID	PMCH subframe power*	RSRQ
Channel power	S-SS Ec/Io dominance	Ant 1 RS Ec/Io, delay	Control channel table	Time alignment error	RS-SINR
RSRP/RSRQ	Cell, group, sector ID	Ant 2 RS Ec/Io**, delay**	(P-SS, S-SS, PBCH, PCFICH, RS 0, RS 1, RS 2**, RS 3**, MBSFN RS*)	Time offset	S-SS RSSI
RS-SINR	RSRP/RSRQ	Ant 3 RS Ec/Io**, delay**		<b>Datagram</b>	P-SS, S-SS power
Antenna port	RS-SINR/S-SS RSSI			Datagram	S-SS Ec/Io
	P-SS/S-SS power		Absolute power	Resource block power	
	S-SS Ec/Io		Relative power	Data utilization	

Longitude, latitude, and satellite in all screens

\*Measurement is performed when MBMS is enabled.

\*\*Measurement is performed when option 031 is enabled.

## NB-IoT Signal Analyzer (Option 034)

General Parameters		
Operation Mode	In-band, Guard Band, Standalone	
Input signal level	-40 to +25 dBm	
Channel power accuracy	±1.0 dB (typical)	
Supported bandwidths	180 kHz	
Anchor Carrier definition	PRBS Index or Frequency	
Measurement Type	Frame, Subframe	
Frequency error	±10 Hz + ref freq accuracy 99% confidence level	
Residual EVM (RMS)	2.0% (typical)	Data EVM
Measurement		
Option 034		
RF Analysis		Modulation Analysis
<b>Channel Power</b>	<b>Spectrum Emission Mask</b>	<b>IQ Diagram</b>
Channel power	Reference Power	Constellation diagram, Modulation Format, Frequency error, IQ Origin offset, EVM RMS/Peak
Spectral density	Peak level at defined range	
Peak to average Power	<b>ACLR</b>	
<b>Occupied bandwidth</b>	Reference Power	<b>Channel Summary</b>
Occupied Bandwidth	Abs. power at defined range	EVM, Power (dBm), and Modulation type of: Frame (Sub-frame) Power, NPSS, NSSS, NPBCH, NPDSCH, NRS0 (NRS1), PCI
Integrated Power	Rel. power at defined range	
Occupied power	<b>Spurious Emission</b>	
	Peak frequency at defined range	
	Peak level at defined range	

## EMF Analyzer (Option 050)

General Parameters		
Supported Antenna	Isotropic Antenna G700050380 26 MHz to 3 GHz	
Mode	Sweep / FFT	
Trace	X-Axis, Y-Axis, Z-Axis, Current, Isotropic, Isotropic Accumulated	
Limit lines	MSL, ICNIRP	
Dwell Time	1 to 60s	
Measurement Time	1 to 30 min (# of measurement= Measurement Time / (Dwell Time x 3)	
Units	dBµV/m, dBmV/m, dBV/m, V/m, W/m <sup>2</sup> , dBm/m <sup>2</sup> , dBW/m <sup>2</sup> , A/m, dBA/m, and Watt/cm <sup>2</sup> .	
Miscellaneous	Spectrum logging and Replay Export to CSV PDF Report Generation	
Measurement		
Option 050 and G700050380		
Trace: X-Axis, Y-Axis, Z-Axis, Current, Isotropic, Isotropic Accumulated	Isotropic EMF Power: AVG, Max, Min	Accumulated Isotropic EMF Power: AVG, Max, Min

## General Information

Inputs and Outputs		
<b>RF In</b>	Spectrum analyzer	
Connector	Type-N, female	
Impedance	50 $\Omega$ (nominal)	
Damage level	>+40 dBm, $\pm$ 50 V DC (nominal)	
<b>Reflection/RF Out</b>	Cable and antenna analyzer	
Connector	Type-N, female	
Impedance	50 $\Omega$ (nominal)	
Damage level	>+37 dBm, $\pm$ 50 V DC (nominal)	
<b>RF In</b>	Cable and antenna analyzer	
Connector	Type-N, female	
Impedance	50 $\Omega$ (nominal)	
Damage level	>+25 dBm, $\pm$ 50 V DC (nominal)	
<b>External Trigger, GPS</b>		
Connector	SMA, female	
Impedance	50 $\Omega$ (nominal)	
<b>External Ref</b>		
Connector	SMA, female	
Impedance	50 $\Omega$ (nominal)	
Input frequency	10 MHz, 13 MHz, 15 MHz	
Input range	-5 to +5 dBm	
<b>USB</b>		
USB host <sup>1</sup>	Type A, 1 port	
USB client <sup>2</sup>	Type B, 1 port	
<b>SFP Cage</b>		
Port 1	RFoFiber (with option 008)	
Port 2	SFP/SFP+ compatible	
LAN <sup>3</sup>	RJ45, 10/100Base-T	
Audio jack	3.5 mm headphone jack	
External power	5.5 mm barrel connector	
Speaker	Built-in speaker	
<b>Display</b>		
Type	Resistive touch screen	
Size	8 inch, LED backlight, transfective LCD with anti-glare coating	
<b>Power</b>		
External DC input	18 to 19 V DC	
Power consumption	42 W	54 W maximum (when charging battery)
<b>Battery</b>		
Type	10.8 V, 7800 mA/hr (Lithium ion)	
Operating time	>3 hr (typical at spectrum analyzer)	
Charge time	3 hr (while not operating) 9 hr (while operating)	
Charging temperature	0 to 45°C (32 to 104°F) $\leq$ 85% RH	
Discharging temperature	-20 to 55°C (4 to 131°F) $\leq$ 85% RH	
Storage temperature <sup>4</sup>	0 to 25°C (32 to 77°F)	

Data Storage		
Internal	Maximum 512 MB	
External <sup>5</sup>	Up to 32 GB with FAT32 format	
Environmental		
Operating Temperature		
AC power	0 to 40C (without derating on battery charging) -10 to 55C (with derating on battery charging)	
Battery Operation	0 to 40C (without derating on battery operating time) -10 to 55C (with derating on battery operating time)	
Maximum humidity	95% RH (noncondensing)	
Shock and vibration	MIL-PRF-28800F class 2	
Storage temperature <sup>6</sup>	-30 to 71°C (-22 to 160°F)	
EMC		
IEC/EN 61326-1:2013 (complies with European EMC)		
CISPR11:2009 +A1:2010		
ESD		
IEC/EN 61000-4-2		
Size and Weight (standard configuration)		
Weight (with battery)	Standard	4.17 kg (9.19 lb)
	Fully loaded	4.34 kg (9.57 lb)
Size (W x H x D)	295 x 195 x 82 mm	
Warranty		
3 years		
Calibration Cycle		
1 year		

1. Connects flash drive, power sensor, EZ-Cal kit, and fiber microscope.
2. Data transfer and PC Application based remote control.
3. Data transfer or PC Application/Web-based remote control.
4. 20 to 85% RH, store battery pack in low-humidity environment; extended exposure to temperature above 45°C could significantly degrade battery performance and life.
5. Supports USB 2.0 compatible memory devices.
6. With the battery pack removed.



## Ordering Information

Description	Part Number
<b>Standard CellAdvisor Base Station Analyzer</b>	
Base station analyzer includes: <ul style="list-style-type: none"> <li>· Spectrum analyzer 9 kHz to 8 GHz</li> <li>· RF power meter 10 MHz to 8 GHz</li> <li>· Cable and antenna 5 MHz to 6 GHz</li> </ul>	JD785A <sup>1,2</sup>
<b>Packages/Bundles - General Packages</b>	
JD785A bundle 2 <ul style="list-style-type: none"> <li>· JD785A;Base station analyzer</li> <li>· JD74050341;Soft-carrying case</li> </ul>	JD785AB02
<b>Option</b>	
2 port transmission measurements for JD785A <sup>3</sup>	JD785A001
Bias tee for JD785A <sup>4</sup>	JD785A002
CW signal generator for JD785A	JD785A003
E1 analyzer for JD785A <sup>5</sup>	JD785A004
T1 analyzer for JD785A <sup>5</sup>	JD785A005
Bluetooth connectivity for JD785A <sup>6</sup>	JD785A006
High power CW signal generator for JD785A	JD785A007
GPS receiver and antenna for JD785A	JD785A010
Interference analyzer for JD785A <sup>7,8</sup>	JD785A011
Channel scanner for JD785A	JD785A012
LTE-FDD RAN performance indicator for JD785A <sup>9</sup>	JD785A014
LTE-TDD RAN performance indicator for JD785A <sup>10</sup>	JD785A015
Wi-Fi connectivity for JD785A <sup>11</sup>	JD785A016
cdmaOne/cdma2000 analyzer for JD785A	JD785A020
EV-DO analyzer for JD785A <sup>12</sup>	JD785A021
GSM/GPRS/EDGE analyzer for JD785A	JD785A022
WCDMA/HSPA+ analyzer for JD785A	JD785A023
TD-SCDMA analyzer for JD785A	JD785A025
Mobile WiMAX analyzer for JD785A	JD785A026
LTE - FDD analyzer for JD785A <sup>13</sup>	JD785A028
LTE - TDD analyzer for JD785A <sup>13</sup>	JD785A029
LTE Advanced - FDD analyzer for JD785A <sup>14,16</sup>	JD785A030
LTE Advanced - TDD analyzer for JD785A <sup>15,16</sup>	JD785A031
LTE-FDD 256 QAM Demodulator for JD785A <sup>17</sup>	JD785A032
LTE-TDD 256 QAM Demodulator for JD785A <sup>18</sup>	JD785A033
NB-IoT Analyzer for JD785A <sup>14</sup>	JD785A034
cdmaOne/cdma2000 OTA analyzer for JD785A <sup>19</sup>	JD785A040
EV-DO OTA analyzer for JD785A <sup>19</sup>	JD785A041
GSM/GPRS/EDGE OTA analyzer for JD785A <sup>19</sup>	JD785A042
WCDMA/HSPA+ OTA analyzer for JD785A <sup>19</sup>	JD785A043
TD-SCDMA OTA analyzer for JD785A <sup>19</sup>	JD785A045
Mobile WiMAX OTA analyzer for JD785A <sup>19</sup>	JD785A046
LTE - FDD OTA analyzer for JD785A <sup>19</sup>	JD785A048
LTE - TDD OTA analyzer for JD785A <sup>19</sup>	JD785A049
EMF analyzer for JD785A <sup>20</sup>	JD785A050

Description	Part Number
<b>Product Support- Calibration</b>	
Calibration service for Asia and North America for JD785A	JD785A200
Calibration service for Latin America and EMEA for JD785A	JD785A201
<b>Product Support - Extended Warranty</b>	
Warranty extension of 1 year for Asia, North America for JD785A	JD785A250
Warranty extension of 1 year for Latin America, EMEA for JD785A	JD785A251
<b>Optional Accessories</b>	
<b>Accessory - RF Calibrators (General)</b>	
Y- calibration kit Type-N(m), DC to 6 GHz, 50 ohm	JD78050509
Y- calibration kit DIN(m), DC to 6 GHz, 50 ohm	JD78050510
EZ-Cal kit Type-N(m), DC to 6 GHz, 50 Ω	JD70050509
Dual port Type-N 6 GHz calibration kit (Includes 1x JD78050509 Y- calibration kit, 2x G700050530 RF Cable, and 2x G700050575 RF Adapter Type-N(f) to Type-N(f))	JD78050507
Dual port DIN 6 GHz calibration kit (Includes 1x JD78050510 DIN Y- calibration kit, 2x G710050536 RF Cable, and 2x G700050572 RF Adapter DIN(m) to DIN(m))	JD78050508
50 Ω Load, DC to 4 GHz, 1 W	GC72550511
<b>Accessory - RF Cables (Cables)</b>	
RF cable DC to 8 GHz Type-N(m) to Type-N(m), 1.0 m	G700050530
RF cable DC to 8 GHz Type-N(m) to Type-N(f), 1.5 m	G700050531
RF cable DC to 8 GHz Type-N(m) to Type-N(f), 3.0 m	G700050532
RF cable DC to 18 GHz Type-N(m) to SMA(m), 1.5 m	G710050533
RF cable DC to 18 GHz Type-N(m) to QMA(m), 1.5 m	G710050534
RF cable DC to 18 GHz Type-N(m) to SMB(m),1.5 m	G710050535
RF cable DC to 6 GHz Type-N(m) to DIN(f), 1.5 m	G710050536
RF cable DC to 4 GHz Type-N(m) to 1.0/2.3 (m), 1.5 m	G710050537
Phase-stable RF cable w grip DC to 6 GHz Type-N(m) to Type-N(f), 1.5 m	G700050540
Phase-stable RF cable w grip DC to 6 GHz Type-N(m) to DIN(f), 1.5 m	G700050541
RF cable DC to 18 GHz Type-N(m) to Type-N(f), 1.5 m	G710050531
<b>Accessory - RF Antennas (General)</b>	
RF omni antenna Type-N(m), 806 to 896 MHz	G700050353
RF omni antenna Type-N(m), 870 to 960 MHz	G700050354
RF omni antenna Type-N(m), 1710 to 2170 MHz	G700050355
RF omni antenna Type-N(m), 720 to 800 MHz	G700050356
RF omni antenna Type-N(m), 2300 to 2700 MHz	G700050357
Mag mount RF omni antenna Type-N(m), 689 to 1200 MHz, 1700 to 2700 MHz, 3000 to 6000 MHz	G700050358
RF Omni Antenna N(m), 2.4 GHz to 2.5 GHz, 4.5 dBi, and 5.150 GHz to 5.850 GHz, 7 dBi	G700050359

## Ordering Information (Continued)

Description	Part Number
RF yagi antenna Type-N(f), 1750 to 2390 MHz, 10.2 dBd	G700050363
RF yagi antenna Type-N(f), 806 to 896 MHz, 10.2 dBd	G700050364
RF yagi antenna Type-N(f), 866 to 960 MHz, 9.8 dBd	G700050365
RF yagi antenna SMA(f), 700 to 4000 MHz, 1.85 dBd	G700050366
RF yagi antenna SMA(f), 700 to 6000 MHz, 2.85 dBd	G700050367
Isotropic Antenna Type-N(m), 26 MHz to 3 GHz	G700050380
<b>Accessory - RF Power Sensor (General)</b>	
Directional power sensor (peak and average power) 300 to 3800 MHz	JD731B
Terminating power sensor (Average Power) 20 to 3800 MHz	JD732B
Directional power sensor (peak and average power) 150 to 3500 MHz	JD733A
Terminating power sensor (peak power) 20 to 3800 MHz	JD734B
Terminating power sensor (average/peak power) 20 to 3800 MHz	JD736B
<b>Accessory - RF Adapters (Connector &amp; Adapters)</b>	
Adapter Type-N(m) to DIN(f), DC to 7.5 GHz, 50 Ω	G700050571
Adapter DIN(m) to DIN(m), DC to 7.5 GHz, 50 Ω	G700050572
Adapter Type-N(m) to SMA(f) DC to 18 GHz, 50 Ω	G700050573
Adapter Type-N(m) to BNC(f), DC to 4 GHz, 50 Ω	G700050574
Adapter Type-N(f) to Type-N(f), DC to 18 GHz 50 Ω	G700050575
Adapter Type-N(m) to DIN(m), DC to 7.5 GHz, 50 Ω	G700050576
Adapter Type-N(f) to DIN(f), DC to 7.5 GHz, 50 Ω	G700050577
Adapter Type-N(f) to DIN(m), DC to 7.5 GHz, 50 Ω	G700050578
Adapter DIN(f) to DIN(f), DC to 7.5 GHz, 50 Ω	G700050579
Adapter Type-N(m) to Type-N(m), DC to 11 GHz 50 Ω	G700050580
Adapter N(m) to QMA(f), DC to 6.0 GHz, 50 Ω	G700050581
Adapter N(m) to QMA(m), DC to 6.0 GHz, 50 Ω	G700050582
Adapter N(m) to 4.1/9.5 MINI DIN (f), DC to 6.0 GHz, 50 Ω	G700050583
Adapter N(m) to 4.1/9.5 MINI DIN (m), DC to 6.0 GHz, 50 Ω	G700050584
Adapter N(m) to 4.3-10 (f), DC to 6.0 GHz, 50 Ω	G700050585
Adapter N(m) to 4.3-10 (m), DC to 6.0 GHz, 50 Ω	G700050586
Adapter Type-N(m) to DIN(f), DC to 4 GHz, 50 Ω	G710050571
Adapter N(f) to N(f), DC to 4 GHz, 50 Ω	G710050575
Adapter Type-N(f) to DIN(f), DC to 4 GHz, 50 Ω	G710050577
Adapter Type-N(f) to DIN(m), DC to 7 GHz, 50 c	G710050578
<b>Accessory - RF Miscellaneous (General)</b>	
Attenuator 40 dB, 100 W, DC to 4 GHz (unidirectional)	G710050581
RF directional coupler, 700 to 4000 MHz, 30 dB, 50 W Input/output; Type-N(m) to Type-N(f), tap off; Type-N(f)	G710050585

Description	Part Number
RF combiner, 700 to 4000 MHz, Type-N(f) to Type-N(m)	G710050586
4x1 RF combiner, 700 to 4000 MHz, Type-N(f) to Type-N(m)	G710050587
Bandpass filter 696 MHz to 716 MHz, N(m) to N(f), 50 Ω	G700050601
Bandpass filter 776 MHz to 788 MHz, N(m) to N(f), 50 Ω	G700050602
Bandpass filter 806 MHz to 849 MHz, N(m) to N(f), 50 Ω	G700050603
Bandpass filter 1710 MHz to 1755 MHz, N(m) to N(f), 50 Ω	G700050604
Bandpass filter 1850 MHz to 1910 MHz, N(m) to N(f), 50 Ω	G700050605
Bandpass filter 703 MHz to 748 MHz, N(m) to N(f), 50 ohm	G700050606
Bandpass filter 832 MHz to 862 MHz, N(m) to N(f), 50 ohm	G700050607
Bandpass filter 880 MHz to 915 MHz, N(m) to N(f), 50 ohm	G700050608
Bandpass filter 1710 MHz to 1785 MHz, N(m) to N(f), 50 ohm	G700050609
Bandpass filter 1920 MHz to 1980 MHz, N(m) to N(f), 50 ohm	G700050610
Bandpass filter 2500 MHz to 2570 MHz, N(m) to N(f), 50 ohm	G700050611
<b>Accessory - General</b>	
2 port USB hub	G700050200
USB Bluetooth dongle and dipole antenna 5 dBi	JD70050006
USB Wi-Fi Dongle	JD70050008
GPS antenna for JD740 and JD780 series	JD71050351
AntennaAdvisor handle	JD70050007
Cross LAN cable (6ft)	G700550335
USB A to B cable (1.8m)	GC73050515
> 1GB USB memory	GC72450518
Stylus pen	G710550316
RJ45 to Y bantam cable	G710050317
RJ45 to Y BNC cable	G710050318
RJ45 to 4 Alligator Clips	G710050319
<b>Accessory - Battery &amp; Chargers</b>	
Rechargeable lithium ion battery	G710550325
AC/DC Power adapter	G710550326
Automotive cigarette lighter/12V DC adapter	G710550323
External battery charger	G710550324
<b>Accessory - Manual &amp; Documentation</b>	
JD700B series user's guide - printed version	JD700B362
JD780A series Korean quick guide - printed version	JD780A363

Description	Part Number
<b>Accessory - Carrying Case</b>	
General soft carrying case	G700050341
Soft carrying case	JD74050341
Hard carrying case	JD71050342
Hard carrying case with wheels	JD70050342
CellAdvisor backpack carrying case	JD70050343

1. Supplied accessories: User's Guide, USB Memory (1GB), Cross LAN Cable, USB Cable, DC car adapter, Li-Ion Battery, AC/DC adapter, Stylus Pen
2. Highly recommended using the Calibration Kit (JD78050509)
3. Highly recommended using the Calibration Kit (JD78050507) and Bias Tee (option 002)
4. Requires option 001
5. Needs Test Cable (G710050317, -50318, or -50319)
6. Includes a Bluetooth USB dongles with 5 dBi dipole antennas (JD70050006)
7. Needs Omni or Yagi antenna
8. Highly recommended adding option 010
9. Requires option 06 and option 28 and Needs TrueSite(FTA)
10. Requires option 06 and option 29 and Needs TrueSite(FTA)
11. Includes a Wi-Fi USB dongle
12. Requires option 020
13. Highly recommended using the RF Directional Coupler or RF combiner (G710050585 or G710050586)
14. Requires option 028
15. Requires option 029
16. Highly recommended using the 4x1 RF combiner (G710050587)
17. Requires option 010
18. Requires factory return for the upgrade
19. Requires serial number for placing an order of the upgrade
20. Needs for OTA/Interference measurements (options 011/040, 041, 042, 043, 044, 045, 046, 048, 049)

## VIAVI Care Support Plans

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## Features

\*5-year plans only

Plan	Objective	Technical Assistance	Factory Repair	Priority Service	Self-paced Training	5 Year Battery and Bag Coverage	Factory Calibration
 <b>BronzeCare</b>	Technician Efficiency	<b>Premium</b>	✓	✓	✓		
 <b>SilverCare</b>	Maintenance & Measurement Accuracy	<b>Premium</b>	✓	✓	✓	✓*	✓



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