

VIAVI CellAdvisor™

JD785B 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	
Carrier Offset	
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



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

JD785B 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 Ω termination, 0 dB attenuation, RMS detector		
Preamplifier Off		
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)	
Preamplifier On		
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 μ 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	± 1.3 dB (± 0.5 dB typical)	20 to 30°C after 60-minute warm up
	Add ± 1.0 dB	-10 to 55°C after 60-minute warm up
Reference Level		
Setting range	-120 to +100 dBm	
Setting Resolution		
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 μ 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 μ 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 μ 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 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	$(1.5 \times 10^8) \times (V_p) / \Delta$ V_p = propagation velocity Δ = 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) ^{1,2}		
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% ¹		

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	at average 5 at average 5
Scalar	5 MHz to 4.5 GHz, >110 dB 4.5 GHz to 6 GHz, >105 dB	
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	

High Power CW Signal Generator (Option 003)

Frequency	
Frequency range	10 MHz to 5500 MHz
Frequency reference	<±1 ppm maximum
Frequency resolution	10 kHz
Output Power	
Range	10 MHz to 3.5 GHz, -60 to +10 dBm 3.5 GHz to 5.5 GHz, -60 to +5 dBm
Step	1 dB
Accuracy	±1.5 dB (20 to 30°C)

GPS Receiver and Antenna (Option 010)

GPS Indicator		
Latitude, longitude, altitude		
High-Frequency Accuracy		
Spectrum, interference, and signal analyzer		
GPS lock	±10 ppb	
Hold over (for 3 days)	±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 +25 dBm				
Burst power	±1.0 dB				
Frequency error	±10 Hz + ref freq accuracy	99% confidence level			
GMSK modulation quality					
Phase RMS Accuracy					
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)			
EVM Accuracy					
Residual error	±1.5%	(2% < EVM < 8%)			
RF power vs. time	2.5%				
	±0.25 symbol				
Measurements					
Option 022					
Channel Power	Spectrum Emission Mask	Power vs. Time (slot)	Frequency error	Auto Measure	Phase error RMS
Channel power	Reference power	Burst power	Phase error RMS	Channel power	Phase error peak
Spectral density	Peak level at defined range	Max/min point	Phase error peak	Occupied bandwidth	EVM RMS*
Peak to average power		Power vs. Time (frame)	I/Q origin offset*	Spectrum emission mask	EVM Peak*
Occupied Bandwidth	Spurious Emissions	Frame average power	TSC	Spurious emission mask	I/Q origin offset
Occupied bandwidth	Peak frequency at defined range	Burst power (Slot 0 to 7)	BSIC	Burst power	C/I*
Integrated power		TSC (Slot 0 to 7)	C/I*	PvsT – mask	
Occupied power	Peak level at defined range	Constellation	EVM RMS*	Frame average power	
		Burst power	EVM Peak*	Frequency error	
		Modulation type	EVM 95th*		
Option 042					
Channel/Frequency Scanner	Group (traffic, control)	Multipath Profile	Modulation Analyzer	Frame average power	Burst power
	BSIC (NCC, BCC)	(10 strongest)	Frame avg power trend	BSIC, frame no. and time	Modulation type
Channels or frequencies		Frame average power	C/I trend	C/I, frequency error	
Absolute power		SNR, delay			

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 +25 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 + ref freq 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

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

Option 043

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

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 +25 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

<i>Channel Power</i>	<i>ACPR</i>	<i>Spurious Emissions</i>	<i>Code Domain Power</i>	<i>RCSI</i>	<i>Auto Measure</i>
Channel power	Reference power	Peak freq at defined range	Abs/Rel code power	Pilot, Paging, Sync, Q-Paging	Channel power
Spectral density	Abs power at defined range	Peak level at defined range	Channel power		Occupied bandwidth
Peak to average power		Constellation	Power bar graph (Abs/Rel)	CDP Table	Spectrum emission mask
Occupied Bandwidth	Rel power at defined range	Pilot power	Pilot, Paging, Sync, Q-Paging	Reference power	ACPR
Occupied bandwidth		Rho		Code utilization	Multi-ACPR
Integrated power	Multi-ACPR	EVM	Max, avg active power	Code, spreading factor	Rho
Occupied power	Lowest reference power	Frequency error	Max, avg inactive power	Allocation (channel type)	Frequency error
Spectrum Emission Mask	Highest reference power	Time offset	PN offset	Relative, absolute power	Time offset
Reference power	Abs power at defined range	Carrier feed-through	Codogram		Carrier feed-through
Peak level at defined range		PN offset	Code utilization		Pilot power
	Rel power at defined range				Max inactive power
					Power Statistics CCDF

Option 040

<i>Channel Scanner (up to 6)</i>	<i>PN Scanner (up to 6)</i>	<i>Multipath Profile</i>	<i>Code Domain Power</i>		
	Channel power	Channel power	Abs/Rel code power	Frequency error	Code utilization
Frequencies or channels	Pilot dominance	Multipath power	Channel power	Time offset, Rho, EVM	Peak utilization
Channel power, PN offset	PN offset	Ec/lo, delay	PN offset	Carrier feed-through	Average utilization
Pilot power, Ec/lo	Ec/lo, pilot power, delay		Pilot, Paging, Sync, Q-Paging power	Amplifier capacity	Route Map
					Peak amplifier capacity
			Max, avg active power	Average amplifier capacity	Ec/lo
			Max, avg inactive 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 +25 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

Channel Power	ACPR	Power vs. Time (idle and active slot)	Constellation (pilot, MAC 64/128, and data)	Code Domain Power (data)	Auto Measure
Channel power	Reference power				Channel power
Spectral density	Abs power at defined range	Slot average power	Channel power	Data channel power	Occupied bandwidth
Peak to average power		On/off ratio	Rho, EVM, peak CDE	Slot average power	Spectrum emission mask
Occupied Bandwidth	Rel power at defined range	Idle activity	Frequency error	Max, avg active power	ACPR
Occupied bandwidth		Pilot, MAC, data power	Time offset	Max, avg inactive power	Multi-ACPR
Integrated power	Multi-ACPR	Constellation (composite 64/128)	Carrier feed-through	PN offset	Pilot, MAC, data power
Occupied power	Lowest reference power		PN offset	MAC Codogram	On/off ratio
Spectrum Emission Mask	Highest reference power	Channel power	Modulation type*	Code utilization	PvsT mask (idle slot) or PvsT mask (active slot)
	Abs power at defined range	Rho, EVM, Peak CDE	Code Domain Power (pilot and MAC 64/128)	RCSI	Frequency error
Reference power		Frequency error		Slot, pilot, MAC, data	
Peak level at defined range	Rel power at defined range	Time offset	Pilot/MAC channel power	MAC CDP Table	Time offset
		Carrier feed-through	Slot average power	Reference power	Carrier feed-through
	Spurious Emissions	PN offset	Max active I/Q power	Code utilization	Pilot, MAC, data Rho
	Peak frequency at defined range	Pilot, MAC, data power	Avg active I/Q power	Code, spreading factor	Max inactive I/Q power
		Pilot, MAC, data EVM	Max inactive I/Q power	Allocation (channel type)	PN offset
	Peak level at defined range		Avg inactive I/Q power	Relative, absolute power	Power Statistics CCDF
			PN offset		

Option 041

Channel Scanner (up to 6)	PN Scanner (up to 6)	Multipath Profile	Code Domain Power		
	Channel power	Channel power	Slot average power	Frequency error	Peak utilization
Frequencies or channels	Pilot dominance	Multipath power	PN offset	Time offset	Average utilization
PN offset	PN offset	Ec/Io, delay	Pilot, MAC, data power	Carrier feed-through	Route Map
Pilot, MAC, data power	Ec/Io, pilot power, delay		Pilot, MAC, data Rho	Max active I/Q power	Pilot power
			(Composite) EVM	Avg active I/Q power	Ec/Io
				Code utilization	

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			
Code domain power	±0.5 dB relative power ±1.5 dB absolute power	Code channel power > -25 dB Code channel power > -25 dB			
Time error (Tau)	±0.2 μs (typical)	External trigger			
Spreading factor	Auto (DL, UL), 1, 2, 4, 8, 16				
Measurements					
Option 025					
Channel Power	Multi-ACLR	Power vs. Time (frame)	Midamble Power	Code Error	Auto Measure
Channel power	Lowest reference power	Slot power	Slot power	Code power and error	Channel power
Spectral density	Highest reference power	(TS [0 to 6], DwPTS, UpPTS)	DwPTS power	Individual code EVM and its constellation	Occupied bandwidth
Peak to average power	Abs power at defined range	Data power left	Midamble power (1 to 16)		Spectrum emission mask
Occupied Bandwidth			(TS [0 to 6], DwPTS, UpPTS)	Code Power	Data format
Occupied bandwidth	Rel power at defined range	Midamble Power	Abs/Rel code power	Slot, DwPTS power	Multi-ACLR
Integrated power		(TS [0 to 6], DwPTS, UpPTS)	Individual code EVM and its constellation	No. of active code	Slot power
Occupied power	Spurious Emissions	Data power right		Scramble code	DwPTS power
Spectrum Emission Mask	Peak frequency at defined range	(TS [0 to 6], DwPTS, UpPTS)	Data format	Max active code power	UpPTS power
Reference power		Time offset	Slot power, DwPTS power	Avg active code power	On/off slot ratio
Peak level at defined range	Peak level at defined range	(TS [0 to 6], DwPTS, UpPTS)	No. of active code	Max inactive code power	Frequency error
ACLR		Power vs. Time (mask)	Scramble code	Avg inactive code power	EVM RMS
Reference power	Power vs. Time (slot)	Slot power	Max active code power	Peak CDE and peak active CDE	Peak CDE
Abs power at defined range	Slot power	On/off slot ratio	Avg active code power		Max inactive power
	DwPTS power	Off power	Max inactive code power	Scramble code	
Rel power at defined range	UpPTS power	Timogram	Avg inactive code power		
	On/off slot ratio	Constellation			
	Slot PAR	Rho			
	DwPTS code	EVM RMS, EVM peak			
		Peak CDE			
		Frequency error			
		I/Q origin offset			
		Time offset			
Option 045					
Sync-DL ID Scanner (32)	Sync-DL ID vs. Tau (up to 6)	Sync-DL ID Multipath	Sync-DL ID Analyzer	Pilot dominance	Route Map
Scramble code group		Ec/Io, Tau	DwPTS power, Ec/Io trend	EVM, frequency error	DwPTS Power
Ec/Io, Tau	ID, power, Ec/Io, Tau	DwPTS power	DwPTS power	Ec/Io, CINR	
DwPTS power	DwPTS power	Pilot dominance			
Pilot dominance	Pilot dominance				

Longitude, latitude, and satellite in all screensTD-SCDMA Signal Analyzer (Option 025)

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 +25 dBm	
Channel power accuracy	±1.0 dB (typical)	
Supported bandwidth	7 MHz, 8.75 MHz, and 10 MHz	
Frequency error	±10 Hz + ref freq accuracy	99% confidence level
Residual EVM (RMS)	1.5% (typical)	

Measurements

Option 026

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

Option 046

Preamble Scanner	Multipath Profile	Preamble Power Trend		Route Map
Total preamble power	Total preamble power	Preamble power trend	C/I	Preamble power
Preamble, relative power	Multipath power	Relative power trend	Preamble	
Cell ID, sector ID	Relative power, delay	Preamble power	Cell ID, sector ID	
Time offset		Frame avg power	Time offset	
		Relative power		

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 +25 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 + ref freq 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	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*)	RS EVM RMS, peak	Antenna 2 RS power and EVM**	PDSCH 256QAM EVM	
Spectral density	Subframe power		Cell, group, sector ID			
Peak to average power	First slot power		Frame	Antenna 3 RS power and EVM**	RS, P-SS, S-SS EVM	
Occupied Bandwidth	Second slot power		MBSFN*			
Occupied bandwidth	Cell ID, I/Q origin offset	EVM, relative or absolute power, modulation type	Frame summary table	Data Allocation Map	Subframe power	
Integrated power	Time offset		(P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/			
Occupied power	Constellation		Data* QPSK, PDSCDH/	Data allocation vs frame	OFDM power	
Spectrum Emission mask	MBSFN*		Data* 16 QAM, PDSCH/	Resource block power	Time error	
Reference power	RS TX power	I/Q diagram	Data* 64 QAM, PDSCH 256QAM)	OFDM symbol power	I/Q origin offset	
Peak level at defined range	PDSCH/Data* 16 QAM EVM	Modulation format	EVM, relative or absolute power, modulation type	Data utilization	Carrier Aggregation**	
ACLR	PDSCH/Data* 64 QAM EVM	Frequency error		Data allocation vs sub-frame		Component carriers: up to 5
Reference power	PDSCH 256QAM EVM	I/Q origin offset	EVM RMS, peak	Resource block power	Subframe power	
Abs power at defined range	Data EVM RMS	EVM RMS, EVM peak		Frame average power		Auto Measure
Rel power at defined range	Data EVM peak	Subframe	OFDM symbol power	Channel power	P-SS, S-SS, PBCH, RS power and EVM	
Multi-ACLR	Frequency error	MBSFN*	Frequency error	Occupied bandwidth	PDSCH/Data* QPSK power and EVM	
Lowest reference power	Time error	Subframe summary table (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/ Data* 16 QAM, PDSCH/ Data* 64 QAM, PDSCH 256QAM)	I/Q origin offset	Spectrum emission mask	PDSCH/Data* 16 QAM power and EVM	
Highest reference power	Data Channel		EVM RMS, peak	Data EVM RMS, peak		ACLR
Abs power at defined range	MBSFN*		Cell, group, sector ID	Time Alignment Error	Spurious emission mask	PDSCH/Data* 64 QAM power and EVM
Rel power at defined range	Resource block power		Time Alignment Error	Time alignment error trend	Frame average power	
Spurious Emissions	I/Q diagram	EVM, relative or absolute power, modulation type	Time alignment error	Time alignment error	PDSCH 256QAM EVM	
Peak frequency at defined range	RB power		Subframe power	Time alignment error	Frequency error	Cell ID
Peak level at defined range	Modulation format	Subframe power	RS power difference	Frequency error	Frequency error	
	I/Q origin offset		Antenna 0 RS power and EVM	Antenna 0 RS power and EVM	MBSFN*	Time alignment error
	EVM RMS, EVM peak	OFDM symbol power	PDSCH/Data*QPSK EVM		PDSCH/Data*16 QAM EVM	Antenna port
		Frequency, time error			Power Statistics CCDF	

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		Time offset	RSRQ
Channel power	S-SS Ec/Io dominance	Ant 1 RS Ec/Io, delay	Absolute power	Datagram	RS-SINR
RSRP/RSRQ	Cell, group, sector ID	Ant 2 RS Ec/Io**, delay**		Relative power	Datagram
RS-SINR	RSRP/RSRQ	Ant 3 RS Ec/Io**, delay**	Relative power	Resource block power	P-SS/S-SS Power
Antenna port	RS-SINR/S-SS RSSI	Control Channel	EVM RMS, phase	Data utilization	S-SS Ec/Io
	P-SS/S-SS Power	RS power trend	Frequency error		
	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 +25 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 + ref freq accuracy	99% confidence level
Residual EVM (RMS)	2.0% (typical)	Data EVM

Measurements

Option 029/031/033

Channel Power	Spurious Emissions	Data EVM peak	Subframe	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 (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/Data*)	Cell, group, sector ID	Data EVM RMS, peak
Peak to average power	Peak level at defined range	Data Channel		Data Allocation Map	RS, P-SS, S-SS EVM
Occupied Bandwidth		MBSFN*		Data allocation vs frame	RS, P-SS, S-SS power
Occupied bandwidth	Power vs. Time (frame)	Resource block power		Resource block power	PBCH power
Integrated power	Frame average power	I/Q diagram		OFDM symbol power	Subframe power
Occupied power	Subframe power	RB power		Data utilization	OFDM power
Spectrum Emission Mask	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		Resource block power	I/Q origin offset
Peak level at defined range	Cell ID, I/Q origin offset	EVM RMS, EVM peak	Subframe power	Resource block power	Carrier Aggregation**
	Time offset	Control Channel	OFDM symbol power	Data utilization	Component carriers: up to 5
ACLR	Power vs. Time (slot)	Control channel summary (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*)	Frequency, time error	Auto Measure	
Reference power	Slot average power		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	Constellation	EVM, relative or absolute power, modulation type	Time Alignment Error	ACLR	PDSCH/Data* QPSK power and EVM
	MBSFN*		Time alignment error trend	Multi-ACLR	
Multi-ACLR	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
Rel power at defined range	PDSCH/Data* 64 QAM EVM	I/Q origin offset	Antenna 1 RS power and EVM	Time alignment error	Cell ID
	PDSCH 256QAM EVM	EVM RMS, EVM peak	Antenna 2 RS power and EVM**	MBSFN*	Frequency error
				PDSCH/Data* QPSK EVM	Time alignment error
					Antenna port
					Power Statistics CCDF

Option 049

Channel Scanner (up to 6)	ID Scanner (up to 6)	Multipath Profile	Control Channel	EVM RMS, phase	Route Map
	RSRP/RSRQ dominance	Cell, group, sector ID	RS power trend	Frequency error	RSRP
Frequency or channels	S-SS RSSI dominance	Ant 0 RS Ec/Io, delay	Cell, group, sector ID	PMCH subframe power*	RSRQ
Cell, group, sector ID	S-SS Ec/Io dominance	Ant 1 RS Ec/Io, delay	Control channel table (P-SS, S-SS, PBCH, PCFICH, RS 0, RS 1, RS 2**, RS 3**, MBSFN RS*)	Time alignment error	RS-SINR
Channel power	Cell, group, sector ID	Ant 2 RS Ec/Io**, delay**		Time offset	S-SS RSSI
RSRP/RSRQ	RSRP/RSRQ	Ant 3 RS Ec/Io**, delay**		Datagram	P-SS, S-SS power
RS-SINR	RS-SINR/S-SS RSSI			Datagram	S-SS Ec/Io
Antenna port	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, and Standalone	
Input signal level	-40 to +25 dBm	
Channel power accuracy	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	
Channel Power	Spectrum Emission Mask	IQ Diagram
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	ACLR	
Occupied bandwidth	Reference Power	Channel Summary
Occupied Bandwidth	Abs. power at defined range	EVM, Power (dBm), and Modulation type of: Frame (Subframe) Power, NPSS, NSSS, NPBCH, NPDSCH, NRS0 (NRS1), PCI
Integrated Power	Rel. power at defined range	
Occupied power	Spurious Emission	
	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	dB μ V/m, dBmV/m, dBV/m, V/m, W/m ² , dBm/m ² , dBW/m ² , A/m, dBA/m, and Watt/cm ² .	
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

RFoCPRI™ Interference Analyzer (Option 008, 060, 061, 062, 063, 064, 065, and 066)

General Parameters				
Optical interface		Dual SFP/SFP+ (supports all MSA compliant SFP modules)		
Line rates	614.4 Mbps (1x) , 1228.8 Mbps (2x)		Option 008 and 060	
	2457.6 Mbps (4x)		Option 008 and 061	
	3072.0 Mbps (5x)		Option 008 and 062	
	4915.2 Mbps (8x)		Option 008 and 063	
	6144.0 Mbps (10x)		Option 008 and 064	
	9830.4 Mbps (16x)		Option 008 and 065	
	10137.6 Mbps (20x)*		Option 008 and 066	
Resolution Bandwidth (RBW)				
-3 dB bandwidth		1 kHz to 10 kHz (span ≤ 3.84 MHz) 1 KHz to 100 kHz (3.84 MHz < span < 30.86 MHz)		1-3-10 sequence
Accuracy		±10% (nominal)		
VBW				
-3 dB bandwidth		1 Hz to 100 KHz		1-3-10 sequence
Accuracy		±10% (nominal)		
CPRI Parameter				
IQ Sample width		4 – 20 bits		
Mapping method		1 and 3		
TX clock		Internal/External/Recovered		
Port type		Master/Slave		
Map position		AxC#0 – AxC#7		
Bandwidth		1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz		
Measurements				
Layer-2 Monitoring		Layer-2 Term		Interference analyzer
Port 1	Port 2	Port 1 or 2 (exclusive)		Spectrum
LOS	LOS	LOS SDI		Interference ID
LOF	LOF	LOF RAI		Sound Indicator
SDI	SDI	Optic RX level	dBm	Spectrogram
RAI	RAI	Optic TX level	dBm	RSSI
Optic RX level	Optic RX level	Protocol version	1 to 10	Spectrum Replayer
SFP Information	SFP Information	C and M HDLC rate (kbps)	No HDLC, 240, 480, 960, 1920, 2400	Dual Spectrum
Wavelength	Wavelength			Dual Spectrogram
Vendor	Vendor	C and M Ethernet subchannel number	20 to 63	Quad Spectrum
Vendor PN	Vendor PN			PIM Detection
Vendor rev	Vendor rev	Alarm Injection		Single carrier
Power level type	Power level type	R-LOS	Single	Multi carrier
Diagnostic byte	Diagnostic byte	R-LOF	Single	PIM calculator
Nominal rate	Nominal rate	Error Injection		
Min rate	Min rate	Code	Single/rate	
Max RX level	Max RX level	K30.7	Single/rate	
Max TX level	Max TX level	Error rate	1E-3 to 1E-9	

*Layer-2 Term is not supported.

RFoCPRI™ GSM Interference Analyzer (Option 068)

General Parameters		
Optical interface	Dual SFP/SFP+ (supports all MSA compliant SFP modules)	
Line rates	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)	
Resolution Bandwidth (RBW)	1 KHz to 30 kHz (Span≤960 kHz)	
	Accuracy	±10% (nominal)
Video Bandwidth (RBW)	1 Hz to 30 KHz	
	Accuracy	±10% (nominal)

CPRI Parameter	
IQ Sample Width	4 – 20 bits
Sample Rate	960 KHz
Mapping	NA=1, S=1, K=4, NC=1
TX clock	Internal/External/Recovered
Port type	Master/Slave

General Parameters					
Layer-2 Monitoring		Layer-2 Term		Layer-2 Term (cont.)	
Port 1	Port 2	Port 1 or 2 (exclusive)		Error	
LOS	LOS	LOS	Error rate	Code	Single/rate
LOF	LOF	LOF	K30.7	Error rate	Single/rate
RAI	RAI	Optic RX level	dBm	K30.7	
SDI	SDI	Optic TX level	dBm	Interference analyzer	
Optic RX level	Optic RX level	Port Type	Master	Spectrum	
SFP Information	SFP Information	Protocol Version	1 to 10	Sound indicator	
Wavelength	Wavelength	C&M HDLC rate (kbps)	No HDLC, 240, 480, 960, 1920, 2400	Interference ID	
Vendor	Vendor	C&M Ethernet Sub-channel number	20 to 63	Spectrogram	
Vendor PN	Vendor PN	Word Sync Loss Event		RSSI	
Vendor rev	Vendor rev	Code Violation		Spectrum Replayer	
Power level type	Power level type	K30.7 words		Dual Spectrum	
Diagnostic byte	Diagnostic byte	Frame Sync Loss Events		Dual Spectrogram	
Nominal rate	Nominal rate	Alarm Injection		Quad Spectrum	
Min rate	Min rate	R-LOS	SDI	PIM Detection	
Max RX level	Max RX level	R-LOF	RAI	Single Carrier	
Max TX level	Max TX level			Multi Carrier	
				PIM Calculator	

RFoBSAI™ Interference Analyzer (Option 070, 071, 072, 073)

General Parameters				
Optical interface		Dual SFP/SFP+ (supports all MSA compliant SFP modules)		
Line rates		768 Mbps (1x)	Option 008 and 070	
		1536 Mbps (2x)	Option 008 and 071	
		3072 Mbps (4x)	Option 008 and 072	
		6144 Mbps (8x)	Option 008 and 073	
Resolution bandwidth (RBW)		1 kHz to 10 kHz (span ≤ 3.84 MHz)		
		1 kHz to 100 kHz (3.84 MHz < span ≤ 30.86 MHz)		
		Accuracy	±10% (nominal)	
Video bandwidth (RBW)		1 Hz to 100 kHz		
		Accuracy	±10% (nominal)	
RP3 type		LTE (FDD/TDD), UMTS (FDD)		
RP3 address		Hexadecimal		
TX clock		Internal/External/Recovered		
Port type		Master/Slave		
Bandwidth		LTE-FDD/TDD: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz UMTS: 3 MHz for downlink, 5 MHz for uplink		
RP3 address list		RP3 address, Technology, Scrambler seed*, Message Count*		
Scrambler seed		Nx7 Index: 0 – 17, step 1		
Measurements				
Layer-2 Monitoring		Layer-2 Term		Interference analyzer
Port 1	Port 2	Port 1 or 2		Spectrum
LOS	LOS	LOS		Interference ID
LOF	LOF	LOF		Sound Indicator
Code violation	Code violation	Optic RX level	dBm	Spectrogram
K30.7 words	K30.7 words	Optic TX level	dBm	RSSI
Optic RX level	Optic RX level	Port type	Master	Spectrum Replayer
Optic TX level	Optic TX level	TX state	State machine	Dual Spectrum
Messages address	Message address	RX state	State machine	Dual Spectrogram
Message counter	Message counter	TX address	RP3 address (hexadecimal)	Quad Spectrum
SFP Information	SFP Information	RX address	RP3 address (hexadecimal)	PIM Detection
Wavelength	Wavelength	Word sync loss event		Single Carrier
Vendor	Vendor	Code violation		Multi Carrier
Vendor PN	Vendor PN	K30.7 words		PIM Calculator
Vendor rev	Vendor rev	Frame sync loss events		
Power level type	Power level type	Alarm Injection		
Diagnostic byte	Diagnostic byte	K30.7	Single	
Nominal rate	Nominal rate	Error Injection		
Min rate	Min rate	Code	Single/rate	
Max RX level	Max RX level	Error rate	1E-3 to 1E-9	
Max TX level	Max TX level			

*Available only when the link rate is 6.1 Gbps

RFoCPRI LTE-FDD Signal Generator (Option 081)

General Parameters		
Optical interface	Dual SFP/SFP+ (supports all MSA compliant SFP modules)	
Line rates	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)	
IQ Sample width	8 – 20 bits	
Mapping method	1 and 3	
Waveform	CW: Single Tone, Two tones LTE-FDD waveform: E-TM1.1, E-TM1.2, E-TM2, E-TM3.1, E-TM3.2, E-TM3.3	
Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz	
Sampling Frequency	N x 3.84 MHz (N=2, 4, 6, 8)	
Gain dynamic range	0 to –50 dB	
Frequency error	±10 Hz + ref freq accuracy	99% confidence level
Residual EVM (RMS)	0.2% (typical)	Data EVM

RFoCPRI™ LTE-TDD Signal Generator (Option 082)

General Parameters		
Optical Hardware (Option 008)		
Interface	Two SFP/SFP+ ports (supports all MSA compliant SFP modules), one Ethernet port	
CPRI Parameter		
Line coding	8B/10B	
Line rates	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)	
CPRI Parameter		
IQ Sample width	8 – 20 bits	
Mapping method	1 and 3	
Waveform	CW: Single Tone, Two Tones LTE-TDD waveform: E-TM1.1, E-TM1.2, E-TM2, E-TM3.1, E-TM3.2, E-TM3.3	
Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz	
Sampling Frequency	N x 3.84 MHz (N=2, 4, 6, 8)	
Gain dynamic range	0 to –50 dB	
Frequency error	±10 Hz + ref freq accuracy, 99% confidence level	
Residual EVM (RMS)	0.02% (typical), data EVM	

RFoCPRI LTE-FDD Multi Carrier Signal Generator (Option 083)

General Parameters		
Optical Hardware (Option 008)		
Interface	Two SFP/SFP+ ports (supports all MSA compliant SFP modules)	
Max TX	4 carriers / SFP port, Dual port operation is available	
CPRI Parameter		
Line coding 8B/10B	Line coding 8B/10B	
Line rates	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)	
IQ Sample width	8 – 20 bits	
Waveform mapping	Carrier / TX Container /Map Position	
Mapping Method	1 and 3	
Waveform	CW, CW (two tone), LTE-FDD E-TM1.1, E-TM1.2, E-TM2, E-TM3.1, E-TM3.2, E-TM3.3, Custom	
Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz	
Sampling Frequency	N x 3.84 MHz (N=2, 4, 6, 8)	
Gain dynamic range	0 to –50 dB	
Frequency error	±10 Hz + ref freq accuracy, 99% confidence level	
Residual EVM (RMS)	0.02% (typical), Data EVM	
Measurement		
PIM Analysis (Option 101)		
Single Port Sweep mode	Multi Port Sweep Mode	Multi Port Wideband Mode
Possible PIM Order	Possible PIM Order	Flatness
Possible PIM Frequency	Possible PIM Frequency	Level Diff
PIM level	PIM level	Possible PIM
PIM Detection with Two CW Tones		PIM Detection with up to 8 LTE carriers (2 SFP ports x 4 carriers)

RFoCPRI LTE-TDD Multi Carrier Signal Generator (Option 084)

General Parameters		
Optical Hardware (Option 008)		
Interface	Two SFP/SFP+ ports (supports all MSA compliant SFP modules)	
Max TX	4 carriers / SFP port, Dual port operation is available	
CPRI Parameter		
Line coding 8B/10B	Line coding 8B/10B	
Line rates	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)	
IQ Sample width	8 – 20 bits	
Waveform mapping	Carrier / TX Container /Map Position	
Mapping Method	1 and 3	
Waveform	CW, CW (two tone), LTE-FDD E-TM1.1, E-TM1.2, E-TM2, E-TM3.1, E-TM3.2, E-TM3.3, Custom	
Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz	
Sampling Frequency	N x 3.84 MHz (N=2, 4, 6, 8)	
Gain dynamic range	0 to –50 dB	
Frequency error	±10 Hz + ref freq accuracy, 99% confidence level	
Residual EVM (RMS)	0.02% (typical), Data EVM	
Measurement		
PIM Analysis (Option 101)		
Single Port Sweep mode	Multi Port Sweep Mode	Multi Port Wideband Mode
Possible PIM Order	Possible PIM Order	Flatness
Possible PIM Frequency	Possible PIM Frequency	Level Diff
PIM level	PIM level	Possible PIM
PIM Detection with Two CW Tones		PIM Detection with up to 8 LTE carriers (2 SFP ports x 4 carriers)

RFoOBSAI™ LTE-FDD Signal Generator (Option 086)

General Parameters

Optical Hardware (Option 008)

Interface	Two SFP/SFP+ ports (supports all MSA compliant SFP modules), one Ethernet port
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OBSAI Parameter

Line coding	8B/10B
Line rates	768 Mbps (Option 070)
	1536 Mbps (Option 071)
	3072 Mbps (Option 072)
	6144 Mbps (Option 073)

CPRI Parameter

RP3 type	LTE
RP3 address	Hexadecimal
Waveform	CW: Single Tone, Two Tones Waveform: E-TM1.1, E-TM1.2, E-TM2, E-TM3.1, E-TM3.2, E-TM3.3, Custom
Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz
Sampling frequency	N x 3.84 MHz (N=2, 4, 6, 8)
Gain dynamic range	0 to -50 dB
Frequency error	±10 Hz + ref freq accuracy, 99% confidence level
Residual EVM (RMS)	0.02% (typical), data EVM

RFoCPRI LTE-FDD Signal Analyzer (Option 091)

General Parameters		
Optical interface	Dual SFP/SFP+ (supports all MSA compliant SFP modules)	
Line rates	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)	
RBW	100 kHz	
IQ Sample width	Downlink: 8 – 20 bits	
Mapping method	1 and 3	
AxC Container/Carrier	Up to 8 AxC container per carrier	
LTE Signal Bandwidth	5 MHz, 10MHz, 15MHz, 20MHz	
Span	Fixed and equal to sampling frequency of LTE signal.	
Frequency error	±10 Hz + ref freq accuracy	99% confidence level
Residual EVM (RMS)	0.02% (typical)	Data EVM

Measurements				
Option 091				
Channel Power	Power vs. Time (frame)	Control Channel	Data EVM RMS, peak	Antenna 1 RS power and EVM
Channel power	Frame average power	Control channel summary (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*)	RS EVM RMS, peak	Data Allocation Map
Spectral density	Subframe power		Cell, group, sector ID	
Peak to average power	First slot power		Frame	
Occupied Bandwidth	Second slot power	EVM, relative or absolute power, modulation type	MBSFN*	Data allocation vs frame
Occupied bandwidth	Cell ID, I/Q origin offset		Frame summary table (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/Data* QPSK, PDSCH/Data* 16 QAM, PDSCH/Data* 64 QAM)	Resource block power
Integrated power	Constellation		Each control channels'	OFDM symbol power
Occupied power	MBSFN*			Data utilization
	RS TX power		I/Q diagram	Data allocation vs subframe
	PDSCH/Data* QPSK EVM		Modulation format	Resource block power
	PDSCH/Data* 16 QAM EVM		Frequency error	Data utilization
			I/Q origin offset	Power Statistics CCDF
	PDSCH/Data* 64 QAM EVM		EVM RMS, EVM peak	Average Power
			Subframe	Peak Power Crest Factor
	Data EVM RMS	MBSFN*	Frame average power	
	Data EVM peak	Error rate	OFDM symbol power	
	Frequency error	Subframe summary table (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/Data* QPSK, PDSCH/Data* 16 QAM, PDSCH/Data* 64 QAM)	Frequency error	
	Time error		I/Q origin offset	
			EVM RMS, peak	
	Data Channel		Data EVM RMS, peak	
	MBSFN*		Cell, group, sector ID	
	Resource block power		Time Alignment Error	
	I/Q diagram		Time alignment error trend	
	RB power modulation format		EVM, relative or absolute power, modulation type	Time alignment error
	I/Q origin offset		Subframe power	RS power difference
	EVM RMS, EVM peak		OFDM symbol power	Antenna 0 RS power and EVM
		Frequency, time error		

*Measurement is performed when MBMS is enabled.

RFoCPRI™ LTE-TDD Signal Analyzer (Option 092)

General Parameters	
Optical Hardware (Option 008)	
Interface	Two SFP/SFP+ ports (supports all MSA compliant SFP modules), one Ethernet port
CPRI Parameter	
Line coding	8B/10B
Line rates	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)
Resolution Bandwidth (RBW)	
-3 dB bandwidth	100 kHz
Accuracy	±10% (nominal)
CPRI Parameter	
IQ Sample width	8 – 20 bits
Mapping method	1 and 3
TX clock	Internal/External/Recovered
Port type	Master/Slave
Map position	AxC#0 – AxC#7
Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz
Span	Fixed and equal to sampling frequency of LTE signal
Frequency error	±10 Hz + ref freq accuracy, 99% confidence level
Residual EVM (RMS)	0.02% (typical), data EVM

Measurements				
Option 008, 060, 061, 062, 063, 064, and 065				
Channel Power	Constellation	Data Channel	Time Alignment Error	Data Allocation Map
Channel power	MBSFN*	MBSFN*	Time alignment error trend	Data allocation vs. frame
Spectral density	RS TX power	Resource block power	Time alignment error	Resource block power
Peak to average power	PDSCH/Data* QPSK EVM	I/Q diagram	RS power difference	OFDM symbol power
Occupied Bandwidth	PDSCH/Data* 16QAM EVM	RB power	Antenna 0 RS power, EVM	Data utilization
Occupied bandwidth	PDSCH/Data* 64QAM EVM	Modulation format	Antenna 1 RS power, EVM	Data allocation vs.subframe
Integrated power	Data EVM RMS, peak	I/Q origin offset	Cell, group, sector ID	Resource block power
Occupied power	Frequency error	EVM RMS, peak		Data utilization
Power vs. Time (Frame)	Time error	Subframe		Power Statistics CCDF
Frame average power	Control Channel	MBSFN*		Average power
Subframe power	Control Channel summary EVM, rel., or abs. power of each control channel	Subframe summary		Peak power crest factor
First Slot power		EVM, abs. and rel. power		
Second Slot power		Subframe power		
Cell ID, I/Q origin offset	IQ diagram	OFDM symbol power		
Time offset	Modulation format	Frequency error		
Power vs. Time (Slot)	Frequency error	Time error		
Slot average power	I/Q origin offset	Data EVM RMS, peak		
Transient period length	Control EVM RMS, peak	RS EVM RMS, peak		
Off power		Cell, group, sector ID		

Longitude, latitude, and satellite in all screens

*Measurement is performed when MBMS is enabled.

RFoOBSAI™ LTE-FDD Signal Analyzer (Option 096)

General Parameters				
Optical Hardware (Option 008)				
Interface	Two SFP/SFP+ ports (supports all MSA compliant SFP modules), one Ethernet port			
OBSAI Parameter				
Line coding	8B/10B			
Line rates	768 Mbps (Option 070)			
	1536 Mbps (Option 071)			
	3072 Mbps (Option 072)			
	6144 Mbps (Option 073)			
Resolution Bandwidth (RBW)				
-3 dB bandwidth	100 kHz			
Accuracy	±10% (nominal)			
OBSAI Parameter				
RP3 type	LTE-FDD			
RP3 address	Hexadecimal			
TX clock	Internal/External/Recovered			
Port type	Master/Slave			
Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz			
RP3 address list	RP3 address, technology, scrambler seed*, message count			
Scrambler seed	Nx7 Index: 0 – 17, step 1			
Measurements				
Channel Power	Constellation	Data Channel	Time Alignment Error	Data Allocation Map
Channel power	MBSFN**	MBSFN**	Time alignment error trend	Data allocation vs. frame
Spectral density	RS TX power	Resource block power	Time alignment error	Resource block power
Peak to average power	PDSCH/data** QPSK EVM	I/Q diagram	RS power difference	OFDM symbol power
Occupied Bandwidth	PDSCH/data** 16QAM EVM	RB power	Antenna 0 RS power, EVM	Data utilization
Occupied bandwidth	PDSCH/data** 64QAM EVM	Modulation format	Antenna 1 RS power, EVM	Data allocation vs. subframe
Integrated power	Data EVM RMS, peak	I/Q origin offset	Cell, group, sector ID	Resource block power
Occupied power	Frequency error	EVM RMS, peak	Frame	Data utilization
Power vs. Time (frame)	Time error	Subframe	MBSFN**	
Frame average power	Control Channel	MBSFN**	Frame summary	
Subframe power	Control channel summary EVM, rel., or abs power of each control channel	Subframe summary	EVM, abs. and rel. power	
First slot power		EVM, abs. and rel. power	Frame average power	
Second slot power		Subframe power	OFDM symbol power	
Cell ID, I/Q origin offset	IQ Diagram	OFDM symbol power	Frequency error	
Time offset	Modulation format	Frequency error	IQ origin offset	
Power Statistics CCDF	Frequency error	Time error	Data EVM RMS, peak	
Average power	I/Q origin offset	Data EVM RMS, peak	Control EVM RMS, peak	
Peak power Crest Factor	Control EVM RMS, peak	RS EVM RMS, peak	Cell, group, sector ID	
		Cell, group, sector ID		

Longitude, latitude, and satellite in all screens

*OBSAI 6144 Mbps only.

**Measurement is performed when MBMS is enabled.

RFoCPRI BBU-Emulation for Alcatel-Lucent (Option 101)

General Parameters			
Optical Hardware (Option 008)			
Interface	Dual SFP/SFP+ (supports all MAS-compliant SFP modules)		
Max TX	4 Carriers/ SFP Port with Option 083 or 084, Dual port operation		
CPRI parameter			
Line Coding	8B/10B		
Line Rate	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)		
Sampling Rates (fs)	3.84 MHz, 7.68 MHz, 15.36 MHz, 23.04 MHz, 30.72MHz		
Channel Bandwidth	3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz,		
NV (NC*K-NA*s)	0		
IQ Sample width	4 – 20 bits		
Mapping Method	1 and 3		
TX Clock	Internal, External, Recovered		
Port Type	Master		
Measurements			
	Option 101	Option 101 and 081 (082)	Option 101 and 083 (084)
Configuration Verification: Carrier Information	RET Information	Coverage Range	PIM Analysis-Single Port Sweep Mode
RRH Description Carrier Information RRH Description	ALD Device Information Antenna Device Data Alarm Status	Spectrum, Downlink Power, Downlink VSWR, Uplink VSWR, Antenna Tilt	TX Power, Possible PIM Order, Possible PIM Frequency, PIM Level
Configuration Verification: CPRI & Active SW	Spectrum Clearance		PIM Analysis-Multi Port Sweep Mode
CPRI State Active SW	Spectrum Spectrogram RSSI Dual Spectrum Dual Spectrogram		TX Power, Possible PIM Order, Possible PIM Frequency, PIM Level
Configuration Verification: SFP Information	Link Status		PIM Analysis-Multi Port Wideband Mode
RRH Description SFP Information	LOS, LOF, RAI, SDI, Optic RX Level, Optic TX Level Protocol Version, C&M HDLC Rate, C&M Eth Sub- channel Number, Start-up Status, WSLE, CV, K30.7, FSLE		Spectrum, TX Power, Spectral Flatness
Configuration Verification: RTD Information			
RRH Description RTD Information			

Layer-2 BERT (Option 110)

General Parameters			
Optical interface	Dual SFP/SFP+ (supports all MSA compliant SFP modules)		
Line rates	614.4 Mbps (1x), 1228.8 Mbps (2x), 2457.6 Mbps (4x), 3072.0 Mbps (5x), 4915.2 Mbps (8x), 6144.0 Mbps (10x), 9830.4 Mbps (16x)		
TX clock	Internal/External/Recovered		
Port	SFP Port 1 and Port 2 (Dual independent operation)		
Port type	Master/Slave		
Alarm / Error Injection	Alarm	R-LOS/R-LOF/RAI/SDI	
	Error	Code/ K30.7/ Bit	
	Insert Type	Single/ Rate	
Bit Pattern	Live, Digital Word, ANSI 2 ²³ -1, ANSI 2 ²³ -1 Inv, ANSI 2 ³¹ -1, ANSI 2 ³¹ -1 Inv, ANSI 2 ²⁰ -1, ANSI 2 ²⁰ -1 Inv, ANSI 2 ¹⁵ -1, ANSI 2 ¹⁵ -1 Inv, ANSI 2 ¹¹ -1, ANSI 2 ¹¹ -1 Inv, ITU 2 ²³ -1, ITU 2 ²³ -1 Inv, ITU 2 ³¹ -1, ITU 2 ³¹ -1 Inv, ITU 2 ¹⁵ -1, ITU 2 ¹⁵ -1 Inv, ITU 2 ¹¹ -1, ITU 2 ¹¹ -1 Inv		
Bit Pattern Mapping mode	Bulk mode for whole payload		
	Channelized mode for AxC Group	Bandwidth: 5MHz, 10MHz, 15MHz, 20MHz Map Position: AxC 0 - 7	
Round Trip Delay	Resolution: ns (min step: 1ns)		
Measurements			
Common			
LOS	RAI	Pattern Sync	Optic Rx level
LOF	SDI		Optic Tx level
BERT	Count	L1 Inband	
Code Violation	Rx Code Words	RX Protocol Version	
Code Violation Rate	Tx Code Words	Rx C&M HDLC Rate (kbps)	
RX K30.7 Words	Rx Frame	Rx C&M Eth Subchannel Number	
Word Sync Loss Events	Tx Frame	TX Protocol Version	
Frame Sync Loss Events	Round Trip Delay	TX C&M HDLC Rate (kbps)	
Bit Errors	Round Trip Delay (Offset)	TX C&M Eth Subchannel Number	
Bit Error Rate	Round Trip Delay (avg)	Port Type	
Svc Disruption (ms)	Round Trip Delay (min)	Start-up State	
	Round Trip Delay (max)		

General Information

Inputs and Outputs	
RF in	Spectrum analyzer
Connector	Type-N, female
Impedance	50 Ω (nominal)
Damage level	>+33 dBm, \pm 50 V DC (nominal), 3 min
Reflection/RF out	Cable and antenna analyzer
Connector	Type-N, female
Impedance	50 Ω (nominal)
Damage level	>+40 dBm, \pm 50 V DC (nominal), 3 min
RF in	Cable and antenna analyzer
Connector	Type-N, female
Impedance	50 Ω (nominal)
Damage level	>+25 dBm, \pm 50 V DC (nominal)
External trigger, GPS	
Connector	SMA, female
Impedance	50 Ω (nominal)
External ref	
Connector	SMA, female
Impedance	50 Ω (nominal)
Input frequency	10 MHz, 13 MHz, 15 MHz
Input range	-5 to +5 dBm
USB	
USB host ¹	Type A, 1 port
USB client ²	Type B, 1 port
SFP Cage	
Port 1	RFoFiber (with option 008)
	SFP/SFP+ compatible
Port 2	SFP/SFP+ compatible
LAN ³	RJ45, 10/100Base-T
Audio jack	3.5 mm headphone jack
External power	5.5 mm barrel connector
Speaker	Built-in speaker
Display	
Type	Resistive touch screen
Size	8 inch, LED backlight, transfective LCD with anti-glare coating (Resolution: 800x600)
Power	
External DC input	18 to 19 V DC
Power consumption	42 W
	54 W maximum (when charging battery)

Battery	
Type	10.8 V, 7800 mA/hr (Lithium ion)
Operating time	>3 hr (typical)
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 ³	0 to 25°C (32 to 77°F)
Data Storage	
Internal ⁴	Maximum 512 MB
External ⁵	Limited by size of USB flash drive
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 ⁶	-30 to 71°C (-22 to 160°F)
EMC	
IEC/EN 61326-1:2006 (complies with European EMC)	
CISPR11:2009 +A1:2010	
ESD	
IEC/EN 61000-4-2	
Size and Weight (standard configuration)	
Weight (with battery)	4.4 kg (9.7 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, fiber microscope, EMF Antenna, and AntennaAdvisor Handle.
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. Support USB 2.0 compatible memory devices. Support memory size up to 2GB (FAT formatted) and 32GB (FAT32 formatted). NTFS format is not supported.
6. With the battery pack removed.

Ordering Information

Description	Part Number
Standard CellAdvisor Base Station Analyzer	
Base station analyzer includes: · Spectrum analyzer 9 kHz to 8 GHz · RF power meter 10 MHz to 8 GHz · Cable and antenna 5 MHz to 6 GHz	JD785B ^{1,2}
Options	
Note: Upgrade options for the JD785B use the designation JD785BU before the respective last three-digit option number	
2 Port transmission measurements for JD785B ³	JD785B001
Bias Tee for JD785B ⁴	JD785B002
CW signal generator for JD785B	JD785B003
Optical hardware for JD785B ⁵	JD785B008
GPS receiver and antenna for JD785B	JD785B010
Interference analyzer for JD785B ^{6,7}	JD785B011
Channel scanner for JD785B	JD785B012
Bluetooth connectivity for JD785B ⁸	JD785B013
LTE-FDD RAN performance indicator for JD785B ⁹	JD785B014
LTE-TDD RAN performance indicator for JD785B ¹⁰	JD785B015
Wi-Fi connectivity for JD785B ¹¹	JD785B016
cdmaOne/cdma2000 analyzer for JD785B	JD785B020
EV-DO analyzer for JD785B ¹²	JD785B021
GSM/GPRS/EDGE analyzer for JD785B	JD785B022
WCDMA/HSPA+ analyzer for JD785B	JD785B023
TD-SCDMA analyzer for JD785B	JD785B025
Mobile WiMAX analyzer for JD785B	JD785B026
LTE - FDD analyzer for JD785B ¹³	JD785B028
LTE - TDD analyzer for JD785B ¹³	JD785B029
LTE Advanced - FDD analyzer for JD785B ^{14,15}	JD785B030
LTE Advanced - TDD analyzer for JD785B ^{15,16}	JD785B031
LTE-FDD 256 QAM Demodulator for JD785B ¹⁷	JD785B032
LTE-TDD 256 QAM Demodulator for JD785B ¹⁸	JD785B033
NB-IoT Analyzer for JD785B ¹⁴	JD785B034
cdmaOne/cdma2000 OTA analyzer for JD785B ¹⁹	JD785B040
EV-DO OTA analyzer for JD785B ¹⁹	JD785B041
GSM/GPRS/EDGE OTA analyzer for JD785B ¹⁹	JD785B042
WCDMA/HSPA+ OTA analyzer for JD785B ¹⁹	JD785B043
TD-SCDMA OTA analyzer for JD785B ¹⁹	JD785B045
Mobile WiMAX OTA analyzer for JD785B ¹⁹	JD785B046
LTE - FDD OTA analyzer for JD785B ¹⁹	JD785B048
LTE - TDD OTA analyzer for JD785B ¹⁹	JD785B049
EMF analyzer for JD785B ²⁰	JD785B050
RFoCPRI 614M & 1.2G interference analyzer for JD785B ^{21,22}	JD785B060
RFoCPRI 2.4G interference analyzer for JD785B ^{21,22}	JD785B061
RFoCPRI 3.1G interference analyzer for JD785B ^{21,22}	JD785B062
RFoCPRI 4.9G interference analyzer for JD785B ^{21,22}	JD785B063
RFoCPRI 6.1G interference analyzer for JD785B ^{21,22}	JD785B064
RFoCPRI 9.8G interference analyzer for JD785B ^{21,22}	JD785B065
RFoCPRI 10.1G interference analyzer for JD785B ^{21,22}	JD785B066
RFoCPRI GSM interference analyzer for JD785B ^{21,22,23}	JD785B068

Description	Part Number
RFoBSAI 768M Interference analyzer for JD785B ^{21,22}	JD785B070
RFoBSAI 1.5G interference analyzer for JD785B ^{21,22}	JD785B071
RFoBSAI 3.1G interference analyzer for JD785B ^{21,22}	JD785B072
RFoBSAI 6.1G interference analyzer for JD785B ^{21,22}	JD785B073
RFoCPRI LTE-FDD signal generator for JD785B ^{21,22,23}	JD785B081
RFoCPRI LTE-TDD signal generator for JD785B ^{21,22,23}	JD785B082
RFoCPRI LTE-FDD multi carrier signal generator for JD785B ^{21,22,24}	JD785B083
RFoCPRI LTE-TDD multi carrier signal generator for JD785B ^{21, 22, 25}	JD785B084
RFoBSAI LTE-FDD signal generator for JD785B ^{21,22,26}	JD785B086
RFoCPRI LTE-FDD signal analyzer for JD785B ^{21,22,23}	JD785B091
RFoCPRI LTE-TDD signal analyzer for JD785B ^{21,22,23}	JD785B092
RFoBSAI LTE-FDD signal analyzer for JD785B ^{21,22,26}	JD785B096
BBU Emulation for AT&T for JD785B ^{21,22}	JD785B100
ALU BBU emulation for JD785B ^{21,22}	JD785B101
CPRI Layer-2 BERT for JD785B ^{21,22}	JD785B110
Reserved for VZW ^{21, 22}	JD780B102
2 port transmission measurements floating license for JD740B/JD780B	JD780B001-FL
GPS receiver and antenna floating license for JD740B/JD780B	JD780B010-FL
Interference analyzer floating license for JD740B/JD780B	JD780B011-FL
Channel scanner floating license for JD740B/JD780B	JD780B012-FL
Bluetooth connectivity floating license for JD740B/JD780B	JD780B013-FL
LTE-FDD RAN performance indicator floating license for JD740B/JD780B	JD780B014-FL
LTE-TDD RAN performance indicator floating license for JD740B/JD780B	JD780B015-FL
Wi-Fi connectivity floating license for JD740B/JD780B	JD780B016-FL
cdmaOne/cdma2000 analyzer floating license for JD740B/JD780B	JD780B020-FL
EV-DO analyzer floating license for JD740B/JD780B	JD780B021-FL
GSM/GPRS/EDGE analyzer floating license for JD740B/JD780B	JD780B022-FL
WCDMA/HSPA+ analyzer floating license for JD740B/JD780B	JD780B023-FL
TD-SCDMA analyzer floating license for JD740B/JD780B	JD780B025-FL
Mobile WiMAX analyzer floating license for JD740B/JD780B	JD780B026-FL
LTE - FDD analyzer floating license for JD740B/JD780B	JD780B028-FL
LTE - TDD analyzer floating license for JD740B/JD780B	JD780B029-FL
LTE Advanced - FDD analyzer floating license for JD740B/JD780B	JD780B030-FL

Ordering Information (Continued)

Description	Part Number	Description	Part Number
LTE Advanced - TDD analyzer floating license for JD740B/JD780B	JD780B031-FL	RFoCPRI LTE-FDD multi carrier signal generator floating license for JD740B/JD780B	JD780B083-FL
LTE-FDD 256 QAM Demodulator floating license for JD740B/JD780B	JD780B032-FL	RFoCPRI LTE-TDD multi carrier signal generator floating license for JD740B/JD780B	JD780B084-FL
LTE-TDD 256 QAM Demodulator floating license for JD740B/JD780B	JD780B033-FL	RFoBSAI LTE-FDD signal generator floating license for JD740B/JD780B	JD780B086-FL
NB-IoT Analyzer floating license for JD740B/JD780B	JD780B034-FL	RFoCPRI LTE-FDD signal analyzer floating license for JD740B/JD780B	JD780B091-FL
cdmaOne/cdma2000 OTA analyzer floating license for JD740B/JD780B	JD780B040-FL	RFoCPRI LTE-TDD signal analyzer floating license for JD740B/JD780B	JD780B092-FL
EV-DO OTA analyzer floating license for JD740B/JD780B	JD780B041-FL	RFoBSAI LTE-FDD signal analyzer floating license for JD740B/JD780B	JD780B096-FL
GSM/GPRS/EDGE OTA analyzer floating license for JD740B/JD780B	JD780B042-FL	BBU Emulation for AT&T floating license for JD740B/JD780B	JD780B100-FL
WCDMA/HSPA+ OTA analyzer floating license for JD740B/JD780B	JD780B043-FL	ALU BBU emulation floating license for JD740B/JD780B	JD780B110-FL
TD-SCDMA OTA analyzer floating license for JD740B/JD780B	JD780B045-FL	Optional Accessories	
Mobile WiMAX OTA analyzer floating license for JD740B/JD780B	JD780B046-FL	Layer-2 BERT floating license for JD740B/JD780B	JD780B101-FL
LTE - FDD OTA analyzer floating license for JD740B/JD780B	JD780B048-FL	Accessory - RF Calibrators (General)	
LTE - TDD OTA analyzer floating license for JD740B/JD780B	JD780B049-FL	Y- calibration kit Type-N(m), DC to 6 GHz, 50 ohm	JD78050509
EMF analyzer floating license for JD740B/JD780B	JD780B050-FL	Y- calibration kit DIN(m), DC to 6 GHz, 50 ohm	JD78050510
RFoCPRI 614M & 1.2G interference analyzer floating license for JD740B/JD780B	JD780B060-FL	EZ-Cal kit Type-N(m), DC to 6 GHz, 50 ohm	JD70050509
RFoCPRI 2.4G interference analyzer floating license for JD740B/JD780B	JD780B061-FL	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
RFoCPRI 3.1G interference analyzer floating license for JD740B/JD780B	JD780B062-FL	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
RFoCPRI 4.9G interference analyzer floating license for JD740B/JD780B	JD780B063-FL	50 ohm Load, DC to 4 GHz, 1 W	GC72550511
RFoCPRI 6.1G interference analyzer floating license for JD740B/JD780B	JD780B064-FL	Accessory - RF Cables (Cables)	
RFoCPRI 9.8G interference analyzer floating license for JD740B/JD780B	JD780B065-FL	RF cable DC to 8 GHz Type-N(m) to Type-N(m), 1.0 m	G700050530
RFoCPRI 10.1G interference analyzer floating license for JD740B/JD780B	JD780B066-FL	RF cable DC to 8 GHz Type-N(m) to Type-N(f), 1.5 m	G700050531
RFoCPRI GSM interference analyzer floating license for JD740B/JD780B	JD780B068-FL	RF cable DC to 8 GHz Type-N(m) to Type-N(f), 3.0 m	G700050532
RFoBSAI 768M interference analyzer floating license for JD740B/JD780B	JD780B070-FL	RF cable DC to 18 GHz Type-N(m) to SMA(m), 1.5 m	G710050533
RFoBSAI 1.5G interference analyzer floating license for JD740B/JD780B	JD780B071-FL	RF cable DC to 18 GHz Type-N(m) to QMA(m), 1.5 m	G710050534
RFoBSAI 3.1G interference analyzer floating license for JD740B/JD780B	JD780B072-FL		
RFoBSAI 6.1G interference analyzer floating license for JD740B/JD780B	JD780B073-FL		
RFoCPRI LTE-FDD signal generator floating license for JD740B/JD780B	JD780B081-FL		
RFoCPRI LTE-TDD signal generator floating license for JD740B/JD780B	JD780B082-FL		

Ordering Information (Continued)

Description	Part Number
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
Accessory - Optic Cables (Cables)	
SM/LC T-Jumper and 1.5 m fiber cable	G700050401
MM/LC T-Jumper and 1.5 m fiber cable	G700050402
Accessory - RF Antennas (General)	
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
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), 650 to 4000 MHz, 1.85 dBd	G700050366
RF yagi antenna SMA(f), 650 to 6000 MHz, 2.85 dBd	G700050367
Isotropic Antenna Type-N(m), 26 MHz to 3 GHz	G700050380
Accessory - RF Power Sensor (General)	
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
Accessory - RF Adapters (Connector & Adapters)	
Adapter Type-N(m) to DIN(f), DC to 7.5 GHz, 50 ohm	G700050571
Adapter DIN(m) to DIN(m), DC to 7.5 GHz, 50 ohm	G700050572
Adapter Type-N(m) to SMA(f) DC to 18 GHz, 50 ohm	G700050573
Adapter Type-N(m) to BNC(f), DC to 4 GHz, 50 ohm	G700050574
Adapter Type-N(f) to Type-N(f), DC to 18 GHz 50 ohm	G700050575
Adapter Type-N(m) to DIN(m), DC to 7.5 GHz, 50 ohm	G700050576
Adapter Type-N(f) to DIN(f), DC to 7.5 GHz, 50 ohm	G700050577
Adapter Type-N(f) to DIN(m), DC to 7.5 GHz, 50 ohm	G700050578
Adapter DIN(f) to DIN(f), DC to 7.5 GHz, 50 ohm	G700050579

Description	Part Number
Adapter Type-N(m) to Type-N(m), DC to 11 GHz 50 ohm	G700050580
Adapter N(m) to QMA(f), DC to 6.0 GHz, 50 ohm	G700050581
Adapter N(m) to QMA(m), DC to 6.0 GHz, 50 ohm	G700050582
Adapter N(m) to 4.1/9.5 MINI DIN (f), DC to 6.0 GHz, 50 ohm	G700050583
Adapter N(m) to 4.1/9.5 MINI DIN (m), DC to 6.0 GHz, 50 ohm	G700050584
Adapter N(m) to 4.3-10 (f), DC to 6.0 GHz, 50 ohm	G700050585
Adapter N(m) to 4.3-10 (m), DC to 6.0 GHz, 50 ohm	G700050586
Adapter Type-N(m) to DIN(f), DC to 4 GHz, 50 ohm	G710050571
Adapter N(f) to N(f), DC to 4 GHz, 50 ohm	G710050575
Adapter Type-N(f) to DIN(f), DC to 4 GHz, 50 ohm	G710050577
Adapter Type-N(f) to DIN(m), DC to 7 GHz, 50 ohm	G710050578
Accessory - RF Miscellaneous (General)	
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
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 ohm	G700050601
Bandpass filter 776 MHz to 788 MHz, N(m) to N(f), 50 ohm	G700050602
Bandpass filter 806 MHz to 849 MHz, N(m) to N(f), 50 ohm	G700050603
Bandpass filter 1710 MHz to 1755 MHz, N(m) to N(f), 50 ohm	G700050604
Bandpass filter 1850 MHz to 1910 MHz, N(m) to N(f), 50 ohm	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
Accessory - General	
2 port USB hub	G700050200
USB Bluetooth dongle and dipole antenna 5 dBi	JD70050006
GPS antenna for JD740 and JD780 series	JD71050351
AntennaAdvisor handle	JD70050007
Cross LAN cable (6ft)	G700550335
USB A to B cable (1.8m)	GC73050515

Ordering Information (Continued)

Description	Part Number
> 1GB USB memory	GC72450518
Stylus pen	G710550316
Accessory - Battery & Chargers	
Rechargeable lithium ion battery	G710550325
JD700B series AC/DC power adapter_90 W_15 V	JD70050326
Automotive cigarette lighter/12V DC adapter	G710550323
External battery charger	G710550324
Accessory - Manual & Documentation	
JD700B series user's guide - printed version	JD700B362
Accessory - Carrying Case	
Soft carrying case	JD74050341
Hard carrying Case	JD71050342
Hard carrying case with wheels	JD70050342
CellAdvisor backpack carrying case	JD70050343
Optional TAP	
Optical nTAP, three-channel, 50 µm, MM, LC, 50/50 split ratio	TO3-M5-LC-55-K
Optical nTAP, three-channel, 9 µm, SM, LC, 50/50 split ratio	TO3-SM-LC-55-K
Optional SFP Transceiver	
SFP 4G/2G/1G Fibre Channel & 1G Ethernet, 850nm, 150-500m, SX	CSFP-4G-8-1
SFP 4G/ 2G/ 1G Fibre Channel & 1G Ethernet, 1310nm, 5km, LX	CSFP-4G-3-1
SFP 4G/2G/1G Fibre Channel & 1G Ethernet, 1310nm, 20km, LX	CSFP-4G-3-2
SFP+ 8G/4G/2G Fibre Channel, 6G/4.9G CPRI 850 nm MM Multirate	CSFP-PLUS-8G-8-1
SFP+ 8G/4G/2G Fibre Channel, 6G/4.9G CPRI 1310nm SM, 10km	CSFP-PLUS-8G-3-1
SFP+ 1G/10G Ethernet, 1G/10G Fiber Channel & 9.8G CPRI, 850nm, MM, 300m	SFPPLUS-1GE-10GE-8-1

Description	Part Number
SFP+ 1G/10G Ethernet, 1G/10G Fiber Channel & 9.8G CPRI, 1310nm, SM, 10km	SFPPLUS-1GE-10GE-3-1
Optical Power Meters and Fiber Microscope Kits	
USB optical power meter with software, 2.5 and 1.25 mm interfaces, 30-inch USB extender, and carry- ing pouch	MP-60A
USB optical power meter — high power, with software, 2.5 and 1.25 mm interfaces, 30-inch USB extender, and carrying pouch	MP-80A
KIT: FBP-P5000i digital probe, FiberChekPRO software, case, and four tips	FBP-SD101
KIT: FBP-P5000i digital probe, FiberChekPRO software, case, and seven tips	FBP-MTS-101
KIT: FBP-P5000i digital probe, MP-60A USB power meter, FiberChekPRO software, case, tips, and adapters	FIT-SD103
KIT: FBP-P5000i digital probe, MP-60A USB power meter, FiberChekPRO software, case, tips, adapters, and cleaning materials	FIT-SD103-C
KIT: FBP-P5000i digital probe, MP-80A USB power meter, FiberChekPRO software, case, tips, and adapters	FIT-SD113

- Supplied accessories: User's Guide (Soft copy), USB Memory, Cross LAN Cable, USB Cable, DC car adapter, Li-Ion Battery, AC/DC adapter, Stylus Pen
- Highly recommended using the Calibration Kit (JD78050509, JD78050510, JD70050509)
- Highly recommended using the Calibration Kit (JD78050507, JD78050508) and Bias Tee (option 002)
- Requires option 001
- Needs for RfOFIBER options 060,061,062,063,064,065,066,068,070,071,072,073,081,082, 083,084,086,091,092,096,101
- Needs Omni or Yagi antenna
- Highly recommended adding option 010
- Includes a Bluetooth USB dongles with 5 dBi dipole antennas (JD70050006)
- Requires option 013 and option 028 and Needs TrueSite(FTA)
- Requires option 013 and option 029 and Needs TrueSite(FTA)
- Includes a Wi-Fi USB dongle (JD70050008)
- Requires option 020
- Highly recommended using the RF Directional Coupler (G710050585) or RF combiner (G710050586)
- Requires option 028
- Highly recommended using the 4x1 RF combiner (G710050587)
- Requires option 029
- Requires option 030
- Requires option 031
- Requires option 010
- Requires G700050380
- Requires option 008
- Needs proper SFP/SFP+ Transceiver and Optical Tap or Thur mode fiber cable (G700050401 or G700050402)
- Requires at least one of RfOCPRI Interference Analyzer options (option 060 to 065), needs each of the respective/corresponding Interference Analyzer line rate
- Requires option 081
- Requires option 082
- Requires at least one of RfOBSAI Interference Analyzer options (option 070 to 073), needs each of the respective/corresponding Interference Analyzer line rate

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Features

*5-year plans only

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 BronzeCare	Technician Efficiency	Premium	✓	✓	✓				
 SilverCare	Maintenance & Measurement Accuracy	Premium	✓	✓	✓	✓*	✓		
 MaxCare	High Availability	Premium	✓	✓	✓	✓*	✓	✓	✓



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