CellAdvisor™

JD745A Base Station Analyzer

Spectrum Analyzer (Standard)

Frequency		
Frequency range	100 kHz to 4 GHz	
Internal 10 MHz Frequency Reference		
Accuracy	±0.05 ppm + aging (0 to 50°C)	
Aging	±0.5 ppm/year	
Frequency Span		
Range	0 Hz (zero span) 10 Hz to 4 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 kHz 1 MHz	<–90 dBc/Hz (typical) <–95 dBc/Hz (typical) <–102 dBc/Hz (typical)	
Measurement Range		
DANL to +20 dBm		
Input attenuator range	0 to 50 dB, 5 dB steps	
Maximum Input Level		
Average continuous power	+20 dBm	
DC voltage	±50 V DC	

Spectrum Analyzer: 100 kHz to 4 GHz

Cable and Antenna Analyzer: 5 MHz to 4 GHz

Power Meter: 10 MHz to 4 GHz

Specification Conditions

The JD745A 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

Data Sheet

Displayed Average Noise Level (DANL)

1 Hz RBW, 1 Hz VBW, 50 Ω termination, 0 dB attenuation, RMS detector

Preamplifier Off 10 MHz to 2.3 GHz >2.3 GHz to 3 GHz >3 GHz to 4 GHz	−140 dBm (−146 dBm, typical) −138 dBm (−144 dBm, typical) −135 dBm (−140 dBm, typical)
Preamplifier On 10 MHz to 2.3 GHz >2.3 GHz to 3 GHz >3 GHz to 4 GHz	−155 dBm (−160 dBm, typical) −153 dBm (−158 dBm, typical) −150 dBm (−156 dBm, typical)

Display Range

Log scale and units (10 divisions displayed)	1 to 20 dB/division in 1 dB steps dBm, dBV, dBmV, dBμV
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 (20 to 30℃)

5 MHz to 4 GHz	±1.25 dB, ±0.5 dB (typical)	Attenuation <40 dB
	±1.55 dB, ±1.0 dB (typical)	Attenuation ≥40 dB

Reference Level

Setting range	−120 to +100 dBm
Setting Resolution Log scale Linear scale	 0.1 dB 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

20 MHz to 4 GHz	1.5:1 (typical)

Second Harmonic Distortion

Mixer level	−25 dBm
10 MHz to 1.3 GHz	<−65 dBc (typical)
>1.3 GHz to 4 GHz	<−70 dBc (typical)

Third-Order Inter-Modulation (Third-Order Intercept: TOI)

200 MHz to 2 GHz	+10 dBm (typical)
>2 GHz to 4 GHz	+12 dBm (typical)

Spurious

Inherent residual response
Input terminated, 0 dB attenuation, preamplifier off, RBW at 10 kHz, Sweep mode

20 MHz to 3 GHz	−90 dBm (nominal)
>3 GHz to 4 GHz	−85 dBm (nominal)
Exceptions	<−80 dBm at 311.94 MHz <−84 dBm at 415.92 MHz <−85 dBm at 519.90, 1599.00, and 2497.80 MHz
Input-related spurious	<−70 dBc (nominal)

Dynamic Range

2/3 (TOI-DANL) in 1 Hz RBW	>95 dB

Sweep Time

Range	80 ms to 1000 s 24 μs to 200 s	Span = 0 Hz (zero span)
Accuracy	±2%	Span = 0 Hz (zero span)
Mode	Continuous, single	

Gated Sweep

Trigger source	External, video, and GPS
Gate length	1 μs to 100 ms
Gate delay	0 to 100 ms

Trigger

Trigger source	Free run, video, external
Trigger Delay Range Resolution	 0 to 200 s 6 μs

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

* CW signal generator (Option 003) can be set up simultaneously.

Cable and Antenna Analyzer (Standard)

Frequency	
Range	5 MHz to 4 GHz
Resolution	10 kHz
Accuracy	±25 ppm

Data Points
126, 251, 501, 1001

Measurement Speed
1.65 ms/point (nominal)

Measurement Accuracy	
Corrected directivity	40 dB
Reflection uncertainty	±(0.3 + |20log (1+10$^{-EP/20}$)|) (typical) EP = directivity – measured return loss

Output Power	
High	0 dBm (typical)
Low	−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 Return loss range Resolution	 1 to 65 0 to 60 dB 0.01
Distance to Fault (DTF) Vertical VSWR range Vertical return loss range Vertical resolution Horizontal range Horizontal resolution	 1 to 65 1 to 60 dB 0.01 0 to (# of data points – 1) x horizontal resolution Maximum = 1500 m (4921 ft) (1.5 x 10^8) x (V$_p$)/delta V$_p$ = propagation velocity Delta = stop freq – start freq (Hz)
Cable Loss (1-port) Range Resolution	 0 to 30 dB 0.01 dB
1-Port Phase Range Resolution	 −180 to +180° 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 4 GHz
Span	100 kHz to 100 MHz
Dynamic range	−120 to +20 dBm
Maximum power	+20 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℃ ±10℃
2. Forward power

2-Port Transmission Measurements (Option 001)

Frequency	
Frequency range	5 MHz to 4 GHz
Frequency resolution	10 kHz
Output Power	
High	0 dBm (typical)
Low	−30 dBm (typical)
Measurement Speed	
Vector	2.2 ms/point (nominal)
Dynamic Range	
Vector	5 MHz to 3 GHz, 80 dB >3 GHz to 4 GHz, 75 dB
Scalar	5 MHz to 4 GHz, >100 dB
Measurements	
Insertion Loss/Gain Range Resolution	−120 to 100 dB 0.01 dB
2-Port Phase Range Resolution	−180 to +180° 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)

Frequency	
Frequency range	25 MHz to 4 GHz
Frequency reference	±25 ppm Maximum
Frequency resolution	10 kHz
Output Power	
Range	0 dBm, −30 to −80 dBm
Step	1 dB
Accuracy	±1.5 dB (15 to 35°C)

GPS Receiver and Antenna (Option 010)

GPS Indicator		
Latitude, longitude, altitude		
High-Frequency Accuracy		
Spectrum, interference, and signal analyzer		
GPS lock	±25 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	
10 MHz to 4 GHz	
Measurement Range	
110 to +20 dBm	
Measurements	
Channel scanner	1 to 20 channels
Frequency scanner	1 to 20 frequencies
Custom scanner	1 to 20 channels or frequencies

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		
Phase RMS Accuracy Residual error Phase peak accuracy 8 PSK modulation quality	±1.0 degrees 0.7 degrees (typical) ±2.0 degrees	(0 < Phase RMS < 8) (0 < Phase peak < 30)
EVM Accuracy Residual error RF power vs. time	±1.5% 2.5% ±0.25 symbol	(2% < EVM < 8%)

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			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 +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

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	Rel power at defined range	Individual code EVM and its constellation	Channel power	EVM, modulation type	Carrier feed-through
		Channel power	Power bar graph (Abs/Rel/Delta power) CPICH, P-CCPCH, S-CCPCH, PICH, P-SCH, S-SCH	Relative, absolute power	CPICH absolute power
	Spurious emissions	Power bar graph (Abs/Rel/Delta power) CPICH, P-CCPCH, S-CCPCH PICH, P-SCH, S-SCH			CPICH relative power
	Peak frequency at defined range				Max inactive power
	Peak level at defined range		Avg RCDE QPSK, 16 QAM, 64 QAM		Scramble code
					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 +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					
Channel power	**ACPR**	**Spurious emissions**	**Code domain power**	**RCSI**	**Auto measure**
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
					PN offset
					Power statistics CCDF

Option 040					
Channel scanner (up to 6)	**PN scanner (up to 6)**	**Multipath profile**	**Code domain power**	Frequency error	Code utilization
Frequencies or channels	Channel power	Channel power	Abs/Rel code power	Time offset, Rho, EVM	Peak utilization
Channel power, PN offset	Pilot dominance	Multipath power	Channel power	Carrier feed-through	Average utilization
Pilot power, Ec/Io	PN offset	Ec/Io, delay	PN offset	Amplifier capacity	**Route map**
	Ec/Io, pilot power, delay		Pilot, Paging, Sync, Q-Paging power	Peak amplifier capacity	Pilot power
			Max, avg active power	Average amplifier capacity	Ec/Io
			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 +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					
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	Data channel power	Channel power
Spectral density	Abs power at defined range	Slot average power	Rho, EVM, peak CDE	Slot average power	Occupied bandwidth
Peak to average power		On/off ratio	Frequency error	Max, avg active power	Spectrum emission mask
Occupied bandwidth	Rel power at defined range	Idle activity	Time offset	Max, avg inactive power	ACPR
Occupied bandwidth		Pilot, MAC, data power	Carrier feed-through	PN offset	Multi-ACPR
Integrated power	**Multi-ACPR**	**Constellation (Composite 64/128)**	PN offset	**MAC codogram**	Pilot, MAC, data power
Occupied power	Lowest reference power		Modulation type*	Code utilization	On/off ratio
Spectrum emission mask	Highest reference power	Channel power	**Code domain power (pilot and MAC 64/128)**	**RCSI**	PvsT mask (idle slot) or PvsT mask (active slot)
	Abs power at defined range	Rho, EVM, Peak CDE		Slot, pilot, MAC, data	
Reference power		Frequency error	Pilot/MAC channel power	**MAC CDP table**	Frequency error
Peak level at defined range	Rel power at defined range	Time offset	Slot average power	Reference power	Time offset
	Spurious emissions	Carrier feed-through	Max active I/Q power	Code utilization	Carrier feed-through
	Peak frequency at defined range	PN offset	Avg active I/Q power	Code, spreading factor	Pilot, MAC, data Rho
		Pilot, MAC, data power	Max inactive I/Q power	Allocation (channel type)	Max inactive I/Q power
		Pilot, MAC, data EVM	Avg inactive I/Q power	PN offset	PN offset
	Peak level at defined range		PN offset	Relative, absolute power	**Power statistics CCDF**

Option 041					
Channel scanner (up to 6)	**PN scanner (up to 6)**	**Multipath profile**	**Code domain power**	Frequency error	Peak utilization
	Channel power	Channel power	Slot average power	Time offset	Average utilization
Frequencies or channels	Pilot dominance	Multipath power	PN offset	Carrier feed-through	**Route map**
PN offset	PN offset	Ec/Io, delay	Pilot, MAC, data power	Max active I/Q power	Pilot power
Pilot, MAC, data power	Ec/Io, pilot power, delay		Pilot, MAC, data Rho	Avg active I/Q power	Ec/Io
			(Composite) EVM	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
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	ACLR
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	range	**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 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					
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 (up to 6)	*Multipath profile*	*Preamble power trend*	Frame avg power	Preamble	*Route map*
	Total preamble power	Relative power trend	Relative power	Cell ID, sector ID	Preamble power
Total preamble power	Multipath power	Preamble power	C/I	Time offset	
Preamble, relative power	Relative power, delay				
Cell ID, sector ID	Preamble power trend				
Time offset					

Longitude, latitude, and satellite in all screens

LTE/LTE-Advanced—FDD Signal Analyzer (Options 028/030 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

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**	Data EVM RMS, peak
Spectral density	Subframe power		Cell, group, sector ID		RS, P-SS, S-SS EVM
Peak to average power	First slot power		**Frame**	Antenna 3 RS power and EVM**	RS, P-SS, S-SS power
Occupied bandwidth	Second slot power	EVM, relative or absolute power, modulation type	MBSFN*		PBCH power
Occupied bandwidth	Cell ID, I/Q origin offset		Frame summary table (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*, PDSCH/Data* QPSK, PDSCDH/Data* 16 QAM, PDSCH/Data* 64 QAM)	**Data allocation map**	Subframe power
Integrated power	Time offset	Each control channels'		Data allocation vs frame	OFDM power
Occupied power	**Constellation**			Resource block power	Time error
Spectrum emission mask	MBSFN*	I/Q diagram		OFDM symbol power	I/Q origin offset
	RS TX power	Modulation format		Data utilization	**Carrier aggregation****
Reference power	PDSCH/Data* QPSK EVM	Frequency error	EVM, relative or absolute power, modulation type	Data allocation vs subframe	Component carriers: up to 5
Peak level at defined range	PDSCH/Data* 16 QAM EVM	I/Q origin offset		Resource block power	
ACLR	PDSCH/Data* 64 QAM EVM	EVM RMS, EVM peak	Frame average power	Data utilization	Subframe power
Reference power	Data EVM RMS	**Subframe**	OFDM symbol power	**Auto measure**	P-SS, S-SS, PBCH, RS power and EVM
Abs power at defined range	Data EVM peak	MBSFN*	Frequency error	Channel 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)	I/Q origin offset	Occupied bandwidth	PDSCH/Data* QPSK power and EVM
Rel power at defined range	Time error		EVM RMS, peak	Spectrum emission mask	
Multi-ACLR	**Data channel**		Data EVM RMS, peak	ACLR	PDSCH/Data* 16 QAM power and EVM
Lowest reference power	MBSFN*		Cell, group, sector ID	Multi-ACLR	
Highest reference power	Resource block power		**Time alignment error**	Spurious emission mask	PDSCH/Data* 64 QAM power and EVM
Abs power at defined range	I/Q diagram	EVM, relative or absolute power, modulation type	Time alignment error trend	Frame average power	
	RB power			Time alignment error	Cell ID
Rel power at defined range	Modulation format	Subframe power	Time alignment error	Frequency error	Frequency error
Spurious emissions	I/Q origin offset	OFDM symbol power	RS power difference	MBSFN*	Time alignment error
Peak frequency at defined range	EVM RMS, EVM peak	Frequency, time error	Antenna 0 RS power and EVM	PDSCH/Data* QPSK EVM	Antenna port
Peak level at defined range				PDSCH/Data* 16 QAM EVM	**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		**Datagram**	RS-SINR
RSRP/RSRQ	Cell, group, sector ID	Ant 2 RS Ec/Io**, delay**	Absolute power	Datagram	S-SS RSSI
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 RSM, 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 (Option 029/031 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		
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*	Cell, group, sector ID	Data EVM RMS, peak
Spectral density		Time 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)	***Data allocation map***	RS, P-SS, S-SS EVM
Peak to average power	Peak level at defined range	***Data channel***		Data allocation vs frame	RS, P-SS, S-SS power
Occupied bandwidth		MBSFN*		Resource block power	PBCH power
Occupied bandwidth	***Power vs. time (frame)***	Resource block power		OFDM symbol power	Subframe power
Integrated power	Frame average power	I/Q diagram		Data utilization	OFDM power
Occupied power	Subframe power	RB power		Data allocation vs subframe	Time error
Spectrum emission mask	First slot power	Modulation format	EVM, relative or absolute power, modulation type		I/Q origin offset
Reference power	Second slot power	I/Q origin offset	Subframe power	Resource block power	***Carrier aggregation****
Peak level at defined range	Cell ID, I/Q origin offset	EVM RMS, EVM peak	OFDM symbol power	Data utilization	Component carriers: up to 5
	Time offset	***Control channel***	Frequency, time error	***Auto measure***	
ACLR	***Power vs. time (slot)***	Control channel summary (P-SS, S-SS, PBCH, PCFICH, PHICH, PDCCH, RS, MBSFN*)	Data EVM RMS, peak	Channel power	Subframe power
Reference power	Slot average power		RS EVM RMS, peak	Occupied bandwidth	P-SS, S-SS, PBCH, RS power and EVM
Abs power at defined range	Transient period length		Cell, group, sector ID	Spectrum emission mask	
	Off power		***Time alignment error***	ACLR	PDSCH/Data* QPSK power and EVM
Rel power at defined range	***Constellation***	EVM, relative or absolute power, modulation type	Time alignment error trend	Mult-ACLR	
	MBSFN*		Time alignment error	Spurious emission mask	PDSCH/Data* 16 QAM power and EVM
Multi-ACLR	RS TX power	Each control channels'	RS power difference	Slot average power	
Lowest reference power	PDSCH/Data* QPSK EVM	I/Q diagram	Antenna 0 RS power and EVM	Off power	PDSCH/Data* 64 QAM power and EVM
Highest reference power	PDSCH/Data* 16 QAM EVM	Modulation format		Transition period	
Abs power at defined range		Frequency error	Antenna 1 RS power and EVM	Time alignment error	Cell ID
	PDSCH/Data* 64 QAM EVM	I/Q origin offset		MBSFN*	Frequency error
Rel power at defined range		EVM RMS, EVM peak	Antenna 2 RS power and EVM**	PDSCH/Data* QPSK EVM	Time alignment error
	Data EVM RMS			PDSCH/Data* 16 QAM EVM	Antenna port
					Power statistics CCDF

			Option 049		
Channel scanner (up to 6)	***ID scanner (up to 6)***	***Multipath profile***	***Control channel***	EVM RSM, 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.

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, ALL0, 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[2]	Indicators E1 signal Frame sync Pattern sync Code sync FAS RAI AIS HDB3 Bit error[2]

Error count/rate	Error count/rate
Frame error Code error Bit error[2]	CRC error[1] Frame error Code error Bit error[2]

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 Ω)
Output	0 dB, −7.5 dB, −15 dB
Line code	AMI, B8ZS
Impedance	100 Ω or 1000 Ω (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, ALL0, 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	dB_{dsx}

Alarm count	
RAI	
AIS	
BPV	

Error rate	
Bit error rate	
Bit error count	

Bluetooth Connectivity (Option 006)

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

General Information

Inputs and Outputs	
RF In Connector Impedance Damage level	Spectrum analyzer Type-N, female 50 Ω (nominal) >+40 dBm, ±50 V DC (nominal)
Reflection/RF Out Connector Impedance Damage level	Cable and antenna analyzer Type-N, female 50 Ω (nominal) >+37 dBm, ±50 V DC (nominal)
RF In Connector Impedance Damage level	Cable and antenna analyzer Type-N, female 50 Ω (nominal) >+25 dBm, ±50 V DC (nominal)
External Trigger, GPS Connector Impedance	SMA, female 50 Ω (nominal)
External Ref Connector Impedance Input frequency Input range	SMA, female 50 Ω (nominal) 10 MHz, 13 MHz, 15 MHz −5 to +5 dBm
USB USB host[1] USB client[2]	Type A, 1 port Type B, 1 port
LAN	RJ45, 10/100Base-T
E1/T1	RJ45
Audio jack	3.5 mm headphone jack
External power	5.5 mm barrel connector
Speaker	Built-in speaker

Display	
Type	Resistive touch screen (as of serial number BEK11791)
Size	8 inch, LED backlight
Resolution	800 x 600

Power		
External DC input	12 to 19 V DC	
Power consumption	32.5 W	45 W maximum (when charging battery)

Battery	
Type	10.8 V, 7800 mA/hr (Lithium ion)
Operating time	>3 hours (typical)
Charge time	2.5 hours (80%), 4 hours (100%)
Charging temperature	0 to 45°C (32 to 113°F) ≤85% RH
Discharging temperature	−10 to 60°C (14 to 140°F) ≤85% RH
Storage temperature[3]	−20 to 50°C (−4 to 122°F) ≤85% RH (noncondensing)

Data Storage	
Internal[4]	Minimum 20 MB
External[5]	Limited by size of USB flash drive

Environmental	
Operating Temperature	
AC Power	0 to 40°C (32 to 104°F) with no derating
Battery	0 to 40°C (32 to 104°F) at charging −10 to 55°C (14 to 131°F) at discharging
Maximum humidity	85% RH (noncondensing)
Shock and vibration	MIL-PRF-28800F class 2
Storage temperature[6]	−30 to 71°C (−22 to 160°F)

EMC	
EN 61326-2-1 (complies with European EMC)	

Size and Weight (standard configuration)	
Weight (with battery)	<4 kg (8.8 lb)
Size (W x H x D)	295 x 195 x 82 mm (11.6 x 7.7 x 3.2 in)

Warranty
2 years

Calibration Cycle
1 year

1. Connects flash drive and power sensor
2. Connects to PC for data transfer
3. 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
4. Up to 700 traces
5. Supports USB 2.0 compatible memory devices
6. With the battery pack removed

Ordering Information

Description	Part Number
Standard CellAdvisor Base Station Analyzer	
100 kHz to 4 GHz Spectrum Analyzer 5 MHz to 4 GHz Cable and Antenna Analyzer[1] 10 MHz to 4 GHz RF Power Meter (Internal mode)	JD745A
Options NOTE: Upgrade options for the JD745A use the designation JD745AU before the respective last three-digit option number.	
2-port transmission measurement[2]	JD745A001
Bias-tee (requires option 01)	JD745A002
CW signal generator	JD745A003
E1 analyzer[3]	JD745A004
T1 analyzer[3]	JD745A005
Bluetooth connectivity[4]	JD745A006
GPS receiver and antenna	JD745A010
Interference analyzer[5, 6]	JD745A011
Channel scanner	JD745A012
cdmaOne/cdma2000 signal analyzer	JD745A020
EV-DO signal analyzer[7]	JD745A021
GSM/GPRS/EDGE signal analyzer	JD745A022
WCDMA/HSPA+ signal analyzer	JD745A023
TD-SCDMA signal analyzer	JD745A025
Mobile WiMAX signal analyzer	JD745A026
LTE-FDD signal analyzer	JD745A028
LTE-TDD signal analyzer	JD745A029
LTE-Advanced—FDD signal analyzer[8]	JD745A030
LTE-Advanced—TDD signal analyzer[9]	JD745A031
cdmaOne/cdma2000 OTA analyzer[6, 10]	JD745A040
EV-DO OTA analyzer[6, 10]	JD745A041
GSM/GPRS/EDGE OTA analyzer[6, 10]	JD745A042
WCDMA/HSPA+ OTA analyzer[6, 10]	JD745A043
TD-SCDMA OTA analyzer[6, 10]	JD745A045
Mobile WiMAX OTA analyzer[6, 10]	JD745A046
LTE-FDD OTA analyzer[6, 10]	JD745A048
LTE-TDD OTA analyzer[6, 10]	JD745A049
Standard Accessories	
AC/DC power adapter[11]	G710550326
Cross LAN cable (1.5 m)[11]	G710550335
USB A to B cable (1.8 m)[11]	GC73050515
>1 GB USB memory[11]	GC72450518
Rechargeable lithium ion battery[11]	G710550325
Automotive cigarette lighter 12 V DC adapter[11]	G710550323
Stylus[11]	G710550316
JD740A series user's manual and application software — CD	JD740A361

Description	Part Number
Optional Calibration Kits	
Y-calibration kit, Type-N(m), DC to 6 GHz, 50 Ω	JD72450509
Dual-port Type-N calibration kit, 50 Ω Y-calibration kit, Type-N(m), DC to 6 GHz, 50 Ω Two adapters Type-N(f) to Type-N(f), DC to 18 GHz, 50 Ω Two 1 m RF test cables, Type-N(m) to Type-N(m), DC to 8 GHz, 50 Ω	JD72450510
Dual-port Type-N calibration kit, 50 Ω Y-calibration kit, Type-N(m), DC to 4 GHz, 50 Ω Two adapters Type-N(f) to Type-N(f), DC to 18 GHz, 50 Ω Two 1 m RF test cables, Type-N(m) to Type-N(m), DC to 8 GHz, 50 Ω	JD71050507
Dual-Port DIN calibration kit, 50 Ω Y-calibration kit DIN(m), DC to 4 GHz, 50 Ω Two 1.5 m RF test cables, Type-N(m) to Din-N(f), DC to 6 GHz, 50 Ω Two adapters DIN(m) to DIN(m), DC to 7.5 GHz, 50 Ω	JD71050508
Optional RF Cables	
1.5 m (4.92 ft) RF cable, DC to 18 GHz, Type-N(m) to SMA(m), 50 Ω	G710050533
1.5 m (4.92 ft) RF cable, DC to 18 GHz, Type-N(m) to QMA(m), 50 Ω	G710050534
1.5 m (4.92 ft) RF cable, DC to 18 GHz, Type-N(m) to SMB(m), 50 Ω	G710050535
RF cable DC to 6 GHz Type-N(m) to DIN(f), 1.5 m	G710050536
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
Phase-stable RF cable with grip DC to 6 GHz Type-N(m) to Type-N(f), 1.5 m	G700050540
Phase-stable RF cable with grip DC to 6 GHz Type-N(m) to DIN(f), 1.5 m	G700050541
Optional Omni Antennas	
RF omni antenna Type-N(m), 806 MHz to 896 MHz	G700050353
RF omni antenna Type-N(m), 870 MHz to 960 MHz	G700050354
RF omni antenna Type-N(m), 1.71 GHz to 2.17 GHz	G700050355
RF omni antenna Type-N(m), 720 MHz to 800 MHz	G700050356
RF omni antenna Type-N(m), 2.3 GHz to 2.7 GHz	G700050357

1. Requires calibration kit

2. Requires dual-port calibration kit

3. Requires test cable

4. Includes two Bluetooth USB dongles with 5 dBi dipole antenna (JD70050006)

5. Recommend adding GPS receiver JD745A010

6. Recommend adding antennas G70005035x and/or G70005036x

7. Requires Option 020

8. Requires Option 028

9. Requires Option 029

10. Requires Option 010

11. Standard accessory, can be purchased separately

Ordering Information continued

Description	Part Number
Optional Yagi Antennas	
RF Yagi antenna Type-N(f), 806 MHz to 896 MHz, 10.2 dBd[1]	G700050364
RF Yagi antenna Type-N(f), 866 MHz to 960 MHz, 10.2 dBd[1]	G700050365
RF Yagi antenna Type-N(f), 1.75 GHz to 2.39 GHz, 9.8 dBd[1]	G700050363
RF Yagi antenna Type-SMA(f), 700 MHz to 4 GHz, 1.85 dBd[1]	G700050366
Optional RF Power Sensors	
Directional power sensor (peak and average power) Frequency: 300 MHz to 3.8 GHz Power: average 0.15 to 150 W, peak 4 to 400 W	JD731B
Directional power sensor (peak and average power) Frequency: 150 MHz to 3.5 GHz Power: average/peak 0.1 to 50 W	JD733A
Terminating power sensor (average power) Frequency: 20 MHz to 3.8 GHz Power: −30 to +20 dBm	JD732B
Terminating power sensor (peak power) Frequency: 20 MHz to 3.8 GHz Power: −30 to +20 dBm	JD734B
Terminating power sensor (peak and average power) Frequency: 20 MHz to 3.8 GHz Power: −30 to +20 dBm	JD736B
Optional Optical Power Meters	
USB optical power meter with software, 2.5 and 1.25 mm interfaces, 30-inch USB extender, and carrying 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

Description	Part Number
Optional RF Adapters	
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
Optional E1/T1 Test Cables	
RJ45 to Y bantam cable	G710050317
RJ45 to Y BNC cable	G710050318
RJ45 to 4 alligator clips	G710050319
Optional Miscellaneous	
Attenuator 40 dB, 100 W, DC to 4 GHz (unidirectional)	G710050581
Soft carrying case	JD74050341
Hard carrying case	JD71050342
Hard carrying case with wheels	JD70050342
CellAdvisor backpack carrying case	JD70050343
RF directional coupler, 700 MHz to 4 GHz, 30 dB, input/output; Type-N(m) to Type-N(f), tap off; Type-N(f)[3]	G710050585
RF Combiner, 700 MHz to 4 GHz, Type-N(f) to Type-N(m)[3]	G710050586
4x1 RF combiner 700 MHz to 4 GHz, Type-N(f) to Type-N(m)[4]	G710050587
External battery charger	G710550324
JD740A series user's manual – printed version	JD740A362

1. Requires RF cable G700050530
2. Requires RF cable G710050533
3. Recommended for LTE testing
4. Recommended for LTE Advanced testing