JD7105B

Base Station Analyzer

Technical Data Sheet

JDSU

Table of Contents

Specifications

The JD7105B specifications apply under the following conditions:

- After a warm up time of 30 minutes and two hours of operation temperature.
- The instrument is operating within a valid calibration period.
- The data with no tolerance is considered as typical values.
- The 'typical' or 'nominal' values are defined as follows:
  - Typical: Expected performance of the instrument operating under 20 °C to 30 °C after being at this temperature for two hours.
  - Nominal: A general, descriptive term or parameter.

Spectrum Analyzer (Standard)

		Supplemental Information
Frequency		
Frequency range:	100 kHz to 7.2 GHz	
Internal 100 MHz Frequency Reference		
Accuracy:	±0.1 ppm (25°C ±25°C) + aging	
Aging:	±2.5 ppm/10years	
Frequency Span		
Range:	0 Hz (Zero Span) 10 Hz to 7.2 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	
100 kHz	< -102 dBc/Hz	
1 MHz	< -115 dBc/Hz	
Measurement Range		
	DANL to +30 dBm	
Input attenuator range:	0 to 55 dB, 5 dB steps	
Maximum Safe Input Level		
Average continuous power:	+ 36 dBm; 3 minutes maximum	Nominal
DC voltage:	±50 VDC	

Displayed Average Noise Level (DANL)

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

Preamplifier Off:	
10 MHz to 1 GHz	-145 dBm
>1 GHz to 2 GHz	-143 dBm
>2 GHz to 3 GHz	-140 dBm
>3 GHz to 6 GHz	-135 dBm
>6 GHz to 7.2 GHz	-130 dBm
Preamplifier On:	
10 MHz to 1 GHz	-160 dBm
>1 GHz to 2 GHz	-158 dBm
>2 GHz to 3 GHz	-156 dBm
>3 GHz to 6 GHz	-154 dBm
>6 GHz to 7.2 GHz	-145 dBm

Display Range

Log scale and units:	1 to 20 dB/division in 1 dB steps dBm, dBmV, dBuV	10 divisions displayed
Linear scale and units:	10 divisions displayed V, mV, mW, W	
Detectors:	Normal, Positive Peak, Sample, Negative Peak, Sample, Average	
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 (25°C ± 5°C)

10 MHz to 5.725 GHz	±1.00 dB		
>5.725 GHz to 6.425 GHz	±1.25 dB	Attenuation	≤ 40 dB
	±1.75 dB	Attenuation	> 40 dB
>6.425 GHz to 7.2 GHz	±1.50 dB	Attenuation	≤ 40 dB
	±2.00 dB	Attenuation	> 40 dB

Reference Level

Setting range:	-120 dBm to +30 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

1.5:1	Typical

Second Harmonic Distortion (Second Harmonic Intercept: SHI)

Mixer level = -25 dBm

100 kHz to 1 GHz	< -65 dBc
1 GHz to 7.2 GHz	< -70 dBc

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

1 GHz	+12 dBm
2 GHz	+15 dBm

Spurious

Inherent residual response

Input terminated, 0 dB attenuation, preamplifier off, RBW @10 kHz

100 kHz to 3.2 GHz	-90 dBm
3.2 GHz to 7.2 GHz	-85 dBm
Exceptions	
	<-75 dBm @ 4281 to 4292 MHz
Input related spurious:	< -70 dBc
Exceptions	-50 dBc @ 175 MHz ± 0.8MHz

Sweep Time

Range:	80 ms to 1000 s	
	24 us to 200 s	Span = 0 Hz (zero span)
Sweep mode:	Continuous, single	

Gated Sweep

Trigger source:	External
Gate length:	1 us 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 us

Measurements

Channel Power
Occupied BW
Spectrum Emission Mask
Adjacent Channel Power
Spurious Emissions
AM/FM Audio Demodulation
RF Source

Power Meter (Standard)

Power Meter			
Display range :	-100 dBm to +100 dBm		
Offset range:	0 to 60 dB		
Resolution:	0.01 dB or 0.1xW		x = m, u, p
Internal			
Frequency range:	10 MHz to 7.2 GHz		
Span:	1 kHz to 100 MHz		
Dynamic range:	-120 dBm to +30 dBm		
Maximum power:	+30 dBm		
Accuracy:	Same as spectrum analyzer		
External			
Directional power sensors	**JD731A**		**JD733A**
Frequency range:	300 MHz to 3800 MHz		150 MHz to 3800 MHz
Dynamic range:	Average	0.15 W to 150 W	Average 0.25 W to 20 W
	Peak	4 W to 400 W	Peak 0.25 W to 20 W
Connector type:	N- female on both ends		
Measurement type:	Forward/reverse average power, forward peak power, VSWR		
Accuracy:	±4 % + 0.05 W[1]		

Terminating power sensors	**JD732A**	**JD734A**	**JD736A**
Frequency range:	20 to 3800 MHz	20 to 3800 MHz	20 to 3800 MHz
Dynamic range:	-30 to 20 dBm	-30 to 20 dBm	-30 to 20 dBm
Connector type:	Type N (m)	Type N (m)	Type N (m)
Measurement type:	Average	Peak	Average and peak
Accuracy:	±7 %[1]	±7 %[1]	±7 %[1]

[1]CW condition at 25°C ± 10°C

Cable and Antenna Analyzer (Standard)

		Supplemental Information
Frequency		
Range:	20 MHz to 4 GHz	
Resolution:	10 kHz	
Accuracy	±25 ppm	
Data Points		
	126, 256, 501, 1001	
Measurement speed		
	2 ms/point	Nominal
Measurement Accuracy		
Corrected directivity:	40 dB (typical)	
Measurement uncertainty:		
Reflection uncertainty	$0.3 + \lvert 20\log (1+10^{-EP/20}) \rvert$	EP is calibration return loss value minus measured return loss value.

Output Power		
High:	+ 3 dBm	
Low:	- 30 dBm	
Signal source setting:	+3 dBm, -20 dBm, -30 dBm, -40 dBm, -50 dBm, -60 dBm, -70 dBm	Cable and antenna analyzer can be used as a sine wave or CW (continuous wave) source
Accuracy:	± 1.5 dB	
Dynamic Range		
Reflection:	60 dB	
Transmission:		
25 MHz to 3.5 GHz	80 dB	
3.5 GHz to 4.0 GHz	75 dB	
Maximum Safe Input Level		
Maximum input level:	+25 dBm	Nominal
DC voltage:	±50 VDC	
Interference immunity		
On channel:	+17 dBm	
On frequency:	0 dBm	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 port-1) x	Maximum= 1500 m (4921 ft)
Horizontal resolution	$(1.5x10^8)x(Vp)/(Delta)x(0.95)$	Vp=propagation velocity Delta= stop freq-start freq [Hz]
Cable Loss (1 port):		
Range	0 to 30 dB	
Resolution	0.01 dB	
Insertion Loss/Gain:		
Range	-120 to 100 dB	
Resolution	0.01 dB	
Phase (1 and 2 port):		
Range	-180° to +180°	
Resolution	0.01°	
Smith Chart:		
Resolution	0.01	

GPS Receiver (Option 010)

		Supplemental Information
GPS Indicator:	Latitude, longitude and altitude on display	
High frequency accuracy:		Spectrum, Interference, signal Analyzer
GPS lock	±25 ppb	3 minutes after satellite locking
Hold over	±50 ppb	
Connector:	SMA , female	

Interference Analyzer (Option 011)

		Supplemental Information
Measurements		
Spectrum analyzer:	Sound indication, AM/FM audio demodulation	
Spectrogram:	Collect data up to 72 hours	
RSSI:	Collect data up to 72 hours	
(Received Signal Strength Indicator)		

Channel Scanner (Option 012)

		Supplemental Information
Frequency Range		
	100 kHz to 7.2 GHz	
Measurement Range		
	-110 dBm to +30 dBm	
Measurements		
Channel Scanner:	1 to 20 channels	
Frequency Scanner:	1 to 20 frequencies	
Custom Scanner:	1 to 20 channels or frequencies	

Bias Tee (Option 013)

		Supplemental Information
Voltage range:	+12 V to +32 V	
Current:	500 mA Max	
Resolution:	0.1 V	

GSM/GPRS/EDGE Signal Analyzer (Option 022)

		Supplemental Information
Frequency range:	450 MHz to 500 MHz 820 MHz to 965 MHz 1705 MHz to 1995 MHz	
Input signal range:	-40 dBm to +30 dBm	
Burst power:	±1.0 dB	
Frequency error	±10 Hz + time base error	99% confidence level
GMSK modulation quality:		
Phase RMS accuracy	±1.0 degree	(0 < Phase RMS < 8)
Residual error	0.7 degree	Typical
Phase peak accuracy:	±2.0 degree	(0 < Phase Peak < 30)
8 PSK modulation quality:		
EVM accuracy	±1.5%	(2% < EVM < 8%)
Residual error	2.5%	
RF power vs time:	±0.25 symbol	

Measurements

Option 022

Channel Power
- Channel Power
- Spectral Density
- Peak to Average Power

Occupied BW
- Occupied Bandwidth
- Integrated Power
- Occupied Power

Spectrum Emission Mask
- Peak level @ defined range

Spurious Emissions
- Peak level @ defined range

Power vs Time (Slot)
- Burst Power
- Max/Min Point

Power vs Time (Frame)
- Frame Average Power
- Burst Power (Slot 0 to 7)
- TSC (Slot 0 to 7)

Constellation
- Burst Power
- Modulation Type
- Frequency Error
- Phase Error rms/peak
- IQ Origin Offset
- TSC
- BSIC
- C/I*
- EVM rms/peak*
- EVM 95th*

Auto Measure
- Channel Power
- Occupied BW
- Spectrum Emission Mask
- Spurious Emissions
- Burst/Frame Average Power
- Frequency Error
- Phase Error rms/peak
- EVM rms/peak*
- Origin Offset
- C/I*

Option 042

Channel/Frequency Scanner
- Power
- Group (Traffic, Control)
- BSIC (NCC, BCC)

Multipath Profile (Six strongest)
- SNR, Delay
- Longitude, Latitude, Satellite

Modulation Analyzer
- Frame Avg Power Trend
- C/I Trend,
- Frame Average Power
- BSIC
- Frame No, Frame Time
- C/I
- Frequency Error
- Burst Power
- Modulation Type
- Longitude, Latitude, Satellite

WCDMA/HSDPA Signal Analyzer (Option 023 for WCDMA, Option 024 for HSDPA)

		Supplemental Information
Frequency range:	Band I to Band XIV	
Input signal level:	-40 dBm to + 30 dBm	
RF channel power accuracy:	±1.0 dB, ±0.7 dB (typical)	
Occupied bandwidth accuracy:	±100 kHz	
Adjacent channel leakage ratio:	< -56 dB, ±0.7 dB@5 MHz offset	
(ACLR)	< -58 dB, ±0.8 dB@10 MHz offset	
WCDMA modulations:	QPSK,	
HSDPA modulations:	QPSK, 16 QAM, 64 QAM	
Frequency error:	±10 Hz + time base error	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
CPICH accuracy (dBm):	±0.8 dB	Typical

Measurements

Option 023 and 024

Channel Power
- Channel Power
- Spectral Density
- Peak to Average Power

Occupied BW
- Occupied Bandwidth
- Integrated Power
- Occupied Power

Spectrum Emission Mask
- Peak level @ defined range

ACLR
- Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Multi-ACLR
- Lowest Reference Power
- Highest Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Spurious Emissions
- Peak level @ defined range

Constellation
- Channel Power
- Rho, EVM
- Peak CDE
- Frequency Error
- Time Offset
- Carrier Feed Through
- Scramble Code

Code Domain Power
- Channel Power
- CPICH Power (Abs/Rel)
- PCCPCH Power (Abs/Rel)
- SCCPCH Power (Abs/Rel)
- PSCH Power (Abs/Rel)
- SSCH Power (Abs/Rel)
- PICH Power (Abs/Rel)
- Max/Avg Active Power
- Max/Avg Inactive Power
- Scramble Code

Codogram
- Code Utilization
- Longitude, Latitude

RCSI
- CPICH, PCCPCH, SCCPCH
- PSCH, SSCH, PICH

CDP Table
- Code, Spreading Factor
- Channel Type, Power
- Code Utilization

Auto Measure
- Channel Power
- Occupied BW
- Spectrum Emission Mask
- ACLR
- Multi-ACLR
- Spurious Emissions
- Rho, EVM
- Peak CDE
- Frequency Error
- Time Offset
- Carrier Feed Through
- Scramble Code
- CPICH Power
- Noise Floor

Option 043

Scramble Code Scanner
(Six strongest)
- Channel Power
- CPICH Dominance
- Scramble Code
- Ec/Io, CPICH Power, Delay

Multipath Profile
- Channel Power
- Multipath Power
- Ec/Io, Delay

Code Domain Power
- Channel Power
- Scramble Code
- CPICH Power (Abs/Rel)
- PCCPCH Power (Abs/Rel)
- SCCPCH Power (Abs/Rel)
- PSCH Power (Abs/Rel)
- SSCH Power (Abs/Rel)
- PICH Power (Abs/Rel)
- Max/Avg Active Power
- Max/Avg Inactive Power
- Rho, EVM
- Frequency Error
- Time offset, Peak CDE
- Carrier Feed Through
- Amplifier Capacity
- Peak Amplifier Capacity
- Average Amplifier Capacity
- Code/Peak Utilization
- Average Utilization

Longitude, Latitude,
Satellite in all screens

CDMA/CDMA2000 Signal Analyzer (Option 020)

		Supplemental Information
Frequency range:	Band 1 to Band 10	
Input signal level:	-40 dBm to +30 dBm	
RF channel power accuracy:	±1.0 dB	Typical
CDMA compatibility:	CDMA and CDMA2000	
Frequency error:	±10 Hz + time base error	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	
Pilot power accuracy:	±1.0 dB	
Time offset:	±1.0 us, ±0.5us (typical)	External Trigger

Measurements

Option 020

Channel Power
- Channel Power
- Spectral Density
- Peak to Average Power

Occupied BW
- Occupied Bandwidth
- Integrated Power
- Occupied Power

Spectrum Emission Mask
- Peak level @ defined range

ACPR
- Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Multi-ACPR
- Lowest Reference Power
- Highest Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Spurious Emissions
- Peak level @ defined range

Constellation
- Channel Power
- Rho
- EVM
- Frequency Error
- Time Offset
- Carrier Feed Through
- PN Offset

Code Domain Power
- Channel Power
- Pilot Power (Abs/Rel)
- Sync Power (Abs/Rel)
- Page Power (Abs/Rel)
- Q-Page Power (Abs/Rel)
- Max/Avg Active Power
- Max/Avg Inactive Power
- PN Offset

Codogram
- Code Utilization
- Longitude, Latitude

RCSI
- Pilot, Paging, Sync, Q-Page

CDP Table
- Code, Spreading Factor
- Channel Type, Power
- Code Utilization

Auto Measure
- Channel Power
- Occupied BW
- Spectrum Emission Mask
- ACLR
- Multi-ACLR
- Spurious Emissions
- Rho, EVM
- Frequency Error
- Time Offset
- Carrier Feed Through
- PN Offset
- Pilot Power
- Noise Floor

Power Statistics CCDF

Option 040

PN Scanner
(Six strongest)
- Channel Power
- Pilot Dominance
- PN Offset
- Ec/Io, Pilot Power, Delay

Channel Scanner (up to 6)
- Frequencies or Channels
- Channel Power, PN Offset
- Pilot Power, Ec/Io

Multipath Profile
- Channel Power
- Multipath Power
- Ec/Io, Delay

Code Domain Power
- Channel Power
- PN Offset
- Pilot Power (Abs/Rel)
- Sync Power (Abs/Rel)
- Page Power (Abs/Rel)
- Q-Page Power (Abs/Rel)
- Max/Avg Active Power
- Max/Avg Inactive Power
- Frequency Error
- Time offset, Rho, EVM
- Carrier Feed Through
- Amplifier Capacity
- Peak Amplifier Capacity
- Average Amplifier Capacity
- Code/Peak Utilization
- Average Utilization

- Longitude, Latitude
- Satellite in all screens

EV-DO Signal Analyzer (Option 021)

		Supplemental Information
Frequency range:	Band 1 to Band 10	
Input signal level:	-40 dBm to +30 dBm	
RF channel power accuracy:	±1.0 dB	Typical
EV-DO compatibility:	Rev 0, Rev A and Rev B	
Frequency error:	±10 Hz + time base error	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	
Pilot power accuracy:	±1.0 dB	
Time offset:	±1.0 us, ±0.5us (typical)	External Trigger

Measurements

Option 021

Channel Power
- Channel Power
- Spectral Density
- Peak to Average Power

Occupied BW
- Occupied Bandwidth
- Integrated Power
- Occupied Power

Spectrum Emission Mask
- Peak level @ defined range

ACPR
- Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Multi-ACPR
- Lowest Reference Power
- Highest Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Spurious Emissions
- Peak level @ defined range

Power vs Time (Idle Slot and Active Slot)
- Slot Average Power
- Pilot, MAC, Data Power
- On/Off Ratio
- Idle Activity

Constellation (Pilot, MAC64/128, Data, Composite 64/128)
- Channel Power
- Rho, EVM
- Peak CDE
- Frequency Error
- Time Offset
- Carrier Feed Through
- PN Offset

Code Domain Power (Pilot/MAC)
- Pilot/Mac Power
- Slot Average Power
- Max/Avg I/Q Power

Code Domain Power (Data)
- Data Power
- Slot Average Power
- Avg Data Code Power
- Max Data Code Power
- Min Data Code Power
- PN Offset

MAC Codogram
- Code Utilization
- Longitude, Latitude

RCSI
- Slot, Pilot, MAC, Data

MAC CDP Table
- Code, Spreading Factor
- Channel type, Power
- Code Utilization

Auto Measure
- Channel Power
- Occupied BW
- Spectrum Emission Mask
- ACLR
- Multi-ACLR
- Spurious Emissions
- Slot Average Power
- Pilot, MAC, Data Power
- On/Off Ratio
- Idle Activity
- Pilot/MAC/Data Rho, EVM
- Frequency Error
- Time Offset
- Carrier Feed Through
- PN Offset

Power Statistics CCDF

Option 041

PN Scanner
(Six strongest)
- Channel Power
- Pilot Dominance
- PN Offset
- Ec/Io, Pilot Power, Delay

Channel Scanner (up to 6)
- Frequencies or Channels
- Channel Power, PN Offset
- Pilot Power, Ec/Io

Multipath Profile
- Channel Power
- Multipath Power
- Ec/Io, Delay

Code Domain Power
- Slot Average Power
- PN Offset
- Pilot, MAC, Data Power
- Pilot, MAC, Data Rho, EVM
- Max/Avg Active I/Q Power
- Frequency Error
- Time offset, Peak CDE
- Carrier Feed Through
- Code/Peak Utilization
- Average Utilization

- Longitude, Latitude
- Satellite in all screens

TD-SCDMA Signal Analyzer (Option 025)

		Supplemental Information
Frequency range:	1785 MHz to 2220 MHz	
Input signal level:	-40 dBm to +30 dBm	
Channel power (RRC) accuracy:	±1.0 dB	Typical
Modulations:	QPSK, 8PSK, 16QAM	
Frequency error:	±10 Hz + time base error	99% confidence level
Residual EVM (rms):	2.0 % typical	P-CCPCH slot & 1 channel
Time error (Tau):	±0.2 us (typical)	External Trigger
Spreading factor:	Auto (DL, UL), 1, 2, 4, 8, 16	

Measurements

Option 025

Channel Power
- Channel Power
- Spectral Density
- Peak to Average Power

Occupied BW
- Occupied Bandwidth
- Integrated Power
- Occupied Power

Spectrum Emission Mask
- Peak level @ defined range

ACLR
- Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Multi-ACLR
- Lowest Reference Power
- Highest Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Spurious Emissions
- Peak level @ defined range

Power vs Time (Slot)
- Slot Power
- DwPTS Power
- UpPTS Power
- On/Off Slot Ratio
- Slot PAR
- DwPTS Code

Power vs Time (Frame)
- Slot Power (TS 0 to 6)
- Data Power Left (TS 0 to 6)
- Midamble Power (TS 0 to 6)
- Data Power Right (TS 0 to 6)
- Time Offset

Power vs Time (Mask)
- Slot Power
- On/Off Slot Ratio

Timogram

Constellation
- Rho
- EVM rms/peak
- PCDE
- Frequency Error
- IQ Origin Offset
- Time Offset

Midamble Power
- Midamble Power (1 to 16)

Code Power
- Slot Power, DwPTS Power
- No of Active Code
- Max Active Code Power
- Avg Active Code Power
- Max Inactive Code Power
- Avg Inactive Code Power

Code Error
- Slot, DwPTS Power
- No of Active Code
- Max Active Code Power
- Avg Active Code Power
- Max Inactive Code Power
- Avg Inactive Code Power
- Peak CDE
- EVM rms/peak
- Frequency Error
- Time Offset

Auto Measure
- Channel Power
- Occupied BW
- Spectrum Emission Mask
- ACLR
- Multi-ACLR
- Spurious Emissions
- Slot Power
- UpPTS Power
- UpPTS Power
- On/Off Slot Ratio
- DwPTS Code
- Rho
- EVM rms/peak
- PCDE
- Frequency Error
- IQ Origin Offset
- Time Offset

Option 045

Sync-DL ID Scanner (32)
- Scramble Code
- Ec/Io, Tau

Sync-DL ID vs Tau (up to 6)
- DwPTS Power
- Pilot Dominance
- Power, Ec/Io, Tau

Sync-DL ID Multipath (up to 6)
- DwPTS Power
- Pilot Dominance
- Power, Ec/Io, Tau

Sync-DL ID Analyzer
- DwPTS Power
- Pilot Dominance
- EVM,Ec/Io, CINR
- Frequency Error

- Longitude, Latitude
- Satellite in all screens

Mobile WiMAX Signal Analyzer (Option 026)

		Supplemental Information
Frequency range:	2100 MHz to 2700 MHz 3400 MHz to 3850 MHz 5200 MHz to 5900 MHz	
Input signal level:	-40 dBm to +30 dBm	
Channel power accuracy:	±1.0 dB typical	
Supported bandwidth:	7 MHz, 8.75 MHz, 10 MHz	
Frequency error:	±0.1ppm + time base error	99% confidence level
Residual EVM (rms):	1.5% typical	

Measurements

Option 026

Channel Power
- Channel Power
- Spectral Density
- Peak to Average Power

Occupied BW
- Occupied Bandwidth
- Integrated Power
- Occupied Power

Spectrum Emission Mask
- Peak level @ defined range

Spurious Emissions
- Peak level @ defined range

Power vs Time (Frame)
- Channel Power
- Frame Average Power
- Preamble Power
- DL Burst Power
- UL Burst Power

Spectral Flatness
- Subcarrier Average Power
- Subcarrier Max/Min/Avg

Constellation
- Frequency Error
- EVM rms/peak
- RCE rms/peak
- Time Offset
- Segment ID, Cell ID
- Preamble Index

EVM vs Carrier
- RCE rms/peak
- EVM rms/Peak
- Segment ID, Cell ID
- Preamble Index

EVM vs Symbol
- RCE rms/peak
- EVM rms/Peak
- Segment ID, Cell ID
- Preamble Index

Auto Measure
- Channel Power
- Occupied BW
- Spectrum Emission Mask
- Spurious Emissions
- Preamble Power
- UL Burst Power
- Interval Power
- Frequency Error
- Time Offset
- RCE
- EVM
- IQ Origin Offset

Power Statistics CCDF

LTE Signal Analyzer (Option 028)

		Supplemental Information
Frequency range:	700 MHz to 1000 MHz 1800 MHz to 2200 MHz 2600 MHz to 2700 MHz	
Input signal level:	-40 dBm to +30 dBm	
Channel power accuracy:	±1.0 dB	Typical
Supported bandwidth:	10 MHz	
Frequency error:	±10 Hz + time base error	99% confidence level
Residual EVM (rms):	2.0% typical	Data EVM

Measurements

Option 028

Channel Power
- Channel Power
- Spectral Density
- Peak to Average Power

Occupied BW
- Occupied Bandwidth
- Integrated Power
- Occupied Power

Spectrum Emission Mask
- Peak level @ defined range

ACLR
- Reference Power
- Abs Power@ defined range
- Rel Power@ defined range

Spurious Emissions
- Peak level @ defined range

Control Channel
- PSCH EVM/Power/Mod Type
- SSCH EVM/Power/Mod Type
- PBCH EVM/Power/Mod Type
- PCFICH EVM/Power/Mod Type
- PHICH EVM/Power/Mode Type
- PDCCH EVM/Power/Mode Type
- RS EVM/Power/Mode Type
- Each Data Channels'
  - IQ Diagram
  - Modulation Format
  - Frequency Error
  - IQ Origin Offset
  - EVM rms/peak

Frame Summary
- PSCH EVM/Power/Mod Type
- SSCH EVM/Power/Mod Type
- PBCH EVM/Power/Mod Type
- PCFICH EVM/Power/Mod Type
- PHICH EVM/Power/Mode Type
- PDCCH EVM/Power/Mode Type
- PDSCH EVM/Power/Mode Type
- Frame Average Power
- RS TX Power
- EVM rms/peak
- Data EVM rms/peak
- Frequency Error
- IQ Origin Offset

Subframe Summary
- PSCH EVM/Power/Mod Type
- SSCH EVM/Power/Mod Type
- PBCH EVM/Power/Mod Type
- PCFICH EVM/Power/Mod Type
- PHICH EVM/Power/Mode Type
- PDCCH EVM/Power/Mode Type
- PDSCH EVM/Power/Mode Type
- Subframe Power
- OFDM Symbol Power
- RS EVM rms/peak
- Data EVM rms/peak
- Frequency Error, Time Error
- Cell ID, Group ID, Sector ID

Power vs Time (Frame)
- Frame Average Power
- Subframe Power
- First Slot Power
- Second Slot Power
- Cell ID, IQ Origin Offset
- Time Offset

Data Channel
- Resource Block Power
- IQ Diagram
  - RB Power
  - Modulation Format
  - IQ Origin Offset
  - EVM rms/peak

Auto Measure
- Channel Power
- Occupied BW
- Spectrum Emission Mask
- ACLR
- Spurious Emissions
- PSCH EVM/Power
- SSCH EVM/Power
- PBCH EVM/Power
- PCFICH EVM/Power
- PHICH EVM/Power
- PDCCH EVM/Power
- PDSCH EVM/Power
- Frame Average Power
- RS TX Power
- EVM rms/peak
- Data EVM rms/peak
- Frequency Error
- IQ Origin Offset

Power Statistics CCDF

E1 Analyzer (Option 002)

	Supplemental Information
Electrical Interface	
Connectors RX/TX	RJ48C (120Ω)
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

Measurement	
	Supplemental Information
Monitoring/Error Injection	
Indicator	
・ E1 Signal	
・ Frame Sync	
・ Pattern Sync	
・ Code Sync	
・ FAS RAI	
・ AIS	
・ HDB8	
Error Count/Rate	
・ CRC Error	When CRC-4 Setting On
・ Frame Error	
・ Code Error	
・ Bit Error	When PCM31 is selected
Alarm Count	
・ FAS	
・ AIS	
Loss Count	
・ Frame Sync	
・ Pattern Sync	

T1 Analyzer (Option 002)

	Supplemental Information
Electrical Interface	
Connectors RX/TX	RJ48C (120Ω)
Output	0 dB, -7.5 dB and -15 dB
Line Code	AMI, HDB3
Impedance	100 Ω or 1000 Ω (Bridge)
Input	
Term/Bridge/Monitor	0 to -20 dB
Transmitter and Receiver	
Framing	D4,ESF
Channel Formats	Full E1
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

Measurement

Monitoring/BERT/Loop Test

Indicator
- T1 Signal Loss
- Frame Sync
- Pattern Sync
- B8ZS
- Red Alarm
- RAI (Yellow Alarm)
- AIS (Blue Alarm)
- BPV Indicator

Loss Count
- Signal Loss
- Frame Sync Loss
- Patten Sync Loss

Alarm Count
- RAI
- AIS
- BPV

Error Rate
- Bit Error Rate
- Bit Error Count

RX Signal Level

Indicator
- T1 Signal Loss
- Frame Sync
- Pattern Sync
- B8ZS
- Red Alarm
- RAI (Yellow Alarm)
- AIS (Blue Alarm)
- BPV Indicator

Vp-p

Vp-p Max

Vp-p Min

dB_{dsx}

General Information

		Supplemental Information
Inputs and Outputs		
RF In		Spectrum Analyzer
Connector:	Type-N, female	
Impedance	50 Ω (nominal)	
Maximum level:	+30 dBm, ±50 VDC	
Reflection/RF Out, RF In		Cable and Antenna Analyzer
Connector:	Type-N, female	
Impedance	50 Ω (nominal)	
Maximum level:	+25 dBm, ±50 VDC	
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 dBm to +5 dBm	
USB		
USB Host:	Type A, 1 port	Connect flash drive and power sensor
USB Client:	Type B, 1 port	Connect to PC for data transfer
LAN:	RJ45, 10/100 Base-T	Connect to PC for data transfer
E1/T1:	RJ48C	
Headphone jack:	3.5 mm headphone Jack	
External power:	5.5 mm barrel connector	
Speaker:	Built-in speaker	
Display		
Size:	8 inch, LED backlight	
Resolution:	800 x 600	
Power		
External DC Input:	12 VDC to 19 VDC	
Power consumption:	33 W	60 W maximum when battery charging
External AC/DC Adapter		
Input:	100 to 240 VAC, 50 to 60Hz, 1.5A	
Output:	19 VDC, 4.74A	

Battery		
	10.8 V, 7200mA-h	Lithium ion
Operating time:	> 2.5 hours	Typical
Charge time:	A fully discharged battery takes about 6 hours to recharge to 80%, 8 hours to 100%	
Storage temperature:	-20 to 50 °C, ≤ 85% RH	The battery pack should be stored in an environment with low humidity. Extended exposure to temperature above 45 ℃ could degrade battery performance and life
Data storage		
Internal:	Minimum 1GB	Up to 1000 instrument states and trace
External:		Supports USB 2.0 compatible memory devices
Environmental		
Operating temperature:	-10 to 50 °C	
Maximum Humidity:	85%	
Shock and Vibration:	MIL-PRF-28800F Class 2	
Storage temperature:	-55 to 71 °C	With the battery pack removed
Size and Weight		
Weight:	< 5.1 kg	< 5.6 kg with battery
Size:	315 x 245 x 95 (mm) 12.4 x 9.6 x 3.7 (Inch)	Approximately (W x H x D)
Warranty		
	2 years	
Calibration Cycle		
	1 year	
EMC		
Complies with European EMC	EN 61326-2-1	

Ordering Information

JD7105B		
25 MHz to 4 GHz	Cable and Antenna Analyzer[1]	
100 kHz to 7.2 GHz	Spectrum Analyzer	
10 MHz to 7.2 GHz	Power Meter	Internal mode

Options		
NOTE: Upgrade options for the JD7105B use the designation JD7105BU before the respective two last digit option number		
JD7105B002	E1 Analyzer[2]	
JD7105B003	T1 Analyzer[2]	
JD7105B010	GPS Receiver and Antenna	
JD7105B011	Interference Analyzer[3, 4]	
JD7105B012	Channel Scanner	
JD7105B013	Bias Tee	
JD7105B020	CDMA2000 Signal Analyzer	
JD7105B021	EV-DO Signal Analyzer	(Requires option 20)
JD7105B022	GSM/GPRS/EDGE Signal Analyzer	
JD7105B023	WCDMA Signal Analyzer	
JD7105B024	HSDPA Signal Analyzer	(Requires option 23)
JD7105B025	TD-SCDMA Signal Analyzer	
JD7105B026	Mobile WiMAX Signal Analyzer	
JD7105B028	LTE Signal Analyzer	
JD7105B040	CDMA2000 OTA Analyzer[4]	(Requires options 10 and 20)
JD7105B041	EV-DO OTA Analyzer[4]	(Requires options 10 and 21)
JD7105B042	GSM/GPRS/EDGE OTA Analyzer[4]	(Requires options 10 and 22)
JD7105B043	WCDMA/HSDPA OTA Analyzer[4]	(Requires options 10 and 23/24)
JD7105B045	TD-SCDMA OTA Analyzer[4]	(Requires options 10 and 25)
JD7105B046	Mobile WiMAX OTA Analyzer[4]	(Requires options 10 and 26)

[1]Requires Calibration Kit
[2]Requires Test Cable
[3]Highly recommends adding JD7105B-010
[4]Highly recommends adding G7000-5035x or/and G7000-5036x

Standard Accessories	
JD71050341	Soft Carrying Case[5]
G710550322	AC/DC Power Adapter[5]
G710550335	Cross LAN Cable (1.5m)[5]
GC73050515	USB A to B Cable (1.8m)[5]
GC72450518	>1 GByte USB Memory[5]
G710550325	Rechargeable Lithium Ion Battery[5]
G710550323	Automotive Cigarette Lighter 12 VCD Adapter[5]
JD7105B361	JD7105B User's Manual and Application Software –CD

[5]Standard accessories can be purchased separately

Optional Power Sensors	
JD731A	Directional power sensor (peak and average power) Frequency: 300 to 3.8 GHz Power: Average 0.15 to 150 W, Peak 4 to 400 W
JD733A	Directional power sensor (peak and average power) Frequency: 150 to 3.5 GHz Power: Average/Peak 0.25 to 20 W
JD732A	Terminating power sensor (average power) Frequency: 20 to 3.8 GHz Power: 0 to 1 W
JD734A	Terminating power sensor (peak power) Frequency: 20 to 3.8 GHz Power: 0 to 1 W
JD736A	Terminating power sensor (peak and average power) Frequency: 20 to 3.8 GHz Power: 0 to 1 W

Optional Calibration Kits	
JD72450509	One port N type Calibration Kit: Open/Short/Load, N(m), 40dB, 4GHz, 50Ω
JD72450510	One port DIN type Calibration Kit: Open/Short/Load DIN(m), 40dB, 4GHz, 50Ω
JD71050507	Dual port N type Calibration Kit, 50Ω - Open/Short/Load N(m), 40dB, 4GHz, 50Ω - Two Adapters N(f) to N(f), DC to 4GHz, 50Ω - Two 1 m (3.28 ft) RF Test Cables, N(m) to N(m), DC to 4GHz, 50Ω
JD71050508	Dual port DIN type Calibration Kit 50Ω - Open/Short/Load DIN(m), 40dB, 4GHz, 50Ω - Two 1m (3.28 ft) RF Test Cables, N(m) to N(m), DC to 4GHz, 50Ω - Adapter N(f) to DIN(f), DC to 4GHz, 50Ω - Adapter N(f) to DIN(m), DC to 4GHz, 50Ω - Adapter DIN(f) to DIN(f), DC to 4GHz, 50Ω - Adapter DIN(m) to DIN(m), DC to 4GHz, 50Ω

Optional RF Cables	
GC72450531	1.5 m (4.92ft) RF Cable DC to 4GHz N(m)-N(f), 50Ω
GC72450532	3.0 m (9.84ft) RF Cable DC to 4GHz N(m)-N(f), 50Ω
G710050531	1.5 m (4.92ft) Precision RF Cable DC to 18GHz N(m)-N(f), 50Ω
G710050532	3.0 m (9.84ft) Precision RF Cable DC to 18GHz N(m)-N(f), 50Ω

Optional Omni Antennas		
G700050351	RF Omni Antenna	400 MHz to 450 MHz
G700050352	RF Omni Antenna	450 MHz to 500 MHz
G700050353	RF Omni Antenna	806 MHz to 896 MHz
G700050354	RF Omni Antenna	870 MHz to 960 MHz
G700050355	RF Omni Antenna	1710 MHz to 2170 MHz

Optional Yaggi Antennas		
G700050364	RF Yaggi Antenna	806 MHz to 896 MHz
G700050365	RF Yaggi Antenna	866 MHz to 960 MHz
G700050363	RF Yaggi Antenna	1750 MHz to 2390 MHz
Optional Adapters		
G710050571	Adapter N(m) to DIN(f), DC to 4 GHz, 50 Ω	
G710050572	Adapter DIN(m) to DIN(m), DC to 4 GHz, 50 Ω	
G710050573	Adapter N(m) to SMA(f), DC to 18 GHz, 50 Ω	
G710050574	Adapter N(m) to BNC(f), DC to 1.5 GHz, 50 Ω	
G710050575	Adapter N(f) to N(f), DC to 4 GHz, 50 Ω	
G710050577	Adapter N(f) to DIN(f), DC to 4GHz, 50 Ω	
G710050578	Adapter N(f) to DIN(m), DC to 4 GHz, 50 Ω	
G710050579	Adapter DIN(f) to DIN(f), DC to 4 GHz, 50 Ω	
Optional E1/T1 Test Cables		
G710050317	RJ45 to Y Bantam Cable	
G710050318	RJ45 to Y BNC Cable	
G710050319	RJ45 to 4 Alligator Clips	
Optional Miscellaneous		
G710050581	Attenuator 40 dB, 100W DC to 4 GHz (Unidirectional)	
JD71050342	Hard carrying-case	
JD71050343	Back Pack carrying-case	
G710550324	External battery charger	

JD7105B

Base Station Analyzer

Test & Measurement Regional Sales

NORTH AMERICA
Tel: +1 866 228 3762
Fax: +1 301 353 9216

LATIN AMERICA
Tel: +55 11 5503 3800
Fax: +55 11 5505 1598

ASIA PACIFIC
Tel: +852 2892 0990
Fax: +852 2892 0770

EMEA
Tel: +49 7121 86 2222
Fax: +49 7121 86 1222

© 2010 JDS Uniphase Corporation

For the most recent specifications, visit www.jdsu.com
Document Release 1.0