

## JD720C Series CellAdvisor™ Cable and Antenna Analyzers



### Key Benefits

- Now you can carry a single instrument for RF and fiber
- Reduce your costs using StrataSync™ to manage your assets
- Easily detect signal degradation over time with Trace Overlay
- Reduce test time using dual display to make two measurements simultaneously
- Get instant problem notification with pass/fail analysis

### Key Features

- Fiber inspection with pass/fail (requires P5000i microscope)
- Measure RF and optical power
- 3 zoom zones enable detailed spectrum analysis
- RF port protection up to 40 dBm (10 W)
- Supports StrataSync cloud-enabled management, analysis, reporting
- Bluetooth® connection to StrataSync from cell site
- Generates PDF reports
- Auto-save events that exceed limits
- Free Windows-based analysis and control applications:
  - JDViewer adds post-process, report generation, and personalized settings
  - JDRemote adds full instrument remote control through a software client

### Applications

- Verify cell-site cable and antenna systems
- Testing distributed radios with RF and fiber feed lines
- Validation of DAS system deployments

### Key Measurements

- Reflection — VSWR/Return Loss
- DTF — VSWR/Return Loss
- 1-Port Cable Loss
- Smith Chart
- 1-Port Phase
- RF Power Meter
- Optical Power Meter
- Fiber Inspection

The majority of problems in mobile networks occur in the base station's infrastructure, consisting of the antenna system, RF and fiber cables, and connectors. To properly service and install cell sites requires suitable test equipment. The JD720C-series analyzers are optimal test solutions for characterizing cell-site infrastructure because of their handheld design, ease of use, and rich functionality.

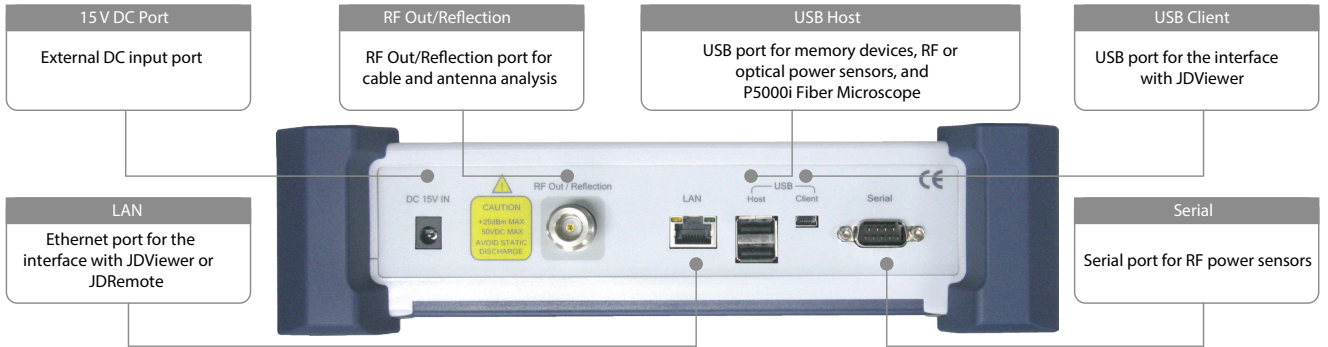
The JD720C-series analyzers' measurement functions can accurately verify a site's transmission line and antenna system from signal reflections (voltage standing wave ratio [VSWR] or return loss) to RF or optical transmission power. They also accurately measure the distance to fault (DTF) for proper location identification.

The instrument's touch-panel operation and 7-inch-wide thin-film transistor (TFT) color display simplifies measurements and viewing results. Also, its application software permits easier measurement analysis and report generation.

The optional fiber inspection microscope and optical power meters provide all the tools needed in a single instrument to test both RF and fiber cell sites.

2

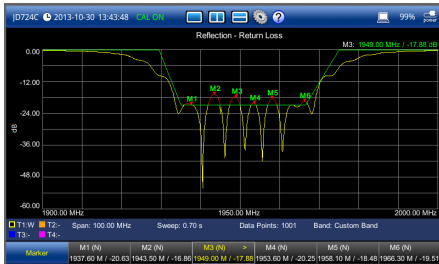
Top view



Front view



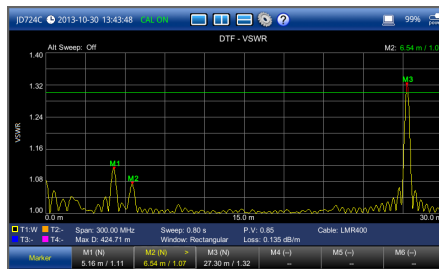
## Key Measurements



Reflection — Return Loss

**Reflection** measures the impedance performance of the cell-site transmission line across the selected frequency range in VSWR or return loss.

- The instrument's database includes over 80 wireless frequency bands with the ability to add more.
- A user-definable limit line automatically indicates pass/fail status.
- Users can set up to six markers for trace analysis.



DTF — VSWR

**Distance to Fault (DTF)** identifies fault locations in the cell site transmission system indicating signal discontinuities using VSWR or return loss.

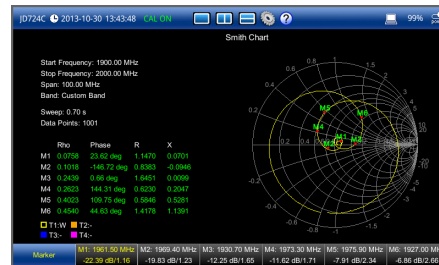
- Up to 1,500 m (4,921 ft) measurement distance.
- High-Resolution mode with 2001 data points.
- The instrument's database includes over 95 cable types with the ability to add more.
- A user-definable limit line automatically indicates pass/fail status.
- Users can set up to six markers for trace analysis.



1-Port Cable Loss

**1-Port Cable Loss** measures the signal loss through cables or other devices over a defined frequency range.

- A user-definable limit line automatically indicates pass/fail status.
- Users can set up to six markers for trace analysis.

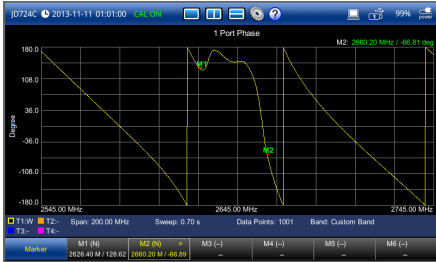


Smith Chart

**Smith Chart** can be used to display impedance matching characteristics in cable and antenna systems as well RF devices.

Users can set up to six markers for trace analysis.

## Key Measurements (Cont'd.)



1-Port Phase

**1-Port Phase** measures  $S_{11}$  phase to tune antennas and phase-match cables.

Users can set up to six markers for trace analysis.

**Power Meter** functions easily and comprehensively measure power using external power sensors and meters.

- JD72450551/2: economic RF power sensors via serial connection
- JD730 Series: high-precision RF power sensors via USB connection
- MP-60/MP-80: optical power meters via USB connection



Power Sensors

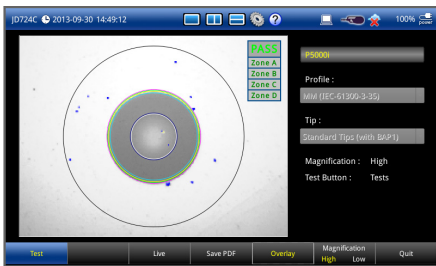
The **power meter** displays either the RF/optical power level in two formats: as a real-time power level value in an analog meter and as a power level trend through time in a histogram chart. Its configurable settings include display range, maximum and minimum limits, and power units in dBm or watts.



Power Meter

Users can set minimum and maximum power limits to automatically indicate pass/fail status.

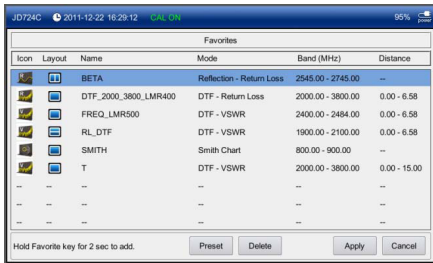
**Fiber Inspection** eliminates the most common fiber link problems by verifying that connectors are not contaminated. Only the JD720C-series analyzers can quickly and easily troubleshoot and certify fiber connection quality and cleanliness. Connecting the optional P5000i Fiber Microscope lets users quickly inspect and clean fiber connections with a clear pass/fail indication. The free FiberChekPRO™ application can be used on a PC/laptop with the P5000i microscope to perform the same fiber analysis in parallel using the instrument to test RF and using the PC/laptop to test fiber. Users also can inspect, test, and certify any fiber connector and instantly generate comprehensive pass/fail summary reports.



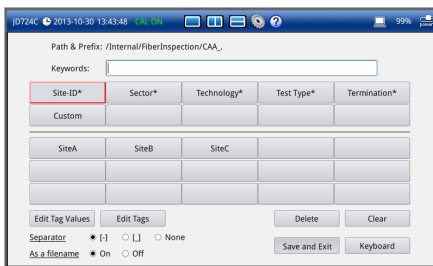
Fiber Inspection



Outdoor Display mode provides easier reading in direct sunlight



Favorite



Key words



Bluetooth connectivity

## Key Benefits

### Designed for Field Use

The compact, lightweight JD720C-series analyzers are especially convenient for users performing measurements in the field. The analyzers weigh less than 2.35 kg fully loaded and include a lithium ion (LiON) battery that lasts more than 7.5 hours. Its portability lets users take it anywhere, even to the top of a tower.

Its transfective display can be set for outdoor mode for viewing measurements in direct sunlight. Also, its backlit key panel with Night-Display mode makes it easy to use in the dark.

The JD720C-series analyzers can operate in temperatures ranging from -10 to 55°C; and its rugged bumper design protects it if it is dropped or if it receives an external impact that exceeds the MIL-PRF-28800F class 2 specification.

### Quickly Sweeps

It can perform measurements in less than 0.8 ms/point, making these the fastest cable and antenna analyzers on the market with uncompromising fast sweep speed in Dual-Display mode.

### Easy to Use

Users can create favorite keys as a shortcut to conveniently access repeatedly used measurements rather than configuring them each time, reducing steps and completing tasks quicker and more efficiently. They can add editable key words to quickly create unique file names and can generate a PDF report directly from the instrument.

The Quick Save hard key lets users simultaneously save a trace file and a screen file. If two measurements are displayed on the screen at once, it generates two trace files, one for each screen.

### Multilanguage User Interface

The instruments' architecture can incorporate different languages into the menu structure for localization worldwide.

### Bluetooth Connectivity (Option 003)

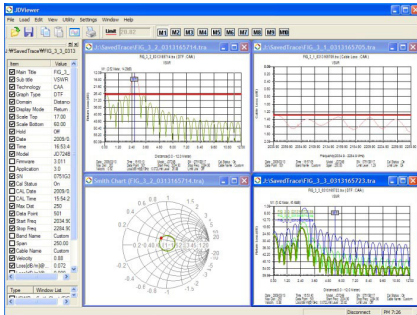
This option provides remote control and monitoring capability using JDRemote software via Bluetooth. Users can also transfer files from the instrument using file transfer. Users can also tether the instrument to an Android smartphone or tablet with a data service connection to upload or download data to the JDSU StrataSync cloud.

## Key Benefits (Cont'd.)

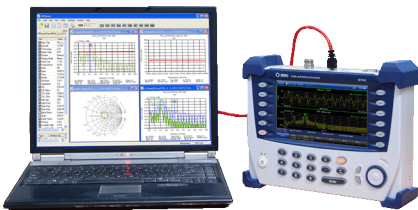
### JDViewer Features

The JDViewer application software provides all of the necessary tools to operate these instruments more conveniently including:

- Quickly exchange data via USB or LAN connection
- Retrieve or save measurements
- Export measurement results
- Analyze measurement results, assigning multiple markers and limit lines
- Register or edit user-definable frequency bands and cable types
- Easily compare measurement results
- Convert VSWR-DTF
- Access available report templates
- The ability to generate and print reports



JDViewer VSWR, DTF, cable loss, and Smith chart



Analyzer with JDRemote



MP-60/MP-80



P5000i Microscope

### Expand Capabilities with Essential Fiber Handling Tools

- Optical power meter (MP series)
- Fiber inspection and pass/fail analysis with P5000i Fiber Microscope

### StrataSync

The JD720C-series analyzers are compatible with the JDSU StrataSync cloud to manage instrument inventory and to locate all equipment and to identify which engineer is using it. StrataSync also helps to keep instruments current through remote upgrades to ensure all instruments have the latest firmware. It also centralizes configuration setting and distribution to ensure that engineers are using the same instrument settings to achieve consistent measurements. Once testing is complete, measurement results can be uploaded into StrataSync for secure storage and sharing. Engineers who are unable to resolve a problem can share measurement results with an expert to get analysis help from anywhere without having the expert be near the instrument.

- Asset inventory management
- Remotely distribute instrument upgrades
- Centralized configuration sharing
- Test data management
  - Trace files
  - Screenshots
  - Remote analysis

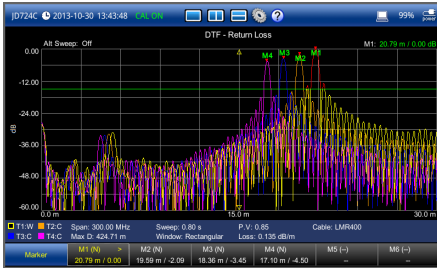


## Key Features

### Trace Overlay

Users can compare and analyze up to four traces by superimposing them onto one measurement display.

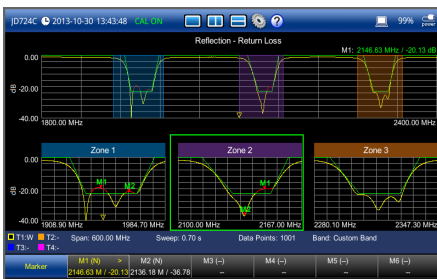
Additionally, they can set up to six markers on any trace independently.



Trace Overlay

### Zoom Zones

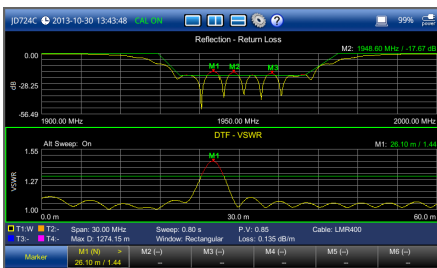
User-definable zones on frequency sub-bands let users visually identify uplink and downlink frequencies to verify compliance within a single measurement window for closer analysis of user-definable zones in separate windows.



Zoom Zones

### Alternate Sweep in DTF

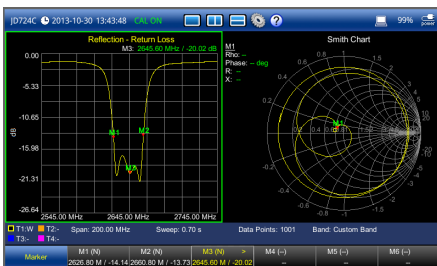
Users can perform two independent sweeps, such as a reflection measurement and a DTF measurement.



Alternate Sweep

### Dual Display

The ability to display two measurements simultaneously, even if performed independently, reduces test time.



Dual Display

## Key Features (Cont'd.)

### Limit Lines

Limit lines let users set variable thresholds to control the parameters that define whether a test passes or fails. Either exceeding the set limit or falling below it will show a failed test result. Users can also set a user-defined limit, and if any measurements fall outside of the area define, it will also result in a failed test.

#### Standard limit line

The standard limit line extends over the full signal spectrum and can be configured to indicate a fail when the measurement exceeds the threshold. Users also can set this limit line to measure only specific sections of the spectrum, and any sections exceeding the set threshold will indicate a fail.

#### Multisegment limit line (MSL)

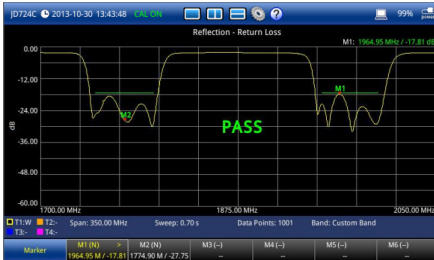
MSLs let users set upper- and lower-level parameter limit lines on both sides of the spectral signal, providing more flexibility than a single straight line. Measurements that fall within the boundaries of these lines will pass, while measurements that exceed the upper line or fall below the lower one will fail.

#### Window Limit

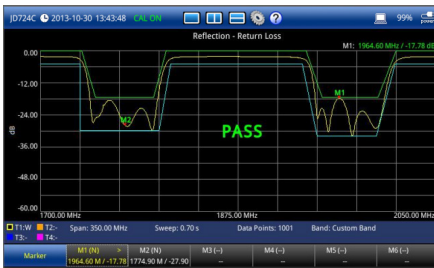
Users can define an area on the chart to help refine the test criteria, and measurements that fall within the area selected will pass. This capability is useful for tuning devices or antennas in real time, because it shows how adjustments affect the signal on the screen.

### Help Function

The Help function gives users task-based information in real time. Being able to easily browse or search topics for specific information improves productivity and reduces the number of inquiries.



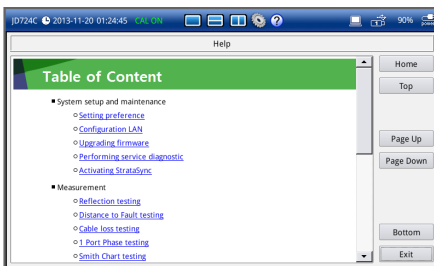
Straight line with gap



Multisegment limit line with upper and lower



Window limit



Help



**Specifications\***

**Frequency**

Range	
JD723C	100 MHz to 2.7 GHz
JD724C	5 MHz to 4 GHz
Resolution	10 kHz
Accuracy	< ±25 ppm at 25°C

**Data Points**

126, 251, 501, 1001, 2001

**Measurement Speed**

Reflection	< 0.7 ms/point
DTF	< 0.8 ms/point

**Measurement Accuracy**

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

**Output Power**

0 dBm (nominal)

**Interference Immunity**

On channel	+15 dBm (nominal)
On frequency	+5 dBm (nominal)

**Measurements**

**Reflection (VSWR)**

VSWR range	1 to 65
Return loss range	0 to 60 dB
Resolution	0.01

**DTF**

Vertical VSWR range	1 to 65
Vertical return loss range	0 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	$(1.5 \times 10^8) \times (V_p) / \text{delta}$ $V_p$ = propagation velocity delta = stop frequency – start frequency (Hz)

**Cable Loss (1 Port)**

Range	0 to –30 dB
Resolution	0.01 dB

**1-Port Phase**

Range	–180 to +180°
-------	---------------

**Smith Chart**

Resolution	0.01
------------	------

**RF Power Meter**

**General Parameter**

Display range	–80 to +120 dBm
Offset range	0 to 60 dB
Resolution	0.01 dB or 0.1 x W (x = m, u, p)

**External RF Power Sensors**

**JD731B Directional Power Sensor**

Frequency range	300 MHz to 3.8 GHz
Dynamic range	0.15 to 150 W (average) 4 to 400 W (peak)
Connector type	Type-N female on both ends
Measurement type	Forward/reverse average power, forward peak power, VSWR
Accuracy	$\pm(4\% \text{ of reading} + 0.05 \text{ W})^{1,2}$

**JD733A Directional Power Sensor**

Frequency range	150 MHz to 3.5 GHz
Dynamic range	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	$\pm(4\% \text{ of reading} + 0.05 \text{ W})^{1,2}$

**JD732B Terminating Power Sensor**

Frequency range	20 MHz to 3.8 GHz
Dynamic range	–30 to +20 dBm
Connector type	Type-N male
Measurement type	Average
Accuracy	$\pm 7\%^1$

**JD734B Terminating Power Sensor**

Frequency range	20 MHz to 3.8 GHz
Dynamic range	–30 to +20 dBm
Connector type	Type-N male
Measurement type	Peak
Accuracy	$\pm 7\%^1$

**JD736B Terminating Power Sensor**

Frequency range	20 MHz to 3.8 GHz
Dynamic range	–30 to +20 dBm
Connector type	Type-N male
Measurement type	Average and peak
Accuracy	$\pm 7\%^1$

**Optical Power Meter**

Display range	–100 to +100 dBm
Offset range	0 to 60 dB
Resolution	0.01 dB or 0.1 mW

\*Specifications for JD720C-series analyzers apply under these conditions:

- Cable and antenna measurement applies after calibrating to the OSL standard.
- The instrument is operating within a valid calibration period.
- Data with no tolerance are considered typical values.
  - **Typical value:** Expected instrument performance operating under 20 to 30°C at 15 minutes sustained
  - **Nominal value:** A general, descriptive term or parameter.

**Specifications** *continued*

**External Optical Power Meters**

**MP-60 Optical Power Meter**

Wavelength range	780 to 1650 nm
Max. permitted input level	+10 dBm
Connector input	Universal 2.5 and 1.25 mm
Accuracy	±5%

**MP-80 Optical Power Meter**

Wavelength range	780 to 1650 nm
Max. permitted input level	+23 dBm
Connector input	Universal 2.5 and 1.25 mm
Accuracy	±5%

**General information**

**Reflection/RF Out**

Connector	Type-N(f)
Impedance	50 Ω (nominal)
Damage level	>+40 dBm, ±50 V DC (nominal)

**Connectivity**

**USB**

USB host <sup>1</sup>	Type A, 2 ports
USB client <sup>2</sup>	Mini B, 1 port
LAN	RJ45, 10/100Base-T
Serial	9-pin D-SUB male <sup>3</sup>

**Display**

Type	Resistive touch screen
Size	7-inch, LED backlight, transreflective LCD
Resolution	800 x 480

**Speaker**

Built-in speaker	
------------------	--

**Power**

External DC input	12 to 15 V DC
Power consumption	12 W
	37.5 W maximum (when charging battery)

**External AC power adapter**

Input	100 to 250 V
	50 to 60 Hz, 1.2 A
Output	15 V DC, 3 A

**Battery**

Type	10.8 V, 7800 mA/hr (LiION)
Operation time	>7.5 hours (typical)
Charge time	3 hr (80%), 5 hr (100%)
Charging temperature	0 to 45°C (32 to 104°F) ≤85% RH
Discharging temperature	-20 to 55°C (4 to 131°F) ≤85% RH
Storage temperature <sup>4</sup>	0 to 25°C (32 to 77°F)
	≤95% RH (noncondensing)

**Data Storage**

Internal <sup>5</sup>	Minimum 120 MB
External <sup>6</sup>	Limited by size of USB flash drive

**Environmental**

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	95% RH (noncondensing)
Shock and vibration	MIL-PRF-28800F Class 2
Storage temperature <sup>7</sup>	-40 to 80°C (-40 to 176°F)

**EMC**

IEC/EN 61326-1:2006 (complies with European EMC)	
--	--

**Weight and Size (with battery)**

Size (W x H x D)	260 x 190 x 60 mm (10.2 x 7.5 x 2.4 in)
Weight (with battery)	< 2.35 kg (5.18 lb)

**Warranty**

2 years	
---------	--

**Calibration Cycle**

2 years	
---------	--

1. Connects flash drive, power sensor, or P5000i
2. Connects to PC/laptop for data transfer
3. For JD72450551/50552
4. 20 to 85% RH, store battery pack in low-humidity environment; extended exposure to temperatures above 45°C could significantly degrade battery performance and life
5. Up to 3800 traces
6. Supports USB 2.0 compatible memory devices
7. With the battery pack removed

## Ordering Information

### Basic Model<sup>1</sup>

Description	Part Number
100 MHz to 2.7 GHz	JD723C
5 MHz to 4 GHz	JD724C

### Options

NOTE: Upgrade options for the JD720C use the designation JD720CU before the respective last three-digit option number.

Description	Part Number
Bluetooth connectivity	JD720C003
USB GPS connectivity	JD720C004

### Standard Accessories

Description	Part Number
JD720C soft carrying case <sup>2</sup>	JD72050541
AC/DC power adapter <sup>2</sup>	GC72450522
Cross LAN cable (1.5 m) <sup>2</sup>	G710550335
USB A to Mini B cable (1.8 m)	GC72450536
> 1 GB USB memory <sup>2</sup>	GC72450518
Automotive cigarette lighter/12 V DC adapter <sup>2</sup>	GC72450523
Rechargeable LiON battery <sup>2</sup>	G710550325
Stylus <sup>2</sup>	G710550316
JD720C-Series user's manual and application software CD	JD72050561

### Optional Calibration Kits

Description	Part Number
Y - Calibration Kit, Type-N(m), DC to 4 GHz, 50 Ω	JD72450509
Y - Calibration Kit, DIN(m), DC to 4 GHz, 50 Ω	JD72450510

### Optional RF Cables

Description	Part Number
1.0 m (3.28 ft) RF cable, DC to 18 GHz, Type-N(m) to Type-N(m), 50 Ω	G710050530
1.5 m (4.92 ft) RF cable, DC to 18 GHz, Type-N(m) to Type-N(f), 50 Ω	G710050531
3.0 m (9.84 ft) RF cable, DC to 18 GHz, Type-N(m) to Type-N(f), 50 Ω	G710050532

### Optional RF Power Sensors

Description	Part Number
Directional power sensor (peak and average), 300 MHz to 3.8 GHz, average 0.15 to 150 W, peak 4 to 400 W	JD731B
Directional power sensor (peak and average), 150 MHz to 3.5 GHz, average/peak 0.1 to 50 W	JD733A
Terminating power sensor (average), 20 MHz to 3.8 GHz, -30 to +20 dBm	JD732B
Terminating power sensor (peak), 20 MHz to 3.8 GHz, -30 to +20 dBm	JD734B
Terminating power sensor (peak and average), 20 MHz to 3.8 GHz, -30 to +20 dBm	JD736B
Terminating power sensor (average), 40 MHz to 3 GHz, -30 to 0 dBm	JD72450551
Terminating power sensor (peak), 40 MHz to 4 GHz, -40 to 0 dBm	JD72450552

### Optional RF Adapters

Description	Part Number
Adapter Type-N(m) to DIN(f), DC to 4 GHz, 50 Ω	G710050571
Adapter DIN(m) to DIN(m), DC to 4 GHz, 50 Ω	G710050572

Adapter Type-N(m) to SMA(f), DC to 18 GHz, 50 Ω	G710050573
Adapter Type-N(m) to BNC(f), DC to 1.5 GHz, 50 Ω	G710050574
Adapter Type-N(f) to Type-N(f), DC to 4 GHz, 50 Ω	G710050575
Adapter Type-N(m) to DIN(m), DC to 4 GHz, 50 Ω	G710050576
Adapter Type-N(f) to DIN(f), DC to 4 GHz, 50 Ω	G710050577
Adapter Type-N(f) to DIN(m), DC to 4 GHz, 50 Ω	G710050578
Adapter DIN(f) to DIN(f), DC to 4 GHz, 50 Ω	G710050579

### Optional Optical Power Meters and Fiber Microscope Kits

Description	Part Number
USB Optical Power Meter with software, 2.5 mm and 1.25 mm interfaces, 30-inch USB extender, and carrying pouch	MP-60A
USB Optical Power Meter — High power, with software, 2.5 mm and 1.25 mm interfaces, 30-inch USB extender, and carrying pouch	MP-80A
KIT: FBP-P5000i Digital Probe, FiberChekPRO software, case, and tips (FBPT-SC, FBPT-LC, FBPT-U25M, FBPT-U12M)	FBP-SD101
KIT: FBP-P5000i Digital Probe, FiberChekPRO software, case, and tips (FBPT-SC, FBPT-SC/APC, FBPT-FC, FBPT-LC, FBPT-U25M, FBPT-U25MA, FBPT-U12M)	FBP-MTS-101
KIT: FBP-P5000i Digital Probe, MP-60A USB Power Meter, FiberChekPRO software, case, tips, and adapters (FBPT-SC, FBPT-LC, FBPT-U25M, FBPT-U12M)	FIT-SD103
KIT: FBP-P5000i Digital Probe, MP-60A USB Power Meter, FiberChekPRO software, case, tips, and adapters (FBPT-SC, FBPT-LC, FBPT-U25M, FBPT-U12M), and cleaning materials	FIT-SD103-C
KIT: FBP-P5000i Digital Probe, MP-60A USB Power Meter, FiberChekPRO software, case, tips, and adapters (FBPT-SC, FBPT-LC, FBPT-U25M, FBPT-U12M)	FIT-SD113

### Optional Accessories

Description	Part Number
Attenuator 40 dB, 100 W, DC to 4 GHz (unidirectional)	G710050581
JD720 hard carrying case	JD72350542
Hard carrying case with wheels	JD70050342
CellAdvisor backpack carrying case	JD70050343
External battery charger	G710550324
USB Bluetooth dongle and dipole antenna 5 dBi	JD70050006
USB GPS receiver	JD72050005
JD720C-series user's manual, printed version	JD720C362

### StrataSync

Description	Part Number
StrataSync Asset Management annual subscription for CellAdvisor CAA	STRATASYNC-AM-CA-CAA-1Yr
StrataSync Test Data Management annual subscription for CellAdvisor CAA <sup>3</sup>	STRATASYNC-TDM-CA-CAA-1Yr

### Warranty and Calibration

Description	Part Number
Warranty extension of 1 year for Asia, North America	JD720C200
Warranty extension of 1 year for Latin America, EMEA	JD720C201
Calibration service for Asia, North America	JD720C250
Calibration service for Latin America, EMEA	JD720C251

- Requires a calibration kit
- Standard accessories can be purchased separately
- Requires STRATASYNC-AM-CA-CAA-1Yr

**Network and Service Enablement Regional Sales**

<b>NORTH AMERICA</b> TOLL FREE: 1 855 ASK-JDSU 1 855 275-5378	<b>LATIN AMERICA</b> TEL: +1 954 688 5660 FAX: +1 954 345 4668	<b>ASIA PACIFIC</b> TEL: +852 2892 0990 FAX: +852 2892 0770	<b>EMEA</b> TEL: +49 7121 86 2222 FAX: +49 7121 86 1222	<b><a href="http://www.jdsu.com/nse">www.jdsu.com/nse</a></b>
---	--	---	---	---