



Concentric Technology Solutions Inc

Solutions for the Wireless Industry

TC-5955APU

Pneumatic Shield Box

Data Sheet



Concentric Technology Solutions, Inc.

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Introduction

TC-5955APU is an exclusive RF-shielding box for radiation test between 100 MHz to 12 GHz. It fits for testing RF-performance of small devices such as mobile phones or modules, and multiple antennas can be installed inside for a total test for different protocols such as WLAN, Bluetooth, UWB and LTE.

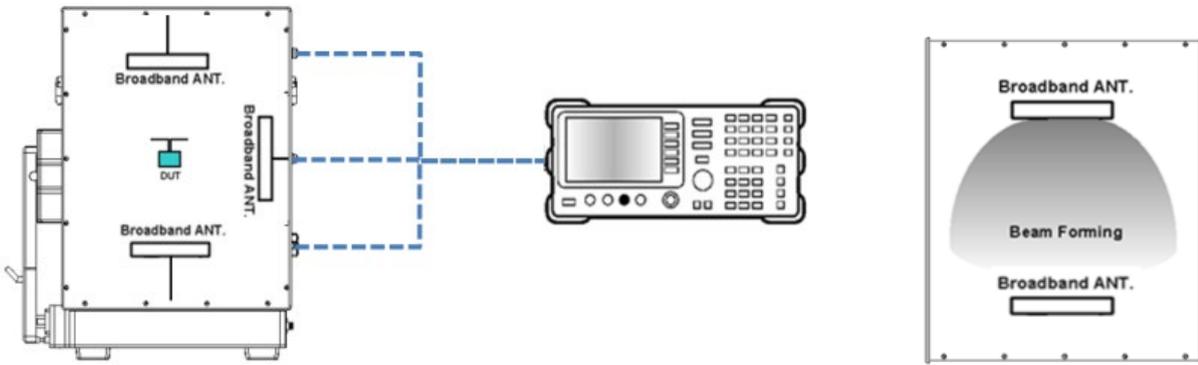
Features

- Reliable high RF shielding from 0.1 GHz to 12 GHz
- Designed for long life
- Pneumatic control of door open / close
- Absorbing materials for stable measurement results
- EMI filters on all data ports and power line
- Remote operation by RS-232C

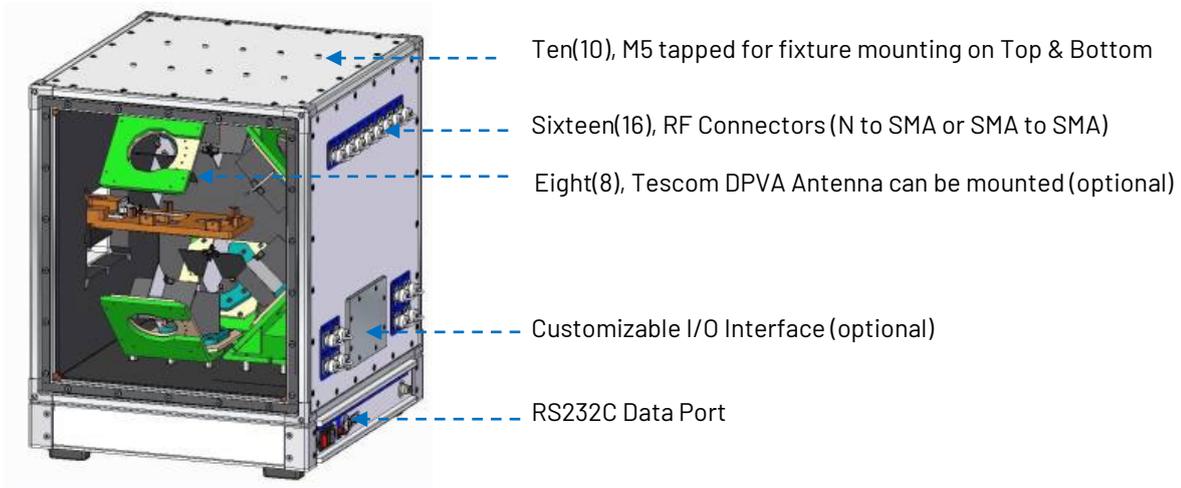
Applications

Receiver sensitivity testing, Transmitter radiated power testing.

Cellular, WLAN, Bluetooth, UWB, GNSS



[Test Configuration]



Basic Features(Cross-Section)

Mechanical Specifications

Standard RF Connector	16, N (f) outside and SMA(f) inside
Basic Data Connector	USB2.0
Line Voltage	
Input Voltage	100 – 240 VAC
Frequency	50/60 Hz
Power Consumption	Less than 2 watt (Typical)
Remote Control	RS-232C, Dual Remote Switch
Air Connections	
Main Connector	6 mm OD hose, one-touch push-on fitting
Input Air Pressure	5 to 10 bar
Dimensions	
Outside	537(W)x 525(D)x 583(H) mm, Door Closed. 786(D) mm, Door Open
Door Size	176(W)x 130(H) mm
Door Stroke (Open/Close)	260 mm
Weight	Approx. 39 kg
*Packing	
Size	680(W) x 640(D) x 730(H) mm
Weight	Approx. 46 kg

* The size or weight of a package may vary depending on how the product is packed.

RF Specifications

*The shielding effectiveness is measured with blank panels mounted; other I/O interface panel may result in different shielding effectiveness.

Frequency Range	0.1 GHz to 12 GHz
*Shielding Effectiveness	
0.1 GHz to 3 GHz	> 70 dB
3 GHz to 6 GHz	> 60 dB

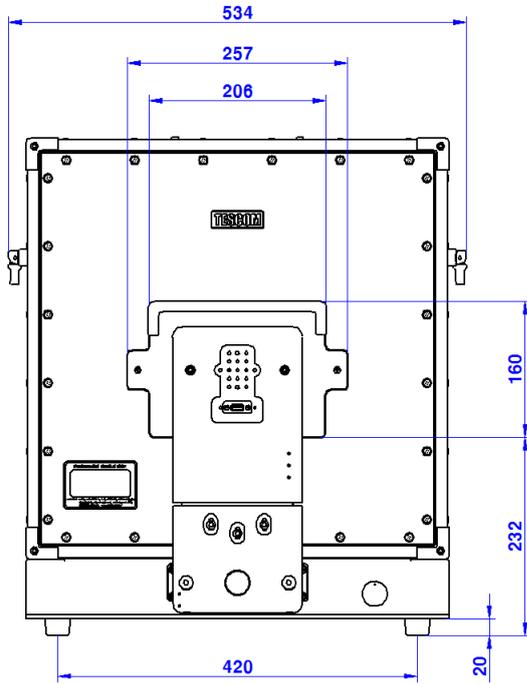
Absorber Reflectivity

Referring to a metal plate (0 dB @ 0.5 GHz to 12 GHz), signal reduction is measured with the RF absorber inserted.

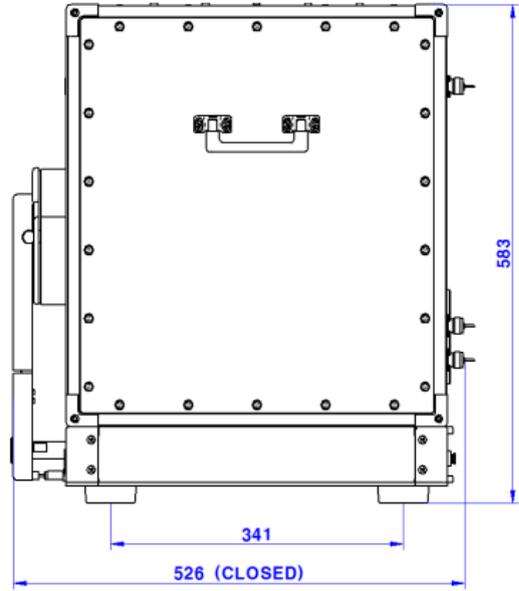
Frequency	Reflectivity (Typ.)
0.5 GHz to 2 GHz	15 dB
6 GHz to 12 GHz	20 dB

Outer Dimensions

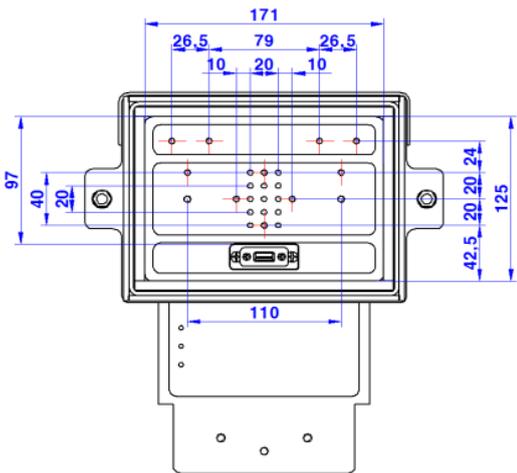
TC-5955APU Outer Dimensions (WxDxH): 534(W) x 526(D) x 583(H) mm, lid closed.
 (Internal dimensions may vary by lot.)



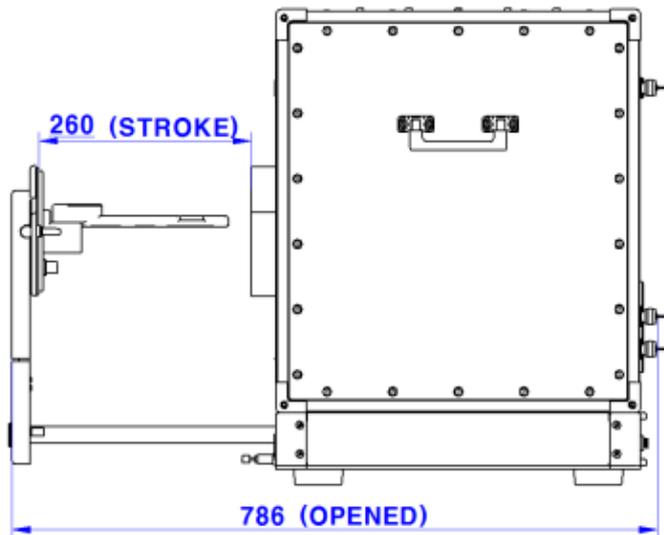
Front View(Closed)



Side View(Closed)



Door View



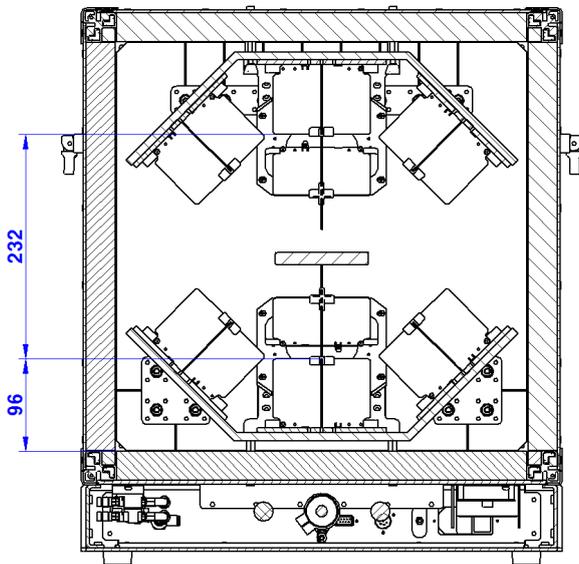
Side View(Opened)

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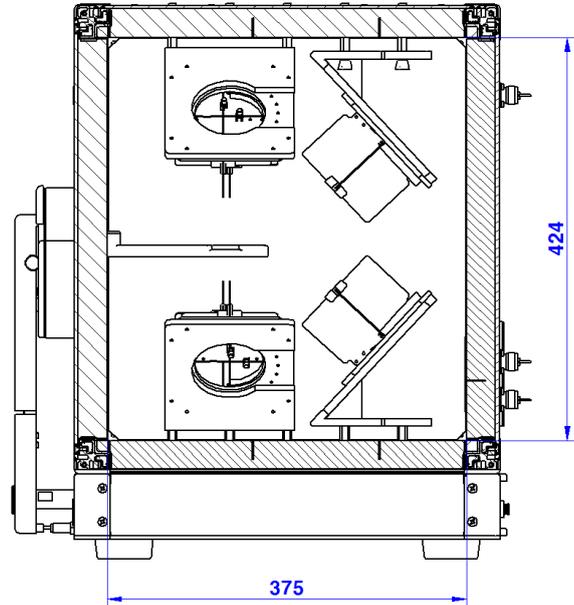
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Inner Dimensions

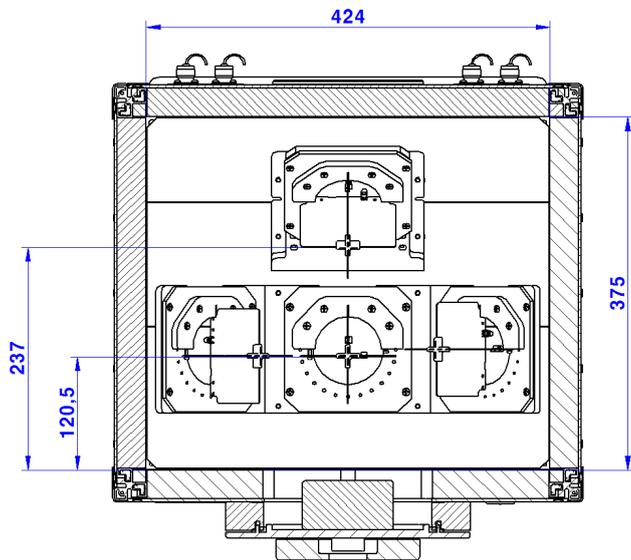
TC-5955AP Inner Dimensions: 424(W) x 375(D) x 424(H) mm



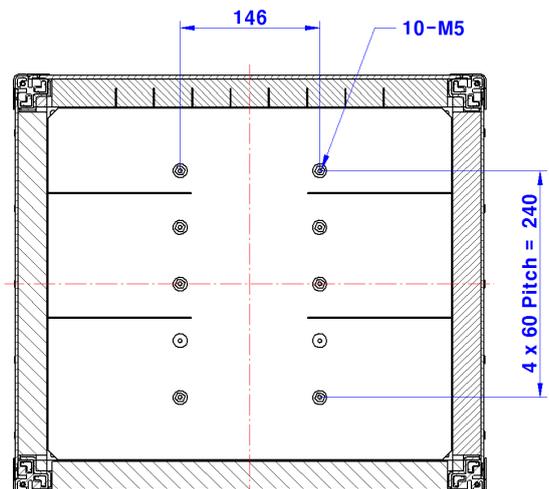
Front Inner View



Side Inner View



Side Inner View (Ant. Removed)

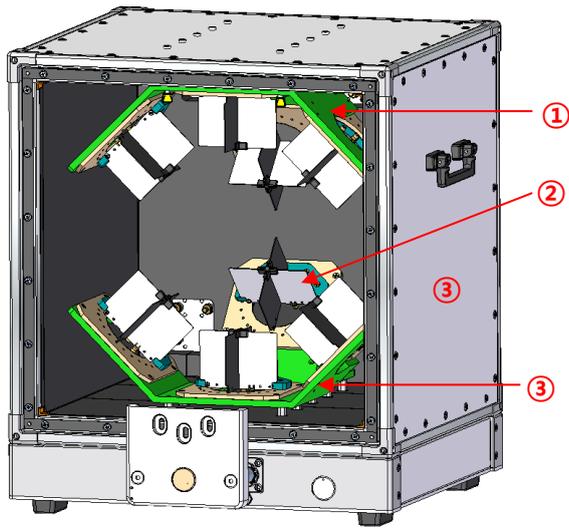


Bottom Inner View (Ant. Removed)

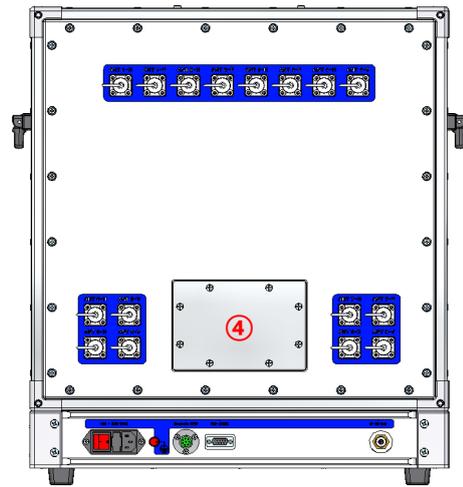
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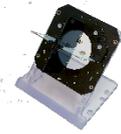
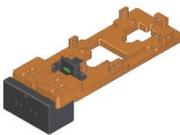
TC-5530BP Configuration Example



Front View



Rear View

No.	Product	Description
① , ③		Top & Bottom DPV Antenna Fixture Assy (Quantity and mounting position selectable) <ul style="list-style-type: none"> • C93076A: DPV Antenna (0.7 GHz ~ 7.5 GHz) • C93084A: DPV Antenna (2 GHz ~ 8 GHz) • C93177A: DPV Antenna (2 GHz ~ 12 GHz)
②		Rear side DPV Antenna Fixture Assy (Quantity and mounting position selectable)
④		Custom I/O Interface Panel
⑤		DUT Guide Fixture <ul style="list-style-type: none"> • F5955AP01

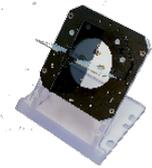
Ordering Information

Order Number	Product
TC-5955APU	Pneumatic Shield Box

Standard Accessories

Product	Description
4011-0137	SS402, N(m)ST to SMA(m)ST Cable, up to 18G GHz, 2 m, 1 pc
4003-0073	USB to RS-232C(male) Cable, 2 m, 1 pc
4601-0018A	Box Remote Switch Cable, 2 m, 1 pc
9703-0020	Hand Valve, 1 pc
4010-0002	Power Cable, 220 V
Test Report	

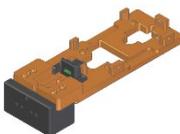
Optional Antenna Fixture

Product	Code	Configuration
	C7011AP-2014-1 C5955AP-2040A	Antenna Mounting Bracket (135°) DPV Antenna Fixture
	TC-93076A or TC-93083A or TC-93177A	DPV Antenna Options <ul style="list-style-type: none"> • TC-93076A DPV Antenna (0.7 GHz ~ 7.5 GHz) • TC-93083A (0.6 GHz ~ 8 GHz) • TC-93177A (6 GHz ~ 12 GHz)
	RF Cables	RF Cable Options (~18 GHz) <ul style="list-style-type: none"> • 4011-0128: SS-405, SMA(M)-SMA(M) R/A, 50cm (Blue) • 4011-0129: SS-405, SMA(M)-SMA(M) R/A, 50cm (Red]
	C7011AP-2021-1 C5955AP-2040A	Antenna Mounting Bracket (47°) DPV Antenna Fixture
	TC-93076A or TC-93083A or TC-93177A	DPV Antenna Options <ul style="list-style-type: none"> • TC-93076A DPV Antenna (0.7 GHz ~ 7.5 GHz) • TC-93083A (0.6 GHz ~ 8 GHz) • TC-93177A (6 GHz ~ 12 GHz)
	RF Cables	RF Cable Options (~40 GHz) <ul style="list-style-type: none"> • 4011-0123: SS-405, SMA(M)-SMA(M) R/A, 80cm (Blue) • 4011-0124: SS-405, SMA(M)-SMA(M) R/A, 80cm (Red)

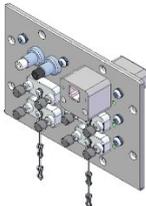
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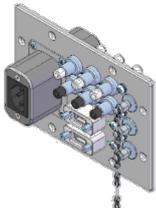
Optional DUT Fixture

Product	Code	Configuration
	F5955AP01	DUT Guide Fixture <ul style="list-style-type: none"> Grid Fixture Type

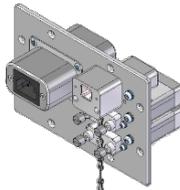
Pre-configured I/O Interface Panels

Product	Code	Configuration
	M07049B	four (4), DB9(p) outside and DB9(s) inside, 100 pF Pi filter one (1), RJ-45 outside and inside one (1), Banana Jack type DC power adaptor

Data Interface Panel

	M07100A	three (3), SMA (f) outside and SMA (f) inside two (2), USB 2.0 outside and inside one (1), AC power adaptor three (3), Banana Jack type DC power adaptor
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Data Interface Panel

	M07016C	one (1), RJ-45 outside and inside one (1), AC power adaptor two (2), USB 3.2 Gen1 Type-A outside and inside .
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Data Interface Panel

Please let your sales representative know if you would like a customized IO Plate configuration.
Please select the filtered connectors from the list on the next page.

RF Filtered Data I/O & Power I/O

I/O Filters	Code	Description	*Typical Shielding
	3409-0009-1 DB25, 1000pF pi Filter	3 Mbps / 100 VDC 5 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz
	3409-0014-1 DB25, 100pF pi Filter	10 Mbps / 100 VDC 5 Amps max	>50 dB from 0.5 to 2 GHz >60 dB from 2 to 3 GHz >60 dB from 3 to 6 GHz
	3409-0008-1 DB9, 1000pF pi Filter	3 Mbps / 100 VDC 5 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz
	3409-0010-1 DB9, 100pF pi Filter	10 Mbps / 100 VDC 5 Amps max	>50 dB from 0.5 to 2 GHz >60 dB from 2 to 3 GHz >60 dB from 3 to 6 GHz
	3409-0018A-3^(**) USB 2.0 Filter	480 Mbps / 5 V, 500 mA Max Current: 5 A	>60 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz
	3409-0042A-2^(**) USB 3.2 Gen 1, Type A Filter (Active)	5000 Mbps/ 5 V, 600 mA Max Current: 1.5 A	>80 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >75 dB from 3 to 6 GHz >55 dB from 6 to 67 GHz
	3409-0046A USB 3.2 Gen 2, Type C Filter (Active)	10 Gbps / 4 - 22V Max Current: 5 A	>70 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz
	3904-0296A RJ-45 Filter	1 Gbit/s Copper-Line Ethernet (1000 BASE-T)	>60 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >60 dB from 6 to 67 GHz
	3406-0004A DC Power Adaptor	50 VDC 3 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz
	3406-0005A (Black) 3406-0006A (White) DC Power Adaptor (Banana Jack Type)	50 VDC 10 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz
	3103-0009A AC Power Adaptor	250 VAC 7 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz

*Typical Shielding shown above is an estimated value with I/O interfaces installed.

** Exclusive cables should be used. (USB Cable, 4008-0079A, 2 M, USB 3.0 A(M) - USB 3.0 A(M), Housing: Aluminum)

The values above are values measured using our internal standards and they may be different depending on the measuring method and your testing environment. Each test was conducted without any cables connected other than the test cable. Shielding effectiveness may be affected when cables are connected and dependent on the type and quality of the cable used.

RF Connectors

I/O Filters	Code	Description	*Typical Shielding
	3407-0029 RF, 2.92 mm Thru Adapter	From DC to 40 GHz 50 Ω / 1.3 max	N/A
	3407-0030 RF, 2.4 mm Thru Adapter	From DC to 50 GHz 50 Ω / 1.3 max	N/A
	3407-0031 RF, 1.85 mm Thru Adapter	From DC to 67 GHz 50 Ω / 1.5 max	N/A
	3408-0100 RF, N-SMA Connector	From DC to 18 GHz 50 Ω / 1.3 max	N/A
	3408-0101 RF, SMA-SMA Connector	From DC to 18 GHz 50 Ω / 1.3 max	N/A

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

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