Concentric Technology Solutions Inc

Testing Solutions for the Wireless Industry

TC-5062C 6 GHz TEM Cell

Product Description

TC-5062C, 6 GHz TEM Cell generates the Electro-Magnetic field for testing small RF devices such as wireless communication receiver, Mobile phone, etc. An external test signal applied through the input port of the TC-5062C generates a consistent and predictable TEM test field inside the cell. The radiation field from a device transmitting in the Cell can also be detected through the port using a test receiver.

The unique compact and economical design is optimized for medium accuracy measurements beyond the standard TEM Cell frequency range.

Theory of operation

TC-5062C 6 GHz TEM cell is made to work beyond the typical TEM Cell operating frequency range limited by cell resonance. A typical TEM Cell is a 2-port symmetrical device; RF voltage is applied to one port while the other port is terminated in 50 ohm while maintaining 50 ohm characteristic impedance along the cell. Due to expansion and contraction parts of the cell, the wave propagation beyond certain frequency is no more propagated by TEM mode alone and creates resonance. To eliminate the resonance problem, the half of the cell is replaced by the

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wave absorbing material. One commercial implementation is G-TEM cell. The size of the G-TEM design is too large for typical small device applications due to the type of absorber used. we borrowed the concept of G-TEM, but changed the termination implementation scheme, and designed a very compact broad band TEM Cell that can be used on a desktop.

The operation principle of TC-5062C is essentially the same as TEM Cell. The E-H field inside the test volume is proportional to the input voltage and inversely proportional to the cell height. If a radiating object is inserted inside the cell, the radiated wave toward input port is guided by the transmission line and picked up at the input with a receiver such as a spectrum analyzer. With this method, the RFI from a radiating Device can be measured quantitatively. Since this apparatus is very broadband, it has many applications in the area of EMI, EMS, receiver sensitivity test, etc.

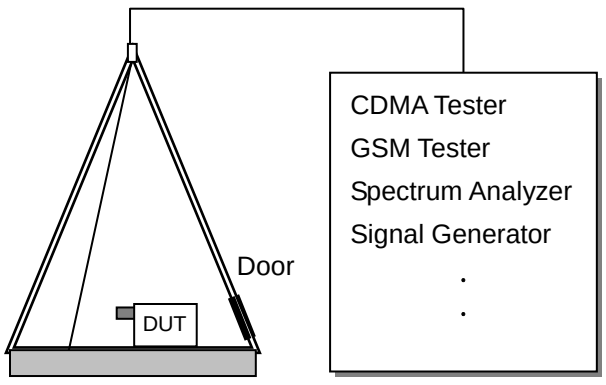
Features

- Radiation and susceptibility test
- Broadband TEM Cell up to 6 GHz
- Small size, Small footprint for desktop application
- High effective shielding
- Specifically designed for all types of mobile phones
- Able to install DUT Rotator

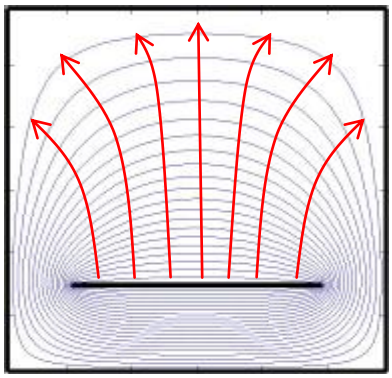
Applications

- Receiver sensitivity testing, Transmitter radiated power testing
- EMI and EMS tests for small Wireless devices

Type N RF Connector



Test Configuration



Field Pattern (Top View)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Specifications

General Specification

VSWR	< 1.7, 100 MHz ~ 6 GHz
Effective Cell Height	220 mm
Field Strength at Center of Cell	13 dB μV/meter at 1 μV input
RF Connectors without module	1 N(f) topside, 1 SMA(f) outside and SMA(f) inside
Dimension	
Inside	240(W) x 205(D)
Outside	344(W) x 380(D) x 675(H) mm
Door Size	176(W) x 130(H) mm
Weight	19 kg
*Packing	
Size	840(W) x 450(D) x 540(H) mm
Weight	approx. 24.8 kg

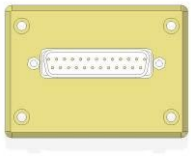
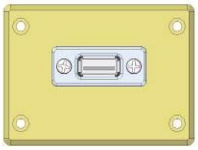
*The size or weight of a package may vary on how to pack a package.

Typical RF Shielding

The shield effectiveness below is measured when the blank panel is mounted; other I/O interface panel results a different shielding effectiveness of the TEM Cell.

100 to 2000 MHz	> 80 dB
2000 to 3000 MHz	> 70 dB
3000 to 6000 MHz	> 60 dB

Optional I/O Panel for TC-5062C

Appliance	Panel Number & Description
	**M506202A ; DB25 Data Interface Panel** • Shielding Spec. : >70 dB from 0.1 to 2 GHz, >60 dB from 2 to 3 GHz, >55 dB from 3 to 6 GHz • Working Voltage: 100 VDC • Dielectric Withstanding Voltage: 300 VDC • EMI Filter: 1000 pF Pi filter
	**M506204A ; USB2.0 Data Interface Panel** • Shielding Spec. : >60 dB from 0.1 to 6 GHz • USB A 2.0 outside and inside

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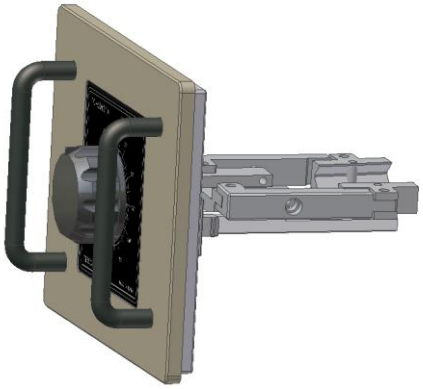
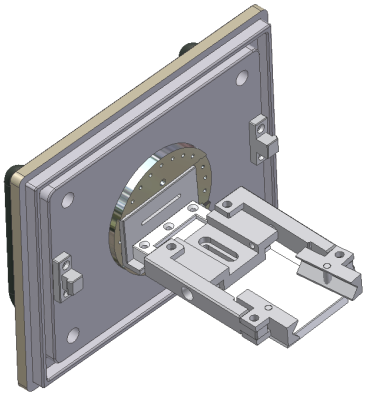
F50621A DUT Rotator Component Identification





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Ordering Information

Product	
Description	**Model Name**
6 GHz TEM Cell (including accessories bellow)	
Operating Manual Test Report SS-402, N(m) to N(m) 2 m (< 6 GHz)	TC-5062C

Optional Module	
Description	**Part Number**
DB25 Data Interface Module	M506202A
USB2.0 Data Interface Module	M506204A

Optional Accessories	
Description	**Part Number**
SS-402, N(m) to N(m) 1 m (< 6 GHz)	4011-0001
SS-402, N(m) to N(m) 2 m (< 6 GHz)	4011-0019
SS-402, N(m) to SMA(m) 2 m (< 6 GHz)	4011-0020
DB9(p) to DB9(s) cable, 1 m	4003-0004
DB25(p) to DB25(s) cable, 1 m	4003-0005
USB A(p) to USB A(p) cable, 1 m	4008-0017
USB A(p) to USB A(s) cable, 50 cm	4008-0018
DUT Rotator	F50621A

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