TC-5063C Pneumatic 6 GHz TEM Cell

Features

- Radiation and susceptibility test
- A broadband TEM Cell up to 6 GHz
- Small Size, Small footprint for Desktop application
- High Effective Shielding
- Specifically designed for various types of mobile phones
- Pneumatic Open / Close Construction
- RS-232C Open / Close control

TESCOM

Product Description

TC-5063C, Pneumatic 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-5063C 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-5063C 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 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. TESCOM 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-5063C 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.

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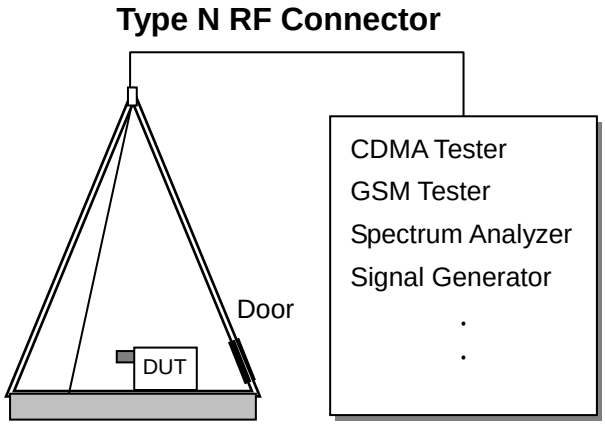
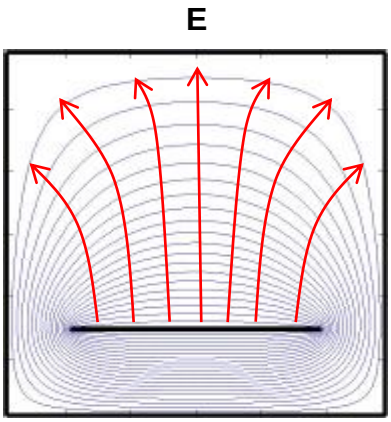
Applications

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



Test Configuration



Field Pattern (Top View)

Specifications

General Specifications

VSWR	< 1.7, 100 MHz ~ 6 GHz
Path Loss	25 dB Typical @1.8 GHz dipole
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
Remote control	RS-232C, 3 wire, DB9(p)
Line Voltage	100-240 VAC, 50/60 Hz, 15 watt max
Input air pressure	5 bar to 10bar
Main air connector	6 mm OD hose, one-touch fitting
Dimension	
Inside	240(W) x 205(D)
Outside	344(W) x 420(D) x 725(H) mm, door closed. 614(D) mm, door open
Weight	27 kg
***Packing**	
Size	460(W) x 550(D) x 840(H) mm
Weight	approx. 33 kg

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

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Typical RF Shielding

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

Frequency	Shielding effectiveness (dB)
100 to 2000 MHz	> 80 dB
2000 to 3000 MHz	> 70 dB
3000 to 6000 MHz	> 60 dB

Ordering Information

Product	
Description	**Model Name**
Pneumatic 6 GHz TEM Cell (including accessories below)	TC-5063C
Operating Manual	
Test Report	
RS232C, DB 9(s)-DB 9(s) 2 m	
SS-402, N(m) to N(m) 2 m (< 6 GHz)	
Hand Valve	
Remote Switch	
Power Cable	

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
RS232C, DB 9(s)-DB 9(s) 2 m	4003-0001
USB A(p) to USB A(p) cable, 1 m	4008-0017
USB A(p) to USB A(s) cable, 50 cm	4008-0018

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

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