TC-5060A/B UHF TEM Cell

Product Description

The TC-5060A/B, an economy UHF TEM Cell generates a consistent Electro-magnetic field for testing small RF devices such as Pagers, GPS Receivers, Mobile phones, etc. An external test signal applied through the input port of the TC-5060A/B 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

The TC-5060A/B UHF 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 50Ω 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-5060A/B 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.

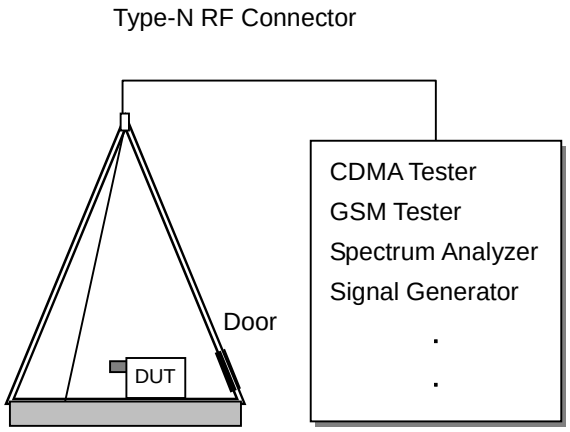
Key Features

- Radiation and susceptibility test
- Broadband TEM Cell up to 3 GHz
- Small size, Small footprint for desktop application
- High effective shielding

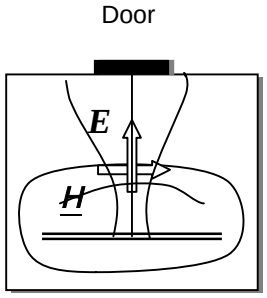
- Specifically designed for all types of mobile phones
- DB25 Data Connector, SMA RF Connector

Applications

- Receiver sensitivity testing, Transmitter radiated power testing
- EMI and EMS tests for small UHF devices
- Mobile Phone, W-LAN, PDA, Bluetooth, DAB/DMB



Test Configuration



Field Pattern (Top View)

Specification

- VSWR : < 1.7, 400MHz ~ 3GHz (TC-5060A); < 1.7, 100MHz ~ 3GHz (TC-5060B)
- Path Loss : 22dB Typical
- Effective Shielding : > 80dB up to 2GHz, > 70dB 2GHz ~ 3GHz
- Effective Cell Height : 220 mm
- Field Strength at Test Point : 13 dBuV/m at 1 uV input
- Data Connector : DB25(p) outside, DB25(s) inside
- RF Connector : N(f) outside, SMA(f) outside and SMA(f) inside
- Dimension : 344(W) x 380(D) x 675(H) [mm]
- Door Size : 176(W) x 130(H) [mm]
- Weight : 19 Kg
- Accessories Supplied : 4003-0005, DB25(p) to DB25(s) cable, 1m, 1pc.
  4006-0002, N(m) to N(m) cable, 2m, 1pc.
  1901-0002, SMA 50Ω Termination, 1pc. (TC-5060B only)

Ordering Information

TC-5060A, UHF TEM Cell

TC-5060B, UHF TEM Cell

F5060-10, DUT Mounting Fixture, Maximum 50 x 125 x 15mm

F5060-20, DUT Mounting Fixture, Maximum 90 x 125 x 15mm

F50603A, DUT Mounting Fixture, Maximum 262 x 205 x 15mm

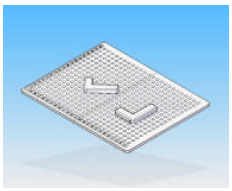
F5060-10

F5060-20

M506203A, 100pF pi filter in DB25 connector instead of 1000pF pi filter
M506204A, USB 2.0 Interface in place of DB25 connector
M506206A, DB9 1000pF pi filter in place of DB25

Design Patent 237512

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.



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