



### RF Test Accessories

#### Antenna Coupler



TC-93010C fitted with F930102A

##### **TC-93010C Tubular Type Antenna Coupler**

- Frequency Range : 0.8 ~ 2GHz
- Insertion Loss : 8 ~ 12dB
- RF Connector : SMA(f)
- Weight : 60g
- Patent Pending # 2001 - 24403
- Hole Size : 11mm

##### **Ordering Information**

TC-93010C, Tubular Type Antenna Coupler  
 F930102A, DUT Ride Fixture  
 4005-0014, SMA(m) R/A to SMA(m) R/A cable, 80cm



TC-93011A

##### **TC-93011A Clamp Type Antenna Coupler**

- Frequency Range : 820 ~ 960 MHz
- Insertion Loss : 8 ~ 12dB
- RF Connector : MCX(f)
- Weight : 50g
- Accessories Supplied  
 4004-0022, MCX(m) R/A to SMA(m) cable, 80cm, 1pc.  
 C93011A-0120, DUT Plate , 35x31 mm, 5pcs.



TC-93012A

##### **TC-93012A Clamp Type Antenna Coupler**

- Frequency Range : 1710 ~ 1990MHz  
 Insertion Loss : 8 ~ 12dB  
 RF Connector : MCX(f)  
 Weight : 50g  
 Accessories Supplied  
 4004-0022, MCX(m) R/A to SMA(m) cable, 80cm, 1pc.  
 C93011A-0120, DUT Plate , 35x31 mm, 5pcs.



TC-93013A

##### **TC-93013A Antenna Coupler**

- Frequency Range : 800 ~ 2000 MHz
- Insertion Loss : 10 ~ 18dB
- VSWR : Better than 1 : 1.7
- RF Connector : MCX(f)
- Weight : 50g
- Accessories Supplied :  
 4004-0022, MCX(m) R/A to SMA(m) cable, 80cm, 1pc.  
 C93011A-0120, DUT Plate , 35x31 mm, 5pcs.



TC-93020A

##### **TC-93020A Flat Type Antenna Coupler**

- Frequency Range : 80 ~ 2650MHz
- Insertion Loss : 8 ~ 20dB
- VSWR : Better than 1 : 1.7
- RF Connector : SMA(f)
- Weight Total : 1kg
- Patent : # 0468240
- Accessories Supplied  
 4005-0035, SMA(m) R/A to SMA(m) cable, 13cm, 1pc.  
 4005-0020, N(m) to SMA(m) cable, 1m, 1pc.



TC-93021A

##### **TC-93021A Flat Type Antenna Coupler**

- Frequency Range: 80 ~ 2650MHz
- Insertion Loss: 6 ~ 20dB
- VSWR : Better than 1 : 1.7
- RF Connector : SMB(f)
- Weight Total : 80g
- Size : 70(W)×70(D)×12(H)mm



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Solutions for the Wireless Industry

RF Test Accessories Data Sheet



TC-93023A

## TC-93023A Antenna Coupler

- Frequency Range: 800 ~ 2650MHz
- Insertion Loss: 10 ~ 18dB
- VSWR : Better than 1 : 1.7
- RF Connector : MCX(f)
- Weight Total : 40g
- Size : 50(W)×30(D)×8.1(H)mm



TC-93023B

## TC-93023B Antenna Coupler

- Frequency Range: 800 ~ 2650MHz
- Insertion Loss: 10 ~ 18dB
- VSWR : Better than 1 : 1.7
- RF Connector : MCX(f)
- Weight Total : 40g
- Size : 50(W)×30(D)×8.1(H)mm



TC-93030A

## TC-93030A Flat Type Antenna Coupler

- Frequency Range: 80 ~ 2650MHz
- Insertion Loss: 6 ~ 20dB
- VSWR : Better than 1 : 1.7
- RF connector : SMB(f)
- Weight Total : 1kg
- Patent # 0468240
- Accessories Supplied
  - 4005-0015, SMB(m) to SMA(m) cable, 13cm, 1pc
  - 4005-0016, N(m) to SMB(m) cable, 1m, 1pc
  - C93030A-A100, Bar Bracket, 2pcs.



TC-93030B

## TC-93030B Flat Type Antenna Coupler

- Frequency Range: 80 ~ 2650MHz
- Insertion Loss: 6 ~ 20dB
- VSWR : Better than 1 : 1.7
- RF connector : SMB(f)
- Weight Total : 900g
- Patent # 0468240
- Accessories Supplied
  - 4005-0015, SMB(m) to SMA(m) cable, 13cm, 1pc
  - 4005-0016, N(m) to SMB(m) cable, 1m, 1pc
  - C93030A-A100, Bar Bracket, 2pcs.



TC-93031A

## TC-93031A Flat Type Antenna Coupler

- Frequency Range: 80 ~ 2650MHz
- Insertion Loss: 6 ~ 20dB
- VSWR : Better than 1 : 1.7
- RF connector : SMA(f)
- Weight Total : 650g
- Accessories Supplied
  - 4005-0035, SMA(m) R/A to SMA(m) cable, 13cm, 1pc.
  - 4005-0020, N(m) to SMA(m) cable, 1m, 1pc.
  - C93030A-A100, Bar Bracket, 2pcs.



TC-93034A

## TC-93034A Flat Type Antenna Coupler

- Frequency Range : 80 ~ 2650MHz
- Coupling Loss : 10 ~ 18 dB
- VSWR : Better than 1 : 1.7
- RF connector : SMA(f)
- Weight total : 1kg
- Size: 170 x 252 x 8mm
- Accessories Supplied :
  - 4002-0006, N(m) to SMA(m) cable, 1m, 1pc.
  - 4005-0007, SMA(m) R/A to SMA(m) cable, 34cm, 1pc.
  - C93030A-A100, Bar Bracket, 2pcs.



### Antenna

#### TC-92100A/B Loop Antenna



- RF-Engineer's essential tool
- H-Field Probe / Radiator
- Flat from 150MHz to 1GHz into 50ohm
- Antenna Factor 54.5(dB/m)

#### TC-92010A Dipole Antenna



- Impedance : 50 Ohms Nominal
- Frequency Range : 880 ~ 900MHz
- VSWR : Better than 1 : 1.9
- Connector : SMA(m)
- Gain : 900MHz (-2.5dBi)

#### TC-92020A Dipole Antenna



- Impedance : 50 Ohms Nominal
- Frequency Range : 880 ~ 1900MHz
- VSWR : Better than 1 : 1.7
- Connector : SMA (m)
- Gain : 900MHz (+2.5dBi), 1050 MHz (+2dBi), 1.3GHz (+1.4dBi), 1.8GHz (0dBi)

#### TC-92040A Dipole Antenna



- Impedance : 50 Ohms Nominal
- Frequency Range : 2.30 ~ 2.55GHz
- VSWR : Better than 1 : 1.7
- Connector : SMA (m)
- Gain : 2.40GHz (-1.0dBi)

#### TC-92050A Sleeve Antenna



- Impedance : 50 Ohms Nominal
- Frequency Range : 2.4GHz
- VSWR : Better than 1 : 1.7
- Connector : BNC(m)
- Gain : 2.40GHz (-1.0dBi)

#### **Ordering Information**

TC-92050A Sleeve Antenna  
3470-0004, N(m) to BNC(m) adaptor

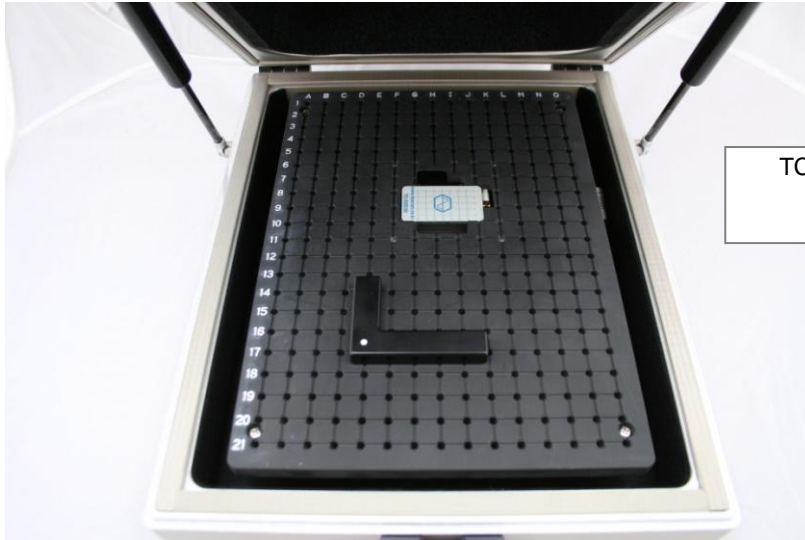


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Solutions for the Wireless Industry

*RF Test Accessories Data Sheet*

## TC-591504A, Universal Type Fixture



TC-591504A fitted with TC-93023B  
& "L" shaped locator  
inside shield box, TC-5915A

- X-Y Grid
- Weight total : 1kg
- Size: 12 inch x 9 inch
- Accessories Supplied :
  - Stand offs, 4 pc (TC-93023B should be ordered separately)
  - "L" shaped locator, 1pc
- Features
  - Easy X-Y positioning of DUT
  - Adjustable Antenna coupler orientation (Vertical/ Horizontal)
  - Accommodates most DUTs
  - Easily mountable in Shield Box

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE



# Concentric Technology Solutions Inc

## Solutions for the Wireless Industry

RF Test Accessories Data Sheet

### TC-93060A Flat Type Antenna Coupler

- Frequency Range: 800MHz ~ 6GHz
- Path Loss: 7~18 dB ( $\geq 5\text{cm}$ )
- VSWR: Better than 1 : 2.2 (Typ 1.8)
- RF Connector: SMA(M)
- Size(mm): 106 X 130 X 15.6(H)



### 1) Typical S11 and VSWR Data

	800MHz	1.8GHz	2.4GHz	5.8GHz
<b>S11</b>	-9.36dBm	-10.68dBm	-11.49dBm	-14.39dBm
<b>SWR</b>	2.03	1.83	1.73	1.48

### 2) Field distribution

- Measured in open area through Dipole Antenna (900MHz & 1.8GHz)
- Distance from Antenna Coupler(TC-93060A) to Dipole Antenna: 3cm

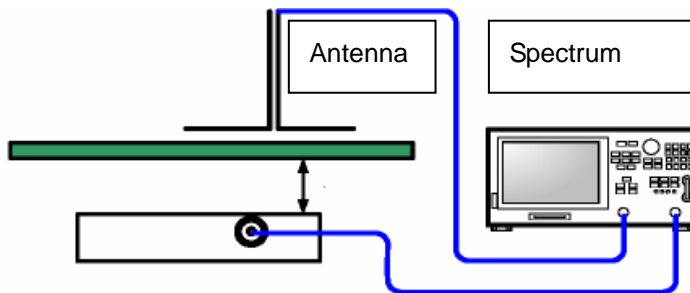


Fig 1 Environment setup for measuring Field distribution

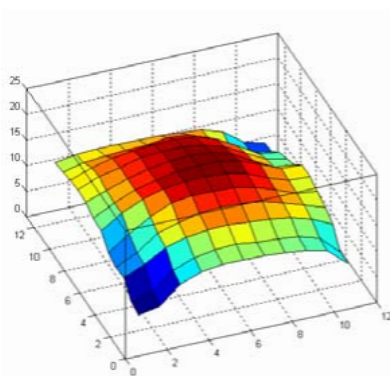


Fig 2 Field distribution at 900MHz

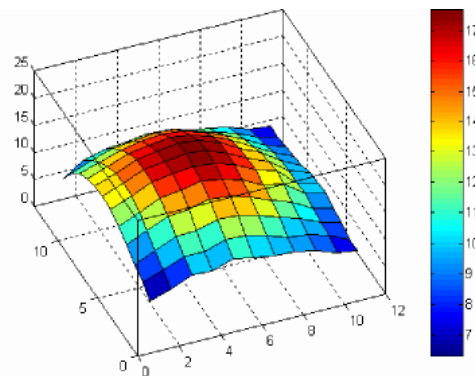


Fig 3 Field distribution at 1.8GHz