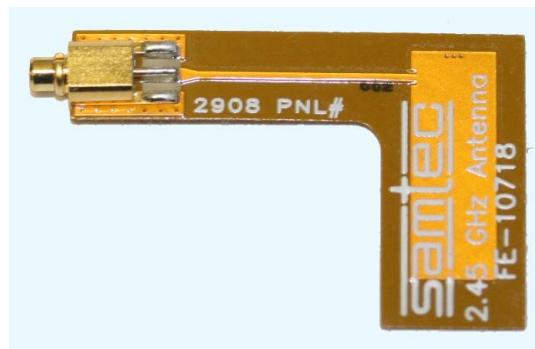




Technical Note

RF Characterization of 2.45 GHz Antenna Assembly with Integrated Feedline

FE-10718



Description:

**2.45 GHz 50 Ohm Antenna,
1" Microstrip Feedline
FE-10718**

**Antenna Port Connector
MMCX-P-P-H-ST-EM1**

Cable Assembly: RF Characterization - FE-10718

Description: 2.45 GHz Antenna Assembly with Integrated Feedline

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Cable Assembly: RF Characterization - FE-10718

Description: 2.45 GHz Antenna Assembly with Integrated Feedline

1.0 Test Information

Scope:

Return loss and input impedance characterization.

Test Criteria:

Analyze antenna for return loss and impedance vs. frequency. No pass/fail limits established.

Test Calibration:

- [-] 1: FE-10718_1
 - [-] Measurement Information
 - ... Measurement Date: Monday, September 29, 2008
 - ... Measurement Time: 04:02:18 PM
 - ... Measurement User: SAMTECNT\craigr
 - ... Measurement Computer: hb_plts
 - ... PLTS Version: 4.202
 - [-] DUT Information
 - ... DUT Config Description: Default 4 Port Configuration
 - ... Device Serial Number: UNDEFINED!
 - [-] Calibration Information
 - ... Cal File: C:\Program Files\Agilent\PLTS_4.2\Calibration\10m-26.5g_dkit_mixgender_cer.cal
 - ... Cal Date: September 29 2008
 - ... Cal Time: 16:28:51
 - ... Cal Type: SOLT
 - [-] Measurement Hardware
 - ... Instrument Make: Agilent Technologies | Agilent Technologies
 - ... Instrument Model: E8364B | N4421B
 - ... Instrument Serial Number: U542250254 | s/n U544070133
 - ... Instrument Firmware: A.07.50.26 |
 - [-] Analyzer Settings
 - ... Start Freq: 10 MHz
 - ... Stop Freq: 26500 MHz
 - ... Step Freq: 10 MHz
 - ... Power: -17
 - ... Power Slope: 0
 - ... IF Bandwidth: 300 Hz
 - ... Averaging: 1
 - ... Velocity Factor: 1.000000000

Cable Assembly: RF Characterization - FE-10718

Description: 2.45 GHz Antenna Assembly with Integrated Feedline

Adapter Use:

A SMA plug to MMCX jack adapter makes connection between the 2.45 GHz Antenna (DUT) and a calibrated reference plane.

Definition of Assembly Under Test:

SMA plug to MMCX jack adapter, to approximately one inch of 50 ohm feed line, to 2.45 GHz patch antenna (Assembly P/N FE-10718). The DUT response includes the antenna and MMCX jack/plug connection. The 2.9mm jack to SMA plug connection effects are normalized using precision calibration standards.



Port Designations:

Test ports suitable for accurate return loss measurements were port 3 and port 4.

Assembly Rating

	Frequency
Optimal Operating Range	2.4 to 2.5 GHz

Cable Assembly: RF Characterization - FE-10718
 Description: 2.45 GHz Antenna Assembly with Integrated Feedline

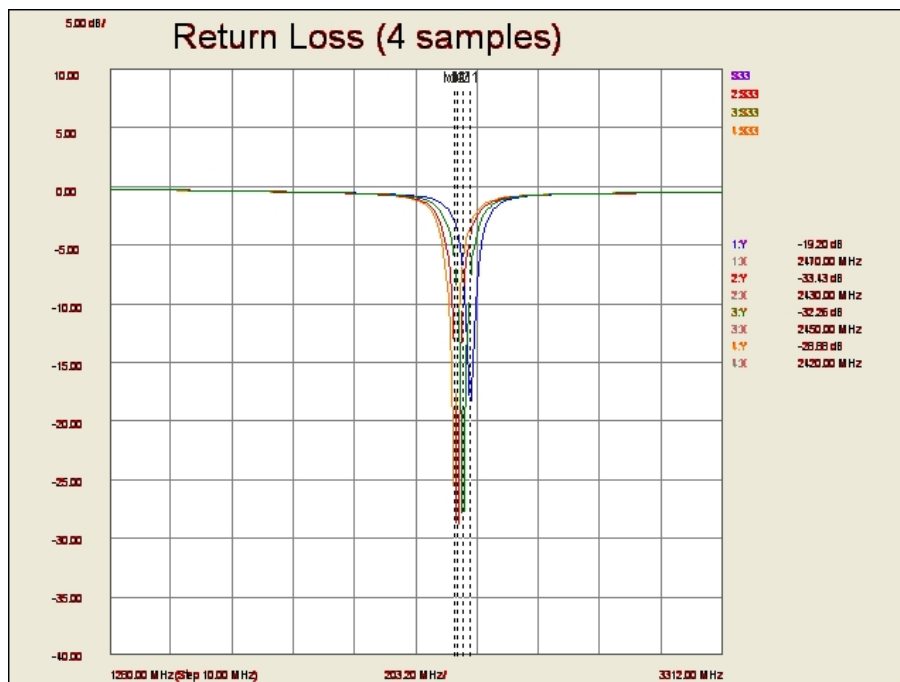
2.0 Performance Data

Return Loss (7samples measured)

Return Loss Response of 2.45GHz Flex Antenna*

FREQUENCY (GHz)	DUT 1	DUT 2	DUT 3	DUT 4	DUT 5	DUT 6	DUT 7
2.41						-15	
2.42		-14				-29	
2.43		-33				-14	-14
2.44		-15	-12	-15			-21
2.45			-20	-32			-13
2.46	-11		-14	-14	-12		
2.47	-19				-20		
2.48	-18				-16		

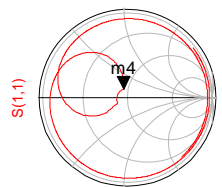
Minimum Return Loss Response = -32dB @ 2.45 GHz
 Maximum Return Loss Response = -19dB @ 2.47 GHz
 Bandwidth Range of Minimum Return Loss = 50MHz



Cable Assembly: RF Characterization - FE-10718
Description: 2.45 GHz Antenna Assembly with Integrated Feedline

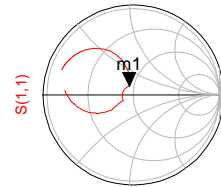
S11

m4
 freq=2.470GHz
 S(1,1)=0.110 / 114.625
 impedance = Z0 * (0.895 + j0.181)



freq (1.000GHz to 4.000GHz)

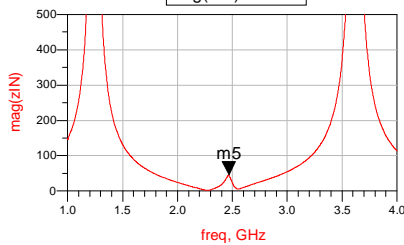
m1
 freq=2.470GHz
 S(1,1)=0.110 / 114.625
 impedance = Z0 * (0.895 + j0.181)



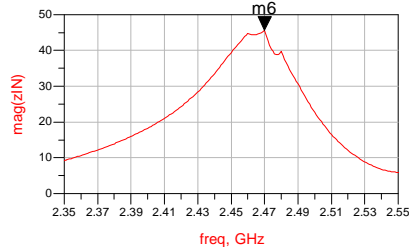
freq (2.350GHz to 2.550GHz)

Zin(mag)

m5
 freq=2.470GHz
 mag(zIN)=45.672

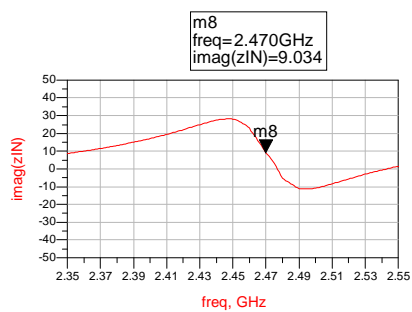
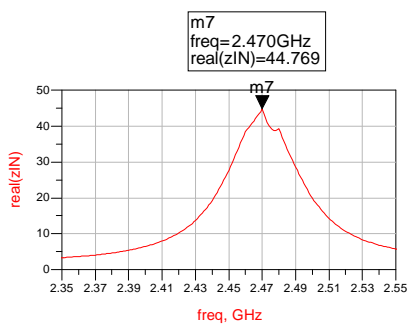


m6
 freq=2.470GHz
 mag(zIN)=45.672



Cable Assembly: RF Characterization - FE-10718**Description: 2.45 GHz Antenna Assembly with Integrated Feedline**

Zin(real and imag)



Cable Assembly: RF Characterization - FE-10718

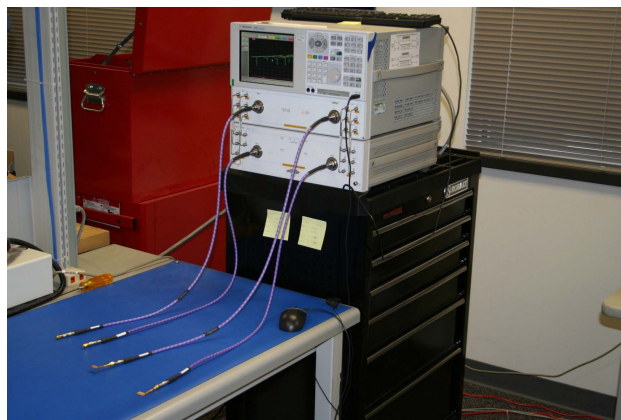
Description: 2.45 GHz Antenna Assembly with Integrated Feedline

3.0 Test Setup

Instrument Setup:

Network Analyzer	Agilent E8364B PNA Series (10 MHz – 50.0 GHz Range)
Mechanical Calibration Kit	85052D
Electronic Calibration Kit	None
Averaging Factor	1
Smoothing	Off
IF Bandwidth	300 Hz
Sweep Start	10 MHz
Sweep End	26.5 GHz
Points	2000

Test Fixture:



(Typical set-up, actual parts depicted.)

