

BT Dongle
Antenna Return Loss
& Radiation Pattern Test Plan

Version: 0.3

Project Name : MMS-7301

Test Date : 2007/1/9

Specification :

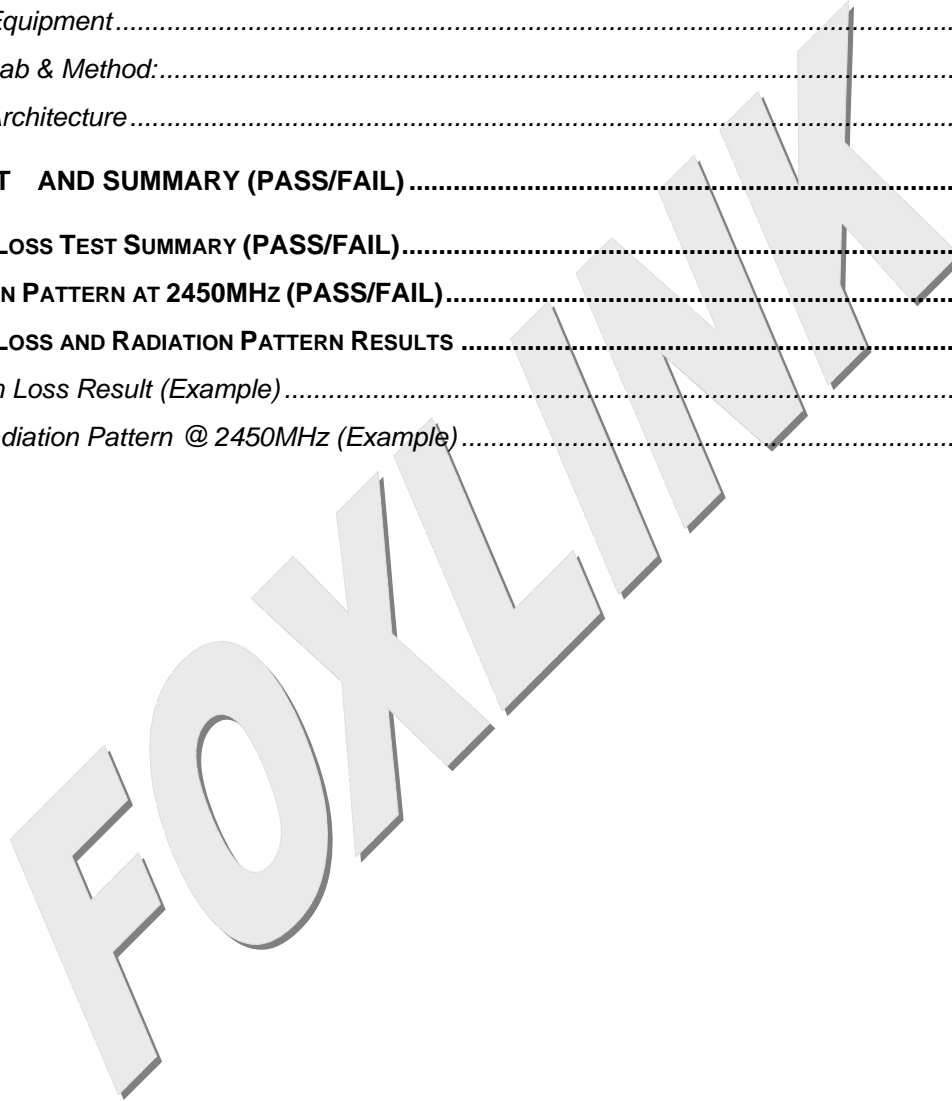
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Document History

Rev.	Date	Author	Reason for Changes
0.1	2006/8/22	Wanson Hsu	<ul style="list-style-type: none">• First Release
0.2	2006/8/25	Alex Chou	<ul style="list-style-type: none">• Modify Format
0.3	2007/1/9	Roi Chen	<ul style="list-style-type: none">• Third release

FOXLINK

1 TEST SETUP

1.1 Test Unit

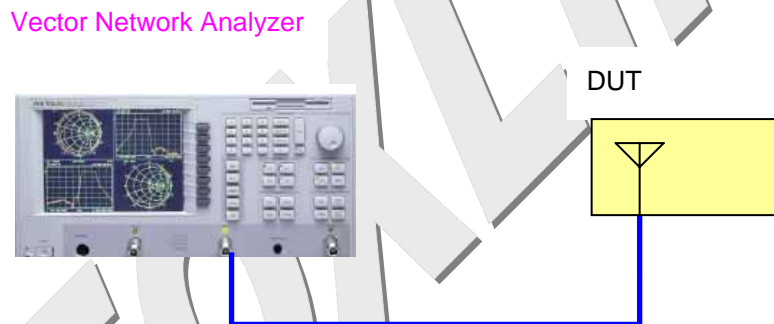
1. Sample Phase: **Pre-EV3**
2. Hardware Version: **V4R1**
3. Housing: **EV3-1(w/o soft touch paint)**
4. PCB: **V4R1**
5. Speaker: None
6. Microphone: None

1.2 Return Loss (VSWR) Test

1.2.1 Test Equipment

1. Vector Network Analyzer, Anritsu

1.2.2 Test Architecture



1.2.2.1 Test Procedure

1. Calibrate the vector network analyzer for one port reflection calibration with frequency range from 1GHz to 6GHz.
2. Solder a 50-ohm RF cable with a SMA connector on PCBA and assemble all the accessories and the housing.
3. Connect the network analyzer cable to the DUT through an SMA connector to antenna.
4. Measure and record S11 (return loss).

1.3 Radiation Pattern (Gain) Test**1.3.1 Test Equipment**

1. AMS-8500 System
 - ◆ Rectangular anechoic chamber
 - ◆ Multi-Axis Positioning System (MAPS)
 - ◆ EMQuest EMQ-100 Data Acquisition and Analysis Software
 - ◆ ETS-Lindgren EMCO 3164-04 dual-polarized quad-ridged horn antenna
2. Network Analyzer: Agilent PNA, 300kHz ~ 6GHz
3. Signal Generator: R&S SMT6, 5kHz ~ 6GHz
4. Spectrum Analyzer: R&S FSP, 9kHz ~ 13.6GHz
5. Phantom Head: IEEE SCC34 "SAM" phantom per IEEE 1528-2002 specifications.

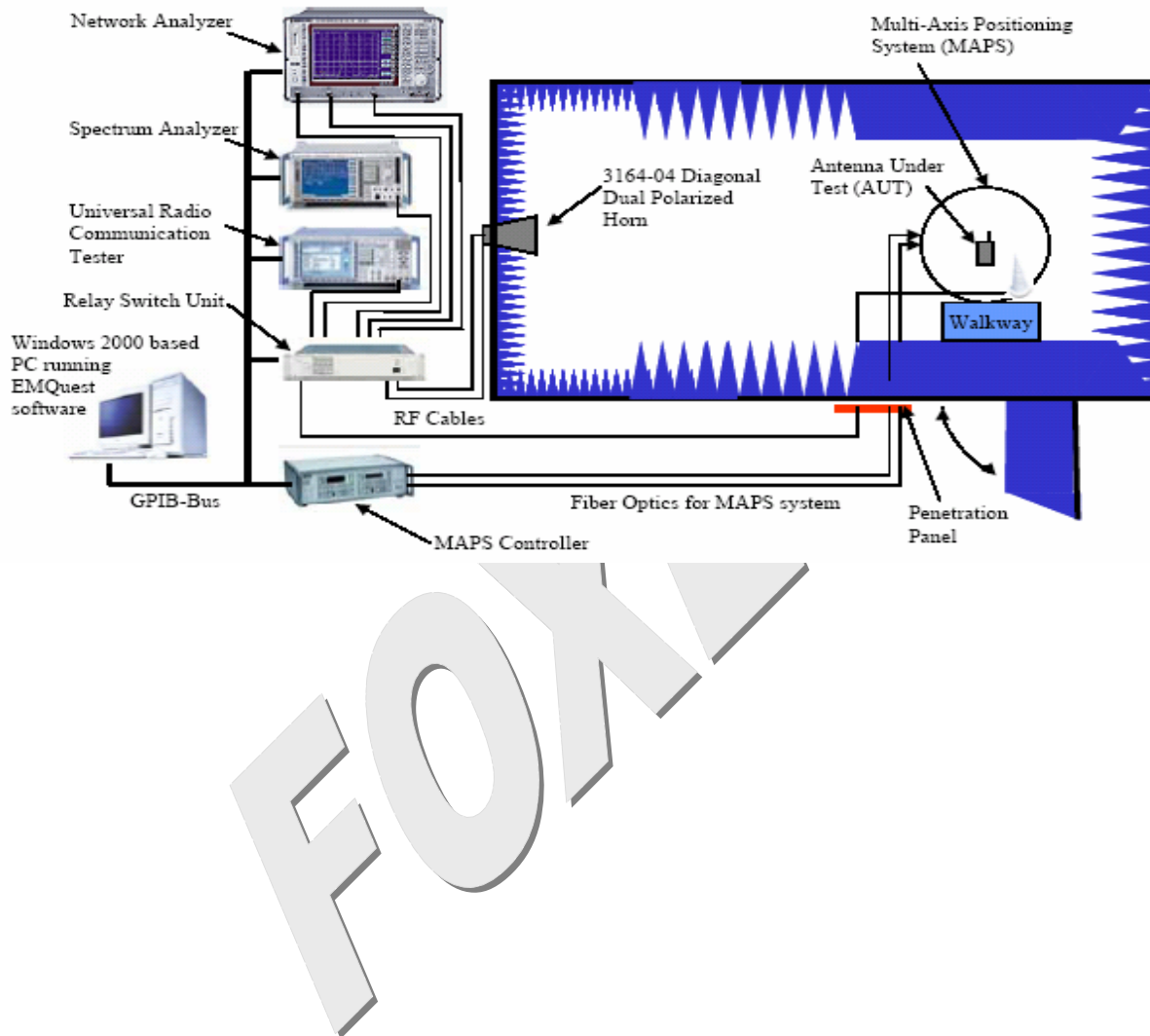


1.3.2 Test Lab & Method:

1. Test Lab: Foxlink RTC Lab
2. Test Method: 3D radiation pattern

1.3.3 Test Architecture

Typical AMS-8500 System Schematic



2 TEST RESULT AND SUMMARY (PASS/FAIL)

2.1 Return Loss Test Summary (PASS/FAIL)

	Free Space			Phantom		
	Return Loss (dB) at 2300 MHz	Return Loss (dB) at 2445 MHz	Return Loss (dB) at 2800 MHz	Return Loss (dB) at 2400 MHz	Return Loss (dB) at 2441 MHz	Return Loss (dB) at 2480 MHz
Limits	<-6	<-8	<-6	<-6	<-7	<-6
Unit1	-11 dB	-31 dB	-11 dB			
Unit2	-11 dB	-21 dB	-11 dB			
Unit3	-11 dB	-25 dB	-11 dB			
Unit4						
Unit5						

2.2 Radiation Pattern at 2441MHz (PASS/FAIL)

Free Space:

	Peak Gain (dBi) at 2402 MHz	Average Gain (dBi) at 2402 MHz	Peak Gain (dBi) at 2450 MHz	Average Gain (dBi) at 2450 MHz	Peak Gain (dBi) at 2480 MHz	Average Gain (dBi) at 2480 MHz
Limits	>0	>-3	>0	>-3	>0	>-3
Unit1	1.86	-2	2.8	-1	3.2	-0.5
Unit2	2.52	-1.3	2.4	-1.7	3.2	-0.6
Unit3	1.5	-2.5	2.7	-1.2	3.1	-0.8
Unit4						
Unit5						

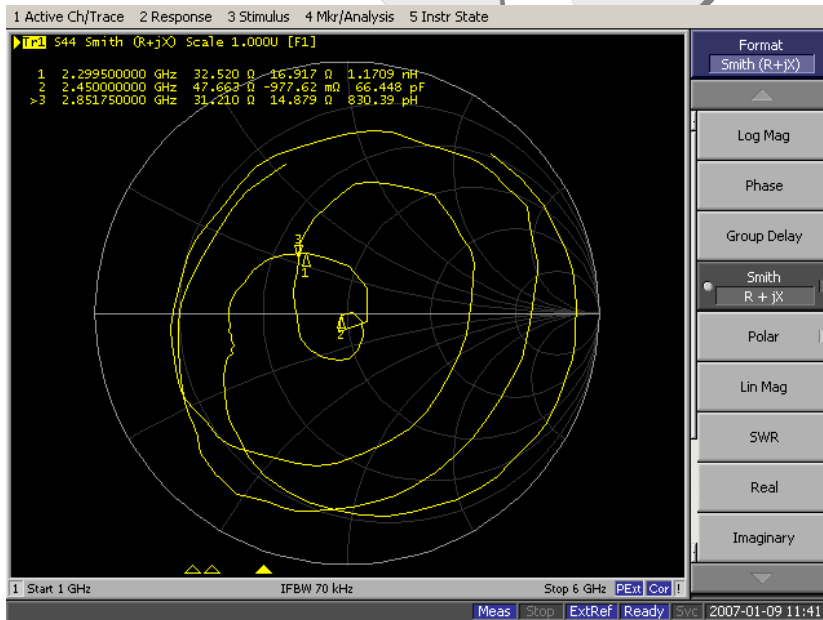
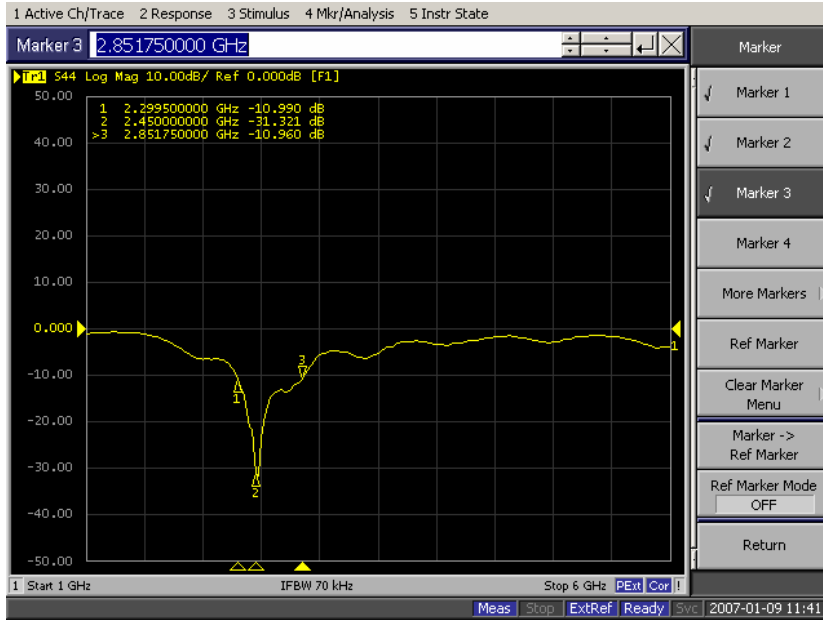
Phantom:

	Peak Gain (dBi) at 2400 MHz	Average Gain (dBi) at 2400 MHz	Peak Gain (dBi) at 2441 MHz	Average Gain (dBi) at 2441 MHz	Peak Gain (dBi) at 2480 MHz	Average Gain (dBi) at 2480 MHz
Limits	>-2	>-5	>-2	>-5	>-2	>-5
Unit1						
Unit2						
Unit3						
Unit4						
Unit5						

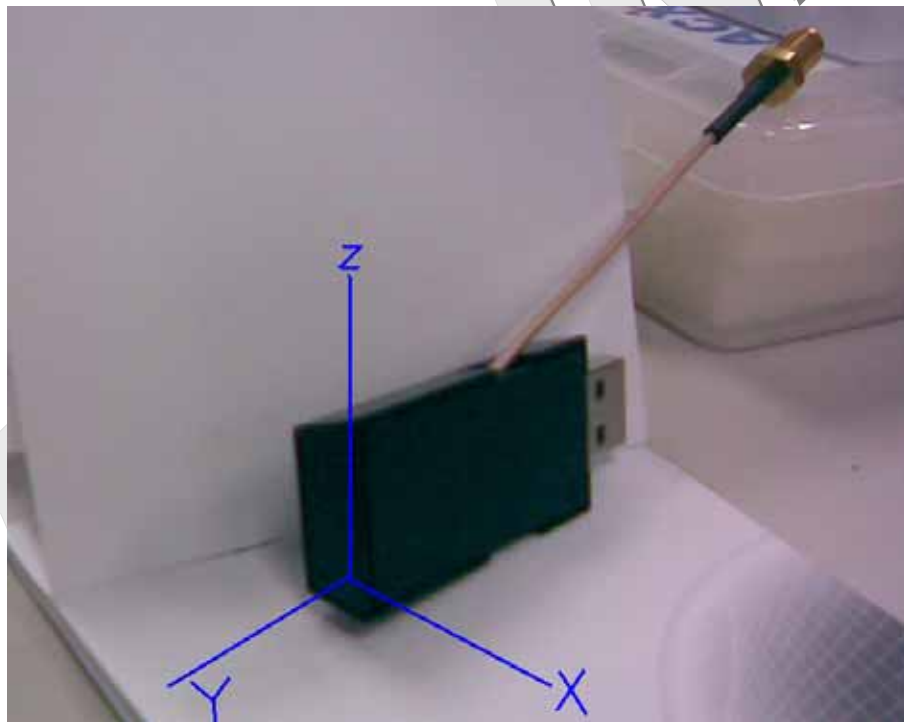
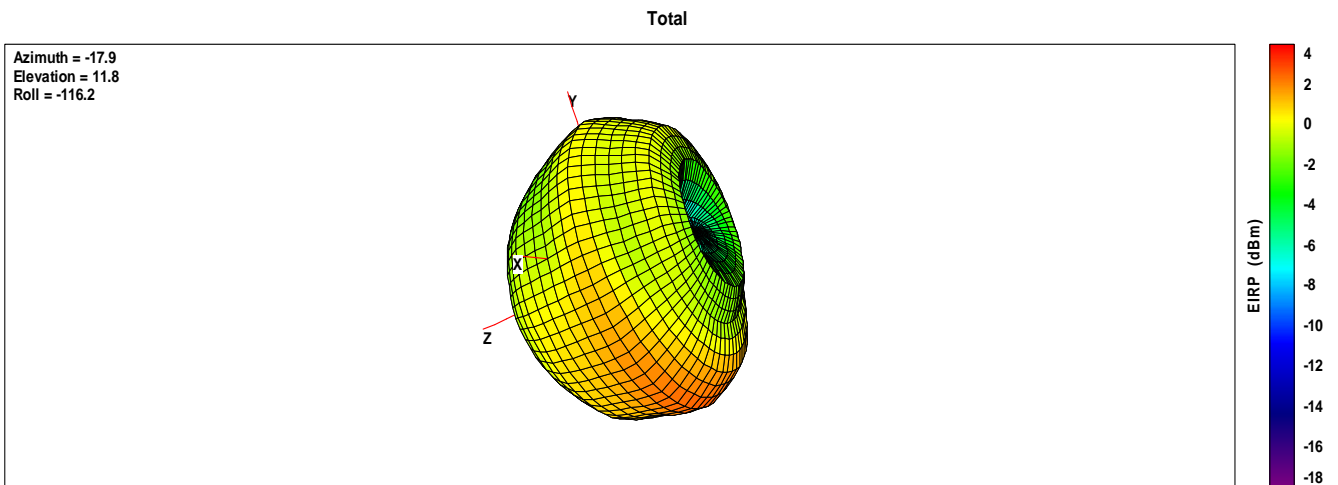
2.3 Return Loss and Radiation Pattern Results

2.3.1 Return Loss Result

Free Space:



2.3.2 3D Radiation Pattern @ 2450MHz



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