Report On

FCC and Industry Canada Testing of the
Motorola Bluetooth Image Scanner
In accordance with FCC CFR 47 Part 15C and
Industry Canada RSS-210

COMMERCIAL-IN-CONFIDENCE

FCC ID: UZ7DS6878
IC ID: 109AN-DS6878

Document 75908220 Report 02 Issue 2 February 2010

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Motorola Bluetooth Image Scanner
In accordance with FCC CFR 47 Part 15C and RSS-210

Document 75908220 Report 02 Issue 2

February 2010

PREPARED FOR

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PREPARED BY

N Bennett
Senior Administrator

APPROVED BY

M J Hardy
Authorised Signatory

C Gould
Authorised Signatory

DATED 25 February 2010

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 15C and RSS-210. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineers;

B Airs

A Guy

This report has been up-issued to Issue 2 to include additional compliance information in Section 1.8 and correct typographical errors.

UKAS TESTING
0141

Product Service

CONTENTS

Product Service

SECTION 1

REPORT SUMMARY

FCC and Industry Canada Testing of the
Motorola Bluetooth Image Scanner
In accordance with FCC CFR 47 Part 15C and RSS-210

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the FCC and Industry Canada Testing of the Motorola, Bluetooth Image Scanner to the requirements of FCC CFR 47 Part 15C and RSS-210.

Objective	To perform FCC and Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Motorola
Model Number(s)	DS6878
Serial Number(s)	MXA4UV79 MXA4UV37
Number of Samples Tested	Two
Test Specification/Issue/Date	FCC CFR 47 Part 15C: 2009 RSS-210 Issue 7: 2007
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	NP4981057 24 November 2009
Start of Test	09 February 2010
Finish of Test	16 February 2010
Name of Engineer(s)	B Airs A Guy
Related Documents	ANSI C63.4: 2003 AS/NZS 4268 :2008

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 15C and RSS-210 is shown below.

Section	Spec Clause		Test Description	Mode	Result	Comments
	FCC	IC				
2.1	15.247 (a)(1)	A8.1(a)	20dB Bandwidth	Transmit Bottom	Pass	
				Transmit Middle	Pass	
				Transmit Top	Pass	
2.2	15.247 (b)(1)	A8.4(2)	Maximum Peak Conducted Output Power	Transmit Bottom	Pass	
				Transmit Middle	Pass	
				Transmit Top	Pass	
2.3	15.247 (b)(3)	A8.4(4)	EIRP Peak Power	Transmit Bottom	Pass	
				Transmit Middle	Pass	
				Transmit Top	Pass	
2.4	15.247 (d)	A8.5	Spurious Emissions	Transmit Bottom	Pass	
				Transmit Middle	Pass	
				Transmit Top	Pass	
2.5	15.205	A8.5, 2.2	Band Edge Emissions	Transmit Bottom	Pass	
				Transmit Middle	N/A	
				Transmit Top	Pass	
2.6	15.247 (a)(1)(iii)	A8.1(d)	Channel Dwell Time	Transmit Bottom	Pass	
				Transmit Middle	Pass	
				Transmit Top	Pass	
2.7	15.247 (a)(1)	A8.1(b)	Channel Separation	Transmit Bottom	Pass	
				Transmit Middle	Pass	
				Transmit Top	Pass	
2.8	15.247 (a)(1)(iii)	A8.1(d)	Number of Hopping Channels	Transmit Bottom	Pass	
				Transmit Middle	Pass	
				Transmit Top	Pass	
2.9	15.247 (a)(2)	A8.2 (a)	Radiated Emissions (Enclosure Port)	Transmit Bottom	Pass	
				Transmit Middle	Pass	
				Transmit Top	Pass	

1.3 APPLICATION FORM

APPLICANT'S DETAILS	
COMPANY NAME :	Motorola, Inc
ADDRESS :	One Symbol Plaza Holtsville NY 11742-1300, United States
NAME FOR CONTACT PURPOSES :	Mr Mark Luksich
TELEPHONE NO: 631-738-5134	FAX NO: 631-738-3776 E-MAIL: Mark.Luksich@motorola.com

EQUIPMENT INFORMATION

Equipment designator:

Model name/number DS6878 Identification number UZ7DS6878

Supply Voltage:

[ ]	AC mains	State AC voltage.....V	and AC frequency…….Hz
[✓]	DC (external)	State DC voltage 6.4 V	and DC current 0.65 A
[✓]	DC (internal)	State DC voltage 3.6 V	and Battery type NiMH

Frequency characteristics:

Frequency range 2400 MHz to 2483.5. MHz Channel spacing 1 MHz (if channelized)

Designated test frequencies:
Bottom: 2402 MHz Middle: 2441 MHz Top: 2480 MHz

Power characteristics:

Maximum transmitter power 13.5 dBm Minimum transmitter power …… W (if variable)

[ ] Continuous transmission
[✓] Intermittent transmission State duty cycle ……
If intermittent, can transmitter be set to continuous transmit test mode? N

Antenna characteristics:

[ ]	Antenna connector	State impedance …… ohm
[✓]	Temporary antenna connector	State impedance 50 ohm
[✓]	Integral antenna	State gain 2.5dBi

Modulation characteristics:

[ ]	Amplitude	[ ]	Other
[✓]	Frequency	Details: ……..	
[ ]	Phase		

Can the transmitter operate un-modulated? Y
ITU Class of emission: ……

Extreme conditions:

Maximum temperature	+50 ºC	Minimum temperature	0 ºC
Maximum supply voltage	5V	Minimum supply voltage	3.35V

I hereby declare that I am entitled to sign on behalf of the applicant and that the information supplied is correct and complete.

Signature : Held on File

Name : Mark S. Luksich

Position held : DMTS, Regulatory Engineering

Date : 02 February 2010

TÜV Product Service Ltd formally certifies that the manufacturer's declaration as typed out in this report, is a true and accurate record of the original received from the applicant.

1.4 DECLARATION OF BUILD STATUS

Manufacturer	Motorola. Inc
Country of origin	Mexico
Technical Description	DS6878 Bluetooth Imager scanner, power supply 50-14000-253R (100-240 Vac, 50/60Hz), Cradle STB4278
Model No	DS6878
Part No	See table below

Configuration Number	Description
DS6878-HD20007WR	SCNR: HD focus, HD twilight black
DS6878-DL20001WR	SCNR: DL focus, cash register white, DL parser
DS6878-DL20007WR	SCNR: DL focus, twilight black, DL parser
DS6878-FIPS20001WR	SCNR: DL focus, cash register white, FIPS
DS6878-FIPS20007WR	SCNR: DL focus, twilight black, FIPS
DS6878-HC20000WR	SCNR: DL focus, anti-microbial, HC white
DS6878-HCF20000WR	SCNR: DL focus, anti-microbial, HC white, FIPS
DS6878-SR20001WR	SCNR: DL focus, cash register white
DS6878-SR20007WR	SCNR: DL focus, twilight black
CR0078-JC1009BWR	CRADLE: Hands-free, BT, Charging, Multi-Interface, Antimicrobial, HealthCare White
CR0078-JC10007WR	CRADLE: Hands-free, BT, Charging, Multi-Interface, Twilight Black
STB4278-C0HCBWR	CRADLE: Std base BT, multi-interface, anti-microbial, HC white

Serial No	MXA4UV79 MXA4UV37
Drawing Number	17-121130-01
Build Status	Rev A
Software Issue	Not applicable
Hardware Issue	Not applicable
FCC ID	UZ7DS6878
IC ID	109AN-DS6878
Highest Operating Frequency	2.483 MHz

Signature	Held on File
Date	31 January 2010
D of B S Serial No	75908220

Note: This document has been prepared to enable manufacturers with no mechanism for producing their own Declaration of Build Status, to declare the build state of the equipment submitted for test.

No responsibility will be accepted by TÜV Product Service as to the accuracy of the information declared in this document by the manufacturer.

1.5 PRODUCT INFORMATION

1.5.1 Technical Description

The Equipment Under Test (EUT) was a Motorola, Bluetooth Image Scanner. A full technical description can be found in the manufacturer's documentation.

1.5.2 Test Configuration

Configuration 1: Stand Alone

The EUT was configured in accordance with FCC CFR 47 Part 15C and RSS-210.

1.5.3 EUT Cable / Port Identification

Port	Max Cable Length specified	Usage	Type	Screened
AC/DC Power supply unit	<3m	Mains Lead	2 core	No
Signal	<3m	Scanner base unit to PC	Multicore	No

1.5.4 Modes of Operation

Modes of operation of each EUT during testing were as follows:

Mode 1 - Transmit Bottom (2402 MHz)

Mode 2 - Transmit Middle (2441 MHz)

Mode 3 - Transmit Top (2480 MHz)

Information on the specific test modes utilised are detailed in the test procedure for each individual test.

1.6 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure, test laboratories or an open test area as appropriate.

The EUT was powered from an AC Power supply unit or by external DC supply where appropriate.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation
IC2932B-1 Octagon House, Fareham Test Laboratory

1.7 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.8 COMPLIANCE TO ADDITIONAL STANDARDS

The testing covered by this report can be used to show compliance with AS/NZS 4268 as stated in Table 1, Note 5 of AS/NZS 4268.

1.9 MODIFICATION RECORD

No modifications were made to the EUT during testing.

Product Service

SECTION 2

TEST DETAILS

FCC and Industry Canada Testing of the
Motorola Bluetooth Image Scanner
In accordance with FCC CFR 47 Part 15C and RSS-210

2.1 20dB BANDWIDTH

2.1.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (a)(1)
RSS-210, Clause A8.1(a)

2.1.2 Equipment Under Test

Bluetooth Image Scanner, S/N: MXA4UV79

2.1.3 Date of Test and Modification State

10 February 2010 - Modification State 0

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

Test Performed in accordance with FCC CFR 47 Part 15C and RSS-210.

The EUT was transmitted at maximum power at all data rates via a cable to the Spectrum Analyser. The Analyser settings were adjusted to display the resultant trace on screen. The peak point of the trace was measured and the markers positioned to give the –20dBc points of the displayed spectrum.

2.1.6 Environmental Conditions

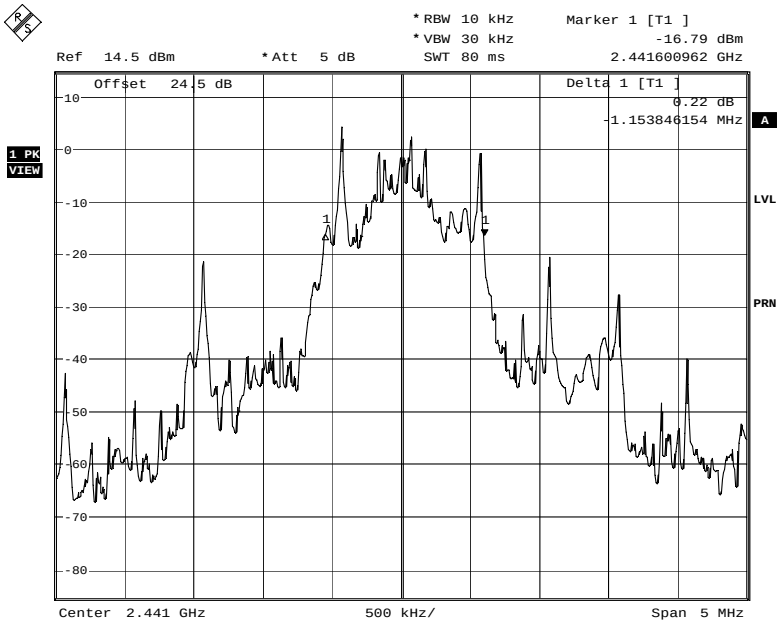
	10 February 2010
Ambient Temperature	28°C
Relative Humidity	13%

2.1.7 Test Results

Frequency (MHz)	Data Rate (Mbps)	20dB Bandwidth (kHz)
2402	3DH1	1153.846
	3DH3	1153.846
	3DH5	1145.833
2441	3DH1	1153.846
	3DH3	1105.769
	3DH5	1145.833
2480	3DH1	1169.872
	3DH3	1121.795
	3DH5	1145.833

2402 MHz

3DH1



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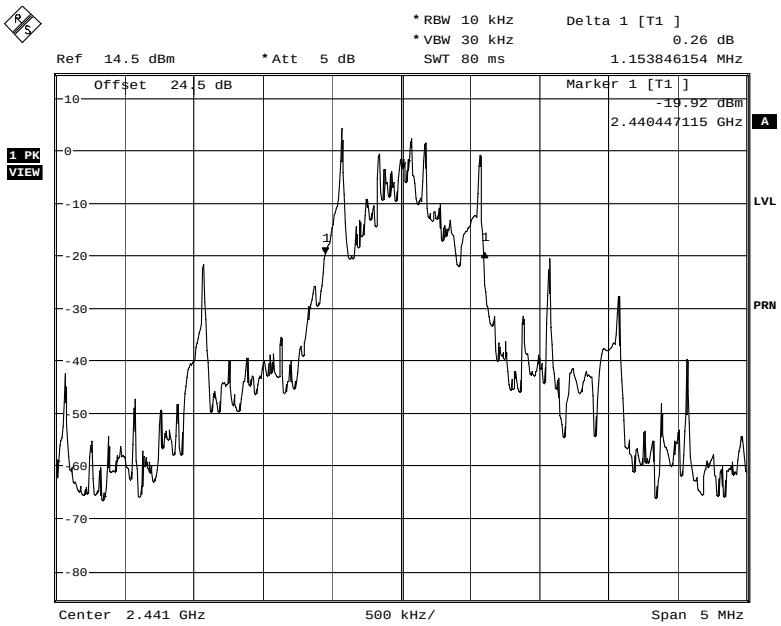
3DH3



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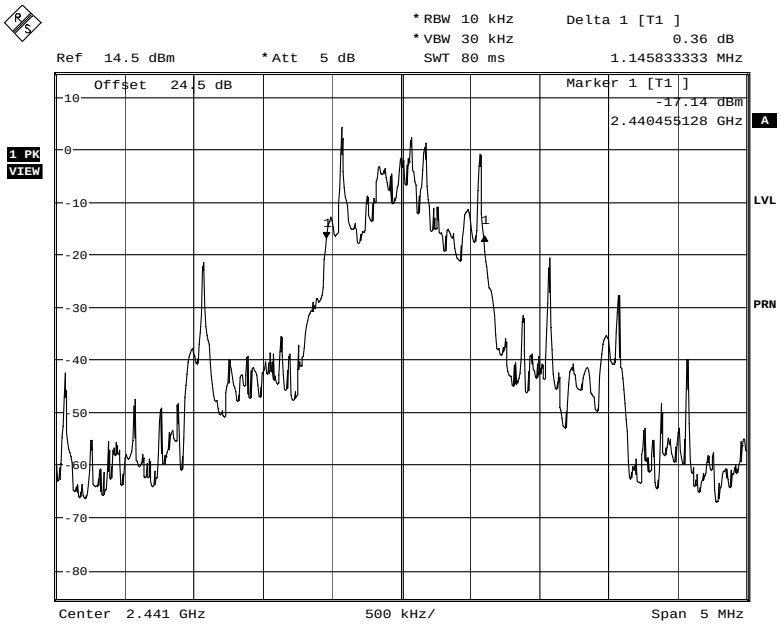
3DH5



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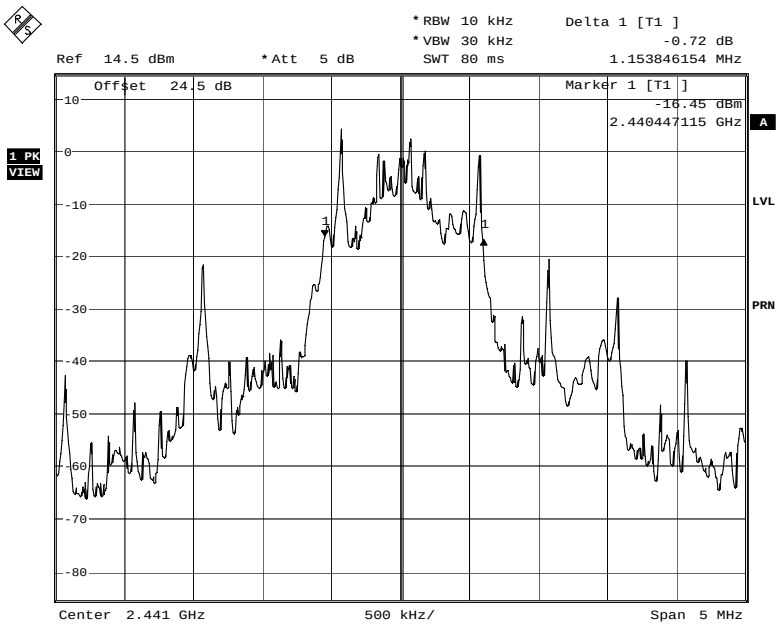
2441 MHz

3DH1



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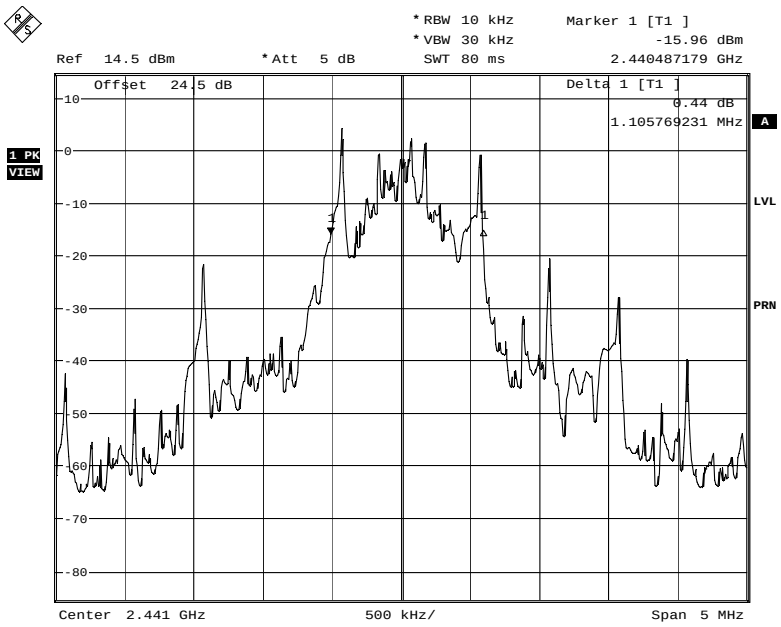

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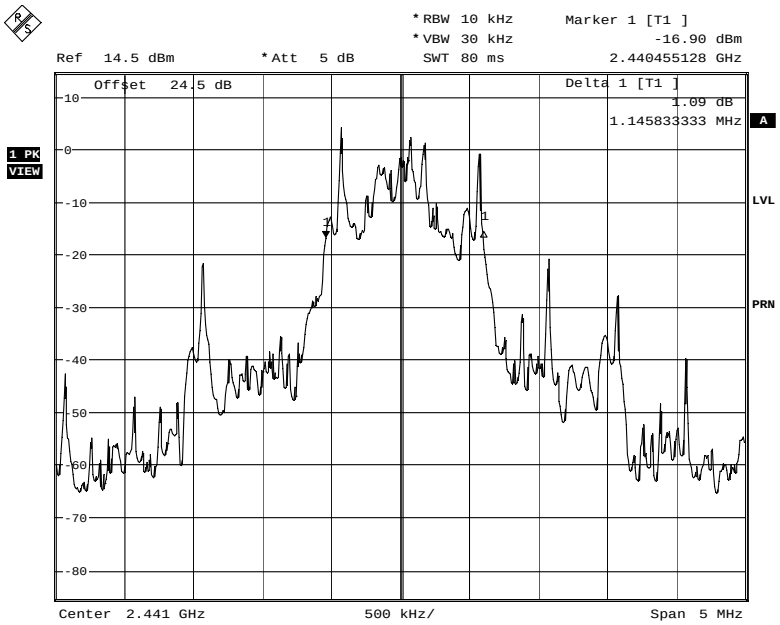
3DH5



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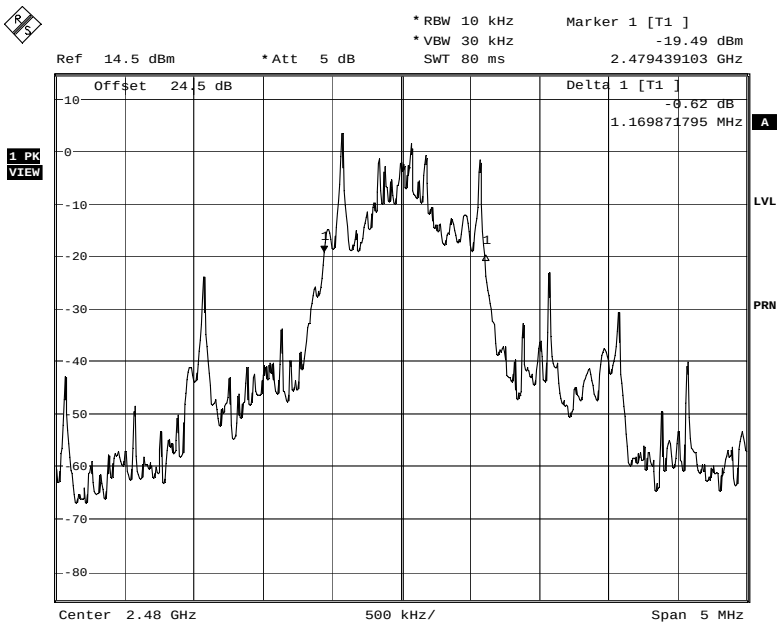
2480 MHz

3DH1



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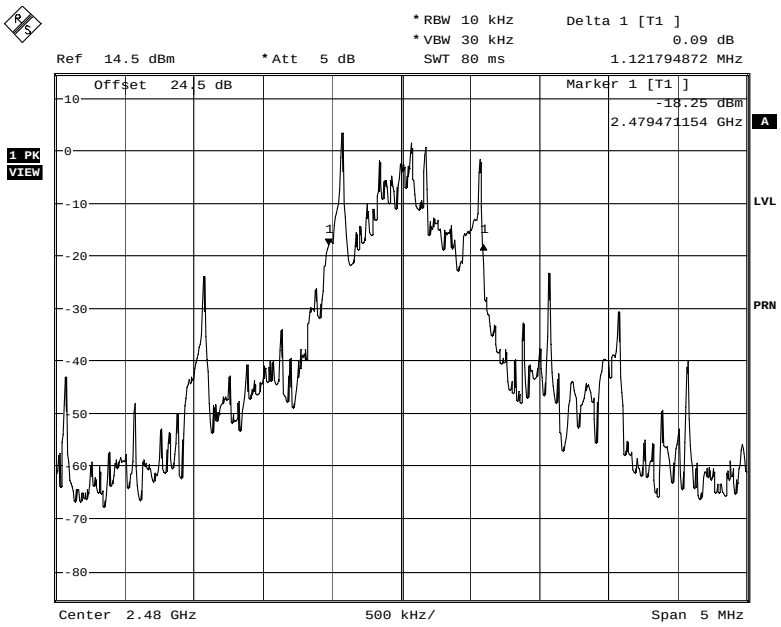
3DH3



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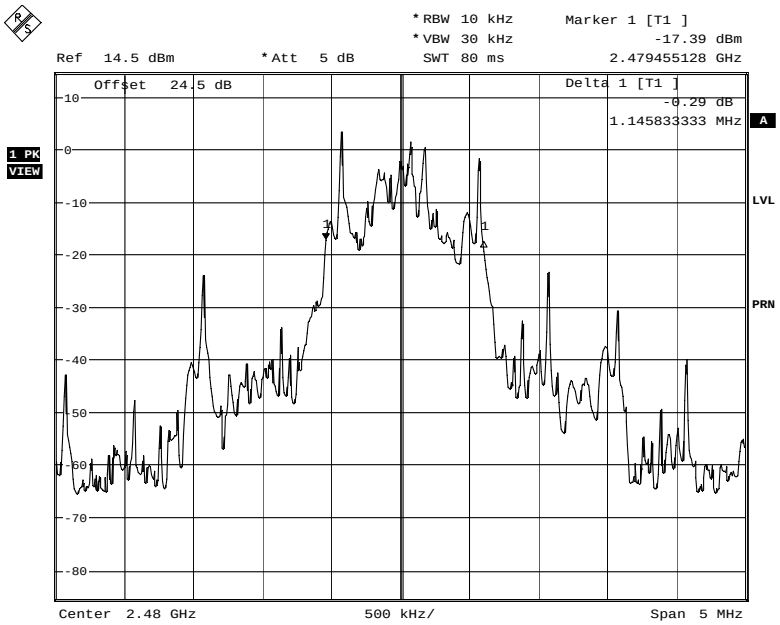
3DH5



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2.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

2.2.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (b)(1)
RSS-210, Clause A8.4(2)

2.2.2 Equipment Under Test

Bluetooth Image Scanner, S/N: MXA4UV79

2.2.3 Date of Test and Modification State

09 February 2010 - Modification State 0

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

Test Performed in accordance with FCC CFR 47 Part 15C and RSS-210.

2.2.6 Environmental Conditions

	09 February 2010
Ambient Temperature	27°C
Relative Humidity	17%

2.2.7 Test Results

3.6 V DC

Frequency (MHz)	Maximum Peak Conducted Output Power	
	3DH5	
	dBm	mW
2402	+10.53	0.020
2441	+10.49	0.019
2480	+10.52	0.020

Remarks

Measurements made using 3DH5 modulation. 3DH5 has the longest duty cycle and therefore deemed as the worst case for measurements of maximum peak conducted output power.

Limit Clause

1 Watt

2.3 EIRP PEAK POWER

2.3.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (b)(3)
RSS-Gen Clause A8.4(4)

2.3.2 Equipment Under Test

Bluetooth Image Scanner, S/N:MXA4UV37

2.3.3 Date of Test and Modification State

10 February 2010 - Modification State 0

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CRF 47 Part 15 and RSS-Gen.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1
- Mode 2
- Mode 3

2.3.6 Environmental Conditions

	10 February 2010
Ambient Temperature	21°C
Relative Humidity	21%
Atmospheric Pressure	1016mbar

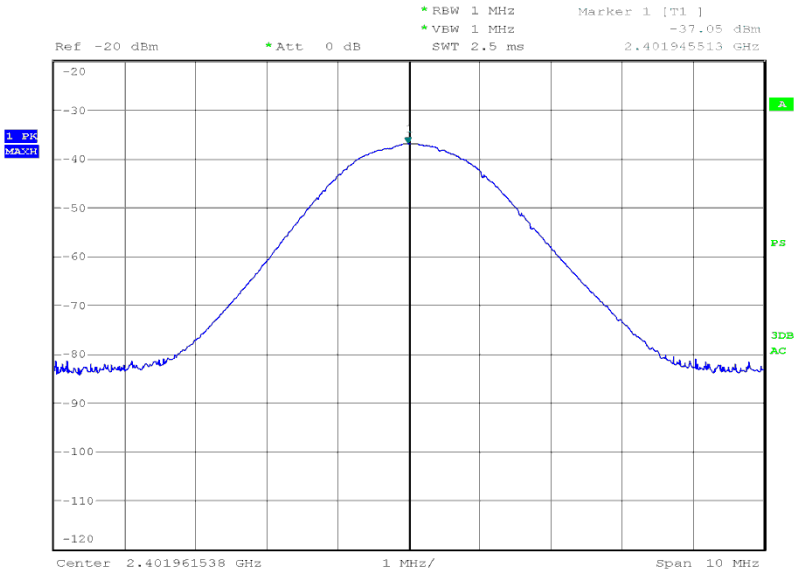
2.3.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C and RSS-Gen for EIRP Peak Power.

The test results are shown below.

Configuration 1 - Mode 1

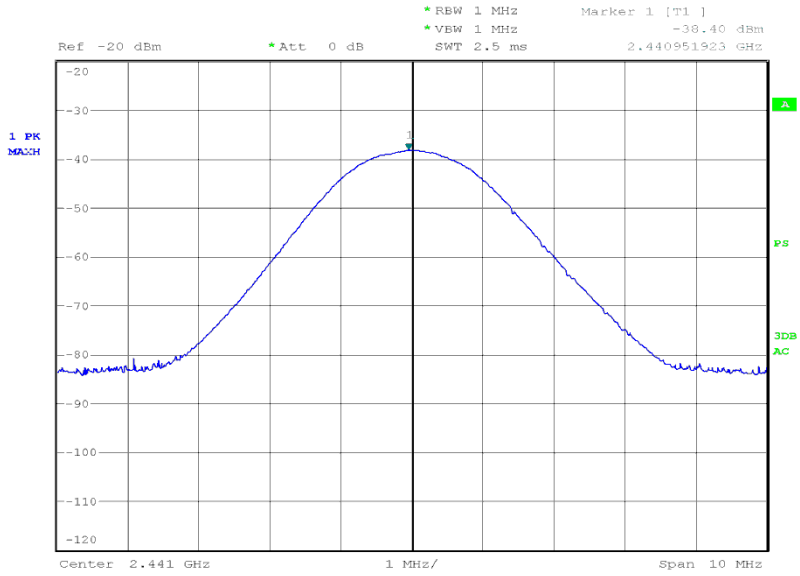
Frequency GHz	Result (dBm)	Limit (dBm)	Result (W)	Limit (W)
2.402	10.71	36.0	0.01178	4.0



Date: 11.FEB.2010 02:27:30

Configuration 1 - Mode 2

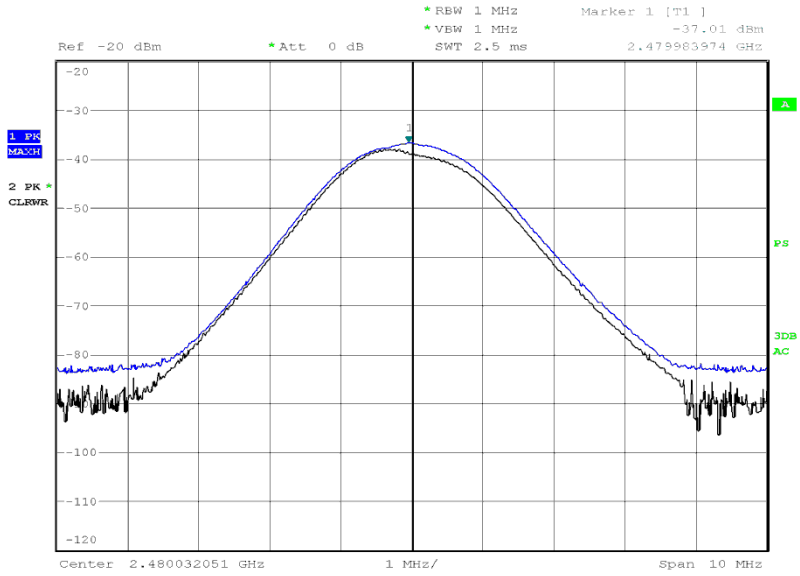
Frequency GHz	Result (dBm)	Limit (dBm)	Result (W)	Limit (W)
2.441	11.44	36.0	0.01393	4.0



Date: 11.FEB.2010 02:18:26

Configuration 1 - Mode 3

Frequency GHz	Result (dBm)	Limit (dBm)	Result (W)	Limit (W)
2.480	8.04	36.0	0.006368	4.0



Date: 11.FEB.2010 01:46:37

2.4 SPURIOUS EMISSIONS

2.4.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (d)
RSS-210, Clause A8.5

2.4.2 Equipment Under Test

Bluetooth Image Scanner, S/N: MXA4UV79

2.4.3 Date of Test and Modification State

16 February 2010 - Modification State 0

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

Test Performed in accordance with FCC CFR 47 Part 15C and RSS-210.

In accordance with Part 15.247(c), the Spurious Conducted Emissions from the antenna terminal were measured. The transmitter output power was attenuated using a combination of filters and attenuators and the frequency spectrum investigated from 9 kHz to 25 GHz. The EUT was set to transmit on full power and frequency hopping on all channels. The resolution and video bandwidths were set to 100 kHz and 300 kHz respectively in accordance with Part 15.247. The spectrum analyser detector was set to Max Hold.

With the EUT transmitting at maximum power, the Spectrum Analyser was set to Max Hold and the fundamental peak measured in a RBW and VBW of 100 kHz. This level was used to determine the limit line as displayed on the plots of -20dBc.

The maximum path loss across each measurement band was used as the reference level offset to ensure worst case results.

2.4.6 Environmental Conditions

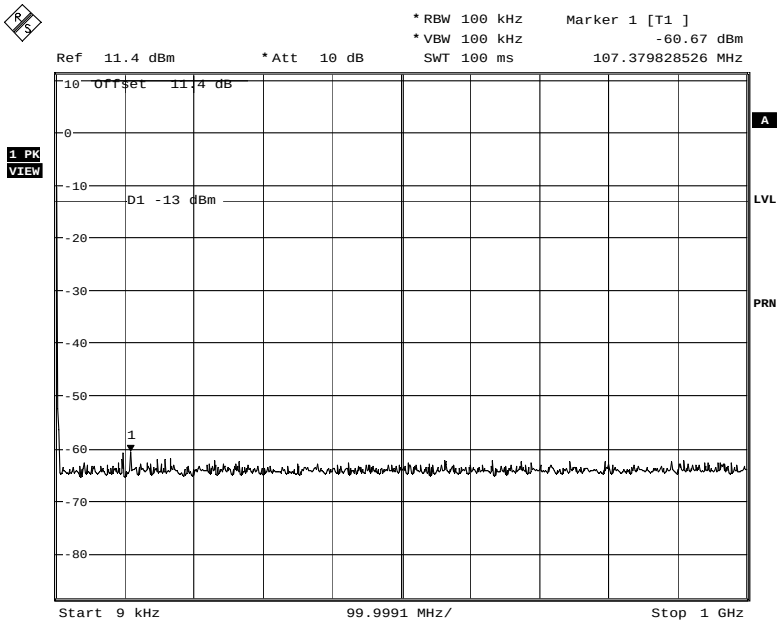
	16 February 2010
Ambient Temperature	28°C
Relative Humidity	22%

2.4.7 Test Results

3.6 V DC Supply

3DH1

9kHz to 1GHz



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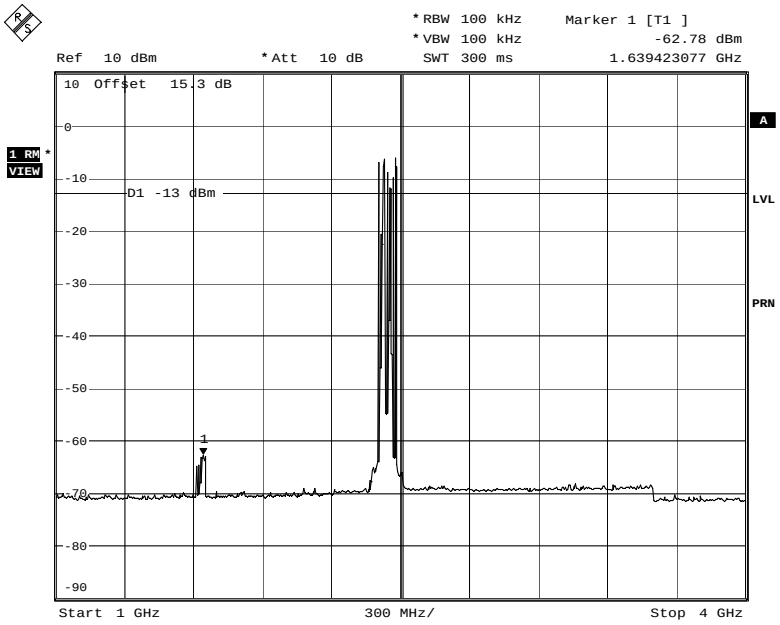
1GHz to 4GHz



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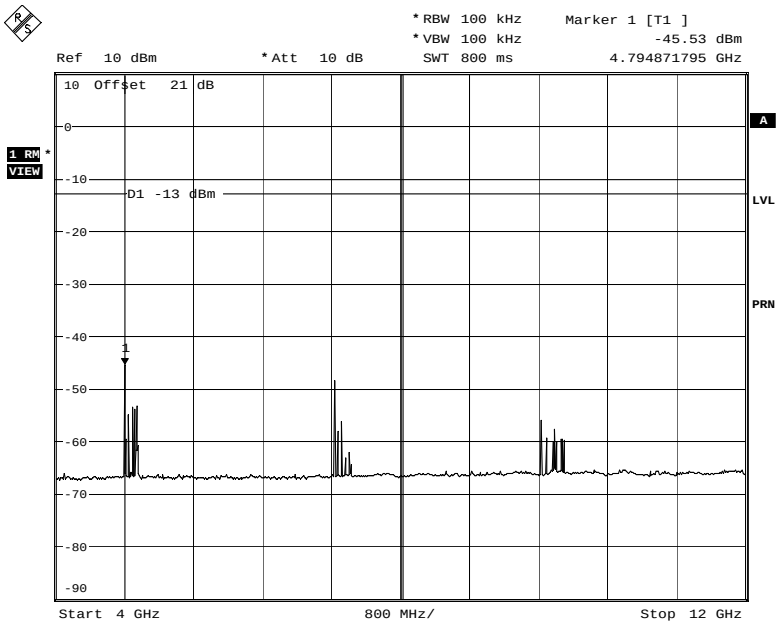
4GHz to 12GHz



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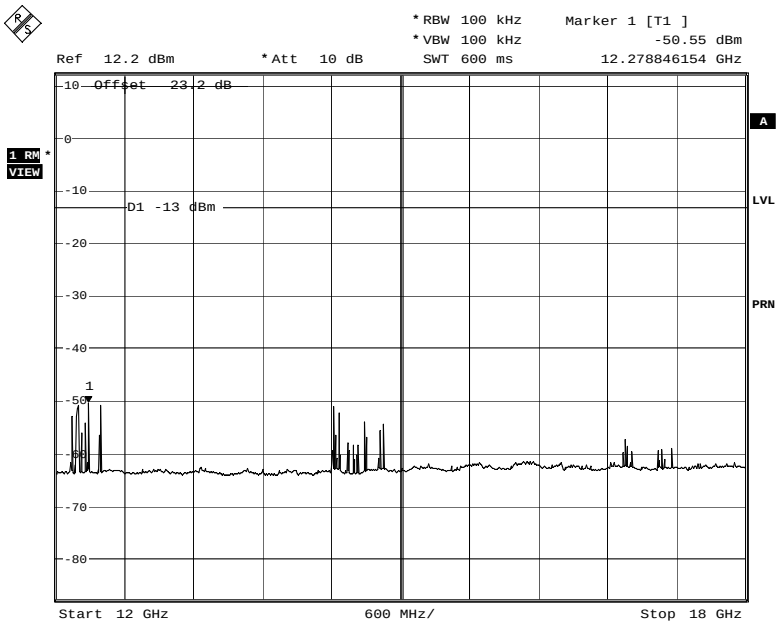
12GHz to 18GHz



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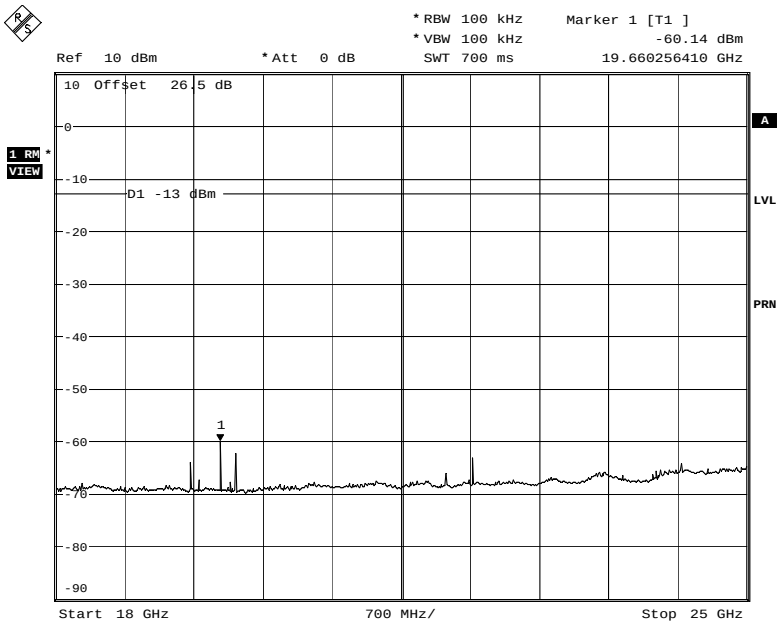
18GHz to 25GHz



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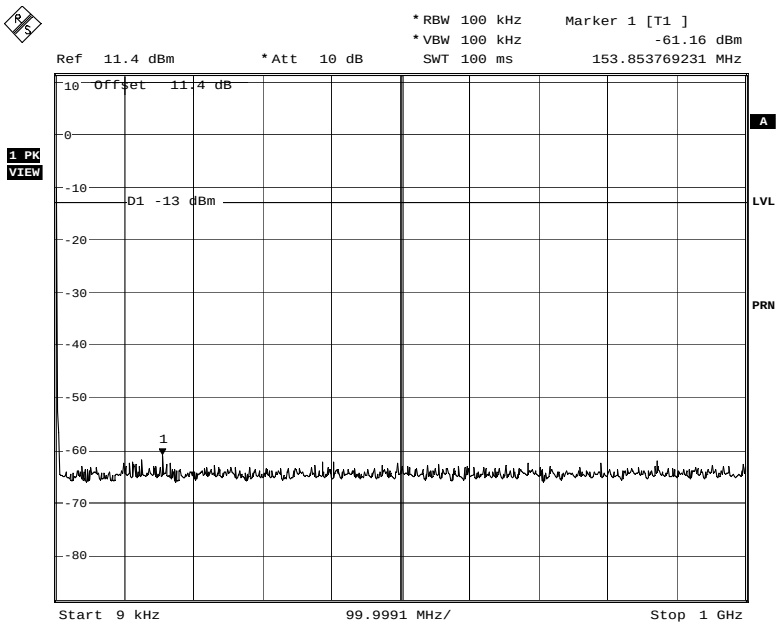
3DH3

9kHz to 1GHz



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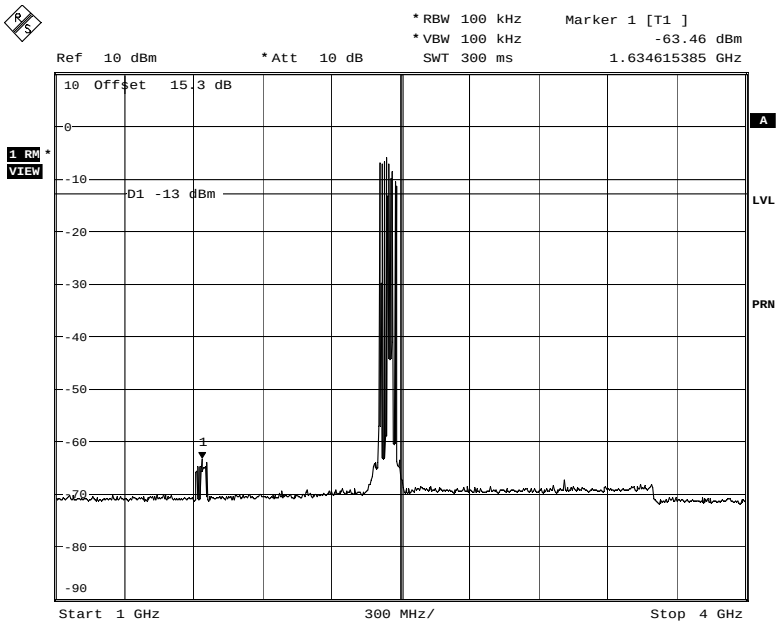
1GHz to 4GHz



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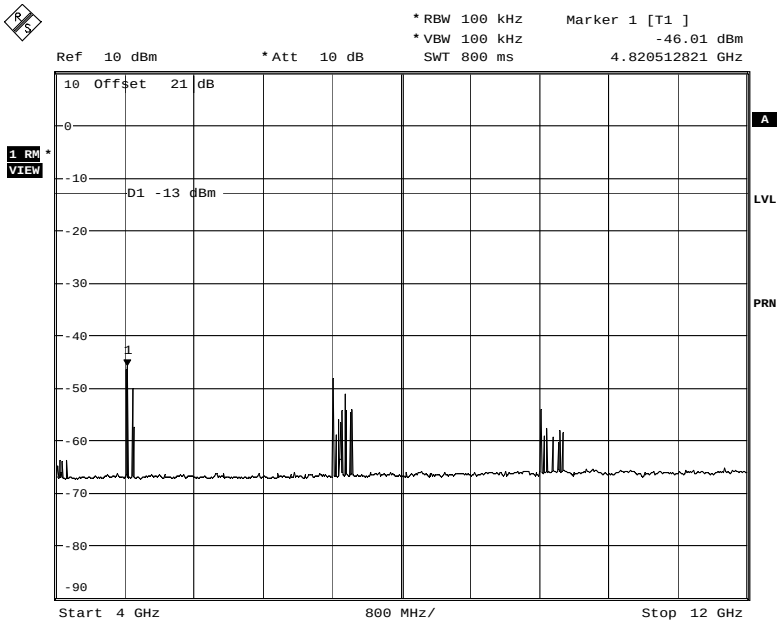
4GHz to 12GHz



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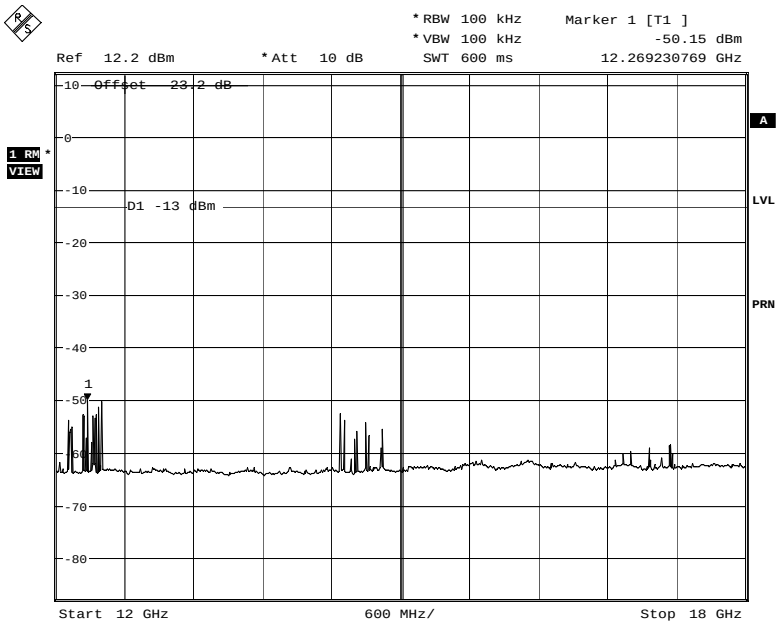
12GHz to 18GHz



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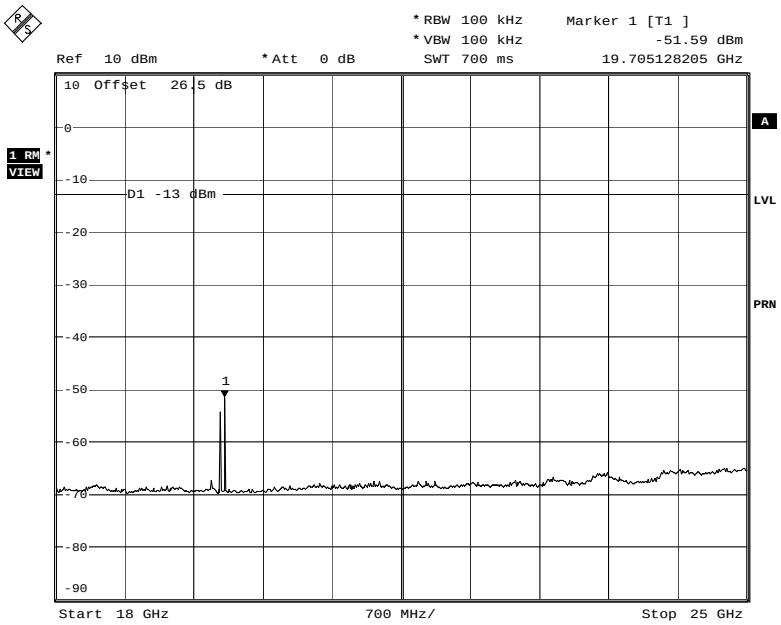
18GHz to 25GHz



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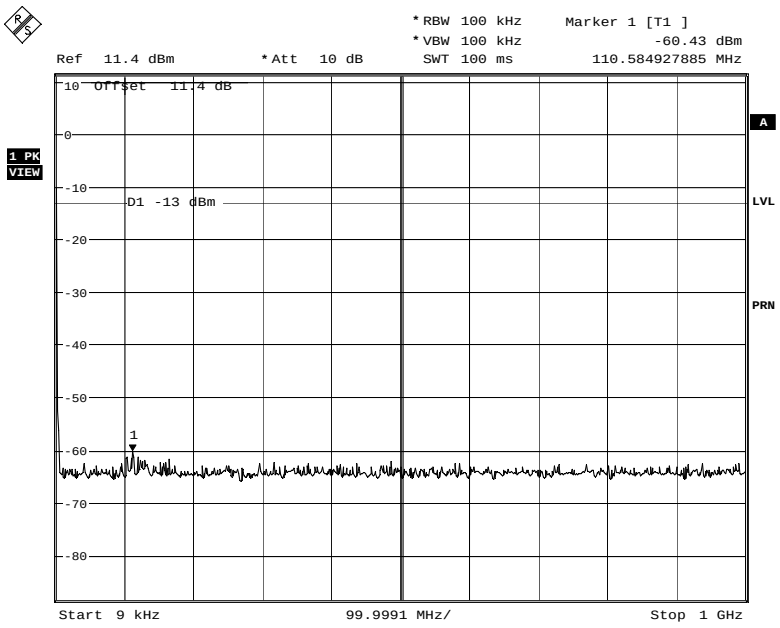
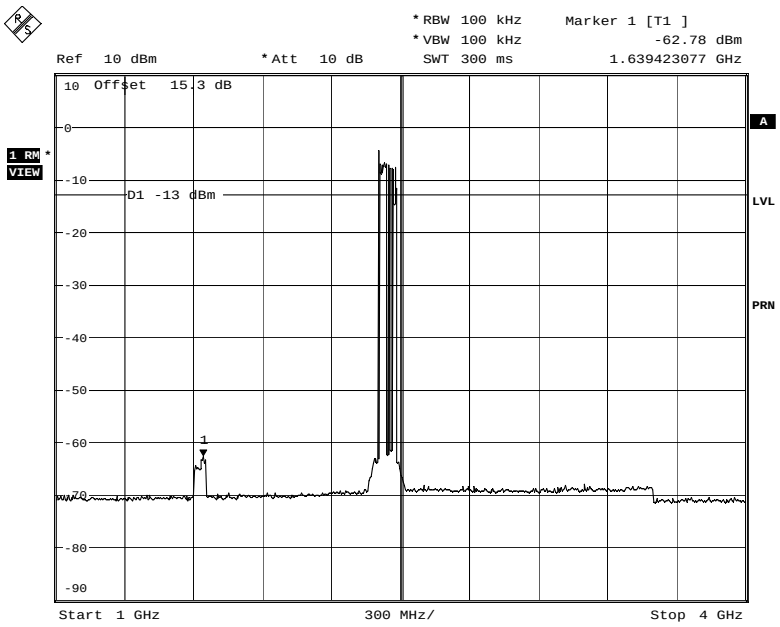
3DH5

9kHz to 1GHz



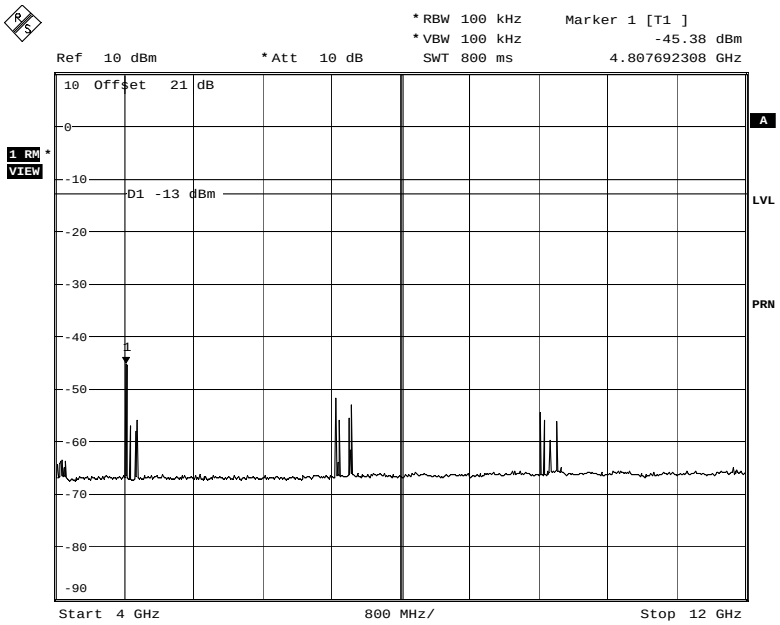
Date: 16.FEB.2010 12:30:43

1GHz to 4GHz



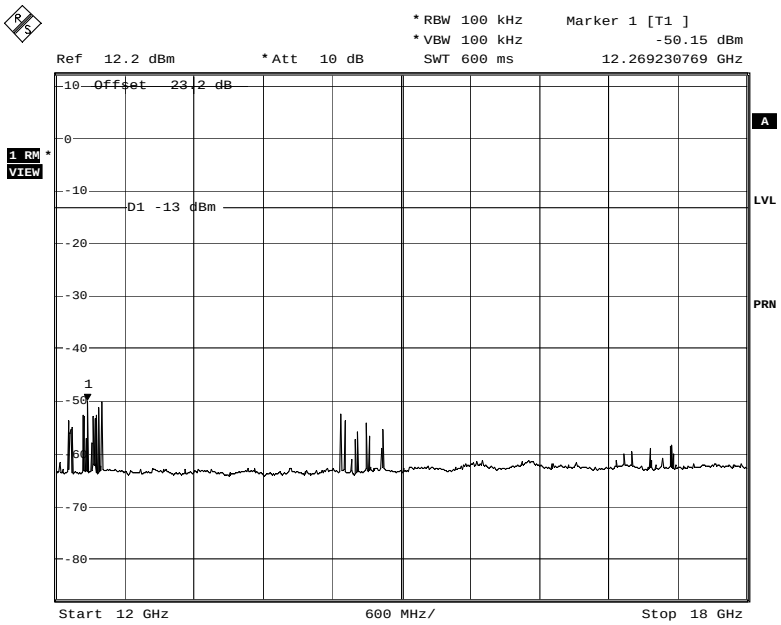
Date: 16.FEB.2010 10:50:21

4GHz to 12GHz



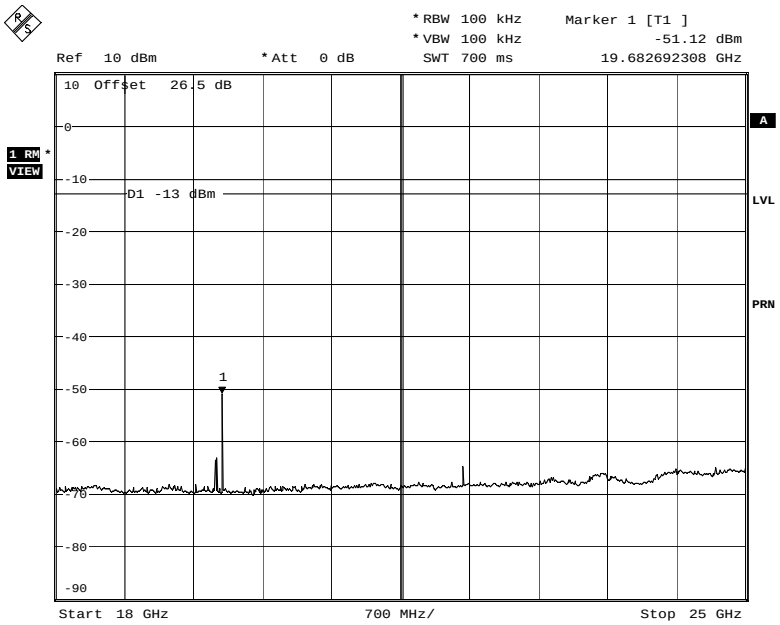
Date: 16.FEB.2010 11:02:59

12GHz to 18GHz



Date: 16.FEB.2010 11:17:28

18GHz to 25GHz



Date: 16.FEB.2010 10:18:52

2.5 BAND EDGE EMISSIONS

2.5.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.205
RSS-210, Clause A8.5, 2.2

2.5.2 Equipment Under Test

Bluetooth Image Scanner, S/N: MXA4UV37

2.5.3 Date of Test and Modification State

10 February 2010 - Modification State 0

2.5.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CRF 47 Part 15 and RSS-210.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1
- Mode 3

2.5.6 Environmental Conditions

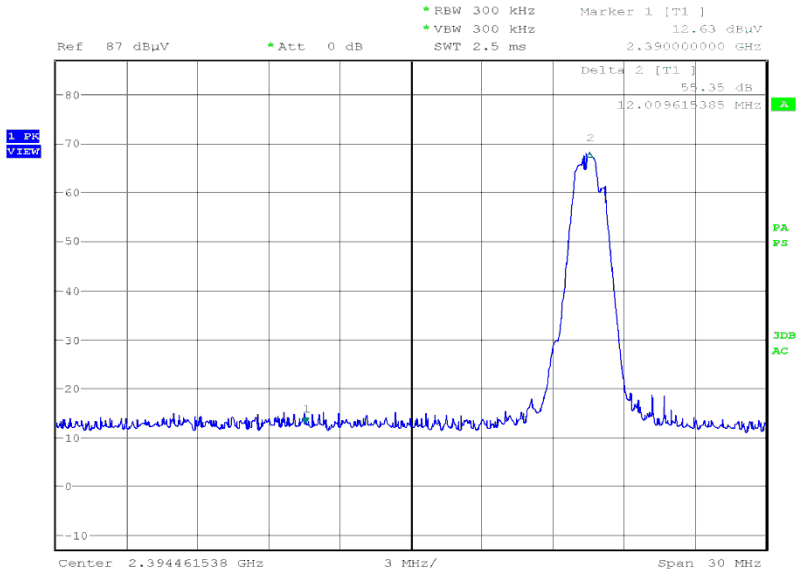
	10 February 2010
Ambient Temperature	21°C
Relative Humidity	21%
Atmospheric Pressure	1016mbar

2.5.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C and RSS-210 for Band Edge Emissions.

The test results are shown below.

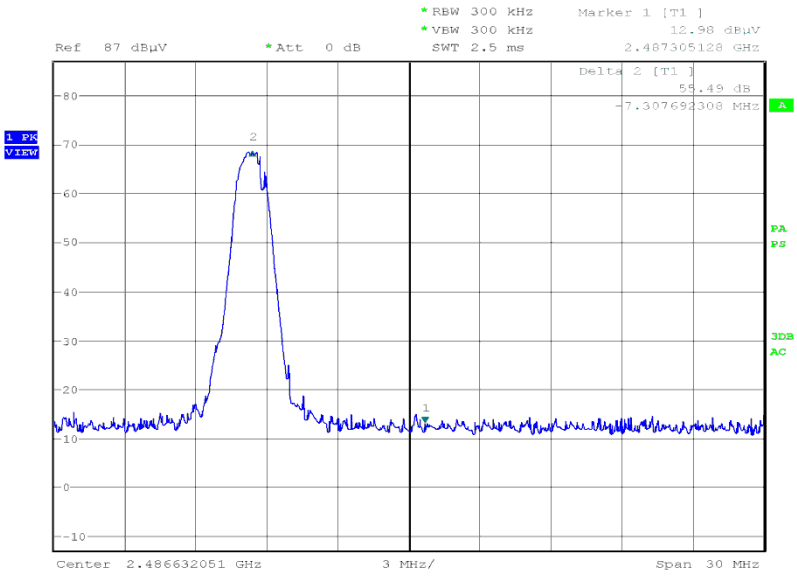
Configuration 1 - Mode 1



Date: 11.FEB.2010 02:30:38

Product Service

Configuration 1 - Mode 3



Date: 11.FEB.2010 01:57:00

2.6 CHANNEL DWELL TIME

2.6.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (a)(1)(iii)
RSS-210, Clause A8.1(d)

2.6.2 Equipment Under Test

Bluetooth Image Scanner, S/N: MXA4UV79

2.6.3 Date of Test and Modification State

10 February 2010 - Modification State 0

2.6.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.5 Test Procedure

Test Performed in accordance with FCC CFR 47 Part 15C and RSS-210.

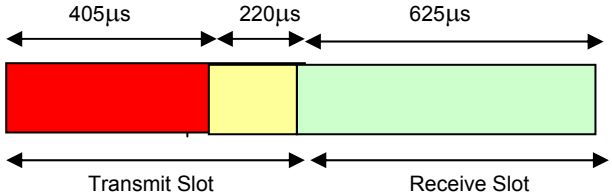
The Bluetooth system hops at a rate of 1600 times per second. Thus, this equates to 1600 timeslots in 1 second.

The 3DH1 data rate operates on a Transmit on 1 timeslot and Receive on 1 timeslot basis. Thus, in 1 second, there are 800 Transmit timeslots and 800 Receive timeslots.

Thus:

$$1 \text{ Timeslot} = \frac{1}{1600} = 625\mu s$$

In 1 transmit timeslot, the transmit on time is only 405μs. 220μs is reserved as off time for the synthesizer to re-tune ready for the next transmit frequency. The following timeslot is a receive slot. This process continues assuming the data rate remains the same.



3DH1 Timeslot Arrangement Showing One Complete Transmit and Receive Cycle

So, with 800 Tx and 800 Rx timelsots, the transmitter is on for 800 x 405μs = 0.324 seconds.

$$\therefore \quad \frac{\text{Total Tx Time On}}{\text{No of Channels}} = \frac{0.324}{79} = 4.10\text{ms}$$

So, in 31.6 seconds, the transmitter dwell time per channel is:

$$31.6 \times 4.10\text{ms} = 0.1296 \text{ seconds}$$

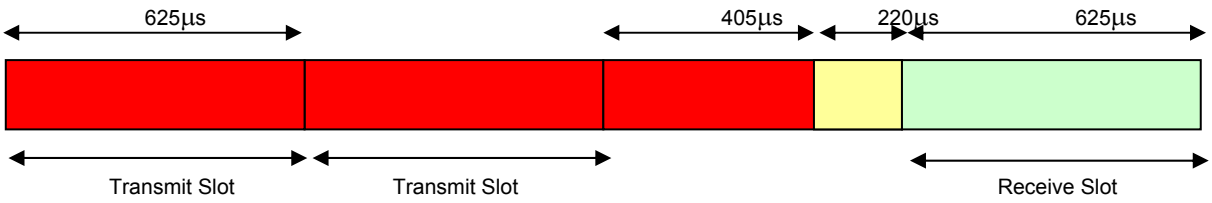
With data rate 3DH3, the data payload is higher and can use up to 3 timeslots. When more than one timeslot is used, the frequency does not hop and transmission is continuous on all 3 slots, (ie. no receive slot in-between the 3 transmit slots). The 220μs off time for synthesizer re-tuning at the end of a slot is only used on the final slot. Thus, for one cycle, there are 3 transmit timeslots. 2 are 625μs long and the final slot is transmitting for 405μs.

The 3DH3 data rate operates on a Transmit on 3 timeslots and Receives on 1 timeslot basis, (assuming maximum data payload). The frequency-hopping rate is the same. Thus, in 1 second, there are 1200 Transmit timeslots and 400 Receive timeslots.

Thus:

$$1 \text{ Timeslot} = \frac{1}{1600} = 625\mu s$$

The first 2 Transmit timeslots are transmitting for the complete 625μs. In the third transmit slot, the transmit on time is only 405μs. 220μs is reserved as off time for the synthesizer to re-tune ready for the next transmit frequency. The following timeslot is a receive slot. This process continues assuming the data rate remains the same.



3DH3 Timeslot Arrangement Showing One Complete Transmit and Receive Cycle, (Maximum Payload)

Thus, the transmitter for one complete transmit and receive cycle would be on for:

Tx (2 x 625μs) + (1 x 405μs) = 1.655ms

So:

800 x 625μs = 0.5 seconds
400 x 405μs = 0.162 seconds

Thus: 0.5 + 0.162 = 0.662 seconds

$$\therefore \quad \frac{\text{Total Tx Time On}}{\text{No Of Channels}} = \frac{0.662}{79} = 8.379ms$$

So, in 31.6 seconds, the transmitter dwell time per channel is:

31.6 x 8.379ms = 0.2648 seconds

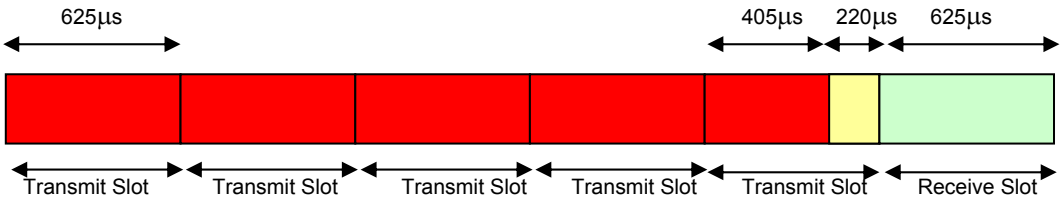
With data rate 3DH5, the data payload is higher and can use up to 5 timeslots. When more than one timeslot is used, the frequency does not hop and transmission is continuous on all 5 slots, (ie. no receive slot in-between the 5 transmit slots). The 220μs off time for synthesizer re-tuning at the end of a slot is only used on the final slot. Thus, for one cycle, there are 5 transmit timeslots. 4 are 625μs long and the final slot is transmitting for 405μs.

The 3DH5 data rate operates on a Transmit on 5 timeslots and Receives on 1 timeslot basis, (assuming maximum data payload). The frequency-hopping rate is the same. Thus, in 1 second, there are 1333.3 Transmit timeslots and 266.7 Receive timeslots.

Thus:

$$1 \text{ Timeslot} = \frac{1}{1600} = 625\mu s$$

The first 4 Transmit timeslots are transmitting for the complete 625μs. In the fifth transmit slot, the transmit on time is only 405μs. 220μs is reserved as off time for the synthesizer to re-tune ready for the next transmit frequency. The following timeslot is a receive slot. This process continues assuming the data rate remains the same.



DH5 Timeslot Arrangement Showing One Complete Transmit and Receive Cycle, (Maximum Payload)

Thus, the transmitter for one complete transmit and receive cycle would be on for:

Tx (2 x 625μs) + (1 x 405μs) = 2.905ms

So:

1066.7 x 625μs = 0.666 seconds
266.7 x 405μs = 0.108 seconds

Thus: 0.666 + 0.108 = 0.774 seconds

$$\therefore \text{ Total Tx Time On} = \frac{0.774}{\text{No Of Channels}} = \frac{0.774}{79} = 9.746\text{ms}$$

So, in 31.6 seconds, the transmitter dwell time per channel is:

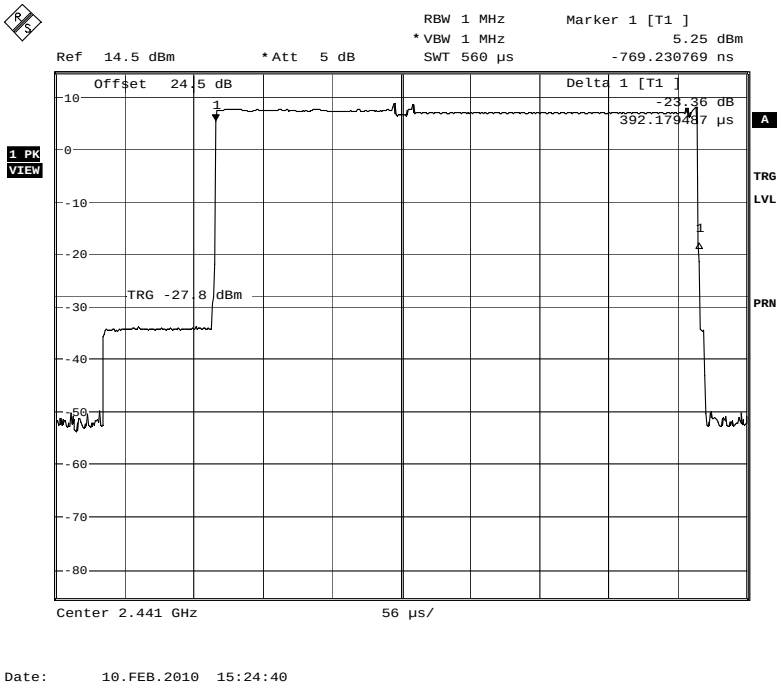
32 x 9.746ms = 0.31.6 seconds

2.6.6 Environmental Conditions

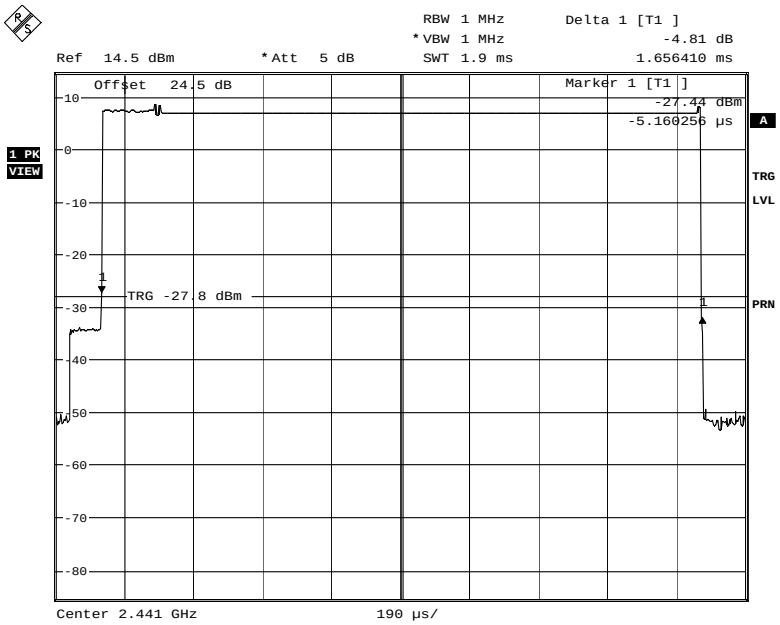
	20 February 2010
Ambient Temperature	29°C
Relative Humidity	12%

2.6.7 Test Results

3DH1

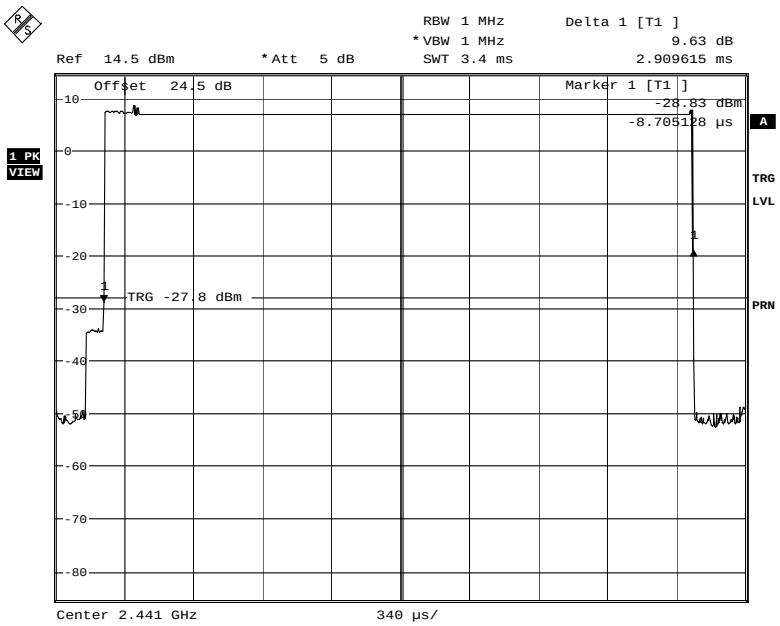


3DH3



Date: 10.FEB.2010 15:40:10

3DH5



Date: 10.FEB.2010 15:44:09

2.7 CHANNEL SEPARATION

2.7.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (a)(1)
RSS-210, Clause A8.1(b)

2.7.2 Equipment Under Test

Bluetooth Image Scanner, S/N: MXA4UV79

2.7.3 Date of Test and Modification State

10 February 2010 - Modification State 0

2.7.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.7.5 Test Procedure

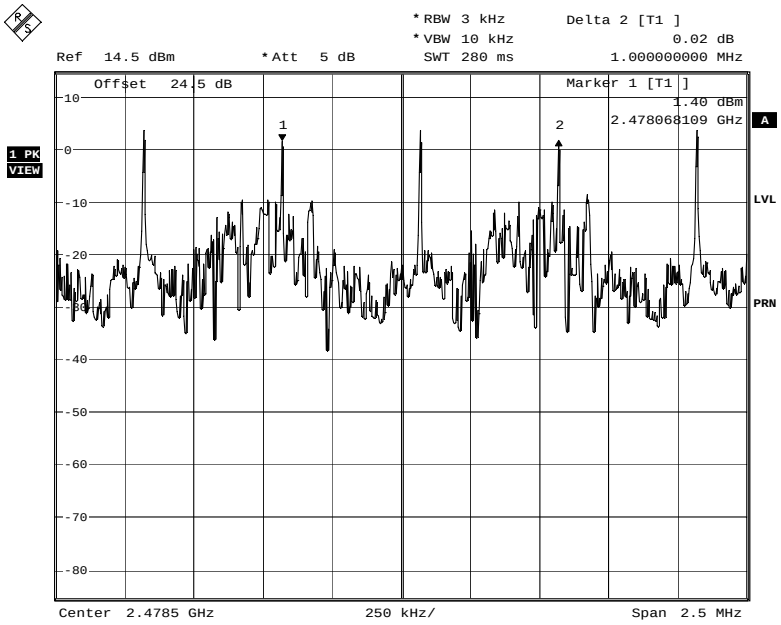
Test Performed in accordance with FCC CFR 47 Part 15C and RSS-210.

The EUT was transmitted at maximum power into a Spectrum Analyser. The trace was set to Max Hold to store several adjacent channels on screen. Using the marker delta function, the markers were positioned to show the separation between adjacent channels.

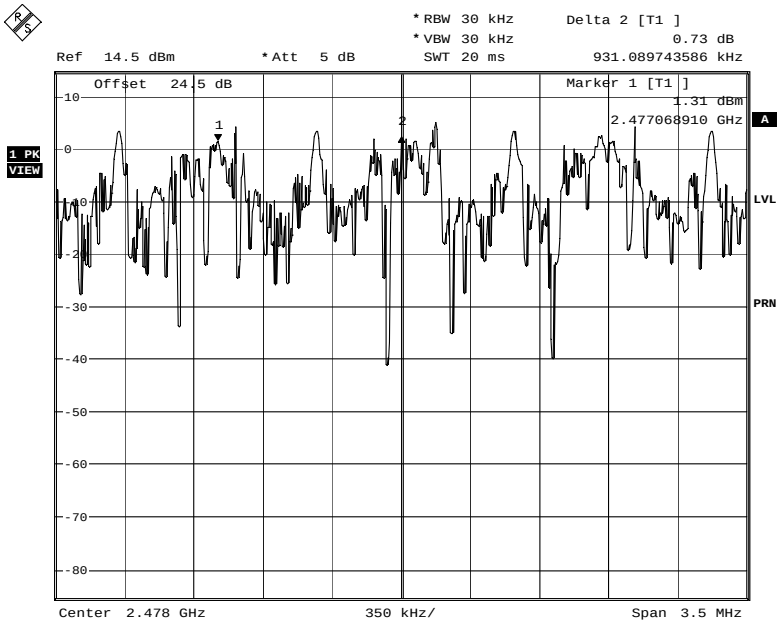
2.7.6 Environmental Conditions

	10 February 2010
Ambient Temperature	28°C
Relative Humidity	14%

2.7.7 Test Results



Date: 10.FEB.2010 12:48:15



Date: 10.FEB.2010 12:22:21

Limit Clause

15.247 (a)(1) for FCC and A8.1(b) for RSS-210

Limit	>25kHz

2.8 NUMBER OF HOPPING CHANNELS

2.8.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (a)(1)(iii)
RSS-210, Clause A8.1(d)

2.8.2 Equipment Under Test

Bluetooth Image Scanner, S/N: MXA4UV79

2.8.3 Date of Test and Modification State

09 February 2010 - Modification State 0

2.8.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.8.5 Test Procedure

Test Performed in accordance with FCC CFR 47 Part 15C and RSS-210.

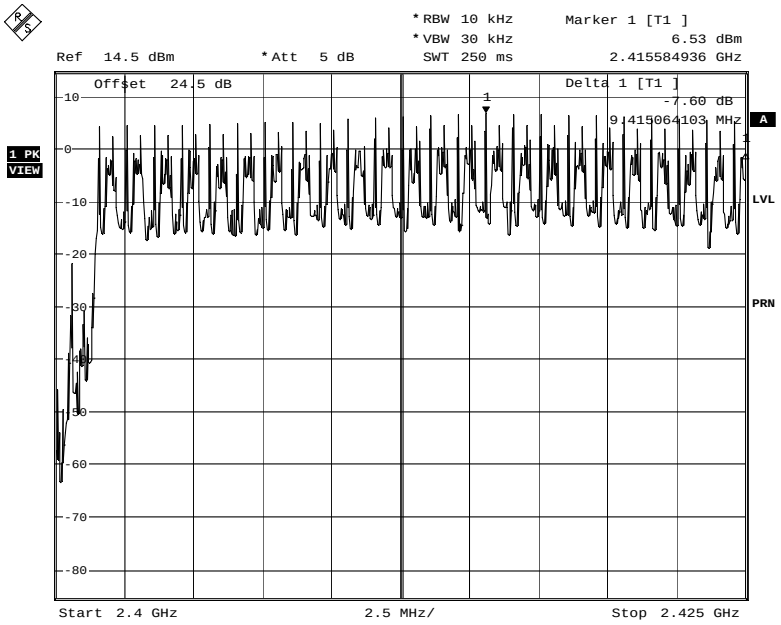
The EUT was connected to a Spectrum Analyser via a cable. The EUT was set to transmit on maximum power and hopping on all channels. The span was adjusted to show the individual channels. To reasonably display the number of channels, the occupied band was split into four traces. The display trace was set to Max Hold and the plots recorded.

2.8.6 Environmental Conditions

	09 February 2010
Ambient Temperature	27°C
Relative Humidity	17%

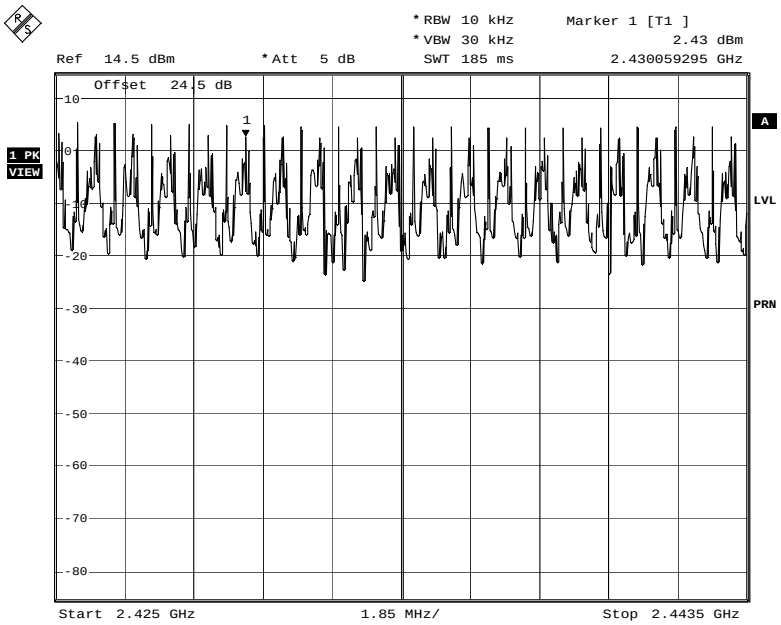
2.8.7 Test Results

0 to 23



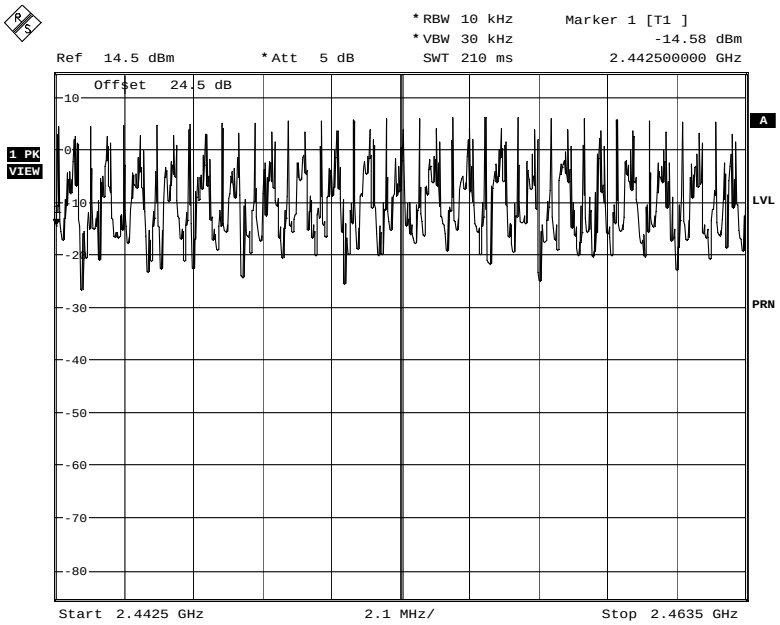
Date: 9.FEB.2010 18:03:04

23 to 43



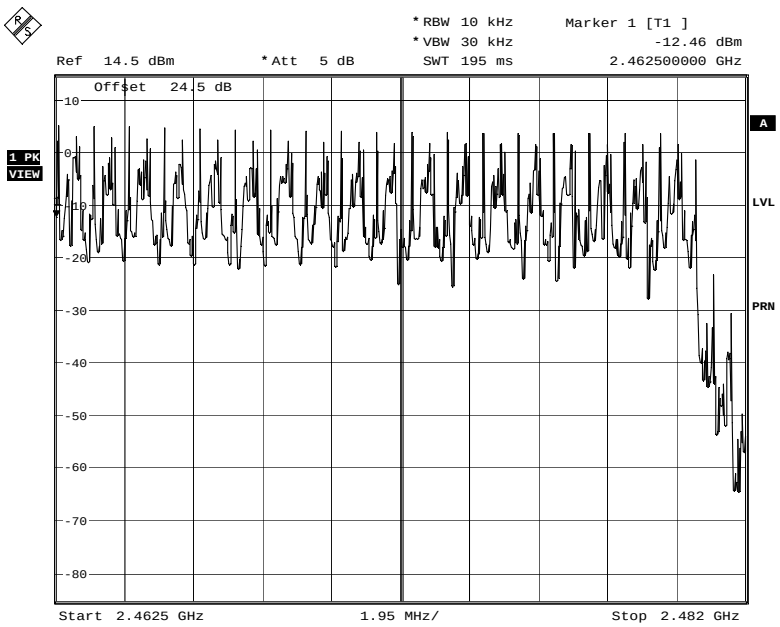
Date: 10.FEB.2010 11:11:16

43 to 63



Date: 10.FEB.2010 11:29:33

64 to 79



Date: 10.FEB.2010 11:52:39

Limit Clause

15.247 (a)(1)(iii) for FCC and A8.1(d) for RSS-210

Limit	≥15 channels

2.9 RADIATED EMISSIONS (ENCLOSURE PORT)

2.9.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (a)(2)
RSS-210, Clause A8.2 (a)

2.9.2 Equipment Under Test

Bluetooth Image Scanner, S/N:MXA4UV37

2.9.3 Date of Test and Modification State

10 February 2010 - Modification State 0

2.9.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.9.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CRF 47 Part 15 and RSS-210.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1
- Mode 2
- Mode 3

2.9.6 Environmental Conditions

	10 February 2010
Ambient Temperature	23°C
Relative Humidity	21%
Atmospheric Pressure	1016mbar

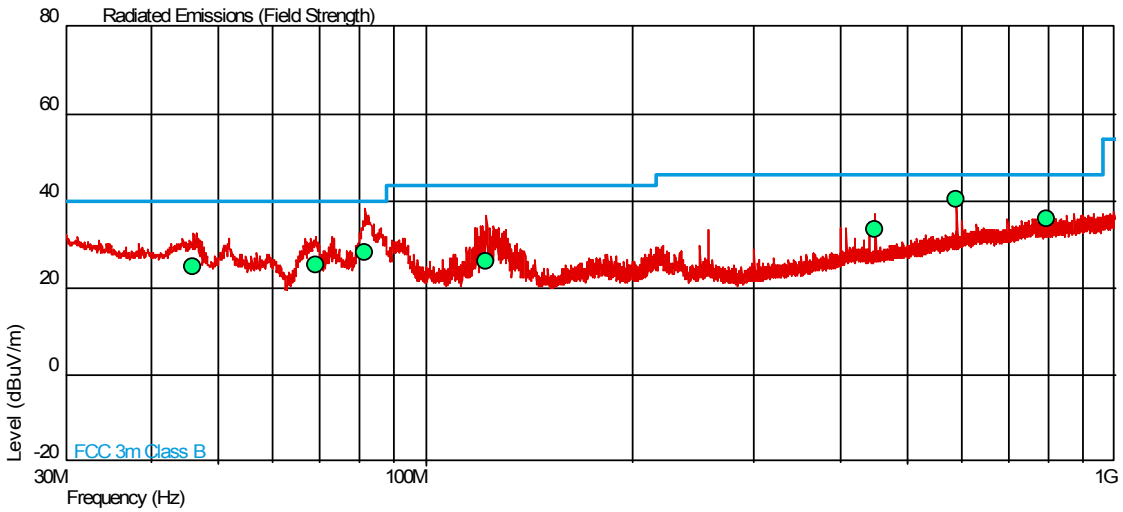
2.9.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C and RSS-210 for Radiated Emissions (Enclosure Port).

The test results are shown below.

Configuration 1 - Mode 1

30MHz to 1GHz (Combined Polarity)



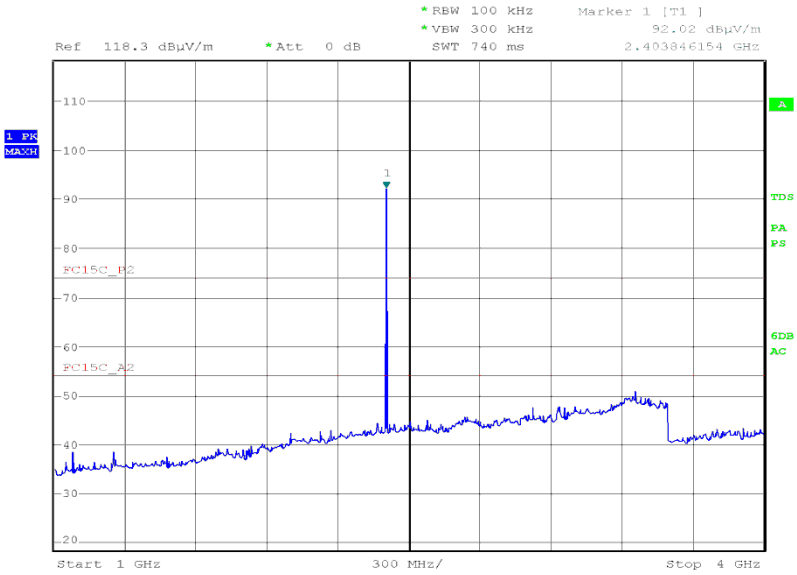
Frequency (MHz)	QP Level (dBuV/m)	QP Level (uV/m)	QP Limit (dBuV/m)	QP Limit (uV/m)	QP Margin (dBuV/m)	QP Margin (uV/m)	Angle (deg)	Height (m)	Polarity
46.054	24.8	17.4	40.0	100	-15.2	-82.6	297	1.14	Vertical
69.191	25.3	18.4	40.0	100	-14.7	-81.6	13	1.00	Vertical
81.750	28.1	25.4	40.0	100	-11.9	-74.6	118	1.00	Vertical
122.482	26.0	20.0	43.5	150	-17.5	-130.0	230	1.00	Vertical
449.990	33.6	47.9	46.0	200	-12.4	-152.1	250	1.00	Vertical
590.164	40.5	105.9	46.0	200	-5.5	-94.1	139	1.00	Vertical
797.855	36.0	63.1	46.0	200	-10.0	-136.9	166	1.00	Horizontal

1GHz to 25GHz

Frequency GHz	Antenna Polarisation	Antenna Height cm	EUT Arc deg	Result Peak dBµV/m	Result Peak µV/m	Result Average dBµV/m	Result Average µV/m	Peak Limit dBµV/m	Peak Limit µV/m	Average Limit dBµV/m	Average Limit µV/m	Result
4.803	Horizontal	105	253	52.4	416.9	38.1	80.4	74.0	5000	54.0	500	Pass
4.803	Vertical	137	252	49.3	291.7	35.5	59.6	74.0	5000	54.0	500	Pass

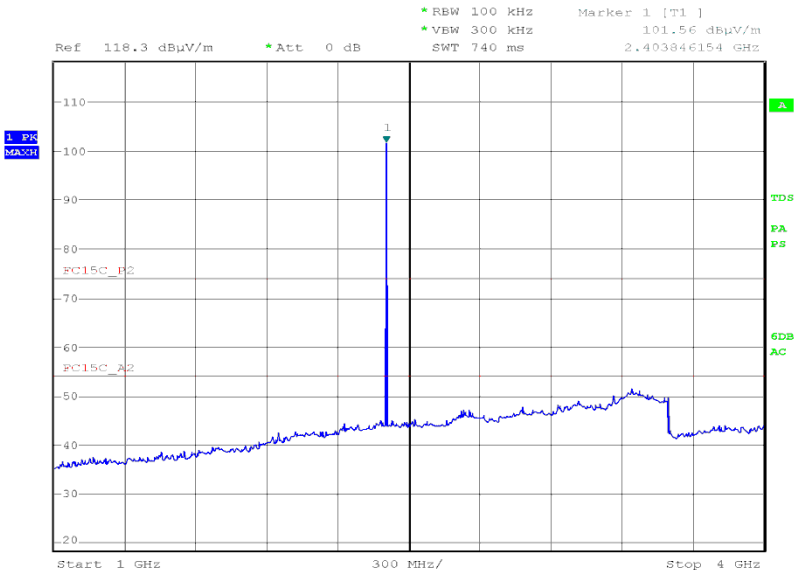
1GHz to 4GHz

Vertical Polarity



Date: 11.FEB.2010 04:08:38

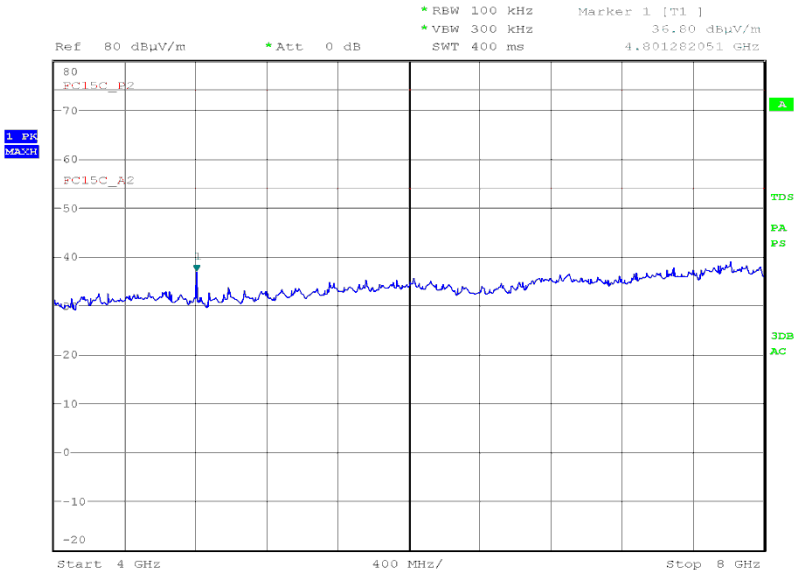
Horizontal Polarity



Date: 11.FEB.2010 04:05:51

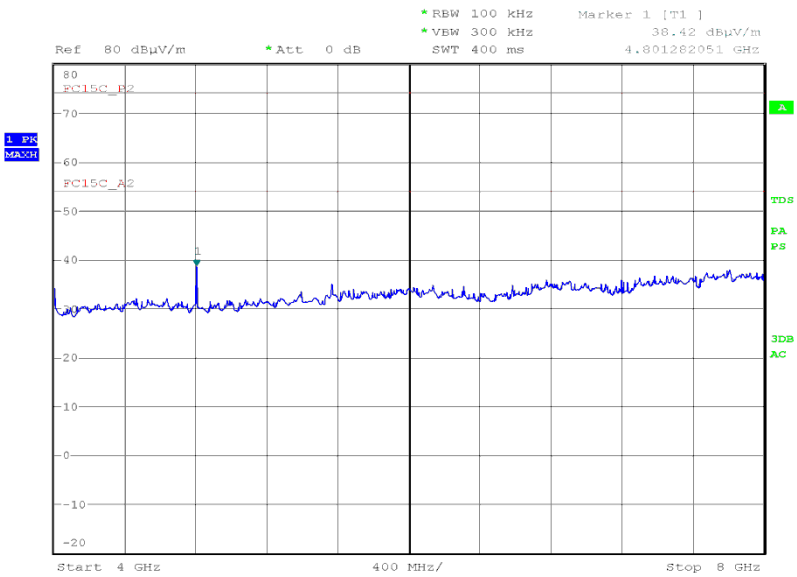
4GHz to 8GHz

Vertical Polarity



Date: 12.FEB.2010 21:30:31

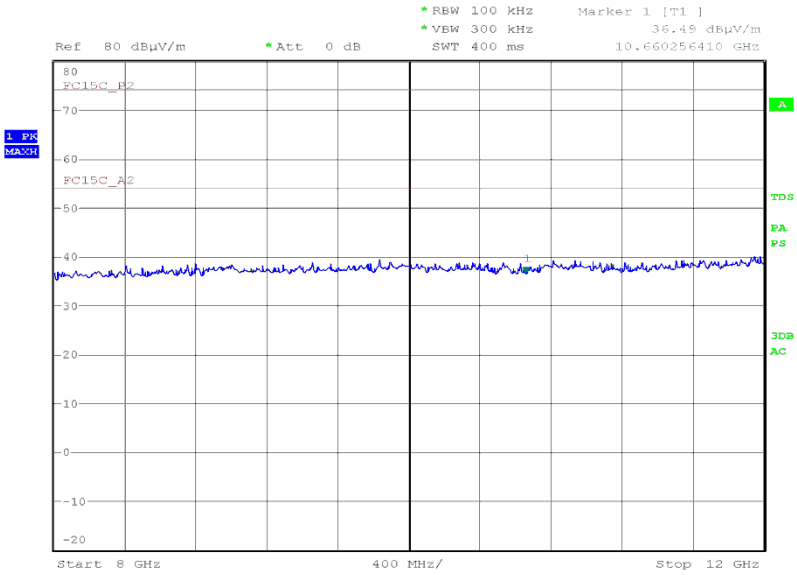
Horizontal Polarity



Date: 12.FEB.2010 21:32:34

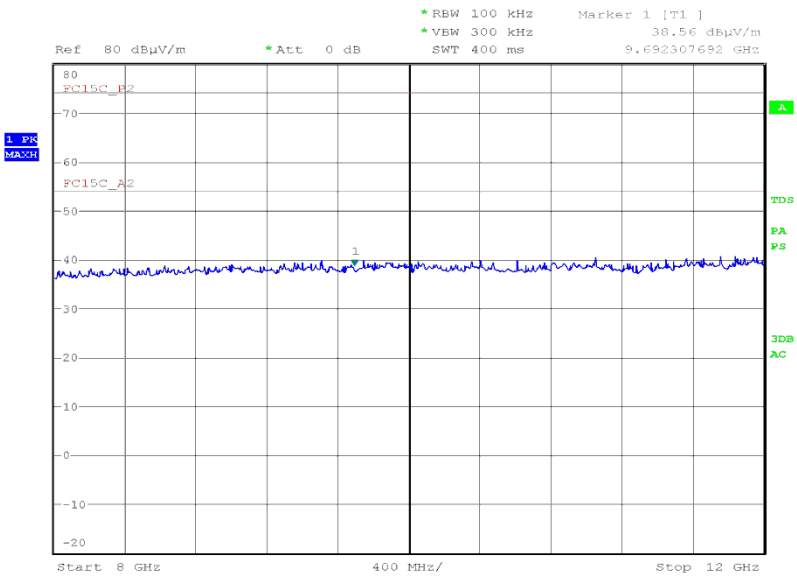
8GHz to 12GHz

Vertical Polarity



Date: 13.FEB.2010 00:42:42

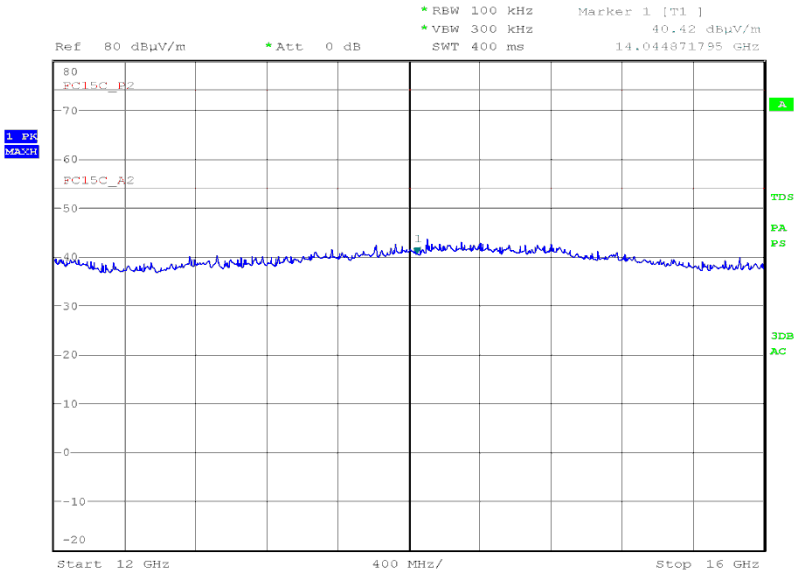
Horizontal Polarity



Date: 13.FEB.2010 00:22:48

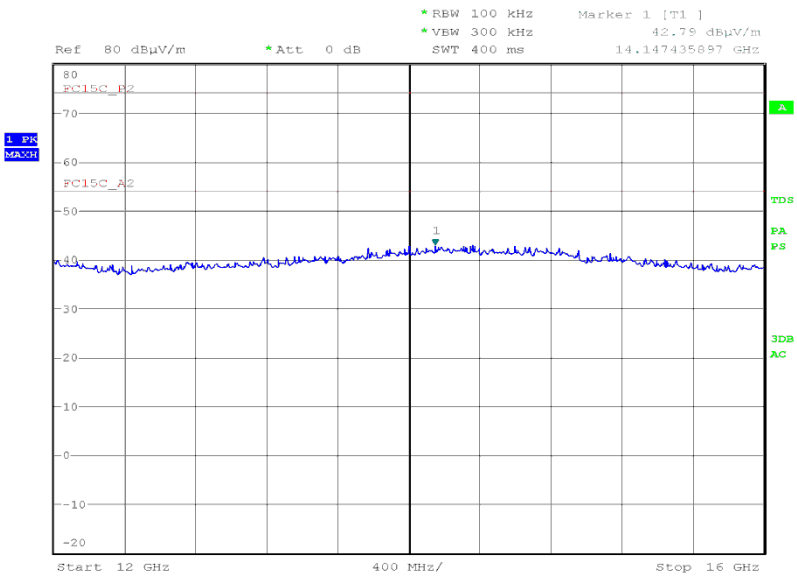
12GHz to 16GHz

Vertical Polarity



Date: 13.FEB.2010 00:41:01

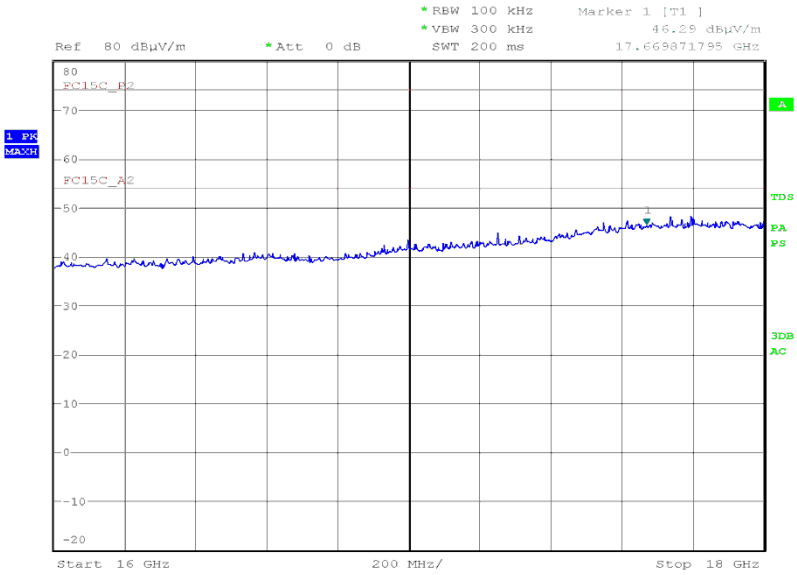
Horizontal Polarity



Date: 13.FEB.2010 00:26:53

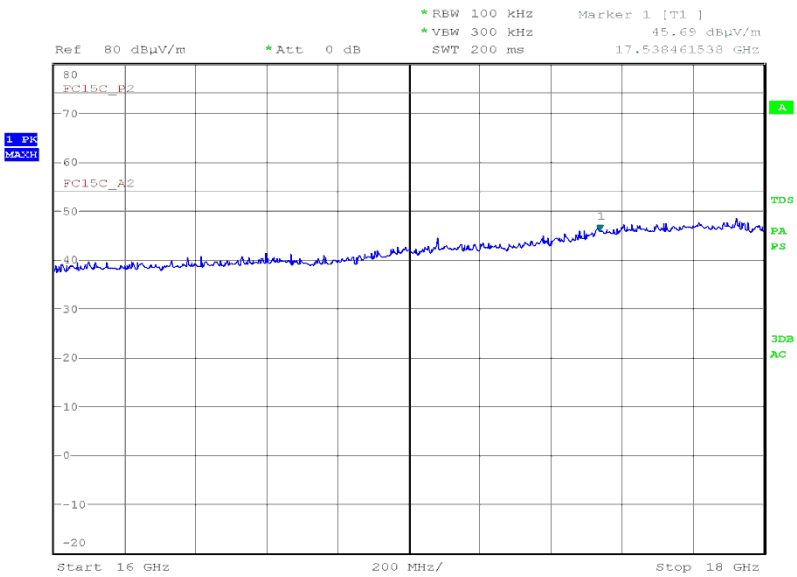
16GHz to 18GHz

Vertical Polarity



Date: 13.FEB.2010 00:37:51

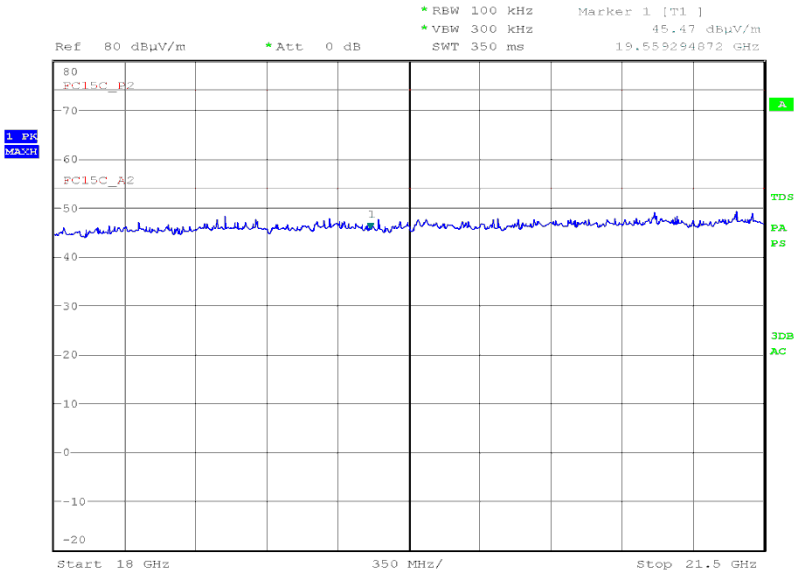
Horizontal Polarity



Date: 13.FEB.2010 00:31:27

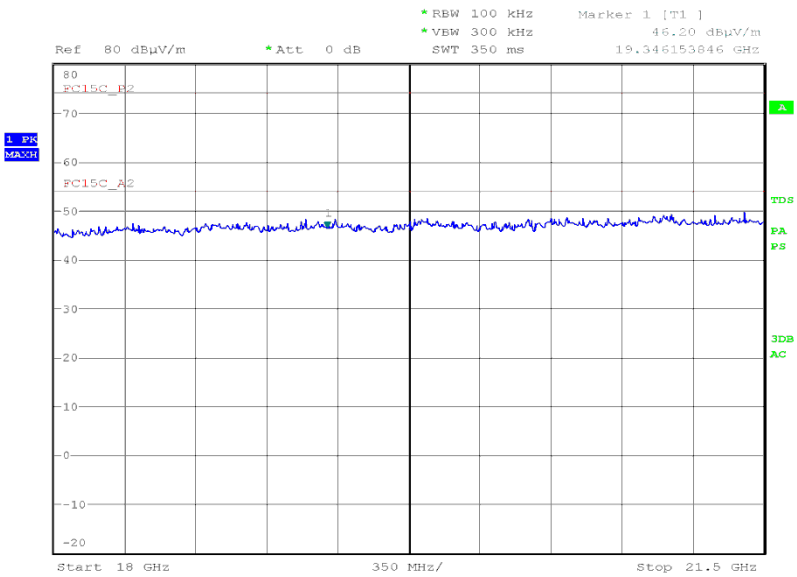
18GHz to 21.5GHz

Vertical Polarity



Date: 13.FEB.2010 01:08:14

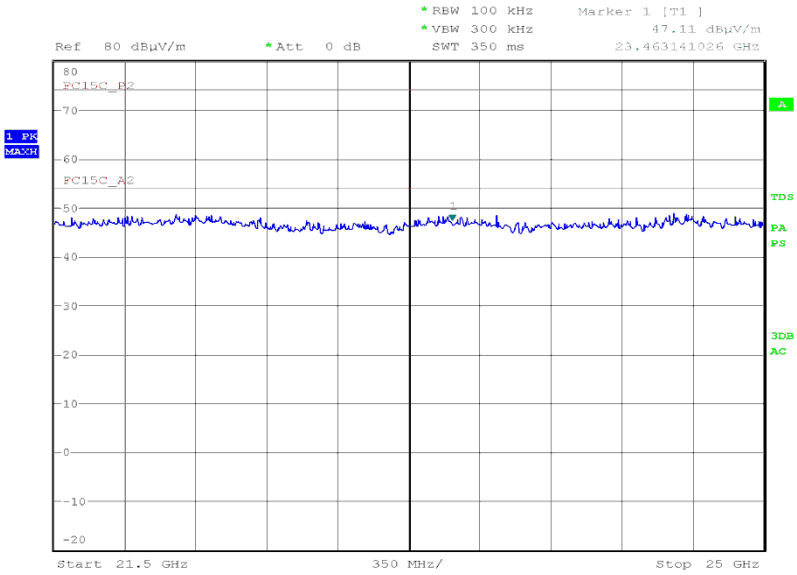
Horizontal Polarity



Date: 13.FEB.2010 00:58:01

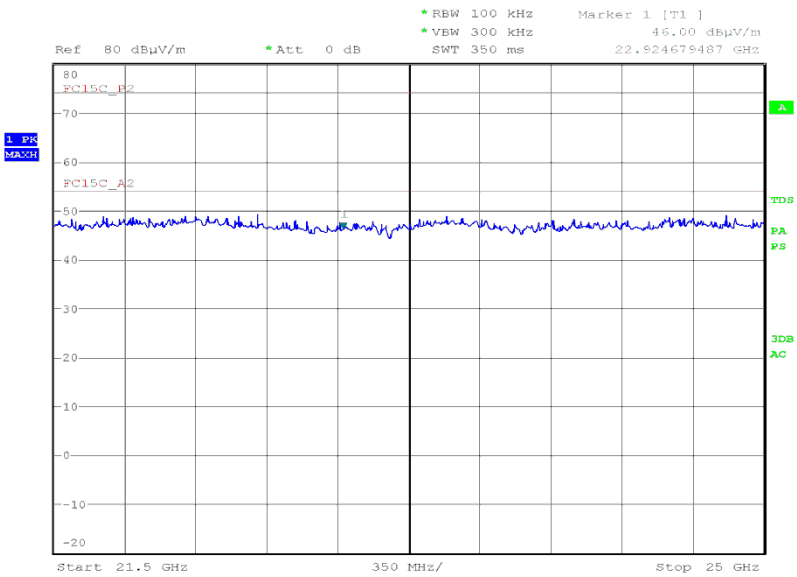
21.5GHz to 25GHz

Vertical Polarity



Date: 13.FEB.2010 01:04:35

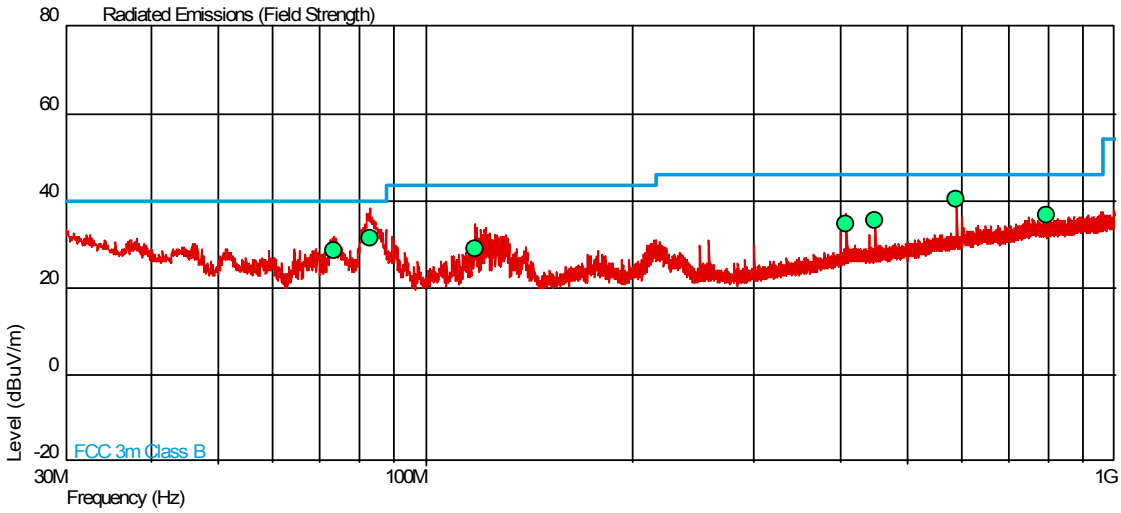
Horizontal Polarity



Date: 13.FEB.2010 01:02:09

Configuration 1 - Mode 2

30MHz to 1GHz (Combined Polarity)



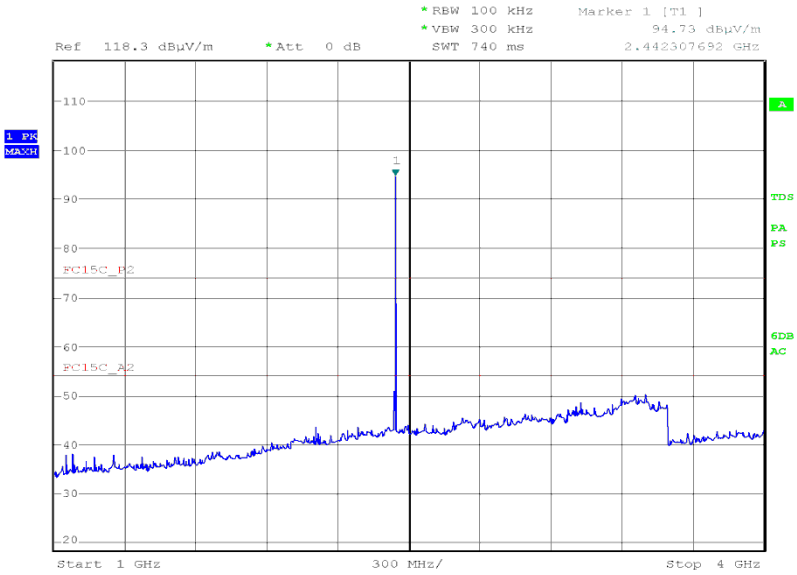
Frequency (MHz)	QP Level (dBuV/m)	QP Level (uV/m)	QP Limit (dBuV/m)	QP Limit (uV/m)	QP Margin (dBuV/m)	QP Margin (uV/m)	Angle (deg)	Height (m)	Polarity
73.405	28.5	26.6	40.0	100	-11.5	-73.4	125	1.00	Vertical
83.014	31.6	38.0	40.0	100	-8.4	-62.0	173	1.00	Vertical
118.007	29.1	28.5	43.5	150	-14.4	-121.5	109	1.00	Vertical
407.288	34.5	53.1	46.0	200	-11.5	-46.9	278	1.00	Vertical
449.990	35.4	58.9	46.0	200	-10.6	141.9	253	1.00	Vertical
590.156	40.2	102.3	46.0	200	-5.8	-97.7	138	1.21	Vertical
797.959	36.8	69.2	46.0	200	-9.2	-130.8	104	1.00	Horizontal

1GHz to 25GHz

Frequency GHz	Antenna Polarisation	Antenna Height cm	EUT Arc deg	Result Peak dBµV/m	Result Peak µV/m	Result Average dBµV/m	Result Average µV/m	Peak Limit dBµV/m	Peak Limit µV/m	Average Limit dBµV/m	Average Limit µV/m	Result
4.882	Horizontal	102	237	52.3	412.1	37.8	77.6	74.0	5000	54.0	500	Pass
4.882	Vertical	100	264	50.6	338.8	36.0	63.1	74.0	5000	54.0	500	Pass

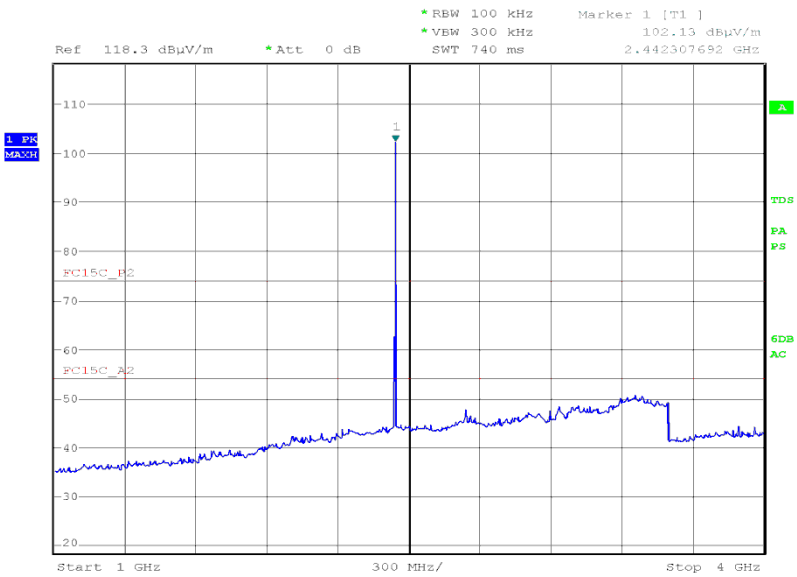
1GHz to 4GHz

Vertical Polarity



Date: 11.FEB.2010 04:11:22

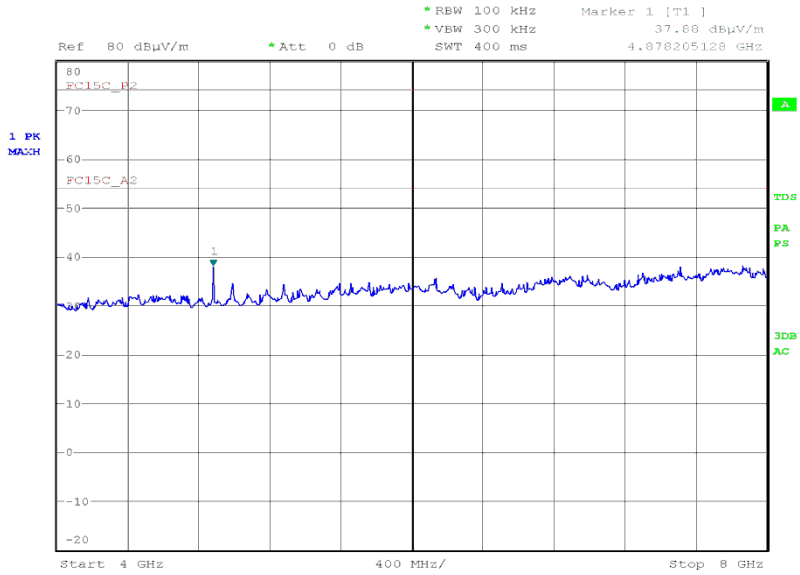
Horizontal Polarity



Date: 11.FEB.2010 04:29:12

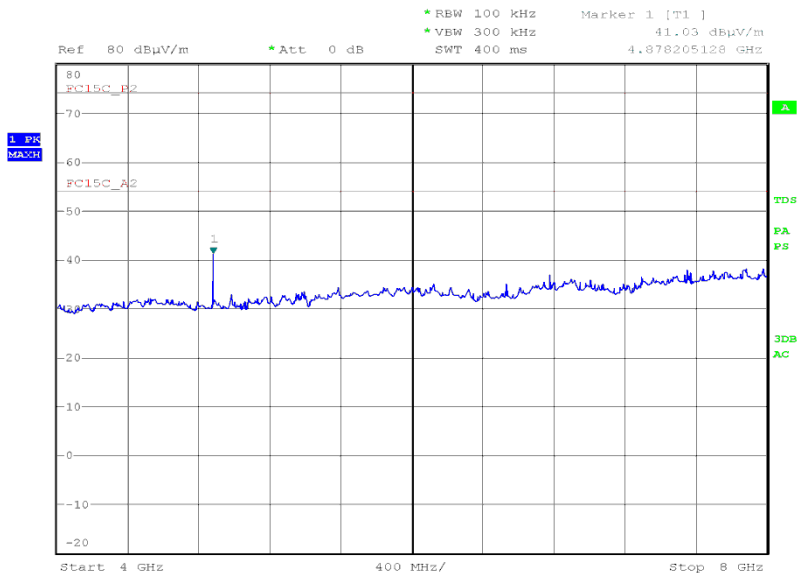
4GHz to 8GHz

Vertical Polarity



Date: 12.FEB.2010 22:06:59

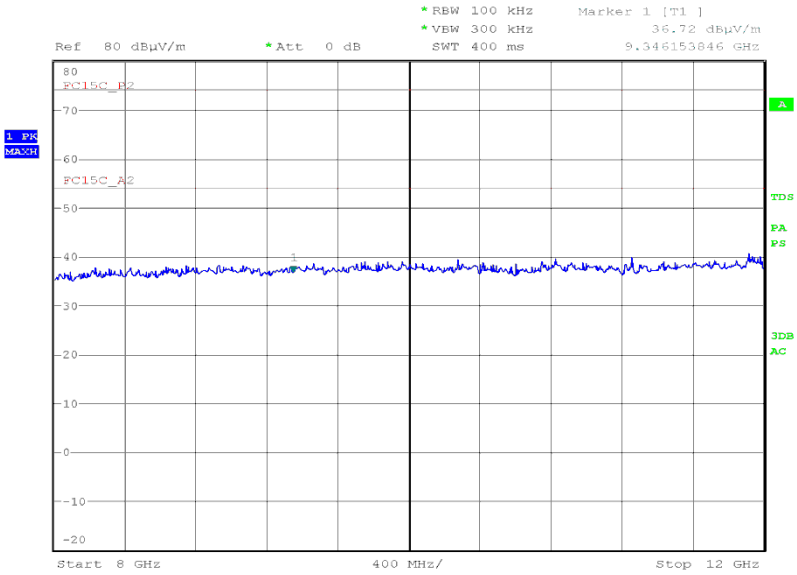
Horizontal Polarity



Date: 12.FEB.2010 22:09:57

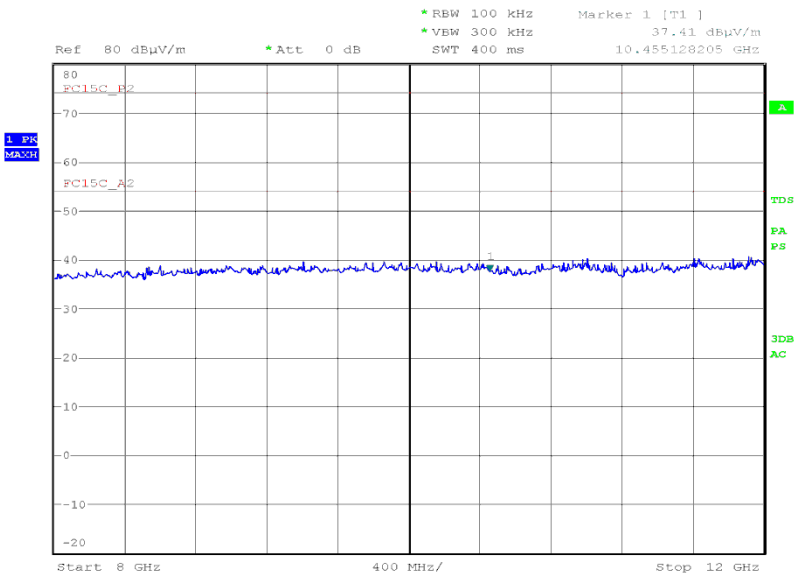
8GHz to 12GHz

Vertical Polarity



Date: 12.FEB.2010 23:56:54

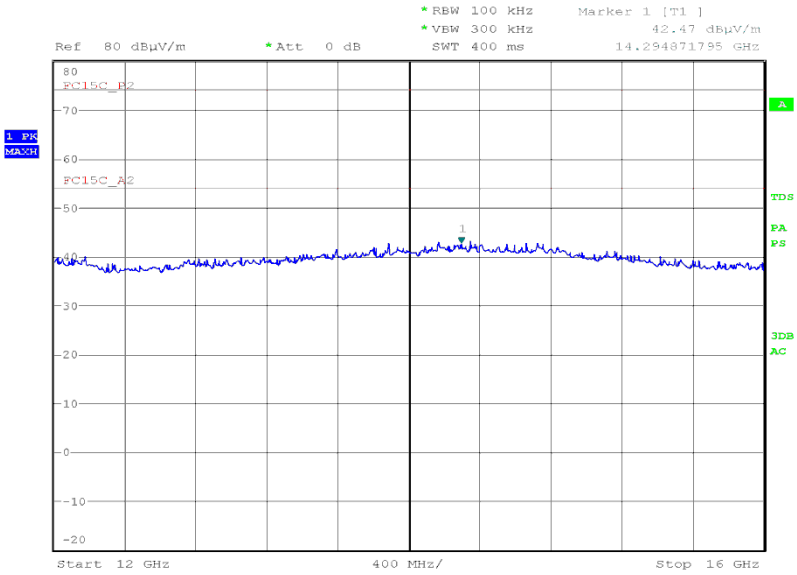
Horizontal Polarity



Date: 13.FEB.2010 00:10:29

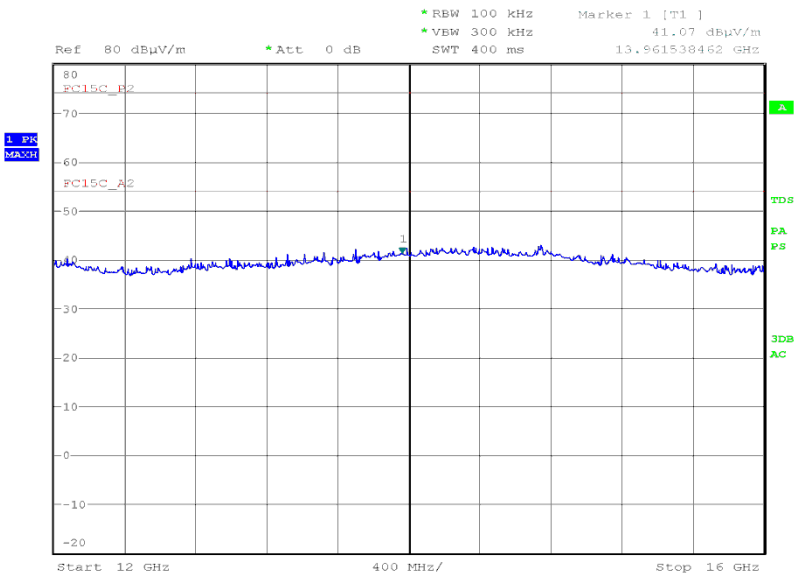
12GHz to 16GHz

Vertical Polarity



Date: 13.FEB.2010 00:00:13

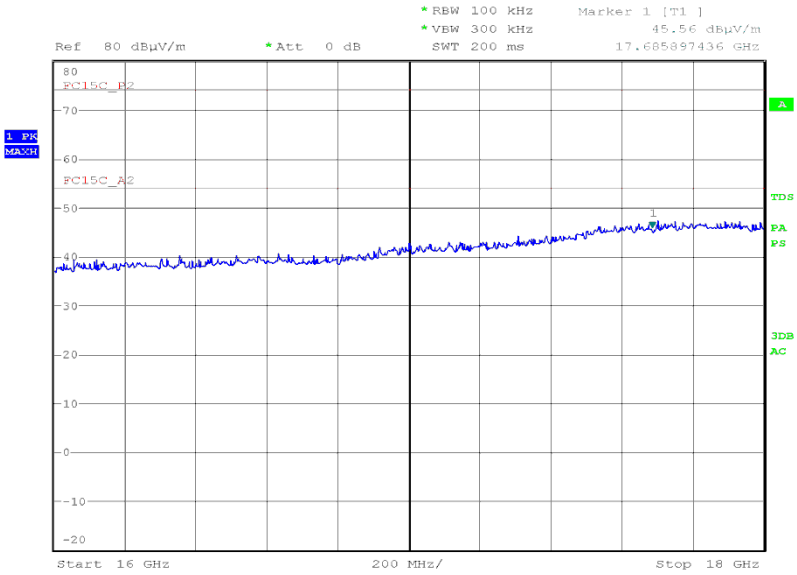
Horizontal Polarity



Date: 13.FEB.2010 00:07:46

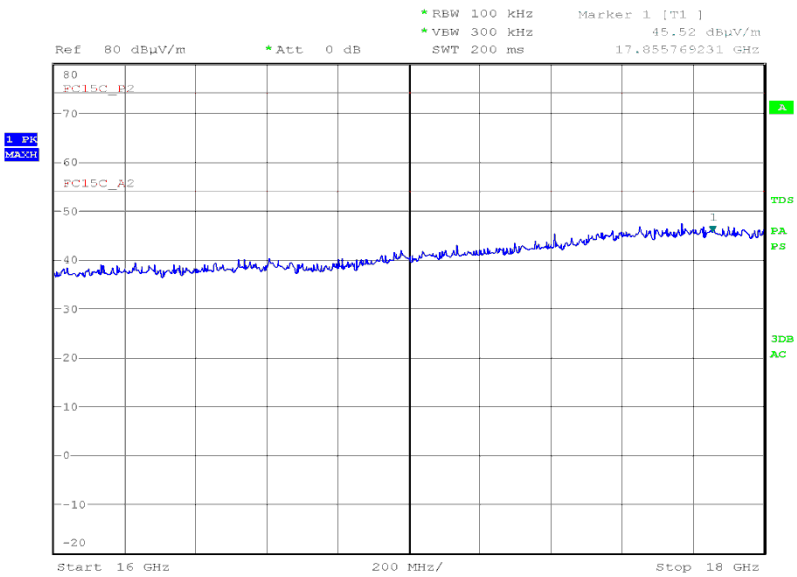
16GHz to 18GHz

Vertical Polarity



Date: 13.FEB.2010 00:02:28

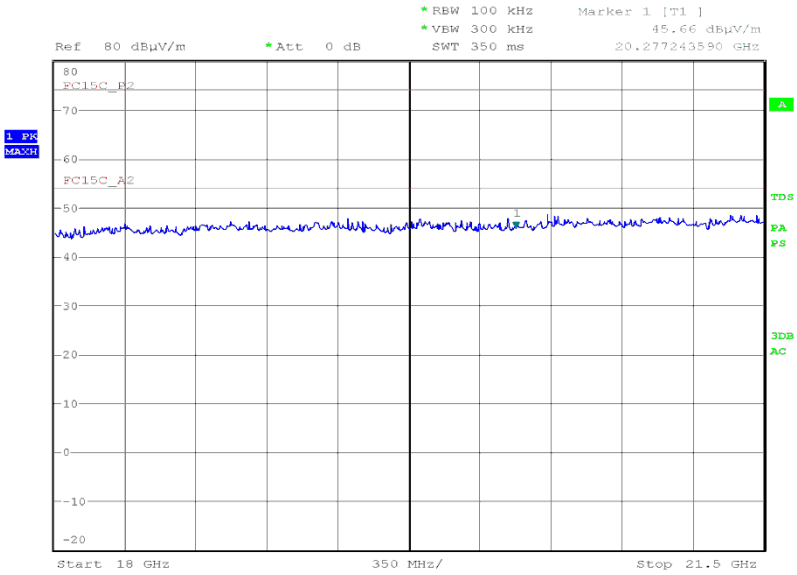
Horizontal Polarity



Date: 13.FEB.2010 00:05:29

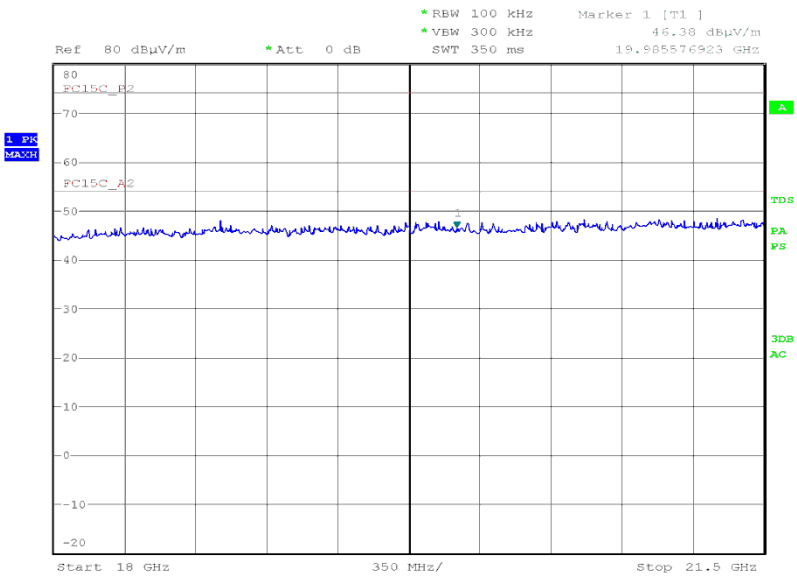
18GHz to 21.5GHz

Vertical Polarity



Date: 13.FEB.2010 01:12:26

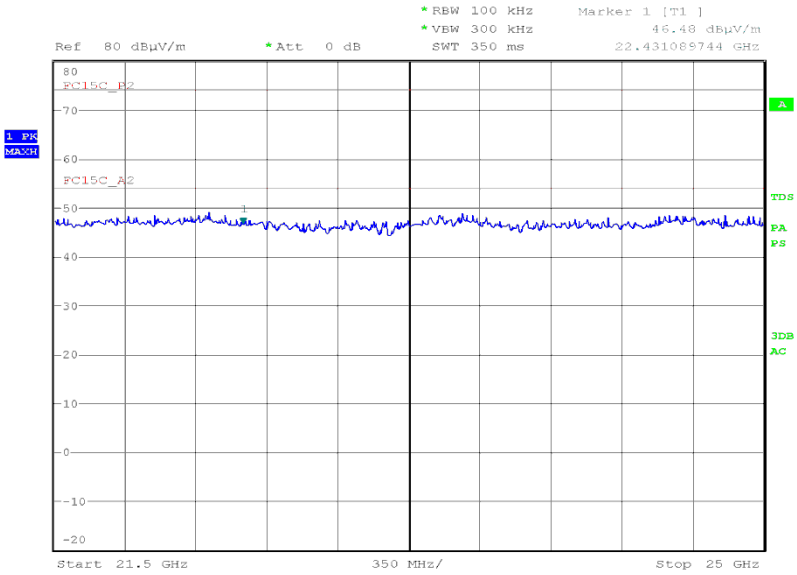
Horizontal Polarity



Date: 13.FEB.2010 01:25:35

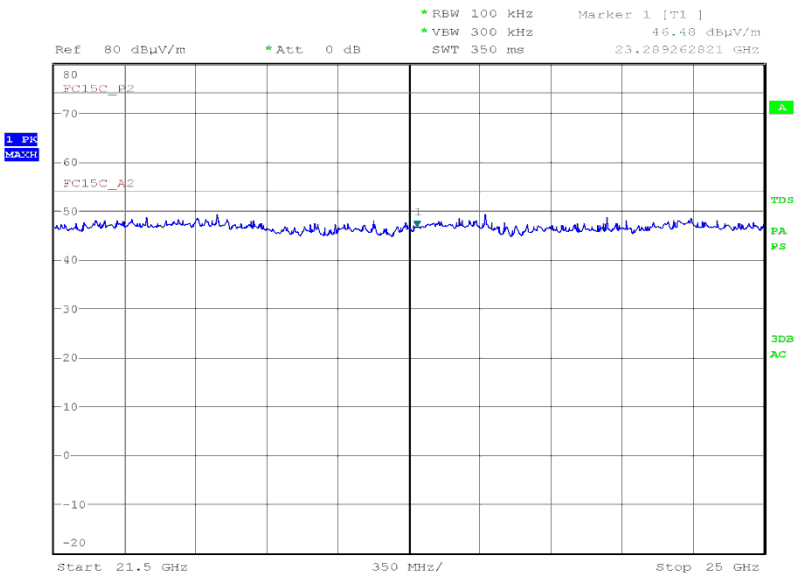
21.5GHz to 25GHz

Vertical Polarity



Date: 13.FEB.2010 01:15:39

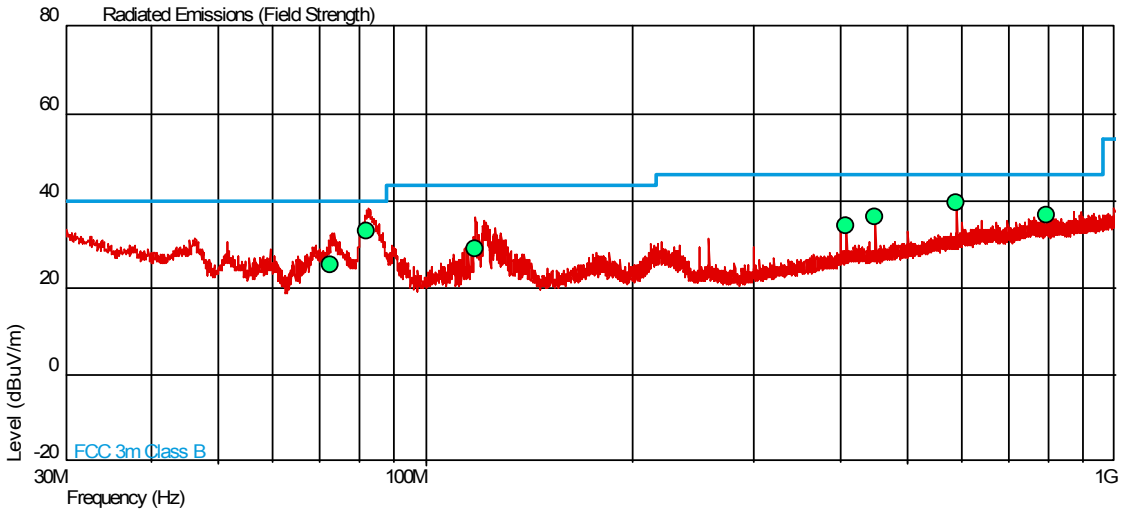
Horizontal Polarity



Date: 13.FEB.2010 01:20:13

Configuration 1 - Mode 3

30MHz to 1GHz (Combined Polarity)



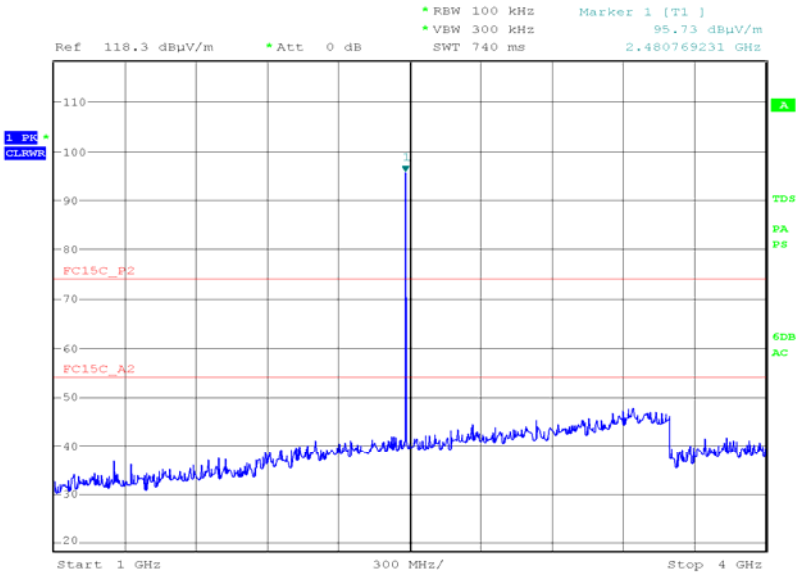
Frequency (MHz)	QP Level (dBuV/m)	QP Level (uV/m)	QP Limit (dBuV/m)	QP Limit (uV/m)	QP Margin (dBuV/m)	QP Margin (uV/m)	Angle (deg)	Height (m)	Polarity
72.634	25.5	18.8	40.0	100	-14.5	-81.2	145	2.15	Vertical
82.332	33.1	45.2	40.0	100	-6.9	-54.8	0	1.00	Vertical
118.330	28.8	27.5	43.5	150	-14.7	-122.5	57	1.00	Vertical
407.286	34.2	51.3	46.0	200	-11.8	-148.7	268	1.00	Vertical
449.992	36.3	65.3	46.0	200	-9.7	-134.7	256	1.00	Vertical
590.169	39.7	96.6	46.0	200	-6.3	-103.4	186	1.00	Vertical
797.234	36.6	67.6	46.0	200	-9.4	-132.4	128	1.00	Horizontal

1GHz to 25GHz

Frequency GHz	Antenna Polarisation	Antenna Height cm	EUT Arc deg	Result Peak dBµV/m	Result Peak µV/m	Result Average dBµV/m	Result Average µV/m	Peak Limit dBµV/m	Peak Limit µV/m	Average Limit dBµV/m	Average Limit µV/m	Result
4.960	Horizontal	100	239	52.2	4.7.4	37.2	72.4	74.0	5000	54.0	500	Pass
4.960	Vertical	105	268	49.1	285.1	35.8	61.7	74.0	5000	54.0	500	Pass

1GHz to 4GHz

Vertical Polarity



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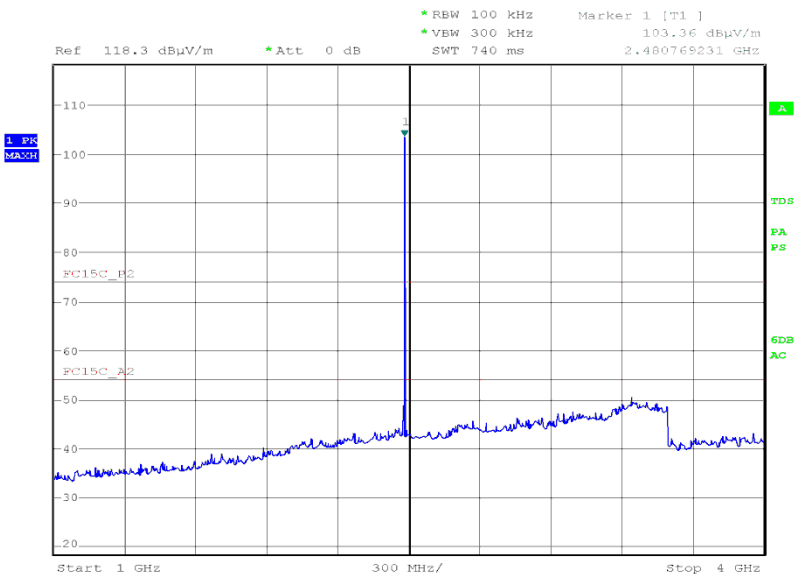
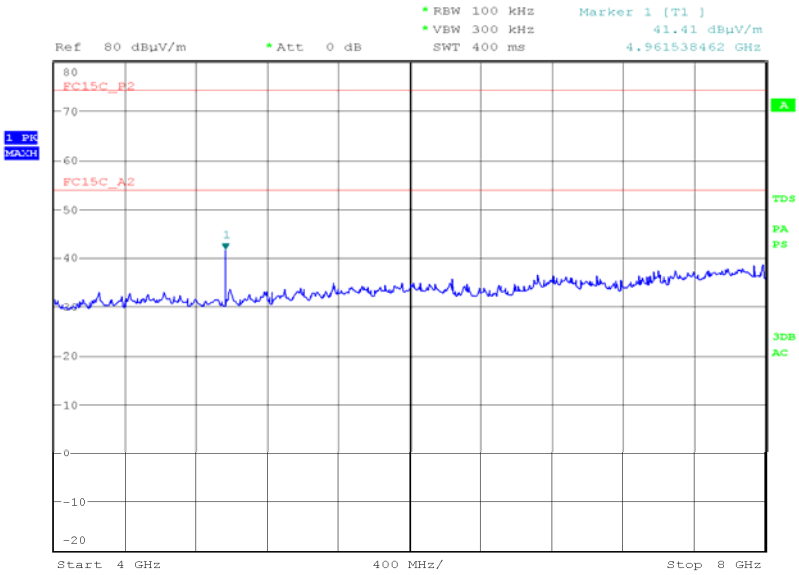
Horizontal Polarity



Date: 11.FEB.2010 04:31:00

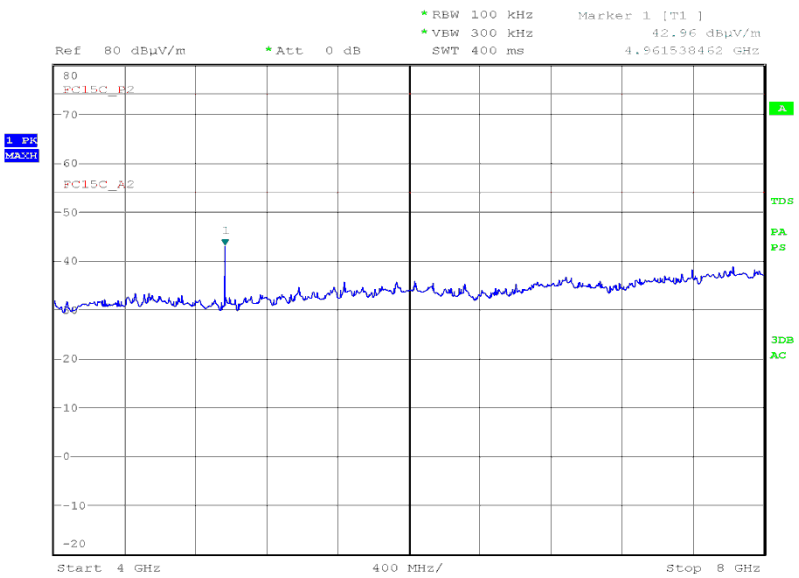
4GHz to 8GHz

Vertical Polarity



Date: 12.FEB.2010 22:26:30

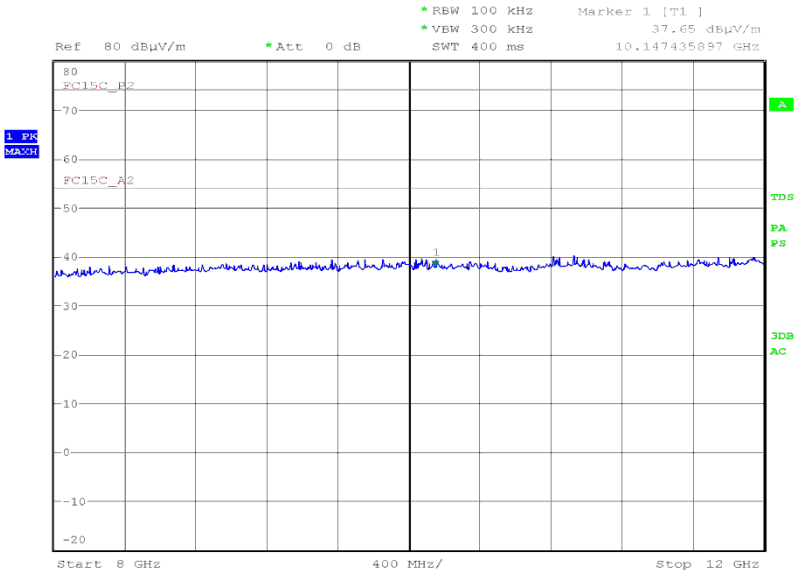
Horizontal Polarity



Date: 12.FEB.2010 22:29:58

8GHz to 12GHz

Vertical Polarity



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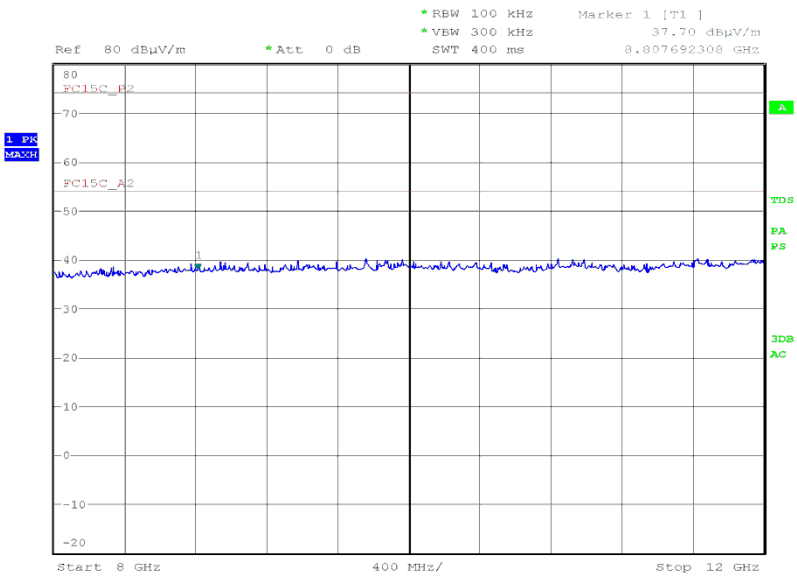
Horizontal Polarity



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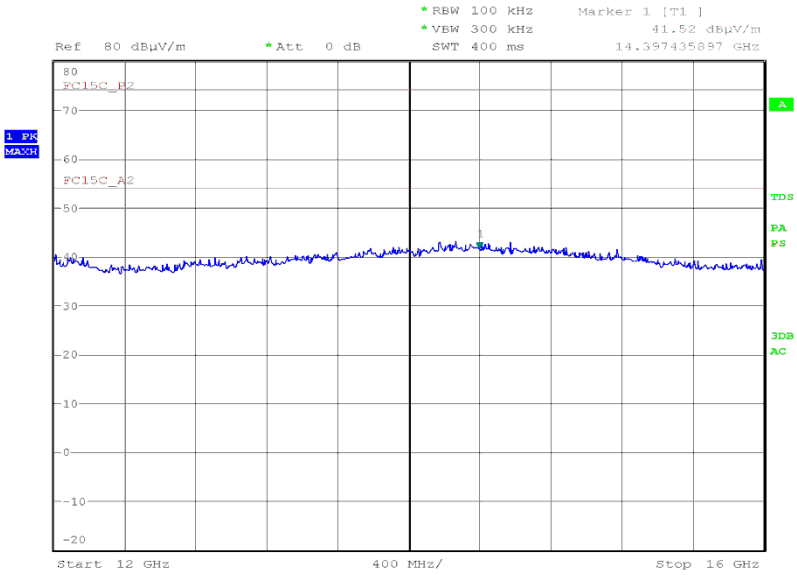
12GHz to 16GHz

Vertical Polarity



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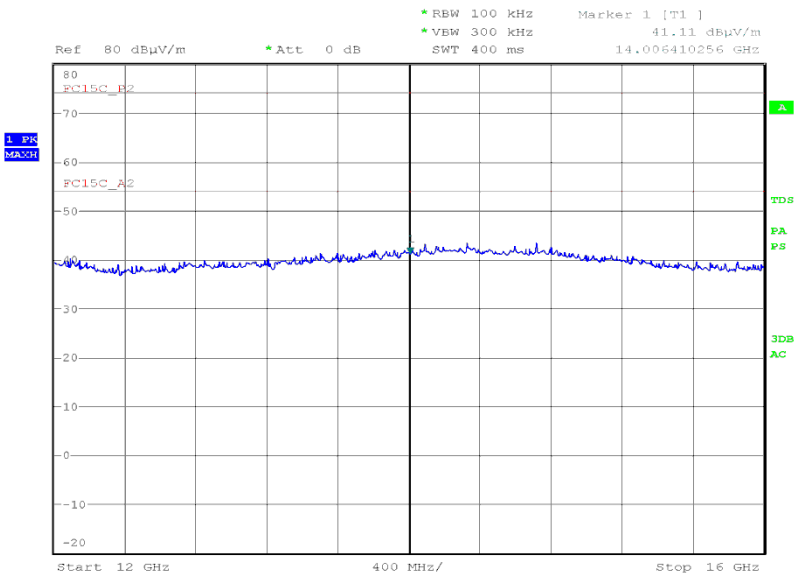
Horizontal Polarity



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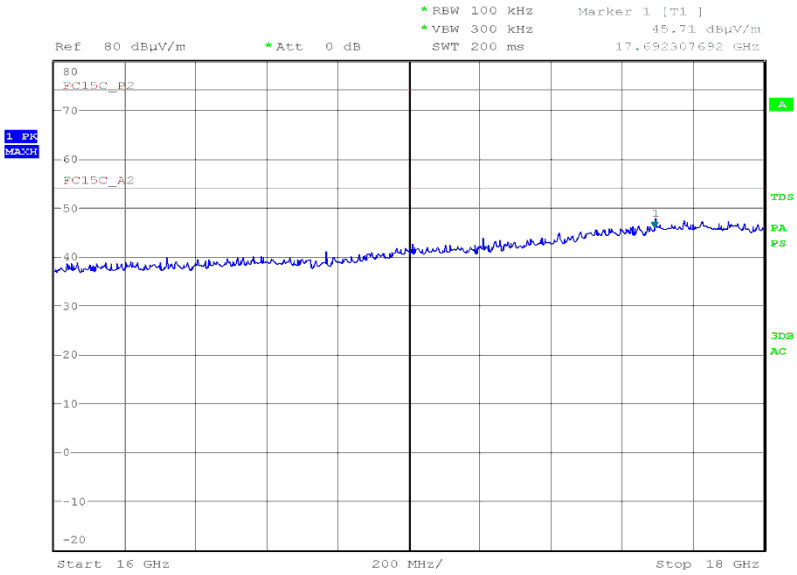
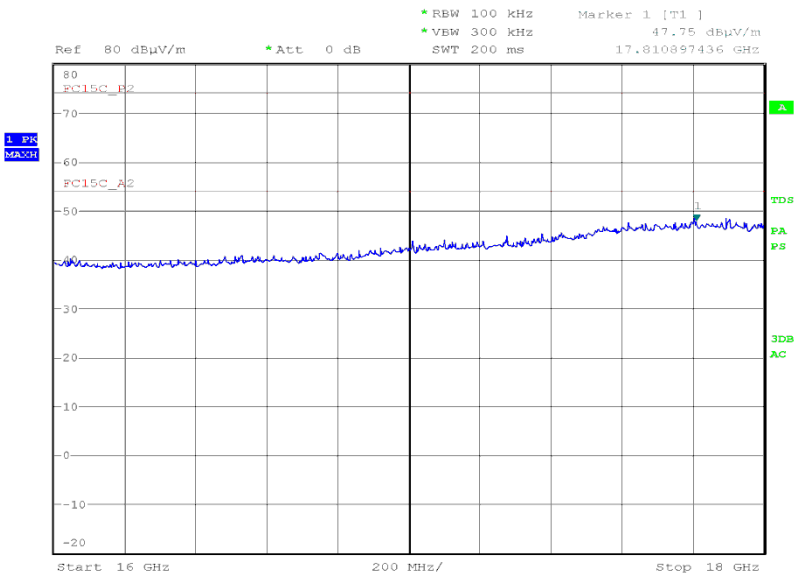
16GHz to 18GHz

Vertical Polarity



Date: 12.FEB.2010 23:48:17

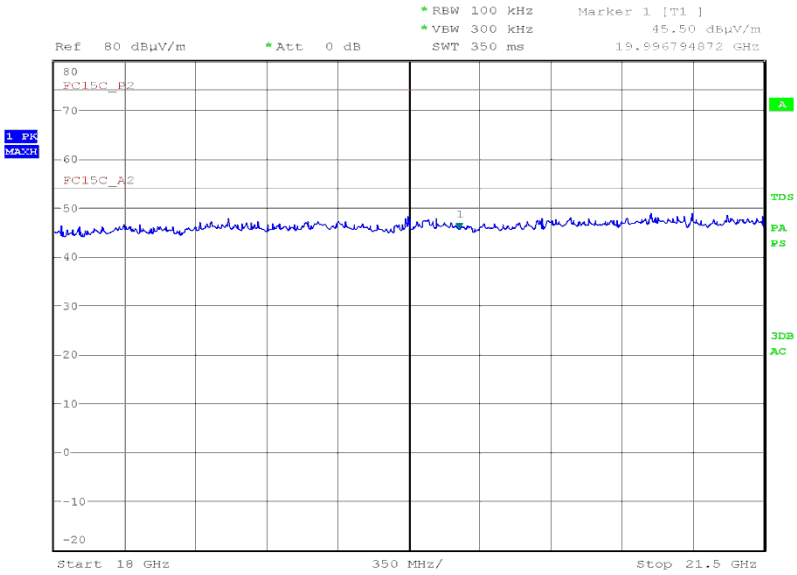
Horizontal Polarity



Date: 12.FEB.2010 23:46:24

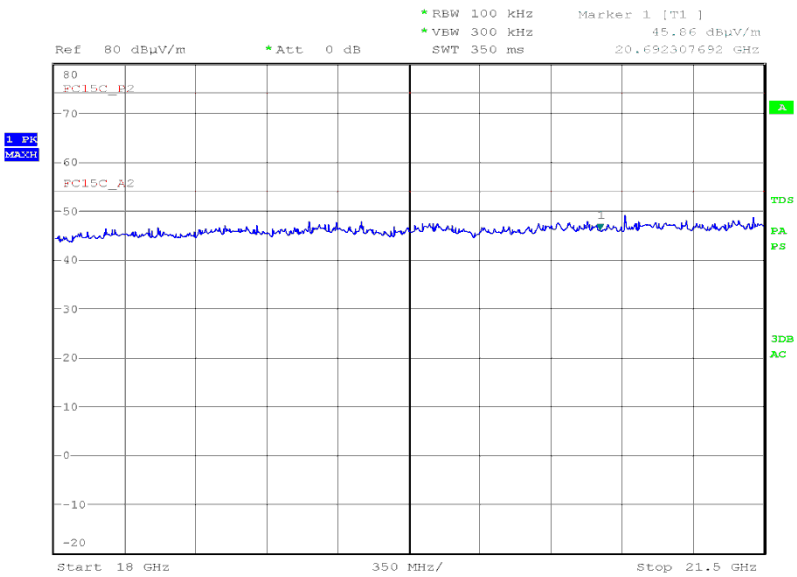
18GHz to 21.5GHz

Vertical Polarity



Date: 13.FEB.2010 01:35:26

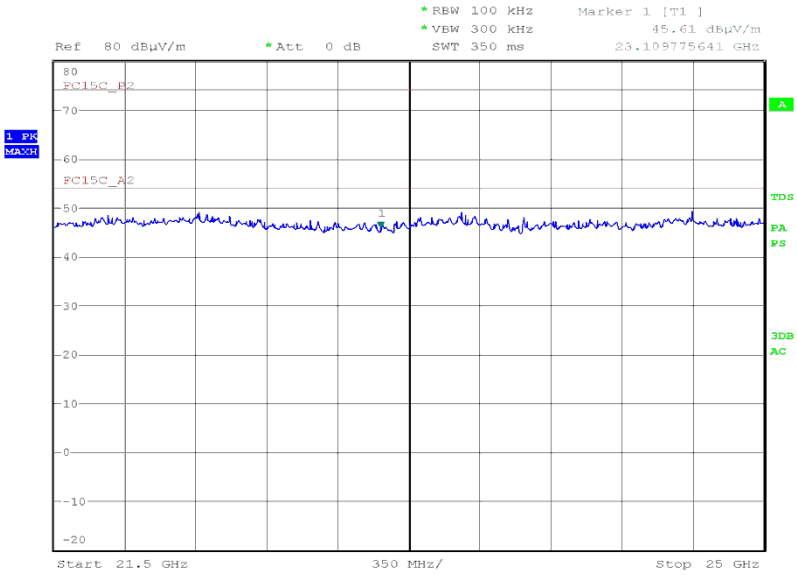
Horizontal Polarity



Date: 13.FEB.2010 01:49:05

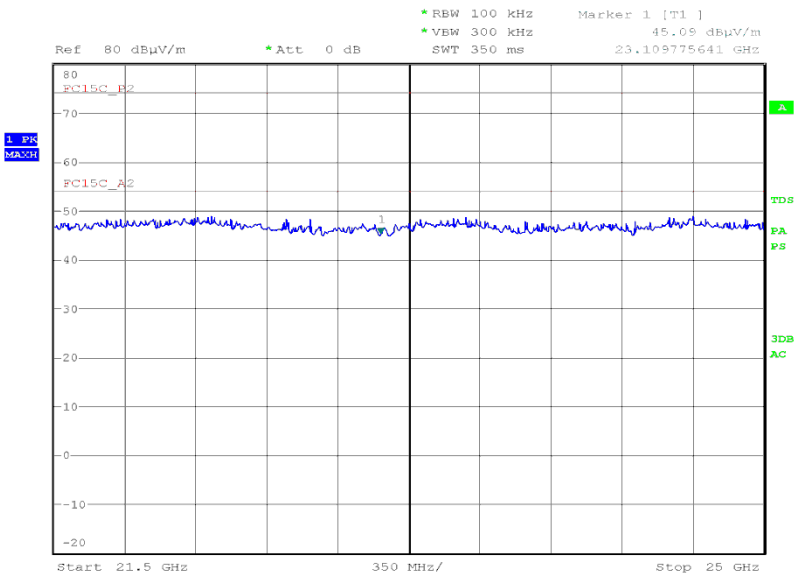
21.5GHz to 25GHz

Vertical Polarity



Date: 13.FEB.2010 01:38:51

Horizontal Polarity



Date: 13.FEB.2010 01:44:57

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 – 20dB Bandwidth					
Directional Coupler	Hewlett Packard	11692D	452	-	TU
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	4-Mar-2010
Power Supply Unit	Farnell	TSV-70	2043	-	O/P Mon
Cable (1m, sma(m) - sma(m)	Reynolds	262-0248-1000	2406	12	15-Oct-2010
Multimeter	Iso-tech	IDM101	2421	12	26-Oct-2010
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	2-Nov-2010
Hygrometer	Rotronic	I-1000	3220	12	17-Apr-2010
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	TU
Signal Generator: 10MHz to 20GHz	Rohde & Schwarz	SMR20	3475	12	4-Dec-2010
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	13-Feb-2010
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3700	12	8-Jan-2011
Bluetooth Tester	Tescom	TC-3000A	-	-	-
Section 2.2 - Power Characteristics					
Peak Power Analyser	Hewlett Packard	8990A	107	12	10-Feb-2011
Climatic Chamber	Votsch	VT4002	161	-	O/P Mon
Load (50ohm/30W)	Weinschel	50T-054	285	12	9-Sep-2010
Attenuator 10dB 25W	Weinschel	46-10-43	400	12	5-May-2010
Power Supply Unit	Hewlett Packard	6253A	441	-	O/P Mon
Directional Coupler	Hewlett Packard	11692D	452	-	TU
Multimeter	Fluke	75 Mk3	455	12	15-Dec-2010
Temperature Chamber	Montford	2F3	467	-	O/P Mon
Power Divider	Weinschel	1506A	603	12	19-Mar-2010
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	4-Mar-2010
Power Supply Unit	Farnell	TSV-70	2043	-	O/P Mon
Digital Temperature Indicator	Fluke	51	2267	12	23-Jun-2010
Cable (1m, sma(m) - sma(m)	Reynolds	262-0248-1000	2406	12	15-Oct-2010
Multimeter	Iso-tech	IDM101	2421	12	26-Oct-2010
Power Sensor	Hewlett Packard	84812A	2743	-	TU
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	2-Nov-2010
Hygrometer	Rotronic	I-1000	3220	12	17-Apr-2010
ESA-E Series Spectrum Analyser	Agilent	E4402B	3348	12	23-Apr-2010
Signal Generator: 10MHz to 20GHz	Rohde & Schwarz	SMR20	3475	12	4-Dec-2010
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	13-Feb-2010
'N' - 'N' RF Cable (2m)	Rhophase	NPS-1803-2000-NPS	3698	12	8-Jan-2011
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3700	12	8-Jan-2011
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3701	12	8-Jan-2011

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.3, 2.5 and 2.9 EMC - EIRP Peak Power, Band Edge Emissions & Radiated Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	12-Oct-2010
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	12-Oct-2010
Dual Power Supply Unit	Thurlby	PL320	288	-	TU
Test Receiver	Rohde & Schwarz	ESIB40	1006	6	26-May-2010
Antenna (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	17-Jul-2010
Pre-Amplifier	Phase One	PS04-0085	1532	12	16-Sep-2010
Pre-Amplifier	Phase One	PS04-0086	1533	12	17-Sep-2010
Pre-Amplifier	Phase One	PSO4-0087	1534	12	22-Sep-2010
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Turntable/Mast Controller	EMCO	2090	1610	-	TU
Test Receiver	Rohde & Schwarz	ESVP	1669	12	12-Nov-2010
Antenna Mast	EMCO	1050	1707	-	TU
Turntable Controller	Various	RH253	1708	-	TU
Antenna (Double Ridge Guide)	EMCO	3115	1711	12	22-Aug-2010
4GHz HPF	Sematron	F-100-4000-5-R	2245	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	4-Dec-2011
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	4-Aug-2010
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	1-Sep-2010
Turntable	EMCO	1060-04	3693	-	TU
Section 2.4 - Spurious Emissions					
Termination 50ohm/50W	Bird	8085	389	12	2-Sep-2010
Attenuator 10dB 25W	Weinschel	46-10-43	400	12	5-May-2010
Attenuator (Step, 11dB, 1W)	Hewlett Packard	8494H	425	-	TU
Power Supply Unit	Hewlett Packard	6253A	441	-	O/P Mon
Directional Coupler	Hewlett Packard	11692D	452	-	TU
Multimeter	Fluke	75 Mk3	455	12	15-Dec-2010
Splitter	Weinschel	1593	1292	12	20-Mar-2010
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	4-Mar-2010
Power Supply Unit	Farnell	TSV-70	2043	-	O/P Mon
Cable (1m, sma(m) - sma(m)	Reynolds	262-0248-1000	2406	12	15-Oct-2010
Multimeter	Iso-tech	IDM101	2421	12	26-Oct-2010
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	2-Nov-2010
Directional Coupler	Werlatone	C2704	2750	12	10-Mar-2010
Hygrometer	Rotronic	I-1000	3220	12	17-Apr-2010
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	TU
Signal Generator: 10MHz to 20GHz	Rohde & Schwarz	SMR20	3475	12	4-Dec-2010
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	13-Feb-2010
'N' - 'N' RF Cable (2m)	Rhophase	NPS-1803-2000-NPS	3698	12	8-Jan-2011
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3700	12	8-Jan-2011
Bluetooth Tester	Tescom	TC-3000A	-	-	-

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.6 - Channel Dwell Time					
Directional Coupler	Hewlett Packard	11692D	452	-	TU
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	4-Mar-2010
Power Supply Unit	Farnell	TSV-70	2043	-	O/P Mon
Cable (1m, sma(m) - sma(m)	Reynolds	262-0248-1000	2406	12	15-Oct-2010
Multimeter	Iso-tech	IDM101	2421	12	26-Oct-2010
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	2-Nov-2010
Hygrometer	Rotronic	I-1000	3220	12	17-Apr-2010
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	TU
Signal Generator: 10MHz to 20GHz	Rohde & Schwarz	SMR20	3475	12	4-Dec-2010
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3700	12	8-Jan-2011
Bluetooth Tester	Tescom	TC-3000A	-	-	-
Section 2.7 – Channel Separation					
Directional Coupler	Hewlett Packard	11692D	452	-	TU
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	4-Mar-2010
Power Supply Unit	Farnell	TSV-70	2043	-	O/P Mon
Cable (1m, sma(m) - sma(m)	Reynolds	262-0248-1000	2406	12	15-Oct-2010
Multimeter	Iso-tech	IDM101	2421	12	26-Oct-2010
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	2-Nov-2010
Hygrometer	Rotronic	I-1000	3220	12	17-Apr-2010
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	TU
Signal Generator: 10MHz to 20GHz	Rohde & Schwarz	SMR20	3475	12	4-Dec-2010
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3700	12	8-Jan-2011
Section 2.8 - Number of Hopping Channels					
Directional Coupler	Hewlett Packard	11692D	452	-	TU
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	4-Mar-2010
Power Supply Unit	Farnell	TSV-70	2043	-	O/P Mon
Cable (1m, sma(m) - sma(m)	Reynolds	262-0248-1000	2406	12	15-Oct-2010
Multimeter	Iso-tech	IDM101	2421	12	26-Oct-2010
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	2-Nov-2010
Hygrometer	Rotronic	I-1000	3220	12	17-Apr-2010
1m RF Cable sma(m)-sma(m)	Reynolds	262-0248-1000	3453	12	TU
Signal Generator: 10MHz to 20GHz	Rohde & Schwarz	SMR20	3475	12	4-Dec-2010
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3700	12	8-Jan-2011
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3701	12	8-Jan-2011
Bluetooth Tester	Tescom	TC-3000A	-	-	

TU – Traceability Unscheduled
OP/Mon – Output monitored using calibrated equipment

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Conducted Emissions, LISN	150kHz to 30MHz Amplitude	3.2dB*
Conducted Emissions, ISN	150kHz to 30MHz Amplitude	2.1dB
Substitution Antenna, Radiated Field	30MHz to 18GHz Amplitude	2.6dB
Discontinuous Interference	150kHz to 30MHz Amplitude	3.0dB*
Interference Power	30MHz to 300MHz Amplitude	3.0dB*
Radiated E-Field Susceptibility	26MHz to 2.5GHz Test Amplitude	1.4dB†
Conducted Susceptibility	100kHz to 250MHz Amplitude	1.8dB†
DC Input Ripple Immunity	Current Voltage	0.45% 0.91%
Power Frequency Magnetic Field	50Hz/60Hz Amplitude	0.45%
Magnetic Emissions	9kHz to 30MHz Amplitude	3.4dB*
Magnetic Field/Flux iaw EN 50366	10Hz to 400kHz	2.64%
Harmonics and Flicker	The test was applied using proprietary equipment that meets the requirements of EN 61000-3-2 and EN 61000-3-3	—
Mains Voltage Variations and Interrupts	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-11	—
Fast Transient Burst	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-4	—
Electrostatic Discharge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-2	—
Surge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-5	—
Vehicle Transients	The test was applied using proprietary equipment that meets the requirements of ISO 7637-1 and 2	—
Compass Safe Distance	Azimuth Accuracy	0.10°

Worst case error for both Time and Frequency measurement 12 parts in 10^6.

* In accordance with CISPR 16-4
† In accordance with UKAS Lab 34

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).