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Report On

FCC and Industry Canada Testing of the
Motorola RS507 Hands Free Imager

COMMERCIAL-IN-CONFIDENCE

FCC ID: UZ7RS507
IC ID: 109AN-RS507

Document 75903870 Report 04 Issue 3 March 2009

Product Service

TUV Product Service Ltd, Octagon House, Concorde Way, Segensworth North,
Fareham, Hampshire, United Kingdom, PO15 5RL
Tel: +44 (0) 1489 558100. Website: www.tuvps.co.uk

REPORT ON FCC and Industry Canada Testing of the Motorola RS507 Hands Free Imager

Document 75903870 Report 04 Issue 3

March 2009

PREPARED FOR

Motorola Inc.
One Motorola Plaza
Holtsville
NY 11742-1300
USA

PREPARED BY

N Bennett
Senior Administrator

APPROVED BY

J Adams
Authorised Signatory

M Jenkins
Authorised Signatory

DATED 12 March 2009 | 12 March 2009

This report has been up-issued to Issue 3 to correct customer comments.

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: Parts 15C and RSS-210 Issue 7. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

S Hartley | A Guy | S Bennett | M P Hardy

UKAS TESTING 0141

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CONTENTS

Product Service

SECTION 1

REPORT SUMMARY

FCC and Industry Canada testing of the
Motorola RS507 Hands Free Imager

Product Service

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Motorola Inc RS507 Hands Free Imager to the requirements of FCC CFR 47 Part 15C and RSS-210 Issue 7.

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 Inc
Model Number(s)	RS507
Serial Number(s)	MXA4NH53 - TUV 01 MXA4NH93 - TUV 06
Software Version	V64
Hardware Version	Rev A
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15C: 2006 RSS-210: Issue 7: 2007
Incoming Release Date	Declaration of Build Status 26 January 2009
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	NP4076771 14 May 2008
Start of Test	20 January 2009
Finish of Test	26 January 2009
Name of Engineer(s)	S C Hartley A Guy S Bennett M P Hardy
Related Document(s)	ANSI 63.4: 2001

Product Service

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 15C and RSS-210 Issue 7, is shown below.

Configuration 1 - Bluetooth Tx							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Base Standard
	FCC	IC					
2.1	15.209, 15.247(d), 15.205	A8.5	Radiated Emissions (Enclosure Port)	Transmit, Bottom, Middle and Top Channels 2402, 2441 and 2480 MHz	0	Pass	ANSI 63.4

Configuration 1 - Bluetooth Tx							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Base Standard
	FCC	IC					
2.2	15.247(a)(1)	A8.1(a)	20dB Bandwidth	Transmit, Bottom Channel 2402 MHz	0	Pass	ANSI 63.4
				Transmit, Middle Channel 2441 MHz	0	Pass	
				Transmit, Top Channel 2480 MHz	0	Pass	
2.3	15.247(a)	A8.1(d)	Channel Dwell Time (DH1)	Transmit, Middle Channel 2441 MHz	0	Pass	ANSI 63.4
2.4	15.247(a)	A8.1(d)	Channel Dwell Time (DH3)	Transmit, Middle Channel 2441 MHz	0	Pass	ANSI 63.4
2.5	15.247(a)	A8.1(d)	Channel Dwell Time (DH5)	Transmit, Middle Channel 2441 MHz	0	Pass	ANSI 63.4
2.6	15.247(a)(1)	A8.1(b)	Channel Separation	Frequency Hopping	0	Pass	ANSI 63.4
2.7	15.247(a)(1)	A8.1(d)	Number of Hopping Channels	Frequency Hopping	0	Pass	ANSI 63.4
2.8	15.247(c)	A8.5	Spurious Conducted Emissions	Frequency Hopping	0	Pass	ANSI 63.4
2.9	15.247(b) (1)	A8.4(2)	Maximum Peak Output Power (Conducted)	Transmit, Bottom Channel 2402 MHz	0	Pass	ANSI 63.4
				Transmit, Middle Channel 2441 MHz	0	Pass	
				Transmit, Top Channel 2480 MHz	0	Pass	

Product Service

1.3 DECLARATION OF BUILD STATUS

Manufacturer	Motorola
Country of origin	Mexico
UK Agent	Motorola
Technical Description	RS507 Hands Free Imager and accessories Corded adapter ADPTRWT-RS507-R Standard battery BTRY-RS50EAB00-01 Extended battery BTRY-RS50EAB02-01
Model No	RS507
Part No	RS507-IM20000CTWR, RS507-IM20000SNWR RS507-IM20000STWR , RS507-IM20000ENWR
Serial No	MXA4NH53 (Test mode unit).
Drawing Number	
Build Status	PILOT
Software Issue	V64
Hardware Issue	REV A
FCC ID	UZ7RS507
Industry Canada ID	109AN-RS507

Signature	Michael Blinshtain
Date	01-26-2009
D of B S Serial No	

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.

Product Service

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Motorola RS507 Hands Free Imager as shown in the photograph below. A full technical description can be found in the Manufacturers documentation.

Equipment Under Test

Product Service

1.4.2 Test Configuration

The EUT was tested as a stand alone item. During the testing a Rhode & Schwarz Bluetooth Test Set was used to supply the EUT with the necessary control, modulation and transmitting signals.

Configuration 1: Bluetooth Tx

The EUT was configured in accordance with FCC CFR 47 Part 15C and RSS-210 Issue 7.

1.4.3 EUT Cable / Port Identification

No cables were connected to the EUT during testing.

1.4.4 Modes of Operation

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

Mode 1 – Transmit, Bottom Channel 2402 MHz

Mode 2 – Transmit, Middle Channel 2441 MHz

Mode 3 – Transmit, Top Channel 2480 MHz

Mode 4 – Frequency Hopping

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

Product Service

1.5 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 Battery Powered.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

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

1.6 DEVIATIONS FROM THE STANDARD

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

1.7 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 RS507 Hands Free Imager

Product Service

2.1 RADIATED EMISSIONS (ENCLOSURE PORT)

2.1.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.209, 15.247(d), 15.205
RSS-210 Issue 7, Clause A8.5

2.1.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH53 - TUV 01

2.1.3 Date of Test and Modification State

24 to 25 January 2009 - 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 Method and Operating Modes

The test was applied in accordance with the test method requirements of ANSI 63.4.

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

Configuration 1 - Mode 1
- Mode 2
- Mode 3

2.1.6 Environmental Conditions

	24 January 2009	25 January 2009
Ambient Temperature	22 - 23.0°C	23.0°C
Relative Humidity	24 - 25.2%	24.0%
Atmospheric Pressure	988 - 990mbar	987mbar

Product Service

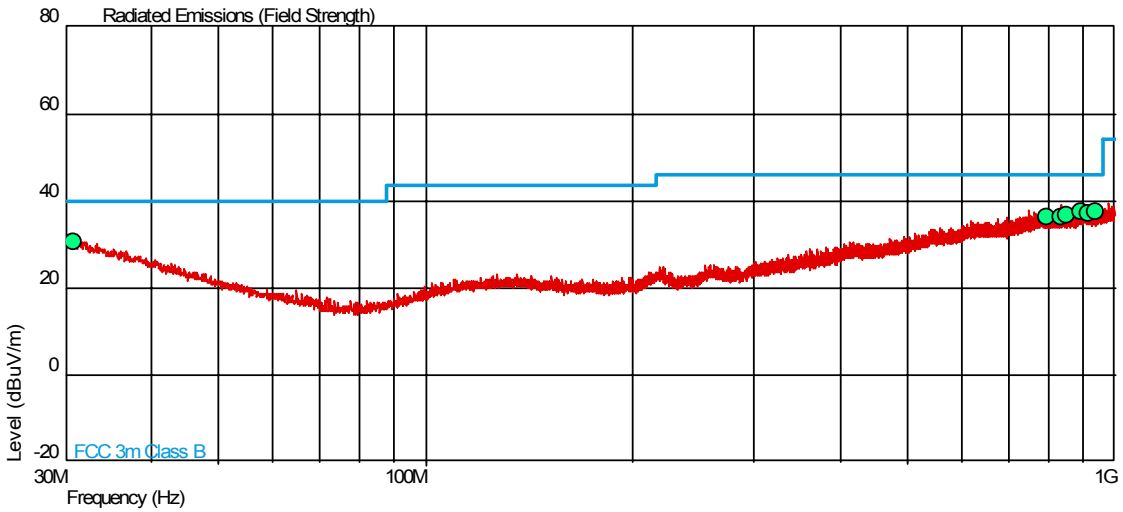
2.1.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C and RSS-210 Issue 7 for Radiated Emissions (Enclosure Port).

The test results are shown below.

Configuration 1 - Mode 1

30MHz to 1GHz

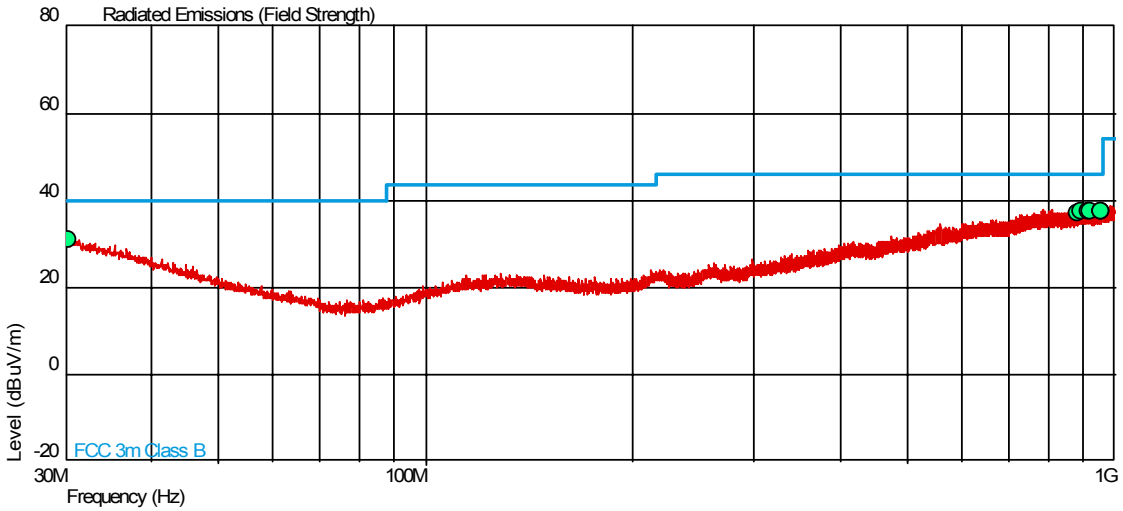


Frequency (MHz)	QP Level (dBuV/m)	QP Level (uV/m)	QP Limit (dBuV/m)	QP Limit (uV/m)	QP Margin (dBuV/m)	QP Margin (uV/m)	Angle(Deg)	Height(m)	Polarity
30.776	30.6	33.9	40.0	100.0	-9.4	-66.1	304	1.00	Vertical
797.068	36.5	66.8	46.0	199.5	-9.5	-132.7	165	1.00	Vertical
836.232	36.5	66.8	46.0	199.5	-9.5	-132.7	14	1.00	Horizontal
851.785	36.6	67.6	46.0	199.5	-9.4	-131.9	72	2.89	Horizontal
893.959	37.4	73.3	46.0	199.5	-8.6	-126.2	264	2.07	Vertical
918.033	37.3	73.3	46.0	199.5	-8.7	-126.2	310	1.00	Vertical
939.745	37.3	33.9	46.0	100.0	-8.7	-66.1	254	3.94	Horizontal

Product Service

Configuration 1 - Mode 2

30MHz to 1GHz

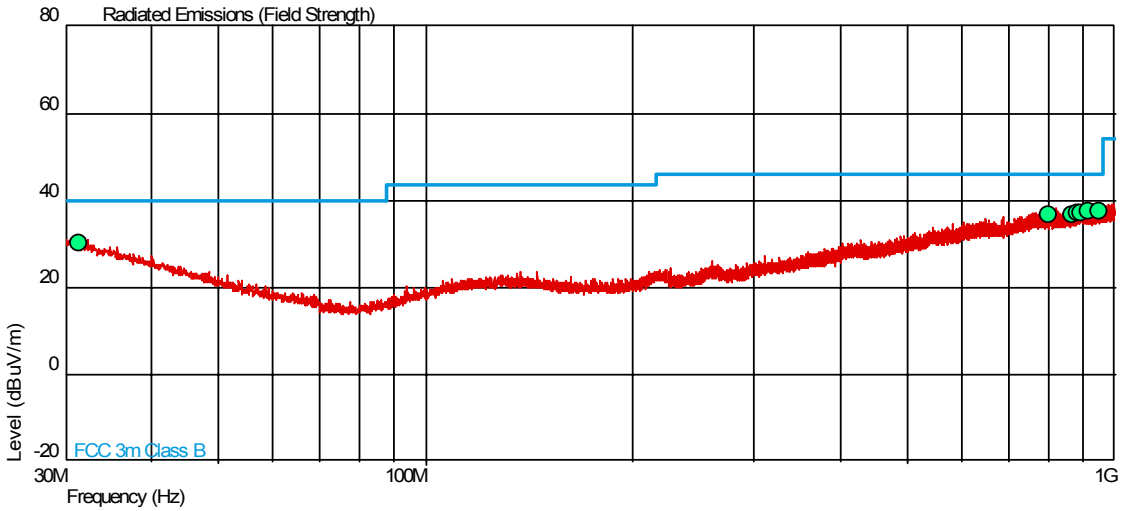


Frequency (MHz)	QP Level (dBuV/m)	QP Level (uV/m)	QP Limit (dBuV/m)	QP Limit (uV/m)	QP Margin (dBuV/m)	QP Margin (uV/m)	Angle(Deg)	Height(m)	Polarity
30.303	30.9	35.1	40.0	100.0	-9.1	-64.4	279	2.33	Vertical
884.350	37.1	71.6	46.0	200.0	-8.9	-128.4	13	1.00	Horizontal
894.197	37.4	74.1	46.0	200.0	-8.6	-125.9	300	2.61	Vertical
914.207	37.4	74.1	46.0	200.0	-8.6	-125.9	51	1.00	Vertical
921.006	37.3	73.3	46.0	200.0	-8.7	-126.7	137	1.00	Vertical
955.592	37.5	75.0	46.0	200.0	-8.5	-125.0	349	1.00	Horizontal
957.236	37.5	75.0	46.0	200.0	-8.5	-125.0	278	2.85	Vertical

Product Service

Configuration 1 - Mode 3

30MHz to 1GHz



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
31.458	30.2	32.4	40.0	100.0	-9.8	-68.1	357	1.00	Vertical
802.353	36.7	68.4	46.0	200.0	-9.3	-131.6	88	2.34	Vertical
868.901	36.8	69.2	46.0	200.0	-9.2	-130.8	311	1.00	Vertical
885.105	37.1	71.6	46.0	200.0	-8.9	-128.4	107	1.00	Horizontal
891.957	37.3	73.3	46.0	200.0	-8.7	-126.7	341	1.00	Vertical
917.351	37.3	73.3	46.0	200.0	-8.7	-126.7	254	1.00	Vertical
947.731	37.4	74.1	46.0	200.0	-8.6	-125.9	277	1.00	Horizontal

Product Service

Configuration 1 - Mode 1

1GHz to 25GHz

Freq. GHz	Ant Pol. V/H	Ant Hgt Cm	EUT Arc Deg	Result Peak dBµV/m	Result Average dBµV/m	Peak Limit dBµV/m	Average Limit dBµV/m	Pass/Fail
9.608	V	100	358	49.7	NRB	86.3	NRB	Pass

NRB = Non Restricted Band

Configuration 1 - Mode 2

1GHz to 25GHz

No emissions were detected within 10dB of the applicable limit for the frequency concerned. The following plots show the peak limit of 74dBuV/m for retricted bands only. The Average limit was investigated individually in the restricted bands where the noise floor exceeded the average limit.

Configuration 1 - Mode 3

1GHz to 25GHz

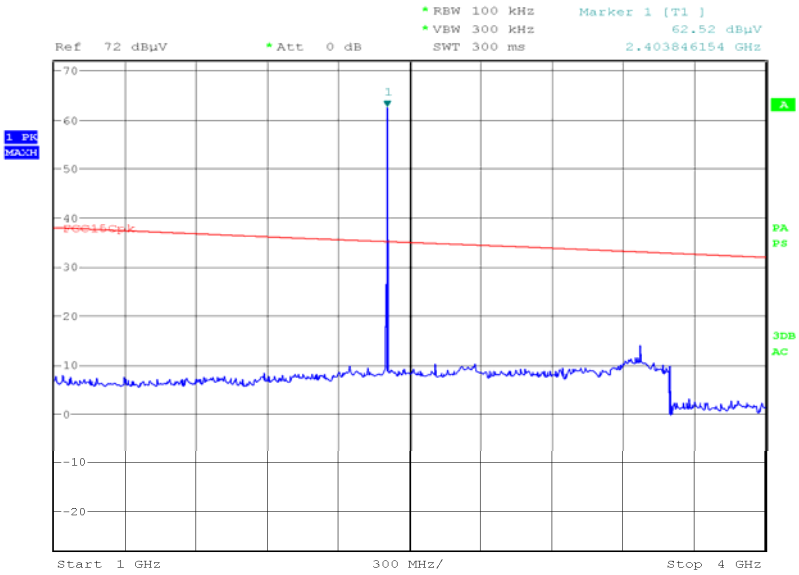
No emissions were detected within 10dB of the applicable limit for the frequency concerned. The following plots show the peak limit of 74dBuV/m for retricted bands only. The Average limit was investigated individually in the restricted bands where the noise floor exceeded the average limit.

Product Service

Configuration 1 - Mode 1

1GHz to 4GHz

Vertical



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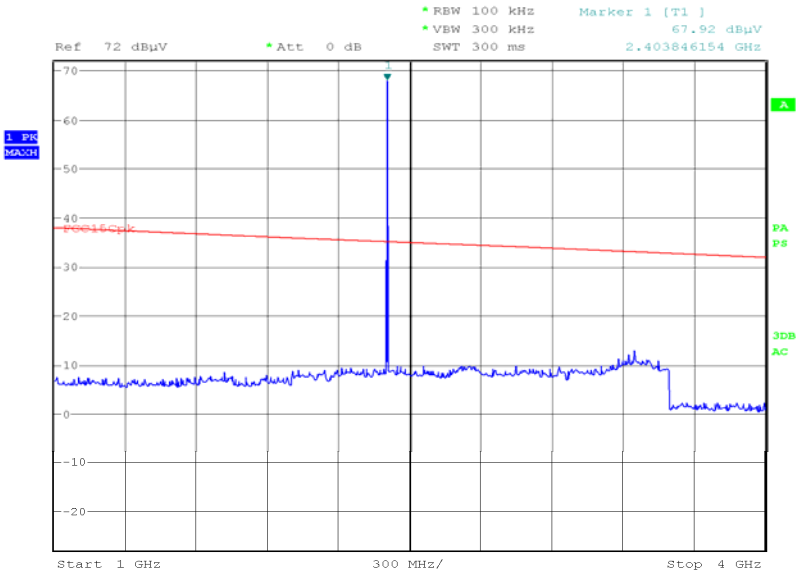

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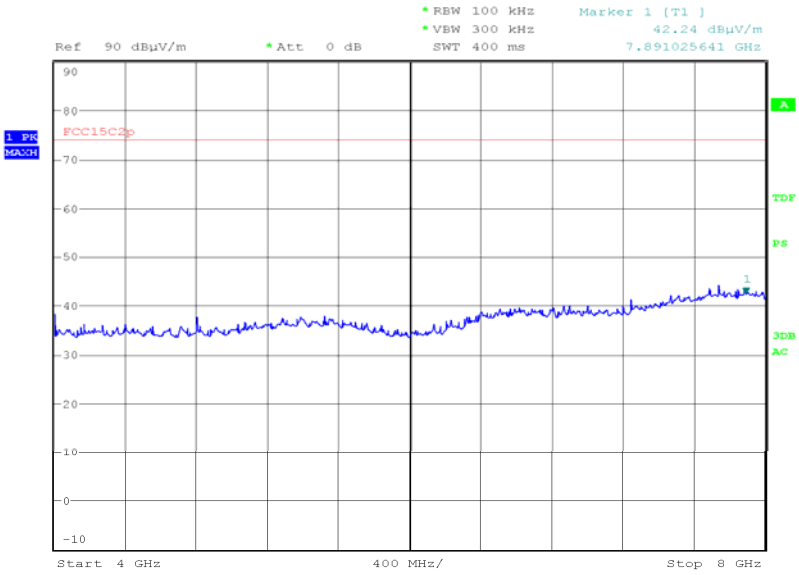
Product Service

4GHz to 8GHz

Vertical



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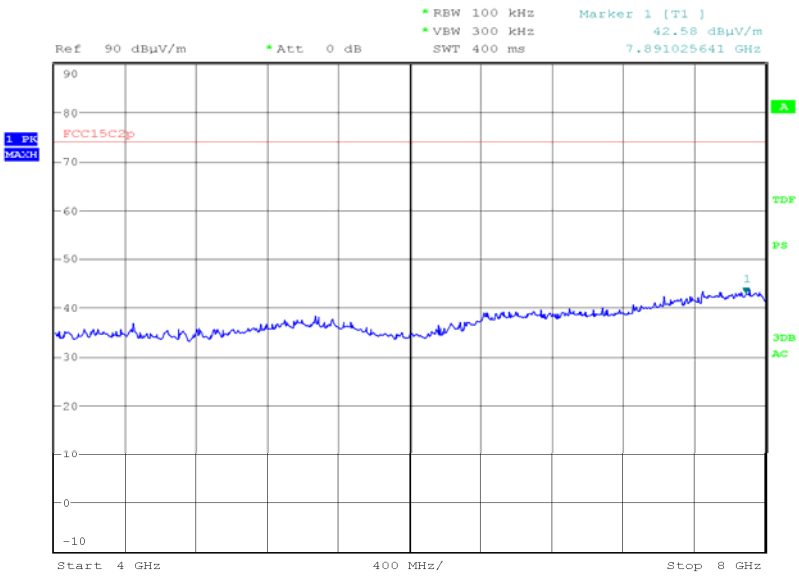

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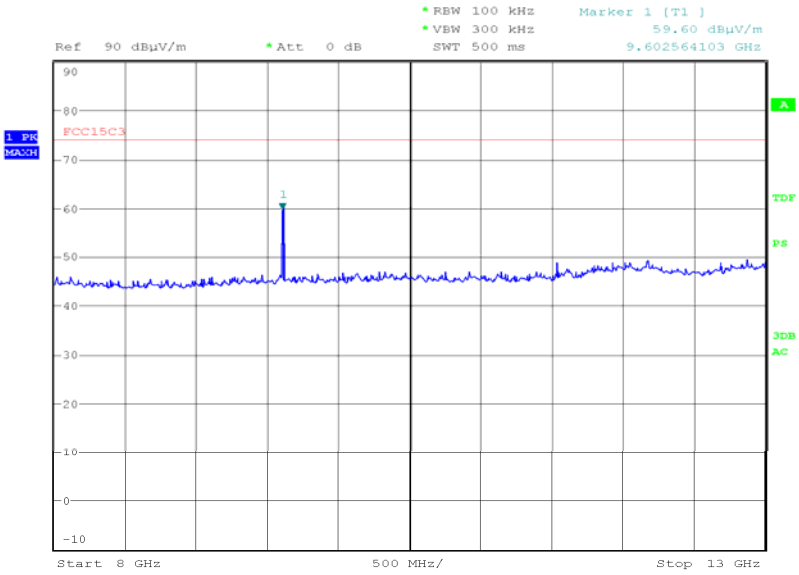
Product Service

8GHz to 13GHz

Vertical



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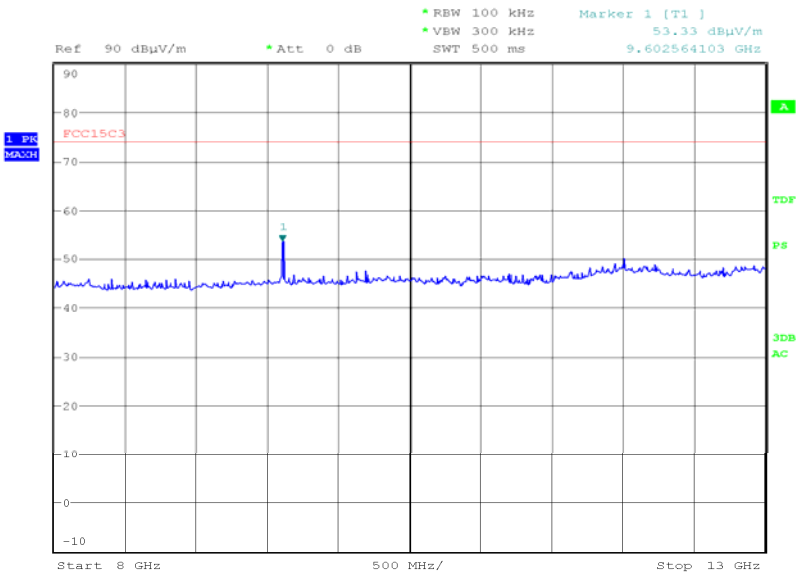

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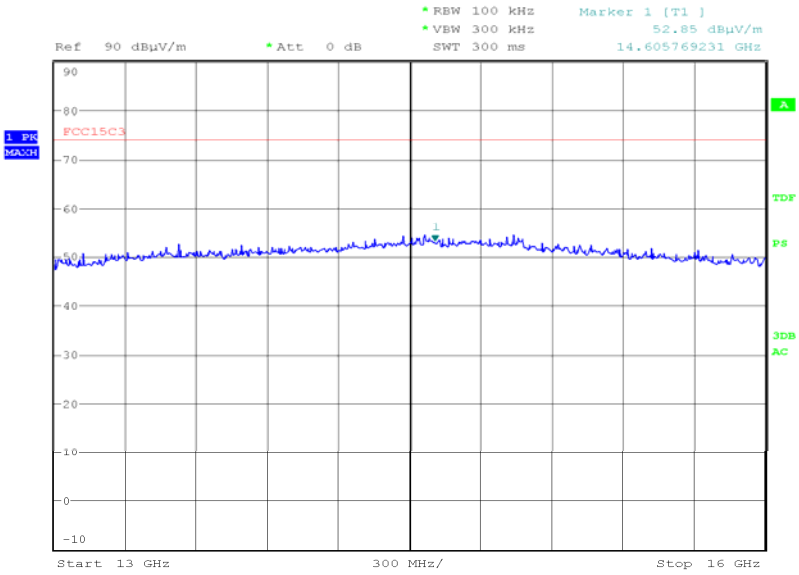
Product Service

13GHz to 16GHz

Vertical



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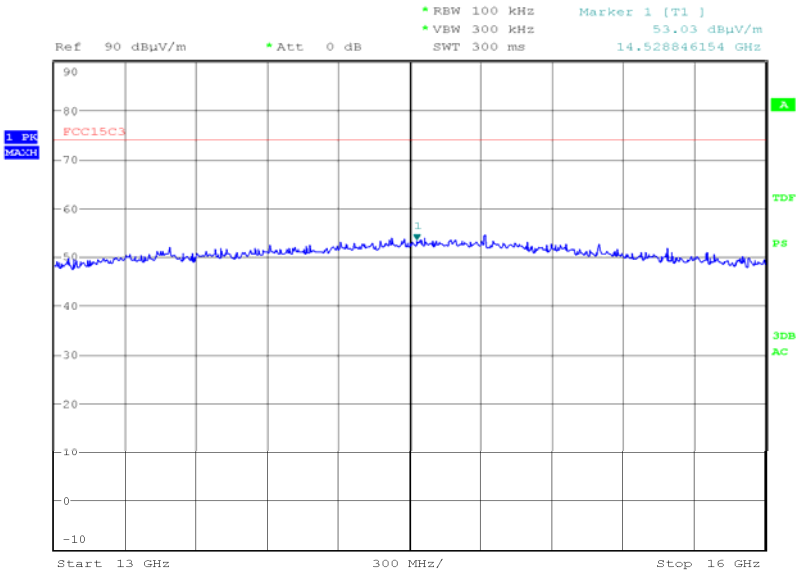

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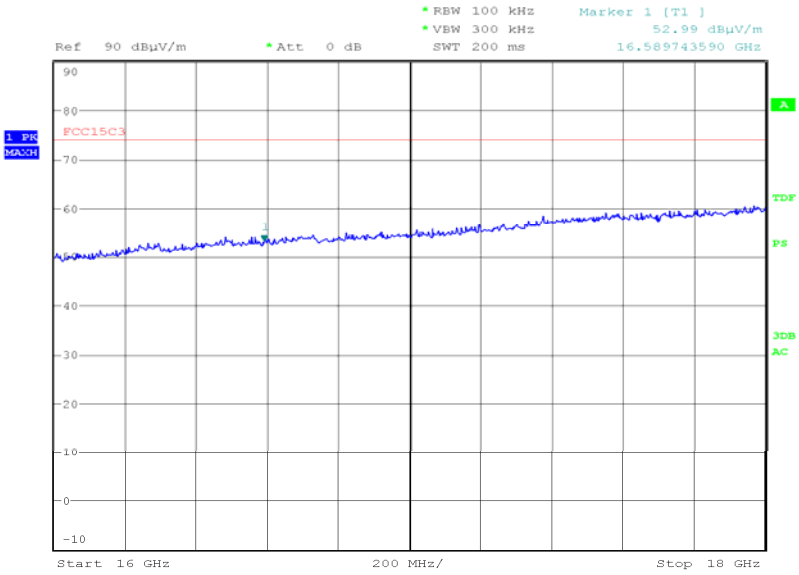
Product Service

16GHz to 18GHz

Vertical



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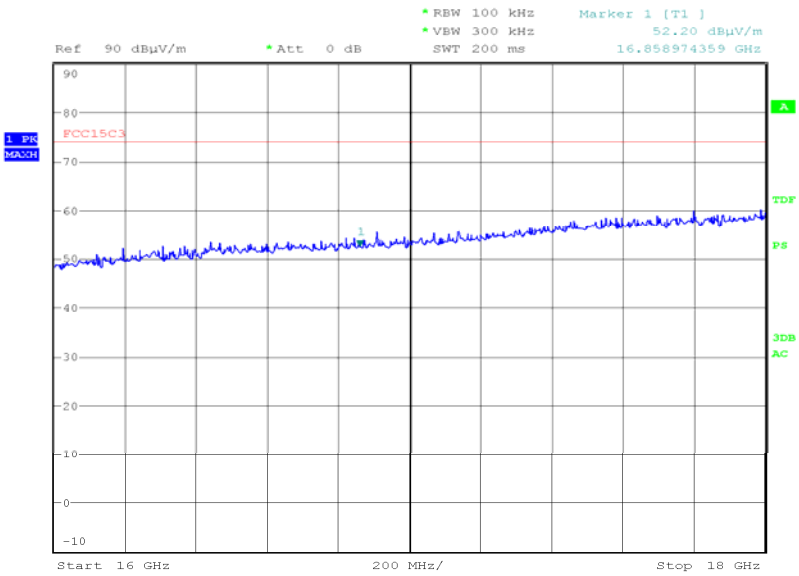

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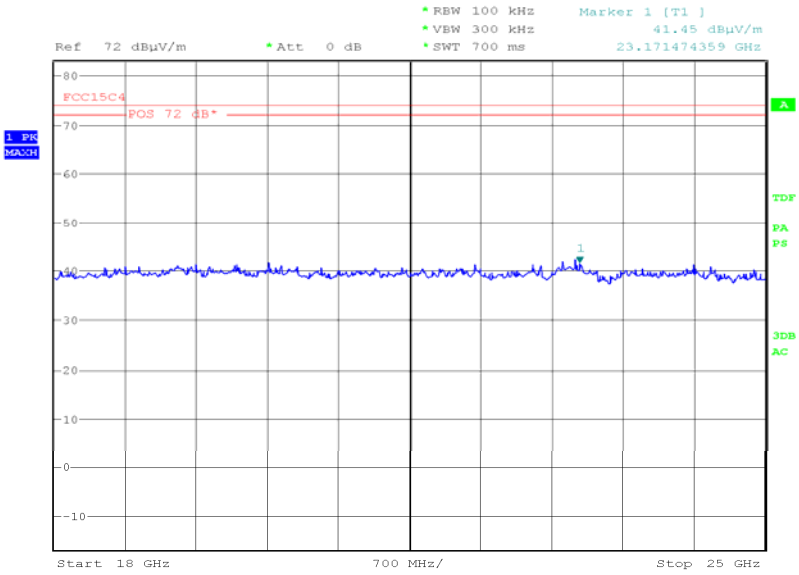
Product Service

18GHz to 25GHz

Vertical



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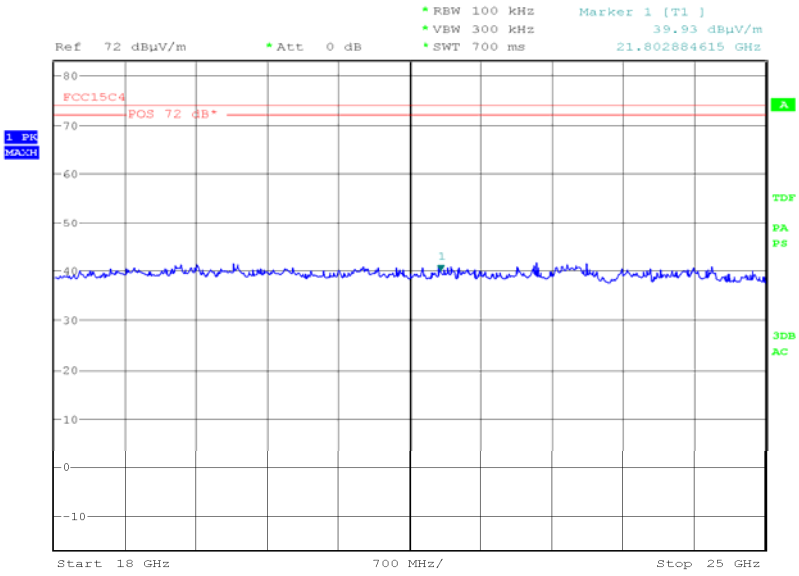

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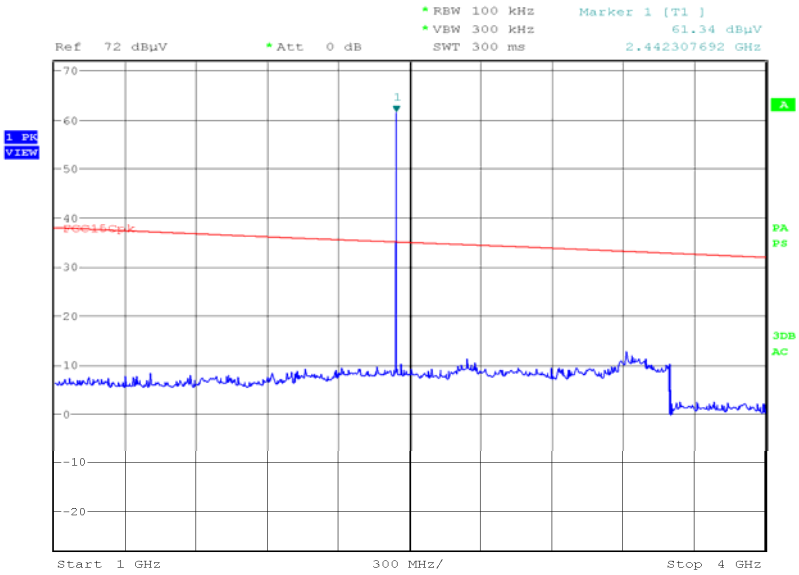
Product Service

Configuration 1 - Mode 2

1GHz to 4GHz

Vertical



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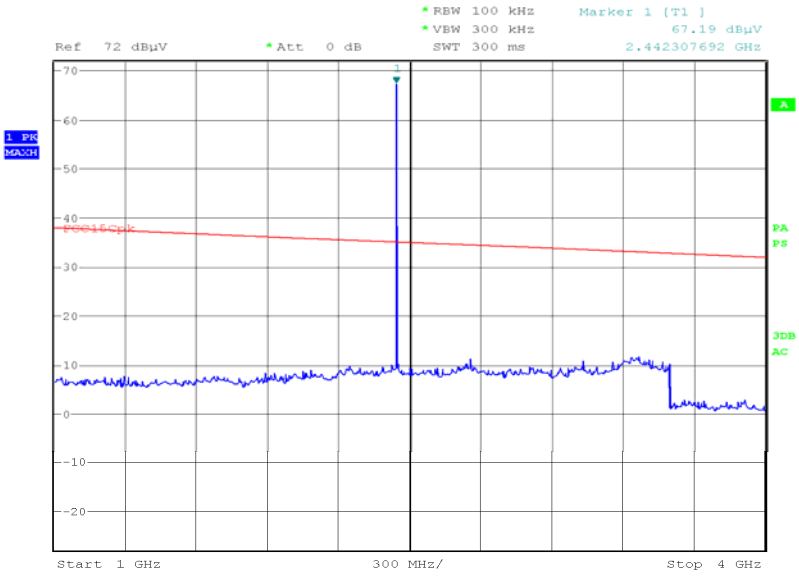

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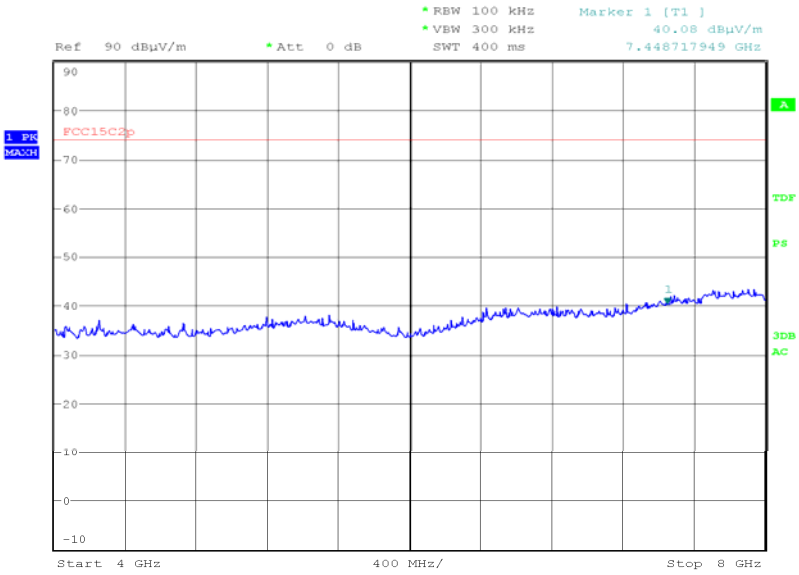
Product Service

4GHz to 8GHz

Vertical



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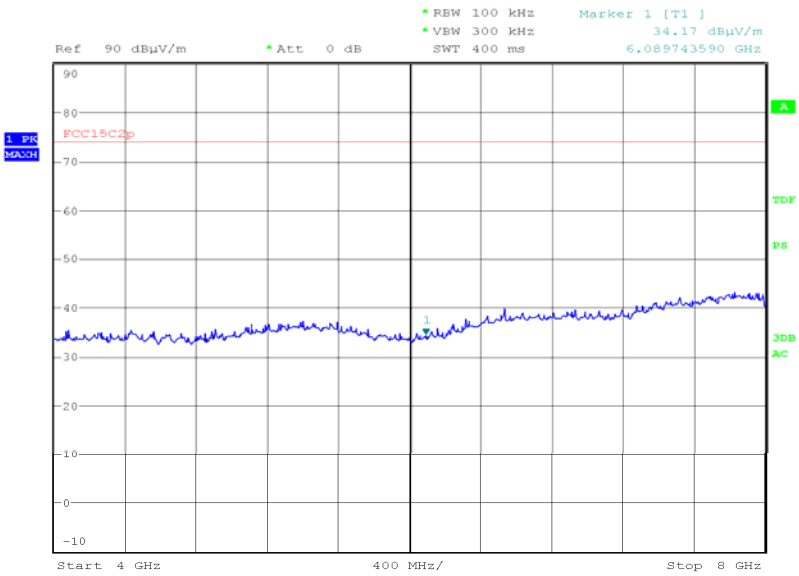

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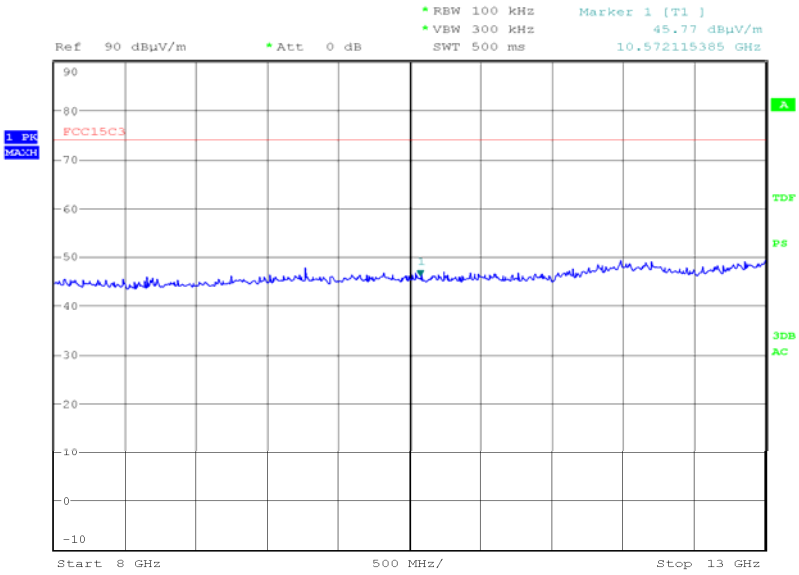
Product Service

8GHz to 13GHz

Vertical



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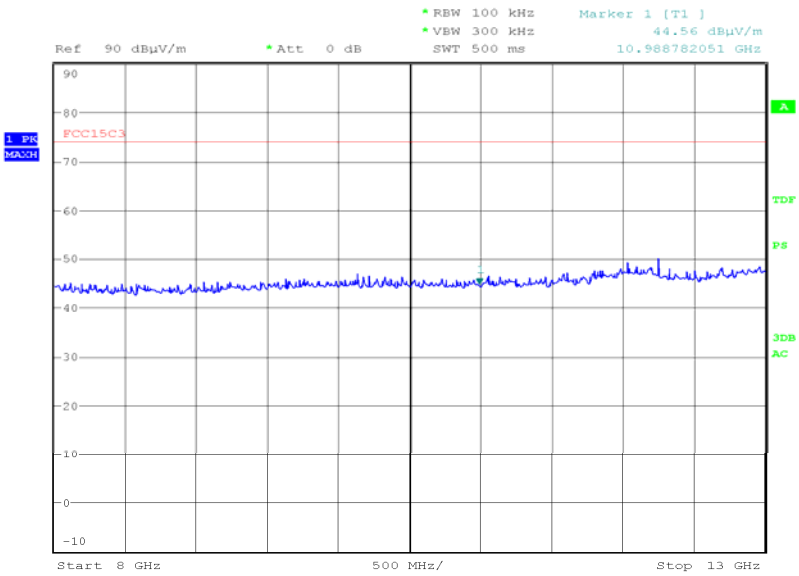

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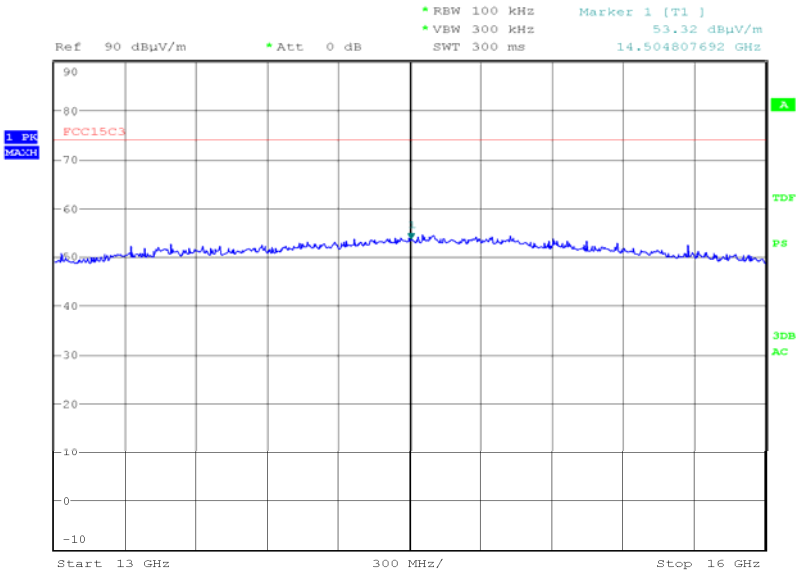
Product Service

13GHz to 16GHz

Vertical



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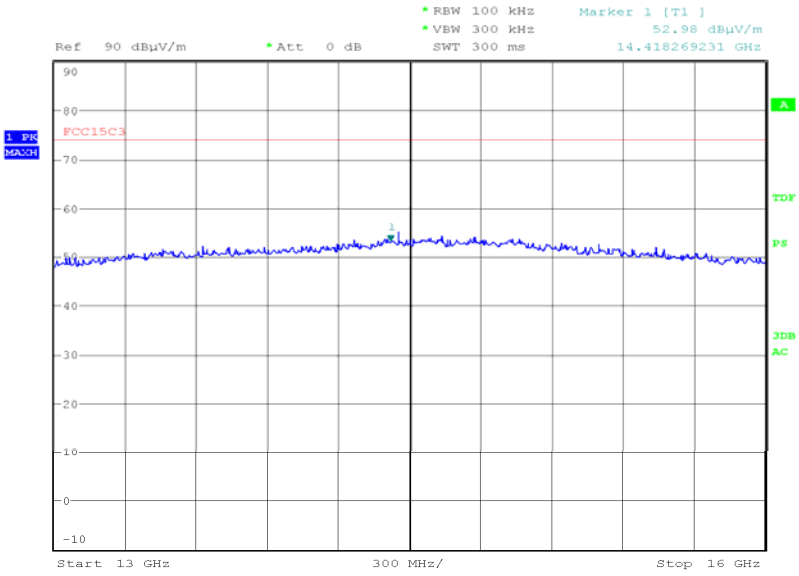

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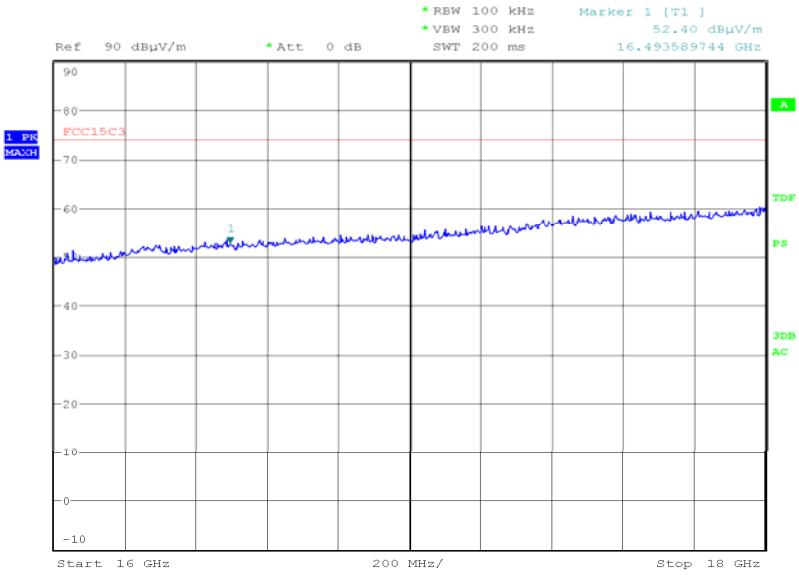
Product Service

16GHz to 18GHz

Vertical



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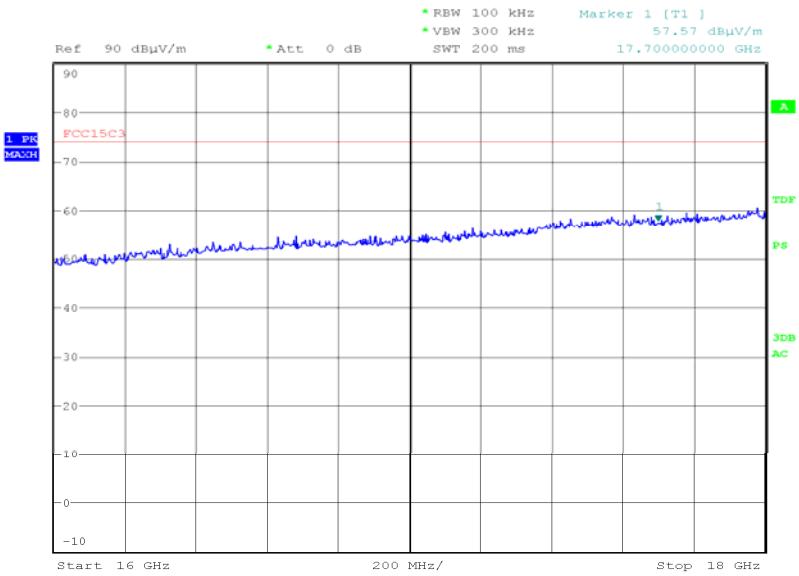

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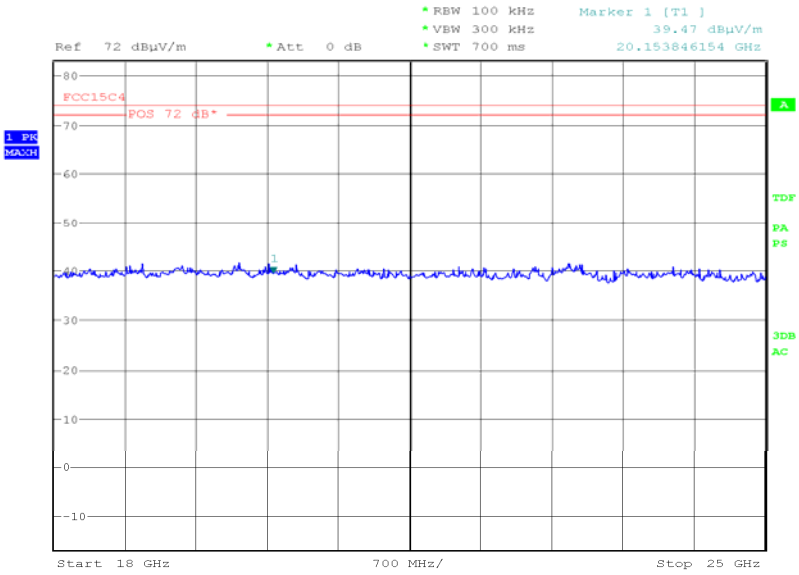
Product Service

18GHz to 25GHz

Vertical



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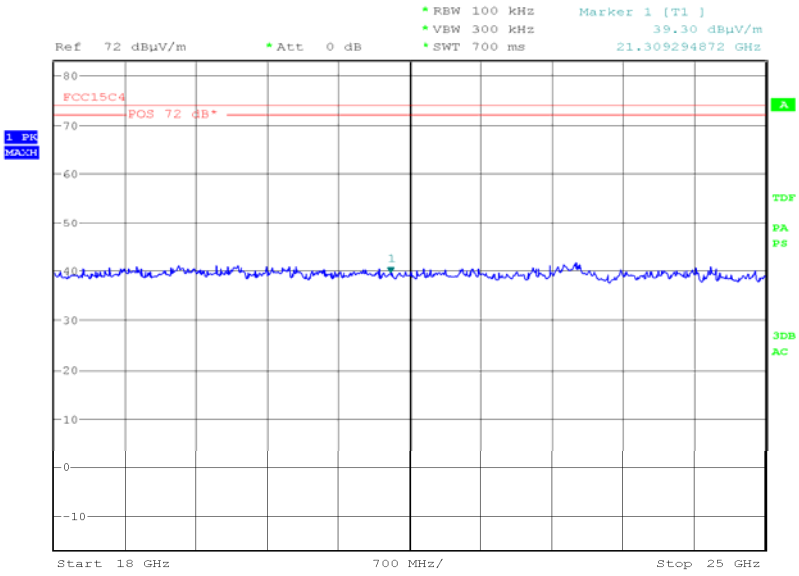

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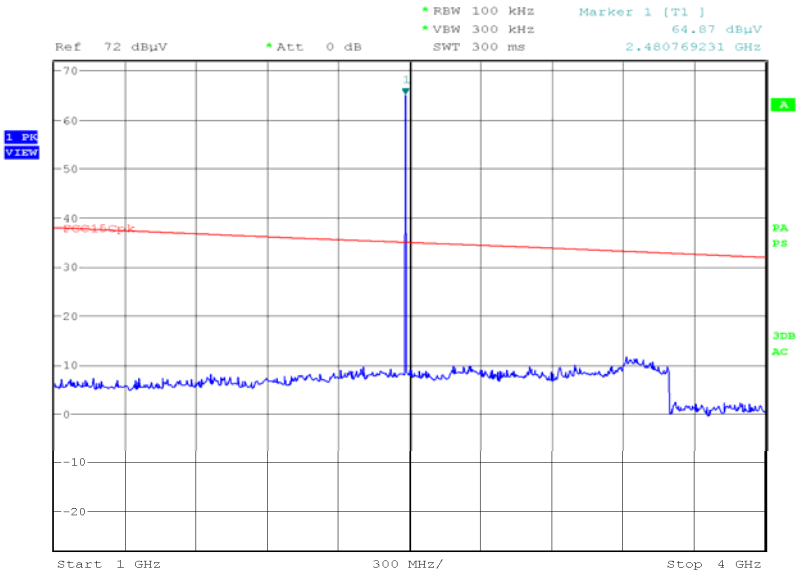
Product Service

Configuration 1 - Mode 3

1GHz to 4GHz

Vertical



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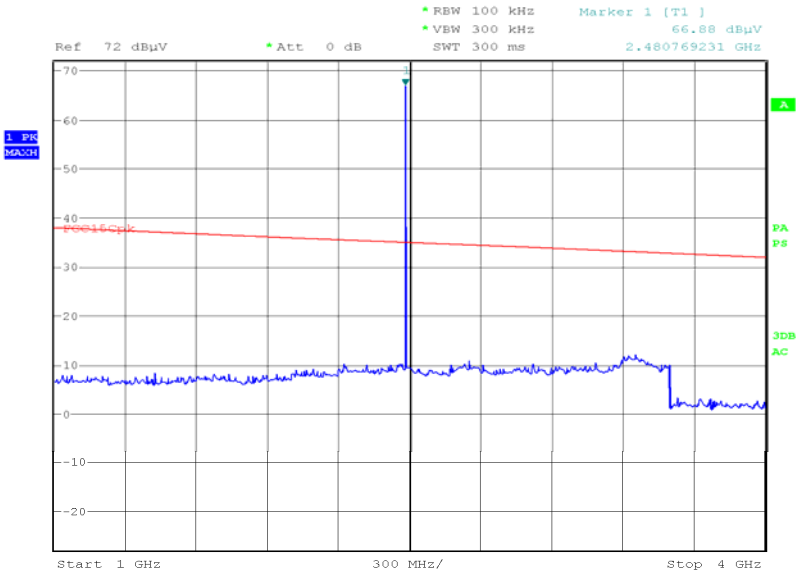
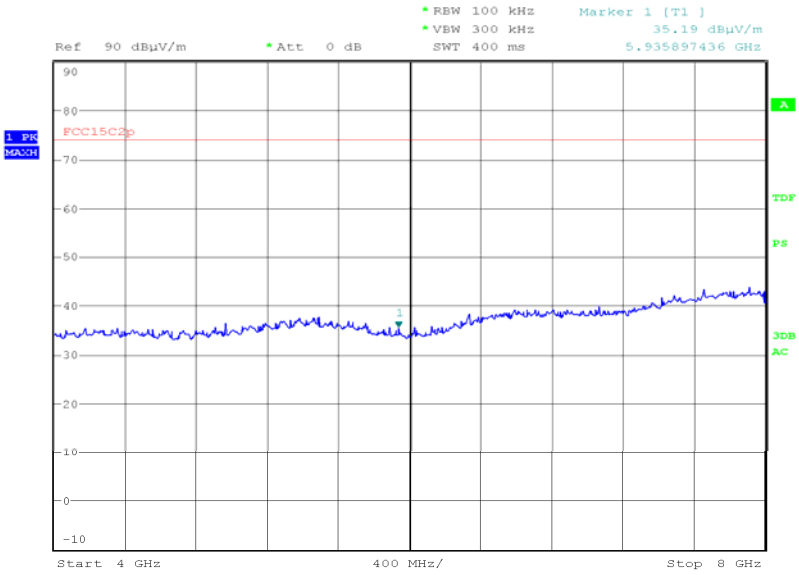


Date: 24.JAN.2009 23:48:45

Product Service

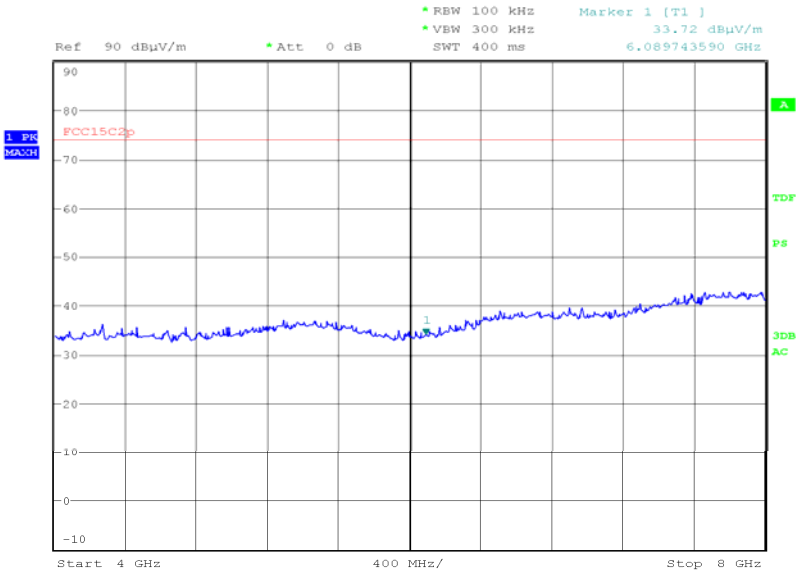
4GHz to 8GHz

Vertical



Date: 25.JAN.2009 01:02:33

Horizontal

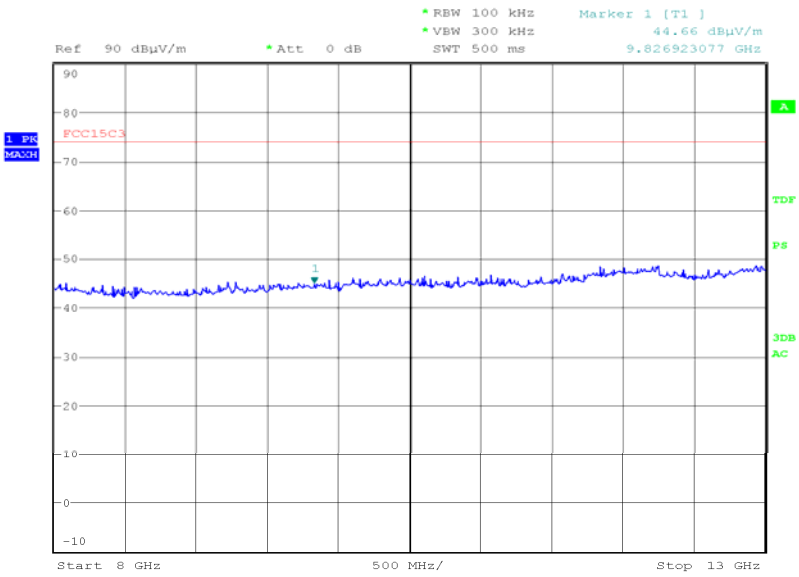


Date: 25.JAN.2009 00:57:33

Product Service

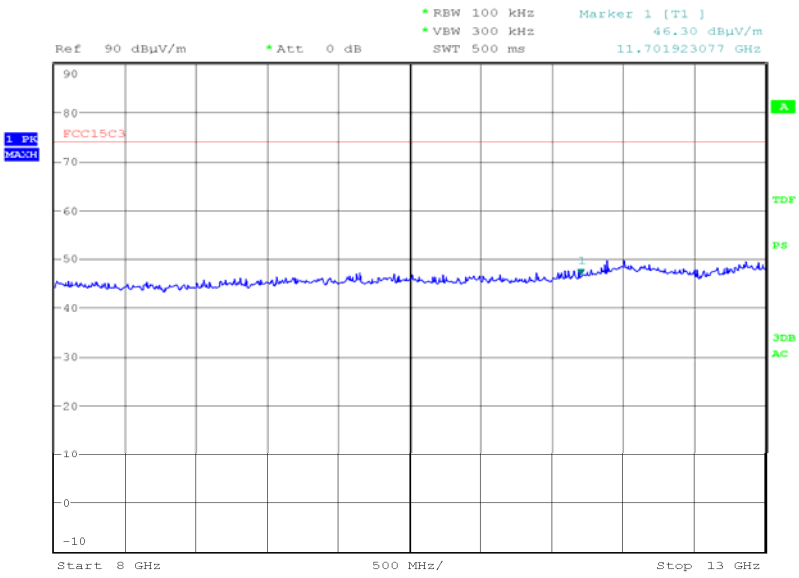
8GHz to 13GHz

Vertical



Date: 25.JAN.2009 01:10:34

Horizontal

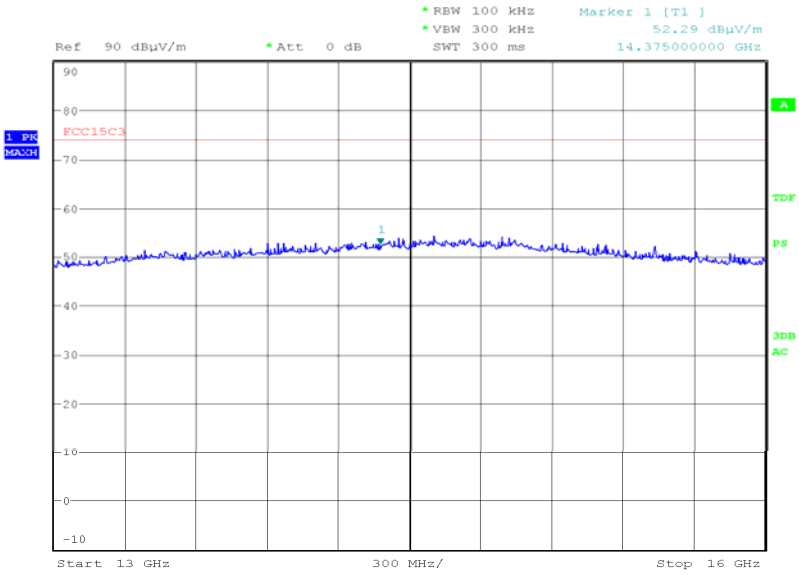


Date: 25.JAN.2009 01:29:39

Product Service

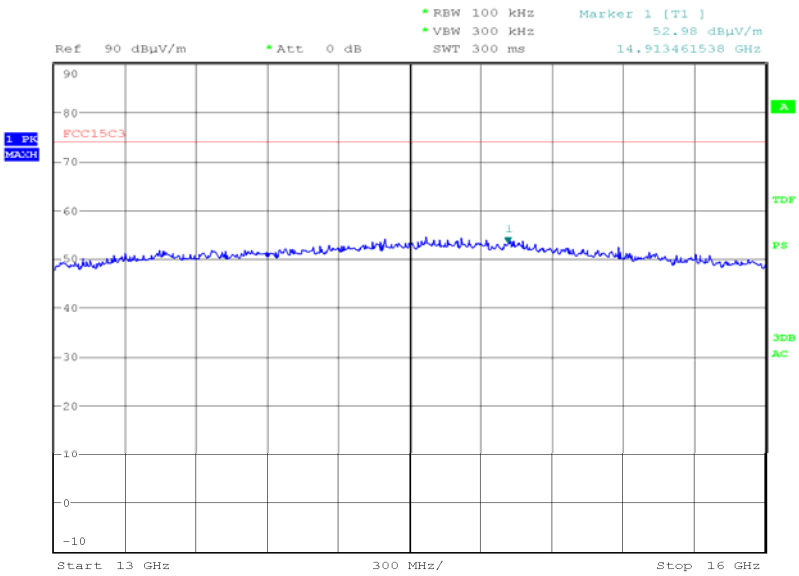
13GHz to 16GHz

Vertical



Date: 25.JAN.2009 01:13:41

Horizontal

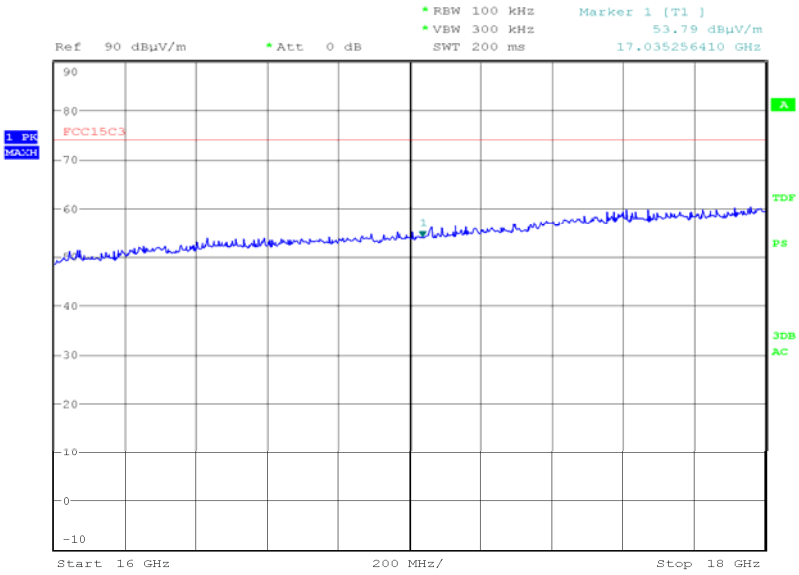


Date: 25.JAN.2009 01:23:08

Product Service

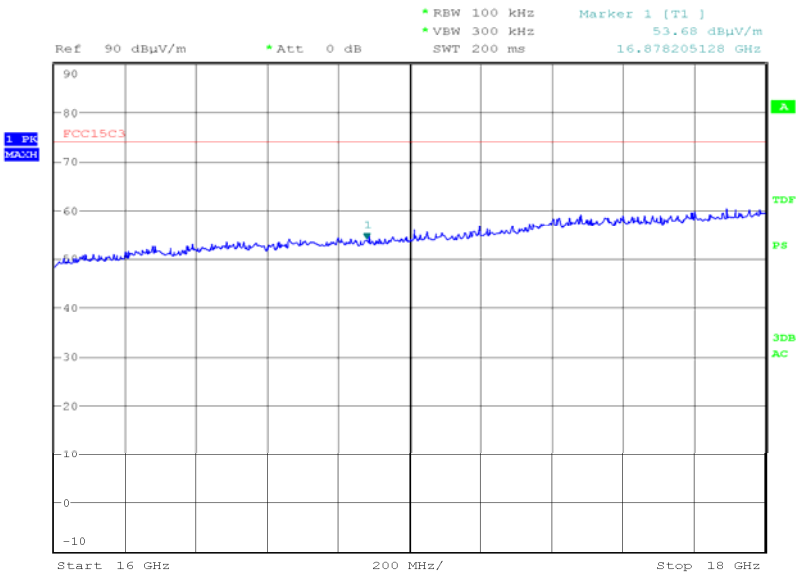
16GHz to 18GHz

Vertical



Date: 25.JAN.2009 01:17:32

Horizontal

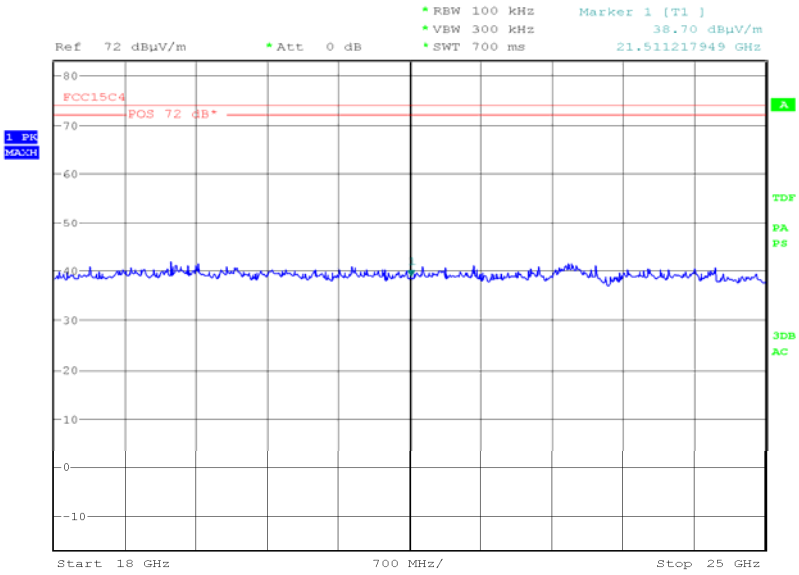


Date: 25.JAN.2009 01:20:31

Product Service

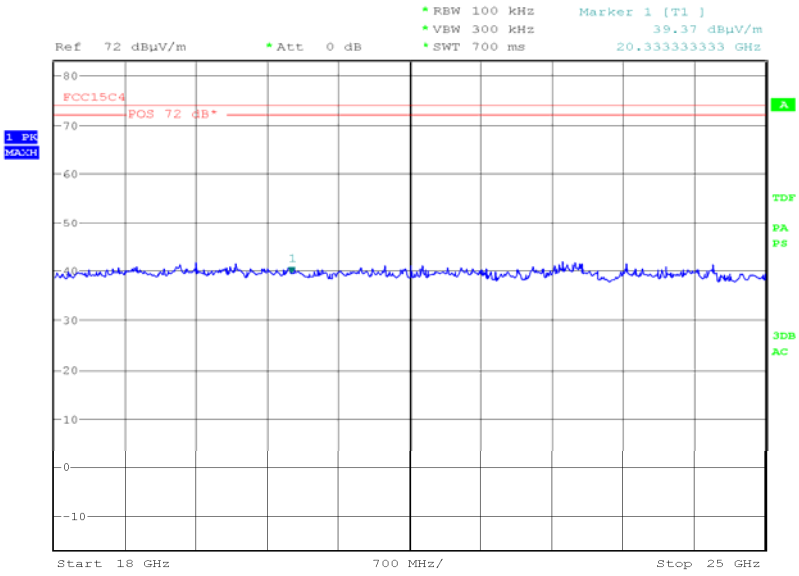
18GHz to 25GHz

Vertical



Date: 25.JAN.2009 03:55:11

Horizontal



Date: 25.JAN.2009 04:01:02

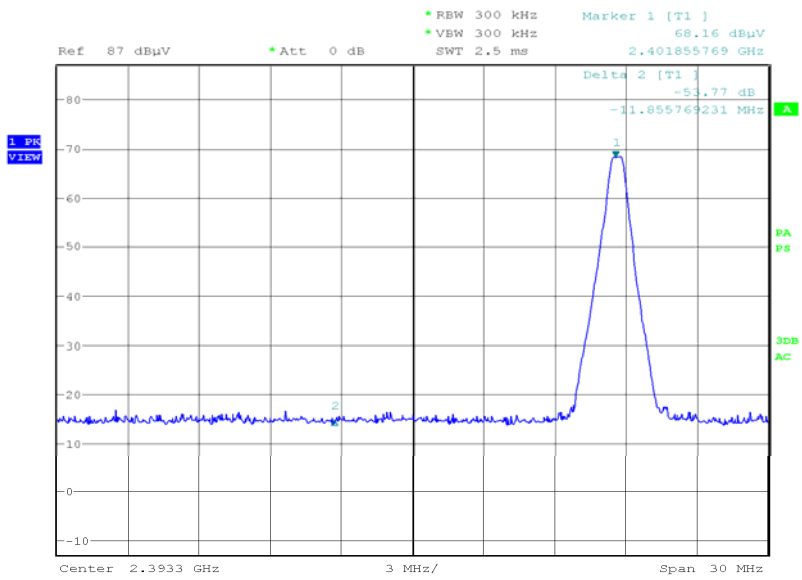
Product Service

Radiated Output Power (EIRP) Test Results

Frequency (GHz)	Result EIRP (dBm)	Limit (dBm)	Result (W)	Limit (W)
2.402	7.0	20.97	0.005	0.125
2.441	6.4	20.97	0.004	0.125
2.480	5.4	20.97	0.0035	0.125

Configuration 1 - Mode 1

Measurement at Band Edge



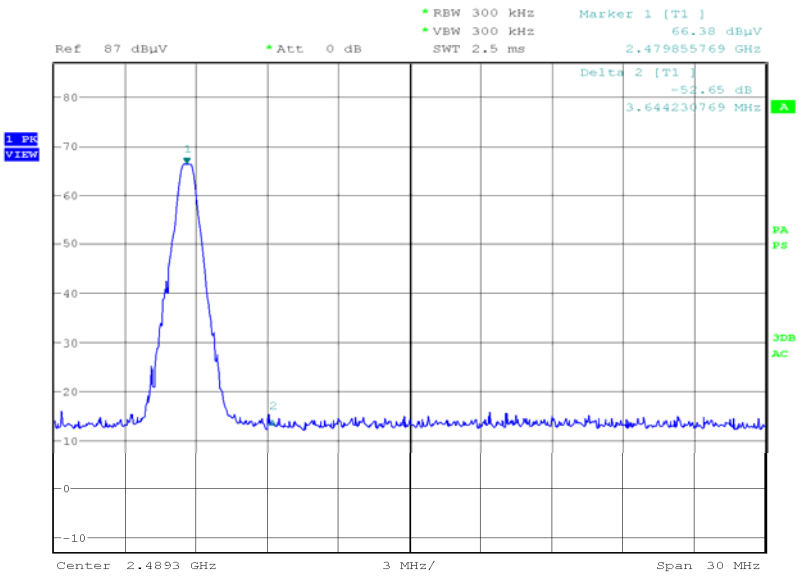
Date: 24.JAN.2009 23:21:10

Freq. GHz	Ant Pol V/H	Ant Hgt cm	EUT Arc Deg	Raw PEAK dBµV/m	Raw Average dBµV/m	Ant Factor dB	Cable Loss dB	Final Peak dBµV/m	Final Average dBµV/m
2.402	H	100	326	68.2	56.0	28.4	10.6	107.2	95.0
Final Result Delta = -53.8 dB Final Peak Result = Subtract the Delta from Peak Field Strength Final Peak Result = 107.2-53.8 = 53.4 dBuV/m (limit = 74dBuV/m) Final Average Result = Subtract the Delta from Average Field Strength Final Average Result = 95-53.8 = 41.2 dBuV/m (limit = 54dBuV/m)									

Product Service

Configuration 1 - Mode 3

Measurement at Band Edge



Date: 24.JAN.2009 23:26:20

Freq. GHz	Ant Pol V/H	Ant Hgt cm	EUT Arc Deg	Raw PEAK dBµV/m	Raw Average dBµV/m	Ant Factor dB	Cable Loss dB	Final Peak dBµV/m	Final Average dBµV/m
2.480	H	100	326	66.6	54.5	28.5	10.6	105.7	93.6

Final Result Delta = -52.65 dB
Final Peak Result = Subtract the Delta from Peak Field Strength
Final Peak Result = 105.7 – 52.65 = 53.05 dBuV/m (limit = 74dBuV/m)
To obtain Final Average Result = Subtract the Delta (Step 2) from Average Field Strength
Final Average Result = 93.6 – 52.65 = 40.95 dBuV/m (limit = 54dBuV/m)

Product Service

2.2 20dB BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.247 (a)(1)
RSS-210 Issue 7, Clause A8.1 (a)

2.2.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH93 (TUV 06)

2.2.3 Date of Test and Modification State

20 January 2009 – 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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2006.

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.

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

Configuration 1 - Mode 1
- Mode 2
- Mode 3

2.2.6 Environmental Conditions

	20 January 2009
Ambient Temperature	24°C
Relative Humidity	32%

2.2.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 for 20dB Bandwidth.

The test results are shown on the following page

Product Service

Configuration 1 - Modes 1, 2 & 3

Frequency (MHz)	Data Rate (Mbps)	20dB Bandwidth (kHz)
2402	DH1	868.58
2441	DH1	913.46
2480	DH1	865.38

Frequency (MHz)	Data Rate (Mbps)	20dB Bandwidth (kHz)
2402	DH3	919.87
2441	DH3	926.28
2480	DH3	916.66

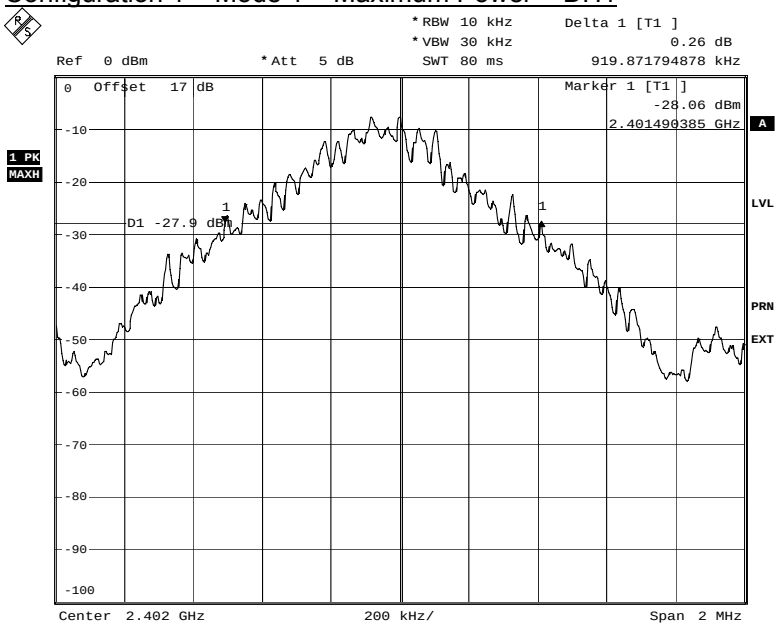
Frequency (MHz)	Data Rate (Mbps)	20dB Bandwidth (kHz)
2402	DH5	919.87
2441	DH5	926.28
2480	DH5	884.61

Frequency (MHz)	Data Rate (Mbps)	20dB Bandwidth (kHz)
2402	2DH5	1349.36
2441	2DH5	1342.95
2480	2DH5	1336.54

Frequency (MHz)	Data Rate (Mbps)	20dB Bandwidth (kHz)
2402	3DH5	1346.15
2441	3DH5	1346.15
2480	3DH5	1342.95

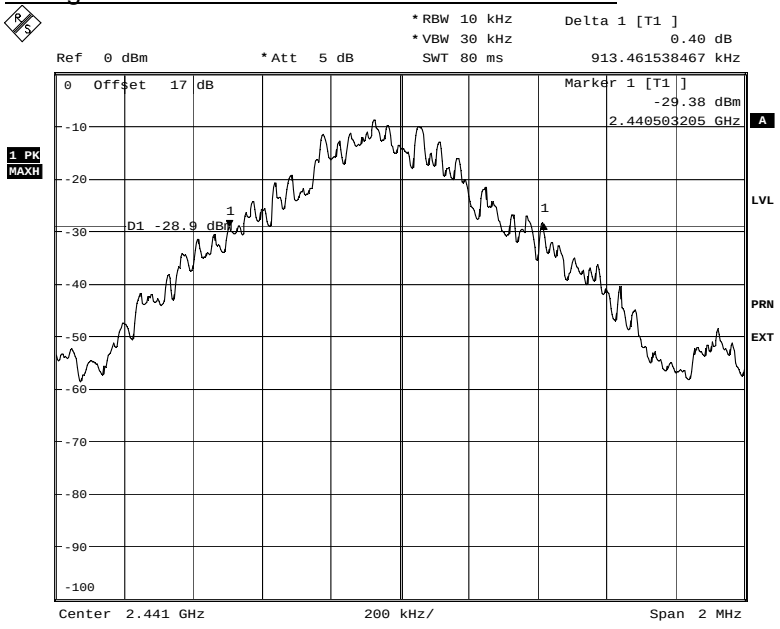
Product Service

Configuration 1 – Mode 1 – Maximum Power DH1



Date: 20.JAN.2009 16:50:24

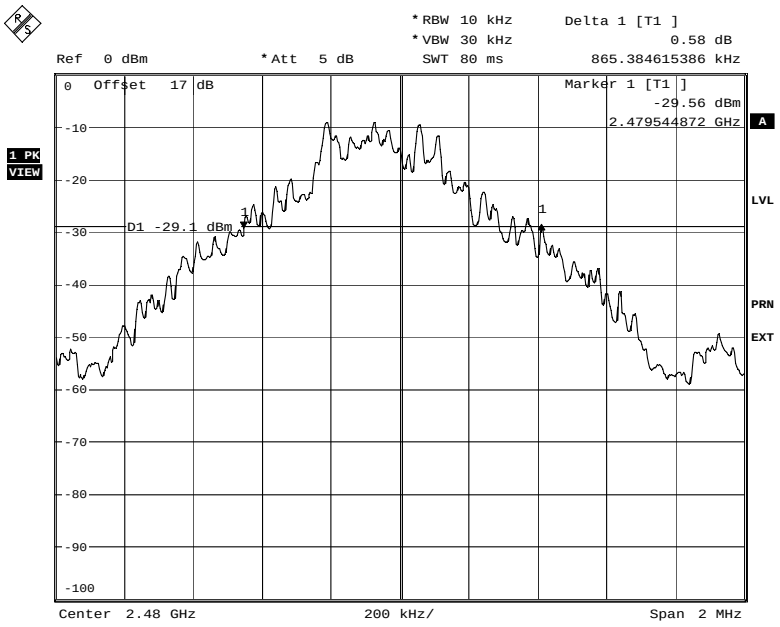
Configuration 1 – Mode 2 – Maximum Power DH1



Date: 20.JAN.2009 16:26:09

Product Service

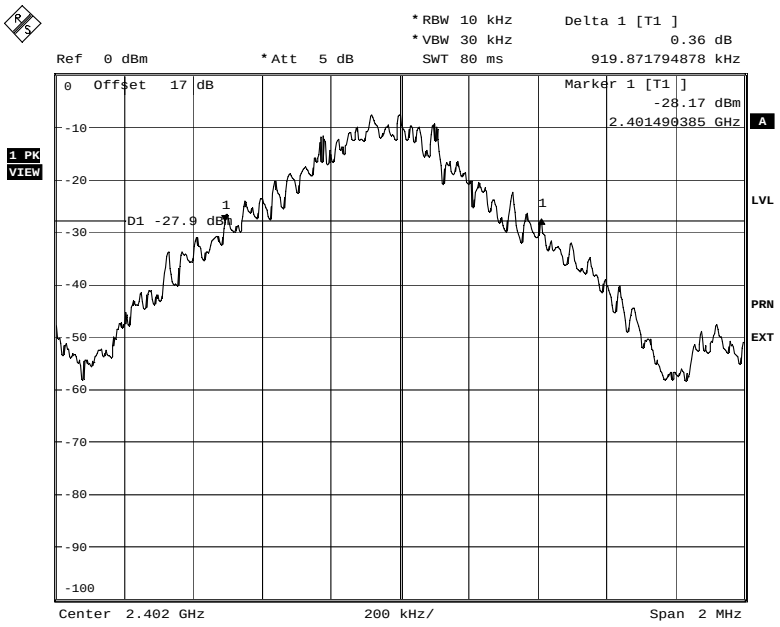
Configuration 1 – Mode 3 – Maximum Power DH1



Date: 20.JAN.2009 16:21:22

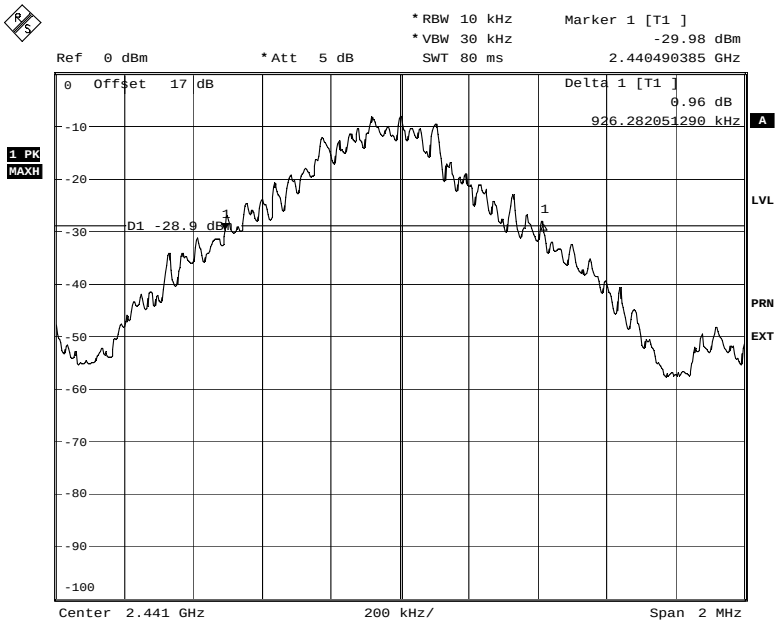
Product Service

Configuration 1 – Mode 1 – Maximum Power DH3



Date: 20.JAN.2009 16:48:40

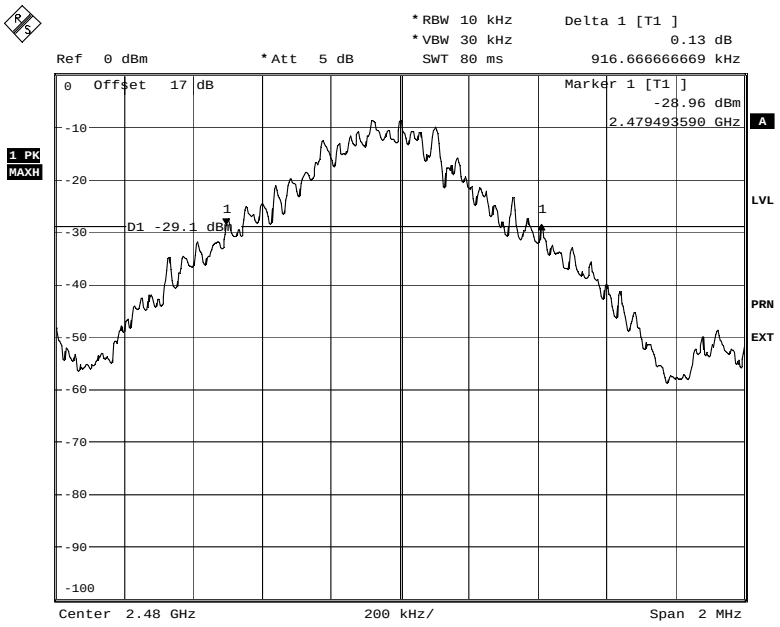
Configuration 1 – Mode 2 – Maximum Power DH3



Date: 20.JAN.2009 16:27:23

Product Service

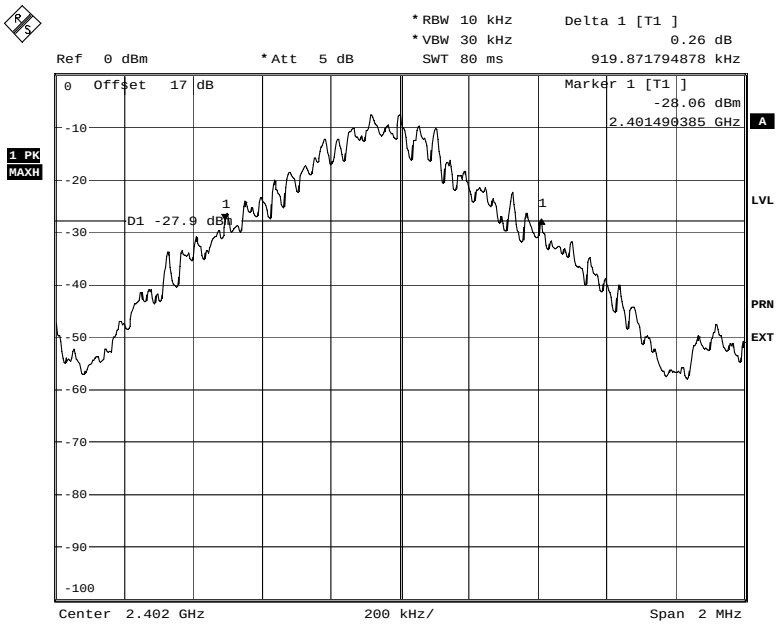
Configuration 1 – Mode 3 – Maximum Power DH3



Date: 20.JAN.2009 16:18:05

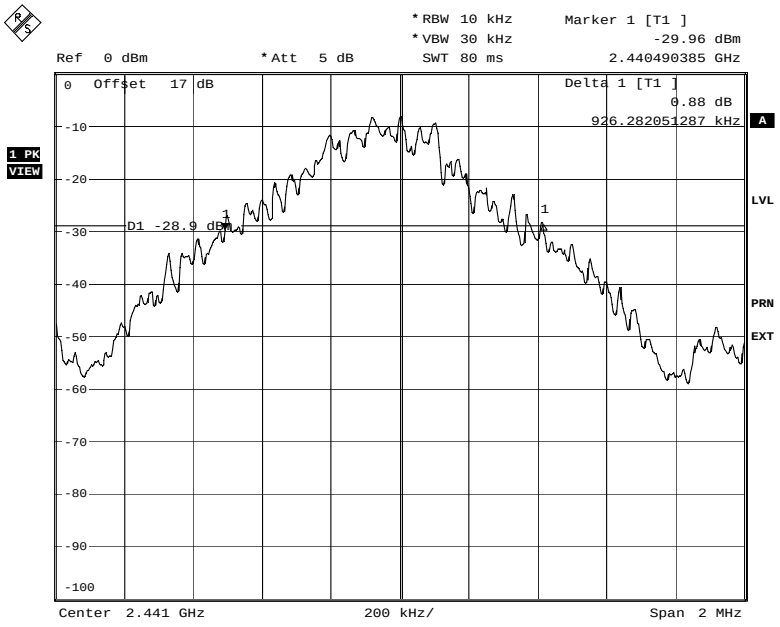
Product Service

Configuration 1 – Mode 1 – Maximum Power DH5



Date: 20.JAN.2009 16:47:22

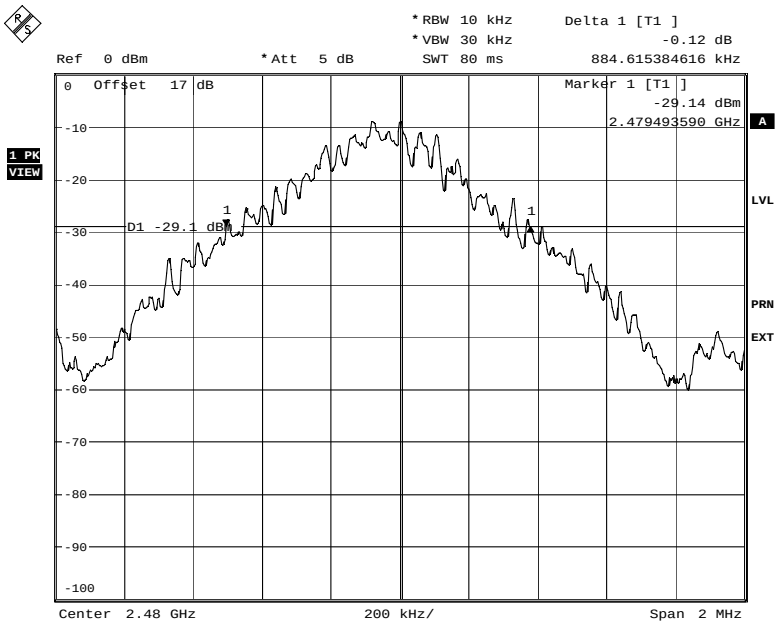
Configuration 1 – Mode 2 – Maximum Power DH5



Date: 20.JAN.2009 16:28:36

Product Service

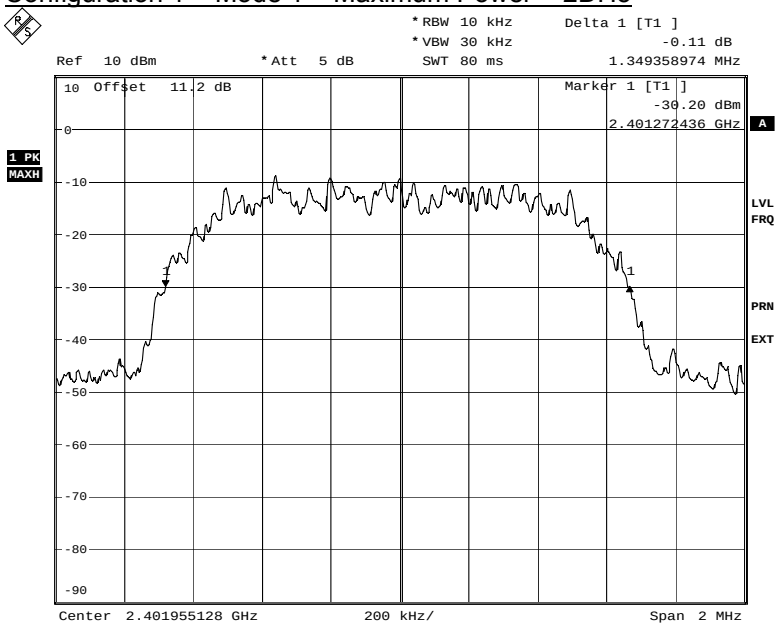
Configuration 1 – Mode 3 – Maximum Power DH5



Date: 20.JAN.2009 16:15:21

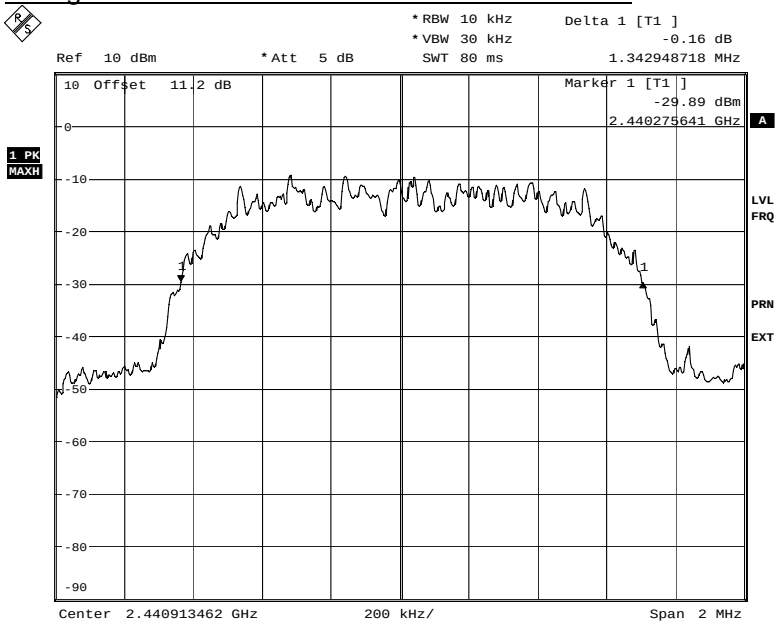
Product Service

Configuration 1 – Mode 1 – Maximum Power 2DH5



Date: 26.JAN.2009 15:28:45

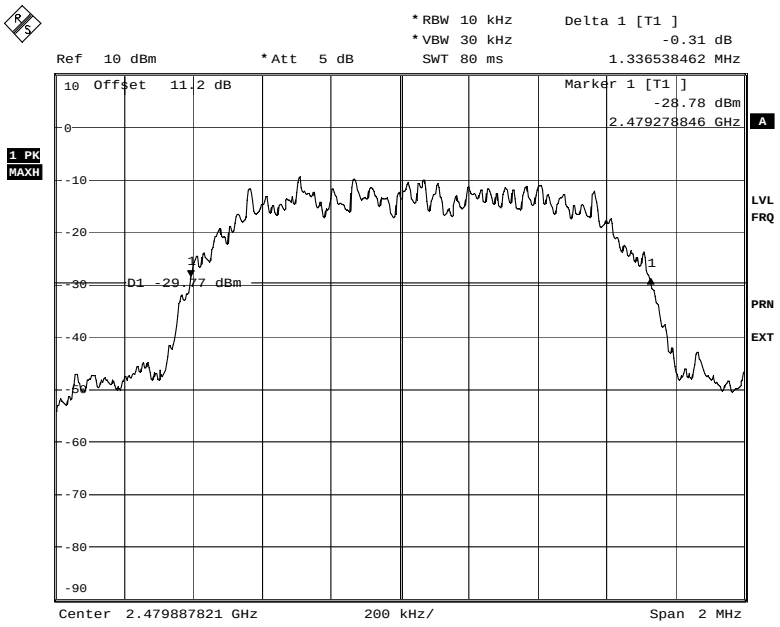
Configuration 1 – Mode 2 – Maximum Power 2DH5



Date: 26.JAN.2009 15:32:36

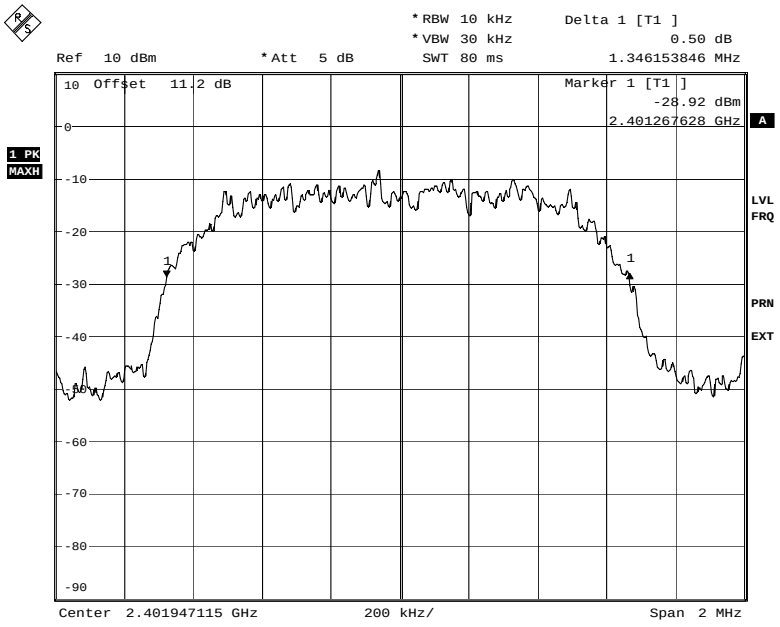
Product Service

Configuration 1 – Mode 3 – Maximum Power 2DH5



Date: 26.JAN.2009 15:37:20

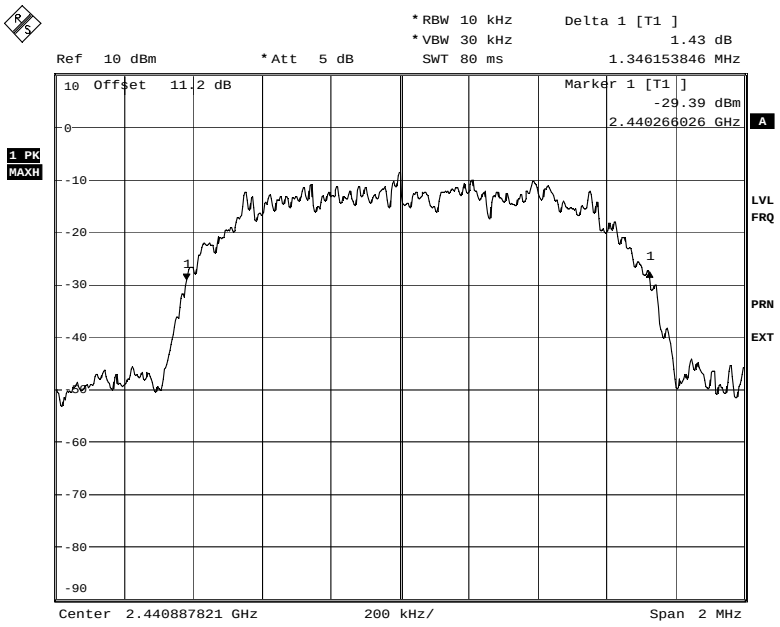
Configuration 1 – Mode 1 – Maximum Power 3DH5



Date: 26.JAN.2009 12:56:32

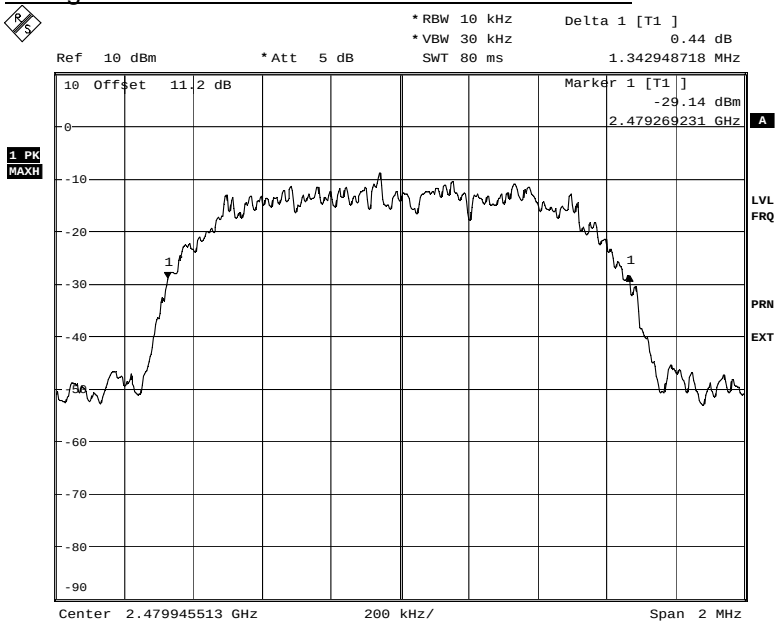
Product Service

Configuration 1 – Mode 2 – Maximum Power 3DH5



Date: 26.JAN.2009 13:03:24

Configuration 1 – Mode 3 – Maximum Power 3DH5



Date: 26.JAN.2009 13:08:14

Product Service

2.3 CHANNEL DWELL TIME (DH1)

2.3.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.247(a)(iii)
RSS-210 Issue 7, Clause A8.1 (d)

2.3.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH93 (TUV 06)

2.3.3 Date of Test and Modification State

21 January 2009 – 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 CFR 47 Part 15: 2006.

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

Configuration 1 - Mode 2

2.3.6 Environmental Conditions

	21 January 2009
Ambient Temperature	22.2°C
Relative Humidity	38.0%

2.3.7 Test Procedure

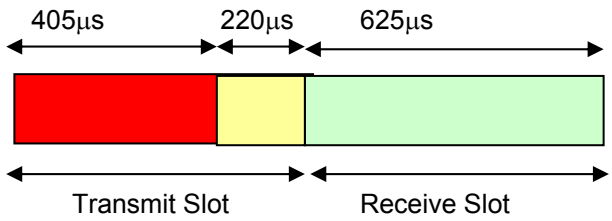
Procedure: Test Performed in accordance with 15.247.

The Bluetooth system hops at a rate of 1600 times per second. Thus, this equates to 1600 timeslots in 1 second. The DH1 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.



DH1 Timeslot Arrangement Showing One Complete Transmit and Receive Cycle

So, with 800 Tx and 800 Rx timelsots, the transmitter is on for 800 x 483µs = 0.386 seconds.

$$\therefore \quad \frac{\text{Total Tx Time On}}{\text{No of Channels}} = \frac{0.386}{79} = 4.89\text{ms}$$

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

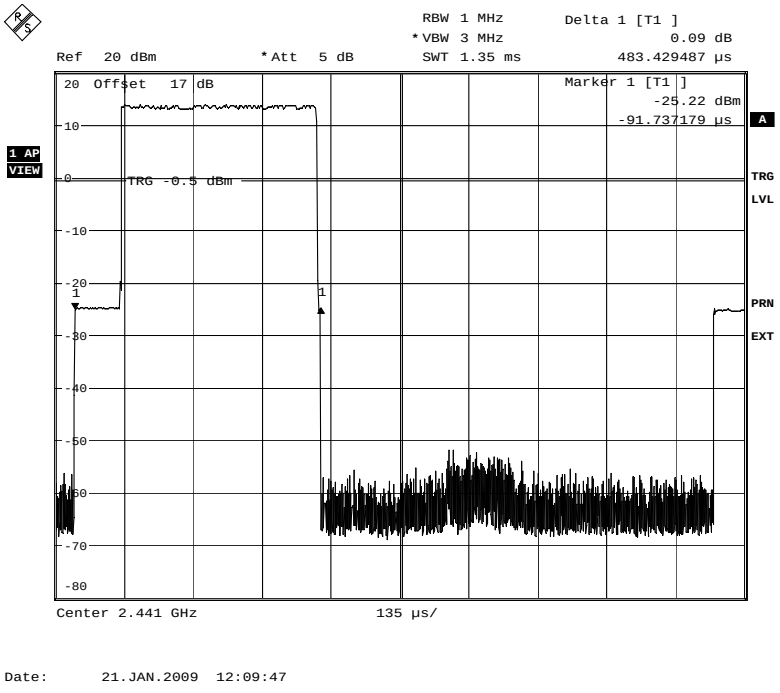
31.6 x 4.89ms = 0.1545 seconds

2.3.8 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 Channel Dwell Time (DH1).

Configuration 1 – Mode 2

Maximum Power DH1



Product Service

2.4 CHANNEL DWELL TIME (DH3)

2.4.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.247(a)(iii)
RSS-210 Issue 7, Clause A8.1 (d)

2.4.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH93 (TUV 06)

2.4.3 Date of Test and Modification State

21 January 2009 – 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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2006.

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

Configuration 1 - Mode 2

2.4.6 Environmental Conditions

	21 January 2009
Ambient Temperature	22.2°C
Relative Humidity	38.0%

2.4.7 Test Procedure

Test Performed in accordance with 15.247.

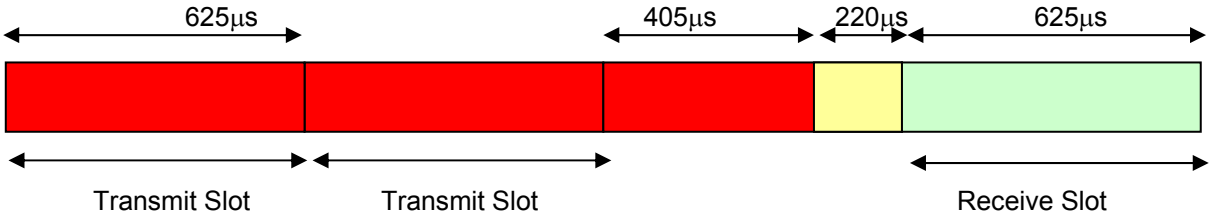
The Bluetooth system hops at a rate of 1600 times per second. Thus, this equates to 1600 timeslots in 1 second. With data rate DH3, the data payload is higher and can use up to 3 timeslots. When more than one timeslot is used, the frequency does not hop and transmission is continuous on all 3 slots, (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 DH3 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 Timeslot = $\frac{1}{1600}$ = 625μs

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.



DH3 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) = 1.742ms

So:

800 x 629.5μs = 0.503 seconds
400 x 483μs = 0.193 seconds

Thus: 0.503 + 0.193 = 0.696 seconds

∴ $\frac{\text{Total Tx Time On}}{\text{No Of Channels}} = \frac{0.662}{79}$ = 8.81ms

So, in 31.6 seconds, the transmitter dwell time per channel is:
31.6 x 8.379ms = 0.2784 seconds

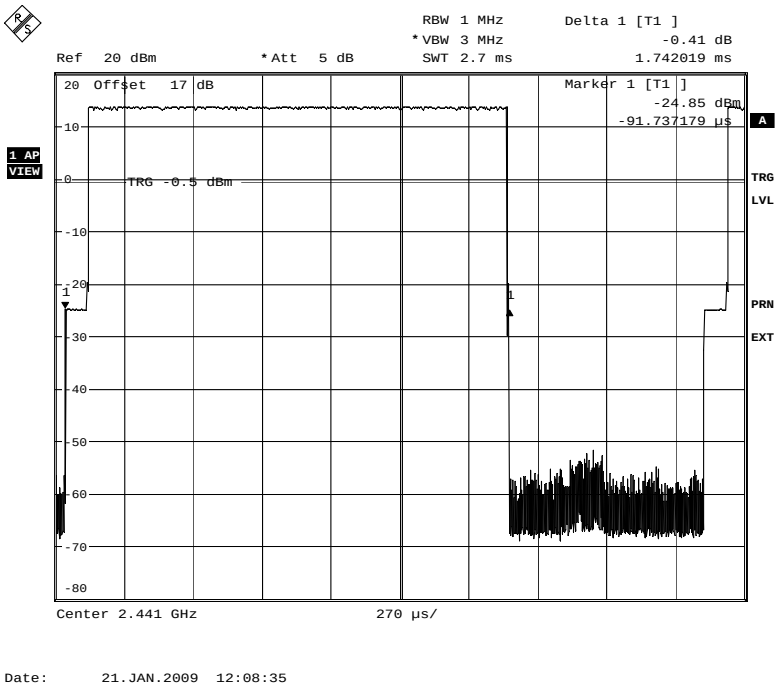
Product Service

2.4.8 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 Channel Dwell Time (DH3).

Configuration 1 – Mode 2

Maximum Power DH3



Product Service

2.5 CHANNEL DWELL TIME (DH5)

2.5.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.247(a)(iii)
RSS-210 Issue 7, Clause A8.1 (d)

2.5.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH93 (TUV 06)

2.5.3 Date of Test and Modification State

20 January 2009 – 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 CFR 47 Part 15: 2006.

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

Configuration 1 - Mode 2

2.5.6 Environmental Conditions

	20 January 2009
Ambient Temperature	24°C
Relative Humidity	32%

2.5.7 Test Procedure

Test Performed in accordance with 15.247.

The Bluetooth system hops at a rate of 1600 times per second. Thus, this equates to 1600 timeslots in 1 second. With data rate DH5, 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.

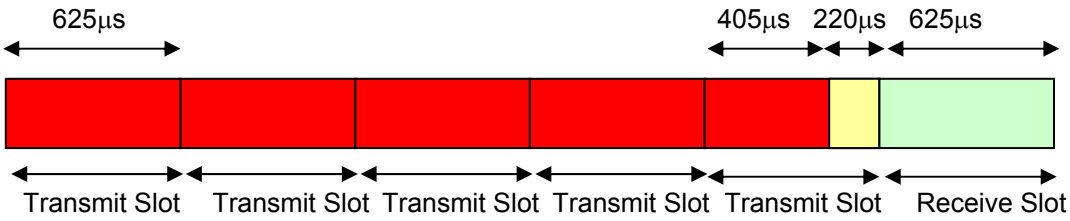
Product Service

The DH5 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 (4 x 625µs) + (1 x 405µs) = 3.002ms

So:

1066.7 x 629.5µs = 0.671 seconds
266.7 x 483µs = 0.128 seconds

Thus: 0.671 + 0.128 = 0.799 seconds

$$\therefore \frac{\text{Total Tx Time On}}{\text{No Of Channels}} = \frac{0.799}{79} = 10.114\text{ms}$$

So, in 31.6 seconds, the transmitter dwell time per channel is:
31.6 x 10.114ms = 0.319 seconds

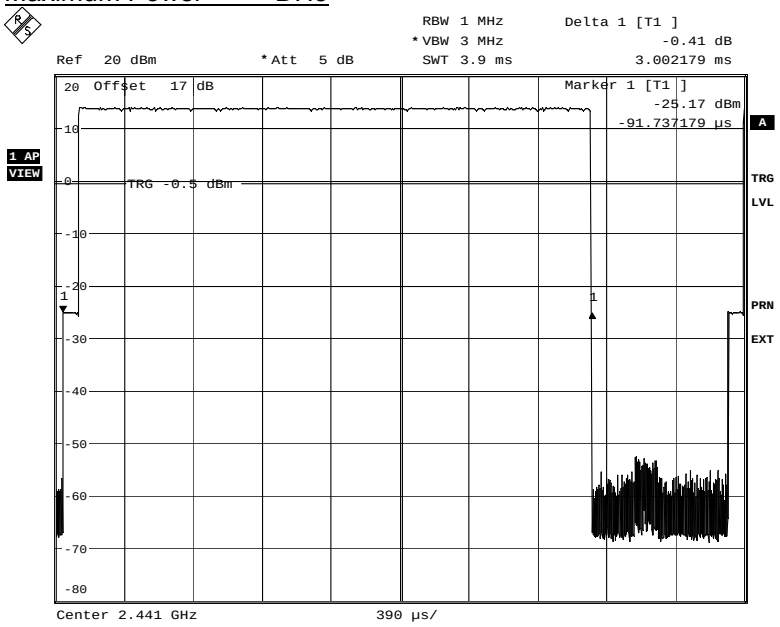
Product Service

2.5.8 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 Channel Dwell Time (DH5).

Configuration 1 – Mode 2

Maximum Power DH5



Date: 21.JAN.2009 12:10:57

Product Service

2.6 CHANNEL SEPARATION

2.6.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.247(a)(1)
RSS-210 Issue 7, Clause A8.1 (b)

2.6.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH93 (TUV 06)

2.6.3 Date of Test and Modification State

20 January 2009 – 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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2006.

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

Configuration 1 - Mode 4

2.6.6 Environmental Conditions

	20 January 2009
Ambient Temperature	24°C
Relative Humidity	32%

2.6.7 Test Procedure

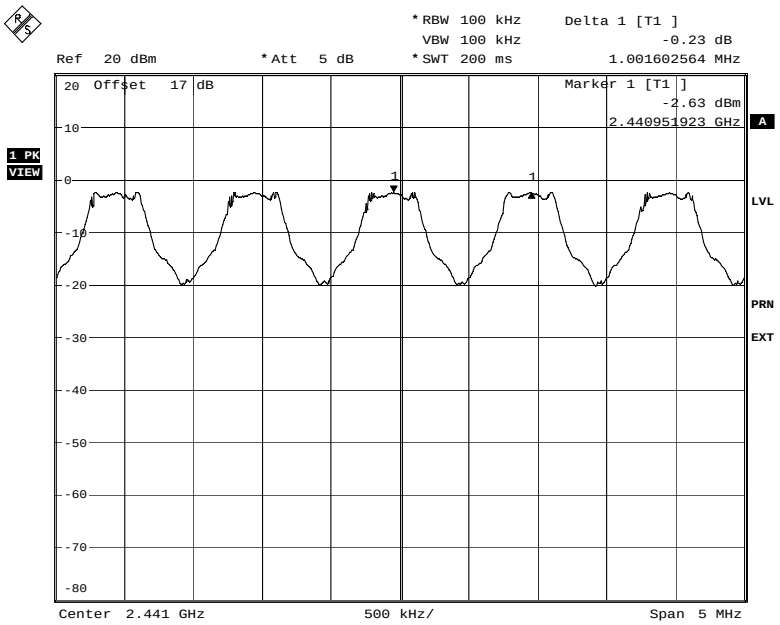
The EUT was transmitted at maximum power into a Spectrum Analyser. The trace was set to Max Hold to store several adjacent channels on screen. Using the marker delta function, the markers were positioned to show the separation between adjacent channels.

2.6.8 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 for Channel Separation.

The test results are shown on the follow page

Product Service



Date: 20.JAN.2009 17:23:51

The system channel separation is specified as being 1MHz. The measured channel separation from the plot above is: 1002.905kHz.

Limit	>25kHz

Product Service

2.7 NUMBER OF HOPPING CHANNELS

2.7.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.247(a)(1)
RSS-210 Issue 7, Clause A8.1 (d)

2.7.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH93 (TUV 06)

2.7.3 Date of Test and Modification State

20 January 2009 – 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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2006.

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

Configuration 1 - Mode 4

2.7.6 Environmental Conditions

	20 January 2009
Ambient Temperature	24°C
Relative Humidity	32%

2.7.7 Test Procedure

Test Performed in accordance with 15.247.

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.

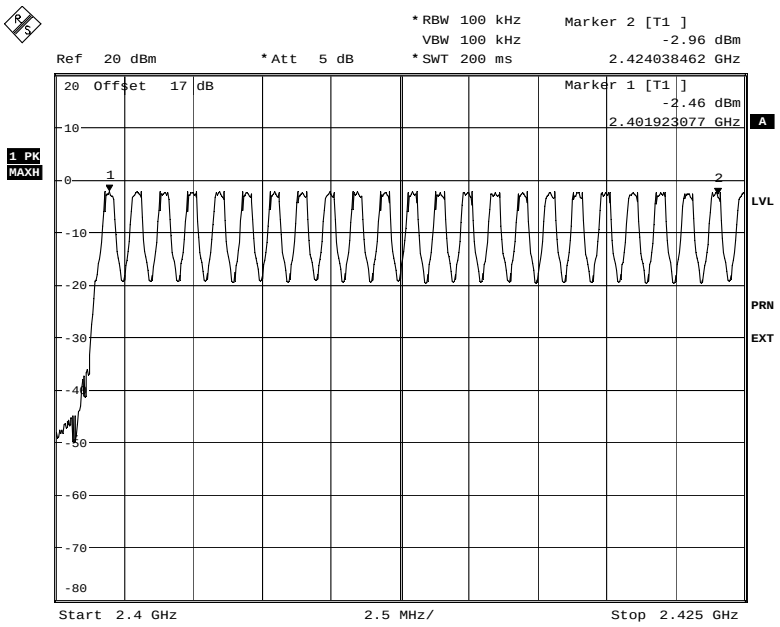
2.7.8 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 for Number of Hopping Channels.

The test results are shown on the following page

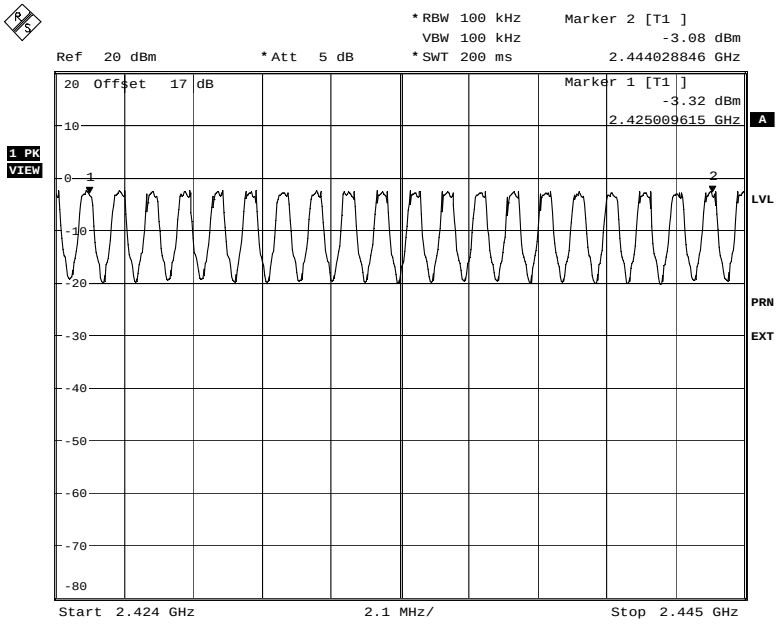
Product Service

Trace Showing Channels 1 - 23



Date: 20.JAN.2009 17:42:11

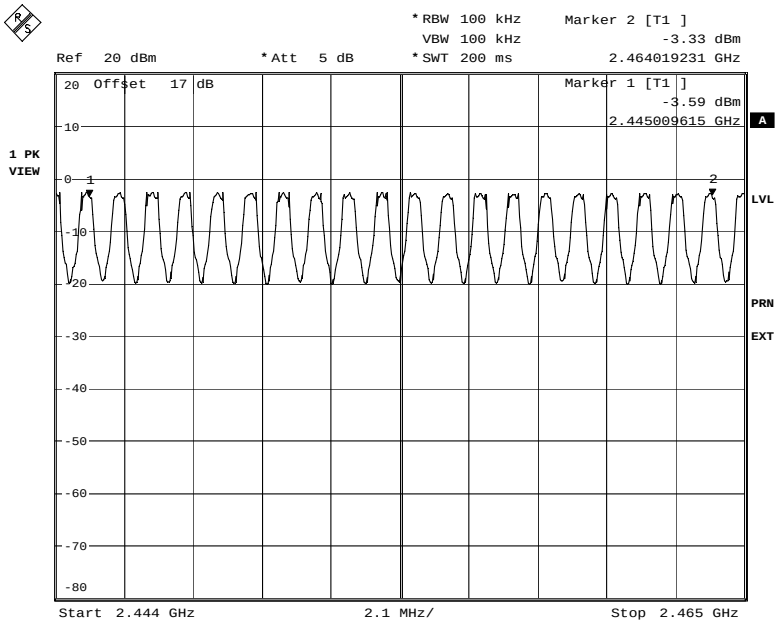
Trace Showing Channels 24 - 43



Date: 20.JAN.2009 17:46:59

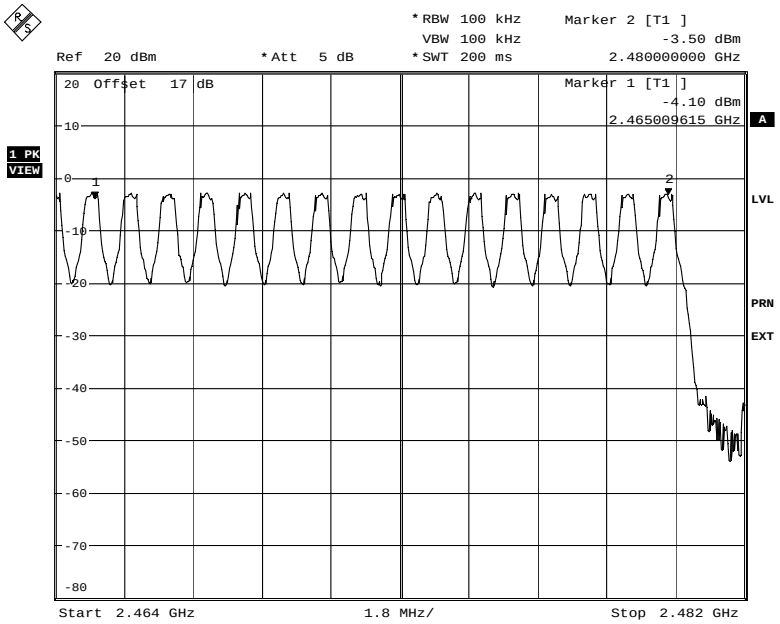
Product Service

Trace Showing Channels 44 - 63



Date: 20.JAN.2009 17:57:18

Trace Showing Channels 64 - 79



Date: 20.JAN.2009 18:02:46

Limit	≥75 channels

Product Service

2.8 SPURIOUS CONDUCTED EMISSIONS

2.8.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.247(c)
RSS-210 Issue 7, Clause A8.5

2.8.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH93 (TUV 06)

2.8.3 Date of Test and Modification State

23 January 2009 – 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 Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2006.

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

Configuration 1 - Mode 1
- Mode 2
- Mode 3
- Mode 4

2.8.6 Environmental Conditions

	23 January 2009
Ambient Temperature	22.2°C
Relative Humidity	38.0%

2.8.7 Test Procedure

In accordance with Part 15.247(c), the Spurious Conducted Emissions from the antenna terminal were measured. The transmitter output power was attenuated using an RF splitter, the frequency spectrum investigated from 9kHz 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 100kHz 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 100kHz. This level was used to determine the limit line as displayed on the plots of -20dBc with the most stringent limit used for all channels and modulations.

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

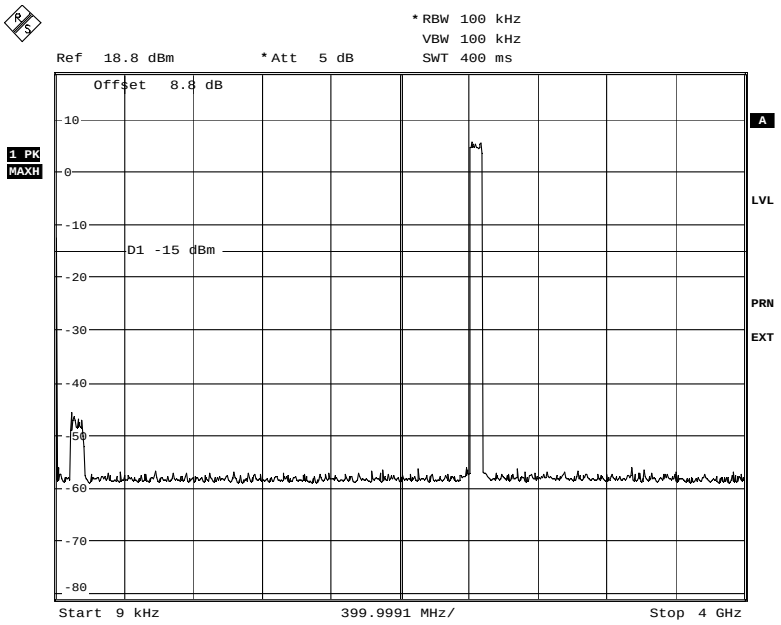
2.8.8 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 for Spurious Conducted Emissions.

The test results are shown below.

Frequency Hopping On All Channels – Maximum Power (DH1) Configuration 1 - Mode 4

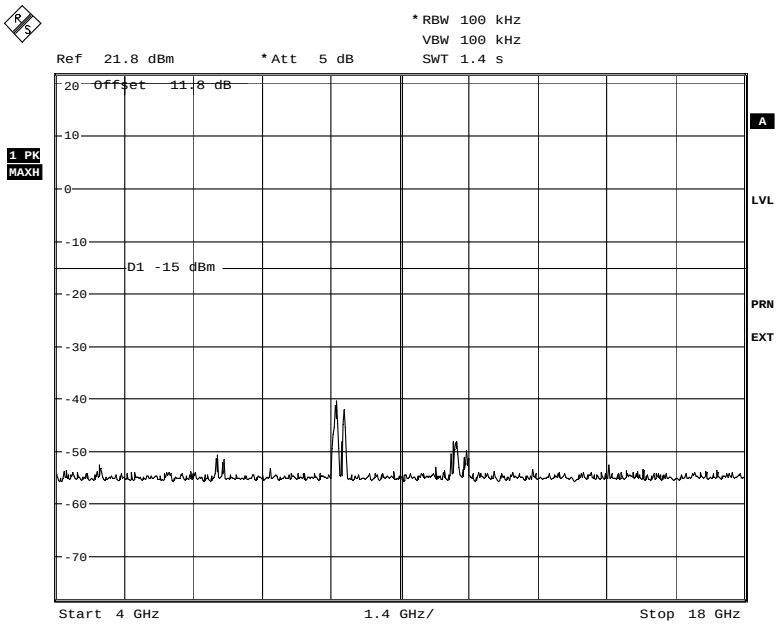
9kHz – 4GHz



Date: 23.JAN.2009 12:13:10

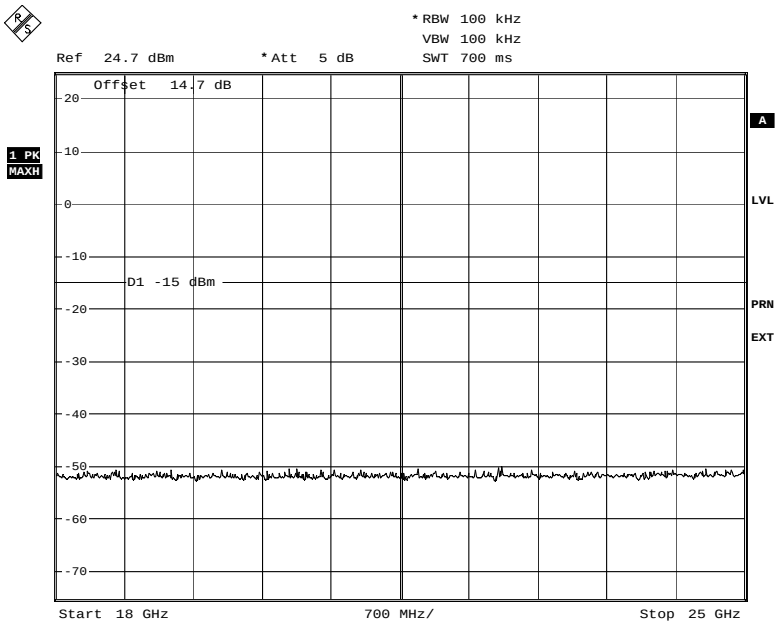
Product Service

4GHz – 18GHz



Date: 23.JAN.2009 12:29:59

18GHz – 25GHz

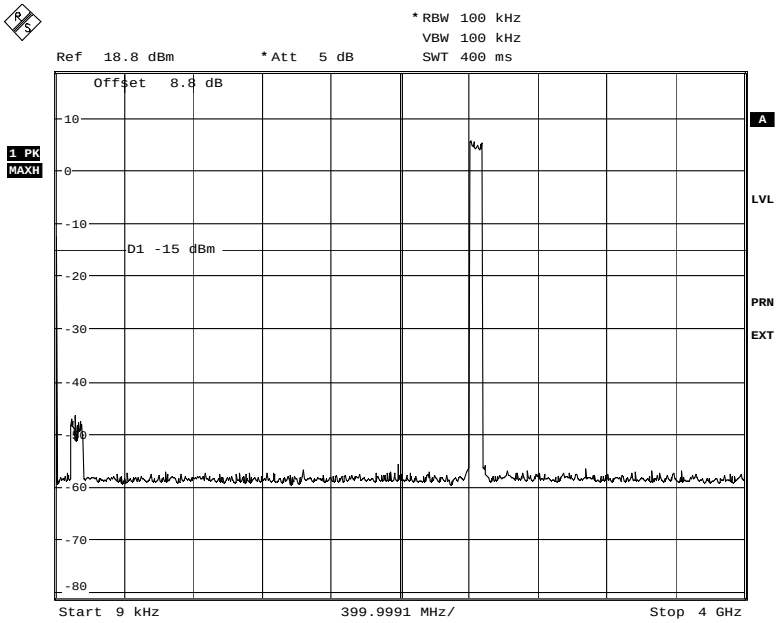


Date: 23.JAN.2009 13:07:01

Product Service

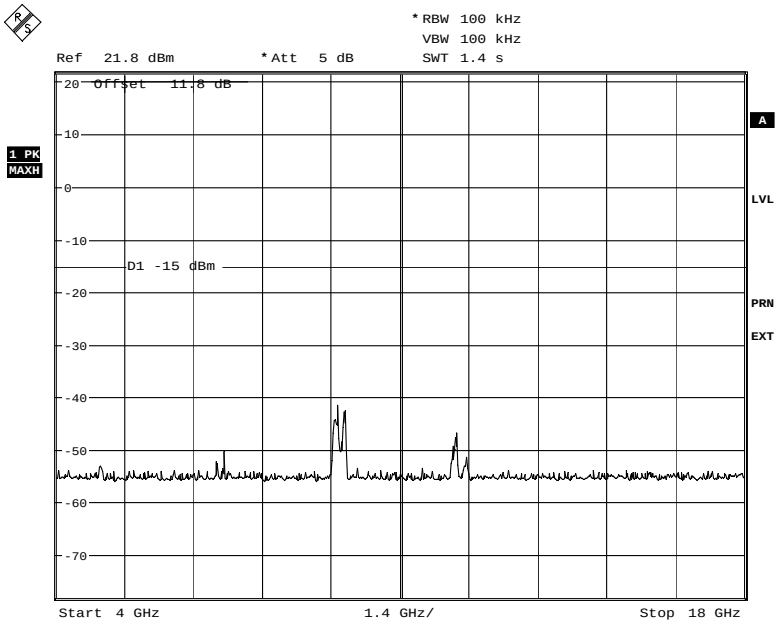
Frequency Hopping On All Channels – Maximum Power (DH3) Configuration 1 - Mode 4

9kHz – 4GHz



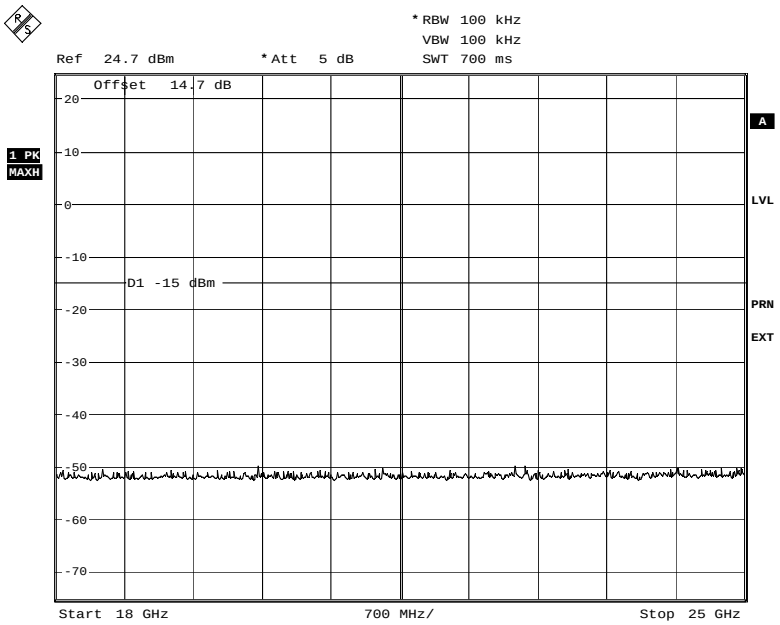
Date: 23.JAN.2009 12:07:18

4GHz – 18GHz



Date: 23.JAN.2009 12:34:47

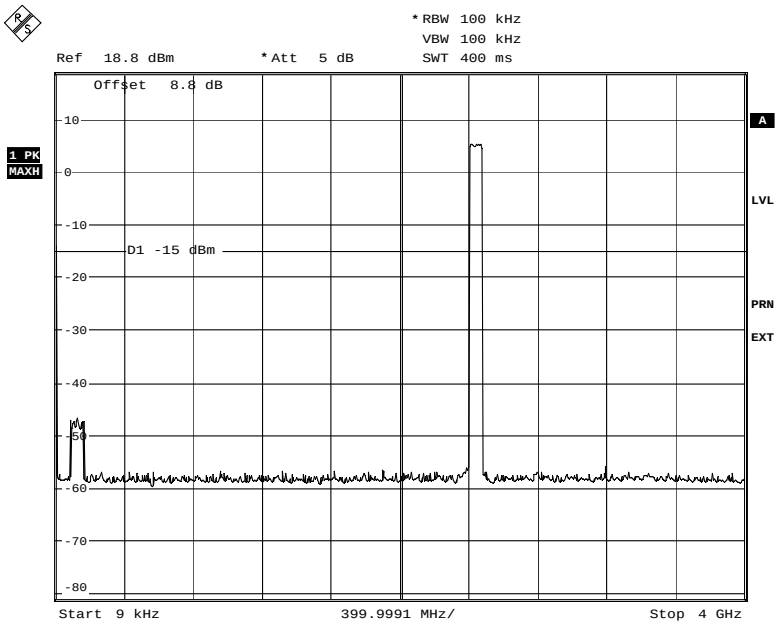
18GHz – 25GHz



Date: 23.JAN.2009 12:59:23

Frequency Hopping On All Channels – Maximum Power (DH5) Configuration 1 - Mode 4

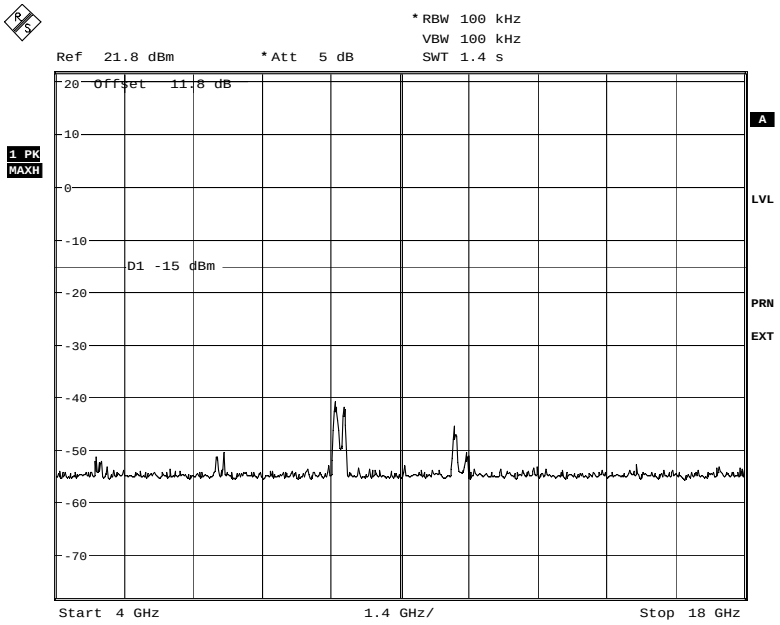
9kHz – 4GHz



Date: 23.JAN.2009 12:10:10

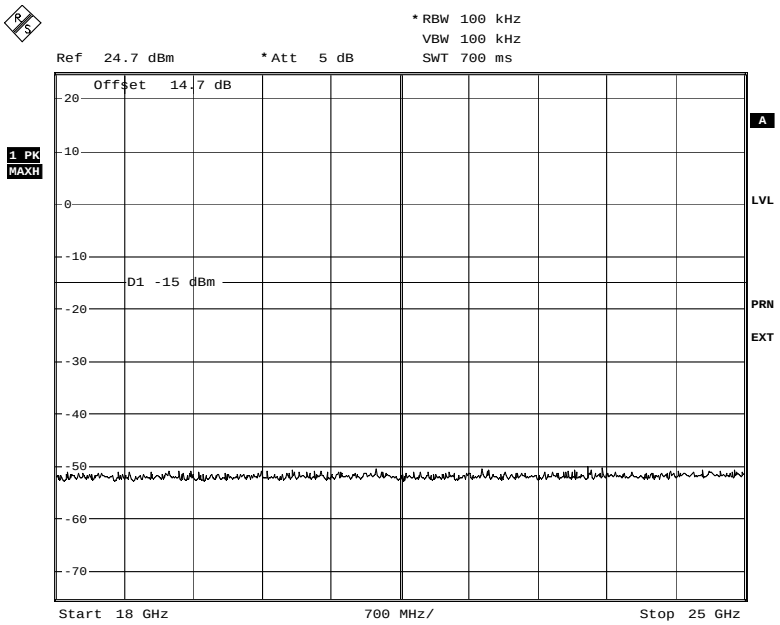
Product Service

4GHz – 18GHz



Date: 23.JAN.2009 12:43:53

18GHz – 25GHz

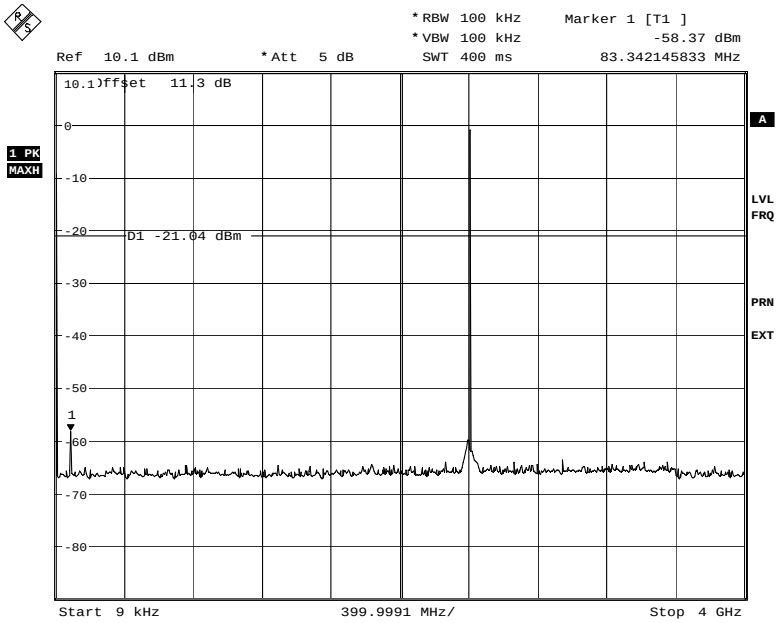


Date: 23.JAN.2009 12:50:46

Product Service

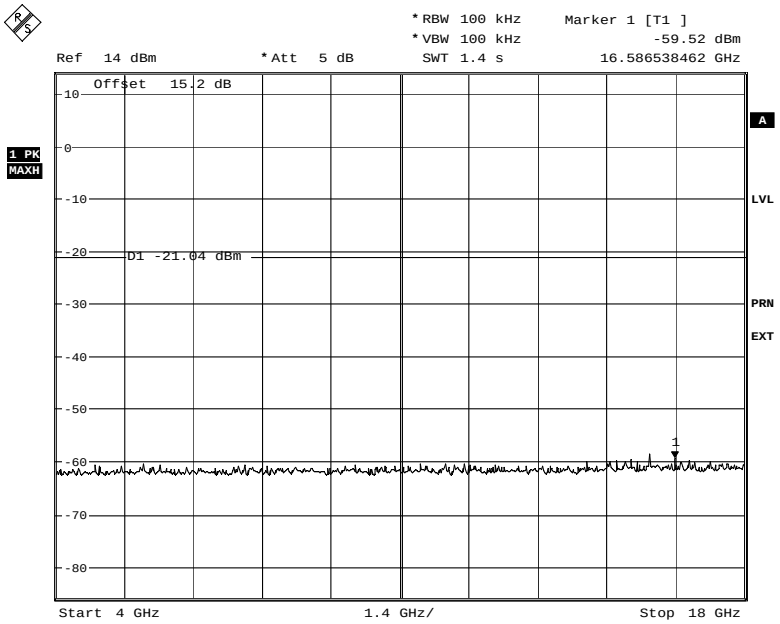
Frequency Hopping On All Channels – Maximum Power (2DH5) Configuration 1 - Mode 1

9kHz – 4GHz



Date: 26.JAN.2009 15:04:08

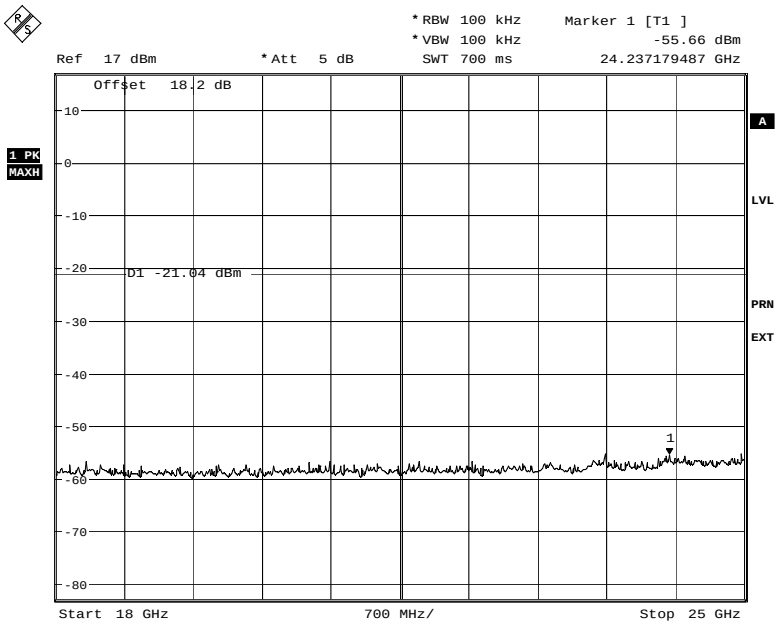
4GHz – 18GHz



Date: 26.JAN.2009 16:20:33

Product Service

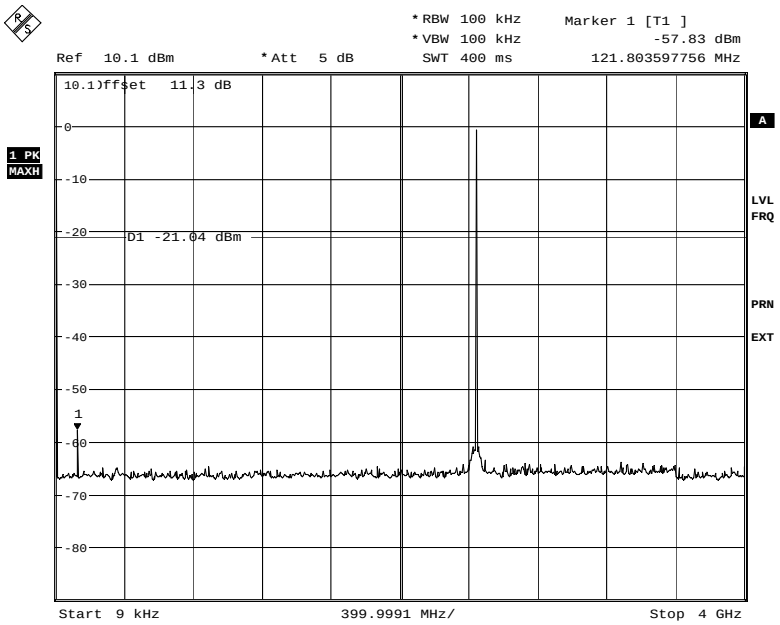
18GHz – 25GHz



Date: 26.JAN.2009 16:45:00

Frequency Hopping On All Channels – Maximum Power (2DH5) Configuration 1 - Mode 2

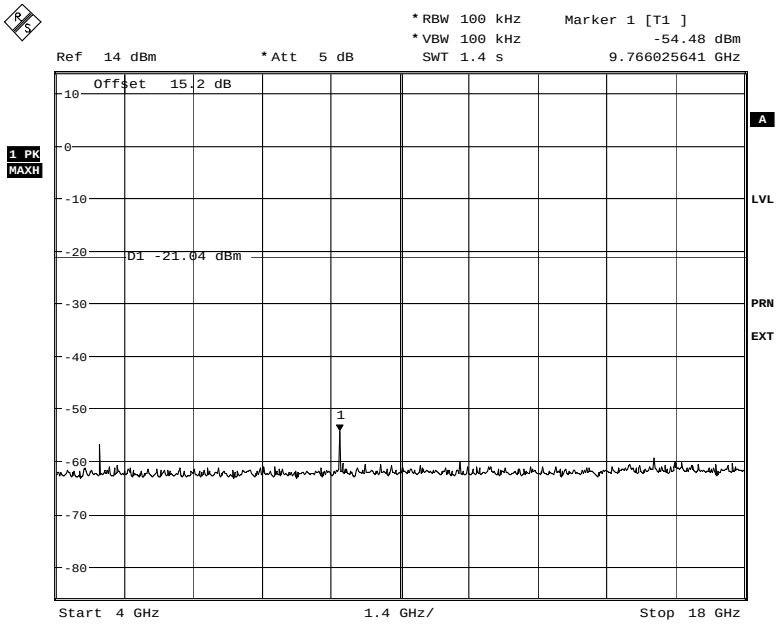
9kHz – 4GHz



Date: 26.JAN.2009 15:02:05

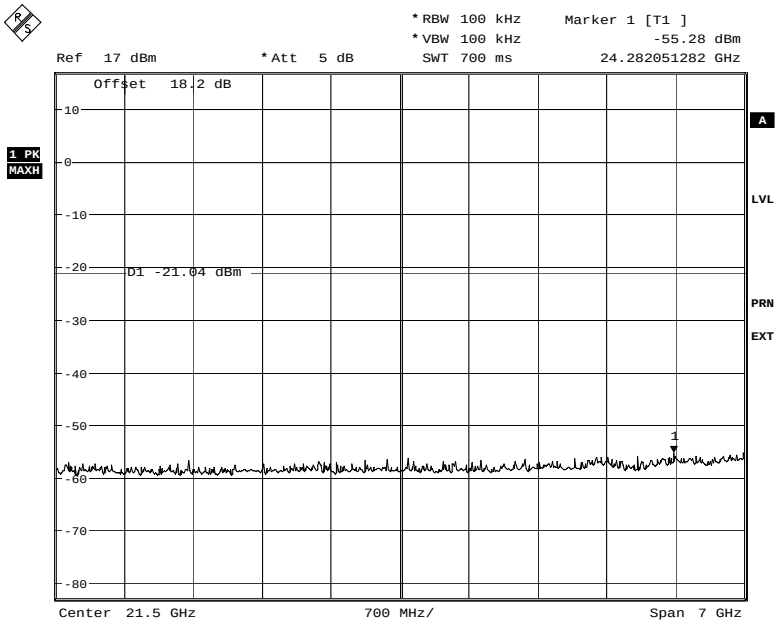
Product Service

4GHz – 18GHz



Date: 26.JAN.2009 16:24:12

18GHz – 25GHz

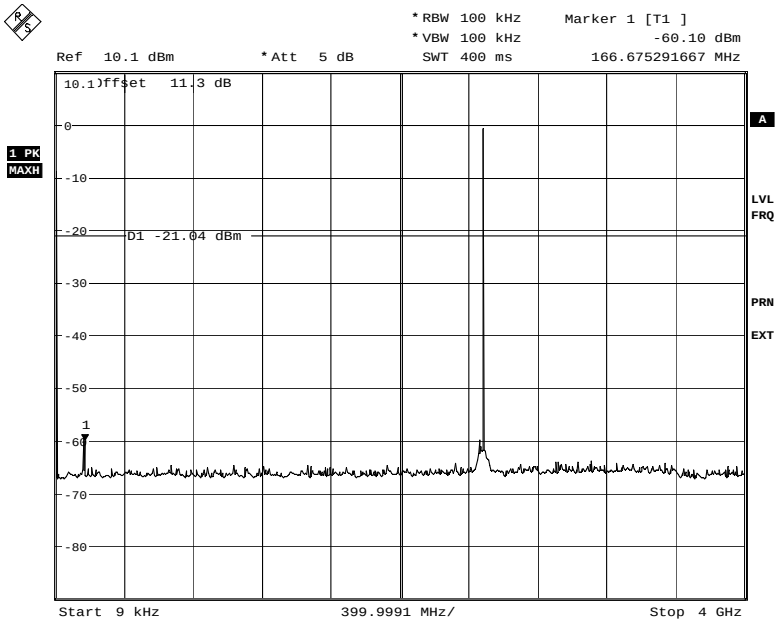


Date: 26.JAN.2009 16:56:29

Product Service

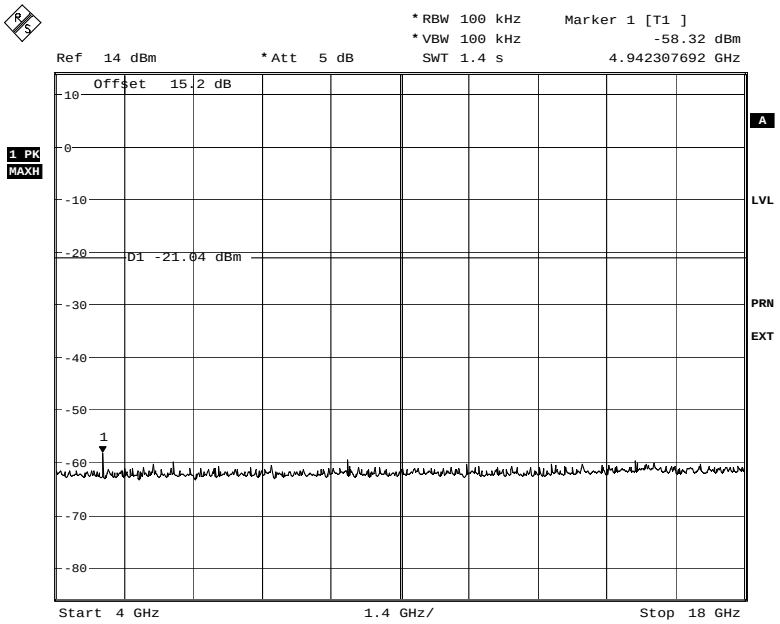
Frequency Hopping On All Channels – Maximum Power (2DH5) Configuration 1 - Mode 3

9kHz – 4GHz



Date: 26.JAN.2009 15:06:07

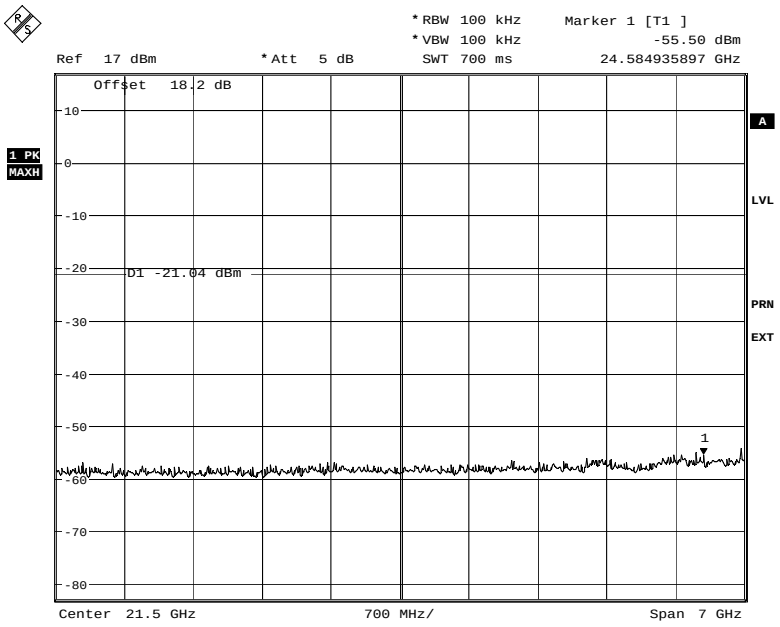
4GHz – 18GHz



Date: 26.JAN.2009 16:26:40

Product Service

18GHz – 25GHz

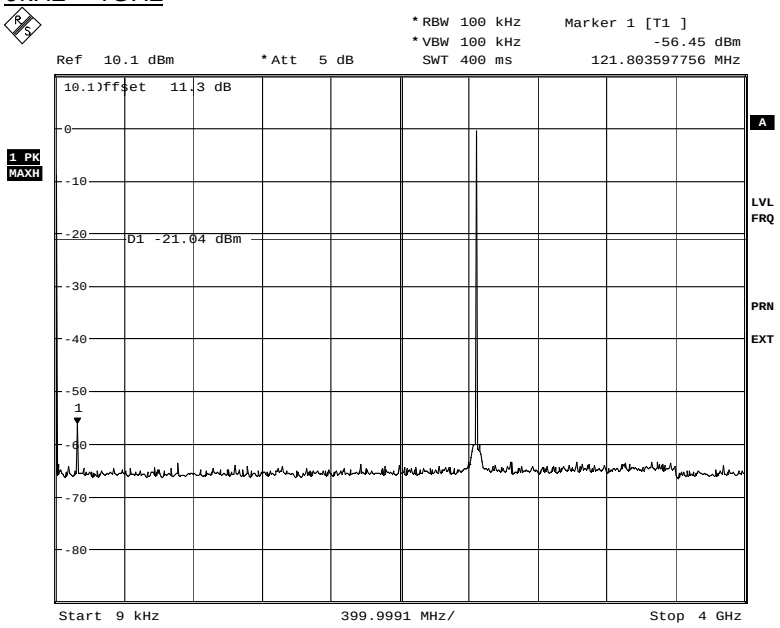


Date: 26.JAN.2009 16:58:11

Product Service

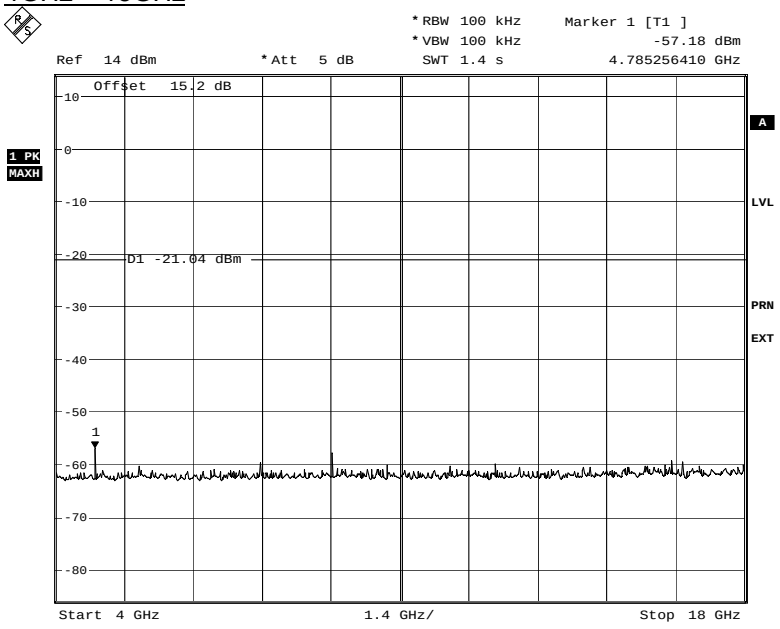
Frequency Hopping On All Channels – Maximum Power (3DH5) Configuration 1 - Mode 1

9kHz – 4GHz



Date: 26.JAN.2009 15:19:55

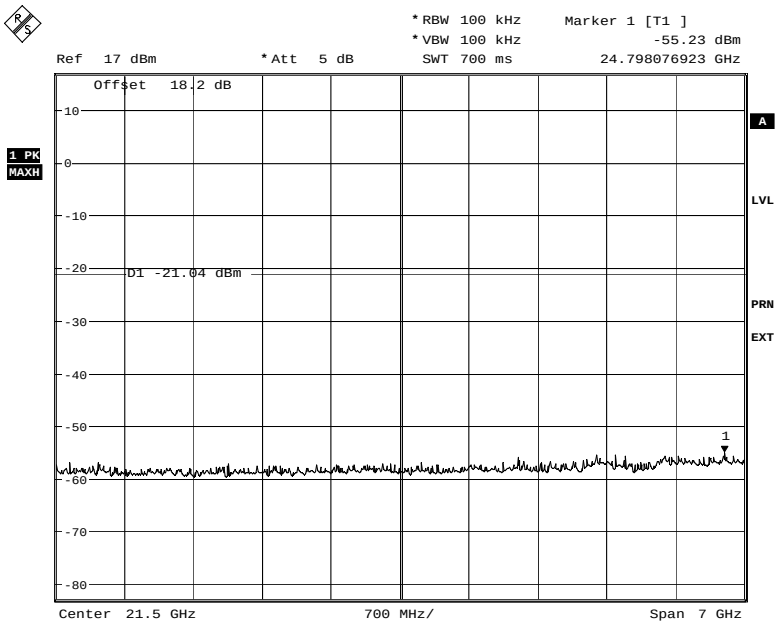
4GHz – 18GHz



Date: 26.JAN.2009 16:28:40

Product Service

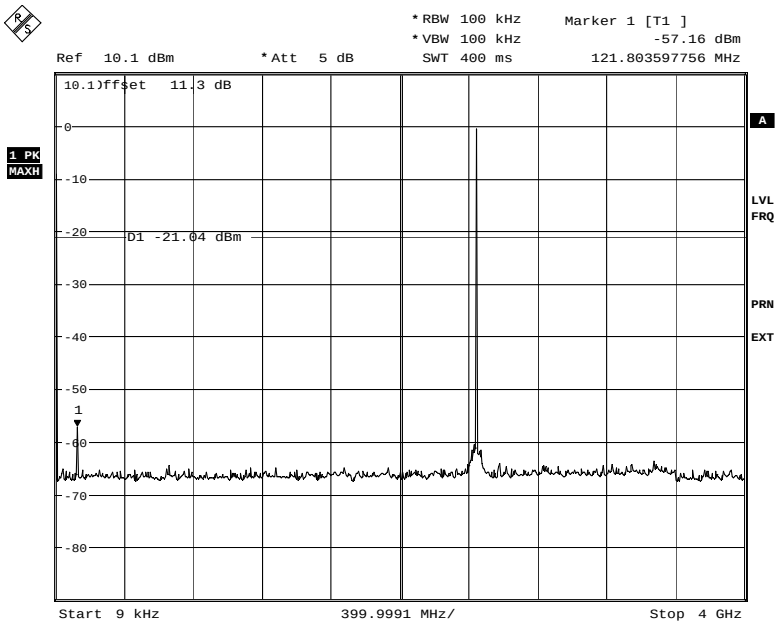
18GHz – 25GHz



Date: 26.JAN.2009 17:00:25

Frequency Hopping On All Channels – Maximum Power (3DH5) Configuration 1 - Mode 2

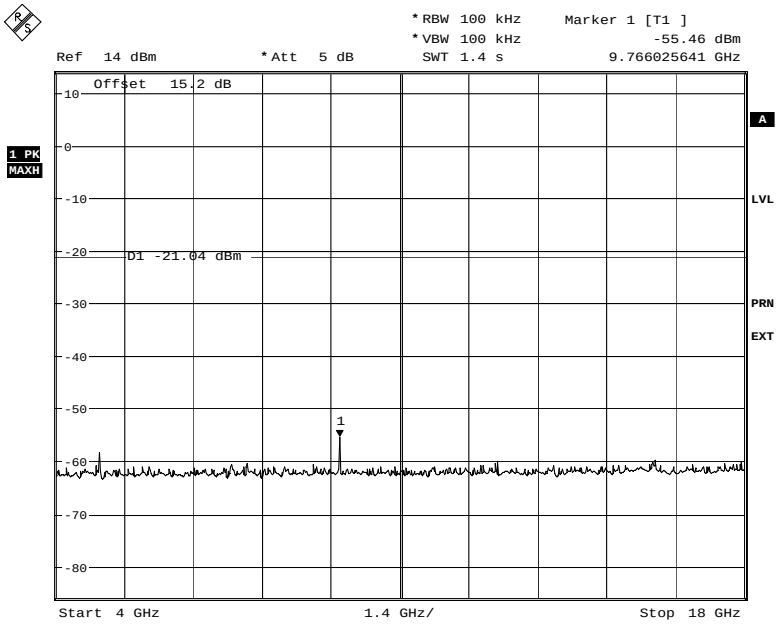
9kHz – 4GHz



Date: 26.JAN.2009 15:21:12

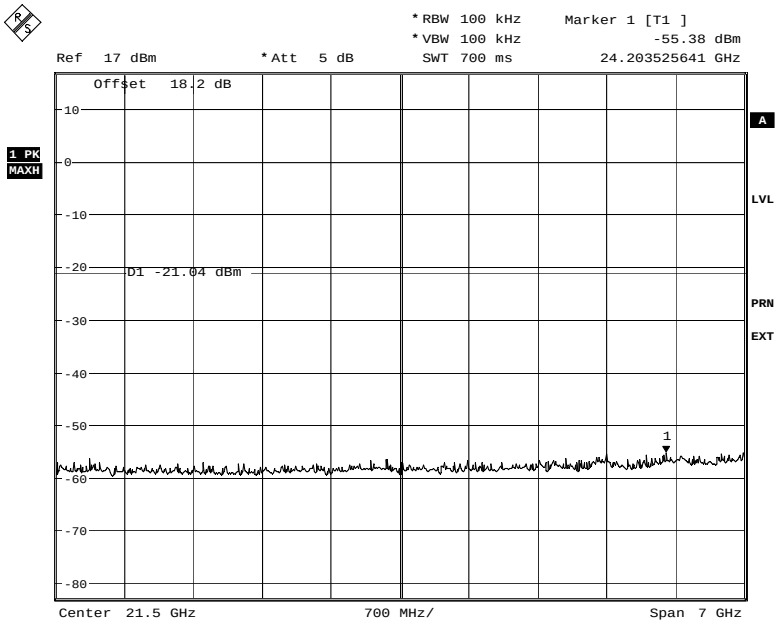
Product Service

4GHz – 18GHz



Date: 26.JAN.2009 16:30:54

18GHz – 25GHz

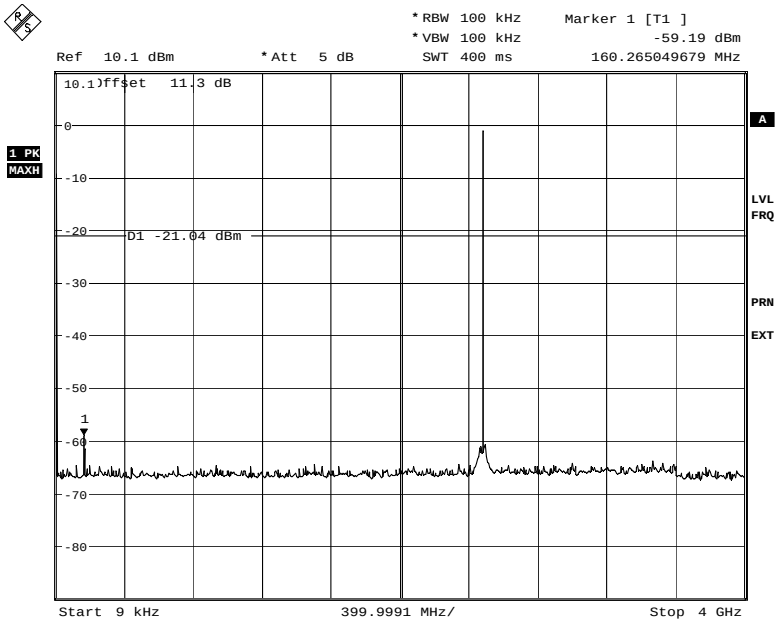


Date: 26.JAN.2009 17:02:35

Product Service

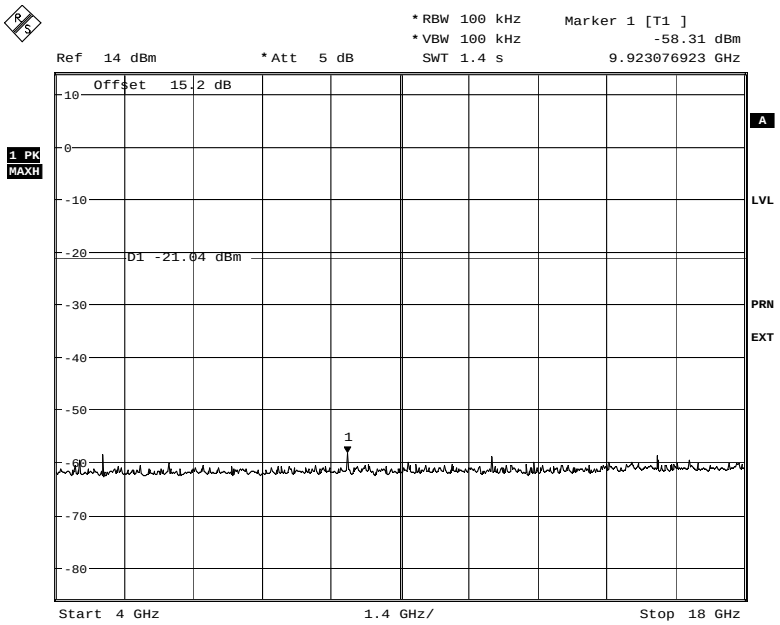
Frequency Hopping On All Channels – Maximum Power (3DH5) Configuration 1 - Mode 3

9kHz – 4GHz



Date: 26.JAN.2009 15:23:01

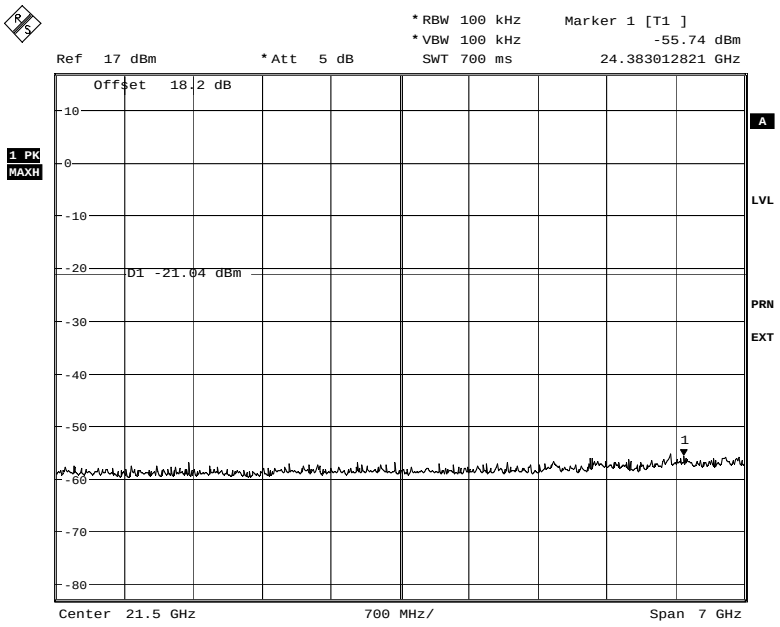
4GHz – 18GHz



Date: 26.JAN.2009 16:37:38

Product Service

18GHz – 25GHz



Date: 26.JAN.2009 17:04:01

Product Service

2.9 MAXIMUM PEAK OUTPUT POWER (CONDUCTED)

2.9.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.247(b)(1)
RSS-210 Issue 7, Clause A8.4 (2)

2.9.2 Equipment Under Test

RS507 Hands Free Imager, S/N: MXA4NH93 (TUV 06)

2.9.3 Date of Test and Modification State

21 and 26 January 2009 – 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 CFR 47 Part 15: 2006.

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

	21 January 2009	26 January 2009
Ambient Temperature	22.2°C	23.4°C
Relative Humidity	38.0%	36.2%

2.9.7 Test Procedure

Test Performed in accordance with 15.247.

The EUT was connected to a FSU Spectrum Analyser, (8990A), via an RF cable. Using a Signal Generator and the 436A, the path loss of the cable was measured and entered as an offset adjustment into the FSU. The peak level was recorded and compared with the test limits.

Product Service

2.9.8 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 for Maximum Peak Output Power (Conducted).

The test results are shown below.

Configuration 1 - Modes 1, 2 & 3

DH1 Results

Frequency (MHz)	Output Power (dBm)	Result (mW)
2402.0	+4.87	+3.06
2441.0	+4.49	+2.81
2480.0	+4.38	+2.74

DH3 Results

Frequency (MHz)	Output Power (dBm)	Result (mW)
2402.0	+4.85	+3.05
2441.0	+4.42	+2.76
2480.0	+4.33	+2.71

DH5 Results

Frequency (MHz)	Output Power (dBm)	Result (mW)
2402.0	+4.86	+3.06
2441.0	+4.35	+2.72
2480.0	+4.33	+2.71

2DH5 Results

Frequency (MHz)	Output Power (dBm)	Result (mW)
2402.0	+3.79	+2.39
2441.0	+3.55	+2.26
2480.0	+3.26	+2.12

3DH5 Results

Frequency (MHz)	Output Power (dBm)	Result (mW)
2402.0	+4.19	+2.62
2441.0	+3.90	+2.45
2480.0	+3.58	+2.28

Limit	<1W or <+30dBm

Product Service

SECTION 3

TEST EQUIPMENT USED

Product Service

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 EMC - Radiated Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	6-Sep-2009
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	11-Sep-2009
Dual Power Supply Unit	Thurlby	PL320	288	-	TU
Antenna (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	17-Jul-2010
Pre-Amplifier	Phase One	PS04-0085	1532	12	15-Sep-2009
Pre-Amplifier	Phase One	PS04-0086	1533	12	15-Sep-2009
Pre-Amplifier	Phase One	PSO4-0087	1534	12	30-Jul-2009
Screened Room (5)	Rainford	Rainford	1545	36	11-Feb-2011
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Turntable/Mast Controller	EMCO	2090	1607	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	28-Nov-2009
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	25-Jul-2009
High Pass Filter (3GHz)	RLC Electronics	F-100-3000-5-R	3349	12	23-May-2009
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	20-Aug-2009
Section 2.2, 2.6 and 2.7 Radio (Tx) - Occupied Bandwidth					
Multimeter	Fluke	75 Mk3	455	12	16-Dec-2009
Attenuator (10dB, 10W)	Weinschel	23-10-34	470	12	18-Jun-2009
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	1-Mar-2009
Cable (1m, sma(m) - sma(m))	Reynolds	262-0248-1000	2408	12	14-Oct-2009
Programmable Power Supply	Iso-tech	IPS 2010	2437	12	19-Sep-2009
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	3-Jun-2009
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
Cable (1m, N type)	Rhophase	NPS-1601-1000-NPS	3350	12	22-Apr-2009
Section 2.3, 2.4 and 2.5 Radio (Tx) - Channel Dwell Time					
Attenuator (10dB, 10W)	Weinschel	23-10-34	470	12	18-Jun-2009
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	3-Jun-2009
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
Power Divider (N) 1W	Weinschel	1506A	3344	12	6-May-2009
Cable (1m, N type)	Rhophase	NPS-1601-1000-NPS	3350	12	22-Apr-2009

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Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.9 Radio (Tx) - Maximum Peak Output Power					
Signal Generator	Hewlett Packard	ESG4000A	61	12	2-May-2009
Power Meter	Hewlett Packard	436A	94	12	9-Oct-2009
Peak Power Analyser	Hewlett Packard	8990A	107	12	29-Jan-2009
Multimeter	Fluke	75 Mk3	455	12	16-Dec-2009
Temperature Chamber	Montford	2F3	467	-	O/P Mon
Attenuator (10dB, 10W)	Weinschel	23-10-34	470	12	18-Jun-2009
Power Sensor	Hewlett Packard	8481A	1338	12	16-Dec-2009
Cable (1m, sma(m) - sma(m))	Reynolds	262-0248-1000	2408	12	14-Oct-2009
Programmable Power Supply	Iso-tech	IPS 2010	2437	12	19-Sep-2009
Power Sensor	Hewlett Packard	84812A	2743	-	29-Jan-2009
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	3-Jun-2009
Thermocouple Thermometer	Fluke	51	3173	12	3-Jul-2009
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
Power Divider (N) 1W	Weinschel	1506A	3344	12	6-May-2009
Cable (1m, N type)	Rhophase	NPS-1601-1000-NPS	3350	12	22-Apr-2009
Power Meter	Rohde & Schwarz	NRP	3491	-	TU
Wideband Power Sensor, 50MHz - 18GHz	Rohde & Schwarz	NRP-Z51	3492	12	1-Apr-2009
Section 2.8 Radio (Tx) - Conducted Spurious Emissions					
Attenuator (10dB, 10W)	Weinschel	23-10-34	470	12	18-Jun-2009
Multimeter	Iso-tech	IDM101	2424	12	3-Sep-2009
Programmable Power Supply	Iso-tech	IPS 2010	2437	12	19-Sep-2009
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	3-Jun-2009
Hygrometer	Rotronic	I-1000	3220	12	9-Apr-2009
Cable (1m, N type)	Rhophase	NPS-1601-1000-NPS	3350	12	22-Apr-2009
3 GHz High Pass Filter	K&L 5wave	11SH10-3000/X18000-O/O	3552	12	16-Apr-2009

TU – Traceability Unscheduled
O/P Mon – Output monitored by calibrated equipment.

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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

Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

UKAS TESTING 0141

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).