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# Report On

FCC and Industry Canada Testing of the  
Albert Hall Meetings  
CLIKAPAD Superbase

COMMERCIAL-IN-CONFIDENCE

FCC ID: SMP SUPERBASE  
IC ID: 5716A-SUPERBASE

Document 75902648 Report 02 Issue 3

March 2009



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COMMERCIAL-IN-CONFIDENCE

**REPORT ON**

FCC and Industry Canada Testing of the  
Albert Hall Meetings  
CLiKAPAD Superbase

Document 75902648 Report 02 Issue 3

March 2009

**PREPARED FOR**

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Authorised Signatory

**DATED**

24 March 2009

**This report has been up-issued to Issue 3 to correct typographical errors.**

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**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 15 B, C, Industry Canada RSS-Gen: 2007 and RSS-210: 2007. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

  
A Guy  
S C Hartley  
A R Hubbard

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## **SECTION 1**

### **REPORT SUMMARY**

FCC and Industry Canada Testing of the  
Albert Hall Meetings  
CLiKAPAD Superbase



## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Albert Hall Meetings CLiKAPAD Superbase to the requirements of FCC CFR 47 Part 15B: 2006 and FCC CFR 47 Part 15C: 2006 Industry Canada RSS-210: 2007 and Industry Canada RSS-Gen: 2007.

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	Albert Hall Meetings Limited
Model Number(s)	SUPERBASE
Serial Number(s)	000118254
Software Version	Not Applicable
Hardware Version	SB-01-01
Number of Samples Tested	One
Test Specification/Issue/Date	FCC CFR 47 Part 15B: 2006 FCC CFR 47 Part 15C: 2006 Industry Canada RSS-210: 2007 Industry Canada RSS-Gen: 2007
Incoming Release Date	Declaration of Build Status 10 January 2008
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	PO5088r2 27 November 2007
Start of Test	05 September 2008
Finish of Test	12 September 2008
Name of Engineer(s)	A Guy S C Hartley A R Hubbard



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## 1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 15B: 2006 and Industry Canada RSS-Gen: 2007, is shown below.

Configuration 1 - CLiKAPAD Superbase							
Section	FCC Spec Clause	IC Spec Clause	Test Description	Mode	Mod State	Result	Base Standard
2.1	15.109	6(a), 7.3.2	Radiated Emissions (Enclosure Port)	Transmit	-	N/A	-
				Receive	1	Pass	

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 15C: 2006 and Industry Canada RSS-210: 2007, is shown below.

Configuration 1 - CLiKAPAD Superbase							
Section	FCC Spec Clause	IC Spec Clause	Test Description	Mode	Mod State	Result	Base Standard
2.3	15.205	A8.5, 2.2	Measurement at Band Edge	Transmit	1	Pass	-
				Receive	-	N/A	
2.2	15.205, 15.209 15.249 (d)	A8.5	Radiated Emissions (Enclosure Port)	Transmit	1	Pass	-
				Receive	-	N/A	



### 1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Voting System Base Station
MANUFACTURER	AHM Ltd (Albert Hall Meetings Limited)
TYPE	CLIKAPAD SUPERBASE
PART NUMBER	SUPERBASE
SERIAL NUMBER(S)	000118254
HARDWARE VERSION	SB-01-05
TRANSMITTER OPERATING RANGE	2400-2483.5MHz (Restricted to 2401-2482MHz)
COUNTRY OF ORIGIN	UK
RECEIVER OPERATING RANGE	2400-2483.5MHz (Restricted to 2401-2482MHz)
INTERMEDIATE FREQUENCIES	
ITU DESIGNATION OF EMISSION	
HIGHEST INTERNALLY GENERATED FREQUENCY	50MHz
POWER	0dBm
FCC ID	SMP SUPERBASE
INDUSTRY CANADA ID	5716A-SUPERBASE
TECHNICAL DESCRIPTION	A Base Station transceiver for operation in the 2.4-2.5GHz ISM Band. This unit is for use in a Voting System.

Signature  
Date  
D of B S Serial No

A handwritten signature in black ink, appearing to be 'C. H.' or similar, written in a cursive style.

22 September 2008  
75902648/01



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## 1.4 PRODUCT INFORMATION

### 1.4.1 Technical Description

The Equipment Under Test (EUT) was a Albert Hall Meetings CLiKAPAD Superbase as shown in the photograph below. A full technical description can be found in the Manufacturers documentation.



Equipment Under Test





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#### **1.4.2 Test Configuration**

##### Configuration 1: CLiKAPAD Superbase

The EUT was configured in accordance with FCC CFR 47 Part 15B: 2006, FCC CFR 47 Part 15C: 2006, Industry Canada RSS-Gen: 2007 and Industry Canada RSS-210: 2007

#### **1.4.3 Modes of Operation**

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

Mode 1 - Transmit

Mode 2 - Receive

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



## 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 powered by 5V DC which was supplied via a USB connector.

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.

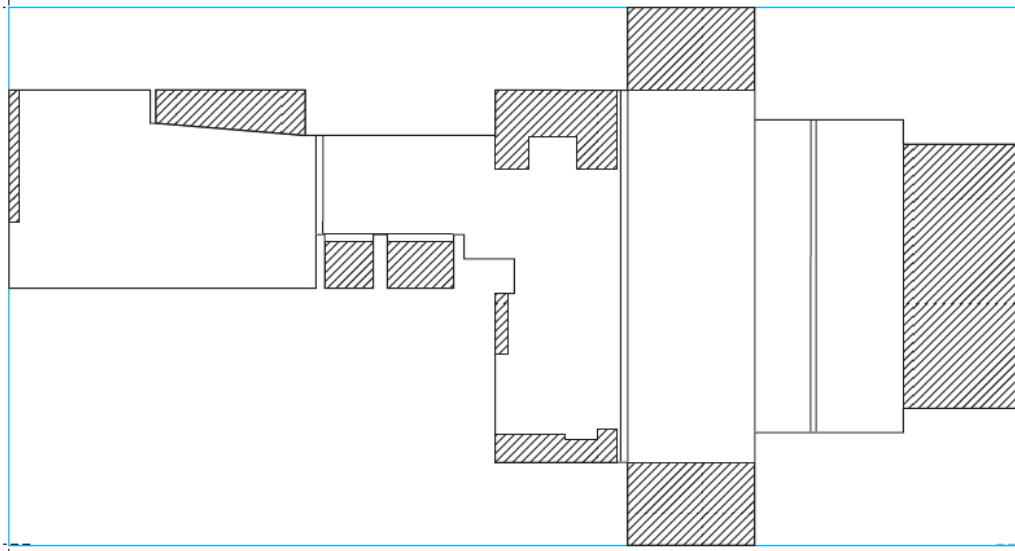
## 1.7 MODIFICATION RECORD

The table below details modifications made to the EUT during the test programme. The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	As supplied by the customer	Not Applicable	Not Applicable
1	An EMC shield was fitted to the Superbase constructed in such a way that it can be reliably replicated in manufacture and is of the same material as the previously manufactured item. This shield has had the effect of reducing the below 1GHz emissions and the 1.25GHz emission. A change to the software configuration was also introduced to reduce the output power setting of the radio in order to reduce the second harmonic level. New Firmware: SuperBase v1.1	Customer Mr Jeffery Earl	11 September 2008



Diagram of the changes to the EMC shield fitted to the Superbase.





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## **SECTION 2**

### **TEST DETAILS**

FCC and Industry Canada Testing of the  
Albert Hall Meetings  
CLiKAPAD Superbase



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## **2.1 RADIATED EMISSIONS (ENCLOSURE PORT)**

### **2.1.1 Specification Reference**

FCC CFR 47 Part 15B: 2006, Clause 15.109  
Industry Canada RSS-Gen: 2007, Clause 6(a), 7.2.3

### **2.1.2 Equipment Under Test**

CLiKAPAD Superbase, S/N: 000118254

### **2.1.3 Date of Test and Modification State**

11 and 12 September 2008 – Modification State 1

### **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  
FCC CFR 47 Part 15: 2006, Industry Canada RSS-Gen: 2007.

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

Configuration 1 - Mode 2

### **2.1.6 Environmental Conditions**

	11 September 2008	12 September 2008
Ambient Temperature	20.8°C	19°C
Relative Humidity	58%	56%
Atmospheric Pressure	1011mbar	1011mbar



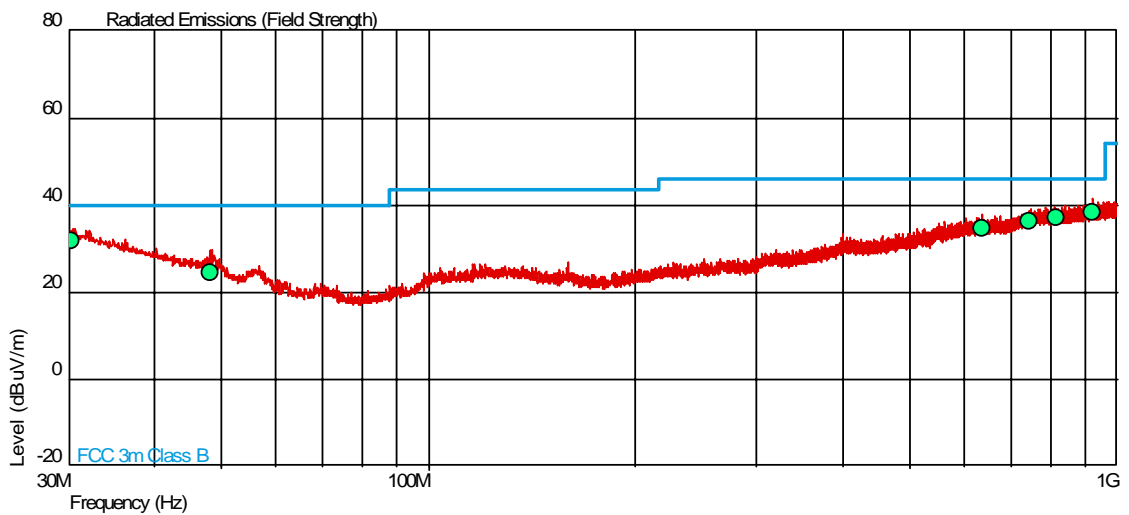
### 2.1.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15B: 2006 and Industry Canada RSS-Gen: 2007 for Radiated Emissions (Enclosure Port).

The test results are shown below.

Configuration 1 - Mode 2

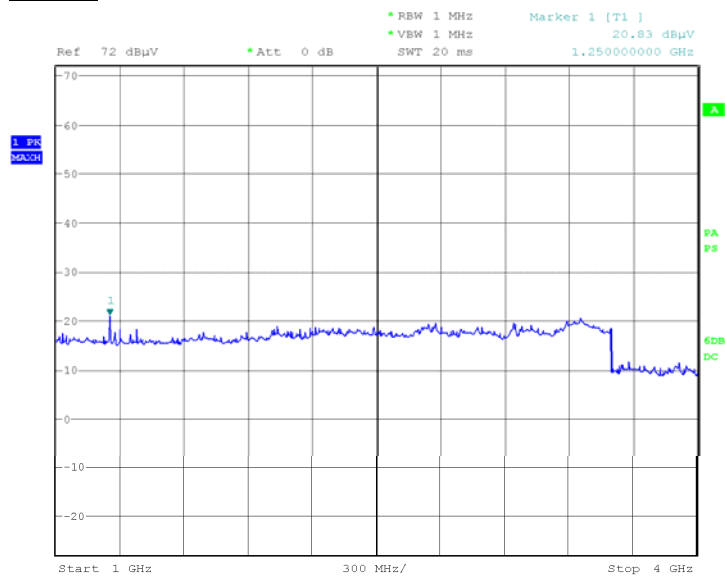
30MHz to 1GHz



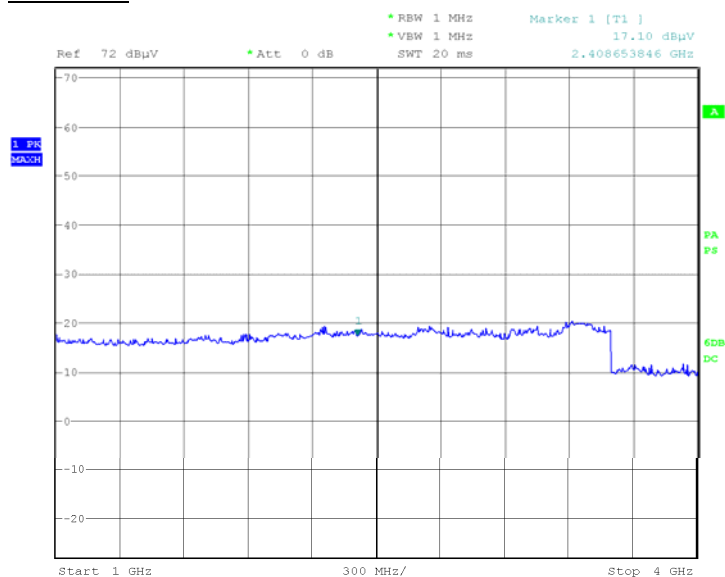
Frequency (MHz)	QP Level (dBμV/m)	QP Level (μV/m)	QP Limit (dBμV/m)	QP Limit (μV/m)	QP Margin (dBμV/m)	QP Margin (μV/m)	Angle (Deg)	Height (m)	Polarity
30.291	31.9	39.4	40.0	100	-8.1	-60.6	265	1.00	Vertical
48.087	24.4	16.6	40.0	100	-15.6	-83.4	172	1.00	Vertical
636.008	34.6	53.7	46.0	200	-11.4	-145.8	358	1.00	Vertical
744.102	36.4	66.1	46.0	200	-9.6	-133.5	322	1.00	Horizontal
815.004	37.2	72.4	46.0	200	-8.8	-127.1	249	3.40	Vertical
922.881	38.2	81.3	46.0	200	-7.8	-118.2	0	1.00	Horizontal

1GHz to 12.5GHz

Frequency GHz	Antenna Polarisation	Antenna Height cm	EUT Arc degrees	Result Peak dBµV/m	Result Average dBµV/m	Peak Limit dBµV/m	Average Limit dBµV/m
1.250	Vertical	100	356	54.22	49.87	74.0	54.0

1GHz to 4GHzVertical

Date: 12.SEP.2008 22:03:37

Horizontal

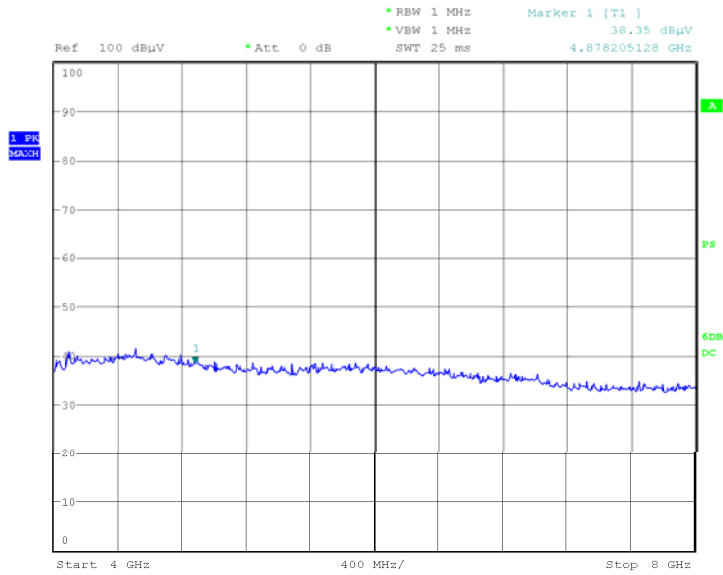
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Product Service

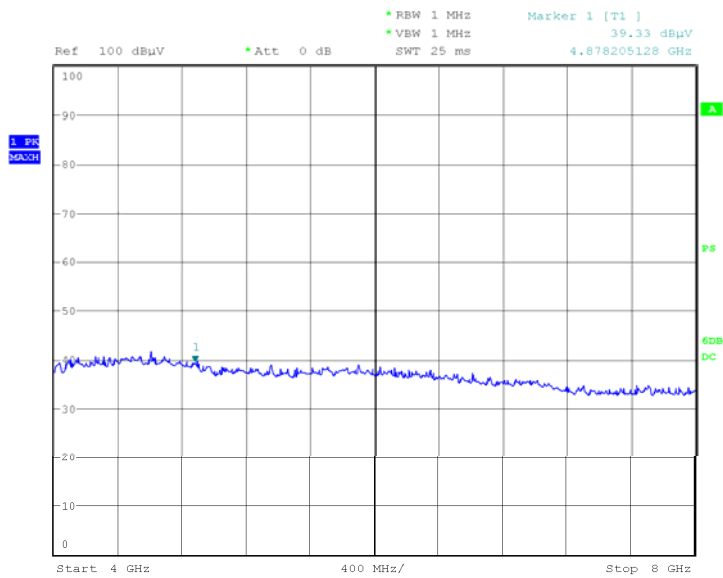
## 4GHz to 8GHz

### Vertical



Date: 12.SEP.2008 22:26:30

### Horizontal



Date: 12.SEP.2008 22:29:54

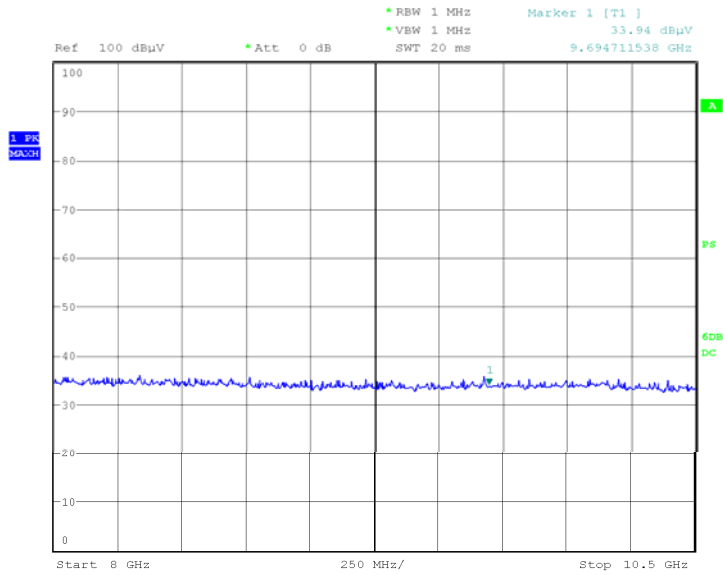




Product Service

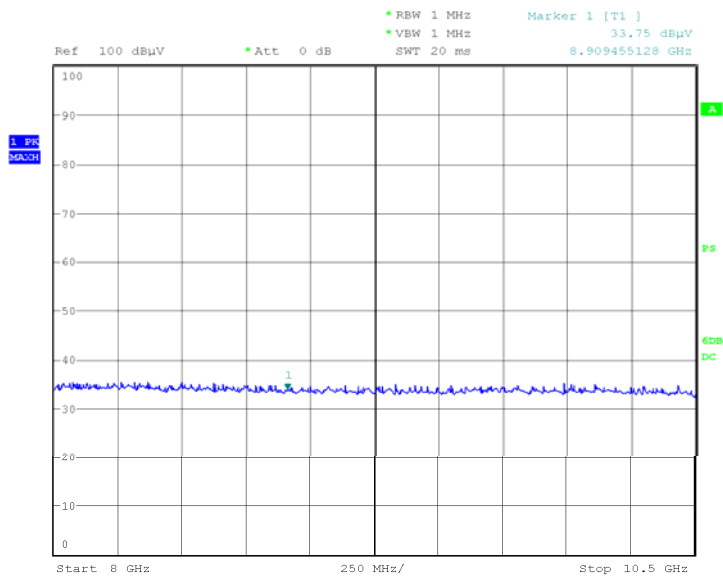
## 8GHz to 10.5GHz

### Vertical



Date: 12.SEP.2008 22:46:41

### Horizontal



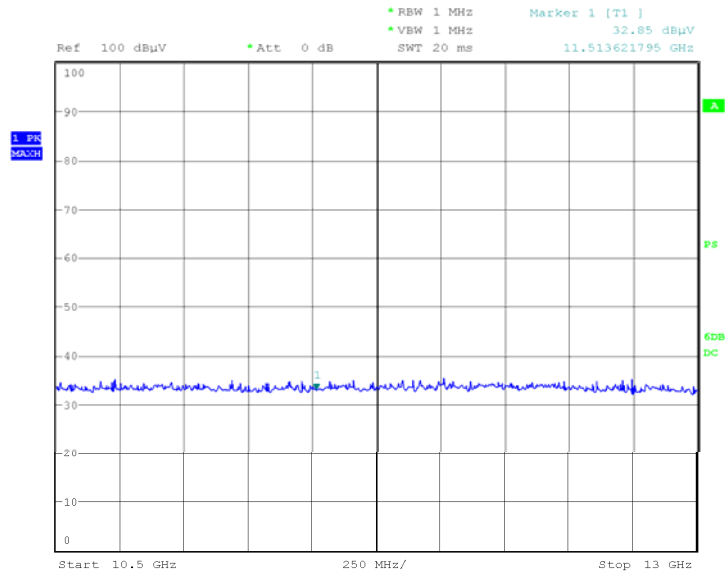
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Product Service

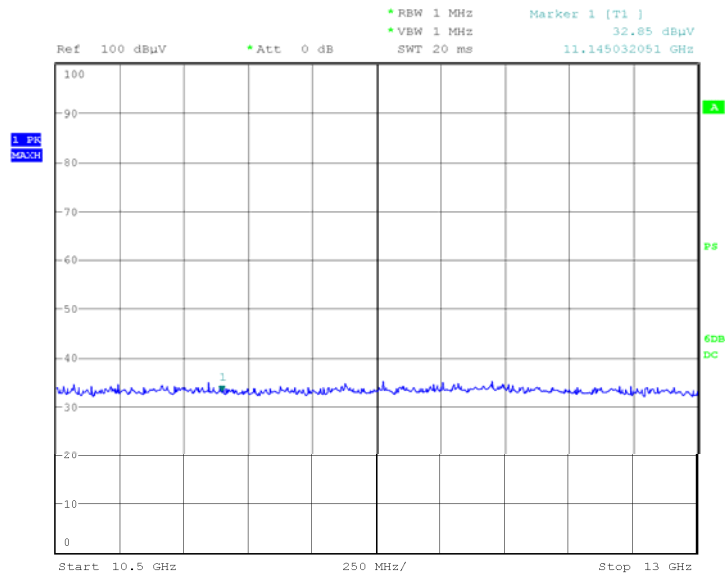
## 10.5GHz to 13GHz

### Vertical



Date: 12.SEP.2008 22:43:38

### Horizontal



Date: 12.SEP.2008 22:40:15



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## **2.2 RADIATED EMISSIONS (ENCLOSURE PORT)**

### **2.2.1 Specification Reference**

FCC CFR 47 Part 15C: 2006, Clause 15.205, 15.209, 15.249 (d)  
Industry Canada RSS-210: 2007, Clause A8.5

### **2.2.2 Equipment Under Test**

CLiKAPAD Superbase, S/N: 000118254

### **2.2.3 Date of Test and Modification State**

05, 11 and 12 September 2008 – Modification State 1

### **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 and Industry Canada RSS-210: 2007.

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

Configuration 1 - Mode 1

### **2.2.6 Environmental Conditions**

	05 September 2008	11 September 2008	12 September 2008
Ambient Temperature	20°C	19.5°C	18.2°C
Relative Humidity	55%	56%	58%
Atmospheric Pressure	991mbar	1008mbar	1011mbar



## 2.2.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 and Industry Canada RSS-210: 2007 for Radiated Emissions (Enclosure Port).

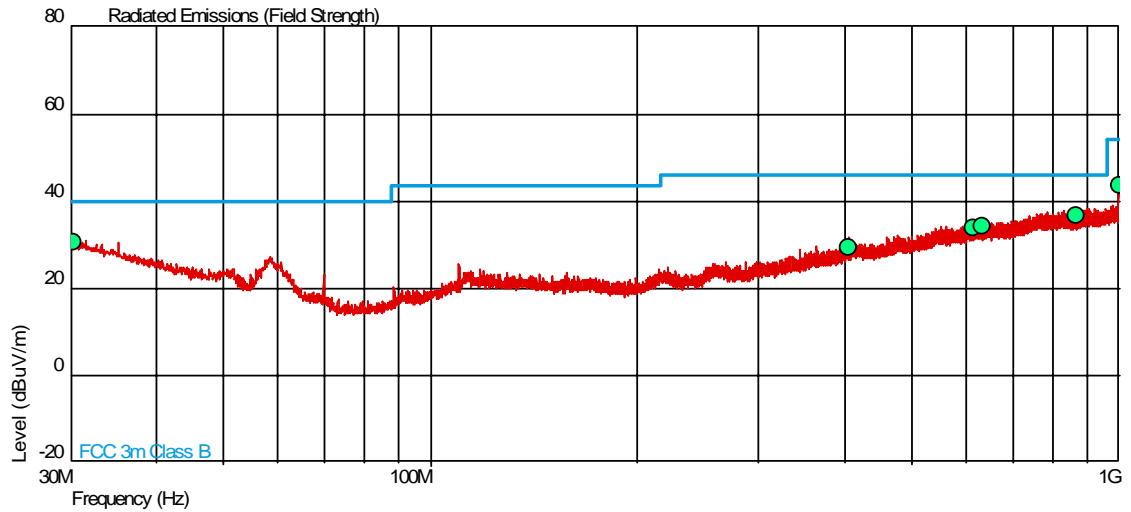
The test results are shown below.

Configuration 1 - Mode 1

Bottom Channel

Maximum Carrier Field Strength

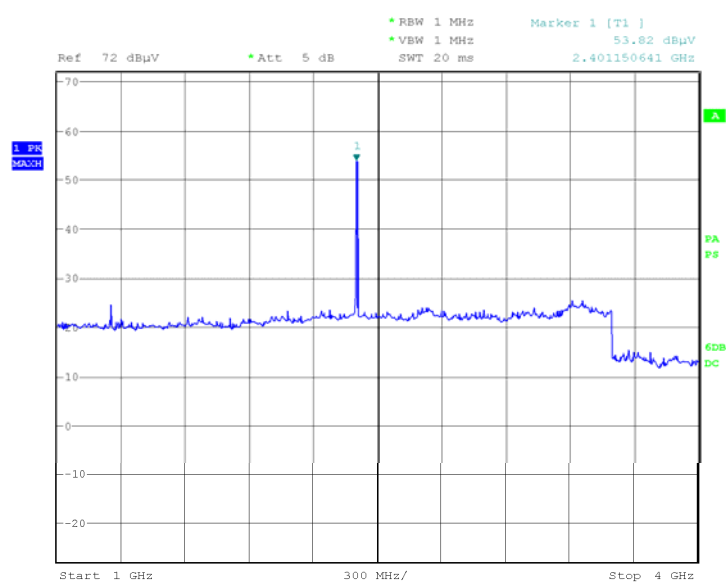
Frequency GHz	Antenna Polarisation	Antenna Height cm	EUT Arc degrees	Result Peak dBµV/m	Result Average dBµV/m	Peak Limit dBµV/m	Average Limit dBµV/m
2.401	Vertical	100	0	92.89	80.69	114.0	94.0
2.401	Horizontal	100	316	93.18	81.21	114.0	94.0

30MHz to 1GHz

Frequency (MHz)	QP Level (dBμV/m)	QP Level (μV/m)	QP Limit (dBμV/m)	QP Limit (μV/m)	QP Margin (dBμV/m)	QP Margin (μV/m)	Angle (Deg)	Height (m)	Polarity
30.339	30.8	34.7	40.0	100	-9.2	-65.3	140	2.85	Vertical
405.489	29.3	29.2	46.0	200	-16.7	-170.4	138	1.00	Horizontal
613.057	33.9	49.5	46.0	200	-12.1	-150.0	357	2.78	Vertical
632.807	34.2	51.3	46.0	200	-11.8	-148.2	75	1.00	Vertical
865.274	36.7	68.4	46.0	200	-9.3	-131.1	356	1.00	Vertical
1000.000	43.7	153.1	54.0	500	-10.3	-348.1	167	1.00	Vertical

1GHz to 25GHz

Frequency GHz	Antenna Polarisation	Antenna Height cm	EUT Arc degrees	Result Peak dBμV/m	Result Average dBμV/m	Peak Limit dBμV/m	Average Limit dBμV/m
1.250	Vertical	100	0	55.94	51.92	74.0	54.0
4.802	Horizontal	100	357	57.49	45.04	74.0	54.0
4.802	Vertical	110	288	58.72	46.39	74.0	54.0

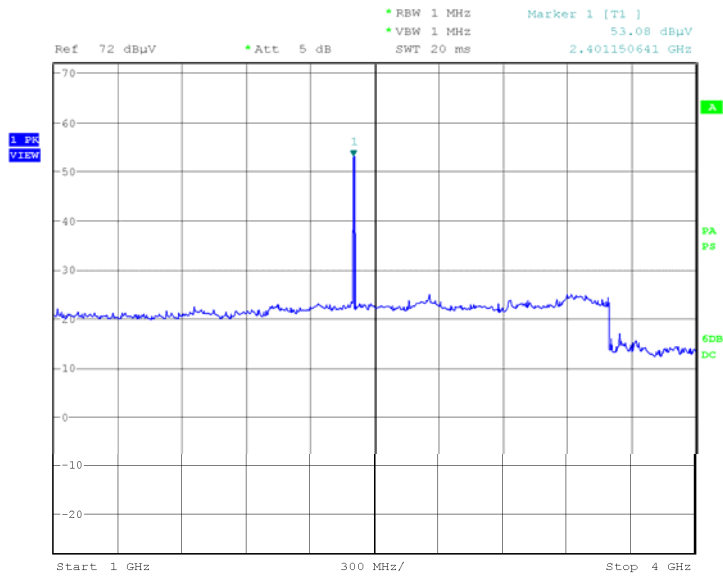
1GHz to 4GHzVertical

Date: 12.SEP.2008 02:26:13



Product Service

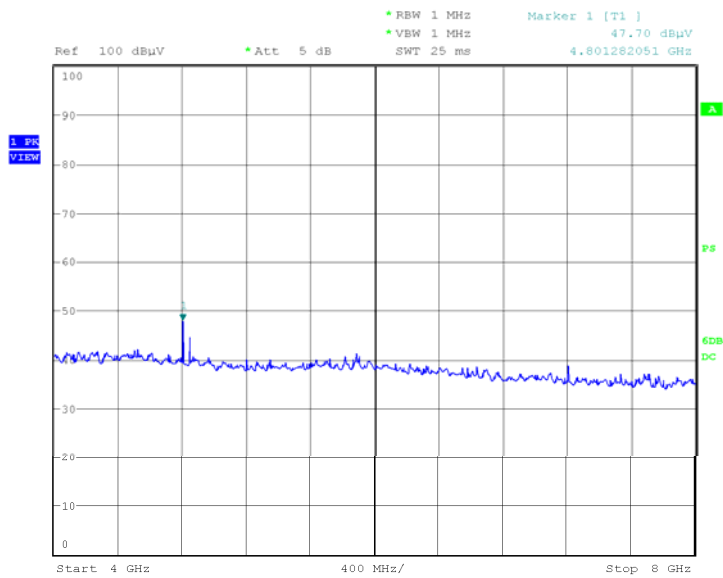
## Horizontal



Date: 12.SEP.2008 02:33:48

## 4GHz to 8GHz

## Vertical

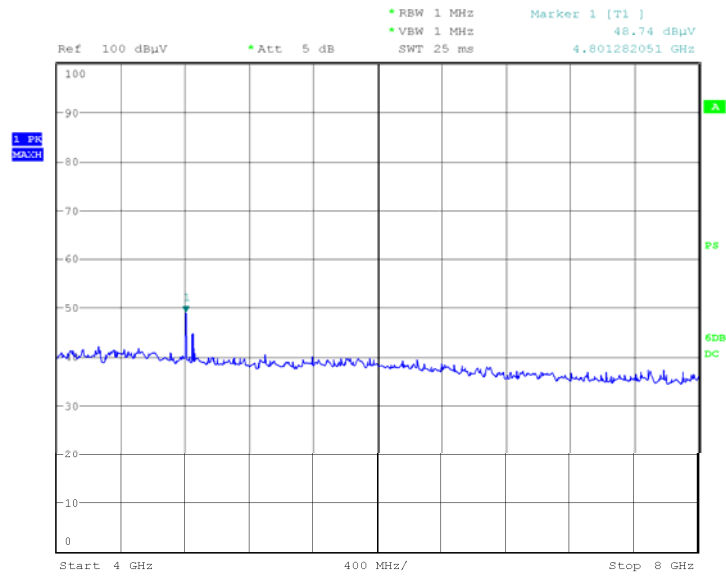


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Product Service

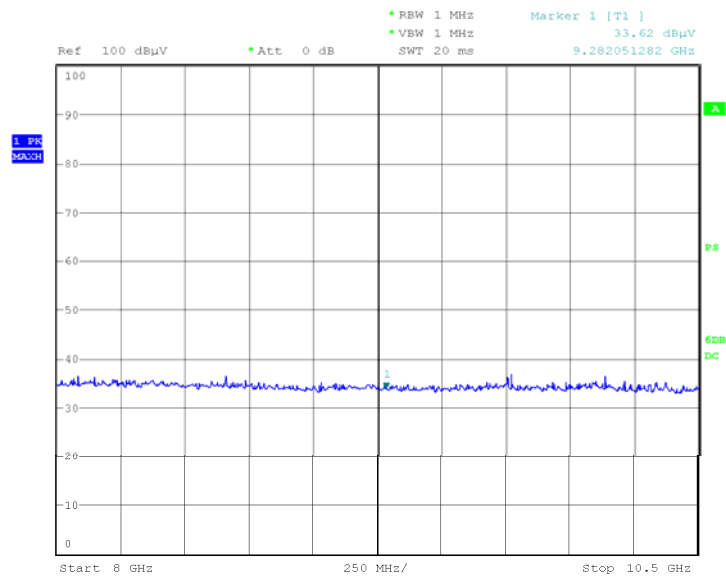
# Horizontal



Date: 11.SEP.2008 21:58:39

# 8MHz to 10.5MHz

## Vertical



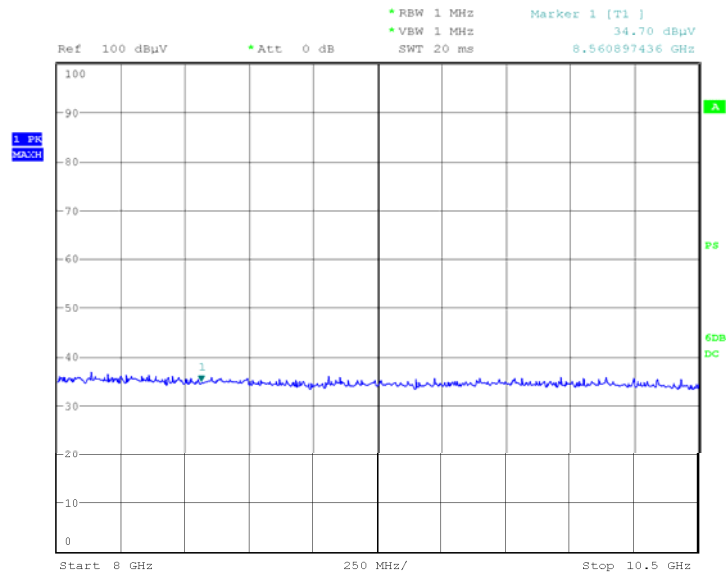
Date: 13.SEP.2008 01:39:00





Product Service

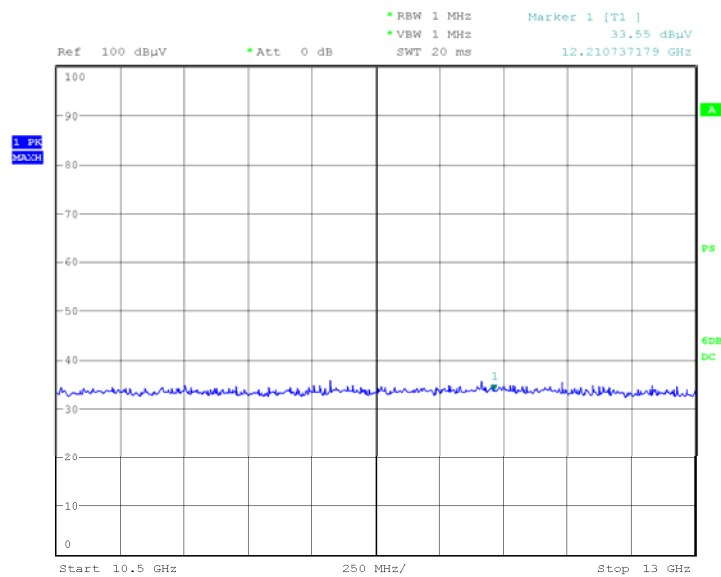
## Horizontal



Date: 13.SEP.2008 01:05:56

## 10.5GHz to 13GHz

## Vertical

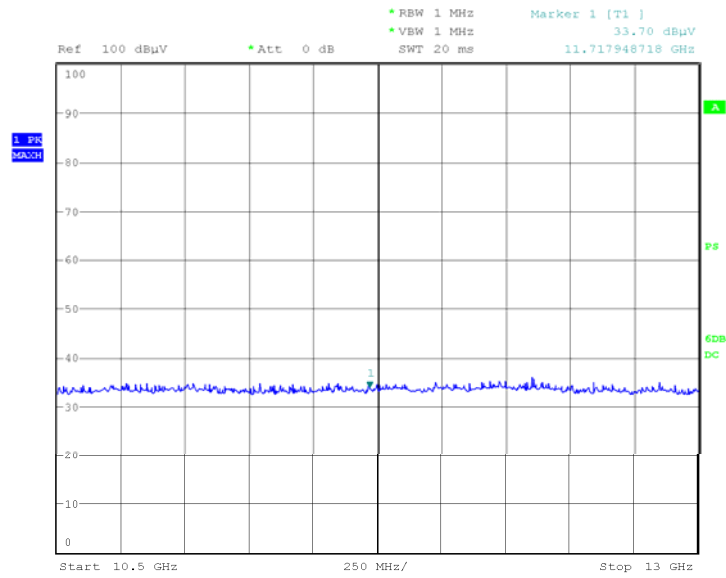


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Product Service

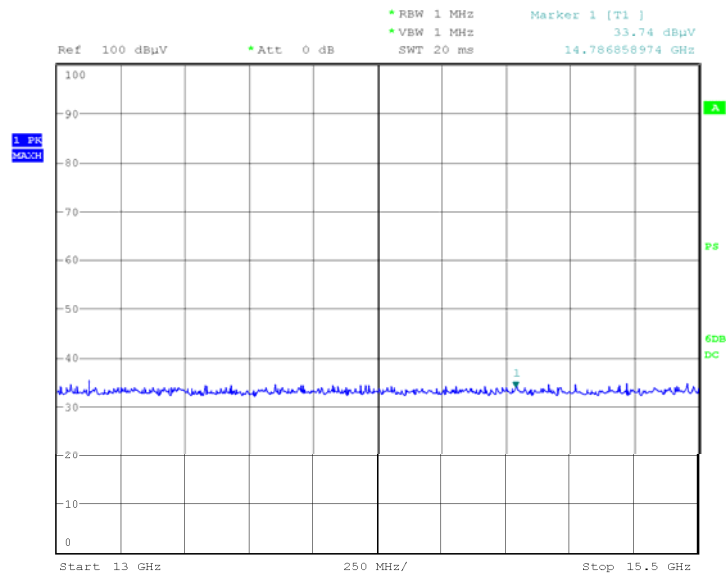
# Horizontal



Date: 13.SEP.2008 01:08:47

# 13GHz to 15.5GHz

# Vertical

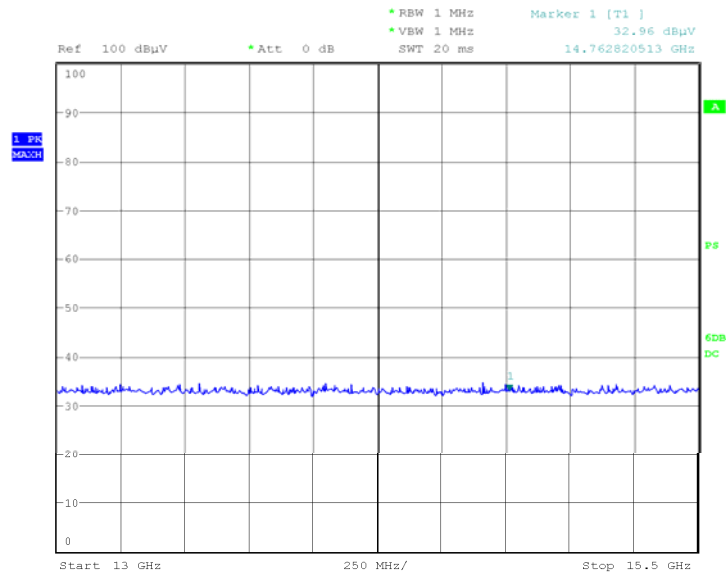


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Product Service

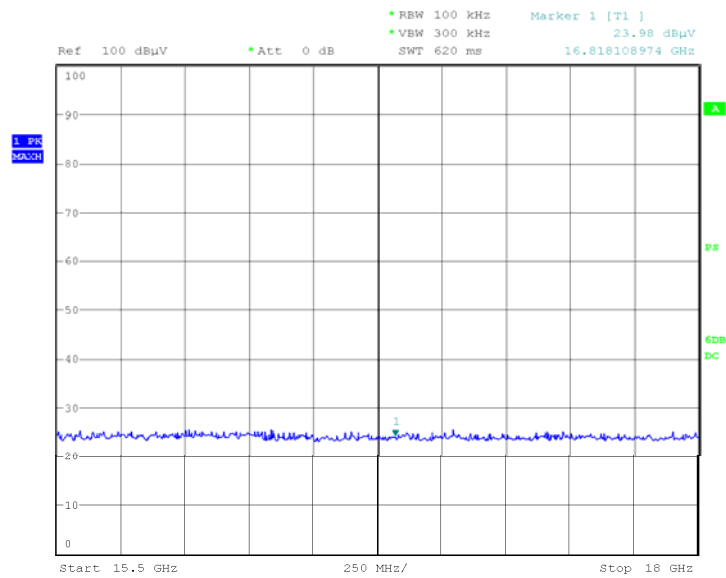
## Horizontal



Date: 13.SEP.2008 01:11:23

## 15.5GHz to 18GHz

## Vertical

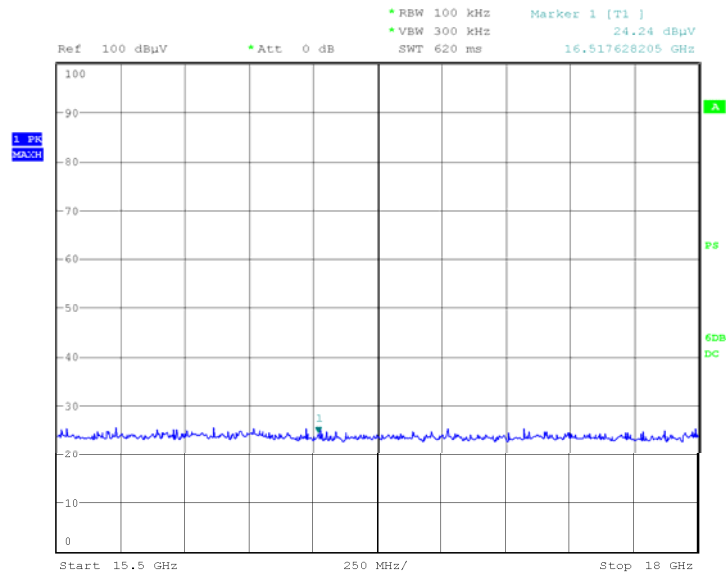


Date: 13.SEP.2008 01:29:27



Product Service

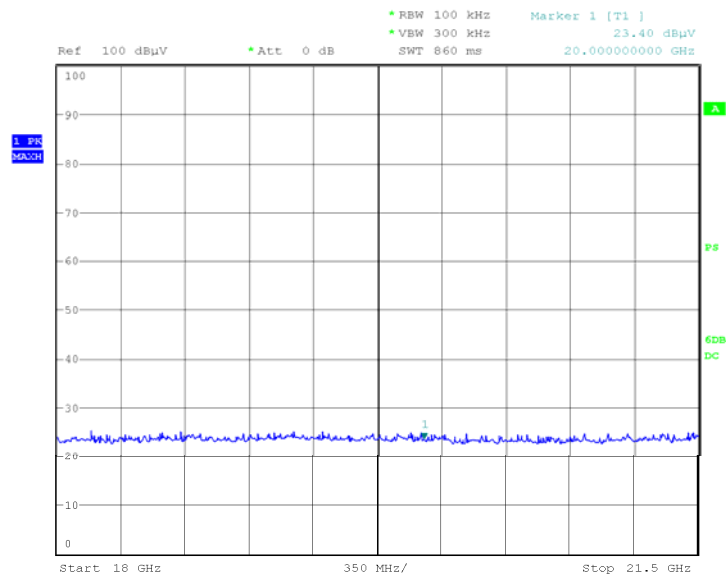
# Horizontal



Date: 13.SEP.2008 01:17:31

# 18GHz to 21.5GHz

## Vertical

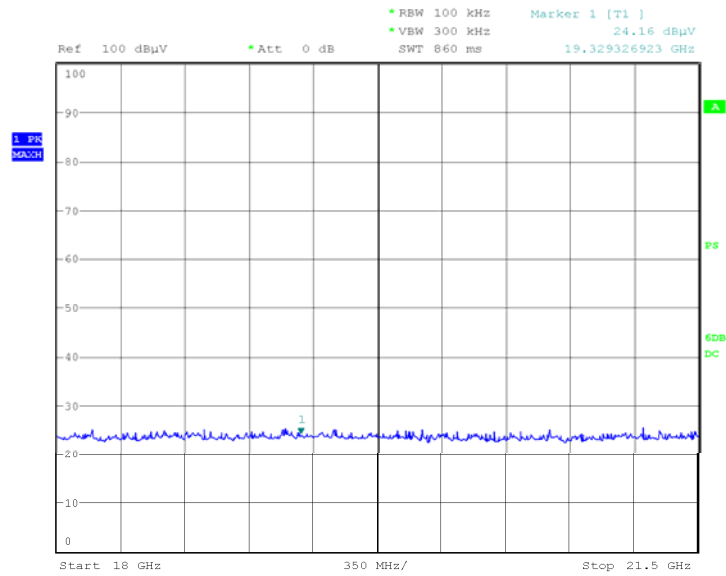


Date: 13.SEP.2008 02:45:39



Product Service

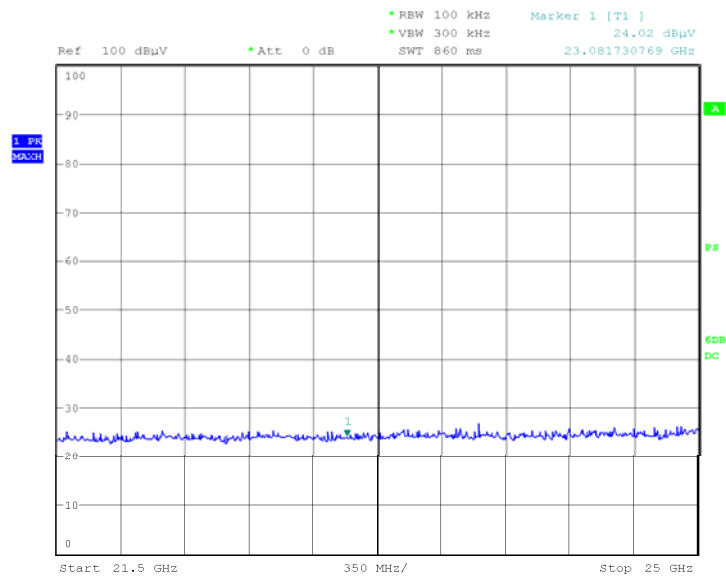
# Horizontal



Date: 13.SEP.2008 02:33:29

# 21.5GHz to 25GHz

## Vertical

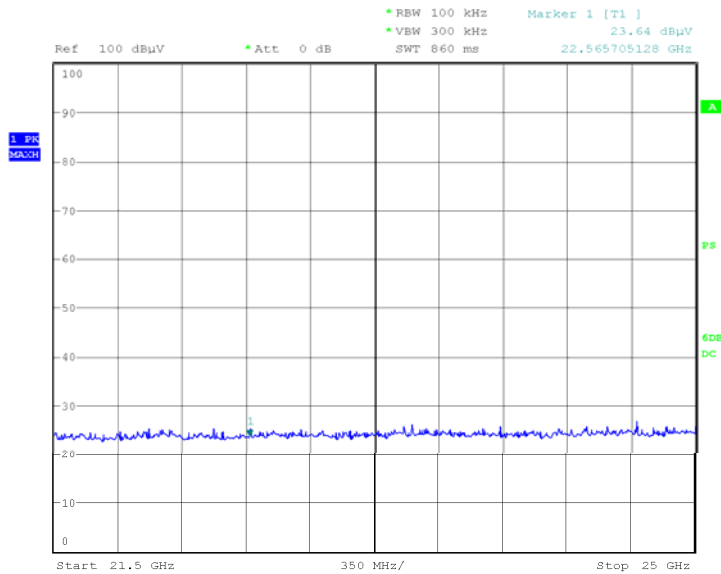


Date: 13.SEP.2008 02:48:49



Product Service

### Horizontal

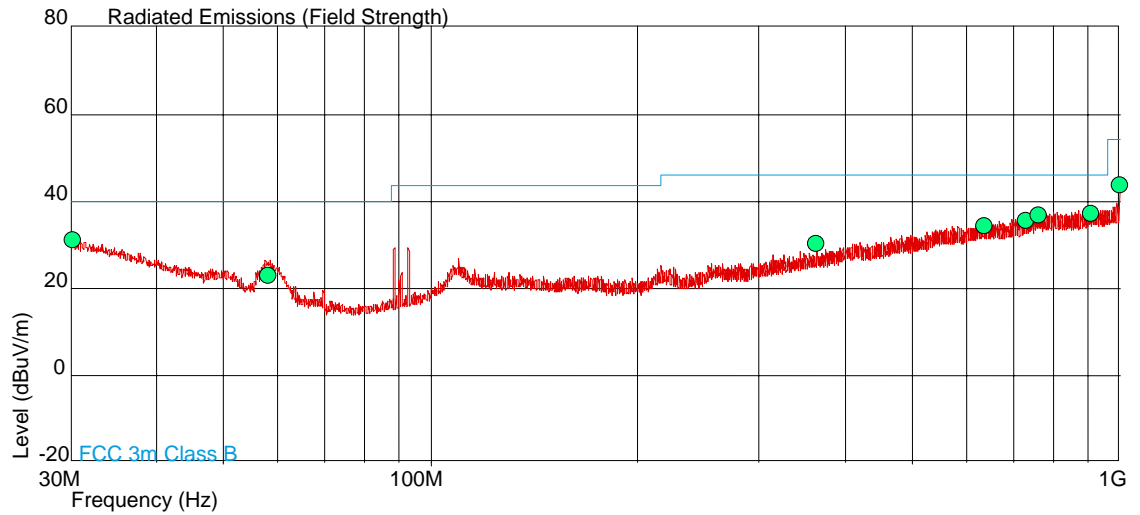


Date: 13.SEP.2008 02:36:42

### Middle Channel

#### Maximum Carrier Field Strength

Frequency GHz	Antenna Polarisation.	Antenna Height cm	EUT Arc degrees	Result Peak dBuV/m	Result Average dBuV/m	Peak Limit dBuV/m	Average Limit dBuV/m
2.439	Horizontal	116	320	90.49	77.91	114.0	94.0
2.439	Vertical	100	0	90.81	78.67	114.0	94.0

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
30.194	31.0	35.5	40.0	100	-9.0	-64.5	184	1.00	Vertical
58.318	22.9	14.0	40.0	100	-17.1	-86.0	338	1.00	Vertical
364.000	30.0	31.6	46.0	200	-16.0	-167.9	221	1.00	Horizontal
636.291	34.2	51.3	46.0	200	-11.8	-148.2	302	3.36	Vertical
731.315	35.4	58.9	46.0	200	-10.6	-140.6	1	1.00	Vertical
762.824	36.5	66.8	46.0	200	-9.5	-132.7	190	1.00	Vertical
913.212	37.2	72.4	46.0	200	-8.8	-127.1	352	2.76	Vertical
1000.000	43.7	153.1	54.0	500	-10.3	-348.1	145	1.00	Vertical

1GHz to 25GHz

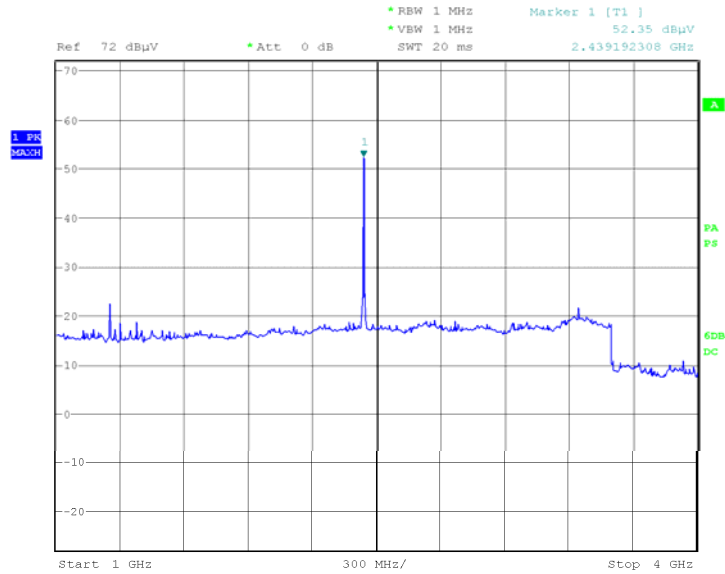
Frequency GHz	Antenna Polarisation.	Antenna Height cm	EUT Arc degrees	Result Peak dBuV/m	Result Average dBuV/m	Peak Limit dBuV/m	Average Limit dBuV/m
1.250	Vertical	100	0	55.6	51.61	74.0	54.0
4.878	Horizontal	100	338	58.97	45.42	74.0	54.0
4.878	Vertical	100	161	57.46	45.03	74.0	54.0



Product Service

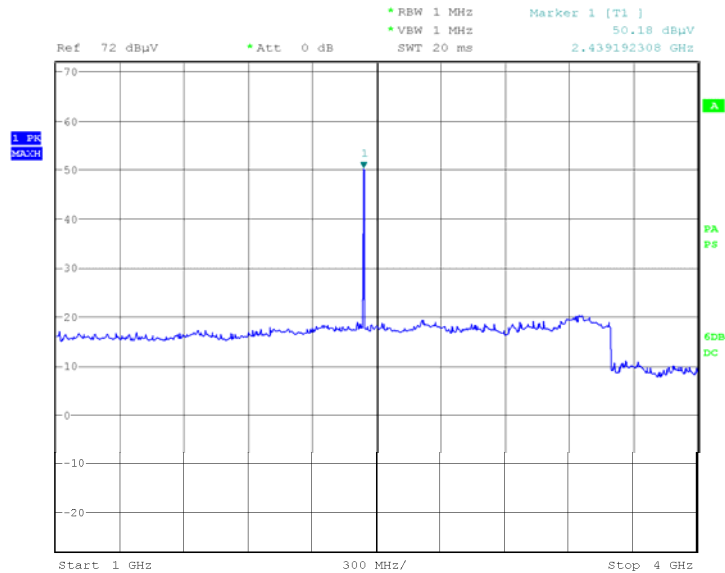
## 1GHz to 4GHz

### Vertical



Date: 12.SEP.2008 01:50:33

### Horizontal



Date: 12.SEP.2008 01:57:08

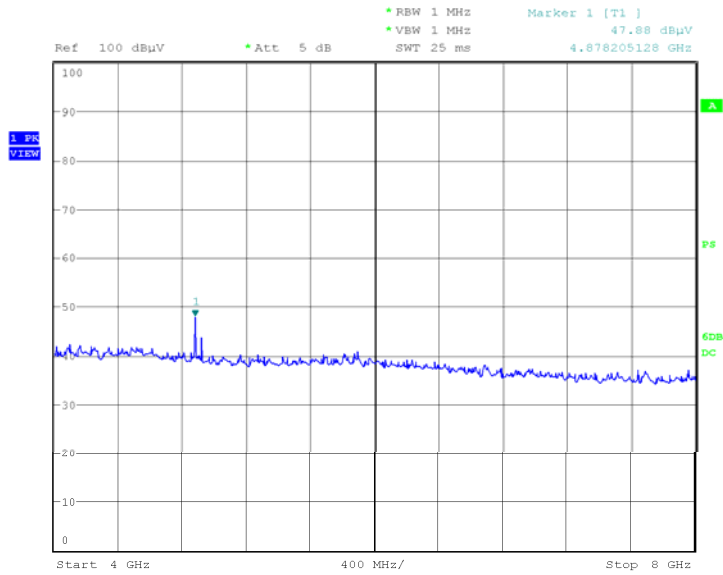




Product Service

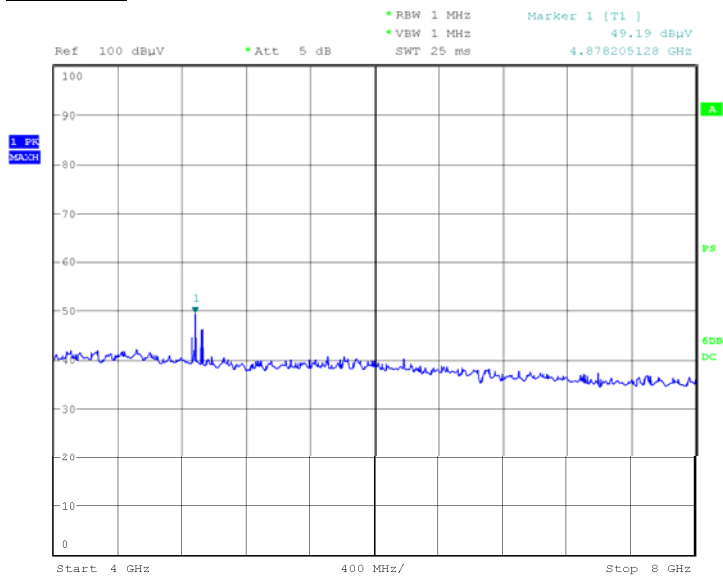
## 4GHz to 8GHz

### Vertical



Date: 11.SEP.2008 21:43:08

### Horizontal

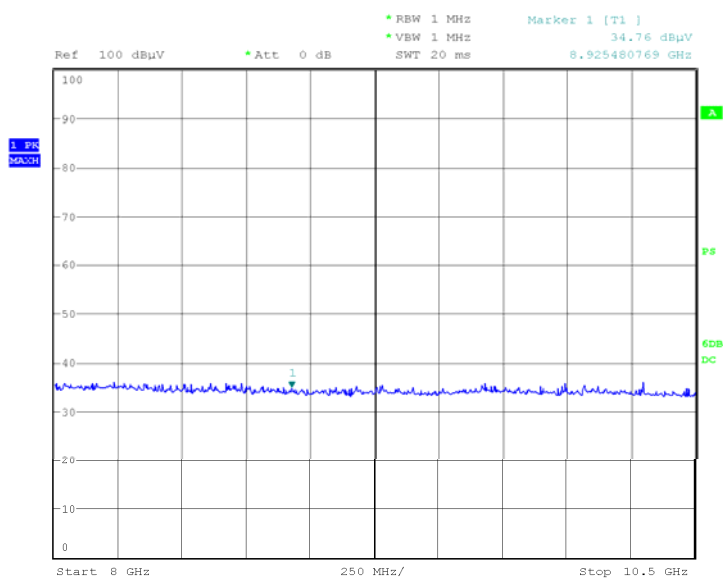


Date: 11.SEP.2008 21:40:17

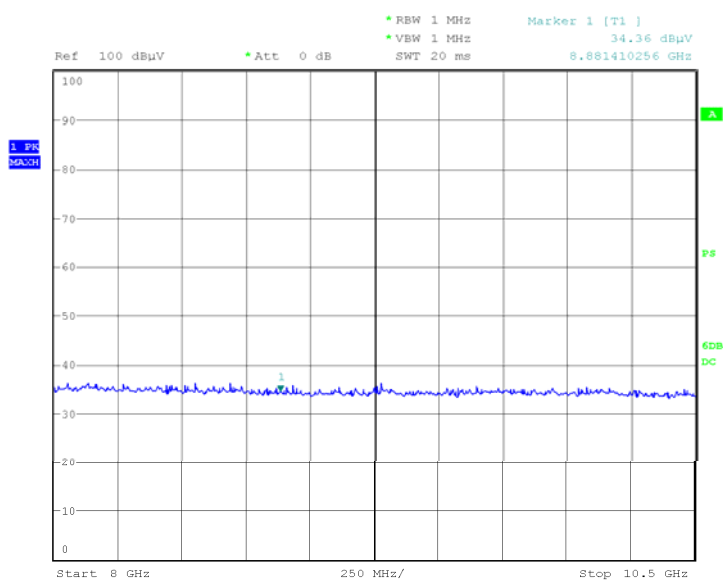


8GHz to 10.5GHz

### Vertical



Date: 12.SEP.2008 22:52:40

Horizontal

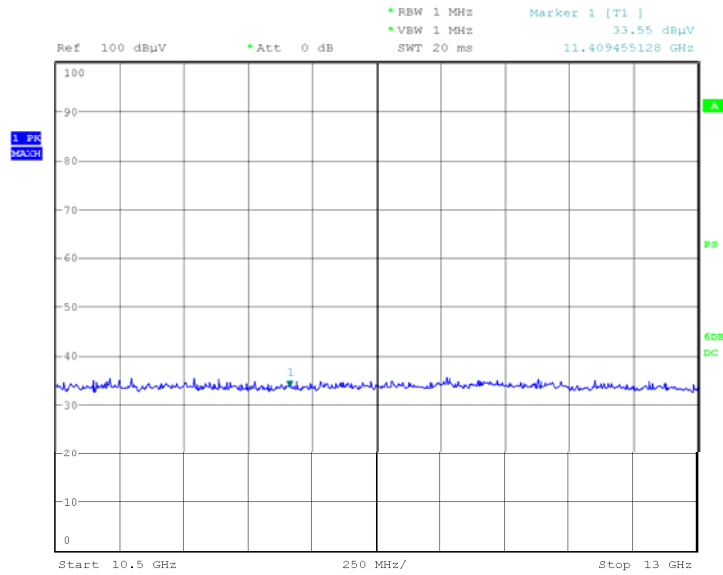
Date: 12.SEP.2008 23:22:15



Product Service

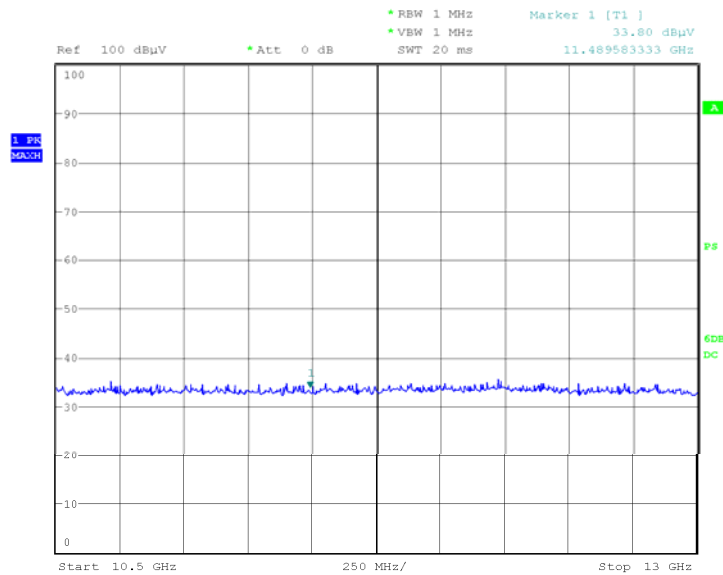
# 10.5GHz to 13GHz

## Vertical



Date: 12.SEP.2008 22:59:01

## Horizontal



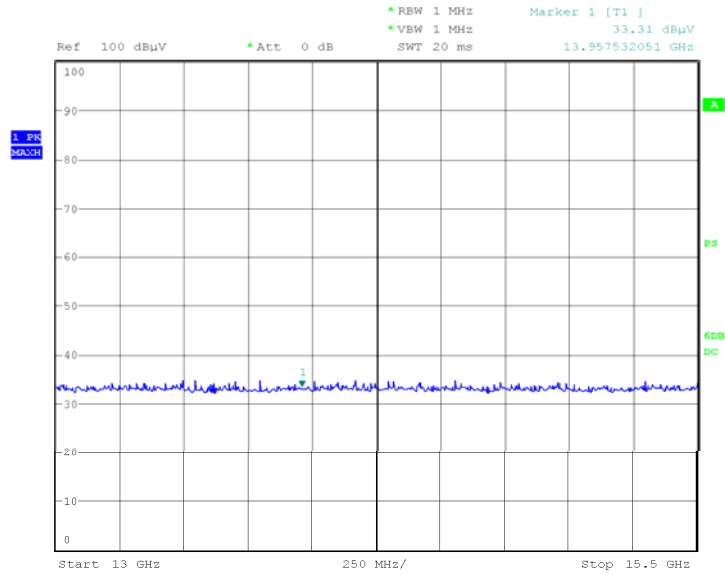
Date: 12.SEP.2008 23:24:54



Product Service

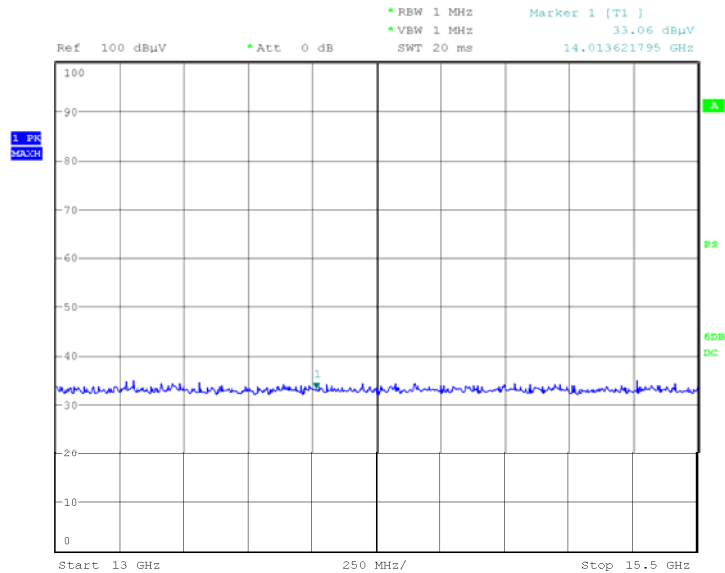
## 13GHz to 15.5GHz

### Vertical



Date: 12.SEP.2008 23:02:49

### Horizontal



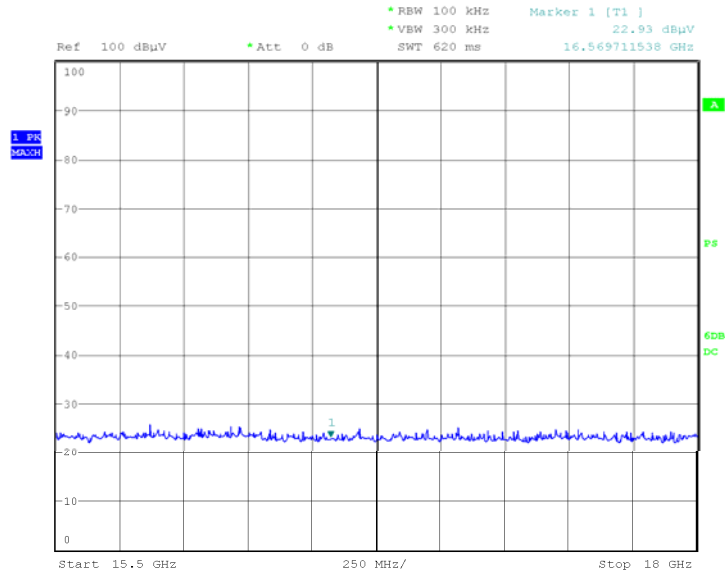
Date: 12.SEP.2008 23:27:49



Product Service

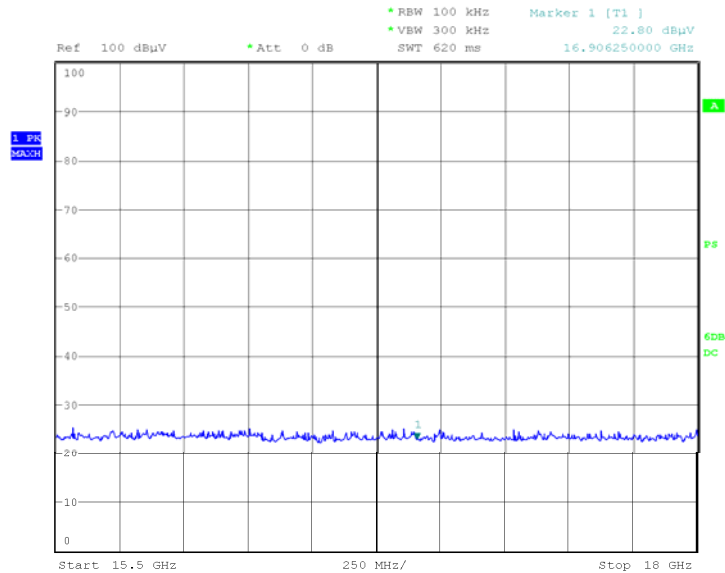
## 15.5GHz to 18GHz

### Vertical



Date: 12.SEP.2008 23:31:01

### Horizontal



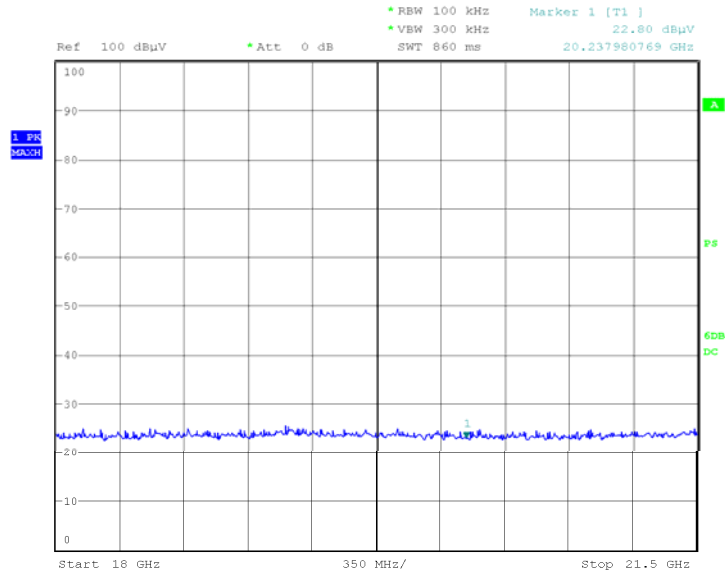
Date: 12.SEP.2008 23:33:30



Product Service

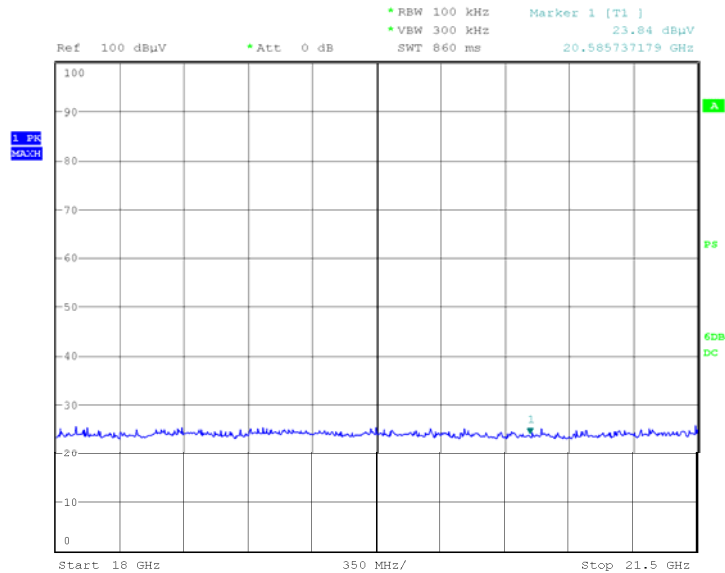
## 18GHz to 21.5GHz

### Vertical



Date: 13.SEP.2008 02:54:38

### Horizontal



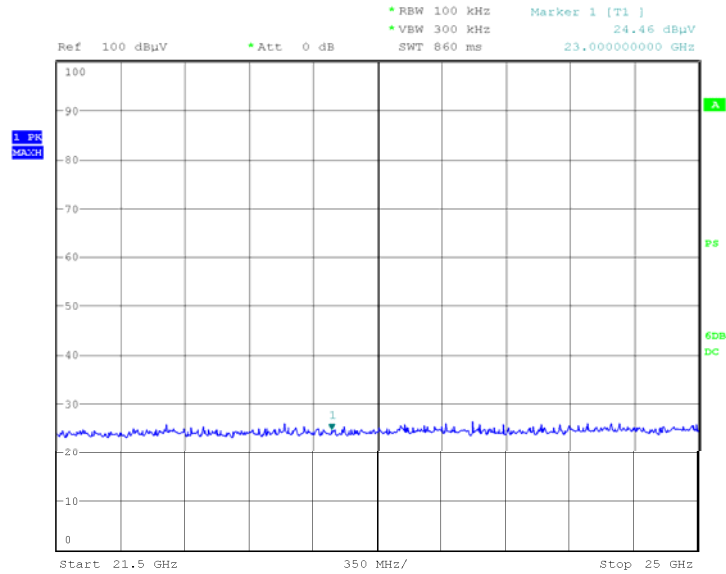
Date: 13.SEP.2008 03:13:12



Product Service

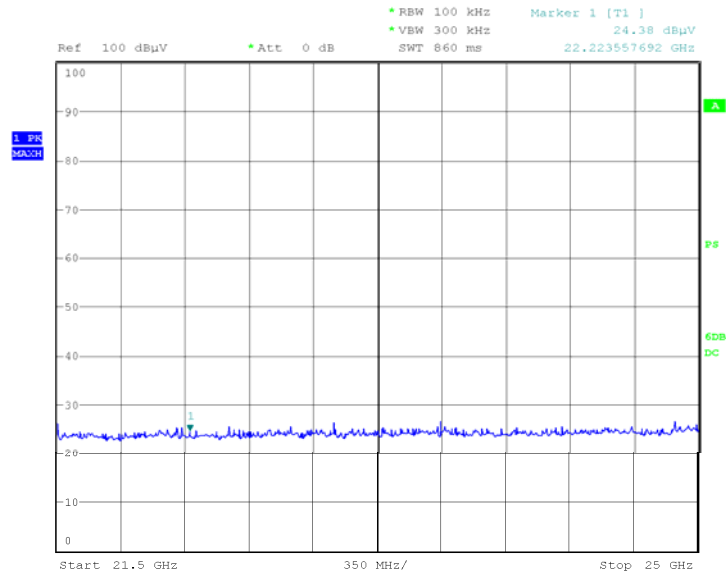
## 21.5GHz to 25GHz

### Vertical



Date: 13.SEP.2008 02:59:31

### Horizontal



Date: 13.SEP.2008 03:16:02

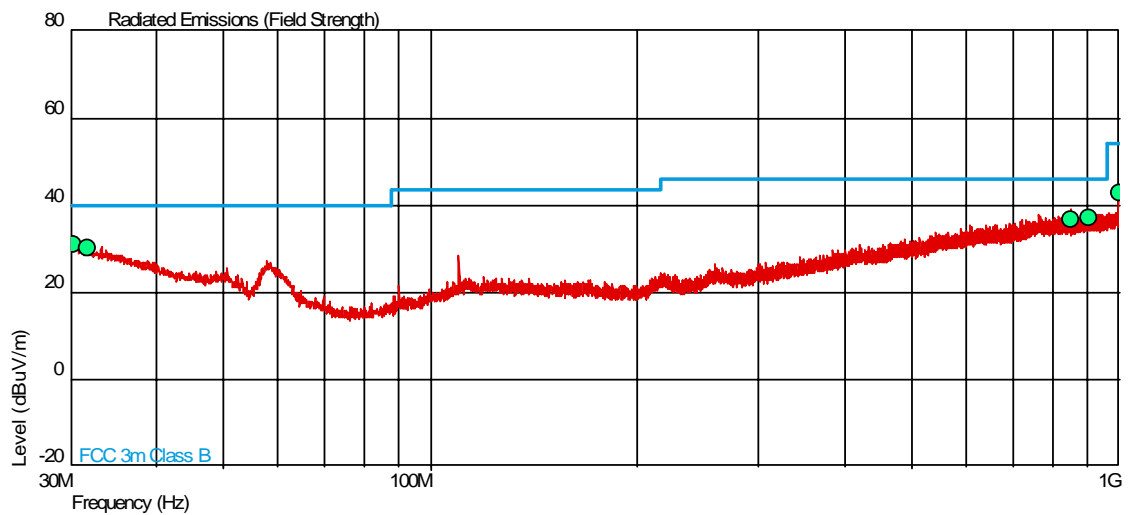


### Top Channel

### Maximum Carrier Field Strength

Frequency GHz	Antenna Polarisation.	Antenna Height cm	EUT Arc degrees	Result Peak dBµV/m	Result Average dBµV/m	Peak Limit dBµV/m	Average Limit dBµV/m
2.480	Horizontal	115	318	90.45	77.78	114.0	94.0
2.480	Vertical	100	0	88.06	75.20	114.0	94.0

### 30MHz to 1GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (uV/m)	QP Limit (dBµV/m)	QP Limit (uV/m)	QP Margin (dBµV/m)	QP Margin (uV/m)	Angle (Deg)	Height (m)	Polarity
30.343	30.8	34.7	40.0	100	-9.2	-65.3	87	1.00	Horizontal
31.798	30.0	31.6	40.0	100	-10.0	-68.4	79	1.00	Horizontal
850.009	36.8	69.2	46.0	200	-9.2	-130.8	231	1.00	Horizontal
903.819	37.3	73.3	46.0	200	-8.7	-126.7	356	1.00	Vertical
1000.000	42.6	134.9	54.0	500	-11.4	-365.1	113	1.37	Horizontal

### 1GHz to 25GHz

Frequency GHz	Antenna Polarisation.	Antenna Height cm	EUT Arc degrees	Result Peak dBµV/m	Result Average dBµV/m	Peak Limit dBµV/m	Average Limit dBµV/m
1.250	Vertical	100	0	55.86	51.89	74.0	54.0
4.955	Vertical	104	277	59.94	47.44	74.0	54.0
4.955	Horizontal	100	319	60.56	47.71	74.0	54.0

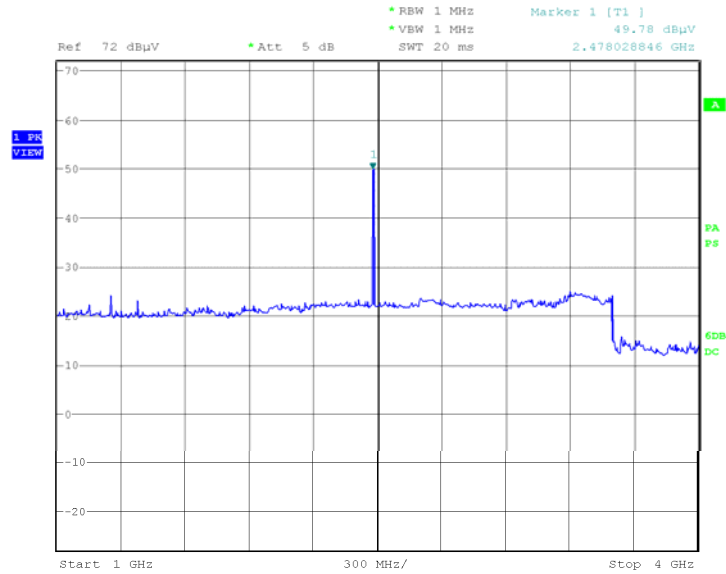




Product Service

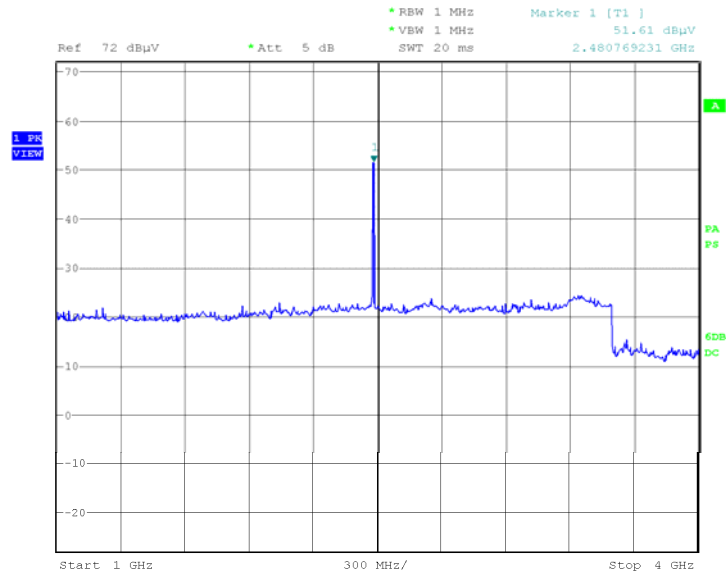
## 1GHz to 4GHz

### Vertical



Date: 12.SEP.2008 02:52:10

### Horizontal

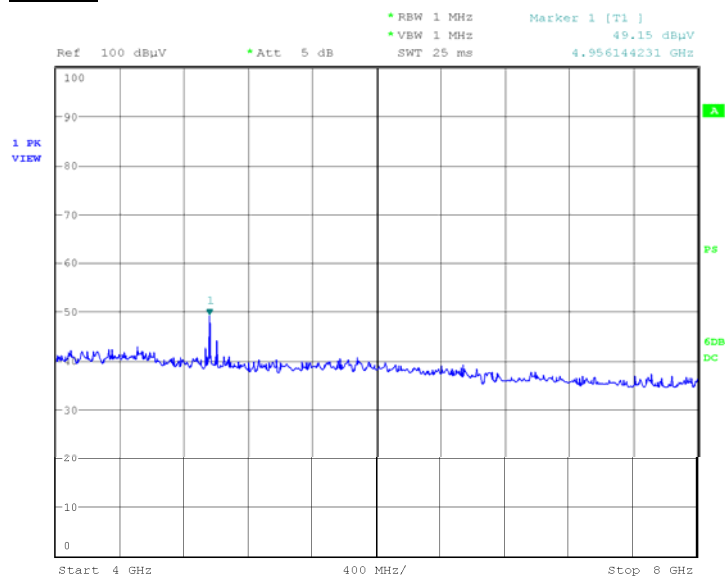


Date: 12.SEP.2008 02:42:29

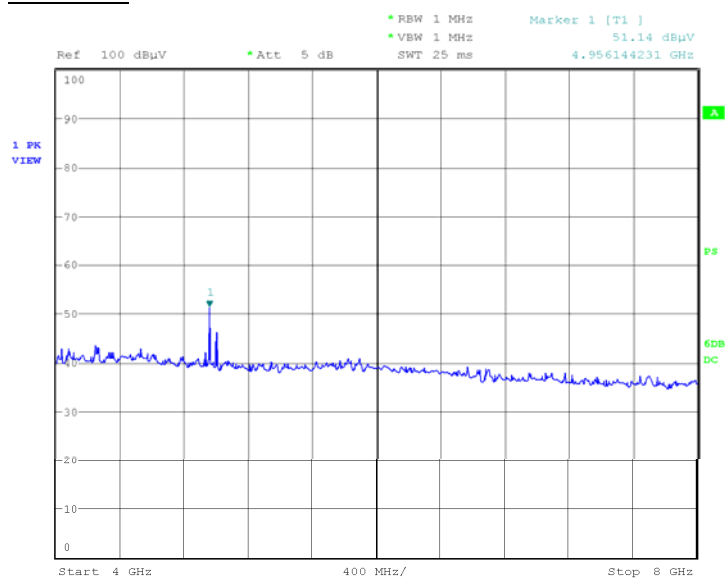


## 4GHz to 8GHz

## Vertical



Date: 11.SEP.2008 21:22:33

Horizontal

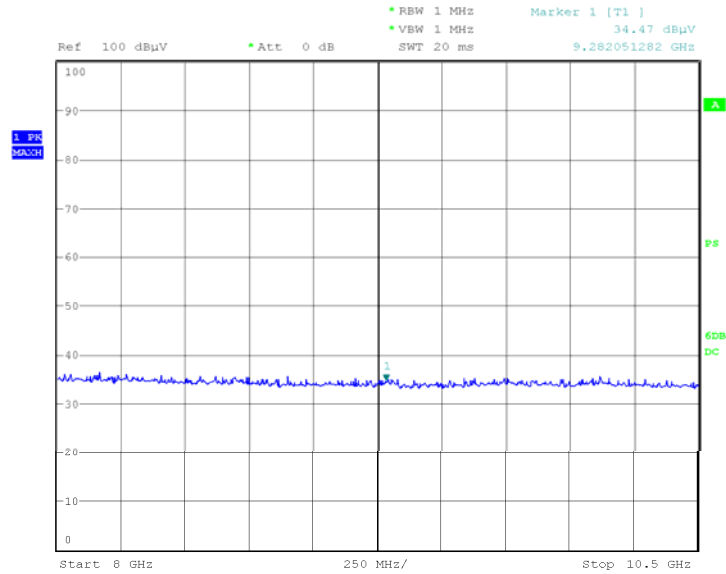
Date: 11.SEP.2008 21:19:38



Product Service

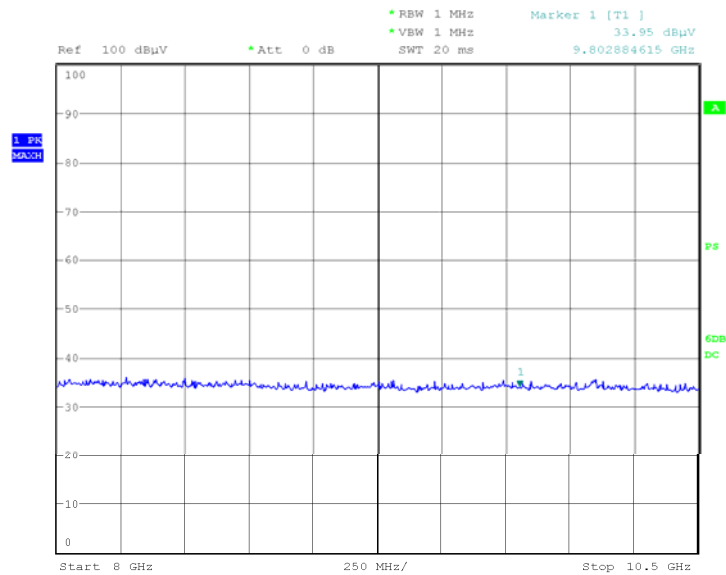
## 8GHz to 10.5GHz

### Vertical

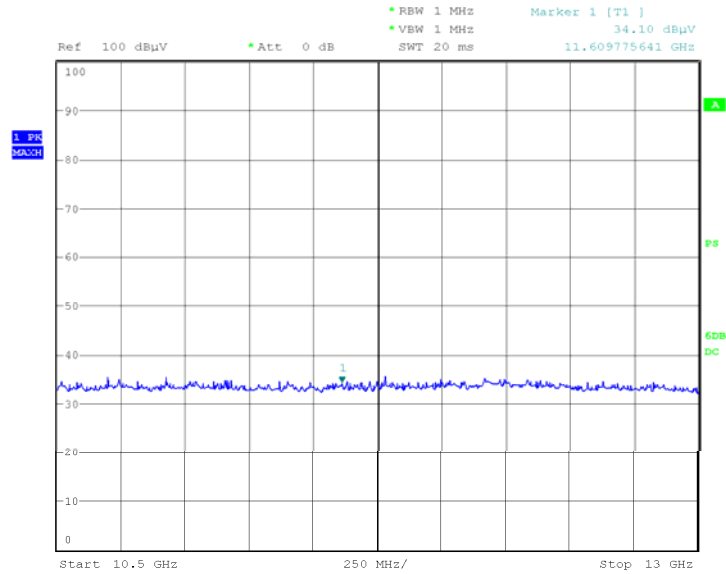


Date: 13.SEP.2008 01:44:30

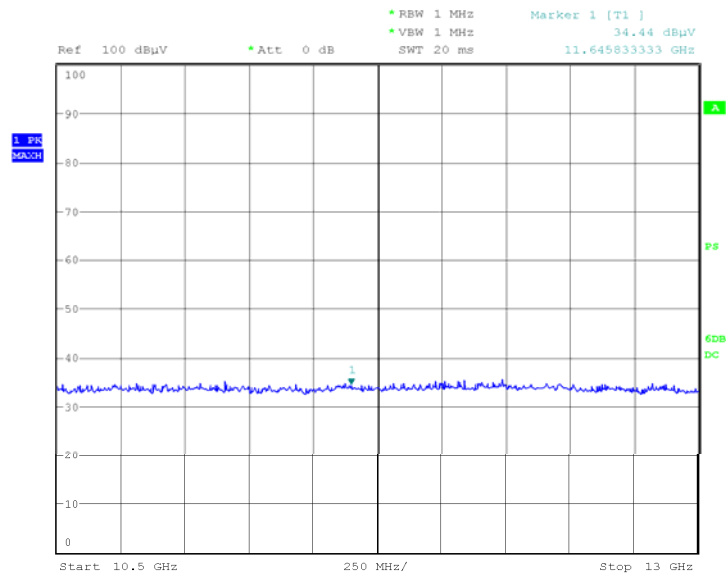
### Horizontal



Date: 13.SEP.2008 01:58:59

10.5GHz to 13GHzVertical

Date: 13.SEP.2008 01:46:54

Horizontal

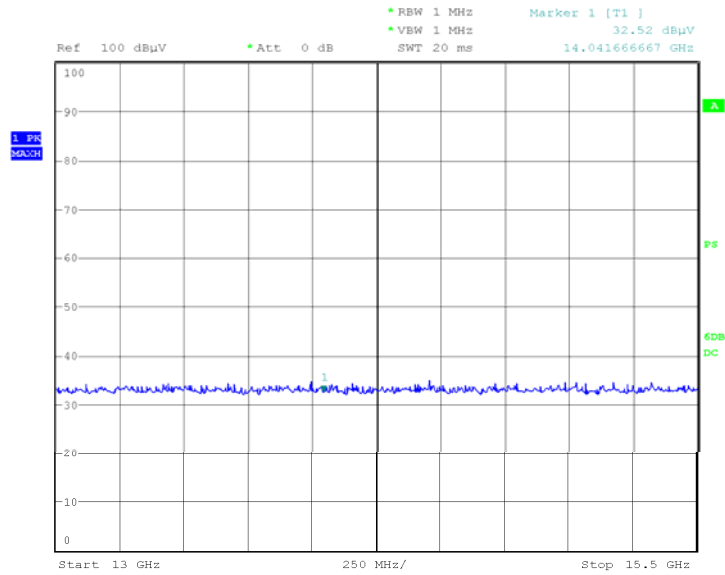
Date: 13.SEP.2008 02:03:46



Product Service

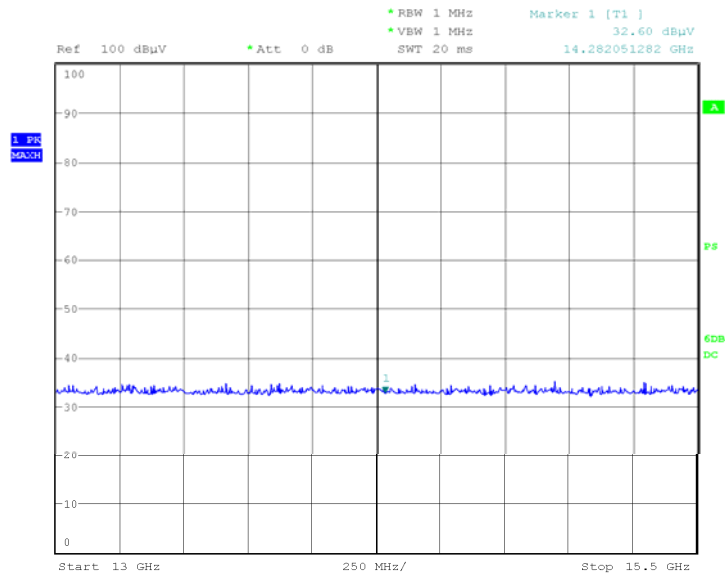
## 13GHz to 15.5GHz

### Vertical



Date: 13.SEP.2008 01:49:39

### Horizontal



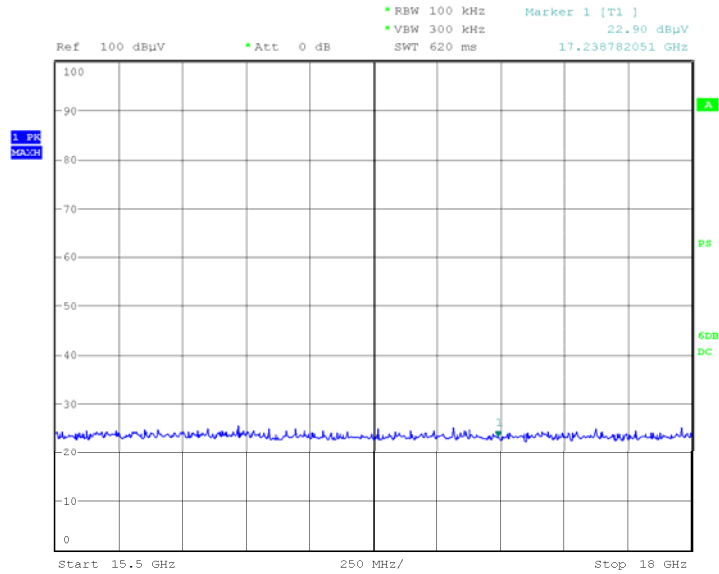
Date: 13.SEP.2008 02:07:34



Product Service

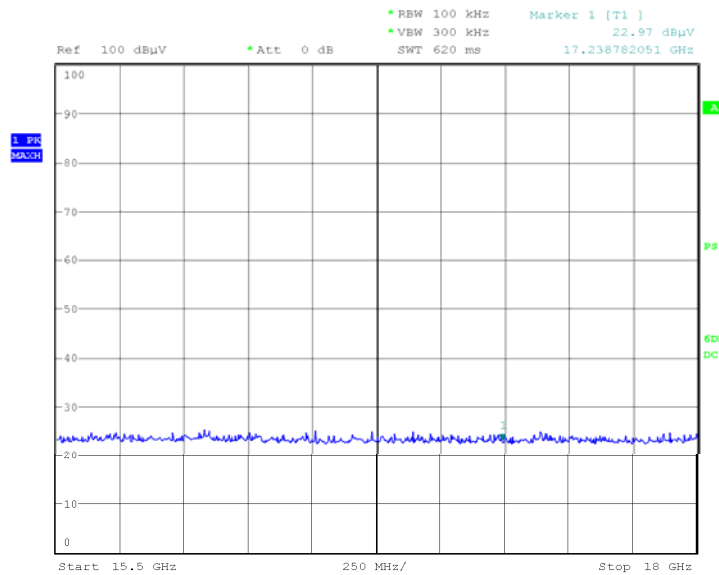
## 15.5GHz to 18GHz

### Vertical



Date: 13.SEP.2008 01:52:21

### Horizontal



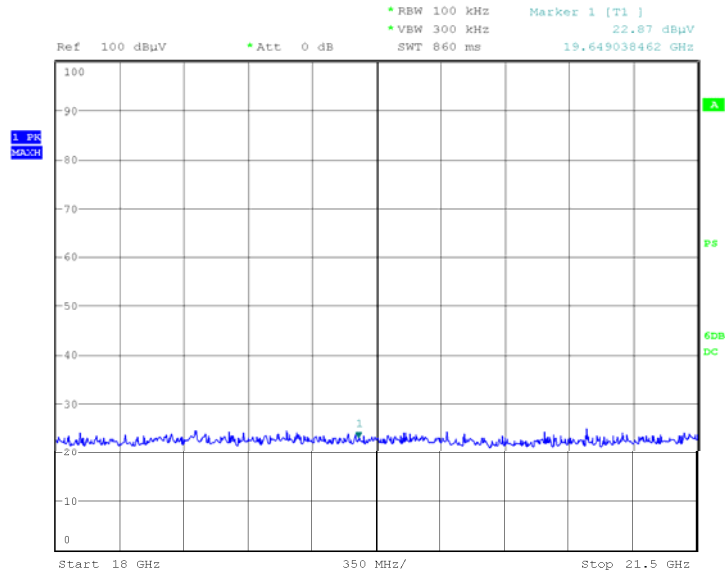
Date: 13.SEP.2008 01:54:58



Product Service

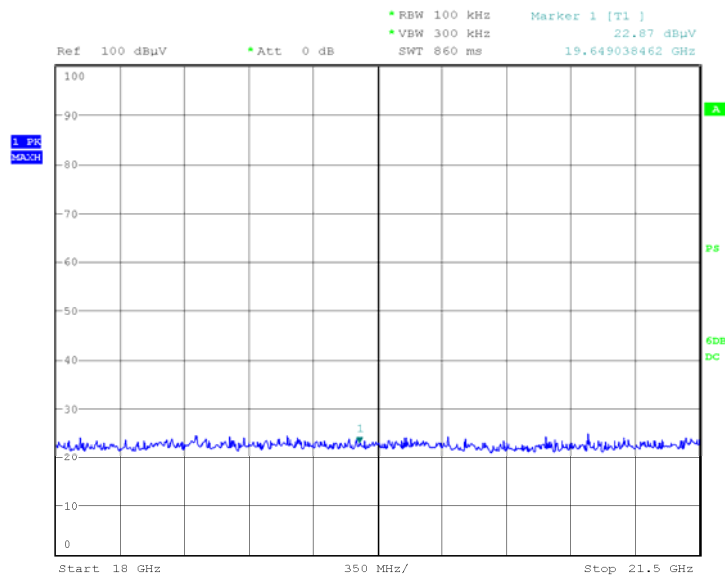
## 18GHz to 21.5GHz

### Vertical



Date: 13.SEP.2008 03:18:00

### Horizontal



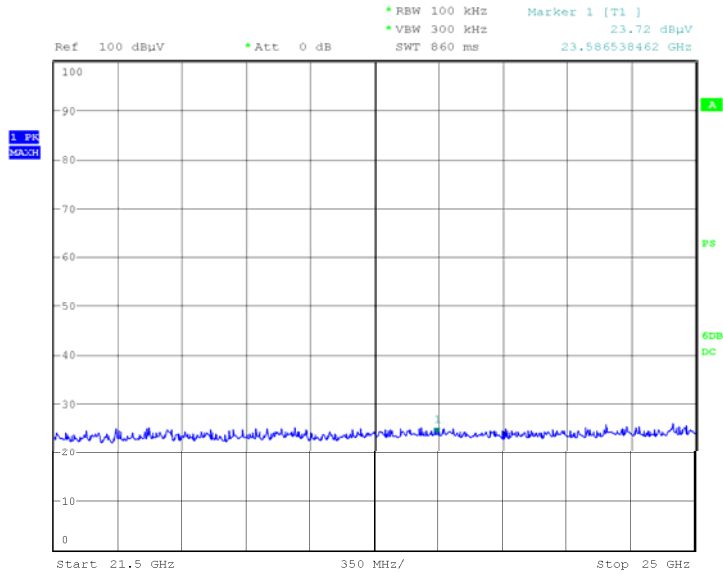
Date: 13.SEP.2008 03:18:00



Product Service

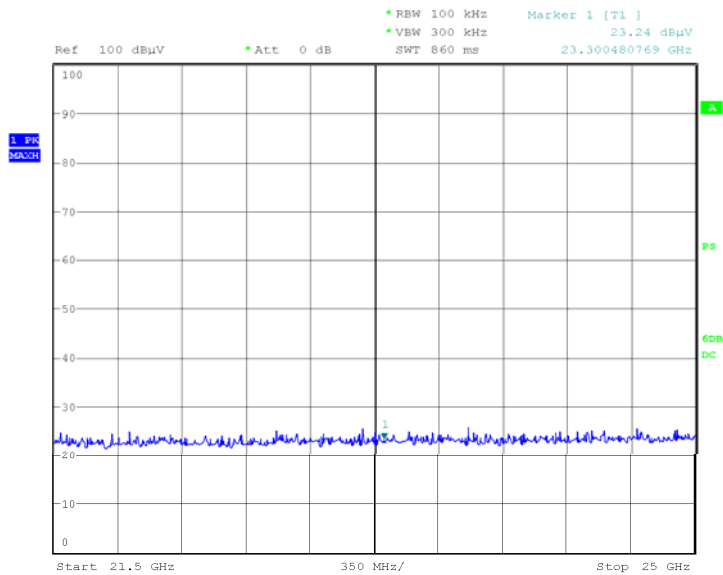
## 21.5GHz to 25GHz

### Vertical



Date: 13.SEP.2008 03:17:31

### Horizontal



Date: 13.SEP.2008 03:18:25





Product Service

## 2.3 RADIATED EMISSIONS - BAND EDGE (ENCLOSURE PORT)

### 2.3.1 Specification Reference

FCC CFR 47 Part 15C: 2006, Clause 15.205  
Industry Canad RSS-210: 2007, Clause A8.5, 2.2.

### 2.3.2 Equipment Under Test

CLiKAPAD Superbase, S/N: 000118254

### 2.3.3 Date of Test and Modification State

11 September 2008 - Modification State 1

### 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 and Industry Canada RSS-210: 2007.

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

Configuration 1 - Mode 1

### 2.3.6 Environmental Conditions

11 September 2008  
Ambient Temperature 19°C  
Relative Humidity 54%  
Atmospheric Pressure 1008mbar

### 2.3.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15C: 2006 and Industry Canada RSS-210: 2007 for Radiated Emissions – Band Edge (Enclosure Port).

The test results are shown below.

#### Configuration 1 - Mode 1

Frequency (GHz)	Peak Result (dBμV/m)	Peak Result (μV/m)	Peak Limit (dBμV/m)	Peak Limit (μV/m)	Average Result (dBμV/m)	Average Result (μV/m)	Average Limit (dBμV/m)	Average Limit (μV/m)
2.401	47.55	238.51	74.00	5000.00	35.58	60.12	54.00	500.0
2.478	44.30	164.06	74.00	5000.00	31.63	38.15	54.00	500.0



Product Service

## **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
<b>Section 2.1, 2.2 and 2.3 EMC - Radiated Emissions</b>					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	6-Sep-2009
Antenna (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	17-Jul-2010
Pre-Amplifier	Phase One	PS04-0085	1532	-	TU
Pre-Amplifier	Phase One	PS04-0086	1533	-	TU
Pre-Amplifier	Phase One	PS04-0087	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
Filter (Hi Pass)	Lorch	9HP7-7000-SR	2833	12	31-Oct-2008
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
EMI Receiver	Rohde & Schwarz	ESU26	3581	12	20-Jul-2009

TU – Traceability Unscheduled



### 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†
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



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