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Report On

FCC CFR 47 Part 15B Testing of the
Avantech Manufacture
Attitude E310 Mobile Phone

COMMERCIAL-IN-CONFIDENCE

FCC ID: RXXAttitudeE310

Document 75904049 Report 01 Issue 1

July 2008



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

COMMERCIAL-IN-CONFIDENCE

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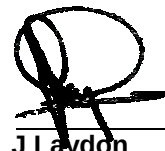
PREPARED FOR

Avantech Mobile Ltd
Rue Maurice Trintignant
72093 Le Mans
Cedex 9

PREPARED BY


N Bennett
Senior Administrator

APPROVED BY


J Laydon
Authorised Signatory

DATED

09 July 2008

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. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);


A Guy


G Lawler





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SECTION 1

REPORT SUMMARY

FCC CFR 47 Part 15B Testing of the
Avantech Manufacture
Attitude E310 Mobile Phone



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Avantech Manufacture Attitude E310 Mobile Phone to the requirements of FCC CFR 47 Part 15B 2006.

Objective	To perform FCC CFR 47 Part 15 B Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Avantech Manufacture
Model Number(s)	Attitude E310
Serial Number(s)	IMEI 352455020004495 IMEI 352455020004255
Hardware Version	PR2
Number of Samples Tested	2
Test Specification/Issue/Date	FCC CFR 47 Part 15B 2006
Incoming Release Date	Declaration of Build Status 26 June 2008
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Start of Test	26 June 2008
Finish of Test	29 June 2008
Name of Engineer(s)	A Guy G Lawler
Related Document(s)	ANSI C63.4 2003. Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 15B 2006, is shown below.

Configuration 1 - UE						
Section	Spec Clause	Test Description	Mode	Mod State	Result	Base Standard
2.1	15.109 (a)	Radiated Emissions (Enclosure Port)	850 Idle	0	Pass	FCC CFR 47 Part 15: 2006
			1900 Idle	0	Pass	
			Bluetooth Idle	0	Pass	
	15.107 (a)	Conducted Emissions (AC Power Port)	850 Idle		N/A	FCC CFR 47 Part 15: 2006
			1900 Idle		N/A	
			Bluetooth Idle		N/A	

Configuration 2 - UE + Charger						
Section	Spec Clause	Test Description	Mode	Mod State	Result	Base Standard
	15.109 (a)	Radiated Emissions (Enclosure Port)	850 Idle		N/A	FCC CFR 47 Part 15: 2006
			1900 Idle		N/A	
			Bluetooth Idle		N/A	
2.2	15.107 (a)	Conducted Emissions (AC Power Port)	850 Idle	0	Pass	FCC CFR 47 Part 15: 2006
			1900 Idle	0	Pass	
			Bluetooth Idle	0	Pass	

N/A – Not Applicable



1.3 DECLARATION OF BUILD STATUS

MAIN EUT			
MANUFACTURING DESCRIPTION	Cellular Mobile Phone Manufacturer		
MANUFACTURER	Avantech Manufacture		
TYPE	Cellular Mobile Phone		
PART NUMBER	Not Supplied		
SERIAL NUMBER	IMEI: 352455020004255 IMEI: 352455020004065		
HARDWARE VERSION	PR2		
SOFTWARE VERSION	Not Supplied		
TRANSMITTER OPERATING RANGE	Part 22 (824.2 – 848.8 MHz), Part 24 (1850.2 – 1909.8 MHz)		
RECEIVER OPERATING RANGE	Part 22 (869.2 – 893.8 MHz), Part 24 (1930.2 – 1989.8 MHz)		
COUNTRY OF ORIGIN	France		
INTERMEDIATE FREQUENCIES	Direct Conversion		
ITU DESIGNATION OF EMISSION	300KGXW		
HIGHEST INTERNALLY GENERATED FREQUENCY	1900MHz		
OUTPUT POWER (W or dBm)	32 dBm		
FCC ID	RXXAttitudeE310		
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	This product is the cellular mobile phone in 850/900/1800/1900 bands		
BATTERY/POWER SUPPLY			
MANUFACTURING DESCRIPTION	Batterie's Manufacturer		
MANUFACTURER	Xwoda		
TYPE	Lithium Ion		
PART NUMBER	BL2001		
VOLTAGE	3.7 V		
COUNTRY OF ORIGIN	China		
ANCILLARIES (if applicable)			
MANUFACTURING DESCRIPTION	Main Adapter		
MANUFACTURER	MLF		
TYPE	DC 5 V		
PART NUMBER	MLF-005W0500600-U		
COUNTRY OF ORIGIN	China		

Signature

Date 26 June 2008

Declaration of Build Status Serial Number 75904049/01



1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Avantech Mobile Ltd Attitude E310 Mobile Phone 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

Configuration 1: UE

The EUT was configured in accordance with FCC CFR 47 Part 15B 2006.

Configuration 2: UE + Charger

The EUT was configured in accordance with FCC CFR 47 Part 15B 2006.

1.4.3 Modes of Operation

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

Mode 1 - 850 Idle

Mode 2 - 1900 Idle

Mode 3 - Bluetooth Idle

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 powered from a 3.7V nominal battery supply during radiated emissions

The EUT was powered from an AC/DC adaptor via 120V 60Hz AC supply during conducted emissions

FCC Accreditation
90987 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

EMC Testing of the
Avantech Manufacture
Attitude E310 Mobile Phone



Product Service

2.1 RADIATED EMISSIONS (ENCLOSURE PORT)

2.1.1 Specification Reference

FCC CFR 47 Part 15B: 2006, Clause 15.109 (a)

2.1.2 Equipment Under Test

Attitude E310 Mobile Phone, IMEI: 352455020004495 and IMEI: 352455020004255

2.1.3 Date of Test and Modification State

26 and 27 June 2008 - 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 C63.4 2003.

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

	26 June 2008	27 June 2008
Ambient Temperature	18.6°C	18°C
Relative Humidity	46%	46%
Atmospheric Pressure	1014mbar	1014mbar



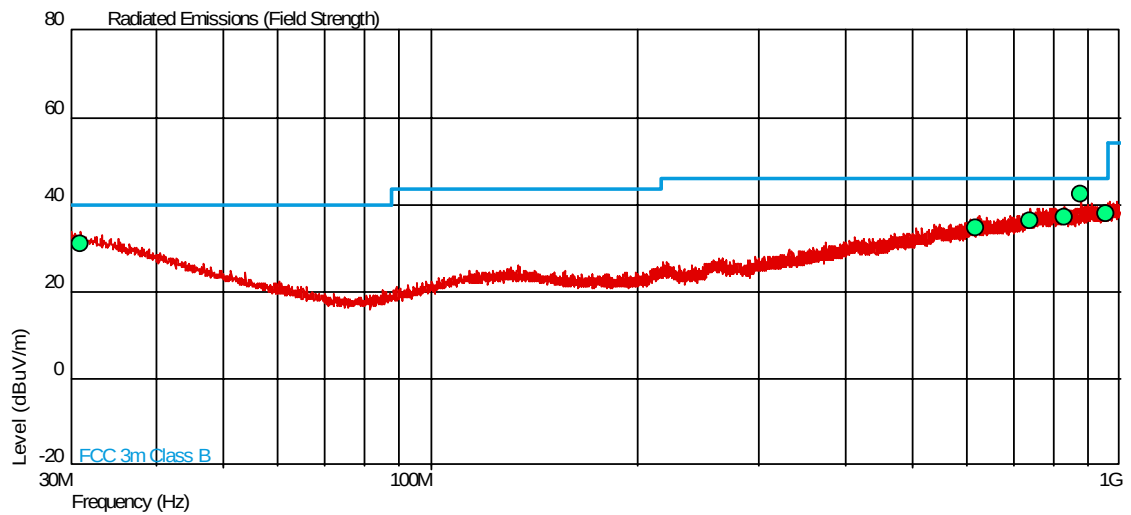
2.1.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15B: 2006 for Radiated Emissions (Enclosure Port).

The test results are shown below.

Configuration 1 - Mode 1

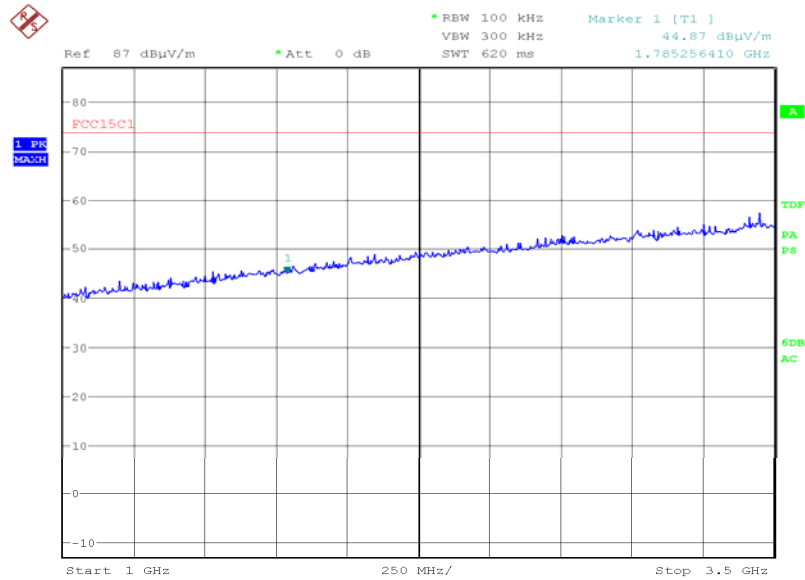
30MHz to 1GHz



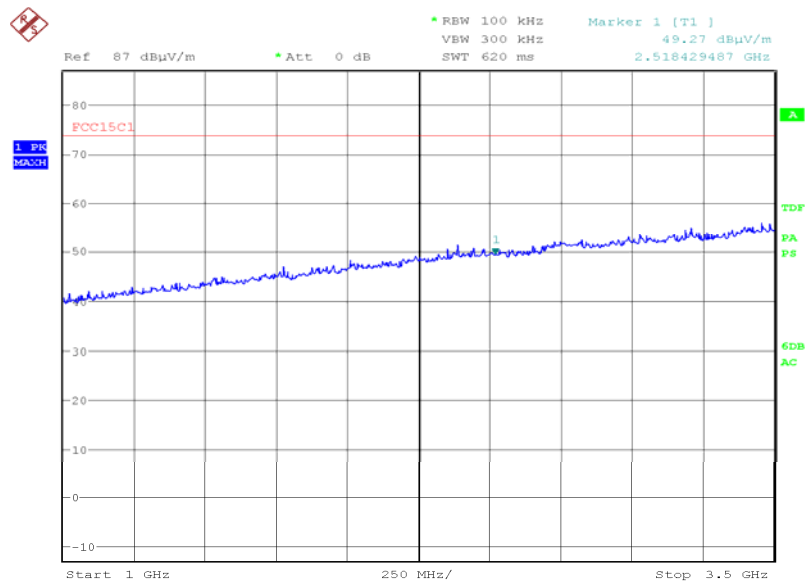
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	QP Level (μV/m)	QP Limit (μV/m)	QP Margin (μV/m)	Angle(Deg)	Height(m)	Polarity
31.069	30.8	40.0	-9.2	34.7	100.0	65.3	307	1.00	Vertical
620.231	34.5	46.0	-11.5	53.1	200.0	33.1	004	1.00	Vertical
740.400	36.1	46.0	-9.9	63.8	200.0	136.2	315	1.00	Horizontal
829.738	36.9	46.0	-9.1	70.0	200.0	130.0	195	1.10	Vertical
876.007	42.5	46.0	-3.5	133.4	200.0	66.6	194	1.00	Horizontal
956.628	37.9	46.0	-8.1	78.5	200.0	121.5	136	1.00	Vertical



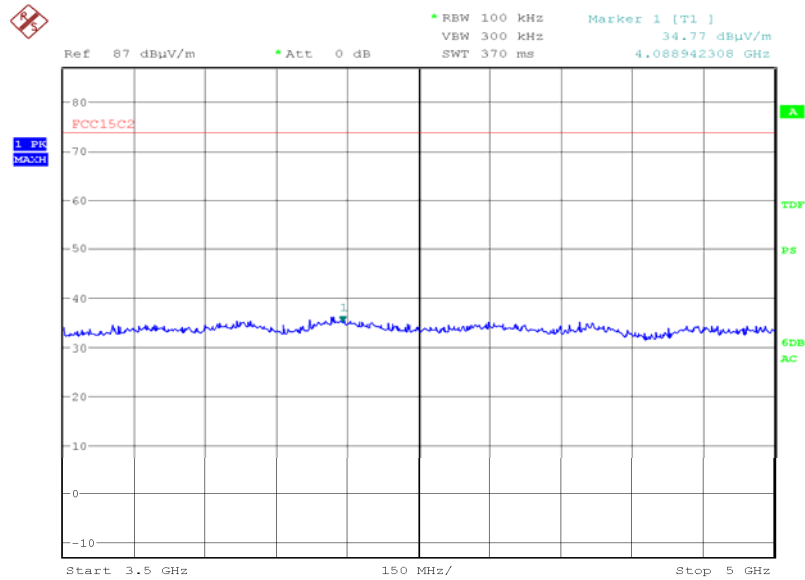
Product Service

1GHz to 3.5GHzVertical

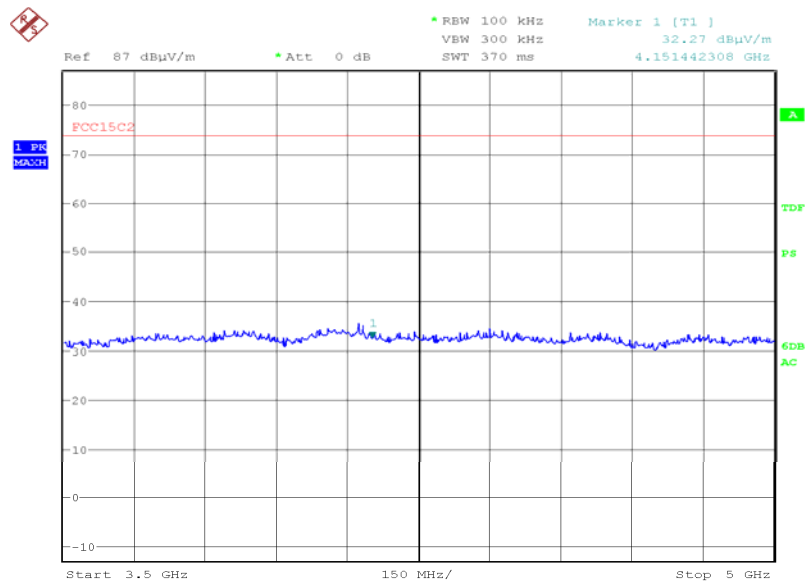
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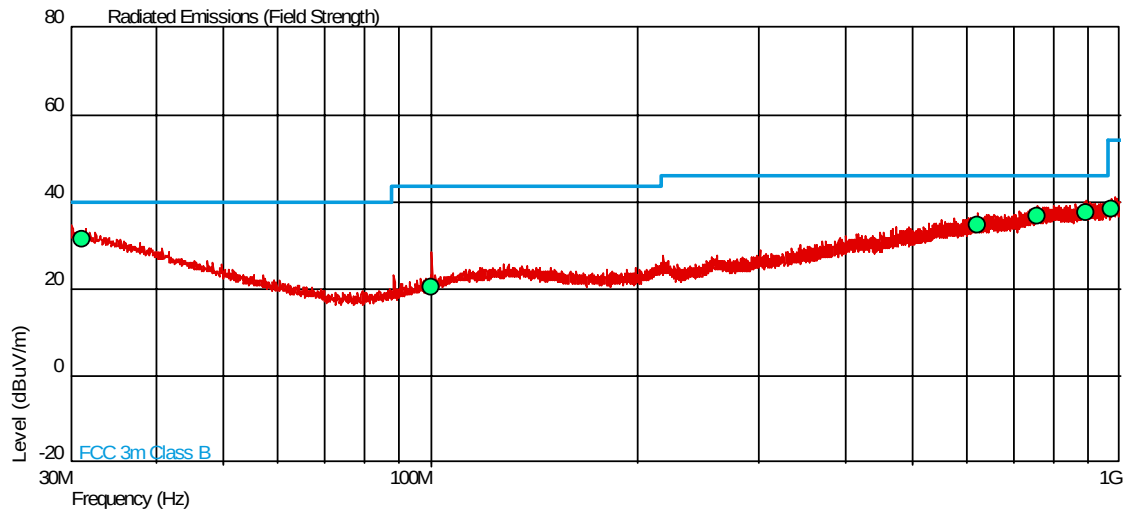
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3.5GHz to 5GHzVertical

Date: 27.JUN.2008 02:38:06

Horizontal

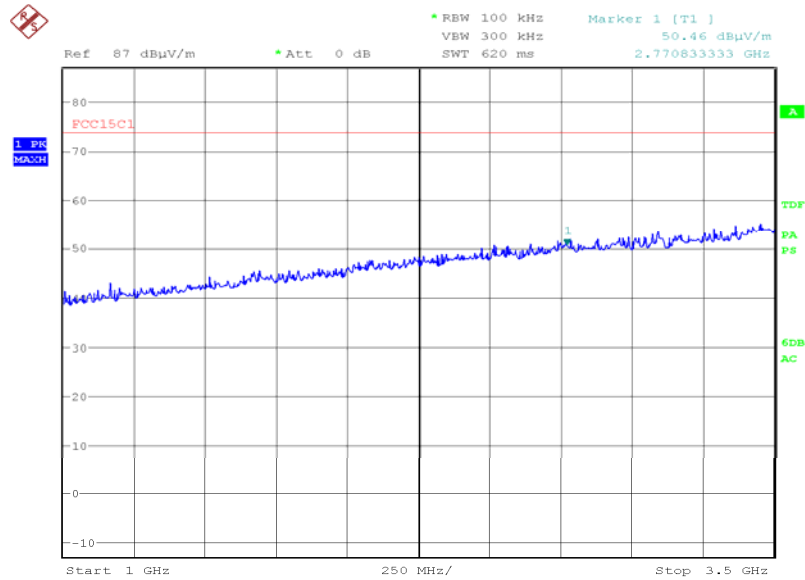
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Configuration 1 - Mode 230MHz to 1GHz

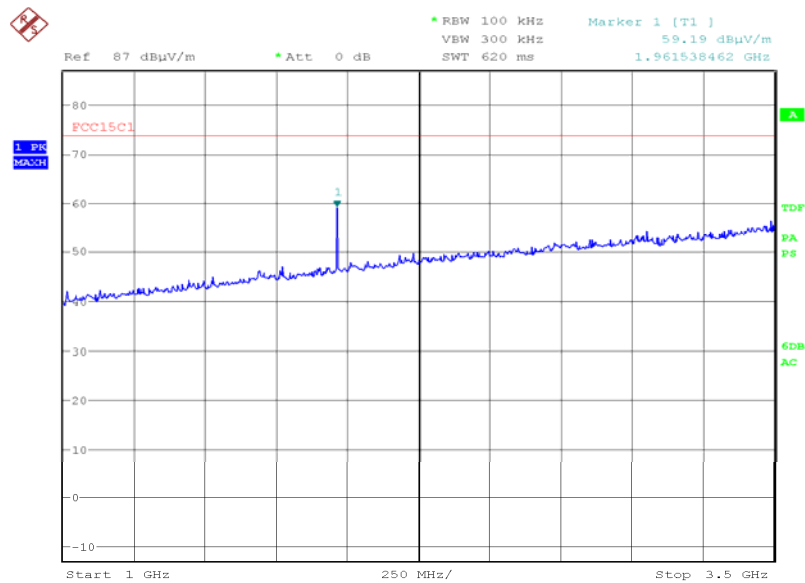
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	QP Level (μV/m)	QP Limit (μV/m)	QP Margin (μV/m)	Angle(Deg)	Height(m)	Polarity
31.214	31.5	40.0	-8.5	37.6	100.0	62.4	278	2.61	Horizontal
100.318	20.5	43.5	-23.0	10.6	150.0	139.4	008	1.00	Vertical
622.616	34.7	46.0	-11.3	54.3	200.0	145.7	185	2.91	Horizontal
761.379	36.8	46.0	-9.2	69.2	200.0	130.8	177	1.00	Horizontal
894.285	37.7	46.0	-8.3	76.7	200.0	123.3	180	1.00	Vertical
973.102	38.2	54.0	-15.8	81.3	200.0	118.7	359	1.00	Vertical



Product Service

1GHz to 3.5GHzVertical

Date: 27.JUN.2008 03:29:04

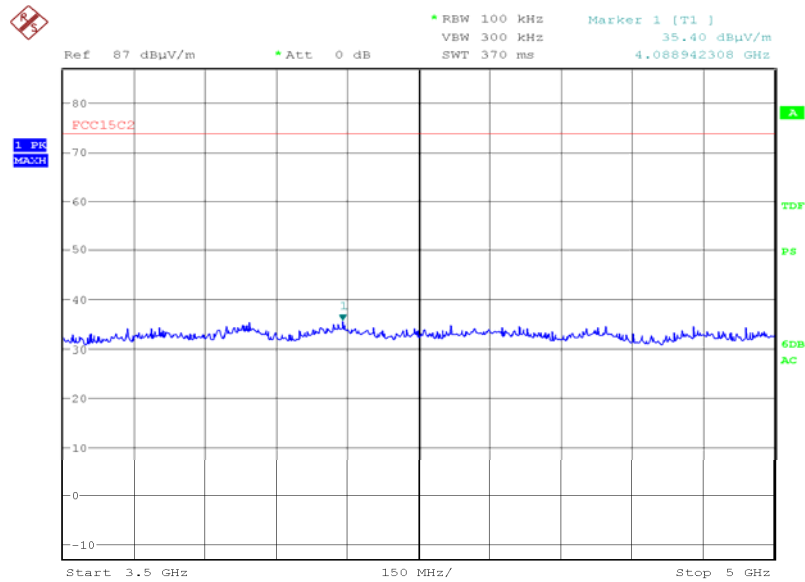
Horizontal

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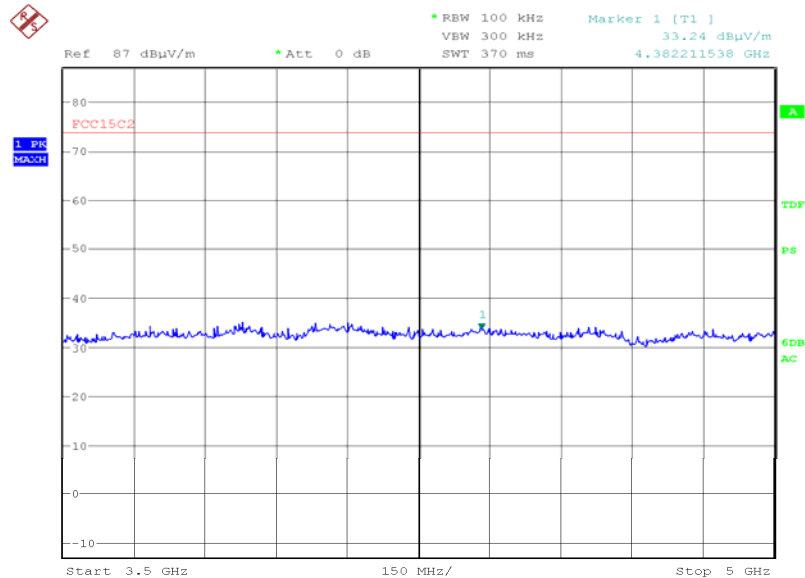
The Emission indicated is the 1900 band base station BCCH.



Product Service

3.5GHz to 5GHzVertical

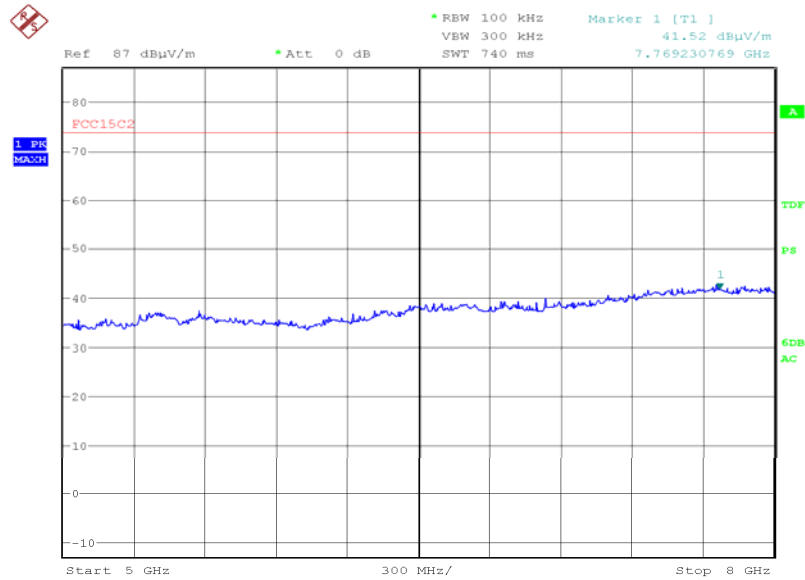
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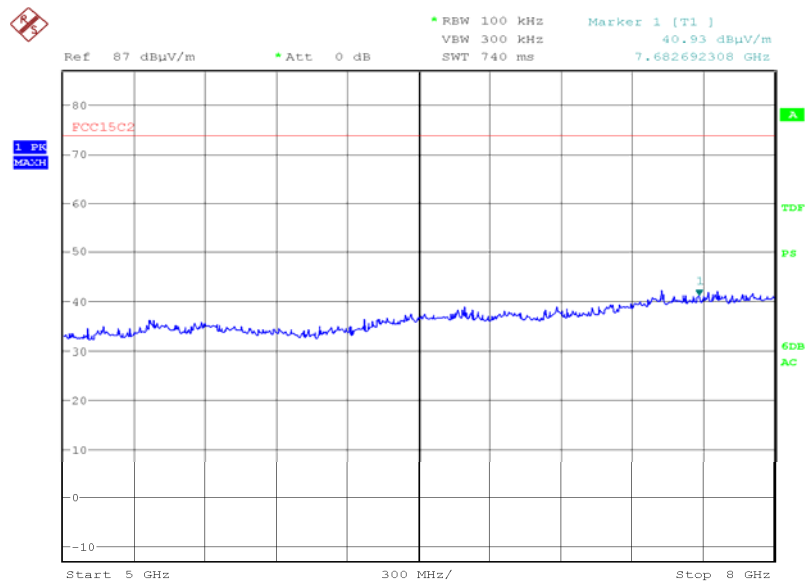
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Product Service

5GHz to 8GHzVertical

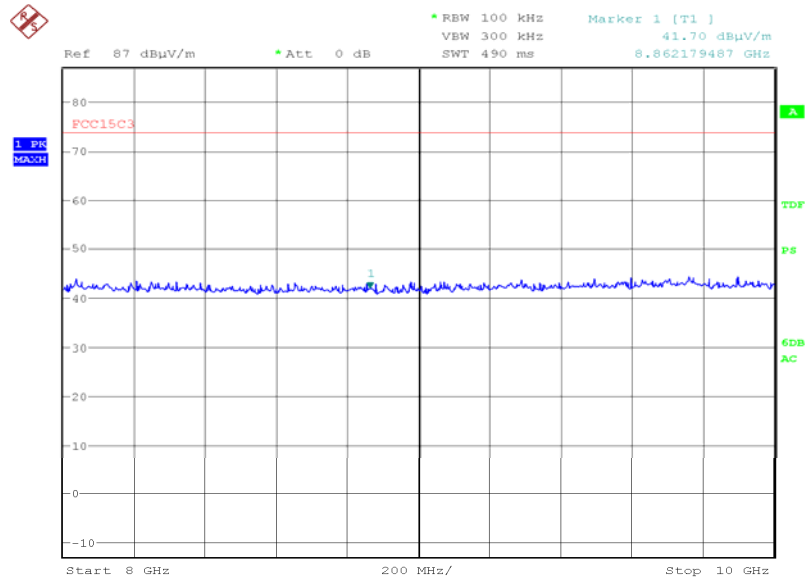
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Horizontal

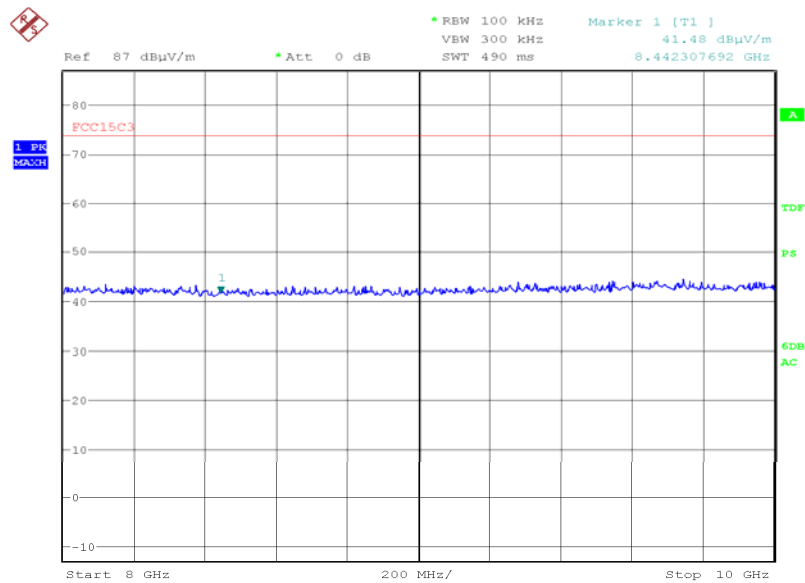
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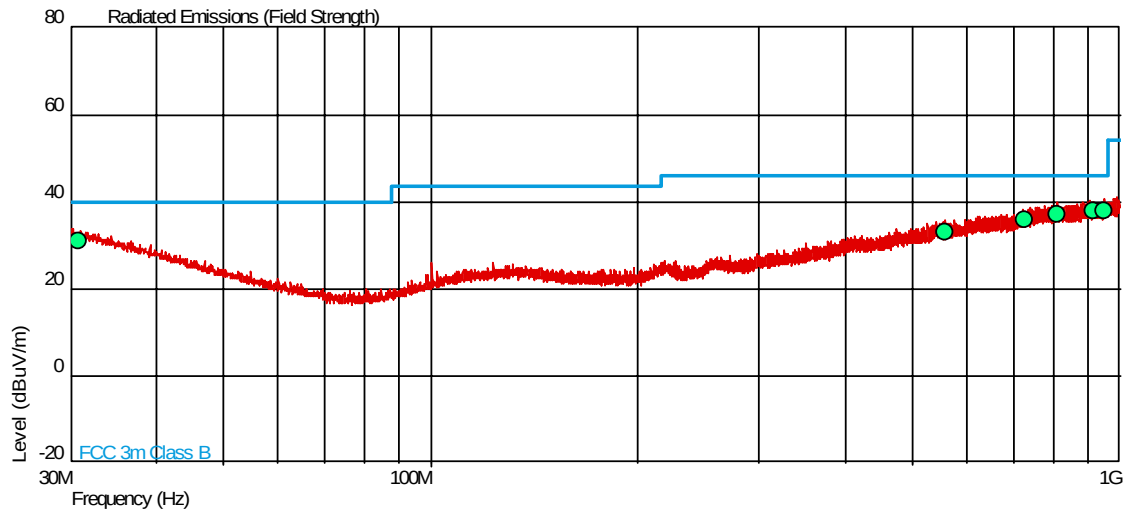
Product Service

8GHz to 10GHzVertical

Date: 27.JUN.2008 04:27:14

Horizontal

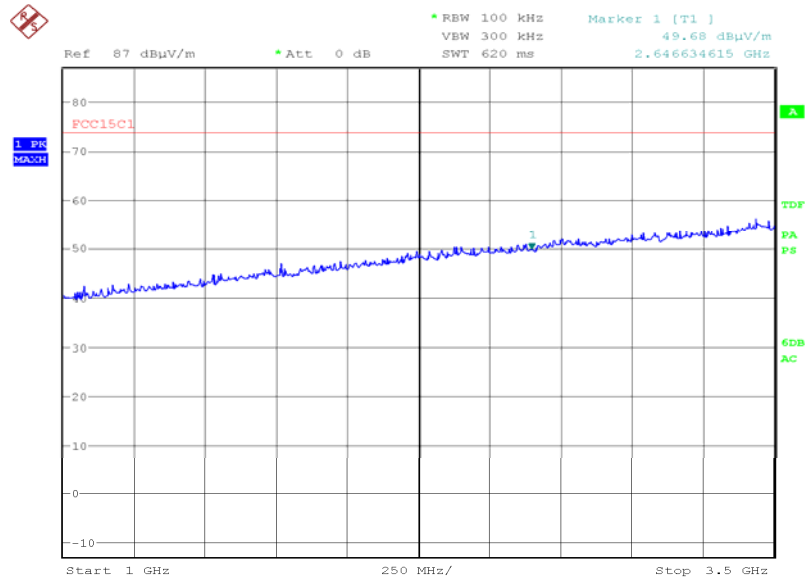
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Configuration 1 - Mode 330MHz to 1GHz

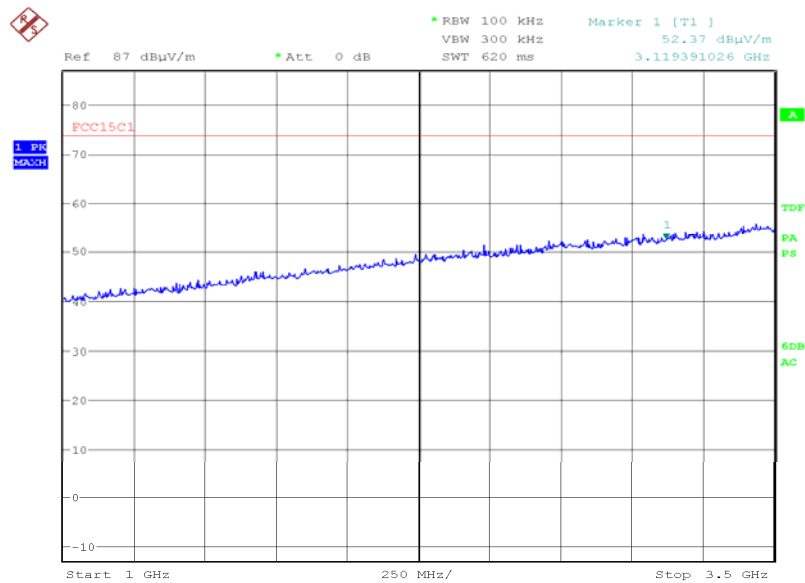
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	QP Level (μV/m)	QP Limit (μV/m)	QP Margin (μV/m)	Angle(Deg)	Height(m)	Polarity
30.882	30.9	40.0	-9.1	35.1	100.0	64.9	192	2.14	Horizontal
559.419	32.9	46.0	-13.1	44.2	200.0	155.8	034	1.00	Horizontal
729.543	35.8	46.0	-10.2	61.7	200.0	138.3	228	1.71	Horizontal
811.659	37.0	46.0	-9.0	70.8	200.0	129.2	051	1.00	Vertical
914.302	37.8	46.0	-8.2	77.6	200.0	122.4	177	1.00	Vertical
952.282	37.9	46.0	-8.1	78.5	200.0	121.5	056	3.03	Horizontal



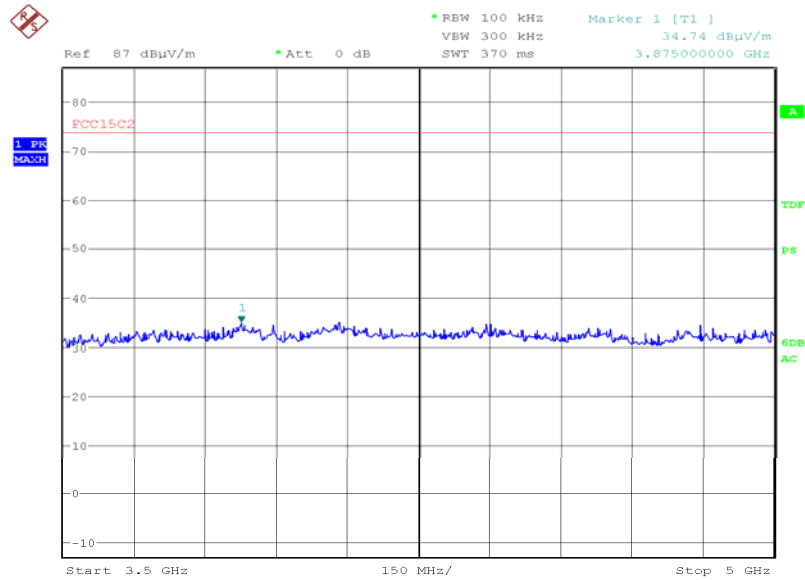
Product Service

1GHz to 3.5GHzVertical

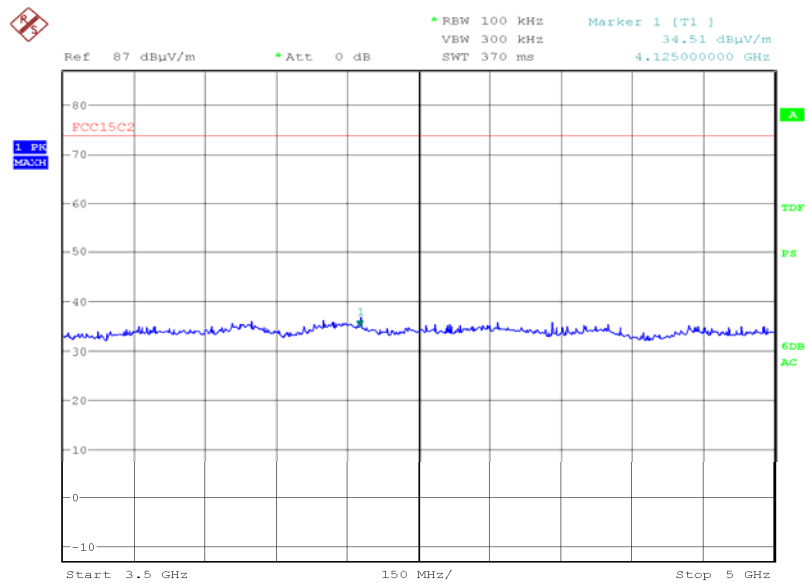
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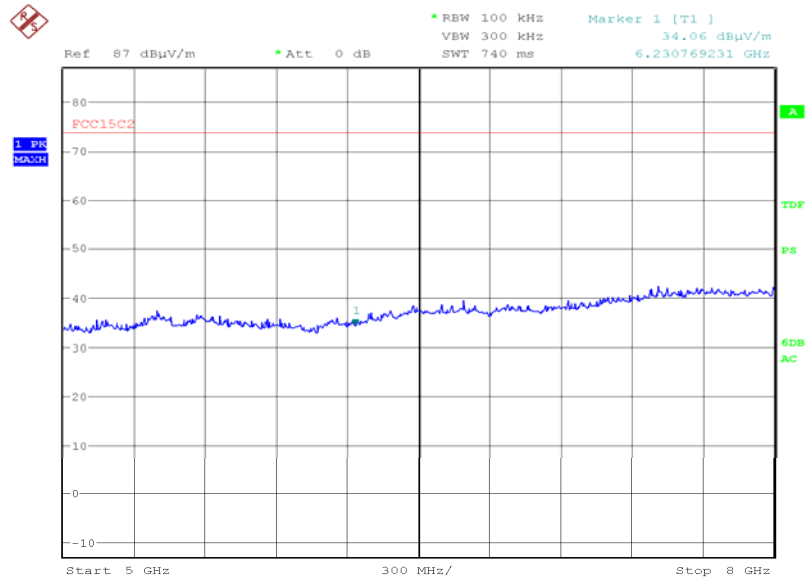
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3.5GHz to 5GHzVertical

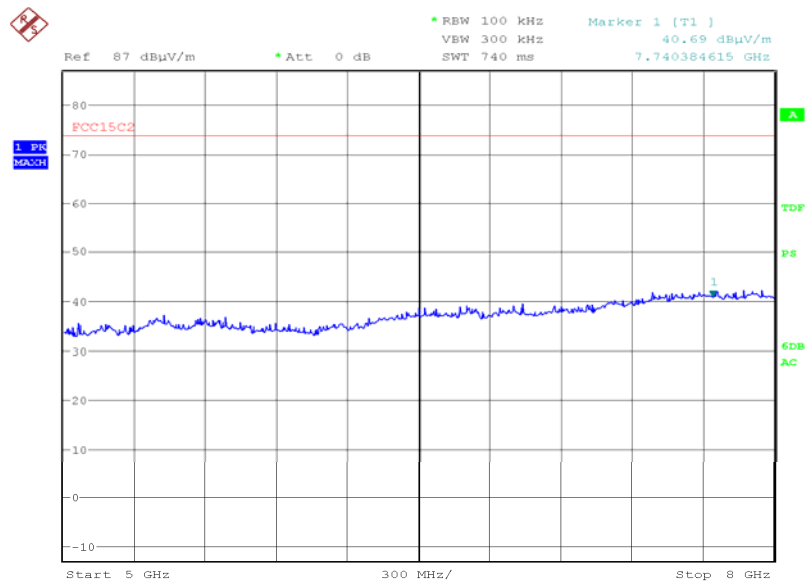
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Horizontal

Date: 27.JUN.2008 04:11:54

5GHz to 8GHzVertical

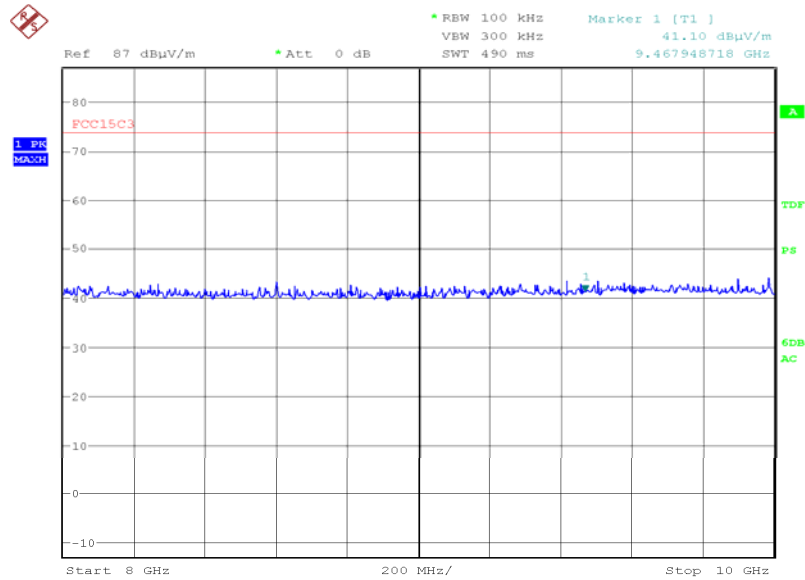
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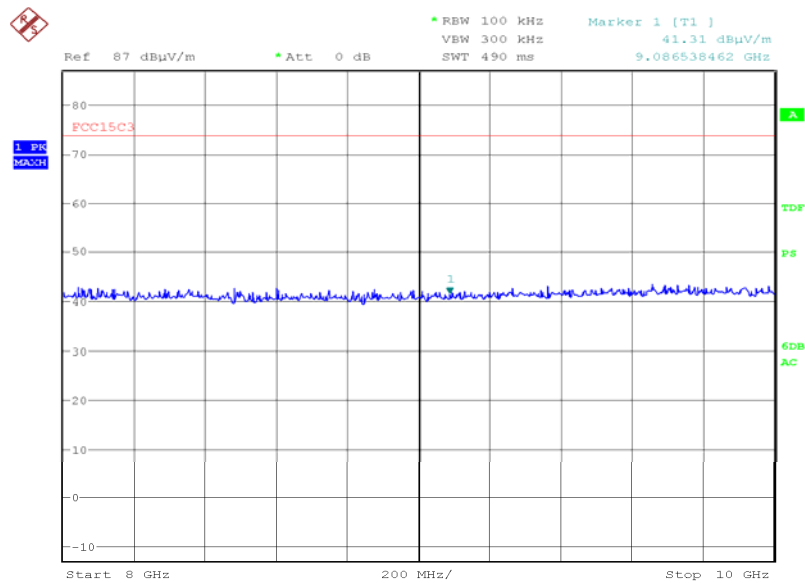
Date: 27.JUN.2008 03:27:29



Product Service

8GHz to 10GHzVertical

Date: 27.JUN.2008 05:32:59

Horizontal

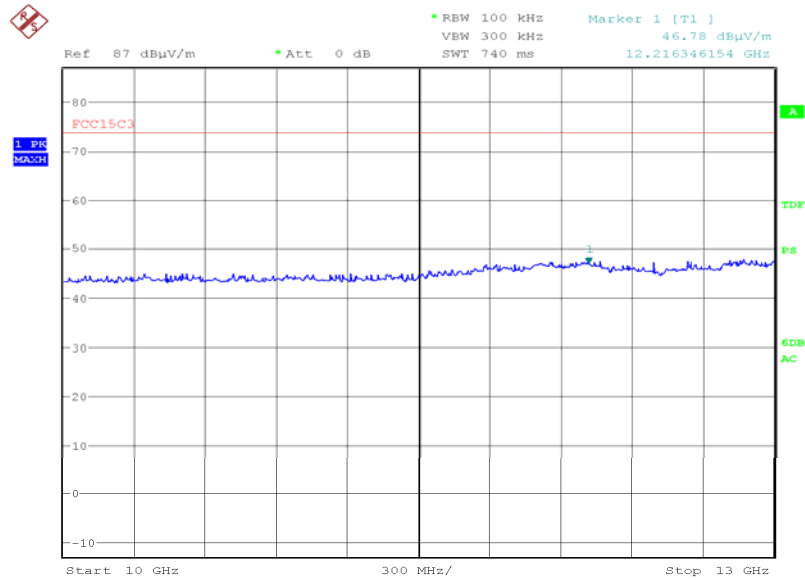
Date: 27.JUN.2008 05:32:37



Product Service

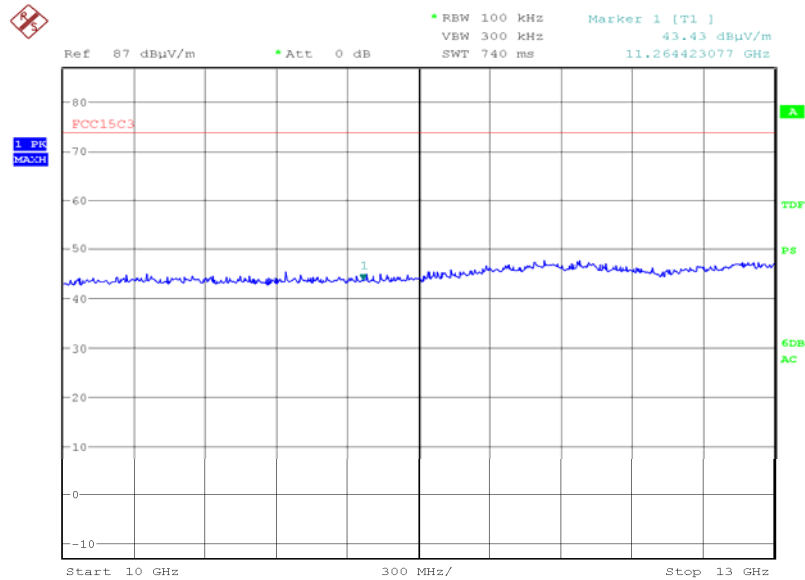
10GHz to 13GHz

Vertical



Date: 27.JUN.2008 05:23:13

Horizontal



Date: 27.JUN.2008 04:52:49



Product Service

2.2 CONDUCTED EMISSIONS (AC POWER PORT)

2.2.1 Specification Reference

FCC CFR 47 Part 15B: 2006, Clause 15.107 (a)

2.2.2 Equipment Under Test

Attitude E310 Mobile Phone, IMEI: 352455020004495 and IMEI: 352455020004255

2.2.3 Date of Test and Modification State

29 June 2008 - 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 ANSI C63.4 2003.

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

Configuration 2 - Mode 1
- Mode 2
- Mode 3

2.2.6 Environmental Conditions

	29 June 2008
Ambient Temperature	20.1°C
Relative Humidity	45%
Atmospheric Pressure	1012mbar



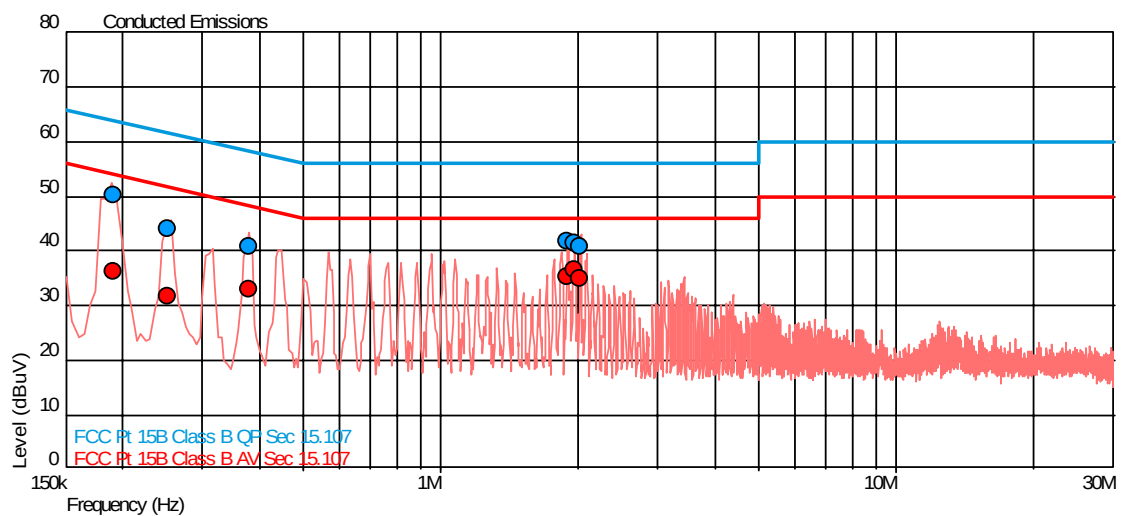
2.2.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15B: 2006 for Conducted Emissions (AC Power Port).

The test results are shown below.

Configuration 2 - Mode 1

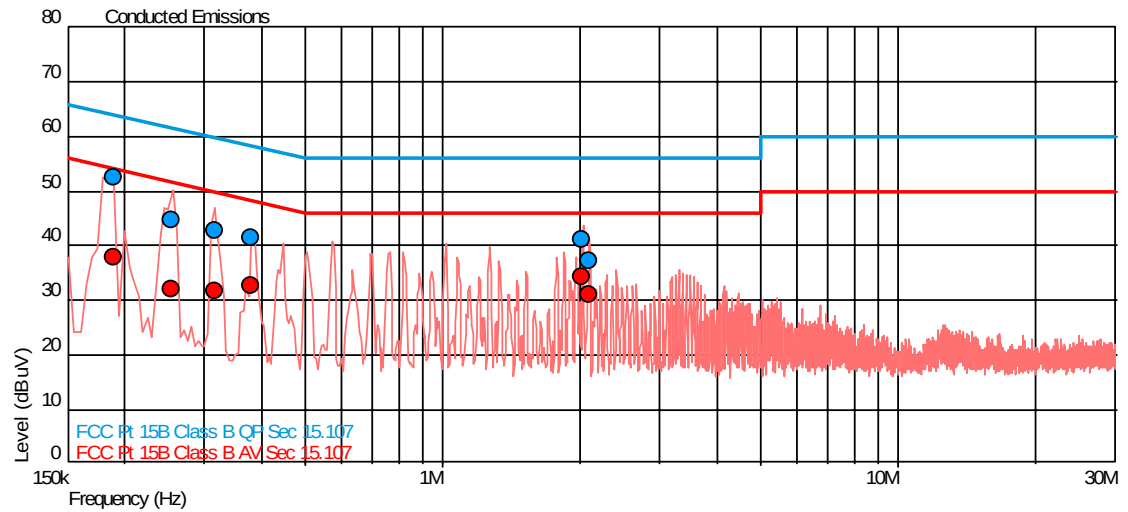
Live Line



Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.190	50.2	64.0	-13.8	36.2	54.0	-17.9
0.252	44.1	61.7	-17.6	31.9	51.7	-19.8
0.378	40.9	58.3	-17.5	32.9	48.3	-15.4
1.897	41.8	56.0	-14.2	35.3	46.0	-10.7
1.956	41.5	56.0	-14.5	36.4	46.0	-9.6
2.023	40.9	56.0	-15.1	34.8	46.0	-11.2



Product Service

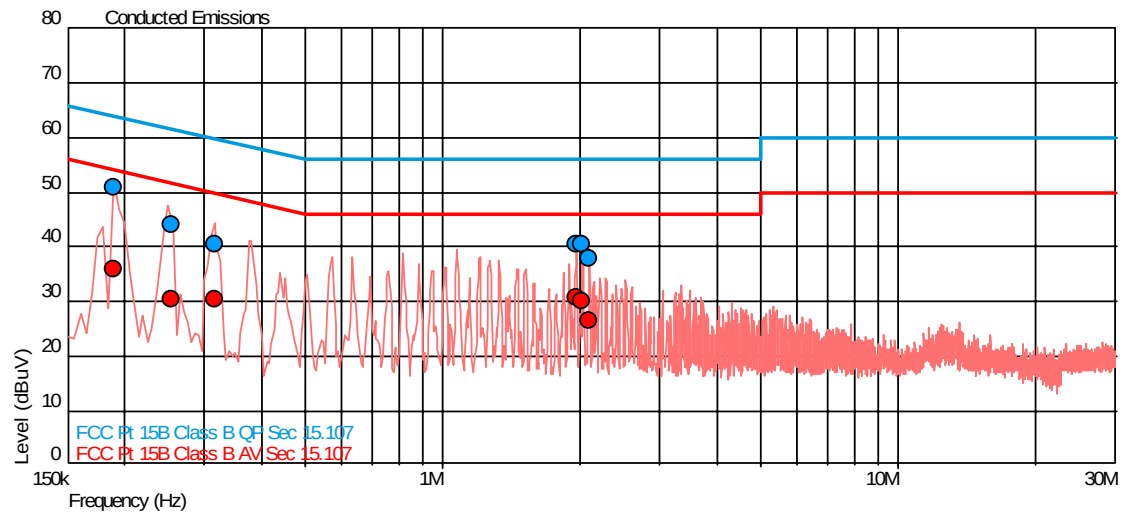
Neutral Line

Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.189	52.4	64.1	-11.7	37.8	54.1	-16.3
0.255	44.8	61.6	-16.8	32.1	51.6	-19.5
0.315	42.9	59.8	-16.9	31.7	49.8	-18.2
0.379	41.4	58.3	-16.9	32.8	48.3	-15.5
2.026	41.1	56.0	-14.9	34.2	46.0	-11.8
2.088	37.3	56.0	-18.7	31.1	46.0	-14.9



Configuration 2 - Mode 2

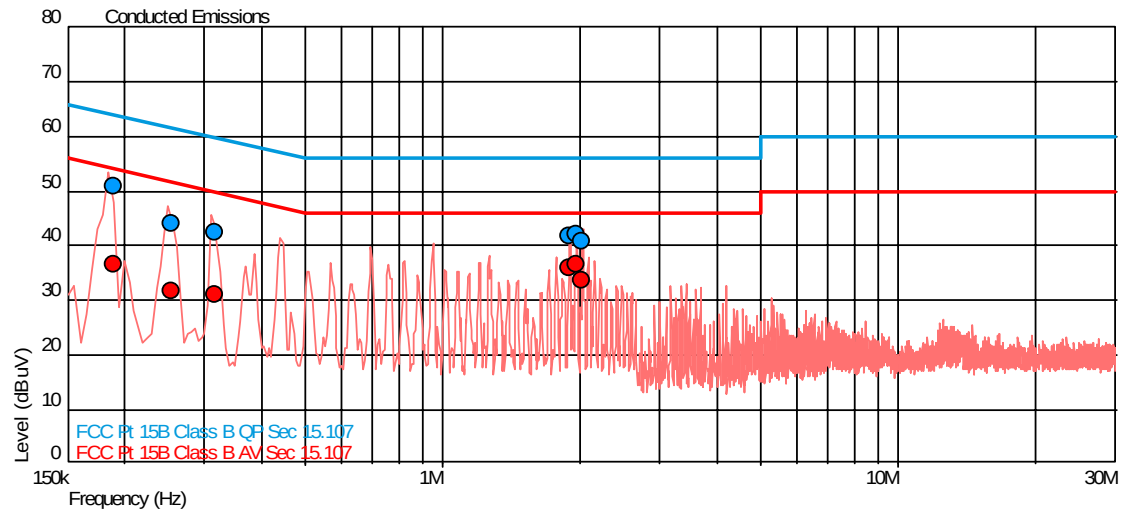
Live Line



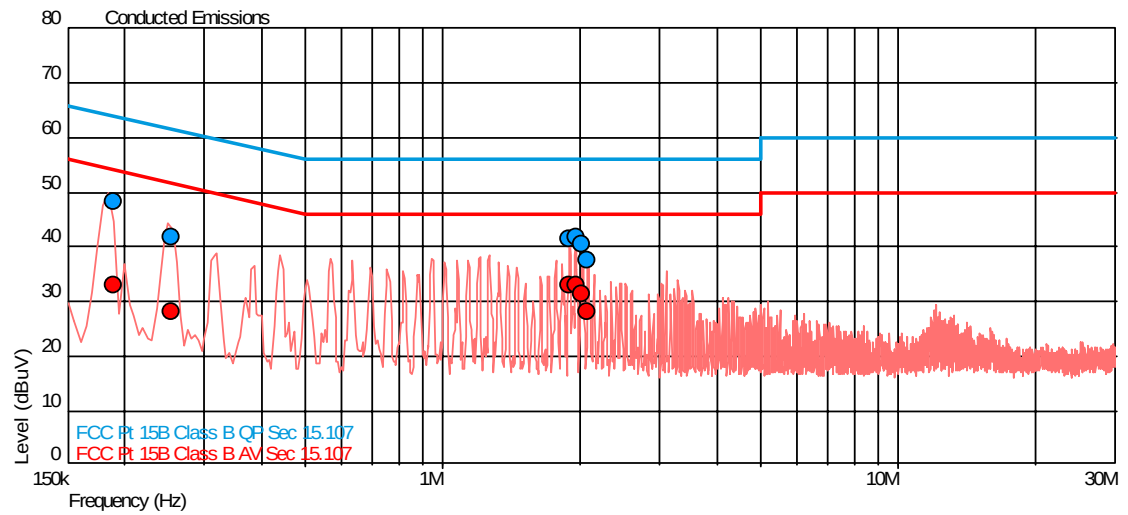
Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.189	51.0	64.1	-13.0	35.8	54.1	-18.2
0.254	44.2	61.6	-17.5	30.4	51.6	-21.2
0.316	40.6	59.8	-19.2	30.4	49.8	-19.5
1.959	40.6	56.0	-15.4	30.7	46.0	-15.3
2.024	40.4	56.0	-15.6	30.1	46.0	-15.9
2.088	38.0	56.0	-18.0	26.7	46.0	-19.3



Product Service

Neutral Line

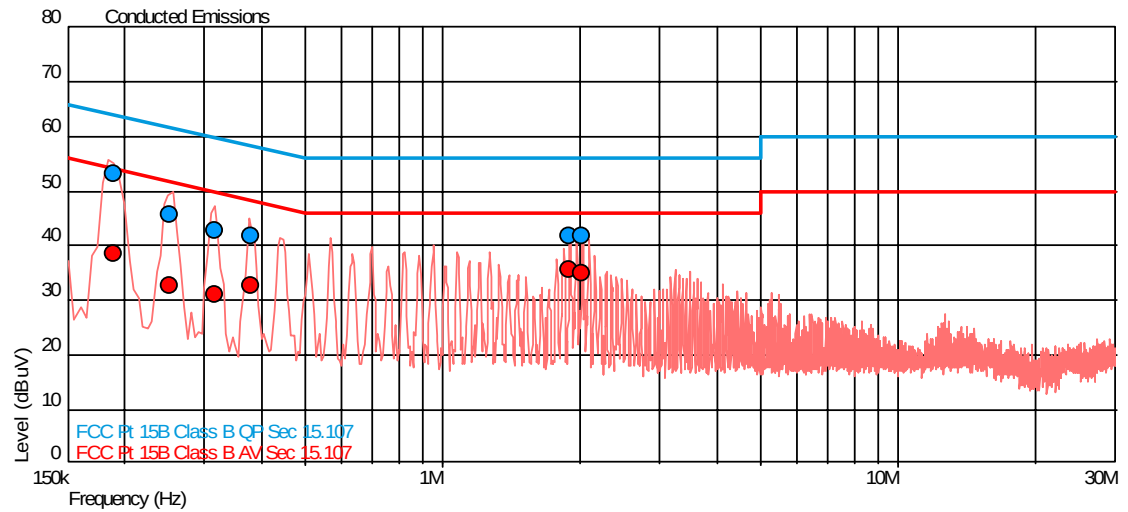
Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.190	50.9	64.1	-13.2	36.6	54.1	-17.4
0.254	44.1	61.6	-17.6	31.8	51.6	-19.8
0.315	42.3	59.8	-17.6	31.1	49.8	-18.8
1.897	41.8	56.0	-14.2	36.0	46.0	-10.0
1.958	42.0	56.0	-14.0	36.6	46.0	-9.4
2.024	40.9	56.0	-15.1	33.6	46.0	-12.4

Configuration 2 - Mode 3Live Line

Frequency (MHz)	QP Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.189	48.3	64.1	-15.8	33.0	54.1	-21.1
0.253	41.7	61.7	-20.0	28.2	51.7	-23.5
1.891	41.4	56.0	-14.6	32.9	46.0	-13.1
1.956	41.6	56.0	-14.4	33.0	46.0	-13.0
2.016	40.5	56.0	-15.5	31.5	46.0	-14.5
2.081	37.5	56.0	-18.5	28.2	46.0	-17.8



Product Service

Neutral Line

Frequency (MHz)	QP Level (dBUV)	QP Limit (dBUV)	QP Margin (dBUV)	AV Level (dBUV)	AV Limit (dBUV)	AV Margin (dBUV)
0.190	53.1	64.1	-10.9	38.4	54.1	-15.6
0.251	45.6	61.7	-16.1	32.6	51.7	-19.1
0.315	42.7	59.8	-17.1	30.9	49.8	-18.9
0.379	41.6	58.3	-16.7	32.8	48.3	-15.5
1.898	41.9	56.0	-14.1	35.5	46.0	-10.5
2.024	41.6	56.0	-14.4	35.1	46.0	-10.9



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 2.2 EMC - Conducted Emissions					
Transient Limiter	Hewlett Packard	11947A	15	12	29-Sep-2008
LISN (1 Phase)	Chase	MN 2050	336	12	18-Mar-2009
Screened Room (2)	Rainford	Rainford	1542	-	TU
Test Receiver	Rohde & Schwarz	ESIB26	2085	12	3-Dec-2008
Section 2.1 EMC - Radiated Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	29-Jun-2008
Pre-Amplifier	Phase One	PS04-0085	1532	-	TU
Pre-Amplifier	Phase One	PS04-0086	1533	-	TU
Pre-Amplifier	Phase One	PS04-0087	1534	0	TU
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
Radio Communications Test Set	Rohde & Schwarz	CMU 200	3035	12	9-Jun-2009
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	11-Jul-2008
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	15-Mar-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†
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

PHOTOGRAPHS



Product Service

4.1 PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)



EUT Front Face Open



EUT Front Face Closed



EUT Rear Face Closed



EUT Rear Face with the Battery Removed

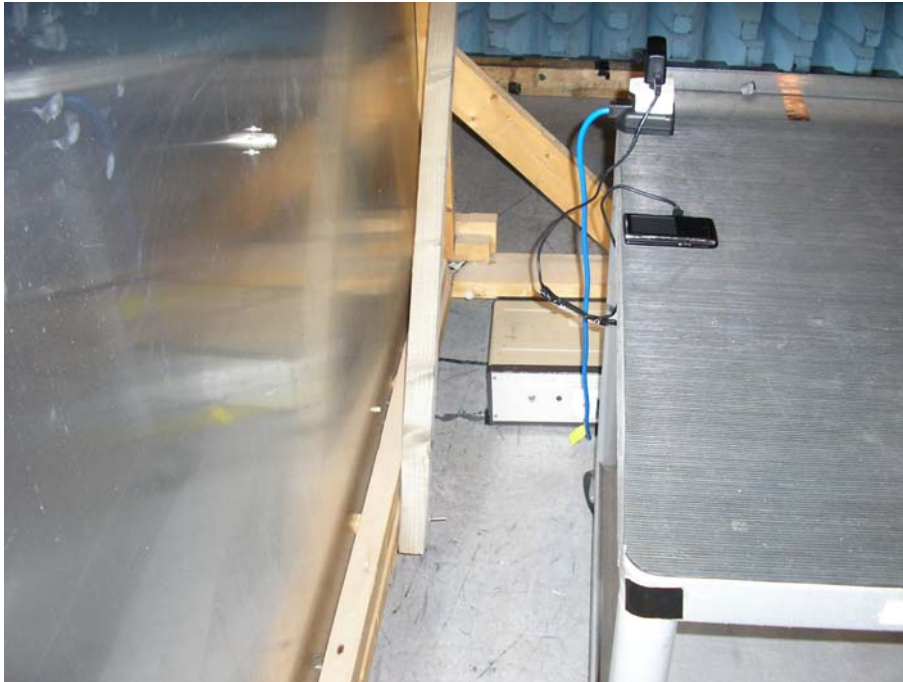
4.2 PHOTOGRAPHS OF TEST SETUPS



Radiated Emissions – Test Set Up



Radiated Emissions – Test Set up



Conducted Emissions – Test Set Up



Conducted Emissions – Test Set Up



Product Service

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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

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

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA
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