



TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: 7505 + MorphoRapID 12xx

To: FCC Part 15.225: 2008 Subpart C, RSS-Gen Issue 2 June 2007
& RSS-210 Issue 7 June 2007

Test Report Serial No:
RFI/RPT1/RP74872JD09A

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:		
Checked By:	A. HENRIQUES	
Signature:		
Date of Issue:	23 June 2009	

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1. Customer Information











Company Name:	Copernic
Address:	Les Fontaines de la Duranne 185 avenue Archimède 13857 Aix en Provence Cedex 3 France

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.225
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart C (Radio Frequency Devices) - Section 15.225
Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart B (Radio Frequency Devices) - Sections 15.107 and 15.109
Specification Reference:	RSS-GEN Issue 2 June 2007
Specification Title:	General Requirements and Information for the Certification of Radiocommunication Equipment
Specification Reference:	RSS-210 Issue 7 June 2007
Specification Title:	Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	29 April 2009 to 01 May 2009

2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Port Type	Result
Part 15.107(a)	RSS-Gen 7.2.2	Receiver/Idle Mode AC Conducted Spurious Emissions	AC Mains	
Part 15.109(a) 15.225(d)	RSS-Gen 4.10/6	Receiver/Idle Mode Radiated Spurious Emissions	Enclosure	
Part 15.207 (a)	RSS-Gen 7.2.2	Transmitter AC Conducted Spurious Emissions	AC Mains	
Part 15.225(a)(b)(c)(d)	RSS-210 A2.6	Transmitter Fundamental Field Strength	Antenna	
Part 15.209(a), 15.225(d)	RSS-210 2.6/ A2.6	Transmitter Radiated Spurious Emissions	Antenna	
Part 15.209(a) 15.225(c)(d)	RSS-210 A2.6	Transmitter Band Edge Radiated Emissions	Antenna	
Part 2.1049	RSS-Gen 4.6.1	Transmitter 20 dB Bandwidth	Antenna	
Part 15.225(e)	RSS-210 A2.6	Transmitter Frequency Stability (Temperature & Voltage Variation)	Antenna	
Key to Results  = Complied  = Did not comply				

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2003)
Title:	American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Coppernic
Model Name or Number:	7505 + MorphoRapID 12xx
Serial Number:	CH0FA8370155
IMEI Number:	354114010704816
Hardware Version Number:	B
Software Version Number:	A2
FCC ID Number:	XGKMR12XX
IC Number:	8402A-MR12XX

Description:	Lithium-Ion rechargeable battery
Model Name or Number:	CH3000
Serial Number:	Not stated

Description:	Desktop docking station
Model Name or Number:	CH4000
Serial Number:	CH5IT8110455

Description:	Switching power adaptor
Brand Name:	Phihong
Model Name or Number:	PSC30R-120
Serial Number:	Not stated

Description:	Switching power supply
Brand Name:	Phihong
Model Name or Number:	PSA15R-050P
Serial Number:	Not stated

3.2. Description of EUT

The equipment under test was a HSDPA/EDGE/GSM, WiFi and *Bluetooth* handheld terminal with fingerprint reader, imager, RFID and smartcard accessories.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Tested Technology:	RFID	
Channel Spacing:	Single channel device	
Transmit Frequency:	13.56 MHz	
Receive Frequency:	13.56 MHz	
Power Supply Requirement:	Nominal	3.7 V (battery)
Tested Temperature:	Minimum	-20°C
	Maximum	50°C

3.5. Support Equipment

No support equipment was used to exercise the EUT during testing:

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Transmitting at maximum power. The transmitter was enabled through a test application on the EUT following instructions provided by the client.
- Receive /idle mode.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Connected to the mains AC charger, model PSA15R-050P as this was considered to be the worst case.
- AC conducted emissions were performed with the EUT connected to the PSA15R-050P charger as this was considered to be the worst case.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

5.2. Test Results**5.3. Receiver/Idle Mode AC Conducted Spurious Emissions****Test Summary:**

FCC Part:	15.107(a)
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes

Environmental Conditions:

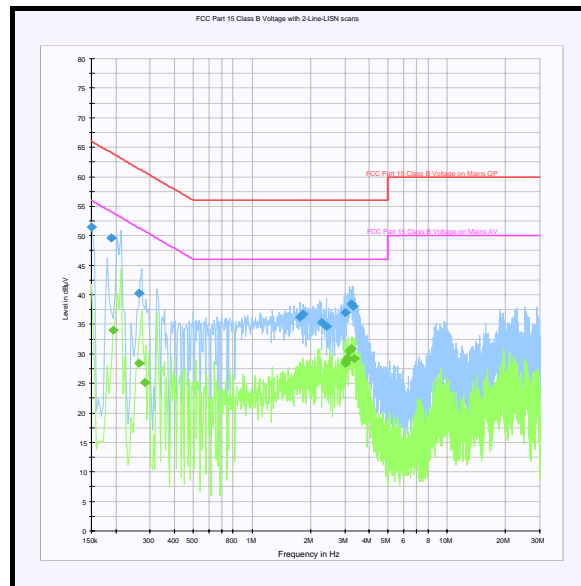
Temperature (°C):	23
Relative Humidity (%):	26

Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150000	Neutral	51.5	66.0	14.5	Complied
0.190500	Neutral	49.6	64.0	14.4	Complied
0.262500	Neutral	40.2	61.4	21.2	Complied
1.761000	Live	36.2	56.0	19.8	Complied
1.833000	Live	36.7	56.0	19.3	Complied
2.274000	Live	35.3	56.0	20.7	Complied
2.422500	Live	34.7	56.0	21.3	Complied
3.003000	Neutral	37.0	56.0	19.0	Complied
3.223500	Neutral	38.5	56.0	17.5	Complied
3.295500	Neutral	38.0	56.0	18.0	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.195000	Neutral	34.0	53.8	19.8	Complied
0.262500	Neutral	28.4	51.4	23.0	Complied
0.280500	Neutral	25.2	50.8	25.6	Complied
2.998500	Neutral	28.5	46.0	17.5	Complied
3.061500	Neutral	28.9	46.0	17.1	Complied
3.084000	Neutral	29.3	46.0	16.7	Complied
3.151500	Neutral	30.5	46.0	15.5	Complied
3.223500	Neutral	30.9	46.0	15.1	Complied
3.336000	Neutral	29.2	46.0	16.8	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

5.4. Receiver/Idle Mode Radiated Spurious Emissions**Test Summary:**

FCC Part:	15.109(a) 15.225(d)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	30 MHz to 1000 MHz

Environmental Conditions:

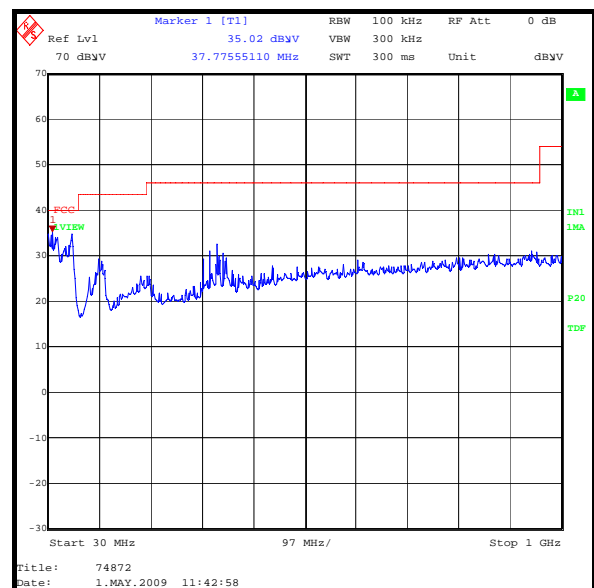
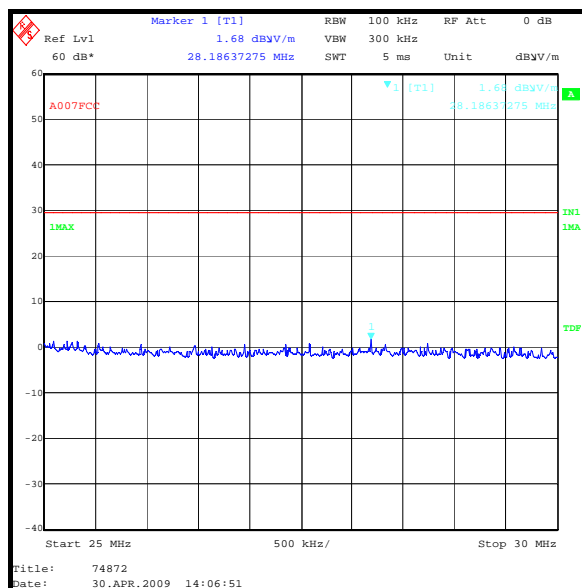
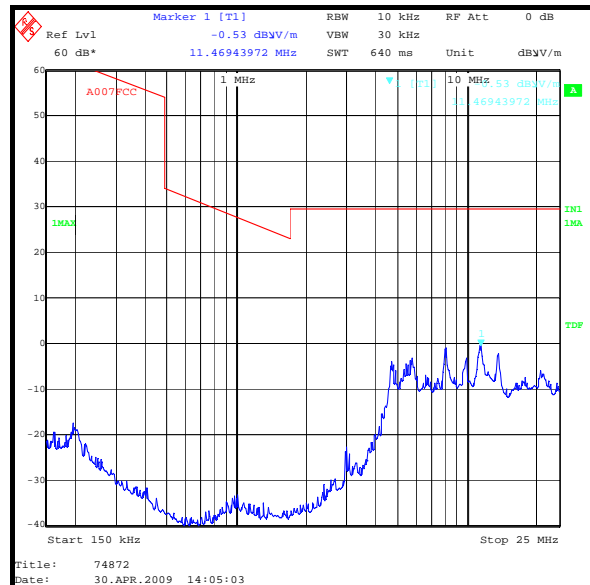
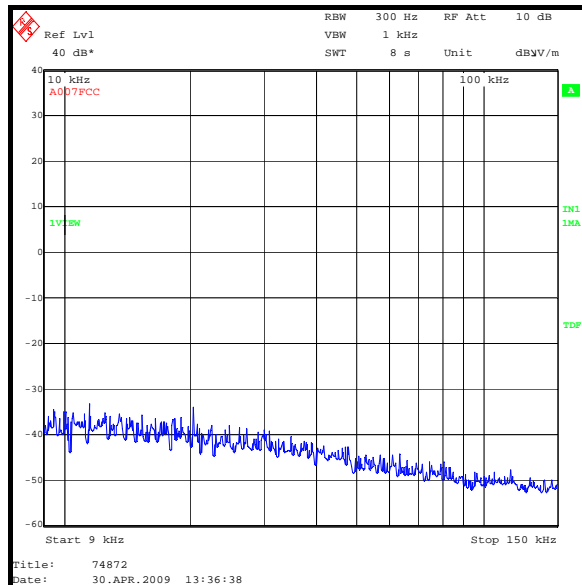
Temperature (°C):	26
Relative Humidity (%):	29

Results:

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
37.776	Horizontal	35.0	40.0	5.0	Complied

Note(s):

1. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by making the measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
2. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required.
3. All emissions shown on the pre-scans were found to be ambient. The highest level of the noise floor was recorded in the table above.

Receiver/Idle Mode Radiated Spurious Emissions (continued)

5.5. Transmitter AC Conducted Spurious Emissions**Test Summary:**

FCC Part:	15.207 (a)
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes

Environmental Conditions:

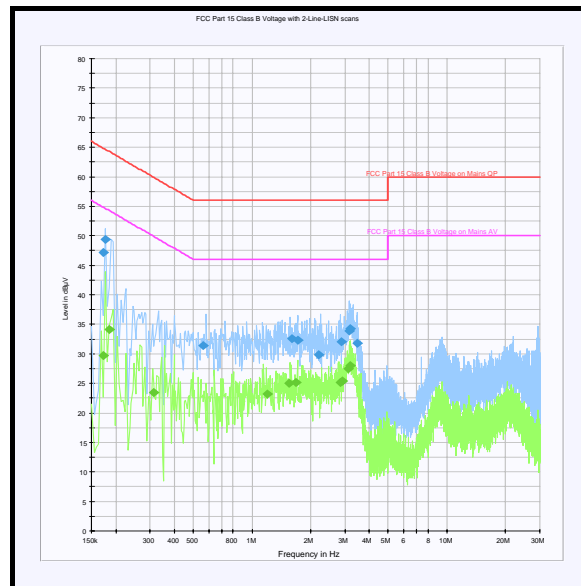
Temperature (°C):	23
Relative Humidity (%):	36

Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.172500	Live	47.2	64.8	17.6	Complied
0.177000	Neutral	49.4	64.6	15.2	Complied
0.559500	Neutral	31.4	56.0	24.6	Complied
1.599000	Live	32.6	56.0	23.4	Complied
1.725000	Live	32.3	56.0	23.7	Complied
2.202000	Neutral	29.9	56.0	26.1	Complied
2.868000	Neutral	32.0	56.0	24.0	Complied
3.160500	Live	33.9	56.0	22.1	Complied
3.205500	Live	34.3	56.0	21.7	Complied
3.453000	Neutral	31.8	56.0	24.2	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.172500	Live	29.7	54.8	25.1	Complied
0.186000	Neutral	34.1	54.2	20.1	Complied
0.312000	Neutral	23.4	49.9	26.5	Complied
1.194000	Neutral	23.2	46.0	22.8	Complied
1.554000	Live	25.0	46.0	21.0	Complied
1.680000	Live	25.1	46.0	20.9	Complied
2.827500	Neutral	25.1	46.0	20.9	Complied
2.890500	Neutral	25.4	46.0	20.6	Complied
3.120000	Neutral	27.5	46.0	18.5	Complied
3.196500	Live	28.1	46.0	17.9	Complied

Transmitter AC Conducted Spurious Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

5.6. Transmitter Fundamental Field Strength

Test Summary:

FCC Part:	15.225 (a)(b)(c)(d)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes

Environmental Conditions:

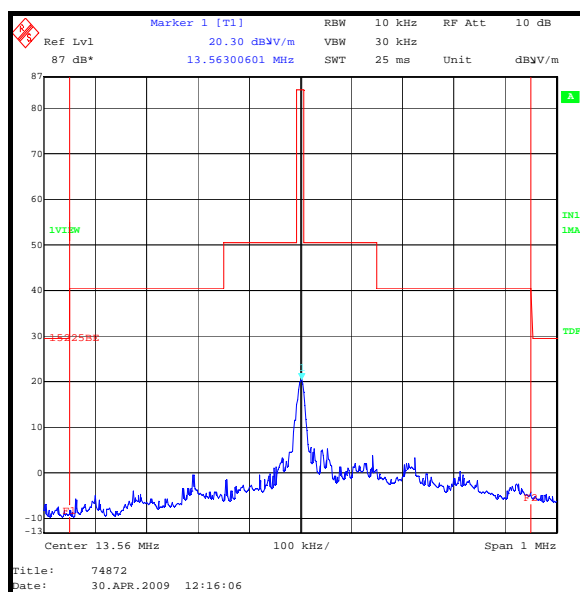
Temperature (°C):	26
Relative Humidity (%):	31

Results:

Frequency (MHz)	Antenna Polarity	Q-P Level (dB μ V/m)	Limit at 30 m (dB μ V/m)	Margin (dB)	Result
13.56	90° to EUT	20.5	84.0	63.5	Complied

Note(s):

- Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by making the measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
- A transducer factor on the measuring instrument was used to extrapolate the results measured at a distance of 3 metres to a distance of 30 metres where required.



5.7. Transmitter Radiated Spurious Emissions

Test Summary:

FCC Part:	15.209 (a), 15.225(d)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	9 kHz to 1000 MHz

Environmental Conditions:

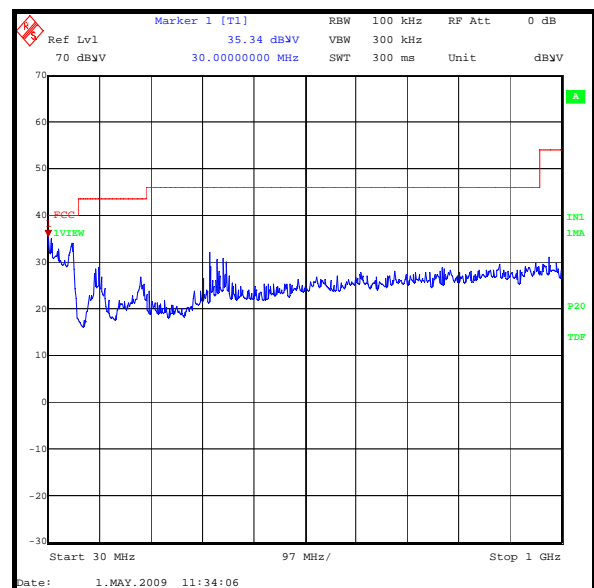
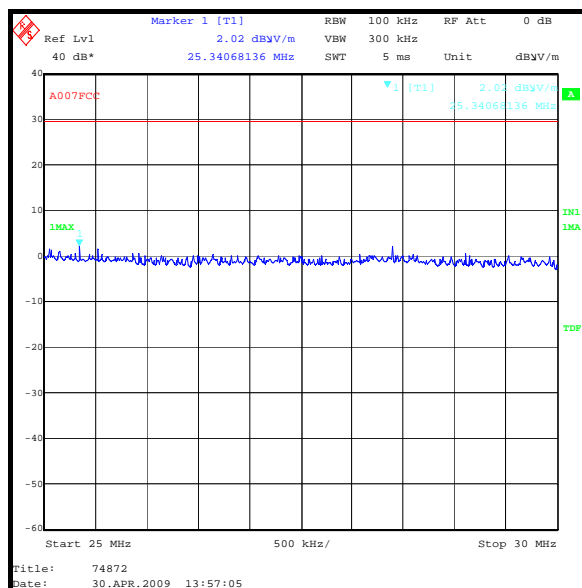
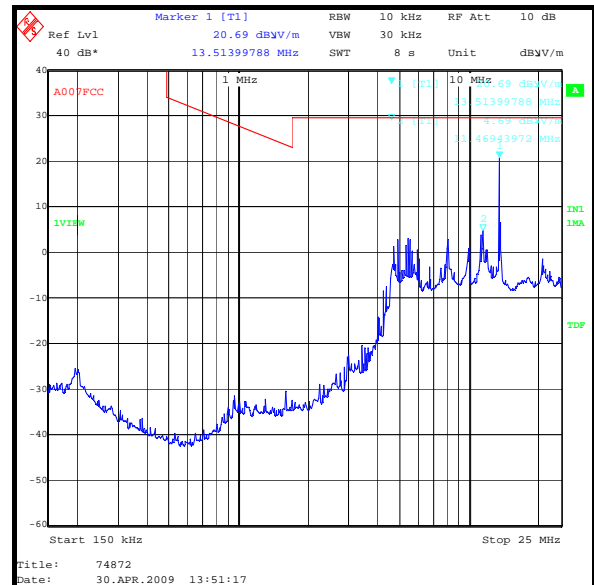
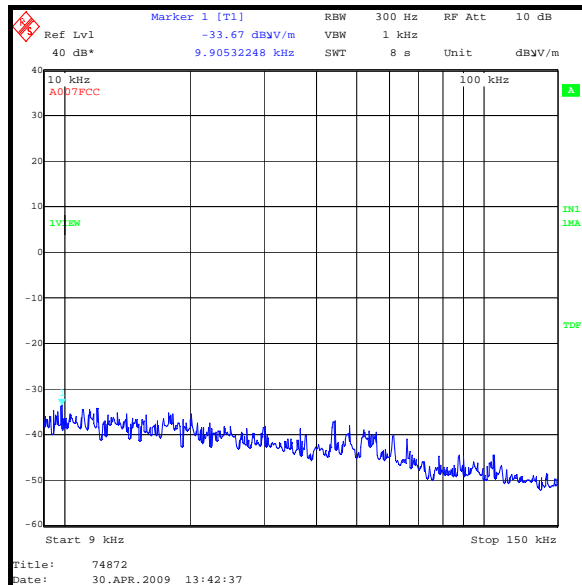
Temperature (°C):	26
Relative Humidity (%):	31

Results: Electric Field Strength Measurements

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
30.0	Horizontal	35.3	40.0	4.7	Complied

Note(s):

1. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by making the measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
2. A transducer factor on the measuring instrument was used to extrapolate the results measured at a distance of 3 metres to a distance of 30 metres where required.
3. All emissions shown on the pre-scans were found to be ambient. The highest level of the noise floor was recorded in the table above.
4. The carrier is shown on the 150 kHz to 25 MHz plot at approximately 13.5 MHz.

Transmitter Radiated Spurious Emissions (continued)

5.8. Transmitter Radiated Emissions at Band Edges

Test Summary:

FCC Part:	15.209(a) 15.225(c)(d)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	31

Results: Lower Band Edge

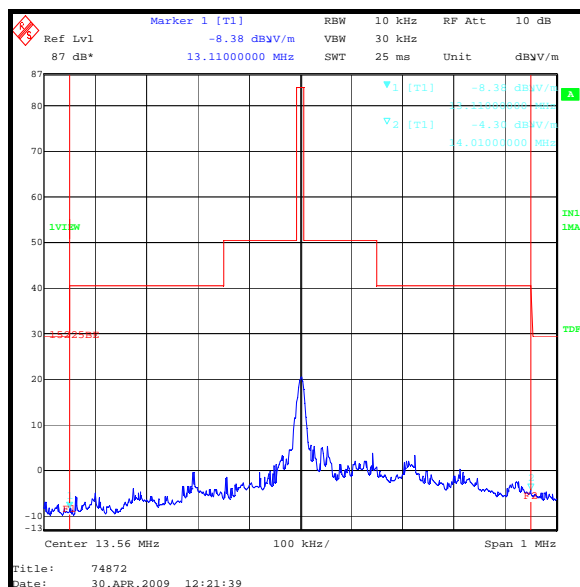
Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
13.11	-8.4	40.5	48.9	Complied

Results: Upper Band Edge

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
14.01	-4.3	40.5	44.8	Complied

Note(s):

- Measurements were performed at 3 metres and results extrapolated to 30 metres.
- A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required.



5.9. Transmitter 20 dB Bandwidth:**Test Summary:**

FCC Part:	2.1049
Test Method Used:	As detailed in ANSI C63.4 Section 13.1.7 and relevant annexes

Environmental Conditions:

Temperature (°C):	28
Relative Humidity (%):	24

Results:

Transmitter 20 dB Bandwidth (kHz)
100.511



5.10. Transmitter Frequency Stability (Temperature & Voltage Variation)**Test Summary:**

FCC Part:	15.225 (e)
Test Method Used:	As detailed in ANSI C63.4 Section 13.1.6 and relevant annexes

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	30

Results: Maximum frequency error of the EUT with variations in ambient temperature

Temp (°C)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Margin (%)	Result
-20	13.56	13.560016	16	0.000118	0.01	0.009882	Complied
27	13.56	13.559850	150	0.001106	0.01	0.008894	Complied
50	13.56	13.559805	195	0.001438	0.01	0.008562	Complied

Note(s):

1. The EUT is battery operated and the test was performed with a fully charged battery. No voltage extreme testing was performed as the battery output voltage could not be varied.
2. The EUT was transmitting with a modulated carrier at the time of test. It was not possible to turn the modulation off.

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.25 dB
Occupied Bandwidth	Not applicable	95%	±0.92 ppm
Frequency Stability	Not applicable	95%	±0.92 ppm
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	±3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A007	Antenna	Rohde & Schwarz	HFH2-Z2	880 458/020	29 Mar 2009	12
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Jan 2009	12
A649	LISN	Rohde & Schwarz	ESH3-Z5	825562/008	19 Mar 2009	12
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibrated before use	-
K0001	5m SA Chamber	Rainford EMC	N/A	N/A	13 Aug 2008	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	26 Aug 2008	12
M1068	Thermometer	Iso-Tech	RS55	93102884	09 Jul 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12
M1242	Spectrum Analyser	Rohde & Schwarz.	FSEM30	845986/022	09 Dec 2008	12
M1273	Test Receiver	Rhode & Schwarz	ESIB26	100275	01 Apr 2009	12
M1379	Test Receiver	Rhode & Schwarz	ESIB7	100330	14 Aug 2008	12

NB In accordance with UKAS requirements. All the measurement equipment is on a calibration schedule.