TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: SoftBank 842P

To: FCC Part 15.225: 2009 Subpart C

Test Report Serial No:
RFI-RPT-RP77281JD05A

Version 2.0 Supersedes all Previous Versions

This Test Report Is Issued Under The Authority Of Brian Watson, COO Payments and Consultancy: 	
Checked By:	Tony Henriques
Signature: 	
Date of Issue:	12 May 2010

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1. Customer Information

Company Name:	Panasonic Mobile Communications Development of Europe Ltd
Address:	Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.225
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2009: Part 15 Subpart C (Radio Frequency Devices) - Section 15.225
Site Registration:	209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	22 April 2010 to 26 April 2010

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.107	Receiver/Idle Mode AC Conducted Spurious Emissions	✓
Part 15.109 & 15.225(d)	Receiver/Idle Mode Radiated Spurious Emissions	✓
Part 15.225(a)(b)(c)(d)	Transmitter Fundamental Field Strength	✓
Part 15.209(a), 15.225(d)	Transmitter Radiated Spurious Emissions	✓
Part 15.209(a), 15.225(c)(d)	Transmitter Band Edge Radiated Emissions	✓
Part 2.1049	Transmitter 20 dB Bandwidth	✓
Part 15.225(e)	Transmitter Frequency Stability (Temperature & Voltage Variation)	✓

Key to Results

✓ = Complied ✗ = Did not comply

2.3. Methods and Procedures

Reference:	ANSI C63.10 (2009)
Title:	American National Standard Methods for Testing Unlicensed Wireless Devices.

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:	SoftBank 842P
Model Name or Number:	EB-3226
IMEI Number:	004401220943530
Hardware Version Number:	Rev B
Software Version Number:	842PVA08
FCC ID Number:	UCE210029A

Description:	AC Charger
Brand Name:	SoftBank
Model Name or Number:	ZTDAA1

DC Charger	DC Charger
Brand Name:	SoftBank
Model Name or Number:	PMJAA1

Description:	Personal Hands-free
Brand Name:	SoftBank
Model Name or Number:	ZTBBA1

Description:	USB Data Cable
Brand Name:	SoftBank
Model Name or Number:	ZTFE01

3.2. Description of EUT

The equipment under test was a dual mode (W-CDMA FDD1/GSM900/1800/1900MHz) cellular mobile telephone with RFID.

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:	N/A	
Power Supply Requirement:	Nominal	3.7 V
	Minimum	3.4 V
	Maximum	4.2 V
Tested Temperature Range:	Minimum	-20°C
	Maximum	55°C
Transmit Frequency Range:	13.56 MHz	
Receive Frequency Range:	13.56 MHz	

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Micro-SD memory card
Brand Name:	Not Stated
Model Name or Number:	Not Stated

Description:	Dummy Battery
Brand Name:	Not Stated
Model Name or Number:	Not Stated

Description:	USB HUB
Brand Name:	Buffalo
Model Name or Number:	BSH3U01

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Idle/Standby mode.
- Transmitter mode: Constantly transmitting at full power with a modulated carrier in RFID mode.

4.2. Configuration and Peripherals

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

- The RFID transmitter test mode was enabled by fitting a special test USIM into the EUT and selecting the test mode from a menu in the User Interface.
- The Micro SD card was installed during all tests.
- Radiated spurious final emissions tests were performed with the Personal Hands Free connected to the EUT as this was found to be the worst case during pre-scans. All accessories were individually connected and measurements made during pre-scans to determine the worst case combination.
- The Client stated that the EUT is not configured to charge while transmitting. Therefore AC mains conducted emissions were performed in idle mode only.
- Frequency stability measurements were performed using a dummy battery supplied by the client.

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

5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions

Test Summary:

FCC Part:	15.107
Test Method Used:	ANSI C63.10 Section 6.2

Environmental Conditions:

Temperature Range (°C):	27
Relative Humidity Range (%):	25

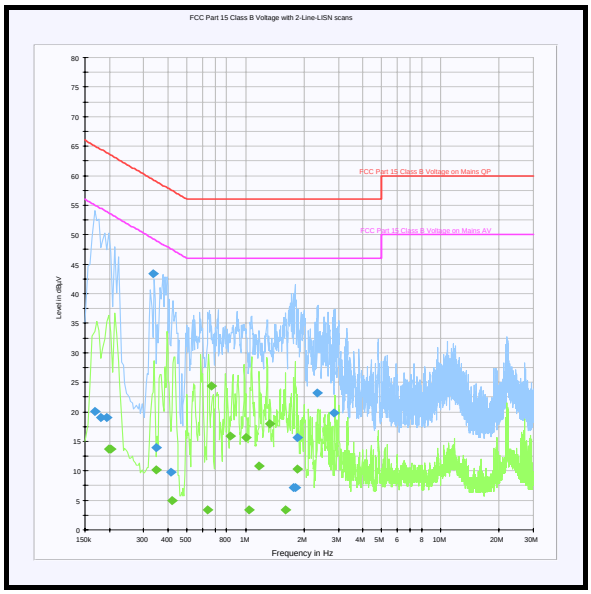
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi-peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.168000	Live	20.0	65.1	45.1	Complied
0.181500	Neutral	19.0	64.4	45.4	Complied
0.195000	Neutral	19.1	63.8	44.7	Complied
0.334500	Live	43.4	59.3	15.9	Complied
0.348000	Live	13.9	59.0	45.1	Complied
0.415500	Neutral	9.7	57.5	47.8	Complied
1.765500	Live	7.2	56.0	48.8	Complied
1.797000	Live	7.2	56.0	48.8	Complied
1.837500	Live	15.7	56.0	40.3	Complied
2.337000	Neutral	23.2	56.0	32.8	Complied
2.836500	Live	19.8	56.0	36.2	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.199500	Neutral	13.7	53.6	39.9	Complied
0.204000	Live	13.7	53.4	39.7	Complied
0.348000	Live	10.1	49.0	38.9	Complied
0.420000	Neutral	5.0	47.4	42.4	Complied
0.636000	Live	3.4	46.0	42.6	Complied
0.667500	Neutral	24.4	46.0	21.6	Complied
0.834000	Neutral	15.9	46.0	30.1	Complied
1.000500	Live	15.7	46.0	30.3	Complied
1.041000	Neutral	3.4	46.0	42.6	Complied
1.167000	Neutral	10.8	46.0	35.2	Complied
1.333500	Neutral	17.9	46.0	28.1	Complied
1.612500	Live	3.4	46.0	42.6	Complied
1.837500	Live	10.3	46.0	35.7	Complied



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

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

FCC Part:	15.109, 15.225(d)
Test Method Used:	ANSI C63.10 Section 6.4 and 6.5
Frequency Range:	9 kHz to 1000 MHz

Environmental Conditions:

Temperature Range (°C):	26
Relative Humidity Range (%):	15

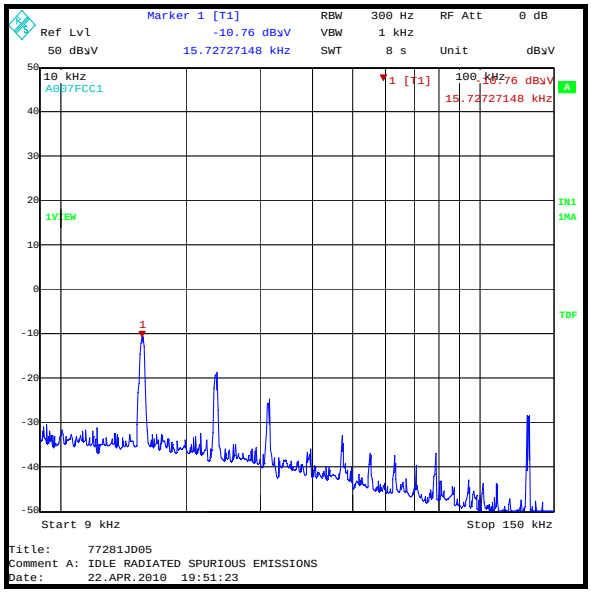
Results:

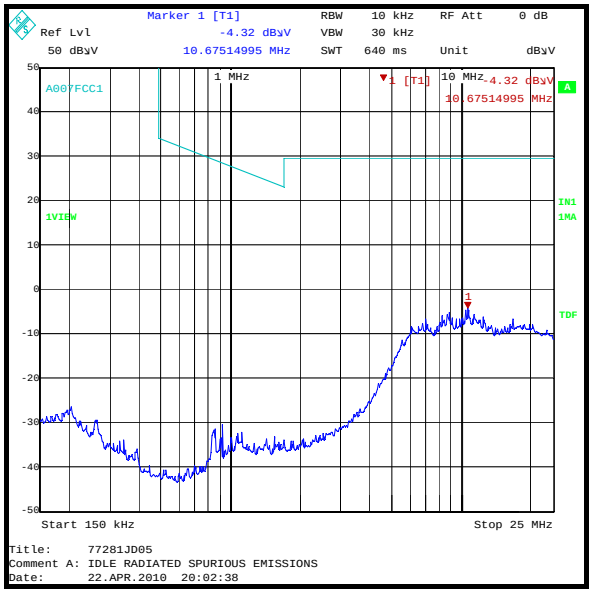
Frequency (MHz)	Antenna Polarity	Quasi-peak Level (dBμV)	Limit (dBμV/m)	Margin (dB)	Result
50.110	Vertical	23.6	40.0	16.4	Complied
458.790	Horizontal	37.6	46.0	8.4	Complied
833.618	Vertical	31.0	46.0	15.0	Complied
931.363	Vertical	31.4	46.0	14.6	Complied

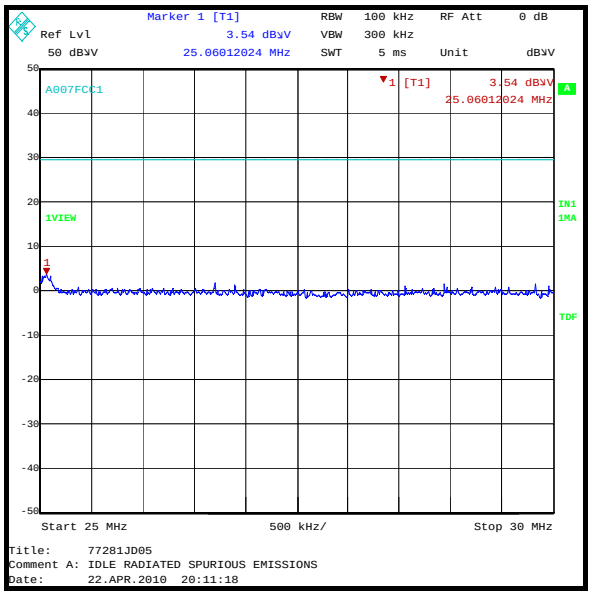
Note(s):

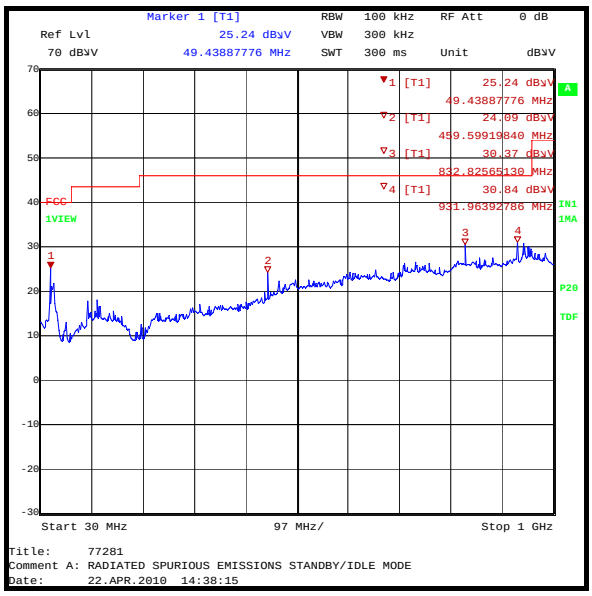
1. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement 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. The emissions shown on the 9 kHz to 150 kHz plot were investigated and found to be radiating from the turntable in the test site.

Receiver/Idle Mode Radiated Spurious Emissions (continued)









Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying table.

5.2.3. Transmitter Fundamental Field Strength

Test Summary:

FCC Part:	15.225 (a)(b)(c)(d)
Test Method Used:	ANSI C63.10 Section 6.4

Environmental Conditions:

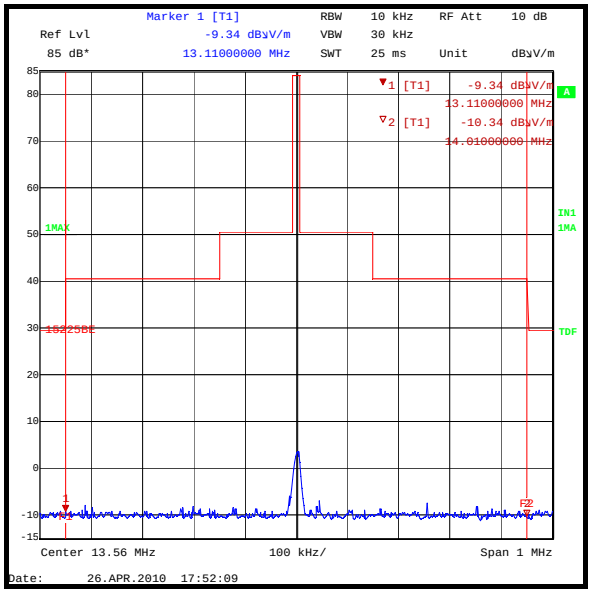
Temperature Range (°C):	28
Relative Humidity Range (%):	26

Results:

Frequency (MHz)	Antenna Polarity	Quasi-peak Level (dBµV)	Limit at 30 m (dBµV/m)	Margin (dB)	Result
13.56	90°	3.2	84.0	80.8	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. Final measurement was made using a Quasi-peak detector.



5.2.4. Transmitter Radiated Spurious Emissions

Test Summary:

FCC Part:	15.209 (a), 15.225(d)
Test Method Used:	ANSI C63.10 Section 6.4 and 6.5
Frequency Range:	9 kHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	18

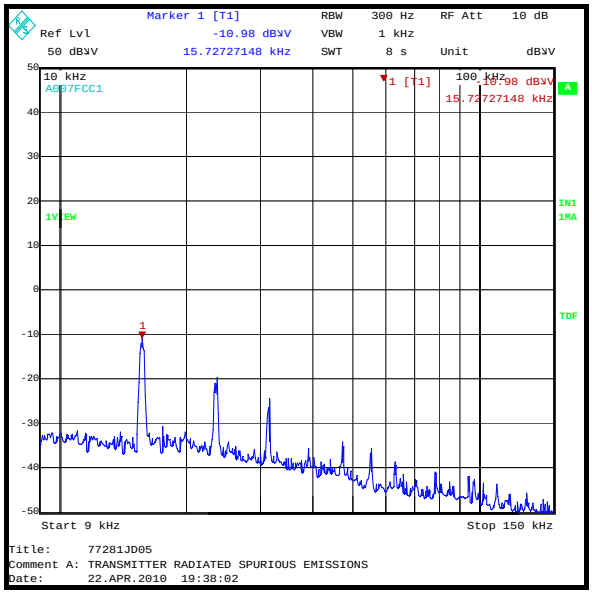
Results: Electric Field Strength Measurements

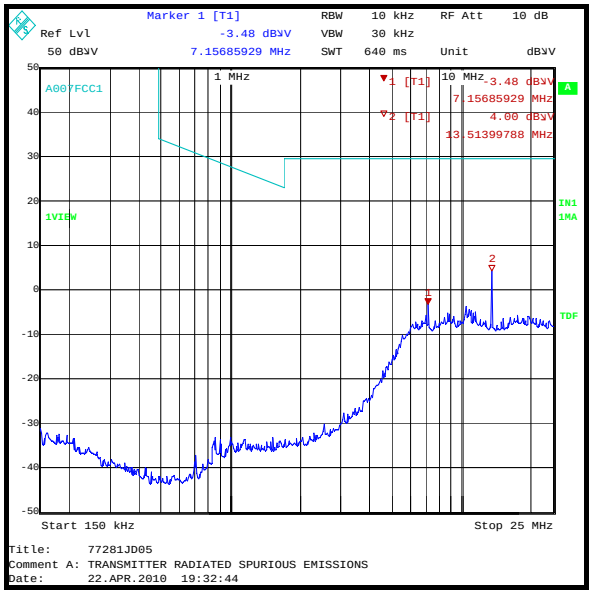
Frequency (MHz)	Antenna Polarity	Quasi-peak Level (dBµV)	Limit (dBµV/m)	Margin (dB)	Result
50.110	Vertical	22.4	40.0	17.6	Complied
203.402	Vertical	22.4	43.5	21.1	Complied
406.798	Vertical	28.5	46.0	17.5	Complied
461.027	Vertical	27.6	46.0	18.4	Complied
474.574	Vertical	28.9	46.0	17.1	Complied
488.160	Vertical	30.1	46.0	15.9	Complied
501.709	Vertical	29.4	46.0	16.6	Complied

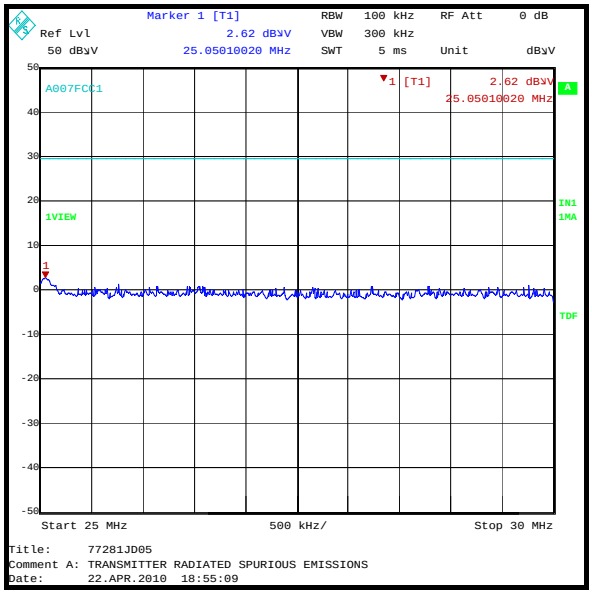
Note(s):

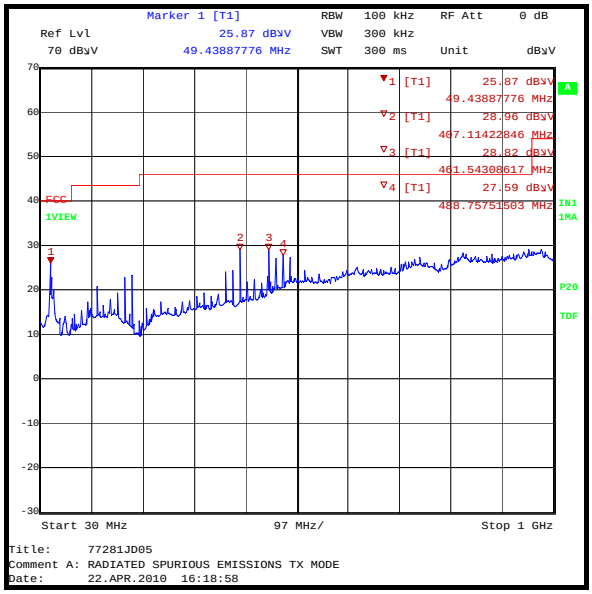
1. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement 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. The emissions shown on the 9 kHz to 150 kHz plot were investigated and found to be radiating from the turntable in the test site.
4. The emission shown on the 25 MHz to 30 MHz plot at approximately 25.166 MHz was investigated and found to be an ambient.
5. The emission at approximately 13.56 MHz on the 150 kHz to 25 MHz plot is the carrier.
6. All other emissions were investigated and found to be >20 dB below the applicable limits.

Transmitter Radiated Spurious Emissions (continued)









Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.5. Transmitter Radiated Emissions at Band Edges

Test Summary:

FCC Part:	15.209(a) 15.225(c)(d)
Test Method Used:	ANSI C63.10 Section 6.4 and 6.9

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	21

Results: Lower Band Edge

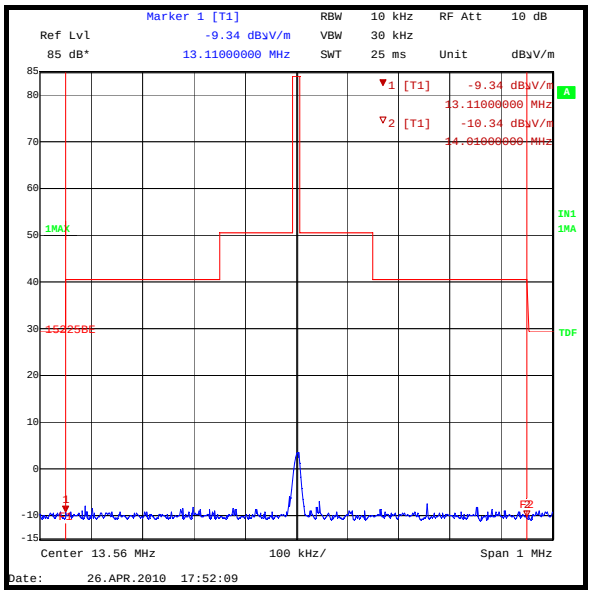
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
13.11	-9.3	40.5	49.8	Complied

Results: Upper Band Edge

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
14.01	-10.3	40.5	50.8	Complied

Note(s):

1. Measurements were performed at 3 metres and results extrapolated to 30 metres.
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.



5.2.6. Transmitter 20 dB Bandwidth

Test Summary:

FCC Part:	2.1049
Test Method Used:	ANSI C63.10 Section 6.9.1

Environmental Conditions:

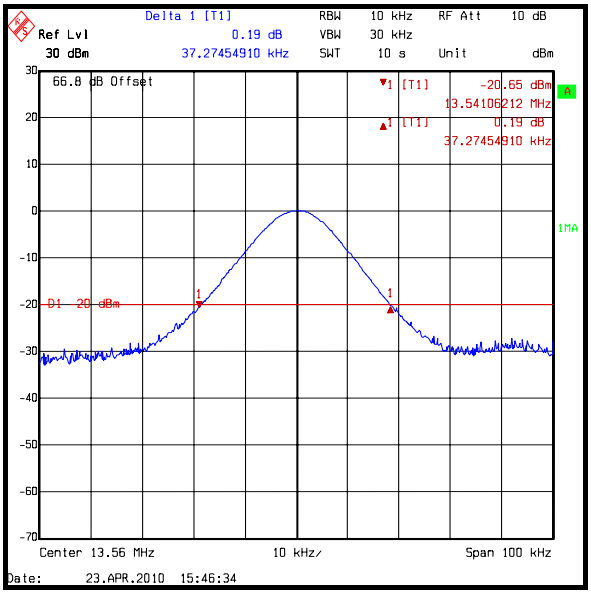
Temperature (°C):	25
Relative Humidity (%):	21

Results:

20 dB Bandwidth (kHz)
37.275

Note(s):

1. The frequency delta at the upper and lower -20 dB points was measured.



5.2.7. Transmitter Frequency Stability (Temperature & Voltage Variation)

Test Summary:

FCC Part:	15.225 (e)
Test Method Used:	ANSI C63.10 Section 6.8.1 and 6.8.2

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	21

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

Temperature (°C)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Margin (%)	Result
-20	13.56	13.559978	-22	0.000162	0.01	0.009838	Complied
20	13.56	13.559979	-21	0.000155	0.01	0.009845	Complied
50	13.56	13.559927	-73	0.000538	0.01	0.009462	Complied

Results: Maximum frequency error of the EUT with variations in nominal operating voltage at an ambient temperature of 20°C

Supply Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Margin (%)	Result
3.4	13.56	13.559979	-21	0.000155	0.01	0.009845	Complied
3.7	13.56	13.559979	-21	0.000155	0.01	0.009845	Complied
4.2	13.56	13.559980	-20	0.000147	0.01	0.009853	Complied

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
20 dB Bandwidth	13 MHz to 14 MHz	95%	±0.92 ppm
Frequency Stability	13 MHz to 14 MHz	95%	±0.92 ppm
Radiated Spurious Emissions	9 kHz to 1000 MHz	95%	±4.78 dB
Fundamental Field Strength	13 MHz to 14 MHz	95%	±4.78 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	13 Apr 2010	12
A067	LISN	Rohde & Schwarz	ESH3-Z5	890603/002	03 Jun 2009	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	01 Mar 2010	12
A288	Antenna	Chase	CBL6111A	1589	16 Mar 2010	12
K0001	5m SA Chamber	Rainford EMC	N/A	N/A	25 Apr 2010	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	01 Sep 2009	12
M1068	Thermometer	Iso-Tech	RS55	93102884	01 Oct 2009	12
M122	Digital Voltmeter	Fluke	77	64910017	23 Jun 2009	12
M1223	Environmental Chamber	Votsch	VT4002	58566072720 010	Calibrated before use	-
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	10 Jul 2009	12
M1273	Test Receiver	Rhode & Schwarz	ESIB 26	100275	08 Apr 2010	12
M1379	Test Receiver	Rhode & Schwarz	ESIB7	100330	20 Aug 2009	12
M1568	Magnetic Loop	Rohde & Schwarz	HFH2-Z2	879284/2	14 Jan 2010	12
S0536	Dual Power Supply	TTI	EL302D	249944	Calibrated before use	-

Note that asset K0001 indicates it went out of calibration during testing. It shall be noted however that the asset was in calibration for the test for which it was used.

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