TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: NTT docomo P-07A

To: FCC Part 15.225: 2008 Subpart C

Test Report Serial No:
RFI/RPT2/RP74681JD03A

Supersedes Test Report Serial No:
RFI/RPT1/RP74681JD03A

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:  **pp**	
Checked By: 	**Report Copy No: PDF01**
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1. Customer Information

Company Name:	Panasonic Mobile Comms Dev of Europe Ltd
Address:	Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP

2. Equipment Under Test (EUT)

2.1. Identification of Equipment Under Test (EUT)

Brand Name:	NTT docomo
Model Name or Number:	P-07A
Hardware Version:	Rev. C
Software Version:	B-WN908A-01.02.004 08-2H_CPF_Cv0713528
IMEI Number:	356753020050153
FCC ID Number:	UCE208014A

Description:	AC charger
Brand Name:	NTT docomo
Model Name or Number:	FOMA AC Adaptor 01 for Global use / MAS-BH0008-A 002

Description:	DC charger
Brand Name:	NTT docomo
Model Name or Number:	FOMA DC Adaptor 02

Description:	Charge / USB data cable
Brand Name:	NTT docomo
Model Name or Number:	FOMA USB Cable with Charge Function 02

Description:	128 MB Micro-SD Memory Card
Brand Name:	None stated
Model Name or Number:	None stated

Description:	Personal hands-free
Brand Name:	NTT docomo
Model Name or Number:	Stereo Earphone Set 01

Description:	Battery 3.7V 800 mAh
Brand Name:	NTT docomo
Model Name or Number:	P19

2.2. Description of EUT

The equipment under test was a dual mode UMTS/GSM cellular handset with Bluetooth and RFID.

2.3. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified.

2.4. Support Equipment

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

Description:	Dummy battery
Model Name or Number:	Not stated
Serial Number:	Not stated

2.5. 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 (DC):	Nominal (V)	3.7
	Minimum (V)	3.4
	Maximum (V)	4.2
Tested Temperature Range (°C):	Minimum	-20
	Maximum	+50

3. Test Specification, Methods and Procedures

3.1. Test Specifications

Reference:	FCC Part 15.225: 2008 Subpart C
Title:	Code of Federal Regulations, (47CFR15.225) Radio Frequency Devices.

Reference:	FCC Part 15.107 and 15.109: 2008 Subpart B
Title:	Code of Federal Regulations, (47CFR15.107 & 47CFR15.109) Radio Frequency Devices.

3.2. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2001)
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.

ANSI C63.5 (1988)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)
Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

3.3. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the Methods & Procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

There were no deviations from the test specification.

5. Operation of the EUT During Testing

5.1. Operating Modes

The EUT was tested in the following operating modes:

- Receiver/Idle mode
- Constantly transmitting at full power with a modulated carrier

5.2. Configuration and Peripherals

The EUT was tested in the following configuration:

- The RFID transmitter was enabled using a test mode accessed through the user interface.
- The Micro SD card was installed during all tests.
- Radiated spurious emissions tests were performed using the USB cable with charger 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.
- As the EUT is not capable of transmitting while charging, no AC Mains Conducted Emissions (150 kHz to 30 MHz) test was performed in transmit mode.
- The dummy battery was fitted during frequency measurement tests. This was connected to a bench power supply and the DC voltage level adjusted and monitored accordingly.

6. Summary of Test Results

Range of Measurements	Standard Reference	Port Type	Result
AC Conducted Emissions	FCC Part 15.107(a)	AC Mains	Complied
Radiated Spurious Emissions	FCC Part 15.109 (a) FCC Part 15.225(d)	Enclosure	Complied
Transmitter Fundamental Field Strength	FCC Part 15.225(a)(b)(c)(d)	Antenna	Complied
Transmitter Radiated Spurious Emissions	FCC Part 15.209(a) FCC Part 15.225(d)	Enclosure	Complied
Transmitter Band Edge Radiated Emissions	FCC Part 15.209(a) FCC Part 15.225(c)(d)	Antenna	Complied
Transmitter 20 dB Bandwidth	FCC Part 2.1049	Antenna	Complied
Transmitter Frequency Stability (Temperature & Voltage Variation)	FCC Part 15.225(e)	Antenna	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.

6.2. Site Registration Numbers

FCC: 209735

7. Measurements, Examinations and Derived Results

7.1. General Comments

7.1.1. This section contains test results only.

7.1.2. 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 8 for details of measurement uncertainties.

7.2. Test Results

7.3. 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):	17
Relative Humidity (%):	39

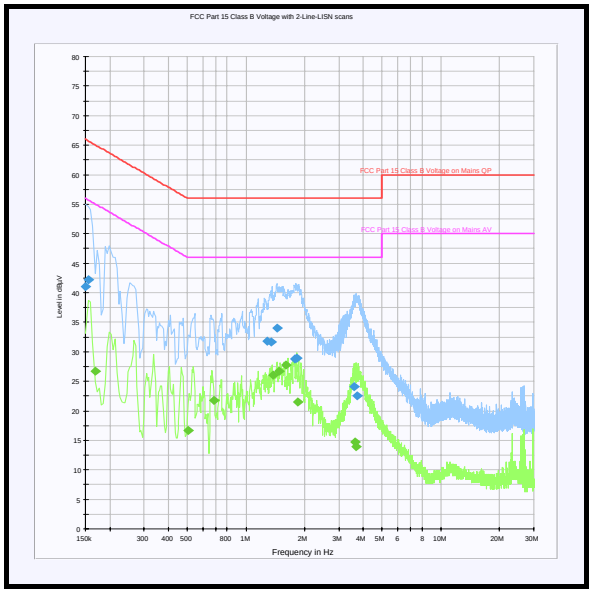
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.150000	Live	41.0	66.0	25.0	Complied
0.154500	Live	42.2	65.8	23.6	Complied
1.284000	Live	31.8	56.0	24.2	Complied
1.347000	Live	31.7	56.0	24.3	Complied
1.450500	Live	34.0	56.0	22.0	Complied
1.788000	Live	28.9	56.0	27.1	Complied
1.828500	Live	28.9	56.0	27.1	Complied
3.606000	Live	24.1	56.0	31.9	Complied
3.727500	Live	22.6	56.0	33.4	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.168000	Live	26.7	55.1	28.4	Complied
0.505500	Live	16.7	46.0	29.3	Complied
0.681000	Live	21.7	46.0	24.3	Complied
1.383000	v	26.0	46.0	20.0	Complied
1.477500	Live	26.7	46.0	19.3	Complied
1.599000	Neutral	27.7	46.0	18.3	Complied
1.837500	Live	21.5	46.0	24.5	Complied
3.615000	Live	14.7	46.0	31.3	Complied
3.687000	Live	13.9	46.0	32.1	Complied

Receiver/Idle Mode Receiver/Idle Mode AC Mains Conducted Emissions (continued)



7.4. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

FCC Part:	15.109(a), 15.225(d)
Frequency Range:	9 kHz to 1000 MHz
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes

Environmental Conditions:

Temperature (°C):	20
Relative Humidity (%):	24

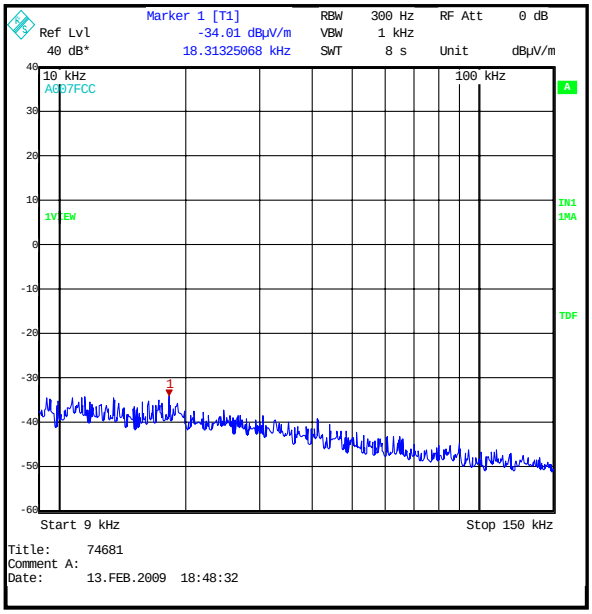
Results:

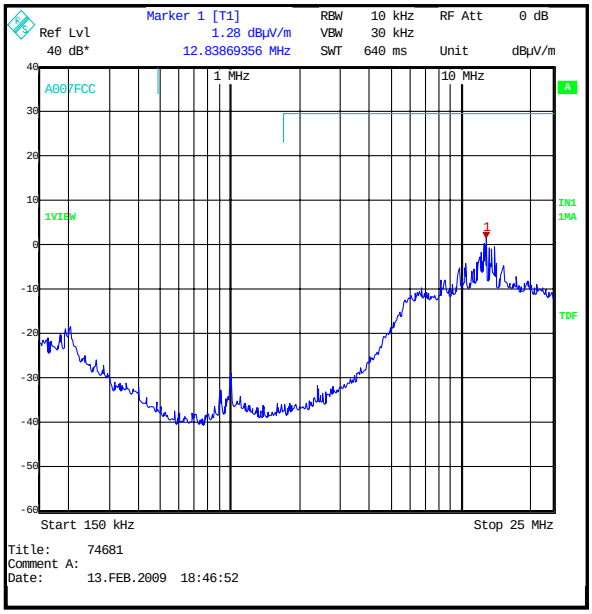
Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
447.178	Horizontal	33.9	46.0	12.1	Complied

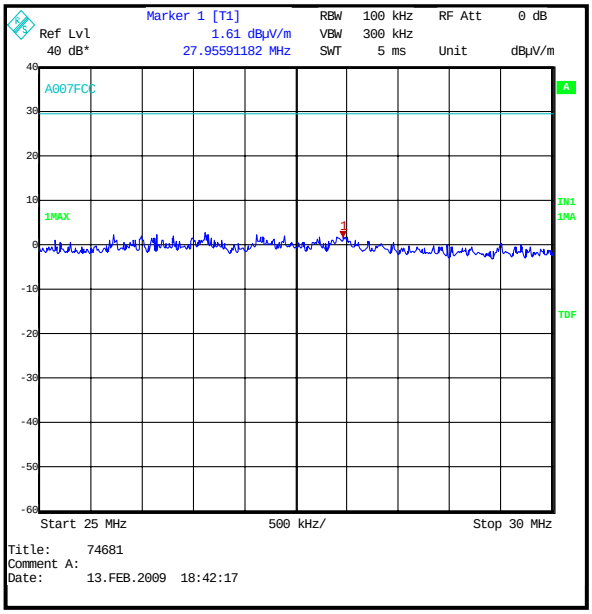
Note(s):

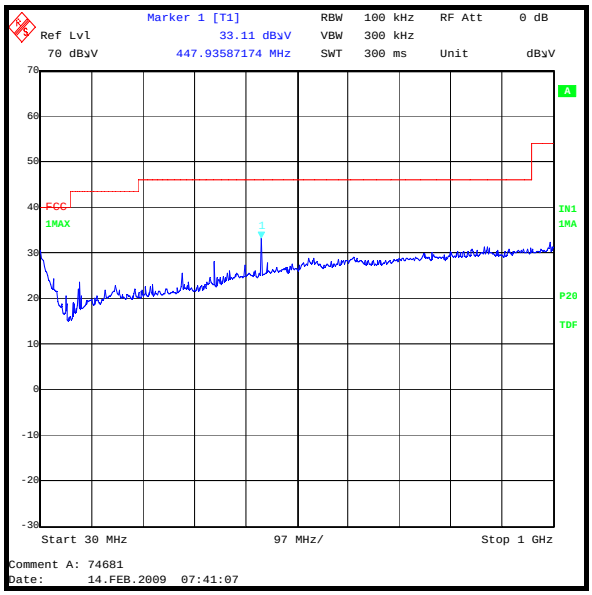
1. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement 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 other emissions were >20 dB below the applicable limit or below the level of the noise floor.

Receiver/Idle Mode Radiated Spurious Emissions (continued)









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

7.5. 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:

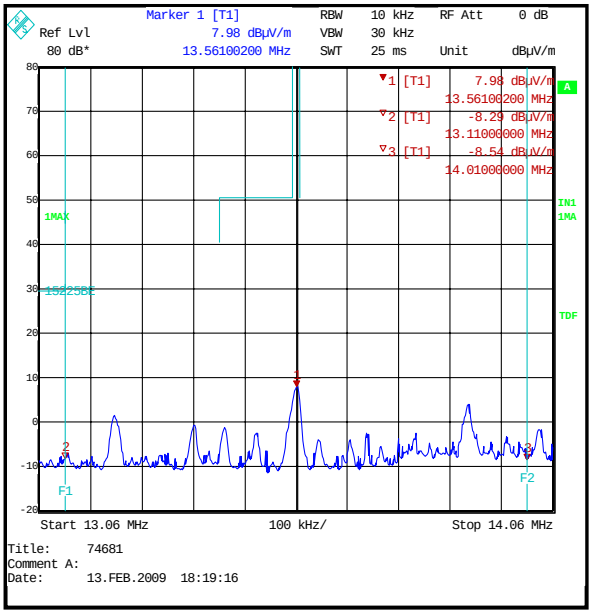
Temperature (°C):	23
Relative Humidity (%):	26

Results: Battery Powered Devices

Frequency (MHz)	Antenna Polarity	Q-P Level (dBµV/m)	Limit at 30 m (dBµV/m)	Margin (dB)	Result
13.56	90° to EUT	8.0	84.0	76.0	Complied

Note(s):

1. Measurements were performed at 3 metres and results extrapolated to 30 metres.
2. The limit is specified at a test distance of 30 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.



7.6. 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):	21
Relative Humidity (%):	23

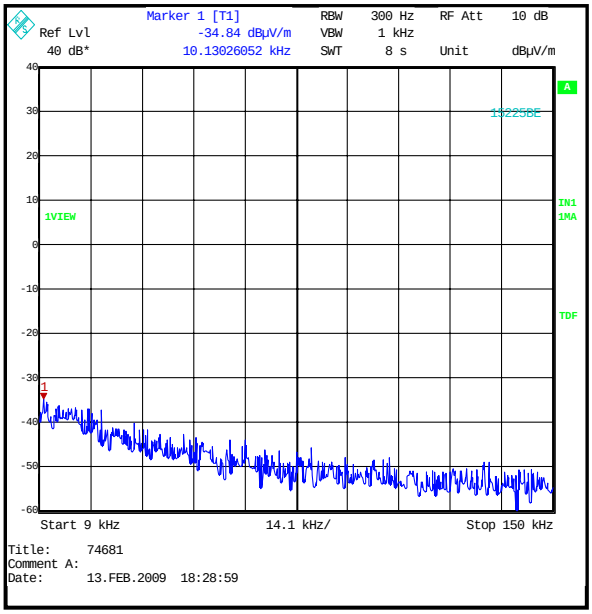
Results: Electric Field Strength Measurements

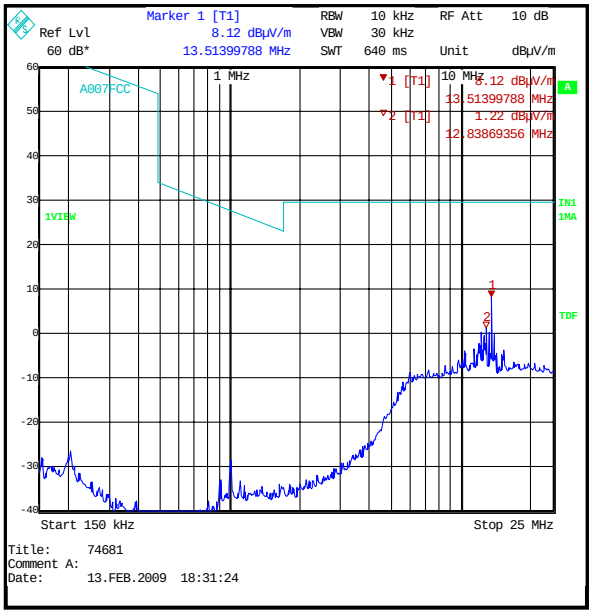
Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
175.792	Horizontal	39.8	43.5	3.7	Complied
203.384	Horizontal	33.2	43.5	10.3	Complied
528.823	Horizontal	36.9	46.0	9.1	Complied
542.374	Horizontal	37.7	46.0	8.3	Complied
555.932	Horizontal	38.1	46.0	7.9	Complied
569.497	Horizontal	36.0	46.0	10.0	Complied
583.063	Horizontal	34.8	46.0	11.2	Complied

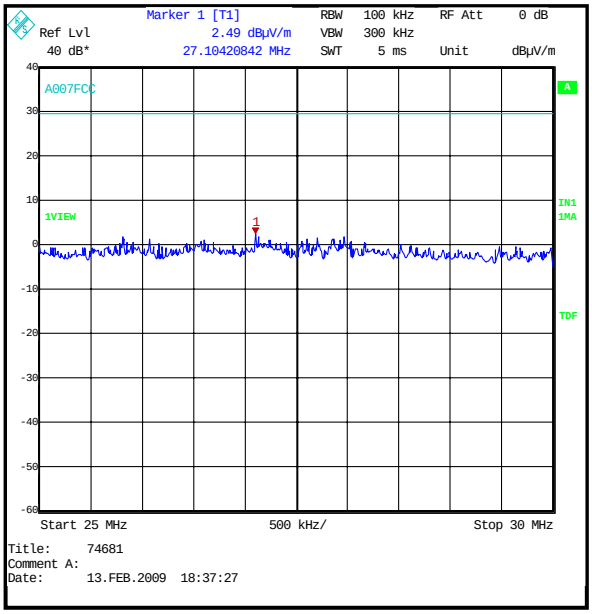
Note(s):

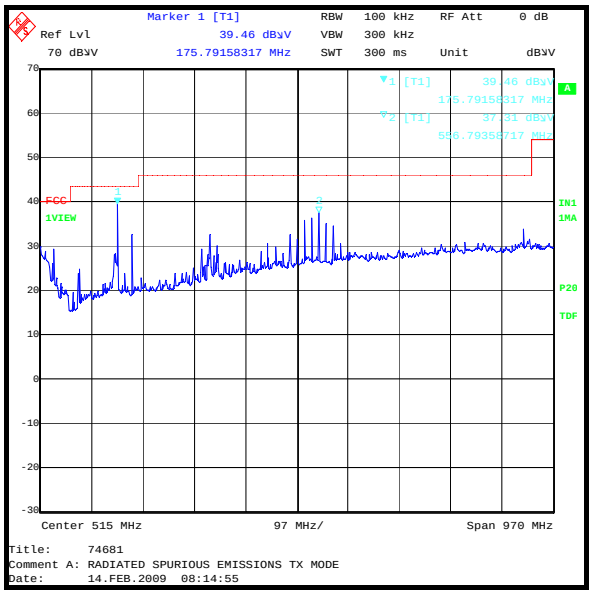
1. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement 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 emission shown at approximately 13.5 MHz is the fundamental.

Transmitter Radiated Spurious Emissions (continued)









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

7.7. 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):	23
Relative Humidity (%):	27

Results: Lower Band Edge

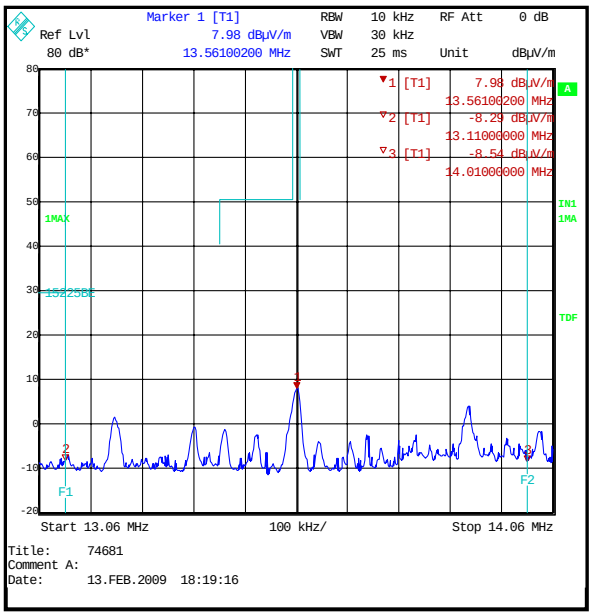
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
13.11	-8.3	40.5	48.8	Complied

Results: Upper Band Edge

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
14.01	-8.5	40.5	49.0	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.



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

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7.8. Transmitter 20 dB Bandwidth

Test Summary:

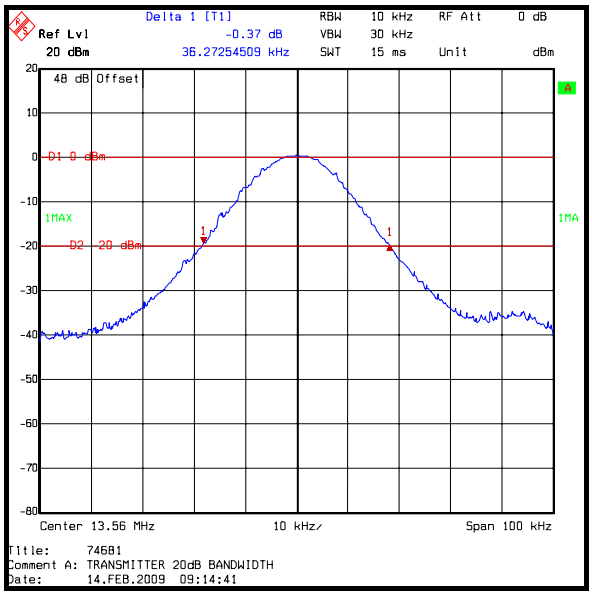
FCC Part:	2.1049
Test Method Used:	As detailed in ANSI C63.4 Section 13.1.7 and relevant annexes

Environmental Conditions:

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

Results:

Transmitter 20 dB Bandwidth (kHz)
36.27



7.9. 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):	21
Relative Humidity (%):	25

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	13.559865	135	0.000996	0.01	0.009004	Complied
20	13.56	13.559934	66	0.000487	0.01	0.009513	Complied
50	13.56	13.559875	125	0.000922	0.01	0.009078	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	13.559945	55	0.000406	0.01	0.009594	Complied
3.7	13.56	13.559934	66	0.000487	0.01	0.009513	Complied
4.2	13.56	13.559945	55	0.000406	0.01	0.009594	Complied

8. 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	13 MHz to 14 MHz	95%	±0.12 %
Frequency Stability	13 MHz to 14 MHz	95%	±11.37 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)
A004	LISN	Rohde & Schwarz	ESH3-Z5	890604/027	19 May 2008	12
A007	Antenna	Rohde & Schwarz	HFH2-Z2	880 458/020	28 Feb 2008	12
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Jan 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
M1068	Thermometer	Iso-Tech	RS55	93102884	09 Jul 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	19 Feb 2008	12
M1242	Spectrum Analyser	Rohde & Schwarz	FSEM30	845986/022	09 Dec 2008	12
M1269	Multimeter	Fluke	179	90250210	09 Apr 2008	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	21 Aug 2008	12
M1379	Test Receiver	Rohde & Schwarz	ESIB7	100330	14 Aug 2008	12
S0520	DC Power Supply Unit	GW instek	GPC-3030	E835141	Calibrated before use	-

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