TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: NTT docomo P-08A

To: FCC Part 24: 2008 Subpart E

Test Report Serial No:
RFI/RPT1/RP74716JD05A

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director: 	
Checked By:	A.HENRIQUES
Signature: 	
Date of Issue:	20 March 2009

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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

2. Summary of Testing

2.1. General Information

Specification Reference:	FCC Part 24: 2008 Subpart E
Specification Title:	Code of Federal Regulations, Part 24 (CFR47) Personal Communication Services
Site Registration:	FCC: 209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	03 March to 06 March 2009

2.2. Summary of Test Results

FCC Reference (CFR 47)	Measurement	Port Type	Result
FCC Part 15: Section 15.107	Idle Mode AC Conducted Spurious Emissions	AC Mains	✓
FCC Part 15: Section 15.109	Idle Mode Radiated Spurious Emissions	Enclosure	✓
FCC Part 15: Section 15.207	Transmitter AC Conducted Spurious Emissions	AC Mains	✓
FCC Part 24: Section 24.232	Transmitter Effective Isotropic Radiated Power (EIRP)	Antenna	✓
FCC Part 24: Section 24.235	Transmitter Frequency Stability (Temperature & Voltage Variation)	Antenna	✓
FCC Part 24: Section 24.238	Transmitter Occupied Bandwidth	Antenna	✓
FCC Part 24: Section 2.1053/24.238	Transmitter Out of Band Radiated Emissions	Antenna	✓
FCC Part 2: Section 2.1053/24.238	Transmitter Band Edge Radiated Emissions	Antenna	✓

Key to Results

✓ = Complied ✗ = Did not comply

2.3. Methods and Procedures

Reference:	ANSI/TIA-603-C-2004
Title:	Land Mobile Communications Equipment, Measurements and performance Standards
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:	NTT docomo
Model Name or Number:	P-08A
IMEI Number:	356754020050086
Hardware Version Number:	Rev C
Software Version Number:	B-WN908D-01.03.001 08-2H_CPF_Cv0A1352A
FCC ID Number:	UCE208015A

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

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

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

3.2. Description of EUT

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

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	PCS1900		
Type of Radio Device:	Transceiver		
Mode:	GSM/GPRS		
Modulation Type:	GMSK		
Channel Spacing:	200 kHz		
Power Supply Requirement(s):	Nominal	3.7 V	
	Minimum	3.4 V	
	Maximum	4.2 V	
Maximum Output Power (EIRP):	GSM	30.3 dBm	
	GPRS	29.2 dBm	
Transmit Frequency Range:	1850 to 1910 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8
Receive Frequency Range:	1930 to 1990 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8

3.5. 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

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Idle mode.
- Constantly transmitting at full power on bottom, centre and top channels as required.
- Occupied bandwidth, EIRP and band edge tests were performed with the EUT in GSM single timeslot circuit switched and GPRS Multislot Class 10 with the unit transmitting on two timeslots in the uplink.
- Transmitter radiated spurious emissions were checked in all modes during prescans. Circuit switched voice was found to be the worst case and all final measurements were performed with the EUT in this mode.

4.2. Configuration and Peripherals

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

- Connected to a GSM/GPRS system simulator, operating in transceiver mode
- Idle mode and transmitter mode radiated spurious emissions tests were performed with the mains charger connected to the EUT and 120VAC supply as this was found to be the worst case during prescans. All accessories were individually connected and measurements made during prescans to determine the worst case combination.

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. 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):	18
Relative Humidity (%):	42

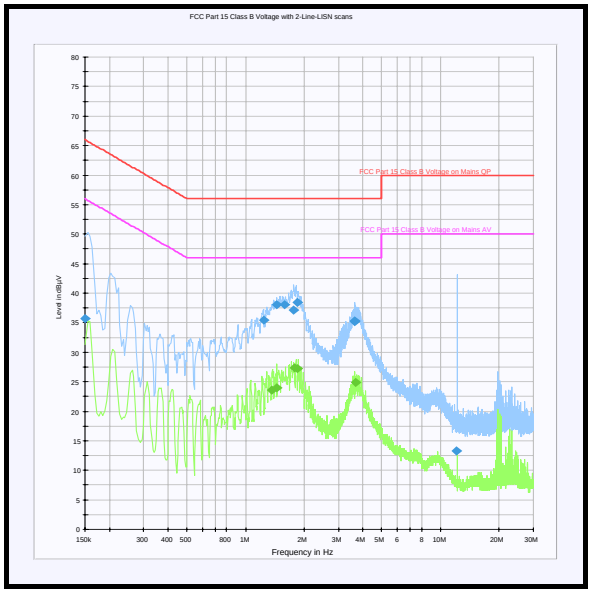
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.150000	Live	35.7	66.0	30.3	Complied
1.243500	Neutral	35.5	56.0	20.5	Complied
1.437000	Neutral	38.1	56.0	17.9	Complied
1.576500	Neutral	38.1	56.0	17.9	Complied
1.765500	Neutral	37.2	56.0	18.8	Complied
1.837500	Neutral	38.5	56.0	17.5	Complied
3.624000	Neutral	35.3	56.0	20.7	Complied
3.633000	Neutral	35.2	56.0	20.8	Complied
12.115500	Live	13.3	60.0	46.7	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
1.360500	Neutral	23.6	46.0	22.4	Complied
1.437000	Neutral	23.9	46.0	22.1	Complied
1.774500	Neutral	27.4	46.0	18.6	Complied
1.842000	Neutral	27.2	46.0	18.8	Complied
3.687000	Neutral	24.9	46.0	21.1	Complied

Idle Mode AC Conducted Spurious Emissions (continued)



5.4. Idle Mode Radiated Spurious Emissions

Test Summary:

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

Environmental Conditions:

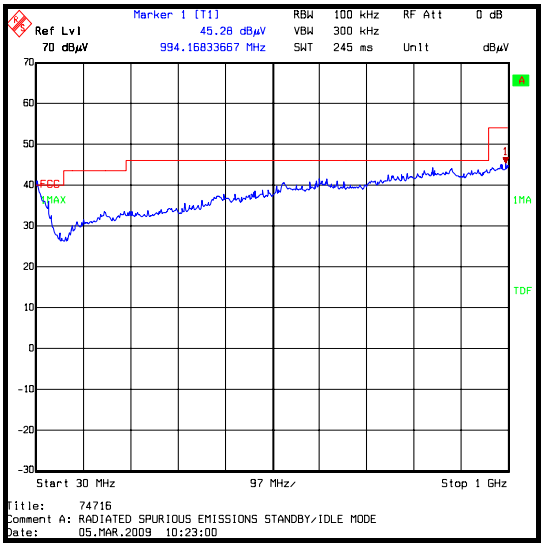
Temperature (°C):	24
Relative Humidity (%):	22

Results:

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
994.168	Horizontal	45.3	54.0	8.7	Complied

Note(s):

1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.



Idle Mode Radiated Spurious Emissions (continued)

Test Summary:

FCC Part:	15.109
Frequency Range:	1 GHz to 12.75 GHz
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	22

Results: Highest Peak Level:

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
12.598	Horizontal	41.0	13.1	54.1	74.0	19.9	Complied

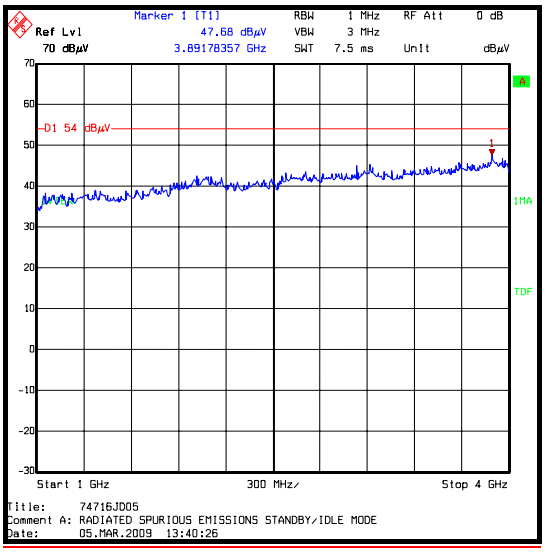
Results: Highest Average Level:

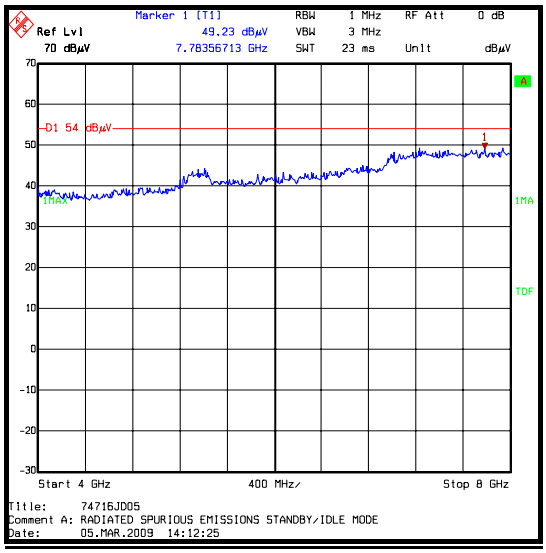
Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
12.607	Horizontal	30.7	13.1	43.8	54.0	10.2	Complied

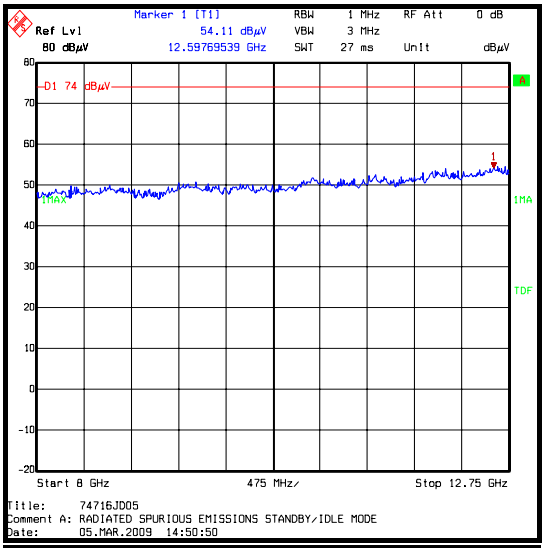
Note(s):

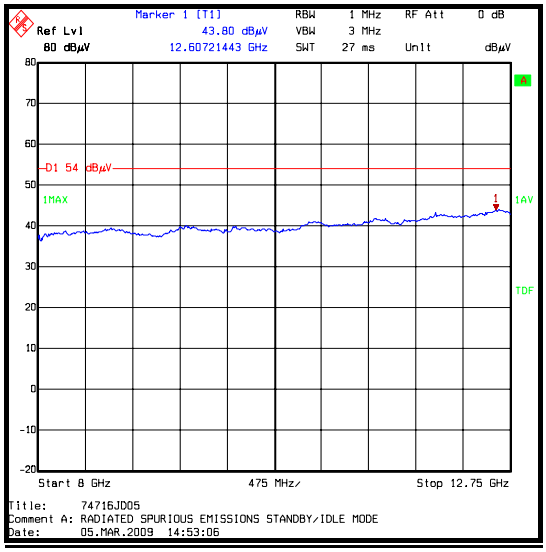
1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.
2. All pre-scans were performed with a peak detector against average or Q-P limits apart from measurements made in the range of 8 to 12.75 GHz where pre-scans were performed with peak and average detectors and the applicable limit applied. This was due to the noise floor exceeding the average limit when using a peak detector.

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):	18
Relative Humidity (%):	42

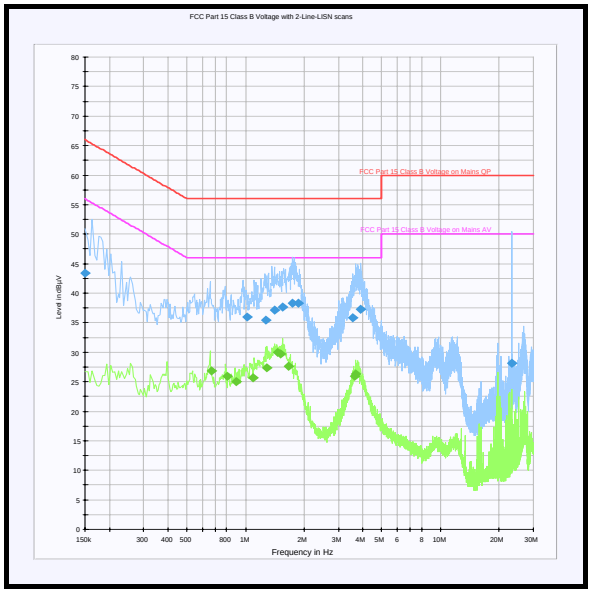
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.150000	Neutral	43.4	66.0	22.6	Complied
1.014000	Neutral	35.9	56.0	20.1	Complied
1.266000	Live	35.4	56.0	20.6	Complied
1.410000	Live	37.1	56.0	18.9	Complied
1.549500	Live	37.7	56.0	18.3	Complied
1.747500	Neutral	38.4	56.0	17.6	Complied
1.855500	Neutral	38.3	56.0	17.7	Complied
3.538500	Live	35.8	56.0	20.2	Complied
3.876000	Neutral	37.2	56.0	18.8	Complied
23.127000	Live	28.2	60.0	31.8	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.672000	Neutral	26.9	46.0	19.1	Complied
0.807000	Neutral	26.0	46.0	20.0	Complied
0.892500	Neutral	25.0	46.0	21.0	Complied
1.086000	Neutral	25.7	46.0	20.3	Complied
1.279500	Live	27.4	46.0	18.6	Complied
1.455000	Live	29.9	46.0	16.1	Complied
1.513500	Live	29.7	46.0	16.3	Complied
1.653000	Live	27.6	46.0	18.4	Complied
3.646500	Neutral	26.0	46.0	20.0	Complied
3.691500	Neutral	26.3	46.0	19.7	Complied

Transmitter AC Conducted Spurious Emissions (continued)



5.6. Transmitter Effective Isotropic Radiated Power (EIRP)

Test Summary:

FCC Part:	24.232
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	25

Results: GSM

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum Transmitter (dBm)	Limit (dBm)	Margin (dBm)	Result
Bottom	1850.2	Horizontal	30.3	33.0	2.7	Complied
Middle	1879.8	Horizontal	29.1	33.0	3.9	Complied
Top	1909.8	Horizontal	29.9	33.0	3.1	Complied

Results: GPRS

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum Transmitter (dBm)	Limit (dBm)	Margin (dBm)	Result
Bottom	1850.2	Horizontal	28.4	33.0	4.6	Complied
Middle	1879.8	Horizontal	28.4	33.0	4.6	Complied
Top	1909.8	Horizontal	29.2	33.0	3.8	Complied

5.7. Transmitter Frequency Stability (Temperature)

Test Summary:

FCC Part:	24.235
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	25

Results: Bottom Channel (1850.2 MHz)

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
-30	-38	1850.199962	1850.0	0.199962	Complied
-20	-50	1850.199950	1850.0	0.199950	Complied
-10	-31	1850.199969	1850.0	0.199969	Complied
0	-30	1850.199970	1850.0	0.199970	Complied
10	-45	1850.199955	1850.0	0.199955	Complied
20	-38	1850.199962	1850.0	0.199962	Complied
30	-39	1850.199961	1850.0	0.199961	Complied
40	-56	1850.199944	1850.0	0.199944	Complied
50	-47	1850.199953	1850.0	0.199953	Complied

Results: Top Channel (1909.8 MHz)

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
-30	-48	1909.799952	1910.0	0.200048	Complied
-20	-53	1909.799947	1910.0	0.200053	Complied
-10	-30	1909.799970	1910.0	0.200030	Complied
0	-40	1909.799960	1910.0	0.200040	Complied
10	-52	1909.799948	1910.0	0.200052	Complied
20	-47	1909.799953	1910.0	0.200047	Complied
30	-50	1909.799950	1910.0	0.200050	Complied
40	-56	1909.799944	1910.0	0.200056	Complied
50	-43	1909.799957	1910.0	0.200043	Complied

5.8. Transmitter Frequency Stability (Voltage Variation)

Test Summary:

FCC Part:	24.235
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055

Environmental Conditions:

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

Results: Bottom Channel (1850.2 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
3.4	-43	1850.199957	1850.0	0.199957	Complied
4.2	-54	1850.199946	1850.0	0.199946	Complied

Results: Top Channel (1909.8 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
3.4	-51	1909.799949	1910.0	0.200051	Complied
4.2	-31	1909.799969	1910.0	0.200031	Complied

5.9. Transmitter Occupied Bandwidth

Test Summary:

FCC Part:	24.238
Test Method Used:	As detailed in ANSI C63.4 Section13.1.7 and relevant annexes referencing FCC CFR Part 2.1049 (see note below)
Modulation:	GSM Circuit Switched

Environmental Conditions:

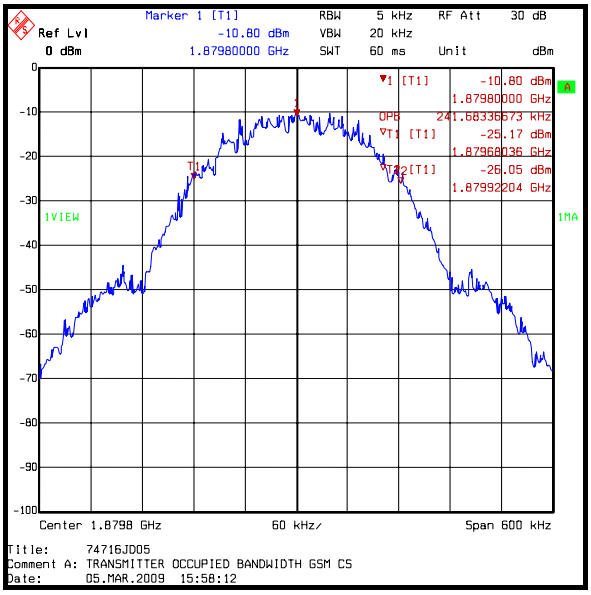
Temperature (°C):	25
Relative Humidity (%):	25

Results:

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	1879.8	241.683

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.



Transmitter Occupied Bandwidth (continued)

Test Summary:

FCC Part:	24.238
Test Method Used:	As detailed in ANSI C63.4 Section13.1.7 and relevant annexes referencing FCC CFR Part 2.1049 (see note below)
Modulation:	GPRS

Environmental Conditions:

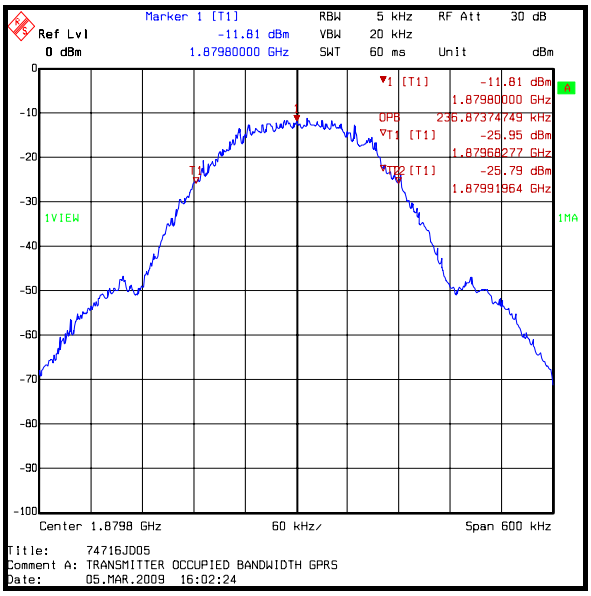
Temperature (°C):	25
Relative Humidity (%):	25

Results:

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	1879.8	236.873

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.



5.10. Transmitter Out of Band Radiated Emissions

Test Summary:

FCC Part:	2.1053 & 24.238
Frequency Range:	30 MHz to 20 GHz
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	22

Results: Bottom Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
5550.802	-31.5	-13.0	18.5	Complied
7400.767	-28.5	-13.0	15.5	Complied
9251.240	-24.2	-13.0	11.2	Complied

Results: Middle Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
5639.112	-31.9	-13.0	18.9	Complied
7519.280	-29.2	-13.0	16.2	Complied
9398.923	-17.7	-13.0	4.7	Complied

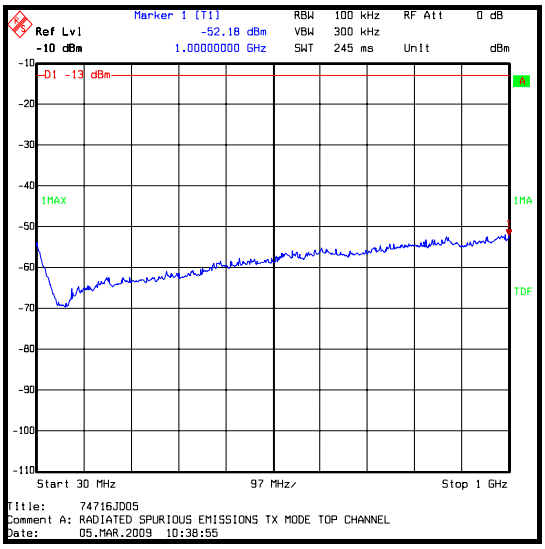
Results: Top Channel

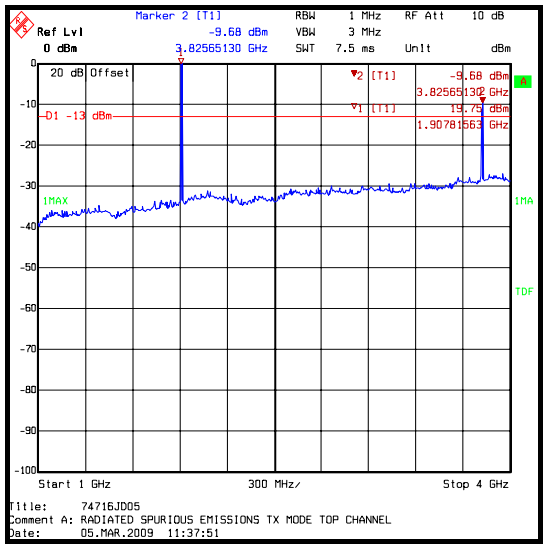
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
5729.417	-32.2	-13.0	19.2	Complied
7639.237	-28.7	-13.0	15.7	Complied
9548.663	-18.7	-13.0	5.7	Complied

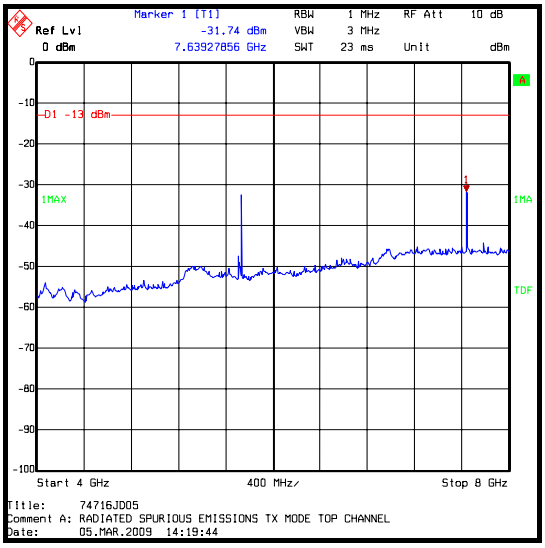
Note(s):

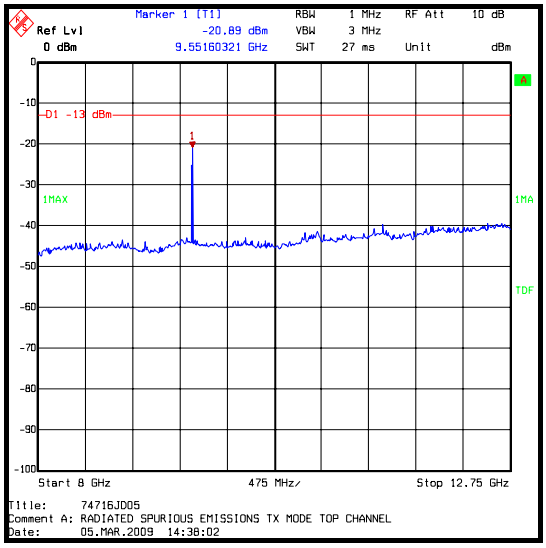
1. The transmitter fundamental is shown on the 1 GHz to 4 GHz plot at approximately 1907.8 MHz
2. The emission at 3.8256 GHz on the 1 GHz to 4 GHz plot is caused by distortion in the preamplifier used during pre-scans. The final measurement of this emission was measured using an appropriate filter and the emission level was found to be below the level of the noise floor.

Transmitter Out of Band Radiated Emissions (continued)

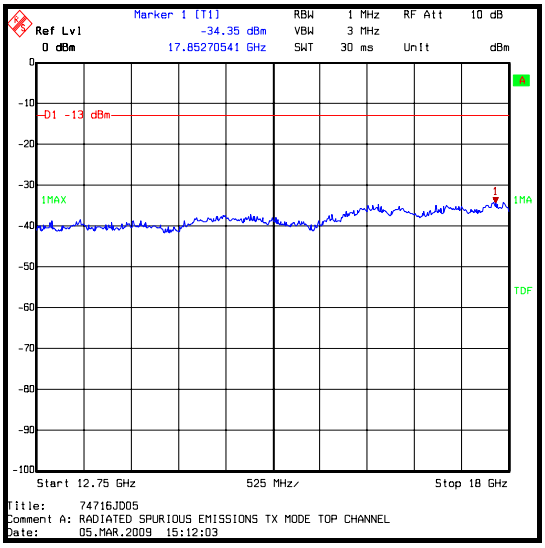


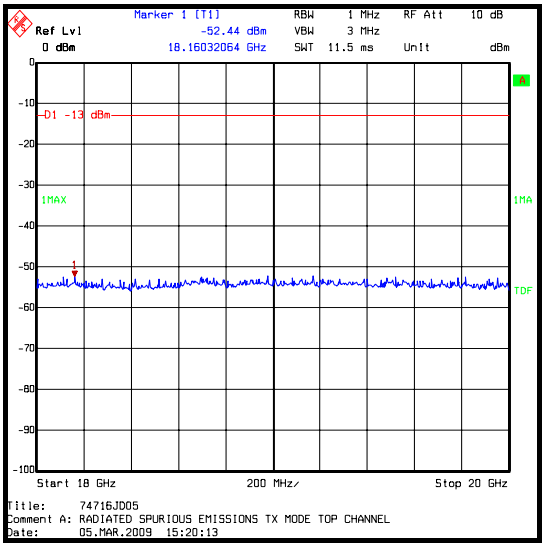






Transmitter Out of Band Radiated Emissions (continued)





5.11. Transmitter Radiated Emissions at Band Edges

Test Summary:

FCC Part:	2.1053 & 24.238
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238
Modulation:	GSM

Environmental Conditions:

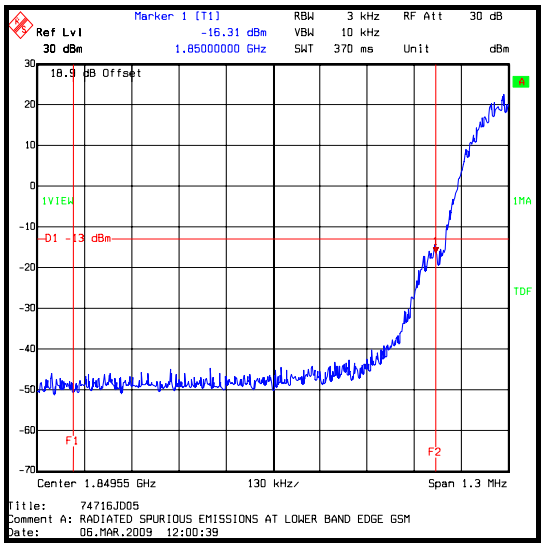
Temperature (°C):	23
Relative Humidity (%):	23

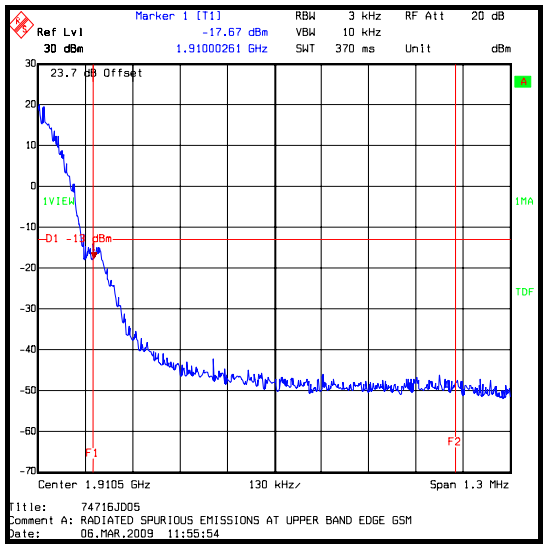
Results: Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1850	-16.3	-13.0	3.3	Complied

Results: Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1910	-17.7	-13.0	4.7	Complied





Transmitter Radiated Emissions at Band Edges (continued)

Test Summary:

FCC Part:	2.1053 & 24.238
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238
Modulation:	GPRS

Environmental Conditions:

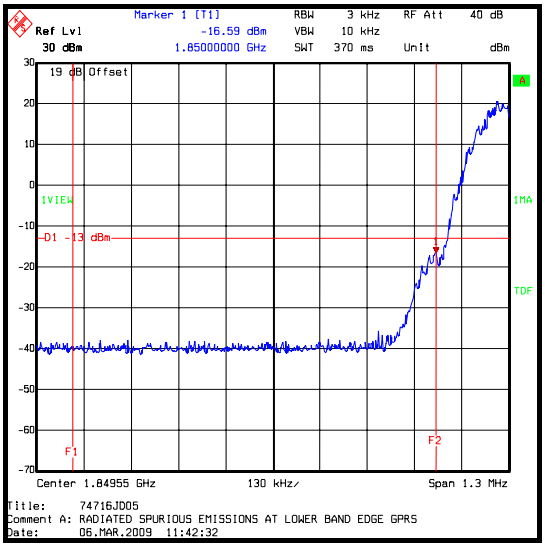
Temperature (°C):	22
Relative Humidity (%):	24

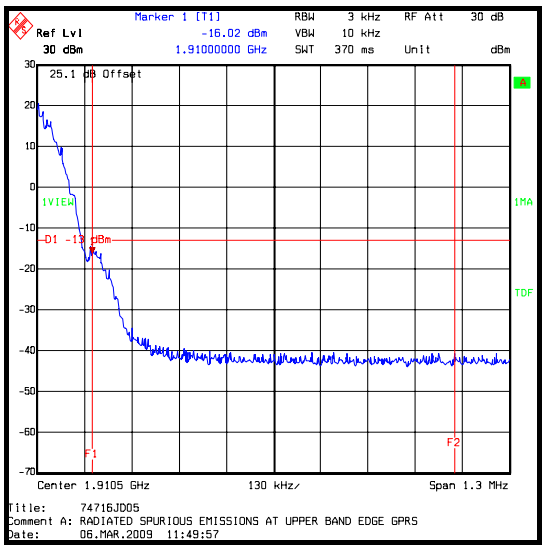
Results: Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1850	-16.6	-13.0	3.6	Complied

Results: Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1910	-16.0	-13.0	3.0	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%	±3.72 dB
Effective Isotropic Radiated Power (EIRP)	Not applicable	95%	±2.94 dB
Frequency Stability	Not applicable	95%	±11.4 ppm
Occupied Bandwidth	824 to 849 MHz	95%	±11.4 ppm
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±4.64 dB
Radiated Spurious Emissions	1 GHz to 26 GHz	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
A004	LISN	Rohde & Schwarz	ESH3-Z5	890604/027	19 May 2008	12
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1391	Attenuator	Huber + Suhner	757987	6810.17.B	Calibrated before use	-
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Jan 2009	12
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibrated before use	-
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	13 Aug 2008	-
L0990	Comms Test Set	R&S	CMU 200	S220447	18 Feb 2009	12
M1068	Thermometer	Iso-Tech	RS55	93102884	09 Jul 2008	12
M1229	Digital Multimeter	Fluke	179	87640015	09 May 2008	12
M1242	Spectrum Analyser	Rohde & Schwarz	FSEM30	845986/022	09 Dec 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

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