TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: NTT docomo P-03C

FCC ID: UCE210034A

To: FCC Part 24: 2010 Subpart E

Test Report Serial No:
RFI-RPT-RP79094JD07A

Version 2.0 supersedes all previous versions

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals:	
Checked By:	Ian Watch
Signature:	
Date of Issue:	04 November 2010

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Table of Contents

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:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 24 Subpart E (Personal Communication Services)
Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart B (Unintentional Radiators) - Sections 15.107 and 15.109
Site Registration:	209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	09 October 2010 to 21 October 2010

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.107(a)	Receiver/Idle Mode AC Conducted Spurious Emissions	✓
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	✓
Part 24.232	Transmitter Effective Isotropic Radiated Power (EIRP)	✓
Part 2.1046	Transmitter Conducted Output Power	Note 1
Parts 2.1055/24.235	Transmitter Frequency Stability (Temperature and Voltage Variation)	✓
Part 2.1049	Transmitter Occupied Bandwidth	✓
Part 2.1053/24.238	Transmitter Out of Band Radiated Emissions	✓
Part 2.1053/24.238	Transmitter Band Edge Radiated Emissions	✓
Key to Results ✓ = Complied ✗ = Did not comply		

Note 1: The measurement was performed to support SAR tests.

2.3. Methods and Procedures

Reference:	ANSI/TIA-603-C-2004
Title:	Land Mobile Communications Equipment, Measurements and performance Standards
Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise 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-03C
IMEI:	352816040058201 *(Radiated sample #1)*
Hardware Version Number:	Rev C
Software Version Number:	B-D02SL1-01.04.004 D02SL1_Cv38081110
FCC ID:	UCE210034A

Brand Name:	NTT docomo
Model Name or Number:	P-03C
IMEI:	352816040058219 *(Radiated sample #2)*
Hardware Version Number:	Rev C
Software Version Number:	B-D02SL1-01.04.004 D02SL1_Cv38081110
FCC ID:	UCE210034A

Brand Name:	NTT docomo
Model Name or Number:	P-03C
IMEI:	352816040059720 *(Conducted RF port sample)*
Hardware Version Number:	Rev C
Software Version Number:	B-D02SL1-01.04.004 D02SL1_Cv30081110*
FCC ID:	UCE210034A

**The Customer stated this software version is identical to D02SL1_Cv38081110 but allows the EUT to operate with SIMs having any network code.*

Brand Name:	NTT docomo
Description:	Battery
Model Name or Number:	P20*

Brand Name:	NTT docomo
Description:	AC Charger
Model Name or Number:	MAS-BH0008-AC02

Brand Name:	NTT docomo
Description:	DC Charger
Model Name or Number:	FOMA DC Adapter 02

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

Brand Name:	NTT docomo
Description:	Personal Hands-Free
Model Name or Number:	Stereo Earphone Set 01

3.2. Description of EUT

The equipment under test was a dual mode UMTS/GSM cellular handset with *Bluetooth*, WLAN 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	27.1 dBm	
	GPRS	25.3 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:

Brand Name:	Generic
Description:	Micro SD Memory Card
Model Name or Number:	Not marked or stated

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

Brand Name:	Not marked or stated
Description:	Dummy battery
Model Name or Number:	Not marked or stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Receiver/Idle mode.
- Constantly transmitting at full power on bottom, middle 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 pre-scans. 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):

- The sample with IMEI 352816040058201 was used for AC conducted and idle mode radiated spurious emissions tests. The sample with IMEI 352816040059720 was used for frequency stability, occupied bandwidth and conducted power measurements. The sample with IMEI 352816040058219 was used for all other measurements.
- The SDRAM card was present in the EUT during all testing.
- The dummy battery was fitted for frequency stability measurements.
- Idle mode radiated spurious 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.
- Transmitter mode radiated spurious emissions tests were performed with the AC 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.
- Connected to a GSM/GPRS system simulator, operating in transceiver mode.

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:

Test Engineer:	Andrew Edwards	**Test Date:**	09 October 2010
Test Sample Serial No:	352816040058201		

FCC Part:	15.107
Test Method Used:	As detailed in ANSI C63.4 Section 7

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	31

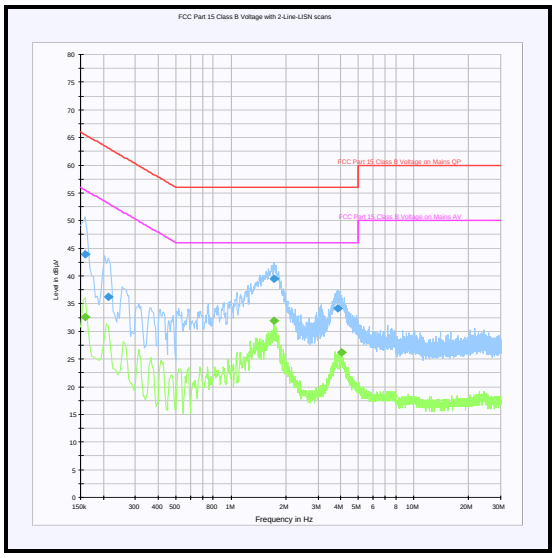
Results: Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.159000	Live	43.9	65.5	21.6	Complied
0.213000	Live	36.2	63.1	26.9	Complied
1.720500	Neutral	39.5	56.0	16.5	Complied
3.867000	Neutral	34.2	56.0	21.8	Complied

Results: Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.159000	Neutral	32.6	55.5	22.9	Complied
1.716000	Neutral	31.9	46.0	14.1	Complied
4.033500	Neutral	26.3	46.0	19.7	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.

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	11 October 2010
Test Sample IMEI:	352816040058201		

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

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	33

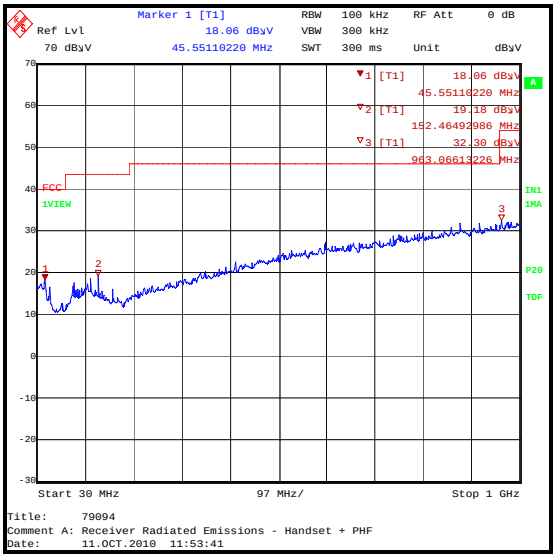
Results:

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
963.066	Horizontal	32.3	54.0	21.7	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. All emissions were investigated and found to be at least 20 dB below the specified limit, therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.

Receiver/Idle Mode Radiated Spurious Emissions (continued)



Receiver/Idle Mode Radiated Spurious Emissions (continued)

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	11 October 2010
Test Sample IMEI:	352816040058201		

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8
Frequency Range:	1 GHz to 10 GHz

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	33

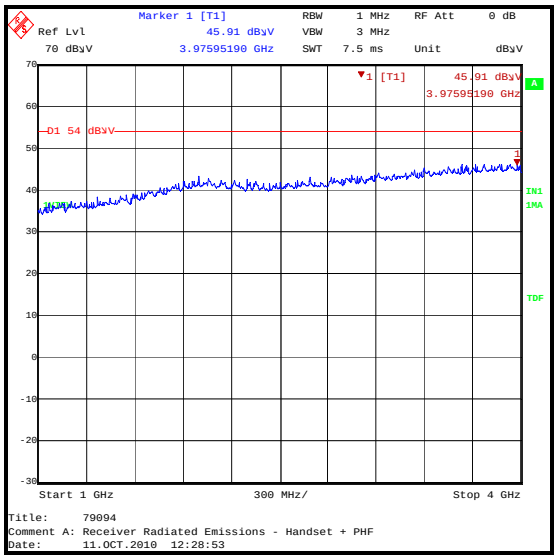
Results:

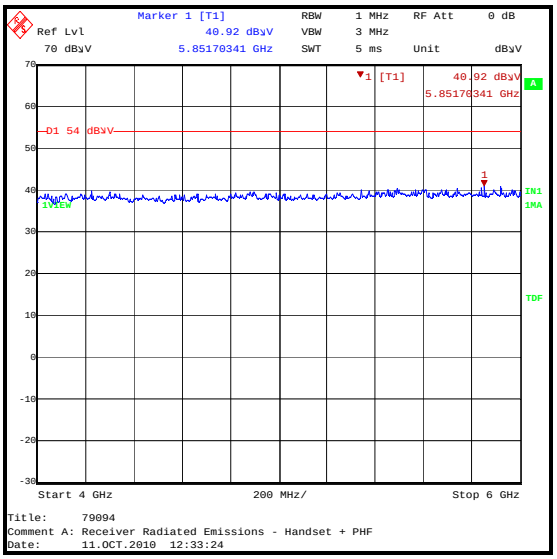
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
3975.952	Vertical	45.9	54.0	8.1	Complied

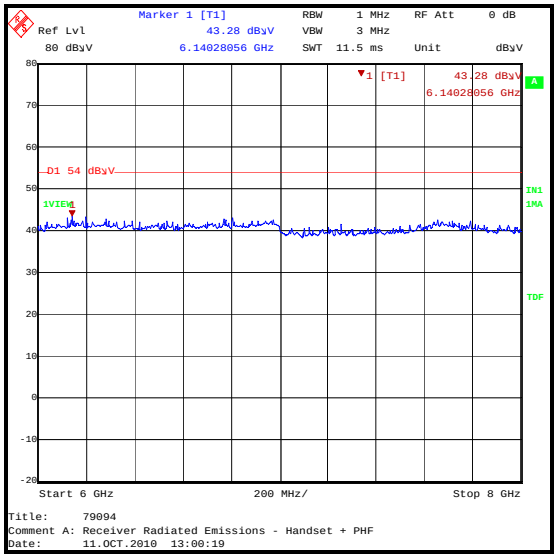
Note(s):

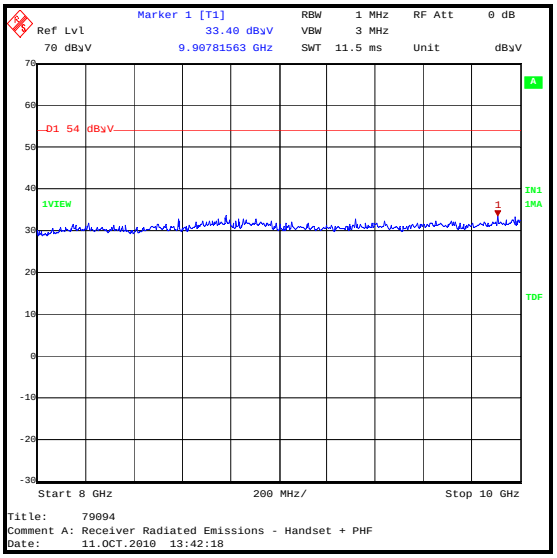
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.

Receiver/Idle Mode Radiated Spurious Emissions (continued)









5.2.3. Transmitter Effective Isotropic Radiated Power (EIRP)

Test Summary:

Test Engineer:	Ian Watch	**Test Date:**	20 October 2010
Test Sample IMEI:	352816040058219		

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

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	21

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	27.1	33.0	5.9	Complied
Middle	1879.8	Vertical	25.4	33.0	7.6	Complied
Top	1909.8	Vertical	25.2	33.0	7.8	Complied

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	25.3	33.0	7.7	Complied
Middle	1879.8	Vertical	23.0	33.0	10.0	Complied
Top	1909.8	Horizontal	23.4	33.0	9.6	Complied

5.2.4. Transmitter Conducted Output Power

Test Engineer:	Richelieu Quoi	**Test Date:**	18 October 2010
Test Sample IMEI:	352816040059720		

FCC Part:	2.1046
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.1 referencing FCC CFR Part 2.1046(a)

Environmental Conditions:

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

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Maximum Peak Conducted Power (dBm)	Maximum Average Conducted Power (dBm)
Bottom	1850.2	28.7	28.5
Middle	1879.8	28.7	28.5
Top	1909.8	28.7	28.5

Results: GPRS

Channel	Frequency (MHz)	Maximum Peak Conducted Power (dBm)	Maximum Average Conducted Power (dBm)
Bottom	1850.2	26.6	26.4
Middle	1879.8	26.6	26.4
Top	1909.8	26.6	26.4

Note(s):

1. Conducted power tests were performed to support SAR tests.

5.2.5. Transmitter Frequency Stability (Temperature Variation)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	18 October 2010
Test Sample IMEI:	352816040059720		

FCC Part:	2.1055 & 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:

Ambient Temperature (°C):	27
Ambient 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	36	1850.199964	1850.0	0.199964	Complied
-20	31	1850.200034	1850.0	0.200034	Complied
-10	13	1850.199987	1850.0	0.199987	Complied
0	24	1850.200024	1850.0	0.200024	Complied
10	17	1850.199983	1850.0	0.199837	Complied
20	35	1850.200035	1850.0	0.200035	Complied
30	28	1850.199972	1850.0	0.199972	Complied
40	32	1850.199968	1850.0	0.199968	Complied
50	32	1850.200032	1850.0	0.200032	Complied

Results: Top Channel (1909.8 MHz)

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
-30	34	1909.799966	1910.0	0.200034	Complied
-20	30	1909.800030	1910.0	0.199970	Complied
-10	11	1909.800011	1910.0	0.199989	Complied
0	26	1909.799974	1910.0	0.200026	Complied
10	22	1909.800022	1910.0	0.199978	Complied
20	38	1909.800038	1910.0	0.199962	Complied
30	30	1909.800030	1910.0	0.199970	Complied
40	31	1909.799969	1910.0	0.200031	Complied
50	27	1909.800027	1910.0	0.199973	Complied

Transmitter Frequency Stability (Temperature Variation) (continued)

Note(s):

1. A dummy battery was placed on the EUT and the dummy battery cables connected to a bench power supply.
2. Temperature was monitored throughout the test with a calibrated digital thermometer.

5.2.6. Transmitter Frequency Stability (Voltage Variation)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	18 October 2010
Test Sample IMEI:	352816040059720		

FCC Part:	2.1055 & 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):	27
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	22	1850.200022	1850.0	0.200022	Complied
4.2	19	1850.200019	1850.0	0.200019	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	24	1909.800024	1910.0	0.199976	Complied
4.2	21	1909.800021	1910.0	0.199979	Complied

Note(s):

1. A dummy battery was placed on the EUT and the dummy battery cables connected to a bench power supply.
2. Voltage was monitored throughout the test with a calibrated digital voltmeter.

5.2.7. Transmitter Occupied Bandwidth

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	18 October 2010
Test Sample IMEI:	352816040059720		

FCC Part:	2.1049
Test Method Used:	As detailed in ANSI C63.4 Section 13.7 referencing FCC CFR Part 2.1049 (see note below)

Environmental Conditions:

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

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	1879.8	238.076

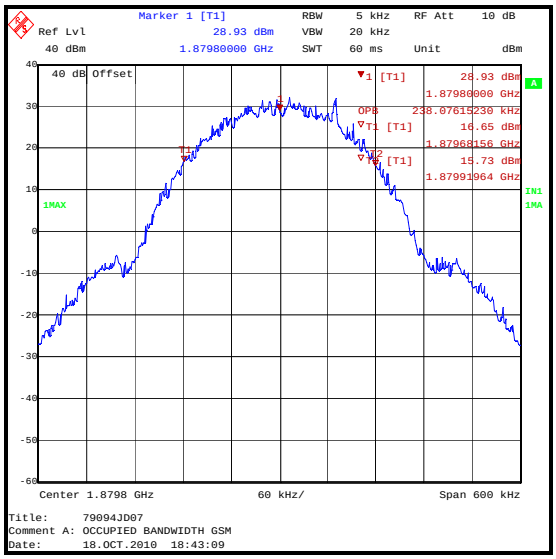
Results: GPRS

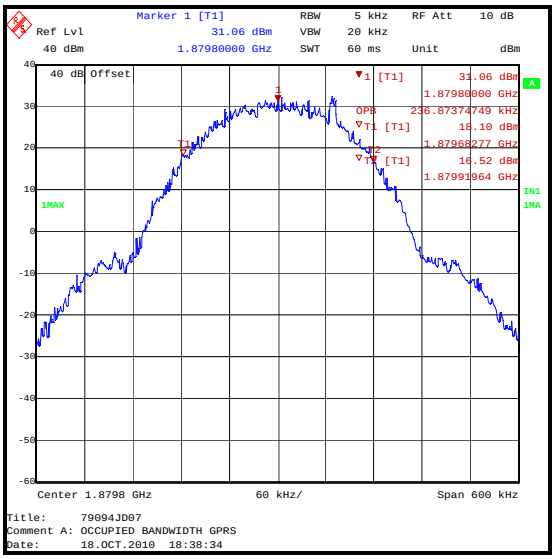
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	1879.8	236.873

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.7, the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.

Transmitter Occupied Bandwidth (continued)





5.2.8. Transmitter Out of Band Radiated Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	21 October 2010
Test Sample IMEI:	352816040058219		

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
Frequency Range:	30 MHz to 20 GHz
Configuration:	GSM Circuit Switched

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	21

Results: Bottom Channel

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3702.472	-27.9	-13.0	14.9	Complied

Results: Middle Channel

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3759.574	-27.3	-13.0	14.3	Complied

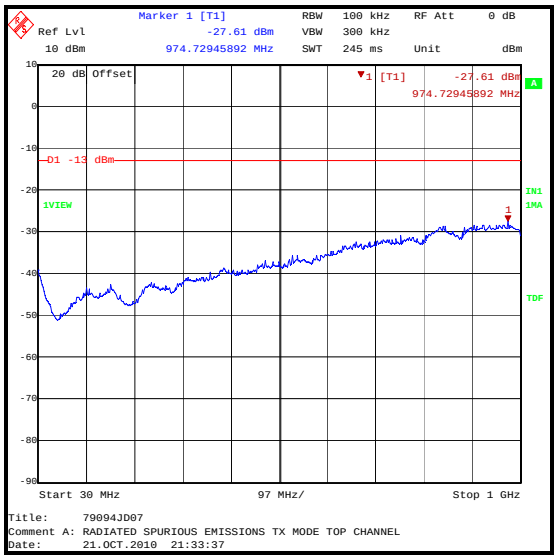
Results: Top Channel

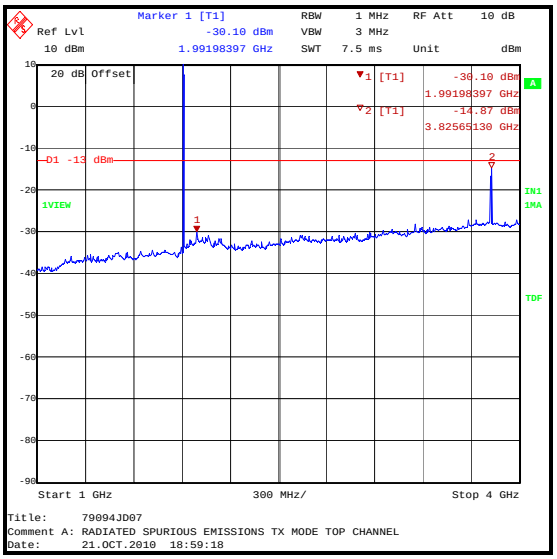
Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3819.545	-26.5	-13.0	13.5	Complied

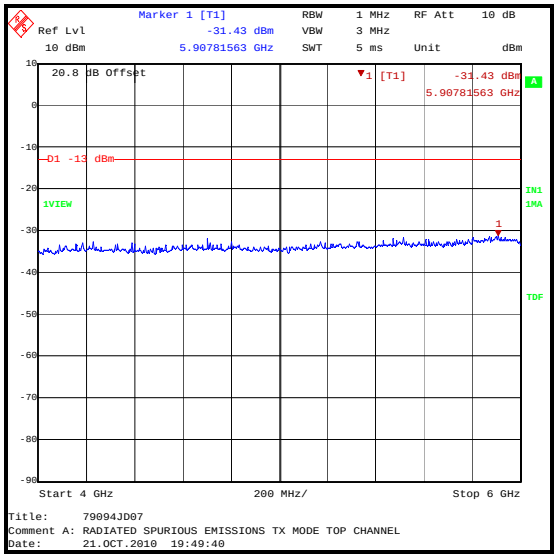
Note(s):

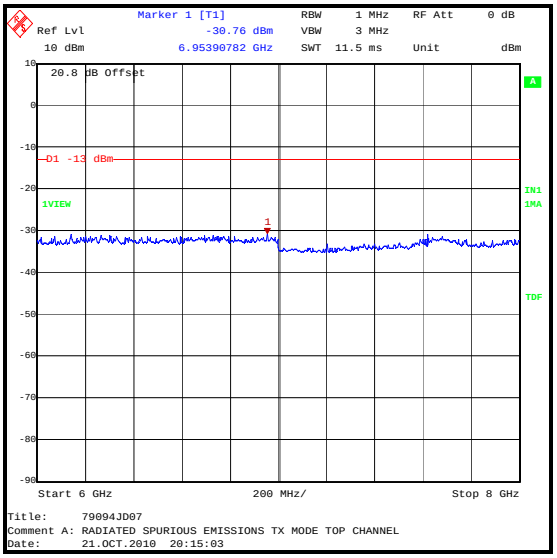
1. The uplink traffic channel is shown on the 1 GHz to 4 GHz plot.
2. Final measurements were performed using appropriate RF filters and attenuators where required.

Transmitter Out of Band Radiated Emissions (continued)

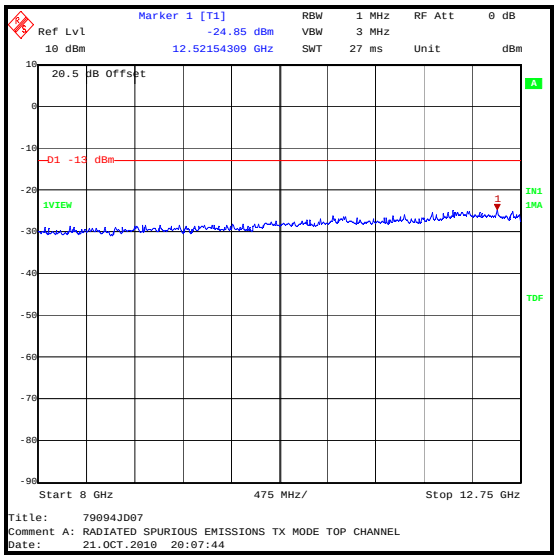


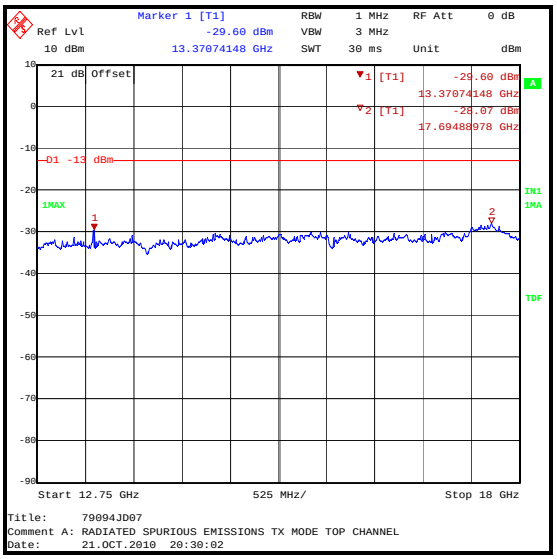


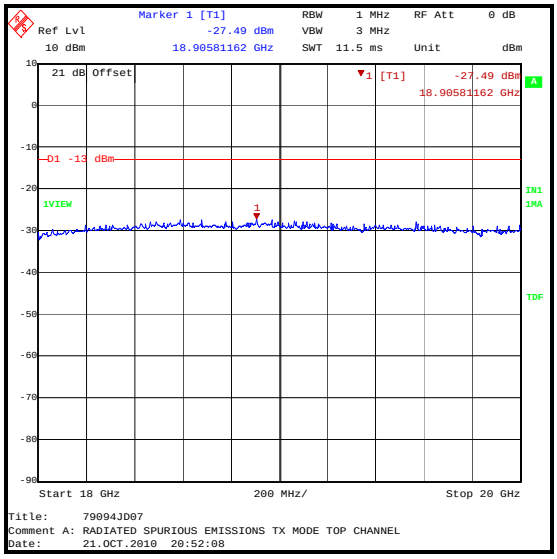




Transmitter Out of Band Radiated Emissions (continued)







5.2.9. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineer:	Ian Watch	**Test Date:**	21 October 2010
Test Sample IMEI:	352816040058219		

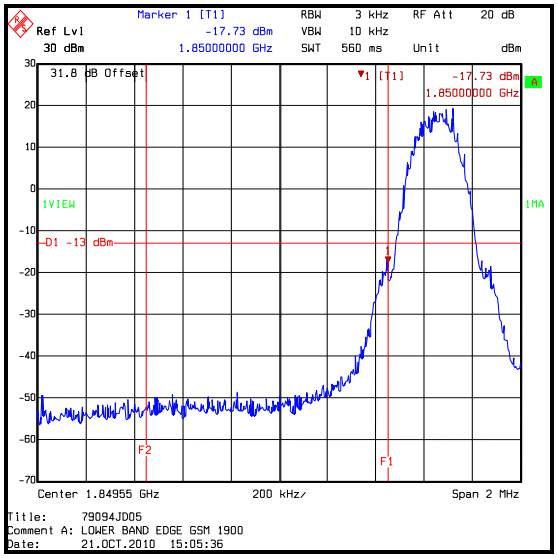
FCC Part:	2.1053 & 24.238
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238

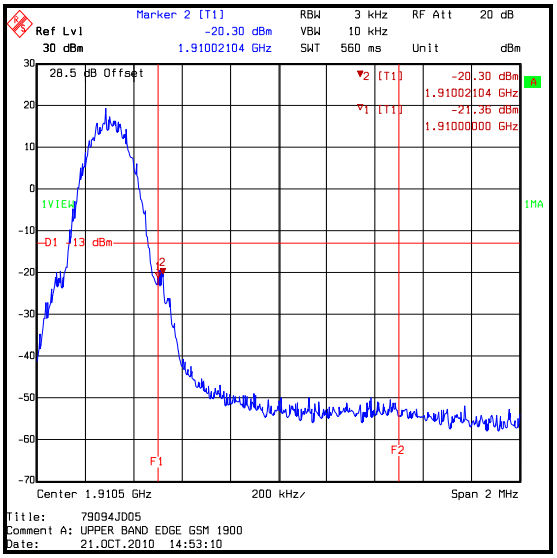
Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	21

Results: GSM Circuit Switched

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	-17.7	-13.0	4.7	Complied
1910	-21.4	-13.0	8.4	Complied
1910.02104	-20.3	-13.0	7.3	Complied

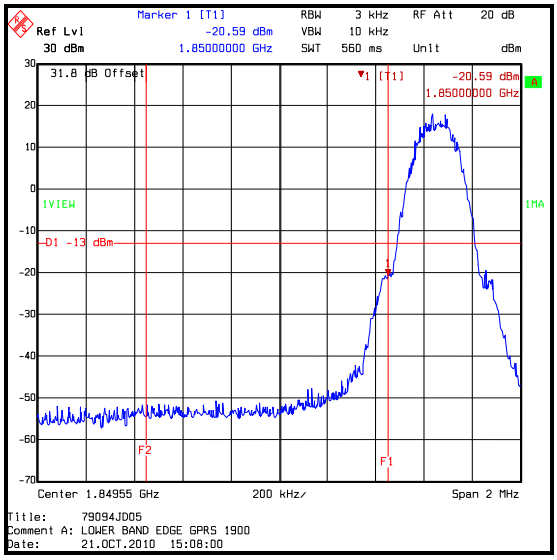


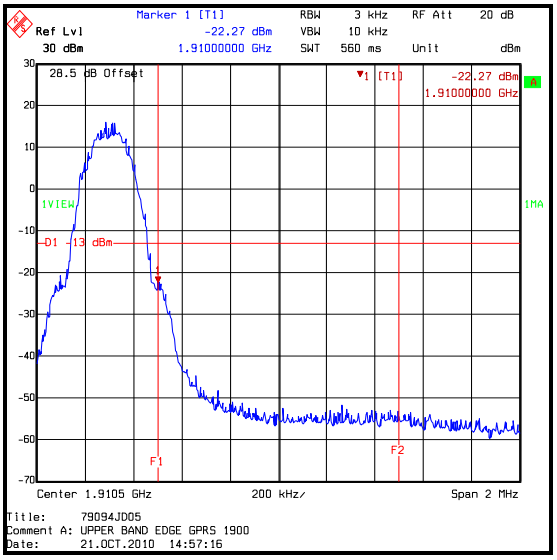


Transmitter Band Edge Radiated Emissions (continued)

Results: GPRS

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	-20.6	-13.0	7.6	Complied
1910	-22.3	-13.0	9.3	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
Effective Isotropic Radiated Power (EIRP)	1850 to 1910 MHz	95%	±2.94 dB
Conducted Output Power	1850 to 1910 MHz	95%	±0.27 dB
Frequency Stability	1850 to 1910 MHz	95%	±0.92 ppm
Occupied Bandwidth	1850 to 1910 MHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 20 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 Calibration Due	Cal. Interval (Months)
A1069	LISN	Rohde & Schwarz	ESH3-Z5	837469/012	13 Apr 2011	12
A1393	Attenuator	Huber & Suhner	757456	6820.17.B	06 Jul 2011	12
A1396	Attenuator	Huber & Suhner	757987	6810.17.B	06 Jul 2011	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	06 Jun 2011	12
A1818	Antenna	EMCO	3115	00075692	05 Sep 2011	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	01 Mar 2011	12
A1932	High Pass Filter	AtlanTecRF	AFH-02000	20r JFBD04002	22 Jan 2011	12
A1981	High Pass Filter	AtlanTecRF	AFH-05000	09110200090	22 Jan 2011	12
A253	Antenna	Flann Microwave	12240-20	128	05 Sep 2011	12
A254	Antenna	Flann Microwave	14240-20	139	05 Sep 2011	12
A255	Antenna	Flann Microwave	16240-20	519	05 Sep 2011	12
A256	Antenna	Flann Microwave	18240-20	400	05 Sep 2011	12
A288	Antenna	Chase	CBL6111A	1589	05 Sep 2011	12
A436	Antenna	Flann	20240-20	330	05 Sep 2011	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	05 Sep 2011	12
L1001	Test Receiver	Rohde & Schwarz	ESU26	100239	28 Jan 2011	12
L1005	Comms Test Set	Rohde & Schwarz	CMU200	116284	29 Jan 2011	12
M1068	Thermometer	Iso-Tech	RS55	93102884	02 Nov 2010	12
M1124	Test Receiver	Rohde & Schwarz	ESI26	100046K	22 Apr 2011	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	28 Jun 2011	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	01 Apr 2011	12
S0537	Power Supply	TTI	EL302D	249928	Calibrated before use	-

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