TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: NTT DoCoMo EB-4052

FCC ID: UCE211044A

To: FCC Parts 22.913, 22.917, 24.232 and 24.238

Test Report Serial No:
RFI-RPT-RP84537JD02A V2.0

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:	20 October 2011

RFI Global Services Ltd
Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire RG23 8BG
Telephone: +44 (0)1256 312000 Facsimile: +44 (0)1256 312001
Email: info@rfi-global.com Website: www.rfi-global.com

Registered in England and Wales. Company number:2117901

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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:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 22 Subpart H (Public Mobile Services)
Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 24 Subpart E (Personal Communication Services)
Site Registration:	FCC: 209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH
Test Dates:	11 October 2011 to 14 October 2011

Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 22 – GSM 850 Band		
Part 22.913(a)	Transmitter Output Power (ERP)	✓
Part 2.1053/22.917	Transmitter Out of Band Radiated Emissions	✓
Part 2.1053/22.917	Transmitter Band Edge Radiated Emissions	✓
Part 24 – GSM 1900 Band		
Part 24.232	Transmitter Output Power (EIRP)	✓
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		

2.2. Methods and Procedures

Reference:	ANSI/TIA-603-C-2004
Title:	Land Mobile Communications Equipment, Measurements and performance Standards

2.3. 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:	EB-4052
IMEI:	357939040050427
Hardware Version Number:	V2.3
Software Version Number:	ACPU: ponyo-ginger-dcm-07-0050 CCPU: M7630A-ABBQMAZM-4.1.3010 V0.36
FCC ID:	UCE211044A

Description:	Battery
Brand Name:	NTT DoCoMo
Model Name or Number:	P25

Description:	AC Charger with Data Cable
Brand Name:	NTT DoCoMo
Model Name or Number:	P01

Description:	Personal Hands Free
Brand Name:	Jabra
Model Name or Number:	Not Known

3.2. Description of EUT

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

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Type of Radio Device:	Transceiver		
Mode:	GSM/GPRS		
Modulation Type:	GMSK / 8PSK		
Channel Spacing:	200 kHz		
Power Supply Requirement(s):	Nominal	3.7 V	
Technology Tested:	GSM850		
Maximum Output Power (ERP):	GSM	29.9 dBm	
	GPRS	29.9 dBm	
	EGPRS	29.8 dBm	
Transmit Frequency Range:	824 to 849 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	128	824.2
	Middle	190	836.6
	Top	251	848.8
Receive Frequency Range:	869 to 894 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	128	869.2
	Middle	190	881.6
	Top	251	893.8
Technology Tested:	PCS1900		
Maximum Output Power (EIRP):	GSM	29.2 dBm	
	GPRS	28.9 dBm	
	EGPRS	28.8 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:	Not Stated
Description:	Micro SD Memory Card
Model Name or Number:	Not Stated

Brand Name:	Buffalo
Description:	USB Hub
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):

- Constantly transmitting at full power on bottom, middle and top channels as required.
- ERP/EIRP , Occupied bandwidth and band edge tests were performed with the EUT in:
    - GSM single timeslot circuit switched
    - GPRS/ Multislot Class 10 with the unit transmitting on one timeslots in the uplink.
    - EGPRS/ Multislot Class 10 using MCS5 with the unit transmitting on one timeslot in the uplink unless otherwise stated.
- 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):

- 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/EGPRS 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

Part 22 – GSM850 Band

5.2.1. Transmitter Output Power (ERP)

Test Summary:

Test Engineer:	Crawford Lindsay	**Test Date:**	13 October 2011
Test Sample IMEI:	357939040050427		

FCC Part:	22.913(a)
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	33

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Horizontal	27.4	38.45	11.05	Complied
Middle	836.6	Horizontal	28.8	38.45	9.65	Complied
Top	848.8	Horizontal	29.9	38.45	8.55	Complied

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Horizontal	27.5	38.45	10.95	Complied
Middle	836.6	Horizontal	28.5	38.45	9.95	Complied
Top	848.8	Horizontal	29.9	38.45	8.55	Complied

Results: EGPRS / MCS5

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Horizontal	27.3	38.45	11.15	Complied
Middle	836.6	Horizontal	28.4	38.45	10.05	Complied
Top	848.8	Horizontal	29.8	38.45	8.65	Complied

5.2.2. Transmitter Out of Band Radiated Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	11 October 2011 & 12 October 2011
Test Sample IMEI:	357939040050427		

FCC Part:	2.1053 & 22.917
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Part 2.1053
Frequency Range:	30 MHz to 9 GHz
Configuration:	GSM Circuit Switched

Environmental Conditions:

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

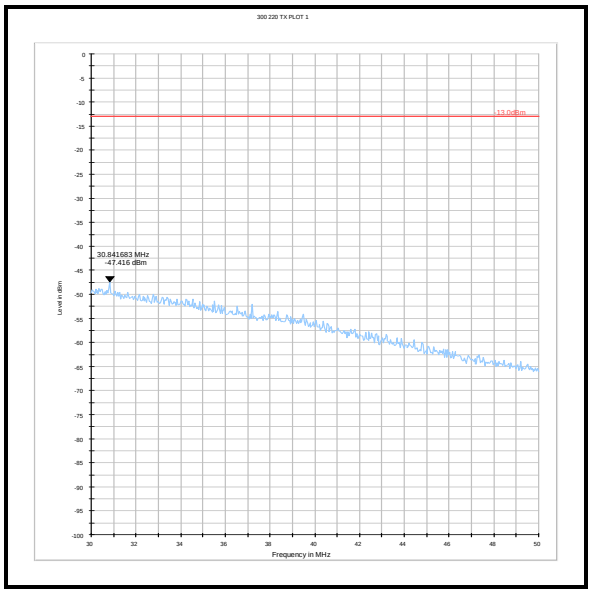
Results:

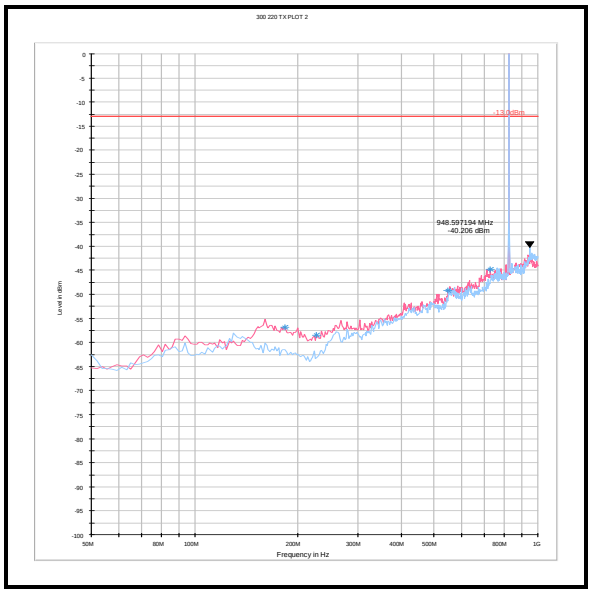
Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
6989.980	-35.3	-13.0	22.3	Complied

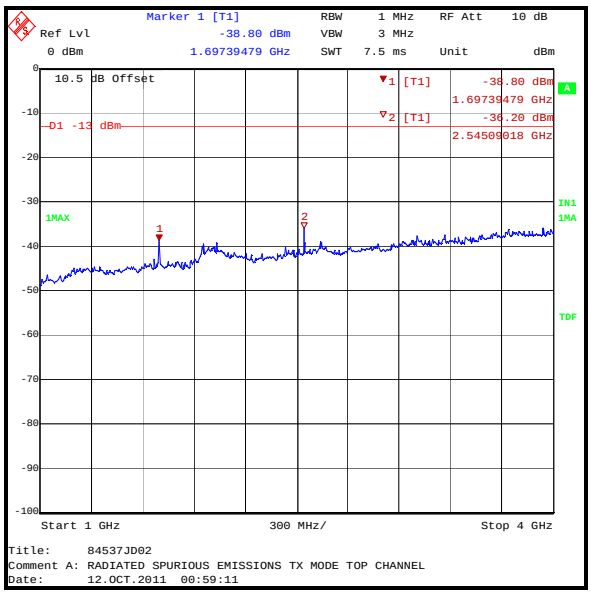
Note(s):

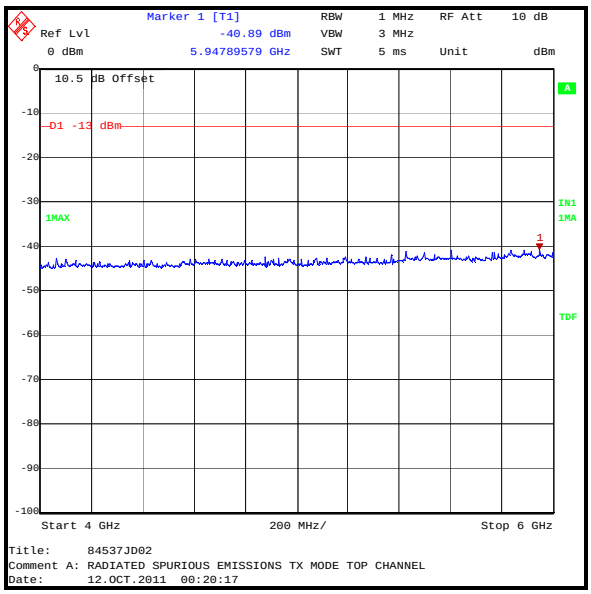
1. All emissions shown on the pre-scan plots were investigated and found to be at least 20 dB below the appropriate specification limit. Therefore, the highest level of noise floor has been recorded in the table above.
2. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
3. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Out of Band Radiated Emissions (continued)









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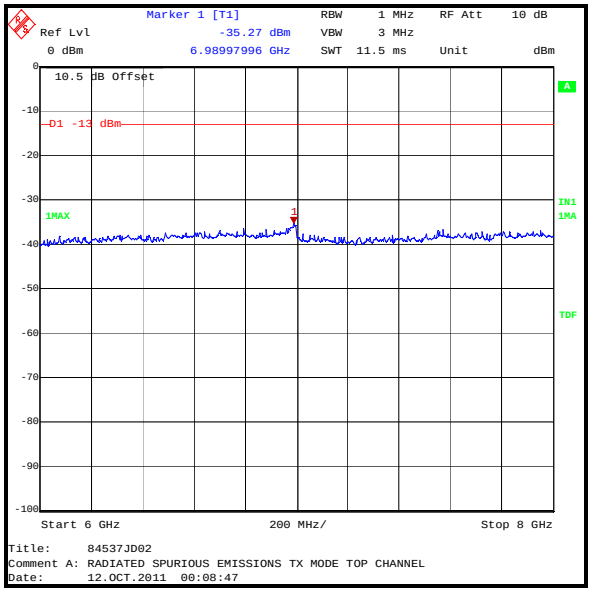
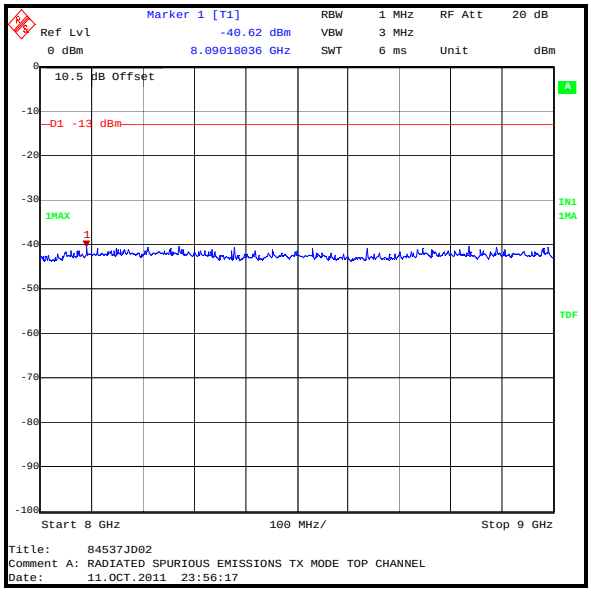




5.2.3. Transmitter Radiated Emissions at Band Edges

Test Summary:

Test Engineer:	Crawford Lindsay	**Test Date:**	13 October 2011
Test Sample IMEI:	357939040050427		

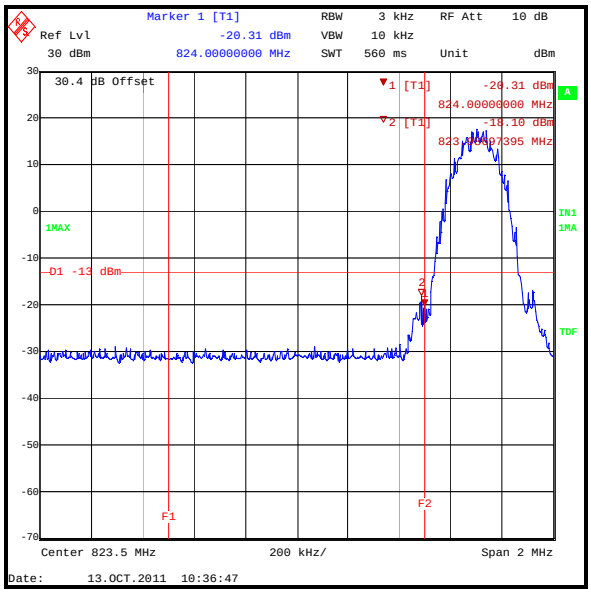
FCC Part:	2.1053 & 22.917
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Part 22.917

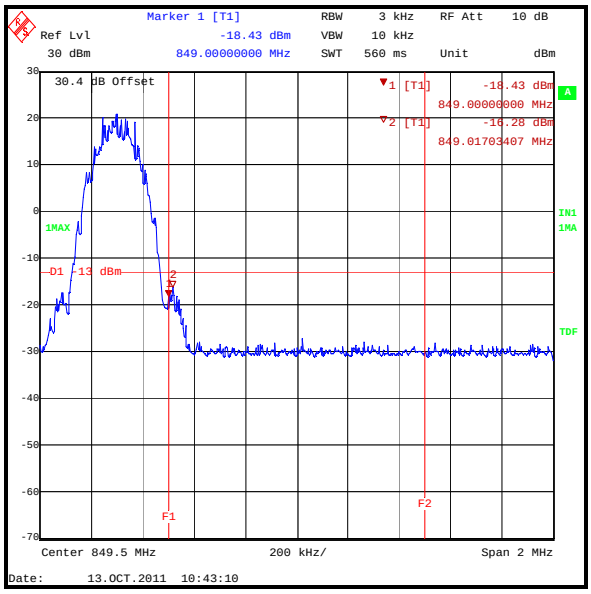
Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	33

Results: GSM Circuit Switched

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
823.967	-18.1	-13.0	5.1	Complied
824	-20.3	-13.0	7.3	Complied
849	-18.4	-13.0	5.3	Complied
849.017	-16.3	-13.0	3.3	Complied

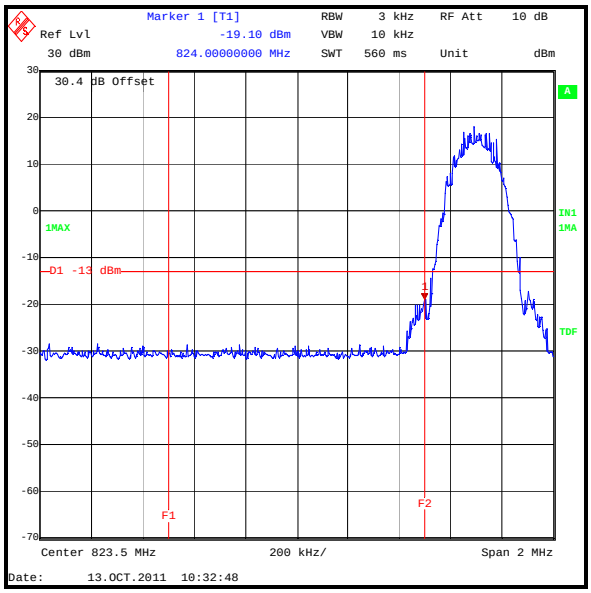


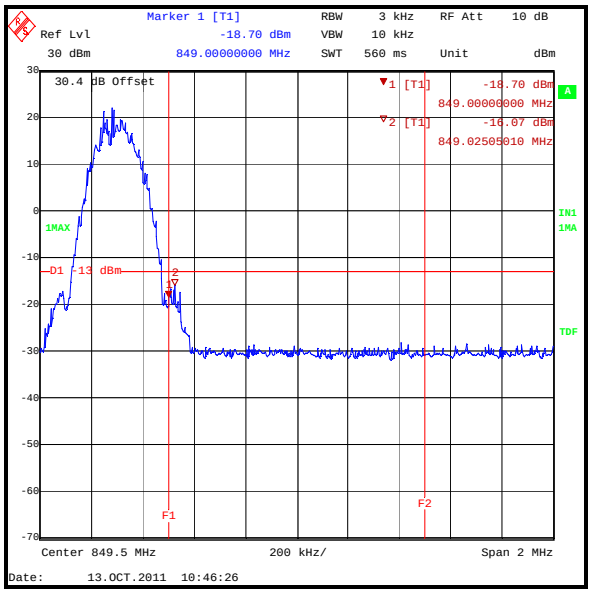


Transmitter Band Edge Radiated Emissions (continued)

Results: GPRS

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-19.1	-13.0	6.1	Complied
849	-16.7	-13.0	3.7	Complied
849.025	-16.1	-13.0	3.1	Complied

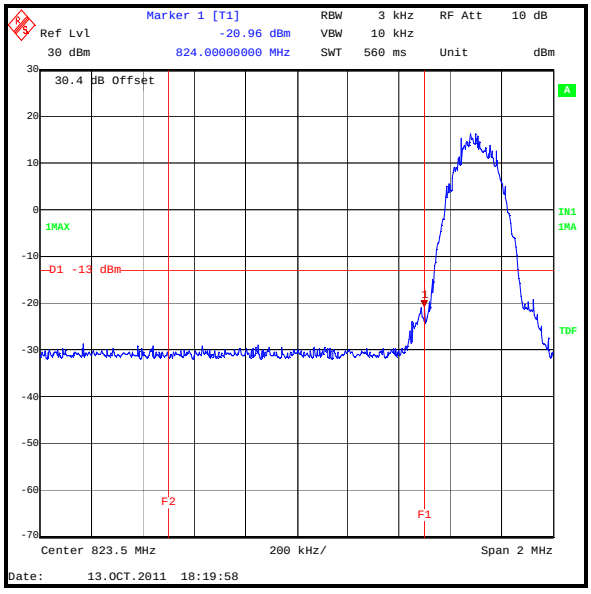


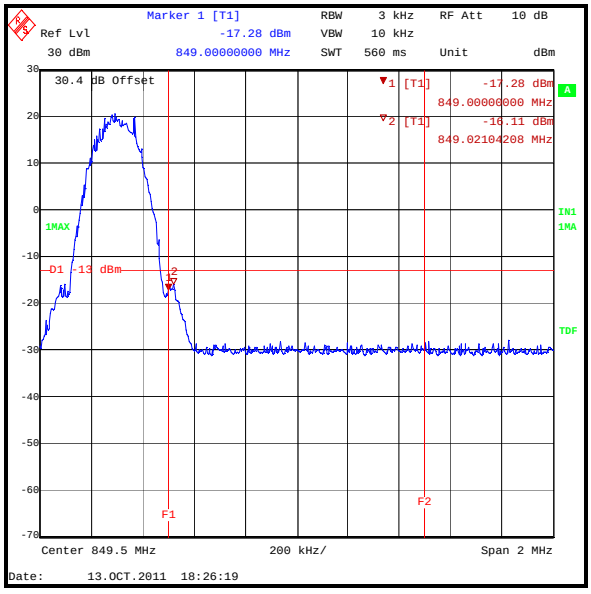


Transmitter Band Edge Radiated Emissions (continued)

Results: EGPRS / MCS5

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-21.0	-13.0	8.0	Complied
849	-15.9	-13.0	2.9	Complied
849.021	-16.1	-13.0	3.1	Complied





Part 24 – GSM1900 Band

5.2.4. Transmitter Output Power (EIRP)

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	11 October 2011& 13 October 2011
Test Sample IMEI:	357939040050427		

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 (%):	32

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	26.2	33.0	6.8	Complied
Middle	1879.8	Vertical	28.9	33.0	4.1	Complied
Top	1909.8	Horizontal	29.2	33.0	3.8	Complied

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	26.6	33.0	6.4	Complied
Middle	1879.8	Vertical	28.6	33.0	4.4	Complied
Top	1909.8	Horizontal	28.9	33.0	4.1	Complied

Results: EGPRS / MCS5

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	26.5	33.0	6.5	Complied
Middle	1879.8	Vertical	28.4	33.0	4.6	Complied
Top	1909.8	Horizontal	28.8	33.0	4.2	Complied

5.2.5. Transmitter Out of Band Radiated Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	11 October 2011 & 12 October 2011
Test Sample IMEI:	357939040050427		

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 (%):	31

Results: Bottom Channel

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3700.610	-33.8	-13.0	20.8	Complied

Results: Middle Channel

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3759.433	-32.3	-13.0	19.3	Complied

Results: Top Channel

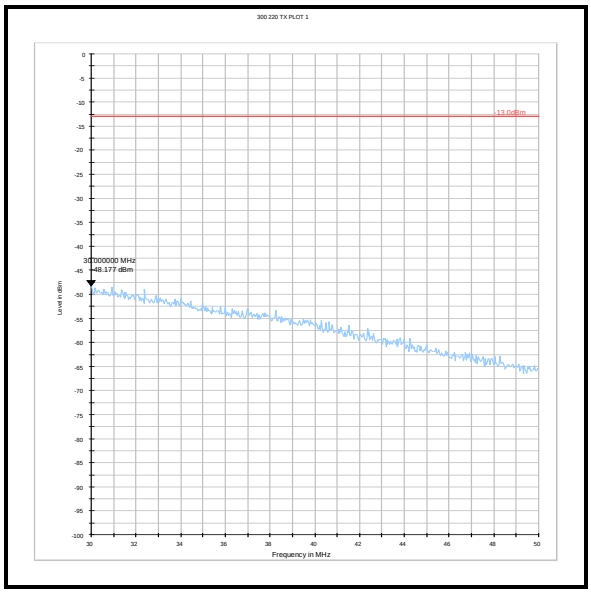
Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3819.189	-32.2	-13.0	19.2	Complied

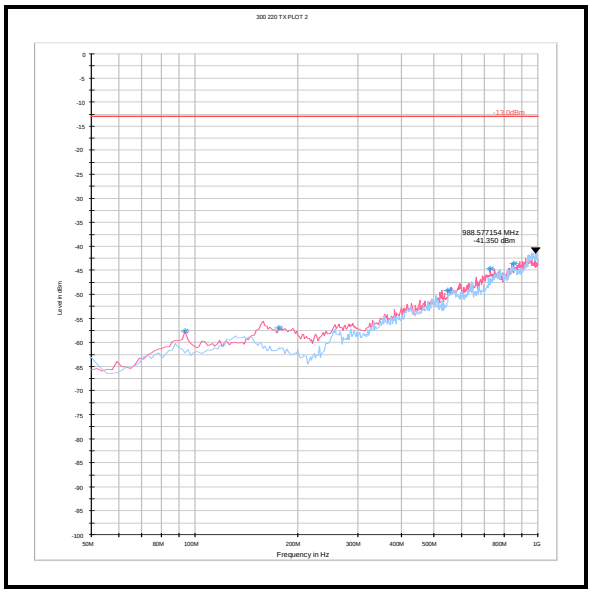
Transmitter Out of Band Radiated Emissions (continued)

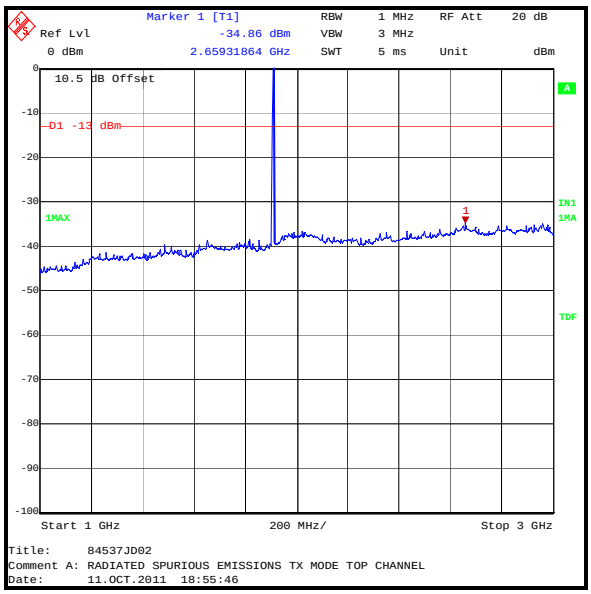
Note(s):

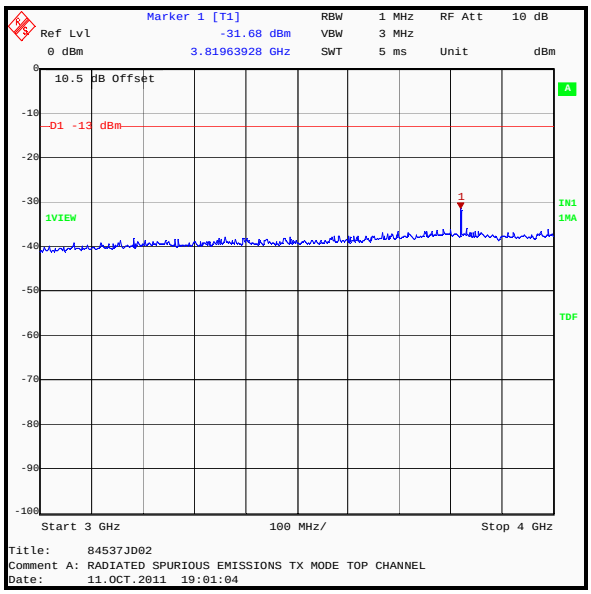
1. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
2. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
3. All other emissions were at least 20 dB below the appropriate specification limit.
4. Final measurements were made using appropriate RF filters and attenuators where required.

Transmitter Out of Band Radiated Emissions (continued)

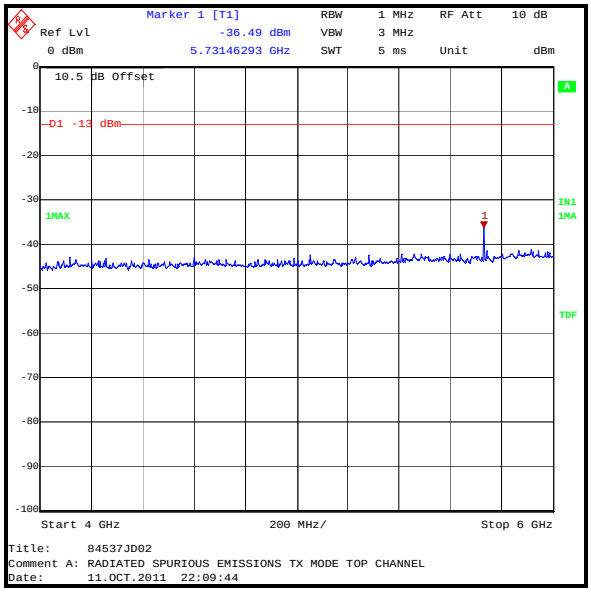


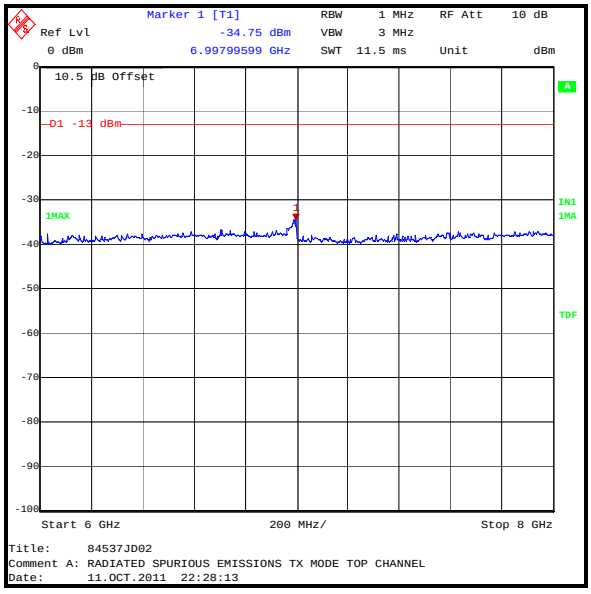


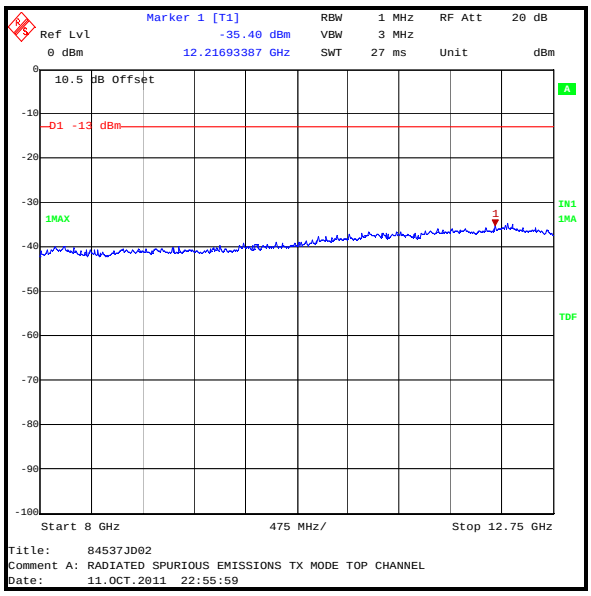


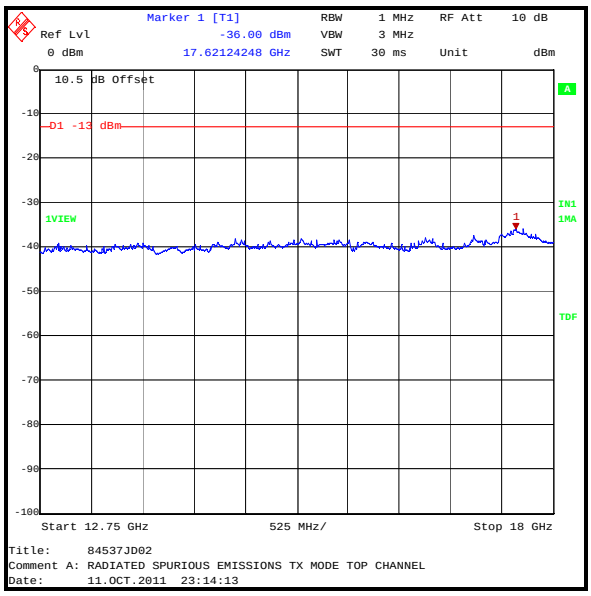


Transmitter Out of Band Radiated Emissions (continued)

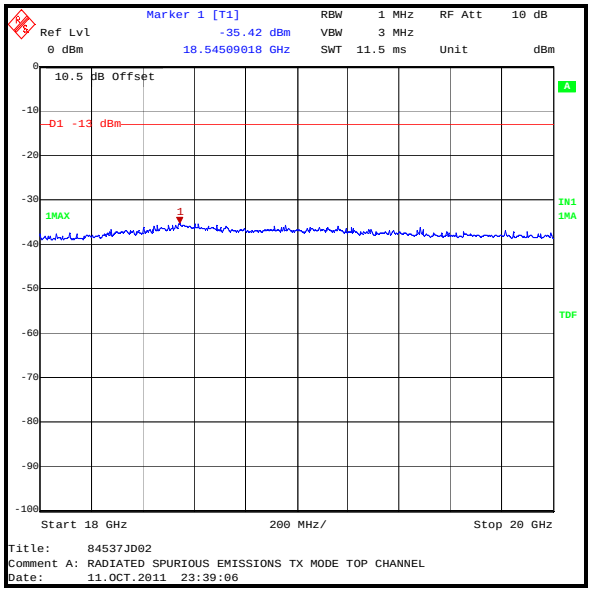








Transmitter Out of Band Radiated Emissions (continued)



5.2.6. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	13 October 2011 & 14 October 2011
Test Sample IMEI:	357939040050427		

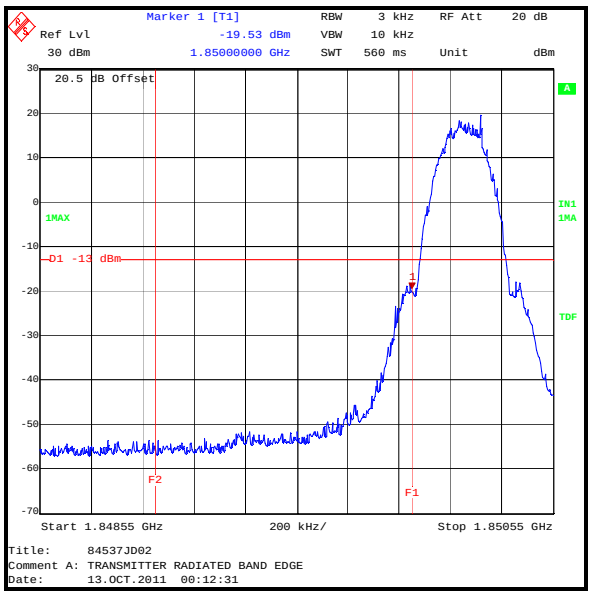
FCC Part:	2.1053 & 24.238
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238

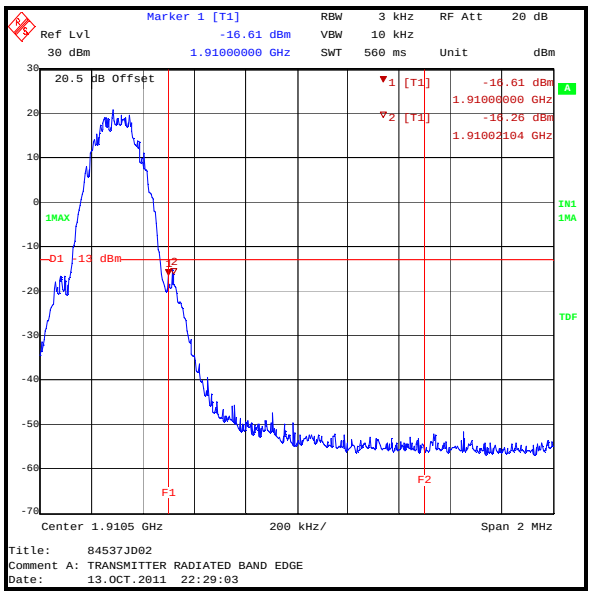
Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	33

Results: GSM Circuit Switched

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	-19.5	-13.0	6.5	Complied
1910	-16.6	-13.0	3.6	Complied
1910.021	-16.3	-13.0	3.3	Complied

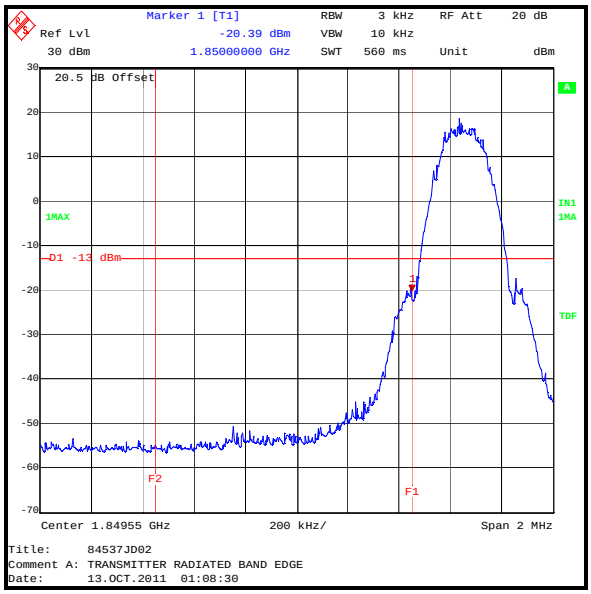


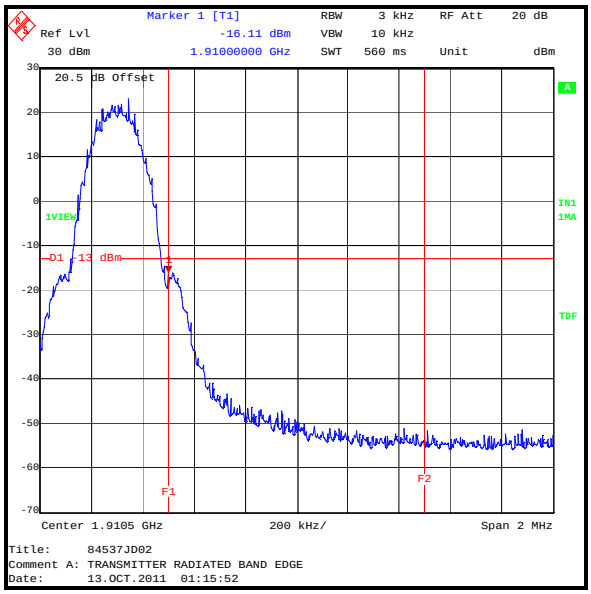


Transmitter Band Edge Radiated Emissions (continued)

Results: GPRS

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	-20.4	-13.0	7.4	Complied
1910	-16.1	-13.0	3.1	Complied

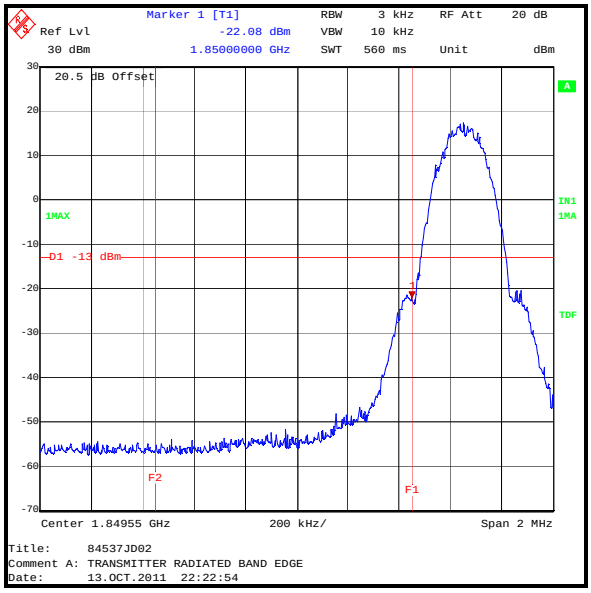


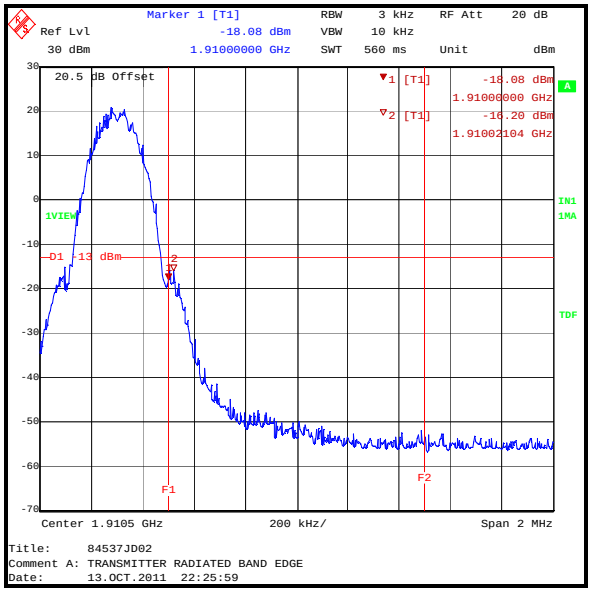


Transmitter Band Edge Radiated Emissions (continued)

Results: EGPRS / MCS5

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	-22.1	-13.0	9.1	Complied
1910	-18.1	-13.0	5.1	Complied
1910.021	-16.2	-13.0	3.2	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
Effective Radiated Power (ERP)	824 to 849 MHz	95%	±2.94 dB
Effective Isotropic Radiated Power (EIRP)	1850 to 1910 MHz	95%	±2.94 dB
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)
A1396	Attenuator	Huber & Suhner	6810.17.B	757987	08 Jul 2012	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	09 Oct 2012	12
A1818	Antenna	EMCO	3115	00075692	09 Oct 2012	12
A1834	Attenuator	Hewlett Packard	8491B	10444	26 Jul 2012	12
A1932	High Pass Filter	AtlanTecRF	AFH-02000	20r-JFBD04-002	28 Feb 2012	12
A1974	High Pass Filter	AtlanTecRF	AFH-01000	090000283	29 Dec 2011	12
A1975	High Pass Filter	AtlanTecRF	AFH-03000	090424010	29 Dec 2011	12
A1998	Attenuator	Huber & Suhner	6820.17.B	07101	09 Feb 2012	12
A2001	Attenuator	Huber & Suhner	6830.17.B	07031	09 Feb 2012	12
A253	Antenna	Flann Microwave	12240-20	128	09 Oct 2012	12
A254	Antenna	Flann Microwave	14240-20	139	09 Oct 2012	12
A255	Antenna	Flann Microwave	16240-20	519	09 Oct 2012	12
A256	Antenna	Flann Microwave	18240-20	400	09 Oct 2012	12
A288	Antenna	Chase	CBL6111A	1589	25 Aug 2012	12
A436	Antenna	Flann	20240-20	330	09 Oct 2012	12
A553	Antenna	Chase	CBL6111A	1593	26 Mar 2012	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	09 Oct 2012	12
L1021	Comms Test Set	Rohde & Schwarz	CMU 200	111379	11 Jan 2012	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESI26	100046K	29 Jun 2012	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	04 Feb 2012	12

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