TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: NTT DoCoMo P-02D

FCC ID: UCE211042A

To: FCC Part 22: 2011 Subpart H

Test Report Serial No:
RFI-RPT-RP 83529JD05B V3.0

Version 3.0 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:	19 October 2011

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1. Customer Information

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

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 22 Subpart H (Public Mobile Services)
Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: 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:	01 September 2011 to 23 September 2011

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 22.913(a)	Transmitter Effective Radiated Power (ERP)	✓
Part 2.1055/22.355	Transmitter Frequency Stability (Temperature and Voltage Variation)	✓
Part 2.1049	Transmitter Occupied Bandwidth	✓
Part 2.1053/22.917	Transmitter Out of Band Radiated Emissions	✓
Part 2.1053/22.917	Transmitter Band Edge Radiated Emissions	✓

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 (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-02D
IMEI:	357867040012099 *(Radiated sample)*
Hardware Version Number:	Revision C
Software Version Number:	ACPU: totoro-ginger-dcm-07-0317, CCPU: R1D
FCC ID:	UCE211042A

Brand Name:	NTT DoCoMo
Model Name or Number:	P-02D
IMEI:	357867040012198 *(Conducted RF port sample #1)* 357867040012164 *(Conducted RF port sample #2)*
Hardware Version Number:	Revision C
Software Version Number:	ACPU: totoro-ginger-dcm-07-0363, CCPU: R1D
FCC ID:	UCE211042A

Brand Name:	NTT DoCoMo
Description:	Battery
Model Name or Number:	P26

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

Brand Name:	NTT DoCoMo
Description:	Desktop charger
Model Name or Number:	P48

Brand Name:	NTT DoCoMo
Description:	Charge/USB Data cable
Model Name or Number:	P01

Brand Name:	NTT DoCoMo
Description:	Personal Hands-Free
Model Name or Number:	L0ZZ00000027

3.2. Description of EUT

The equipment under test was a dual mode UMTS/GSM cellular handset with BT, WLAN & RFID.

3.3. Modifications Incorporated in the EUT

The Customer stated that the final software version is ACPU: totoro-ginger-dcm-07-0363 CCPU: R1D.

Initial software version ACPU: totoro-ginger-dcm-07-0317 CCPU: R1D was installed in the sample with IMEI 357867040012099. The Customer stated this version was to enable operation of WLAN therefore allowing WLAN test cases to be performed. Otherwise this software is identical to the final software version and has no impact on the test results contained within this test report.

3.4. Additional Information Related to Testing

Technology Tested:	UMTS		
Type of Radio Device:	Transceiver		
Mode:	UMTS FDD V in accordance with 3GPP Rel-5 & Rel-6		
Modulation Type:	QPSK		
Channel Spacing:	5 MHz		
Power Supply Requirement(s):	Nominal	3.7 V	
	Minimum	3.4 V	
	Maximum	4.2 V	
Maximum Output Power (ERP):	Voice (12.2 kbps)	26.6 dBm	
	HSDPA	26.4 dBm	
	HSUPA	26.2 dBm	
Transmit Frequency Range:	824 to 849 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	4132	826.4
	Middle	4183	836.6
	Top	4233	846.6
Receive Frequency Range:	869 to 894 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	4357	871.4
	Middle	4407	881.6
	Top	4458	891.6

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:	Not Stated
Description:	Dummy Battery
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):

- Receiver/Idle mode.
- Constantly transmitting at full power on bottom, middle and top channels as required.
- Occupied bandwidth, ERP and band edge tests were performed with the EUT in Voice (12.2 kbps) or HSDPA/HSUPA modes.
- Transmitter radiated spurious emissions were checked in all modes during pre-scans. Voice (12.2 kbps) 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 Rohde & Schwarz CMU 200 Universal Radio Communications Tester, operating in UMTS Band V mode.
- The sample with IMEI 357867040012198 was used for frequency stability measurements. The sample with IMEI 357867040012164 was used for conducted power measurements The sample with IMEI 357867040012099 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 and transmitter mode radiated spurious emissions tests were performed with the desktop 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.
- Conducted power measurements were performed with the EUT connected directly to a calibrated Rohde & Schwarz CMU 200. Peak and average power displayed by the CMU 200 were recorded.

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:**	15 September 2011
Test Sample IMEI:	357867040012099		

FCC Part:	15.107
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	22

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
1.230000	Live	30.7	56.0	25.3	Complied
1.522500	Live	23.5	56.0	32.5	Complied
1.585500	Live	24.7	56.0	31.3	Complied
1.905000	Live	22.8	56.0	33.2	Complied
1.968000	Live	22.8	56.0	33.2	Complied
1.990500	Live	22.0	56.0	34.0	Complied
2.017500	Live	21.2	56.0	34.8	Complied
2.031000	Live	22.7	56.0	33.3	Complied
2.076000	Live	20.6	56.0	35.4	Complied
2.139000	Live	20.4	56.0	35.6	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.406500	Live	27.6	47.7	20.1	Complied
0.559500	Live	19.2	46.0	26.8	Complied
2.260500	Live	15.1	46.0	30.9	Complied
2.593500	Live	10.0	46.0	36.0	Complied
2.737500	Live	9.6	46.0	36.4	Complied
2.746500	Live	9.6	46.0	36.4	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

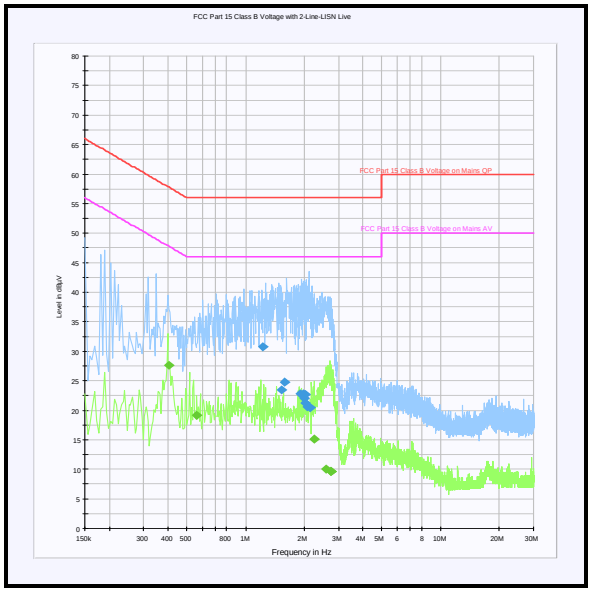
Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.424500	Neutral	40.4	57.4	17.0	Complied
0.721500	Neutral	36.3	56.0	19.7	Complied
1.185000	Neutral	39.9	56.0	16.1	Complied
1.594500	Neutral	40.0	56.0	16.0	Complied
2.332500	Neutral	32.3	56.0	23.7	Complied
2.332500	Neutral	33.2	56.0	22.8	Complied
2.553000	Neutral	37.9	56.0	18.1	Complied
2.562000	Neutral	36.7	56.0	19.3	Complied
2.625000	Neutral	36.0	56.0	20.0	Complied
2.643000	Neutral	34.8	56.0	21.2	Complied

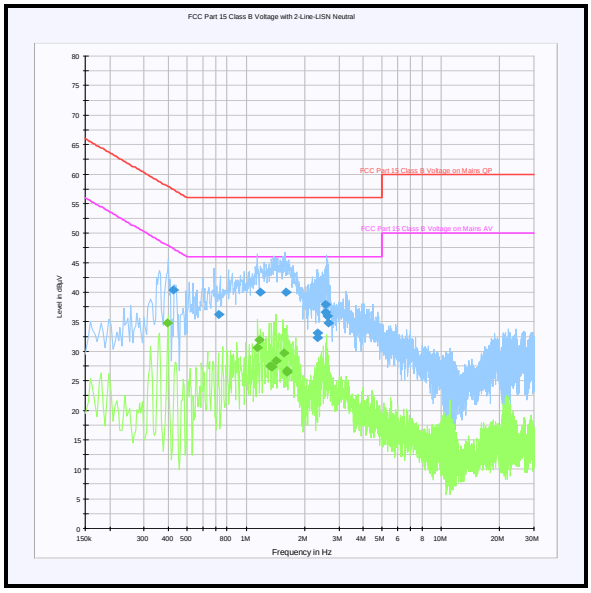
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.393000	Neutral	34.8	48.0	13.2	Complied
1.144500	Neutral	30.6	46.0	15.4	Complied
1.176000	Neutral	31.9	46.0	14.1	Complied
1.329000	Neutral	27.5	46.0	18.5	Complied
1.342500	Neutral	27.4	46.0	18.6	Complied
1.365000	Neutral	27.3	46.0	18.7	Complied
1.419000	Neutral	28.5	46.0	17.5	Complied
1.572000	Neutral	29.7	46.0	16.3	Complied
1.621500	Neutral	26.4	46.0	19.6	Complied
1.621500	Neutral	26.7	46.0	19.3	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)



Live



Neutral

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

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	16 September 2011
Test Sample IMEI:	357867040012099		

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):	30
Relative Humidity (%):	31

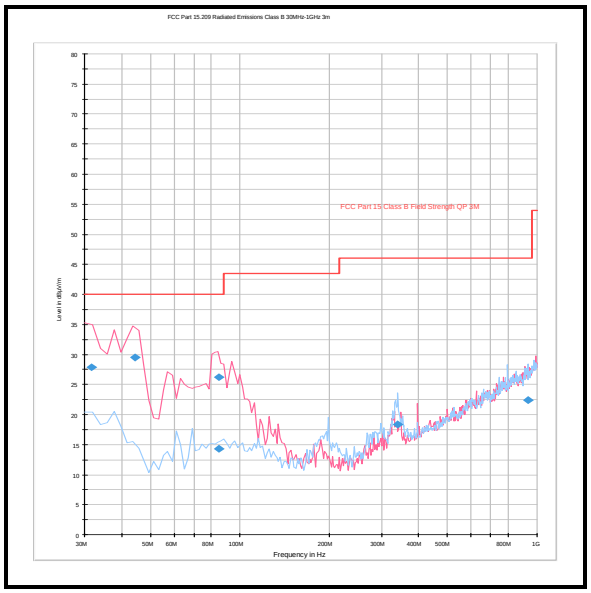
Results:

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
31.640	Vertical	27.8	40.0	12.200	Complied
44.496	Vertical	29.5	40.0	10.500	Complied
84.886	Vertical	26.2	40.0	13.800	Complied
85.087	Vertical	14.3	40.0	25.700	Complied
340.382	Horizontal	18.3	46.0	27.700	Complied
933.555	Horizontal	22.4	46.0	23.600	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 other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
3. 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.

Receiver/Idle Mode Radiated Spurious Emissions (continued)



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

Receiver/Idle Mode Radiated Spurious Emissions (continued)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	08 September 2011
Test Sample IMEI:	357867040012099		

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8
Frequency Range:	1 GHz to 5 GHz

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	32

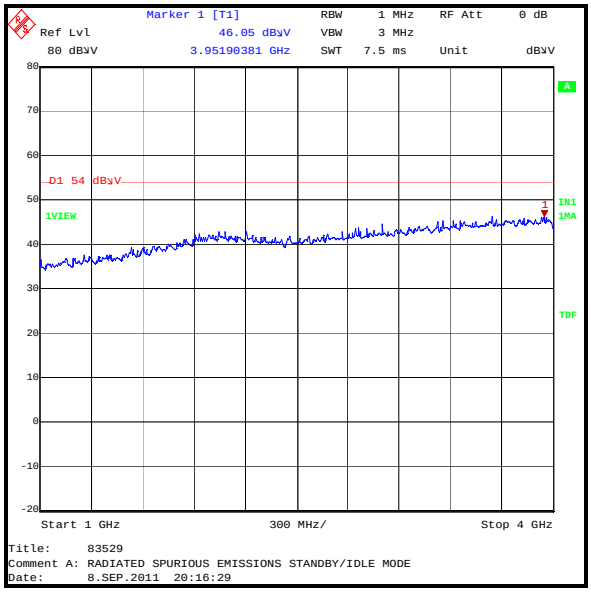
Results:

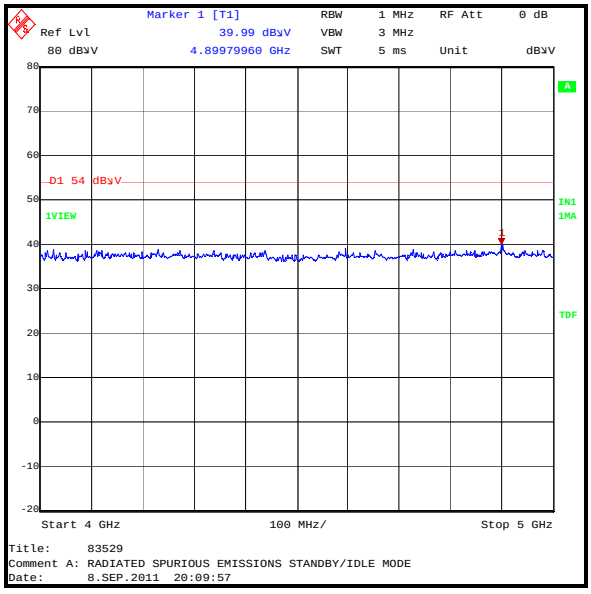
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
3951.904	Horizontal	46.1	54.0	7.9	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. 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. 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 Radiated Power (ERP)

Test Summary:

Test Engineer:	Andrew Edwards & Crawford Lindsay	**Test Date:**	09 September 2011 & 20 September 2011
Test Sample IMEI:	357867040012099		

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 (%):	37

Results: Peak ERP

Modes		**HSDPA**				**Voice**			
Sub-test		**1**	**2**	**3**	**4**	**12.2 kbps**			
Band	**Channel**	**Power (dBm)**	**Power (dBm)**	**Power (dBm)**	**Power (dBm)**	**Power (dBm)**	**Limit (dBm)**	**Margin (dB)**	**Result**
850	4132	25.1	25.1	25.7	26.0	25.6	38.45	12.75	Complied
	4183	25.4	25.4	25.8	26.0	26.1	38.45	12.35	Complied
	4233	26.1	26.0	26.3	26.4	26.6	38.45	11.85	Complied
ßc		**2**	**12**	**15**	**15**				
ßd		**15**	**15**	**8**	**4**				
ΔACK, ΔNACK, ΔCQI		8	8	8	8				

Results: RMS ERP

Modes		**HSDPA**				**Voice**			
Sub-test		**1**	**2**	**3**	**4**	**12.2 kbps**			
Band	**Channel**	**Power (dBm)**	**Power (dBm)**	**Power (dBm)**	**Power (dBm)**	**Power (dBm)**	**Limit (dBm)**	**Margin (dB)**	**Result**
850	4132	22.0	21.5	21.4	21.6	22.4	38.45	16.05	Complied
	4183	22.4	21.8	21.8	21.8	23.0	38.45	15.45	Complied
	4233	23.0	22.4	22.4	22.4	24.0	38.45	14.45	Complied
ßc		**2**	**12**	**15**	**15**				
ßd		**15**	**15**	**8**	**4**				
ΔACK, ΔNACK, ΔCQI		8	8	8	8				

Transmitter Effective Radiated Power (ERP) Continued

Results: Peak ERP

Mode		HSUPA							
Sub-test		1	2	3	4	5			
Band	Channel	Power (dBm) Peak	Power (dBm) Peak	Power (dBm) Peak	Power (dBm) Peak	Power (dBm) Peak	Peak Limit (dBm)	Margin	Result
850	4132	25.7	25.5	26.0	25.5	26.0	38.45	12.45	Complied
	4183	25.9	25.8	25.6	25.5	25.8	38.45	12.55	Complied
	4233	25.4	25.5	25.4	25.6	26.2	38.45	12.25	Complied
ßc		11	6	15	2	15			
ßd		15	15	9	15	15			

Results: Average ERP

Mode		HSUPA							
Sub-test		1	2	3	4	5			
Band	Channel	Power (dBm) Avg.	Power (dBm) Avg.	Power (dBm) Avg.	Power (dBm) Avg.	Power (dBm) Avg.	Peak Limit (dBm)	Margin	Result
850	4132	21.8	22.3	22.1	22.4	21.9	38.45	16.05	Complied
	4183	22.0	22.4	21.3	22.4	21.9	38.45	16.05	Complied
	4233	21.7	22.2	21.2	22.2	21.7	38.45	16.25	Complied
ßc		11	6	15	2	15			
ßd		15	15	9	15	15			

Note(s):

1. All modes were compared on each channel and the highest power recorded was subtracted from the limit to show the margin.

5.2.4. Transmitter Frequency Stability (Temperature Variation)

Test Summary:

Test Engineer:	Crawford Lindsay	**Test Date:**	20 September 2011
Test Sample IMEI:	357867040012198		

FCC Part:	2.1055 & 22.355
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 (%):	33

Results: Middle Channel (836.6 MHz)

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	836.600039	39	0.0466	2.5	2.4534	Complied
-20	836.600020	20	0.0239	2.5	2.4761	Complied
-10	836.600016	16	0.0191	2.5	2.4809	Complied
0	836.599981	19	0.0227	2.5	2.4773	Complied
10	836.599987	13	0.0155	2.5	2.4845	Complied
20	836.599988	12	0.0143	2.5	2.4857	Complied
30	836.600016	16	0.0191	2.5	2.4809	Complied
40	836.600018	18	0.0215	2.5	2.4785	Complied
50	836.600013	13	0.0155	2.5	2.4845	Complied

Note(s):

1. A dummy battery was placed on the EUT and the dummy battery cables connected to a bench power supply.
2. Frequency error was measured using the UMTS Band V modulation test on a calibrated Rohde & Schwarz CMU 200 Universal Radio Communications Tester in accordance with current Rohde & Schwarz application notes. The EUT was placed in a temperature chamber and connected by suitable RF cables to the CMU 200 outside the chamber. A bidirectional communications link was established on the centre channel between the EUT and the CMU 200. The frequency meter value was recorded.
3. Temperature was monitored throughout the test with a calibrated digital thermometer.

5.2.5. Transmitter Frequency Stability (Voltage Variation)

Test Summary:

Test Engineer:	Crawford Lindsay	**Test Date:**	20 September 2011
Test Sample IMEI:	357867040012198		

FCC Part:	2.1055 & 22.355
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 (%):	33

Results: Middle Channel (836.6 MHz)

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
3.4	836.600030	30	0.039	2.5	2.461	Complied
4.2	836.600023	23	0.027	2.5	2.473	Complied

Note(s):

1. A dummy battery was placed on the EUT and the dummy battery cables connected to a bench power supply.
2. Frequency error was measured using the UMTS Band V modulation test on a calibrated Rohde & Schwarz CMU 200 Universal Radio Communications Tester in accordance with current Rohde & Schwarz application notes. The EUT was connected by suitable RF cables to the CMU 200. A bidirectional communications link was established on the centre channel between the EUT and the CMU 200. The frequency meter value was recorded.
3. Voltage was monitored throughout the test with a calibrated digital voltmeter.

5.2.6. Transmitter Occupied Bandwidth

Test Summary:

Test Engineer:	Crawford Lindsay	**Test Date:**	20 September 2011
Test Sample IMEI:	357867040012198		

FCC Part:	2.1049
Test Method Used:	As detailed in ANSI C63.4 Section 13.7 referencing FCC CFR Part 2.1049

Environmental Conditions:

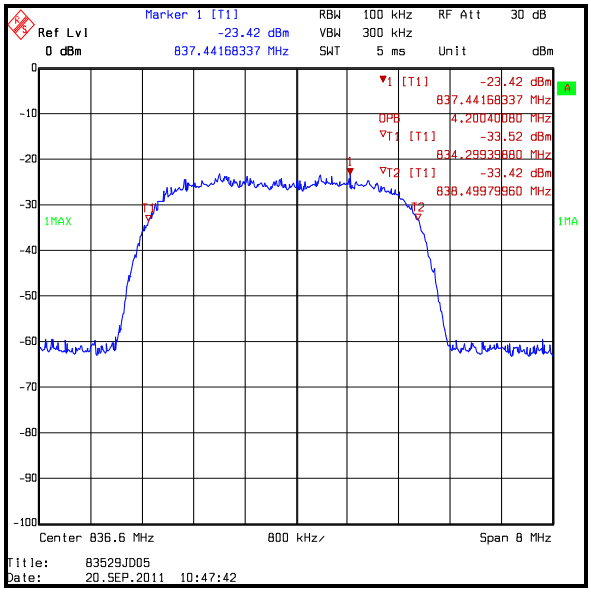
Temperature (°C):	25
Relative Humidity (%):	34

Results: Voice / 12.2 kbps

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4200.401

Note(s):

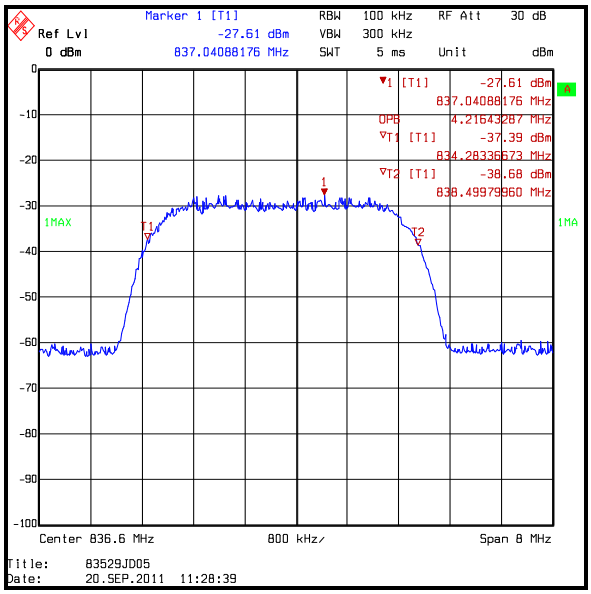
1. In lieu of the test method detailed in ANSI C63.4 Section 13.7, the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.



Transmitter Occupied Bandwidth (continued)

Results: HSDPA Sub-Test 1

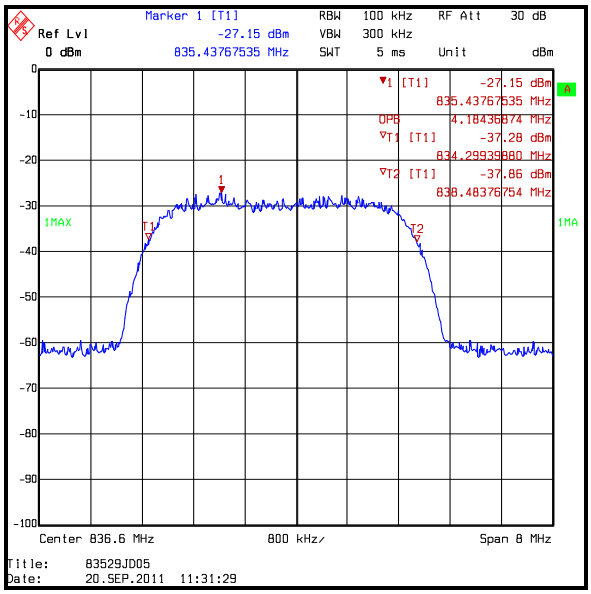
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4216.433



Transmitter Occupied Bandwidth (continued)

Results: HSDPA Sub-Test 2

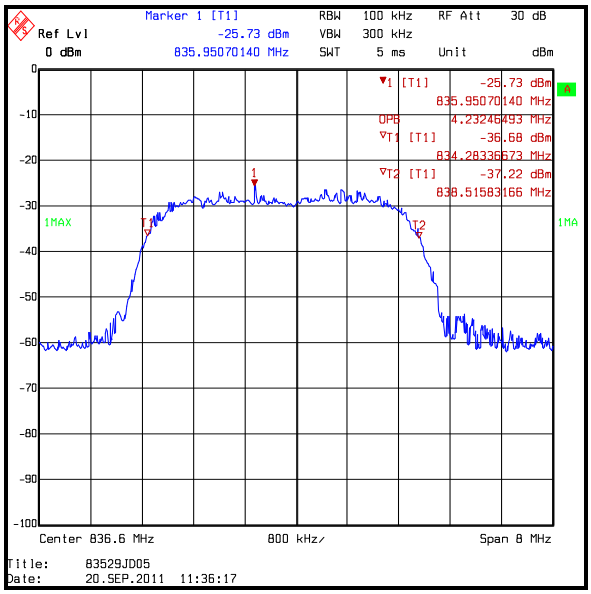
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4184.369



Transmitter Occupied Bandwidth (continued)

Results: HSDPA Sub-Test 3

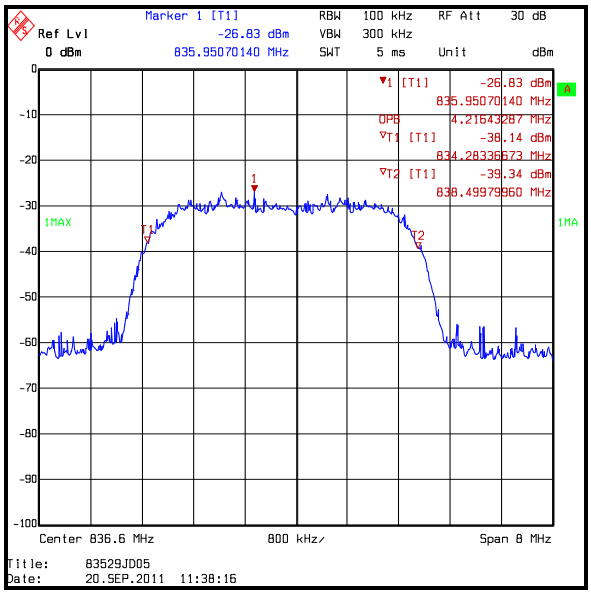
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4232.465



Transmitter Occupied Bandwidth (continued)

Results: HSDPA Sub-Test 4

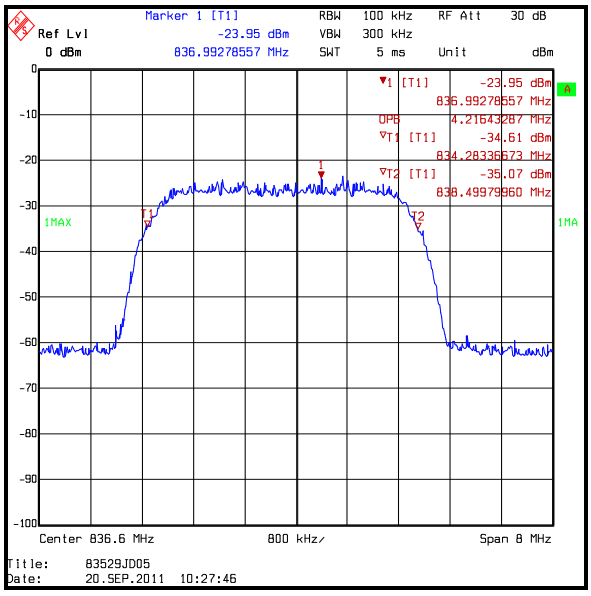
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4216.433



Transmitter Occupied Bandwidth (continued)

Results: HSUPA Sub-Test 1

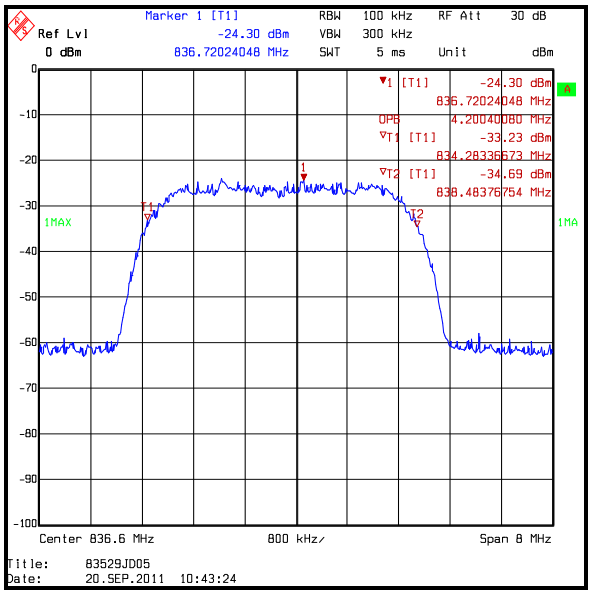
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4216.433



Transmitter Occupied Bandwidth (continued)

Results: HSUPA Sub-Test 2

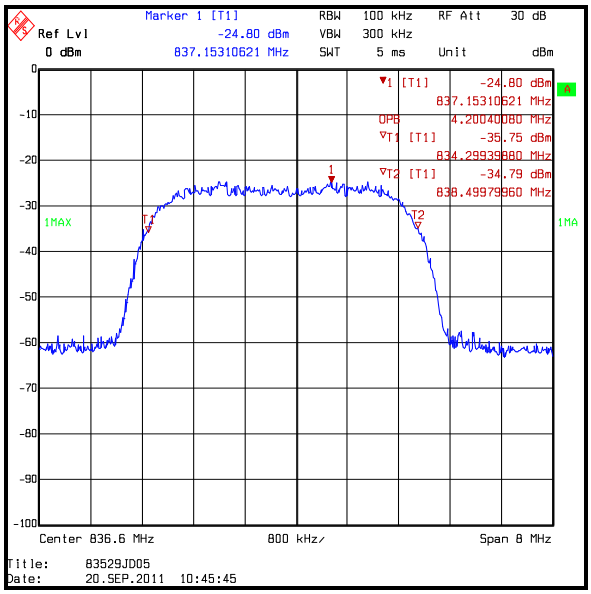
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4200.401



Transmitter Occupied Bandwidth (continued)

Results: HSUPA Sub-Test 3

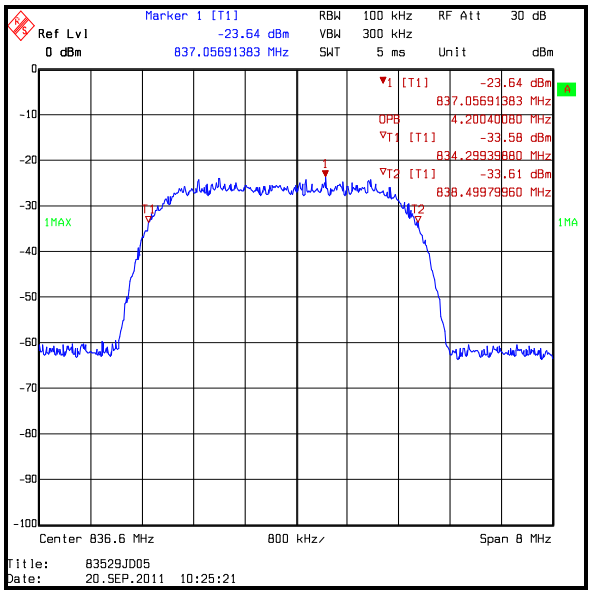
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4200.401



Transmitter Occupied Bandwidth (continued)

Results: HSUPA Sub-Test 4

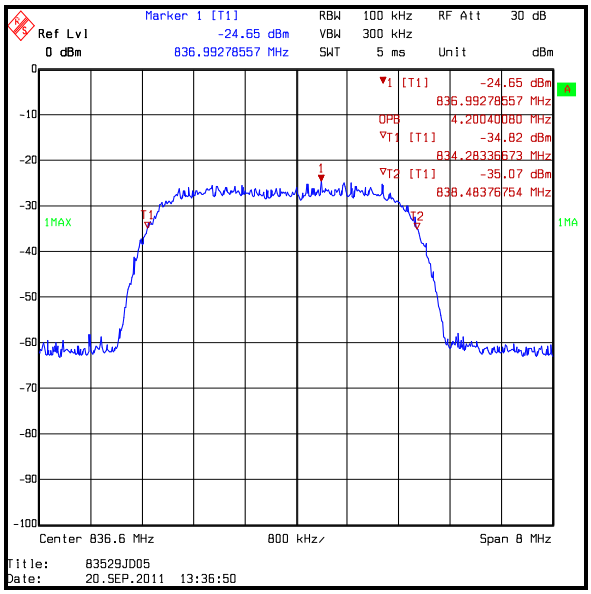
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4200.401



Transmitter Occupied Bandwidth (continued)

Results: HSUPA Sub-Test 5

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4200.401



5.2.7. Transmitter Out of Band Radiated Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	08 September 2011
Test Sample IMEI:	357867040012099		

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:	Voice / 12.2 kbps

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	29

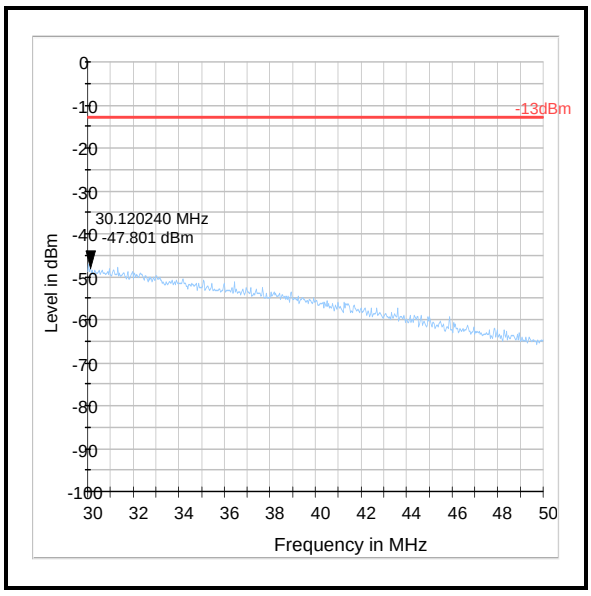
Results:

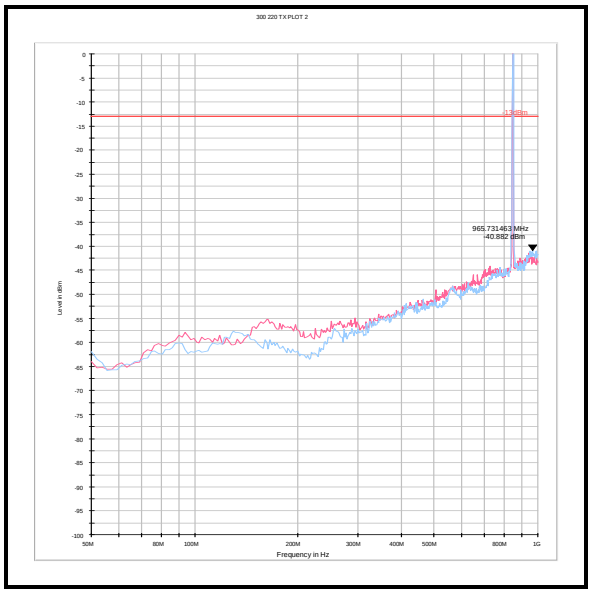
Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3783.358	-38.7	-13.0	25.7	Complied

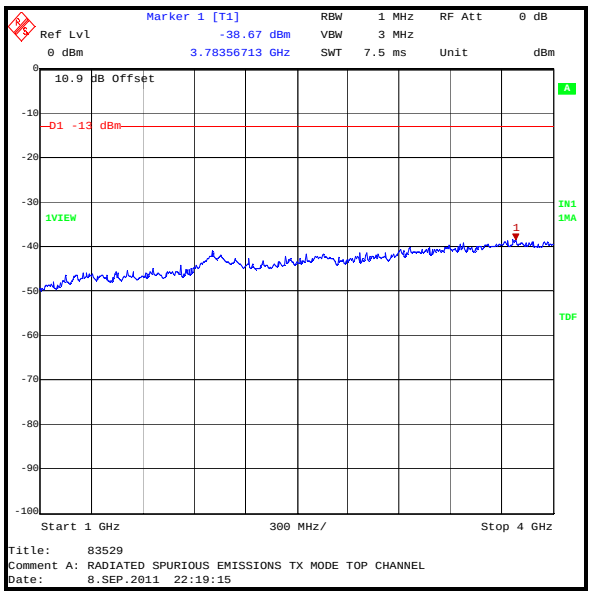
Note(s):

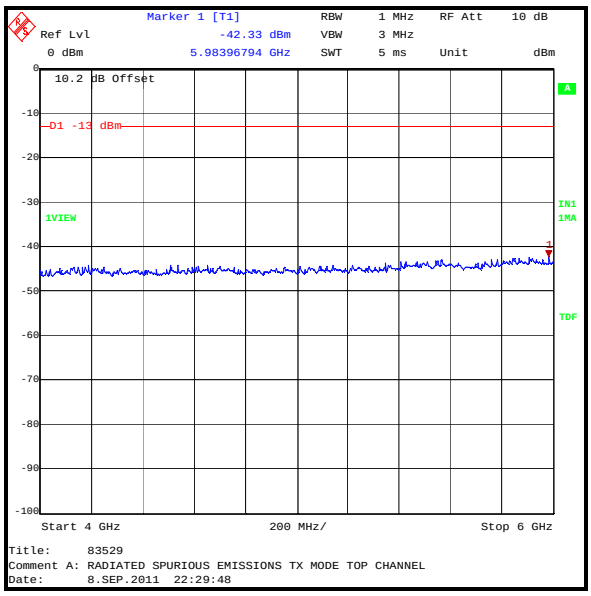
1. No spurious emissions were detected above the noise floor of the measuring receiver; the highest peak noise floor reading of the measuring receiver was recorded.
2. The uplink and downlink traffic channels are shown on the 30 MHz to 1 GHz plot.
3. All emissions shown on the pre-scan plots were investigated and found to be below the measurement system noise floor or ambient.
4. 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.
5. 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)

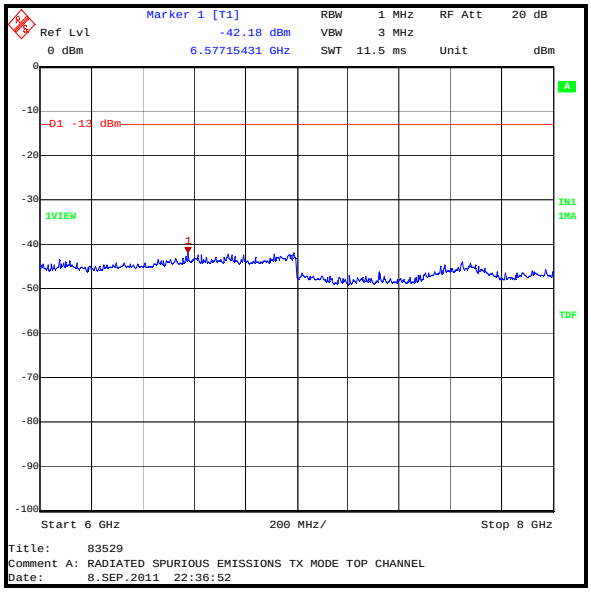


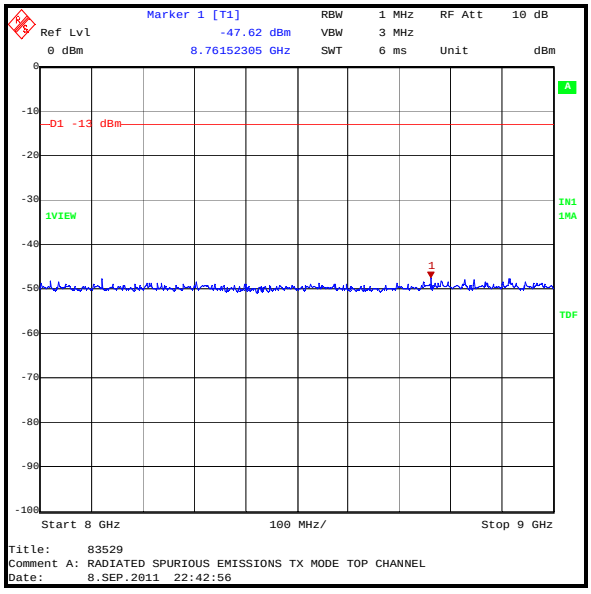






Transmitter Out of Band Radiated Emissions (continued)





5.2.8. Transmitter Radiated Emissions at Band Edges

Test Summary:

Test Engineer:	Crawford Lindsay	**Test Date:**	23 September 2011
Test Sample IMEI:	357867040012099		

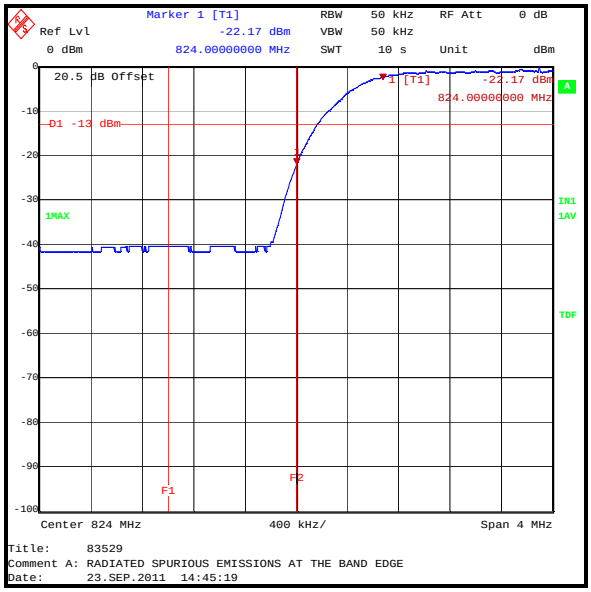
FCC Part:	2.1053 & 22.917
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Part 22.917

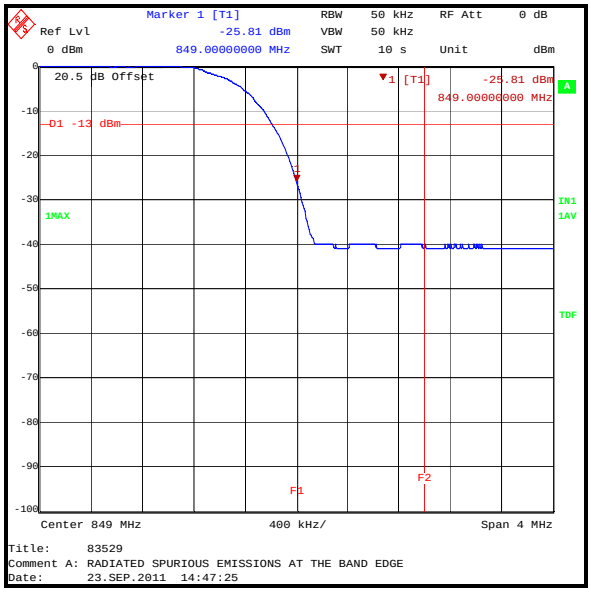
Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	23

Results: Voice / 12.2 kbps

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-22.2	-13.0	9.2	Complied
849	-25.8	-13.0	12.8	Complied

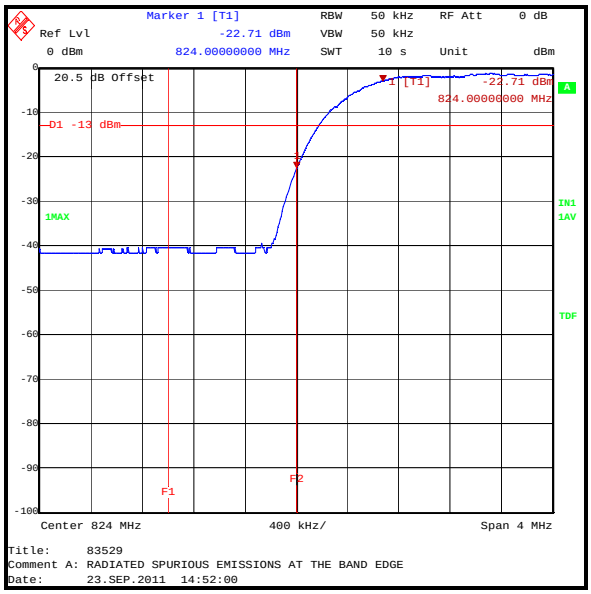


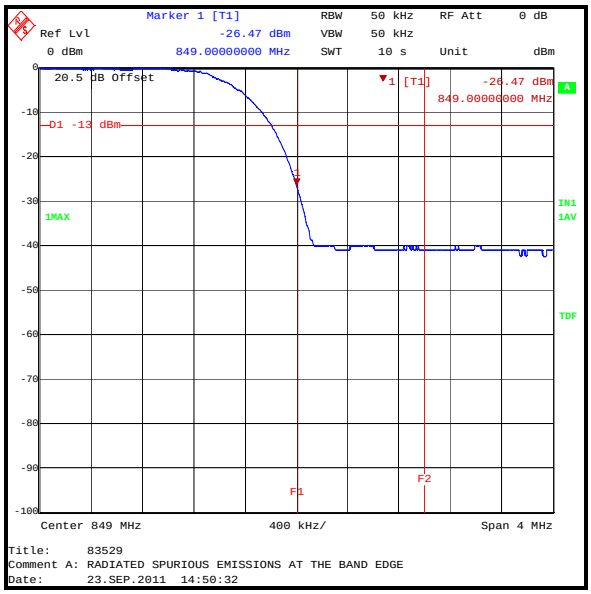


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-Test 1

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-22.7	-13.0	9.7	Complied
849	-26.5	-13.0	13.5	Complied

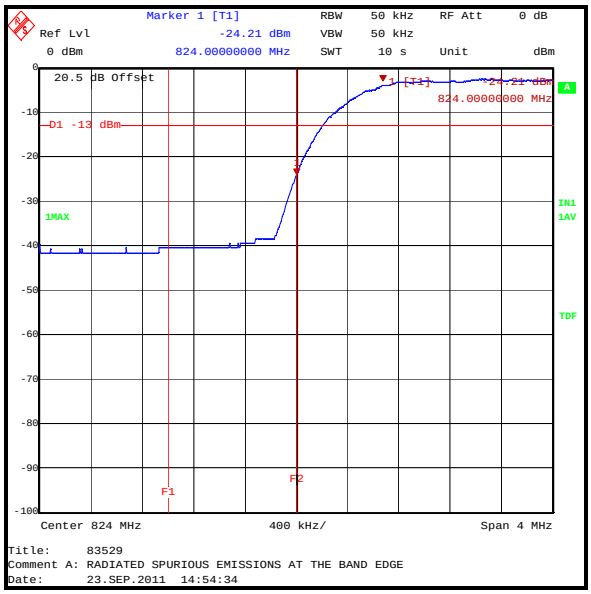


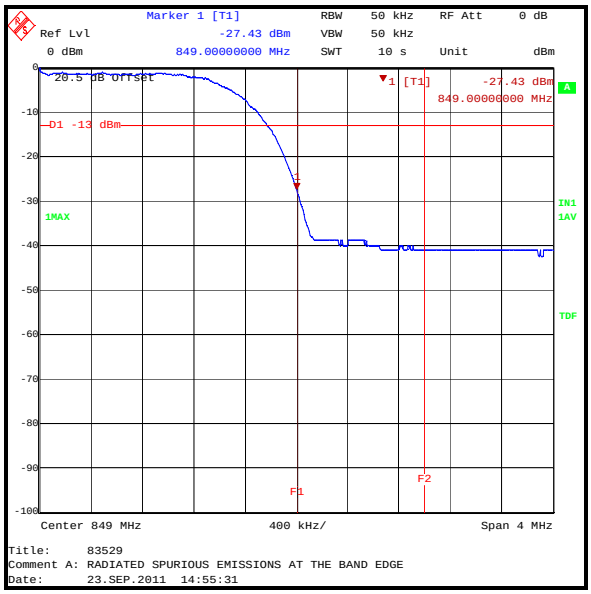


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-Test 2

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-24.2	-13.0	11.2	Complied
849	-27.4	-13.0	14.4	Complied

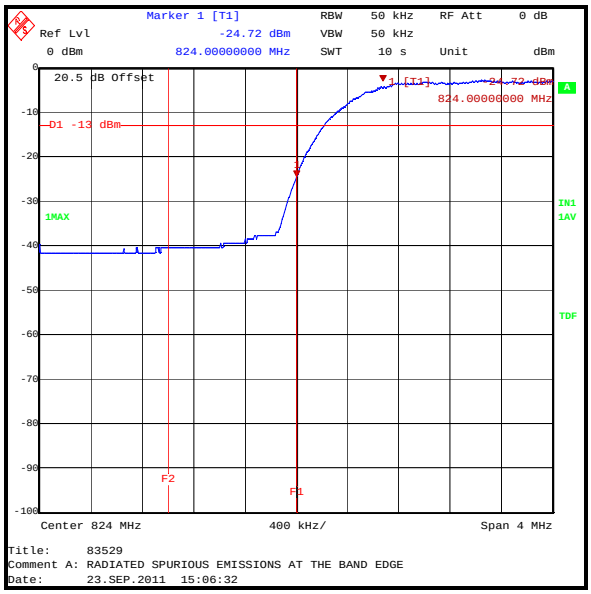


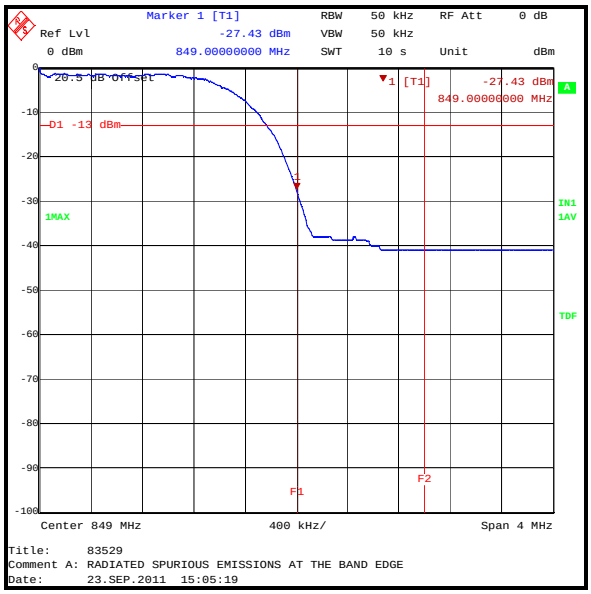


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-Test 3

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-24.7	-13.0	11.7	Complied
849	-27.4	-13.0	14.4	Complied

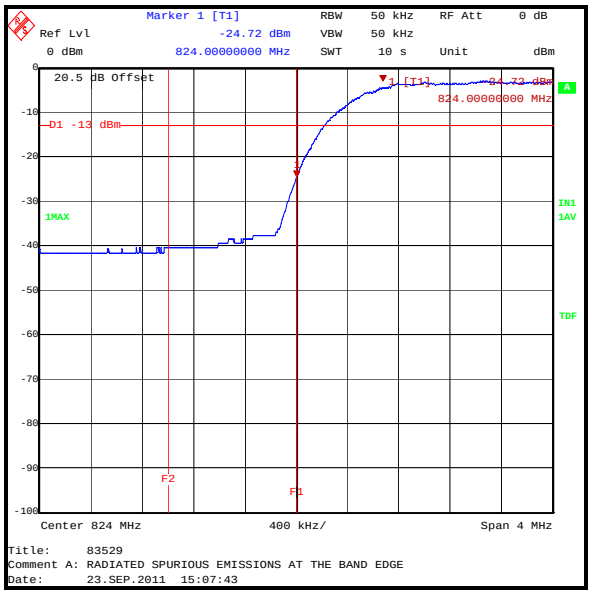


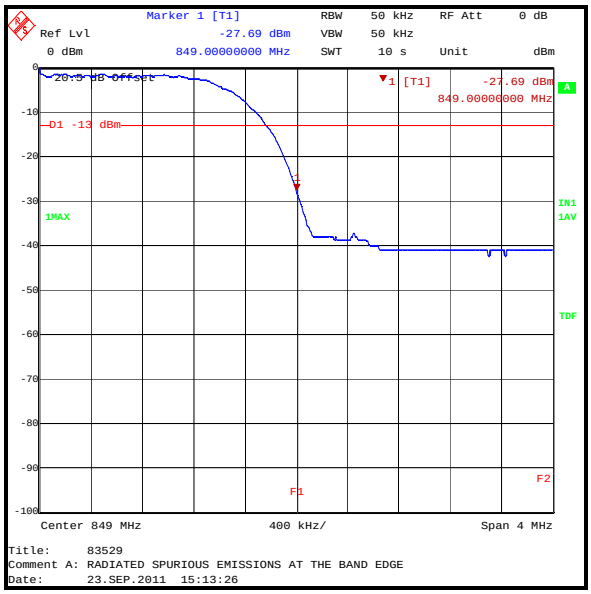


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-Test 4

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-24.7	-13.0	11.7	Complied
849	-27.7	-13.0	14.7	Complied

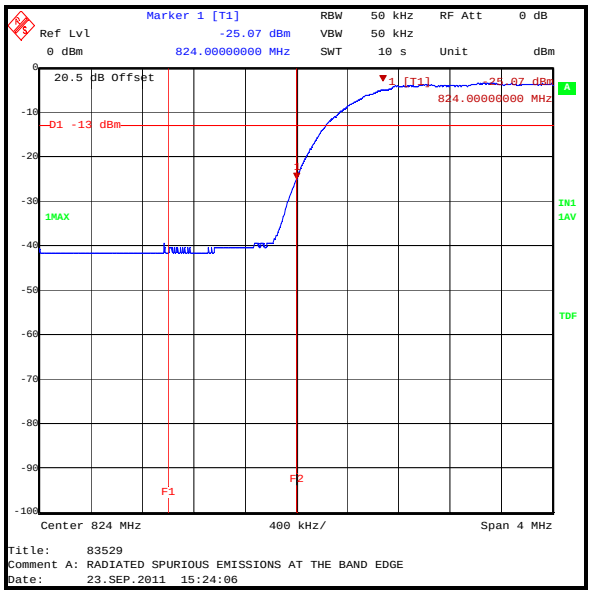


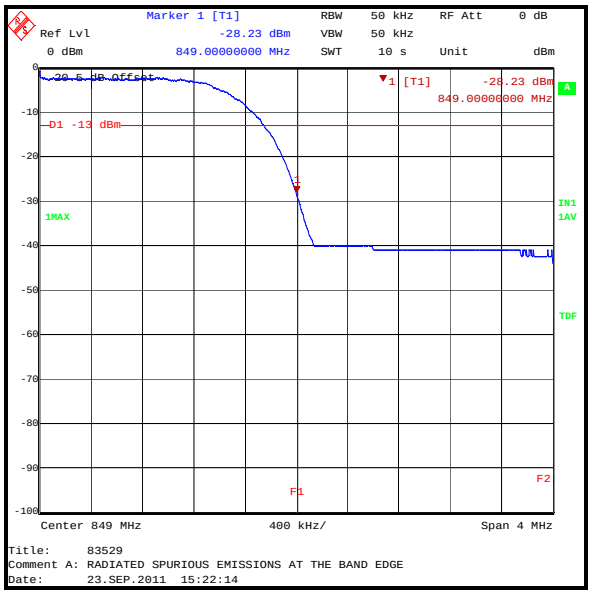


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSUPA Sub-Test 1

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-25.1	-13.0	12.1	Complied
849	-28.2	-13.0	15.2	Complied

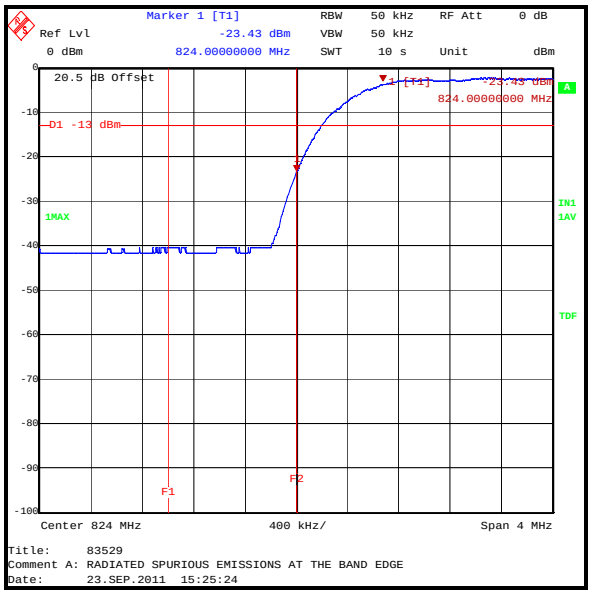


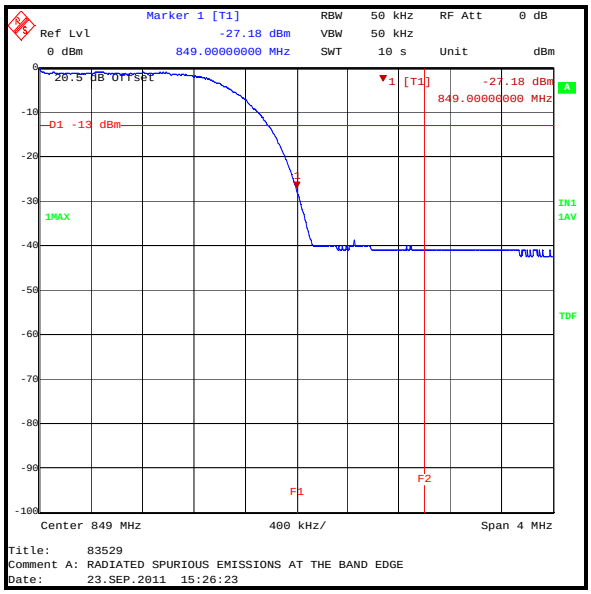


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSUPA Sub-Test 2

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-23.4	-13.0	10.4	Complied
849	-27.2	-13.0	14.2	Complied

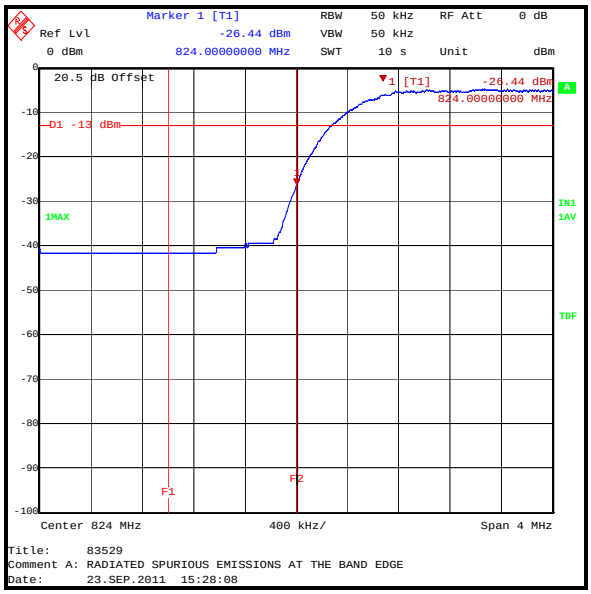


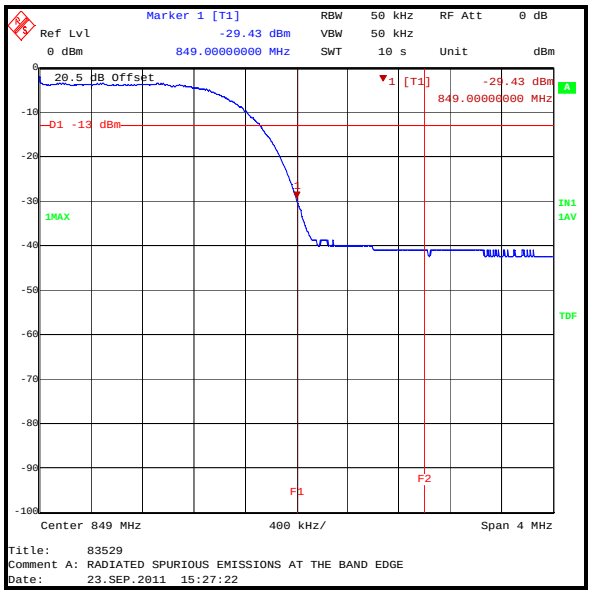


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSUPA Sub-Test 3

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-26.4	-13.0	13.4	Complied
849	-29.4	-13.0	16.4	Complied

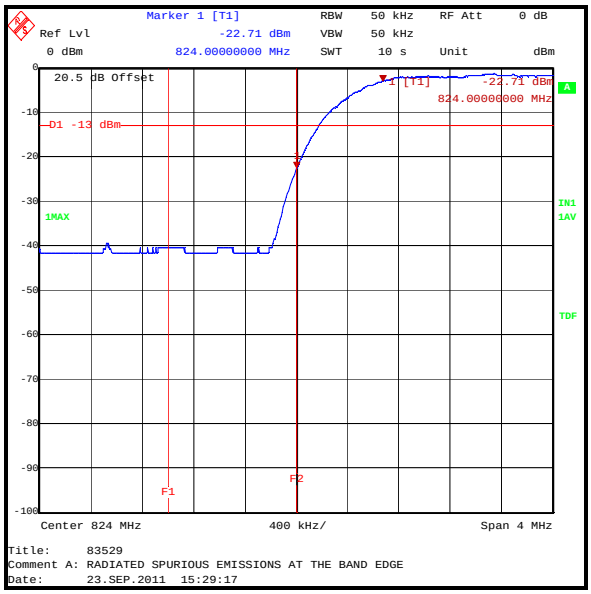


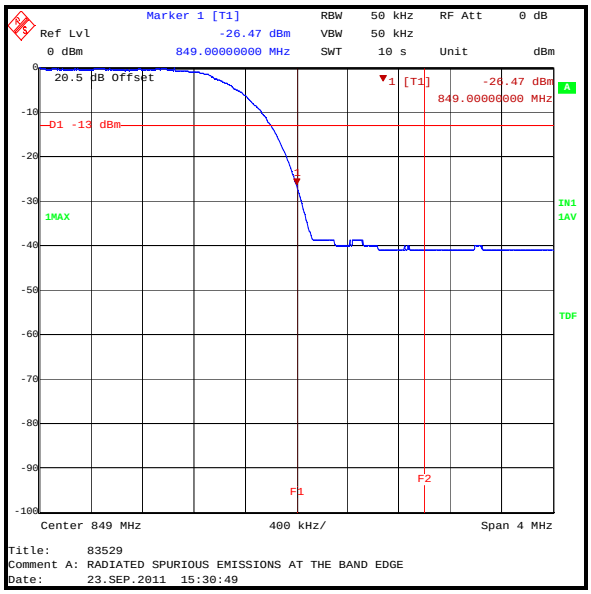


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSUPA Sub-Test 4

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-22.7	-13.0	9.7	Complied
849	-26.5	-13.0	13.5	Complied

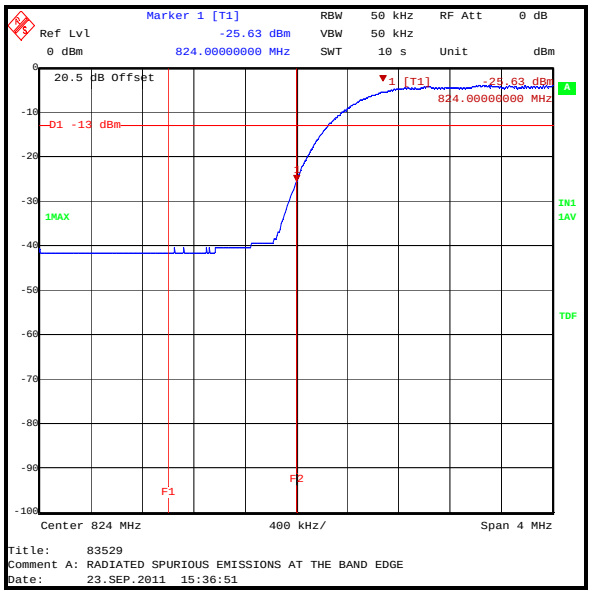


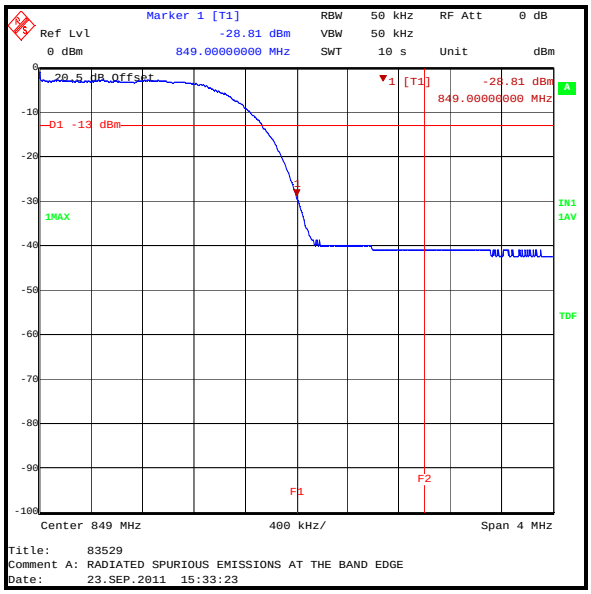


Transmitter Radiated Emissions at Band Edges (continued)

Results: HSUPA Sub-Test 5

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-25.6	-13.0	12.6	Complied
849	-28.8	-13.0	15.8	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 Radiated Power (ERP)	824 to 849 MHz	95%	±2.94 dB
Conducted Output Power	824 to 849 MHz	95%	±0.27 dB
Frequency Stability	824 to 849 MHz	95%	±0.92 ppm
Occupied Bandwidth	824 to 849 MHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 9 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)
A067	LISN	Rohde & Schwarz	ESH3-Z5	890603/002	02 Jun 2012	12
A1249	Coaxial Coupler	Narda	252888	0955-0125	Calibrated Before Use	-
A1396	Attenuator	Huber & Suhner	757987	6810.17.B	08 Jul 2012	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	20 Jun 2012	12
A1818	Antenna	EMCO	3115	00075692	13 Oct 2011	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Mar 2012	12
A1834	Attenuator	Hewlett Packard	8491B	10444	26 Jul 2012	12
A1974	High Pass Filter	AtlanTecRF	AFH-01000	090000283	29 Dec 2011	12
A1998	Attenuator	Huber & Suhner	6820.17.B	07101	09 Feb 2012	12
A253	Antenna	Flann Microwave	12240-20	128	13 Oct 2011	12
A254	Antenna	Flann Microwave	14240-20	139	13 Oct 2011	12
A255	Antenna	Flann Microwave	16240-20	519	13 Oct 2011	12
A288	Antenna	Chase	CBL6111A	1589	25 Aug 2012	12
A553	Antenna	Chase	CBL6111A	1593	26 Mar 2012	12
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibrated Before Use	-
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	13 Oct 2011	12
L1021	Comms Test Set	Rohde & Schwarz	CMU 200	111379	11 Jan 2012	12
M1068	Thermometer	Iso-Tech	RS55	93102884	10 Nov 2011	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESI26	100046K	29 Jun 2012	12
M1242	Spectrum Analyser	Rohde & Schwarz	FSEM30	845986/022	03 Dec 2011	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	13 Jul 2012	12
M1269	Multimeter	Fluke	179	90250210	20 Jul 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. All equipment used was within the calibration period on the date of testing.