TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: iCon451

To: FCC Part 22: 2008 Subpart H

Test Report Serial No:
RFI/RPT1/RP74528JD12A

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:	 pp
Checked By:	Nigel Davison
	
Date of Issue:	02 April 2009

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1. Customer Information

Company Name:	Option nv
Address:	Option Headquarters Gaston Geenslaan 14 3001 Leuven Belgium

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 22 Subpart H (Public Mobile Services)
Site Registration:	FCC: 209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	29 January 2009 to 20 March 2009

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Port Type	Result
FCC Part 15: Section 15.107	Receiver/Idle AC Conducted Spurious Emissions	AC Mains Input	✓
FCC Part 15: Section 15.109	Receiver/Idle Radiated Spurious Emissions	Enclosure	✓
FCC Part 15: Section 15.207	Transmitter AC Conducted Spurious Emissions	AC Mains Input	✓
FCC Part 22: Section 22.913(a)	Transmitter Effective Radiated Power (ERP)	Antenna	✓
FCC Part 22: Section 22.355	Transmitter Frequency Stability (Temperature Variation)	Antenna	✓
FCC Part 22: Section 22.355	Transmitter Frequency Stability (Voltage Variation)	Antenna	✓
FCC Part 22: Section 2.1049	Transmitter Occupied Bandwidth	Antenna	✓
FCC Part 22: Section 2.1053/22.917	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.
Reference:	None stated
Title:	FCC SAR Measurement Procedures for 3G Devices October 2007 (Revised)
Reference:	3GPP TS 34.121-1 V8.6.0 (2009-03)
Title:	Universal Mobile Telecommunications System (UMTS);User Equipment (UE) conformance specification; Radio transmission and reception (FDD); Part 1: Conformance specification (3GPP TS 34.121-1 version 8.6.0 Release 8)

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)

Description:	USB modem
Brand Name:	Option nv
Model Name or Number:	iCon451
Serial Number:	Not stated
IMEI Number(s):	004401441081664 004401441088271 004401441080963
FCC ID Number:	NCMOGI0451

3.2. Description of EUT

The equipment under test was a quad band GSM/GPRS/EGPRS/UMTS USB modem.

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:	UMTS		
Type of Radio Device:	HSPA USB Modem		
Mode:	UMTS Band V Circuit switched, HSDPA and HSUPA		
Modulation Type:	16QAM and QPSK		
Channel Spacing:	5 MHz		
Power Supply Requirement(s):	Nominal	5.0 V	
	Minimum	4.25 V	
	Maximum	5.75 V	
Maximum Output Power (ERP):	24.7 dBm		
Transmit Frequency Range:	824 to 849 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	4132	826.4
	Middle	4182	836.4
	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	881.4
	Top	4458	891.6

3.5. Support Equipment

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

Description:	Laptop PC
Model Name or Number:	Dell PR04S
Serial Number:	CN-OJ7316-36521-47C-0361
Cable Length and Type:	Not applicable
Connected to Port:	EUT through USB

Description:	100-240V 50-60 Hz AC mains power supply
Model Name or Number:	Dell ADP-65JB B
Serial Number:	CN-OF-8834-48661-55G-OMIR
Cable Length and Type:	AC cable 0.8 metres / DC cable 1.95 metres
Connected to Port:	DC power on laptop PC

Description:	Micro-SD card
Model Name or Number:	Transcend 2GB
Serial Number:	Not applicable
Cable Length and Type:	Not applicable
Connected to Port:	Micro-SD

Description:	3GPP Test USIM
Model Name or Number:	Rohde & Schwarz CRT-Z3
Serial Number:	8952535250010000346F
Cable Length and Type:	Not applicable
Connected to Port:	USIM

Description:	Modified USB cable with power breakout
Model Name or Number:	CoPartner E188601 Type CM
Serial Number:	Not applicable
Cable Length and Type:	3 metres
Connected to Port:	USB

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.
- Tests were performed with the EUT in circuit switched and packet switched HSPA modes as required.

4.2. Configuration and Peripherals

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

- Connected to a UMTS Band V system simulator, operating in transceiver mode.
- A test USIM was fitted to the EUT for all tests.
- A Micro-SDRAM card was fitted to the EUT during all tests.
- The EUT was tested connected to and powered from, a USB port on a laptop PC (apart from frequency stability, voltage variation tests). Radiated emissions and ERP measurements were performed with the EUT placed at the same height as the measuring antenna in the centre of the turntable. The laptop was initially positioned in the normal user operating position with the keyboard facing upwards and screen open. Measurements were performed in this configuration. In addition to this, the laptop was placed sideways, left side downwards with the EUT at the opposite end and vertical in the centre of the turntable and the radiated measurements repeated. This was done to maximise any radiated emissions. The highest emissions and ERP were obtained with the laptop placed downwards on it's left side and the EUT at the opposite end facing upwards.
- Transmitter frequency stability (voltage variation) tests were performed with the EUT powered from a modified USB cable at voltage extremes. The USB cable had a breakout enabling the voltage to be supplied from a bench power supply and not the laptop PC. Voltage was monitored with a calibrated voltmeter.
- AC conducted emissions tests were performed with the EUT inserted into the USB port on a laptop PC. The laptop PC power supply AC input was connected to a LISN. A 120 V 60 Hz AC supply was connected to the LISN. The power supply DC output was connected to the laptop PC.

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. Receiver /Idle 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
EUT Tested (IMEI):	004401441080963

Environmental Conditions:

Temperature (°C):	17
Relative Humidity (%):	36

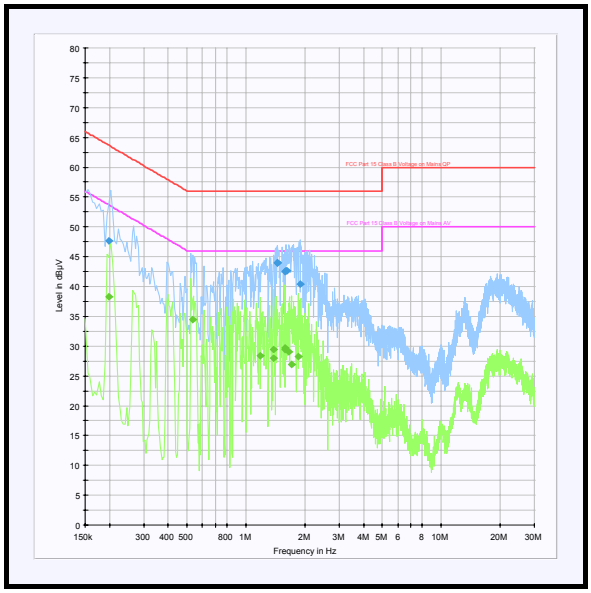
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.199500	Live 1	47.7	63.6	15.9	Complied
1.450500	Neutral	44.0	56.0	12.0	Complied
1.455000	Neutral	43.9	56.0	12.1	Complied
1.581000	Live 1	42.6	56.0	13.4	Complied
1.603500	Live 1	42.7	56.0	13.3	Complied
1.626000	Neutral	42.7	56.0	13.3	Complied
1.887000	Live 1	40.4	56.0	15.6	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.199500	Live 1	38.2	53.6	15.4	Complied
0.532500	Live 1	34.5	46.0	11.5	Complied
1.185000	Neutral	28.4	46.0	17.6	Complied
1.378500	Neutral	28.0	46.0	18.0	Complied
1.387500	Neutral	29.4	46.0	16.6	Complied
1.581000	Neutral	29.4	46.0	16.6	Complied
1.585500	Neutral	29.7	46.0	16.3	Complied
1.648500	Live 1	29.0	46.0	17.0	Complied
1.720500	Live 1	27.0	46.0	19.0	Complied
1.851000	Neutral	28.2	46.0	17.8	Complied

Receiver/Idle AC Conducted Spurious Emissions (continued)



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

5.4. Receiver/Idle 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
EUT Tested (IMEI):	004401441081664

Environmental Conditions:

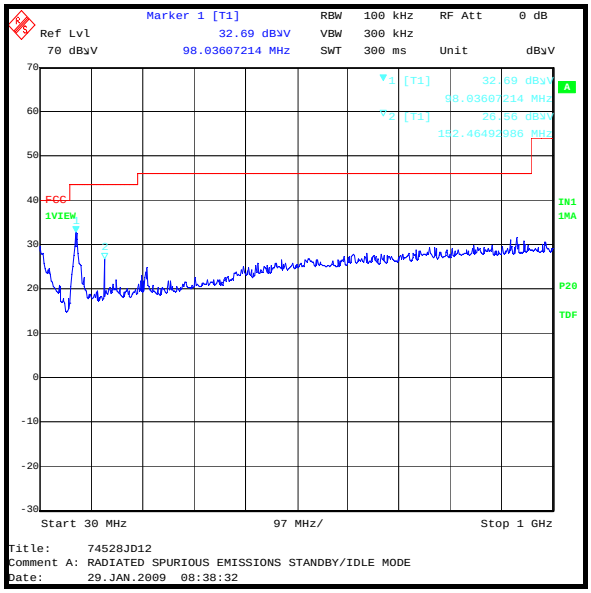
Temperature Variation(°C):	21 to 24
Relative Humidity Variation (%):	22 to 33

Results:

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
100.020	Horizontal	33.5	43.5	10.0	Complied
153.287	Horizontal	27.5	43.5	16.0	Complied

Note(s):

1. The emission at 100 MHz was investigated and found to be radiating from the EUT. The emission at 153 MHz was investigated and found to be ambient.



Receiver/Idle Radiated Spurious Emissions (continued)

Test Summary:

FCC Part:	15.109
Frequency Range:	1 GHz to 5 GHz
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
EUT Tested (IMEI):	004401441081664

Environmental Conditions:

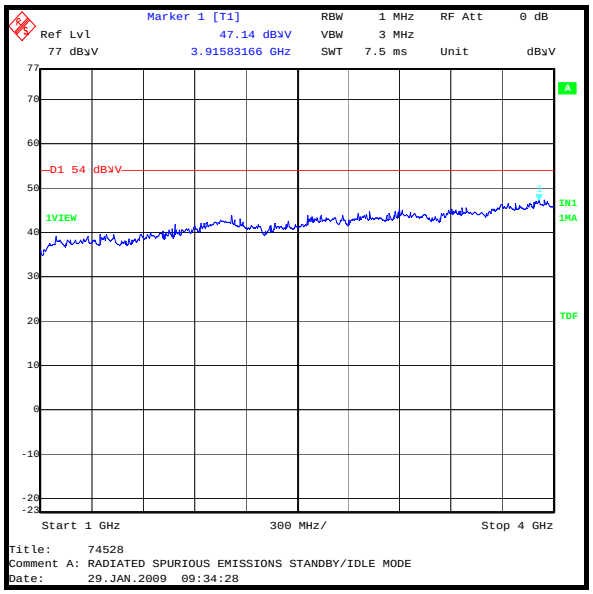
Temperature Variation(°C):	21 to 24
Relative Humidity Variation (%):	22 to 33

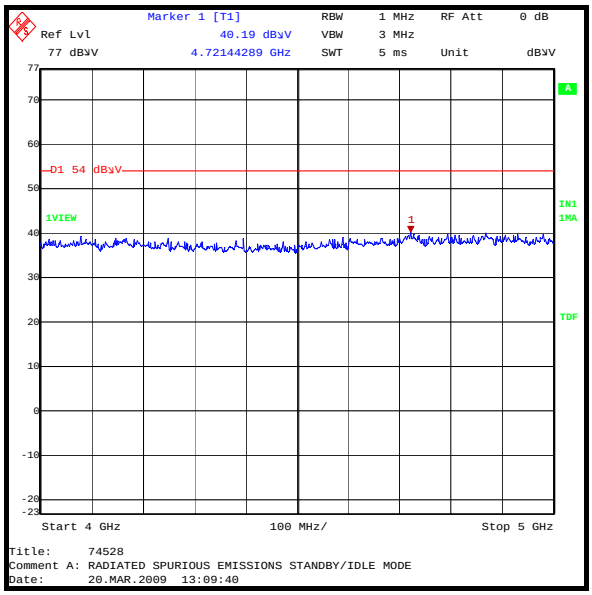
Results: Highest Peak Level

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV/m)	Transducer Factor (dB)	Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
3.915	Horizontal	41.5	5.6	47.1	54.0	6.9	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. 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.





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

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
EUT Tested (IMEI):	004401441088271

Environmental Conditions:

Temperature (°C):	17
Relative Humidity (%):	33

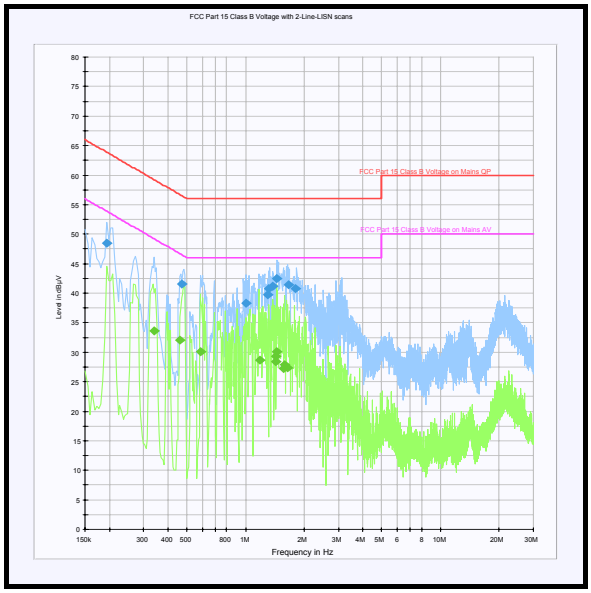
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.195000	Neutral	48.4	63.8	15.4	Complied
0.469500	Live 1	41.5	56.5	15.0	Complied
1.009500	Neutral	38.3	56.0	17.7	Complied
1.293000	Live 1	39.7	56.0	16.3	Complied
1.320000	Neutral	40.8	56.0	15.2	Complied
1.383000	Neutral	41.2	56.0	14.8	Complied
1.450500	Neutral	42.5	56.0	13.5	Complied
1.666500	Neutral	41.5	56.0	14.5	Complied
1.806000	Live 1	40.7	56.0	15.3	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.339000	Live 1	33.6	49.2	15.6	Complied
0.460500	Live 1	32.1	46.7	14.6	Complied
0.591000	Neutral	30.0	46.0	16.0	Complied
1.180500	Live 1	28.6	46.0	17.4	Complied
1.428000	Neutral	28.4	46.0	17.6	Complied
1.432500	Live 1	29.4	46.0	16.6	Complied
1.446000	Live 1	30.1	46.0	15.9	Complied
1.567500	Live 1	27.2	46.0	18.8	Complied
1.581000	Live 1	27.9	46.0	18.1	Complied
1.635000	Neutral	27.4	46.0	18.6	Complied

Transmitter AC Conducted Spurious Emissions (continued)



5.6. Transmitter Effective Radiated Power (ERP)

Test Summary:

FCC Part:	22.913(a)
Test Method Used:	As detailed in 3GPP TS 34.121-1 V8.6.0 (2009-03) and ANSI TIA-603-C-2004 Section 2
EUT Tested (IMEI):	004401441088271

Environmental Conditions:

Temperature (°C):	25
Relative Humidity Variation (%):	25 to 30

Results: Peak ERP

Mode		**HSDPA**				**RMC 12.2kbps**			
Sub-test		**1**	**2**	**3**	**4**				
Band	**Channel**	**Power (dBm) Peak**	**Power (dBm) Peak**	**Power (dBm) Peak**	**Power (dBm) Peak**	**Power (dBm) Peak**	**Peak Limit (dBm)**	**Margin**	**Result**
850	4132	23.8	24.0	24.0	24.1	24.1	38.5	14.4	Complied
	4182	22.1	22.6	22.7	22.9	23.1	38.5	15.4	Complied
	4233	22.6	23.2	23.4	23.3	24.1	38.5	14.4	Complied
ßc		2	12	15	15				
ßd		15	15	8	4				
ΔACK, ΔNACK, ΔCQI		8	8	8	8				

Results: Average ERP

Mode		**HSDPA**				**RMC 12.2kbps**			
Sub-test		**1**	**2**	**3**	**4**				
Band	**Channel**	**Power (dBm) Avg.**	**Power (dBm) Avg.**	**Power (dBm) Avg.**	**Power (dBm) Avg.**	**Power (dBm) Avg.**	**Peak Limit (dBm)**	**Margin**	**Result**
850	4132	19.5	19.0	18.8	18.8	20.6	38.5	17.9	Complied
	4182	18.5	18.0	17.8	17.8	19.7	38.5	18.8	Complied
	4233	19.0	18.4	18.3	18.3	20.8	38.5	17.7	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	24.5	24.1	24.2	23.7	24.4	38.5	14.0	Complied
	4182	23.5	23.0	22.9	23.1	22.2	38.5	15.0	Complied
	4233	24.7	24.1	24.2	24.1	24.3	38.5	13.8	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	20.6	20.4	19.4	20.3	19.8	38.5	17.9	Complied
	4182	19.6	19.6	18.6	19.7	17.9	38.5	18.8	Complied
	4233	20.6	20.7	19.7	20.8	20.0	38.5	17.7	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.
2. The EUT was tested in circuit switched mode and packet switched HSPA modes.
3. Measurements were performed with the test antenna in the vertical and horizontal planes. The highest level was recorded.
4. The average readings were performed for information only. As there is no average limit, the results were compared against the peak limit.

5.7. Transmitter Frequency Stability (Temperature Variation)

Test Summary:

FCC Part:	22.355
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055
EUT Tested (IMEI):	004401441081664

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	31

Results: Middle Channel (836.4 MHz)

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	836.400026	26	0.0311	2.5	2.47	Complied
-20	836.399979	-21	0.0251	2.5	2.47	Complied
-10	836.400021	21	0.0251	2.5	2.47	Complied
0	836.399984	-16	0.0191	2.5	2.48	Complied
10	836.399986	-14	0.0167	2.5	2.48	Complied
20	836.399987	-13	0.0155	2.5	2.48	Complied
30	836.399987	-13	0.0155	2.5	2.48	Complied
40	836.399984	-16	0.0191	2.5	2.48	Complied
50	836.399984	-16	0.0191	2.5	2.48	Complied

5.8. Transmitter Frequency Stability (Voltage Variation)

Test Summary:

FCC Part:	22.355
Test Method Used:	ANSI/TIA-603-C-2004 Section 2
EUT Tested (IMEI):	004401441081664

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	30

Results: Middle Channel (836.4 MHz)

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
4.25	836.399980	-20	0.0239	2.5	2.48	Complied
5.75	836.399983	-17	0.0203	2.5	2.48	Complied

5.9. Transmitter Occupied Bandwidth

Test Summary:

FCC Part:	2.1049
Test Method Used:	As detailed in ANSI C63.4 Section 13.1.7 and relevant annexes
EUT Tested (IMEI):	004401441088271

Environmental Conditions:

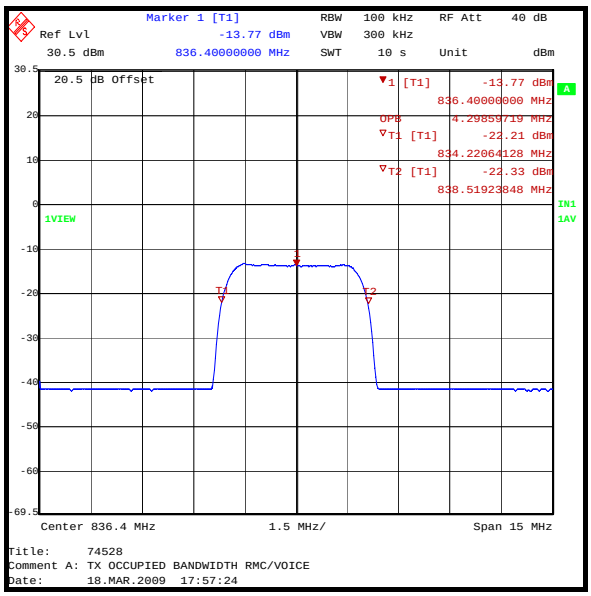
Temperature Variation (°C):	23 to 25
Relative Humidity Variation (%):	23 to 24

Results: Circuit Switched/RMC

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4298.597

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz.



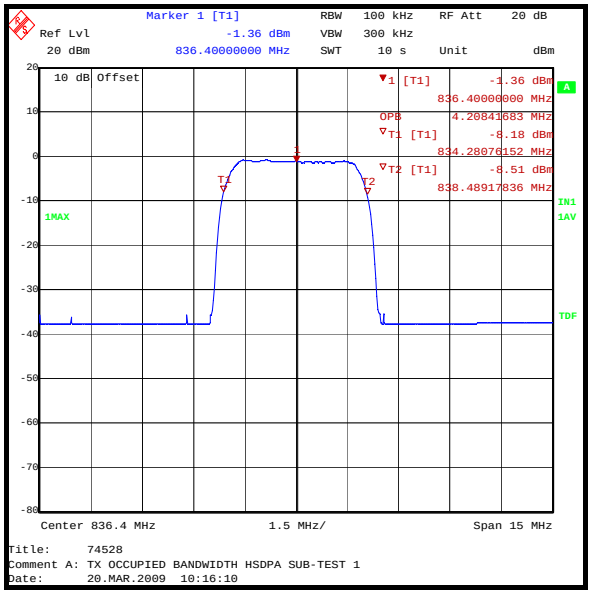
Transmitter Occupied Bandwidth (continued)

Results: HSDPA 1

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4208.417

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



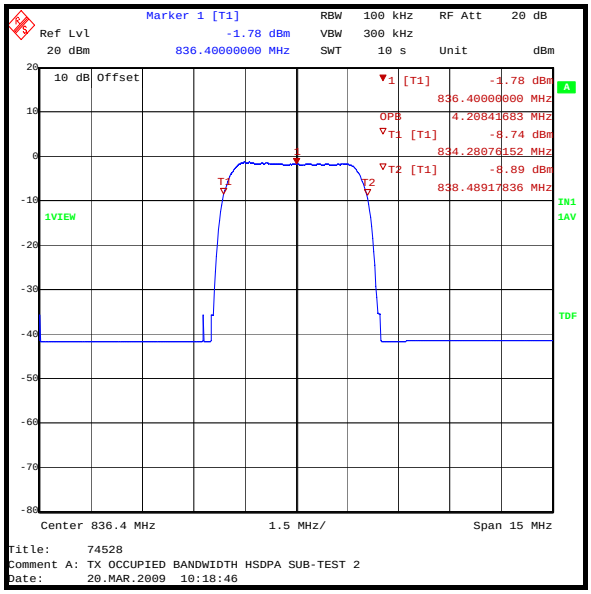
Transmitter Occupied Bandwidth (continued)

Results: HSDPA 2

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4208.417

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



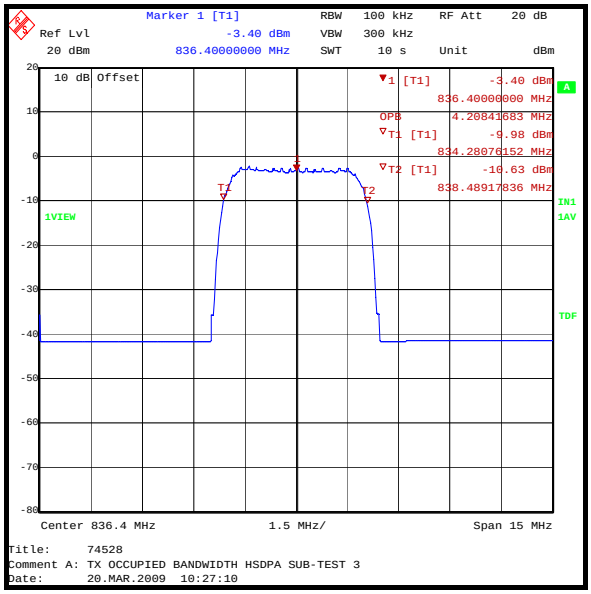
Transmitter Occupied Bandwidth (continued)

Results: HSDPA 3

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4208.417

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



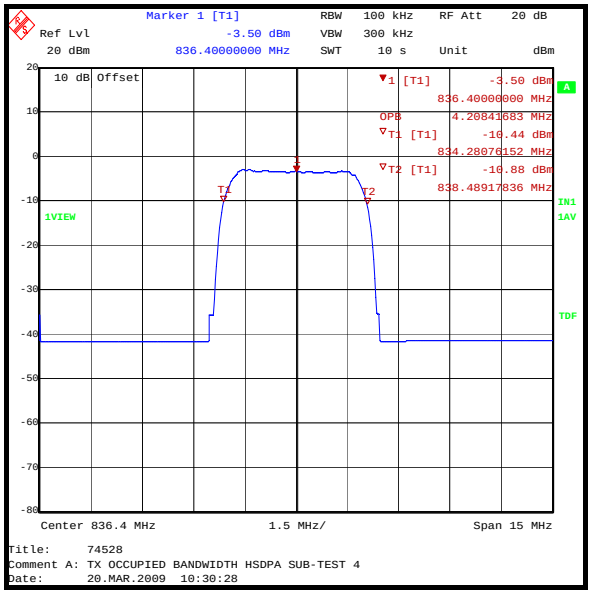
Transmitter Occupied Bandwidth (continued)

Results: HSDPA 4

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4208.417

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



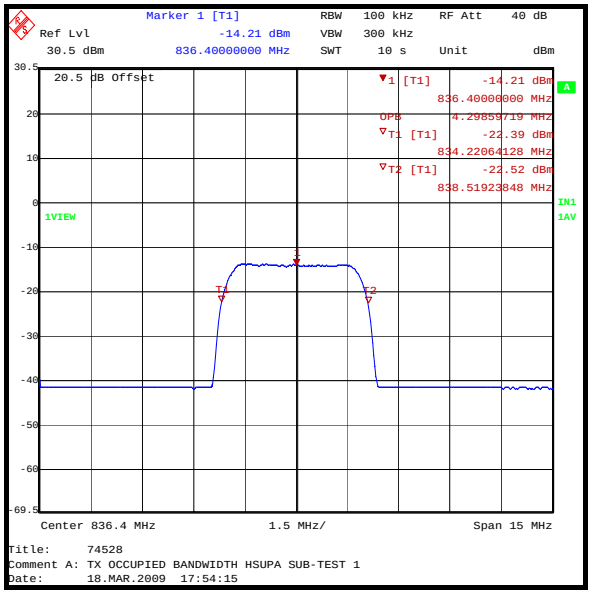
Transmitter Occupied Bandwidth (continued)

Results: HSUPA 1

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4298.597

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



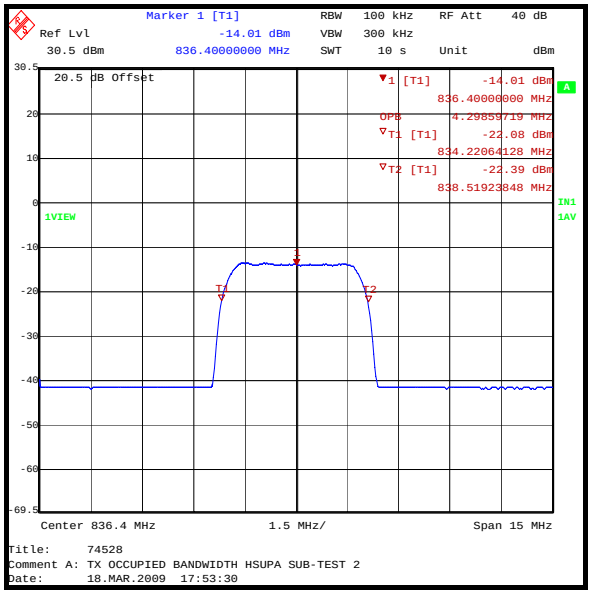
Transmitter Occupied Bandwidth (continued)

Results: HSUPA 2

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4298.597

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



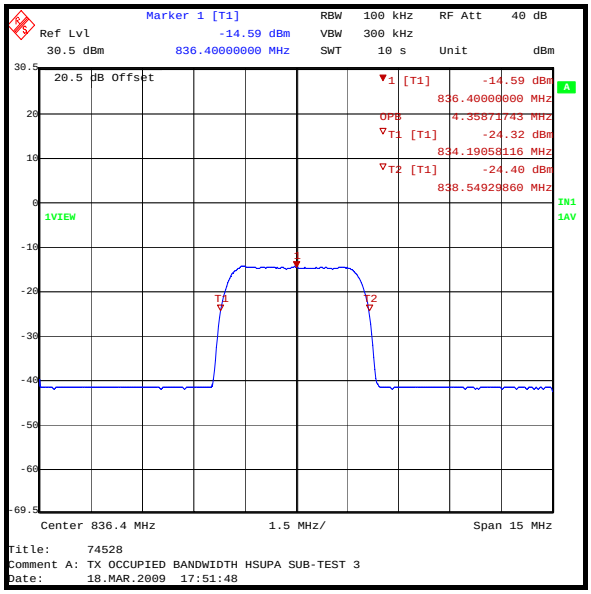
Transmitter Occupied Bandwidth (continued)

Results: HSUPA 3

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4358.717

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



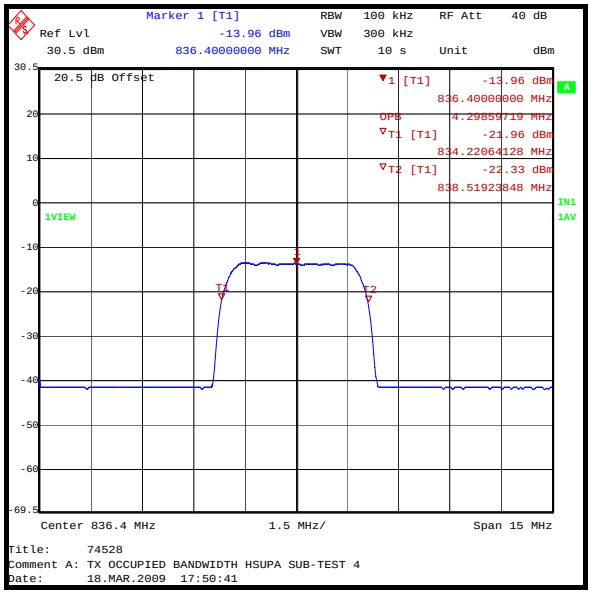
Transmitter Occupied Bandwidth (continued)

Results: HSUPA 4

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4298.597

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



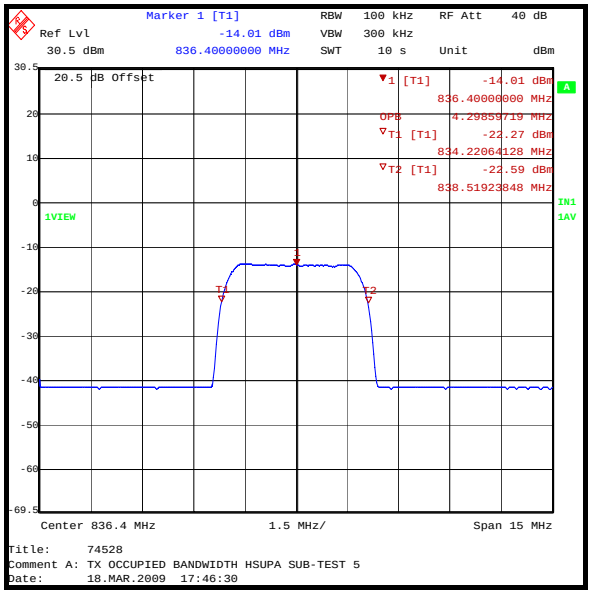
Transmitter Occupied Bandwidth (continued)

Results: HSUPA 5

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.4	4298.597

Note(s):

1. The transmitter occupied bandwidth results were obtained by using an occupied bandwidth function of a measurement analyser. The measurement bandwidth was set to 5 MHz



5.10. Transmitter Out of Band Radiated Emissions

Test Summary:

FCC Part:	2.1053 & 22.917
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
EUT Tested (IMEI):	004401441088271

Environmental Conditions:

Temperature Variation (°C):	24 to 25
Relative Humidity Variation (%):	22 to 30

Note(s):

1. The carrier is shown on the 30 MHz to 1 GHz plot at approximately 850 MHz.
2. Pre-scans were performed in HSUPA Sub-test 1 mode/H-Set 1 QPSK as this combination produced the highest ERP. Final measurements were performed in HSUPA Sub-test 1 mode/H-Set 1 QPSK, HSUPA Sub-test 1 mode/H-Set 1 16QAM, circuit switched RMC 12.2 kbps with HSDPA and circuit switched voice modes.
3. Pre-scans were performed with the EUT transmitting at full power on the top channel. Final measurements were performed on the bottom, centre and top channels.
4. Measurements were performed with the test antenna in the vertical and horizontal planes. The highest level was recorded.

Results: Bottom Channel HSUPA and QPSK modulation

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1654.864	-15.8	-13.0	2.8	Complied

Results: Middle Channel HSUPA and QPSK modulation

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1670.976	-17.1	-13.0	4.1	Complied

Results: Top Channel HSUPA and QPSK modulation

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1691.122	-16.3	-13.0	3.5	Complied

Transmitter Out of Band Radiated Emissions (continued)

Results: Bottom Channel HSUPA and 16QAM modulation

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1654.864	-17.3	-13.0	4.3	Complied

Results: Middle Channel HSUPA and 16QAM modulation

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1670.896	-18.1	-13.0	5.1	Complied

Results: Top Channel HSUPA and 16QAM modulation

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1691.042	-16.5	-13.0	3.5	Complied

Transmitter Out of Band Radiated Emissions (continued)

Results: Bottom Channel Circuit switched / RMC 12.2 kbps with HSDPA

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1655.025	-15.1	-13.0	2.1	Complied

Results: Middle Channel Circuit switched / RMC 12.2 kbps with HSDPA

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1670.969	-16.9	-13.0	3.9	Complied

Results: Top Channel Circuit switched / RMC 12.2 kbps with HSDPA

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1691.162	-17.2	-13.0	4.2	Complied

Transmitter Out of Band Radiated Emissions (continued)

Results: Bottom Channel Circuit switched / Voice

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1655.587	-18.4	-13.0	5.4	Complied

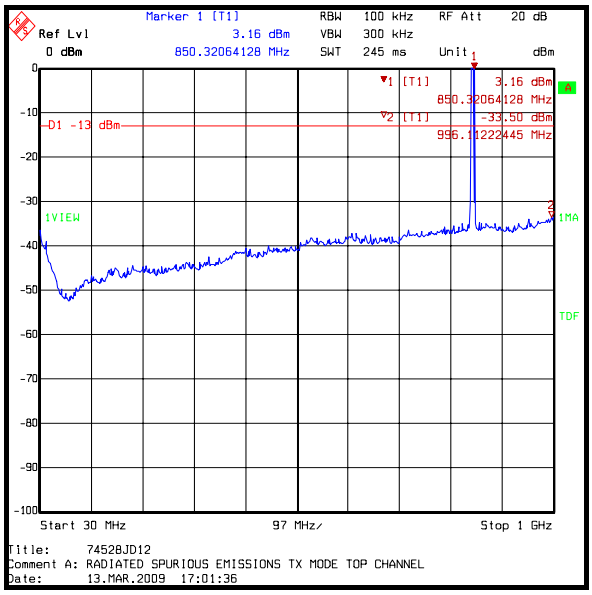
Results: Middle Channel Circuit switched / Voice

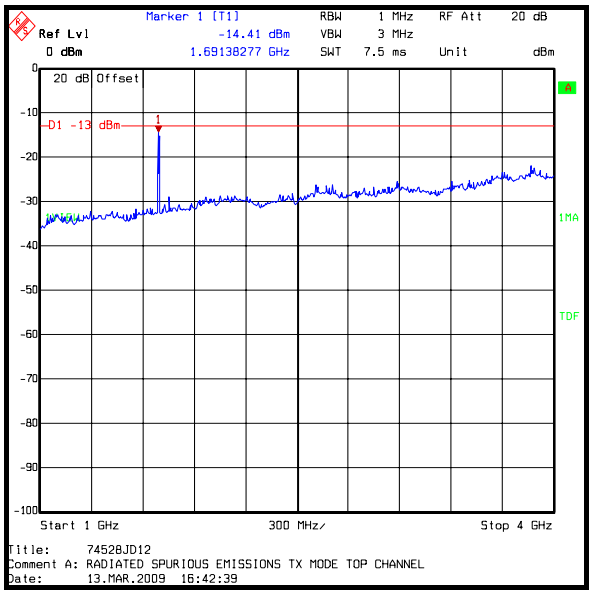
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1670.375	-19.7	-13.0	6.7	Complied

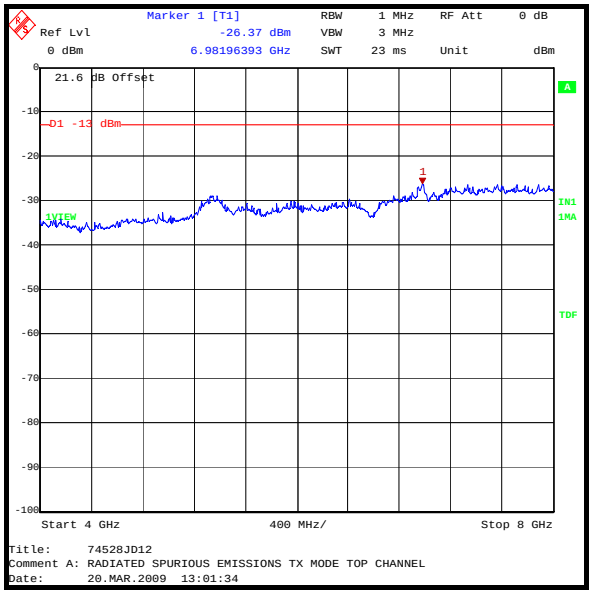
Results: Top Channel Circuit switched / Voice

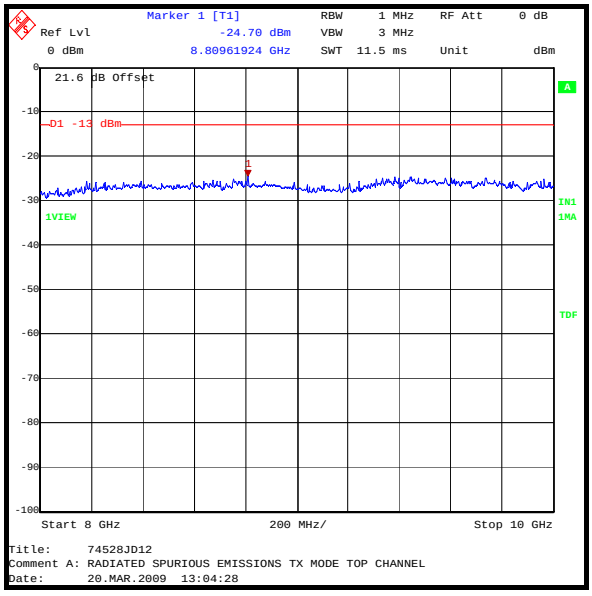
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1690.761	-19.0	-13.0	6.0	Complied

Transmitter Out of Band Radiated Emissions (continued)









5.11. Transmitter Radiated Emissions at Band Edges

Test Summary:

FCC Part:	2.1053 & 22.917
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
EUT Tested (IMEI):	004401441088271

Environmental Conditions:

Temperature Variation (°C):	23 to 25
Relative Humidity Variation (%):	23 to 25

Note(s):

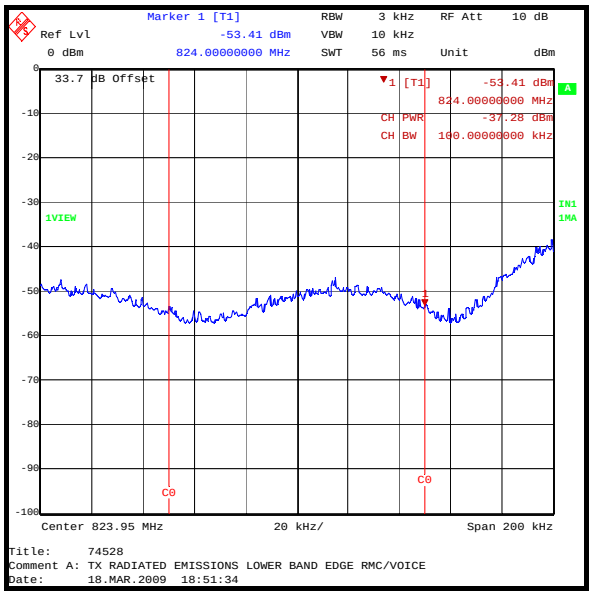
1. The band edge result was obtained by integrating the100 kHz strip immediately adjacent to the band edge using a channel power function of the measurement analyser.

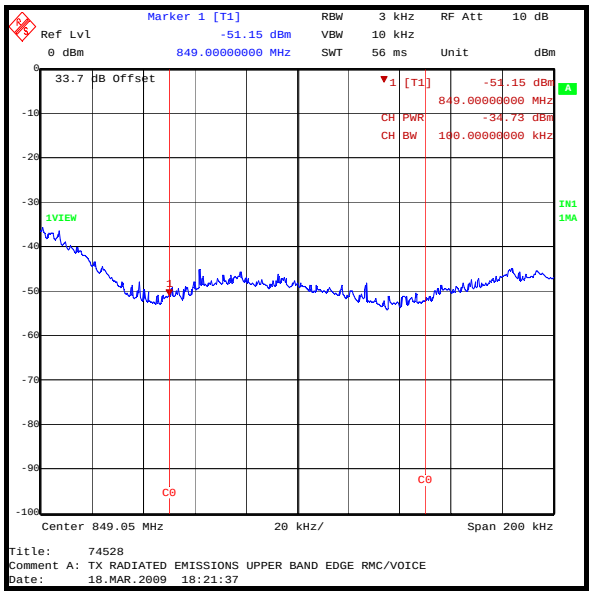
Results: Circuit Switched/RMC. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-37.3	-13.0	24.3	Complied

Results: Circuit Switched/RMC. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-34.7	-13.0	21.7	Complied





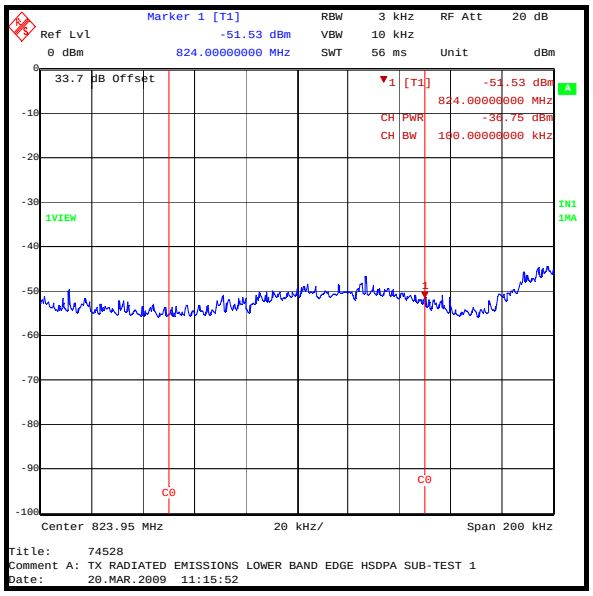
Transmitter Radiated Emissions at Band Edges (continued)

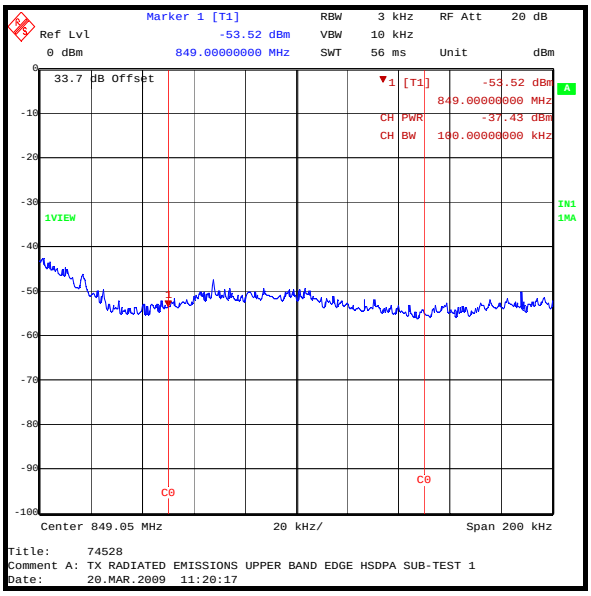
Results: HSDPA Sub-test 1. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-36.8	-13.0	23.8	Complied

Results: HSDPA Sub-test 1. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-37.4	-13.0	24.4	Complied





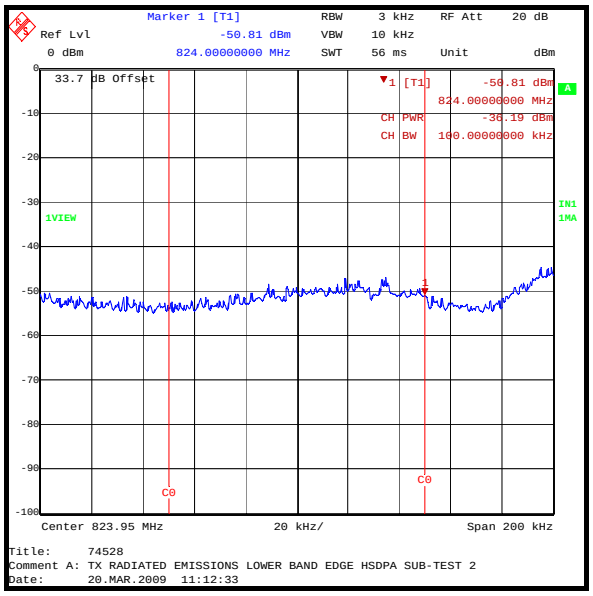
Transmitter Radiated Emissions at Band Edges (continued)

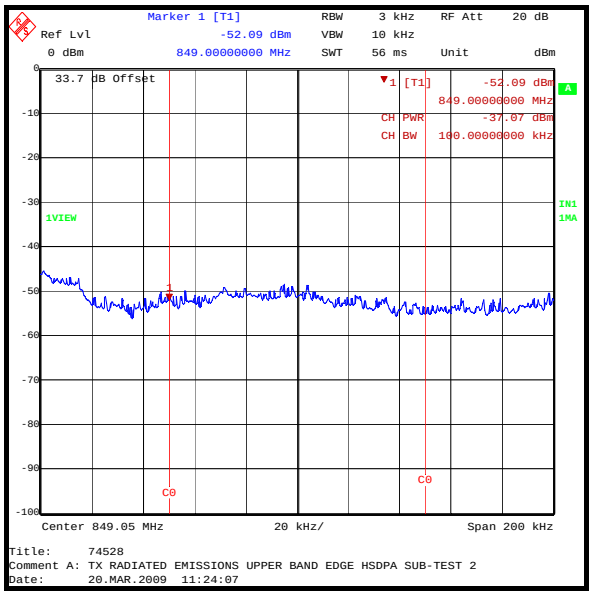
Results: HSDPA Sub-test 2. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-36.2	-13.0	23.2	Complied

Results: HSDPA Sub-test 2. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-37.1	-13.0	24.1	Complied





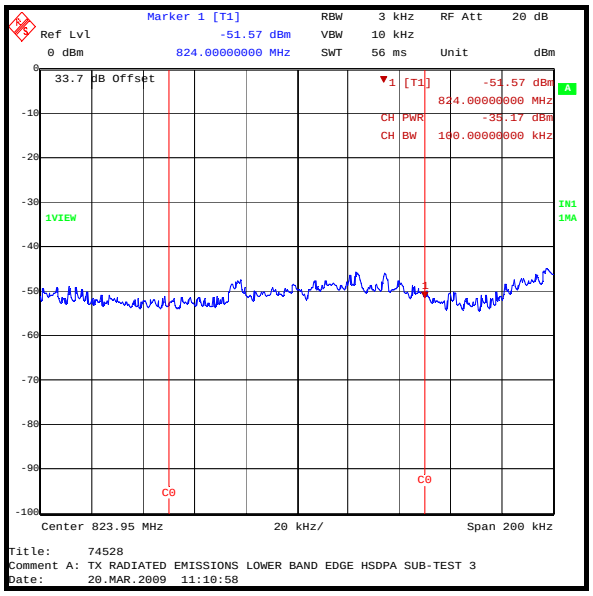
Transmitter Radiated Emissions at Band Edges (continued)

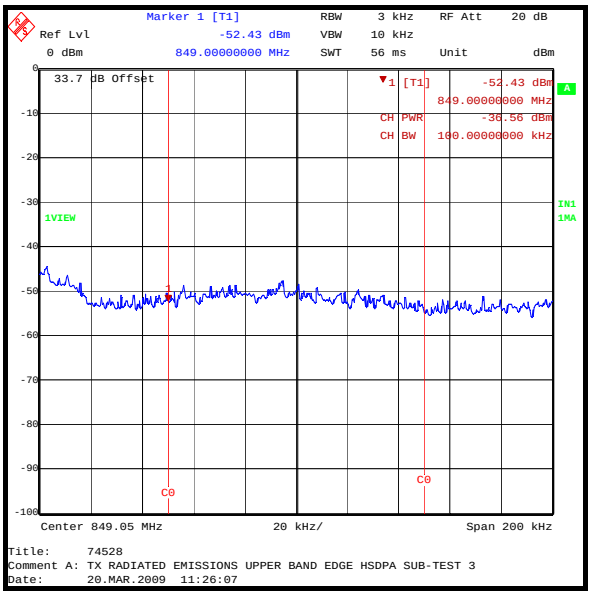
Results: HSDPA Sub-test 3. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-35.2	-13.0	22.2	Complied

Results: HSDPA Sub-test 3. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-36.6	-13.0	23.6	Complied





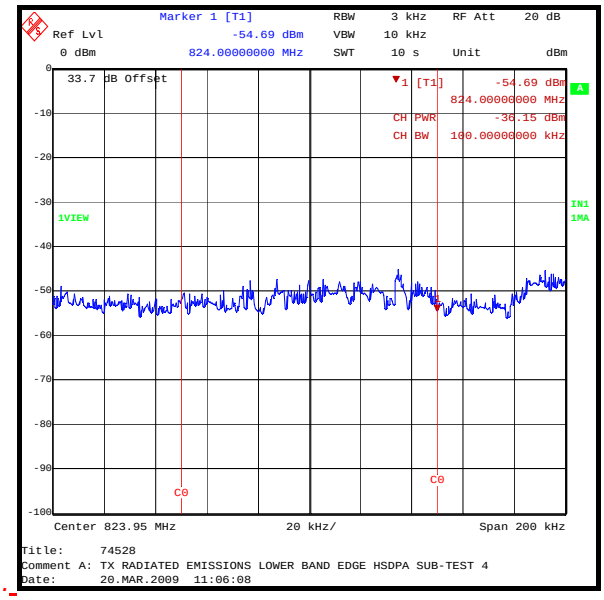
Transmitter Radiated Emissions at Band Edges (continued)

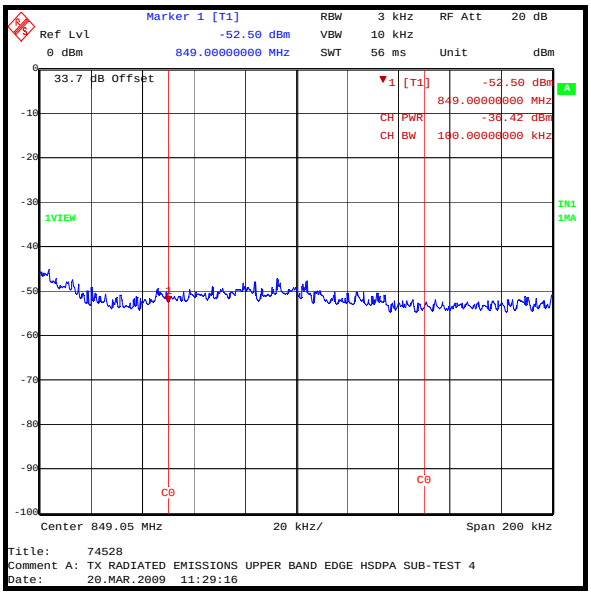
Results: HSDPA Sub-test 4. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-36.2	-13.0	23.2	Complied

Results: HSDPA Sub-test 4. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-36.4	-13.0	23.4	Complied





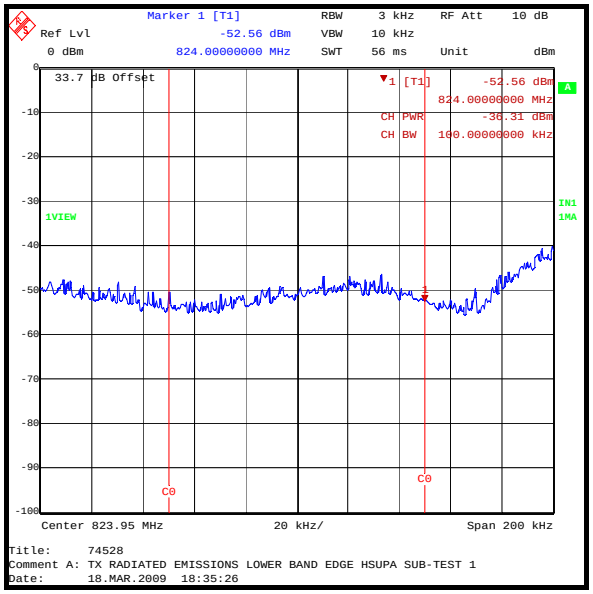
Transmitter Radiated Emissions at Band Edges (continued)

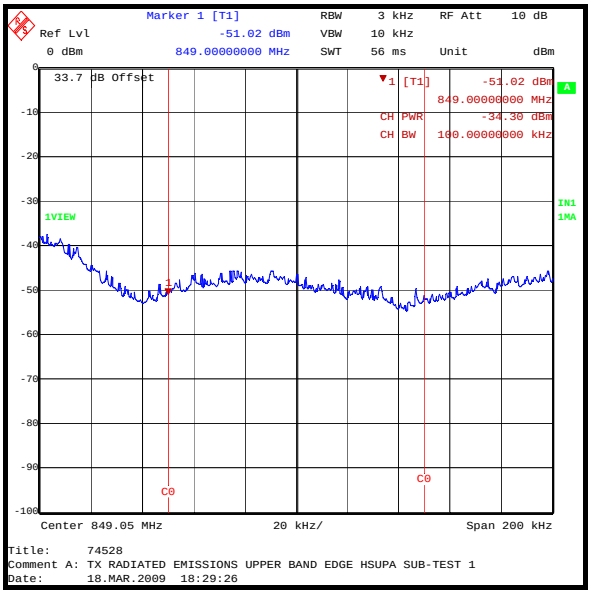
Results: HSUPA Sub-test 1. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-36.3	-13.0	23.3	Complied

Results: HSUPA Sub-test 1. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-34.3	-13.0	21.3	Complied





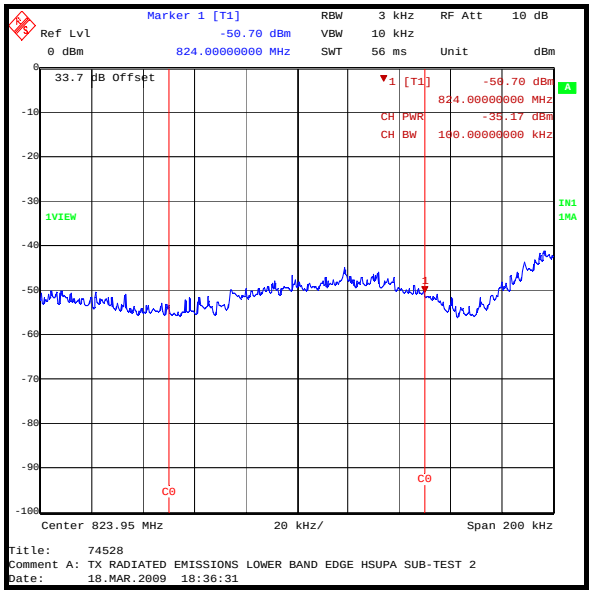
Transmitter Radiated Emissions at Band Edges (continued)

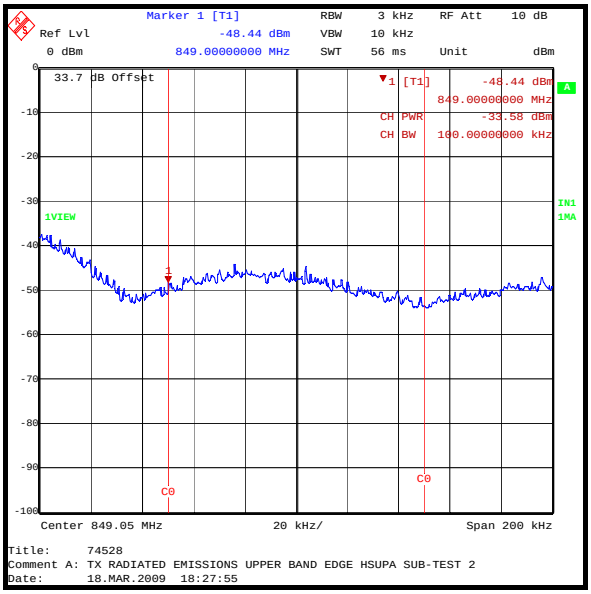
Results: HSUPA Sub-test 2. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-35.2	-13.0	22.2	Complied

Results: HSUPA Sub-test 2. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-33.6	-13.0	20.6	Complied





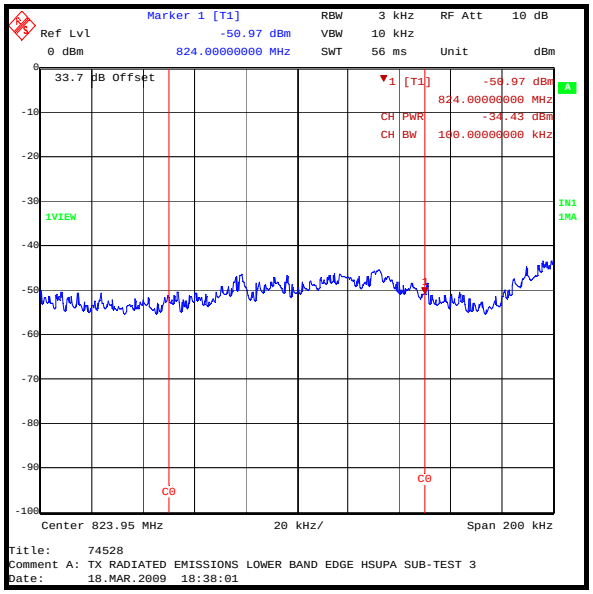
Transmitter Radiated Emissions at Band Edges (continued)

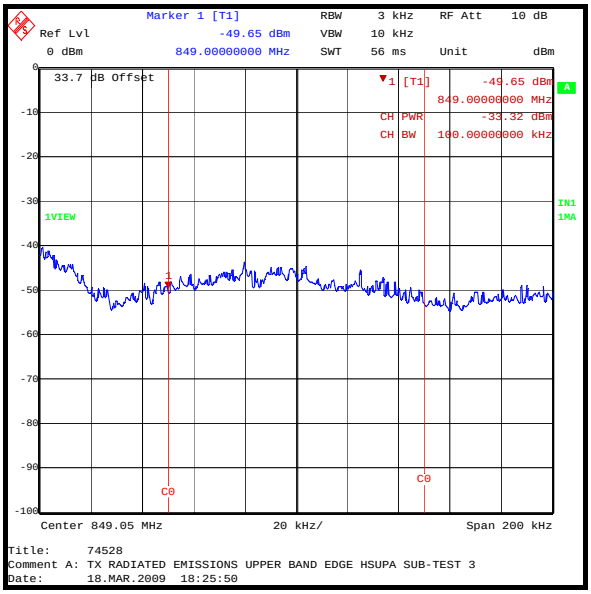
Results: HSUPA Sub-test 3. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-34.4	-13.0	21.4	Complied

Results: HSUPA Sub-test 3. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-33.3	-13.0	20.3	Complied





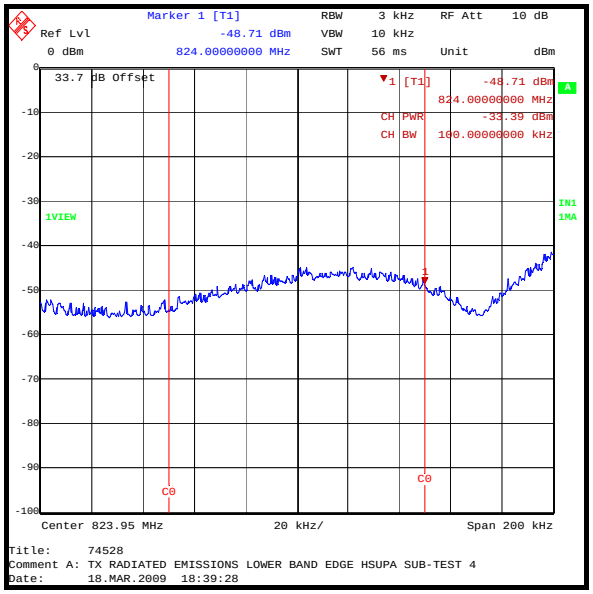
Transmitter Radiated Emissions at Band Edges (continued)

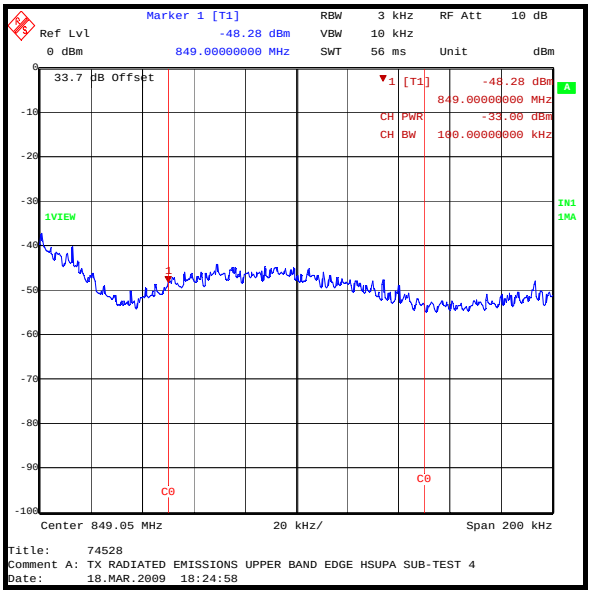
Results: HSUPA Sub-test 4. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-33.4	-13.0	21.4	Complied

Results: HSUPA Sub-test 4. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-33.0	-13.0	20.0	Complied





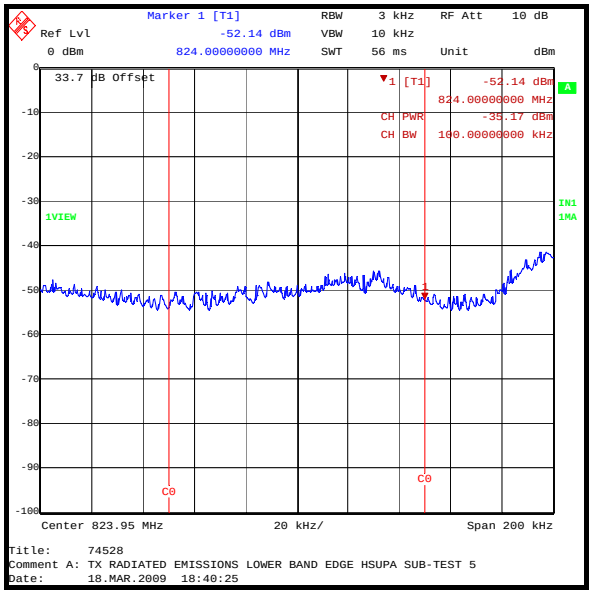
Transmitter Radiated Emissions at Band Edges (continued)

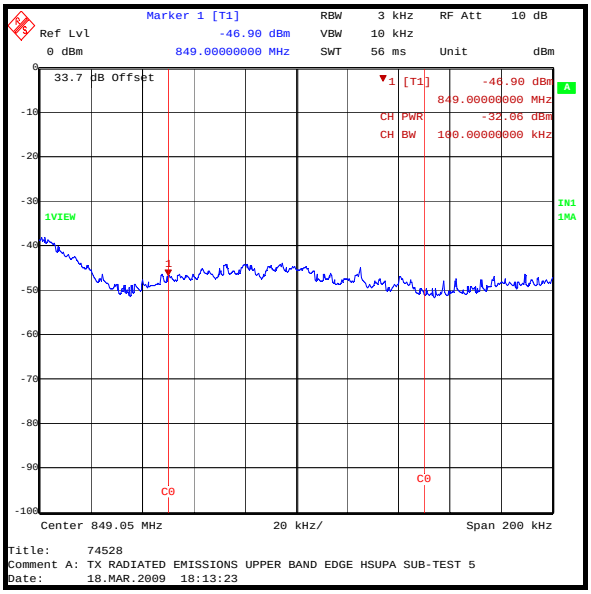
Results: HSUPA Sub-test 5. Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-35.2	-13.0	22.2	Complied

Results: HSUPA Sub-test 5. Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
849	-32.1	-13.0	19.1	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 Radiated Power (ERP)	824 to 849 MHz	95%	±2.94 dB
Frequency Stability	824 to 849 MHz	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 12.75 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	Line Impedance Stabilization Network	Rohde & Schwarz	ESH3-Z5	890604/027	19 May 2008	12
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1524	Garmin etrex GPS	Garmin	None Stated	None Stated	Calibration not required	-
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Jan 2009	12
A244	Attenuator	Schaffner	6820-17-B	None	Calibration not required	-
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibrated before use	-
K0002	Site Reference 4421	Rainford EMC	N/A	N/A	Calibration not required	-
K0004	Site Reference 4428	RFI Global Services Ltd	N/A	N/A	Calibration not required	-
K0008	Site Reference 4422	RFI Global Services Ltd	N/A	N/A	Calibration not required	-
L0990	R&S CMU 200	R&S	CMU 200	S220447	18 Feb 2009	12
L0991	CMU 200	R&S	CMU200	111688	Calibration not required	-
M1068	Thermometer	Iso-Tech	RS55	93102884	09 Jul 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12
M1242	Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986/022	09 Dec 2008	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	16 Feb 2009	12
M1269	Multimeter	Fluke	179	90250210	09 Apr 2008	12
M1379	Test Receiver	Rohde and Schwarz	ESIB7	100330	14 Aug 2008	12

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