TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Panasonic Mobile Comms Dev of Europe Ltd
NTT docomo P-02A

To: FCC Part 22: 2008 (Subpart H)

Test Report Serial No:
RFI/RPT2/RP74300JD05A

Supersedes Test Report Serial No:
RFI/RPT1/RP74300JD05A

This Test Report Is Issued Under The Authority Of Steve Flooks, Service Leader: 	
Checked By: Steve Flooks 	**Report Copy No: PDF01**
Issue Date: 17 December 2008	**Test Dates: 26 November to 02 December 2008**

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1. Customer Information

Company Name:	Panasonic Mobile Comms Dev of Europe Ltd
Address:	Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP

2. Equipment Under Test (EUT)

2.1. Identification of Equipment Under Test (EUT)

Brand Name:	NTT docomo
Model Name or Number:	P-02A
IMEI Number:	353713020007606
Hardware Version Num:	Rev C++
Software Version:	B-WN907D-01.02.002 08-2H_CPF_Cv061350C
FCC ID Number:	UCE208012A

Description:	128 MB Micro-SD Memory Card
Brand Name:	Not marked
Model Name or Number:	128MB MicroSD
Connected to Port:	Dedicated micro-SD card port

Description:	NTT
Brand Name:	Battery
Model Name or Number:	P19
Cable Length & Type:	N/A
Connected to Port:	N/A

Description:	AC charger
Brand Name:	NTT DoCoMo
Model Name or Number:	FOMA AC Adapter 01 for Global use / MAS-BH0008-A 002
Cable Length & Type:	2.0m multicore
Connected to Port:	Charge/Data port

Description:	DC Charger
Brand Name:	NTT docomo
Model Name or Number:	FOMA DC Adapter 02
Cable Length & Type:	Spiral cord / 2.5 metre / Multicore
Connected to Port:	Audio/Charge/Data port

Description:	Personal Hands-Free
Brand Name:	NTT docomo
Model Name or Number:	Stereo Earphone Set 01
Cable Length & Type:	1.2 metre / multicore
Connected to Port:	Audio/Charge/Data port

Description:	Charge/USB Data cable
Brand Name:	NTT docomo
Model Name or Number:	FOMA USB Cable with Charge Function 02
Cable Length & Type:	0.3 metre / multicore
Connected to Port:	Audio/Charge/Data port

2.2. Description of EUT

The equipment under test is a Dual mode Cellular Mobile Telephone with PCS, UMTS FDD V and UMTS Release 5 HSDPA capabilities, incorporating Bluetooth and RFID. The Cellular Mobile Telephone operates on PCS/GPRS1900 MHz Band, UMTS/UMTS Release 5 HSDPA 850 MHz Band, Bluetooth 2400 MHz Band and RFID 13.5 MHz Band.

2.3. Modifications Incorporated in EUT

During the course of testing the EUT was not modified.

2.4. Support Equipment

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

Description:	Dummy battery
Model Name or Number:	Panasonic
Serial Number:	Dummy battery #01
Cable Length and Type:	0.25 metre / 2 x single core
Connected to Port:	Battery

2.5. Additional Information Related to Testing

Technology Tested:	UMTS		
Type of Unit:	Transceiver		
Mode:	UMTS FDD V and UMTS Release 5 HSDPA		
Modulation:	QPSK(UMTS / HSDPA): 0 Hz		
Channel Spacing:	5 MHz		
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
Power Supply Requirement:	Nominal Voltage	3.7	(V)
	Minimum Voltage	3.4	(V)
	Maximum Voltage	4.2	(V)
Maximum Output Power (ERP) dBm:	Voice (RMC 12.2kbps)	28.6	
	HSDPA Set 2	27.0	

2.6. Port Identification

Port	Description
1	Charge/Data/Audio
2	USIM
3	Micro-SD

3. Test Specification, Methods and Procedures

Reference:	FCC Part 22: 2008 Subpart H (Cellular Radiotelephone Service)
Title:	Code of Federal Regulations, Part 22 (47CFR22) Public Mobile Services.

3.1. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2003
Land Mobile Communications Equipment, Measurements and performance Standards

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

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.

ANSI C63.5 (1988)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)
Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

3.2. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures Section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

There were no deviations from the test specification.

5. Operation of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated:

- 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 (RMC/12.2 kbps) or HSDPA (Sets 1 to 4) modes.
- Transmitter radiated spurious emissions were checked in all modes during prescans. Voice (RMC/12.2 kbps) was found to be the worst case and all final measurements were performed with the EUT in this mode.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration unless otherwise stated:

- Connected to a UMTS Band V system simulator, operating in transceiver mode.
- The Micro SD card was present in the EUT during all tests.
- Receiver/idle and transmitter radiated spurious emissions tests were performed with the mains charger connected to the EUT and 120VAC supply as this was found to be the worst case during prescans. All accessories were individually connected and measurements made during prescans to determine the worst case combination

6. Summary of Test Results

FCC Part 22

Range of Measurements	Specification Reference	Port Type	Result
Receiver/Idle AC Conducted Spurious Emissions (150 kHz to 30 MHz)	C.F.R. 47 FCC Part 15: Section 15.107	AC Mains Input	Complied
Receiver/Idle Radiated Emissions	C.F.R. 47 FCC Part 15: Section 15.109	Enclosure	Complied
Transmitter Effective Radiated Power (ERP)	C.F.R. 47 FCC Part 22: Section 22.913(a)	Antenna	Complied
Transmitter Frequency Stability (Temperature Variation)	C.F.R. 47 FCC Part 22: Section 22.355	Antenna	Complied
Transmitter Frequency Stability (Voltage Variation)	C.F.R. 47 FCC Part 22: Section 22.355	Antenna	Complied
Transmitter Occupied Bandwidth	C.F.R. 47 FCC Part 22: Section 2.1049	Antenna	Complied
Transmitter Out of Band Radiated Emissions	C.F.R. 47 FCC Part 22: Section 2.1053/22.917	Antenna	Complied
Transmitter Band Edge Radiated Emissions	C.F.R. 47 FCC Part 22: Section 2.1053/22.917	Antenna	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.

6.2. Site Registration Numbers

FCC: 209735

7. Measurements, Examinations and Derived Results

7.1. General Comments

This Section contains test results only.

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 8 for details of measurement uncertainties.

7.2. Test Results

7.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions: Section 15.107(a)

Ambient Temperature: 22ºC Relative Humidity: 38%

Results:

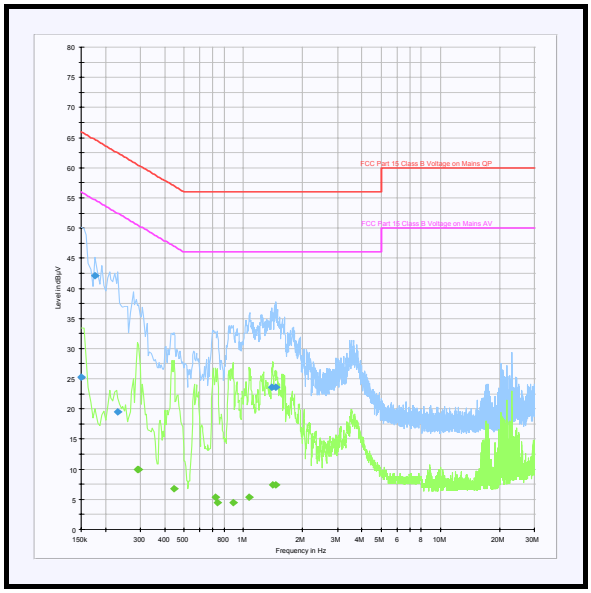
Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.150000	Live	25.3	66.0	40.7	Complied
0.177000	Live	42.1	64.6	22.5	Complied
0.231000	Live	19.5	62.4	42.9	Complied
1.392000	Neutral	23.6	56.0	32.4	Complied
1.464000	Neutral	23.6	56.0	32.4	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.289500	Neutral	10.0	50.5	40.5	Complied
0.294000	Live	10.0	50.4	40.4	Complied
0.442500	Neutral	6.7	47.0	40.3	Complied
0.721500	Neutral	5.3	46.0	40.7	Complied
0.739500	Neutral	4.5	46.0	41.5	Complied
0.883500	Neutral	4.5	46.0	41.5	Complied
1.072500	Live	5.3	46.0	40.7	Complied
1.410000	Neutral	7.4	46.0	38.6	Complied
1.450500	Neutral	7.4	46.0	38.6	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions: Section 15.107(a) (Continued)



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

7.2.2. Receiver/Idle Mode Radiated Spurious Emissions: Section 15.109

Ambient Temperature: 24ºC Relative Humidity: 31%

Results:

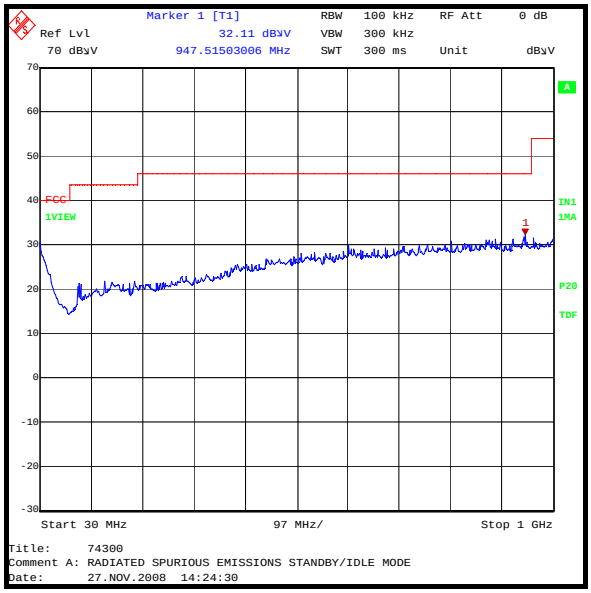
Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz)

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
947.515	Horizontal	32.1	46.0	13.9	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.*

Receiver/Idle Mode Radiated Spurious Emissions: Section 15.109 (Continued)



7.2.3. Receiver/Idle Mode Radiated Spurious Emissions: Section 15.109 - Continued

Electric Field Strength Measurements (Frequency Range: 1 to 12.75 GHz)

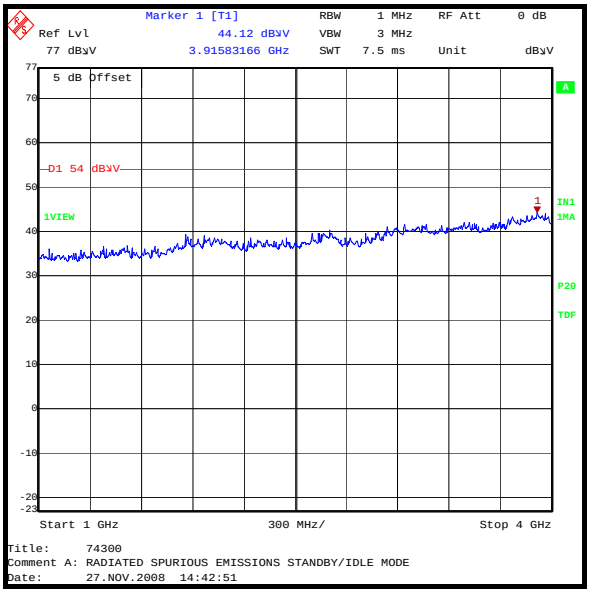
Highest Peak Level

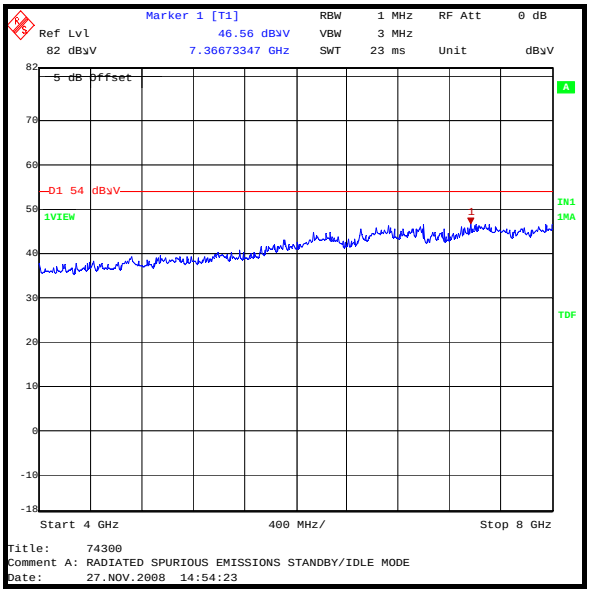
Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Peakl Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
11.664	Horizontal	44.8	2.8	47.6	54.0	6.4	Complied

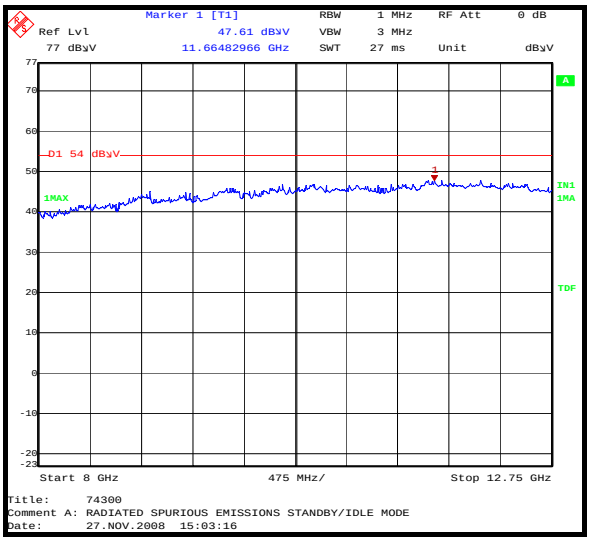
Note(s):

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.*

Receiver/Idle Mode Radiated Spurious Emissions: Section 15.109 (Continued)







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

7.2.4. Transmitter Effective Radiated Power (ERP): Section 22.913(a)

Ambient Temperature: 25ºC Relative Humidity: 30%

Modes		HSDPA				Voice			
Sets		1	2	3	4	RMC 12.2kbps			
Band	Channel	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Limit (dBm)	Margin	Result
850	4132	23.7	23.7	23.8	23.7	26.5	38.5	12.0	Complied
	4183	25.1	25.2	25.1	25.6	27.7	38.5	10.8	Complied
	4233	26.6	27.0	26.8	26.4	28.6	38.5	9.9	Complied
ßc		2	12	15	15				
ßd		15	15	8	4				
ΔACK, ΔNACK, ΔCQI		8	8	8	8				

Note(s):

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

7.2.5. Transmitter Frequency Stability (Temperature Variation): Section 22.355

Ambient Temperature: 24ºC Relative Humidity: 29%

Results:

Bottom Channel (826.4 MHz)

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	826.400034	34	0.041	2.5	2.459	Complied
-20	826.400037	37	0.045	2.5	2.455	Complied
-10	826.400032	32	0.039	2.5	2.461	Complied
0	826.400022	22	0.027	2.5	2.473	Complied
10	826.400024	24	0.029	2.5	2.471	Complied
20	826.400017	17	0.021	2.5	2.479	Complied
30	826.400024	24	0.029	2.5	2.471	Complied
40	826.400030	30	0.036	2.5	2.464	Complied
50	826.400025	25	0.030	2.5	2.470	Complied

Transmitter Frequency Stability (Temperature Variation): Section 22.355 (Continued)

Results:

Top Channel (846.6 MHz)

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	846.600030	30	0.035	2.5	2.465	Complied
-20	846.600031	31	0.037	2.5	2.463	Complied
-10	846.600028	28	0.033	2.5	2.467	Complied
0	846.600015	15	0.018	2.5	2.482	Complied
10	846.600022	22	0.026	2.5	2.474	Complied
20	846.600028	28	0.033	2.5	2.467	Complied
30	846.600023	23	0.027	2.5	2.473	Complied
40	846.600018	18	0.021	2.5	2.479	Complied
50	846.600021	21	0.025	2.5	2.475	Complied

7.2.6. Transmitter Frequency Stability (Voltage Variation): Section 22.355

Ambient Temperature: 24ºC Relative Humidity: 29%

Results:

Bottom Channel (826.4 MHz)

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
3.4	826.400022	22	0.027	2.5	2.473	Complied
4.2	826.400028	28	0.034	2.5	2.466	Complied

Top Channel (848.8 MHz)

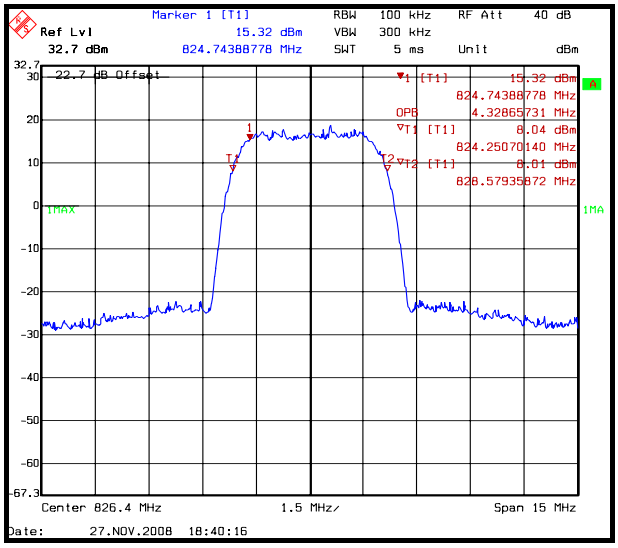
Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
3.4	848.800017	17	0.020	2.5	2.480	Complied
4.2	848.800029	29	0.034	2.5	2.466	Complied

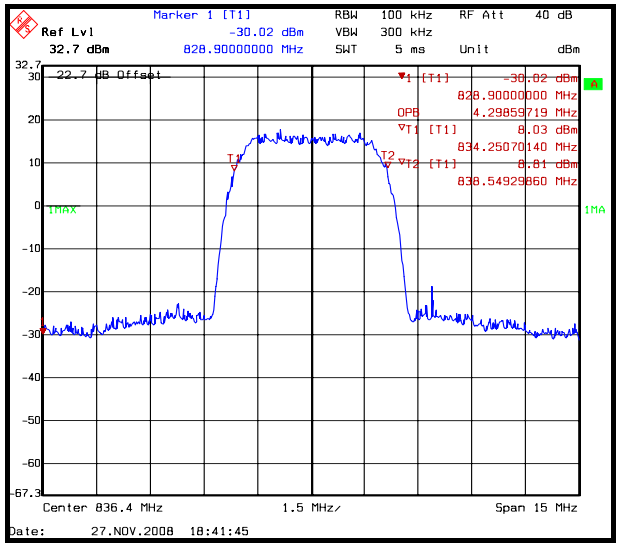
7.2.7. Transmitter Occupied Bandwidth: Section 2.1049

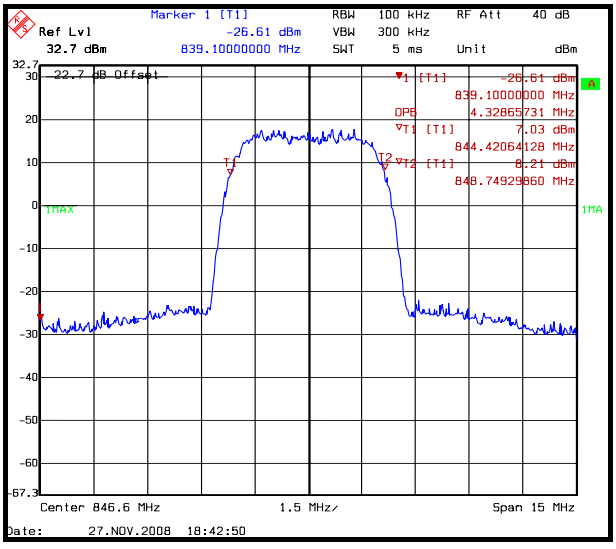
Ambient Temperature: 24ºC Relative Humidity: 29%

Results: RMC/Voice

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Bottom	826.4	4329
Middle	836.4	4298
Top	846.6	4328





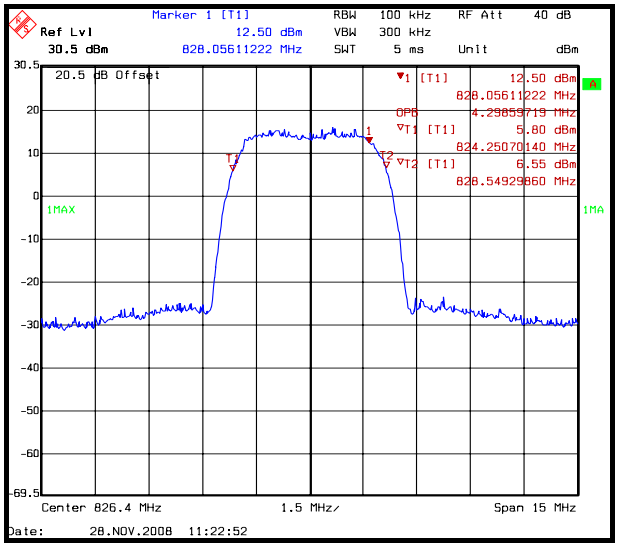


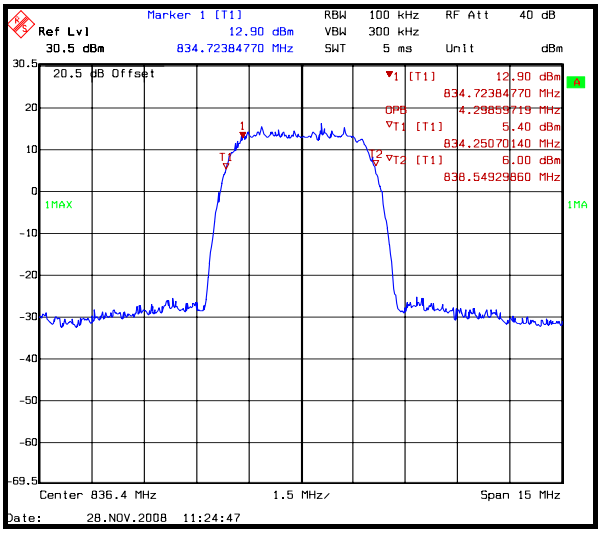
7.2.8. Transmitter Occupied Bandwidth: Section 2.1049

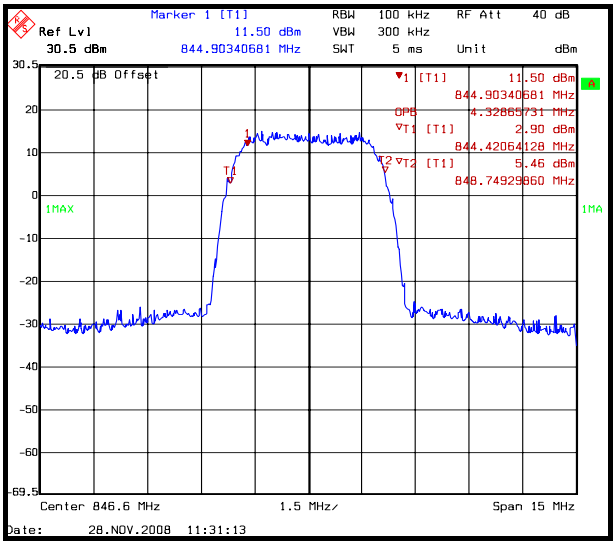
Ambient Temperature: 24ºC Relative Humidity: 29%

Results: HSDPA 1

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Bottom	826.4	4298.6
Middle	836.4	4298.6
Top	846.6	4328.7





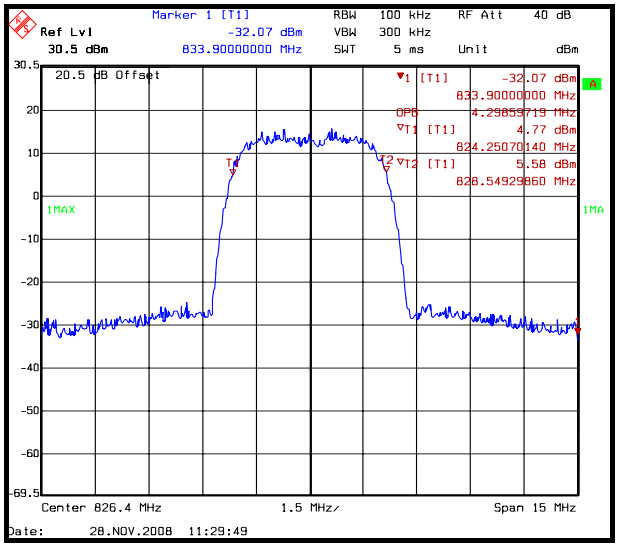


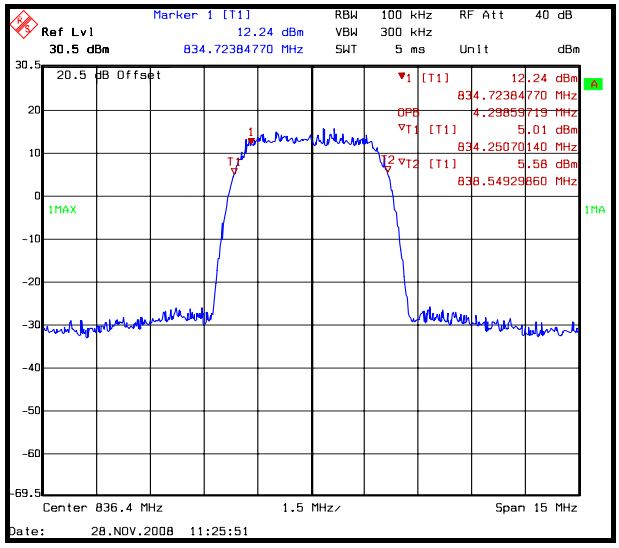
7.2.9. Transmitter Occupied Bandwidth: Section 2.1049

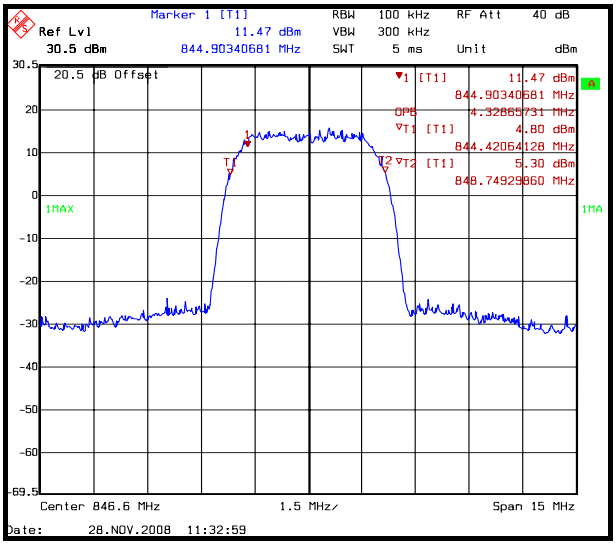
Ambient Temperature: 24ºC Relative Humidity: 29%

Results: HSDPA 2

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Bottom	826.4	4298.6
Middle	836.4	4298.6
Top	846.6	4328.7





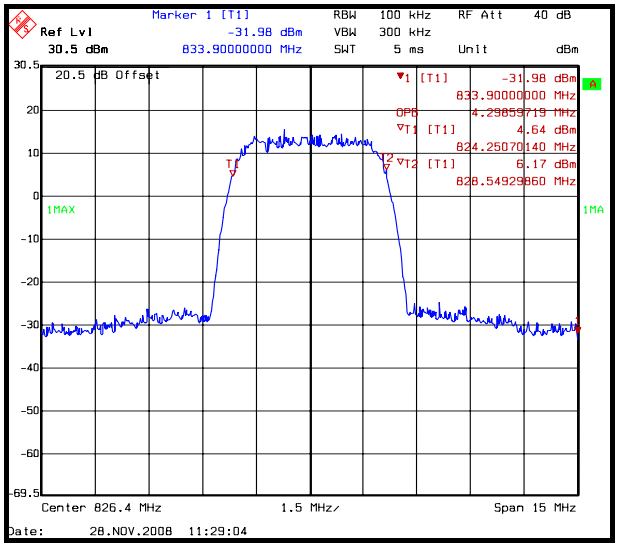


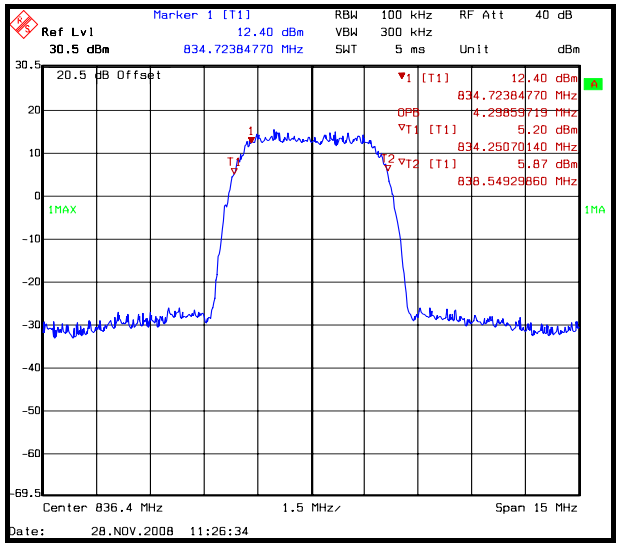
7.2.10. Transmitter Occupied Bandwidth: Section 2.1049

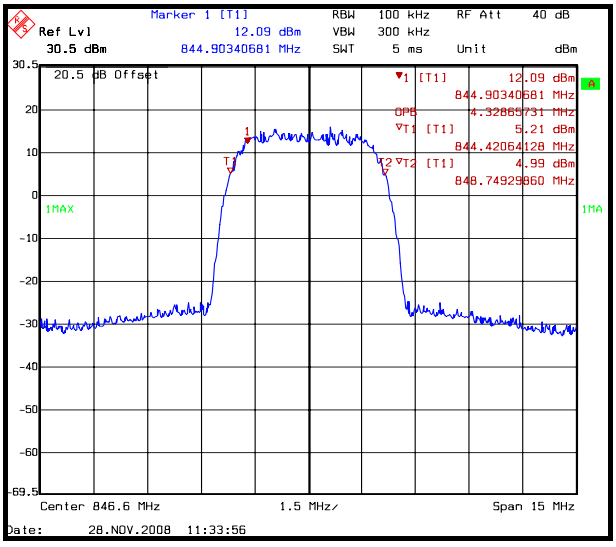
Ambient Temperature: 24ºC Relative Humidity: 29%

Results: HSDPA 3

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Bottom	826.4	4298.6
Middle	836.4	4298.6
Top	846.6	4328.7





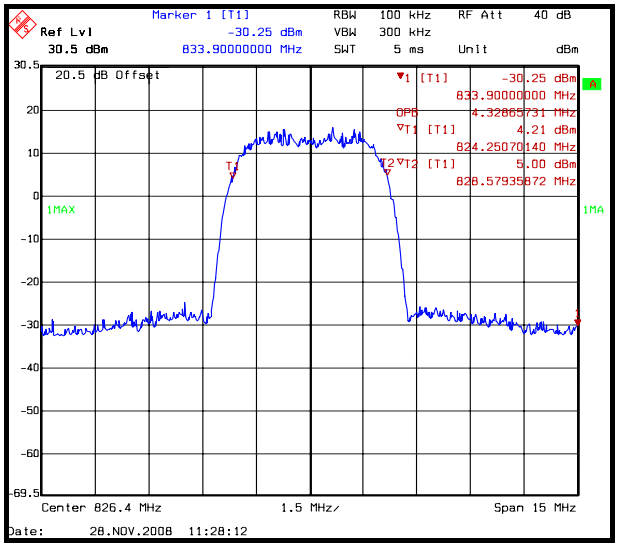


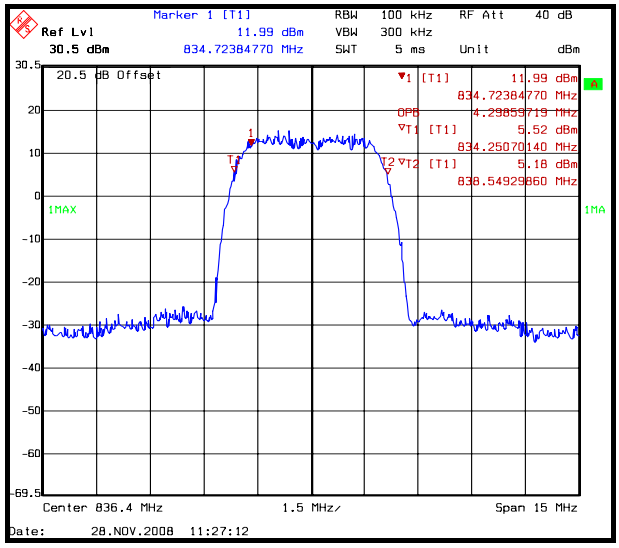
7.2.11. Transmitter Occupied Bandwidth: Section 2.1049

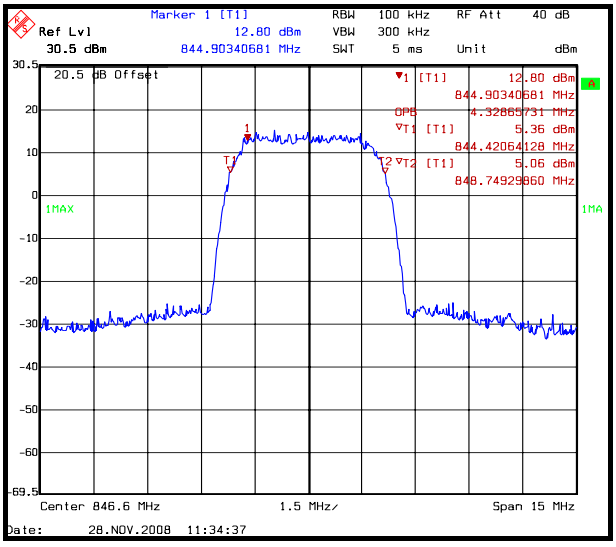
Ambient Temperature: 24ºC Relative Humidity: 29%

Results: HSDPA 4

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Bottom	826.4	4328.7
Middle	836.4	4298.6
Top	846.6	4328.7







7.2.12. Transmitter Out of Band Radiated Emissions: Section 2.1053 & 22.917

Ambient Temperature: 25ºC Relative Humidity: 23%

Voice / RMC 12.2kbps Result:

Top Channel

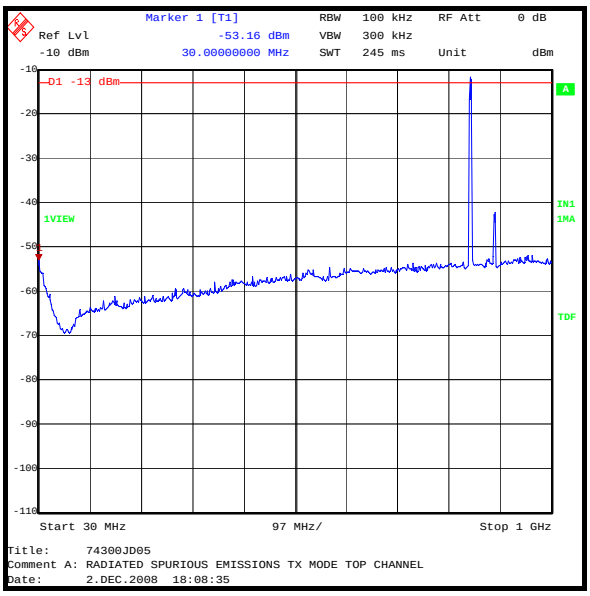
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
9739.479	-48.0	-13.0	35.0	Complied

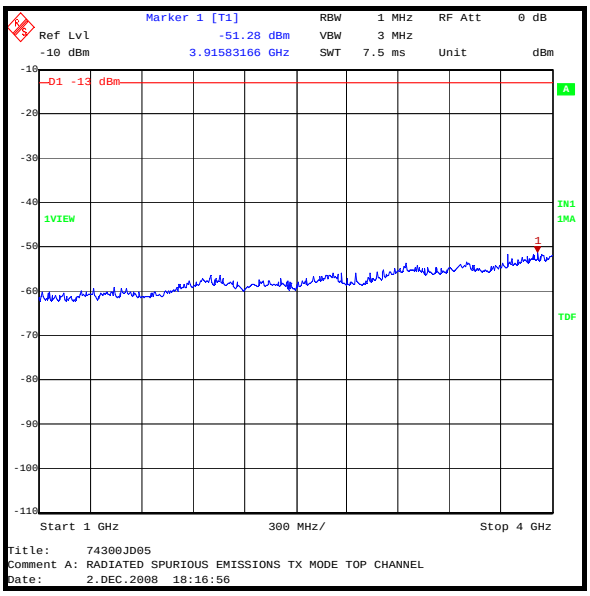
Note(s):

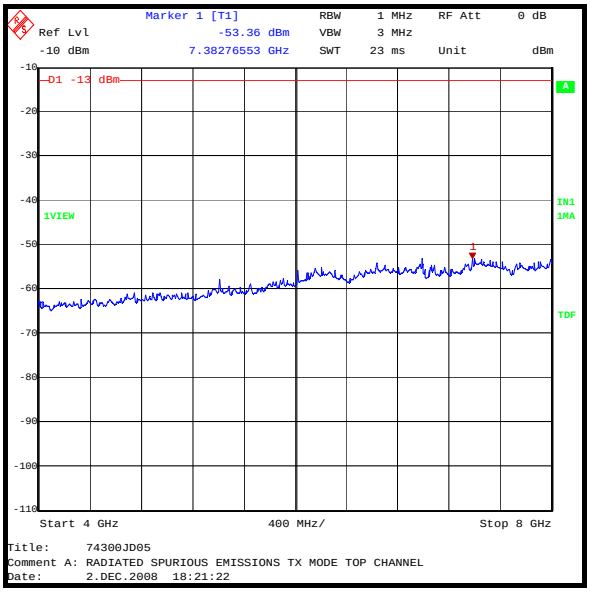
1. *No spurious emissions were detected above the noise floor of the measuring receiver; the highest peak noise floor reading of the measuring receiver was recorded.*

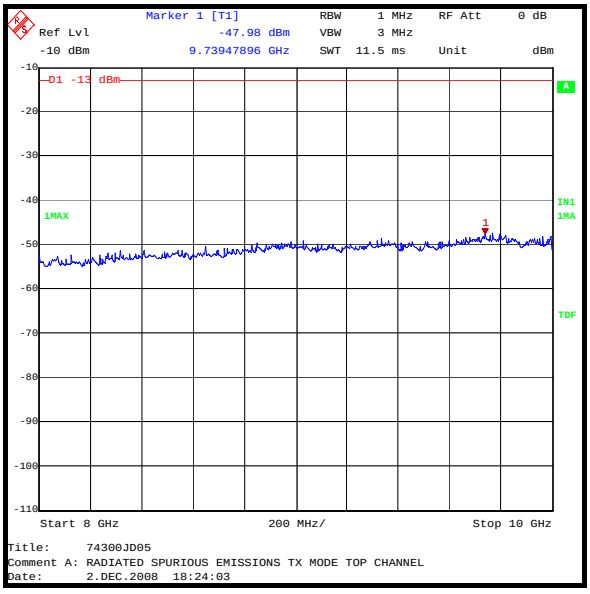
2. *The uplink and downlink traffic channels are shown on the 30 MHz to 1 GHz plot*

Transmitter Out of Band Radiated Emissions: Section 2.1053 & 22.917 (Continued)









7.2.13. Transmitter Radiated Emissions at Band Edges: Section 2.1053/22.917

Ambient Temperature: 24ºC Relative Humidity: 29%

The band edge result is obtained by integrating 100 kHz strip immediately adjacent to the band edge using a channel power function of the measurement analyser.

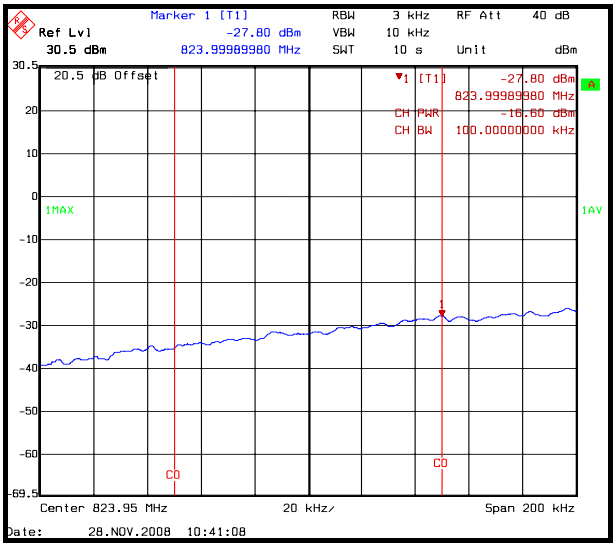
Results: RMC/Voice

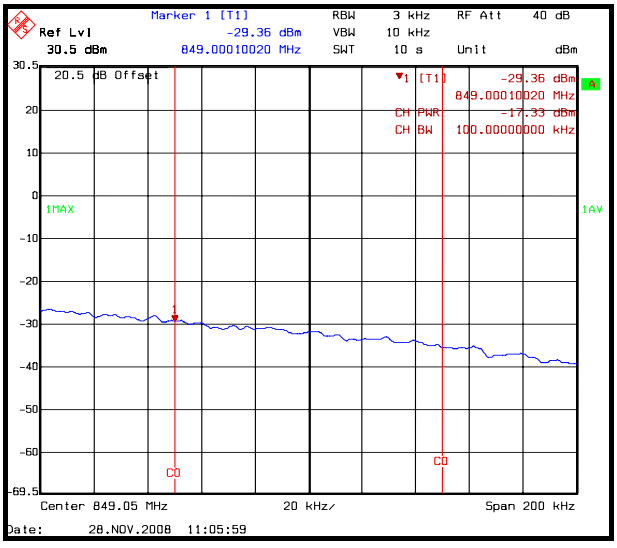
Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-16.6	-13.0	3.6	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
849	-17.3	-13.0	4.3	Complied





7.2.14. Transmitter Radiated Emissions at Band Edges: Section 2.1053/22.917 (continued)

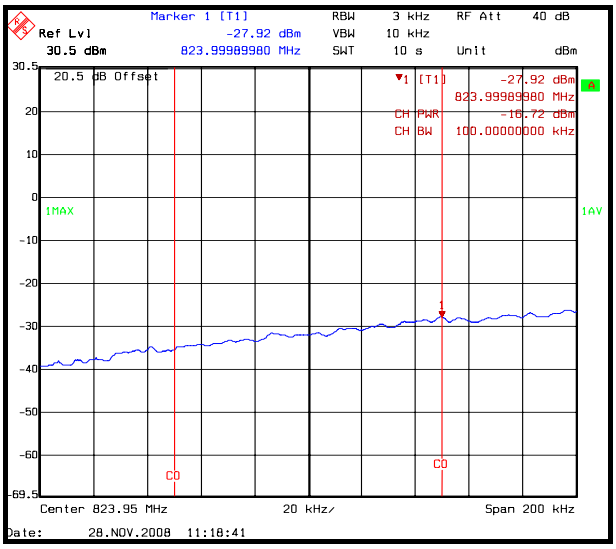
Results: HSDPA 1

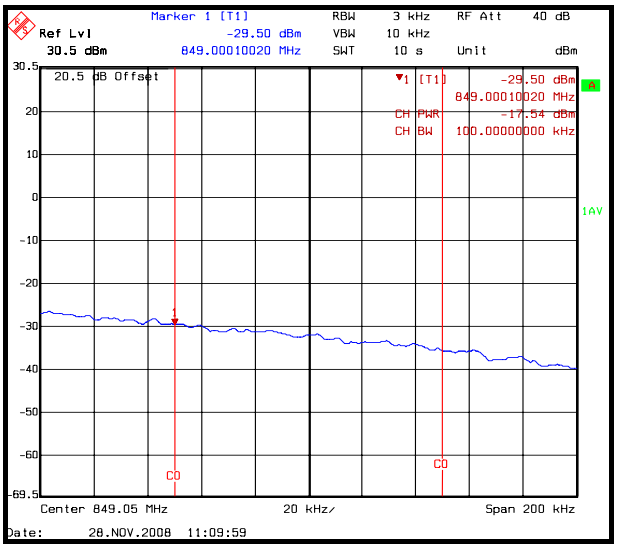
Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-16.7	-13.0	3.7	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
849	-17.5	-13.0	4.5	Complied





7.2.15. Transmitter Radiated Emissions at Band Edges: Section 2.1053/22.917 (continued)

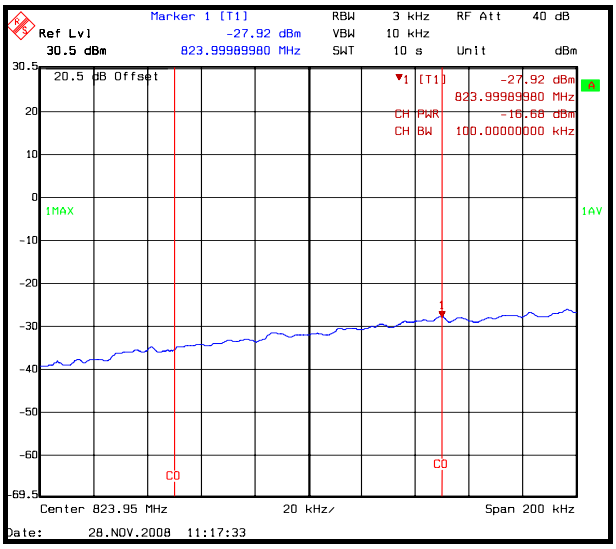
Results: HSDPA 2

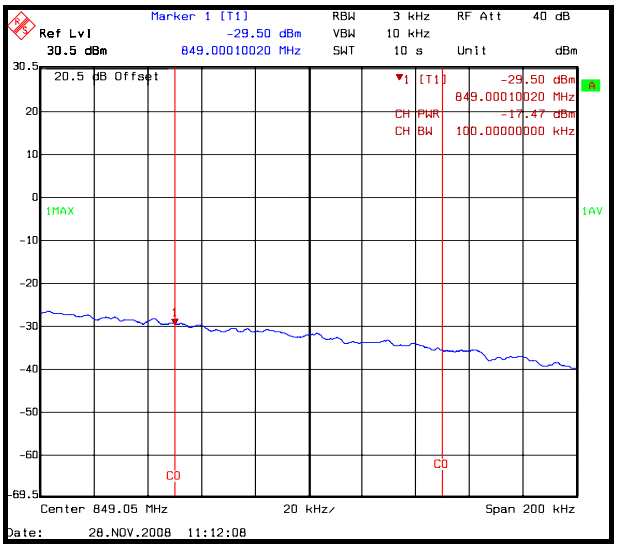
Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-16.7	-13.0	3.7	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
849	-17.5	-13.0	4.5	Complied





7.2.16. Transmitter Radiated Emissions at Band Edges: Section 2.1053/22.917 (continued)

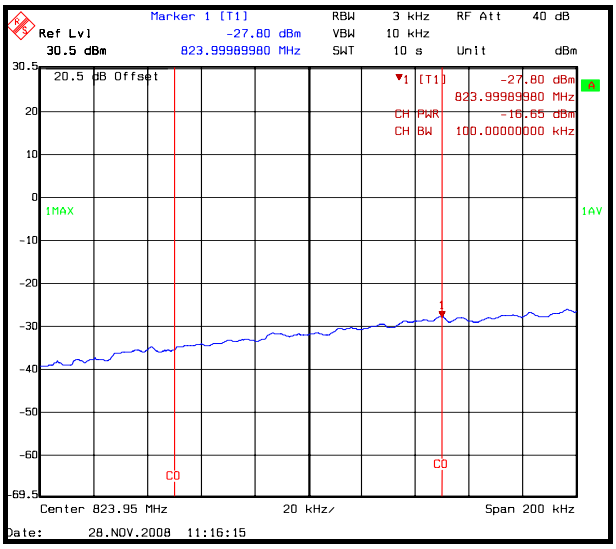
Results: HSDPA 3

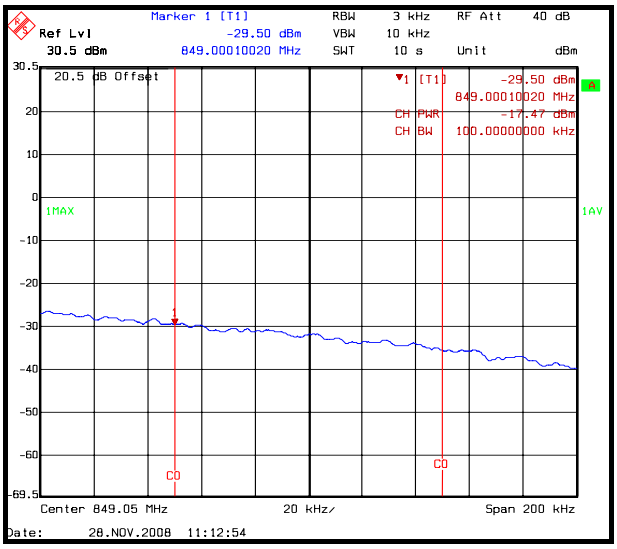
Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-16.7	-13.0	3.7	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
849	-17.5	-13.0	4.5	Complied





7.2.17. Transmitter Radiated Emissions at Band Edges: Section 2.1053/22.917 (continued)

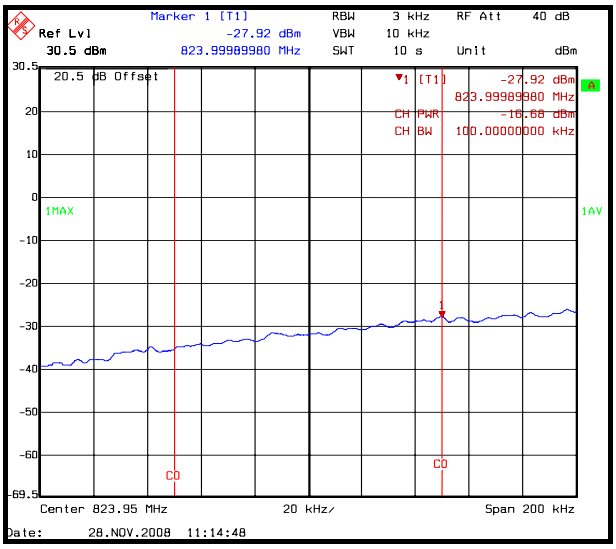
Results: HSDPA 4

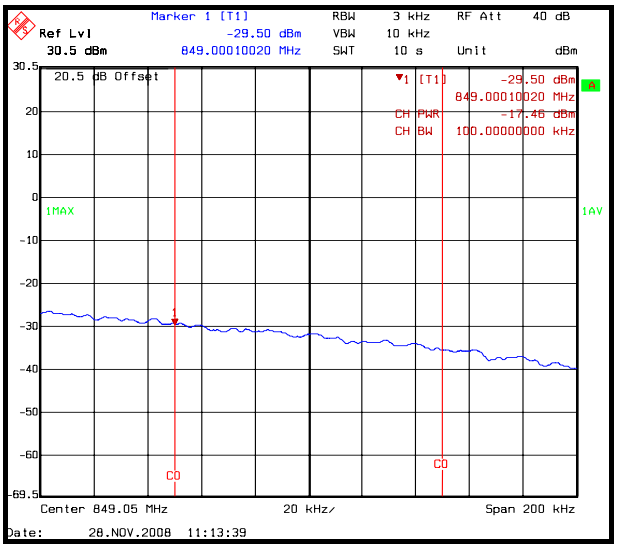
Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-16.7	-13.0	3.7	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
849	-17.5	-13.0	4.5	Complied





8. 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)	Not applicable	95%	±2.94 dB
Frequency Stability	Not applicable	95%	±11.4 ppm
Occupied Bandwidth	824 to 849 MHz	95%	±11.4 ppm
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±4.64 dB
Radiated Spurious Emissions	1 GHz to 26 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A004	Line Impedance Stabilization Network	Rohde & Schwarz	ESH3-Z5	890604/027	19 May 2008	12
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	16 Jan 2008	12
A436	Antenna	Flann	20240-20	330	24 Apr 2006	36
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibration before use	-
K0002	Site Reference 4421	Rainford EMC	N/A	N/A	26 Aug 2008	12
L0983	R&S CMU	R&S	CMU200	101376	Calibration not required	-
M1068	Thermometer	Iso-Tech	RS55	93102884	09 Jul 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	19 Feb 2008	12
M1229	Digital Multimeter	Fluke	179	87640015	09 May 2008	12
M1242	Spectrum Analyser	Rohde & Schwarz	FSEM30	845986/022	29 Dec 2007	12
M1252	Signal Generator	HP	83640A	3119A00489	02 Oct 2008	12
M1253	Spectrum Analyser	HP	8564E	3442A00262	21 Oct 2008	12
M1267	Thermal Power Sensor	Rohde & Schwarz	NRV-Z52	100155	24 Apr 2008	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	24 Apr 2008	12

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