


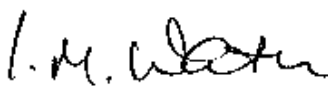
TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: NTT docomo P-02C

To: FCC Part 22: 2009 Subpart H

Test Report Serial No:
RFI-RPT-RP78769JD05A V2.0

Version 2.0 Supersedes All Previous Versions

This Test Report Is Issued Under The Authority Of Scott D'Adamo, Operations Manager Global Approvals:	
	
Checked By:	Ian Watch
Signature:	
Date of Issue:	16 September 2010

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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) 2009: Part 22 Subpart H (Public Mobile Services)
Site Registration:	209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	31 August 2010 to 06 September 2010

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.107	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 2.1046	Transmitter Conducted Average Output Power	Note 1
Part 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		

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

2.3. Methods and Procedures

Reference:	ANSI/TIA-603-C-2004
Title:	Land Mobile Communications Equipment, Measurements and performance Standards
Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	NTT docomo
Model Name or Number:	P-02C
IMEI:	352172040013568 (<i>Radiated sample</i>)
Hardware Version Number:	Rev C
Software Version Number:	B-D02WP1-00.01.014 D02WP1_Cv10092802*
FCC ID Number:	UCE110033A

**The Customer stated this software version is identical to D02WP1_Cv18092802 but allows the EUT to operate in UMTS band V mode when connected to an Agilent network simulator.*

Brand Name:	NTT docomo
Model Name or Number:	P-02C
IMEI:	352172040013865 (<i>Conducted RF port sample</i>)
Hardware Version Number:	Rev C
Software Version Number:	B-D02WP1-00.01.014 D02WP1_Cv18092802*
FCC ID Number:	UCE110033A
Description:	Battery
Brand Name:	NTT docomo
Model Name or Number:	P20*

Description:	AC Charger
Brand Name:	NTT docomo
Model Name or Number:	FOMA AC Adapter 01 for Global use / MAS-BH0008-A 002

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

Description:	Charge/USB Data cable
Brand Name:	NTT docomo
Model Name or Number:	FOMA USB Cable with Charge Function 01

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

3.2. Description of EUT

The equipment under test was a UMTS cellular handset with RFID

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	UMTS		
Type of Radio Device:	Transceiver		
Mode:	UMTS FDD V and UMTS Release 5 HSDPA		
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 (12.2kbps)	18.9 dBm	
	HSDPA Set 4	18.9 dBm	
Transmit Frequency Range:	824 MHz 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 MHz 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:

Description:	Micro SD memory card
Brand Name:	Not stated
Model Name or Number:	Not stated

Description:	Dummy battery
Brand Name:	Not Stated
Serial Number:	Not Stated

Description:	USB Hub
Brand Name:	Buffalo
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 (Sub-tests 1 to 4) 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 352172040013865 was used for AC conducted emissions, frequency stability and conducted power measurements. The sample with IMEI 352172040013568 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 AC charger connected to the EUT as this was found to be the worst case during pre-scans. All accessories were individually connected and measurements made during pre-scans to determine the worst case combination.
- 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:	02 September 2010
Test Sample Serial No:	352172040013865		

FCC Part:	15.107(a)
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes

Environmental Conditions:

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

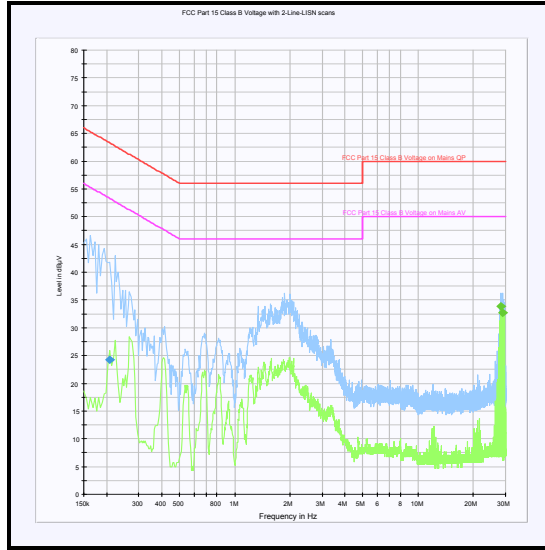
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.208500	Neutral	24.2	63.3	39.1	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
28.459500	Neutral	33.9	50.0	16.1	Complied
28.855500	Neutral	32.7	50.0	17.3	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)



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

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

Test Engineer:	Andrew Edwards	Test Date:	01 September 2010
Test Sample Serial No:	352172040013568		

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

Environmental Conditions:

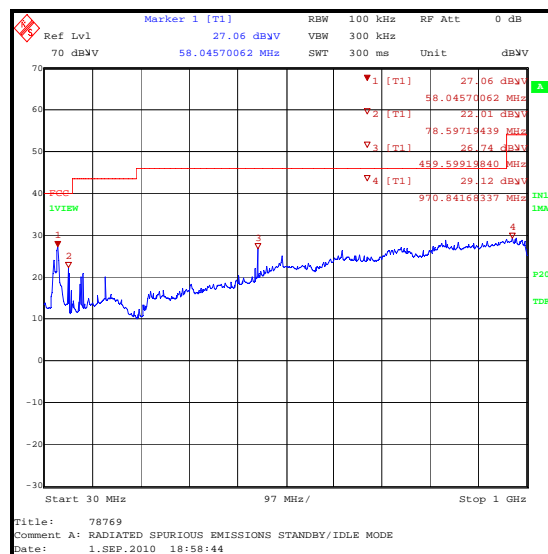
Temperature (°C):	28
Relative Humidity (%):	25

Results:

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
57.202	Vertical	22.7	40.0	17.3	Complied
79.986	Vertical	22.1	40.0	17.9	Complied
107.579	Vertical	22.0	43.5	21.5	Complied
153.306	Horizontal	19.7	43.5	23.8	Complied
458.789	Vertical	26.6	46.0	19.4	Complied

Note(s):

1. 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.



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

Receiver/Idle Mode Radiated Spurious Emissions (continued)**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	01 September 2010
Test Sample Serial No:	352172040013568		

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

Environmental Conditions:

Temperature (°C):	28
Relative Humidity (%):	25

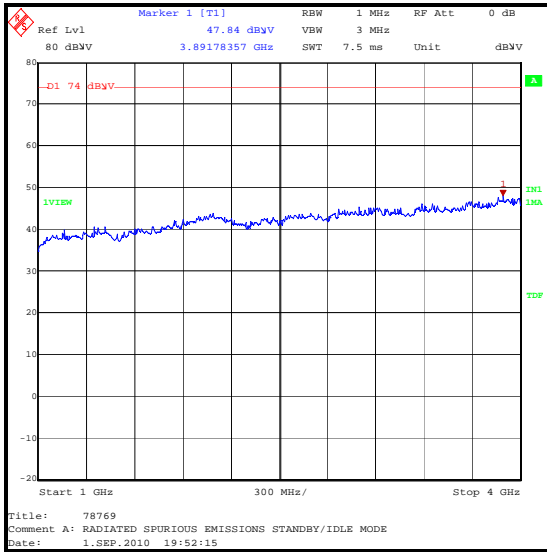
Results:

Frequency (MHz)	Antenna Polarity	Peak Level (dBμV/m)	Average Limit (dBμV/m)	Margin (dB)	Result
3891.784	Vertical	47.8	54.0	6.2	Complied

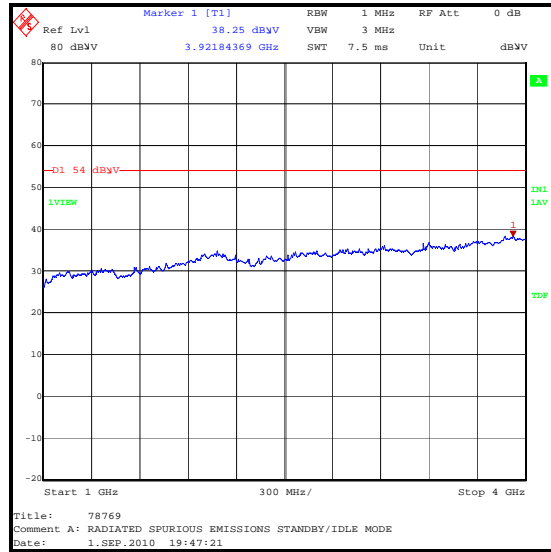
Note(s):

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
2. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.

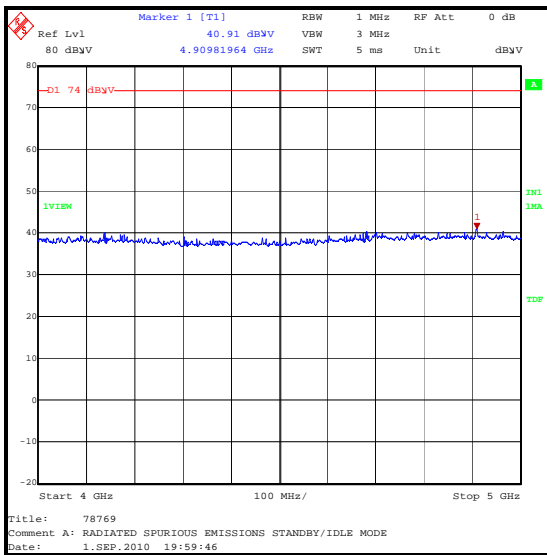
Receiver/Idle Mode Radiated Spurious Emissions (continued)



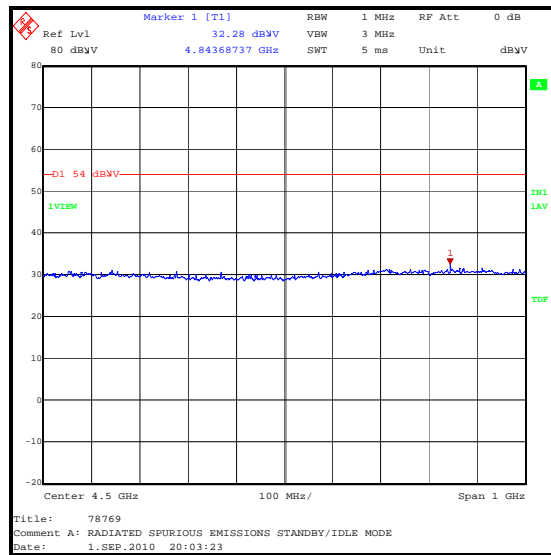
Peak Detector



Average Detector



Peak Detector



Average Detector

5.2.3. Transmitter Effective Radiated Power (ERP)**Test Summary:**

Test Engineer:	Grant Mason	Test Dates :	02 September 2010
Test Sample Serial No:	352172040013568		

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 (%):	31

Peak ERP Results:

Modes		HSDPA				Voice			
Sub-test		1	2	3	4	12.2kbps			
Band	Channel	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Limit (dBm)	Margin	Result
850	4132	18.1	17.2	16.8	16.8	18.1	38.5	20.4	Complied
	4183	18.6	17.2	17.1	17.5	18.4	38.5	19.9	Complied
	4233	18.9	17.6	17.5	17.6	18.9	38.5	19.6	Complied
βc		2	12	15	15				
βd		15	15	8	4				
ΔACK, ΔNACK, ΔCQI		8	8	8	8				

RMS ERP Results:

Modes		HSDPA				Voice			
Sub-test		1	2	3	4	12.2kbps			
Band	Channel	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Limit (dBm)	Margin	Result
850	4132	15.1	14.9	14.5	14.7	15.1	38.5	23.4	Complied
	4183	15.7	15.5	15.4	15.4	15.7	38.5	22.8	Complied
	4233	15.8	15.7	15.6	15.6	16.2	38.5	22.3	Complied
βc		2	12	15	15				
βd		15	15	8	4				
ΔACK, ΔNACK, ΔCQI		8	8	8	8				

Note(s):

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

Transmitter Conducted Output Power

Test Engineer:	Richelieu Quoi	Test Date:	31 August 2010
Test Sample Serial No:	352172040013865		

Conducted Peak Power Measurement:

Modes		HSDPA				WCDMA
Sub-test		1	2	3	4	Voice / RMC12.2kbps
Band	Channel	Power (dBm) Peak.	Power (dBm) Peak.	Power (dBm) Peak.	Power (dBm) Peak.	Power (dBm) Peak.
850	4132	25.5	24.6	24.2	24.2	25.4
	4183	25.5	24.2	24.0	24.1	25.4
	4233	25.3	24.3	24.0	24.0	25.2
β_c		2	12	15	15	
β_d		15	15	8	4	
$\Delta ACK, \Delta NACK, \Delta CQI$		8	8	8	8	

Conducted Average Power Measurement:

Modes		HSDPA				WCDMA
Sub-test		1	2	3	4	Voice / RMC12.2kbps
Band	Channel	Power (dBm) Avg.	Power (dBm) Avg.	Power (dBm) Avg.	Power (dBm) Avg.	Power (dBm) Avg.
850	4132	22.6	19.9	18.9	18.9	22.6
	4183	22.7	19.7	19.0	18.9	22.6
	4233	22.5	19.6	18.7	18.7	22.5
β_c		2	12	15	15	
β_d		15	15	8	4	
$\Delta ACK, \Delta NACK, \Delta CQI$		8	8	8	8	

Transmitter Conducted Average Output Power (continued)**Sub-test Setup for Release 5 HSDPA**

Sub-test	β_c	β_d	B_d (SF)	β_c / β_d	$\beta_{hs}^{(1)}$	SM (dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c / \beta_d = 12/15$, $B_{hs}/\beta_c = 24/15$

Note 3: For subtest 2 the β_c / β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$

5.2.4. Transmitter Frequency Stability (Temperature Variation)**Test Summary:**

Test Engineer:	Ian Watch	Test Date:	03 September 2010
Test Sample Serial No:	352172040013865		

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

Environmental Conditions:

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

Results: Middle Channel (836.6 MHz)

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	836.599963	37	0.0442	2.5	2.4558	Complied
-20	836.600033	33	0.0395	2.5	2.4605	Complied
-10	836.600036	36	0.0430	2.5	2.4570	Complied
0	836.600037	37	0.0442	2.5	2.4558	Complied
10	836.600036	36	0.0430	2.5	2.4570	Complied
20	836.599979	21	0.0251	2.5	2.4749	Complied
30	836.599965	35	0.0418	2.5	2.4582	Complied
40	836.599971	29	0.0347	2.5	2.4653	Complied
50	836.599981	19	0.0227	2.5	2.4773	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:	Ian Watch	Test Date:	03 September 2010
Test Sample Serial No:	352172040013865		

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

Environmental Conditions:

Temperature (°C):	20
Relative Humidity (%):	29

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	836.599979	21	0.0251	2.5	2.4749	Complied
4.2	836.599977	23	0.0275	2.5	2.4725	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:	Andrew Edwards	Test Date:	01 September 2010
Test Sample Serial No:	352172040013865		

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

Environmental Conditions:

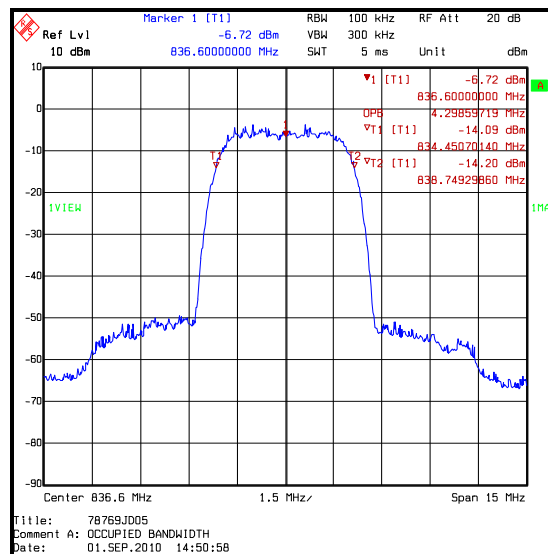
Temperature (°C):	29
Relative Humidity (%):	30

Results: RMC/Voice

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Centre	836.6	4298.597

Note(s):

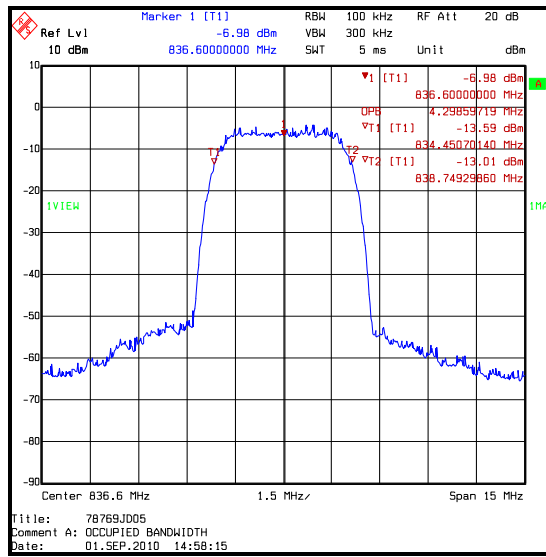
- In lieu of the test method detailed in ANSI C63.4 Section 13.7, the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.



Transmitter Occupied Bandwidth (continued)

Results: HSDPA Sub-test 1

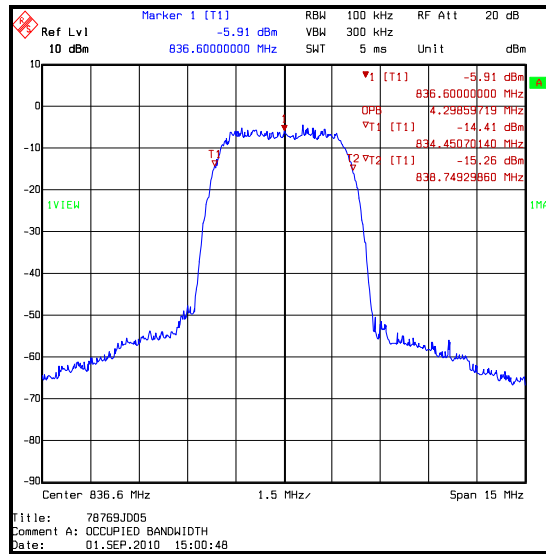
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Centre	836.6	4298.597



Transmitter Occupied Bandwidth (continued)

Results: HSDPA Sub-test 2

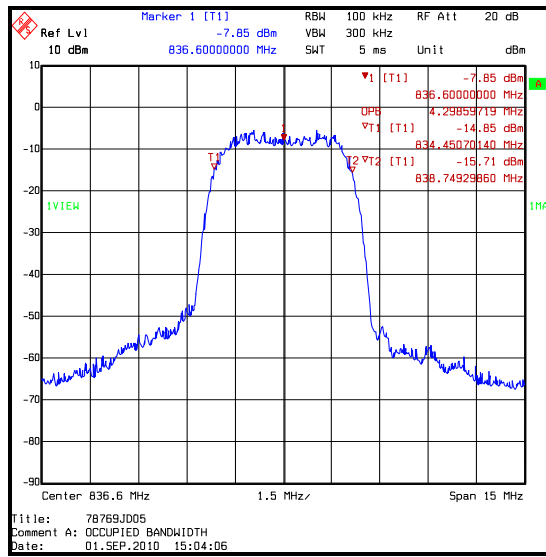
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Centre	836.6	4298.597



Transmitter Occupied Bandwidth (continued)

Results: HSDPA Sub-test 3

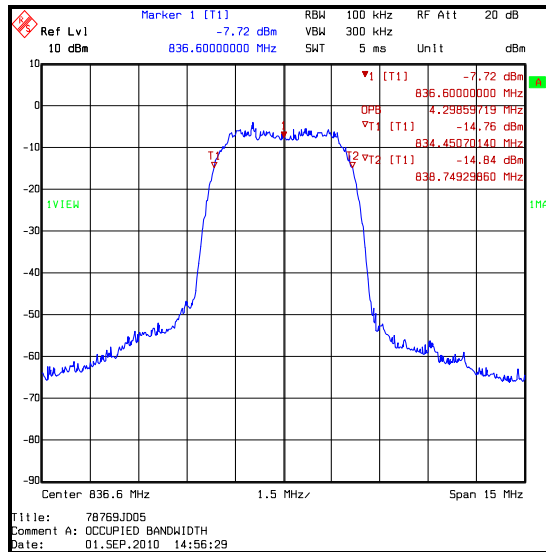
Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Centre	836.6	4298.597



Transmitter Occupied Bandwidth (continued)

Results: HSDPA Sub-test 4

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Centre	836.6	4298.597



5.2.7. Transmitter Out of Band Radiated Emissions**Test Summary:**

Test Engineer:	Andrew Edwards and Grant Mason	Test Dates:	01/09/2010 and 02/09/2010
Test Sample Serial No:	352172040013568		

FCC Part:	2.1053 & 22.917
Frequency Range:	30 MHz to 9 GHz
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Part 2.1053
Configuration:	Voice / 12.2 kbps

Environmental Conditions:

Temperature (°C):	28
Relative Humidity (%):	25

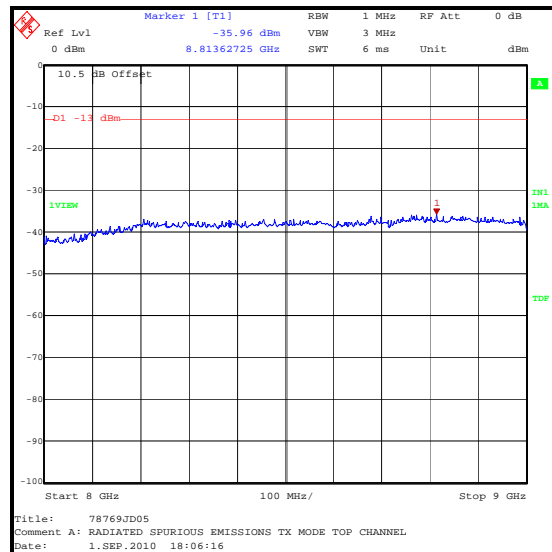
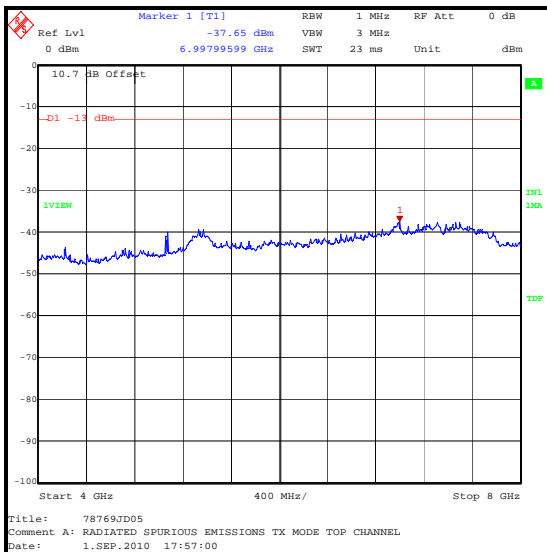
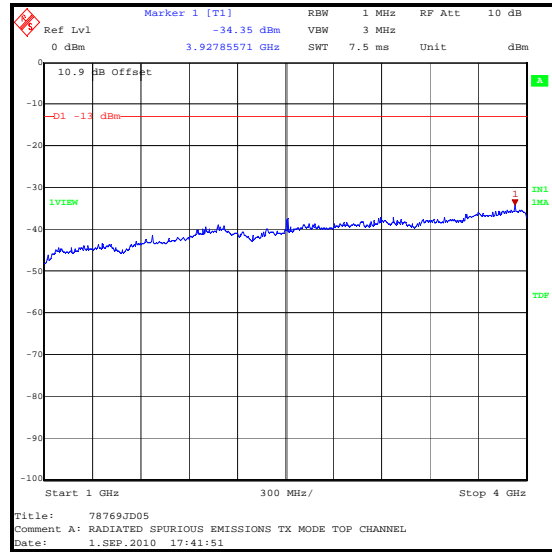
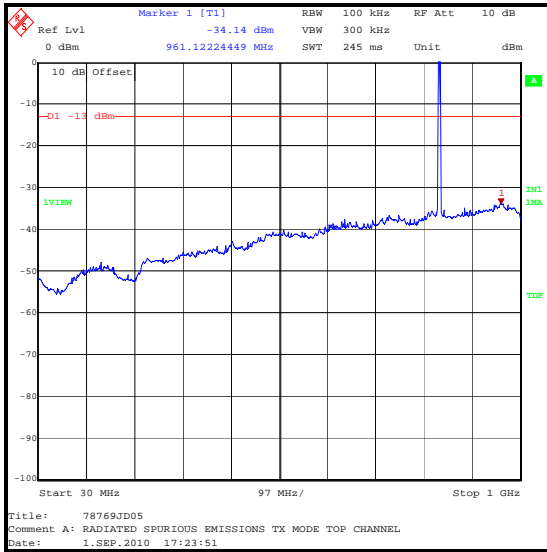
Results:

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
8813.627	-36.0	-13.0	23.0	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.
3. All emissions shown on the pre-scan plots were investigated and found to be below the measurement system noise floor or ambient.

Transmitter Out of Band Radiated Emissions (continued)



5.2.8. Transmitter Radiated Emissions at Band Edges

Test Summary:

Test Engineer:	Ian Watch	Test Date:	6 September 2010
Test Sample Serial No:	352172040013568		

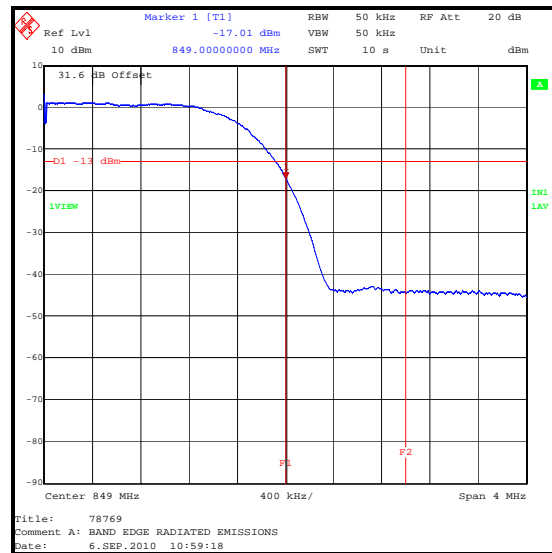
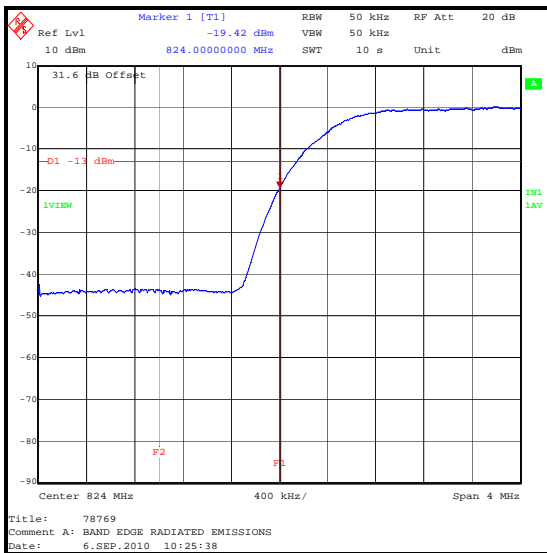
FCC Part:	2.1053 & 22.917
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	32

Results: Voice / RMC 12.2 kbps

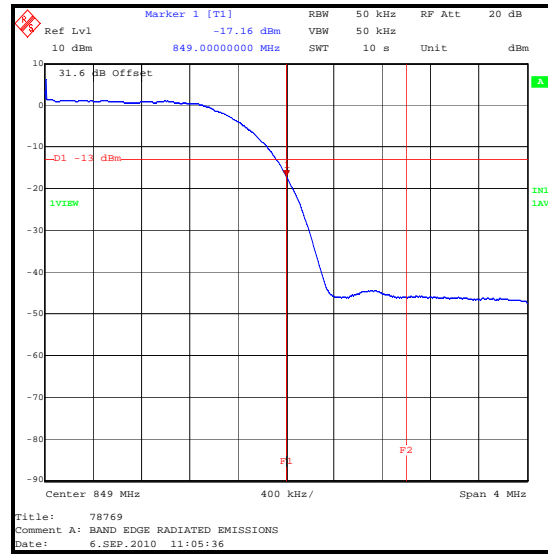
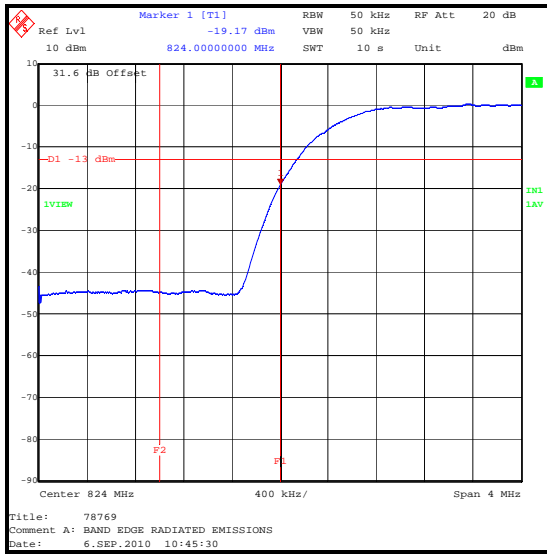
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-19.4	-13.0	6.4	Complied
849	-17.0	-13.0	4.0	Complied



Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-test 1

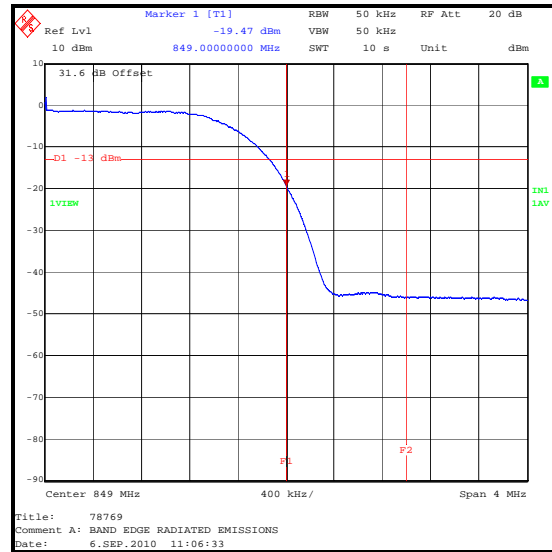
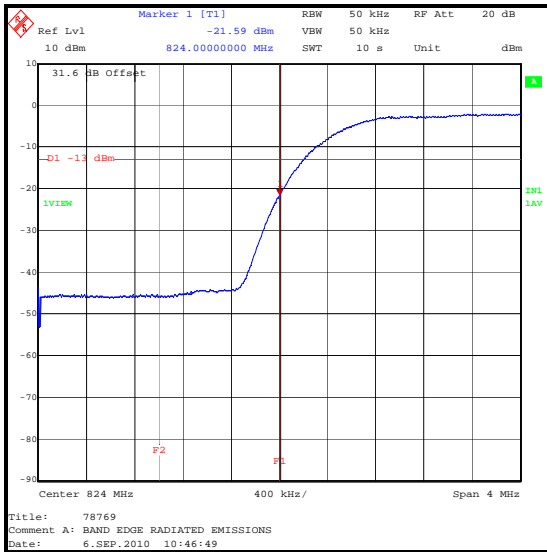
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-19.2	-13.0	6.2	Complied
849	-17.2	-13.0	4.2	Complied



Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-test 2

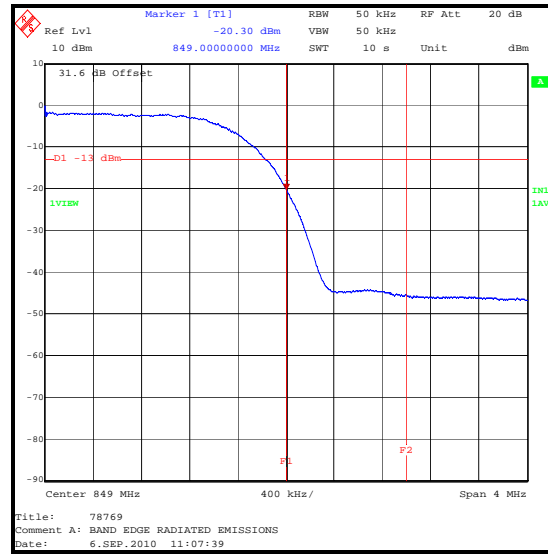
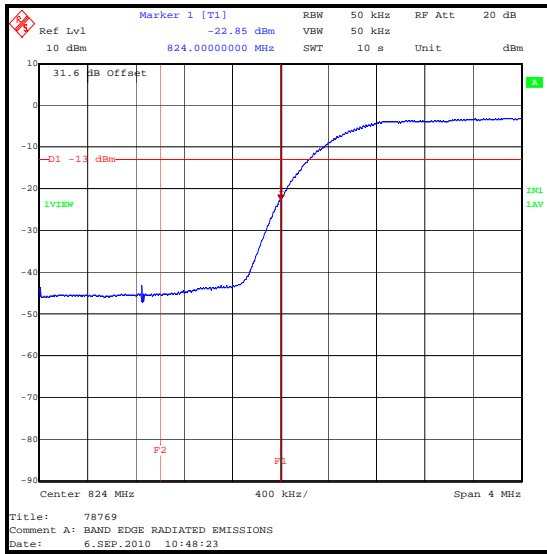
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-21.6	-13.0	8.6	Complied
849	-19.5	-13.0	6.5	Complied



Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-test 3

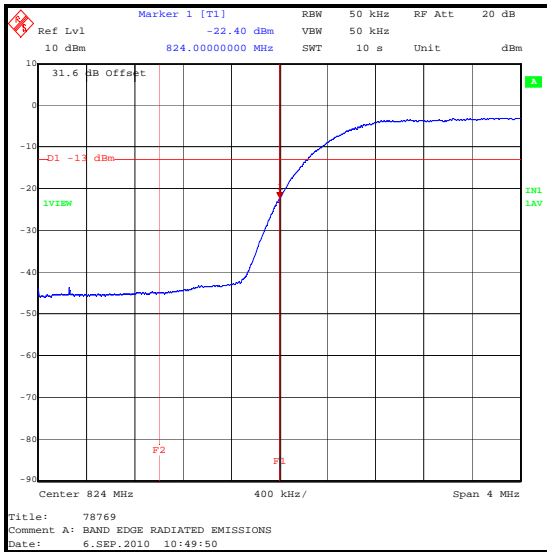
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-22.9	-13.0	9.9	Complied
849	-20.3	-13.0	7.3	Complied



Transmitter Radiated Emissions at Band Edges (continued)

Results: HSDPA Sub-test 4

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
824	-22.4	-13.0	9.4	Complied
849	-20.0	-13.0	7.0	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)	Not applicable	95%	±2.94 dB
Frequency Stability	Not applicable	95%	±0.92 ppm
Occupied Bandwidth	Not applicable	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)
A1396	Attenuator	Huber & Suhner	757987	6810.17.B	06 Jul 2011	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	06 June 2011	12
A1537	Dual Directional Coupler	Hewlett Packard	778D	1144A05122	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	27 Nov 2010	12
A1830	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100668	01 Mar 2011	12
A1974	High Pass Filter	AtlanTecRF	AFH-01000	090000283	18 Jan 2011	12
A1975	High Pass Filter	AtlanTecRF	AFH-03000	090424010	22 Jan 2011	12
A288	Antenna	Chase	CBL6111A	1589	16 Mar 2011	12
C363	Cable	Rosenberger	RG142	None	23 Feb 2011	12
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibration not required	-
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	01 Oct 2010	12
L1005	CMU200	Rohde & Schwarz	CMU200	116284	29 Jan 2011	12
M1068	Thermometer	Iso-Tech	RS55	93102884	01 Oct 2010	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESI26	100046K	22 Apr 2011	12
M1229	Digital Multimeter	Fluke	179	87640015	15 Jul 2011	12
M1242	Spectrum Analyser	Rohde & Schwarz	FSEM30	845986/022	08 Mar 2011	12
M1273	Test Receiver	Rohde & Schwarz	ESIB26	100275	08 Apr 2011	12
M1379	Test Receiver	Rohde & Schwarz	ESIB7	100330	26 Aug 2011	12

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