



# TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: NTT docomo P-03C

FCC ID: UCE210034A

To: FCC Part 22: 2010 Subpart H

Test Report Serial No: RFI-RPT-RP79094JD05A

Version 2.0 supersedes all previous versions

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals:	
	C.C
Checked By:	Ian Watch
Signature:	1. M. Weth
Date of Issue:	04 November 2010

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# **<u>1. Customer Information</u>**

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) 2010: Part 22 Subpart H (Public Mobile Services)
Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart B (Unintentional Radiators) - Sections 15.107 and 15.109
Site Registration:	209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	09 October 2010 to 22 October 2010

# 2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.107(a)	Receiver/Idle Mode AC Conducted Spurious Emissions	0
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	0
Part 22.913(a)	Transmitter Effective Radiated Power (ERP)	0
Part 2.1046	Transmitter Conducted Output Power	Note 1
Part 2.1055/22.355	Transmitter Frequency Stability (Temperature and Voltage Variation)	0
Part 2.1049	Transmitter Occupied Bandwidth	0
Part 2.1053/22.917	Transmitter Out of Band Radiated Emissions	0
Part 2.1053/22.917 Transmitter Band Edge Radiated Emissions		
Key to Results		•
Complied E 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-03C
IMEI:	352816040058201 (Radiated sample #1)
Hardware Version Number:	Rev C
Software Version Number:	B-D02SL1-01.04.004 D02SL1_Cv38081110
FCC ID:	UCE210034A

Brand Name:	NTT docomo
Model Name or Number:	P-03C
IMEI:	352816040058219 (Radiated sample #2)
Hardware Version Number:	Rev C
Software Version Number:	B-D02SL1-01.04.004 D02SL1_Cv38081110
FCC ID:	UCE210034A

Brand Name:	NTT docomo
Model Name or Number:	P-03C
IMEI:	352816040059720 (Conducted RF port sample)
Hardware Version Number:	Rev C
Software Version Number:	B-D02SL1-01.04.004 D02SL1_Cv30081110*
FCC ID:	UCE210034A

\*The Customer stated this software version is identical to D02SL1\_Cv38081110 but allows the EUT to operate with SIMs having any network code.

Brand Name:	NTT docomo
Description:	Battery
Model Name or Number:	P20*

Brand Name:	NTT docomo
Description:	AC Charger
Model Name or Number:	MAS-BH0008-AC02

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

Model Name or Number:	FOMA USB Cable with Charge Function 02
Description:	Charge/USB Data cable
Brand Name:	NTT docomo

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

# 3.2. Description of EUT

The equipment under test was a dual mode UMTS/GSM cellular handset with Bluetooth, WLAN and 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	Transceiver			
Mode:	UMTS FDD V and U	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 (12.2 kbps)	23.4 dBm			
	HSDPA Sub-Test 1	22.9 dBm			
Transmit Frequency Range:	824 to 849 MHz	824 to 849 MHz			
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)		
	Bottom	4132	826.4		
	Middle	4183	836.6		
	Тор	4233	846.6		
Receive Frequency Range:	869 to 894 MHz				
Receive Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)		
	Bottom	4357	871.4		
	Middle	4407	881.6		
	Тор	4458	891.6		

# 3.5. Support Equipment

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

Brand Name:	Generic
Description:	Micro SD Memory Card
Model Name or Number:	Not marked or stated
Brand Name:	Buffalo
Description:	USB Hub
Model Name or Number:	BSH3U01
Brand Name:	Not marked or stated
Description:	Dummy battery
Model Name or Number:	Not marked or stated

# 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 352816040058201 was used for AC conducted and idle mode radiated spurious emissions tests. The sample with IMEI 352816040059720 was used for frequency stability, occupied bandwidth and conducted power measurements. The sample with IMEI 352816040058219 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 radiated spurious emissions tests were performed with the personal hands free 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.
- 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 measurements were performed with the EUT connected directly to a calibrated Rohde & Schwarz CMU 200. Measurement results 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:	09 October 2010
Test Sample Serial No:	352816040058201		

FCC Part:	15.107
Test Method Used:	As detailed in ANSI C63.4 Section 7

#### **Environmental Conditions:**

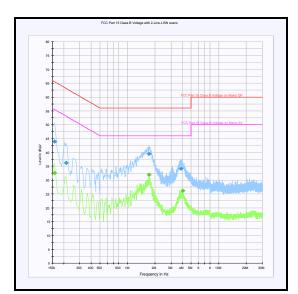
Temperature (°C):	25
Relative Humidity (%):	31

# **Results: Quasi Peak**

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.159000	Live	43.9	65.5	21.6	Complied
0.213000	Live	36.2	63.1	26.9	Complied
1.720500	Neutral	39.5	56.0	16.5	Complied
3.867000	Neutral	34.2	56.0	21.8	Complied

### **Results: Average**

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.159000	Neutral	32.6	55.5	22.9	Complied
1.716000	Neutral	31.9	46.0	14.1	Complied
4.033500	Neutral	26.3	46.0	19.7	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:	Nick Steele	Test Date:	11 October 2010
Test Sample IMEI:	352816040058201		

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8
Frequency Range:	30 MHz to 1000 MHz

#### **Environmental Conditions:**

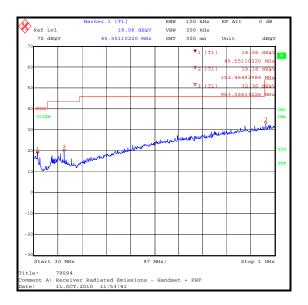
Temperature (°C):	26
Relative Humidity (%):	33

#### Results:

Frequency	Antenna	Level	Limit	Margin	Result
(MHz)	Polarity	(dBµV/m)	(dBµV/m)	(dB)	
963.066	Horizontal	32.3	54.0	21.7	Complied

### Note(s):

- 1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
- 2. All emissions were investigated and found to be at least 20 dB below the specified limit, therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.



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#### Receiver/Idle Mode Radiated Spurious Emissions (continued)

#### Test Summary:

Test Engineer:	Nick Steele	Test Date:	11 October 2010
Test Sample IMEI:	352816040058201		

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

#### **Environmental Conditions:**

Temperature (°C):	26
Relative Humidity (%):	33

#### Results:

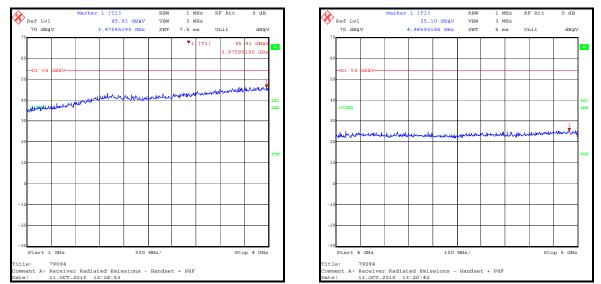
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBμV/m)	Margin (dB)	Result
3975.952	Vertical	45.9	54.0	8.1	Complied

#### Note(s):

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

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#### **Receiver/Idle Mode Radiated Spurious Emissions (continued)**



# 5.2.3. Transmitter Effective Radiated Power (ERP)

### Test Summary:

Test Engineer:	lan Watch	Test Date:	20 October 2010
Test Sample IMEI:	352816040058219		

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 (%):	22

#### **Results: Peak ERP**

N	lodes		HSI	OPA		Voice			
Si	ub-test	1	2	3	4	12.2 kbps			
Band	Channel	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Limit (dBm)	Margin (dB)	Result
	4132	22.3	21.5	20.3	20.3	22.3	38.5	16.2	Complied
850	4183	22.9	21.9	21.1	21.2	23.1	38.5	15.4	Complied
	4233	22.6	21.5	20.9	20.7	23.4	38.5	15.1	Complied
	ßc	2	12	15	15				
	ßd	15	15	8	4				
ΔΑCΚ, Δ	NACK, ∆CQI	8	8	8	8				

#### **Results: RMS ERP**

Ν	lodes		HSI	OPA		Voice			
Si	ub-test	1	2	3	4	12.2 kbps			
Band	Channel	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Power (dBm)	Limit (dBm)	Margin (dB)	Result
	4132	19.8	18.7	18.7	18.7	19.8	38.5	18.7	Complied
850	4183	19.5	19.3	19.2	18.6	20.5	38.5	18.0	Complied
	4233	19.4	18.7	18.7	18.7	20.6	38.5	17.9	Complied
	ßc	2	12	15	15				
	ßd	15	15	8	4				
ΔACK, Δ	NACK, ∆CQI	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.

# 5.2.4. Transmitter Conducted Output Power

Test Engineer:	Richelieu Quoi	Richelieu Quoi <b>Test Date:</b> 18 October 201			
Test Sample IMEI:	352816040059720				
ECC Part	2 1046				

FCC Part:	2.1046
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.1 referencing FCC CFR Part 2.1046(a)

## **Environmental Conditions:**

Temperature (°C):	25
Relative Humidity (%):	21

## **Results: Conducted Peak Power**

Mo	des		Voice			
Sub	-test	1 2 3 4		4	12.2 kbps	
Band	Channel	Peak Power (dBm).	Peak Power (dBm)	Peak Power (dBm)	Peak Power (dBm)	Peak Power (dBm)
	4132	25.9	25.1	23.9	23.9	25.8
850	4183	26.1	25.1	24.3	24.4	25.5
	4233	25.7	24.6	24.0	23.8	25.4
ß	ъС	2	12	15	15	
ßd		15	15	8	4	
$\triangle ACK, \Delta NACK, \Delta CQI$		8	8	8	8	

# **Results: Conducted Average Power**

Mo	odes		Voice			
Sub	o-test	1	2	3	4	12.2 kbps
Band	Channel	Avg Power (dBm)				
	4132	22.9	19.9	18.1	18.1	23.2
850	4183	23.2	20.2	19.0	18.9	22.9
	4233	22.8	19.7	18.4	18.3	22.8
ſ	ßc	2	12	15	15	
ſ	3d	15	15	8	4	
ΔΑϹΚ, ΔΝ	IACK, ∆CQI	8	8	8	8	

#### **Transmitter Conducted Output Power (continued)**

#### Sub-test Setup for Release 5 HSDPA

Sub-test	β <sub>c</sub>	$\beta_d$	B <sub>d</sub> <i>(SF)</i>	$\beta_{c}/\beta_{d}$	${\beta_{hs}}^{(1)}$	SM (dB) <sup>(2)</sup>
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	12/15 <sup>(3)</sup>	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:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  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  $\beta_{c'}$   $\beta_d$  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  $\beta_d = 15/15$ 

### 5.2.5. Transmitter Frequency Stability (Temperature Variation)

#### Test Summary:

Test Engineer:	Andrew Edwards		20 October 2010
Test Sample IMEI:	352816040059720		

FCC Part:	2.1055 & 22.355
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055

#### **Environmental Conditions:**

Ambient Temperature (°C):	28
Ambient Relative Humidity (%):	22

### Results: Middle Channel (836.6 MHz)

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	836.599965	35	0.0418	2.5	2.4582	Complied
-20	836.600028	28	0.0335	2.5	2.4665	Complied
-10	836.600039	39	0.0466	2.5	2.4534	Complied
0	836.600037	37	0.0442	2.5	2.4558	Complied
10	836.600037	37	0.0442	2.5	2.4558	Complied
20	836.600035	35	0.0418	2.5	2.4582	Complied
30	836.600027	27	0.0323	2.5	2.4677	Complied
40	836.600023	23	0.0275	2.5	2.4725	Complied
50	836.600008	8	0.0096	2.5	2.4904	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.

### 5.2.6. Transmitter Frequency Stability (Voltage Variation)

#### Test Summary:

Test Engineer:	Andrew Edwards	Test Date:	21 October 2010	
Test Sample IMEI:	352816040059720			

FCC Part:	2.1055 & 22.355
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055

#### **Environmental Conditions:**

Temperature (°C):	28
Relative Humidity (%):	22

#### 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	836.599981	19	0.0227	2.5	2.4773	Complied
4.2	836.600014	14	0.0167	2.5	2.4833	Complied

#### Note(s):

- 1. A dummy battery was placed on the EUT and the dummy battery cables connected to a bench power supply.
- 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.

# 5.2.7. Transmitter Occupied Bandwidth

#### Test Summary:

Test Engineer:	lan Watch	Test Date:	21 October 2010
Test Sample IMEI:	352816040059720		

FCC Part:	2.1049
Test Method Used:	As detailed in ANSI C63.4 Section 13.7 referencing FCC CFR Part 2.1049 (see note below)

#### **Environmental Conditions:**

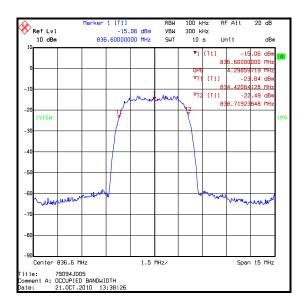
Temperature (°C):	25
Relative Humidity (%):	22

### Results: Voice / 12.2 kbps

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

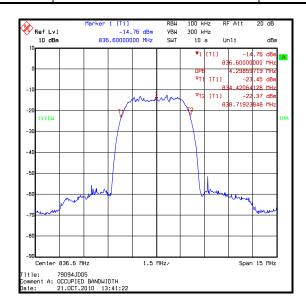
#### Note(s):

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



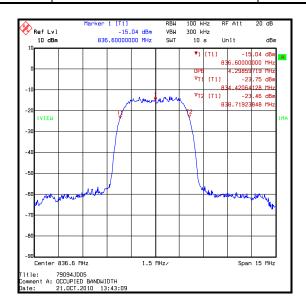
#### Transmitter Occupied Bandwidth (continued)

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



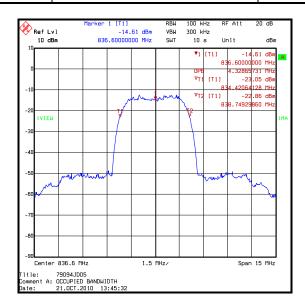
# Transmitter Occupied Bandwidth (continued)

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



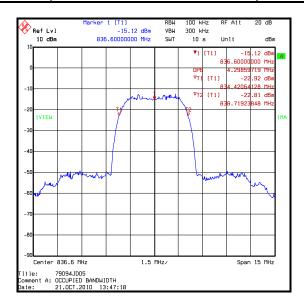
#### Transmitter Occupied Bandwidth (continued)

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	836.6	4328.657



#### Transmitter Occupied Bandwidth (continued)

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



### 5.2.8. Transmitter Out of Band Radiated Emissions

### Test Summary:

Test Engineer:	Ian Watch	Test Date:	22 October 2010
Test Sample IMEI:	352816040058219		

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

#### **Environmental Conditions:**

Temperature (°C):	25
Relative Humidity (%):	21

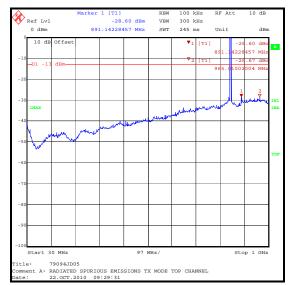
## Results: Voice / 12.2 kbps

Frequency	Peak Level	Limit	Margin	Result
(MHz)	(dBm)	(dBm)	(dB)	
965.010	-28.7	-13.0	15.7	Complied

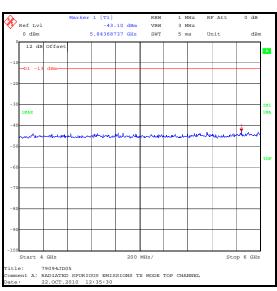
#### Note(s):

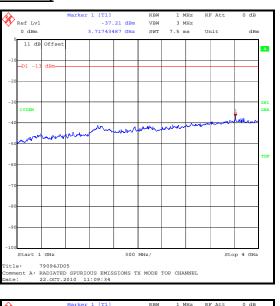
- 1. Pre-scans were performed with the EUT transmitting at full power on the top channel.
- 2. No spurious emissions were detected above the noise floor of the measuring receiver; the highest peak noise floor reading of the measuring receiver with the EUT operating on top channel was recorded.
- 3. The uplink and downlink traffic channels are shown on the 30 MHz to 1 GHz plot at approximately 846 MHz and 891 MHz.

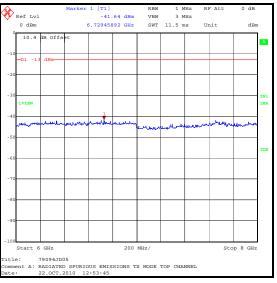
VERSION 2.0



#### Transmitter Out of Band Radiated Emissions (continued)

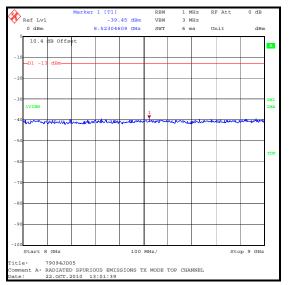






VERSION 2.0

# Transmitter Out of Band Radiated Emissions (continued)



# 5.2.9. Transmitter Band Edge Radiated Emissions

### Test Summary:

Test Engineer:	lan Watch	Test Date:	21 October 2010	
Test Sample IMEI:	352816040058219			

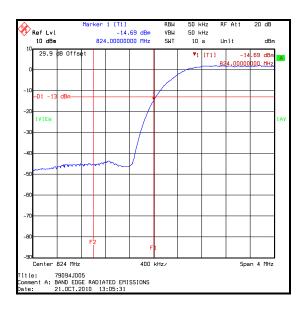
FCC Part:	2.1053 & 22.917
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Part 22.917

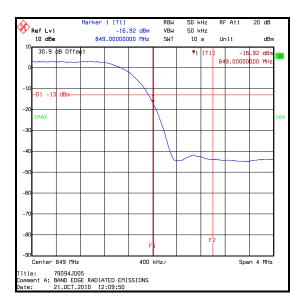
### **Environmental Conditions:**

Temperature (°C):	25
Relative Humidity (%):	22

# Results: Voice / 12.2 kbps

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-14.7	-13.0	1.7	Complied
849	-16.9	-13.0	3.9	Complied

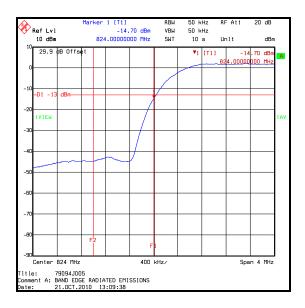


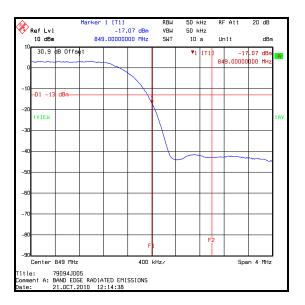


#### VERSION 2.0

#### Transmitter Band Edge Radiated Emissions (continued)

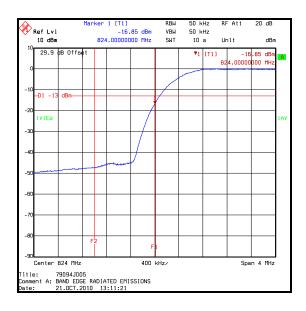
Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result	
824	-14.7	-13.0	1.7	Complied	
849	-17.1	-13.0	4.1	Complied	

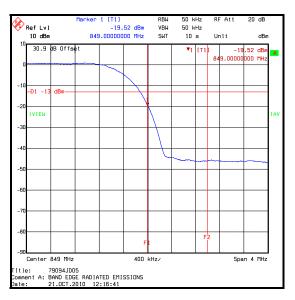




# Transmitter Band Edge Radiated Emissions (continued)

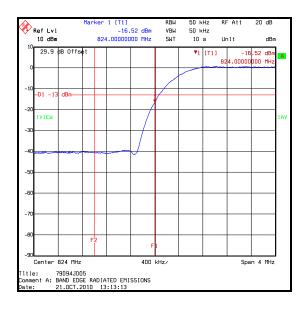
Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-16.9	-13.0	3.9	Complied
849	-19.5	-13.0	6.5	Complied

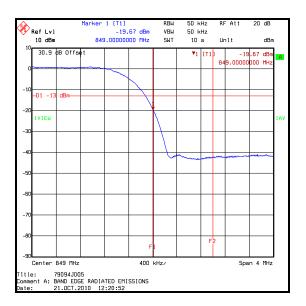




# Transmitter Band Edge Radiated Emissions (continued)

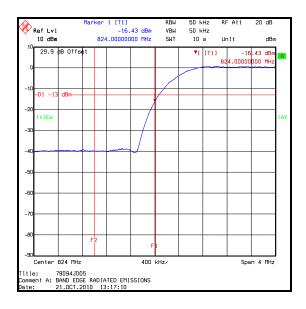
Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-16.5	-13.0	3.5	Complied
849	-19.7	-13.0	6.7	Complied

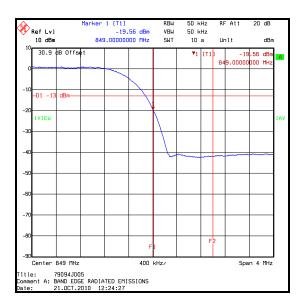




# Transmitter Band Edge Radiated Emissions (continued)

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-16.4	-13.0	3.4	Complied
849	-19.6	-13.0	6.6	Complied





# 6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.25 dB
Effective Radiated Power (ERP)	824 to 849 MHz	95%	±2.94 dB
Conducted Output Power	824 to 849 MHz	95%	±0.27 dB
Frequency Stability	824 to 849 MHz	95%	±0.92 ppm
Occupied Bandwidth	824 to 849 MHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 9 GHz	95%	±2.94 dB

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

# Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Туре No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
A1069	LISN	Rohde & Schwarz	ESH3-Z5	837469/012	13 Apr 2011	12
A1396	Attenuator	Huber & Suhner	757987	6810.17.B	06 Jul 2011	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	06 Jun 2011	12
A1537	Directional Coupler	Hewlett Packard	778D	1144A05122	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	05 Sep 2011	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	01 Mar 2011	12
A1974	High Pass Filter	AtlanTecRF	AFH-01000	09000283	18 Jan 2011	12
A253	Antenna	Flann Microwave	12240-20	128	05 Sep 2011	12
A254	Antenna	Flann Microwave	14240-20	139	05 Sep 2011	12
A255	Antenna	Flann Microwave	16240-20	519	05 Sep 2011	12
A288	Antenna	Chase	CBL6111A	1589	05 Sep 2011	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	05 Sep 2011	12
L1005	Comms Test Set	Rohde & Schwarz	CMU200	116284	29 Jan 2011	12
M1068	Thermometer	Iso-Tech	RS55	93102884	02 Nov 2010	12
M1124	Test Receiver	Rohde & Schwarz	ESI26	100046K	22 Apr 2011	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	28 Jun 2011	12
M1269	Multimeter	Fluke	179	90250210	15 Jul 2011	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	15 Sep 2011	12
S0537	Power Supply	ТТІ	EL302D	249928	Calibrated before use	-

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