

# TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: NTT docomo P-04B

To: FCC Part 15.247: 2009 Subpart C

**Test Report Serial No:**  
RFI-RPT1-RP77078JD07A

**This Test Report Is Issued Under The Authority  
Of Brian Watson, Operations Director:**



<b>Checked By:</b>	Tony Henriques
<b>Signature:</b>	
<b>Date of Issue:</b>	18 March 2010

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## **1. Customer Information**

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

## 2. Summary of Testing

### 2.1. General Information

<b>Specification Reference:</b>	47CFR15.247
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications) 2009: Part 15 Subpart C (Radio Frequency Devices) - Section 15.247
<b>Specification Reference:</b>	47CFR15.107 and 47CFR15.109
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications) 2009: Part 15 Subpart B (Radio Frequency Devices) - Sections 15.107 and 15.109
<b>Site Registration:</b>	FCC: 209735
<b>Location of Testing:</b>	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
<b>Test Dates:</b>	01 March to 04 March 2010

### 2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.107(a)	Receiver/Idle Mode AC Conducted Emissions	✓
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	✓
Part 15.207	Transmitter AC Conducted Emissions	✓
Part 15.247(a)(1)	Transmitter 20 dB Bandwidth	✓
Part 15.247(a)(1)	Transmitter Carrier Frequency Separation	✓
Part 15.247(a)(1)(iii)	Transmitter Average Time of Occupancy	✓
Part 15.247(b)(3)	Transmitter Maximum Peak Output Power	✓
Part 15.247(d) & 15.209(a)	Transmitter Radiated Emissions	✓
Part 15.247(d) & 15.209(a)	Transmitter Band Edge Radiated Emissions	✓

#### **Key to Results**

✓ = Complied    ✘ = Did not comply

### 2.3. Methods and Procedures

<b>Reference:</b>	ANSI C63.4 (2003)
<b>Title:</b>	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.
<b>Reference:</b>	DA00-705 (2000)
<b>Title:</b>	Filing and Frequency Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

### 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)**

<b>Brand Name:</b>	NTT docomo
<b>Model Name or Number:</b>	P-04B
<b>IMEI:</b>	358862030014626 ( <i>radiated sample</i> ); 358862030014600 ( <i>conducted sample</i> )
<b>Hardware Version Number:</b>	Rev C
<b>Software Version Number:</b>	B-D01WP1-01.01.001 D01WP1_Cv48032102
<b>FCC ID Number:</b>	UCE210027A

<b>Description:</b>	Battery
<b>Brand Name:</b>	NTT docomo
<b>Model Name or Number:</b>	P20
<b>Serial Number:</b>	N/A

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

<b>Description:</b>	DC Charger
<b>Brand Name:</b>	NTT docomo
<b>Model Name or Number:</b>	FOMA DC Adapter 02
<b>Serial Number:</b>	N/A

<b>Description:</b>	Charge/USB Data cable
<b>Brand Name:</b>	NTT docomo
<b>Model Name or Number:</b>	FOMA USB Cable with Charge Function 02
<b>Serial Number:</b>	N/A

<b>Description:</b>	Micro SD memory card
<b>Brand Name:</b>	Not stated
<b>Model Name or Number:</b>	Not stated
<b>Serial Number:</b>	Not stated

<b>Description:</b>	Personal Hands-Free
<b>Brand Name:</b>	NTT docomo
<b>Model Name or Number:</b>	Stereo Earphone Set 01
<b>Serial Number:</b>	N/A

### **3.2. Description of EUT**

The equipment under test was a dual mode UMTS/GSM cellular handset with *Bluetooth* 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**

<b>Tested Technology:</b>	<i>Bluetooth</i>				
<b>Power Supply Requirement:</b>	Nominal	3.7 V			
<b>Type of Unit:</b>	Transceiver				
<b>Channel Spacing:</b>	1 MHz				
<b>Mode:</b>	Basic Rate	Enhanced Data Rate			
<b>Modulation:</b>	GFSK	$\pi/4$ -DQPSK	8DQPSK		
<b>Packet Type: (Maximum Payload)</b>	DH5	2DH5	3DH5		
<b>Data Rate (Mbit/s):</b>	1	2	3		
<b>Maximum Transmit EIRP:</b>	1.6 dBm				
<b>Transmit Frequency Range:</b>	2402 MHz to 2480 MHz				
<b>Transmit Channels Tested:</b>	<b>Channel ID</b>	<b>Channel Number</b>	<b>Channel Frequency (MHz)</b>		
	Bottom	0	2402		
	Middle	39	2441		
	Top	78	2480		
<b>Receive Frequency Range:</b>	2402 MHz to 2480 MHz				
<b>Receive Channels Tested:</b>	<b>Channel ID</b>	<b>Channel Number</b>	<b>Channel Frequency (MHz)</b>		
	Bottom	0	2402		
	Middle	39	2441		
	Top	78	2480		

### **3.5. Support Equipment**

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

<b>Description:</b>	Laptop
<b>Brand Name:</b>	Sony
<b>Model Name or Number:</b>	PCG-551N
<b>Serial Number:</b>	283506 0 1208763

## **4. Operation and Monitoring of the EUT during Testing**

### **4.1. Operating Modes**

The EUT was tested in the following operating mode(s):

- Receive/Idle Mode
- Transmit mode with basic rate (DH5 packets) or EDR (2DH5 or 3DH5 packets) as required.

### **4.2. Configuration and Peripherals**

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

- For Transmit tests: Standalone, connected via a radio link to a Bluetooth Tester in order to place the EUT into Bluetooth test mode. The laptop PC with the Client's bespoke application was used to place the EUT into Bluetooth test mode.
- For Receive/Idle mode tests: Standalone, with the Bluetooth mode active but not transmitting.
- Both EDR and Basic rate modes were tested in order to identify the mode that presented the worse case result with regards to amplitude and modulation bandwidth. All tests were performed on the mode that exhibited the highest output power and bandwidth except for output power, bandwidth, band edge and channel separation where all modes were tested.
- Receiver/Idle mode and Transmit 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.

## **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:**

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

#### **Environmental Conditions:**

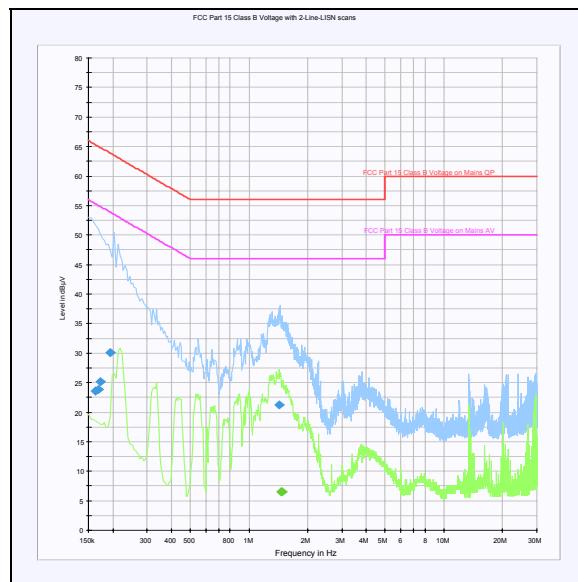
Temperature (°C):	26
Relative Humidity (%):	28

#### **Results: Quasi Peak Detector Measurements**

Frequency (MHz)	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Result
0.163500	Live	23.5	65.3	41.8	Complied
0.168000	Live	23.9	65.1	41.2	Complied
0.172500	Live	25.1	64.8	39.7	Complied
0.195000	Live	30.0	63.8	33.8	Complied
1.419000	Live	21.2	56.0	34.8	Complied

#### **Results: Average Detector Measurements**

Frequency (MHz)	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Result
1.468500	Live	6.6	46.0	39.4	Complied
1.473000	Live	6.6	46.0	39.4	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 table.*

### **5.2.2. Receiver/Idle Mode Radiated Spurious Emissions**

#### **Test Summary:**

<b>FCC Part:</b>	15.109
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and relevant annexes
<b>Frequency Range:</b>	30 MHz to 1000 MHz

#### **Environmental Conditions:**

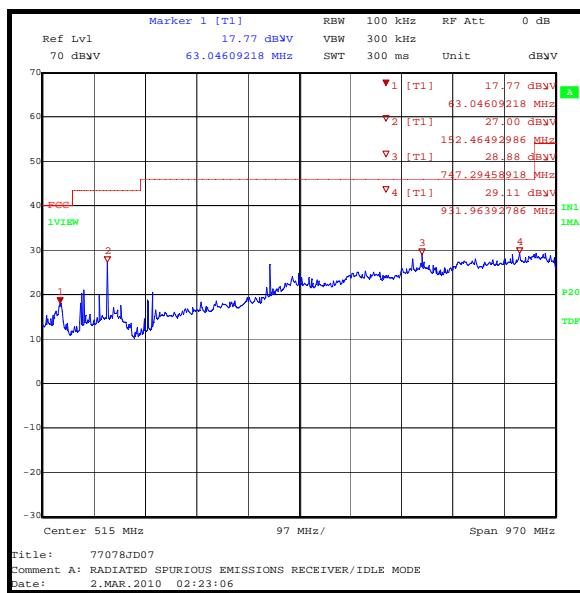
<b>Temperature (°C):</b>	23
<b>Relative Humidity (%):</b>	22

#### **Results:**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
153.325	Horizontal	26.3	43.5	17.2	Complied
458.804	Horizontal	28.4	46.0	17.6	Complied
747.246	Vertical	27.8	46.0	18.2	Complied
931.672	Horizontal	28.8	46.0	17.2	Complied

#### **Note(s):**

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



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

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

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	1 GHz to 12.75 GHz

**Environmental Conditions:**

Temperature (°C):	23
Relative Humidity (%):	22

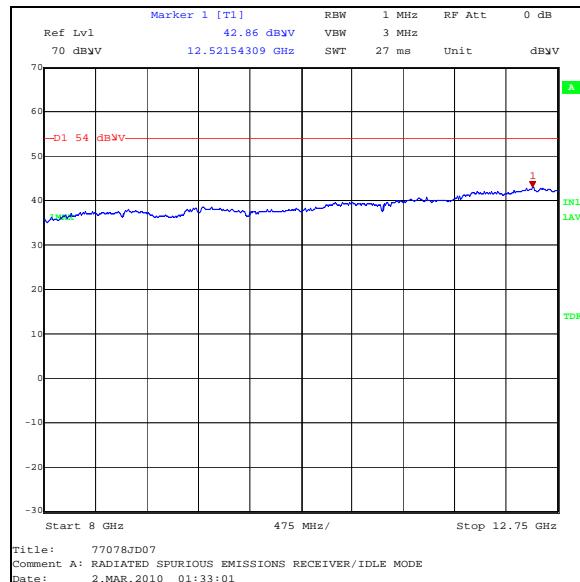
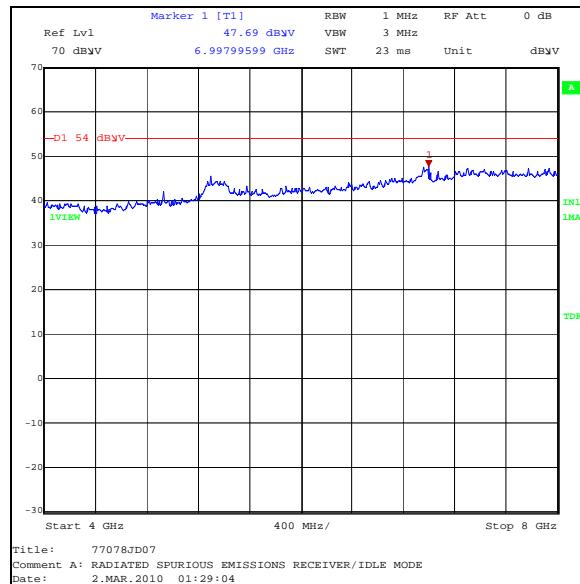
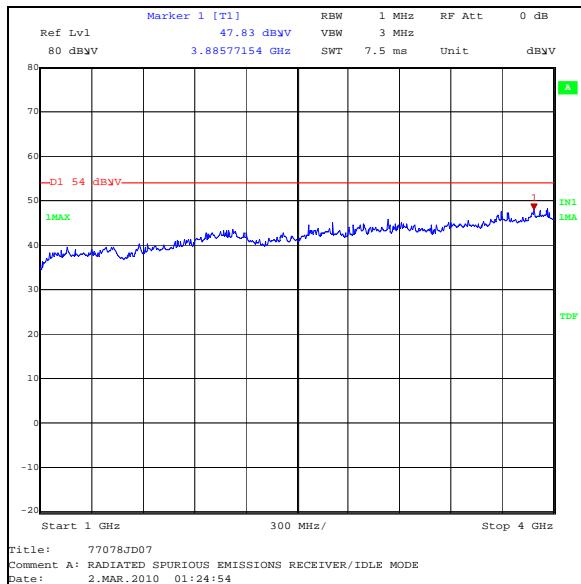
**Results:**

Frequency (MHz)	Antenna Polarity	Peak Level (dB $\mu$ V/m)	Average Limit (dB $\mu$ V/m)	Margin (dB)	Result
6997.996	Horizontal	47.7	54.0	6.3	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. All pre-scans were performed with the peak detector against average limits apart from measurements made in the range 8 GHz to 12.75 GHz where pre-scans were performed with peak and average detector and the applicable limit applied. This was due to the noise floor exceeding the average limit when using the peak detector.
3. 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

### **5.2.3. Transmitter AC Conducted Spurious Emissions**

#### **Test Summary:**

<b>FCC Part:</b>	15.207
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 7 and relevant annexes

#### **Environmental Conditions:**

<b>Temperature (°C):</b>	26
<b>Relative Humidity (%):</b>	29

#### **Results: Quasi Peak Detector Measurements**

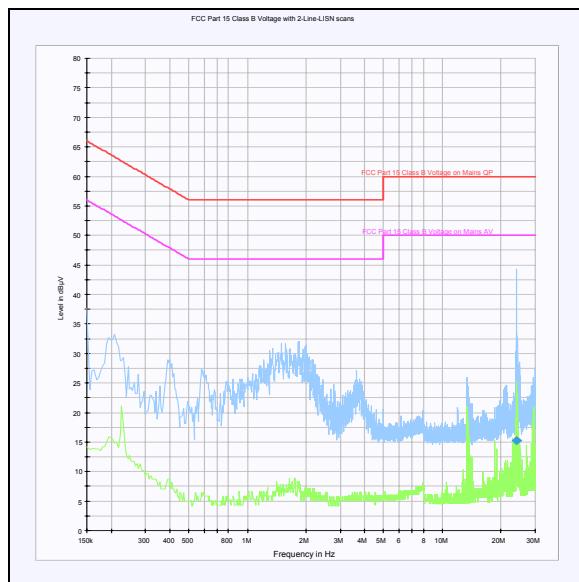
Frequency (MHz)	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Result
24.000	Live	15.2	60.0	44.8	Complied

#### **Results: Average Detector Measurements**

Frequency (MHz)	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Result
Note 1					

#### **Note(s):**

1. All emissions were greater than 20 dB below the appropriate specification limit.



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

**5.2.4. Transmitter 20 dB Bandwidth****Test Summary:**

<b>FCC Part:</b>	15.247(a)(1)
<b>Test Method Used:</b>	As detailed in Public Notice DA 00-705 (March 30, 2000) (see note below)

**Environmental Conditions:**

<b>Temperature (°C):</b>	26
<b>Relative Humidity (%):</b>	29

**Results DH5:**

<b>Channel</b>	<b>20 dB Bandwidth (KHz)</b>
Bottom	895.792
Middle	895.792
Top	895.792

**Results 2DH5:**

<b>Channel</b>	<b>20 dB Bandwidth (KHz)</b>
Bottom	1166.333
Middle	1184.367
Top	1166.333

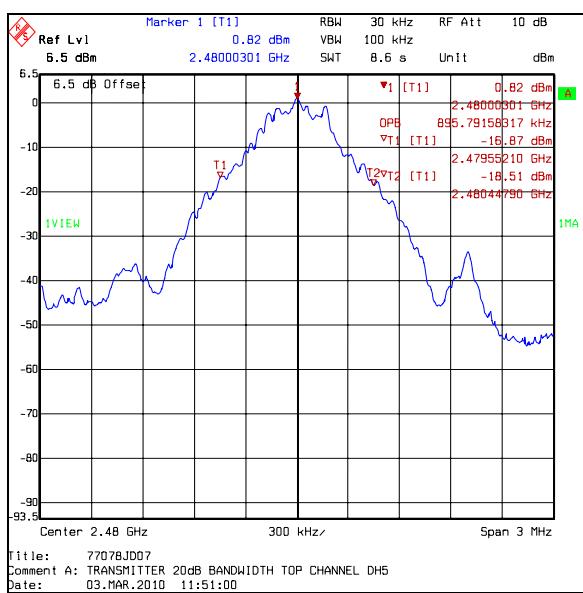
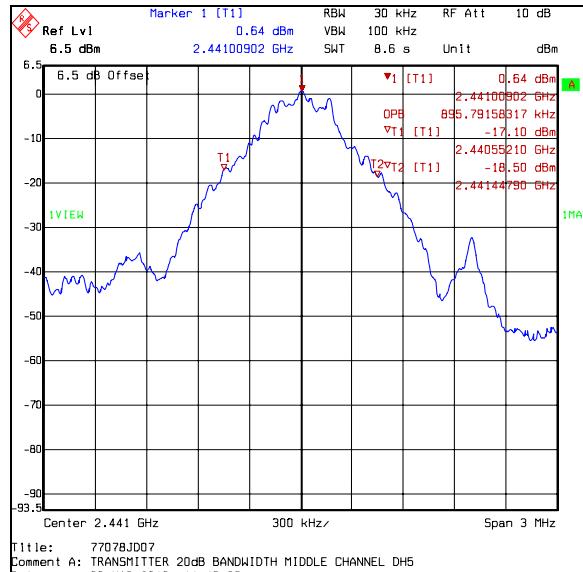
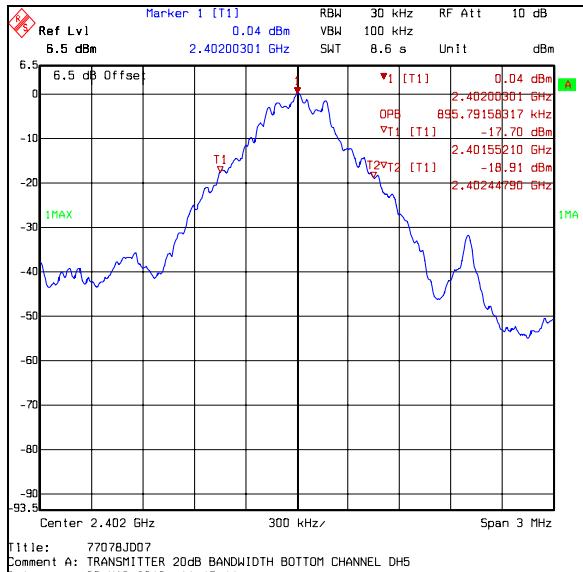
**Results 3DH5:**

<b>Channel</b>	<b>20 dB Bandwidth (MHz)</b>
Bottom	1184.369
Middle	1172.345
Top	1172.345

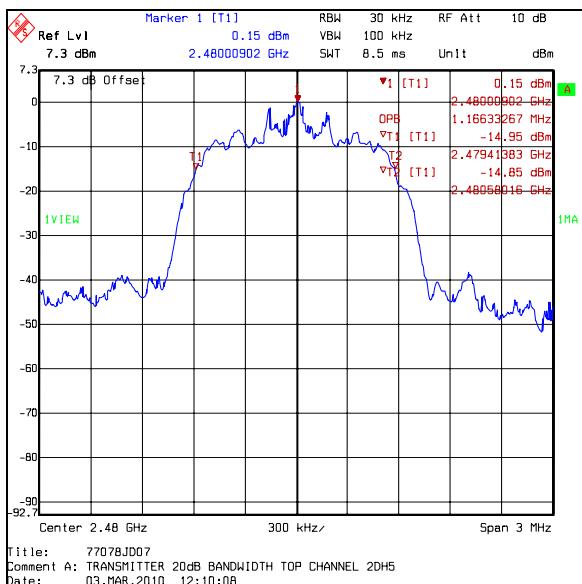
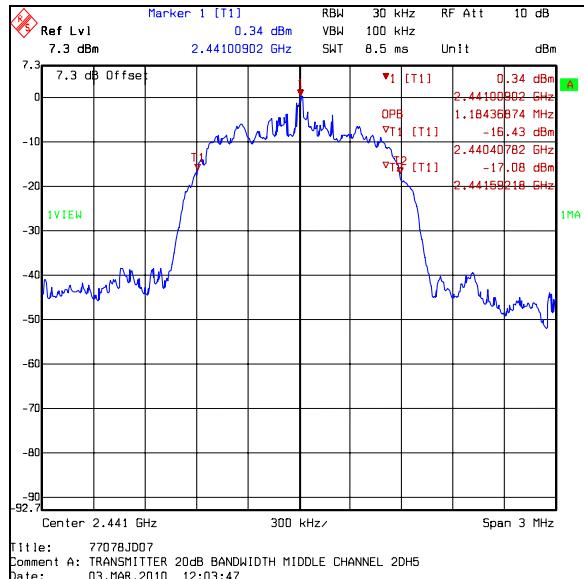
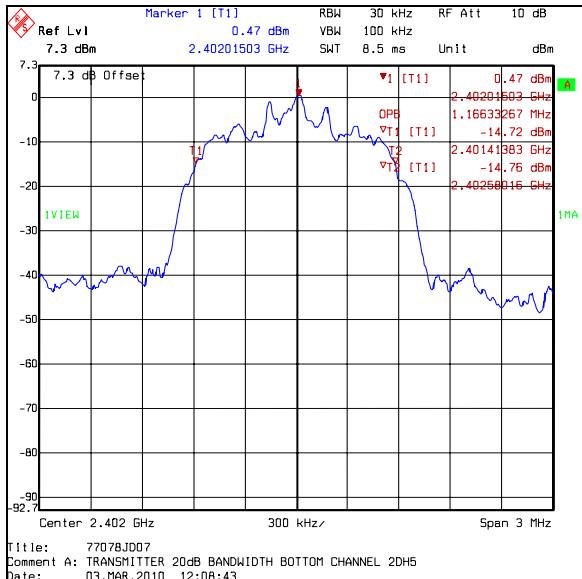
**Note(s):**

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 20 dB bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.

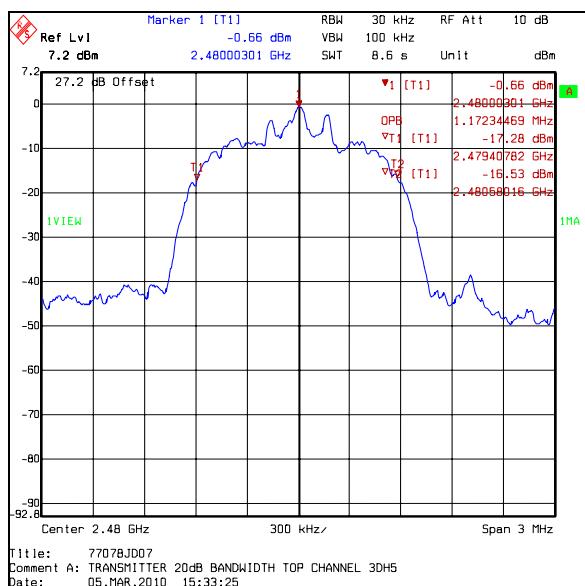
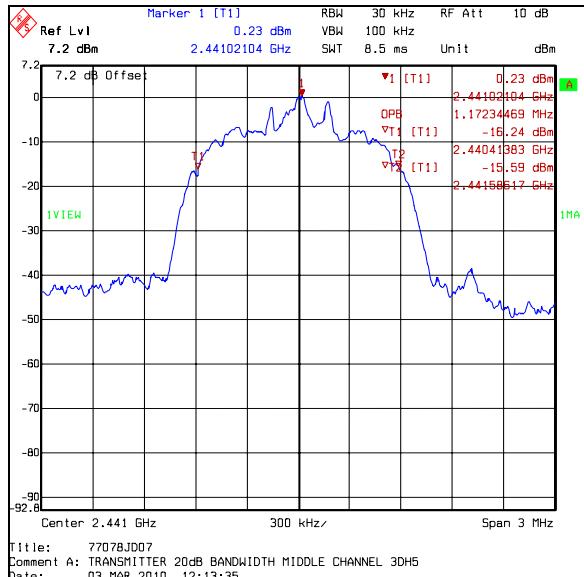
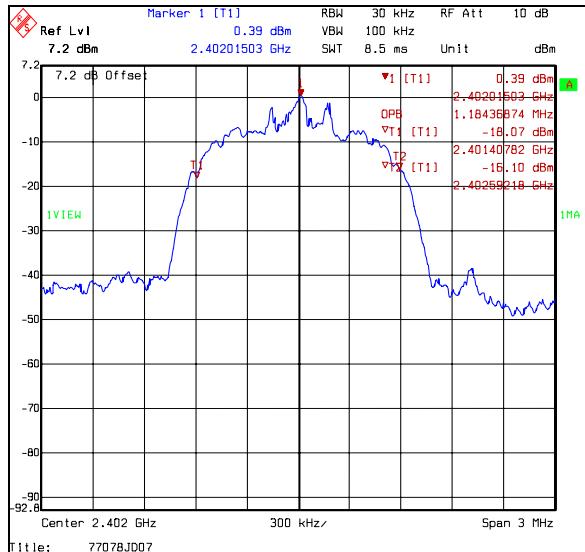
## Transmitter 20 dB Bandwidth (continued)



## Transmitter 20 dB Bandwidth (continued)



## Transmitter 20 dB Bandwidth (continued)



### 5.2.5. Transmitter Carrier Frequency Separation

#### Test Summary:

FCC Part:	15.247(a)(1)
Test Method Used:	As detailed in Public Notice DA 00-705 (March 30, 2000)

#### Environmental Conditions:

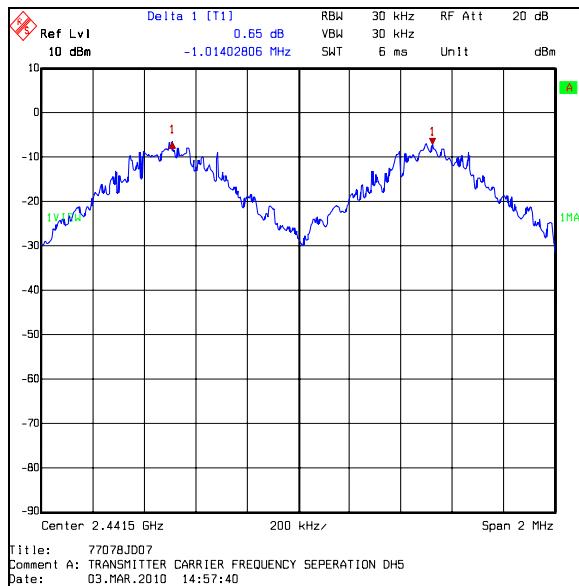
Temperature (°C):	26
Relative Humidity (%):	28

#### Results: DH5

Transmitter Carrier Frequency Separation (kHz)	Limit ( $\frac{2}{3}$ of 20 dB BW) (kHz)	Margin (kHz)	Result
1014.028	597.195	416.833	Complied

#### Note(s):

1. The 20 dB bandwidth measured for the middle channel operating at 2441 was used to calculate the limit.

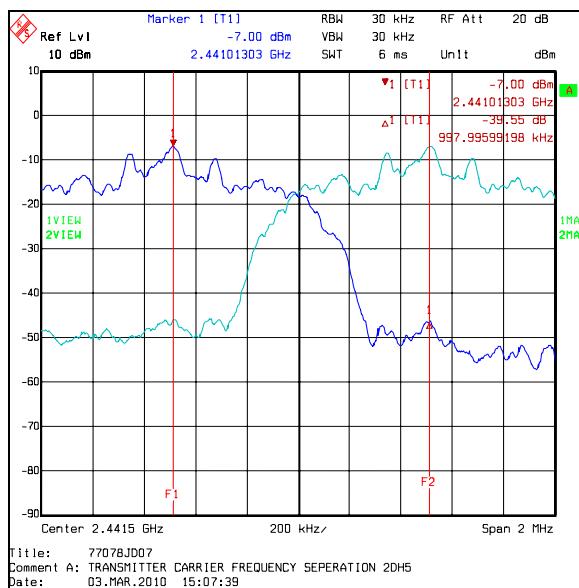


**Transmitter Carrier Frequency Separation (continued)****Results: 2DH5**

Transmitter Carrier Frequency Separation (kHz)	Limit ( $\frac{2}{3}$ of 20 dB BW) (kHz)	Margin (kHz)	Result
997.996	789.578	208.418	Complied

**Note(s):**

1. The 20 dB bandwidth measured for the middle channel operating at 2441 was used to calculate the limit.

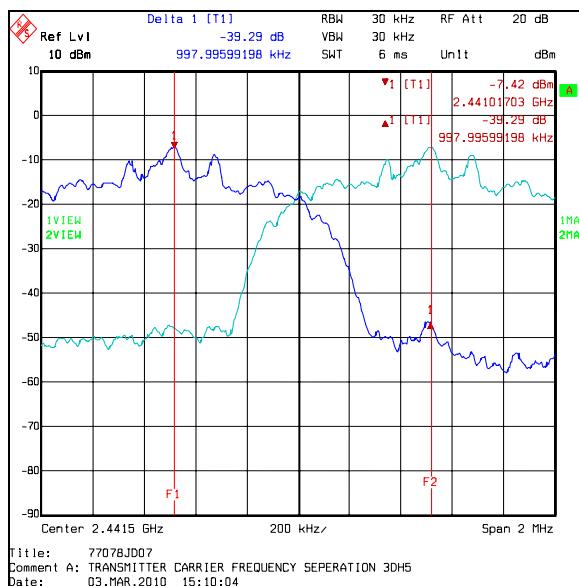


**Transmitter Carrier Frequency Separation (continued)****Results: 3DH5**

Transmitter Carrier Frequency Separation (kHz)	Limit ( $\frac{2}{3}$ of 20 dB BW) (kHz)	Margin (kHz)	Result
997.996	781.563	216.433	Complied

**Note(s):**

1. The 20 dB bandwidth measured for the middle channel operating at 2441 was used to calculate the limit.



**5.2.6. Transmitter Average Time of Occupancy****Test Summary:**

FCC Part:	15.247(a)(1)(iii)
Test Method Used:	As detailed in Public Notice DA 00-705 (March 30, 2000)

**Environmental Conditions:**

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

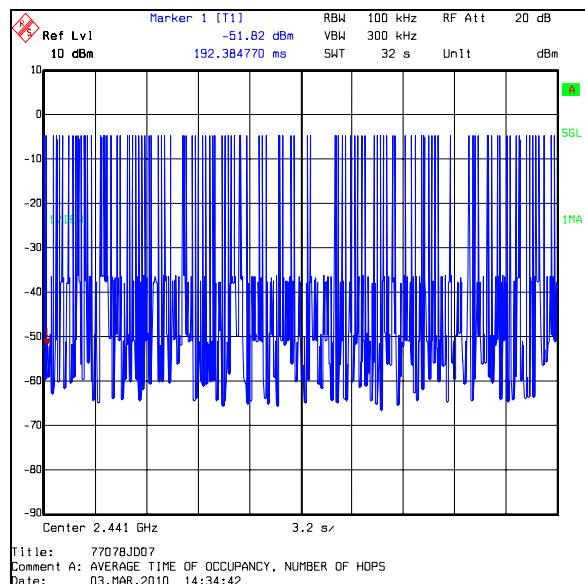
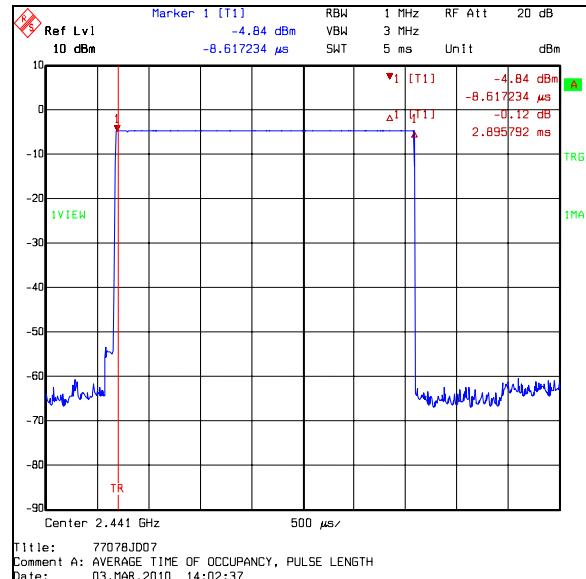
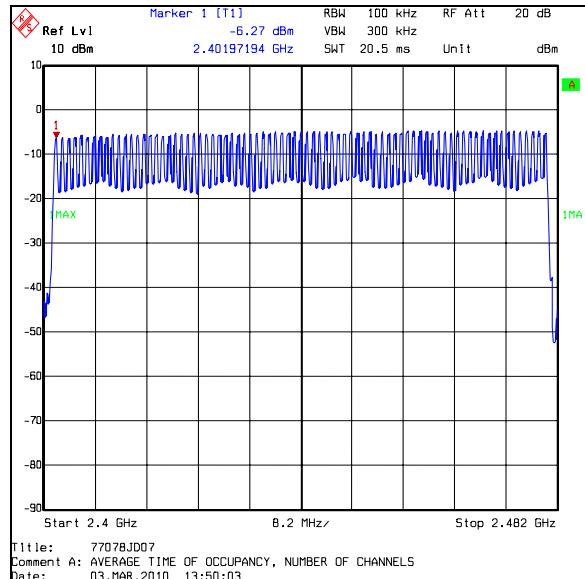
**Results:**

Emission Width (μs)	Number of Hops in 31.6 Seconds	Average Time of Occupancy (s)	Limit (s)	Margin (s)	Result
2895.792	107	0.310	0.4	0.09	Complied

**Note(s):**

1. Tests were performed to identify the average time of occupancy in number of channels (79) x 0.4 seconds. The calculated period is 31.6 seconds.

## Transmitter Average Time of Occupancy (continued)



**5.2.7. Transmitter Maximum Peak Output Power (EIRP)****Test Summary:**

<b>FCC Part:</b>	15.247(b)(3)
<b>Test Method Used:</b>	As detailed in Public Notice DA 00-705 (March 30, 2000), ANSI TIA-603-C-2004 and FCC CFR Part 2

**Environmental Conditions:**

<b>Temperature (°C):</b>	24
<b>Relative Humidity (%):</b>	22

**Results: Basic Rate DH5**

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	-1.3	30.0	31.3	Complied
Middle	1.3	30.0	28.7	Complied
Top	1.3	30.0	28.7	Complied

**Results: EDR 2DH5**

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	-1.4	21.0	22.4	Complied
Middle	1.4	21.0	19.6	Complied
Top	1.1	21.0	19.9	Complied

**Results: EDR 3DH5**

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	-0.3	21.0	21.3	Complied
Middle	1.6	21.0	19.4	Complied
Top	0.3	21.0	20.7	Complied

**Note(s):**

1. These tests were performed radiated; therefore the EUT antenna gain is encompassed in the final result and not measurable.

### **5.2.8. Transmitter Radiated Emissions**

#### **Test Summary:**

<b>FCC Part:</b>	15.247(d) & 15.209(a)
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000)
<b>Frequency Range</b>	30 MHz to 1000 MHz

#### **Environmental Conditions:**

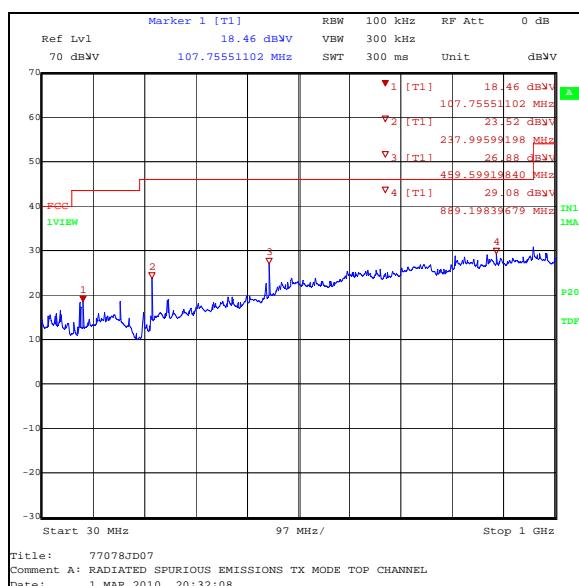
<b>Temperature (°C):</b>	24
<b>Relative Humidity (%):</b>	22

#### **Results: Top Channel DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
458.802	Vertical	34.2	46.0	11.8	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. The preliminary scans showed similar emission levels below 1 GHz, for each channel of operation. Therefore final radiated emissions measurements were performed with the EUT set to the top channel only.
3. All other emissions were at least 20 dB below the appropriate limit.



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

**Transmitter Radiated Emissions (continued)****Test Summary:**

<b>FCC Part:</b>	15.247(d) & 15.209(a)
<b>Test Method Used:</b>	As detailed in Public Notice DA 00-705 (March 30, 2000) and ANSI C63.4 Section 8.
<b>Frequency Range</b>	1 GHz to 26.5 GHz

**Environmental Conditions:**

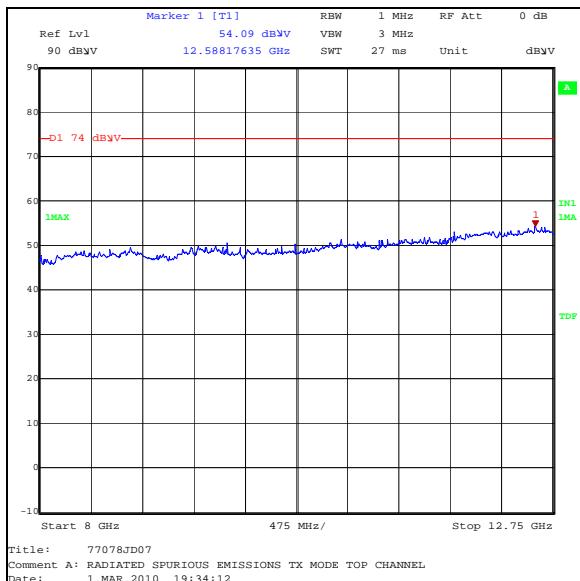
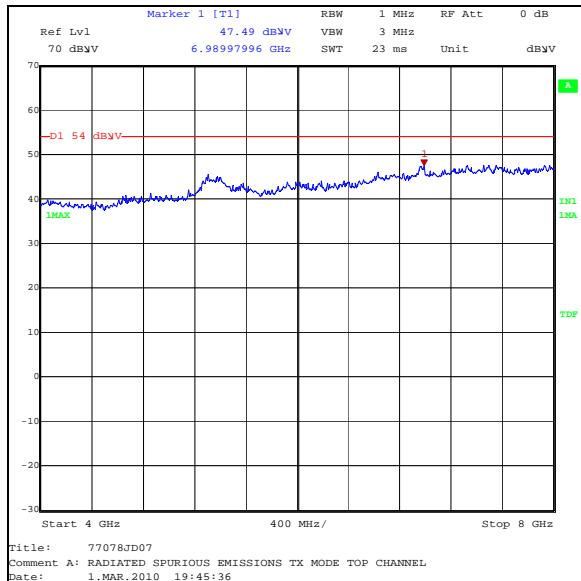
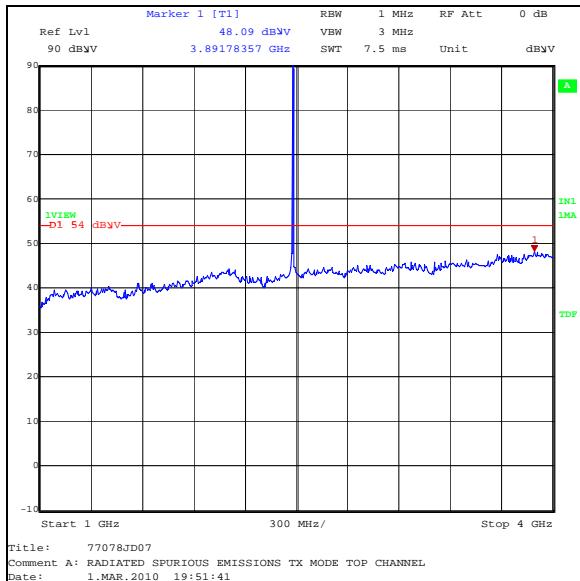
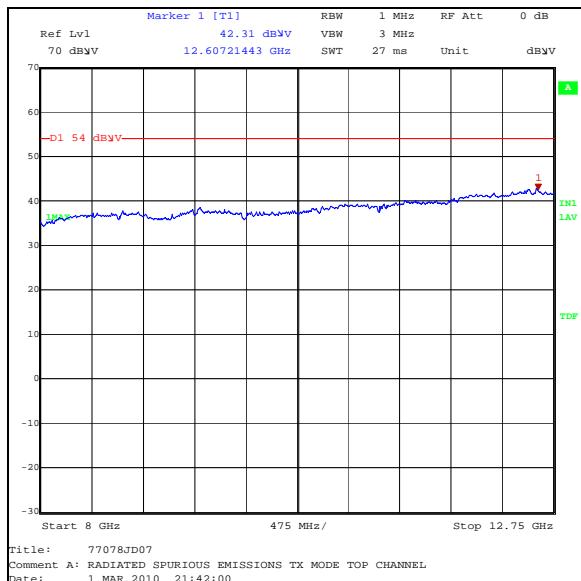
<b>Temperature (°C):</b>	24
<b>Relative Humidity (%):</b>	22

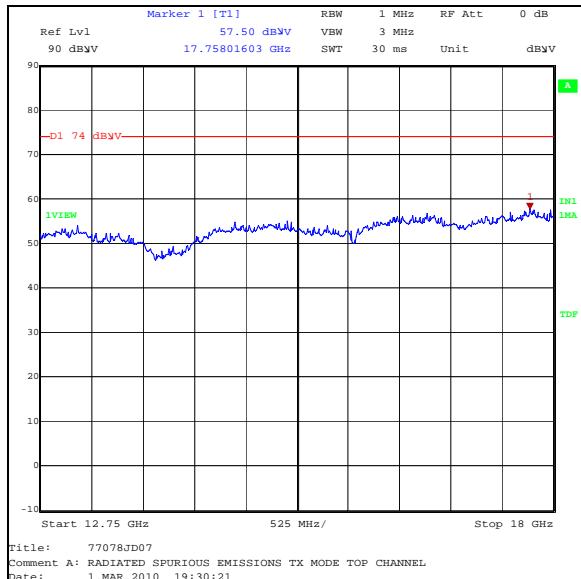
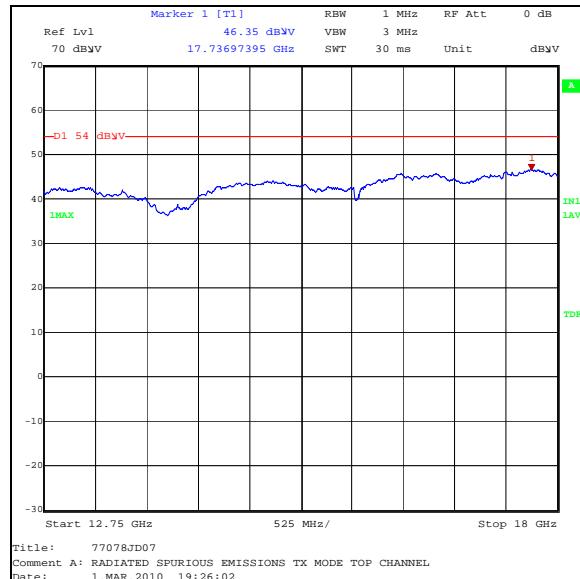
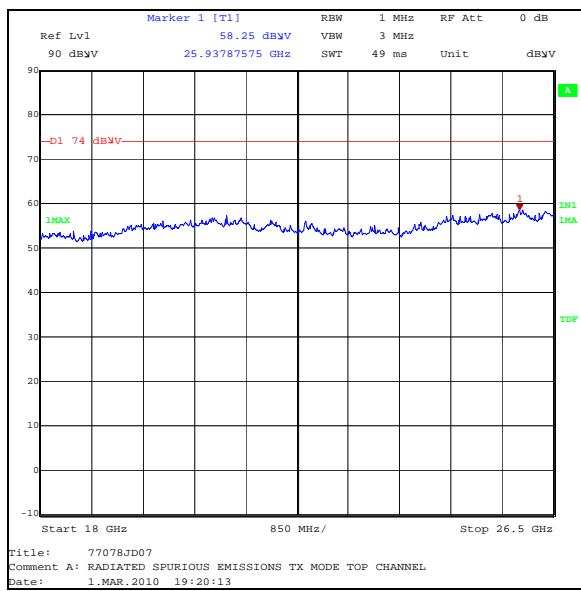
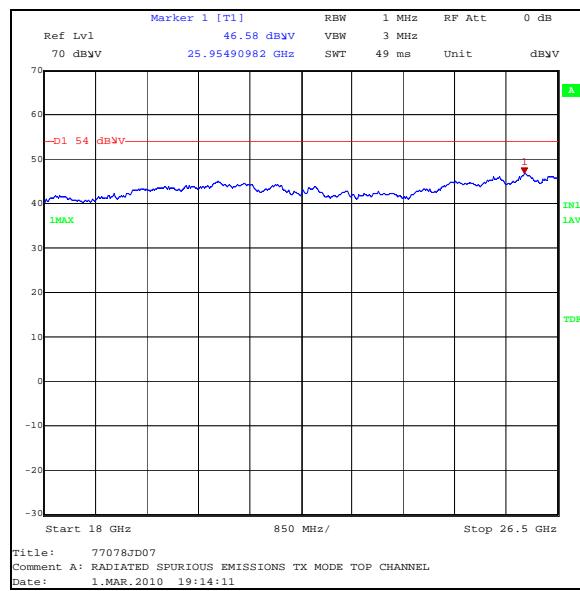
**Results: DH5**

Frequency (MHz)	Antenna Polarity	Peak Level (dB $\mu$ V/m)	Average Limit (dB $\mu$ V/m)	Margin (dB)	Result
6989.980	Vertical	47.5	54.0	6.5	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 pre-scans were performed with a peak detector against average limits apart from measurements made in the range 8 GHz to 26.5 GHz where pre-scans were performed with peak and average detectors and the applicable limit applied. This was due to the noise floor exceeding the average limit when using a peak detector.
3. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.
4. The emission shown on the 1 GHz to 4 GHz plot is the EUT carrier at 2480 MHz.

**Transmitter Radiated Emissions (continued)****Peak Detector****Average Detector**

**Transmitter Radiated Emissions (continued)****Peak Detector****Average Detector****Peak Detector****Average Detector**

**5.2.9. Transmitter Band Edge Radiated Emissions****Test Summary:**

<b>FCC Part:</b>	15.247(d) & 15.209(a)
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000)

**Environmental Conditions:**

<b>Temperature (°C):</b>	24
<b>Relative Humidity (%):</b>	22

**Results: Peak Power Level Hopping Mode DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2400.0	Horizontal	49.4	*74.1	24.7	Complied
2483.5	Horizontal	56.4	74.0	17.6	Complied

**Results: Average Power Level Hopping Mode DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2483.5	Horizontal	36.9	54.0	17.1	Complied

**Results: Peak Power Level Hopping Mode 2DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2400.0	Horizontal	45.9	*74.2	28.3	Complied
2483.5	Horizontal	55.3	74.0	18.7	Complied

**Results: Average Power Level Hopping Mode 2DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2483.5	Horizontal	34.4	54.0	19.6	Complied

**Transmitter Band Edge Radiated Emissions (continued)****Results: Peak Power Level Hopping Mode 3DH5**

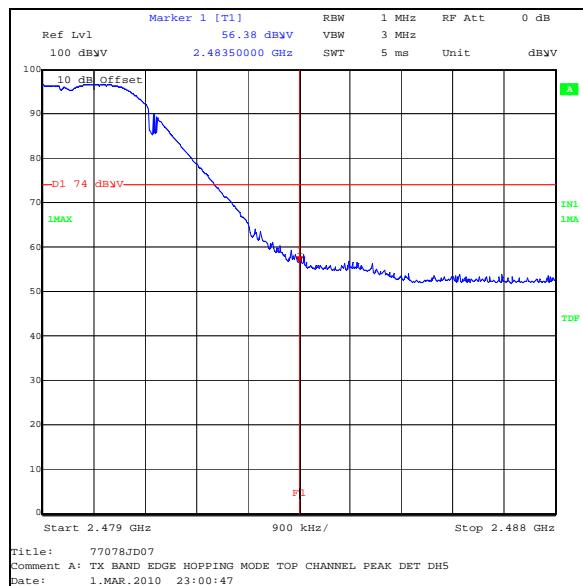
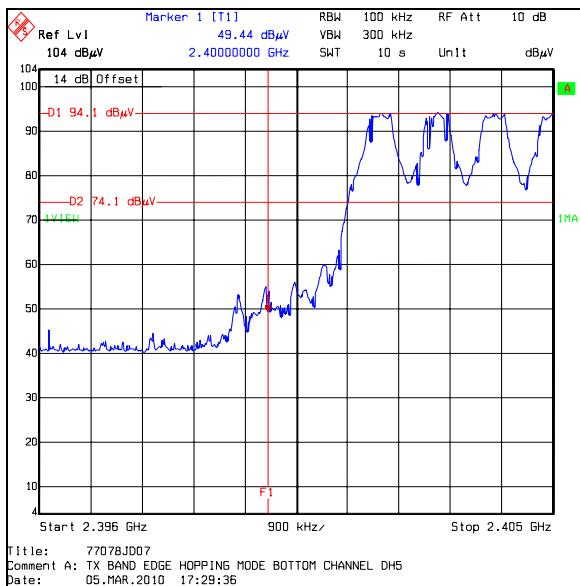
Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2400.0	Horizontal	46.0	*74.9	28.9	Complied
2483.5	Horizontal	58.1	74.0	15.9	Complied

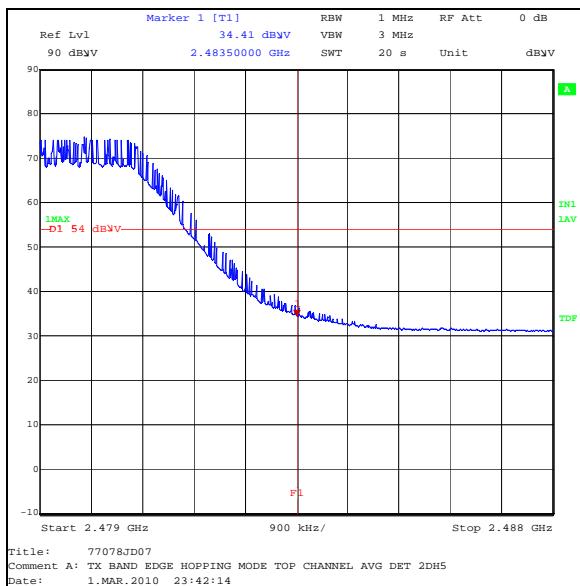
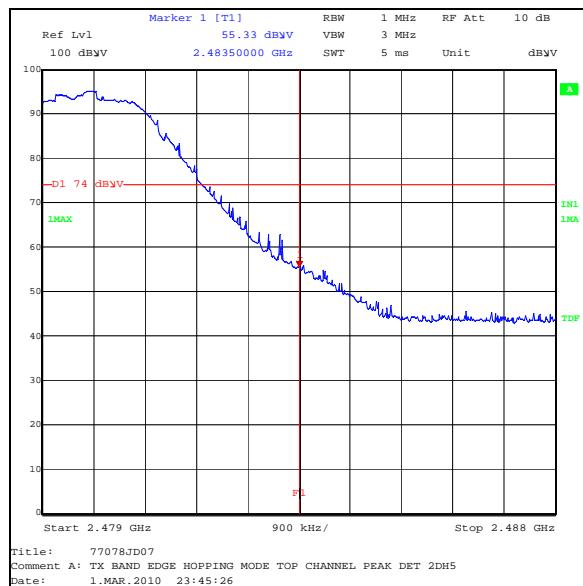
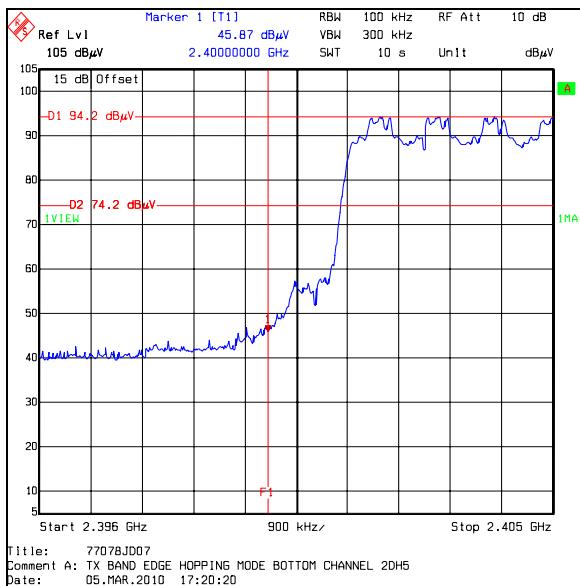
**Results: Average Power Level Hopping Mode 3DH5**

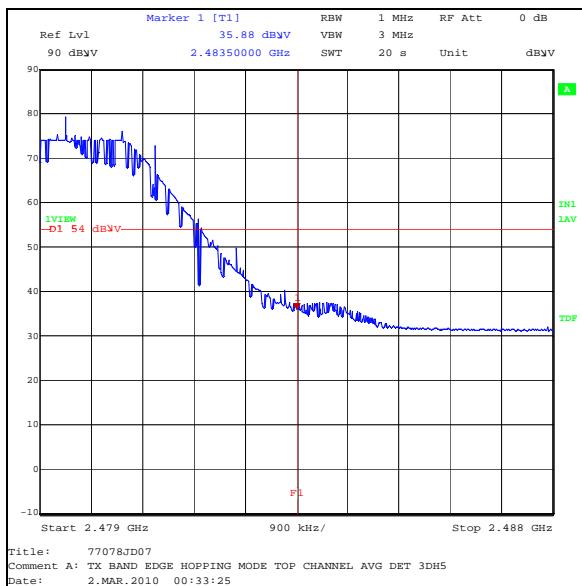
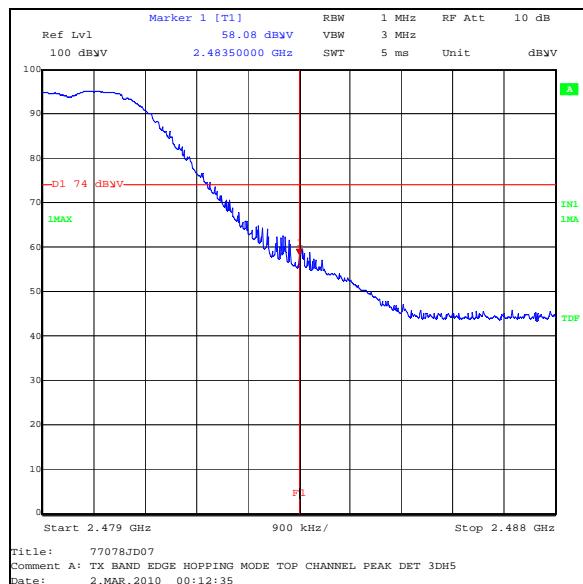
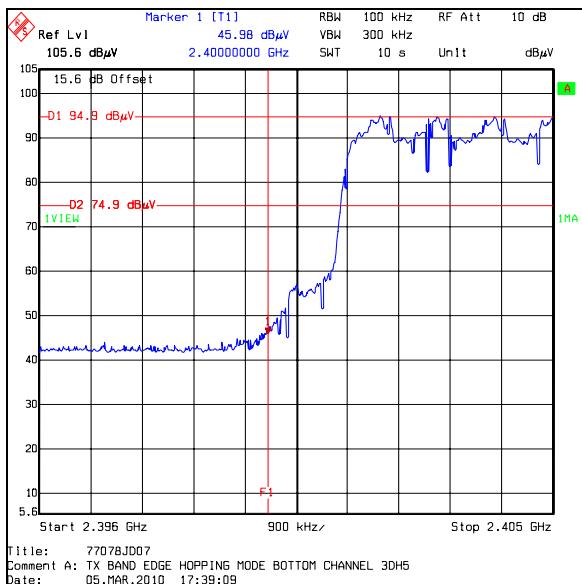
Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2483.5	Horizontal	35.9	54.0	18.1	Complied

**Note(s):**

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. \* -20 dBc limit

**Transmitter Band Edge Radiated Emissions (continued)****DH5**

**Transmitter Band Edge Radiated Emissions (continued)****2DH5**

**Transmitter Band Edge Radiated Emissions (continued)****3DH5**

**Transmitter Band Edge Radiated Emissions (continued)****Results: Peak Power Level Static Mode DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2400.0	Horizontal	48.5	*73.9	25.4	Complied
2483.5	Horizontal	56.6	74.0	17.4	Complied

**Results: Average Power Level Static Mode DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2483.5	Horizontal	44.3	54.0	9.7	Complied

**Results: Peak Power Level Static Mode 2DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2400.0	Horizontal	45.9	*73.7	27.8	Complied
2483.5	Horizontal	60.5	74.0	13.5	Complied

**Results: Average Power Level Static Mode 2DH5**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2483.5	Horizontal	45.3	54.0	8.7	Complied

**Results: Peak Power Level Static Mode 3DH5**

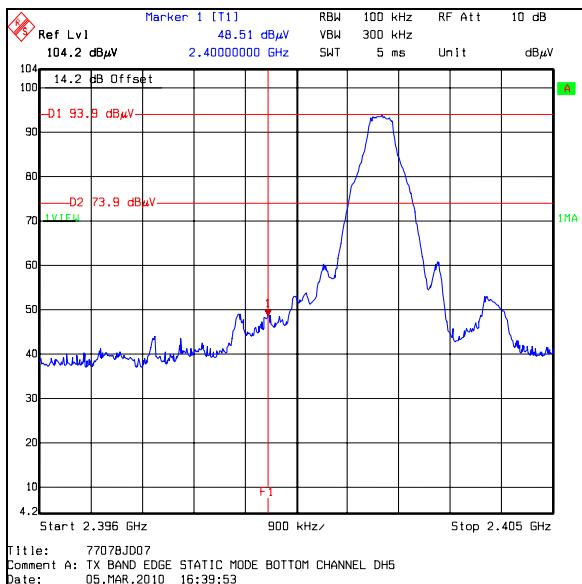
Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2400.0	Horizontal	46.0	*74.8	28.6	Complied
2483.5	Horizontal	60.6	74.0	13.4	Complied

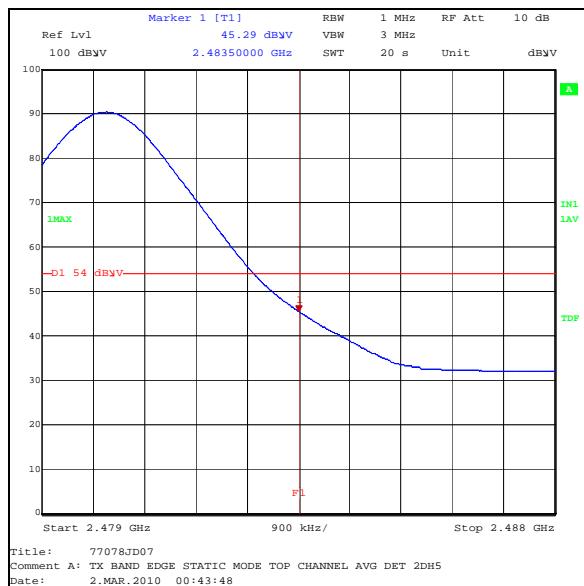
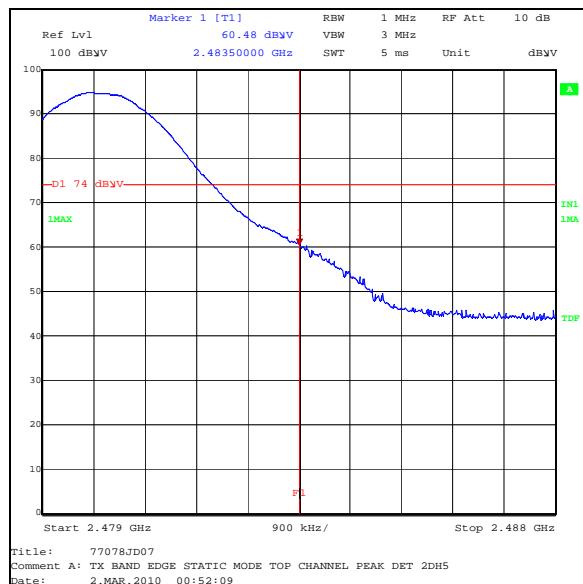
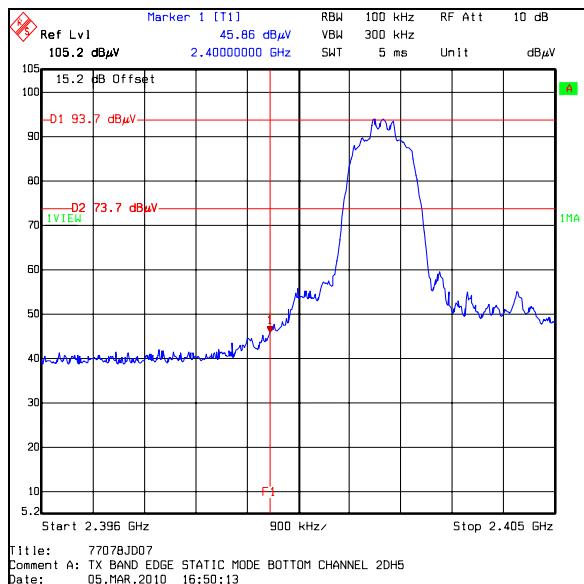
**Results: Average Power Level Static Mode 3DH5**

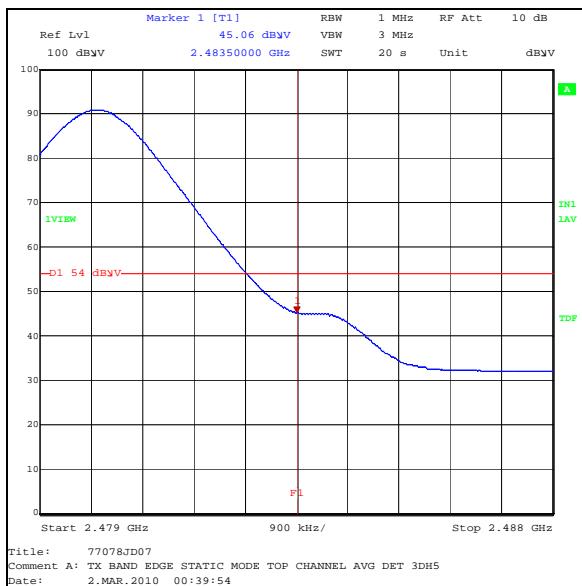
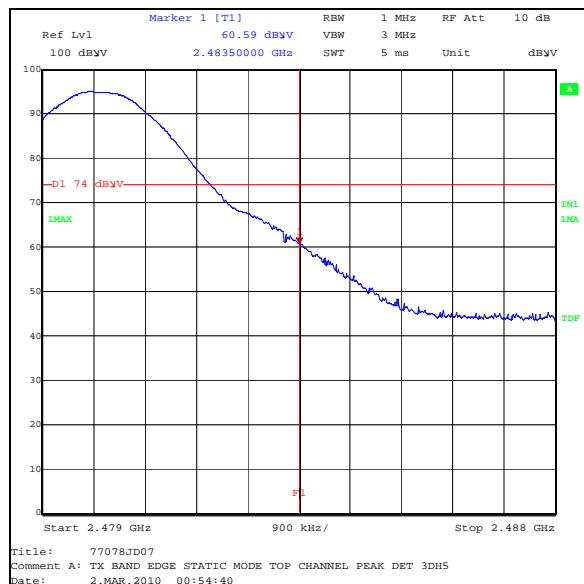
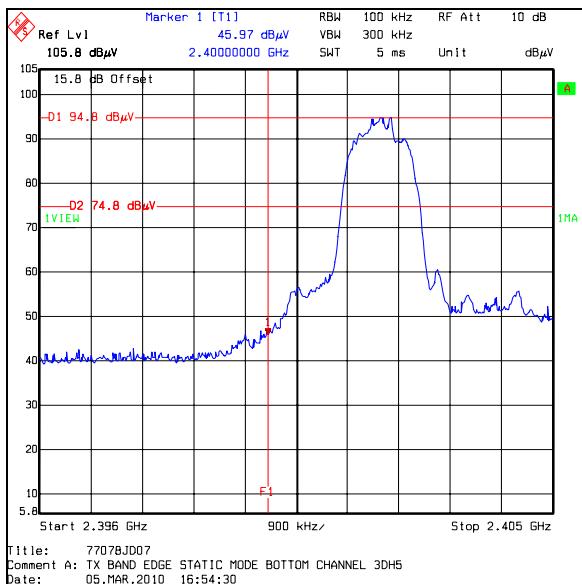
Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2483.5	Horizontal	45.1	54.0	8.9	Complied

**Note(s):**

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. \* -20 dBc limit

**Transmitter Band Edge Radiated Emissions (continued)****DH5**

**Transmitter Band Edge Radiated Emissions (continued)****2DH5**

**Transmitter Band Edge Radiated Emissions (continued)****3DH5**

## **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
Maximum Peak Output Power	Not Applicable	95%	±2.94 dB
Carrier Frequency Separation	Not Applicable	95%	±0.92 ppm
Average Time of Occupancy	Not Applicable	95%	±0.3 ns
20 dB Bandwidth	Not Applicable	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 40 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)
A067	LISN	Rohde & Schwarz	ESH3-Z5	890603/002	03 Jun 2009	12
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	27 Nov 2009	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	01 Mar 2010	12
A288	Antenna	Chase	CBL6111A	1589	13 Mar 2009	12
A436	Antenna	Flann	20240-20	330	24 Apr 2009	36
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	01 Sep 2009	12
M1124	Test Receiver	Rohde & Schwarz	ESIB26	100046K	06 April 2009	13
M127	Test Receiver	Rohde & Schwarz	FSEB30	842 659/016	10 Jul 2009	12
M1379	Test Receiver	Rohde & Schwarz	ESIB7	100330	20 Aug 2009	12
M1447	Bluetooth Tester	Rohde & Schwarz	CBT	100329	02 Feb 2010	12

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