



**FCC 47CFR part 15C
Test Report
For
Remote Control
Reach F10**

Reference Standard: FCC 47CFR part 15C
Manufacturer: Pure Digital Ltd
For type of equipment and serial number, refer to section 3
Report Number: 03-400A/4203/2/10
Supersedes report# 03-400/4203/2/10
Report Produced by: -

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2. Summary of Test Results

The F10 Remote Control Reach F10 was tested to the following standards: -

FCC 47CFR part 15C (effective date October 1st, 2009); Class DTS Intentional Radiator

Any compliance statements are made reliant on the modes of operation as instructed to us by the Manufacturer based on their specific knowledge of the application and functionality of the equipment tested. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of equipment not meeting the intentions of the standard, particularly under different conditions to those during testing.

Title	Reference	Results
1. Conducted Emissions	FCC Part 15C §15.207	NOT APPLICABLE ¹
2. Radiated Emissions	FCC Part 15C §15.205, §15.209 and §15.247	PASSED
3. Modulation Bandwidth	FCC Part 15C §15.215(c), §15.247	PASSED
4. Peak Conducted Power	FCC Part 15C §15.247	PASSED
5. Frequency Tolerance	FCC Part 15C	NOT APPLICABLE ²
6. Duty Cycle	FCC Part 15C §15.247	NOT APPLICABLE ³
7. Power Spectral Density	FCC Part 15C §15.247	PASSED
8. Band Edge Compliance	FCC Part 15C §15.205, §15.209 and §15.247	PASSED
9. Frequency separation	FCC Part 15C §15.247	NOT APPLICABLE ³
10. No.of hopping channels	FCC Part 15C §15.247	NOT APPLICABLE ³

¹ EUT is battery powered.

² No test requirement or limit specified for this type of device.

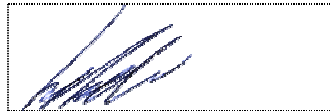
³ EUT is not FHSS equipment.

This report relates to the equipment tested as identified by a unique serial number and at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed.

Date of Test:

16th March to 24th March 2010

Test Engineer:



Approved By:
Technical Director



Customer Representative:



3. Equipment Under Test (EUT)

3.1 Equipment Specification

Applicant	PURE Digital Home Park Estate Kings Langley Hertfordshire WD4 8DH
Manufacturer of EUT	Pure Digital Ltd
Brand name of EUT	Pure Digital Ltd
Model Number of EUT	Reach F10
Serial Number of EUT	ES1-23 and ES1-14
Date when equipment was received by RN Electronics	4th February 2010
Date of test:	16th March to 24th March 2010
Customer order number:	PO091661
Visual description of EUT:	Small handheld remote control with several buttons on the top and a battery compartment on the rear.
Main function of the EUT:	a remote control.
Height	30mm
Width	40mm
Depth	170mm
Weight	<0.01kg
Voltage	3 V Battery powered
Current required from above voltage source	<0.02A

3.2 EUT Configurations for testing

Frequency range	2.402 – 2.479GHz
Normal use position	handheld
Normal test signals	DSSS, 250kbps
Declared Power Level	+4dBm
Declared Channel Bandwidth	1MHz
Highest frequency generated/used	2.479GHz

3.3 EUT Modes

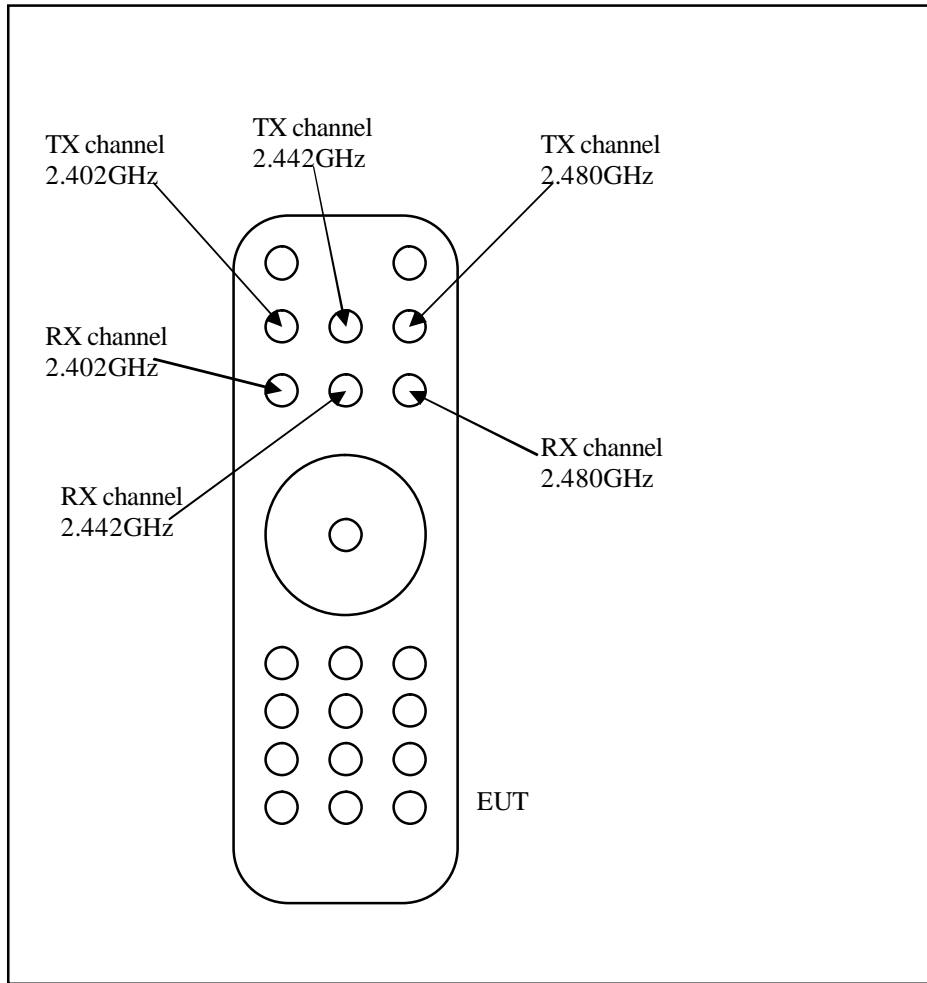
Mode	Description of mode	Used for Testing
Continuous TX 2.402GHz	Continuous modulated transmit 14.6% duty cycle @ 2.402GHz	YES
Continuous TX 2.442GHz	Continuous modulated transmit 14.6% duty cycle @ 2.442GHz	YES
Continuous TX 2.479GHz	Continuous modulated transmit 14.6% duty cycle @ 2.479GHz	YES
Continuous RX 2.402GHz	Continuous receive @ 2.402GHz	YES
Continuous RX 2.442GHz	Continuous receive @ 2.442GHz	YES
Continuous RX 2.479GHz	Continuous receive @ 2.479GHz	YES

Description of ancillary equipment connected to the equipment under test, for the purpose of tests, can be found in Section 10.

Any modifications made to the EUT, whilst under test, can be found in Section 11.

This report was printed on: 22 September 2010

3.4 Emissions Configuration



The EUTs were powered via new batteries. Two units were provided by pure Digital Ltd, Unit marked s/n ES1-23 was provided with its integral antenna intact as required for all radiated type tests. The unit marked ES1-14 was provided with a short coaxial cable soldered to the antenna port with the antenna removed, for all conducted tests. Both units were also software modified to allow permanent transmit and receive modes at the press of a button, on the Top, Middle and Bottom channels as stated within section 3.3 of this report (see above diagram).

4. Specifications

The tests were performed by RN Electronics Engineer Daniel Sims who set up the tests, the test equipment, and operated it in accordance with the **R.N. Electronics Ltd** procedures manual, FCC 47CFR part 15 and those specifications incorporated by reference into 47CFR15 (e.g. ANSI C63.4-2003). Other external references, where used, have been stated in the applicable results section.

R.N. Electronics Ltd sites M and OATS are listed with the FCC. Registration Number 293246

4.1 Deviations

None.

4.2 Tests at Extremes of Temperature and Voltage

- A permanent integral Antenna RF port was used for testing.
- A test fixture was used for testing.
- A temporary RF port was created for testing.
- The equipment external RF port was used for testing.

4.3 Measurement Uncertainties

Parameter	Uncertainty
Transmitter Tests	
RF frequency	<± 0.7 ppm
Conducted RF power	<± 1.0 dB
Spectral power density	<± 1.5 dB
Bandwidth	<± 1.9 %
Radiated RF Power	<± 3.5 dB
Radiated Spurious Emissions	<± 3.4 dB
Receiver Tests	
Radiated Spurious Emissions	<± 3.4 dB

5. Tests, Methods and Results
5.1 Conducted Emissions

Test not applicable, EUT is battery powered only.

5.2 Radiated Emissions

5.2.1 Test Methods

Test Requirements FCC 47CFR part 15C, Reference (15.209)

Test Method: ANSI C63.4, Reference (8.)

5.2.1.1 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was rotated in all three orthogonal planes. Radiated Emissions testing was performed with a new battery.

5.2.1.2 Test Procedure

Tests were made in accordance with FCC 47CFR part 15 using the measuring equipment noted below.

Below 30MHz, measurements were made in a semi-anechoic chamber (pre-scan) with final measurements on an OATS without a ground plane. The antenna was placed 1m above the ground. The equipment and the antenna were rotated 360° to record the worst case emissions.

30MHz - 1GHz, measurements were made on a site listed with the FCC. The equipment was rotated 360° and the antenna scanned 1 – 4 metres in both horizontal and vertical polarisations to record the worst case emissions.

Above 1GHz, measurements were made in a semi-anechoic chamber with appropriate absorbing material for use in this range. The antenna was placed 1m above the ground in line with the EUT, which was rotated through 360° to record the worst case emissions.

At least 6 signals within 20dB and all signals within 10dB of the limit were investigated.

5.2.2 Test results

Tests were performed using Test Site M, OATS and B.

Test Environment: M, OATS and B

Temperature: 16-20°C Humidity: 32-46%

Analyser plots for the Quasi-Peak / Average / Peak values as applicable and any table of signals within 20dB of the limit line can be found in Section 6.2 of this report. Band edge compliance plots can be found in section 6.6 of this report.

These show that the **EUT** has **PASSED** this test.

5.2.2.1 Test Equipment used

E410, E411, E412, TMS933, E429, E383, E268, E342, TMS79, TMS82, E001, TMS81

See Section 10 for more details

5.3 Peak Conducted power

5.3.1 Test Methods

Test Requirements FCC 47CFR part 15C, Reference (15.247)

Test Method: FCC 47CFR part 15C, Reference (15.247)
KDB558074, Power output option 1

5.3.1.1 Configuration of EUT

The conducted EUT was measured on a bench using a power meter connected to the temporary RF port. The EUT was set to each test signal in turn (see section 3.3) and highest power levels recorded.

5.3.1.2 Test Procedure

Tests were made in accordance with FCC 47CFR part 15 using the measuring equipment noted below.
Avg meter reading stated is maximum power observed using an average power head. Where applicable, a duty cycle correction is applied to avoid averaging during blanking periods (see section 5.5 within this report).
Peak stated is maximum power observed using a spectrum analyser with RBW greater than the 6dB bandwidth, per KDB558074.

Measurements were made on a test bench.

5.3.2 Test results

Tests were performed using Test Site A.

Test Environment: Temperature: 20°C Humidity: 42%

Channel	Avg Meter reading (dBm)	Duty cycle adjustment (dB)	Total (dBm)	Avg Result (mW)	Peak KDB558074 (mW/2MHz)
Bottom	-9.6	8.36	-1.24	0.75	0.77
Middle	-10.3	8.36	-1.94	0.64	0.69
Top	-10.7	8.36	-2.34	0.58	0.57

Limit: 1Watt.

These results show that the **EUT** has **PASSED** this test.

5.3.2.1 Test Equipment used

C031, C032, E003, E266, E290, E397, E342

See Section 10 for more details

5.4 Frequency Tolerance

Test not applicable, No test requirement or limit given.

5.5 Duty Cycle

Test not applicable. However, a basic duty cycle measurement was made in order to ascertain any duty cycle corrections required to be applied to the test results.

Transmit ON time was measured to be 345uS.
Transmit OFF time was measured to be 2.01mS.

Therefore Duty cycle (x) = TX ON/ TX ON + TX OFF.

x = 0.146

Correction factor for power measurements in dBm (dB) = 10 Log (1/x) = 8.36 dB.

Correction factor for voltage measurements in dBuV (dB) = 20 Log (1/x) = 16.71 dB.

5.6 Maximum Spectral Power Density

5.6.1 Test Methods

Test Requirements	FCC 47CFR part 15C, Reference (15.247)
Test Method:	FCC 47CFR part 15C, Reference (15.247)
2)	EN 300 328 v1.7.1, Reference (5.7.3.2 option KDB558074, PSD Option 1

5.6.1.1 Configuration of EUT

The EUT was tested on a bench via the temporary RF port.

5.6.1.2 Test Procedure

Tests were made in accordance with FCC 47CFR part 15 using the measuring equipment noted below. The peak of the power envelope was found and the spectrum analyser set to measure at zero span in 3kHz bandwidth. The resultant IF output of the analyser was calibrated against a known source to give the power reading in dBm. PEP was also recorded per KDB558074, PSD Option 1.

5.6.2 Test results

Tests were performed using Test Site A.

Temperature of test Environment: 20°C

Channel	Reading (dBm)	Duty cycle adjustment (dB)	Peak PSD (dBm/3kHz)	PEP (dBm/3kHz)
Bottom	-27.3	8.36	-18.94	-15.80
Middle	-27.4	8.36	-19.04	-17.13
Top	-29.0	8.36	-20.64	-17.63

Limit: +8dBm/3kHz.

These results show that the **EUT** has **PASSED** this test.

5.6.2.1 Test Equipment used

E397, E003, E005, E266, E290, E342

See Section 10 for more details.

5.7 6dB Bandwidth

5.7.1 Test Methods

Test Requirements FCC 47CFR part 15C, Reference (15.247)

Test Method: FCC 47CFR part 15C, Reference (15.247)
KDB558074 - Bandwidth

5.7.1.1 Configuration of EUT

The EUT was tested on a bench via the temporary RF port.

5.7.1.2 Test Procedure

Tests were made in accordance with FCC 47CFR part 15 using the measuring equipment noted below. In accordance with KDB558074, the analyser's RBW was set to 100kHz and the span was set greater than this. Readings of 6dB bandwidth are taken directly from the analyser.

5.7.2 Test results

Tests were performed using Test Site A.

Temperature of test Environment: 20°C

Analyser plots for the 6dB bandwidth can be found in Section 6.5 of this report.

Channel	Result	Plot reference
Bottom	940kHz	J4203-2, Reach F10 remote Bot chan 6dB BW
Middle	960kHz	J4203-2, Reach F10 remote Mid chan 6dB BW
Top	955kHz	J4203-2, Reach F10 remote Top chan 6dB BW

Limits: > 500kHz.

These results show that the **EUT** has **PASSED** this test.

5.7.2.1 Test Equipment used

E434, E250, E266, E003

See Section 10 for more details.

5.8 Band Edge Compliance

5.8.1 Test Methods

Test Requirements FCC 47CFR part 15C, Reference (15.215 and 15.247)

Test Method: FCC 47CFR part 15C, Reference (15.247)

5.8.1.1 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres.

5.8.1.2 Test Procedure

Tests were made in accordance with FCC 47CFR part 15 using the measuring equipment noted below. The emission from the EUT was maximised before taking the plots.

5.8.2 Test results

Tests were performed using Test Site B.

Temperature of test Environment: 20°C

Analyser plots for the Band Edge Compliance can be found in Section 6.5 and 6.6 of this report. These show the 20dBc requirement of 15.247(d) are met at the band edges of 2400 and 2483.5 MHz.

The following table lists the maximum field strengths observed in the adjacent restricted bands, which are required to meet the tighter 15.209 limits:

Channel	Restricted frequency range	PK reading (dBuV/m)	AVG reading (dBuV/m)	Plot reference
Bottom	2310 – 2390 MHz	61.1	44.4	4203-2, F10 remote, channel 2.402GHz,band edge PK (1M RBW)
Top	2483.5 – 2500 MHz	64.9	48.2	4203-2, F10 remote, channel 2.479GHz,band edge PK (1M RBW)

Due to the Wireless USB RF part being only 14.6% TX duty cycle, the band edge readings were performed with a peak detector (max held plot) and adjusted by the duty cycle correction factor to show an average reading.

Limits: Band edge > 20dB attenuation (> 30dB if only average power complied with)
AVG = 54dBuV/m in restricted bands
PK = 74dBuV/m in restricted bands

These results show that the **EUT** has **PASSED** this test.

5.8.2.1 Test Equipment used

E342, TMS82, E250, E268, E003

See Section 10 for more details.

5.9 Frequency Separation

Test not applicable, EUT does not employ FHSS Technology.

5.10 Number of hopping Channels

Test not applicable, EUT does not employ FHSS Technology.

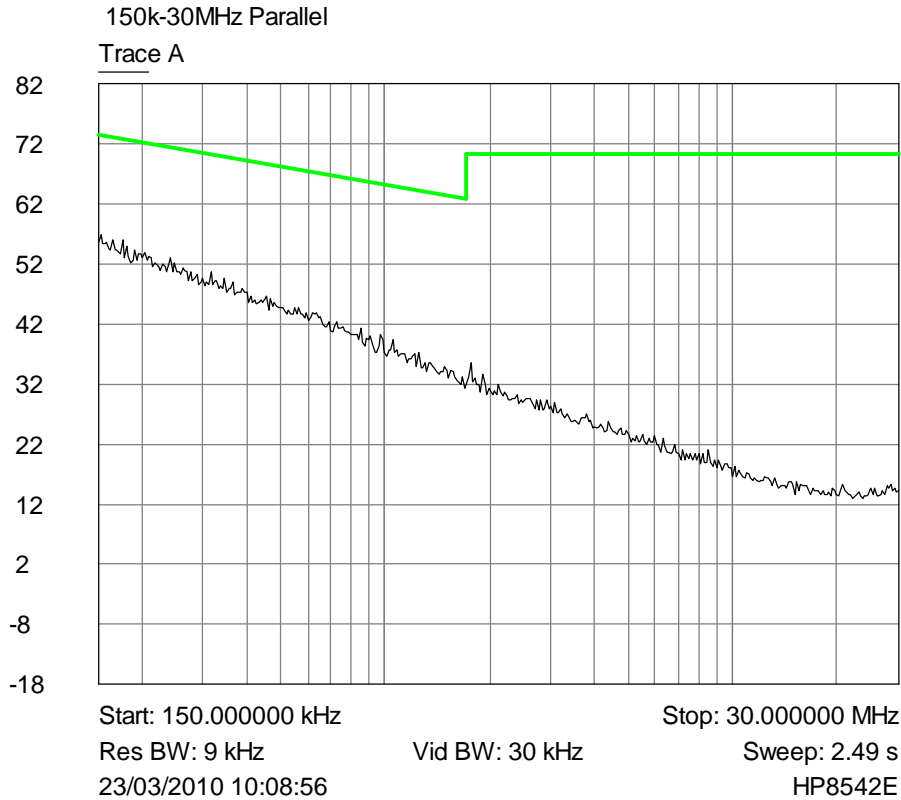
6. Plots and Results
6.1 Conducted Emissions

Test not applicable, EUT is battery powered only.

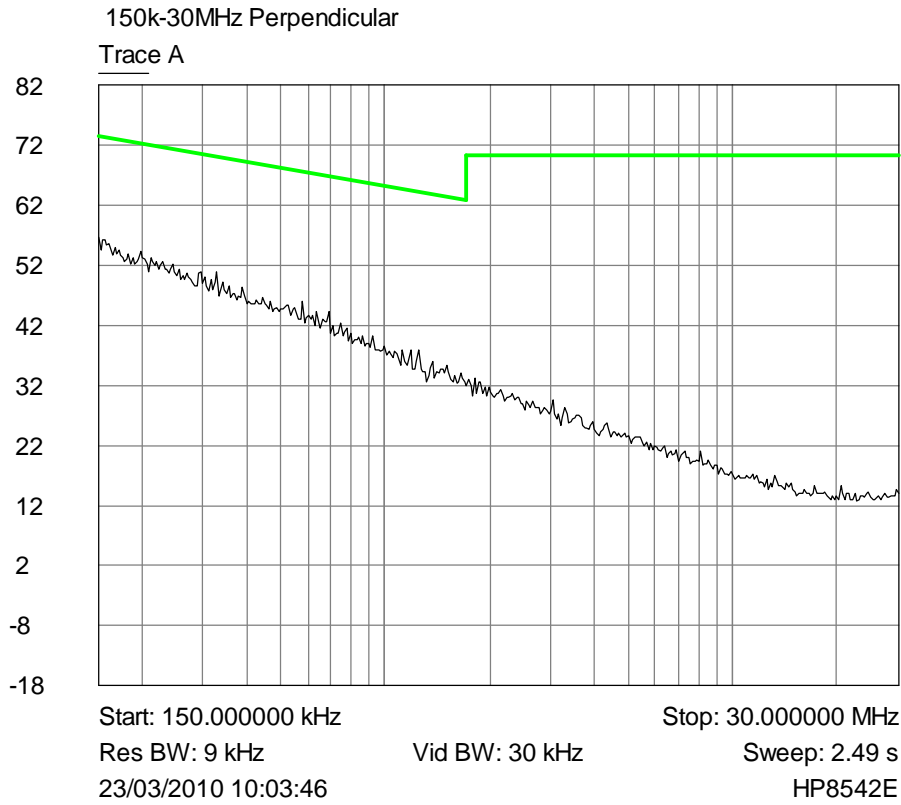
6.2 Radiated Emissions

6.2.1 150kHz – 1GHz.

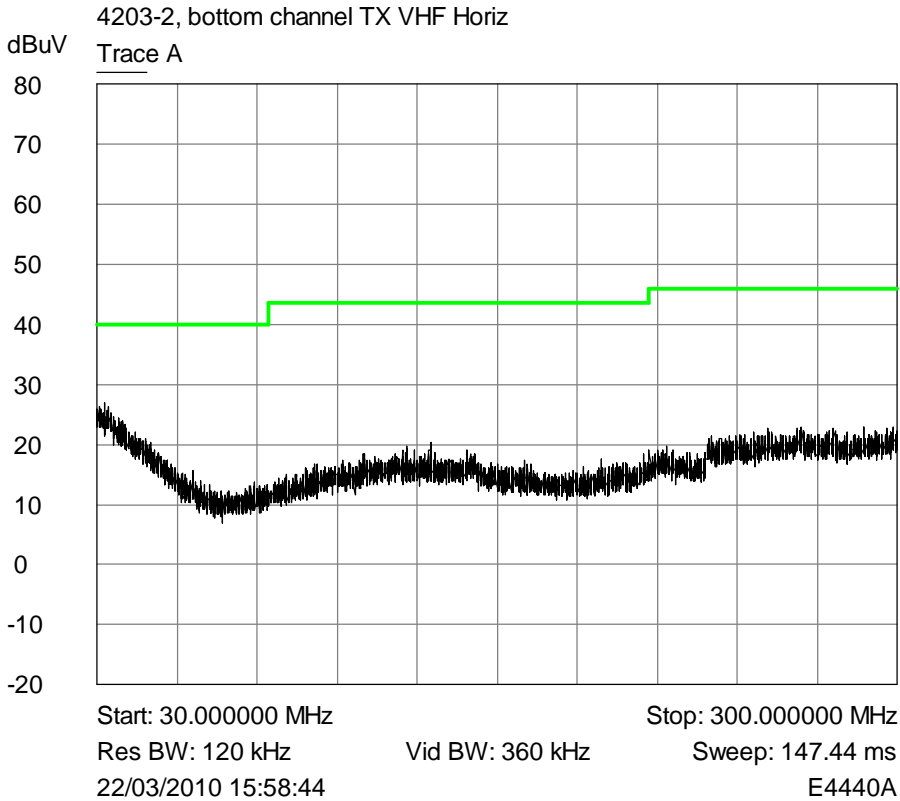
Middle Channel Plots shown only, all three channels comply.



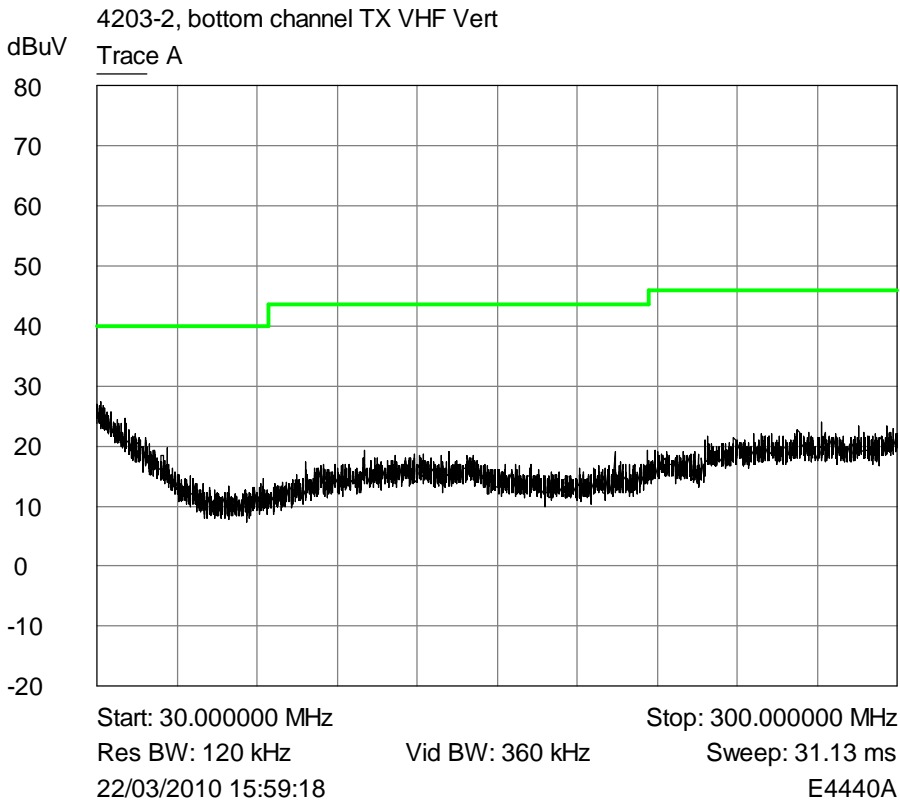
Plot of peak Parallel emissions 150kHz - 30MHz against the quasi-peak limit line.



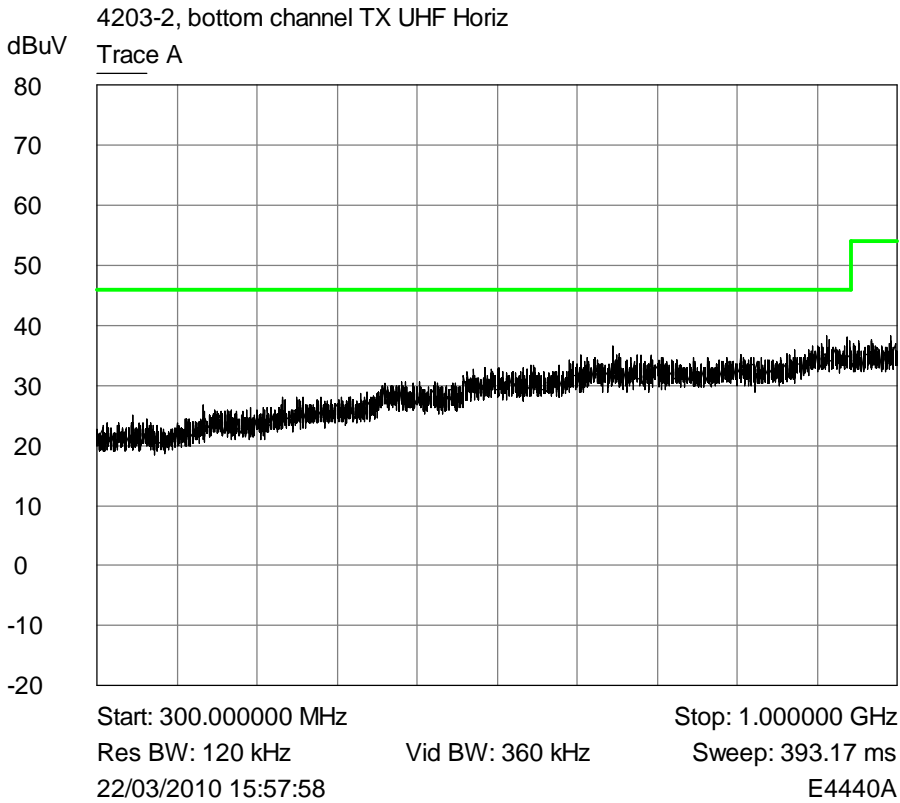
Plot of peak Perpendicular emissions 150kHz - 30MHz against the quasi-peak limit line.



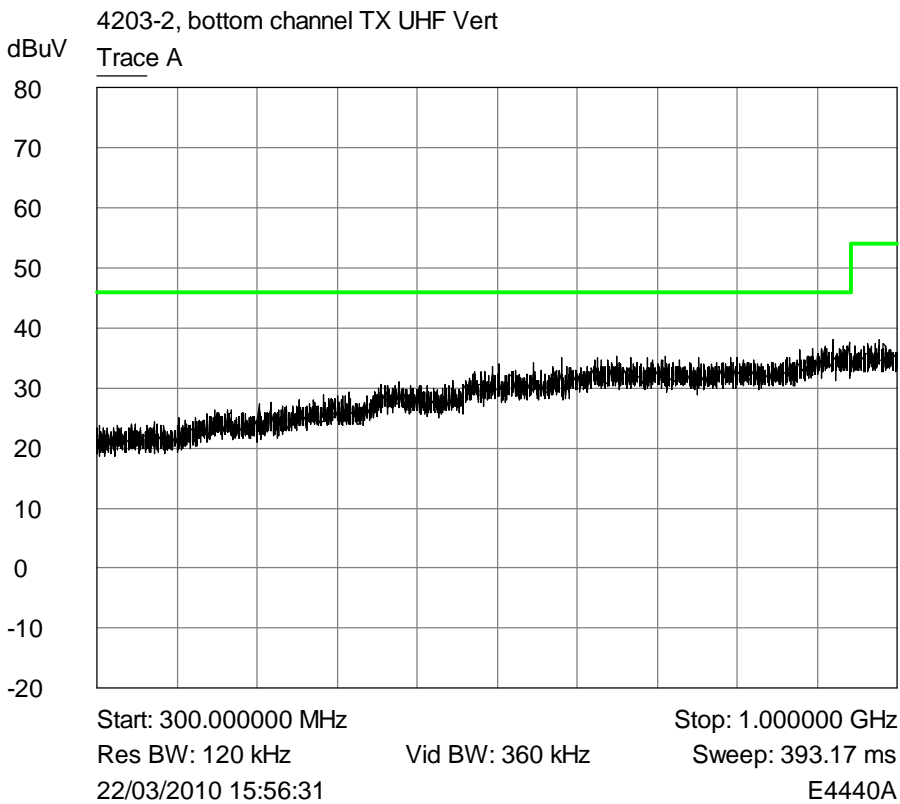
Plot of peak horizontal emissions 30MHz - 300MHz against the quasi-peak limit line.



Plot of peak vertical emissions 30MHz - 300MHz against the quasi-peak limit line.



Plot of peak horizontal emissions 300MHz - 1GHz against the quasi-peak limit line.



Plot of peak vertical emissions 300MHz - 1GHz against the quasi-peak limit line.

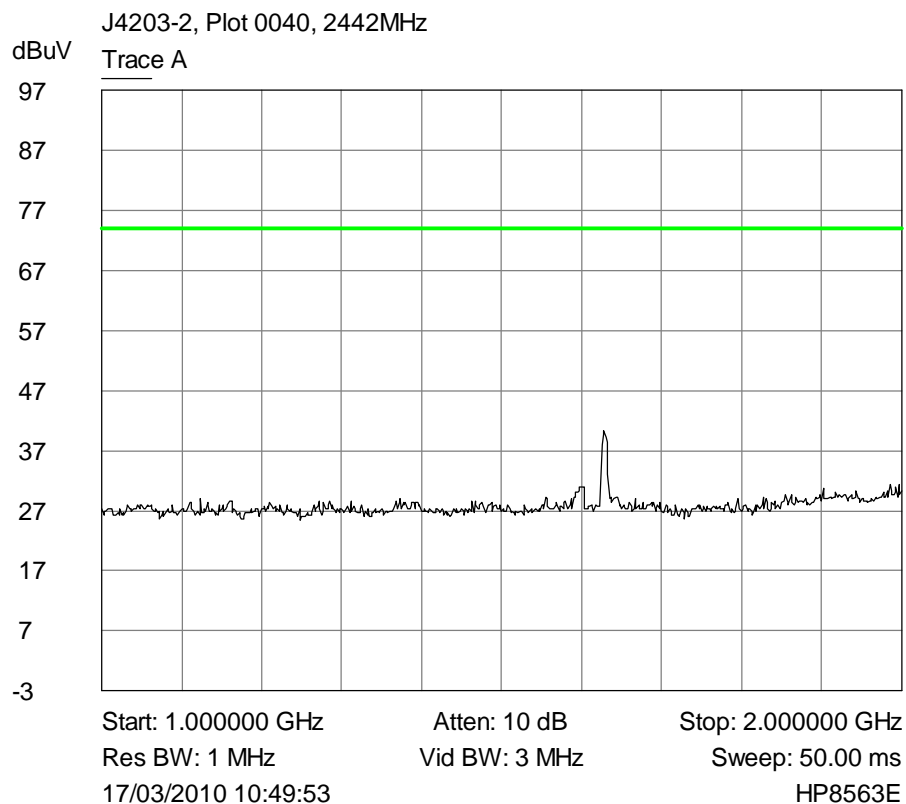
Table of signals measured below 1GHz within 20dB of limits.

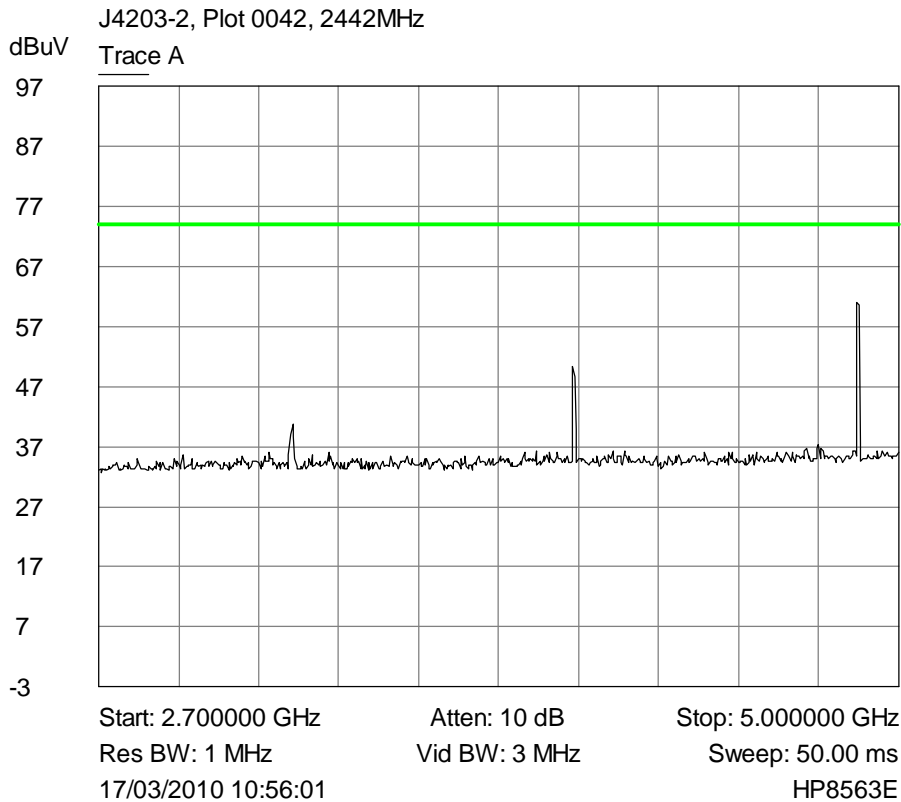
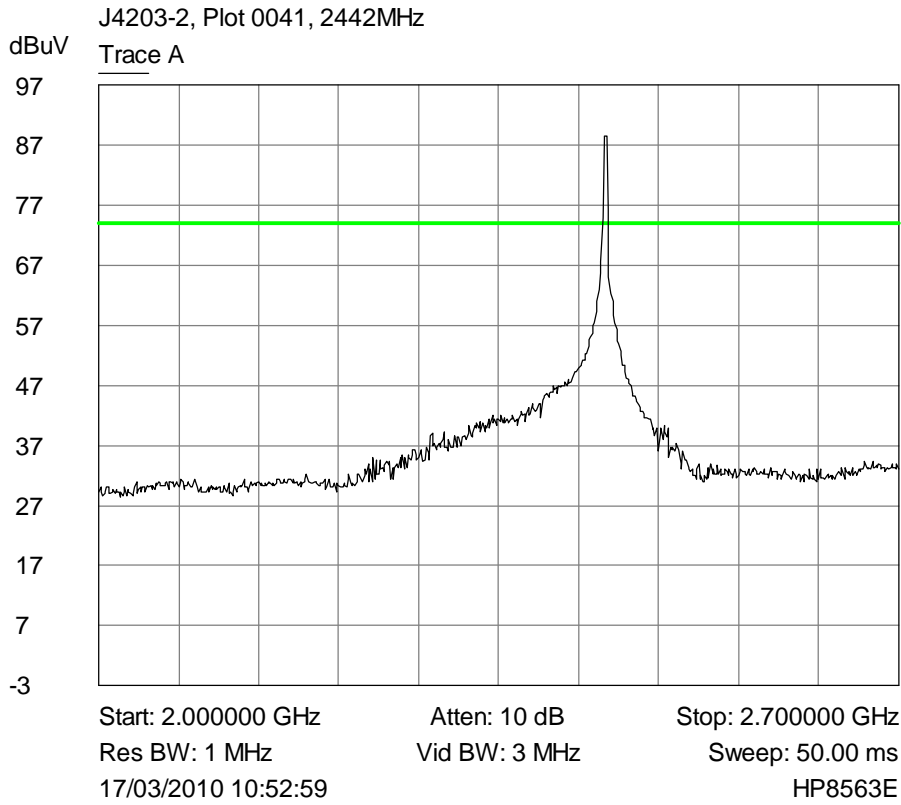
None found.

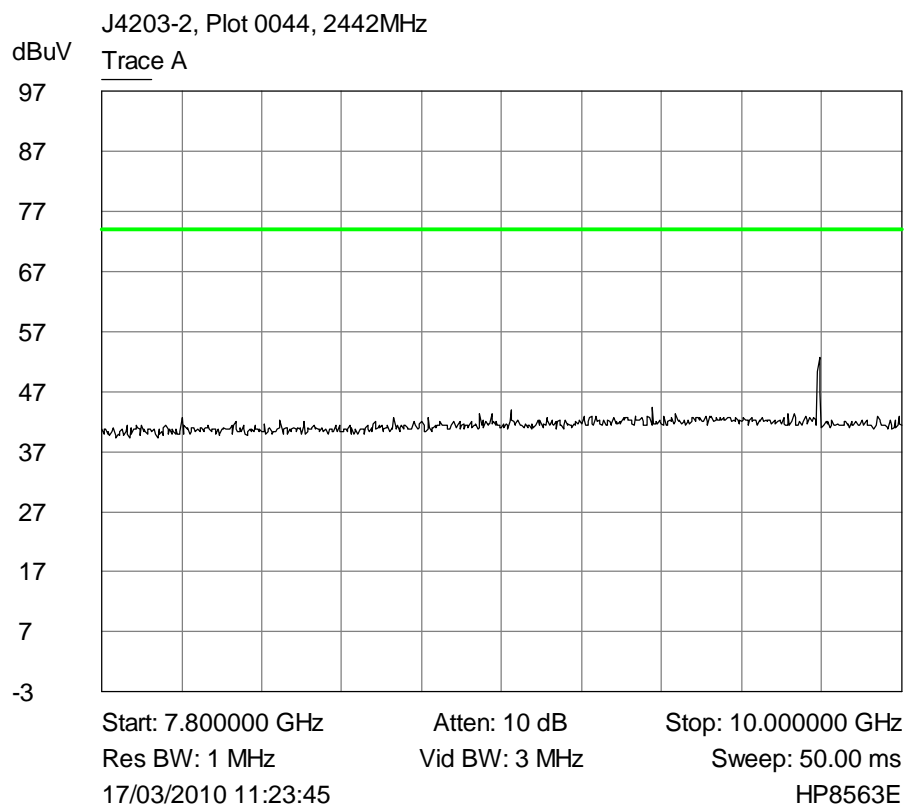
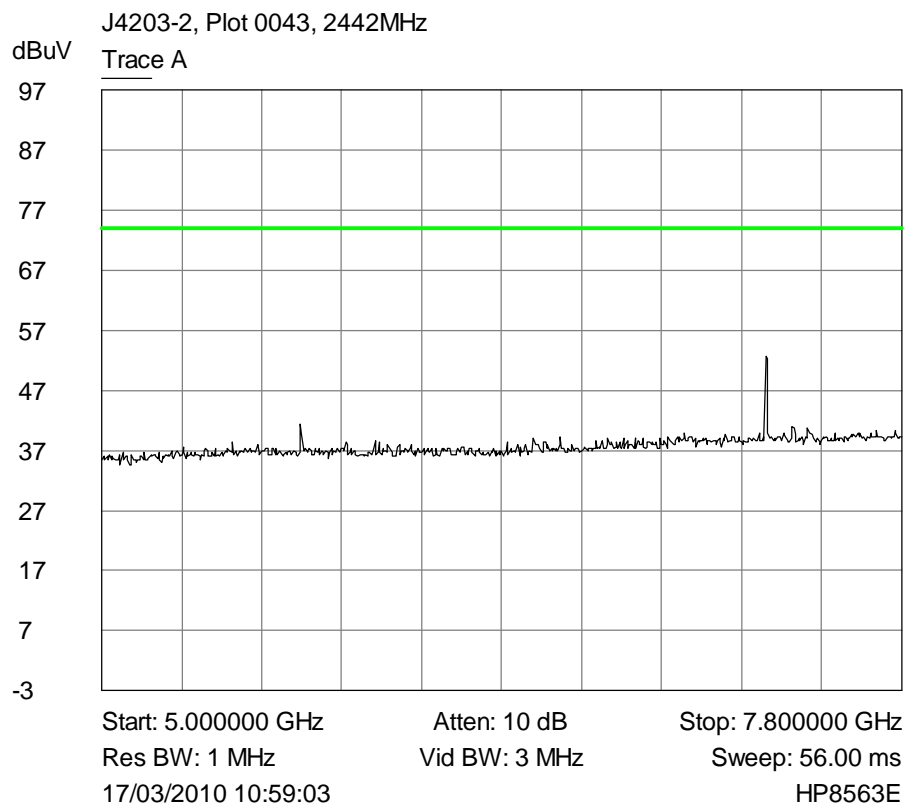
6.2.2 Above 1GHz

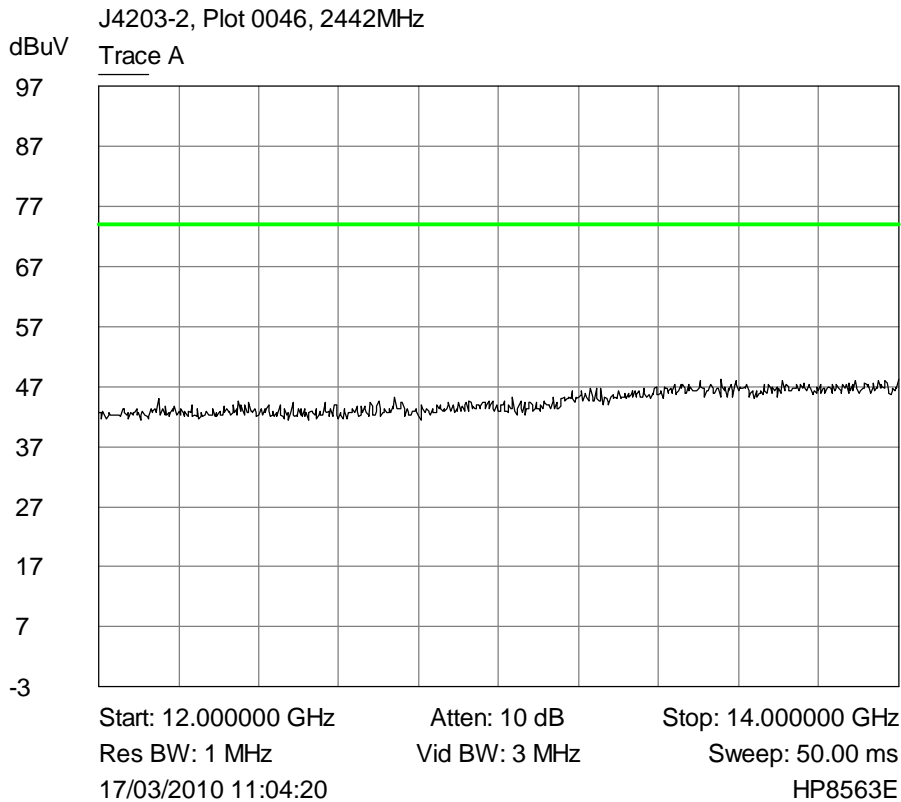
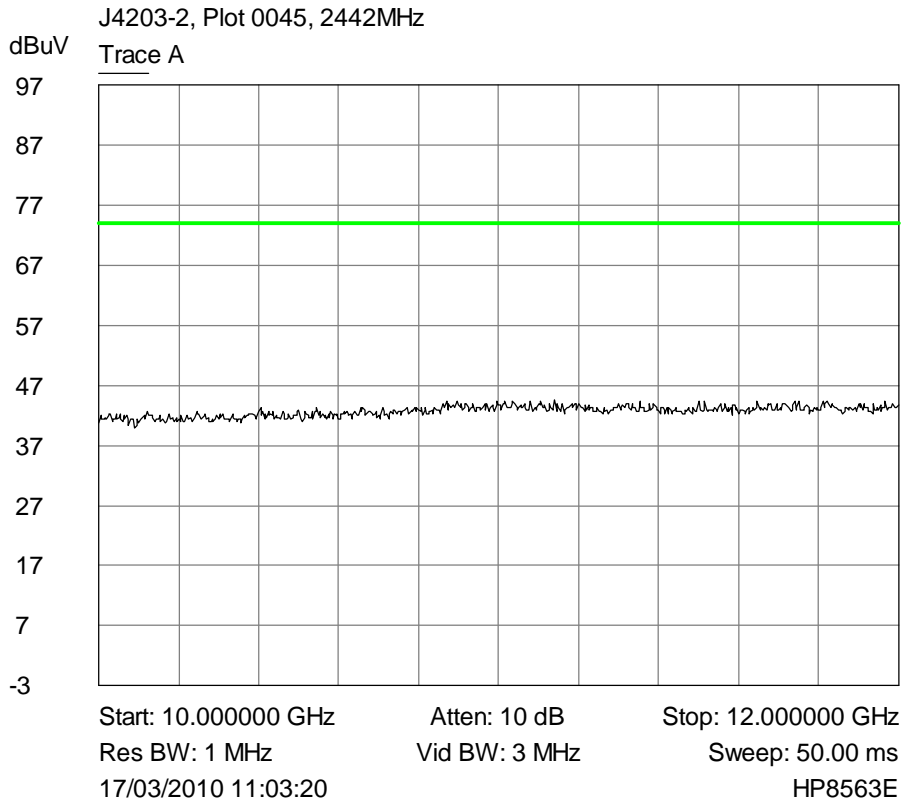
Middle Channel Plots shown only (peak plots taken due to the transmitter duty cycle), all channels comply.

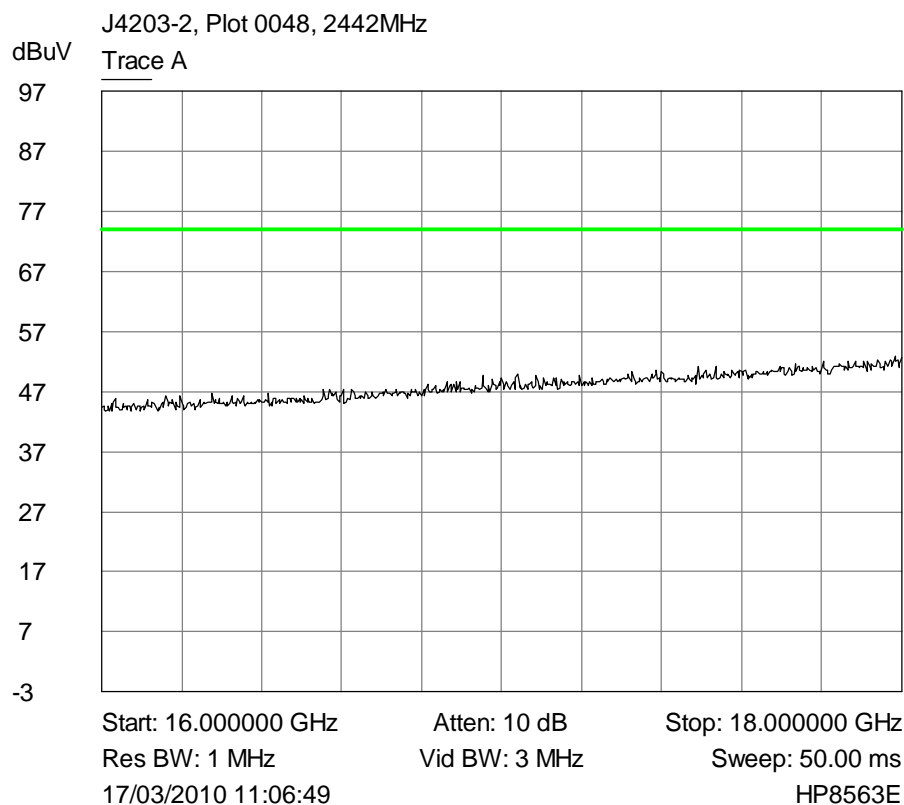
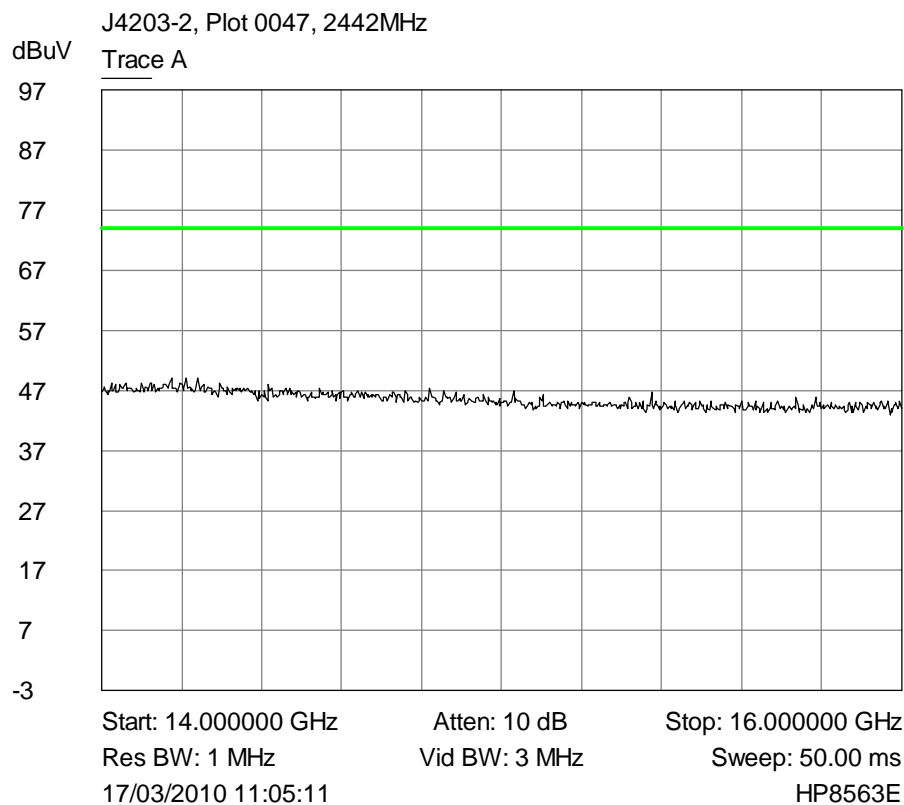
Plots of Peak horizontal emissions 1GHz - 25GHz against the Peak limit line.

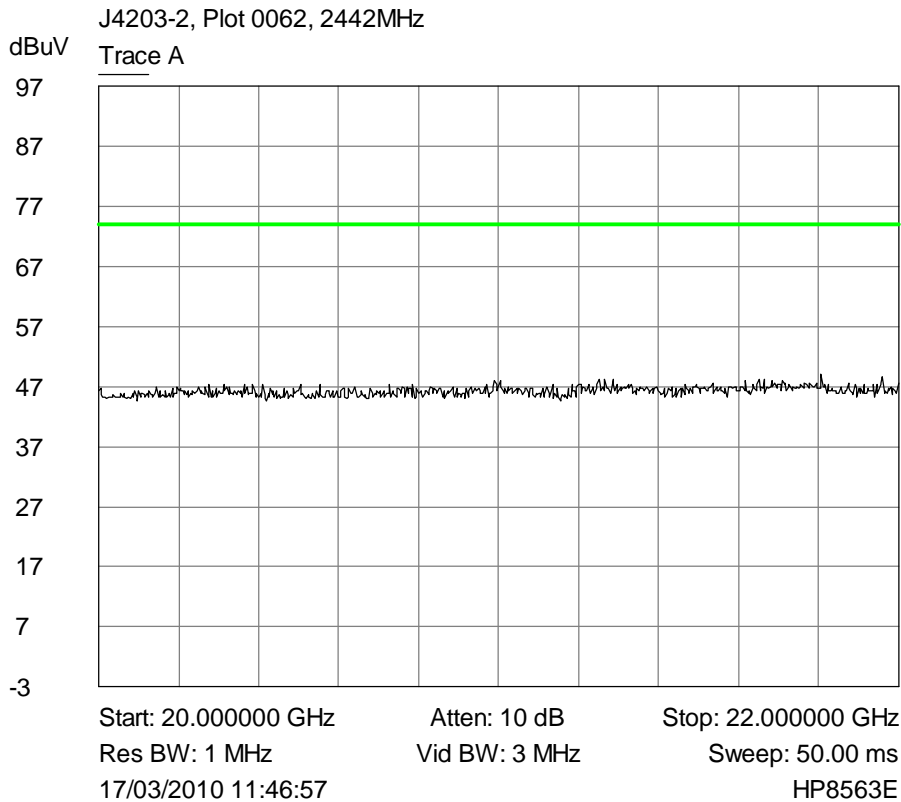
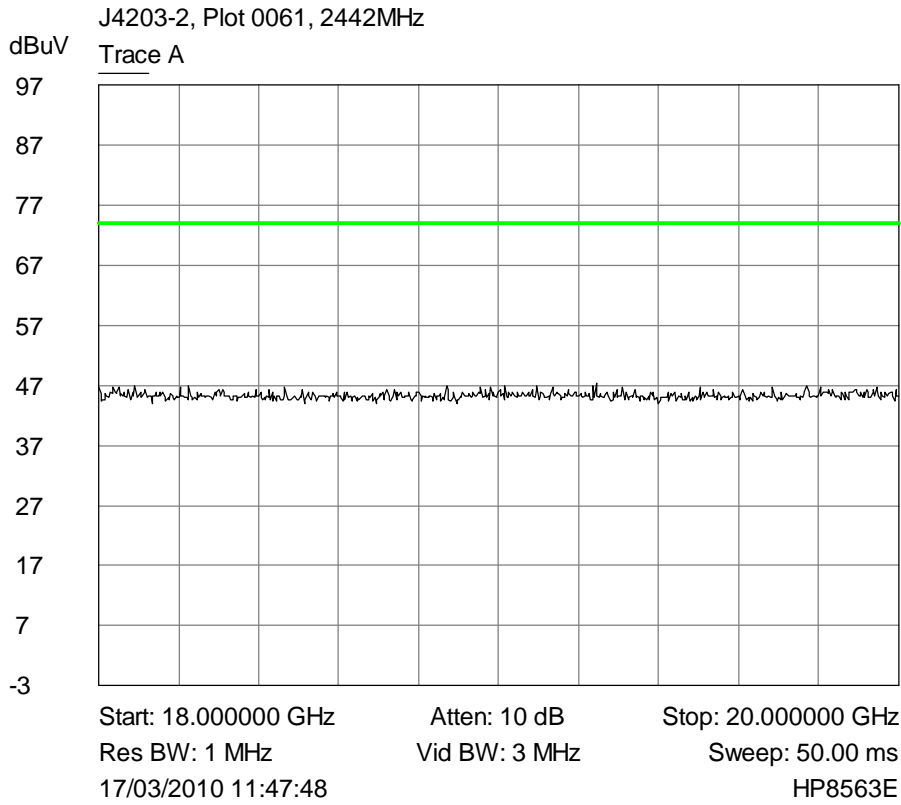


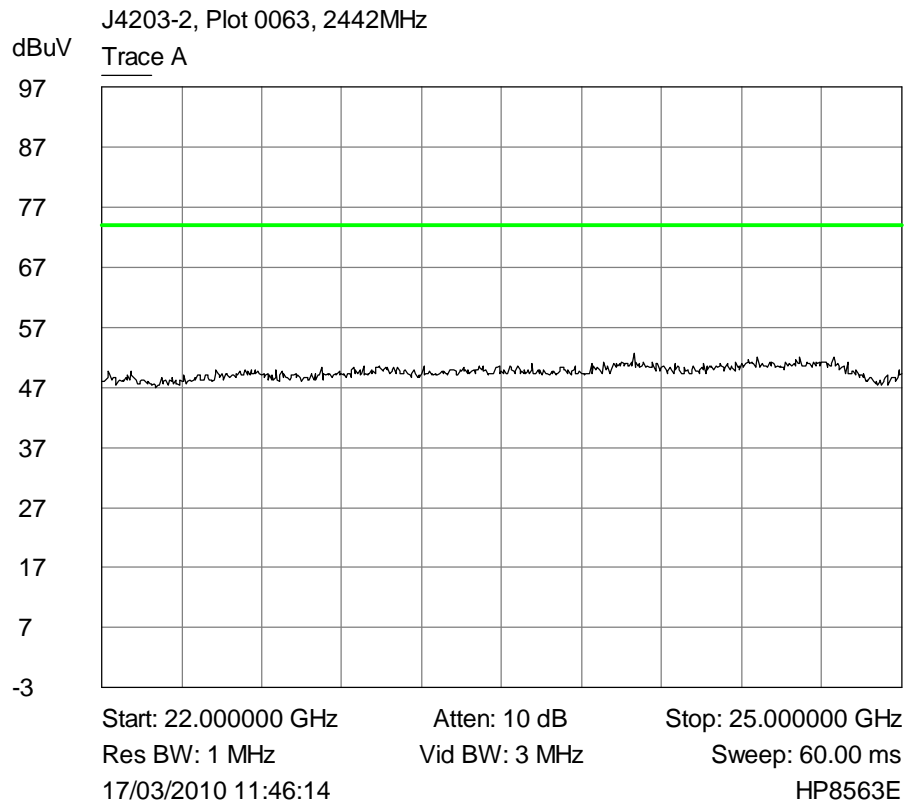




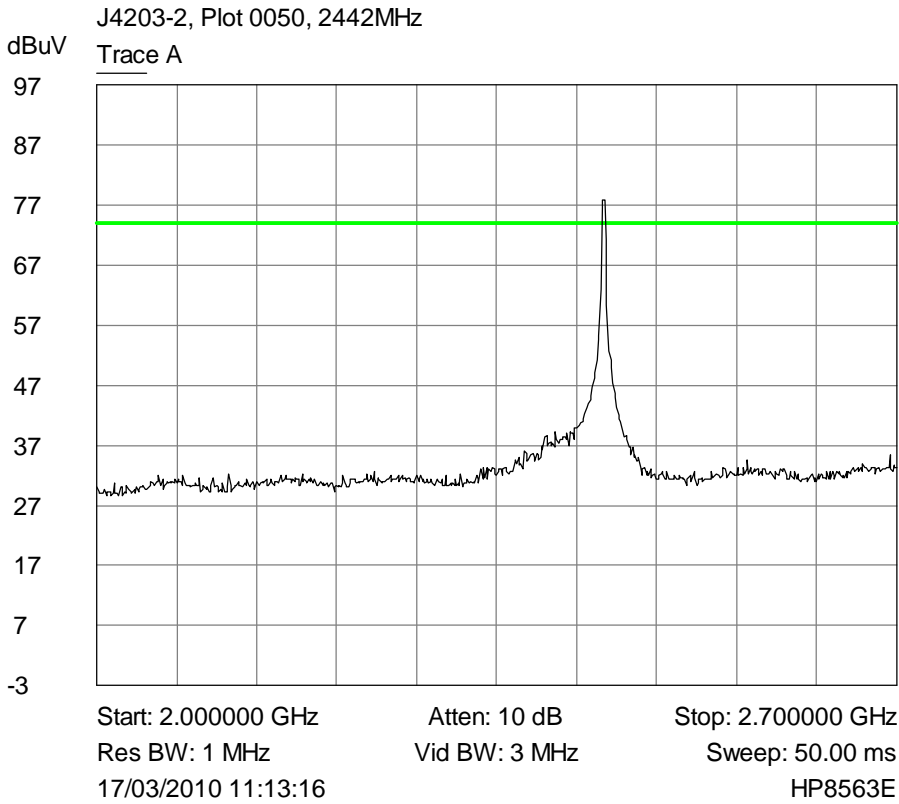


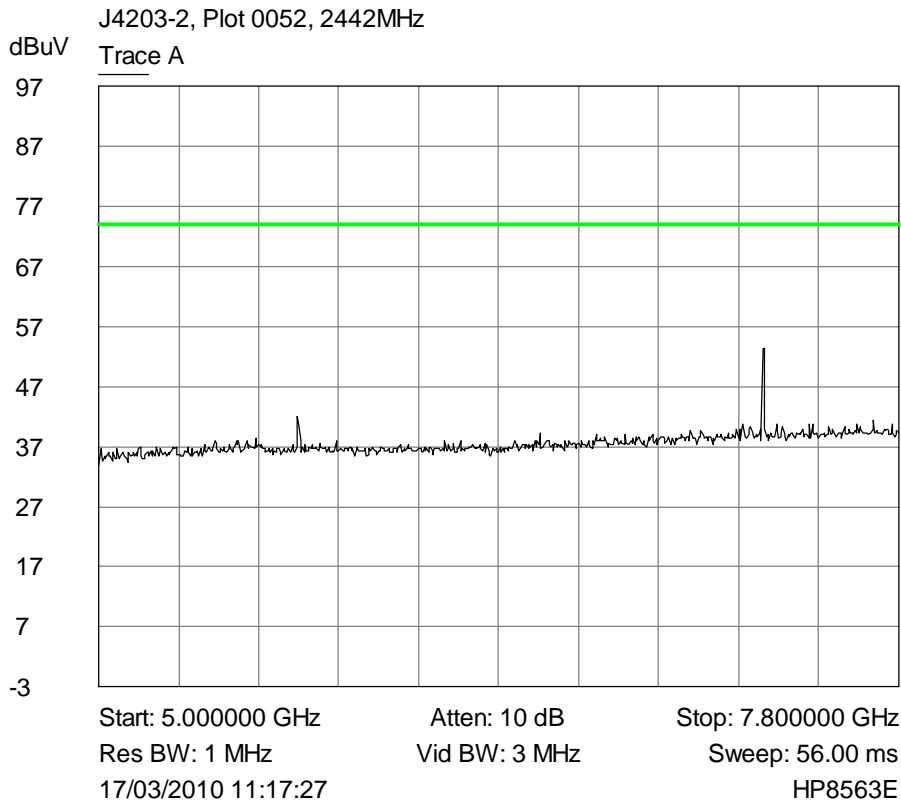
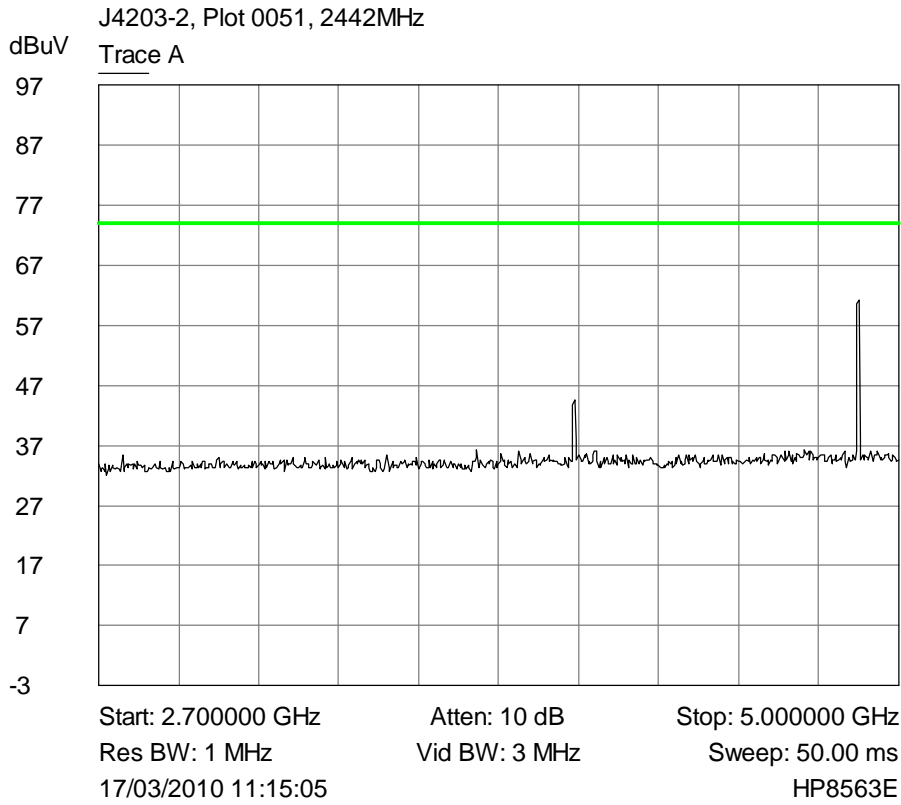


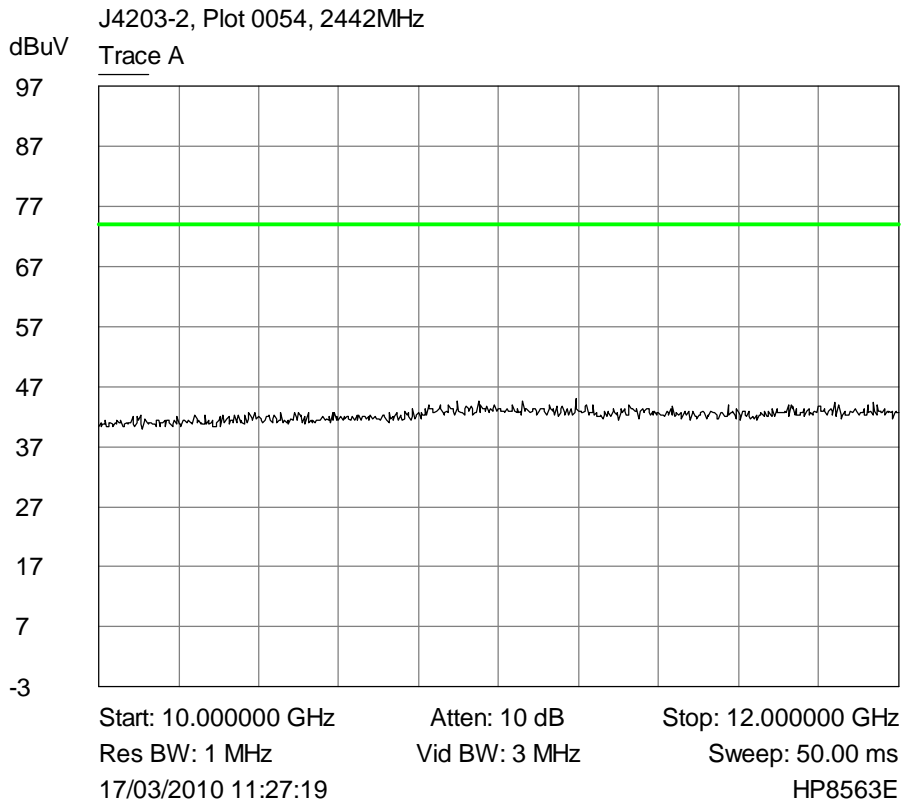
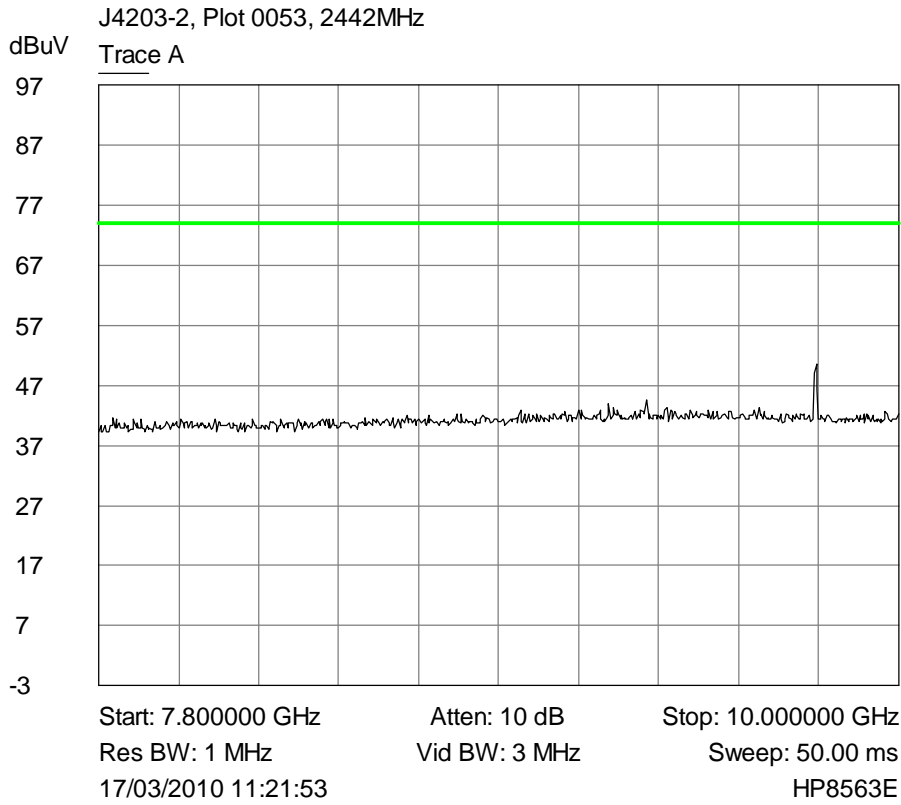


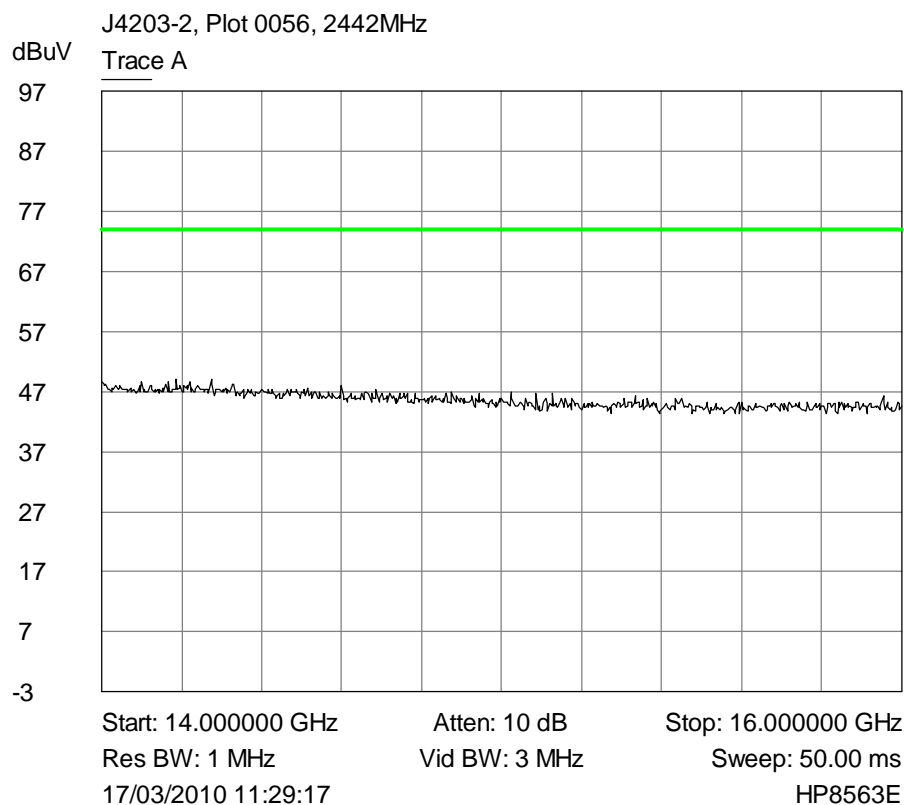
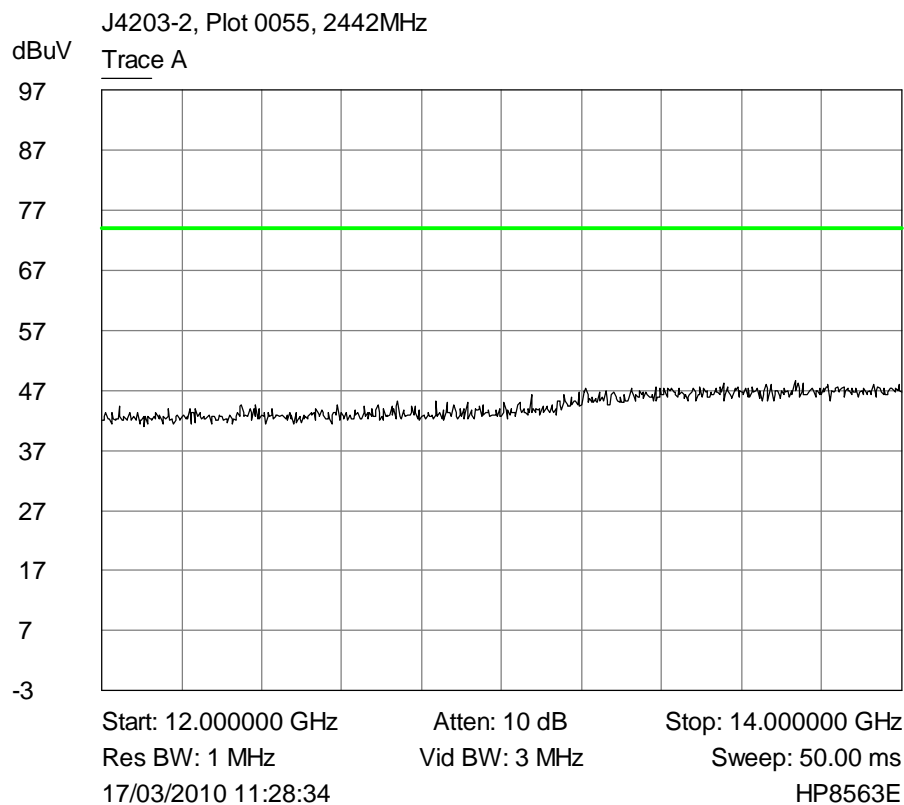


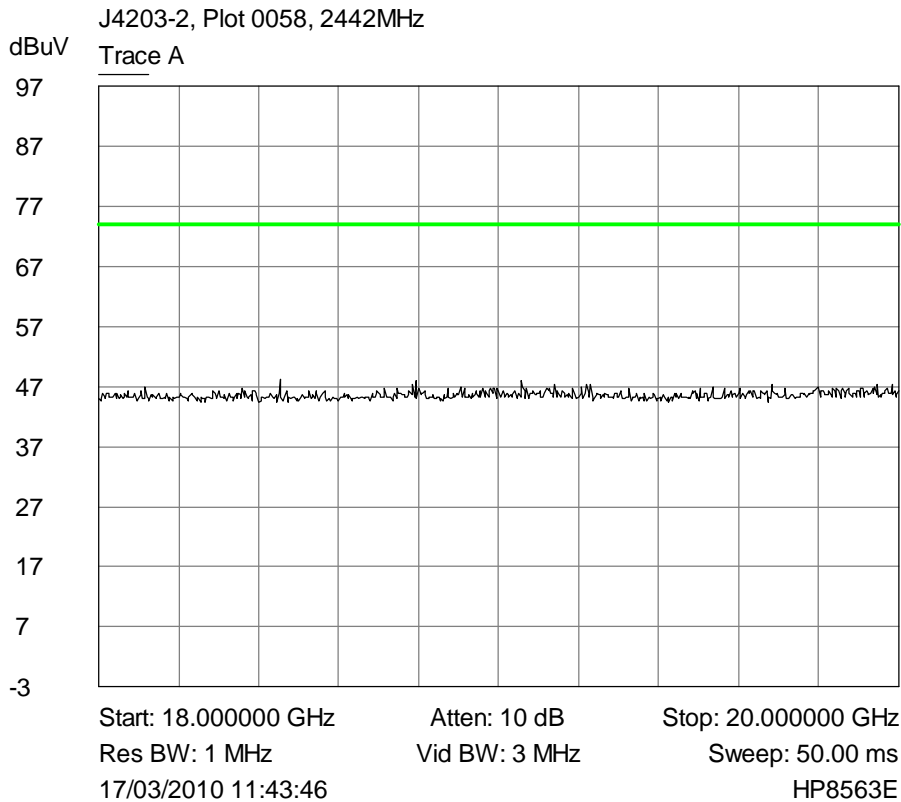
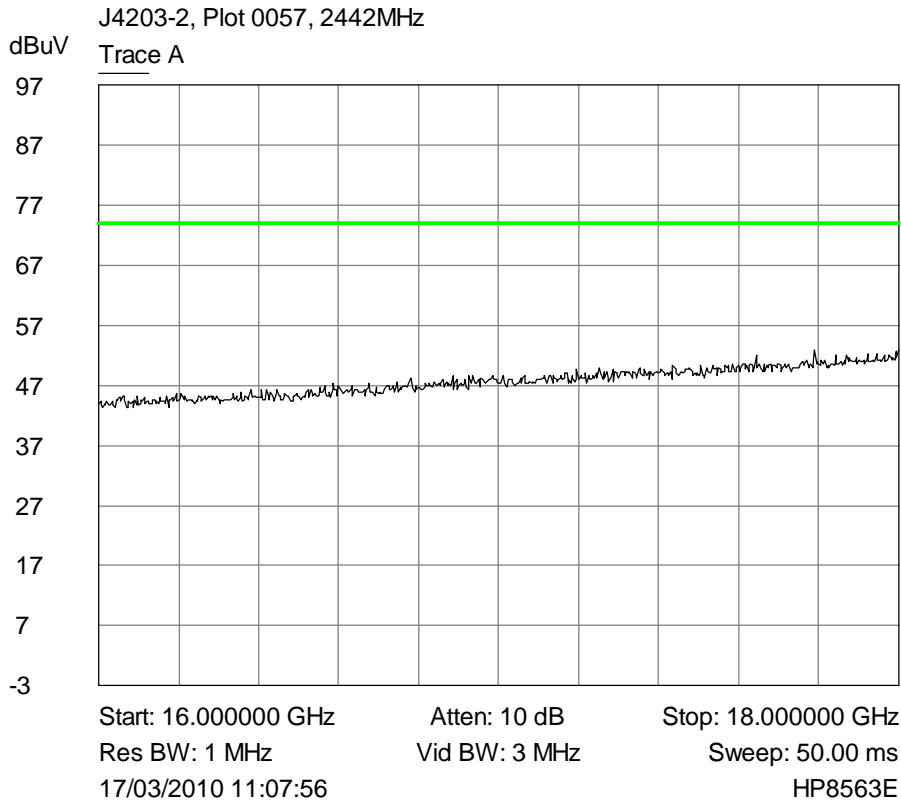
Plot of Peak Vertical emissions 1GHz - 25GHz against the peak limit line.











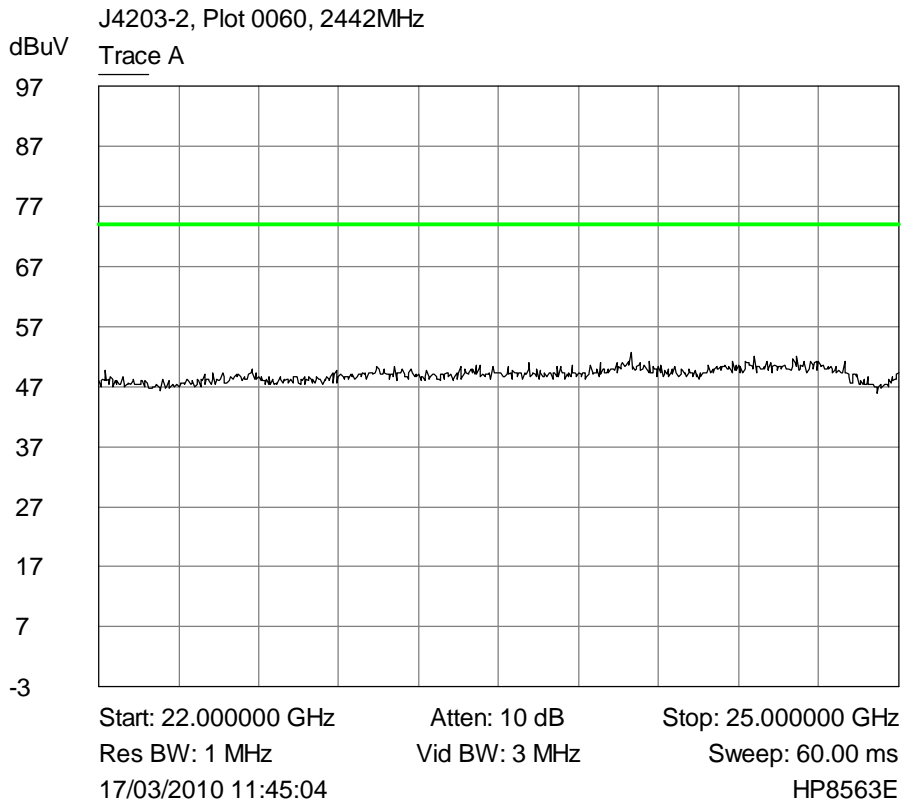
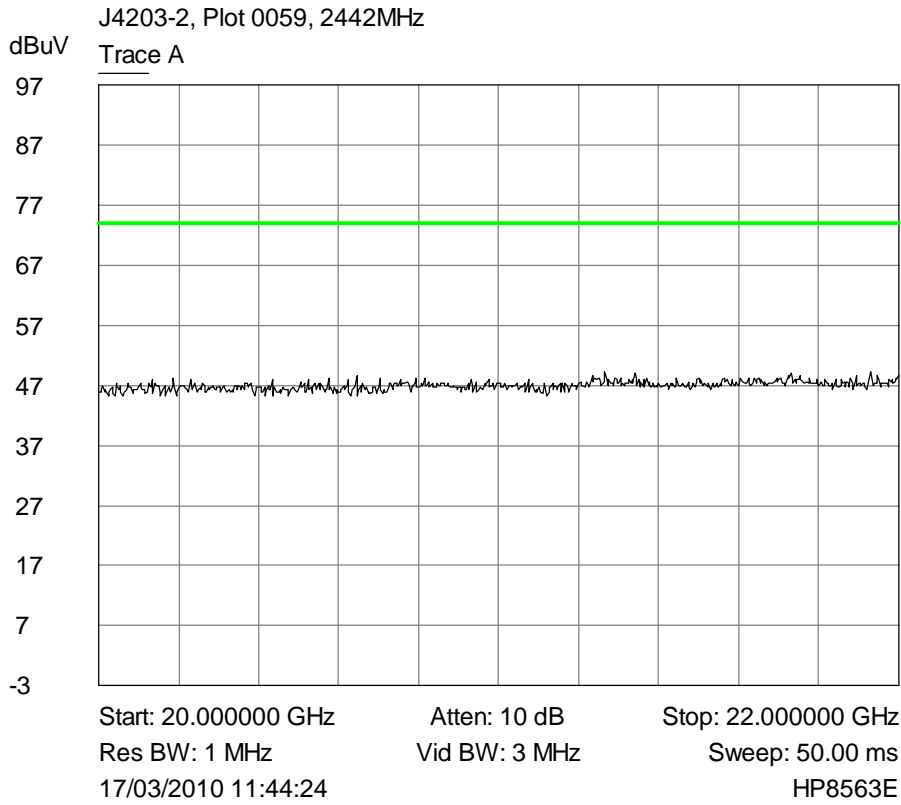


Table of signals measured above 1GHz within 20dB of limits.

Bottom Channel Horizontal

Signal Number	Frequency (MHz)	PK Amp (dBuV/M)	PK -Lim (dB)	AV Amp (dBuV/M)	AV -Lim (dB)
1	4000	50.8	-23.2	34.09	-19.91
2	4804	63.6	-10.4	46.89	-7.11
3	7206	52.5	-21.5	35.79	-18.21
4	9611	54.5	-19.5	37.79	-16.21

Bottom Channel Vertical

Signal Number	Frequency (MHz)	PK Amp (dBuV/M)	PK -Lim (dB)	AV Amp (dBuV/M)	AV -Lim (dB)
1	4804	60.5	-13.5	43.79	-10.21
2	7206	58	-16	41.29	-12.71

Middle Channel Horizontal

Signal Number	Frequency (MHz)	PK Amp (dBuV/M)	PK -Lim (dB)	AV Amp (dBuV/M)	AV -Lim (dB)
1	4065	50.2	-23.8	33.49	-20.51
2	4885	63	-11	46.29	-7.71
3	7326	52.5	-21.5	35.79	-18.21
4	9773	52.7	-21.3	35.99	-18.01

Middle Channel Vertical

Signal Number	Frequency (MHz)	PK Amp (dBuV/M)	PK -Lim (dB)	AV Amp (dBuV/M)	AV -Lim (dB)
1	4885	61.2	-12.8	44.49	-9.51
2	7326	53.3	-20.7	36.59	-17.41
3	9773	50.5	-23.5	33.79	-20.21

Top Channel Horizontal

Signal Number	Frequency (MHz)	PK Amp (dBuV/M)	PK -Lim (dB)	AV Amp (dBuV/M)	AV -Lim (dB)
1	4130	51.2	-22.8	34.49	-19.51
2	4958	63.5	-10.5	46.79	-7.21
3	7436	50.2	-23.8	33.49	-20.51
4	9919	53.3	-20.7	36.59	-17.41

Top Channel Vertical

Signal Number	Frequency (MHz)	PK Amp (dBuV/M)	PK -Lim (dB)	AV Amp (dBuV/M)	AV -Lim (dB)
1	4958	60.5	-13.5	43.79	-10.21
2	7436	52	-22	35.29	-18.71
3	9919	50.8	-23.2	34.09	-19.91

Average amplitudes shown have been calculated from the peak amplitudes with the duty cycle correction factor of 16.71dB taken into account.

6.3 Fundamental Emissions

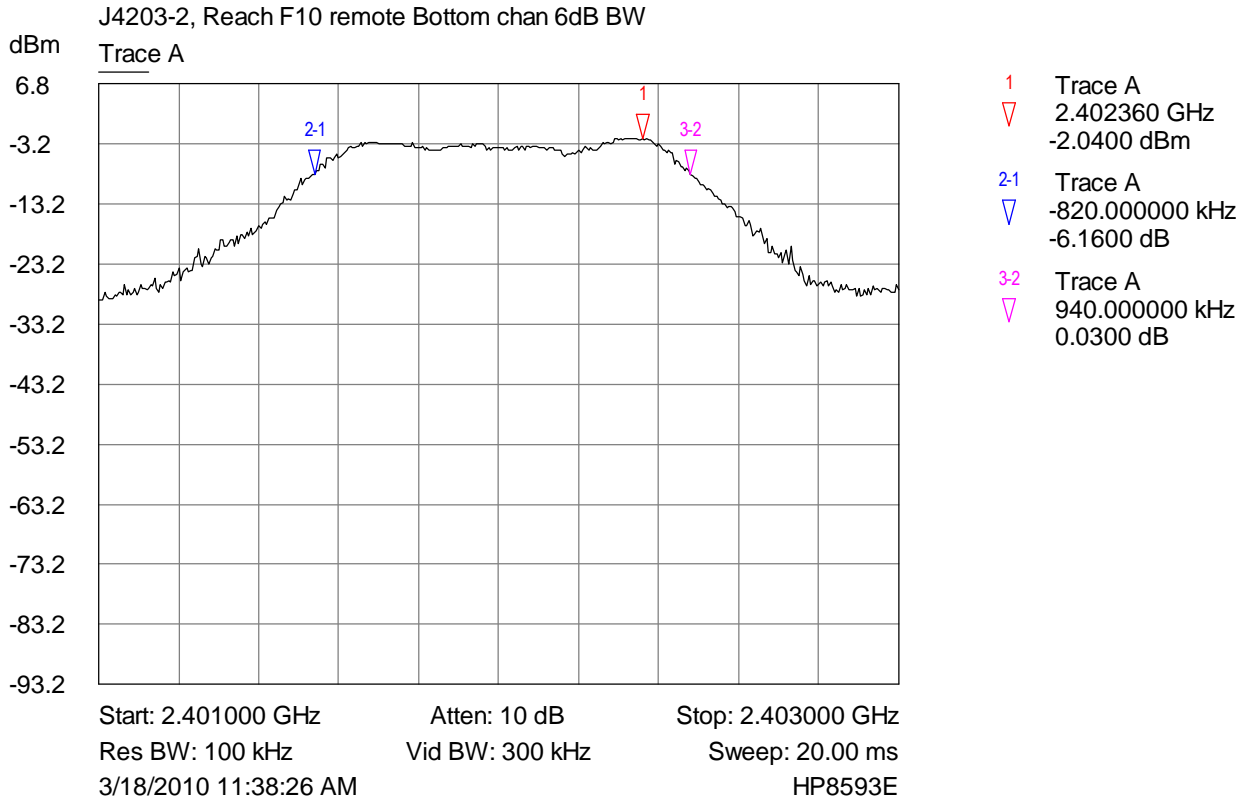
See 6dB bandwidth plots.

6.4 Duty Cycle

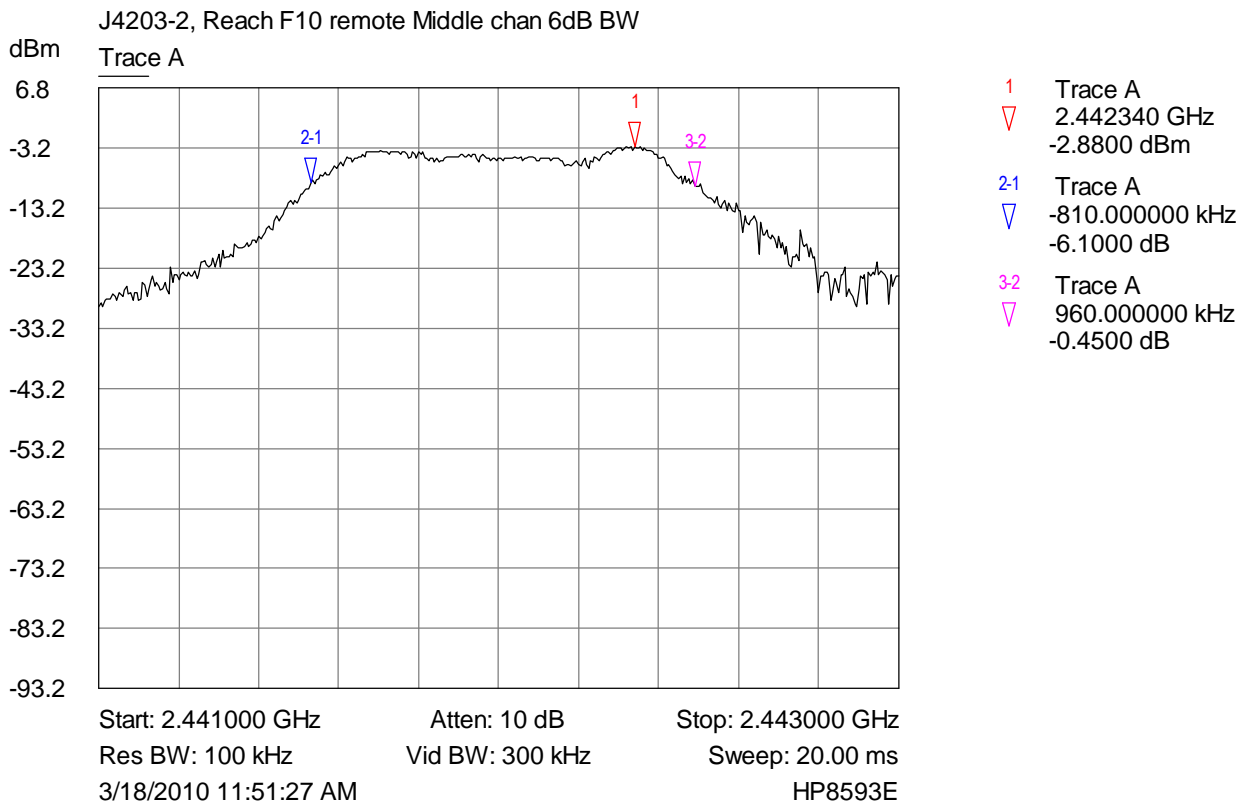
No test requirement.

6.5 6dB Bandwidth

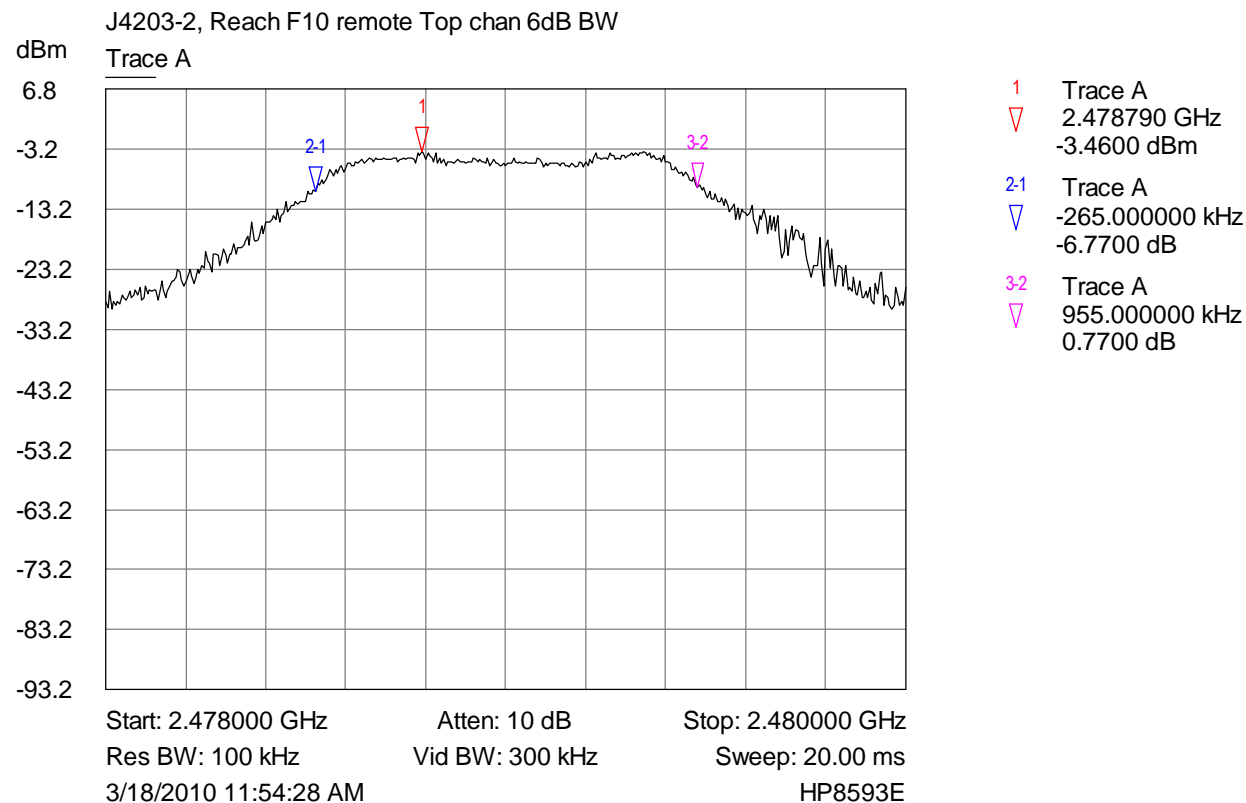
Bottom channel.



Middle channel



Top channel

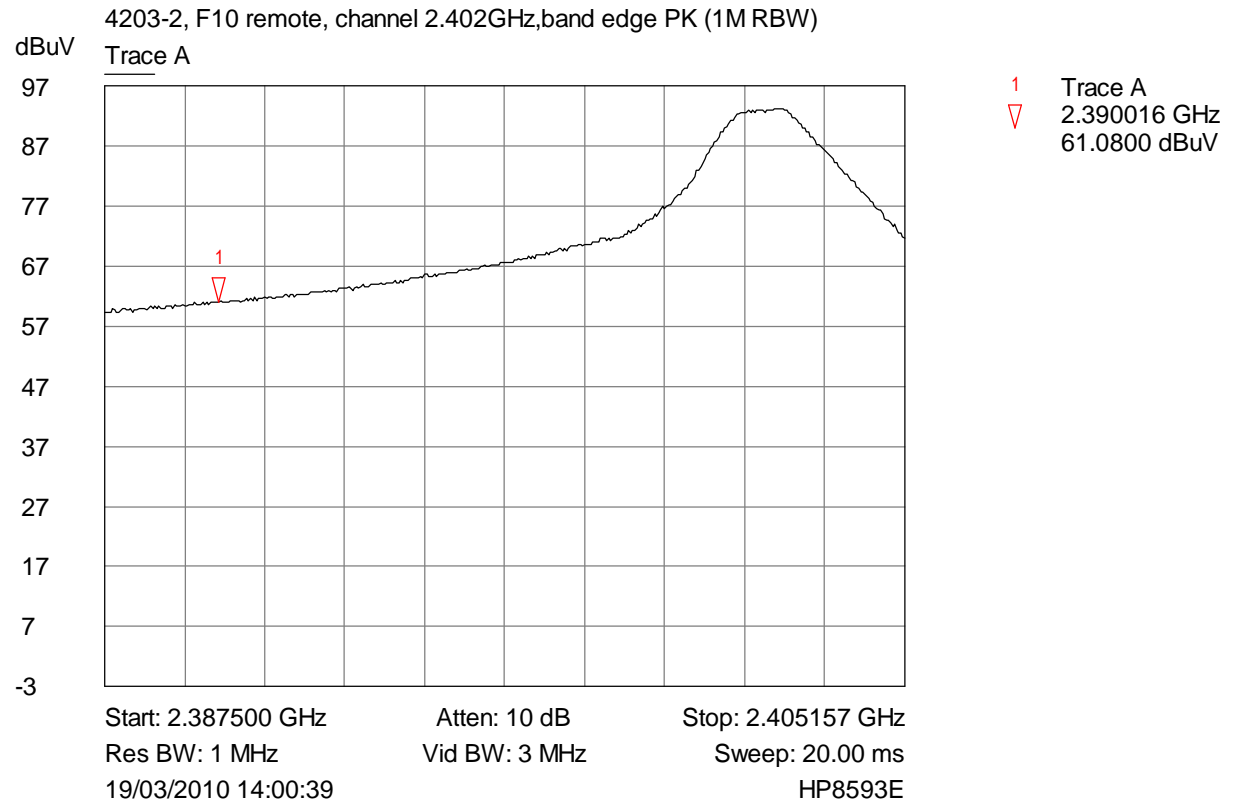


6.6 Band Edge Compliance

Bottom Channel.

2310 – 2390 MHz restricted band compliance.

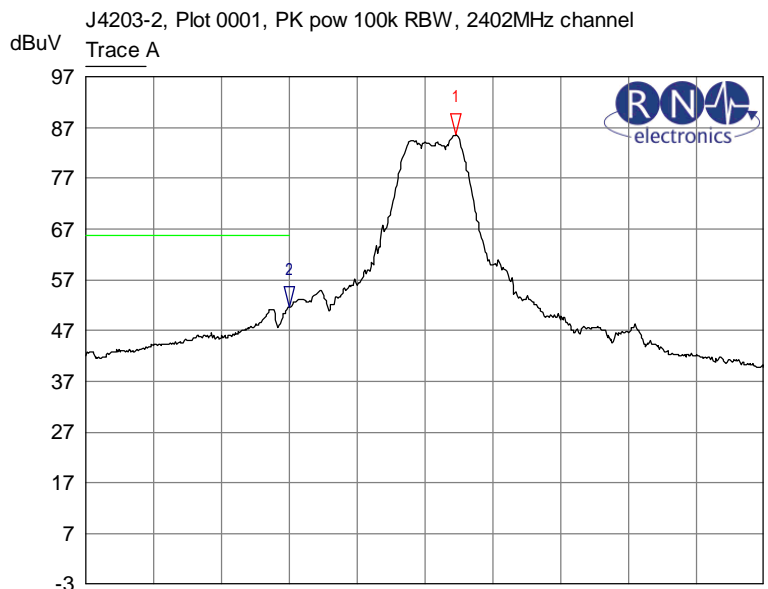
Peak Plot:



Average calculation:

After duty cycle correction of 16.71 dB applied, value at band edge = 44.37 dBuV/m.

2400MHz band edge 20dBc compliance.



Start: 2.397000 GHz Stop: 2.407000 GHz

Res BW: 100 kHz Vid BW: 300 kHz Sweep: 50.00 ms

PASS

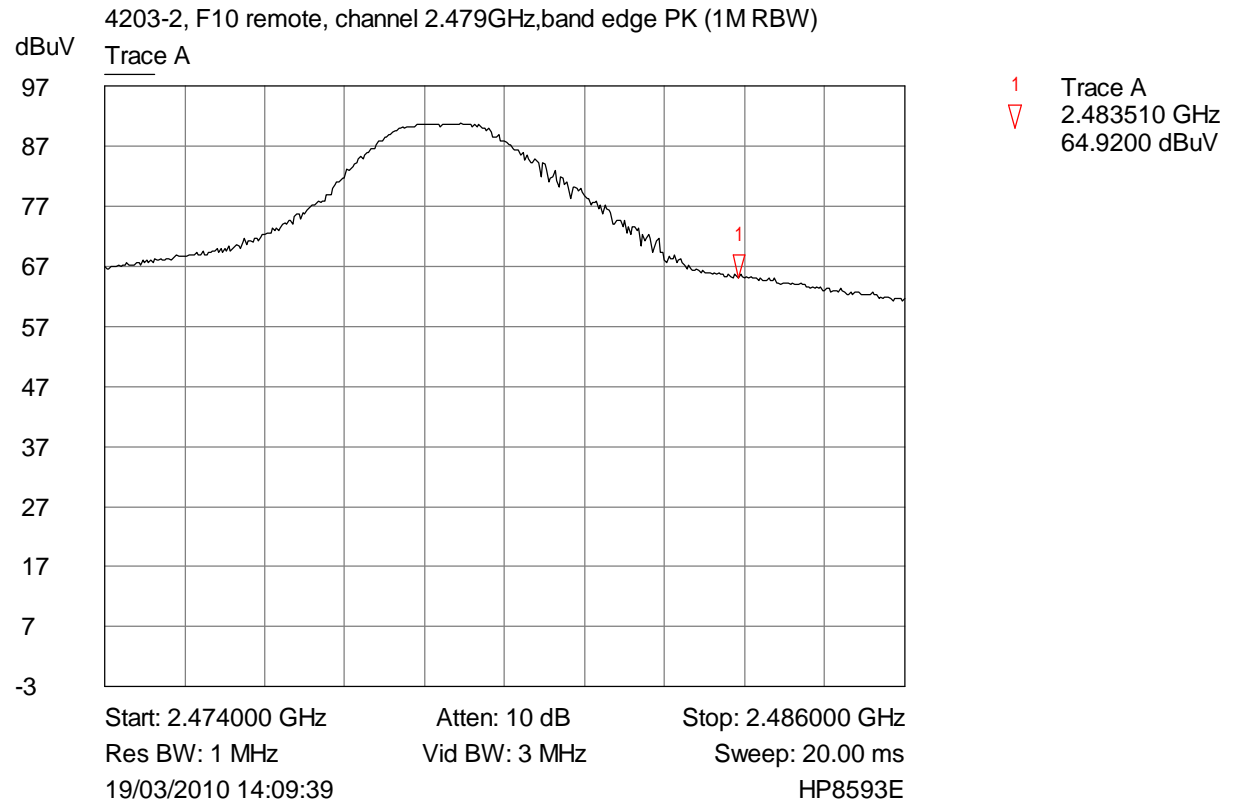
16/03/2010 15:33:31 Atten: 10 dB HP8563E

J4203-2, Plot 0001, PK pow 100k RBW, 2402MHz channel.spt

Top Channel.

2483.5 – 2500MHz restricted band compliance.

Peak plot:



Average calculation:

After duty cycle correction of 16.71dB applied, value at band edge = 48.21 dBuV/m.

6.7 Frequency separation

Not applicable, EUT does not employ FHSS technology.

6.8 Number of hopping channels

Not applicable, EUT does not employ FHSS technology.

7. Explanatory Notes

7.1 Explanation of FAIL LIMIT 1 Statement

The **FAIL MARGIN 1** statement(s) may appear on the graphical plots when the receiver used to measure your equipment detects a signal that exceeds the dashed line. This does not mean that the **EUT** has failed the test, only that the 10 dB calculation margin set, has been exceeded on a peak measurement.

Following the indication that the margin has been exceeded, measurements are made at the frequency (ies) of the peaks. These peaks have been calculated to either Quasi Peak or Average Peak dependant on the test. A table of results has been printed on the reverse of the page. This table looks similar to the one illustrated below: -

Signal Number	Frequency (MHz)	Peak (dB μ V)	PK Delta L 1 (dB)	Avg (dB μ V)	Av Delta L 1 (dB)
1	12345.0000	12.9	-2.5	10.2	-5.2

The First column, labelled Signal Number, is a number that the receiver has given to each signal, which has been calculated.

Column Two, labelled Frequency (MHz), is the frequency of the signal received.

Column Three, labelled Peak (dB μ V), (can also be labelled, in the case of Quasi Peak, Peak dB μ V/m) is the Level that was received at peak amount in dB above 1 μ V.

Column Four, labelled PK Delta L1 (dB), is the same level as Column three but is given in a level relative to the limit line required.

Column Five, labelled AVG (dB μ V), (can also be labelled, in the case of Quasi Peak, QP dB μ V/m) when undertaking a Quasi peak test, This is the Average or Quasi peak calculation results given in dB μ V or dB μ V/m above 1 μ V.

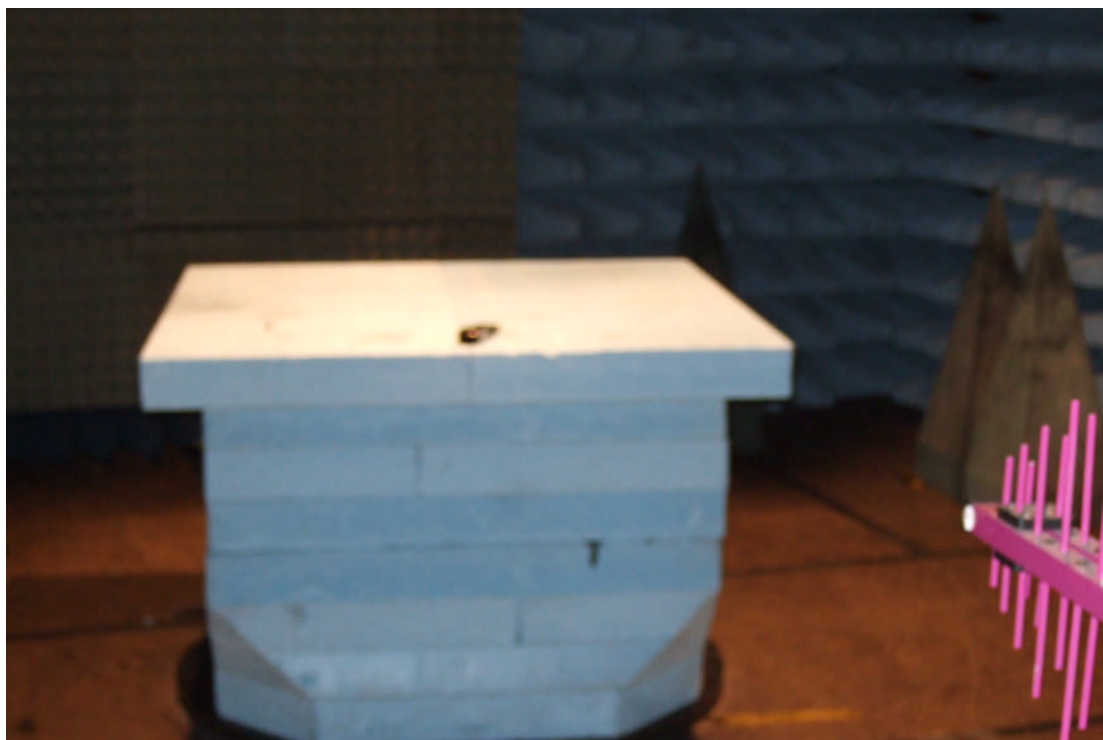
Column Six, labelled AV Delta L 1 (dB), (can also be labelled, in the case of Quasi Peak, QP Delta L 1 (dB)) is the Average or Quasi Peak calculation relevant to the limit line. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

7.2 Explanation of limit line calculations for radiated measurements

The limits given in the test standard are normally expressed as absolute values (e.g. in μ V/m at a specified distance), whereas the measured values are expressed as peak, quasi peak or average values in dB μ V/m referenced to the measuring instrument inputs. RN Electronics calibrate the test set-up to account for any path losses, antenna gains, etc. so that the value read at the receiver relates directly to the absolute value required, except that it is expressed in dB relative to one microVolt and may need to take account of any alternative measuring distance used. Examples:

- (a) limit of 500 μ V/m equates to $20.\log(500) = 54$ dB μ V/m.
- (b) limit of 300 μ V/m at 10m equates to $20.\log(300 \cdot 10/3) = 60$ dB μ V/m at 3m

8. Photographs



**Photograph of the EUT as viewed from in front
of the antenna, site M.**

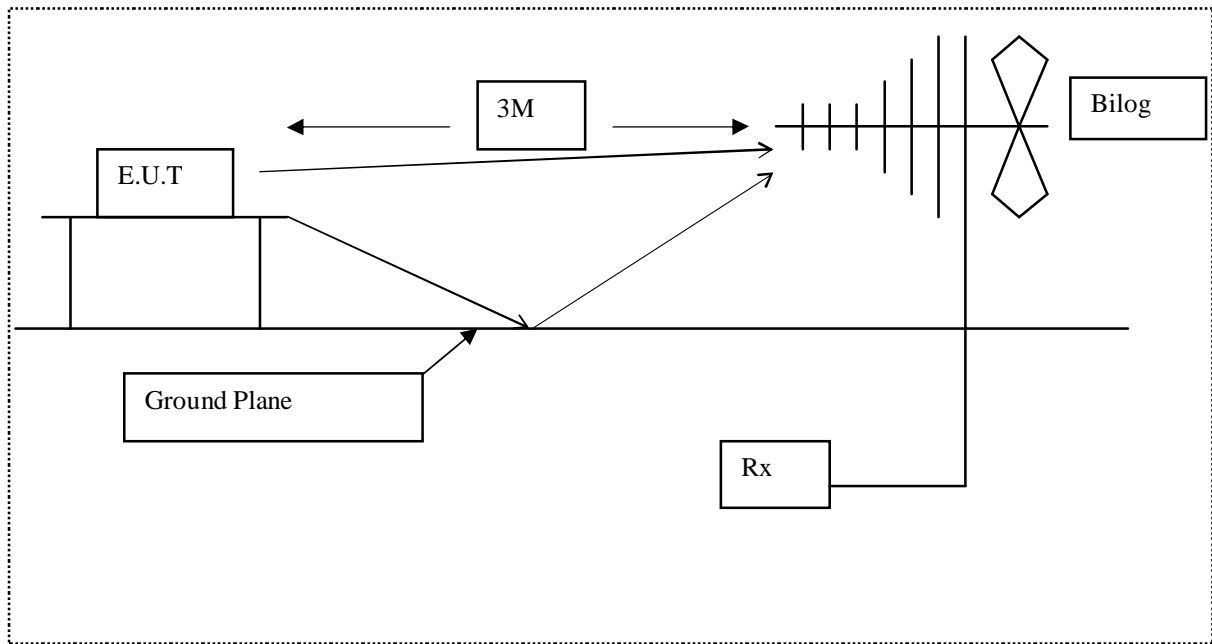


Diagram of the radiated emissions test setup.



Identifying Photograph of the EUT



Temporary RF port of the second EUT

9. Signal Leads

The EUT did not have any signal leads or ports.

10. Test Equipment Calibration list

The following table lists the test equipment used, last calibration date and calibration interval. All test equipment used has been maintained within the calibration requirements of **R.N. Electronics Ltd.** test facility quality system. Calibration intervals are regularly reviewed dependent on equipment manufacturer's recommendations and actual usage of the equipment.

RNNo	Model	Description	Manufacturer	Date Calibrated	Period
C031	437B	Power Meter	Hewlett Packard	20-Oct-09	12
C032	8482A	Power Sensor	Hewlett Packard	21-Oct-09	12
E001	HP8542E	EMI Receiver and RF Filter	Hewlett Packard	12-Aug-09	12
E003	HP8593E	Spectrum Analyser	Hewlett Packard	10-Oct-08	24
E005	HP8447F	Pre-Amplifier	Hewlett Packard	23-Oct-09	12
E250	6806.19.A	6dB Attenuator	Hewlett Packard	29-Oct-09	12
E266	2032	5.4GHz Signal Generator	Marconi Instruments	27-Mar-08	24
E268	BHA 9118	1-18 GHz Horn Antenna	Schaffner	02-Mar-09	60
E290	6914	Power Sensor	Marconi Instruments	01-Jun-09	24
E342	8563E	Spectrum Analyser 26.5 GHz	HP	23-Feb-09	24
E383	SB029	11 - 18 GHz Band pass filter	Filtronic Components Ltd	N/A	N/A
E397	6960B	RF Power Meter	Marconi Instruments	21-Nov-08	24
E410	N5181A	100 kHz - 3 GHz MXG Signal Generator	Agilent Technologies	05-Oct-09	12
E411	N9039A	9 kHz - 1 GHz RF Filter Section	Agilent Technologies	07-Oct-09	12
E412	E4440A	3 Hz - 26.5 GHz PSA	Agilent Technologies	07-Oct-09	12
E428	HF906	1-18 GHz Horn Antenna	Rhode and Schwarz	23-Oct-09	36
E429	-	5 Switch Filter Box 0.91 GHz - 16.3 GHz	RN Electronics	N/A	N/A
E434	G3RUH	10 MHz GPS Oscillator	James Miller	N/A	N/A
TMS79	460451	Std Gain Horn Antenna 18-26.5 GHz	ETS Systems	21-Apr-10	24
TMS81	6502	Active Loop Antenna	EMCO	13-Apr-10	24
TMS82	8449B	Pre Amplifier 1 - 26 GHz	Agilent	23-Oct-09	12
TMS933	CBL6141A	Bilog Antenna 30MHz - 2GHz	York EMC	10-Sep-07	36

11. Auxiliary equipment

11.1 Auxiliary equipment supplied by PURE Digital Ltd

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

No auxiliary equipment was provided.

11.2 Auxiliary equipment supplied by RN Electronics Limited

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

No auxiliary equipment was provided.

12. Modifications

In order for the EUT to produce the results shown within this report the following modifications, if any, were implemented.

12.1 Modifications before test

There were no modifications made by R.N. Electronics Ltd before testing commenced.

12.2 Modifications during test

There were no modifications made by R.N. Electronics Ltd during testing.

13. Compliance information

Products subject to the Declaration of Conformity procedure are required to be supplied with a compliance information statement. A copy of this statement may be included here:

CERTIFICATION REQUIRED – Intentional Radiator.

14. Description of Test Sites

Site A	Radio / Calibration Laboratory and anechoic chamber
Site B	Semi-anechoic chamber
Site B1	Control Room for Site B
Site C	Transient Laboratory
Site D	Screened Room (Conducted Immunity)
Site E	Screened Room (Control Room for Site D)
Site F	Screened Room (Conducted Emissions) VCCI Registration No. C-2823
Site K	Screened Room (Control Room for Site M)
Site M	3m Semi-anechoic chamber (indoor OATS) FCC Registration No. 293246
Site Q	Fully-anechoic chamber
Site OATS	3m and 10m Open Area Test Site FCC Registration No. 293246 IC Registration No. 5612A-1 VCCI Registration No. R-2580

15. Abbreviations and Units

%	Percent	LO	Local Oscillator
µA/m	microAmps per metre	mA	milliAmps
µV	microVolts	max	maximum
µW	microWatts	mbar	milliBars
AC	Alternating Current	Mbit/s	MegaBits per second
ALSE	Absorber Lined Screened Enclosure	MHz	MegaHertz
AM	Amplitude Modulation	mic	Microphone
Amb	Ambient	min	minimum
ATPC	Automatic Transmit Power Control	mm	milliMetres
BER	Bit Error Rate	ms	milliSeconds
°C	Degrees Celsius	mW	milliWatts
C/I	Carrier / Interferer	NA	Not Applicable
CEPT	European Conference of Postal and Telecommunications Administrations	nom	Nominal
COFDM	Coherent OFDM	nW	nanoWatt
CS	Channel Spacing	OATS	Open Area Test Site
CW	Continuous Wave	OFDM	Orthogonal Frequency Division Multiplexing
dB	decibels	ppm	Parts per million
dBµA/m	decibels relative to 1µA/m	PRBS	Pseudo Random Bit Sequence
dBµV	decibels relative to 1µV	QAM	Quadrature Amplitude Modulation
dBc	decibels relative to Carrier	QPSK	Quadrature Phase Shift Keying
dBm	decibels relative to 1mW	RandTTE	Radio and Telecommunication Terminal Equipment
DC	Direct Current	Ref	Reference
DTA	Digital Transmission Analyser	RF	Radio Frequency
EIRP	Equivalent Isotropic Radiated Power	RFC	Remote Frequency Control
ERP	Effective Radiated Power	RSL	Received Signal Level
EU	European Union	RTP	Room Temperature and Pressure
EUT	Equipment Under Test	RTPC	Remote Transmit Power Control
FM	Frequency Modulation	Rx	Receiver
FSK	Frequency Shift Keying	s	Seconds
g	Grams	SINAD	Signal to Noise And Distortion
GHz	GigaHertz	Tx	Transmitter
Hz	Hertz	V	Volts
IF	Intermediate Frequency		
kHz	kiloHertz		
LBT	Listen Before Talk		



Certificate of Test

The unit noted below has been tested by **R.N. Electronics Limited** and conforms with the relevant subpart of FCC 47CFR part 15, subject to deviations as detailed in this report.

This certificate relates to the unit, as identified by unique serial number(s) and further detailed in the referenced report, in the condition(s) at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed. Furthermore, this is a certificate of test only and should not be confused with an equipment authorisation.

Equipment:	Remote Control
Model Number(s):	Reach F10
Unique Serial Number(s):	ES1-23 and ES1-14
Manufacturer:	PURE Digital Home Park Estate Kings Langley Hertfordshire WD4 8DH
Customer Purchase Order Number:	PO091661
R.N. Electronics Limited Report Number:	03-400A/4203/2/10
Test Standards:	FCC 47CFR part 15C: effective date October 1st, 2009 , Class DTS Intentional Radiator
Date:	16th March to 24th March 2010

For and on behalf of
R.N. Electronics Limited

Technical Director:



Notes:

QMF21J – 3: FCC 47CFR PART 15C: RNE ISSUE 01: - APR 10