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**EMI TEST REPORT FOR CERTIFICATION
to
FCC PART 15 Subpart C (Section 15.247)
Class II Permissive Change**

FCC ID: UWT-X2-A

**Wireless Radio Module: 802.11a Acurix Networks
Model: X2-A**

**Host: 802.11a Integrated Panel Antenna
Model: X1-A-22**

Report Number: M100845_FCC_X1-A-22_C2PC

Tested for: aCure Technology Pty Ltd

Issue Date: 12th October 2010

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RF Exposure Information
FR931911-05AB_FCC RF Test Report_15.247



Accreditation No. 5292

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EMI TEST REPORT FOR CERTIFICATION
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FCC PART 15 Subpart C (Section 15.247)
Class II Permissive Change

Report Number: M100845_FCC_X1-A-22_C2PC

Wireless Radio Module: 802.11a Acurix Networks
Model: X2-A
Manufacturer: Unex Technology Corp - Taiwan

FCC ID: UWT-X2-A
Equipment Type: Intentional Radiator

Host: 802.11a Integrated Panel Antenna
Model: X1-A-22


Tested For: aCure Technology Pty Ltd
Address: 78 Hasler Road
Osborne Park WA 6015
Australia
Contact: Mark Middleton

Test Standards: FCC Part 15 – Radio Frequency Devices (October 2009)
FCC Part 15 Subpart C - Intentional Radiators
Section 15.247: 2400 – 2483.5 MHz & 5725 – 5850 MHz Operation Bands
ANSI C63.4 – 2003

Test Dates: 26th August to 21st September 2010

Test Engineer: Chieu Huynh
B.Eng (Hons) Electronics

Attestation: *I hereby certify that the device(s) described herein were tested as described in this report and that the data included is that which was obtained during such testing.*



Authorised Signatory: Chieu Huynh
Senior EMC Engineer
EMC Technologies Pty Ltd



EMI TEST REPORT FOR CERTIFICATION
to
FCC PART 15 Subpart C (Section 15.247)
Class II Permissive Change

1.0 INTRODUCTION

EMI testing was performed on the 802.11a Acurix Networks, Model: X2-A, with 802.11a Integrated Panel Antenna, Model: X1-A-22.

The Wireless module was originally certified by aCure Technology Pty Ltd under FCC ID: UWT-X2-A. The intention of this **Class II Permissive Change** application is to re-certify the wireless module installed in the 802.11a Integrated Panel Antenna, Model: X1-A-22 with a higher antenna gain and also additional bandwidth signals (5MHz and 10MHz) that were not covered by an original authorization.

The Wireless module supports IEEE802.11a configuration.

Test results and procedures were performed in accordance with the following Federal Communications Commission (FCC) standards/regulations:

47 CFR, FCC Part 15, Subpart C:	Rules for intentional radiators (particularly section 15.247)
Section 15.203:	Antenna requirements
Section 15.205:	Restricted bands of operation
Section 15.207:	Conducted Emission Limits
Section 15.209:	Radiated Emission Limits (General requirements)
Section 15.247:	Operation in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz

The test sample **complied** with the requirements of 47 CFR, Part 15 Subpart C - Section 15.247.

The measurement procedure used was in accordance with ANSI C63.4-2003 and OET Bulletin No. 65. The instrumentation conformed to the requirements of ANSI C63.2-1996.



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1.1 Summary of Results - FCC Subpart C, Section 15.247

FCC Part 15 Subpart C, Clauses	Test Performed	Results
15.203	Antenna Requirement	Complied
15.205	Operation in Restricted Band	Complied
15.207	Conducted Emissions	Note 1
15.209	Radiated Emissions	Complied
15.247 (a)(2)	Channel Bandwidth	Complied
15.247 (b)	Peak Output Power	Not applicable. Refer to 15.247 (c) Antenna Gain > 6 dBi.
15.247 (c)	Antenna Gain > 6 dBi	Yes, complied
15.247 (d)	Out of Band Emissions	Complied
15.247 (e)	Peak Power Spectral Density	Complied
15.247 (f)	Hybrid Systems (note 2)	Not Applicable EUT does not employ a hybrid system
15.247 (g)	Frequency Hopping	Not Applicable EUT does not employ a frequency hopping modulation technique
15.247 (h)	Frequency Hopping	Not Applicable EUT does not employ a frequency hopping modulation technique
15.247 (i)	Radio Frequency Hazard	Complied

Note 1: Not included in this C2PC filing. New antenna (higher gain) would not change previous results.

Note 2: Hybrid systems are those that employ a combination of both frequency hopping and digital modulations technique.

1.2 Modifications by EMC Technologies

No modifications were required.

2.0 EUT DETAILS

(Information supplied by the Client)

2.1 General

Wireless Radio Module: 802.11a Acurix Networks
Model: X2-A
Manufacturer: Unex Technology Corp - Taiwan
Frequency Range: 5745 - 5825 MHz
Maximum Data Rate: 802.11a = 54Mbps
Antenna gain: Max antenna gain is 22 dBi.
Refer antenna data provided separately

Host: 802.11a Integrated Panel Antenna
Model: X1-A-22

The X1-A-22 is an 802.11a Integrated Panel Antenna. A single radio X1-A-22 consists of a single main motherboard and a single radio module. It is to be used in point to point applications for 5GHz transmission. The 802.11a modular radio supports the 802.11a (5.725 – 5.850 GHz band) and also 5MHz, 10MHz and 20MHz channel selection.



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2.2 Operational Description

The wireless radio was configured to transmit continuously during the tests.

2.3 Test Configuration

Conducted tests were performed at the wireless radio antenna port.

Radiated tests were performed for measuring the harmonics and spurious from the transmitter.

All three 5MHz, 10MHz and 20MHz channel selection were tested and reported.

2.4 Support Equipment

A Fujitsu Laptop

PoE Injector

Pronghorn Motherboard

2.5 Test Procedure

Emissions measurements were performed in accordance with the procedures of ANSI C63.4-2003. Radiated emissions tests were performed at a distance of 1 and 3 metres from the EUT.

2.6 Test Facility

2.6.1 General

EMC Technologies Pty Ltd is listed by the FCC as a test laboratory able to perform compliance testing for the public. EMC Technologies is listed as an FCC part 47CFR2.948 test lab and may perform the testing required under Parts 15 and 18 – **FCC Registration Number 90560**

EMC Technologies Pty Ltd has also been accredited as a Conformity Assessment Body (CAB) by Australian Communications and Media Authority (ACMA) under the APECTEL MRA and is designated to perform compliance testing on equipment subject to Declaration of Conformity (DoC) and Certification under Parts 15 & 18 of the FCC Commission's rules – **Registration Number 494713 & Designation number AU0001.**

EMC Technologies open area test site (OATS) has also been accepted by Industry Canada for the performance of radiated measurements in accordance with RSS 212, Issue 1 (Provisional) - **Industry Canada OATS number - IC 3569B-1.**

Radiated Emission measurements were performed at EMC Technologies Open Area Test Site (OATS) situated at Lerderderg Gorge, near the township of Bacchus Marsh in Victoria, Australia.

Conducted measurements at an antenna ports were performed at EMC Technologies' laboratory in Keilor Park, Victoria Australia.

2.6.2 NATA Accreditation

EMC Technologies is accredited in Australia to test to the following standards by the National Association of Testing Authorities (NATA).

“FCC Part 15 unintentional and intentional emitters in the frequency range 9kHz to 18 GHz excluding TV receivers (15.117 and 15.119), TV interface devices (15.115), cable ready consumer electronic equipment (15.118), cable locating equipment (15.213) and unlicensed national information infrastructure devices (Sub part E).”

The current full scope of accreditation can be found on the NATA website: www.nata.asn.au
It also includes a large number of emissions, immunity, SAR, EMR and Safety standards.



NATA is the Australian national laboratory accreditation body and has accredited EMC Technologies to operate to the IEC/ISO17025 requirements. A major requirement for accreditation is the assessment of the company and its personnel as being technically competent in testing to the standards. This requires fully documented test procedures, continued calibration of all equipment to the National Standard at the National Measurements Institute (NMI) and an internal quality system to ISO 9002. NATA has mutual recognition agreements with the National Voluntary Laboratory Accreditation Program (NVLAP) and the American Association for Laboratory Accreditation (A²LA).

2.7 Test Equipment Calibration

All measurement instrumentation and transducers were calibrated in accordance with the applicable standards by an independent NATA registered laboratory such as Agilent Technologies (Australia) Pty Ltd or the National Measurement Institute (NMI). All equipment calibration is traceable to Australia national standards at the National Measurements Institute. The reference antenna calibration was performed by NMI and the working antennas (biconical and log-periodic) calibrated by the EMC Technologies. The complete list of test equipment used for the measurements, including calibration dates and traceability is contained in Appendix A

2.8 Ambients at OATS

The Open Area Test Site (OATS) is an area of low background ambient signals. No significant broadband ambients are present however commercial radio and TV signals exceed the limit in the FM radio, VHF and UHF television bands. Radiated prescan measurements were performed in the shielded enclosure to check for possible radiated emissions at the frequencies where the OATS ambient signals exceeded the test limit.



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RESULTS

3.0 CONDUCTED EMISSION MEASUREMENTS

Not included in this C2PC filing. New antenna would not change previous results.

Refer to test report: FR931911-05AB_FCC RF Test Report_15.247. Tested and granted under FCC ID: UWT-X2-A. Conducted emissions result was complied by a margin of 21.79dB. Testing was performed by SPORTON International Inc, Taiwan – accredited by TAF (Taiwan Accreditation Foundation), Certificate Number: L1190-091230.

4.0 SPURIOUS EMISSION MEASUREMENTS

4.1 Test Procedure

Testing was performed in accordance with the requirements of FCC Part 15.247(d).

Radiated emission measurements were performed to the limits as per section 15.209 and 15.247. The measurements were made at the open area test site.

The EUT was set up on the table top (placed on turntable) of total height 80 cm above the ground plane, and operated as described in section 2 of this report. A calibrated Biconical antenna was used for measurements between 30 MHz to 232 MHz and a calibrated Logperiodic antenna used for measurements between 230 MHz to 1000 MHz. Calibrated EMCO 3115, EMCO 3116 and ETS standard gain horn antennas were used for measurements between 1 to 40 GHz.

The measurement of emissions between 30 - 1000 MHz was measured with the resolution bandwidth of 120 kHz and the video bandwidth of 300 kHz.

The measurement of emissions above 1000 MHz was measured using a following setting:

Peak measurements setting: RBW = VBW = 1 MHz

Average measurements setting: RBW = 1 MHz and VBW = 10 Hz

The receiver bandwidth was set to 6 dB.

The EUT was slowly rotated with the Peak Detector set to Max-Hold. This was performed for two antenna heights. When an emission was located, it was positively identified and its maximum level found by rotating the automated turntable, and by varying the antenna height. Each significant peak was investigated with the Peak/Average Detectors. The measurement data for each frequency range was corrected for cable losses, antenna factors and preamplifier gain. This process was performed for both horizontal and vertical antenna polarisations.

4.2 Calculation of field strength

The field strength was calculated automatically by the software using all the pre-stored calibration data. The method of calculation is shown below:

E = V + AF - G + L Where:

E = Radiated Field Strength in dBμV/m.

V = EMI Receiver Voltage in dBμV. (measured value)

AF = Antenna Factor in dB(m⁻¹). (stored as a data array)

G = Preamplifier Gain in dB. (stored as a data array)

L = Cable loss in dB. (stored as a data array of Insertion Loss versus frequency)

- **Example Field Strength Calculation**

Assuming a receiver reading of 34.0 dBμV is obtained at 90 MHz, the Antenna Factor at that frequency is 9.2 dB. The cable loss is 1.9 dB while the preamplifier gain is 20 dB. The resulting Field Strength is therefore as follows:

$$34.0 + 9.2 + 1.9 - 20 = 25.1 \text{ dB}\mu\text{V/m}$$



4.3 Radiated Emissions Results (Spurious and Harmonics)

4.3.1 Frequency Band: 1 – 40 GHz

All measurements above 1 GHz were initially made over a distance of 1 and 3 metres.

The 74 dB μ V/m @ 3m and 54 dB μ V/m @ 3m limits are applied for emissions fall in the restricted bands. The limits for emission outside the restricted band are 20 dB below the fundamental field strength.

All three 5MHz, 10MHz and 20MHz bandwidth signals were tested and reported.

Initial investigations were performed with four modulation types: (BPSK, QPSK, 16QAM and 64QAM). No significant in emissions were observed. Final testing was performed while the transmitter continuously operated with the modulation rate of 6 Mbps (BPSK).

Channel 149 - 5745 MHz

BW Signal MHz	Frequency MHz	Peak Detector dBuV/m	Average Detector dBuV/m	Peak Limit dBuV/m	Average Limit dBuV/m	Result
5	5745	137.8	126.6	Transmitter Fundamental Level		
	11490	69.5	52.3	74.0	54.0	Complied
	17235	59.4	44.5	117.8	106.6	Complied
	5120	72.8	64.2	84.5	64.5	Complied
	5725	71.5	59.9	117.8	106.6	Complied
10	5745	132.7	122.8	Transmitter Fundamental Level		
	11490	Harmonics and spurious emissions levels are similar to the 5MHz BW signal.				Complied
	17235					Complied
	5120					Complied
	5725	83.6	62.0	112.7	102.8	Complied
20	5745	125.1	115.5	Transmitter Fundamental Level		
	11490	Harmonics and spurious emissions levels are similar to the 5MHz BW signal.				Complied
	17235					Complied
	5120					Complied
	5725	88.7	73.6	105.1	95.5	Complied

*Measurement was performed at a distance of 1m and the limit corrected/adjusted accordingly.



Channel 157 - 5785 MHz

Channel 10: 57.55 MHz						
BW Signal MHz	Frequency MHz	Peak Detector dBuV/m	Average Detector dBuV/m	Peak Limit dBuV/m	Average Limit dBuV/m	Result
5	5785	137.9	126.6	Transmitter Fundamental Level		
	11570	69.1	52.2	74.0	54.0	Complied
	17355	59.9	45.1	117.9	106.6	Complied
	5120	73.1	64.4	84.5	64.5	Complied
10	5785	132.8	122.9	Transmitter Fundamental Level		
	11570	Harmonics and spurious emissions levels are similar to the 5MHz BW signal.				Complied
	17355					Complied
	5120					Complied
20	5785	126.0	115.7	Transmitter Fundamental Level		
	11570	Harmonics and spurious emissions levels are similar to the 5MHz BW signal.				Complied
	17355					Complied
	5120					Complied

*Measurement was performed at a distance of 1m and the limit corrected/adjusted accordingly.

Channel 165 - 5825 MHz

Channel 100 6020 MHz						
BW Signal MHz	Frequency MHz	Peak Detector dBuV/m	Average Detector dBuV/m	Peak Limit dBuV/m	Average Limit dBuV/m	Result
5	5825	137.7	126.3	Transmitter Fundamental Level		
	11650	69.7	52.4	74.0	54.0	Complied
	17475	61.6	46.4	117.7	106.3	Complied
	5120	73.1	64.5	84.5	64.5	Complied
	5850	70.6	58.4	117.7	106.3	Complied
10	5825	133.1	123.0	Transmitter Fundamental Level		
	11650	Harmonics and spurious emissions levels are similar to the 5MHz BW signal.				Complied
	17475					Complied
	5120					Complied
	5850	81.6	59.4	113.1	103.0	Complied
20	5825	125.6	115.6	Transmitter Fundamental Level		
	11650	Harmonics and spurious emissions levels are similar to the 5MHz BW signal.				Complied
	17475					Complied
	5120					Complied
	5850	81.1	64.2	105.6	95.6	Complied

*Measurement was performed at a distance of 1m and the limit corrected/adjusted accordingly.

Result: Harmonic and spurious emissions were recorded within the restricted bands of up to 40 GHz. Emissions complied with the FCC limits of section 15.209 and 15.247 by a margin of 0 dB.

4.3.2 Frequency Band: 30 - 1000 MHz

Not included in this C2PC filing. New antenna would not change previous results.

Refer to test report: FR931911-05AB_FCC RF Test Report_15.247. Tested and granted under FCC ID: UWT-X2-A. Conducted emissions result was complied by a margin of 21.79dB. Testing was performed by SPORTON International Inc, Taiwan – accredited by TAF (Taiwan Accreditation Foundation), Certificate Number: L1190-091230.

4.3.3 Conducted Band Edge Measurements

In the 100 kHz bandwidth within the operating band, the highest emissions level that is produced by the intentional radiator shall be at least 20 dB below the fundamental level.

The transmitter output was connected to the spectrum analyser in peak hold mode.

The resolution bandwidth of 100 kHz and the video bandwidth of 300 kHz were utilised.

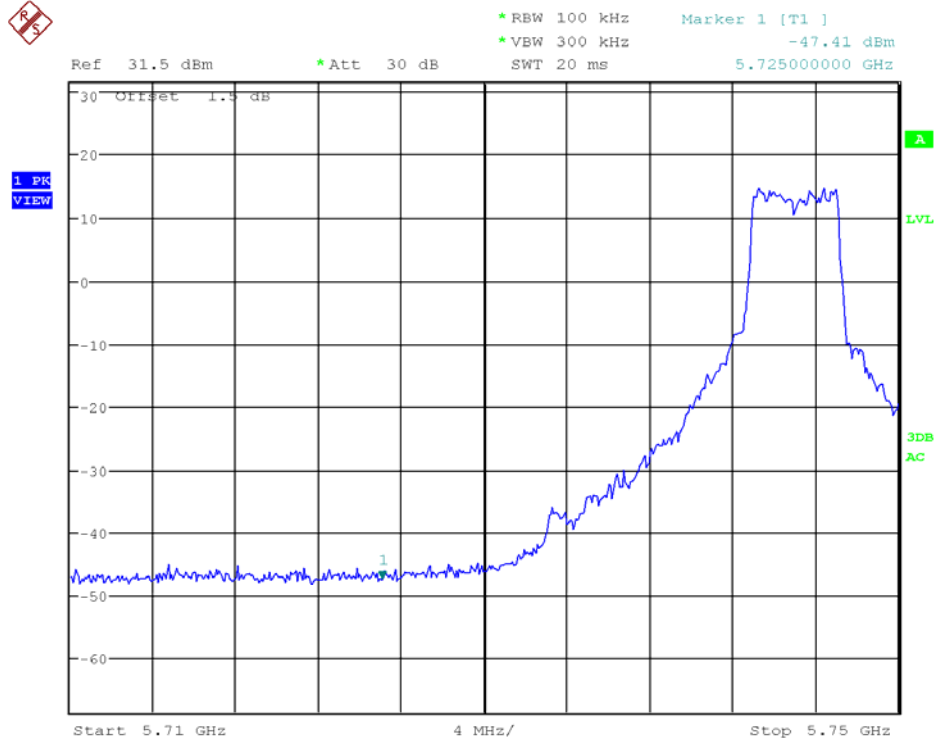
All three 5MHz, 10MHz and 20MHz bandwidth signals were tested and reported.

Results: *Complied (5MHz and 10MHz bandwidth signals) – Refer to plots

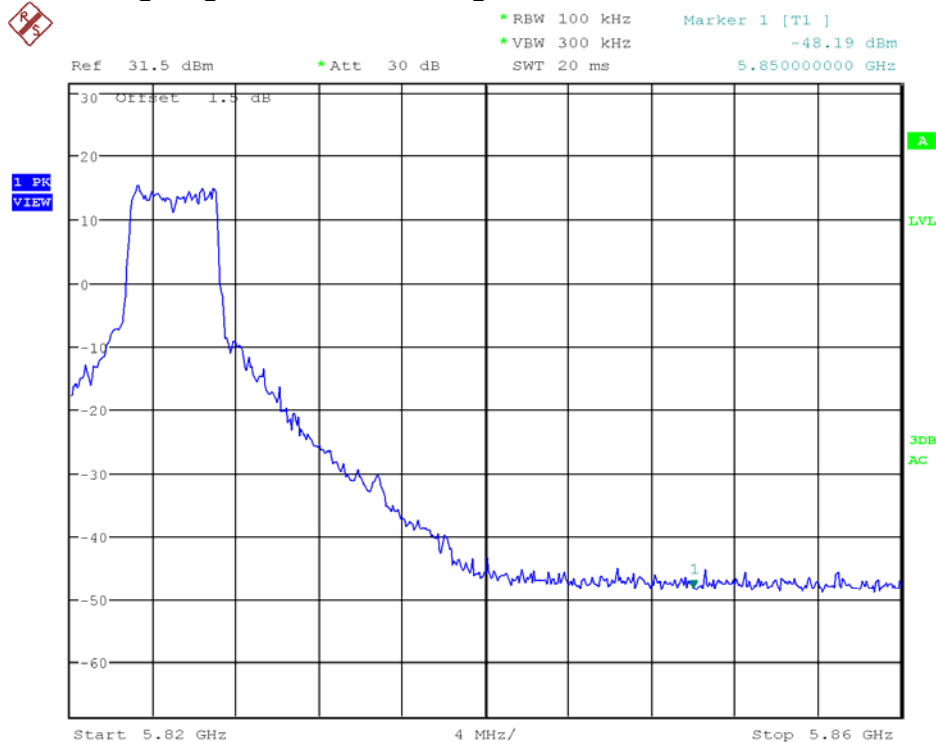
*Results for 20MHz bandwidth signal - Refer to test report: FR931911-05AB_FCC RF Test Report_15.247. Tested and granted under FCC ID: UWT-X2-A. Conducted emissions result was complied by a margin of 21.79dB. Testing was performed by SPORTON International Inc, Taiwan – accredited by TAF (Taiwan Accreditation Foundation), Certificate Number: L1190-091230.



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Band Edge Low Plot - 5MHz BW Signal

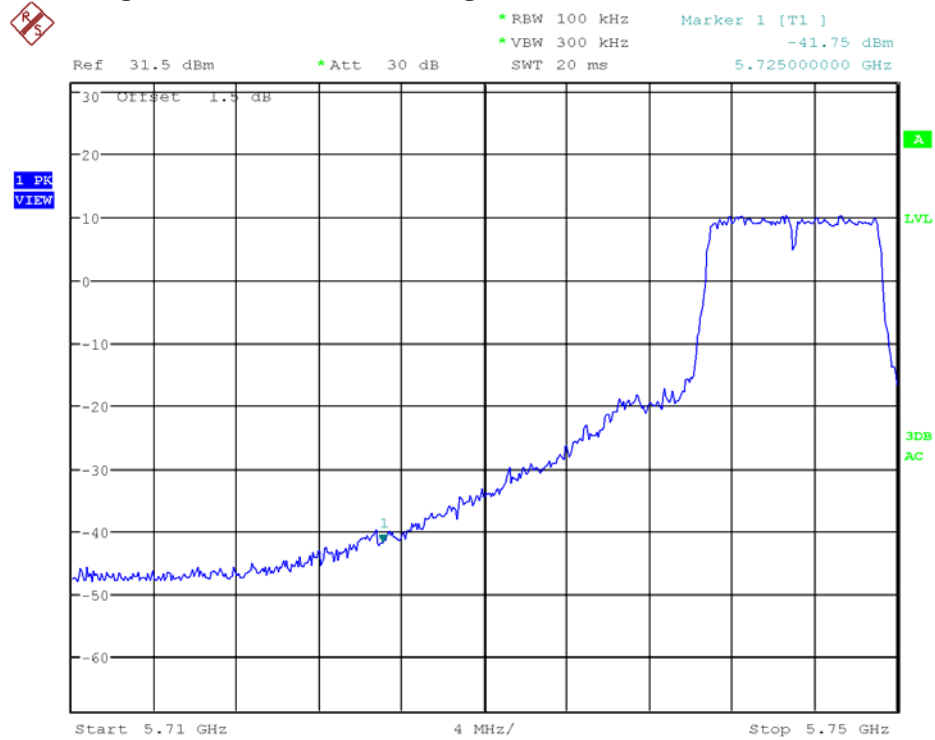
Date: 21.SEP.2010 13:59:27

Band Edge High Plot - 5MHz BW Signal

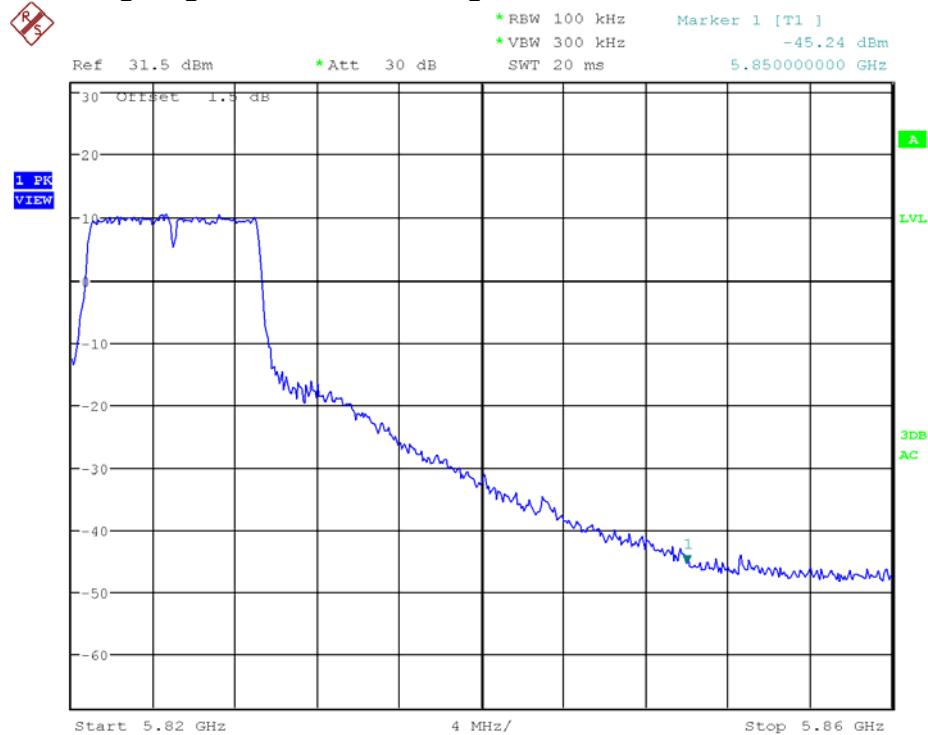
Date: 21.SEP.2010 13:56:43



Accreditation No. 5292

Band Edge Low Plot - 10MHz BW Signal

Date: 21.SEP.2010 14:02:31

Band Edge High Plot - 10MHz BW Signal

Date: 21.SEP.2010 13:52:21



Accreditation No. 5292

5.0 PEAK OUTPUT POWER

Testing was performed in accordance with the requirements of FCC Part 15.247(c).

The transmitter has an antenna gain of greater than 6 dBi. No reduction in transmitter output power is required in according to paragraph 15.247 (c)(1)(ii)

Measurements were performed while the Wireless Radio transmitter continuously transmitted.

The peak output power measurement was performed using the integration method as per test method # 3 of DA 02-2138. The resolution bandwidth of 1 MHz and the video bandwidth of 3MHz were used.

Variation by +/- 15% of the supply voltage, in accordance with Section 15.31(e), to the power supply did not vary the output power observed.

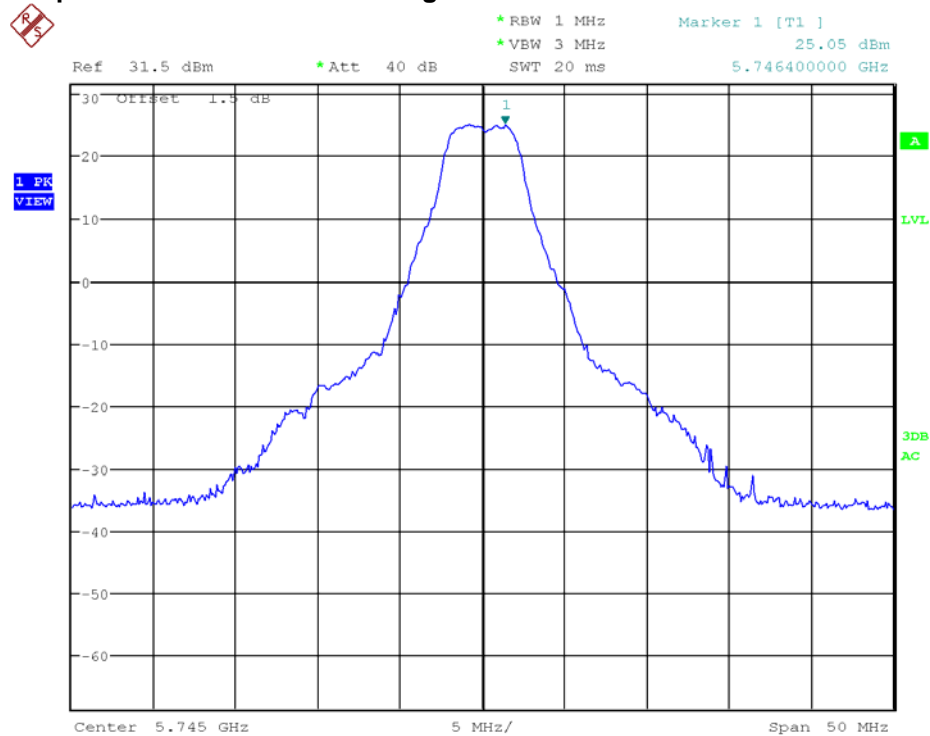
All three 5MHz, 10MHz and 20MHz bandwidth signals were tested and reported.

Initial investigations were performed with four modulation types: (BPSK, QPSK, 16QAM and 64QAM). Power with BPSK modulation was observed to be slightly worst. Final testing was performed while the transmitter continuously operated with the modulation rate of 6 Mbps (BPSK)

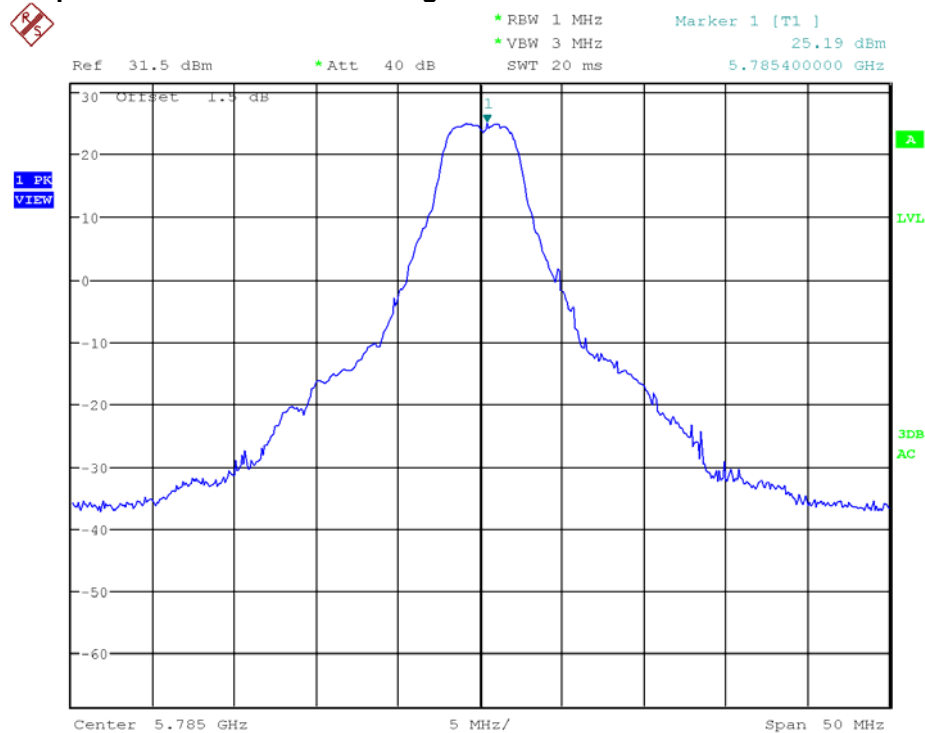
BW Signal MHz	Frequency MHz	Measured dBm	Limit dBm	Results	Output Power Plots
5	5745	28.8	30.0	Complied	Refer to plots
	5785	29.1	30.0	Complied	
	5825	28.9	30.0	Complied	
10	5745	28.6	30.0	Complied	Refer to plots
	5785	28.4	30.0	Complied	
	5825	28.5	30.0	Complied	
20	5745	29.2*	30.0	Complied	Note 1
	5785	29.35*	30.0	Complied	
	5825	29.07*	30.0	Complied	

*Note 1 - Refer to test report: FR931911-05AB_FCC RF Test Report_15.247. Tested and granted under FCC ID: UWT-X2-A. Testing was performed by SPORTON International Inc, Taiwan – accredited by TAF (Taiwan Accreditation Foundation), Certificate Number: L1190-091230.



Output Power Plot - 5MHz BW Signal – 5745MHz

Date: 21.SEP.2010 10:41:17

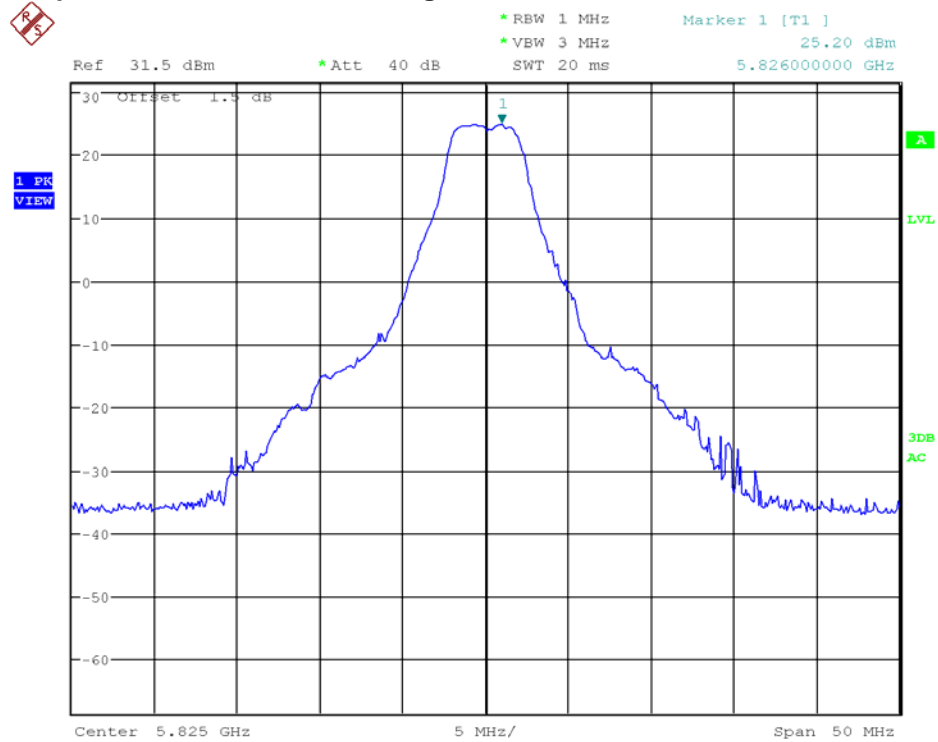
Output Power Plot - 5MHz BW Signal – 5785MHz

Date: 21.SEP.2010 10:46:09



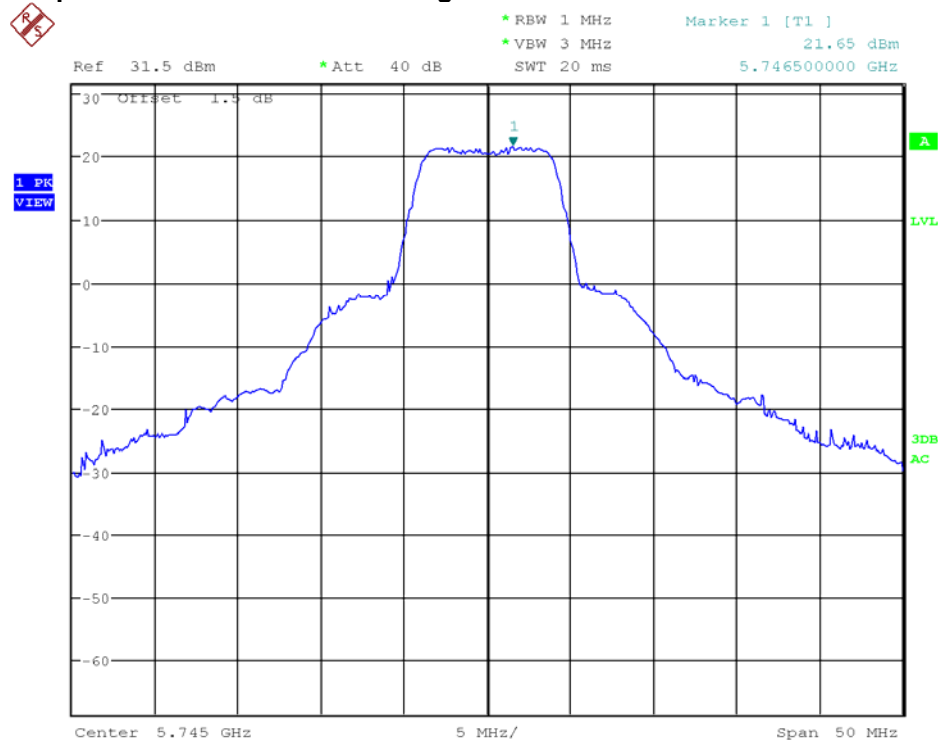
Accreditation No. 5292

Output Power Plot - 5MHz BW Signal – 5825MHz

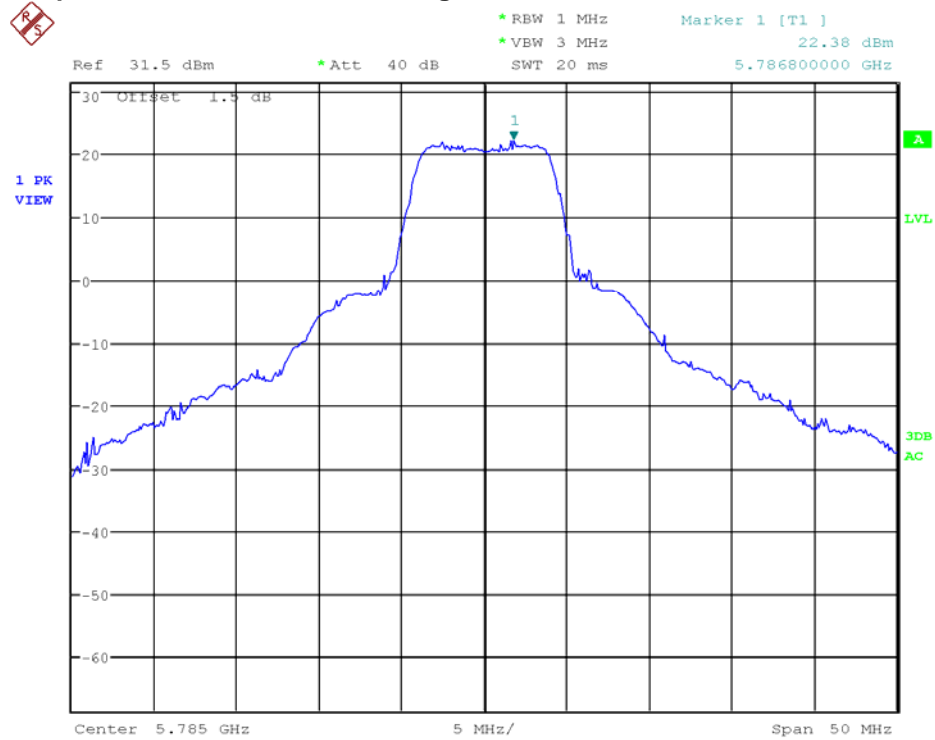


Date: 21.SEP.2010 10:49:50

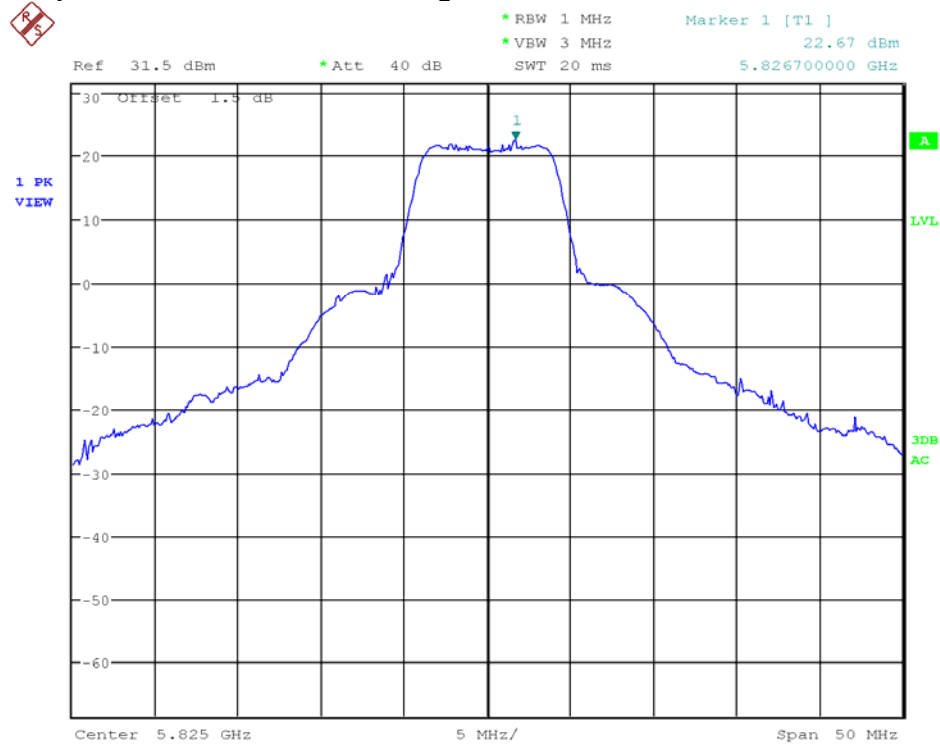
Output Power Plot - 10MHz BW Signal – 5745MHz



Date: 21.SEP.2010 11:04:58

Output Power Plot - 10MHz BW Signal – 5785MHz

Date: 21.SEP.2010 11:00:23

Output Power Plot - 10MHz BW Signal – 5825MHz

Date: 21.SEP.2010 10:56:37



Accreditation No. 5292

6.0 CHANNEL BANDWIDTH

Testing was performed in accordance with the requirements of FCC Part 15.247(a)(2)

In the bands 2400 - 2483.5 MHz and 5725 - 5850 MHz, the minimum 6 dB bandwidth was at least 500 kHz. The 6 dB bandwidth was measured while the transmitter continuously transmitted.

The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.

The resolution bandwidth of 100 kHz and the video bandwidth of 300 kHz were utilised

All three 5MHz, 10MHz and 20MHz bandwidth signals were tested and reported.

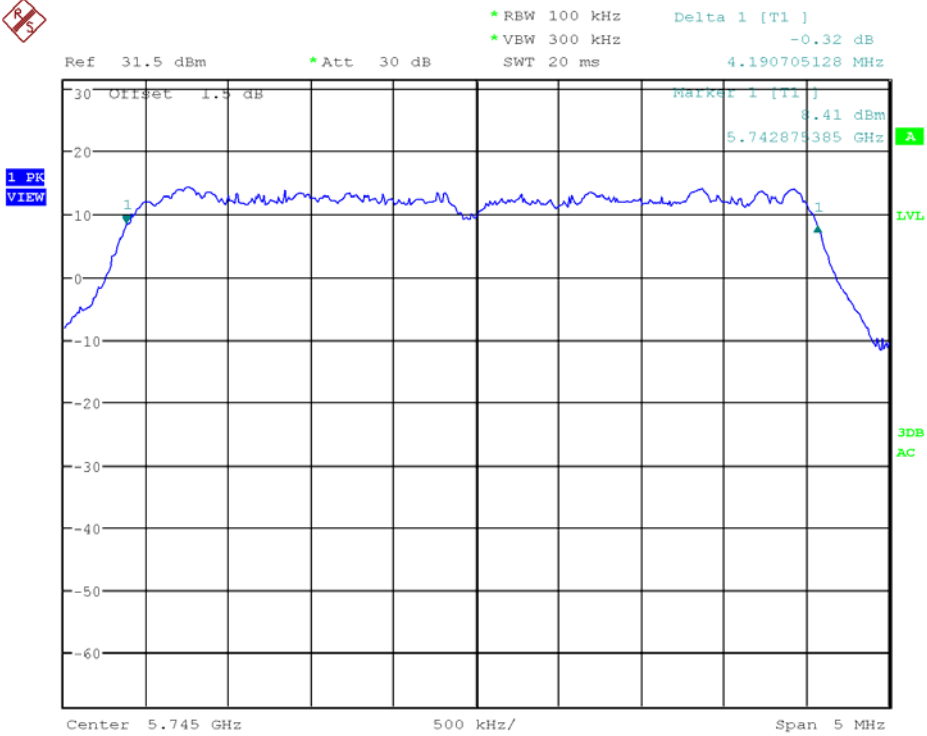
Initial investigations were performed with four modulation types: (BPSK, QPSK, 16QAM and 64QAM). No significant differences in bandwidth were observed. Final testing was performed while the transmitter continuously operated with the modulation rate of 54 Mbps (64QAM).

BW Signal MHz	Frequency MHz	Bandwidth MHz	Minimum Limit kHz	Results	6 dB Bandwidth Plots
5	5745	4.19	500	Complied	Refer to plots
	5785	4.20	500	Complied	
	5825	4.19	500	Complied	
10	5745	8.35	500	Complied	Refer to plots
	5785	8.33	500	Complied	
	5825	8.35	500	Complied	
20	5745	16.4*	500	Complied	Note 1
	5785	16.4*	500	Complied	
	5825	16.4*	500	Complied	

*Note 1 - Refer to test report: FR931911-05AB_FCC RF Test Report_15.247. Tested and granted under FCC ID: UWT-X2-A. Testing was performed by SPORTON International Inc, Taiwan – accredited by TAF (Taiwan Accreditation Foundation), Certificate Number: L1190-091230.

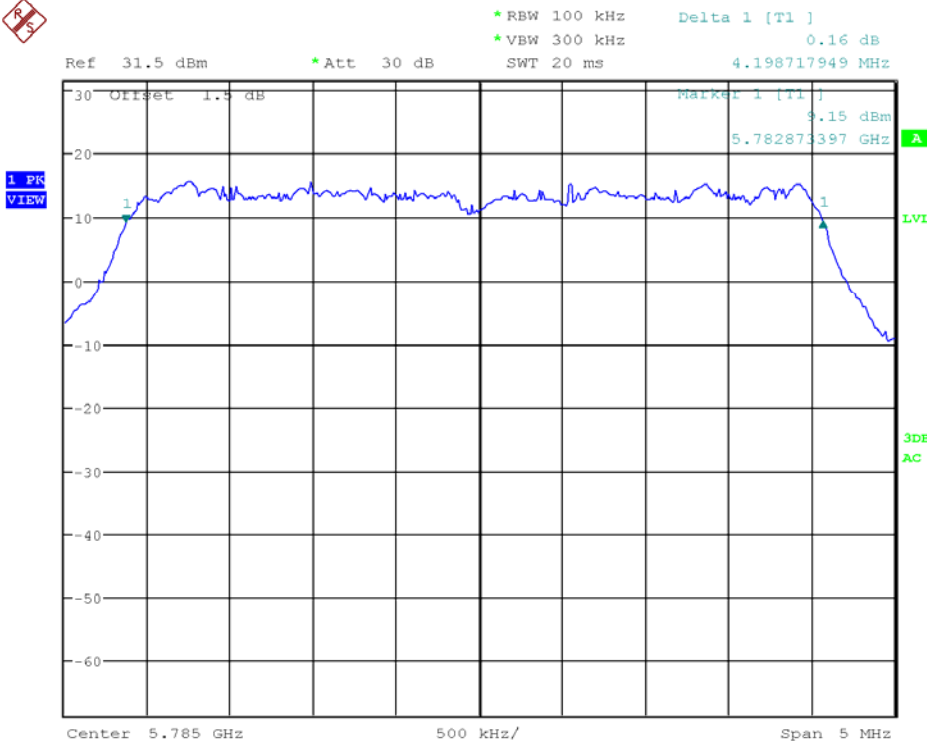


6dB Bandwidth Plot - 5MHz BW Signal – 5745MHz



Date: 21.SEP.2010 13:34:34

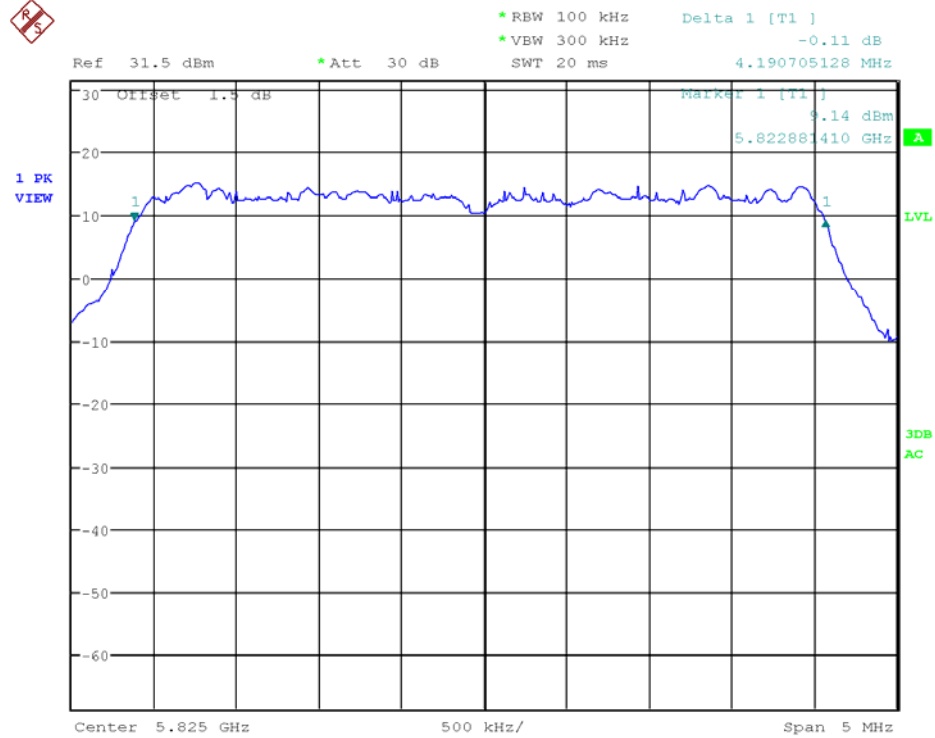
6dB Bandwidth Plot - 5MHz BW Signal – 5785MHz



Date: 21.SEP.2010 13:29:11

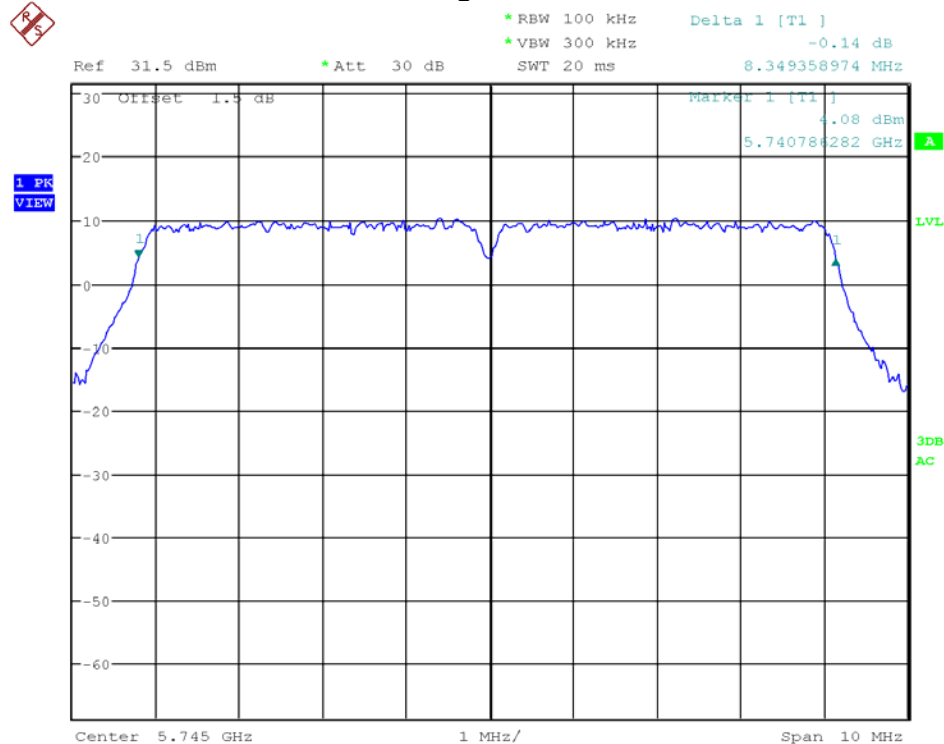


6dB Bandwidth Plot - 5MHz BW Signal – 5825MHz



Date: 21.SEP.2010 13:24:11

6dB Bandwidth Plot - 10MHz BW Signal – 5745MHz

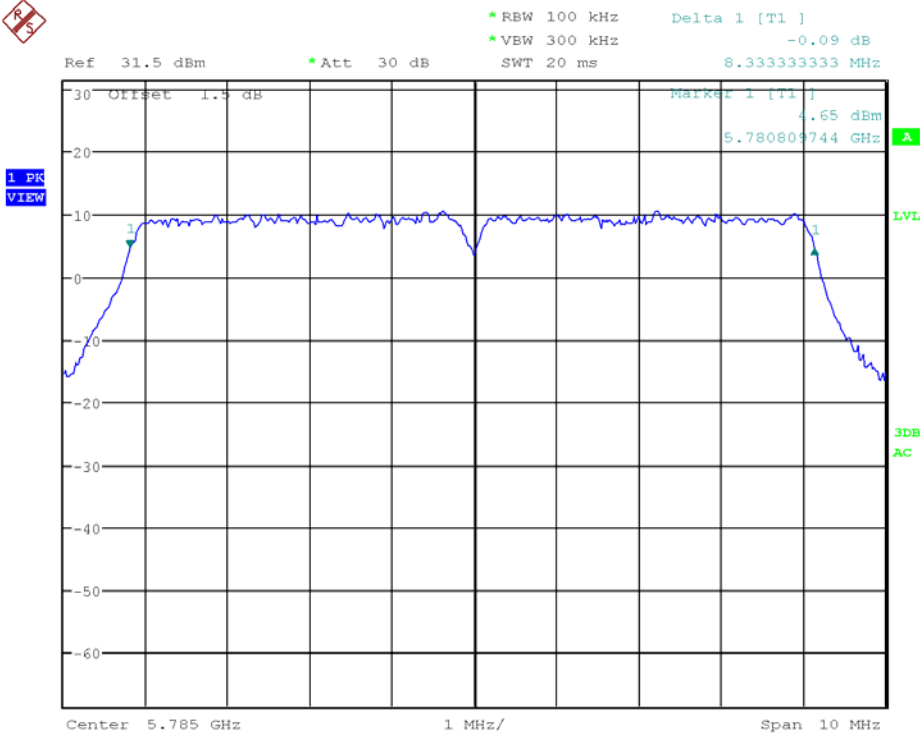


Date: 21.SEP.2010 13:37:51



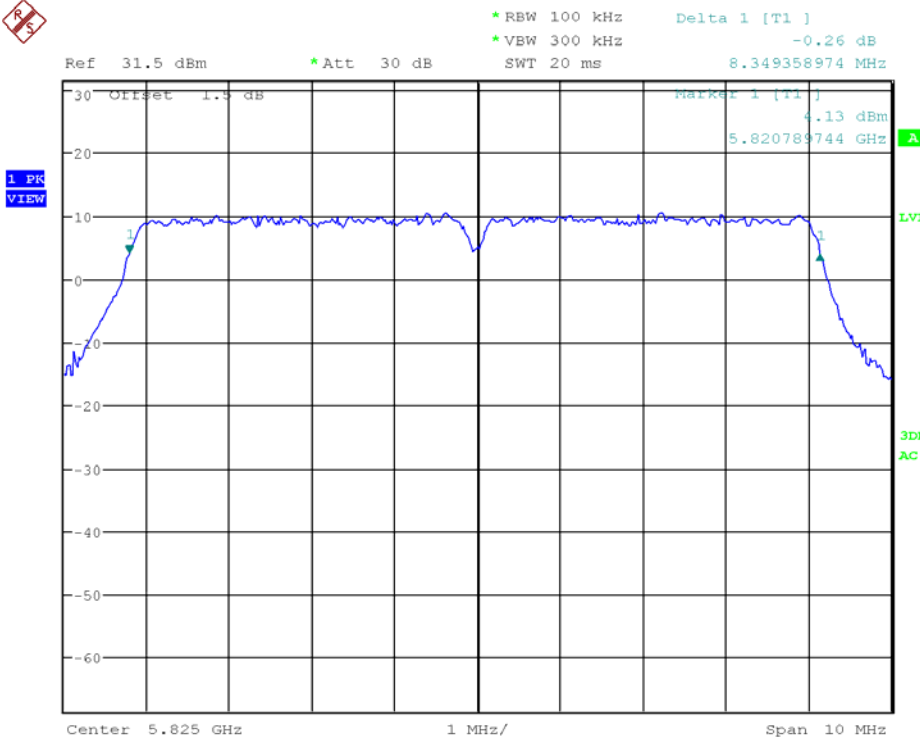
Accreditation No. 5292

6dB Bandwidth Plot - 10MHz BW Signal – 5785MHz



Date: 21.SEP.2010 13:43:28

6dB Bandwidth Plot - 10MHz BW Signal – 5825MHz



Date: 21.SEP.2010 13:46:12



7.0 PEAK POWER SPECTRAL DENSITY

Testing was performed accordance with the requirements of FCC Part 15.247(e)

The transmitter has an antenna gain of greater than 6 dBi. No reduction in transmitter output power is required in according to paragraph 15.247 (c)(1)(ii)

The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.

The resolution bandwidth of 3 kHz and the video bandwidth of 30 kHz were utilised

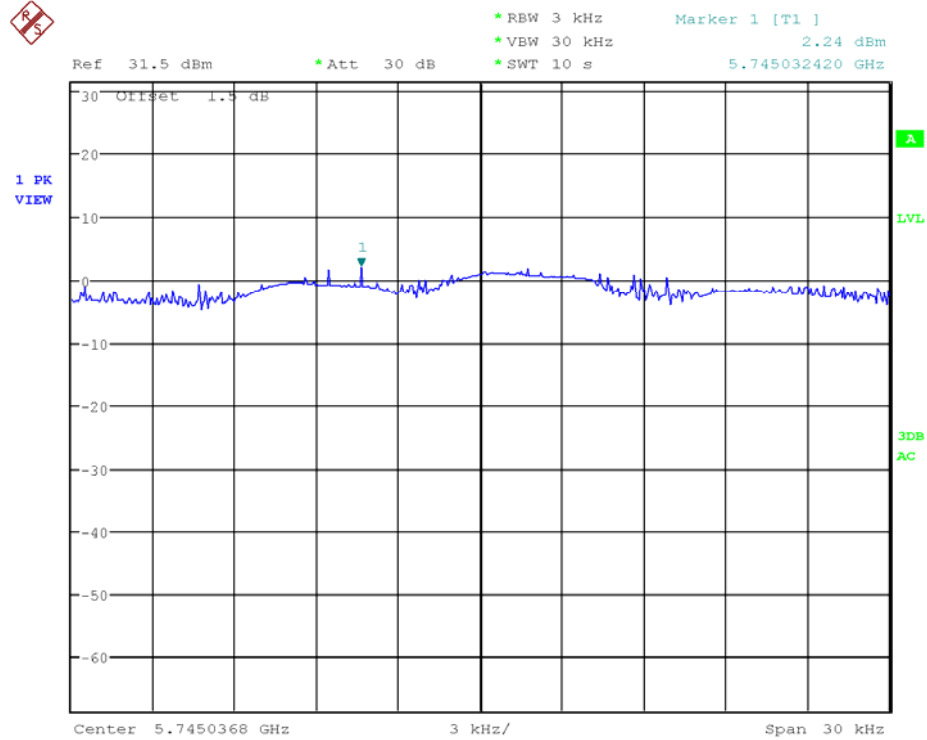
All three 5MHz, 10MHz and 20MHz bandwidth signals were tested and reported.

Initial investigations were performed with four modulation types: (BPSK, QPSK, 16QAM and 64QAM). Peak power spectral density with BPSK modulation (rate = 6 Mbps) was observed to be slightly worst. Final testing was performed while the transmitter continuously operated with the modulation rate of 6 Mbps (BPSK).

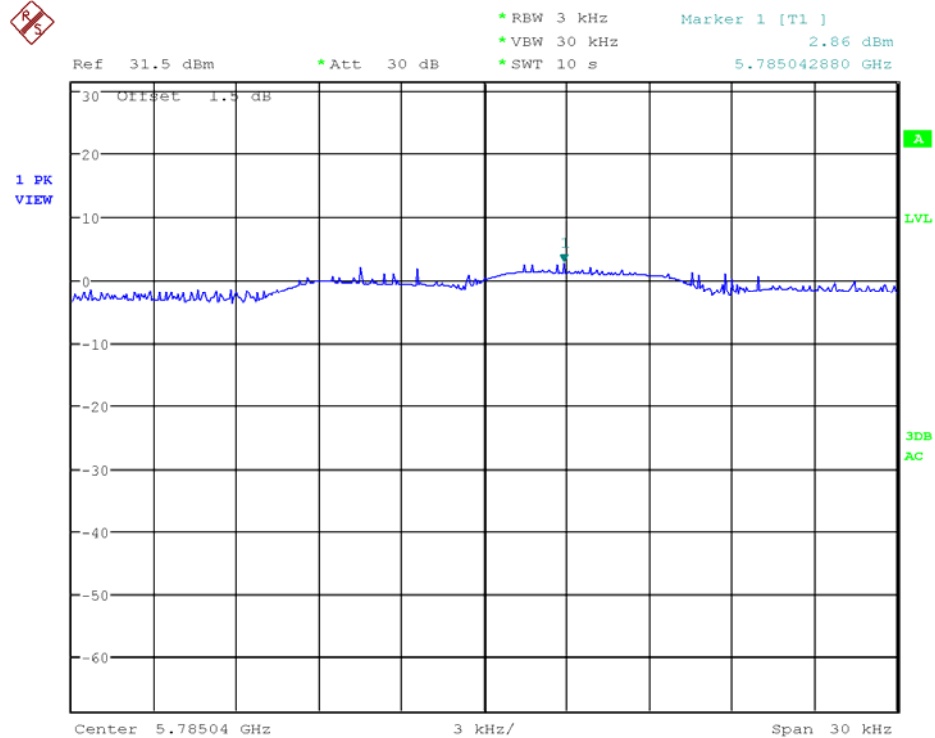
BW Signal MHz	Frequency MHz	Measured dBm	Limit dBm	Results	Spectral Density Plots
5	5745	2.24	8.0	Complied	Refer to plots
	5785	2.86	8.0	Complied	
	5825	2.74	8.0	Complied	
10	5745	-1.16	8.0	Complied	Refer to plots
	5785	-0.7	8.0	Complied	
	5825	-0.89	8.0	Complied	
20	5745	-4.93*	8.0	Complied	Note 1
	5785	-4.39*	8.0	Complied	
	5825	-3.88*	8.0	Complied	

*Note 1 - Refer to test report: FR931911-05AB_FCC RF Test Report_15.247. Tested and granted under FCC ID: UWT-X2-A. Testing was performed by SPORTON International Inc, Taiwan – accredited by TAF (Taiwan Accreditation Foundation), Certificate Number: L1190-091230.



Power Density Plot - 5MHz BW Signal – 5745MHz

Date: 21.SEP.2010 12:07:29

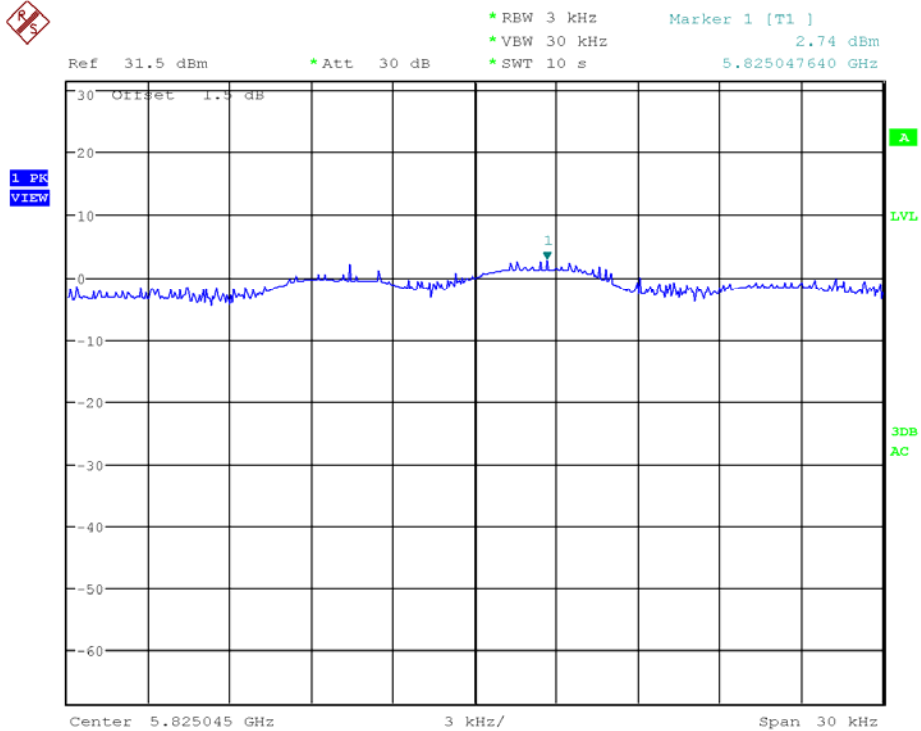
Power Density Plot - 5MHz BW Signal – 5785MHz

Date: 21.SEP.2010 12:01:41



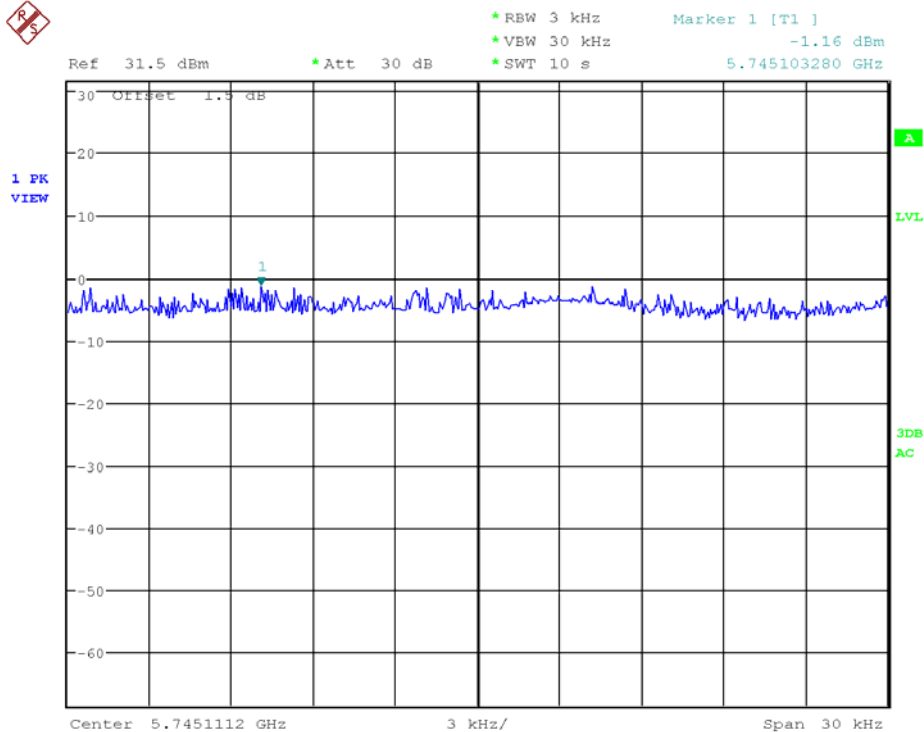
Accreditation No. 5292

Power Density Plot - 5MHz BW Signal – 5825MHz



Date: 21.SEP.2010 11:57:09

Power Density Plot - 10MHz BW Signal – 5745MHz

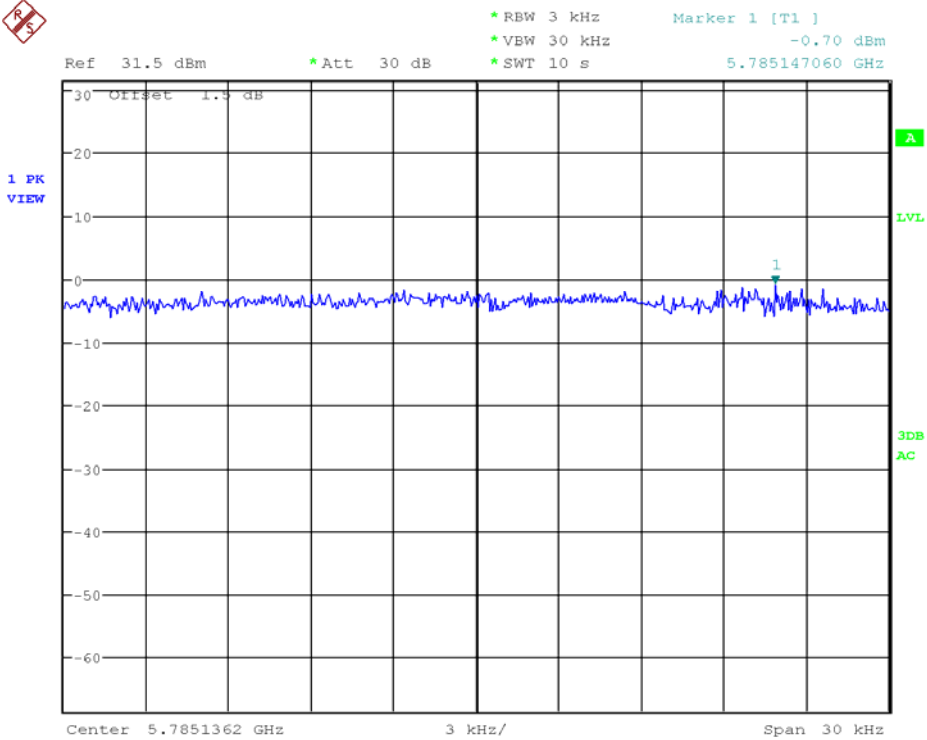


Date: 21.SEP.2010 12:50:15



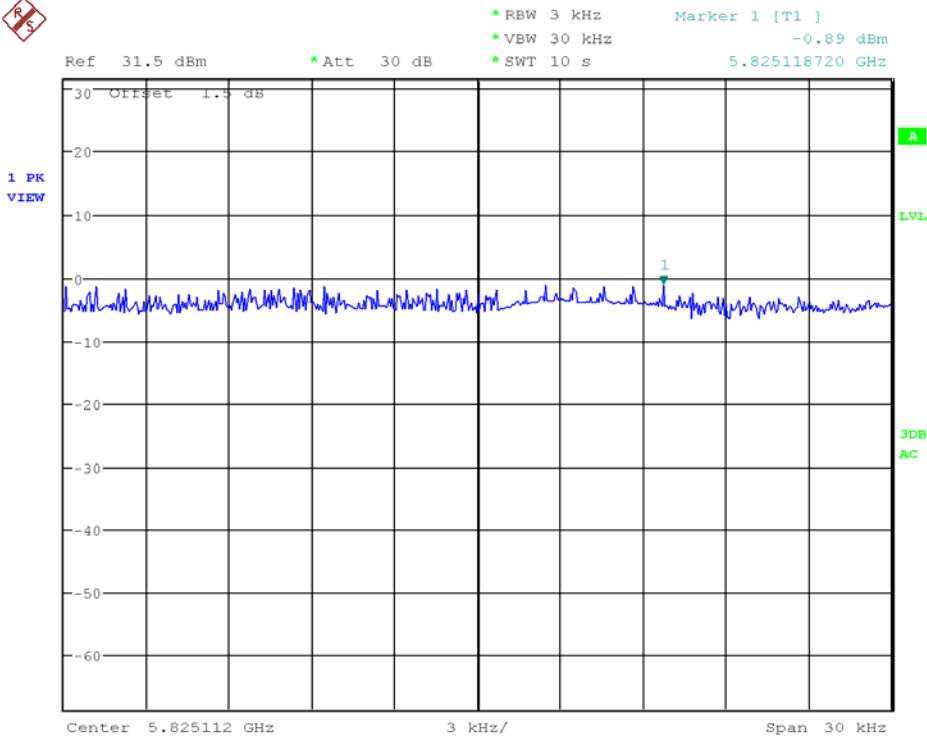
Accreditation No. 5292

Power Density Plot - 10MHz BW Signal – 5785MHz



Date: 21.SEP.2010 12:55:13

Power Density Plot - 10MHz BW Signal – 5825MHz



Date: 21.SEP.2010 12:59:30



Accreditation No. 5292

8.0 RADIO FREQUENCY EXPOSURE (HAZARD) INFORMATION

Testing was performed in accordance with the requirements of FCC Part 15.247(i)

Spread spectrum transmitters operating in the 2400 - 2483.5 MHz and 5725 – 5850 MHz bands are required to be operated in a manner that ensures that the public is not exposed to RF energy levels in accordance with CFR 47, Section 1.1307(b)(1).

The MPE calculation shown below is for the Wireless Radio device with a separation distance of greater than 105cm.

In accordance with Section 1.1310, the Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure of 1.0 has been applied, i.e 1mW/cm².

Friis transmission formula: $P_d = (P \cdot G) / (4 \cdot \pi \cdot r^2)$

where: P_d = power density (mW/cm²)

P = power input to the antenna (mW)

G = antenna gain (numeric)

r = distance to the center of radiation of the antenna (cm)

Prediction frequency = 5785 MHz

Maximum peak output power = 29.35 dBm = 860.994 mW

Antenna gain (typical) = 22 dBi = 158.5 numeric

Prediction distance = 105 cm

The power density calculated = 0.985 mW/cm²

MPE limit for uncontrolled exposure at prediction frequency = 1 mW/cm²

Results: Calculations show that the Wireless Radio device with described antennas complied with Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure with a separation distance of greater than 105cm.



9.0 ANTENNA REQUIREMENT

This intentional radiator was designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

10.0 COMPLIANCE STATEMENT

The 802.11a Acurix Networks, Model: X2-A, with 802.11a Integrated Panel Antenna, Model: X1-A-22, tested on behalf of aCure Technology Pty Ltd, **complies** with the **Class II Permissive Change** requirements of 47 CFR, Part 15 Subpart C - Rules for Radio Frequency Devices (intentional radiators), Section 15.247 - Operation in the frequency band 2400 - 2483.5 MHz and 5725 – 5850 MHz.

Results were as follows - FCC Subpart C, Section 15.247

FCC Part 15 Subpart C, Clauses	Test Performed	Results
15.203	Antenna Requirement	Complied
15.205	Operation in Restricted Band	Complied
15.207	Conducted Emissions	Note 1
15.209	Radiated Emissions	Complied
15.247 (a)(2)	Channel Bandwidth	Complied
15.247 (b)	Peak Output Power	Not applicable. Refer to 15.247 (c) Antenna Gain > 6 dBi.
15.247 (c)	Antenna Gain > 6 dBi	Yes, complied
15.247 (d)	Out of Band Emissions	Complied
15.247 (e)	Peak Power Spectral Density	Complied
15.247 (f)	Hybrid Systems (note 2)	Not Applicable EUT does not employ a hybrid system
15.247 (g)	Frequency Hopping	Not Applicable EUT does not employ a frequency hopping modulation technique
15.247 (h)	Frequency Hopping	Not Applicable EUT does not employ a frequency hopping modulation technique
15.247 (i)	Radio Frequency Hazard	Complied

Note 1: Not included in this C2PC filing. New antenna (higher gain) would not change previous results.

Note 2: Hybrid systems are those that employ a combination of both frequency hopping and digital modulations technique.



11.0 MEASUREMENT UNCERTAINTIES

EMC Technologies has evaluated the equipment and the methods used to perform the emissions testing. The estimated measurement uncertainties for emissions tests shown within this report are as follows:

Conducted Emissions:	9 kHz to 30 MHz	± 3.2 dB
Radiated Emissions:	30 MHz to 300 MHz	± 5.1 dB
	300 MHz to 1000 MHz	± 4.7 dB
	1 GHz to 18 GHz	± 4.6 dB

The above expanded uncertainties are based on standard uncertainties multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

12.0 TEST REPORT APPENDICES

APPENDIX A: MEASUREMENT INSTRUMENT DETAILS

APPENDIX B: PHOTOGRAPHS

APPENDIX C: ANTENNA DETAILS

APPENDIX D: FCC LABELLING DETAILS

APPENDIX E: USER MANUAL

RF Exposure Information

FR931911-05AB_FCC RF Test Report_15.247



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