Nemko USA, Inc.
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CERTIFICATION TEST REPORT

PART 15.247C
IC RSS-210

For The 5.8GHz Broadband Wireless Communication Platform
Model: **SKYWAY EXCEL**

FCC ID: KA358WAN3
IC: 2499A-58WAN3

PREPARED FOR:

Solectek Corporation
6370 Nancy Ridge Road Suite 109
City, State ZIP

Prepared on: December 18, 2008

Report Number: 2008 1211733 FCC

Project Number: 15090-1

NEx Number: 117833

Total Pages: 52

DOCUMENT HISTORY

REVISION	DATE	COMMENTS
-	December 18, 2008	Prepared By: Alan Laudani
-	December 18, 2008	Initial Release: Alan Laudani

NOTE: Nemko USA, Inc. hereby makes the following statements so as to conform to Chapter 10 (Test Reports) Requirements of ANSI C63.4 (2003) "Methods and Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz":

- The unit described in this report was received at Nemko USA, Inc.'s facilities on December 2, 2008.
- Testing was performed on the unit described in this report on December 2, 2008 to December 17, 2008
- The Test Results reported herein apply only to the Unit actually tested, and to substantially identical Units.
- This report does not imply the endorsement of the Federal Communications Commission (FCC), Industry Canada, NVLAP or any other government agency.

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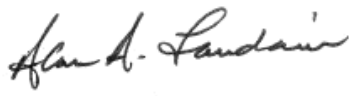
CERTIFICATION

Nemko USA, Inc., an independent Electromagnetic Compatibility (EMC) Test Laboratory, produced this Test Report and performed the Radio Frequency Interference (RFI) testing and data evaluation contained herein.

Nemko USA, Inc.'s measurement facility is currently registered with the United States Federal Communications Commission (FCC) in accordance with the provisions of 47 United States Code (CFR) Part 2, Subpart I, Section 2.948(a). A current description of Nemko USA, Inc.'s measurement facility is on file with the FCC. Nemko USA Inc. has additionally satisfied the FCC that it complies with the requirements set forth in 47 CFR Part 2, Subpart I, Section 2.948(d) regarding the accreditation of EMC laboratories.

The RFI testing, test data collection and test data evaluation were accomplished in accordance with the ANSI C63.4–2003 Standard, and in accordance with the applicable sections of the FCC rules (47 CFR Parts 2 and 15). The testing was also accomplished in accordance with Industry Canada's ICES-003 standard for unintentional radiating device per EMCAB-3, Issue 3 (May 1998). The administrative summary of this test report provides a description of the test sample.

I hereby certify that the test data, test data evaluation, and equipment configurations used to compile this test report are a true and accurate representation of the test sample's radio frequency interference characteristics as of the test date(s), and, for the design of the test sample.



Alan Laudani
EMC Engineer

1. ADMINISTRATIVE DATA AND TEST SUMMARY

1.1. Administrative Data

CLIENT:	Solectek Corporation 6370 Nancy Ridge Road Suite 109 City, State ZIP
CONTACT: E-Mail:	David Gell dgell@solectek.com
DATE (S) OF TEST:	December 2, 2008 to December 4, 2008
EQUIPMENT UNDER TEST (EUT):	5.8GHz Broadband Wireless Communication Platform
MODEL: SERIAL NUMBER:	SKYWAY EXCEL NA
CONDITION UPON RECEIPT:	Suitable for Test
TEST SPECIFICATION:	FCC, Part 15.247, Subpart C Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0-24.25 GHz bands and RSS 210 (Issue 7, June 2007) Annex 8 - Frequency Hopping and Digital Modulation Systems Operating in the Bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

1.2. Test Summary

Specification	*Frequency Range*	*Compliance Status*
FCC, CFR 47, Section 15.207	0.15 MHz - 30.00 MHz	PASS
FCC, CFR 47, Section 15.209	30 MHz – 10th Harmonic	PASS
FCC CFR 47, §15.247 Plus Bandedge	5735 -- 5835 MHz	PASS
RSS-210 - Low Power License Exempt Radio-communication Devices (All Frequency Bands)	5735 -- 5835 MHz	PASS

Testing was started at 30 MHz as there are no RF signals generated below this frequency.

Refer to the test results section for further details.

2. SYSTEM CONFIGURATION

2.1. Description and Method of Exercising the EUT

The SkyWay Excel is a 5.8GHz Broadband Wireless radio system. Skyway Excel is to be used by the Enterprise and Service Provider community to extend network and internet access to remote locations. Pre-packetized Multimedia content is fed in digital form into the system, where the modulator converts this into an OFDM signal. The OFDM signal is then modulated on an RF carrier and sent to an antenna for transmission.

Two examples of the product were presented for testing: SN 159 with the ability to connect using Ports 1, 2 & 3 (test engineer's nomenclature) to test equipment or the supplied Dish Antenna. SN 146 connected integrally with a Plate Antenna. As a representative sample, Conducted Emissions were performed using SN 149. Radiated Emissions proved to be higher using SN 159 and the Dish Antenna. These results presented. Two modes were tested: transmit mode on frequencies 5735, 5775, and 5835 and stand-by (slave) mode. There is no independent receive mode, in use the transmitter transmits and receives alternately.

2.2. System Components and Power Cables

DEVICE	MANUFACTURER MODEL # SERIAL #	POWER CABLE
EUT - 5.8GHz Broadband Wireless Communication Platform	Solectek Corporation SKYWAY EXCEL Serial #: 159 With connected Dish Antenna	Power over Ethernet
EUT - 5.8GHz Broadband Wireless Communication Platform	Solectek Corporation SKYWAY EXCEL Serial #: 146 With attached Plate Antenna	Power over Ethernet
Power Over Ethernet Module	Best Technologies Power Over Ethernet Serial #: NA	48 Vdc @ 0.8 A from power supply
POE Power Supply	Best Technologies BPA-01BG Serial #: NA	AC100-240V @ 1A 50/60 Hz 1.5m, unshielded, 18 AWG, 3-wire, IEC connector
Support—Laptop	IBM Professional Type 2647 Serial #: 78-L08DN 09/02	16 Vdc @ 4.5 A from power supply
Laptop Power Supply	IBM AA21131B Serial #: 11S02K6746Z	AC100-240V @ 1.5A 50/60 Hz 1.5m, unshielded, 18 AWG, 3-wire, IEC connector

2.3. Device Interconnection and I/O Cables

Connection	I/O Cable
EUT to POE	>2.5m, shielded, 26AWG, CAT 5 cable
POE to Laptop	>2.5m, shielded, 26AWG, CAT 5 cable

Design Modifications for Compliance

The following design modifications were made to the EUT during testing.

No design modifications were made to the EUT during testing.

2.4. Technical Specifications of the EUT

Manufacturer:	Solectek Corporation
Operating Frequency:	5735 MHz to 5835 MHz in the 5725-5850 MHz Band
Total Conducted Output Power:	153.0 mW
Modulation:	ODFM
Antenna Connector:	N- Connector & Internal housing/antenna interface To be professionally installed.
Power Source:	Power Over Ethernet (48 VDC) from Power Brick
Antennas:	1. Larsen R380.700.Z12 (3) 5.8 GHz Radome Omni 10 dBi 2. ARC Wireless Solutions 5.15-5.875GHz 24/23dBi Dual Polarization Panel Antenna 3. Laird HD Series High Performance Dish Antenna HDDA5W-29-DP - 29dBi dual polarity (H and V)

3. DESCRIPTION OF TEST SITE AND ENVIRONMENT

3.1. Description of Test Site

The test site is located at 11696 Sorrento Valley Road, Suite F, San Diego, CA 92121. The site is physically located 18 miles Northwest of downtown San Diego. The general area is a valley 1.5 miles east of the Pacific Ocean. This particular part of the valley tends to minimize ambient levels, i.e. radio and TV broadcast stations and land mobile communications. The three and ten-meter Open Area Test Site (OATS) is located behind the office/lab building. It conforms to the normalized site attenuation limits and construction specifications as set in the EN 55022 (1987), CISPR 16 and 22 (1985) and ANSI C63.4-2001 documents. The OATS normalized site attenuation characteristics are verified for compliance every year, and registered with the Federal Communications Commission under Registration Number `392943 with US Designation US-5058,` and Industry Canada under 2040B-1 and 2040B-2.

3.2. Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	14 – 22 ^{O}C
Humidity range	:	29 - 90%
Pressure range	:	87 - 105 kPa
Power supply range	:	120VAC 60Hz (±15%)

4. DESCRIPTION OF TESTING METHODS

4.1. Introduction

As required in 47 CFR, Parts 2 and 15, the methods employed to test the radiated and conducted emissions (as applicable) of the EUT are those contained within the American National Standards Institute (ANSI) document ANSI C63.4–2003, titled "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz." All applicable FCC Rule Sections that provide further guidance for performance of such testing are also observed.

For General Test Configuration please refer to Figure 1 on the following page.

Digital devices sold in Canada are required to comply with the Interference Causing Equipment Standard for Digital Apparatus, ICES-003. These test methods and limits are specified in the Canadian Standards Association's (CSA) Standard C108.8-M1983 (1-1-94 version) and are "essentially equivalent" with FCC, Part 15 and CISPR 22 (EN55022) rules for unintentional radiators per EMCAB-3, Issue 3 (May 1998). No further testing is required for compliance to ICES-003.

4.2. Configuration and Methods of Measurements for Conducted Emissions

Section 7 of ANSI C63.4 determines the general configuration of the EUT and associated equipment, as well as the test platform for conducted emissions testing. Tabletop devices are placed on a non-conducting surface 80 centimeters above the ground plane floor and 40 centimeters from the ground plane wall. The EUT and associated system are configured to operate continuously, representing a "normally operating" mode. The EUT is powered via a Line Impedance Stabilization Network (LISN). The emissions are recorded using the required bandwidth of 9 kHz in the quasi-peak mode. The average amplitude is also observed employing a 10 kHz bandwidth to determine the presence of broadband RFI. When such interference is caused by broadband sources (as defined by the FCC and ANSI Rules), the deviation guidelines contained in Section 11.3.1 of ANSI C63.4 are employed, which allows a correction factor of 13 dB to be subtracted from the quasi-peak reading. The emission levels are then compared to the applicable FCC limits to determine compliance.

4.3. Configuration and Methods of Measurements for Frequency Identification

When performing all testing of equipment, the actual emissions of the EUT are segregated from ambient signals present within the laboratory or the open-field test range. Preliminary testing is performed to ensure that ambient signals are sufficiently low to allow for proper observation of the emissions from the EUT. Incoming power lines are filtered using a 120 dB, 30-ampere; 115/208-volt filter to assist in reducing ambient signals for tests of levels of conducted emissions. Ambients within the laboratory are compared to those noted at the nearby open-field site to discriminate between signals produced from the EUT and ambient signals. In the event that a significant emission is produced by the EUT at a frequency which is also demonstrating significant ambient signals, the spectrum analyzer is placed in the peak mode, the bandwidth is narrowed, the EUT's signal is centered on the analyzer, the scan width is expanded to 50 kHz while monitoring the audio to ensure that only the EUT signal is present, the analyzer is switched to quasi-peak mode, and the level of the EUT signal is recorded.

4.4. Configuration and Methods of Measurements for Radiated Emissions

Section 8 of ANSI C63.4 determines the general configuration and procedures for measuring the radiated emissions of equipment under test. Initially, the primary emission frequencies are identified inside the test lab by positioning a broadband receive antenna one meter from the EUT to locate frequencies of significant radiation. Next, the EUT and associated system are placed on a turntable on a ten meter open area test site (registered with the FCC in accord with its Rules and ANSI C63.4) and the receive antenna is located at a distance of ten meters from the EUT.

The EUT and associated system are configured to operate continuously, representing a "normally operating" mode. All significant radiated emissions are recorded when maximum radiation on each frequency is observed, in accordance with part 8 of ANSI C63.4–2003 and Section 15.33 of the FCC Rules. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters and rotated to horizontal and vertical polarities, and the turntable is also rotated to determine the worst emitting configuration. The numerical results of the test are included herein to demonstrate compliance.

The numerical results that are applied to the emissions limits are arrived at by the following method:
Example: A=RR+CL+AF
A = Amplitude dBµV/m
RR = Receiver Reading dBµV
CL = cable loss dB
AF = antenna factor dB/m

Example Frequency = 110MHz
18.5 dBµV (spectrum analyzer reading)
+3.0 dB (cable loss @ frequency)
21.5 dBµV
+15.4 dB/m (antenna factor @ frequency)
36.9 dBµV/m Final adjusted value

The final adjusted value is then compared to the appropriate emission limit to determine compliance.

5. Test Results

5.1. Conducted Emissions

Part 15.207(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

7.2.2 The purpose of this test is to measure unwanted radio frequency currents induced in any AC conductor external to the equipment which could conduct interference to other equipment via the AC electrical network. Except when the requirements applicable to a given device state otherwise, for any licence-exempt radiocommunication device equipped to operate from the public utility AC power supply, either directly or indirectly, the radio frequency voltage that is conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown below. The tighter limit applies at the frequency range boundaries. The conducted emissions shall be measured with a 50 ohm/50 microhenry line impedance stabilization network

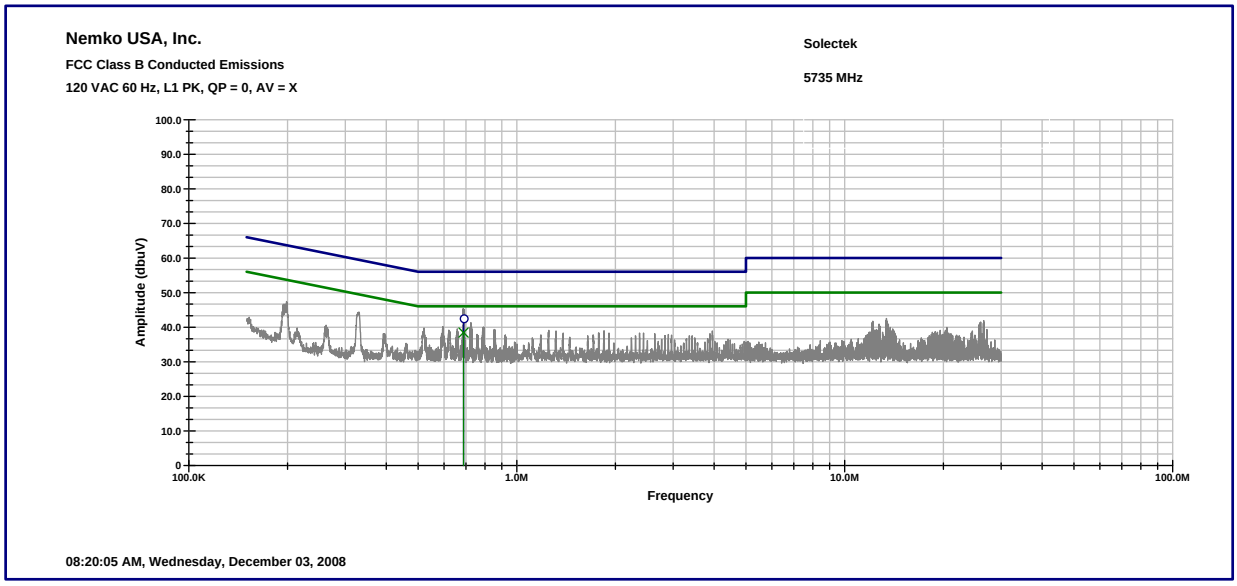
Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

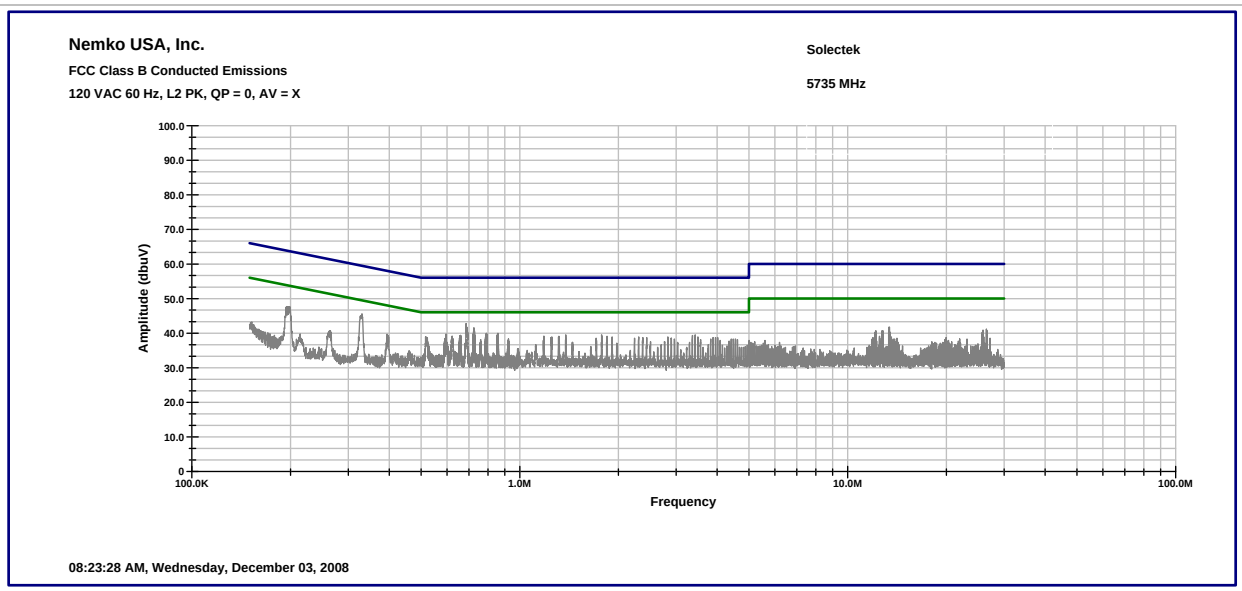
*Decreases with the logarithm of the frequency.

Worst case configuration of Conducted Emissions with no antennas connected.

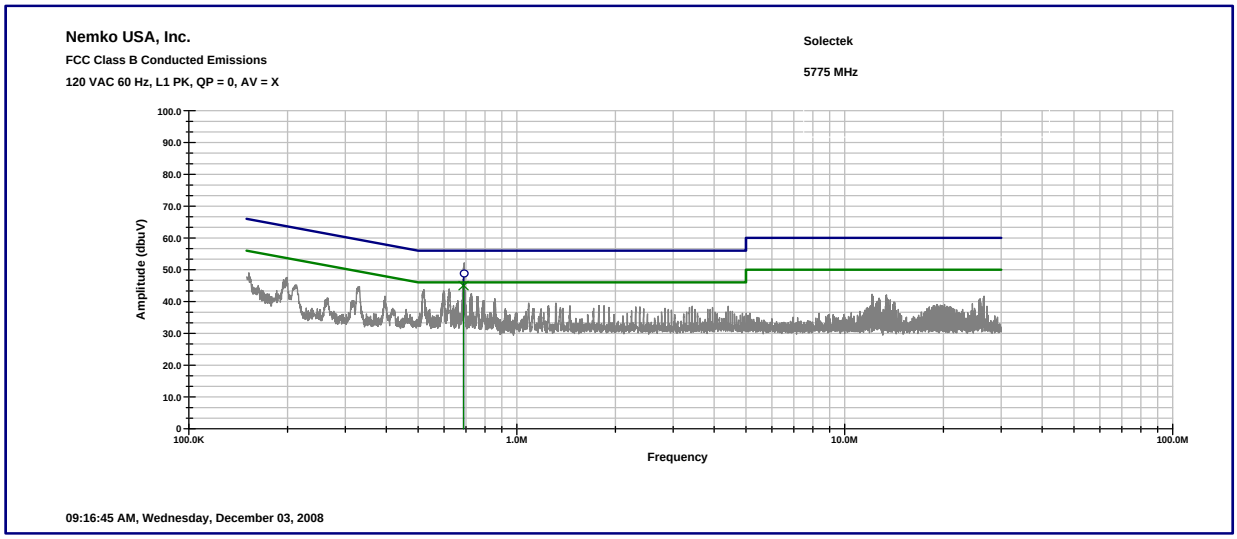
Conducted Emissions Test Data – Transmit Mode

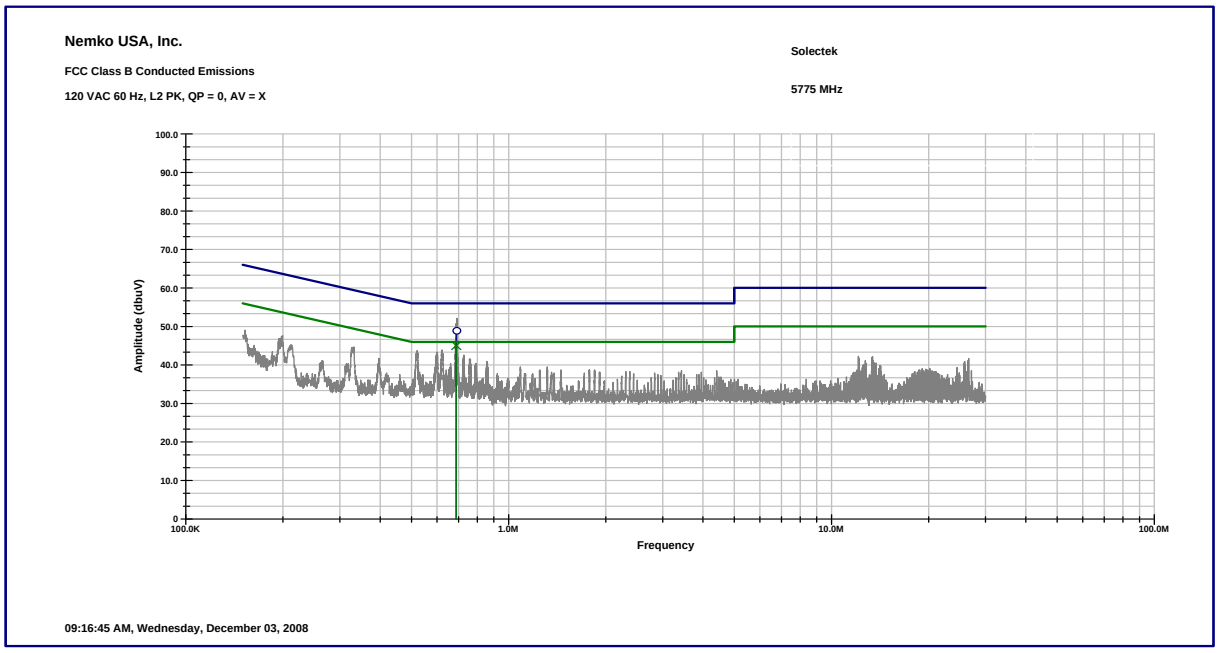
Client	Solectek Corporation	Temperature	73	°F
PAN #	15090-1	Relative Humidity	38	%
EUT Name	5.8GHz Broadband Wireless Communication Platform	Barometric Pressure	30.12	"Hg
EUT Model	SKYWAY EXCEL	Test Location	Enclosure 1	
Governing Doc	CFR 47, Part 15B	Test Engineer	Alan Laudani	
Basic Standard	Sec. 15.207 Transmit Low Freq.	Date	12-2-08	
Parameters	Peak RBW: 100kHz VBW: 100kHz Quasi-Peak: RBW 9kHz, VBW 30 kHz Average: RBW 9kHz, VBW 30 kHz Quasi-Peak Limit Blue Line, Average Limit Green Line			



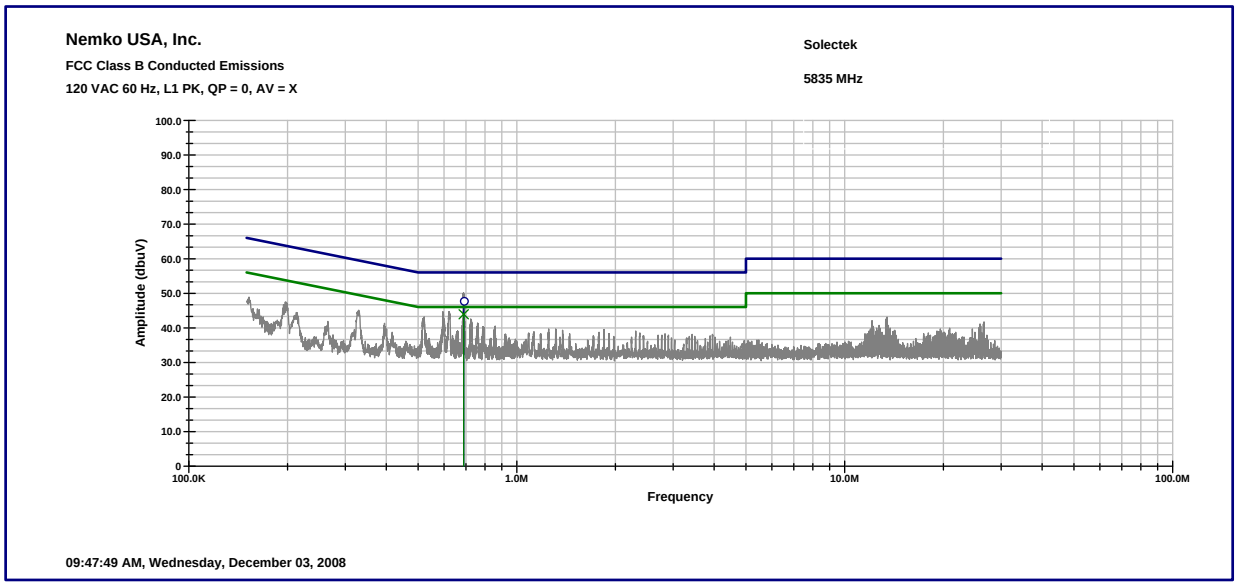


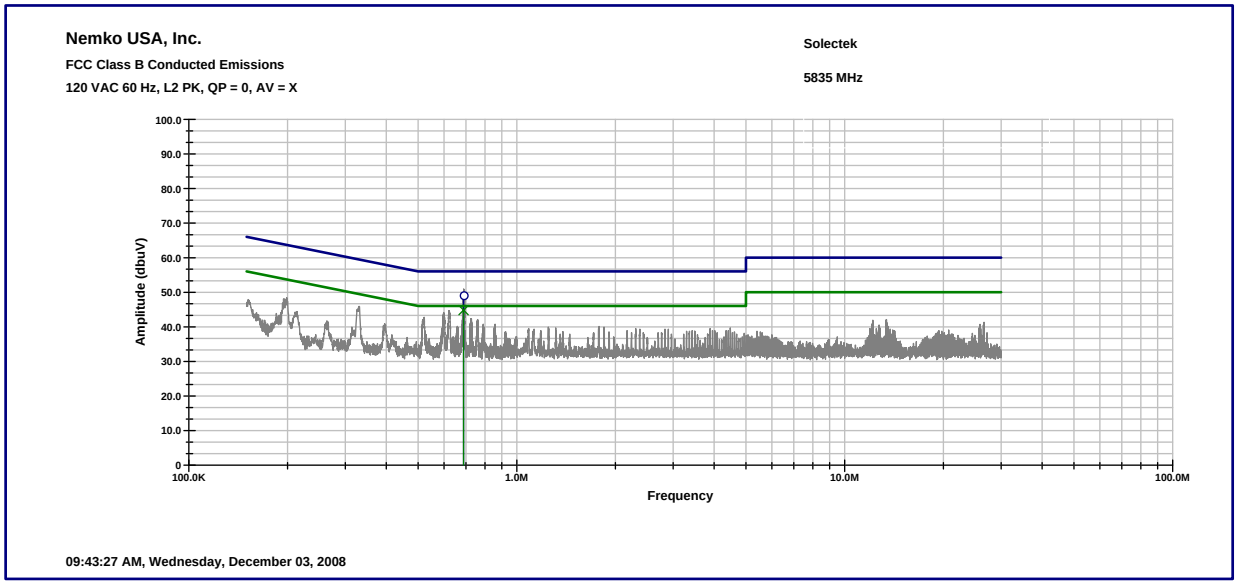
Client	Solectek Corporation	Temperature	73	°F
PAN #	15090-1	Relative Humidity	38	%
EUT Name	5.8GHz Broadband Wireless Communication Platform	Barometric Pressure	30.12	"Hg
EUT Model	SKYWAY EXCEL	Test Location	Enclosure 1	
Governing Doc	CFR 47, Part 15B	Test Engineer	Alan Laudani	
Basic Standard	Sec. 15.207 Transmit Mid Freq.	Date	12-2-08	
Parameters	Peak RBW: 100kHz VBW: 100kHz Quasi-Peak: RBW 9kHz, VBW 30 kHz Average: RBW 9kHz, VBW 30 kHz Quasi-Peak Limit Blue Line, Average Limit Green Line			





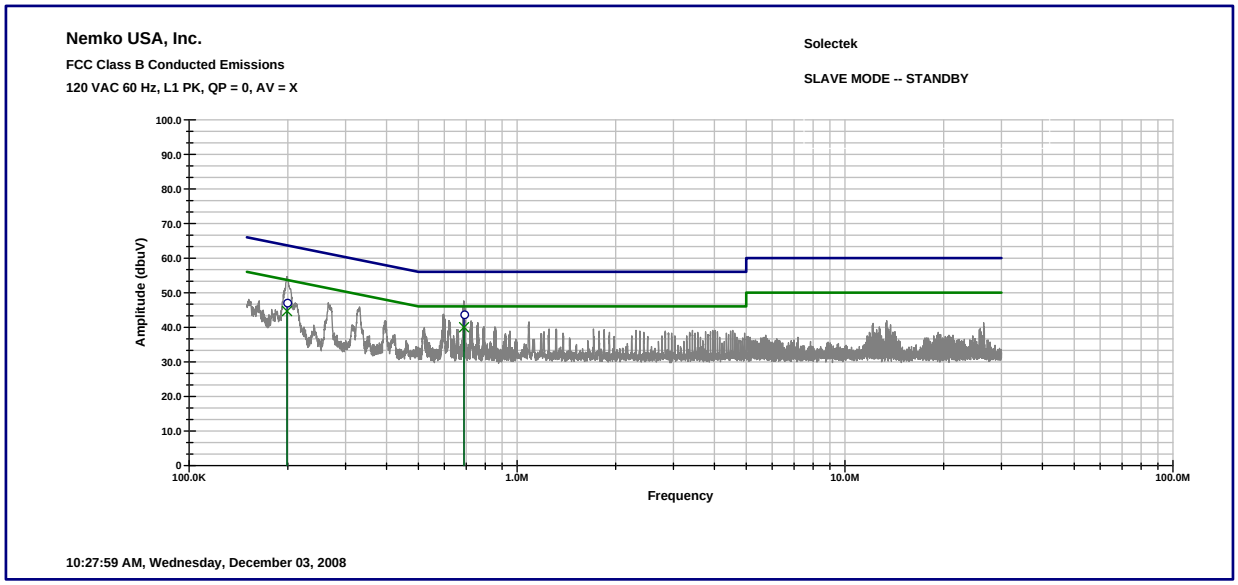
Client	Solectek Corporation	Temperature	73	°F
PAN #	15090-1	Relative Humidity	38	%
EUT Name	5.8GHz Broadband Wireless Communication Platform	Barometric Pressure	30.12	"Hg
EUT Model	SKYWAY EXCEL	Test Location	Enclosure 1	
Governing Doc	CFR 47, Part 15B	Test Engineer	Alan Laudani	
Basic Standard	Sec. 15.207 Transmit High Freq.	Date	12-2-08	
Parameters	Peak RBW: 100kHz VBW: 100kHz Quasi-Peak: RBW 9kHz, VBW 30 kHz Average: RBW 9kHz, VBW 30 kHz Quasi-Peak Limit Blue Line, Average Limit Green Line			

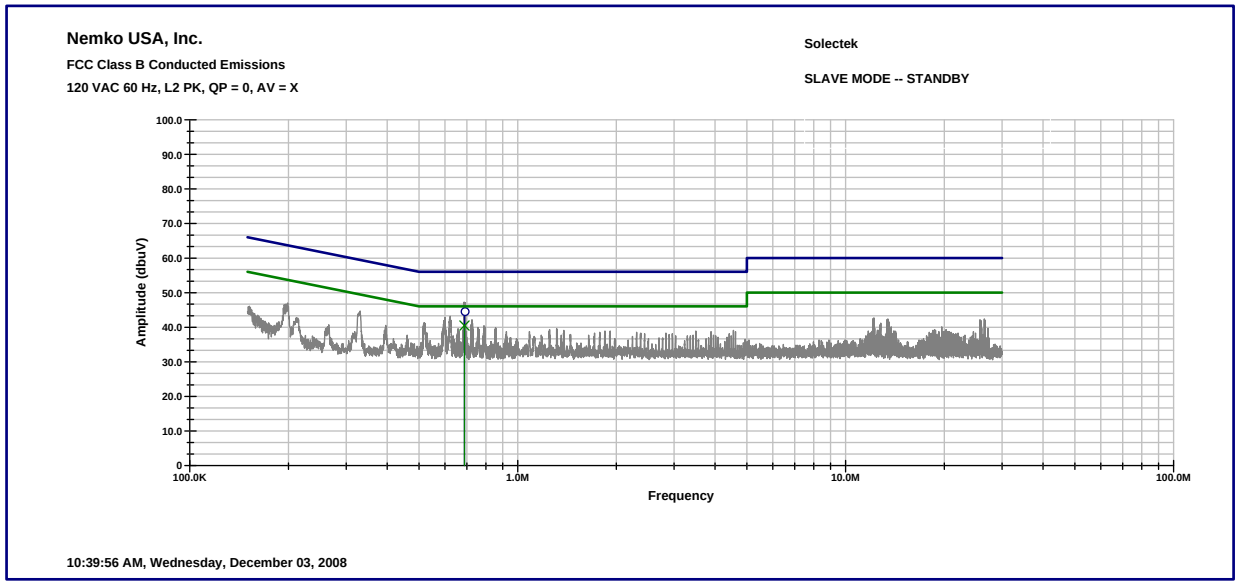




Conducted Emissions Test Data – Stand-by Mode

Client	Solectek Corporation	Temperature	73	°F
PAN #	15090-1	Relative Humidity	38	%
EUT Name	5.8GHz Broadband Wireless Communication Platform	Barometric Pressure	30.12	"Hg
EUT Model	SKYWAY EXCEL	Test Location	Enclosure 1	
Governing Doc	CFR 47, Part 15B	Test Engineer	Alan Laudani	
Basic Standard	Sec. 15.107	Date	12-2-08	
Parameters	Peak RBW: 100kHz VBW: 100kHz Quasi-Peak: RBW 9kHz, VBW 30 kHz Average: RBW 9kHz, VBW 30 kHz			
Legend	Quasi-Peak Limit Blue Line, Average Limit Green Line			





5.3 Radiated Emissions Test Data

Emissions reported below, Emissions were searched over a range of 30 MHz to 40000 MHz
There are no emissions found that do not comply to the restricted bands defined in FCC Part 15 Subpart C, 15.205 or Part 15.247(d). Measurements below 1GHz were performed at 3m with a Quasi-Peak detector while Peak detector with duty cycle correction will be used above 1GHz. RBW and VBW above 1GHz is 1MHz while bandwidth setting will be set to encompass the entire EBW of signal to be measured. Investigations above 1GHz were made at 3 meters, 1 meter and 0.1 meter to verify no emissions above those of the intentional radiator. Digital emissions over 1 MHz used Peak of RBW =1 MHz, VBW= 3 MHz and average of RBW =1 MHz, VBW= 10 Hz. RF harmonics would be measured at Peak of RBW =1 MHz, VBW= 3 MHz with Average = Peak + Duty Cycle Factor. No RF harmonics were detected.

Example Frequency = 132.2 MHz
25.7 dBuV (EMC Receiver reading—internal gain used)
+1.3 dB (cable loss @ frequency)
+13.7 dB/m (antenna factor @ frequency)
40.7 dBuV/m Final adjusted value

Radiated Emissions Data

Job # :	15090-1	Date :	12-3-08	Page 4 of 4	
NEX #:	117833	Time :	1520PM		
		Staff :	aal		
Client Name :	Solectek Corporation			EUT Voltage :	120
EUT Name :	5.8 GHz Broadband Wireless Com. Platform			EUT Frequency :	60
EUT Model # :	Skyway Excel			Phase:	1
EUT Serial # :	159			NOATS	
EUT Config. :	Slave Mode, Stand-by			SOATS	X
	Dish Antenna			Distance < 1000 MHz:	3 m
				Distance > 1000 MHz:	3 m
Specification :	CFR47 Part 15, Subpart B, Class B				
Loop Ant. #:	NA				
Bicon Ant.#:	115	Temp. (°C) :	17		
Log Ant.#:	111_3m	Humidity (%) :	54		
DRG Ant. #	529	Spec An.#:	898		
Cable LF#:	SOATS	Spec An. Display #:	898		
Cable HF#:	40ft	QP #:	898		
Preamp LF#:	NA	PreSelect#:	899		
Preamp HF#	317	Spec An.#2:	835		

Quasi-Peak	RBW:	120 kHz
	Video Bandwidth	300 kHz
Peak	RBW:	1 MHz
	Video Bandwidth	3 MHz
Average	RBW:	1 MHz
	Video Bandwidth	10 Hz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.
Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading **Vertical**	Meter Reading **Horizontal**	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBµV)	Corrected Reading (dBµV/m)	Spec. limit (dBµV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
48.0	17.1	15.3	Q	B	1.0	17.1	29.9	40.0	-10.1	Pass	
77.2	22.2	20.5	Q	B	1.0	22.2	31.1	40.0	-8.9	Pass	
115.5	15.1	12.3	Q	B	2.0	15.1	31.6	43.5	-11.9	Pass	
132.2	24.5	26.1	Q	B	2.0	26.1	41.1	43.5	-2.4	Pass	
225.0	20.6	24.2	Q	B	1.0	24.2	37.5	46.0	-8.6	Pass	
275.0	28.1	25.8	Q	F	1.0	28.1	45.3	46.0	-0.7	Pass	
475.0	12.1	11.0	Q	F	1.5	12.1	32.5	46.0	-13.6	Pass	
1200.0	33.0	32.0	P	L	1.0	33	29.6	74.0	-44.4	Pass	Non-RF emission
1200.0	32.2	31.0	A	L	1.0	32.2	28.8	54.0	-25.2	Pass	
1500.0	46.5	35.9	P	L	1.0	46.5	44.8	74.0	-29.1	Pass	Non-RF emission
1500.0	36.4	35.6	A	L	1.0	36.4	34.7	54.0	-19.2	Pass	

Low Frequency

Radiated Emissions Data

Job # :	15090-1	Date :	12-3-08	Page 1 of 4	
NEX #:	117833	Time :	1240Pm		
		Staff :	aal		
Client Name :	Solectek Corporation			EUT Voltage :	120
EUT Name :	5.8 GHz Broadband Wireless Com. Platform			EUT Frequency :	60
EUT Model # :	Skyway Excel			Phase:	1
EUT Serial # :	159			NOATS	
EUT Config. :	Transmit 5735 MHz			SOATS	X
	Dish Antenna			Distance < 1000 MHz:	3 m
				Distance > 1000 MHz:	3 m
Specification :	CFR47 Part 15, Subpart B, Class B				
Loop Ant. #:	NA				
Bicon Ant.#:	115	Temp. (°C) :	17		
Log Ant.#:	111_3m	Humidity (%) :	52		
DRG Ant. #	529	Spec An.#:	898		
Cable LF#:	SOATS	Spec An. Display #:	898		
Cable HF#:	40ft	QP #:	898		
Preamp LF#:	NA	PreSelect#:	899		
Preamp HF#	317	Spec An.#2:	835		

Quasi-Peak	RBW:	120 kHz
	Video Bandwidth	300 kHz
Peak	RBW:	1 MHz
	Video Bandwidth	3 MHz
Average	RBW:	1 MHz
	Video Bandwidth	10 Hz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.

Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading **Vertical**	Meter Reading **Horizontal**	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBµV)	Corrected Reading (dBµV/m)	Spec. limit (dBµV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
48.0	26.2	13.1	Q	B	1.0	26.2	39.0	40.0	-1.0	Pass	
77.2	24.2	24.1	Q	B	1.0	24.2	33.1	40.0	-6.9	Pass	
115.5	25.7	25.2	Q	B	1.0	25.7	42.2	43.5	-1.3	Pass	
132.2	23.3	25.6	Q	B	2.0	25.6	40.6	43.5	-2.9	Pass	
225.0	14.1	17.6	Q	B	1.0	17.6	30.9	46.0	-15.2	Pass	
275.0	21.3	23.5	Q	F	1.0	23.5	40.7	46.0	-5.3	Pass	
475.0	15.6	17.7	Q	F	1.5	17.7	38.1	46.0	-8.0	Pass	
1200.0	33.1	32.1	P	L	1.0	33.1	29.7	74.0	-44.3	Pass	Non-RF emission
1200.0	32.3	31.0	A	L	1.0	32.3	28.9	54.0	-25.1	Pass	
1500.0	46.4	36.1	P	L	1.0	46.4	44.7	74.0	-29.2	Pass	Non-RF emission
1500.0	37.4	35.6	A	L	1.0	37.4	35.7	54.0	-18.2	Pass	

Mid Frequency

Radiated Emissions Data

Job # :	15090-1	Date :	12-3-08	Page 2 of 4	
NEX #:	117833	Time :	1430PM		
		Staff :	aal		
Client Name :	Solectek Corporation			EUT Voltage :	120
EUT Name :	5.8 GHz Broadband Wireless Com. Platform			EUT Frequency :	60
EUT Model # :	Skyway Excel			Phase:	1
EUT Serial # :	159			NOATS	
EUT Config. :	Transmit 5775 MHz			SOATS	X
	Dish Antenna			Distance < 1000 MHz:	3 m
				Distance > 1000 MHz:	3 m
Specification :	CFR47 Part 15, Subpart B, Class B				
Loop Ant. #:	NA				
Bicon Ant.#:	115	Temp. (°C) :	17		
Log Ant.#:	111_3m	Humidity (%) :	52		
DRG Ant. #	529	Spec An.#:	898		
Cable LF#:	SOATS	Spec An. Display #:	898		
Cable HF#:	40ft	QP #:	898		
Preamp LF#:	NA	PreSelect#:	899		
Preamp HF#	317	Spec An.#2:	835		

Quasi-Peak	RBW:	120 kHz
	Video Bandwidth	300 kHz
Peak	RBW:	1 MHz
	Video Bandwidth	3 MHz
Average	RBW:	1 MHz
	Video Bandwidth	10 Hz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.

Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading **Vertical**	Meter Reading **Horizontal**	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBµV)	Corrected Reading (dBµV/m)	Spec. limit (dBµV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
48.0	18.5	17.3	Q	B	1.0	18.5	31.3	40.0	-8.7	Pass	
77.2	22.3	21.2	Q	B	1.0	22.3	31.2	40.0	-8.8	Pass	
115.5	16.3	19.8	Q	B	2.0	19.8	36.3	43.5	-7.2	Pass	
132.2	24.1	24.3	Q	B	2.0	24.3	39.3	43.5	-4.2	Pass	
225.0	19.1	23.1	Q	B	1.0	23.1	36.4	46.0	-9.7	Pass	
275.0	10.5	16.9	Q	F	1.0	16.9	34.1	46.0	-11.9	Pass	
475.0	12.2	12.1	Q	F	1.5	12.2	32.6	46.0	-13.5	Pass	
1200.0	32.9	32.0	P	L	1.0	32.9	29.5	74.0	-44.5	Pass	Non-RF emission
1200.0	32.2	31.0	A	L	1.0	32.2	28.8	54.0	-25.2	Pass	
1500.0	46.5	36.0	P	L	1.0	46.5	44.8	74.0	-29.1	Pass	Non-RF emission
1500.0	36.5	35.6	A	L	1.0	36.5	34.8	54.0	-19.1	Pass	

High Frequency

Radiated Emissions Data

Job # :	15090-1	Date :	12-3-08	Page 3 of 4	
NEX #:	117833	Time :	1530PM		
		Staff :	aal		
Client Name :	Solectek Corporation			EUT Voltage :	120
EUT Name :	5.8 GHz Broadband Wireless Com. Platform			EUT Frequency :	60
EUT Model # :	Skyway Excel			Phase:	1
EUT Serial # :	159			NOATS	
EUT Config. :	Transmit 5835 MHz			SOATS	X
	Dish Antenna			Distance < 1000 MHz:	3 m
				Distance > 1000 MHz:	3 m
Specification :	CFR47 Part 15, Subpart B, Class B				
Loop Ant. #:	NA				
Bicon Ant.#:	115	Temp. (°C) :	17		
Log Ant.#:	111_3m	Humidity (%) :	52		
DRG Ant. #	529	Spec An.#:	898		
Cable LF#:	SOATS	Spec An. Display #:	898		
Cable HF#:	40ft	QP #:	898		
Preamp LF#:	NA	PreSelect#:	899		
Preamp HF#	317	Spec An.#2:	835		

Quasi-Peak	RBW:	120 kHz
	Video Bandwidth	300 kHz
Peak	RBW:	1 MHz
	Video Bandwidth	3 MHz
Average	RBW:	1 MHz
	Video Bandwidth	10 Hz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.

Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading **Vertical**	Meter Reading **Horizontal**	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBµV)	Corrected Reading (dBµV/m)	Spec. limit (dBµV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
48.0	18.3	17.5	Q	B	1.0	18.3	31.1	40.0	-8.9	Pass	
77.2	22.2	20.5	Q	B	1.0	22.2	31.1	40.0	-8.9	Pass	
115.5	16.1	19.9	Q	B	2.0	19.9	36.4	43.5	-7.1	Pass	
132.2	23.3	25.7	Q	B	2.0	25.7	40.7	43.5	-2.8	Pass	
225.0	18.6	22.3	Q	B	1.0	22.3	35.6	46.0	-10.5	Pass	
275.0	10.3	17.3	Q	F	1.0	17.3	34.5	46.0	-11.5	Pass	
475.0	12.1	11.0	Q	F	1.5	12.1	32.5	46.0	-13.6	Pass	
1200.0	33.1	32.0	P	L	1.0	33.1	29.7	74.0	-44.3	Pass	Non-RF emission
1200.0	32.2	31.0	A	L	1.0	32.2	28.8	54.0	-25.2	Pass	
1500.0	46.5	36.1	P	L	1.0	46.5	44.8	74.0	-29.1	Pass	Non-RF emission
1500.0	37.1	35.6	A	L	1.0	37.1	35.4	54.0	-18.5	Pass	

5.2. Bandwidth

RSS-Gen 4.6.1

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

Sample Number:	SKYWAY EXCEL 159	Temperature:	17°C
Date:	12-2-08	Humidity:	52%
Modification State:	Lo/Mid/High Channels	Tester:	Alan Laudani
		Laboratory:	Test Area 1

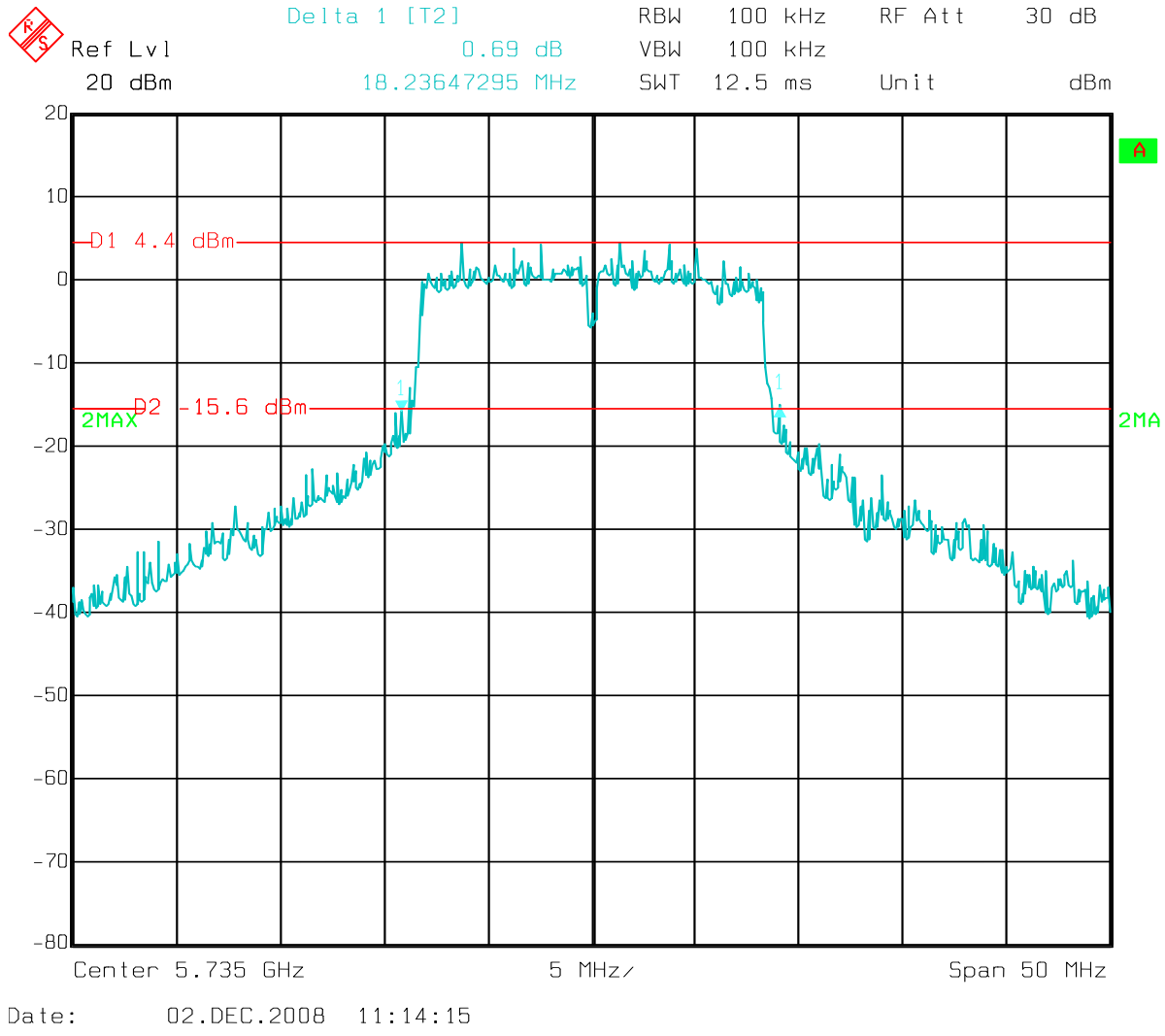
15.247(a)(1)

Measurements were made Conductively at Port 1. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK max hold output reading was taken, a DISPLAY line was drawn 20 dB lower than PEAK level. The bandwidth was determined from where the channel output spectrum intersected the display line.

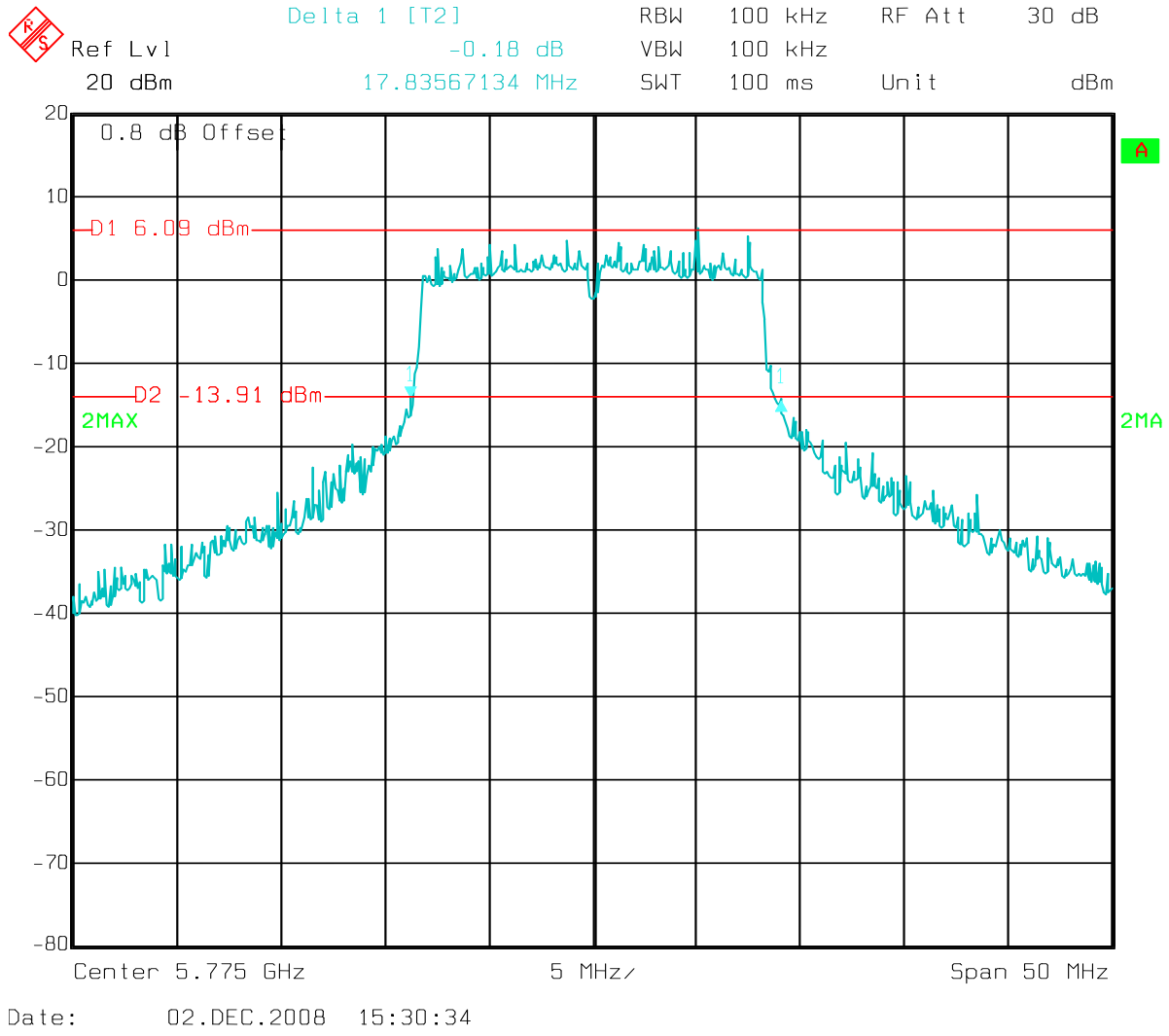
Test Results:

20 dB Bandwidth		
Low Channel	Mid Channel	High Channel
18.2 MHz	17.8 MHz	18.1 MHz

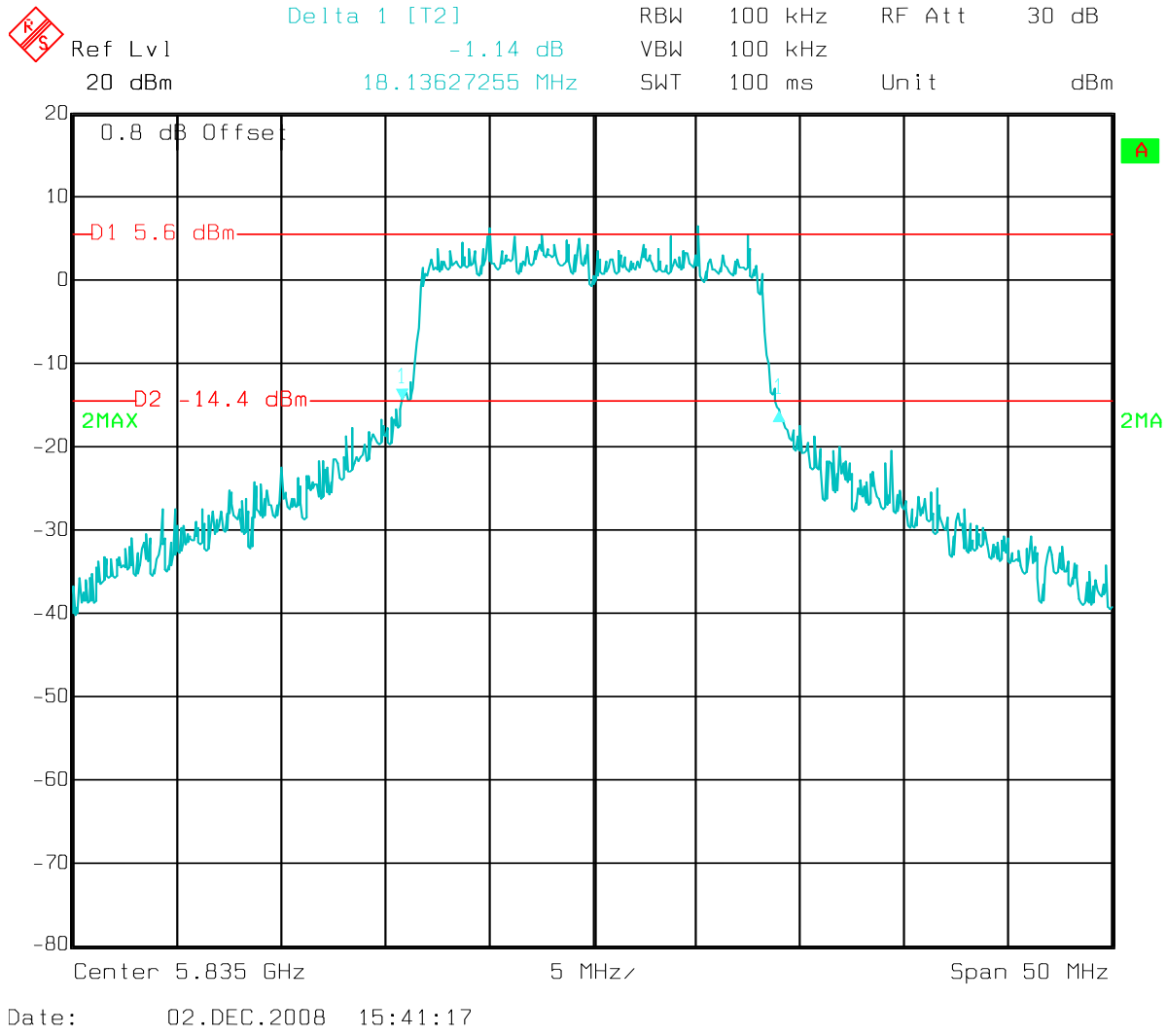
Low Channel


Delta 1 [T2]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
0.69 dB
VBW 100 kHz
20 dBm
18.23647295 MHz
SWT 12.5 ms
Unit dBm
D1 4.4 dBm
D2 -15.6 dBm
2MAX
2MA
A
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.735 GHz
5 MHz/
Span 50 MHz
Date: 02.DEC.2008 11:14:15

Mid Channel


Delta 1 [T2]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
-0.18 dB
VBW 100 kHz
20 dBm
17.83567134 MHz
SWT 100 ms
Unit dBm
0.8 dB Offset
D1 6.09 dBm
D2 -13.91 dBm
2MAX
2MA
A
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.775 GHz
5 MHz/
Span 50 MHz
Date: 02.DEC.2008 15:30:34

High Channel



5.3. Out-of-band Emissions / Radiated Emissions within Restricted Bands

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (uV/meter)	Measurement Distance (meter)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	3
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Sec. 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a) (see Sec. 15.205(c)).

A8.5 Out-of-band Emissions

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under Section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

Sample Number:	SKYWAY EXCEL 159	Temperature:	17°C
Date:	12-3-08	Humidity:	54%
Modification State:	Lo/Mid/High Channels	Tester:	Alan Laudani
		Laboratory:	SOATS

Test Results:

No RF emissions detected other than the fundamental.

Additional Observations:

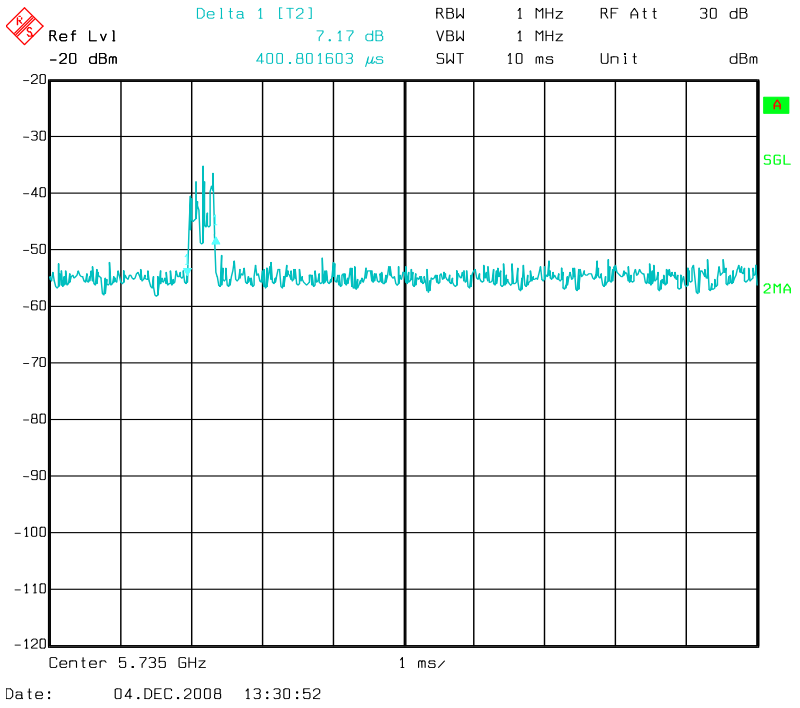
- The Spectrum was searched from 30MHz to the 10th Harmonic, 25000 MHz.
  There are no emissions found that do not comply to the restricted bands defined in FCC Part 15 Subpart C, 15.205 or Part 15.247(d).

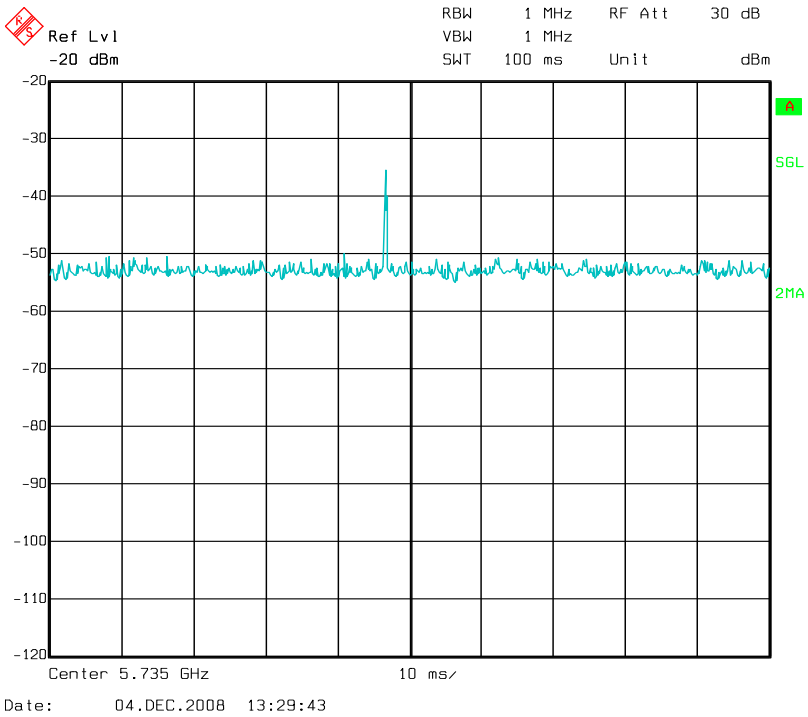
- Peak (RBW 1MHz/VBW 3MHz)
- Average = Peak + Duty Cycle Factor.

- Duty Cycle measured to be less than 10%, therefore Duty Cycle Factor = -20dB.

- Bandedge presented by plots measured using Dish Antenna, which showed to be worst case.

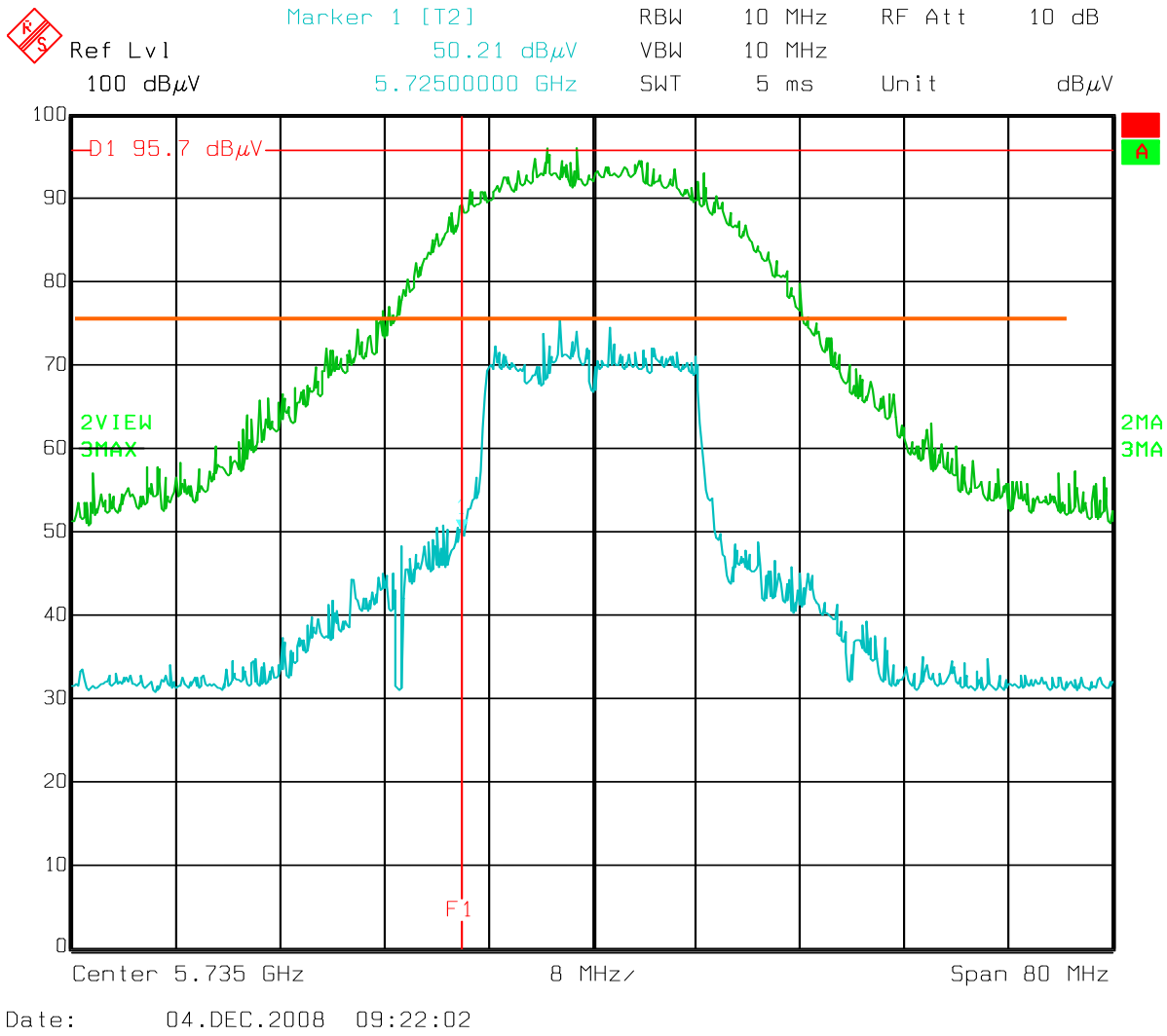
Duty Cycle Factor:
On time = 0.400 micro seconds in 100 ms. = .01 %





5.4. Bandedge Measurements

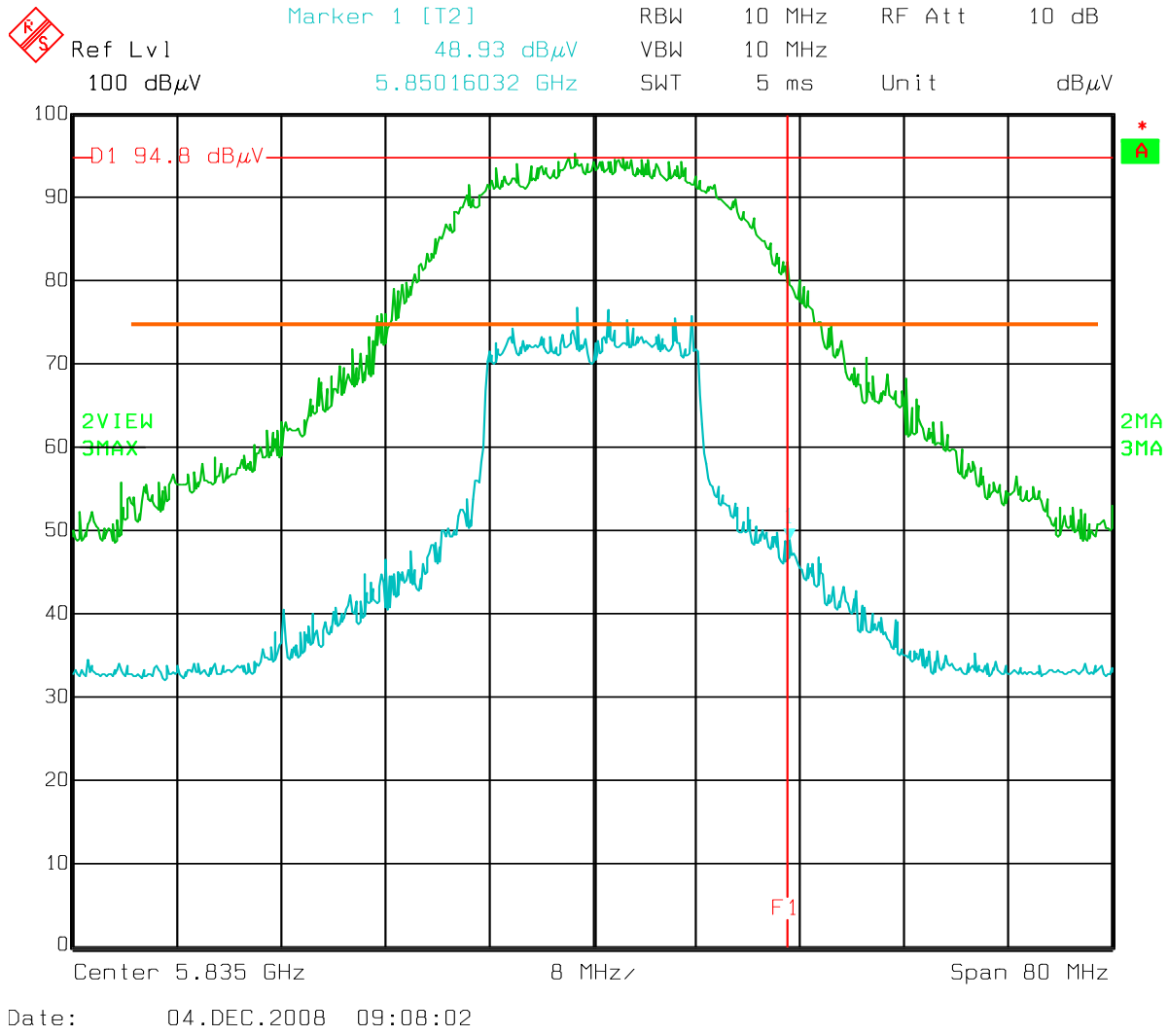
Radiate BandEdge – Parabolic Dish Antenna



Low Channel **5735** MHz (Peak Measurement)

Blue line: Emission of lowest channel measured with RBW = 100 kHz, VBW = 300 kHz
Green line is Radiated Max Peak Hold of Output Power measured @ 10 MHz RBW&VBW
Frequency line F1 is 5725 MHz Bandedge
Limit(Orange line) used is 20dB from peak.
Average = Peak – 20db DCF

EUT Complies



High Channel **5835** MHz (Peak Measurement)

Blue line: Emission of lowest channel measured with RBW = 100 kHz, VBW = 300 kHz
Green line is Radiated Max Peak Hold of Output Power measured @ 10 MHz RBW&VBW
Frequency line F1 is 5850 MHz Bandedge
Limit(Orange line) used is 20dB from peak.
Average = Peak – 20db DCF

EUT Complies

5.5. Conducted Spurious Emissions

15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Sec. 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a) (see Sec. 15.205(c)).

A8.5 Out-of-band Emissions

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, **the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted** or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under Section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

Sample Number:	SKYWAY EXCEL 159	Temperature:	17°C
Date:	12-3-08	Humidity:	54%
Modification State:	Lo/Mid/High Channels	Tester:	Alan Laudani
		Laboratory:	Test Area 1

Test Results: See Plots Below.

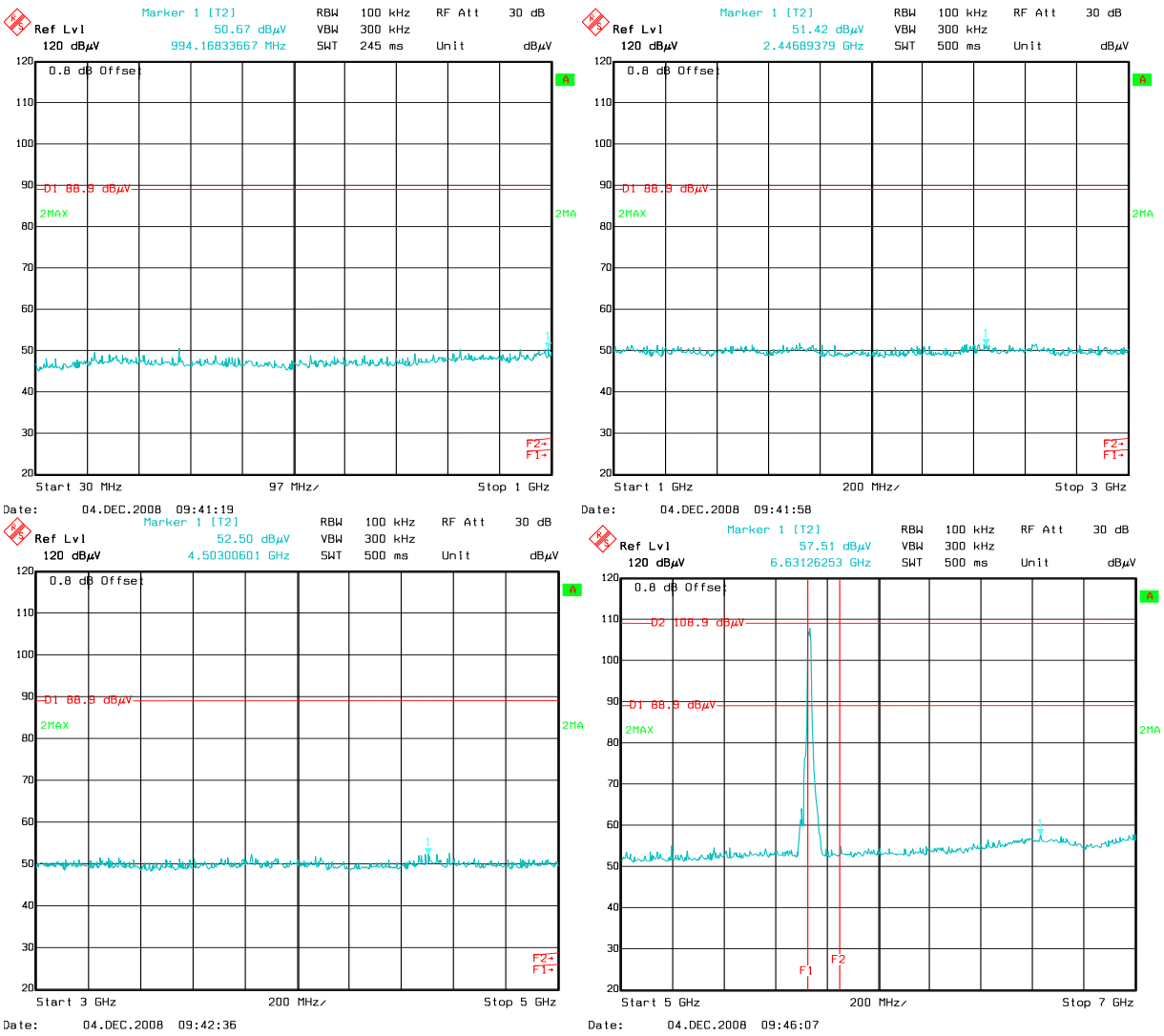
Additional Observations:

Peak Max hold conducted spurious measurements performed.

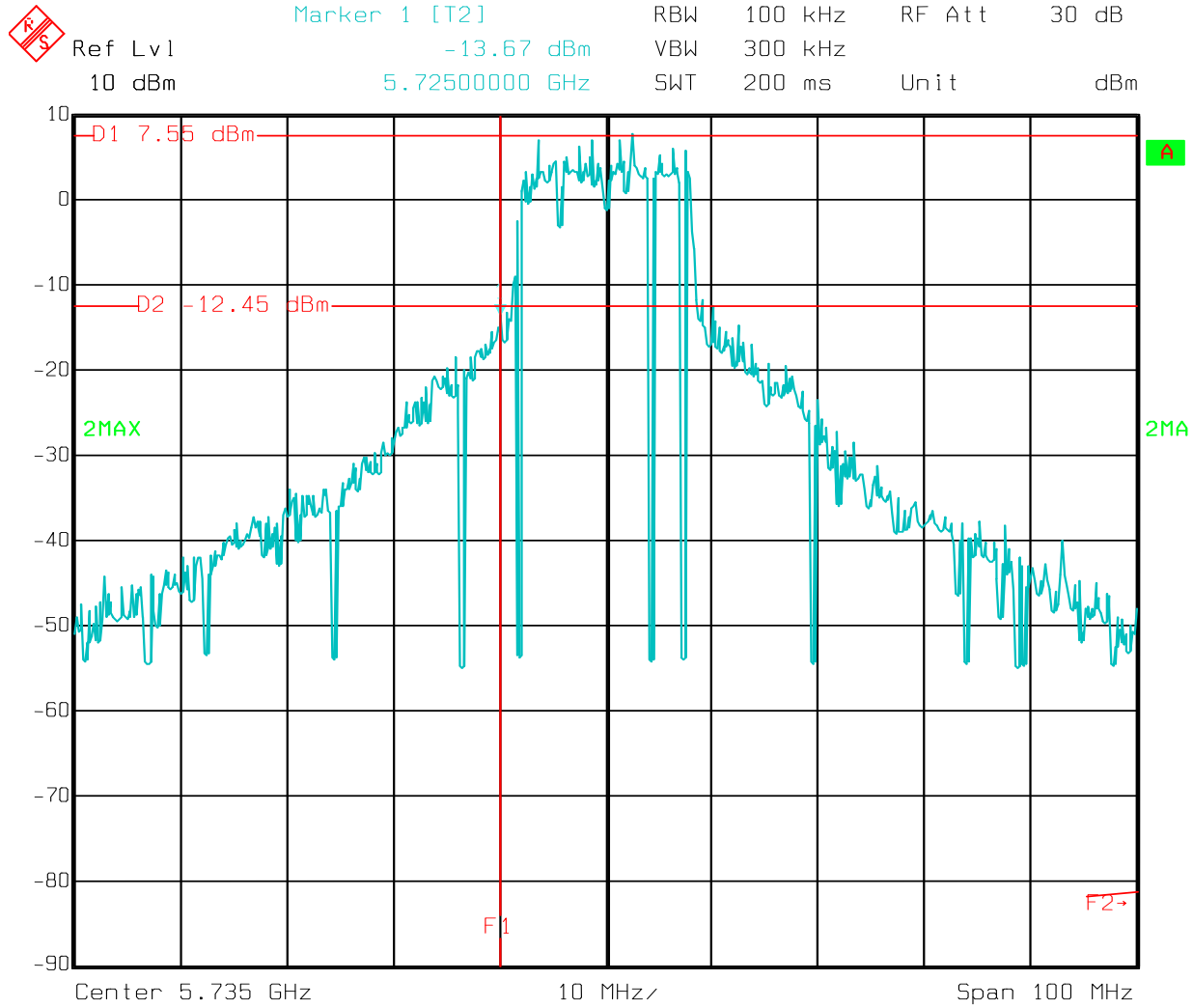
As Port 2 had consistently higher output power, conducted spurious was performed on Port 2.

Should any emission be measured within 20 dB of the limit, then Port 1 or 3 would be investigated. No emissions were found within 20 dB of the limit.

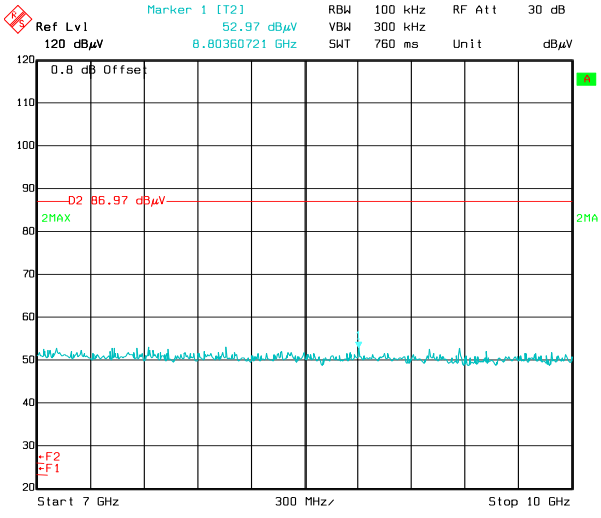
LOW Channel (5735 MHz)



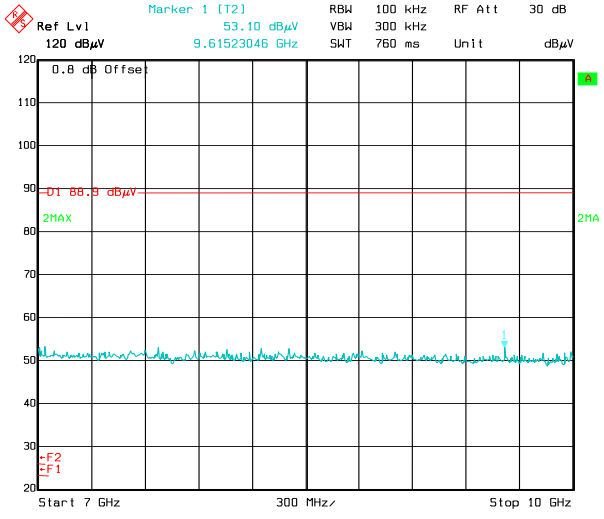
As this is not clear, the following “close up” shows EUT compliance.



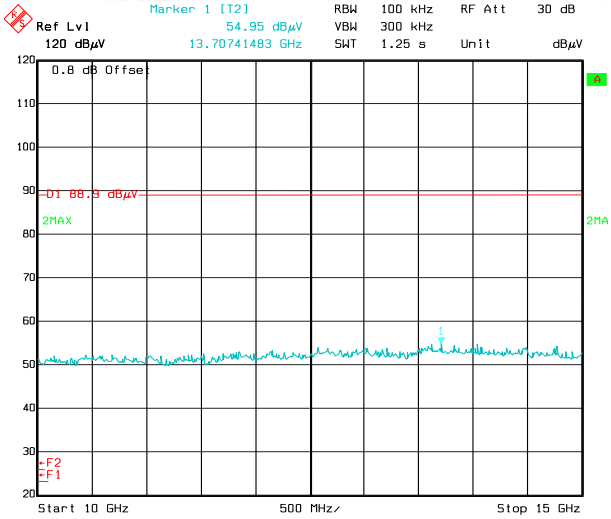
EUT complies low channel.



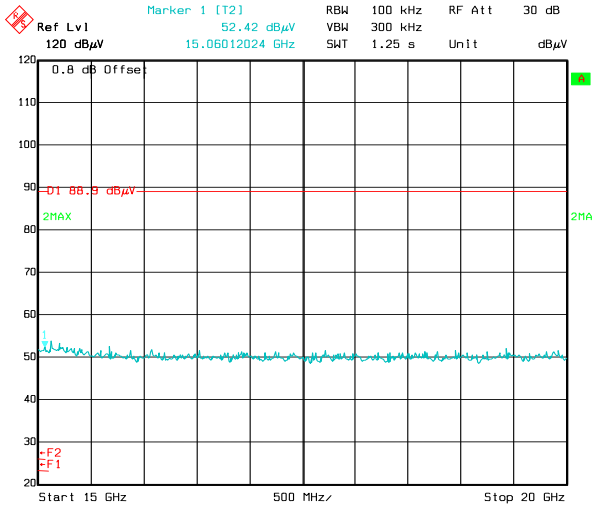
Date: 04.DEC.2008 11:48:06



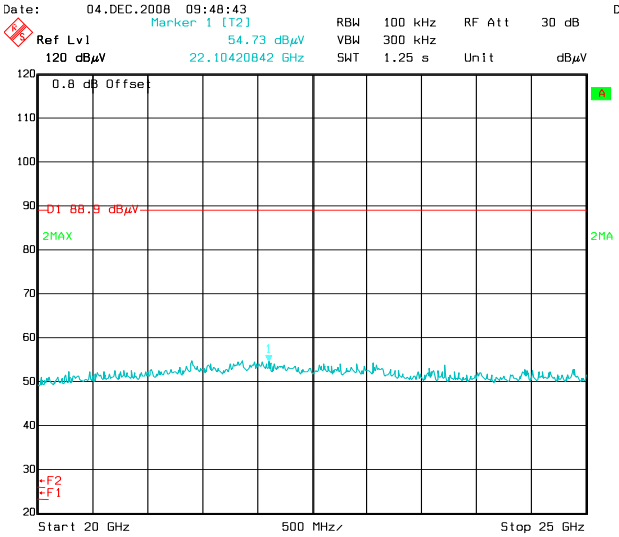
Date: 04.DEC.2008 09:46:52



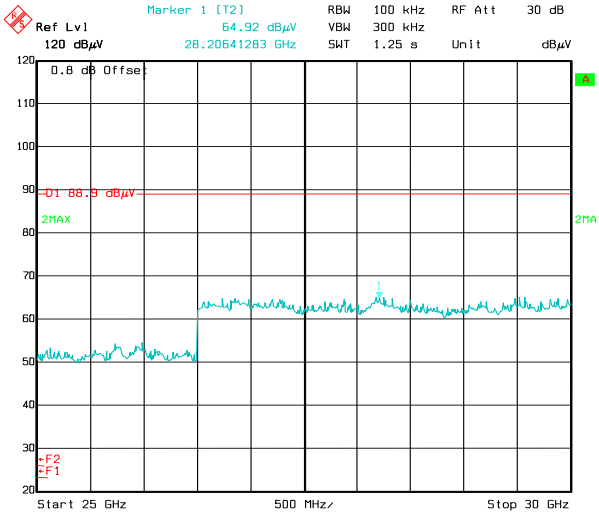
Date: 04.DEC.2008 09:48:43



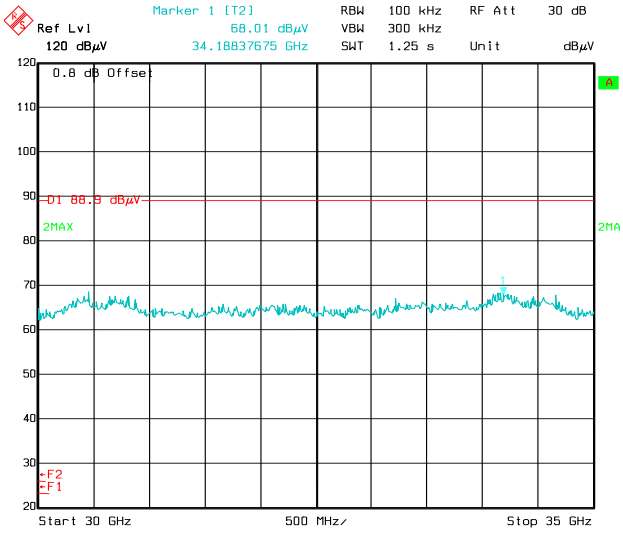
Date: 04.DEC.2008 09:49:21

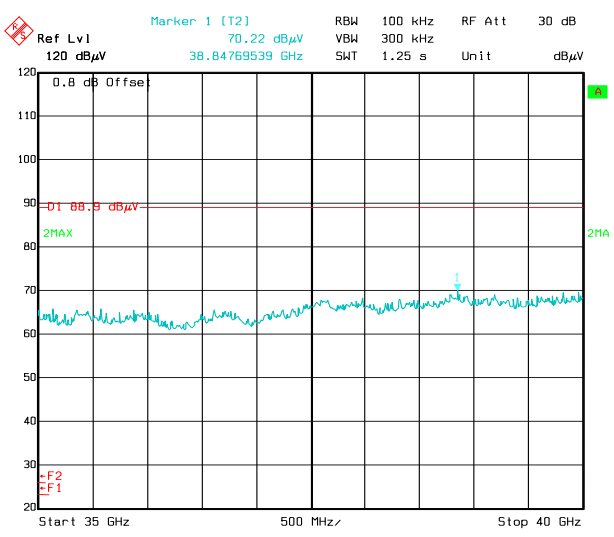


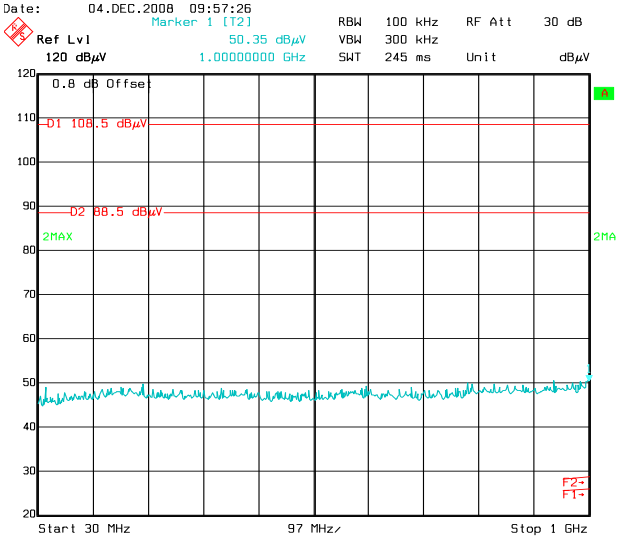
Date: 04.DEC.2008 09:56:07



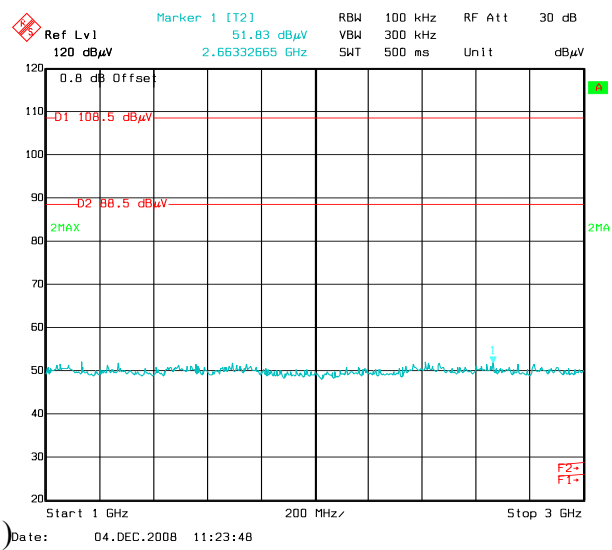
Date: 04.DEC.2008 09:56:50

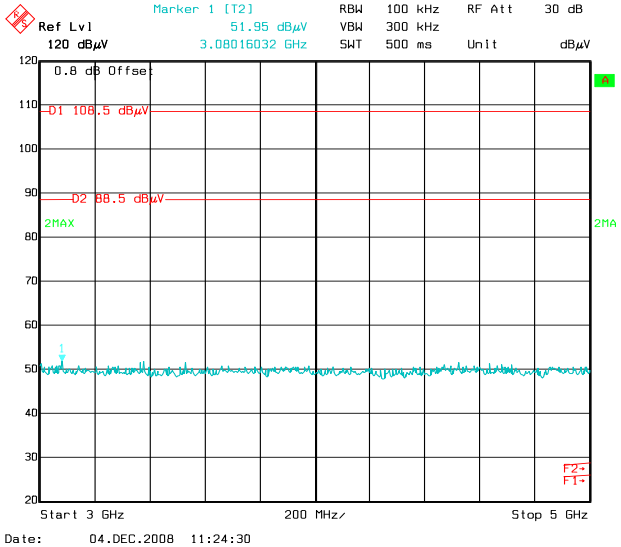


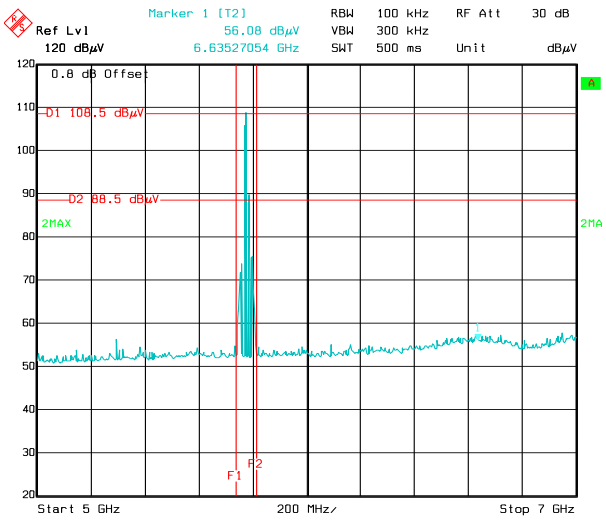


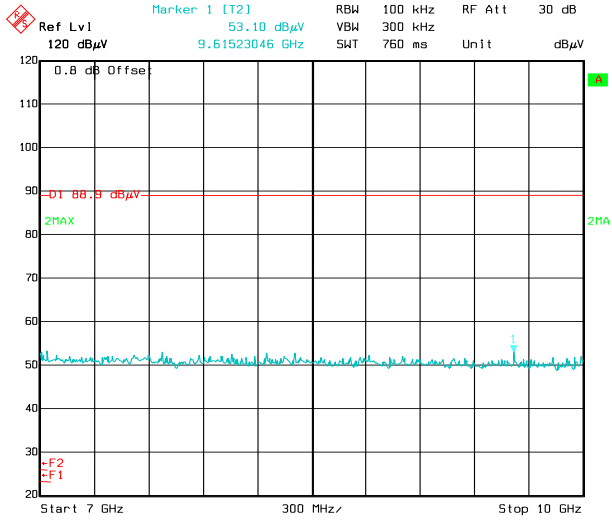


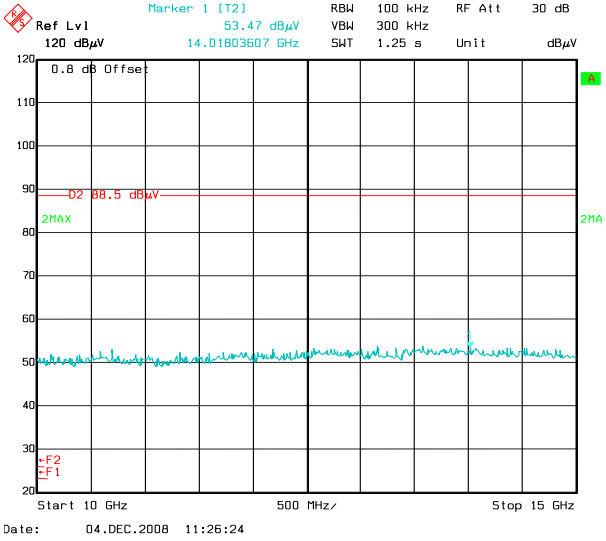
Mid Channel (5775 MHz

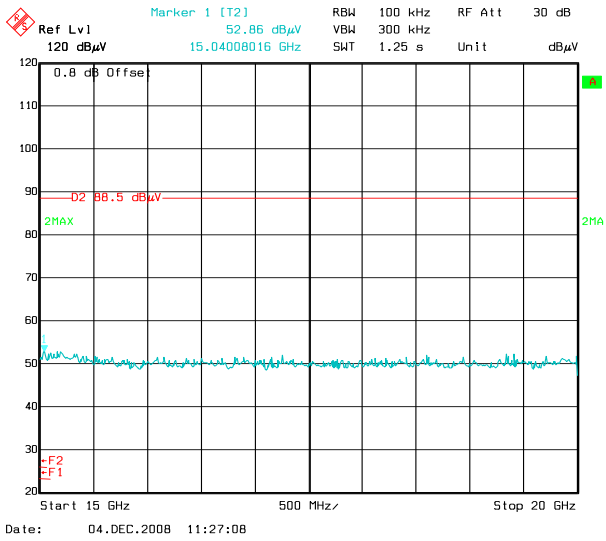


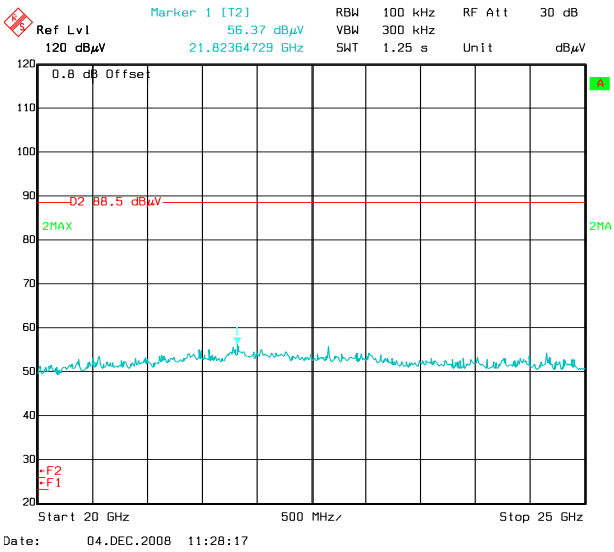


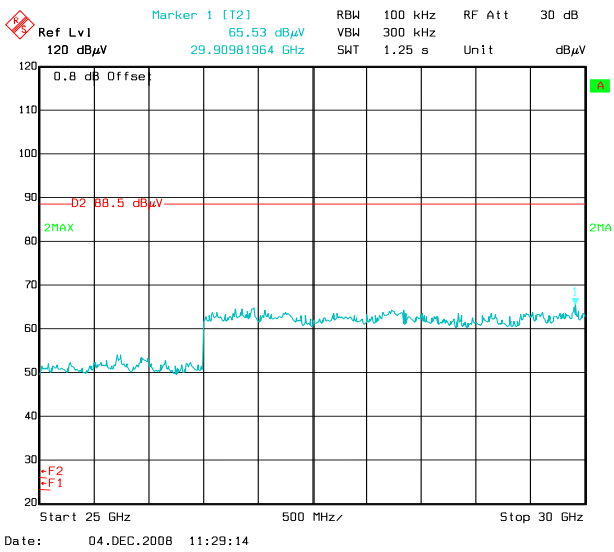

Marker 1 [T2]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
56.08 dBµV
VBW 300 kHz
120 dBµV
6.63527054 GHz
SWT 500 ms
Unit dBµV
0.8 dB Offset
D1 108.5 dBµV
D2 88.5 dBµV
2MAX
2MA
F1
F2
Start 5 GHz
200 MHz/
Stop 7 GHz
Date: 04.DEC.2008 11:22:14

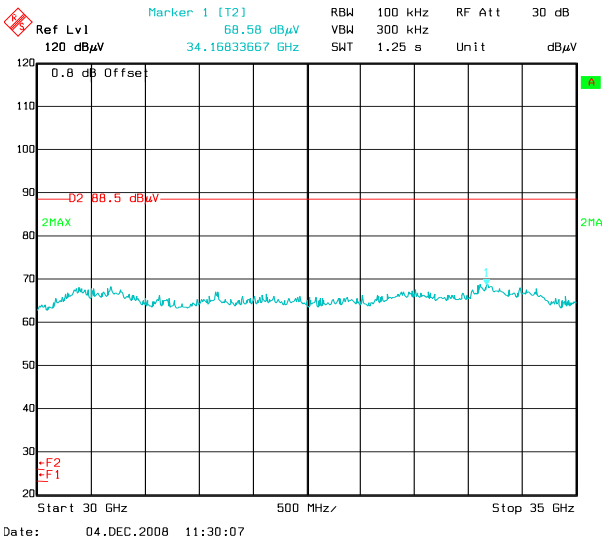

Marker 1 [T2]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
53.10 dBµV
VBW 300 kHz
120 dBµV
9.61523046 GHz
SWT 750 ms
Unit dBµV
0.8 dB Offset
D1 88.5 dBµV
2MAX
2MA
F2
F1
Start 7 GHz
300 MHz/
Stop 10 GHz
Date: 04.DEC.2008 09:46:52

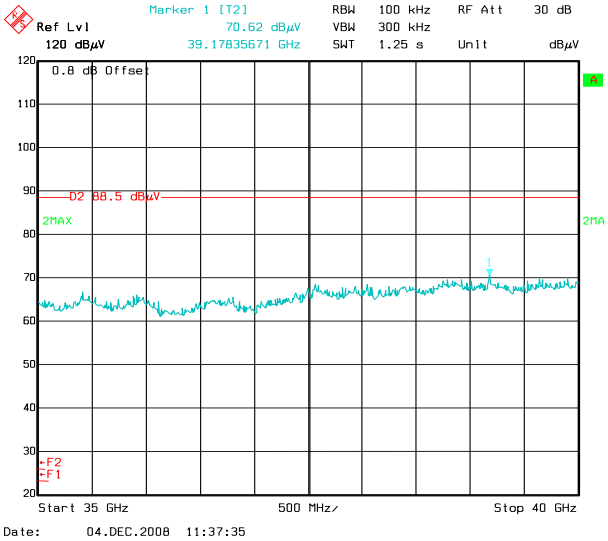

Marker 1 [T2]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
53.47 dBµV
VBW 300 kHz
120 dBµV
14.01803607 GHz
SWT 1.25 s
Unit dBµV
0.8 dB Offset
D2 88.5 dBµV
2MAX
2MA
F2
F1
Start 10 GHz
500 MHz/
Stop 15 GHz
Date: 04.DEC.2008 11:26:24

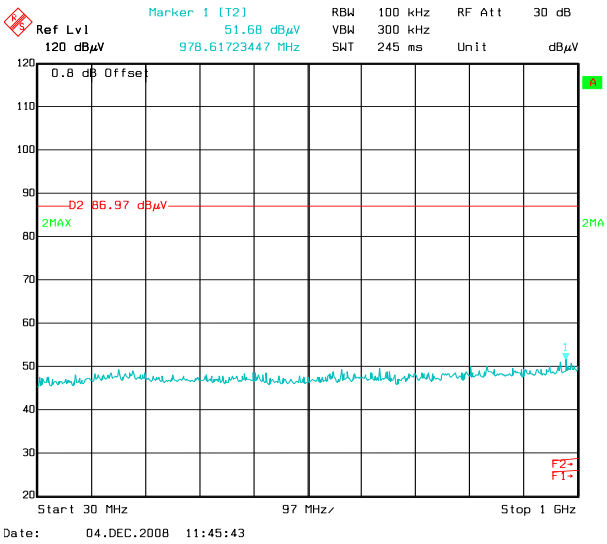

Marker 1 [T2]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
52.86 dBµV
VBW 300 kHz
120 dBµV
15.04008016 GHz
SWT 1.25 s
Unit dBµV
0.8 dB Offset
D2 88.5 dBµV
2MAX
2MA
F2
F1
Start 15 GHz
500 MHz/
Stop 20 GHz
Date: 04.DEC.2008 11:27:08

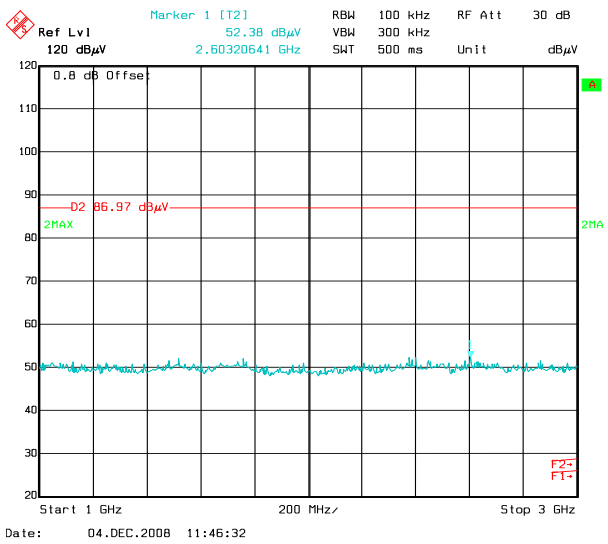

Marker 1 [T2]
56.37 dBµV
21.82364729 GHz
RBW 100 kHz
VBW 300 kHz
SWT 1.25 s
RF Att 30 dB
Unit dBµV
Ref Lvl
120 dBµV
0.8 dB Offset
D2 88.5 dBµV
2MAX
2MA
F2
F1
Start 20 GHz
500 MHz/
Stop 25 GHz
Date: 04.DEC.2008 11:28:17


Marker 1 [T2]
65.53 dBµV
29.90981964 GHz
RBW 100 kHz
VBW 300 kHz
SWT 1.25 s
RF Att 30 dB
Unit dBµV
Ref Lvl
120 dBµV
0.8 dB Offset
D2 88.5 dBµV
2MAX
2MA
F2
F1
Start 25 GHz
500 MHz/
Stop 30 GHz
Date: 04.DEC.2008 11:29:14

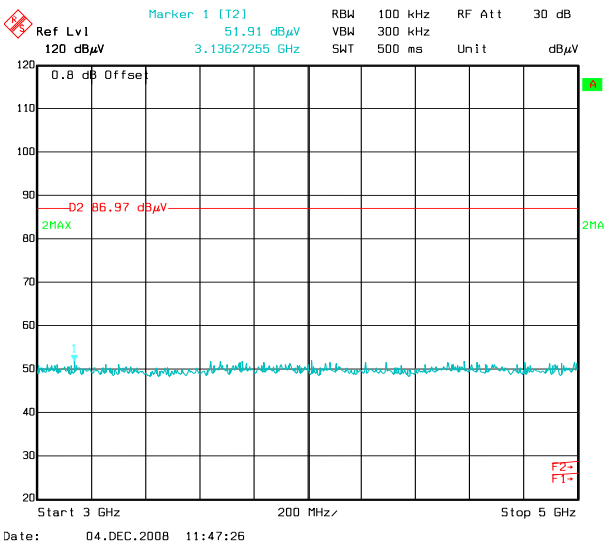

Marker 1 [T2]
68.58 dBµV
34.16833667 GHz
RBW 100 kHz
VBW 300 kHz
SWT 1.25 s
RF Att 30 dB
Unit dBµV
Ref Lvl
120 dBµV
0.8 dB Offset
D2 88.5 dBµV
2MAX
2MA
F2
F1
Start 30 GHz
500 MHz/
Stop 35 GHz
Date: 04.DEC.2008 11:30:07

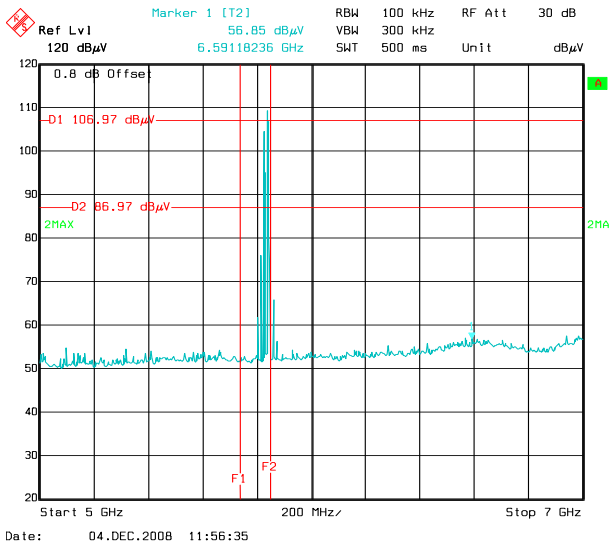

Marker 1 [T2]
70.62 dBµV
39.17835671 GHz
RBW 100 kHz
VBW 300 kHz
SWT 1.25 s
RF Att 30 dB
Unit dBµV
Ref Lvl
120 dBµV
0.8 dB Offset
D2 88.5 dBµV
2MAX
2MA
F2
F1
Start 35 GHz
500 MHz/
Stop 40 GHz
Date: 04.DEC.2008 11:37:35



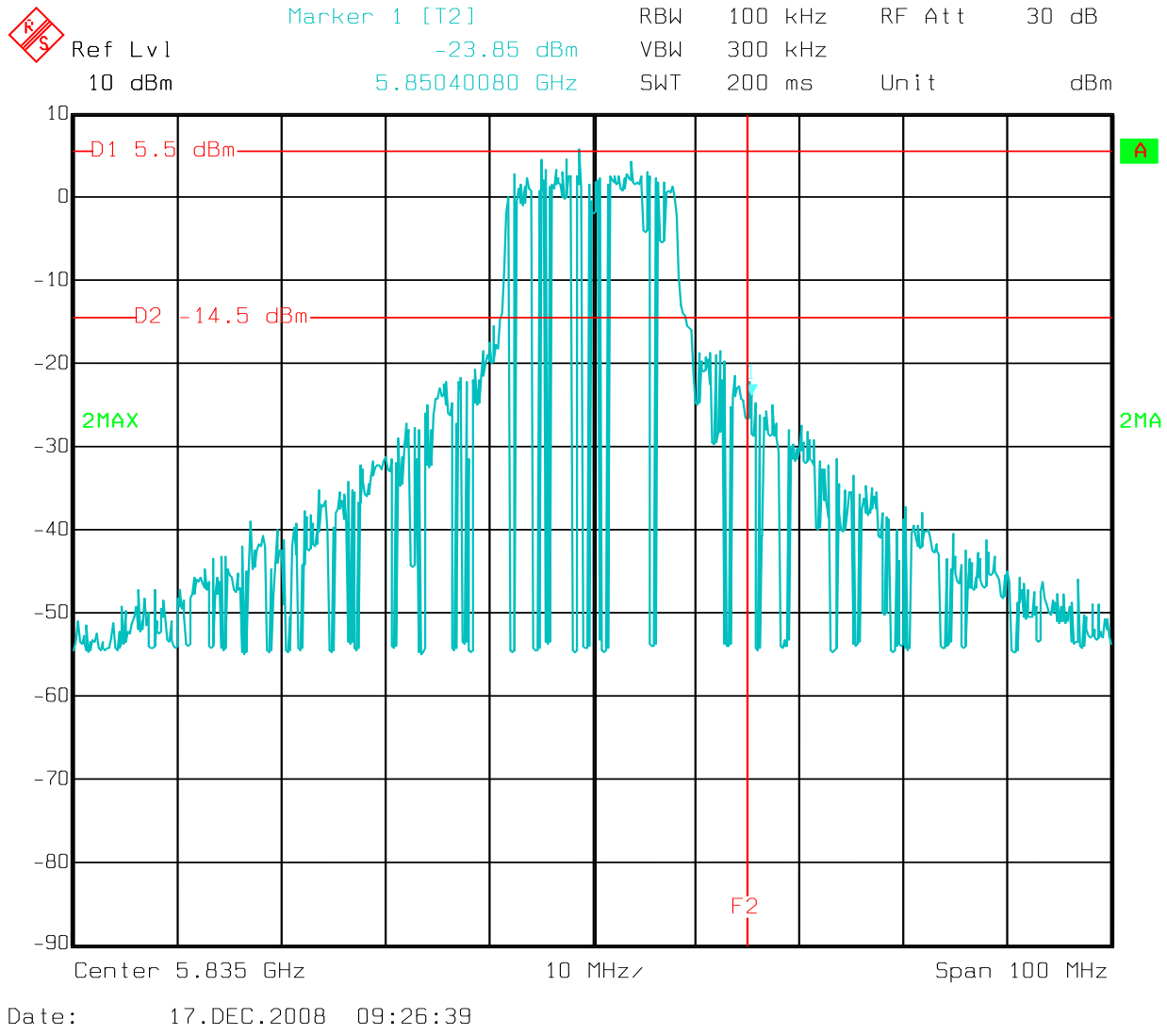


High Channel (5835 MHz)

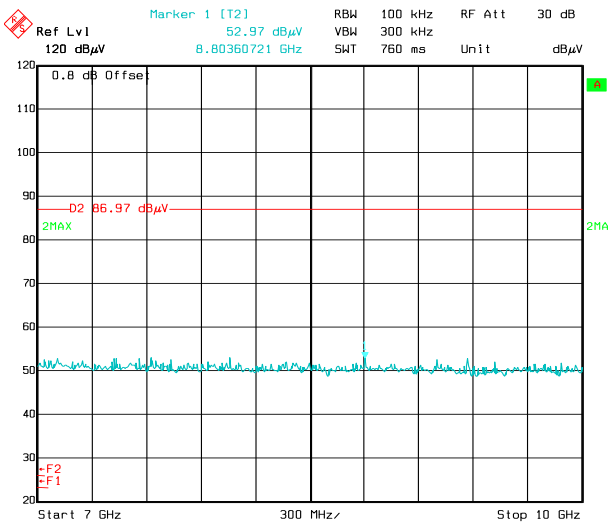




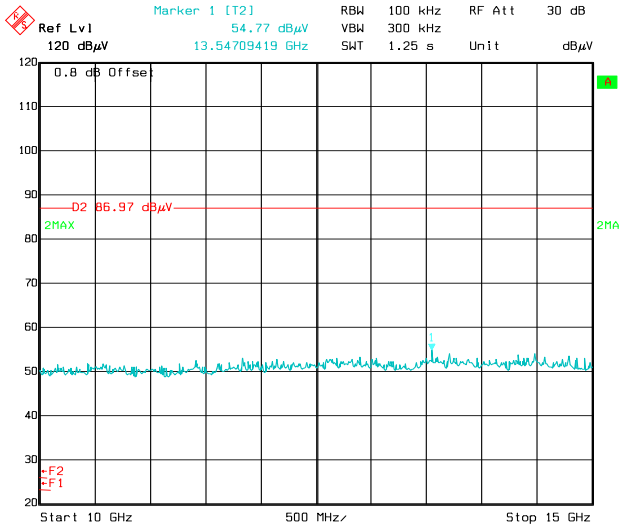
As this is not clear, the following “close up” shows EUT compliance



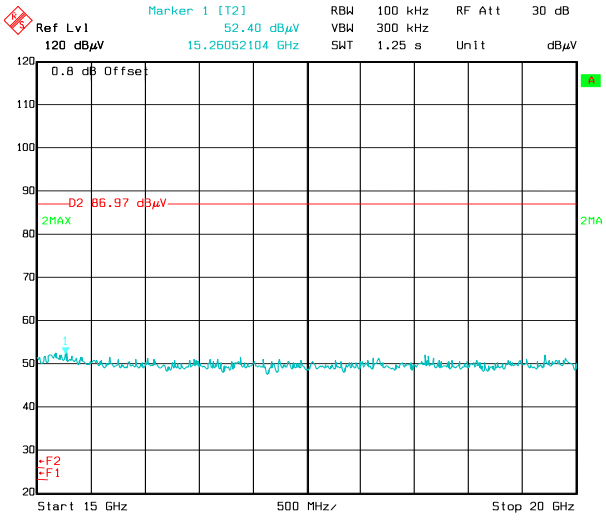
EUT complies.



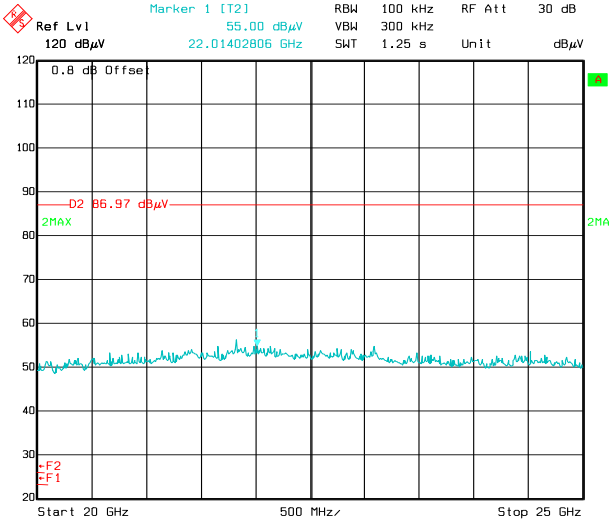
Date: 04.DEC.2008 11:48:06



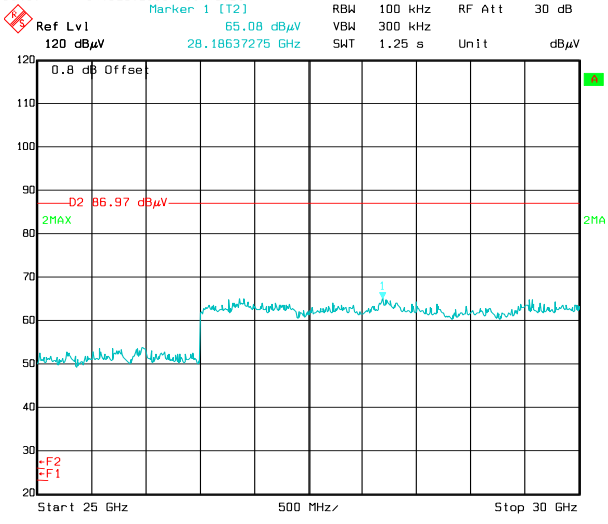
Date: 04.DEC.2008 11:48:47



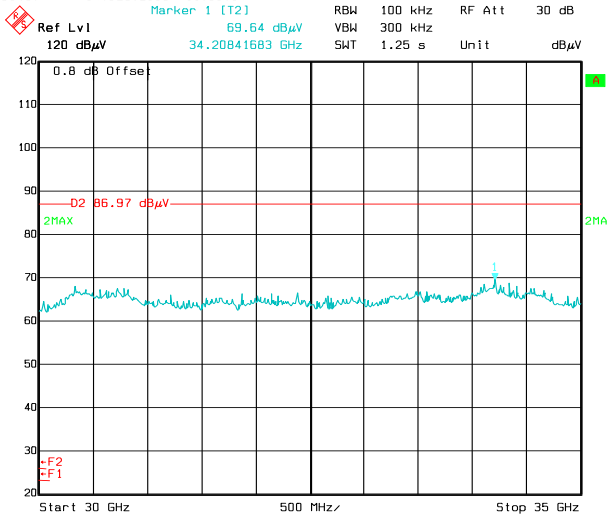
Date: 04.DEC.2008 11:49:21



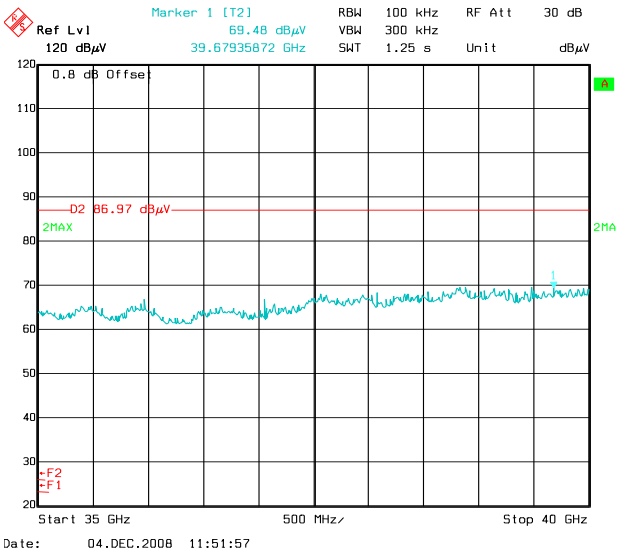
Date: 04.DEC.2008 11:50:04



Date: 04.DEC.2008 11:50:41



Date: 04.DEC.2008 11:51:19


Marker 1 [T2]
69.48 dBµV
39.67935872 GHz
RBW 100 kHz
VBW 300 kHz
SWT 1.25 s
RF Att 30 dB
Unit dBµV
Ref Lvl
120 dBµV
0.8 dB Offset
D2 86.97 dBµV
2MAX
2MA
F2
F1
Start 35 GHz
500 MHz/
Stop 40 GHz
Date: 04.DEC.2008 11:51:57

5.6. Minimum 6dB RF Bandwidth

(a)(2) Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

A8.2 (a) The minimum 6 dB bandwidth shall be at least 500 kHz.

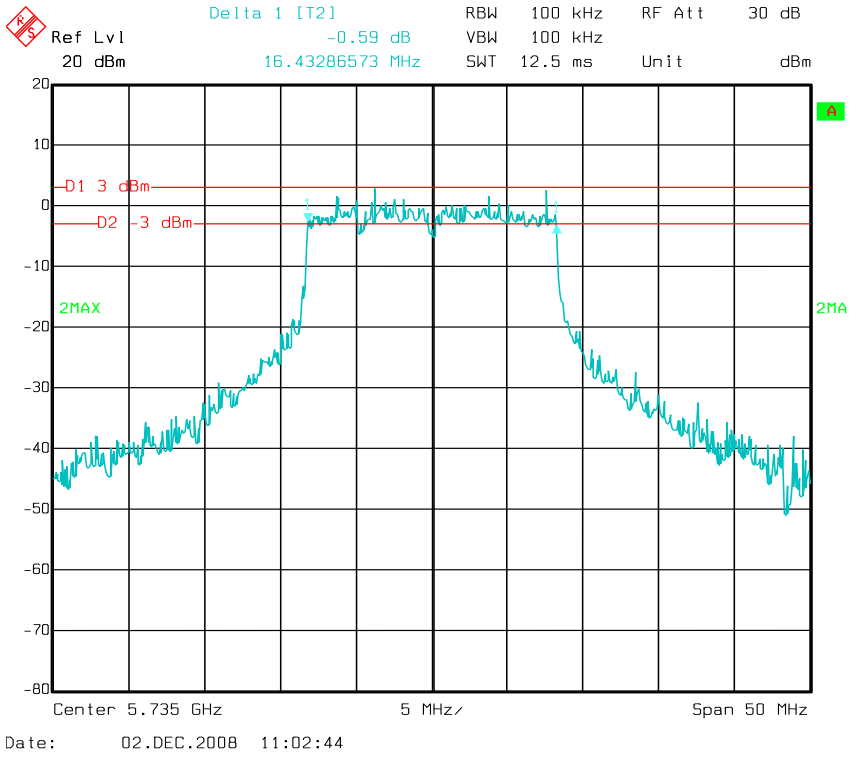
Sample Number:	SKYWAY EXCEL 159	Temperature:	17°C
Date:	12-2-08	Humidity:	52%
Modification State:	Lo/Mid/High Channels	Tester:	Alan Laudani
		Laboratory:	Test Area 1

Test Results:

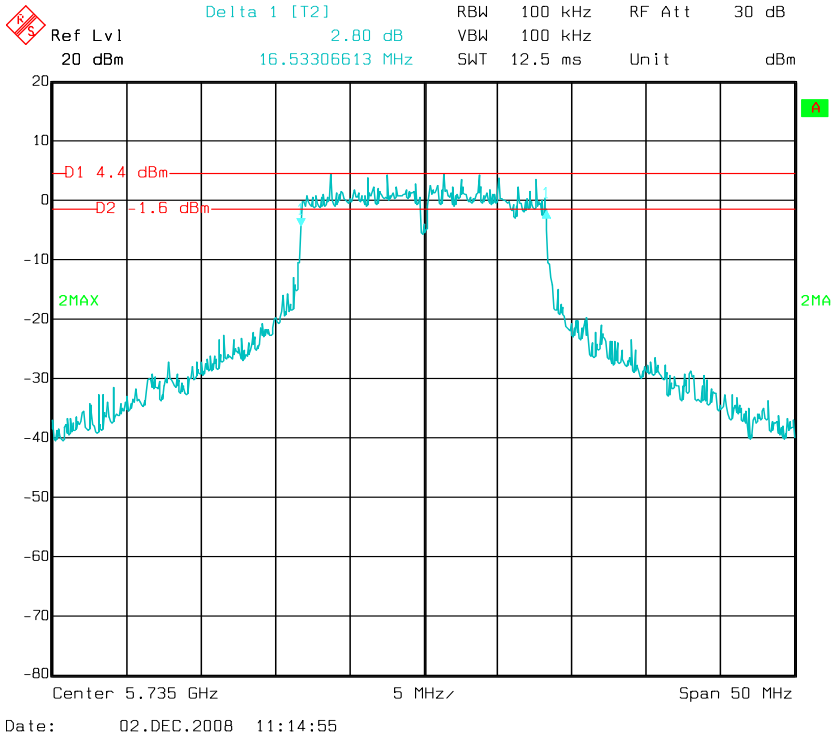
6dB Bandwidth:

Measurements were made Conductively at Port 1. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK max hold output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The bandwidth was determined from where the channel output spectrum intersected the display line.

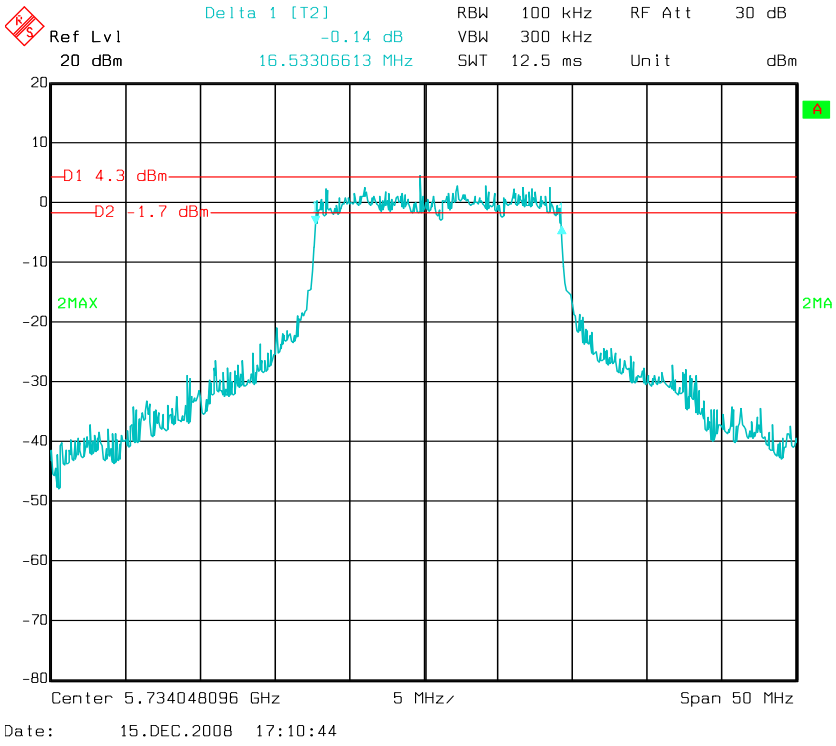
Channel Range	6 dB Bandwidth Port 1	6 dB Bandwidth Port 2	6 dB Bandwidth Port 3
Low (5735 MHz)	16.4 MHz	16.5 MHz	16.5 MHz
Mid (5775 MHz)	16.4 MHz	16.4 MHz	16.5 MHz
High (5835 MHz)	15.4 MHz	16.4 MHz	16.5 MHz



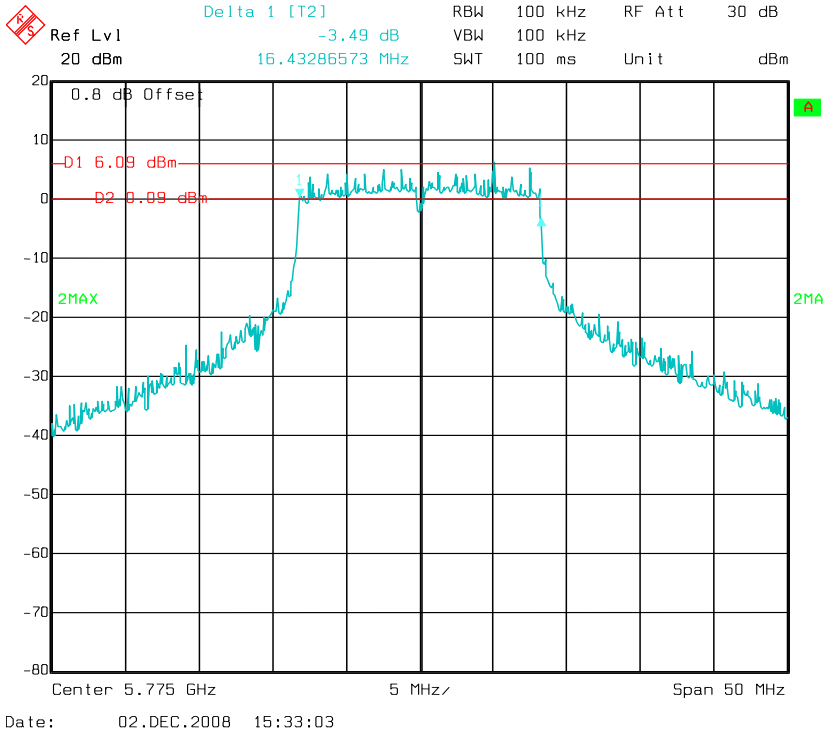
LOW Channel Port 1 (5735 MHz)



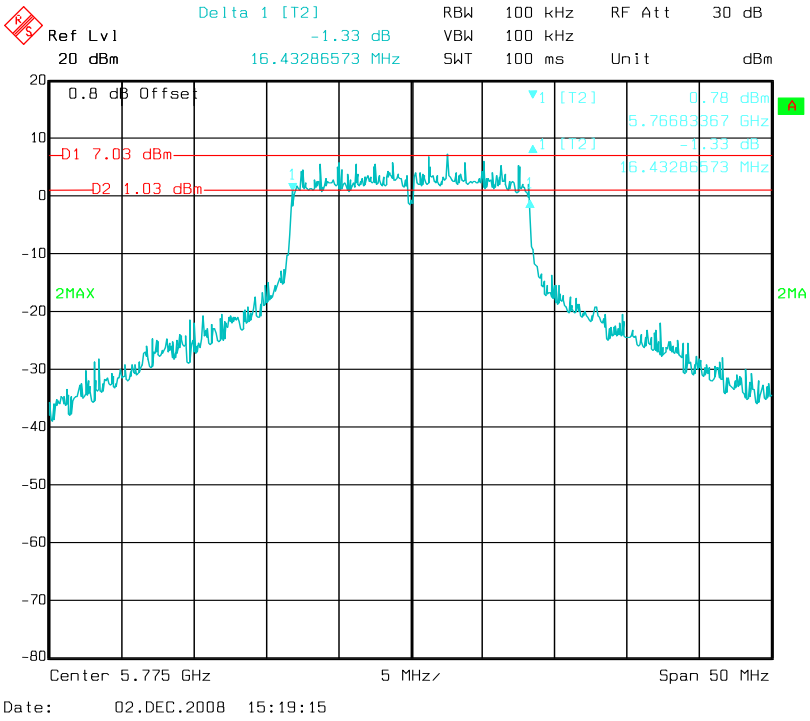
LOW Channel Port 2 (5735 MHz)



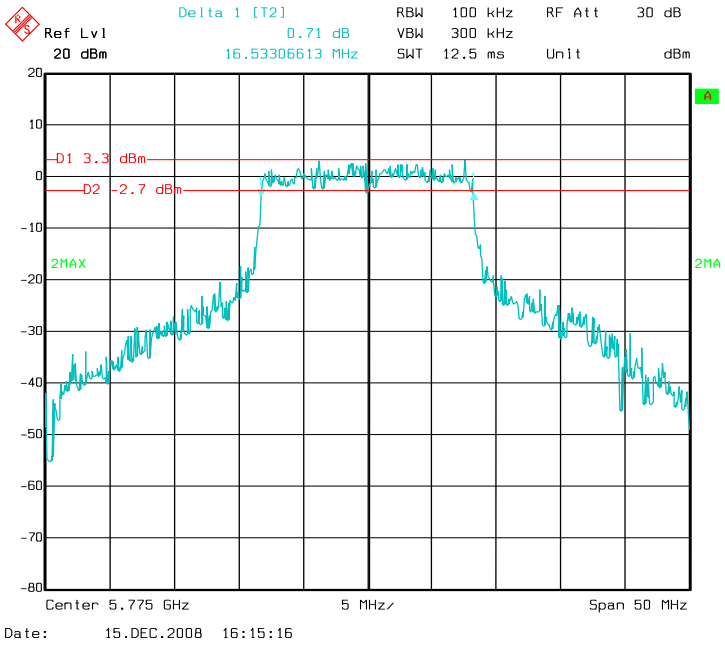
LOW Channel Port 3 (5735 MHz)



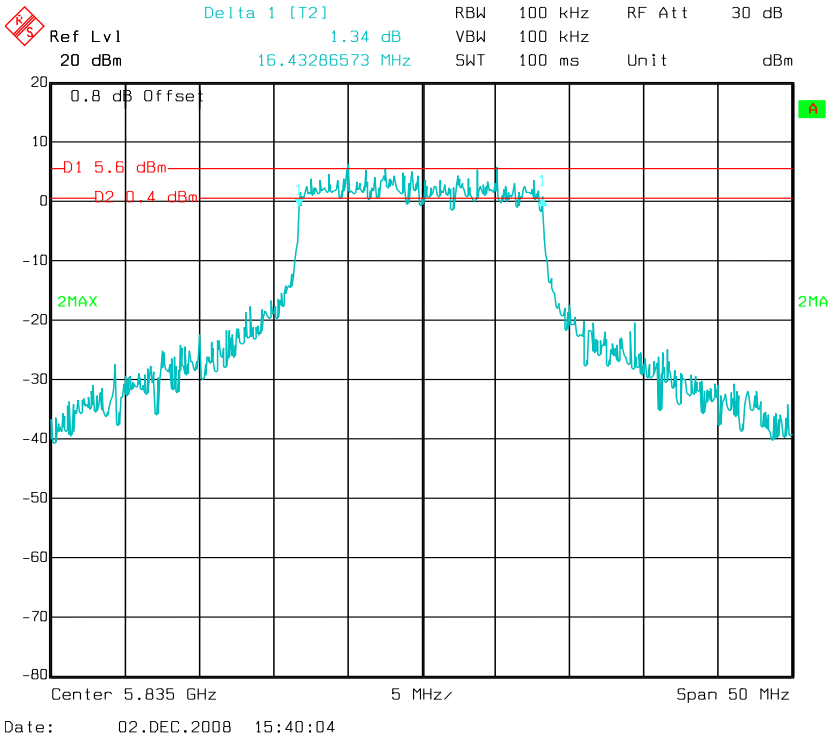
MID Channel Port 1 (5775 MHz)



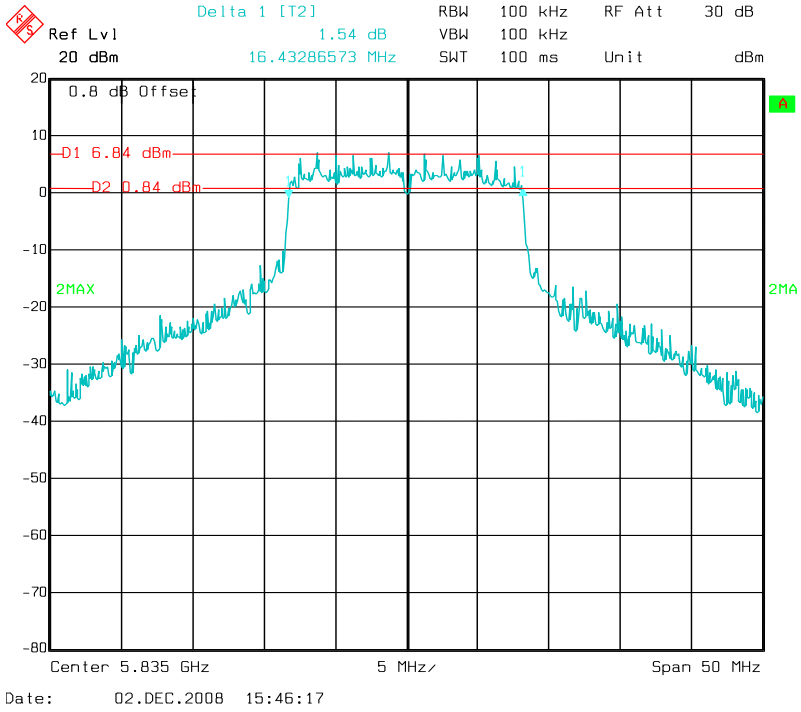
MID Channel Port 2 (5775 MHz)



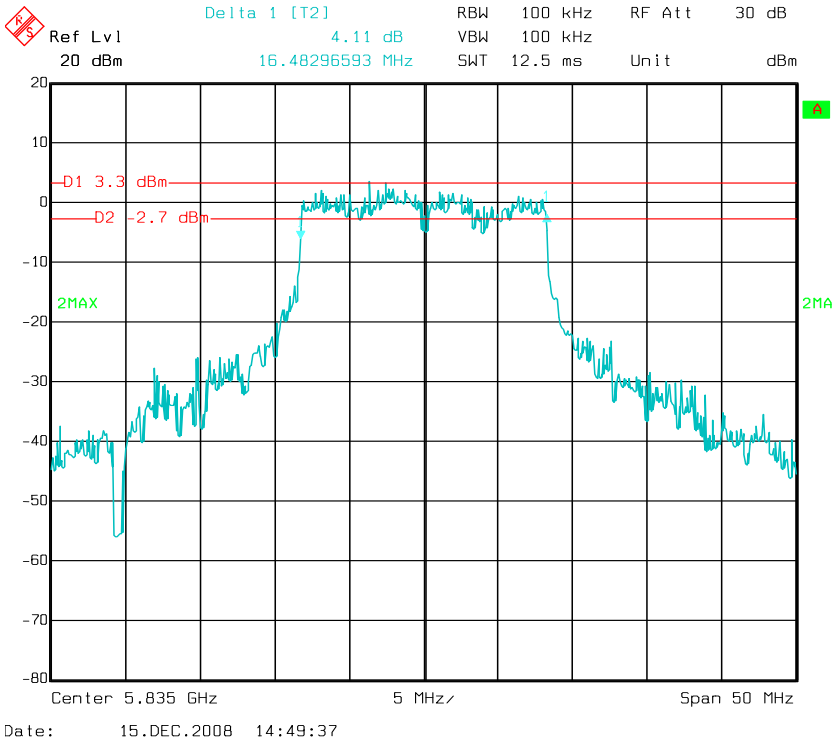
MID Channel Port 3 (5775 MHz)



HIGH Channel Port 1 (5835 MHz)



HIGH Channel Port 2 (5835 MHz)



HIGH Channel Port 3 (5835 MHz)

5.7. Maximum peak output power

(b) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

A8.5
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under Section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

Sample Number:	SKYWAY EXCEL 159	Temperature:	18°
Date:	12-2-08	Humidity:	54%
Modification State:	Lo/Mid/High Channels	Tester:	Alan Laudani
		Laboratory:	Test Area 1

EUT complies:

Total Conductive Output Power = 153 mW or 21.85 dBm

Using Antennas:

Pulse 10dBi RO5810NM (3) 5.8 GHz Radome Omni 10 dBi

21.85 dBm + 10 dBi = 21.85 dBm and meets the limit of 36 dBm per 15.247(b) for omni-directional antennas.

ARC Wireless Solutions 5.15-5.875GHz 24/23dBi Dual Polarization Panel Antenna and Laird HD Series High Performance Dish Antenna HDDA5W-29-DP - 29dBi dual polarity (H and V) are directional antennas therefore 21.85 dBm + 29 dBi dBm meets the requirement of 15.247 (c)(1)(ii).

Test Results:

Channel	Input Voltage (60 Hz)	Measured Output Power Port 1	Measured Output Power Port 2	Combined Output Power mW (1 & 2 Added)	Measured Output Power Port 3	Total Output Power mW 1+2+3
Low	102	16.83 dBm	16.89 dBm		15.60 dBm	
(5735		48.2 mW	48.9 mW	97.1 mW	36.3 mW	133.4 mW
MHz)	120	16.84 dBm	16.91 dBm		15.61 dBm	
		48.3 mW	49.1 mW	97.4 mW	36.4 mW	133.8 mW
	138	16.83 dBm	16.90 dBm		15.59 dBm	
		48.2 mW	49.0 mW	97.2 mW	36.2 mW	133.4 mW
Mid	102	17.25 dBm	17.40 dBm		16.49 dBm	
(5775		53.1 mW	55.0 mW	108.1 mW	44.6 mW	152.7 mW
MHz)	120	17.27 dBm	17.40 dBm		16.50 dBm	
		53.3 mW	**55.0 mW**	108.3 mW	44.7 mW	153.0 mW
	138	17.26 dBm	17.39 dBm		16.50 dBm	
		53.2 mW	54.8 mW	108.0 mW	44.7 mW	152.7 mW
High	102	16.96 dBm	17.14 dBm		16.71 dBm	
(5835		49.7 mW	51.8 mW	101.5 mW	46.9 mW	148.4 mW
MHz)	120	16.97 dBm	17.14 dBm		16.72 dBm	
		49.8 mW	51.8 mW	101.6 mW	**47.0 mW**	148.6 mW
	138	16.96 dBm	17.13 dBm		16.72 dBm	
		49.7 mW	51.6 mW	101.3 mW	47.0 mW	148.3 mW

Additional Observations:

- Measurements were made at 102VAC, 120VAC and 138VAC 60Hz
- Ports 1 and 2 are fed into the same antenna (Dish and Planer) for horizontal and vertical polarities, therefore the combined output is presented.
- Ports 1, 2 and 3 are fed into three equivalent antennas transmitting at the same time and are combined for total output power.
- Bold presented are highest of measured per port.
- Peak Power Meter measurement through a 20 dB attenuator—Max Peak Hold function on.

5.8. Power Spectral Density

(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
A8.2(b) The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0-second duration. This power spectral density shall be determined in accordance with the provisions of Section A8.4(4); (i.e. the power spectral density shall be determined using the same method for determining the conducted output power).

Sample Number:	SKYWAY EXCEL 159	Temperature:	18°
Date:	12-2-08	Humidity:	54%
Modification State:	Lo/Mid/High Channels	Tester:	Alan Laudani
		Laboratory:	Test Area 1

Test Results: EUT Complies.

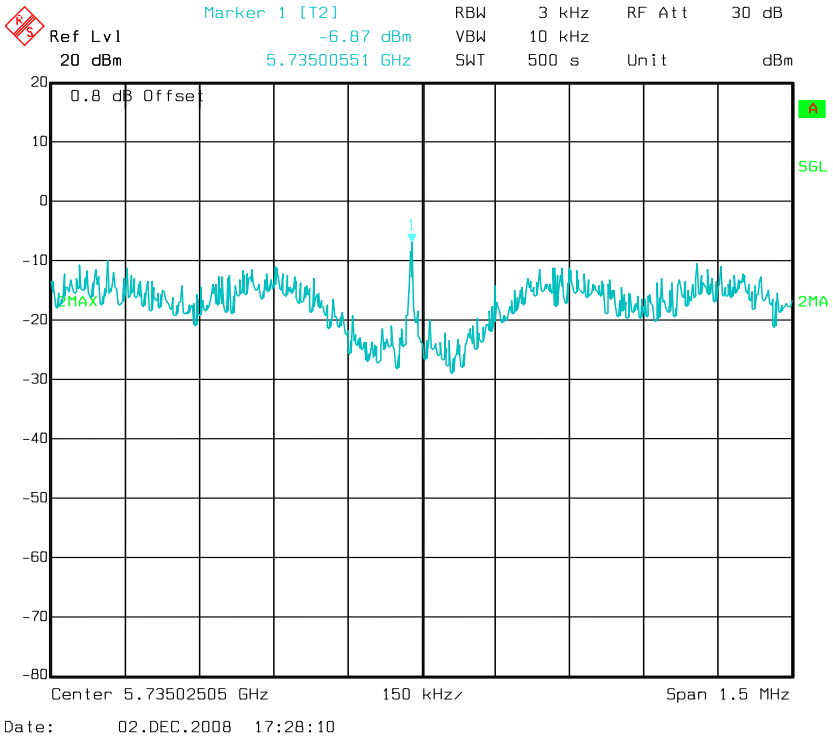
Channel	Measured PSD (dBm) Port 1	Measured PSD (dBm) Port 2	Measured PSD (dBm) Port 3	Combined PSD (dBm) (Added.).
Low (5735 MHz)	-6.87*	-8.60	-9.95	-3.52
Mid (5775 MHz)	-9.32	-7.44*	-9.54	-3.89
High (5835 MHz)	-8.67	-7.72*	-9.31	-3.74

Additional Observations:

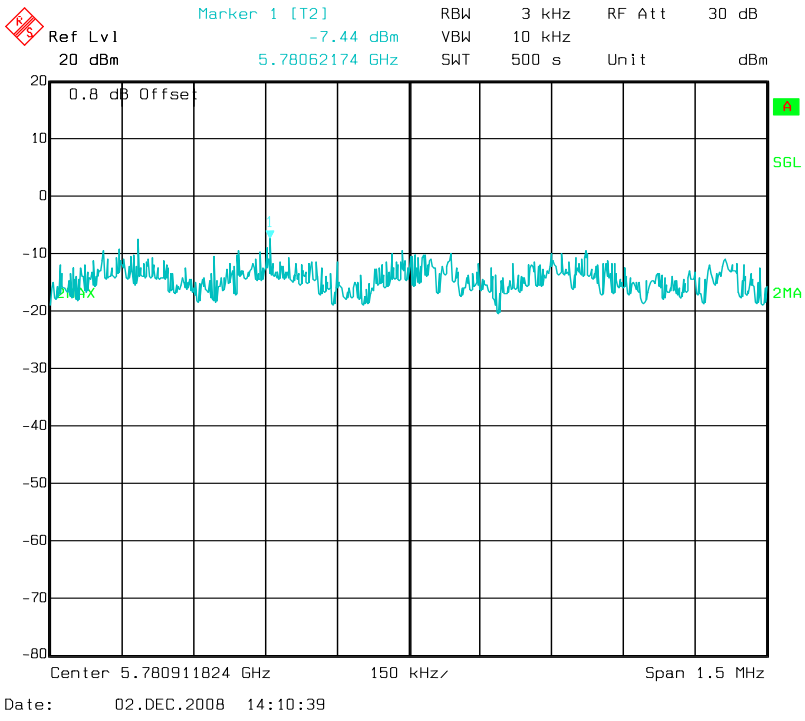
- Plots presented are highest of measured over power input and output ports. *
- Values from measurements of max peak hold over 1 500s sweep.
- Combined PSD added measured values converted to Watts, added and converted back to dBm. Formulae:

$W = 10^{(dBm-30/10)}$

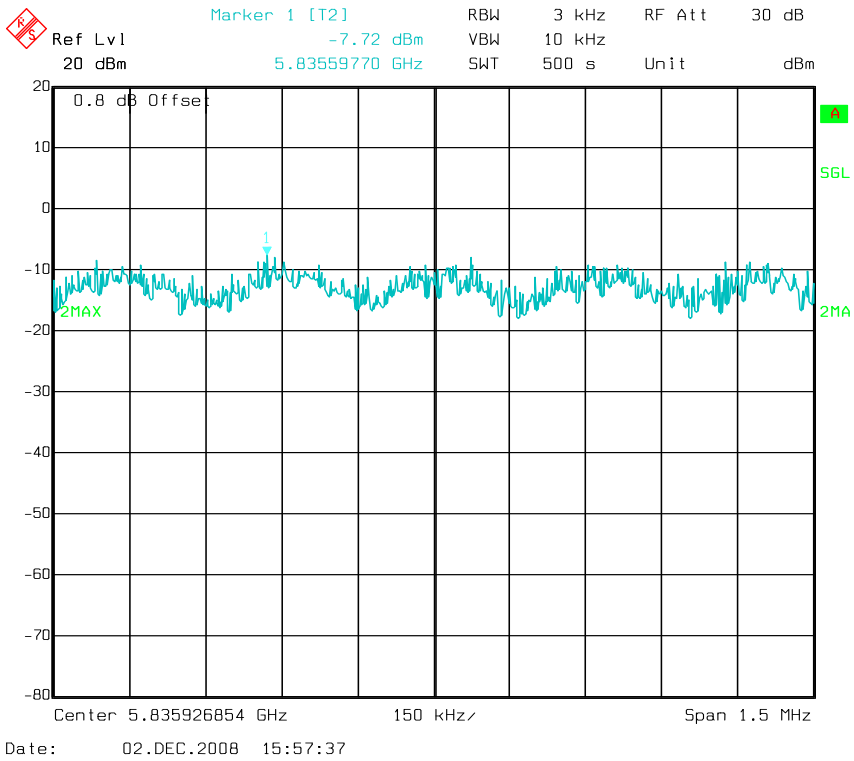
$DBm = 10 \times \log (W) + 30$



LOW CHANNEL PORT 1 5735 MHz



MID CHANNEL PORT 2 5775 MHz



HIGH CHANNEL PORT 2 5835 MHz

PSD	Port 1		Port 2		Port 3		Total	
	dBm	W	dBm	W	dBm	W	W	dBm
low	-6.87	0.000206	-8.6	0.000138	-9.95	0.000101	0.000445	-3.51849
mid	-9.32	0.000117	-7.44	0.000180	-9.54	0.000111	0.000408	-3.88888
high	-8.67	0.000136	-7.72	0.000169	-9.31	0.000117	0.000422	-3.74590

5.9. Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
810	Multimeter	Fluke	111	77820242	21-Feb-08	21-Feb-09
---	Variable Autotransformer	Superior Electric Co.	246	NA	NCR	NCR
111	Antenna, LPA	EMCO	3146	1382	20-Oct-08	20-Oct-10
115	Antenna, Bicon	EMCO	3104	2996	15-Sep-08	19-Sep-10
438	Quasi-Peak Adapter, HP	HP	85650A	2521A00618	21-Mar-08	21-Mar-09
839	Spectrum Analyzer Display, HP	HP	85662A	3014A18995	21-Mar-08	21-Mar-09
840	Spectrum Analyzer, HP	HP	8566B	2416A00394	21-Mar-08	21-Mar-09
317	Preamplifier	HP	8449A	2749A00167	31-Mar-08	31-Mar-09
395	LISN	Solar	9348-50-R-24-BNC	941718	22-Apr-08	22-Apr-09
542	High Pass Filter	Solar	7801-5.0	838132	11-Apr-08	11-Apr-09
529	Antenna, DRWG	EMCO	3115	2505	30-Sep-08	30-Sep-10
625	Antenna, Dbl Ridge Horn	EMCO	3116	2325	01-Apr-08	01-Apr-09
682	Transient Limiter	HP	11974A	3107A02633	02-Jan-08	02-Jan-09
805	LISN	Solar	9348-50-R-24-BNC	992823	14-Jan-08	14-Jan-09
835	Spectrum Analyzer	Rohde & Schwarz	RHDFSEK	829058/005	27-Jun-08	27-Jun-09
877	Antenna, DRG Horn, .7-18GHz	AH Systems	SAS-571	688	28-Jul-08	28-Jul-10
898	EMI Receiver & filter set	HP	8546A	3625A00348	09-May-08	09-May-09
899	Filter Section	HP	85460A	3448A00288	09-May-08	09-May-09
919	Preamplifiers, 1—40 GHz	NEMKO	100MHz to 40GHz	3M12 (SLK-35-3) and 3M13 (SLKa-35-4)	10-Nov-08	11-Nov-09
947	Peak Power Analyzer	HP	8991A	3621A00906	28-Aug-08	28-Aug-09
946	Peak Power Sensor	Hewlett Packard	84815A 0.05-18GHz (-40 to 20dBm)	3318A01726	28-Aug-08	28-Aug-09
--	20 dB Attenuator	Aeroflex	24-20-34	BV4074	new	12-2-09