

Nemko Test Report: 103079-1TRFWL

Applicant: Waveteq Communications Inc
#222 – 3121 Hill Rd
Lake Country, BC
V4V 1G1 Canada

Apparatus: CM9

FCC ID: VIS71300001

In Accordance With: FCC Part 15 Subpart E, 15.407
Unlicensed National Information Infrastructure
Devices

Authorized By:

A handwritten signature in blue ink, appearing to read 'Jason Nixon', is written over a large, faint, light-gray watermark of the letters 'N' and 'D'.

Jason Nixon, Wireless/Telecom Specialist

Date: June 10, 2008

Total Number of Pages: 52

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Section 1 : Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart E. Radiated tests were conducted in accordance with ANSI C63.4-2003.

The assessment summary is as follows:

Apparatus Assessed:	CM9
Specification:	FCC Part 15 Subpart E, 15.407
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Original Release
Test Location:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Tests Performed By:	Heng Lin EMC/Wireless Specialist
Test Dates:	From March 06, 2008 to May 28, 2008

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

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Section 2 : Equipment Under Test

2.1 Identification of Equipment Under Test (EUT)

The following information identifies the EUT under test:

Type of Equipment:	DTS – Digital Transmission System
Brand Name:	Waveteq Communications Inc
Model Name or Number:	CM9
Serial Number:	None
Nemko Sample Number:	1
FCC ID:	VIS71300001
Date of Receipt:	March 03, 2008

2.2 Accessories

The following information identifies accessories used to exercise the EUT during testing:

Description:	Laptop
Brand Name:	Dell
Model Name or Number:	PP05L
Serial Number:	CN-0G5152-48643-445-0906
Nemko Sample Number:	None
Connection Port:	Mini-PCI
Cable Length and Type:	0.2m Shielded Interface Bridge

Description:	Power Supply
Brand Name:	Dell
Model Name or Number:	HP-0Q065B83
Serial Number:	CN-05U092-47890-398-06YC
Nemko Sample Number:	None
Connection Port:	AC Input
Cable Length and Type:	2m Power cable

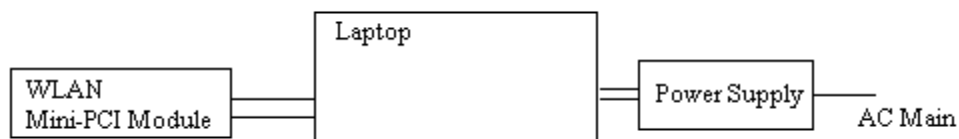
2.3 EUT Description

The EUT is WLAN a+b+g Mini-PCI Module.

2.4 Technical Specifications of the EUT

Operating Band:	5.150 - 5.250 GHz 5.725 - 5.825 GHz
Operating Frequency:	5.180 - 5.240 GHz 5.755 - 5.795 GHz
Modulation:	OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
Occupied Bandwidth:	27.4 MHz
Channel Spacing:	20 MHz
Emission Designator:	27M40W7D
Antenna Data:	External Panel Antenna SPDN6W: 16.8 dBi External Omni Antenna SPDJ60: 9 dBi
Power Supply Requirements:	3.3VDC from the host PC

2.5 EUT Setup diagram





Nemko Canada Inc.

2.6 Operation of the EUT during testing

The EUT worked in Transmitting mode or Receiving mode. The ART Application Program was used to control the EUT.

2.7 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

Section 3 : Test Conditions

3.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart E, 15.407
Unlicensed National Information Infrastructure Devices

3.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

3.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	15 – 30 °C
Humidity range	:	20 - 75 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 5% of rated voltages

3.4 Measurement Uncertainty

Nemko Canada measurement uncertainty has been calculated using guidance of UKAS LAB 34:2003 and TIA-603-B Nov 7, 2002. All calculations have been performed to provide a confidence level of 95% and can be found in Nemko Canada document MU-003.

3.5 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Cal. Date	Next Cal.
Electro-Magnetic Interference Test Chamber	TDK	SAC-3	FA002047	May 06/08	May 06/09
Bilog	Sunol	JB3	FA002108	Jan. 21/08	Jan. 21/09
Horn Antenna #2	EMCO	3115	FA000825	Jan. 15/08	Jan. 15/09
Horn 18 – 26.5 GHz	Electro-Metrics	SH-50/60-1	FA000479	COU	COU
Horn 26 .5 – 40 GHz	Electro-Metrics	SH-50/60-2	FA000485	COU	COU
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU 26	FA002043	Dec. 07/07	Dec. 07/08
LISN	Rohde & Schwarz	ENV216	FA002023	Sept. 04/07	Sept. 04/08
International Power Supply	California Inst.	3001i	FA001021	Jan. 16/08	Jan. 16/09
Spectrum Analyzer	Rohde & Schwarz	FSU	FA001877	Jan 23/08	Jan 23/09
RF AMP	JCA	1-18GHz	FA002091	Oct 2/07	Oct 2/08
Attenuator	Narda	768-10	9709	COU	COU
Notch Filter	Microwave Circuits	5150-5350MHz	FA001941	COU	COU
Notch Filter	Microwave Circuits	5470-5725MHz	FA002012	COU	COU
Notch Filter	Microwave Circuits	5725-5850MHz	FA001921	COU	COU
18.0 – 26.0 GHz Amplifier	NARDA	BBS-1826N612	FA001550	COU	COU
26 – 40.0 GHz Amplifier	NARDA	DBL-2640N610	FA001556	COU	COU

COU – Calibrate on Use

NCR – No Calibration Required

Section 4 : Results Summary

This section contains the following:

FCC Part 15 Subpart E : Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N No : not applicable / not relevant.

Y Yes : Mandatory i.e. the apparatus shall conform to these tests.

N/T Not Tested, mandatory but not assessed. (See Report Summary)

4.1 FCC Part 15 Subpart E : Test Results

Part 15	Test Description	Required	Result
15.207(a)	Powerline Conducted Emissions	Y	PASS
15.209(a)	Radiated Emissions within Restricted Bands	Y	PASS
15.403(i)	Emission Bandwidth	Y	PASS
15.407(a)(2)	Peak Conducted Transmit Output Power	Y	PASS
15.407(b)	Spurious Emissions	Y	PASS
15.407(a)(2)	Peak Power Spectral Density	Y	PASS
15.407(a)(6)	Peak Excursion Measurement	Y	PASS

Notes:

Appendix A : Test Results

Clause 15.207(a) Powerline Conducted Emissions

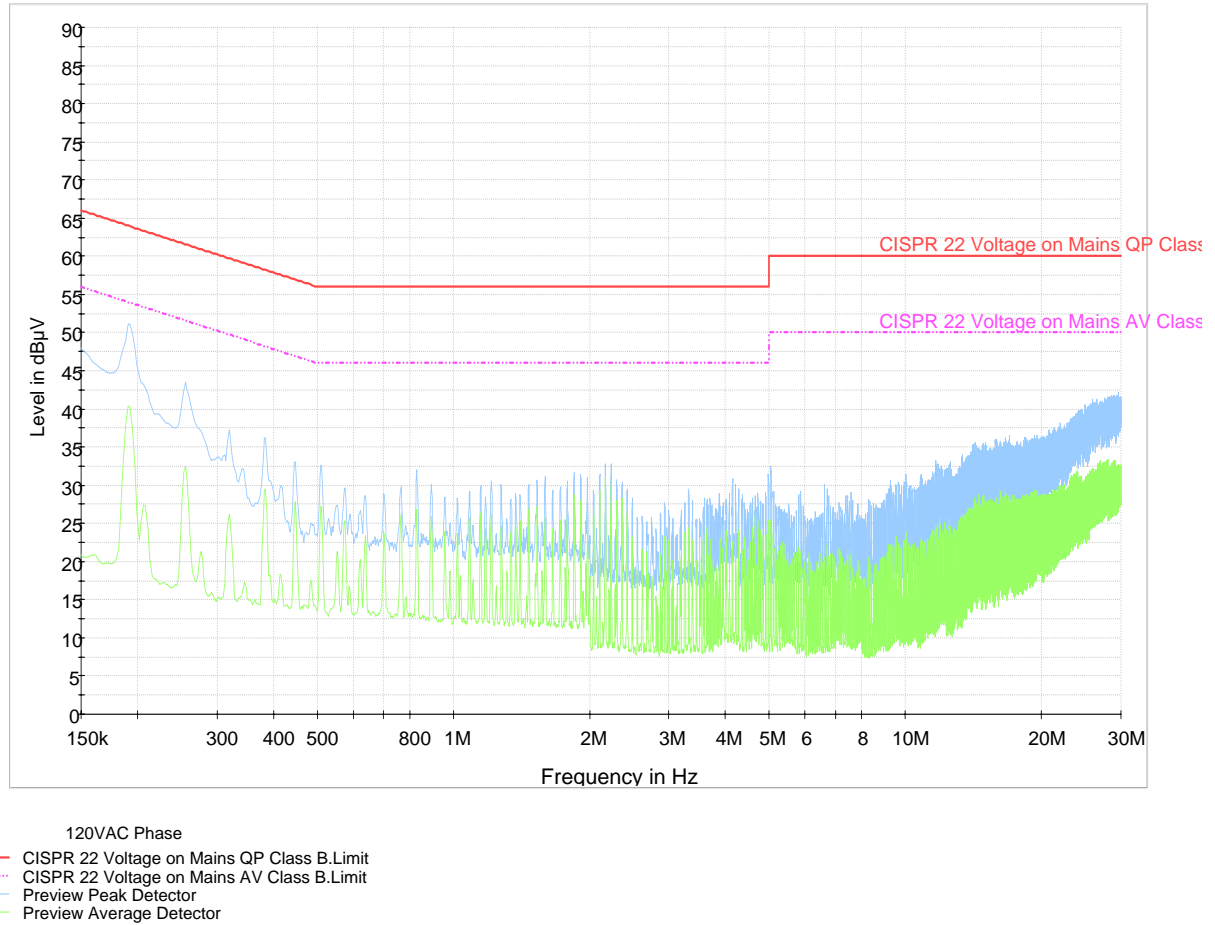
Frequency of Conducted limit (dB μ V)		
Emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

Test Results: Pass

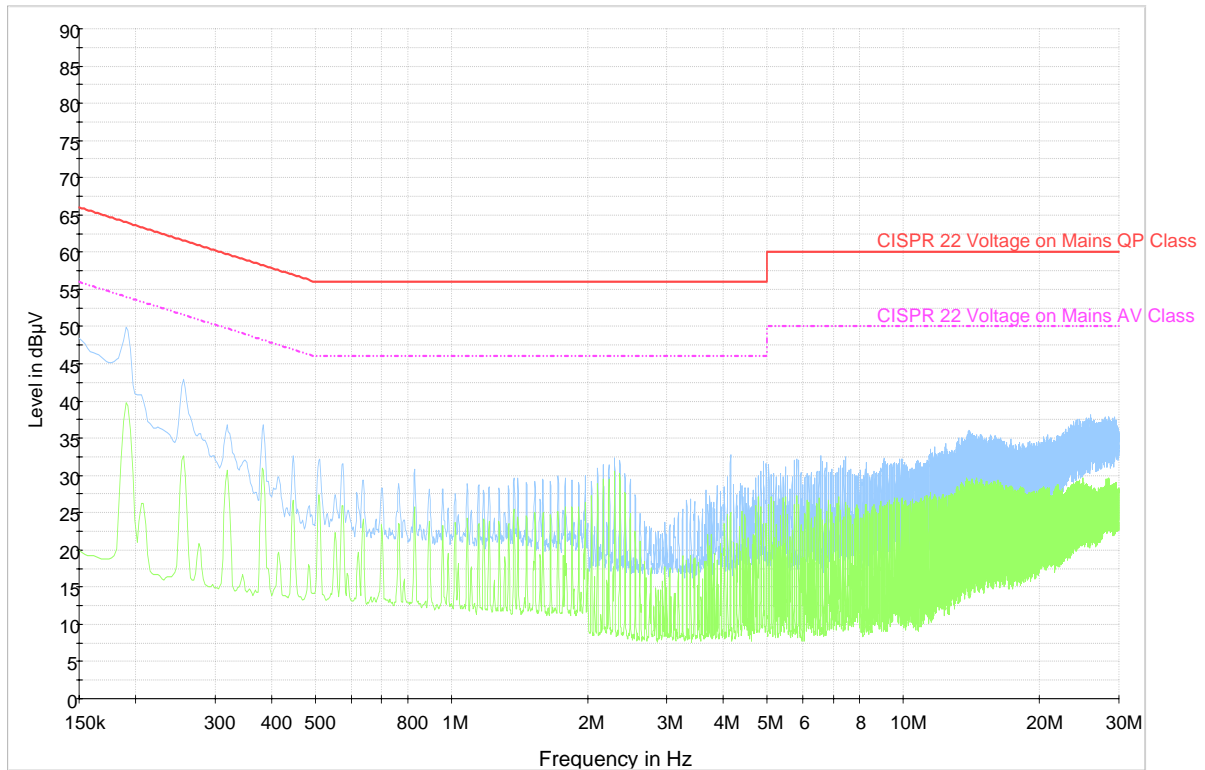
Additional Observations:

All plots were obtained using a sweeping receiver with an IF of 9kHz using a Peak and Average detector. The plots have been corrected with the cable loss and LISN loss to show compliance.

Phase



Neutral



120VAC Neutral
— CISPR 22 Voltage on Mains QP Class B Limit
- - - CISPR 22 Voltage on Mains AV Class B Limit
— Preview Peak Detector
— Preview Average Detector

Clause 15.209(a) Radiated Emissions within Restricted Bands

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 (microvoltsmeter)	Measurement Distance (meters)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Results: Pass

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic.

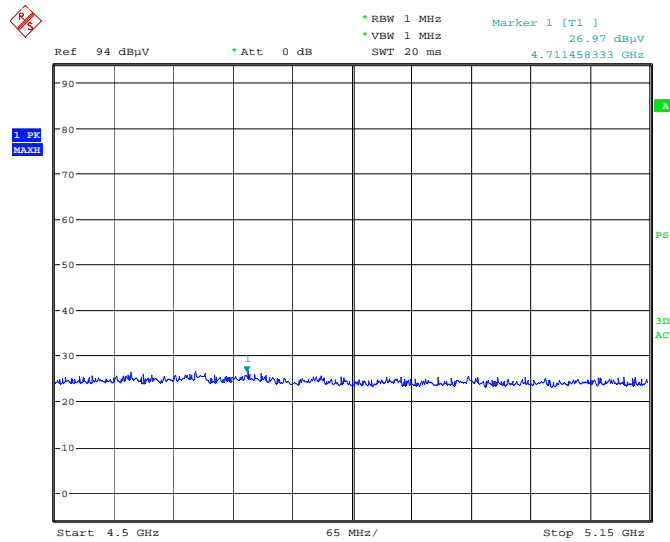
These results apply to emissions found in the Restricted bands defined in FCC Part 15 Subpart C, 15.205.

The EUT was measured on three orthogonal axis.

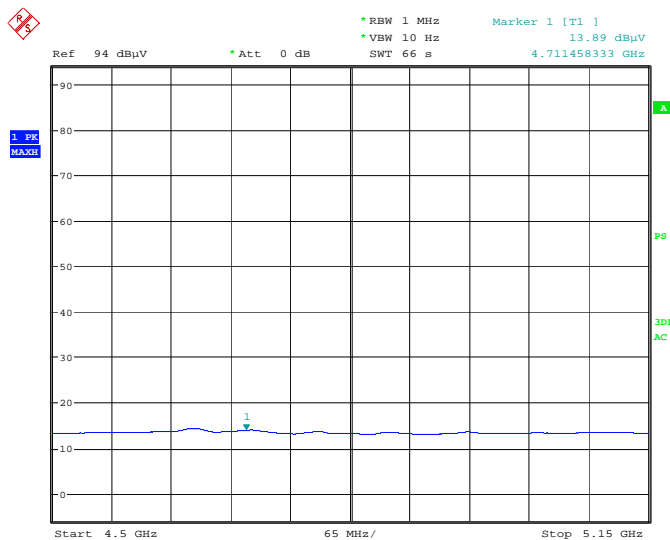
The EUT was searched for low, medium and high frequencies and only worse case was reported.

9dBi External Omni Antenna

Restricted Band (GHz)	RCVD Signal (dB μ V)	Cable Loss (dB)	AF (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	
4.5 – 5.15	26.93	6.6	32.2	65.73	74.00	8.27	Peak
	13.89	6.6	32.2	52.69	54.00	1.31	Average



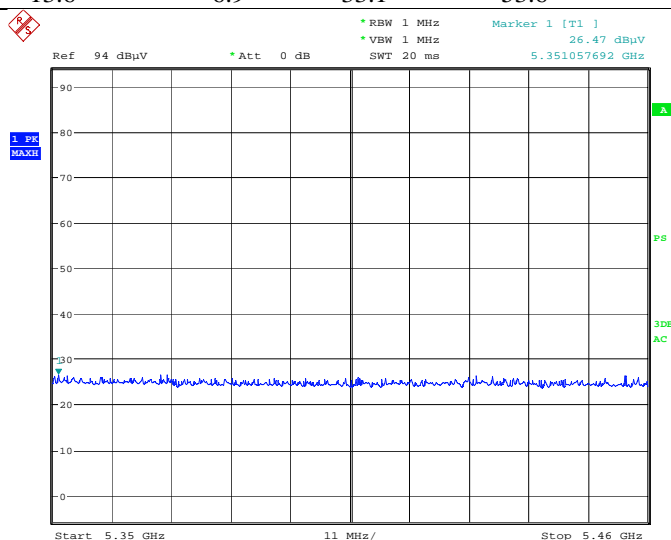
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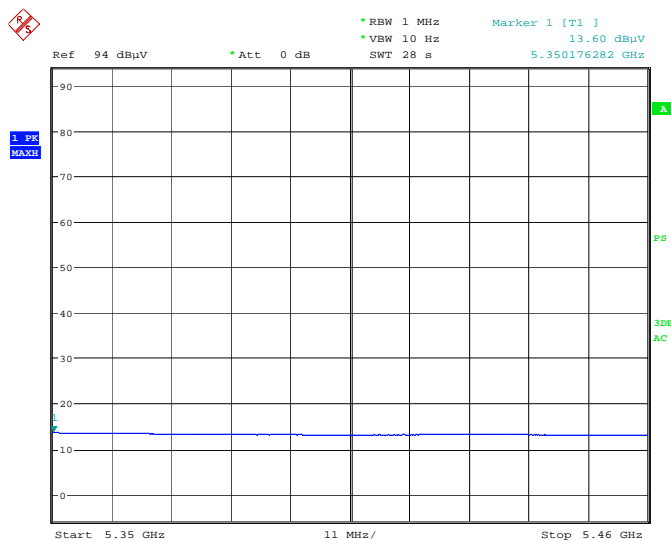
Date: 29.MAY.2008 20:21:37

9 dBi External Omni Antenna

Restricted Band (GHz)	RCVD Signal (dB μ V)	Cable Loss (dB)	AF (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	
5.35 – 5.46	26.47	6.9	33.1	66.47	74.00	7.53	Peak
	13.6	6.9	33.1	53.6	54.00	0.40	Average



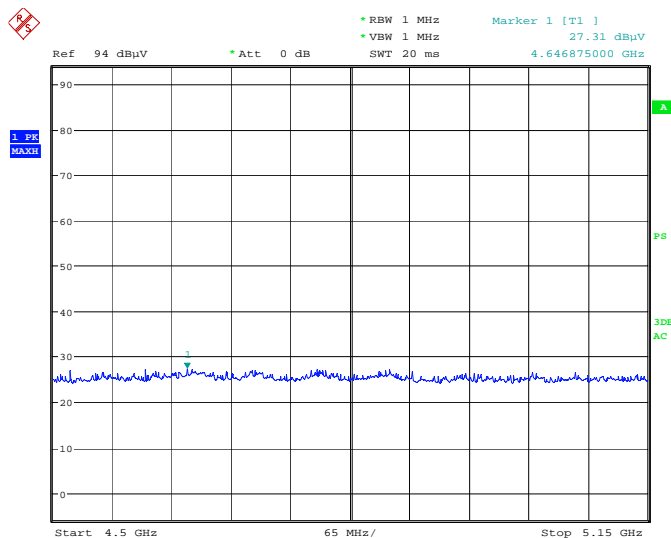
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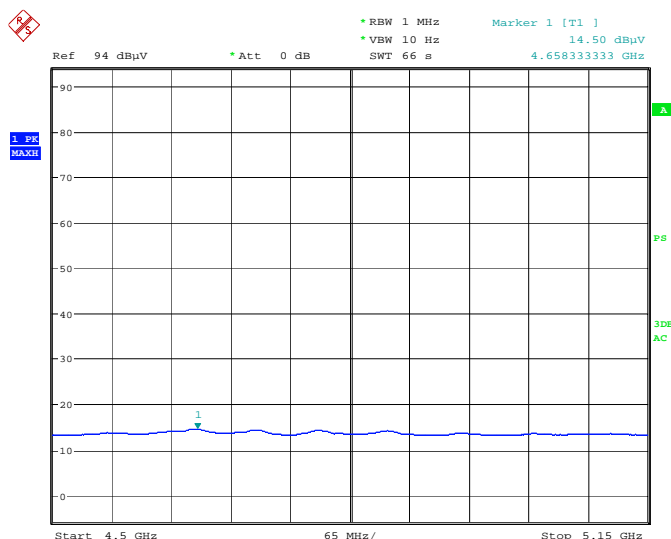
Date: 29.MAY.2008 20:19:11

16.8 dBi External Panel Antenna

Restricted Band (GHz)	RCVD Signal (dB μ V)	Cable Loss (dB)	AF (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	
4.5 – 5.15	27.31	6.6	32.2	66.11	74.00	7.89	Peak
	14.5	6.6	32.2	53.3	54.00	0.70	Average



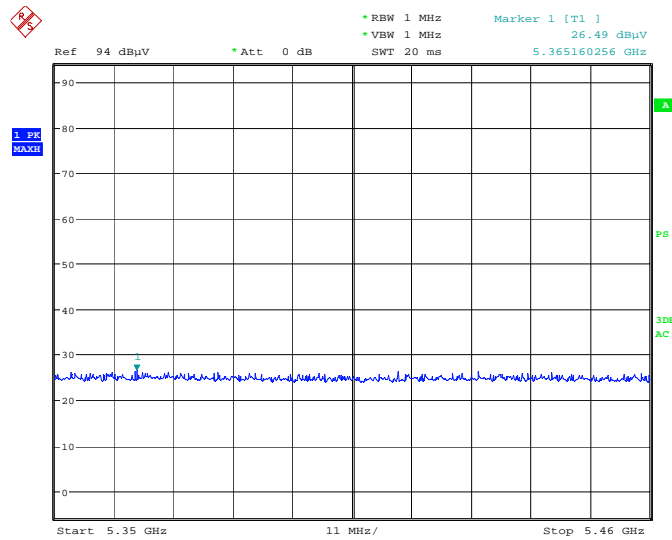
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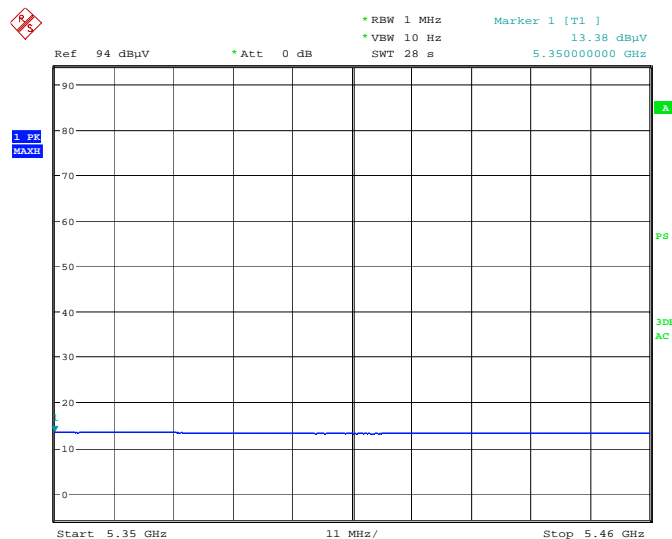
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16.8 dBi External Panel Antenna

Restricted Band (GHz)	RCVD Signal (dB μ V)	Cable Loss (dB)	AF (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	
5.35 – 5.46	26.49	6.9	33.1	66.49	74.00	7.51	Peak
	13.38	6.9	33.1	53.38	54.00	0.62	Average



Date: 29.MAY.2008 20:13:04



Date: 29.MAY.2008 20:11:45

Clause 15.403(i) Emission Bandwidth

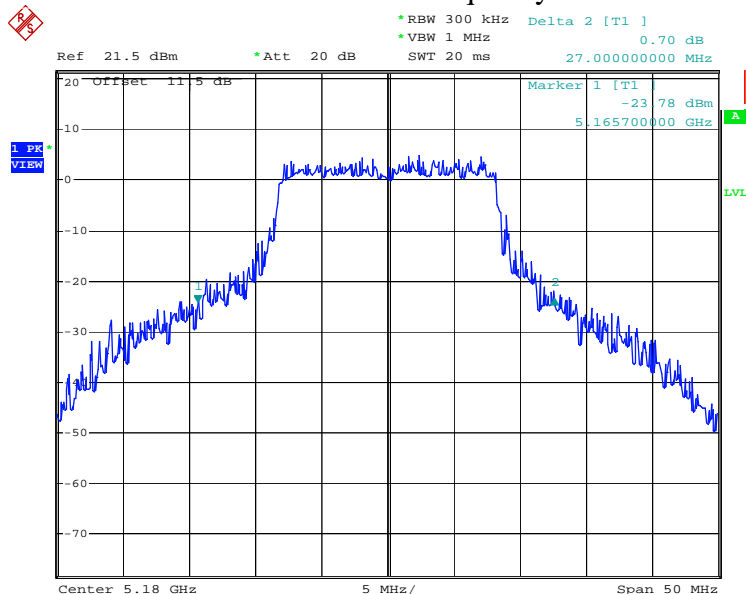
The emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement

Test Results: Pass

26dB Bandwidth:

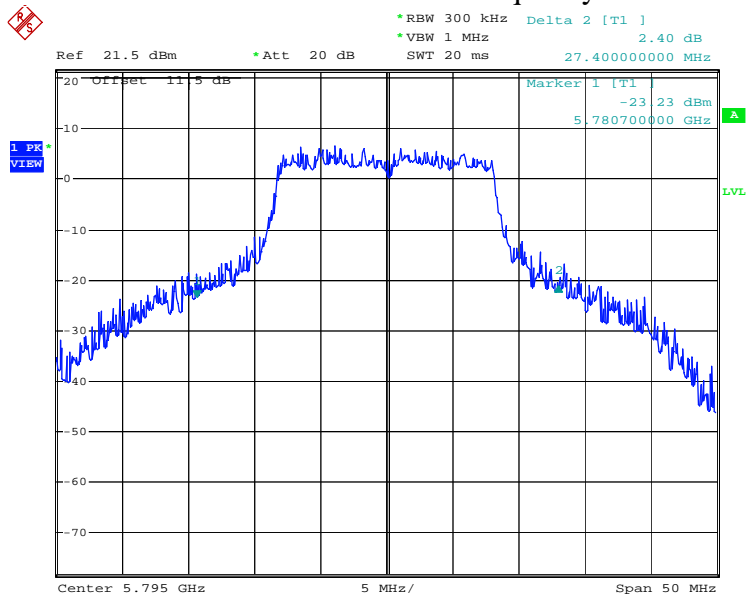
Frequency Band (GHz)	Channel	Operating Frequency (MHz)	Bandwidth (MHz)
5.15 – 5.25	36	5180	27.0
5.725 – 5.825	161	5795	27.4

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.18 GHz



Date: 27.MAY.2008 15:18:28

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.795 GHz



Date: 27.MAY.2008 14:54:45

Clause 15.407(a)(1) Power Limits for the band 5.15-5.25GHz

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50mW or 4dBm + 10 log B, where B is the 26dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4dBm in any 1MHz band. If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Test Method: FCC Public Notice Ref: DA: 02-2138
Measurement Procedure for Peak Transmit Power in UNII Band

Test Results: Pass

Output Power

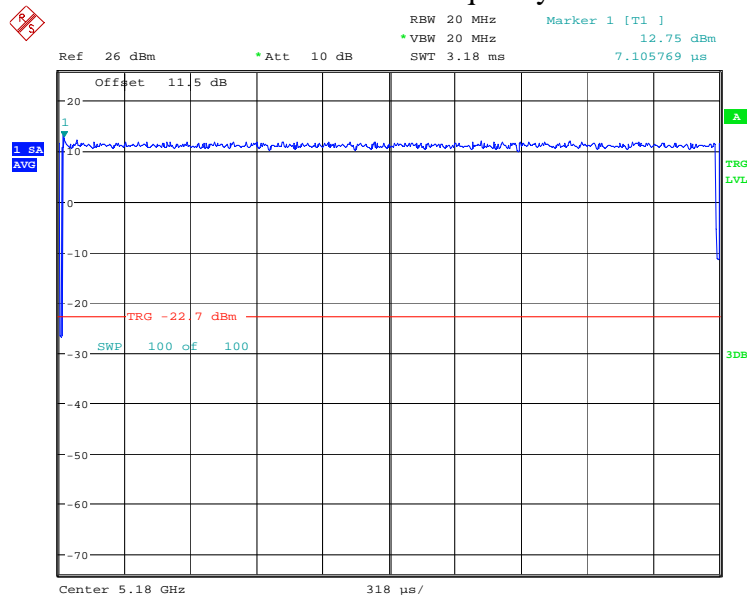
Ch #	Freq. (MHz)	G _{ANT} (dBi)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
36	5180	9	12.75	14	1.25	21.75	23	1.25
44	5220	9	12.92	14	1.08	21.92	23	1.08
48	5240	9	12.22	14	1.78	21.22	23	1.78
36	5180	16.8	5.34	6.2	0.86	22.14	23	0.86
44	5220	16.8	5.56	6.2	0.64	22.36	23	0.64
48	5240	16.8	5.17	6.2	1.03	21.97	23	1.03

PSD

Ch #	Freq. (MHz)	G _{ANT} (dBi)	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	EIRP PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
36	5180	9	-0.44	1	1.44	8.56	10	1.44
44	5220	9	-0.72	1	1.72	8.28	10	1.72
48	5240	9	-0.45	1	1.45	8.55	10	1.45
36	5180	16.8	-7.33	-6.8	0.53	9.47	10	0.53
44	5220	16.8	-7.57	-6.8	0.77	9.23	10	0.77
48	5240	16.8	-7.47	-6.8	0.67	9.33	10	0.67

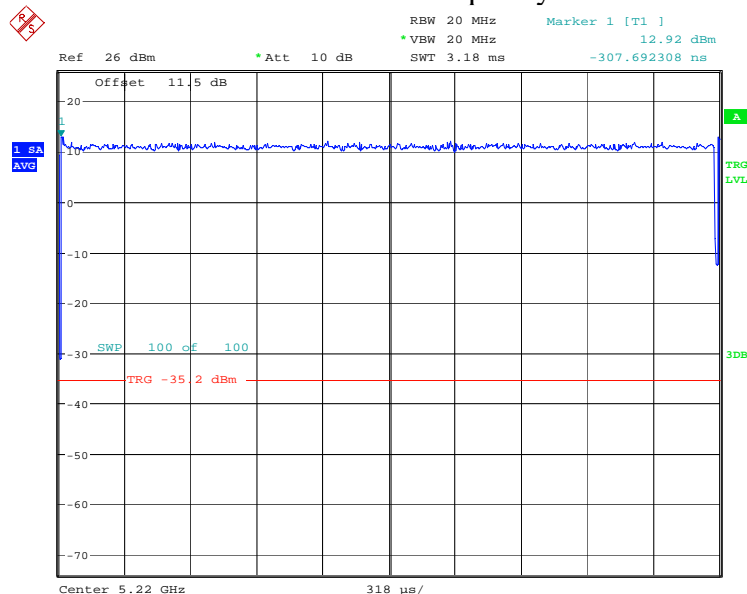
Conducted Output Power - 9dBi External Omni Antenna

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.18 GHz



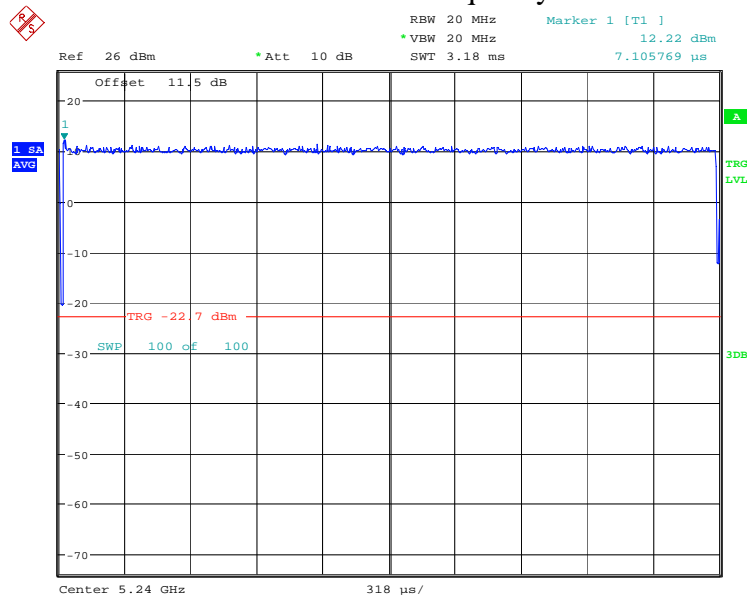
Date: 2.JUN.2008 20:10:17

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.22 GHz



Date: 6.JUN.2008 16:11:44

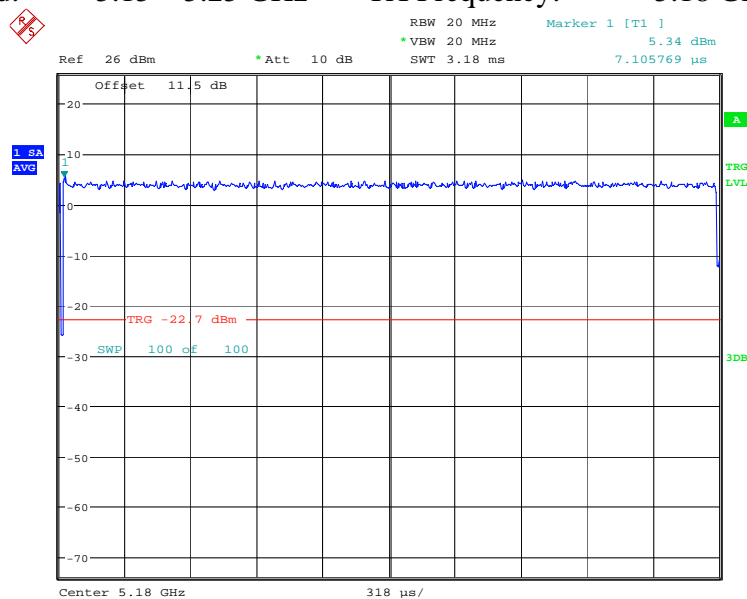
Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.24 GHz



Date: 2.JUN.2008 20:13:01

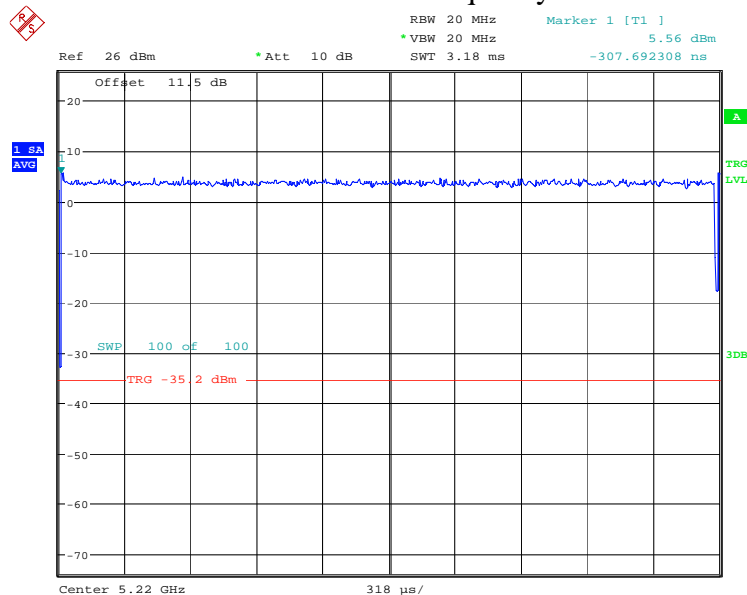
Conducted Output Power - 16dBi External Panel Antenna

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.18 GHz



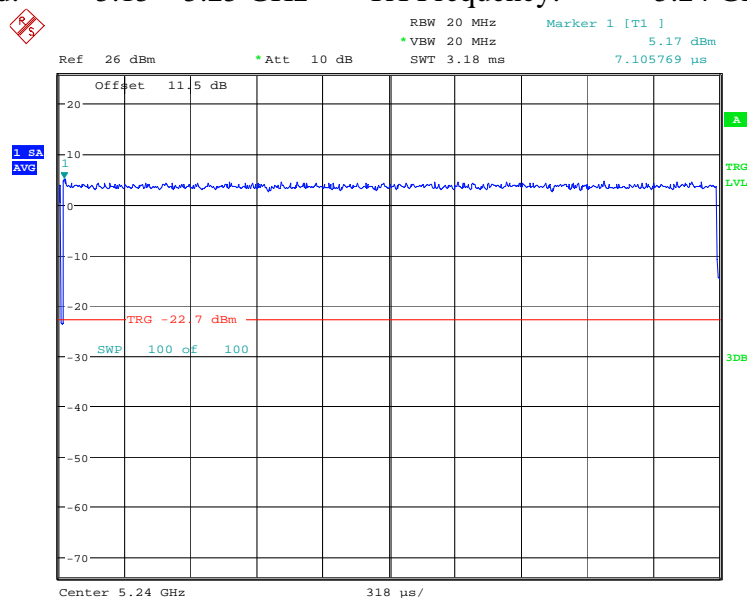
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Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.22 GHz



Date: 6.JUN.2008 16:20:51

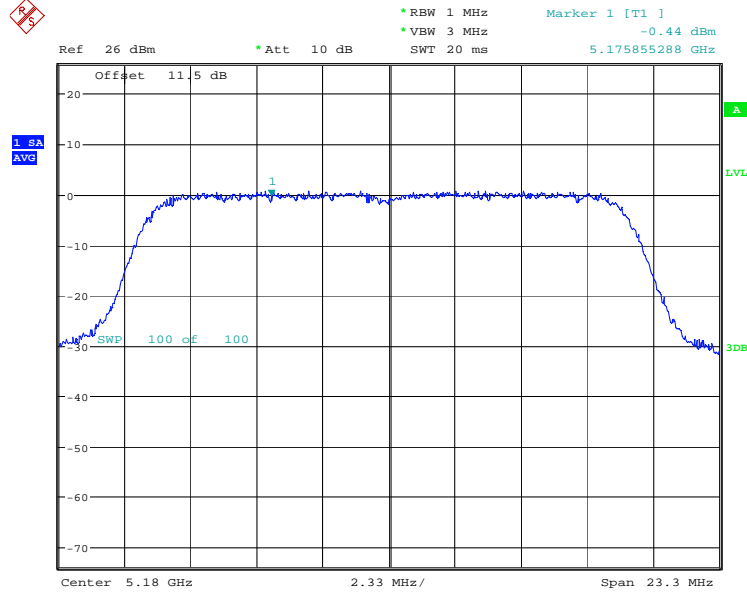
Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.24 GHz



Date: 2.JUN.2008 20:12:06

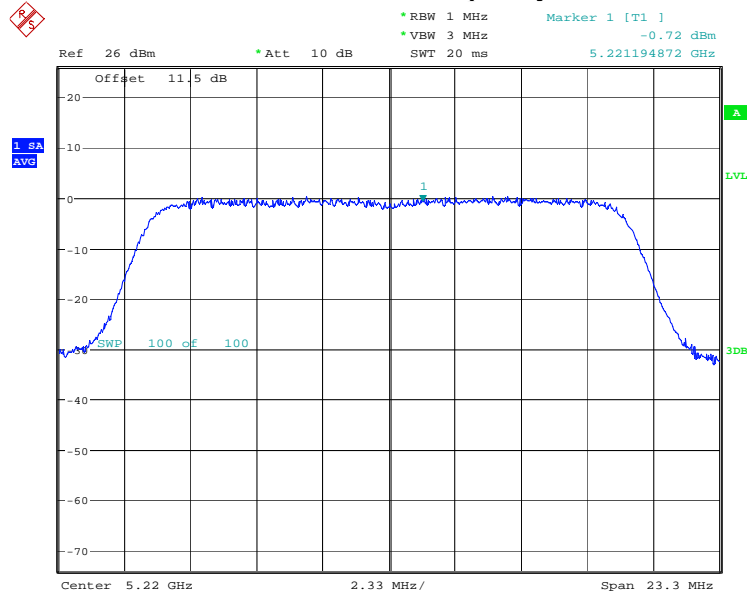
PSD - 9dBi External Omni Antenna

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.18 GHz



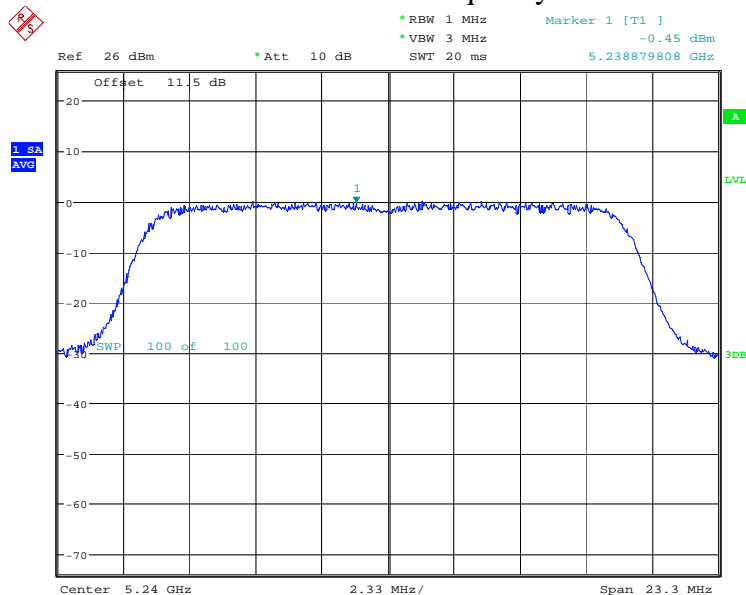
Date: 6.JUN.2008 17:36:53

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.22 GHz



Date: 6.JUN.2008 16:32:22

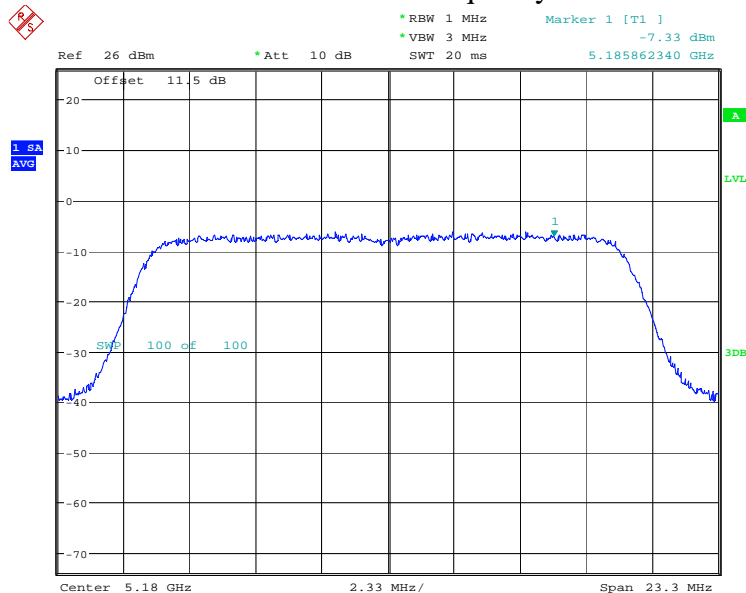
Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.24 GHz



Date: 6.JUN.2008 17:34:37

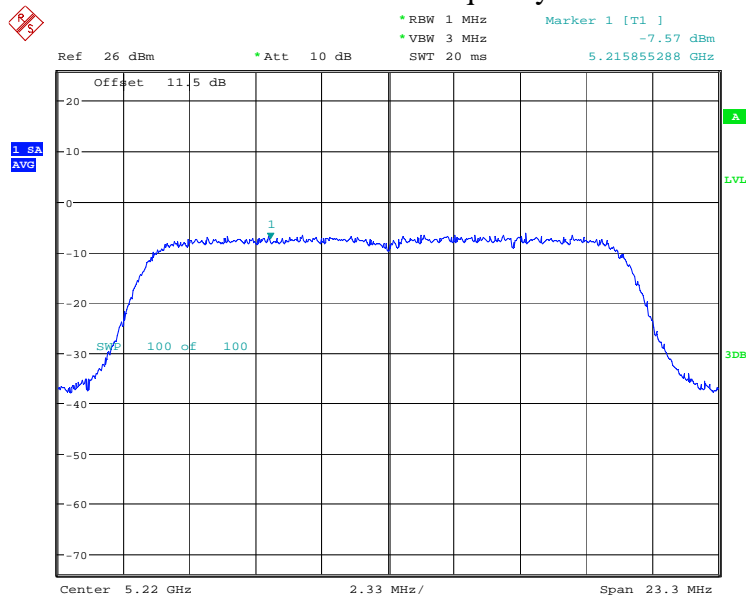
PSD - 16 dBi External Panel Antenna

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.18 GHz



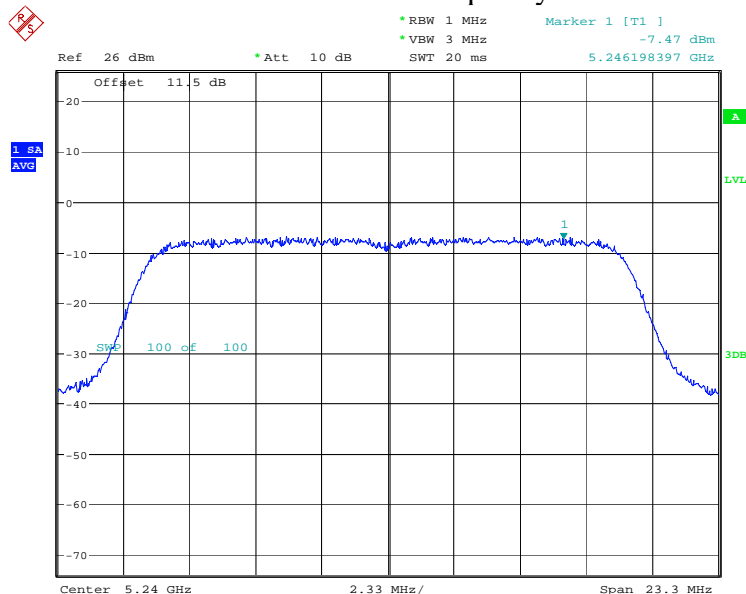
Date: 6.JUN.2008 17:36:12

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.22 GHz



Date: 6.JUN.2008 16:33:09

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.24 GHz



Date: 6.JUN.2008 17:35:18

Clause 15.407(a)(3) Power Limits for the band 5.725-5.825GHz Band

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17dBm + 10 log B, where B is the 26dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17dBm in any 1MHz band. If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain up to 23dBi without any corresponding reduction in the transmitter peak output power or peak power spectral density. For fixed, point-to-point U-NII transmitters that employ a directional antenna gain greater than 23dBi, a 1dB reduction in peak transmitter power and peak power spectral density for each 1dB of antenna gain in excess of 23dBi would be required. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Method: FCC Public Notice Ref: DA: 02-2138
Measurement Procedure for Peak Transmit Power in UNII Band

Test Results: Pass

Output Power

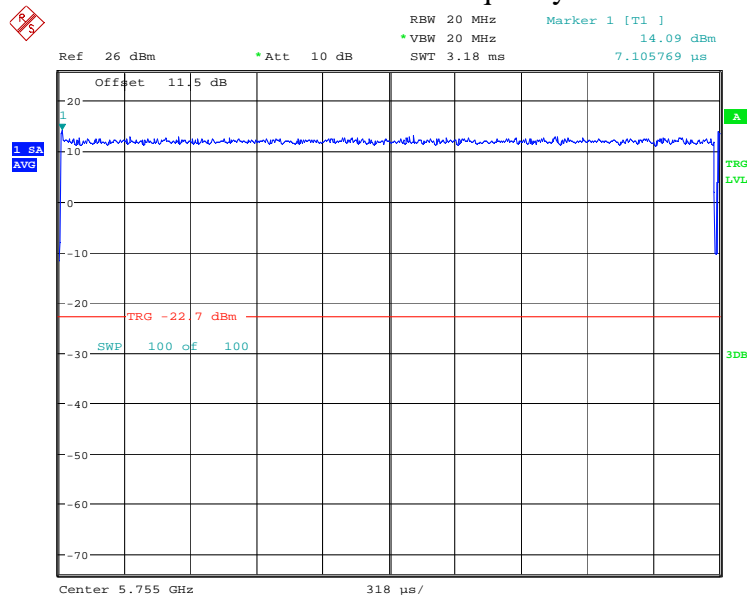
Ch #	Freq. (MHz)	G _{ANT} (dBi)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
149	5755	9	14.09	27	12.91	23.09	36	12.91
157	5785	9	14.03	27	12.97	23.03	36	12.97
161	5795	9	14.84	27	12.16	23.84	36	12.16
149	5755	16.8	10.62	19.2	8.58	27.42	36	8.58
157	5785	16.8	11.8	19.2	7.4	28.6	36	7.4
161	5795	16.8	11.82	19.2	7.38	28.62	36	7.38

PSD

Ch #	Freq. (MHz)	G _{ANT} (dBi)	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	EIRP PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
149	5755	9	1.01	14	12.99	10.01	23	12.99
157	5785	9	0.94	14	13.06	9.94	23	13.06
161	5795	9	2.47	14	11.53	11.47	23	11.53
149	5755	16.8	-2.37	6.2	8.57	14.43	23	8.57
157	5785	16.8	-1.91	6.2	8.11	14.89	23	8.11
161	5795	16.8	-1.84	6.2	8.04	14.96	23	8.04

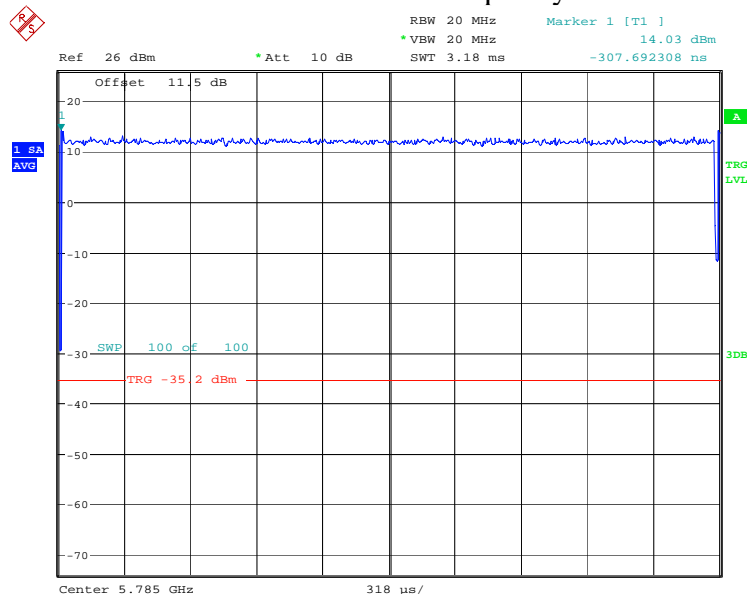
Conducted Output Power - 9dBi External Omni Antenna

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.755 GHz



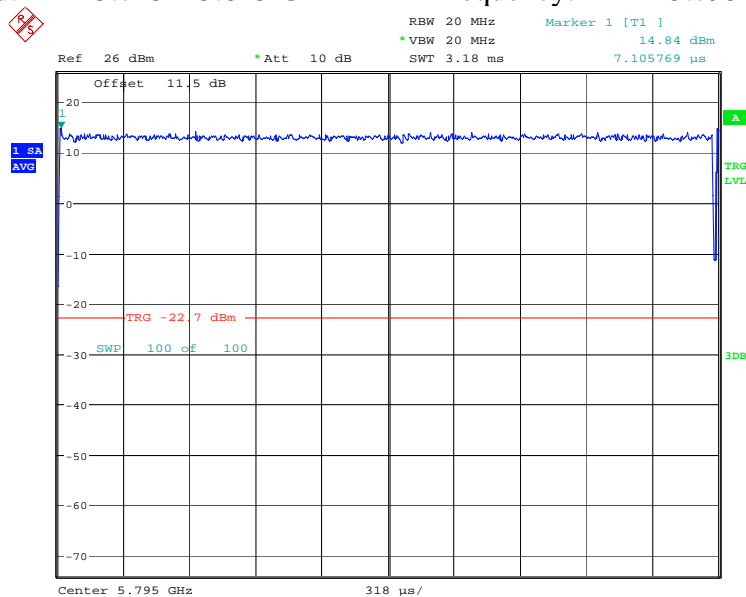
Date: 2.JUN.2008 20:20:52

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.785 GHz



Date: 6.JUN.2008 16:17:59

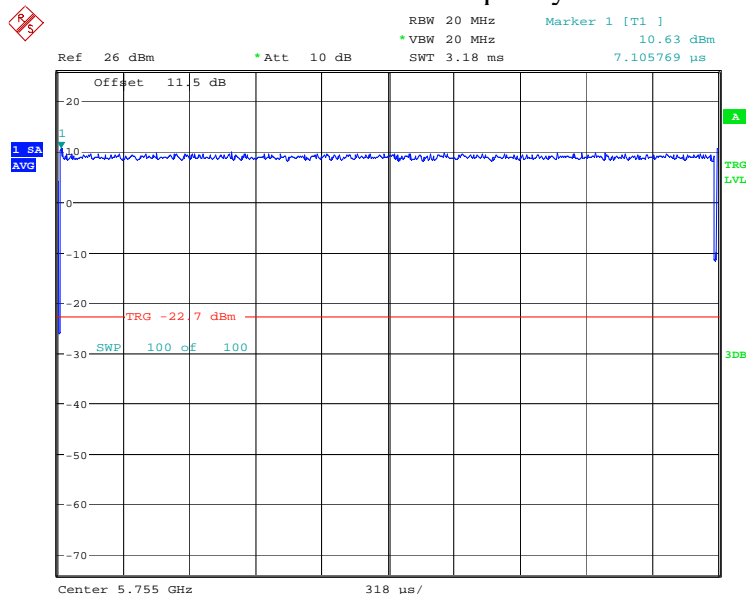
Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.795 GHz



Date: 2.JUN.2008 20:21:20

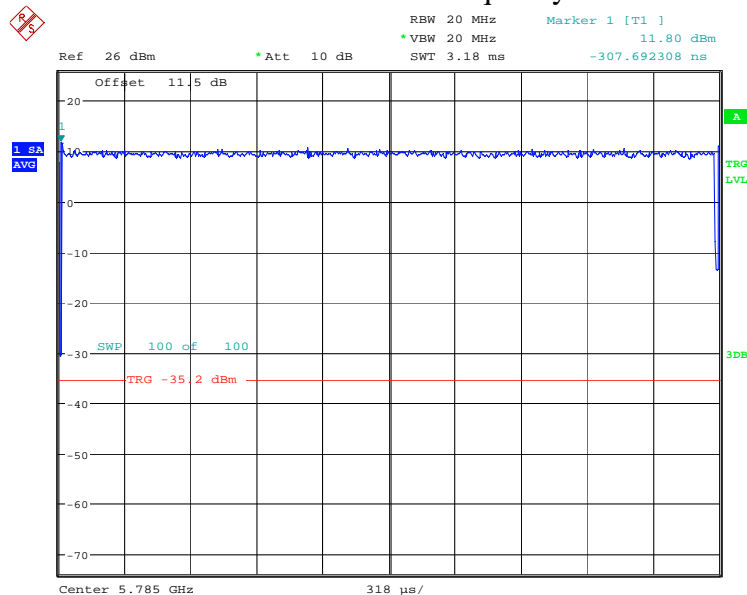
Conducted Output Power - 16dBi External Panel Antenna

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.755 GHz



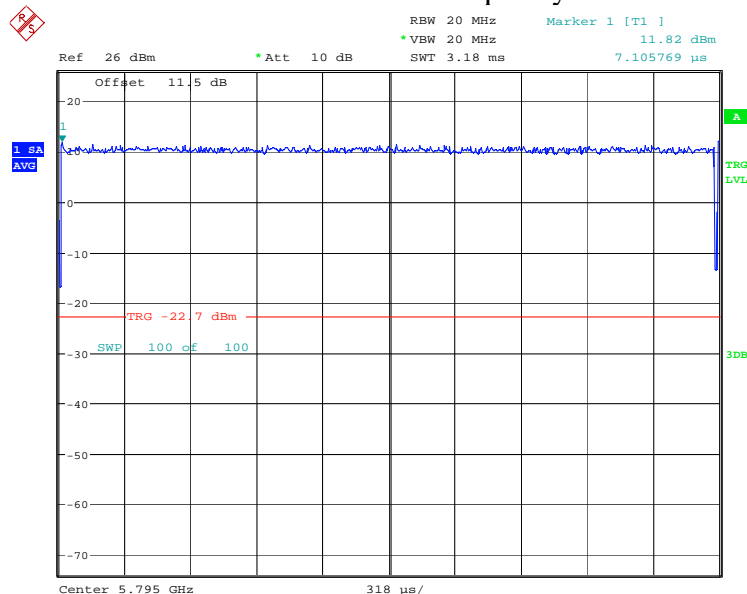
Date: 2.JUN.2008 20:20:11

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.785 GHz



Date: 6.JUN.2008 16:18:31

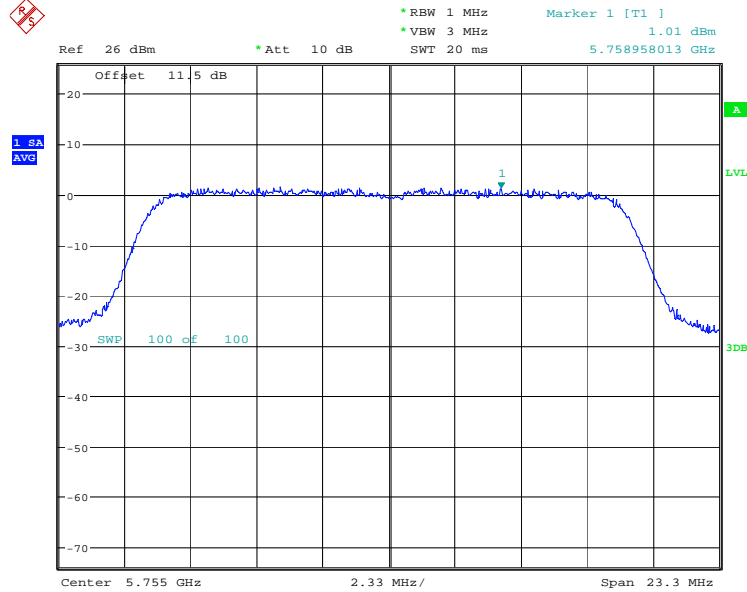
Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.795 GHz



Date: 2.JUN.2008 20:21:44

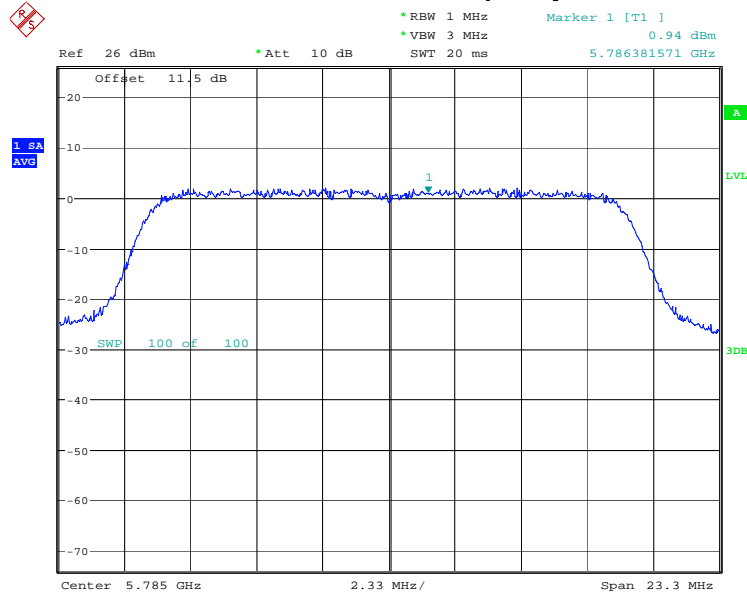
PSD - 9dBi External Omni Antenna

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.755 GHz



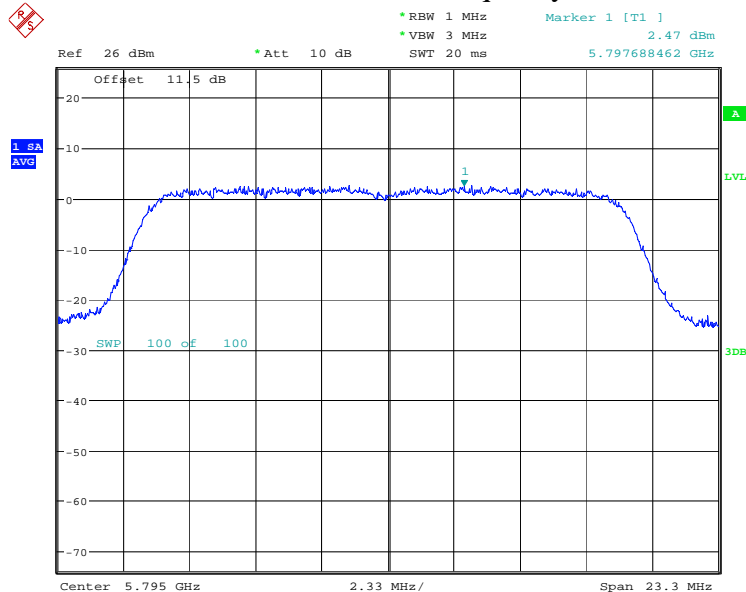
Date: 6.JUN.2008 16:28:10

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.785 GHz



Date: 6.JUN.2008 16:29:29

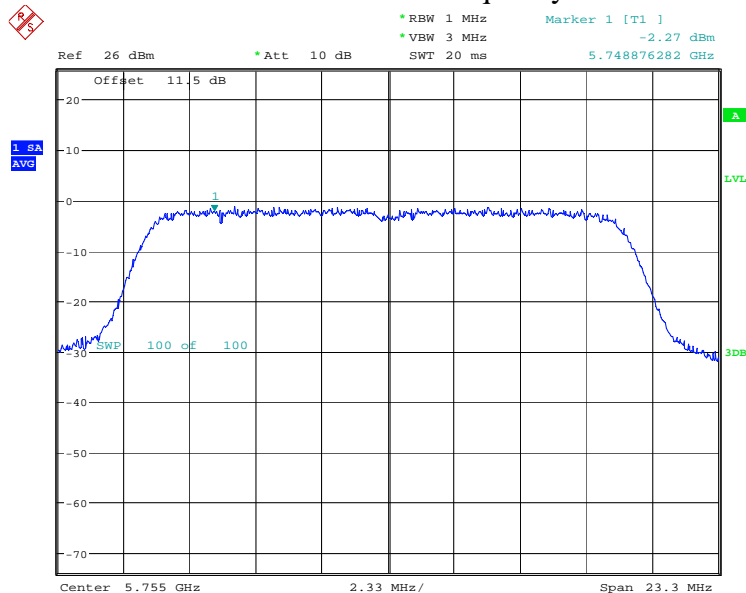
Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.795 GHz



Date: 6.JUN.2008 16:28:46

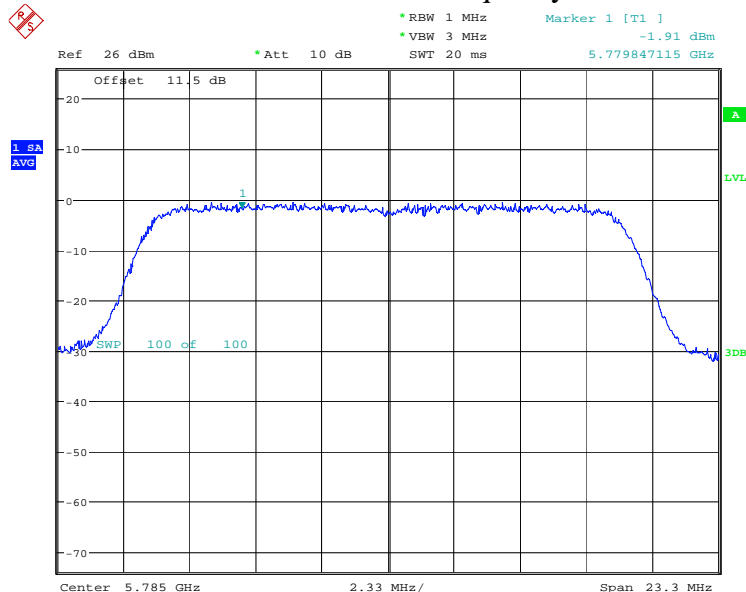
PSD - 16 dBi External Panel Antenna

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.755 GHz



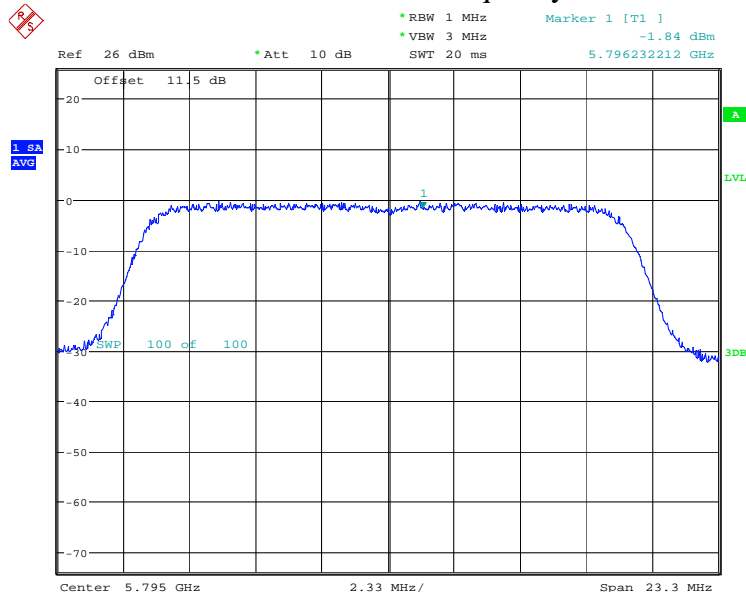
Date: 6.JUN.2008 17:27:05

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.785 GHz



Date: 6.JUN.2008 16:36:28

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.795 GHz



Date: 6.JUN.2008 17:26:21

Clause 15.407(a)(6) Peak Excursion

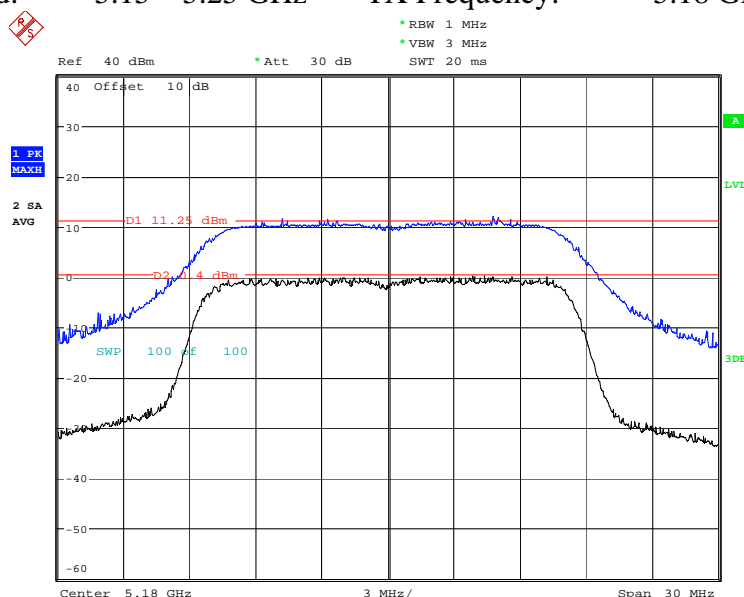
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Test Method: FCC Public Notice Ref: DA: 02-2138
Measurement Procedure for Peak Transmit Power in UNII Band

Test Results: Pass

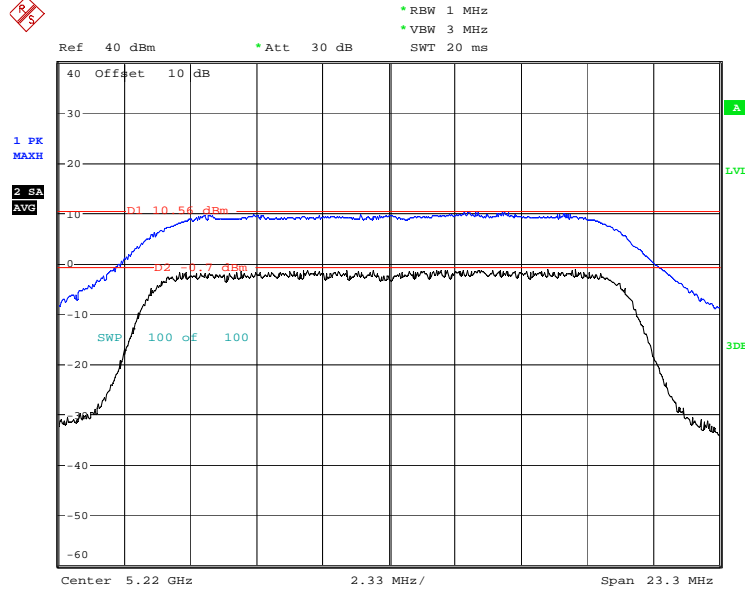
9dBi External Omni Antenna

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.18 GHz



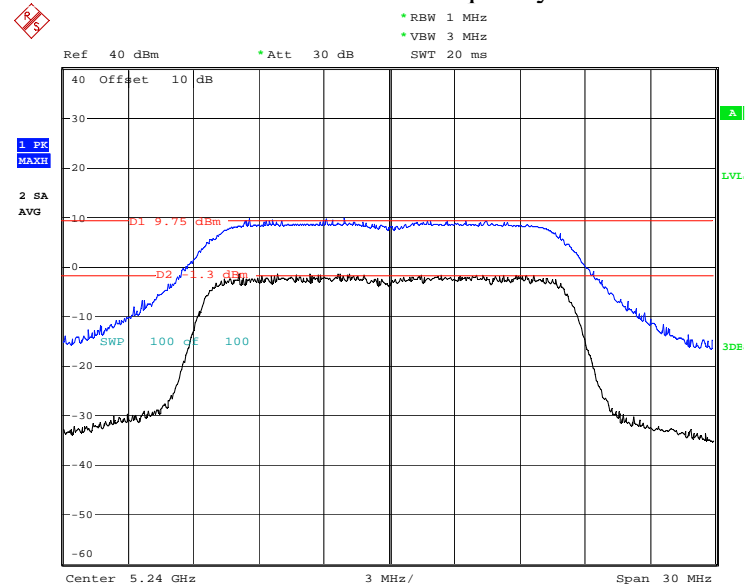
Date: 26.MAY.2008 22:36:24

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.22 GHz



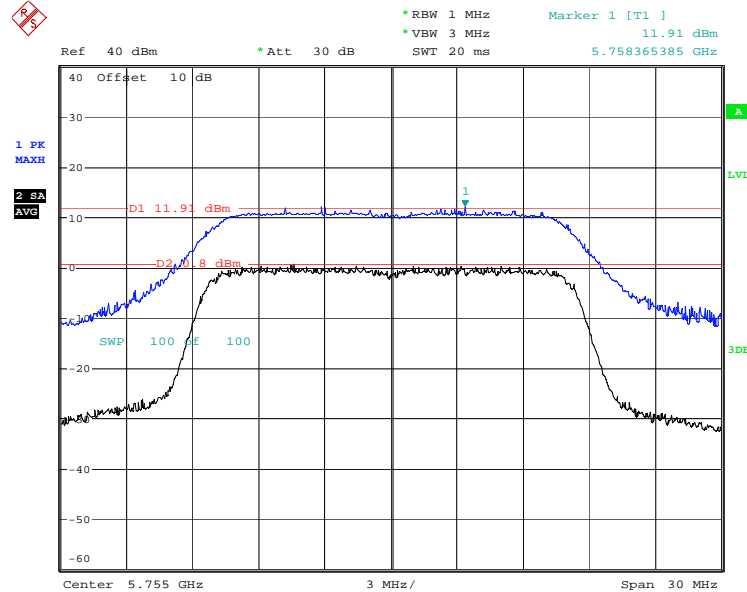
Date: 6.JUN.2008 20:25:38

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.24 GHz



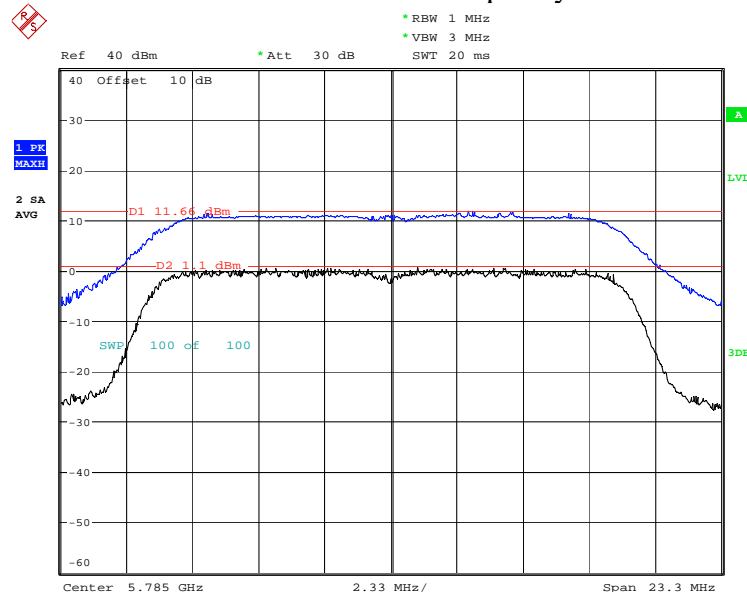
Date: 26.MAY.2008 22:33:10

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.755 GHz



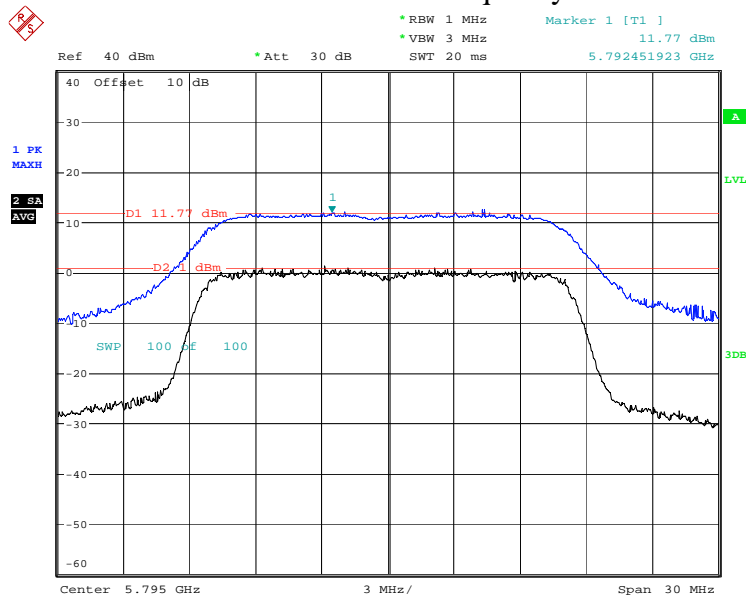
Date: 26.MAY.2008 22:20:09

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.785 GHz



Date: 6.JUN.2008 20:39:27

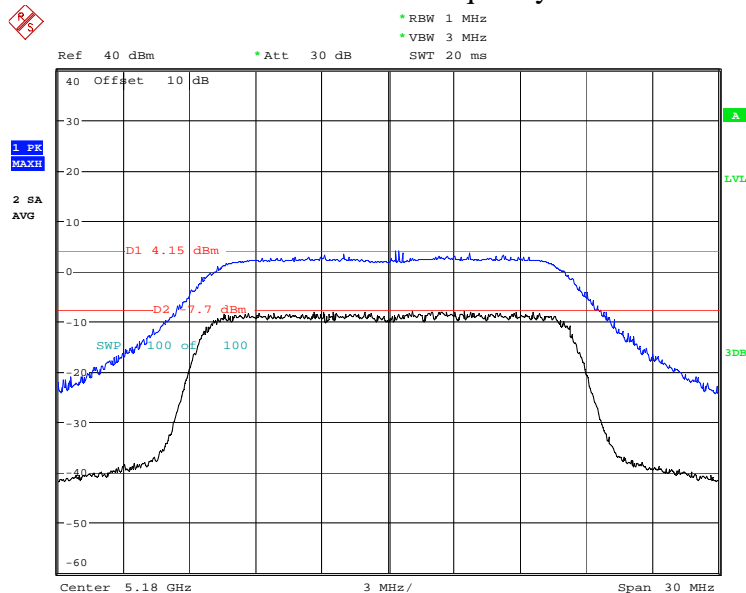
Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.795 GHz



Date: 26.MAY.2008 22:18:39

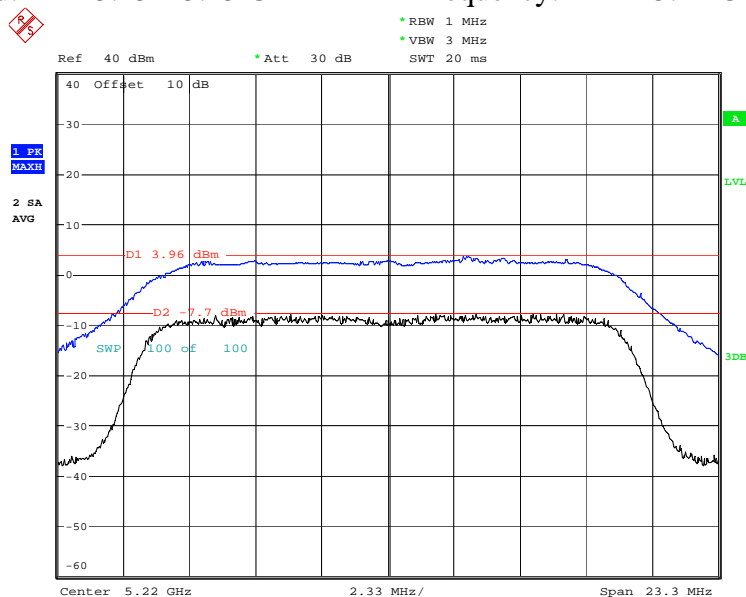
16dBi External Panel Antenna

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.18 GHz



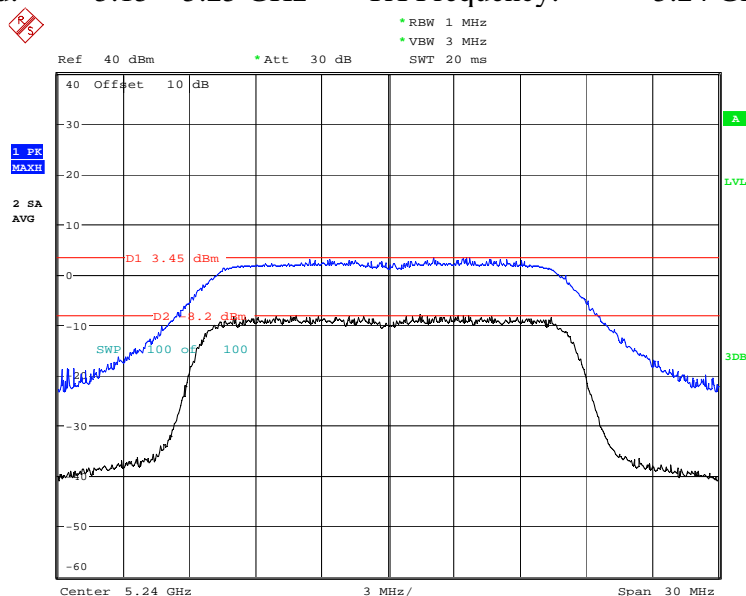
Date: 26.MAY.2008 22:35:18

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.22 GHz



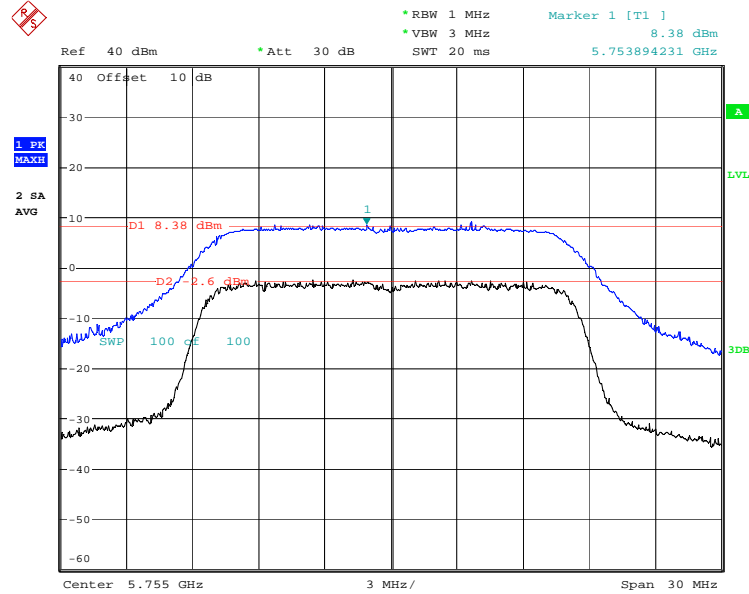
Date: 6 JUN.2008 20:29:17

Operating Band: 5.15 – 5.25 GHz TX Frequency: 5.24 GHz



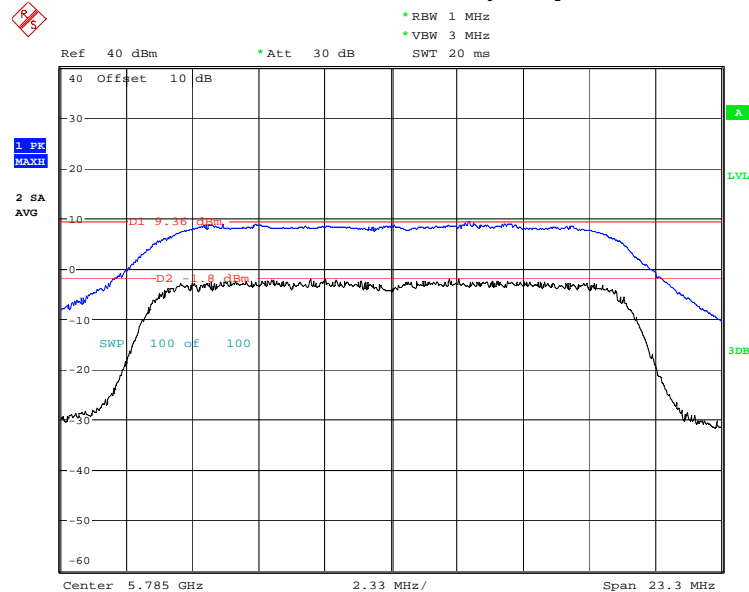
Date: 26 MAY.2008 22:34:07

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.755 GHz



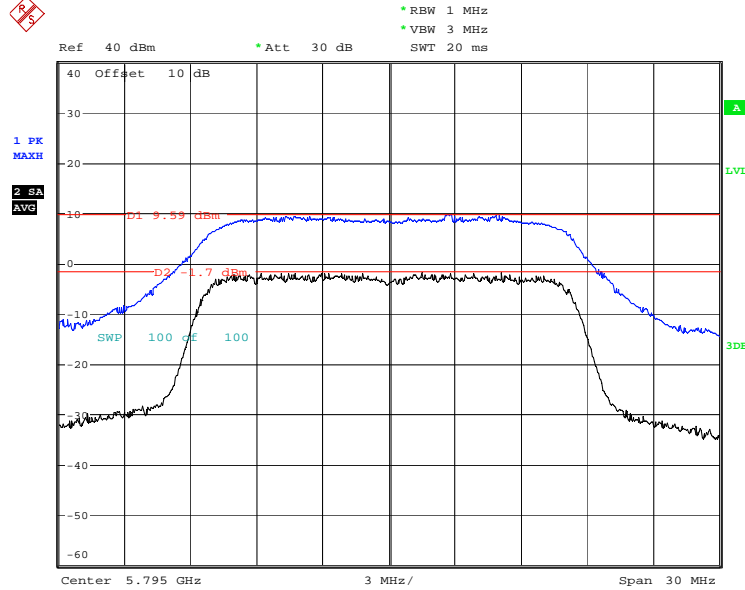
Date: 26.MAY.2008 22:21:39

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.785 GHz



Date: 6.JUN.2008 20:42:43

Operating Band: 5.725 – 5.825 GHz TX Frequency: 5.795 GHz



Date: 26.MAY.2008 22:16:38

Clause 15.407(b)(1) Undesirable emission limits for transmitters in the 5.15-5.25GHz band

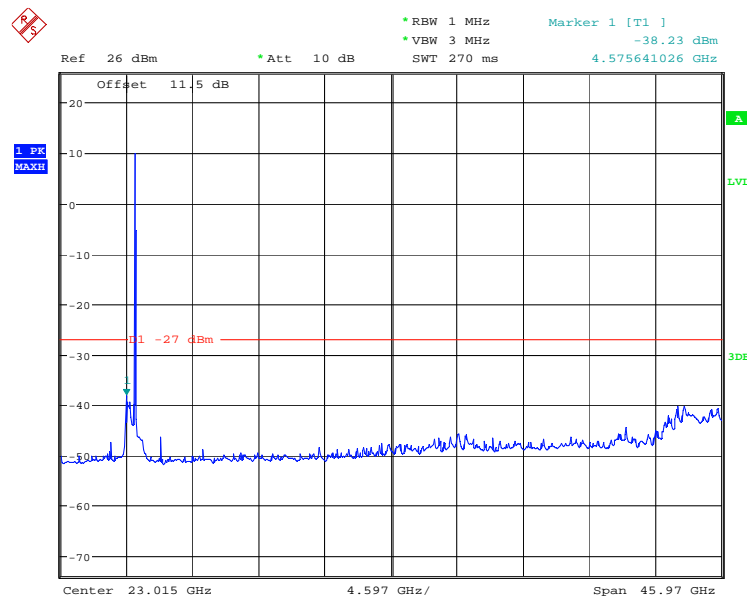
For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27dBm/MHz.

Test Results: Pass

Test Data:

Conducted Emission:

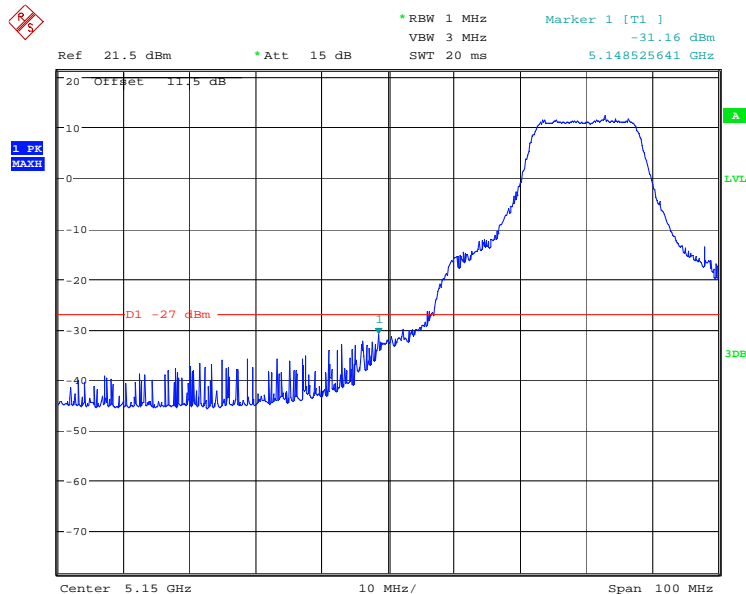
Full Span: TX frequency – 5240 MHz



Date: 2.JUN.2008 21:30:48

TX Frequency: 5.18 GHz

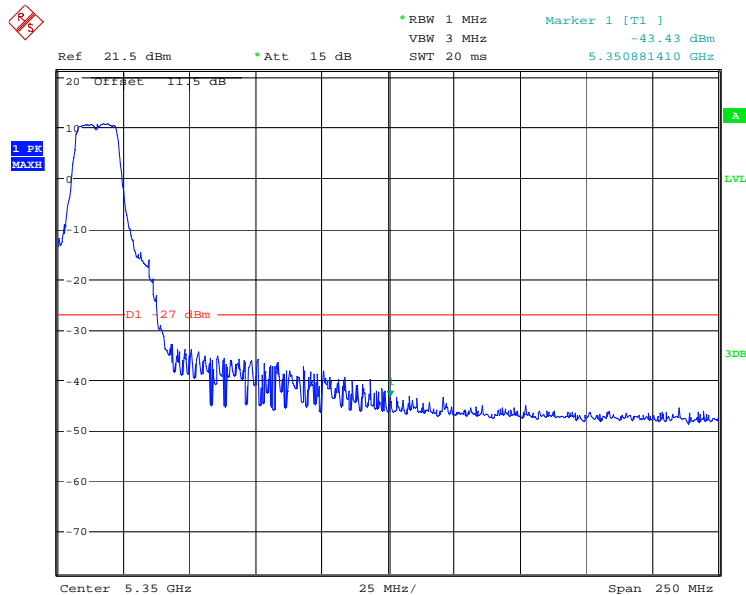
Antenna Gain: 9dBi External Omni Antenna



Date: 27.MAY.2008 15:08:52

TX Frequency: 5.24 GHz

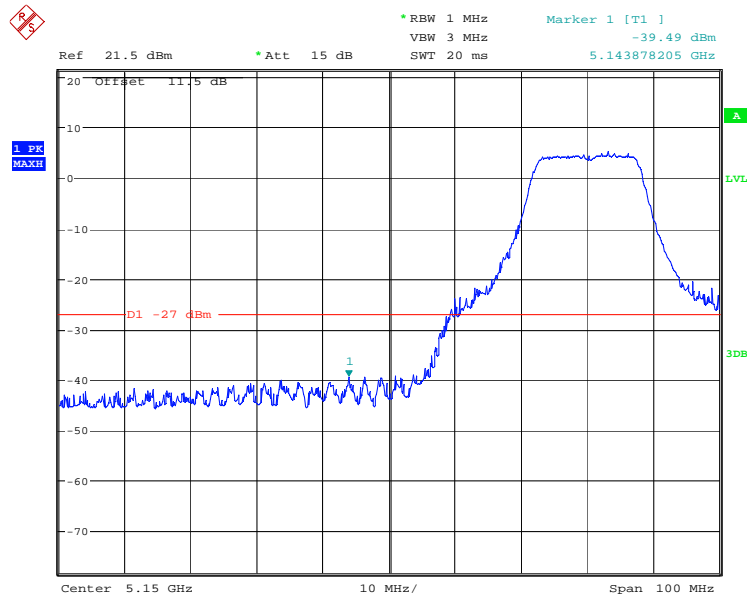
Antenna Gain: 9dBi External Omni Antenna



Date: 27.MAY.2008 15:22:00

TX Frequency: 5.18 GHz

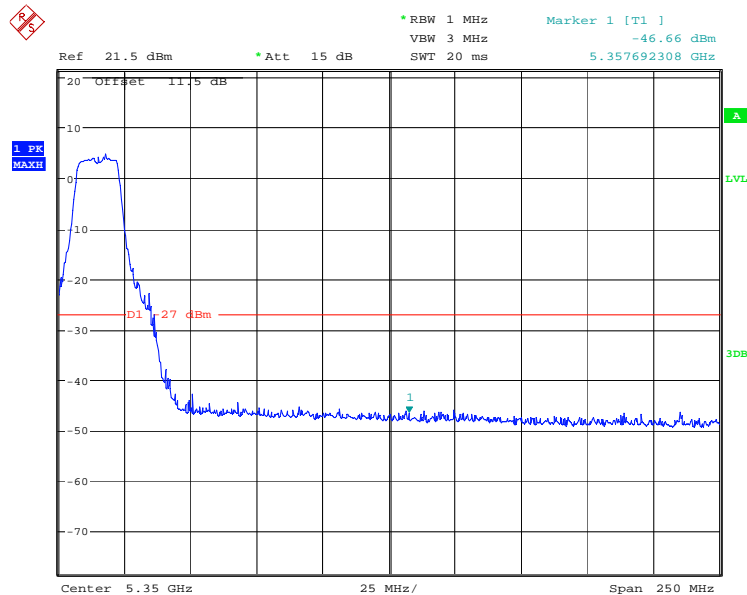
Antenna Gain: 16.8 dBi External Panel Antenna



Date: 27.MAY.2008 15:14:23

TX Frequency: 5.24 GHz

Antenna Gain: 16.8 dBi External Panel Antenna



Date: 27.MAY.2008 15:20:41

Radiated Emission:

9dBi External Omni Antenna (SPDJ60)

Frequency (MHz)	Antenna	Polarity (V/H)	RCVD Signal (dBμV)	Cable Loss (dBm)	Antenna Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
5150	Horn2	V	23.14	6.9	33.1	63.14	68.2	5.06	Peak
5350	Horn2	V	24.46	6.9	33.1	64.46	68.2	3.74	Peak

16.8 dBi External Panel Antenna (SPDN6W)

Frequency (MHz)	Antenna	Polarity (V/H)	RCVD Signal (dBμV)	Cable Loss (dBm)	Antenna Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
5150	Horn2	V	24.12	6.9	33.1	64.12	68.2	4.08	Peak
5350	Horn2	V	24.4	6.9	33.1	64.4	68.2	3.80	Peak

Note:

$$E = \frac{\sqrt{30P}}{3}, (-27\text{dBm EIRP} = 68.3 \text{ dB}\mu\text{V})$$

Clause 15.407(b)(4) Undesirable emission limits for transmitters in the 5.725-5.825GHz band

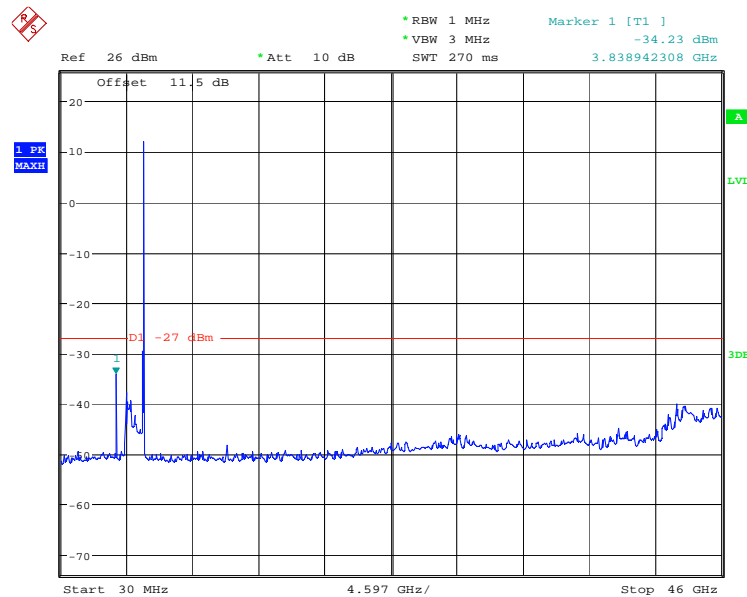
For transmitters operating in the 5.725–5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of –17dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of –27dBm/MHz.

Test Results: Pass

Test Data:

Conducted Emission:

Full Span: TX frequency – 5795 MHz

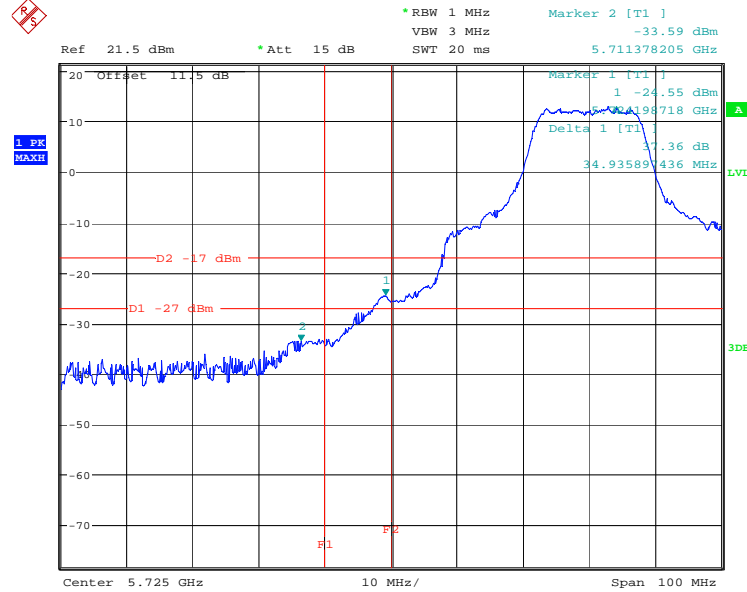


Date: 2.JUN.2008 21:26:24

Conducted Emission:

TX Frequency: 5.755 GHz

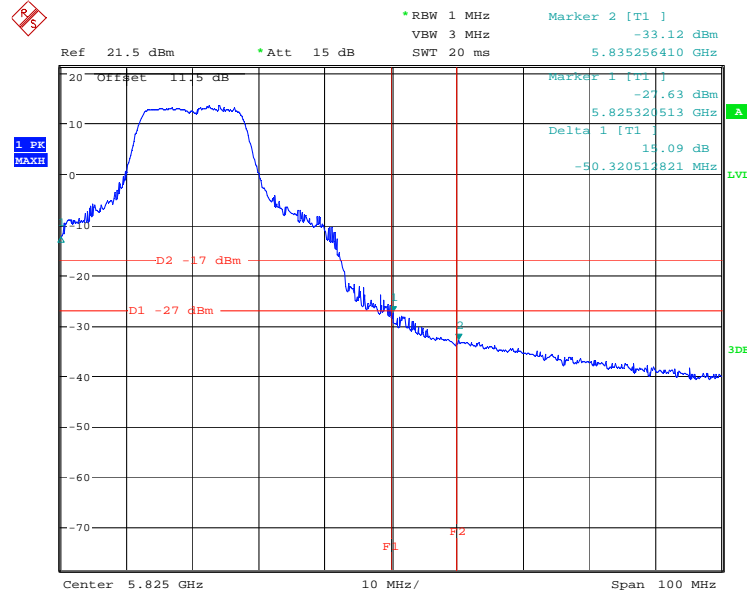
Antenna Gain: 9dBi External Omni Antenna



Date: 27.MAY.2008 15:53:57

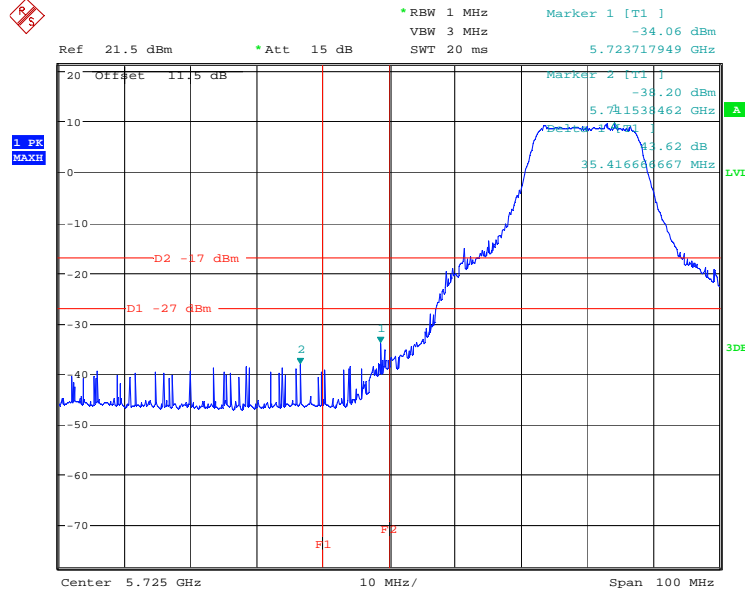
TX Frequency: 5.795 GHz

Antenna Gain: 9dBi External Omni Antenna



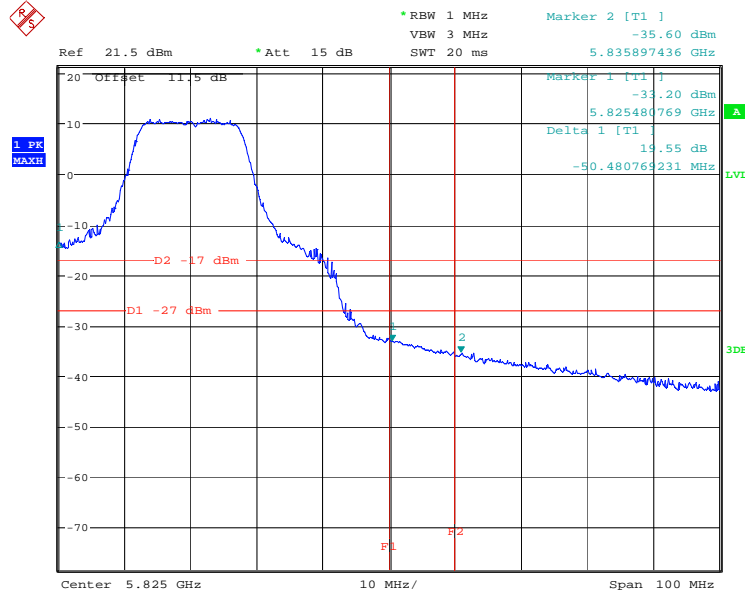
Date: 27.MAY.2008 15:58:16

TX Frequency: 5.755 GHz Antenna Gain: 16.8 dBi External Panel Antenna



Date: 27.MAY.2008 15:55:48

TX Frequency: 5.795 GHz Antenna Gain: 16.8 dBi External Panel Antenna



Date: 27.MAY.2008 15:57:12

Radiated Emission:

9dBi External Omni Antenna (SPDJ60)

Frequency (MHz)	Antenna	Polarity (V/H)	RCVD Signal (dBμV)	Cable Loss (dBm)	Antenna Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
5715	Horn2	V	24.50	7.2	34.0	65.7	68.20	2.50	Peak
5725	Horn2	V	33.45	7.2	34.0	74.65	78.20	3.55	Peak
5825	Horn2	V	30.15	7.3	34.3	71.75	78.20	6.45	Peak
5835	Horn2	V	24.55	7.3	34.3	66.15	68.20	2.05	Peak

16.8 dBi External Panel Antenna (SPDN6W)

Frequency (MHz)	Antenna	Polarity (V/H)	RCVD Signal (dBμV)	Cable Loss (dBm)	Antenna Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
5715	Horn2	V	26.74	7.2	34.0	67.94	68.20	0.26	Peak
5725	Horn2	V	31.79	7.2	34.0	72.99	78.20	5.21	Peak
5825	Horn2	V	29.8	7.3	34.3	71.4	78.20	6.80	Peak
5835	Horn2	V	26.03	7.3	34.3	67.63	68.20	0.57	Peak

Note:

$$E = \frac{\sqrt{30P}}{3}, (-27\text{dBm EIRP} = 68.3 \text{ dB}\mu\text{V}; -17\text{dBm EIRP} = 78.3 \text{ dB}\mu\text{V})$$

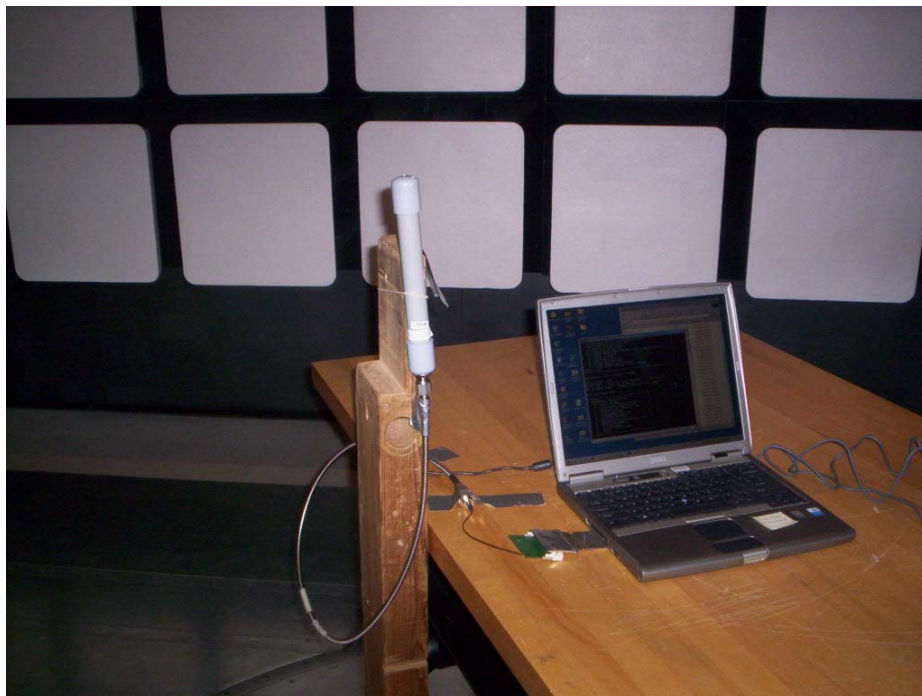
Appendix B : Setup Photographs

Conducted Emissions Setup:



Spurious Emissions Setup:

CM9 Card with 9 dBi External Omni Antenna

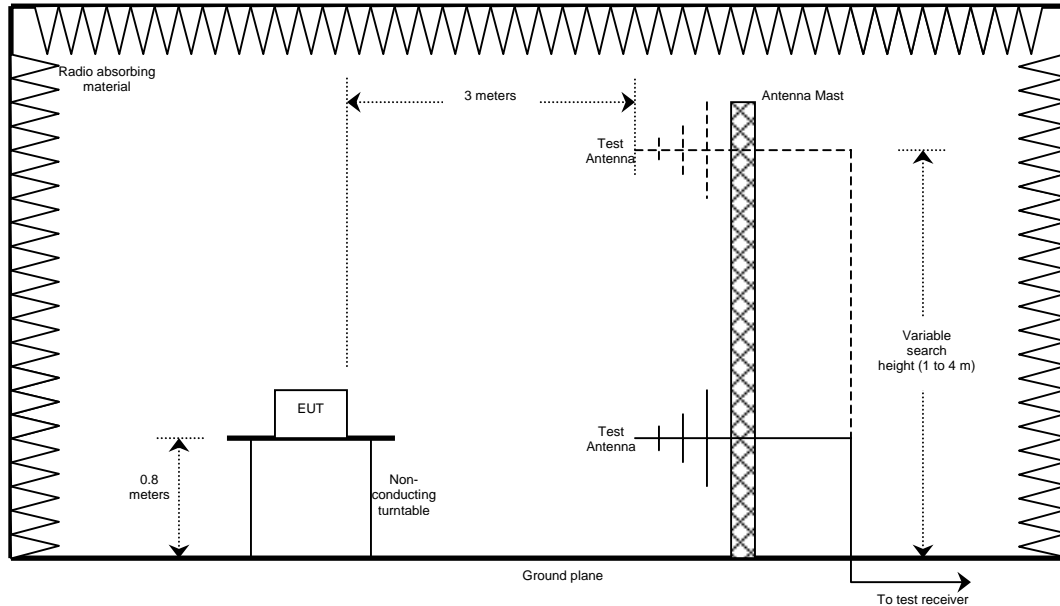


CM9 Card with 16.8 dBi External Panel Antenna

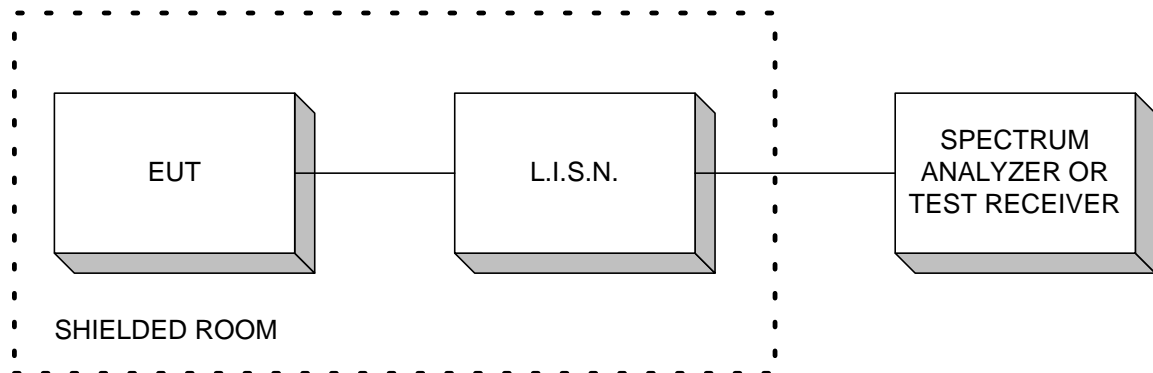


Appendix C : Block Diagram of Test Setups

Radiated Emissions above 30MHz Test Site



AC Power Line Conducted Emissions



Conducted Measurements

