

FCC RADIO TEST REPORT

according to

47 CFR FCC Part 27 M

Equipment : Notebook Computer
Model No. : ZG5, Aspire one
Brand Name : ACER, GATEWAY, PACKARD BELL
Filing Type : Existing Change
Applicant : Acer Incorporated.
8F, 88, Sec.1, Hsin Tai Wu Rd. Hsichih Taipei Hsien 221
Taiwan, R.O.C.
FCC ID : HLZZG5WIIM
Manufacturer : Quanta Computer Inc.
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No.4, Wen Ming 1st Street, Kuei Shan Hsiang, Taoyuan Shien, Taiwan, R.O.C.333
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North to Songsheng. Road, Songjiang Industrial Zone, Shanghai, P.R. China
B#, No.1 South Rongteng Road, Songjiang Export Processing Zone, Shanghai, P.R. China
Standard Factory, South to Valqua, Rongxin Road, Songjiang Export Processing Zone,
Shanghai, P.R. China
C#, No.1 South Rongteng Road, Songjiang Export Processing Zone, Shanghai, P.R. China
No.6, Lane 66 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
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2F, C Building, XinYe Rd, Export Processing District In Torch, Zhongshan, Guangdong, P.R.C.
Received Date : Nov. 20, 2008
Final Test Date : Dec. 30, 2008

Statement

Test result included is only for the IEEE 802.16e part of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 27 Subpart M**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



Testing Laboratory
1190

ILAC MRA

SPORTON International Inc.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

SPORTON International Inc.

Report Format Version: a

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History of This Test Report

Original Issue Date: Dec. 30, 2008

Report No.: FW870804-01

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

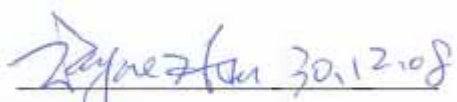
CERTIFICATE OF COMPLIANCE

according to

47 CFR FCC Part 27 M

Equipment : Notebook Computer
Model No. : ZG5, Aspire one
Brand Name : ACER, GATEWAY, PACKARD BELL
Applicant : Acer Incorporated.
8F, 88, Sec.1, Hsin Tai Wu Rd. Hsichih Taipei
Hsien 221 Taiwan, R.O.C.

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Nov. 20, 2008 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Wayne Hsu

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1 SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 27 Subpart M				
Part	Rule Section	Description of Test	Result	Under Limit
3.1	27.50 / 2.1046	Maximum Peak Conducted Output Power	Complies	10.12 dB
3.2	27.53 / 2.1053	Radiated Spurious Emissions	Complies	17.74 dB
3.3	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Peak Conducted Output Power	±0.8dB	Confidence levels of 95%
Occupied Emissions Bandwidth	±8.5×10 ⁻⁸	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

2 GENERAL INFORMATION

2.1 Product Details

EUT is a Notebook Computer with IEEE 802.16e radio function. Only the radio detail of WiMax is shown in the table below. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

Items	Description
Modulation	OFDMA (QPSK / 16QAM)
Frequency Range	2496~2690 MHz
Channel BandWidth	5MHz / 10MHz
Conducted Output Power	5MHz : 22.88 dBm (QPSK) ; 5MHz : 22.72 dBm (16QAM) 10MHz : 21.83 dBm (QPSK) ; 10MHz : 21.75 dBm (16QAM)

2.2 Table for Filed Antenna

Ant.	Antenna Type	Connector	Gain (dBi)	Remark
A	PIFA Antenna	I-PEX	2.77	TX / RX

2.3 Table for Carrier Frequencies

Frequency Band	Channel	Frequency	BandWidth
2496~2690 MHz	Low Channel	2501 MHz	5MHz
	Middle Channel	2593 MHz	5MHz
	High Channel	2685 MHz	5MHz
	Low Channel	2501 MHz	10MHz
	Middle Channel	2593 MHz	10MHz
	High Channel	2685 MHz	10MHz

2.4 Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Antenna
Maximum Peak Conducted Output Power	5MHz (16QAM) (QPSK) / 10MHz (16QAM) (QPSK)	NA
Radiated Spurious Emissions 9kHz ~10 th Harmonic	5MHz (16QAM) / 10MHz (QPSK)	1

Note: Performed the Radiated Spurious Emissions worst configuration for 5MHz (16QAM) and 10MHz (QPSK) during all test items in this report.

2.4 Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH03-HY	SAC	Hwa Ya	101377	IC 4086B-1	-
TH01-HY	OVEN Room	Hwa Ya	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

2.5 Table for Supporting Units

The EUT was tested alone.

2.6 Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

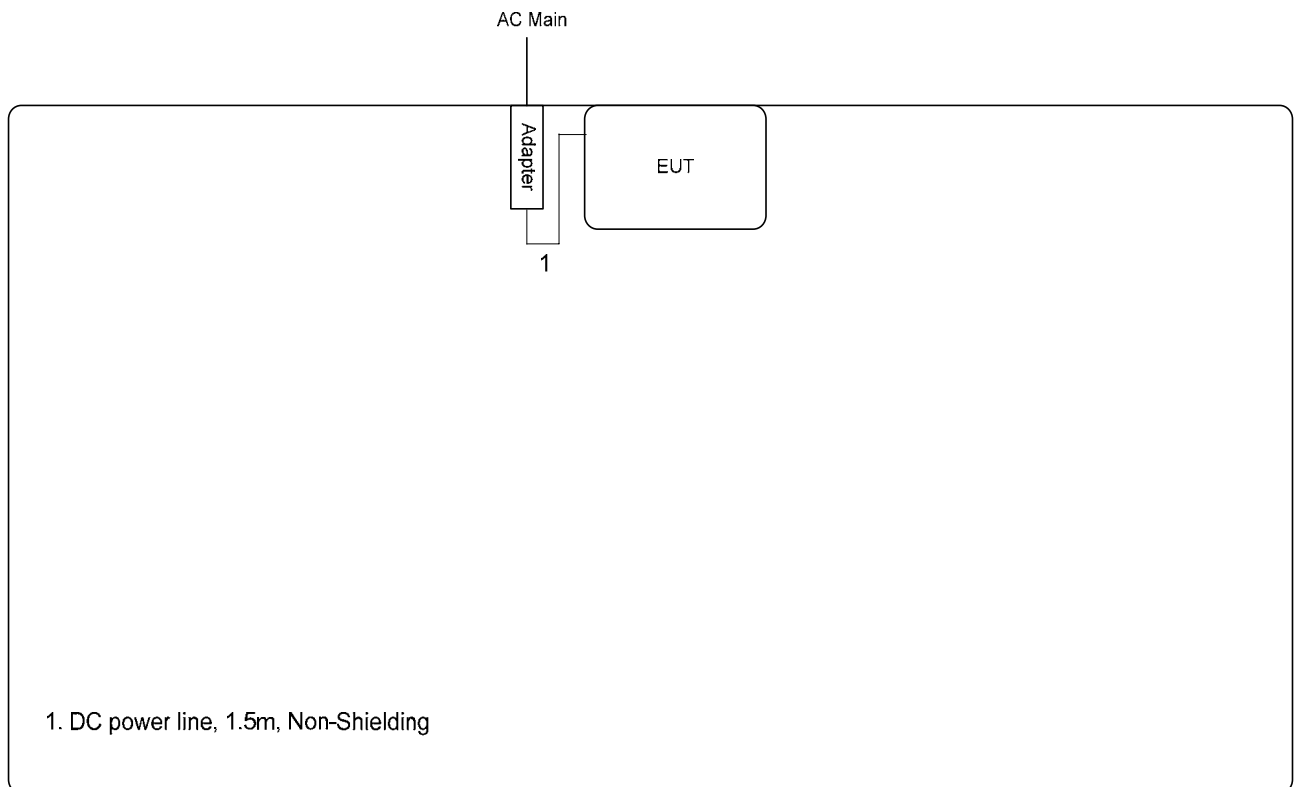
Power Parameters of IEEE 802.16e

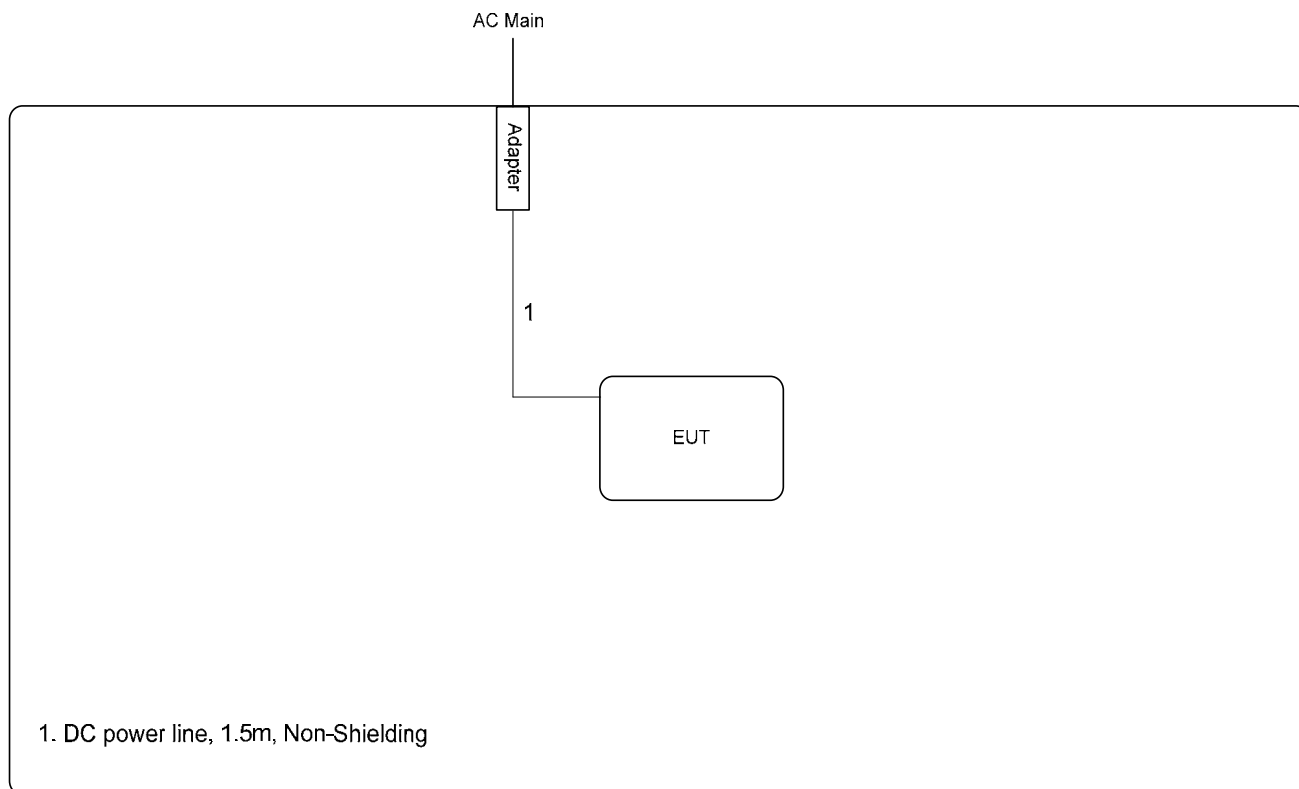
Bandwidth	5MHz (16QAM)			10MHz (QPSK)		
Frequency	2501 MHz	2593 MHz	2685 MHz	2501 MHz	2593 MHz	2687.5 MHz
Tx Power	-12.5	-12.5	-12.5	-7.5	-5.5	-7

2.7 Test Configurations

2.7.1 Radiation Emissions Test Configuration

For radiated emissions 9kHz~1GHz



For radiated emissions above 1GHz

3 TEST RESULT

3.1 Maximum Conducted Output Power Measurement

3.1.1 Limit

For systems using digital modulation in the 2500 ~ 2690MHz, the limit for peak output power is 2W.

3.1.2 Measuring Instruments and Setting

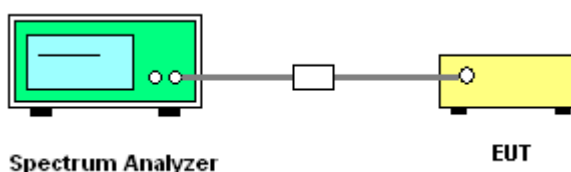
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz
VB	3000 kHz
Detector	rms
Trace	Video Averaging
Sweep Time	1s

3.1.3 Test Procedures

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

3.1.4 Test Setup Layout



3.1.5 Test Deviation

There is no deviation with the original standard.

3.1.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.1.7 Test Result of Maximum Conducted Output Power

Test date	Dec. 30, 2008	Test Site No.	TH01-HY
Temperature	28	Humidity	58%
Test Engineer	Murphy	Configurations	802.16e

Configuration 5MHz / QPSK

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
Low Channel	2501 MHz	22.88	33 dBm	Complies
Middle Channel	2593 MHz	22.33	33 dBm	Complies
High Channel	2685 MHz	22.55	33 dBm	Complies

Configuration 5MHz / 16QAM

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
Low Channel	2501 MHz	22.72	33 dBm	Complies
Middle Channel	2593 MHz	22.20	33 dBm	Complies
High Channel	2685 MHz	22.32	33 dBm	Complies

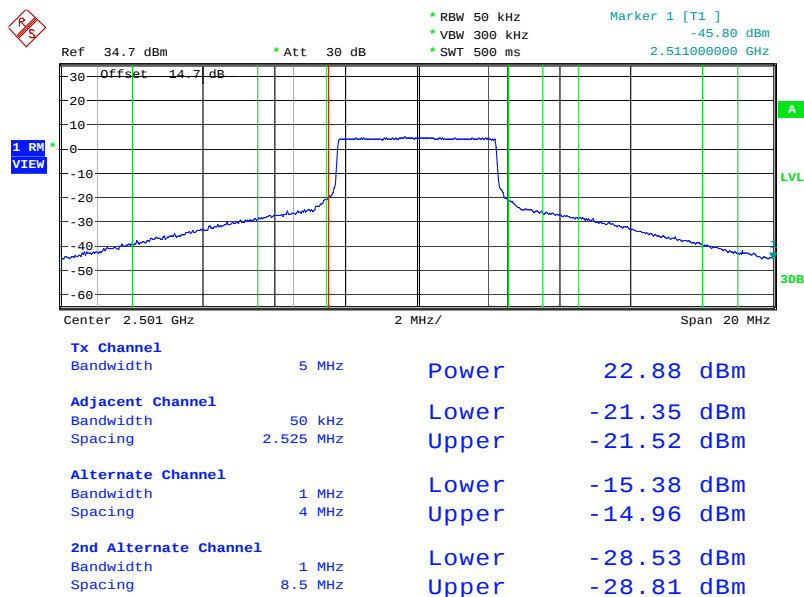
Configuration 10MHz / QPSK

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
Low Channel	2501 MHz	21.83	33 dBm	Complies
Middle Channel	2593 MHz	21.73	33 dBm	Complies
High Channel	2685 MHz	21.49	33 dBm	Complies

Configuration 10MHz / 16QAM

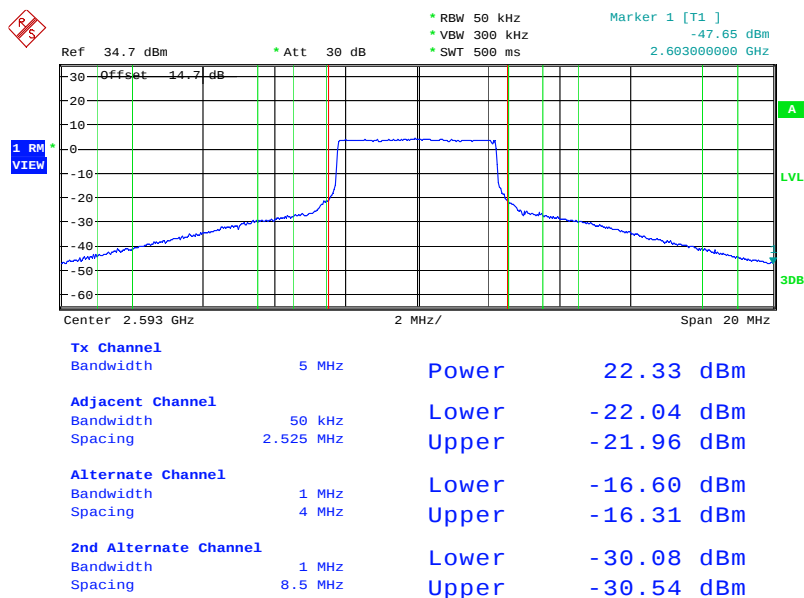
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
Low Channel	2501 MHz	21.64	33 dBm	Complies
Middle Channel	2593 MHz	21.75	33 dBm	Complies
High Channel	2685 MHz	21.36	33 dBm	Complies

Configuration 5MHz / QPSK / 2501 MHz



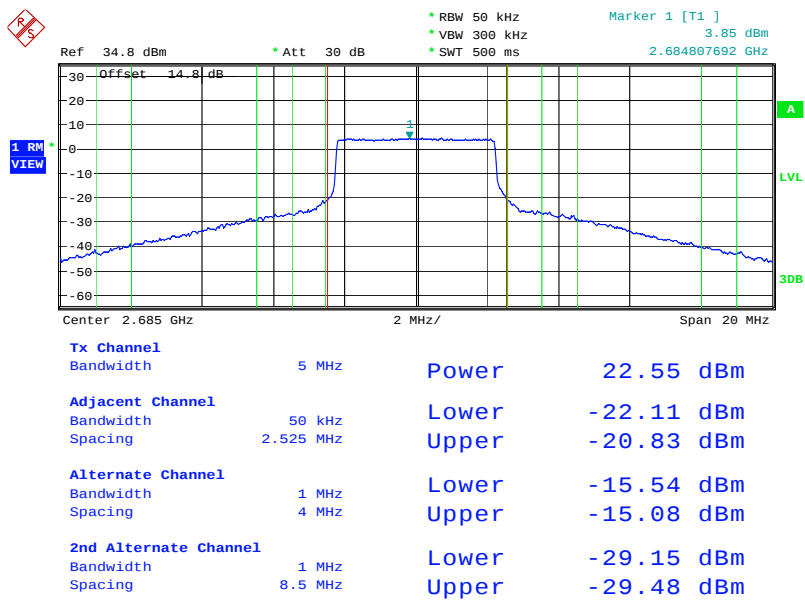
Date: 30.DEC.2008 03:27:12

Configuration 5MHz / QPSK / 2593 MHz



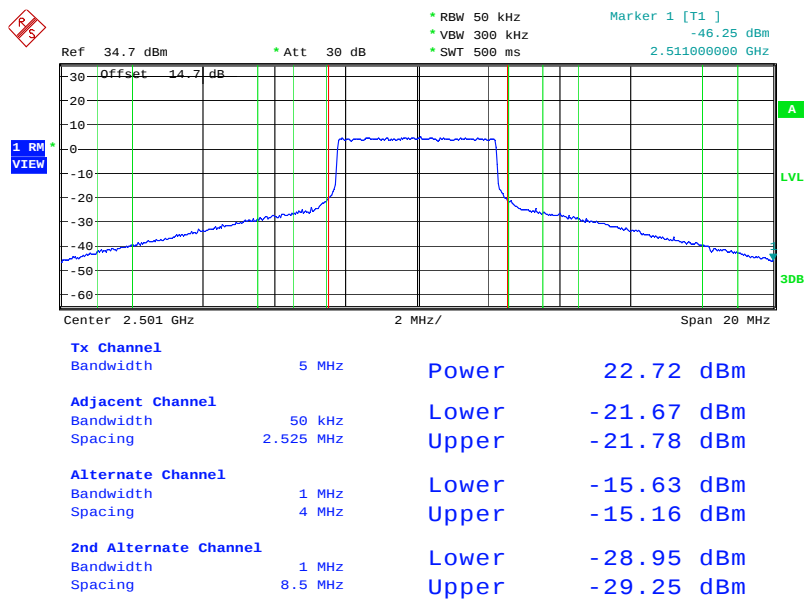
Date: 30.DEC.2008 02:59:59

Configuration 5MHz / QPSK / 2685 MHz



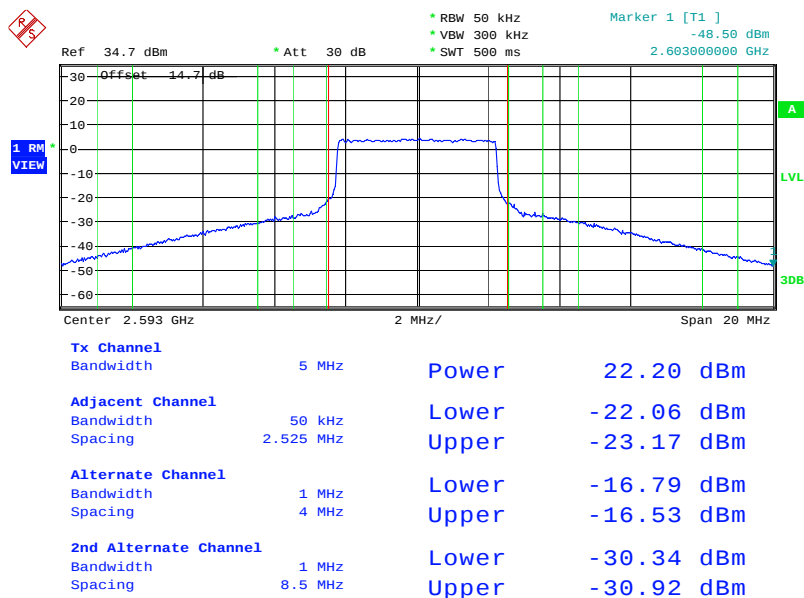
Date: 30.DEC.2008 02:15:57

Configuration 5MHz / 16QAM / 2501 MHz



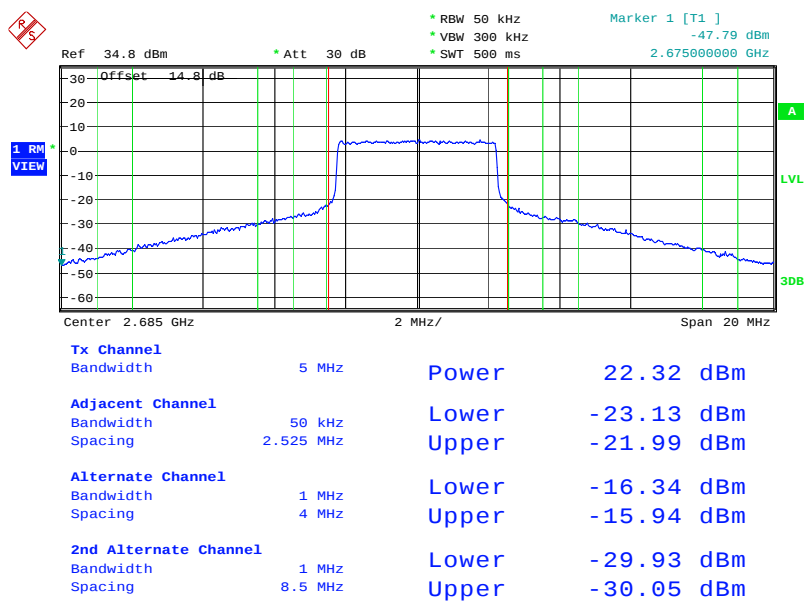
Date: 30.DEC.2008 03:30:00

Configuration 5MHz / 16QAM/ 2593 MHz



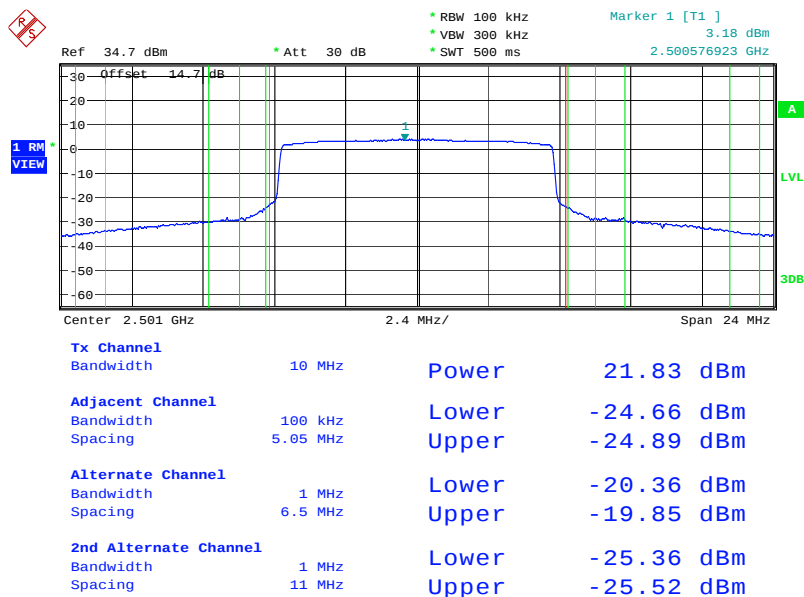
Date: 30.DEC.2008 02:55:31

Configuration 5MHz / 16QAM / 2685 MHz



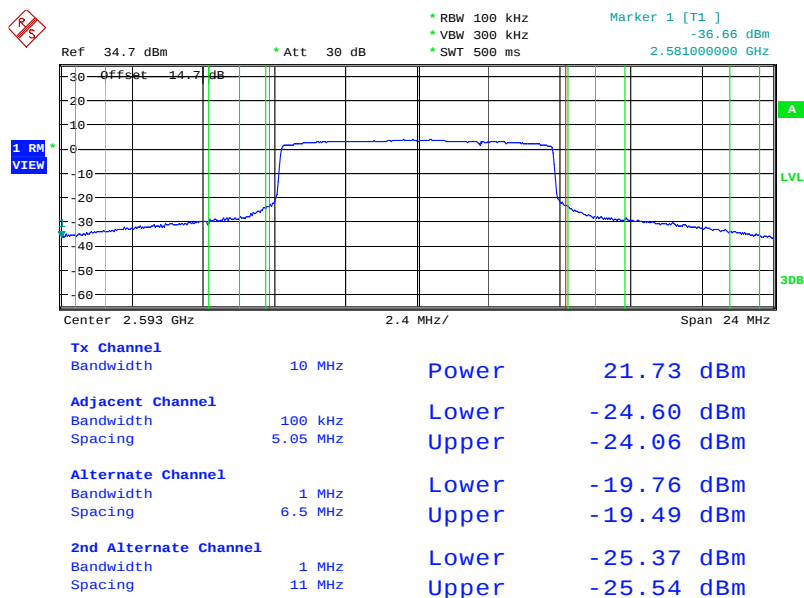
Date: 30.DEC.2008 02:51:04

Configuration 10MHz / QPSK / 2501 MHz



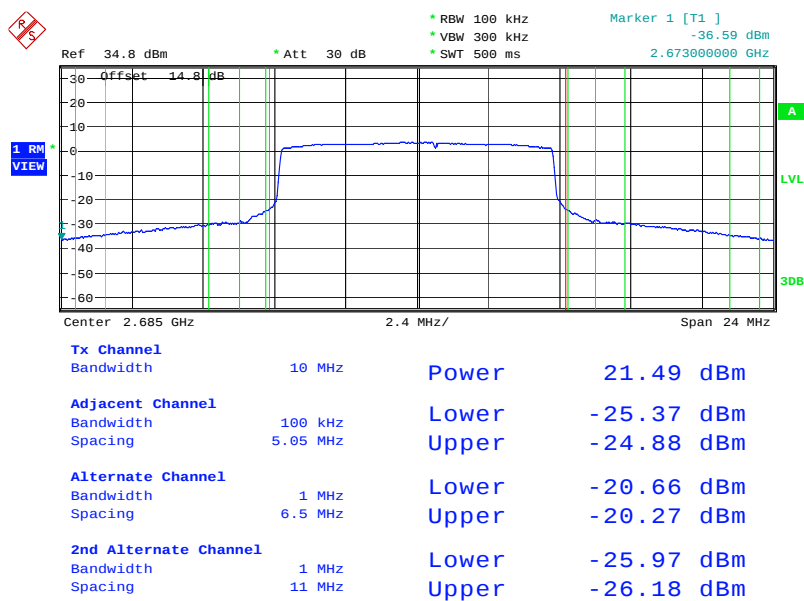
Date: 30.DEC.2008 01:26:11

Configuration 10MHz / QPSK / 2593 MHz



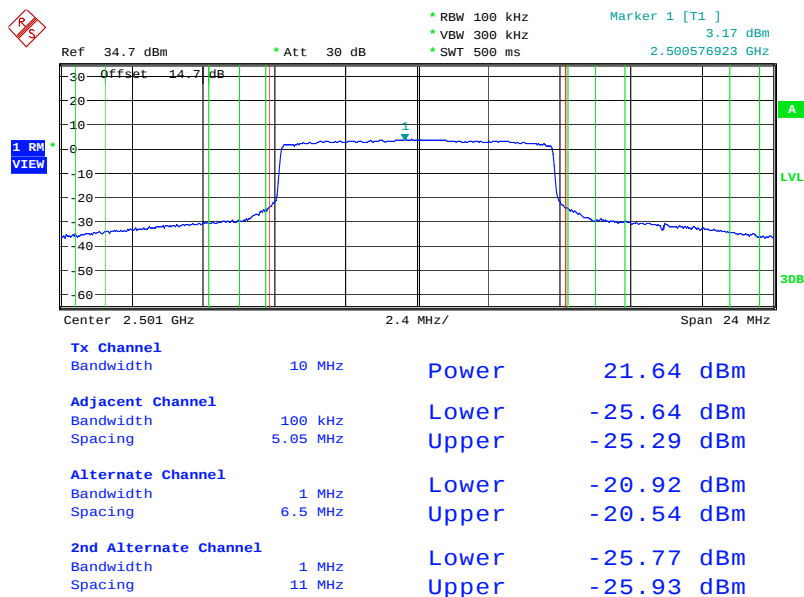
Date: 30.DEC.2008 01:51:49

Configuration 10MHz / QPSK / 2685 MHz



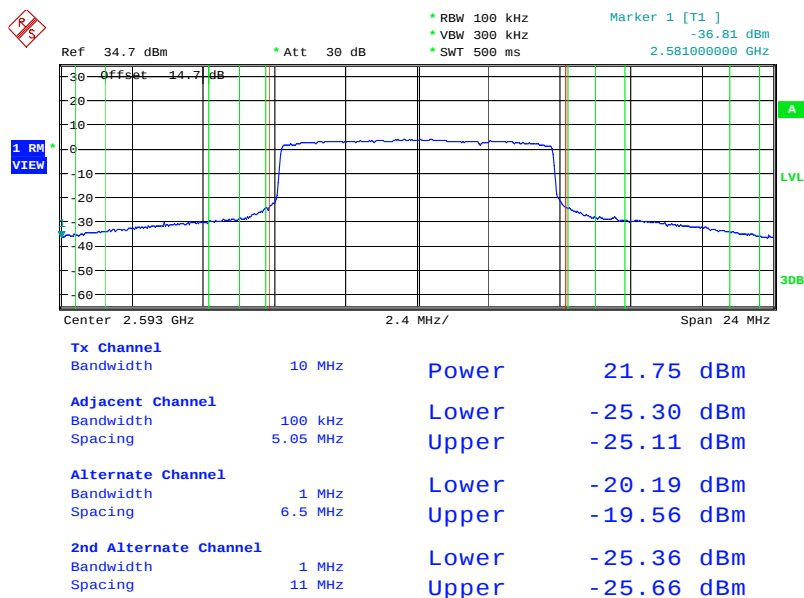
Date: 30.DEC.2008 01:58:15

Configuration 10MHz / 16QAM / 2501 MHz



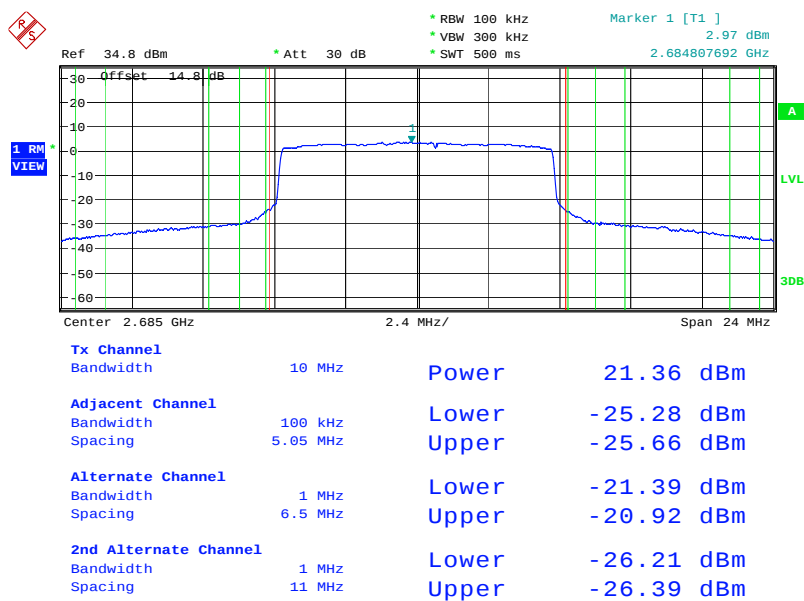
Date: 30.DEC.2008 01:33:27

Configuration 10MHz / 16QAM / 2593 MHz



Date: 30.DEC.2008 01:46:26

Configuration 10MHz / 16QAM / 2685 MHz



Date: 30.DEC.2008 02:01:57

3.2 Radiated Emissions Measurement

3.2.1 Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (p) by a factor of at least $43 + 10 \log (p)$ dB.

3.2.2 Measuring Instruments and Setting

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	30 MHz
Stop Frequency	10th carrier harmonic
RB / VB	1MHz / 1MHz

3.2.3 Test Procedures

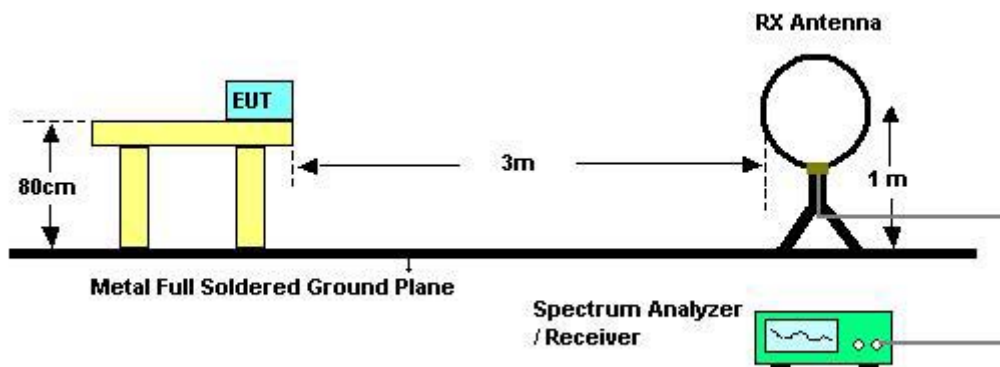
The EUT was set to transmit at the low, mid and high channels of the transmitter frequency range at its maximum power level. The EUT was rotated about 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission.

A calibrated antenna source was positioned in place of the EUT and the previously recorded signal was duplicated.

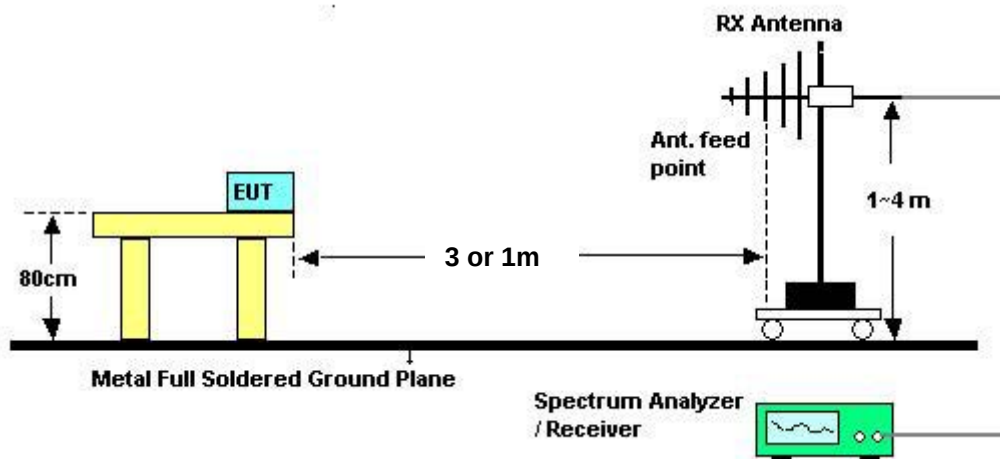
The maximum EIRP of the emission was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. Harmonic emissions up to the 10th or 40GHz, whichever was the lesser, were investigated.

3.2.4 Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.

Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.2.5 Test Deviation

There is no deviation with the original standard.

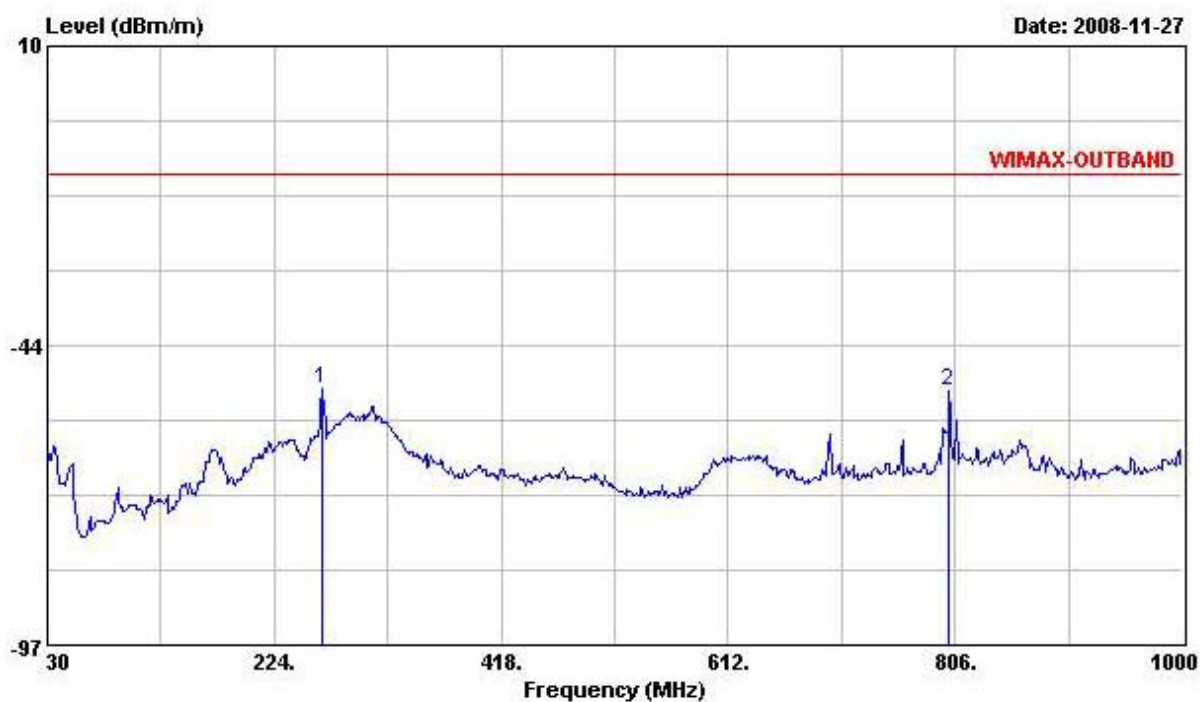
3.2.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7 Results of Radiated Emissions (30MHz~1GHz)

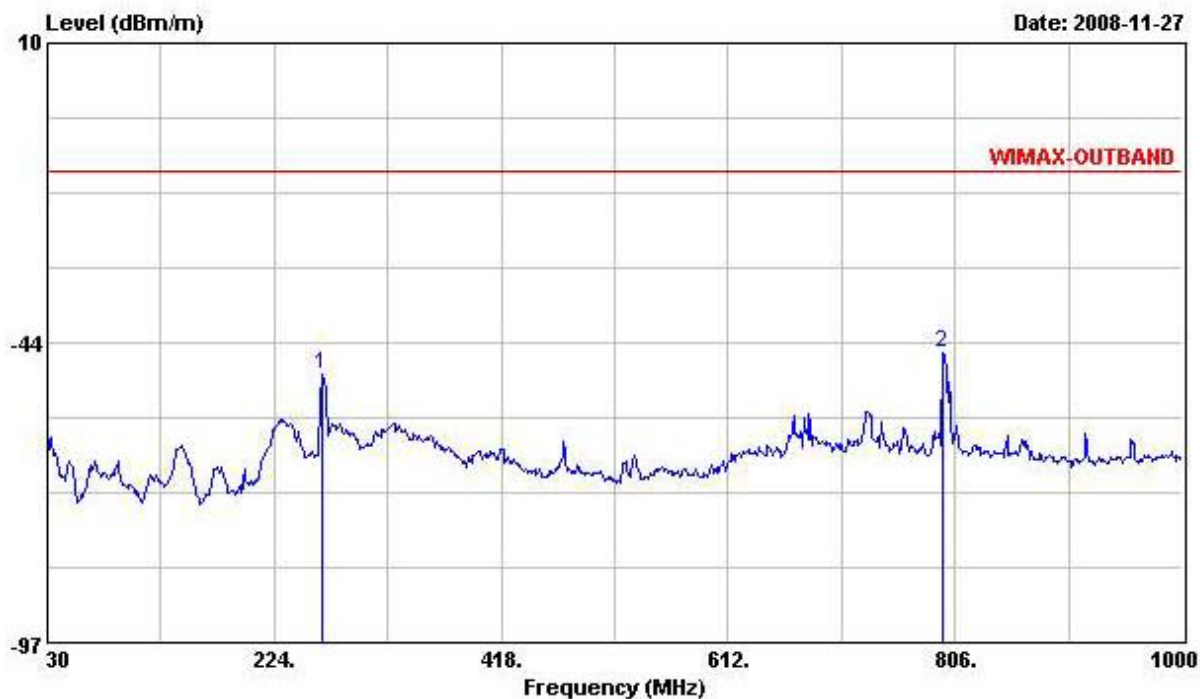
Test date	Nov. 27, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	5MHz / 16QAM / 2501 MHz

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB
1	264.740	-51.24	-38.24	-13.00	-51.24	0.00	0.00	0.00 Peak
2	801.150	-51.72	-38.72	-13.00	-51.72	0.00	0.00	0.00 Peak

Vertical



Emission

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBm/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBm/m	dBm	dB	dB	
1	265.710	-49.06	-36.06	-13.00	-49.06	0.00	0.00	0.00 Peak
2	796.300	-45.43	-32.43	-13.00	-45.43	0.00	0.00	0.00 Peak

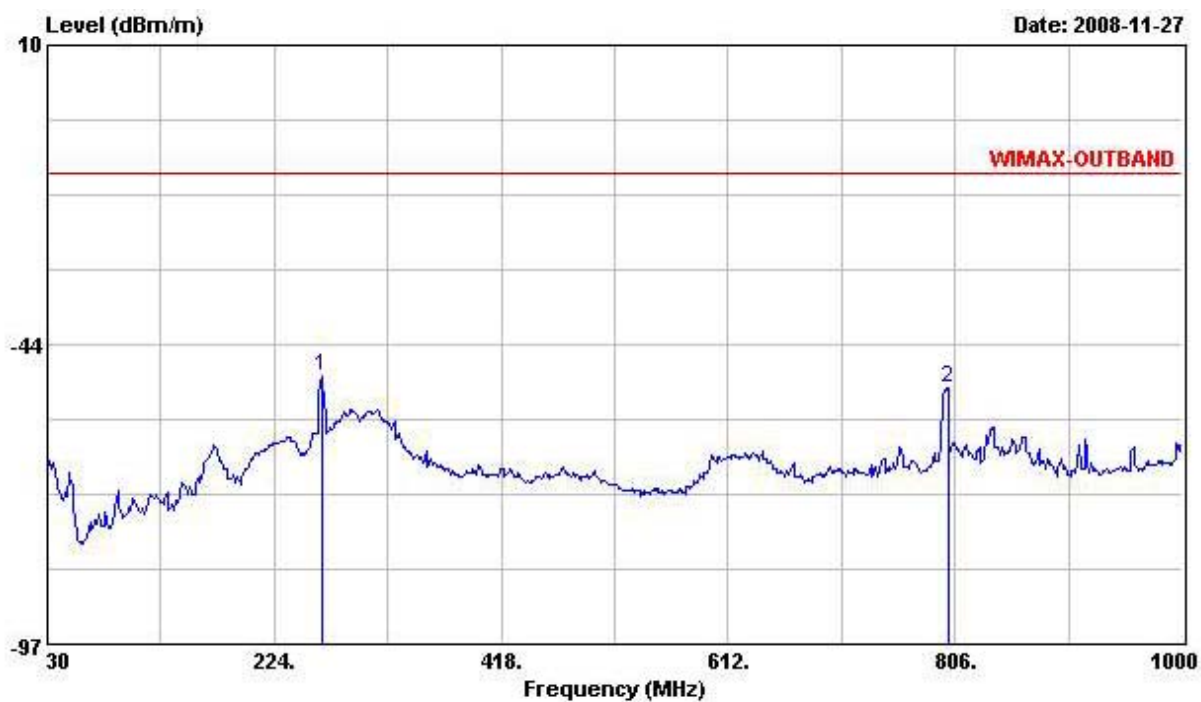
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

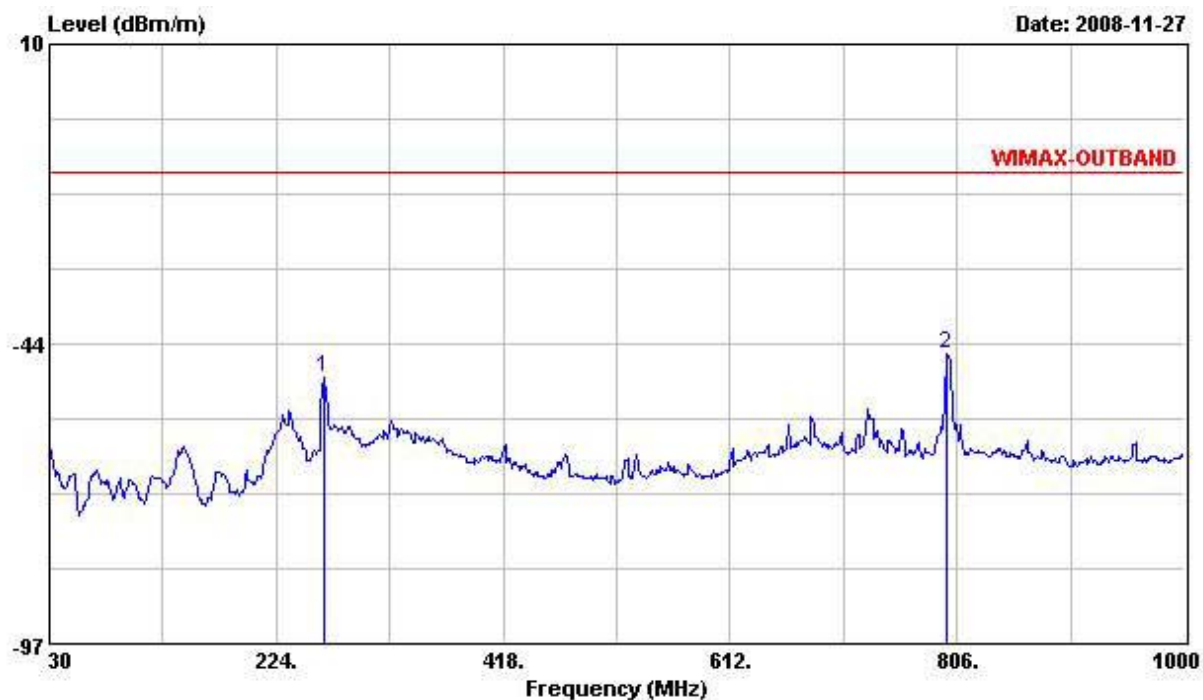
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test date	Nov. 27, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	5MHz / 16QAM / 2593 MHz

Horizontal

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBm/m	Limit	Line	Level	Loss	Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB
1	264.740	-48.97	-35.97	-13.00	-48.97	0.00	0.00	0.00 Peak
2	800.180	-51.27	-38.27	-13.00	-51.27	0.00	0.00	0.00 Peak

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	264.740	-49.53	-36.53	-13.00	-49.53	0.00	0.00	0.00	Peak
2	797.270	-45.37	-32.37	-13.00	-45.37	0.00	0.00	0.00	Peak

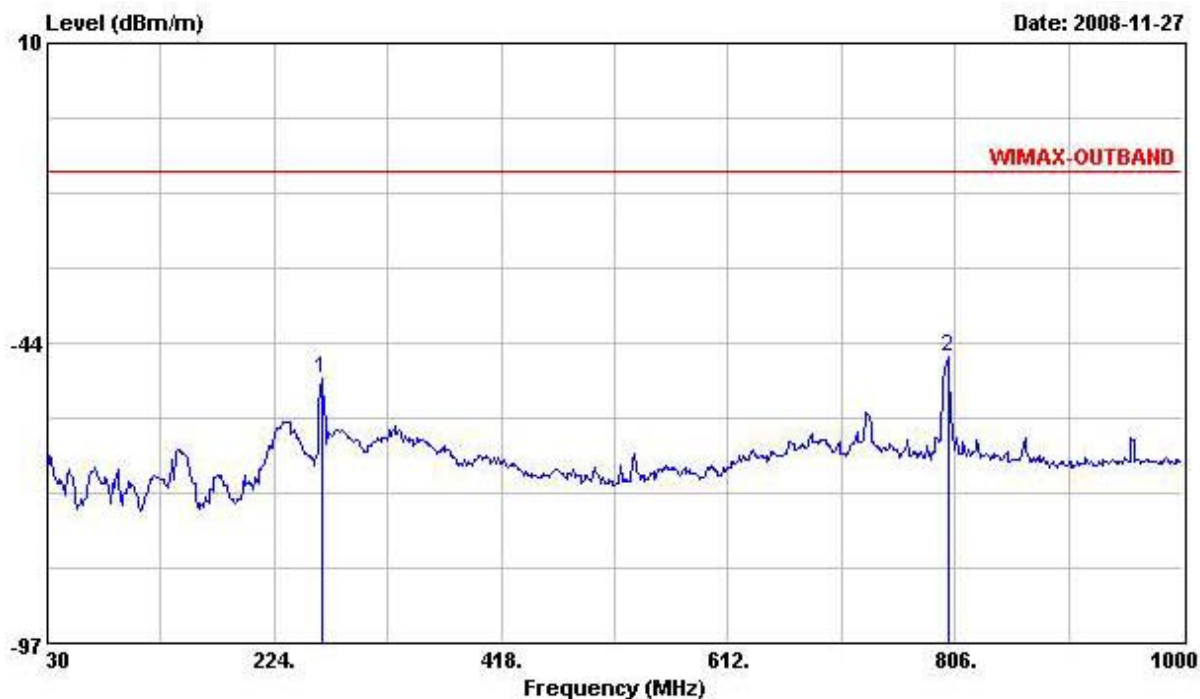
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	264.740	-49.73	-36.73	-13.00	-49.73	0.00	0.00	0.00	Peak
2	800.180	-46.09	-33.09	-13.00	-46.09	0.00	0.00	0.00	Peak

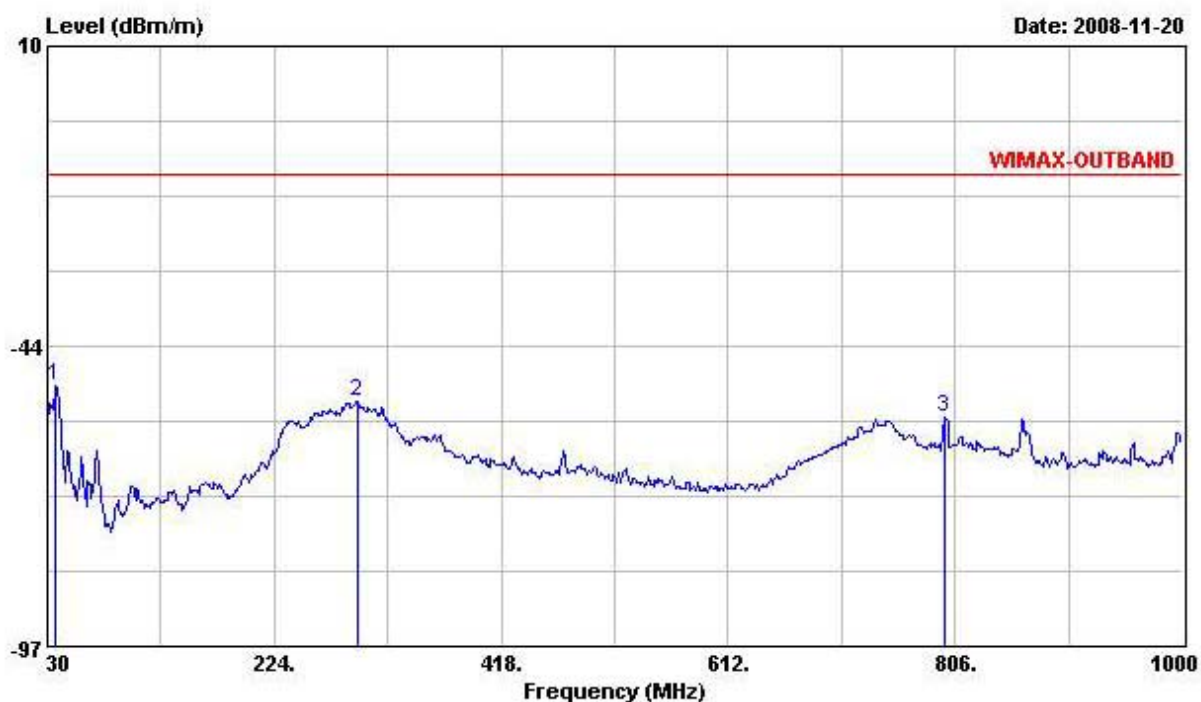
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

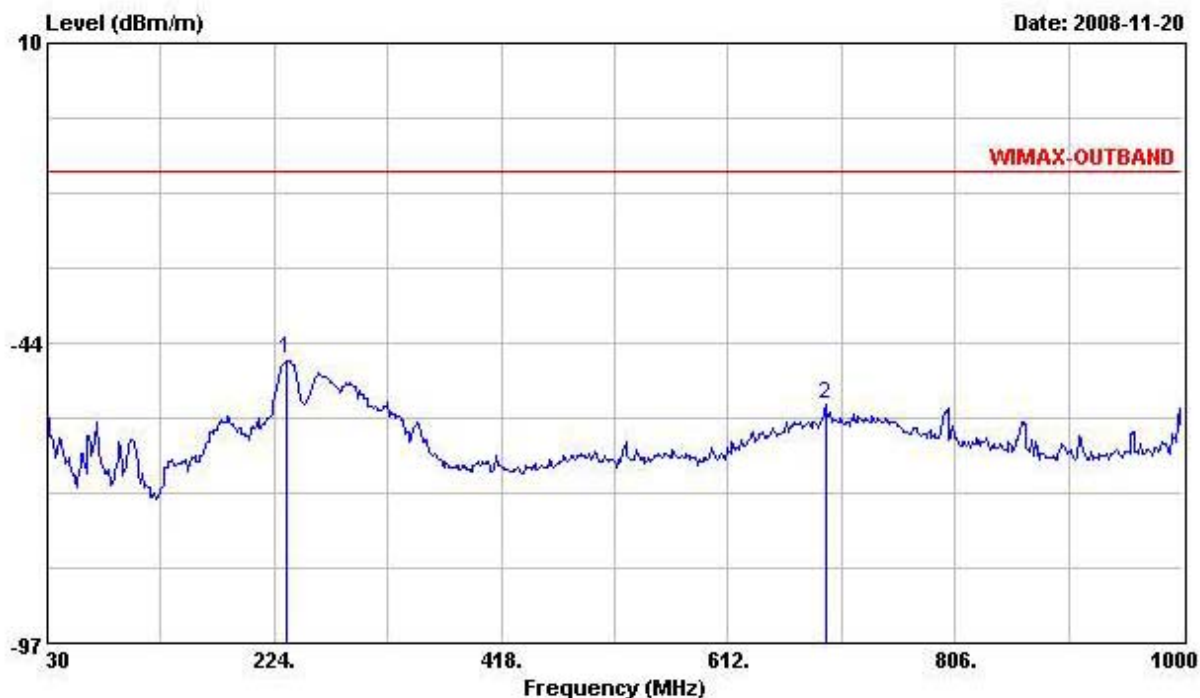
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test date	Nov. 20, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	10MHz / QPSK / 2501 MHz

Horizontal

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBm/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBm/m	dBm	dB	dB	
1	36.790	-50.58	-37.58	-13.00	-50.58	0.00	0.00	0.00 Peak
2	295.780	-53.23	-40.23	-13.00	-53.23	0.00	0.00	0.00 Peak
3	797.270	-56.16	-43.16	-13.00	-56.16	0.00	0.00	0.00 Peak

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	234.670	-46.49	-33.49	-13.00	-46.49	0.00	0.00	0.00	Peak
2	695.420	-54.56	-41.56	-13.00	-54.56	0.00	0.00	0.00	Peak

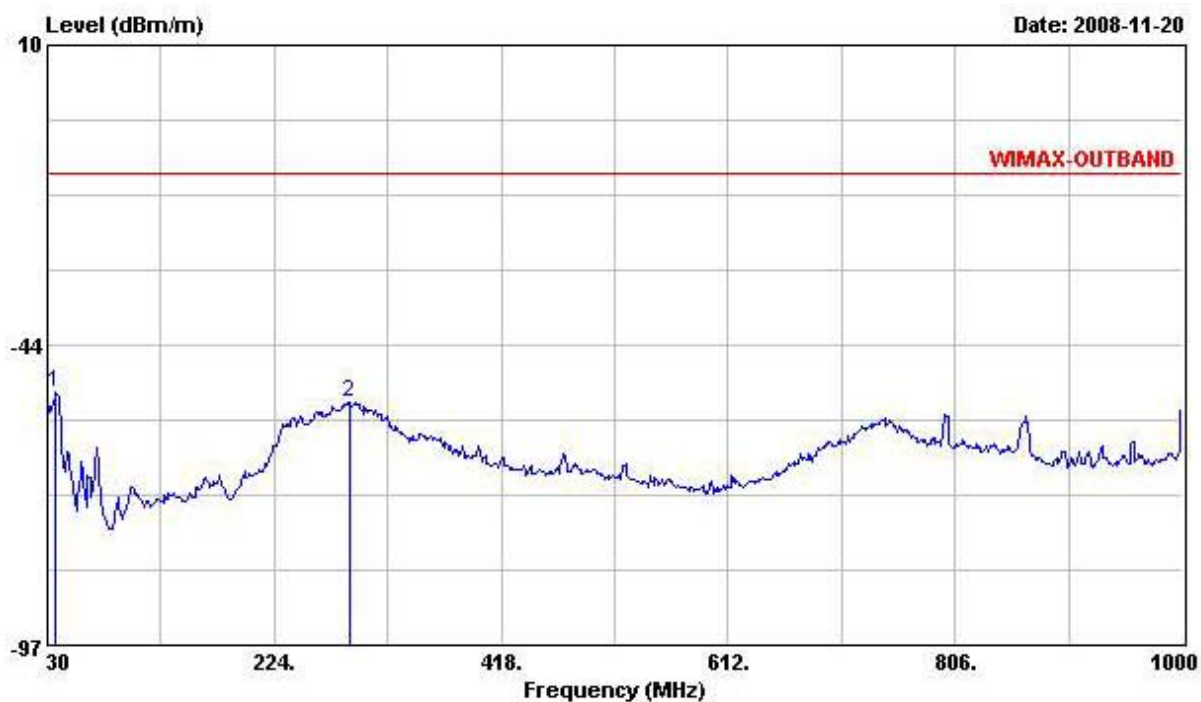
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

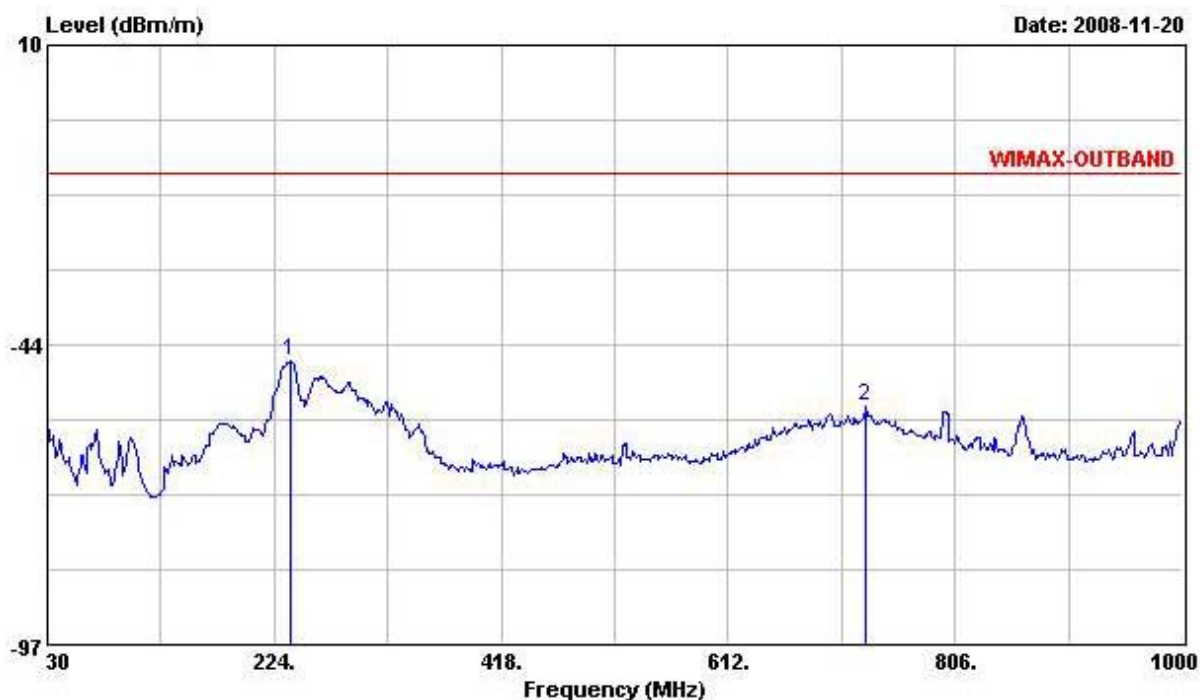
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test date	Nov. 20, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	10MHz / QPSK / 2593 MHz

Horizontal

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB
1	36.790	-52.08	-39.08	-13.00	-52.08	0.00	0.00	0.00 Peak
2	288.020	-53.65	-40.65	-13.00	-53.65	0.00	0.00	0.00 Peak

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	237.580	-46.47	-33.47	-13.00	-46.47	0.00	0.00	0.00	Peak
2	730.340	-54.55	-41.55	-13.00	-54.55	0.00	0.00	0.00	Peak

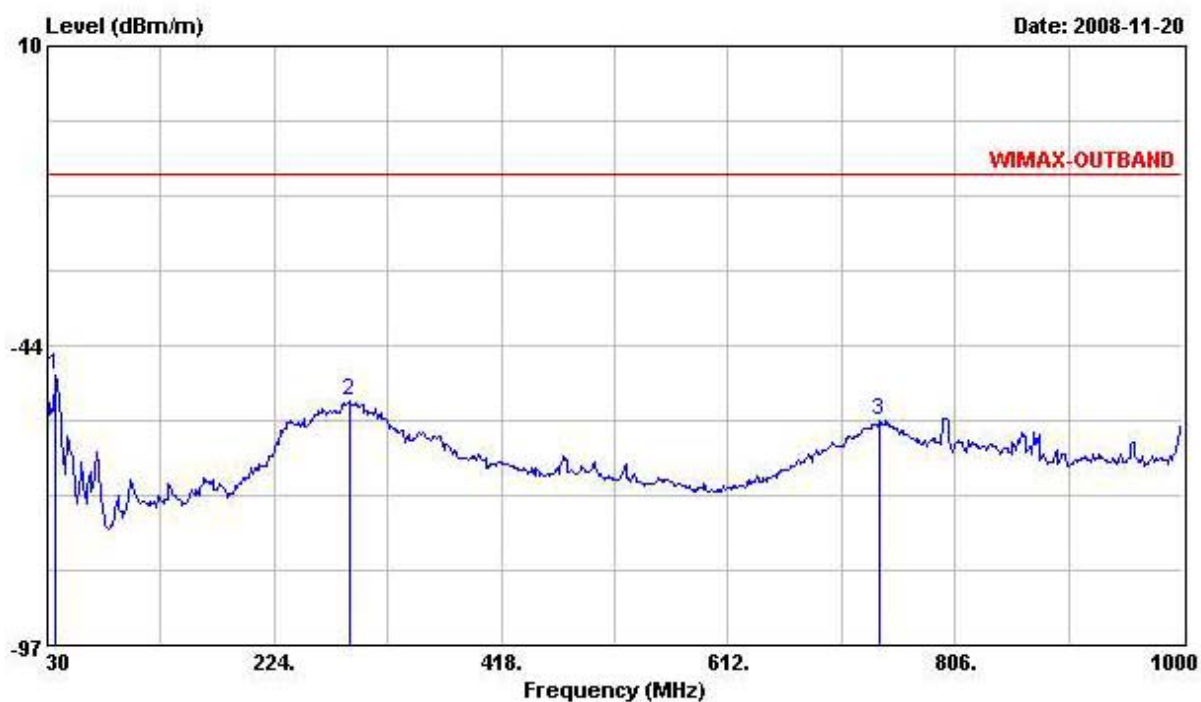
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

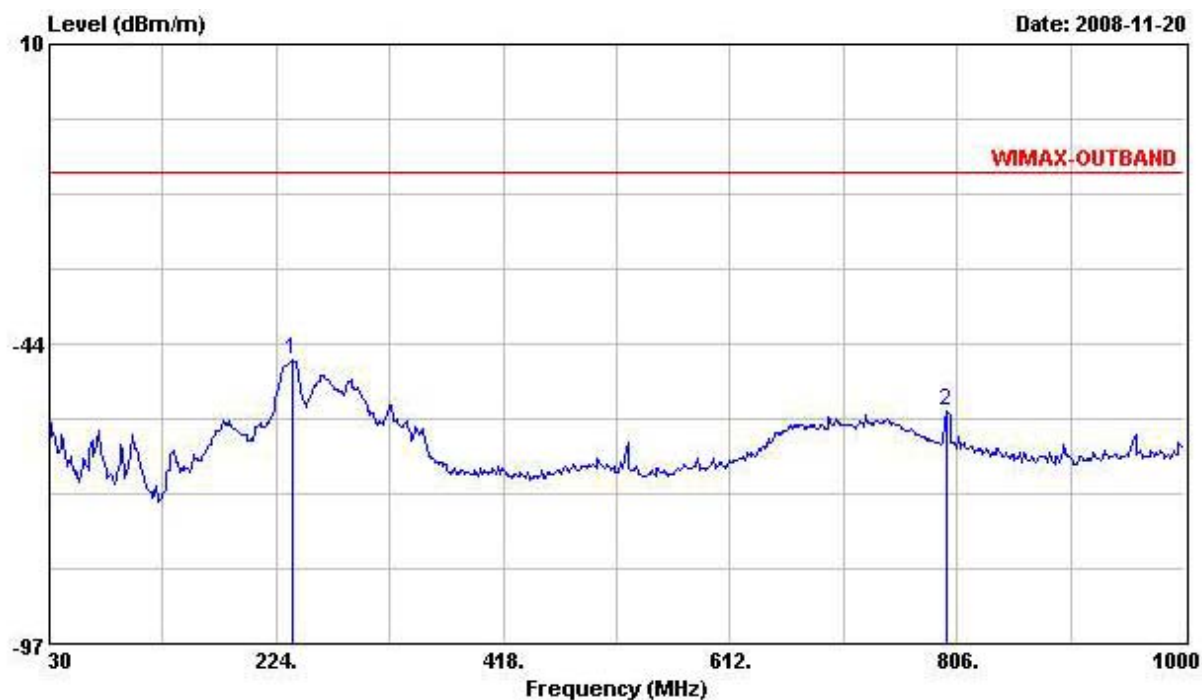
Test date	Nov. 20, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	10MHz / QPSK / 2685 MHz

Horizontal

1000.000000

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	36.790	-48.78	-35.78	-13.00	-48.78	0.00	0.00	0.00	Peak
2	288.020	-53.39	-40.39	-13.00	-53.39	0.00	0.00	0.00	Peak
3	741.980	-56.90	-43.90	-13.00	-56.90	0.00	0.00	0.00	Peak

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Preamp	Loss Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB
1	237.580	-46.39	-33.39	-13.00	-46.39	0.00	0.00	0.00 Peak
2	797.270	-55.41	-42.41	-13.00	-55.41	0.00	0.00	0.00 Peak

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

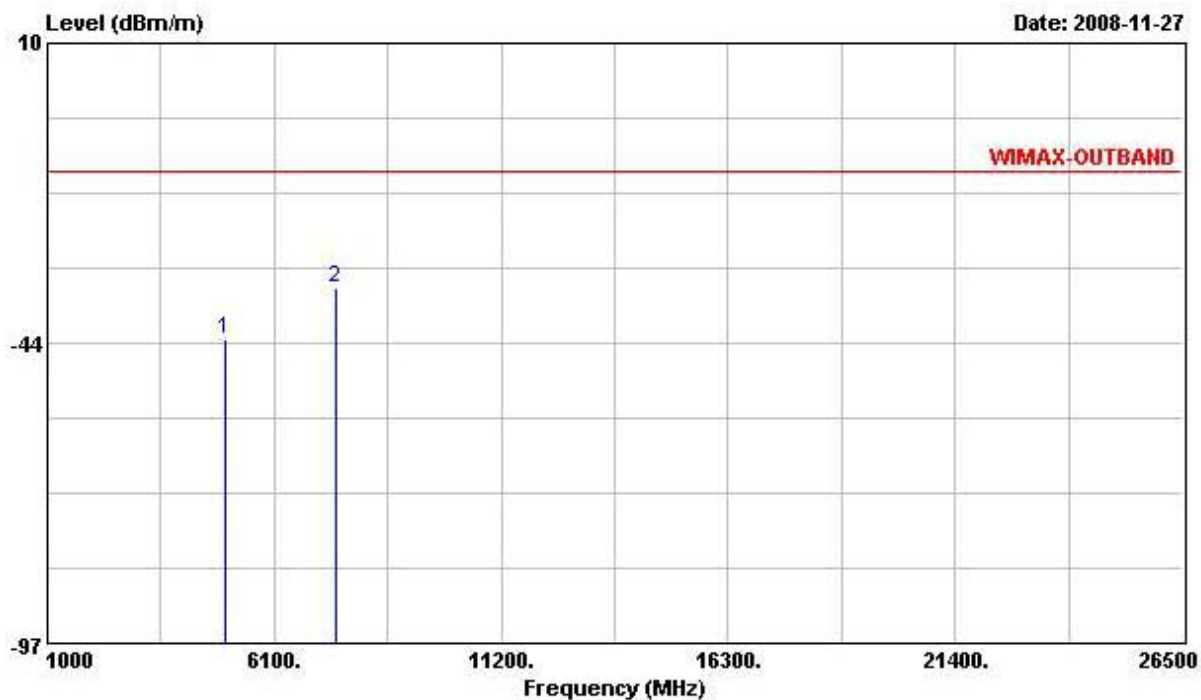
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.2.8 Results for Radiated Emissions (1GHz~10th Harmonic)

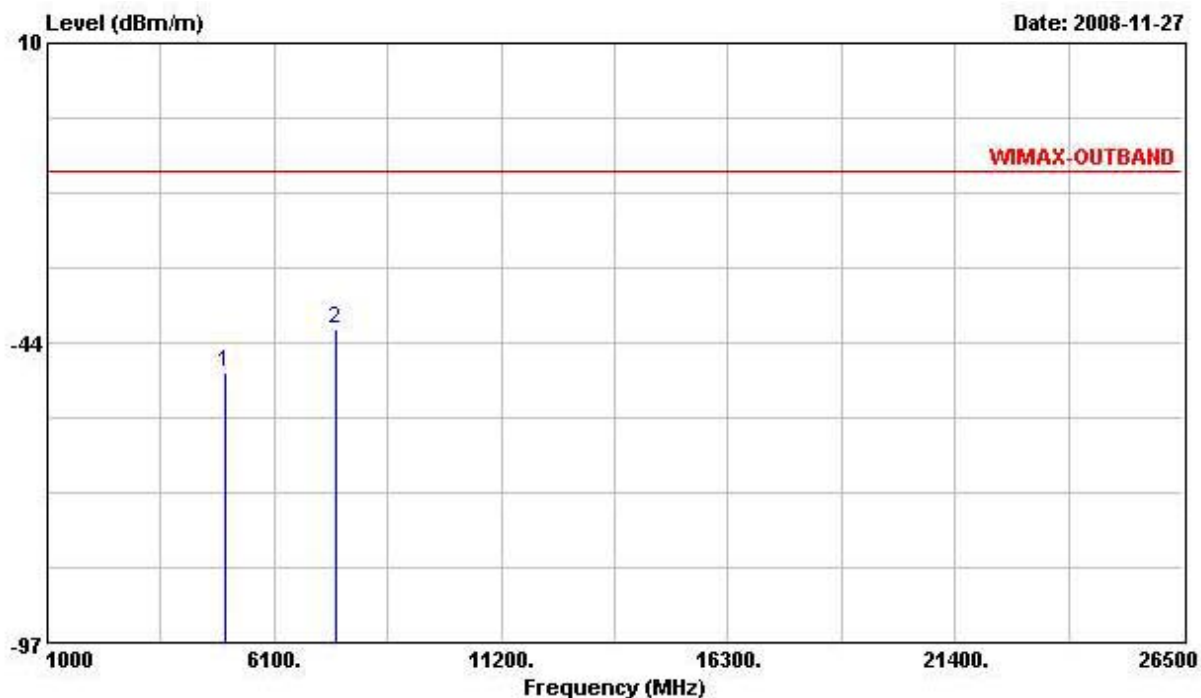
Test date	Nov. 27, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	5MHz / 16QAM / 2501 MHz

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB
1	5004.000	-42.74	-29.74	-13.00	-42.74	0.00	0.00	0.00 PEAK
2	7500.000	-33.61	-20.61	-13.00	-33.61	0.00	0.00	0.00 PEAK

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	5002.000	-48.74	-35.74	-13.00	-48.74	0.00	0.00	0.00	Peak
2	7500.000	-40.98	-27.98	-13.00	-40.98	0.00	0.00	0.00	Peak

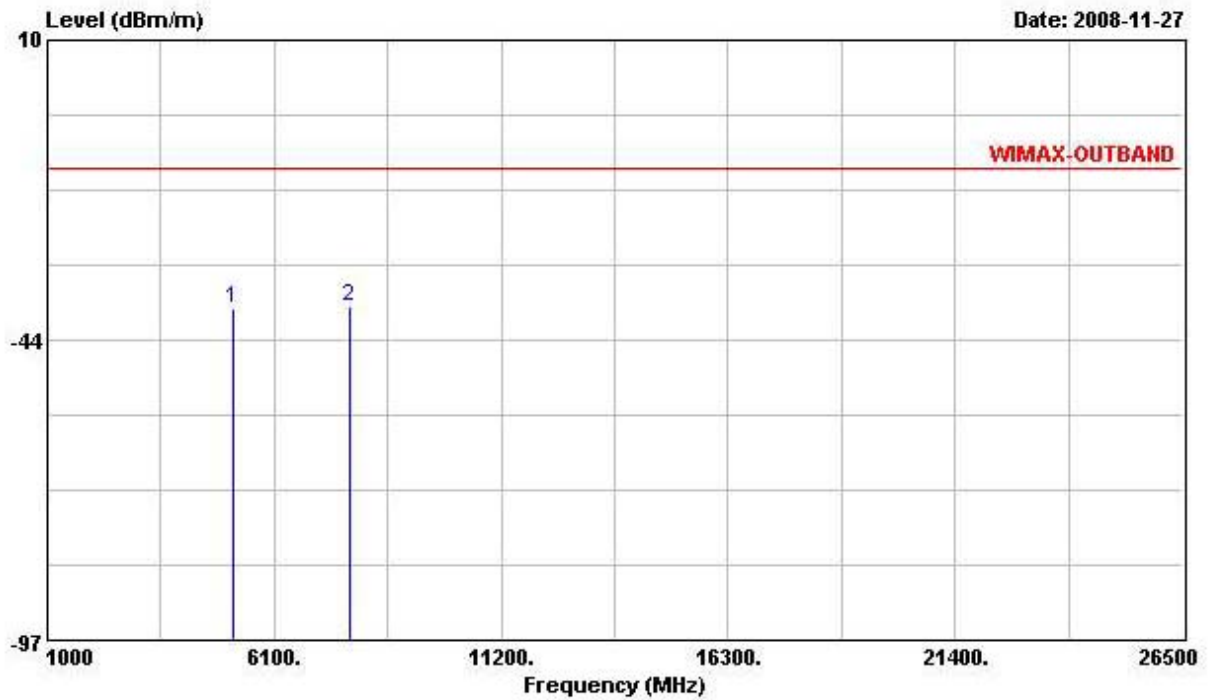
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

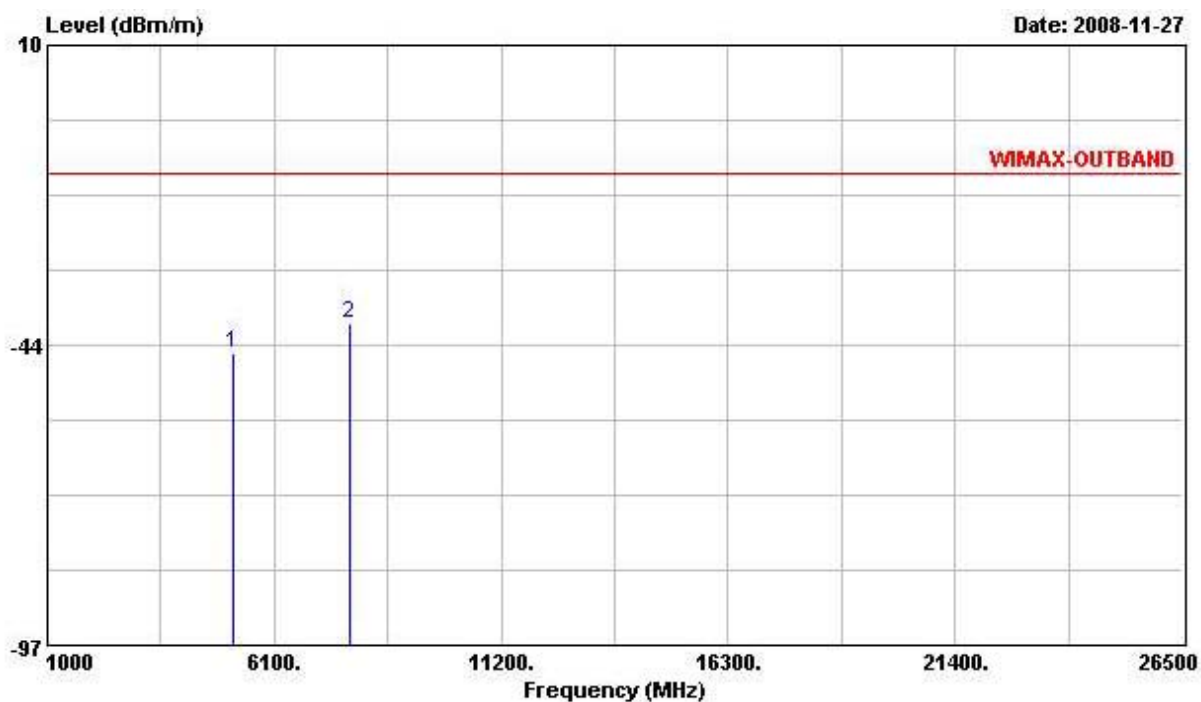
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test date	Nov. 27, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	5MHz / 16QAM / 2593 MHz

Horizontal

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB
1	5186.000	-37.90	-24.90	-13.00	-37.90	0.00	0.00	0.00 Peak
2	7784.000	-37.40	-24.40	-13.00	-37.40	0.00	0.00	0.00 Peak

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	5186.000	-44.76	-31.76	-13.00	-44.76	0.00	0.00	0.00	
2	7776.000	-39.54	-26.54	-13.00	-39.54	0.00	0.00	0.00	Peak

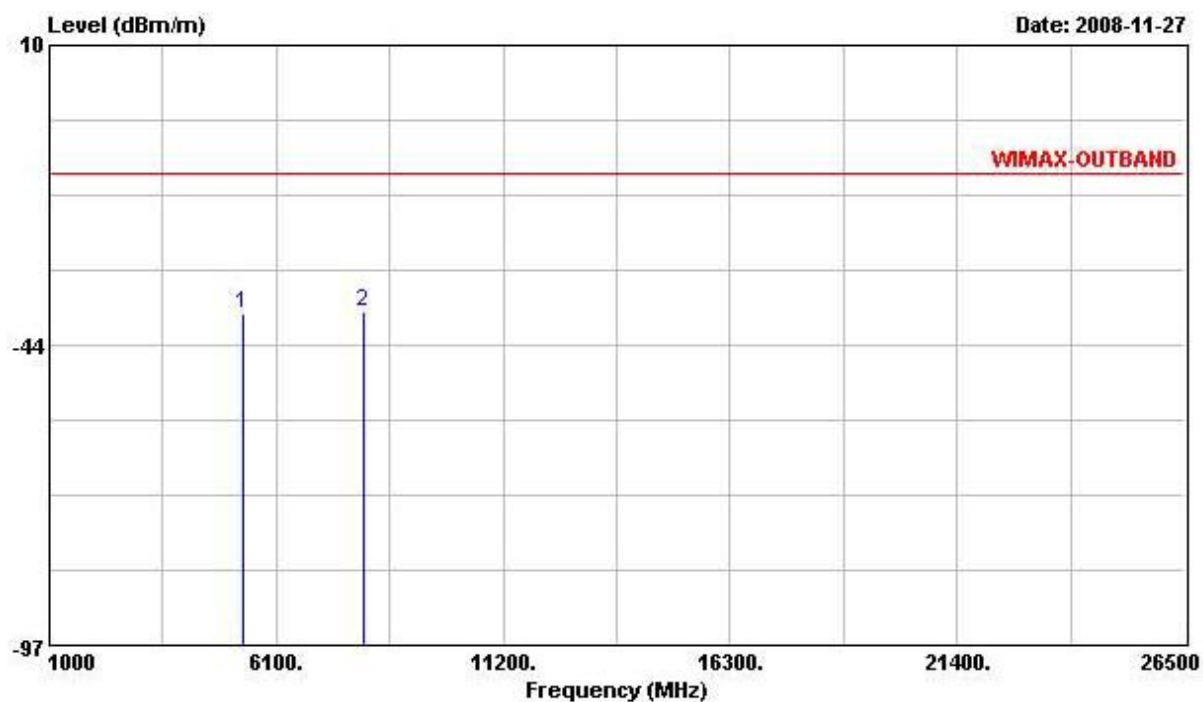
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

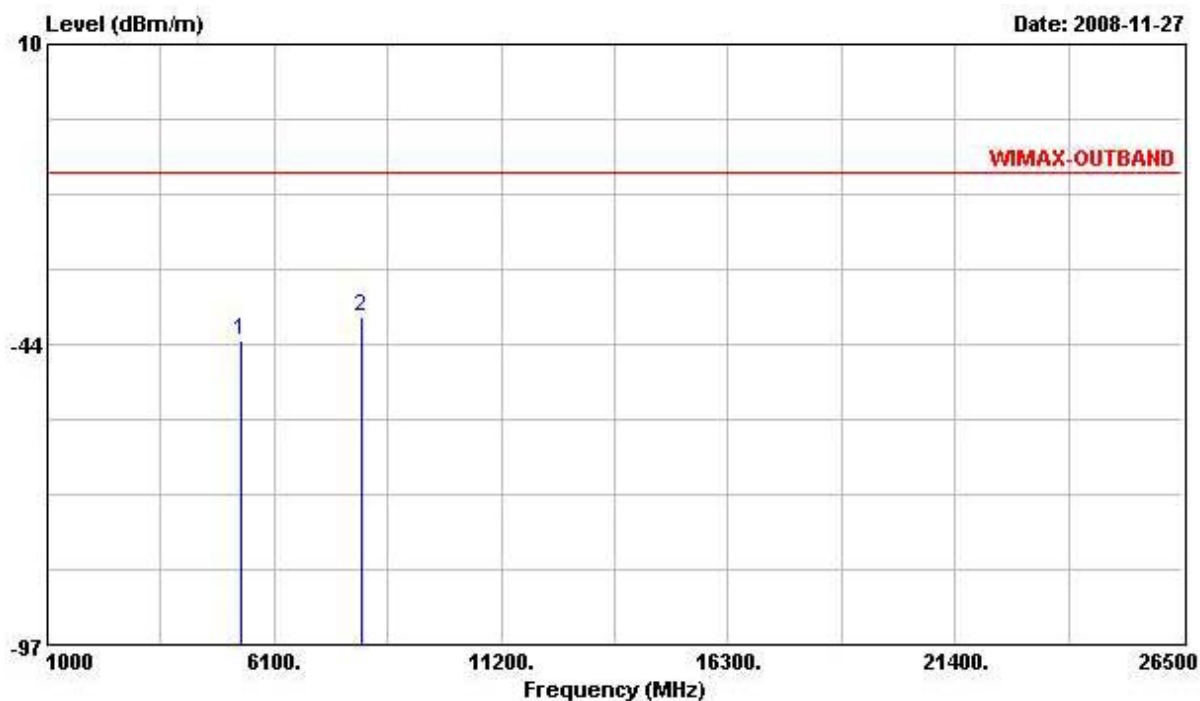
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test date	Nov. 27, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	5MHz / 16QAM / 2685 MHz

Horizontal

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBm/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBm/m	dBm	dB	dB	
1	5372.000	-37.72	-24.72	-13.00	-37.72	0.00	0.00	Peak
2	8056.000	-37.62	-24.62	-13.00	-37.62	0.00	0.00	Peak

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	5368.000	-42.80	-29.80	-13.00	-42.80	0.00	0.00	0.00	Peak
2	8060.000	-38.68	-25.68	-13.00	-38.68	0.00	0.00	0.00	Peak

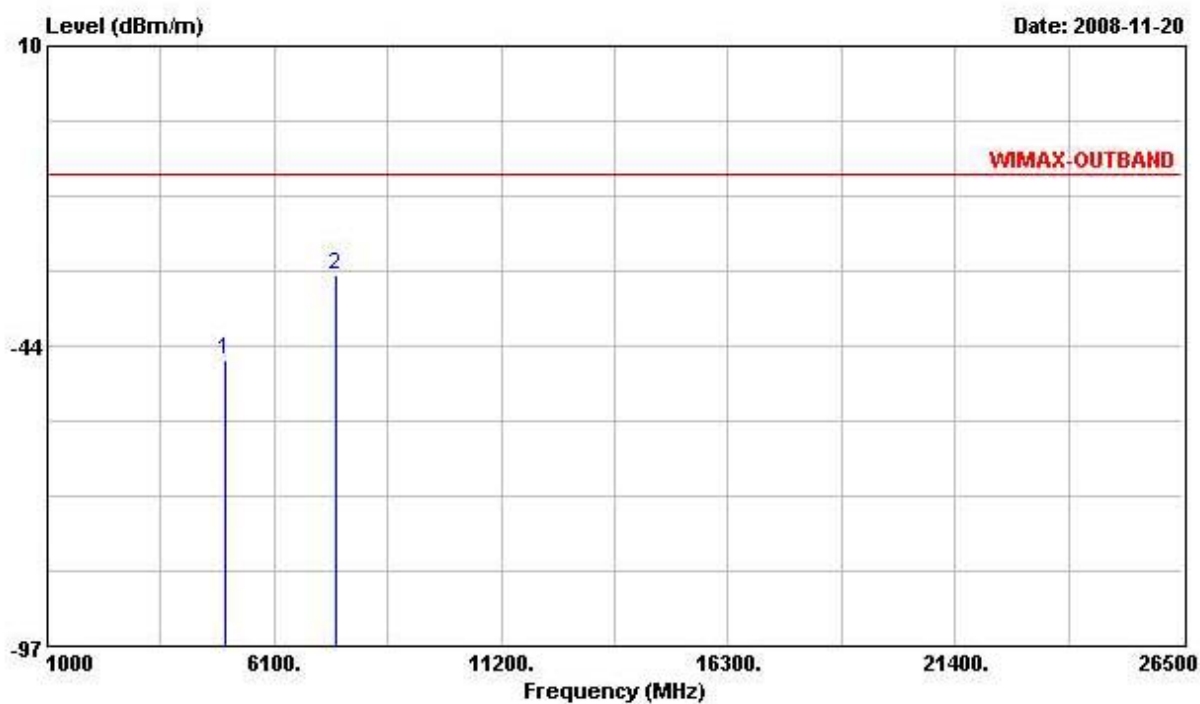
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

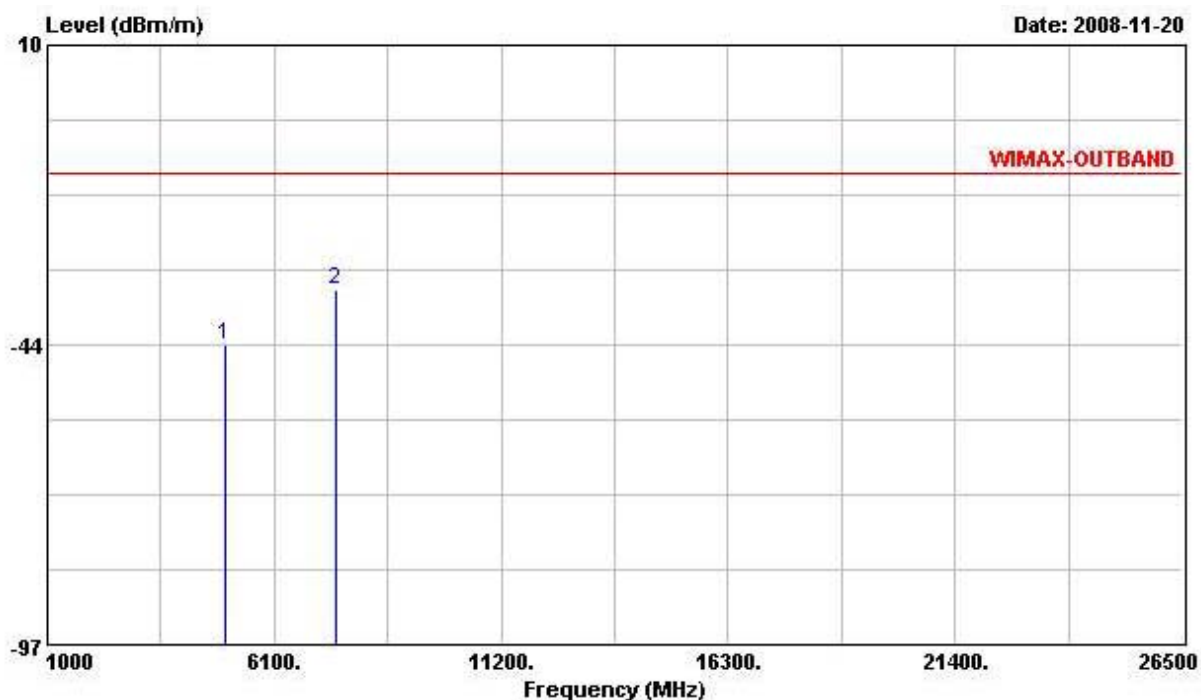
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test date	Nov. 20, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	10MHz / QPSK / 2501 MHz

Horizontal

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	5002.000	-46.05	-33.05	-13.00	-46.05	0.00	0.00	0.00	PEAK
2	7496.000	-30.74	-17.74	-13.00	-30.74	0.00	0.00	0.00	PEAK

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	5000.000	-43.42	-30.42	-13.00	-43.42	0.00	0.00	0.00	PEAK
2	7504.000	-33.79	-20.79	-13.00	-33.79	0.00	0.00	0.00	PEAK

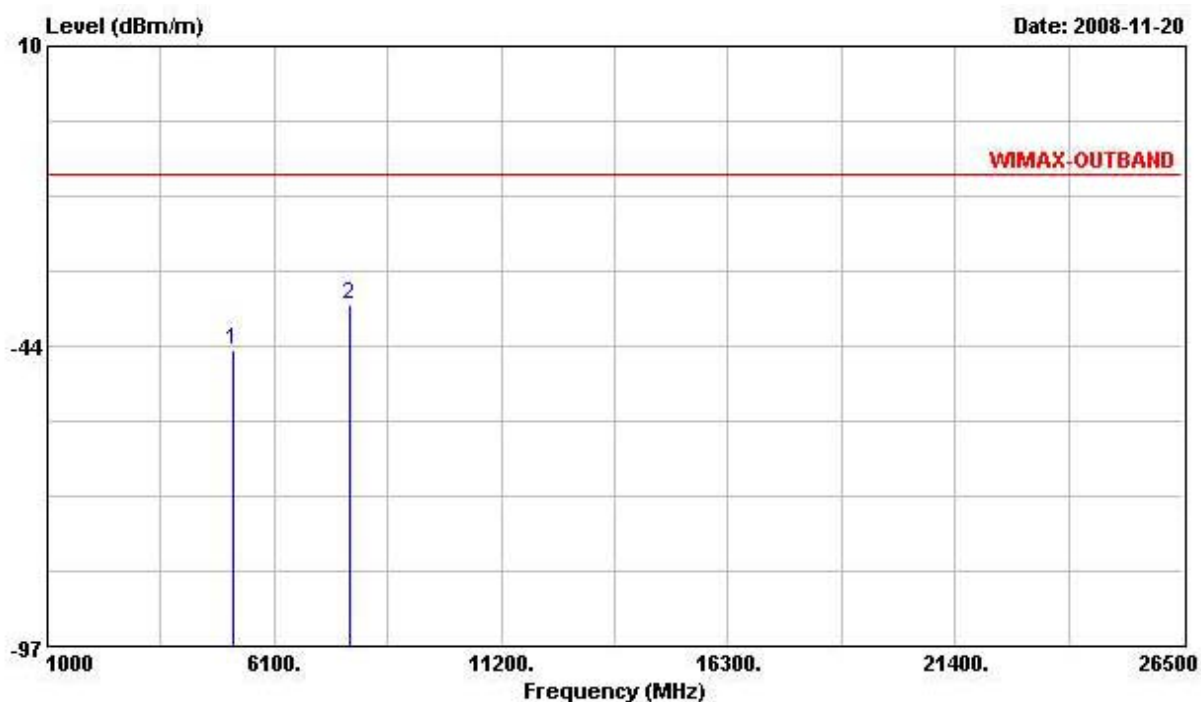
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

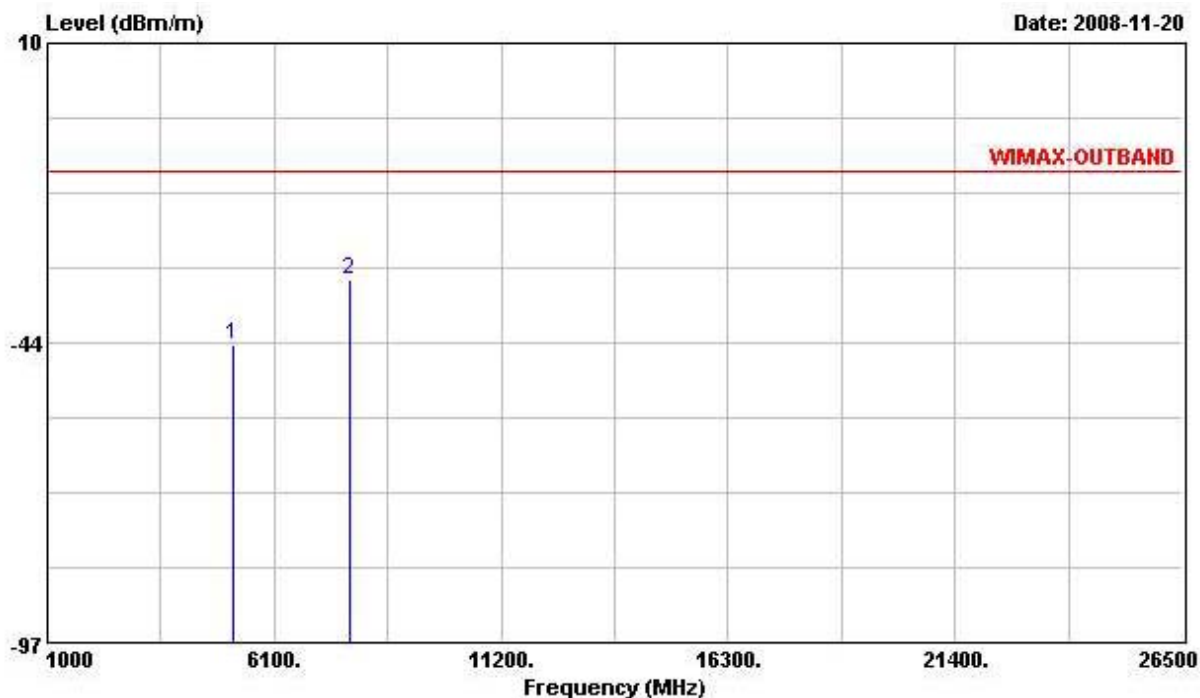
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test date	Nov. 20, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	10MHz / QPSK / 2593 MHz

Horizontal

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBm/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBm/m	dBm	dB/m	dB	dB
1	5184.000	-44.16	-31.16	-13.00	-44.16	0.00	0.00	0.00 PEAK
2	7784.000	-36.06	-23.06	-13.00	-36.06	0.00	0.00	0.00 PEAK

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	5188.000	-43.75	-30.75	-13.00	-43.75	0.00	0.00	0.00	PEAK
2	7776.000	-32.39	-19.39	-13.00	-32.39	0.00	0.00	0.00	PEAK

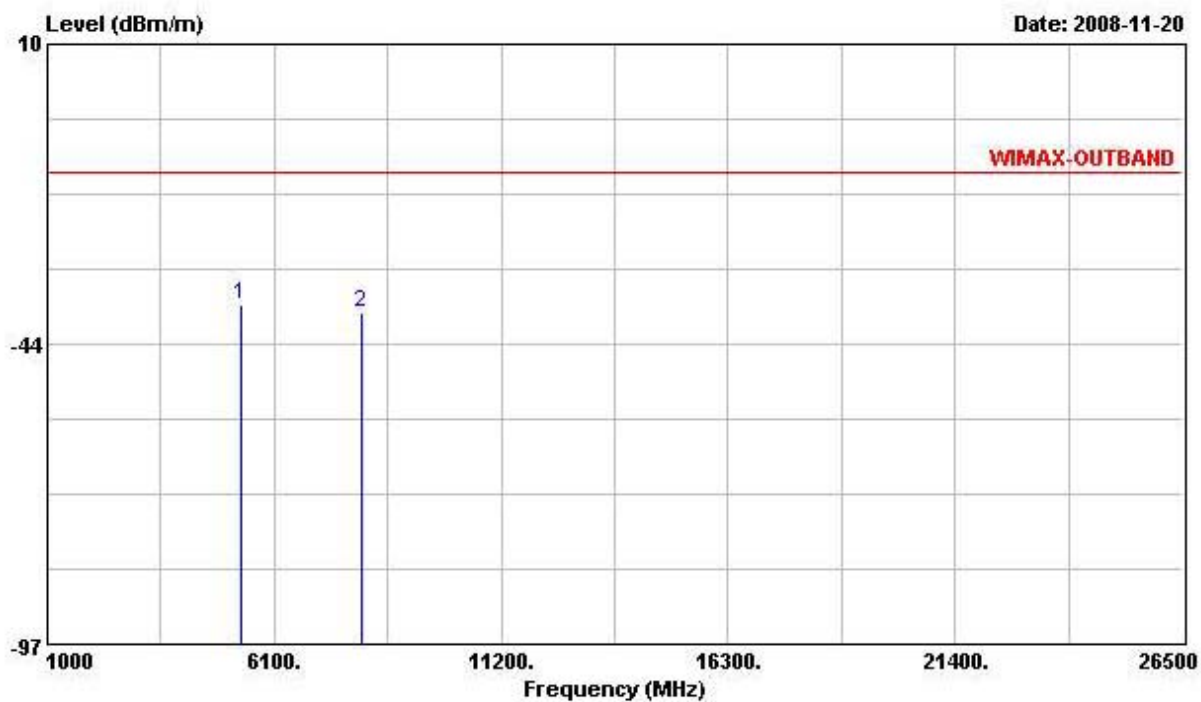
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

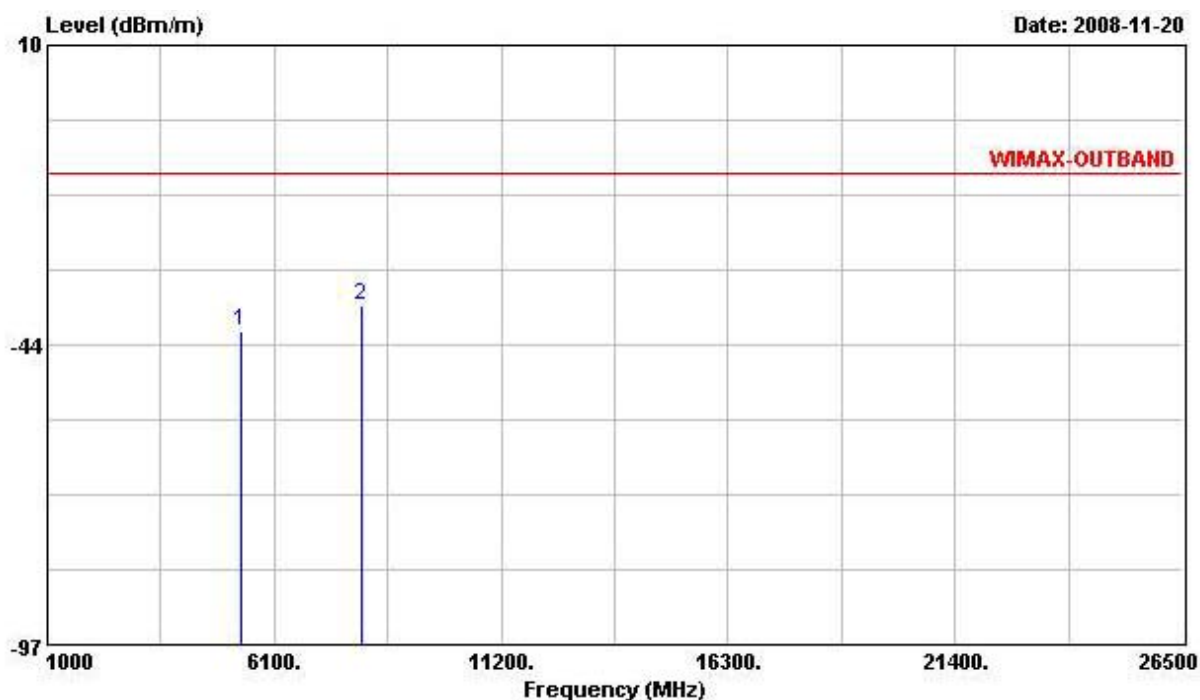
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test date	Nov. 20, 2008	Test Site No.	03CH03-HY
Temperature	27.4	Humidity	41%
Test Engineer	Duncan	Configurations	10MHz / QPSK / 2685 MHz

Horizontal

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	5368.000	-36.57	-23.57	-13.00	-36.57	0.00	0.00	0.00	PEAK
2	8048.000	-37.96	-24.96	-13.00	-37.96	0.00	0.00	0.00	PEAK

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBm/m	dB	dBm/m	dBm	dB/m	dB	dB	
1	5368.000	-41.15	-28.15	-13.00	-41.15	0.00	0.00	0.00	PEAK
2	8052.000	-36.52	-23.52	-13.00	-36.52	0.00	0.00	0.00	PEAK

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.3 Antenna Requirements

3.3.1 Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

3.3.2 Antenna Connector Construction

Please refer to section 2.2 in this test report; antenna connector complied with the requirements.

4 LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 14, 2008	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz - 2 GHz	Jan. 14, 2008	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jul. 21, 2008	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9 kHz - 30 GHz	Jan. 10, 2008	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz - 1 GHz	Jul. 12, 2008	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Apr. 04, 2008	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jan.18, 2008	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Dec. 03, 2008	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Dec. 03, 2008	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 - 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Jan. 22, 2007*	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	Jul 28, 2008*	Radiation (03CH03-HY)

Note: Calibration Interval of instruments listed above is two year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP30	100023	9kHz ~ 30GHz	Jan. 10, 2008	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

5 TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
LINKOU	ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

6 TAF CERTIFICATE OF ACCREDITATION


財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate No. : L1190-070110

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory


Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

PI, total 9 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.