FCC CFR 47 PART 15 SUBPART C

TEST REPORT

For

Portable Touchscreen Navigation System and A/V Media Player

Model: GPS-810NA

Trade Name: harman/kardon

Issued to

Kinpo Electronics, Inc.
147, SEC. 3, BEISHEN RD., SHENKENG SHIANG,
TAIPEI, TAIWAN, (222) R.O.C.

Issued by

Compliance Certification Services Inc.
No. 81-1, Lane 210, Bade Rd. 2, Luchu Hsiang,
Taoyuan Hsien, (338) Taiwan, R.O.C.
TEL: 886-3-324-0332
FAX: 886-3-324-5235

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1. TEST RESULT CERTIFICATION

Applicant:	Kinpo Electronics, Inc. 147, SEC. 3, BEISHEN RD., SHENKENG SHIANG, TAIPEI, TAIWAN, (222) R.O.C.
Equipment Under Test:	Portable Touchscreen Navigation System and A/V Media Player
Trade Name:	harman/kardon
Model:	GPS-810NA
Date of Test:	Sept 26 ~ Oct. 1, 2007

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.239.

The test results of this report relate only to the tested sample identified in this report.

Approved by: *Reviewed by:*

S.C. Wang
Executive Vice President
Compliance Certification Services Inc.

Miller Lee
Deputy Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Portable Touchscreen Navigation System and A/V Media Player		
Trade Name	harman/kardon		
Model Number	GPS-810NA		
Model Discrepancy	N/A		
Power Supply	VDC from Battery Pack		
AC Power Adapter	harman/kardon	**Model**	PSB05R-050Q
Power Adapter Power Rating	I/P: 100-240VAC, 50-60Hz, 0.2A O/P: 5VDC, 1A		
Frequency Range	88.1-107.9 MHz		
Transmit Power	47.81dBuV/m		
Modulation Technique	FM		
Number of Channels	100 Channel		
Antenna Specification	PCB Antenna		

Remark: *The product is a Transmitter. This submittal(s) (test report) is intended for FCC ID: ESNGPS-810 filing to comply with Section 15.239 of the FCC Part 15 Subpart C Rules.*

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 Part 15 Subpart C.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 3 or 10 meters from the leading edge of the turntable.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 7.1 of ANSI C63.4.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is a placed on as turntable, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4

3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	([2])
13.36 - 13.41	322 - 335.4		

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

3.5 DESCRIPTION OF TEST MODES

The EUT (model: GPS-810NA) had been tested under operating condition and tested in continuous transmitting mode.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (Y axis) and the worst case was recorded.

The EUT was played MP3 music through FM transmitter module to tune the maximize input during test.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	R&S	FSP30	100112	10/10/2007

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilnet	E4411B	MY41440314	N.C.R
Spectrum Analyzer	R&S	FSP30	100112	10/10/2007
EMI Test Receiver	R&S	ESVS30	828488/004	03/12/2008
Pre-Amplifier	Anritsu	MH648A	M18767	09/09/2008
Pre-Amplifier	Agilent	8449B	3008A01738	04/11/2008
Bilog Antenna	SCHWAZBECK	VULB9163	144	03/30/2008
Horn Antenna	EMCO	3115	00022250	05/03/2008
Loop Antenna	EMCO	6502	2356	06/02/2008
Turn Table	Chance Most	CM-T003-1	T807-6	N.C.R
Antenna Tower	Chance Most	CM-A003-1	A807-6	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
RF Switch	ANRITSU	MP59B	M53867	N.C.R
Site NSA	CCS	N/A	N/A	05/18/2008
Test S/W	LabVIEW 6.1 (CCS OATS EMI SW V2.6)			

Remark: *The measurement uncertainty is less than +/-2.0065dB (30MHz ~ 1GHz), +/-4.5248dB (Above 1GHz) which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

Powerline Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	SCHAFFNER	SCR 3501	410	12/12/2007
LISN	FCC	FCC-LISN-50/250-16-2-07	06013	10/08/2007
LISN	FCC	FCC-LISN-50/250-16-2-07	06012	10/08/2007
Test S/W	LabVIEW 6.1 (CCS Conduction Test SW Version_01)			

Remark: *The measurement uncertainty is less than +/- 2.81dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☐ No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☒ No.81-1, Lane 210, Pa-De 2nd Rd., Luchu Hsiang, Taoyuan Shien 338, Taiwan
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200600-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (registration no: 93105 and 90471).

5.4 TABLE PF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	EN 55011, EN 55014-1/2, CISPR 11, CISPR 14-1/2, EN 55022, EN 55015, CISPR 22, CISPR 15, AS/NZS 3548, VCCI V3 (2001), CFR 47, FCC Part 15/18, CNS 13783-1, CNS 13439, CNS 13438, CNS 13803, CNS 14115, EN 55024, IEC 801-2, IEC 801-3, IEC 801-4, IEC/EN 61000-3-2, IEC/EN 61000-3-3, IEC/EN 61000-4-2/3/4/5/6/8/11 , EN 50081-1/EN 61000-6-3, EN 50081-2/EN 61000-6-4, EN 50081-2/EN 61000-6-1: 2001	ACCREDITED No. 0824-01
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	93105, 90471
Japan	VCCI	3/10 meter Open Area Test Sites and conducted test sites to perform radiated/conducted measurements	R-2451/2316/725/1868 C-402/747/912
Norway	NEMKO	EN 50081-1/2, EN 50082-1/2, IEC 61000-6-1/2, EN 50091-2, EN 50130-4, EN 55011, EN 55013, EN 55014-1/2, EN 55015, EN 55022, EN 55024, EN 61000-3-2/3, EN 61326-1, IEC 61000-4-2/3/4/5/6/8/11, EN 60601-1-2, EN 300 328-2, EN 300 422-2, EN 301 419-1, EN 301 489-01/03/07/08/09/17, EN 301 419-2/3, EN 300 454-2, EN 301 357-2	ELA 124a ELA 124b ELA 124c
Taiwan	TAF	EN 300 328-1, EN 300 328-2, EN 300 220-1, EN 300 220-2, EN 300 220-3, 47 CFR FCC Part 15 Subpart C, EN 61000-3-2, EN 61000-3-3, CNS 13439, CNS 13783-1, CNS 14115, CNS 13438, AS/NZS CISPR 22, CNS 13022-1, IEC 61000-4-2/3/4/5/6/8/11, CNS 13022-2/3	0363
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	SL2-IS-E-0014 / IN-E-0014 /A1-E-0014 /R1-E-0014 /R2-E-0014 /L1-E-0014
Canada	Industry Canada	RSS212, Issue 1	IC 2324C-3 IC 2324C-5

** No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.*

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Multimedia Headset	Labtec	Axis-301	N/A	FCC DoC	Unshielded, 1.8m	N/A

Remark: *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

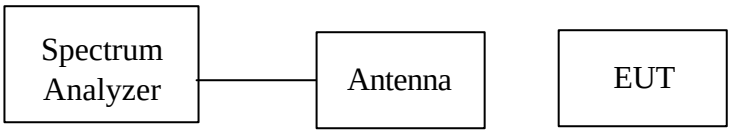
7. FCC PART 15.239 REQUIREMENTS

7.1 20 dB BANDWIDTH

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW=10kHz, VBW = RBW, Span = 1MHz, Sweep = auto.
4. Repeat until all the rest channels are investigated.

TEST RESULTS

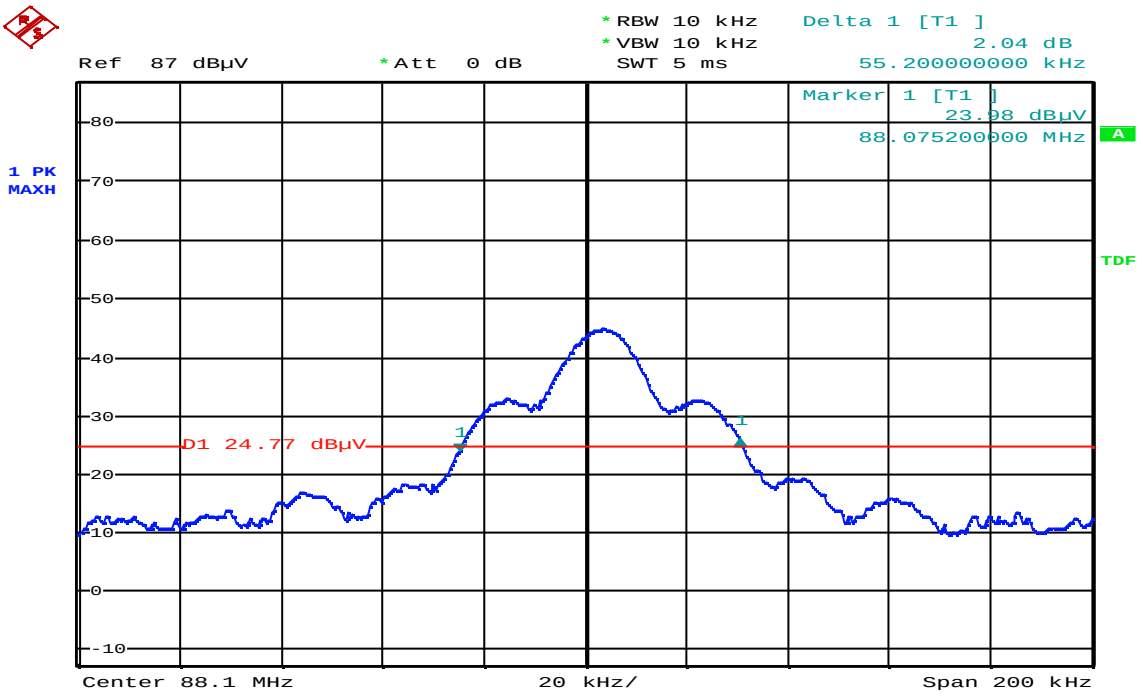
No non-compliance noted

Test Data

Channel	Frequency (MHz)	Bandwidth (kHz)
Low	88.1	55.20
Mid	98.1	56.80
High	107.9	59.20

Test Plot

CH Low



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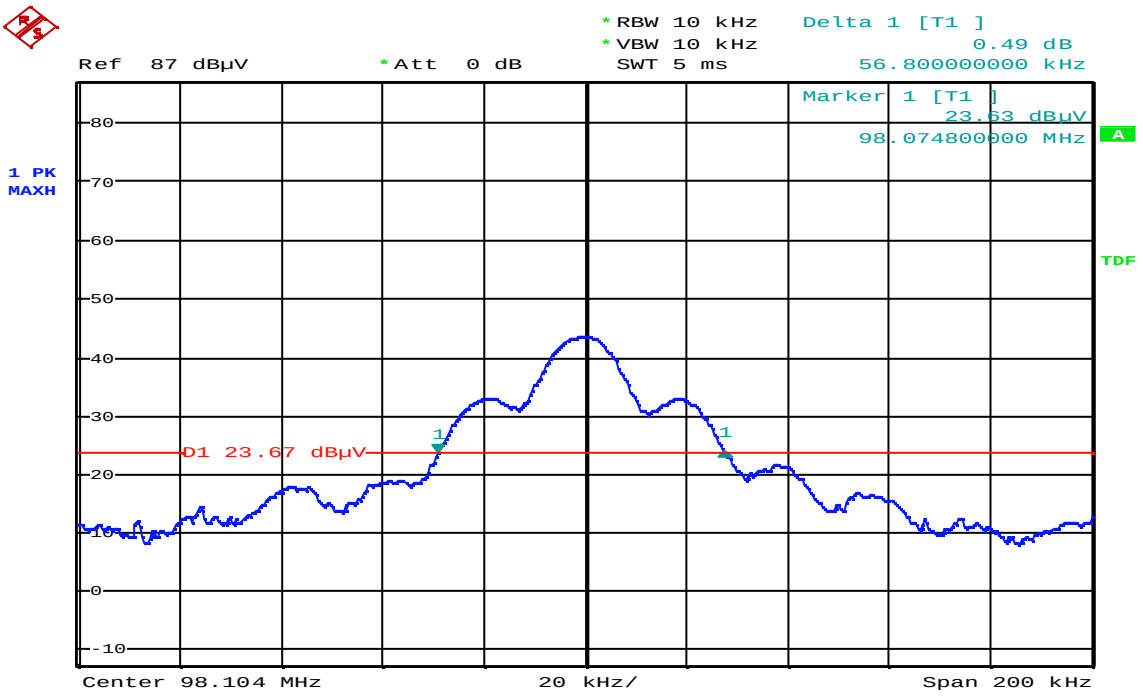
CH Mid



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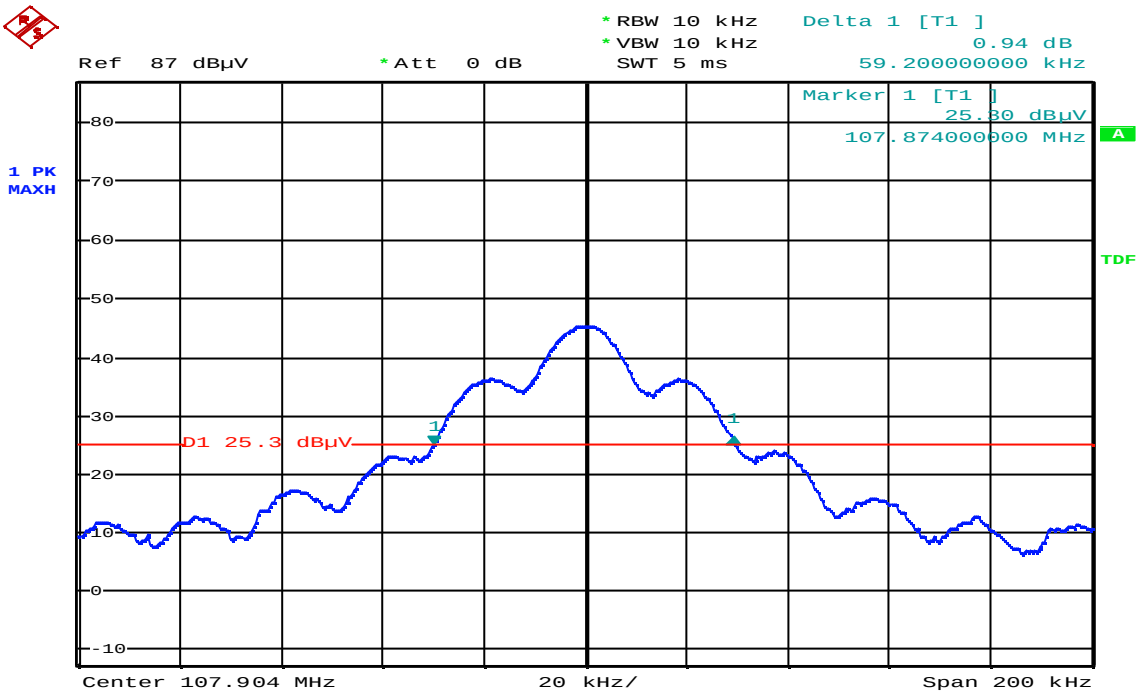
CH High



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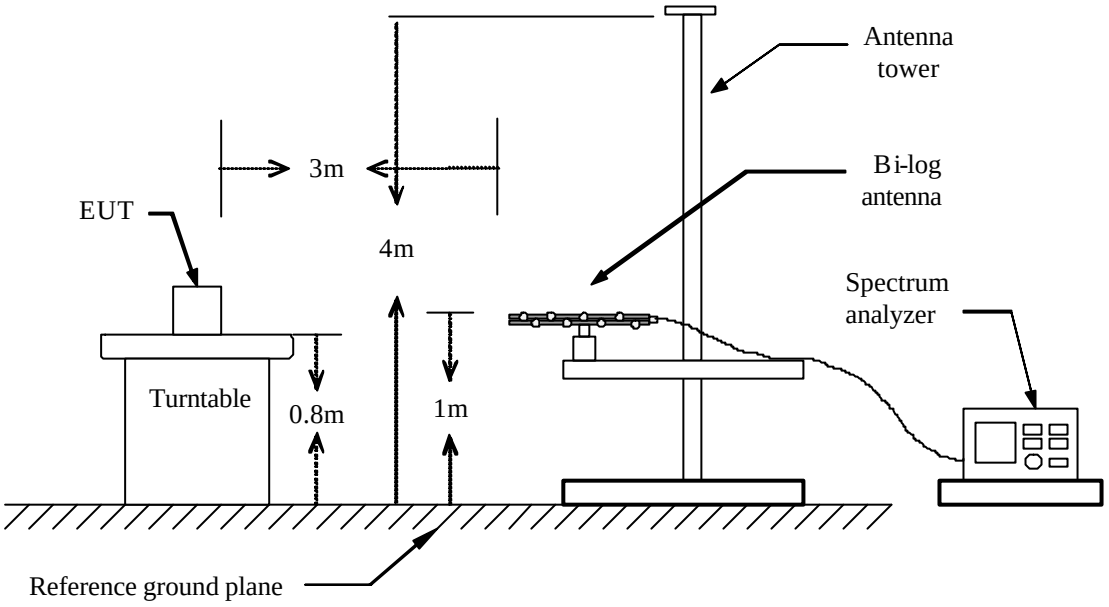
7.2 BAND EDGES MEASUREMENT

LIMIT

According to §15.239(a), emissions from the intentional radiator shall be confined within a band 200kHz wide centered on the operating frequency. The 200kHz band shall lie wholly within the frequency range of 88-108MHz.

TEST CONFIGURATION



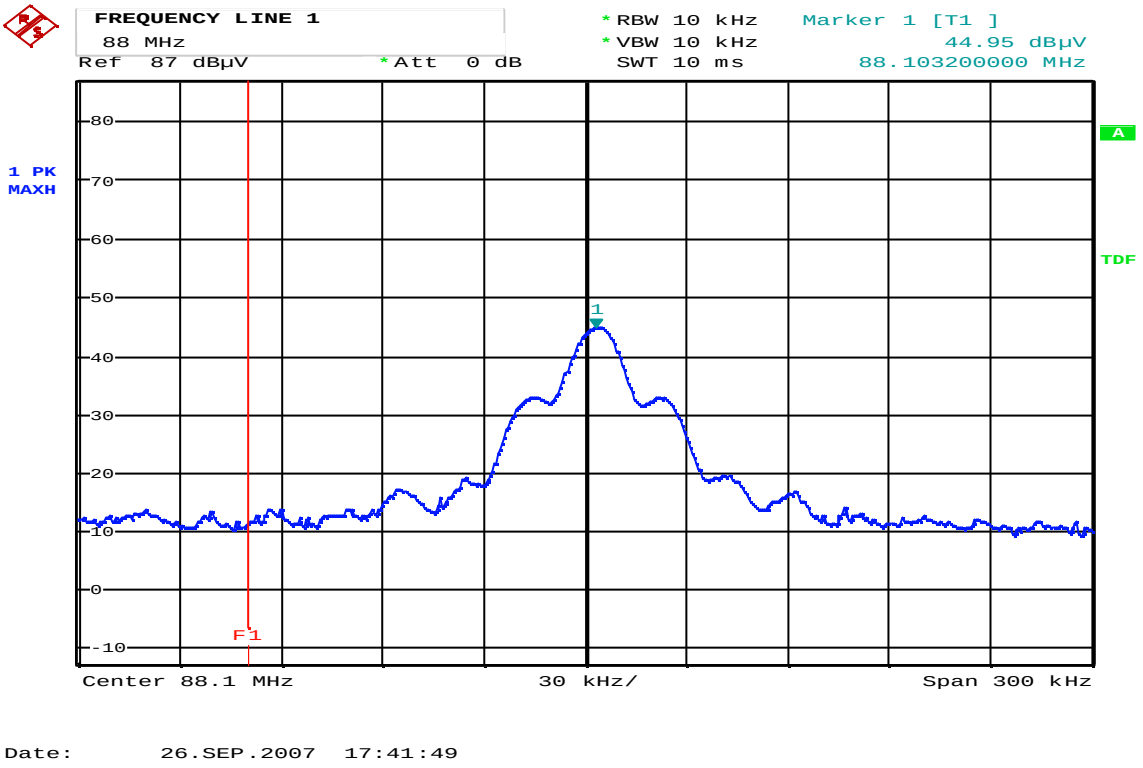
TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal form an external generator.
2. Position the EUT as shown in figure 1 and measurement the turn on the EUT. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 10kHz and 100kHz respectively with a convenient frequency span including 200kHz bandwidth of the emission.
4. Mark the bandwidth of 200kHz points and plot the graph on spectrum analyzer.
5. Repeat the procedures until all measured frequencies were complete.

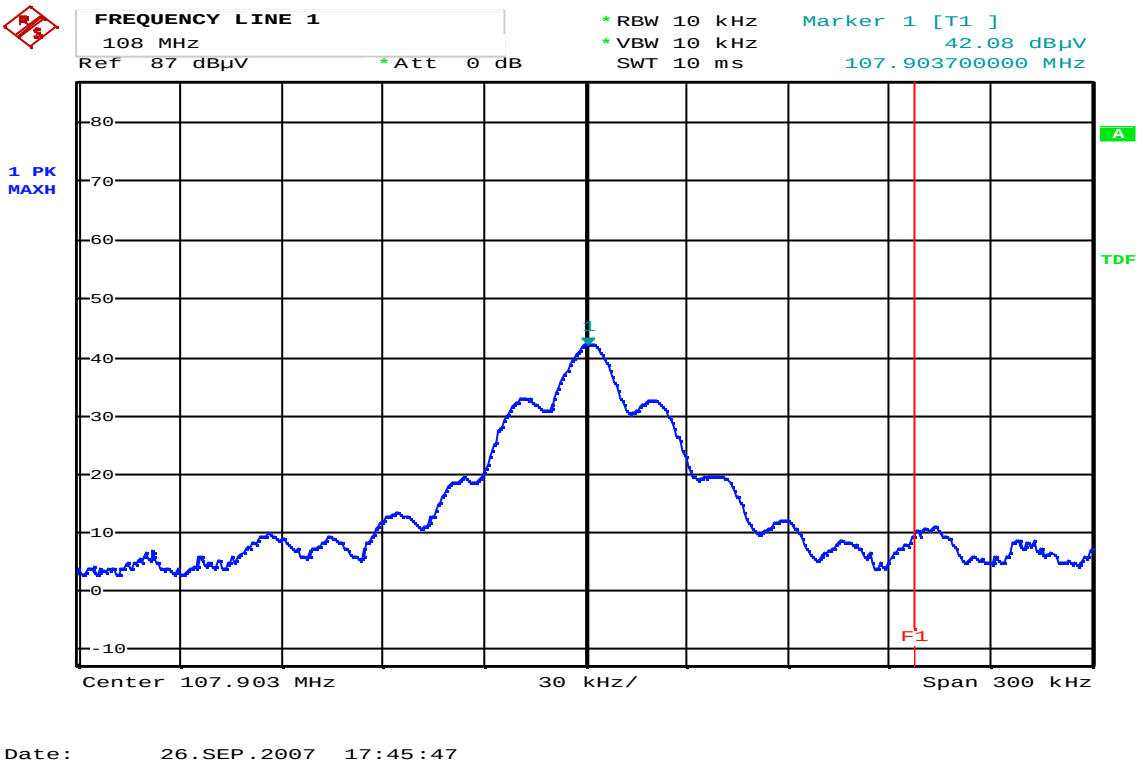
TEST RESULTS

Refer to attach spectrum analyzer data chart.

Band Edges (CH Low)



Band Edges (CH High)



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7.3 RADIATED EMISSIONS

LIMIT

1. The field strength of any emission within this band (section 15.239 frequency between 88 MHz –108 MHz) shall not exceed 250 microvolts /meter at 3 meters. (48dBμV/m at 3m) The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in section 15.35 for limiting peak emissions apply.

   The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in section 15.209(Intentional Radiators general limit), as below.

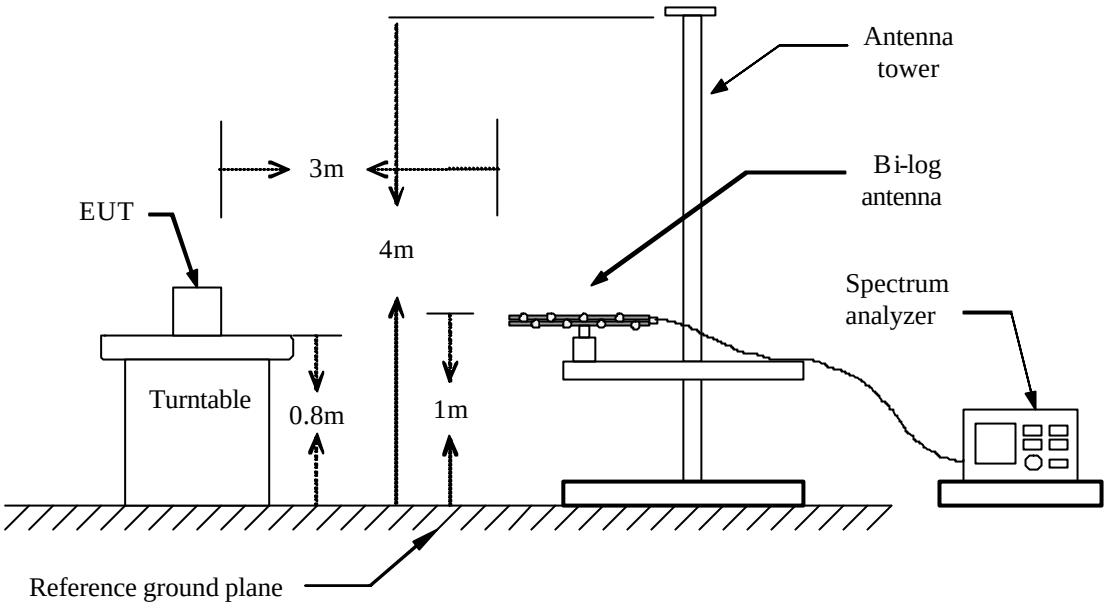
Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
1.705-30	30	30
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

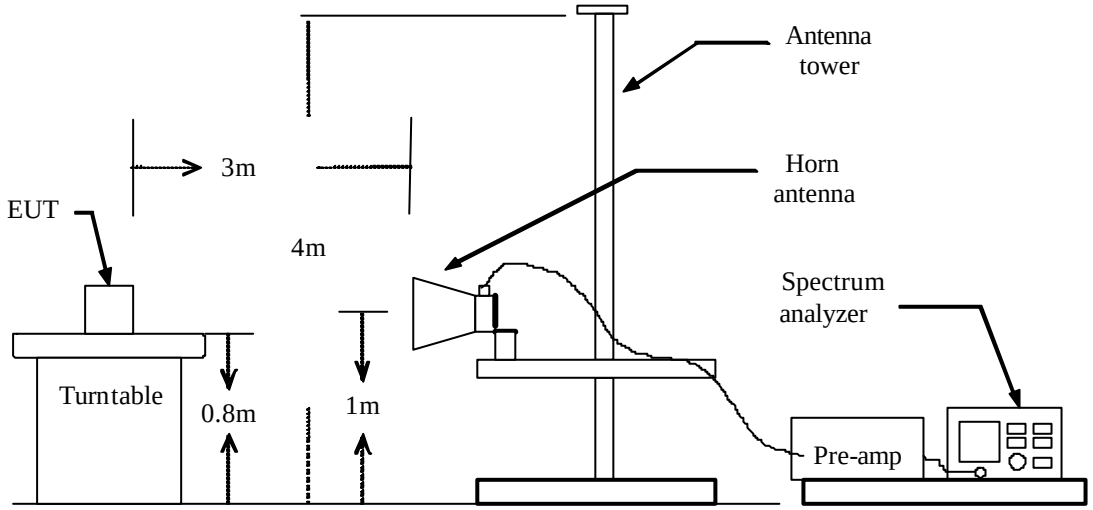
2. In the above emission table, the tighter limit applies at the band edges.

Frequency (Hz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
1.705-30	30	69.54
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Below 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 1GHz:

   RBW=100kHz / VBW=300kHz / Sweep=AUTO

   Above 1GHz:

   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

TEST RESULTS

Test Data

Operation Mode: CH Low **Test Date:** Sept. 26, 2007

Temperature: 28°C **Tested by:** Arno Hsieh

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
88.10	V	28.08	27.17	12.63	40.71	39.80	67.90	47.90	-8.10	AVG
432.14	V	14.21	---	18.16	32.37	---	46.00	---	-13.63	Peak
485.23	V	7.94	---	19.23	27.17	---	46.00	---	-18.83	Peak
627.00	V	5.92	---	21.91	27.83	---	46.00	---	-18.17	Peak
687.00	V	13.32	---	22.19	35.51	---	46.00	---	-10.49	Peak
833.00	V	11.81	---	24.10	35.91	---	46.00	---	-10.09	Peak
898.00	V	7.37	---	24.87	32.24	---	46.00	---	-13.76	Peak
88.10	H	33.45	32.57	12.63	46.08	45.20	67.90	47.90	-2.70	AVG
338.00	H	14.24	---	16.44	30.68	---	46.00	---	-15.32	Peak
432.14	H	21.60	---	18.16	39.76	---	46.00	---	-6.24	Peak
528.41	H	13.60	---	20.17	33.77	---	46.00	---	-12.23	Peak
553.24	H	12.70	---	20.69	33.39	---	46.00	---	-12.61	Peak
658.00	H	5.21	---	22.14	27.36	---	46.00	---	-18.64	Peak
833.00	H	6.17	---	24.10	30.27	---	46.00	---	-15.73	Peak

Remark:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Operation Mode:	CH Mid	**Test Date:**	Sept. 26, 2007
Temperature:	28°C	**Tested by:**	Arno Hsieh
Humidity:	55 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
98.10	V	29.97	29.32	13.20	43.17	42.52	67.90	47.9.	-5.38	AVG
432.04	V	13.95	---	18.16	32.10	---	46.00	---	-13.90	Peak
540.00	V	14.50	---	20.41	34.91	---	46.00	---	-11.09	Peak
630.00	V	8.28	---	21.94	30.22	---	46.00	---	-15.78	Peak
648.00	V	13.00	---	22.11	35.11	---	46.00	---	-10.89	Peak
756.05	V	7.39	---	22.95	30.35	---	46.00	---	-15.65	Peak
823.35	V	4.42	---	24.00	28.43	---	46.00	---	-17.57	Peak
98.10	H	34.61	33.70	13.20	47.81	46.90	67.90	47.90	-1.00	AVG
157.10	H	22.20	---	10.39	32.58	---	43.50	---	-10.92	Peak
432.00	H	20.00	---	18.16	38.16	---	46.00	---	-7.84	Peak
540.03	H	18.19	---	20.41	38.60	---	46.00	---	-7.40	Peak
553.00	H	14.68	---	20.68	35.36	---	46.00	---	-10.64	Peak
648.02	H	16.43	---	22.11	38.54	---	46.00	---	-7.46	Peak
864.04	H	6.79	---	24.45	31.24	---	46.00	---	-14.76	Peak

Remark:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Operation Mode:	CH High	**Test Date:**	Sept. 26, 2007
Temperature:	28°C	**Tested by:**	Arno Hsieh
Humidity:	55 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
107.90	V	32.85	32.44	13.57	46.42	46.01	67.90	47.90	-1.89	AVG
479.00	V	13.08	---	19.08	32.16	---	46.00	---	-13.84	Peak
485.53	V	5.64	---	19.23	24.87	---	46.00	---	-21.13	Peak
503.72	V	13.72	---	19.66	33.38	---	46.00	---	-12.62	Peak
627.00	V	5.61	---	21.91	27.52	---	46.00	---	-18.48	Peak
648.27	V	10.50	---	22.11	32.61	---	46.00	---	-13.39	Peak
823.00	V	5.32	---	24.00	29.32	---	46.00	---	-16.68	Peak
107.90	H	31.30	30.58	13.57	44.87	44.15	67.90	47.90	-3.75	AVG
540.22	H	13.56	---	20.42	33.98	---	46.00	---	-12.02	Peak
553.00	H	14.76	---	20.68	35.44	---	46.00	---	-10.56	Peak
611.00	H	8.54	---	21.76	30.30	---	46.00	---	-15.70	Peak
629.00	H	6.89	---	21.93	28.82	---	46.00	---	-17.18	Peak
743.00	H	3.06	---	22.75	25.81	---	46.00	---	-20.19	Peak
808.00	H	5.17	---	23.84	29.01	---	46.00	---	-16.99	Peak

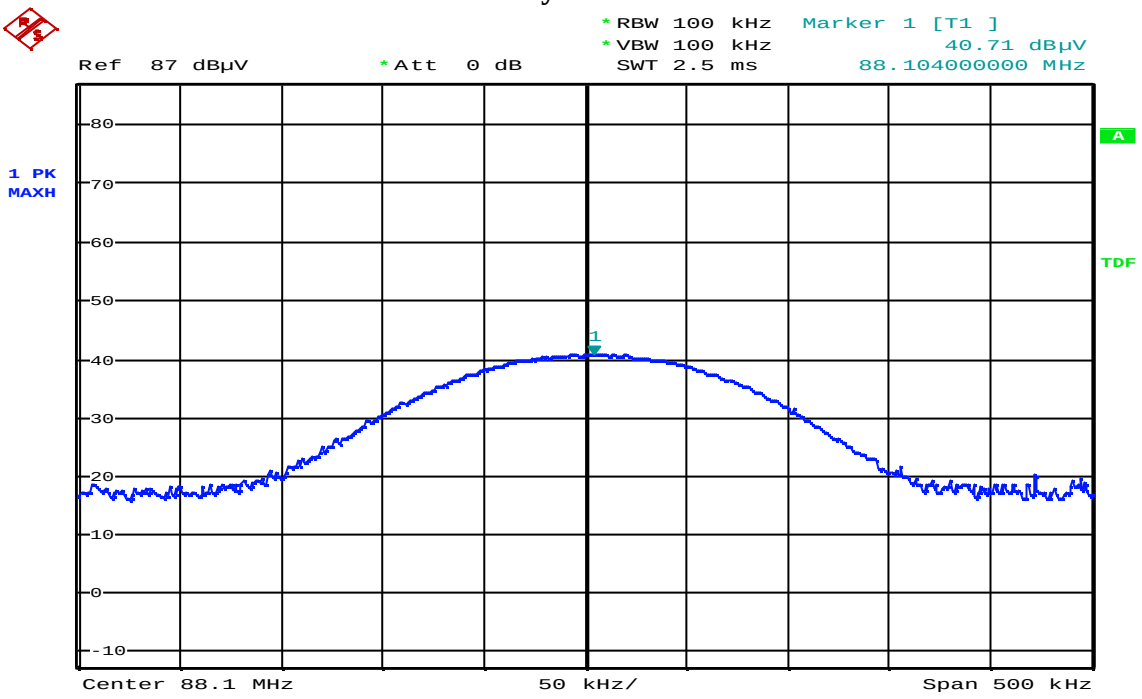
Remark:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Test Plots

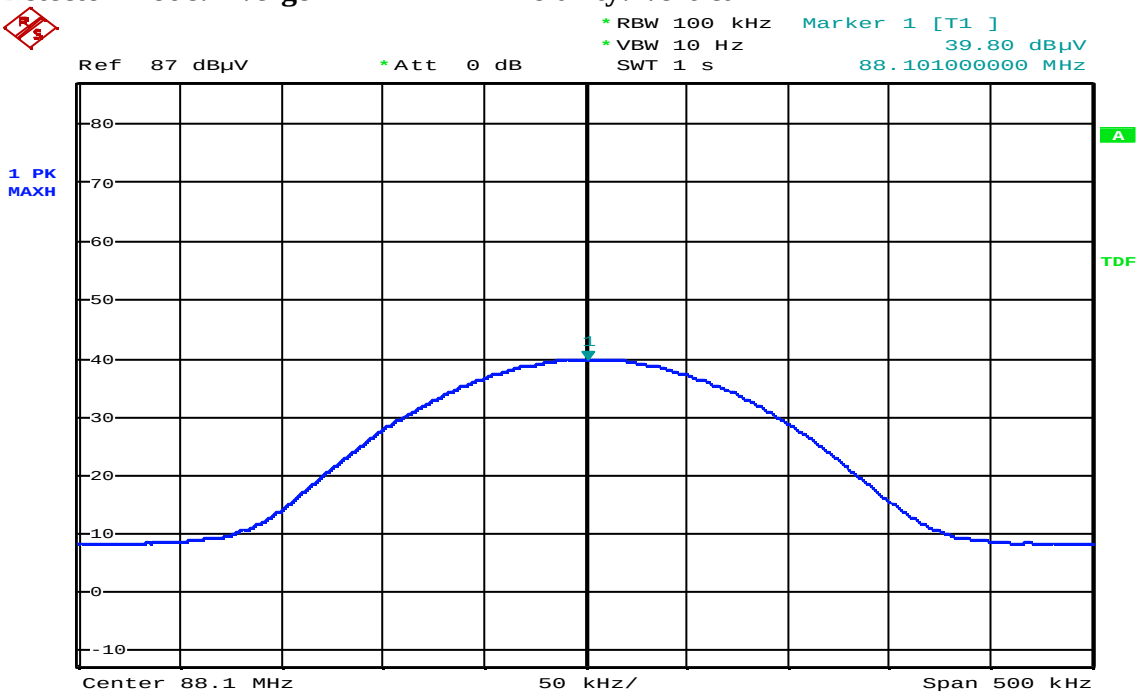
CH Low

Detector mode: Peak Polarity: Vertical



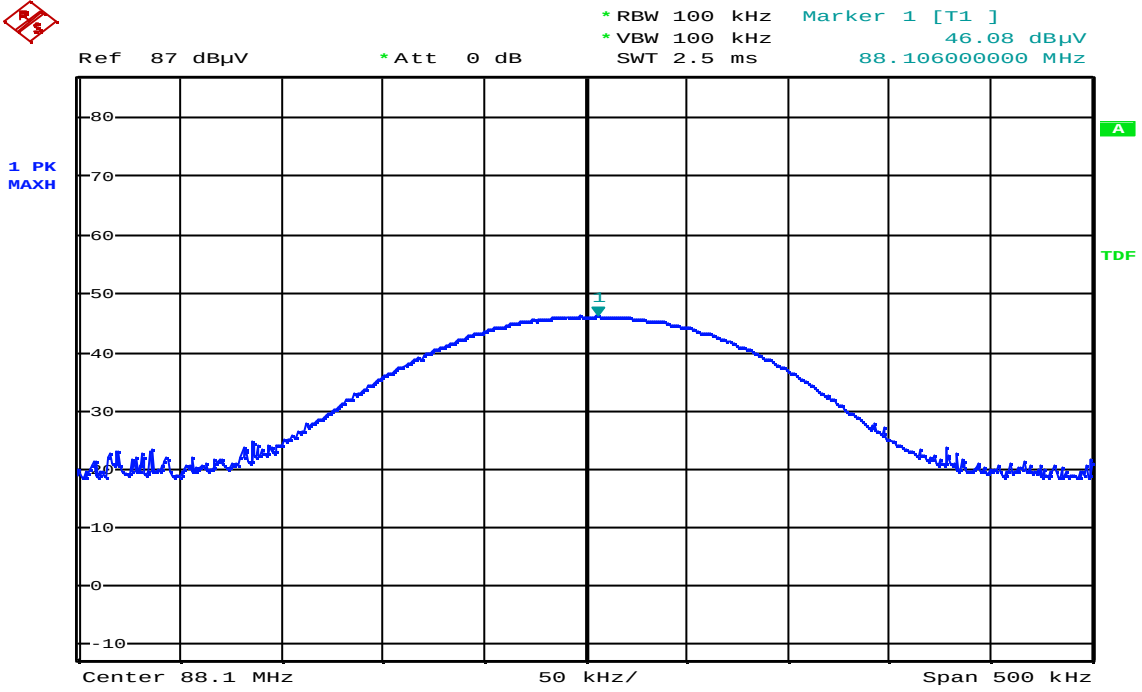
Date: 26.SEP.2007 15:48:34

Detector mode: Averge Polarity: Vertical



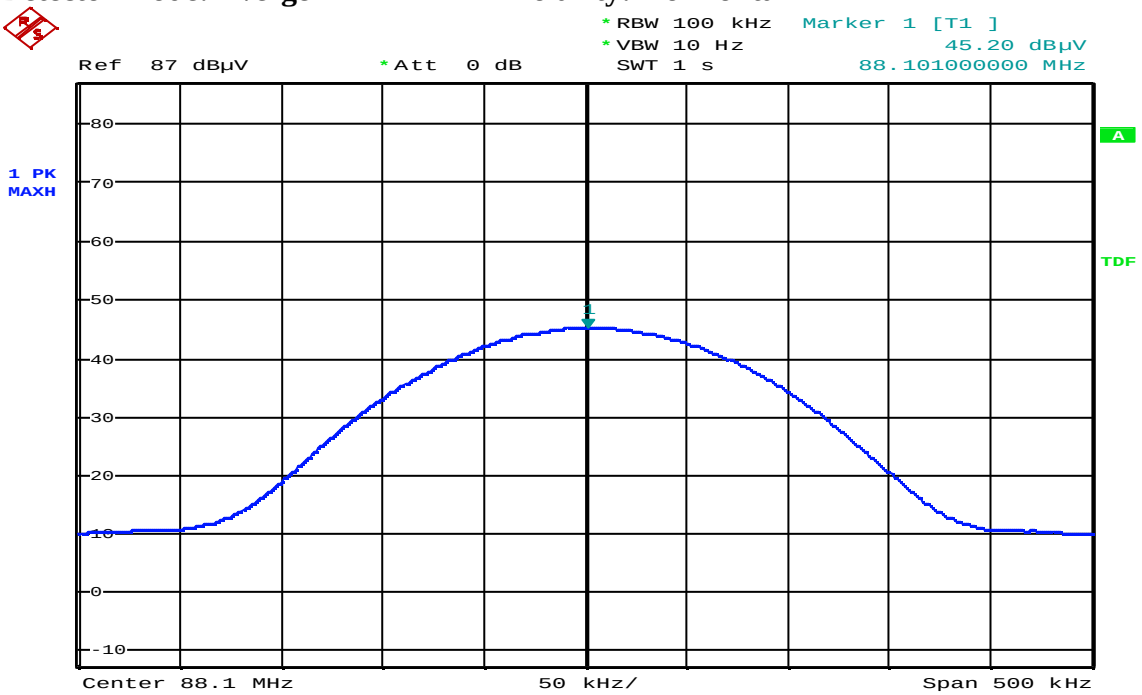
Date: 26.SEP.2007 15:49:07

Detector mode: Peak **Polarity: Horizontal**



Date: 26.SEP.2007 15:46:04

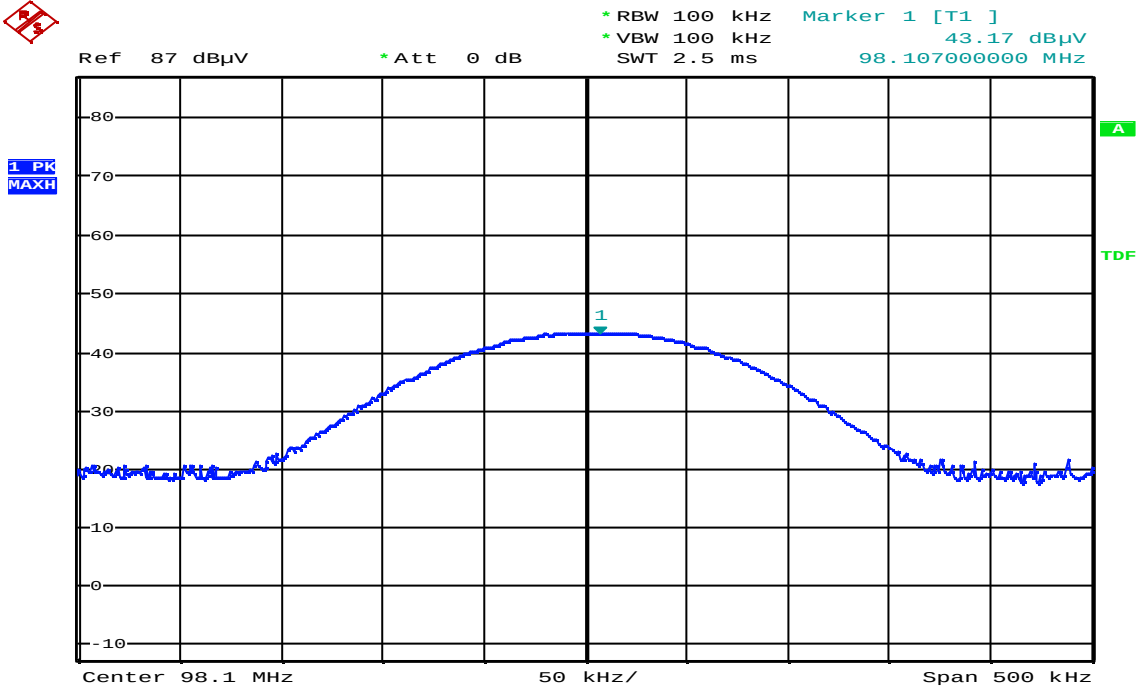
Detector mode: Averge **Polarity: Horizontal**



Date: 26.SEP.2007 15:45:38

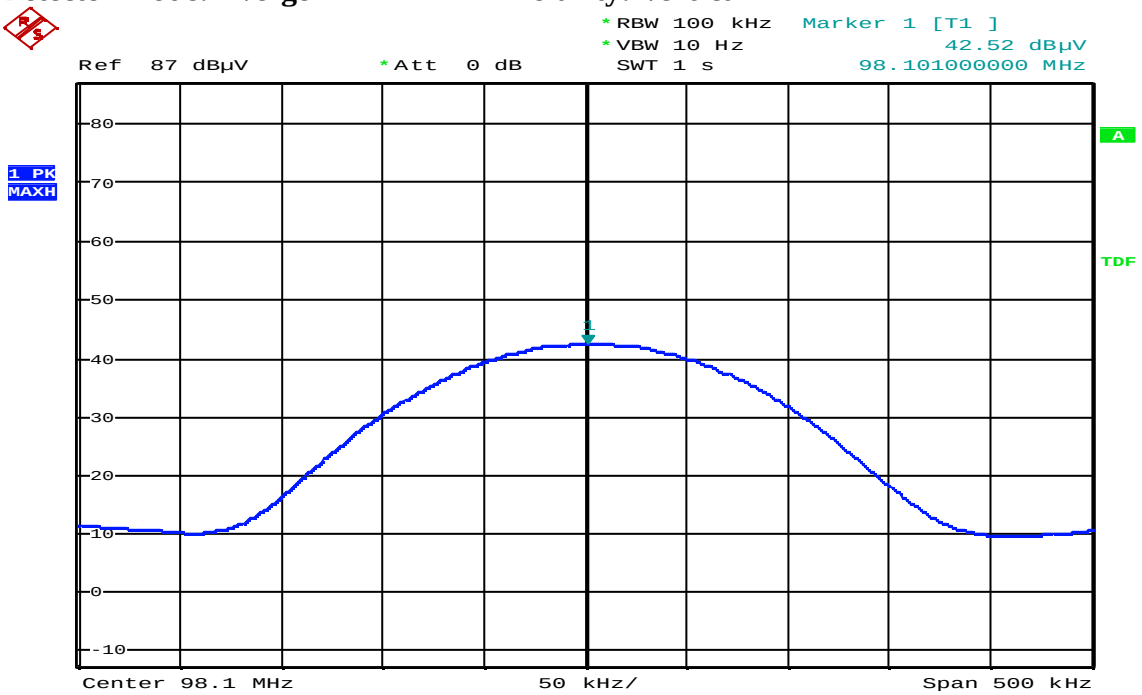
CH Mid

Detector mode: Peak **Polarity: Vertical**



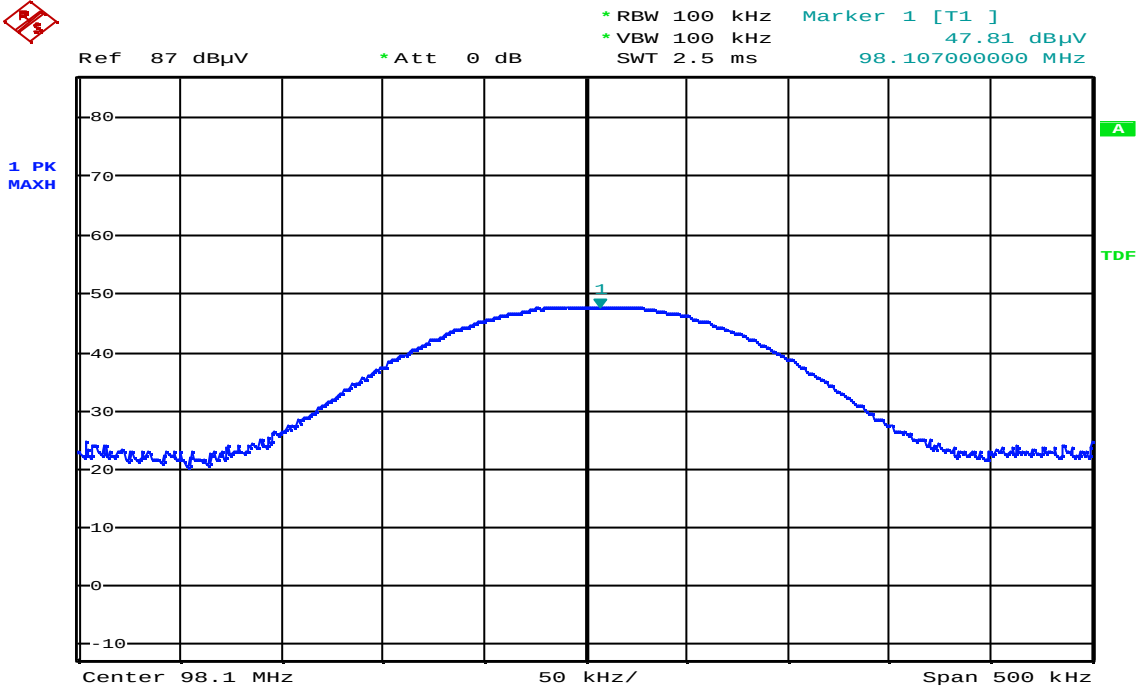
Date: 26.SEP.2007 16:03:26

Detector mode: Averge **Polarity: Vertical**



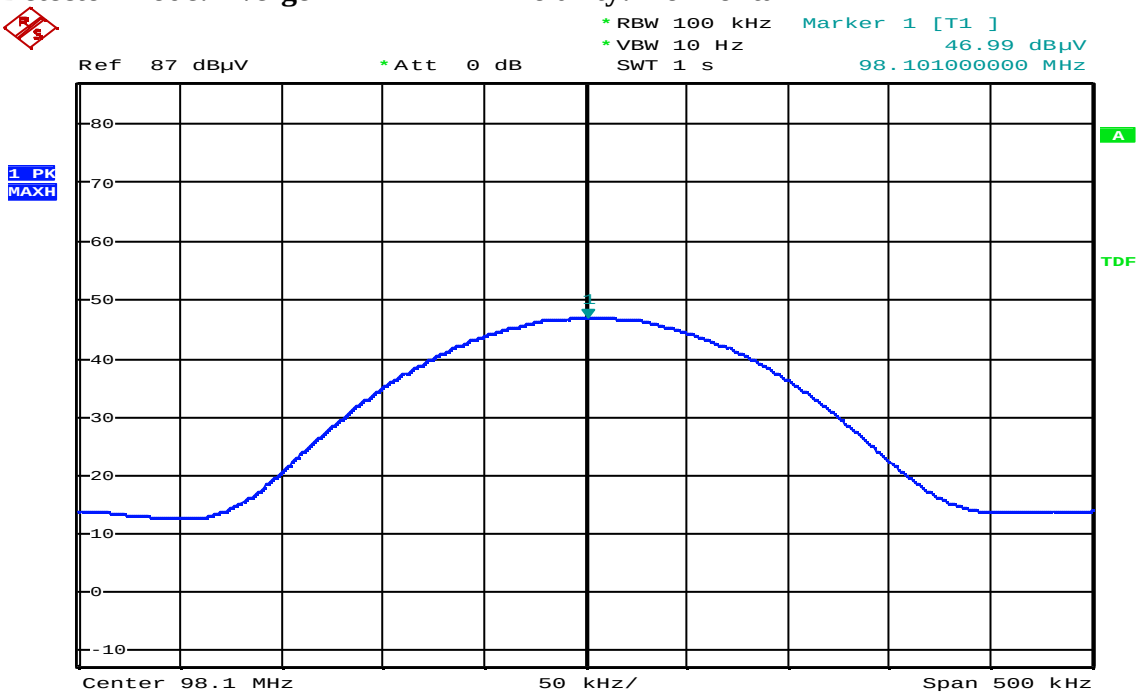
Date: 26.SEP.2007 16:03:55

Detector mode: Peak **Polarity: Horizontal**



Date: 26.SEP.2007 15:57:14

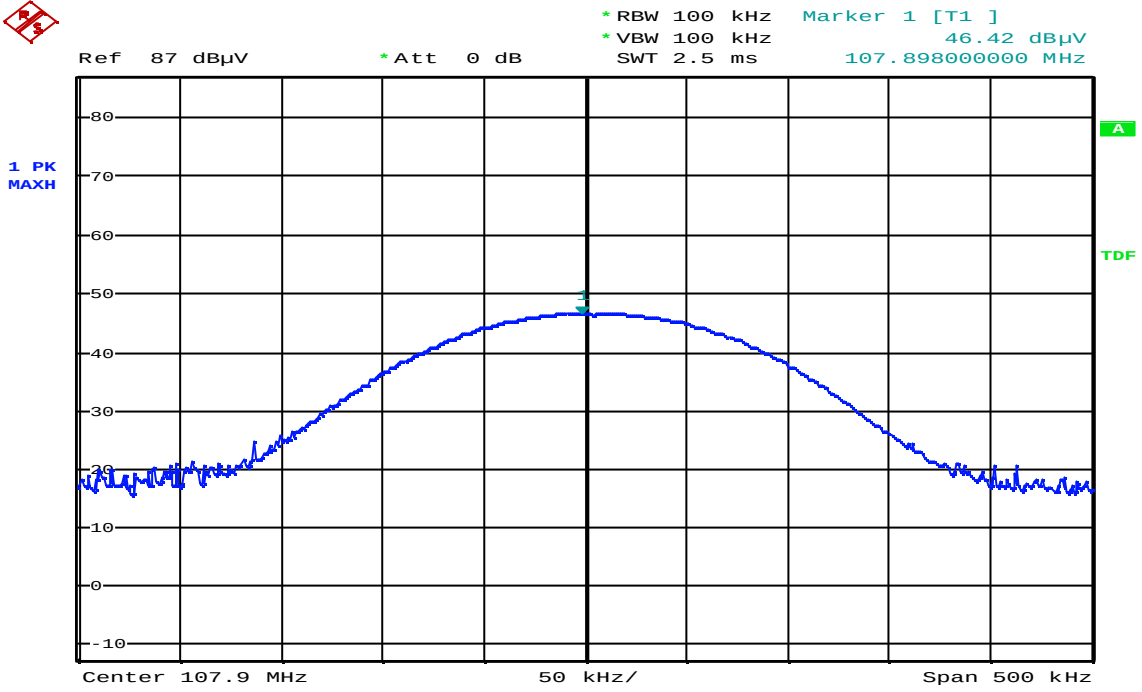
Detector mode: Averge **Polarity: Horizontal**



Date: 26.SEP.2007 15:57:51

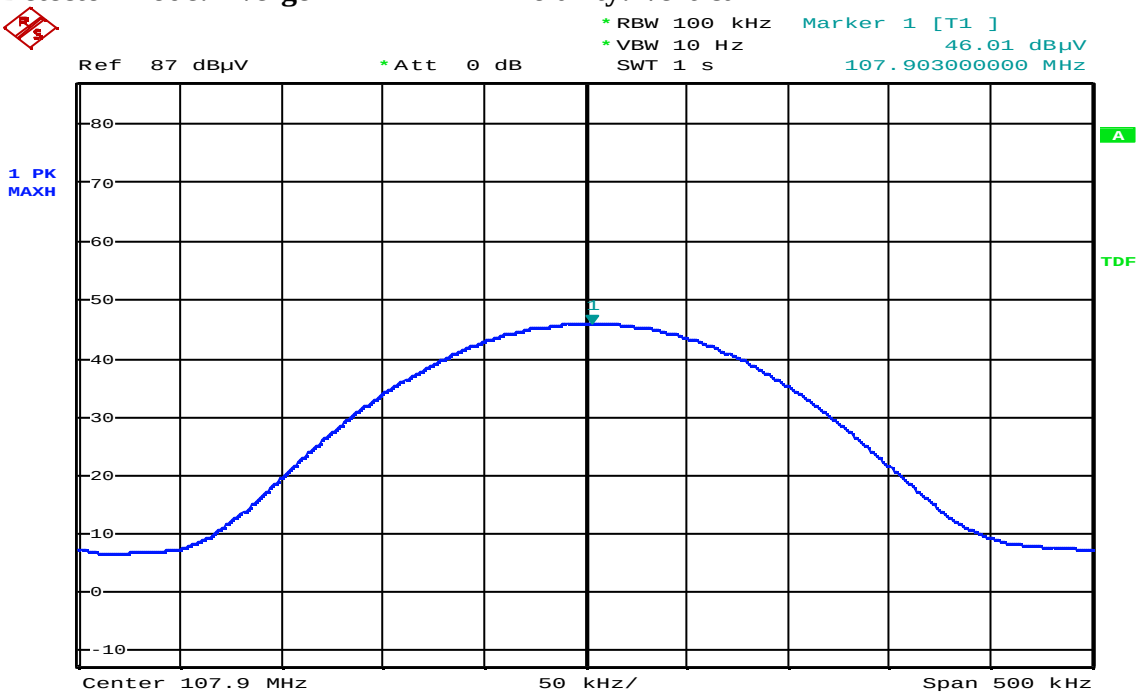
CH High

Detector mode: Peak **Polarity: Vertical**



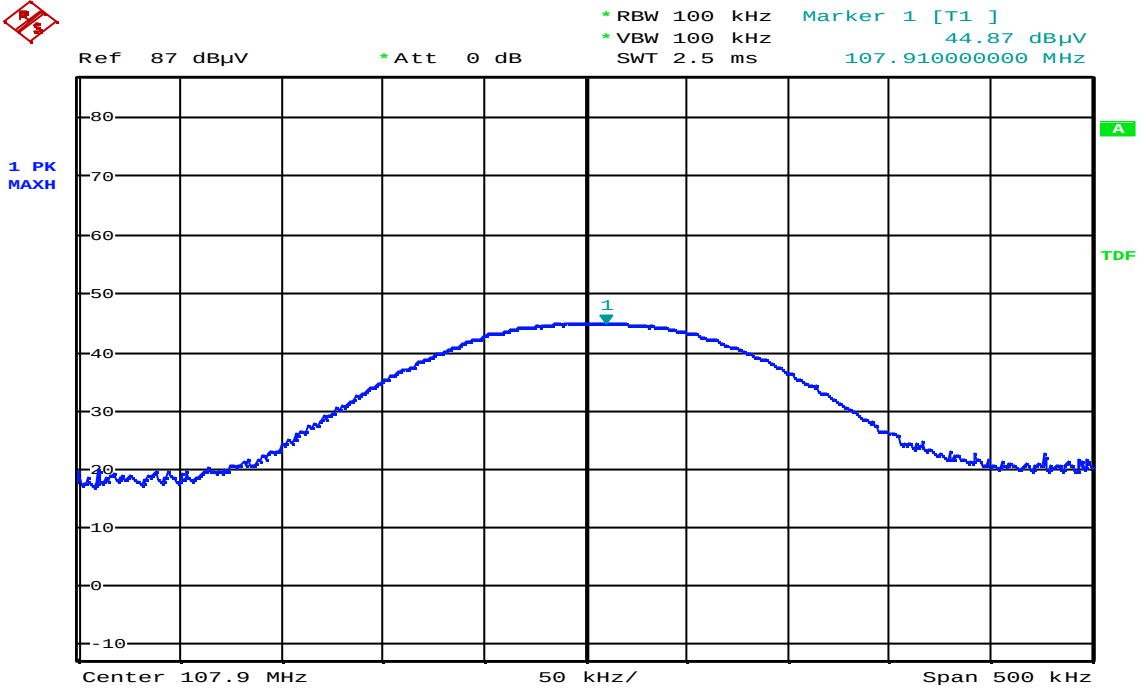
Date: 26.SEP.2007 16:11:08

Detector mode: Averge **Polarity: Vertical**



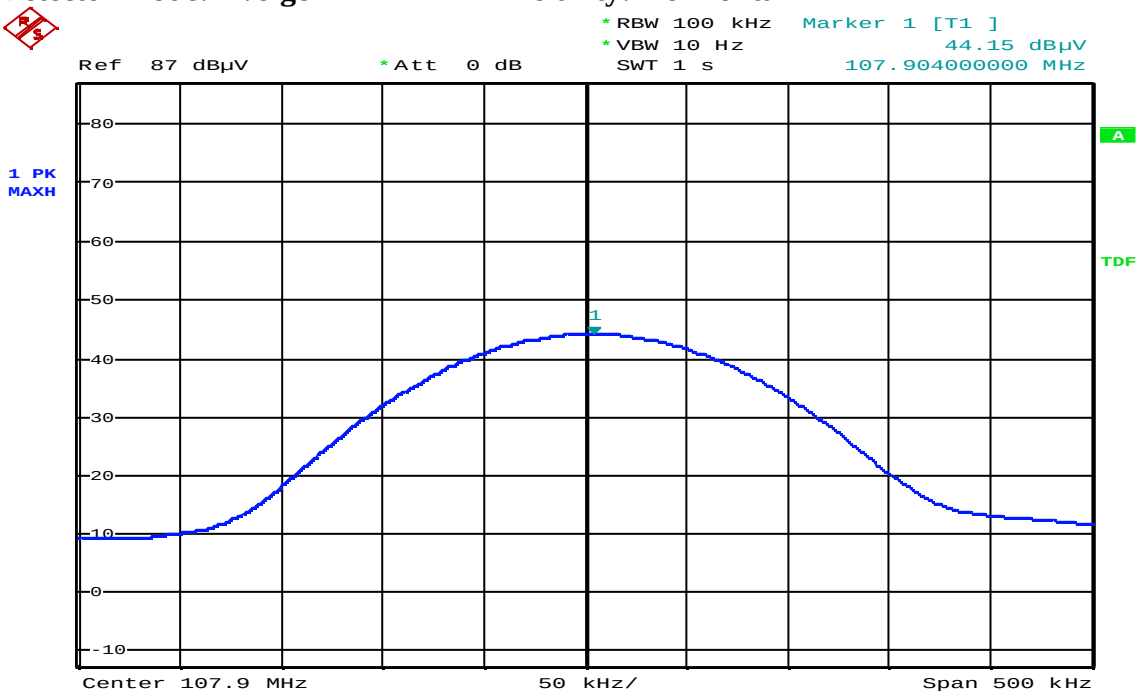
Date: 26.SEP.2007 16:11:29

Detector mode: Peak **Polarity: Horizontal**



Date: 26.SEP.2007 16:08:43

Detector mode: Averge **Polarity: Horizontal**



Date: 26.SEP.2007 16:09:10

7.4 POWERLINE CONDUCTED EMISSIONS

LIMIT

For an intentional radiator which 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 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

TEST CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

Operation Mode:	Charging	**Test Date:**	Sept. 19, 2007
Temperature:	26°C	**Tested by:**	Arno Hsieh
Humidity:	54% RH		

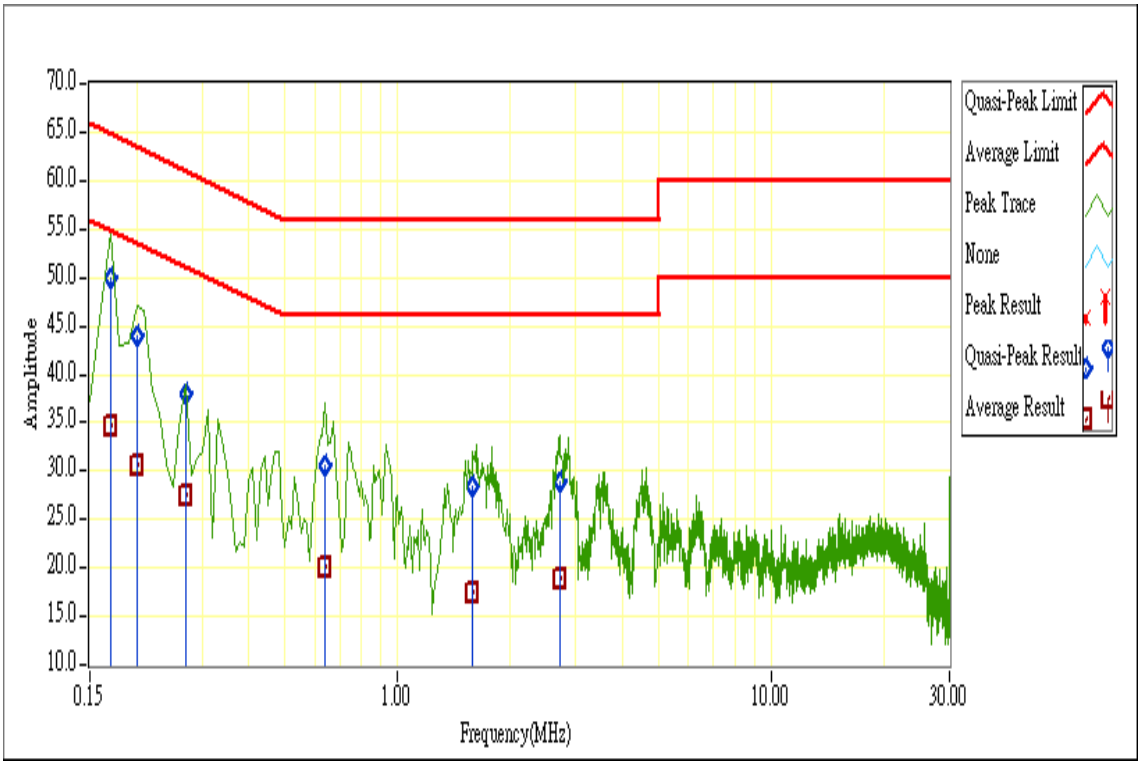
Freq. (MHz)	QP Reading	AV Reading	Corr. factor	QP Result	AV Result	QP Limit	AV Limit	QP Margin	AV Margin	Note
0.17	49.65	34.53	0.20	49.85	34.73	64.96	54.96	-15.11	-20.23	L1
0.20	43.77	30.28	0.20	43.97	30.48	63.61	53.61	-19.64	-23.13	L1
0.27	37.70	27.14	0.20	37.90	27.34	61.12	51.12	-23.22	-23.78	L1
0.64	30.50	20.02	0.10	30.60	20.12	56.00	46.00	-25.40	-25.88	L1
1.59	28.16	17.27	0.16	28.32	17.43	56.00	46.00	-27.68	-28.57	L1
2.72	28.57	18.52	0.24	28.81	18.76	56.00	46.00	-27.19	-27.24	L1
0.17	50.44	35.42	0.20	50.64	35.62	64.96	54.96	-14.32	-19.34	L2
0.21	44.27	30.07	0.20	44.47	30.27	63.21	53.21	-18.74	-22.94	L2
0.27	39.06	27.76	0.20	39.26	27.96	61.12	51.12	-21.86	-23.16	L2
0.34	29.80	17.64	0.20	30.00	17.84	59.20	49.20	-29.20	-31.36	L2
0.47	29.31	20.91	0.13	29.44	21.04	56.51	46.51	-27.07	-25.47	L2
0.61	31.37	22.58	0.10	31.47	22.68	56.00	46.00	-24.53	-23.32	L2

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *"---" denotes the emission level was or more than 2dB below the Average limit*
4. *The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;*
5. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)