FCC CFR 47 PART 15 SUBPART C

TEST REPORT

For

nano TUNE

Model Number : DL-14

Issued to

JOW TONG TECHNOLOGY CO., LTD.
46, Lane 337, Chung Cheng Rd., Yung Kang City,
Tainan County 710, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.
Tainan Lab.
No. 8, Jiu Cheng Ling, Jiaokeng Village,Sinhua Township, Tainan Hsien 712, Taiwan R.O.C.
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Testing Laboratory
1109

NVLAP LAB CODE 200627-0

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1. TEST RESULT CERTIFICATION

Applicant ：JOW TONG TECHNOLOGY CO., LTD.

Address ：46, Lane 337, Chung Cheng Rd., Yung Kang City, Tainan County 710, Taiwan, R.O.C.

Equipment Under Test ：nano TUNE

Model Number ：DL-14

Date of Test ：February 23, 2006 ~ February 24, 2006

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 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:***

Alex Chiu Feb. 20, 2006

Alex Chiu
Manager
Compliance Certification Services Inc.

Jeter Wu Feb. 20, 2006

Jeter Wu
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	nano TUNE
Model Number	DL-14
Model Difference	N/A
Power Supply	DC 3.3V 0.5W
Operate Frequency	88.1 ~ 107.9MHz
Transmit Power	N/A
Modulation Technique	FM
Number of Channels	199 Channel

Remark: *This submittal(s) (test report) is intended for FCC ID: QPRDL-14 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: DL-14) has 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 (X axis) and the worst case was recorded.

4 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

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at CCS Tainan Lab.

☒ No. 8, Jiu Cheng Ling, Jiaokeng Village,Sinhua Township, Tainan Hsien 712, Taiwan R.O.C.

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: 200627-0 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: 228014).

5.4 TABLE PF ACCREDITATIONS AND LISTINGS

The test facilities used to perform Electromagnetic compatibility tests are registered or accredited by the organizations listed in the following table which includes the recognized scope specifically.

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP	EN 55014-1, AS/NZS 1044, CNS 13783-1, IEC/CISPR 14-1, IEC/CISPR 22, EN 55022, EN 61000-3-2, EN 61000-3-3, ANSI C63.4, AS/NZS CISPR 22, AS/NZS 3548, IEC 61000-4-2/3/4/5/6/8/11	NVLAP LAB CODE 200627-0 200627-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	228014
Japan	VCCI	3/10 meter Open Area Test Sites and conducted test sites to perform radiated/conducted measurements	R-1989 C-2142
Taiwan	CNLA	CISPR 11 FCC METHOD-47 CFR Part 18 EN 55011 CNS 13803, CISPR 14 EN 55014 CNS 13783-1, CISPR 22 EN 55022 VCCI FCC Method-47 CFR Part 15 Subpart B CNS 13438	Testing Laboratory 1109
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13803	SL2-IS-E-0039 SL2-IN-E-0039 SL2-A1-E-0039
Canada	Industry Canada	RSS212, Issue 1	IC 6192

* 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.

6.2SUPPORT EQUIPMENT

No.	Product	Manufacturer	Model No.	Certify No.	Signal cable
1	iPod	Apple	A1137	DOC	N/A

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*
3. *Adjust input audio signal from iPod Shuffle to maximum volume.*

7 FCC PART 15.239 REQUIREMENTS

7.1 20 dB BANDWIDTH

LIMIT

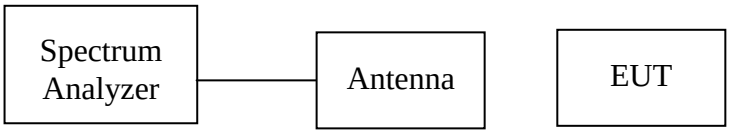
N/A

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Date of Calibration
SPECTRUM ANALYZER	R&S	FSEM	829054/017	MAR. 18, 2005

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

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 = 30KHz, Span = 10KHz, Sweep = auto.
4. Mark the peak frequency and 20dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

TEST RESULTS

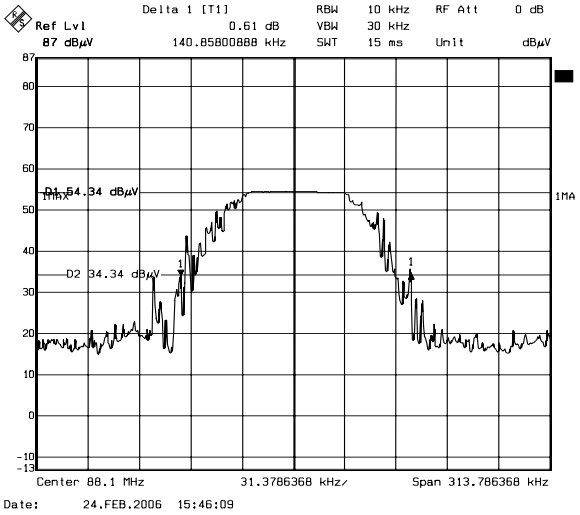
No non-compliance noted

Test Data

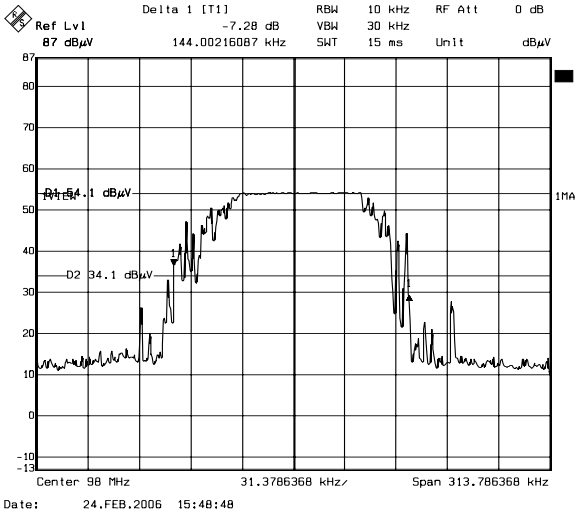
Channel	Frequency (MHz)	Bandwidth (kHz)
Low	88.1	140.85
Mid	98	144
High	107.9	123.87

Test Plot

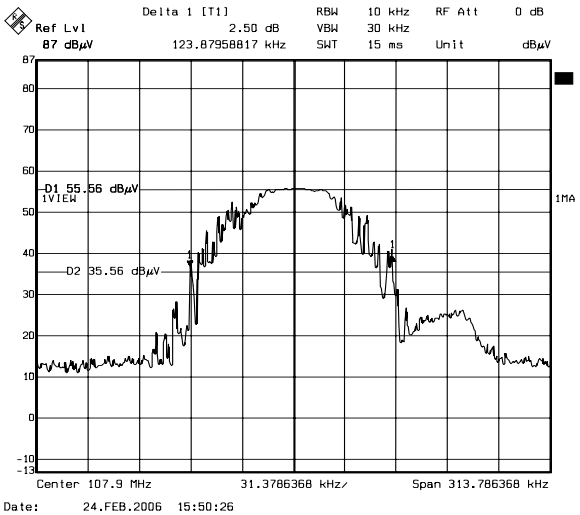
CH Low



CH Mid



CH High



7.2 BAND EDGES MEASUREMENT

LIMIT

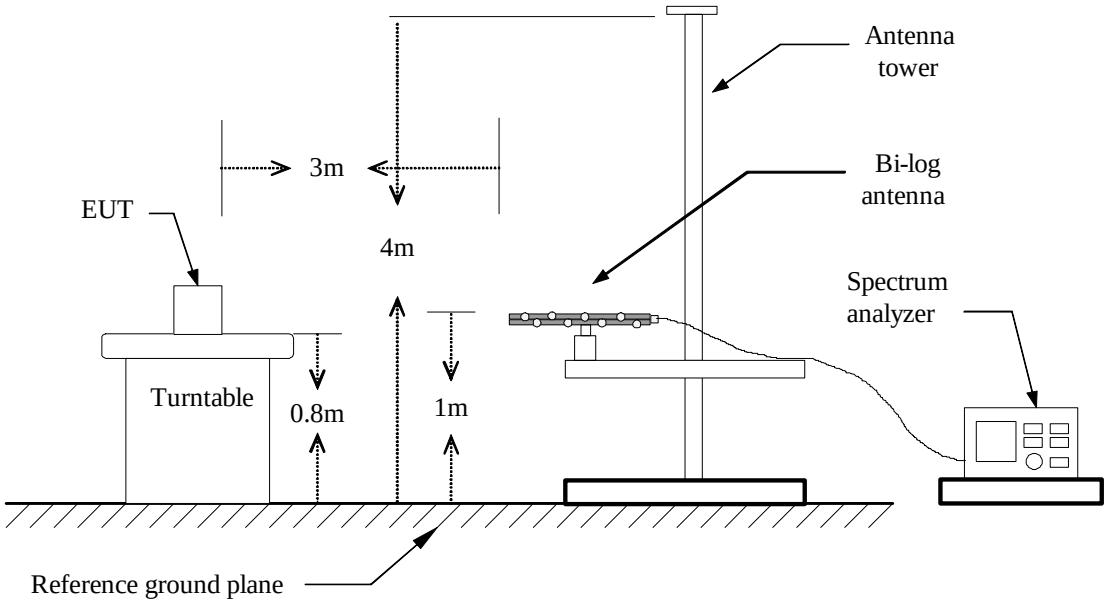
According to §15.239(a), emissions from the intentional radiator shall be confined within a band 200kHz wide centered on the operating frequency. The 200kHz band shall lie wholly within the frequency range of 88-108MHz.

MEASUREMENT EQUIPMENT USED

Open Area Test Site # 6				
Manufacturer or Type	**Model No.**	**Serial No.**	**Date of Calibration**	**Calibration Period**
O.A.T.S	----------	No.6	SEP. 12, 2005	1 YEAR
R&S EMI Receiver	ESVS10	833206/012	FEB. 24, 2005	1 YEAR
R&S Spectrum Analyzer	FSEM	829054/017	MAR. 18, 2005	1 YEAR
CHASE BI-LOG Antenna	CBL6112B	2563	FEB. 16, 2006	1 YEAR
Com-Power Horn Antenna	AH-118	071033	AUG.30, 2005	1 YEAR
SMA 18G Cable	SUCOFLEX104(1M)	001	MAR. 22, 2005	1 YEAR
HP Pre-Amplifier	8447F	2727A02227	AUG. 18, 2005	1 YEAR
HP Signal Generator	8673C	2938A00663	FEB. 02, 2006	1 YEAR
IFR Power Meter	8541C	1835448	APR. 07, 2005	1 YEAR
HP Pre-Amplifier	8447F	2944A03817	MAR.09, 2005	1 YEAR
Yo Chen Turn Table	001	----------	N.C.R.	N.C.R.
AR Antenna Tower	TP1000A	309874	N.C.R.	N.C.R.
CT Controller	SC101	----------	N.C.R.	N.C.R.

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

Test Configuration



TEST PROCEDURE

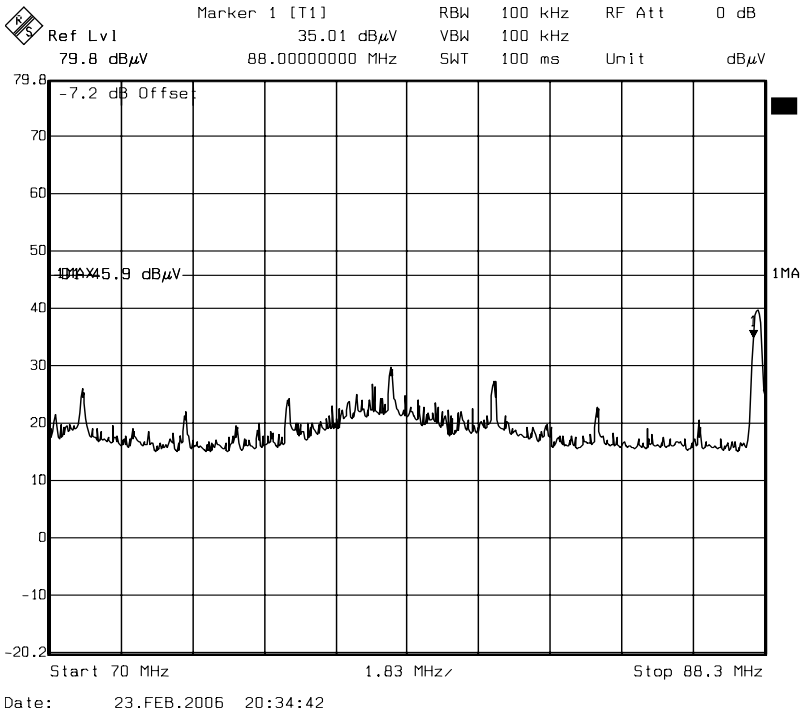
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal form an external generator.
2. Position the EUT as shown in figure 1 and measurement the turn on the EUT. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100kHz 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

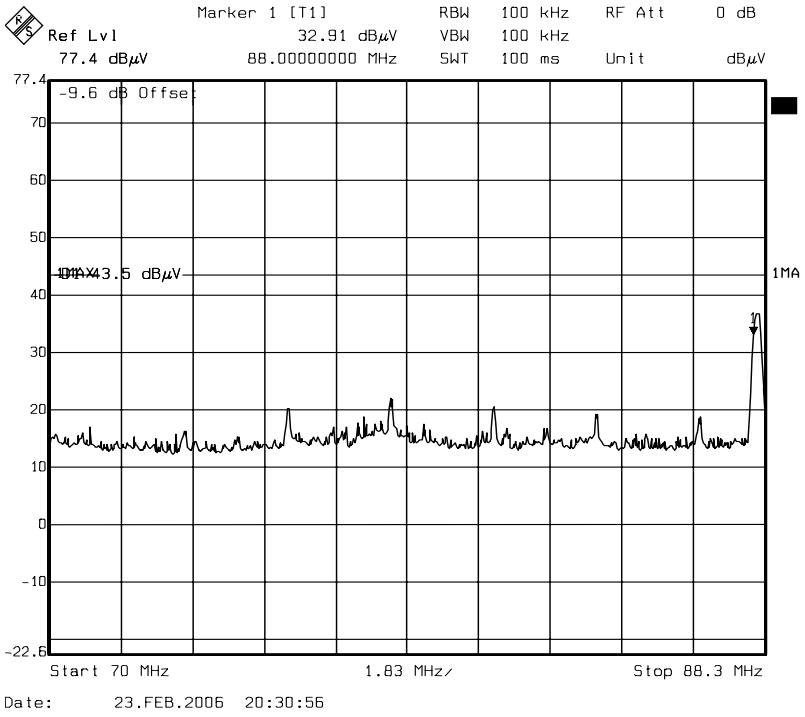
Refer to attach spectrum analyzer data chart.

Band Edges (CH Low)

Polarity: Vertical

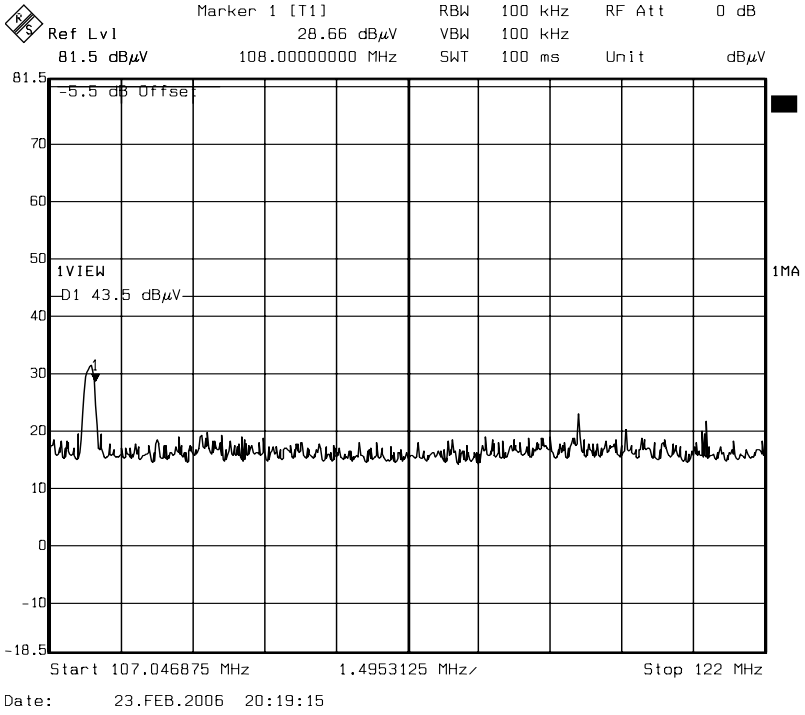


Polarity: Horizontal

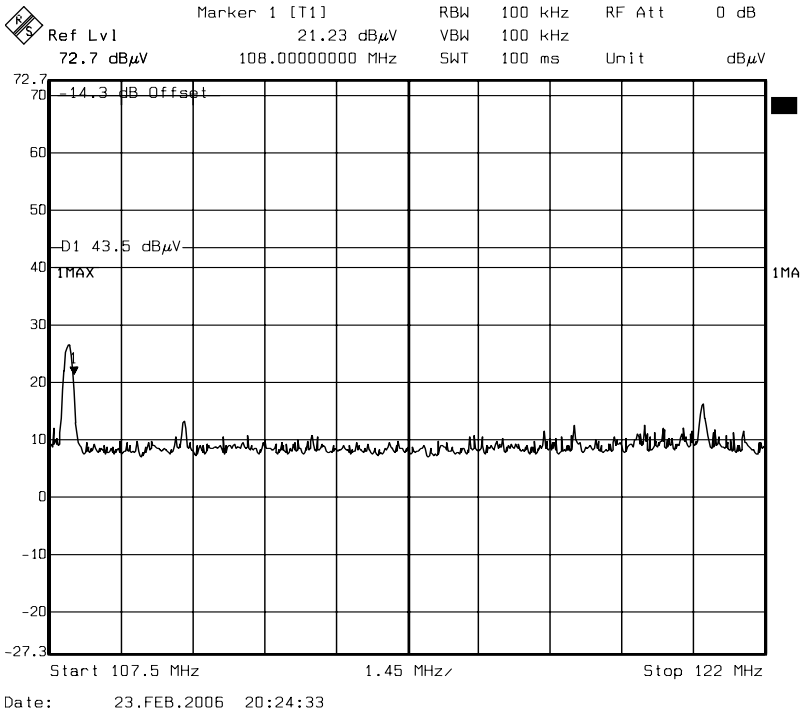


Band Edges (CH High)

Polarity: Vertical



Polarity: Horizontal



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

MEASUREMENT EQUIPMENT USED

Open Area Test Site # 6				
Manufacturer or Type	**Model No.**	**Serial No.**	**Date of Calibration**	**Calibration Period**
O.A.T.S	----------	No.6	SEP. 12, 2005	1 YEAR
R&S EMI Receiver	ESVS10	833206/012	FEB. 24, 2005	1 YEAR
R&S Spectrum Analyzer	FSEM	829054/017	MAR. 18, 2005	1 YEAR
CHASE BI-LOG Antenna	CBL6112B	2563	FEB. 16, 2006	1 YEAR
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IFR Power Meter	8541C	1835448	APR. 07, 2005	1 YEAR
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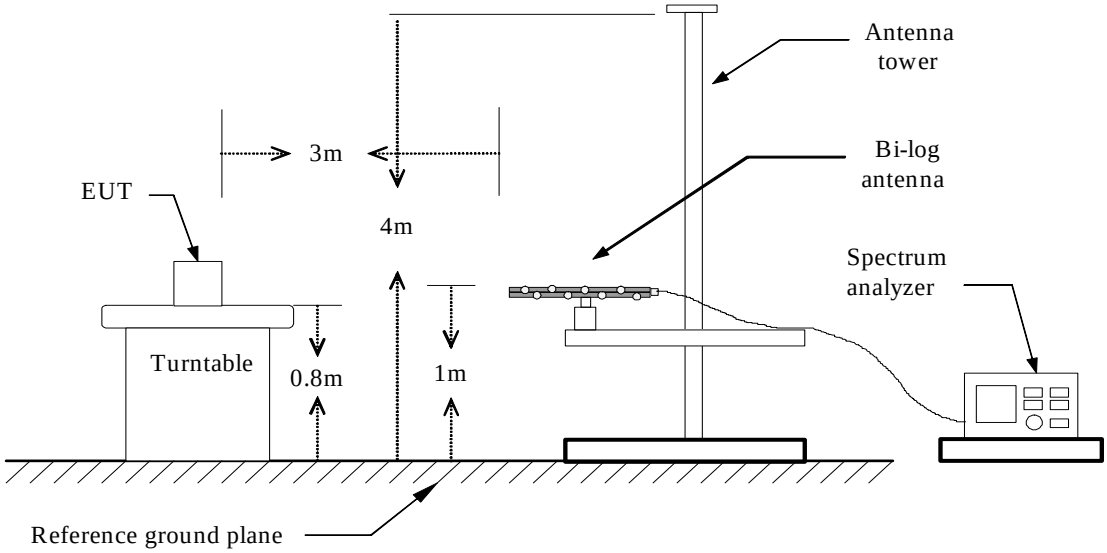
Yo Chen Turn Table	001	----------	N.C.R.	N.C.R.
AR Antenna Tower	TP1000A	309874	N.C.R.	N.C.R.
CT Controller	SC101	----------	N.C.R.	N.C.R.

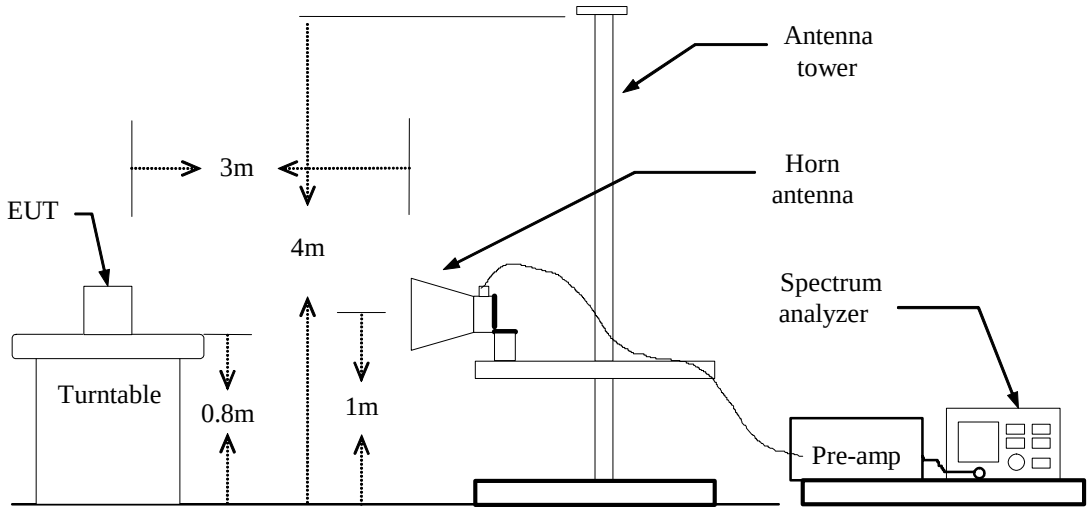
Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration

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

Below 1 GHz

Operation Mode:	CH Low / Y Mode	**Test Date:**	February 24, 2006
Temperature:	22.6°C	**Tested by:**	Jerry Chang
Humidity:	57 % RH	**Polarity:**	Hor. / Ver.

Horizontal

Freq-Uency	Meter Reading at 3 m (dB μ V/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dB μ V/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dB μ V/M)	Horizontal	PK/QP	H
88.11	43.65	8.31	0.91	26.39	48.00	26.49	PK	-21.51
176.19	33.85	9.65	0.97	26.02	43.50	18.45	PK	-25.05
264.30	25.71	13.73	1.53	25.68	46.00	15.29	PK	-30.71
352.38	25.43	14.06	1.97	26.20	46.00	15.26	PK	-30.74
440.50	24.69	28.18	2.43	26.85	46.00	28.45	PK	-17.55
528.58	25.61	17.95	2.70	27.34	46.00	18.92	PK	-27.08
616.74	24.42	18.91	3.04	27.58	46.00	18.80	PK	-27.20

Vertical

Freq-Uency	Meter Reading at 3 m(dB μ V/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dB μ V/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dB μ V/M)	Vertical	PK/QP	V
88.10	47.55	8.31	0.91	26.39	48.00	30.39	PK	-17.61
176.19	34.23	9.65	0.97	26.02	43.50	18.83	PK	-24.67
264.29	26.10	13.73	1.53	25.68	46.00	15.68	PK	-30.32
352.39	25.15	14.06	1.97	26.20	46.00	14.98	PK	-31.02
440.53	26.90	15.69	2.43	26.85	46.00	18.16	PK	-27.84
528.59	24.40	17.95	2.70	27.34	46.00	17.71	PK	-28.29
616.68	24.27	18.91	3.04	27.58	46.00	18.65	PK	-27.35

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 / Y Mode	**Test Date:**	February 24, 2006
Temperature:	22.6°C	**Tested by:**	Jerry Chang
Humidity:	57 % RH	**Polarity:**	Hor. / Ver.

Horizontal

Freq-Uency	Meter Reading at 3 m(dB μ V/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dB μ V/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dB μ V/M)	Horizontal	PK/QP	H
98.01	42.35	10.39	0.90	26.30	48.00	27.34	PK	-20.66
195.94	37.34	9.88	1.19	25.96	43.50	22.44	PK	-21.06
293.98	28.51	13.73	1.59	25.76	46.00	18.06	PK	-27.94
391.98	24.82	14.31	2.25	26.52	46.00	14.87	PK	-31.13
489.99	25.28	28.18	2.57	27.18	46.00	28.85	PK	-17.15
588.60	27.79	18.62	2.91	27.52	46.00	21.80	PK	-24.20
686.01	24.13	19.58	3.42	27.64	46.00	19.49	PK	-26.51

Vertical

Freq-Uency	Meter Reading at 3 m(dB μ V/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dB μ V/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dB μ V/M)	Vertical	PK/QP	V
98.00	39.66	10.39	0.90	26.30	48.00	24.65	PK	-23.35
195.93	31.11	9.88	1.19	25.96	43.50	16.21	PK	-27.29
294.00	26.07	13.73	1.59	25.76	46.00	15.62	PK	-30.38
391.94	25.55	14.31	2.25	26.52	46.00	15.60	PK	-30.40
490.00	24.87	17.30	2.57	27.18	46.00	17.56	PK	-28.44
587.97	28.27	18.62	2.91	27.52	46.00	22.27	PK	-23.73
685.97	23.88	19.58	3.42	27.64	46.00	19.24	PK	-26.76

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 / Y Mode	**Test Date:**	February 24, 2006
Temperature:	22.6°C	**Tested by:**	Jerry Chang
Humidity:	57 % RH	**Polarity:**	Hor. / Ver.

Horizontal

Freq-Uency (MHz)	Meter Reading at 3 m(dB μ V/M) (dB)	Antenna Factor (dB)	Cable Loss Vertical	Pre-amp Factor (dB)	Limits (dB μ V/M)	Emission Level at 3 m(dB μ V/M) Horizontal	Detector Mode PK/QP	Margin H
107.89	41.36	11.53	0.94	26.24	48.00	27.58	PK	-20.42
215.77	34.31	11.16	1.32	25.85	43.50	20.95	PK	-22.55
323.67	26.69	13.88	1.77	25.97	46.00	16.37	PK	-29.63
431.55	26.52	15.39	2.40	26.79	46.00	17.52	PK	-28.48
539.47	24.35	28.18	2.74	27.37	46.00	27.90	PK	-18.10
647.42	24.73	19.21	3.21	27.60	46.00	19.54	PK	-26.46
755.30	23.65	20.50	3.50	27.52	46.00	20.13	PK	-25.87

Vertical

Freq-Uency (MHz)	Meter Reading at 3 m(dB μ V/M) (dB)	Antenna Factor (dB)	Cable Loss Vertical	Pre-amp Factor (dB)	Limits (dB μ V/M)	Emission Level at 3 m(dB μ V/M) Vertical	Detector Mode PK/QP	Margin V
107.89	38.11	11.70	0.95	26.24	48.00	24.52	PK	-23.48
215.78	32.79	11.16	1.32	25.85	43.50	19.43	PK	-24.07
323.70	26.65	13.88	1.77	25.97	46.00	16.33	PK	-29.67
431.59	25.75	15.39	2.40	26.79	46.00	16.75	PK	-29.25
539.45	25.02	18.07	2.74	27.37	46.00	18.46	PK	-27.54
647.68	24.39	19.21	3.21	27.60	46.00	19.21	PK	-26.79
755.35	23.07	20.50	3.50	27.52	46.00	19.55	PK	-26.45

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:	RX Mode	**Test Date:**	February 24, 2006
Temperature:	22.6°C	**Tested by:**	Jerry Chang
Humidity:	57 % RH	**Polarity:**	Hor. / Ver.

Horizontal

Freq-Uency	Meter Reading at 3 m(dB μ V/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dB μ V/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dB μ V/M)	Horizontal	PK/QP	H
120.01	33.45	12.57	1.00	26.19	43.50	20.83	PK	-22.67
133.35	26.36	11.99	1.11	26.21	43.50	13.25	PK	-30.25
250.01	34.21	13.73	1.50	25.64	46.00	23.80	PK	-22.20
333.34	18.63	28.18	1.84	26.05	46.00	22.60	PK	-23.40
466.35	24.68	16.53	2.50	27.02	46.00	16.69	PK	-29.31
633.78	25.69	19.07	3.14	27.59	46.00	20.31	PK	-25.69
878.24	24.69	21.83	3.73	28.56	46.00	21.69	PK	-24.31

Vertical

Freq-Uency	Meter Reading at 3 m(dB μ V/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dB μ V/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dB μ V/M)	Vertical	PK/QP	V
120.03	36.58	12.57	1.00	26.19	43.50	23.96	PK	-19.54
133.34	27.69	11.99	1.11	26.21	43.50	14.58	PK	-28.92
249.98	35.66	13.73	1.50	25.64	46.00	25.25	PK	-20.75
333.31	20.22	13.94	1.84	26.05	46.00	9.95	PK	-36.05
466.25	25.21	16.53	2.50	27.02	46.00	17.21	PK	-28.79
631.25	26.33	19.05	3.12	27.59	46.00	20.91	PK	-25.09
878.23	25.69	21.83	3.73	28.56	46.00	22.69	PK	-23.31

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.*
5. *The test data of the worst-case condition(s) was recorded.*

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.

MEASUREMENT EQUIPMENT USED

Conducted Emission Test Site # Conduction				
Manufacturer or Type	**Model No.**	**Serial No.**	**Date of Calibration**	**Calibration Period**
SCHWARZBECK L.I.S.N.	NNLK 8121	8121-446	OCT. 21, 2005 For Insertion loss	1 YEAR
		8121-308	OCT. 04, 2005 For Insertion loss	1 YEAR
R&S TEST RECEIVER	ESCS 30	100348	JUN. 17, 2005	1 YEAR
TYPE N COAXIAL CABLE	--------	----------	FEB. 26, 2005	1 YEAR

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

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

Test Procedure
Since this EUT is battery powered, this test item is not applicable.

Test results
Since this EUT is battery powered, this test item is not applicable.