# FCC CFR 47 PART 15 SUBPART C ANSI C63.4: 2003

Report No.: 70509402-01-RP1

# **TEST REPORT**

for

#### **AIR TUNE**

**MODEL: BTF-01** 

Test Report Number: 70509402-RP1

Issued for

#### J-LINK CO., LTD

NO. 28-12, GANGKOU, GANGNAN VILLAGE, ANDING TOWNSHIP, TAINAN COUNTY 745, TAIWAN

Issued by:

Compliance Certification Services Inc.

Tainan Lab.

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

TEL: 886-6-580-2201

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Issued Date: July 10, 2007



The test results in the report only apply to the tested sample.





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# **Revision History**

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Rev.	Issue Date	Revisions	Effect Page	Revised By
00	July 10, 2007	Initial Issue	ALL	Leah Peng

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# 1 TEST CERTIFICATION

**Product:** AIR TUNE **Model:** BTF-01

Applicant: J-LINK CO., LTD

NO. 28-12, GANGKOU, GANGNAN VILLAGE, ANDING TOWNSHIP, TAINAN COUNTY

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745, TAIWAN

Manufacturer: J-LINK CO., LTD

NO. 28-12, GANGKOU, GANGNAN VILLAGE, ANDING TOWNSHIP, TAINAN COUNTY

745, TAIWAN

**Tested:** June 23, 2007 ~ June 25, 2007

APPLICABLE STANDARDS			
STANDARD	TEST RESULT		
FCC 47 CFR Part 15 Subpart C ANSI C63.4: 2003	No non-compliance noted		

#### **DEVIATION FROM APPLICABLE STANDARD**

None

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:

10.7

Jeter Wu Section Manger **Eric Yang** 

Reviewed by:

Engineer

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# 2 TEST RESULT SUMMARY

APPLICABLE STANDARDS					
Standard Test Item		Result	Remarks		
	20 DB BANDWIDTH	Pass	Meet the requirement of limit.		
15.239	RADIATED EMISSIONS	Pass	Meet the requirement of limit.		
	BAND EDGES MEASUREMENT	Pass	Meet the requirement of limit.		

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Note: 1. The test result judgment is decided by the limit of test standard

<sup>2.</sup> The information of measurement uncertainty is available upon the customer's request.



# **EUT DESCRIPTION**

Product	AIR TUNE
Model Number	BTF-01
Model Discrepancy	N/A
Serial Number	N/A
Received Date	April 11, 2007
Power Source	12VDC (Power from car)
Operate Frequency	88.1MHz – 107.9MHz
Transmit Power	N/A
Modulation Technique	FM
Number of Channels	100 Channels
Antenna Specification	0dBi
Antenna Designation	Printed antenna
EUT Type	⊠Engineering Sample. ☐ Product Sample, ☐ Mass Product Sample.

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Note: 1. The product is a Transmitter. This submittal(s) (test report) is intended for FCC ID: TVT-BTF-01 filing to comply with Section 15.239 of the FCC Part 15 Subpart C Rules.

- 2. For more details, refer to the user's manual of the EUT.
- 3. The tuning controls were manually adjusted to verify maximum tuning range

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# 4 TEST METHODOLOGY

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

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### 4.1. 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.

#### 4.2. 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.

### 4.3. 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.

# 4.4. 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:

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MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 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 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

<sup>&</sup>lt;sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

(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.

### **4.5.** DESCRIPTION OF TEST MODES

The EUT (model: BTF-01) 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.

#### 4.6. 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.

<sup>&</sup>lt;sup>2</sup> Above 38.6

# 5 SETUP OF EQUIPMENT UNDER TEST

# **5.1. DESCRIPTION OF SUPPORT UNITS**

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

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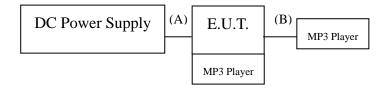
No.	Product	Manufacturer	Model No.	Certify No.	Signal cable
1	MP3 Player	Acorp	1GB	R31720	N/A
2	MP3 Player	Acorp	256MB	R31720	N/A

No.	Signal cable description		
A	Power Cable	Unshielded, 0.8m, 2pcs.	
В	Audio Cable	Unshielded, 1.5m, 1pcs.	

#### Note:

- 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.

### **5.2. CONFIGURATION OF SYSTEM UNDER TEST**



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### 6 FACILITIES AND ACCREDITATIONS

### **6.1. FACILITIES**

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

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

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

#### **6.2.** ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA FCC, NVLAP

Japan VCCI

Canada INDUSTRY CANADA

Taiwan TAF, BSMI

Copies of granted accreditation certificates are available for downloading from our web site, <a href="http://www.ccsemc.com.tw">http://www.ccsemc.com.tw</a>

# **6.3. 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."

# **7 FCC PART 15.239 REQUIREMENTS**

#### **7.1. 20 DB BANDWIDTH**

#### **7.1.1. LIMITS**

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.

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#### 7.1.2. TEST INSTRUMENTS

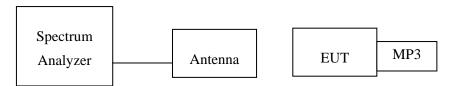
Name of Equipment	Manufacturer	Model	Serial Number	<b>Calibration Due</b>
Spectrum Analyzer	R&S	FSEM30	829054/017	MAR. 13, 2008

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

#### 7.1.3. TEST PROCEDURES (SOP: PA-SN-005-R00)

- 1. Place the EUT on the table and set it in the transmitting mode.
- 2. The Spectrum analyzer connected antenna to perform the EUT test.
- 3. Set the spectrum analyzer as RBW=10KHz, VBW = 30KHz, Span = 500KHz, Sweep = auto.
- 4. Mark the peak frequency and 20dB (upper and lower) frequency.
- 5. Repeat until all the rest channels are investigated.
- 6. The MP3 is connected with the EUT. EUT was in continuous transmitting mode. MP3 is in normal operation, the volume was set to maximum.

#### **7.1.4. TEST SETUP**



• For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 7.1.5. TEST RESULTS

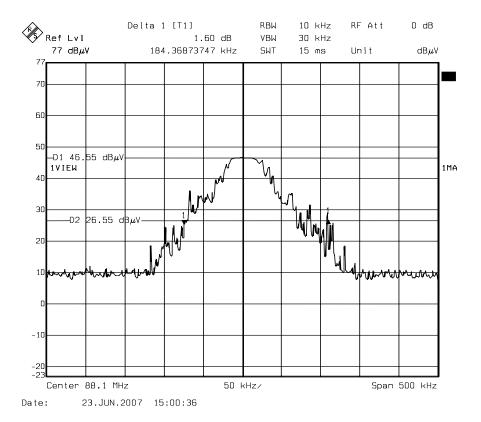
No non-compliance noted

#### **Test Data**

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit	Result
Low	88.1	184.36	200	PASS
Mid	98	172.34	200	PASS
High	107.9	177.35	200	PASS

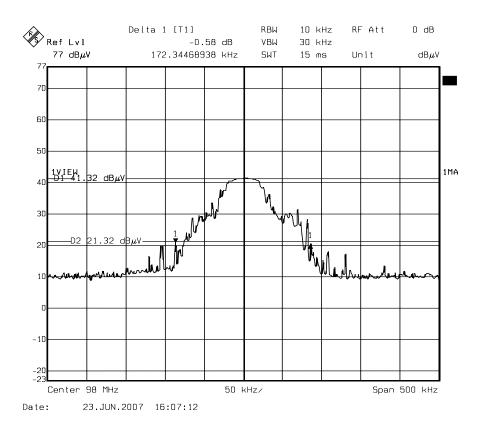
# **Test Plots**

# **CH Low**



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### CH Mid



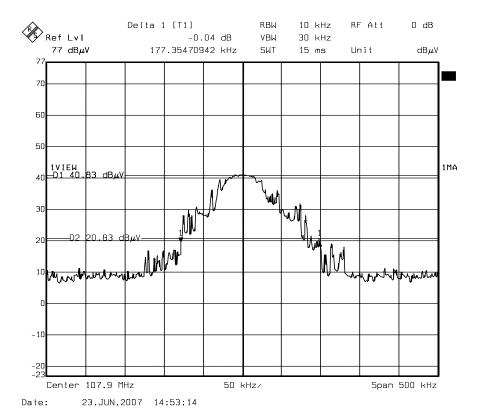
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# **CH High**



#### 7.2. BANDEDGES MEASUREMENT

#### **7.2.1.** 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.

The field strength of any emissions radiated on any frequency outside of the specified 200 kHz band shall not exceed the general radiated emission limits in Section 15.209.

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#### 7.2.2. TEST INSTRUMENTS

	Open Area Test Site # 6				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due	
O.A.T.S			No.6	NOV. 07, 2007	
EMI Receiver	R&S	ESCI	100005	FEB.13, 2008	
Spectrum Analyzer	R&S	FSEM	829054/017	MAR. 13, 2008	
BI-LOG Antenna	Sunol	JB1	A070506-2	JUL. 11, 2007	
Horn Antenna	Com-Power	AH-118	071032	NOV. 21, 2007	
SMA RF CABLE	SUHNER	SUCOFLEX104PEA	20520/4PEA	NOV. 22, 2007	
Pre-Amplifier	MITEQ	AFS44-00102650-42-10P-44	1073264	AUG. 15, 2007	
Signal Generator	HP	8673C	2938A00663	JUN 06, 2008	
Pre-Amplifier	HP	8447F	2944A03817	SEP. 04, 2007	
Turn Table	Yo Chen	001		N.C.R.	
Antenna Tower	AR	TP1000A	309874	N.C.R.	
Controller	CT	SC101		N.C.R.	
Test S/W		e-3 (5.0430	03e)		

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

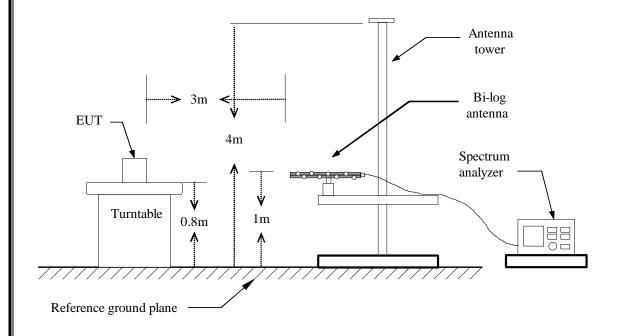
#### **7.2.3. TEST PROCEDURE** (SOP: PA-SN-012-R00)

- 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.



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# **7.2.4. TEST SETUP**



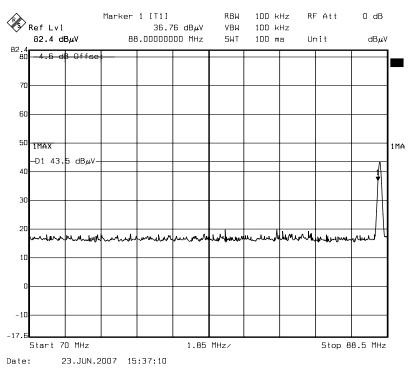
### 7.2.5. TEST RESULTS

Refer to attach spectrum analyzer data chart.



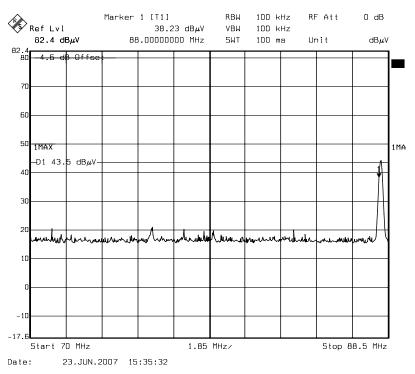
# **Band Edges (CH Low)**

# **Polarity: Vertical**



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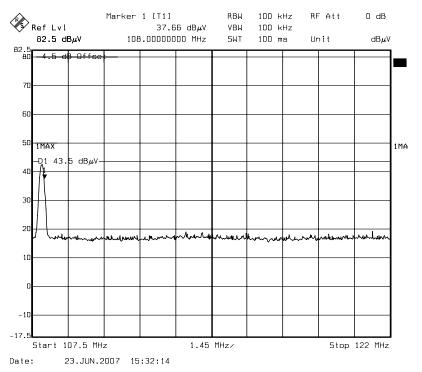
# **Polarity: Horizontal**





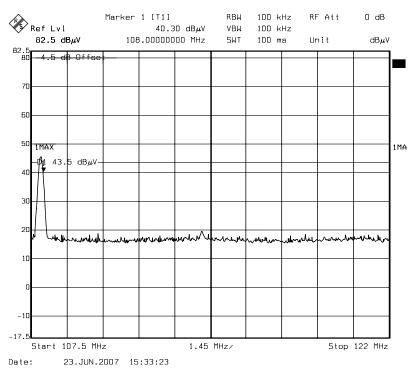
# **Band Edges (CH High)**

# **Polarity: Vertical**



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# **Polarity: Horizontal**



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### 7.3. RADIATED EMISSIONS

#### **7.3.1.** 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

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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

# **7.3.2. TEST INSTRUMENTS**

	Open Area Test Site # 6										
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due							
O.A.T.S			No.6	NOV. 07, 2007							
EMI Receiver	R&S	ESCI	100005	FEB.13, 2008							
Spectrum Analyzer	R&S	FSEM	829054/017	MAR. 13, 2008							
BI-LOG Antenna	Sunol	JB1	A070506-2	JUL. 11, 2007							
Horn Antenna	Com-Power	AH-118	071032	NOV. 21, 2007							
SMA RF CABLE	SUHNER	SUCOFLEX104PEA	20520/4PEA	NOV. 22, 2007							
Pre-Amplifier	MITEQ	AFS44-00102650-42-10P-44	1073264	AUG. 15, 2007							
Signal Generator	HP	8673C	2938A00663	JUN 06, 2008							
Pre-Amplifier	HP	8447F	2944A03817	SEP. 04, 2007							
Turn Table	Yo Chen	001		N.C.R.							
Antenna Tower	AR	TP1000A	309874	N.C.R.							
Controller	CT	SC101		N.C.R.							
Test S/W		e-3 (5.0430	03e)								

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



### 7.3.3. TEST PROCEDURE (SOP: PA-SN-001-R00)

- 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.

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- 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:

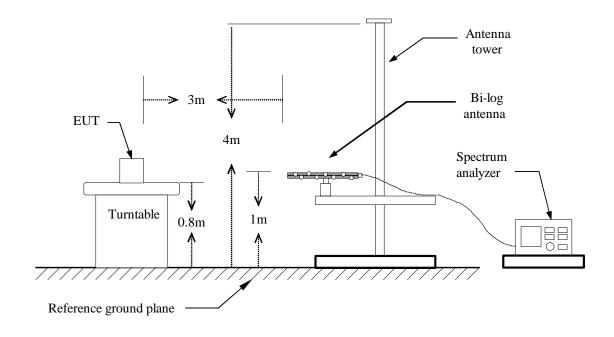
- (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
- (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

Repeat above procedures until the measurements for all frequencies are complete.



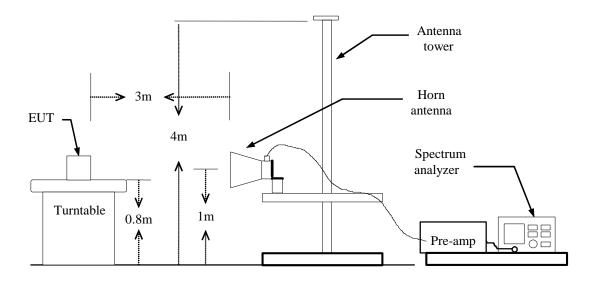
## **7.3.4. TEST SETUP**

### **Below 1 GHz**



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### **Above 1 GHz**



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



#### 7.3.5. TEST RESULTS

Operation Mode:CH Low / Y ModeTest Date:June 25, 2007Temperature:28.6°CTested by:Jerry ChangHumidity:59 % RHPolarity:Hor. / Ver.

#### **Horizontal**

Freq- Uency	Meter Reading at 3 m(dBμV/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dBμV/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	$(dB\mu V/M)$	Horizontal	PK/QP	Н
88.10	61.38	7.86	1.25	26.22	48.00	44.26	PK	-3.74
176.13	46.03	11.65	1.71	26.17	43.50	33.22	PK	-10.28
264.25	44.18	12.71	2.15	25.55	46.00	33.49	PK	-12.51
352.35	39.22	15.15	2.60	26.21	46.00	30.75	PK	-15.25
440.45	38.90	16.93	2.85	26.14	46.00	32.53	PK	-13.47
528.53	36.24	18.37	3.20	26.15	46.00	31.66	PK	-14.34
616.27	35.22	19.51	3.59	26.32	46.00	32.00	PK	-14.00

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#### Vertical

Freq- Uency	Meter Reading at 3 m(dBμV/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dBµV/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dBµV/M)	Vertical	PK/QP	V
88.10	59.24	7.86	1.25	26.22	48.00	42.12	PK	-5.88
176.18	44.68	11.65	1.71	26.17	43.50	31.87	PK	-11.63
264.43	44.25	12.72	2.15	25.55	46.00	33.57	PK	-12.43
352.11	41.33	15.15	2.60	26.21	46.00	32.86	PK	-13.14
440.25	38.17	16.92	2.85	26.14	46.00	31.80	PK	-14.20
528.69	36.25	18.37	3.20	26.15	46.00	31.67	PK	-14.33
616.65	35.64	19.52	3.59	26.32	46.00	32.43	PK	-13.57

#### 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:** June 25, 2007 **Temperature:** 28.6°C **Tested by:** Jerry Chang

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**Humidity:** 59 % RH **Polarity:** Hor. / Ver.

#### **Horizontal**

Freq- Uency	Meter Reading at 3 m(dBμV/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dBμV/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dBµV/M)	Horizontal	PK/QP	Н
98.00	60.24	9.80	1.39	26.21	48.00	45.21	PK	-2.79
196.01	45.25	13.10	1.78	26.22	43.50	33.91	PK	-9.59
293.97	43.87	13.78	2.42	26.13	46.00	33.94	PK	-12.06
392.17	41.36	16.03	2.69	26.19	46.00	33.89	PK	-12.11
490.13	37.55	17.82	3.02	26.10	46.00	32.29	PK	-13.71
587.99	31.28	19.14	3.50	26.27	46.00	27.65	PK	-18.35
686.31	35.69	20.42	3.74	26.41	46.00	33.44	PK	-12.56

#### Vertical

Freq- Uency	Meter Reading at 3 m(dBμV/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dBµV/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dBµV/M)	Vertical	PK/QP	V
98.00	61.87	9.80	1.39	26.21	48.00	46.84	PK	-1.16
196.02	45.69	13.10	1.78	26.22	43.50	34.35	PK	-9.15
294.02	42.69	13.78	2.42	26.13	46.00	32.76	PK	-13.24
392.22	42.63	16.03	2.69	26.19	46.00	35.16	PK	-10.84
490.41	38.56	17.83	3.02	26.10	46.00	33.31	PK	-12.69
587.55	37.55	19.14	3.50	26.27	46.00	33.91	PK	-12.09
686.19	35.68	20.42	3.74	26.41	46.00	33.43	PK	-12.57

#### 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: June 25, 2007

**Temperature:** 28.6°C **Tested by:** Jerry Chang **Humidity:** 59 % RH **Polarity:** Hor. / Ver.

#### **Horizontal**

Freq- Uency	Meter Reading at 3 m(dBμV/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dBµV/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dBµV/M)	Horizontal	PK/QP	Н
107.89	58.77	11.80	1.41	26.21	48.00	45.77	PK	-2.23
215.81	45.63	13.09	1.86	25.93	43.50	34.66	PK	-8.84
323.71	43.87	14.52	2.53	26.23	46.00	34.69	PK	-11.31
431.63	40.22	16.77	2.82	26.15	46.00	33.66	PK	-12.34
539.63	38.96	18.52	3.25	26.17	46.00	34.55	PK	-11.45
647.33	36.74	19.92	3.66	26.36	46.00	33.95	PK	-12.05
755.18	34.25	21.26	3.97	26.36	46.00	33.13	PK	-12.87

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#### Vertical

Freq- Uency	Meter Reading at 3 m(dBμV/M)	Antenna Factor	Cable Loss	Pre-amp Factor	Limits	Emission Level at 3 m(dBµV/M)	Detector Mode	Margin
(MHz)	(dB)	(dB)	Vertical	(dB)	(dBµV/M)	Vertical	PK/QP	V
107.90	56.21	11.80	1.41	26.21	48.00	43.21	PK	-4.79
215.81	45.63	13.09	1.86	25.93	43.50	34.66	PK	-8.84
323.71	44.38	14.52	2.53	26.23	46.00	35.20	PK	-10.80
431.68	40.36	16.77	2.82	26.15	46.00	33.80	PK	-12.20
539.52	37.55	18.51	3.25	26.17	46.00	33.14	PK	-12.86
647.33	36.42	19.92	3.66	26.36	46.00	33.63	PK	-12.37
755.22	32.18	21.26	3.97	26.36	46.00	31.06	PK	-14.94

#### 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