



**Spectrum Research &
Testing Lab., Inc.**
No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan

TEST REPORT

Reference No.: A09020301
Report No.: FCCA09020301
FCCID: IV5-JH-230E
Page: 1 of 30
Date: Feb. 13, 2009

Product Name: Wireless AV theft-proof Transmitter,
Model Number: JH-230E
Applicant: JENN HUEY ENTERPRISE CO., LTD.
ADDRESS: NO.39, SEC 2, GUANG MING ROAD,
CHUNG LI CITY, TAIWAN, R.O.C.
Date of Receipt: Feb. 03, 2009
Finished date of Test: Feb. 09, 2009
Applicable Standards: 47 CFR Part 15, Subpart C
ANSI C63.4:2003

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Checked By :

Kunter Jin
(Kunter Jin)

Date:

Feb. 13, 2009

Approved By :

J. H.
(Johnson Ho, Director)

Date:

Feb. 13, 2009



NVLAP

Lab Code: 200099-0



TABLE OF CONTENTS

1. DOCUMENT POLICY AND TEST STATEMENT.....	4
1.1 DOCUMENT POLICY	4
1.2 TEST STATEMENT	4
1.3 EUT MODIFICATION	4
2. DESCRIPTION OF EUT AND TEST MODE	5
2.1 GENERAL DESCRIPTION OF EUT	5
2.2 DESCRIPTION OF SUPPORT UNIT	6
2.3 DESCRIPTION OF TEST MODE	7
3 DESCRIPTION OF APPLIED STANDARDS.....	7
4 CONDUCTED EMISSION TEST `	8
4.1. LIMIT.....	8
4.2 TEST EQUIPMENT	8
4.3 TEST SETUP	9
4.4 TEST PROCEDURE	9
4.5 EUT OPERATING CONDITION	10
4.6 TEST RESULT	11
5 20dB Bandwidth.....	12
5.1 LIMIT.....	12
5.2 TEST EQUIPMENT	12
5.3 TEST SET-UP	12
5.4 TEST PROCEDURE	12
5.5 EUT OPERATING CONDITION	12
5.6 TEST RESULT	13
6 BAND EDGE TEST	14
6.1 LIMIT.....	14
6.2 TEST EQUIPMENT	14
6.3 TEST SET-UP	14
6.4 TEST PROCEDURE	15
6.5 EUT OPERATING CONDITION	15
6.6 TEST RESULT	15
7. RELEASE OR OPERATING TIME	16
7.1 LIMIT.....	16
7.2 TEST EQUIPMENT	16
7.3 TEST SET-UP	16
7.4 TEST PROCEDURE	16
7.5 EUT OPERATING CONDITION	17
7.6 TEST RESULT	17
8. FUNDAMENTAL & SPURIOUS RADIATED EMISSION TEST	18
8.1 LIMIT.....	18
8.2 TEST EQUIPMENT	19



**Spectrum Research &
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No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan

TEST REPORT

Reference No.: A09020301
Report No.: FCCA09020301
FCCID: IV5-JH-230E
Page:3 of 30
Date :Feb. 13, 2009

8.3	TEST SET-UP	20
8.4	TEST PROCEDURE	22
8.5	EUT OPERATING CONDITION	22
8.6	TEST RESULT	23
9.	PHOTOS OF TESTING	27
10.	TERMS OF ABBREVIATION	30

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:4 of 30 Date :Feb. 13, 2009
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	-------------------------------------------------------------------------------------------------------------------

1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.
- The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

1.2 TEST STATEMENT

- The test results in the report apply only to the unit tested by SRT Lab.
- There was no deviation from the requirements of test standards during the test.
- Power system, single-phase 120VAC, 60Hz, supplied under test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.



TEST REPORT

2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless AV theft-proof Transmitter,
MODEL NO.	JH-230E
POWER SUPPLY	DC 12V · 0.5A
Carrier Frequency	304MHz
Number of Channel	4 / 1
RF Output Power	71.35 dB μ V/m@304MHz
Modulation Type	FM
I.F. & L.O.	
Mode of operation	Simplex
Bit Rate of Transmission	3Mbps
Antenna Type	monopole
Operating Temperature Range	-10~60°C

1. For more detailed information, please refer to the specification of EUT or user's manual provided by manufacturer.
2. Antenna of JH-230E: 304M monopole.
3. **Note:**

The EUT(JH-230E) has only 4 fixed channels in 2.4~2.4835GHz band by using DIP switch set to adjust the frequency output.

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:6 of 30 Date :Feb. 13, 2009
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	-------------------------------------------------------------------------------------------------------------------

2.2 DESCRIPTION OF SUPPORT UNIT

The transmitter part of EUT was tested along and configured by the requirement of ANSI C63.4. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

No	Device	Brand	Model #	FCC ID/DoC	Cable
1	Image storing Device	JENN HUEY	JH-PDVR12R	N/A	1.2m unshielded DC cable
2	3.5" LCD & Wireless AV theft-proof Receiver,	JENN HUEY	JH-350R\ JH-C1R	N/A	1.8m unshielded DC cable
3					
4					
5					

NOTE : For the actual test configuration, please refer to the photos of testing.

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:7 of 30 Date :Feb. 13, 2009
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	-------------------------------------------------------------------------------------------------------------------

2.3 DESCRIPTION OF TEST MODE

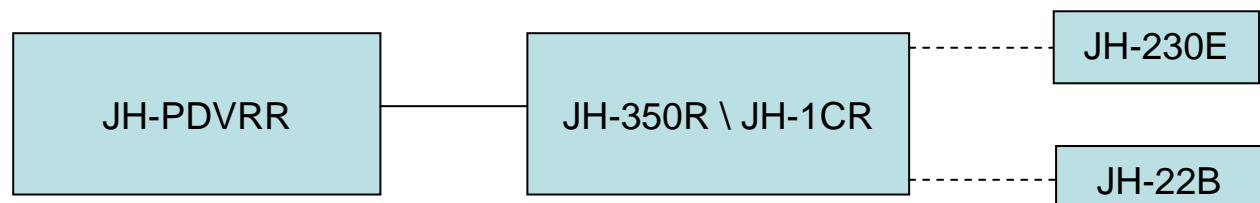
EUT Modulation Type : JH-230E:FM.

EUT JH-230E: 304MHz / 1ch.

List as below :

Test Mode	Test Channel	Freq.(MHz)
1 (JH-230E TX)	N/A	304

Fig of JH-System Link



3 DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of wireless product and according to the specifications provided by the applicant, must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C

ANSI C63.4: 2003

All tests have been performed and recorded as the above standards.

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:8 of 30 Date :Feb. 13, 2009
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	-------------------------------------------------------------------------------------------------------------------

4 CONDUCTED EMISSION TEST

4.1. LIMIT

Frequency (MHz)	Class A (dB μ V)		Class B (dB μ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE :

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

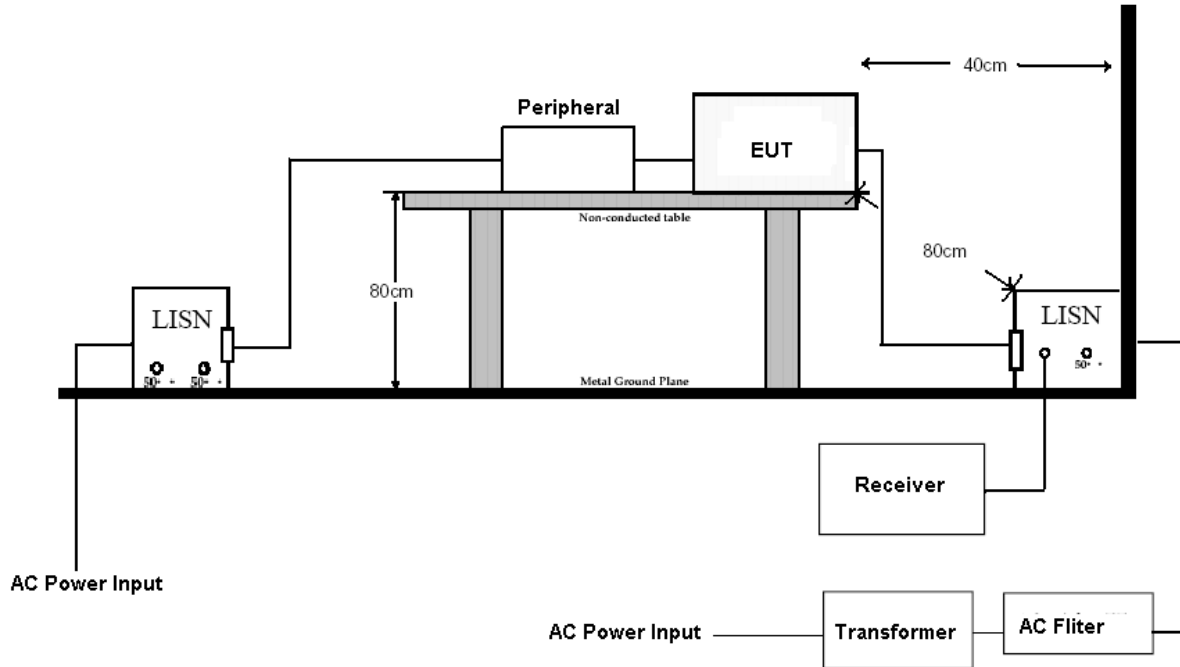
4.2 TEST EQUIPMENT

The following test equipment was used for the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30 / 826003/008	SEP. 2009 ETC
LISN	50 μ H, 50 ohm	FCC	FCC-LISN-50-25-2 / 01017	OCT. 2009 ETC
LISN	50 μ H, 50 ohm	FCC	9252-50-R24-BNC / 951315	JUN. 2009 ETC
50 OHM TERMINATOR	50 ohm	HP	11593A / #2	OCT. 2009 ETC
COAXIAL CABLE	5M	TIMES	EQM-0159 / #5-5m	AUG. 2009 SRT
Filter	2 LINE, 30A	FIL.COIL	FC-943 / 771	NCR
GROUND PLANE	2.3M (H) x 2.4M (W)	SRT	N/A	NCR
GROUND PLANE	2.4M (H) x 2.4M (W)	SRT	N/A	NCR

NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.3 TEST SETUP



NOTE :

1. The EUT was put on a wooden table with 0.8m heights above ground plane, and 0.4m away from reference ground plane (> 2mx2m).
2. For the actual test configuration, please refer to the photos of testing.
3. The serial no. of the LISN connected to EUT is 01017.
4. The serial no. of the LISN connected to support units is 01018.

4.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR22:2003. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm/50μH as specified. All readings were quasi-peak and average values with 10 kHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. Both lines of the power mains of EUT were measured and the cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.

First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data. The procedure is referred on the test procedure of SRT LAB.



**Spectrum Research &
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No. 101-10, Ling 8,
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City, Taoyuan, Taiwan

TEST REPORT

Reference No.: A09020301
Report No.: FCCA09020301
FCCID: IV5-JH-230E
Page:10 of 30
Date :Feb. 13, 2009

4.5 EUT OPERATING CONDITION

1. Setup the EUT and all peripheral devices .
2. Turn on the power of all equipment and EUT.
3. EUT will read data from storage devices and then writes the data into storage devices.



TEST REPORT

4.6 TEST RESULT

Power Line Measured : Neutral

Temperature:	22 °C	Humidity:	62 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	1
Receiver Detector:	Q.P. and AV.	Modulation Type:	FM
Tested By:	Kunter Jin	Tested Channel:	(304MHz)
		Tested Date:	Feb. 06, 2009

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dB μ V)		Emission Level (dB μ V)		Limit (dB μ V)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.405	0.25	51.86	43.83	52.11	44.08	57.73	47.73	-5.62	-3.65
0.408	0.25	51.18	41.70	51.43	41.95	57.67	47.67	-6.24	-5.72
0.980	0.17	44.56	33.85	44.73	34.02	56.00	46.00	-11.27	-11.98
1.200	0.14	41.22	28.60	41.36	28.74	56.00	46.00	-14.64	-17.26
1.220	0.14	38.80	28.04	38.94	28.18	56.00	46.00	-17.06	-17.82
5.900	0.22	25.72	17.26	25.94	17.48	60.00	50.00	-34.06	-32.52

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dB μ V)		Emission Level (dB μ V)		Limit (dB μ V)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.405	0.25	52.60	42.17	52.85	42.42	57.73	47.73	-4.88	-5.31
0.980	0.17	44.82	31.09	44.99	31.26	56.00	46.00	-11.01	-14.74
1.200	0.14	41.76	25.97	41.90	26.11	56.00	46.00	-14.10	-19.89
1.210	0.14	40.66	24.80	40.80	24.94	56.00	46.00	-15.20	-21.06
5.010	0.22	26.56	14.04	26.78	14.26	60.00	50.00	-33.22	-35.74
28.000	0.30	35.74	30.77	36.04	31.07	60.00	50.00	-23.96	-18.93

NOTE :

1. Measurement uncertainty is +/-2dB
2. Emission level = Reading value + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
4. Margin value = Emission level - Limit
5. The emission of other frequencies was very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:12 of 30 Date :Feb. 13, 2009
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	--------------------------------------------------------------------------------------------------------------------

5 20dB Bandwidth

5.1 LIMIT

FREQUENCY (MHz)	BANDWIDTH LIMIT(kHz)
Above 70-900	0.25%×Center Frequency(MHz)
Above 900	0.5%×Center Frequency(MHz)

NOTE:

1. Bandwidth is determined at the points 20dB down from the modulated carrier.

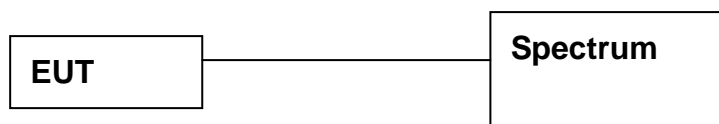
5.2 TEST EQUIPMENT

The following test equipment was used during the test:

Equipment/ Facilities	Specifications	Manufacturer	Model#/ Serial#	Due Date of Cal. & Cal. center
SPECTRUM	9kHz-40GHz	ROHDE & SCHWARZ	FSP40/ 100093	SEP. 2009 ETC

NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

5.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

5.4 TEST PROCEDURE

Please refer to FCC Part15C 15.231.

5.5 EUT OPERATING CONDITION

The EUT was operated in continually transmitting mode.

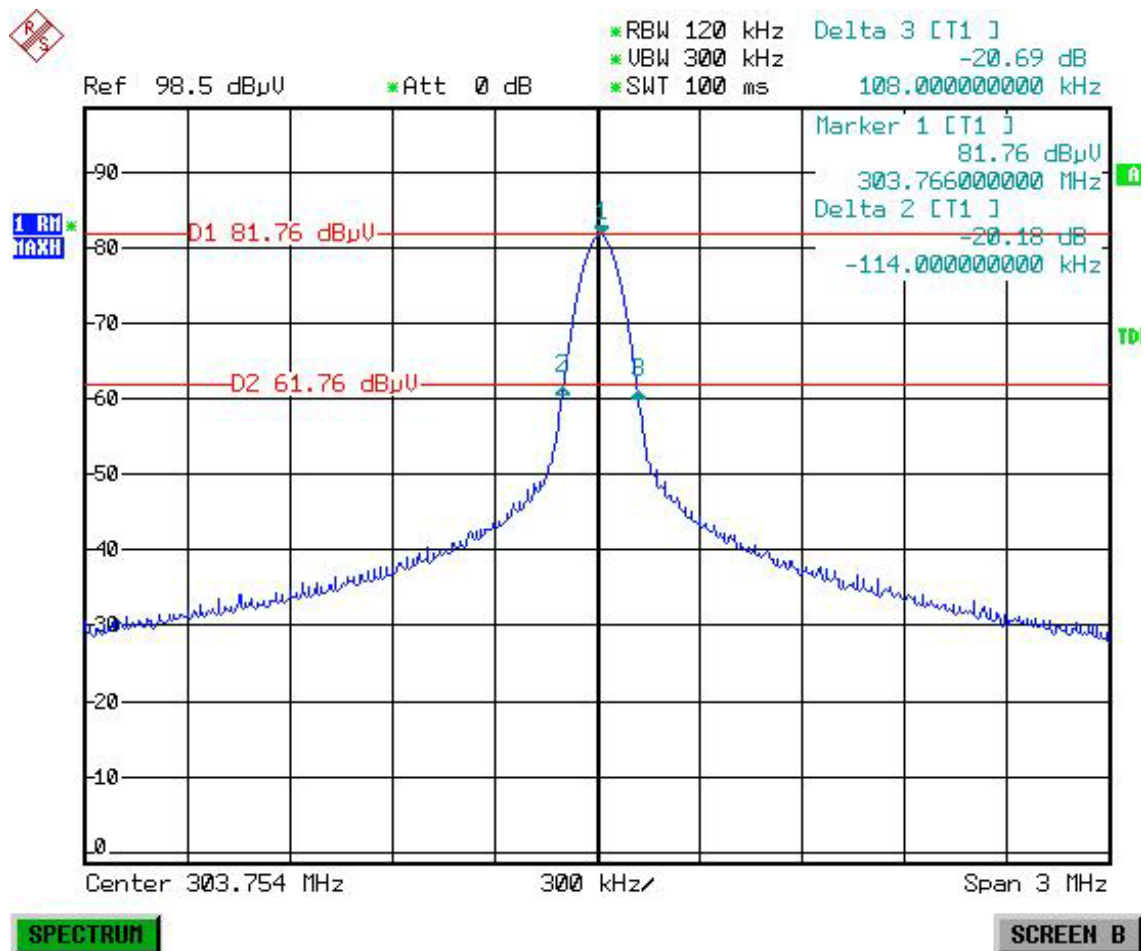


5.6 TEST RESULT

Temperature:	24°C	Humidity:	61%RH
Spectrum Detector:	PK	Tested by:	Kunter Jin
Test Result:	PASS	Tested Date:	Feb. 05, 2009

EUT: JH-230E

CHANNEL UMBER	CHANNEL FREQUENCY (MHz)	20dB DOWN BW (kHz)	MAXIMUM LIMIT (kHz)
1	303.766	222.0	1084.78



 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:14 of 30 Date :Feb. 13, 2009
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	--------------------------------------------------------------------------------------------------------------------

6 BAND EDGE TEST

6.1 LIMIT

FCC part15C 15.231(b) limit of fundamental and spurious emissions measurement.

FREQUENCY (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750 (NOTE 4)	125 to 375 (NOTE 6)
174-260	3750	375
260-470	3750 to 12500 (NOTE 5)	375 to 1250 (NOTE 6)
Above 470	12500	1250

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level ($\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$).
3. In the emission tables above, the tighter limit applies at the band edges.
4. Limit = $20 \log(56.81818(F) - 6136.3636)$; F : Fundamental Frequency (MHz)
5. Limit = $20 \log(41.667(F) - 7083.3333)$; F : Fundamental Frequency (MHz)
6. Limit = The Limit of Fundamental Frequency – 20dB
7. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.

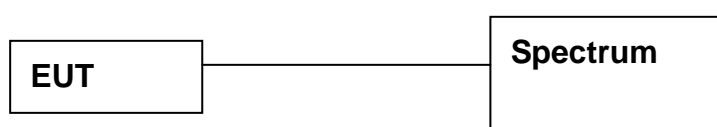
6.2 TEST EQUIPMENT

The following test equipment was used during the test :

Equipment/ Facilities	Specification	Manufacturer	Model#/ Serial#	Due Date of Cal. & Cal. Center
SPECTRUM	9kHz-40GHz	ROHDE & SCHWARZ	FSP40/ 100093	SEP. 2009 ETC

NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

6.3 TEST SET-UP



The EUT was connected to the spectrum through a 50 Ω RF cable.



6.4 TEST PROCEDURE

Please refer to FCC Part15C 15.231.

6.5 EUT OPERATING CONDITION

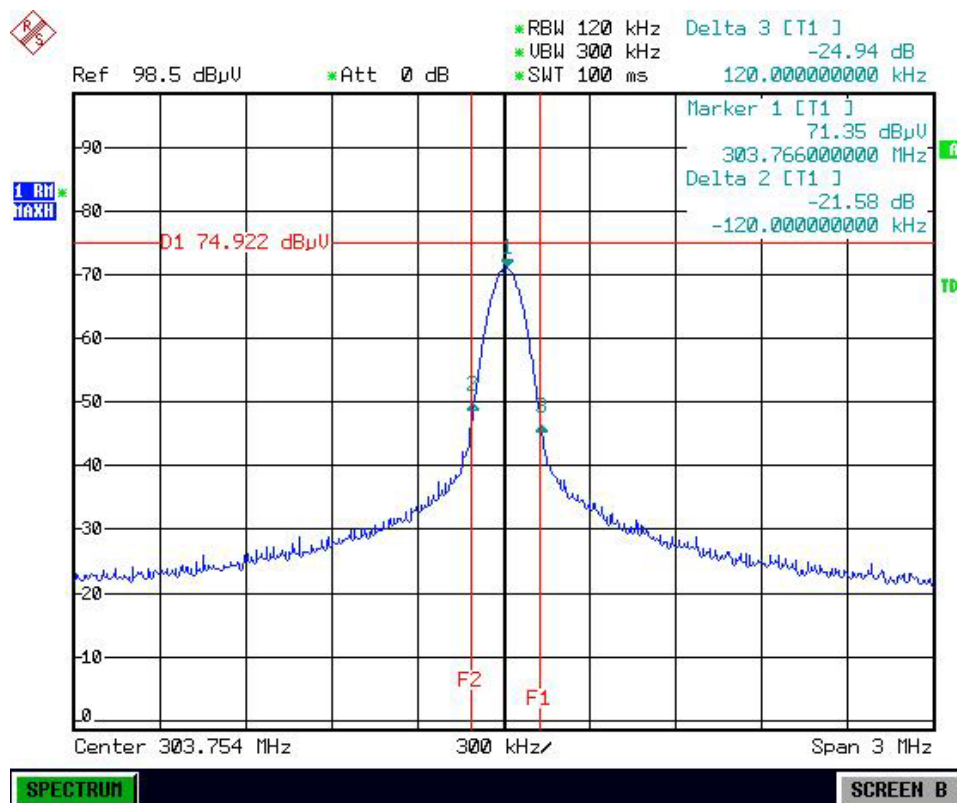
The EUT was operated in continually transmitting mode.

6.6 TEST RESULT

Temperature:	24°C	Humidity:	61%RH
Spectrum Detector:	PK & AV	Tested by:	Kunter Jin
Test Result:	PASS	Tested Date:	Feb. 05, 2009

EUT: JH-230E

Frequency (MHz)	RF LEVEL 120kHz BW (dBuV)	Limit of Power (dBuV)	MARGIN (dB)
303.766	71.35	74.922	- 3.572





7. RELEASE OR OPERATING TIME

7.1 LIMIT

1. A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
2. A transmitter activated automatically shall cease transmission within 5 seconds after activation.
- 3). Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions to determine system integrity of transmitters used in security or safety applications are allowed if the periodic rate of transmission does not exceed one transmission of not more than one second duration per hour for each transmitter.
4. Intentional radiators, which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pungency of the alarm condition.

7.2 TEST EQUIPMENT

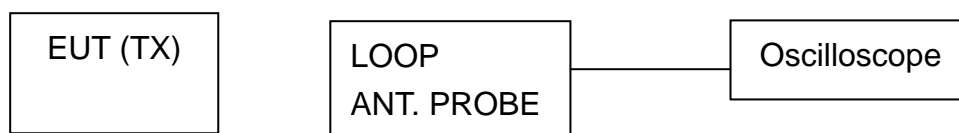
The following test equipment was used during the radiated emission test :

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
OSCILLOSCOPE	500MHz	HP	54616B/ US39150351	APR. 2009 ETC

NOTE:

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

7.3 TEST SET-UP



7.4 TEST PROCEDURE

A specific loop antenna was connected to oscilloscope to detect the EUT's release time. The oscilloscope displayed the EUT's release time and took a picture of measurement.



7.5 EUT OPERATING CONDITION

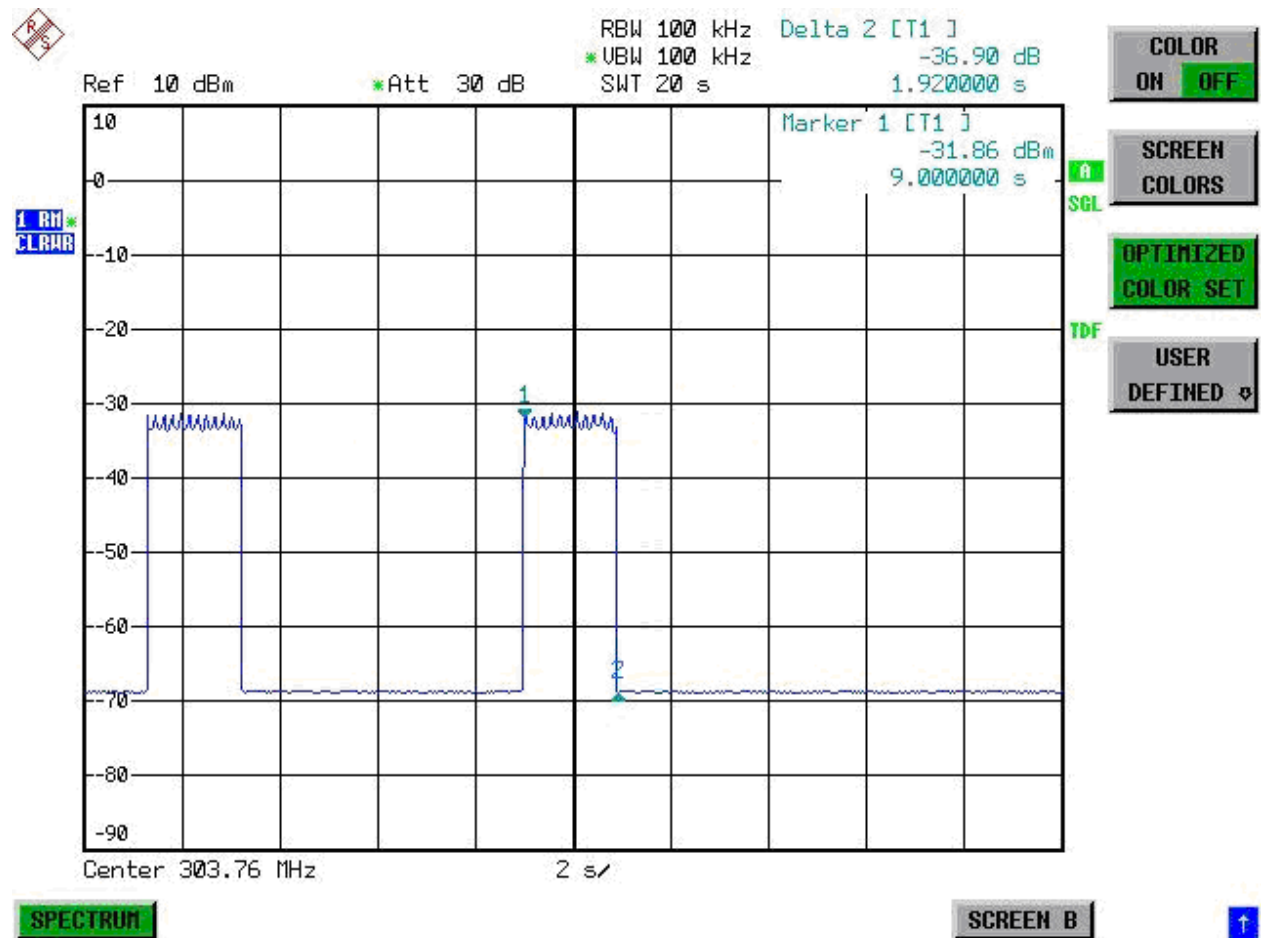
The EUT is normal use function.

7.6 TEST RESULT

Temperature:	24°C	Humidity:	61%RH
		Tested by:	Kunter Jin
Test Result:	PASS	Tested Date:	Feb. 05, 2009

EUT: JH-230E

Start release time(ms)	Stop time(ms)	Total OPERATING time(ms)	Limit of OPERATING time<(s)
9000	10920	1920	5





8. FUNDAMENTAL & SPURIOUS RADIATED EMISSION TEST

8.1 LIMIT

FCC Part15, Subpart C Section 15.209 limit of radiated emission for frequency below 1000MHz. The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Distance (m)	Field Strength (dB μ V/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
ABOVE 960	3	54.0

- NOTE :**
1. In the emission tables above , the tighter limit applies at the band edges.
 2. Distance refers to the distance between measuring instrument , antenna , and the closest point of any part of the device or system.

FCC part15C 15.231(b) limit of fundamental and spurious emissions measurement.

FREQUENCY (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750 (NOTE 5)	125 to 375 (NOTE 7)
174-260	3750	375 (NOTE 7)
260-470	3750 to 12500 (NOTE 6)	375 to 1250
Above 470	12500	1250

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB μ V/m) = 20 log Emission level (μ V/m).
3. In the emission tables above, the tighter limit applies at the band edges.
4. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.
5. Limit = $20\log(56.81818(F) - 6136.3636)$; F : Fundamental Frequency (MHz)
6. Limit = $20\log(41.667 \times F - 7083.3333)$; F : Fundamental Frequency (MHz)
7. Limit = The Limit of Fundamental Frequency – 20dB
8. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:19 of 30 Date :Feb. 13, 2009
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	--------------------------------------------------------------------------------------------------------------------

8.2 TEST EQUIPMENT

The following test equipment was used during the radiated emission test :

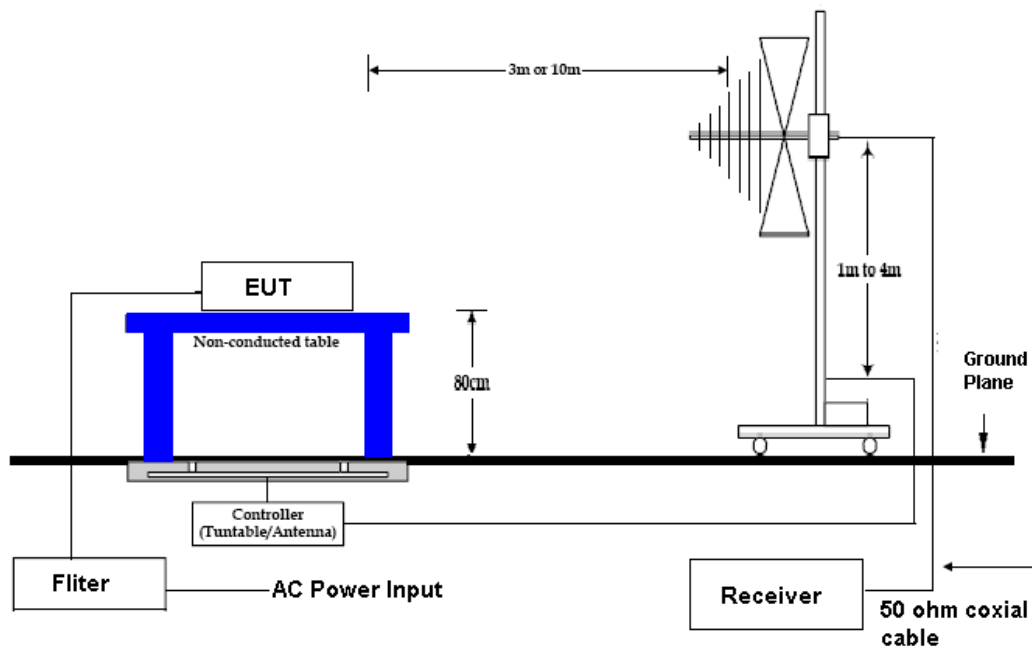
Equipment/ Facilities	Specification	Manufacturer	Model#/ Serial#	Due Date of Cal. & Cal. Center
EMI TEST RECEIVER	9kHz TO 2.75 GHz	ROHDE & SCHWARZ	ESCS30 / 830245/012	OCT. 2009 ETC
BI-LOG ANTENNA	26 MHz TO 2 GHz	EMCO	3142B / 0005-1534	NOV. 2009 ETC
OATS	3 – 10 M MEASUREMENT	SRT	SRT-1	NOV. 2009 SRT
COAXIAL CABLE	25M	TIMES	J400 / #25M	AUG. 2009 ETC
FILTER	2 LINE, 30A	FIL.COIL	FC-943 / 869	NCR
LOOP ANTENNA	9kHz TO 30MHz	ROHDE & SCHWARZ	HFH2-Z2	OCT. 2009

NOTE:

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.
2. The Open Area Test Site (SRT-1) is registered by FCC with No. 90957 and VCCI with No. R-1081.
3. The Open Area Test Site (SRT-2) is registered by FCC with No. 98458 and VCCI with No. R-1168.



8.3 TEST SET-UP

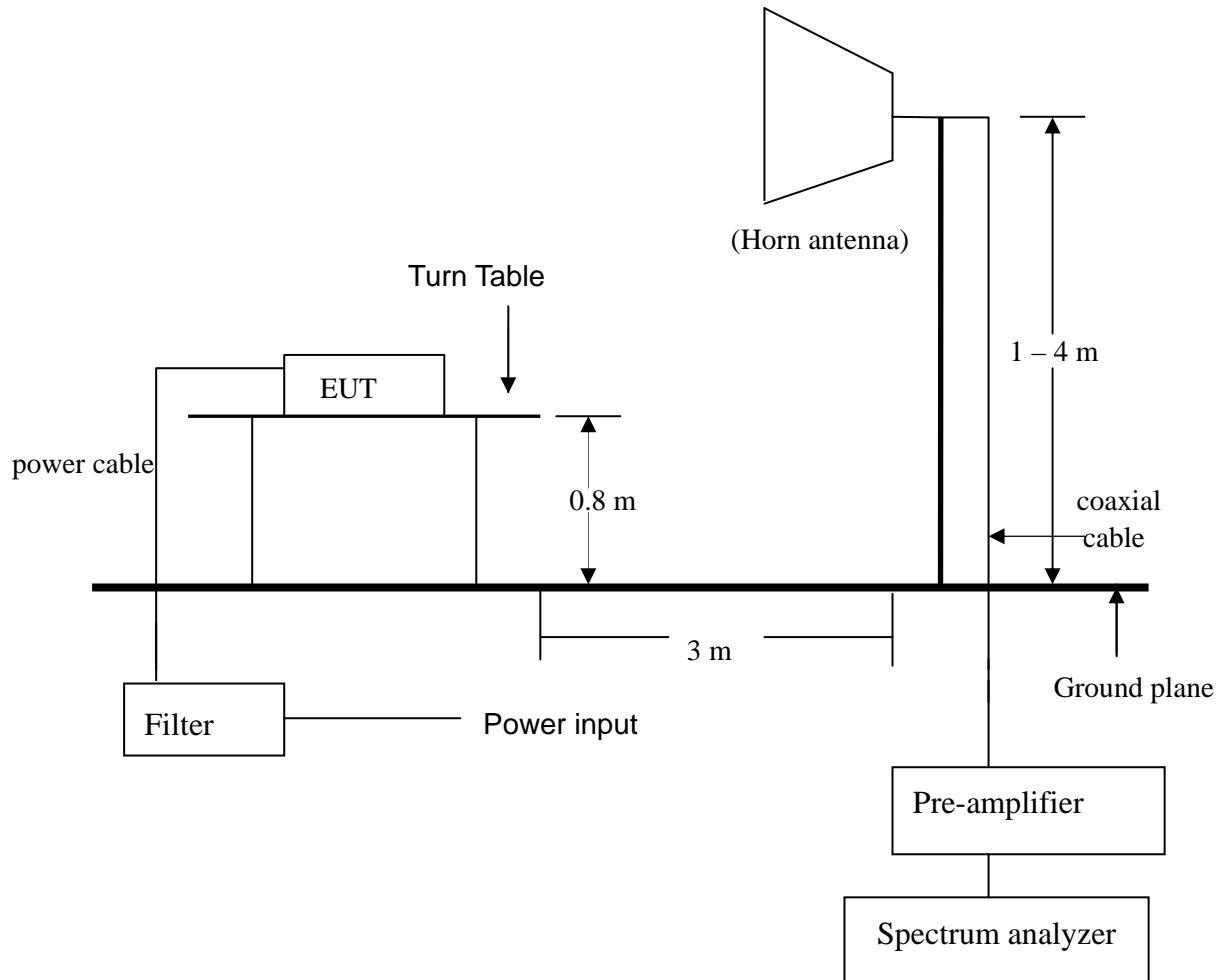


NOTE :

1. The EUT system was put on a wooden table with 0.8m heights above a ground plane.
2. For the actual test configuration, please refer to the photos of testing.



TEST SET- UP (1GHz - 25GHz)



NOTE :

- 1.The EUT system was put on a wooden table with 0.8m heights above a ground plane.
- 2.For the actual test configuration, please refer to the photos of testing.

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:22 of 30 Date :Feb. 13, 2009
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	--------------------------------------------------------------------------------------------------------------------

8.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4 and CISPR 22. The measurements were made at an open area test site with 3 meter measurement distance under 1 GHz and with 3m distance above 1GHz. The frequency spectrum measured started from 30 MHz. Under 1 GHz. All readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver. Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak and average values with 1 MHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.

8.5 EUT OPERATING CONDITION

.

EUT Modulation Type : JH-230E:FM / JH-22B:ASK

EUT JH-230E: 2.4GHz/ 4ch & 304MHz , °

EUT JH-22B: 304MHz & Standby °

List as below :

Test Mode	Test Channel	Freq.(MHz)
1(JH-230E TX)	N/A	304

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:23 of 30 Date :Feb. 13, 2009
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8.6 TEST RESULT

Temperature:	25°C	Humidity:	60 %RH
Frequency Range:	30 – 1000 MHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	5
Tested By:	Kunter Jin	Tested Date:	Feb. 05, 2009

Antenna Polarization: Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
95.1285	1.27	7.35	26.5	35.1	43.5	-8.4	86	3.90
170.6545	2.05	8.75	25.5	36.3	43.5	-7.2	148	3.80
478.5849	3.26	17.21	14.9	35.4	46.0	-10.6	25	2.80
500.5465	3.51	17.50	11.8	32.8	46.0	-13.2	99	2.70
890.4850	4.67	23.92	6.7	35.3	46.0	-10.7	279	1.50
927.6541	4.82	23.47	11.1	39.4	46.0	-6.6	234	1.20

Antenna Polarization: Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
156.8458	1.60	9.02	18.4	29.0	43.5	-14.5	167	1.30
170.5545	2.05	8.75	20.2	31.0	43.5	-12.5	202	1.30
478.3849	3.26	17.21	16.4	36.9	46.0	-9.1	19	2.10
500.5965	3.51	17.50	16.3	37.3	46.0	-8.7	315	2.20
890.7850	4.67	23.92	7.4	36.0	46.0	-10.0	301	3.60
927.2541	4.82	23.47	11.2	39.5	46.0	-6.5	97	3.70

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "*": Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.



**Spectrum Research &
Testing Lab., Inc.**
No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan

TEST REPORT

Reference No.: A09020301
Report No.: FCCA09020301
FCCID: IV5-JH-230E
Page:24 of 30
Date :Feb. 13, 2009

Temperature:	25 °C	Humidity:	60 %RH
Frequency Range:	1 – 25 GHz	Measured Distance:	3m
Receiver Detector:	PK. or AV.	Tested Mode:	1(Out-of-band emission)
Tested By:	Kunter Jin	Tested Date:	Feb. 05, 2009

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1001.50	-35.01	24.20	41.0	*	30.2	*	74.0	54.0	-43.8	*	136	1.50
1822.00	-33.05	26.52	35.9	*	29.4	*	74.0	54.0	-44.6	*	107	2.00
1845.50	-33.05	26.61	43.5	*	37.0	*	74.0	54.0	-37.0	*	40	1.50
2130.50	-32.33	27.46	38.5	*	33.6	*	74.0	54.0	-40.4	*	140	1.52
2277.50	-32.44	27.75	56.5	53.9	51.8	49.2	74.0	54.0	-22.2	-4.8	279	2.10
2437.50	-32.22	28.07	47.5	42.9	43.3	38.8	74.0	54.0	-30.7	-15.2	170	1.45

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1001.50	-35.01	24.20	55.0	46.9	44.2	36.1	74.0	54.0	-29.8	-17.9	176	1.60
1822.50	-33.05	26.52	45.0	41.9	38.5	35.3	74.0	54.0	-35.5	-18.7	103	1.54
1845.00	-33.05	26.61	35.0	*	28.6	*	74.0	54.0	-45.4	*	247	1.37
2130.00	-32.33	27.46	41.0	*	36.1	*	74.0	54.0	-37.9	*	109	1.17
2277.50	-32.44	27.75	40.5	*	35.8	*	74.0	54.0	-38.2	*	117	1.30
2437.50	-32.22	28.07	48.0	47.1	43.9	43.0	74.0	54.0	-30.1	-11.0	91	1.47

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "**": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emission Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.

 Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	<h1>TEST REPORT</h1>	Reference No.: A09020301 Report No.: FCCA09020301 FCCID: IV5-JH-230E Page:25 of 30 Date :Feb. 13, 2009
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Temperature:	25 °C	Humidity:	60 %RH
Frequency Range:	1 – 5 GHz	Measured Distance:	3m
Receiver Detector:	PK. or AV.	Tested Mode:	1(Major & Harmonic)
Tested By:	Kunter Jin	Tested Date:	Feb. 05, 2009

Antenna Polarization : Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
303.7752	2.40	14.16	54.2	70.8	75.0	-4.2	76	3.40
608.2717	3.89	19.36	17.7	40.9	46.0	-5.1	142	2.50
911.9047	4.75	23.90	12.6	41.3	46.0	-4.7	273	1.20

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1215.00	-33.82	24.67	51.5	49.0	42.4	39.9	74.0	54.0	-31.6	-14.1	270	2.31
1520.50	-31.78	25.38	47.3	42.1	40.8	35.7	74.0	54.0	-33.2	-18.3	116	1.41
1824.00	-33.05	26.53	43.0	41.9	36.5	35.4	74.0	54.0	-37.5	-18.6	63	1.08

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "**": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emission Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.



TEST REPORT

Antenna Polarization : Vertical

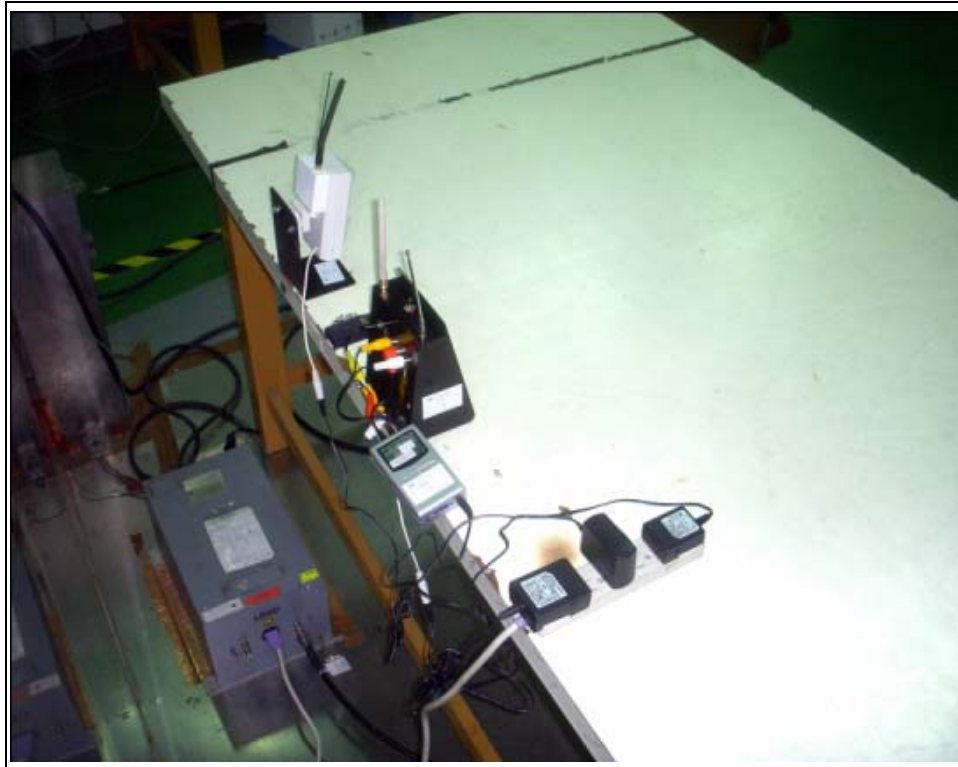
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ(°)	EL(m)
303.7752	2.40	14.16	54.2		70.7		75.0		-4.3		87	1.60
608.7366	3.89	19.36	17.3		40.5		46.0		-5.5		288	2.10
911.8547	4.75	23.90	12.4		41.1		46.0		-4.9		139	1.70
Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1215.00	-33.82	24.67	54.6	47.2	45.5	38.1	74.0	54.0	-28.5	-15.9	272	2.30
1520.50	-31.78	25.38	49.1	41.1	42.7	34.7	74.0	54.0	-31.3	-19.3	106	1.42
1824.00	-33.05	26.53	44.3	42.0	37.8	35.5	74.0	54.0	-36.2	-18.5	73	1.18

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emission Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.



9. PHOTOS OF TESTING - CONDUCTION TEST





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TEST REPORT

Reference No.: A09020301
Report No.: FCCA09020301
FCCID: IV5-JH-230E
Page:28 of 30
Date :Feb. 13, 2009

- RADIATION TEST (TX, JH-230E UNDER 1GHz)





**Spectrum Research &
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No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan

TEST REPORT

Reference No.: A09020301
Report No.: FCCA09020301
FCCID: IV5-JH-230E
Page:29 of 30
Date :Feb. 13, 2009

- RADIATION TEST (TX, JH-22B ABOVE 1GHz)





**Spectrum Research &
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No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan

TEST REPORT

Reference No.: A09020301
Report No.: FCCA09020301
FCCID: IV5-JH-230E
Page:30 of 30
Date :Feb. 13, 2009

10. TERMS OF ABBREVIATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction