



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

TEST REPORT

Reference No.:A07032001
Report No.:FCCA07032001
FCC ID: UBQTR101
Page:1 of 41
Date: Apr. 12, 2007

Product Name: Wireless Base Station Trimersion
Model No.: TR101
Applicant: 3001AD, LLC,
430 S. Congress Avenue, Suite #2, Delray Beach, Florida
33445, USA
Date of Receipt: Mar. 20, 2007
Finished date of Test: Apr. 11, 2007
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.

Tested By: _____, Date: _____
(John Yu)

Approved By: _____, Date: _____
(Johnson Ho, Director)

NVLAP®

 <p>Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan, R.O.C.</p>	<h1>TEST REPORT</h1>	Reference No.:A07032001 Report No.:FCCA07032001 FCC ID: UBQTR101 Page:2 of 41 Date: Apr. 12, 2007
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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 applicant to claim that the product is endorsed by NVLAP, TÜV, NEMKO and SRT.
- The NVLAP logo applies only to the applicable standards specified in this report.

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.
- AC power source, 120 Vac/60 Hz, was used during the test.

1.3 EUT MODIFICATION

1. Layout ground connect to right and some much together with copper cable line.
2. IC module ground connect to main PCB ground.
3. IC module with EMI absorber RS004SB(10MHz~500MHz).
4. Print Circuit with iron cover and cover connect to ground.
5. Connected cable with four core inner(KSB9x16x5x2 12x20x5x2)and two outer(RC 16x28x7 25x12x15-M), the cable shielded.
6. L change to bead(impedance221)and C used 68p.
7. PCB be shielded with fabric net under Video output chip.

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2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Base Station Trimersion
MODEL NO.	TR101
POWER REQUIREMENTS	DC 5V, 160 mA
FREQUENCY BAND	2400 ~ 2483MHz
CARRIER FREQUENCY	CH0: 2414~CH3:2468MHz
CHANNEL SPACING	18MHz
RF OUTPUT POWER	15dBm
MODULATION TYPE	FM
DUTY CYCLE	8%
NUMBER OF CHANNEL	4
BIT RATE OF TRANSMISSION	Real Time
MODE OF OPERATION	Simplex
ANTENNA TYPE	Integral Antenna+PCB Antenna
OPERATING TEMPERATURE	-20~55 °C

2.2 DESCRIPTION OF SUPPORT UNIT

The transmitter part of EUT was tested with a Sony PlayStatation 2 system 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.

DEVICE	BRAND / MAKER	MODEL #	CABLE
PlayStation 2	SONY	SCPH-75007	1.0m shielded power cord
TV	Kolin	KLT-230	1.8m shielded AV cable
Wireless Gun Controller Trimersion	Trimersion	TR101X	NA
Head Mounted Display	Trimersion	HMD	1.0m shielded cable

2.3 DESCRIPTION OF TEST MODE

4 channels are provided by EUT. 2 channels of lower and higher were chosen for test.

Channel	Frequency (MHz)
0	2414
3	2468

NOTE :

- Below 1 GHz, the channel 0 were pre-tested in chamber. The channel 0, worst case one, was chosen for conducted and radiated emission test.
- Above 1 GHz, the channel 0 were tested individually.

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3. DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of wireless product and to be connected with a PC system for normal use. According to the specifications provided by the applicant, it 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 per the above standards.

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4. CONDUCTED EMISSION TEST

4.1 CONDUCTED EMISSION 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
0.5 - 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

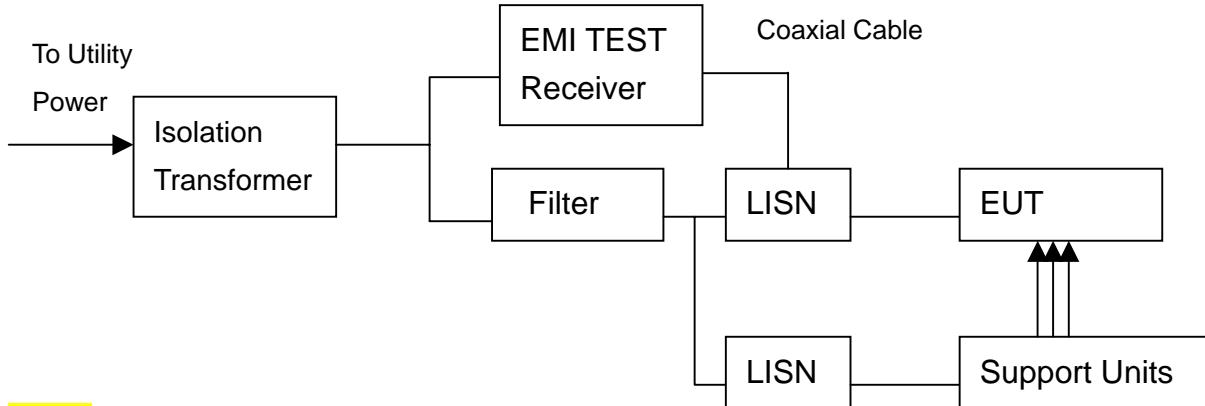
The following test equipment was used for the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz TO 2.75 GHz	ROHDE & SCHWARZ	ESHS30/ 826003/008	AUG. 2007 ETC
LISN (for EUT)	50 μ H, 50 ohm	FCC	FCC-LISN-50-25-2 / 01017	NOV. 2007 ETC
LISN (for Peripheral)	50 μ H, 50 ohm	FCC	FCC-LISN-50-25-2 / 01018	NOV. 2007 ETC
50 ohm TERMINATOR	50 ohm	HP	11593A/ 2	OCT. 2007 ETC
COAXIAL CABLE	3m	SUNCITY	J400/ 3M	JUL. 2007 SRT
ISOLATION TRANSFORMER	N/A	APC	AFC-11015/ F102040016	N/A
FILTER	2 LINE, 30A	FIL.COIL	FC-943/ 771	N/A
GROUND PLANE	2.3M (H) x 2.4M (W)	SRT	N/A	N/A
GROUND PLANE	2.4M (H) x 2.4M (W)	SRT	N/A	N/A

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/50 μ H 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.

4.5 EUT OPERATING CONDITION

1. Set the EUT under transmission condition continuously at specific channel frequency.
2. Run PS2 program and keeping EUT under operating.

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4.6 TEST RESULT

Temperature:	24°C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	CH 0
Receiver Detector:	Q.P. and AV.	Tested By:	John Yu
		Tested Date:	Mar. 29, 2007

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.
0.195	0.30	49.92	41.09	50.22	41.39	63.80	53.80	-13.58	-12.41
1.100	0.14	39.92	34.54	40.06	34.68	56.00	46.00	-15.94	-11.32
1.289	0.14	38.00	31.93	38.14	32.07	56.00	46.00	-17.86	-13.93
1.695	0.15	32.96	25.82	33.11	25.97	56.00	46.00	-22.89	-20.03
10.288	0.23	32.28	28.98	32.51	29.21	60.00	50.00	-27.49	-20.79
17.860	0.33	27.46	23.73	27.79	24.06	60.00	50.00	-32.21	-25.94

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.
0.192	0.30	49.68	39.93	49.98	40.23	63.93	53.93	-13.95	-13.70
0.195	0.30	50.30	40.15	50.60	40.45	63.80	53.80	-13.20	-13.35
1.289	0.14	41.86	35.30	42.00	35.44	56.00	46.00	-14.00	-10.56
10.298	0.23	36.50	35.34	36.73	35.57	60.00	50.00	-23.27	-14.43
10.745	0.23	36.30	24.97	36.53	25.20	60.00	50.00	-23.47	-24.80
28.192	0.30	34.66	34.87	34.96	35.17	60.00	50.00	-25.04	-14.83

NOTE :

1. Measurement uncertainty is +/-1.32dB
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.

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Temperature:	24°C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	CH 3
Receiver Detector:	Q.P. and AV.	Tested By:	John Yu

Tested Date: Mar. 29, 2007

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.
0.195	0.30	49.92	41.09	50.22	41.39	63.80	53.80	-13.58	-12.41
1.100	0.14	39.92	34.54	40.06	34.68	56.00	46.00	-15.94	-11.32
1.289	0.14	38.00	31.93	38.14	32.07	56.00	46.00	-17.86	-13.93
1.695	0.15	32.96	25.82	33.11	25.97	56.00	46.00	-22.89	-20.03
10.288	0.23	32.28	28.98	32.51	29.21	60.00	50.00	-27.49	-20.79
17.860	0.33	27.46	23.73	27.79	24.06	60.00	50.00	-32.21	-25.94

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.
0.192	0.30	49.68	39.93	49.98	40.23	63.93	53.93	-13.95	-13.70
0.195	0.30	50.30	40.15	50.60	40.45	63.80	53.80	-13.20	-13.35
1.289	0.14	41.86	35.30	42.00	35.44	56.00	46.00	-14.00	-10.56
10.298	0.23	36.50	35.34	36.73	35.57	60.00	50.00	-23.27	-14.43
10.745	0.23	36.30	24.97	36.53	25.20	60.00	50.00	-23.47	-24.80
28.192	0.30	34.66	34.87	34.96	35.17	60.00	50.00	-25.04	-14.83

NOTE :

1. Measurement uncertainty is +/- 1.32dB
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.

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Temperature:	24°C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	Link
Receiver Detector:	Q.P. and AV.	Tested By:	John Yu

Tested Date: Mar. 29, 2007

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.
1.038	0.14	41.86	37.34	42	37.48	56	46	-14	-8.52
1.428	0.15	42.28	37.93	42.43	38.08	56	46	-13.57	-7.92
1.487	0.15	41.84	37.65	41.99	37.8	56	46	-14.01	-8.2
9.842	0.23	34.96	34.14	35.19	34.37	60	50	-24.81	-15.63
10.288	0.23	36.3	35.49	36.53	35.72	60	50	-23.47	-14.28
17.778	0.33	40.62	36.01	40.95	36.34	60	50	-19.05	-13.66

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.
1.038	0.14	44.1	39.6	44.24	39.74	56	46	-11.76	-6.26
1.358	0.15	36.44	30.55	36.59	30.7	56	46	-19.41	-15.3
1.685	0.15	39.64	35.38	39.79	35.53	56	46	-16.21	-10.47
10.288	0.23	37.36	35.93	37.59	36.16	60	50	-22.41	-13.84
10.735	0.23	34.72	32.96	34.95	33.19	60	50	-25.05	-16.81
17.778	0.29	28.76	25.9	29.05	26.19	60	50	-30.95	-23.81

NOTE :

1. Measurement uncertainty is +/- 1.32dB
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.

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5. RADIATED EMISSION TEST

5.1 RADIATED EMISSION LIMIT

FCC Part 15, Subpart B Section 15.209.

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 Part 15, Section15.35(b) limit of radiated emission for frequency above 1000 MHz

Frequency (MHz)	Class A (dB μ V/m) (at 3m)		Class B (dB μ V/m) (at 3m)	
	Peak	Average	Peak	Average
Above 1000	80.0	60.0	74.0	54.0

FCC Part 15, Subpart C Section 15.249. The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency (MHz)	Filed Strength of Fundamental (dB μ V/m) (at 3m)		Field Strength of Harmonics (dB μ V/m) (at 3m)	
	Peak	Average	Peak	Average
902-928	114	94	74.0	54.0
2400-2483.5	114	94	74.0	54.0
5725-5875	114	94	74.0	54.0
24000-24250	128	108	88.0	68.0

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5.2 TEST EQUIPMENT

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

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DU DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz TO 1 GHz	ROHDE & SCHWARZ	ESCS30/ 830245/012	OCT. 2007 ETC
BI-LOG ANTENNA	25 MHz TO 2 GHz	EMCO	3143/ 9509-1141	SEP. 2007 SRT
SPECTRUM ANALYZER	9 KHz TO 26.5 GHz	HP	8593E/ 3710A03220	MAY 2007 ETC
PRE-AMPLIFIER	1 GHz TO 26.5 GHz	HP	8449B/ 3008A01019	NOV. 2007 ETC
OATS	3 – 10 M MEASUREMENT	SRT	SRT-1	DEC. 2007 SRT
COAXIAL CABLE	25M	SUNCITY	J400/ 25M	AUG. 2007 SRT
FILTER	2 LINE, 30A	FIL.COIL	FC-943/ 869	N/A
FREQUENCY CONVERTER	N/A	APC	AFC-2KBB/ F100030031	AUG. 2007 SRT

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.

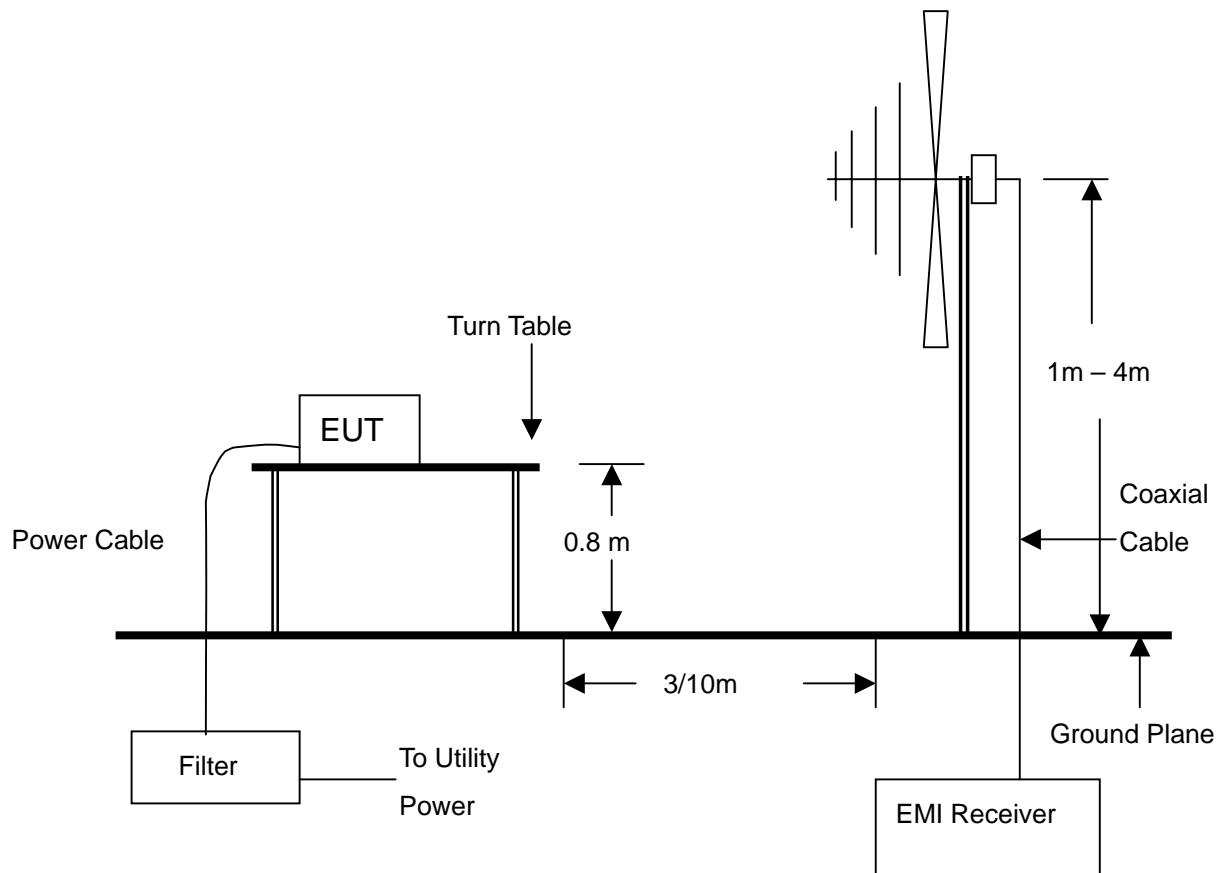


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5.3 TEST SET-UP(30MHz - 1GHz)



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.

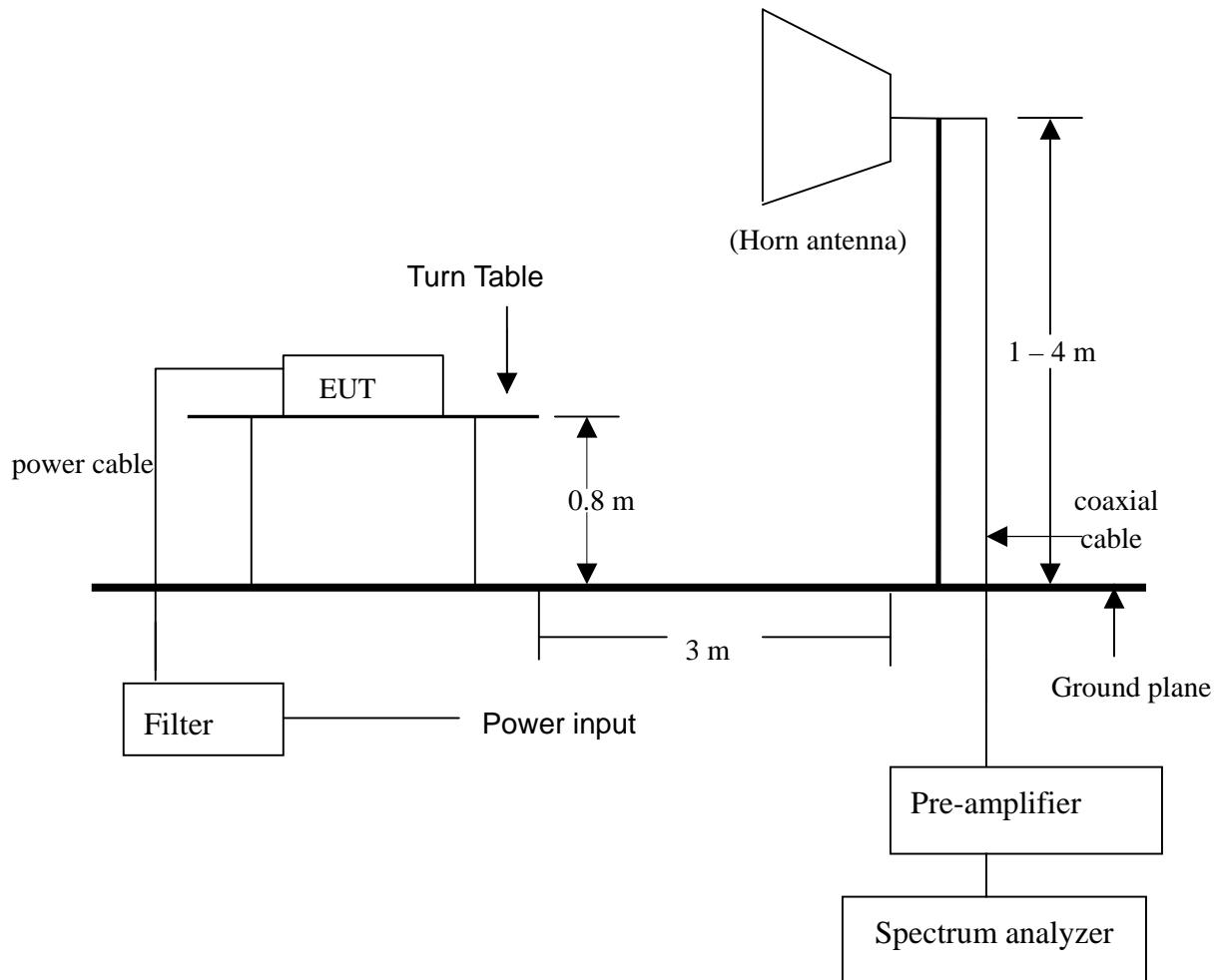


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TEST SET- UP (1GHz - 25GHz)



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.

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5.4 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 10 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 or 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.

5.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.

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5.6 RADIATED EMISSION TEST RESULT

Temperature:	20°C	Humidity:	70%RH
Ferquency Range:	30 – 1000 MHz	Test mode:	TX(2414MHz).
Receiver Detector:	Q.P. or AV.	Measured Distance:	3m
Tested by:	John Yu	Tested Date:	APR. 11, 2007
Temperature:	20°C	Humidity:	70%RH

Antenna Polarization : Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	AZ(°)	EL(m)
120.0000	1.84	6.30	22.5	30.6	43.5	-12.9	180	1.00
191.6780	2.45	10.63	16.8	29.9	43.5	-13.6	47	1.20
167.9950	2.28	9.77	21.2	33.2	43.5	-10.3	150	1.60
216.0200	2.59	10.26	18.9	31.8	46.0	-14.2	180	1.00
589.1000	4.55	19.21	21.1	44.9	46.0	-1.1	240	2.10
647.9980	4.75	19.97	20.1	44.8	46.0	-1.2	240	2.10

Antenna Polarization : Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	AZ(°)	EL(m)
135.2540	2.06	9.10	19.2	30.4	43.5	-13.1	300	1.90
254.3560	2.81	12.08	18.5	33.4	46.0	-12.6	125	1.24
336.4570	3.20	14.82	19.9	37.9	46.0	-8.1	245	1.60
600.2545	4.60	19.20	20.0	43.8	46.0	-2.2	145	1.60
736.7600	5.15	22.74	15.9	43.8	46.0	-2.2	95	1.50
787.8000	5.29	22.86	9.6	37.8	46.0	-8.2	30	1.20

NOTE :

1. Measurement uncertainty is less than +/- 2dB
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.
5. (F) : Fundamental frequency of transmitter.

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Temperature:	20°C	Humidity:	70%RH
Ferquency Range:	30 – 1000 MHz	Test mode:	TX(2468MHz) Hi Ch
Receiver Detector:	Q.P. or AV.	Measured Distance:	3m
Tested by:	John Yu	Tested Date:	APR. 11, 2007

Antenna Polarization : Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	AZ(°)	EL(m)
166.2540	2.27	9.76	23.1	35.1	43.5	-8.4	45	1.23
185.2300	2.40	10.25	18.7	31.3	43.5	-12.2	123	1.12
337.8513	3.21	14.84	22.0	40.0	46.0	-6.0	265	1.65
350.2450	3.27	15.20	22.3	40.8	46.0	-5.2	124	1.56
655.2314	4.79	20.20	19.5	44.5	46.0	-1.5	166	1.60
845.3450	5.56	23.30	15.2	44.1	46.0	-1.9	132	1.54

Antenna Polarization : Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	AZ(°)	EL(m)
112.3540	1.84	6.14	19.2	27.2	43.5	-16.3	124	1.40
254.3650	2.81	12.08	18.4	33.3	46.0	-12.7	92	1.30
325.2145	3.15	14.55	20.1	37.8	46.0	-8.2	124	1.40
562.2140	4.43	19.38	21.2	45.0	46.0	-1.0	178	1.60
647.2354	4.75	19.97	18.3	43.0	46.0	-3.0	41	1.40
845.3260	5.56	23.30	13.7	42.6	46.0	-3.4	76	1.60

NOTE :

1. Measurement uncertainty is less than +/-2dB
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.

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Temperature:	23°C	Humidity:	65%RH
Ferquency Range:	1 – 25 GHz	Test mode:	TX(2414MHz)
Receiver Detector:	PK. or AV.	Measured Distance:	3m
Tested by:	John Yu	Tested Date:	APR. 06, 2007

Antenna Polarization : Horizontal

Frequency (MHz)	Cable Loss (dB)	Ant. Fact. (dB)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Margin (dBuV/m)		AZ (°)	EL (m)
			PK	AV	PK	AV	PK	AV	PK	AV		
2414.00(F)	-25.60	28.06	97.4	82.8	99.8	85.3	N/A	N/A	N/A	N/A	20	1.20
2932.70	-24.81	30.60	48.1	*	53.9	*	74.0	54.0	-20.1	*	30	1.00
4828.00	-22.22	33.51	56.4	39.8	67.7	51.1	74.0	54.0	-6.3	-2.9	15	1.00
7206.00	-19.91	36.69	44.1	32.3	60.9	49.1	74.0	54.0	-13.1	-4.9	30	1.10
9656.00	-17.44	37.82	47.3	31.7	67.7	52.1	74.0	54.0	-6.3	-1.9	350	1.00
12070.00	-15.79	38.48	45.8	28.9	68.5	51.6	74.0	54.0	-5.5	-2.4	0	1.10

Antenna Polarization : Vertical

Frequency (MHz)	Cable Loss (dB)	Ant. Fact. (dB)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Margin (dBuV/m)		AZ (°)	EL (m)
			PK	AV	PK	AV	PK	AV	PK	AV		
2414.00(F)	-25.60	28.06	94.0	85.3	96.5	87.8	N/A	N/A	N/A	N/A	20	1.30
4136.00	-23.17	32.60	43.1	*	52.5	*	74.0	54.0	-21.5	*	30	1.20
4828.00	-22.22	33.51	41.5	*	52.8	*	74.0	54.0	-17.2	*	0	1.10
7206.00	-19.91	36.69	43.3	34.6	60.1	51.4	74.0	54.0	-13.9	-2.6	0	1.20
9656.00	-17.44	37.82	45.1	30.4	65.5	50.8	74.0	54.0	-8.5	-3.2	355	1.00
12070.00	-15.79	38.48	44.7	28.7	67.4	51.4	74.0	54.0	-6.6	-2.6	15	1.20

NOTE :

1. Measurement uncertainty is less than +/-2dB
2. **: Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss(included Pre-amplifier)
4. The field strength of other emission frequencies were very low against the limit.
- 5.(F):The field strength of fundamental frequency.

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Temperature:	23°C	Humidity:	65%RH
Ferquency Range:	1 – 25GHz	Test mode:	TX(2468MHz)
Receiver Detector:	PK. or AV.	Measured Distance:	3m
Tested by:	John Yu	Tested Date:	APR. 06, 2007

Antenna Polarization : Horizontal

Frequency (MHz)	Cable Loss (dB)	Ant. Fact. (dB)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Margin (dBuV/m)		AZ (o)	EL (m)
			PK	AV	PK	AV	PK	AV	PK	AV		
2468.00(F)	-25.54	28.15	95.6	80.8	98.2	83.4	N/A	N/A	N/A	N/A	20	1.10
4936.10	-22.20	33.51	45.9	28.7	57.3	40.1	74.0	54.0	-16.7	-13.9	15	1.30
7404.30	-20.40	36.33	45.5	27.8	61.4	43.7	74.0	54.0	-12.6	-10.3	10	1.10
9872.50	-17.80	37.74	*	*	*	*	74.0	54.0	*	*	*	*
12340.9	-15.10	38.90	*	*	*	*	74.0	54.0	*	*	*	*
2932.40	-24.81	30.6	45.41	*	51.2	*	74.0	54.0	-22.8	*	40	1.20

Antenna Polarization : Vertical

Frequency (MHz)	Cable Loss (dB)	Ant. Fact. (dB)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Margin (dBuV/m)		AZ (o)	EL (m)
			PK	AV	PK	AV	PK	AV	PK	AV		
2468.00(F)	-25.54	28.15	95.6	77.0	98.2	79.6	N/A	N/A	N/A	N/A	0	1.20
4936.10	-22.20	33.51	46.59	30.8	57.9	42.1	74.0	54.0	-16.1	-11.9	20	1.30
7404.30	-20.40	36.33	44.5	28.4	60.4	44.3	74.0	54.0	-13.6	-9.7	15	1.10
9872.50	-17.80	37.74	45.9	23.3	65.9	43.2	74.0	54.0	-8.1	-10.8	10	1.20
12340.9	-15.10	38.90	*	*	*	*	74.0	54.0	*	*	*	*
2779.40	-25.06	29.76	45.4	*	50.05	*	74.0	54.0	-23.9	*	30	1.10

NOTE :

1. Measurement uncertainty is less than +/- 2dB
2. " *": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss(included Pre-amplifier)
4. The field strength of other emission frequencies were very low against the limit.
- 5.(F):The field streghth of fundamental frquency.

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6. 6 dB Bandwidth

6.1 LIMIT

Frequency Range (MHz)	Min. Limit (kHz)
2400 ~ 2483.5	500

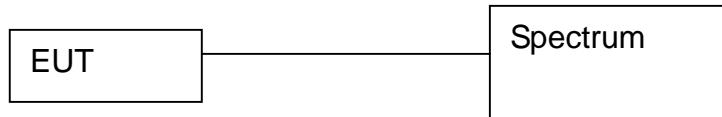
6.2 TEST EQUIPMENT

The following test equipment was used during the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM	9kHz-7GHz	ROHDE & SCHWARZ	FSP7/ 839511/010	APR. 2008 R&S

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 a spectrum through a 50Ω RF cable.

6.4 TEST PROCEDURE

The EUT could be controlled its channel.
Printed out the test result from the spectrum by hard copy function.

6.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.



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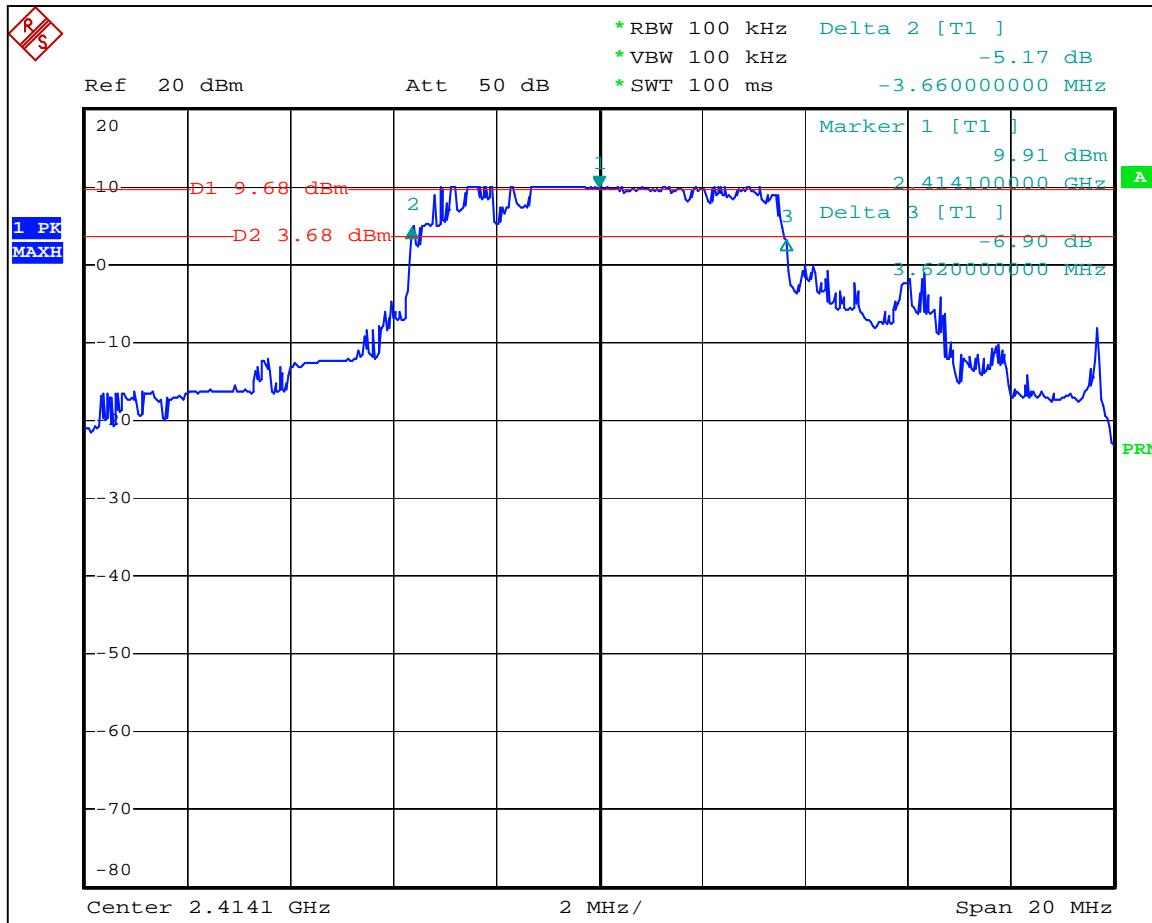
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6.6 TEST RESULT

Temperature:	26°C	Humidity:	55%RH
Spectrum Detector:	PK	Tested by:	John Yu
Test Result:	PASS	Tested Date:	Mar. 30, 2007

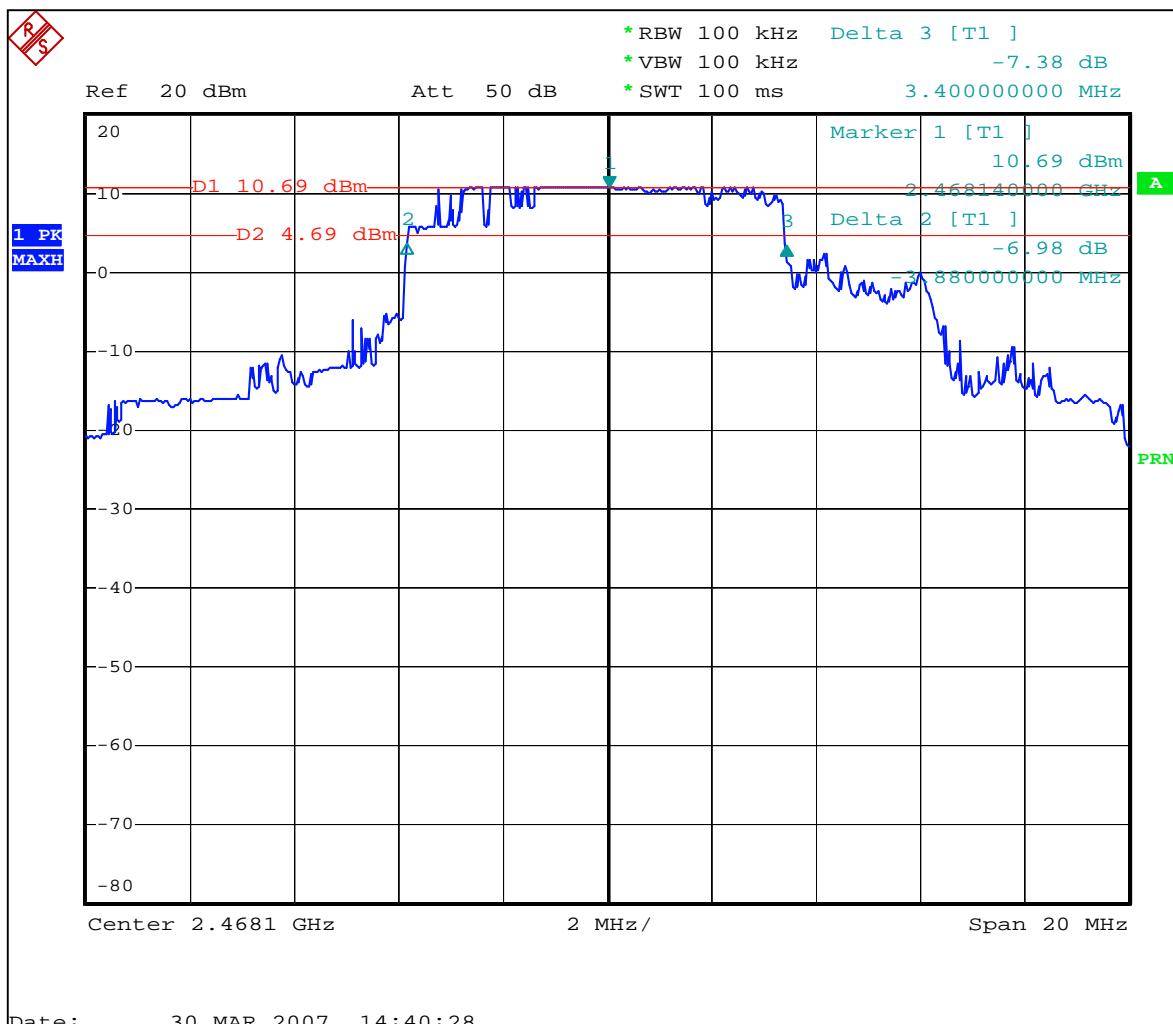
CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	6dB DOWN BW (MHz)
0	2414	6.034
3	2468	6.348



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7 PEAK POWER TEST

7.1 LIMIT

FCC Part15, Subpart C Section 15.247.

Frequency Range (MHz)	Limit(w)				
	Quantity of Hopping Channel	50	25	15	75
902-928	1(30dBm)	0.125(21dBm)	NA	NA	NA
2400-2483.5	NA	NA	0.125(21dBm)	1(30dBm)	
5725-5850	NA	NA	NA	NA	1(30dBm)

7.2 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-7GHz	ROHDE & SCHWARZ	FSP7/ 839511/010	MAR. 2008 ETC
POWER METER	N/A	BOONTON	4232A/ 29001	MAY 2007 ETC
POWER SENSOR	DC-18GHz 0.3 μ W-100mW 50 Ω	BOONTON	51011-EMC/ 31184	JUN. 2007 ETC

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

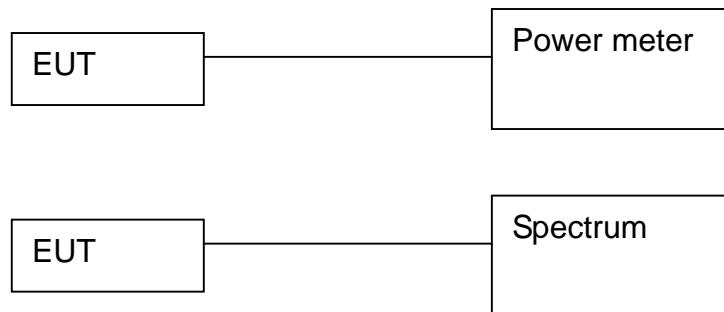


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7.3 TEST SET-UP



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

7.4 TEST PROCEDURE

The EUT could control its channel.

Printed out the test result from the spectrum by hard copy function.

Recorded the read value of the power meter.

7.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.

7.6 TEST RESULT

Temperature:	23°C	Humidity:	65%RH
Spectrum Detector:	PK	Tested by:	John Yu
Test Result:	PASS	Tested Date:	MAR. 30, 2007

Channel Number	Channel Frequency (MHz)	Peak Output Power (dBm)	Peak Power Limit (dBm)
0	2414.0000	14.22	30
3	2468.0000	15.90	30

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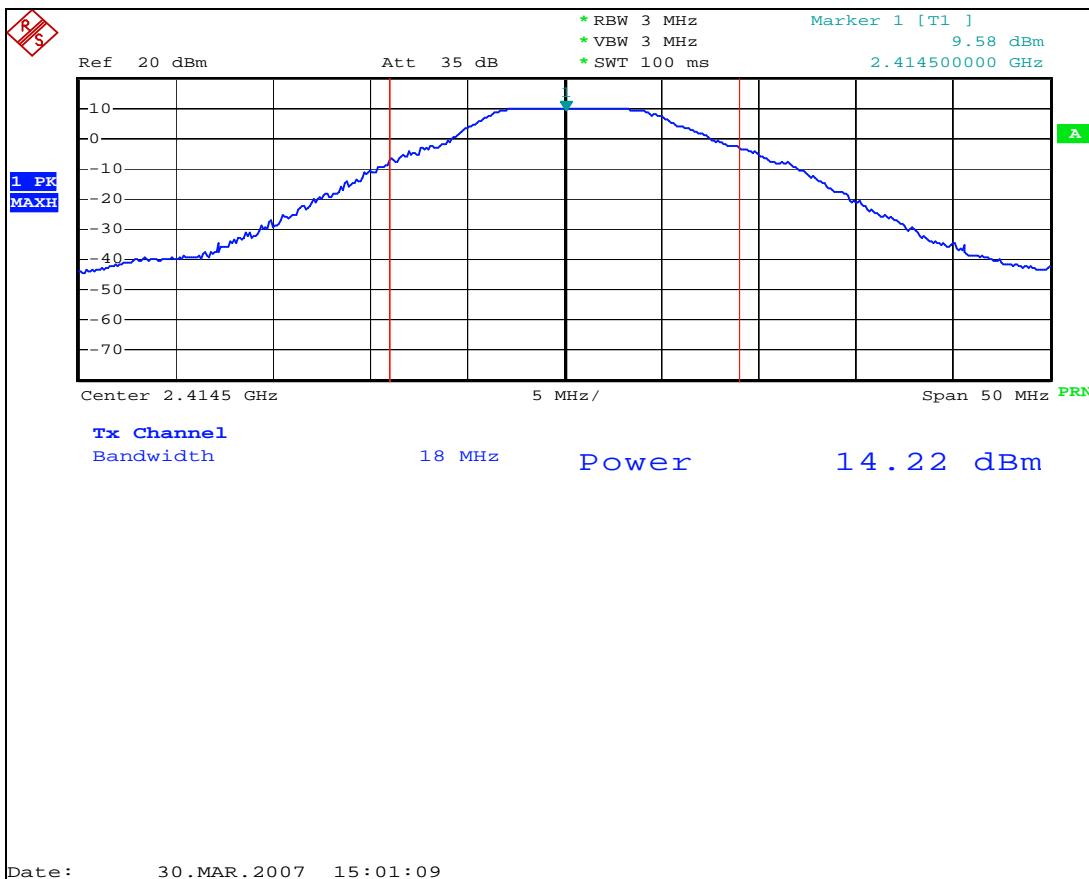


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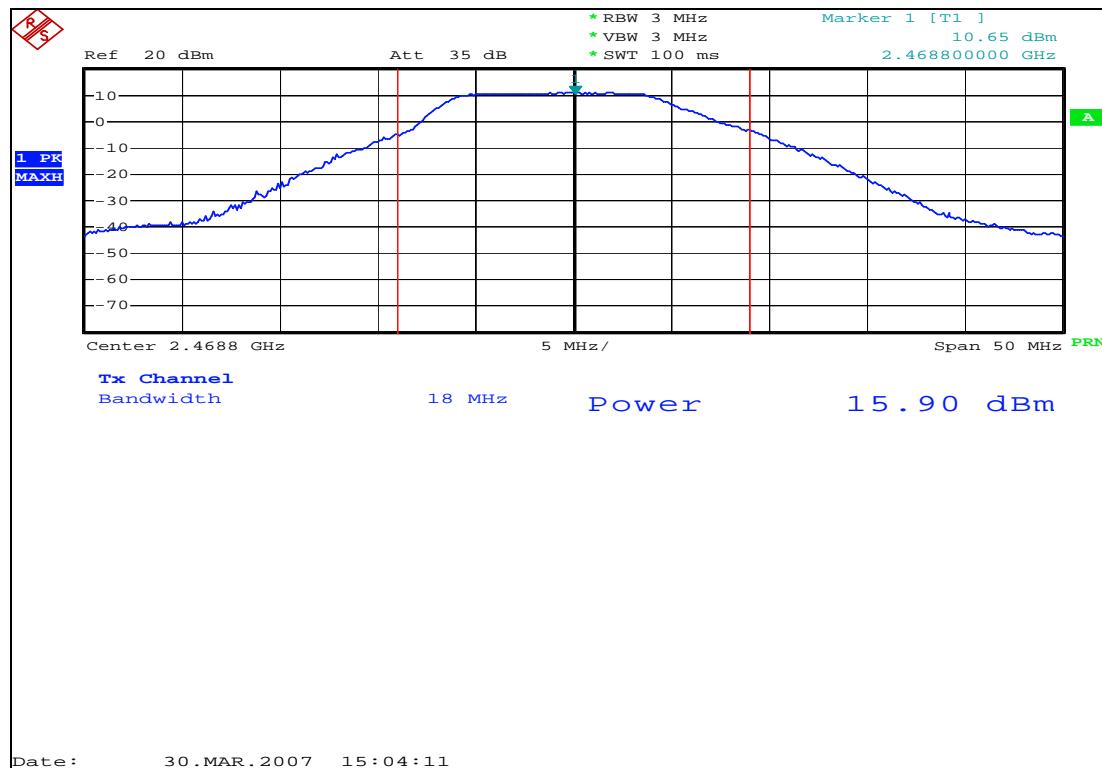
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8 BAND EDGE TEST

8.2 LIMIT

FCC Part15, Subpart C Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

OPERATING FREQUENCY RANGE (MHz)	SPURIOUS EMISSION FREQUENCY (MHz)	LIMIT	
		Peak power ration to emission(dBc)	Emission level(dBuV/m)
902-928	<902	>20	NA
	>928	>20	NA
	960-1240	NA	54
2400-2483.5	<2400	>20	NA
	>2483.5-2500	NA	54
5725-5850	<5350-5460	NA	54
	<5725	>20	NA
	>5850	>20	NA

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8.2 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-7GHz	ROHDE & SCHWARZ	FSP7/ 839511/010	APR. 2008 R&S
EMI TEST RECEIVER	9 kHz TO 2750 MHz	ROHDE & SCHWARZ	ESCS30/ 830245/012	OCT. 2007 ETC
SPECTRUM	9KHz-26.5GHz	HP	8953E/ 3710A03220	MAY 2007 ETC
PRE-AMPLIFIER	1GHz-26.5GHz Gain:30dB	HP	8449B/ 3008A01019	NOV. 2007 ETC
BI-LOG ANTENNA	25 MHz TO 2 GHz	EMCO	3142/ 9701-1124	FEB. 2008 SRT
HORN ANTENNA	1GHz to 18GHz	EMCO	3115/ 9602-4681	DEC. 2007 ETC
OATS	3 - 10 M measurement	SRT	SRT-1	APR. 2008 SRT

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



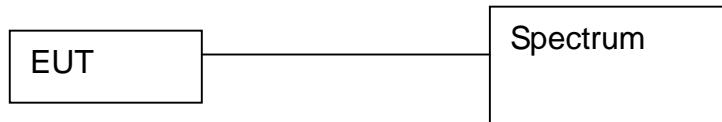
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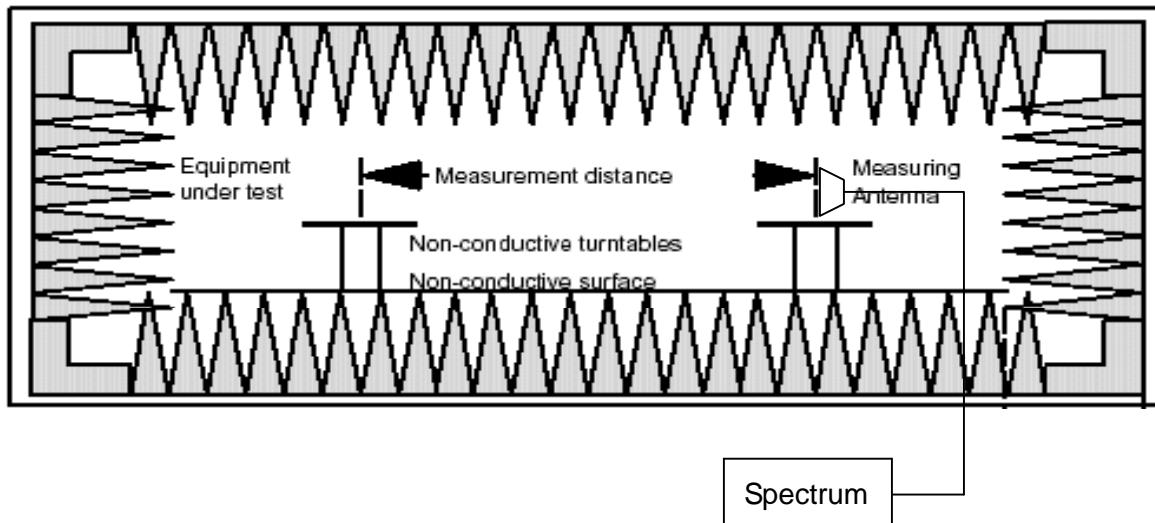
8.3 TEST SET-UP

FOR RF CONDUCTED TEST (dBc)



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

FOR RADIATED EMISSION TEST



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.



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8.4 TEST PROCEDURE

1. The EUT could be controlled its channel.

Printed out the test result from the spectrum by hard copy function.

2. 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 10 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

Same as section 4.5 of this report.

8.6 TEST RESULT

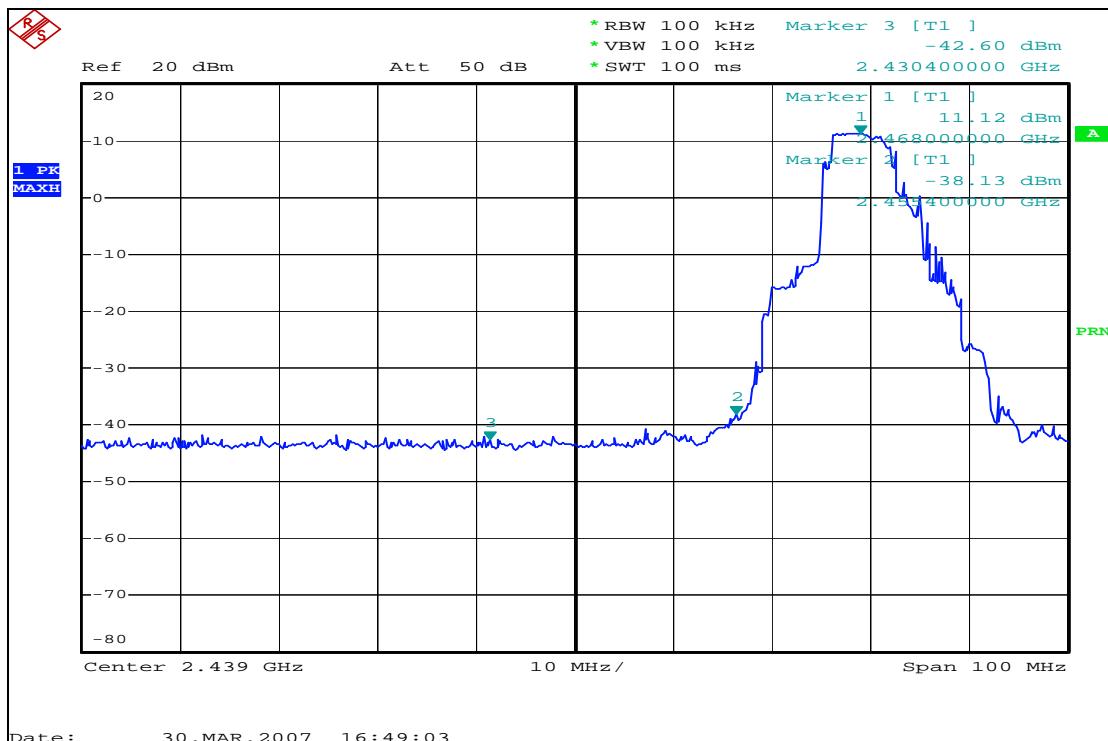
Temperature:	23°C	Humidity:	65%RH
Spectrum Detector:	PK & AV	Tested by:	John Yu
Test Result:	PASS	Tested Date:	MAR. 30, 2007

Frequency (MHz)	PEAK POWER OUTPUT (dBm)	Emission read Value(dBm)	Result of Band edge (dBc)	Band edge LIMIT (dBc)
<2400	11.12	-42.60	53.72	>20dBc
>2483.5	11.22	-38.63	49.85	>20dBc



TEST REPORT

CH0



TEST REPORT

Reference No.:A07032001

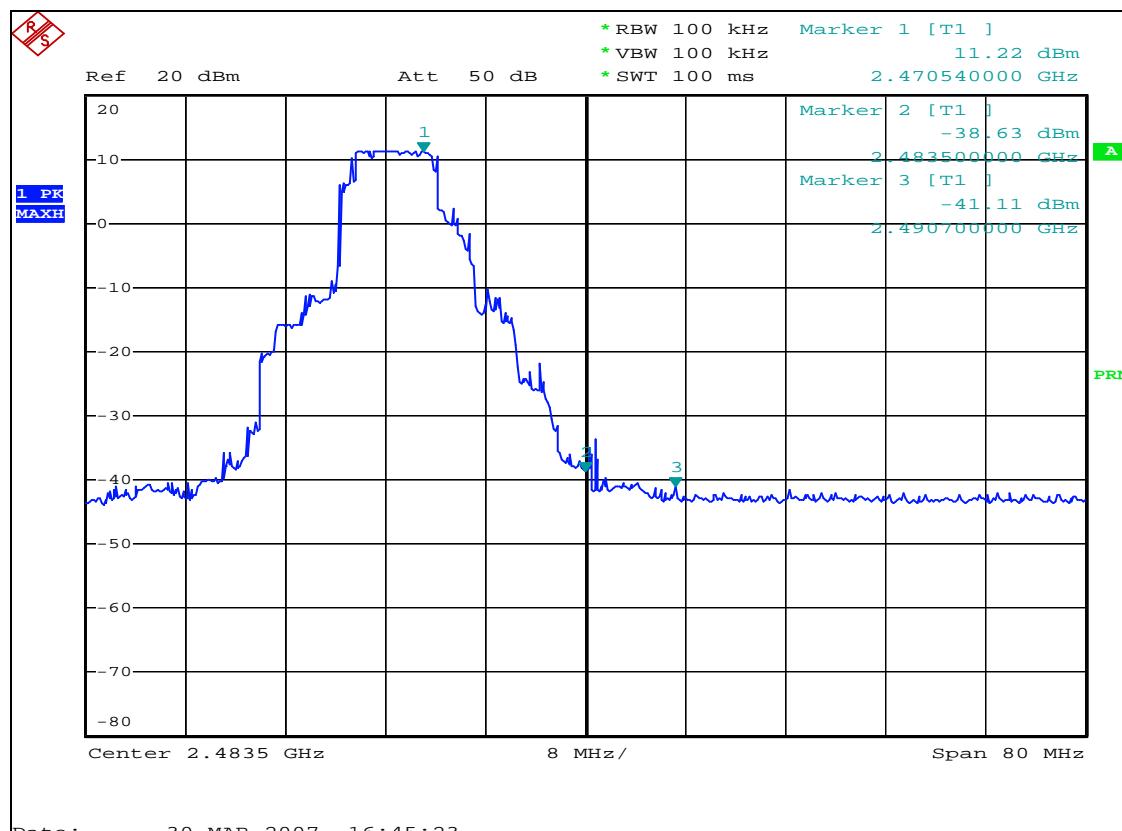
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9 POWER DENSITY TEST

9.1 LIMIT

FCC Part15, Subpart C section15.247

Frequency Range (MHz)	Limit (dBm/kHz)
902-928	
2400-2483.5	8dBm/3kHz
5725-5850	

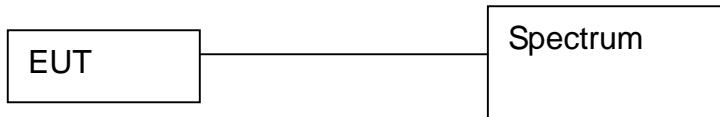
9.2 TEST EQUIPMENT

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

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM	9 kHz-7GHz	ROHDE & SCHWARZ	FSP7/ 839511/010	MAR. 2008 R & S

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

9.3 TEST SET-UP



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

9.4 TEST PROCEDURE

The EUT was operating in transmitter mode and could be controlled its channel.
Printed out the test result from the spectrum by hard copy function.

9.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.



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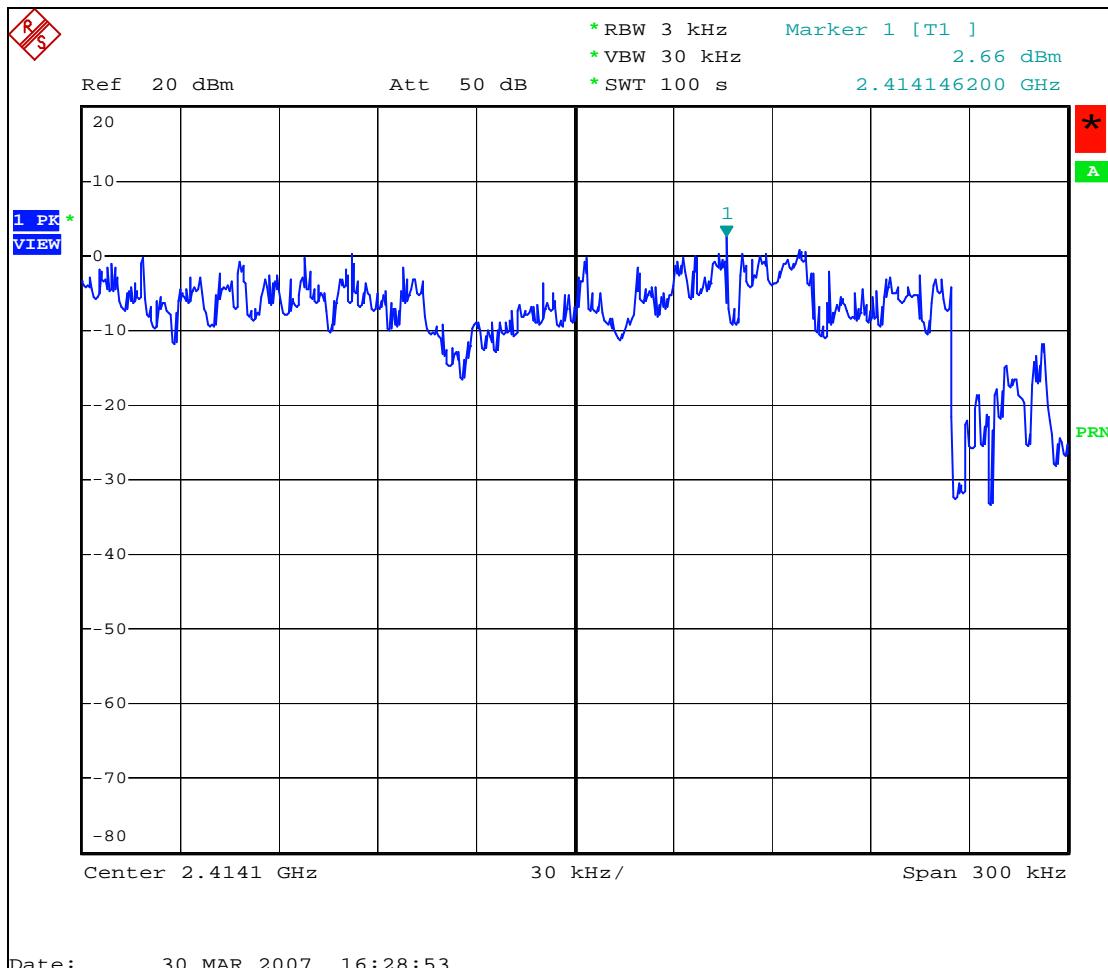
9.6 TEST RESULT

Temperature: 23°C
Spectrum Detector: PK.
Tested Result: Pass

Humidity: 65%RH
Tested By: John Yu

Channel Number	Channel Frequency (MHz)	RF POWER LEVEL IN 3KHz BW (dBm/3kHz)	MAXIMUM Limit (dBm/3kHz)
0	2414.0000	2.66	8
3	2468.0000	2.53	8

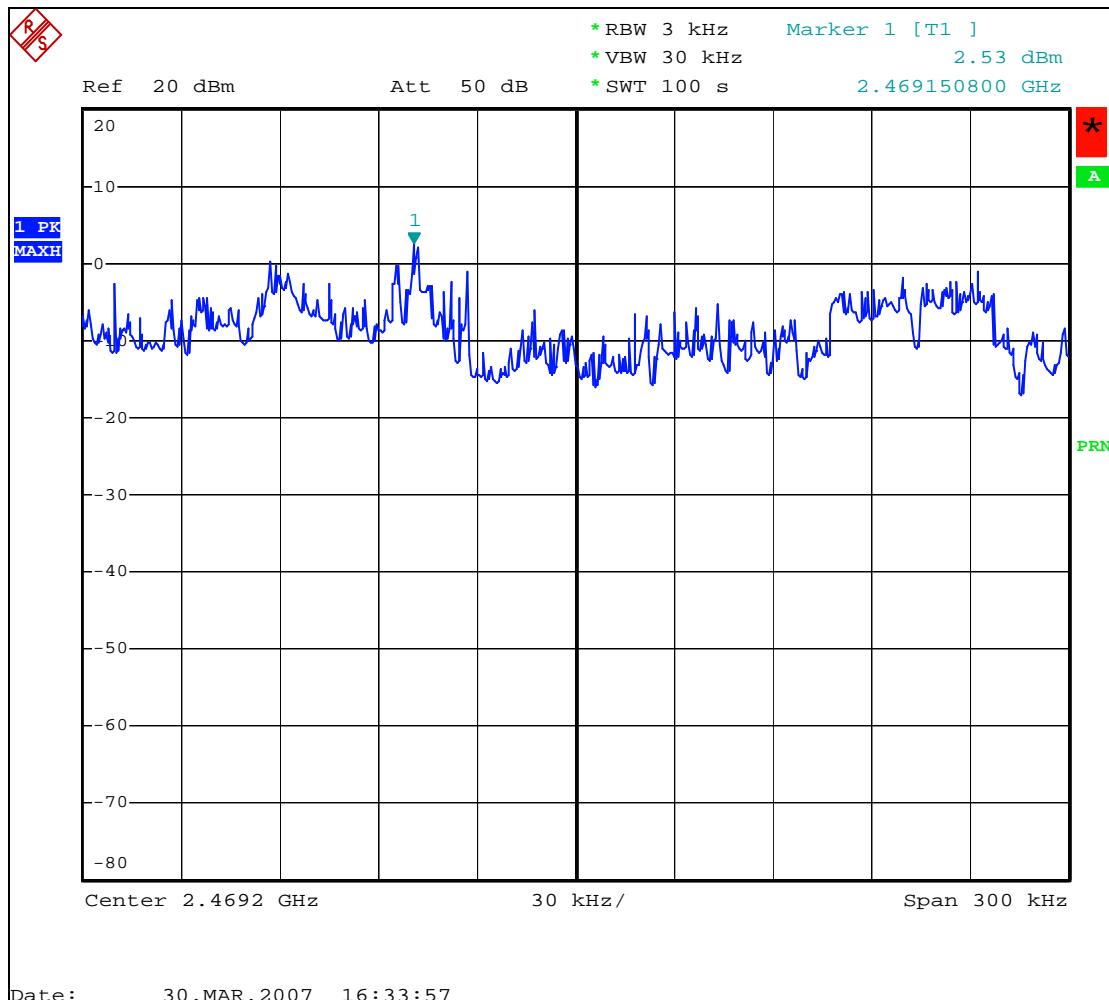
CH0





TEST REPORT

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10 ANTENNA APPLICATION

10.1 Antenna requirement

The EUT's antenna is met the requirement of FCC part15C section15.203 and 15.204.

FCC part15C section15.247 requirement:

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

10.2 Result

The EUT's antenna used an integral antenna and a PCB antenna. The antennas' gain are 0dBi and meets the requirement.



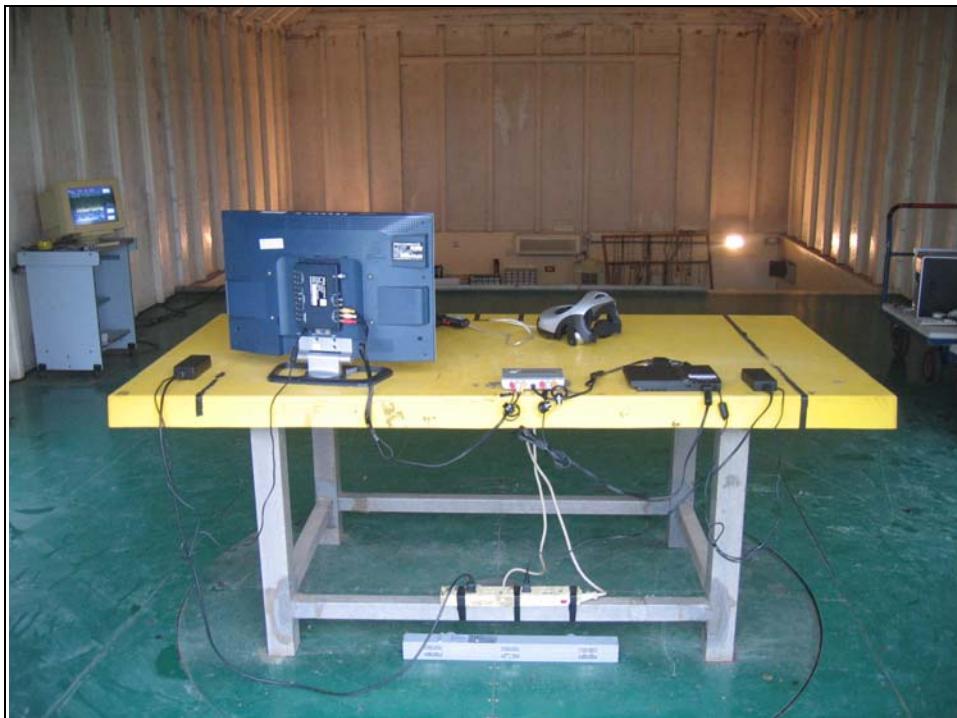
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11. PHOTOS OF TESTING

- Radiated test(2G)



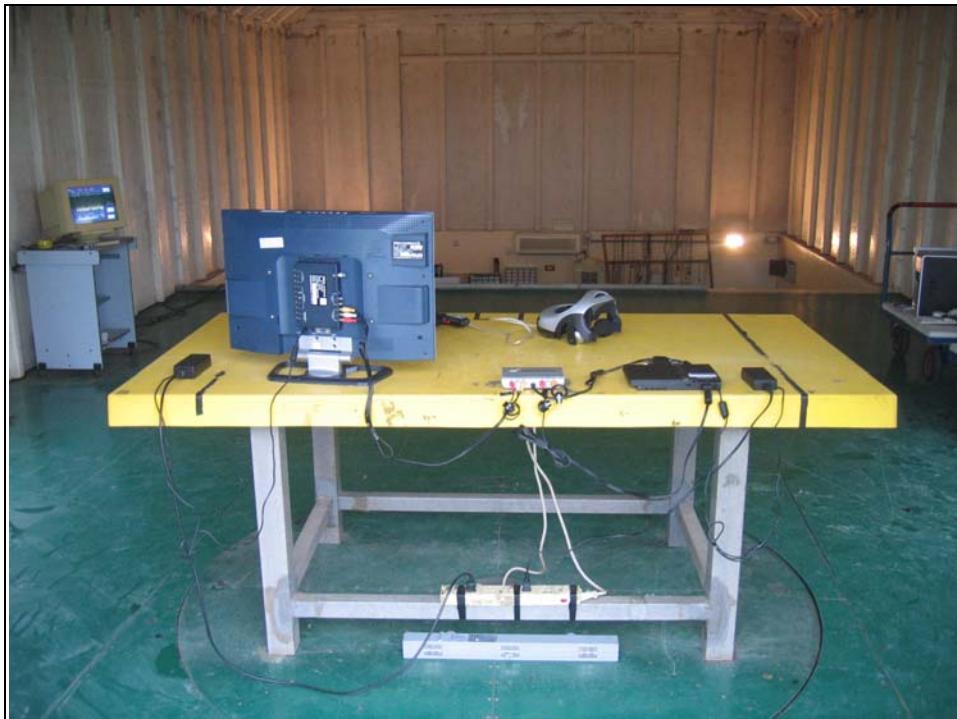
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- RE(3M)



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11. 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