



Spectrum Research & Testing Lab., Inc.
 No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan County 320, Taiwan (R.O.C.)

TEST REPORT

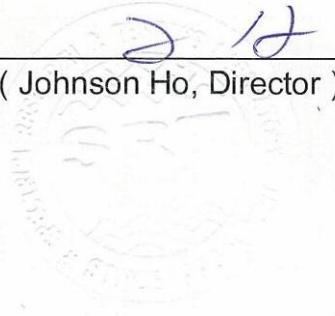
Reference No.: A14020801
 Report No.: FCCA14020801
 FCC ID : FSUGMZL7
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 Date: Mar. 05, 2014

Product Name: Traveler 9000
 Model No.: GM-100017-V2
 Applicant: KYE SYSTEMS CORP. (Genius)
 No. 492, Sec. 5, Chongxin Rd., Sanchong Dist.,
 New Taipei City 24160, Taiwan (R.O.C.)
 Date of Receipt: Feb. 08, 2014
 Finished date of Test: Mar. 05, 2014
 Applicable Standards: 47 CFR Part 15, Subpart C, 15.249
 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 : Richard Lin , Date: 3/5/2014
 (Richard Lin)

Approved By : [Signature] , Date: 3/5/2014
 (Johnson Ho, Director)





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Revisions History

Report No.	Issue Date	Revisions
FCCA14020801	Mar. 05, 2014	Initial issue



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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.

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.
- DC power source, 1.5Vdc of AAA battery (Tx).
- New DC dry battery (AAA size) was used during testing.

1.3 EUT MODIFICATION

- No modification in SRT Lab.



2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Traveler 9000
MODEL NO.	GM-100017-V2
POWER SUPPLY	DC power source of Tx from AAA battery : DC 1.5V
CABLE	NA
FREQUENCY BAND	2.400 GHz ~ 2.4835 GHz
CARRIER FREQUENCY	2.409 GHz ~ 2.476 GHz
NUMBER OF CHANNEL	8
MODULATION TYPE	GFSK
MODE OF OPERATION	Duplex
ANTENNA TYPE	Printed PCB Antenna
ANTENNA GAIN	5 dBi
OPERATING TEMPERATURE RANGE	-20 ~ 55°C

NOTE:

1. For more detailed information, please refer to the EUT's specification or user's manual provided by manufacturer.

2.2 Used Channel and Frequency Table

Channel	Frequency	Channel	Frequency
CH01	2409 MHz	CH05	2445 MHz
CH02	2417 MHz	CH06	2455 MHz
CH03	2426 MHz	CH07	2465 MHz
CH04	2435 MHz	CH08	2476 MHz

2.3 EUT OPERATING CONDITION

1. Setup the EUT and all peripheral devices .
2. New battery is used during all test.
3. Turn on the power of all equipment and EUT.
4. Set the EUT under continuous transmission condition.
5. The EUT was set to the highest available power level.



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2.4 DESCRIPTION OF TEST MODE

Mode		Frequency
1	Tx	Tx-1
2		Tx-2
3		Tx-3

966 chamber Pre-test result summary:

Axis	Polarizatio	Frequency (MHz)	Result (dBuV/m)
X	H	935.9800	34.86
X	V	576.1100	39.27
Y	H	935.9800	34.06
Y	V	329.7300	35.63
Z	H	850.6200	27.75
Z	V	46.4900	27.93

NOTE:

1. The axis X,Y and Z we evaluate in chamber, the X axis is worst case.

X axis:



Y axis:



Z axis:





3. DESCRIPTION OF APPLIED STANDARDS

The EUT is a wireless product. According to the specifications provided by the applicant, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C, 15.249

ANSI C63.4: 2003

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

3.1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

STANDARD SECTION	TEST TYPE AND LIMIT RESULTS	RESULTS
15.203	Antenna requirement	PASS
15.207	AC Power Line Conducted Emission	N/A
15.249 (a)	Field Strength of the Fundamental signal	PASS
15.249 (a) (d) /15.209	Spurious Emissions	PASS
15.249 (d)/15.205	Band Edge	PASS
15.215(c)	20dB Occupied Band Width	PASS

**Spectrum Research & Testing Lab., Inc.**

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Date: Mar. 05, 2014**4. TECHNICAL CHARACTERISTICS TEST****4.1 BAND EDGE TEST****4.1.1 TEST EQUIPMENT**

The following test equipment was used during the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER (INCLUDE SPECTRUM ANALYZER)	9 KHz ~ 6 GHz	ROHDE & SCHWARZ	ESL /100176	MAR. 28, 2014 ETC
SPECTRUM ANALYZER	9 kHz ~ 7GHz	ROHDE & SCHWARZ	FSP7 / 100289	APR. 12, 2014 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC 08, 2014 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	DEC. 12, 2014 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 10, 2014 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	MAR. 09, 2014 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	MAY 13, 2014 SRT
RF CABLE	UP TO 18 GHz 1.5 m	JYEBAO	A30A30-L 142 / EQF-0035(001)	DEC. 11, 2014 ETC
RF CABLE	UP TO 18 GHz 3.5 m	JYEBAO	A30A30-L 142 / EQF-0036(002)	DEC. 11, 2014 ETC
K-TYPE CABLE	UP TO 40 GHz 3 m	HUBER+SUHNE R	SF102-46/2*11SK 252 /MY2611/2	MAR. 07, 2014 ETC
K-TYPE CABLE	UP TO 40 GHz, 1 m	HUBER+SUHNE R	SF 102-40/2*11 /23934/2	OCT. 20, 2014 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943/ 869	NCR

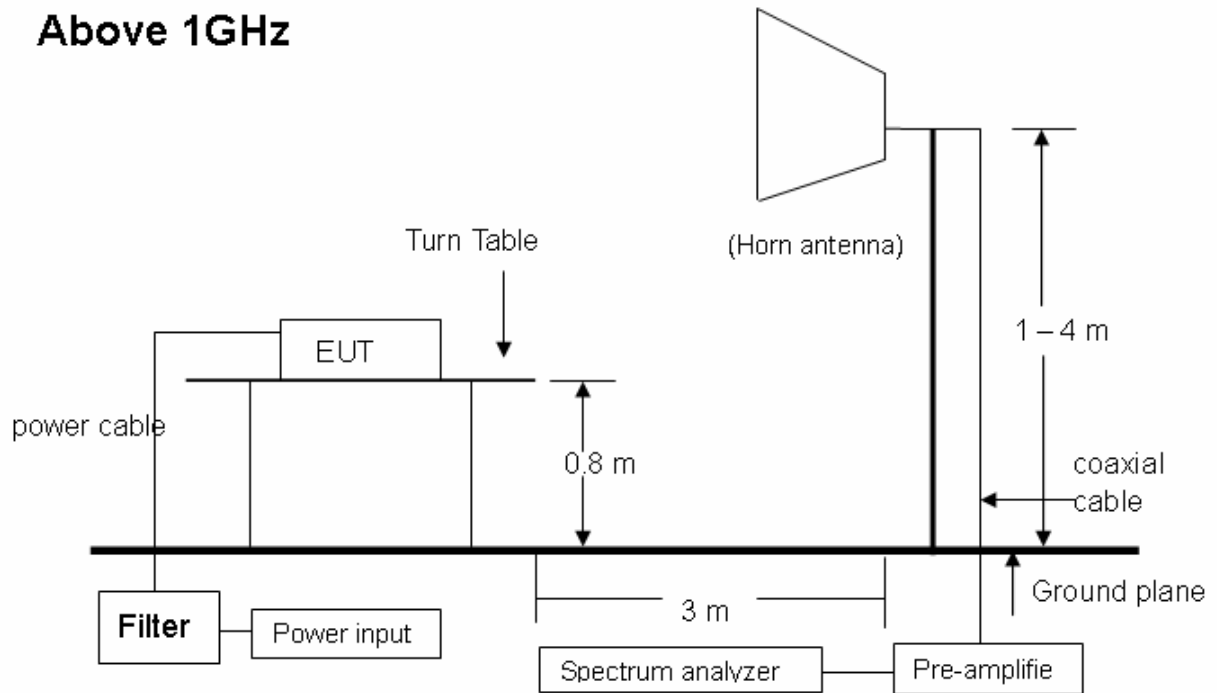
NOTE:

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



4.1.2 TEST SETUP

Above 1GHz



NOTE:

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



4.1.3 TEST PROCEDURE

1. The EUT was operating in continuous transmission mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.
2. 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.

Above 1 GHz, measurements PK.

Detector Type:	Peak
RBW:	1 MHz
VBW:	3 MHz

Above 1 GHz, measurements AV.

Detector Type:	Average
RBW:	1 MHz
VBW:	3 MHz

4.1.4 EUT OPERATING CONDITION

1. Set the EUT under continuous transmission condition.
2. The EUT was set to the highest available power level.



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4.1.5 TEST RESULT

Below 2400 MHz (mode 1 of 2409 MHz emission)

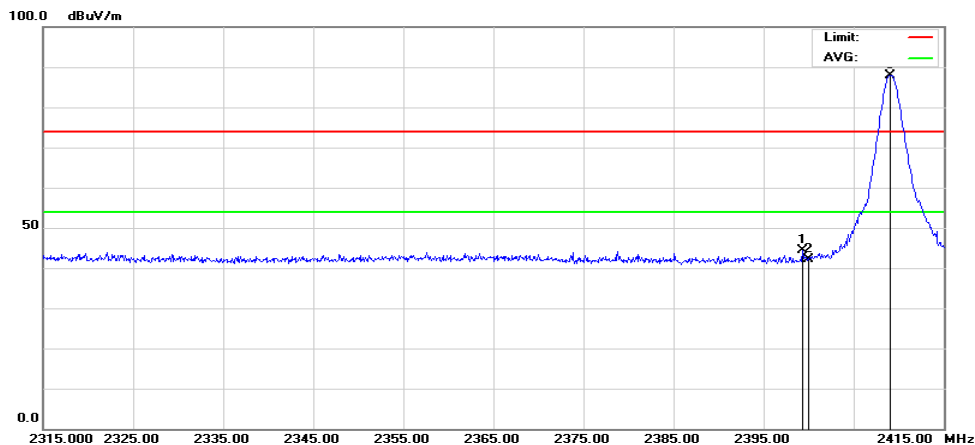
Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	2.315 GHz – 2.415 GHz	Tested Mode:	Tx-1
Detector Type:	PK. and AV.	RBW:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 08, 2014
Tested By:	Richard Lin		

Frequency (MHz)	Correct Factor (dB)	Ant. Fac. (dB)	Ant. Pol. (H/V)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Over Limit (dBuV/m)	
				PK	AV	PK	AV	PK	AV	PK	AV
2400.00	-31.38	28.22	H	43.29	32.78	40.13	29.62	74.00	54.00	-33.87	-24.38
2400.00	-31.38	28.22	V	43.57	33.06	40.41	29.90	74.00	54.00	-33.59	-24.10
2399.35	-31.38	28.22	H	45.53	35.03	42.36	31.86	74.00	54.00	-31.64	-22.14
2397.52	-31.39	28.21	V	45.45	34.97	42.28	31.80	74.00	54.00	-31.72	-22.20

NOTE :

1. Emission Level = Reading Value + Ant. Factor + Correct Factor (incl.: Cable Loss and Pre-Amplifier Gain)

Horizontal :



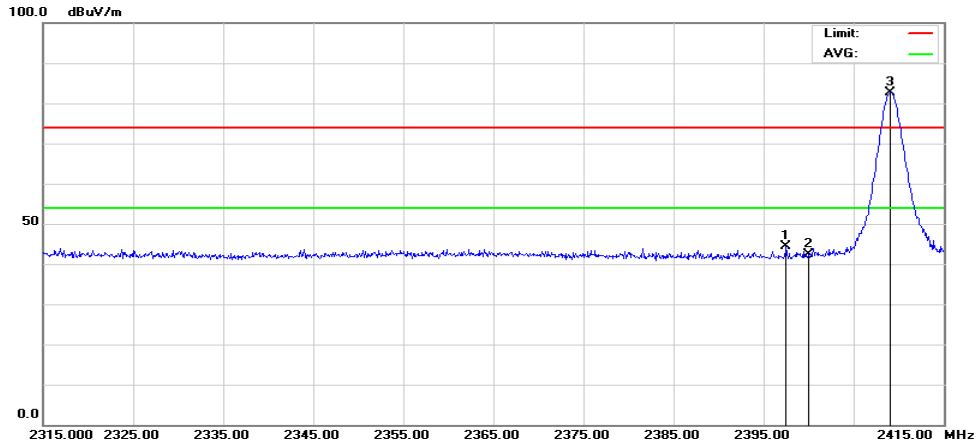


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Vertical :





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About 2483.5 MHz (mode 3 of 2476 MHz emission)

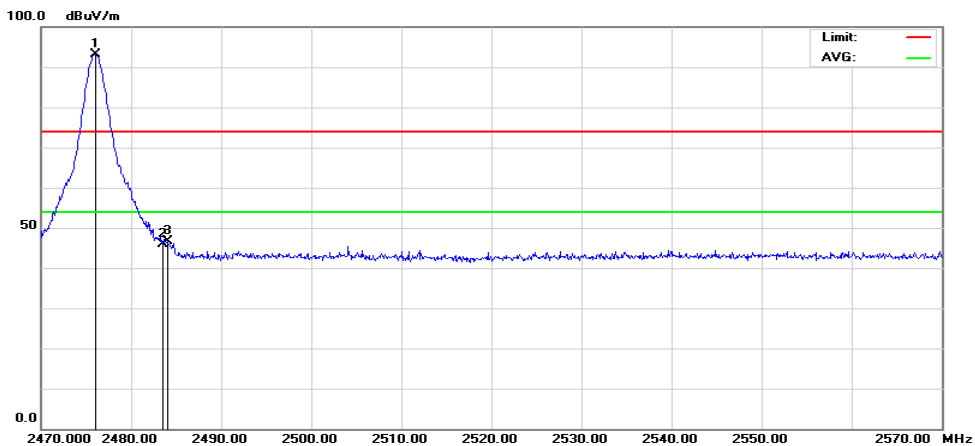
Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	2.315 GHz – 2.415 GHz	Tested Mode:	Tx-3
Detector Type:	PK. and AV.	RBW:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 08, 2014
Tested By:	Richard Lin		

Frequency (MHz)	Correct Factor (dB)	Ant. Fac. (dB)	Ant. Pol. (H/V)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Over Limit (dBuV/m)	
				PK	AV	PK	AV	PK	AV	PK	AV
2483.50	-31.29	28.45	H	46.75	36.35	43.91	33.51	74.00	54.00	-30.09	-20.49
2483.50	-31.29	28.45	V	43.31	32.82	40.47	29.98	74.00	54.00	-33.53	-24.02
2484.06	-31.29	28.46	H	47.58	37.02	44.75	34.19	74.00	54.00	-29.25	-19.81
2490.02	-31.28	28.47	V	45.37	34.89	42.56	32.08	74.00	54.00	-31.44	-21.92

NOTE :

1. Emission Level = Reading Value + Ant. Factor + Correct Factor (incl.: Cable Loss and Pre-Amplifier Gain)

Horizontal :



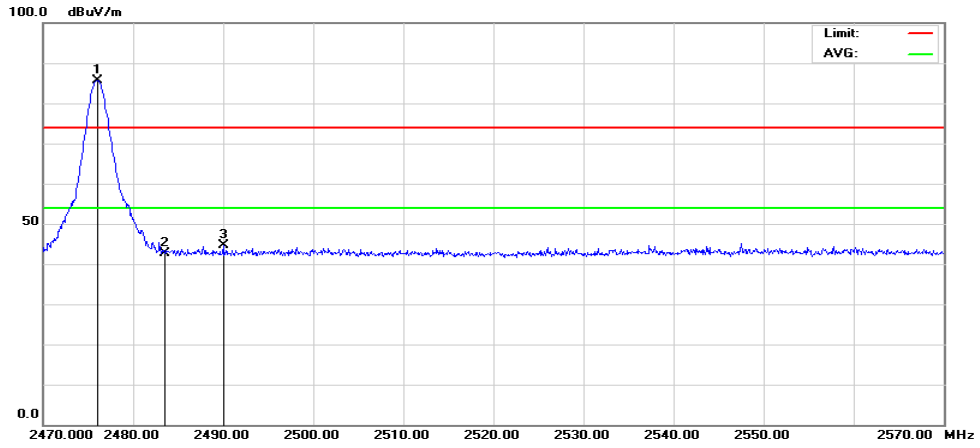


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Vertical :





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4.2 20dB OCCUPIED BANDWIDTH TEST

4.2.1 LIMIT

FCC Part15, Subpart C Section 15.215 (c). Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

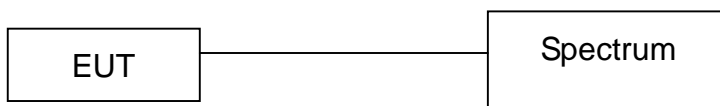
4.2.2 TEST EQUIPMENT

The following test equipment was used during the test :

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER (INCLUDE SPECTRUM ANALYZER)	9 KHz ~ 6 GHz	ROHDE & SCHWARZ	ESL /100176	MAR. 28, 2014 ETC

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

4.2.3 TEST SET-UP



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

4.2.4 EUT OPERATING CONDITION

1. Set the EUT under continuous transmission condition.
2. The EUT was set to the highest available power level.



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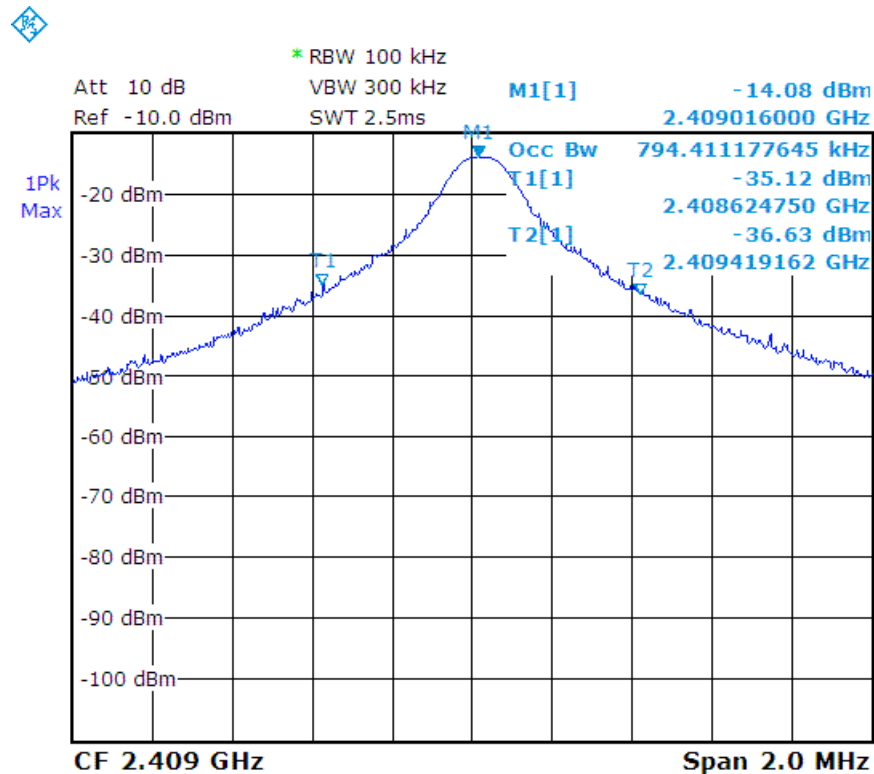
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4.2.5 TEST RESULT

Temperature:	21°C	Humidity:	59%RH
Detector:	Peak	Test Mode:	Tx-1, Tx-2, Tx-3
RBW:	100 kHz	VBW:	300 kHz
Tested By:	Richard Lin	Tested Date:	Mar. 05, 2014

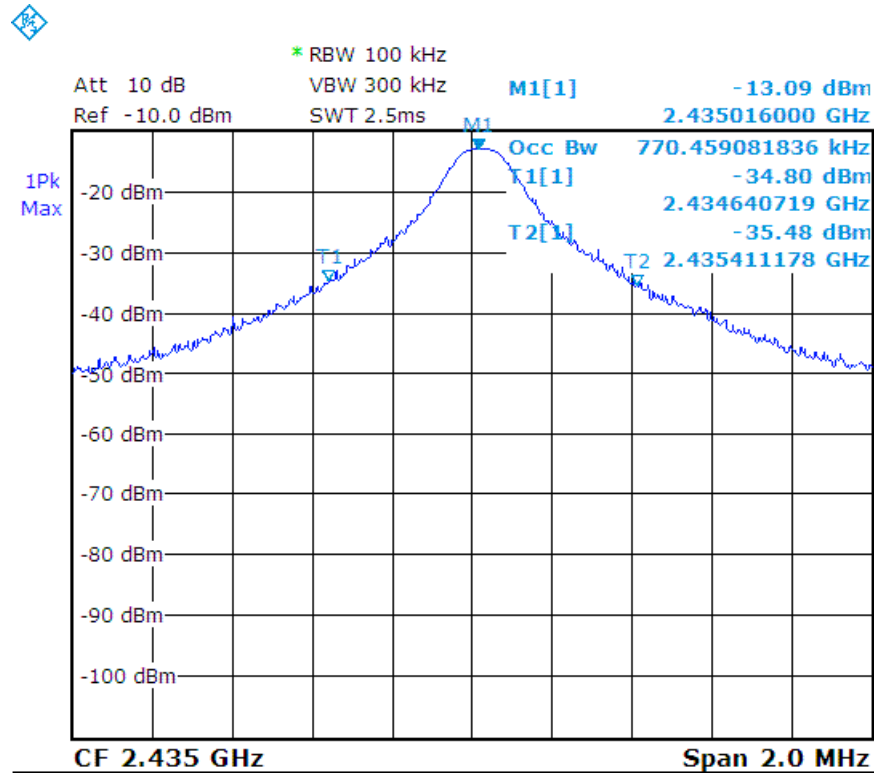
Channel Number	Channel Frequency (MHz)	20dB Bandwidth (MHz)	Pass / Fail
CH01	2409	0.794	Pass
CH04	2435	0.770	Pass
CH08	2476	0.802	Pass

CH01 :

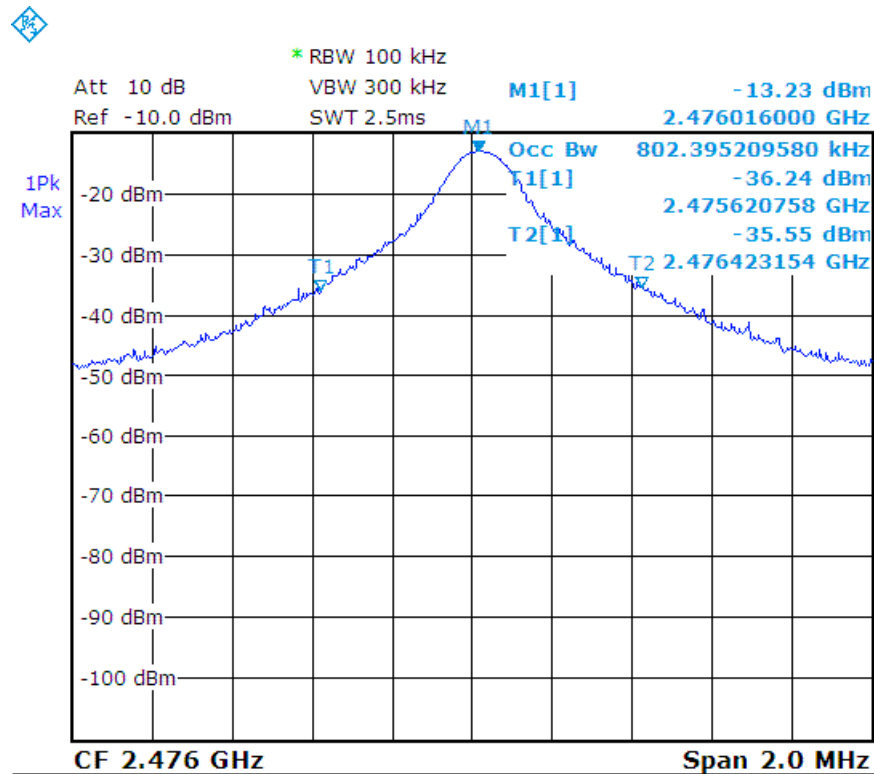




CH04 :



CH08 :





4.3 RADIATED EMISSION TEST

4.3.1 LIMIT

FCC Part15, Subpart C Section 15.209 limit of radiated emission for frequency below1000MHz. The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dBmV/m)
0.009 - 0.490	300	2400/F(KHz)
0.490 - 1.705	30	24000/F(KHz)
1.705 - 30	30	30
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

FCC Part15, Subpart C Section 15.249 limit of radiated emission for frequency below1000MHz (Average).

FREQUENCY (MHz)	FIELD STRENGTH OF FUNDAMENTAL (millivolts/meter)	FIELD STRENGTH OF HARMONICS (millivolts/meter)
902 - 928	50	500
2400 - 2483.5	50	500
5725 - 5875	50	500
24000 - 24250	250	2500

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.
3. 50mV = 94dBuV



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4.3.2 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
EMI TEST RECEIVER	9 kHz ~ 2.75 GHz	ROHDE & SCHWARZ	ESCS30 / 100376	JAN. 12, 2015 ETC
EMI TEST RECEIVER	20 MHz ~ 1000 MHz	ROHDE & SCHWARZ	ESVS30 / 841977/003	DEC. 08, 2014 ETC
SPECTRUM ANALYZER	9 kHz ~ 7GHz	ROHDE & SCHWARZ	FSP7 / 100289	APR. 12, 2014 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC 08, 2014 ETC
BI-LOG ANTENNA	30 MHz ~ 2 GHz	SCHAFFNER	CBL6141A / 4181	JUN. 25, 2014 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	DEC. 12, 2014 ETC
HORN ANTENNA	18 ~ 40 GHz	ETS-LINDGREN	3116 /00032255	JAN. 10, 2015 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 10, 2014 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	MAR. 09, 2014 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	MAY 13, 2014 SRT
COAXIAL CABLE	30 M	TIMES	LMR-400 / #30M(L1TCAB014)	MAY. 21, 2014 ETC
RF CABLE	UP TO 18 GHz 1.5 m	JYEBAO	A30A30-L 142 / EQF-0035(001)	DEC. 11, 2014 ETC
RF CABLE	UP TO 18 GHz 3.5 m	JYEBAO	A30A30-L 142 / EQF-0036(002)	DEC. 11, 2014 ETC
K-TYPE CABLE	UP TO 40 GHz 3 m	HUBER+SUHNER	SF102-46/2*11SK 252 /MY2611/2	MAR. 07, 2014 ETC
K-TYPE CABLE	UP TO 40 GHz, 1 m	HUBER+SUHNER	SF 102-40/2*11 /23934/2	OCT. 20, 2014 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943/ 869	NCR
CDN	0.15 MHz ~ 300 MHz	LUTHI	CDN L-801 M2/M3 / 2790	MAY. 24, 2014 ETC

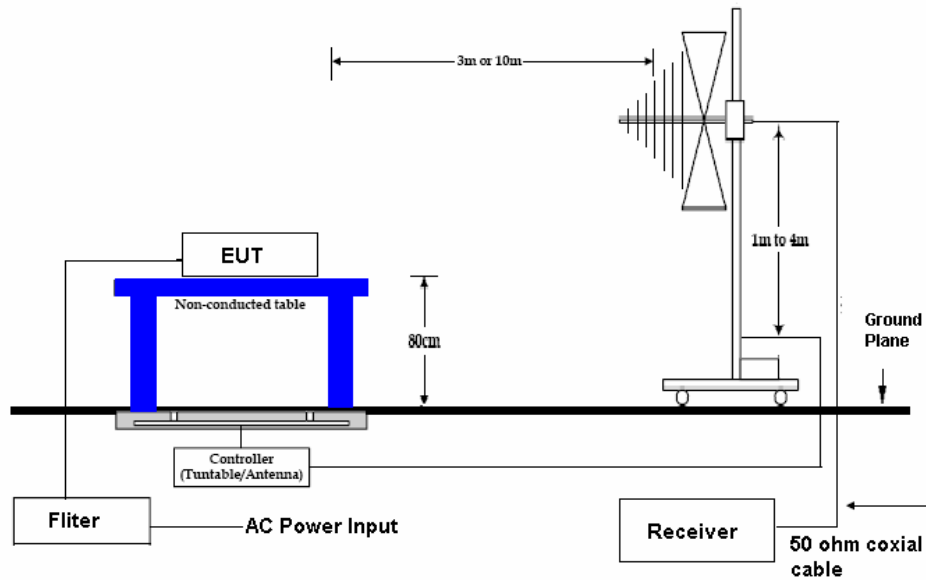
NOTE:

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

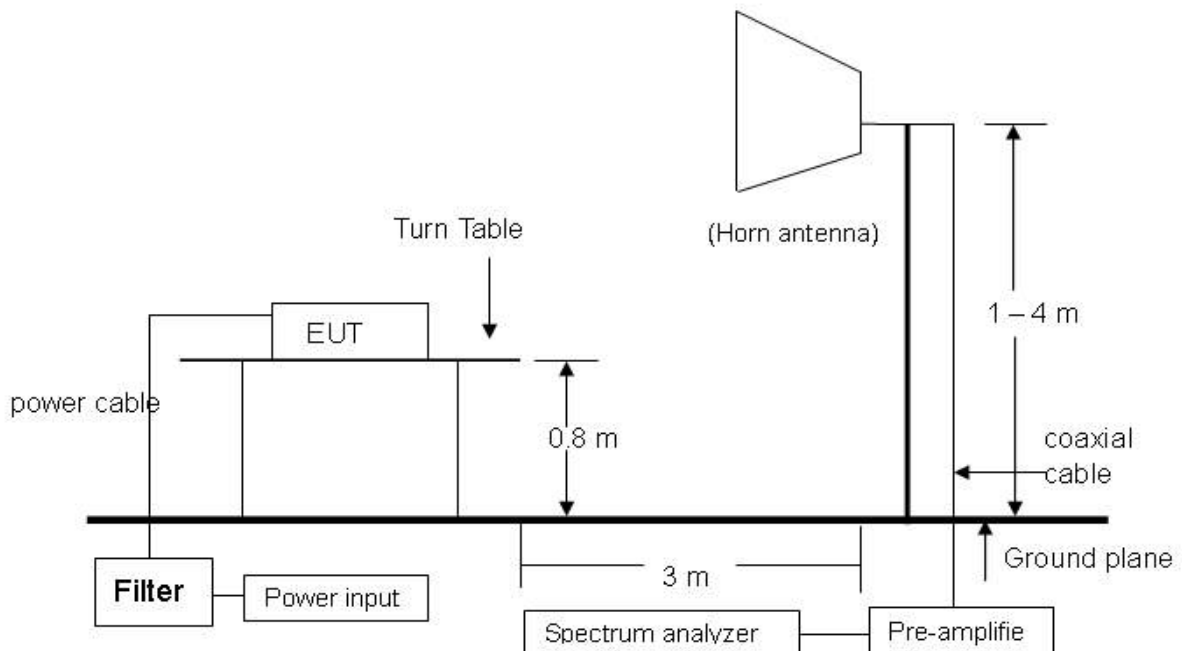


4.3.3 TEST SET-UP

30 MHz ~ 1 GHz



Above 1 GHz



NOTE:

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



4.3.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003.

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 to 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.

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.

30 MHz to 1 GHz, measurements Q.P.

Detector Type:	Quasi-peak
IF Bandwidth:	120 KHz

Above 1 GHz, measurements PK.

Detector Type:	Peak
RBW:	1 MHz
VBW:	3 MHz

Above 1 GHz, measurements AV.

Detector Type:	Average
RBW:	1 MHz
VBW:	3 MHz

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Date: Mar. 05, 2014**4.3.5 TEST RESULT**

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-1
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Richard Lin	Tested Date:	Feb. 08, 2014

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)
56.42	1.21	12.08	4.15	17.44	40	-22.56	315	3.52
574.92	4.34	19.13	3.86	27.33	46	-18.67	106	2.39
686.33	4.85	20.72	3.59	29.15	46	-16.85	175	2.05
767.16	5.23	21.93	4.01	31.18	46	-14.82	88	1.78
849.67	5.60	22.98	3.82	32.40	46	-13.60	42	1.48
905.30	5.85	23.25	3.77	32.87	46	-13.14	100	1.25

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)
45.51	1.11	16.70	8.15	25.96	40	-14.05	239	1.07
443.61	3.66	17.17	4.27	25.11	46	-20.89	59	2.18
720.75	5.01	21.24	3.62	29.87	46	-16.13	213	3.11
817.31	5.46	22.34	3.30	31.10	46	-14.90	67	3.30
867.56	5.67	23.03	3.69	32.40	46	-13.60	188	3.48
947.16	6.06	24.51	4.23	34.80	46	-11.21	231	3.56

NOTE :

1. Measurement uncertainty is 4.73dB.
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.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan County 320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A14020801
 Report No.: FCCA14020801
 FCC ID : FSUGMZL7
 Page: 23 of 34
 Date: Mar. 05, 2014

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-2
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Richard Lin	Tested Date:	Feb. 08, 2014

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)
495.76	3.93	17.93	4.02	25.88	46	-20.12	315	2.59
521.30	4.08	18.29	4.27	26.65	46	-19.35	207	2.44
589.61	4.40	19.40	3.68	27.48	46	-18.52	112	2.27
767.44	5.23	21.93	4.31	31.48	46	-14.52	71	1.73
854.27	5.62	23.01	3.82	32.45	46	-13.55	339	1.45
913.59	5.89	23.49	3.94	33.32	46	-12.69	108	1.29

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)
45.71	1.11	16.70	9.58	27.39	40	-12.62	64	1.03
90.43	1.50	8.70	9.52	19.72	44	-23.78	39	1.18
390.17	3.38	16.16	4.89	24.43	46	-21.57	147	2.16
712.81	4.97	21.06	3.54	29.57	46	-16.43	259	3.10
810.94	5.43	22.20	3.70	31.33	46	-14.67	96	3.38
917.25	5.91	23.61	4.15	33.67	46	-12.34	188	3.52

NOTE :

1. Measurement uncertainty is 4.73dB.
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.
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TEST REPORT

Reference No.: A14020801
 Report No.: FCCA14020801
 FCC ID : FSUGMZL7
 Page: 24 of 34
 Date: Mar. 05, 2014

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-3
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Richard Lin	Tested Date:	Feb. 08, 2014

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)
56.84	1.21	12.08	4.27	17.56	40	-22.44	210	3.61
513.93	4.04	18.18	3.86	26.08	46	-19.92	158	2.58
664.14	4.74	20.58	3.65	28.98	46	-17.02	174	2.05
767.50	5.23	21.93	4.12	31.29	46	-14.71	93	1.71
881.46	5.74	23.06	3.75	32.55	46	-13.45	105	1.38
954.33	6.09	24.62	4.18	34.89	46	-11.11	118	1.17

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)
45.71	1.11	16.70	9.91	27.72	40	-12.29	29	1.06
494.17	3.93	17.92	3.71	25.55	46	-20.45	151	2.42
636.93	4.61	20.25	4.28	29.14	46	-16.86	269	2.83
707.34	4.94	20.95	3.84	29.74	46	-16.26	204	3.01
799.57	5.39	22.00	4.25	31.63	46	-14.37	298	3.35
875.24	5.71	23.05	4.68	33.44	46	-12.56	139	3.57

NOTE :

1. Measurement uncertainty is 4.73dB.
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.



TEST REPORT

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-1
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 08, 2014
Tested By:	Richard Lin		

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1921.34	-31.95	26.82	48.19	37.65	43.06	32.52	74	54	-30.94	-21.48	135	2.25
1998.31	-31.83	27.09	43.75	33.24	39.01	28.50	74	54	-34.99	-25.50	274	2.11
3072.79	-30.93	30.36	44.38	33.82	43.81	33.25	74	54	-30.19	-20.75	64	1.89
3711.51	-29.92	31.81	43.31	32.87	45.20	34.76	74	54	-28.80	-19.24	109	1.67
4134.62	-29.33	32.50	43.17	32.69	46.34	35.86	74	54	-27.66	-18.14	305	1.55
5233.81	-27.89	33.88	42.23	31.78	48.22	37.77	74	54	-25.78	-16.23	70	1.28

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1742.61	-32.22	26.17	49.52	39.05	43.47	33.00	74	54	-30.53	-21.00	43	1.17
3024.93	-31.01	30.25	43.70	33.18	42.94	32.42	74	54	-31.06	-21.58	111	1.62
3471.80	-30.27	31.24	43.56	33.14	44.53	34.11	74	54	-29.47	-19.89	325	1.75
3623.15	-30.04	31.60	43.41	32.89	44.96	34.44	74	54	-29.04	-19.56	167	1.83
4134.51	-29.33	32.50	42.86	32.35	46.03	35.52	74	54	-27.97	-18.48	224	1.98
5302.76	-27.77	33.96	42.14	31.67	48.33	37.86	74	54	-25.67	-16.14	280	2.28

NOTE:

1. Measurement uncertainty is 3.92dB.
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.
5. (F):The field strength of fundamental frequency.



TEST REPORT

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-1 (Fundamental and Harmonics)
Detector:	PK. And AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 08, 2014
Tested By:	Richard Lin		

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2409.00 (F)	-31.37	28.25	90.67	79.35	87.54	76.22	114	94	-26.46	-17.78	128	1.61
4818.00	-28.51	33.20	44.76	34.18	49.45	38.87	74	54	-24.55	-15.13	49	1.47
7227.00	-26.57	35.74	38.15	27.61	47.33	36.79	74	54	-26.67	-17.21	53	1.59
9636.00	-25.69	37.81	37.44	26.94	49.56	39.06	74	54	-24.44	-14.94	294	1.52
12045.00	-23.85	39.17	36.01	25.50	51.33	40.82	74	54	-22.67	-13.18	255	1.44
14454.00	-20.86	41.94	30.48	19.93	51.55	41.00	74	54	-22.45	-13.00	71	1.60

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2409.00 (F)	-31.37	28.25	86.05	73.79	82.92	70.66	114	94	-31.08	-23.34	315	1.72
4818.00	-28.51	33.20	46.19	35.63	50.88	40.32	74	54	-23.12	-13.68	87	1.67
7227.00	-26.57	35.74	38.08	27.55	47.26	36.73	74	54	-26.74	-17.27	184	1.55
9636.00	-25.69	37.81	37.72	27.28	49.84	39.40	74	54	-24.16	-14.60	59	1.53
12045.00	-23.85	39.17	36.15	25.69	51.47	41.01	74	54	-22.53	-12.99	300	1.64
14454.00	-20.86	41.94	30.47	19.87	51.54	40.94	74	54	-22.46	-13.06	291	1.57

NOTE:

1. Measurement uncertainty is 3.92dB.
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.
5. (F):The field strength of fundamental frequency.



TEST REPORT

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-2
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 08, 2014
Tested By:	Richard Lin		

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1744.94	-32.21	26.18	48.59	38.12	42.55	32.08	74	54	-31.45	-21.92	331	2.28
1928.16	-31.94	26.84	48.47	37.96	43.37	32.86	74	54	-30.63	-21.14	329	2.22
3048.35	-30.97	30.31	44.03	33.54	43.37	32.88	74	54	-30.63	-21.12	214	1.89
3709.75	-29.92	31.80	43.31	32.89	45.19	34.77	74	54	-28.81	-19.23	106	1.69
4642.31	-28.72	32.81	43.38	32.81	47.48	36.91	74	54	-26.52	-17.09	97	1.41
5359.47	-27.68	34.03	41.27	30.74	47.63	37.10	74	54	-26.37	-16.90	2	1.19

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3068.43	-30.94	30.35	43.80	33.35	43.21	32.76	74	54	-30.79	-21.24	113	1.62
3491.68	-30.23	31.28	43.49	32.97	44.54	34.02	74	54	-29.46	-19.98	109	1.75
3889.26	-29.66	32.23	42.83	32.34	45.40	34.91	74	54	-28.60	-19.09	204	1.87
4482.31	-28.90	32.50	42.50	31.99	46.10	35.59	74	54	-27.90	-18.41	198	2.04
5104.10	-28.12	33.72	42.12	31.67	47.73	37.28	74	54	-26.27	-16.72	291	2.23
5597.67	-27.47	34.18	41.47	30.95	48.18	37.66	74	54	-25.82	-16.34	286	2.38

NOTE:

1. Measurement uncertainty is 3.92dB.
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.
5. (F):The field strength of fundamental frequency.



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TEST REPORT

Reference No.: A14020801
 Report No.: FCCA14020801
 FCC ID : FSUGMZL7
 Page: 28 of 34
 Date: Mar. 05, 2014

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-2 (Fundamental and Harmonics)
Detector:	PK. And AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 08, 2014
Tested By:	Richard Lin		

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2435.00 (F)	-31.34	28.32	91.85	80.03	88.83	77.01	114	94	-25.17	-16.99	55	1.48
4870.00	-28.45	33.31	45.48	34.92	50.34	39.78	74	54	-23.66	-14.22	192	1.52
7305.00	-26.53	35.93	38.71	28.14	48.11	37.54	74	54	-25.89	-16.46	78	1.39
9740.00	-25.63	37.89	37.66	27.38	49.92	39.64	74	54	-24.08	-14.36	220	1.64
12175.00	-23.45	39.10	35.74	25.17	51.38	40.81	74	54	-22.62	-13.19	134	1.67
14610.00	-20.91	41.67	28.93	18.35	49.69	39.11	74	54	-24.31	-14.89	71	1.73

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2435.00 (F)	-31.34	28.32	87.15	76.34	84.13	73.32	114	94	-29.87	-20.68	109	1.58
4870.00	-28.45	33.31	45.97	35.48	50.83	40.34	74	54	-23.17	-13.66	324	1.54
7305.00	-26.53	35.93	38.68	28.19	48.08	37.59	74	54	-25.92	-16.41	300	1.44
9740.00	-25.63	37.89	37.71	27.22	49.97	39.48	74	54	-24.03	-14.52	258	1.60
12175.00	-23.45	39.10	35.69	25.16	51.33	40.80	74	54	-22.67	-13.20	175	1.39
14610.00	-20.91	41.67	28.80	18.25	49.56	39.01	74	54	-24.44	-14.99	65	1.36

NOTE:

1. Measurement uncertainty is 3.92dB.
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.
5. (F):The field strength of fundamental frequency.



TEST REPORT

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-3
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 08, 2014
Tested By:	Richard Lin		

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1068.45	-34.01	24.70	49.52	38.01	40.20	28.69	74	54	-33.80	-25.31	115	2.49
3062.94	-30.95	30.34	43.69	33.24	43.08	32.63	74	54	-30.92	-21.37	217	1.87
3708.53	-29.92	31.80	43.60	33.15	45.48	35.03	74	54	-28.52	-18.97	108	1.65
4301.83	-29.13	32.50	42.08	31.59	45.45	34.96	74	54	-28.55	-19.04	75	1.51
4714.56	-28.63	32.97	42.57	31.97	46.91	36.31	74	54	-27.09	-17.69	45	1.38
5512.75	-27.44	34.20	41.03	30.58	47.79	37.34	74	54	-26.21	-16.66	194	1.14

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1999.31	-31.83	27.10	44.15	33.63	39.41	28.89	74	54	-34.59	-25.11	238	1.31
2934.17	-31.08	29.98	43.77	33.36	42.67	32.26	74	54	-31.33	-21.74	111	1.59
3286.69	-30.58	30.83	43.64	33.21	43.89	33.46	74	54	-30.11	-20.54	61	1.66
3942.85	-29.58	32.36	42.39	31.80	45.17	34.58	74	54	-28.83	-19.42	259	1.89
4739.07	-28.60	33.03	42.71	32.34	47.13	36.76	74	54	-26.87	-17.24	193	2.11
5451.87	-27.52	34.14	40.83	30.45	47.46	37.08	74	54	-26.54	-16.92	274	2.42

NOTE :

1. Measurement uncertainty is 3.92dB.
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.
5. (F):The field strength of fundamental frequency.



TEST REPORT

Temperature:	18 °C	Humidity:	67 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-3 (Fundamental and Harmonics)
Detector:	PK. And AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 08, 2014
Tested By:	Richard Lin		

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2476.00 (F)	-31.30	28.43	93.88	81.34	91.02	78.48	114	94	-22.98	-15.52	99	1.55
4952.00	-28.36	33.49	45.56	35.01	50.70	40.15	74	54	-23.30	-13.85	163	1.62
7428.00	-26.47	36.23	39.57	29.08	49.33	38.84	74	54	-24.67	-15.16	42	1.65
9904.00	-25.54	38.02	38.32	27.71	50.81	40.20	74	54	-23.19	-13.80	247	1.37
12380.00	-22.82	38.97	34.77	24.15	50.92	40.30	74	54	-23.08	-13.70	65	1.44
14856.00	-21.06	40.93	29.98	19.46	49.86	39.34	74	54	-24.14	-14.66	318	1.49

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dB μ V)		Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2476.00 (F)	-31.30	28.43	90.23	78.72	87.37	75.86	114	94	-26.63	-18.14	47	1.50
4952.00	-28.36	33.49	45.21	34.78	50.35	39.92	74	54	-23.65	-14.08	193	1.61
7428.00	-26.47	36.23	39.45	28.93	49.21	38.69	74	54	-24.79	-15.31	177	1.43
9904.00	-25.54	38.02	38.24	27.73	50.73	40.22	74	54	-23.27	-13.78	85	1.70
12380.00	-22.82	38.97	34.57	24.01	50.72	40.16	74	54	-23.28	-13.84	134	1.64
14856.00	-21.06	40.93	29.80	19.29	49.68	39.17	74	54	-24.32	-14.83	268	1.58

NOTE:

1. Measurement uncertainty is 3.92dB.
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.
5. (F):The field strength of fundamental frequency.



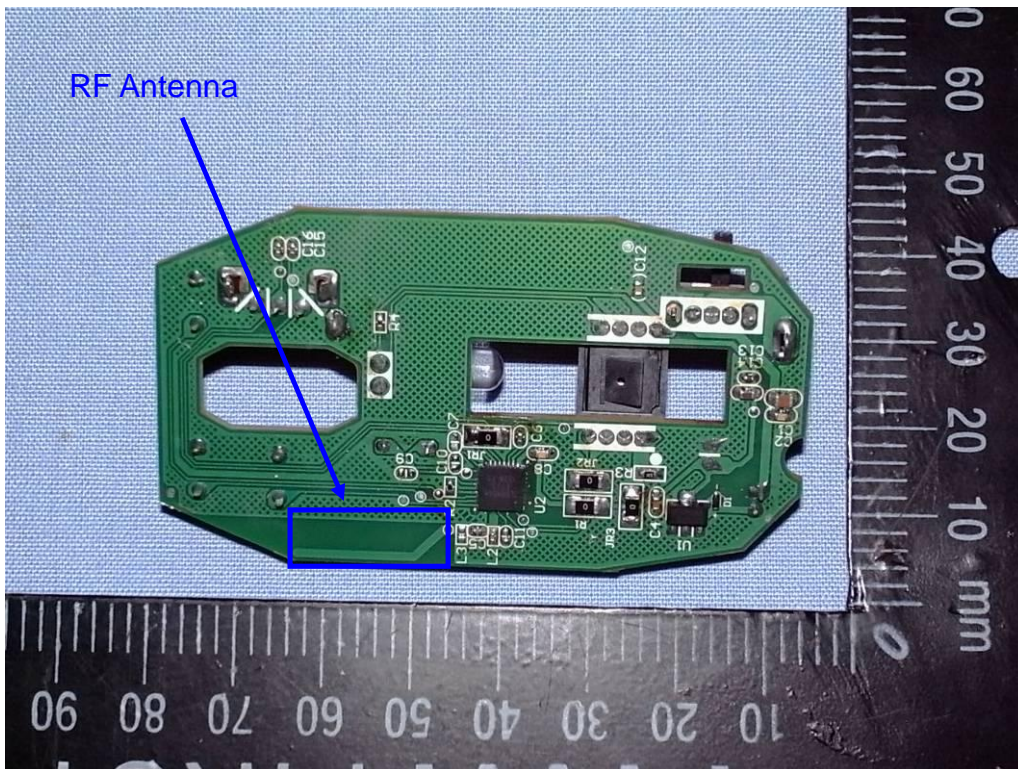
5. Antenna application

5.1 Antenna requirement

The EUT's antenna is met the requirement of FCC Part 15C section 15.203.

5.2 Result

The EUT's antenna used a Printed PCB Antenna. Gain of antenna types is 5 dBi that meet the requirement.





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6. PHOTOS OF TESTING

- Radiated test (below 1G , TX)





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7. 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