



Spectrum Research & Testing Lab., Inc.

No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A16013001
Report No.: FCCA16013001
FCC ID : FSUGMZLP
Page: 1 of 55
Date: Feb. 16, 2016

Product Name: wireless mouse
Model No.: Micro Traveler 9000R
Applicant: KYE SYSTEMS CORP. (Genius)
No. 492, Sec. 5, Chongxin Rd., Sanchong Dist.,
New Taipei City 24160, Taiwan (R.O.C.)
Date of Receipt: Jan. 30, 2016
Finished date of Test: Feb. 15, 2016
Applicable Standards: 47 CFR Part 15, Subpart C
47 CFR Part 15, Subpart B
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 :

Mark Chang
(Mark Chang)

, Date:

2/16/2016

Approved By :

Johnson Ho
(Johnson Ho, Director)

, Date:

2/16/2016



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Revisions History

Report No.	Issue Date	Revisions
FCCA16013001	Feb. 16, 2016	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.
- AC 120V/60Hz for PC (Rx, from USB port), was used during the test.
- EUT has a built-in internal Lithium Polymer battery (DC 3.7V / 320mAh) (Tx).

1.3 EUT MODIFICATION

- No modification in SRT Lab.

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2. DESCRIPTION OF EUT AND TEST MODE**2.1 GENERAL DESCRIPTION OF EUT**

PRODUCT	wireless mouse
MODEL NO.	Micro Traveler 9000R
POWER SUPPLY	DC power source from Li-ion battery: 3.7V/320mAh AC power source of PC for Rx applied USB port : AC 120V/60Hz
CABLE	0.5m unshielded power cable
FREQUENCY BAND	2.400 GHz ~ 2.4835 GHz
CARRIER FREQUENCY	2.402 GHz ~ 2.480 GHz
NUMBER OF CHANNEL	8
RATED RF OUTPUT POWER	-11.63 dBm
MODULATION TYPE	GFSK
MODE OF OPERATION	Duplex
ANTENNA TYPE	Printed PCB Antenna
ANTENNA GAIN	0 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	2402 MHz	CH05	2445 MHz
CH02	2414 MHz	CH06	2457 MHz
CH03	2426 MHz	CH07	2469 MHz
CH04	2440 MHz	CH08	2480 MHz

2.3 DESCRIPTION OF EUT INTERNAL DEVICE

DEVICE	BRAND / MAKER	MODEL #	FCC ID / DOC	REMARK
USB dongle	Genius	N/A	FSUGMZLM	N/A
Li-ion battery	ShenZhen	382533	N/A	3.7V,320mAh



2.4 EUT OPERATING CONDITION

Tx-1, Tx-2, Tx3 :

1. For use customer provided continuous transmission EUT.
2. Setup the EUT and all peripheral devices for testing.
3. Turn on the power of all equipments and the EUT.
4. Start continuous transmission mode on the EUT.

Standby, Link :

1. Setup the EUT and all peripheral devices for testing.
2. Turn on the power of all equipments and the EUT.

2.5 DESCRIPTION OF TEST MODE

Mode			Frequency
1	Tx	Tx-1	2402 MHz
2		Tx-2	2440 MHz
3		Tx-3	2480 MHz
4		Standby	NA
5	Rx	Link	NA

NOTE:

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

X axis:



Y axis:



Z axis:



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2.6 DESCRIPTION OF SUPPORT UNIT

The EUT was configured by the requirement of ANSI C63.4:2003. 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	PC	ASUS	CM6730	DoC	1.8m unshielded power cable
2	LCD Monitor	Dell	U2410Mb	DoC	1.8m unshielded power cable 1.5m shielded data cable
3	Keyboard	Acer	KU-0355	DoC	1.5m unshielded data cable.
4	Mouse	Logetic	M-BT83	DoC	1.5m unshielded data cable.
5	Printer	HP	C8991A	DoC	1.5m unshielded power cable 1.5m shielded data cable
6	USB 2.0 HDD	Terasys	F-12U	DoC	1.5m unshielded data cable.

NOTE:

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

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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

47 CFR Part 15, Subpart B

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
15.247(d)	Band Edge	PASS

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4. TECHNICAL CHARACTERISTICS TEST**4.1 BAND EDGE TEST****4.1.1 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	N/A
	> 928	> 20	N/A
	960 - 1240	N/A	54
2400 - 2483.5	< 2400	> 20	N/A
	> 2483.5 - 2500	N/A	54
5725 - 5850	< 5350 - 5460	N/A	54
	< 5725	> 20	N/A
	> 5850	> 20	N/A

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4.1.2 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	JAN. 06, 2017 ETC
SPECTRUM ANALYZER	9 kHz ~ 7GHz	ROHDE & SCHWARZ	FSP7 / 100289	JUN. 12, 2016 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	NOV. 30, 2016 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	NOV. 30, 2016 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 23, 2016 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	MAR. 06, 2016 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	NOV. 20, 2016 SRT
RF CABLE	UP TO 18 GHz 1.5 m	JYEBAO	A30A30-L 142 / EQF-0035(001)	NOV. 24, 2016 ETC
RF CABLE	UP TO 18 GHz 3.5 m	EMCI	EMC104-SM-SM-3500 / 150601	JUN. 21, 2016 ETC
K-TYPE CABLE	UP TO 40 GHz 3 m	HUBER+SUHNE R	SF102-46/2*11SK 252 /MY2611/2	MAR. 03, 2016 ETC
K-TYPE CABLE	UP TO 40 GHz, 1 m	HUBER+SUHNE R	SF102/2*11SK252 /MY3331/2	OCT. 05, 2016 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943/ 869	NCR

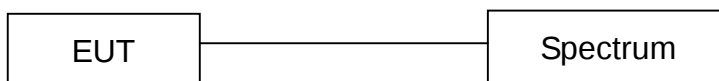
NOTE:

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



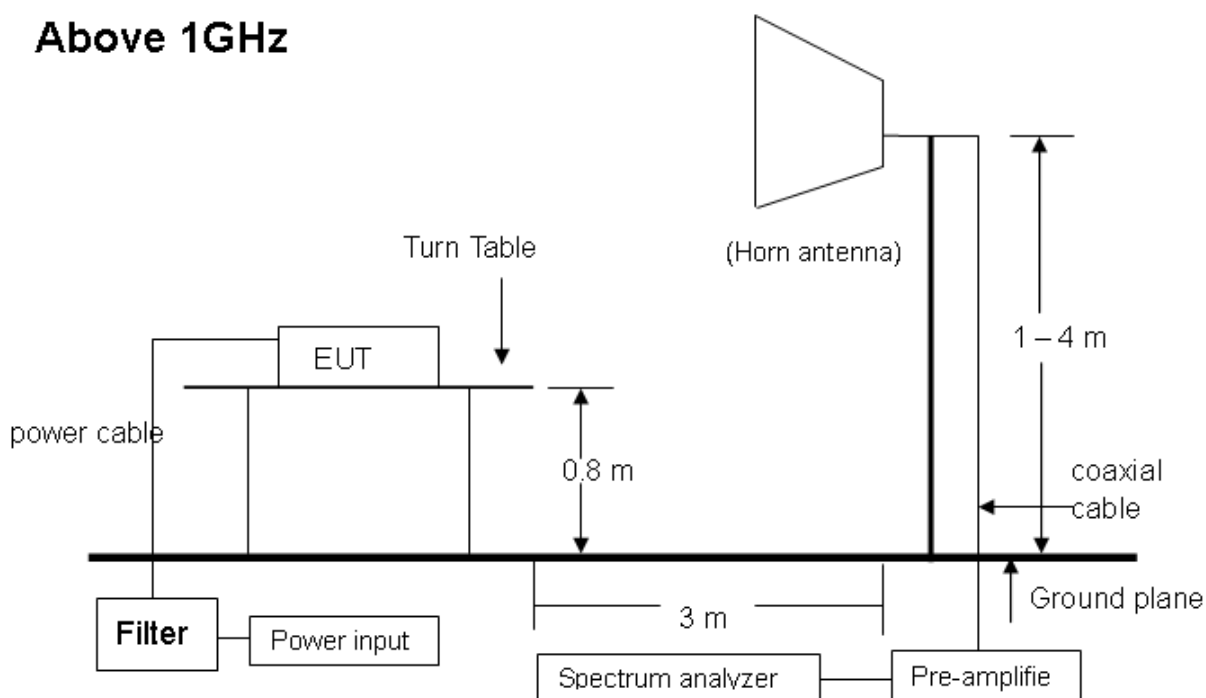
4.1.3 TEST SETUP

FOR RF CONDUCTED TEST (dBc)



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

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.



4.1.4 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 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.

4.1.5 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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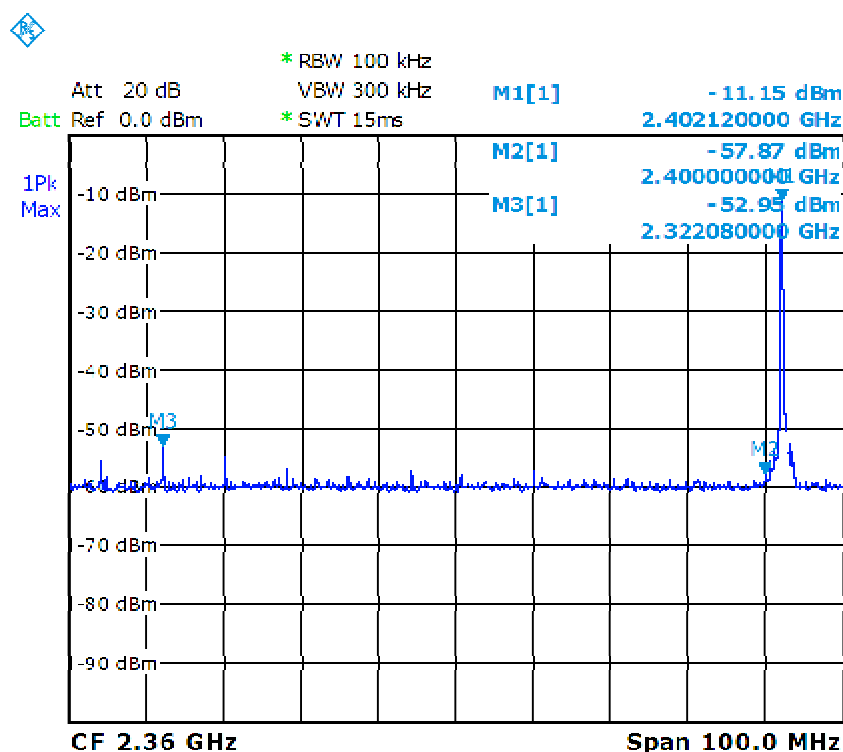
4.1.6 TEST RESULT

Temperature:	13 °C	Humidity:	65 %RH
Receiver Detector:	PK.	Tested Mode:	Tx-1, Tx-3
Frequency Range:	2.32 GHz – 2.57 GHz	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

1. Conducted test

Frequency (MHz)	PEAK POWER OUTPUT (dBm)	Emission read Value(dBm)	Result of Band edge (dBc)	Band edge LIMIT (dBc)
< 2400	-11.15	-52.95	41.80	> 20dBc
> 2483.5	-16.12	-58.19	42.07	> 20dBc

Below 2400 MHz :





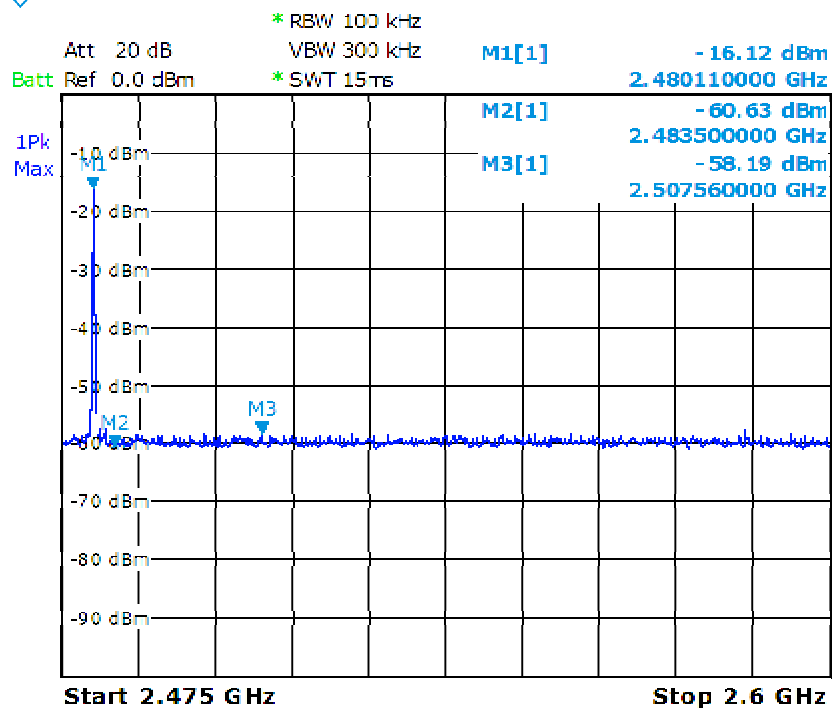
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Above 2483.5 MHz :



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2. Radiated emission test :

Below 2400MHz (CH01)

Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	2.31 GHz – 2.41 GHz	Tested Mode:	Tx-1
Receiver Detector:	PK. and AV.	IF Bandwidth:	1 MHz
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

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
2399.27	-31.72	28.36	H	60.09	50.70	56.73	47.34	74	54	-17.27	-6.66
2399.57	-31.72	28.36	V	55.56	44.26	52.20	40.90	74	54	-21.80	-13.10
2400.00	-31.72	28.36	H	62.54	52.91	59.18	49.55	74	54	-14.82	-4.45
2400.00	-31.72	28.36	V	58.66	46.66	55.30	43.30	74	54	-18.70	-10.70

Above 2483.5MHz (CH08)

Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	2.470 GHz – 2.570 GHz	Tested Mode:	Tx-3
Receiver Detector:	PK. and AV.	IF Bandwidth:	1 MHz
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

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	-31.66	28.48	H	47.16	37.02	43.97	33.83	74	54	-30.03	-20.17
2483.50	-31.66	28.48	V	49.49	39.40	46.30	36.21	74	54	-27.70	-17.79
2560.68	-31.62	28.72	H	48.01	36.73	45.11	33.83	74	54	-28.89	-20.17
2560.77	-31.62	28.72	V	47.79	38.45	44.89	35.55	74	54	-29.11	-18.45



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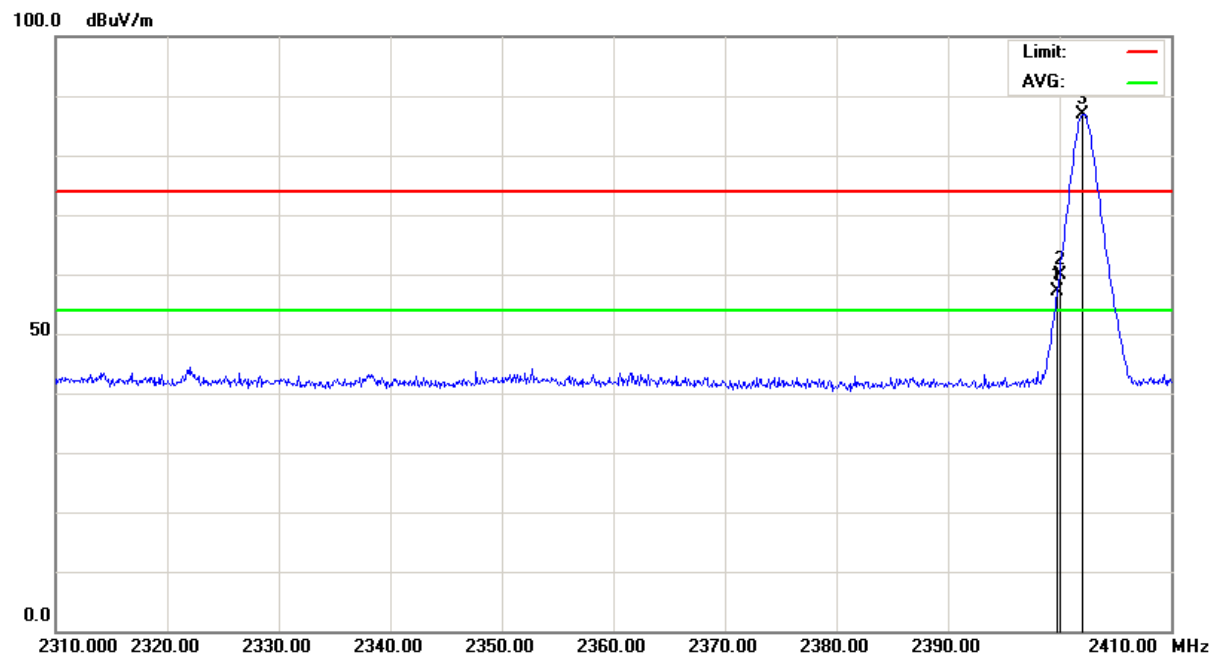
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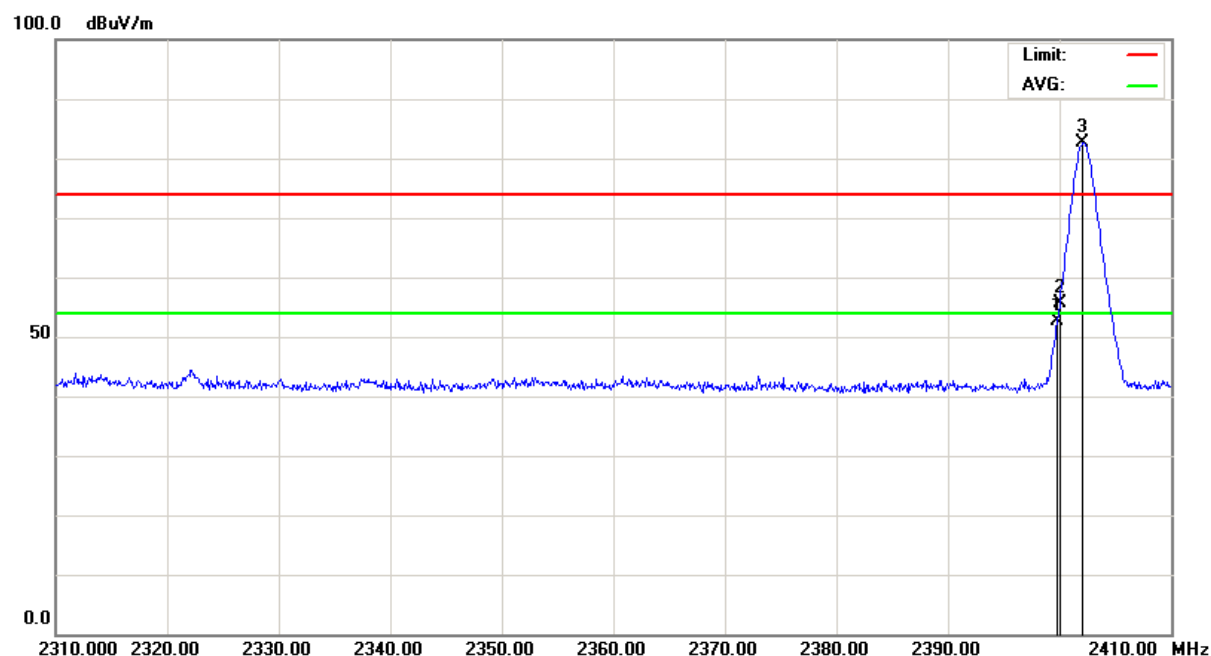
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Below 2400MHz (CH01)

Antenna Polarization : Horizontal



Antenna Polarization : Vertical





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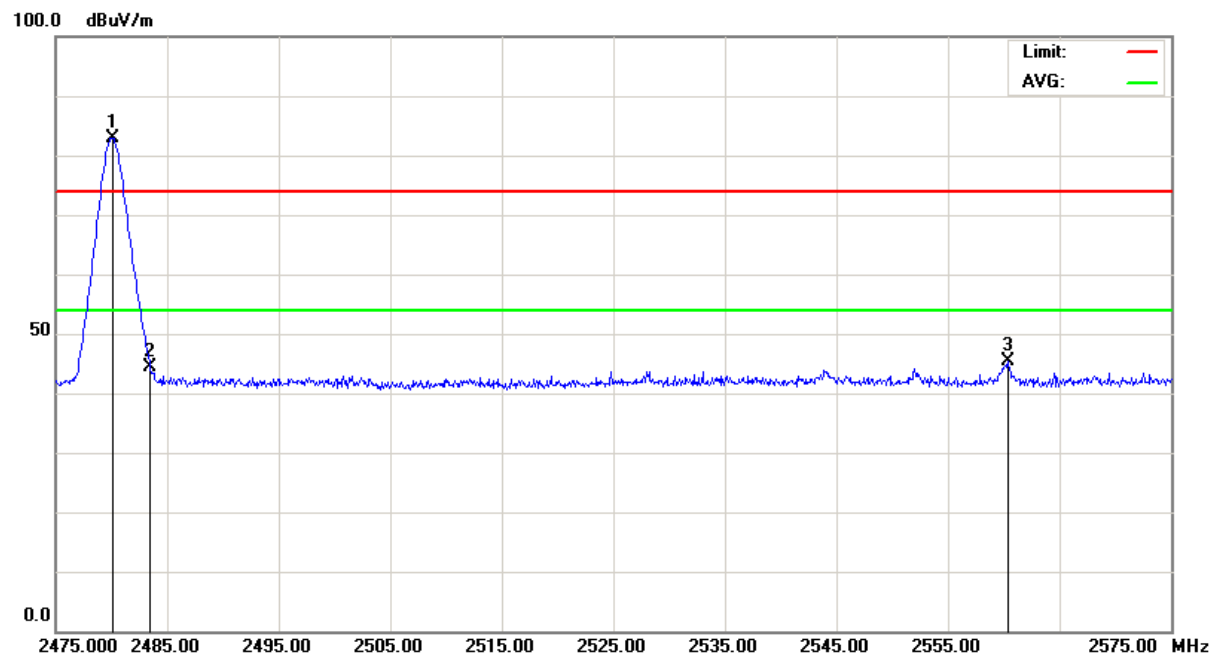
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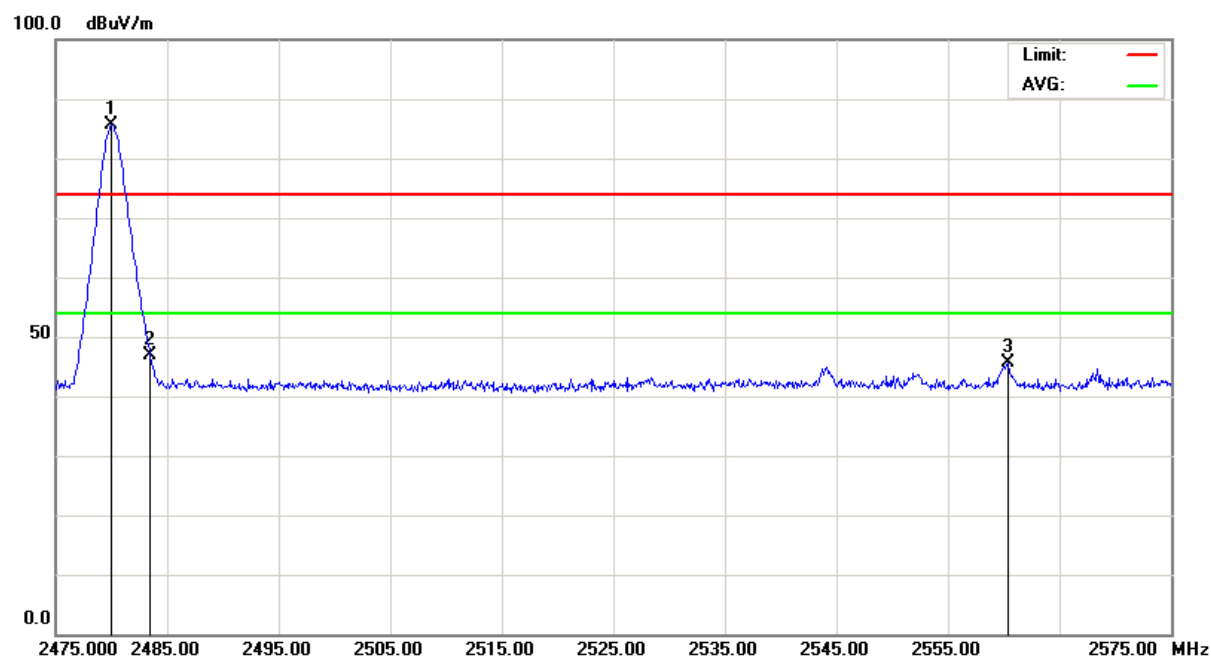
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Above 2483.5MHz (CH08)

Antenna Polarization : Horizontal



Antenna Polarization : Vertical



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4.2 CONDUCTED EMISSION TEST

4.2.1 LIMIT

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	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.

4.2.2 TEST EQUIPMENT

The following test equipment was used for the test:

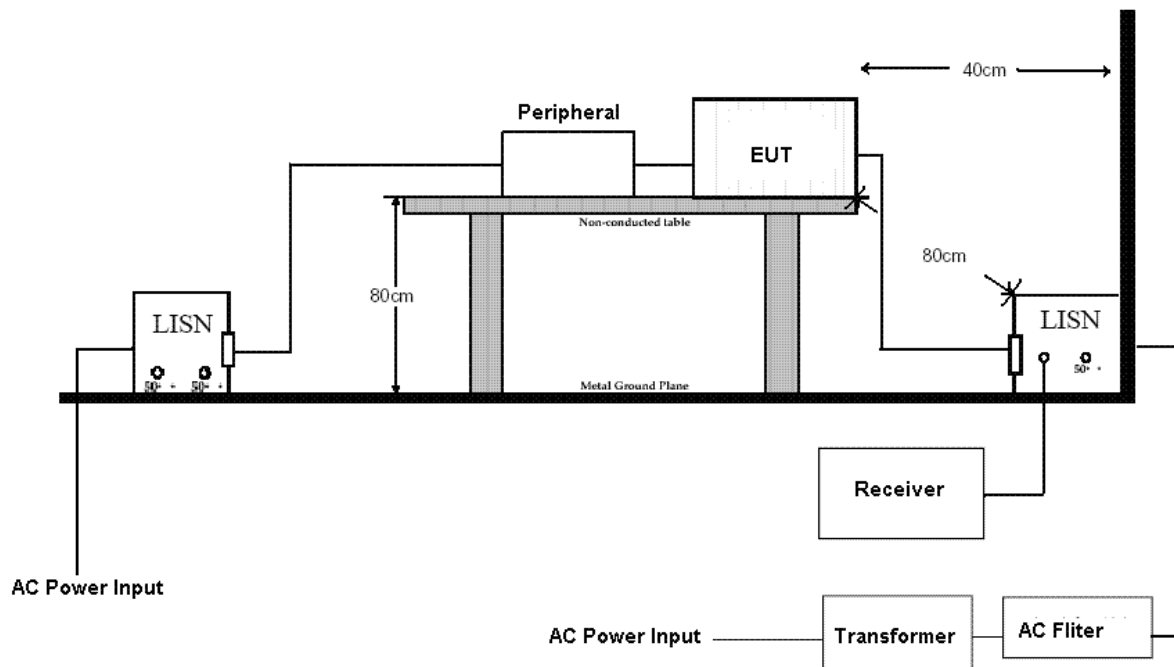
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz ~ 2.75 GHz	ROHDE & SCHWARZ	ESCS30 / 100376	JAN. 06, 2017 ETC
EMI TEST RECEIVER	9 kHz ~ 30 MHz	ROHDE & SCHWARZ	ESHS30 / 826003/008	JAN. 12, 2017 ETC
LISN	50 μH, 50 ohm	FCC	FCC-LISN-50-25-2 / 01017	MAY. 27, 2016 ETC
LISN	50 μH, 50 ohm	SOLAR	9252-50-R-24-BNC/ 951315	NOV. 05, 2016 ETC
LISN	50 μH, 50 ohm	SCHWARZBECK	NSLK 8127/ 8127-808	DEC. 17, 2016 ETC
50Ω BNC TYPE TERMINATOR	50 ohm	N/A	11593A/ L1TEQU005	NOV. 22, 2016 ETC
50Ω BNC TYPE TERMINATOR	50 ohm	N/A	B00-CD-357/ L1TEQU009	MAY. 28, 2016 ETC
COAXIAL CABLE	5 m	HUBER+SUHNER	RG214/U / #5M(L1TCAB013)	MAY. 10, 2016 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943 / 771	NCR
GROUND PLANE	2 m (H) x 3 m (W)	SRT	N/A	NCR
GROUND PLANE	2.5 m (H) x 3 m (W)	SRT	N/A	NCR
THERMO-HYGRO	15 - 40 °C, 0- 100% RH	TOP	20-A / 6644	DEC. 23, 2016 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 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.

4.2.4 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.

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4.2.5 TEST RESULT

Temperature:	16 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	TX-1
Receiver Detector:	Q.P. and AV.	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.378	-0.14	32.54	31.34	32.40	31.20	58.33	48.33	-25.93	-17.13
0.381	-0.14	34.33	32.81	34.19	32.67	58.26	48.26	-24.07	-15.59
0.610	-0.12	30.58	29.69	30.46	29.57	56.00	46.00	-25.54	-16.43
3.655	-0.02	26.59	20.89	26.57	20.87	56.00	46.00	-29.43	-25.13
4.714	0.02	31.52	30.38	31.54	30.40	56.00	46.00	-24.46	-15.60
16.363	0.43	36.78	25.62	37.21	26.05	60.00	50.00	-22.79	-23.95

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.150	-0.03	43.00	37.88	42.97	37.85	66.00	56.00	-23.03	-18.15
0.153	-0.03	44.04	38.84	44.01	38.81	65.84	55.84	-21.83	-17.03
0.610	0.04	29.34	26.37	29.38	26.41	56.00	46.00	-26.62	-19.59
4.635	0.17	31.01	28.45	31.18	28.62	56.00	46.00	-24.82	-17.38
4.863	0.18	30.49	26.85	30.67	27.03	56.00	46.00	-25.33	-18.97
15.697	0.45	36.09	25.35	36.54	25.80	60.00	50.00	-23.46	-24.20

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading value + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
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.**

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TEST REPORT

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Temperature:	16 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	TX-2
Receiver Detector:	Q.P. and AV.	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.378	-0.14	35.77	32.31	35.63	32.17	58.33	48.33	-22.70	-16.16
0.456	-0.13	30.81	23.34	30.68	23.21	56.77	46.77	-26.09	-23.56
0.606	-0.12	31.61	30.28	31.49	30.16	56.00	46.00	-24.51	-15.84
3.715	-0.02	30.07	28.94	30.05	28.92	56.00	46.00	-25.95	-17.08
4.774	0.02	30.26	28.78	30.28	28.80	56.00	46.00	-25.72	-17.20
15.769	0.41	36.76	25.60	37.17	26.01	60.00	50.00	-22.83	-23.99

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.153	-0.03	44.04	38.82	44.01	38.79	65.84	55.84	-21.83	-17.05
0.381	0.02	34.31	28.67	34.33	28.69	58.26	48.26	-23.93	-19.57
0.682	0.04	29.23	27.69	29.27	27.73	56.00	46.00	-26.73	-18.27
4.022	0.15	30.50	28.80	30.65	28.95	56.00	46.00	-25.35	-17.05
4.328	0.16	27.21	20.87	27.37	21.03	56.00	46.00	-28.63	-24.97
16.404	0.47	37.41	27.26	37.88	27.73	60.00	50.00	-22.12	-22.27

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading value + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
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:	16 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	TX-3
Receiver Detector:	Q.P. and AV.	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.378	-0.14	35.28	32.62	35.14	32.48	58.33	48.33	-23.19	-15.85
0.606	-0.12	31.39	30.47	31.27	30.35	56.00	46.00	-24.73	-15.65
3.408	-0.03	29.87	28.14	29.84	28.11	56.00	46.00	-26.16	-17.89
4.091	-0.01	30.55	29.47	30.54	29.46	56.00	46.00	-25.46	-16.54
14.947	0.39	35.73	27.02	36.12	27.41	60.00	50.00	-23.88	-22.59
15.625	0.41	37.35	27.67	37.76	28.08	60.00	50.00	-22.24	-21.92

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.150	-0.03	44.06	39.39	44.03	39.36	66.00	56.00	-21.97	-16.64
0.153	-0.03	44.37	39.66	44.34	39.63	65.84	55.84	-21.50	-16.21
0.529	0.03	30.27	25.74	30.30	25.77	56.00	46.00	-25.70	-20.23
4.319	0.16	28.86	24.34	29.02	24.50	56.00	46.00	-26.98	-21.50
4.467	0.16	30.05	28.52	30.21	28.68	56.00	46.00	-25.79	-17.32
16.281	0.46	38.44	29.63	38.90	30.09	60.00	50.00	-21.10	-19.91

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading value + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
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.**

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Temperature:	16 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	Standby
Receiver Detector:	Q.P. and AV.	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.453	-0.13	37.13	25.27	37.00	25.14	56.82	46.82	-19.82	-21.68
0.456	-0.13	35.42	24.34	35.29	24.21	56.77	46.77	-21.48	-22.56
0.529	-0.13	33.99	27.50	33.86	27.37	56.00	46.00	-22.14	-18.63
2.754	-0.05	27.08	21.96	27.03	21.91	56.00	46.00	-28.97	-24.09
2.873	-0.05	31.10	29.79	31.05	29.74	56.00	46.00	-24.95	-16.26
16.589	0.43	40.39	31.24	40.82	31.67	60.00	50.00	-19.18	-18.33

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.453	0.03	33.11	30.50	33.14	30.53	56.82	46.82	-23.68	-16.29
0.456	0.03	32.50	29.30	32.53	29.33	56.77	46.77	-24.24	-17.44
0.529	0.03	36.04	27.51	36.07	27.54	56.00	46.00	-19.93	-18.46
2.873	0.11	31.17	29.85	31.28	29.96	56.00	46.00	-24.72	-16.04
4.764	0.17	28.64	27.20	28.81	27.37	56.00	46.00	-27.19	-18.63
16.978	0.47	42.18	32.76	42.65	33.23	60.00	50.00	-17.35	-16.77

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading value + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
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:	16 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	Link
Receiver Detector:	Q.P. and AV.	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.453	-0.13	37.76	24.89	37.63	24.76	56.82	46.82	-19.19	-22.06
0.456	-0.13	35.93	24.40	35.80	24.27	56.77	46.77	-20.97	-22.50
0.529	-0.13	32.99	27.16	32.86	27.03	56.00	46.00	-23.14	-18.97
3.784	-0.02	29.50	27.90	29.48	27.88	56.00	46.00	-26.52	-18.12
4.536	0.01	29.11	26.88	29.12	26.89	56.00	46.00	-26.88	-19.11
16.199	0.42	41.29	31.54	41.71	31.96	60.00	50.00	-18.29	-18.04

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.453	0.03	35.16	29.35	35.19	29.38	56.82	46.82	-21.63	-17.44
0.456	0.03	34.31	28.88	34.34	28.91	56.77	46.77	-22.43	-17.86
0.529	0.03	32.38	26.43	32.41	26.46	56.00	46.00	-23.59	-19.54
4.467	0.16	29.17	25.59	29.33	25.75	56.00	46.00	-26.67	-20.25
4.615	0.17	29.19	27.97	29.36	28.14	56.00	46.00	-26.64	-17.86
16.045	0.46	41.25	32.00	41.71	32.46	60.00	50.00	-18.29	-17.54

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading value + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
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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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)	FIELD STRENGTH (microvolts/meter)	DISTANCE (m)	FIELD STRENGTH (dB μ V/m)
0.009 - 0.490	2400/F(kHz)	300	67.6-20log(kHz)
0.490 - 1.705	24000/F(kHz)	30	87.6-20log(kHz)
1.705 - 30	30	30	30
30 - 88	100	3	40.0
88 - 216	150	3	43.5
216 - 960	200	3	46.0
Above 960	500	3	54.0

NOTE:

1. 30 dBuV (in 30m) = 70 dBuV (in 3m).
2. In the emission tables above , the tighter limit applies at the band edges.
3. 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 (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

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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. 06, 2017 ETC
EMI TEST RECEIVER	20 MHz ~ 1000 MHz	ROHDE & SCHWARZ	ESVS30 / 841977/003	NOV. 18, 2016 ETC
SPECTRUM ANALYZER	9 kHz ~ 7GHz	ROHDE & SCHWARZ	FSP7 / 100289	JUN. 12, 2016 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 23, 2016 ETC
LOOP ANTENNA	9 kHz ~ 30 MHz	ETS.LINDGREN	HFH2-Z2/ 860605/002 (1162 1/2)	MAR. 13, 2016 ETC
BI-LOG ANTENNA	30 MHz ~ 2 GHz	SCHAFFNER	CBL6141A / 4181	JUN. 15, 2016 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	NOV. 30, 2016 ETC
HORN ANTENNA	18 ~ 40 GHZ	ETS-LINDGREN	3116 /00032255	FEB. 07, 2017 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 23, 2016 ETC
PRE-AMPLIFIER	0.1 ~ 1300 MHz	HP	8447D / 2944A06746	NOV. 15, 2016 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	MAR. 06, 2016 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	NOV. 20, 2016 SRT
RF CABLE	UP TO 18 GHz 1.5 m	JYEBAO	A30A30-L 142 / EQF-0035(001)	NOV. 24, 2016 ETC
RF CABLE	UP TO 26.5 GHz 3.5 m	EMCI	EMC104-SM-SM-3500 / 150601	JUN. 21, 2016 ETC
K-TYPE CABLE	UP TO 40 GHz 3 m	HUBER+SUHNER	SF102-46/2*11SK 252 /MY2611/2	MAR. 03, 2016 ETC
K-TYPE CABLE	UP TO 40 GHz, 1 m	HUBER+SUHNER	SF102/2*11SK252 /MY3331/2	OCT. 05, 2016 ETC
COAXIAL CABLE	30 M	TIMES	LMR-400 / #30M(L1TCAB014)	MAY. 17, 2016 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. 17, 2016 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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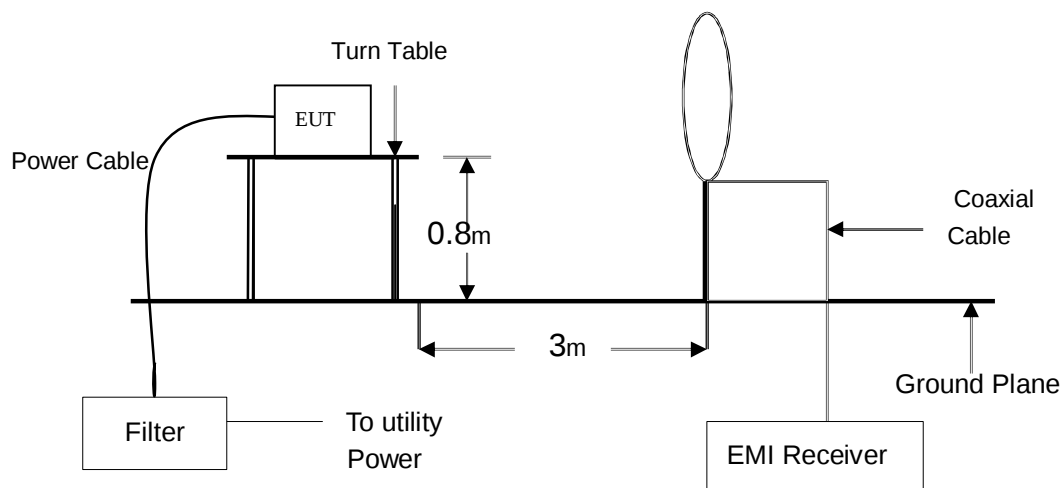
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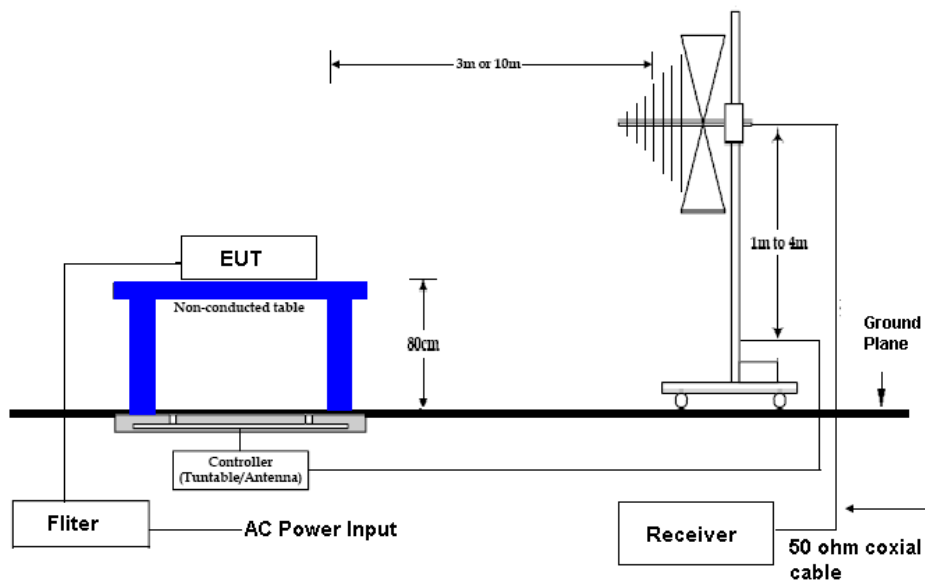
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4.3.3 TEST SET-UP

9KHz ~ 30MHz

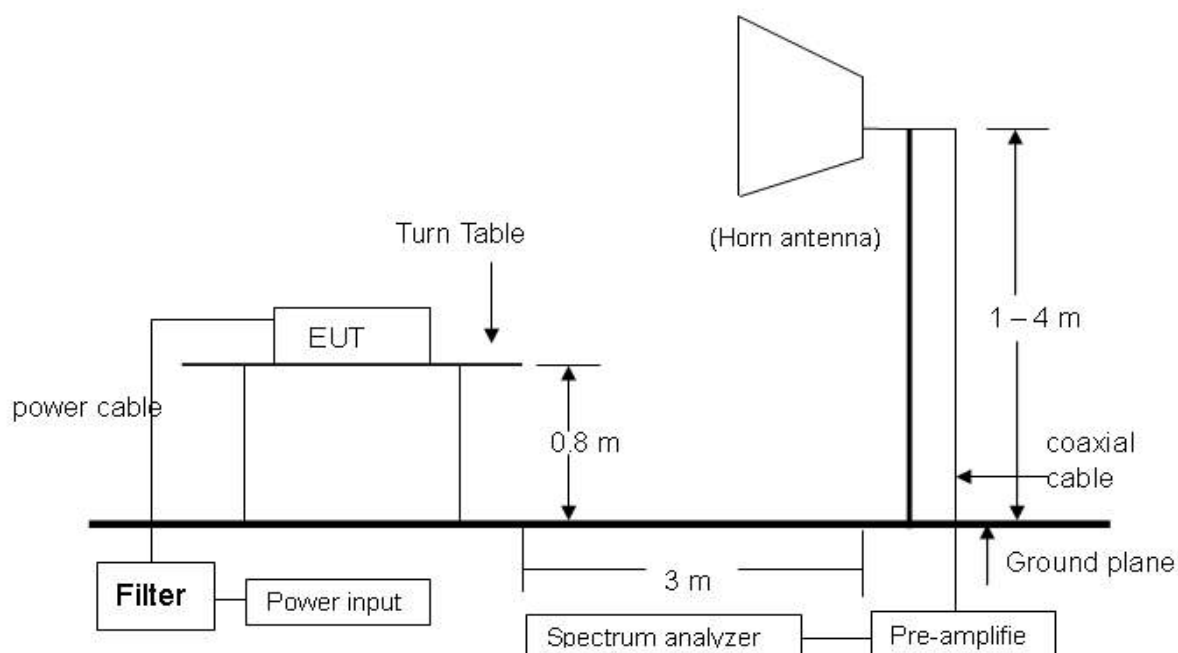


30 MHz ~ 1 GHz





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 and CISPR 22:2003. When the frequency spectrum measured started from 9 kHz to 30 MHz, then use antenna is a loop antenna. 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 9kHz to 30MHz and 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.

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4.3.5 TEST RESULT

Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Tx-1
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
12.04	0.72	20.92	4.60	26.24	70	-43.76
17.64	0.87	21.53	5.07	27.48	70	-42.52
18.29	0.89	21.61	4.47	26.97	70	-43.03
22.95	1.02	21.83	4.42	27.27	70	-42.73
25.15	1.08	21.85	3.19	26.13	70	-43.87
27.38	1.15	21.87	10.56	33.58	70	-36.42

Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Tx-2
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
6.20	0.52	20.32	6.20	27.04	70	-42.96
7.17	0.55	20.42	6.17	27.14	70	-42.86
10.84	0.68	20.79	5.70	27.18	70	-42.82
20.11	0.94	21.80	4.49	27.23	70	-42.77
23.91	1.05	21.84	4.05	26.94	70	-43.06
27.66	1.15	21.88	9.80	32.83	70	-37.17

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Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Tx-3
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
5.72	0.50	20.27	6.07	26.84	70	-43.16
9.82	0.65	20.68	6.00	27.34	70	-42.66
15.83	0.82	21.34	4.65	26.81	70	-43.19
18.28	0.89	21.60	6.45	28.95	70	-41.05
26.04	1.11	21.86	4.11	27.08	70	-42.92
27.67	1.15	21.88	11.03	34.06	70	-35.94

Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Standby
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

Frequency (mHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
2.16	0.31	19.91	6.59	26.81	70	-43.19
3.85	0.40	19.91	5.97	26.29	70	-43.71
18.07	0.89	21.58	5.23	27.70	70	-42.30
23.79	1.05	21.84	4.08	26.96	70	-43.04
24.59	1.07	21.85	4.96	27.87	70	-42.13
26.58	1.12	21.87	10.16	33.15	70	-36.85

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

No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A16013001
Report No.: FCCA16013001
FCC ID : FSUGMZLP
Page: 31 of 55
Date: Feb. 16, 2016

Temperature: 15 °C

Humidity: 62 %RH

Frequency Range: 9KHz – 30 MHz

Measured Distance: 3 m

Receiver Detector: AV.

Tested Mode: Link

Tested By: Mark Chang

Tested Date: Feb. 15, 2016

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
2.50	0.33	19.82	11.96	32.11	70	-37.89
6.59	0.53	20.36	5.92	26.81	70	-43.19
7.53	0.57	20.45	9.58	30.60	70	-39.40
14.60	0.79	21.21	5.24	27.23	70	-42.77
26.96	1.13	21.87	10.08	33.08	70	-36.92
28.76	1.19	21.89	3.91	26.98	70	-43.02

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

No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A16013001
Report No.: FCCA16013001
FCC ID : FSUGMZLP
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Date: Feb. 16, 2016

Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-1
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

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)
199.60	2.44	11.93	11.37	25.74	44	-17.76	283	3.47
526.74	4.50	18.73	7.74	30.96	46	-15.04	197	2.45
648.97	5.08	20.66	11.43	37.17	46	-8.83	47	2.10
665.16	5.16	20.76	15.28	41.20	46	-4.80	222	2.02
726.10	5.47	21.52	12.16	39.15	46	-6.85	106	1.83
803.52	5.83	22.38	3.20	31.41	46	-14.59	324	1.60

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)
494.40	4.32	17.93	10.48	32.73	46	-13.27	152	2.45
521.21	4.47	18.59	11.11	34.17	46	-11.83	322	2.55
649.11	5.09	20.68	6.70	32.47	46	-13.53	90	2.93
663.71	5.15	20.75	7.74	33.64	46	-12.36	239	2.97
726.64	5.47	21.52	10.05	37.04	46	-8.96	199	3.14
742.12	5.56	21.91	3.69	31.15	46	-14.85	58	3.21

NOTE :

1. Measurement uncertainty is 4.20dB.
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 Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A16013001
Report No.: FCCA16013001
FCC ID : FSUGMZLP
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Date: Feb. 16, 2016

Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-2
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

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)
495.81	4.33	17.94	7.60	29.87	46	-16.14	141	2.59
526.42	4.50	18.73	8.36	31.58	46	-14.42	215	2.40
649.68	5.09	20.68	11.55	37.32	46	-8.68	167	2.03
664.43	5.15	20.76	14.66	40.57	46	-5.43	266	2.00
679.60	5.22	20.82	8.36	34.40	46	-11.60	338	1.96
726.38	5.47	21.52	13.63	40.62	46	-5.38	257	1.84

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)
80.23	1.64	8.20	11.08	20.92	40	-19.08	59	1.13
326.64	3.28	14.52	18.09	35.90	46	-10.10	308	1.93
648.11	5.08	20.66	5.67	31.41	46	-14.59	48	2.94
663.75	5.15	20.75	8.62	34.52	46	-11.48	126	2.97
726.83	5.47	21.52	10.54	37.53	46	-8.47	30	3.16
818.54	5.90	22.77	3.10	31.76	46	-14.24	216	3.48

NOTE :

1. Measurement uncertainty is 4.20dB.
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 Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A16013001
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Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-3
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

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)
526.95	4.50	18.73	7.04	30.26	46	-15.74	100	2.47
649.11	5.09	20.68	11.99	37.76	46	-8.24	28	2.08
664.10	5.15	20.76	16.51	42.42	46	-3.58	274	2.02
727.18	5.47	21.55	12.30	39.32	46	-6.68	345	1.83
742.87	5.56	21.91	8.00	35.46	46	-10.54	156	1.79
818.45	5.90	22.77	3.56	32.22	46	-13.78	102	1.54

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)
80.31	1.64	8.20	9.36	19.20	40	-20.80	306	1.15
94.13	1.76	9.36	12.28	23.40	44	-20.10	105	1.21
649.96	5.09	20.68	6.31	32.08	46	-13.92	209	2.90
663.32	5.15	20.75	10.85	36.75	46	-9.25	173	2.94
727.87	5.47	21.55	10.58	37.60	46	-8.40	316	3.15
803.05	5.83	22.38	3.24	31.45	46	-14.55	293	3.41

NOTE :

1. Measurement uncertainty is 4.20dB.
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 Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

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Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Standby
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

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)
199.79	2.44	11.93	12.48	26.85	44	-16.65	291	3.43
498.55	4.34	17.98	11.94	34.26	46	-11.74	254	2.56
649.04	5.09	20.68	9.06	34.83	46	-11.17	286	2.08
664.76	5.15	20.76	12.60	38.51	46	-7.49	99	2.02
711.50	5.38	21.16	5.58	32.13	46	-13.87	39	1.87
726.64	5.47	21.52	13.28	40.27	46	-5.73	73	1.84

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)
78.56	1.62	8.32	11.30	21.24	40	-18.76	87	1.16
492.50	4.31	17.90	10.46	32.67	46	-13.33	260	2.42
649.58	5.09	20.68	6.16	31.93	46	-14.07	92	2.94
664.61	5.15	20.76	7.48	33.39	46	-12.61	289	2.97
727.88	5.47	21.55	9.83	36.85	46	-9.15	306	3.15
742.63	5.56	21.91	3.60	31.06	46	-14.94	201	3.21

NOTE :

1. Measurement uncertainty is 4.20dB.
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 Dist, Taoyuan City 320, Taiwan (R.O.C.)

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Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Link
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Feb. 15, 2016

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)
197.73	2.43	11.79	14.00	28.22	44	-15.28	245	3.47
270.55	2.92	13.30	13.19	29.41	46	-16.59	315	3.25
526.61	4.50	18.73	6.82	30.04	46	-15.96	345	2.44
664.56	5.15	20.76	4.76	30.67	46	-15.33	87	2.03
727.92	5.47	21.55	6.47	33.49	46	-12.51	151	1.82
818.53	5.90	22.77	3.54	32.20	46	-13.80	274	1.51

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)
80.43	1.64	8.20	18.62	28.46	40	-11.54	64	1.17
516.84	4.44	18.45	5.64	28.53	46	-17.47	294	2.50
665.03	5.16	20.76	6.28	32.20	46	-13.80	263	2.98
726.76	5.47	21.52	13.10	40.09	46	-5.91	32	3.19
740.02	5.54	21.86	7.71	35.11	46	-10.89	195	3.22
803.20	5.83	22.38	3.30	31.51	46	-14.49	161	3.43

NOTE :

1. Measurement uncertainty is 4.20dB.
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 Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

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Temperature:	15 °C	Humidity:	62 %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. 15, 2016
Tested By:	Mark Chang		

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.		
2879.19	-31.43	29.86	45.18	33.48	43.61	31.91	74	54	-30.39	-22.09	206	1.95
3400.51	-30.78	30.70	44.12	35.00	44.04	34.92	74	54	-29.96	-19.08	320	1.79
3774.84	-30.45	31.62	44.51	33.59	45.68	34.76	74	54	-28.32	-19.24	294	1.66
4126.78	-30.16	32.25	43.97	33.03	46.06	35.12	74	54	-27.94	-18.88	333	1.54
4999.02	-29.15	33.40	41.61	31.61	45.86	35.86	74	54	-28.14	-18.14	186	1.32
5445.53	-29.11	33.93	41.87	32.22	46.70	37.05	74	54	-27.30	-16.95	308	1.18

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.		
2965.89	-31.38	30.17	45.79	34.50	44.58	33.29	74	54	-29.42	-20.71	248	1.54
3449.21	-30.71	30.75	44.35	34.39	44.39	34.43	74	54	-29.61	-19.57	316	1.75
3865.69	-30.38	31.90	43.47	34.22	44.98	35.73	74	54	-29.02	-18.27	165	1.83
4321.37	-29.96	32.17	44.57	35.14	46.79	37.36	74	54	-27.21	-16.64	269	2.01
4635.09	-29.60	32.45	43.60	33.90	46.45	36.75	74	54	-27.55	-17.25	52	2.10
5000.60	-29.15	33.40	40.85	29.28	45.10	33.53	74	54	-28.90	-20.47	332	2.22

NOTE:

1. Measurement uncertainty is 3.85dB.
2. "F": 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.

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

No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

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Temperature:	15 °C	Humidity:	62 %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. 15, 2016
Tested By:	Mark Chang		

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.		
2402.00 (F)	-31.72	28.36	86.17	75.73	82.81	72.37	114	94	-31.19	-21.63	273	1.54
4804.00	-29.39	32.89	45.57	35.60	49.07	39.10	74	54	-24.93	-14.90	153	1.63
7206.00	-28.43	35.64	39.69	28.83	46.90	36.04	74	54	-27.10	-17.96	202	1.66
9608.00	-27.79	37.79	38.92	27.80	48.91	37.79	74	54	-25.09	-16.21	139	1.38
12010.00	-26.54	39.19	36.91	25.26	49.57	37.92	74	54	-24.43	-16.08	248	1.42
14412.00	-24.30	41.91	30.76	21.33	48.38	38.95	74	54	-25.62	-15.05	229	1.47

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.		
2402.00 (F)	-31.72	28.36	87.16	77.42	83.80	74.06	114	94	-30.20	-19.94	162	1.52
4804.00	-29.39	32.89	47.67	36.17	51.17	39.67	74	54	-22.83	-14.33	147	1.64
7206.00	-28.43	35.64	38.56	29.32	45.77	36.53	74	54	-28.23	-17.47	61	1.45
9608.00	-27.79	37.79	39.48	27.85	49.47	37.84	74	54	-24.53	-16.16	88	1.69
12010.00	-26.54	39.19	36.82	25.44	49.48	38.10	74	54	-24.52	-15.90	134	1.63
14412.00	-24.30	41.91	33.16	21.57	50.78	39.19	74	54	-23.22	-14.81	300	1.55

NOTE:

1. Measurement uncertainty is 3.85dB.
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.

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

No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li Dist, Taoyuan City 320, Taiwan (R.O.C.)

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Temperature:	15 °C	Humidity:	62 %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. 15, 2016
Tested By:	Mark Chang		

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.		
3035.72	-31.31	30.34	45.87	34.95	44.90	33.98	74	54	-29.10	-20.02	344	1.90
3724.54	-30.48	31.47	45.78	36.76	46.77	37.75	74	54	-27.23	-16.25	183	1.67
4251.79	-30.03	32.20	44.53	32.72	46.70	34.89	74	54	-27.30	-19.11	248	1.53
4559.30	-29.70	32.25	43.54	32.65	46.10	35.21	74	54	-27.90	-18.79	312	1.42
5000.58	-29.15	33.40	41.19	31.78	45.44	36.03	74	54	-28.56	-17.97	50	1.29
5395.06	-29.11	33.87	42.88	31.36	47.64	36.12	74	54	-26.36	-17.88	146	1.17

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.		
1860.67	-32.24	27.30	47.43	37.03	42.49	32.09	74	54	-31.51	-21.91	121	1.28
3040.48	-31.30	30.34	45.86	36.21	44.90	35.25	74	54	-29.10	-18.75	56	1.60
3714.09	-30.49	31.44	45.08	35.29	46.03	36.24	74	54	-27.97	-17.76	219	1.84
3995.54	-30.29	32.29	43.52	32.79	45.51	34.78	74	54	-28.49	-19.22	118	1.91
4135.65	-30.15	32.25	43.97	33.08	46.07	35.18	74	54	-27.93	-18.82	251	1.95
4999.81	-29.15	33.40	41.58	31.96	45.83	36.21	74	54	-28.17	-17.79	146	2.22

NOTE:

1. Measurement uncertainty is 3.85dB.
2. "F": 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.



Spectrum Research & Testing Lab., Inc.

No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li Dist, Taoyuan City 320, Taiwan (R.O.C.)

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Temperature:	15 °C	Humidity:	62 %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. 15, 2016
Tested By:	Mark Chang		

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.		
2440.00 (F)	-31.69	28.42	84.31	74.62	81.03	71.34	114	94	-32.97	-22.66	53	1.49
4880.00	-29.30	33.09	44.06	34.20	47.85	37.99	74	54	-26.15	-16.01	160	1.53
7320.00	-28.36	35.93	39.97	29.29	47.55	36.87	74	54	-26.45	-17.13	37	1.38
9760.00	-27.75	37.91	38.52	28.21	48.68	38.37	74	54	-25.32	-15.63	242	1.65
12200.00	-26.11	39.08	35.21	24.96	48.18	37.93	74	54	-25.82	-16.07	315	1.69
14640.00	-24.32	41.47	30.31	20.00	47.46	37.15	74	54	-26.54	-16.85	147	1.74

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.		
2440.00 (F)	-31.69	28.42	87.53	76.01	84.25	72.73	114	94	-29.75	-21.27	160	1.57
4880.00	-29.30	33.09	47.39	35.61	51.18	39.40	74	54	-22.82	-14.60	122	1.53
7320.00	-28.36	35.93	40.10	29.14	47.68	36.72	74	54	-26.32	-17.28	149	1.41
9760.00	-27.75	37.91	39.74	28.09	49.90	38.25	74	54	-24.10	-15.75	215	1.62
12200.00	-26.11	39.08	33.40	24.14	46.37	37.11	74	54	-27.63	-16.89	263	1.38
14640.00	-24.32	41.47	31.34	19.73	48.49	36.88	74	54	-25.51	-17.12	136	1.37

NOTE:

1. Measurement uncertainty is 3.85dB.
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.



Spectrum Research & Testing Lab., Inc.

No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li Dist, Taoyuan City 320, Taiwan (R.O.C.)

TEST REPORT

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FCC ID : FSUGMZLP
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Temperature:	15 °C	Humidity:	62 %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. 15, 2016
Tested By:	Mark Chang		

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.		
2400.72	-31.72	28.36	48.46	38.24	45.10	34.88	74	54	-28.90	-19.12	138	2.09
3474.10	-30.68	30.77	44.81	35.73	44.91	35.83	74	54	-29.09	-18.17	342	1.75
3901.93	-30.36	32.00	43.66	32.00	45.30	33.64	74	54	-28.70	-20.36	68	1.64
4539.80	-29.72	32.20	43.38	34.07	45.86	36.55	74	54	-28.14	-17.45	236	1.45
5000.51	-29.15	33.40	41.69	32.29	45.94	36.54	74	54	-28.06	-17.46	283	1.29
5711.17	-29.02	33.96	43.00	31.96	47.93	36.89	74	54	-26.07	-17.11	197	1.08

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.		
2809.20	-31.47	29.61	43.91	33.24	42.05	31.38	74	54	-31.95	-22.62	84	1.55
3399.13	-30.79	30.70	43.26	33.54	43.17	33.45	74	54	-30.83	-20.55	162	1.73
3779.72	-30.44	31.64	43.87	32.08	45.06	33.27	74	54	-28.94	-20.73	252	1.84
4490.28	-29.78	32.10	44.20	33.36	46.52	35.68	74	54	-27.48	-18.32	224	2.02
4999.70	-29.15	33.40	41.07	30.87	45.32	35.12	74	54	-28.68	-18.88	275	2.21
5299.04	-29.12	33.76	42.48	33.12	47.12	37.76	74	54	-26.88	-16.24	126	2.33

NOTE :

1. Measurement uncertainty is 3.85dB.
2. "F": 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.

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

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Temperature:	15 °C	Humidity:	62 %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. 15, 2016
Tested By:	Mark Chang		

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.		
2480.00 (F)	-31.66	28.47	87.22	77.75	84.03	74.56	114	94	-29.97	-19.44	186	1.60
4960.00	-29.20	33.30	43.26	32.48	47.36	36.58	74	54	-26.64	-17.42	340	1.49
7440.00	-28.28	36.24	39.21	28.70	47.18	36.67	74	54	-26.82	-17.33	102	1.58
9920.00	-27.71	38.04	37.03	27.77	47.36	38.10	74	54	-26.64	-15.90	266	1.55
12400.00	-25.66	38.96	35.10	23.93	48.40	37.23	74	54	-25.60	-16.77	305	1.42
14880.00	-24.35	40.56	32.98	21.37	49.19	37.58	74	54	-24.81	-16.42	272	1.61

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.		
2480.00 (F)	-31.66	28.47	88.01	77.60	84.82	74.41	114	94	-29.18	-19.59	79	1.74
4960.00	-29.20	33.30	44.97	33.21	49.07	37.31	74	54	-24.93	-16.69	186	1.63
7440.00	-28.28	36.24	40.66	28.90	48.63	36.87	74	54	-25.37	-17.13	171	1.59
9920.00	-27.71	38.04	38.48	28.09	48.81	38.42	74	54	-25.19	-15.58	201	1.54
12400.00	-25.66	38.96	33.53	23.75	46.83	37.05	74	54	-27.17	-16.95	219	1.63
14880.00	-24.35	40.56	31.05	21.29	47.26	37.50	74	54	-26.74	-16.50	277	1.56

NOTE:

1. Measurement uncertainty is 3.85dB.
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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Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Standby
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 15, 2016
Tested By:	Mark Chang		

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.		
1365.32	-33.23	25.84	50.50	41.03	43.11	33.64	74	54	-30.89	-20.36	74	2.40
3664.76	-30.53	31.29	44.29	34.66	45.06	35.43	74	54	-28.94	-18.57	184	1.73
4330.84	-29.95	32.17	44.83	33.53	47.05	35.75	74	54	-26.95	-18.25	272	1.52
4640.87	-29.60	32.46	43.32	31.75	46.19	34.62	74	54	-27.81	-19.38	163	1.40
5000.33	-29.15	33.40	41.56	30.72	45.81	34.97	74	54	-28.19	-19.03	211	1.35
5414.45	-29.11	33.90	41.60	30.65	46.39	35.44	74	54	-27.61	-18.56	72	1.19

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.		
1324.42	-33.35	25.79	54.11	43.35	46.55	35.79	74	54	-27.45	-18.21	52	1.08
3620.85	-30.56	31.16	44.92	35.31	45.52	35.91	74	54	-28.48	-18.09	295	1.77
3966.04	-30.31	32.20	44.34	34.33	46.22	36.21	74	54	-27.78	-17.79	190	1.92
4356.03	-29.92	32.16	43.87	34.13	46.11	36.37	74	54	-27.89	-17.63	95	2.03
5000.24	-29.15	33.40	42.50	30.92	46.75	35.17	74	54	-27.25	-18.83	235	2.24
5489.69	-29.10	33.99	42.37	32.45	47.26	37.34	74	54	-26.74	-16.66	44	2.36

NOTE :

1. Measurement uncertainty is 3.85dB.
2. "F": 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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Temperature:	15 °C	Humidity:	62 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Link
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Feb. 15, 2016
Tested By:	Mark Chang		

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.		
2374.58	-31.74	28.32	52.64	43.47	49.22	40.05	74	54	-24.78	-13.95	321	2.10
3704.81	-30.50	31.41	44.69	34.67	45.60	35.58	74	54	-28.40	-18.42	105	1.70
4135.76	-30.15	32.25	44.36	32.89	46.46	34.99	74	54	-27.54	-19.01	184	1.54
4645.91	-29.59	32.48	44.01	34.47	46.90	37.36	74	54	-27.10	-16.64	320	1.40
4999.06	-29.15	33.40	40.88	29.61	45.13	33.86	74	54	-28.87	-20.14	285	1.32
5455.49	-29.10	33.95	41.35	30.22	46.19	35.06	74	54	-27.81	-18.94	94	1.18

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.		
2374.78	-31.74	28.32	51.53	42.51	48.11	39.09	74	54	-25.89	-14.91	197	1.42
3499.11	-30.64	30.80	45.78	34.33	45.94	34.49	74	54	-28.06	-19.51	25	1.73
3921.58	-30.35	32.06	44.55	33.78	46.27	35.50	74	54	-27.73	-18.50	97	1.89
4145.56	-30.14	32.24	44.72	33.15	46.82	35.25	74	54	-27.18	-18.75	318	1.95
4409.42	-29.86	32.14	43.94	32.19	46.21	34.46	74	54	-27.79	-19.54	185	2.03
5000.14	-29.15	33.40	41.30	30.38	45.55	34.63	74	54	-28.45	-19.37	66	2.21

NOTE :

1. Measurement uncertainty is 3.85dB.
2. "F": 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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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 0 dBi that meet the requirement.



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5.3 Description of RF Exposure

SAR compliance has been evaluated in the product(s), and can be used in host product(s) with substantially similar physical dimensions, construction, and electrical and RF characteristics. End-users must be provided with specific information required to satisfy RF exposure compliance for all final host devices. Compliance of this device in all final host configurations is the responsibility of the Grantee.

- I The separation distance -20 cm must be clearly stated in the operating and/or installation manual that is supplied to the User.
- I This application is being made on behalf of the “Grantee”.



6. PHOTOS OF TESTING

- Conducted emission test(Tx-1, Tx-2, Tx-3, Standby)





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- Conducted emission test(Link)





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- Radiated test (below 30M , Tx-1, Tx-2, Tx-3, Standby)





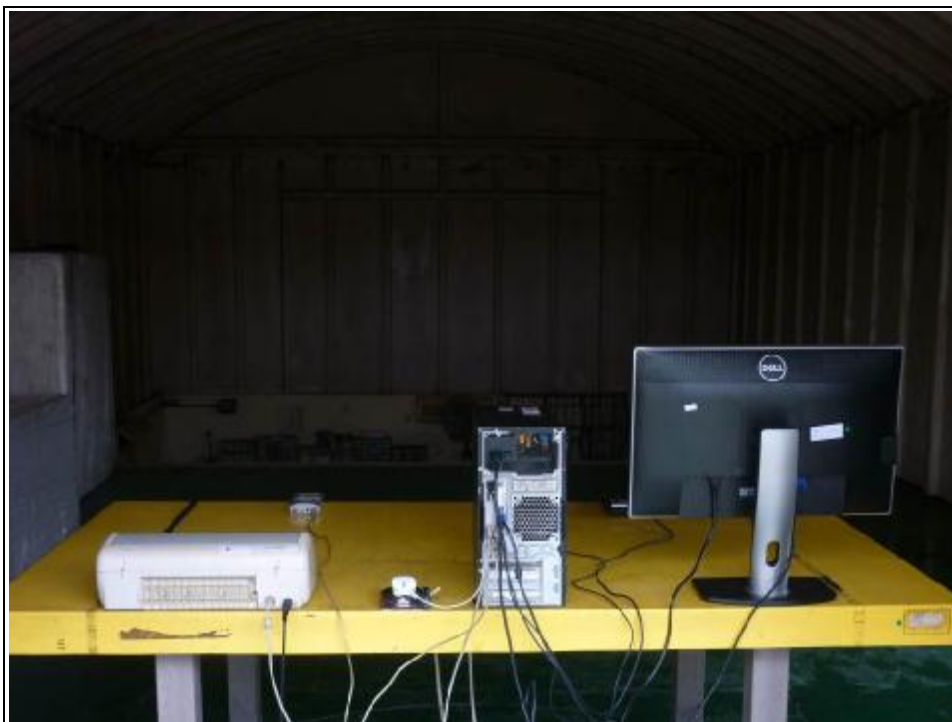
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- Radiated test (below 30M , Link)





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- Radiated test (below 1G , Tx-1, Tx-2, Tx-3, Standby)





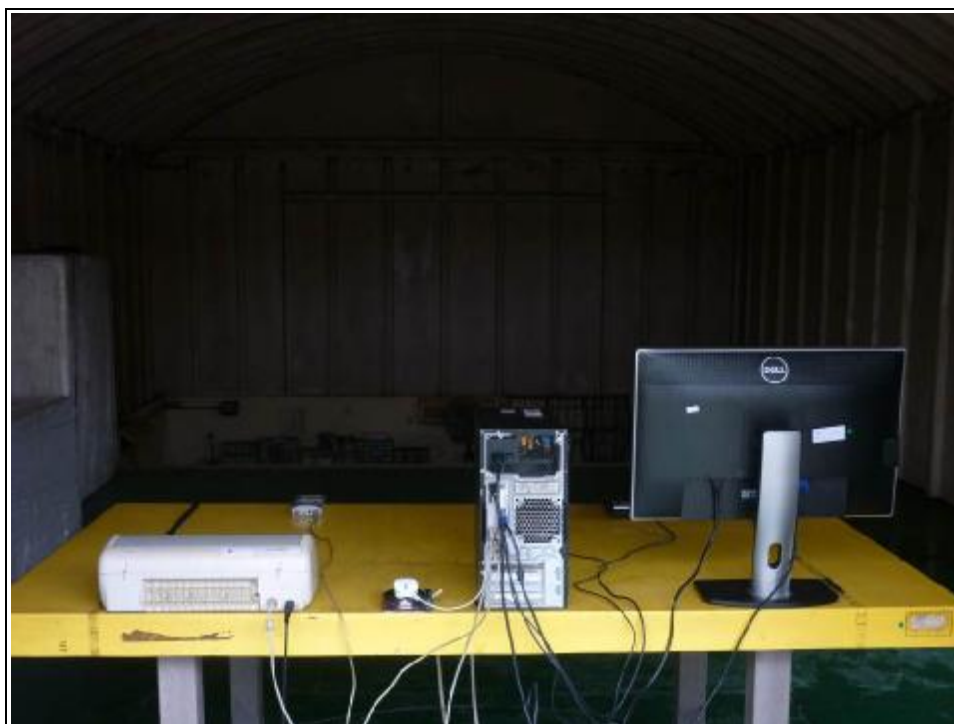
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- Radiated test (below 1G , Link)





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- Radiated test (above 1G , Link)



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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