

FCC Radio Test Report FCC ID: P27SZPIR04N This report concerns (check one): Original Grant Class II Change : 1610136 Project No. Equipment : ZigBee Motion Sensor Test Model : SZ-PIR04N Series Model : SZ-PIR04 : Sercomm Corporation Applicant Address : 8F, No. 3-1, YuanQu St., NanKang, Taipei, Taiwan 115 Date of Receipt : Oct. 14, 2016 Jose Unite Jose Unit Jose Unit Jose Unit Date of Test : Oct. 14, 2016 ~ Nov. 12, 2016 **Testing Engineer** (Rush Kao) **Technical Manager** Yand **Authorized Signatory** (Andv Chiu) BTL INC B1, No.37, Lane 365, Yang Guang St., Nei-Hu District, Taipei City 114, Taiwan. TEL:+886-2-2657-3299 FAX: +886-2- 2657-3331



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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1610136	Original Issue.	Nov. 14, 2016



1. CERTIFICATION

	ZigBee Motion Sensor
Brand Name :	Sercomm
Test Model :	SZ-PIR04N
Series Model :	SZ-PIR04
Applicant :	Sercomm Corporation
Manufacturer :	SERCOMM CORP
Address :	3F 81 YUYI RD CHU-NAN MIAO-LI, 350 TAIWAN
Factory :	SERCOMM CORP
Address :	3F 81 YUYI RD CHU-NAN MIAO-LI, 350 TAIWAN
Date of Test :	Oct. 14, 2016 ~ Nov. 12, 2016
Test Sample :	Engineering Sample
Standard(s) :	FCC Part15, Subpart C (15.247) / ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1610136) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).



2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): FCC Part15 (15.247) , Subpart C

Standard(s) Section	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	NOTE (1)
15.247(d)	Antenna conducted Spurious Emission	PASS	
15.247(a)(2)	6dB Bandwidth	PASS	
15.247(b)(3)	Peak Output Power	PASS	
15.247(e)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	
15.209/15.205	Transmitter Radiated Emissions	PASS	

NOTE:

(1)" N/A" denotes test is not applicable to this device.



2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

Radiated emission Test (Below 1GHz):

CB15: (FCC RN:674415; FCC DN:TW0659) No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

Radiated emission Test (Above 1GHz):

CB15: (FCC RN:674415; FCC DN:TW0659) No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

2.1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

The reported uncertainty of measurement $\mathbf{y} \pm \mathbf{U}$, where expanded uncertainty \mathbf{U} is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

A. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
CB15	CISPR	9kHz ~ 150kHz	2.96
(3m)	CISER	150kHz ~ 30MHz	2.74

Test Site	Method	Measurement Frequency Range	Ant.	U,(dB)
		30MHz ~ 200MHz	V	4.76
CB15	CISPR	30MHz ~ 200MHz	Н	4.28
(3m)	CISPR	200MHz ~ 1,000MHz	V	5.08
		200MHz ~ 1,000MHz	Н	4.50

Test Site	Method	Measurement Frequency Range	Ant.	U,(dB)
		1GHz ~ 6GHz	V	4.48
CB15	CISPR	1GHz ~ 6GHz	Н	4.50
(3m)	CISPR	6GHz ~ 18GHz	V	4.30
		6GHz ~ 18GHz	Н	4.14

Note: unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR} , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

It can be seen that our U_{lab} values are smaller than U_{CISPR} .



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	ZigBee Motion Sensor	
Brand Name	Sercomm	
Test Model	SZ-PIR04N	
Series Model	SZ-PIR04	
Model Difference	Differ in marketing purpose.	
Power Source	DC Voltage supplied from Battery. Model: a. GP / CR123A b. EVE / CR123A	
Power Rating	DC 3V (CR123A*2)	
	Operation Frequency	2405~2480 MHz
Product Description	Modulation Technology	OQPSK
	Bit Rate of Transmitter	250Kbps
	Output Power (Max.)	18.08 dBm

Note:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- 2. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

3. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Sercomm	SZ-PIR04N	Printed	N/A	1.40



3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX Mode NOTE (1)

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

For Radiated Test		
Final Test Mode	Description	
Mode 1	TX Mode NOTE (1)	

Note:

(1) The measurements are performed at the high, middle, low available channels.

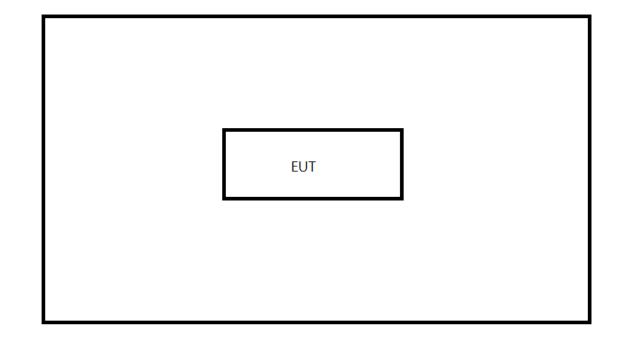
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of IEEE 802.15.4.

Test Software Version	Ember Desktop			
Frequency (MHz)	2405	2425	2440	
IEEE 802.15.4	-8	-8	-8	
Frequency (MHz)	2445	2450	2475	
IEEE 802.15.4	-8	-8	-C	
Frequency (MHz)	2480			
IEEE 802.15.4	-20			



3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	-

Note:

(1) For detachable type I/O cable should be specified the length in m in $\[\]$ Length $\]$ column.



4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 150KHz-30MHz)

Frequency of Emission (MHz)	Conducted Limit (dBµV)		
	Quasi-peak	Average	
0.15 -0.5	66 to 56*	56 to 46*	
0.50 -5.0	56	46	
5.0 -30.0	60	50	

Note:

(1) The limit of " * " decreases with the logarithm of the frequency

 (2) The test result calculated as following: Measurement Value = Reading Level + Correct Factor Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use) Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

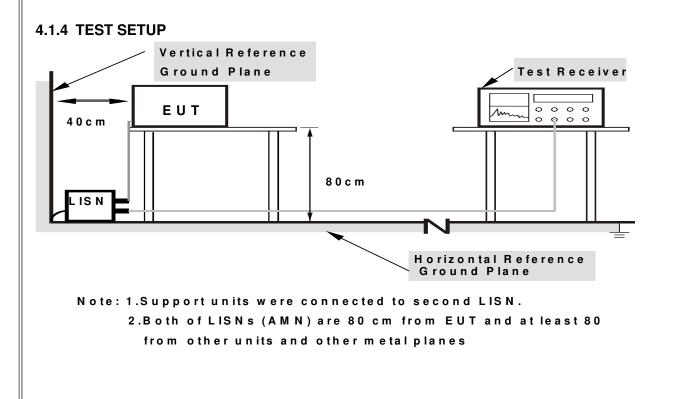
4.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation





4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical function (as a customer would normally use it), EUT was programmed to be in continuously transmitting/receiving data or hopping on mode.

4.1.6 EUT TEST CONDITIONS

Temperature: N/A Relative Humidity: N/A Test Voltage: N/A

4.1.7 TEST RESULTS

Please refer to the Attachment A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of "Note... If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a "*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.
- (3) " N/A" denotes test is not applicable to this device.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (9KHz-1000MHz)

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

Frequency (MHz)	(dBuV/m) (at 3 meters)		
	PEAK	AVERAGE	
Above 1000	74	54	

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

 (4) The test result calculated as following: Measurement Value = Reading Level + Correct Factor Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use) Margin Level = Measurement Value - Limit Value

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency 1000 MHz	
Stop Frequency	10th carrier harmonic
RBW / VBW	RBW 1MHz VBW 3MHz peak detector for Pk value
(Emission in restricted band)	RMS detector for AV value



Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9KHz~90KHz for PK/AVG detector
Start ~ Stop Frequency	90KHz~110KHz for QP detector
Start ~ Stop Frequency	110KHz~490KHz for PK/AVG detector
Start ~ Stop Frequency	490KHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

4.2.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- i. For the actual test configuration, please refer to the related Item -EUT Test Photos.

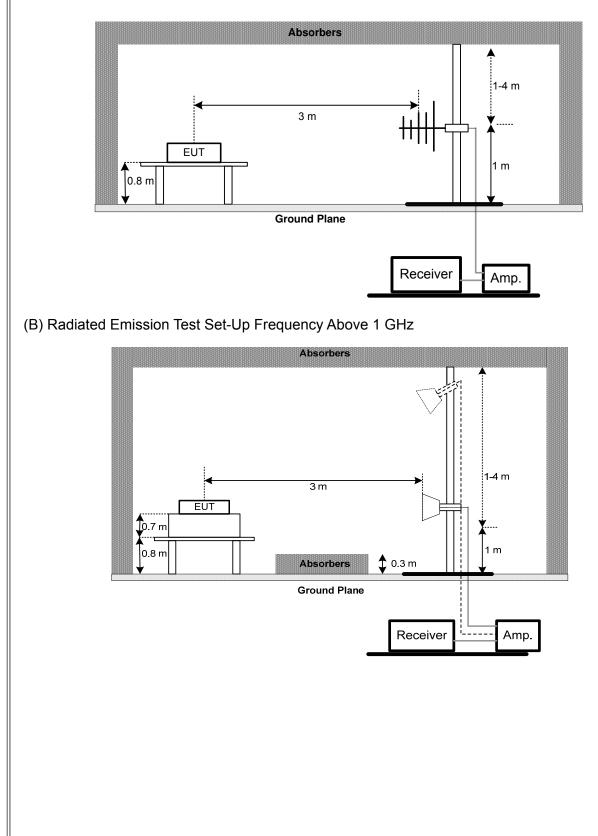
4.2.3 DEVIATION FROM TEST STANDARD

No deviation



4.2.4 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz







Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 3V

4.2.6TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Attachment B.

Remark:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.2.7TEST RESULTS (BETWEEN 30MHZ TO 1000 MHZ)

Please refer to the Attachment C.

Remark:

- (1) Measuring frequency range from 30MHz to 1000MHz.
- (2) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

4.2.8TEST RESULTS (ABOVE 1000 MHZ)

Please refer to the Attachment D.

Remark:

- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission
- (2) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (3) EUT Orthogonal Axis:
 - "X" denotes Laid on Table ; "Y" denotes Vertical Stand ; "Z" denotes Side Stand
- (4) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (5) No limit: This is fundamental signal, the judgment is not applicable. For fundamental signal judgment was referred to Peak output test.



5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2405~2480 MHz	PASS

5.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 3V

5.1.6 TEST RESULTS

Please refer to the Attachment E.



6. MAXIMUM OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	2405~2480 MHz	PASS

6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
- b. The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance v03r05.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

Transmit output power was measured while the host equipment supply voltage was varied from 85 % to 115 % of the nominal rated supply voltage. No change in transmit output power was observed.

6.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 3V

6.1.6 TEST RESULTS

Please refer to the Attachment F.



7. ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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 measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

7.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = 10 ms.
- c. Offset=antenna gain + cable loss

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP



7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

7.1.5 EUT OPERATION CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 3V

7.1.6 TEST RESULTS

Please refer to the Attachment G.



8. POWER SPECTRAL DENSITY TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C						
Section	Test Item	Limit	Frequency Range (MHz)	Result		
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2405~2480 MHz	PASS		

8.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW=3KHz, VBW=10 KHz, Sweep time = auto.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 3V

8.1.6 TEST RESULTS

Please refer to the Attachment H.



9. MEASUREMENT INSTRUMENTS LIST

Radiated Emission Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	EMI Receiver	Keysight	N9038A	MY55420127	Jan. 07, 2017	
2	EXA Spectrum Analyzer	Keysight	N9010A	MY52220990	Feb. 23, 2017	
3	Horn Antenna(1G~18G)	SCHWARZBECK	BBHA 9120 D	9120D-1342	Mar. 01, 2017	
4	Trilog-Broadband Antenna(30M~1G)	Schwarzbeck	VULB9168	9168-548	Jan. 17, 2017	
5	Pre-Amplifier(30M~ 1G)	EMCI	EMC02325	980217	Dec. 29, 2016	
6	Pre-Amplifier(1G~2 6G)	承儀	012645B	980267	Mar. 01, 2017	
7	Test Cable	EMCI	EMC104-SM-S M-800	150207	Jan. 05, 2017	
8	Test Cable	EMCI	EEMC104-SM- SM-3000	151205	Jan. 05, 2017	
9	Test Cable	EMCI	S104-SMAP-2	M001220	Jan. 05, 2017	
10	EXA Spectrum Analyzer	Agilent	N9010A	MY52220990	Feb. 24, 2017	
11	EMI Test Receiver	Agilent	N9038A	MY51210215	Jan. 08, 2017	
12	Loop Antenna	EMCO	6502	00042960	Nov. 05, 2017	



6dB Bandwidth Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY51160196	Jul. 28, 2017

Peak Output Power Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Power Meter	Anritsu	ML2495A	1128008	Aug. 17, 2017	
2	Power Meter Sensor	Anritsu	MA2491A	034138	Aug. 17, 2017	

Antenna Conducted Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY51160196	Jul. 28, 2017

Power Spectral Density Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY51160196	Jul. 28, 2017

Remark: "N/A" denotes no model name, serial no. or calibration specified. All calibration period of equipment list is one year.

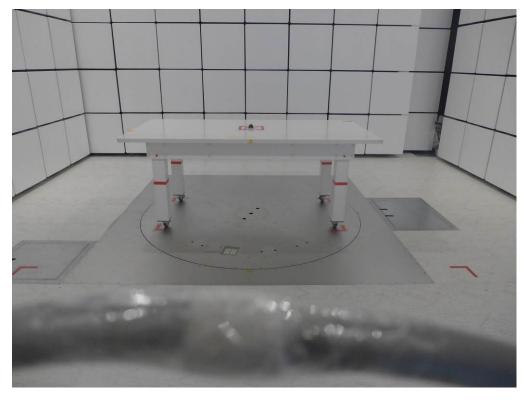


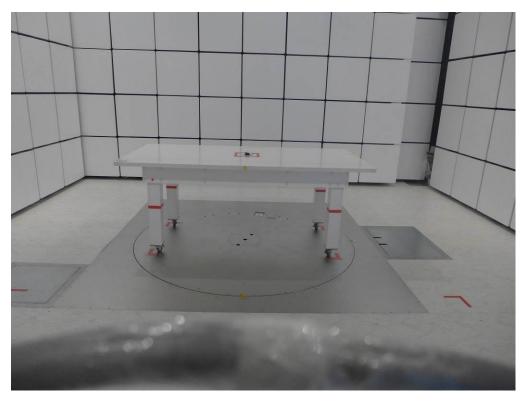


10. EUT TEST PHOTO

Radiated Measurement Photos

9KHz to 30MHz

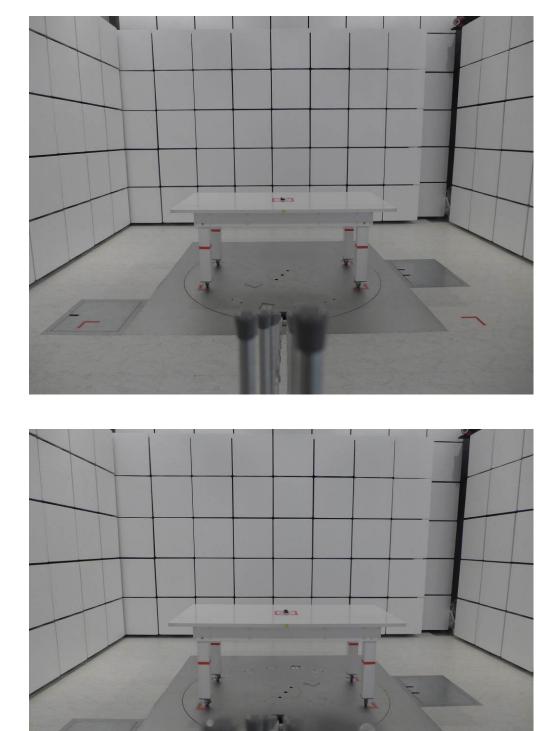






Radiated Measurement Photos

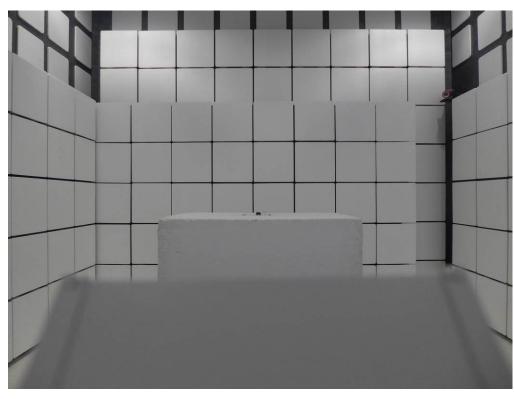
30M to 1000MHz





Radiated Measurement Photos

Above 1000MHz







Radiated Measurement Photos





ATTACHMENT A - CONDUCTED EMISSION

Test Mode: N/A

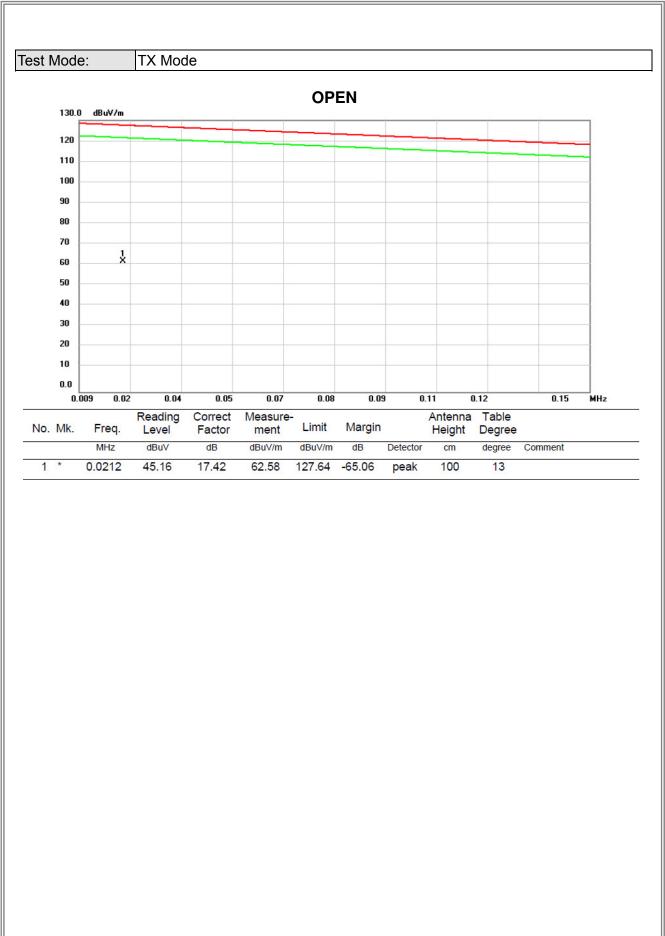
Note: "N/A" denotes test is not applicable to this device.



ATTACHMENT B - RADIATED EMISSION (9KHZ TO 30MHZ)

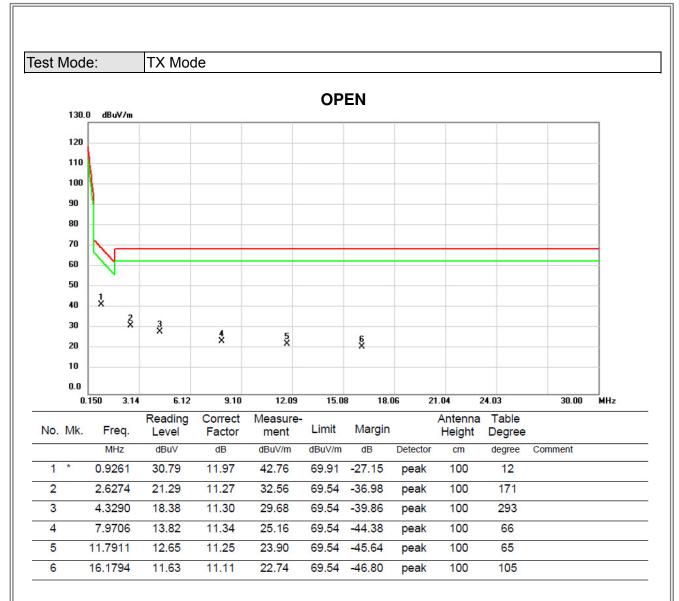






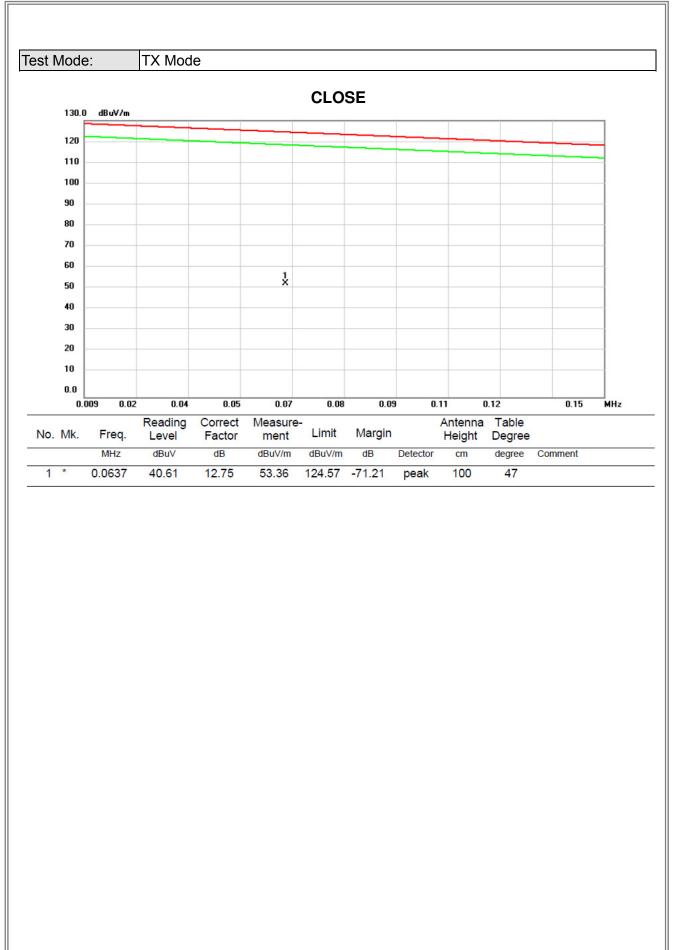
BTL





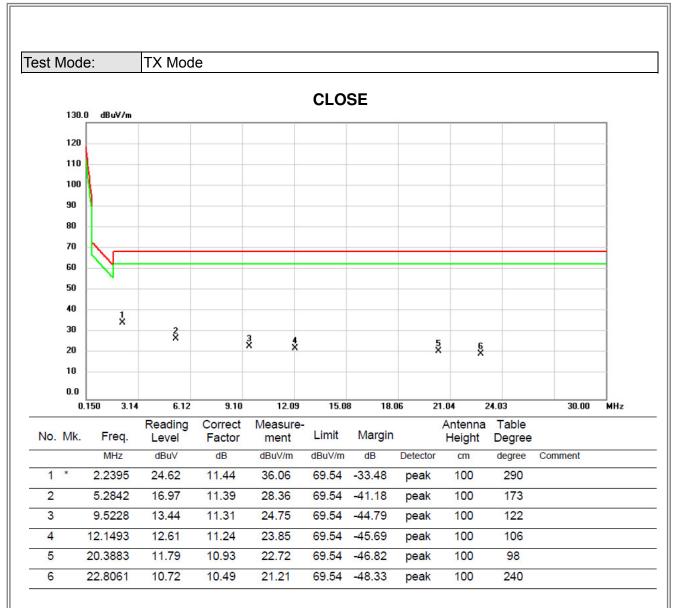






BTL



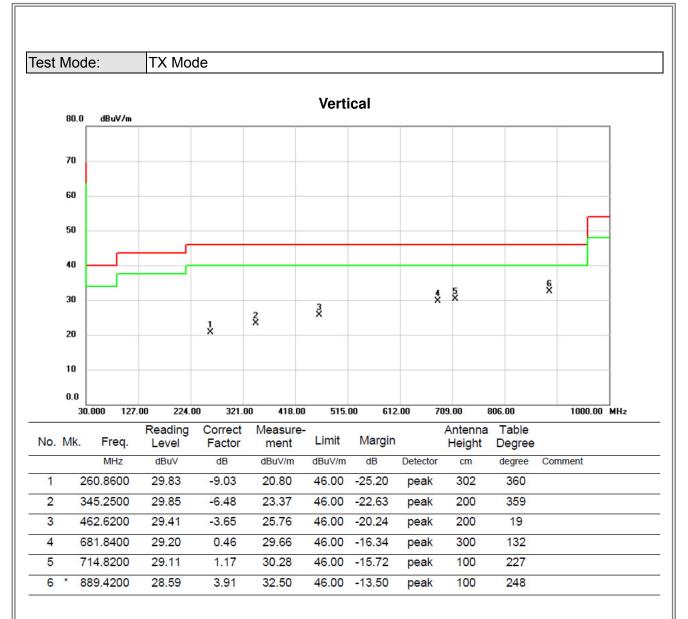




ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)

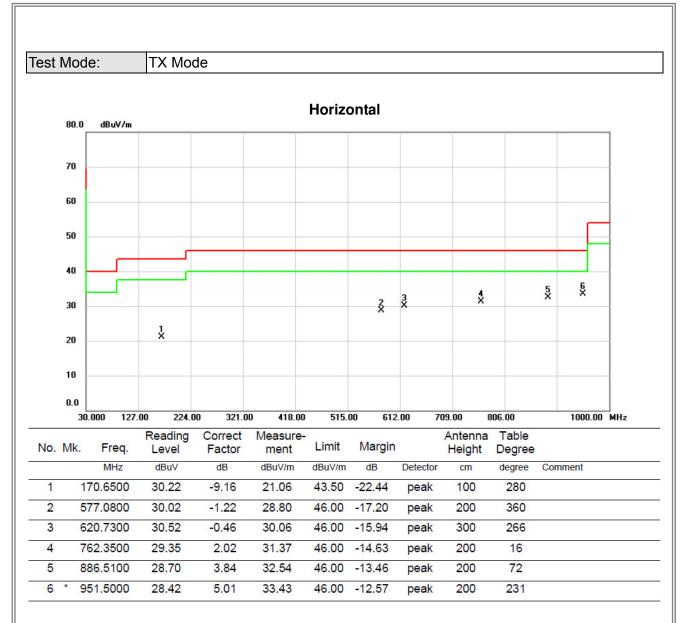
BTL





BTL



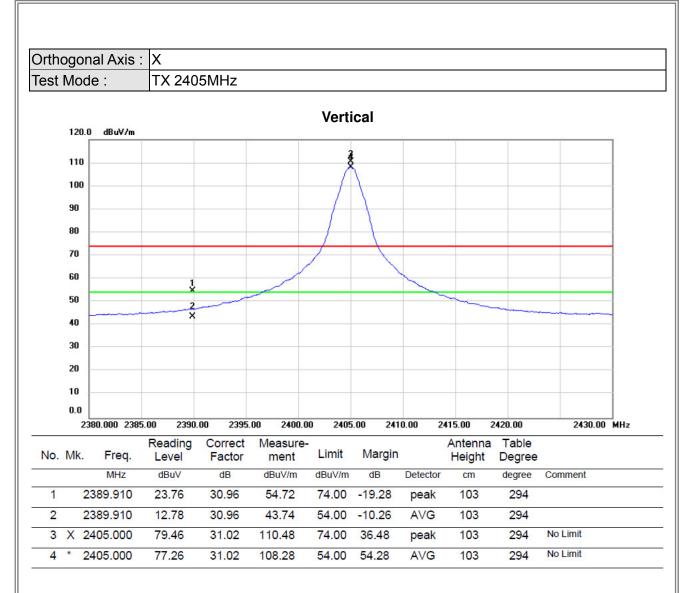




ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

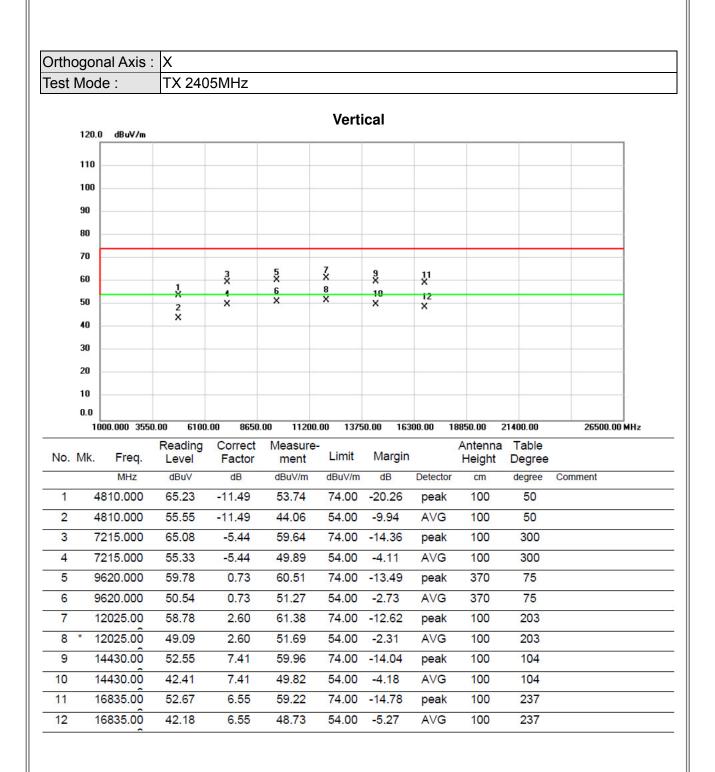






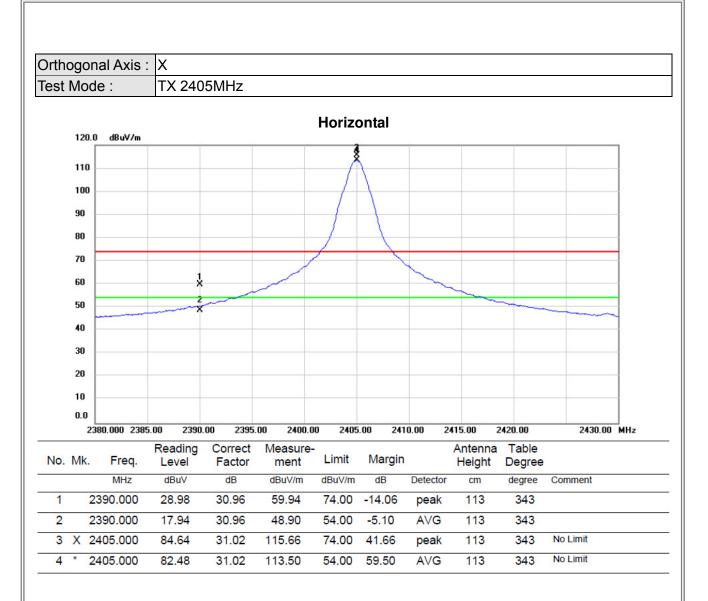






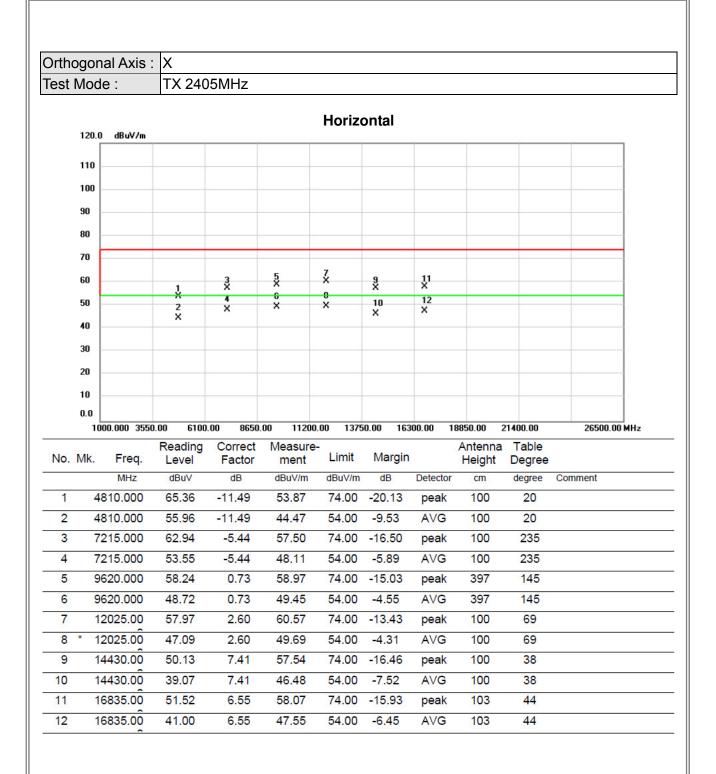






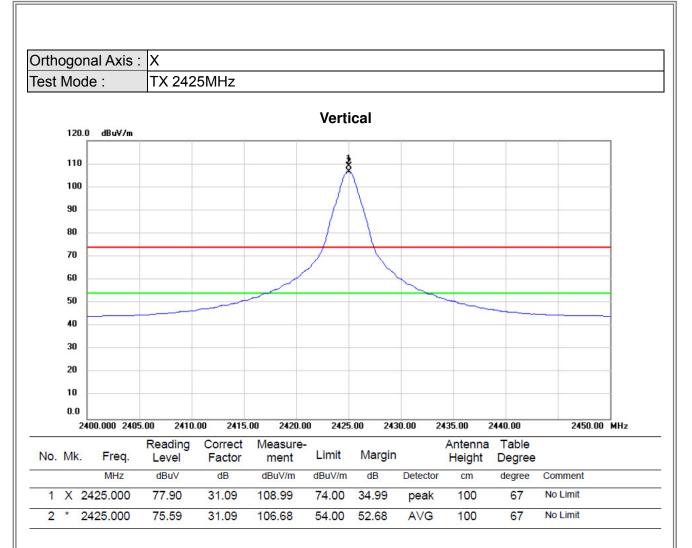






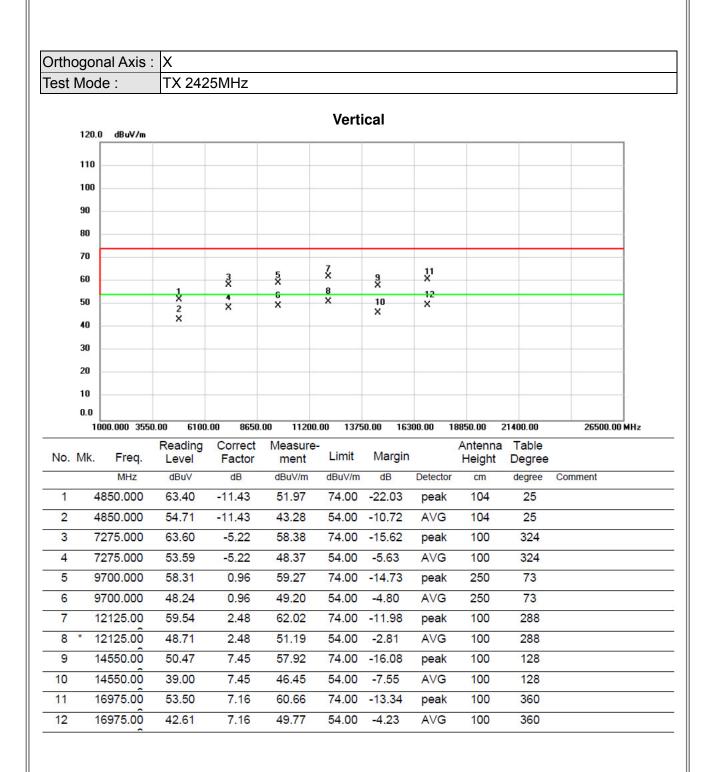






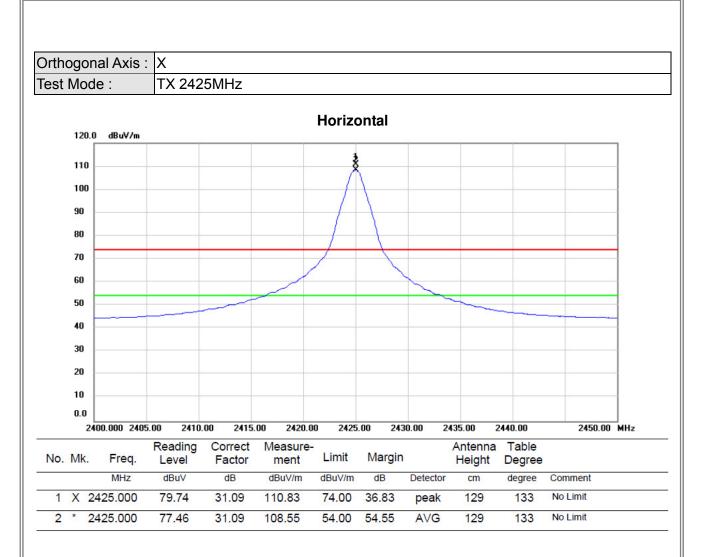






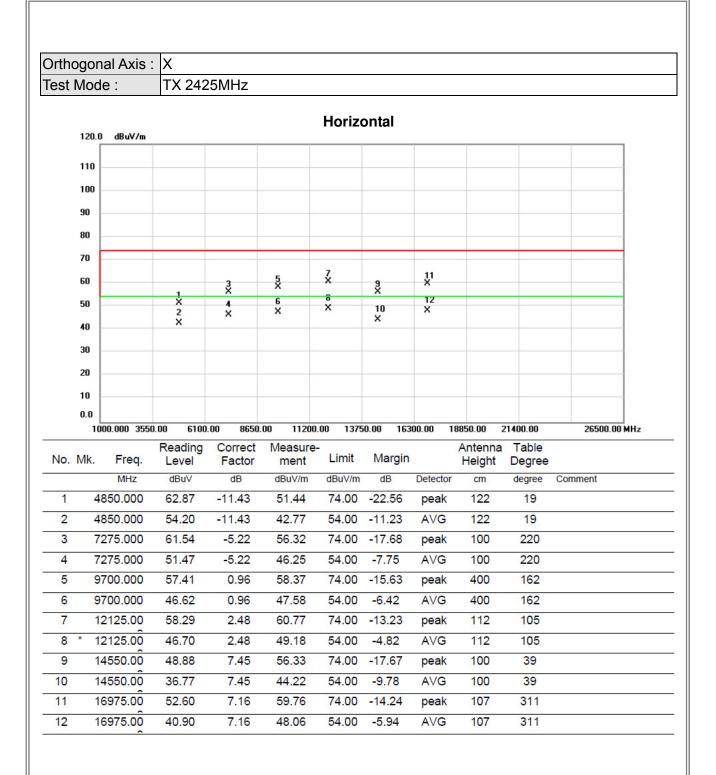






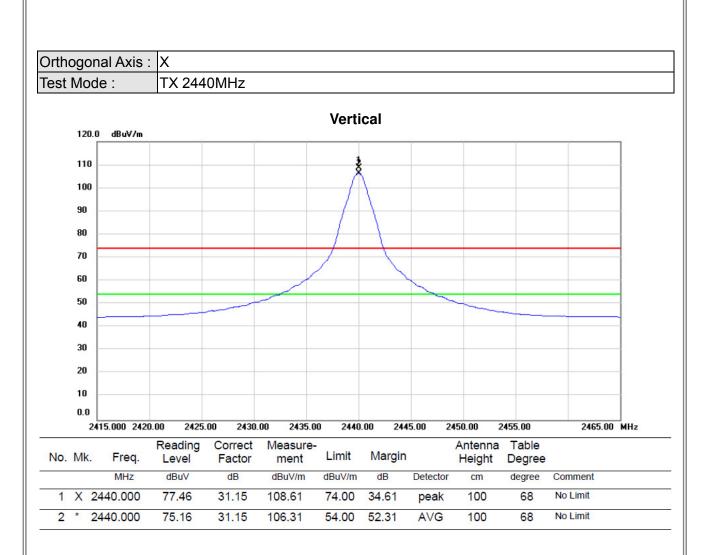






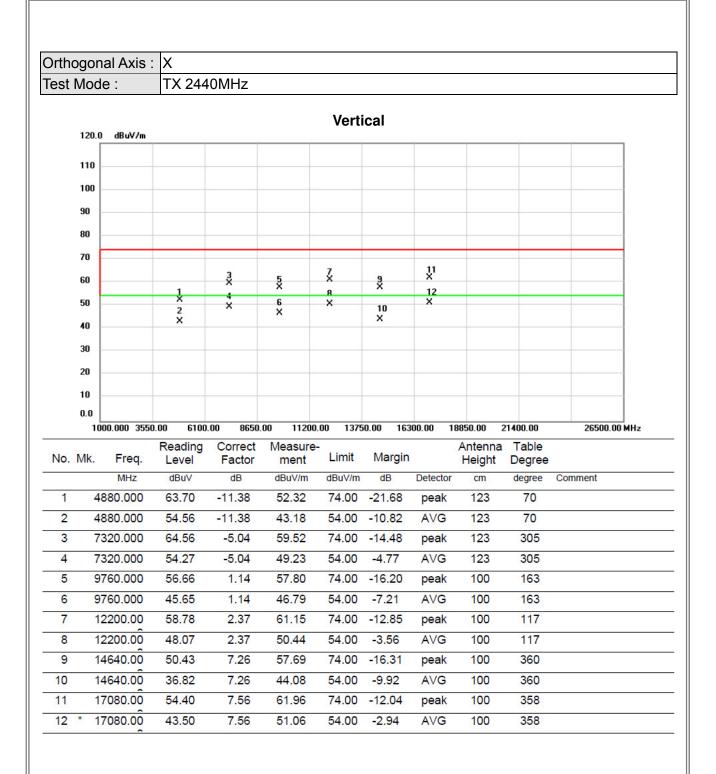






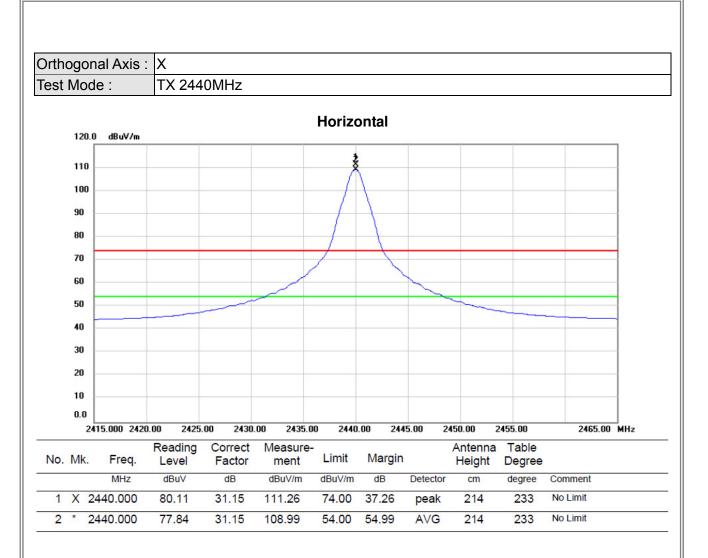






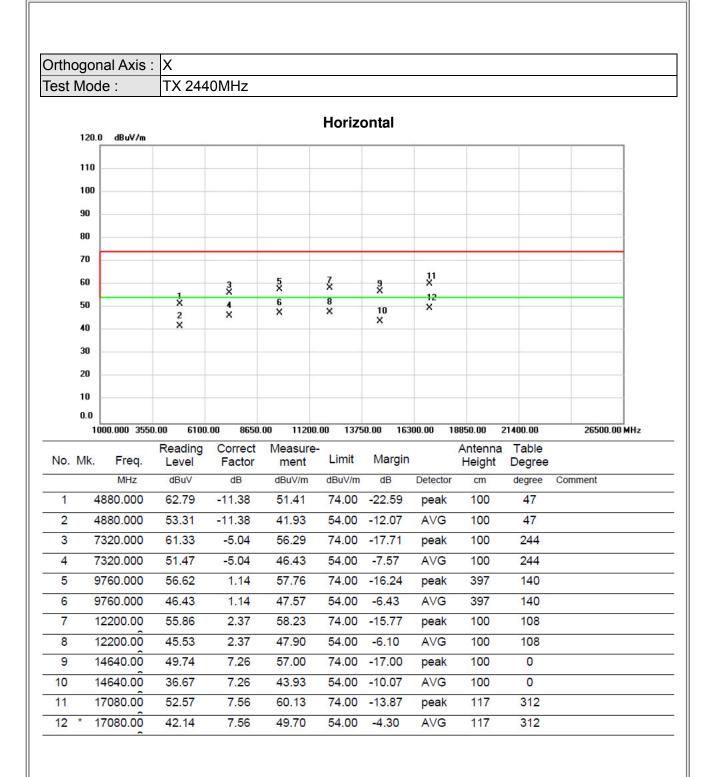






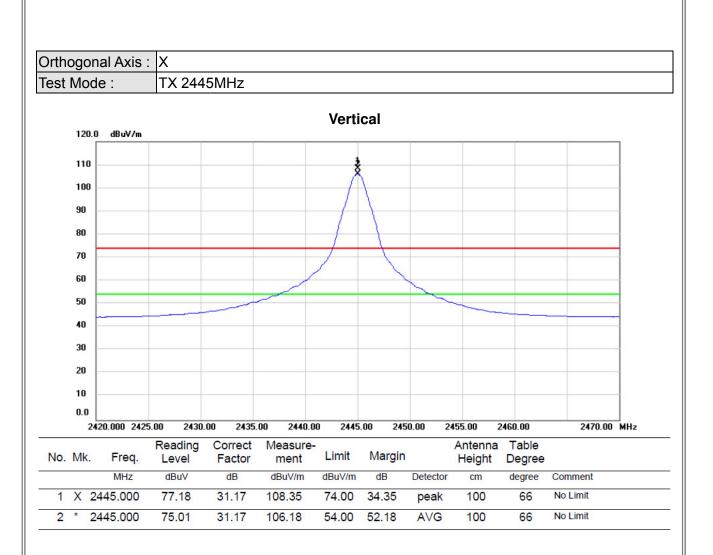






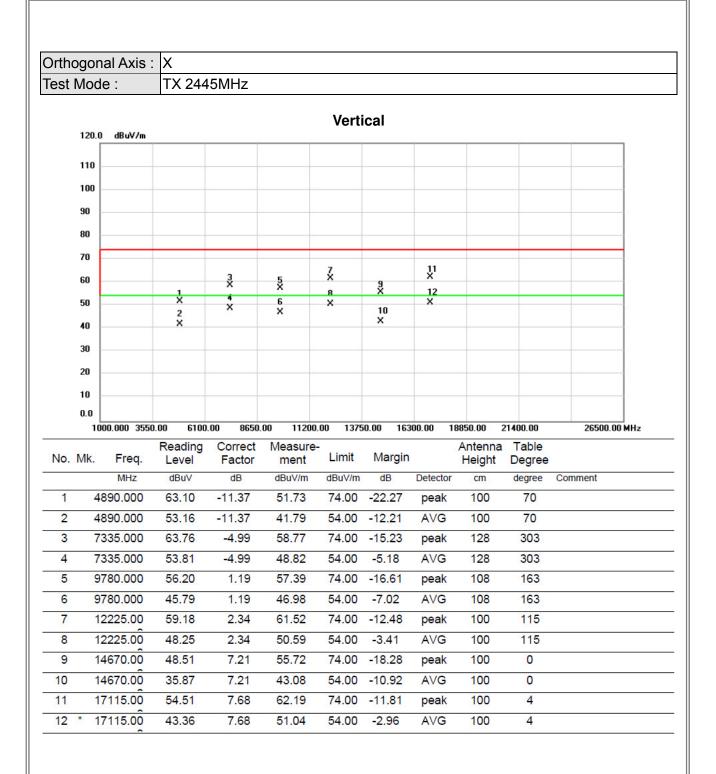






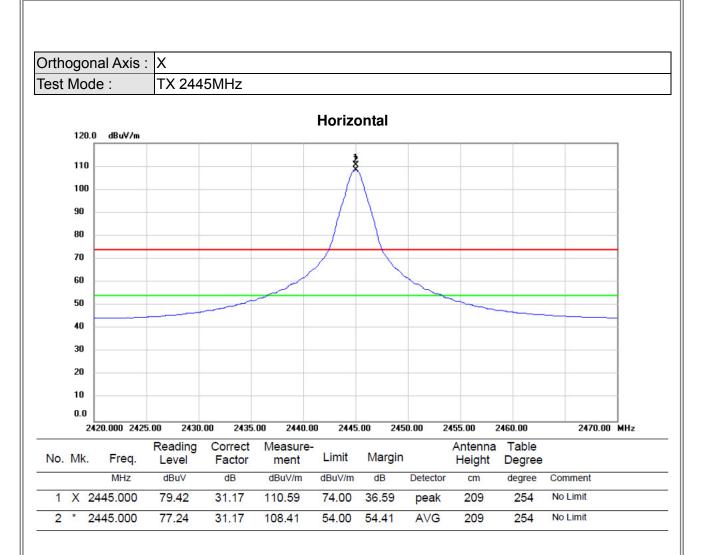






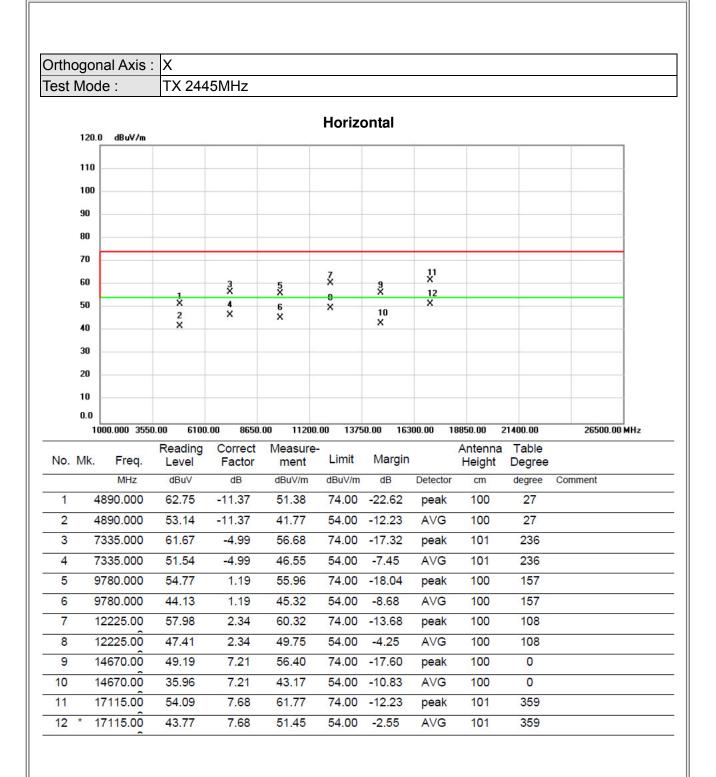






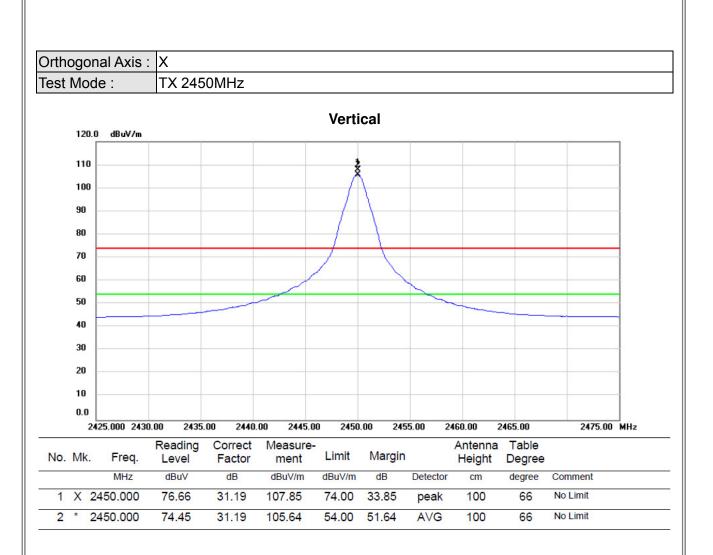






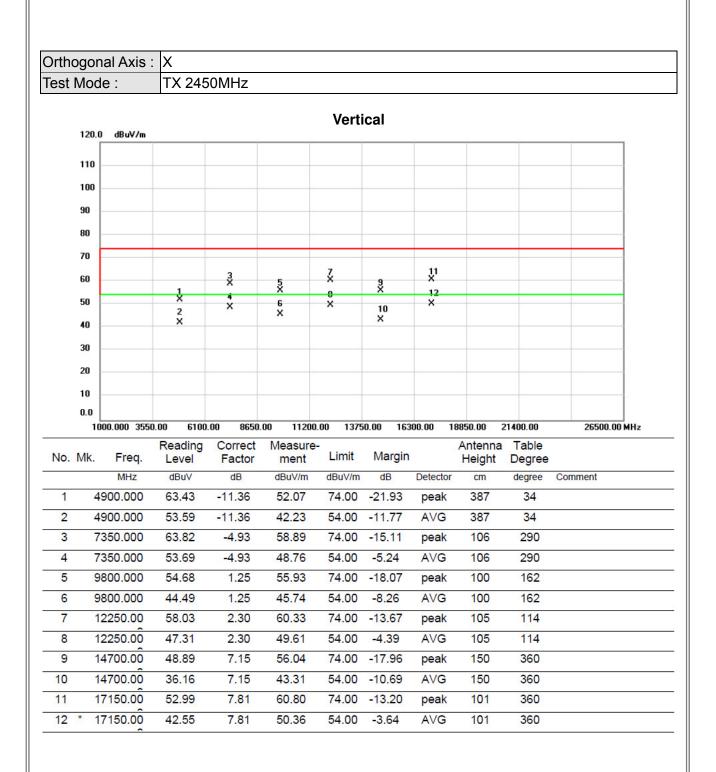






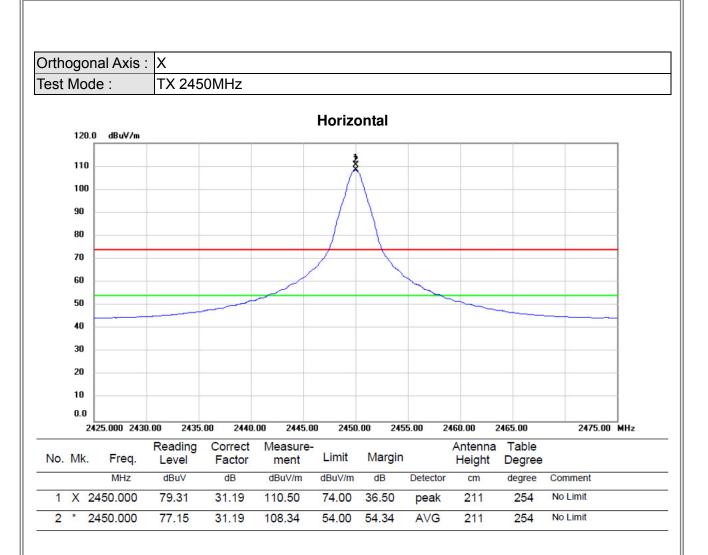






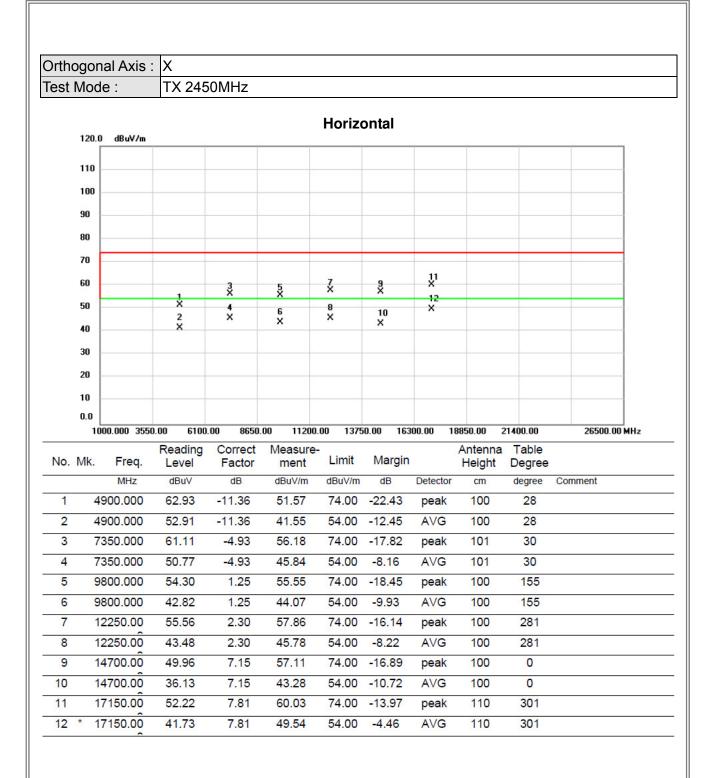






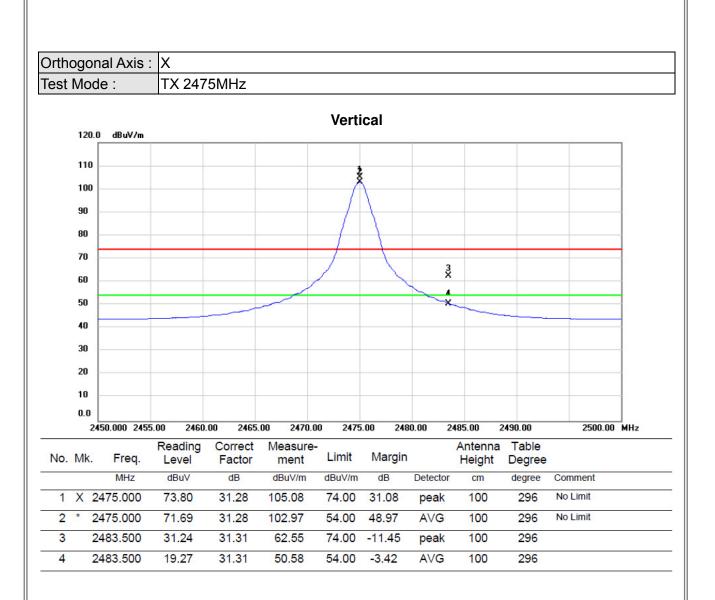






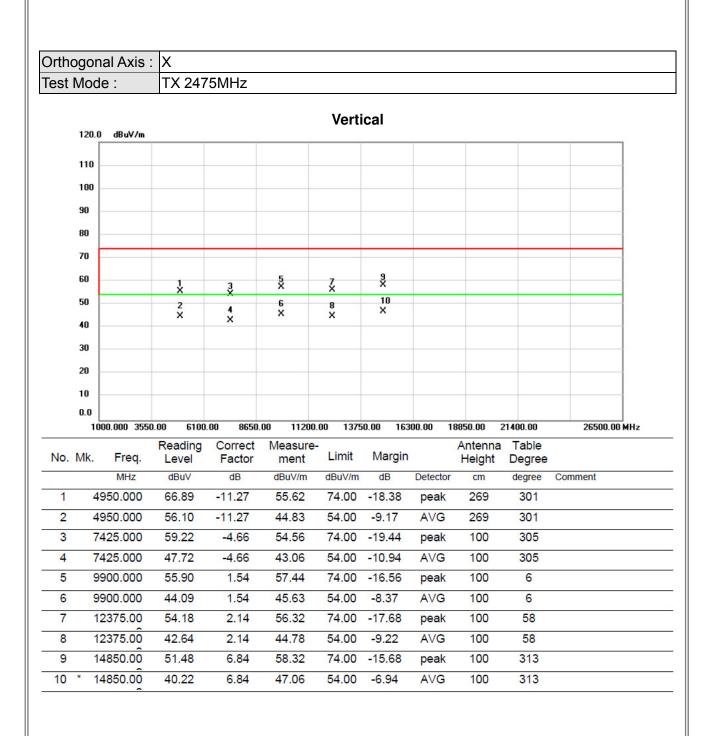






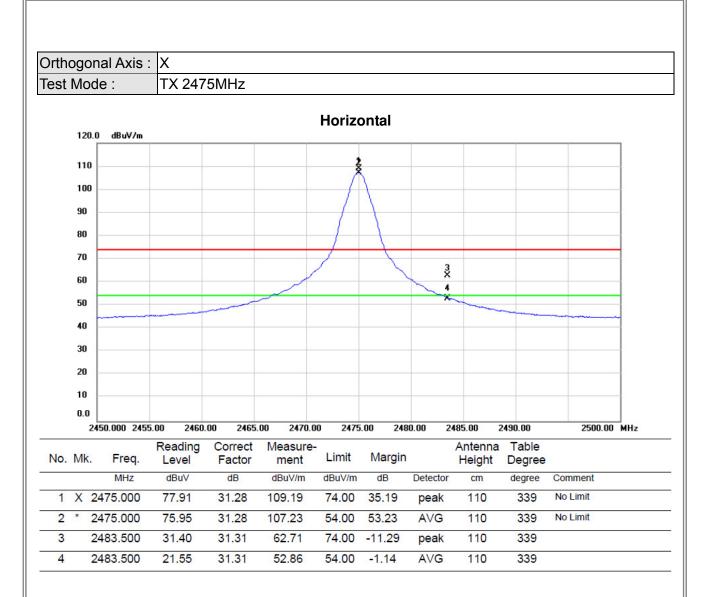






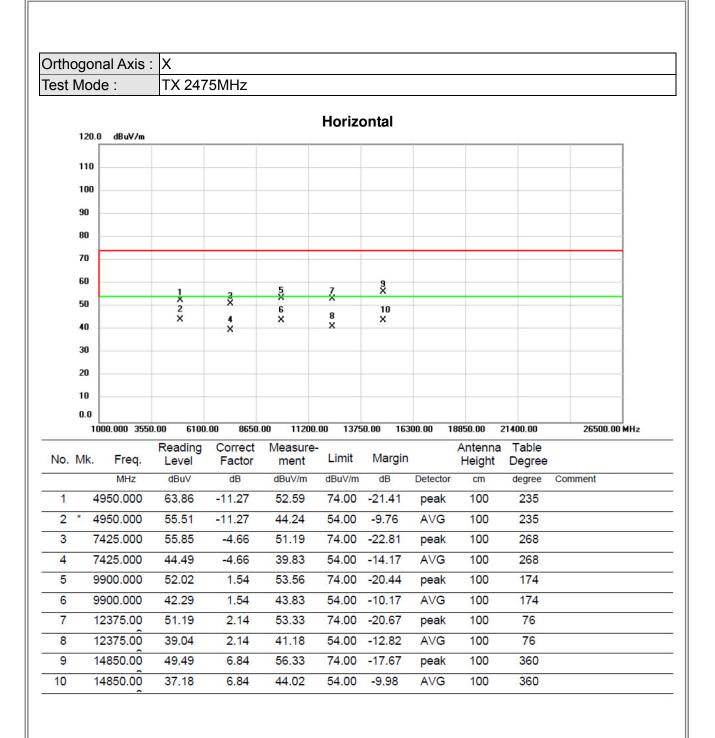






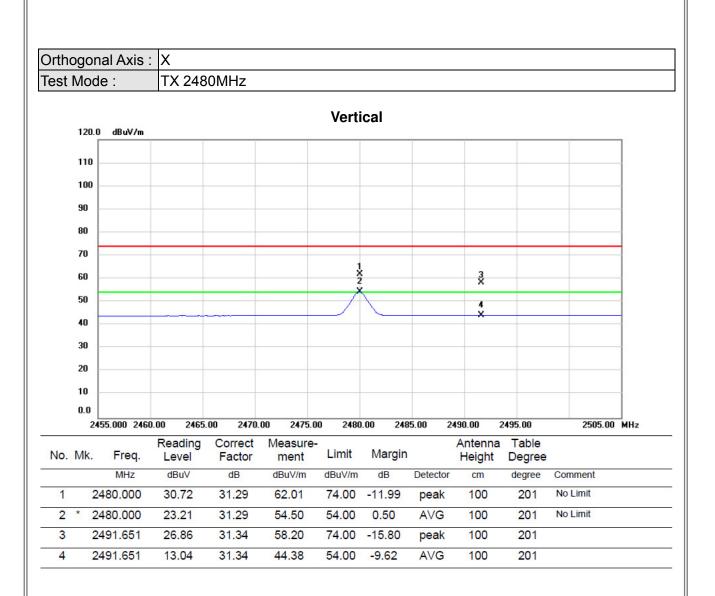






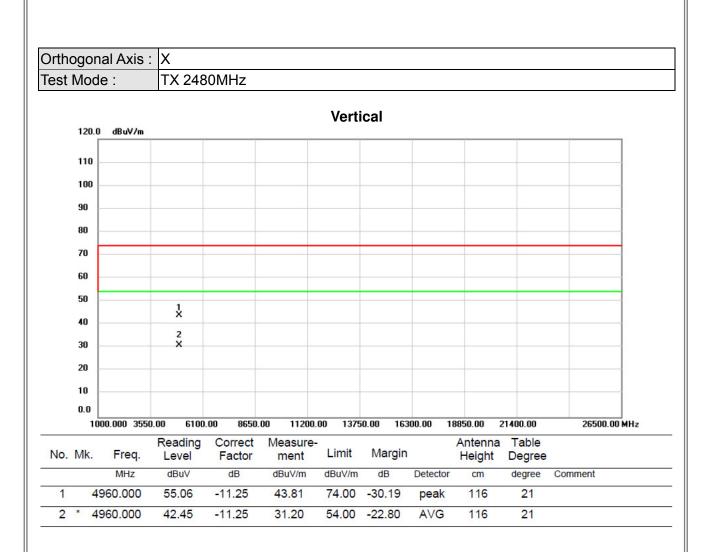






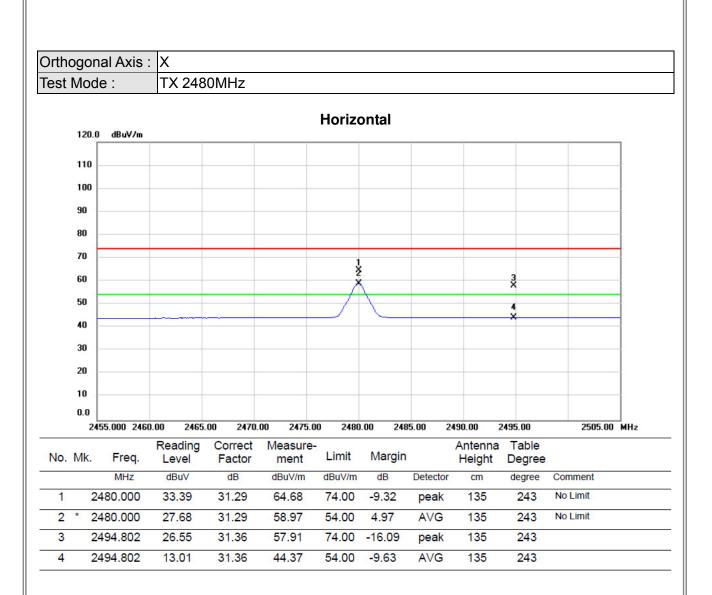






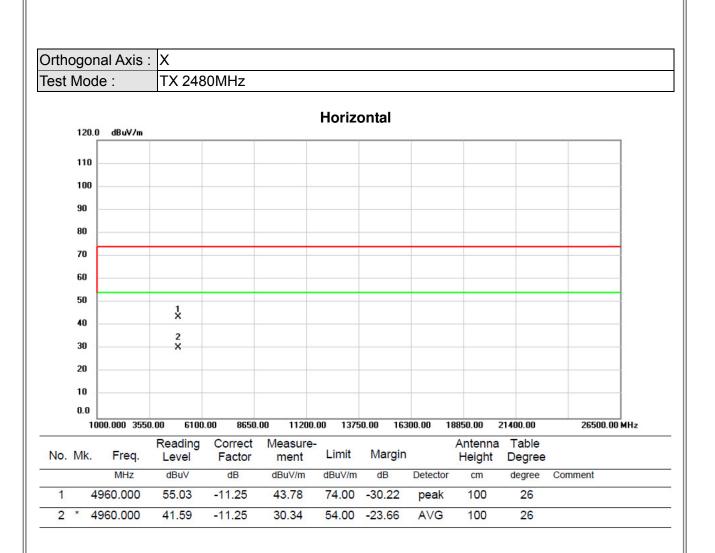












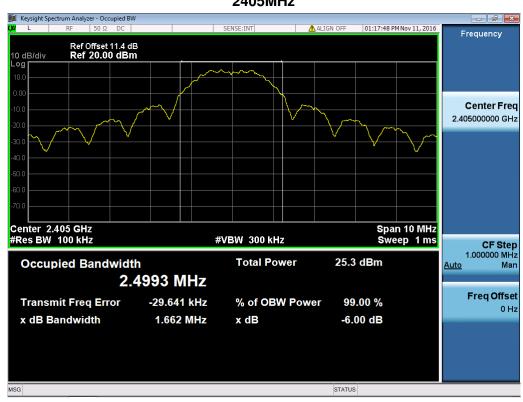


ATTACHMENT E - BANDWIDTH





Test Mode : TX Mo	ode		
Frequency	6dB Bandwidth	99% Occupied BW	Min. Limit
(MHz)	(MHz)	(MHz)	(kHz)
2405	1.662	2.4993	500
2425	1.648	2.4904	500
2440	1.638	2.4760	500
2445	1.622	2.4521	500
2450	1.600	2.4339	500
2475	1.631	2.4670	500
2480	1.613	2.6632	500



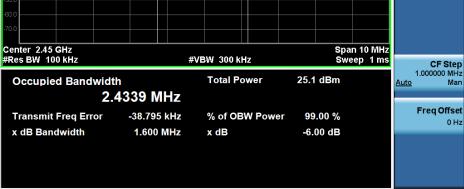








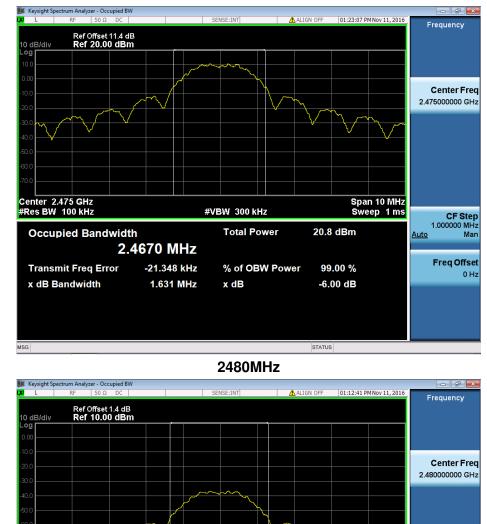




STATUS

MSG





#VBW 300 kHz

x dB

Total Power

% of OBW Power

Span 10 MHz Sweep 1 ms

-26.2 dBm

99.00 %

-6.00 dB

STATUS

CF Step 1.000000 MHz Man

Freq Offset

0 Hz

<u>Auto</u>

Center 2.48 GHz #Res BW 100 kHz

Occupied Bandwidth

Transmit Freq Error

x dB Bandwidth

MSG

2.6632 MHz

-29.689 kHz

1.613 MHz



ATTACHMENT F - MAXIMUM OUTPUT POWER TEST

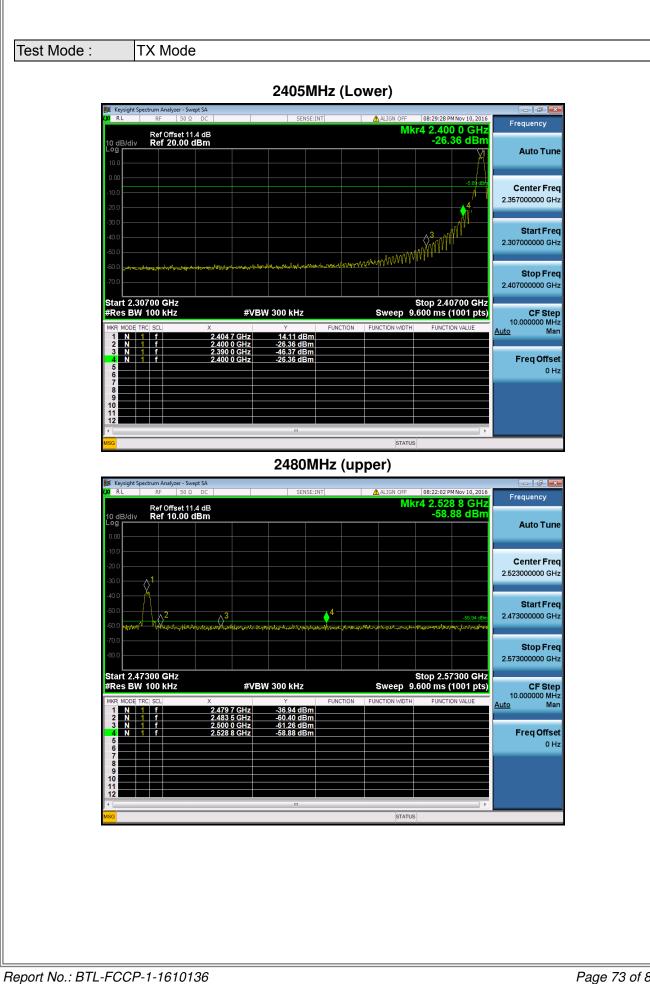
Test Mode : TX Mode					
Frequency	Conducted Power	Conducted Power	Max. Limit	Max. Limit	
(MHz)	(dBm)	(Watt)	(dBm)	(Watt)	
2405	17.93	0.0621	30.00	1.00	
2425	18.08	0.0643	30.00	1.00	
2440	18.05	0.0638	30.00	1.00	
2445	17.96	0.0625	30.00	1.00	
2450	17.94	0.0622	30.00	1.00	
2475	13.33	0.0215	30.00	1.00	
2480	-38.43	0.0000	30.00	1.00	

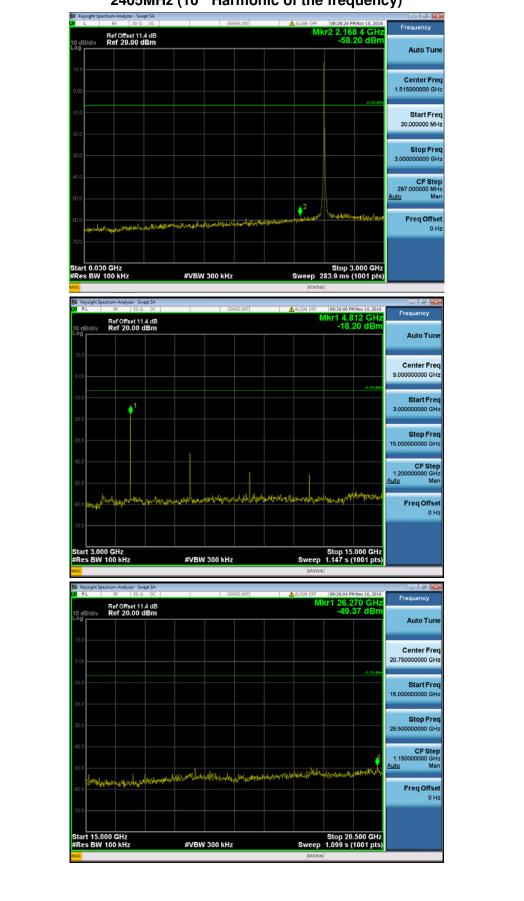


ATTACHMENT G - ANTENNA CONDUCTED SPURIOUS EMISSION

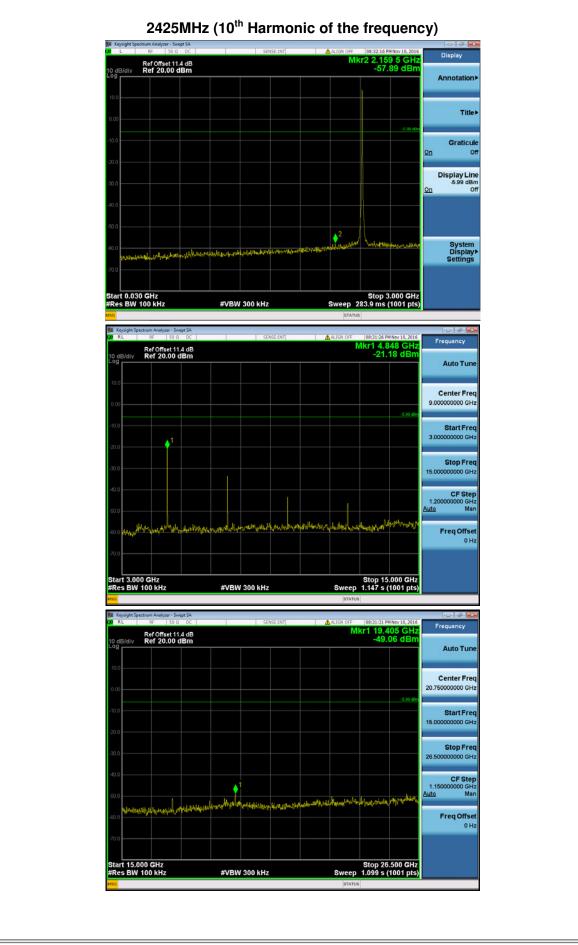


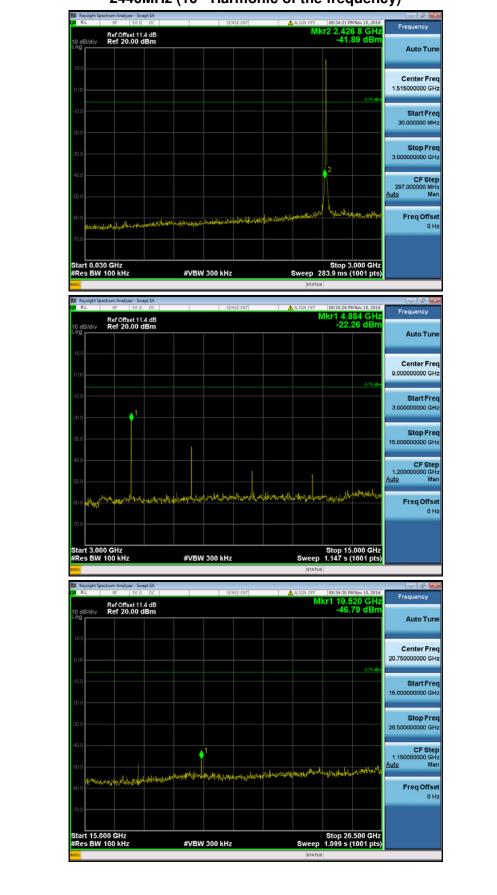


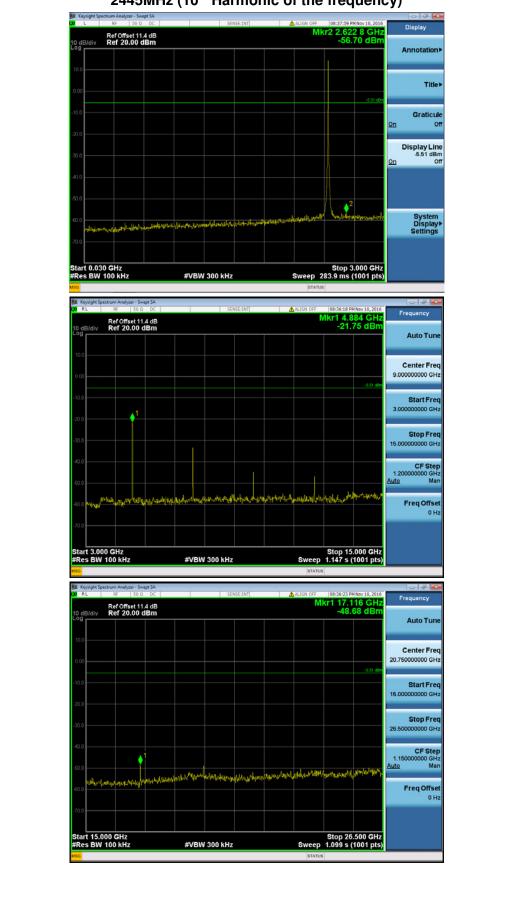




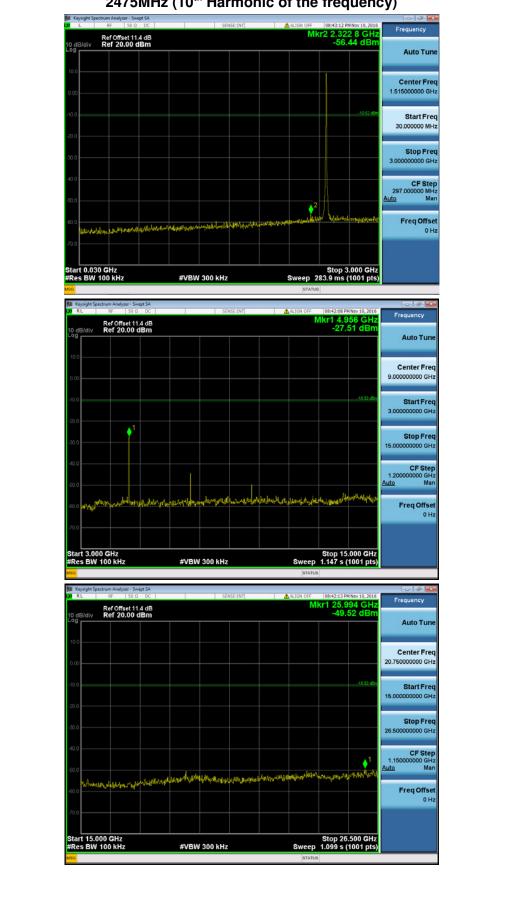
















ATTACHMENT H - POWER SPECTRAL DENSITY TEST





Test Mode : TX Mode		
Frequency	Power Density	Max. Limit
(MHz)	(dBm)	(dBm)
2405	0.48	8
2425	0.41	8
2440	0.16	8
2445	0.95	8
2450	0.91	8
2475	-2.37	8
2480	-49.97	8



2405MHz





