

FCC REPORT

Applicant: Schneider Electric

Address of Applicant: 320 Tech Park Drive Suite 100 LaVergne Tennessee 37086
United States

Equipment Under Test (EUT)

Product Name: ZigBee Main Power Sensor

Model No.: WISERCTPM200, QOWBMS200, QOWBMS60,
WISERCTPM60

FCC ID: 2AC85WISERCTPM200

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247:2013

Date of sample receipt: January 04, 2015

Date of Test: January 04~08, 2015

Date of report issued: January 08, 2015

Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

A circular logo for GTS (Global United Technology Services Co., Ltd.) is overlaid with a handwritten signature in blue ink. The logo contains the text 'GTS' in the center and 'GLOBAL UNITED TECHNOLOGY SERVICES CO., LTD.' around the perimeter.

Robinson Lo
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	January 08, 2015	Original

Remark: The report is class II permissive change report of FCC ID 2AC85WISERCTPM200, only add models QOWBMS200, QWBMS60, WISERCTPM60, change product name and add capacitor at X2 position of power input circuit part, no any changes at RF circuit, and all models are electrically identical, so only conducted emission and radiated emission test have been done.

Prepared By:

Sam. Gao

Date:

January 08, 2015

Project Engineer

Check By:

Hank. yan

Date:

January 08, 2015

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	Schneider Electric
Address of Applicant:	320 Tech Park Drive Suite 100 LaVergne Tennessee 37086 United States
Factory:	Computime Electronics (shenzhen) Company Limited
Address of Factory:	Yuekenguangyu Industrial Park,Kangqiao Road 88#, Danzhutou Community, Nanwan Street Office Longgang District, Shenzhen, China

5.2 General Description of EUT

Product Name:	ZigBee Main Power Sensor
Model No.:	WISERCTPM200, QOWBMS200, QOWBMS60, WISERCTPM60
Operation Frequency:	2405MHz~2480MHz
Channel numbers:	16
Channel separation:	5MHz
Modulation type:	O-QPSK
Antenna Type:	PCB Antenna
Antenna gain:	0dBi
Power supply:	AC 90-240V 50/60Hz 0.2A

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2405MHz	5	2425MHz	9	2445MHz	13	2465MHz
2	2410MHz	6	2430MHz	10	2450MHz	14	2470MHz
3	2415MHz	7	2435MHz	11	2455MHz	15	2475MHz
4	2420MHz	8	2440MHz	12	2460MHz	16	2480 MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2405MHz
The middle channel	2440MHz
The Highest channel	2480MHz

5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
<i>Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i>	

5.4 Description of Support Units

N/A

5.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS —Registration No.: CNAS L5775**

CNAS has accredited Global United Technology Services Co., Ltd. to ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 28, 2013.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list


Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 28 2014	Mar. 27 2015
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	Spectrum Analyzer	Agilent	E4440A	GTS533	Dec. 04 2014	Dec. 03 2015
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 01 2014	Jun. 30 2015
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 23 2014	Feb. 22 2015
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 27 2014	June 26 2015
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 28 2014	Mar. 27 2015
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	Mar. 29 2014	Mar. 28 2015
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 29 2014	Mar. 28 2015
11	Coaxial cable	GTS	N/A	GTS210	Mar. 29 2014	Mar. 28 2015
12	Coaxial Cable	GTS	N/A	GTS212	Mar. 29 2014	Mar. 28 2015
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 01 2014	Jun. 30 2015
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 01 2014	Jun. 30 2015
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 27 2014	June 26 2015
16	Band filter	Amindeon	82346	GTS219	Mar. 29 2014	Mar. 28 2015

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 07 2013	Sep. 06 2015
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 01 2014	Jun. 30 2015
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 01 2014	Jun. 30 2015
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 01 2014	Jun. 30 2015
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 01 2014	Jun. 30 2015
6	Coaxial Cable	GTS	N/A	GTS227	Jul. 01 2014	Jun. 30 2015
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	July 08 2014	July 07 2015

7 Test results and Measurement Data

7.1 Antenna requirement

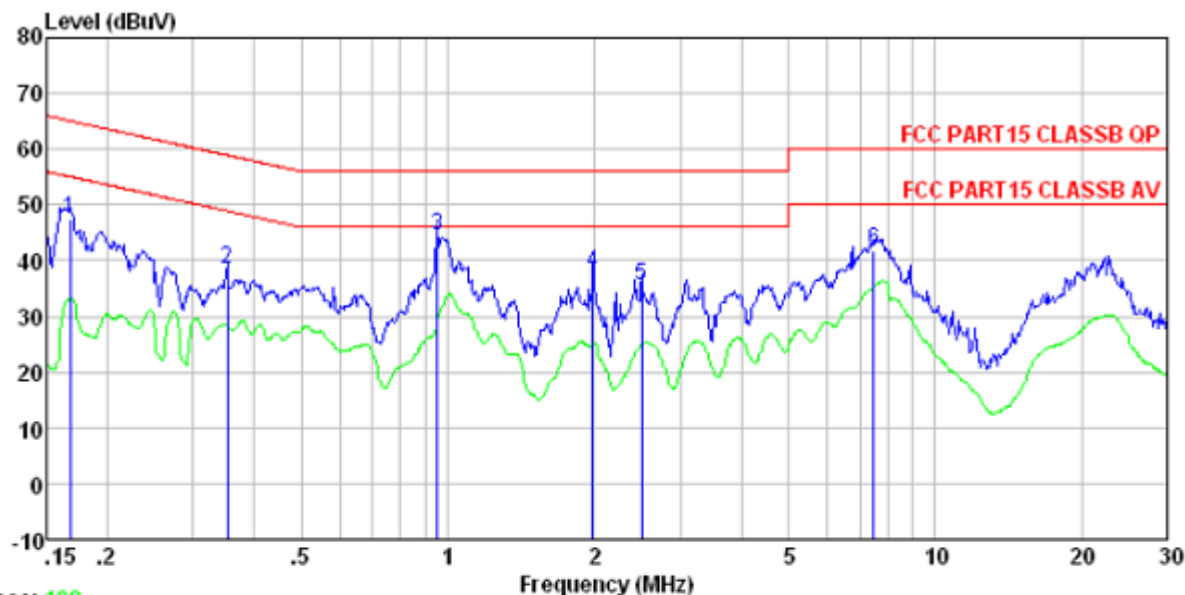
Standard requirement:	FCC Part15 C Section 15.203 /247(c)
<p>15.203 requirement:</p> <p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(c) (1)(i) requirement:</p> <p>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</p>	
EUT Antenna:	
<p>The antenna is PCB Antenna, the best case gain of the antenna is 0dBi</p> 	

7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.4:2003														
Test Frequency Range:	150KHz to 30MHz														
Class / Severity:	Class B														
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto														
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table> <p>* Decreases with the logarithm of the frequency.</p>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test setup:	<p>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>														
Test procedure:	<ol style="list-style-type: none"> 1. The E.U.T is connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement. 														
Test Instruments:	Refer to section 6.0 for details														
Test mode:	Refer to section 5.3 for details														
Test results:	Pass														

Measurement data

Line:

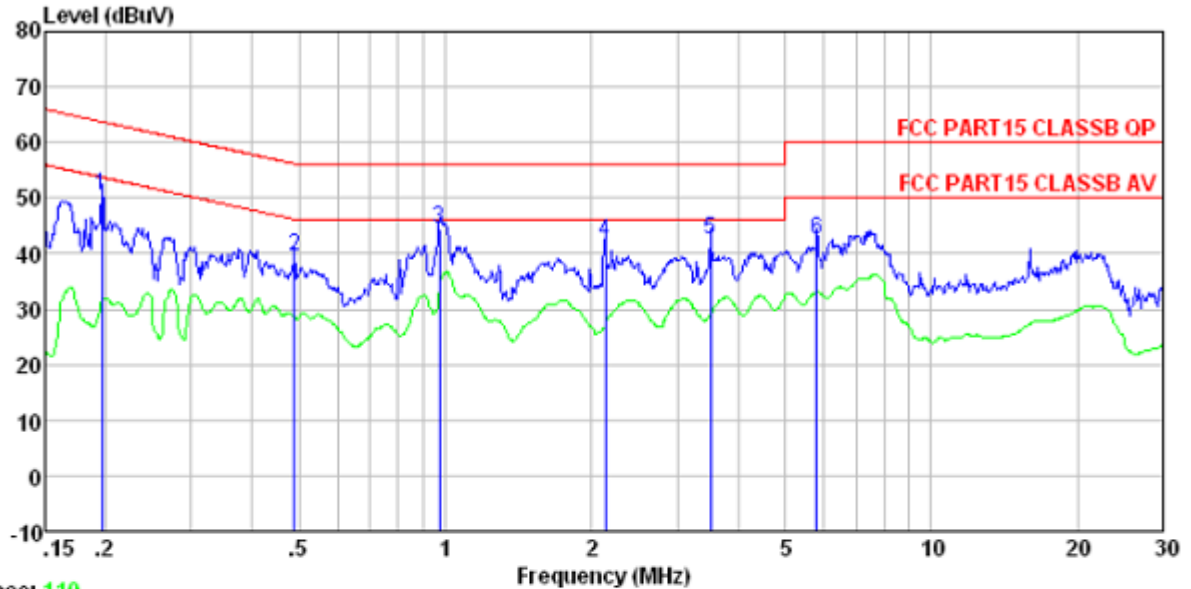


Trace: 108

Condition : FCC PART15 CLASSB QP LISN-2013 LINE
 Job No. : 2206RF
 Test mode : Keeping TX mode
 Test Engineer: Mike

	Read Freq	LISN Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.168	47.14	0.15	0.12	47.41	65.08	-17.67	QP
2	0.352	38.19	0.11	0.10	38.40	58.91	-20.51	QP
3	0.953	44.31	0.14	0.13	44.58	56.00	-11.42	QP
4	1.980	37.40	0.12	0.14	37.66	56.00	-18.34	QP
5	2.500	35.29	0.13	0.15	35.57	56.00	-20.43	QP
6	7.486	41.52	0.26	0.18	41.96	60.00	-18.04	QP

Neutral:



Trace: 110
 Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL
 Job No. : 2206RF
 Test mode : Keeping TX mode
 Test Engineer: Mike

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.197	50.34	0.07	0.13	50.54	63.76	-13.22	QP
2	0.489	39.20	0.06	0.11	39.37	56.19	-16.82	QP
3	0.974	44.21	0.07	0.13	44.41	56.00	-11.59	QP
4	2.133	42.01	0.09	0.15	42.25	56.00	-13.75	QP
5	3.509	42.07	0.13	0.15	42.35	56.00	-13.65	QP
6	5.805	42.01	0.16	0.16	42.33	60.00	-17.67	QP

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

7.3 Band edges

7.3.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205			
Test Method:	ANSI C63.4: 2003			
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.			
Test site:	Measurement Distance: 3m			
Receiver setup:	Frequency	Detector	RBW	VBW
	Above 1GHz	Peak	1MHz	3MHz
		RMS	1MHz	3MHz
Limit:	Frequency	Limit (dBuV/m @3m)		Value
	Above 1GHz	54.00		Average
		74.00		Peak
Test setup:				
Test Procedure:	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report. 			
Test Instruments:	Refer to section 6.0 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Pass			

Measurement data:

Remark: The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.

Test channel:	2405MHz
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	25.78	27.59	5.38	0.00	58.75	74.00	-15.25	Horizontal
2400.00	37.77	27.58	5.39	0.00	70.74	90.20	-19.46	Horizontal
2405.00	77.23	27.57	5.40	0.00	110.20	--	--	Horizontal
2390.00	25.13	27.59	5.38	0.00	58.10	74.00	-15.90	Vertical
2400.00	34.82	27.58	5.39	0.00	67.79	86.69	-18.90	Vertical
2405.00	73.72	27.57	5.40	0.00	106.69	--	--	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	14.83	27.59	5.38	0.00	47.80	54.00	-6.20	Horizontal
2390.00	13.89	27.59	5.38	0.00	46.86	54.00	-7.14	Vertical

Test channel:	2475MHz
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	31.25	27.53	5.47	0.00	64.25	74.00	-9.75	Horizontal
2500.00	24.79	27.55	5.49	0.00	57.83	74.00	-16.17	Horizontal
2483.50	28.27	27.53	5.47	0.00	61.27	74.00	-12.73	Vertical
2500.00	24.11	27.55	5.49	0.00	57.15	74.00	-16.85	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	18.31	27.53	5.47	0.00	51.31	54.00	-2.69	Horizontal
2500.00	11.80	27.55	5.49	0.00	44.84	54.00	-9.16	Horizontal
2483.50	15.42	27.53	5.47	0.00	48.42	54.00	-5.58	Vertical
2500.00	11.13	27.55	5.49	0.00	44.17	54.00	-9.83	Vertical

Test channel:	2480MHz
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	28.15	27.53	5.47	0.00	61.15	74.00	-12.85	Horizontal
2500.00	24.94	27.55	5.49	0.00	57.98	74.00	-16.02	Horizontal
2483.50	25.46	27.53	5.47	0.00	58.46	74.00	-15.54	Vertical
2500.00	24.28	27.55	5.49	0.00	57.32	74.00	-16.68	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	17.49	27.53	5.47	0.00	50.49	54.00	-3.51	Horizontal
2500.00	13.18	27.55	5.49	0.00	46.22	54.00	-7.78	Horizontal
2483.50	12.61	27.53	5.47	0.00	45.61	54.00	-8.39	Vertical
2500.00	11.30	27.55	5.49	0.00	44.34	54.00	-9.66	Vertical

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

7.4 Spurious Emission

7.4.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.4: 2003				
Test Frequency Range:	30MHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
RMS		1MHz	3MHz	Average	
Limit:	Frequency	Limit (dBuV/m @3m)		Value	
	30MHz-88MHz	40.00		Quasi-peak	
	88MHz-216MHz	43.50		Quasi-peak	
	216MHz-960MHz	46.00		Quasi-peak	
	960MHz-1GHz	54.00		Quasi-peak	
	Above 1GHz	54.00		Average	
74.00		Peak			
Test setup:	Below 1GHz				
	<p>The diagram illustrates the test setup for radiated emission testing. It shows an EUT (Equipment Under Test) on a Turn Table at a height of 0.8m. A Search Antenna is mounted on an Antenna Tower at a height of 4m. The distance between the EUT and the Search Antenna is 3m. An RF Test Receiver is connected to the Search Antenna. The ground plane is indicated at the base of the setup.</p>				
	Above 1GHz				

	<p>The diagram illustrates the test setup. An EUT (Electromagnetic Under Test) is placed on a turn table that is 0.8 meters above the ground. The turn table is rotated 360 degrees. The EUT is positioned 3 meters away from the antenna tower. The antenna tower is a variable-height structure with a horn antenna mounted on top. The antenna height is varied from 1 meter to 4 meters above the ground. The antenna is connected to a spectrum analyzer via an amplifier.</p>
<p>Test Procedure:</p>	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report.
<p>Test Instruments:</p>	<p>Refer to section 6.0 for details</p>
<p>Test mode:</p>	<p>Refer to section 5.3 for details</p>
<p>Test results:</p>	<p>Pass</p>

Remark:

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Measurement Data**■ Below 1GHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
33.45	45.71	14.31	0.59	30.08	30.53	40.00	-9.47	Vertical
45.06	39.07	15.55	0.72	30.02	25.32	40.00	-14.68	Vertical
65.57	39.30	12.44	0.90	29.88	22.76	40.00	-17.24	Vertical
114.92	52.41	13.31	1.32	29.60	37.44	43.50	-6.06	Vertical
120.28	47.67	12.38	1.36	29.57	31.84	43.50	-11.66	Vertical
938.83	33.27	23.34	4.99	29.10	32.50	46.00	-13.50	Vertical
31.40	33.70	14.32	0.57	30.09	18.50	40.00	-21.50	Horizontal
65.57	34.10	12.44	0.90	29.88	17.56	40.00	-22.44	Horizontal
98.83	34.49	15.10	1.18	29.70	21.07	43.50	-22.43	Horizontal
118.60	41.56	12.69	1.35	29.58	26.02	43.50	-17.48	Horizontal
172.00	38.11	11.10	1.70	29.31	21.60	43.50	-21.90	Horizontal
938.83	32.99	23.34	4.99	29.10	32.22	46.00	-13.78	Horizontal

■ Above 1GHz

Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4810.00	42.45	31.79	8.61	32.09	50.76	74.00	-23.24	Vertical
7215.00	48.66	36.15	11.66	31.99	64.48	74.00	-9.52	Vertical
9620.00	44.56	38.01	14.14	31.60	65.11	74.00	-8.89	Vertical
12025.00	*					74.00		Vertical
14430.00	*					74.00		Vertical
4810.00	36.65	31.79	8.61	32.09	44.96	74.00	-29.04	Horizontal
7215.00	46.72	36.15	11.66	31.99	62.54	74.00	-11.46	Horizontal
9620.00	41.35	38.01	14.14	31.60	61.90	74.00	-12.10	Horizontal
12025.00	*					74.00		Horizontal
14430.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4810.00	29.44	31.79	8.61	32.09	37.75	54.00	-16.25	Vertical
7215.00	35.54	36.15	11.66	31.99	51.36	54.00	-2.64	Vertical
9620.00	31.43	38.01	14.14	31.60	51.98	54.00	-2.02	Vertical
12025.00	*					54.00		Vertical
14430.00	*					54.00		Vertical
4810.00	23.78	31.79	8.61	32.09	32.09	54.00	-21.91	Horizontal
7215.00	33.64	36.15	11.66	31.99	49.46	54.00	-4.54	Horizontal
9620.00	28.23	38.01	14.14	31.60	48.78	54.00	-5.22	Horizontal
12025.00	*					54.00		Horizontal
14430.00	*					54.00		Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor*
2. *“*” , means this data is the too weak instrument of signal is unable to test.*

Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4880.00	44.58	31.85	8.66	32.12	52.97	74.00	-21.03	Vertical
7320.00	43.46	36.41	11.72	31.89	59.70	74.00	-14.30	Vertical
9760.00	41.90	38.35	14.25	31.62	62.88	74.00	-11.12	Vertical
12200.00	*					74.00		Vertical
14640.00	*					74.00		Vertical
4880.00	39.04	31.85	8.66	32.12	47.43	74.00	-26.57	Horizontal
7320.00	45.59	36.41	11.72	31.89	61.83	74.00	-12.17	Horizontal
9760.00	38.77	38.35	14.25	31.62	59.75	74.00	-14.25	Horizontal
12200.00	*					74.00		Horizontal
14640.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4880.00	31.56	31.85	8.66	32.12	39.95	54.00	-14.05	Vertical
7320.00	30.33	36.41	11.72	31.89	46.57	54.00	-7.43	Vertical
9760.00	28.76	38.35	14.25	31.62	49.74	54.00	-4.26	Vertical
12200.00	*					54.00		Vertical
14640.00	*					54.00		Vertical
4880.00	26.14	31.85	8.66	32.12	34.53	54.00	-19.47	Horizontal
7320.00	32.49	36.41	11.72	31.89	48.73	54.00	-5.27	Horizontal
9760.00	25.65	38.35	14.25	31.62	46.63	54.00	-7.37	Horizontal
12200.00	*					54.00		Horizontal
14640.00	*					54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

Test channel:	Highest (2475MHz)
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4950.00	40.18	31.91	8.71	32.16	48.64	74.00	-25.36	Vertical
7425.00	45.50	36.56	11.79	31.80	62.05	74.00	-11.95	Vertical
9900.00	35.01	38.81	14.35	31.85	56.32	74.00	-17.68	Vertical
12375.00	*					74.00		Vertical
14850.00	*					74.00		Vertical
4950.00	39.06	31.91	8.71	32.16	47.52	74.00	-26.48	Horizontal
7425.00	45.10	36.56	11.79	31.80	61.65	74.00	-12.35	Horizontal
9900.00	30.70	38.81	14.35	31.85	52.01	74.00	-21.99	Horizontal
12375.00	*					74.00		Horizontal
14850.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4950.00	26.99	31.91	8.71	32.16	35.45	54.00	-18.55	Vertical
7425.00	32.27	36.56	11.79	31.80	48.82	54.00	-5.18	Vertical
9900.00	21.78	38.81	14.35	31.85	43.09	54.00	-10.91	Vertical
12375.00	*					54.00		Vertical
14850.00	*					54.00		Vertical
4950.00	25.92	31.91	8.71	32.16	34.38	54.00	-19.62	Horizontal
7425.00	31.89	36.56	11.79	31.80	48.44	54.00	-5.56	Horizontal
9900.00	17.48	38.81	14.35	31.85	38.79	54.00	-15.21	Horizontal
12375.00	*					54.00		Horizontal
14850.00	*					54.00		Horizontal

Test channel:	Highest (2480MHz)
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4960.00	34.79	31.93	8.73	32.16	43.29	74.00	-30.71	Vertical
7440.00	30.16	36.59	11.79	31.78	46.76	74.00	-27.24	Vertical
9920.00	29.98	38.81	14.38	31.88	51.29	74.00	-22.71	Vertical
12400.00	*					74.00		Vertical
14880.00	*					74.00		Vertical
4960.00	38.56	31.93	8.73	32.16	47.06	74.00	-26.94	Horizontal
7440.00	31.69	36.59	11.79	31.78	48.29	74.00	-25.71	Horizontal
9920.00	29.17	38.81	14.38	31.88	50.48	74.00	-23.52	Horizontal
12400.00	*					74.00		Horizontal
14880.00	*					74.00		Horizontal

Average value:

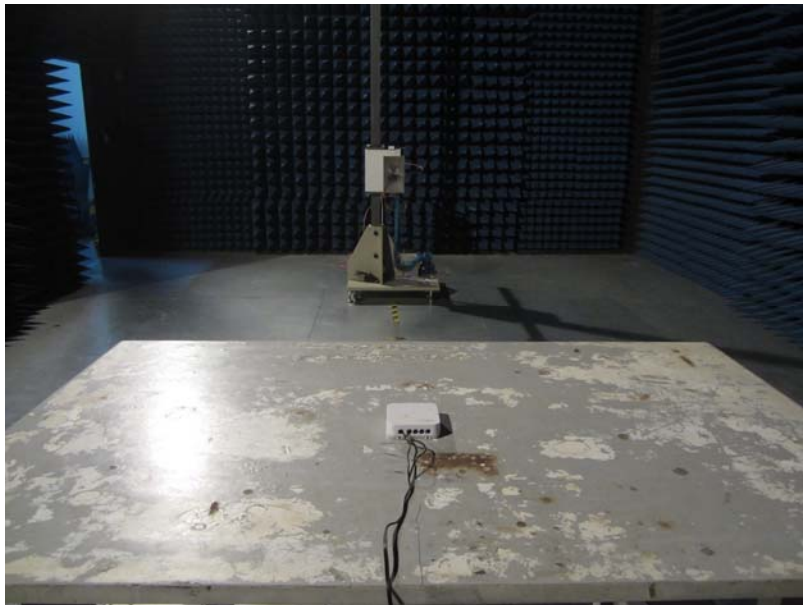
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4960.00	21.66	31.93	8.73	32.16	30.16	54.00	-23.84	Vertical
7440.00	16.97	36.59	11.79	31.78	33.57	54.00	-20.43	Vertical
9920.00	16.78	38.81	14.38	31.88	38.09	54.00	-15.91	Vertical
12400.00	*					54.00		Vertical
14880.00	*					54.00		Vertical
4960.00	25.49	31.93	8.73	32.16	33.99	54.00	-20.01	Horizontal
7440.00	18.52	36.59	11.79	31.78	35.12	54.00	-18.88	Horizontal
9920.00	15.98	38.81	14.38	31.88	37.29	54.00	-16.71	Horizontal
12400.00	*					54.00		Horizontal
14880.00	*					54.00		Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *“*” , means this data is the too weak instrument of signal is unable to test.*

8 Test Setup Photo

Radiated Emission



Conducted Emission

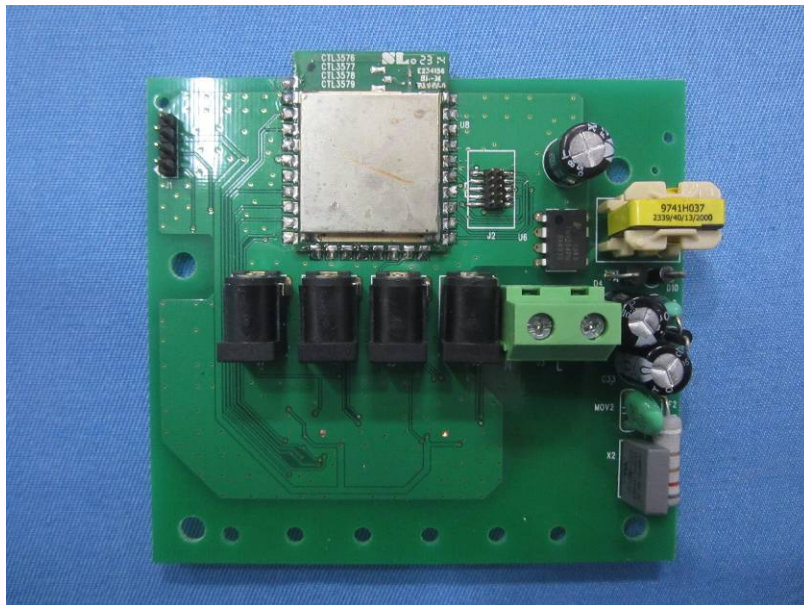
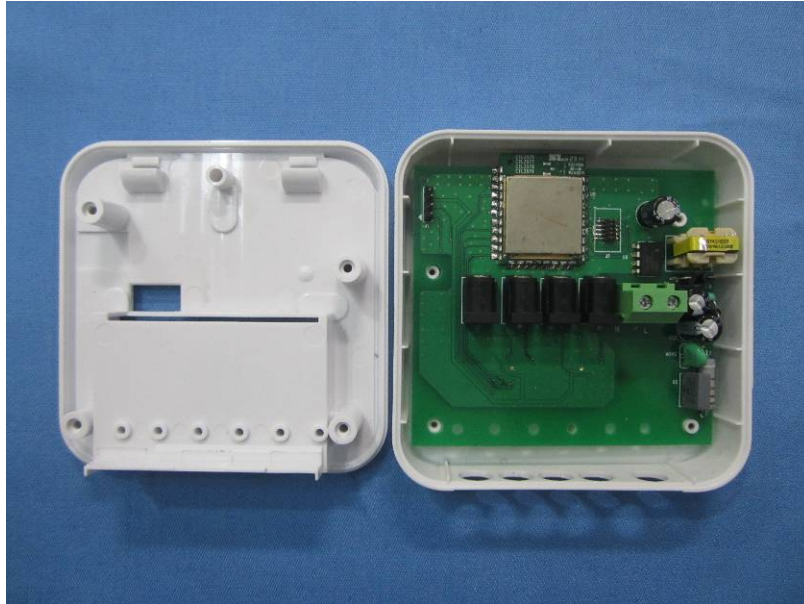


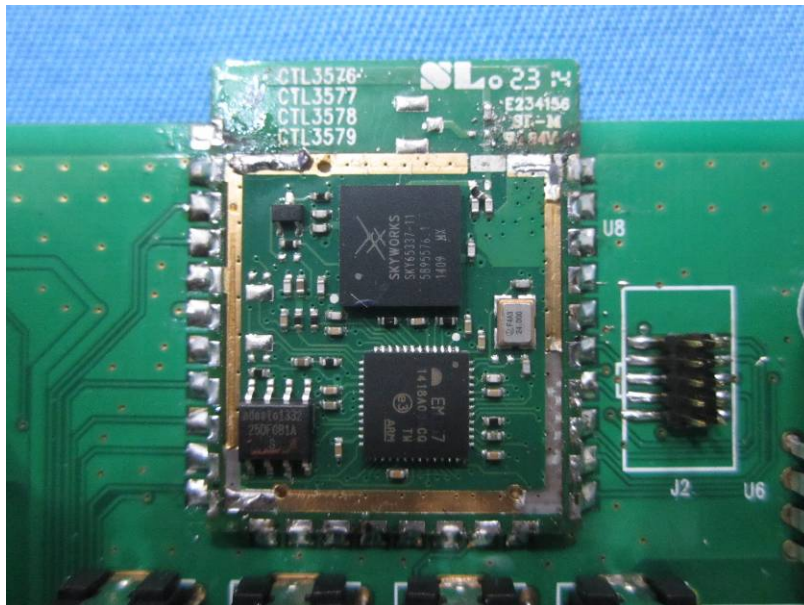
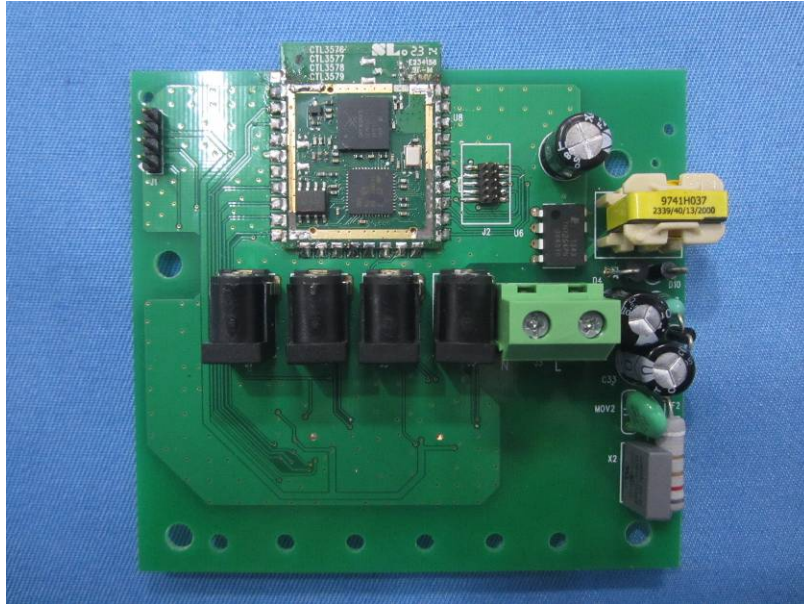
9 EUT Constructional Details

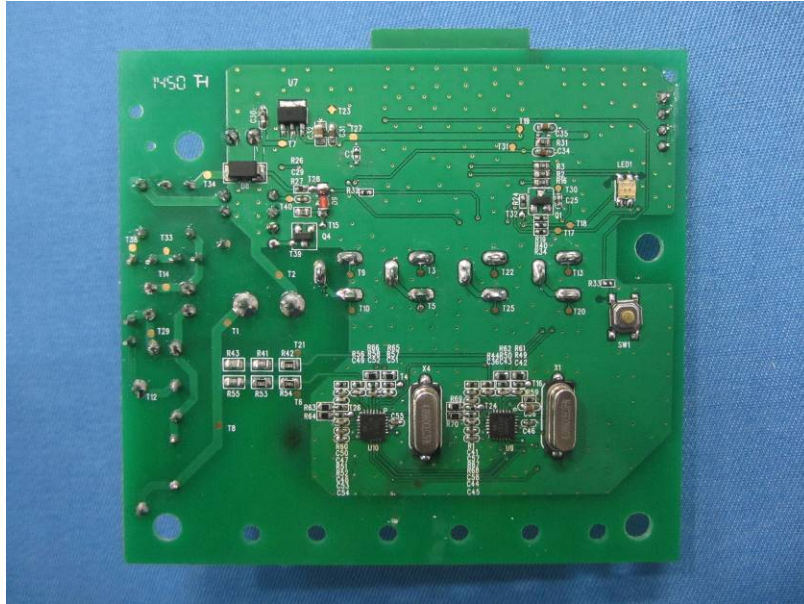












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