TEST REPORT

FCC ID: 2ACMLTIX6-GW

Applicant : Condeco Ltd
Address : 8th Floor, Exchange Tower, 2 Harbour Exchange Square
London E14 9GE UK

Equipment under Test (EUT):

Name	:	Sense Gateway
Model	:	TIX6-GW
Trademark	:	CONDECO

Standards **:** FCC PART 15, SUBPART C: 2015 (Section 15.247)
ANSI C63.10:2013

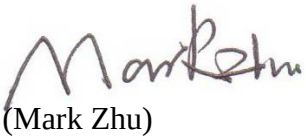
Report No. **:** C1850476 07

Date of Test **:** November 12, 2015- January 17, 2016

Date of Issue **:** January 19, 2016

Test Result :	**PASS ***

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



(Mark Zhu)
Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Certification Technology Service Co., Ltd. Or test done by Shenzhen Certification Technology Service Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Certification Technology Service Co., Ltd. Approvals in writing

TABLE OF CONTENT

Description **Page**

1 General Information

1.1 Description of Device (EUT)

Trade Name	:	CONDECO
EUT	:	Sense Gateway
Model No.		TIX6-GW
DIFF	:	N/A
Radio Technology	:	ZIGBEE
Antenna Type	:	Rod Antenna, Maximum Gain is 1.11 dBi for Zigbee.
Operation frequency	:	2405MHz -2480MHz
Channel No.		16 Channels
Modulation	:	OQPSK
Power Supply	:	DC 3.7V from battery or DC 12V from adapter.
Applicant	:	Condeco Ltd
Address	:	8th Floor, Exchange Tower, 2 Harbour Exchange Square, London E14 9GE UK
Manufacturer		NOTE Electronics (Dongguan) Ltd
Address		6 Lindong Third Road, Lincun Industrial Center, Tangxia, Dongguan 523710, P. R. China

1.2 Description of Test Facility

Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
FCC Registered No.:197647

2 EMC Equipment List

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
3m Semi-Anechoic	ETS-LINDGREN	N/A	SEL0017	2015.01.19	1Year
Spectrum analyzer	Agilent	E4407B	MY46185649	2015.01.19	1Year
Receiver	R&S	ESCI	1166.5950K03-1011	2015.01.19	1Year
Receiver	R&S	ESCI	101202	2015.01.19	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	VULB9168-438	2015.01.21	1Year
Horn Antenna	EMCO	3115	640201028-06	2015.01.21	1Year
Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	2015.01.21	1Year
Cable	Resenberger	N/A	No.1	2015.01.19	1Year
Cable	SCHWARZBECK	N/A	No.2	2015.01.19	1Year
Cable	SCHWARZBECK	N/A	No.3	2015.01.19	1Year
Pre-amplifier	Schwarzbeck	BBV9743	9743-019	2015.01.19	1Year
Pre-amplifier	R&S	AFS33-18002650-30-8P-44	SEL0080	2015.01.19	1Year
Base station	Agilent	E5515C	GB44300243	2015.01.19	1 Year
Temperature controller	Terchy	MHQ	120	2015.01.19	1Year
Power divider	Anritsu	K240C	020346	2015.01.19	1 Year
Signal Generator	HP	83732B	VS3449051	2015.01.19	1 Year

Power Meter	Anritsu	ML2487A	6K00001491	2015.01.19	1Year
Power sensor	Anritsu	ML2491A	32516	2015.01.19	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	2016.01.19	1Year
L.I.S.N.#2	R&S	ENV216	101043	2016.01.19	1 Year

3 Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The test procedure used was ANSI Standard ANSI C63.4:2014 using a 50 u H LISN. Both Lines were observed. The bandwidth of the receiver was 10 kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25^{o}C with a humidity of 58%.

RADIATION INTERFERENCE: The test procedure used was ANSI Standard ANSI C63.4:2014 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3MHz above 1 GHz. The ambient temperature of the EUT was 25^{o}C with a humidity of 58%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.
Example:
Freq (MHz) METER READING + ACF + CABLE = FS
33.20 dBuV + 10.36 dB + 0.9 dB= 44.46 dBuV/m @ 3m
ANSI STANDARD ANSI C63.4:2014 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

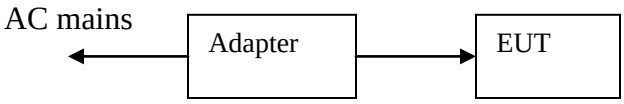
4 Summary of Measurement

4.1 Summary of test result

Test Item	Test Requirement	Standards Paragraph	Result
Spurious Emission	FCC PART 15:2015	Section 15.247	Compliance
Conduction Emission	FCC PART 15:2015	Section 15.207	Compliance
Bandwidth Test	FCC PART 15:2015	Section 15.247	Compliance
Peak Power	FCC PART 15:2015	Section 15.247	Compliance
Power Density	FCC PART 15:2015	Section 15.247	Compliance
Band Edge	FCC PART 15:2015	Section 15.247	Compliance
Antenna Requirement	FCC PART 15:2015	Section 15.203	Compliance

Note: The EUT has been tested as an independent unit, and continuously transmit with maximum power (The adapter be used during Test).

4.2 Test connection



4.3 Assistant equipment used for test

Description	:	Test PC, Notebook
Manufacturer	:	Dell
Model No.	:	D430
FCC DOC approved		

4.4 Test mode

Duty cycle :100% Keeping TX		
Mode	Channel	Frequency (MHz)
OQPSK	Low :CH1	2405
	Middle: CH8	2440
	High: CH16	2480
Note: According exploratory test, EUT will have maximum output power in those data rate. so those data rate were used for all test.		

4.5 Test Conditions

Temperature range	21-25°C
Humidity range	40-75%
Pressure range	86-106kPa

4.6 Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	2.13 dB	Polarize: V
	2.57dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	1×10-9	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2°C	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

5 Spurious Emission

5.1 Radiation Emission

5.1.1 Radiation Emission Limits(15.209)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (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
Above 960	500	3

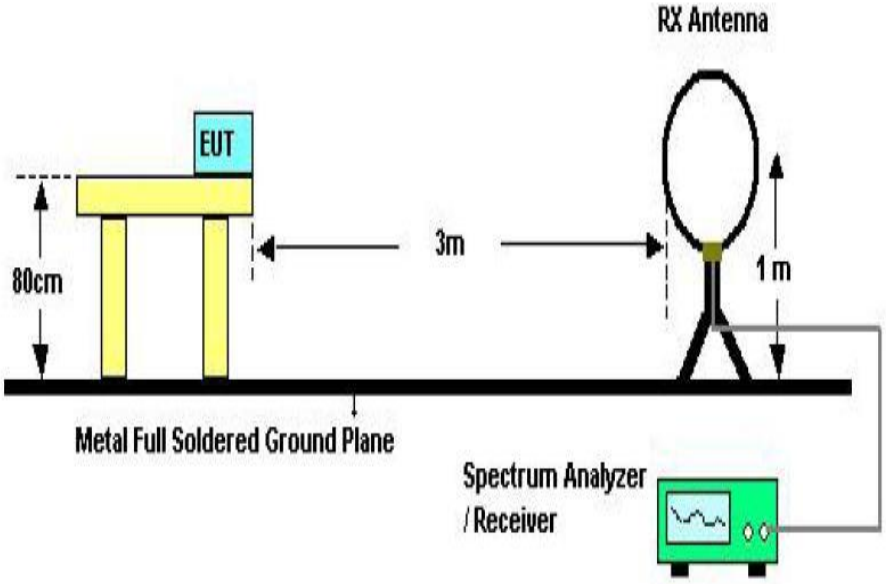
Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

NOTE:

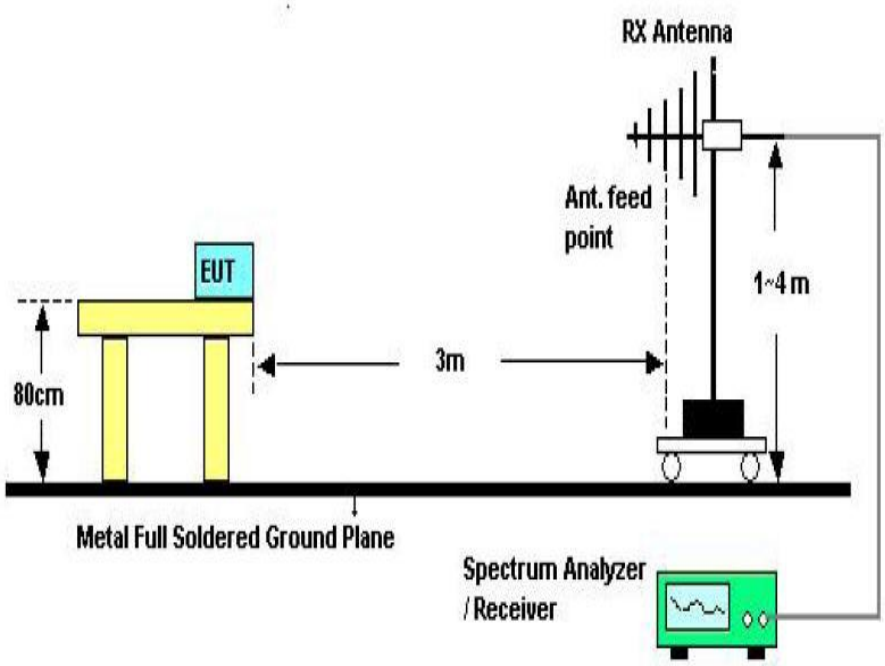
a) The tighter limit applies at the band edges.
b) Emission Level(dB uV/m)=20log Emission Level(uv/m)

5.1.2 Test Setup

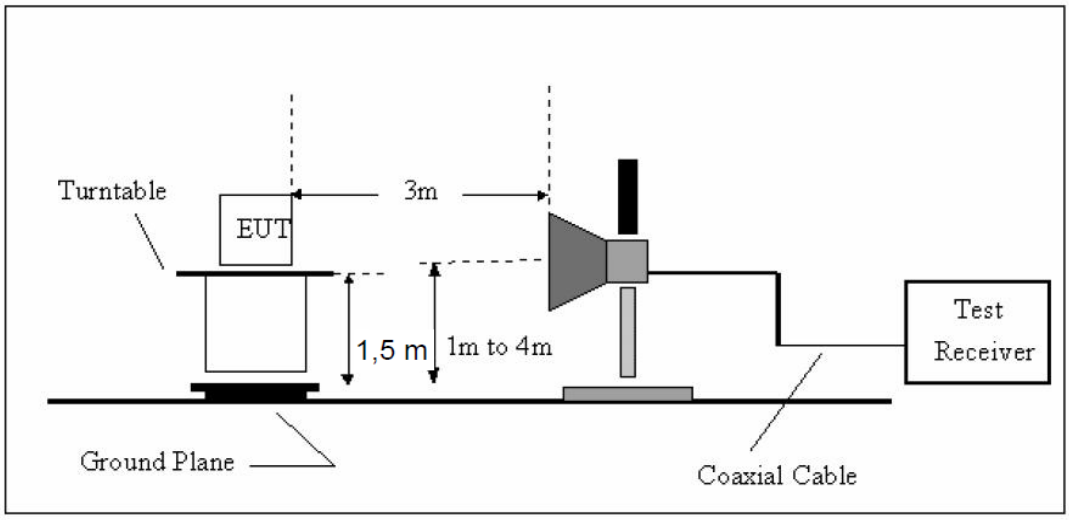
See the next page



Below 30MHz Test Setup



Above 30MHz Test Setup



Above 1GHz Test Setup

5.1.3 Test Procedure

a) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground for below 1GHz and 1.5m high for above1GHz testing, The table was rotated 360 degrees to determine the position of the highest radiation
b) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set of make measurement.
c) The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Quasi Peak Detector mode premeasured
d) If Peak value complies with QP limit below 1GHz.The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.
e) For the actual test configuration, please see the test setup photo.

5.1.4 Test Equipment Setting For emission test Result

9KHz~150KHz	RBW 200Hz	VBW1KHz
150KHz~30MHz	RBW 9KHz	VBW 30KHz
30MHZ~1GHz	RBW 120KHz	VBW 300KHz

Above 1GHz RBW 1MHz VBW 3MHz

5.1.5 Test Condition

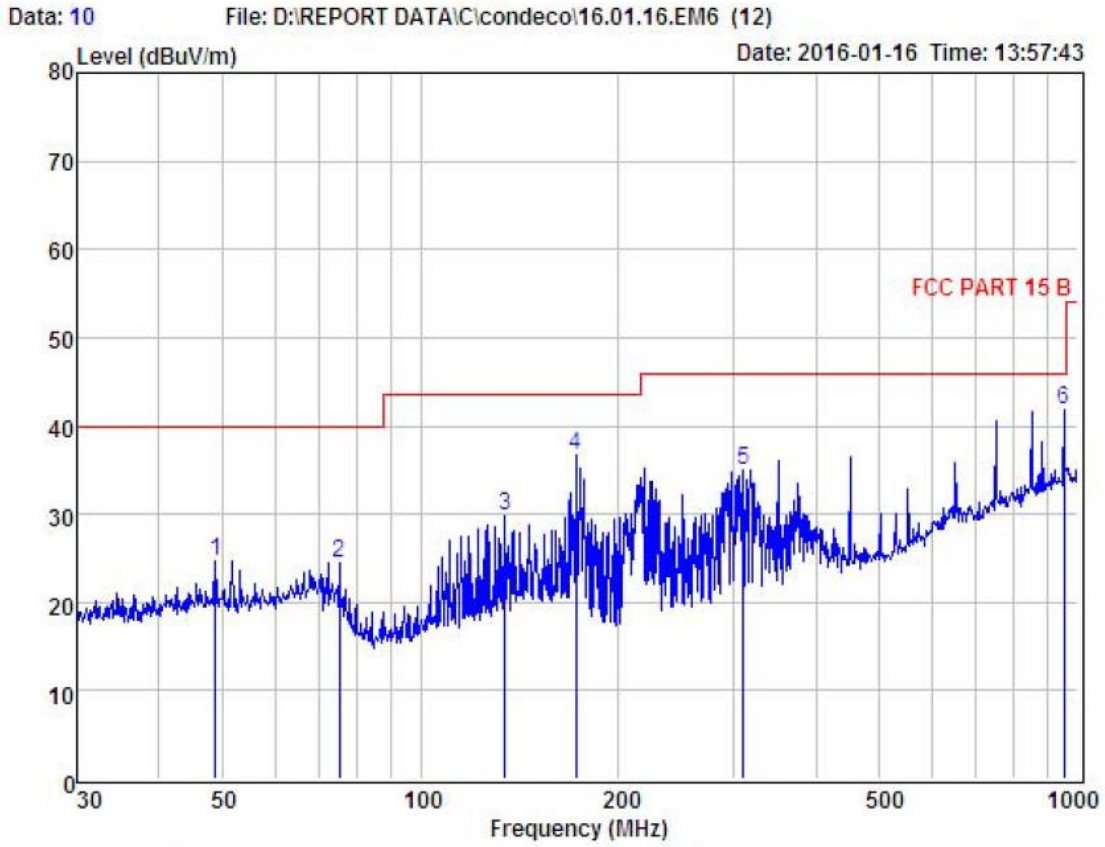
Continuously transmit with maximum power.

5.1.6 Test Result

We have scanned the 9 kHz from 25GHz to the EUT.
Detailed information please see the following page.

From 9 kHz to 30MHz: Conclusion: PASS

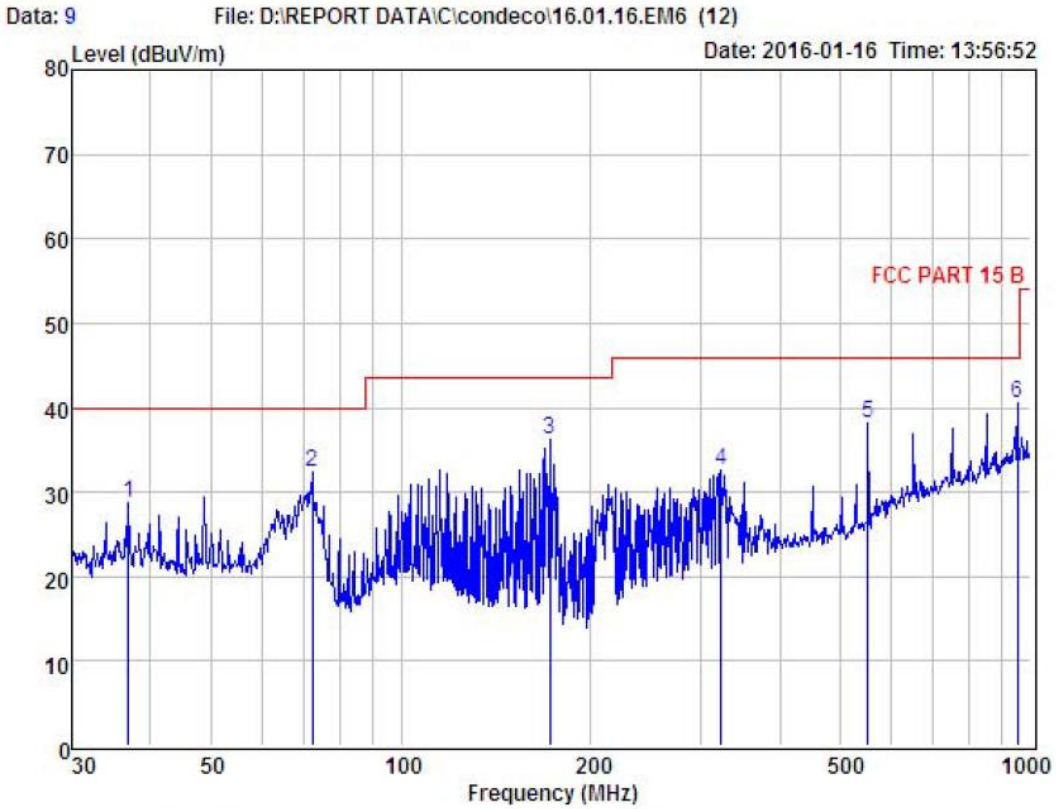
Note: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.



Condition : FCC PART 15 B 3m POL: HORIZONTAL
EUT :
Model No :
Test Mode :
Power : AC 120V/60Hz
Test Engineer :
Remark :
Temp : 24.2℃
Hum : 54%

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	48.67	41.30	13.59	30.25	0.09	24.73	40.00	-15.27	Peak
2	75.18	44.36	9.90	30.09	0.25	24.42	40.00	-15.58	Peak
3	134.56	45.62	13.08	29.44	0.46	29.72	43.50	-13.78	Peak
4	172.60	52.24	12.88	29.08	0.58	36.62	43.50	-6.88	Peak
5	310.00	49.30	13.04	27.97	0.60	34.97	46.00	-11.03	Peak
6	952.09	42.61	22.15	24.97	1.99	41.78	46.00	-4.22	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



Condition : FCC PART 15 B 3m POL: VERTICAL
EUT :
Model No :
Test Mode :
Power : AC 120V/60Hz
Test Engineer :
Remark :
Temp : 24.2℃
Hum : 54%

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	36.90	45.83	13.73	30.83	0.10	28.83	40.00	-11.17	Peak
2	72.34	51.68	10.51	30.12	0.21	32.28	40.00	-7.72	Peak
3	172.60	51.83	12.88	29.08	0.58	36.21	43.50	-7.29	Peak
4	322.19	46.46	13.38	27.88	0.56	32.52	46.00	-13.48	Peak
5	550.95	46.75	17.39	26.80	0.77	38.11	46.00	-7.89	Peak
6	952.09	41.34	22.15	24.97	1.99	40.51	46.00	-5.49	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Above 1GHz

1GHz—25GHz Radiated emission test result									
EUT: Sense Gateway M/N: TIX6-GW									
Power: DC 12V From adapter									
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Store Chu									
Test mode: Tx CH1 2405MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4810	39.5	33.95	10.18	34.26	49.37	74	24.63	PK
2	4810	31.11	33.95	10.18	34.26	40.98	54	13.02	AV
3	7206	/							
4	9608	/							
5	12010	/							
Antenna Polarity: Horizontal									
1	4810	39.23	33.95	10.18	34.26	49.1	74	24.9	PK
2	4810	30.61	33.95	10.18	34.26	40.48	54	13.52	AV
3	7206	/							
4	9608	/							
5	12010	/							
Note: 1,Measuring frequency from 1GHz to 25GHz 2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2,Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

1GHz—25GHz Radiated emission test result									
EUT: Sense Gateway M/N: TIX6-GW									
Power: DC 12V From adapter									
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Store Chu									
Test mode: Tx CH8 2440MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880	41.03	33.93	10.2	34.29	50.87	74	23.13	PK
2	4880	31.21	33.93	10.2	34.29	41.05	54	12.95	AV
3	7320	/							
4	9760	/							
5	12200	/							
Antenna Polarity: Horizontal									
1	4880	40.73	33.93	10.2	34.29	50.57	74	23.43	PK
2	4880	32.12	33.93	10.2	34.29	41.96	54	12.04	AV
3	7320	/							
4	9760	/							
5	12200	/							
Note: 1, Measuring frequency from 1GHz to 25GHz 2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2,Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

1GHz—25GHz Radiated emission test result									
EUT: Sense Gateway M/N: TIX6-GW									
Power: DC 12V From adapter									
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Store Chu									
Test mode: Tx CH16 2480MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss (dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960	41.71	33.98	10.22	34.25	51.66	74	22.34	PK
2	4960	32.22	33.98	10.22	34.25	42.17	54	11.83	AV
3	7440	/							
4	9920	/							
5	12400	/							
Antenna Polarity: Horizontal									
1	4960	42.24	33.98	10.22	34.25	52.19	74	21.81	PK
2	4960	31.91	33.98	10.22	34.25	41.86	54	12.14	AV
3	7440	/							
4	9920	/							
5	12400	/							
Note: 1, Measuring frequency from 1GHz to 25GHz 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2,Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

6 POWER LINE CONDUCTED EMISSION

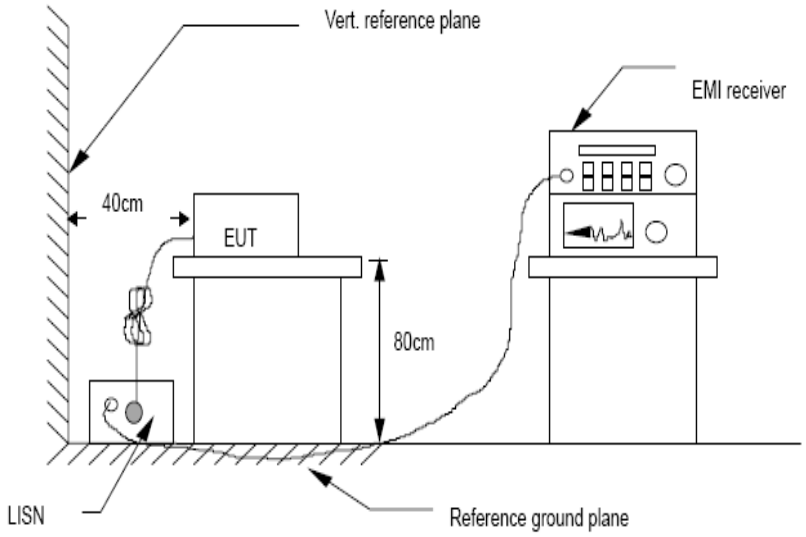
6.1 Conducted Emission Limits(15.207)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.The limit decreases in line with the logarithm of the frequency in the rang of 0.15 to 0.50 MHz.

6.2 Test Setup



6.3 Test Procedure

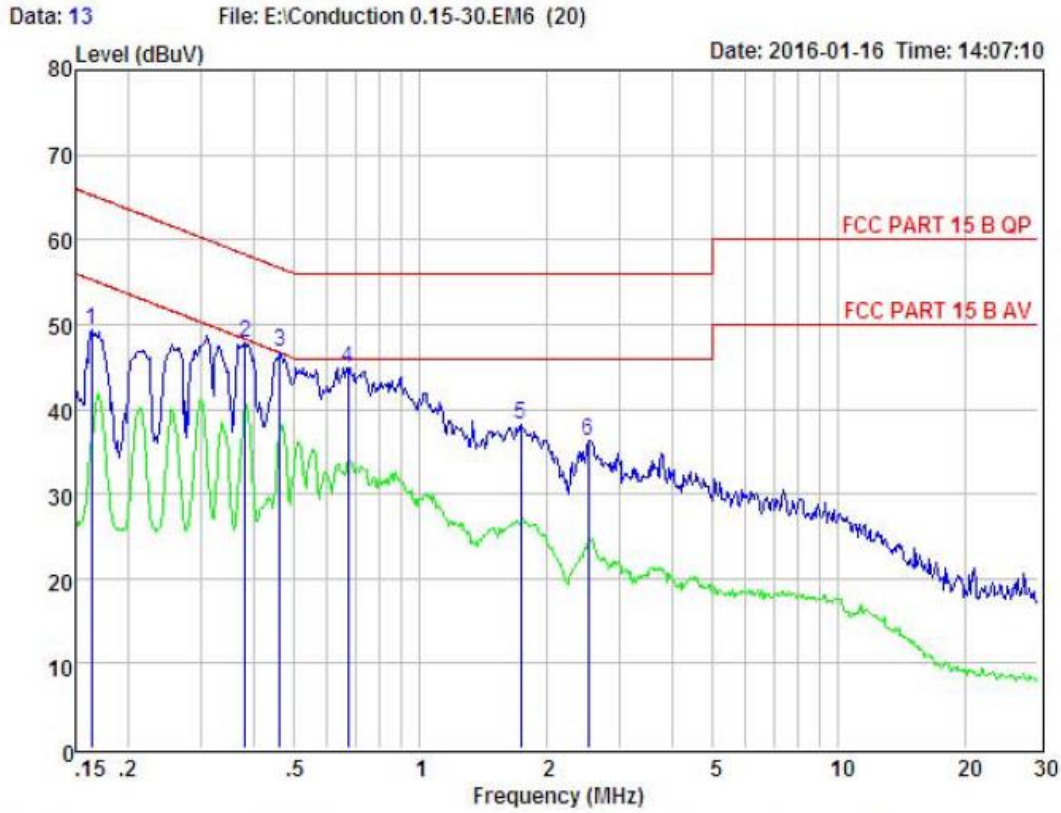
The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4:2014 on Conducted Emission Measurement.
The bandwidth of test receiver (R & S ESCI) is set at 9 kHz.

6.4 Test Results

TX MODE
Worse case is reported only

PASS

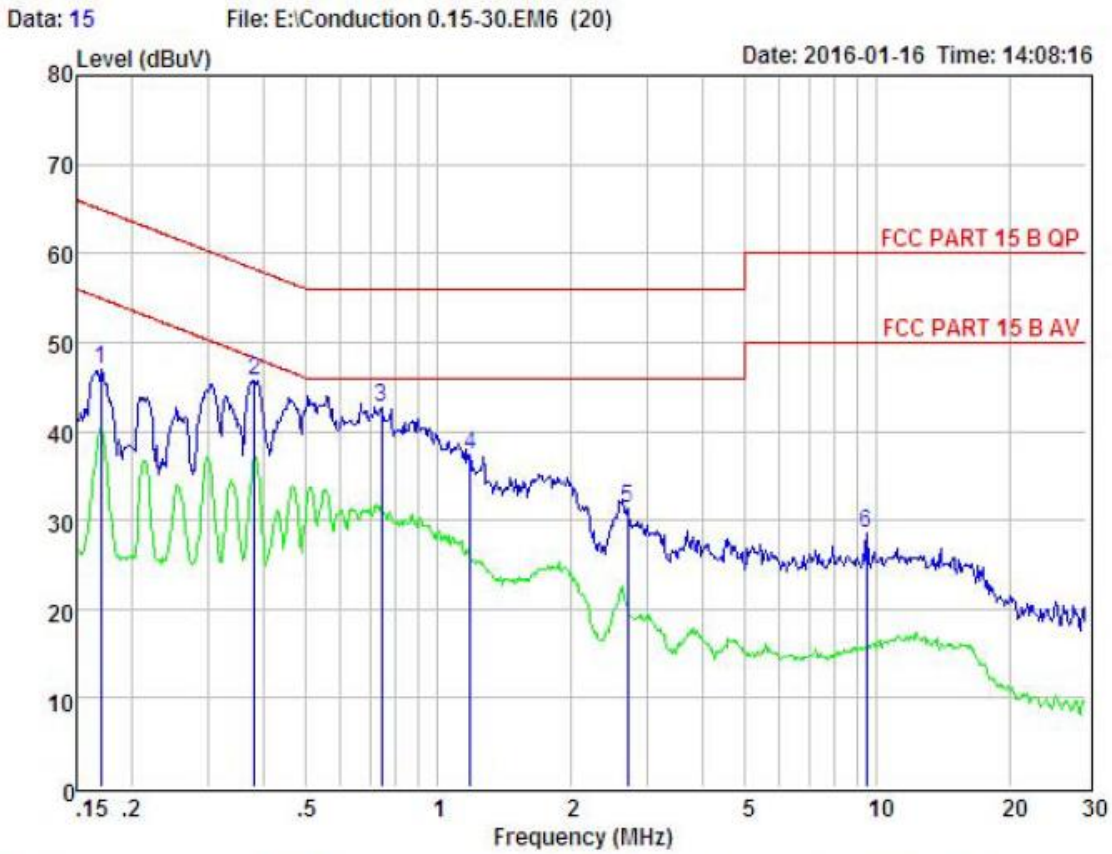
Detailed information please see the following page.



Condition : FCC PART 15 B QP POL: LINE Temp:25.7 ℃ Hum:51 %
EUT :
Model No :
Test Mode :
Power : AC 120V/60Hz
Test Engineer:
Remark :

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.164	39.71	0.03	-9.52	0.10	49.36	65.25	-15.89	Peak
2	0.381	38.13	0.03	-9.57	0.10	47.83	58.25	-10.42	Peak
3	0.461	37.03	0.03	-9.58	0.10	46.74	56.67	-9.93	Peak
4	0.672	35.20	0.04	-9.59	0.10	44.93	56.00	-11.07	Peak
5	1.744	28.24	0.05	-9.70	0.10	38.09	56.00	-17.91	Peak
6	2.527	26.32	0.06	-9.75	0.11	36.24	56.00	-19.76	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



Condition : FCC PART 15 B QP POL: NEUTRAL Temp:25.7 ℃ Hum:51 %
EUT :
Model No :
Test Mode :
Power : AC 120V/60Hz
Test Engineer:
Remark :

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.170	37.41	0.03	-9.52	0.10	47.06	64.94	-17.88	Peak
2	0.381	36.04	0.03	-9.57	0.10	45.74	58.25	-12.51	Peak
3	0.743	32.96	0.04	-9.59	0.10	42.69	56.00	-13.31	Peak
4	1.184	27.64	0.04	-9.65	0.10	37.43	56.00	-18.57	Peak
5	2.707	21.38	0.07	-9.77	0.11	31.33	56.00	-24.67	Peak
6	9.451	18.29	0.17	-9.94	0.19	28.59	60.00	-31.41	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

7 Conducted Maximum Output Power

7.1 Test limit

Please refer section 15.247.

7.2 Test Procedure

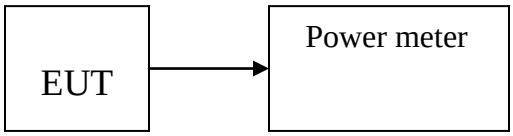
Details see the KDB558074 Meas Guidance V03

7.2.1 Place the EUT on the table and set it in transmitting mode.

7.2.2 Measure out each mode and each bands peak output power of EUT.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset.
Details see the KDB558074 DTS Meas Guidance V03

7.3 Test Setup



7.4 Test Results

PASS

Detailed information please see the following page.

EUT: Sense Gateway M/N: TIX6-GW				
Test date: 2016-01-06 Test site: RF site Tested by: Eric Huang				
Mode	Frequency (MHz)	PK Output power(dBm)	Limit (dBm)	Margin (dB)
OQPSK	CH1: 2405	8.35	30	21.65
	CH8: 2440	9.77	30	20.23
	CH16: 2480	10.10	30	19.99
Conclusion: PASS				

8 PEAK POWER SPECTRAL DENSITY

8.1 Test limit

8.1.1 Please refer section 15.247.

8.1.2 For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

8.1.3 The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

8.2 Method of measurement

Details see the KDB558074 DTS Meas Guidance V03

8.2.1 Place the EUT on the table and set it in transmitting mode.

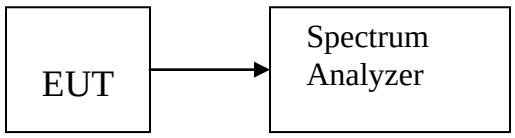
8.2.2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

8.2.3 Set the spectrum analyzer as RBW = 100kHz, VBW = 300kHz, span=5-30% *EBW, detail see the test plot.

8.2.4 Record the max reading.

8.2.5 Repeat the above procedure until the measurements for all frequencies are completed.

8.3 Test Setup



8.4 Test Results

PASS.

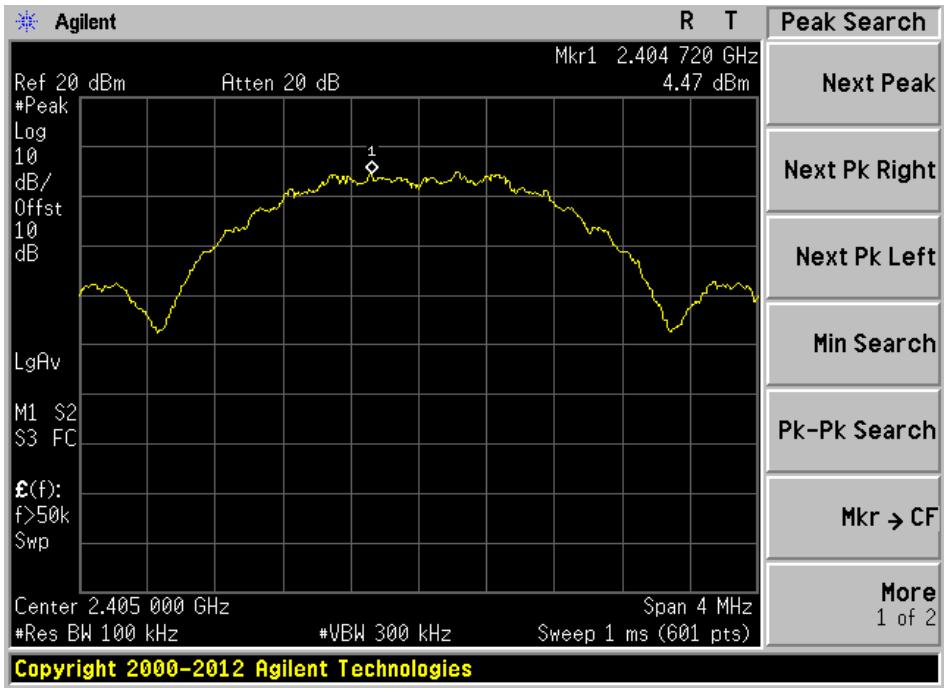
Detailed information please see the following page.

EUT: Sense Gateway M/N: TIX6-GW				
Test date: 2016-01-06 Test site: RF site Tested by: Eric Huang				
Mode	Frequency (MHz)	PK Output power(dBm)	Limit (dBm)	Result
OQPSK	CH1: 2405	4.47	8	PASS
	CH8: 2440	6.24	8	PASS
	CH16: 2480	4.27	8	PASS
Conclusion: PASS				

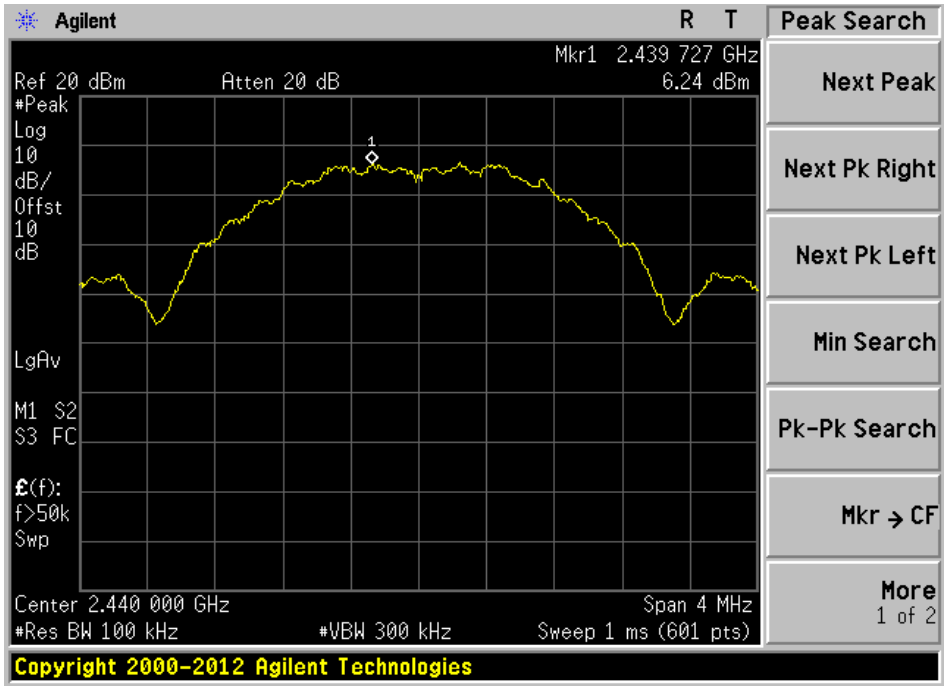
.

GFSK :

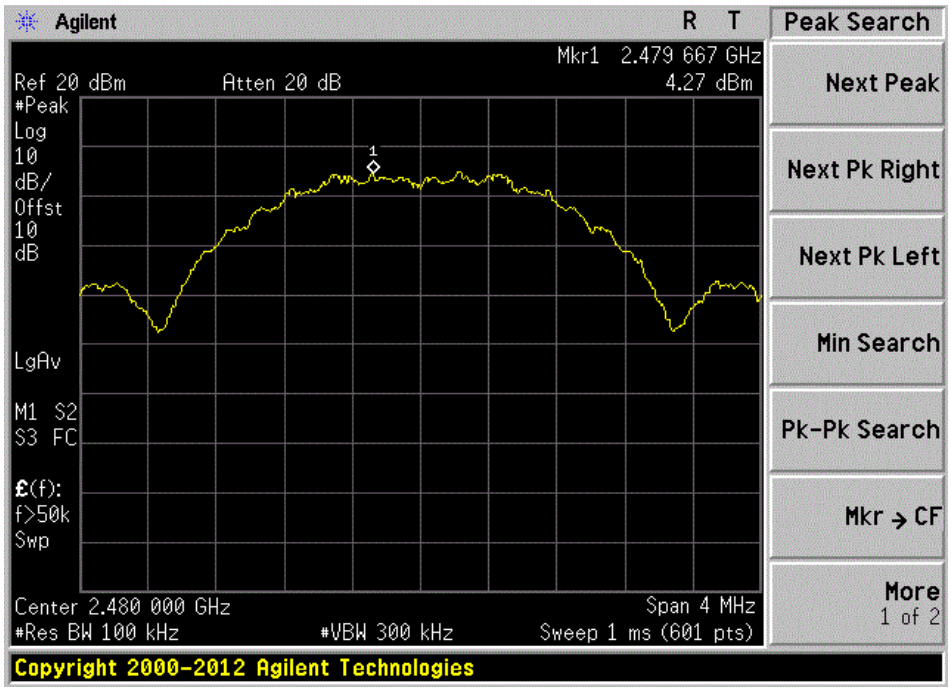
CH Low :



CH Mid:



CH High:


Agilent
R T
Peak Search
Mkr1 2.479 667 GHz
4.27 dBm
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10
dB
LgAv
M1 S2
S3 FC
£(f):
f>50k
Swp
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Center 2.480 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 4 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2012 Agilent Technologies

9 Bandwidth

9.1 Test limit

Please refer section 15.247

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500 kHz.

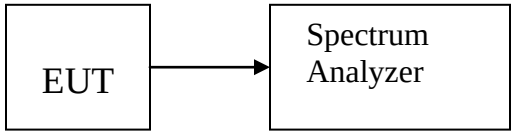
9.2 Method of measurement

Details see the KDB558074 D01 Meas Guidance

a) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

b) The test receiver set RBW = 100 kHz, VBW≥3RBW, Sweep time set auto, detail see the test plot.

9.3 Test Setup



9.4 Test Results

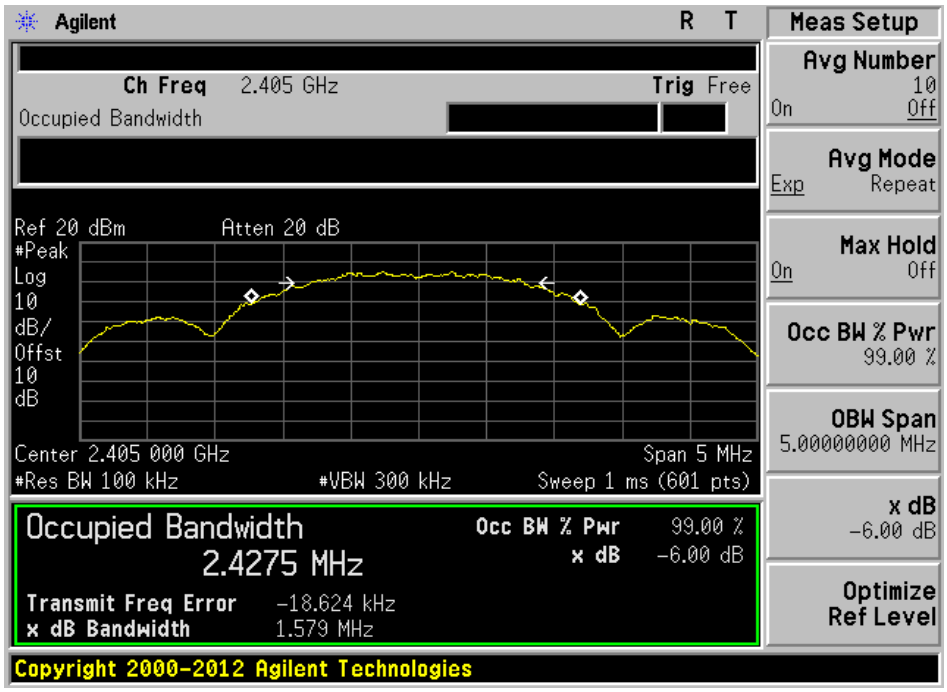
PASS.

Detailed information please see the following page.

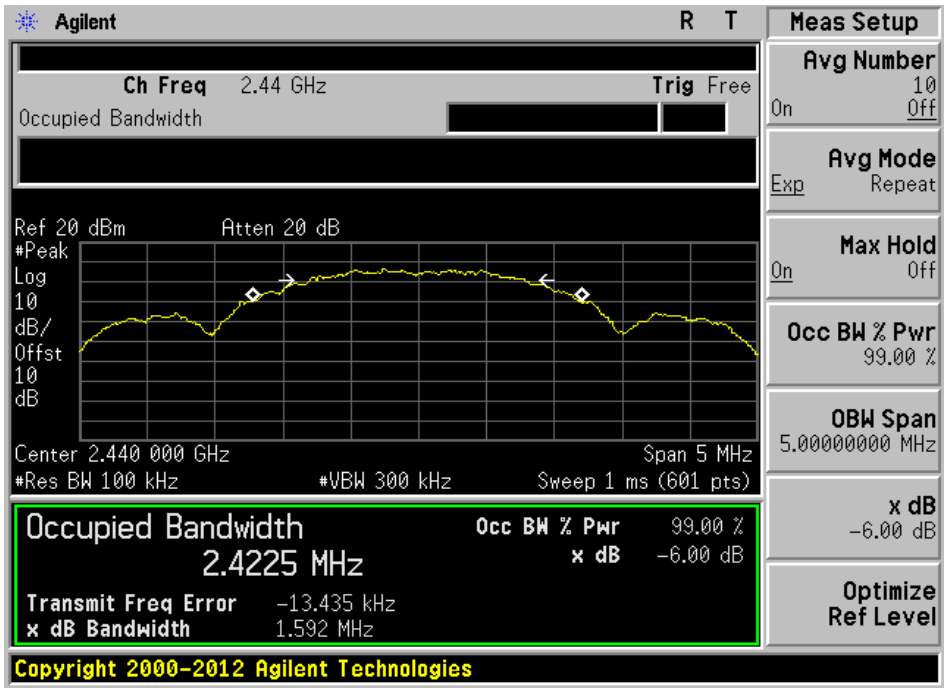
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
OQPSK:					
Low	2405	1.579	/	0.5	PASS
Mid	2440	1.592	/	0.5	PASS
High	2480	1.608	/	0.5	PASS

GFSK:

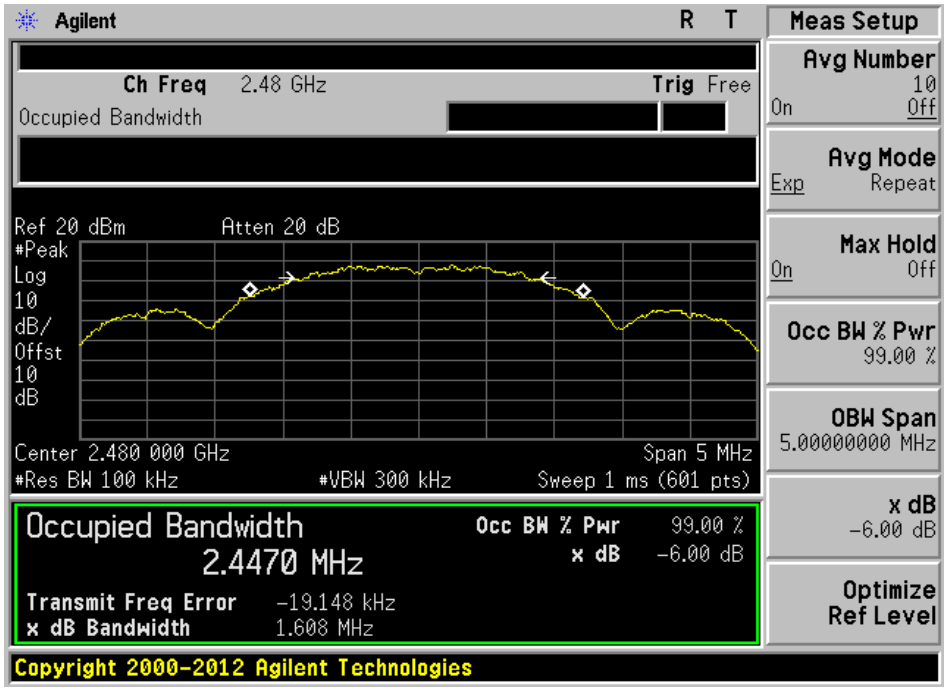
CH Low :



CH Mid :



CH High :


Agilent
R T
Meas Setup
Ch Freq 2.48 GHz
Trig Free
Occupied Bandwidth
Avg Number
10
On Off
Avg Mode
Exp Repeat
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10
dB
Max Hold
On Off
Occ BW % Pwr
99.00 %
OBW Span
5.00000000 MHz
Center 2.480 000 GHz
Span 5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1 ms (601 pts)
Occupied Bandwidth
2.4470 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
x dB
-6.00 dB
Transmit Freq Error -19.148 kHz
x dB Bandwidth 1.608 MHz
Optimize
Ref Level
Copyright 2000-2012 Agilent Technologies

10 Band Edge Check

10.1 Test limit

Please refer section 15.247.

10.2 Test Procedure

12.2.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

12.2.2 Check the spurious emissions out of band.

12.2.3 RBW 1MHz ,VBW 3MHz ,peak detector for peak value , RBW=1MHz ,VBW =3MHz ,RMS detector for AV value.

10.3 Test Setup

Same as 5.2.2.

10.4 Test Result

PASS.

Detailed information please see the following page.

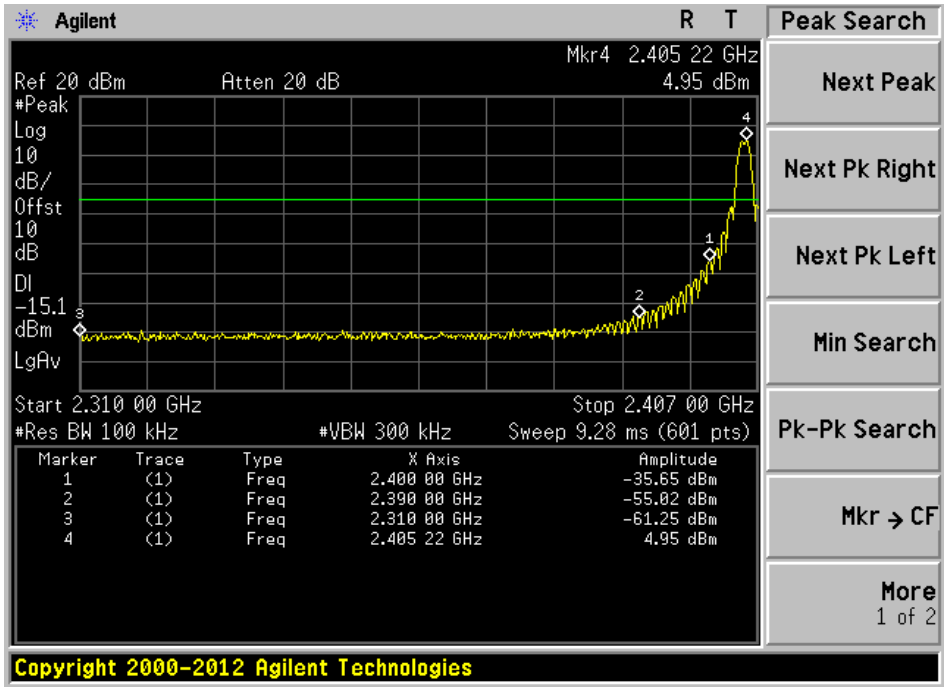
Radiated Method:

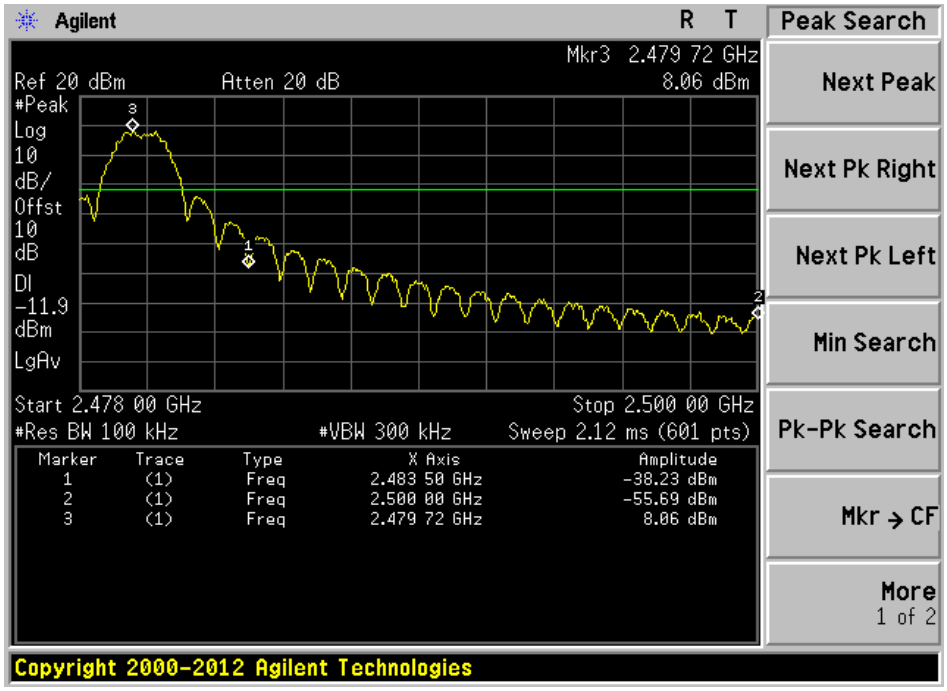
Band Edge Test result								
EUT: Sense Gateway M/N: TIX6-GW								
Power: DC 12V from adapter								
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	43.39	27.62	3.92	34.97	39.96	74	34.04	**PK**
2390	--	27.62	3.92	34.97	--	54	--	AV
Antenna Polarity: Horizontal								
2390	42.88	27.62	3.92	34.97	39.45	74	34.55	**PK**
2390	--	27.62	3.92	34.97	--	54	--	AV
Note: 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Sense Gateway M/N: TIX6-GW								
Power: DC 12V from adapter								
Test date: 2016-01-06 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	42.72	27.89	4	34.97	39.64	74	34.36	**PK**
2483.5		--	--	--	--	54	--	AV
Antenna Polarity: Horizontal								
2483.5	42.91	27.89	4	34.97	39.83	74	34.17	**PK**
2483.5		--	--	--	--	54	--	AV

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS
3, Result = Read level + Antenna factor + cable loss-Amp factor
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Conducted Method:





11 Antenna Requirement

11.1 Standard Requirement

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 shall be considered sufficient to comply with the provisions of this Section. 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.

11.2 Antenna Connected Construction

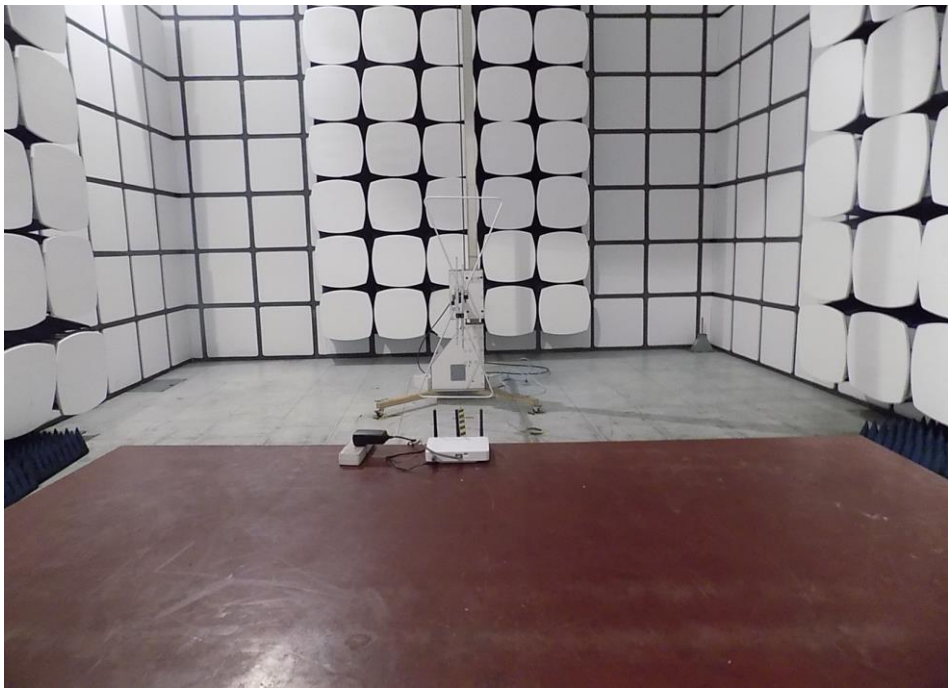
The antenna connector is unique antenna and no consideration of replacement. Please see EUT photo for details.

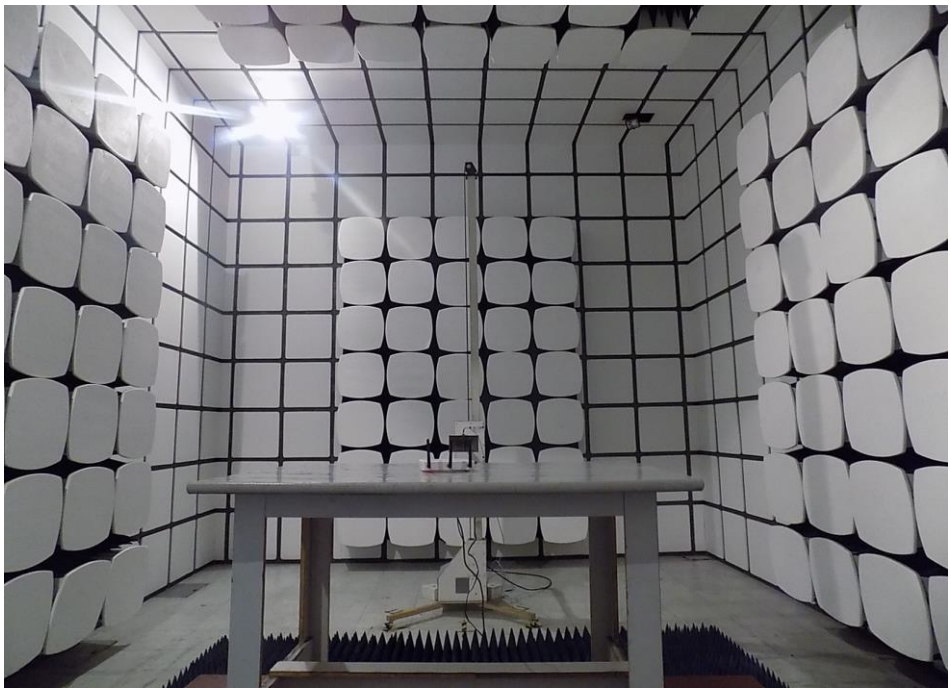
11.3 Result

It complies with the standard requirement.

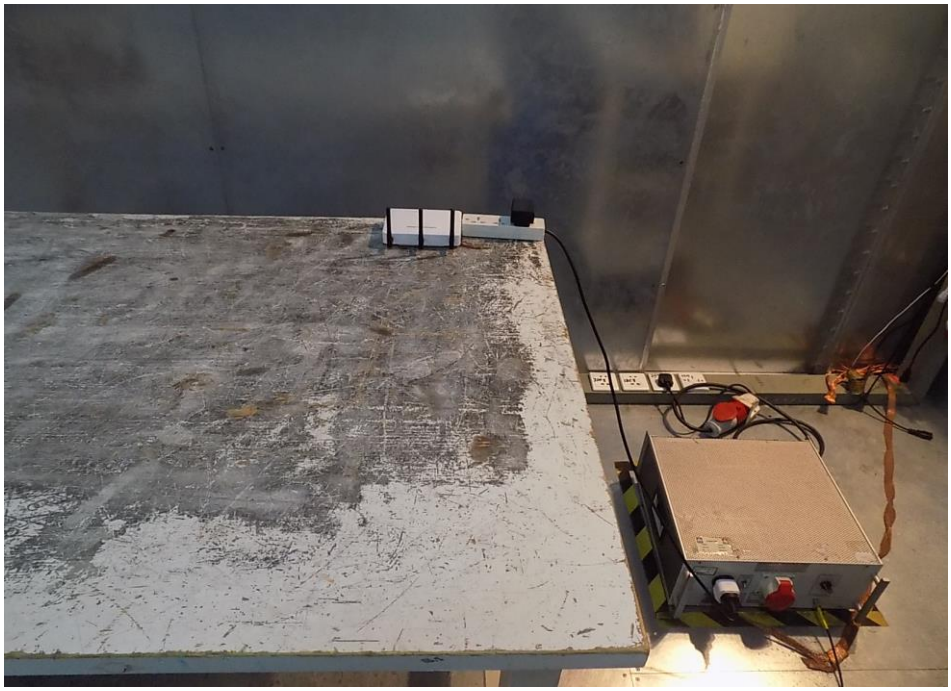
12Test setup photo

12.1 Photos of Radiated emission





12.2Photos of Conducted Emission test



---------END OF THE REPORT-------