S T S LAB

FCC TEST REPORT

Report No: STS1901091W01

Issued for

Hopkins Manufacturing Corporation

428 Peyton,#2,1157,Emporia,Kansas 66801,United States

Product Name:	LED Wireless Magnetic Tow Light Kit
Brand Name:	Blazer
Model Name:	C6304HCO
Series Model:	N/A
FCC ID:	TJJC6304HCO
Test Standard:	FCC Part 15.249

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TEST RESULT CERTIFICATION

Applicant's name.....:	Hopkins Manufacturing Corporation
Address.....:	428 Peyton,#2,1157,Emporia,Kansas 66801,United States
Manufacture's Name .....:	HC Oriental Textile Co.,Ltd
Address.....:	No.15, Fuyi Road, Xiaolan, Zhongshan, Guangdong, China 528415

Product description

Product Name .....:	LED Wireless Magnetic Tow Light Kit
Brand Name .....:	Blazer
Model Name.....:	C6304HCO
Series Model .....:	N/A
Test Standards.....:	FCC Part15.249
Test procedure .....:	ANSI C63.10-2013

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test.....:	
Date of performance of tests ..:	18 Jan. 2019 ~ 21 Feb. 2019
Date of Issue.....:	21 Feb. 2019
Test Result .....:	**Pass**

Testing Engineer : (Chris chen)

Technical Manager : (Sunday Hu)

Authorized Signatory : (Vita Li)

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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	21 Feb. 2019	STS1901091W01	ALL	Initial Issue

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 15.249 , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	
15.203	Antenna Requirement	Pass	
15.249 (a)	Radiated Spurious Emission	Pass	
15.249 (d)	Radiated Band Edge Emission	Pass	
15.215	20dB Bandwidth	Pass	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2)All tests are according to ANSI C63.10-2013

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1.1 TEST FACTORY

Shenzhen STS Test Services Co., Ltd.
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FCC Registration No.: 625569
IC Registration No.: 12108A; A2LA Certificate No.: 4338.01;

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	RF output power,conducted	±0.71dB
2	Unwanted Emissions,conducted	±0.63dB
3	All emissions,radiated 30-200MHz	±3.43dB
4	All emissions,radiated 200MHz-1GHz	±3.57dB
5	All emissions,radiated>1G	±4.13dB
6	Conducted Emission(9KHz-150KHz)	±3.18dB
7	Conducted Emission(150KHz-30MHz)	±2.70dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Product Name</td><td>LED Wireless Magnetic Tow Light Kit</td></tr>
<tr><td>Trade Name</td><td>Blazer</td></tr>
<tr><td>Model Name</td><td>C6304HCO</td></tr>
<tr><td>Series Model</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is LED Wireless Magnetic Tow Light Kit
<table>
<tr><td>Operation Frequency:</td><td>2402-2479MHz</td></tr>
<tr><td>Modulation Type:</td><td>GFSK</td></tr>
<tr><td>Antenna Designation:</td><td>DIPOLE Antenna</td></tr>
<tr><td>Antenna Gain(Peak):</td><td>2 dBi</td></tr>
</table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Channel List</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Battery</td><td>Input:DC 12V</td></tr>
<tr><td>Hardware version number</td><td>CZM001</td></tr>
<tr><td>Software version number</td><td>SV001</td></tr>
</table>

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User’s Manual.

2.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2402	2	2440
3	2479		

3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	Blazer	C6304HCO	DIPOLE	NA	2	Antenna

2.2 DESCRIPTION OF TEST MODES

For conducted test items and radiated spurious emissions
Each of these EUT operation mode(s) or test configuration mode(s) mentioned below was evaluated respectively..

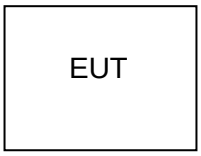
Pretest Mode	Description	Data/Modulation
Mode 1	TX CH01	GFSK
Mode 2	TX CH02	GFSK
Mode 3	TX CH03	GFSK

Note:
(1) All above mode have been measurement, only worst data was reported.
(2) 12VDC vehicle battery input

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

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

Radiated Spurious Emission Test



2.4 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.	Serial No.	Note
N/A	N/A	N/A	N/A	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
N/A	N/A	N/A	N/A	N/A

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2018.10.13	2019.10.12
Signal Analyzer	Agilent	N9020A	MY51110105	2018.03.08	2019.03.07
Active loop Antenna	ZHINAN	ZN30900C	16035	2018.03.11	2021.03.10
Bilog Antenna	TESEQ	CBL6111D	34678	2017.11.02	2020.11.1
Horn Antenna	SCHWARZBECK	BBHA 9120D(1201)	9120D-1343	2018.10.19	2021.10.18
SHF-EHF Horn Antenna (15G-40GHz)	A-INFO	LB-180400-KF	J211020657	2018.03.11	2019.03.10
Pre-mplifier(0.1M-3GHz)	EM	EM330	060665	2018.10.13	2019.10.12
PreAmplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2018.10.13	2019.10.12
Temperature & Humitidy	HH660	Mieo	N/A	2018.10.11	2019.10.10
turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
USB RF power sensor	DARE	RPR3006W	15I00041SNO03	2018.10.13	2019.10.12
Signal Analyzer	Agilent	N9020A	MY49100060	2018.10.13	2019.10.12
Temperature & Humitidy	HH660	Mieo	N/A	2018.10.11	2019.10.10

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 15.249 limit in the table below has to be followed.

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

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

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

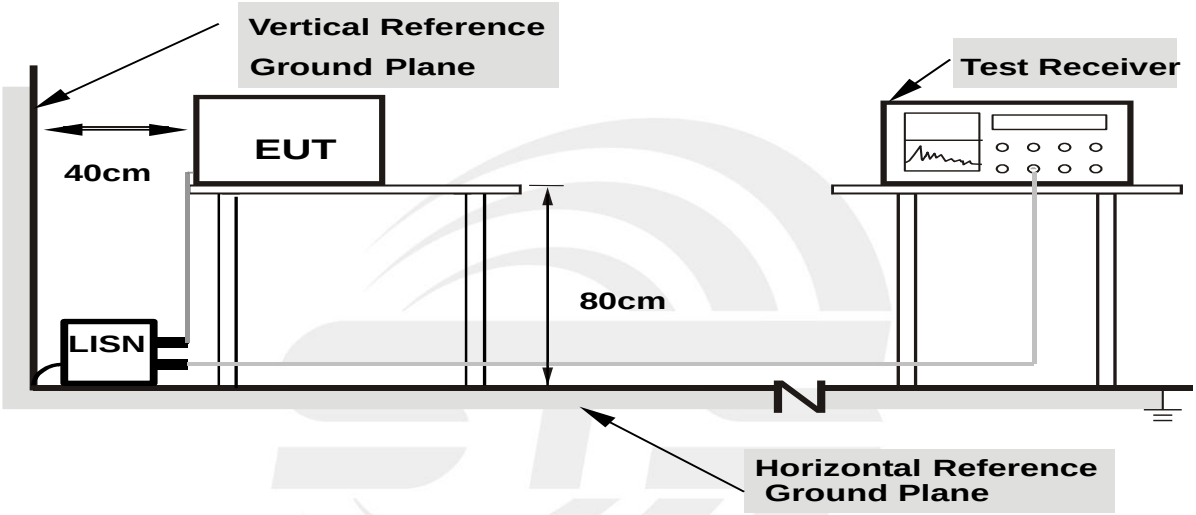
The following table is the setting of the receiver

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

3.1.2 TEST PROCEDURE

a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments 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.

3.1.3 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.5 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	54%
Test Voltage:	AC 120V/60Hz	Phase:	L/N
Test Mode:	N/A		

Note:the EUT is power by vehicle battery, this test item is not apply.

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on Part 15.249 and the Part 15.209(a) limit in the table below has to be followed.

Standard FCC 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
960~1000	500	3
Above 1000	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	3

Standard FCC 15.249

Frequency of Emission (MHz)	**Field Strength of fundamental (millivolts /meter)**	**Field Strength of Harmonics (microvolts/meter)**
900~928	50	500
2400~2483.5	50	500
5725~5875	50	500
24000~242500	250	2500

Notes:

(1) 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 to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Spectrum Parameter	Setting
Detector	Peak/AV
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB (emission in restricted band)	>20BW
VB (emission in restricted band)	=3xRB

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
	90kHz~110kHz / RB 200Hz for QP
	110kHz~490kHz / RB 200Hz for PK & AV
	490kHz~30MHz / RB 9kHz for QP
	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

a. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of arotating 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 3m shall 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 test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.

d. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

e. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform (Below 1GHz)

f. 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 Peak & AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(Above 1GHz)

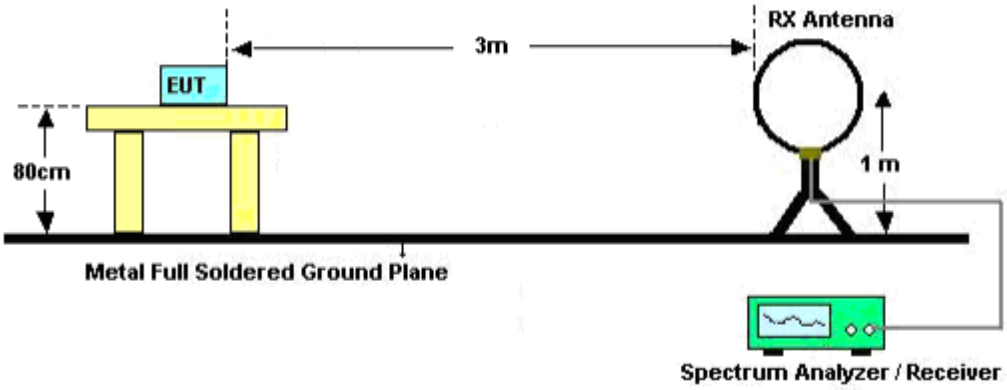
g. For the actual test configuration, please refer to the related Item –EUT Test Photos.
Note: Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

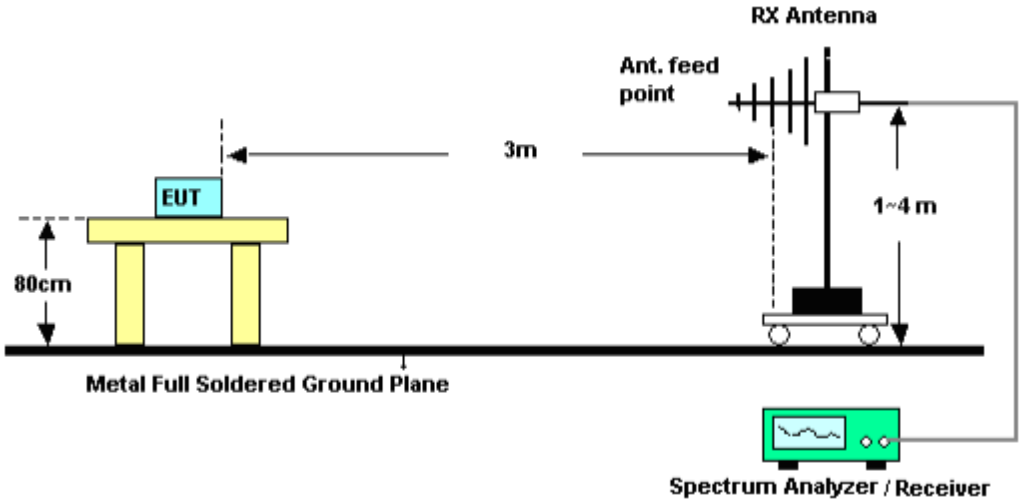
No deviation

3.2.4 TEST SETUP

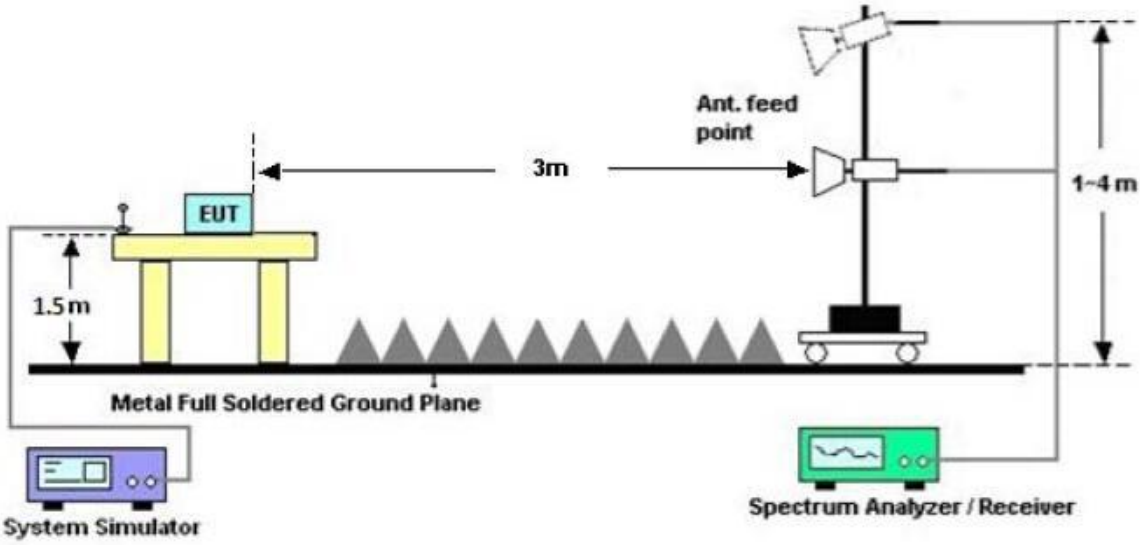
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

Factor=AF+CL-AG

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3.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

Below 30 MHz

Temperature:	25.8 ℃	Relative Humidity:	51%
Test Voltage:	DC 12V	Polarization:	---
Test Mode:	TX Mode		

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

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

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

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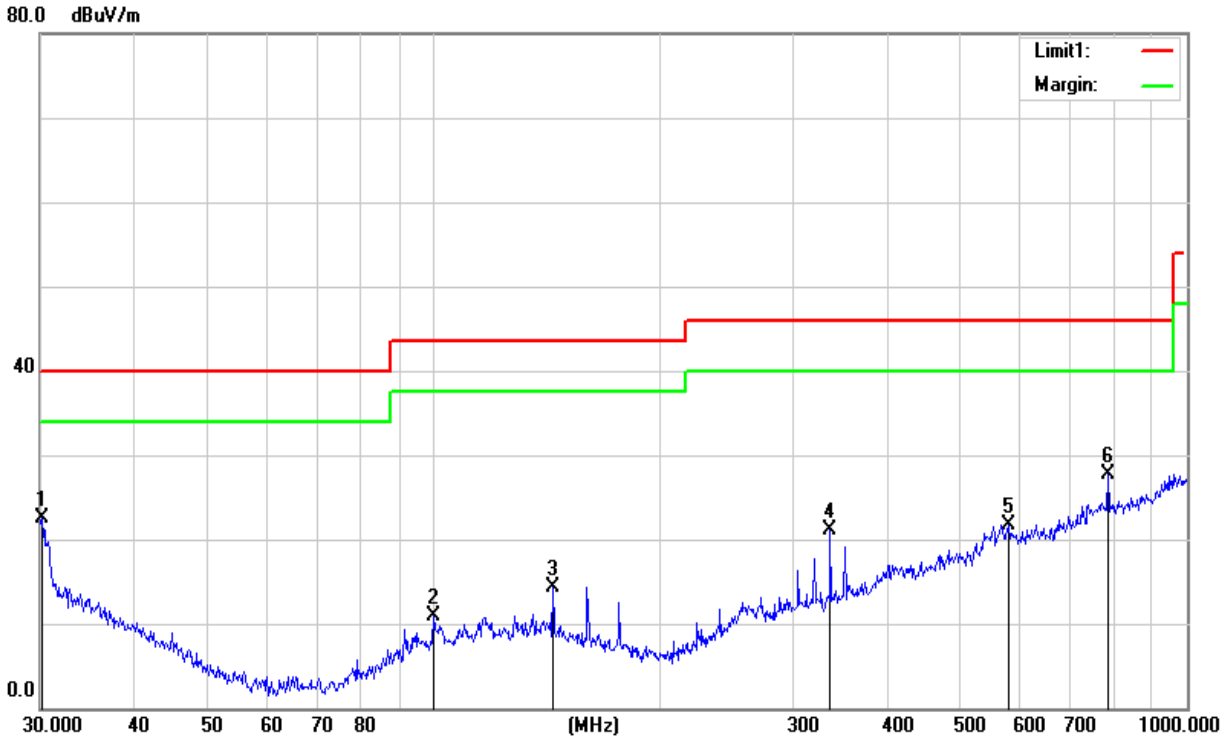
Between 30MHz – 1000 MHz Radiation Spurious

Temperature:	25.8 ℃	Relative Humidity:	51%
Test Voltage:	DC 12V	Phase:	Horizontal
Test Mode:	Mode 1/2/3(Model 1 worst)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
30.2111	33.89	-11.30	22.59	40.00	-17.41	QP
99.8777	30.09	-19.20	10.89	43.50	-32.61	QP
143.8295	32.07	-17.69	14.38	43.50	-29.12	QP
336.0352	35.14	-14.05	21.09	46.00	-24.91	QP
580.7026	28.51	-6.73	21.78	46.00	-24.22	QP
785.0935	30.84	-3.20	27.64	46.00	-18.36	QP

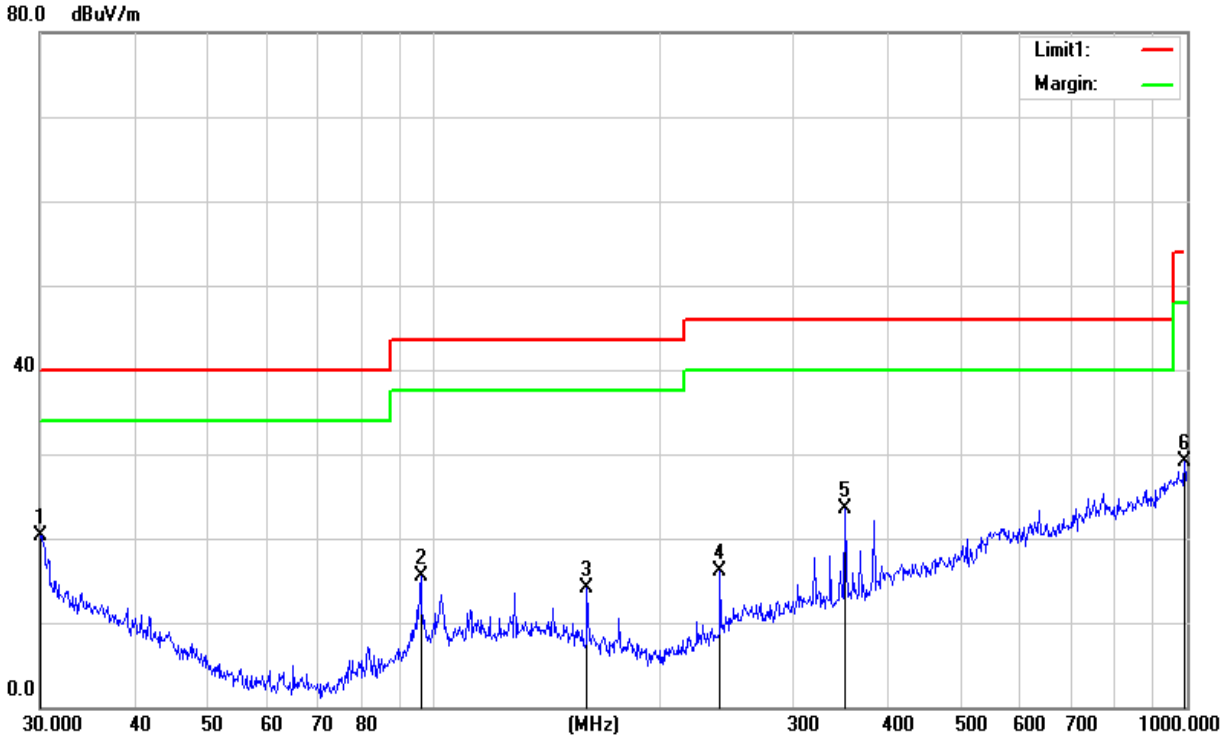
Remark:
1. All readings are Quasi-Peak .
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	25.8 ℃	Relative Humidity:	51%
Test Voltage:	DC 12V	Phase:	Vertical
Test Mode:	Mode 1/2/3(Model 1 worst)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
30.0000	31.51	-11.19	20.32	40.00	-19.68	QP
96.0986	35.14	-19.58	15.56	43.50	-27.94	QP
159.7844	32.58	-18.49	14.09	43.50	-29.41	QP
239.9873	33.91	-17.76	16.15	46.00	-29.85	QP
351.7078	37.05	-13.51	23.54	46.00	-22.46	QP
993.0113	29.12	-0.10	29.02	54.00	-24.98	QP

Remark:
1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor)–Limit



Fundamental frequency:

PK

Frequency (MHz)	Reading (dBμV/m)	Amplifier	Loss	Antenna Factor	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin(dB)	Polarization
	PEAK	（dB）	（dB）	（dB/m）		PEAK	PEAK	PEAK	
2402	93.480	44.40	6.03	27.60	-10.77	82.71	114	-31.29	Vertical
2402	93.294	44.40	6.03	27.60	-10.77	82.53	114	-31.47	Horizontal
2440	92.687	44.40	6.04	27.63	-10.73	81.96	114	-32.04	Vertical
2440	92.490	44.40	6.04	27.63	-10.73	81.76	114	-32.24	Horizontal
2479	92.670	44.40	6.06	27.66	-10.68	81.99	114	-32.01	Vertical
2479	92.491	44.40	6.06	27.66	-10.68	81.81	114	-32.19	Horizontal

AV

Frequency (MHz)	Reading (dBμV/m)	Amplifier	Loss	Antenna Factor	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin(dB)	Polarization
	AV	（dB）	（dB）	（dB/m）		AV	PEAK	PEAK	
2402	76.870	44.40	6.03	27.60	-10.77	66.10	94	-27.90	Vertical
2402	75.821	44.40	6.03	27.60	-10.77	65.05	94	-28.95	Horizontal
2440	76.278	44.40	6.04	27.63	-10.73	65.55	94	-28.45	Vertical
2440	74.840	44.40	6.04	27.63	-10.73	64.11	94	-29.89	Horizontal
2479	75.182	44.40	6.06	27.66	-10.68	64.51	94	-29.49	Vertical
2479	73.866	44.40	6.06	27.66	-10.68	63.19	94	-30.81	Horizontal

Note: RBW=1MHz; VBW=3xRBW PK detector is for PK value ,RBW=1MHz; VBW=10Hz PK detector is for AV value

Above 1G Radiation Spurious

Frequency (MHz)	Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Corrected Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
Low Channel (2402 MHz)										
3264.85	48.67	44.70	6.70	28.20	-9.80	38.87	74.00	-35.13	PK	Vertical
3264.85	38.53	44.70	6.70	28.20	-9.80	28.73	54.00	-25.27	AV	Vertical
3264.56	48.97	44.70	6.70	28.20	-9.80	39.17	74.00	-34.83	PK	Horizontal
3264.56	38.47	44.70	6.70	28.20	-9.80	28.67	54.00	-25.33	AV	Horizontal
4804.47	58.56	44.20	9.04	31.60	-3.56	55.00	74.00	-19.00	PK	Vertical
4804.47	38.12	44.20	9.04	31.60	-3.56	34.56	54.00	-19.44	AV	Vertical
4804.53	59.06	44.20	9.04	31.60	-3.56	55.50	74.00	-18.50	PK	Horizontal
4804.53	39.43	44.20	9.04	31.60	-3.56	35.87	54.00	-18.13	AV	Horizontal
5359.61	45.87	44.20	9.86	32.00	-2.34	43.53	74.00	-30.47	PK	Vertical
5359.61	37.23	44.20	9.86	32.00	-2.34	34.89	54.00	-19.11	AV	Vertical
5359.59	46.03	44.20	9.86	32.00	-2.34	43.69	74.00	-30.31	PK	Horizontal
5359.59	37.20	44.20	9.86	32.00	-2.34	34.86	54.00	-19.14	AV	Horizontal
7205.80	52.01	43.50	11.40	35.50	3.40	55.41	74.00	-18.59	PK	Vertical
7205.80	33.02	43.50	11.40	35.50	3.40	36.42	54.00	-17.58	AV	Vertical
7205.85	50.65	43.50	11.40	35.50	3.40	54.05	74.00	-19.95	PK	Horizontal
7205.85	33.66	43.50	11.40	35.50	3.40	37.06	54.00	-16.94	AV	Horizontal

Frequency (MHz)	Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Corrected Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
Middle Channel (2440 MHz)										
3264.77	47.92	44.70	6.70	28.20	-9.80	38.12	74.00	-35.88	PK	Vertical
3264.77	39.04	44.70	6.70	28.20	-9.80	29.24	54.00	-24.76	AV	Vertical
3264.60	48.49	44.70	6.70	28.20	-9.80	38.69	74.00	-35.31	PK	Horizontal
3264.60	39.06	44.70	6.70	28.20	-9.80	29.26	54.00	-24.74	AV	Horizontal
4880.40	58.87	44.20	9.04	31.60	-3.56	55.31	74.00	-18.69	PK	Vertical
4880.40	38.74	44.20	9.04	31.60	-3.56	35.18	54.00	-18.82	AV	Vertical
4880.51	58.81	44.20	9.04	31.60	-3.56	55.25	74.00	-18.75	PK	Horizontal
4880.51	38.24	44.20	9.04	31.60	-3.56	34.68	54.00	-19.32	AV	Horizontal
5359.62	45.16	44.20	9.86	32.00	-2.34	42.82	74.00	-31.18	PK	Vertical
5359.62	37.63	44.20	9.86	32.00	-2.34	35.29	54.00	-18.71	AV	Vertical
5359.75	45.73	44.20	9.86	32.00	-2.34	43.39	74.00	-30.61	PK	Horizontal
5359.75	37.89	44.20	9.86	32.00	-2.34	35.55	54.00	-18.45	AV	Horizontal
7320.77	51.79	43.50	11.40	35.50	3.40	55.19	74.00	-18.81	PK	Vertical
7320.77	33.33	43.50	11.40	35.50	3.40	36.73	54.00	-17.27	AV	Vertical
7320.85	51.44	43.50	11.40	35.50	3.40	54.84	74.00	-19.16	PK	Horizontal
7320.85	33.65	43.50	11.40	35.50	3.40	37.05	54.00	-16.95	AV	Horizontal

Frequency (MHz)	Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Corrected Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
High Channel (2479 MHz)										
3264.68	48.56	44.70	6.70	28.20	-9.80	38.76	74.00	-35.24	PK	Vertical
3264.68	38.37	44.70	6.70	28.20	-9.80	28.57	54.00	-25.43	AV	Vertical
3264.84	49.11	44.70	6.70	28.20	-9.80	39.31	74.00	-34.69	PK	Horizontal
3264.84	38.45	44.70	6.70	28.20	-9.80	28.65	54.00	-25.35	AV	Horizontal
4958.57	59.05	44.20	9.04	31.60	-3.56	55.49	74.00	-18.51	PK	Vertical
4958.57	38.19	44.20	9.04	31.60	-3.56	34.63	54.00	-19.37	AV	Vertical
4958.41	59.15	44.20	9.04	31.60	-3.56	55.59	74.00	-18.41	PK	Horizontal
4958.41	39.18	44.20	9.04	31.60	-3.56	35.62	54.00	-18.38	AV	Horizontal
5359.83	46.30	44.20	9.86	32.00	-2.34	43.96	74.00	-30.04	PK	Vertical
5359.83	37.19	44.20	9.86	32.00	-2.34	34.85	54.00	-19.15	AV	Vertical
5359.76	46.39	44.20	9.86	32.00	-2.34	44.05	74.00	-29.95	PK	Horizontal
5359.76	38.40	44.20	9.86	32.00	-2.34	36.06	54.00	-17.94	AV	Horizontal
7436.82	51.73	43.50	11.40	35.50	3.40	55.13	74.00	-18.87	PK	Vertical
7436.82	33.28	43.50	11.40	35.50	3.40	36.68	54.00	-17.32	AV	Vertical
7436.75	51.65	43.50	11.40	35.50	3.40	55.05	74.00	-18.95	PK	Horizontal
7436.75	33.19	43.50	11.40	35.50	3.40	36.59	54.00	-17.41	AV	Horizontal

Note:

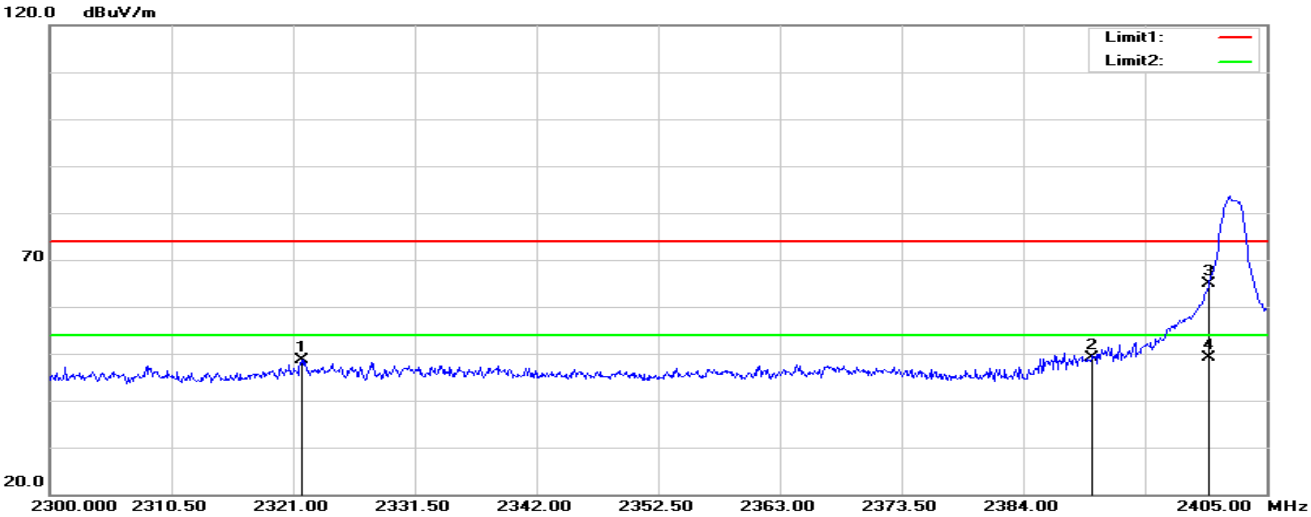
1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.
   Emission Level = Reading + Factor

2) The frequency emission of peak points that did not show above the forms are below the limit, the frequency emission is mainly from the environment noise.

(Radiation Band edge)

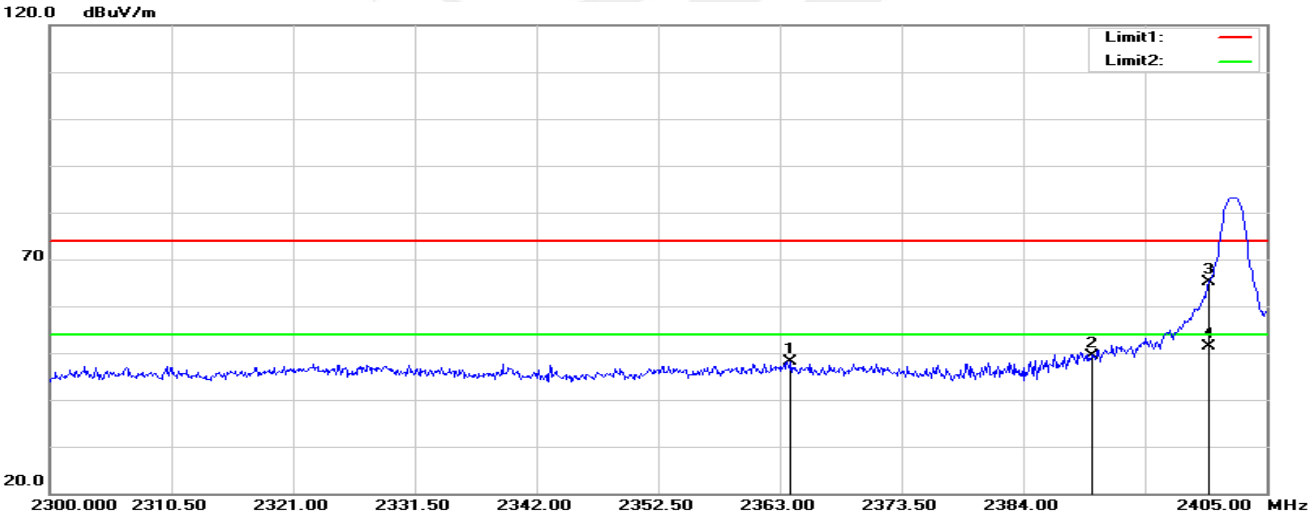
GFSK-Low

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2321.735	59.93	-11.21	48.72	74.00	-25.28	peak
2	2390.000	59.91	-10.75	49.16	74.00	-24.84	peak
3	2400.000	75.61	-10.69	64.92	74.00	-9.08	peak
4	2400.000	59.87	-10.69	49.18	54.00	-4.82	AV

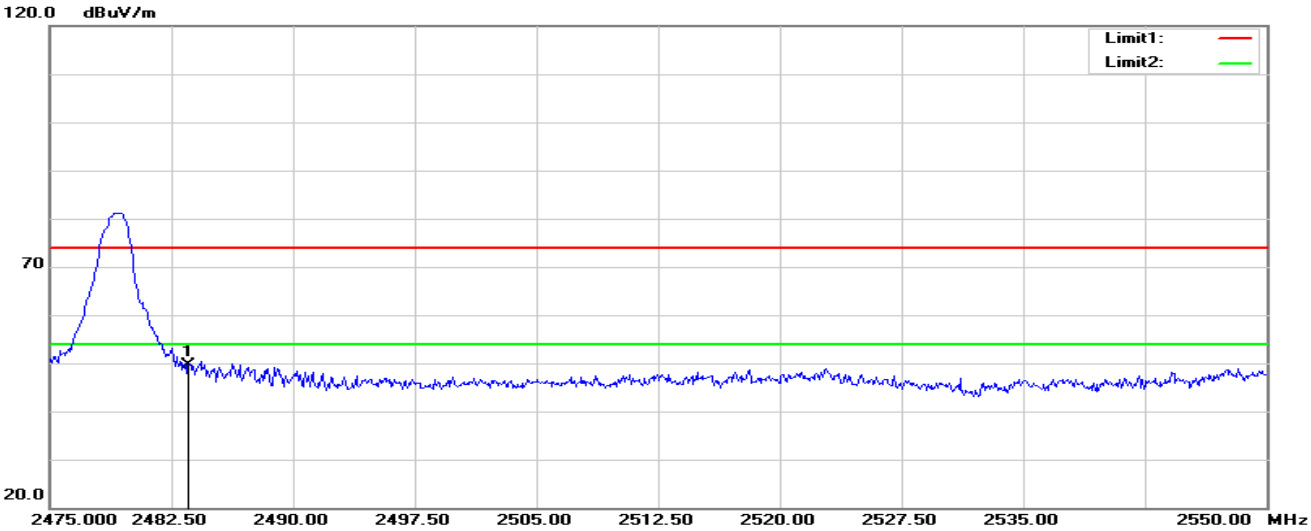
Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2363.945	59.01	-10.92	48.09	74.00	-25.91	peak
2	2390.000	60.04	-10.75	49.29	74.00	-24.71	peak
3	2400.000	75.76	-10.69	65.07	74.00	-8.93	peak
4	2400.000	61.95	-10.69	51.26	54.00	-2.74	AV

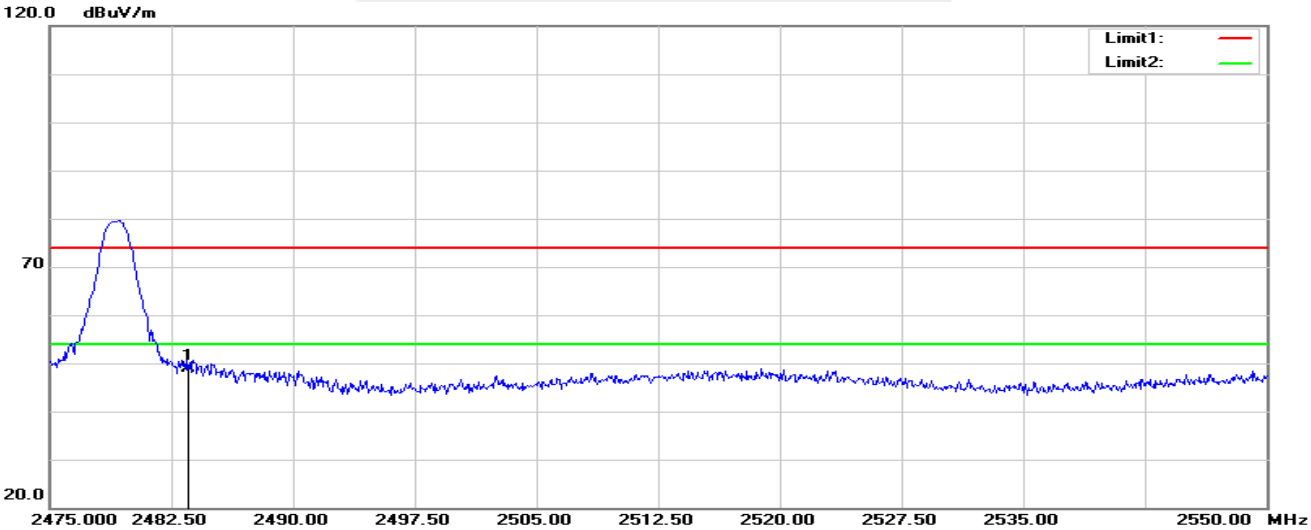
GFSK-High

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	59.96	-10.29	49.67	74.00	-24.33	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	59.11	-10.29	48.82	74.00	-25.18	peak

4. BANDWIDTH TEST

4.1 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= 30KHz, VBW≧RBW, Sweep time = Auto.

4.2 TEST SETUP

4.3 EUT OPERATION CONDITIONS

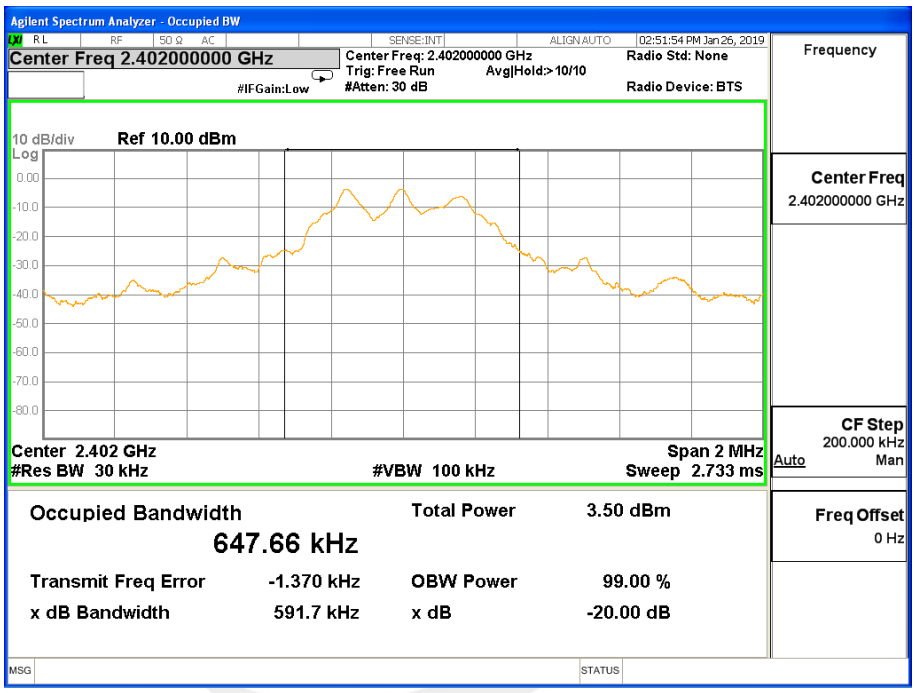
TX mode.

4.4 TEST RESULTS

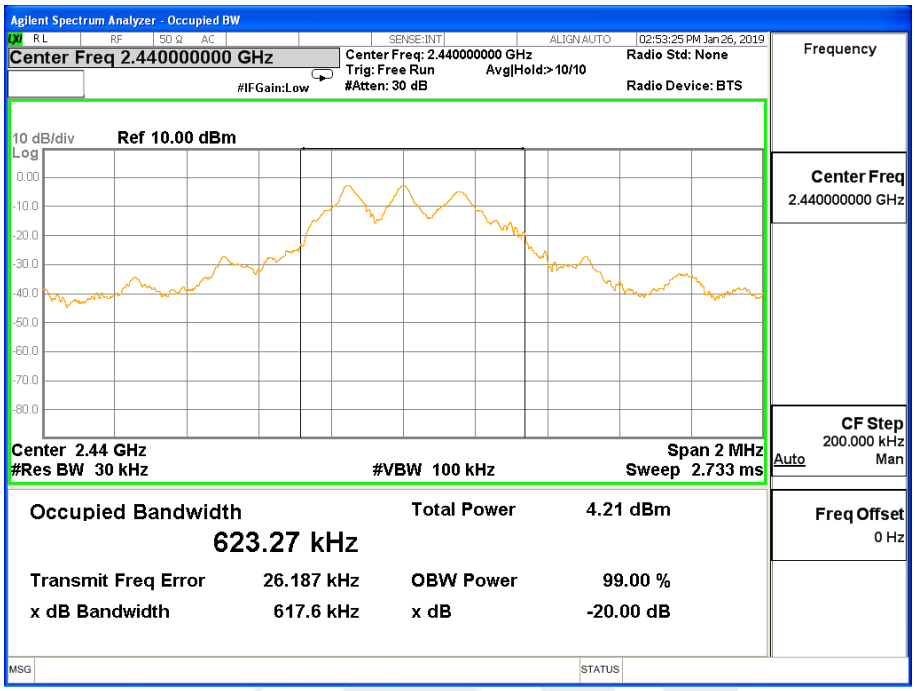
Temperature:	25 ℃	Relative Humidity:	50%
Test Voltage:	DC 12V		

Test Channel	Frequency (MHz)	20 dBc Bandwidth (MHz)	99% Bandwidth (MHz)
CH01	2402	0.592	0.648
CH02	2440	0.618	0.623
CH03	2479	0.610	0.643

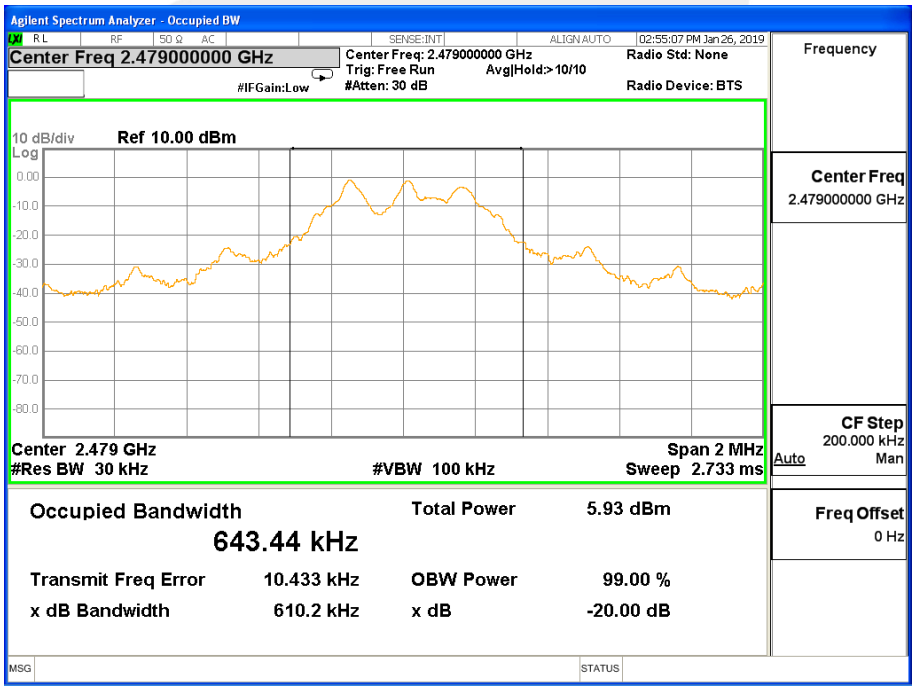
The Lowest Channel:2402MHz



The Middle Channel:2440MHz



The High Channel: 2479MHz



5. ANTENNA REQUIREMENT

5.1 STANDARD REQUIREMENT

According to the FCC Part 15 Paragraph 15.203, 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.

5.2 EUT ANTENNA

The EUT antenna is DIPOLE Antenna.It conforms to the standard requirements.

APPENDIX- PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※※END OF THE REPORT※※※※※

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