



**FCC PART 15C & RSS 247  
TEST REPORT  
No. I19N01349-BLE**

**For**

**Ademco Inc**

**Quicksilver wireless tablet**

**Model Name: PROWLTOUCH/PROWLTOUCHC**

**With**

**Hardware Version: Q1982\_MB\_V2**

**Software Version: GMTS700\_Wireless\_01.01.006.0010**

**FCC ID: CFS8DLPROWLTOUCH**

**IC: 573F-PROWLTOUCH**

**Issued Date: 2019-09-06**

**Designation Number: CN1210**

**ISED Assigned Code: 23289**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

**Test Laboratory:**

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## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I19N01349-BLE	Rev.0	1st edition	2019-09-06

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## **1. Test Laboratory**

### **1.1. Testing Location**

Location: Shenzhen Academy of Information and Communications Technology  
Address: Building G, Shenzhen International Innovation Center, No.1006  
Shennan Road, Futian District, Shenzhen, Guangdong Province  
Postal Code: 518026  
Telephone: +86(0)755-33322000  
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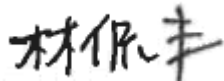
### **1.2. Testing Environment**

Normal Temperature: 15-35°C  
Relative Humidity: 20-75%

### **1.3. Project data**

Testing Start Date: 2019-09-04  
Testing End Date: 2019-09-06

### **1.4. Signature**



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Lin Kanfeng  
(Prepared this test report)



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Tang Weisheng  
(Reviewed this test report)



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Zhang Bojun  
(Approved this test report)

## **2. Client Information**

### **2.1. Applicant Information**

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### **2.2. Manufacturer Information**

Company Name: Huaqin Telecom Technology Co., Ltd.  
Address: No.1 Building, No.9 Building, No.399, Keyuan Road, Zhangjiang  
Hi-tech Park, Shanghai, P.R.China  
Contact: Daisy Wu  
Email: wulihua@huaqin.com  
Tel.: 18088882767

### **3. Equipment Under Test (EUT) and Ancillary Equipment (AE)**

#### **3.1. About EUT**

Description	Quicksilver wireless tablet
Model Name	PROWLTOUCH/PROWLTOUCHC
Brand Name	Honeywell home / Resideo
Frequency Range	2400MHz~2483.5MHz
Type of Modulation	GFSK
Number of Channels	40
Antenna Type	Integrated
Antenna Gain	0.15dBi
Power Supply	3.85V DC by Battery
FCC ID	R38YLCP3648A
IC	573F-PROWLTOUCH
Condition of EUT as received	No abnormality in appearance

Note: Components list, please refer to documents of the manufacturer.

#### **3.2. Internal Identification of EUT**

<b>EUT ID*</b>	<b>IMEI</b>	<b>HW Version</b>	<b>SW Version</b>	<b>Receive Date</b>
EUT1	HK52400332	Q1982_MB_V2	GMTS700_Wireless_01.01.006.0010	2019-07-02

\*EUT ID: is used to identify the test sample in the lab internally.

#### **3.3. Internal Identification of AE**

<b>AE ID*</b>	<b>Description</b>	<b>Mode</b>	<b>Manufacturer</b>
AE1	Battery	P-504478	Dongguan Amperex Technology Limited
AE2	Charger	TPA-97050150U01	SHENZHEN TIANYIN ELECTRONICS CO., LTD

\*AE ID: is used to identify the test sample in the lab internally.

#### **3.4. General Description**

The Equipment under Test (EUT) is a model of Quicksilver wireless tablet with integrated antenna and battery.

It consists of normal options: travel charger, USB cable and Phone.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

## **4. Reference Documents**

### **4.1. Documents supplied by applicant**

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

### **4.2. Reference Documents for testing**

The following documents listed in this section are referred for testing.

<b>Reference</b>	<b>Title</b>	<b>Version</b>
FCC Part15	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902-928MHz, 2400-2483.5 MHz, and 5725-5850 MHz	2017
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013
RSS-247	Spectrum Management and Telecommunications Radio Standards Specification Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices	Issue 2 February, 2017
RSS-Gen	Spectrum Management and Telecommunications Radio Standards Specification General Requirements for Compliance of Radio Apparatus	Issue 5 April, 2018

## 5. Test Results

### 5.1. Summary of Test Results

No	Test cases	Sub-clause of Part 15C	Sub-clause of IC	Verdict
0	Antenna Requirement	15.203	/	<b>P</b>
1	Maximum Peak Output Power	15.247 (b)	RSS-247 section 5.4	<b>P</b>
2	Peak Power Spectral Density	15.247 (e)	RSS-247 section 5.2	<b>P</b>
3	6dB Bandwidth	15.247 (a)	RSS-247 section 5.2	<b>P</b>
4	Band Edges Compliance	15.247 (d)	RSS-247 section 5.5	<b>P</b>
5	Transmitter Spurious Emission - Conducted	15.247 (d)	RSS-247 section 5.5/ RSS-Gen section 6.13	<b>P</b>
6	Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	RSS-247 section 5.5/ RSS-Gen section 6.13	<b>P</b>
7	AC Power line Conducted Emission	15.107, 15.207	RSS-Gen section 8.8	<b>P</b>
8	Occupied Bandwidth	/	RSS-Gen section 6.7	<b>P</b>

See **ANNEX A** for details.

### 5.2. Statements

SAICT has evaluated the test cases requested by the applicant/matrix manufacturer as listed in section 5.1 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2.

### 5.3. Terms used in the result table

Terms used in Verdict column

P	Pass
NA	Not Available
F	Fail

Abbreviations

AC	Alternating Current
AFH	Adaptive Frequency Hopping
BW	Band Width
E.I.R.P.	equivalent isotropic radiated power
ISM	Industrial, Scientific and Medical
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
Tx	Transmitter



## 5.4. Laboratory Environment

### Semi-anechoic chamber

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014 MHz - 1 MHz, > 60 dB; 1 MHz - 1000 MHz, > 90 dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3m/10m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

### Shielded room

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014 MHz - 1 MHz, > 60 dB; 1 MHz - 1000 MHz, > 90 dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

### Fully-anechoic chamber

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014 MHz - 1MHz, > 60dB; 1 MHz - 1000 MHz, > 90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3m distance

## 6. Test Facilities Utilized

### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2020-01-16	1 year
2	Power Sensor	U2021XA	MY55430013	Agilent	2020-01-16	1 year
3	Data Acquisition	U2531A	TW55443507	Agilent	/	/

### Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Date	Calibration Period
1	LISN	ESH2-Z5	100196	R&S	2020-01-03	1 year
2	Test Receiver	ESCI	100701	R&S	2020-08-06	1 year
3	Loop Antenna	HLA6120	35779	TESEQ	2022-05-01	3 year
4	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2020-02-17	3 year
5	Horn Antenna	3117	00066585	ETS-Lindgren	2022-03-04	3 year
6	Test Receiver	ESR7	101675	R&S	2020-07-18	1 year
7	Spectrum Analyzer	FSP 40	100378	R&S	2019-12-13	1 year
8	Chamber	FACT5-2.0	4166	ETS-Lindgren	2021-05-12	3 year
9	Antenna	QSH-SL-1 8-26-S-20	17013	Q-par	2020-01-15	3 year
10	Antenna	QSH-SL-2 6-40-K-20	17014	Q-par	2020-01-11	3 year

### Test software

No.	Equipment	Manufacturer	Version
1	TechMgr Software	CAICT	2.1.1
2	EMC32	Rohde & Schwarz	8.53.0
3	EMC32	Rohde & Schwarz	10.01.00

EUT is engineering software provided by the customer to control the transmitting signal. The EUT was programmed to be in continuously transmitting mode.

### Anechoic chamber

Fully anechoic chamber by ETS-Lindgren

## 7. Measurement Uncertainty

Test Name	Uncertainty	
1. RF Output Power - Conducted	±1.32dB	
2. Power Spectral Density - Conducted	±2.32dB	
3. Occupied channel bandwidth - Conducted	±66Hz	
4. Transmitter Spurious Emission - Conducted	$30\text{MHz} \leq f \leq 1\text{GHz}$	±1.41dB
	$1\text{GHz} \leq f \leq 7\text{GHz}$	±1.92dB
	$7\text{GHz} \leq f \leq 13\text{GHz}$	±2.31dB
	$13\text{GHz} \leq f \leq 26\text{GHz}$	±2.61dB
5. Transmitter Spurious Emission - Radiated	$9\text{kHz} \leq f \leq 30\text{MHz}$	±1.84dB
	$30\text{MHz} \leq f \leq 1\text{GHz}$	±4.90dB
	$1\text{GHz} \leq f \leq 18\text{GHz}$	±5.12dB
	$18\text{GHz} \leq f \leq 40\text{GHz}$	±4.66dB
6. AC Power line Conducted Emission	$150\text{kHz} \leq f \leq 30\text{MHz}$	±3.10dB

## **ANNEX A: Detailed Test Results**

### **A.0 Antenna requirement**

**Measurement Limit:**

<b>Standard</b>	<b>Requirement</b>
FCC CRF Part 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. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

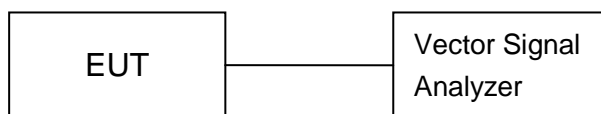
Conclusion: The Directional gains of antenna used for transmitting is 0.15dBi. The RF transmitter uses an integrate antenna without connector.

## A.1 Test Configuration

### A.1.1 Conducted Measurements

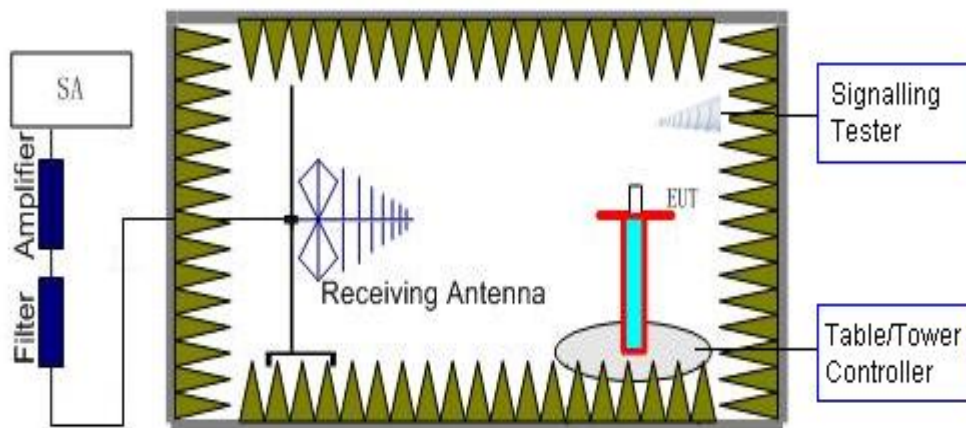
The measurement is made according to ANSI C63.10.

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values.



### A.1.2 Radiated Measurements

**Test setup:** EUT was placed on a 1.5 meter high non-conductive table at a 3 meter test distance from the receive antenna. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT and adjusting the receiving antenna polarization.



## A.2 Maximum Peak Output Power

### Method of Measurement: See ANSI C63.10-clause 11.9.1.3

The maximum peak conducted output power may be measured using a broadband peak RF power meter.

### Measurement Limit:

Standard	Limit (dBm)	E.I.R.P Limit (dBm)
FCC CRF Part 15.247(b) & RSS-247 section 5.4	< 30	< 36

### Measurement Results:

#### LE-1M

Mode	Frequency (MHz)	Peak Conducted Output Power (dBm)	E.I.R.P (dBm)	Conclusion
GFSK	2402 (CH0)	2.17	2.32	<b>P</b>
	2440 (CH19)	2.10	2.25	<b>P</b>
	2480 (CH39)	2.05	2.20	<b>P</b>

**Conclusion: Pass**

### A.3 Peak Power Spectral Density

Method of Measurement: See ANSI C63.10-clause 11.10.2

Measurement Limit:

Standard	Limit
FCC CRF Part 15.247(e) & RSS-247 section 5.2	< 8 dBm/3 kHz

Measurement Results:

LE-1M

Mode	Frequency (MHz)	Peak Power Spectral Density (dBm)	Conclusion
GFSK	2402 (CH0)	Fig.1	P
	2440 (CH19)	Fig.2	P
	2480 (CH39)	Fig.3	P

See below for test graphs.

Conclusion: PASS

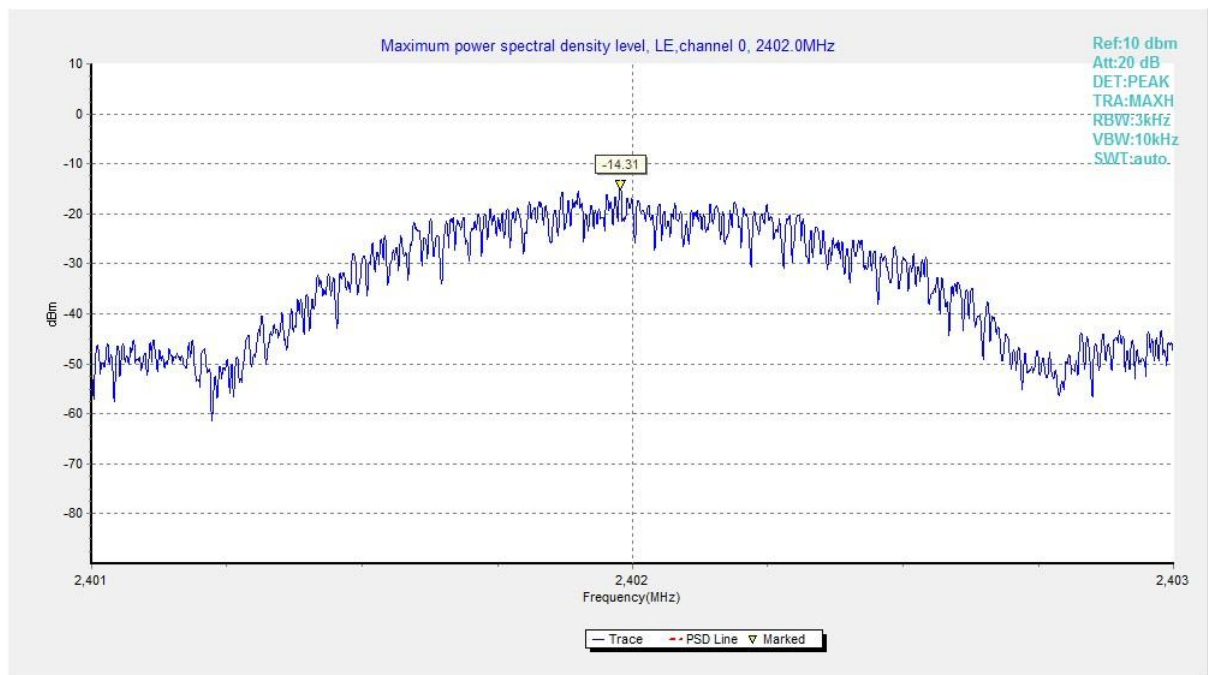


Fig.1 Power Spectral Density (Ch 0), 1M

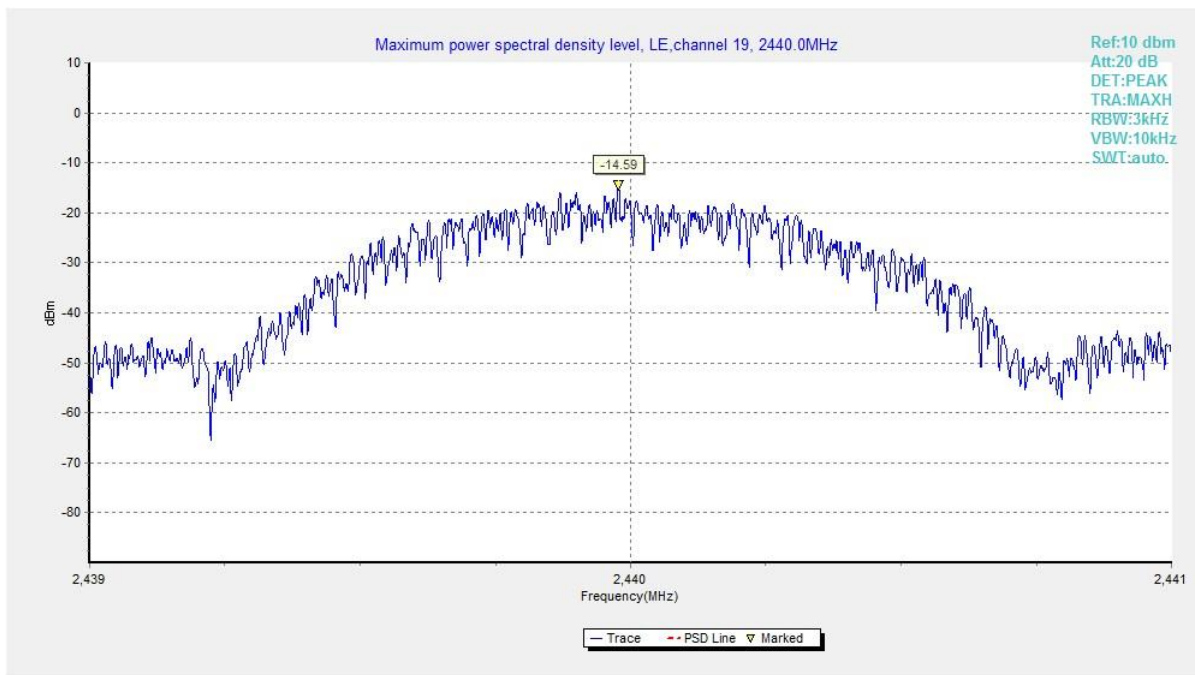


Fig.2 Power Spectral Density (Ch 19), 1M

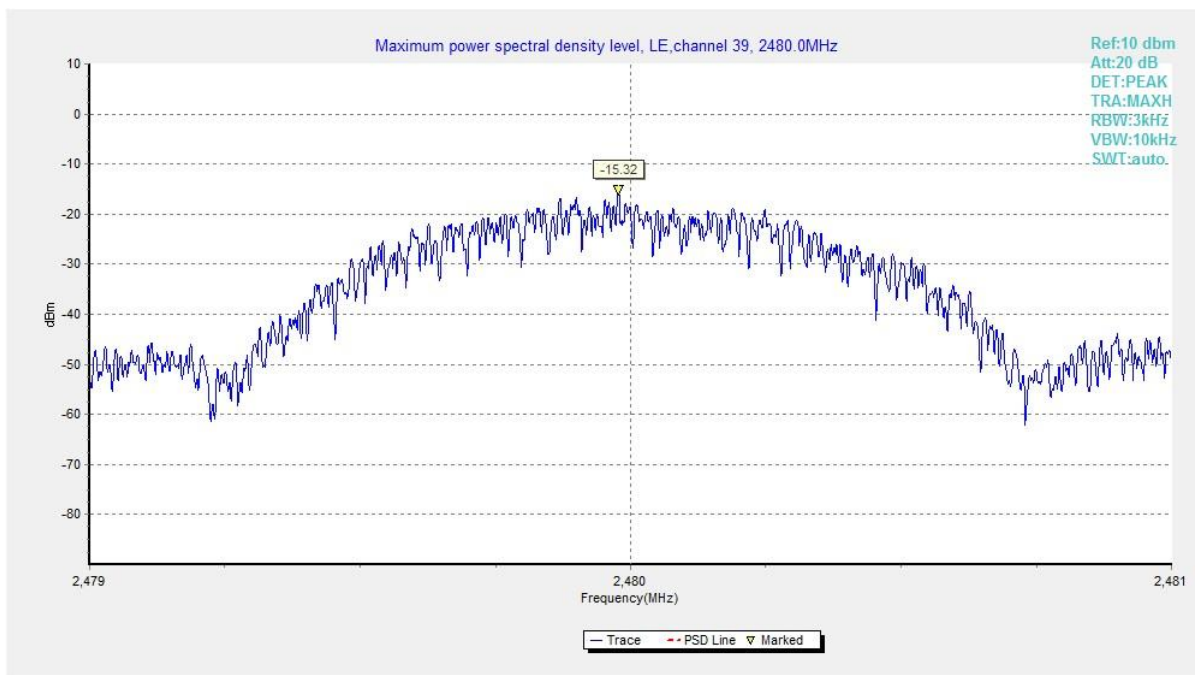


Fig.3 Power Spectral Density (Ch 39), 1M



### A.4 6dB Bandwidth

**Measurement Limit:**

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a) & RSS-247 section 5.2	≥ 500

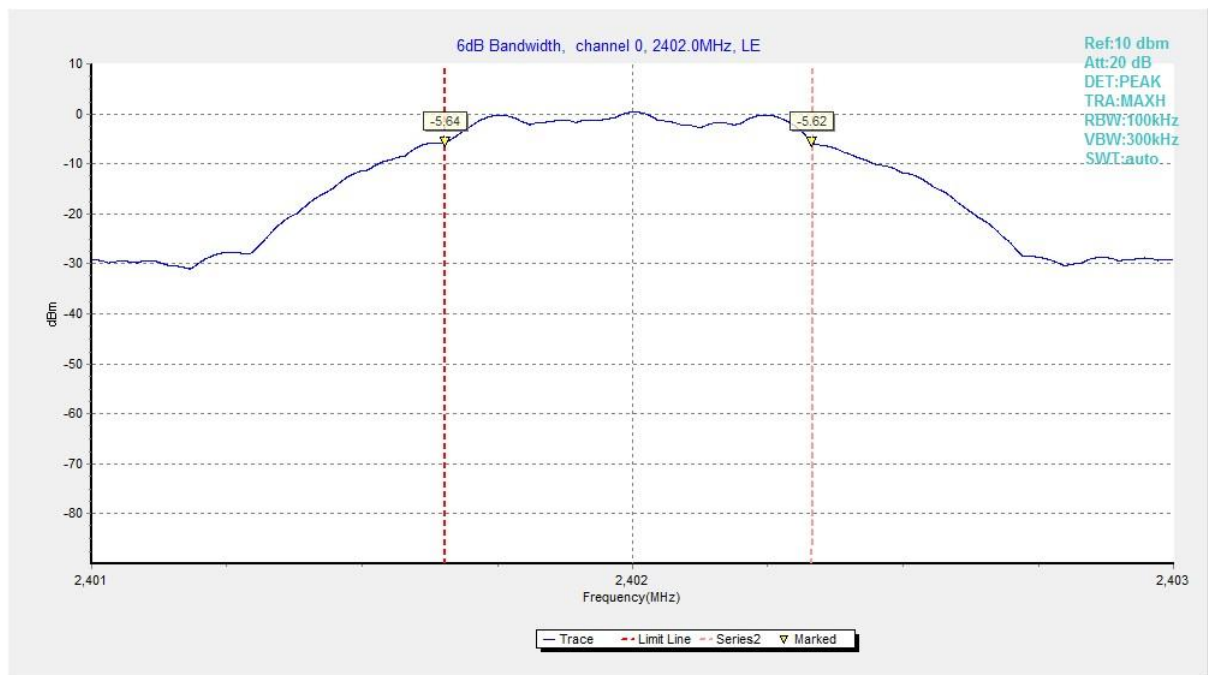
**Measurement Result:**

**LE-1M**

Mode	Frequency (MHz)	Test Results (kHz)		Conclusion
GFSK	2402 (CH0)	Fig.4	679.50	<b>P</b>
	2440 (CH19)	Fig.5	675.00	<b>P</b>
	2480 (CH39)	Fig.6	668.50	<b>P</b>

See below for test graphs.

Conclusion: **PASS**



**Fig.4 6dB Bandwidth (Ch 0), 1M**



Fig.5 6dB Bandwidth (Ch 19), 1M



Fig.6 6dB Bandwidth (Ch 39), 1M

## A.5 Band Edges Compliance

### Measurement Limit:

Standard	Limit (dB)
FCC 47 CFR Part 15.247 (d) & RSS-247 section 5.5	> 20

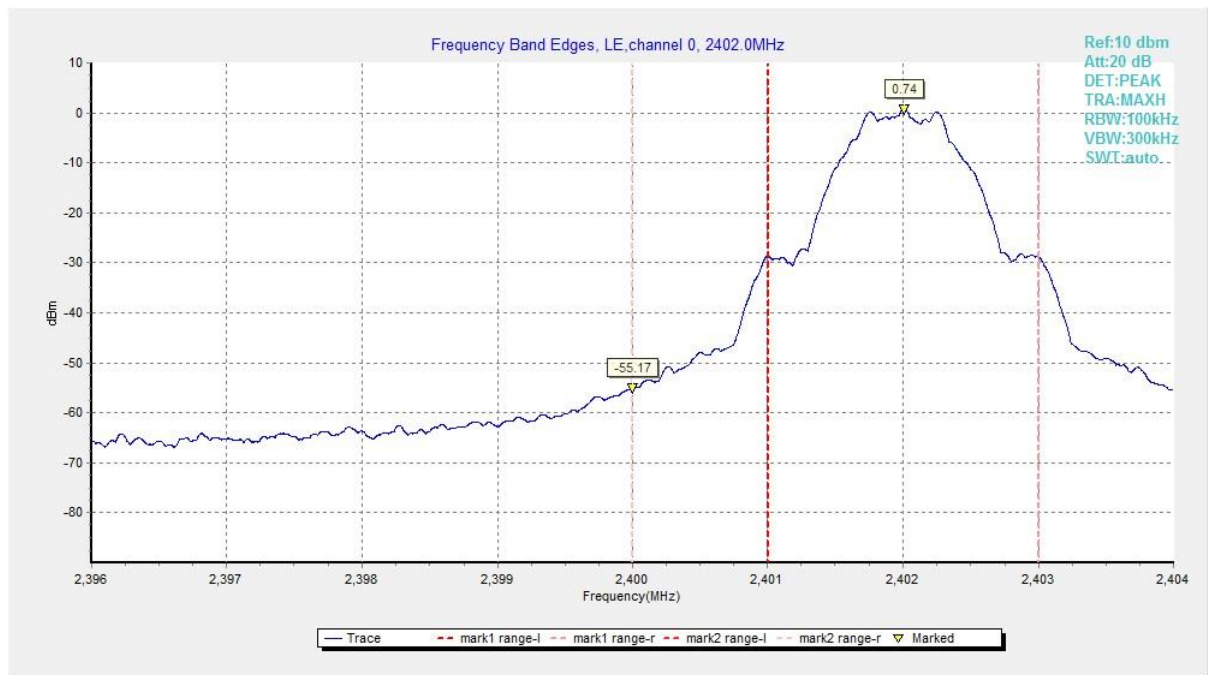
### Measurement Result:

#### LE-1M

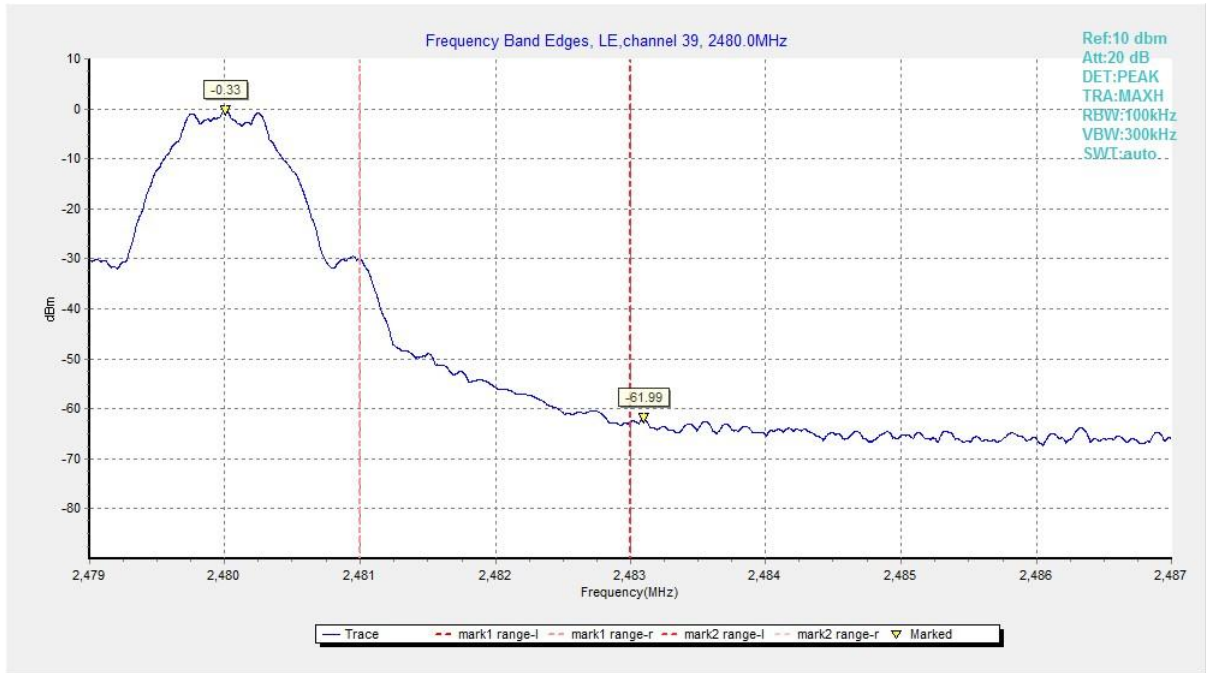
Mode	Frequency (MHz)	Test Results		Conclusion
GFSK	2402 (CH0)	Fig.7	55.91	<b>P</b>
	2480 (CH39)	Fig.8	61.66	<b>P</b>

See below for test graphs.

Conclusion: Pass



**Fig.7 Band Edges (Ch 0), 1M**



**Fig.8 Band Edges (Ch 39), 1M**

## A.6 Transmitter Spurious Emission - Conducted

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d) & RSS-247 section 5.5/ RSS-Gen section 6.13	20dB below peak output power in 100kHz bandwidth

### Measurement Results:

#### LE-1M

MODE	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	2.402 GHz	Fig.9	P
		1 GHz ~ 3 GHz	Fig.10	P
		3 GHz ~ 10 GHz	Fig.11	P
	19	2.440 GHz	Fig.12	P
		1 GHz ~ 3 GHz	Fig.13	P
		3 GHz ~ 10 GHz	Fig.14	P
	39	2.480 GHz	Fig.15	P
		1 GHz ~ 3 GHz	Fig.16	P
		3 GHz ~ 10 GHz	Fig.17	P
	All channels	30 MHz ~ 1 GHz	Fig.18	P
		10 GHz ~ 26 GHz	Fig.19	P

See below for test graphs.

Conclusion: Pass

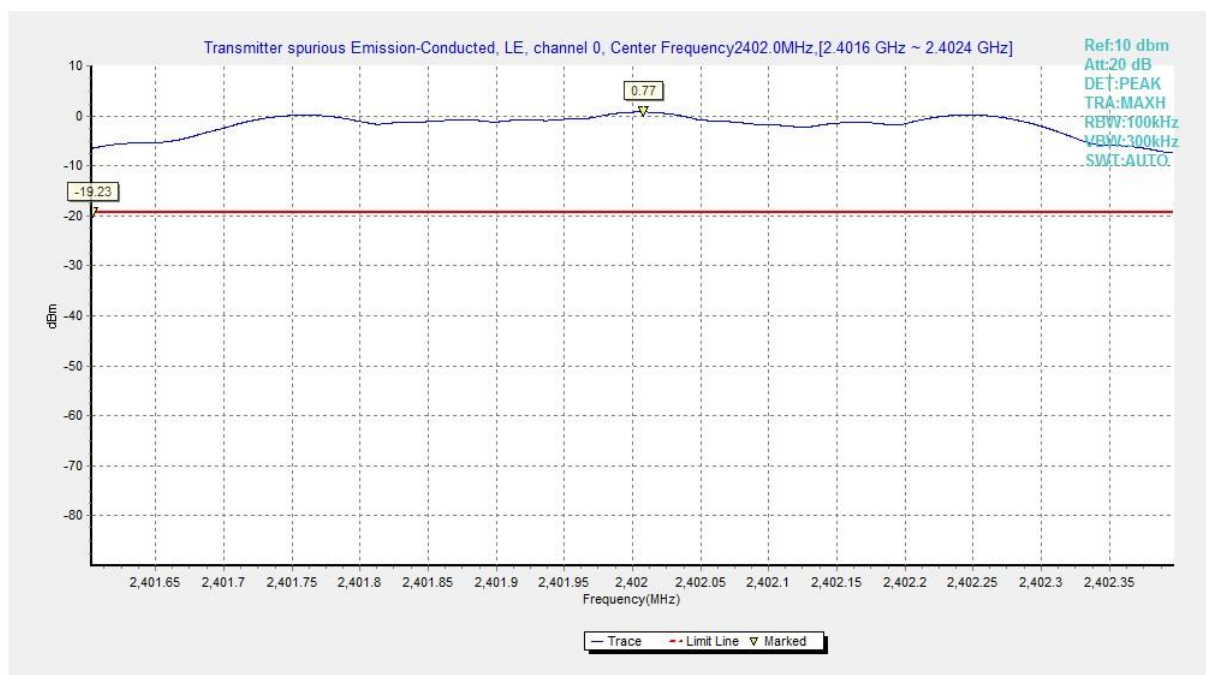


Fig.9 Conducted Spurious Emission (Ch0, Center Frequency), 1M

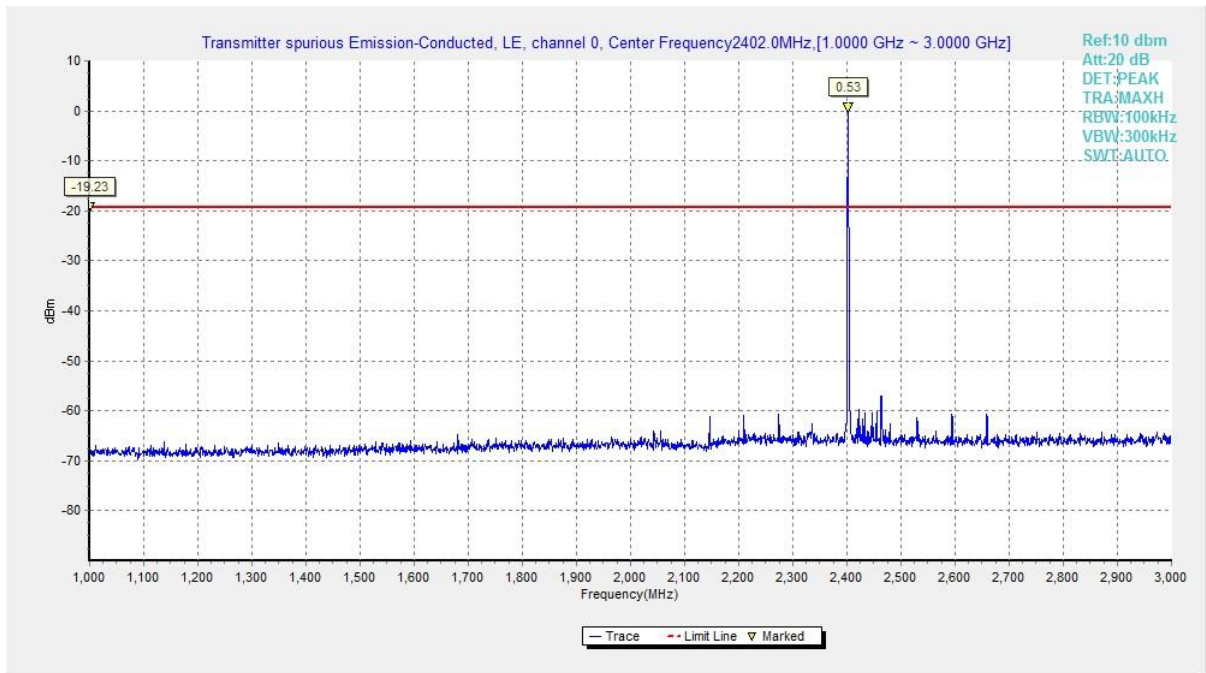


Fig.10 Conducted Spurious Emission (Ch0, 1 GHz - 3 GHz), 1M

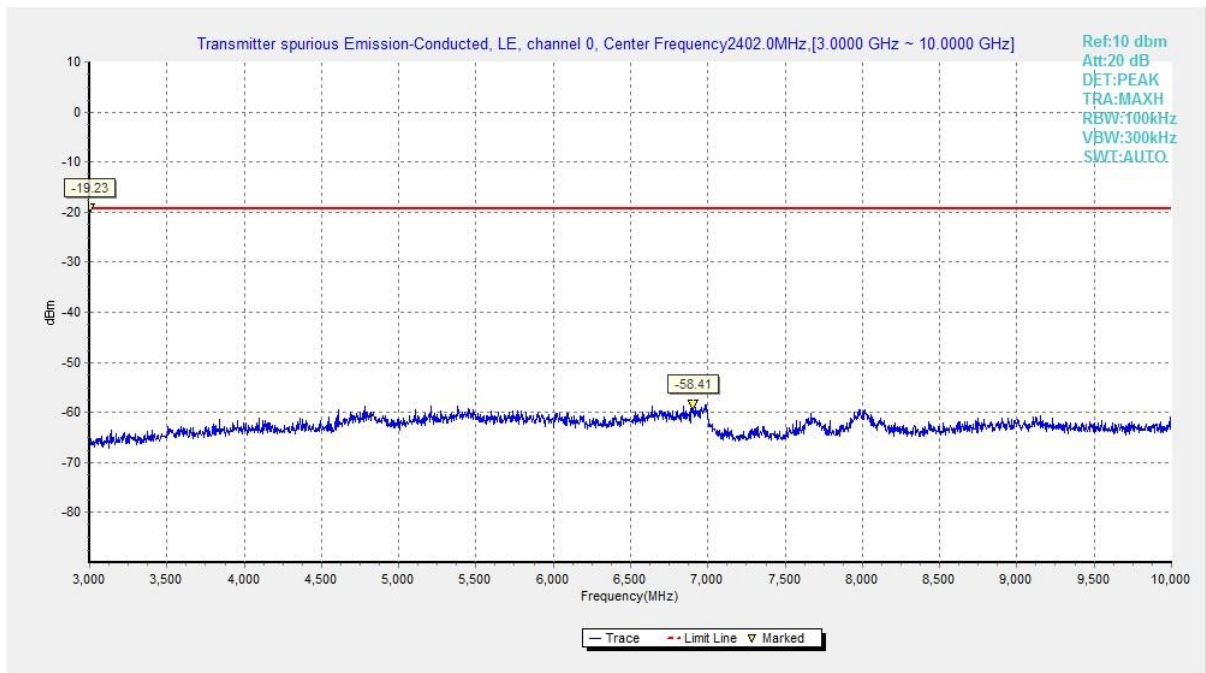


Fig.11 Conducted Spurious Emission (Ch0, 3 GHz - 10 GHz), 1M

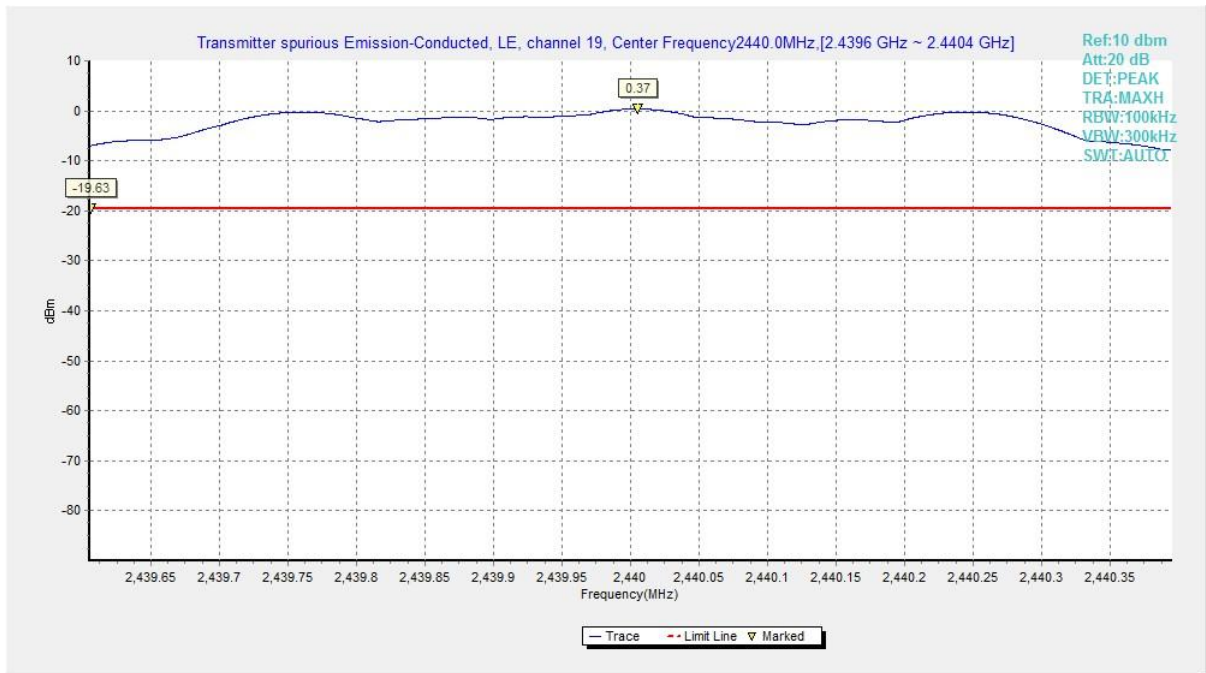


Fig.12 Conducted Spurious Emission (Ch19, Center Frequency), 1M

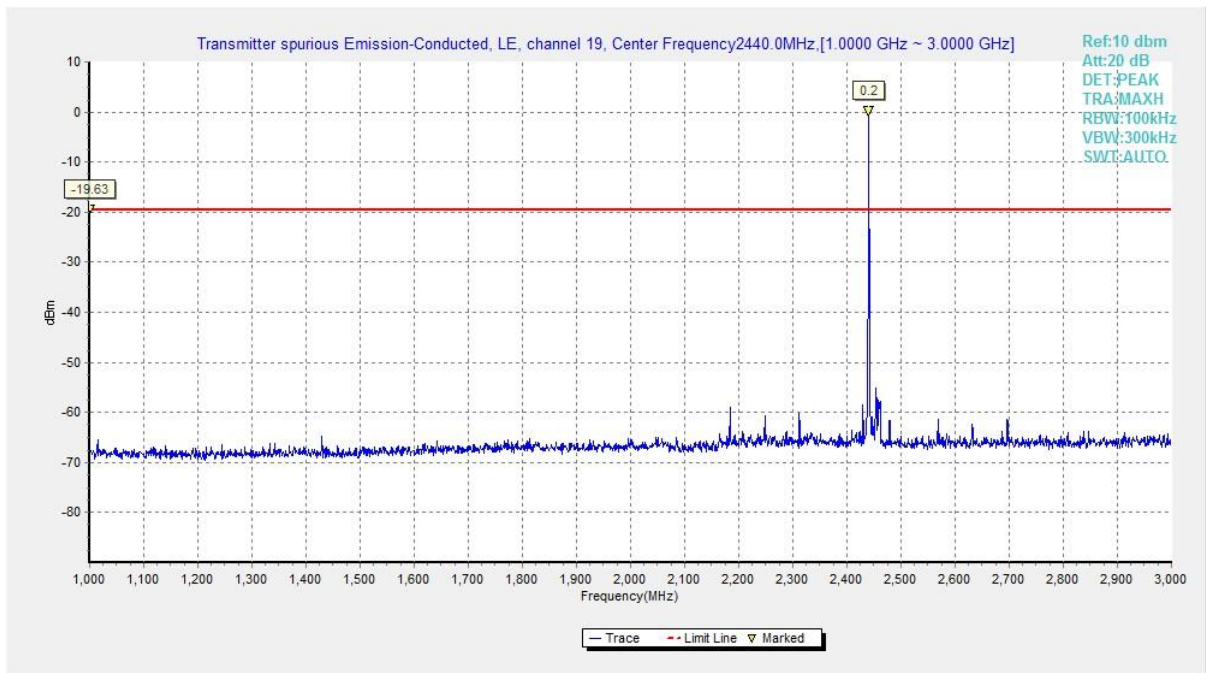


Fig.13 Conducted Spurious Emission (Ch19, 1 GHz - 3 GHz), 1M

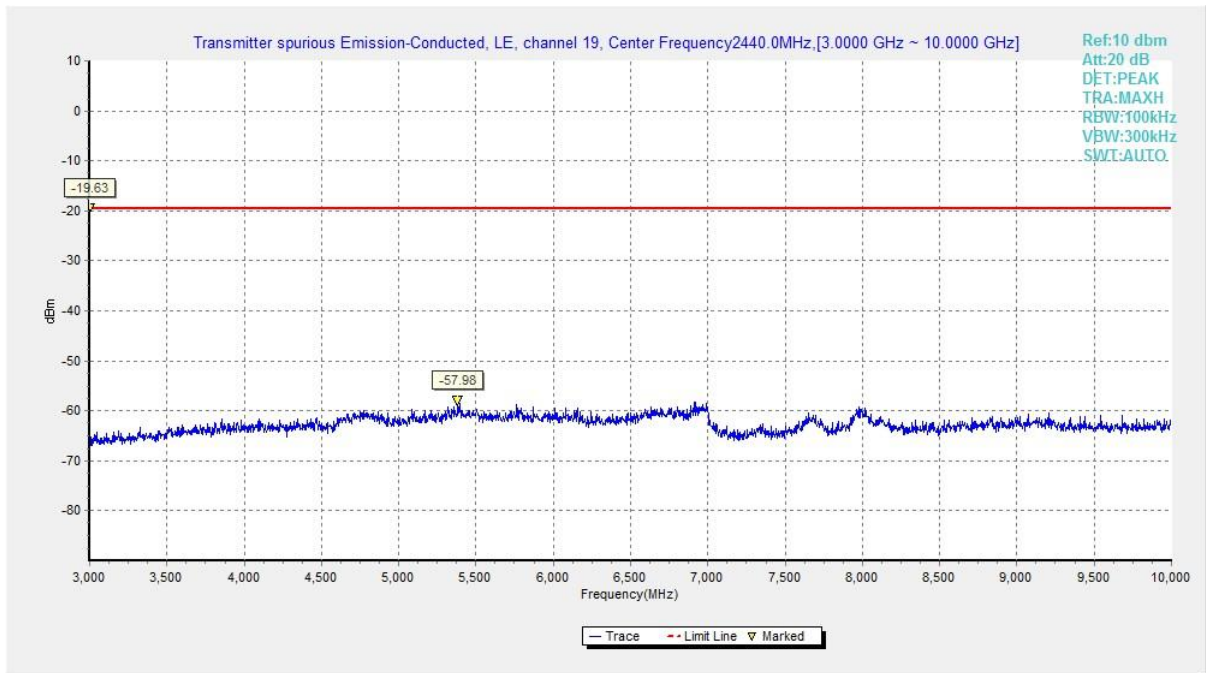


Fig.14 Conducted Spurious Emission (Ch19, 3 GHz - 10 GHz), 1M

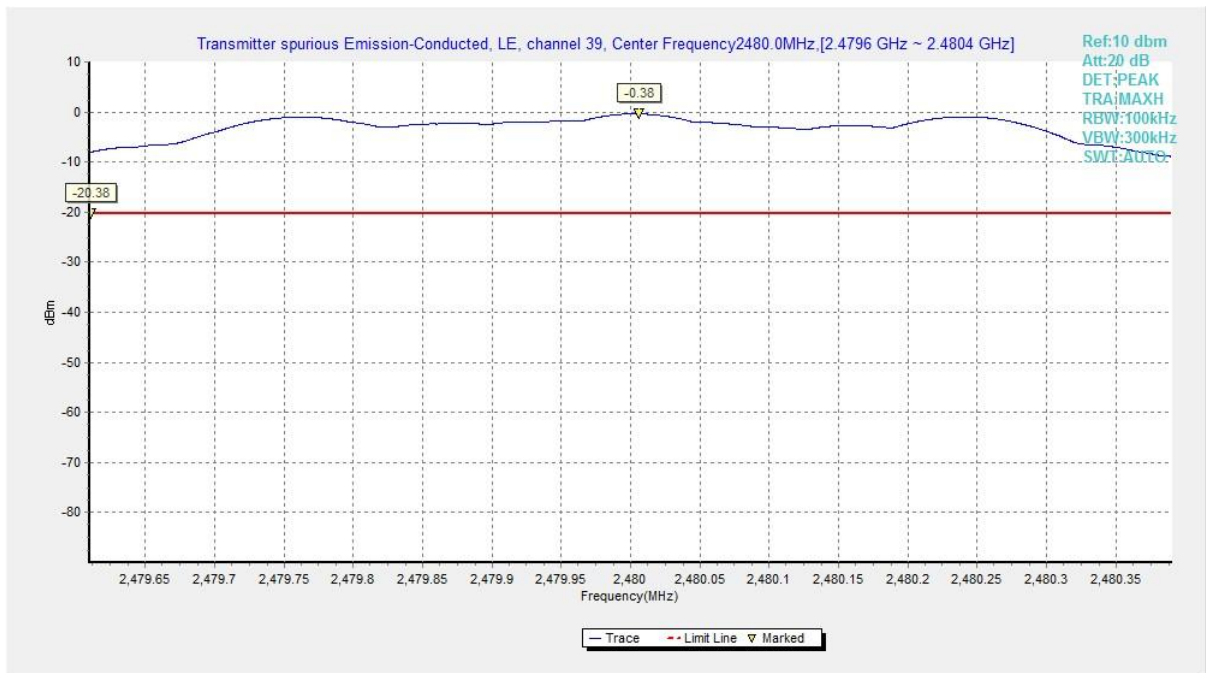


Fig.15 Conducted Spurious Emission (Ch39, Center Frequency), 1M



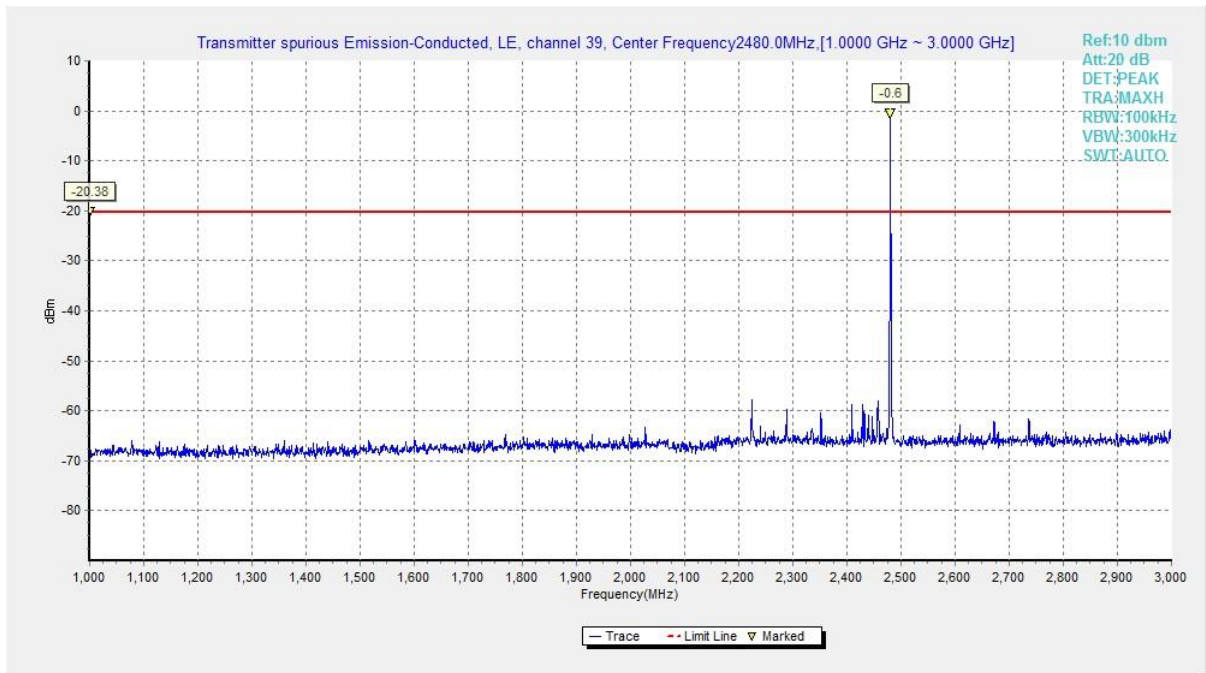


Fig.16 Conducted Spurious Emission (Ch39, 1 GHz - 3 GHz), 1M

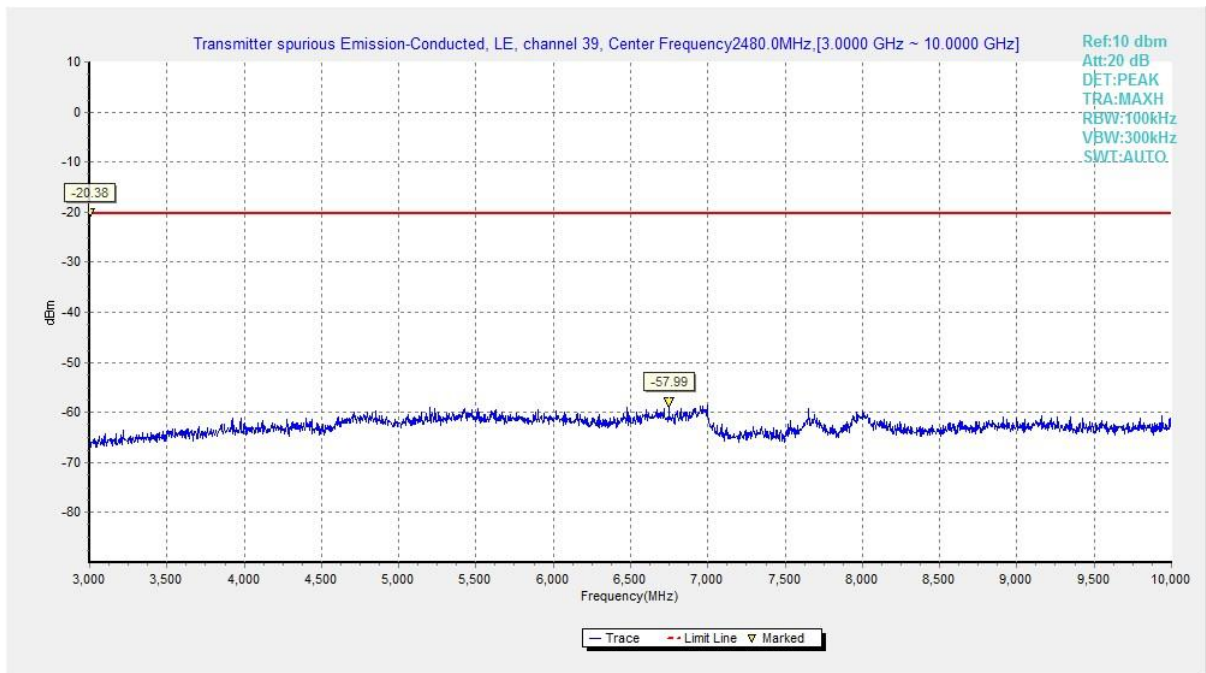


Fig.17 Conducted Spurious Emission (Ch39, 3 GHz - 10 GHz), 1M

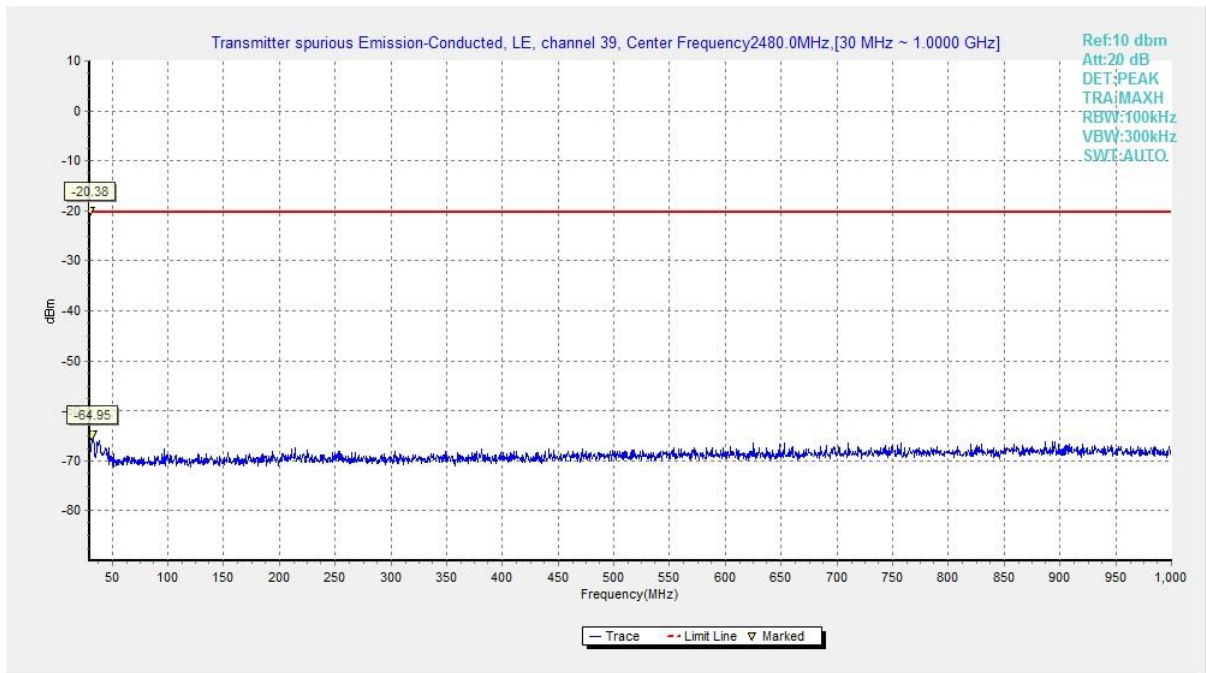


Fig.18 Conducted Spurious Emission (All channels, 30 MHz - 1 GHz), 1M

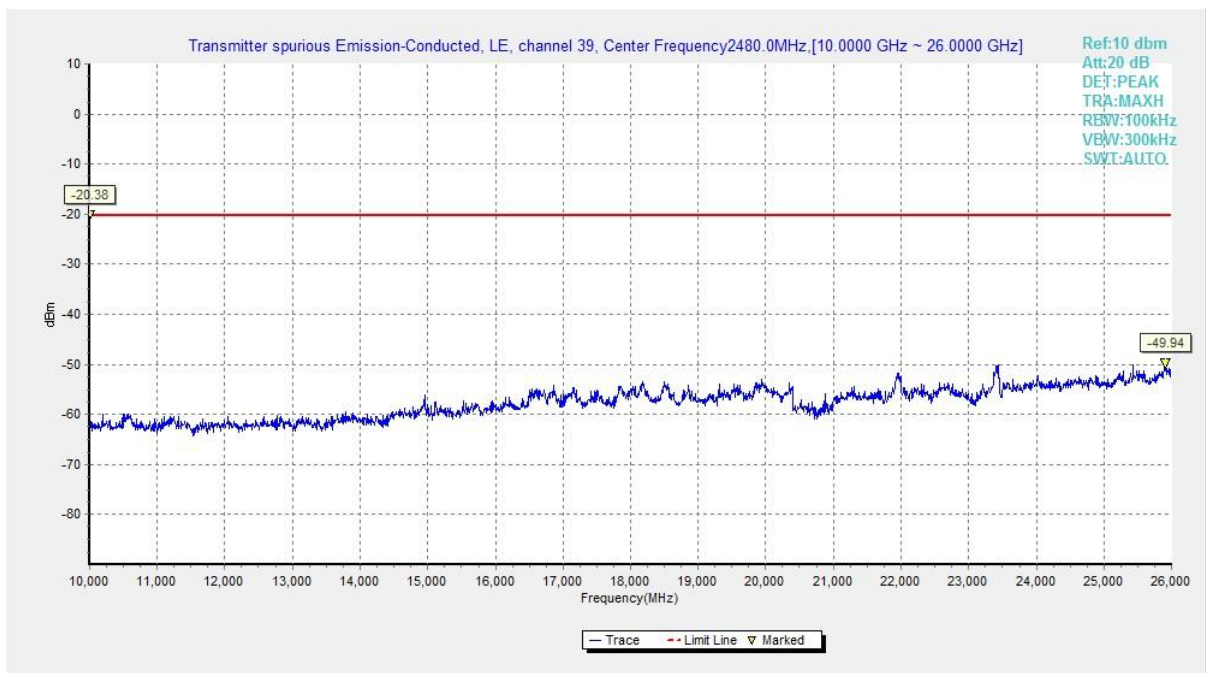


Fig.19 Conducted Spurious Emission (All channels, 10 GHz - 26 GHz), 1M

## A.7 Transmitter Spurious Emission - Radiated

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209 & RSS-247 section 5.5/RSS-Gen section 6.13	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

### Limit in restricted band:

Frequency of emission (MHz)	Field strength ( $\mu\text{V}/\text{m}$ )	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

### Test Condition:

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time (s)
30-1000	120kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Note: According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band from 9kHz to 30MHz. Therefore, the measurement starts from 30MHz to tenth harmonic. The measurement results include the horizontal polarization and vertical polarization measurements.

**Measurement Results:**

**LE-1M**

Mode	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	1 GHz ~ 3 GHz	Fig.20	<b>P</b>
		3 GHz ~ 18 GHz	Fig.21	<b>P</b>
	19	9 kHz ~ 30 MHz	Fig.22	<b>P</b>
		30 MHz ~ 1 GHz	Fig.23	<b>P</b>
		1 GHz ~ 3 GHz	Fig.24	<b>P</b>
		3 GHz ~ 18 GHz	Fig.25	<b>P</b>
		18 GHz ~ 26.5 GHz	Fig.26	<b>P</b>
	39	1 GHz ~ 3 GHz	Fig.27	<b>P</b>
		3 GHz ~ 18 GHz	Fig.28	<b>P</b>
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.29	<b>P</b>
	Restricted Band(CH39)	2.45 GHz ~ 2.5 GHz	Fig.30	<b>P</b>

See below for test graphs.

**Conclusion: Pass**

**LE-1M**

**GFSK CH0 (3-18GHz)**

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
10599.500000	44.51	74.00	29.49	H	5.6
11719.000000	45.71	74.00	28.29	V	7.2
13264.500000	45.74	74.00	28.26	V	8.5
14469.500000	47.93	74.00	26.07	V	11.2
16724.000000	50.42	74.00	23.58	V	14.7
17542.000000	49.63	74.00	24.37	H	14.7

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
10599.500000	32.09	54.00	21.91	H	5.6
11719.000000	32.93	54.00	21.07	V	7.2
13264.500000	33.15	54.00	20.85	V	8.5
14469.500000	34.99	54.00	19.01	V	11.2
16724.000000	36.97	54.00	17.03	V	14.7
17542.000000	36.84	54.00	17.16	H	14.7

**GFSK CH19 (3-18GHz)**

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
10570.000000	44.23	74.00	29.77	V	5.8
11640.500000	44.96	74.00	29.04	H	7.3
12677.500000	45.08	74.00	28.92	H	8.1
14502.500000	47.84	74.00	26.16	V	11.5
16490.500000	48.88	74.00	25.12	V	14.3
17871.000000	50.00	74.00	24.00	V	15.7

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
10570.000000	31.90	54.00	22.10	V	5.8
11640.500000	32.70	54.00	21.30	H	7.3
12677.500000	32.85	54.00	21.15	H	8.1
14502.500000	35.06	54.00	18.94	V	11.5
16490.500000	36.20	54.00	17.80	V	14.3
17871.000000	37.31	54.00	16.69	V	15.7

**GFSK CH39 (3-18GHz)**

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
10470.000000	44.20	74.00	29.80	V	5.7
11591.000000	45.29	74.00	28.71	H	6.9
12629.000000	44.98	74.00	29.02	H	8.0
14562.000000	47.20	74.00	26.80	H	11.2
16598.000000	50.37	74.00	23.63	H	14.5
17789.500000	50.26	74.00	23.74	H	15.9

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
10470.000000	31.87	54.00	22.13	V	5.7
11591.000000	32.43	54.00	21.57	H	6.9
12629.000000	32.80	54.00	21.20	H	8.0
14562.000000	34.46	54.00	19.54	H	11.2
16598.000000	36.57	54.00	17.43	H	14.5
17789.500000	37.29	54.00	16.71	H	15.9

**Note:**

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and Antenna Factor, the gain of the preamplifier, the cable loss.  $P_{Mea}$  is the field strength recorded from the instrument.

The measurement results are obtained as described below:

$$\text{Result} = P_{Mea} + \text{Cable Loss} + \text{Antenna Factor} - \text{Gain of the preamplifier}$$

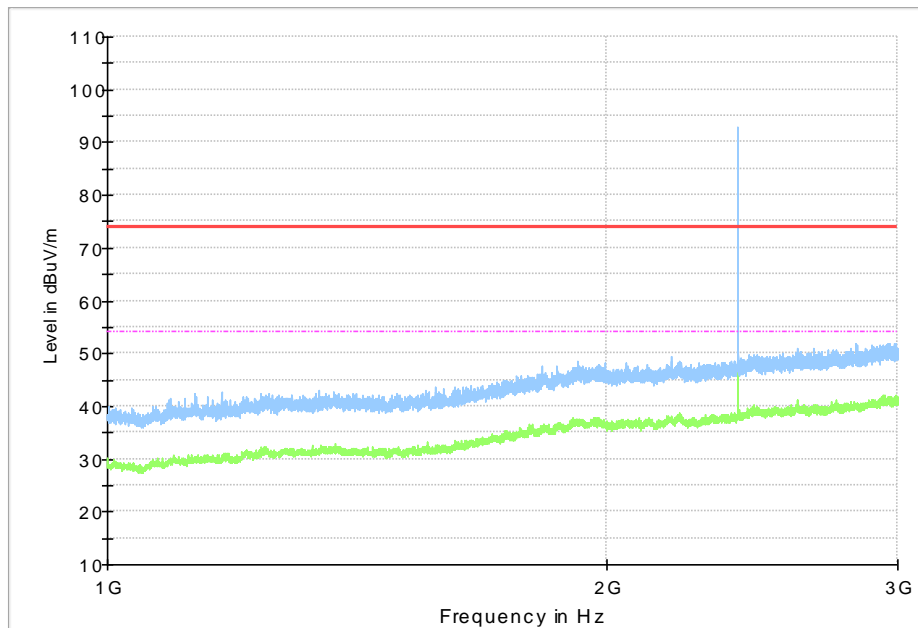


Fig.20 Radiated Spurious Emission (Ch0, 1 GHz - 3 GHz), 1M

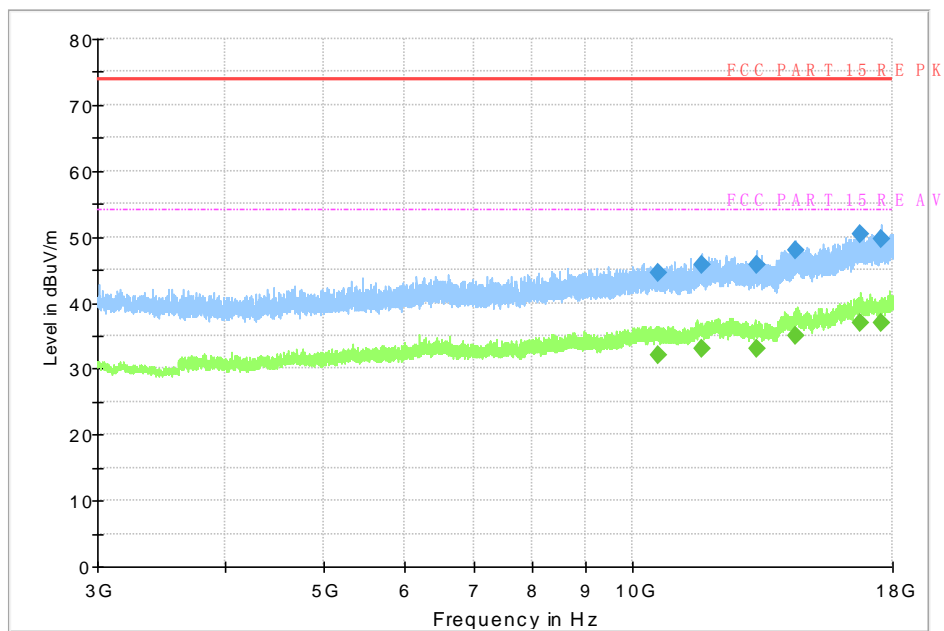


Fig.21 Radiated Spurious Emission (Ch0, 3 GHz - 18 GHz), 1M

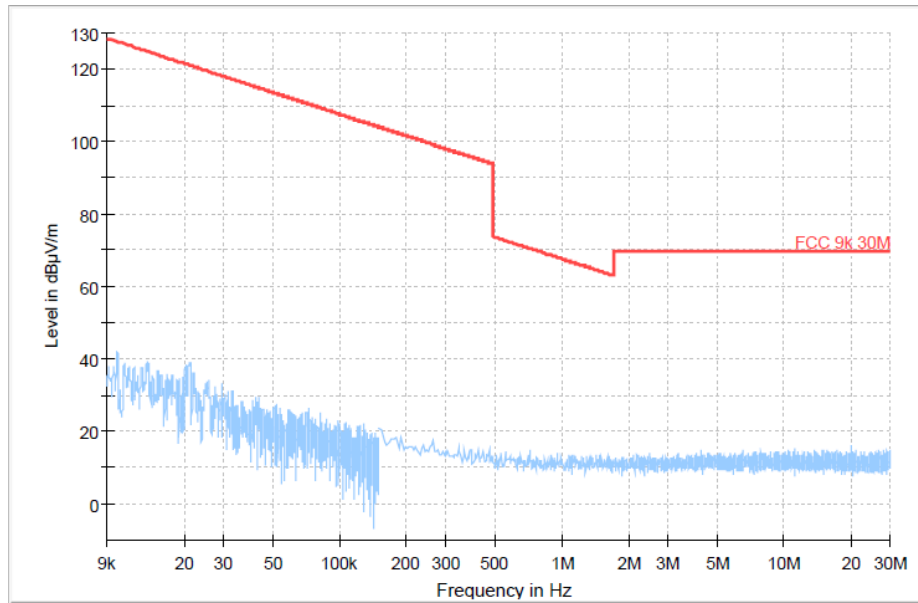


Fig.22 Radiated Spurious Emission (Ch19, 9 kHz - 30 MHz), 1M

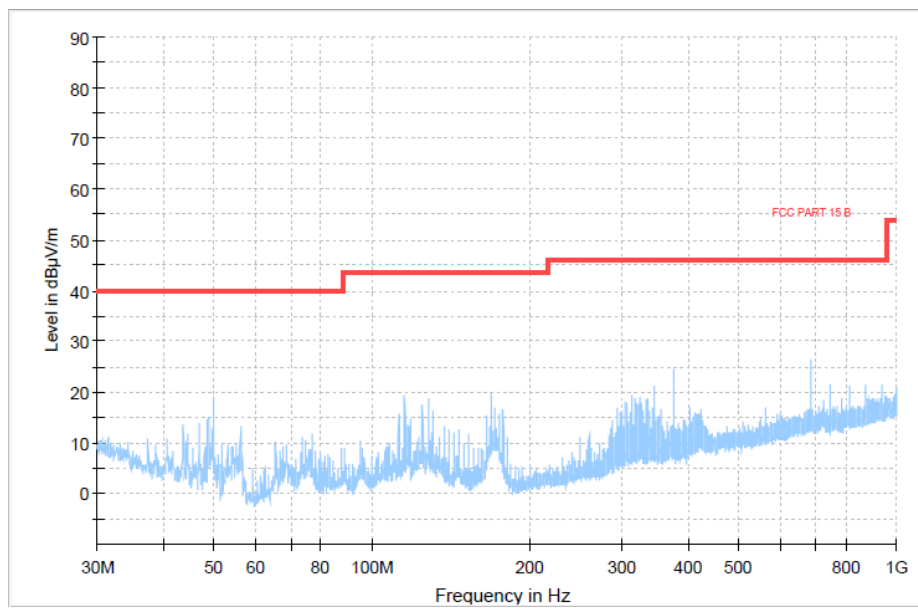


Fig.23 Radiated Spurious Emission (Ch19, 30 MHz - 1 GHz), 1M



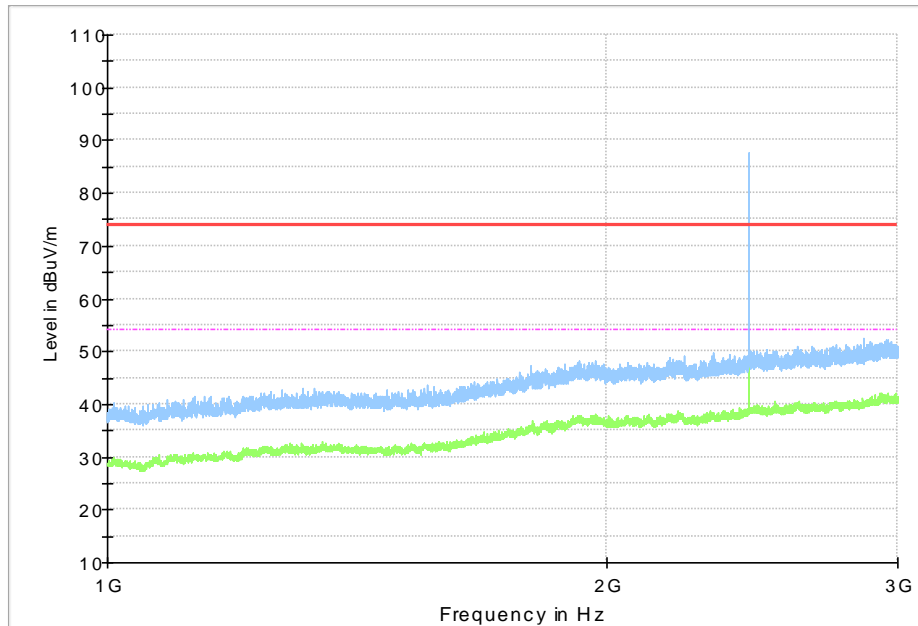


Fig.24 Radiated Spurious Emission (Ch19, 1 GHz - 3 GHz), 1M

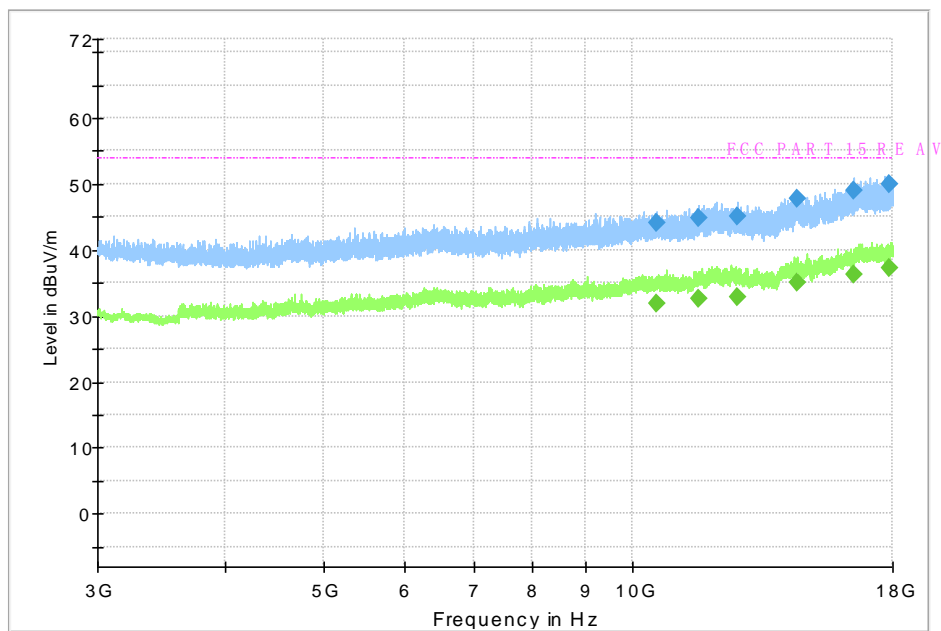


Fig.25 Radiated Spurious Emission (Ch19, 3 GHz - 18 GHz), 1M

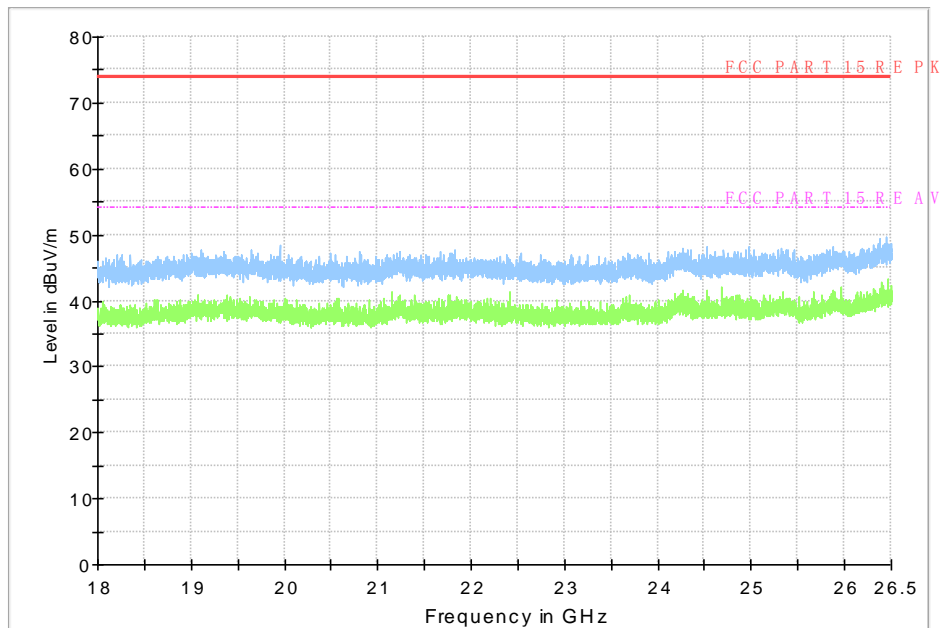


Fig.26 Radiated Spurious Emission (Ch19, 18 GHz - 26.5 GHz), 1M

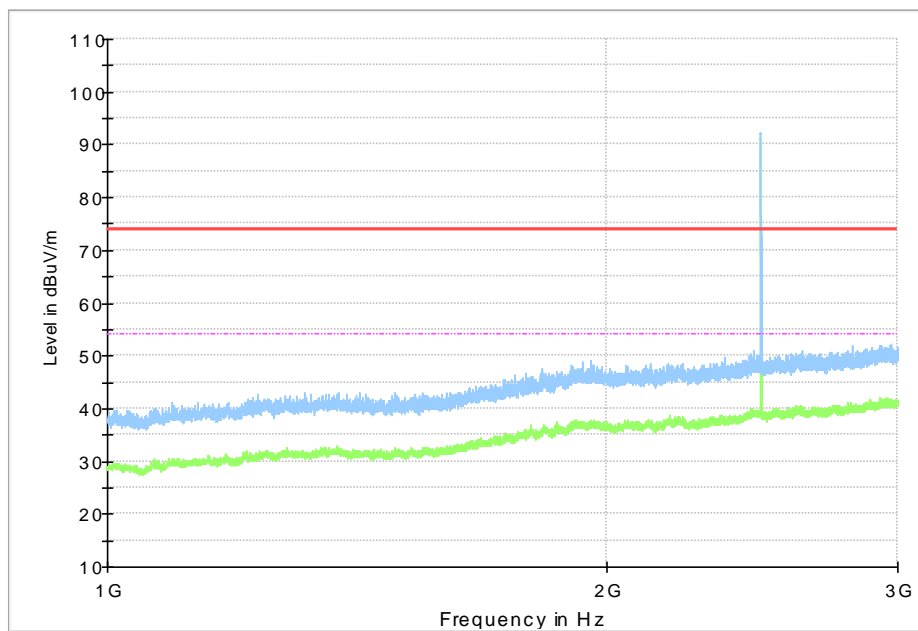


Fig.27 Radiated Spurious Emission (Ch39, 1 GHz - 3 GHz), 1M

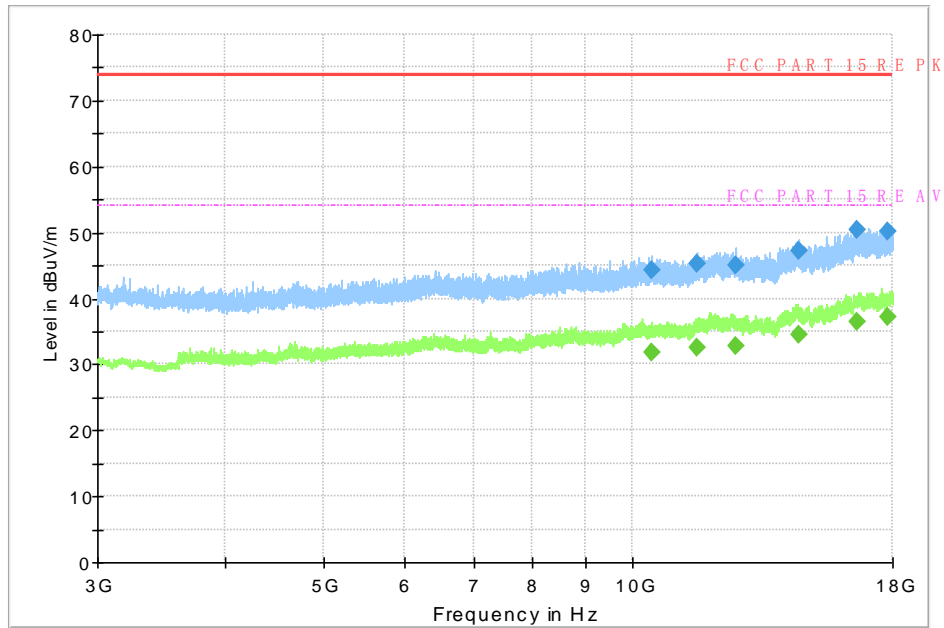


Fig.28 Radiated Spurious Emission (Ch39, 3 GHz - 18 GHz), 1M

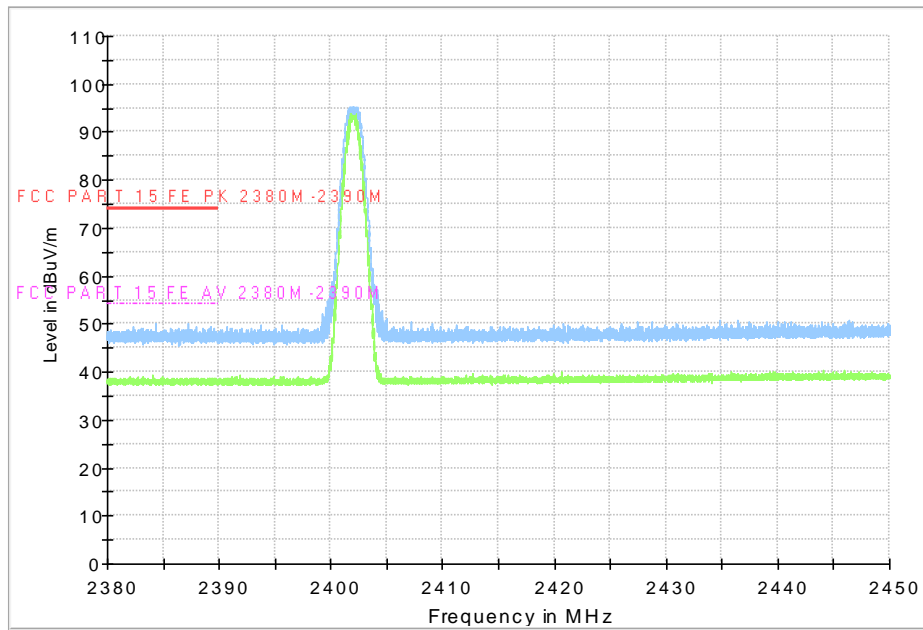
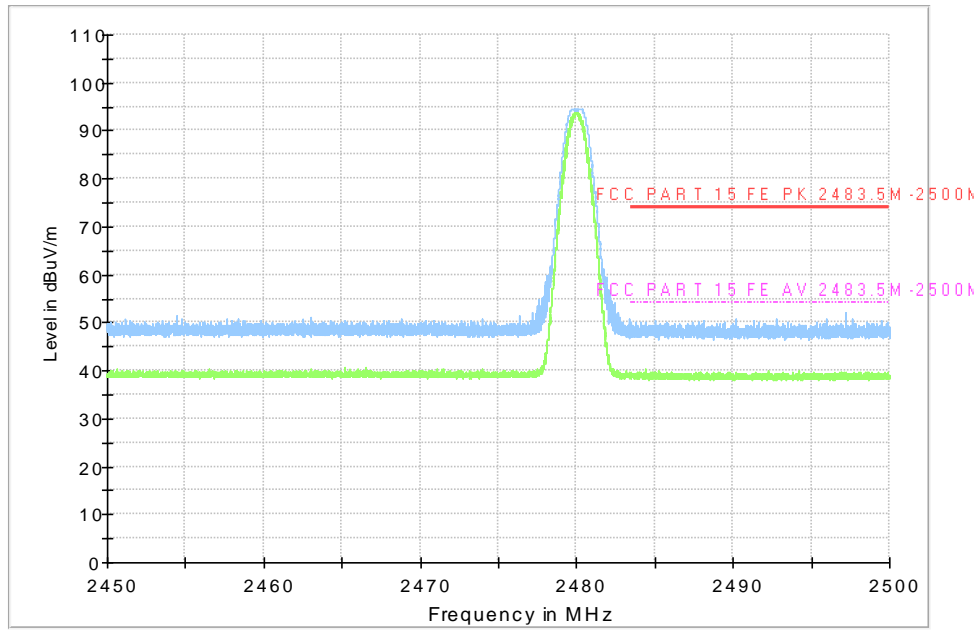


Fig.29 Radiated Band Edges (Ch0, 2380GHz - 2450GHz), 1M



**Fig.30 Radiated Band Edges (Ch39, 2450GHz - 2500GHz), 1M**

## A.8 AC Power line Conducted Emission

### Test Condition:

Voltage (V)	Frequency (Hz)
120	60

### Measurement Result and limit:

#### LE-1M

BLE (Quasi-peak Limit) - AE2

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.31	Fig.32	<b>P</b>
0.5 to 5	56			
5 to 30	60			

Note: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

BLE (Average Limit) - AE2

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.31	Fig.32	<b>P</b>
0.5 to 5	46			
5 to 30	50			

Note: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

### Test Condition:

Voltage (V)	Frequency (Hz)
240	60

### Measurement Result and limit:

#### LE-1M

BLE (Quasi-peak Limit) - AE2

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.33	Fig.34	<b>P</b>
0.5 to 5	56			
5 to 30	60			

Note: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

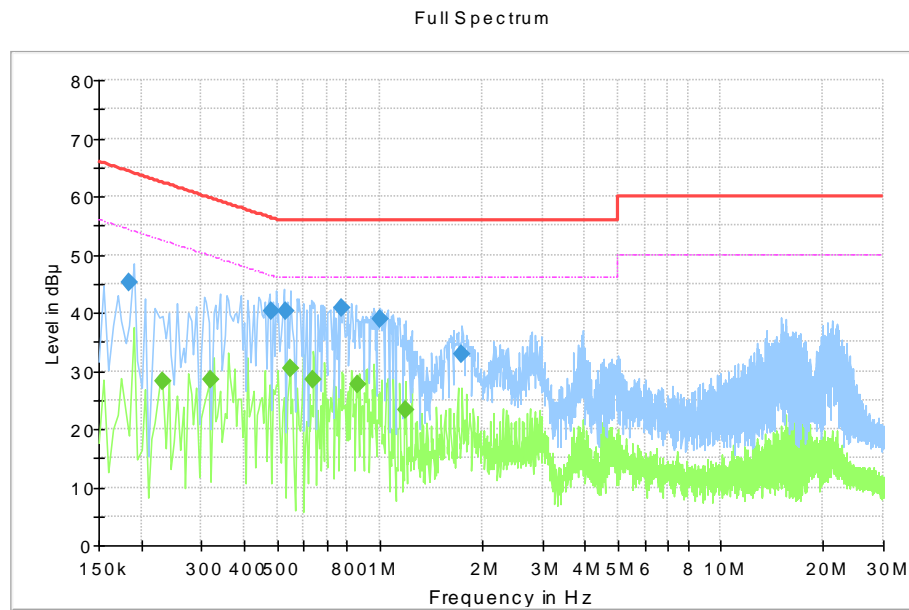
BLE (Average Limit) - AE2

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.33	Fig.34	<b>P</b>
0.5 to 5	46			
5 to 30	50			
Note: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Note: The measurement results include the L1 and N measurements.

**See below for test graphs.**

**Conclusion: Pass**



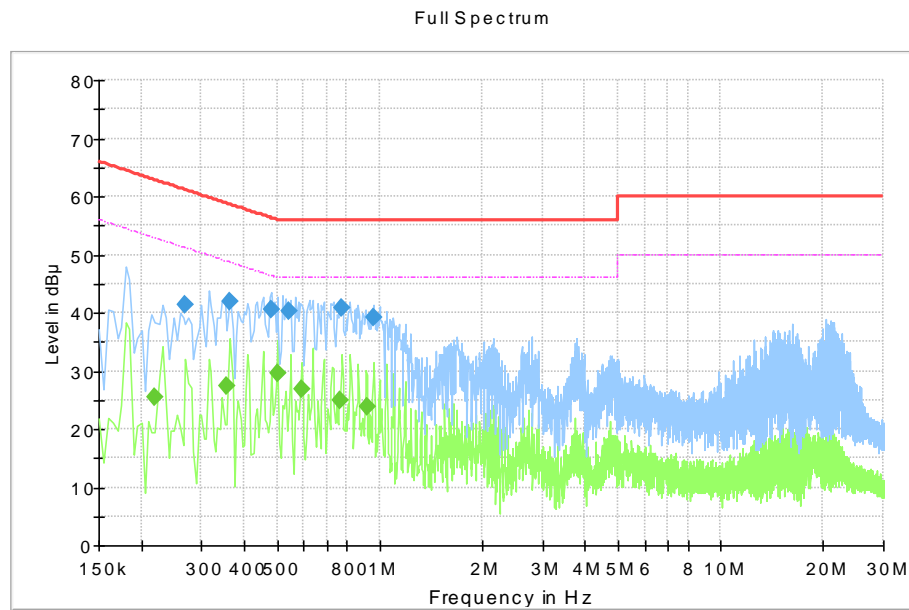
**Fig.31 AC Power line Conducted Emission (Traffic, AE3, 120V), 1M**

**Measurement Results: Quasi Peak**

Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.185000	45.13	64.26	19.13	N	ON	9.6
0.480000	40.35	56.34	15.99	L1	ON	9.6
0.530000	40.25	56.00	15.75	N	ON	9.6
0.775000	40.77	56.00	15.23	L1	ON	9.6
1.000000	38.92	56.00	17.08	L1	ON	9.7
1.735000	32.75	56.00	23.25	N	ON	9.7

**Measurement Results: Average**

Frequency (MHz)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.230000	28.22	52.45	24.23	N	ON	9.6
0.320000	28.57	49.71	21.14	L1	ON	9.6
0.545000	30.32	46.00	15.68	L1	ON	9.6
0.640000	28.53	46.00	17.47	L1	ON	9.6
0.865000	27.58	46.00	18.42	L1	ON	9.7
1.185000	23.17	46.00	22.83	L1	ON	9.7



**Fig.32 AC Power line Conducted Emission (Idle, AE3, 120V), 1M**

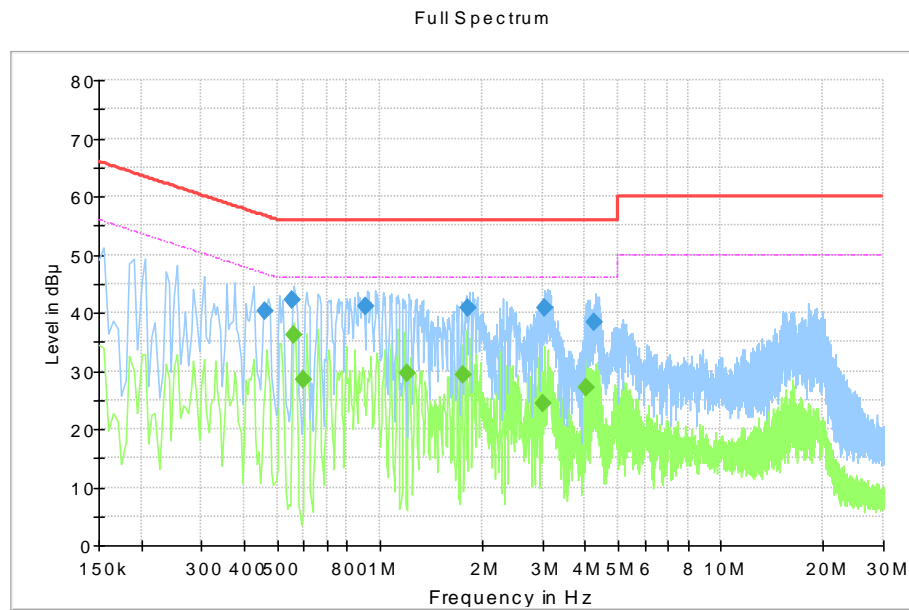
**Measurement Results: Quasi Peak**

Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.270000	41.25	61.12	19.86	L1	ON	9.6
0.365000	42.03	58.61	16.58	L1	ON	9.6
0.480000	40.55	56.34	15.79	L1	ON	9.6
0.540000	40.34	56.00	15.66	N	ON	9.6
0.775000	40.90	56.00	15.10	L1	ON	9.6
0.960000	39.11	56.00	16.89	L1	ON	9.7

**Measurement Results: Average**

Frequency (MHz)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.220000	25.44	52.82	27.37	L1	ON	9.6
0.355000	27.27	48.85	21.57	L1	ON	9.6
0.500000	29.47	46.00	16.53	L1	ON	9.6
0.590000	26.92	46.00	19.08	L1	ON	9.6
0.765000	25.01	46.00	20.99	L1	ON	9.6
0.920000	23.82	46.00	22.18	N	ON	9.7





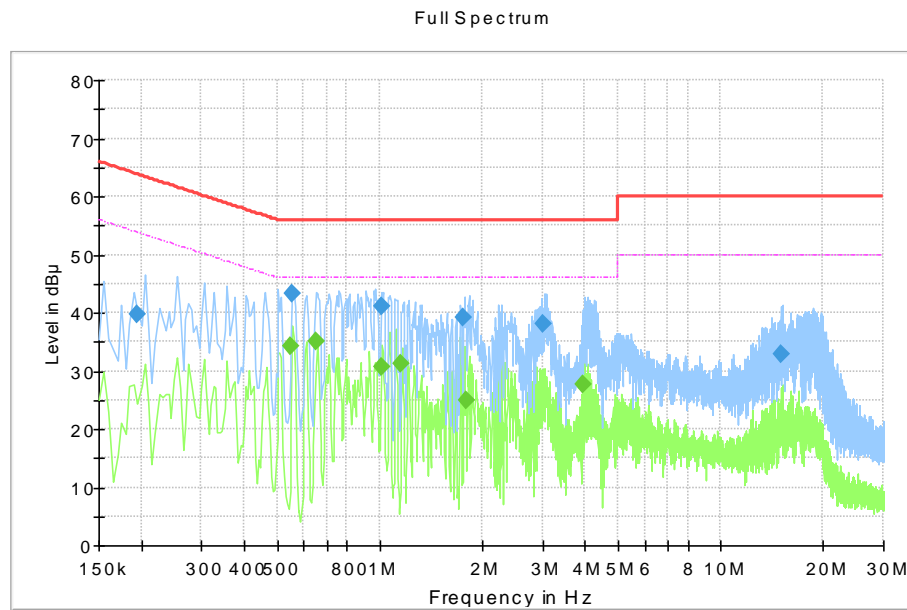
**Fig.33 AC Power line Conducted Emission (Traffic, AE3, 240V), 1M**

**Measurement Results: Quasi Peak**

Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.460000	40.26	56.69	16.43	N	ON	9.6
0.555000	42.20	56.00	13.80	N	ON	9.6
0.910000	41.23	56.00	14.77	L1	ON	9.7
1.820000	40.83	56.00	15.17	N	ON	9.7
3.035000	40.75	56.00	15.25	N	ON	9.7
4.245000	38.24	56.00	17.76	N	ON	9.7

**Measurement Results: Average**

Frequency (MHz)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.560000	36.20	46.00	9.80	L1	ON	9.6
0.600000	28.60	46.00	17.40	N	ON	9.6
1.205000	29.65	46.00	16.35	N	ON	9.7
1.760000	29.40	46.00	16.60	N	ON	9.7
3.010000	24.29	46.00	21.71	N	ON	9.7
4.030000	27.05	46.00	18.95	N	ON	9.7



**Fig.34 AC Power line Conducted Emission (Idle, AE3, 240V), 1M**

**Measurement Results: Quasi Peak**

Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.195000	39.63	63.82	24.20	N	ON	9.6
0.555000	43.20	56.00	12.80	L1	ON	9.6
1.015000	41.12	56.00	14.88	L1	ON	9.7
1.755000	39.29	56.00	16.71	N	ON	9.7
3.000000	38.09	56.00	17.91	N	ON	9.7
14.980000	32.89	60.00	27.11	N	ON	9.8

**Measurement Results: Average**

Frequency (MHz)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.550000	34.37	46.00	11.63	L1	ON	9.6
0.650000	35.19	46.00	10.81	L1	ON	9.6
1.010000	30.57	46.00	15.43	N	ON	9.7
1.150000	31.30	46.00	14.70	N	ON	9.7
1.795000	24.80	46.00	21.20	N	ON	9.7
3.960000	27.70	46.00	18.30	N	ON	9.7

## A.9 Occupied Bandwidth

### Measurement Limit:

Standard	Limit (kHz)
RSS-Gen section 6.7	/

### Measurement Result:

#### LE-1M

Mode	Frequency (MHz)	Test Results (kHz)		Conclusion
GFSK	2402 (CH0)	Fig.35	1092.00	<b>P</b>
	2440 (CH19)	Fig.36	1089.00	<b>P</b>
	2480 (CH39)	Fig.37	1086.00	<b>P</b>

See below for test graphs.

Conclusion: PASS

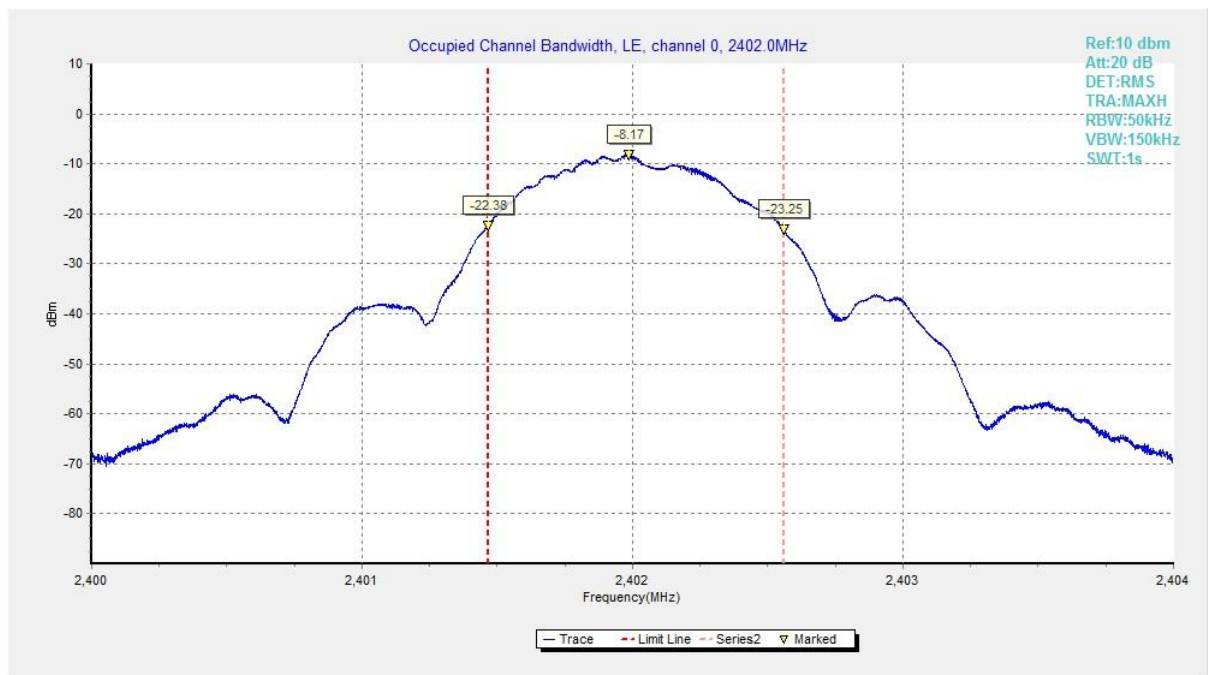
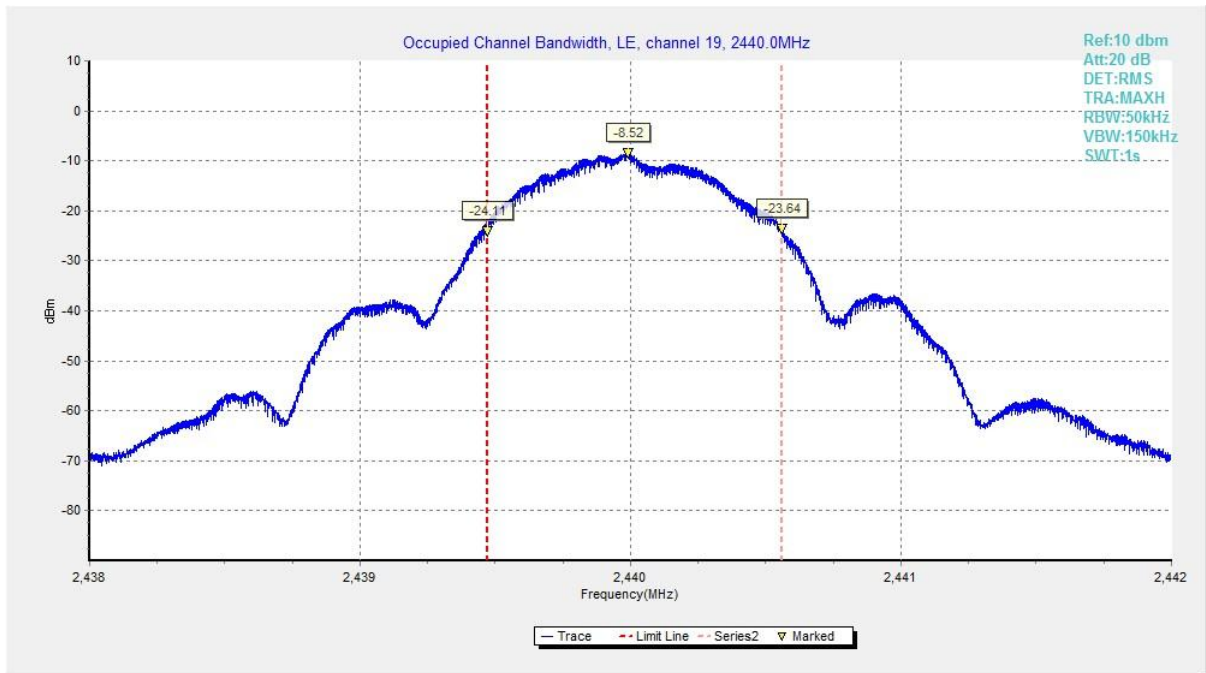


Fig.35 Occupied Bandwidth (Ch 0), 1M



**Fig.36 Occupied Bandwidth (Ch 19), 1M**



**Fig.37 Occupied Bandwidth (Ch 39), 1M**

**\*\*\*END OF REPORT\*\*\***