



# TEST REPORT

No. I22N00674-BLE

**TCL Communication Ltd.**

**LTE/WCDMA/GSM mobile phone**

**Model Name: T676J**

**with**

**Hardware Version: PIO**

**Software Version: V2B51**

**FCC ID: 2ACCJH157**

**Issued Date: 2022-03-16**

**Designation Number: CN1210**

**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.

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## 1. Summary of Test Report

### 1.1. Test Items

Description	LTE/WCDMA/GSM mobile phone
Model Name	T676J
Applicant's name	TCL Communication Ltd.
Manufacturer's Name	TCL Communication Ltd.

### 1.2. Test Standards

FCC Part15-2019; ANSI C63.10-2013

### 1.3. Test Result

**Pass**

Please refer to 5.2 Test Results.

### 1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China

### 1.5. Project data

Testing Start Date:	2021-12-27
Testing End Date:	2022-01-20

### 1.6. Signature

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Lin Kanfeng  
(Prepared this test report)

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An Ran  
(Reviewed this test report)

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Zhang Bojun  
(Approved this test report)



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: TCL Communication Ltd.  
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong  
Contact Person: Peter yang  
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### **2.2. Manufacturer Information**

Company Name: TCL Communication Ltd.  
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong  
Contact Person: Peter yang  
E-Mail: peter.yang@tcl.com  
Telephone: +86 755 3664 5759  
FAX: 0086-755-36612000-81722

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

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

Description	LTE/WCDMA/GSM mobile phone
Model Name	T676J
Frequency Range	2400MHz~2483.5MHz
Type of Modulation	GFSK
Number of Channels	40
Antenna Type	Integrated
Antenna Gain	-0.15 dBi
Power Supply	3.85V DC by Battery
FCC ID	2ACCJH157
Condition of EUT as received	No abnormality in appearance

#### **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>
UT02aa	/	PIO	V2B51	2021-12-22
UT05aa	/	PIO	V2B51	2021-12-22

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

\*UT02aa is used for Conduction test; UT05aa is used for Radiation test and AC Power line Conducted Emission test.

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

<b>AE ID*</b>	<b>Description</b>	<b>SN</b>
AE1	Battery	CAC4900004C7
AE2	Charger	CBA0064BGTC5
AE3	Charger	CBA0059AGTC1
AE4	Charger	CBA0059AGTC5

\*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 LTE/WCDMA/GSM mobile phone with integrated antenna and battery. It consists of normal options: Lithium Battery and Charger. Manual and specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client.

According to the customer's description, T676J (2sim) is a variant product of T676J (1sim). All results were from the initial model. The initial model report number is I21N03521-BLE.



## **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	2019
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013

## 5. Test Results

### 5.1. Testing Environment

Normal Temperature: 15~35°C

Relative Humidity: 20~75%

### 5.2. Test Results

No	Test cases	Sub-clause of Part 15C	Verdict
0	Antenna Requirement	15.203	P
1	Maximum Peak Output Power	15.247 (b)	P
2	Peak Power Spectral Density	15.247 (e)	P
3	6dB Bandwidth	15.247 (a)	P
4	Band Edges Compliance	15.247 (d)	P
5	Transmitter Spurious Emission - Conducted	15.247 (d)	P
6	Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	P
7	AC Power line Conducted Emission	15.107, 15.207	P

See **ANNEX A** for details.

### 5.3. Statements

SAICT has evaluated the test cases requested by the applicant/matrix manufacturer as listed in section 5.2 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2.

Disclaimer:

A. After confirmation with the customer, the sample information provided by the customer may affect the validity of the measurement results in this report, and the impact and consequences arising therefrom shall be borne by the customer.

B. The samples in this report are provided by the customer, and the test results are only applicable to the samples received.

## 6. Test Equipments Utilized

### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2022-12-29	1 year
2	Power Sensor	U2021XA	MY55430013	Agilent	2022-12-29	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	2022-12-31	1 year
2	Test Receiver	ESCI	100701	R&S	2022-08-04	1 year
3	Loop Antenna	HLA6120	35779	TESEQ	2022-05-01	3 year
4	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2024-02-15	3 year
5	Horn Antenna	3117	00066585	ETS-Lindgren	2022-03-04	3 year
6	Test Receiver	ESR7	101675	R&S	2022-07-16	1 year
7	Spectrum Analyzer	FSP 40	100378	R&S	2022-12-10	1 year
8	Chamber	FACT5-2.0	4166	ETS-Lindgren	2024-05-11	3 year
9	Antenna	QSH-SL-1 8-26-S-20	17013	Q-par	2024-01-13	3 year
10	Antenna	QSH-SL-2 6-40-K-20	17014	Q-par	2024-01-09	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. Laboratory Environment

### Semi-anechoic chamber

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3 m distance, from 30 to 1000 MHz

### Shielded room

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

### Fully-anechoic chamber

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

## 8. Measurement Uncertainty

Test Name	Uncertainty ( $k=2$ )	
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	$30\text{MHz} \leq f < 1\text{GHz}$	1.41dB
	$1\text{GHz} \leq f < 7\text{GHz}$	1.92dB
	$7\text{GHz} \leq f < 13\text{GHz}$	2.31dB
	$13\text{GHz} \leq f \leq 26\text{GHz}$	2.61dB
5. Transmitter Spurious Emission - Radiated	$9\text{kHz} \leq f < 30\text{MHz}$	1.70dB
	$30\text{MHz} \leq f < 1\text{GHz}$	4.90dB
	$1\text{GHz} \leq f < 18\text{GHz}$	4.60dB
	$18\text{GHz} \leq f \leq 40\text{GHz}$	4.10dB
6. AC Power line Conducted Emission	$150\text{kHz} \leq f \leq 30\text{MHz}$	3.00dB



## **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 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)	< 30	< 36

**Measurement Results:**

Mode	Frequency (MHz)	Peak Conducted Output Power (dBm)	E.I.R.P (dBm)	Conclusion
LE-1M	2402 (CH0)	-2.51	-2.66	P
	2440 (CH19)	-1.31	-1.46	P
	2480 (CH39)	-2.49	-2.64	P
LE-2M	2402 (CH0)	-2.62	-2.77	P
	2440 (CH19)	-1.42	-1.57	P
	2480 (CH39)	-2.54	-2.69	P

**Conclusion: Pass**

### A.2 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)	< 8 dBm/3 kHz

#### Measurement Results:

Mode	Frequency (MHz)	Peak Power Spectral Density (dBm)	Conclusion
LE-1M	2402 (CH0)	Fig.1	P
	2440 (CH19)	Fig.2	P
	2480 (CH39)	Fig.3	P
LE-2M	2402 (CH0)	Fig.4	P
	2440 (CH19)	Fig.5	P
	2480 (CH39)	Fig.6	P

See below for test graphs.

Conclusion: PASS

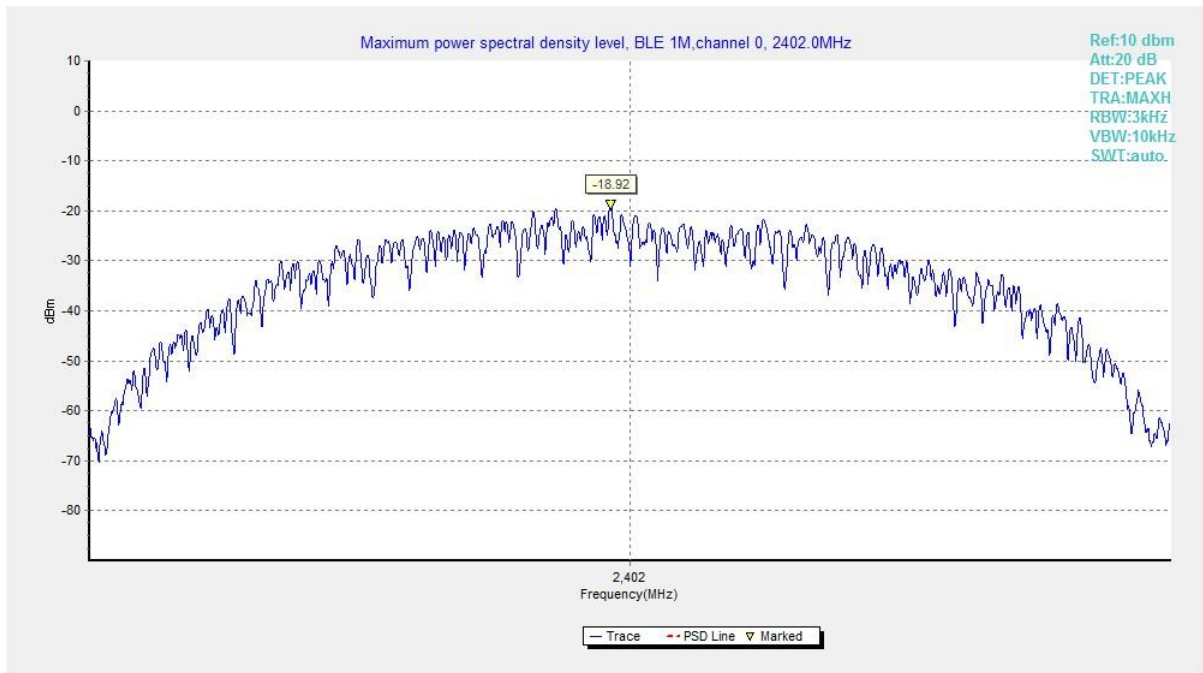


Fig.1 Power Spectral Density (Ch 0), LE 1M

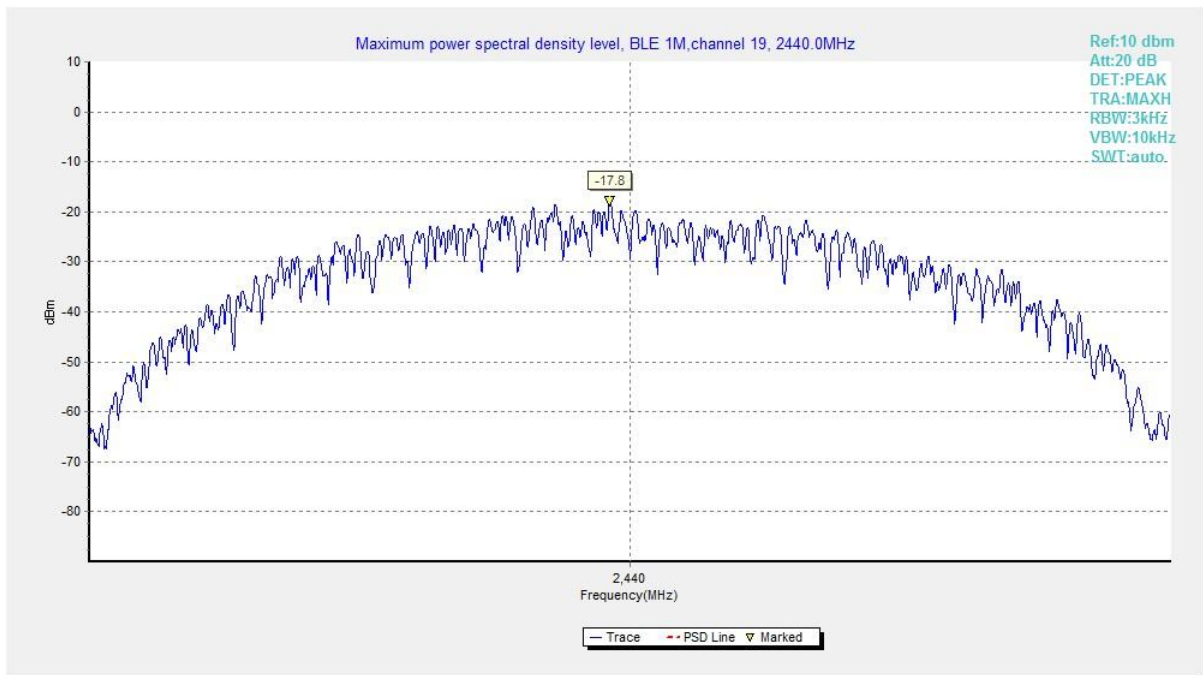


Fig.2 Power Spectral Density (Ch 19), LE 1M

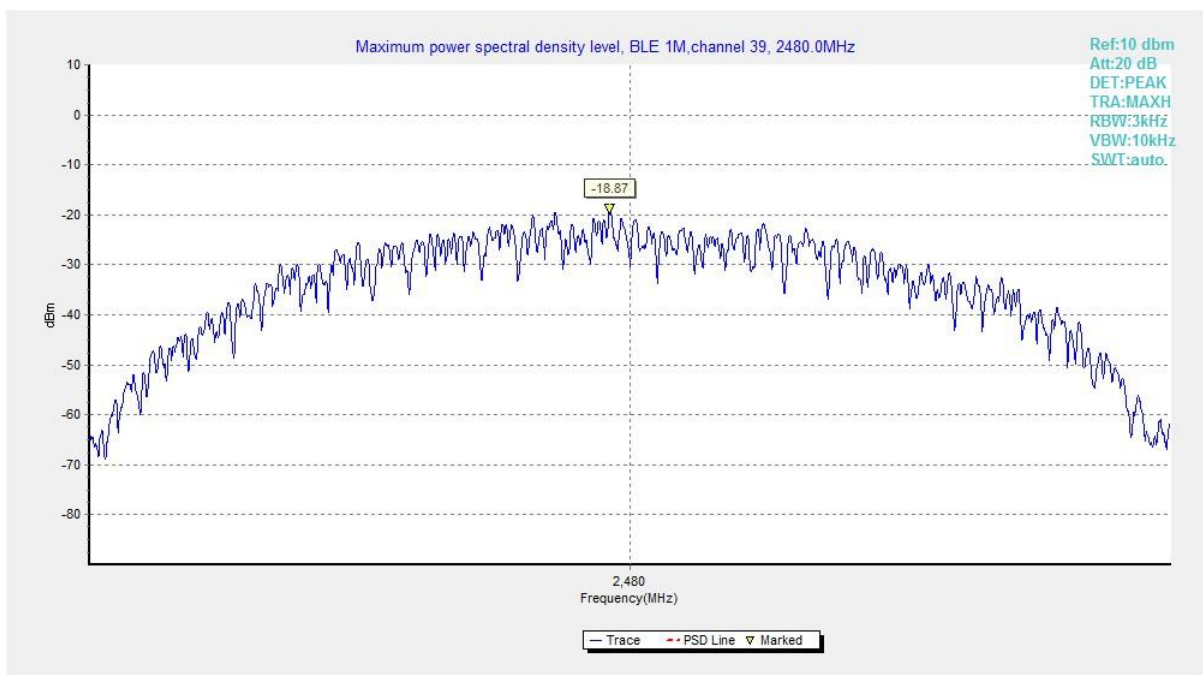


Fig.3 Power Spectral Density (Ch 39), LE 1M

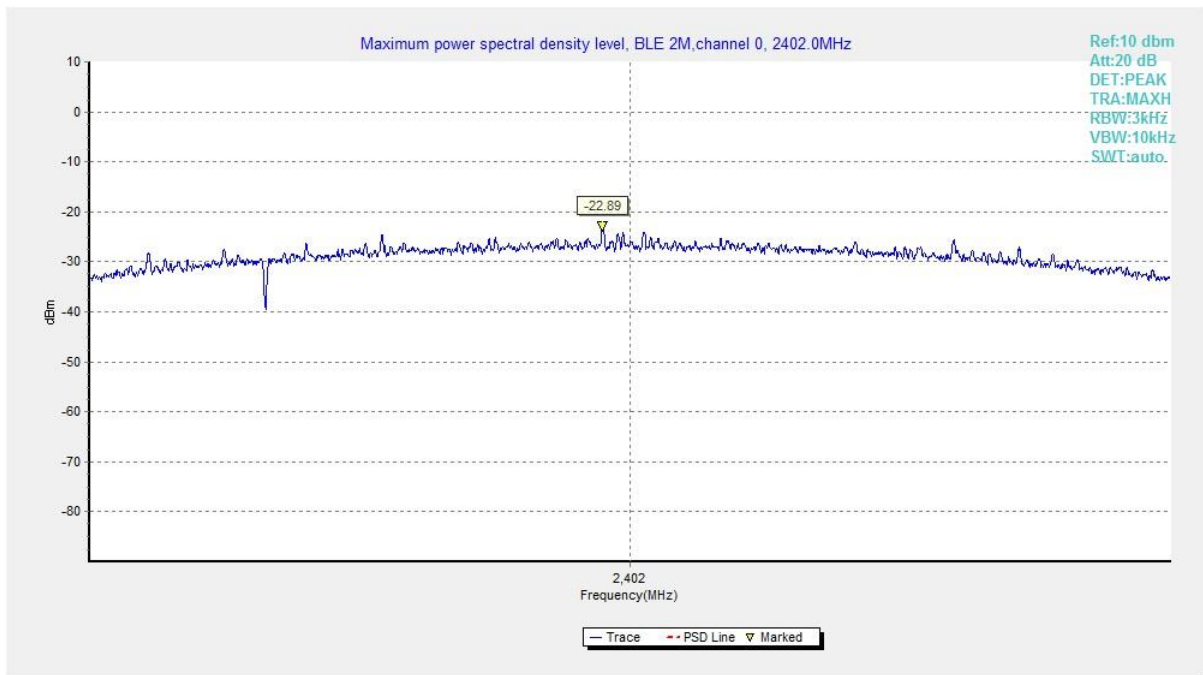


Fig.4 Power Spectral Density (Ch 0), LE 2M

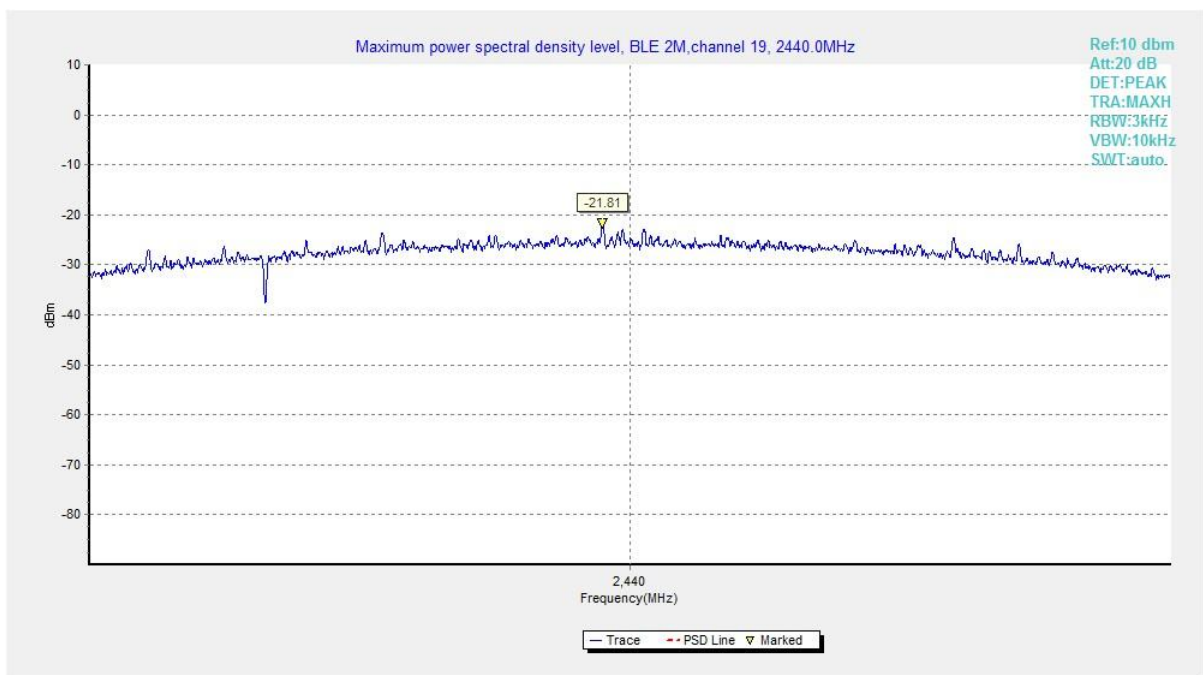


Fig.5 Power Spectral Density (Ch 19), LE 2M

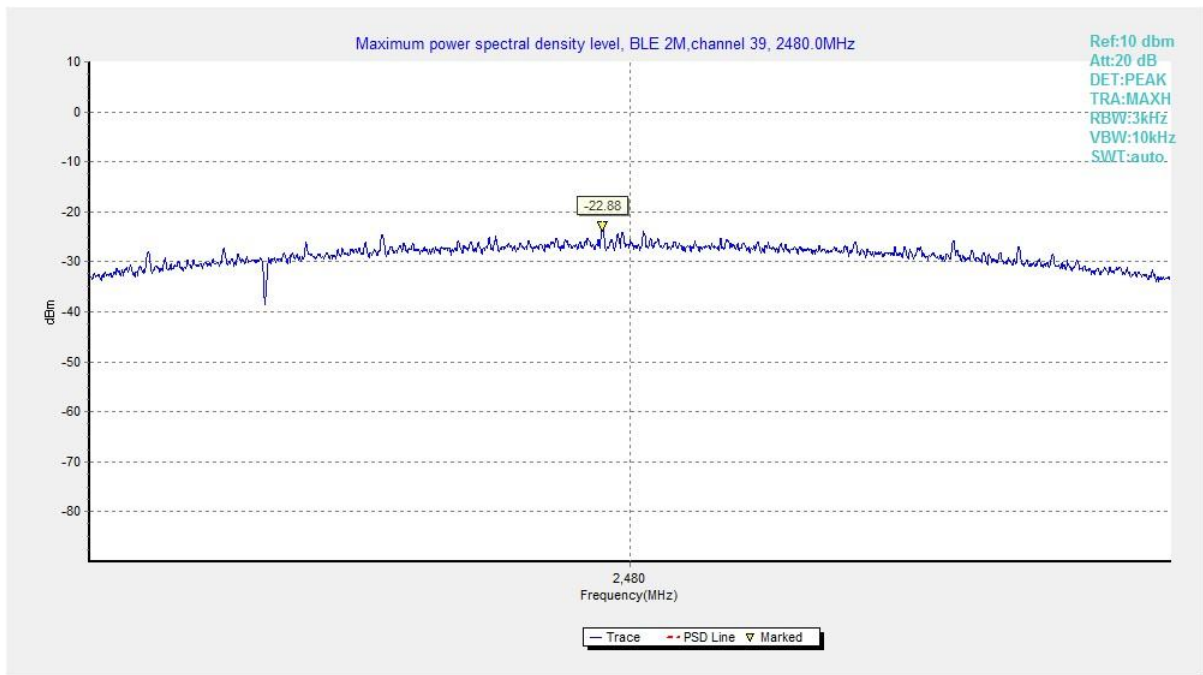


Fig.6 Power Spectral Density (Ch 39), LE 2M



### A.3 6dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	≥ 500

Measurement Result:

Mode	Frequency (MHz)	Test Results (kHz)		Conclusion
LE-1M	2402 (CH0)	Fig.7	685.50	P
	2440 (CH19)	Fig.8	682.50	P
	2480 (CH39)	Fig.9	686.00	P
LE-2M	2402 (CH0)	Fig.10	1162.50	P
	2440 (CH19)	Fig.11	1166.00	P
	2480 (CH39)	Fig.12	1166.00	P

See below for test graphs.

Conclusion: PASS

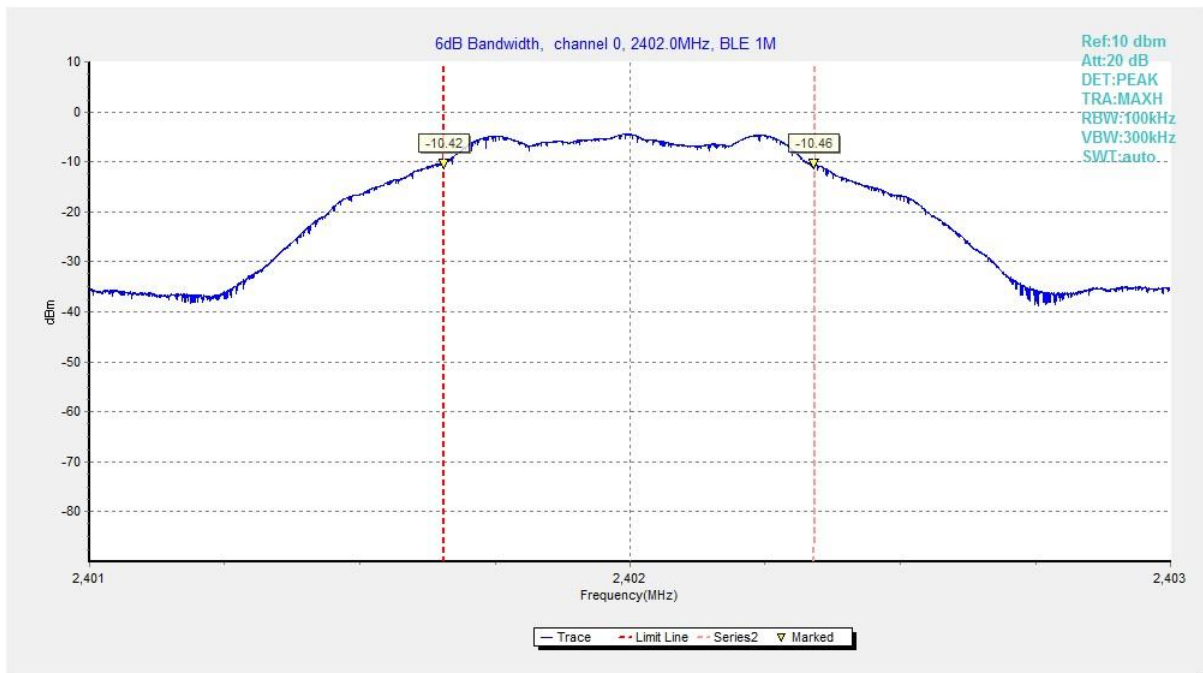


Fig.7 6dB Bandwidth (Ch 0), LE 1M



Fig.8 6dB Bandwidth (Ch 19), LE 1M

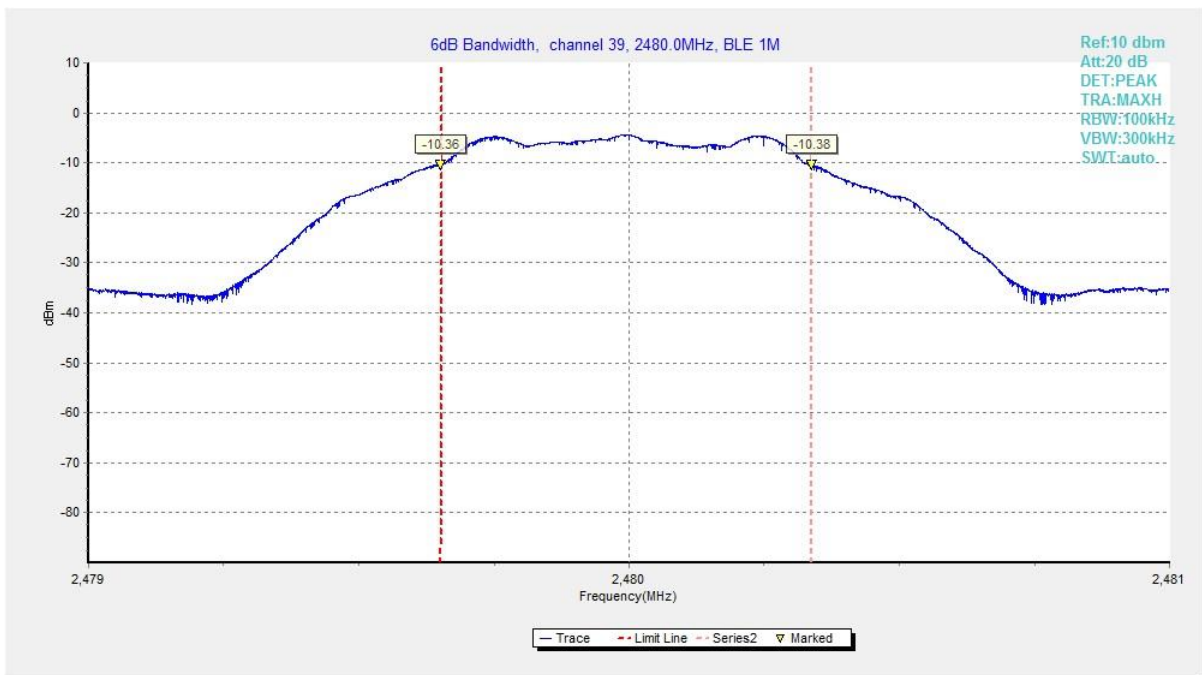


Fig.9 6dB Bandwidth (Ch 39), LE 1M

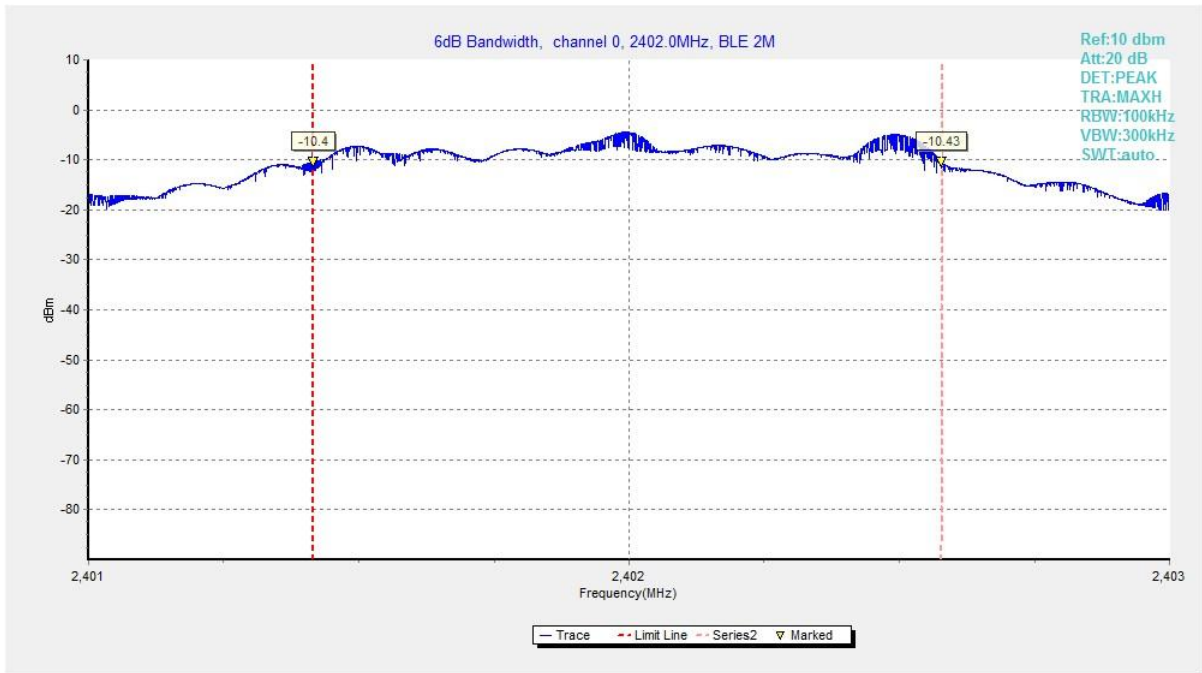


Fig.10 6dB Bandwidth (Ch 0), LE 2M

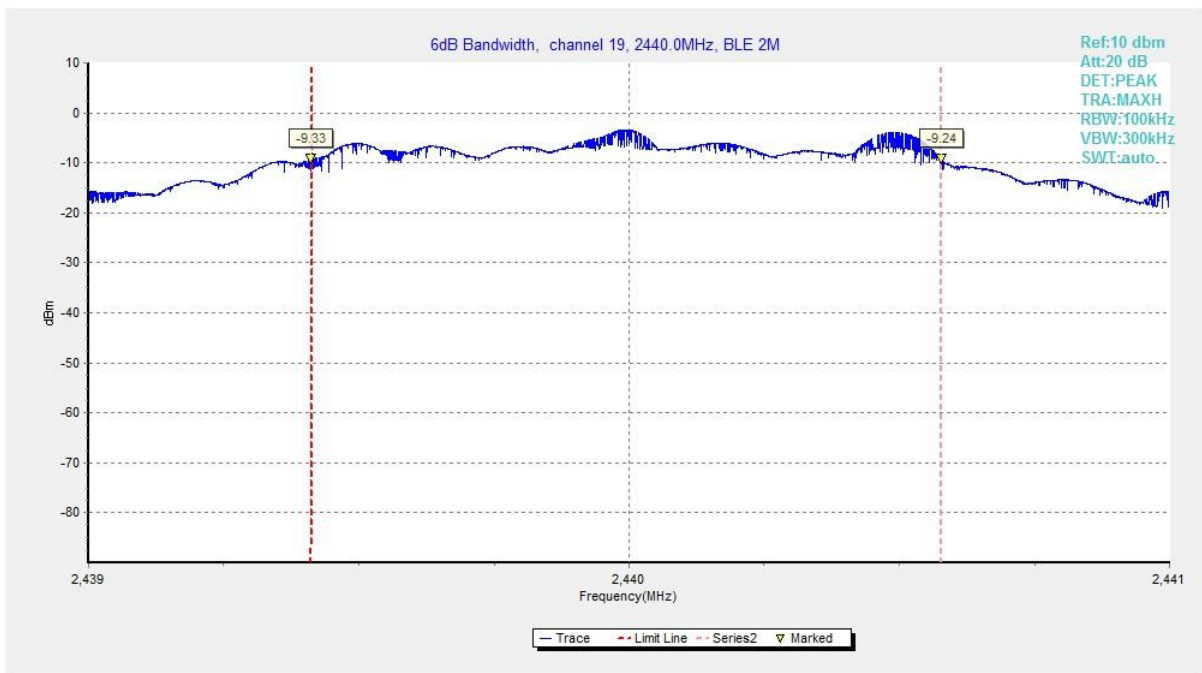


Fig.11 6dB Bandwidth (Ch 19), LE 2M

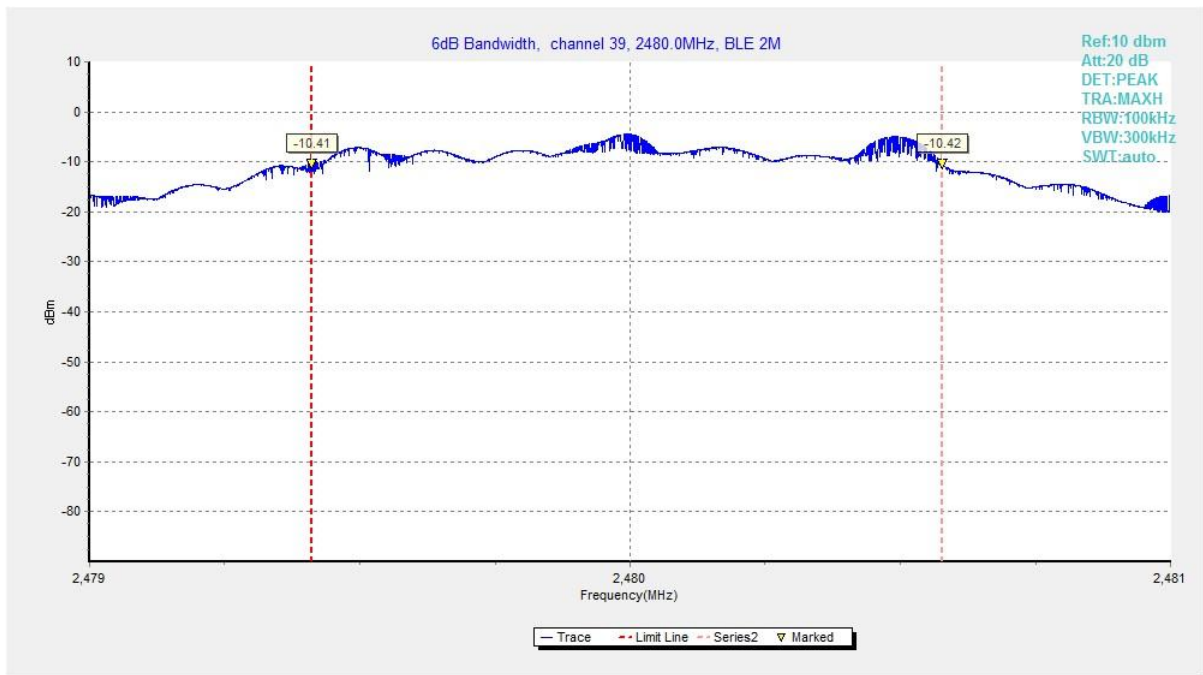


Fig.12 6dB Bandwidth (Ch 39), LE 2M

### A.4 Band Edges Compliance

Measurement Limit:

Standard	Limit (dB)
FCC 47 CFR Part 15.247 (d)	> 20

Measurement Result:

Mode	Frequency (MHz)	Test Results (dB)		Conclusion
LE-1M	2402 (CH0)	Fig.13	56.21	P
	2480 (CH39)	Fig.14	56.35	P
LE-2M	2402 (CH0)	Fig.15	31.69	P
	2480 (CH39)	Fig.16	55.98	P

See below for test graphs.

Conclusion: Pass

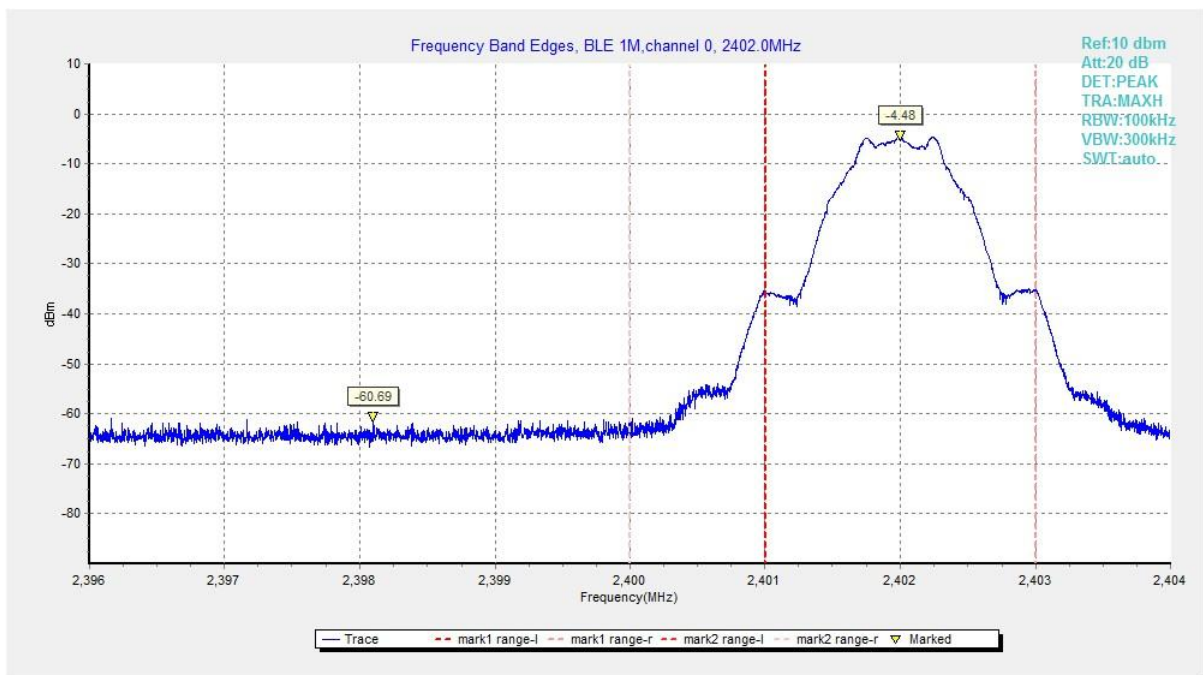
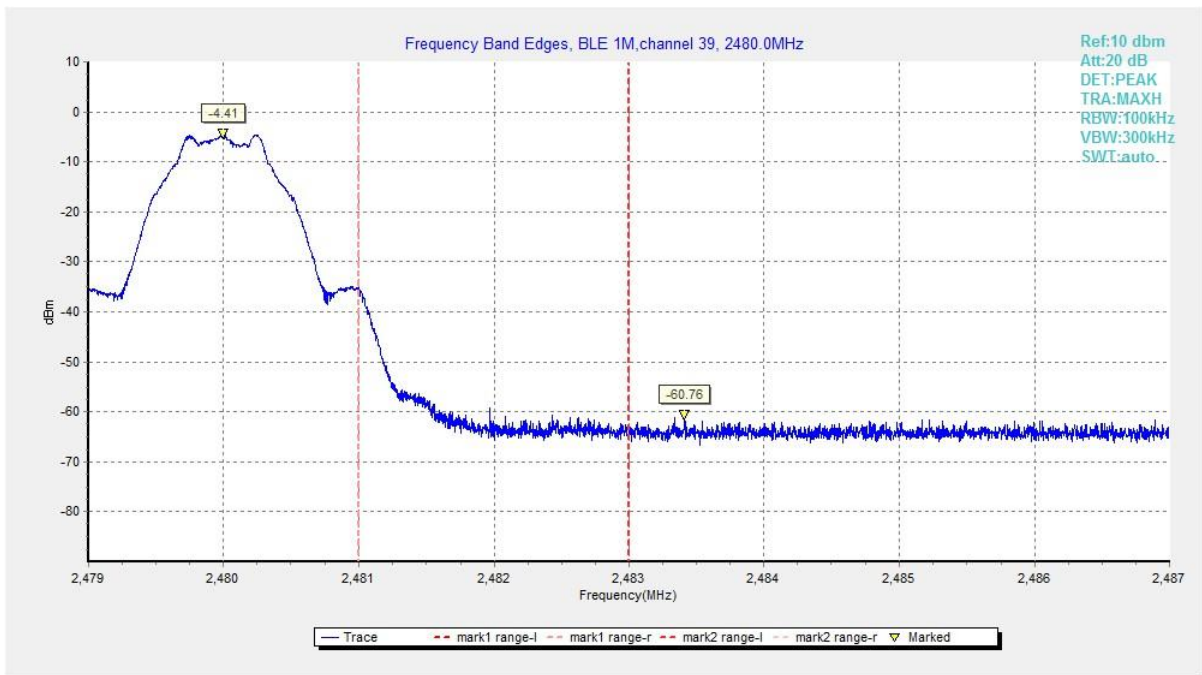
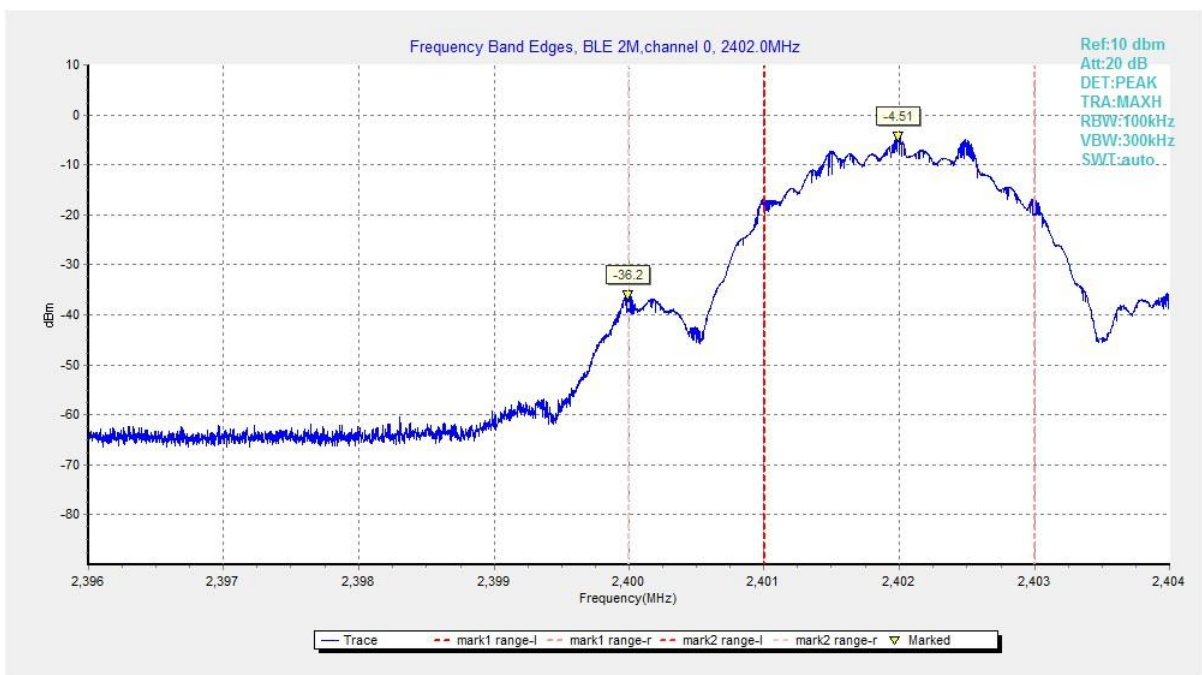


Fig.13 Band Edges (Ch 0), LE 1M



**Fig.14 Band Edges (Ch 39), LE 1M**



**Fig.15 Band Edges (Ch 0), LE 2M**

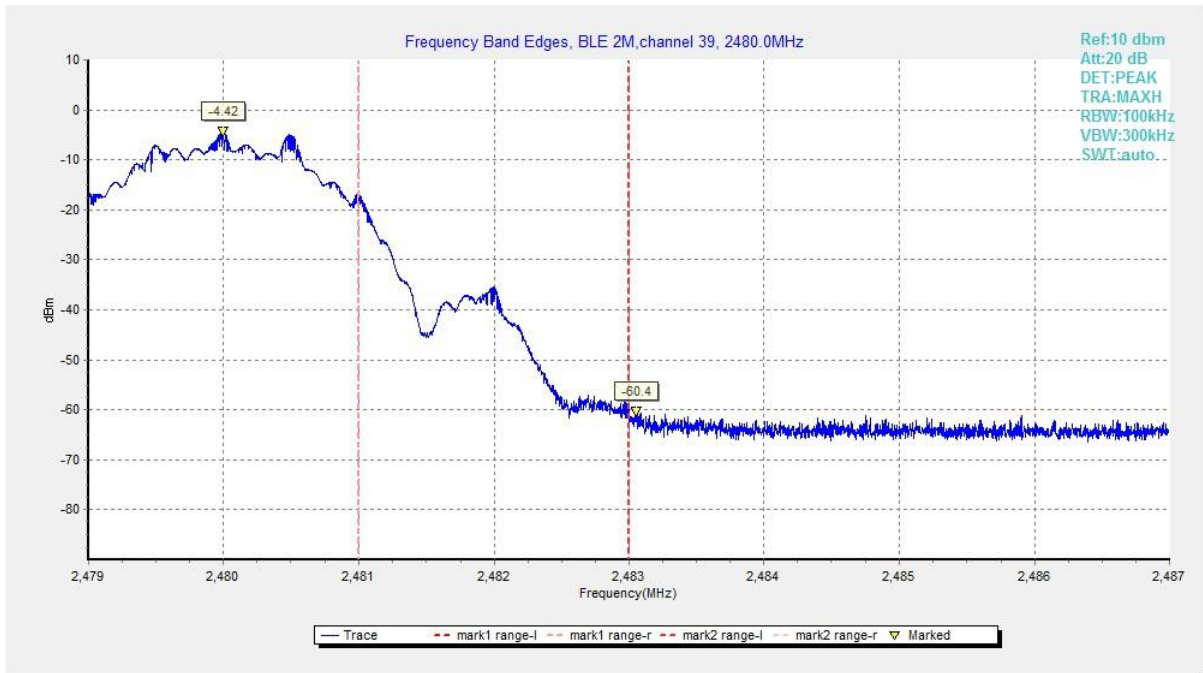


Fig.16 Band Edges (Ch 39), LE 2M



**A.5 Transmitter Spurious Emission - Conducted**

**Measurement Limit:**

Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100kHz bandwidth

**Measurement Results:**

MODE	Channel	Frequency Range	Test Results	Conclusion
LE-1M	0	2.402 GHz	Fig.17	P
		1 GHz ~ 3 GHz	Fig.18	P
		3 GHz ~ 10 GHz	Fig.19	P
	19	2.440 GHz	Fig.20	P
		1 GHz ~ 3 GHz	Fig.21	P
		3 GHz ~ 10 GHz	Fig.22	P
	39	2.480 GHz	Fig.23	P
		1 GHz ~ 3 GHz	Fig.24	P
		3 GHz ~ 10 GHz	Fig.25	P
	All channels	30 MHz ~ 1 GHz	Fig.26	P
		10 GHz ~ 26 GHz	Fig.27	P
	LE-2M	0	2.402 GHz	Fig.28
1 GHz ~ 3 GHz			Fig.29	P
3 GHz ~ 10 GHz			Fig.30	P
19		2.440 GHz	Fig.31	P
		1 GHz ~ 3 GHz	Fig.32	P
		3 GHz ~ 10 GHz	Fig.33	P
39		2.480 GHz	Fig.34	P
		1 GHz ~ 3 GHz	Fig.35	P
		3 GHz ~ 10 GHz	Fig.36	P
All channels		30 MHz ~ 1 GHz	Fig.37	P
		10 GHz ~ 26 GHz	Fig.38	P

See below for test graphs.

**Conclusion: Pass**



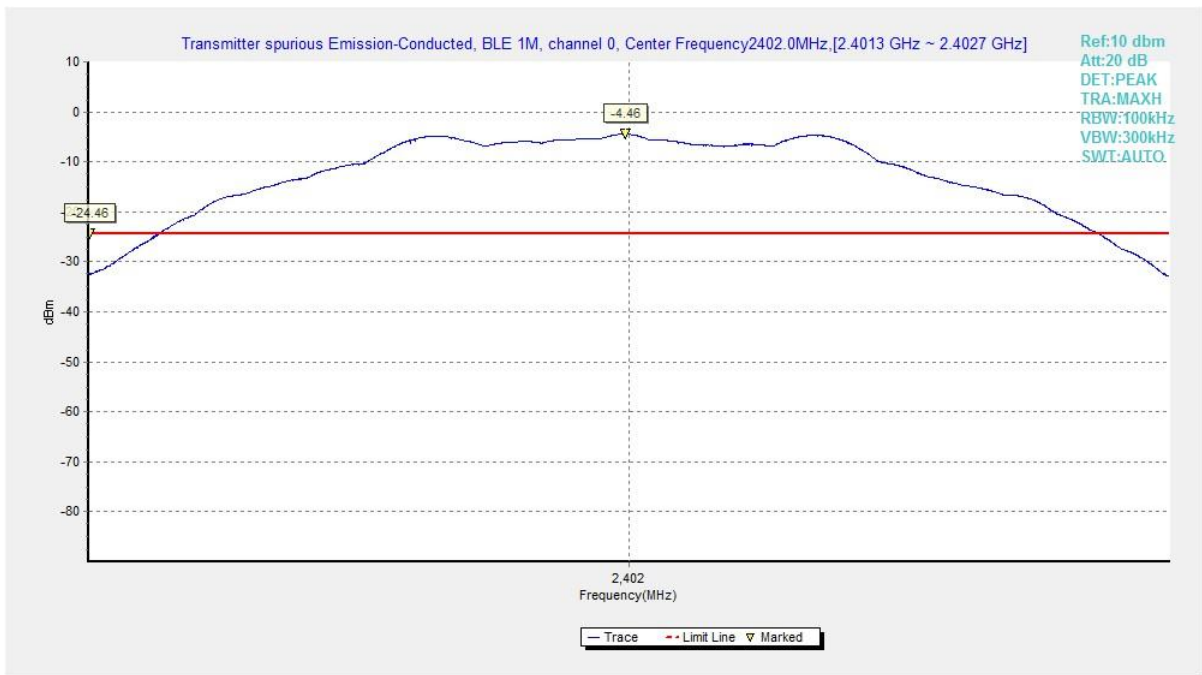


Fig.17 Conducted Spurious Emission (Ch0, Center Frequency), LE 1M

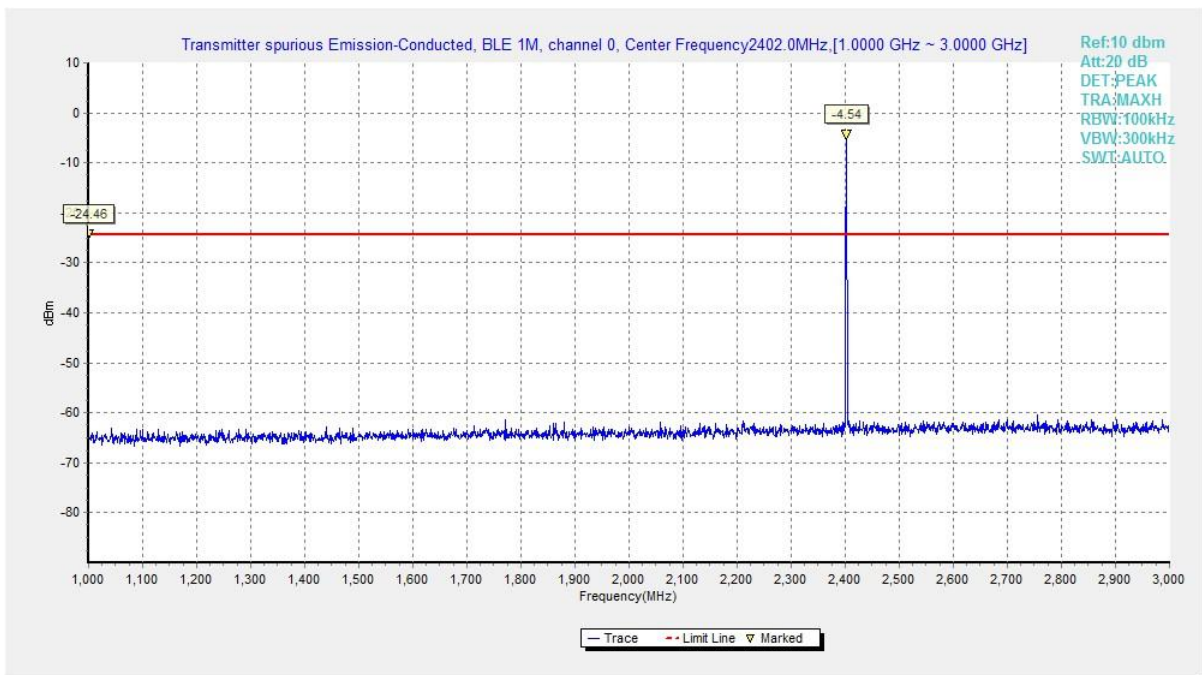


Fig.18 Conducted Spurious Emission (Ch0, 1 GHz-3 GHz), LE 1M

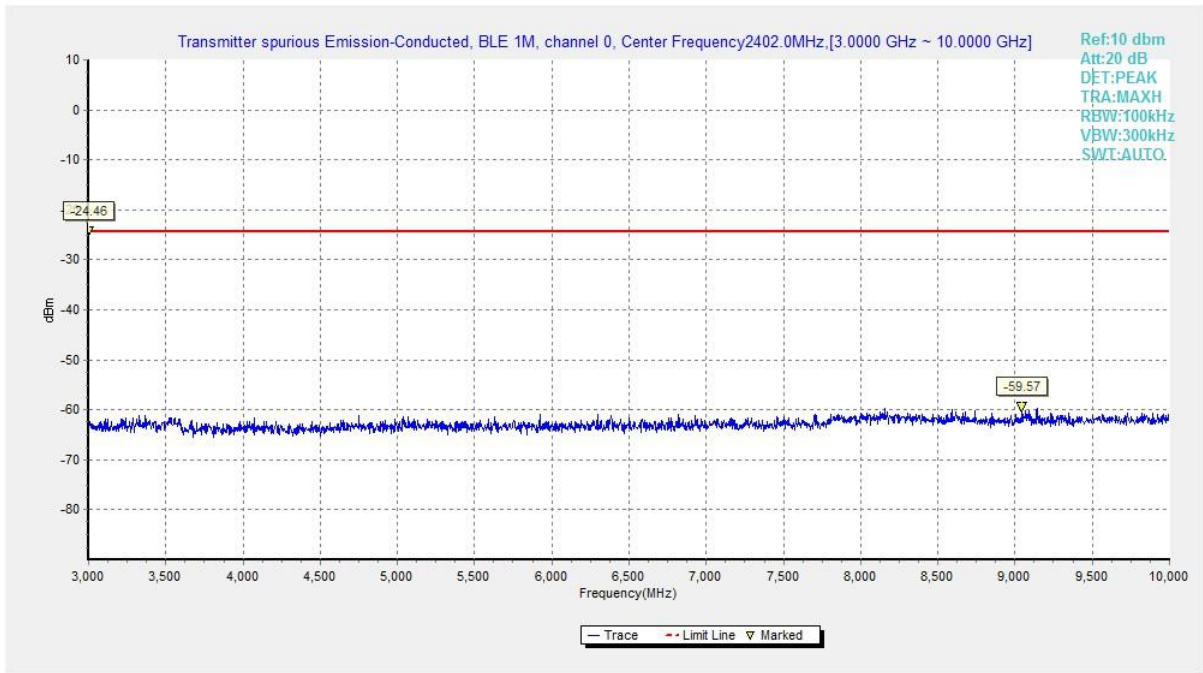


Fig.19 Conducted Spurious Emission (Ch0, 3 GHz-10 GHz), LE 1M

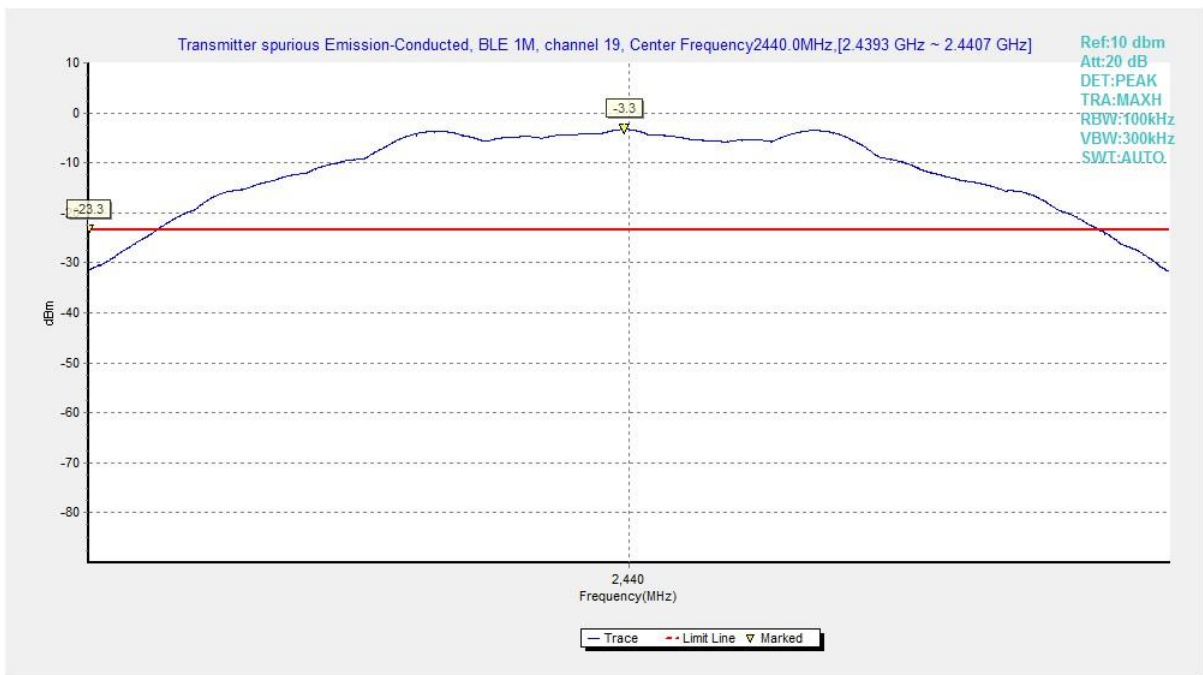


Fig.20 Conducted Spurious Emission (Ch19, Center Frequency), LE 1M

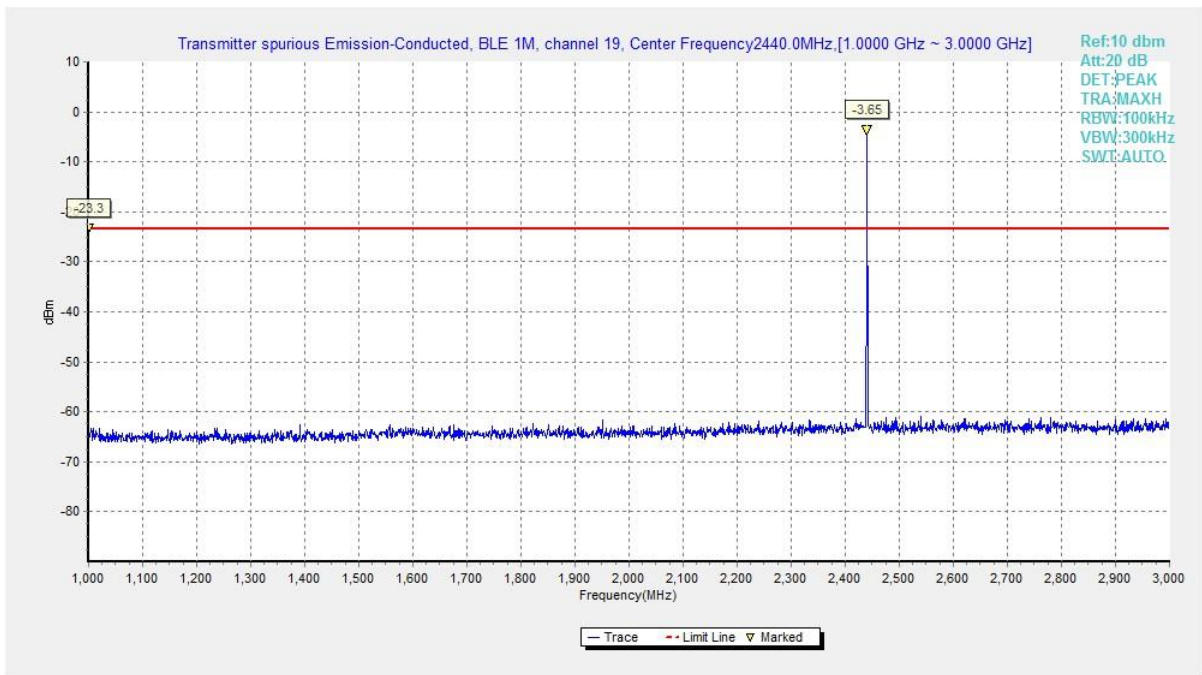


Fig.21 Conducted Spurious Emission (Ch19, 1 GHz-3 GHz), LE 1M

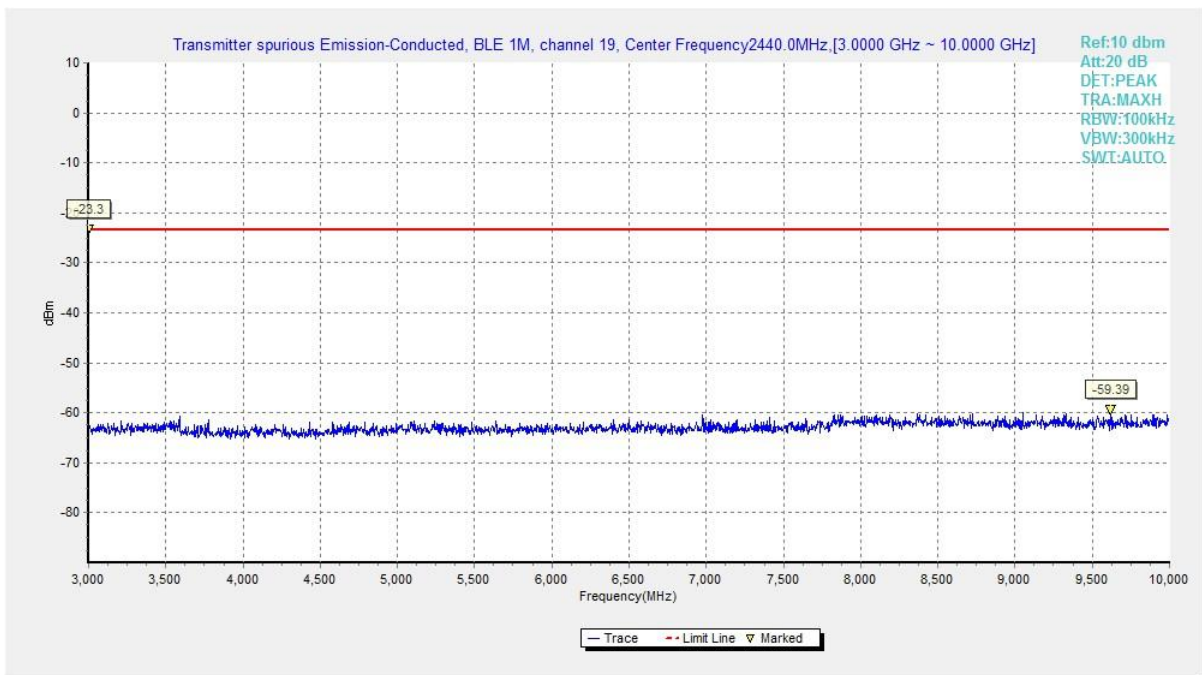
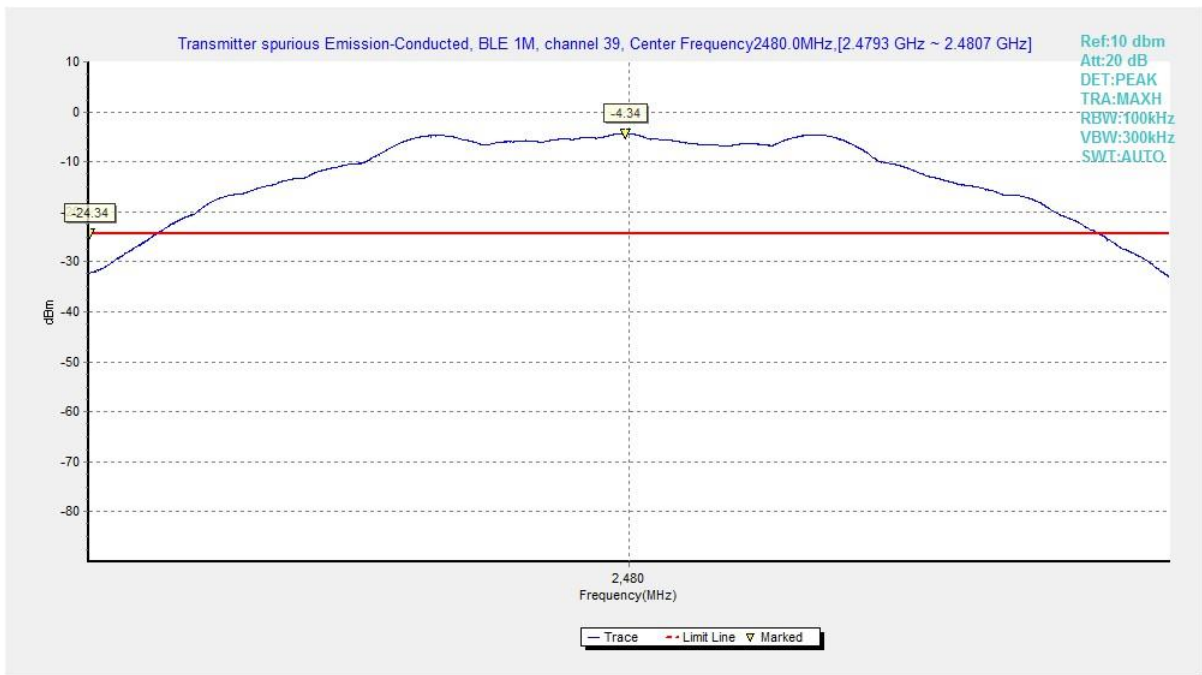
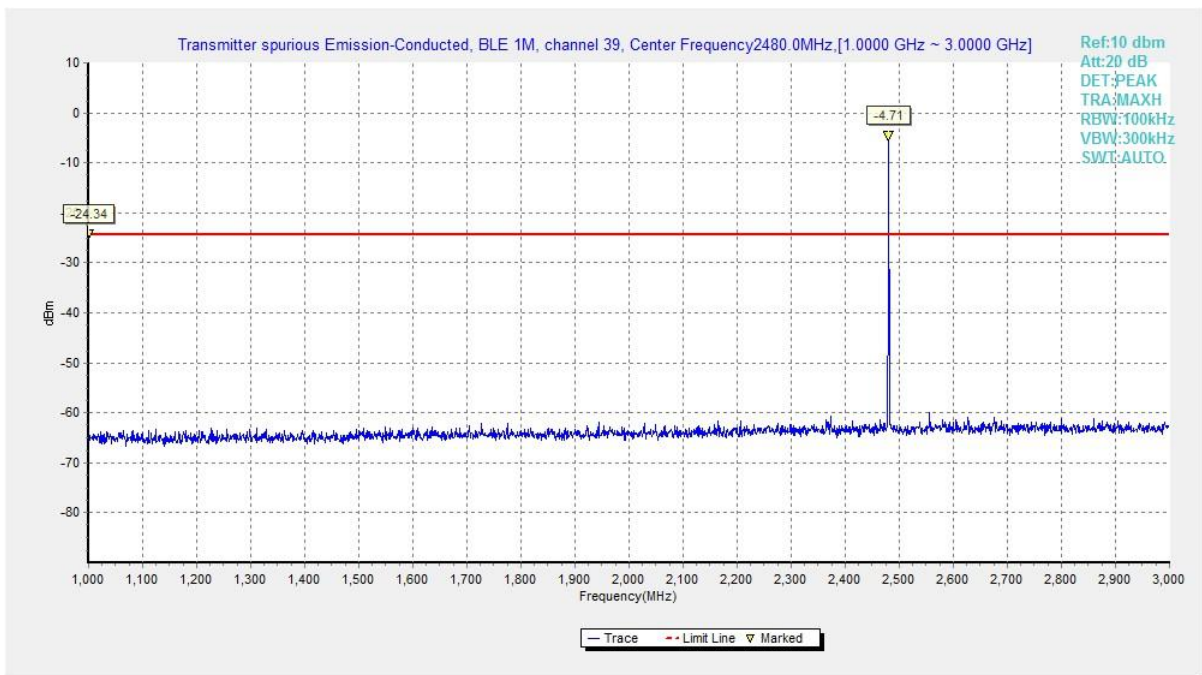


Fig.22 Conducted Spurious Emission (Ch19, 3 GHz-10 GHz), LE 1M



**Fig.23 Conducted Spurious Emission (Ch39, Center Frequency), LE 1M**



**Fig.24 Conducted Spurious Emission (Ch39, 1 GHz-3 GHz), LE 1M**

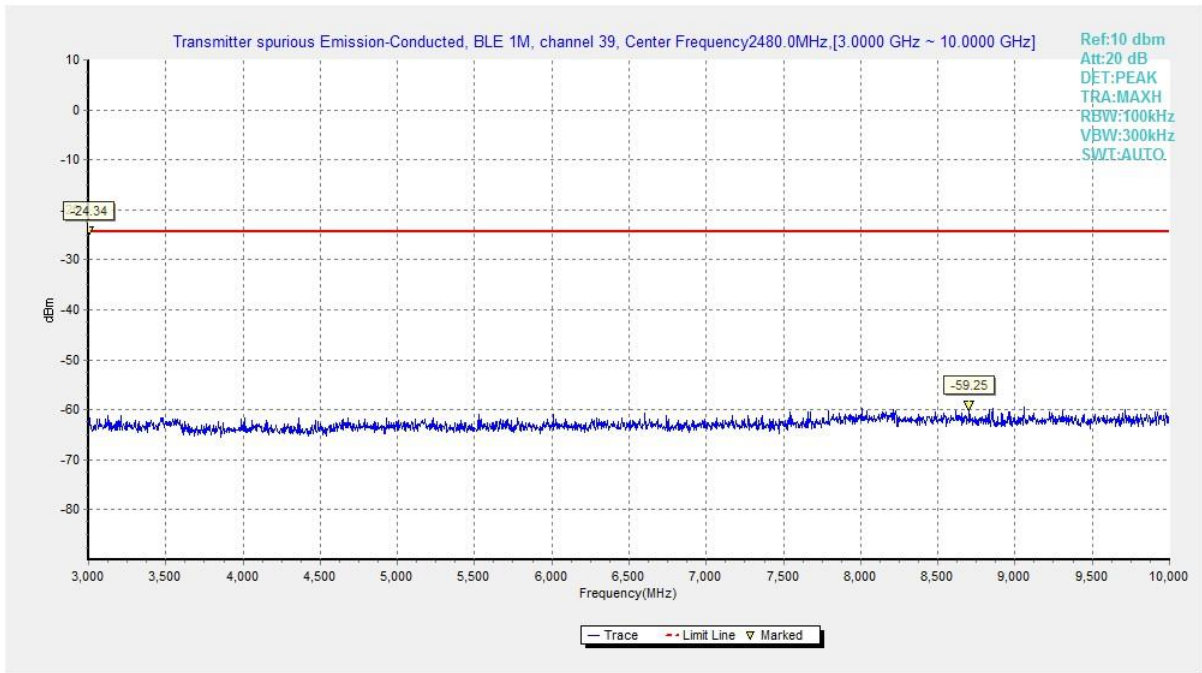


Fig.25 Conducted Spurious Emission (Ch39, 3 GHz-10 GHz), LE 1M

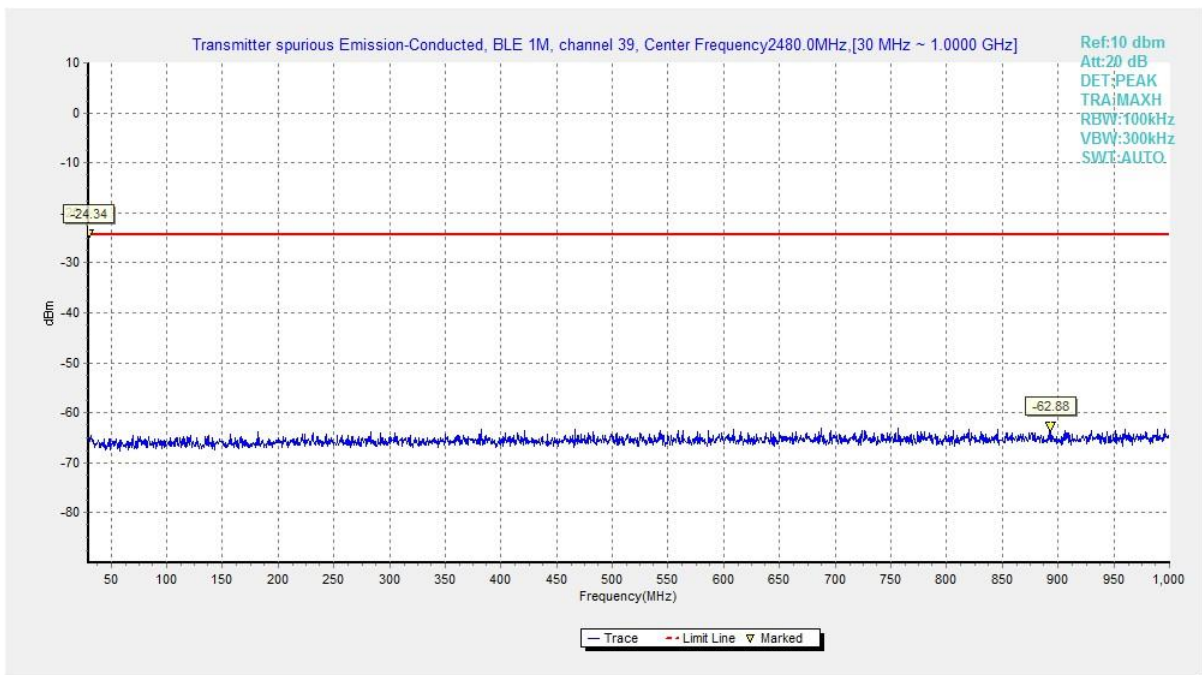
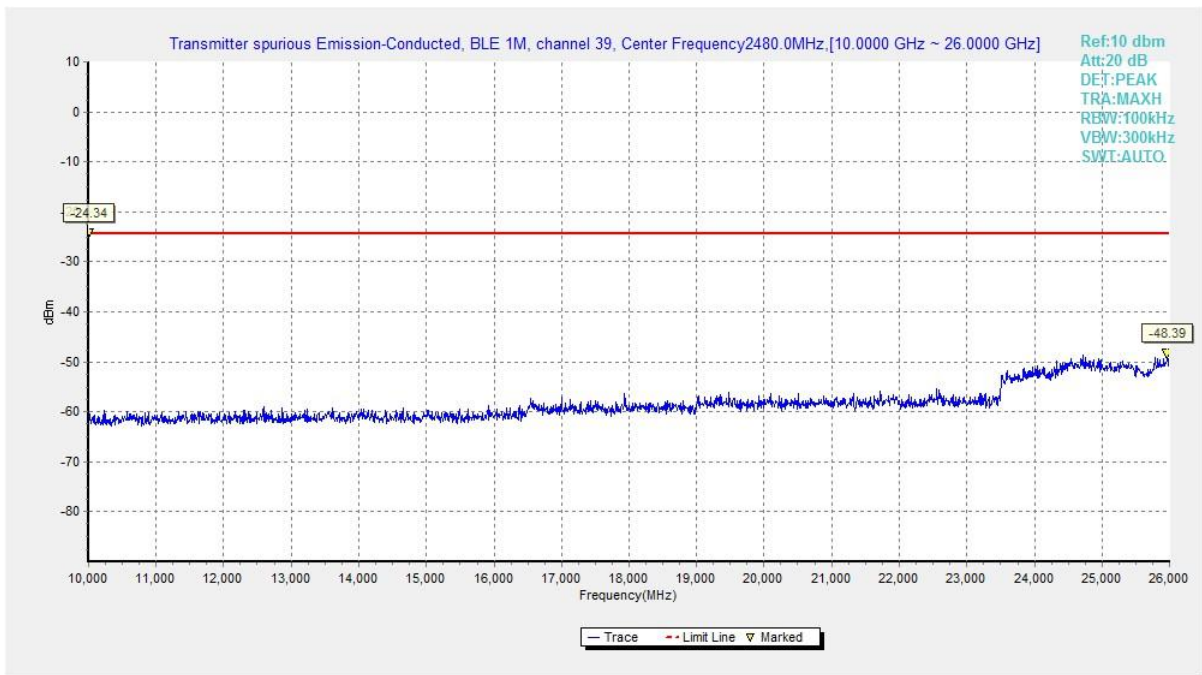
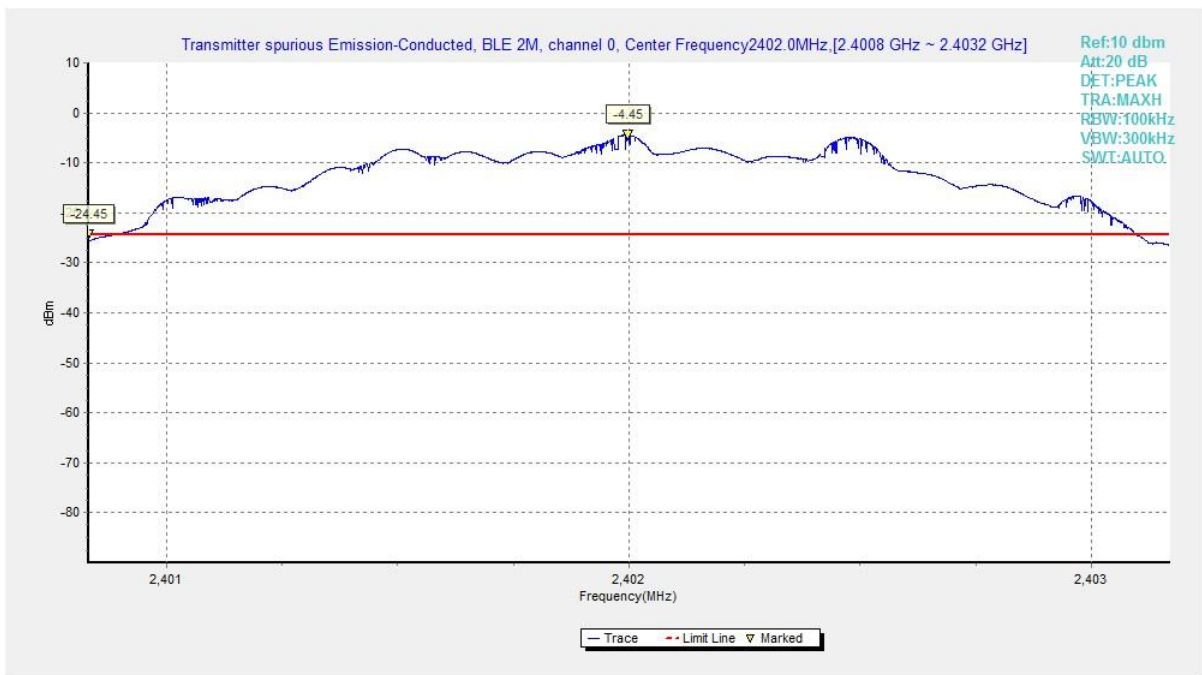


Fig.26 Conducted Spurious Emission (All channels, 30 MHz-1 GHz), LE 1M



**Fig.27 Conducted Spurious Emission (All channels, 10 GHz-26 GHz), LE 1M**



**Fig.28 Conducted Spurious Emission (Ch0, Center Frequency), LE 2M**

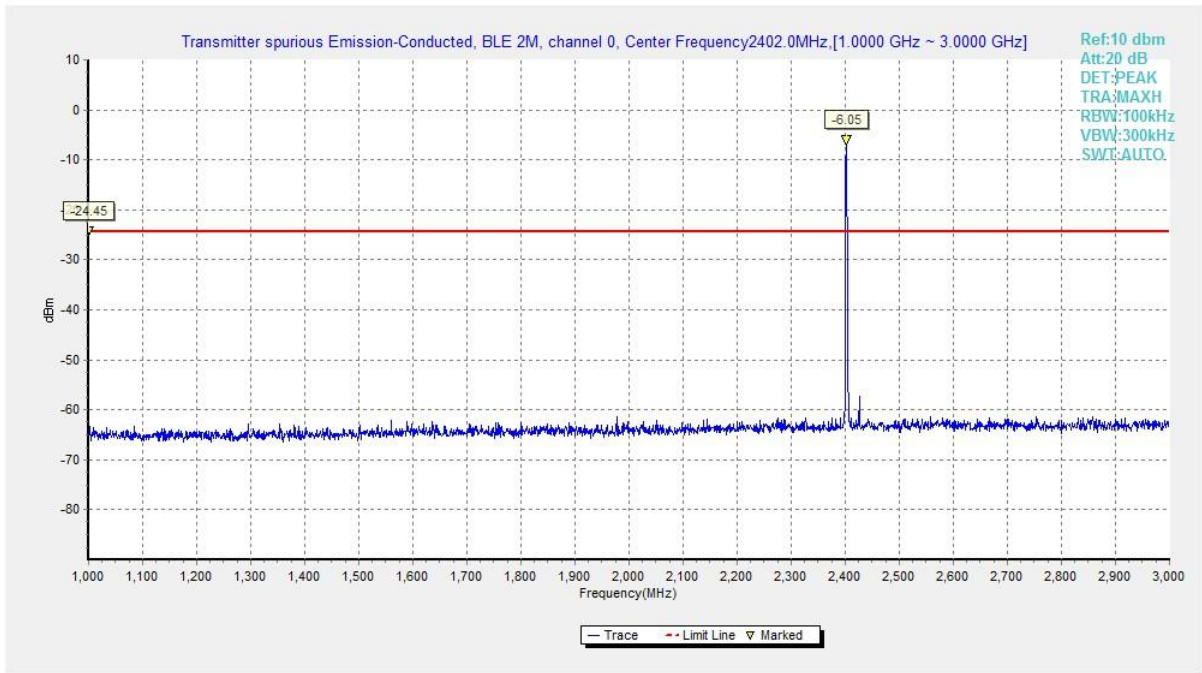


Fig.29 Conducted Spurious Emission (Ch0, 1 GHz-3 GHz), LE 2M

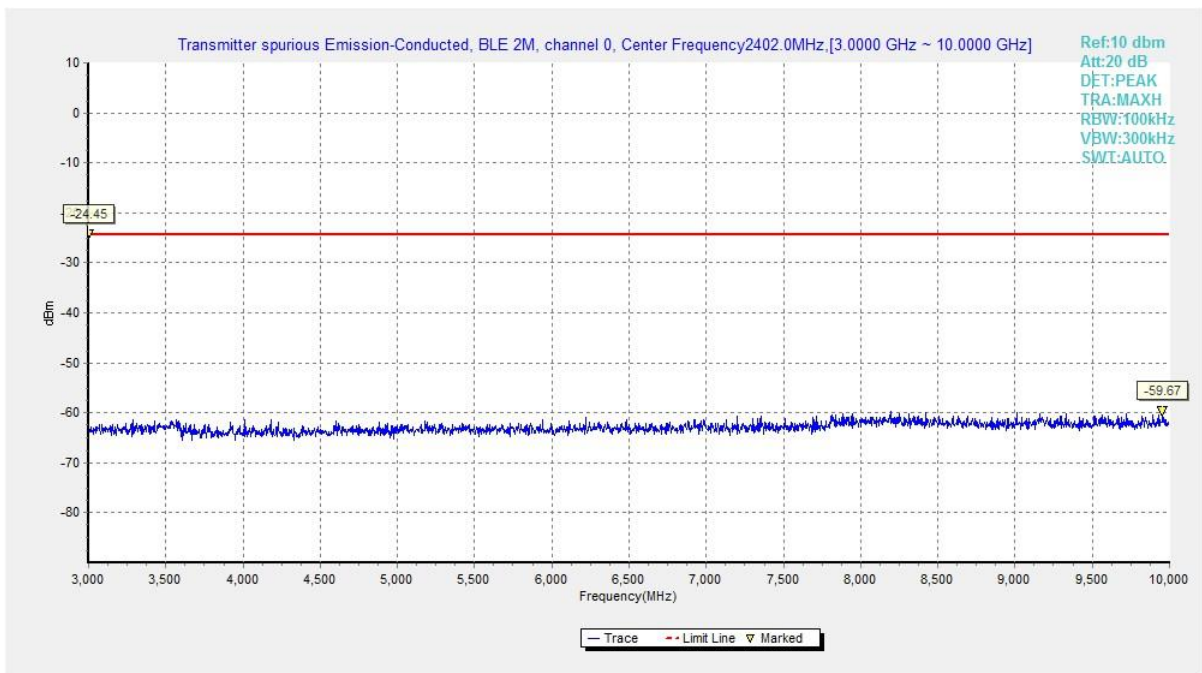


Fig.30 Conducted Spurious Emission (Ch0, 3 GHz-10 GHz), LE 2M

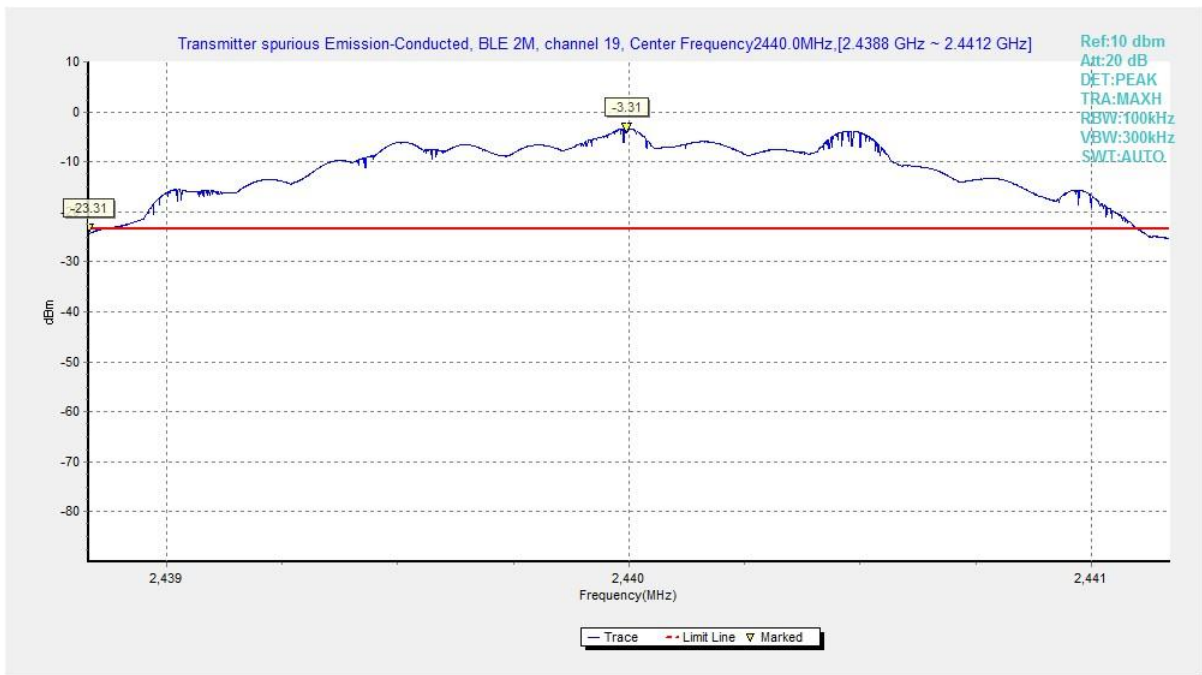


Fig.31 Conducted Spurious Emission (Ch19, Center Frequency), LE 2M

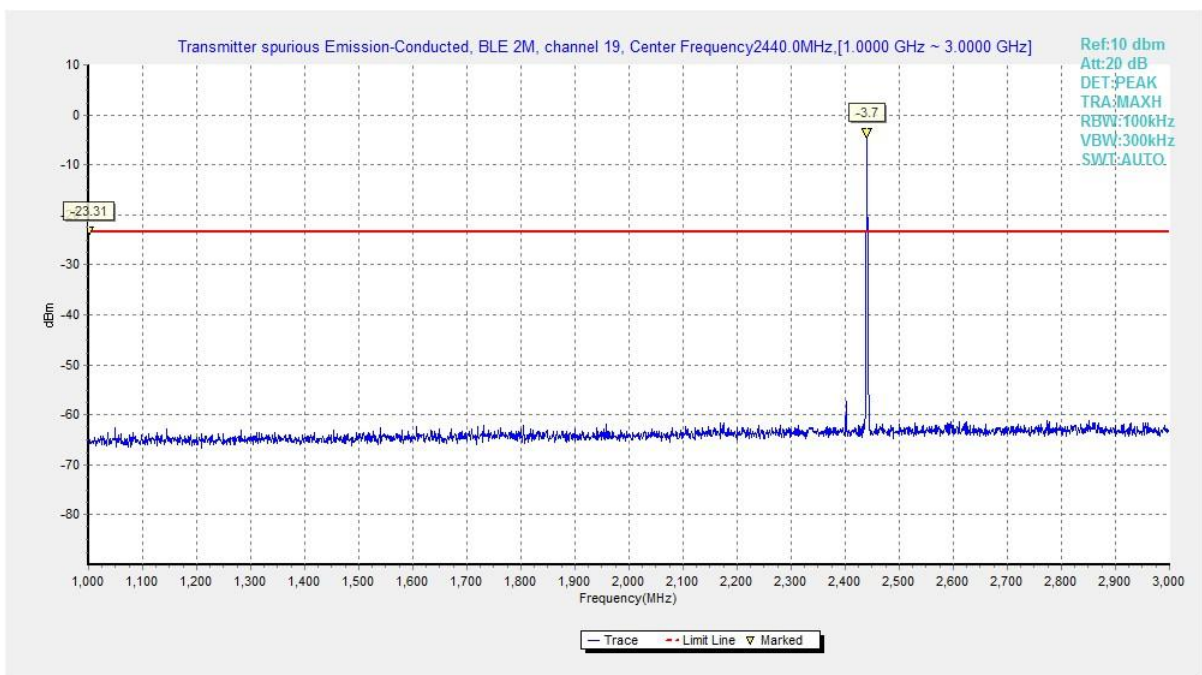


Fig.32 Conducted Spurious Emission (Ch19, 1 GHz-3 GHz), LE 2M



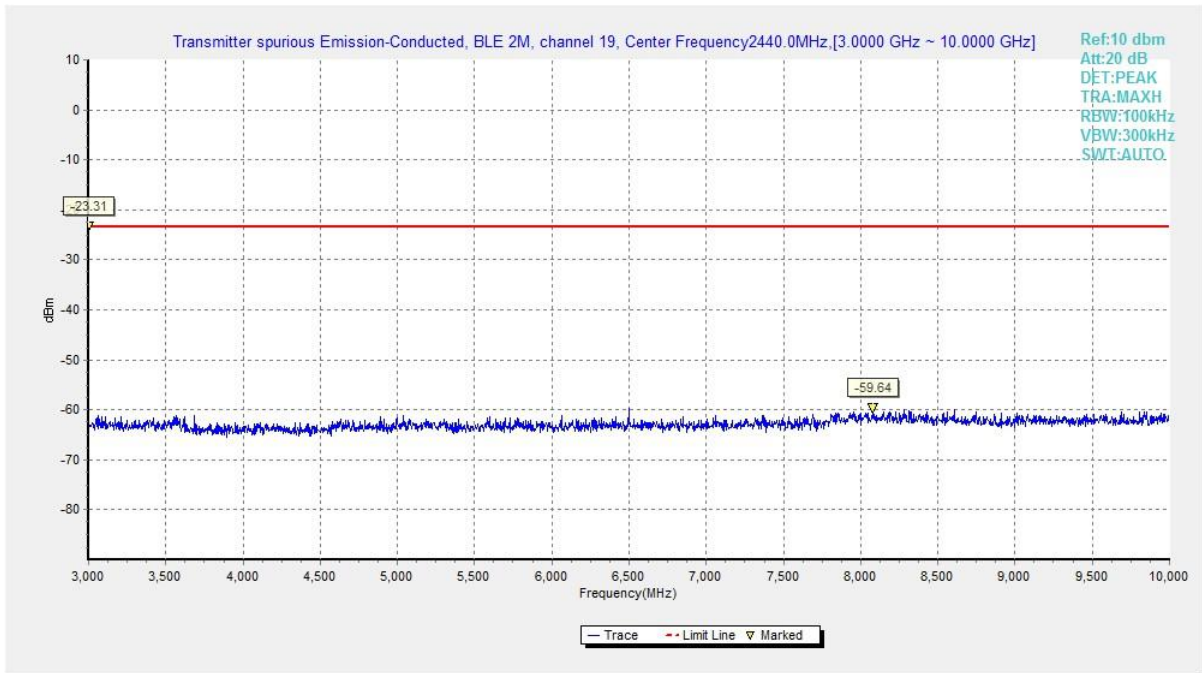


Fig.33 Conducted Spurious Emission (Ch19, 3 GHz-10 GHz), LE 2M

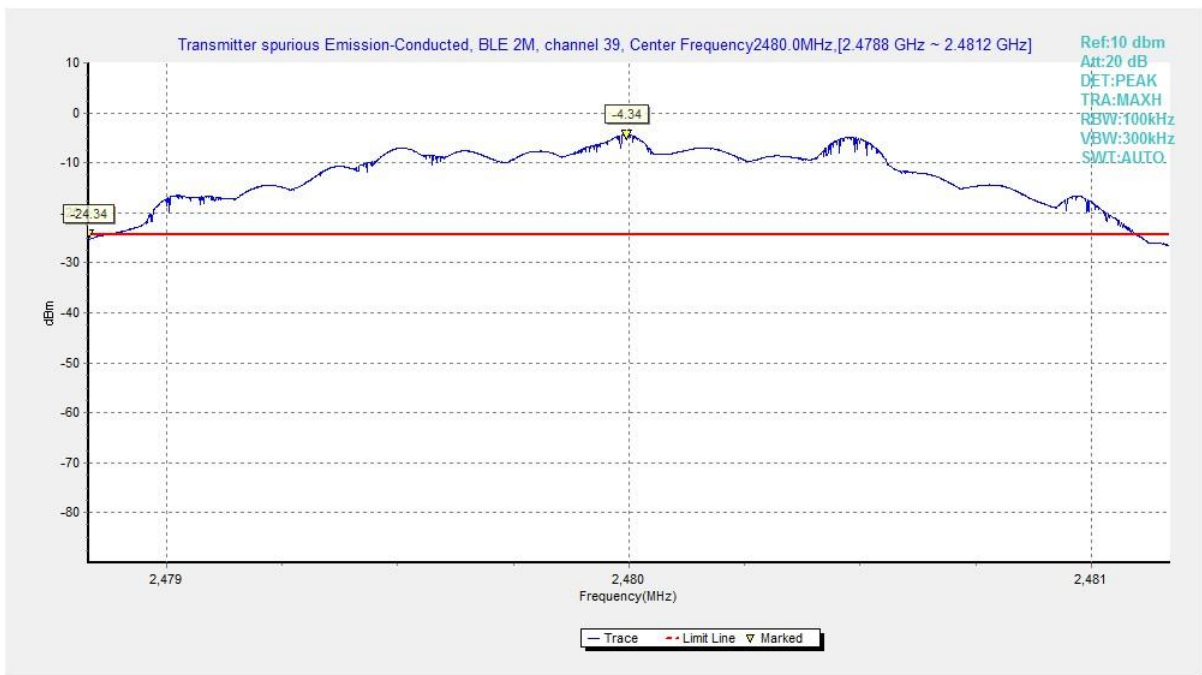


Fig.34 Conducted Spurious Emission (Ch39, Center Frequency), LE 2M

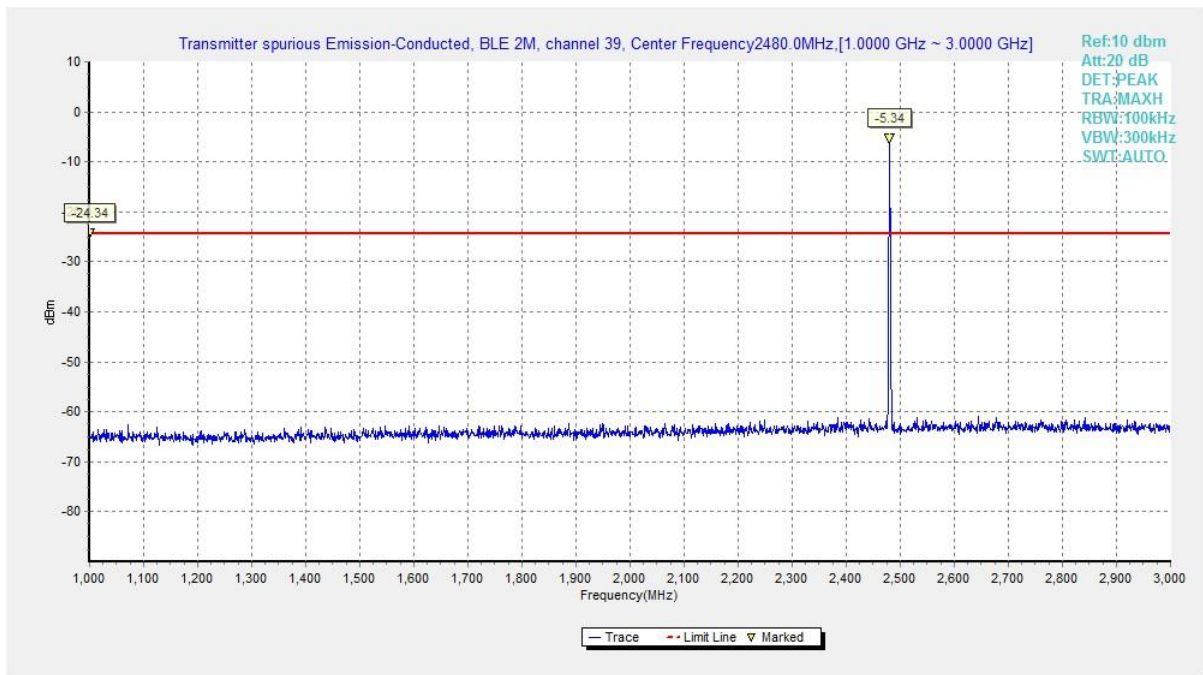


Fig.35 Conducted Spurious Emission (Ch39, 1 GHz-3 GHz), LE 2M

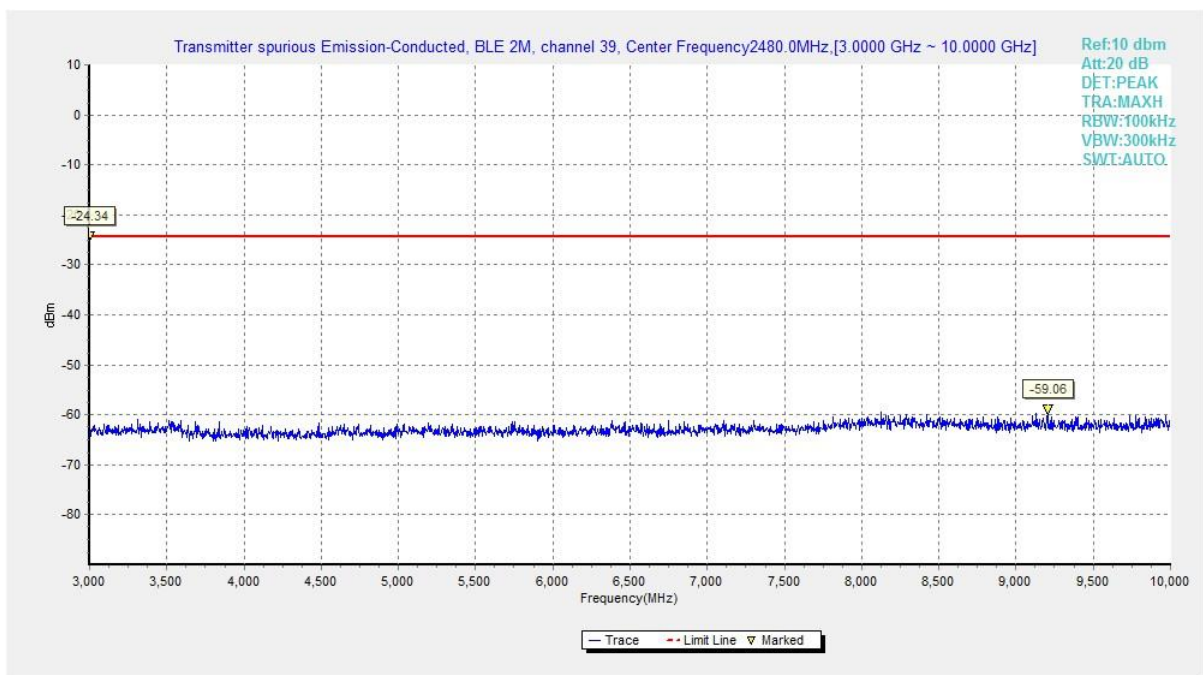
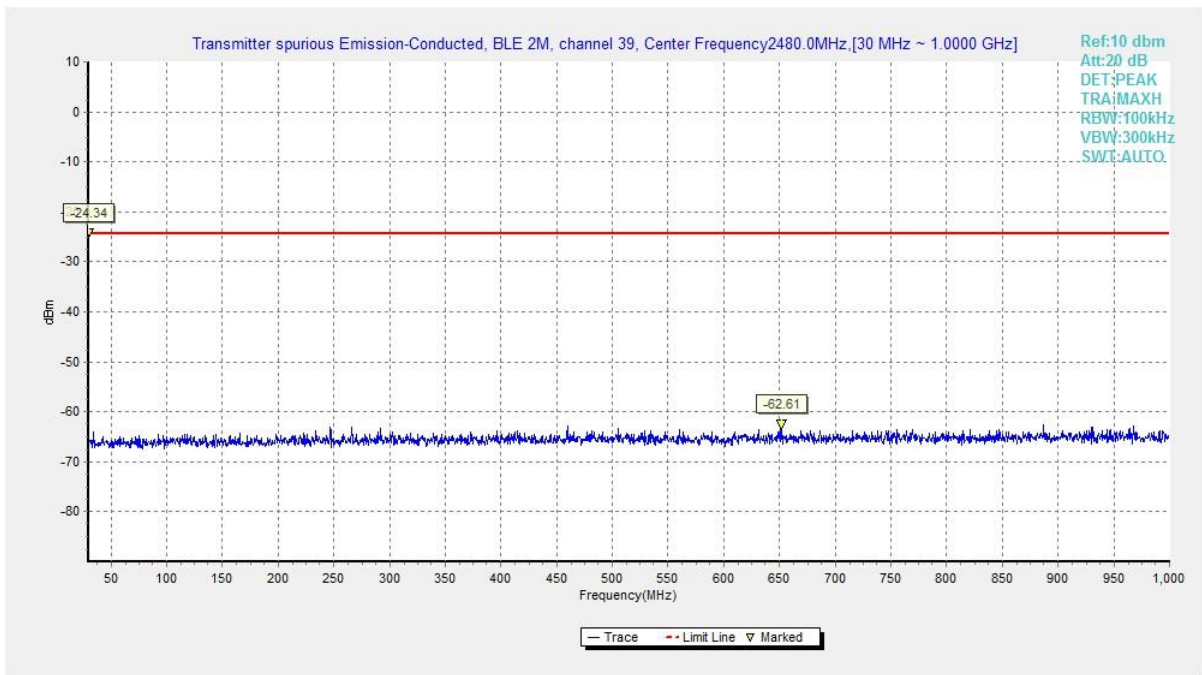
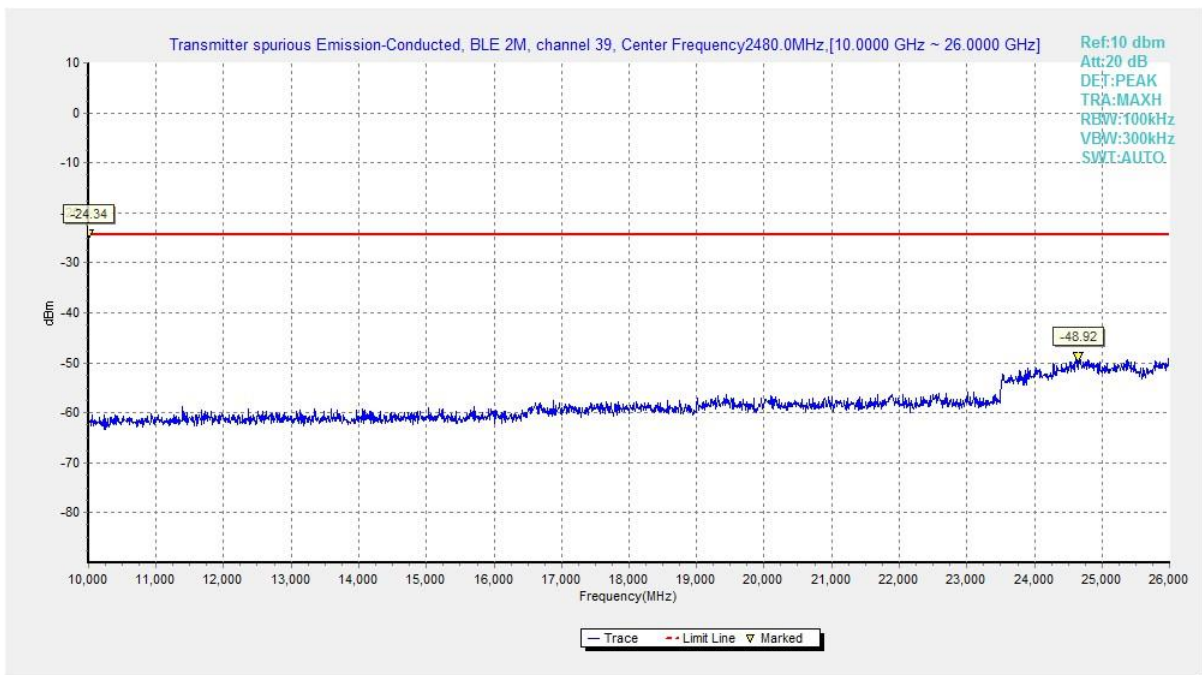


Fig.36 Conducted Spurious Emission (Ch39, 3 GHz-10 GHz), LE 2M



**Fig.37 Conducted Spurious Emission (All channels, 30 MHz-1 GHz), LE 2M**



**Fig.38 Conducted Spurious Emission (All channels, 10 GHz-26 GHz), LE 2M**

## A.6 Transmitter Spurious Emission - Radiated

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	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:**

Mode	Channel	Frequency Range	Test Results	Conclusion
LE-1M	0	1 GHz ~ 18 GHz	Fig.39	P
	19	9 kHz ~ 30 MHz	Fig.40	P
		30 MHz ~ 1 GHz	Fig.41	P
		1 GHz ~ 18 GHz	Fig.42	P
		18 GHz ~ 26.5 GHz	Fig.43	P
	39	1 GHz ~ 18 GHz	Fig.44	P
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.45	P
Restricted Band(CH39)	2.45 GHz ~ 2.5 GHz	Fig.46	P	
LE-2M	0	1 GHz ~ 18 GHz	Fig.47	P
	19	9 kHz ~ 30 MHz	Fig.48	P
		30 MHz ~ 1 GHz	Fig.49	P
		1 GHz ~ 18 GHz	Fig.50	P
		18 GHz ~ 26.5 GHz	Fig.51	P
	39	1 GHz ~ 18 GHz	Fig.52	P
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.53	P
Restricted Band(CH39)	2.45 GHz ~ 2.5 GHz	Fig.54	P	

See below for test graphs.

**Conclusion: Pass**

**Worst Case Result**
**LE-1M CH19 (1-18GHz)**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
2912.800000	44.58	74.00	29.42	H	8.65
4116.600000	37.62	74.00	36.38	V	-10.77
5913.000000	41.06	74.00	32.94	H	-5.75
8124.000000	45.08	74.00	28.92	V	-0.75
14537.200000	51.65	74.00	22.35	H	5.88
17782.400000	53.39	74.00	20.61	H	11.79

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
2912.800000	33.26	54.00	20.74	H	8.65
4116.600000	24.69	54.00	29.31	V	-10.77
5913.000000	28.11	54.00	25.89	H	-5.75
8124.000000	32.15	54.00	21.85	V	-0.75
14537.200000	38.01	54.00	15.99	H	5.88
17782.400000	41.53	54.00	12.47	H	11.79

**LE-2M CH19 (1-18GHz)**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
2984.800000	46.33	74.00	27.67	H	8.93
3592.800000	36.49	74.00	37.51	V	-12.96
4752.600000	40.36	74.00	33.64	V	-6.99
8092.400000	45.85	74.00	28.15	V	-0.73
14658.400000	50.32	74.00	23.68	H	6.31
17746.000000	53.73	74.00	20.27	H	11.61

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
2984.800000	32.91	54.00	21.09	H	8.93
3592.800000	23.13	54.00	30.87	V	-12.96
4752.600000	27.81	54.00	26.19	V	-6.99
8092.400000	32.39	54.00	21.61	V	-0.73
14658.400000	37.73	54.00	16.27	H	6.31
17746.000000	42.19	54.00	11.81	H	11.61

**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:

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

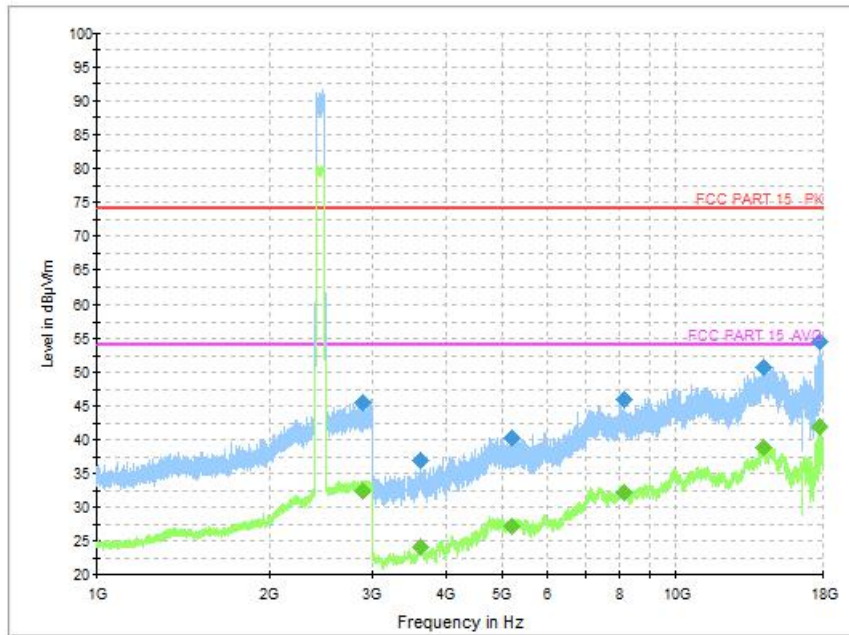


Fig.39 Radiated Spurious Emission (Ch0, 1 GHz - 18 GHz), 1M

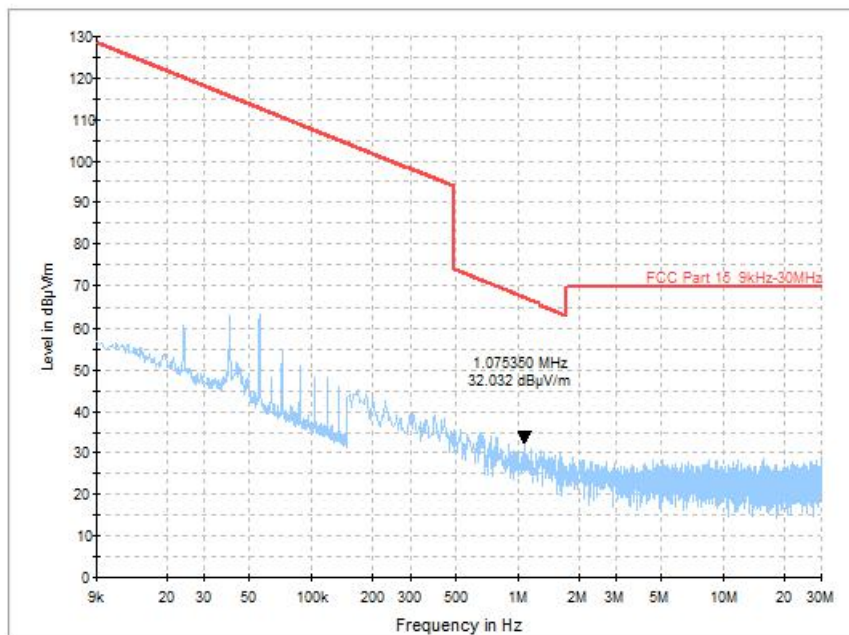


Fig.40 Radiated Spurious Emission (Ch19, 9 kHz - 30 MHz), 1M

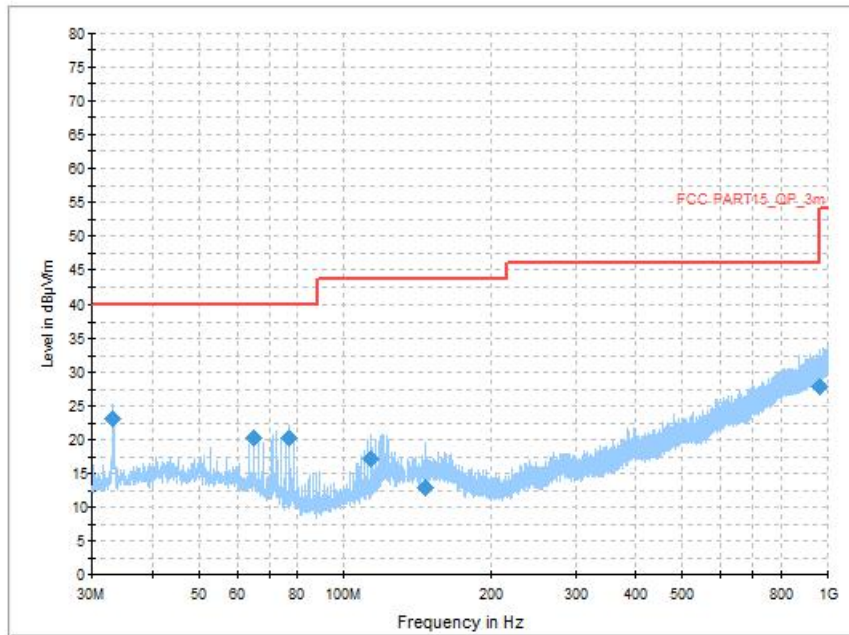


Fig.41 Radiated Spurious Emission (Ch19, 30 MHz - 1 GHz), 1M

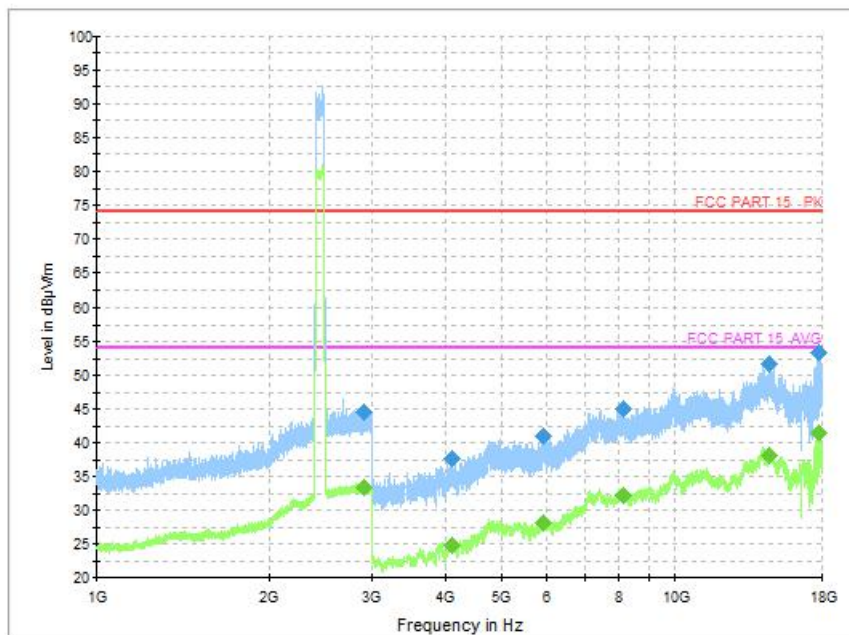


Fig.42 Radiated Spurious Emission (Ch19, 1 GHz - 18 GHz), 1M



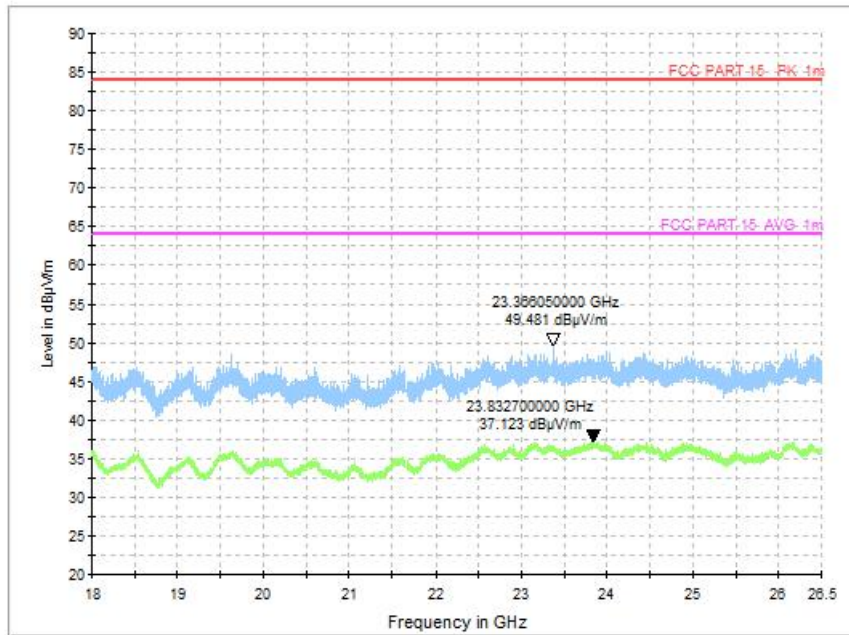


Fig.43 Radiated Spurious Emission (Ch19, 18 GHz - 26.5 GHz), 1M

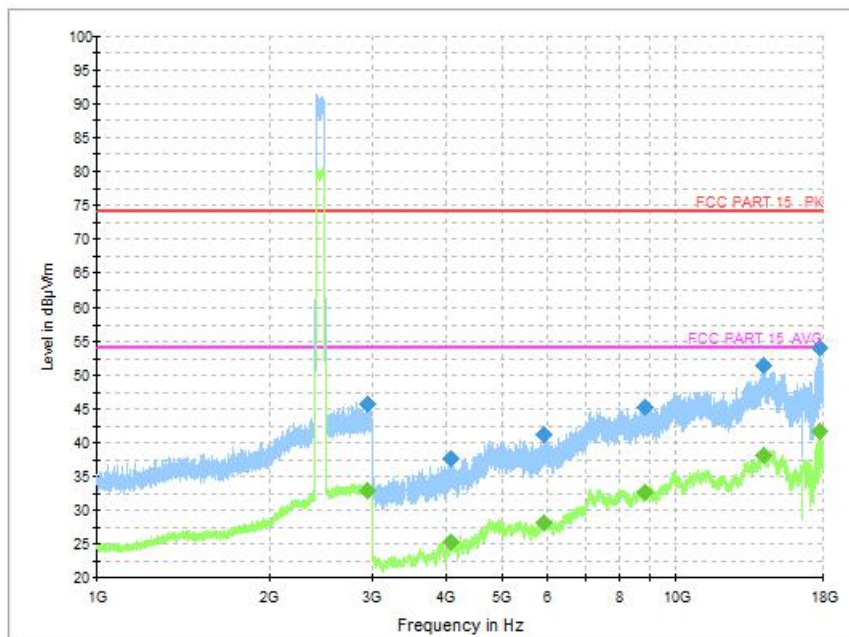
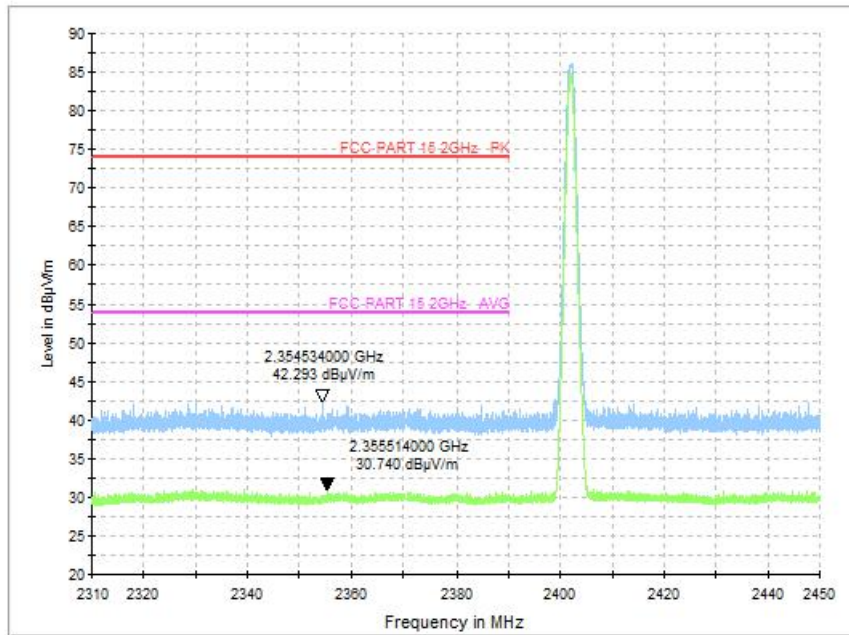
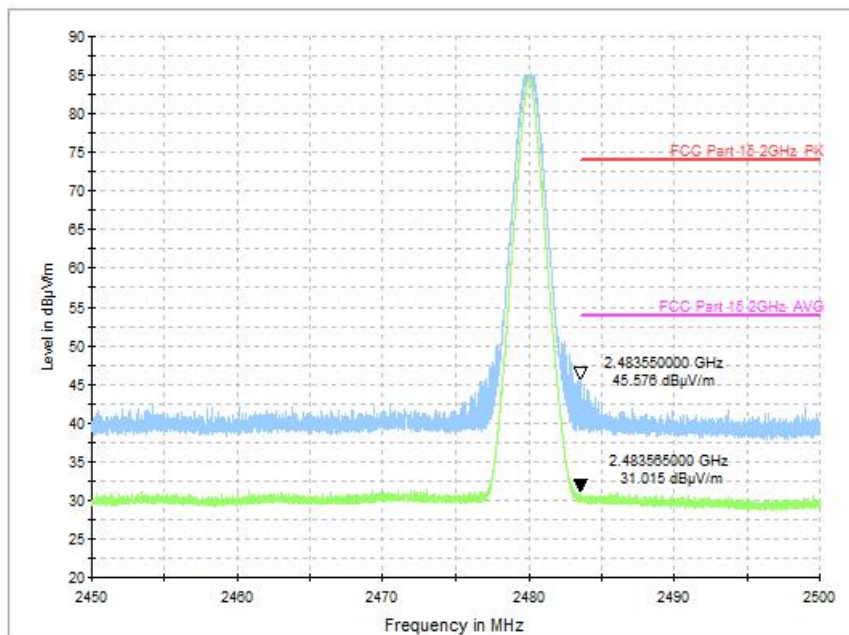


Fig.44 Radiated Spurious Emission (Ch39, 1 GHz - 18 GHz), 1M



**Fig.45 Radiated Band Edges (Ch0, 2380GHz - 2450GHz), 1M**



**Fig.46 Radiated Band Edges (Ch39, 2450GHz - 2500GHz), 1M**

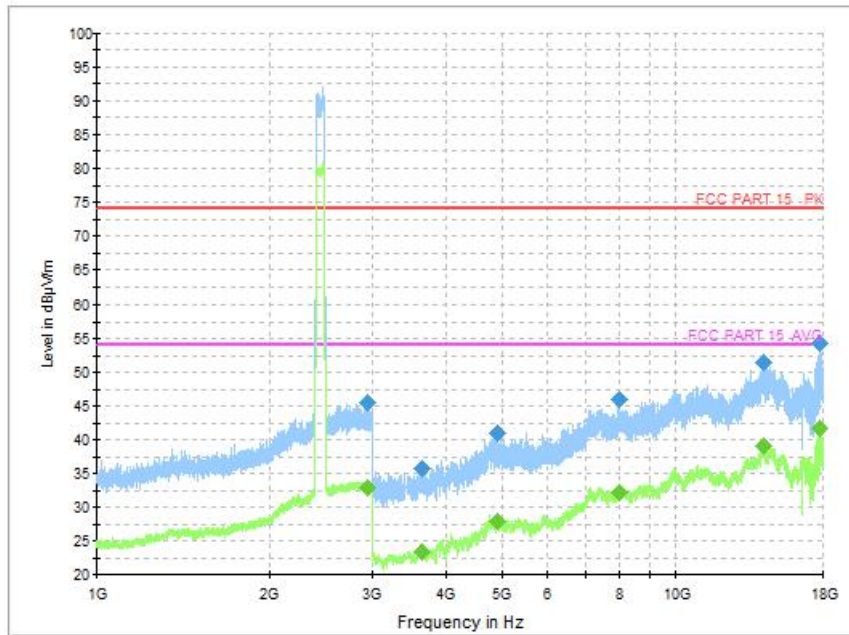


Fig.47 Radiated Spurious Emission (Ch0, 1 GHz - 18 GHz), 2M

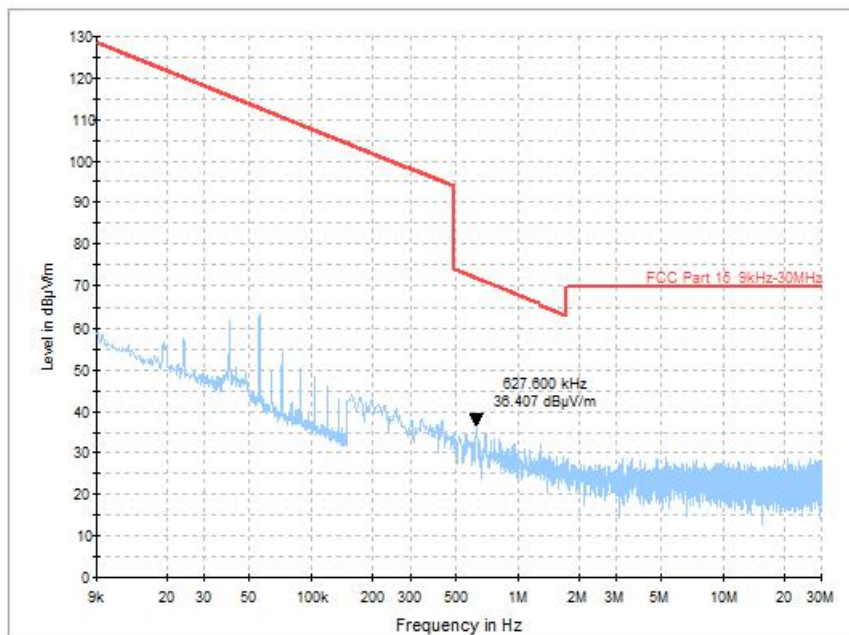


Fig.48 Radiated Spurious Emission (Ch19, 9 kHz - 30 MHz), 2M

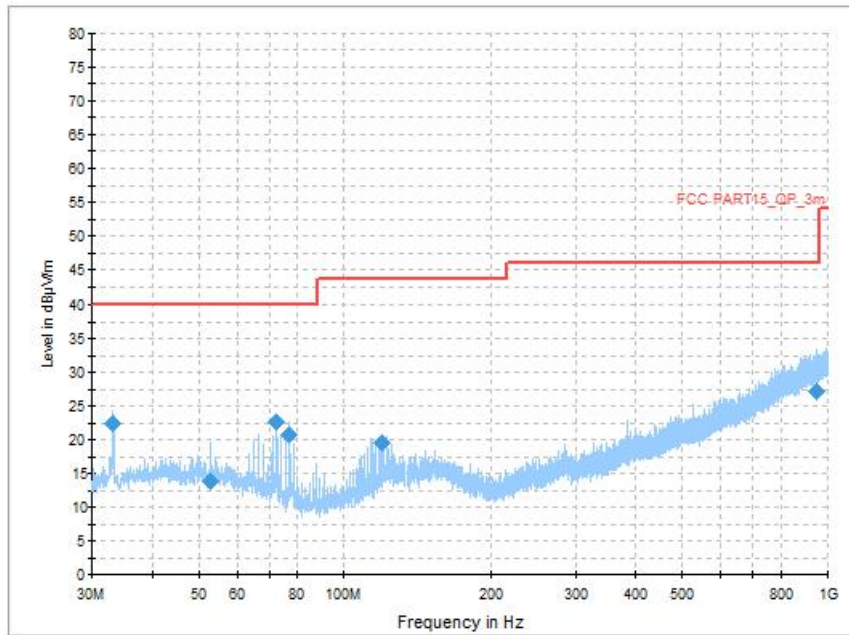


Fig.49 Radiated Spurious Emission (Ch19, 30 MHz - 1 GHz), 2M

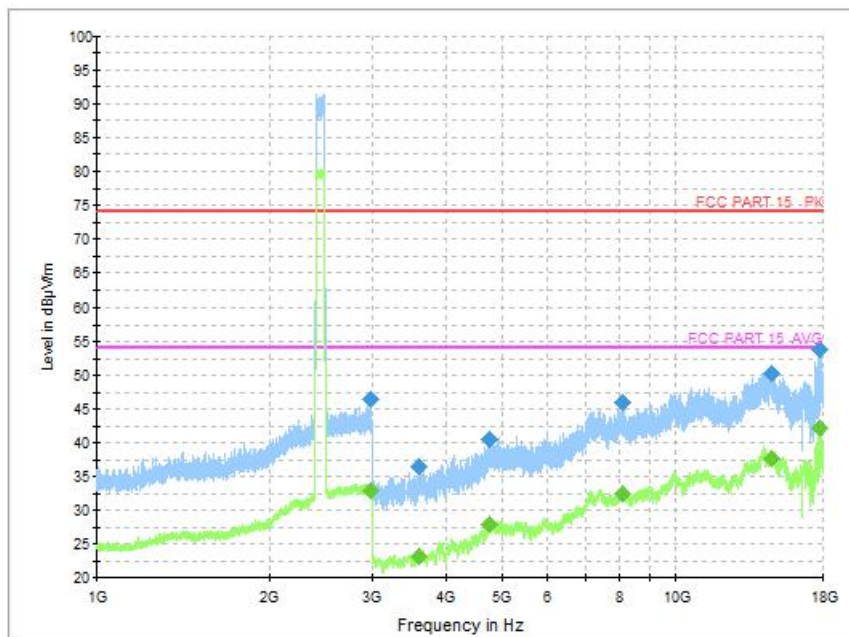


Fig.50 Radiated Spurious Emission (Ch19, 1 GHz - 18 GHz), 2M

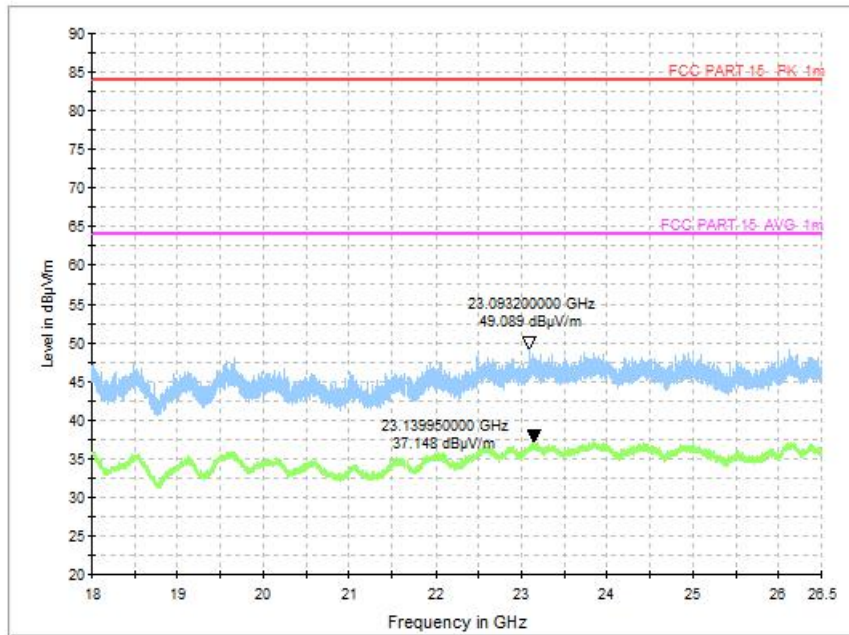


Fig.51 Radiated Spurious Emission (Ch19, 18 GHz - 26.5 GHz), 2M

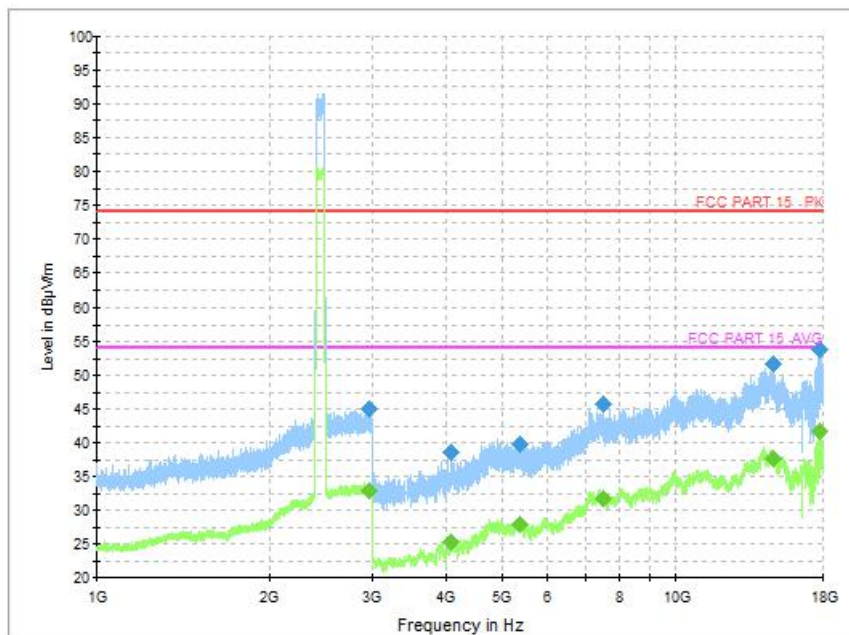
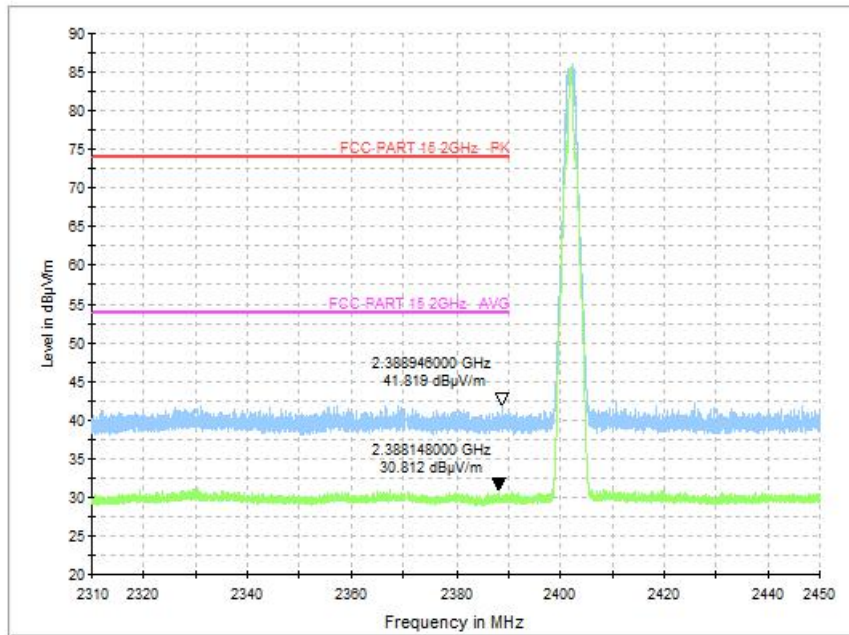
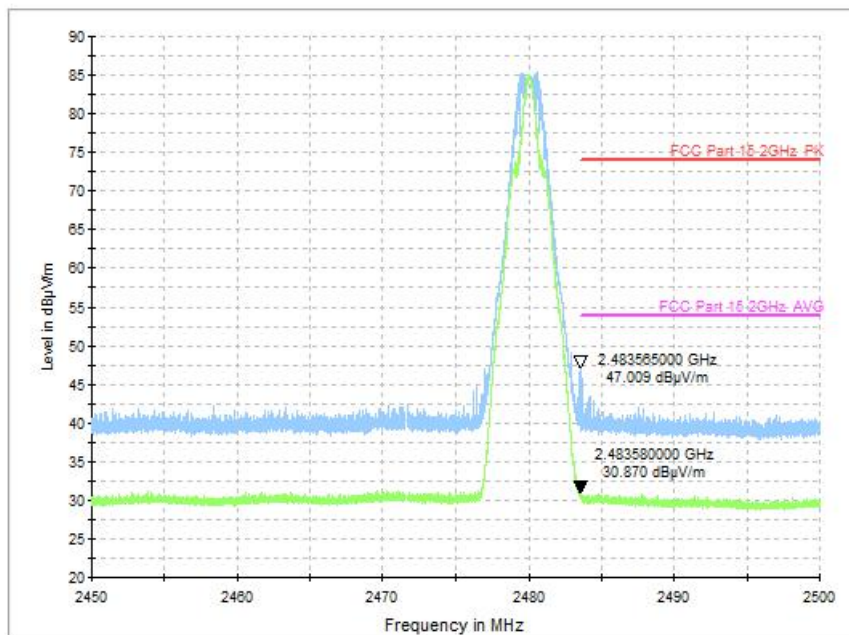


Fig.52 Radiated Spurious Emission (Ch39, 1 GHz - 18 GHz), 2M



**Fig.53 Radiated Band Edges (Ch0, 2380GHz - 2450GHz), 2M**



**Fig.54 Radiated Band Edges (Ch39, 2450GHz - 2500GHz), 2M**

## A.7 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.55	Fig.56	P
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.55	Fig.56	P
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.

#### LE-2M

##### 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.57	Fig.58	P
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.57	Fig.58	P
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.



No. I22N00674-BLE

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

**See below for test graphs.**

**Conclusion: Pass**



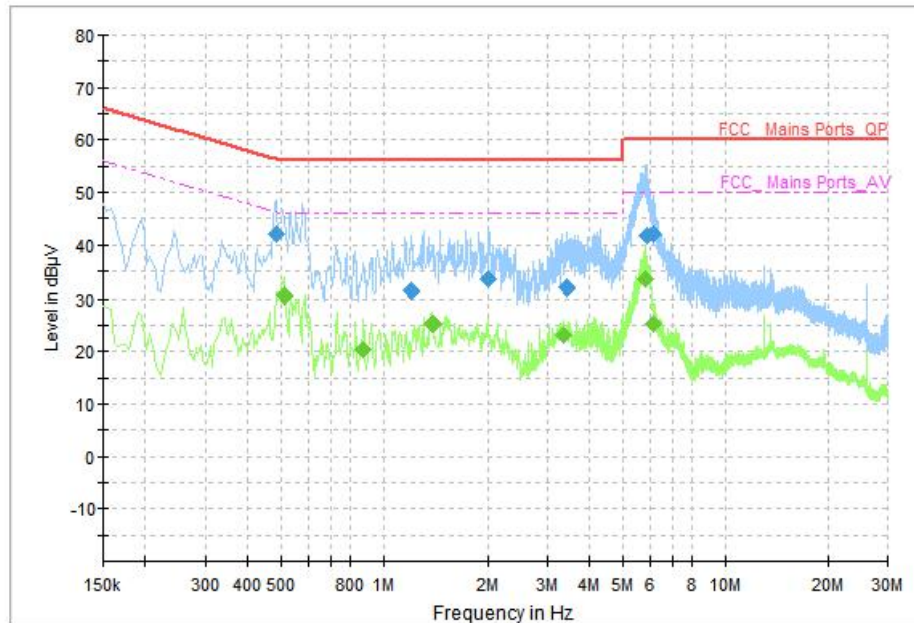


Fig.55 AC Power line Conducted Emission (Traffic, AE2, 120V), 1M

**Measurement Results: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.482000	42.06	56.31	14.24	N	ON	10
1.206000	31.51	56.00	24.49	N	ON	10
2.018000	33.56	56.00	22.44	N	ON	10
3.426000	31.84	56.00	24.16	N	ON	10
5.870000	41.72	60.00	18.28	N	ON	7
6.146000	42.02	60.00	17.98	L1	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.514000	30.60	46.00	15.40	L1	ON	10
0.874000	20.27	46.00	25.73	N	ON	10
1.394000	25.27	46.00	20.73	L1	ON	10
3.350000	23.21	46.00	22.79	L1	ON	10
5.838000	33.49	50.00	16.51	N	ON	7
6.150000	25.33	50.00	24.67	N	ON	7

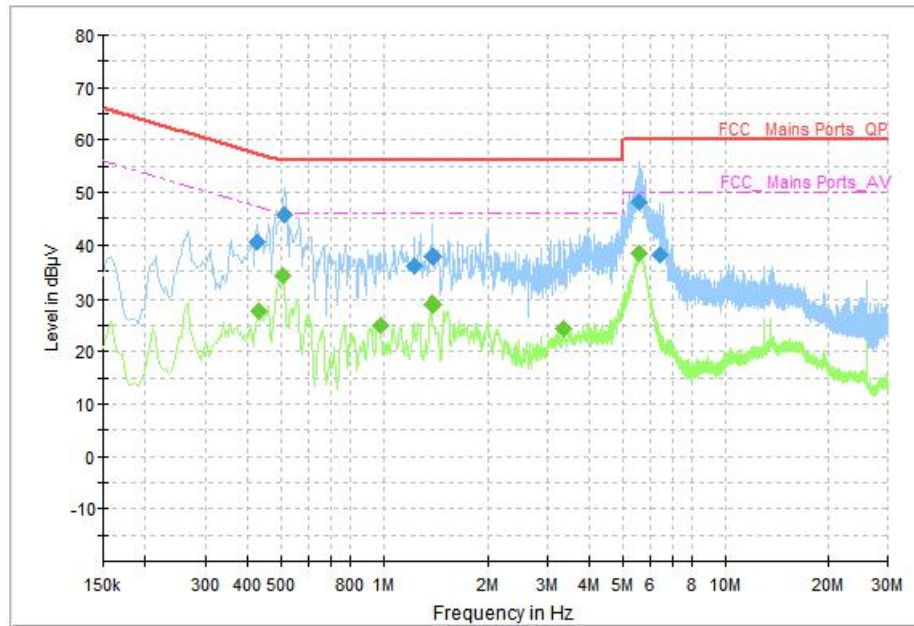


Fig.56 AC Power line Conducted Emission (Idle, AE2, 120V), 1M

**Measurement Results: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.426000	40.67	57.33	16.66	L1	ON	10
0.514000	45.85	56.00	10.15	L1	ON	10
1.230000	36.02	56.00	19.98	L1	ON	10
1.386000	37.81	56.00	18.19	L1	ON	10
5.598000	48.32	60.00	11.68	L1	ON	10
6.398000	38.21	60.00	21.79	L1	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.430000	27.69	47.25	19.56	N	ON	10
0.506000	34.20	46.00	11.80	L1	ON	10
0.982000	25.10	46.00	20.90	N	ON	10
1.382000	29.08	46.00	16.92	N	ON	10
3.342000	24.38	46.00	21.62	N	ON	10
5.598000	38.29	50.00	11.71	L1	ON	10

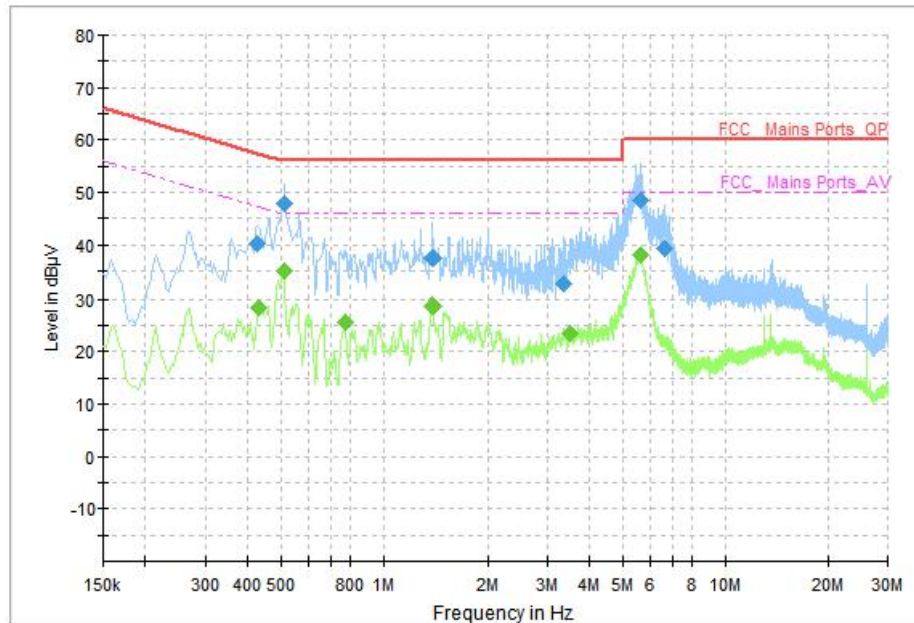


Fig.57 AC Power line Conducted Emission (Traffic, AE2, 120V), 2M

**Measurement Results: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.426000	40.25	57.33	17.09	L1	ON	10
0.510000	47.86	56.00	8.14	L1	ON	10
1.390000	37.43	56.00	18.57	L1	ON	10
3.350000	32.45	56.00	23.55	L1	ON	10
5.654000	48.56	60.00	11.44	L1	ON	10
6.606000	39.29	60.00	20.71	L1	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.430000	28.28	47.25	18.97	N	ON	10
0.510000	35.07	46.00	10.93	L1	ON	10
0.770000	25.45	46.00	20.55	N	ON	10
1.390000	28.77	46.00	17.23	N	ON	10
3.498000	23.41	46.00	22.59	N	ON	10
5.650000	38.09	50.00	11.91	L1	ON	10

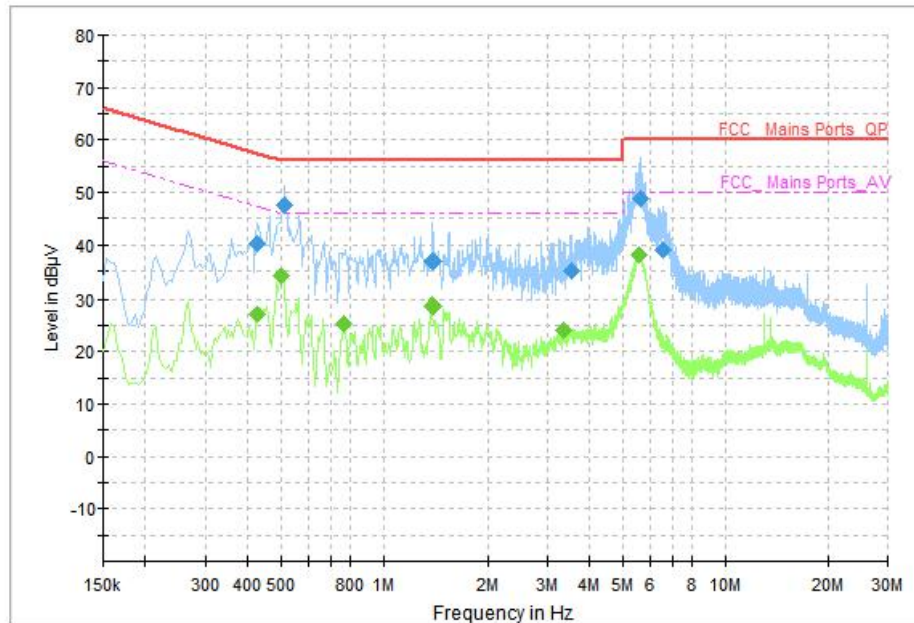


Fig.58 AC Power line Conducted Emission (Idle, AE2, 120V), 2M

**Measurement Results: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.426000	40.20	57.33	17.13	L1	ON	10
0.510000	47.53	56.00	8.47	L1	ON	10
1.394000	36.85	56.00	19.15	L1	ON	10
3.542000	35.16	56.00	20.84	L1	ON	10
5.646000	48.85	60.00	11.15	L1	ON	10
6.530000	38.95	60.00	21.05	L1	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.426000	27.09	47.33	20.24	N	ON	10
0.502000	34.12	46.00	11.88	N	ON	10
0.766000	25.15	46.00	20.85	N	ON	10
1.382000	28.54	46.00	17.46	N	ON	10
3.346000	24.10	46.00	21.90	N	ON	10
5.602000	38.15	50.00	11.85	L1	ON	10

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