TEST REPORT

No. B20N00193-BLE

TCL Communication Ltd.

GSM/UMTS/LTE Mobile phone

Model Name: 5002S/5002L

with

Hardware Version: 01

Software Version: 3C7D

FCC ID: 2ACCJH120

Issued Date: 2020-03-02

Test Laboratory:

Shenzhen Academy of Information and Communications Technology

Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518026.

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1. Summary of Test Report

1.1. Test Items

Description	GSM/UMTS/LTE Mobile phone
Model Name	5002S/5002L
Applicant's name	TCL Communication Ltd.
Manufacturer's Name	TCL Communication Ltd.

1.2. Test Standards

FCC Part15-2018; ANSI C63.10-2013

1.3. Test Result

Pass

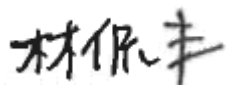
1.4. Testing Location

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:	2020-02-03
Testing End Date:	2020-02-26

1.6. Signature



Lin Kanfeng

(Prepared this test report)

Tang Weisheng

(Reviewed this test report)

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	Gong Zhizhou
E-Mail	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
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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	Gong Zhizhou
E-Mail	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax:	0086-755-36612000-81722

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

3.1. About EUT

Description	GSM/UMTS/LTE Mobile phone
Model Name	5002S/5002L
Brand Name	/
Frequency Range	2400MHz~2483.5MHz
Type of Modulation	GFSK
Number of Channels	40
Antenna Type	Integrated
Antenna Gain	-5.0dBi
Power Supply	3.8V DC by Battery
FCC ID	2ACCJH120
Condition of EUT as received	No abnormality in appearance

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Shenzhen Academy of Information and Communications Technology.

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Receive Date
EUT1	015650000020589	01	3C7D	2020-01-20
EUT2	015650000020597	01	3C7D	2020-01-20

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	Charger	/
AE2	Charger	/
AE3	Battery	/

AE1

Model	CBA0058AGAC5
Manufacturer	MOU,PUAN

AE2

Model	CBA0058AGAC7
Manufacturer	MOU,CHENYANG

AE3

Model	CAB2880001C1
Manufacturer	BYD
Capacitance	3000mAh

*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 GSM/UMTS/LTE Mobile phone with integrated antenna and battery.

It consists of normal options: Lithium Battery, Charger and Headset.

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.

Reference	Title	Version
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	2018
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℃

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/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.

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	2021-01-15	1 year
2	Power Sensor	U2021XA	MY55430013	Agilent	2021-01-15	1 year
3	Data Acquisiton	U2531A	TW55443507	Agilent	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Date	Calibration Period
1	LISN	ESH2-Z5	100196	R&S	2021-01-02	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	2021-02-16	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	2020-12-12	1 year
8	Chamber	FACT5-2.0	4166	ETS-Lindgren	2021-05-12	3 year
9	Antenna	QSH-SL-18-26-S-20	17013	Q-par	2021-01-14	3 year
10	Antenna	QSH-SL-26-40-K-20	17014	Q-par	2021-01-10	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 chambe

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. = 15 %, 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 ℃, Max. = 35 ℃
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 ℃, Max. = 35 ℃
Relative humidity	Min. = 15 %, 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	30MHz≤f≤1GHz	1.41dB
	1GHz≤f≤7GHz	1.92dB
	7GHz≤f≤13GHz	2.31dB
	13GHz≤f≤26GHz	2.61dB
5. Transmitter Spurious Emission - Radiated	9kHz≤f≤30MHz	1.70dB
	30MHz≤f≤1GHz	4.90dB
	1GHz≤f≤18GHz	4.60dB
	18GHz≤f≤40GHz	4.10dB
6. AC Power line Conducted Emission	150kHz≤f≤30MHz	3.00dB

ANNEX A: Detailed Test Results

A.0 Antenna requirement

Measurement Limit:

Standard	Requirement
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 -5.0 dBi. 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:

LE-1M

Mode	Frequency (MHz)	Peak Conducted Output Power (dBm)	E.I.R.P (dBm)	Conclusion
GFSK	2402 (CH0)	0.11	-4.89	**P**
	2440 (CH19)	0.70	-4.30	**P**
	2480 (CH39)	-0.56	-5.56	**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	-14.86	P
	2440 (CH19)	Fig.2	-14.29	P
	2480 (CH39)	Fig.3	-15.62	P

See below for test graphs.

Conclusion: PASS

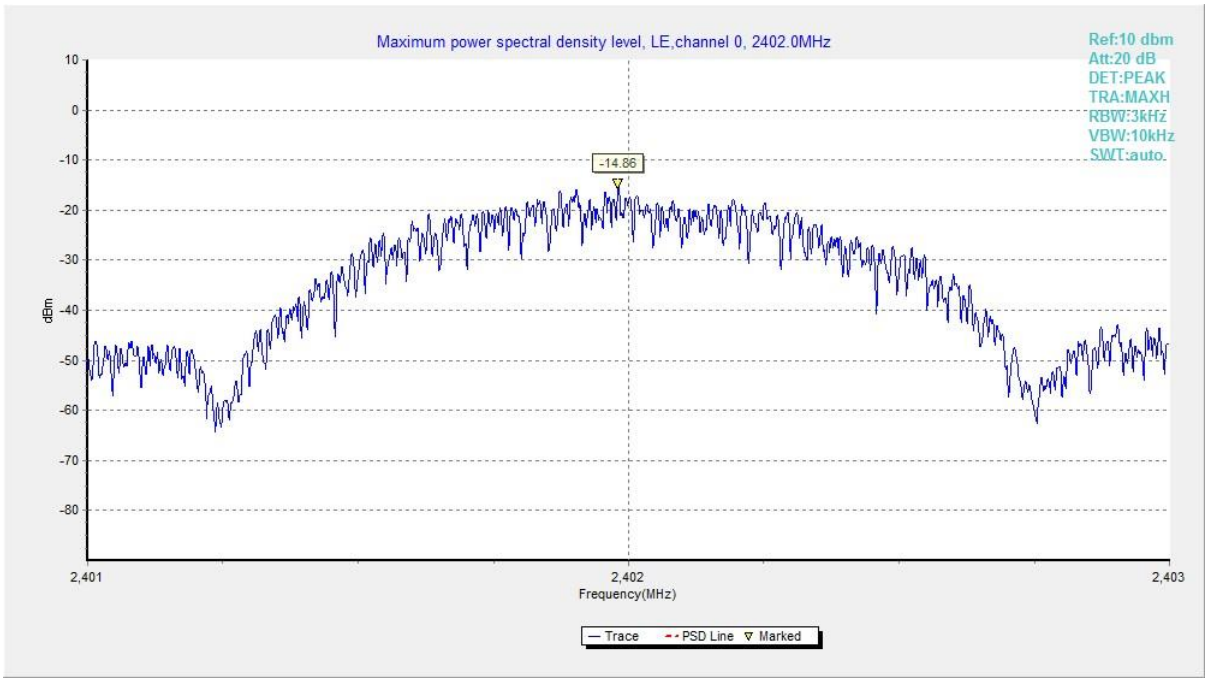

Fig.1 Power Spectral Density (Ch 0), LE 1M

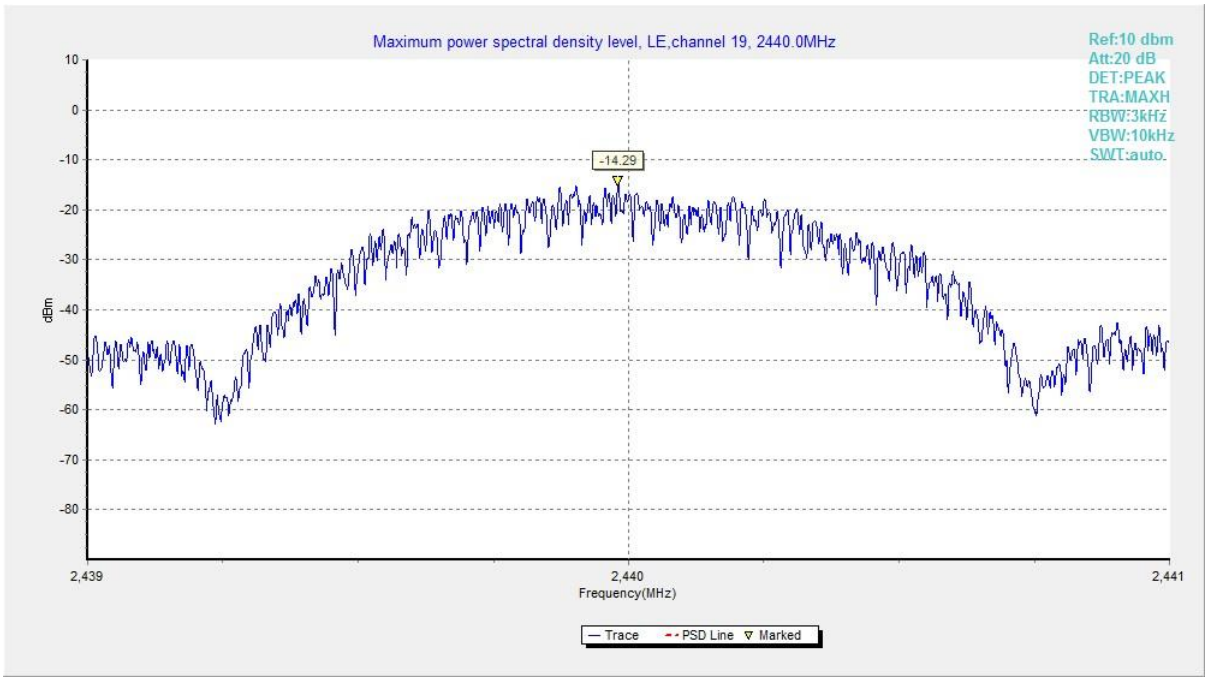

Fig.2 Power Spectral Density (Ch 19), LE 1M

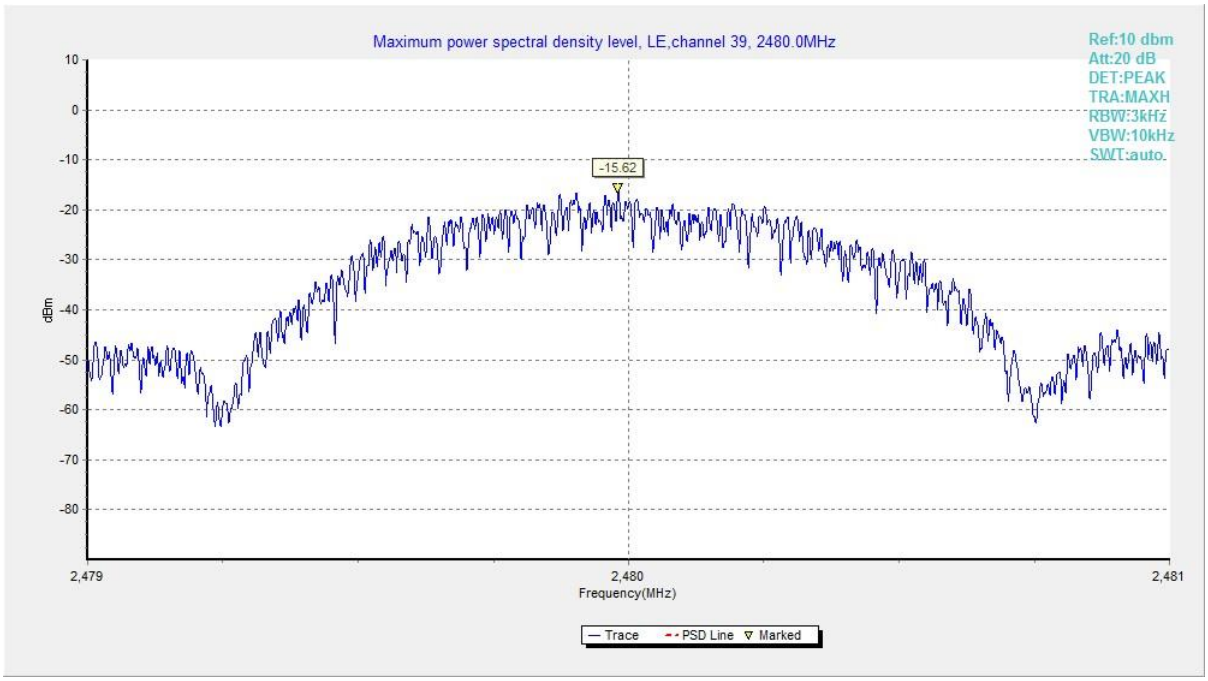

Fig.3 Power Spectral Density (Ch 39), LE 1M

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.4	684.00	**P**
	2440 (CH19)	Fig.5	680.00	**P**
	2480 (CH39)	Fig.6	678.00	**P**

See below for test graphs.

Conclusion: PASS

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

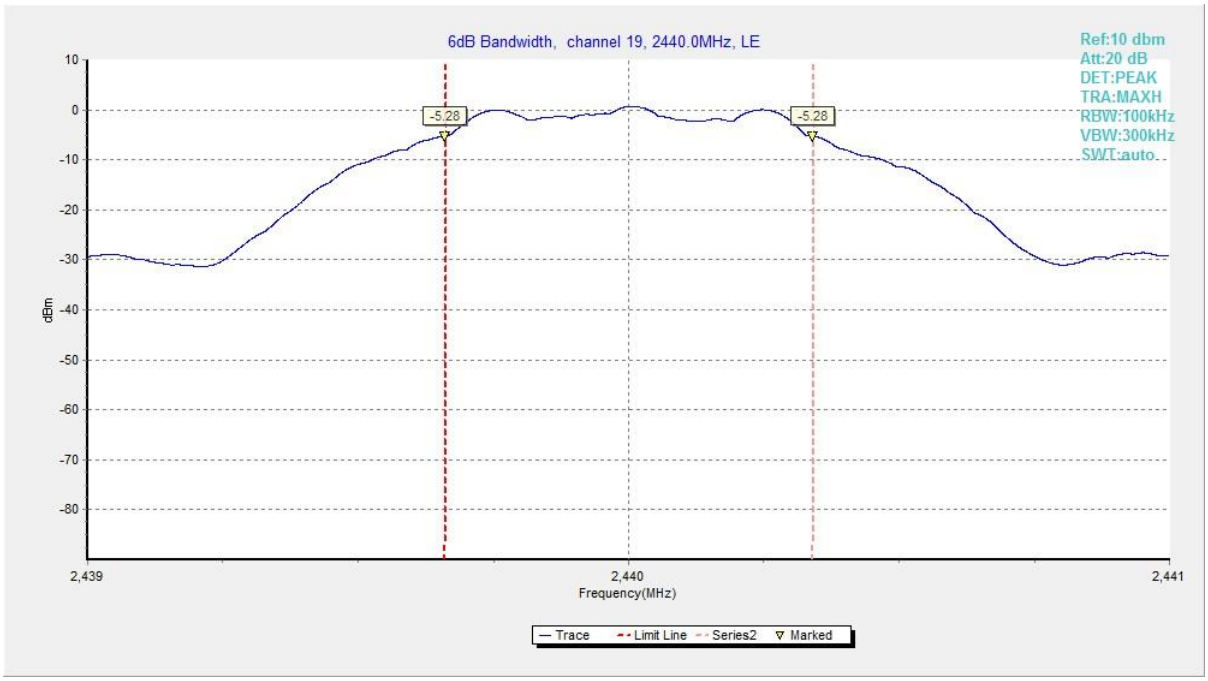

Fig.5 6dB Bandwidth (Ch 19), LE 1M

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

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.7	56.33	**P**
	2480 (CH39)	Fig.8	61.69	**P**

See below for test graphs.

Conclusion: Pass

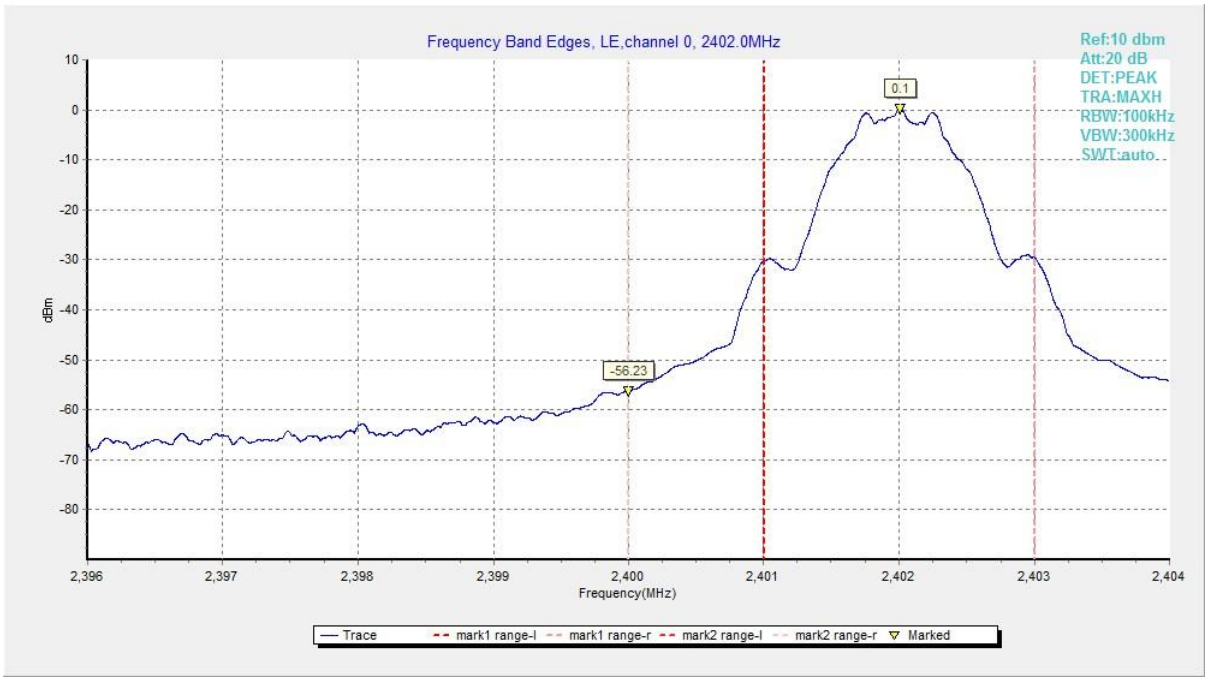

Fig.7 Band Edges (Ch 0), LE 1M

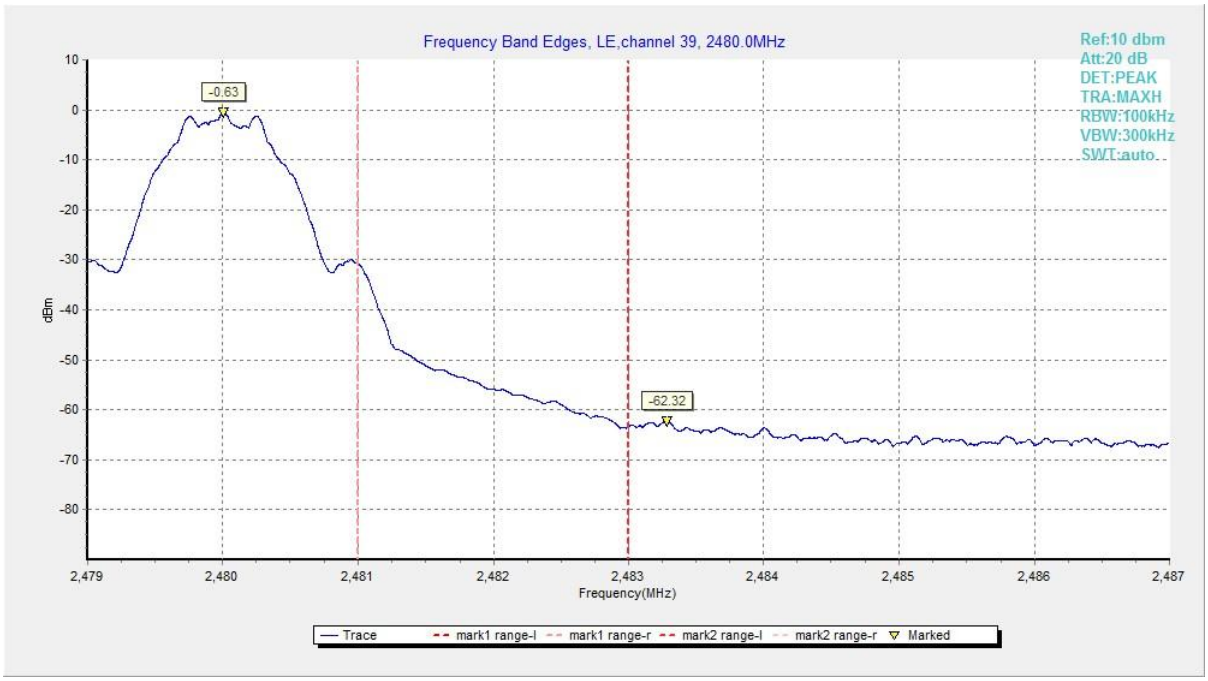

Fig.8 Band Edges (Ch 39), LE 1M

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.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

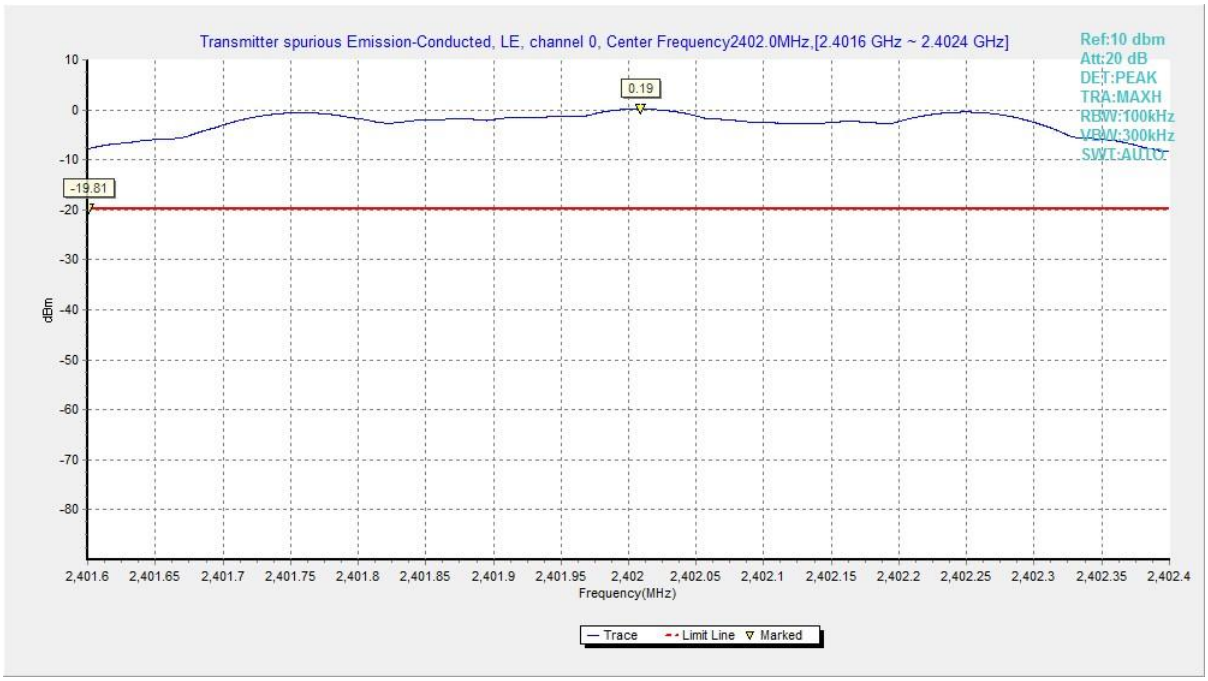

Fig.9 Conducted Spurious Emission (Ch0, Center Frequency), LE 1M

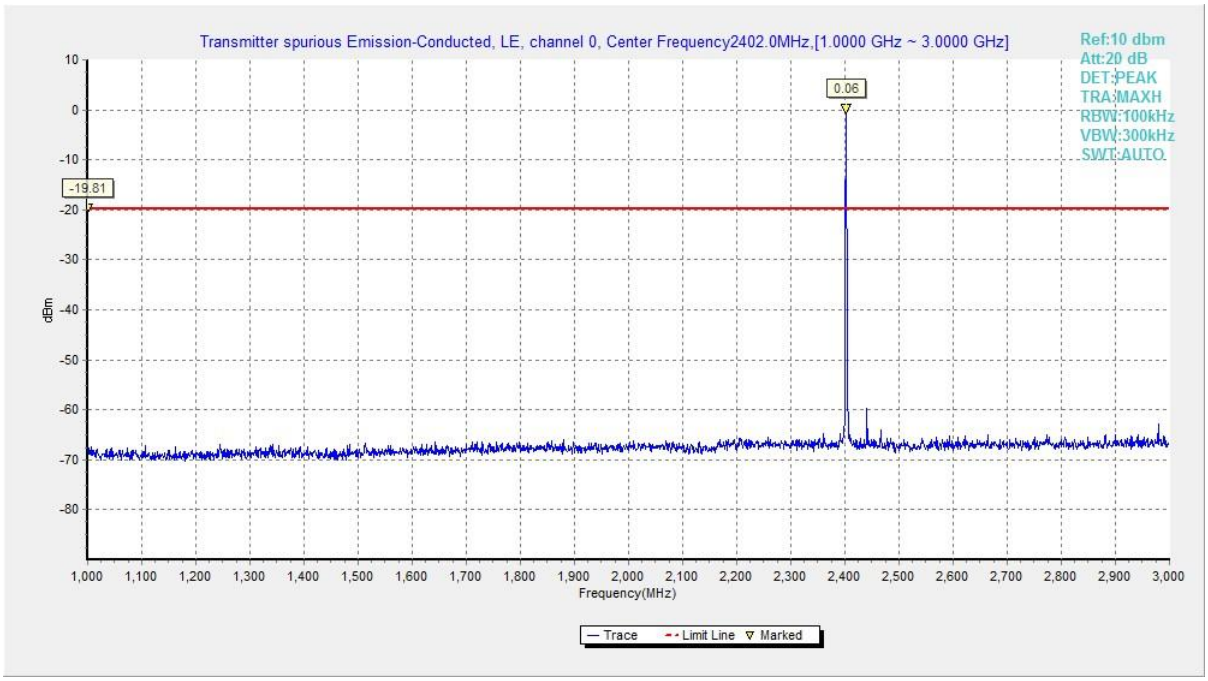

Fig.10 Conducted Spurious Emission (Ch0, 1 GHz-3 GHz), LE 1M

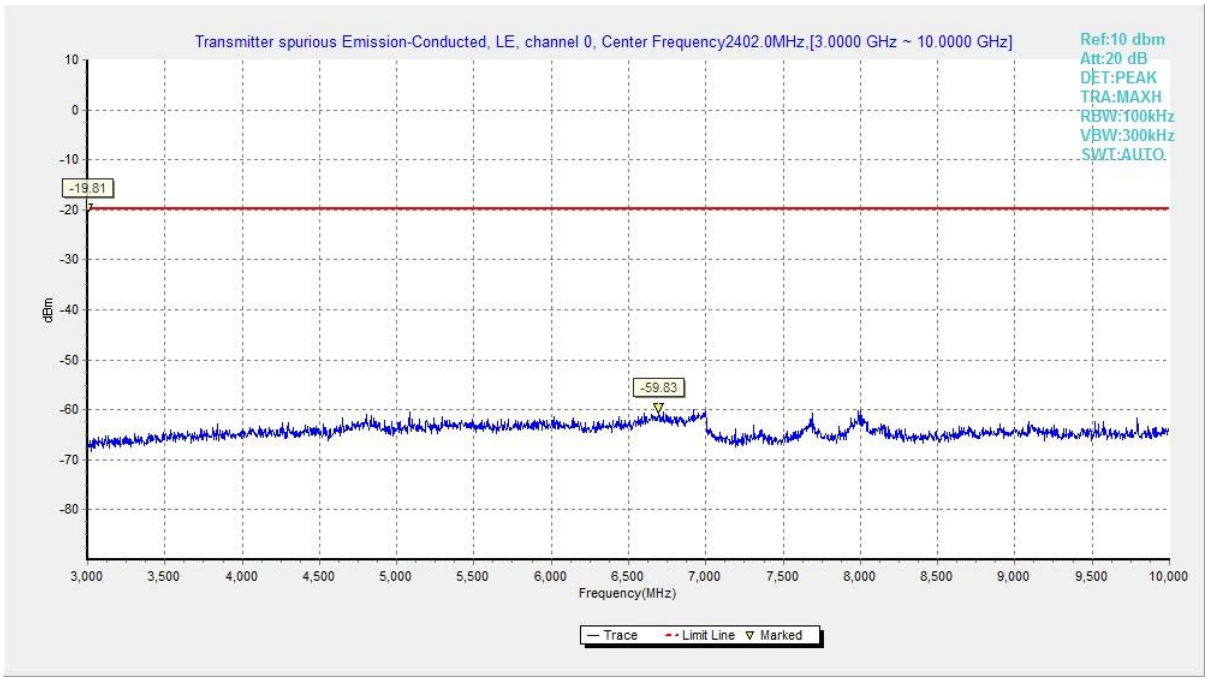

Fig.11 Conducted Spurious Emission (Ch0, 3 GHz-10 GHz), LE 1M

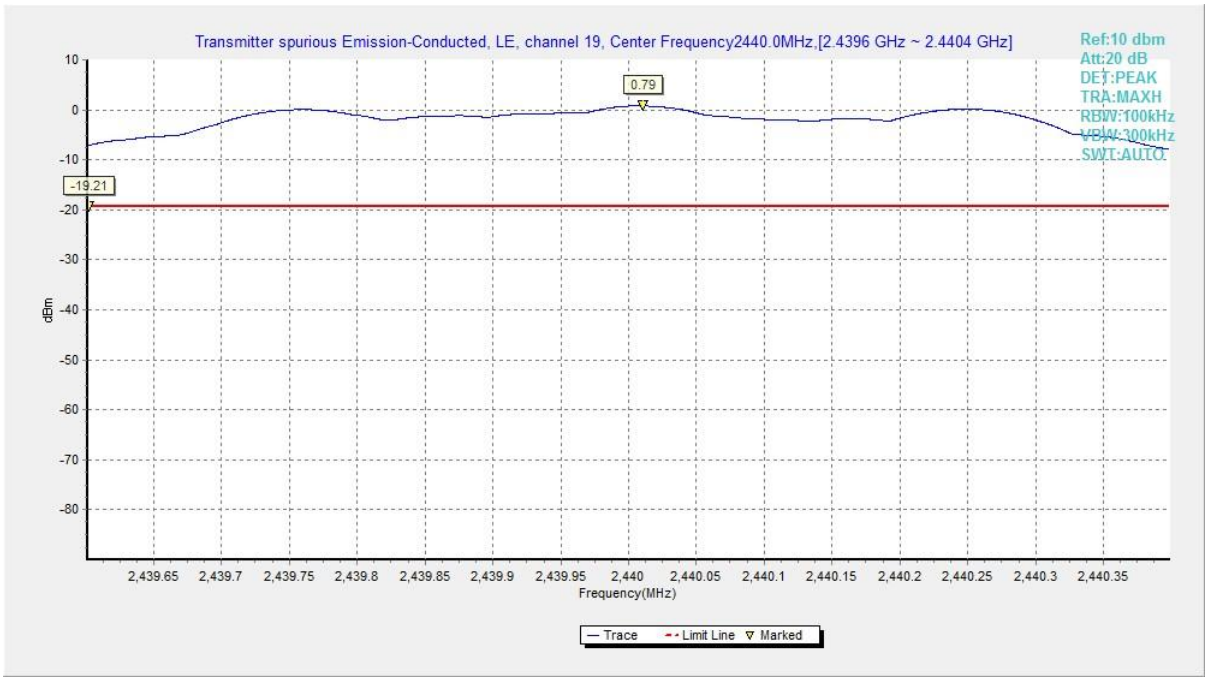

Fig.12 Conducted Spurious Emission (Ch19, Center Frequency), LE 1M

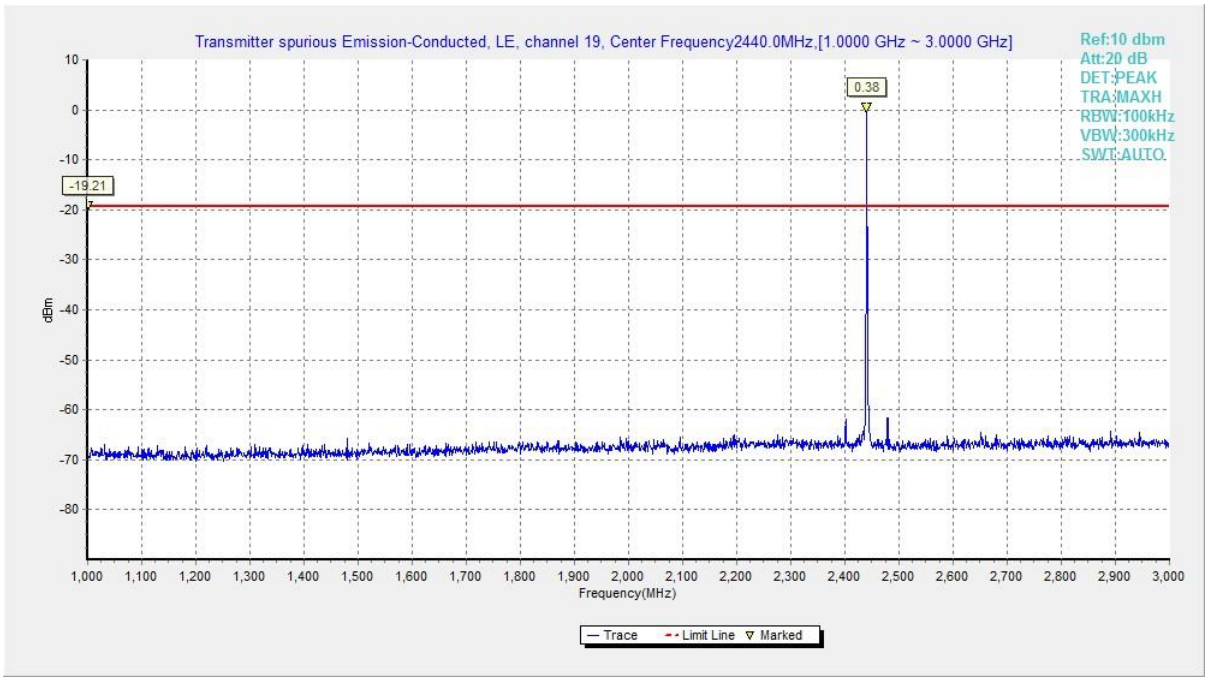

Fig.13 Conducted Spurious Emission (Ch19, 1 GHz-3 GHz), LE 1M

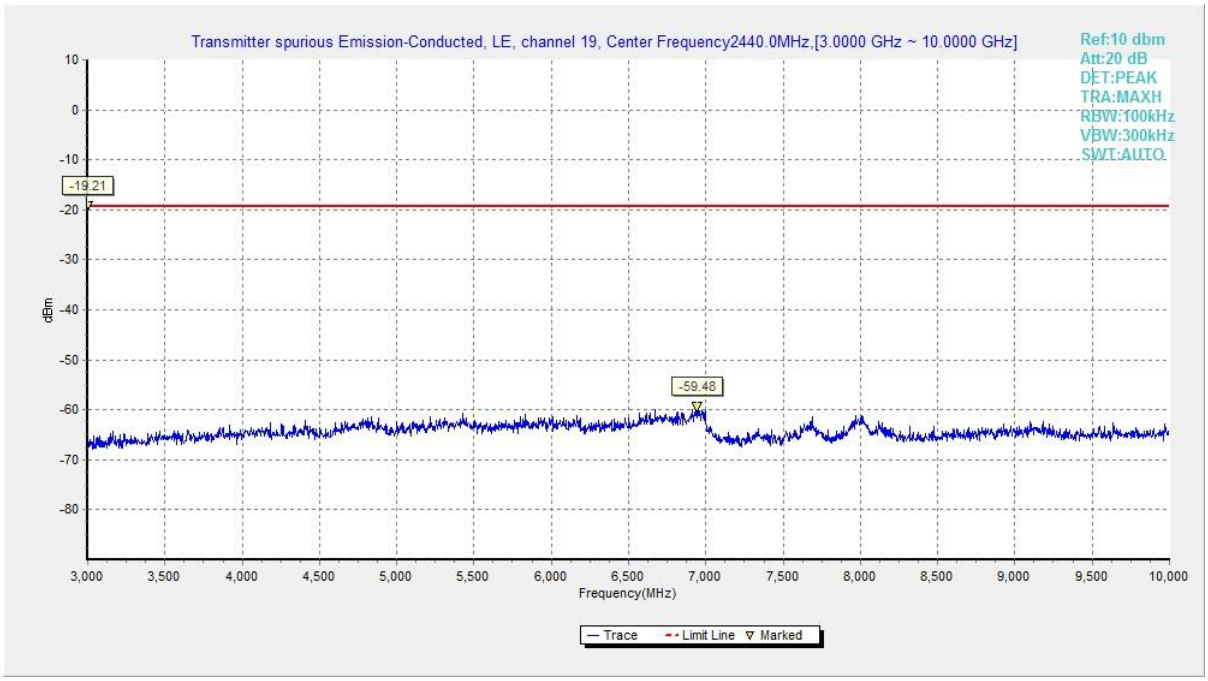

Fig.14 Conducted Spurious Emission (Ch19, 3 GHz-10 GHz), LE 1M

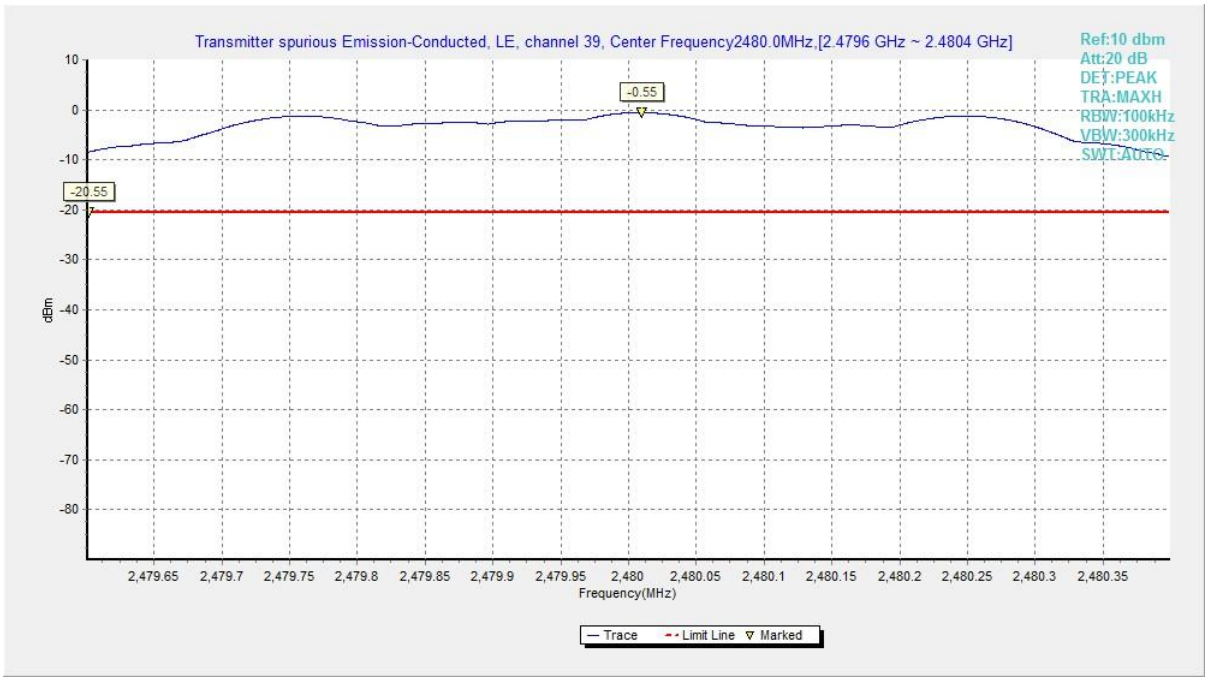

Fig.15 Conducted Spurious Emission (Ch39, Center Frequency), LE 1M

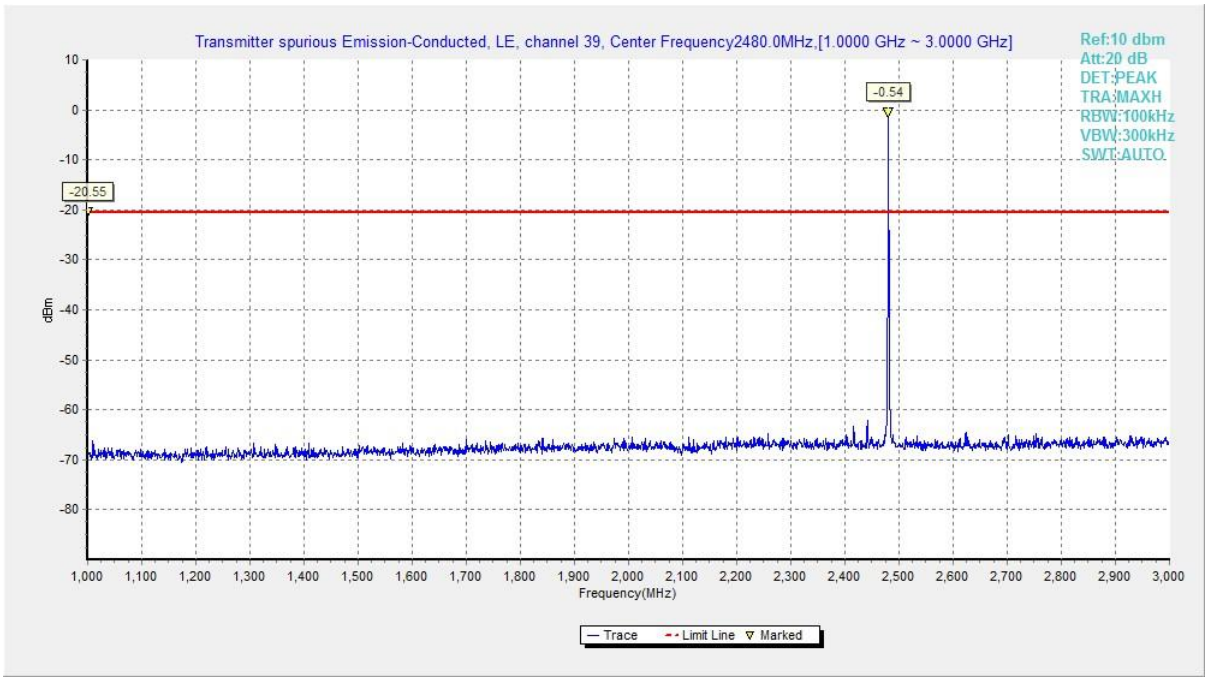

Fig.16 Conducted Spurious Emission (Ch39, 1 GHz-3 GHz), LE 1M

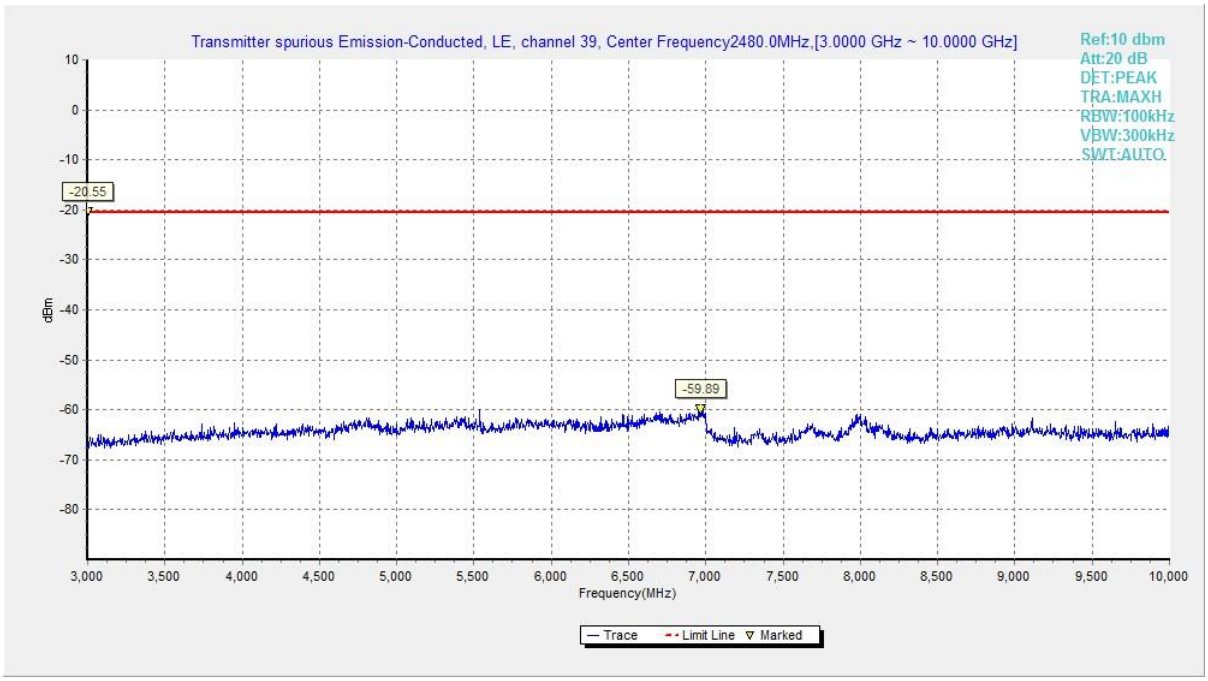

Fig.17 Conducted Spurious Emission (Ch39, 3 GHz-10 GHz), LE 1M

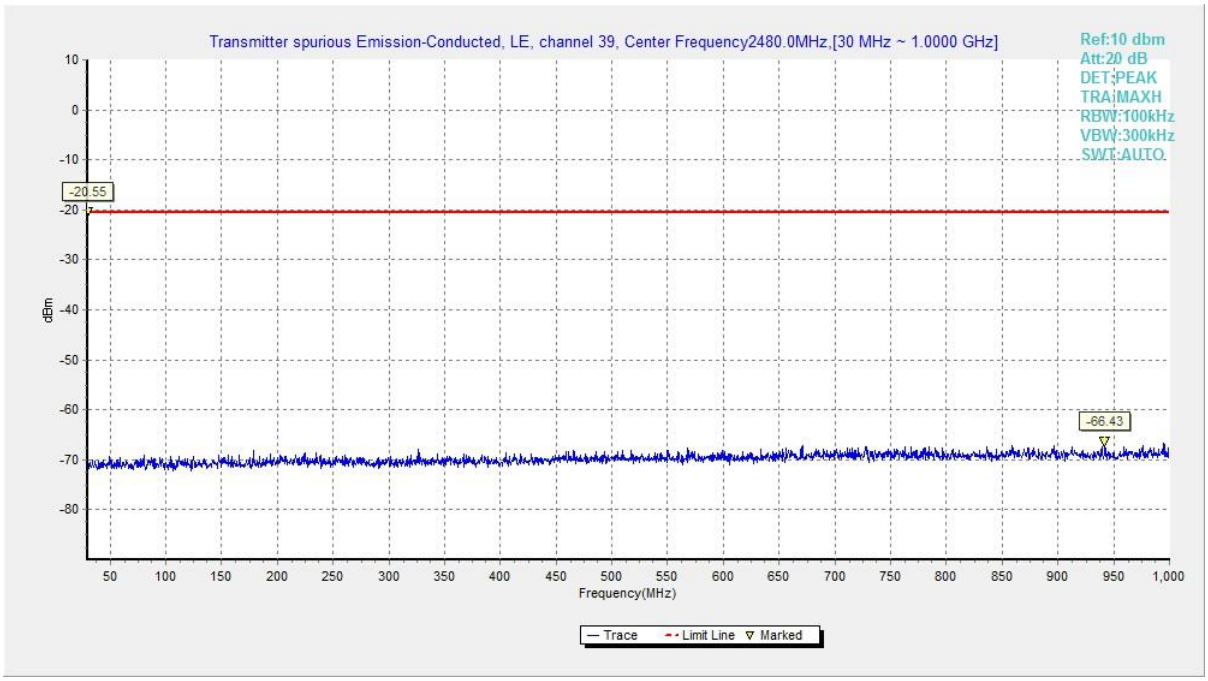

Fig.18 Conducted Spurious Emission (All channels, 30 MHz-1 GHz), LE 1M

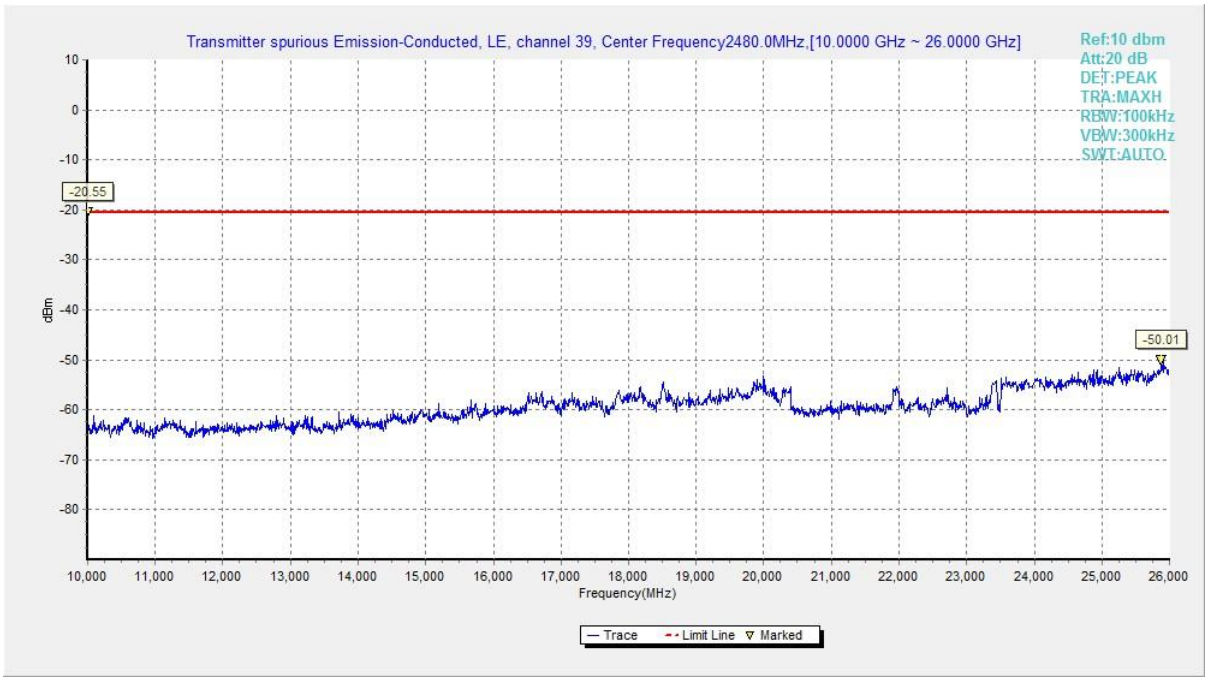

Fig.19 Conducted Spurious Emission (All channels, 10 GHz-26 GHz), LE 1M

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 (μV/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 ~ 3 GHz	Fig.20	**P**
		3 GHz ~ 18 GHz	Fig.21	**P**
	19	9 kHz ~ 30 MHz	Fig.22	**P**
		30 MHz ~ 1 GHz	Fig.23	**P**
		1 GHz ~ 3 GHz	Fig.24	**P**
		3 GHz ~ 18 GHz	Fig.25	**P**
		18 GHz ~ 26.5 GHz	Fig.26	**P**
	39	1 GHz ~ 3 GHz	Fig.27	**P**
		3 GHz ~ 18 GHz	Fig.28	**P**
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.29	**P**
	Restricted Band(CH39)	2.45 GHz ~ 2.5 GHz	Fig.30	**P**

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)
10806.50	45.39	74.00	28.61	V	5.2
12063.00	46.66	74.00	27.34	H	7.3
12961.50	47.02	74.00	26.98	H	8.5
14870.50	48.62	74.00	25.38	V	10.9
16134.00	50.42	74.00	23.58	H	14.2
17904.50	51.04	74.00	22.96	V	16.3

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
9608.00	36.90	54.00	17.10	H	3.6
12083.00	34.67	54.00	19.33	H	7.4
13305.00	35.43	54.00	18.57	H	9.0
14884.50	36.36	54.00	17.64	H	11.1
16599.00	39.10	54.00	14.90	V	14.8
17900.50	39.59	54.00	14.41	H	16.3

GFSK CH19 (3-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
13489.00	46.87	74.00	27.13	H	8.7
11902.50	46.93	74.00	27.07	V	7.0
14550.00	48.35	74.00	25.65	H	11.4
15317.50	48.84	74.00	25.16	H	11.5
17128.50	51.24	74.00	22.76	H	15.0
17915.50	51.80	74.00	22.20	H	16.3

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
9760.00	35.23	54.00	18.77	H	4.1
11683.00	34.70	54.00	19.30	H	7.1
12960.50	35.23	54.00	18.77	V	8.5
14633.00	36.72	54.00	17.28	H	11.3
16566.00	39.03	54.00	14.97	V	14.8
17899.00	39.73	54.00	14.27	V	16.3

GFSK CH39 (3-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
10327.50	45.73	74.00	28.27	H	4.9
11522.50	45.81	74.00	28.19	V	6.2
12561.00	47.96	74.00	26.04	V	7.9
14243.00	48.45	74.00	25.55	H	11.0
16084.50	49.80	74.00	24.20	H	13.9
17926.50	51.61	74.00	22.39	H	16.1

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
9920.50	35.19	54.00	18.81	V	4.5
11682.50	34.60	54.00	19.40	H	7.1
12960.50	35.38	54.00	18.62	V	8.5
14501.50	36.97	54.00	17.03	H	11.5
16536.00	39.15	54.00	14.85	H	14.7
17904.00	39.75	54.00	14.25	V	16.3

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

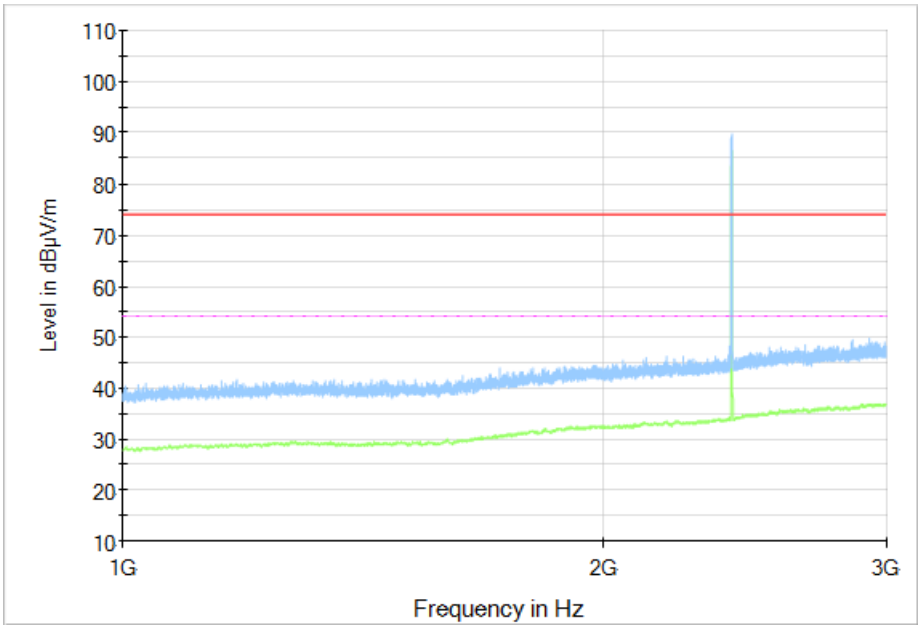

Fig.20 Radiated Spurious Emission (Ch0, 1 GHz - 3 GHz), 1M

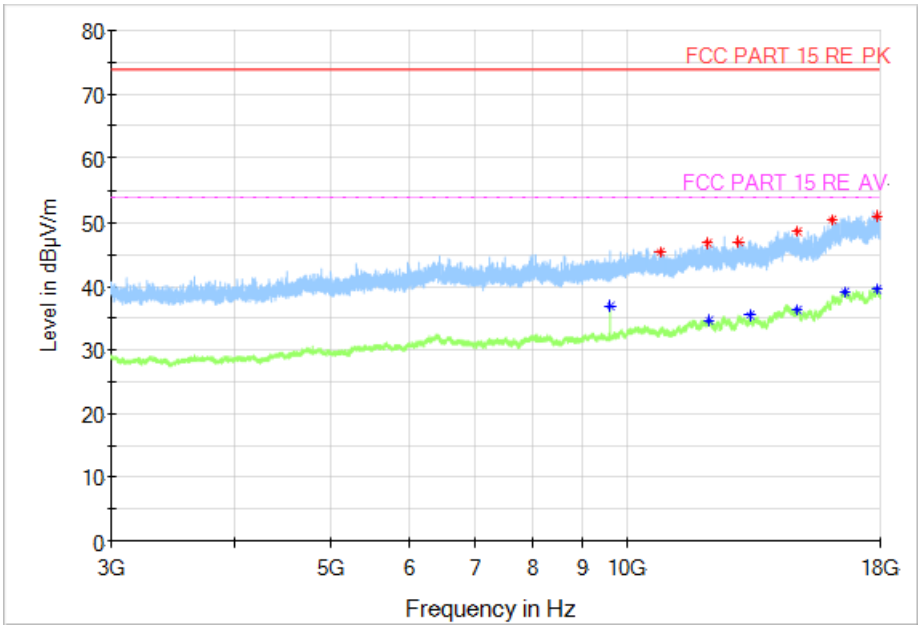

Fig.21 Radiated Spurious Emission (Ch0, 3 GHz - 18 GHz), 1M

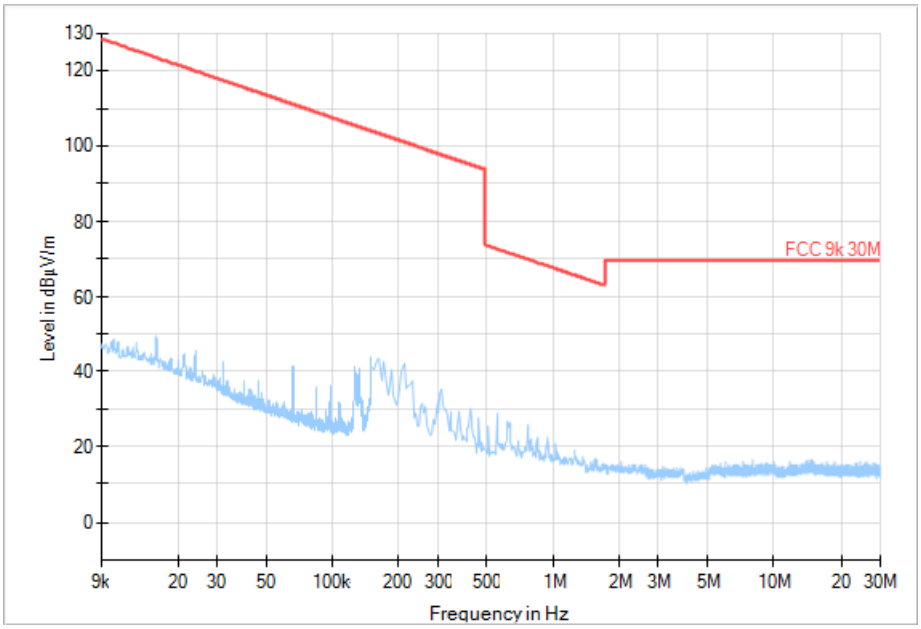

Fig.22 Radiated Spurious Emission (Ch19, 9 kHz - 30 MHz), 1M

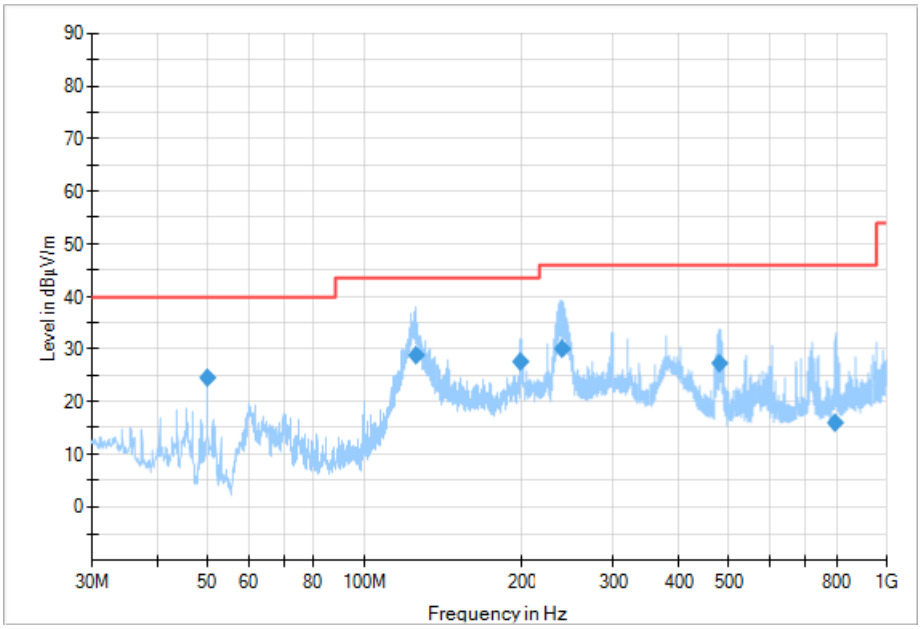

Fig.23 Radiated Spurious Emission (Ch19, 30 MHz - 1 GHz), 1M

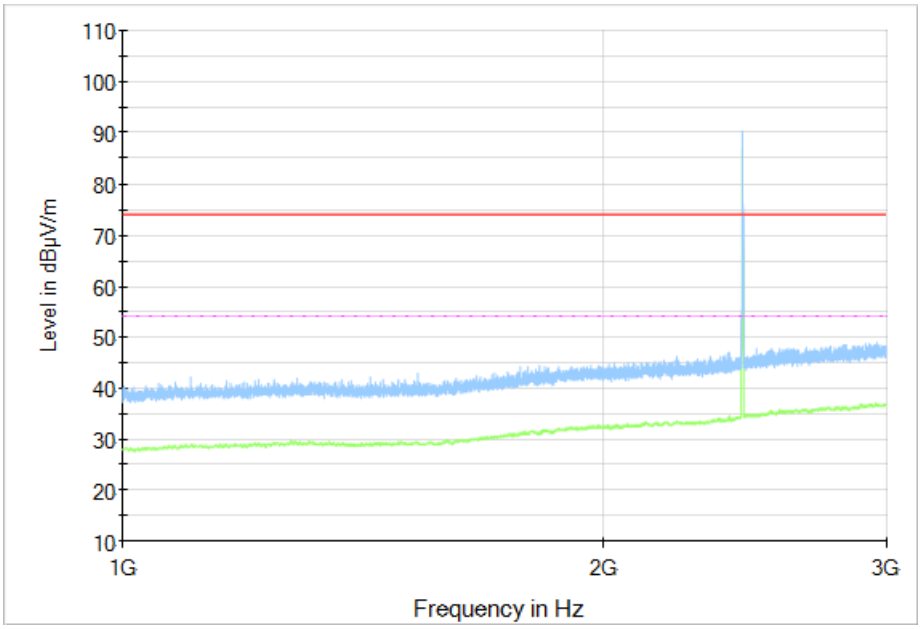

Fig.24 Radiated Spurious Emission (Ch19, 1 GHz - 3 GHz), 1M

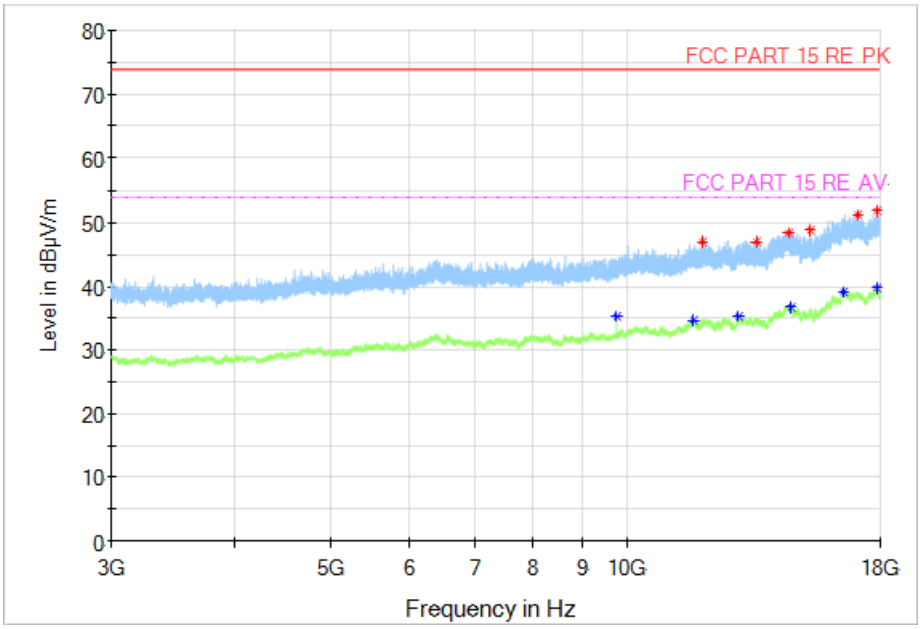

Fig.25 Radiated Spurious Emission (Ch19, 3 GHz - 18 GHz), 1M

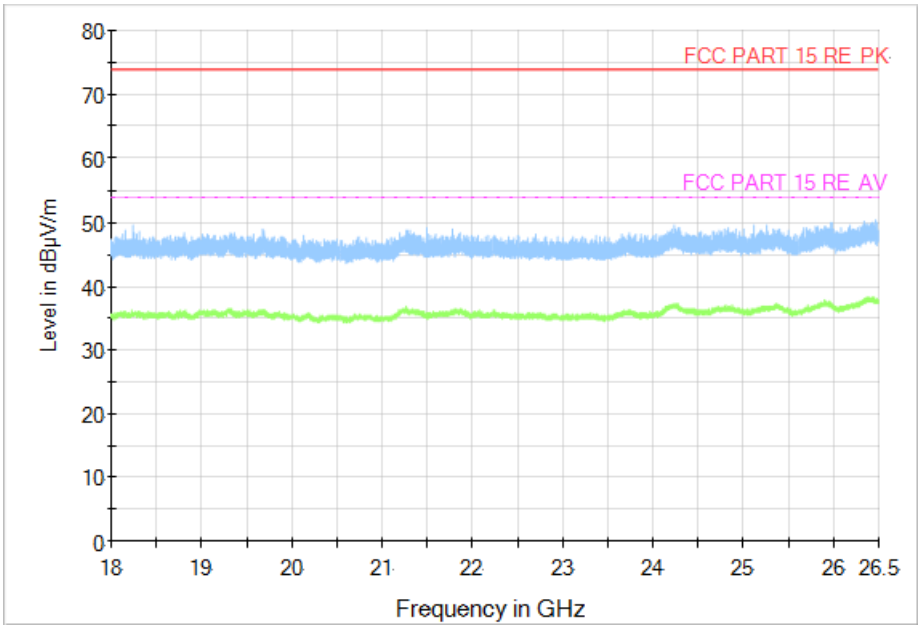

Fig.26 Radiated Spurious Emission (Ch19, 18 GHz - 26.5 GHz), 1M

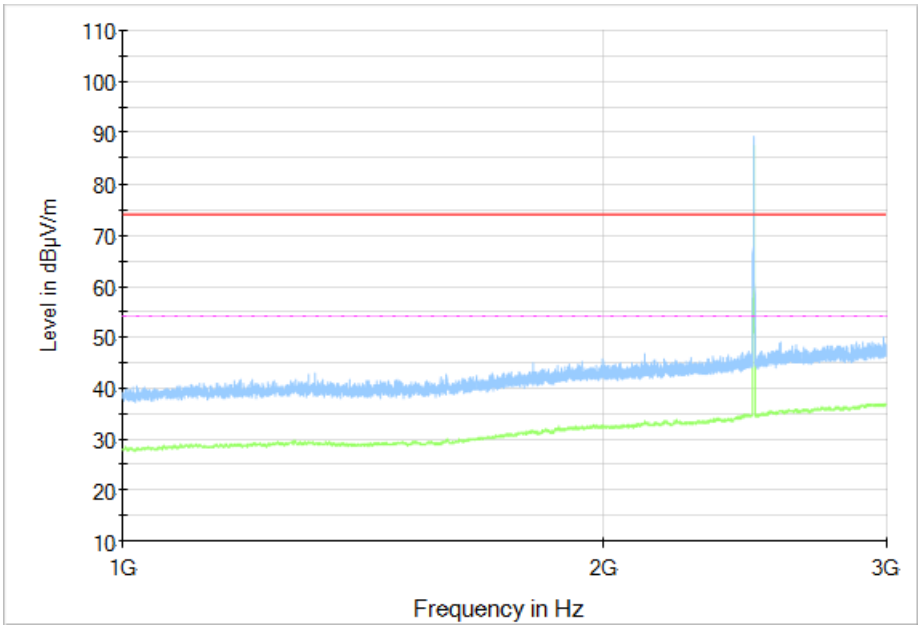

Fig.27 Radiated Spurious Emission (Ch39, 1 GHz - 3 GHz), 1M

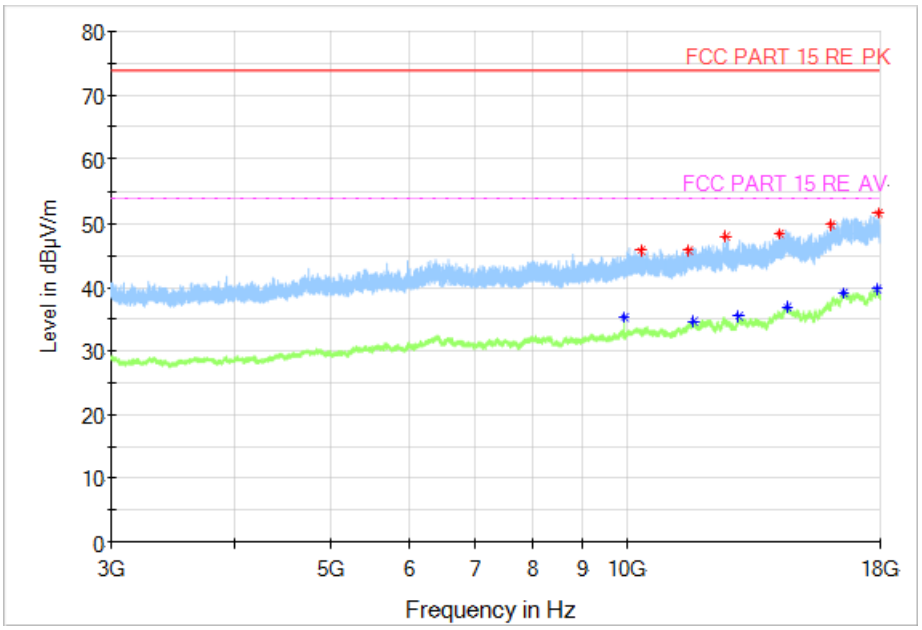

Fig.28 Radiated Spurious Emission (Ch39, 3 GHz - 18 GHz), 1M

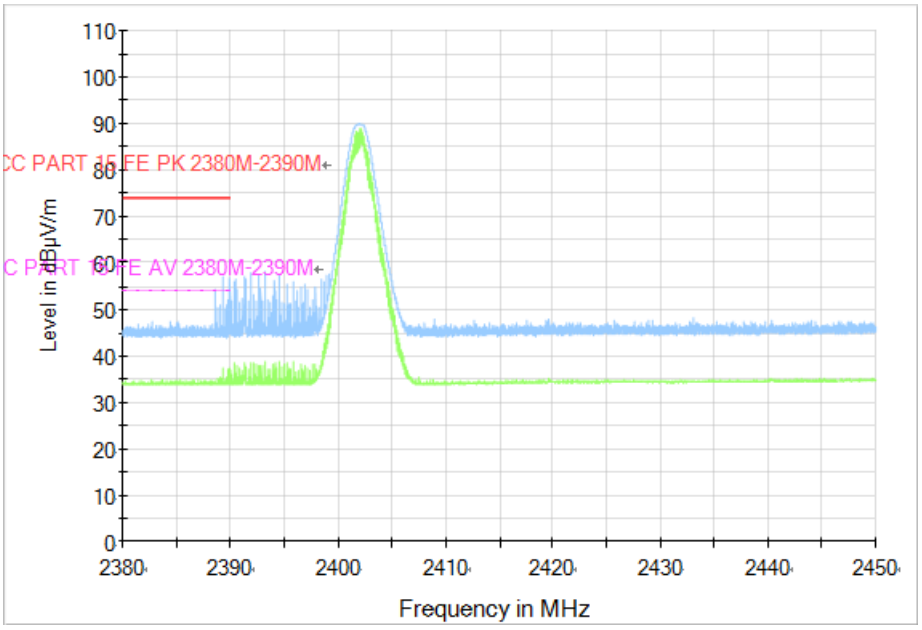

Fig.29 Radiated Band Edges (Ch0, 2380GHz - 2450GHz), 1M

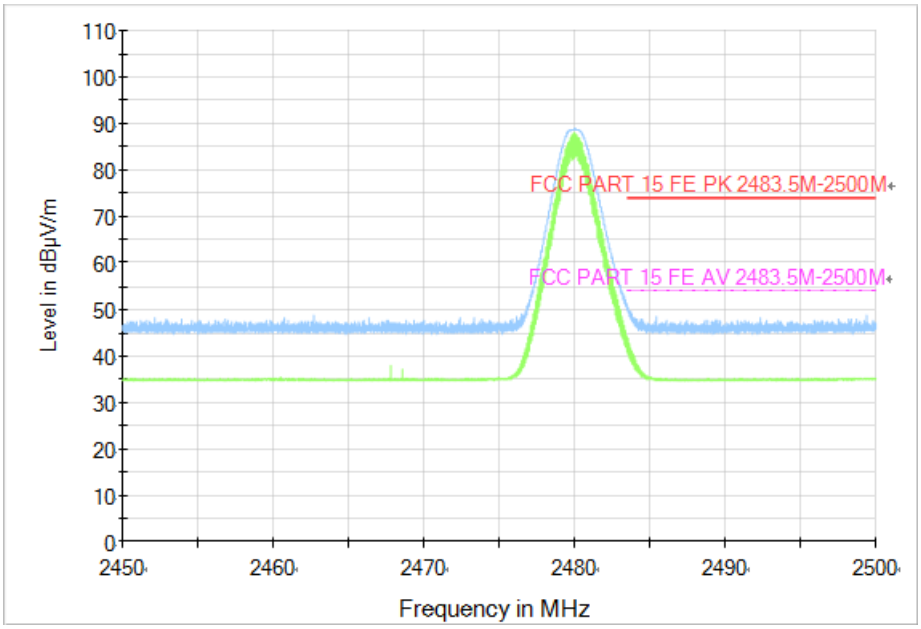

Fig.30 Radiated Band Edges (Ch39, 2450GHz - 2500GHz), 1M

A.7 AC Power line Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:

LE-1M

BLE (Quasi-peak Limit) - AE1

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.31	Fig.32	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) - AE1

Frequency range (MHz)	Average-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.31	Fig.32	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.				

BLE (Quasi-peak Limit) - AE2

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.33	Fig.34	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 (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.33	Fig.34	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.				

Test Condition:

Voltage (V)	Frequency (Hz)
240	60

Measurement Result and limit:

LE-1M

BLE (Quasi-peak Limit) - AE1

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.35	Fig.36	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) - AE1

Frequency range (MHz)	Average-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.35	Fig.36	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.				

BLE (Quasi-peak Limit) - AE2

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.37	Fig.38	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 (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.37	Fig.38	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.				

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

See below for test graphs.

Conclusion: Pass

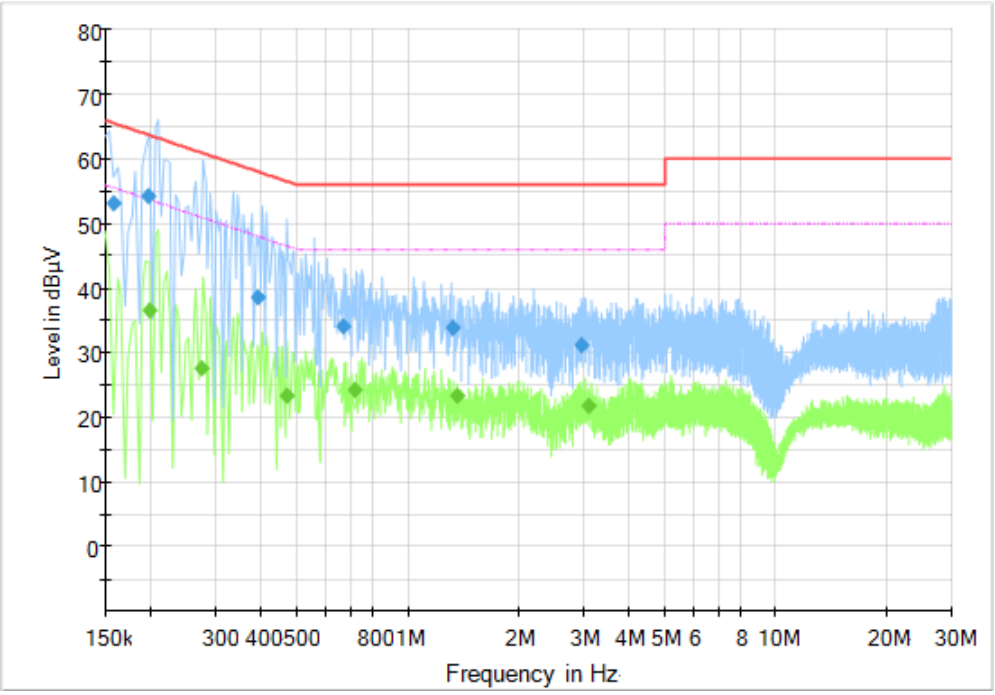

Fig.31 AC Power line Conducted Emission (Traffic, AE1, 120V), 1M

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
2.972	31.27	56.00	24.73	N	ON	9.7
1.324	33.94	56.00	22.06	N	ON	9.7
0.668	34.11	56.00	21.89	N	ON	9.6
0.392	38.59	58.02	19.43	N	ON	9.7
0.158	53.24	65.57	12.33	N	ON	9.6
0.196	54.36	63.78	9.42	N	ON	9.6

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.276	27.63	50.94	23.31	N	ON	9.6
0.468	23.42	46.55	23.13	N	ON	9.6
3.104	21.90	46.00	24.10	N	ON	9.7
0.716	24.27	46.00	21.73	N	ON	9.6
0.198	36.56	53.69	17.13	N	ON	9.6
1.360	23.45	46.00	22.55	N	ON	9.7

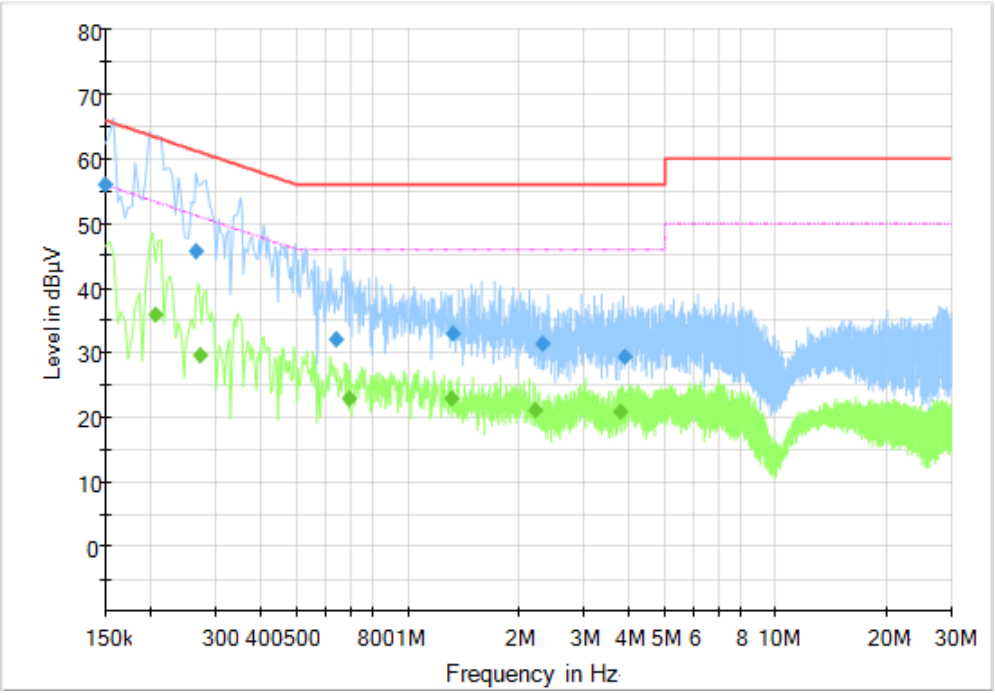

Fig.32 AC Power line Conducted Emission (Idle, AE1, 120V), 1M

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
3.904	29.38	56.00	26.62	L1	ON	9.7
2.328	31.40	56.00	24.60	L1	ON	9.7
0.636	32.05	56.00	23.95	N	ON	9.6
1.320	33.01	56.00	22.99	L1	ON	9.7
0.264	45.66	61.31	15.64	N	ON	9.6
0.150	55.95	66.00	10.05	L1	ON	9.6

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.692	22.93	46.00	23.07	L1	ON	9.6
1.308	23.00	46.00	23.00	L1	ON	9.7
0.272	29.64	51.06	21.42	L1	ON	9.6
3.772	20.91	46.00	25.09	L1	ON	9.7
0.206	35.79	53.37	17.57	N	ON	9.6
2.212	21.18	46.00	24.82	L1	ON	9.7

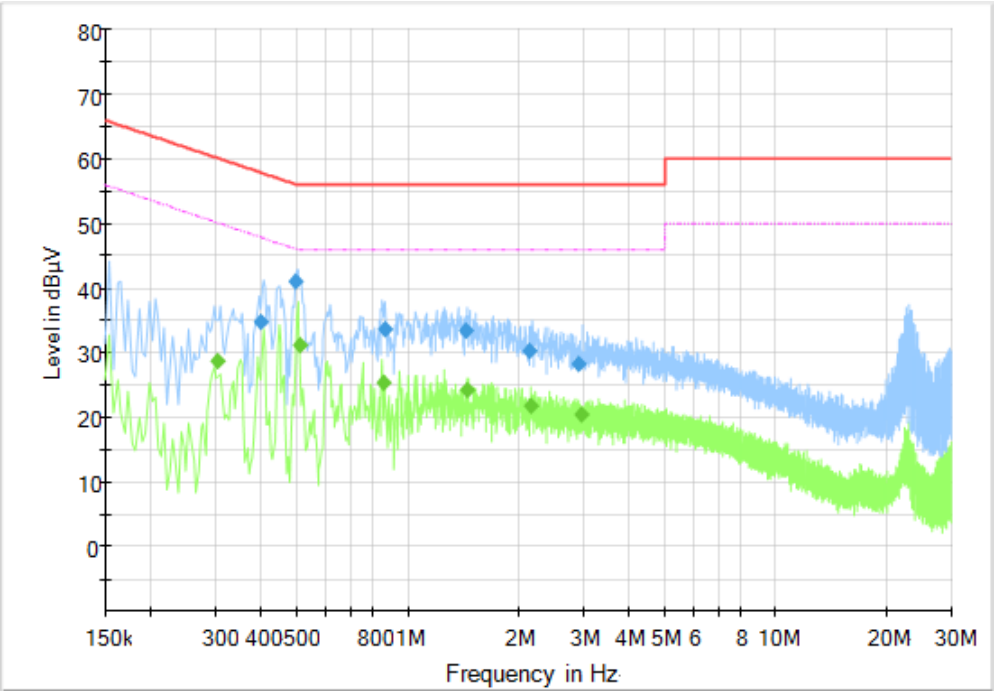

Fig.33 AC Power line Conducted Emission (Traffic, AE2, 120V), 1M

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
2.912	28.24	56.00	27.76	N	ON	9.7
2.148	30.21	56.00	25.79	N	ON	9.7
1.444	33.40	56.00	22.60	N	ON	9.7
0.868	33.76	56.00	22.24	N	ON	9.7
0.400	34.82	57.85	23.03	L1	ON	9.7
0.496	40.95	56.07	15.12	N	ON	9.6

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.508	31.10	46.00	14.90	N	ON	9.6
0.860	25.48	46.00	20.52	N	ON	9.7
0.304	28.66	50.13	21.47	N	ON	9.6
1.452	24.28	46.00	21.72	N	ON	9.7
2.964	20.43	46.00	25.57	N	ON	9.7
2.160	21.79	46.00	24.21	N	ON	9.7

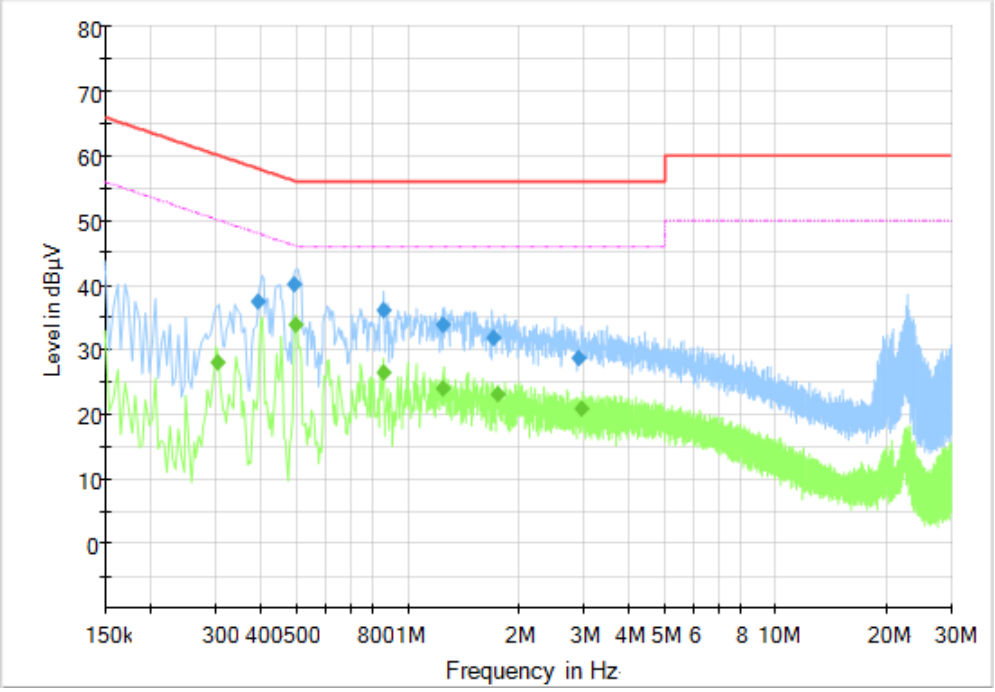

Fig.34 AC Power line Conducted Emission (Idle, AE2, 120V), 1M

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
2.904	28.74	56.00	27.26	L1	ON	9.7
1.704	31.86	56.00	24.14	L1	ON	9.7
1.248	33.92	56.00	22.08	L1	ON	9.7
0.860	36.13	56.00	19.87	L1	ON	9.7
0.392	37.41	58.02	20.61	L1	ON	9.7
0.492	40.22	56.13	15.91	L1	ON	9.6

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.496	33.82	46.07	12.25	L1	ON	9.6
0.856	26.51	46.00	19.49	L1	ON	9.7
0.304	28.04	50.13	22.10	L1	ON	9.6
1.244	24.12	46.00	21.88	L1	ON	9.7
2.972	20.86	46.00	25.14	L1	ON	9.7
1.756	23.20	46.00	22.80	L1	ON	9.7

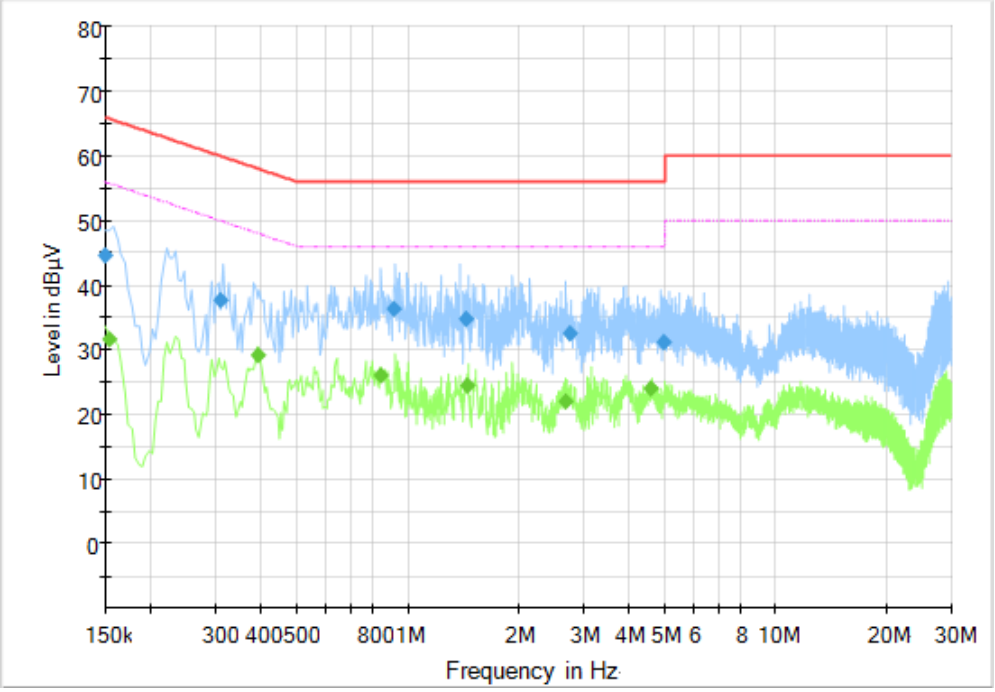

Fig.35 AC Power line Conducted Emission (Traffic, AE1, 240V), 1M

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
4.944	31.16	56.00	24.84	N	ON	9.7
2.756	32.49	56.00	23.51	N	ON	9.7
1.440	34.68	56.00	21.32	N	ON	9.7
0.912	36.26	56.00	19.74	N	ON	9.7
0.308	37.64	60.02	22.38	N	ON	9.6
0.150	44.61	66.00	21.39	N	ON	9.6

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
1.452	24.43	46.00	21.57	N	ON	9.7
0.840	26.08	46.00	19.92	N	ON	9.6
0.392	29.23	48.02	18.79	L1	ON	9.7
4.572	24.05	46.00	21.95	L1	ON	9.7
0.154	31.66	55.78	24.13	L1	ON	9.6
2.688	22.09	46.00	23.91	N	ON	9.7

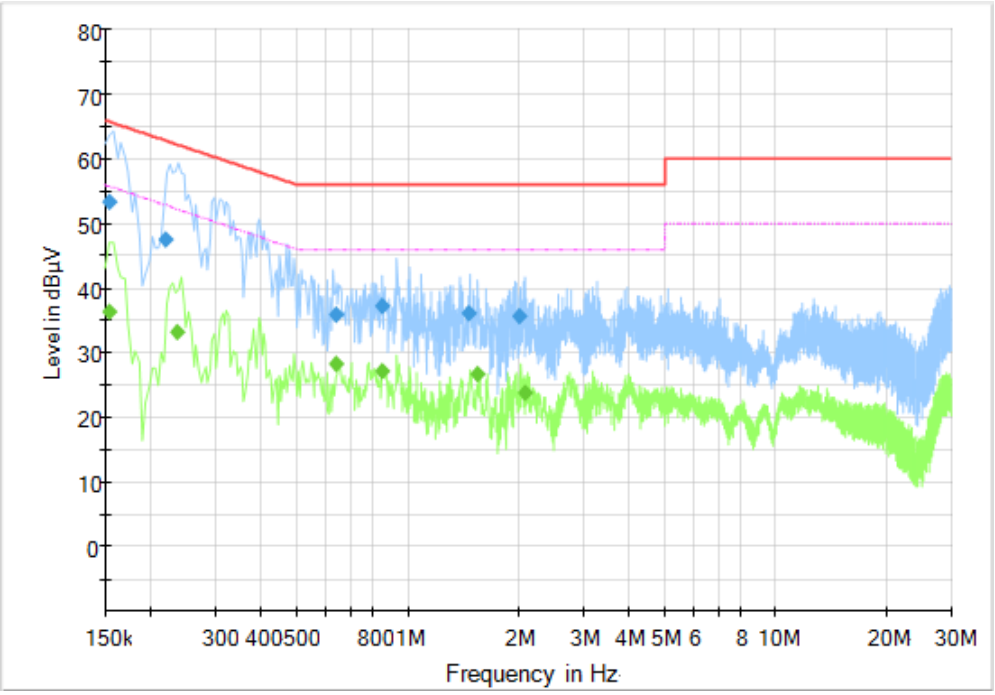

Fig.36 AC Power line Conducted Emission (Idle, AE1, 240V), 1M

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
2.008	35.78	56.00	20.22	L1	ON	9.7
0.640	35.99	56.00	20.01	L1	ON	9.6
1.464	36.07	56.00	19.93	L1	ON	9.7
0.848	37.26	56.00	18.74	L1	ON	9.7
0.220	47.56	62.82	15.26	L1	ON	9.6
0.154	53.30	65.78	12.48	N	ON	9.6

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.236	33.26	52.24	18.97	N	ON	9.6
0.640	28.34	46.00	17.66	N	ON	9.6
2.076	23.86	46.00	22.14	L1	ON	9.7
0.848	27.06	46.00	18.94	L1	ON	9.7
0.154	36.35	55.78	19.44	N	ON	9.6
1.540	26.83	46.00	19.17	N	ON	9.7

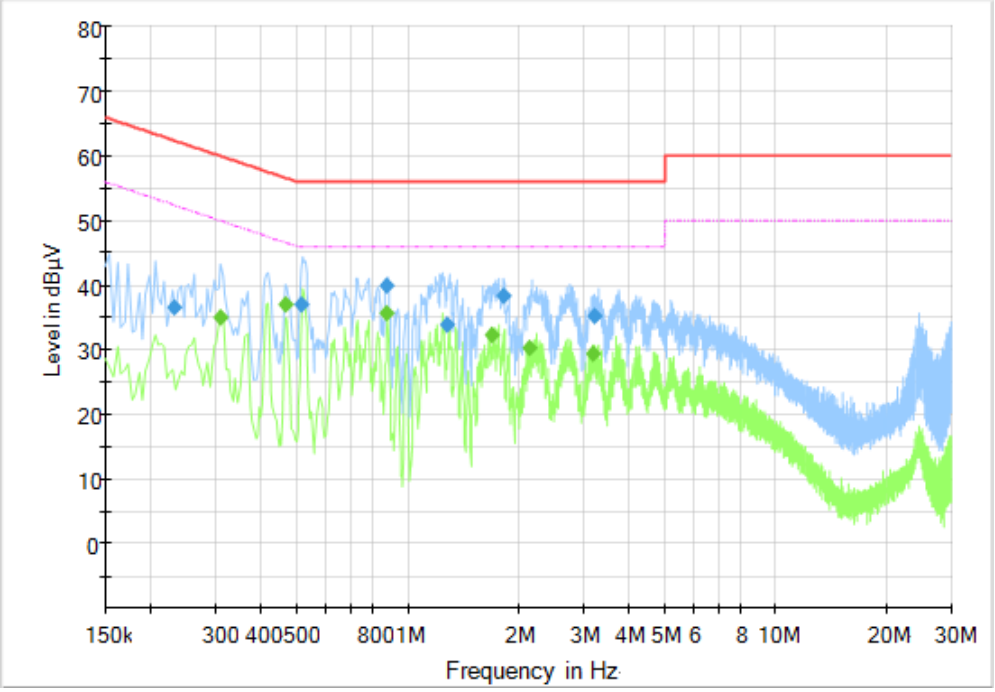

Fig.37 AC Power line Conducted Emission (Traffic, AE2, 240V), 1M

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
1.284	33.84	56.00	22.16	L1	ON	9.7
3.220	35.31	56.00	20.69	N	ON	9.7
0.232	36.51	62.38	25.86	L1	ON	9.6
0.512	36.96	56.00	19.04	L1	ON	9.6
1.812	38.46	56.00	17.54	N	ON	9.7
0.876	39.97	56.00	16.03	N	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.876	35.78	46.00	10.22	N	ON	9.7
0.308	34.90	50.02	15.13	N	ON	9.6
3.184	29.47	46.00	16.53	N	ON	9.7
1.692	32.27	46.00	13.73	N	ON	9.7
0.464	36.96	46.62	9.66	N	ON	9.6
2.148	30.33	46.00	15.67	N	ON	9.7

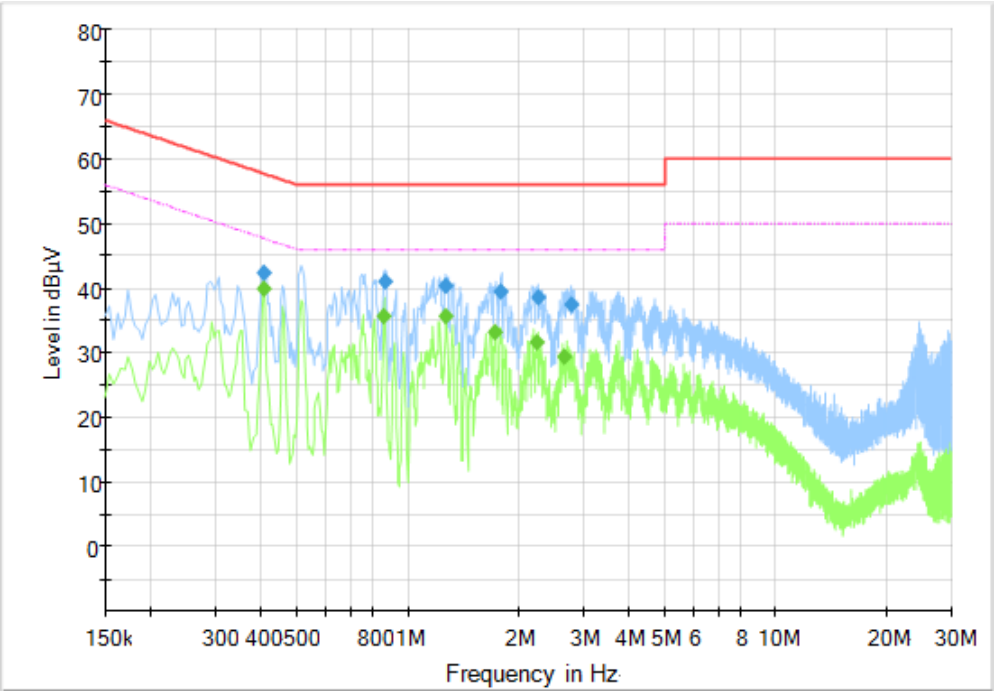

Fig.38 AC Power line Conducted Emission (Idle, AE2, 240V), 1M

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
2.772	37.52	56.00	18.48	L1	ON	9.7
2.252	38.49	56.00	17.51	L1	ON	9.7
1.792	39.52	56.00	16.48	L1	ON	9.7
1.264	40.48	56.00	15.52	L1	ON	9.7
0.868	41.15	56.00	14.85	L1	ON	9.7
0.404	42.38	57.77	15.39	L1	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.404	39.85	47.77	7.92	L1	ON	9.7
1.268	35.62	46.00	10.38	L1	ON	9.7
2.652	29.37	46.00	16.63	L1	ON	9.7
1.728	33.17	46.00	12.83	L1	ON	9.7
0.860	35.71	46.00	10.29	L1	ON	9.7
2.248	31.60	46.00	14.40	L1	ON	9.7

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