



# TEST REPORT

No. I21N00886-BLE

**HMD Global Oy**

**Smart Phone**

**Model Name: TA-1357**

**with**

**Hardware Version: V01A**

**Software Version: 00WW\_0\_010**

**FCC ID: 2AJOTTA-1357**

**Issued Date: 2021-05-31**

**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	Smart Phone
Model Name	TA-1357
Applicant's name	HMD Global Oy
Manufacturer's Name	HMD Global Oy

### 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:	2021-04-17
Testing End Date:	2021-05-07

### 1.6. 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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(Approved this test report)



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: HMD Global Oy  
Address: Bertel Jungin aukio 9, 02600 Espoo, Finland  
Contact Person: Rosario Casillo  
E-Mail: rosario.casillo@hmdglobal.com  
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### **2.2. Manufacturer Information**

Company Name: HMD Global Oy  
Address: Bertel Jungin aukio 9, 02600 Espoo, Finland  
Contact Person: Rosario Casillo  
E-Mail: rosario.casillo@hmdglobal.com  
Telephone: +393 31 6272922



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

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

Description	Smart Phone
Model Name	TA-1357
Frequency Range	2400MHz~2483.5MHz
Type of Modulation	GFSK
Number of Channels	40
Antenna Type	Integrated
Antenna Gain	-2.0 dBi
Power Supply	3.85V DC by Battery
FCC ID	2AJOTTA-1357
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>
UT06aa	350872080009283	V01A	00WW_0_010	2021-04-12
UT05aa	350872080003880	V01A	00WW_0_010	2021-04-12

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

\*UT06aa 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	/
AE2	Charger	/
AE3	Charger	/
AE1		
Model	SE681	
Manufacturer	Shenzhen Aerospac Electronic CO.,Ltd.	
Capacity	5850mAh	
Nominal Voltage	3.85v	
AE2		
Model	A8-050200U-US3	
Manufacturer	Dongguan Aohai Technology Co., Ltd	
AE3		
Model	AD-010U	
Manufacturer	Shenzhen Baijunda Electronic 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 Smart Phone with integrated antenna and battery.



No. I21N00886-BLE

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.



## **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/manufacture 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	2021-12-30	1 year
2	Power Sensor	U2021XA	MY55430013	Agilent	2022-01-13	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	2022-01-01	1 year
2	Test Receiver	ESCI	100701	R&S	2021-08-05	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	2021-07-17	1 year
7	Spectrum Analyzer	FSP 40	100378	R&S	2021-12-11	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 -2.0dBi. 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)	-0.36	-2.36	P
	2440 (CH19)	1.41	-0.59	P
	2480 (CH39)	0.89	-1.11	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

See below for test graphs.

Conclusion: PASS

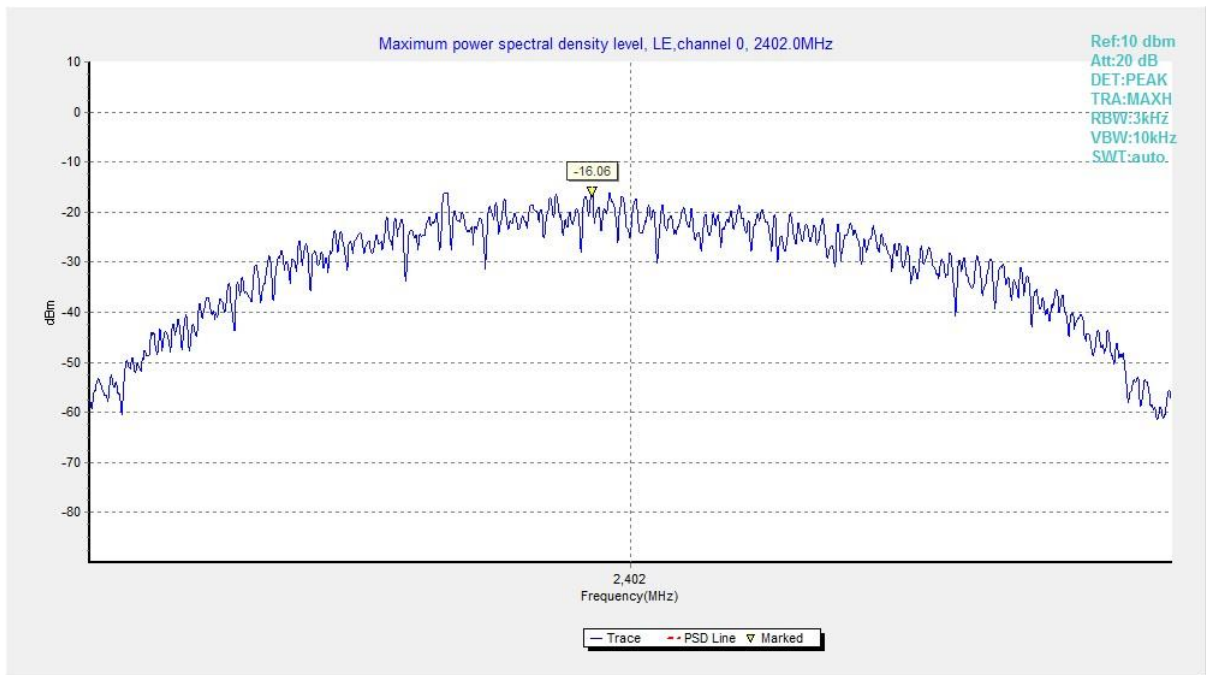


Fig.1 Power Spectral Density (Ch 0), LE 1M

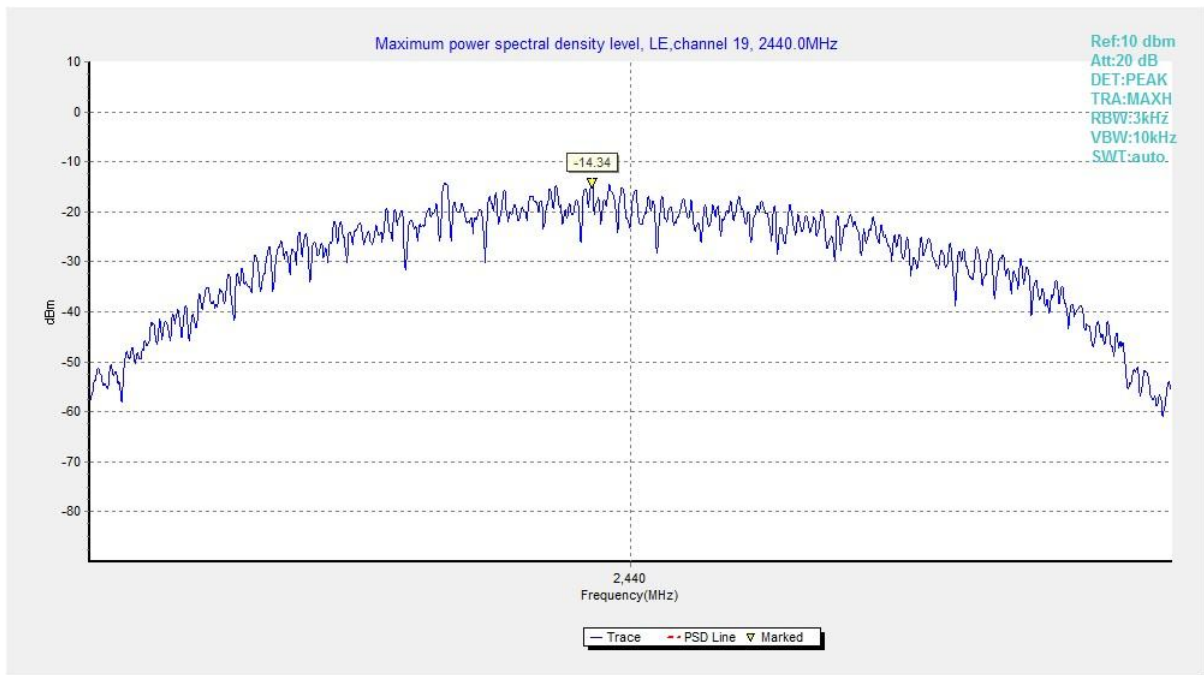


Fig.2 Power Spectral Density (Ch 19), LE 1M

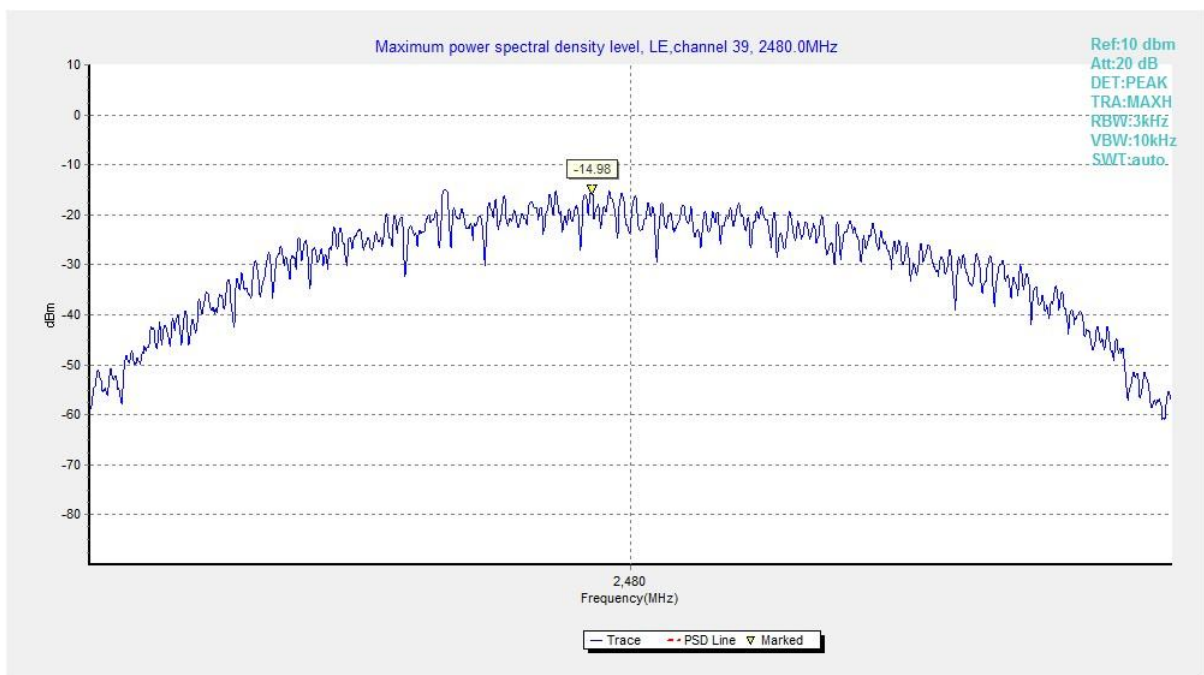


Fig.3 Power Spectral Density (Ch 39), LE 1M

### 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	663.50	P
	2440 (CH19)	Fig.5	664.00	P
	2480 (CH39)	Fig.6	664.50	P

See below for test graphs.

Conclusion: PASS



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



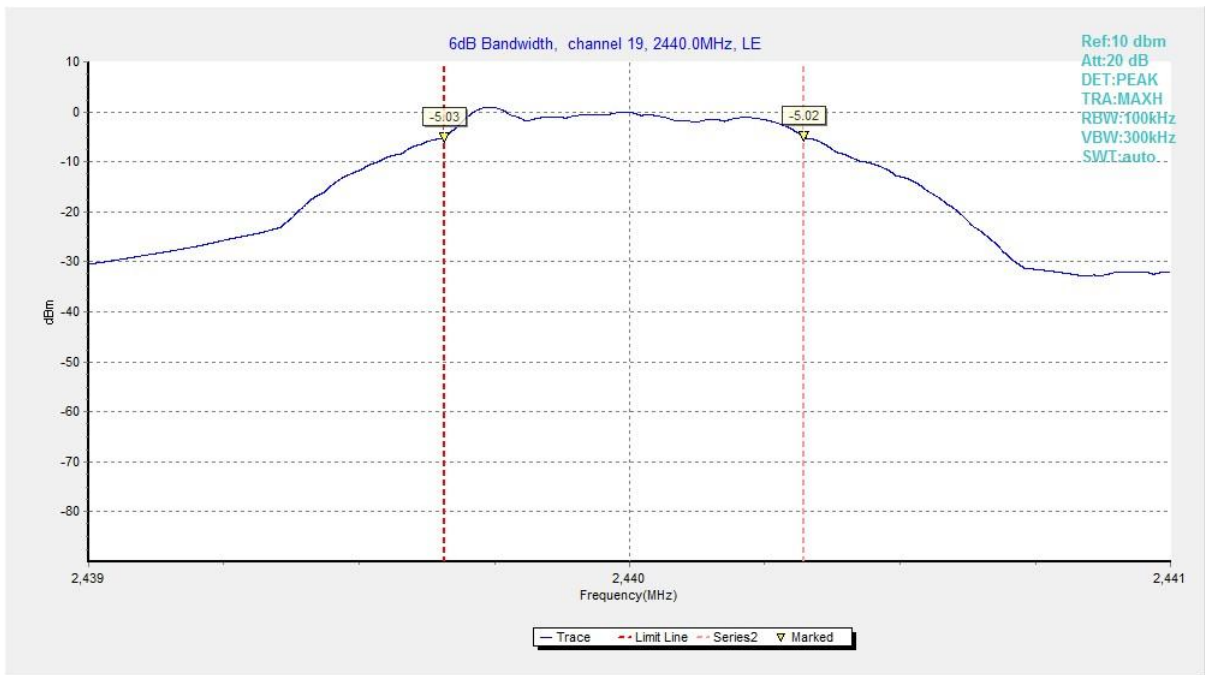


Fig.5 6dB Bandwidth (Ch 19), LE 1M

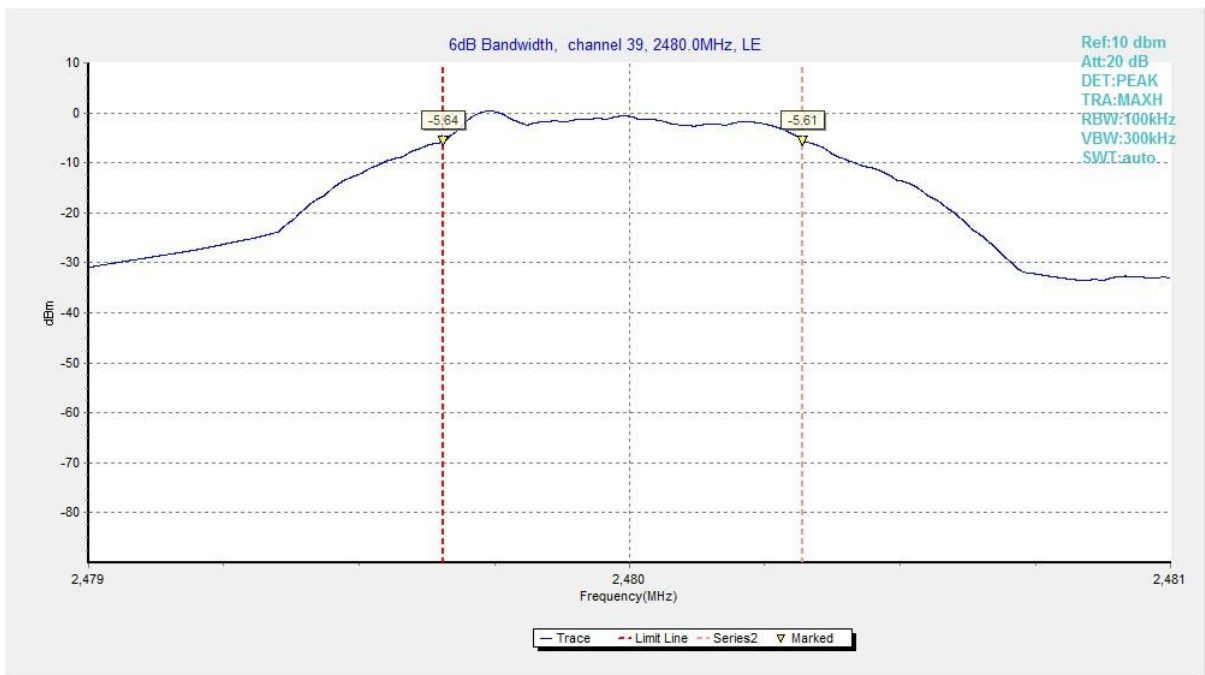


Fig.6 6dB Bandwidth (Ch 39), LE 1M

### 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	59.90	P
	2480 (CH39)	Fig.8	63.13	P

See below for test graphs.

Conclusion: Pass

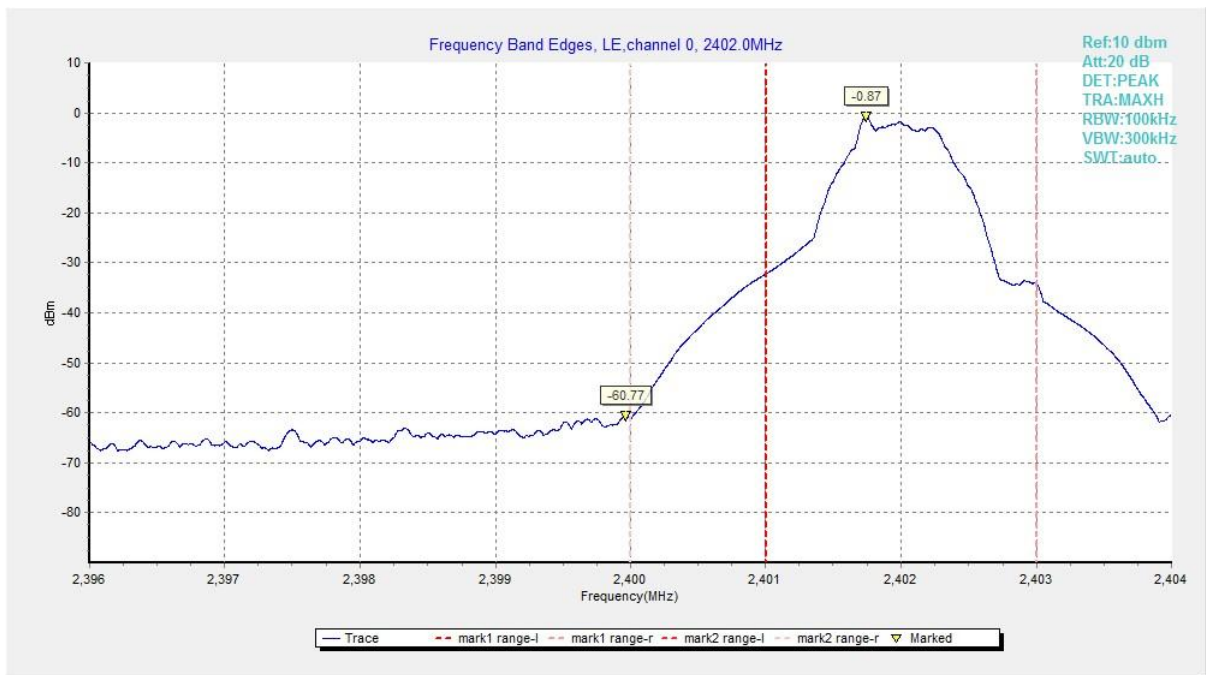


Fig.7 Band Edges (Ch 0), LE 1M



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

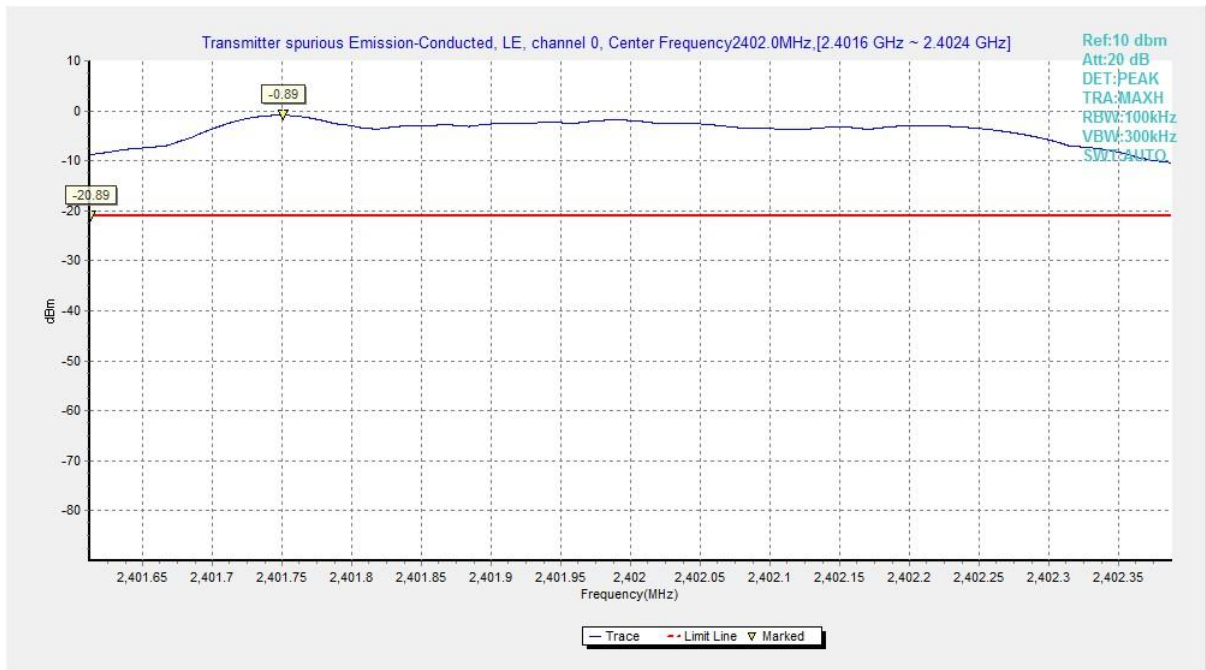


Fig.9 Conducted Spurious Emission (Ch0, Center Frequency), LE 1M

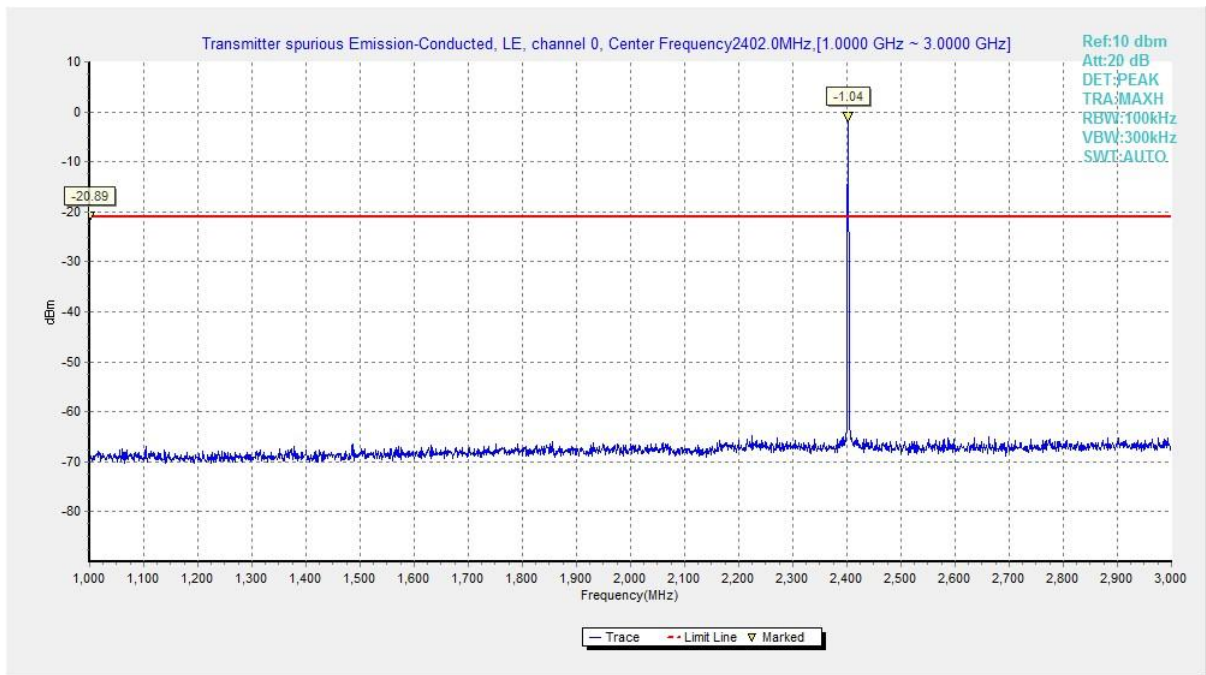


Fig.10 Conducted Spurious Emission (Ch0, 1 GHz-3 GHz), LE 1M

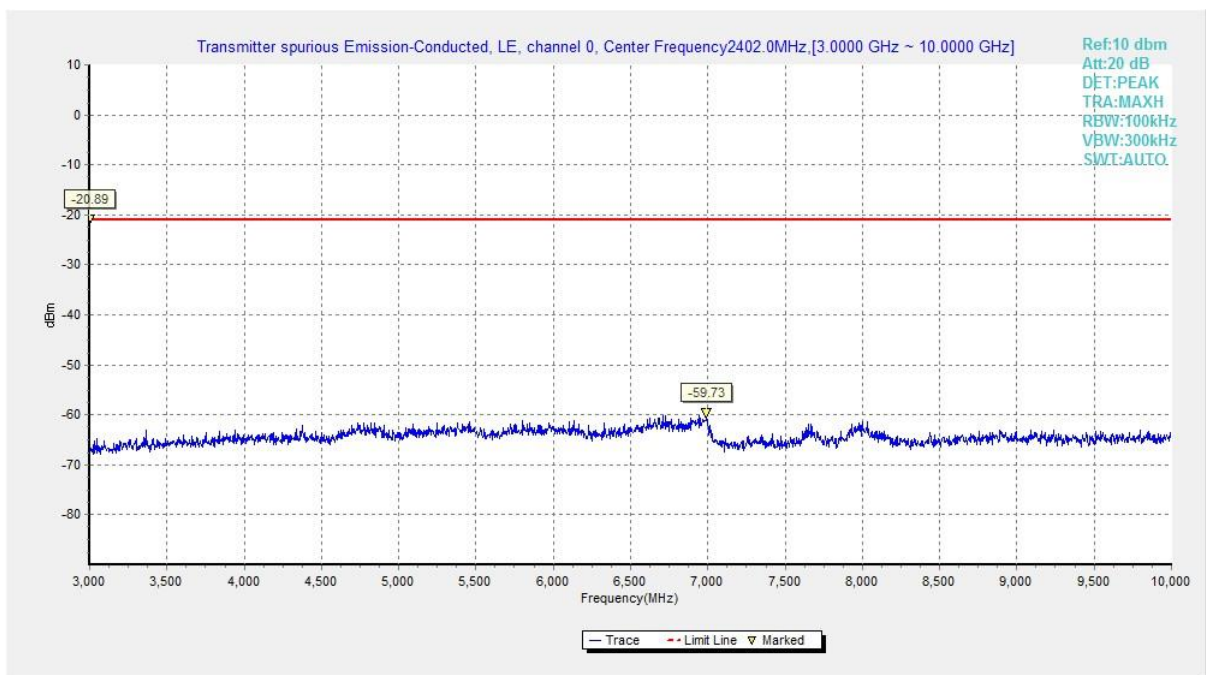


Fig.11 Conducted Spurious Emission (Ch0, 3 GHz-10 GHz), LE 1M

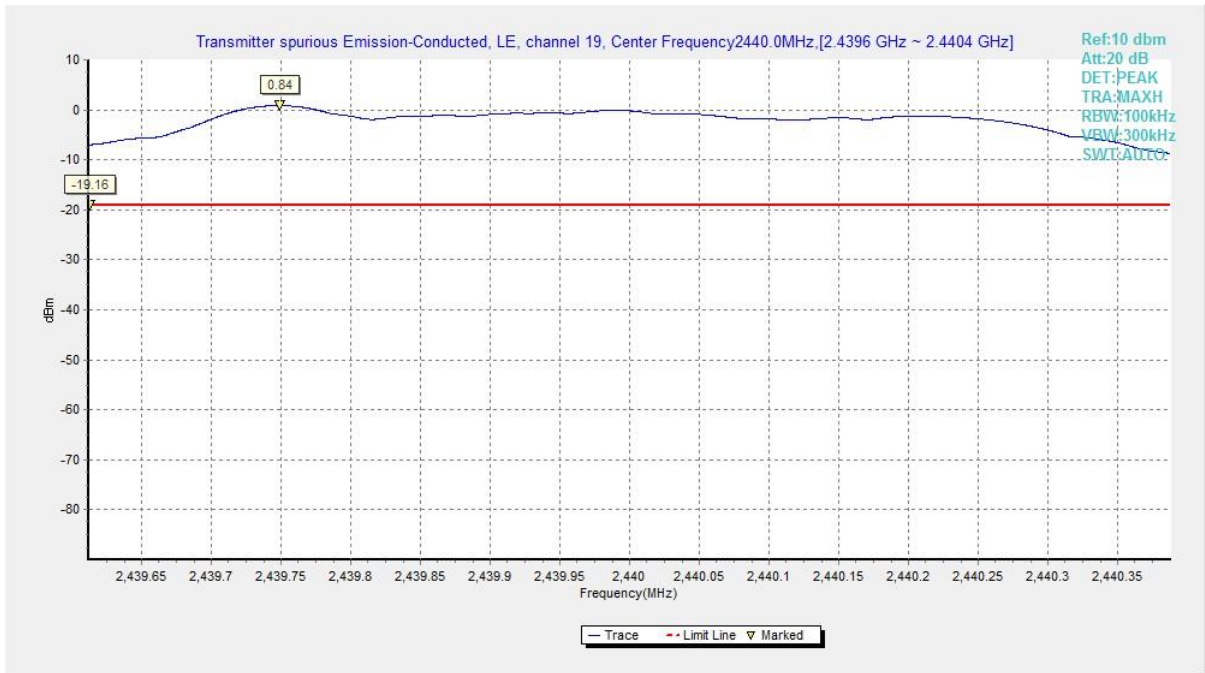


Fig.12 Conducted Spurious Emission (Ch19, Center Frequency), LE 1M

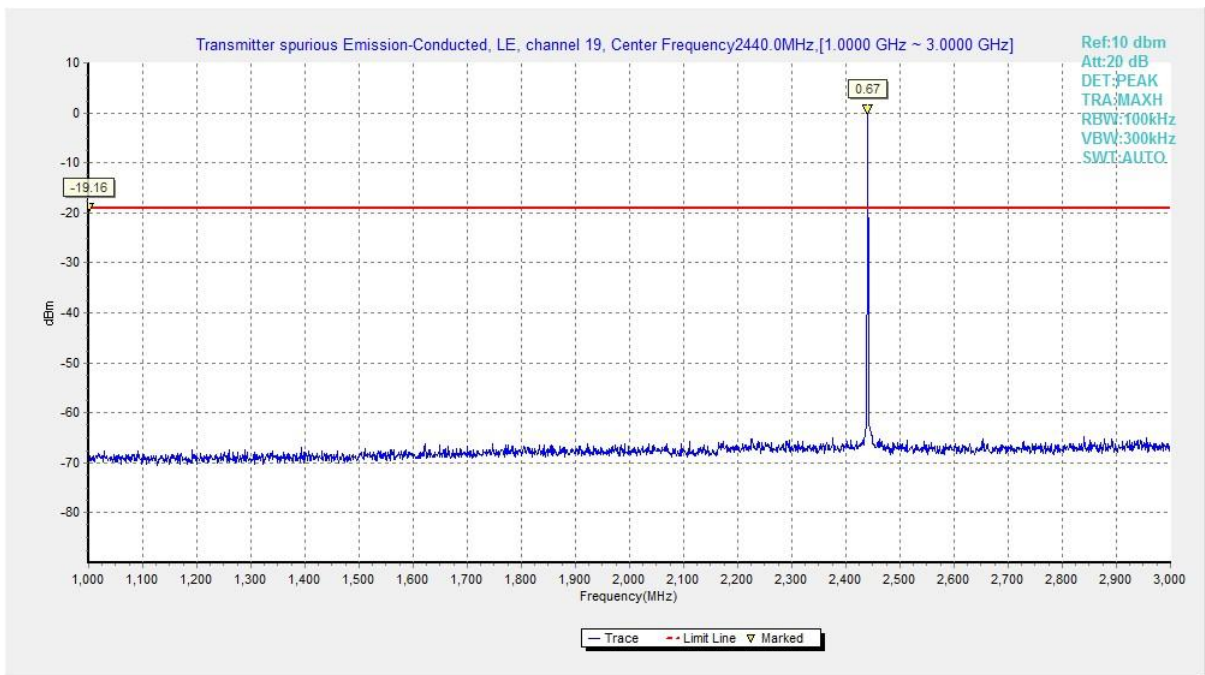


Fig.13 Conducted Spurious Emission (Ch19, 1 GHz-3 GHz), LE 1M

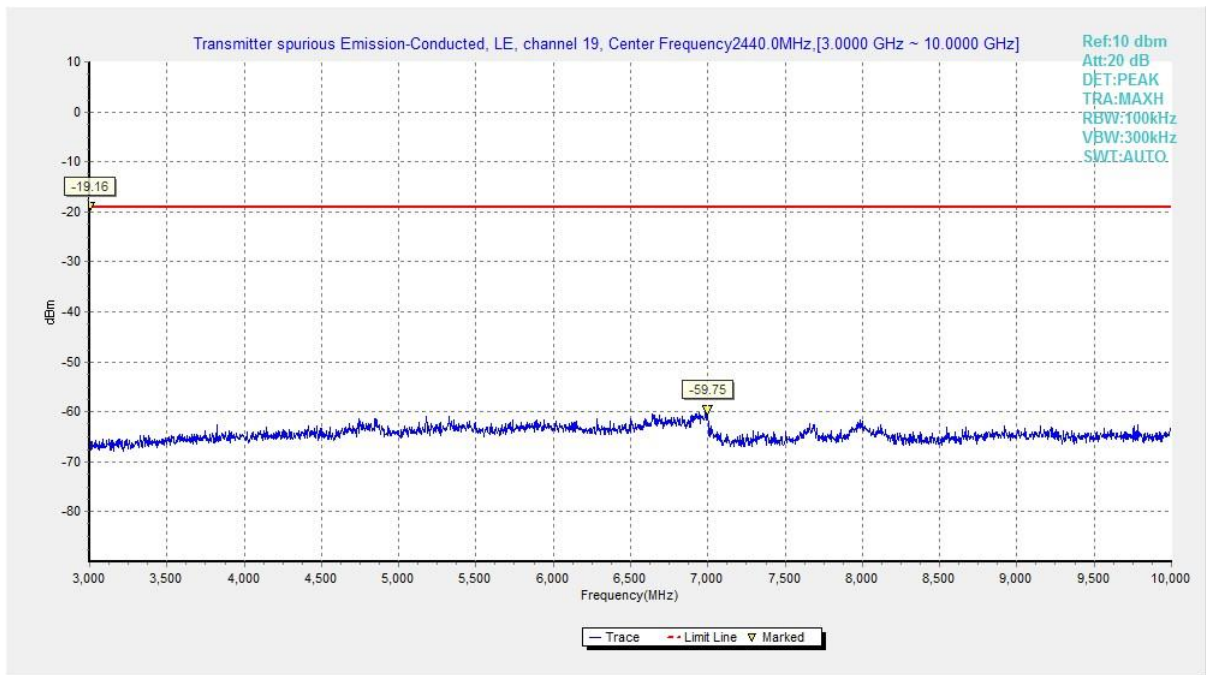


Fig.14 Conducted Spurious Emission (Ch19, 3 GHz-10 GHz), LE 1M

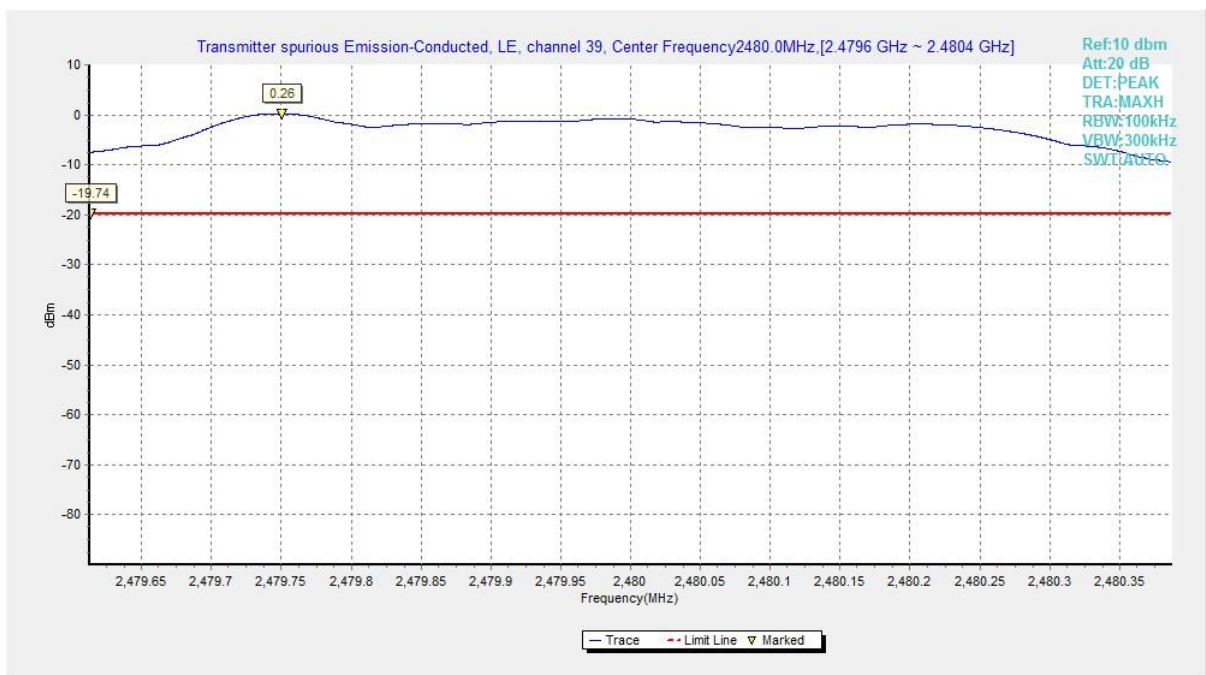


Fig.15 Conducted Spurious Emission (Ch39, Center Frequency), LE 1M

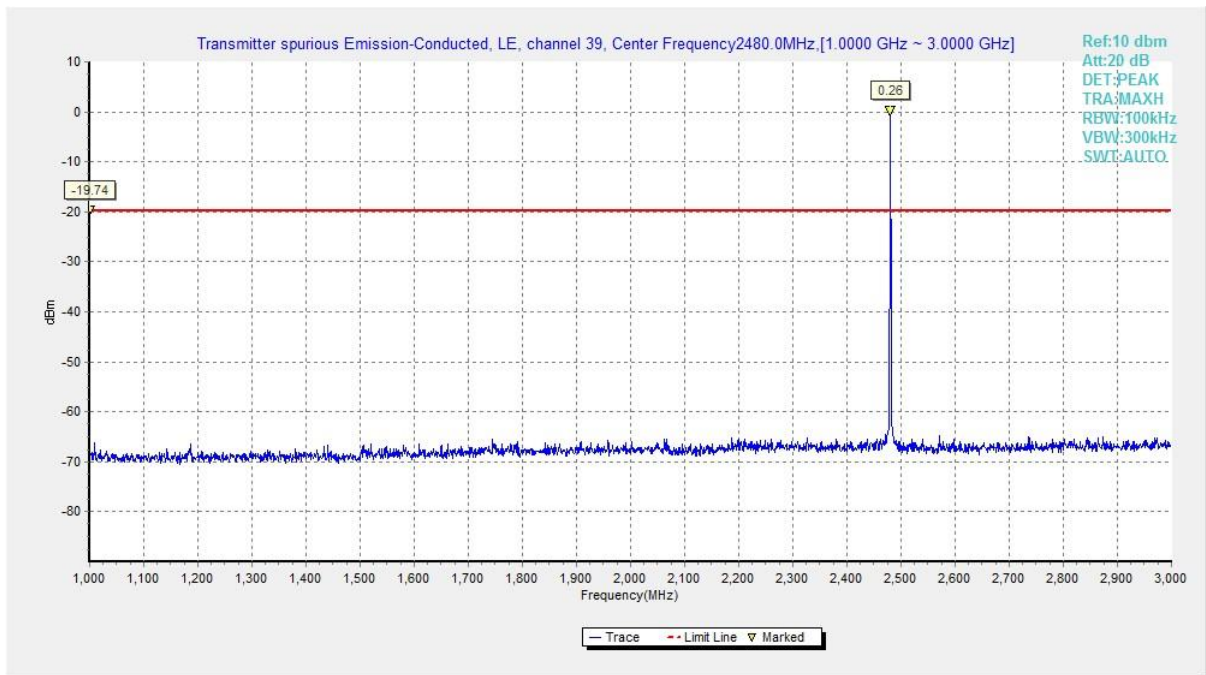


Fig.16 Conducted Spurious Emission (Ch39, 1 GHz-3 GHz), LE 1M

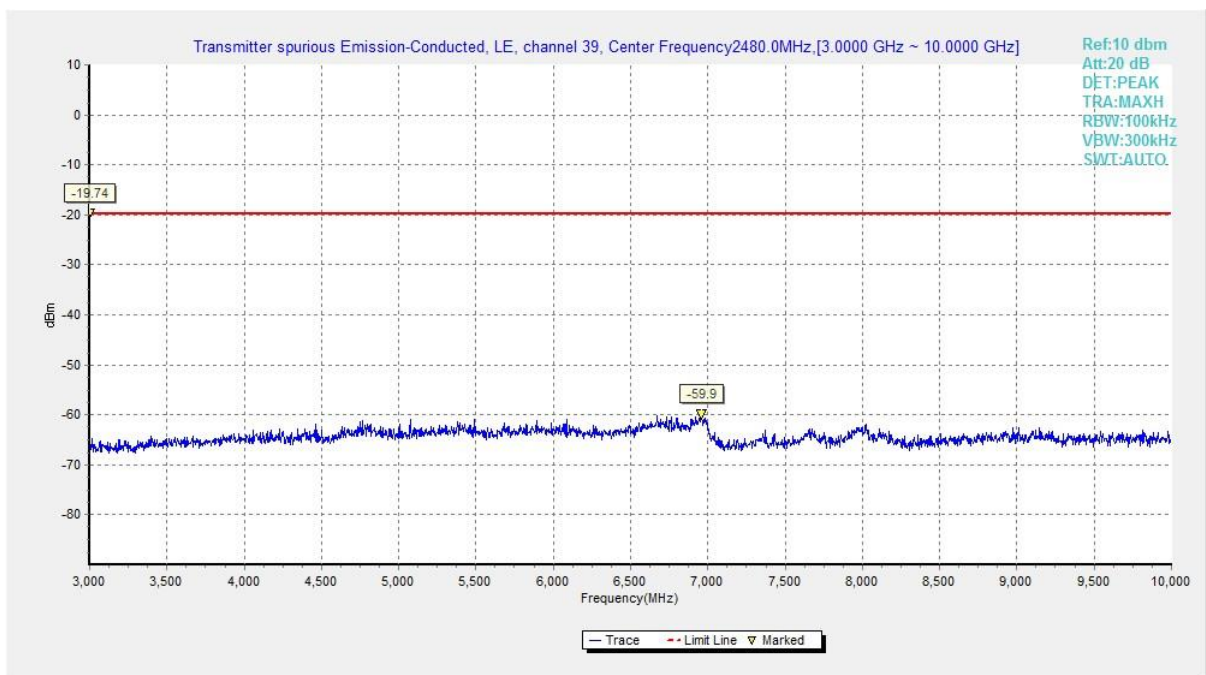
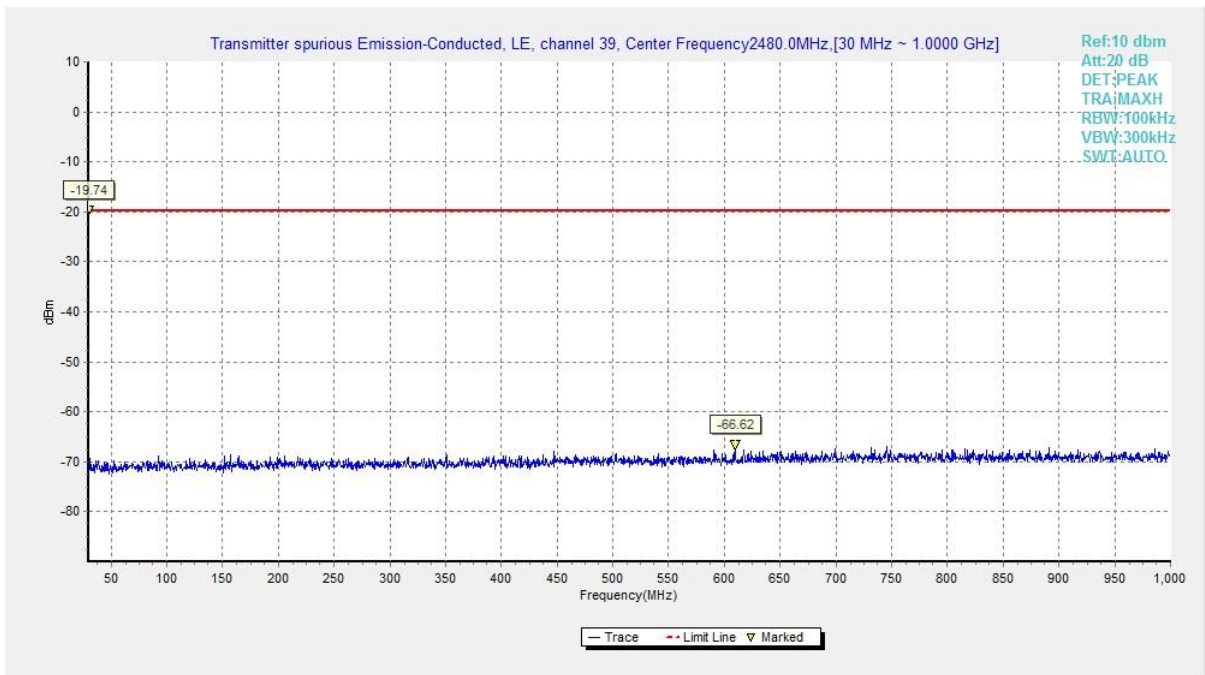
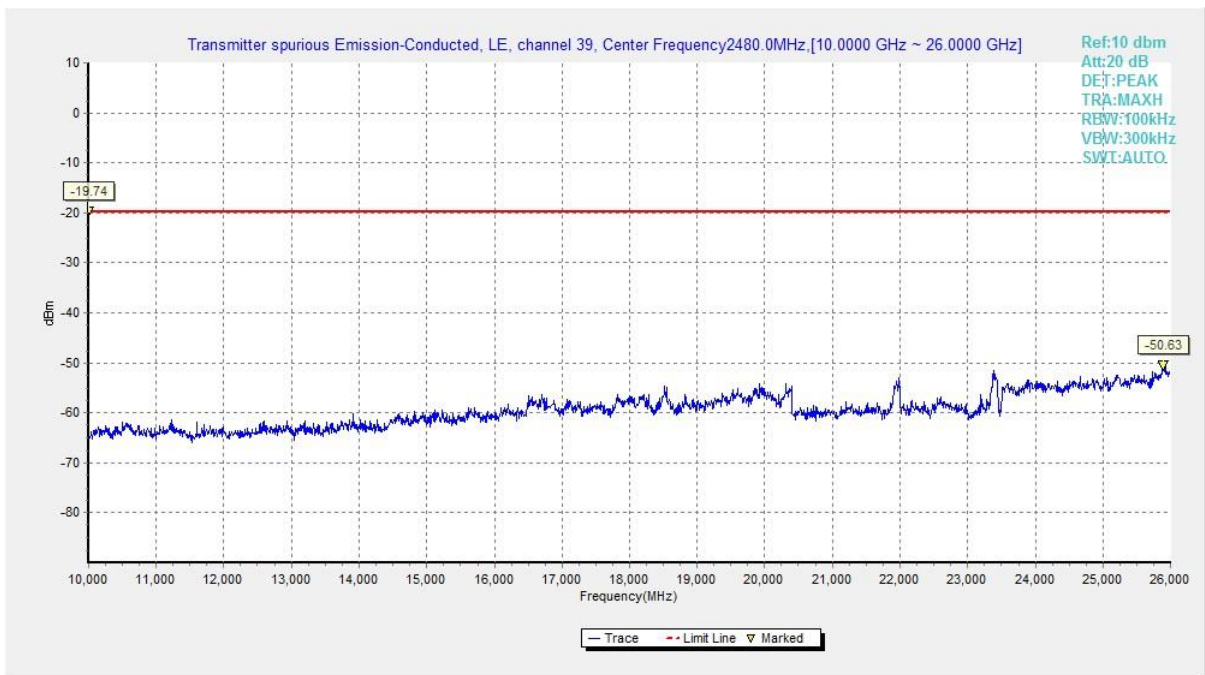


Fig.17 Conducted Spurious Emission (Ch39, 3 GHz-10 GHz), LE 1M





**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 ( $\mu\text{V}/\text{m}$ )	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.20	P
	19	9 kHz ~ 30 MHz	Fig.21	P
		30 MHz ~ 1 GHz	Fig.22	P
		1 GHz ~ 18 GHz	Fig.23	P
		18 GHz ~ 26.5 GHz	Fig.24	P
	39	1 GHz ~ 18 GHz	Fig.25	P
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.26	P
	Restricted Band(CH39)	2.45 GHz ~ 2.5 GHz	Fig.27	P

See below for test graphs.

**Conclusion: Pass**

**LE-1M**
**GFSK CH0 (1-18GHz)**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
2992.400000	44.0	74.0	30.0	H	8.9
3590.700000	37.0	74.0	37.0	H	-13.2
5455.800000	39.7	74.0	34.3	H	-8.1
7976.000000	43.5	74.0	30.5	H	-2.1
14792.800000	50.6	74.0	23.4	H	6.5
17928.000000	54.8	74.0	19.2	V	14.1

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
2992.400000	33.1	54.0	20.9	H	8.9
3590.700000	23.3	54.0	30.7	H	-13.2
5455.800000	27.1	54.0	26.9	H	-8.1
7976.000000	31.4	54.0	22.6	H	-2.1
14792.800000	38.8	54.0	15.2	H	6.5
17928.000000	42.3	54.0	11.7	V	14.1

**GFSK CH19 (1-18GHz)**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
2995.600000	44.3	74.0	29.7	V	8.9
3925.800000	35.4	74.0	38.6	H	-12.3
4929.000000	39.3	74.0	34.7	H	-9.2
7146.400000	43.7	74.0	30.3	V	-2.6
14809.200000	50.6	74.0	23.4	V	6.5
17925.200000	54.9	74.0	19.1	V	14.0

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
2995.600000	32.6	54.0	21.4	V	8.9
3925.800000	23.4	54.0	30.6	H	-12.3
4929.000000	25.9	54.0	28.1	H	-9.2
7146.400000	30.5	54.0	23.5	V	-2.6
14809.200000	39.3	54.0	14.7	V	6.5
17925.200000	42.8	54.0	11.2	V	14.0

**GFSK CH39 (1-18GHz)**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
2973.600000	44.5	74.0	29.5	V	9.0
3557.400000	35.4	74.0	38.6	H	-13.0
4989.900000	38.8	74.0	35.2	V	-8.7
7466.400000	44.0	74.0	30.0	V	-2.5
14803.200000	50.5	74.0	23.5	V	6.5
17984.800000	55.0	74.0	19.0	H	14.1

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
2973.600000	33.0	54.0	21.0	V	9.0
3557.400000	23.6	54.0	30.4	H	-13.0
4989.900000	26.9	54.0	27.1	V	-8.7
7466.400000	30.5	54.0	23.5	V	-2.5
14803.200000	38.6	54.0	15.4	V	6.5
17984.800000	42.8	54.0	11.2	H	14.1

**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

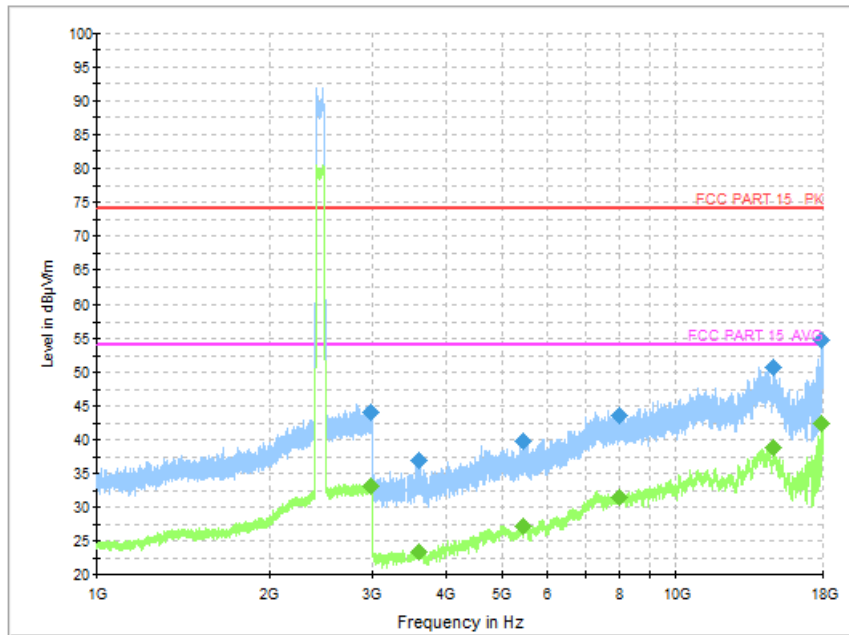


Fig.20 Radiated Spurious Emission (Ch0, 1 GHz - 18 GHz), 1M

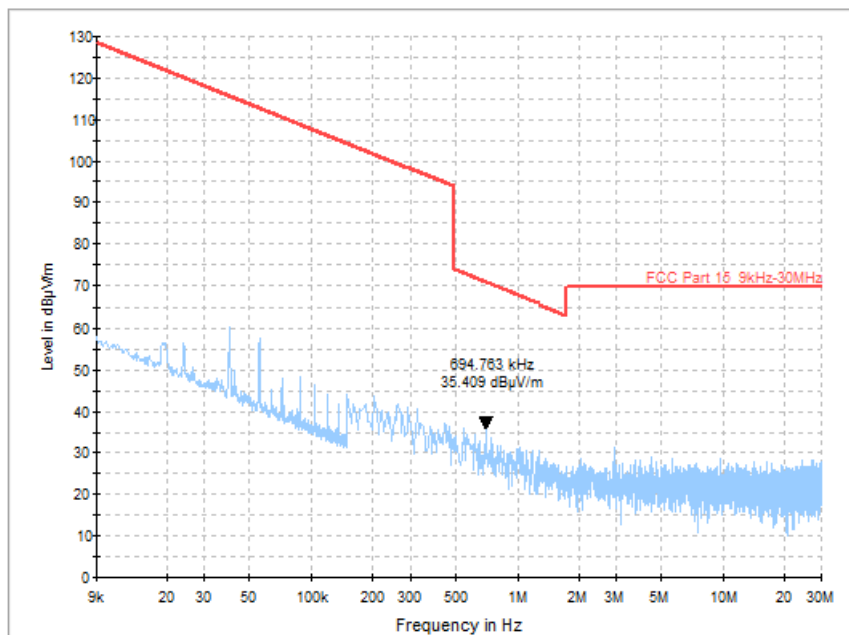


Fig.21 Radiated Spurious Emission (Ch19, 9 kHz - 30 MHz), 1M

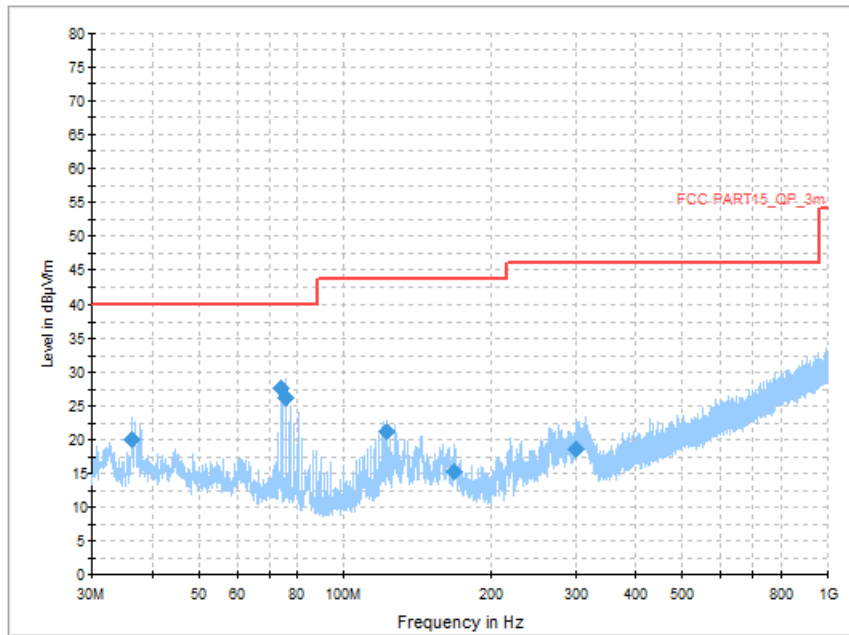


Fig.22 Radiated Spurious Emission (Ch19, 30 MHz - 1 GHz), 1M

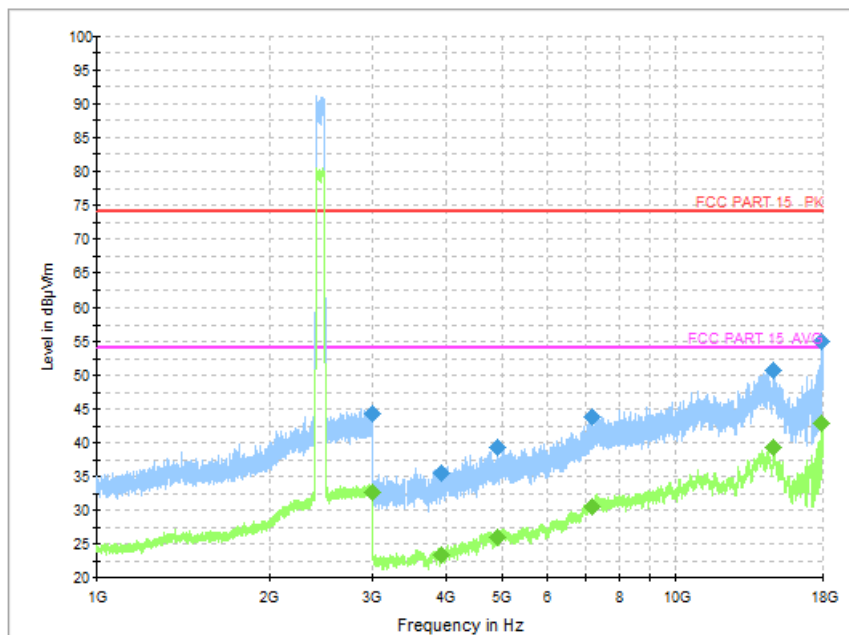


Fig.23 Radiated Spurious Emission (Ch19, 1 GHz - 18 GHz), 1M

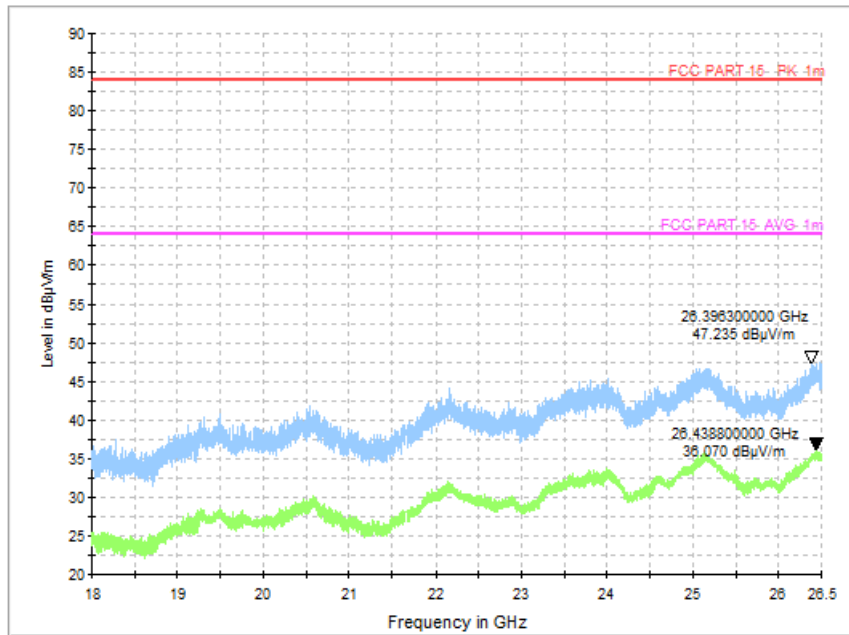


Fig.24 Radiated Spurious Emission (Ch19, 18 GHz - 26.5 GHz), 1M

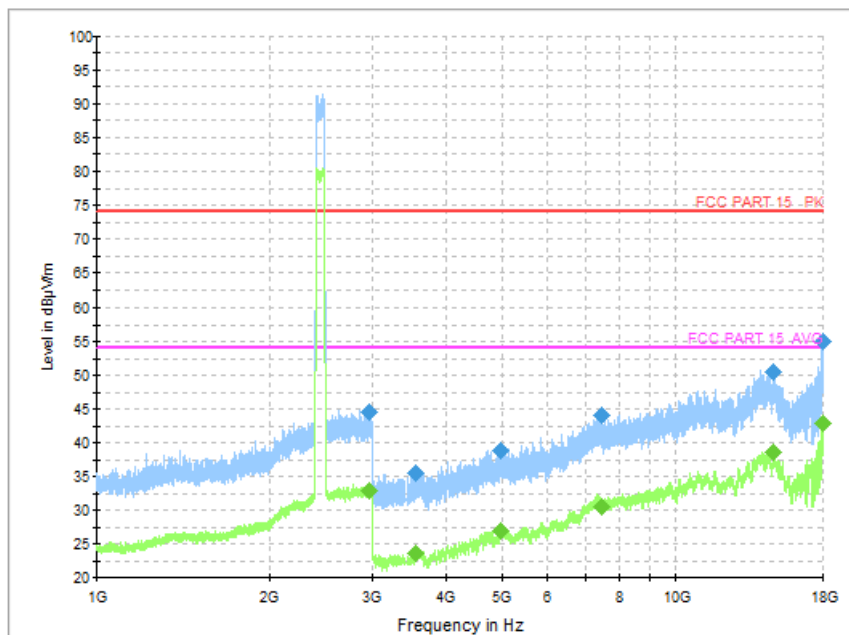


Fig.25 Radiated Spurious Emission (Ch39, 1 GHz - 18 GHz), 1M

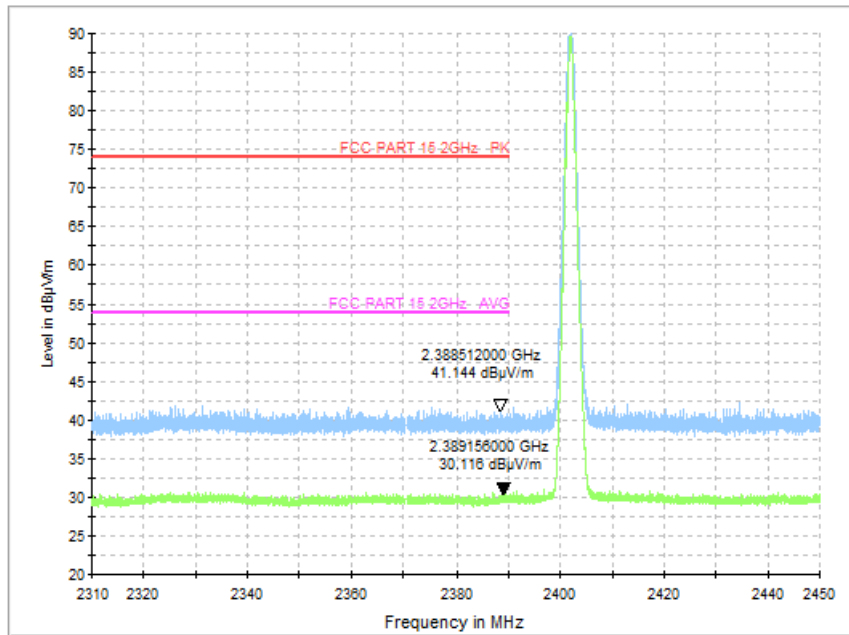


Fig.26 Radiated Band Edges (Ch0, 2380GHz - 2450GHz), 1M

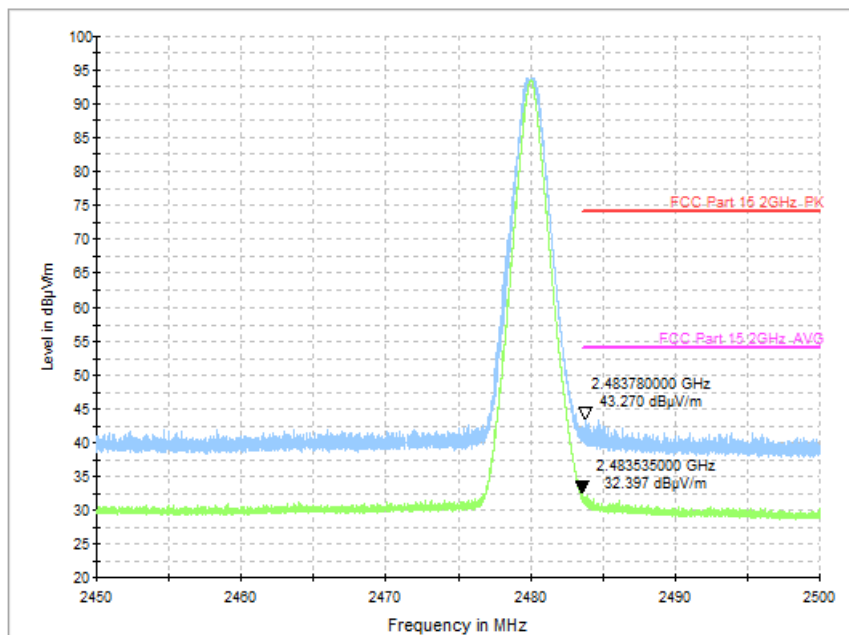


Fig.27 Radiated Band Edges (Ch39, 2450GHz - 2500GHz), 1M



## 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) - 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.28	Fig.29	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.28	Fig.29	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) - AE3

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.30	Fig.31	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) - AE3

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.30	Fig.31	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. I21N00886-BLE

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

**See below for test graphs.**

**Conclusion: Pass**

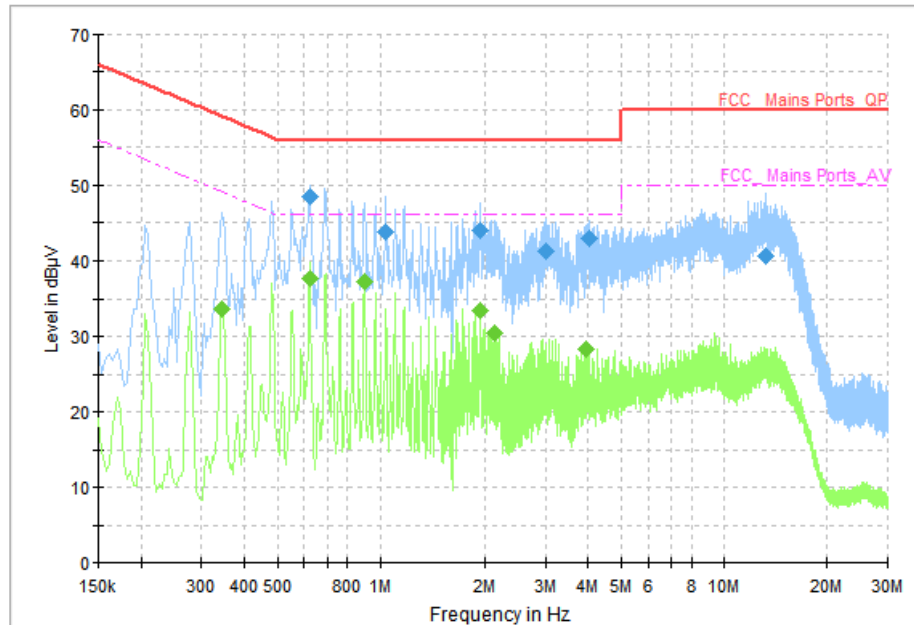


Fig.28 AC Power line Conducted Emission (Traffic, AE2, 120V), 1M

**Measurement Results: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.622000	48.55	56.00	7.45	N	ON	10
1.034000	43.72	56.00	12.28	L1	ON	10
1.930000	43.91	56.00	12.09	L1	ON	10
2.998000	41.14	56.00	14.86	L1	ON	10
4.034000	42.92	56.00	13.08	L1	ON	10
13.154000	40.55	60.00	19.45	L1	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.346000	33.67	49.06	15.39	N	ON	10
0.622000	37.48	46.00	8.52	N	ON	10
0.898000	37.14	46.00	8.86	L1	ON	10
1.934000	33.49	46.00	12.51	L1	ON	10
2.138000	30.56	46.00	15.44	L1	ON	10
3.966000	28.38	46.00	17.62	L1	ON	10

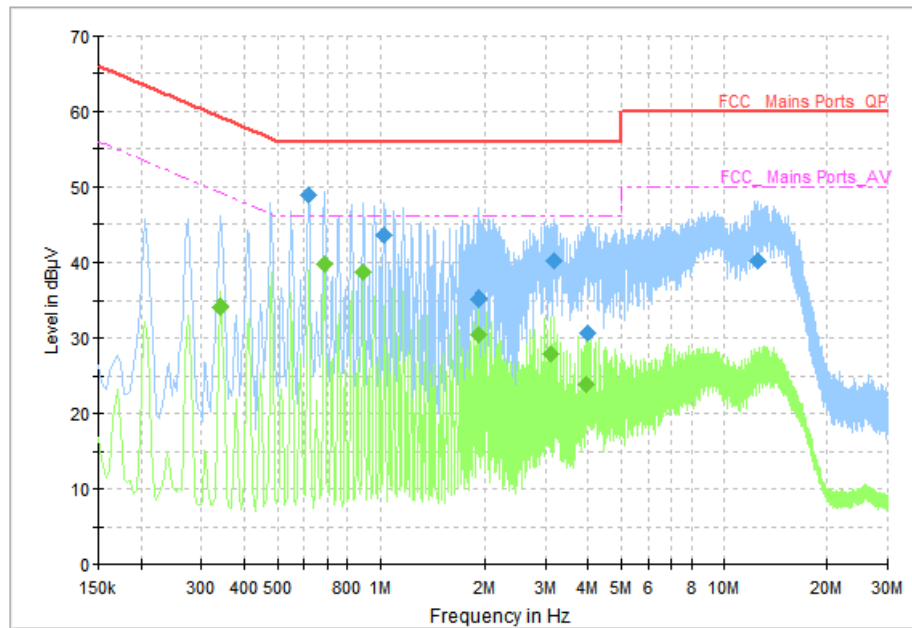


Fig.29 AC Power line Conducted Emission (Idle, AE2, 120V), 1M

**Measurement Results: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.618000	48.86	56.00	7.14	N	ON	10
1.026000	43.44	56.00	12.56	L1	ON	10
1.914000	35.11	56.00	20.89	L1	ON	10
3.190000	40.13	56.00	15.87	L1	ON	10
4.006000	30.73	56.00	25.27	L1	ON	10
12.510000	40.09	60.00	19.91	L1	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.342000	34.15	49.16	15.01	N	ON	10
0.686000	39.65	46.00	6.35	L1	ON	10
0.894000	38.65	46.00	7.35	L1	ON	10
1.918000	30.56	46.00	15.44	L1	ON	10
3.126000	27.88	46.00	18.12	L1	ON	10
3.946000	23.81	46.00	22.19	L1	ON	10

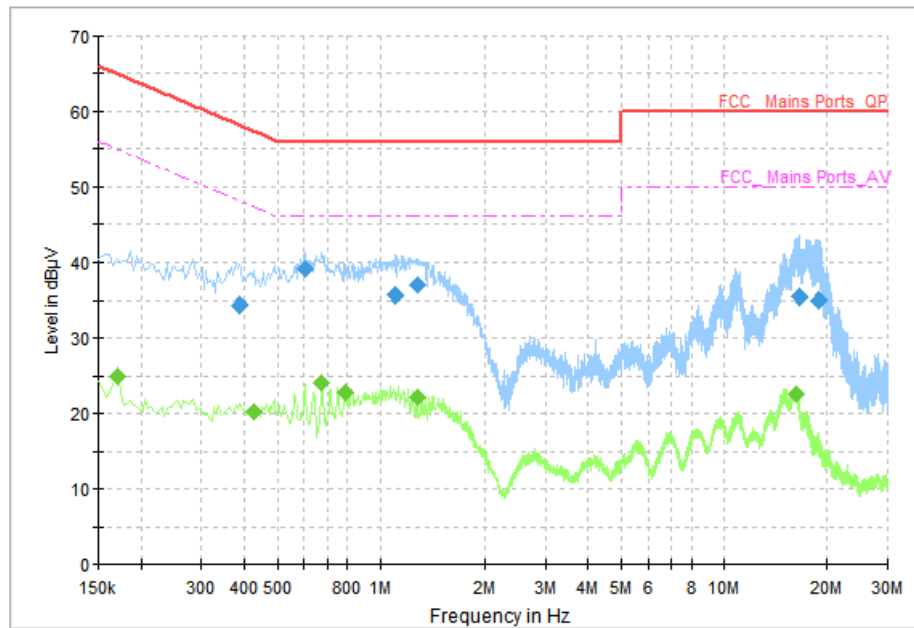


Fig.30 AC Power line Conducted Emission (Traffic, AE3, 120V), 1M

**Measurement Results: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.386000	34.30	58.15	23.85	N	ON	10
0.602000	39.05	56.00	16.95	N	ON	10
1.102000	35.74	56.00	20.26	N	ON	10
1.286000	36.85	56.00	19.15	N	ON	10
16.542000	35.46	60.00	24.54	L1	ON	10
18.822000	35.05	60.00	24.95	L1	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170000	25.03	54.96	29.93	N	ON	10
0.426000	20.24	47.33	27.09	N	ON	10
0.674000	24.20	46.00	21.80	N	ON	10
0.790000	22.91	46.00	23.09	N	ON	10
1.278000	22.18	46.00	23.82	N	ON	10
16.226000	22.60	50.00	27.40	L1	ON	10

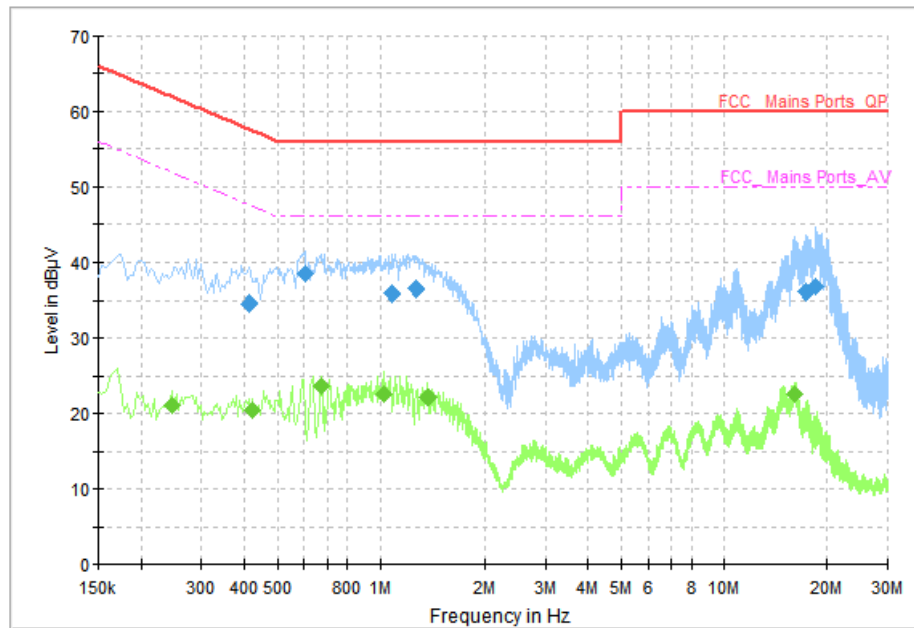


Fig.31 AC Power line Conducted Emission (Idle, AE3, 120V), 1M

**Measurement Results: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.414000	34.48	57.57	23.09	L1	ON	10
0.602000	38.52	56.00	17.48	L1	ON	10
1.082000	35.90	56.00	20.10	L1	ON	10
1.270000	36.57	56.00	19.43	L1	ON	10
17.358000	35.97	60.00	24.03	N	ON	10
18.546000	36.62	60.00	23.38	N	ON	10

**Measurement Results: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.246000	21.06	51.89	30.83	L1	ON	10
0.422000	20.59	47.41	26.82	L1	ON	10
0.670000	23.77	46.00	22.23	L1	ON	10
1.022000	22.63	46.00	23.37	L1	ON	10
1.374000	22.22	46.00	23.78	L1	ON	10
15.994000	22.56	50.00	27.44	N	ON	10

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