FCC PART 15C
TEST REPORT
No. I16N00359-BLE

for

OnePlus Technology(Shenzhen) Co., Ltd.

Mobile Phone

Model Name: ONEPLUS A3000

With

Hardware Version: 16

Software Version: Qxygen OS 3.1.0

FCC ID: 2ABZ2-A3000

Issued Date: May 19th, 2016

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 CTTL.

Test Laboratory:

CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT.

No.52, HuayuanNorth Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512,Fax:+86(0)10-62304633-2504

Email:cttl_terminals@catr.cn, website:www.chinattl.com

©Copyright. All rights reserved by CTTL.

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I16N00359-BLE	Rev.0	1st edition	2016-05-10
I16N00359-BLE	Rev.0	2nd edition	2016-05-19

©Copyright. All rights reserved by CTTL Beijing。

CONTENTS

©Copyright. All rights reserved by CTTL.

©Copyright. All rights reserved by CTTL.

1. Test Laboratory

1.1. Testing Location

Location: CTTL(South Branch)

Address: TCL International E city No. 1001 Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong, China 518000

1.2. Testing Environment

Normal Temperature: 15-35℃

Extreme Temperature: -20/+55℃

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2016-04-06

Testing End Date: 2016-05-19

1.4. Signature

Xu Ye

(Prepared this test report)

Tang Weisheng

(Reviewed this test report)

Zhang Bojun

(Approvedthis test report)

©Copyright. All rights reserved by CTTL.

2. Client Information

2.1. Applicant Information

Company Name:	OnePlus Technology(Shenzhen) Co., Ltd.
Address:	18/F, Tower C, Tai Ran Building,No.8 Tai Ran Road, Shenzhen, China
City:	Shenzhen
Postal Code:	/
Country:	China
Telephone:	0755 61898696 EXT 7023
Fax:	/

2.2. Manufacturer Information

Company Name:	OnePlus Technology(Shenzhen) Co., Ltd.
Address:	18/F, Tower C, Tai Ran Building,No.8 Tai Ran Road, Shenzhen, China
City:	Shenzhen
Postal Code:	/
Country:	China
Telephone:	0755 61898696 EXT 7023
Fax:	/

©Copyright. All rights reserved by CTTL.

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

3.1. About EUT

Description	Mobile Phone
Model Name	ONEPLUS A3000
Market Name	/
Frequency Band	2402MHz~2480MHz
Type of Modulation	GFSK
Number of Channels	40
FCC ID	2ABZ2-A3000

*Note: Photographs of EUT are shown in ANNEX A of this test report.

3.2. Internal Identification of EUT

EUT ID*	IMEI	HW Version	SW Version	Receive Date
EUT1	860046030164299	16	Qxygen OS 3.1.0	2016-04-06

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

3.3. Internal Identification of AE

AE ID*	Description	Type	SN
AE1	Power Supply Unit	HK0504	/

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

©Copyright. All rights reserved by CTTL.

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.	Nov,2015
ANSI C63.10	American National Standard for Testing Unlicensed Wireless Devices	Jun,2013

©Copyright. All rights reserved by CTTL.

5. Test Results

5.1. Summary of Test Results

No	Test cases	Standard Sub-clause	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	Occupied 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 Powerline Conducted Emission	15.107, 15.207	**P**

See **ANNEX B and ANNEX C** for details.

5.2. Statements

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

5.3. Terms used in the result table

Terms used in Verdict column

P	Pass
NA	Not Available
F	Fail

Abbreviations

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

©Copyright. All rights reserved by CTTL.

5.4. Laboratory Environment

Semi-anechoic chamber did not exceed following limits along the EMC testing

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

Shielded room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

Fully-anechoic chamber did not exceed following limits along the EMC testing

Temperature	Min. = 15 ˚C, Max. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω
Voltage Standing Wave Ratio (VSWR)	≤6dB, from 1 to 18 GHz,3m distance

©Copyright. All rights reserved by CTTL.

6. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2017-03-21	1 year

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Chamber	FACT5-2.0	4166	ETS-Lindgren	2018-05-13	3 years
2	Test Receiver	ESCI	100701	Rohde & Schwarz	2016-08-10	1 year
3	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2017-01-20	3 years
4	Horn Antenna	3117	00066585	ETS-Lindgren	2019-03-05	3 years
5	Spectrum Analyser	FSP40	100378	Rohde & Schwarz	2016-12-18	1 year
6	Loop Antenna	HLA6120	35779	TESEQ	2019-05-10	3 years
7	Test Receiver	ESCI	100702	Rohde & Schwarz	2016-05-30	1 year
8	LISN	ESH2-Z5	100196	Rohde & Schwarz	2017-01-12	1 year

Anechoic chamber

Fully anechoic chamber by ETS-Lindgren.

©Copyright. All rights reserved by CTTL.

ANNEX A: MEASUREMENT RESULTS FOR RECEIVER

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 -3.5 dBi.
The RF transmitter uses an integrate antenna without connector.

©Copyright. All rights reserved by CTTL.

A.1 Maximum Average Output Power

Measurement Limit:

Standard	Limit (dBm)
FCC CRF Part 15.247(b)(1)	< 30

Measurement Results:

Mode	Channel	Maximum Peak Output Power（dBm）		Conclusion
GFSK	0	-1.24	Fig.1	P
	19	0.67	Fig.2	P
	39	-1.12	Fig.3	P

See ANNEX C for test graphs.

Conclusion: Pass

A.2 Peak Power Spectral Density

Measurement Limit:

Standard	Limit
FCC CRF Part 15.247(d)	< 8 dBm/3 kHz

Measurement Results:

Mode	Channel	Peak Power Spectral Density（dBm）		Conclusion
GFSK	0	Fig.4	-16.61	P
	19	Fig.5	-14.64	P
	39	Fig.6	-16.31	P

See ANNEX C for test graphs.

Conclusion: PASS

©Copyright. All rights reserved by CTTL.

A.3 Occupied 6dB Bandwidth

Measurement Limit:

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

Measurement Result:

Mode	Channel	Test Results (kHz)		conclusion
GFSK	0	Fig.7	672.9	P
	19	Fig.8	680.2	P
	39	Fig.9	680.2	P

See ANNEX C for test graphs.

Conclusion: PASS

A.4 Band Edges Compliance

Measurement Limit:

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

Measurement Result:

Mode	Channel	Test Results	Conclusion
GFSK	0	Fig.10	P
	39	Fig.11	P

See ANNEX C for test graphs.

Conclusion: Pass

©Copyright. All rights reserved by CTTL.

A.5 Transmitter Spurious Emission

A.5.1 Transmitter Spurious Emission - Conducted

Measurement Limit:

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

Measurement Results:

MODE	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	2.402 GHz	Fig.12	P
		30 MHz-3 GHz	Fig.13	P
		3GHz-18GHz	Fig.14	P
	19	2.440 GHz	Fig.15	P
		30 MHz-3 GHz	Fig.16	P
		3GHz-18GHz	Fig.17	P
	39	2.480 GHz	Fig.18	P
		30 MHz-3 GHz	Fig.19	P
		3GHz-18GHz	Fig.20	P
	All channels	18GHz-26GHz	Fig.21	P

See ANNEX C for test graphs.

Conclusion: Pass

©Copyright. All rights reserved by CTTL.

A.5.2 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.

©Copyright. All rights reserved by CTTL.

Measurement Results:

GFSK	0	1 GHz ~18 GHz	Fig.22	P
	19	9 kHz ~30 MHz	Fig.23	P
		30 MHz ~1 GHz	Fig.24	P
		1 GHz ~18 GHz	Fig.25	P
	39	1 GHz ~18 GHz	Fig.26	P
	Power(CH0)	2.38 GHz ~ 2.45 GHz	Fig.27	P
	Power(CH39)	2.45 GHz ~ 2.5 GHz	Fig.28	P
/	All channels	18 GHz~ 26.5 GHz	Fig.29	P

GFSK CH0 (1-18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBµV/m)
2385.520	56.8	-38.8	27.7	67.9	H	74
17937.000	58.8	-17.7	45.6	30.9	H	74
17883.750	57.8	-18.5	45.6	30.7	H	74
17967.000	57.8	-17.7	45.6	29.9	V	74
17988.750	57.8	-17.7	45.6	29.9	V	74
17906.250	57.5	-18.5	45.6	30.4	H	74

Frequency (MHz)	Average (dBµV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBµV/m)
2390.000	44.2	-38.8	27.7	55.3	H	54
17913.750	46.9	-18.5	45.6	19.8	V	54
17937.000	46.9	-17.7	45.6	19.0	H	54
17996.250	46.8	-17.7	45.6	18.9	V	54
17911.500	46.8	-18.5	45.6	19.7	H	54
17983.500	46.7	-17.7	45.6	18.8	V	54

©Copyright. All rights reserved by CTTL.

GFSK CH19 (1-18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBµV/m)
17713.500	53.1	-18.9	45.6	26.4	H	74
17824.500	52.8	-18.5	45.6	25.7	H	74
17931.000	52.3	-17.7	45.6	24.4	V	74
17782.500	52.1	-18.5	45.6	25.0	H	74
17725.500	52.1	-18.9	45.6	25.4	H	74
17881.500	52.0	-18.5	45.6	24.9	V	74

Frequency (MHz)	Average (dBµV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBµV/m)
17866.500	45.7	-18.5	45.6	18.6	V	54
17869.500	45.6	-18.5	45.6	18.5	V	54
17860.500	45.3	-18.5	45.6	18.2	V	54
17787.000	45.1	-18.5	45.6	18.0	V	54
17698.500	45.0	-18.9	45.6	18.3	H	54
17854.500	44.9	-18.5	45.6	17.8	H	54

GFSK CH39 (1-18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBµV/m)
2485.560	56.3	-38.9	27.7	67.5	V	74
17978.250	58.0	-17.7	45.6	30.1	H	74
17912.250	57.7	-18.5	45.6	30.6	V	74
17856.000	57.5	-18.5	45.6	30.4	H	74
17853.750	57.4	-18.5	45.6	30.3	H	74
17973.000	57.4	-17.7	45.6	29.5	V	74

©Copyright. All rights reserved by CTTL.

Frequency (MHz)	Average (dBµV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBµV/m)
2483.500	44.5	-38.9	27.7	55.7	V	54
17979.750	46.9	-17.7	45.6	19.0	H	54
17976.750	46.7	-17.7	45.6	18.8	H	54
17997.000	46.7	-17.7	45.6	18.8	H	54
17993.250	46.7	-17.7	45.6	18.8	V	54
17980.500	46.7	-17.7	45.6	18.8	H	54

See ANNEX C for test graphs.

Conclusion: Pass

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, 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}+$A_{Rpl=}$ P_{Mea}+Cable Loss+Antenna Factor

©Copyright. All rights reserved by CTTL.

A.6 AC Powerline Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement Result and limit:

BLE (Quasi-peak Limit)-AE1

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) Traffic	Conclusion
0.15 to 0.5	66 to 56	Fig.30	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) Traffic	Conclusion
0.15 to 0.5	56 to 46	Fig.30	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)-AE1

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) Idle	Conclusion
0.15 to 0.5	66 to 56	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)-AE1

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

Test Condition:

Voltage（V）	Frequency（Hz）
240	60

©Copyright. All rights reserved by CTTL.

Measurement Result and limit:

BLE (Quasi-peak Limit)-AE1

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) Traffic	Conclusion
0.15 to 0.5	66 to 56	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) Traffic	Conclusion
0.15 to 0.5	56 to 46	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)-AE1

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) Idle	Conclusion
0.15 to 0.5	66 to 56	Fig.33	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) Idle	Conclusion
0.15 to 0.5	56 to 46	Fig.33	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 ANNEX C for test graphs.

Conclusion: Pass

©Copyright. All rights reserved by CTTL.

ANNEX B: TEST FIGURE LIST

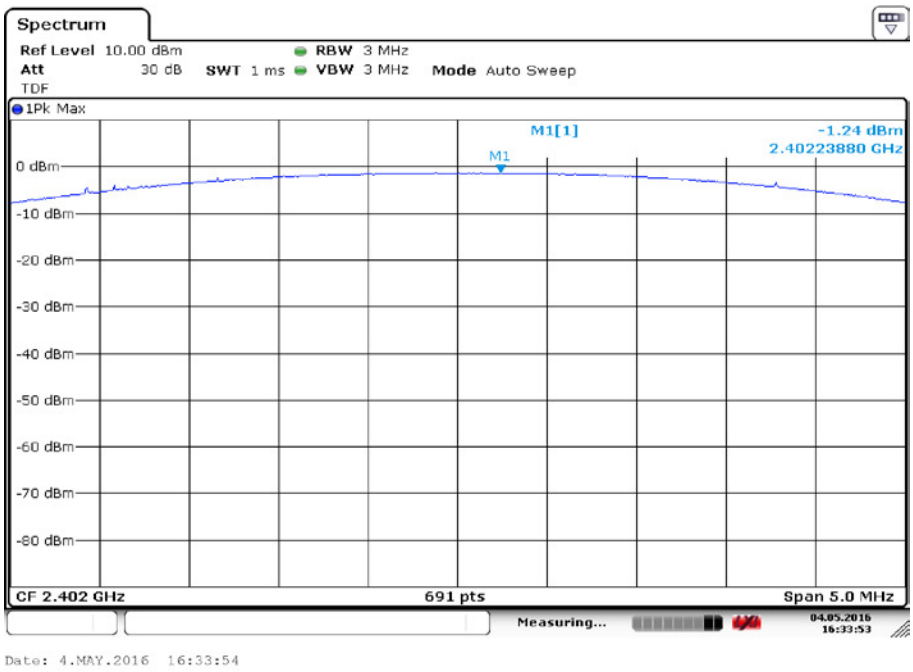

Fig.1 Maximum Peak Output Power(GFSK, Ch 0)

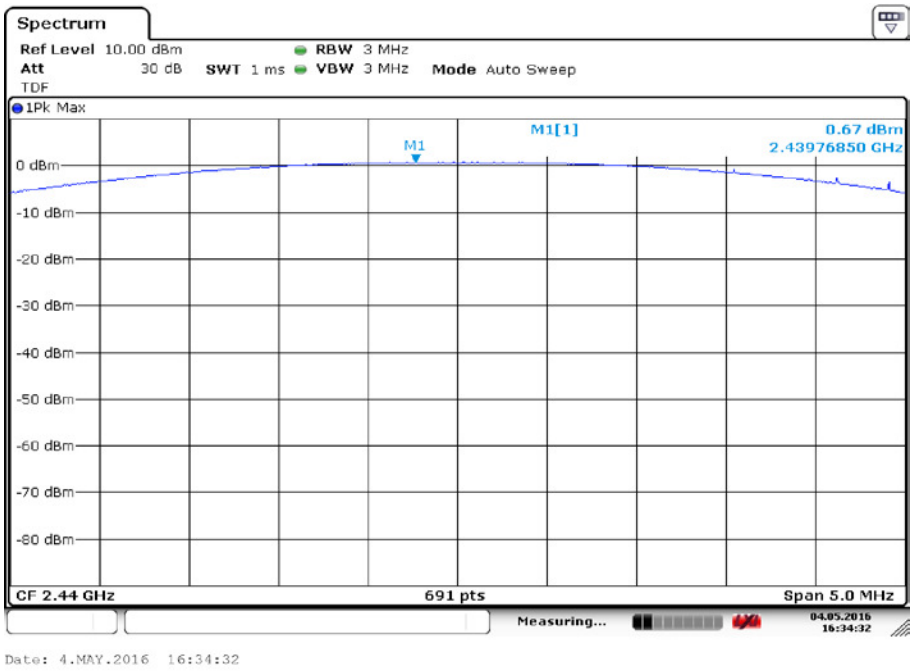

Fig.2 Maximum Peak Output Power(GFSK, Ch 19)

©Copyright. All rights reserved by CTTL.

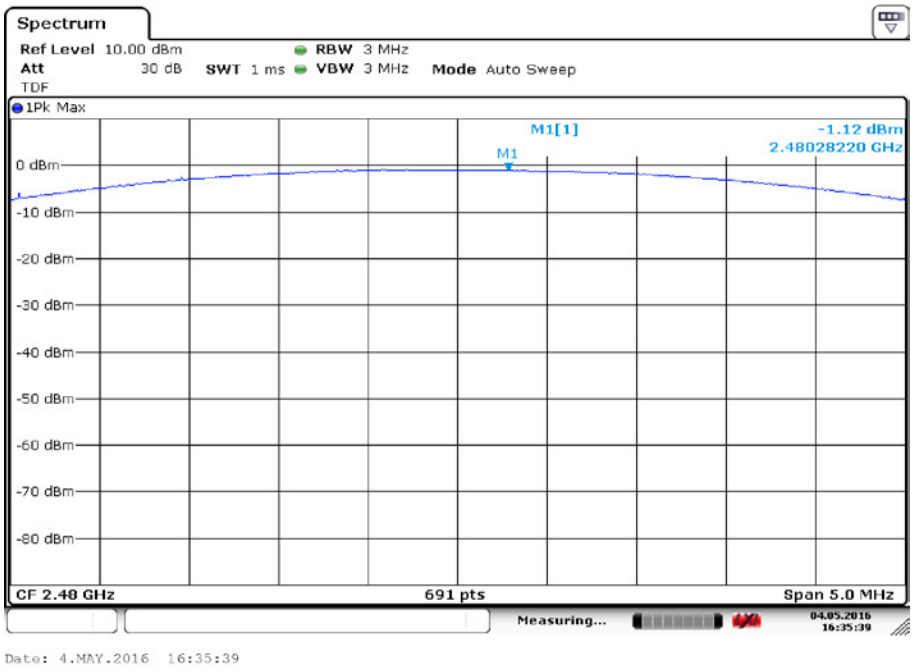

Fig.3 Maximum Peak Output Power(GFSK, Ch 39)

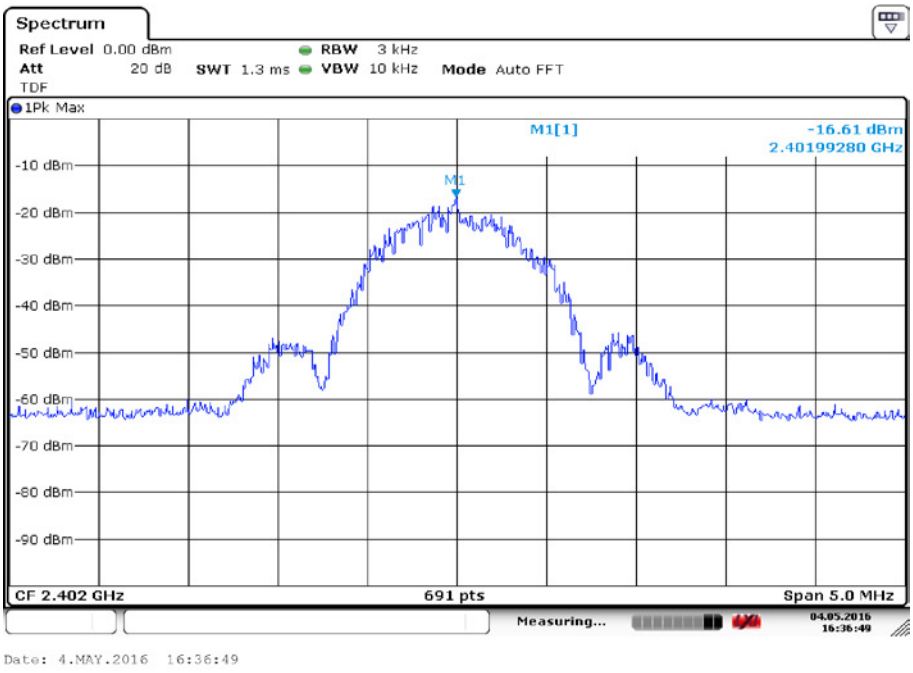

Fig.4 Power Spectral Density (Ch 0)

©Copyright. All rights reserved by CTTL.

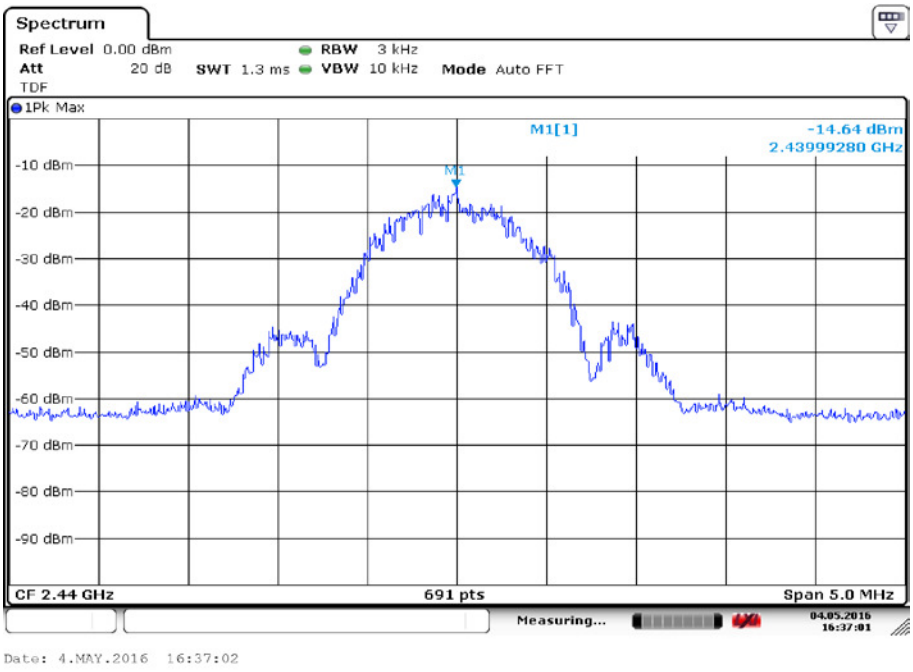

Fig.5 Power Spectral Density (Ch 19)

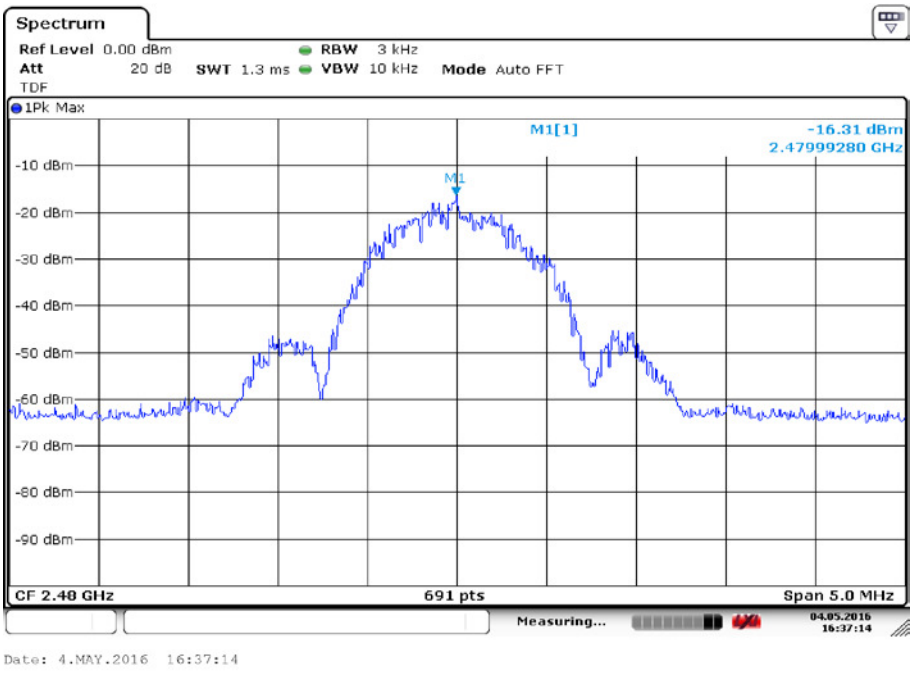

Fig.6 Power Spectral Density (Ch 39)

©Copyright. All rights reserved by CTTL.

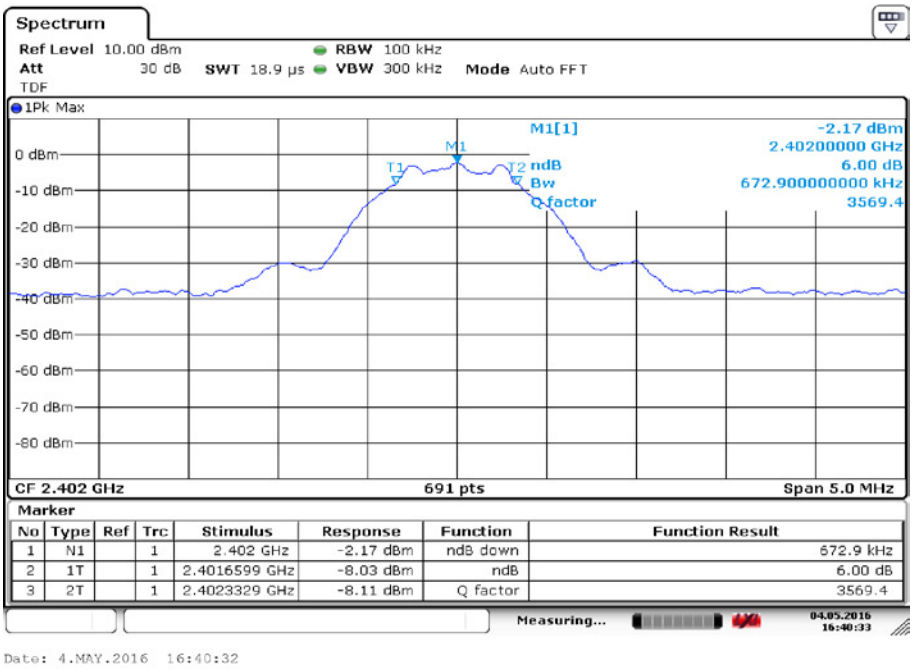

Fig.7 Occupied 6dB Bandwidth (Ch 0)

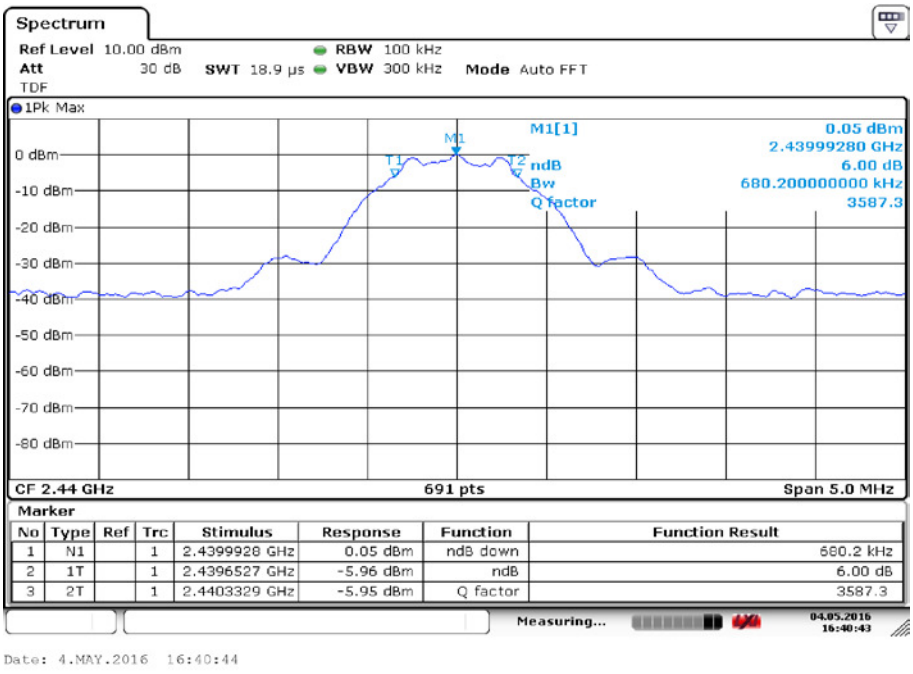

Fig.8 Occupied 6dB Bandwidth (Ch 19)

©Copyright. All rights reserved by CTTL.

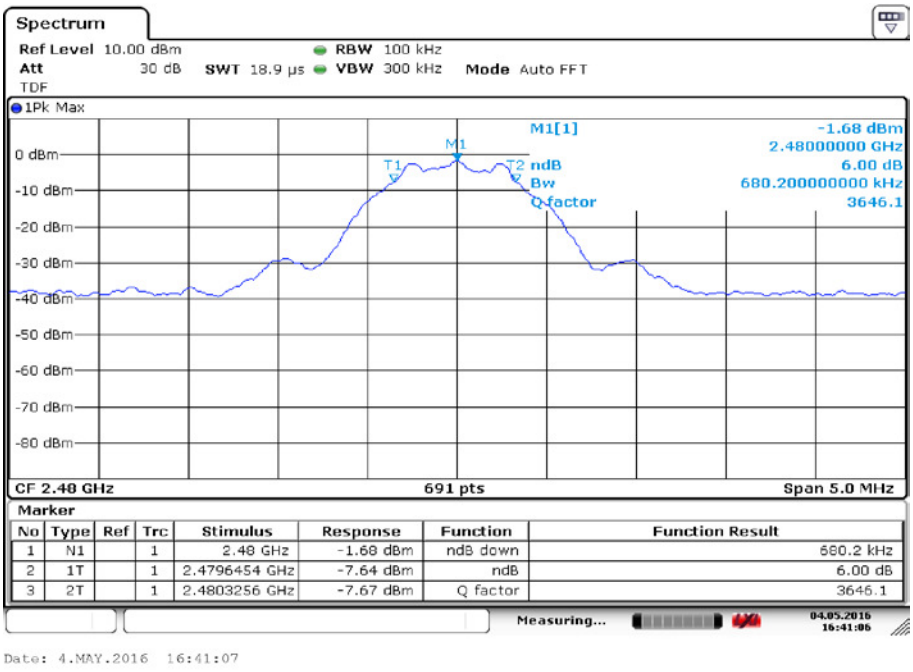

Fig.9 Occupied 6dB Bandwidth (Ch 39)

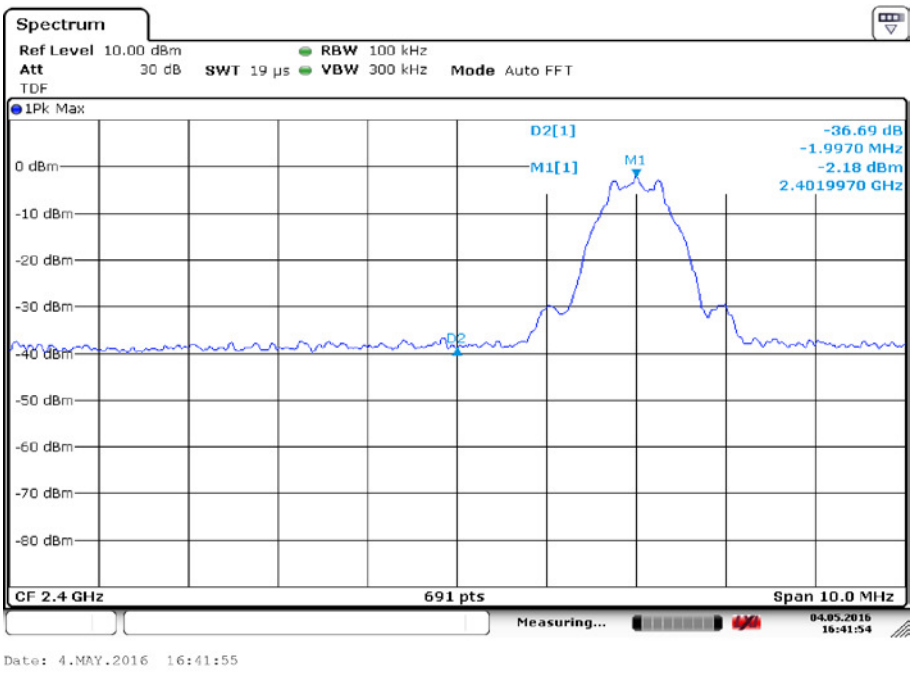

Fig.10 Band Edges (Ch 0)

©Copyright. All rights reserved by CTTL.

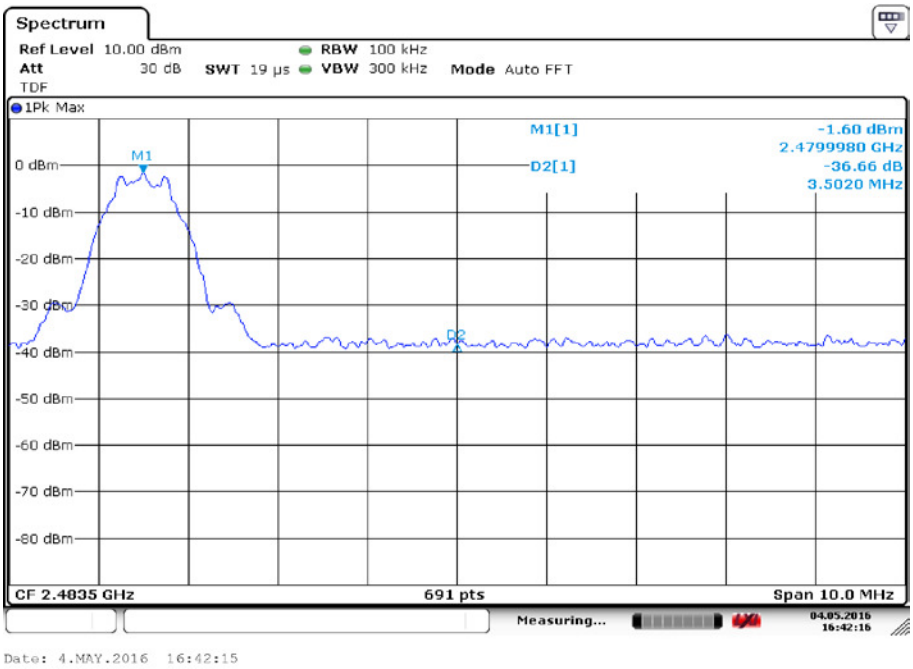

Fig.11 Band Edges (Ch 39)

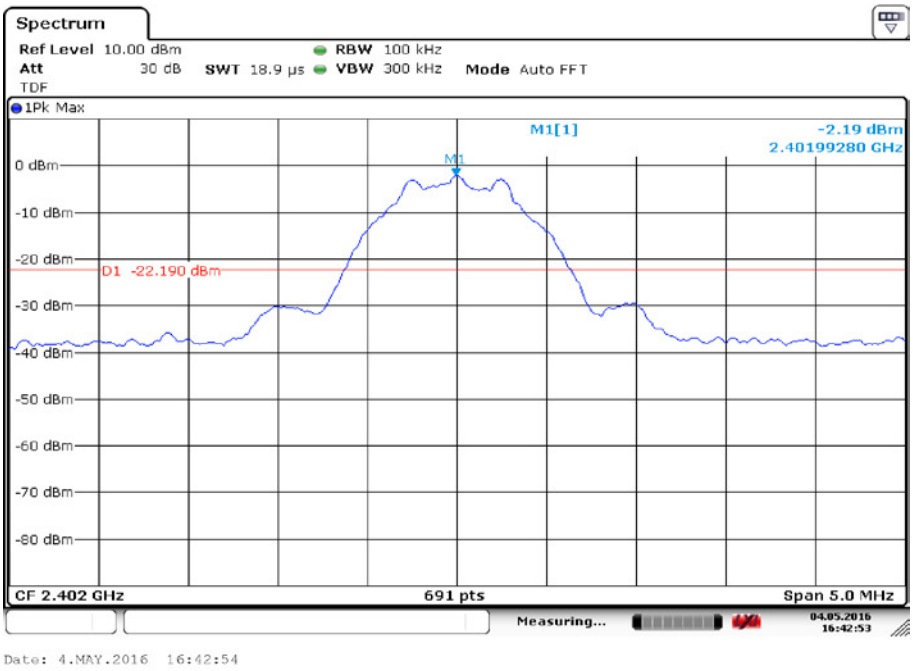

Fig.12 Conducted Spurious Emission (Ch0, Center Frequency)

©Copyright. All rights reserved by CTTL.

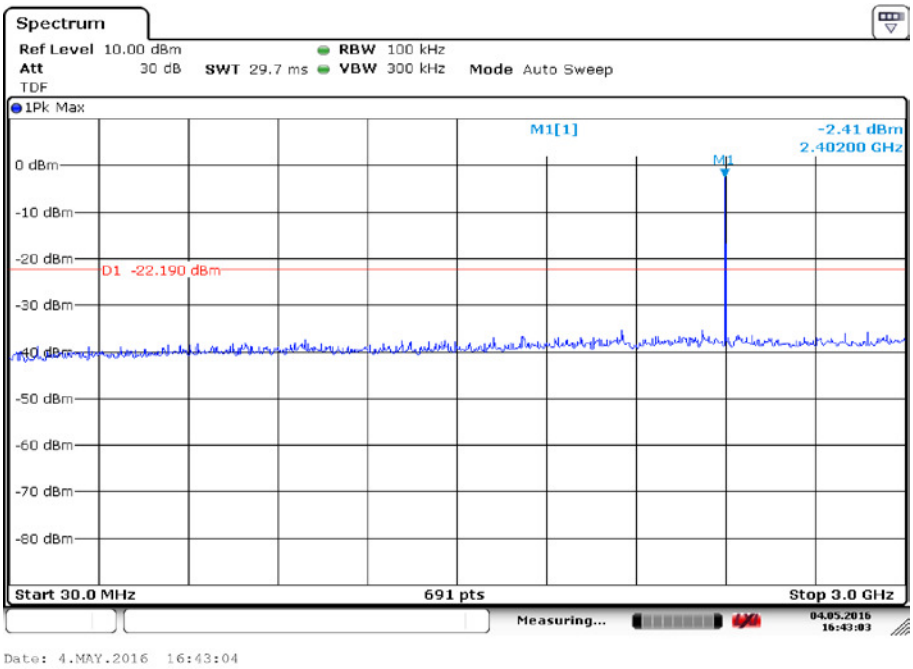

Fig.13 Conducted Spurious Emission (Ch0, 30 MHz-3 GHz)

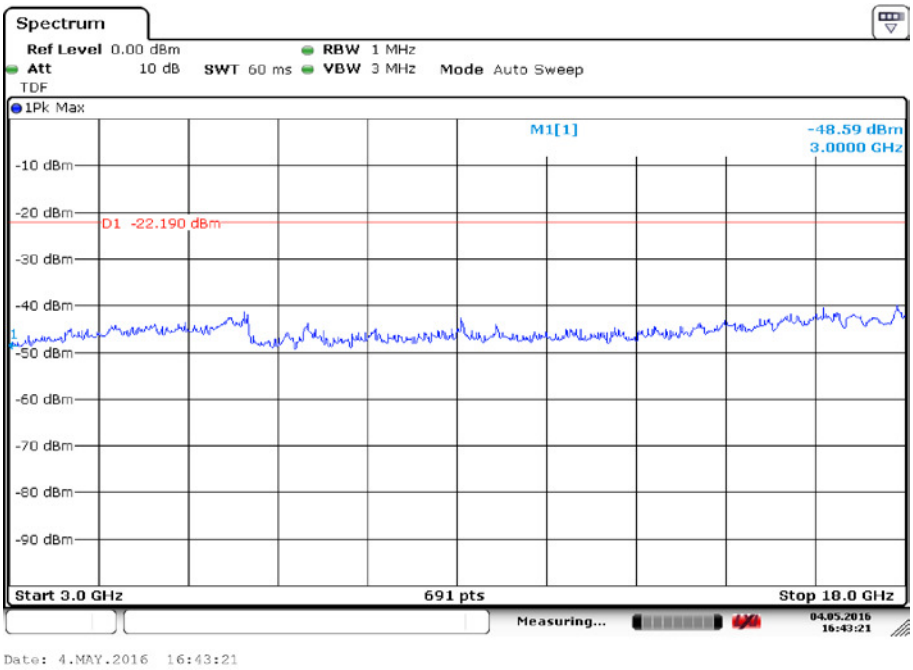

Fig.14 Conducted Spurious Emission (Ch0, 3 GHz-18 GHz)

©Copyright. All rights reserved by CTTL.

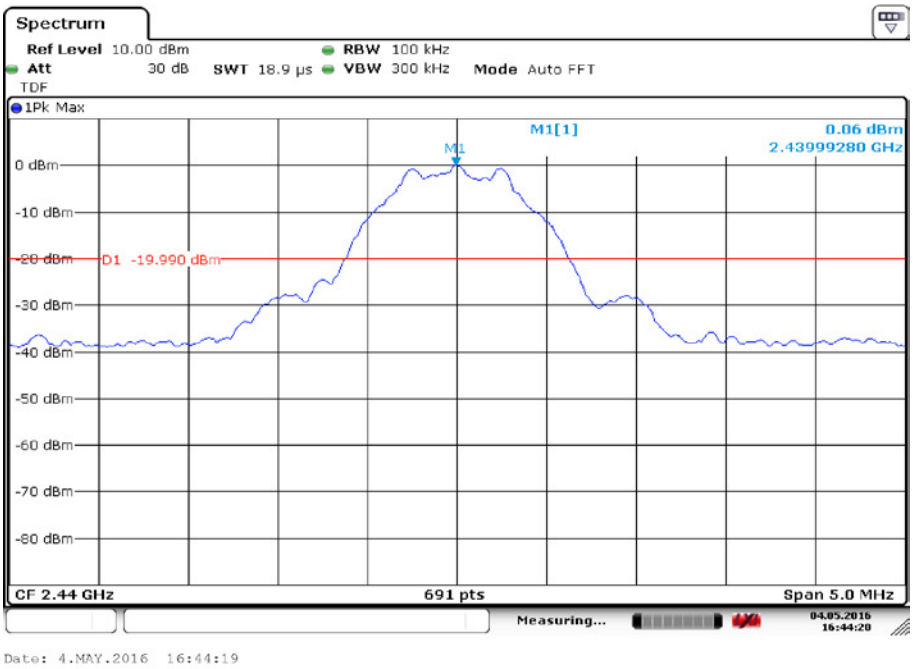

Fig.15 Conducted Spurious Emission (Ch19, Center Frequency)

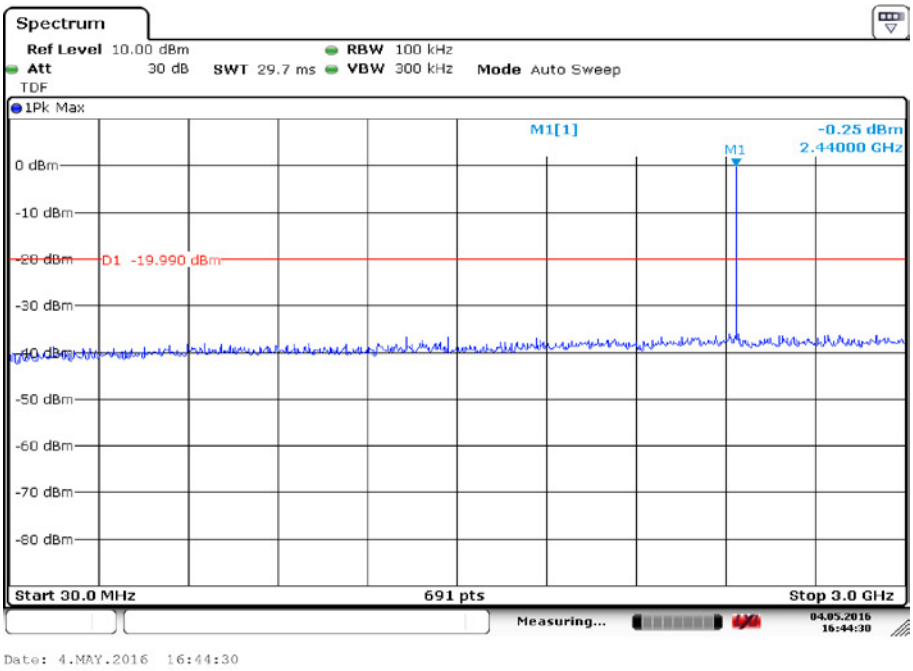

Fig.16 Conducted Spurious Emission (Ch19, 30 MHz-3 GHz)

©Copyright. All rights reserved by CTTL.

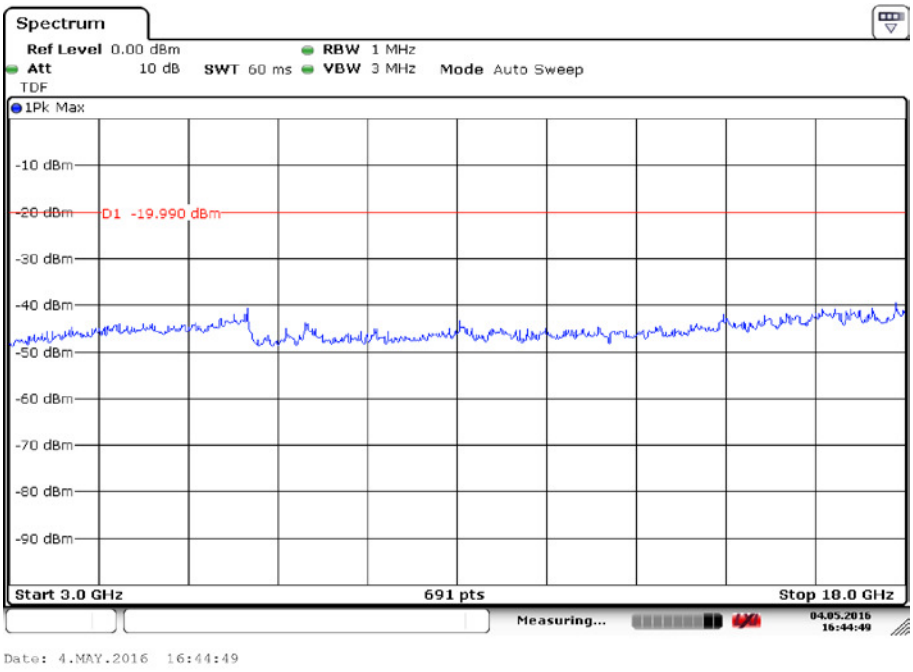

Fig.17 Conducted Spurious Emission (Ch19, 3 GHz-18 GHz)

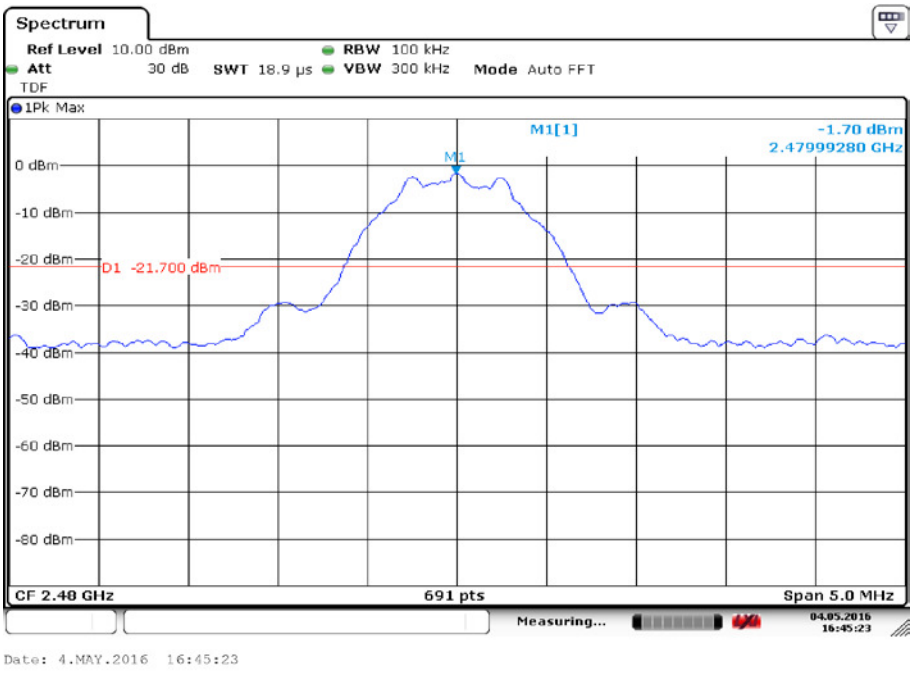

Fig.18 Conducted Spurious Emission (Ch39, Center Frequency)

©Copyright. All rights reserved by CTTL.

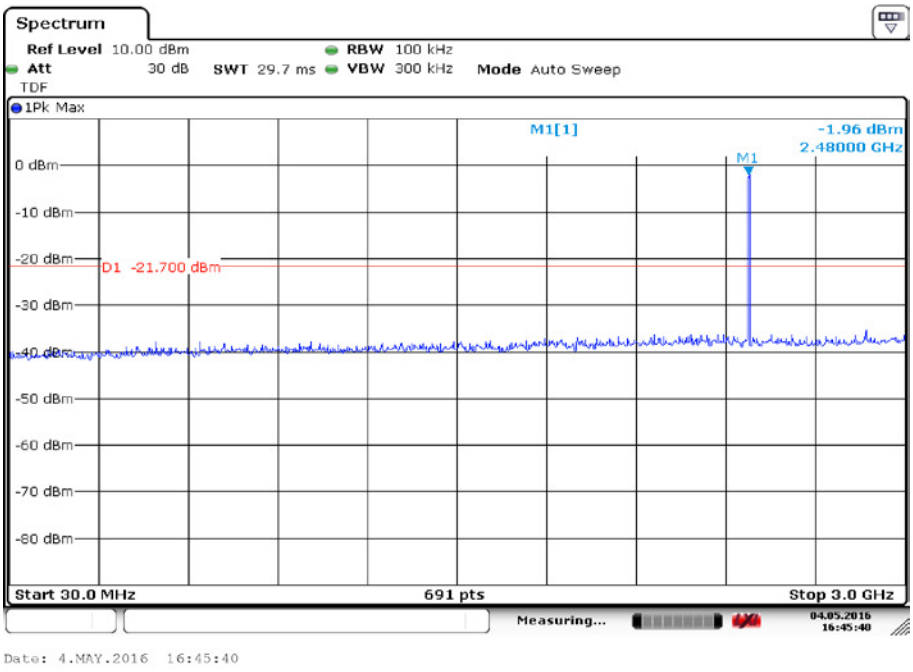

Fig.19 Conducted Spurious Emission (Ch39, 30 MHz-3 GHz)

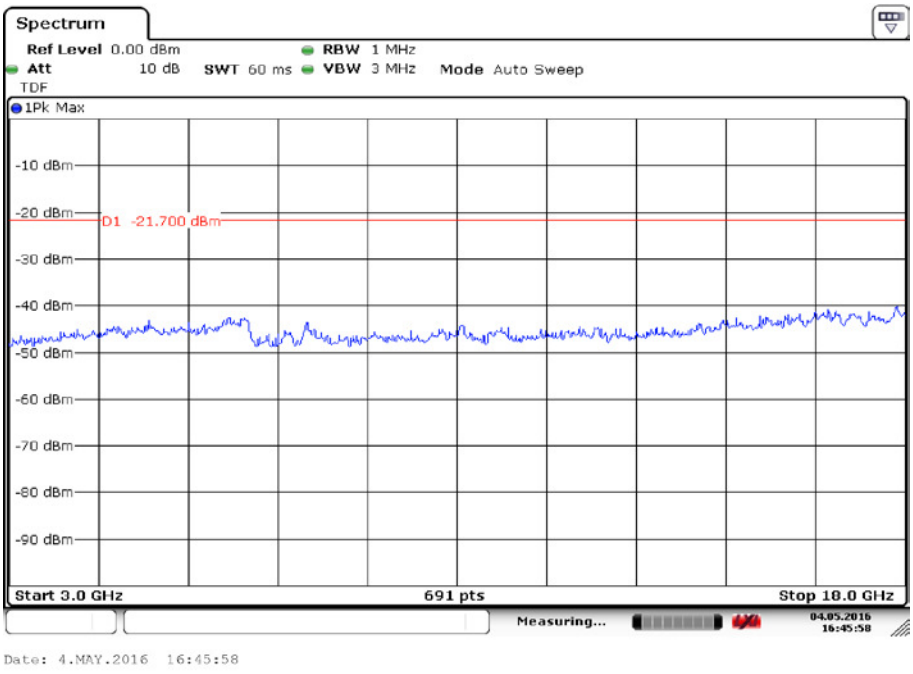

Fig.20 Conducted Spurious Emission (Ch39, 3 GHz-18 GHz)

©Copyright. All rights reserved by CTTL.

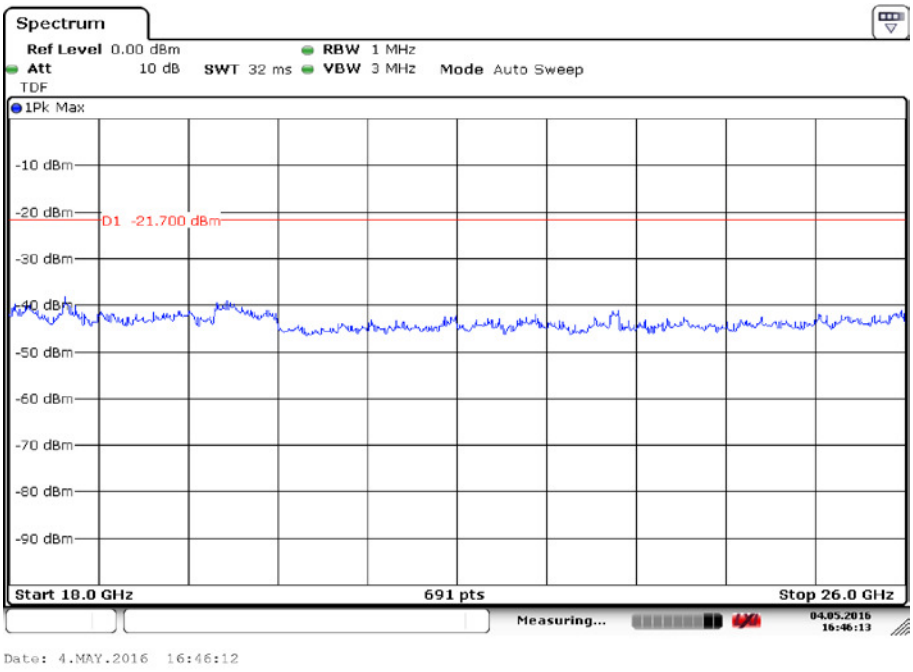

Fig.21 Conducted Spurious Emission (All channels, 18 GHz-26 GHz)

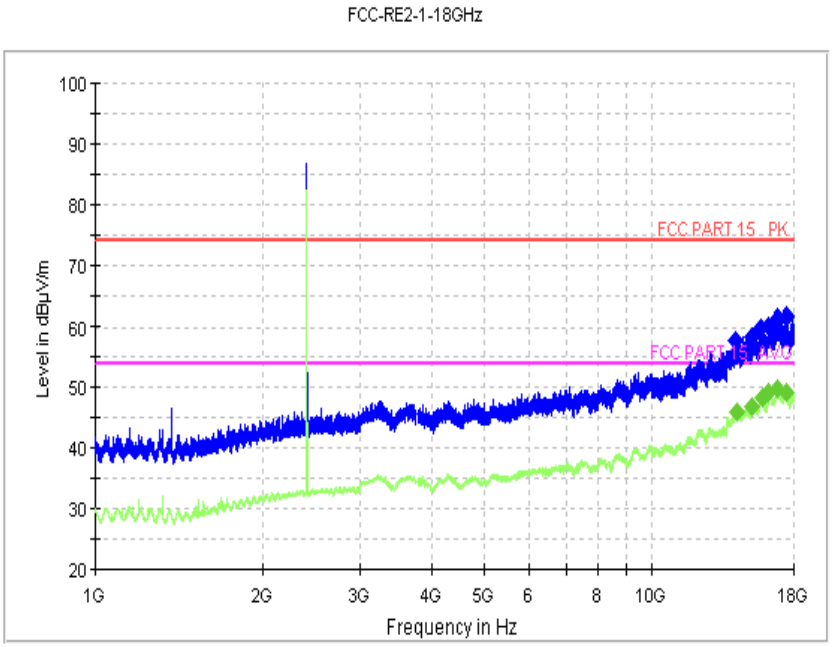

Fig. 22 Radiated Spurious Emission (GFSK, Ch0, 1 GHz ~18 GHz)

©Copyright. All rights reserved by CTTL.

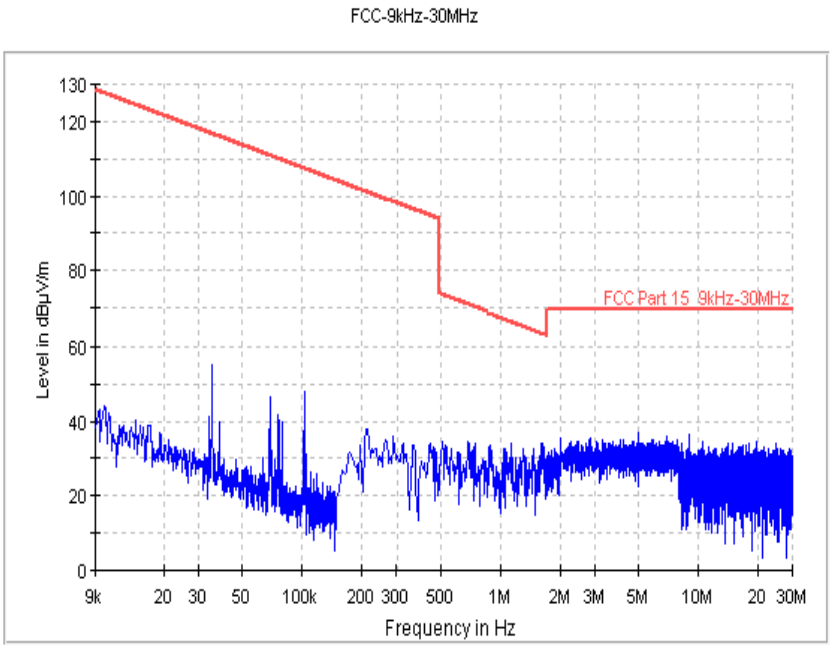

Fig.23 Radiated Spurious Emission (Ch19, 9 kHz-30 MHz)

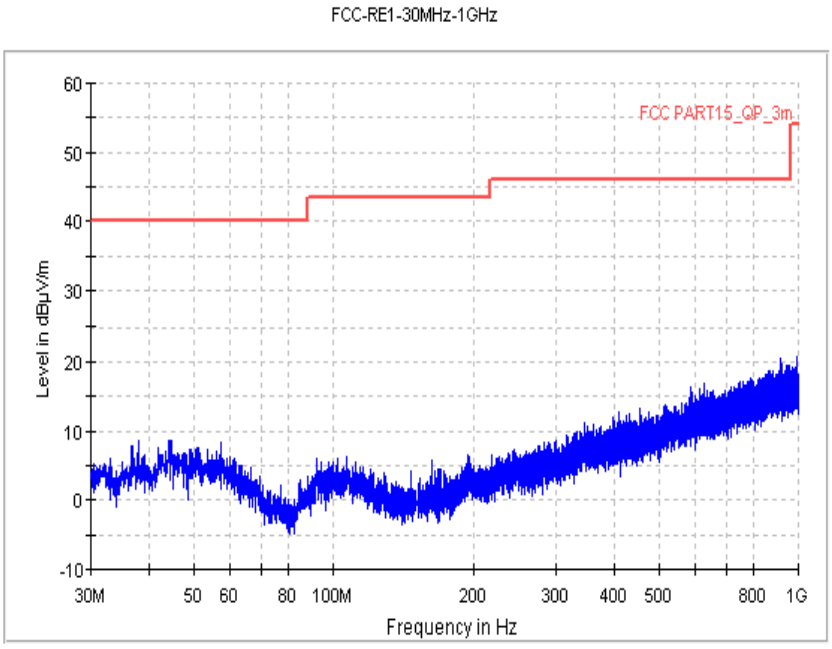

Fig.24 Radiated Spurious Emission (Ch19, 30 MHz-1 GHz)

©Copyright. All rights reserved by CTTL.

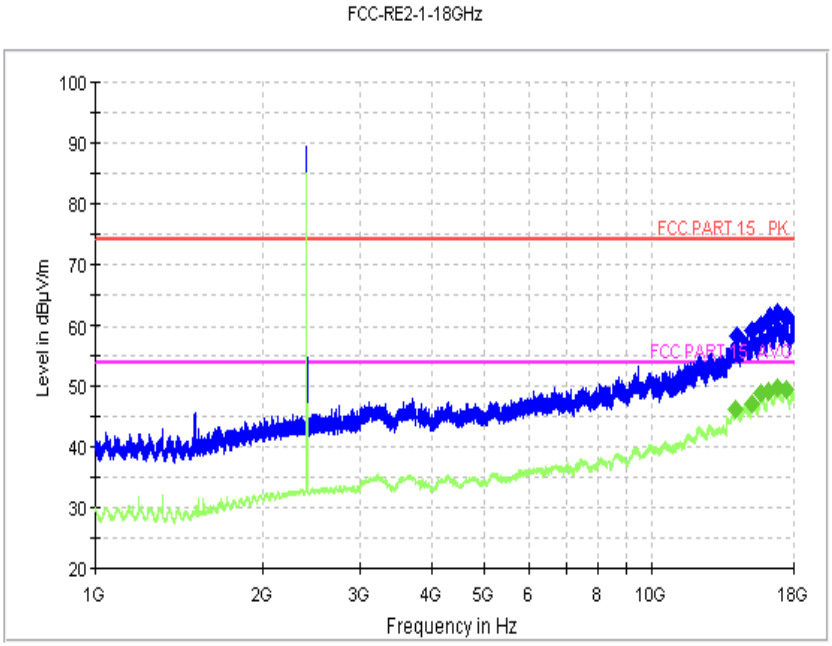

Fig.25 Radiated Spurious Emission (Ch19, 1 GHz-18 GHz)

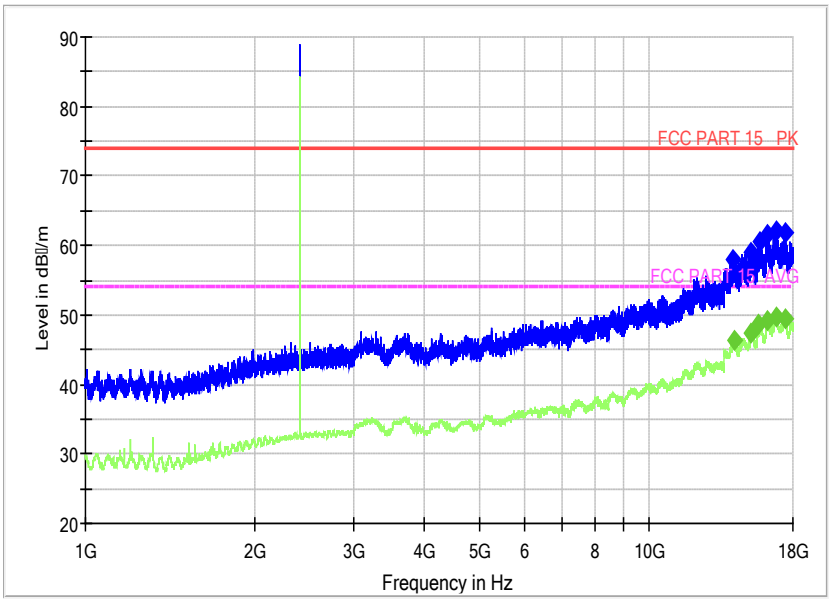

Fig.26 Radiated Spurious Emission (Ch39, 1 GHz-18 GHz)

©Copyright. All rights reserved by CTTL.

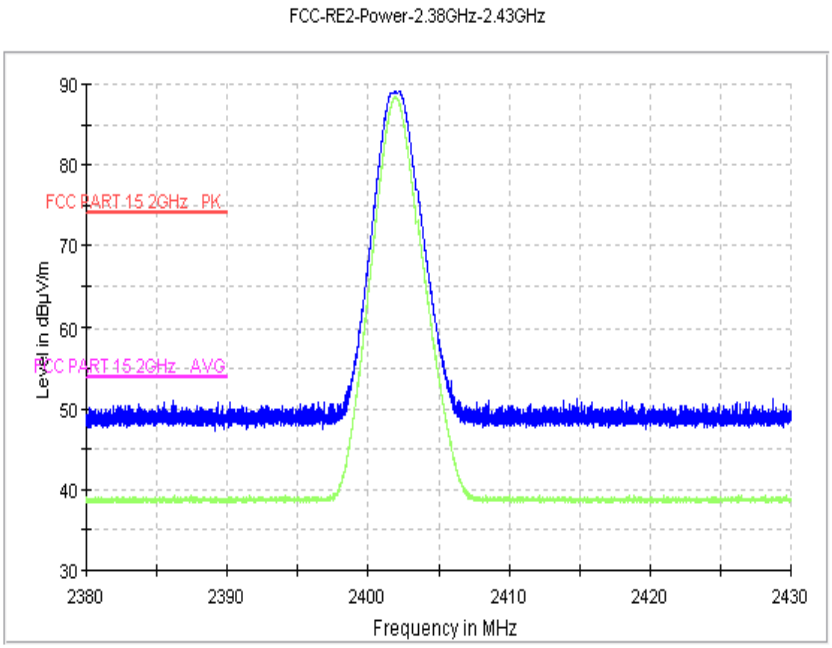

Fig.27 Radiated Emission Power (GFSK, Ch0, 2380GHz~2450GHz)

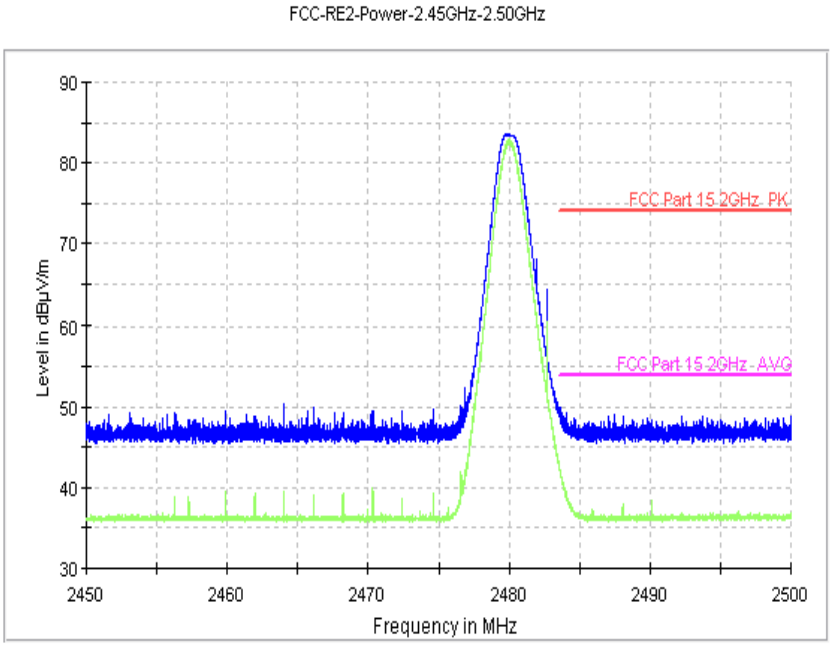

Fig.28 Radiated Emission Power (GFSK, Ch39, 2450GHz~2500GHz)

©Copyright. All rights reserved by CTTL.

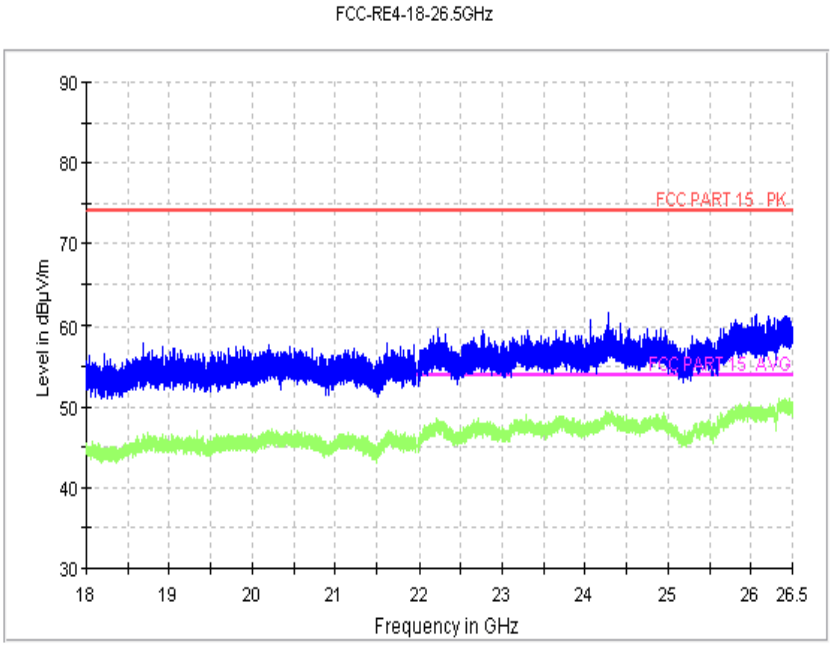

Fig.29 Radiated emission: 18 GHz – 26.5 GHz

©Copyright. All rights reserved by CTTL.

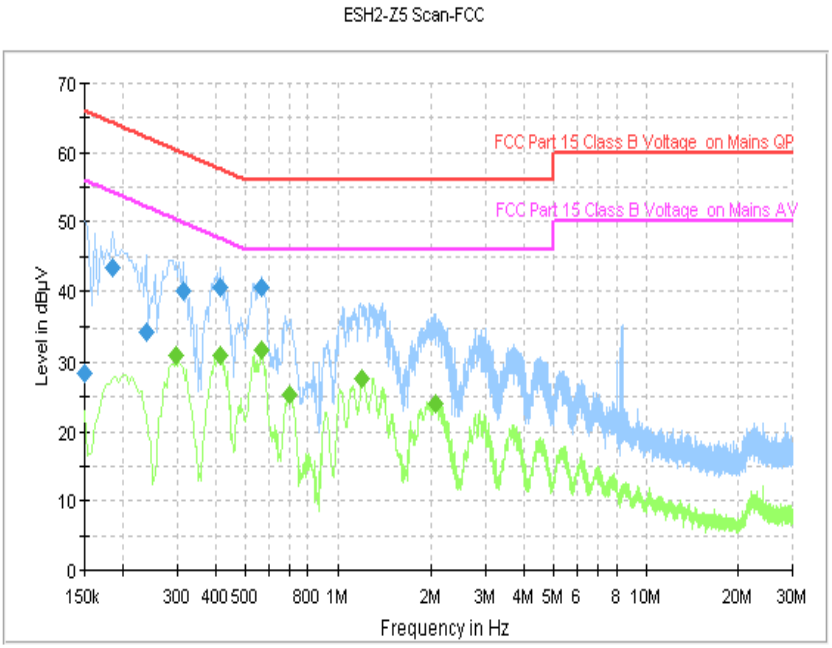

Fig. 30 AC Powerline Conducted Emission (Traffic, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	28.3	GND	N	10.1	37.7	66.0
0.186000	43.3	GND	N	10.1	20.9	64.2
0.238000	34.5	GND	N	10.0	27.7	62.2
0.314000	40.0	GND	N	10.1	19.9	59.9
0.414000	40.5	GND	L1	10.0	17.1	57.6
0.566000	40.6	GND	L1	10.1	15.4	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.298000	30.9	GND	L1	10.0	19.4	50.3
0.414000	30.9	GND	L1	10.0	16.7	47.6
0.566000	31.8	GND	L1	10.1	14.2	46.0
0.698000	25.4	GND	L1	10.0	20.6	46.0
1.206000	27.7	GND	L1	10.1	18.3	46.0
2.066000	24.1	GND	L1	10.1	21.9	46.0

©Copyright. All rights reserved by CTTL.

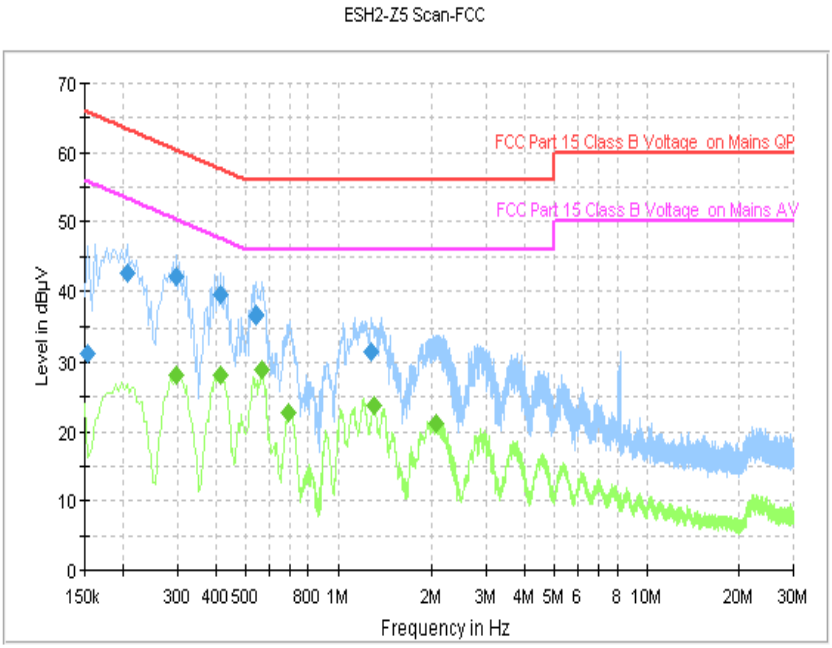

Fig. 31 AC Power line Conducted Emission (Idle, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	31.2	GND	L1	10.0	34.5	65.8
0.206000	42.5	GND	L1	10.0	20.9	63.4
0.298000	42.1	GND	N	10.1	18.2	60.3
0.414000	39.6	GND	N	10.1	18.0	57.6
0.542000	36.8	GND	N	10.1	19.2	56.0
1.286000	31.6	GND	L1	10.1	24.4	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.298000	28.0	GND	L1	10.0	22.3	50.3
0.414000	28.2	GND	L1	10.0	19.3	47.6
0.566000	29.0	GND	L1	10.1	17.0	46.0
0.690000	22.8	GND	L1	10.0	23.2	46.0
1.306000	23.9	GND	L1	10.1	22.1	46.0
2.054000	21.1	GND	L1	10.1	24.9	46.0

©Copyright. All rights reserved by CTTL.

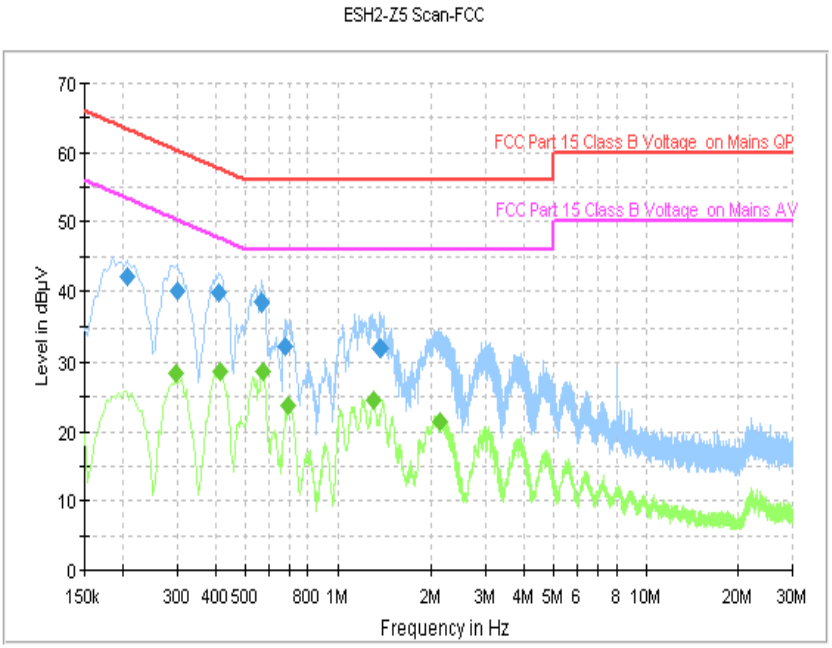

Fig. 32 AC Powerline Conducted Emission (Traffic, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.206000	42.0	GND	L1	10.0	21.3	63.4
0.302000	40.2	GND	N	10.1	20.0	60.2
0.410000	39.7	GND	N	10.1	17.9	57.6
0.566000	38.6	GND	L1	10.1	17.4	56.0
0.678000	32.2	GND	L1	10.0	23.8	56.0
1.378000	32.1	GND	L1	10.1	23.9	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.298000	28.4	GND	L1	10.0	21.9	50.3
0.414000	28.6	GND	L1	10.0	19.0	47.6
0.574000	28.7	GND	L1	10.1	17.3	46.0
0.690000	23.9	GND	L1	10.0	22.1	46.0
1.314000	24.5	GND	L1	10.1	21.5	46.0
2.142000	21.3	GND	L1	10.1	24.7	46.0

©Copyright. All rights reserved by CTTL.

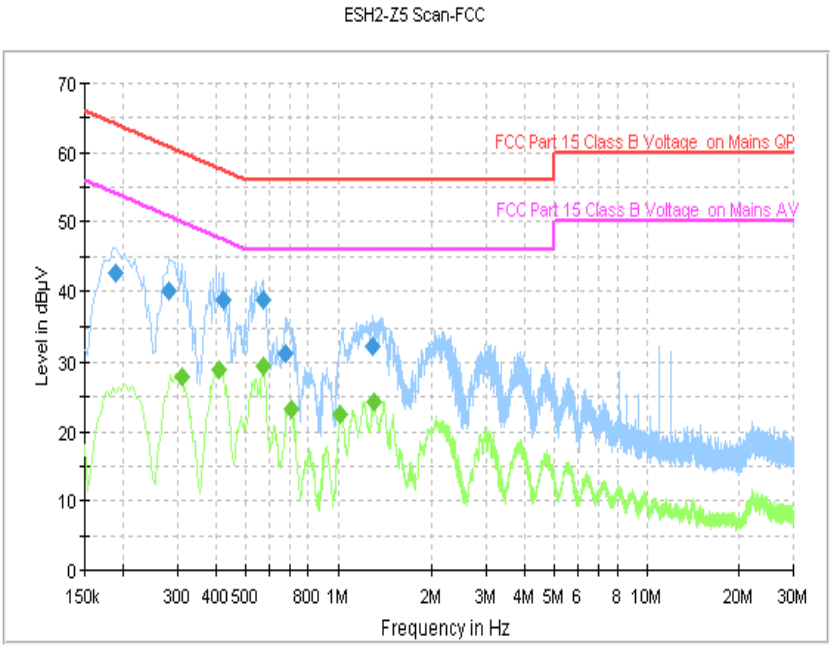

Fig. 33 AC Power line Conducted Emission (Idle, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.190000	42.6	GND	N	10.1	21.4	64.0
0.282000	40.1	GND	N	10.1	20.6	60.8
0.426000	38.7	GND	N	10.1	18.6	57.3
0.570000	38.6	GND	L1	10.1	17.4	56.0
0.678000	31.2	GND	N	10.0	24.8	56.0
1.294000	32.2	GND	L1	10.1	23.8	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.310000	27.8	GND	L1	10.0	22.2	50.0
0.410000	28.9	GND	L1	10.0	18.7	47.6
0.570000	29.4	GND	L1	10.1	16.6	46.0
0.702000	23.3	GND	L1	10.0	22.7	46.0
1.022000	22.5	GND	L1	10.0	23.5	46.0
1.310000	24.4	GND	L1	10.1	21.6	46.0

©Copyright. All rights reserved by CTTL.

ANNEX C: Persons involved in this testing

Test Name	Tester
Maximum Peak Output Power	Xu Ye, Tang Weisheng
Peak Power Spectral Density	Xu Ye, Tang Weisheng
Occupied 6dB Bandwidth	Xu Ye, Tang Weisheng
Band Edges Compliance	Xu Ye, Tang Weisheng
Transmitter Spurious Emission - Conducted	Xu Ye, Tang Weisheng
Transmitter Spurious Emission - Radiated	Xu Ye, Tang Weisheng
AC Powerline Conducted Emission	Xu Ye, Tang Weisheng

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

©Copyright. All rights reserved by CTTL.