FCC PART 15C
TEST REPORT
No. B17N00263-BLE

for

HUAWEI Technologies Co., Ltd.

HUAWEI MediaPad T3

Model Name: KOB-W09

With

Hardware Version: REACHW-V1.0

Software Version: KOB-W09C331B002-log

FCC ID: QISKOB-W09

Issued Date: 2017-06-16

Test Laboratory:

FCC 2.948 Listed: No.342690

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, Huayuan North 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

REPORT HISTORY

Report Number	Revision	Description	Issue Date
B17N00263-BLE	Rev.0	1st edition	2017-04-10
B17N00263-BLE	Rev.1	2nd edition	2017-06-16

CONTENTS

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℃

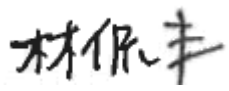
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2017-03-14

Testing End Date: 2017-04-07

1.4. 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:	Huawei Technologies Co., Ltd
Address:	Administration Building，Huawei Base, Bantian, Longgang District, Shenzhen
City:	Shenzhen
Postal Code:	518129
Country:	China
Telephone:	15602311354
Fax:	/

2.2. Manufacturer Information

Company Name:	Huawei Technologies Co., Ltd
Address:	Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen
City:	Shenzhen
Postal Code:	518129
Country:	China
Telephone:	15602311354
Fax:	/

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

3.1. About EUT

Description	HUAWEI MediaPad T3
Model Name	KOB-W09
Market Name	HUAWEI MediaPad T3
Frequency Band	2402MHz~2480MHz
Type of Modulation	GFSK
Number of Channels	40
FCC ID	QISKOB-W09

3.2. Internal Identification of EUT

EUT ID*	IMEI	HW Version	SW Version	Receive Date
EUT1	/	REACHW-V1.0	KOB-W09C331B002-log	2017-03-14

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

3.3. Internal Identification of AE

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

AE1

Model	HW-050100U01
Manufacturer	SHENZHEN HUNTKEY ELECTRONIC CO.,LTD.

AE2

Model	HW-050100U01
Manufacturer	HUIZHOU BYD ELECTRONIC CO., LTD.

AE3

Model	HW-050100U01
Manufacturer	DONGGUAN PHITEK ELECTRONICS CO.,LTD.

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

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

5. Test Results

5.1. Summary of Test Results

No	Test cases	Sub-clause of Part15C	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 A and ANNEX B** 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 isotropic radiated power
ISM	Industrial, Scientific and Medical
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
Tx	Transmitter

5.4. Laboratory Environment

Semi-anechoic chamber 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

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	2018-01-18	1 year

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	LISN	ESH2-Z5	100196	R&S	2018-01-05	1 year
2	Test Receiver	ESCI	100701	R&S	2017-08-09	1 year
3	Loop Antenna	HLA6120	35779	TESEQ	2019-05-02	3 years
4	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2020-02-17	3 years
5	Horn Antenna	3117	00066585	ETS-Lindgren	2019-03-05	3 years
6	Test Receiver	ESR7	101675	R&S	2017-07-21	1 year
7	Spectrum Analyzer	FSP 40	100378	R&S	2017-12-15	1 year
8	Chamber	FACT5-2.0	4166	ETS-Lindgren	2018-05-13	3 years

Anechoic chamber

Fully anechoic chamber by ETS-Lindgren

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 0dBi.
The RF transmitter uses an integrate antenna without connector.

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	Fig.1	7.72	P
	19	Fig.2	8.27	P
	39	Fig.3	8.61	P

See ANNEX B 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	-7.60	P
	19	Fig.5	-6.71	P
	39	Fig.6	-6.06	P

See ANNEX B for test graphs.

Conclusion: PASS

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	687.0	P
	19	Fig.8	683.5	P
	39	Fig.9	676.0	P

See ANNEX B 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 B for test graphs.

Conclusion: Pass

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 B for test graphs.

Conclusion: Pass

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.

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
		18 GHz~ 26.5 GHz	Fig.26	P
	39	1 GHz ~18 GHz	Fig.27	P
	Power(CH0)	2.38 GHz ~ 2.45 GHz	Fig.28	P
	Power(CH39)	2.45 GHz ~ 2.5 GHz	Fig.29	P

GFSK CH0 (1-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Corr. (dB)	Pol
14185.50000	55.28	74.00	18.72	11.2	H
15152.00000	55.00	74.00	19.00	12.1	V
15665.50000	57.02	74.00	16.98	12.6	H
16218.00000	57.41	74.00	16.59	13.1	H
16783.00000	58.59	74.00	15.41	13.9	H
17309.50000	58.25	74.00	15.75	13.9	H

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Corr. (dB)	Pol
14167.00000	42.77	54.00	11.23	11.2	V
15182.00000	43.82	54.00	10.18	12.2	V
15694.50000	45.51	54.00	8.49	12.7	V
16237.00000	45.82	54.00	8.18	13.1	H
16785.50000	46.75	54.00	7.25	13.9	H
17367.50000	45.95	54.00	8.05	14.0	H

GFSK CH19 (1-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Corr. (dB)	Pol
13674.50000	53.46	74.00	20.54	11.2	H
14525.00000	54.31	74.00	19.69	11.8	H
14682.00000	55.33	74.00	18.67	12.0	H
15789.50000	57.43	74.00	16.57	12.8	V
16333.50000	56.89	74.00	17.11	13.4	V
16899.50000	57.76	74.00	16.24	14.0	V

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Corr. (dB)	Pol
13931.00000	42.14	54.00	11.86	10.8	V
13999.00000	42.60	54.00	11.40	10.8	H
15161.00000	44.01	54.00	9.99	12.1	H
15696.50000	45.50	54.00	8.50	12.7	V
16226.00000	45.93	54.00	8.07	13.1	H
16804.50000	46.58	54.00	7.42	13.9	H

GFSK CH39 (1-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Corr. (dB)	Pol
14111.00000	54.50	74.00	19.50	11.1	V
15184.50000	56.78	74.00	17.22	12.2	H
15757.00000	57.20	74.00	16.80	12.8	V
16214.50000	57.60	74.00	16.40	13.1	H
16803.00000	58.57	74.00	15.43	13.9	V
17346.50000	58.27	74.00	15.73	14.0	V

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Corr. (dB)	Pol
14151.50000	43.10	54.00	10.90	11.2	H
15178.50000	44.07	54.00	9.93	12.2	H
15686.50000	45.55	54.00	8.45	12.6	H
16231.00000	46.18	54.00	7.82	13.1	H
16805.00000	46.62	54.00	7.38	13.9	H
17348.00000	46.29	54.00	7.71	14.0	V

See ANNEX B 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

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.			

BLE (Quasi-peak Limit)-AE2

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)-AE2

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)-AE2

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)-AE2

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.			

BLE (Quasi-peak Limit)-AE3

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) Traffic	Conclusion
0.15 to 0.5	66 to 56	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)-AE3

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

BLE (Quasi-peak Limit)-AE3

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) Idle	Conclusion
0.15 to 0.5	66 to 56	Fig.35	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 (dBμV)	Result (dBμV) Idle	Conclusion
0.15 to 0.5	56 to 46	Fig.35	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:

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.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) Traffic	Conclusion
0.15 to 0.5	56 to 46	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)-AE1

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

BLE (Quasi-peak Limit)-AE2

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) Idle	Conclusion
0.15 to 0.5	66 to 56	Fig.39	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) Idle	Conclusion
0.15 to 0.5	56 to 46	Fig.39	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 (dBμV)	Result (dBμV) Traffic	Conclusion
0.15 to 0.5	66 to 56	Fig.40	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 (dBμV)	Result (dBμV) Traffic	Conclusion
0.15 to 0.5	56 to 46	Fig.40	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 (dBμV)	Result (dBμV) Idle	Conclusion
0.15 to 0.5	66 to 56	Fig.41	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

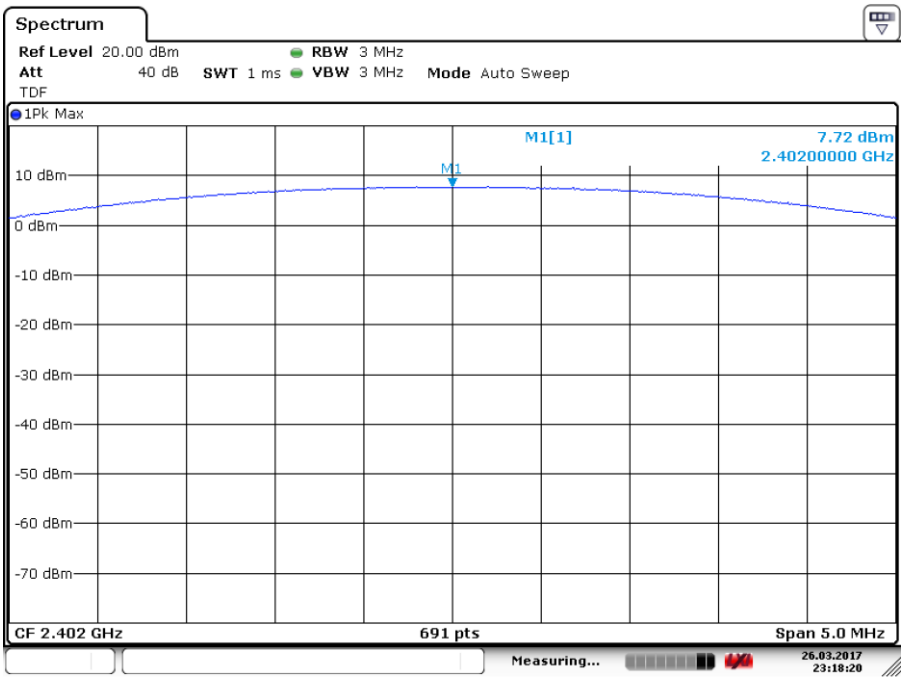
Frequency range (MHz)	Average-peak Limit (dBμV)	Result (dBμV) Idle	Conclusion
0.15 to 0.5	56 to 46	Fig.41	P
0.5 to 5	46		
5 to 30	50		
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.			

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

See ANNEX B for test graphs.

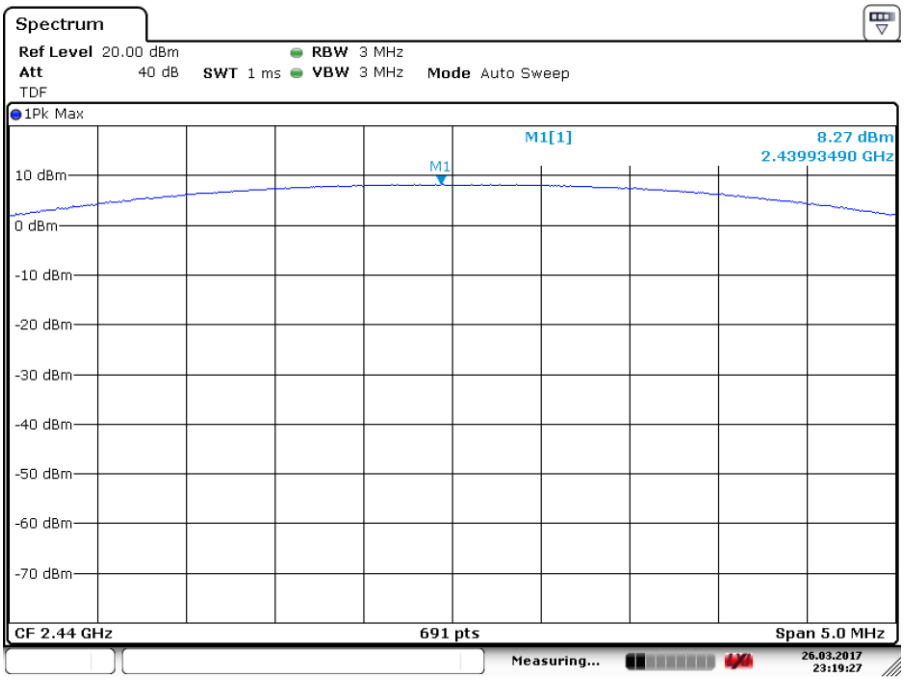
Conclusion: Pass

ANNEX B: TEST FIGURE LIST



Date: 26.MAR.2017 23:18:19

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



Date: 26.MAR.2017 23:19:27

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

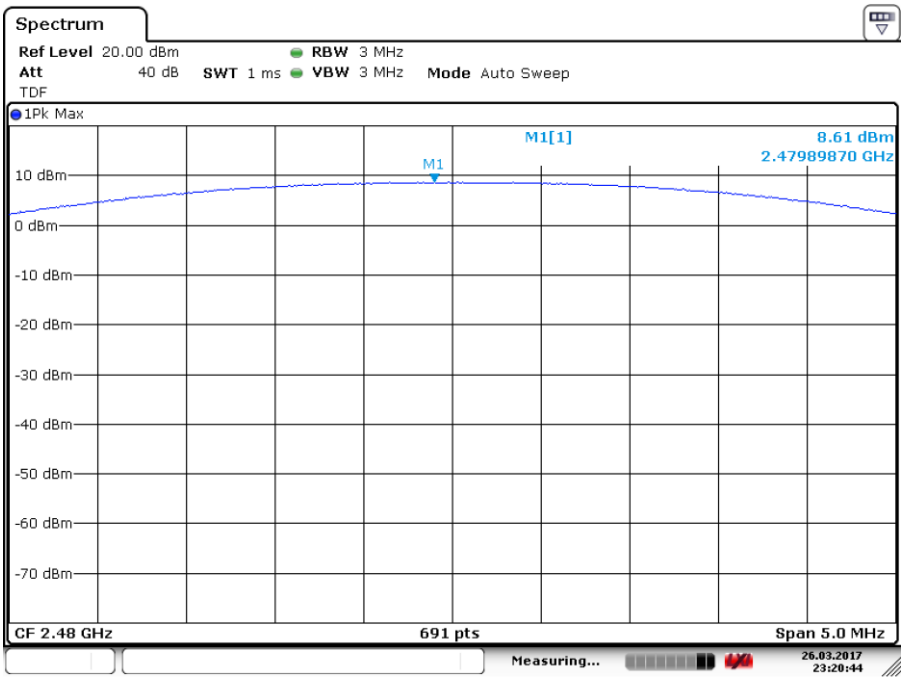


Fig.3 Maximum Peak Output Power(GFSK, Ch 39)

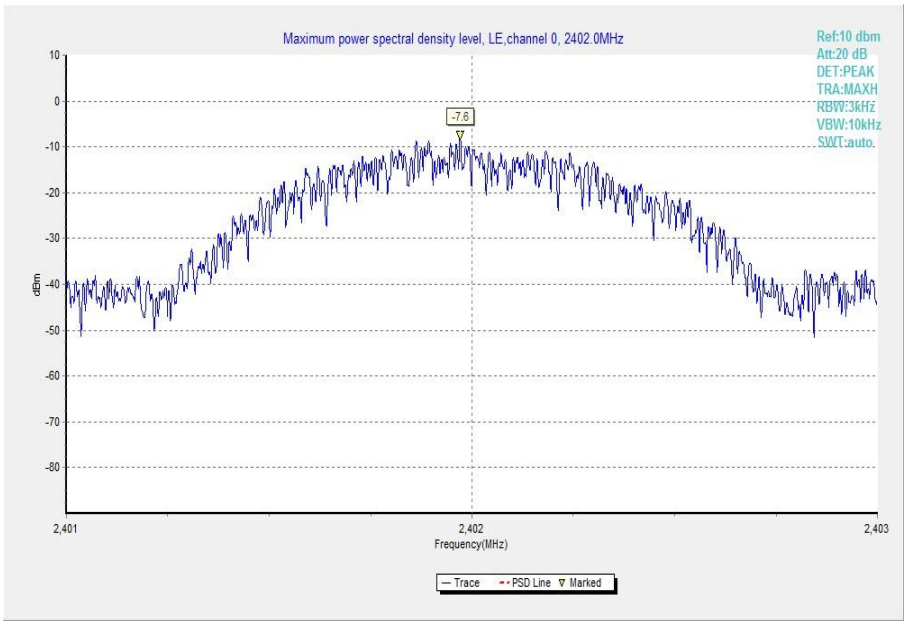


Fig.4 Power Spectral Density (Ch 0)

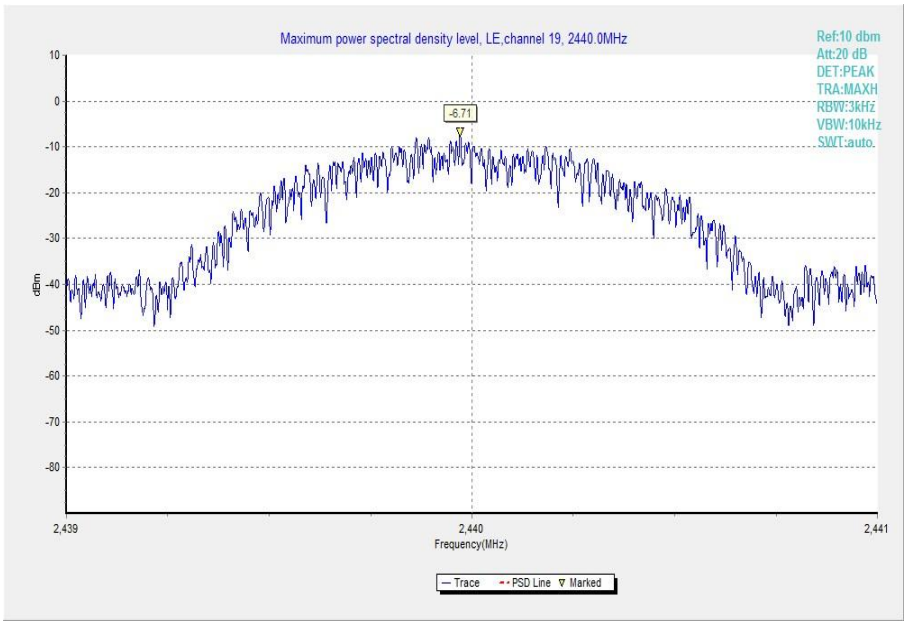


Fig.5 Power Spectral Density (Ch 19)

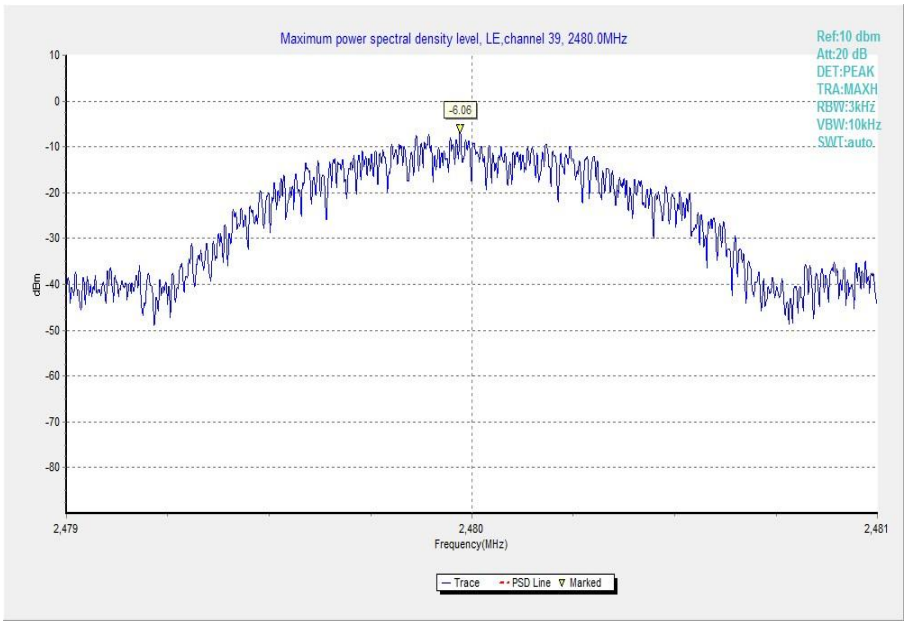


Fig.6 Power Spectral Density (Ch 39)

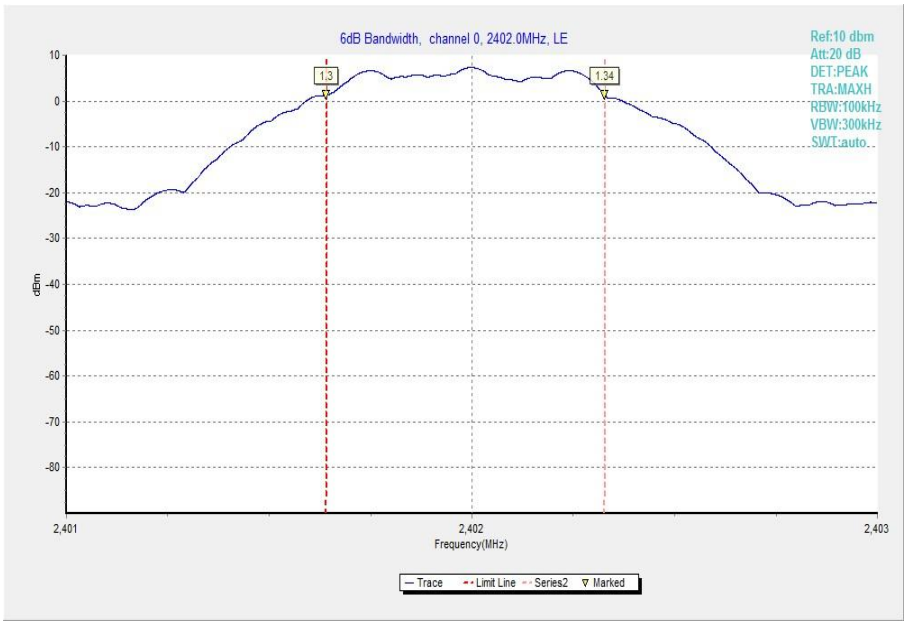


Fig.7 Occupied 6dB Bandwidth (Ch 0)

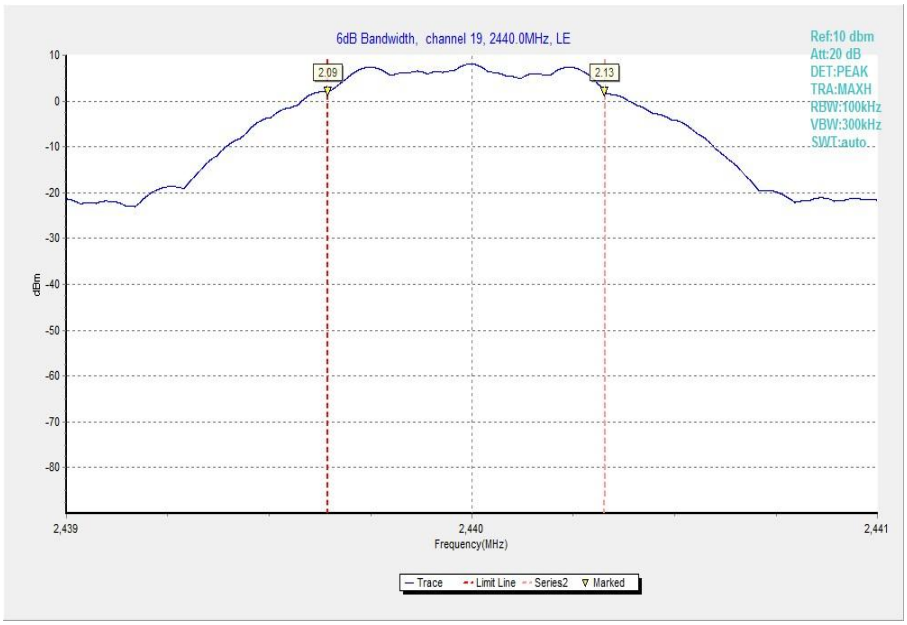


Fig.8 Occupied 6dB Bandwidth (Ch 19)

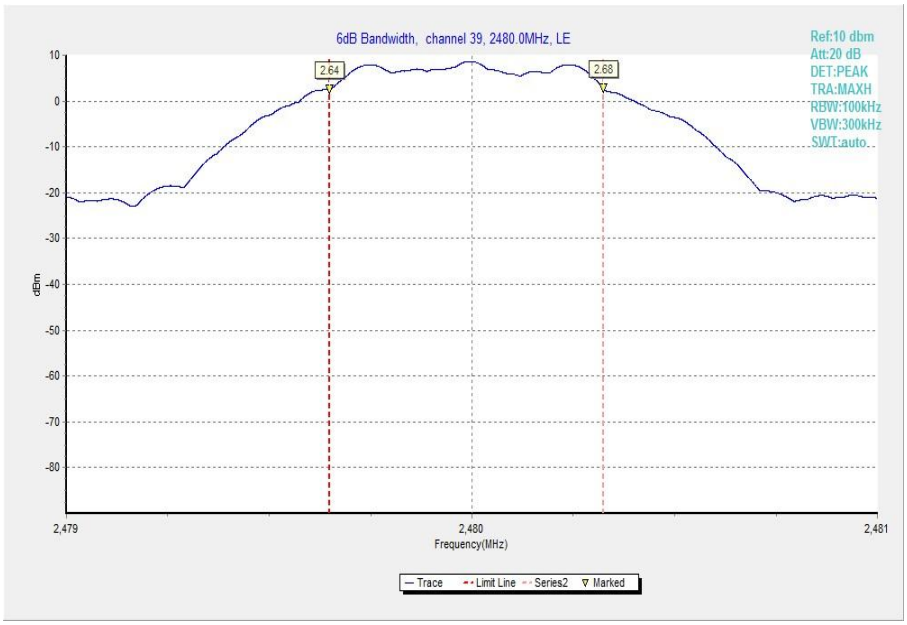


Fig.9 Occupied 6dB Bandwidth (Ch 39)

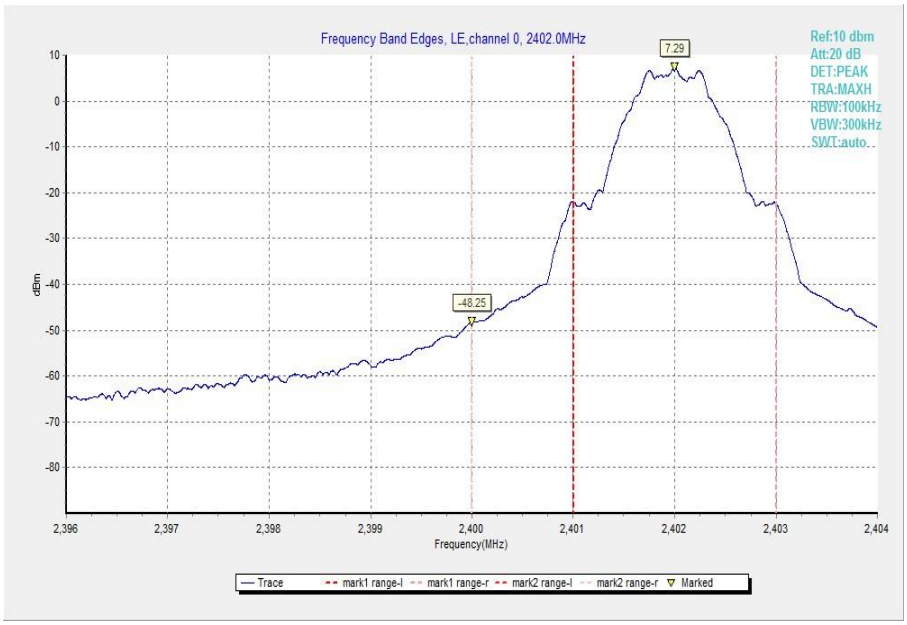


Fig.10 Band Edges (Ch 0)

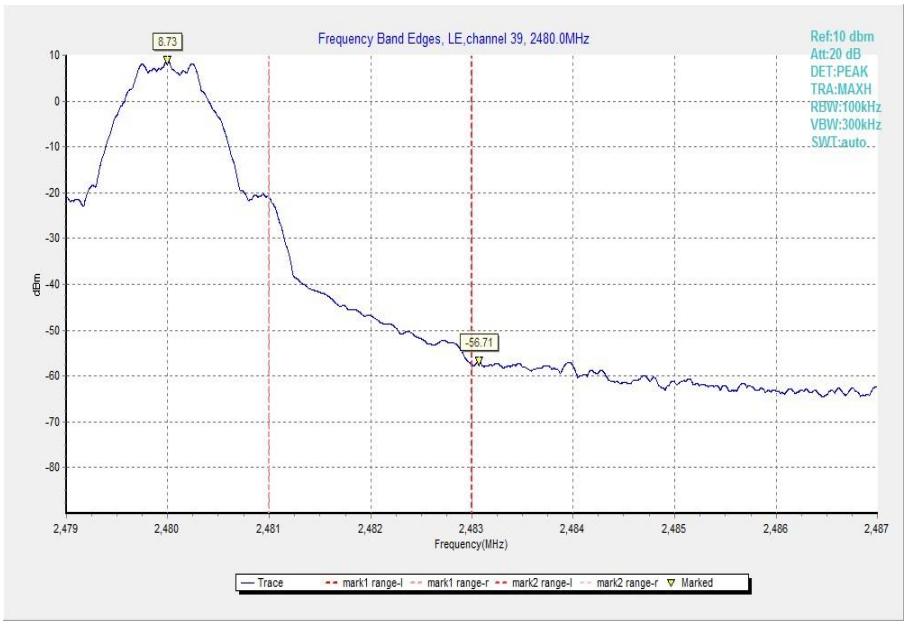


Fig.11 Band Edges (Ch 39)

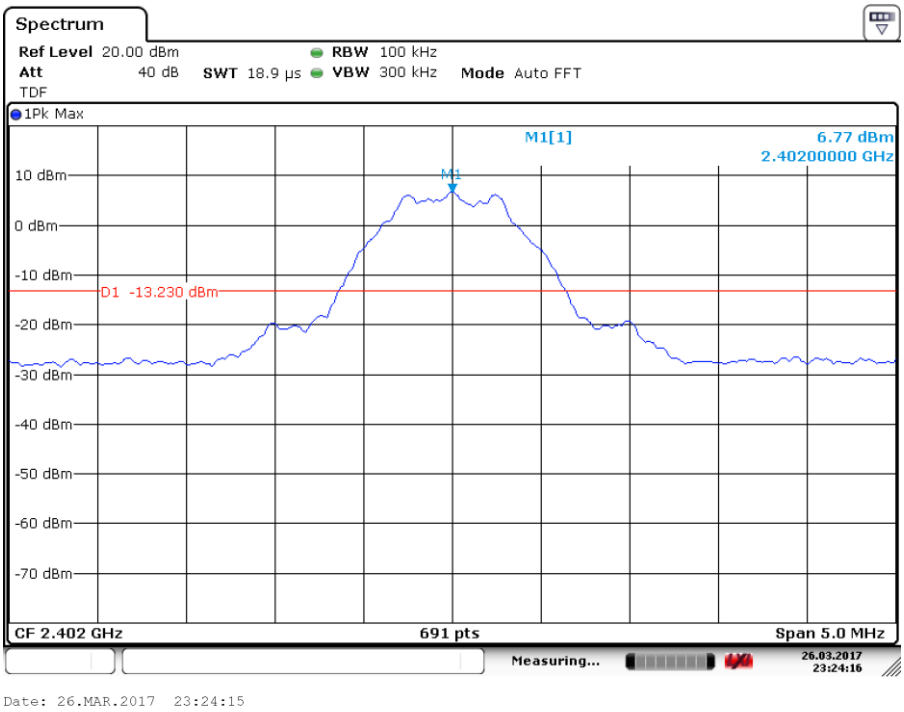
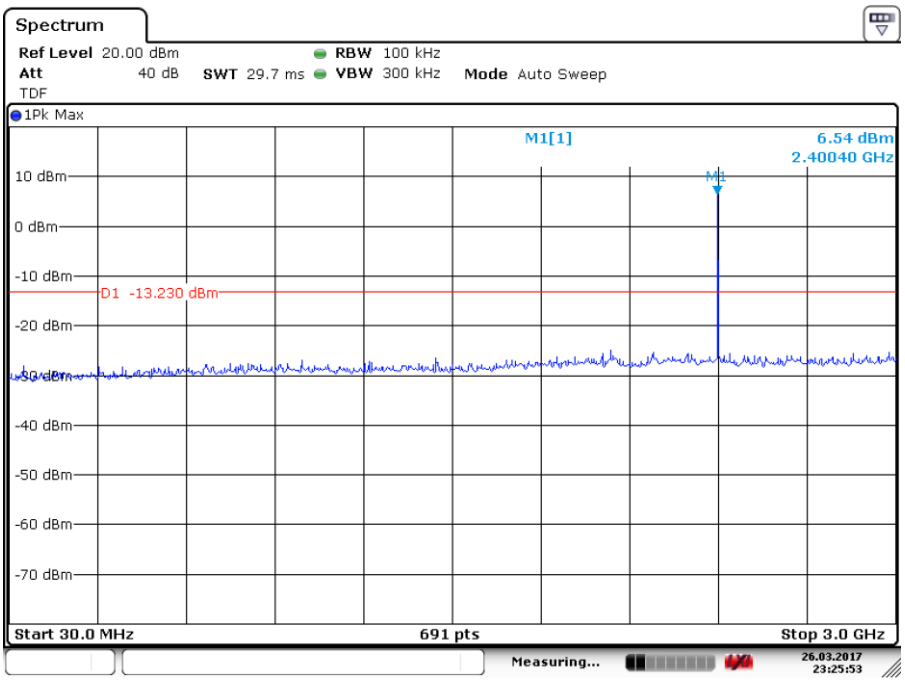
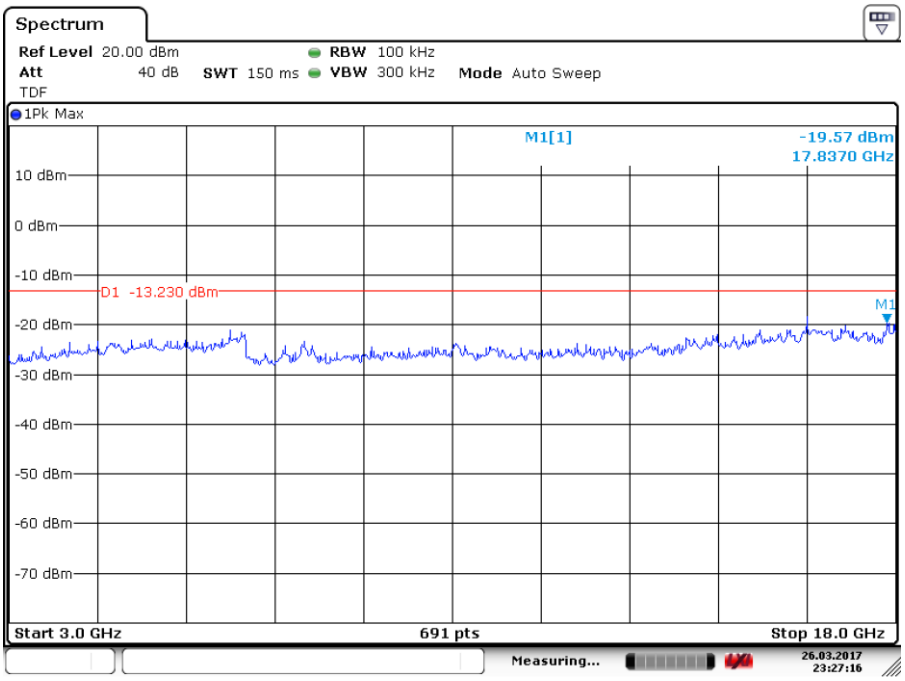


Fig.12 Conducted Spurious Emission (Ch0, Center Frequency)



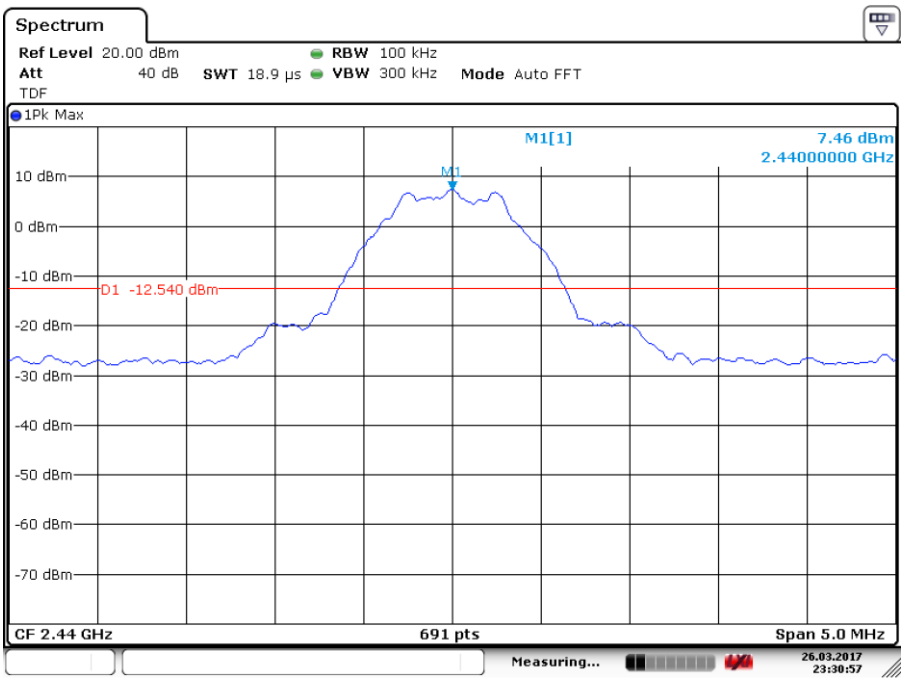
Date: 26.MAR.2017 23:25:53

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



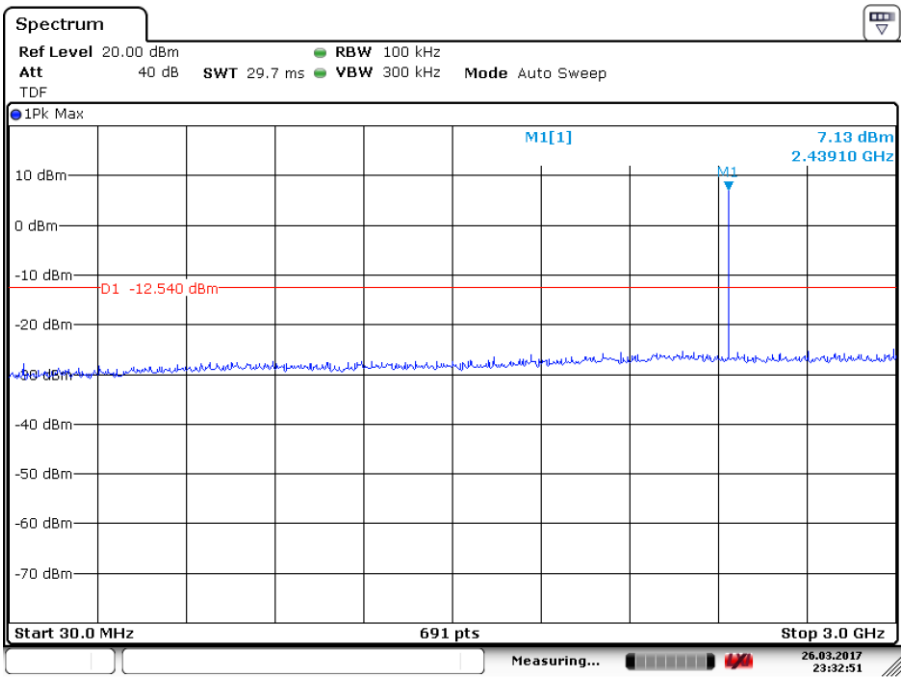
Date: 26.MAR.2017 23:27:16

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



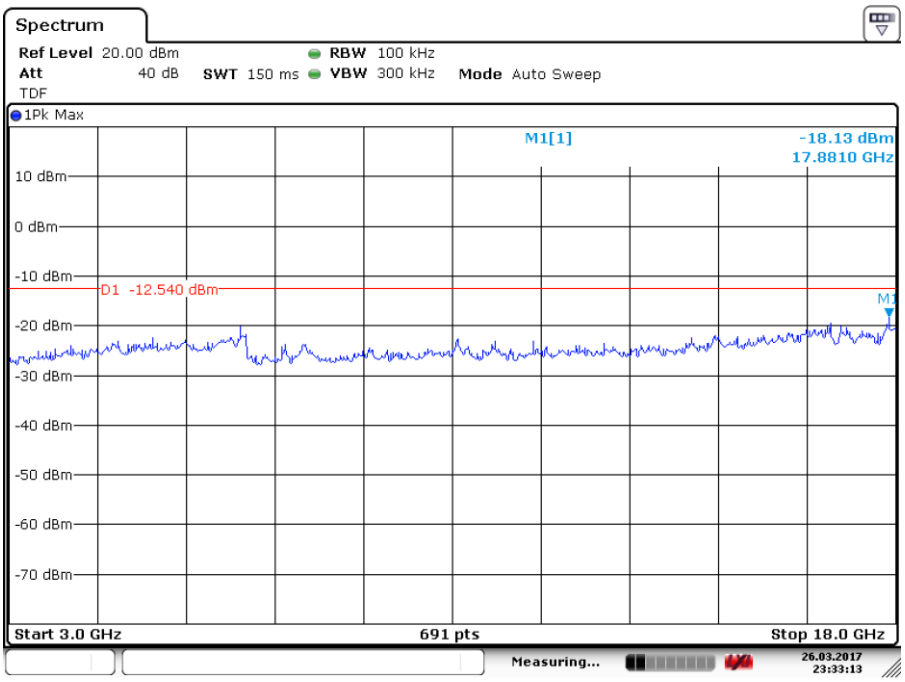
Date: 26.MAR.2017 23:30:57

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



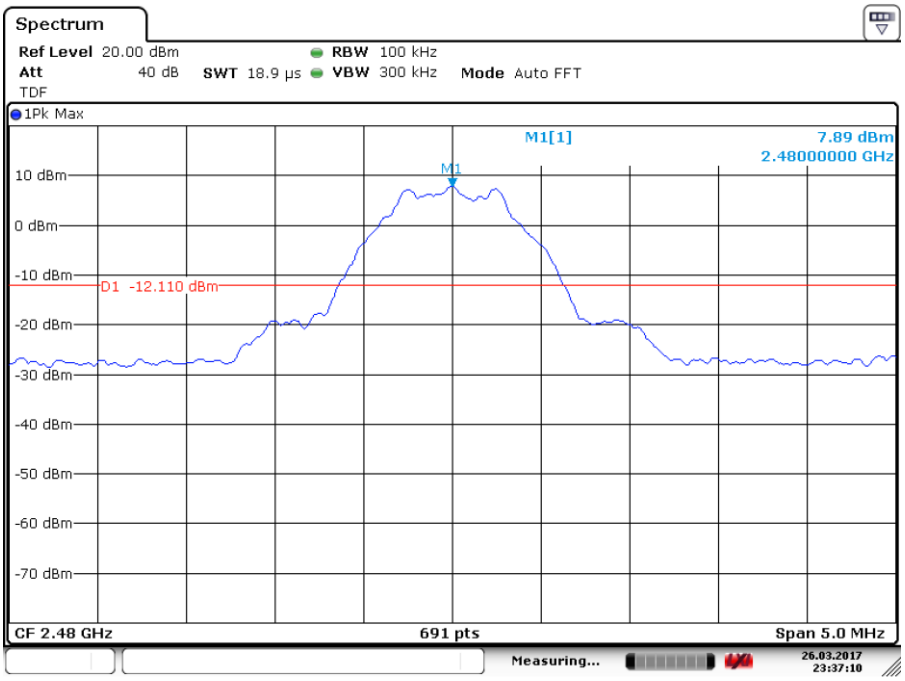
Date: 26.MAR.2017 23:32:50

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



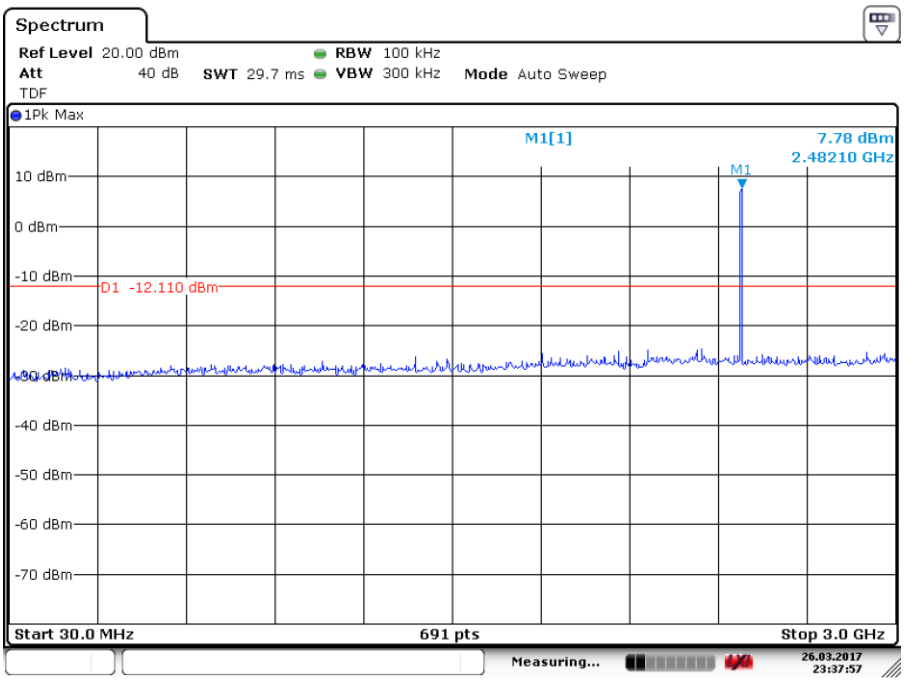
Date: 26.MAR.2017 23:33:12

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



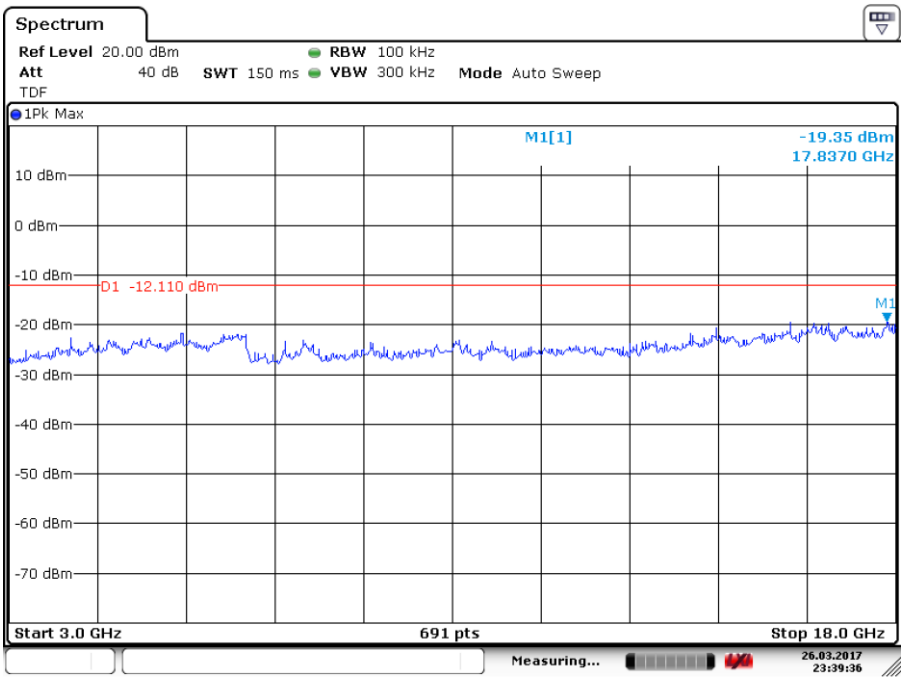
Date: 26.MAR.2017 23:37:09

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



Date: 26.MAR.2017 23:37:56

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



Date: 26.MAR.2017 23:39:35

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

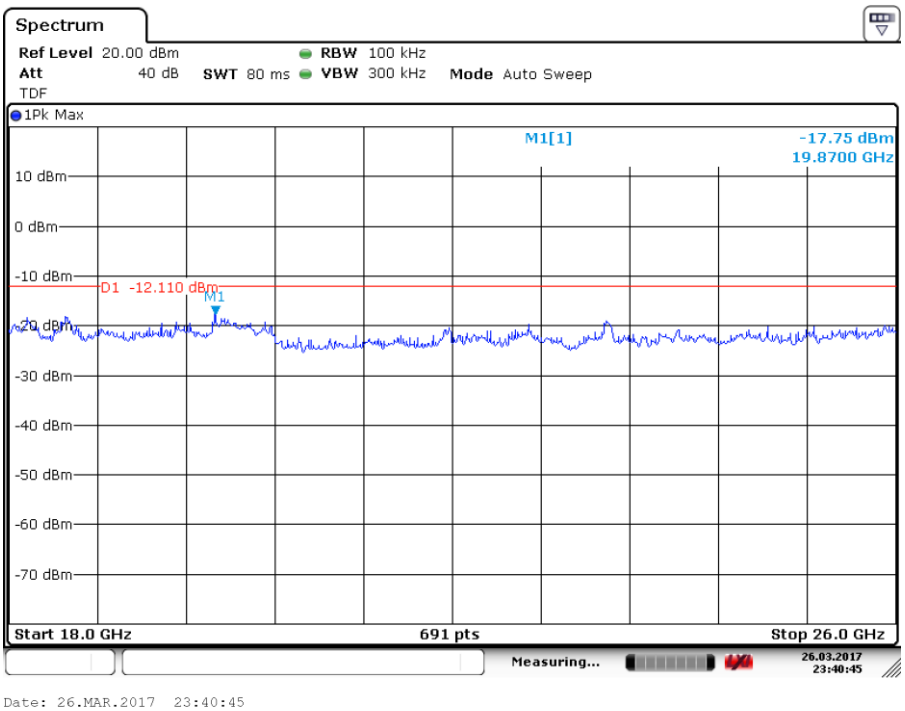


Fig.21 Conducted Spurious Emission (All channels, 18 GHz-26 GHz)

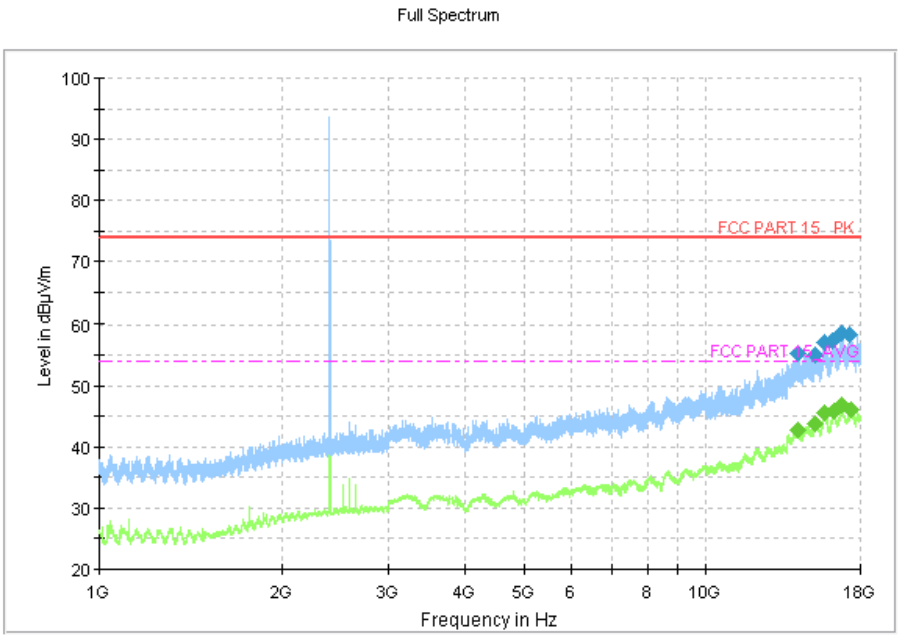


Fig.22 Radiated Spurious Emission (GFSK, Ch0, 1 GHz ~18 GHz)

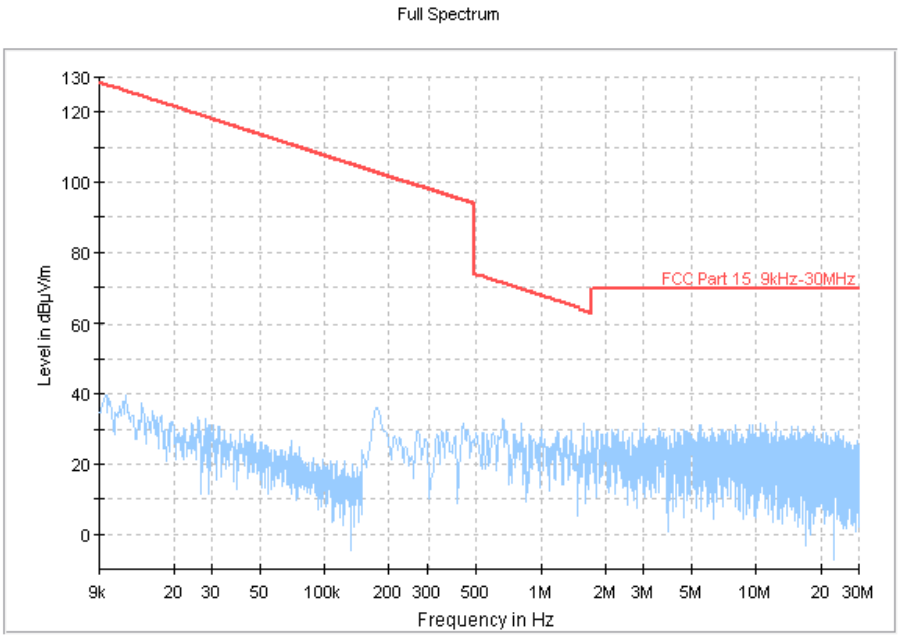


Fig.23 Radiated Spurious Emission (Ch19, 9 kHz-30 MHz)

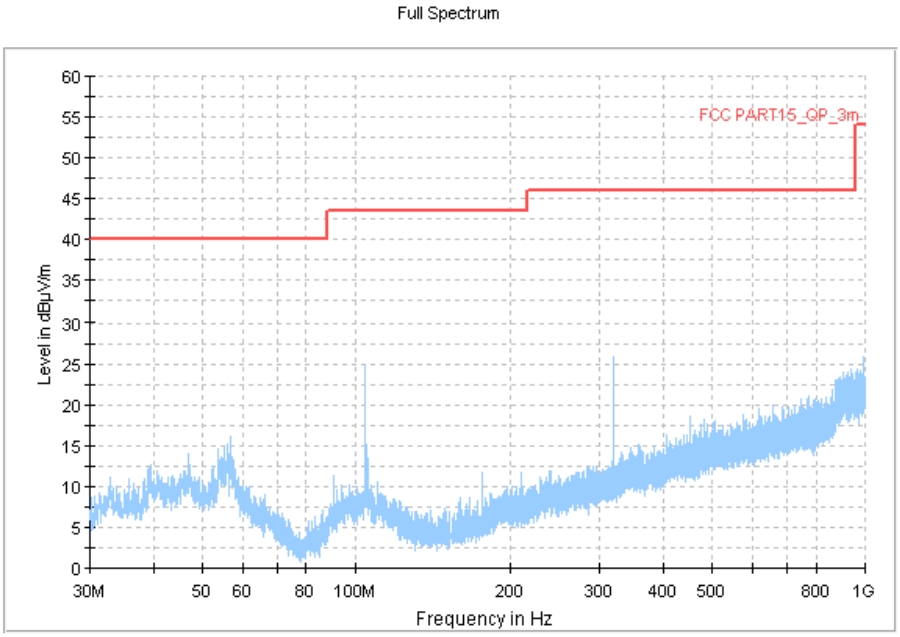


Fig.24 Radiated Spurious Emission (Ch19, 30 MHz-1 GHz)

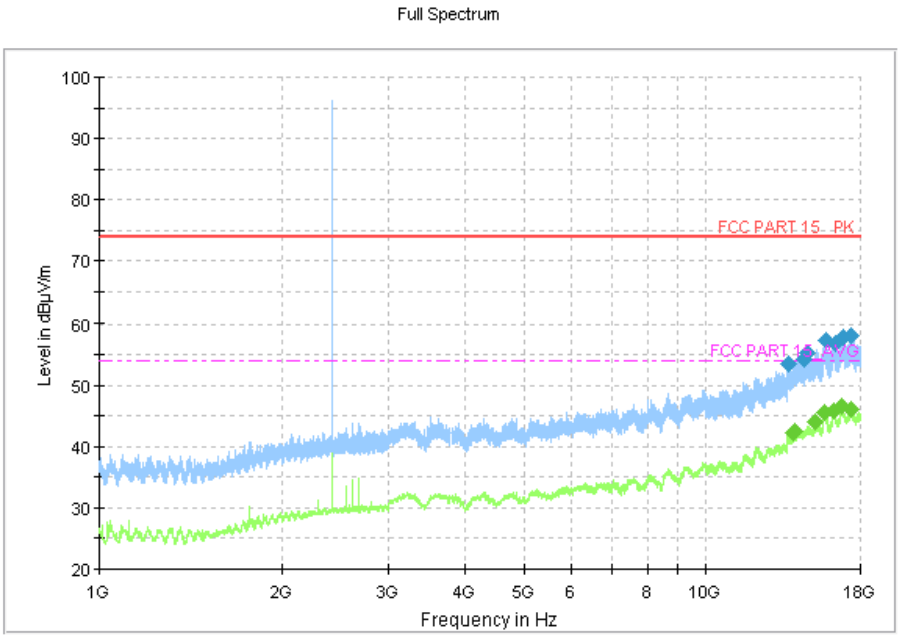


Fig.25 Radiated Spurious Emission (Ch19, 1 GHz- 18 GHz)

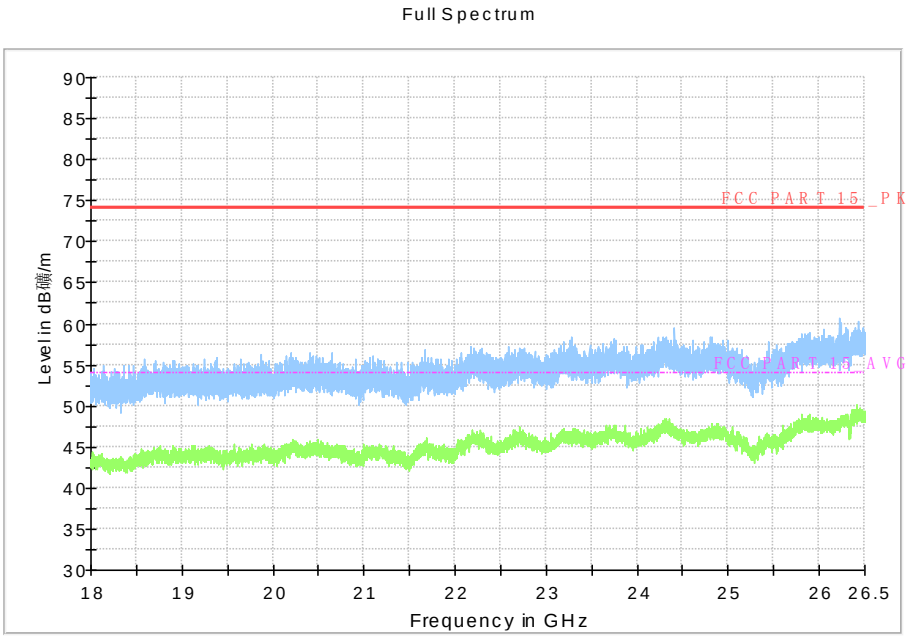


Fig.26 Radiated Spurious Emission (Ch19, 18 GHz-26.5 GHz)

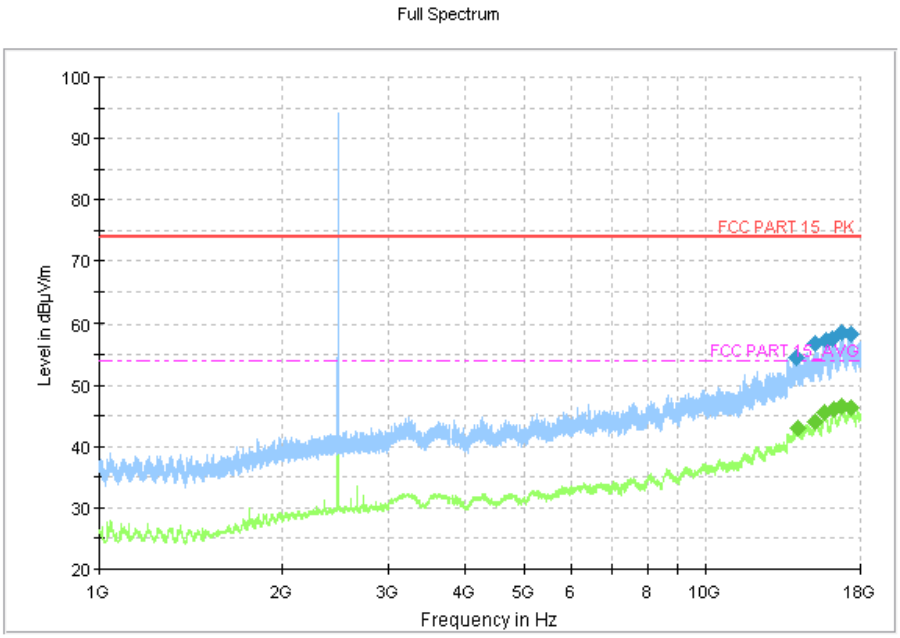


Fig.27 Radiated Spurious Emission (Ch39, 1 GHz-18 GHz)

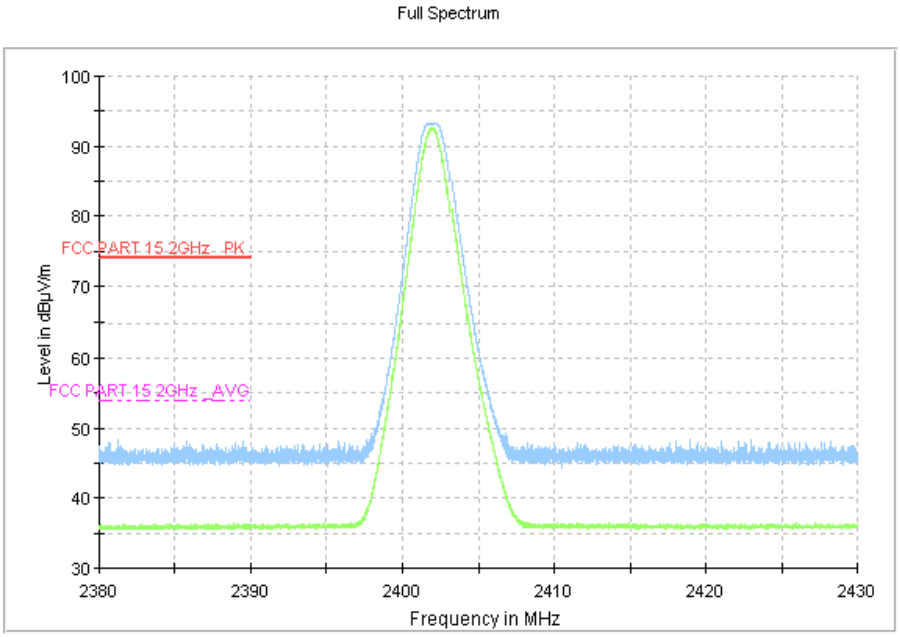


Fig.28 Radiated Emission Power (GFSK, Ch0, 2380GHz~2450GHz)

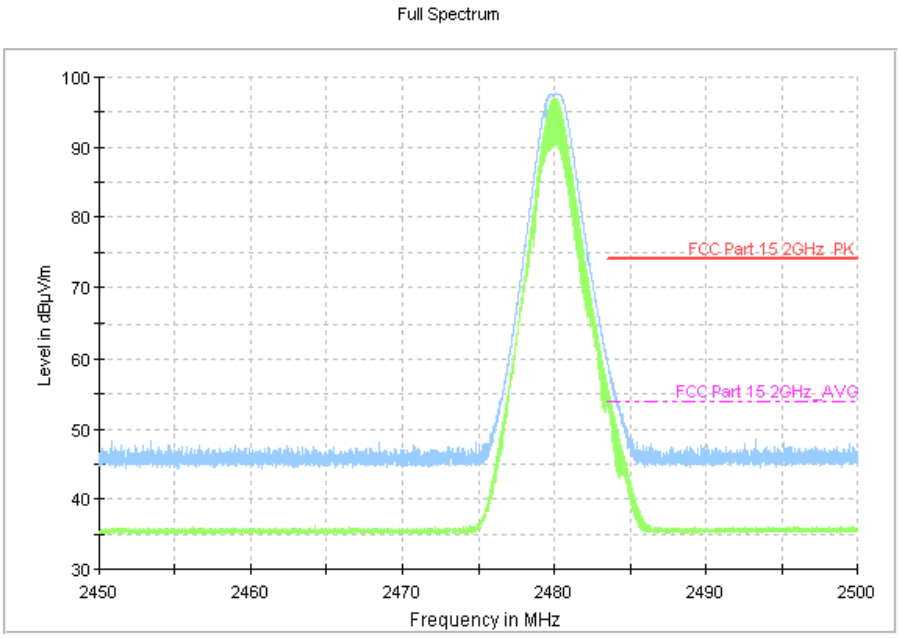


Fig.29 Radiated Emission Power (GFSK, Ch39, 2450GHz~2500GHz)

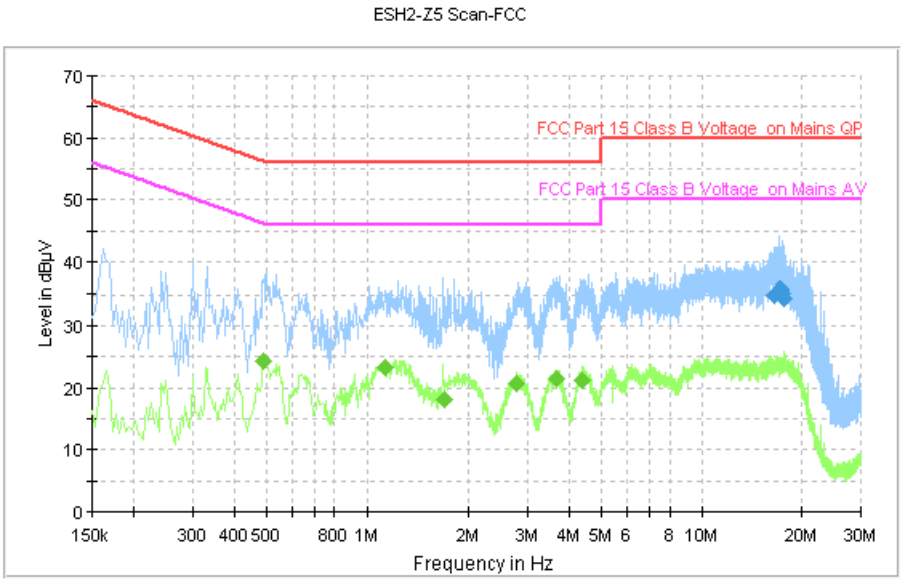


Fig.30 AC Powerline Conducted Emission (Traffic, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
16.538000	34.9	GND	N	9.9	25.1	60.0
17.074000	35.7	GND	N	9.9	24.4	60.0
17.162000	35.5	GND	N	9.9	24.5	60.0
17.390000	35.1	GND	N	9.9	24.9	60.0
17.542000	34.6	GND	N	9.9	25.4	60.0
17.706000	34.5	GND	N	9.9	25.5	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.490000	24.4	GND	N	9.7	21.8	46.2
1.134000	23.3	GND	N	9.6	22.7	46.0
1.690000	18.0	GND	N	9.5	28.0	46.0
2.790000	20.7	GND	N	9.6	25.3	46.0
3.666000	21.3	GND	N	9.6	24.7	46.0
4.370000	21.3	GND	N	9.6	24.7	46.0

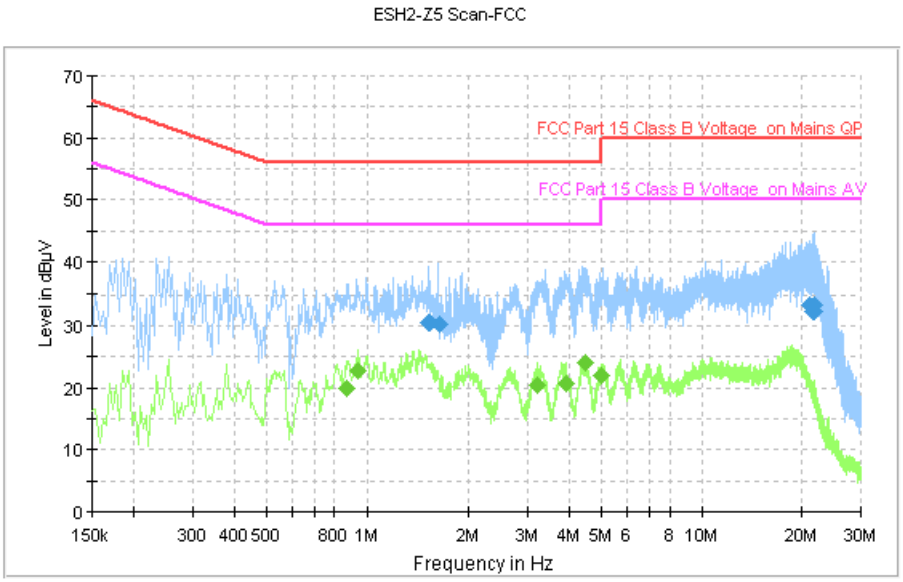


Fig.31 AC Power line Conducted Emission (Idle, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.530000	30.5	GND	N	9.6	25.5	56.0
1.638000	30.2	GND	N	9.5	25.8	56.0
20.998000	33.3	GND	N	10.0	26.7	60.0
21.626000	32.3	GND	N	10.0	27.7	60.0
21.678000	33.3	GND	N	10.0	26.7	60.0
21.718000	32.4	GND	N	10.0	27.6	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.866000	19.9	GND	N	9.6	26.1	46.0
0.942000	22.7	GND	N	9.6	23.3	46.0
3.218000	20.3	GND	N	9.6	25.7	46.0
3.902000	20.7	GND	N	9.6	25.3	46.0
4.454000	23.9	GND	N	9.6	22.1	46.0
4.982000	21.9	GND	N	9.6	24.1	46.0

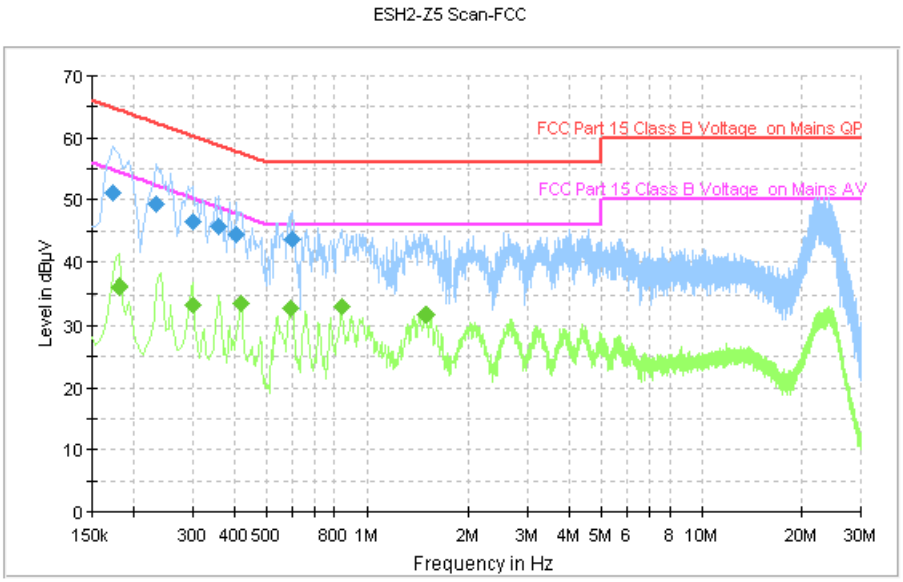


Fig.32 AC Powerline Conducted Emission (Traffic, AE2)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	51.2	GND	N	9.6	13.6	64.8
0.234000	49.4	GND	N	9.6	12.9	62.3
0.302000	46.5	GND	N	9.6	13.7	60.2
0.358000	45.6	GND	N	9.6	13.2	58.8
0.406000	44.4	GND	N	9.7	13.3	57.7
0.598000	43.8	GND	N	9.6	12.2	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	36.1	GND	N	9.6	18.3	54.4
0.302000	33.3	GND	N	9.6	16.9	50.2
0.418000	33.6	GND	N	9.7	13.9	47.5
0.594000	32.7	GND	N	9.6	13.3	46.0
0.838000	33.0	GND	N	9.5	13.0	46.0
1.502000	31.8	GND	N	9.6	14.2	46.0

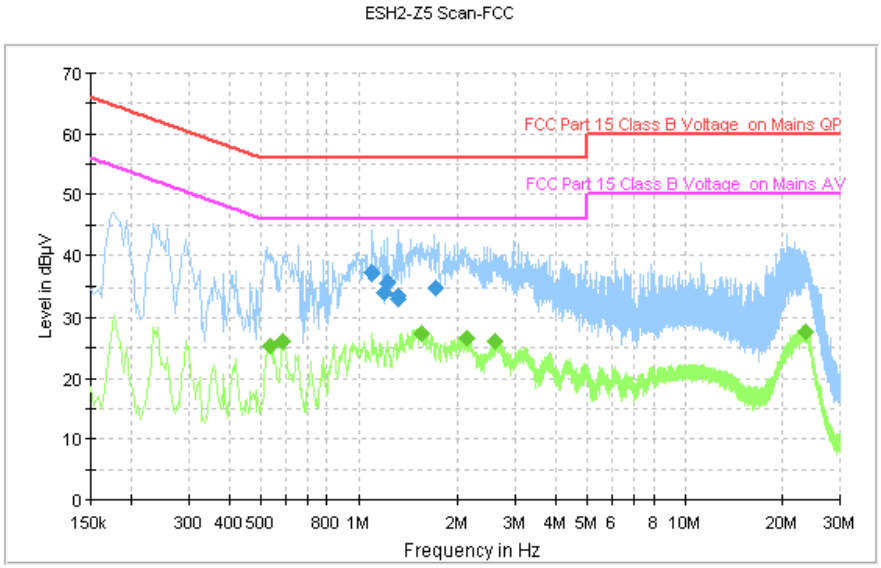


Fig.33 AC Power line Conducted Emission (Idle, AE2)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.102000	37.2	GND	N	9.6	18.8	56.0
1.194000	34.0	GND	N	9.5	22.0	56.0
1.222000	35.6	GND	N	9.6	20.4	56.0
1.322000	33.0	GND	N	9.6	23.0	56.0
1.330000	33.6	GND	N	9.6	22.4	56.0
1.718000	34.9	GND	N	9.6	21.1	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.534000	25.4	GND	N	9.7	20.6	46.0
0.582000	26.2	GND	N	9.6	19.8	46.0
1.542000	27.5	GND	N	9.6	18.5	46.0
2.134000	26.6	GND	N	9.6	19.4	46.0
2.602000	26.2	GND	N	9.6	19.8	46.0
23.426000	27.5	GND	N	10.0	22.5	50.0

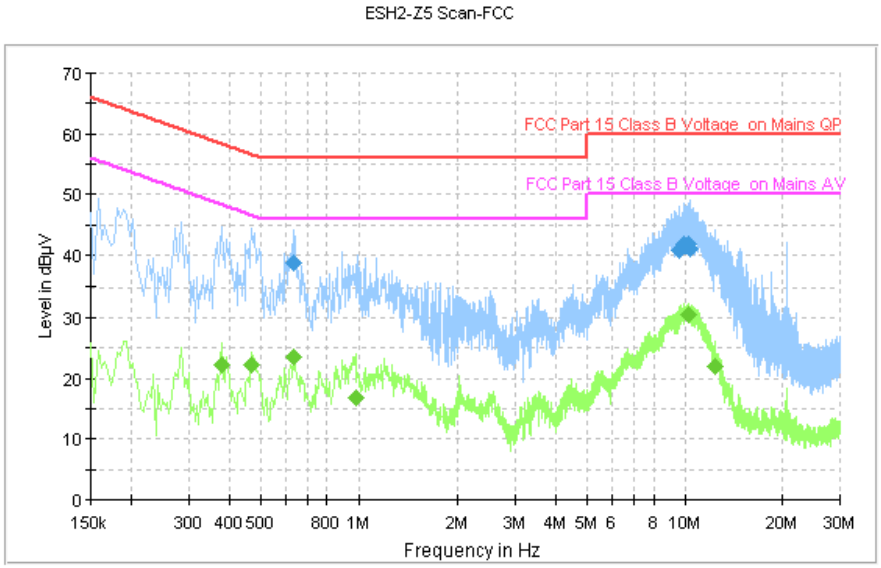


Fig.34 AC Powerline Conducted Emission (Traffic, AE3)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.634000	38.7	GND	N	9.6	17.3	56.0
9.574000	40.7	GND	N	9.9	19.3	60.0
9.962000	41.9	GND	N	9.9	18.1	60.0
10.050000	41.7	GND	N	9.8	18.3	60.0
10.234000	41.9	GND	N	9.9	18.1	60.0
10.422000	41.0	GND	N	9.9	19.0	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.378000	22.3	GND	N	9.6	26.0	48.3
0.470000	22.3	GND	N	9.7	24.2	46.5
0.634000	23.4	GND	N	9.6	22.6	46.0
0.982000	16.7	GND	N	9.6	29.3	46.0
10.250000	30.5	GND	N	9.9	19.5	50.0
12.418000	22.0	GND	N	9.9	28.0	50.0

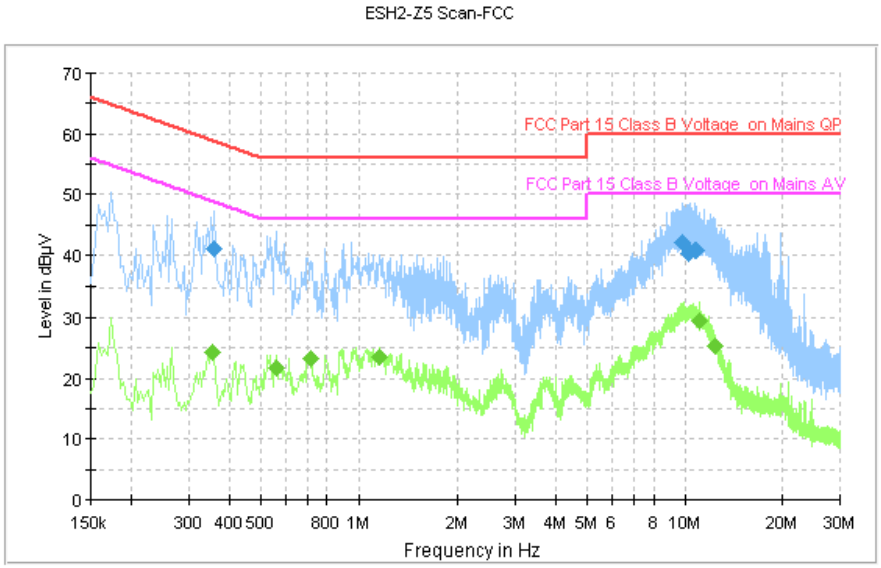


Fig.35 AC Power line Conducted Emission (Idle, AE3)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.358000	41.1	GND	N	9.6	17.7	58.8
9.826000	42.1	GND	N	9.9	17.9	60.0
10.206000	40.4	GND	N	9.8	19.6	60.0
10.362000	40.6	GND	N	9.9	19.4	60.0
10.670000	40.9	GND	N	9.9	19.1	60.0
10.842000	40.8	GND	N	9.9	19.2	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.354000	24.2	GND	N	9.6	24.7	48.9
0.558000	21.6	GND	N	9.7	24.4	46.0
0.710000	23.2	GND	N	9.5	22.8	46.0
1.162000	23.4	GND	N	9.5	22.6	46.0
11.134000	29.4	GND	N	9.9	20.6	50.0
12.430000	25.3	GND	N	9.9	24.7	50.0

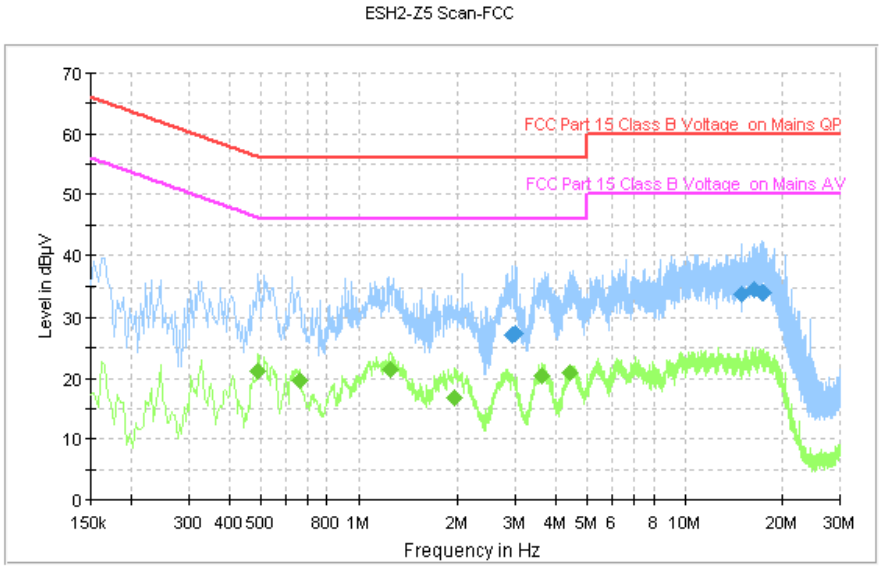


Fig.36 AC Powerline Conducted Emission (Traffic, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.942000	27.2	GND	N	9.6	28.8	56.0
3.006000	27.4	GND	N	9.6	28.6	56.0
14.910000	33.8	GND	N	9.9	26.2	60.0
16.342000	34.6	GND	N	9.9	25.4	60.0
17.282000	34.1	GND	N	9.9	25.9	60.0
17.394000	34.2	GND	N	9.9	25.8	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.490000	21.1	GND	N	9.7	25.0	46.2
0.658000	19.7	GND	N	9.6	26.3	46.0
1.250000	21.3	GND	N	9.6	24.7	46.0
1.950000	16.7	GND	N	9.6	29.3	46.0
3.634000	20.5	GND	N	9.6	25.5	46.0
4.442000	21.0	GND	N	9.6	25.0	46.0

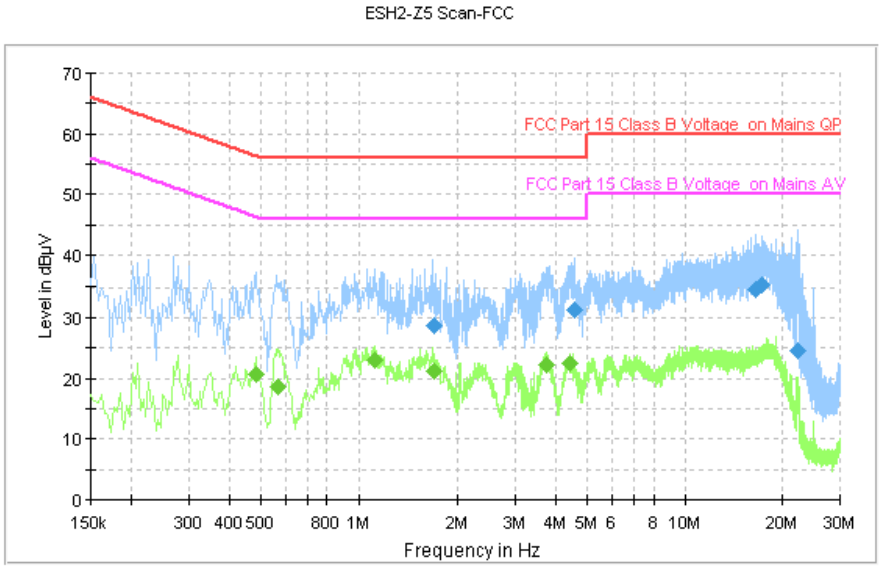


Fig.37 AC Power line Conducted Emission (Idle, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.690000	28.7	GND	N	9.5	27.3	56.0
4.570000	31.2	GND	N	9.6	24.8	56.0
16.586000	34.6	GND	N	9.9	25.4	60.0
17.298000	35.3	GND	N	9.9	24.7	60.0
22.186000	24.5	GND	N	10.0	35.5	60.0
22.246000	24.6	GND	N	10.0	35.4	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.482000	20.8	GND	N	9.7	25.5	46.3
0.566000	18.6	GND	N	9.7	27.4	46.0
1.126000	23.1	GND	N	9.6	22.9	46.0
1.690000	21.1	GND	N	9.5	24.9	46.0
3.730000	22.2	GND	N	9.6	23.8	46.0
4.442000	22.4	GND	N	9.6	23.6	46.0

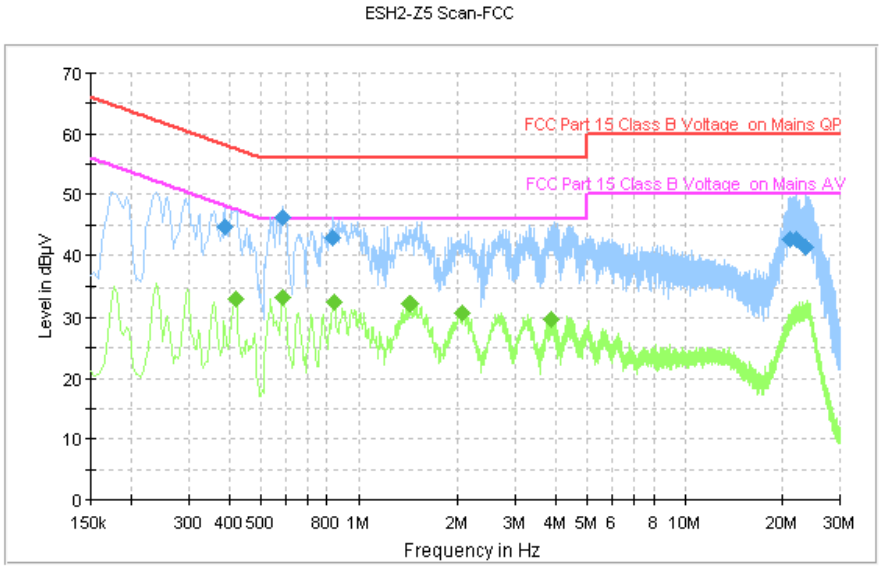


Fig.38 AC Powerline Conducted Emission (Traffic, AE2)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.390000	44.6	GND	N	9.6	13.5	58.1
0.582000	46.4	GND	N	9.6	9.6	56.0
0.834000	42.8	GND	N	9.5	13.2	56.0
21.158000	42.7	GND	N	10.0	17.3	60.0
21.946000	42.6	GND	N	10.0	17.4	60.0
23.558000	41.4	GND	N	10.0	18.6	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.418000	33.2	GND	N	9.7	14.3	47.5
0.586000	33.3	GND	N	9.6	12.7	46.0
0.838000	32.5	GND	N	9.5	13.5	46.0
1.426000	32.4	GND	N	9.5	13.6	46.0
2.074000	30.7	GND	N	9.6	15.3	46.0
3.882000	29.7	GND	N	9.6	16.3	46.0

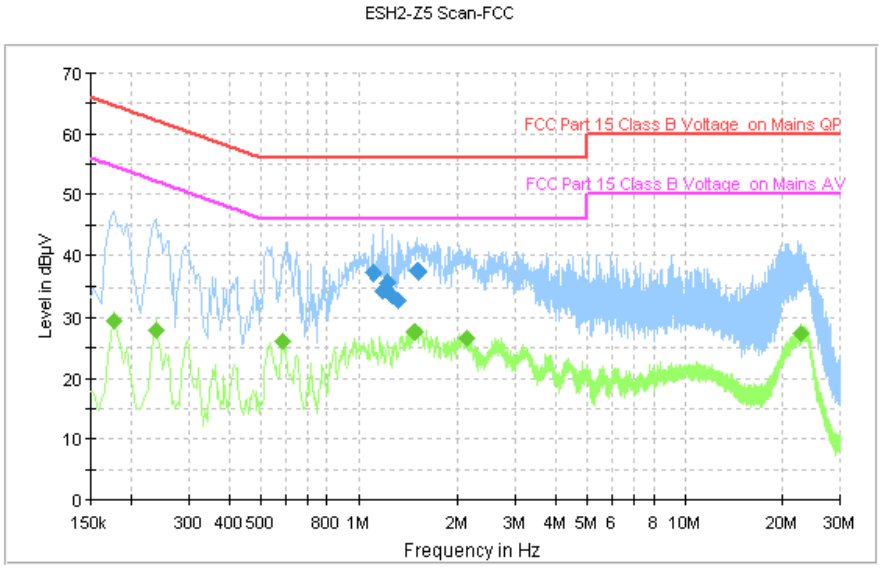


Fig.39 AC Power line Conducted Emission (Idle, AE2)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.106000	37.2	GND	N	9.6	18.8	56.0
1.190000	34.4	GND	N	9.5	21.6	56.0
1.222000	35.6	GND	N	9.6	20.4	56.0
1.274000	33.5	GND	N	9.6	22.5	56.0
1.322000	32.9	GND	N	9.6	23.1	56.0
1.518000	37.5	GND	N	9.6	18.5	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.178000	29.3	GND	N	9.6	25.2	54.6
0.238000	28.0	GND	N	9.6	24.2	52.2
0.582000	26.2	GND	N	9.6	19.8	46.0
1.482000	27.6	GND	N	9.6	18.4	46.0
2.134000	26.7	GND	N	9.6	19.3	46.0
22.838000	27.3	GND	N	10.0	22.7	50.0

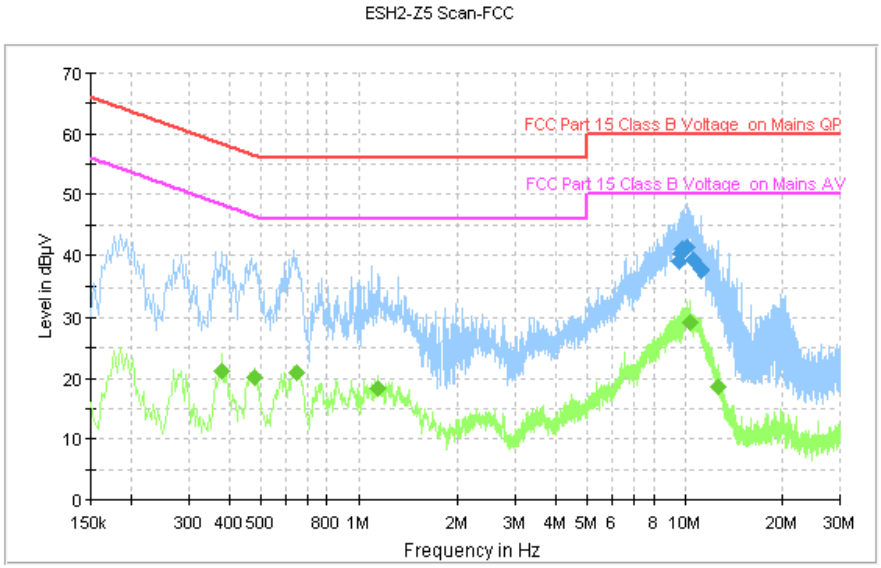


Fig.40 AC Powerline Conducted Emission (Traffic, AE3)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
9.590000	38.9	GND	N	9.9	21.1	60.0
9.738000	40.4	GND	N	9.9	19.6	60.0
9.862000	41.2	GND	N	9.9	18.8	60.0
10.142000	41.4	GND	N	9.8	18.6	60.0
10.554000	39.2	GND	N	9.9	20.8	60.0
11.190000	37.6	GND	N	9.9	22.4	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.378000	21.2	GND	N	9.6	27.2	48.3
0.478000	20.1	GND	N	9.7	26.3	46.4
0.646000	20.9	GND	N	9.6	25.2	46.0
1.150000	18.2	GND	N	9.6	27.8	46.0
10.350000	29.1	GND	N	9.9	20.9	50.0
12.654000	18.5	GND	N	9.9	31.5	50.0

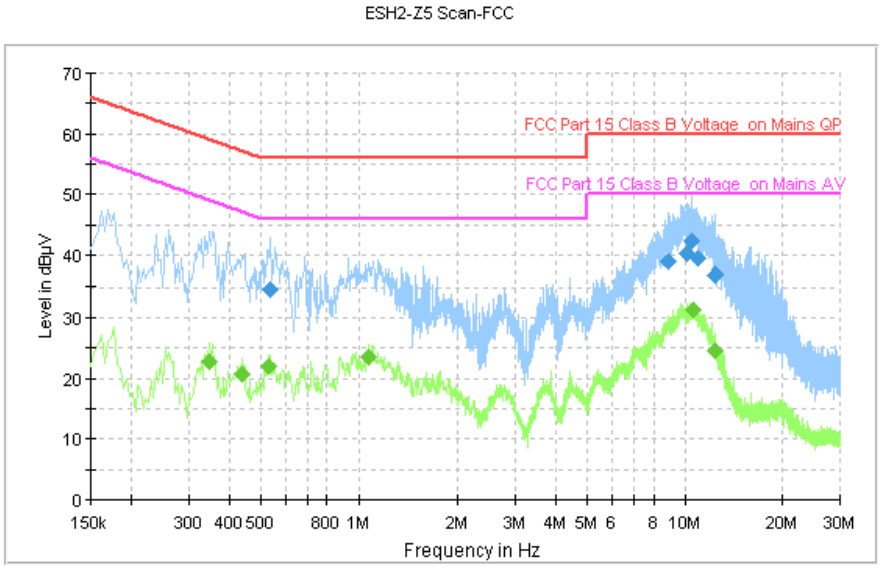


Fig.41 AC Power line Conducted Emission (Idle, AE3)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.538000	34.6	GND	N	9.7	21.4	56.0
8.910000	39.0	GND	N	9.8	21.0	60.0
10.198000	40.2	GND	N	9.8	19.8	60.0
10.534000	42.3	GND	N	9.9	17.7	60.0
10.966000	39.5	GND	N	9.9	20.5	60.0
12.370000	37.0	GND	N	9.9	23.0	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.346000	22.8	GND	N	9.6	26.3	49.1
0.438000	20.6	GND	N	9.7	26.5	47.1
0.530000	21.9	GND	N	9.7	24.1	46.0
1.070000	23.5	GND	N	9.6	22.5	46.0
10.574000	31.2	GND	N	9.9	18.8	50.0
12.410000	24.6	GND	N	9.9	25.4	50.0

ANNEX C: Persons involved in this testing

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

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