



**FCC PART 15C
TEST REPORT
No.I15N00284-BLE**

for

Huawei Technologies Co., Ltd

Smart Phone

Model Name: HUAWEI ALE-L02, ALE-L02

With

Hardware Version: HL3ALICEM

Software Version: ALE-L02 V100R001C900B045

FCC ID: QISALE-L02

Issued Date: Apr 20th, 2015

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.

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REPORT HISTORY

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1. Test Laboratory

1.1. Testing Location

Location1: CTTL(South Branch)

Address: No.12, ShangSha Innovation and Technology Park, Futian District,
Shenzhen, Guangdong, P. R. China 518048

Location2: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R.
China100191

1.2. Testing Environment

Normal Temperature: 15-35°C

Extreme Temperature: -20/+55°C

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2015-03-09

Testing End Date: 2015-03-25

1.4. Signature

Xu Ye

(Prepared this test report)

Tang Weisheng

(Reviewed this test report)

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(Approved this test report)



2. Client Information

2.1. Applicant Information

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2.2. Manufacturer Information

Company Name: Huawei Technologies Co., Ltd.
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Postal Code: /
Country: China
Telephone: 029-89282965
Fax: /

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

3.1. About EUT

Description	Smart Phone
Model Name	HUAWEI ALE-L02, ALE-L02
Market Name	/
Frequency Band	2402MHz~2480MHz
Type of Modulation	GFSK
Number of Channels	40
FCC ID	QISALE-L02

*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
EUT1	/	HL3ALICEM	ALE-L02 V100R001C900B045

*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	Charger	HW-050100U01_yingju	/
AE2	Charger	HW-050100U01_BYD	/
AE3	Charger	HW-050100U2W_BYD	/
AE4	Charger	HW-050100U2W_hangjia	/
AE5	Charger	HW-050100B01_hangjia	/
AE6	Charger	HW-050100B01_dahong	/

*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.	Oct, 2014
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009
KDB558074	Measurement of Digital Transmission Systems Operating under Section 15.247	Jun, 2014

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

The hardware of HUAWEI ALE-L02 and HUAWEI ALE-L23 are the same. The test bases on the model HUAWEI ALE-L23.

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

5.4. Laboratory Environment

Semi-anechoic chamber (23 meters×17 meters×10 meters) did not exceed following limits:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 M
Ground system resistance	< 4
Normalised site attenuation (NSA)	< ± 4 dB, 3m/10m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
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. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 M
Ground system resistance	< 4

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	2015-04-22	1 year

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Chamber	FACT10-3	SAC-1	ETS-Lindgren	2016-03-27	3 years
2	Test Receiver	ESU26	100235	Rohde & Schwarz	2016-03-02	1 year
3	Test Receiver	ESCI 7	100948	Rohde & Schwarz	2015-07-16	1 year
4	LISN	ESH2-Z5	100196	Rohde & Schwarz	2016-01-13	1 year
5	Loop Antenna	HFH2-Z2	829324/007	Rohde & Schwarz	2017-12-16	3 years
6	EMI Antenna	VULB9163	9163-234	Schwarzbeck	2016-09-15	3 years
7	EMI Antenna	3115	6914	ETS-Lindgren	2017-12-15	3 years
8	EMI Antenna	3116	2661	ETS-Lindgren	2017-06-17	3 years

Anechoic chamber

Fully anechoic chamber by ETS-Lindgren.

ANNEX A: EUT photograph



Picture A-1: Mobile Phone



Picture A-2: Mobile Phone



Picture A-3: Charger(AE1)



Picture A-4: Charger(AE2)



Picture A-5: Charger(AE3)



Picture A-6: Charger(AE4)



Picture A-7: Charger(AE5)



Picture A-8: Charger(AE6)



ANNEX B: MEASUREMENT RESULTS FOR RECEIVER

B.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 -2.0 dBi.

The RF transmitter uses an integrate antenna without connector.

B.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	5.94	Fig.1	P
	19	7.27	Fig.2	P
	39	4.84	Fig.3	P

See ANNEX C for test graphs.

Conclusion: Pass

B.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	-10.13	P
	19	Fig.5	-8.91	P
	39	Fig.6	-11.25	P

See ANNEX C for test graphs.

Conclusion: PASS

B.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	709.1	P
	19	Fig.8	701.9	P
	39	Fig.9	738.1	P

See ANNEX C for test graphs.

Conclusion: PASS

B.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

B.5 Transmitter Spurious Emission

B.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

B.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(μ V/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 mode

Channel	Frequency Range	AE	Test Results	Conclusion
19	30 MHz ~1 GHz	AE1	Fig.22	P
		AE2	Fig.23	P
		AE3	Fig.24	P
		AE4	Fig.25	P
		AE5	Fig.26	P
		AE6	Fig.27	P

Note:

The testing shall be performed on middle channel firstly. If there is no emission signal received, the low and high channel could be ignored . Otherwise the testing shall be performed on low , middle and high channel for each frequency ranges and modulations.

Mode	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	1 GHz ~3 GHz	Fig.28	P
		3 GHz ~ 18 GHz	Fig.29	P
	19	1 GHz ~3 GHz	Fig.30	P
		3 GHz ~ 18 GHz	Fig.31	P
	39	1 GHz ~3 GHz	Fig.32	P
		3 GHz ~ 18 GHz	Fig.33	P
	Power(CH0)	2.38 GHz ~ 2.45 GHz	Fig.34	P
	Power(CH78)	2.45 GHz ~ 2.5 GHz	Fig.35	P
/	All channels	18 GHz~ 26.5 GHz	Fig.36	P

GFSK CH0 (1-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBμV/m)
2389.500	47.5	-38.8	27.7	58.6	V	74.0
17881.875	58.5	-18.5	45.6	31.4	V	74.0
17885.625	57.7	-18.5	45.6	30.6	H	74.0
17875.313	57.6	-18.5	45.6	30.5	V	74.0
17968.125	57.6	-17.7	45.6	29.7	V	74.0
17873.438	57.4	-18.5	45.6	30.3	H	74.0

Frequency (MHz)	Average (dBμV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBμV/m)
2388.906	34.9	-38.8	27.7	46.0	V	54.0
17882.813	46.5	-18.5	45.6	19.4	V	54.0
17879.063	46.4	-18.5	45.6	19.3	H	54.0
17892.188	46.3	-18.5	45.6	19.2	V	54.0
17876.250	46.2	-18.5	45.6	19.1	V	54.0
17870.625	46.2	-18.5	45.6	19.1	H	54.0

GFSK CH19 (1-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dBμV/m)
17877.188	57.9	-18.5	45.6	30.8	V	74.0
17903.438	57.5	-18.5	45.6	30.4	V	74.0
17923.125	57.4	-17.7	45.6	29.5	V	74.0
17985.938	57.3	-17.7	45.6	29.4	V	74.0
17917.500	57.3	-17.7	45.6	29.4	V	74.0
17889.375	57.0	-18.5	45.6	29.9	H	74.0

Frequency (MHz)	Average (dB μ V/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dB μ V/m)
17903.438	46.4	-18.5	45.6	19.3	V	54.0
17866.875	46.4	-18.5	45.6	19.3	V	54.0
17883.750	46.3	-18.5	45.6	19.2	V	54.0
17880.938	46.2	-18.5	45.6	19.1	V	54.0
17878.125	46.2	-18.5	45.6	19.1	V	54.0
17876.250	46.1	-18.5	45.6	19.0	H	54.0

GFSK CH39 (1-18GHz)

Frequency (MHz)	MaxPeak (dB μ V/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dB μ V/m)
2483.513	55.5	-38.9	27.7	66.7	H	74.0
17877.188	57.7	-18.5	45.6	30.6	H	74.0
17894.063	57.5	-18.5	45.6	30.4	V	74.0
17857.500	57.3	-18.5	45.6	30.2	H	74.0
17832.188	57.2	-18.5	45.6	30.1	V	74.0
17887.500	57.1	-18.5	45.6	30.0	V	74.0

Frequency (MHz)	Average (dB μ V/m)	Pathloss. (dB)	antenna factor	Receiver (dBm)	Polarization	Limit (dB μ V/m)
2483.506	43.9	-38.9	27.7	55.1	H	54.0
17895.938	46.3	-18.5	45.6	19.2	H	54.0
17879.063	46.3	-18.5	45.6	19.2	V	54.0
17876.250	46.2	-18.5	45.6	19.1	H	54.0
17885.625	46.2	-18.5	45.6	19.1	V	54.0
17886.563	46.2	-18.5	45.6	19.1	V	54.0



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= $P_{Mea}+A_{Rpl}= P_{Mea}+Cable Loss+Antenna Factor$

B.6 AC Powerline Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:

BT (Quasi-peak Limit)-AE1

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.

BT (Average Limit)-AE1

Frequency range (MHz)	Average-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.

BT (Quasi-peak Limit)-AE2

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.

BT (Average Limit)-AE2

Frequency range (MHz)	Average-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.

BT (Quasi-peak Limit)-AE3

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.			

BT (Average Limit)-AE3

Frequency range (MHz)	Average-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.			

BT (Quasi-peak Limit)-AE4

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.			

BT (Average Limit)-AE4

Frequency range (MHz)	Average-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.			

BT (Quasi-peak Limit)-AE5

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.

BT (Average Limit)-AE5

Frequency range (MHz)	Average-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
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.

BT (Quasi-peak Limit)-AE6

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
0.15 to 0.5	66 to 56	Fig.42	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.

BT (Average Limit)-AE6

Frequency range (MHz)	Average-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Traffic	
0.15 to 0.5	56 to 46	Fig.42	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.

BT (Quasi-peak Limit)-AE1

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Idle	
0.15 to 0.5	66 to 56	Fig.43	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.

BT (Average Limit)-AE1

Frequency range (MHz)	Average-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		Idle	
0.15 to 0.5	56 to 46	Fig.43	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

ANNEX C: TEST FIGURE LIST

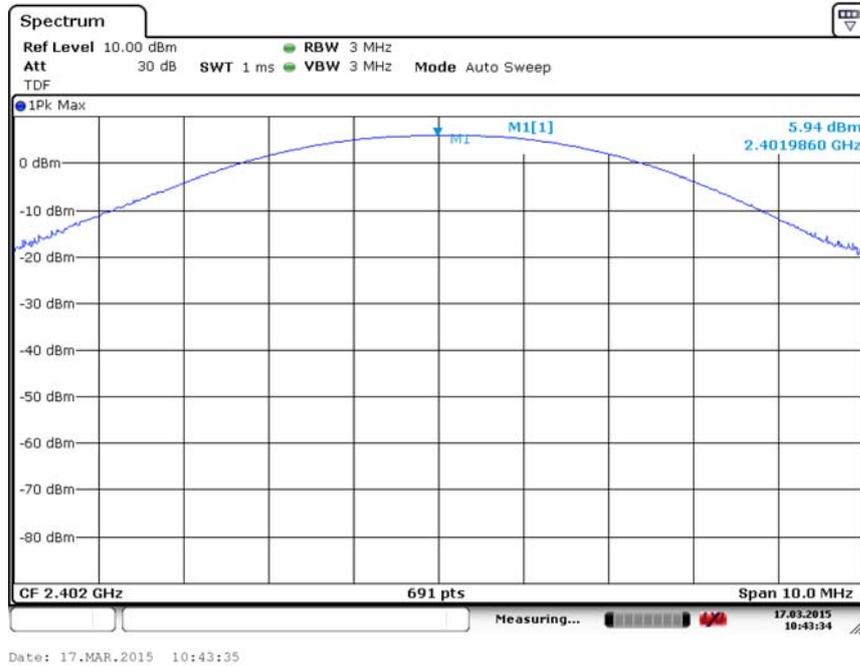


Fig.1 Maximum Peak Output Power(GFSK, Ch 0)

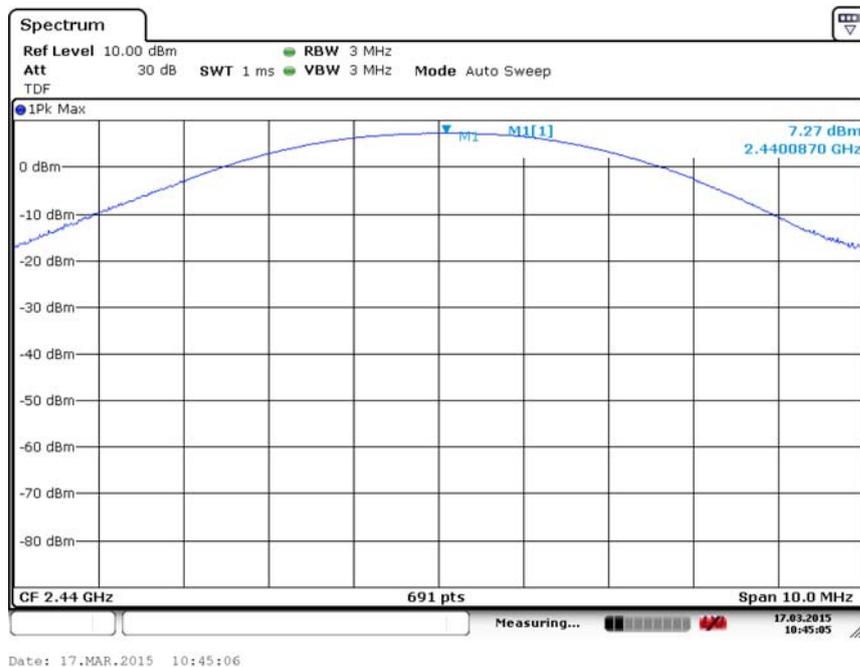


Fig.2 Maximum Peak Output Power(GFSK, Ch 19)

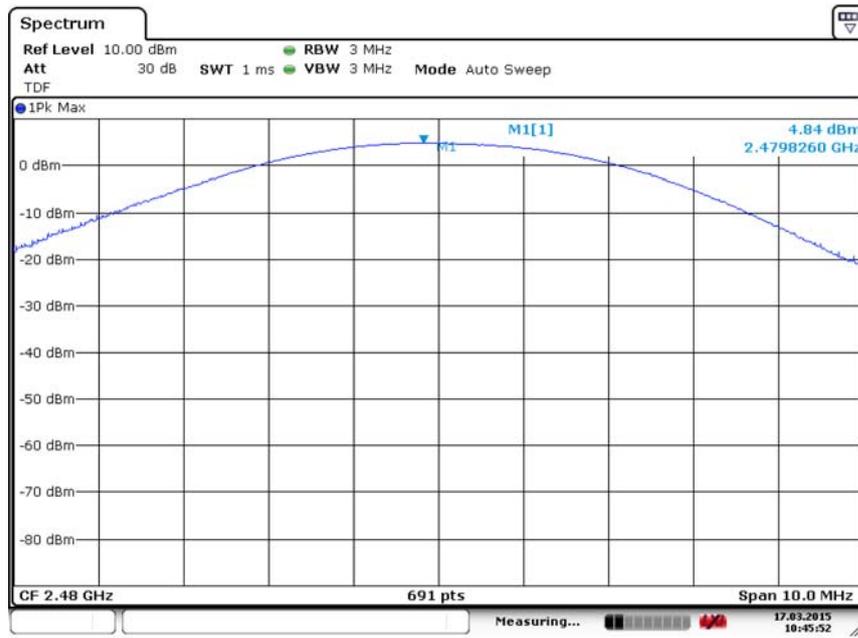


Fig.3 Maximum Peak Output Power(GFSK, Ch 39)

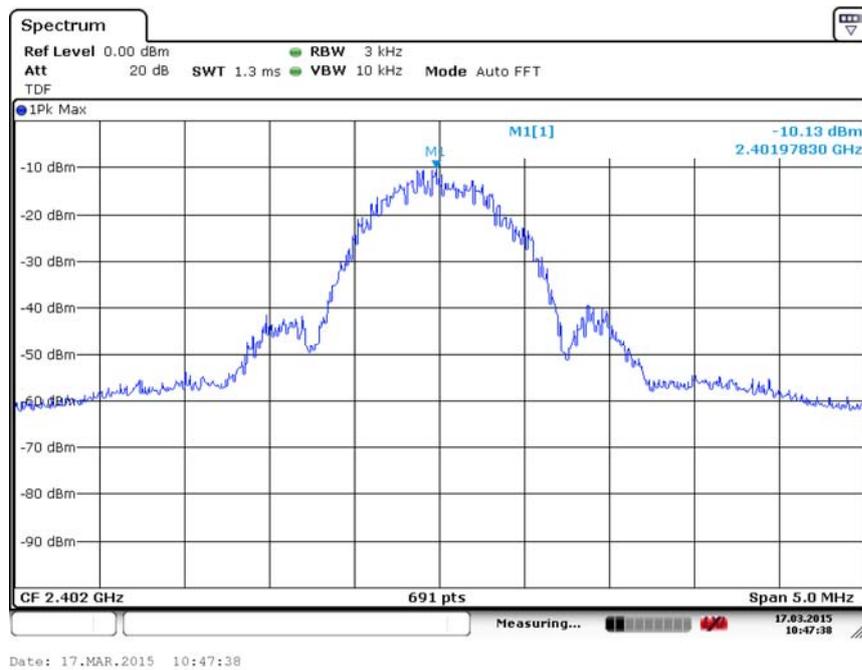


Fig.4 Power Spectral Density (Ch 0)

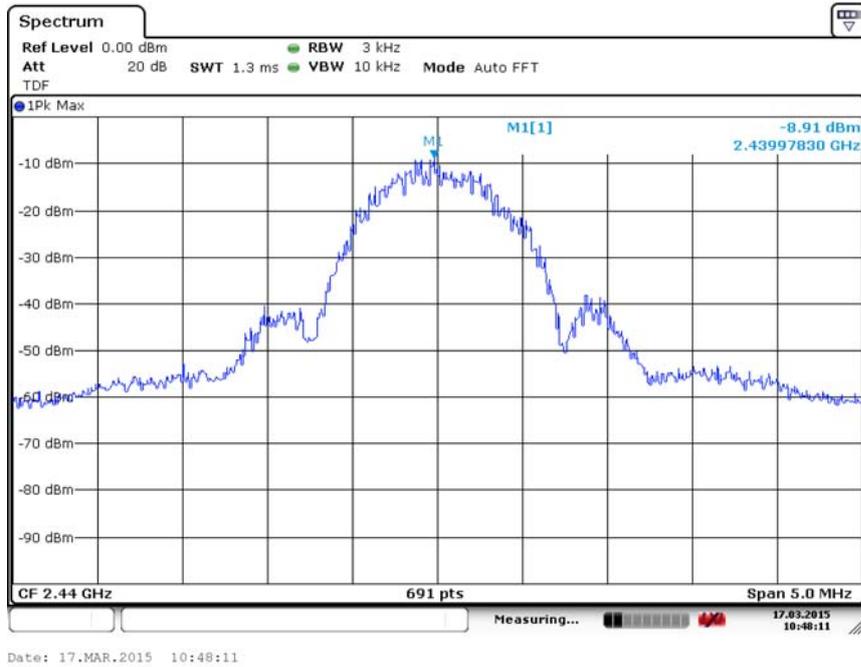


Fig.5 Power Spectral Density (Ch 19)

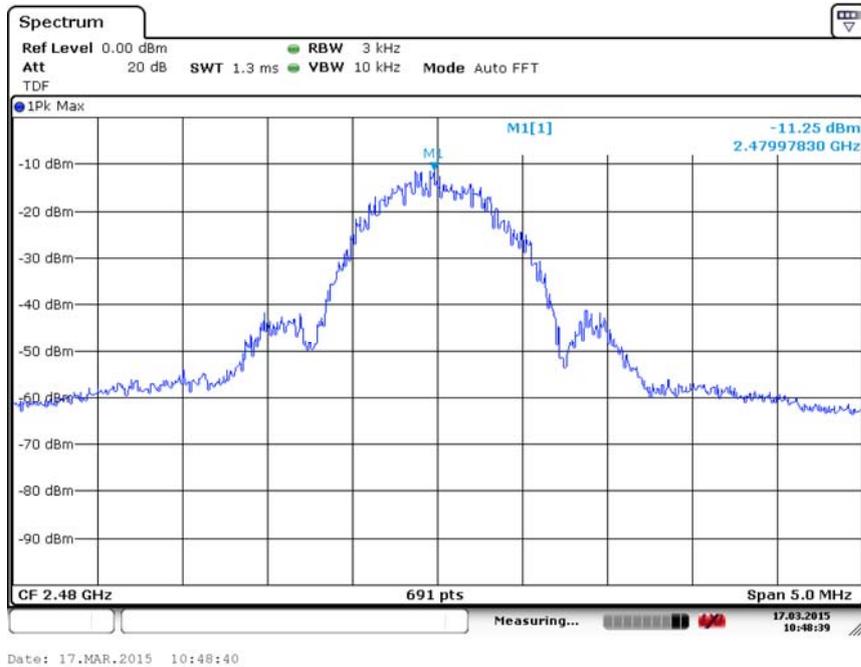


Fig.6 Power Spectral Density (Ch 39)

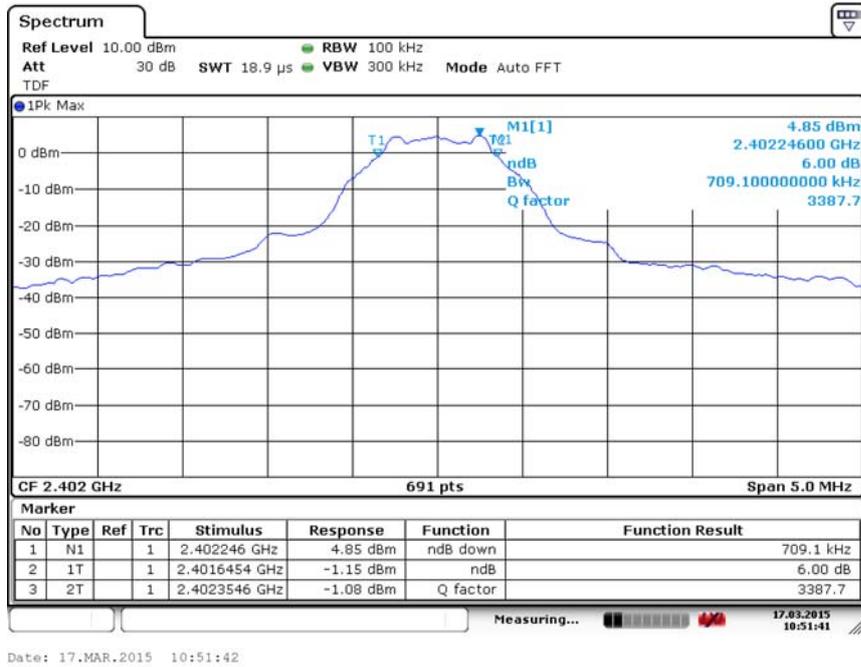


Fig.7 Occupied 6dB Bandwidth (Ch 0)

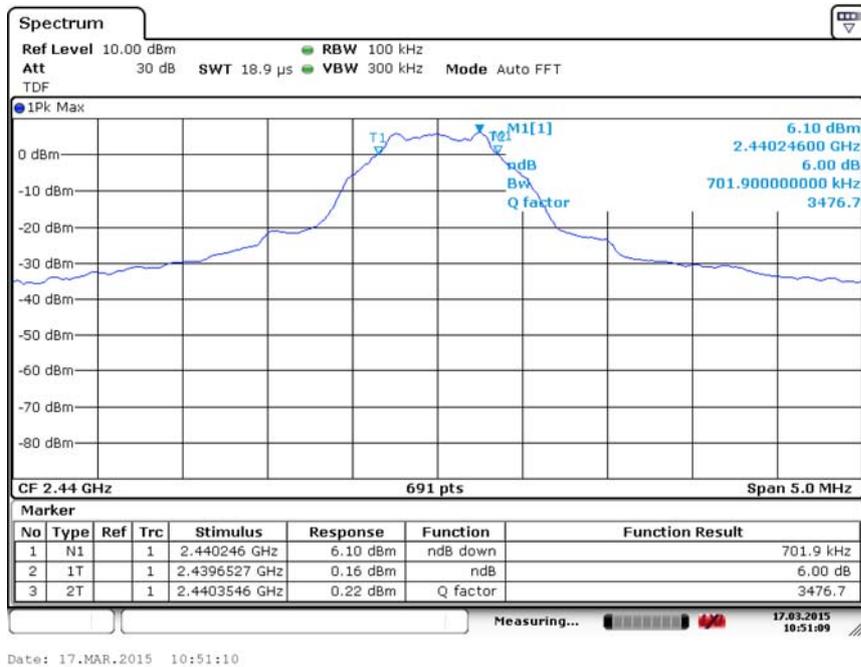


Fig.8 Occupied 6dB Bandwidth (Ch 19)

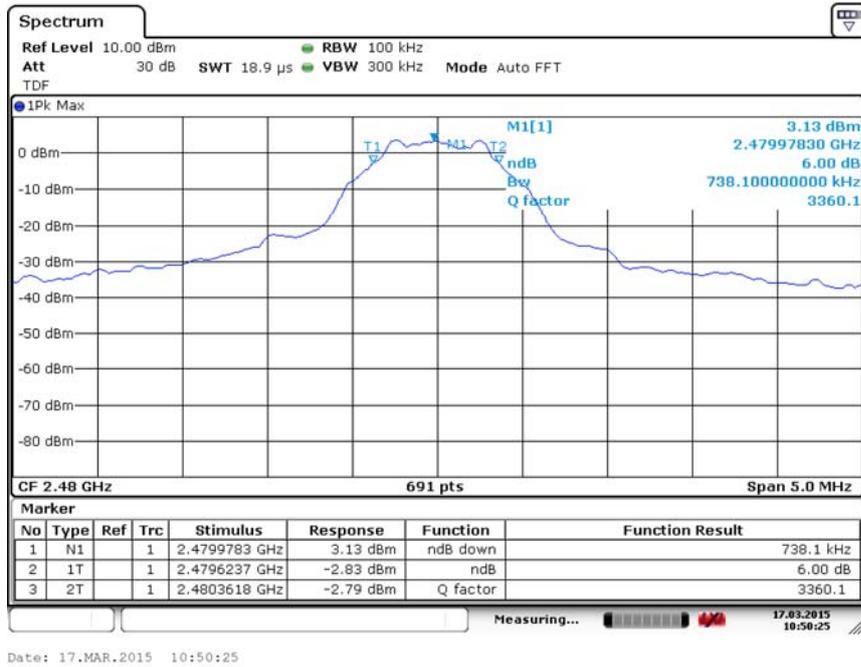


Fig.9 Occupied 6dB Bandwidth (Ch 39)

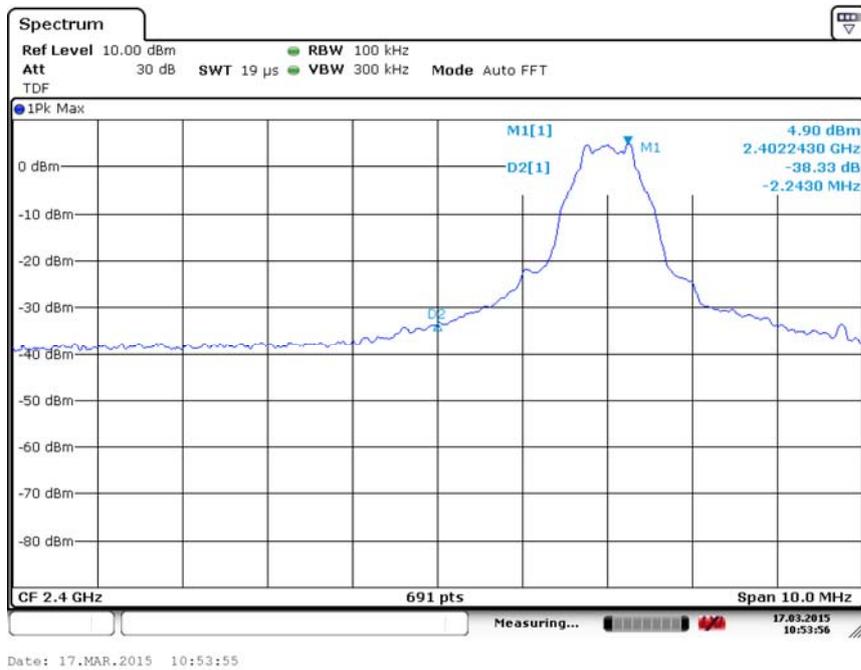


Fig.10 Band Edges (Ch 0)

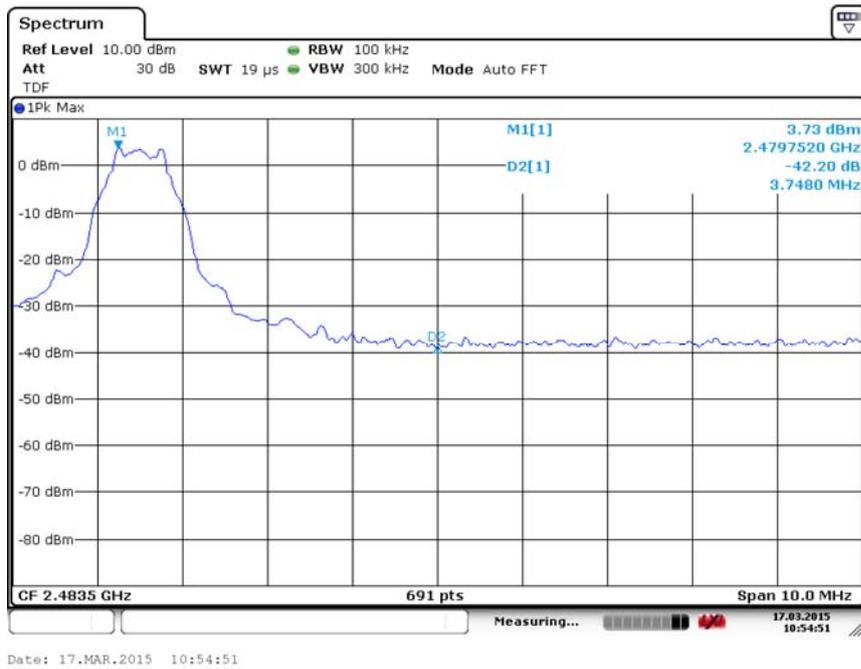


Fig.11 Band Edges (Ch 39)



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

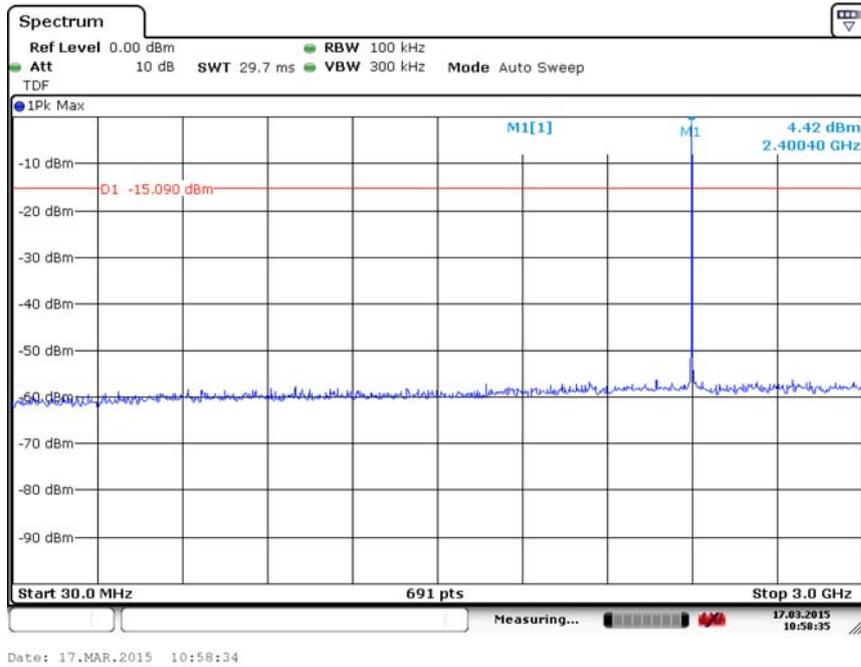


Fig.13 Conducted Spurious Emission (Ch0, 30 MHz-3 GHz)

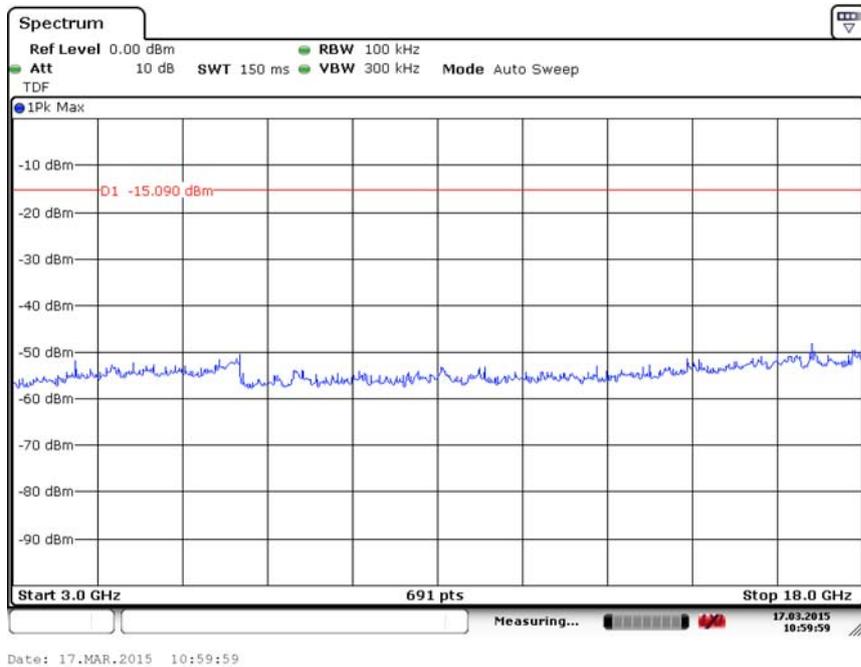


Fig.14 Conducted Spurious Emission (Ch0, 3 GHz-18 GHz)



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

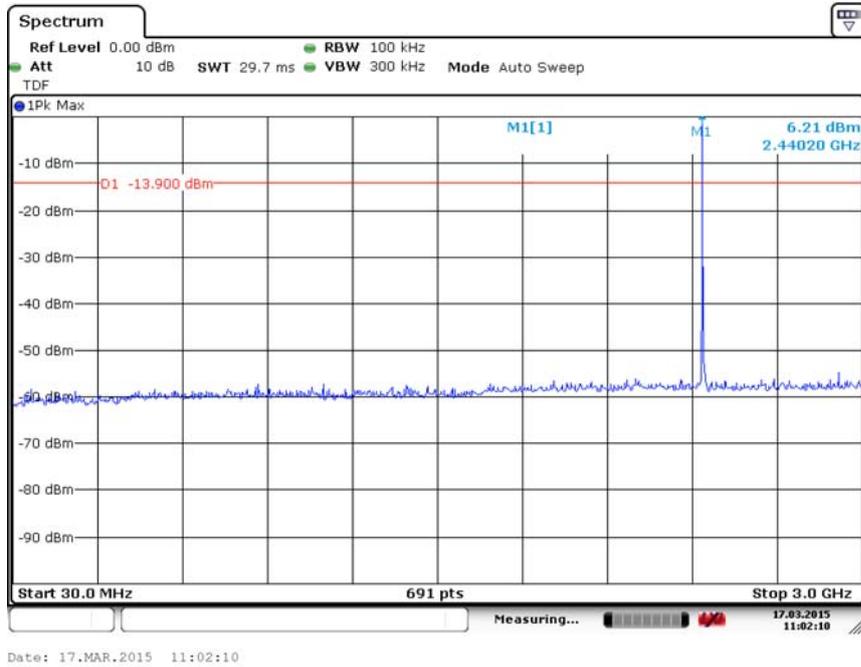


Fig.16 Conducted Spurious Emission (Ch19, 30 MHz-3 GHz)

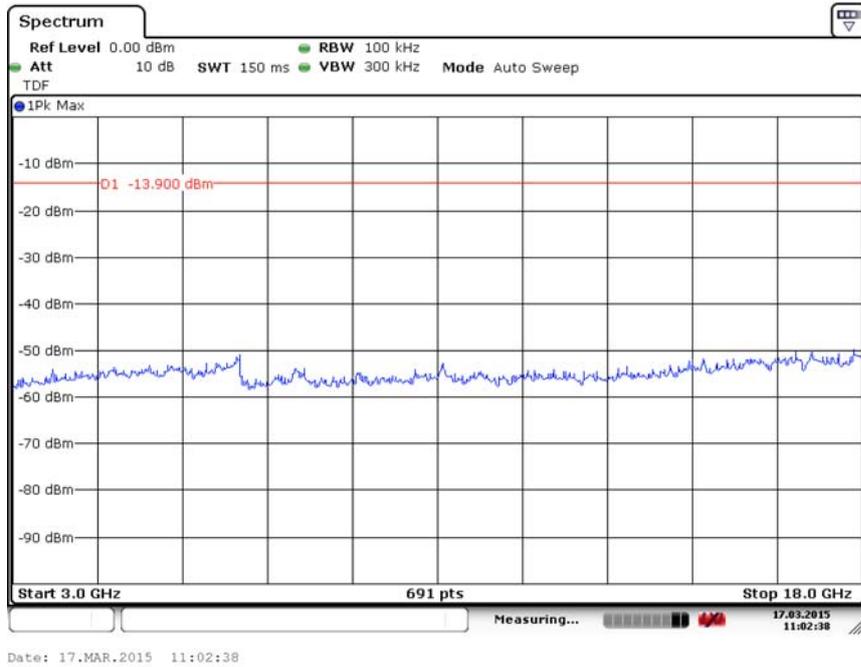


Fig.17 Conducted Spurious Emission (Ch19, 3 GHz-18 GHz)

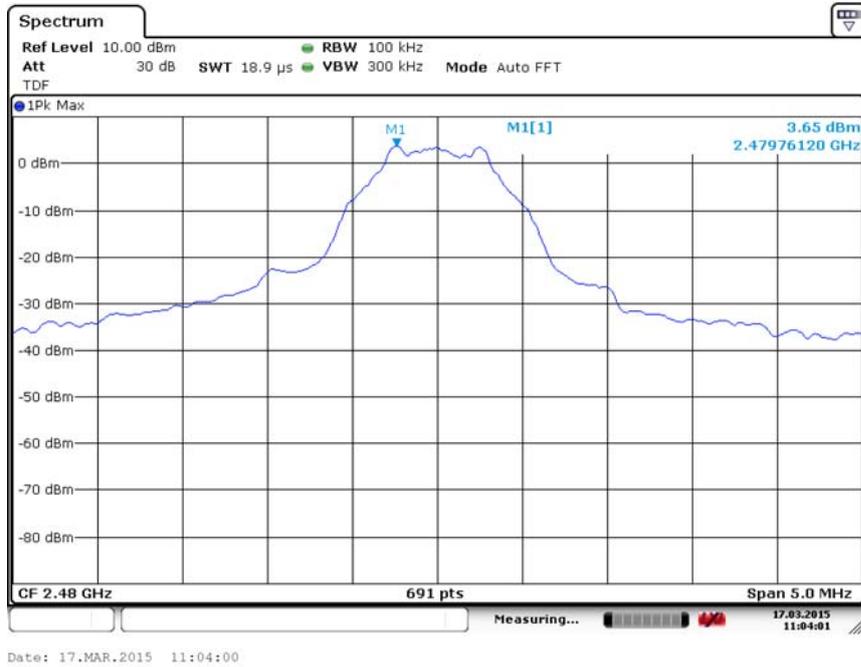


Fig.18 Conducted Spurious Emission (Ch39, Center Frequency)

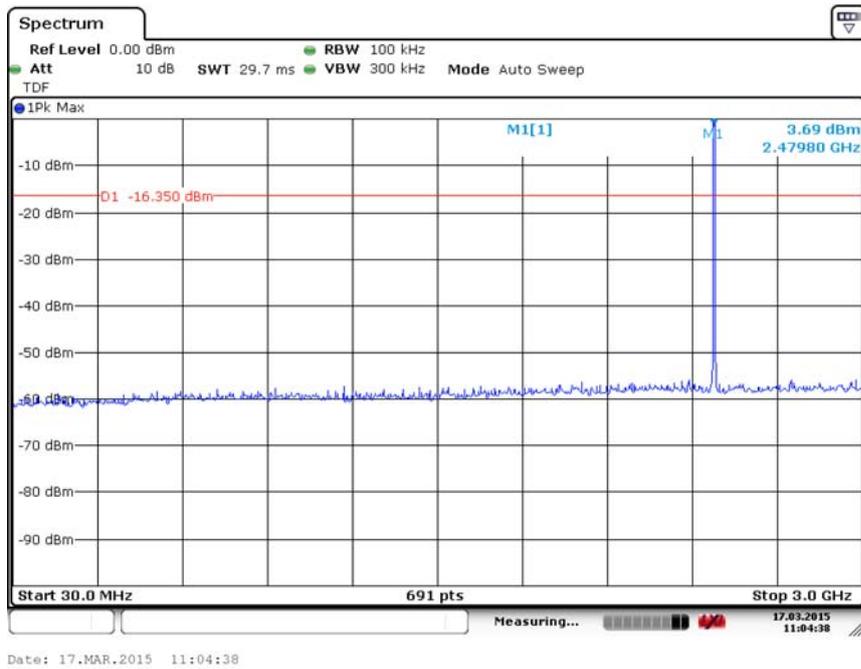


Fig.19 Conducted Spurious Emission (Ch39, 30 MHz-3 GHz)

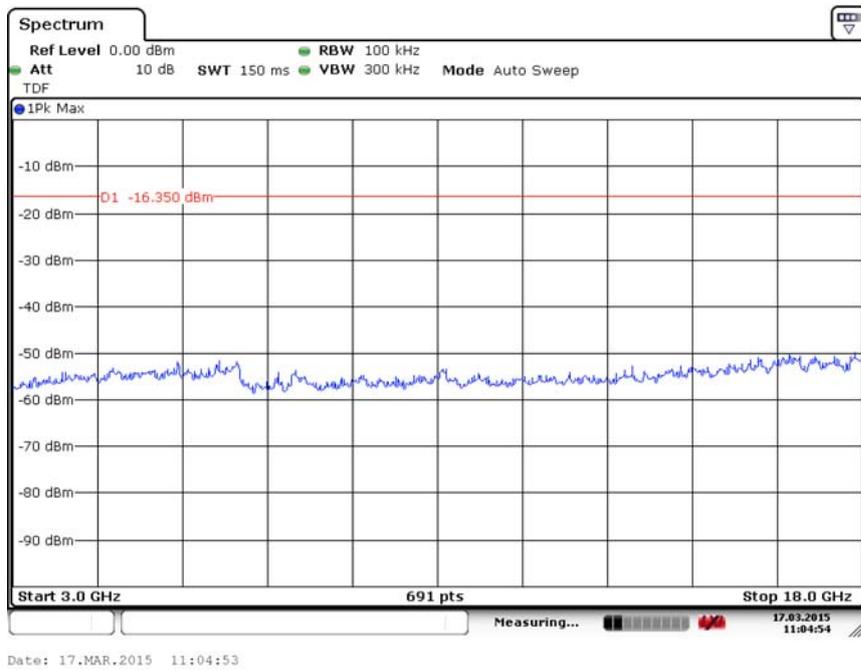


Fig.20 Conducted Spurious Emission (Ch39, 3 GHz-18 GHz)

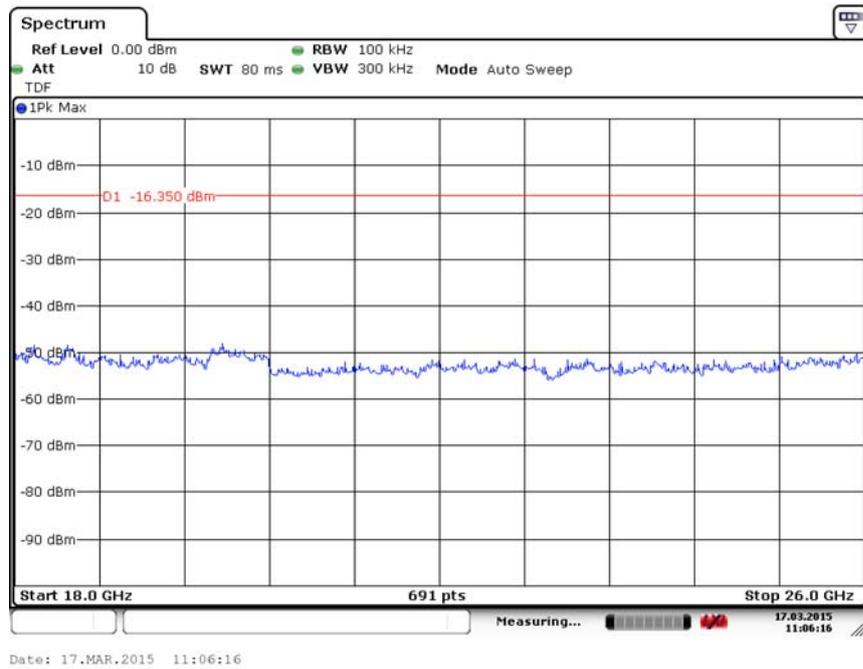


Fig.21 Conducted Spurious Emission (All channels, 18 GHz-26 GHz)

Normal RE_30M-1GHz_10m

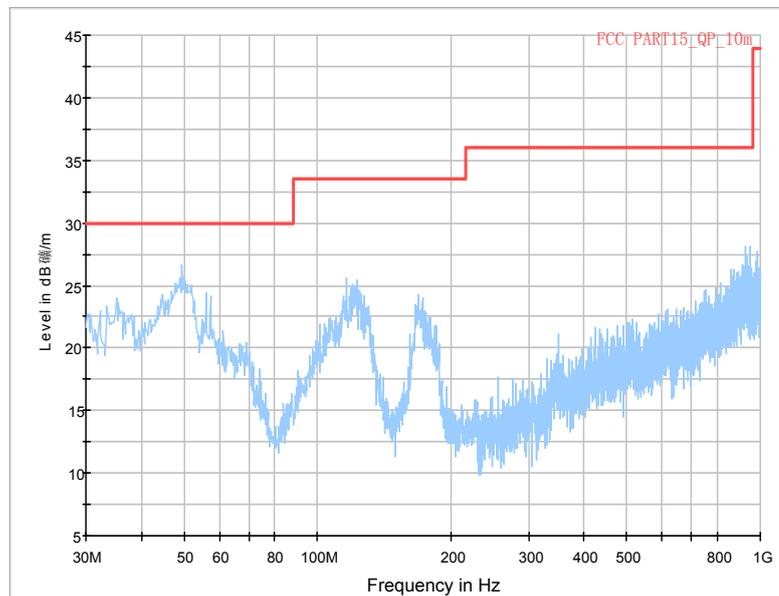


Fig. 22 Radiated Spurious Emission (GFSK, Ch0, 30 MHz ~1 GHz,AE1)

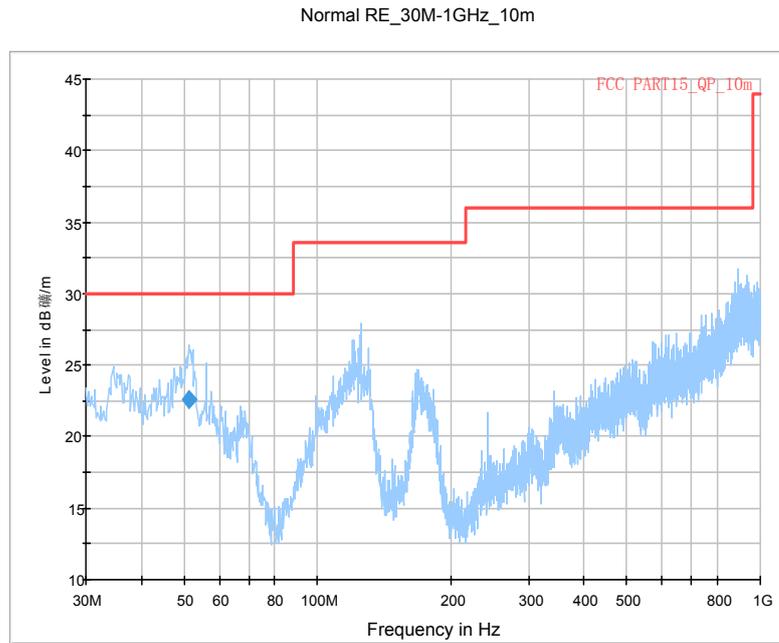


Fig. 23 Radiated Spurious Emission (GFSK, Ch0, 30 MHz ~1 GHz,AE2)

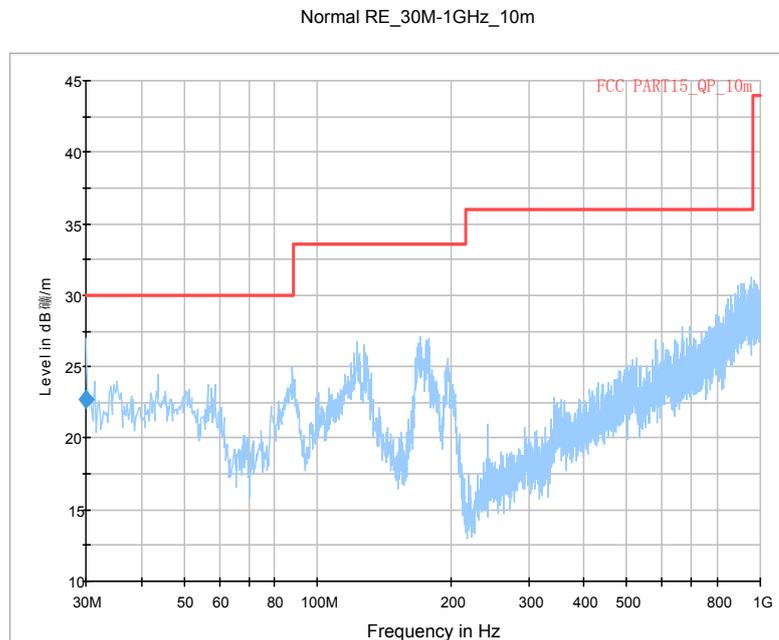


Fig. 24 Radiated Spurious Emission (GFSK, Ch0, 30 MHz ~1 GHz,AE3)

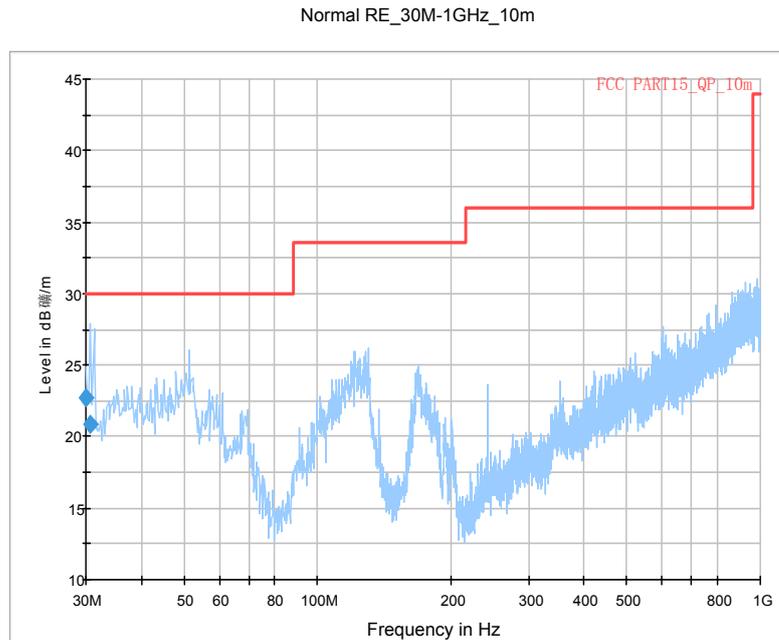


Fig. 25 Radiated Spurious Emission (GFSK, Ch0, 30 MHz ~1 GHz,AE4)

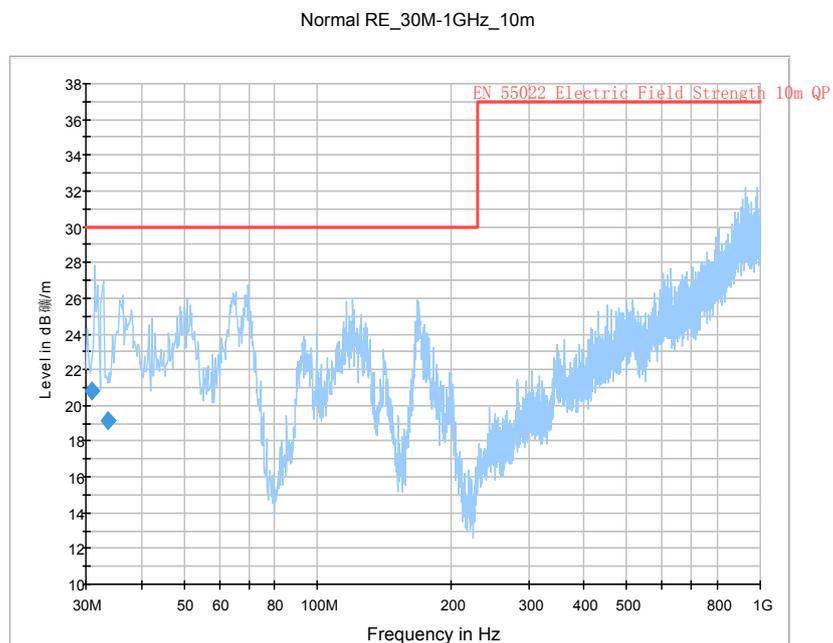


Fig. 26 Radiated Spurious Emission (GFSK, Ch0, 30 MHz ~1 GHz,AE5)

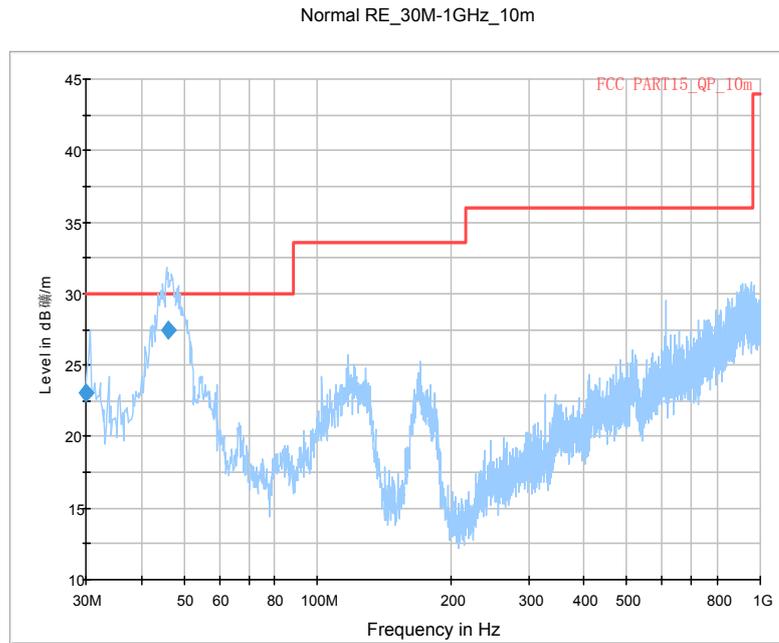


Fig. 27 Radiated Spurious Emission (GFSK, Ch0, 30 MHz ~1 GHz,AE6)

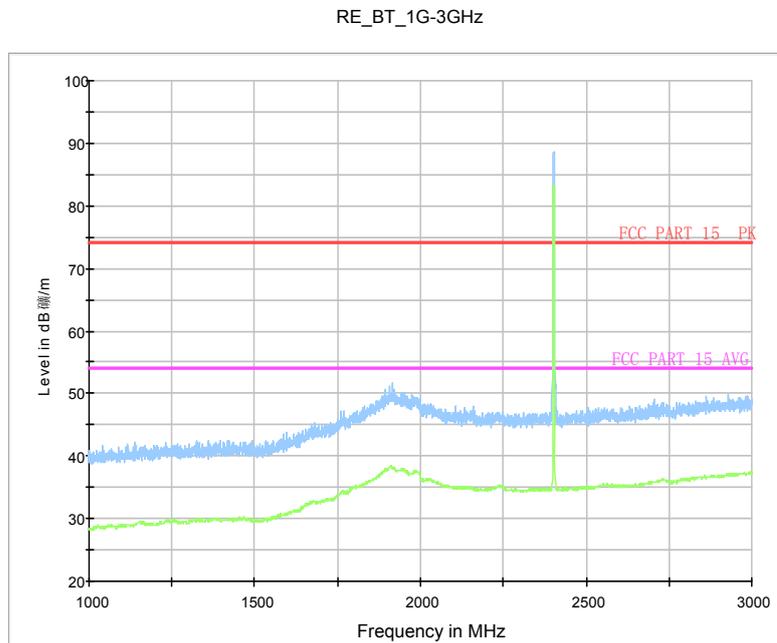


Fig.28 Radiated Spurious Emission (Ch0, 1 GHz-3 GHz)

Normal RE_3G-18GHz

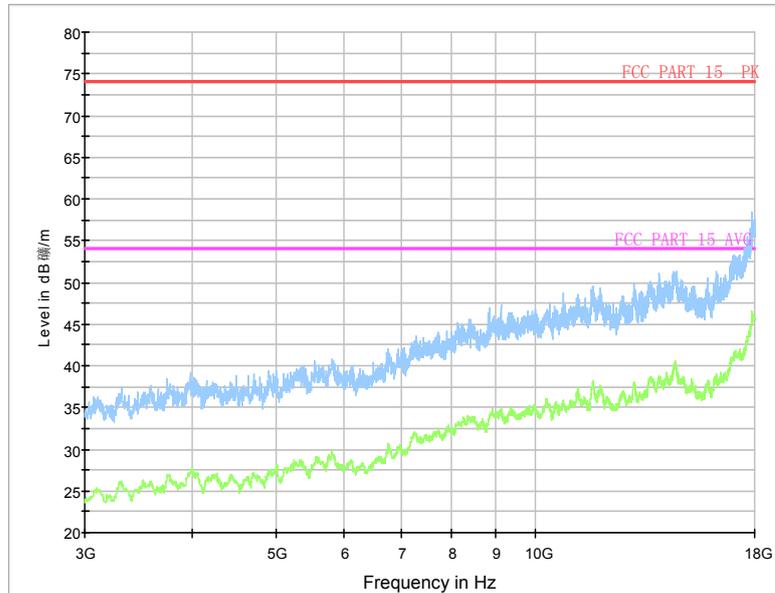


Fig.29 Radiated Spurious Emission (Ch0, 3 GHz-18 GHz)

RE_BT_1G-3GHz

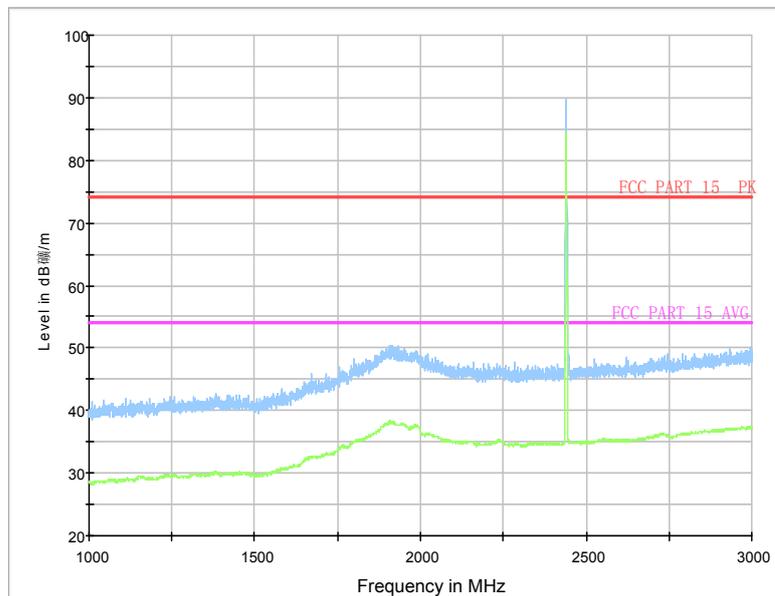


Fig.30 Radiated Spurious Emission (Ch19, 1 GHz-3 GHz)

Normal RE_3G-18GHz

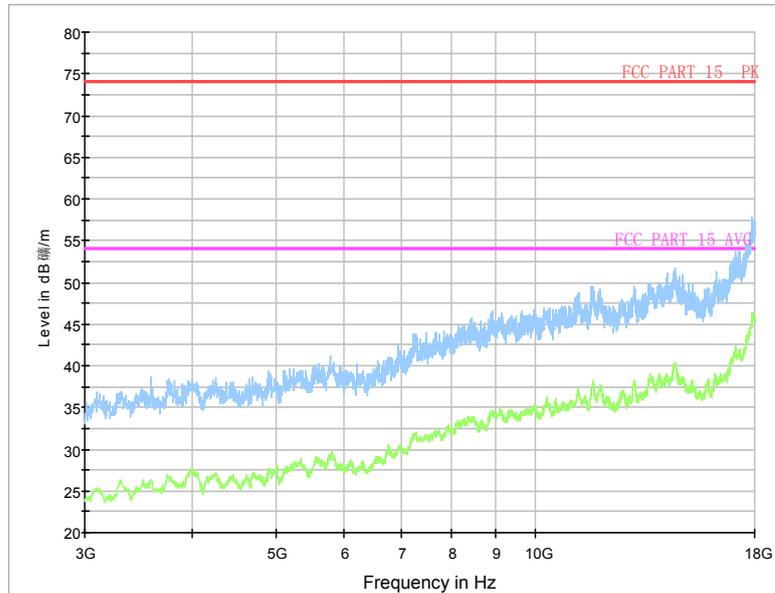


Fig.31 Radiated Spurious Emission (Ch19, 3 GHz-18 GHz)

RE_BT_1G-3GHz

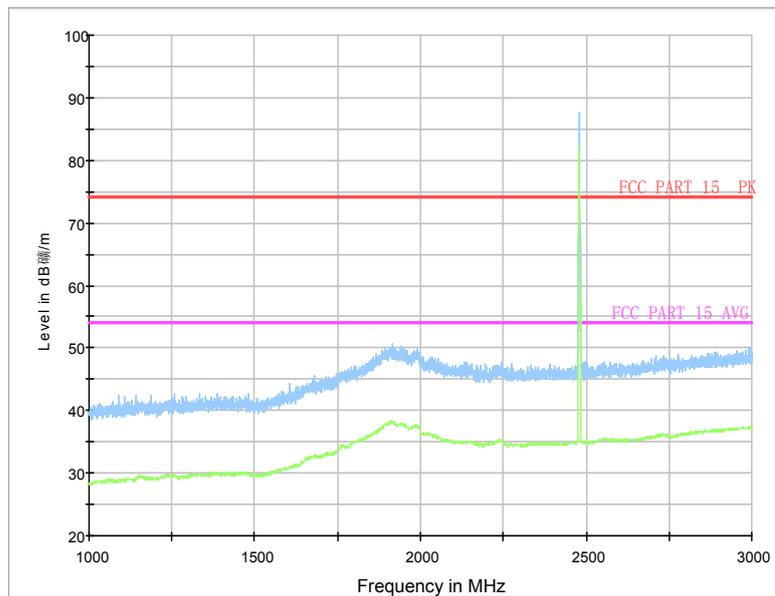


Fig.32 Radiated Spurious Emission (Ch39, 1 GHz-3 GHz)

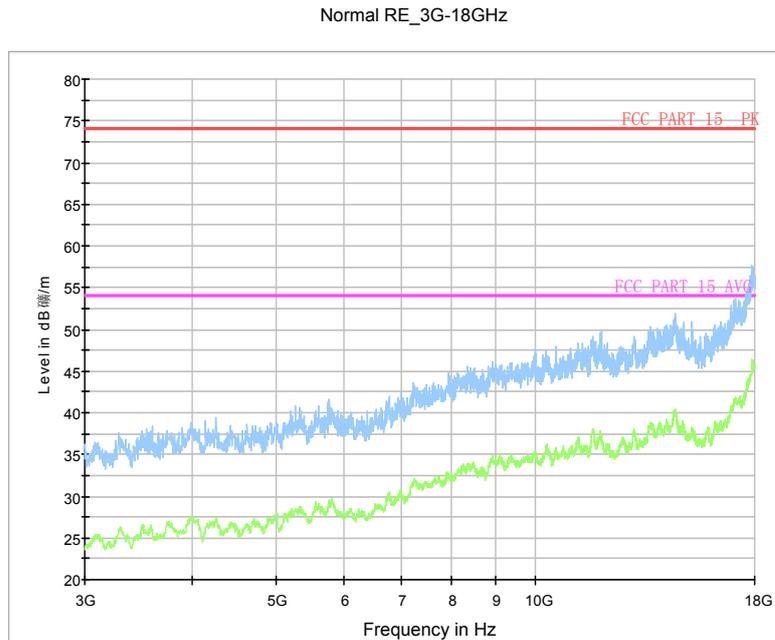


Fig.33 Radiated Spurious Emission (Ch39, 3 GHz-18 GHz)

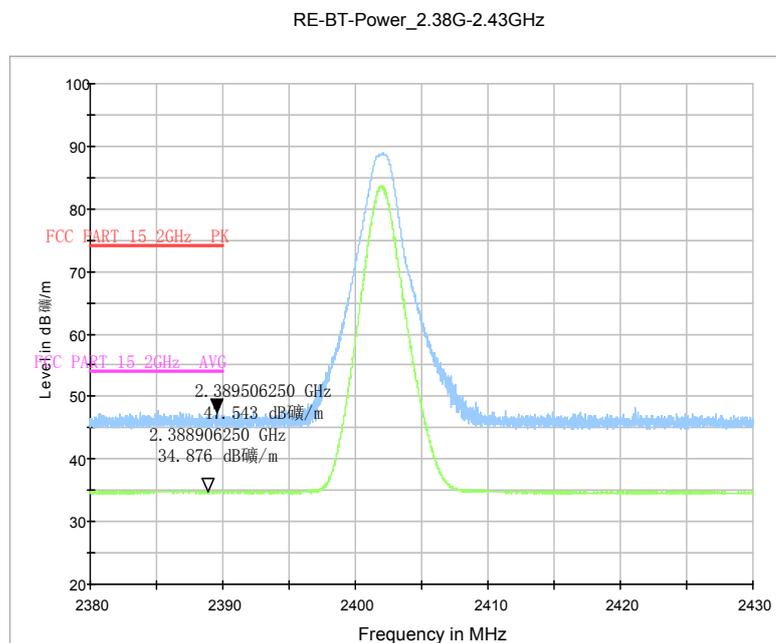


Fig.34 Radiated Emission Power (GFSK, Ch0, 2380GHz~2450GHz)



Fig.35 Radiated Emission Power (GFSK, Ch39, 2450GHz~2500GHz)

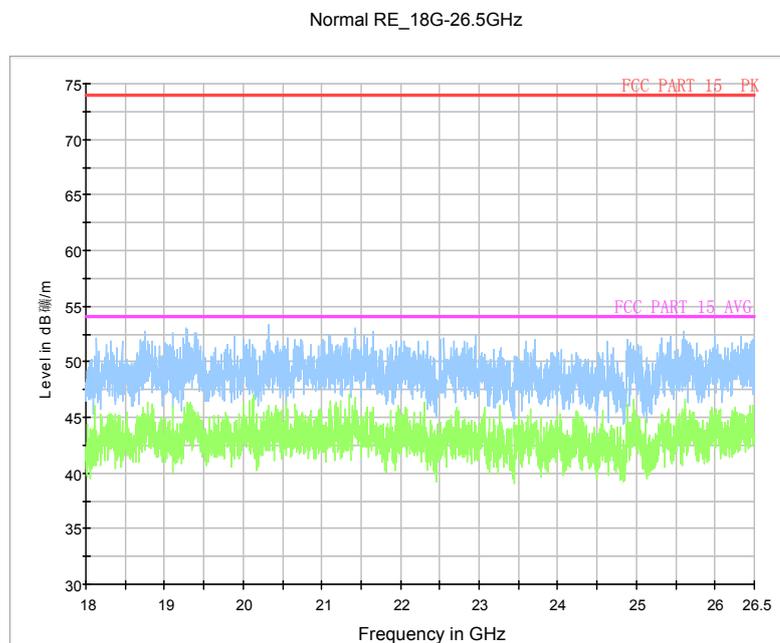


Fig.36 Radiated emission: 18 GHz – 26.5 GHz

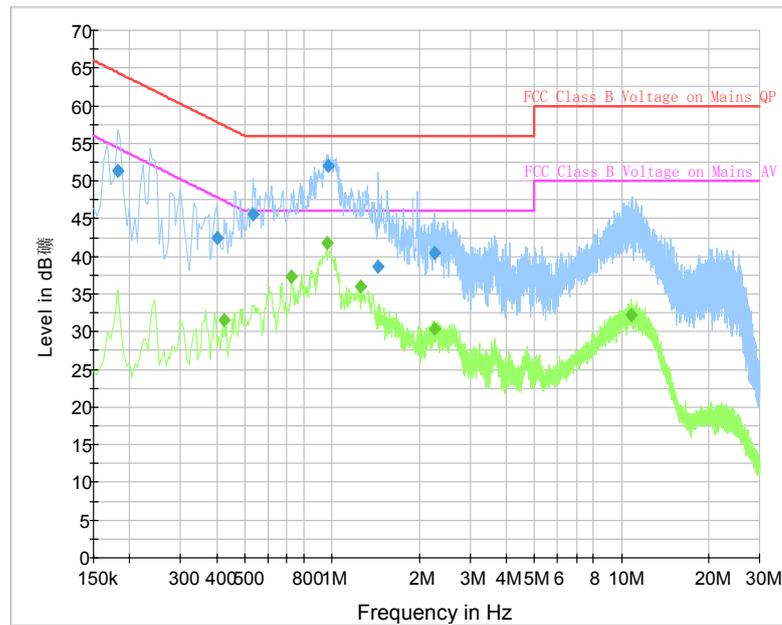


Fig. 37 AC Power line Conducted Emission (Traffic, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	51.3	2000.0	9.000	On	L1	19.7	13.1	64.4
0.402000	42.4	2000.0	9.000	On	N	19.8	15.4	57.8
0.532500	45.6	2000.0	9.000	On	N	19.8	10.4	56.0
0.969000	52.0	2000.0	9.000	On	L1	19.7	4.0	56.0
1.446000	38.6	2000.0	9.000	On	N	19.7	17.4	56.0
2.260500	40.4	2000.0	9.000	On	L1	19.6	15.6	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.424500	31.5	2000.0	9.000	On	L1	19.8	15.8	47.4
0.721500	37.3	2000.0	9.000	On	L1	19.8	8.7	46.0
0.960000	41.7	2000.0	9.000	On	L1	19.7	4.3	46.0
1.257000	36.0	2000.0	9.000	On	L1	19.7	10.0	46.0
2.260500	30.4	2000.0	9.000	On	L1	19.6	15.6	46.0
10.788000	32.2	2000.0	9.000	On	L1	19.9	17.8	50.0

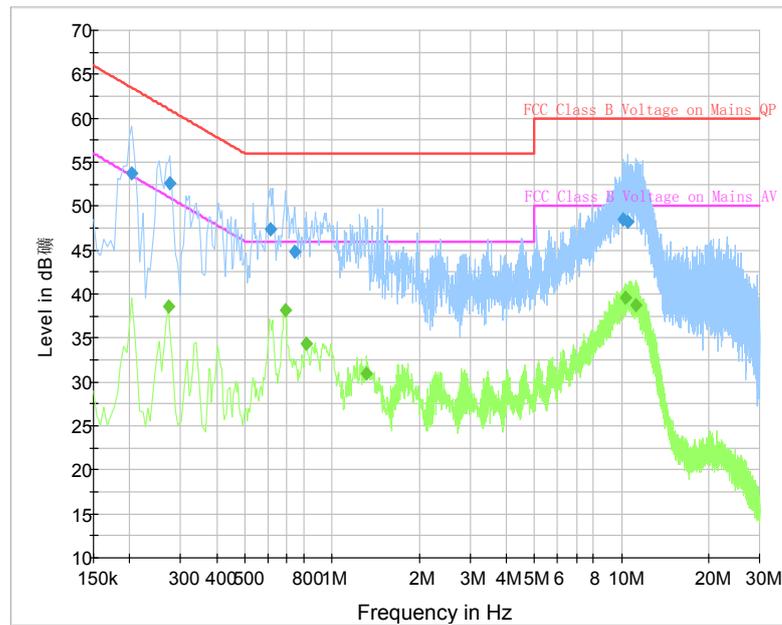


Fig. 38 AC Power line Conducted Emission (Traffic, AE2)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.204000	53.8	2000.0	9.000	On	L1	19.8	9.7	63.4
0.276000	52.6	2000.0	9.000	On	L1	19.8	8.3	60.9
0.613500	47.3	2000.0	9.000	On	N	19.8	8.7	56.0
0.744000	44.9	2000.0	9.000	On	N	19.8	11.1	56.0
10.144500	48.4	2000.0	9.000	On	L1	19.8	11.6	60.0
10.477500	48.2	2000.0	9.000	On	L1	19.8	11.8	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.271500	38.6	2000.0	9.000	On	N	19.8	12.4	51.1
0.690000	38.2	2000.0	9.000	On	N	19.8	7.8	46.0
0.816000	34.4	2000.0	9.000	On	N	19.8	11.6	46.0
1.315500	31.0	2000.0	9.000	On	N	19.6	15.0	46.0
10.284000	39.6	2000.0	9.000	On	L1	19.8	10.4	50.0
11.175000	38.7	2000.0	9.000	On	L1	19.9	11.3	50.0

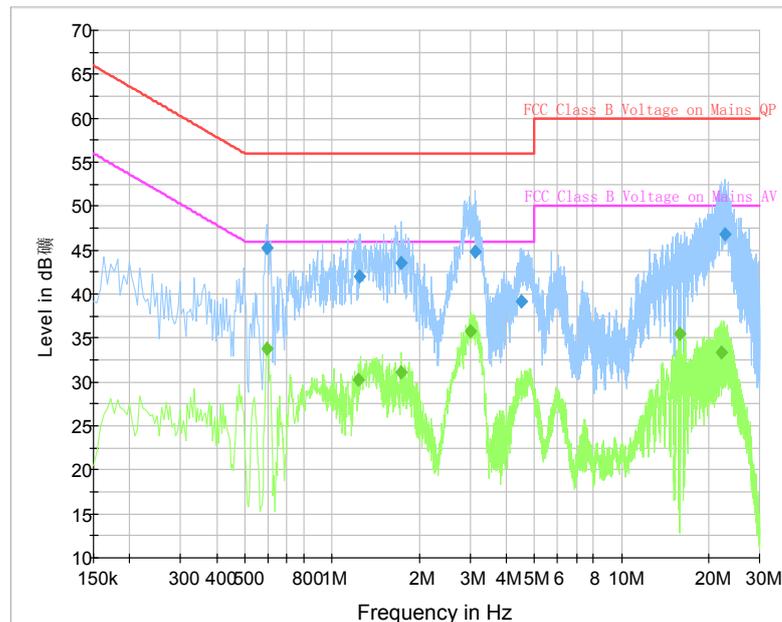


Fig. 39 AC Power line Conducted Emission (Traffic, AE3)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.595500	45.3	2000.0	9.000	On	L1	19.8	10.7	56.0
1.243500	41.9	2000.0	9.000	On	L1	19.7	14.1	56.0
1.729500	43.5	2000.0	9.000	On	L1	19.7	12.5	56.0
3.120000	44.8	2000.0	9.000	On	L1	19.6	11.2	56.0
4.497000	39.1	2000.0	9.000	On	L1	19.6	16.9	56.0
22.708500	46.8	2000.0	9.000	On	L1	20.1	13.2	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.595500	33.8	2000.0	9.000	On	L1	19.8	12.2	46.0
1.234500	30.3	2000.0	9.000	On	L1	19.7	15.7	46.0
1.729500	31.1	2000.0	9.000	On	L1	19.7	14.9	46.0
2.998500	35.8	2000.0	9.000	On	L1	19.7	10.2	46.0
15.936000	35.5	2000.0	9.000	On	L1	20.1	14.5	50.0
22.105500	33.4	2000.0	9.000	On	L1	20.1	16.6	50.0

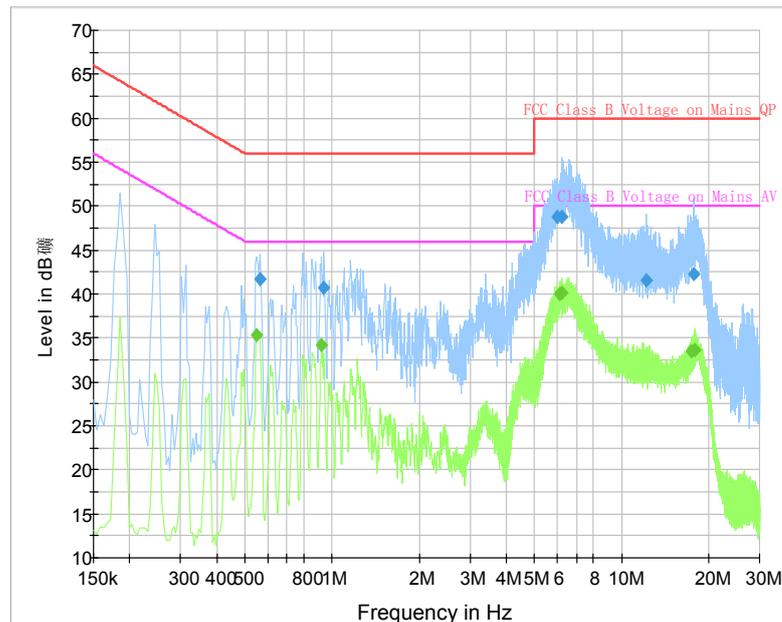


Fig. 40 AC Power line Conducted Emission (Traffic, AE4)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.564000	41.7	2000.0	9.000	On	L1	19.8	14.3	56.0
0.937500	40.7	2000.0	9.000	On	L1	19.7	15.3	56.0
6.009000	48.7	2000.0	9.000	On	L1	19.7	11.3	60.0
6.247500	48.8	2000.0	9.000	On	L1	19.7	11.2	60.0
12.133500	41.6	2000.0	9.000	On	L1	19.9	18.4	60.0
17.830500	42.3	2000.0	9.000	On	L1	20.1	17.7	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.550500	35.3	2000.0	9.000	On	N	19.8	10.7	46.0
0.919500	34.1	2000.0	9.000	On	L1	19.7	11.9	46.0
6.108000	40.0	2000.0	9.000	On	L1	19.7	10.0	50.0
6.247500	40.1	2000.0	9.000	On	L1	19.7	9.9	50.0
17.407500	33.5	2000.0	9.000	On	L1	20.1	16.5	50.0
17.916000	33.6	2000.0	9.000	On	L1	20.1	16.4	50.0

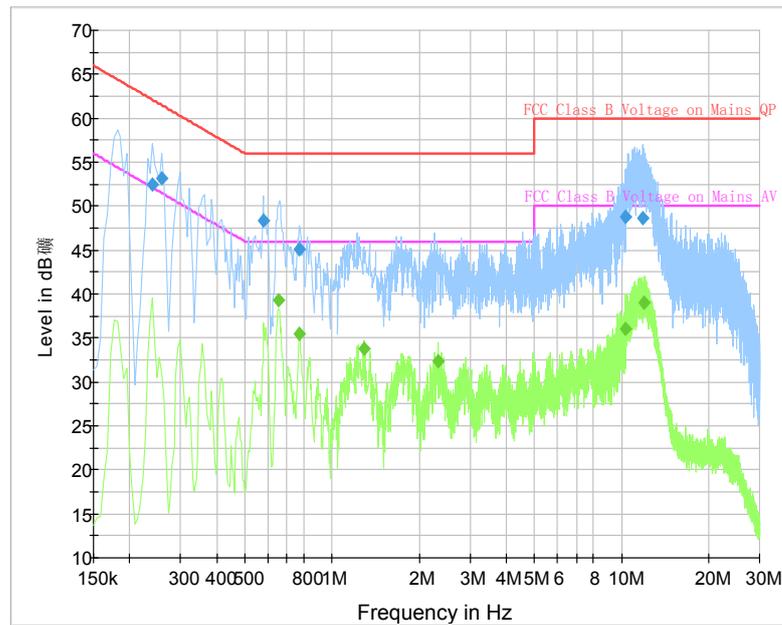


Fig. 41 AC Power line Conducted Emission (Traffic, AE5)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.240000	52.5	2000.0	9.000	On	L1	19.8	9.6	62.1
0.258000	53.2	2000.0	9.000	On	N	19.8	8.3	61.5
0.577500	48.3	2000.0	9.000	On	L1	19.8	7.7	56.0
0.771000	45.1	2000.0	9.000	On	L1	19.8	10.9	56.0
10.360500	48.8	2000.0	9.000	On	L1	19.8	11.2	60.0
11.872500	48.6	2000.0	9.000	On	L1	19.8	11.4	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.654000	39.3	2000.0	9.000	On	L1	19.8	6.7	46.0
0.771000	35.5	2000.0	9.000	On	L1	19.8	10.5	46.0
1.288500	33.8	2000.0	9.000	On	L1	19.6	12.2	46.0
2.323500	32.4	2000.0	9.000	On	L1	19.7	13.6	46.0
10.360500	36.0	2000.0	9.000	On	L1	19.8	14.0	50.0
11.976000	39.0	2000.0	9.000	On	L1	19.8	11.0	50.0

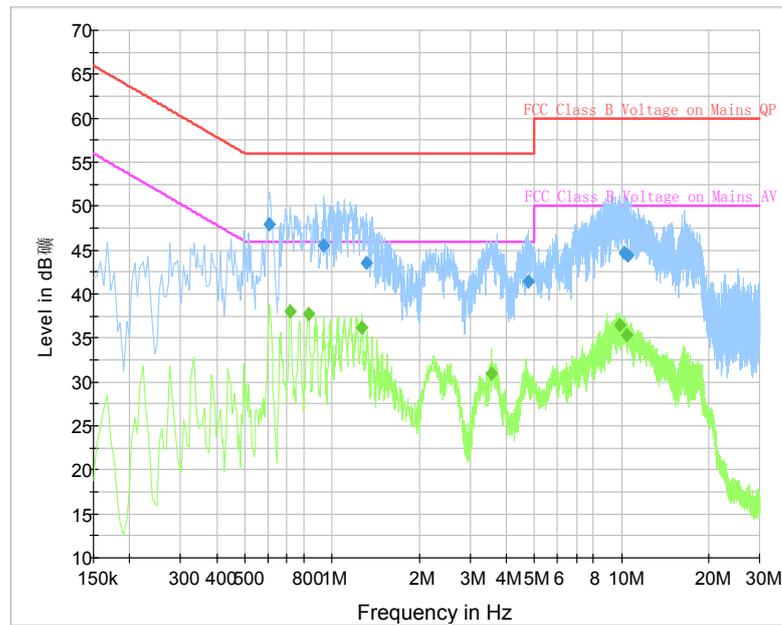


Fig. 42 AC Power line Conducted Emission (Traffic, AE6)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.609000	47.9	2000.0	9.000	On	N	19.8	8.1	56.0
0.937500	45.5	2000.0	9.000	On	N	19.7	10.5	56.0
1.320000	43.6	2000.0	9.000	On	N	19.6	12.4	56.0
4.780500	41.4	2000.0	9.000	On	N	19.7	14.6	56.0
10.243500	44.7	2000.0	9.000	On	L1	19.8	15.3	60.0
10.531500	44.4	2000.0	9.000	On	L1	19.8	15.6	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.717000	38.0	2000.0	9.000	On	L1	19.8	8.0	46.0
0.829500	37.7	2000.0	9.000	On	L1	19.8	8.3	46.0
1.270500	36.2	2000.0	9.000	On	L1	19.7	9.8	46.0
3.552000	31.0	2000.0	9.000	On	L1	19.7	15.0	46.0
9.834000	36.4	2000.0	9.000	On	L1	19.8	13.6	50.0
10.446000	35.3	2000.0	9.000	On	L1	19.8	14.7	50.0

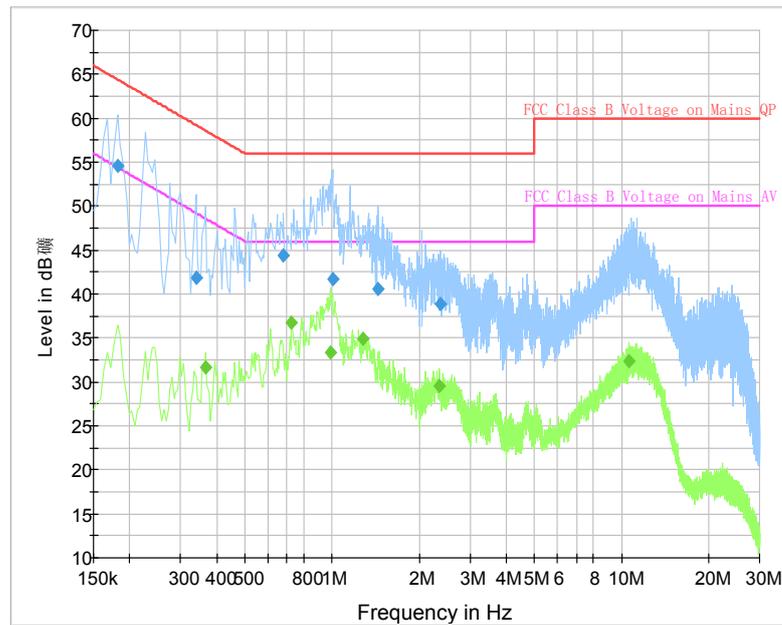


Fig. 43 AC Power line Conducted Emission (Idle, AE1)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	54.6	2000.0	9.000	On	L1	19.7	9.9	64.4
0.339000	41.9	2000.0	9.000	On	L1	19.8	17.4	59.2
0.681000	44.4	2000.0	9.000	On	N	19.8	11.6	56.0
1.005000	41.7	2000.0	9.000	On	L1	19.7	14.3	56.0
1.446000	40.6	2000.0	9.000	On	N	19.7	15.4	56.0
2.364000	38.9	2000.0	9.000	On	L1	19.6	17.1	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.366000	31.7	2000.0	9.000	On	L1	19.8	16.9	48.6
0.726000	36.8	2000.0	9.000	On	L1	19.8	9.2	46.0
0.987000	33.4	2000.0	9.000	On	L1	19.7	12.6	46.0
1.275000	34.9	2000.0	9.000	On	L1	19.7	11.1	46.0
2.355000	29.5	2000.0	9.000	On	L1	19.6	16.5	46.0
10.630500	32.4	2000.0	9.000	On	L1	19.8	17.6	50.0



ANNEX D: 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*****