



**FCC PART 15C  
TEST REPORT  
No.I15N01185-BLE**

**for**

**Huawei Technologies Co.,Ltd.**

**WCDMA Mobile Phone**

**Model Name: HUAWEI Y360-U103**

**With**

**Hardware Version: VER.A**

**Software Version: Y360-U103V100R001C01B108**

**FCC ID: QISY360-U103**

**Issued Date: Nov 27<sup>th</sup>, 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.

**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, Fax:+86(0)10-62304633Email:ctl@chinattl.com, website:[www.chinattl.com](http://www.chinattl.com)

## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I15N01185-BLE	Rev.0	1st edition	2015-11-27

## **CONTENTS**

<b>1. TEST LABORATORY .....</b>	<b>5</b>
1.1. TESTING LOCATION .....	5
1.2. TESTING ENVIRONMENT .....	5
1.3. PROJECT DATA .....	5
1.4. SIGNATURE .....	5
<b>2. CLIENT INFORMATION.....</b>	<b>6</b>
2.1. APPLICANT INFORMATION .....	6
2.2. MANUFACTURER INFORMATION .....	6
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>7</b>
3.1. ABOUT EUT .....	7
3.2. INTERNAL IDENTIFICATION OF EUT .....	7
3.3. INTERNAL IDENTIFICATION OF AE.....	7
<b>4. REFERENCE DOCUMENTS.....</b>	<b>8</b>
4.1. DOCUMENTS SUPPLIED BY APPLICANT .....	8
4.2. REFERENCE DOCUMENTS FOR TESTING.....	8
<b>5. TEST RESULTS .....</b>	<b>9</b>
5.1. SUMMARY OF TEST RESULTS.....	9
5.2. STATEMENTS.....	9
5.3. TERMS USED IN THE RESULT TABLE .....	9
5.4. LABORATORY ENVIRONMENT.....	10
<b>6. TEST FACILITIES UTILIZED .....</b>	<b>11</b>
<b>ANNEX A: MEASUREMENT RESULTS FOR RECEIVER .....</b>	<b>12</b>
A.0 ANTENNA REQUIREMENT .....	12
A.1 MAXIMUM AVERAGE OUTPUT POWER.....	13
A.2 PEAK POWER SPECTRAL DENSITY .....	13
A.3 OCCUPIED 6DB BANDWIDTH .....	14
A.4 BAND EDGES COMPLIANCE .....	14
A.5 TRANSMITTER SPURIOUS EMISSION .....	15
A.5.1 TRANSMITTER SPURIOUS EMISSION - CONDUCTED .....	15
A.5.2 TRANSMITTER SPURIOUS EMISSION - RADIATED .....	16
A.6 AC POWERLINE CONDUCTED EMISSION .....	20
<b>ANNEX B: TEST FIGURE LIST.....</b>	<b>23</b>
FIG.1 MAXIMUM PEAK OUTPUT POWER(GFSK, CH 0).....	23
FIG.2 MAXIMUM PEAK OUTPUT POWER(GFSK, CH 19).....	23
FIG.3 MAXIMUM PEAK OUTPUT POWER(GFSK, CH 39).....	24
FIG.4 POWER SPECTRAL DENSITY (CH 0) .....	24
FIG.5 POWER SPECTRAL DENSITY (CH 19) .....	25



FIG.6	POWER SPECTRAL DENSITY (CH 39) .....	25
FIG.7	OCCUPIED 6DB BANDWIDTH (CH 0).....	26
FIG.8	OCCUPIED 6DB BANDWIDTH (CH 19).....	26
FIG.9	OCCUPIED 6DB BANDWIDTH (CH 39).....	27
FIG.10	BAND EDGES (CH 0).....	27
FIG.11	BAND EDGES (CH 39).....	28
FIG.12	CONDUCTED SPURIOUS EMISSION (CH0, CENTER FREQUENCY) .....	28
FIG.13	CONDUCTED SPURIOUS EMISSION (CH0, 30 MHz-3 GHz).....	29
FIG.14	CONDUCTED SPURIOUS EMISSION (CH0, 3 GHz-18 GHz) .....	29
FIG.15	CONDUCTED SPURIOUS EMISSION (CH19, CENTER FREQUENCY) .....	30
FIG.16	CONDUCTED SPURIOUS EMISSION (CH19, 30 MHz-3 GHz).....	30
FIG.17	CONDUCTED SPURIOUS EMISSION (CH19, 3 GHz-18 GHz) .....	31
FIG.18	CONDUCTED SPURIOUS EMISSION (CH39, CENTER FREQUENCY) .....	31
FIG.19	CONDUCTED SPURIOUS EMISSION (CH39, 30 MHz-3 GHz).....	32
FIG.20	CONDUCTED SPURIOUS EMISSION (CH39, 3 GHz-18 GHz) .....	32
FIG.21	CONDUCTED SPURIOUS EMISSION (ALL CHANNELS, 18 GHz-26 GHz) .....	33
FIG.22	RADIATED SPURIOUS EMISSION (CH0, 1 GHz-18 GHz) .....	33
FIG.23	RADIATED SPURIOUS EMISSION (GFSK, CH19, 9 kHz ~30MHz) .....	34
FIG.24	RADIATED SPURIOUS EMISSION (GFSK, CH0, 30 MHz ~1 GHz,AE1) .....	34
FIG.25	RADIATED SPURIOUS EMISSION (CH19, 1 GHz-18 GHz) .....	35
FIG.26	RADIATED SPURIOUS EMISSION (CH19, 18 GHz-26.5 GHz) .....	35
FIG.27	RADIATED SPURIOUS EMISSION (CH39, 1 GHz-18 GHz) .....	36
FIG.28	RADIATED EMISSION POWER (GFSK, CH0, 2380GHz~2450GHz) .....	36
FIG.29	RADIATED EMISSION POWER (GFSK, CH39, 2450GHz~2500GHz) .....	37
FIG. 30	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE1).....	38
FIG. 31	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE2).....	39
FIG. 32	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE3).....	40
FIG. 33	AC POWER LINE CONDUCTED EMISSION (IDLE, AE1).....	41
FIG. 34	AC POWER LINE CONDUCTED EMISSION (IDLE, AE2).....	42
FIG. 35	AC POWER LINE CONDUCTED EMISSION (IDLE, AE3).....	43
<b>ANNEX C: PERSONS INVOLVED IN THIS TESTING .....</b>		<b>44</b>



## 1. Test Laboratory

### 1.1. Testing Location

Location1: 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: 2015-11-03

Testing End Date: 2015-11-27

### 1.4. Signature

---

Xu Ye

(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, Headquarters of Huawei Technologies Co.,  
Ltd., Bantian, Longgang District Shenzhen China  
City: Shenzhen  
Postal Code: /  
Country: China  
Telephone: 075536375506  
Fax: /

### **2.2. Manufacturer Information**

Company Name: Huawei Technologies Co.,Ltd.  
Address: Administration Building, Headquarters of Huawei Technologies Co.,  
Ltd., Bantian, Longgang District Shenzhen China  
City: Shenzhen  
Postal Code: /  
Country: China  
Telephone: 075536375506  
Fax: /

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

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

Description	WCDMA Mobile Phone
Model Name	HUAWEI Y360-U103
Market Name	HUAWEI Y3 lite
Frequency Band	2402MHz~2480MHz
Type of Modulation	GFSK
Number of Channels	40
FCC ID	QISY360-U103

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

#### **3.2. Internal Identification of EUT**

<b>EUT ID*</b>	<b>IMEI</b>	<b>HW Version</b>	<b>SW Version</b>
EUT1	/	VER.A	Y360-U103V100R001C01B108

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

#### **3.3. Internal Identification of AE**

<b>AE ID*</b>	<b>Description</b>	<b>Type</b>	<b>SN</b>
AE1	Charger	HW-050055U1W_BYD	/
AE2	Charger	HW-050055U1W_Huntkey	/
AE3	Charger	HW-050055R1W_Shilong Fuhua	/
AE4	Charger	HW-050055A1W_BYD	/
AE5	Charger	HW-050055E1W_BYD	/
AE6	Charger	HW-050055E1W_Huntkey	/
AE7	Charger	HW-050055R1W_BYD	/
AE8	Charger	HW-050055A1W_Shilong Fuhua	/

\*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.

<b>Reference</b>	<b>Title</b>	<b>Version</b>
FCC Part15	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz.	Oct, 2014
ANSI C63.10	American National Standard for Testing Wireless Devices	Jun,2013

## 5. Test Results

### 5.1. Summary of Test Results

No	Test cases	Standard Sub-clause	Verdict
0	Antenna Requirement	15.203	<b>P</b>
1	Maximum Peak Output Power	15.247 (b)	<b>P</b>
2	Peak Power Spectral Density	15.247 (e)	<b>P</b>
3	Occupied 6dB Bandwidth	15.247 (a)	<b>P</b>
4	Band Edges Compliance	15.247 (d)	<b>P</b>
5	Transmitter Spurious Emission - Conducted	15.247 (d)	<b>P</b>
6	Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	<b>P</b>
7	AC Powerline Conducted Emission	15.107, 15.207	<b>P</b>

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

#### 5.4. Laboratory Environment

**Semi-anechoic chamber** (23 metersx17 metersx10 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	2016-04-21	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	00066577	ETS-Lindgren	2016-04-01	3 years
5	Universal Radio Communication Tester	CMU200	114544	Rohde & Schwarz	2016-09-10	1 year
6	Universal Radio Communication Tester	CMW500	152499	Schwarzbeck	2016-07-23	1 year
7	Spectrum Analyser	FSP40	100378	Rohde & Schwarz	2015-12-19	1 year

### Anechoic chamber

Fully anechoic chamber by ETS-Lindgren.

## **ANNEX A: MEASUREMENT RESULTS FOR RECEIVER**

### **A.0 Antenna requirement**

#### **Measurement Limit:**

<b>Standard</b>	<b>Requirement</b>
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, § 15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

**Conclusion: The Directional gains of antenna used for transmitting is 3.01 dBi.  
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	-0.33	Fig.1	P
	19	0.00	Fig.2	P
	39	-0.03	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	-16.64	P
	19	Fig.5	-16.29	P
	39	Fig.6	-16.10	P

See ANNEX C 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	701.9	P
	19	Fig.8	701.9	P
	39	Fig.9	701.9	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**

## 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**

### 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( $\mu$ 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:**

Mode	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	1 GHz ~18 GHz	Fig.22	P
	19	9kHz~30MHz	Fig.23	P
		30MHz~1GHz	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(CH78)	2.45 GHz ~ 2.5 GHz	Fig.29	P

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

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14180.000000	56.2	V	11.3	17.8	74.0
15180.000000	57.4	V	12.1	16.6	74.0
15720.000000	58.0	H	12.9	16.0	74.0
16199.000000	58.9	V	13.3	15.1	74.0
16782.000000	60.3	V	14.0	13.7	74.0
17283.000000	59.2	V	14.1	14.8	74.0

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14549.000000	44.1	H	11.8	9.9	54.0
15151.000000	44.7	H	12.1	9.3	54.0
15692.000000	46.4	V	12.8	7.6	54.0
16201.000000	46.8	V	13.3	7.2	54.0
16764.000000	47.4	V	14.0	6.6	54.0
17283.000000	47.1	V	14.1	6.9	54.0

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

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14500.000000	56.1	H	11.7	17.9	74.0
15127.000000	57.3	V	12.1	16.7	74.0
15691.000000	58.8	V	12.8	15.2	74.0
16281.000000	58.5	H	13.4	15.5	74.0
16736.000000	59.3	H	13.9	14.7	74.0
17788.000000	59.4	H	14.4	14.6	74.0

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14547.000000	44.1	V	11.8	9.9	54.0
15174.000000	44.7	V	12.1	9.3	54.0
15691.000000	46.3	H	12.8	7.7	54.0
16209.000000	46.8	V	13.3	7.2	54.0
16796.000000	47.4	V	14.0	6.6	54.0
17343.000000	47.0	V	14.2	7.0	54.0

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

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14476.000000	55.6	V	11.6	18.4	74.0
15142.000000	57.4	V	12.1	16.6	74.0
15605.000000	58.0	H	12.6	16.0	74.0
16200.000000	58.2	H	13.3	15.8	74.0
16774.000000	58.7	H	14.0	15.3	74.0
17458.000000	58.7	V	14.3	15.3	74.0

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14525.000000	43.8	V	11.7	10.2	54.0
15140.000000	44.5	H	12.1	9.5	54.0
15766.000000	46.1	H	12.9	7.9	54.0
16226.000000	46.2	V	13.3	7.8	54.0
16775.000000	46.5	V	14.0	7.5	54.0
17280.000000	46.4	V	14.1	7.6	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:

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

## A.6 AC Powerline Conducted Emission

### Test Condition:

Voltage (V)	Frequency (Hz)
120	60

### Measurement Result and limit:

BT (Quasi-peak Limit)-AE1- Traffic

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
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.

BT (Average Limit)-AE1-Traffic

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
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.

BT (Quasi-peak Limit)-AE2- Traffic

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
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.

BT (Average Limit)-AE2-Traffic

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
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.

BT (Quasi-peak Limit)-AE3- Traffic

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
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.

BT (Average Limit)-AE3-Traffic

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
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.

BT (Quasi-peak Limit)-AE1-idle

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	Fig.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.

BT (Average Limit)-AE1-idle

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
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.

BT (Quasi-peak Limit)-AE2-idle

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	Fig.67 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.

BT (Average Limit)-AE2-idle

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
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.

BT (Quasi-peak Limit)-AE3-idle

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	Fig.68 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.

BT (Average Limit)-AE3-idle

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	56 to 46	Fig.35	P
0.5 to 5	46		
5 to 30	50		

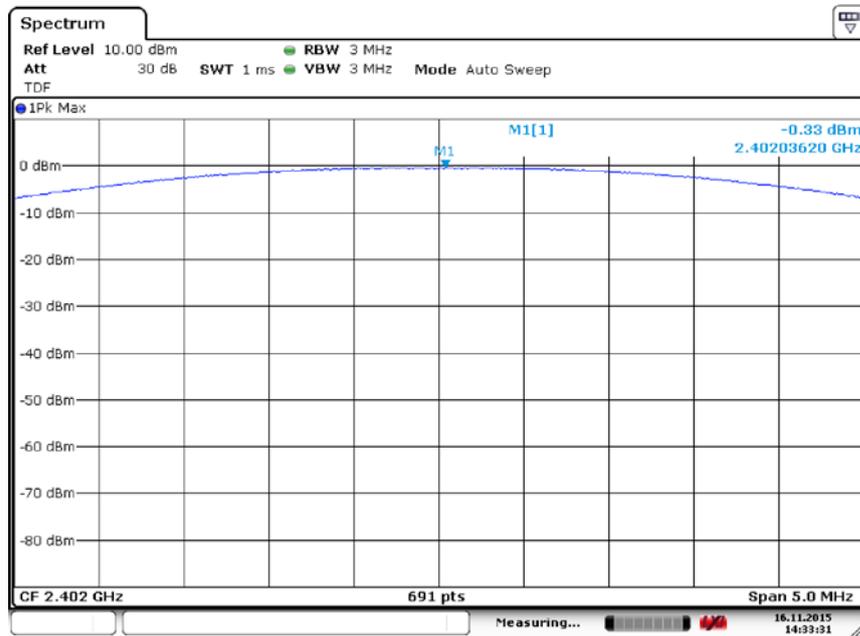
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

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

**See ANNEX C for test graphs.**

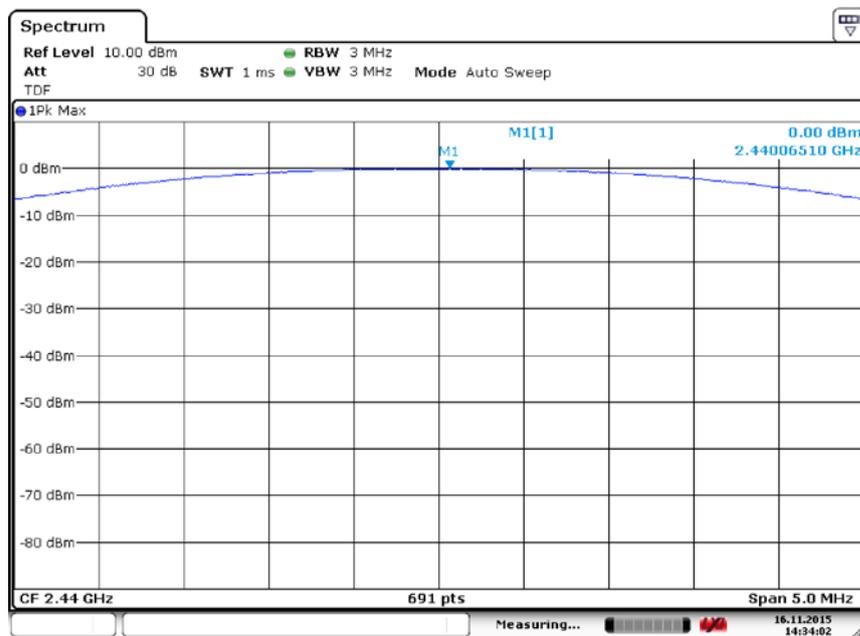
**Conclusion: Pass**

## ANNEX B: TEST FIGURE LIST



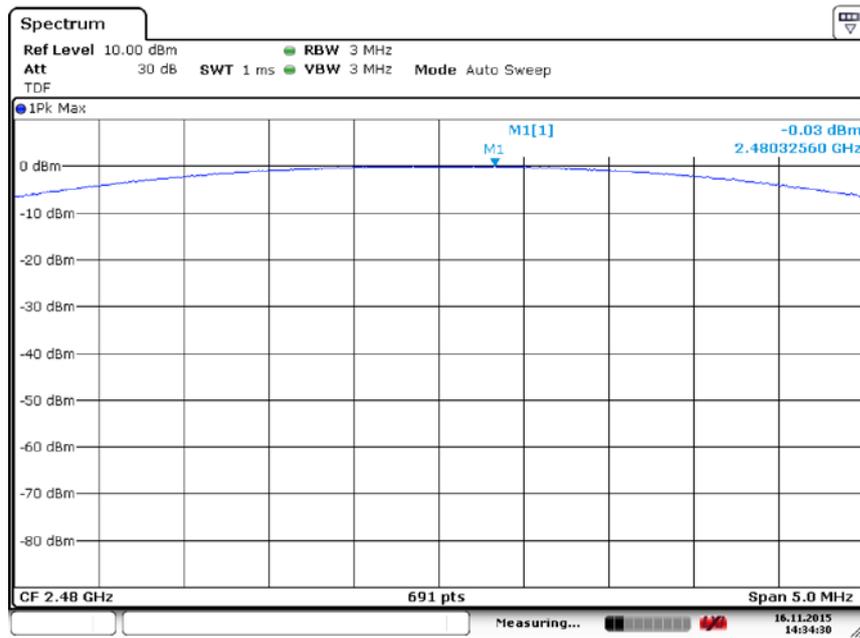
Date: 16.NOV.2015 14:33:30

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

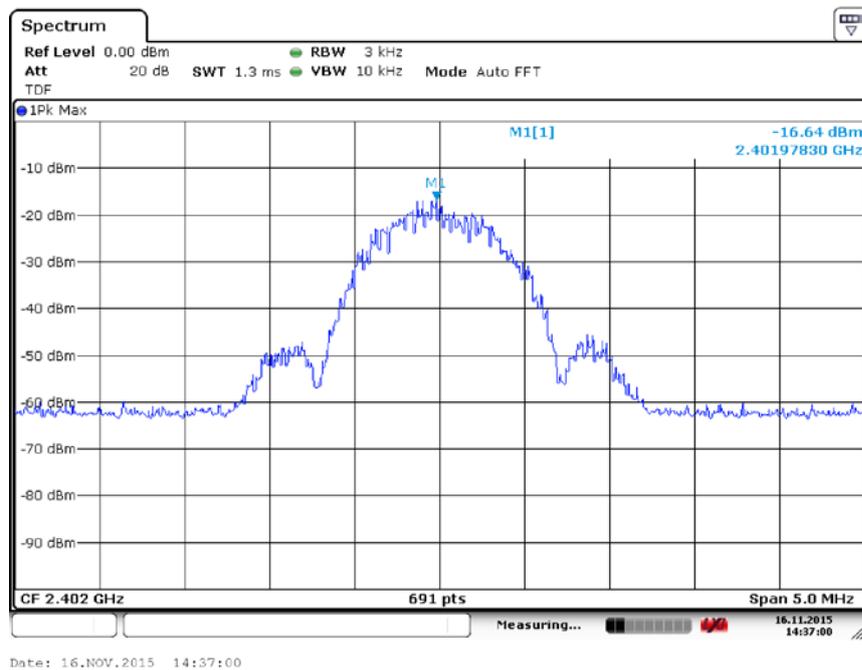


Date: 16.NOV.2015 14:34:02

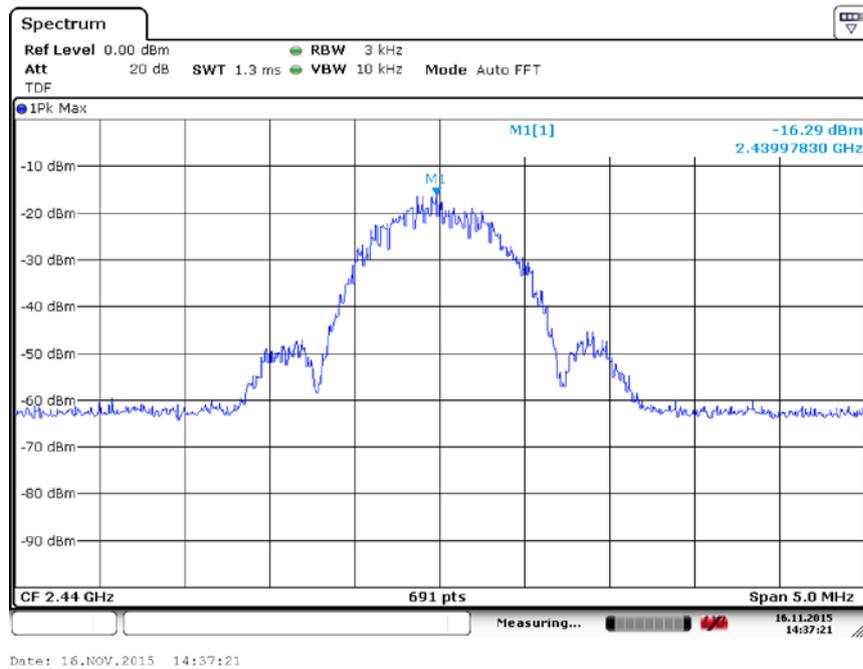
**Fig.2 Maximum Peak Output Power(GFSK, Ch 19)**



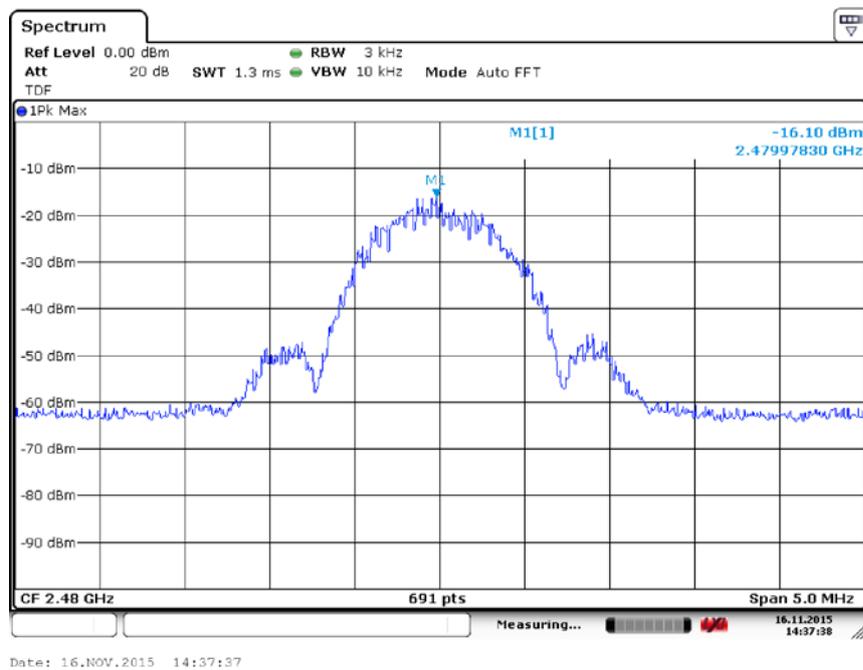
**Fig.3 Maximum Peak Output Power(GFSK, Ch 39)**



**Fig.4 Power Spectral Density (Ch 0)**



**Fig.5 Power Spectral Density (Ch 19)**



**Fig.6 Power Spectral Density (Ch 39)**

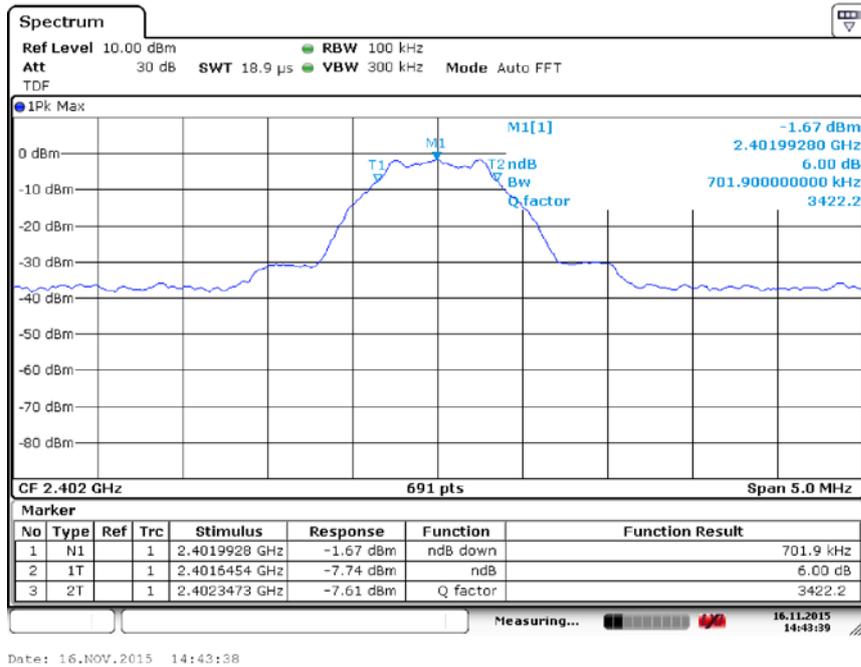


Fig.7 Occupied 6dB Bandwidth (Ch 0)

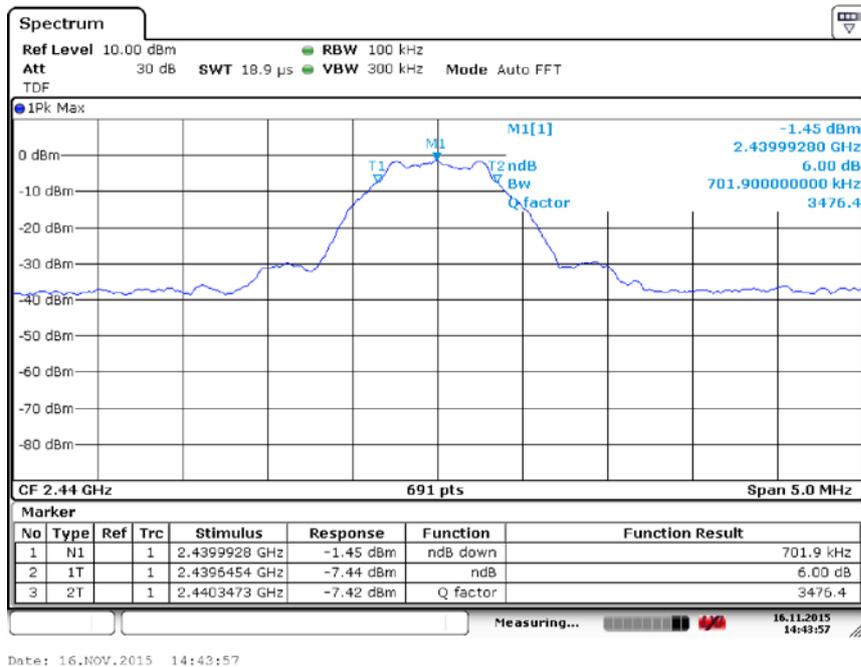


Fig.8 Occupied 6dB Bandwidth (Ch 19)

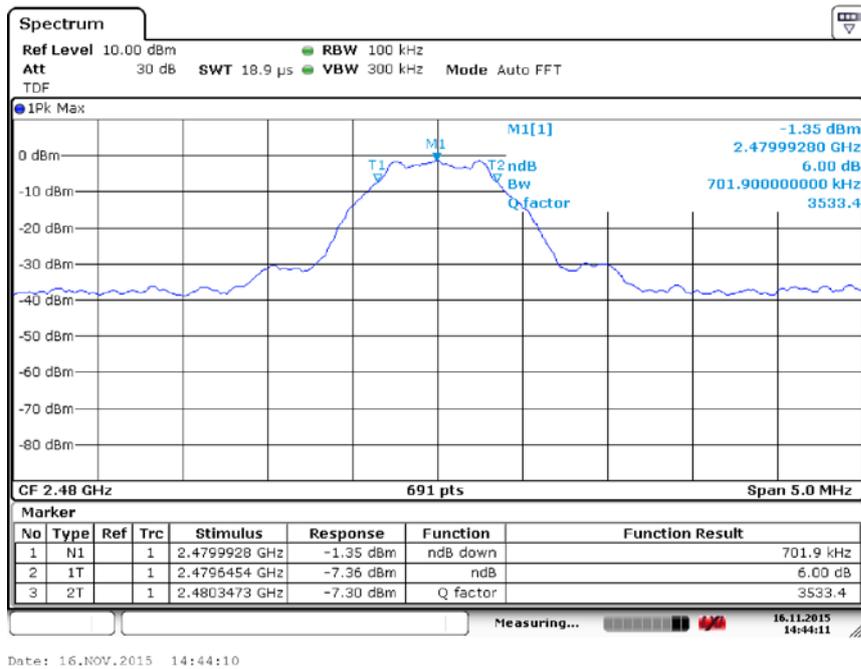


Fig.9 Occupied 6dB Bandwidth (Ch 39)

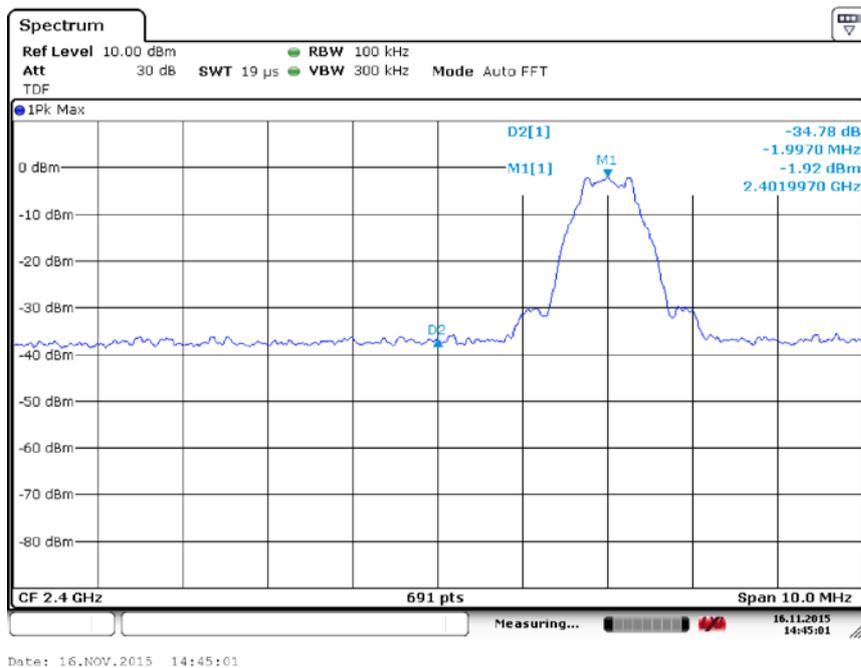


Fig.10 Band Edges (Ch 0)

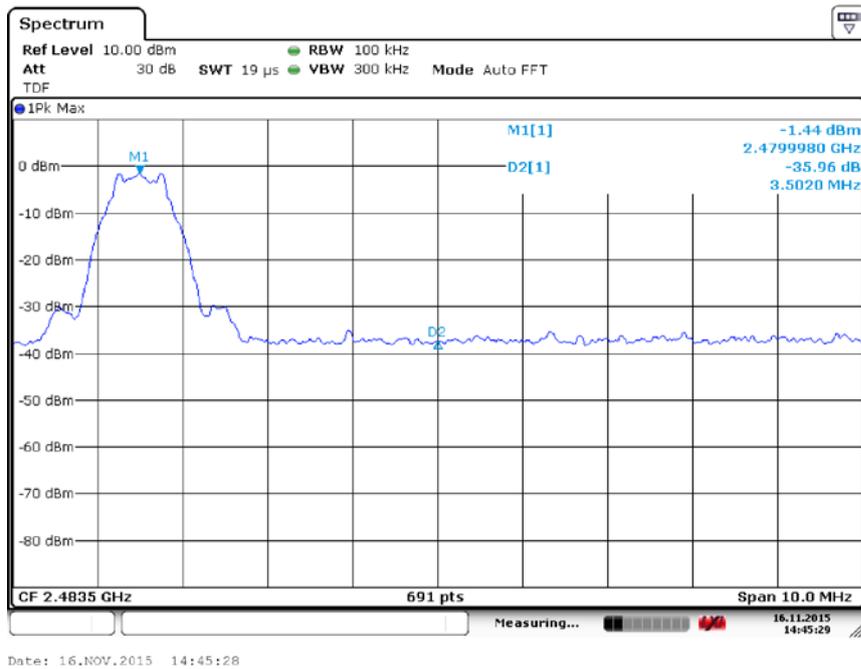


Fig.11 Band Edges (Ch 39)

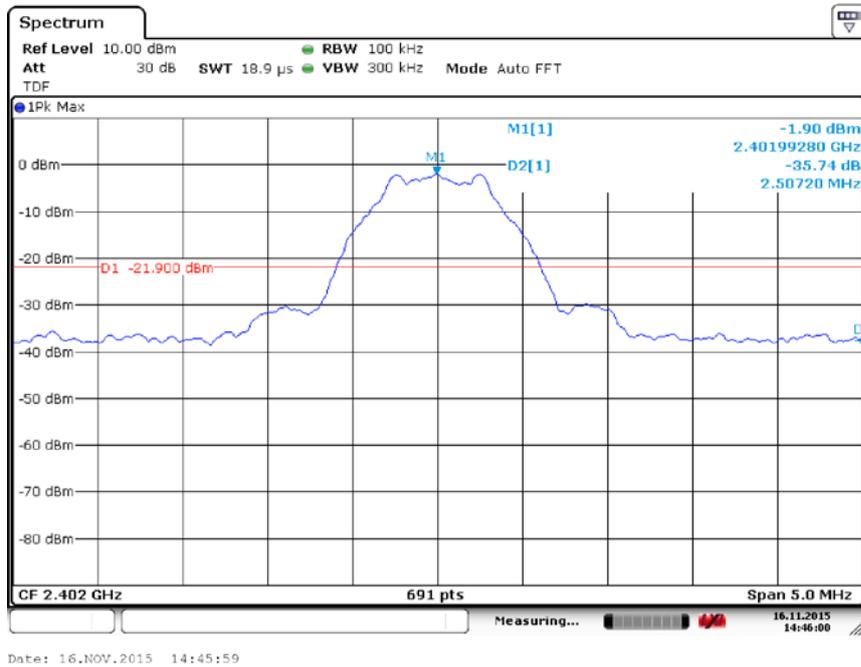
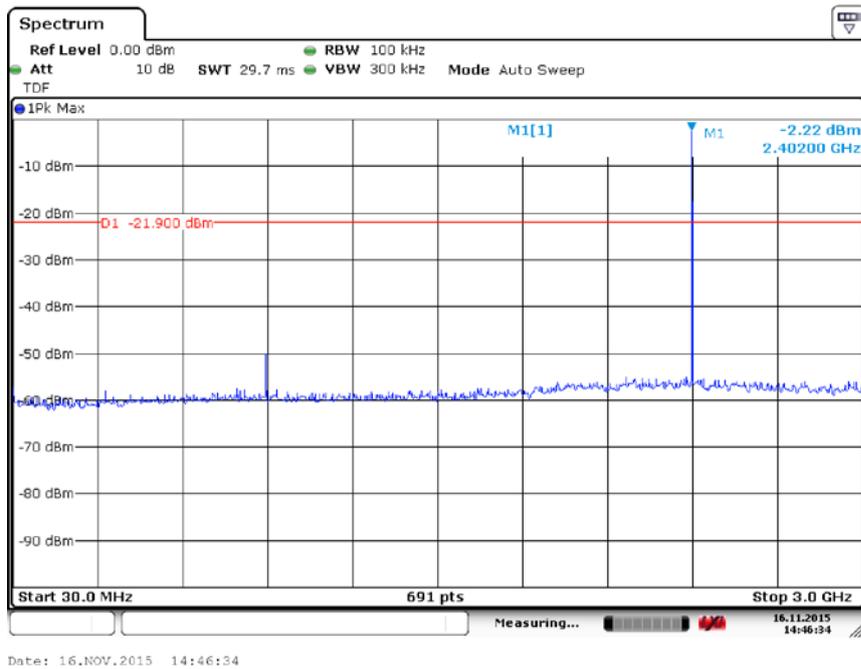
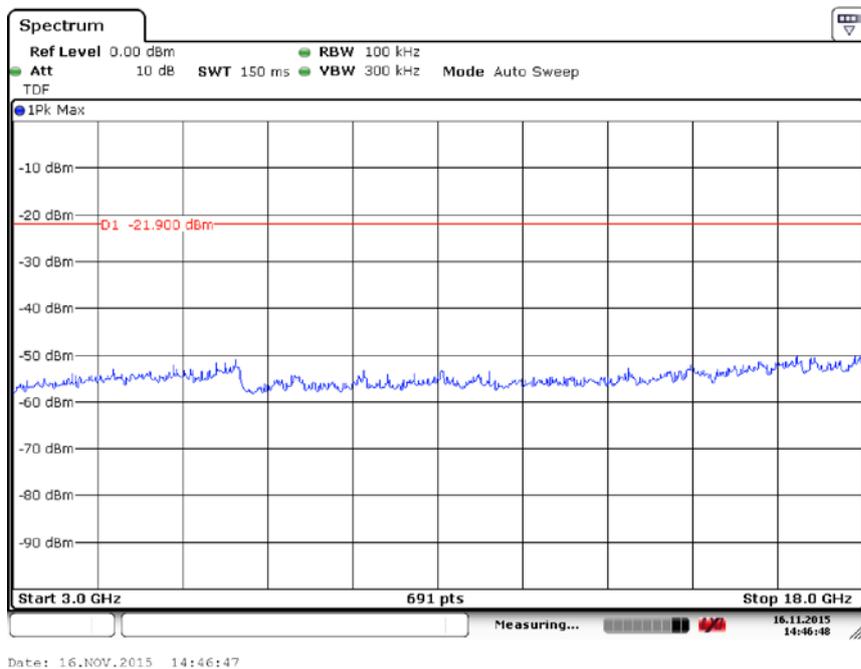


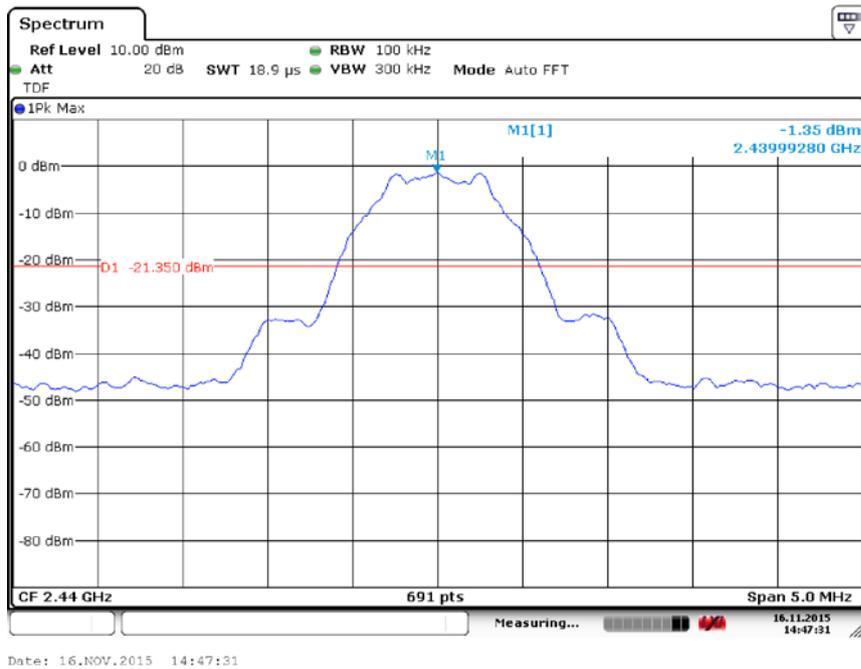
Fig.12 Conducted Spurious Emission (Ch0, Center Frequency)



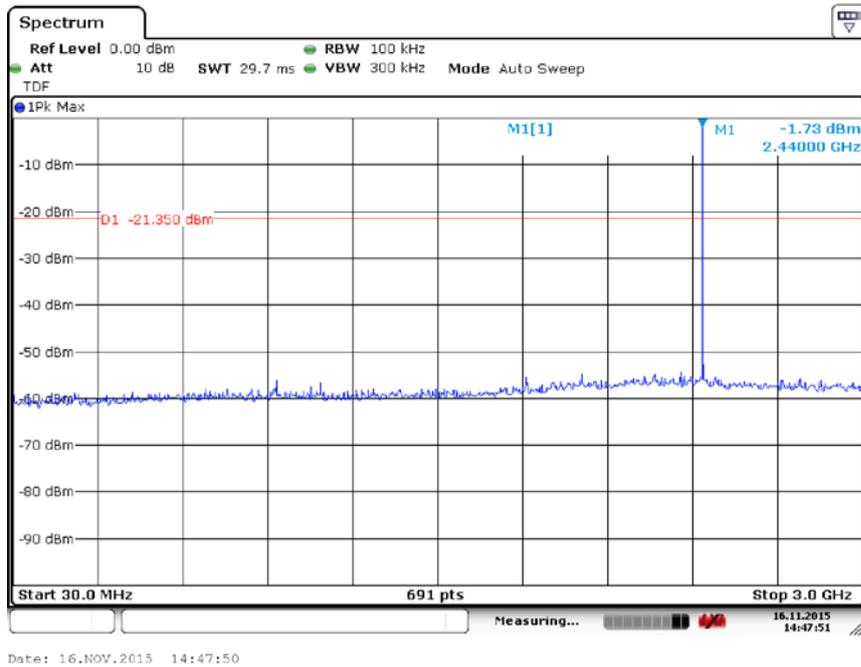
**Fig.13 Conducted Spurious Emission (Ch0, 30 MHz-3 GHz)**



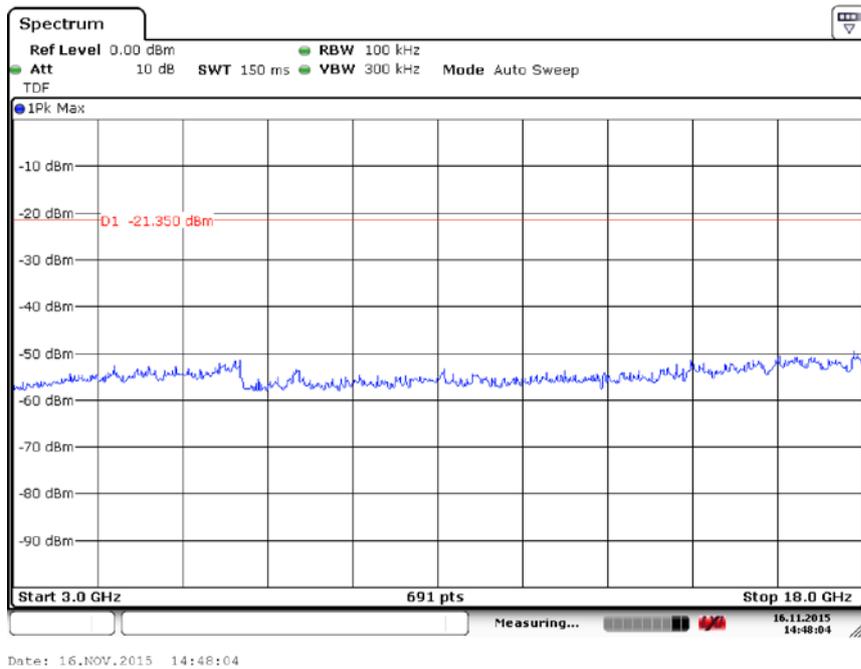
**Fig.14 Conducted Spurious Emission (Ch0, 3 GHz-18 GHz)**



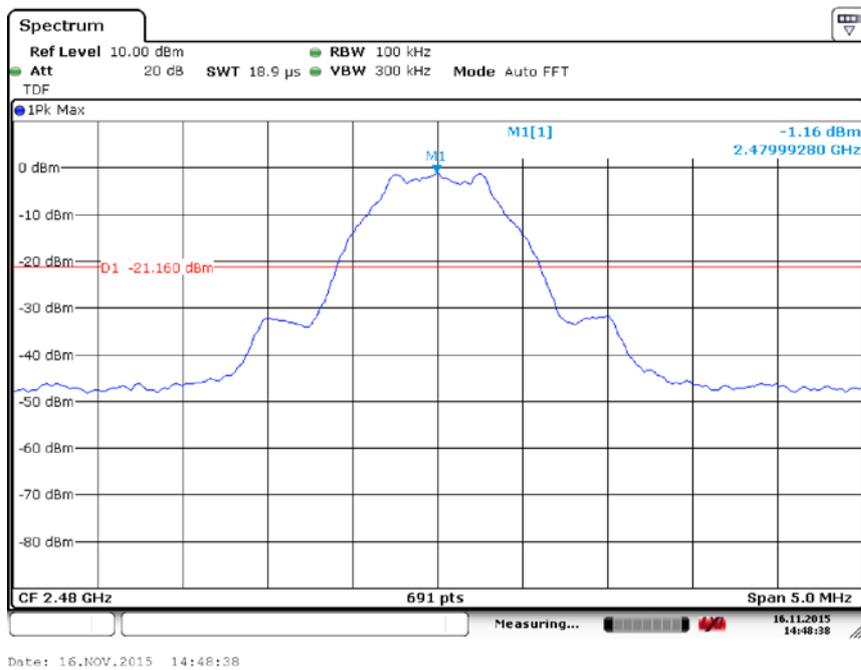
**Fig.15 Conducted Spurious Emission (Ch19, Center Frequency)**



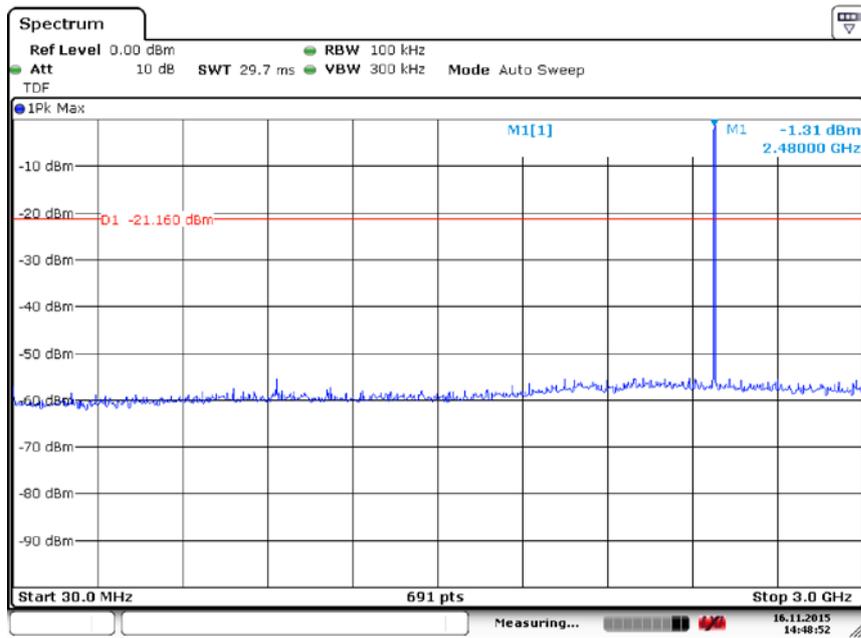
**Fig.16 Conducted Spurious Emission (Ch19, 30 MHz-3 GHz)**



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

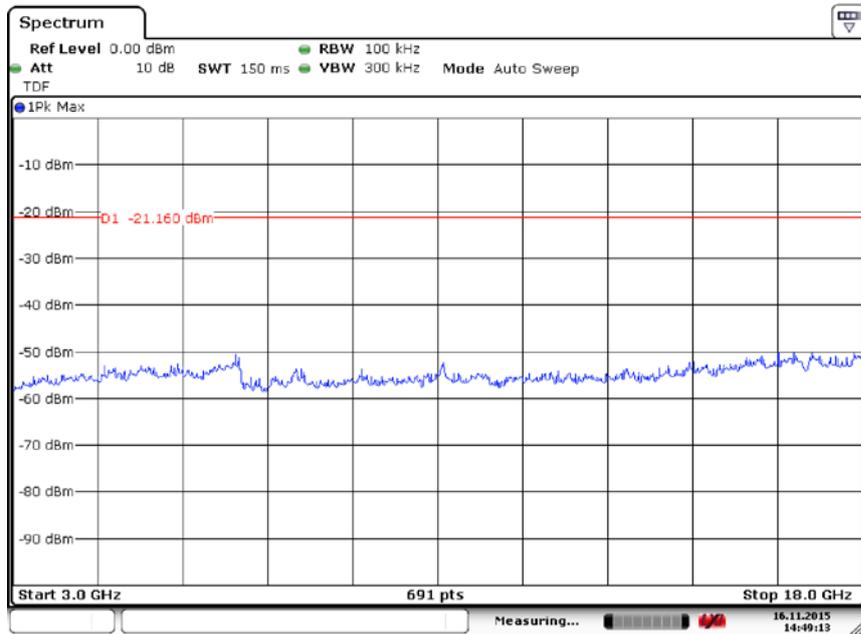


**Fig.18 Conducted Spurious Emission (Ch39, Center Frequency)**



Date: 16.NOV.2015 14:48:52

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



Date: 16.NOV.2015 14:49:13

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

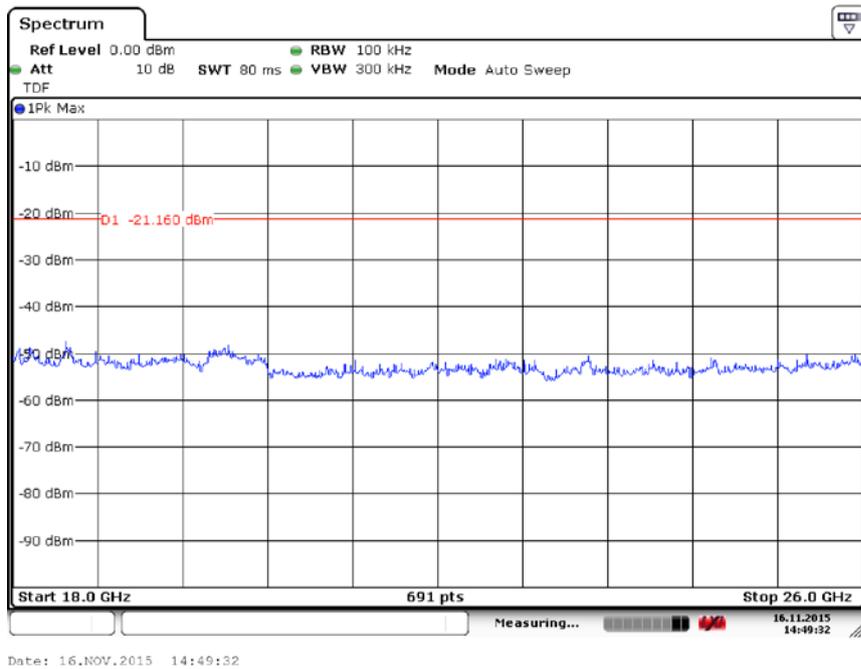


Fig.21 Conducted Spurious Emission (All channels, 18 GHz-26 GHz)

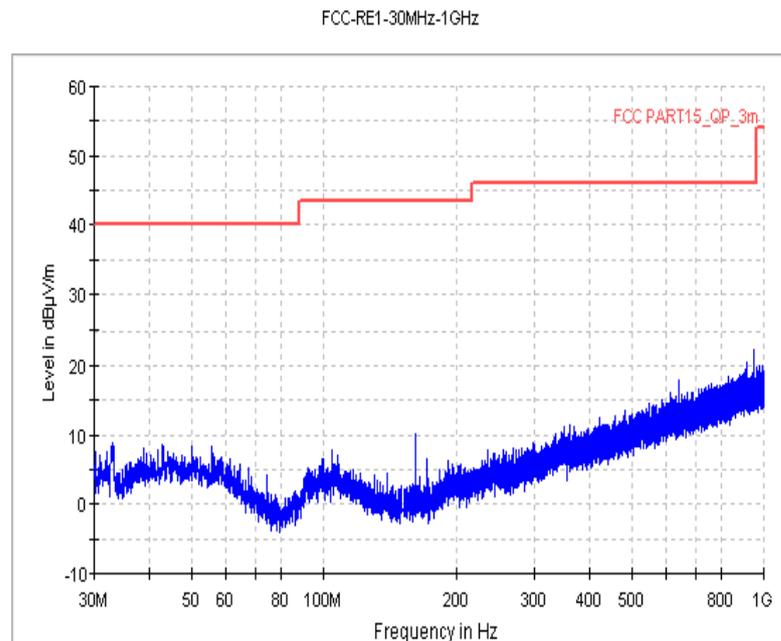
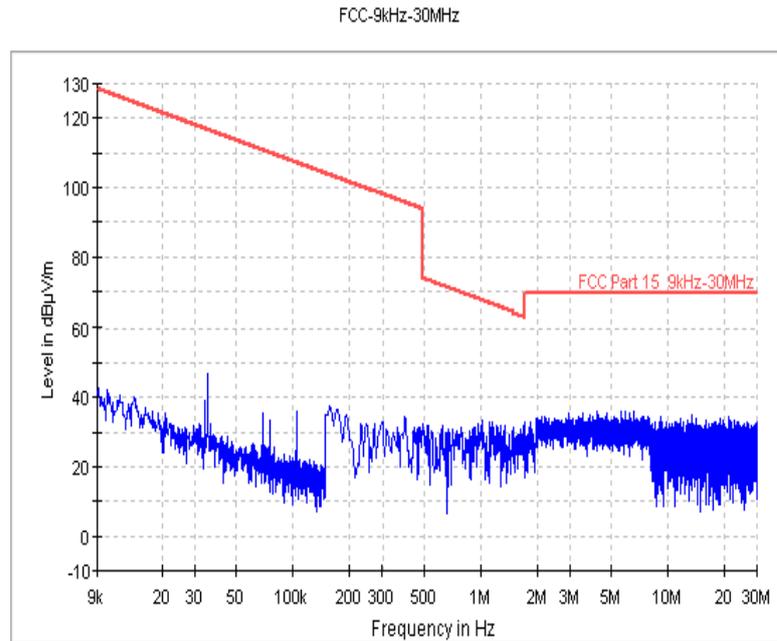
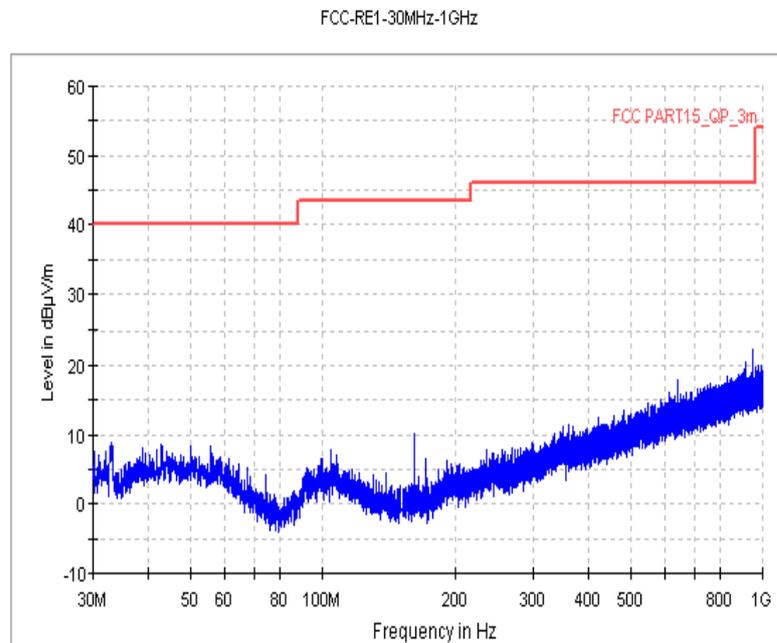


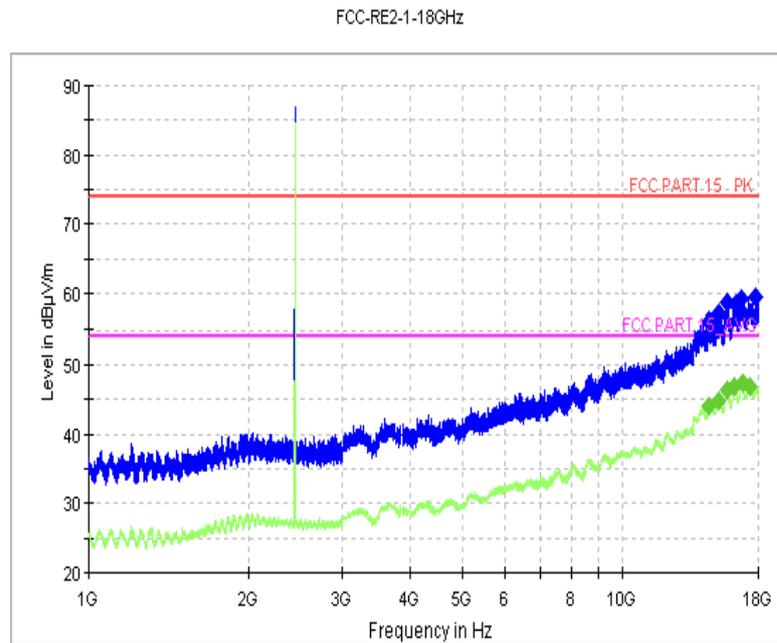
Fig.22 Radiated Spurious Emission (Ch0, 1 GHz-18 GHz)



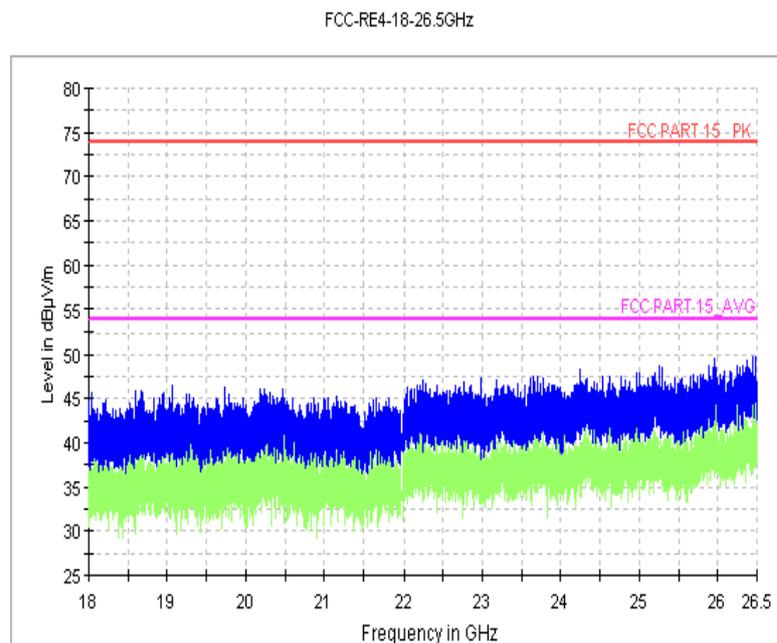
**Fig.23 Radiated Spurious Emission (GFSK, Ch19, 9 kHz ~30MHz)**



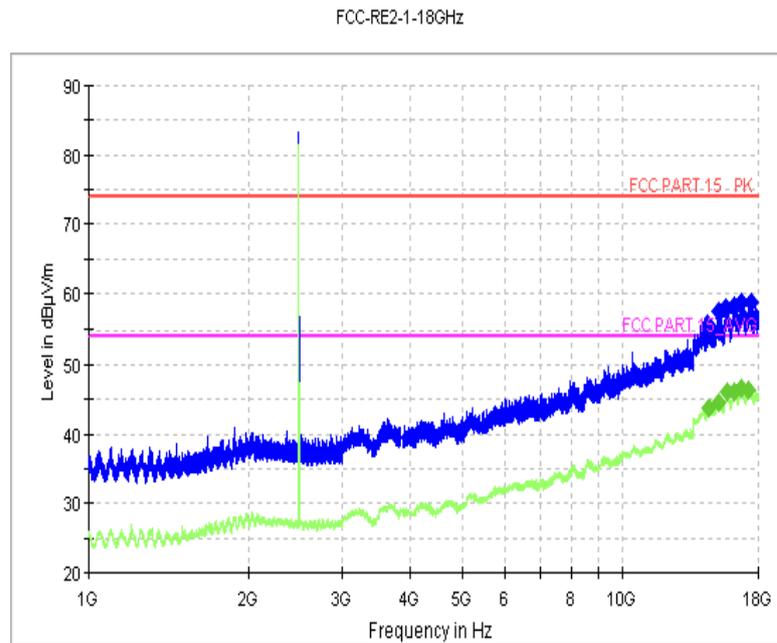
**Fig.24 Radiated Spurious Emission (GFSK, Ch0, 30 MHz ~1 GHz,AE1)**



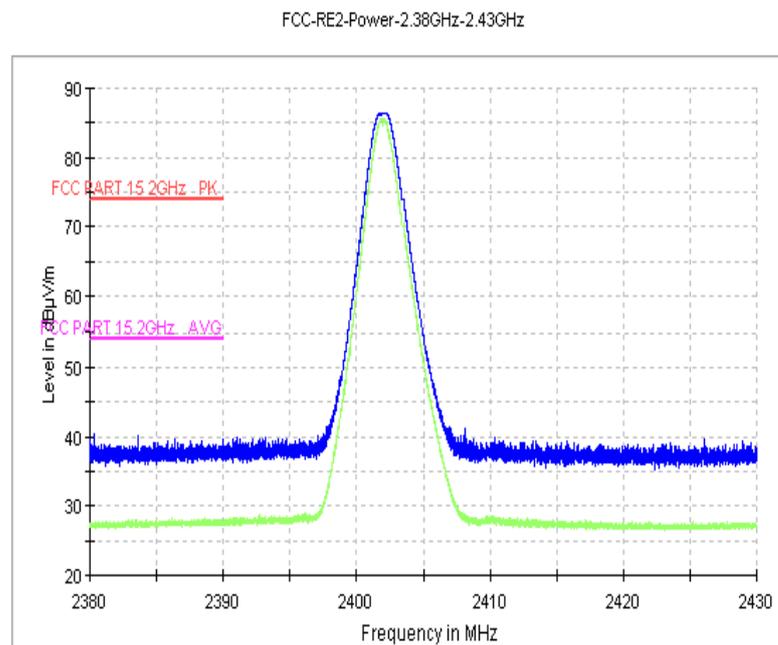
**Fig.25 Radiated Spurious Emission (Ch19, 1 GHz-18 GHz)**



**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)**

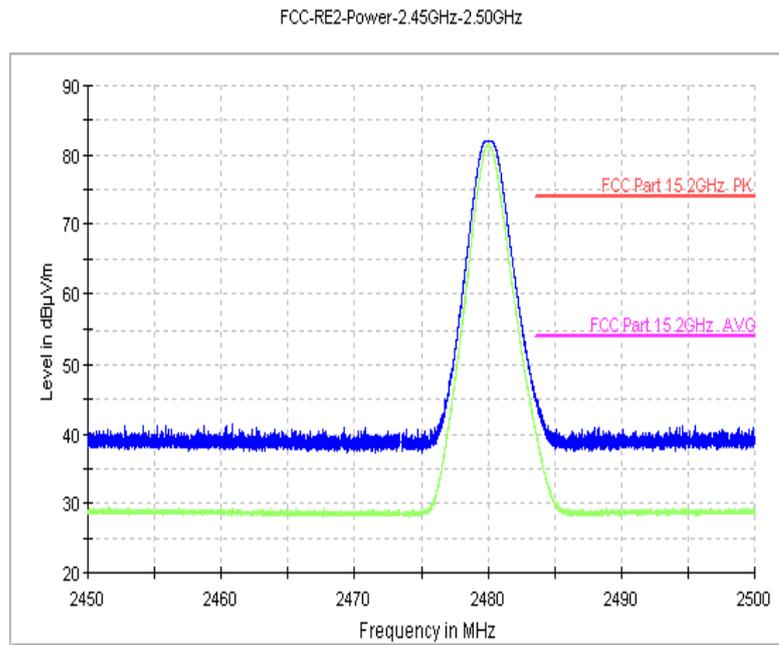
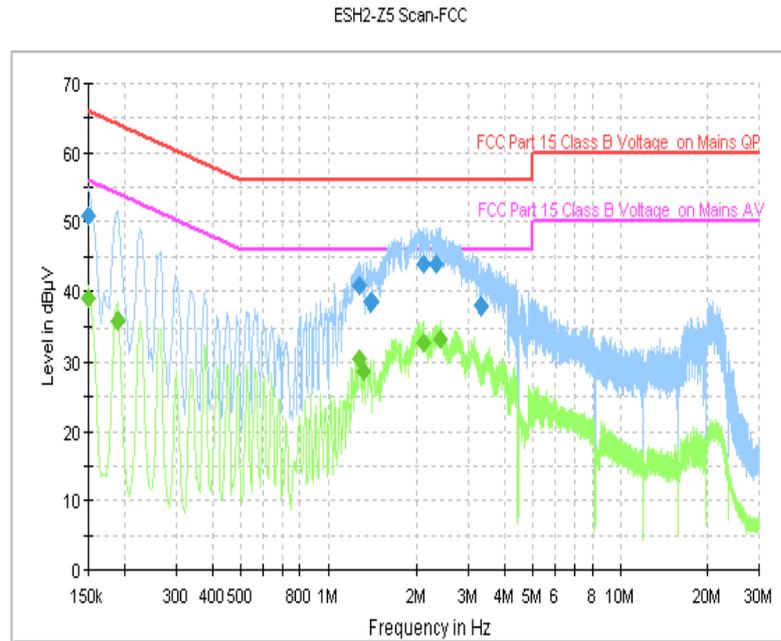


Fig.29 Radiated Emission Power (GFSK, Ch39, 2450GHz~2500GHz)



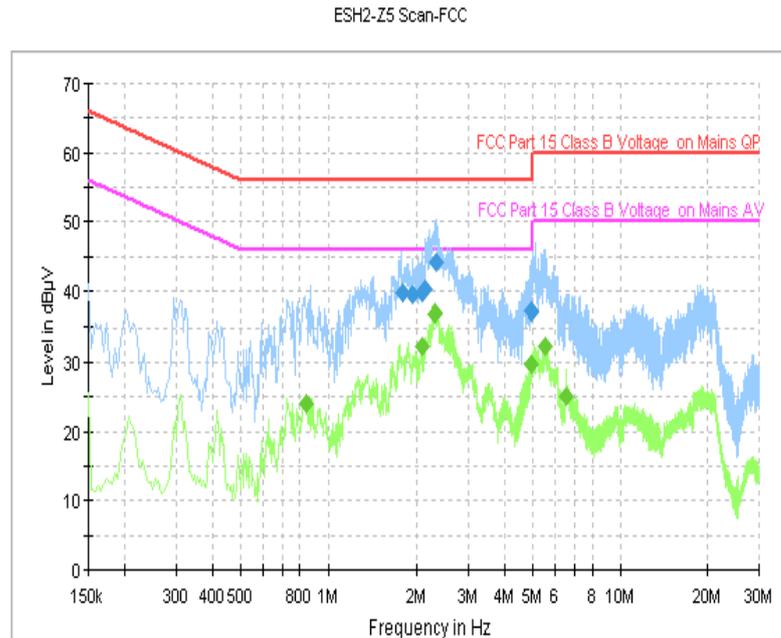
**Fig. 30 AC Power line Conducted Emission (Traffic, AE1)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.0	GND	L1	10.0	15.0	66.0
1.282000	40.8	GND	L1	10.1	15.2	56.0
1.402000	38.6	GND	L1	10.1	17.4	56.0
2.102000	44.0	GND	L1	10.1	12.0	56.0
2.338000	44.0	GND	L1	10.1	12.0	56.0
3.310000	38.1	GND	L1	10.2	17.9	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	39.0	GND	L1	10.0	17.0	56.0
0.190000	35.9	GND	L1	10.0	18.1	54.0
1.282000	30.5	GND	L1	10.1	15.5	46.0
1.322000	28.7	GND	L1	10.1	17.3	46.0
2.102000	32.9	GND	L1	10.1	13.1	46.0
2.414000	33.3	GND	L1	10.1	12.7	46.0



**Fig. 31 AC Power line Conducted Emission (Traffic, AE2)**

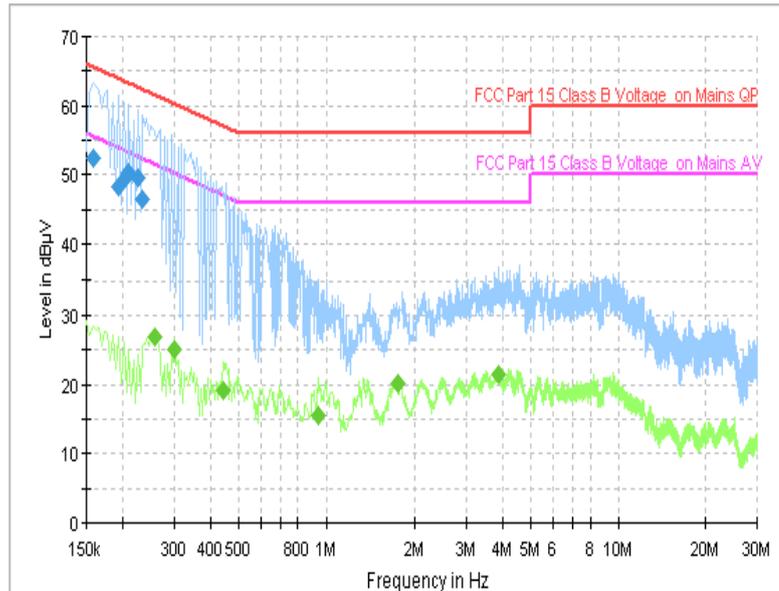
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.782000	39.7	GND	L1	10.1	16.3	56.0
1.930000	39.6	GND	L1	10.1	16.4	56.0
2.094000	39.8	GND	L1	10.1	16.2	56.0
2.130000	40.3	GND	L1	10.1	15.7	56.0
2.334000	44.1	GND	L1	10.1	11.9	56.0
4.930000	37.3	GND	L1	10.2	18.7	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.838000	23.9	GND	L1	10.0	22.1	46.0
2.078000	32.2	GND	L1	10.1	13.8	46.0
2.294000	36.9	GND	L1	10.1	9.1	46.0
4.958000	29.6	GND	L1	10.2	16.4	46.0
5.546000	32.2	GND	L1	10.2	17.8	50.0
6.526000	25.1	GND	L1	10.3	24.9	50.0

ESH2-Z5 Scan-FCC



**Fig. 32 AC Power line Conducted Emission (Traffic, AE3)**

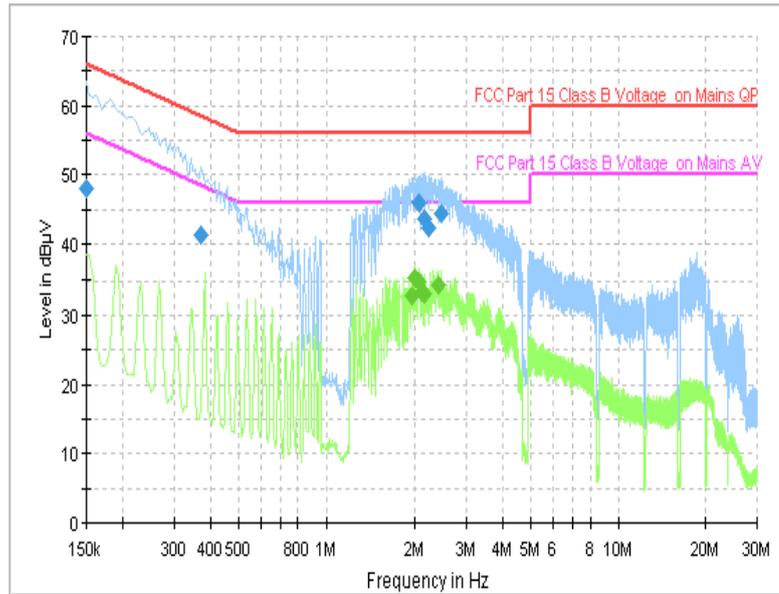
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	52.5	GND	L1	10.0	13.1	65.6
0.194000	48.2	GND	N	10.1	15.6	63.9
0.202000	49.3	GND	L1	10.0	14.2	63.5
0.210000	50.3	GND	L1	10.0	12.9	63.2
0.226000	49.5	GND	L1	10.0	13.1	62.6
0.234000	46.6	GND	L1	10.0	15.7	62.3

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.258000	26.9	GND	L1	10.0	24.5	51.5
0.302000	25.2	GND	N	10.1	25.0	50.2
0.442000	19.0	GND	L1	10.0	28.0	47.0
0.946000	15.6	GND	N	10.1	30.4	46.0
1.746000	20.1	GND	L1	10.1	25.9	46.0
3.858000	21.5	GND	L1	10.2	24.5	46.0

ESH2-Z5 Scan-FCC



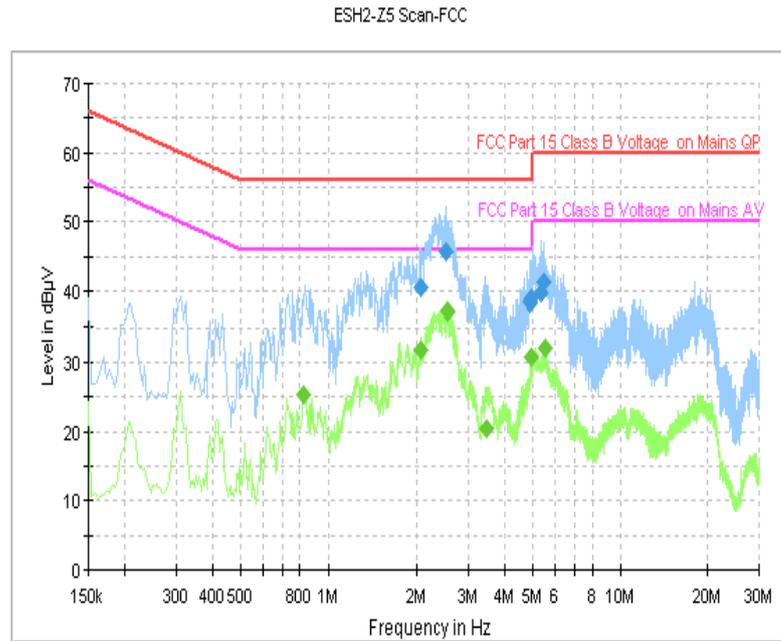
**Fig. 33 AC Power line Conducted Emission (Idle, AE1)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	48.1	GND	L1	10.0	17.9	66.0
0.370000	41.4	GND	L1	10.0	17.1	58.5
2.070000	46.0	GND	L1	10.1	10.0	56.0
2.150000	43.7	GND	N	10.2	12.3	56.0
2.230000	42.5	GND	N	10.2	13.5	56.0
2.450000	44.3	GND	L1	10.1	11.7	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.946000	32.9	GND	L1	10.1	13.1	46.0
1.990000	35.4	GND	L1	10.1	10.6	46.0
2.070000	34.8	GND	L1	10.1	11.2	46.0
2.110000	33.3	GND	L1	10.1	12.7	46.0
2.146000	33.0	GND	L1	10.1	13.0	46.0
2.414000	34.5	GND	L1	10.1	11.5	46.0



**Fig. 34 AC Power line Conducted Emission (Idle, AE2)**

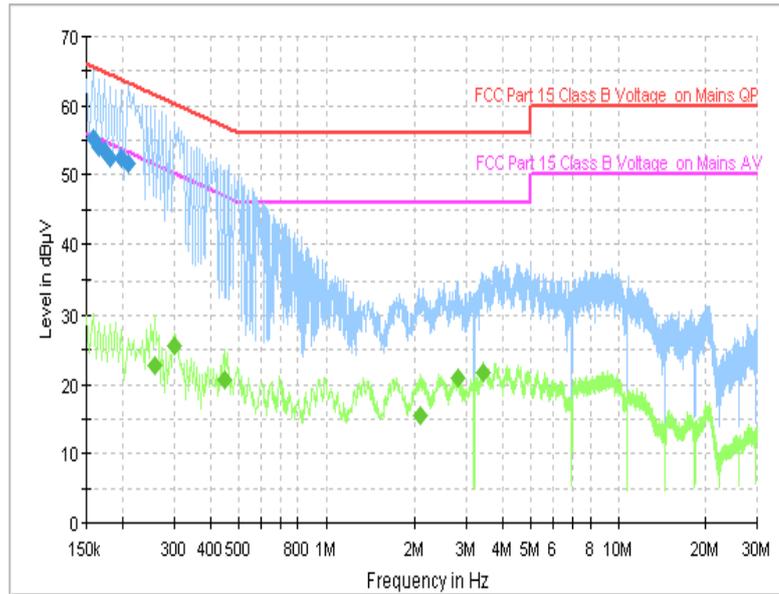
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.058000	40.5	GND	L1	10.1	15.5	56.0
2.514000	45.7	GND	L1	10.2	10.3	56.0
4.910000	38.5	GND	L1	10.2	17.5	56.0
4.966000	39.0	GND	L1	10.2	17.0	56.0
5.314000	39.8	GND	L1	10.2	20.2	60.0
5.438000	41.2	GND	L1	10.2	18.8	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.826000	25.3	GND	L1	10.0	20.7	46.0
2.074000	31.9	GND	L1	10.1	14.1	46.0
2.550000	37.2	GND	L1	10.2	8.8	46.0
3.470000	20.3	GND	L1	10.2	25.7	46.0
4.970000	30.8	GND	L1	10.2	15.2	46.0
5.538000	32.0	GND	L1	10.2	18.0	50.0

ESH2-Z5 Scan-FCC



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

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	55.3	GND	L1	10.0	10.3	65.6
0.166000	53.9	GND	L1	10.0	11.2	65.2
0.174000	53.4	GND	L1	10.0	11.3	64.8
0.182000	52.5	GND	L1	10.0	11.9	64.4
0.198000	52.4	GND	L1	10.0	11.3	63.7
0.210000	51.7	GND	L1	10.0	11.5	63.2

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.258000	22.8	GND	L1	10.0	28.7	51.5
0.302000	25.6	GND	L1	10.0	24.6	50.2
0.450000	20.7	GND	L1	10.0	26.2	46.9
2.090000	15.6	GND	N	10.2	30.4	46.0
2.802000	21.0	GND	L1	10.1	25.0	46.0
3.450000	21.8	GND	L1	10.2	24.2	46.0

**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\*\*\***