



**FCC PART 15C  
TEST REPORT  
No. I15N01391-BT**

**for**

**Huawei Technologies Co.,Ltd**

**Smart Phone**

**Model Name: HUAWEI TAG- L03**

**With**

**Hardware Version: Ver.A**

**Software Version: TAG-L03C464B003\_A**

**FCC ID: QISTAG-L03**

**Issued Date: Jan 7<sup>th</sup>, 2016**

**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>
I15N01391-BT	Rev.0	1st edition	2016-01-07

## **CONTENTS**

<b>1. TEST LABORATORY .....</b>	<b>7</b>
1.1. TESTING LOCATION .....	7
1.2. TESTING ENVIRONMENT .....	7
1.3. PROJECT DATA .....	7
1.4. SIGNATURE .....	7
<b>2. CLIENT INFORMATION.....</b>	<b>8</b>
2.1. APPLICANT INFORMATION .....	8
2.2. MANUFACTURER INFORMATION .....	8
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>9</b>
3.1. ABOUT EUT .....	9
3.2. INTERNAL IDENTIFICATION OF EUT .....	9
3.3. INTERNAL IDENTIFICATION OF AE.....	9
<b>4. REFERENCE DOCUMENTS.....</b>	<b>10</b>
4.1. DOCUMENTS SUPPLIED BY APPLICANT .....	10
4.2. REFERENCE DOCUMENTS FOR TESTING.....	10
<b>5. TEST RESULTS .....</b>	<b>11</b>
5.1. SUMMARY OF TEST RESULTS.....	11
5.2. STATEMENTS.....	11
5.3. TERMS USED IN THE RESULT TABLE .....	11
5.4. LABORATORY ENVIRONMENT.....	12
<b>6. TEST FACILITIES UTILIZED .....</b>	<b>13</b>
<b>7. MEASUREMENT UNCERTAINTY .....</b>	<b>14</b>
<b>ANNEX A: MEASUREMENT RESULTS FOR RECEIVER .....</b>	<b>15</b>
A.0 ANTENNA REQUIREMENT .....	15
A.1 MAXIMUM PEAK OUTPUT POWER .....	16
A.2 BAND EDGES COMPLIANCE .....	17
A.3 CONDUCTED EMISSION .....	18
A.4 RADIATED EMISSION.....	19
A.5 OCCUPIED 20dB BANDWIDTH .....	26
A.6 TIME OF OCCUPANCY (DWELL TIME) .....	26
A.7 NUMBER OF HOPPING CHANNELS.....	27
A.8 CARRIER FREQUENCY SEPARATION .....	27
A.9 AC POWER LINE CONDUCTED EMISSION .....	28
<b>ANNEX B: TEST FIGURE LIST.....</b>	<b>35</b>
FIG. 1 MAXIMUM PEAK OUTPUT POWER(GFSK, CH 0).....	35
FIG. 2 MAXIMUM PEAK OUTPUT POWER(GFSK, CH 39).....	35

FIG. 3	MAXIMUM PEAK OUTPUT POWER(GFSK, CH 78).....	36
FIG. 4	MAXIMUM PEAK OUTPUT POWER( $\pi/4$ DQPSK, CH 0) .....	36
FIG. 5	MAXIMUM PEAK OUTPUT POWER( $\pi/4$ DQPSK, CH 39) .....	37
FIG. 6	MAXIMUM PEAK OUTPUT POWER( $\pi/4$ DQPSK, CH 78) .....	37
FIG. 7	MAXIMUM PEAK OUTPUT POWER(8DPSK, CH 0).....	38
FIG. 8	MAXIMUM PEAK OUTPUT POWER(8DPSK, CH 39).....	38
FIG. 9	MAXIMUM PEAK OUTPUT POWER(8DPSK, CH 78).....	39
FIG. 10	BAND EDGES (GFSK, CH 0, HOPPING ON) .....	39
FIG. 11	BAND EDGES (GFSK, CH 78, HOPPING ON) .....	40
FIG. 12	BAND EDGES ( $\pi/4$ DQPSK, CH 0, HOPPING ON) .....	40
FIG. 13	BAND EDGES ( $\pi/4$ DQPSK, CH 78, HOPPING ON).....	41
FIG. 14	BAND EDGES (8DPSK, CH 0, HOPPING ON) .....	41
FIG. 15	BAND EDGES (8DPSK, CH 78, HOPPING ON) .....	42
FIG. 16	BAND EDGES (GFSK, CH 0, HOPPING OFF).....	42
FIG. 17	BAND EDGES (GFSK, CH 78, HOPPING OFF).....	43
FIG. 18	BAND EDGES ( $\pi/4$ DQPSK, CH 0, HOPPING OFF) .....	43
FIG. 19	BAND EDGES ( $\pi/4$ DQPSK, CH 78, HOPPING OFF) .....	44
FIG. 20	BAND EDGES (8DPSK, CH 0, HOPPING OFF).....	44
FIG. 21	BAND EDGES (8DPSK, CH 78, HOPPING OFF).....	45
FIG. 22	CONDUCTED SPURIOUS EMISSION (GFSK, CH0, 2.402GHz).....	45
FIG. 23	CONDUCTED SPURIOUS EMISSION (GFSK, CH0, 30 MHz-3 GHz).....	46
FIG. 24	CONDUCTED SPURIOUS EMISSION (GFSK, CH0, 3GHz-18 GHz) .....	46
FIG. 25	CONDUCTED SPURIOUS EMISSION (GFSK, CH39, 2.441GHz).....	47
FIG. 26	CONDUCTED SPURIOUS EMISSION (GFSK, CH39, 30 MHz-3 GHz).....	47
FIG. 27	CONDUCTED SPURIOUS EMISSION (GFSK, CH39, 3GHz-18 GHz) .....	48
FIG. 28	CONDUCTED SPURIOUS EMISSION (GFSK, CH78, 2.480GHz).....	48
FIG. 29	CONDUCTED SPURIOUS EMISSION (GFSK, CH78, 30 MHz-3 GHz).....	49
FIG. 30	CONDUCTED SPURIOUS EMISSION (GFSK, CH78, 3GHz-18 GHz) .....	49
FIG. 31	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH0, 2.402GHz).....	50
FIG. 32	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH0, 30 MHz-3 GHz) .....	50
FIG. 33	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH0, 3GHz-18 GHz).....	51
FIG. 34	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH39, 2.441GHz).....	51
FIG. 35	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH39, 30 MHz-3 GHz) .....	52
FIG. 36	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH39, 3GHz-18 GHz).....	52
FIG. 37	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH78, 2.480GHz).....	53
FIG. 38	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH78, 30 MHz-3 GHz) .....	53
FIG. 39	CONDUCTED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH78, 3GHz-18 GHz).....	54
FIG. 40	CONDUCTED SPURIOUS EMISSION (8DPSK, CH0, 2.402GHz).....	54
FIG. 41	CONDUCTED SPURIOUS EMISSION (8DPSK, CH0, 30 MHz-3 GHz).....	55
FIG. 42	CONDUCTED SPURIOUS EMISSION (8DPSK, CH0, 3GHz-18 GHz) .....	55
FIG. 43	CONDUCTED SPURIOUS EMISSION (8DPSK, CH39, 2.441GHz).....	56
FIG. 44	CONDUCTED SPURIOUS EMISSION (8DPSK, CH39, 30 MHz-3 GHz).....	56
FIG. 45	CONDUCTED SPURIOUS EMISSION (8DPSK, CH39, 3GHz-18 GHz).....	57
FIG. 46	CONDUCTED SPURIOUS EMISSION (8DPSK, CH78, 2.480GHz).....	57

FIG. 47	CONDUCTED SPURIOUS EMISSION (8DPSK, CH78, 30 MHz-3 GHz).....	58
FIG. 48	CONDUCTED SPURIOUS EMISSION (8DPSK, CH78, 3GHz-18 GHz).....	58
FIG. 49	CONDUCTED SPURIOUS EMISSION (ALL CHANNEL, 18 GHz-26 GHz) .....	59
FIG.50	RADIATED SPURIOUS EMISSION (GFSK, CH0, 1 GHz-18GHz).....	59
FIG.51	RADIATED SPURIOUS EMISSION (GFSK, CH39, 9 kHz-30MHz).....	60
FIG.52	RADIATED SPURIOUS EMISSION (GFSK, CH39, 30MHz-1 GHz) .....	60
FIG.53	RADIATED SPURIOUS EMISSION (GFSK, CH39, 1 GHz-18GHz).....	61
FIG.54	RADIATED SPURIOUS EMISSION (GFSK, CH39, 18 GHz-26.5GHz).....	61
FIG.55	RADIATED SPURIOUS EMISSION (GFSK, CH78, 1 GHz-18 GHz).....	62
FIG.56	RADIATED EMISSION POWER (GFSK, CH0, 2380GHz~2450GHz) .....	62
FIG.57	RADIATED EMISSION POWER (GFSK, CH78, 2450GHz~2500GHz).....	63
FIG.58	RADIATED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH0, 1 GHz-18GHz).....	63
FIG.59	RADIATED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH39, 30MHz-1 GHz) .....	64
FIG.60	RADIATED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH39, 1 GHz-18GHz).....	64
FIG.61	RADIATED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH39, 18 GHz-26.5GHz).....	65
FIG.62	RADIATED SPURIOUS EMISSION ( $\pi/4$ DQPSK, CH78, 1 GHz-18 GHz).....	65
FIG.63	RADIATED EMISSION POWER ( $\pi/4$ DQPSK, CH0, 2380GHz~2450GHz) .....	66
FIG.64	RADIATED EMISSION POWER ( $\pi/4$ DQPSK, CH78, 2450GHz~2500GHz) .....	66
FIG.65	RADIATED SPURIOUS EMISSION (8DPSK, CH0, 1 GHz-18GHz).....	67
FIG.66	RADIATED SPURIOUS EMISSION (8DPSK, CH39, 30MHz-1 GHz) .....	67
FIG.67	RADIATED SPURIOUS EMISSION (8DPSK, CH39, 1 GHz-18GHz).....	68
FIG.68	RADIATED SPURIOUS EMISSION (8DPSK, CH39, 18 GHz-26.5GHz).....	68
FIG.69	RADIATED SPURIOUS EMISSION (8DPSK, CH78, 1 GHz-18 GHz) .....	69
FIG.70	RADIATED EMISSION POWER (8DPSK, CH0, 2380GHz~2450GHz) .....	69
FIG.71	RADIATED EMISSION POWER (8DPSK, CH78, 2450GHz~2500GHz) .....	70
FIG. 72	OCCUPIED 20dB BANDWIDTH (GFSK, CH 0).....	70
FIG. 73	OCCUPIED 20dB BANDWIDTH (GFSK, CH 39).....	71
FIG. 74	OCCUPIED 20dB BANDWIDTH (GFSK, CH 78).....	71
FIG. 75	OCCUPIED 20dB BANDWIDTH ( $\pi/4$ DQPSK, CH 0).....	72
FIG. 76	OCCUPIED 20dB BANDWIDTH ( $\pi/4$ DQPSK, CH 39).....	72
FIG. 77	OCCUPIED 20dB BANDWIDTH ( $\pi/4$ DQPSK, CH 78).....	73
FIG. 78	OCCUPIED 20dB BANDWIDTH (8DPSK, CH 0).....	73
FIG. 79	OCCUPIED 20dB BANDWIDTH (8DPSK, CH 39).....	74
FIG. 80	OCCUPIED 20dB BANDWIDTH (8DPSK, CH 78).....	74
FIG. 81	TIME OF OCCUPANCY(DWELL TIME) (GFSK, CH39) .....	75
FIG. 82	NUMBER OF TRANSMISSIONS (GFSK, CH39).....	75
FIG. 83	TIME OF OCCUPANCY(DWELL TIME) ( $\pi/4$ DQPSK, CH39) .....	76
FIG. 84	NUMBER OF TRANSMISSIONS ( $\pi/4$ DQPSK, CH39).....	76
FIG. 85	TIME OF OCCUPANCY(DWELL TIME) (8DPSK, CH39) .....	77
FIG. 86	NUMBER OF TRANSMISSIONS (8DPSK, CH39).....	77
FIG. 87	HOPPING CHANNEL CH0~39 (GFSK, CH39).....	78
FIG. 88	HOPPING CHANNEL CH39~78 (GFSK, CH39).....	78
FIG. 89	HOPPING CHANNEL CH0~39 ( $\pi/4$ DQPSK, CH39).....	79
FIG. 90	HOPPING CHANNEL CH39~78 ( $\pi/4$ DQPSK, CH39).....	79



FIG. 91	HOPPING CHANNEL CH0~39 (8DPSK, CH39).....	80
FIG. 92	HOPPING CHANNEL CH39~78 (8DPSK, CH39).....	80
FIG. 93	CARRIER FREQUENCY SEPARATION (GFSK, CH39).....	81
FIG. 94	CARRIER FREQUENCY SEPARATION ( $\pi/4$ DQPSK, CH39).....	81
FIG. 95	CARRIER FREQUENCY SEPARATION (8DPSK, CH39).....	82
FIG. 96	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE1).....	83
FIG. 97	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE2).....	84
FIG. 98	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE3).....	85
FIG. 99	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE4).....	86
FIG. 100	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE5).....	87
FIG. 101	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE6).....	88
FIG. 102	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE7).....	89
FIG. 103	AC POWER LINE CONDUCTED EMISSION (TRAFFIC, AE8).....	90
FIG. 104	AC POWER LINE CONDUCTED EMISSION (IDLE, AE1).....	91
FIG. 105	AC POWER LINE CONDUCTED EMISSION (IDLE, AE2).....	92
FIG. 106	AC POWER LINE CONDUCTED EMISSION (IDLE, AE3).....	93
FIG. 107	AC POWER LINE CONDUCTED EMISSION (IDLE, AE4).....	94
FIG. 108	AC POWER LINE CONDUCTED EMISSION (IDLE, AE5).....	95
FIG. 109	AC POWER LINE CONDUCTED EMISSION (IDLE, AE6).....	96
FIG. 110	AC POWER LINE CONDUCTED EMISSION (IDLE, AE7).....	97
FIG. 111	AC POWER LINE CONDUCTED EMISSION (IDLE, AE8).....	98
<b>ANNEX C: PERSONS INVOLVED IN THIS TESTING .....</b>		<b>99</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°C

Extreme Temperature: -20/+55°C

Relative Humidity: 20-75%

### 1.3. Project data

Testing Start Date: 2015-10-28

Testing End Date: 2015-12-25

### 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: 0086-0755-28970299  
Fax: 0086-0755-89650226

### **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: 0086-0755-28970299  
Fax: 0086-0755-89650226

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

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

Description	Smart Phone
Model Name	HUAWEI TAG-L03
Market Name	HUAWEI GR3
Frequency Band	2402MHz~2480MHz
Type of Modulation	GFSK/ $\pi$ /4 DQPSK/8DPSK
Number of Channels	79
FCC ID	QISTAG-L03

\*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	TAG-L03C464B003_A

\*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-050100U01_BYD	/
AE2	Charger	HW-050100U01_HUNTKEY	/
AE3	Charger	HW-050100U01_Phitek	/
AE4	Charger	HW-050100E01_BYD	/
AE5	Charger	HW-050100E01_HUNTKEY	/
AE6	Charger	HW-050100E01_Phitek	/
AE7	Charger	HW-050100I01_BYD	/
AE8	Charger	HW-050100I01_HUNTKEY	/
AE9	Charger	HW-050100R01_BYD	/
AE10	Charger	HW-050100B01_BYD	/
AE11	Charger	HW-050100A01_BYD	/
AE12	Charger	HW-050100R01_HUNTKEY	/
AE13	Charger	HW-050100B01_HUNTKEY	/
AE14	Charger	HW-050100A01_HUNTKEY	/
AE15	Charger	HW-050100R01_Phitek	/
AE16	Charger	HW-050100B01_Phitek	/
AE17	Charger	HW-050100A01_Phitek	/
AE18	Charger	HW-050100Z01_HUNTKEY	/
AE19	Charger	HW-050100Z01_Phitek	/
AE20	Charger	HW-050100Z01_BYD	/

\*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	Sub-clause of Part15C	Verdict
0	Antenna Requirement	15.203	P
1	Maximum Peak Output Power	15.247 (b)	P
2	Band Edges Compliance	15.247 (d)	P
3	Conducted Spurious Emission	15.247 (d)	P
4	Radiated Spurious Emission	15.247,15.205,15.209	P
5	Occupied 20dB bandwidth	15.247(a)	P
6	Time of Occupancy(Dwell Time)	15.247(a)	P
7	Number of Hopping Channel	15.247(a)	P
8	Carrier Frequency Separation	15.247(a)	P
9	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 TAG-L03 and HUAWEI TAG-L23 are the same. The tests of A5.2 base on the model HUAWEI ALE-L03, the other parts base on the model HUAWEI TAG-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 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
2	Bluetooth Tester	CBT32	100584	Rohde & Schwarz	2016-01-10	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	2016-12-18	1 year

### Anechoic chamber

Fully anechoic chamber by ETS-Lindgren.

## 7. Measurement Uncertainty

Test Name	Uncertainty	
1.Maximum Peak Output Power	±1.32dB	
2.Band Edges Compliance	±66Hz	
3.Conducted Spurious Emission	$30\text{MHz} \leq f \leq 1\text{GHz}$	±1.41dB
	$1\text{GHz} \leq f \leq 18\text{GHz}$	±1.92dB
	$18\text{GHz} \leq f \leq 26\text{GHz}$	±2.31dB
4.Radiated Spurious Emission	$9\text{k} \leq f \leq 30\text{MHz}$	±4.00dB
	$30\text{M} \leq f \leq 1\text{GHz}$	±5.08dB
	$1\text{GHz} \leq f \leq 18\text{GHz}$	±4.56dB
	$18\text{GHz} \leq f \leq 26\text{GHz}$	±4.56dB
5.Occupied 20dB bandwidth	±66Hz	
6.Time of Occupancy(Dwell Time)	±0.6ms	
7.Number of Hopping Channel	±66Hz	
8.Carrier Frequency Separation	±0.6ms	
9.AC Powerline Conducted Emission	±2.7dB	

## **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 -2.9 dBi.  
The RF transmitter uses an integrate antenna without connector.**

### A.1 Maximum Peak Output Power

**Measurement Limit:**

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

**Measurement Results:**

Mode	Test Result (dBm)					
	2402MHz (Ch0)		2441MHz (Ch39)		2480 MHz (Ch78)	
GFSK	Fig.1	5.44	Fig.2	4.90	Fig.3	6.00
$\pi/4$ DQPSK	Fig.4	4.43	Fig.5	3.99	Fig.6	5.11
8DPSK	Fig.7	4.69	Fig.8	4.23	Fig.9	5.30

**Conclusion: Pass**

## A.2 Band Edges Compliance

### Measurement Limit:

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

### Measurement Result:

Mode	Channel	Hopping	Test Results	Conclusion
GFSK	0	ON	Fig.10	P
	78	ON	Fig.11	P
$\pi/4$ DQPSK	0	ON	Fig.12	P
	78	ON	Fig.13	P
8DPSK	0	ON	Fig.14	P
	78	ON	Fig.15	P

Mode	Channel	Hopping	Test Results	Conclusion
GFSK	0	OFF	Fig.16	P
	78	OFF	Fig.17	P
$\pi/4$ DQPSK	0	OFF	Fig.18	P
	78	OFF	Fig.19	P
8DPSK	0	OFF	Fig.20	P
	78	OFF	Fig.21	P

See ANNEX C for test graphs.

**Conclusion: Pass**

### A.3 Conducted Emission

**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.22	P
		30 MHz-3GHz	Fig.23	P
		3GHz-18GHz	Fig.24	P
	39	2.441 GHz	Fig.25	P
		30 MHz-3 GHz	Fig.26	P
		3GHz-18GHz	Fig.27	P
	78	2.480 GHz	Fig.28	P
		30 MHz-3GHz	Fig.29	P
		3GHz-18GHz	Fig.30	P
$\pi/4$ DQPSK	0	2.402 GHz	Fig.31	P
		30 MHz-3 GHz	Fig.32	P
		3GHz-18GHz	Fig.33	P
	39	2.441 GHz	Fig.34	P
		30 MHz-3GHz	Fig.35	P
		3GHz-18Ghz	Fig.36	P
	78	2.480 GHz	Fig.37	P
		30 MHz-3GHz	Fig.38	P
		3GHz-18Ghz	Fig.39	P
8DPSK	0	2.402 GHz	Fig.40	P
		30 MHz-3GHz	Fig.41	P
		3GHz-18GHz	Fig.42	P
	39	2.441 GHz	Fig.43	P
		30 MHz-3GHz	Fig.44	P
		3GHz-18GHz	Fig.45	P
	78	2.480 GHz	Fig.46	P
		30 MHz-3GHz	Fig.47	P
		3GHz-18GHz	Fig.48	P
/	All channel	18GHz-26GHz	Fig.49	P

See ANNEX C for test graphs.

**Conclusion: Pass**

#### A.4 Radiated Emission

##### 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:**

**GFSK mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	1 GHz ~ 18 GHz	Fig.50	P
	39	9 kHz ~30 MHz	Fig.51	P
		30 MHz ~1 GHz	Fig.52	P
		1 GHz ~ 18 GHz	Fig.53	P
		18 GHz~ 26.5 GHz	Fig.54	P
	78	1 GHz ~ 18 GHz	Fig.55	P
	Power(CH0)	2.38 GHz ~ 2.45 GHz	Fig.56	P
Power(CH78)	2.45 GHz ~ 2.5 GHz	Fig.57	P	
$\pi/4$ DQPSK	0	1 GHz ~ 18 GHz	Fig.58	P
	39	30 MHz ~1 GHz	Fig.59	P
		1 GHz ~ 18 GHz	Fig.60	P
		18 GHz~ 26.5 GHz	Fig.61	P
	78	1 GHz ~ 18 GHz	Fig.62	P
	Power(CH0)	2.38 GHz ~ 2.45 GHz	Fig.63	P
	Power(CH78)	2.45 GHz ~ 2.5 GHz	Fig.64	P
8DPSK	0	1 GHz ~ 18 GHz	Fig.65	P
	39	30 MHz ~1 GHz	Fig.66	P
		1 GHz ~ 18 GHz	Fig.67	P
		18 GHz~ 26.5 GHz	Fig.68	P
	78	1 GHz ~ 18 GHz	Fig.69	P
	Power(CH0)	2.38 GHz ~ 2.45 GHz	Fig.70	P
	Power(CH78)	2.45 GHz ~ 2.5 GHz	Fig.71	P

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

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
13987.000000	57.2	V	10.9	16.8	74.0
15155.000000	56.9	V	12.1	17.1	74.0
15730.000000	58.7	V	12.9	15.3	74.0
16219.000000	59.7	V	13.3	14.3	74.0
16718.000000	60.0	H	13.9	14.0	74.0
17389.000000	59.8	H	14.3	14.2	74.0

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

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14544.000000	44.6	V	11.8	9.4	54.0
15154.000000	45.4	H	12.1	8.6	54.0
15666.000000	46.8	V	12.7	7.2	54.0
16207.000000	47.4	H	13.3	6.6	54.0
16787.000000	47.9	V	14.0	6.1	54.0
17283.000000	47.5	V	14.1	6.5	54.0

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

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14162.000000	56.0	H	11.2	18.0	74.0
15082.000000	57.3	V	12.0	16.7	74.0
15784.000000	58.6	V	13.0	15.4	74.0
16310.000000	58.4	V	13.5	15.6	74.0
16747.000000	59.2	H	14.0	14.8	74.0
17506.000000	59.5	H	14.3	14.5	74.0

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

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14525.000000	44.4	V	11.7	9.6	54.0
15136.000000	45.2	H	12.1	8.8	54.0
15771.000000	46.7	V	12.9	7.3	54.0
16207.000000	46.8	V	13.3	7.2	54.0
16731.000000	47.2	V	13.9	6.8	54.0
17404.000000	47.0	H	14.3	7.0	54.0

**GFSK CH78 (1-18GHz)**

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14501.000000	56.5	V	11.7	17.5	74.0
15177.000000	57.8	V	12.1	16.2	74.0
15695.000000	58.6	V	12.8	15.4	74.0
16251.000000	58.5	H	13.3	15.5	74.0

17036.000000	59.6	V	14.2	14.4	74.0
17338.000000	59.4	V	14.2	14.6	74.0

**GFSK CH78 (1-18GHz)**

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14522.000000	44.4	H	11.7	9.6	54.0
15141.000000	45.1	V	12.1	8.9	54.0
15774.000000	46.5	V	12.9	7.5	54.0
16245.000000	46.6	V	13.3	7.4	54.0
16702.000000	47.1	V	13.9	6.9	54.0
17391.000000	47.1	V	14.3	6.9	54.0

**$\pi/4$  DQPSK CH0 (1-18GHz)**

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14512.000000	56.3	V	11.7	17.7	74.0
15125.000000	57.0	V	12.1	17.0	74.0
15628.000000	58.9	V	12.7	15.1	74.0
16228.000000	59.1	V	13.3	14.9	74.0
17213.000000	59.4	V	14.0	14.6	74.0
17409.000000	59.9	H	14.3	14.1	74.0

**$\pi/4$  DQPSK CH0 (1-18GHz)**

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14522.000000	44.5	V	11.7	9.5	54.0
15127.000000	45.3	V	12.1	8.7	54.0
15748.000000	46.8	V	12.9	7.2	54.0
16207.000000	46.9	V	13.3	7.1	54.0
16768.000000	47.4	V	14.0	6.6	54.0
17779.000000	47.2	V	14.4	6.8	54.0

**$\pi/4$  DQPSK CH39 (1-18GHz)**

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14141.000000	56.4	V	11.2	17.6	74.0

14745.000000	57.2	V	11.8	16.8	74.0
15833.000000	59.1	H	13.0	14.9	74.0
16221.000000	58.8	V	13.3	15.2	74.0
16780.000000	60.0	V	14.0	14.0	74.0
17414.000000	60.0	V	14.3	14.0	74.0

$\pi/4$  DQPSK CH39 (1-18GHz)

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14534.000000	44.5	V	11.8	9.5	54.0
15181.000000	45.3	V	12.1	8.7	54.0
15775.000000	46.9	V	12.9	7.1	54.0
16214.000000	47.4	V	13.3	6.6	54.0
16768.000000	48.0	V	14.0	6.0	54.0
17303.000000	47.6	V	14.1	6.4	54.0

$\pi/4$  DQPSK CH78 (1-18GHz)

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14219.000000	56.5	V	11.3	17.5	74.0
15032.000000	56.9	H	12.0	17.1	74.0
15772.000000	58.9	H	12.9	15.1	74.0
16218.000000	59.1	V	13.3	14.9	74.0
16766.000000	60.1	V	14.0	13.9	74.0
17368.000000	60.0	V	14.3	14.0	74.0

$\pi/4$  DQPSK CH78 (1-18GHz)

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14548.000000	44.5	V	11.8	9.5	54.0
15177.000000	45.3	H	12.1	8.7	54.0
15678.000000	46.9	V	12.8	7.1	54.0
16207.000000	47.4	V	13.3	6.6	54.0
16767.000000	47.9	V	14.0	6.1	54.0
17274.000000	47.6	V	14.1	6.4	54.0

**8DPSK CH0 (1-18GHz)**

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14541.000000	56.8	V	11.8	17.2	74.0
15071.000000	58.0	V	12.0	16.0	74.0
15813.000000	58.9	H	13.0	15.1	74.0
16313.000000	59.2	V	13.5	14.8	74.0
16763.000000	60.0	H	14.0	14.0	74.0
17453.000000	59.9	H	14.3	14.1	74.0

**8DPSK CH0 (1-18GHz)**

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14546.000000	44.6	V	11.8	9.4	54.0
15143.000000	45.3	H	12.1	8.7	54.0
15679.000000	46.9	V	12.8	7.1	54.0
16220.000000	47.5	V	13.3	6.5	54.0
16776.000000	48.0	V	14.0	6.0	54.0
17336.000000	47.7	V	14.2	6.3	54.0

**8DPSK CH39 (1-18GHz)**

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14195.000000	56.1	H	11.3	17.9	74.0
15075.000000	56.9	V	12.0	17.1	74.0
15748.000000	58.5	H	12.9	15.5	74.0
16183.000000	58.2	V	13.3	15.8	74.0
16877.000000	59.0	V	14.1	15.0	74.0
17857.000000	58.5	V	14.4	15.5	74.0

**8DPSK CH39 (1-18GHz)**

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14512.000000	44.0	V	11.7	10.0	54.0
15153.000000	44.9	V	12.1	9.1	54.0
15781.000000	46.4	H	13.0	7.6	54.0
16227.000000	46.4	V	13.3	7.6	54.0

16715.000000	46.8	V	13.9	7.2	54.0
17345.000000	46.7	V	14.2	7.3	54.0

**8DPSK CH78 (1-18GHz)**

Frequency (MHz)	MaxPeak-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14165.000000	55.9	V	11.2	18.1	74.0
15177.000000	57.2	V	12.1	16.8	74.0
15757.000000	58.1	V	12.9	15.9	74.0
16311.000000	58.3	H	13.5	15.7	74.0
16745.000000	58.6	H	14.0	15.4	74.0
17752.000000	58.3	V	14.4	15.7	74.0

**8DPSK CH78 (1-18GHz)**

Frequency (MHz)	Average-ClearWrite (dB $\mu$ V/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
14475.000000	43.8	V	11.6	10.2	54.0
15124.000000	44.7	V	12.1	9.3	54.0
15776.000000	46.3	V	12.9	7.7	54.0
16204.000000	46.0	V	13.3	8.0	54.0
16807.000000	46.6	H	14.0	7.4	54.0
17350.000000	46.3	V	14.2	7.7	54.0

See ANNEX C for test graphs.

Conclusion: Pass

### A.5 Occupied 20dB Bandwidth

**Measurement Limit:**

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	/

**Measurement Result:**

Mode	Channel	Occupied 20dB Bandwidth ( MHz)		conclusion
		Fig.	Value	
GFSK	0	Fig.72	1.121	/
	39	Fig.73	1.165	
	78	Fig.74	1.099	
$\pi/4$ DQPSK	0	Fig.75	1.374	/
	39	Fig.76	1.375	
	78	Fig.77	1.374	
8DPSK	0	Fig.78	1.375	/
	39	Fig.79	1.375	
	78	Fig.80	1.375	

See ANNEX C for test graphs.

**Conclusion: PASS**

### A.6 Time of Occupancy (Dwell Time)

**Measurement Limit:**

Standard	Limit
FCC 47 CFR Part 15.247(a)	< 400 ms

**Measurement Results:**

Mode	Channel	Packet	Dwell Time(ms)		Conclusion
GFSK	39	DH5	Fig.81	199.0	<b>P</b>
			Fig.82		
$\pi/4$ DQPSK	39	2-DH5	Fig.83	144.2	<b>P</b>
			Fig.84		
8DPSK	39	3-DH5	Fig.85	207.7	<b>P</b>
			Fig.86		

See ANNEX C for test graphs.

**Conclusion: Pass**

## A.7 Number of Hopping Channels

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)	At least 15 non-overlapping channels

### Measurement Results:

Mode	Channel	Packet	Number of hopping channels		Test result	Conclusion
GFSK	39	DH5	Fig.87	Fig.88	79	<b>P</b>
$\pi/4$ DQPSK	39	2-DH5	Fig.89	Fig.90	79	<b>P</b>
8DPSK	39	3-DH5	Fig.91	Fig.92	79	<b>P</b>

See ANNEX C for test graphs.

**Conclusion: Pass**

## A.8 Carrier Frequency Separation

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)	By a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater

### Measurement Results:

Mode	Channel	Packet	Separation of hopping channels	Test result (MHz)	Conclusion
GFSK	39	DH5	Fig.93	1.006	P
$\pi/4$ DQPSK	39	2-DH5	Fig.94	1.006	P
8DPSK	39	3-DH5	Fig.95	1.006	P

See ANNEX C for test graphs.

**Conclusion: Pass**

### A.9 AC Power line 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.96	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.96	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.97	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.97	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.98	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.98	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- 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.99	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-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.99	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- 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.100	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-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.100	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- 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.101	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-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.101	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)-AE7- 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.102	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)-AE7-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.102	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)-AE8- 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.103	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)-AE8-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.103	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.104	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.104	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.105	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.105	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.106	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.106	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-idle

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	Fig.69 to 56	Fig.107	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-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.107	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-idle

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	Fig.70 to 56	Fig.108	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-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.108	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-idle

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	Fig.71 to 56	Fig.109	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-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.109	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)-AE7-idle

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	Fig.72 to 56	Fig.110	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)-AE7-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.110	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)-AE8-idle

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	Fig.73 to 56	Fig.111	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)-AE8-idle

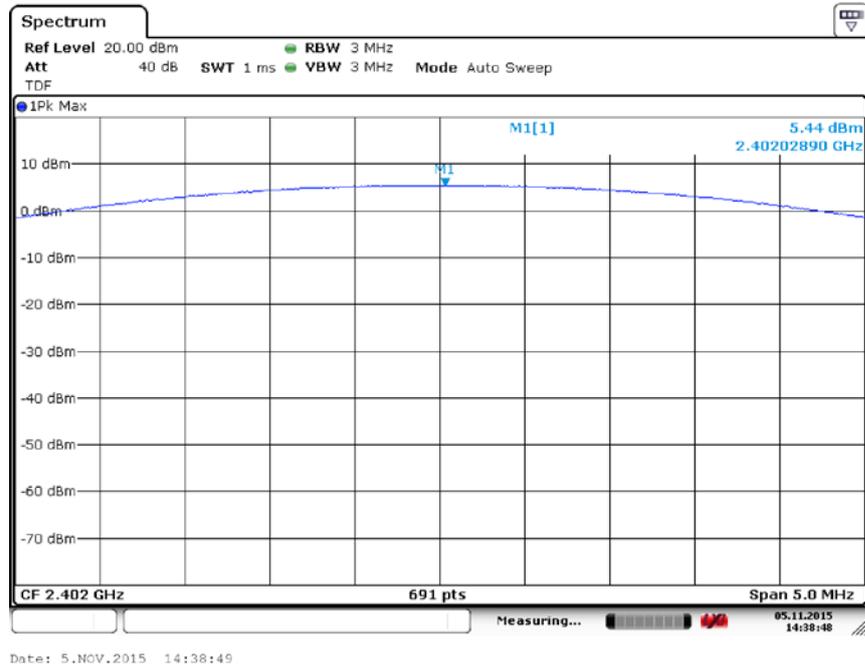
Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		Traffic	
0.15 to 0.5	56 to 46	Fig.111	P
0.5 to 5	46		
5 to 30	50		
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.			

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

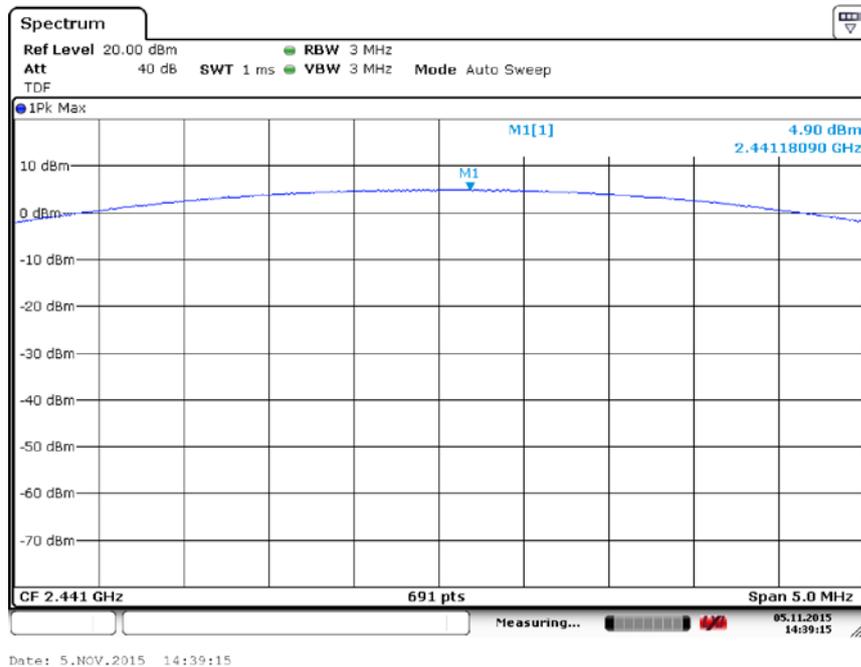
**See ANNEX C for test graphs.**

**Conclusion: Pass**

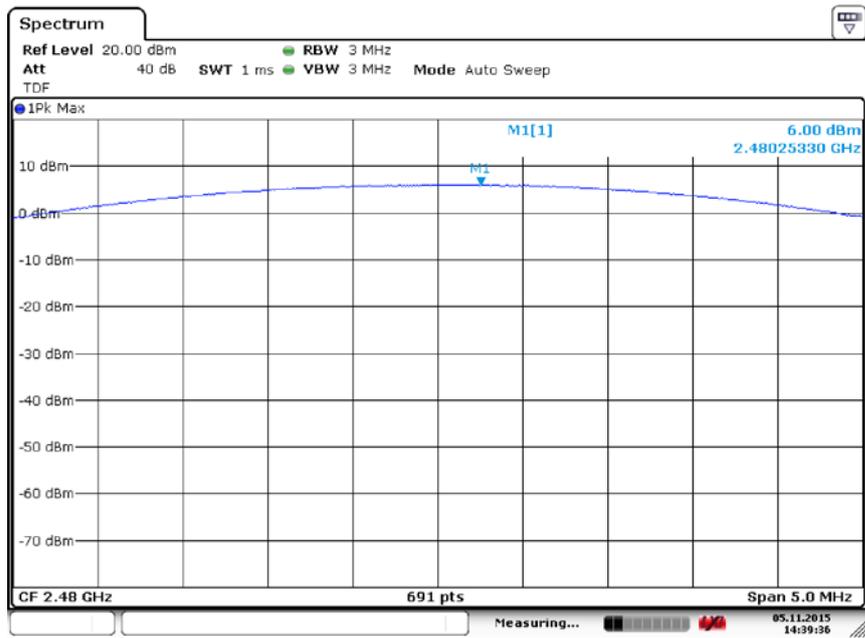
## ANNEX B: TEST FIGURE LIST



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

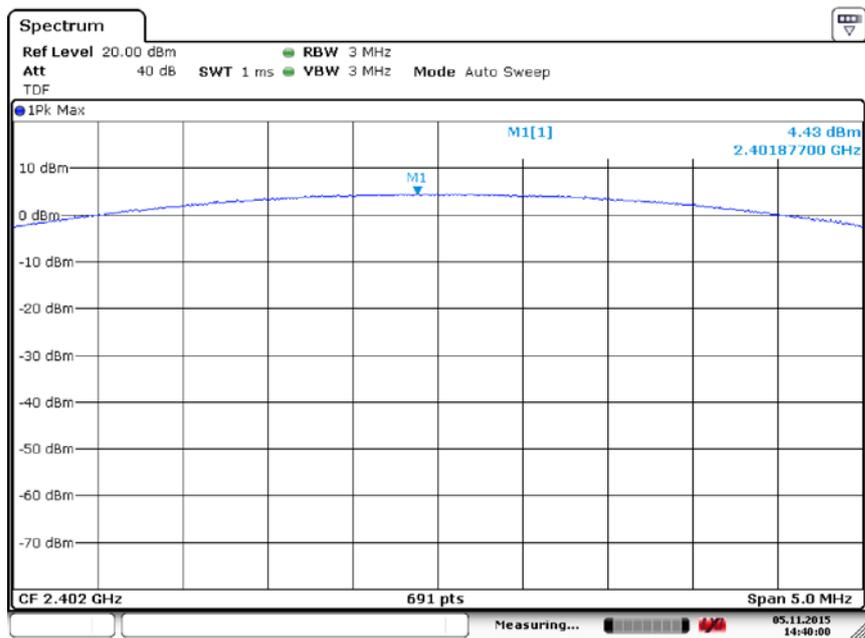


**Fig. 2 Maximum Peak Output Power(GFSK, Ch 39)**



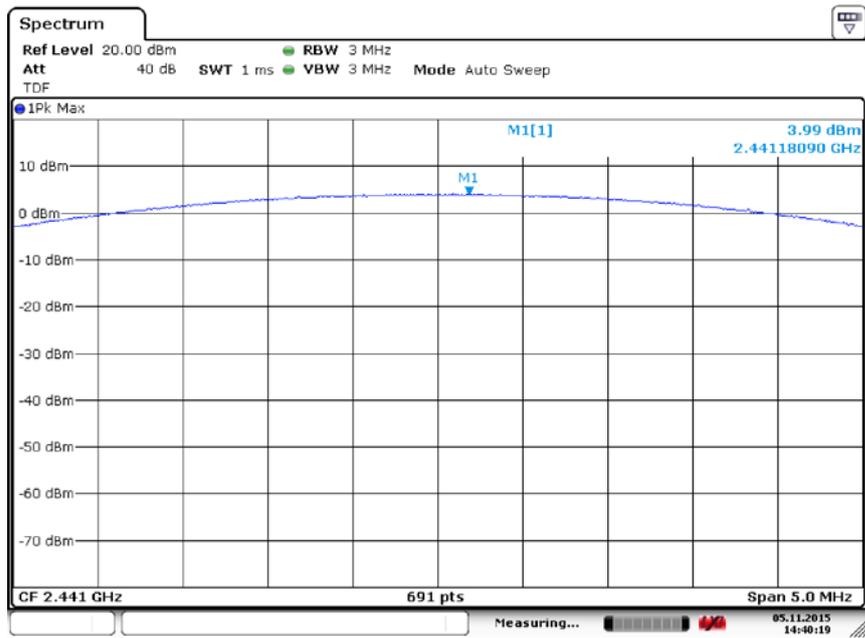
Date: 5.NOV.2015 14:39:36

**Fig. 3 Maximum Peak Output Power(GFSK, Ch 78)**



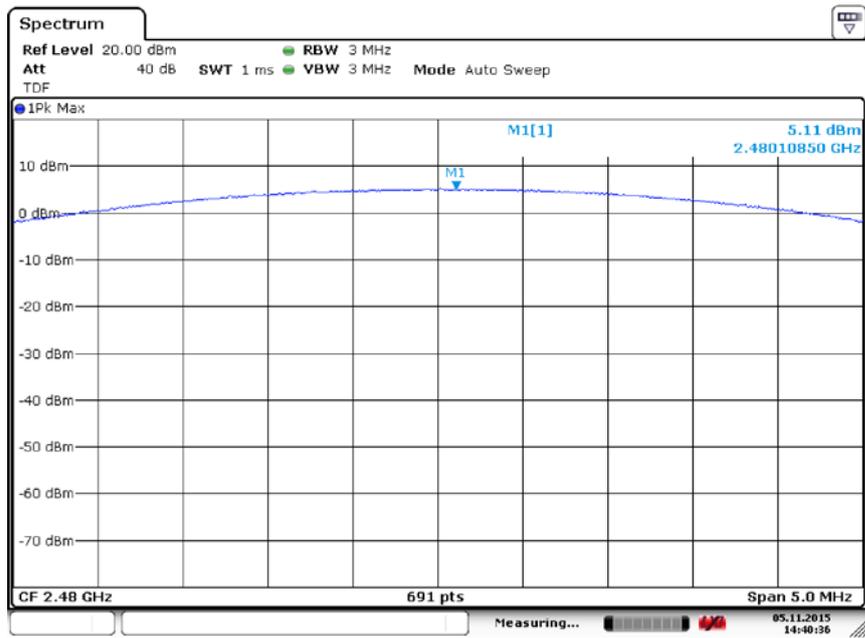
Date: 5.NOV.2015 14:40:01

**Fig. 4 Maximum Peak Output Power( $\pi/4$  DQPSK, Ch 0)**



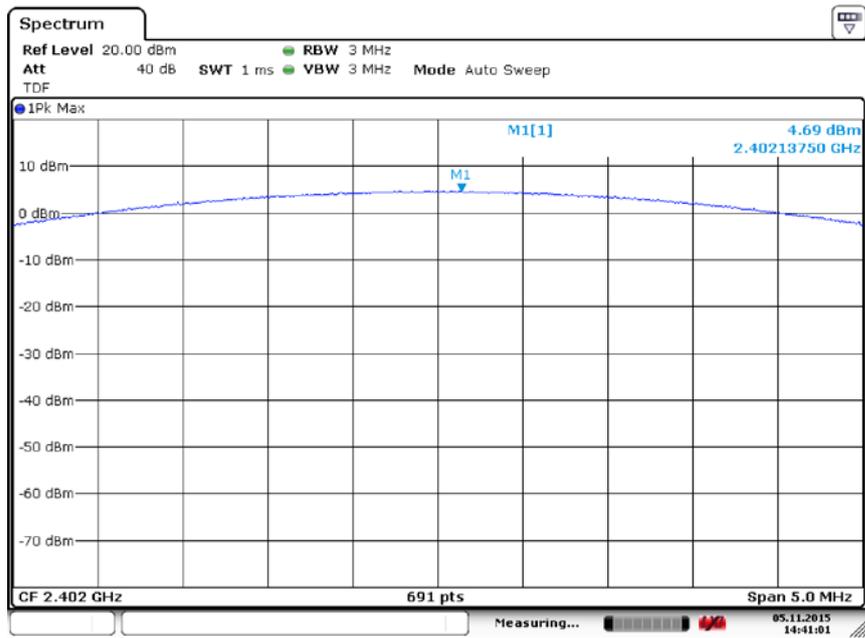
Date: 5.NOV.2015 14:40:19

**Fig. 5 Maximum Peak Output Power( $\pi/4$  DQPSK, Ch 39)**

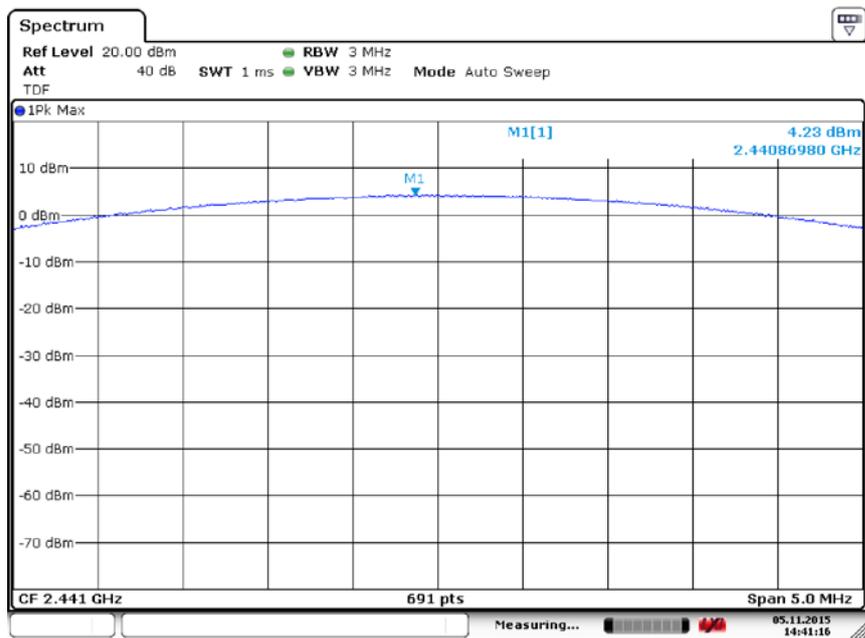


Date: 5.NOV.2015 14:40:36

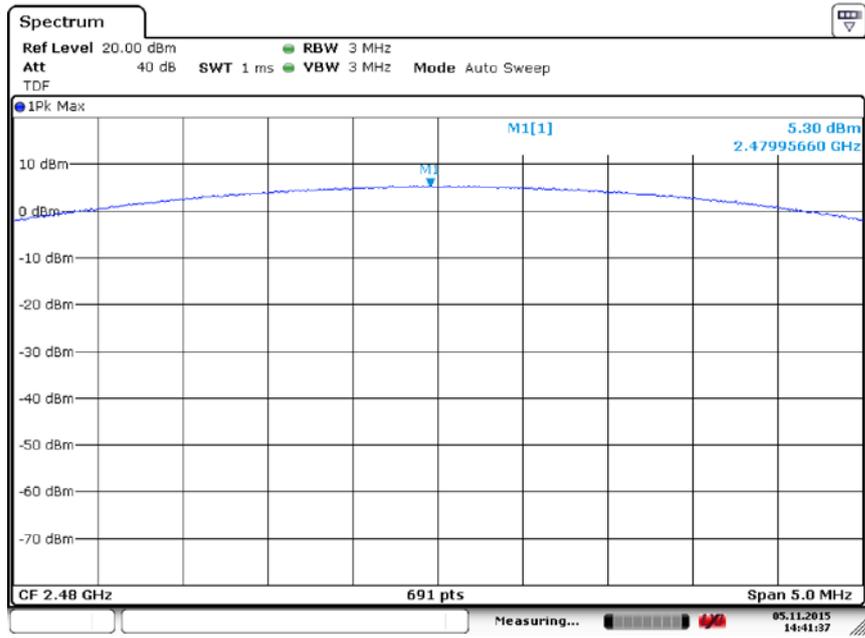
**Fig. 6 Maximum Peak Output Power( $\pi/4$  DQPSK, Ch 78)**



**Fig. 7 Maximum Peak Output Power(8DPSK, Ch 0)**

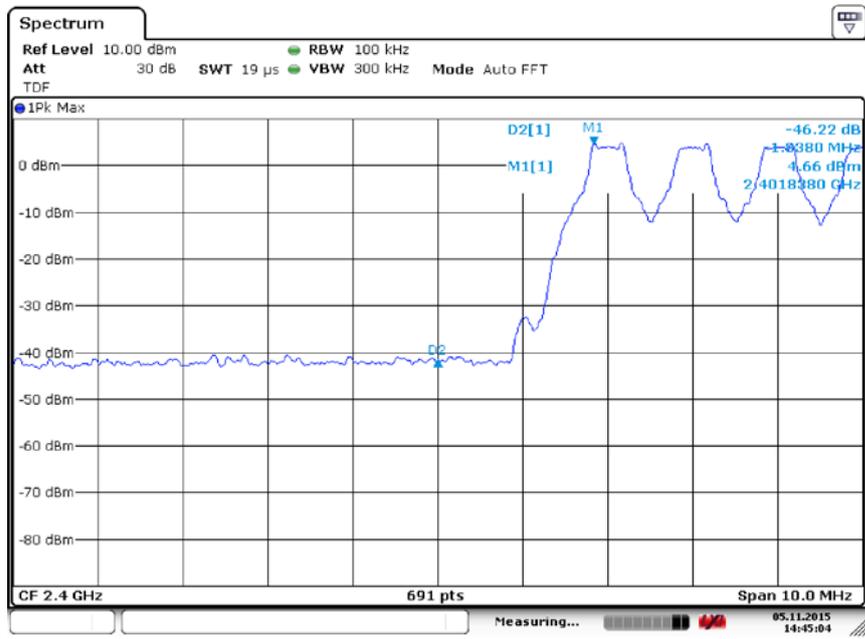


**Fig. 8 Maximum Peak Output Power(8DPSK, Ch 39)**



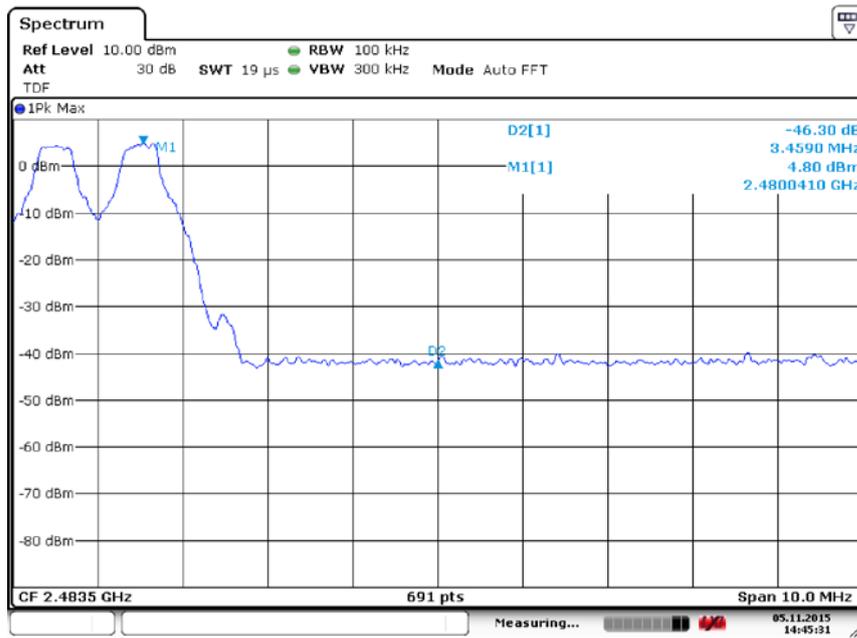
Date: 5.NOV.2015 14:41:37

**Fig. 9 Maximum Peak Output Power(8DPSK, Ch 78)**



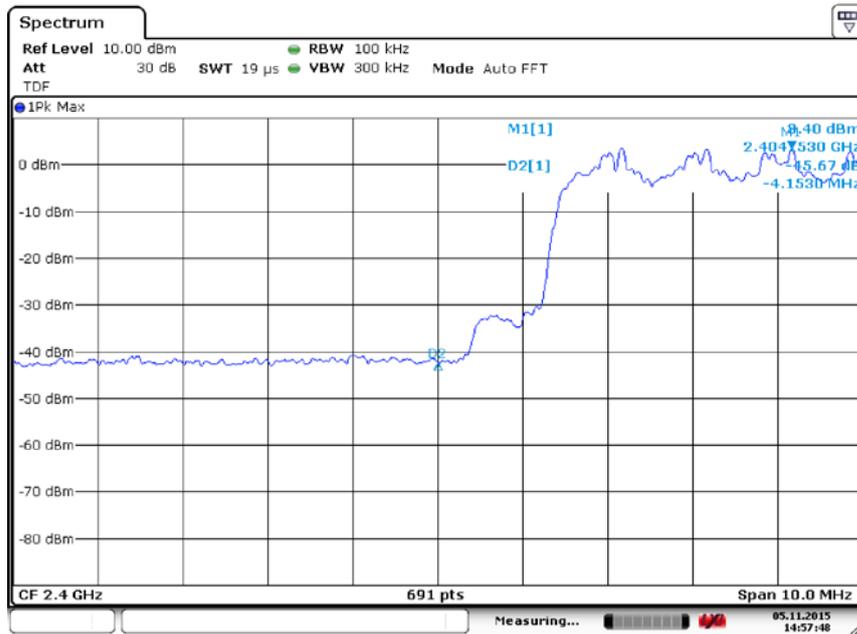
Date: 5.NOV.2015 14:45:05

**Fig. 10 Band Edges (GFSK, Ch 0, Hopping ON)**



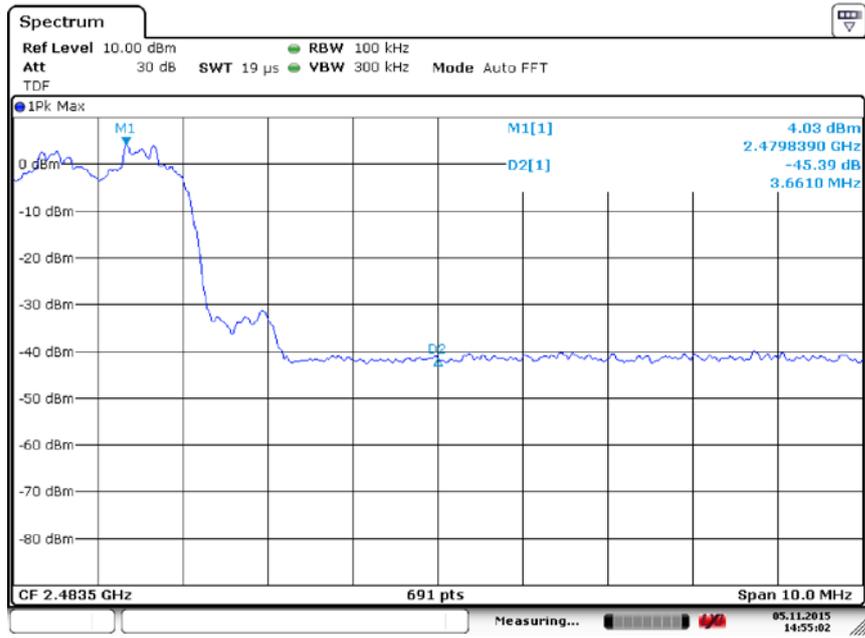
Date: 5.NOV.2015 14:45:31

**Fig. 11 Band Edges (GFSK, Ch 78, Hopping ON)**

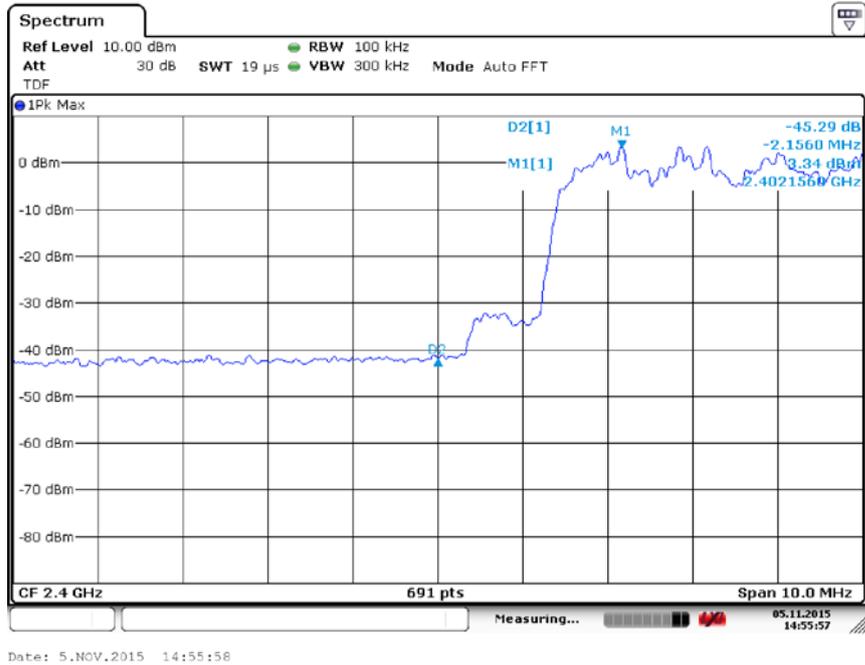


Date: 5.NOV.2015 14:57:48

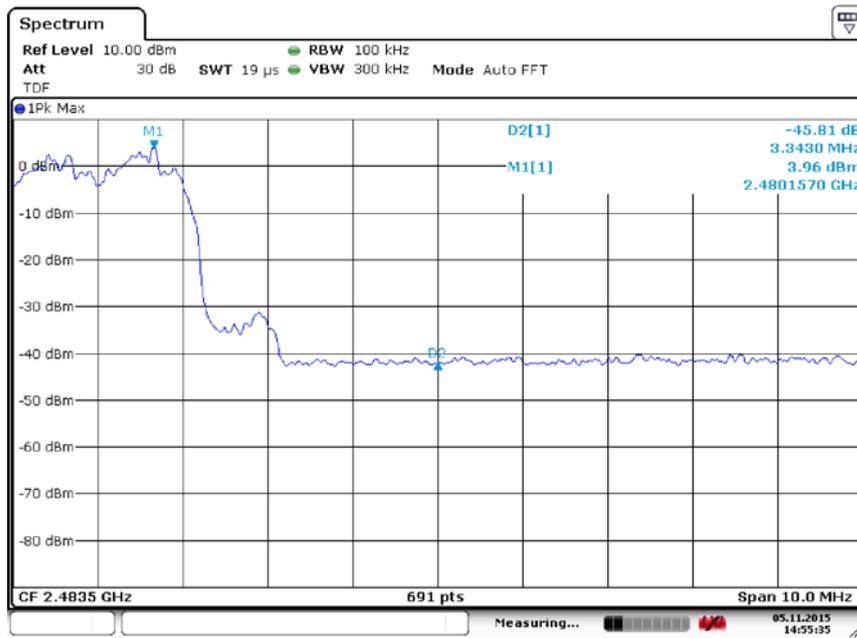
**Fig. 12 Band Edges ( $\pi/4$  DQPSK, Ch 0, Hopping ON)**



**Fig. 13 Band Edges ( $\pi/4$  DQPSK, Ch 78, Hopping ON)**

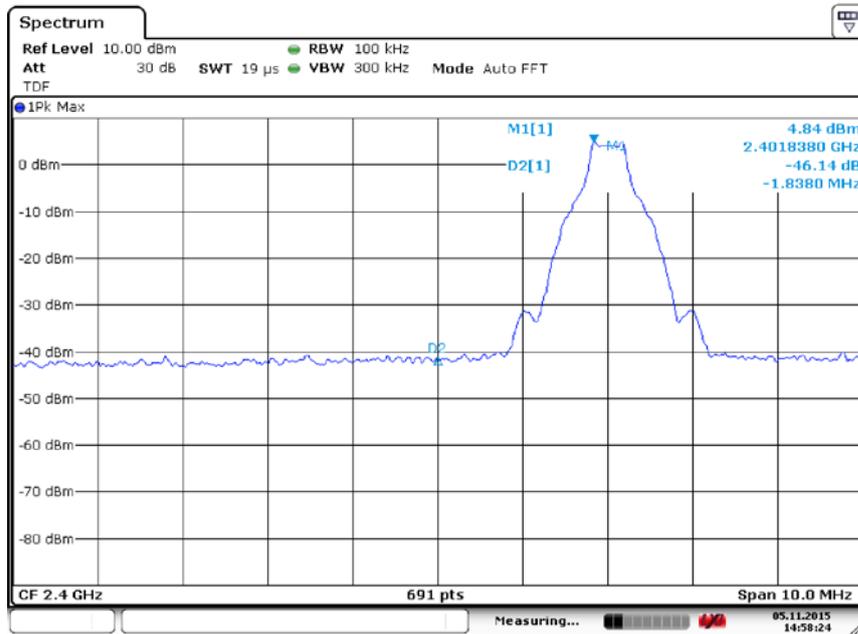


**Fig. 14 Band Edges (8DPSK, Ch 0, Hopping ON)**



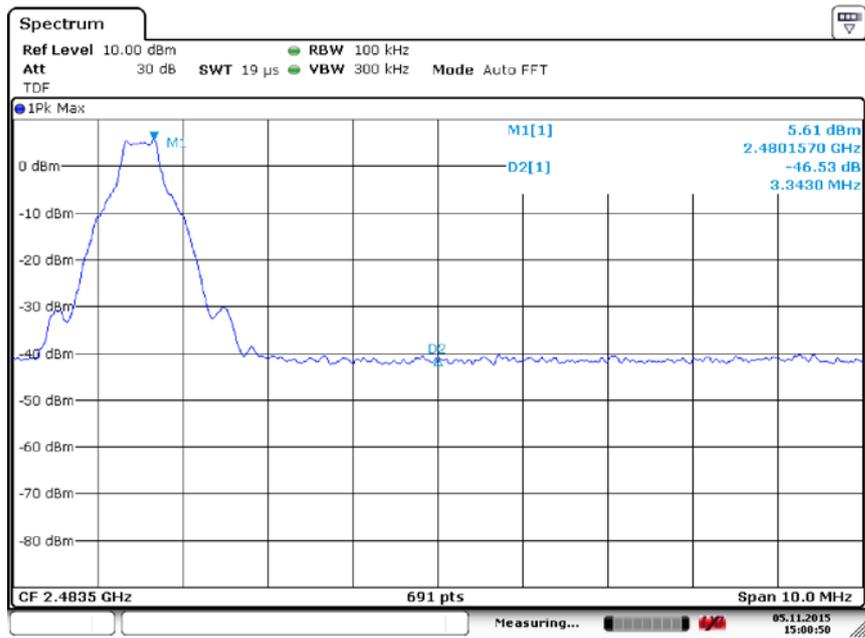
Date: 5.NOV.2015 14:55:36

**Fig. 15 Band Edges (8DPSK, Ch 78, Hopping ON)**



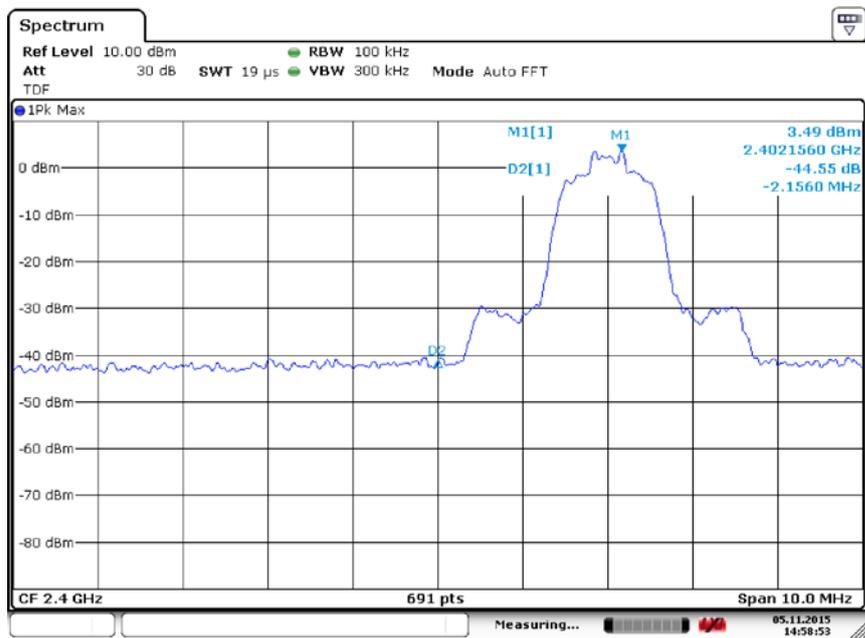
Date: 5.NOV.2015 14:58:24

**Fig. 16 Band Edges (GFSK, Ch 0, Hopping OFF)**



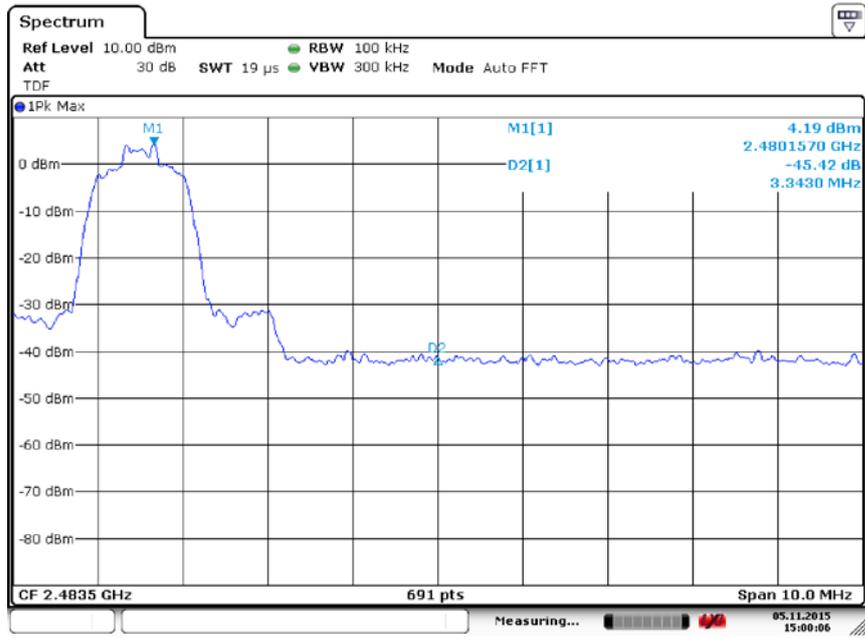
Date: 5.NOV.2015 15:00:51

**Fig. 17 Band Edges (GFSK, Ch 78, Hopping OFF)**

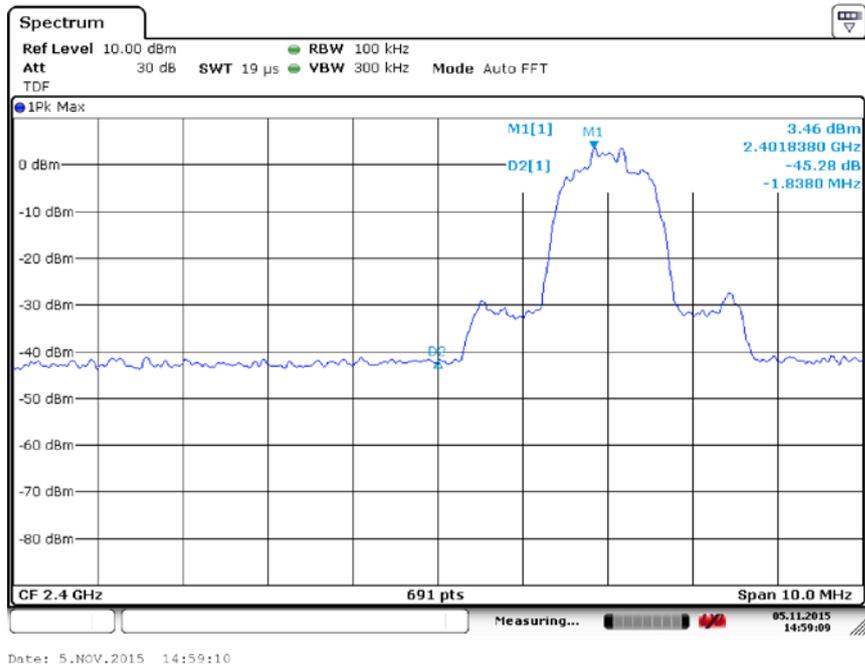


Date: 5.NOV.2015 14:58:53

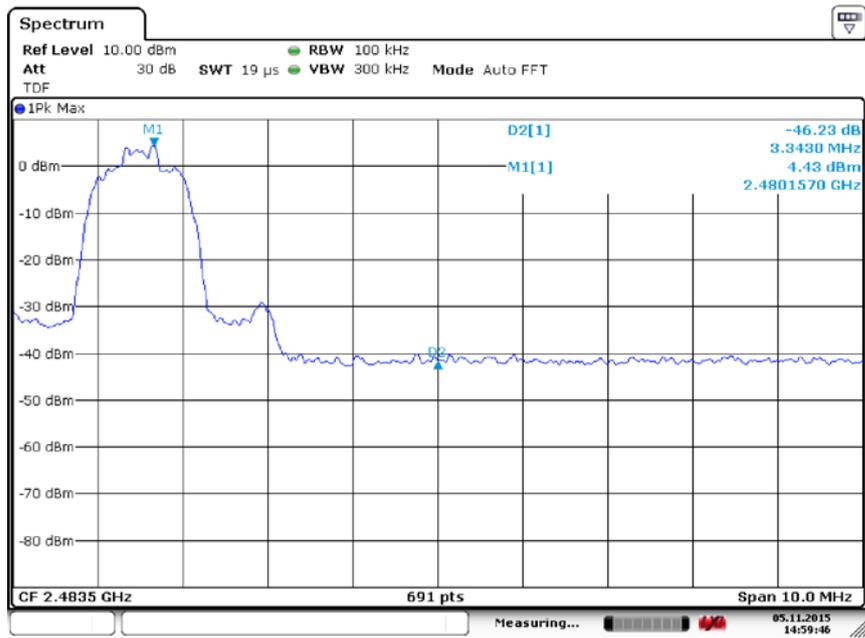
**Fig. 18 Band Edges ( $\pi/4$  DQPSK, Ch 0, Hopping OFF)**



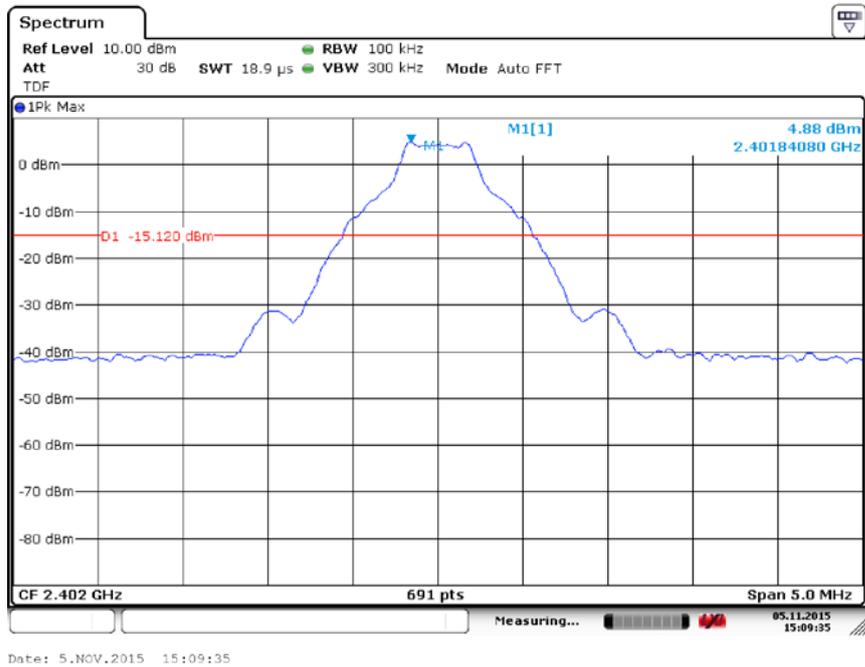
**Fig. 19 Band Edges ( $\pi/4$  DQPSK, Ch 78, Hopping OFF)**



**Fig. 20 Band Edges (8DPSK, Ch 0, Hopping OFF)**



**Fig. 21 Band Edges (8DPSK, Ch 78, Hopping OFF)**



**Fig. 22 Conducted Spurious Emission (GFSK, Ch0, 2.402GHz)**

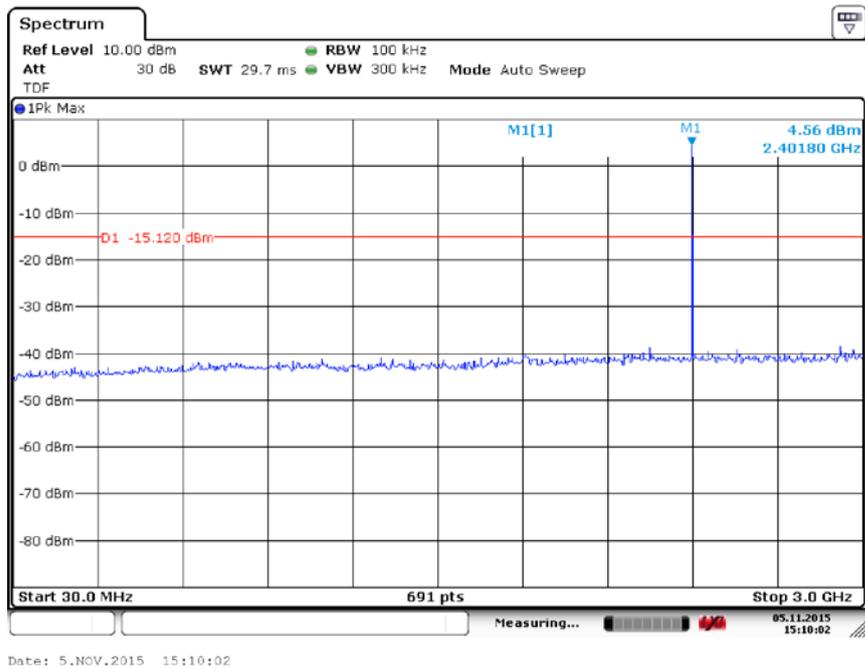


Fig. 23 Conducted Spurious Emission (GFSK, Ch0, 30 MHz-3 GHz)

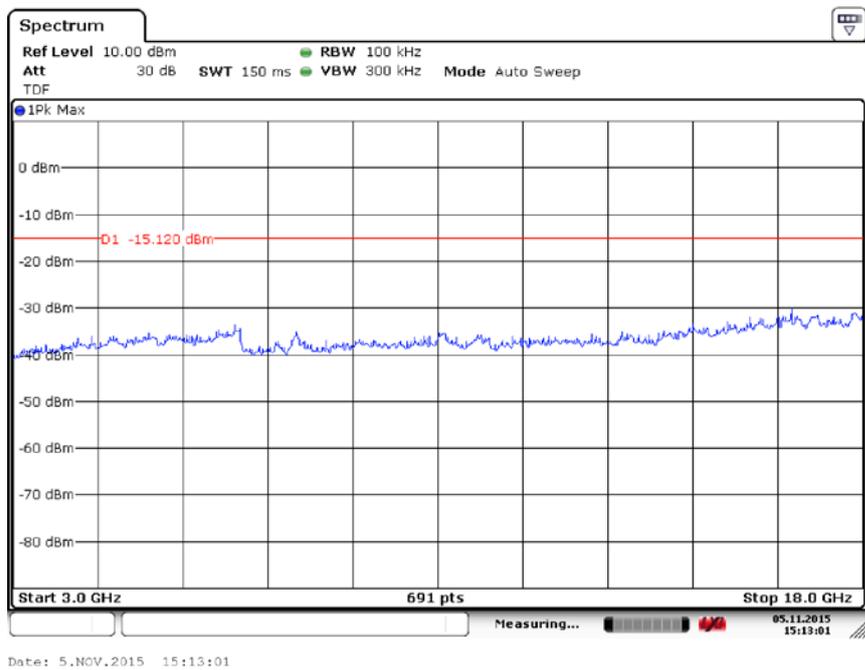


Fig. 24 Conducted Spurious Emission (GFSK, Ch0, 3GHz-18 GHz)

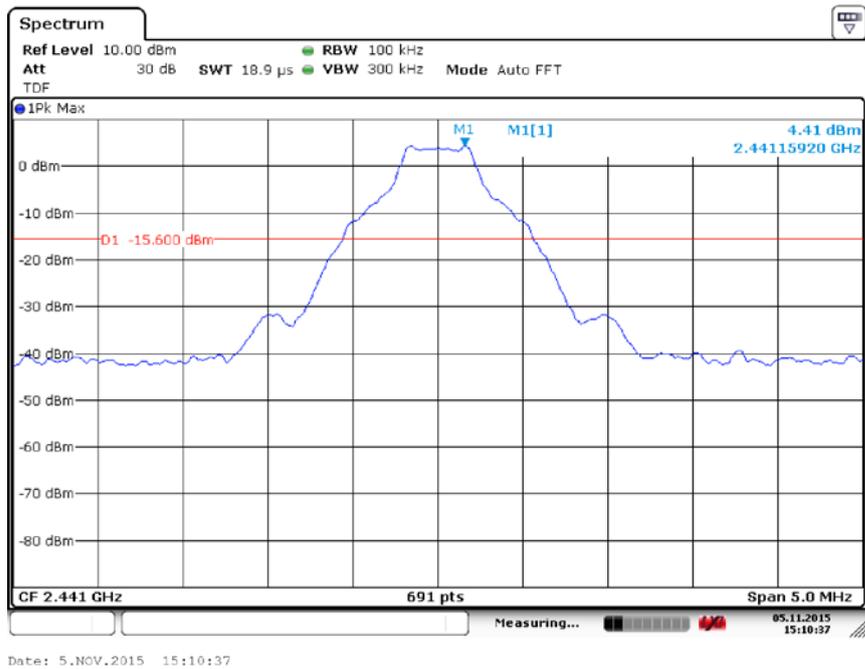


Fig. 25 Conducted Spurious Emission (GFSK, Ch39, 2.441GHz)

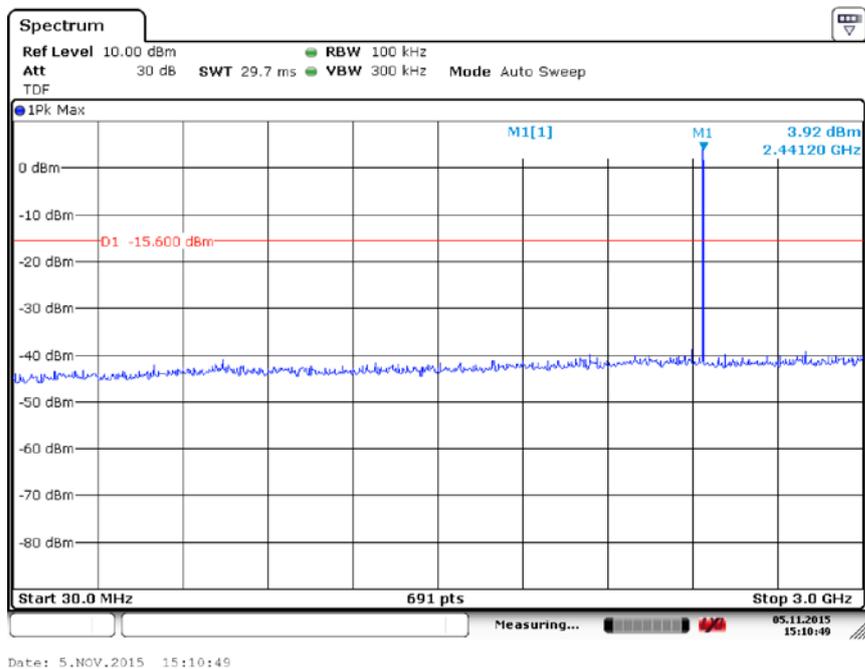


Fig. 26 Conducted Spurious Emission (GFSK, Ch39, 30 MHz-3 GHz)

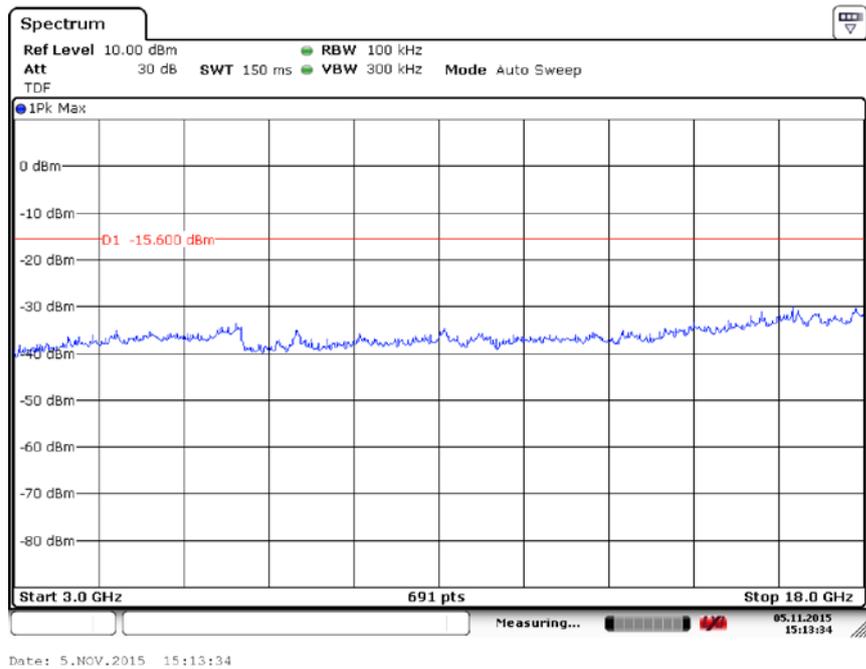


Fig. 27 Conducted Spurious Emission (GFSK, Ch39, 3GHz-18 GHz)

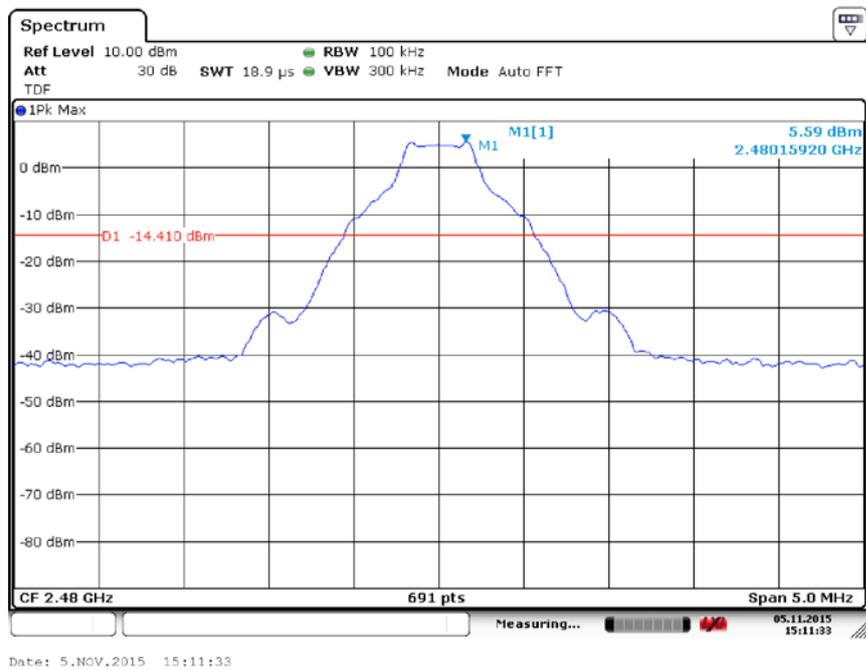


Fig. 28 Conducted Spurious Emission (GFSK, Ch78, 2.480GHz)

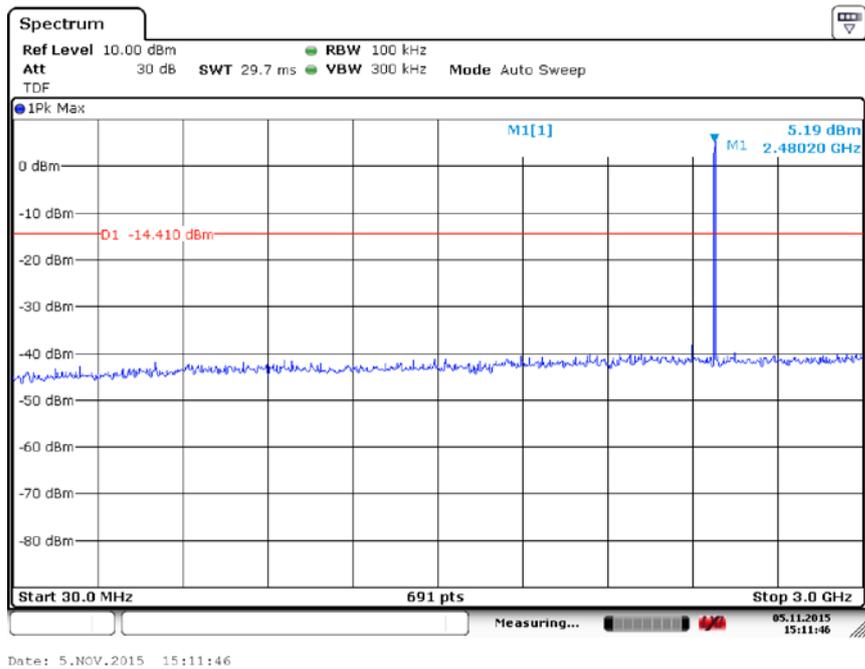


Fig. 29 Conducted Spurious Emission (GFSK, Ch78, 30 MHz-3 GHz)

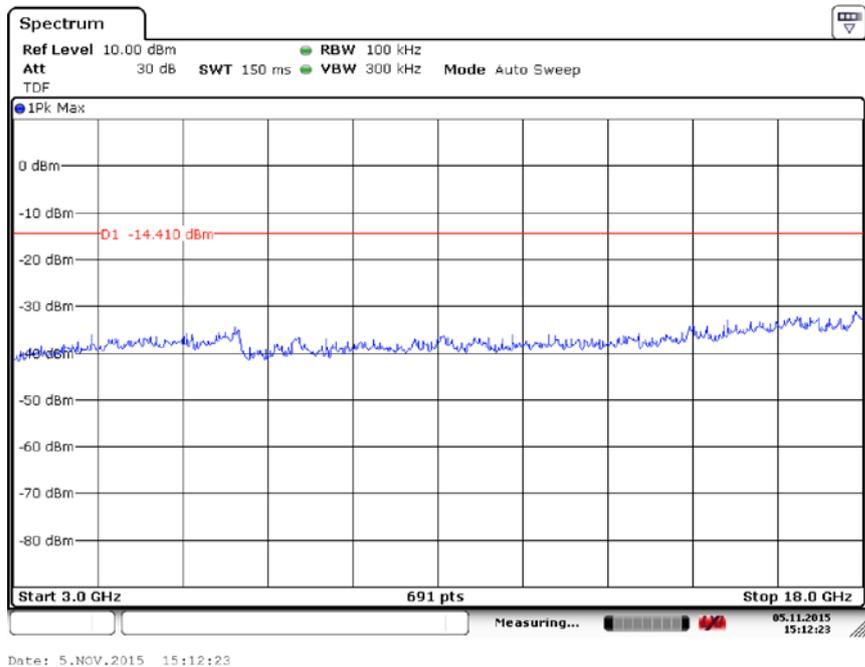


Fig. 30 Conducted Spurious Emission (GFSK, Ch78, 3GHz-18 GHz)

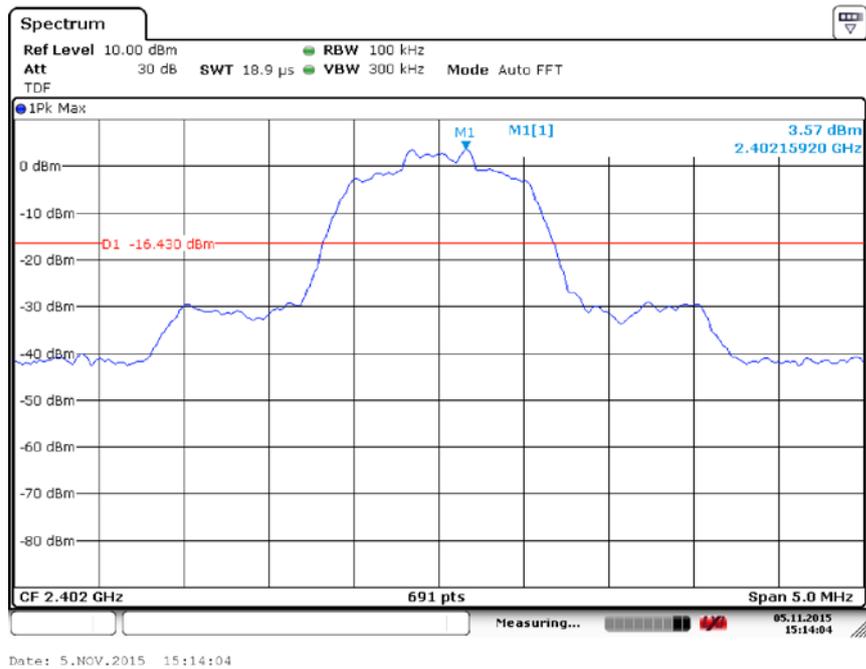


Fig. 31 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch0, 2.402GHz)

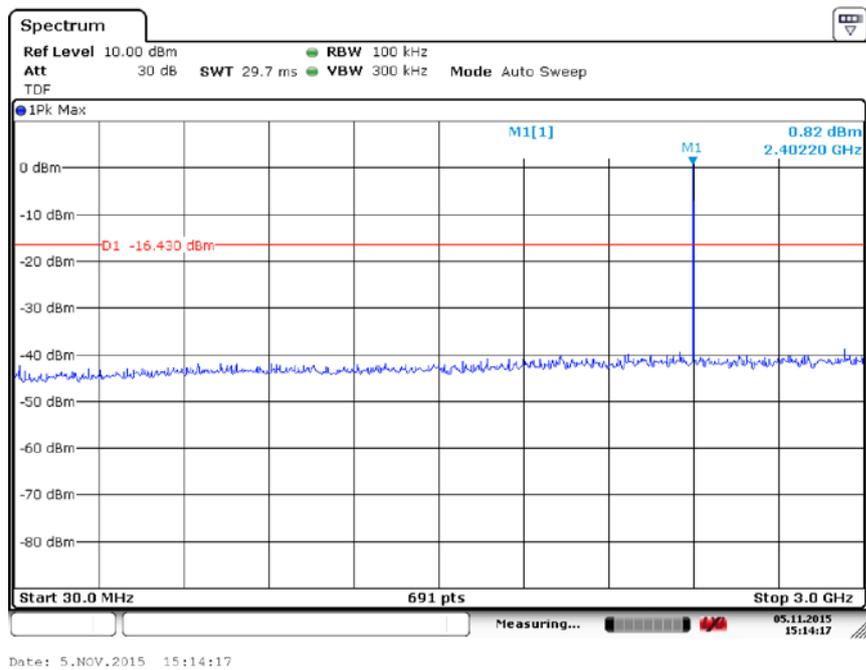


Fig. 32 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch0, 30 MHz-3 GHz)

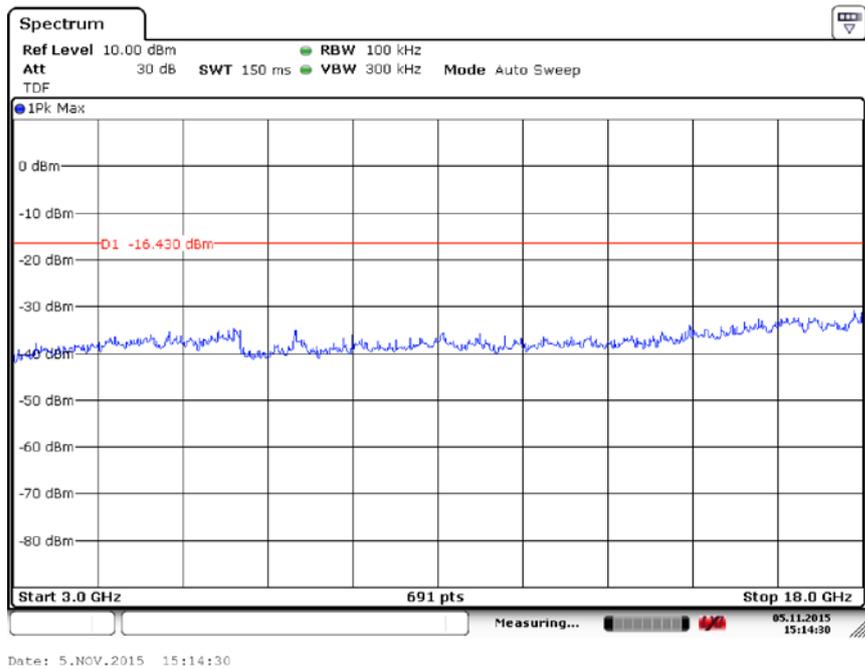


Fig. 33 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch0, 3GHz-18 GHz)

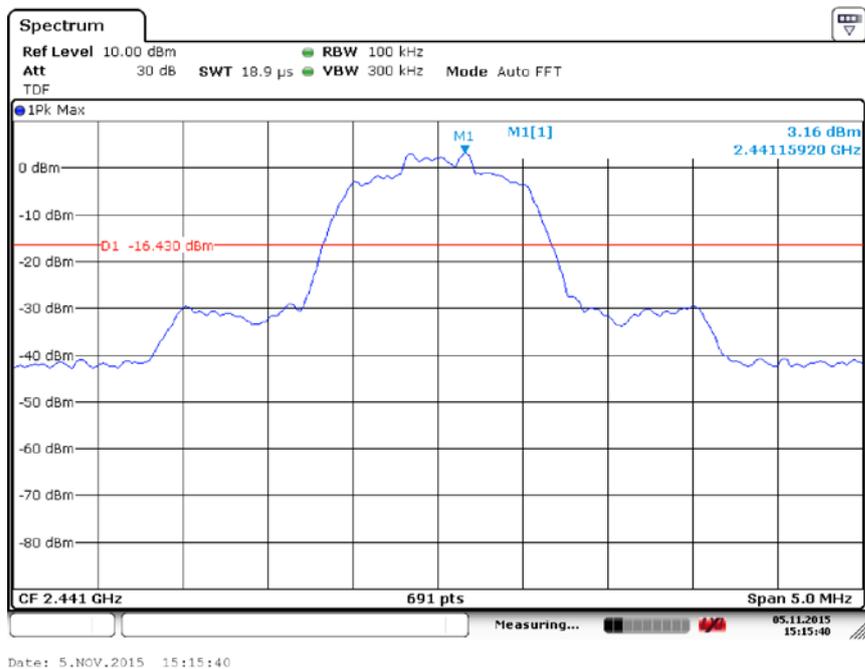


Fig. 34 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch39, 2.441GHz)

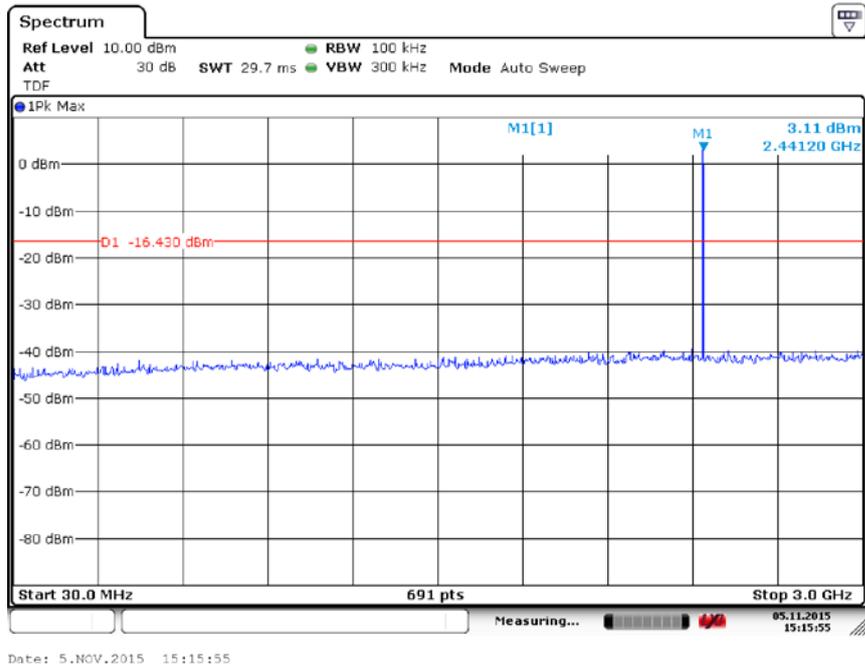


Fig. 35 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch39, 30 MHz-3 GHz)

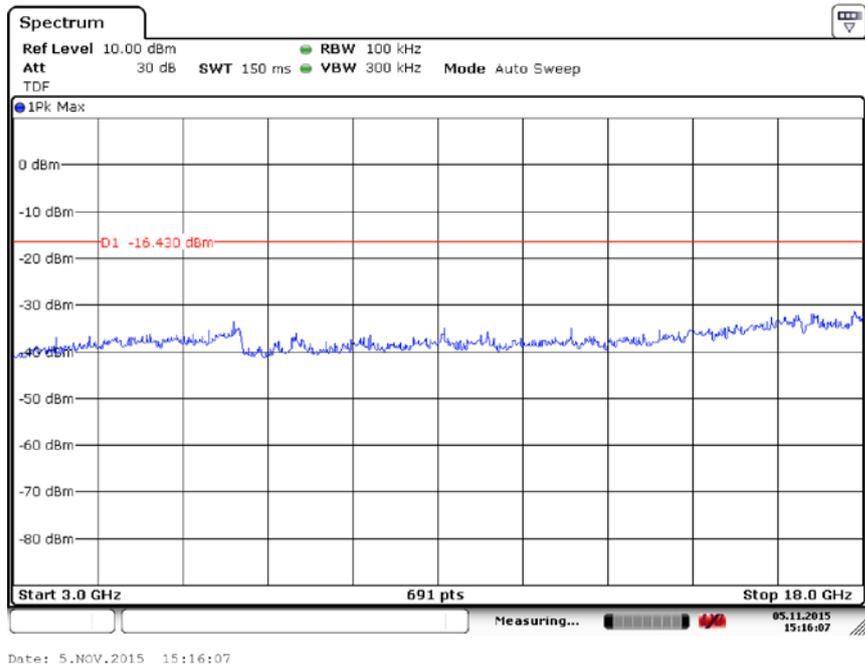


Fig. 36 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch39, 3GHz-18 GHz)

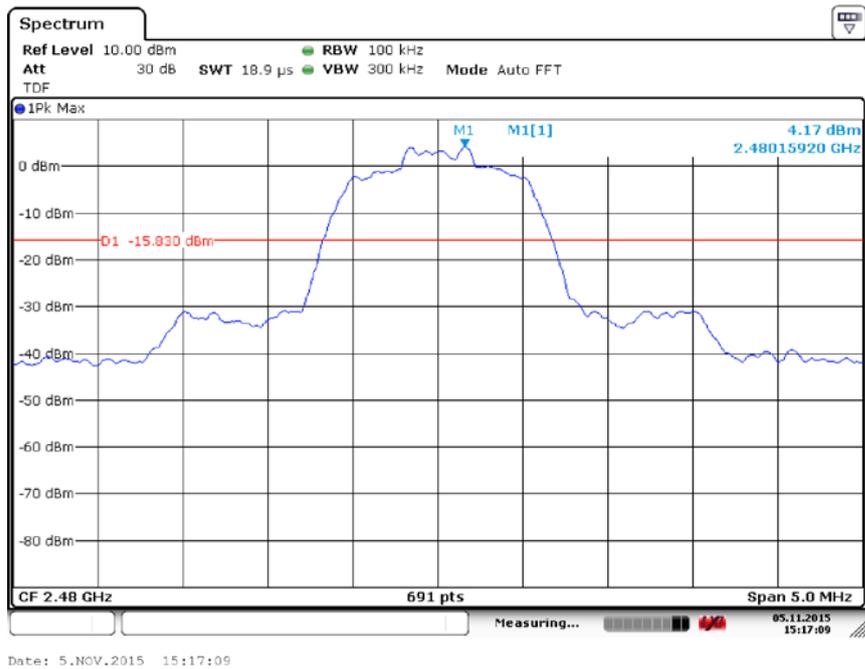


Fig. 37 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch78, 2.480GHz)

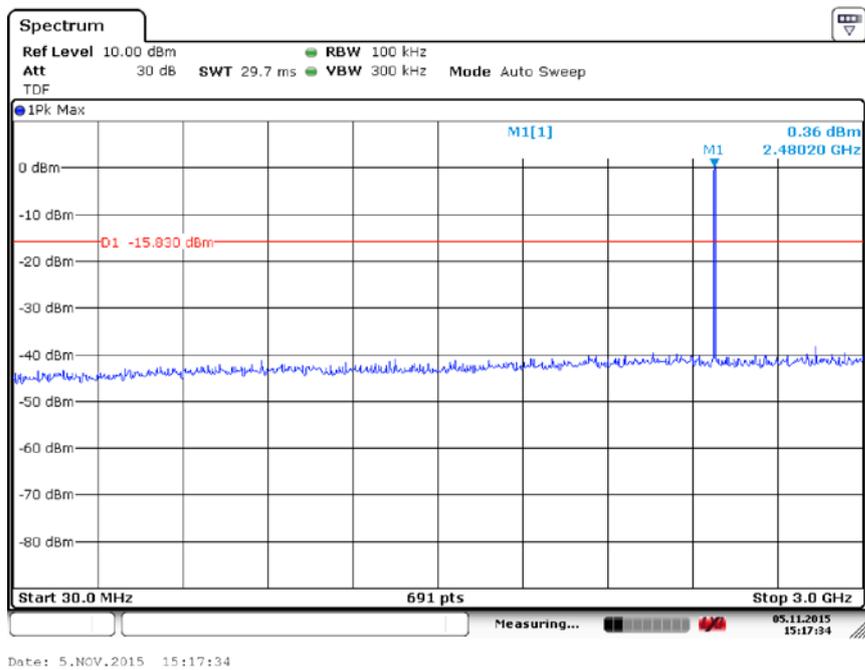


Fig. 38 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch78, 30 MHz-3 GHz)

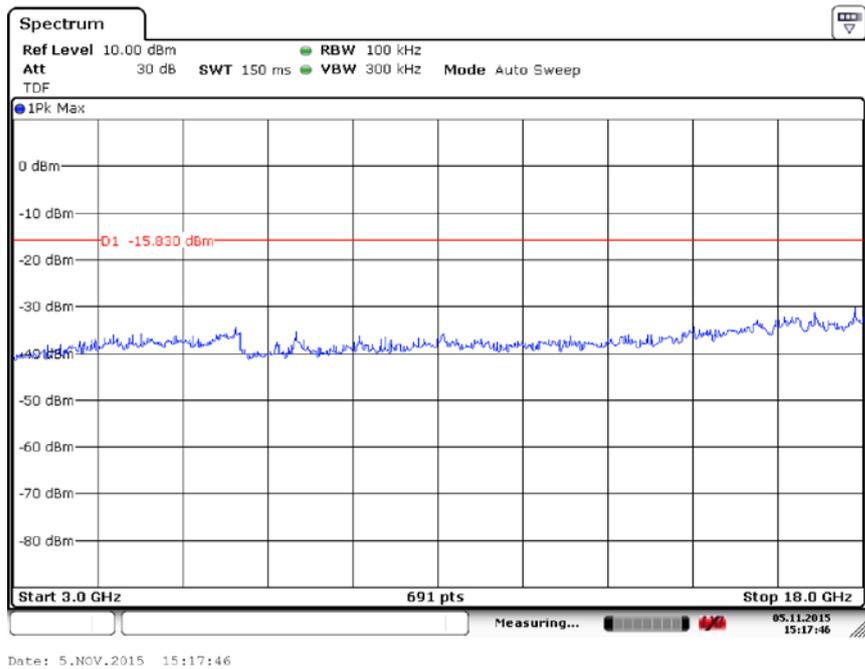


Fig. 39 Conducted Spurious Emission ( $\pi/4$  DQPSK, Ch78, 3GHz-18 GHz)

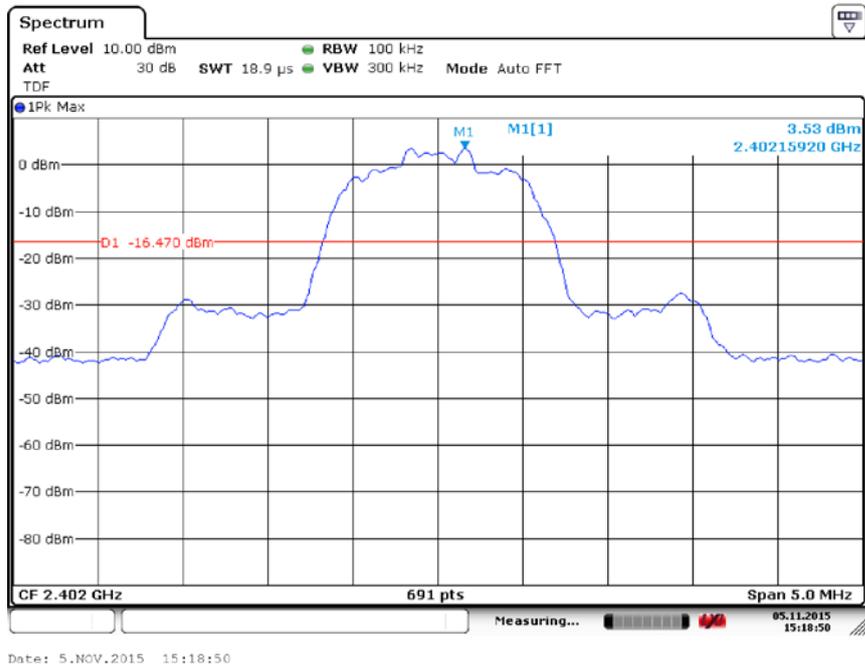
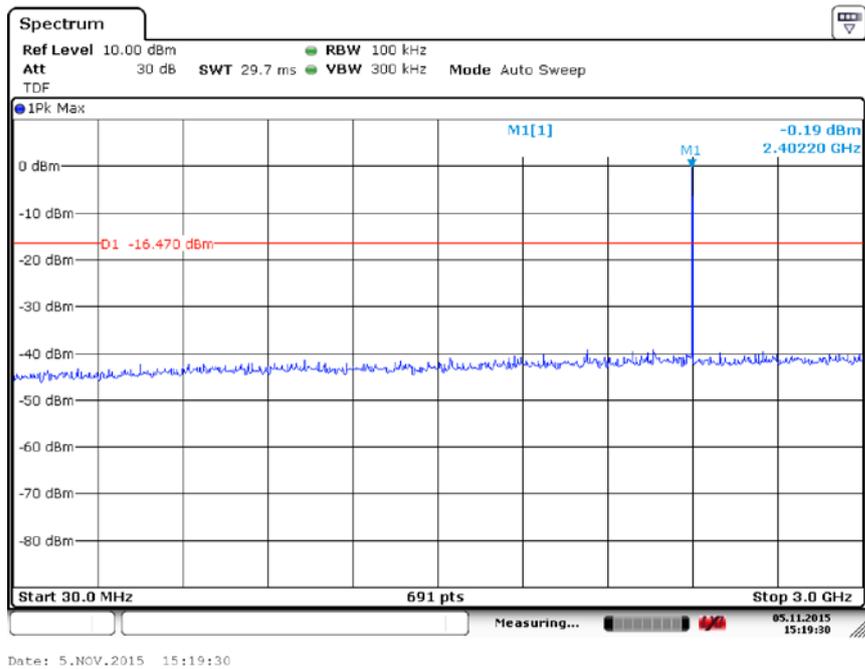
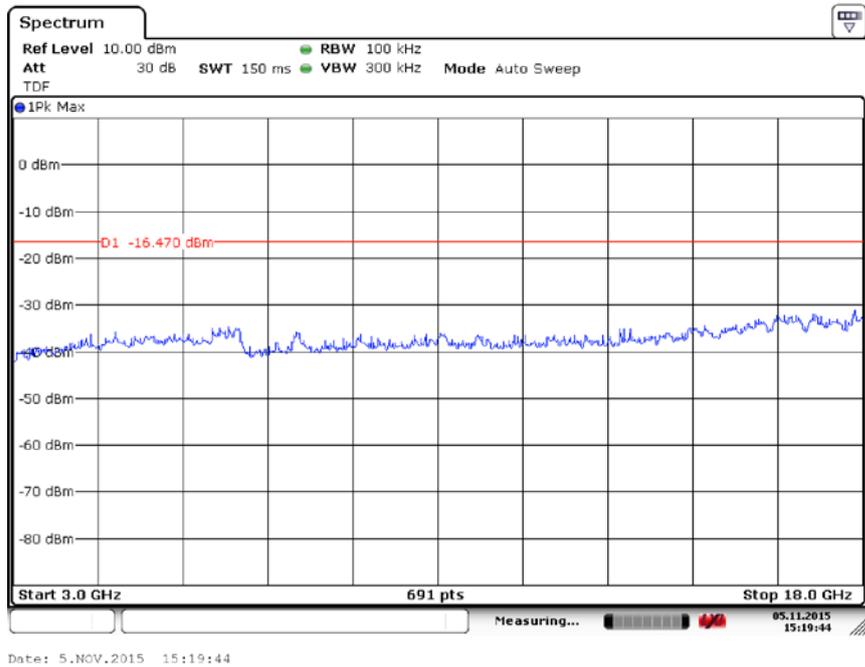


Fig. 40 Conducted Spurious Emission (8DPSK, Ch0, 2.402GHz)



**Fig. 41 Conducted Spurious Emission (8DPSK, Ch0, 30 MHz-3 GHz)**



**Fig. 42 Conducted Spurious Emission (8DPSK, Ch0, 3GHz-18 GHz)**

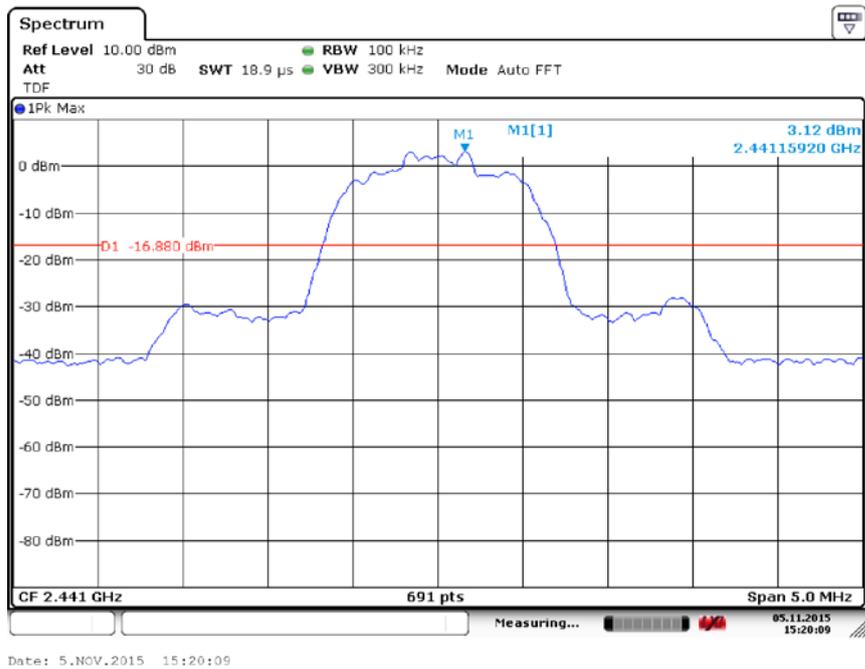


Fig. 43 Conducted Spurious Emission (8DPSK, Ch39, 2.441GHz)

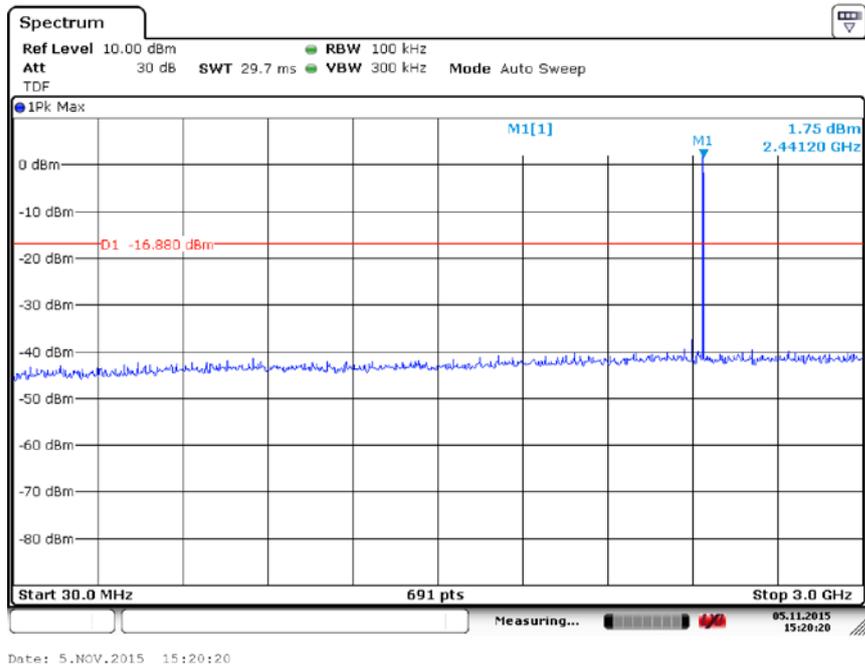


Fig. 44 Conducted Spurious Emission (8DPSK, Ch39, 30 MHz-3 GHz)

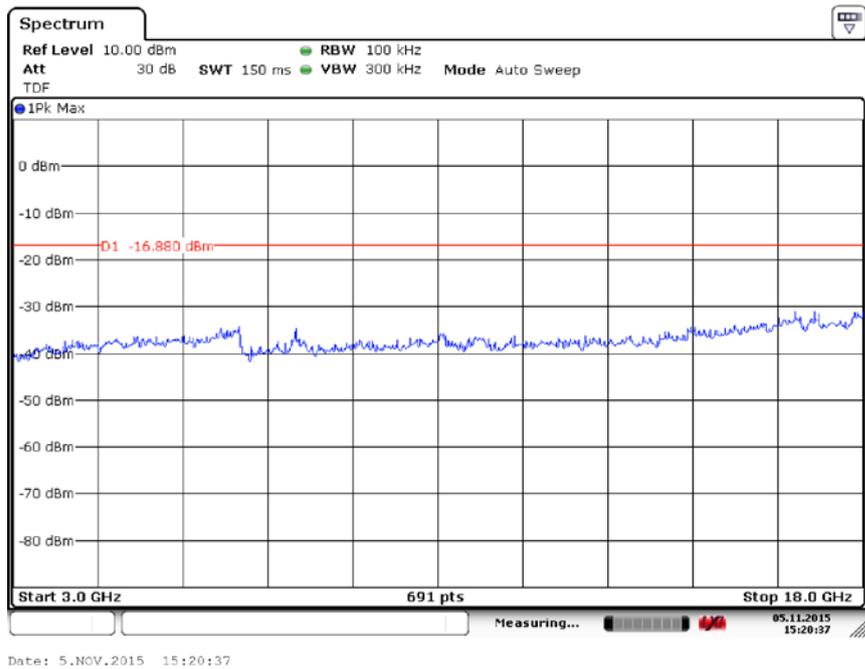


Fig. 45 Conducted Spurious Emission (8DPSK, Ch39, 3GHz-18 GHz)

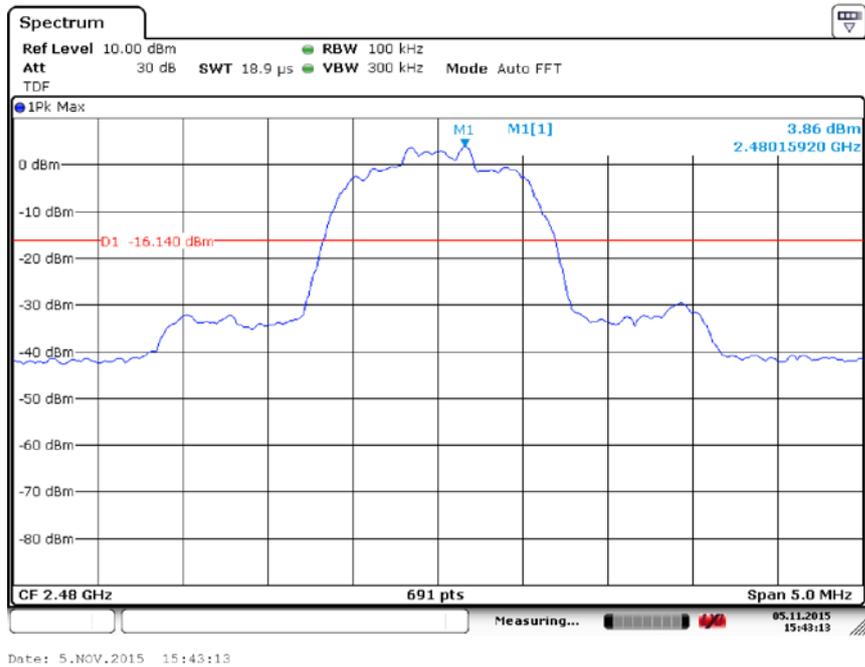
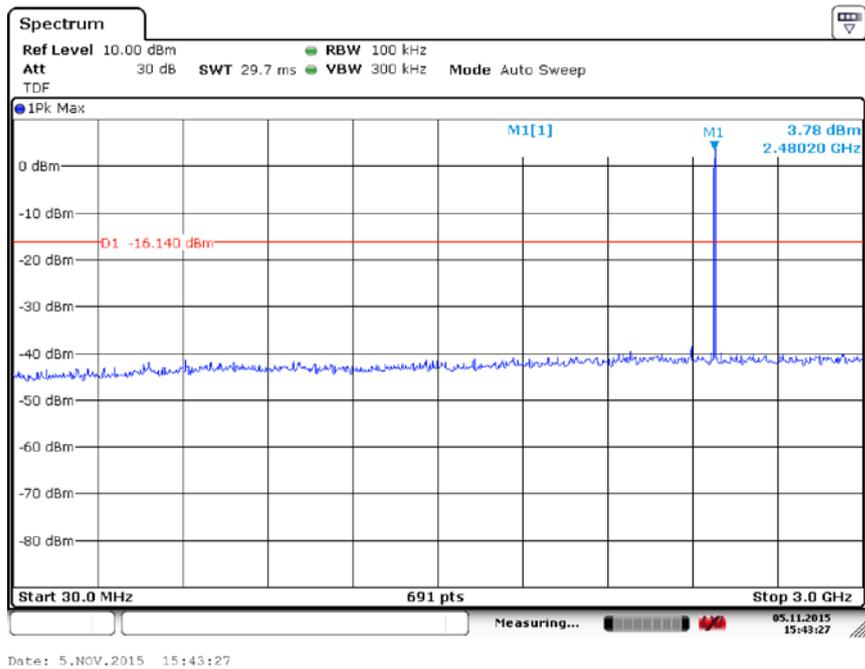
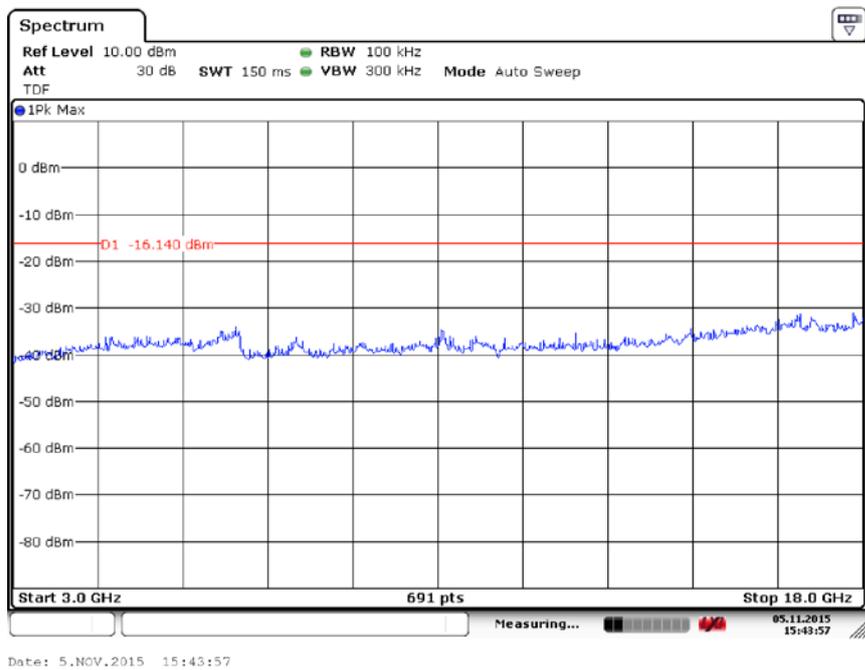


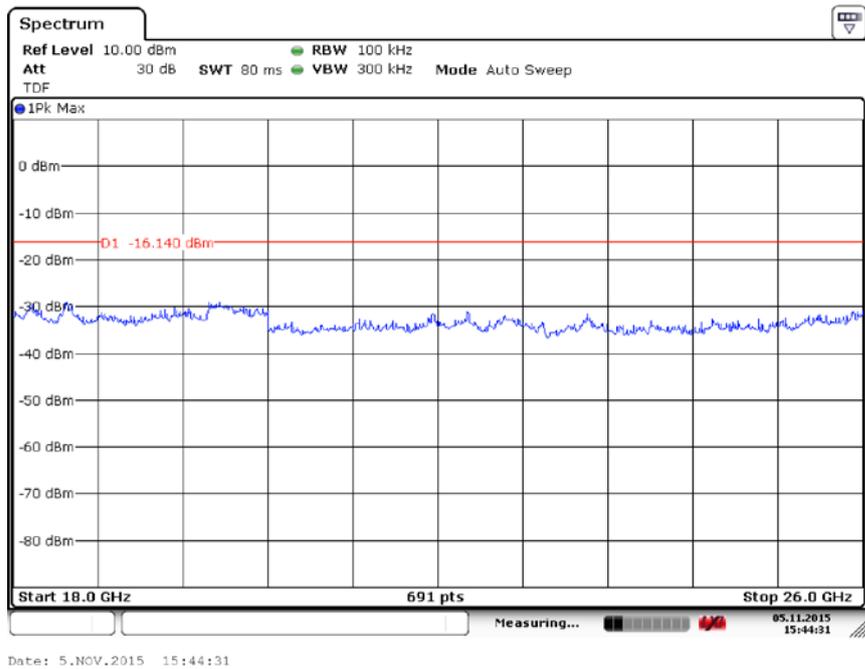
Fig. 46 Conducted Spurious Emission (8DPSK, Ch78, 2.480GHz)



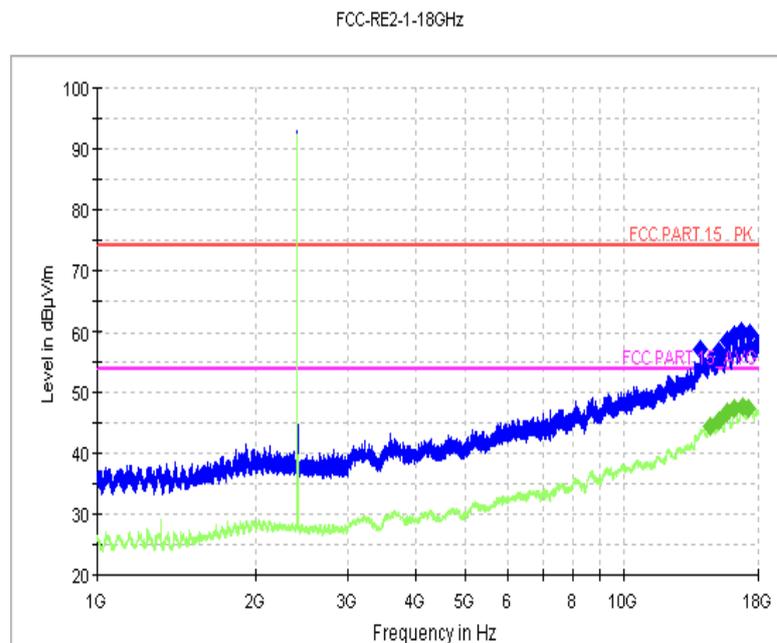
**Fig. 47 Conducted Spurious Emission (8DPSK, Ch78, 30 MHz-3 GHz)**



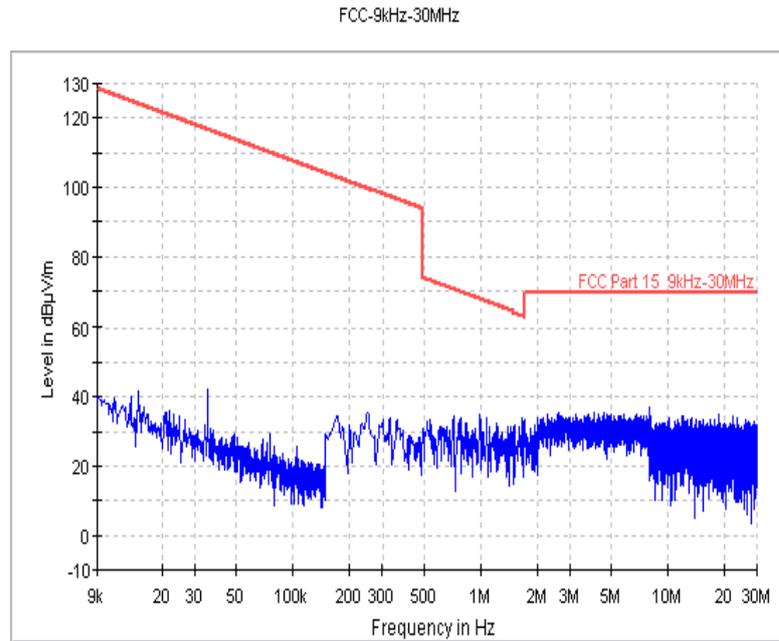
**Fig. 48 Conducted Spurious Emission (8DPSK, Ch78, 3GHz-18 GHz)**



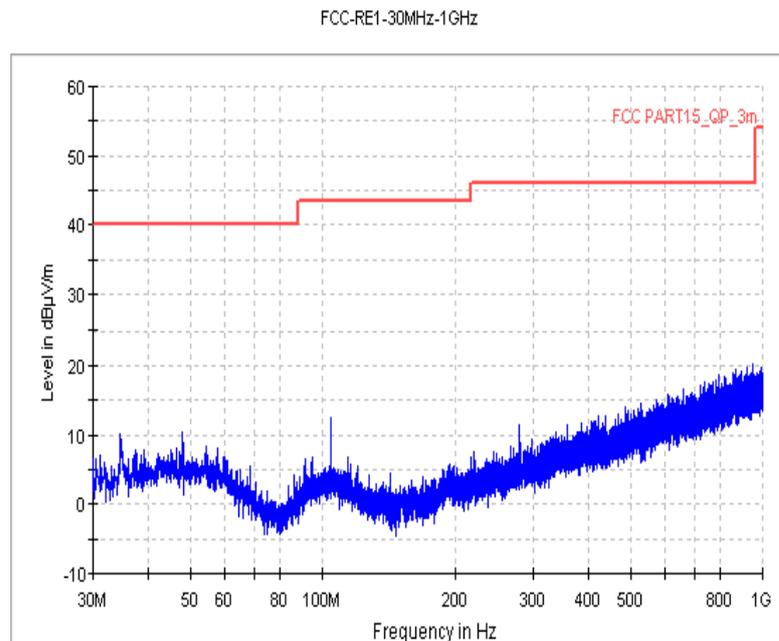
**Fig. 49 Conducted Spurious Emission (All channel, 18 GHz-26 GHz)**



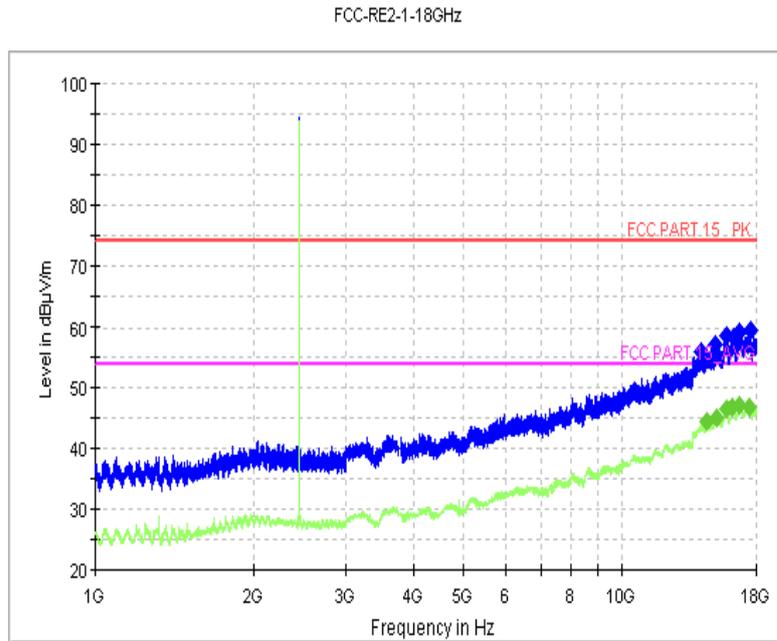
**Fig.50 Radiated Spurious Emission (GFSK, Ch0, 1 GHz-18GHz)**



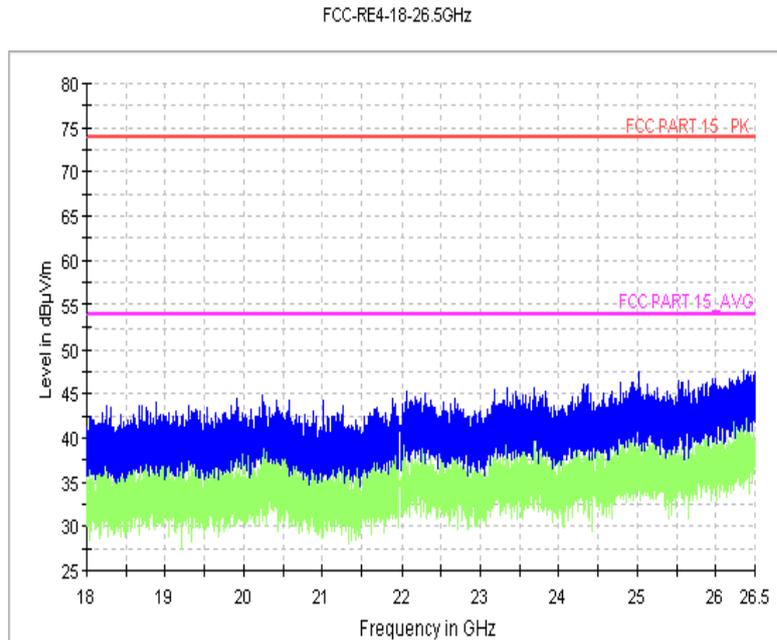
**Fig.51 Radiated Spurious Emission (GFSK, Ch39, 9 kHz-30MHz)**



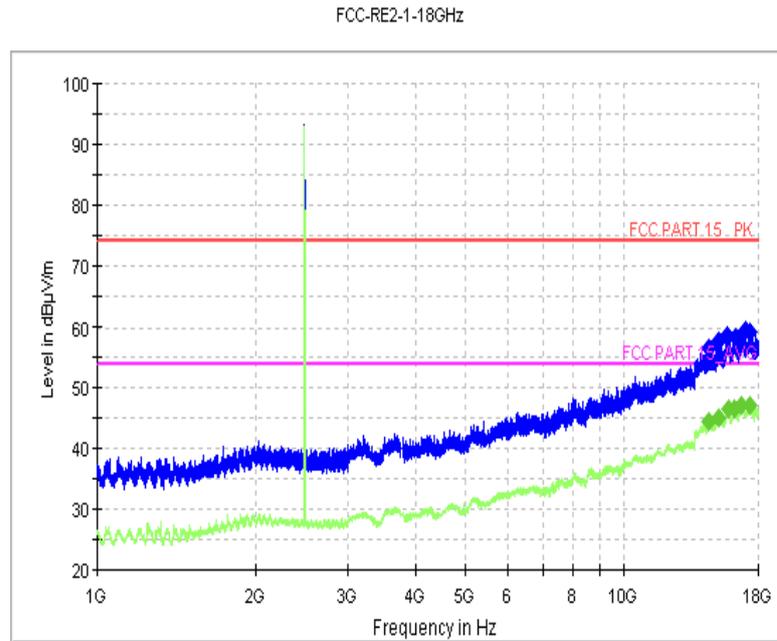
**Fig.52 Radiated Spurious Emission (GFSK, Ch39, 30MHz-1 GHz)**



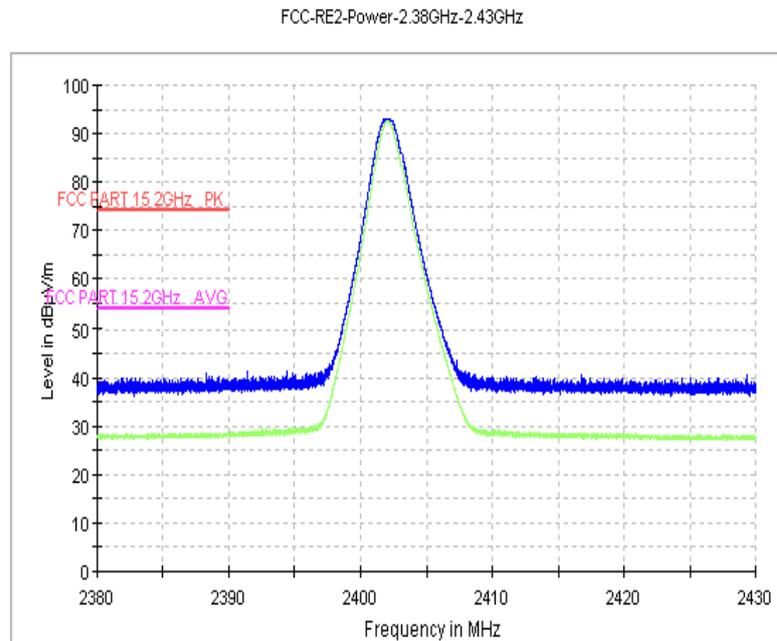
**Fig.53 Radiated Spurious Emission (GFSK, Ch39, 1 GHz-18GHz)**



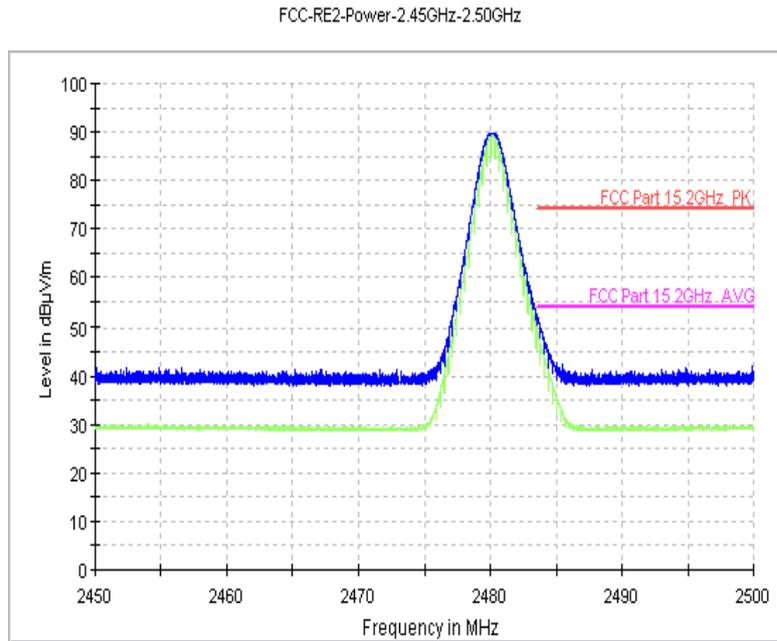
**Fig.54 Radiated Spurious Emission (GFSK, Ch39, 18 GHz-26.5GHz)**



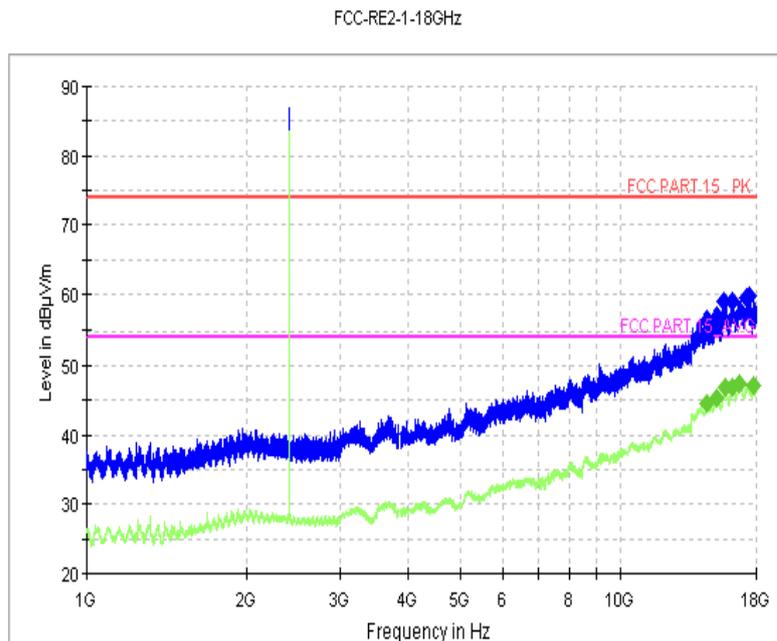
**Fig.55 Radiated Spurious Emission (GFSK, Ch78, 1 GHz-18 GHz)**



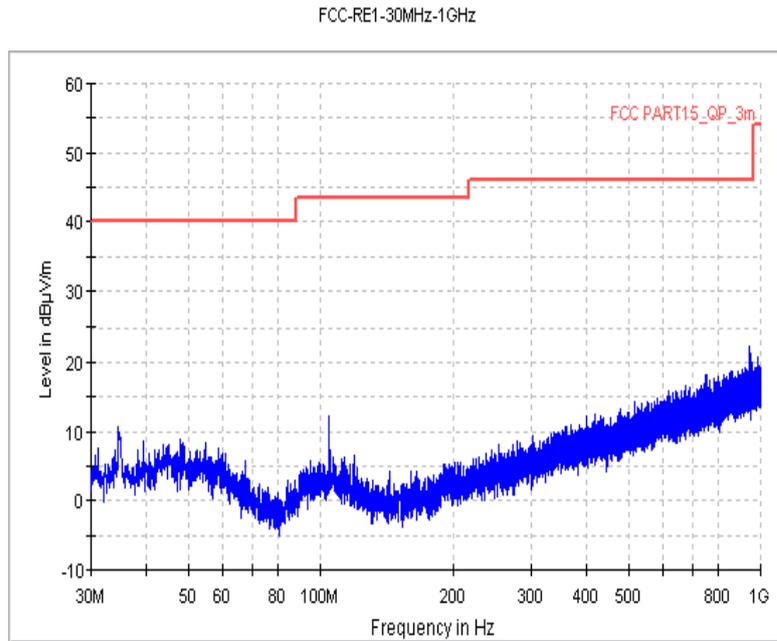
**Fig.56 Radiated Emission Power (GFSK, Ch0, 2380GHz~2450GHz)**



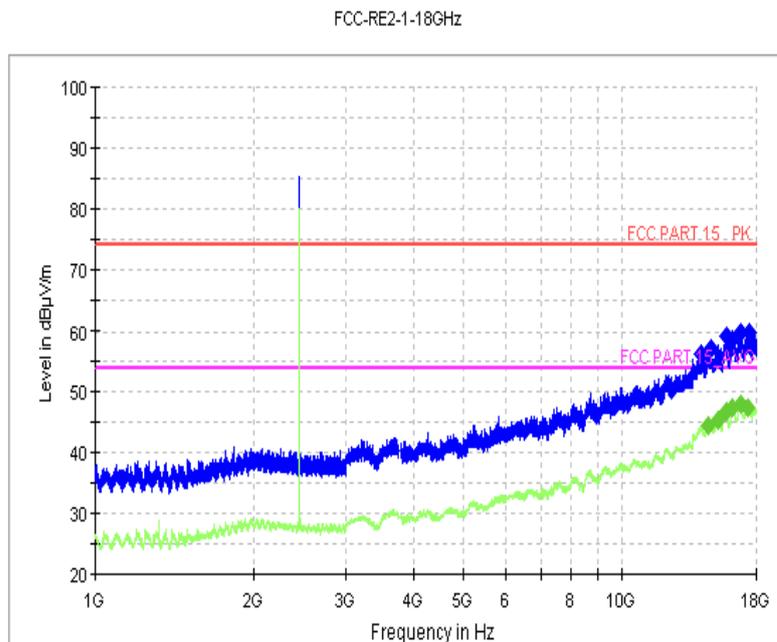
**Fig.57 Radiated Emission Power (GFSK, Ch78, 2450GHz~2500GHz)**



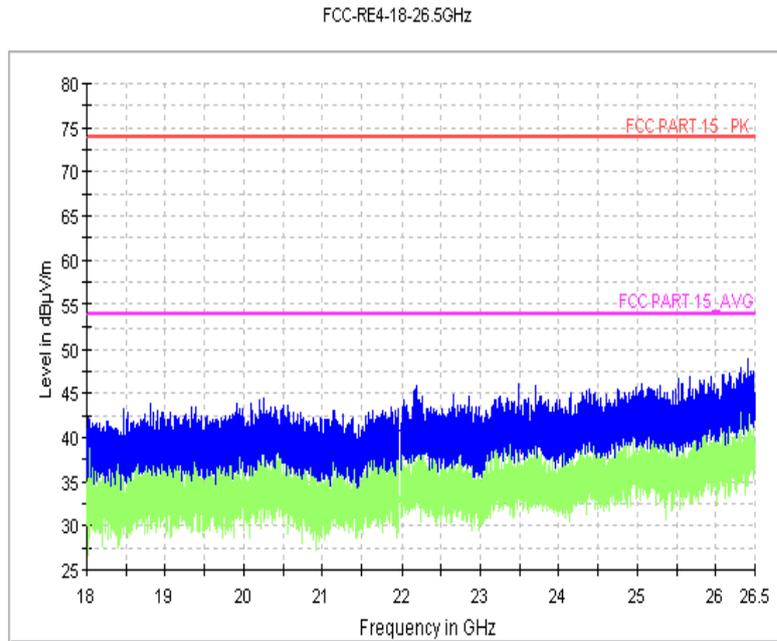
**Fig.58 Radiated Spurious Emission ( $\pi/4$  DQPSK, Ch0, 1 GHz-18GHz)**



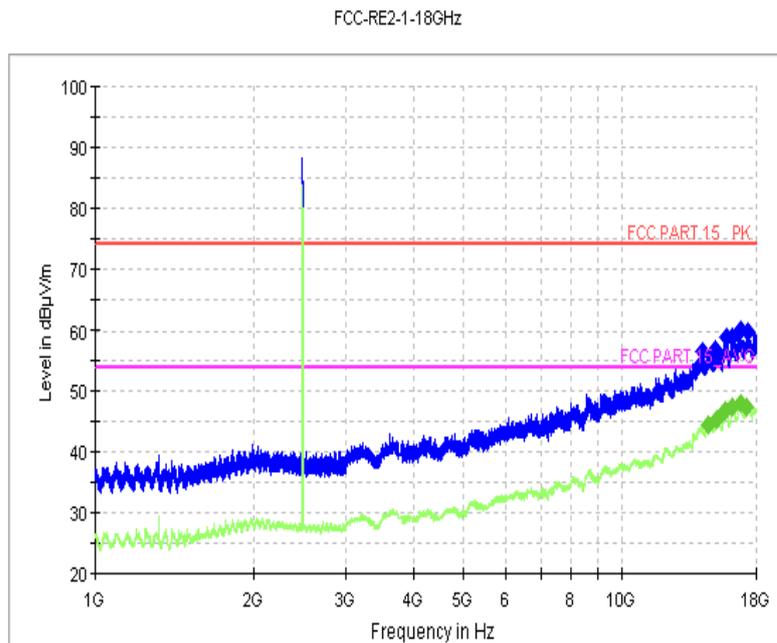
**Fig.59 Radiated Spurious Emission ( $\pi/4$  DQPSK, Ch39, 30MHz-1 GHz)**



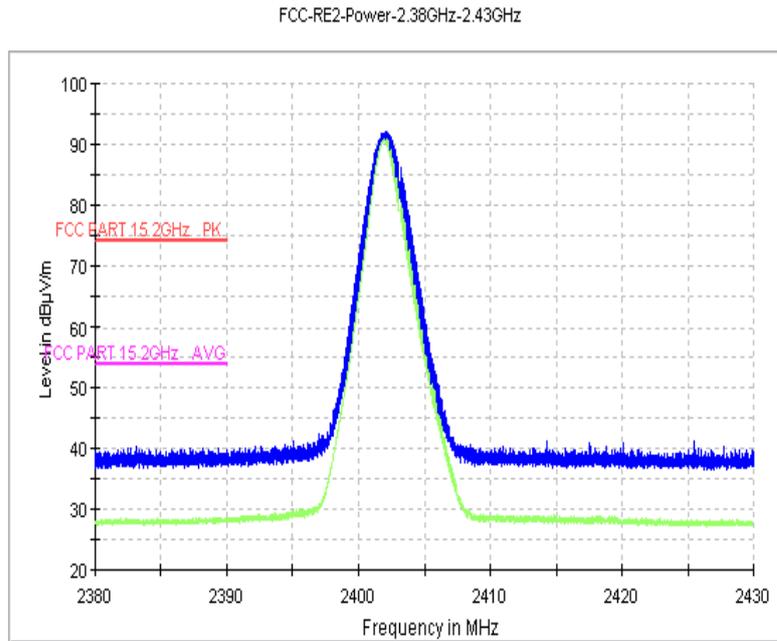
**Fig.60 Radiated Spurious Emission ( $\pi/4$  DQPSK, Ch39, 1 GHz-18GHz)**



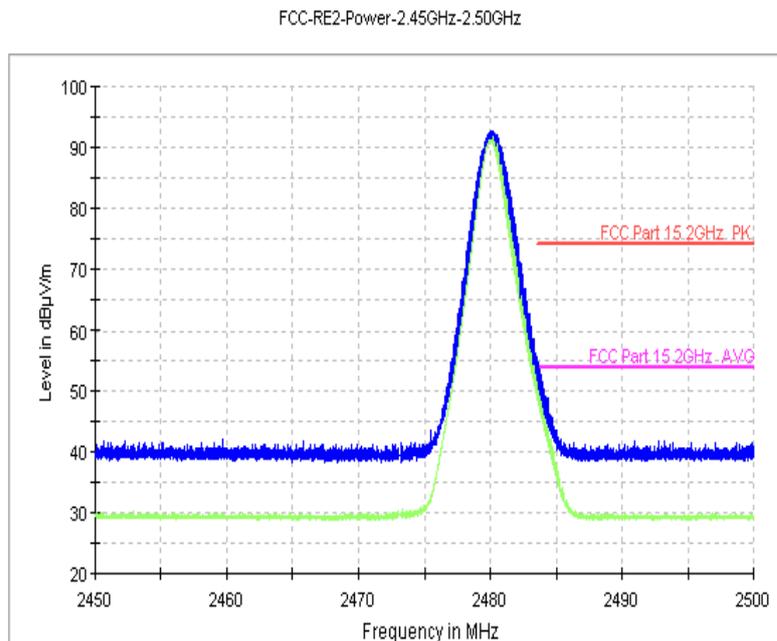
**Fig.61 Radiated Spurious Emission ( $\pi/4$  DQPSK, Ch39, 18 GHz-26.5GHz)**



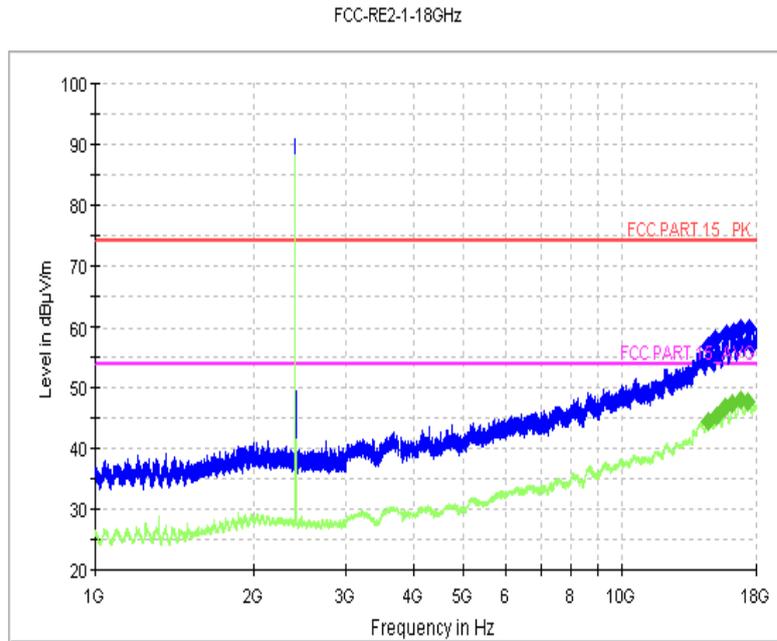
**Fig.62 Radiated Spurious Emission ( $\pi/4$  DQPSK, Ch78, 1 GHz-18 GHz)**



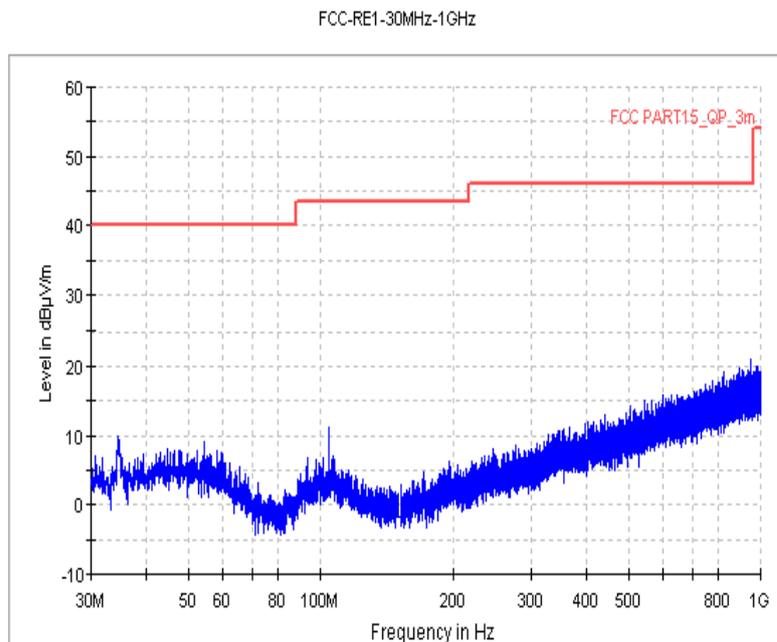
**Fig.63 Radiated Emission Power ( $\pi/4$  DQPSK, Ch0, 2380GHz~2450GHz)**



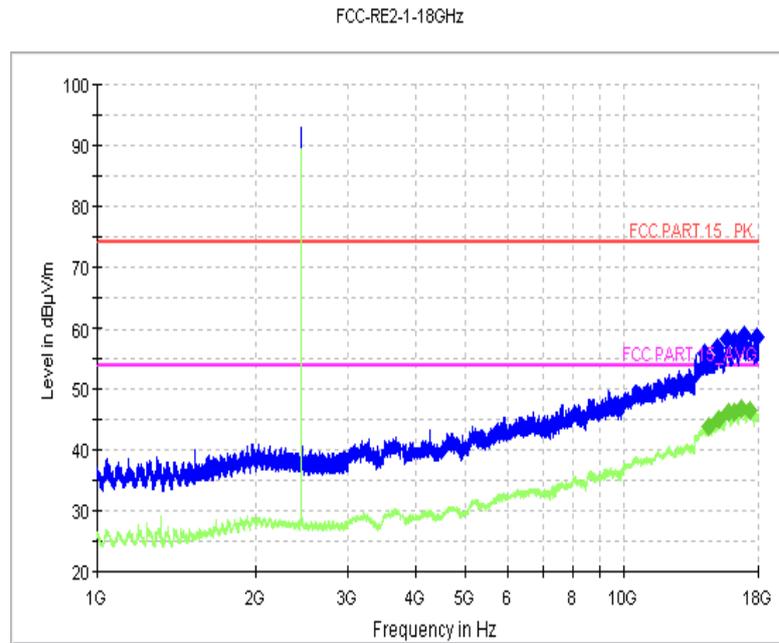
**Fig.64 Radiated Emission Power ( $\pi/4$  DQPSK, Ch78, 2450GHz~2500GHz)**



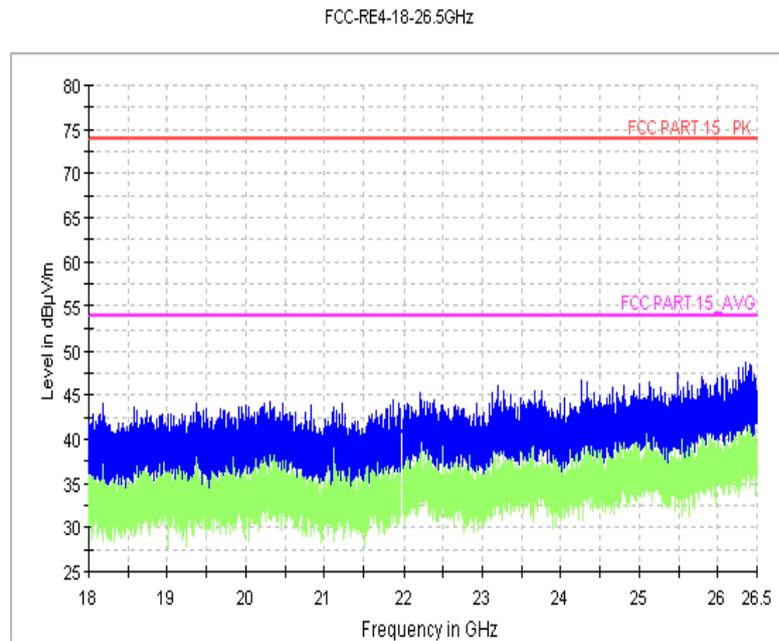
**Fig.65 Radiated Spurious Emission (8DPSK, Ch0, 1 GHz-18GHz)**



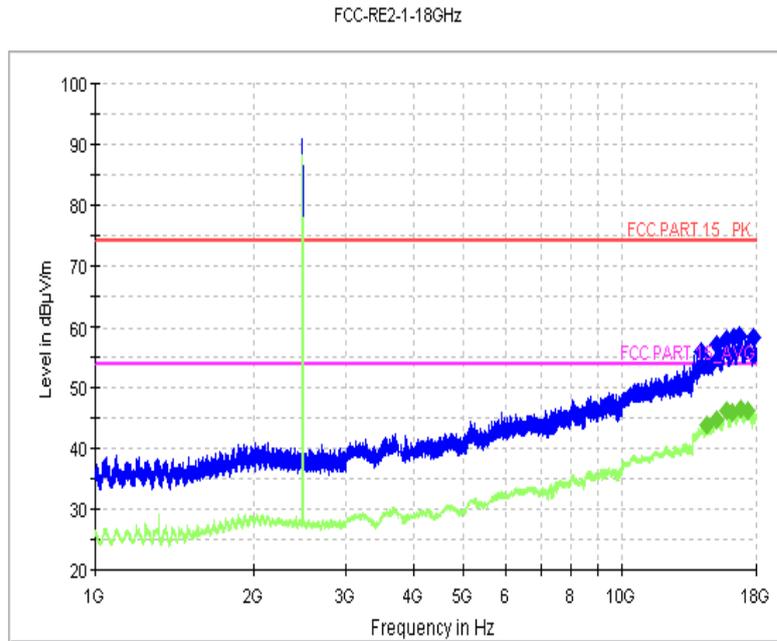
**Fig.66 Radiated Spurious Emission (8DPSK, Ch39, 30MHz-1 GHz)**



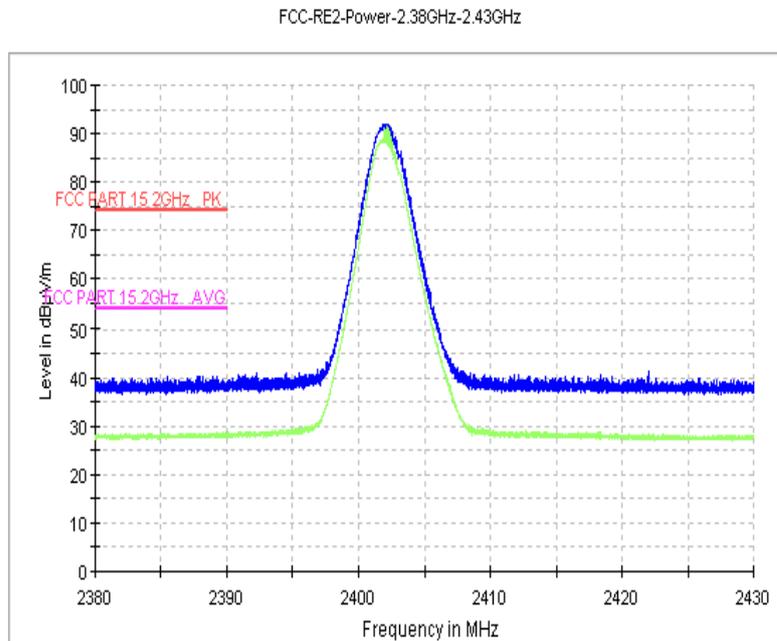
**Fig.67 Radiated Spurious Emission (8DPSK, Ch39, 1 GHz-18GHz)**



**Fig.68 Radiated Spurious Emission (8DPSK, Ch39, 18 GHz-26.5GHz)**



**Fig.69 Radiated Spurious Emission (8DPSK, Ch78, 1 GHz-18 GHz)**



**Fig.70 Radiated Emission Power (8DPSK, Ch0, 2380GHz~2450GHz)**

FCC-RE2-Power-2.45GHz-2.50GHz

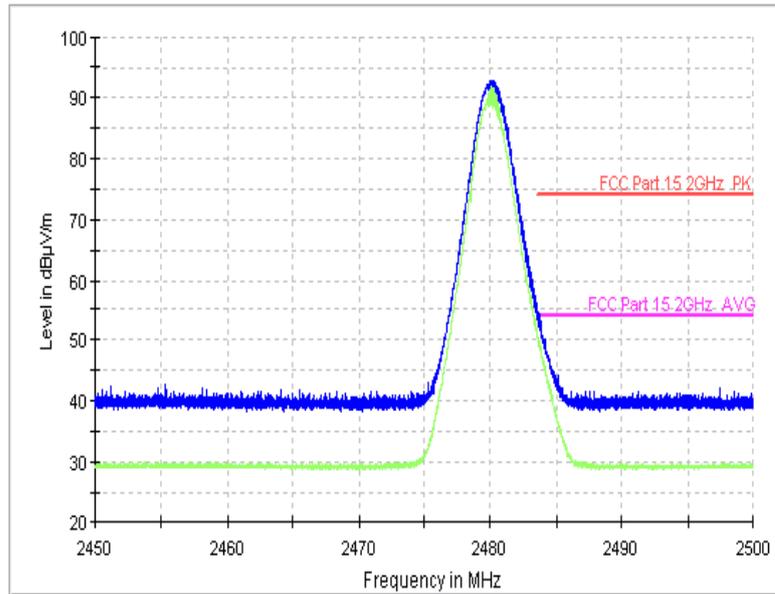
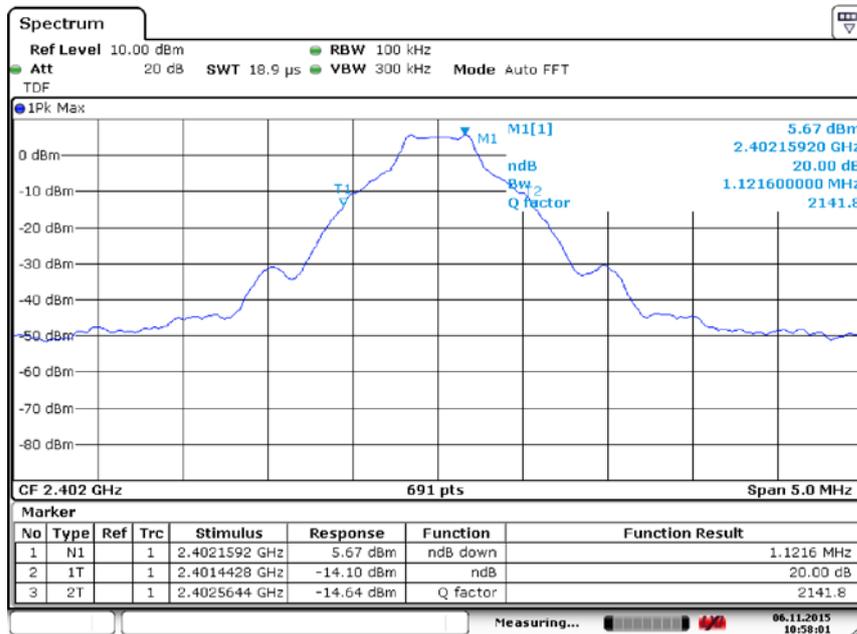


Fig.71 Radiated Emission Power (8DPSK, Ch78, 2450GHz~2500GHz)



Date: 6.NOV.2015 10:58:01

Fig. 72 Occupied 20dB Bandwidth (GFSK, Ch 0)

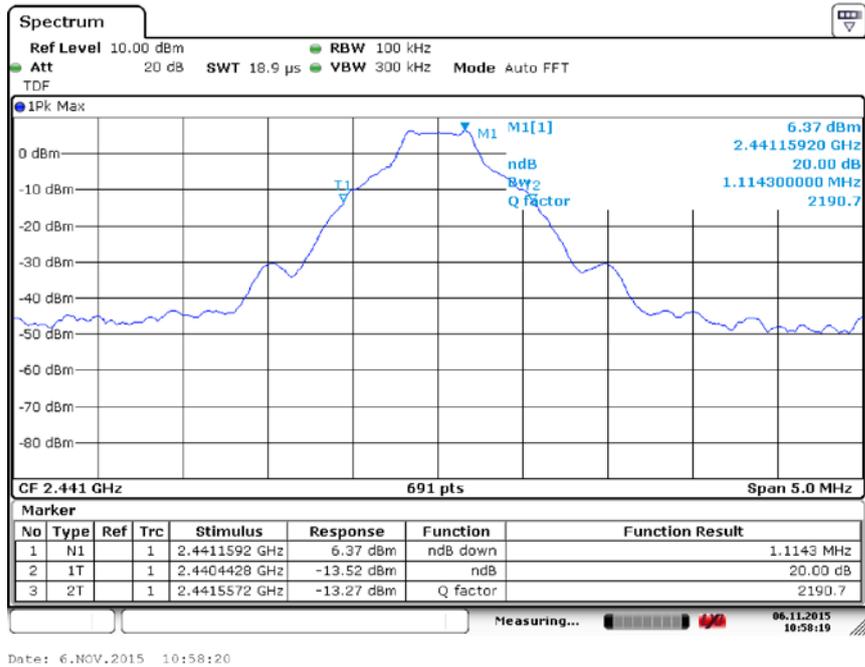


Fig. 73 Occupied 20dB Bandwidth (GFSK, Ch 39)

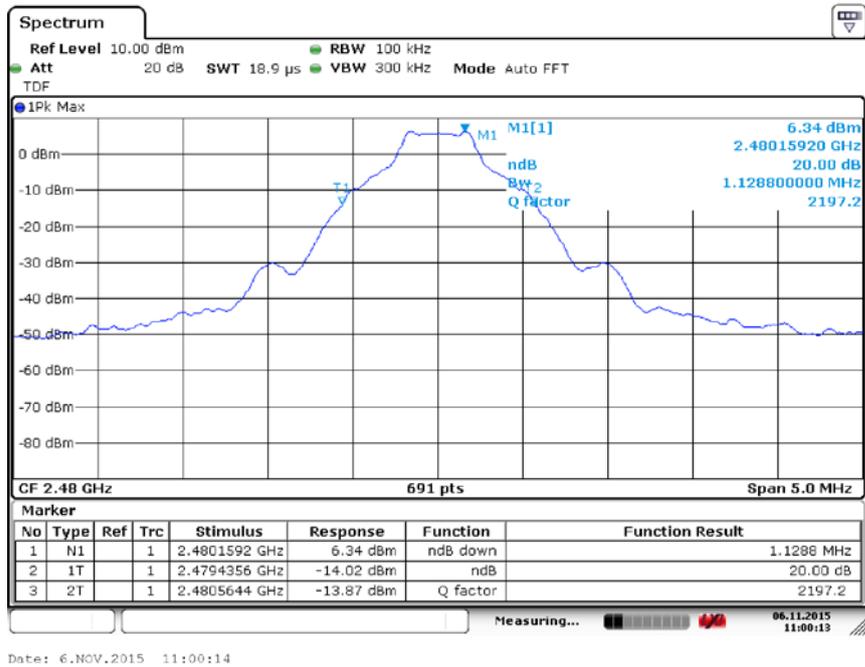


Fig. 74 Occupied 20dB Bandwidth (GFSK, Ch 78)

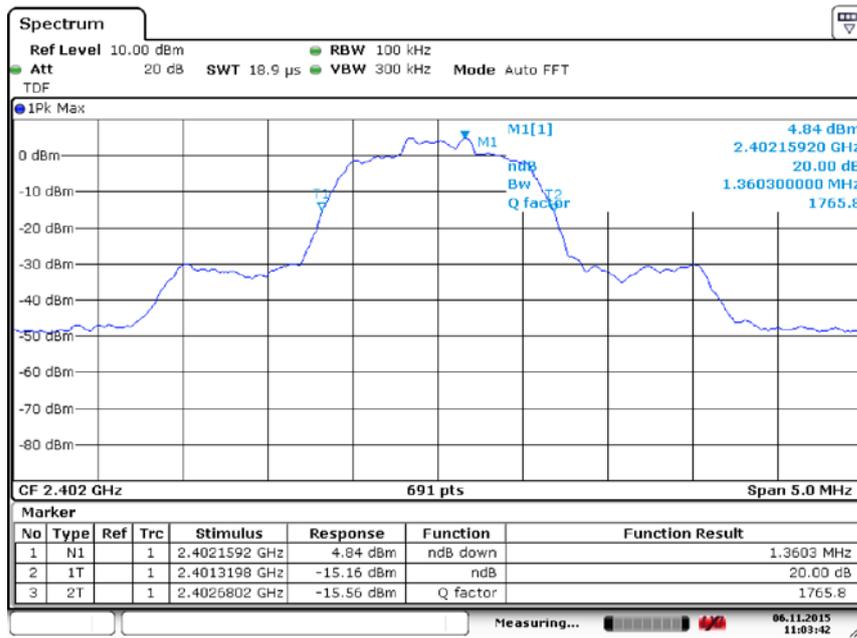


Fig. 75 Occupied 20dB Bandwidth ( $\pi/4$  DQPSK, Ch 0)

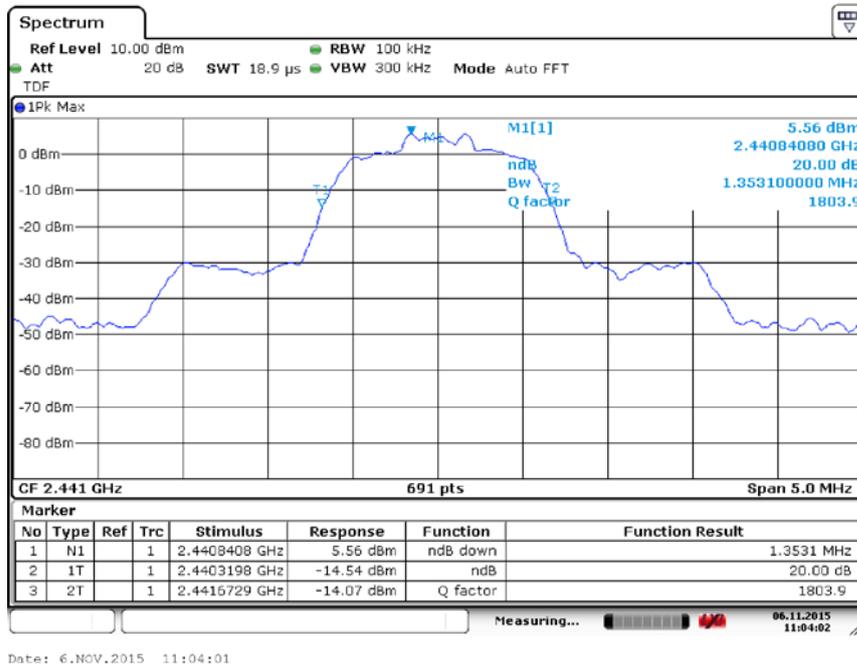


Fig. 76 Occupied 20dB Bandwidth ( $\pi/4$  DQPSK, Ch 39)

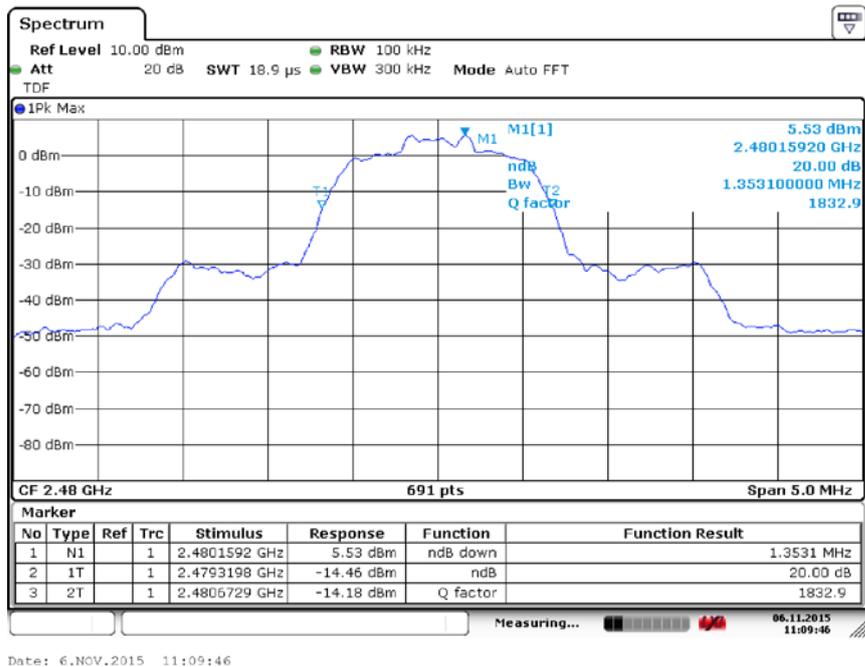


Fig. 77 Occupied 20dB Bandwidth ( $\pi/4$  DQPSK, Ch 78)

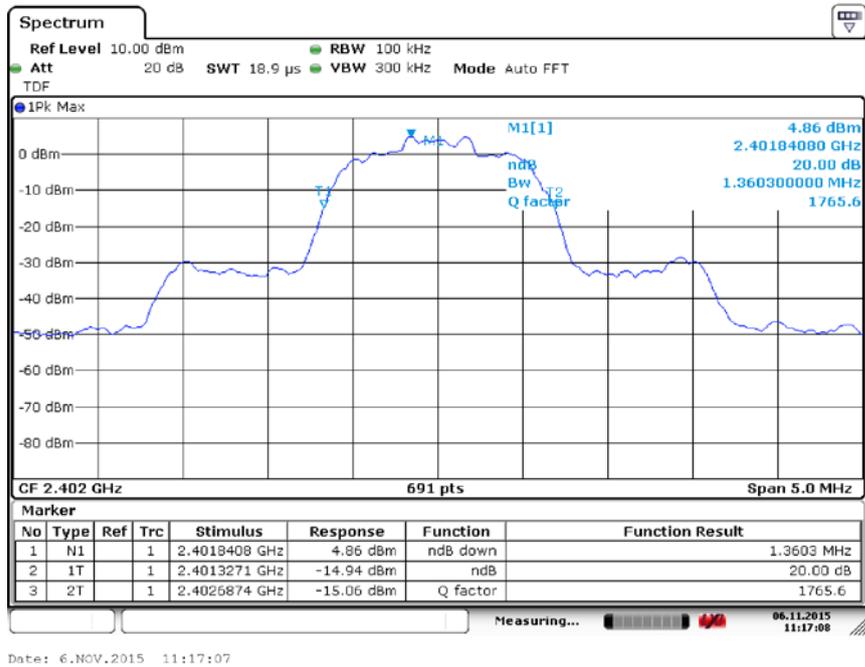


Fig. 78 Occupied 20dB Bandwidth (8DPSK, Ch 0)

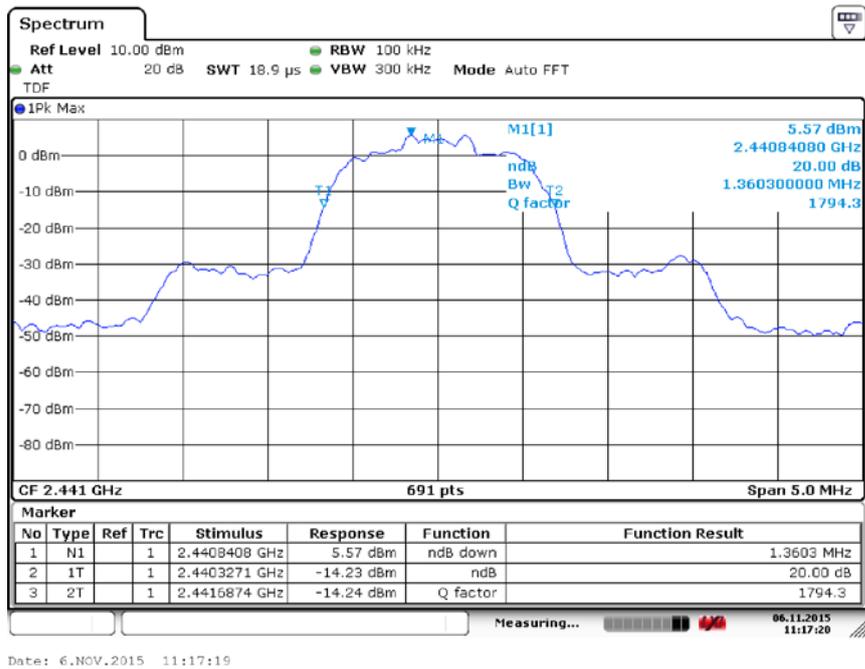


Fig. 79 Occupied 20dB Bandwidth (8DPSK, Ch 39)

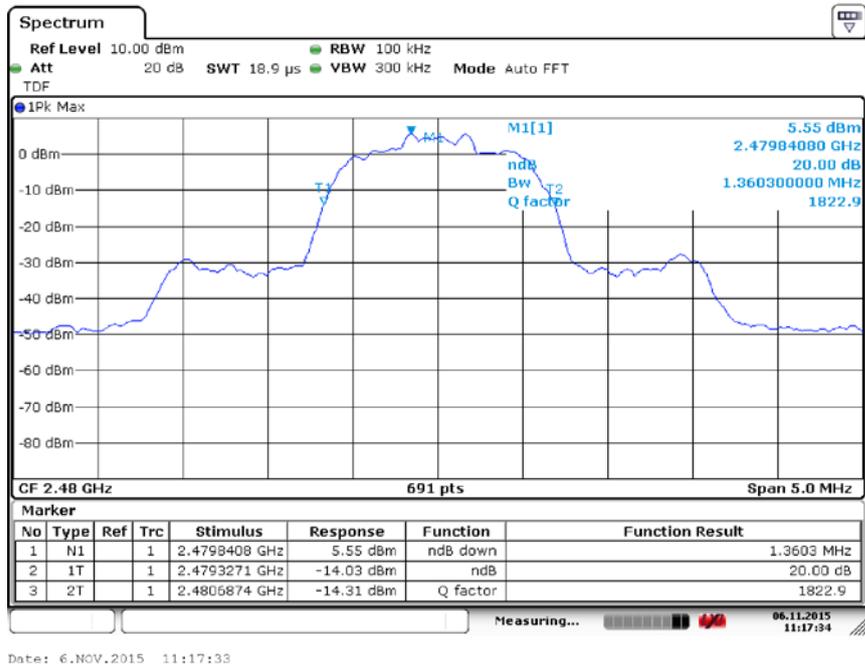
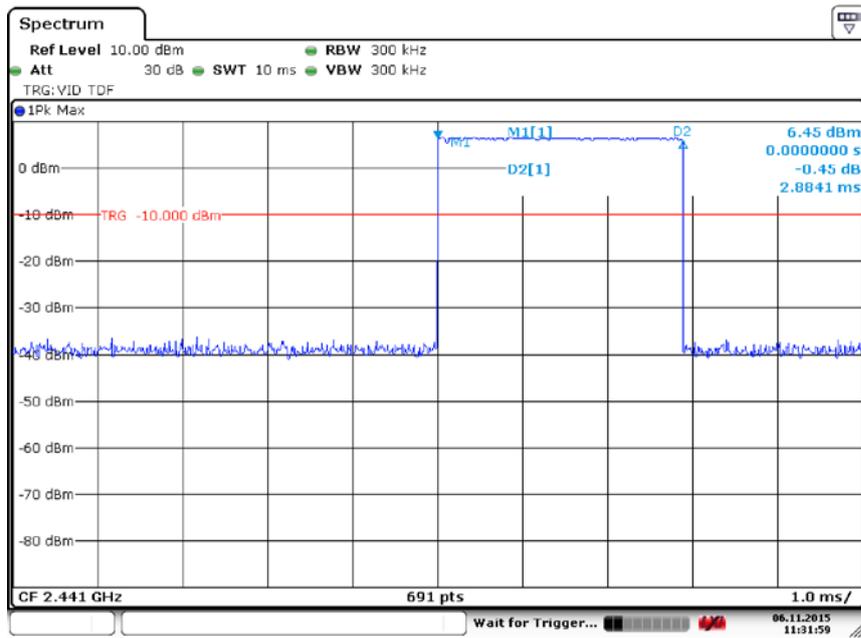
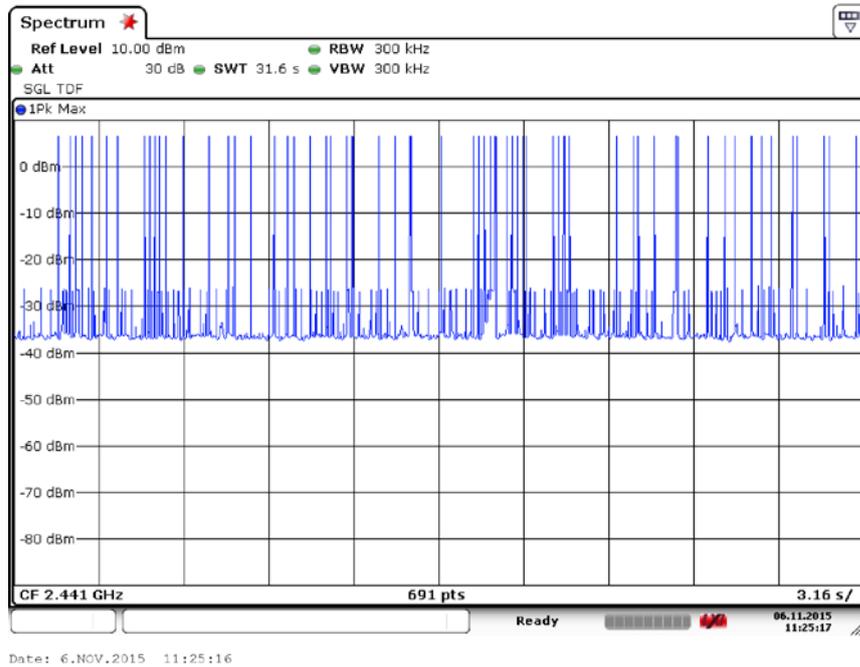


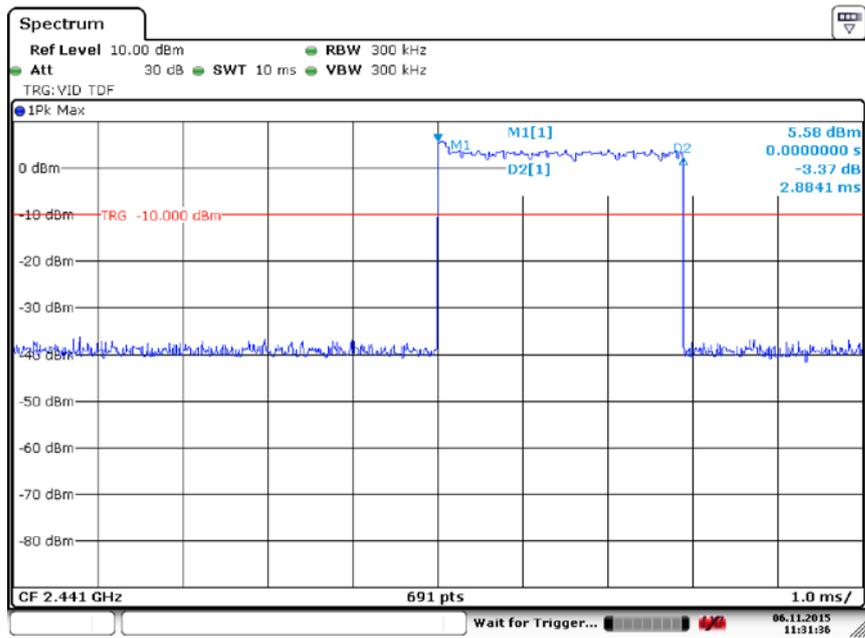
Fig. 80 Occupied 20dB Bandwidth (8DPSK, Ch 78)



**Fig. 81 Time of Occupancy(Dwell Time) (GFSK, Ch39)**

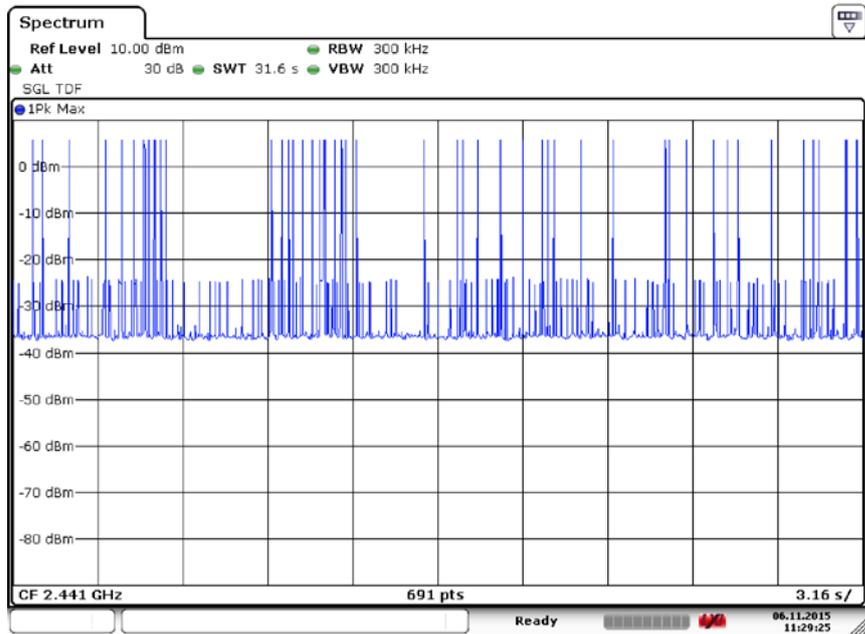


**Fig. 82 Number of Transmissions (GFSK, Ch39)**



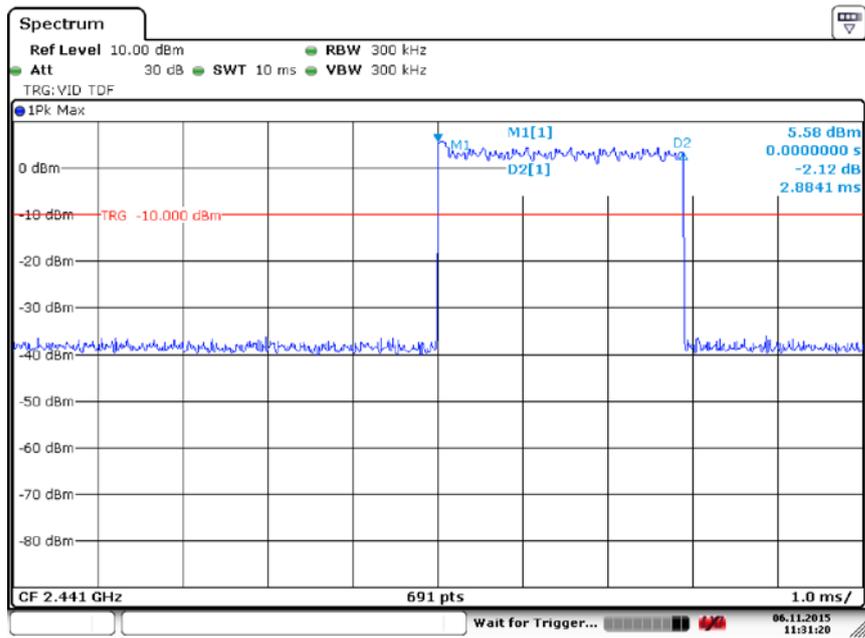
Date: 6.NOV.2015 11:31:36

**Fig. 83 Time of Occupancy(Dwell Time) ( $\pi/4$  DQPSK, Ch39)**



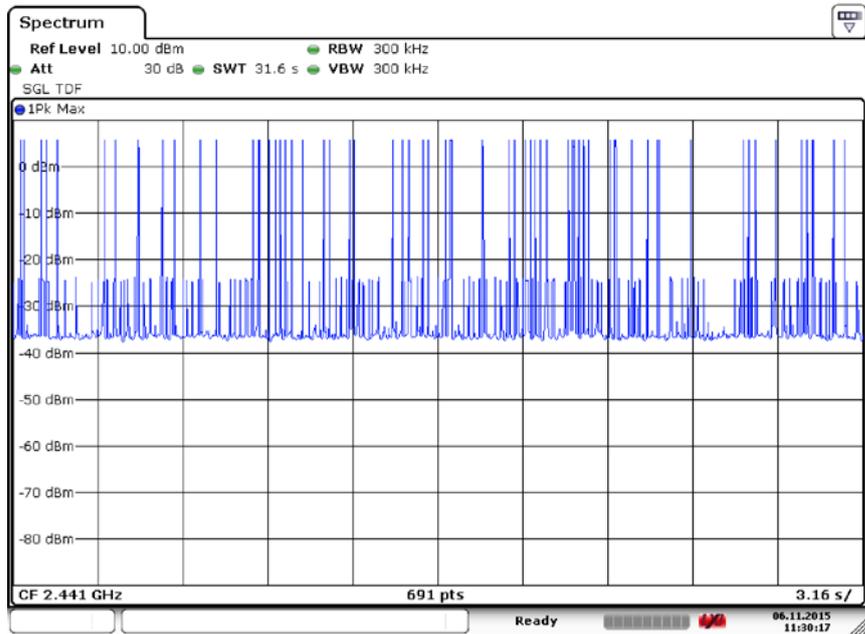
Date: 6.NOV.2015 11:29:25

**Fig. 84 Number of Transmissions ( $\pi/4$  DQPSK, Ch39)**



Date: 6.NOV.2015 11:31:20

**Fig. 85 Time of Occupancy(Dwell Time) (8DPSK, Ch39)**



Date: 6.NOV.2015 11:30:17

**Fig. 86 Number of Transmissions (8DPSK, Ch39)**

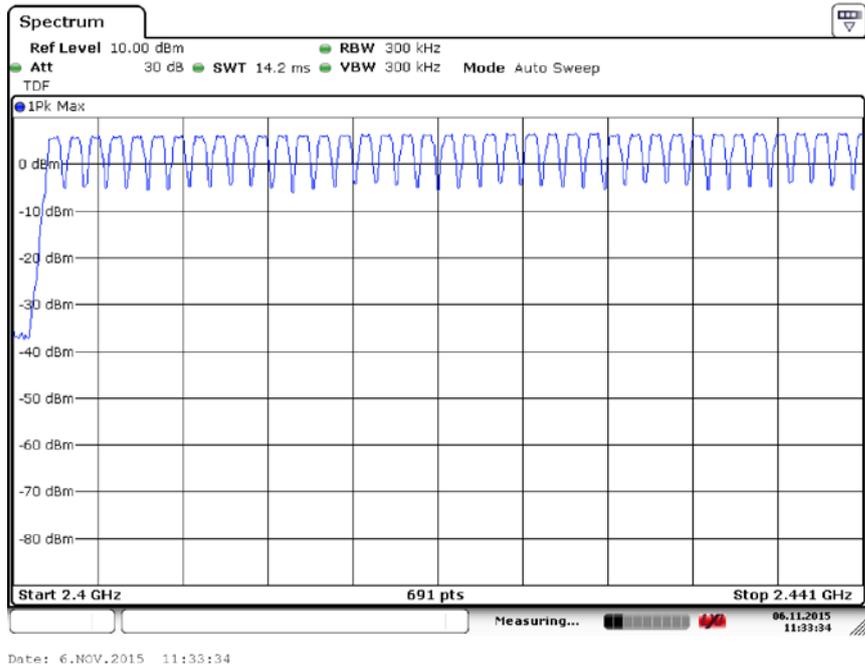


Fig. 87 Hopping channel ch0~39 (GFSK, Ch39)

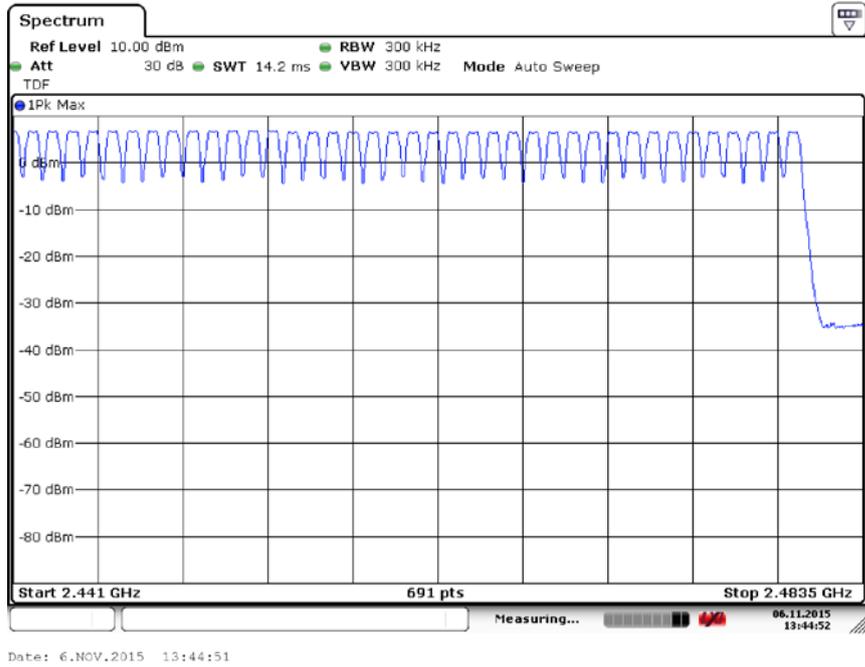


Fig. 88 Hopping channel ch39~78 (GFSK, Ch39)

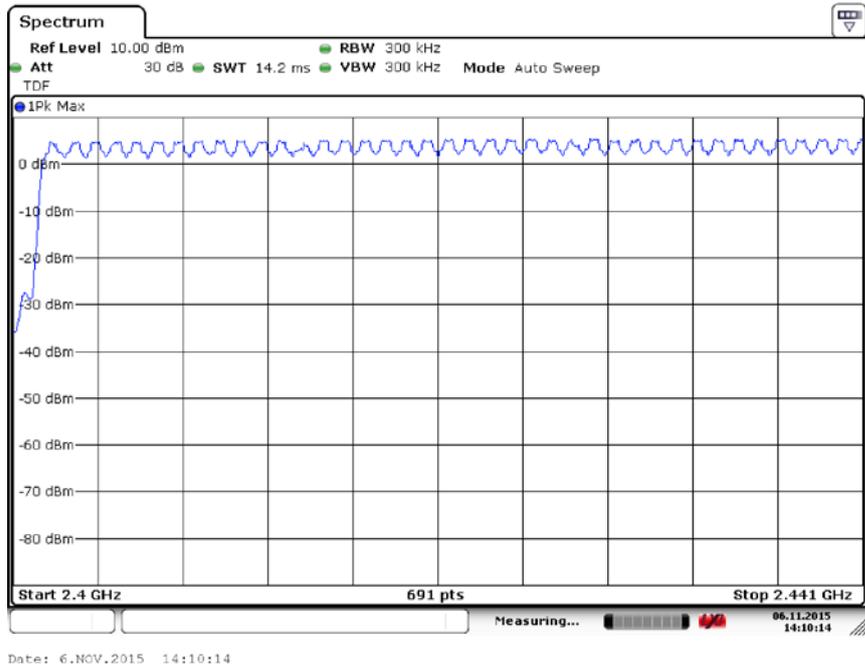


Fig. 89 Hopping channel ch0~39 ( $\pi/4$  DQPSK, Ch39)

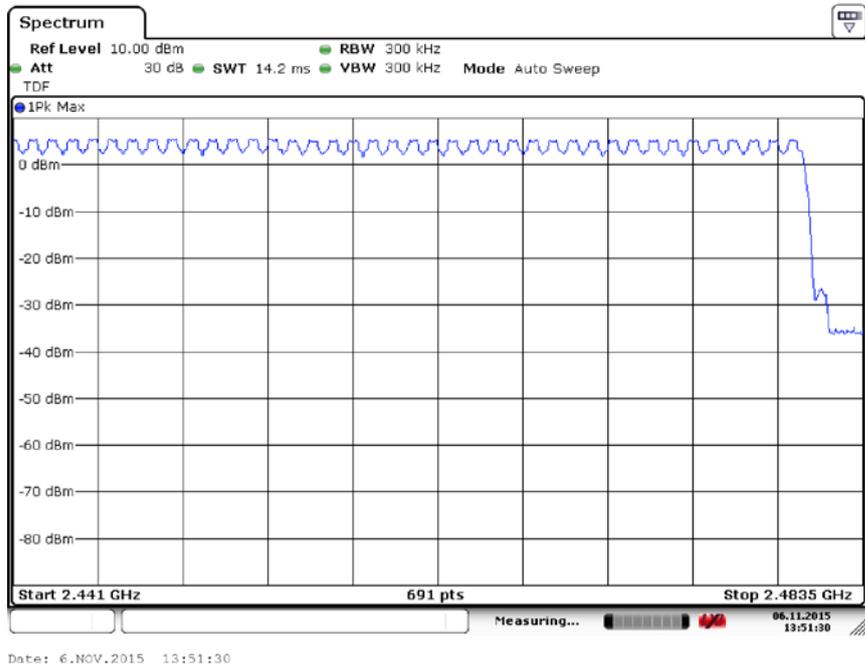
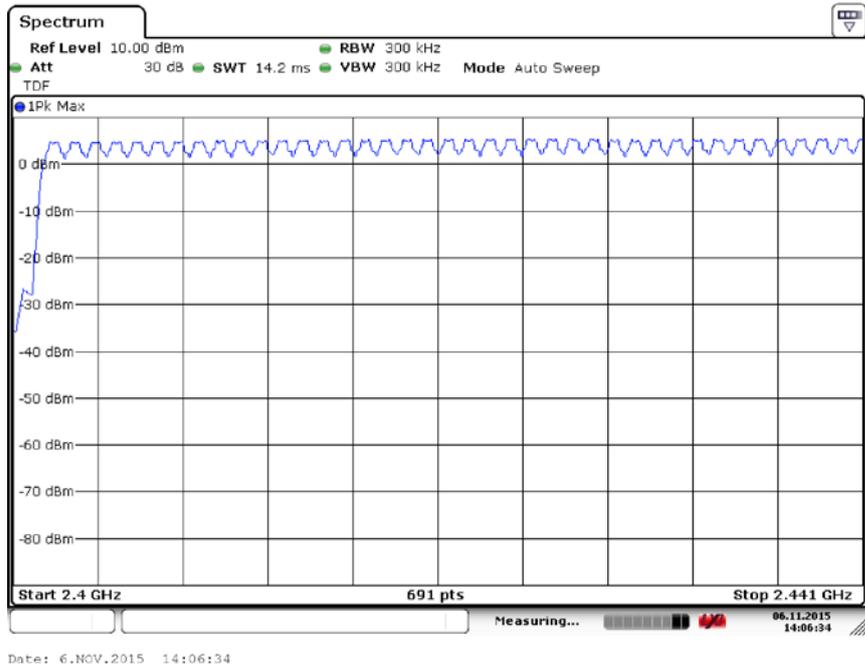
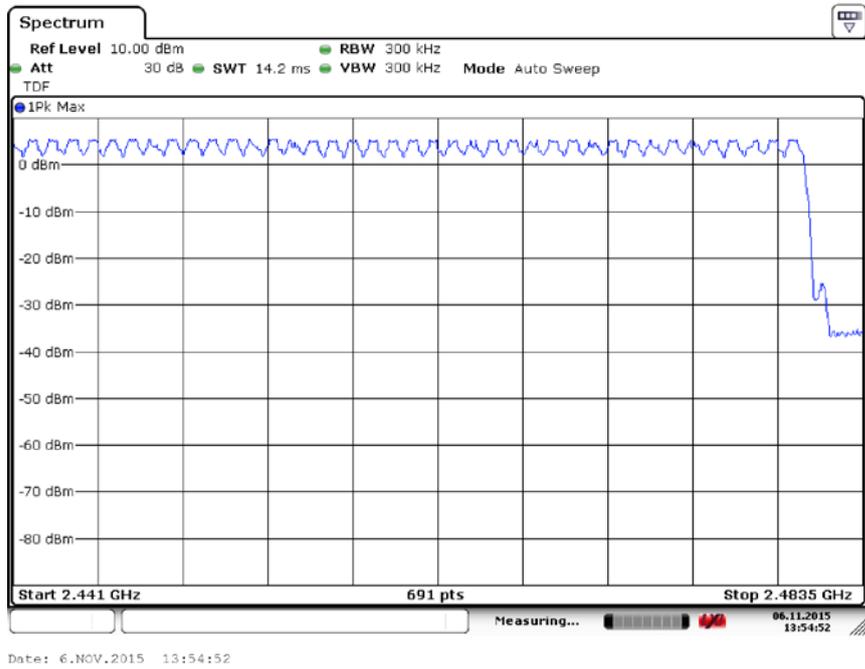


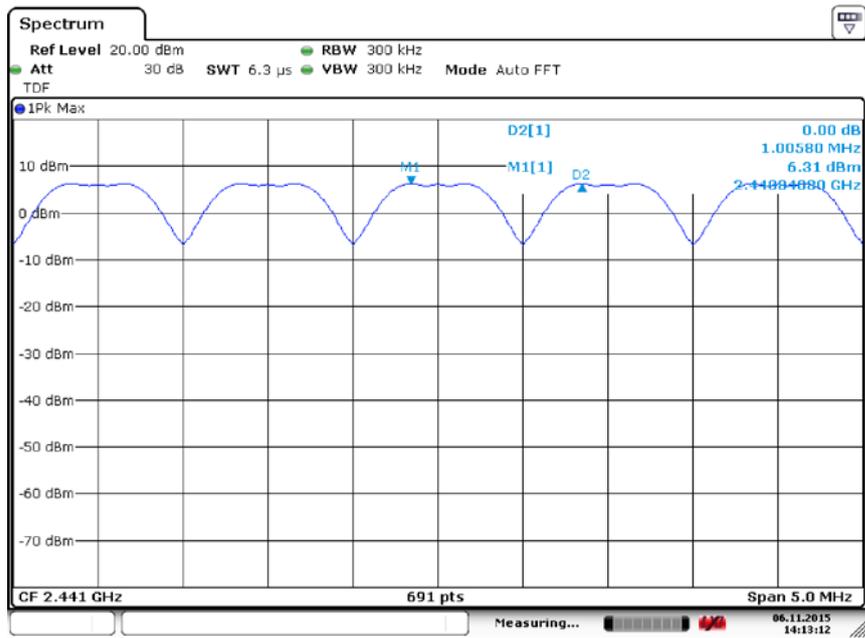
Fig. 90 Hopping channel ch39~78 ( $\pi/4$  DQPSK, Ch39)



**Fig. 91 Hopping channel ch0~39 (8DPSK, Ch39)**

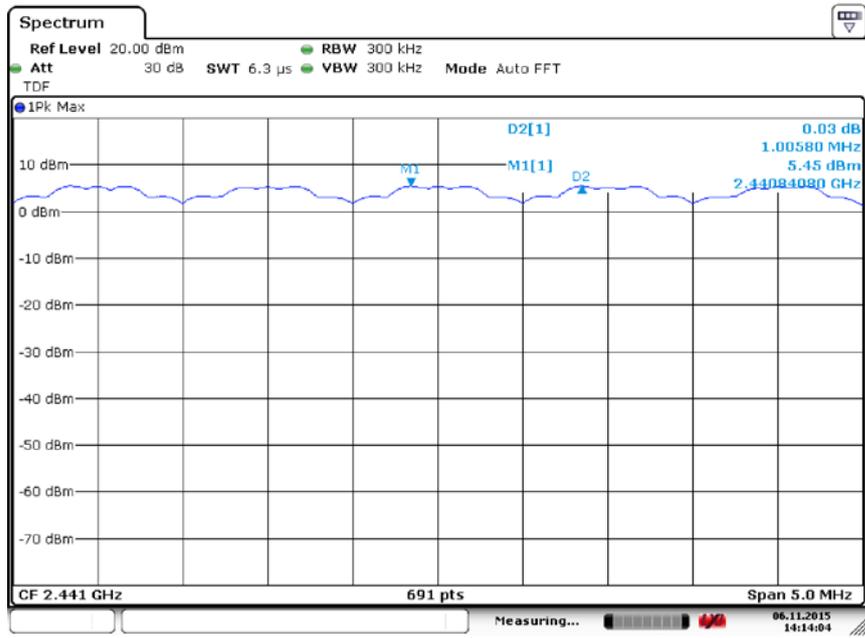


**Fig. 92 Hopping channel ch39~78 (8DPSK, Ch39)**



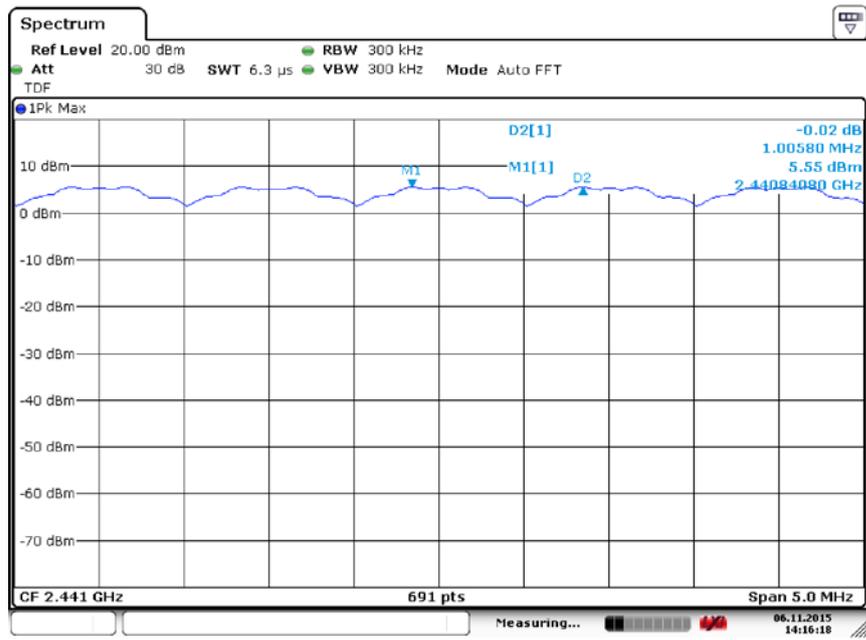
Date: 6.NOV.2015 14:13:12

**Fig. 93 Carrier Frequency Separation (GFSK, Ch39)**



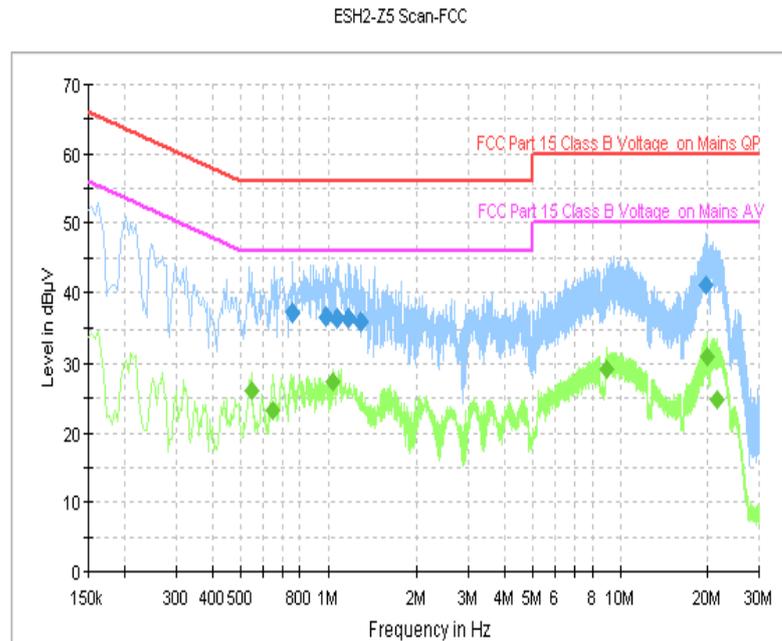
Date: 6.NOV.2015 14:14:04

**Fig. 94 Carrier Frequency Separation ( $\pi/4$  DQPSK, Ch39)**



Date: 6.NOV.2015 14:16:18

**Fig. 95 Carrier Frequency Separation (8DPSK, Ch39)**



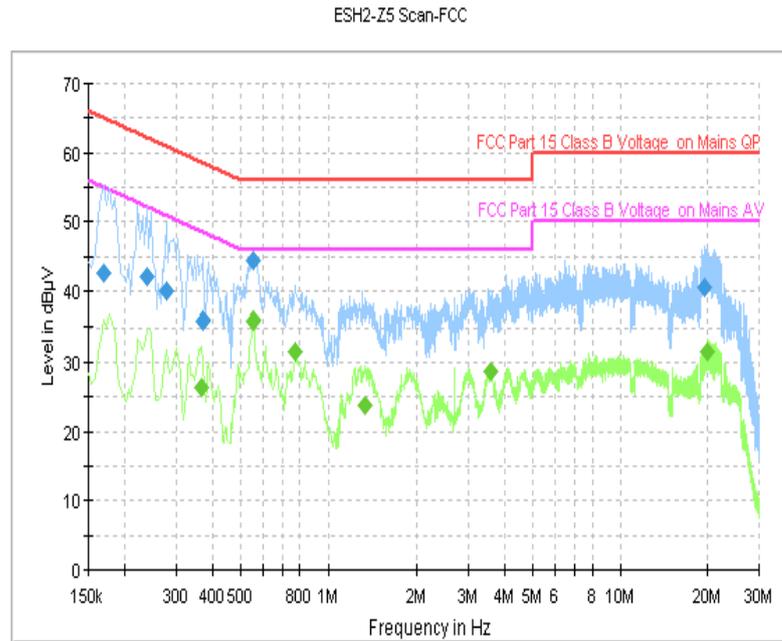
**Fig. 96 AC Power line Conducted Emission (Traffic, AE1)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.754000	37.2	GND	N	10.1	18.8	56.0
0.986000	36.6	GND	N	10.1	19.4	56.0
1.070000	36.5	GND	N	10.1	19.5	56.0
1.174000	36.5	GND	N	10.1	19.5	56.0
1.298000	35.9	GND	N	10.1	20.1	56.0
19.806000	41.0	GND	L1	10.5	19.0	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.546000	26.0	GND	L1	10.1	20.0	46.0
0.646000	23.2	GND	L1	10.0	22.8	46.0
1.038000	27.4	GND	L1	10.0	18.6	46.0
8.938000	29.2	GND	L1	10.3	20.8	50.0
19.882000	31.0	GND	L1	10.5	19.0	50.0
21.526000	24.7	GND	L1	10.6	25.3	50.0



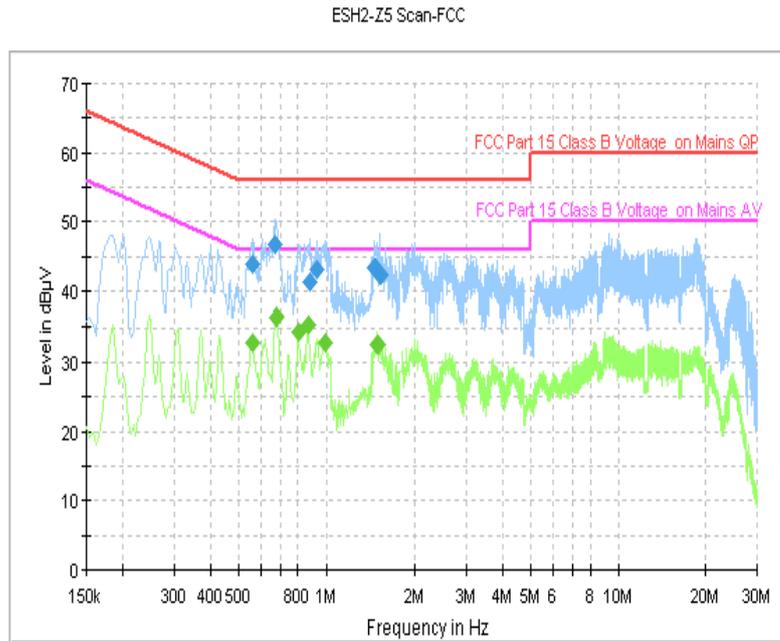
**Fig. 97 AC Power line Conducted Emission (Traffic, AE2)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.170000	42.6	GND	L1	10.0	22.3	65.0
0.238000	42.1	GND	L1	10.0	20.1	62.2
0.278000	40.0	GND	L1	10.0	20.9	60.9
0.370000	35.8	GND	L1	10.0	22.7	58.5
0.554000	44.4	GND	L1	10.1	11.6	56.0
19.422000	40.5	GND	L1	10.5	19.5	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.366000	26.3	GND	N	10.1	22.3	48.6
0.554000	35.8	GND	N	10.1	10.2	46.0
0.774000	31.5	GND	N	10.1	14.5	46.0
1.342000	23.8	GND	N	10.1	22.2	46.0
3.586000	28.6	GND	N	10.2	17.4	46.0
19.978000	31.6	GND	L1	10.5	18.4	50.0



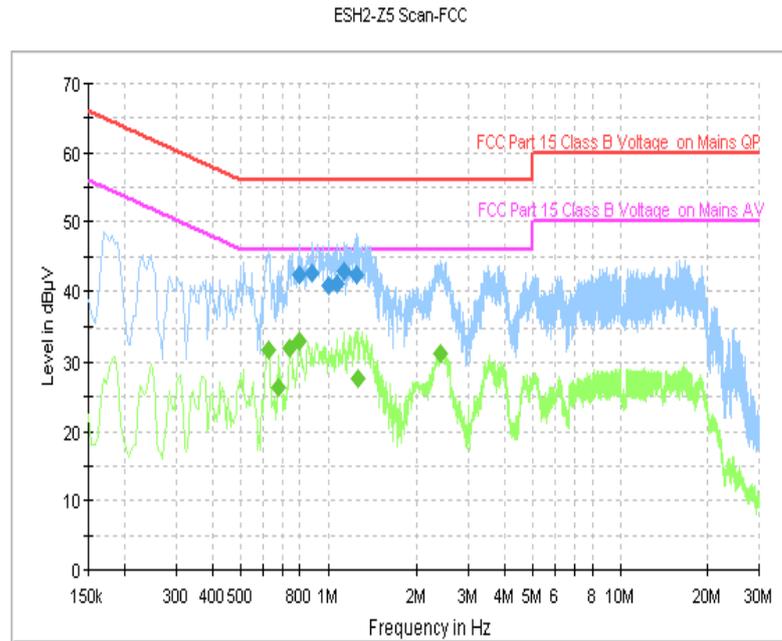
**Fig. 98 AC Power line Conducted Emission (Traffic, AE3)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.558000	43.9	GND	L1	10.1	12.1	56.0
0.666000	46.8	GND	L1	10.0	9.2	56.0
0.882000	41.3	GND	L1	10.1	14.7	56.0
0.934000	43.1	GND	L1	10.1	12.9	56.0
1.470000	43.3	GND	L1	10.1	12.7	56.0
1.538000	42.4	GND	L1	10.1	13.6	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.558000	32.9	GND	L1	10.1	13.1	46.0
0.674000	36.4	GND	L1	10.0	9.6	46.0
0.806000	34.5	GND	L1	10.1	11.5	46.0
0.866000	35.3	GND	L1	10.1	10.7	46.0
0.990000	32.8	GND	L1	10.1	13.2	46.0
1.502000	32.6	GND	L1	10.1	13.4	46.0



**Fig. 99 AC Power line Conducted Emission (Traffic, AE4)**

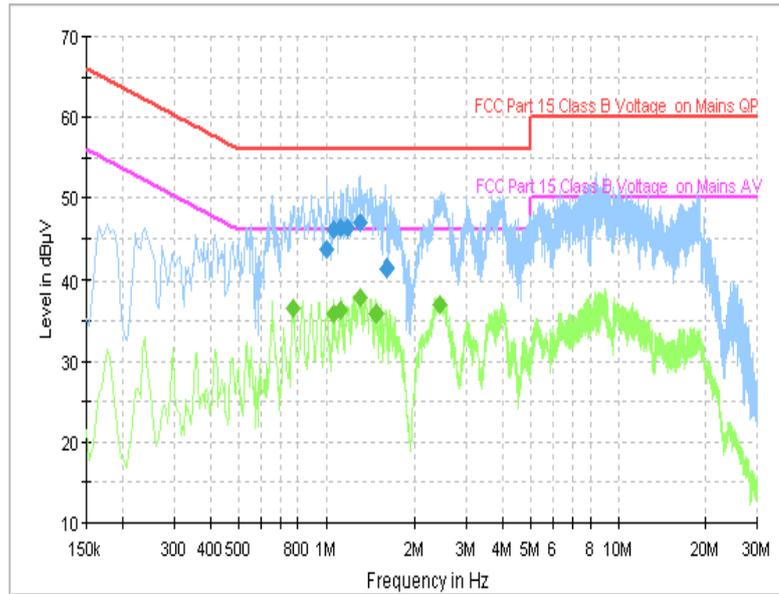
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.794000	42.3	GND	L1	10.1	13.7	56.0
0.878000	42.5	GND	L1	10.1	13.5	56.0
1.010000	40.7	GND	L1	10.0	15.3	56.0
1.078000	41.1	GND	L1	10.1	14.9	56.0
1.130000	43.0	GND	L1	10.1	13.0	56.0
1.254000	42.5	GND	L1	10.1	13.5	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.626000	31.9	GND	L1	10.0	14.1	46.0
0.678000	26.2	GND	L1	10.0	19.8	46.0
0.738000	32.1	GND	L1	10.0	13.9	46.0
0.794000	33.0	GND	L1	10.1	13.0	46.0
1.262000	27.7	GND	L1	10.1	18.3	46.0
2.410000	31.2	GND	L1	10.1	14.8	46.0

ESH2-Z5 Scan-FCC



**Fig. 100 AC Power line Conducted Emission (Traffic, AE5)**

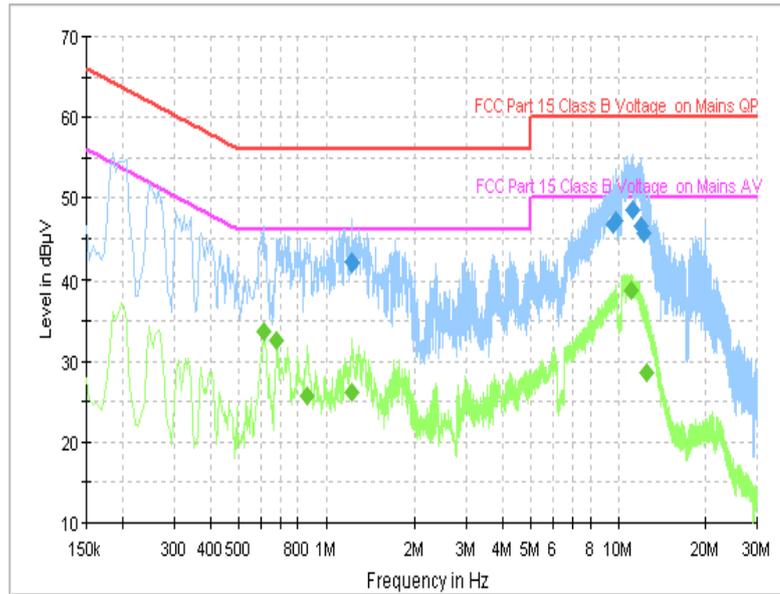
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
1.010000	43.6	GND	N	10.1	12.4	56.0
1.062000	46.0	GND	L1	10.1	10.0	56.0
1.122000	46.3	GND	L1	10.1	9.7	56.0
1.182000	46.3	GND	L1	10.0	9.7	56.0
1.306000	46.9	GND	L1	10.1	9.1	56.0
1.606000	41.3	GND	N	10.1	14.7	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.770000	36.5	GND	L1	10.1	9.5	46.0
1.062000	36.0	GND	L1	10.1	10.0	46.0
1.122000	36.4	GND	L1	10.1	9.6	46.0
1.306000	37.9	GND	L1	10.1	8.1	46.0
1.482000	36.0	GND	L1	10.1	10.0	46.0
2.446000	37.1	GND	L1	10.1	8.9	46.0

ESH2-Z5 Scan-FCC



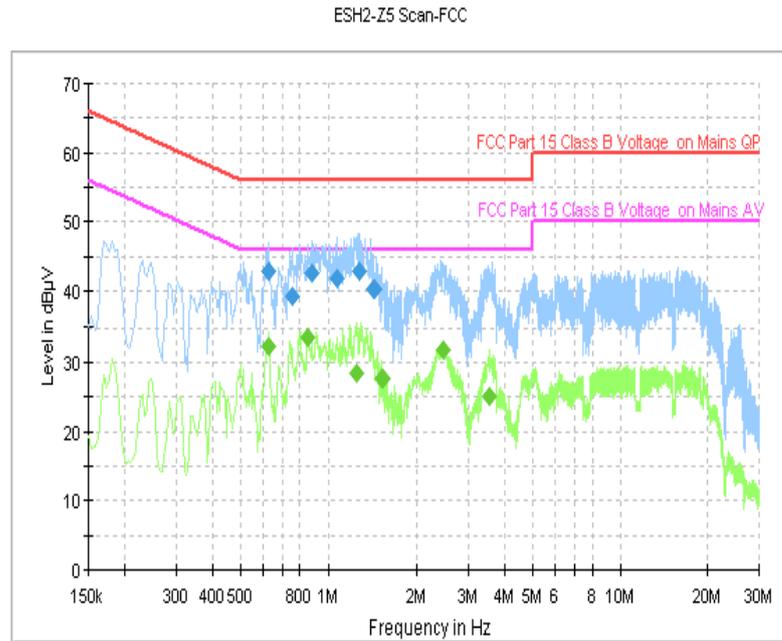
**Fig. 101 AC Power line Conducted Emission (Traffic, AE6)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
1.222000	42.1	GND	L1	10.1	13.9	56.0
9.578000	46.9	GND	L1	10.3	13.2	60.0
9.862000	47.2	GND	L1	10.3	12.8	60.0
11.190000	48.4	GND	L1	10.3	11.6	60.0
11.954000	46.6	GND	L1	10.4	13.4	60.0
12.214000	45.6	GND	L1	10.4	14.4	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.614000	33.6	GND	L1	10.0	12.4	46.0
0.678000	32.5	GND	L1	10.0	13.5	46.0
0.862000	25.8	GND	L1	10.0	20.2	46.0
1.230000	26.2	GND	L1	10.1	19.8	46.0
11.134000	38.9	GND	L1	10.3	11.1	50.0
12.514000	28.5	GND	L1	10.4	21.5	50.0



**Fig. 102 AC Power line Conducted Emission (Traffic, AE7)**

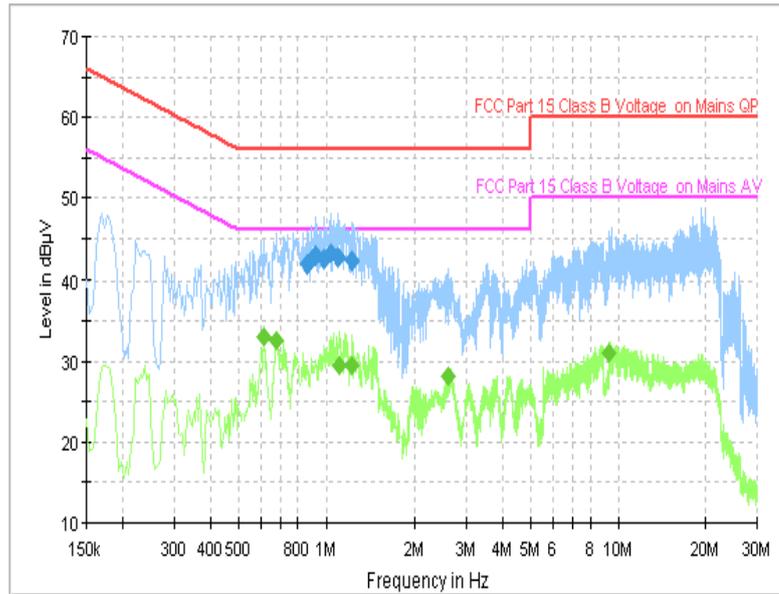
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.626000	42.9	GND	L1	10.0	13.1	56.0
0.758000	39.1	GND	L1	10.1	16.9	56.0
0.878000	42.7	GND	L1	10.1	13.3	56.0
1.070000	41.8	GND	L1	10.1	14.2	56.0
1.286000	43.0	GND	L1	10.1	13.0	56.0
1.438000	40.2	GND	L1	10.1	15.8	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.626000	42.9	GND	L1	10.0	13.1	56.0
0.758000	39.1	GND	L1	10.1	16.9	56.0
0.878000	42.7	GND	L1	10.1	13.3	56.0
1.070000	41.8	GND	L1	10.1	14.2	56.0
1.286000	43.0	GND	L1	10.1	13.0	56.0
1.438000	40.2	GND	L1	10.1	15.8	56.0

ESH2-Z5 Scan-FCC



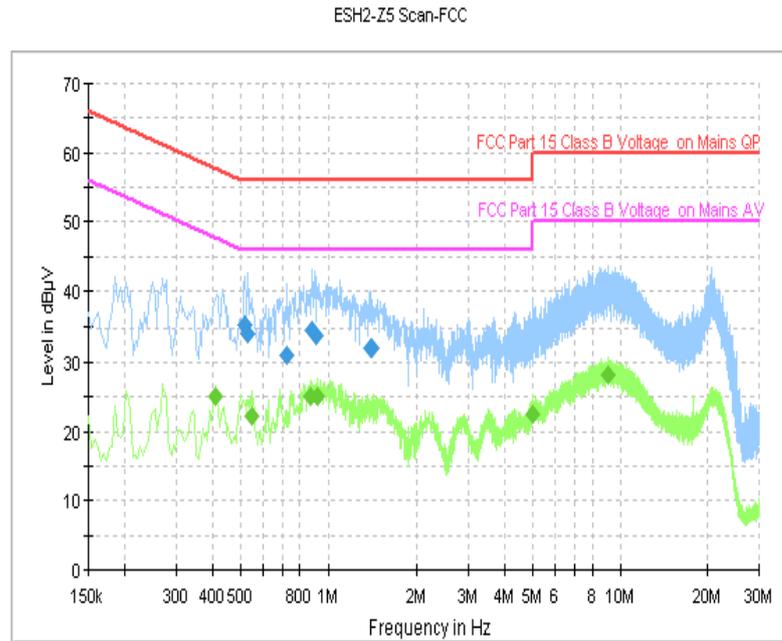
**Fig. 103 AC Power line Conducted Emission (Traffic, AE8)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.858000	41.9	GND	L1	10.0	14.1	56.0
0.918000	42.9	GND	L1	10.1	13.1	56.0
0.982000	42.6	GND	L1	10.1	13.4	56.0
1.042000	43.2	GND	L1	10.1	12.8	56.0
1.098000	42.7	GND	L1	10.1	13.3	56.0
1.226000	42.4	GND	L1	10.1	13.6	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.614000	33.0	GND	L1	10.0	13.0	46.0
0.674000	32.7	GND	L1	10.0	13.3	46.0
1.110000	29.5	GND	L1	10.1	16.5	46.0
1.226000	29.6	GND	L1	10.1	16.4	46.0
2.598000	28.1	GND	L1	10.2	17.9	46.0
9.290000	31.1	GND	L1	10.3	18.9	50.0



**Fig. 104 AC Power line Conducted Emission (Idle, AE1)**

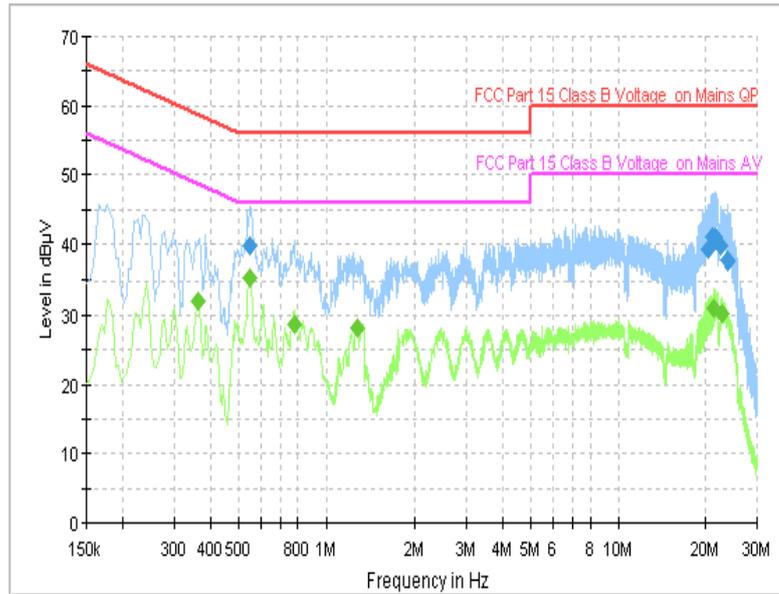
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.518000	35.4	GND	N	10.1	20.6	56.0
0.530000	34.1	GND	N	10.1	21.9	56.0
0.722000	31.1	GND	N	10.0	24.9	56.0
0.882000	34.6	GND	N	10.1	21.4	56.0
0.914000	33.8	GND	N	10.1	22.2	56.0
1.402000	32.1	GND	N	10.1	23.9	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.410000	25.2	GND	L1	10.0	22.5	47.6
0.546000	22.3	GND	L1	10.1	23.7	46.0
0.870000	25.0	GND	L1	10.1	21.0	46.0
0.922000	25.1	GND	L1	10.1	20.9	46.0
4.990000	22.4	GND	L1	10.2	23.6	46.0
9.130000	28.1	GND	L1	10.3	21.9	50.0

ESH2-Z5 Scan-FCC



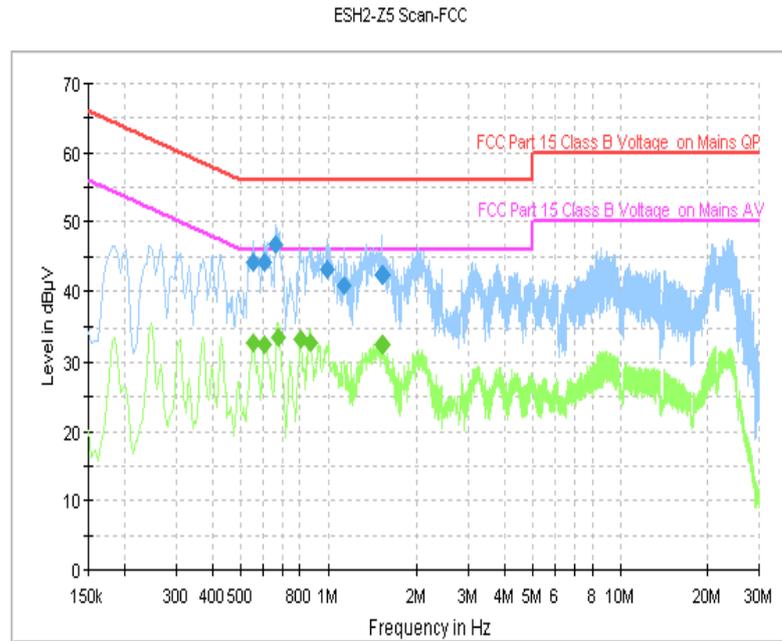
**Fig. 105 AC Power line Conducted Emission (Idle, AE2)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.546000	39.8	GND	N	10.1	16.2	56.0
20.326000	39.3	GND	L1	10.6	20.7	60.0
21.074000	41.1	GND	L1	10.6	18.9	60.0
21.634000	41.2	GND	L1	10.6	18.8	60.0
22.430000	39.8	GND	L1	10.6	20.2	60.0
23.702000	37.8	GND	L1	10.5	22.2	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.362000	32.0	GND	N	10.1	16.7	48.7
0.550000	35.3	GND	N	10.1	10.7	46.0
0.782000	28.7	GND	N	10.1	17.3	46.0
1.282000	28.3	GND	N	10.1	17.7	46.0
21.398000	31.0	GND	L1	10.6	19.0	50.0
22.638000	30.3	GND	L1	10.6	19.7	50.0



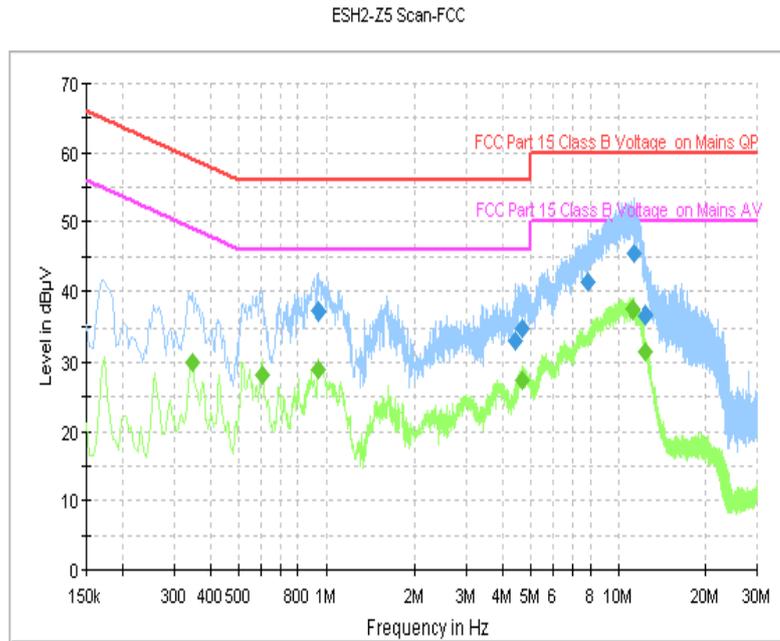
**Fig. 106 AC Power line Conducted Emission (Idle, AE3)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.554000	44.2	GND	L1	10.1	11.8	56.0
0.602000	44.3	GND	L1	10.0	11.7	56.0
0.662000	46.7	GND	L1	10.0	9.3	56.0
0.998000	43.2	GND	L1	10.1	12.8	56.0
1.134000	40.9	GND	L1	10.1	15.2	56.0
1.534000	42.4	GND	L1	10.1	13.6	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.554000	32.8	GND	L1	10.1	13.2	46.0
0.602000	32.4	GND	L1	10.0	13.6	46.0
0.678000	33.6	GND	L1	10.0	12.4	46.0
0.806000	33.2	GND	L1	10.1	12.8	46.0
0.866000	32.9	GND	L1	10.1	13.1	46.0
1.534000	32.6	GND	L1	10.1	13.4	46.0



**Fig. 107 AC Power line Conducted Emission (Idle, AE4)**

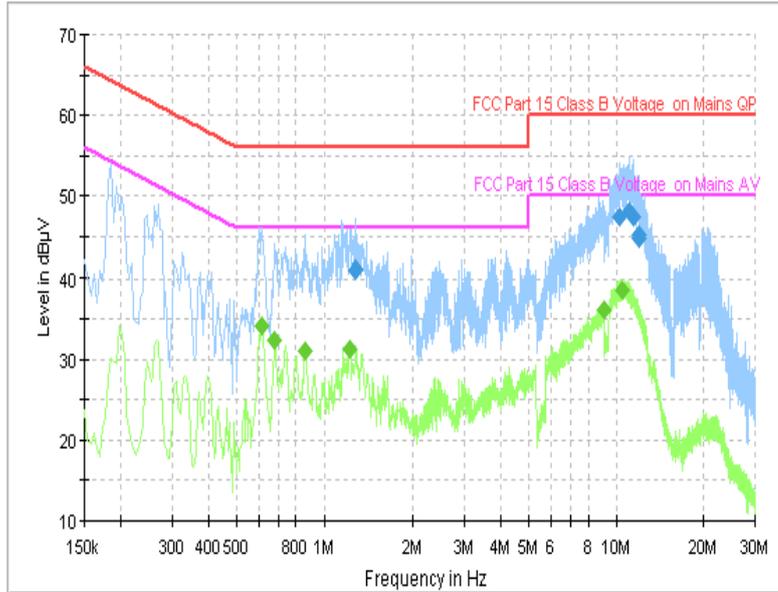
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.946000	37.2	GND	L1	10.1	18.8	56.0
4.442000	33.1	GND	L1	10.2	22.9	56.0
4.674000	34.8	GND	L1	10.2	21.2	56.0
7.862000	41.3	GND	L1	10.3	18.7	60.0
11.314000	45.5	GND	L1	10.3	14.5	60.0
12.410000	36.7	GND	N	10.4	23.4	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.346000	30.0	GND	L1	10.0	19.1	49.1
0.602000	28.2	GND	L1	10.0	17.8	46.0
0.946000	28.8	GND	L1	10.1	17.2	46.0
4.682000	27.3	GND	L1	10.2	18.7	46.0
11.178000	37.3	GND	L1	10.3	12.7	50.0
12.410000	31.6	GND	L1	10.4	18.4	50.0

ESH2-Z5 Scan-FCC



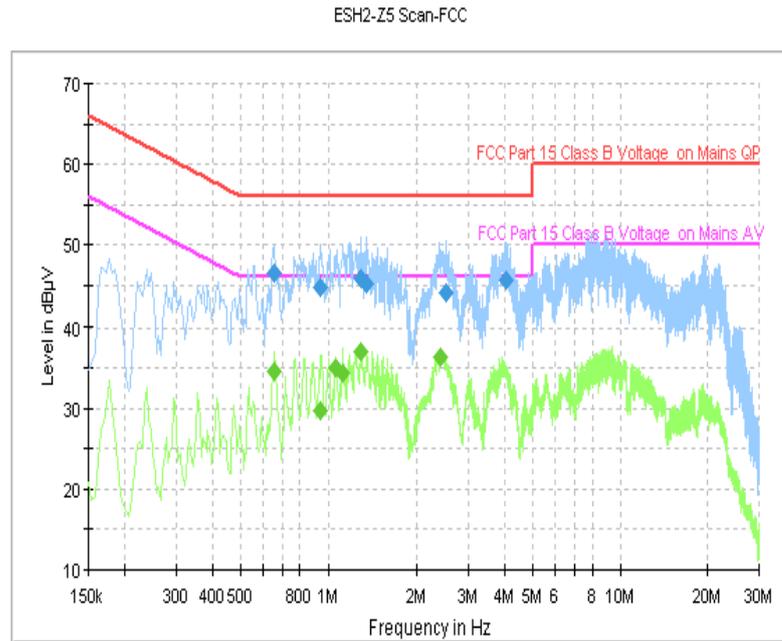
**Fig. 108 AC Power line Conducted Emission (Idle, AE5)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
1.286000	41.1	GND	L1	10.1	14.9	56.0
10.242000	47.4	GND	L1	10.3	12.6	60.0
11.146000	48.0	GND	L1	10.3	12.0	60.0
11.414000	47.4	GND	L1	10.3	12.6	60.0
11.954000	45.2	GND	L1	10.4	14.8	60.0
12.034000	44.7	GND	L1	10.4	15.3	60.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.610000	34.1	GND	L1	10.0	11.9	46.0
0.678000	32.4	GND	L1	10.0	13.6	46.0
0.858000	31.1	GND	L1	10.0	14.9	46.0
1.226000	31.2	GND	L1	10.1	14.8	46.0
9.046000	36.0	GND	L1	10.3	14.0	50.0
10.546000	38.5	GND	L1	10.3	11.5	50.0



**Fig. 109 AC Power line Conducted Emission (Idle, AE6)**

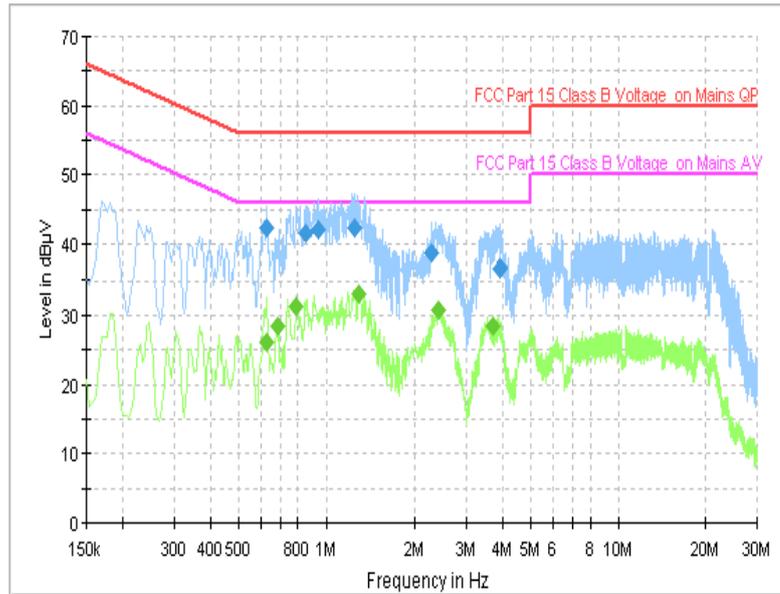
MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.650000	46.6	GND	L1	10.0	9.4	56.0
0.946000	44.8	GND	N	10.1	11.2	56.0
1.302000	45.9	GND	L1	10.1	10.1	56.0
1.358000	45.2	GND	L1	10.1	10.8	56.0
2.514000	44.0	GND	N	10.2	12.0	56.0
4.054000	45.7	GND	N	10.2	10.3	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.654000	34.7	GND	N	10.0	11.3	46.0
0.942000	29.8	GND	L1	10.1	16.2	46.0
1.066000	35.1	GND	L1	10.1	10.9	46.0
1.126000	34.4	GND	L1	10.1	11.6	46.0
1.302000	36.9	GND	L1	10.1	9.1	46.0
2.414000	36.3	GND	L1	10.1	9.7	46.0

ESH2-Z5 Scan-FCC



**Fig. 110 AC Power line Conducted Emission (Idle, AE7)**

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.622000	42.3	GND	L1	10.0	13.7	56.0
0.850000	41.6	GND	L1	10.0	14.4	56.0
0.938000	42.1	GND	L1	10.1	13.9	56.0
1.250000	42.3	GND	L1	10.1	13.7	56.0
2.290000	38.8	GND	L1	10.1	17.2	56.0
3.918000	36.8	GND	L1	10.2	19.2	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.622000	26.0	GND	L1	10.0	20.0	46.0
0.682000	28.3	GND	L1	10.0	17.7	46.0
0.790000	31.1	GND	L1	10.1	14.9	46.0
1.298000	33.1	GND	L1	10.1	12.9	46.0
2.402000	30.7	GND	L1	10.1	15.3	46.0
3.718000	28.4	GND	L1	10.2	17.6	46.0

ESH2-Z5 Scan-FCC

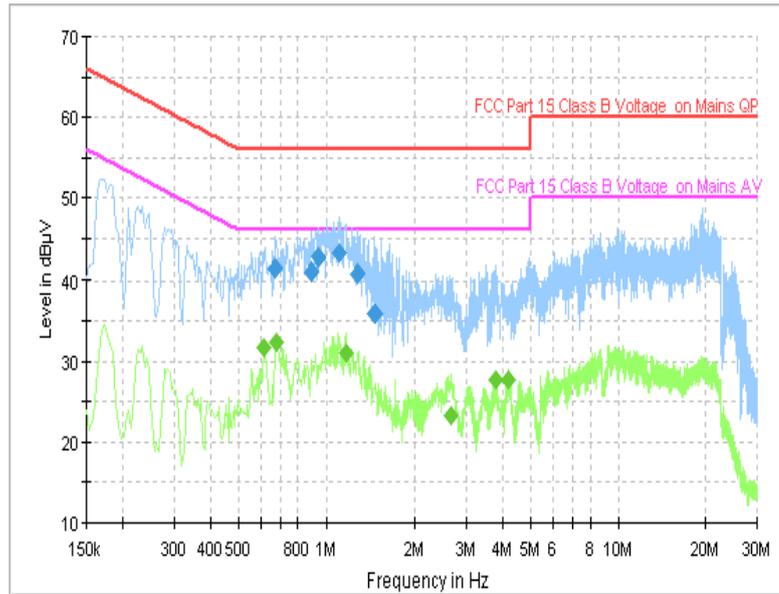


Fig. 111 AC Power line Conducted Emission (Idle, AE8)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.670000	41.4	GND	N	10.0	14.6	56.0
0.894000	41.1	GND	L1	10.1	14.9	56.0
0.946000	42.7	GND	L1	10.1	13.3	56.0
1.114000	43.2	GND	L1	10.1	12.8	56.0
1.286000	40.8	GND	L1	10.1	15.2	56.0
1.466000	36.0	GND	N	10.1	20.0	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Average (dBuV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.610000	31.8	GND	L1	10.0	14.2	46.0
0.678000	32.3	GND	L1	10.0	13.7	46.0
1.170000	31.1	GND	L1	10.1	14.9	46.0
2.658000	23.2	GND	L1	10.2	22.8	46.0
3.774000	27.7	GND	L1	10.2	18.3	46.0
4.166000	27.6	GND	L1	10.2	18.4	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\*\*\***