



# FCC PART 15C TEST REPORT

**No. 2012TAR059**

for

**TCT Mobile Limited**

**GSM quad band mobile phone**

**Model Name: Pond**

**Marketing Name: one touch 720**

**FCC ID: RAD234**

With

**Hardware Version: PIO**

**Software Version: vO21**

**Issued Date: 2012-03-13**



**No. DGA-PL-114/01-02**

*DAR accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02*

*FCC 2.948 Listed: No.733176*

*IC O.A.T.S listed: No.6629A-1*

**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 TMC Beijing.

**Test Laboratory:**

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology  
Shouxiang Science Building, No 51, Xueyuan Road, Haidian District, Beijing, P.R.China 100191

Tel:+86(0)10-62304633-2678, Fax:+86(0)10-62304793 Email:welcme@emcite.com. www.emcite.com

©Copyright. All rights reserved by TMC Beijing.

## **CONTENTS**

<b>CONTENTS .....</b>	<b>2</b>
<b>1. TEST LABORATORY .....</b>	<b>3</b>
1.1. TESTING LOCATION .....	3
1.2. TESTING ENVIRONMENT.....	3
1.3. PROJECT DATA .....	3
1.4. SIGNATURE .....	3
<b>2. CLIENT INFORMATION.....</b>	<b>4</b>
2.1. APPLICANT INFORMATION.....	4
2.2. MANUFACTURER INFORMATION .....	4
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>5</b>
3.1. ABOUT EUT .....	5
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....	5
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST .....	5
3.4. GENERAL DESCRIPTION.....	6
<b>4. REFERENCE DOCUMENTS.....</b>	<b>7</b>
4.1. DOCUMENTS SUPPLIED BY APPLICANT .....	7
4.2. REFERENCE DOCUMENTS FOR TESTING.....	7
<b>5. LABORATORY ENVIRONMENT.....</b>	<b>8</b>
<b>6. SUMMARY OF TEST RESULTS .....</b>	<b>9</b>
6.1. SUMMARY OF TEST RESULTS.....	9
6.2. STATEMENTS.....	9
<b>7. TEST EQUIPMENTS UTILIZED .....</b>	<b>10</b>
<b>ANNEX A: MEASUREMENT RESULTS.....</b>	<b>11</b>
A.1. MEASUREMENT METHOD .....	11
A.2. PEAK OUTPUT POWER - CONDUCTED .....	13
A.3. FREQUENCY BAND EDGES - CONDUCTED.....	14
A.4. CONDUCTED EMISSION.....	21
A.5. RADIATED EMISSION.....	45
A.6. TIME OF OCCUPANCY (DWELL TIME) .....	67
A.7. 20dB BANDWIDTH.....	77
A.8. CARRIER FREQUENCY SEPARATION .....	83
A.9. NUMBER OF HOPPING CHANNELS.....	85
A.10. AC POWERLINE CONDUCTED EMISSION.....	89

## 1. Test Laboratory

### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: Shouxiang Science Building, No 51, Xueyuan Road, Haidian District,  
Beijing, P.R.China  
Postal Code: 100191  
Telephone: 00861062304633  
Fax: 00861062304793

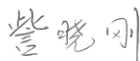
### 1.2. Testing Environment

Normal Temperature: 15-35°C  
Extreme Temperature: -20/+55°C  
Relative Humidity: 20-75%

### 1.3. Project data

Project Leader: Zi Xiaogang  
Testing Start Date: 2012-02-05  
Testing End Date: 2012-03-13

### 1.4. Signature



---

**Zi Xiaogang**  
**(Prepared this test report)**



---

**Sun Xiangqian**  
**(Reviewed this test report)**



---

**Lu Bingsong**  
**Deputy Director of the laboratory**  
**(Approved this test report)**

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: TCT Mobile Limited  
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,  
Pudong Area Shanghai, P.R. China. 201203  
City: Shanghai  
Country: China  
Telephone: 0086 21 68897541  
Fax: 0086 21 50801070

### **2.2. Manufacturer Information**

Company Name: TCT Mobile Limited  
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,  
Pudong Area Shanghai, P.R. China. 201203  
City: Shanghai  
Country: China  
Telephone: 0086-21-61460890  
Fax: 0086-21-61460602

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

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

Description	GSM quad band mobile phone
Model Name	Pond
Marketing Name	one touch 720
FCC ID	RAD234
Frequency Band	ISM 2400MHz~2483.5MHz
Type of Modulation	GFSK/ $\pi$ /4 DQPSK/8DPSK
Number of Channels	79
Power Supply	3.8V DC by Battery

#### **3.2. Internal Identification of EUT used during the test**

<b>EUT ID*</b>	<b>SN or IMEI</b>	<b>HW Version</b>	<b>SW Version</b>
N30	861566010003869	PIO	vO21

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

#### **3.3. Internal Identification of AE used during the test**

<b>AE ID*</b>	<b>Description</b>	<b>SN</b>
AE1	Battery	/
AE2	Battery	/
AE3	Charger	/
AE4	Charger	/

##### **AE1**

Model	CAB31L0000C2
Manufacturer	BAK
Capacitance	1000mAh
Nominal Voltage	3.7V

##### **AE2**

Model	CAB31L0000C1
Manufacturer	BYD
Capacitance	1000mAh
Nominal Voltage	3.7V

## AE3

Model	CBA3120AG0C2
Manufacturer	Tenpao
Length of DC line	121cm

## AE4

Model	CBA3002AG0C1
Manufacturer	BYD
Length of DC line	123cm

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

### 3.4. General Description

The Equipment Under Test (EUT) is a model of GSM quad band mobile phone with integrated antenna. It consists of normal options: lithium battery, charger Manual and specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the Client.

## 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.

	FCC CFR 47, Part 15, Subpart C:	
	15.205 Restricted bands of operation;	July 10,
FCC Part15	15.209 Radiated emission limits, general requirements;	2008
	15.247 Operation within the bands 902–928MHz,	Edition
	2400–2483.5 MHz, and 5725–5850 MHz.	
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2003
FCC Public Notice DA 00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems	March 2000

## 5. LABORATORY ENVIRONMENT

**Shielding Room1** (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

**Control room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

**Semi-anechoic chamber** (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 2000 MHz



## 6. SUMMARY OF TEST RESULTS

### 6.1. Summary of Test Results

Abbreviations used in this clause:

- P** Pass, The EUT complies with the essential requirements in the standard.
- F** Fail, The EUT does not comply with the essential requirements in the standard
- NA** Not Applicable, The test was not applicable
- NP** Not Performed, The test was not performed by TMC

<b>SUMMARY OF MEASUREMENT RESULTS</b>	<b>Sub-clause</b>	<b>Verdict</b>
Peak Output Power - Conducted	15.247 (b)(1)	<b>P</b>
Frequency Band Edges	15.247 (d)	<b>P</b>
Conducted Emission	15.247 (d)	<b>P</b>
Radiated Emission	15.247, 15.205, 15.209	<b>P</b>
Time of Occupancy (Dwell Time)	15.247 (a) (1)(iii)	<b>P</b>
20dB Bandwidth	15.247 (a)(1)	<b>NA</b>
Carrier Frequency Separation	15.247 (a)(1)	<b>P</b>
Number of hopping channels	15.247 (a)(b)(iii)	<b>P</b>
AC Powerline Conducted Emission	15.107, 15.207	<b>P</b>

Please refer to **ANNEX A** for detail.

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

### 6.2. Statements

TMC has evaluated the test cases requested by the applicant /manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.2

## 7. Test Equipments Utilized

### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSU26	200030	Rohde & Schwarz	2012-08-18
2	Bluetooth Tester	CBT32	100649	Rohde & Schwarz	2012-08-03

### Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2012-08-11
2	EMI Antenna	VULB 9163	9163 301	Schwarzbeck	2012-08-30
3	EMI Antenna	3117	00034610	EMCO	2012-07-01
4	Dual-Ridge Waveguide Horn Antenna	3116	2663	EMCO	2012-07-01
5	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2012-07-01
6	Universal Radio Communication Tester	CMU200	105948	Rohde & Schwarz	2012-08-14
7	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2012-04-17
8	Pre-amplifier(18GHz)	/	1005277	Rohde & Schwarz	/
9	Pre-amplifier(26.5GHz)	/	1005277	Rohde & Schwarz	/

### Anechoic chamber

Fully anechoic chamber by Frankonia German.

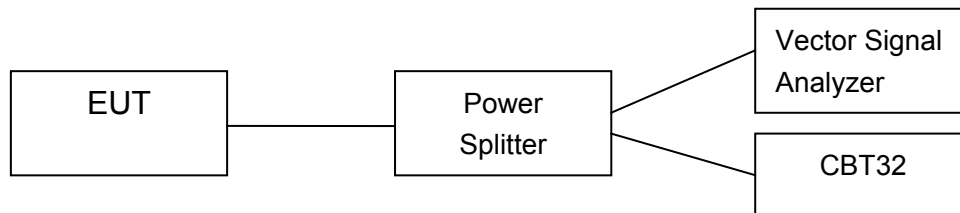
## ANNEX A: MEASUREMENT RESULTS

### A.1. Measurement Method

#### A.1.1. Conducted Measurements

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode (Transmitter, receiver or transmitter & receiver).
- 3). Set the EUT to the required channel.
- 4). Set the EUT hopping mode (hopping or hopping off).
- 5). Set the spectrum analyzer to start measurement.
- 6). Record the values. Vector Signal Analyzer



#### A.1.2. Radiated Emission Measurements

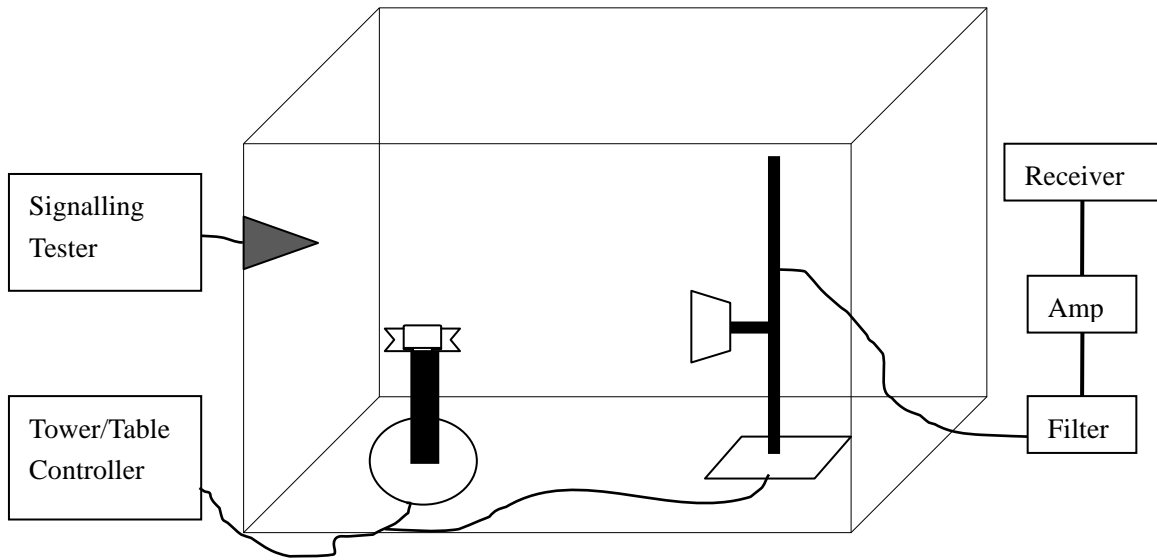
The measurement is made according to Public notice DA 00-705 and ANSI C63.4

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 1MHz;



## A.2. Peak Output Power - Conducted

### Measurement Limit:

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

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

### Test Condition

Hopping Mode	RBW	VBW	Span	Sweeptime
Hopping OFF	1MHz	1MHz	5MHz	2.5ms

### Measurement Results:

#### For GFSK

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	6.61	5.51	7.31	P

#### For $\pi/4$ DQPSK

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	6.25	5.15	6.96	P

#### For 8DPSK

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	6.65	5.56	7.38	P

**Conclusion: PASS**

### A.3. Frequency Band Edges - Conducted

#### Measurement Limit:

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

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

#### Measurement Result:

##### For GFSK

Channel	Hopping	Band Edge Power ( dBc)		Conclusion
0	Hopping OFF	Fig.1	-56.34	P
	Hopping ON	Fig.2	-56.13	P
78	Hopping OFF	Fig.3	-60.21	P
	Hopping ON	Fig.4	-60.83	P

##### For $\pi/4$ DQPSK

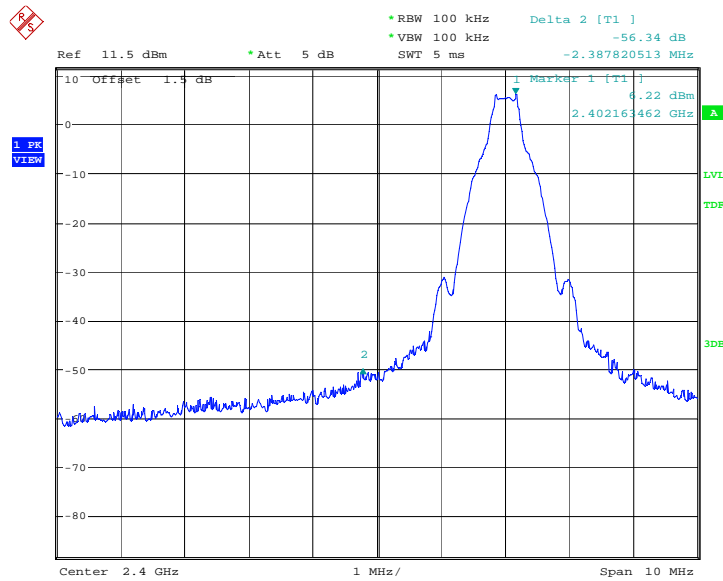
Channel	Hopping	Band Edge Power ( dBc)		Conclusion
0	Hopping OFF	Fig.5	-57.02	P
	Hopping ON	Fig.6	-58.38	P
78	Hopping OFF	Fig.7	-60.38	P
	Hopping ON	Fig.8	-58.88	P

##### For 8DPSK

Channel	Hopping	Band Edge Power ( dBc)		Conclusion
0	Hopping OFF	Fig.9	-57.08	P
	Hopping ON	Fig.10	-57.86	P
78	Hopping OFF	Fig.11	-61.24	P
	Hopping ON	Fig.12	-58.40	P

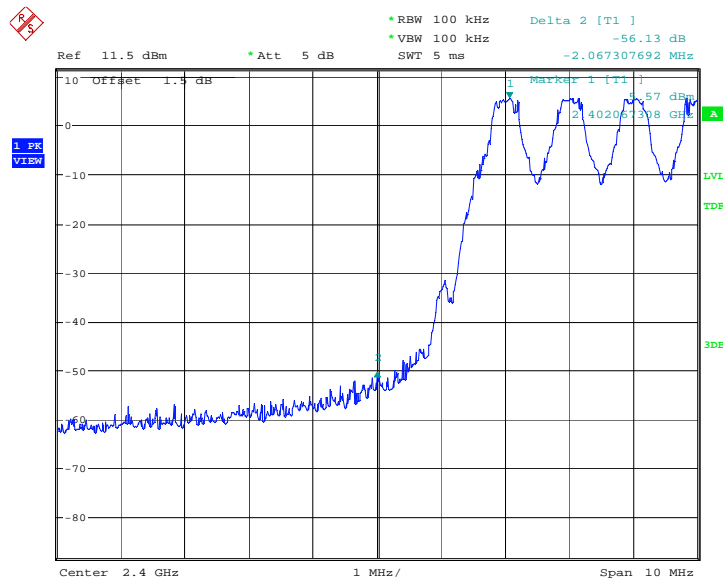
**Conclusion: PASS**

Test graphs as below



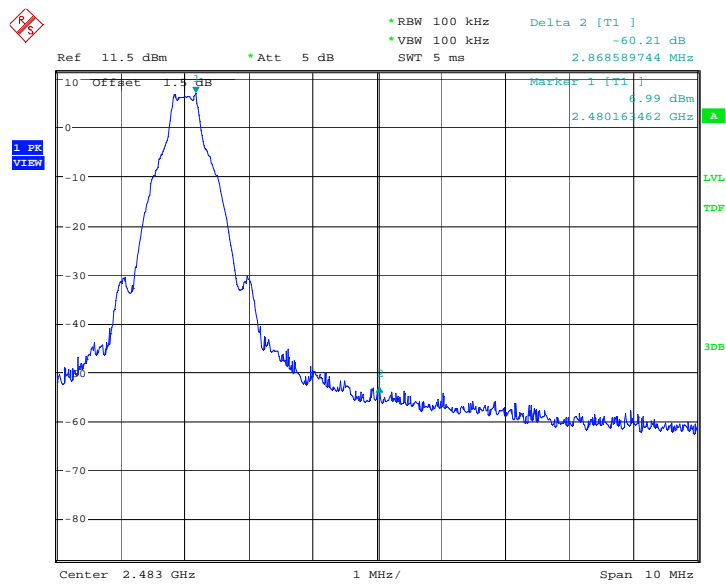
Date: 9.FEB.2012 05:48:22

Fig.1. Frequency Band Edges: GFSK, Channel 0, Hopping Off



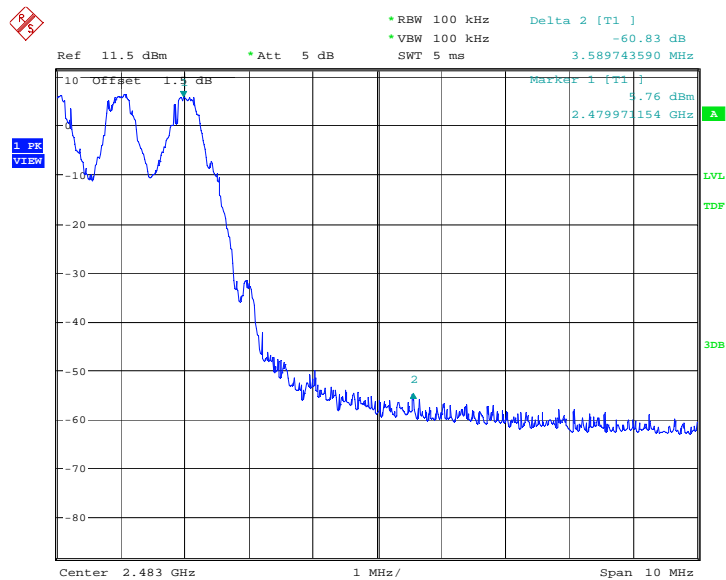
Date: 9.FEB.2012 05:50:41

Fig.2. Frequency Band Edges: GFSK, Channel 0, Hopping On



Date: 9.FEB.2012 05:48:39

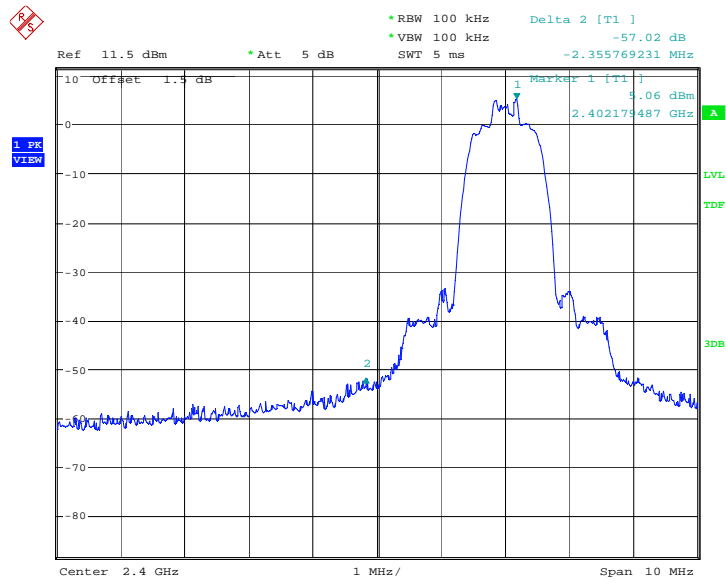
Fig.3. Frequency Band Edges: GFSK, Channel 78, Hopping Off



Date: 9.FEB.2012 05:52:44

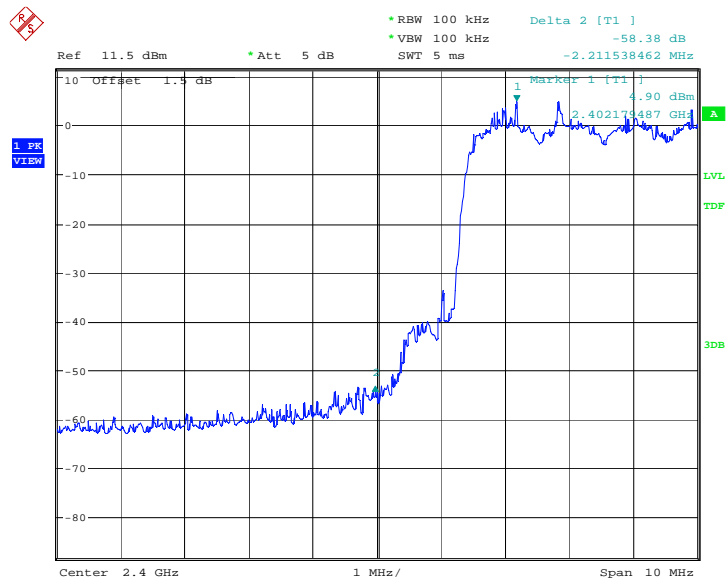
Fig.4. Frequency Band Edges: GFSK, Channel 78, Hopping On





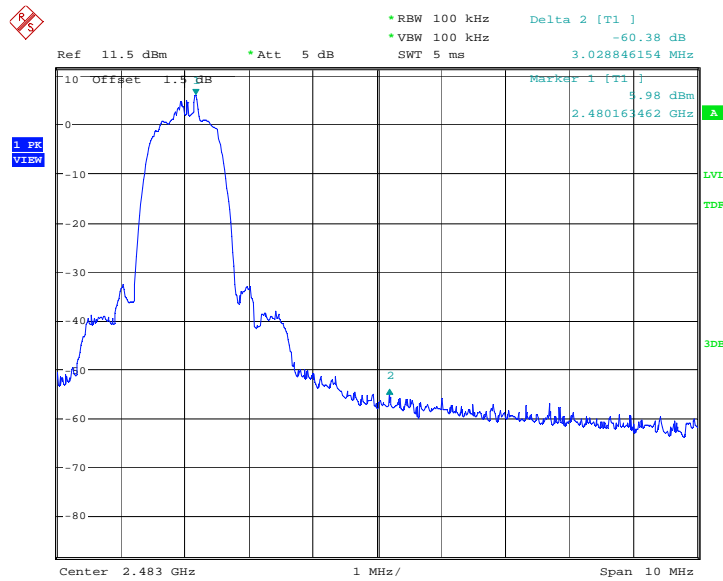
Date: 9.FEB.2012 06:10:29

Fig.5. Frequency Band Edges:  $\pi/4$  DQPSK, Channel 0, Hopping Off



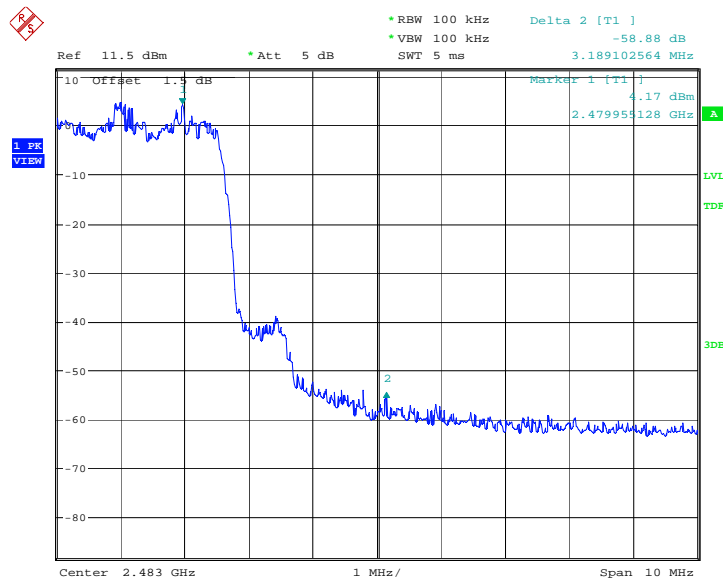
Date: 9.FEB.2012 06:12:49

Fig.6. Frequency Band Edges:  $\pi/4$  DQPSK, Channel 0, Hopping On



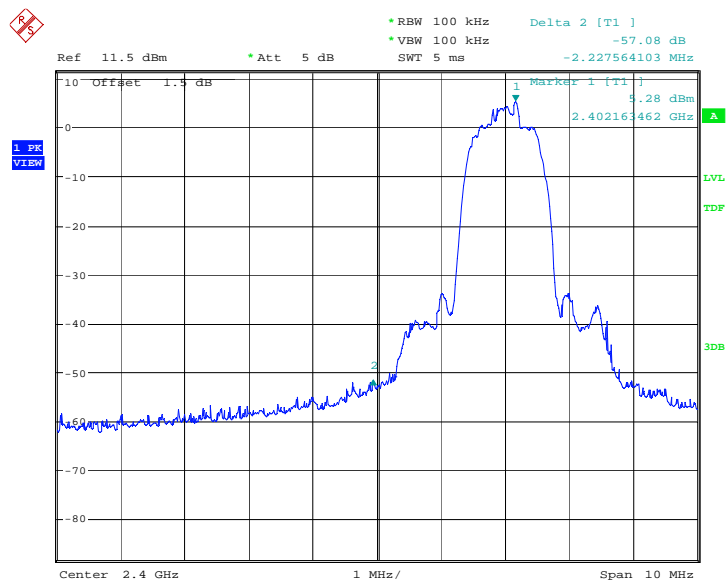
Date: 9.FEB.2012 06:10:47

Fig.7. Frequency Band Edges:  $\pi/4$  DQPSK, Channel 78, Hopping Off



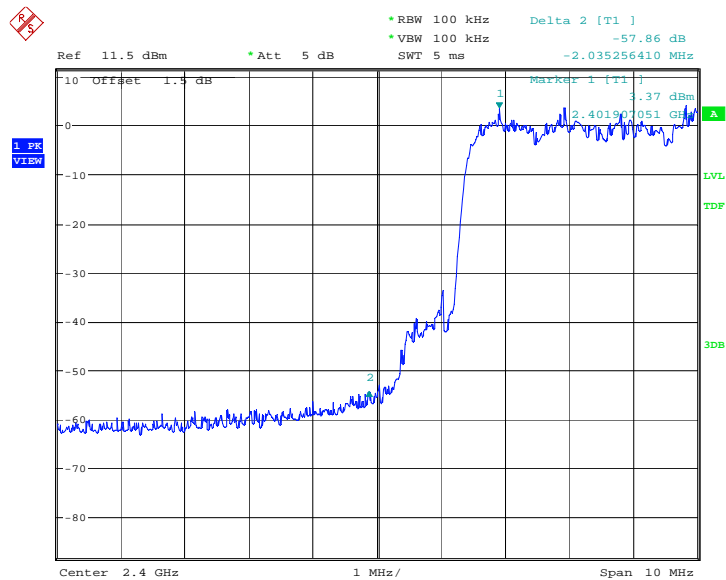
Date: 9.FEB.2012 06:14:52

Fig.8. Frequency Band Edges:  $\pi/4$  DQPSK, Channel 78, Hopping On



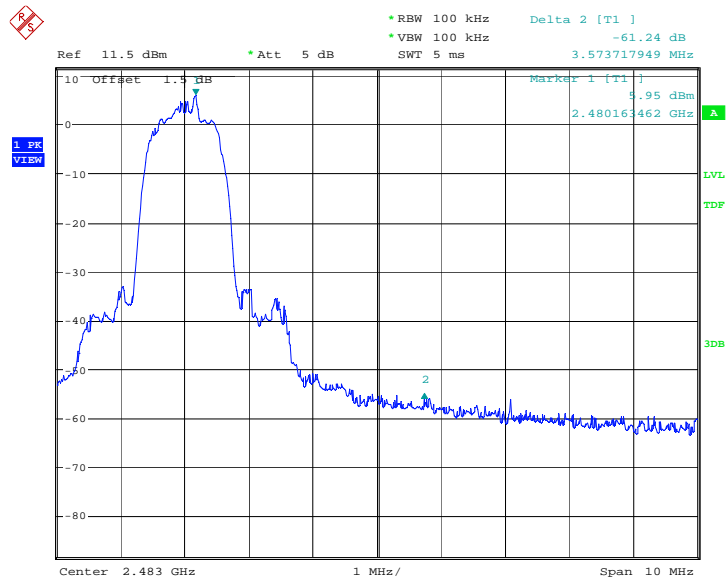
Date: 9.FEB.2012 06:32:35

Fig.9. Frequency Band Edges: 8DPSK, Channel 0, Hopping Off



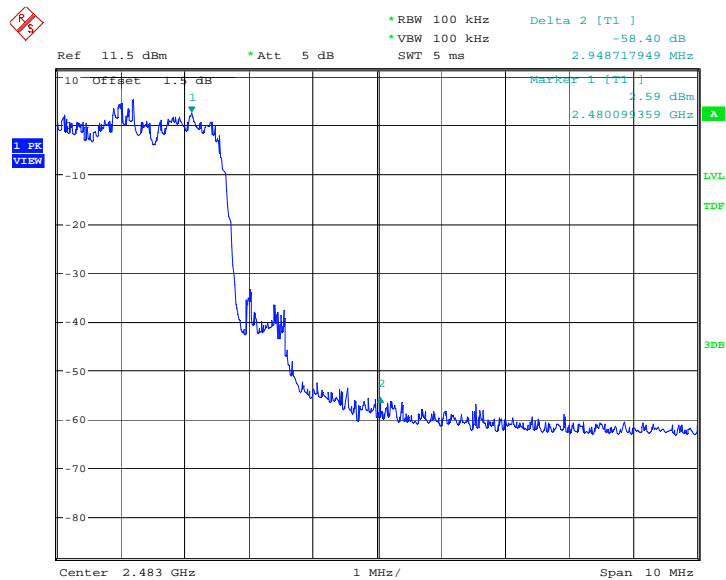
Date: 9.FEB.2012 06:34:55

Fig.10. Frequency Band Edges: 8DPSK, Channel 0, Hopping On



Date: 9.FEB.2012 06:32:52

Fig.11. Frequency Band Edges: 8DPSK, Channel 78, Hopping Off



Date: 9.FEB.2012 06:36:57

Fig.12. Frequency Band Edges: 8DPSK, Channel 78, Hopping On

#### A.4. Conducted Emission

##### Measurement Limit:

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

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

##### Measurement Results:

###### For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	Center Frequency	Fig.13	P
	30 MHz ~ 1 GHz	Fig.14	P
	1 GHz ~ 3 GHz	Fig.15	P
	3 GHz ~ 10 GHz	Fig.16	P
	10 GHz ~ 26 GHz	Fig.17	P
Ch 39 2441 MHz	Center Frequency	Fig.18	P
	30 MHz ~ 1 GHz	Fig.19	P
	1 GHz ~ 3 GHz	Fig.20	P
	3 GHz ~ 10 GHz	Fig.21	P
	10 GHz ~ 26 GHz	Fig.22	P
Ch 78 2480 MHz	Center Frequency	Fig.23	P
	30 MHz ~ 1 GHz	Fig.24	P
	1 GHz ~ 3 GHz	Fig.25	P
	3 GHz ~ 10 GHz	Fig.26	P
	10 GHz ~ 26 GHz	Fig.27	P

###### For $\pi/4$ DQPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	Center Frequency	Fig.28	P
	30 MHz ~ 1 GHz	Fig.29	P
	1 GHz ~ 3 GHz	Fig.30	P
	3 GHz ~ 10 GHz	Fig.31	P
	10 GHz ~ 26 GHz	Fig.32	P
Ch 39 2441 MHz	Center Frequency	Fig.33	P
	30 MHz ~ 1 GHz	Fig.34	P
	1 GHz ~ 3 GHz	Fig.35	P
	3 GHz ~ 10 GHz	Fig.36	P
	10 GHz ~ 26 GHz	Fig.37	P
Ch 78 2480 MHz	Center Frequency	Fig.38	P
	30 MHz ~ 1 GHz	Fig.39	P

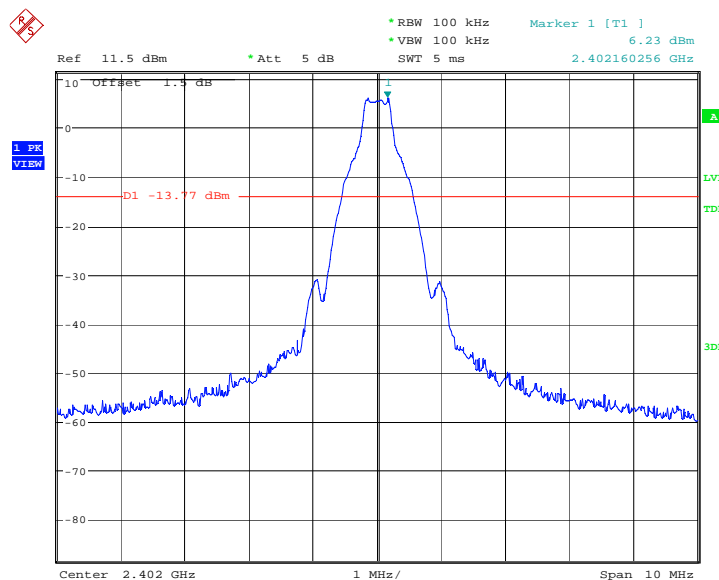
	1 GHz ~ 3 GHz	Fig.40	P
	3 GHz ~ 10 GHz	Fig.41	P
	10 GHz ~ 26 GHz	Fig.42	P

**For 8DPSK**

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	Center Frequency	Fig.43	P
	30 MHz ~ 1 GHz	Fig.44	P
	1 GHz ~ 3 GHz	Fig.45	P
	3 GHz ~ 10 GHz	Fig.46	P
	10 GHz ~ 26 GHz	Fig.47	P
Ch 39 2441 MHz	Center Frequency	Fig.48	P
	30 MHz ~ 1 GHz	Fig.49	P
	1 GHz ~ 3 GHz	Fig.50	P
	3 GHz ~ 10 GHz	Fig.51	P
	10 GHz ~ 26 GHz	Fig.52	P
Ch 78 2480 MHz	Center Frequency	Fig.53	P
	30 MHz ~ 1 GHz	Fig.54	P
	1 GHz ~ 3 GHz	Fig.55	P
	3 GHz ~ 10 GHz	Fig.56	P
	10 GHz ~ 26 GHz	Fig.57	P

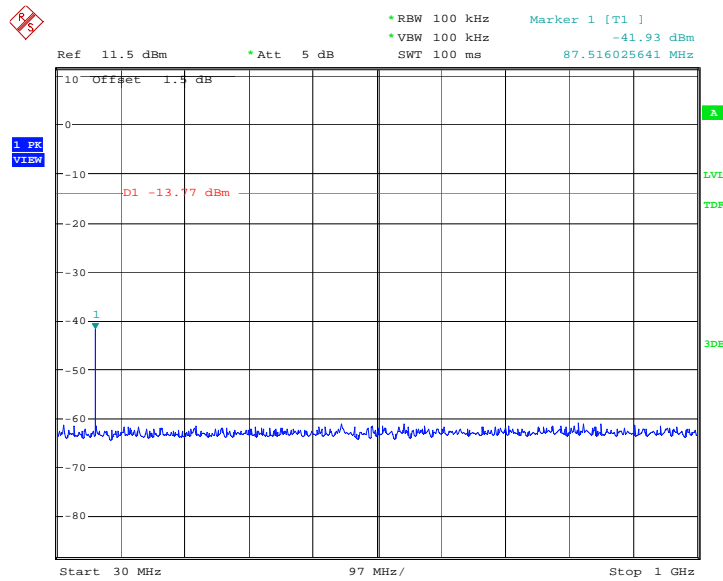
**Conclusion: PASS**

**Test graphs as below**



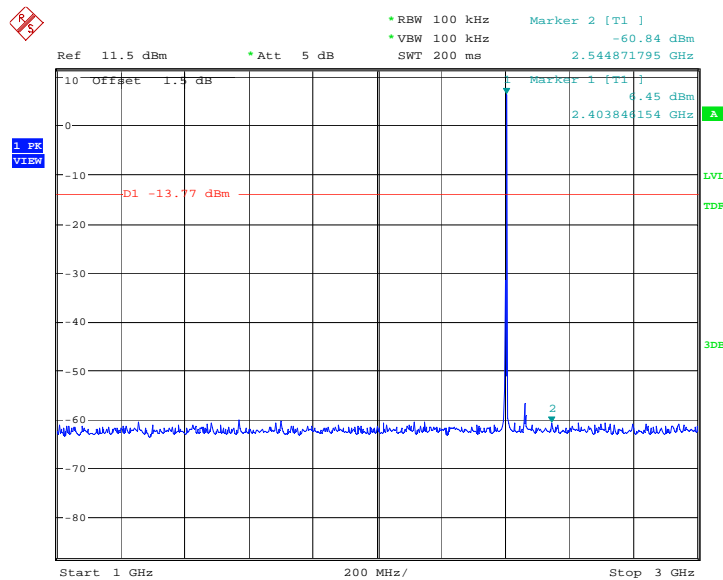
Date: 9.FEB.2012 05:53:03

Fig.13. Conducted spurious emission: GFSK, Channel 0,2402MHz



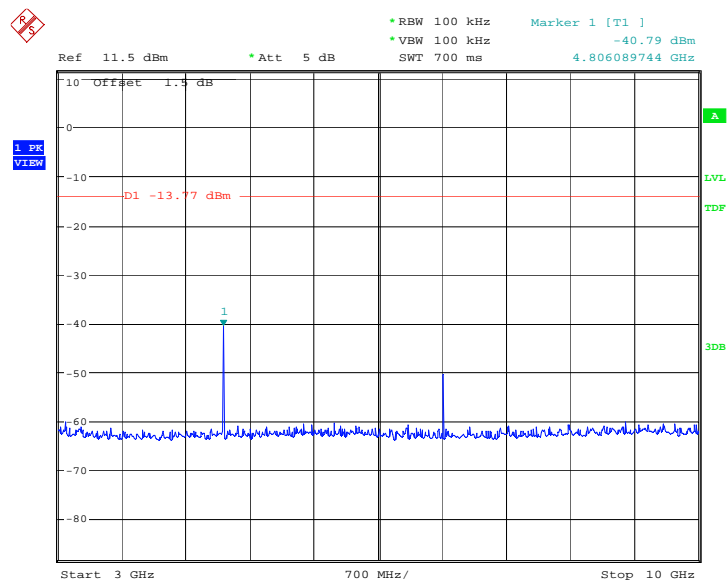
Date: 9.FEB.2012 05:53:20

Fig.14. Conducted spurious emission: GFSK, Channel 0, 30MHz - 1GHz



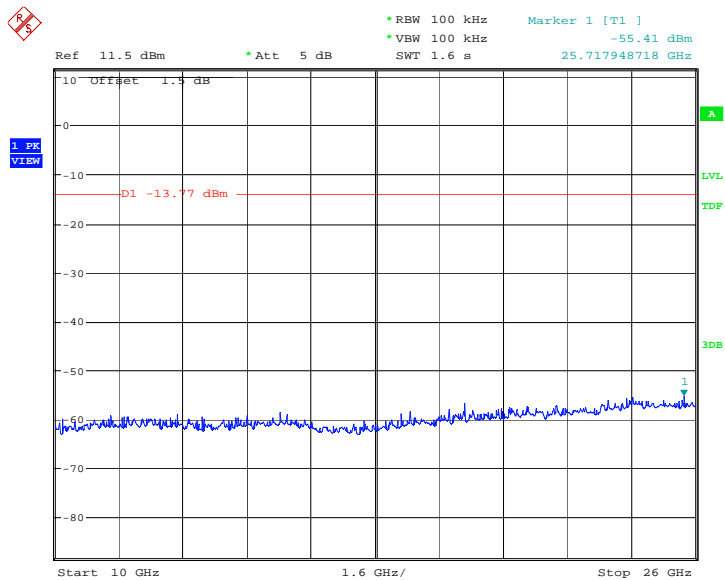
Date: 9.FEB.2012 05:53:51

Fig.15. Conducted spurious emission: GFSK, Channel 0, 1GHz - 3GHz



Date: 9.FEB.2012 05:54:08

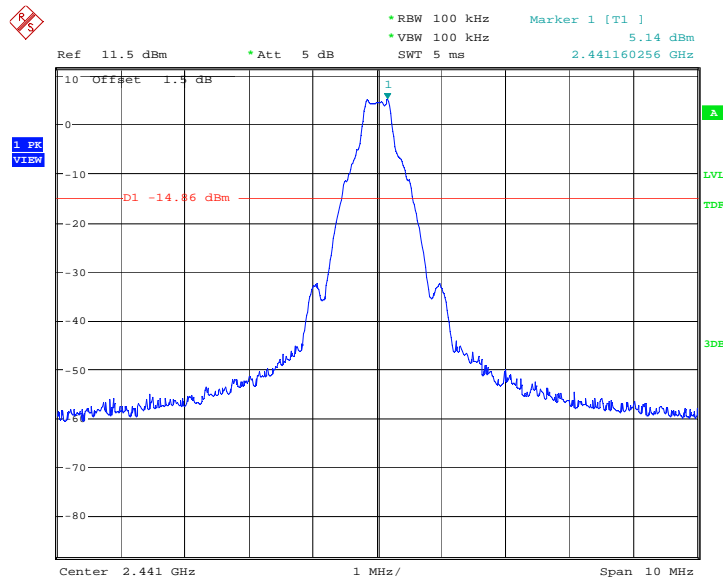
Fig.16. Conducted spurious emission: GFSK, Channel 0, 3GHz - 10GHz



Date: 9.FEB.2012 05:54:25

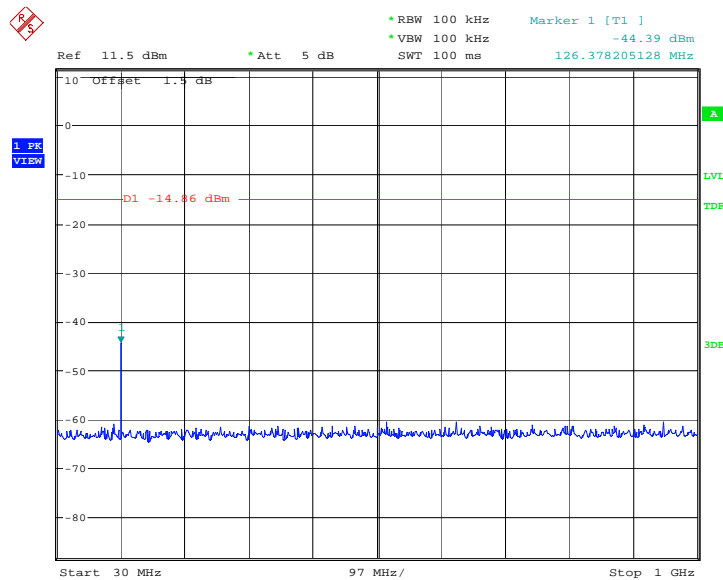
Fig.17. Conducted spurious emission: GFSK, Channel 0, 10GHz - 26GHz





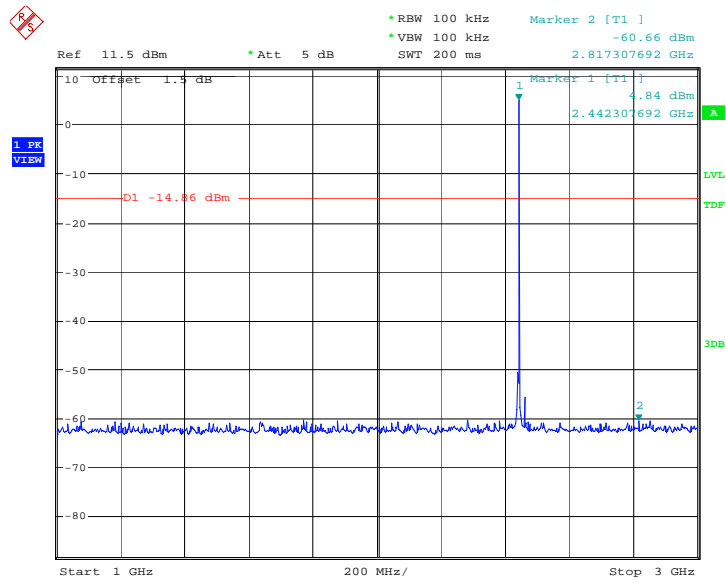
Date: 9.FEB.2012 05:54:41

Fig.18. Conducted spurious emission: GFSK, Channel 39, 2441MHz



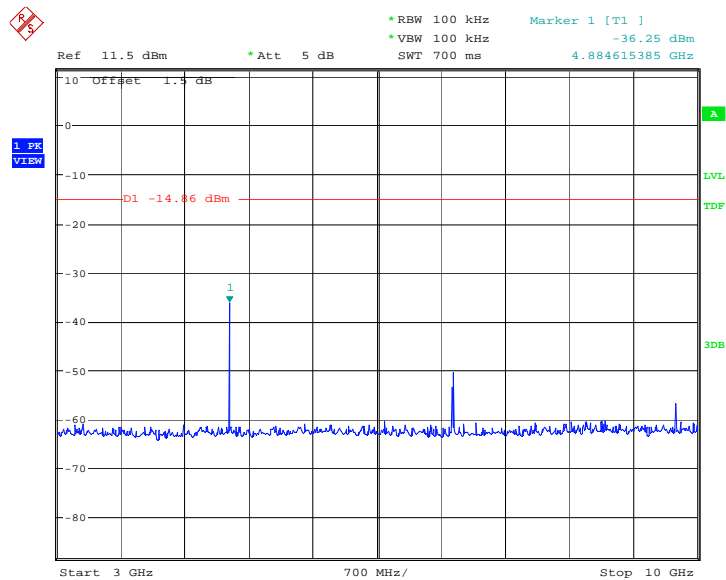
Date: 9.FEB.2012 05:54:58

Fig.19. Conducted spurious emission: GFSK, Channel 39, 30MHz - 1GHz



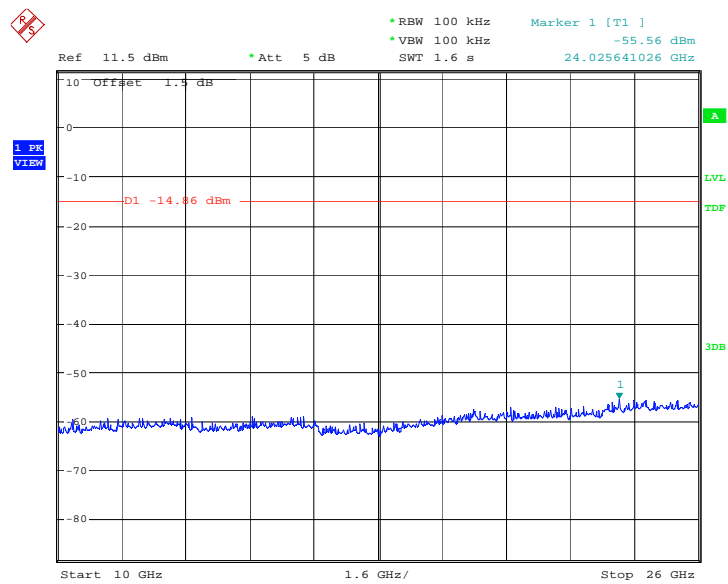
Date: 9.FEB.2012 05:55:30

Fig.20. Conducted spurious emission: GFSK, Channel 39, 1GHz – 3GHz



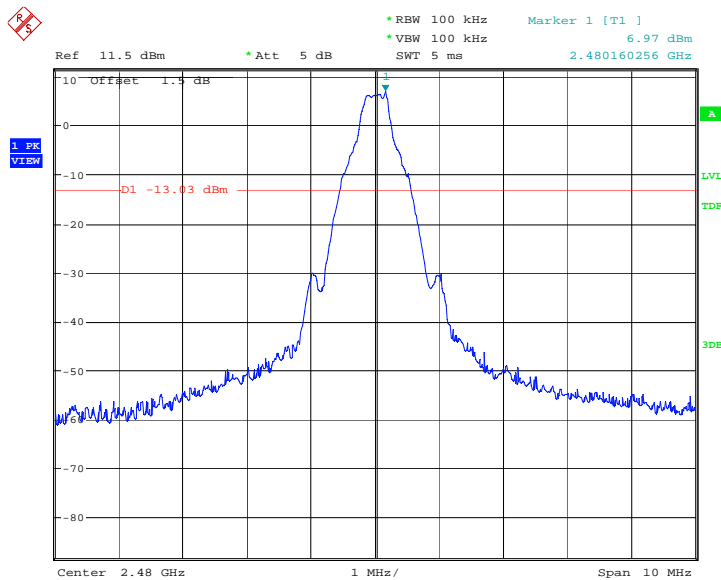
Date: 9.FEB.2012 05:55:46

Fig.21. Conducted spurious emission: GFSK, Channel 39, 3GHz – 10GHz



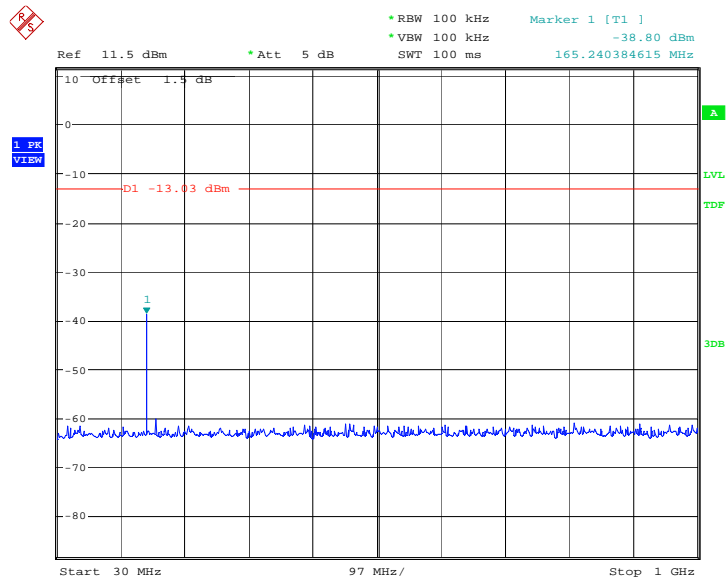
Date: 9.FEB.2012 05:56:03

Fig.22. Conducted spurious emission: GFSK, Channel 39, 10GHz – 26GHz



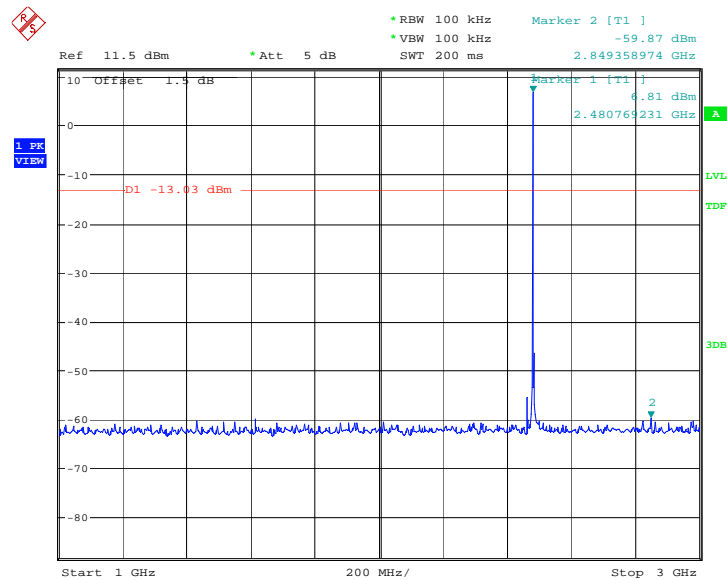
Date: 9.FEB.2012 05:56:20

Fig.23. Conducted spurious emission: GFSK, Channel 78, 2480MHz



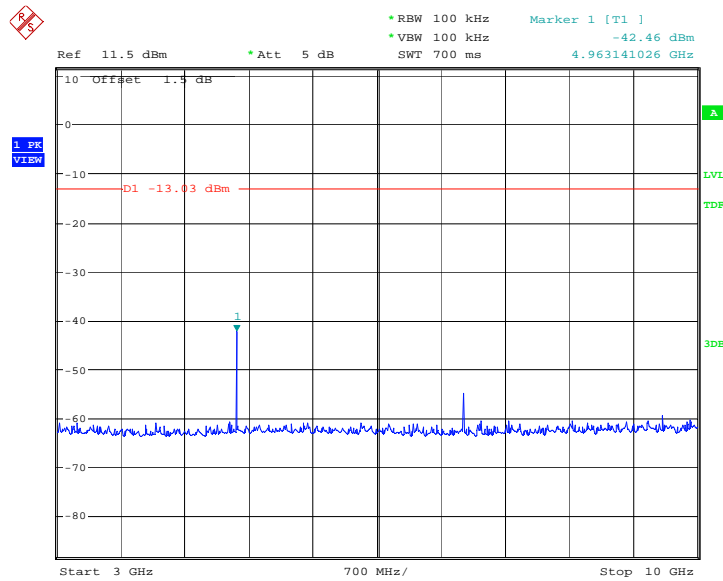
Date: 9.FEB.2012 05:56:36

Fig.24. Conducted spurious emission: GFSK, Channel 78, 30MHz - 1GHz



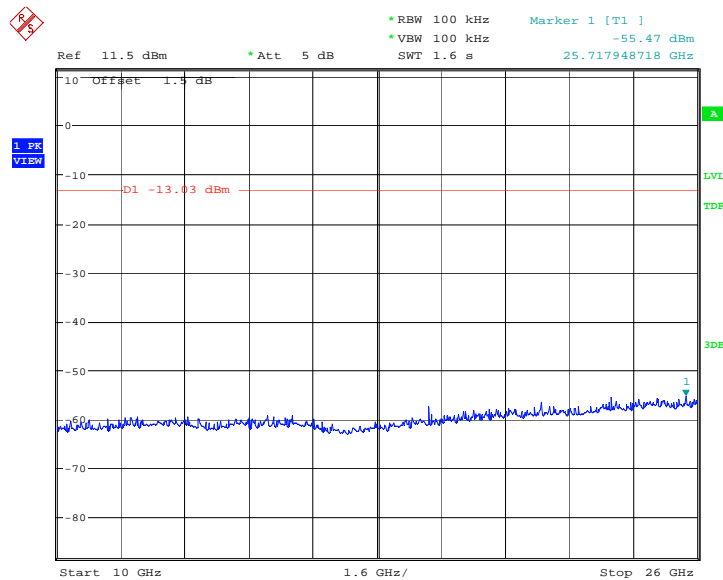
Date: 9.FEB.2012 05:57:08

Fig.25. Conducted spurious emission: GFSK, Channel 78, 1GHz - 3GHz



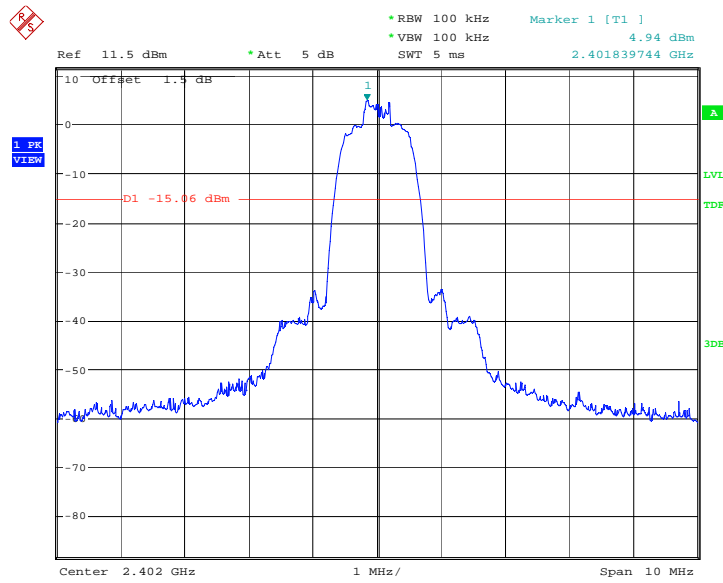
Date: 9.FEB.2012 05:57:25

Fig.26. Conducted spurious emission: GFSK, Channel 78, 3GHz - 10GHz



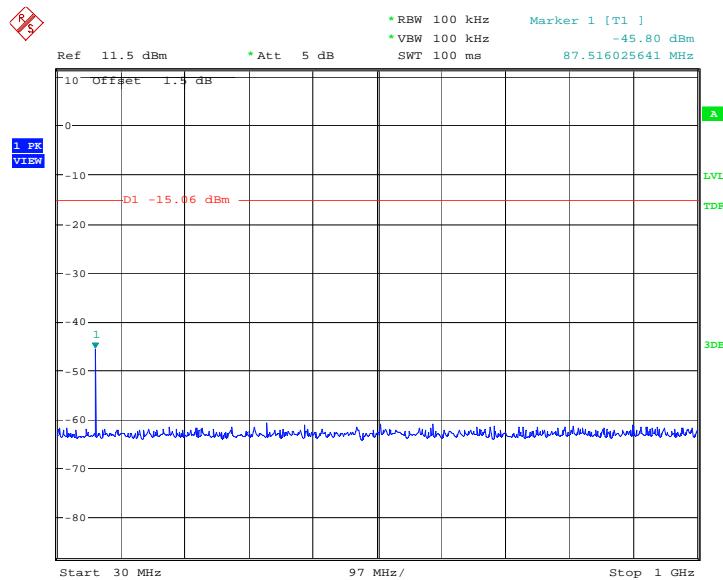
Date: 9.FEB.2012 05:57:41

Fig.27. Conducted spurious emission: GFSK, Channel 78, 10GHz - 26GHz



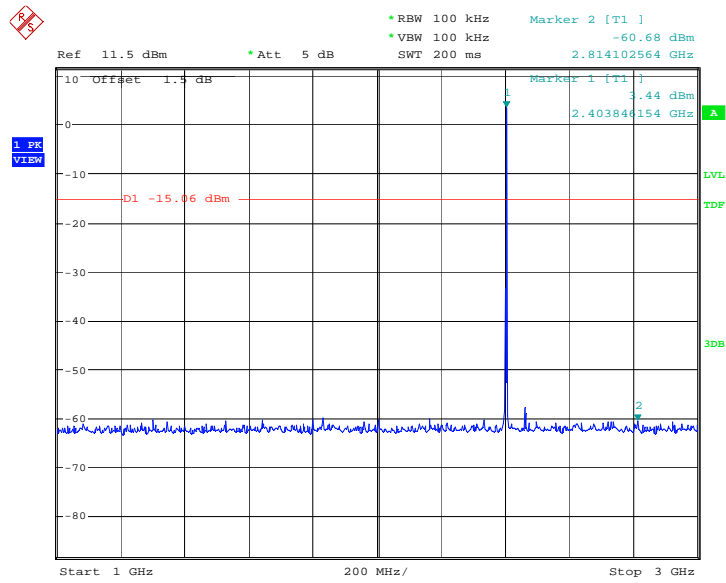
Date: 9.FEB.2012 06:15:11

Fig.28. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0,2402MHz



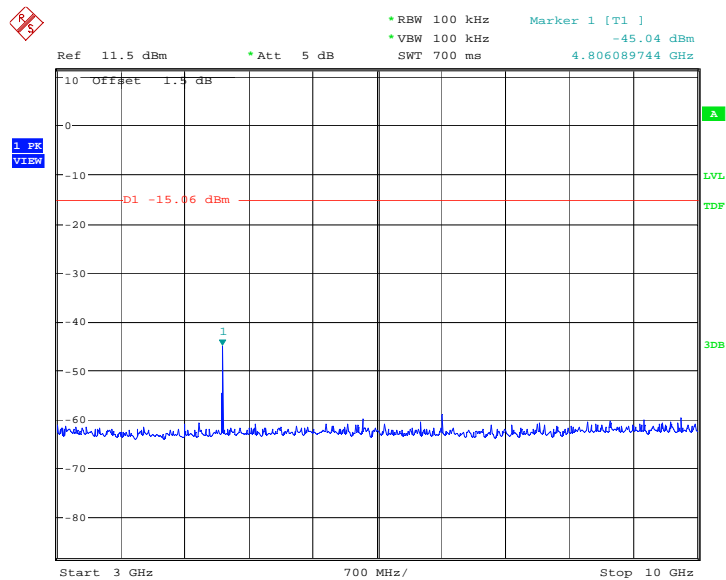
Date: 9.FEB.2012 06:15:27

Fig.29. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 30MHz - 1GHz



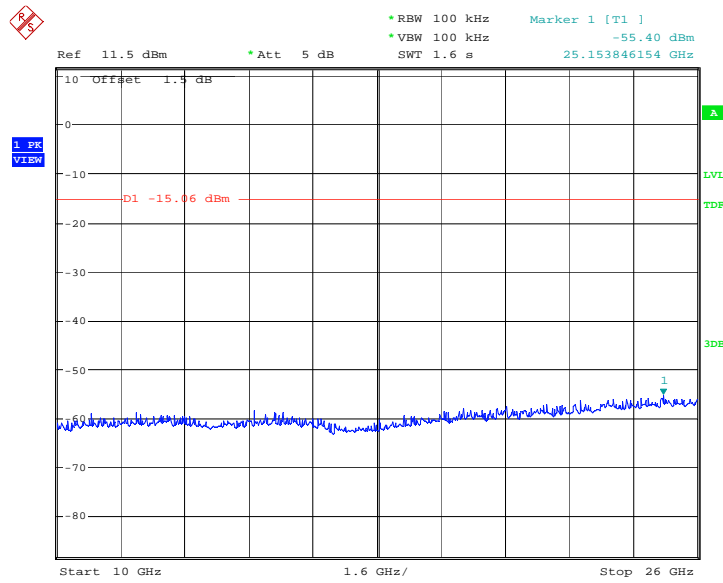
Date: 9.FEB.2012 06:15:59

Fig.30. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 1GHz - 3GHz



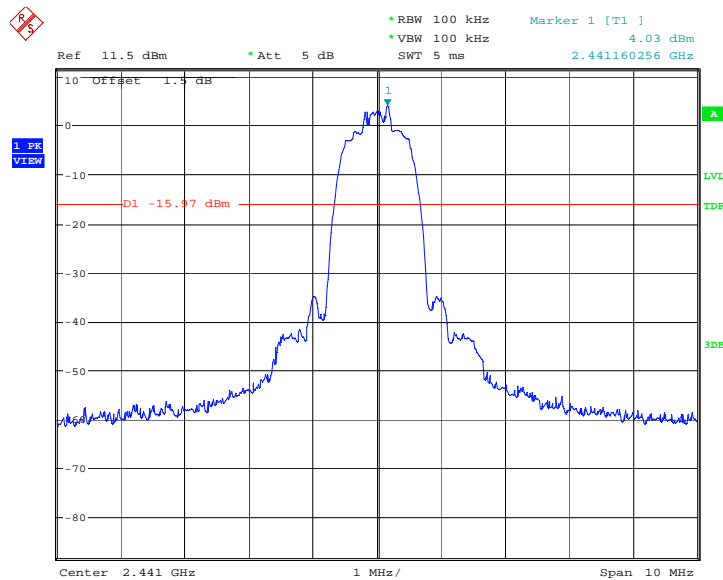
Date: 9.FEB.2012 06:16:16

Fig.31. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 3GHz - 10GHz



Date: 9.FEB.2012 06:16:32

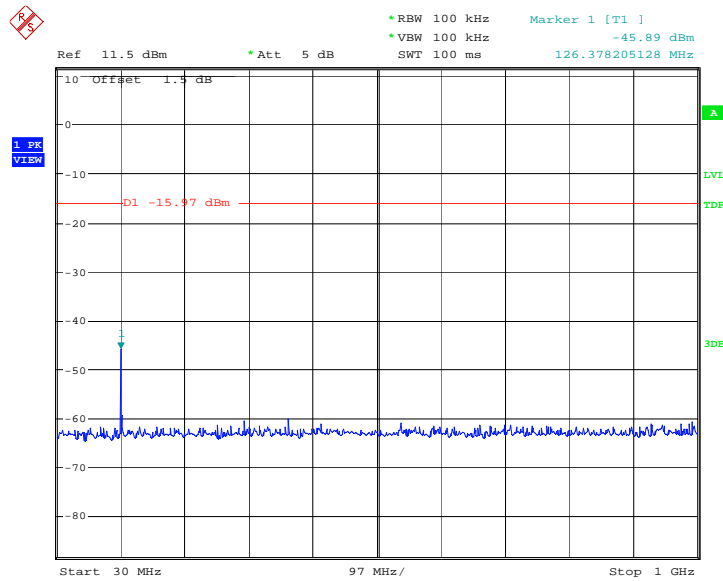
Fig.32. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 10GHz - 26GHz



Date: 9.FEB.2012 06:16:49

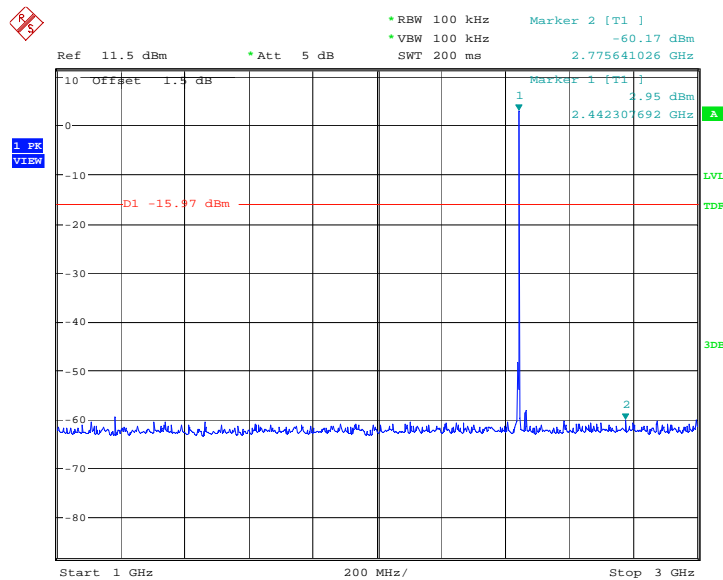
Fig.33. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 2441MHz





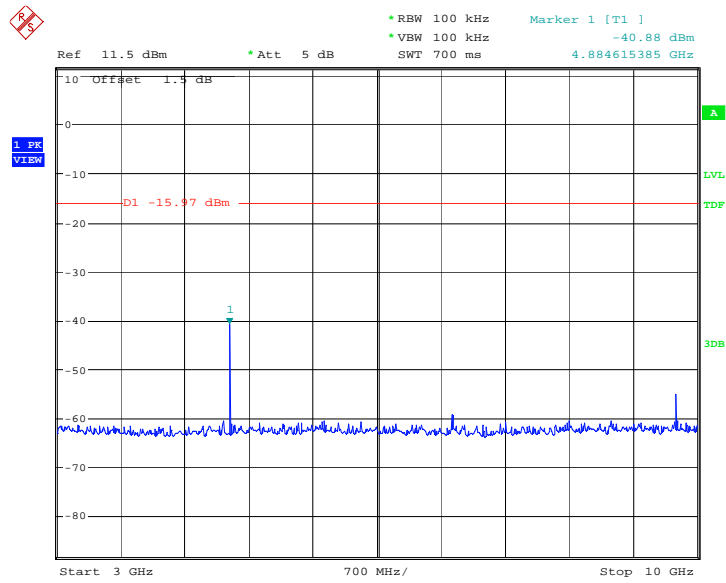
Date: 9.FEB.2012 06:17:06

Fig.34. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 30MHz - 1GHz



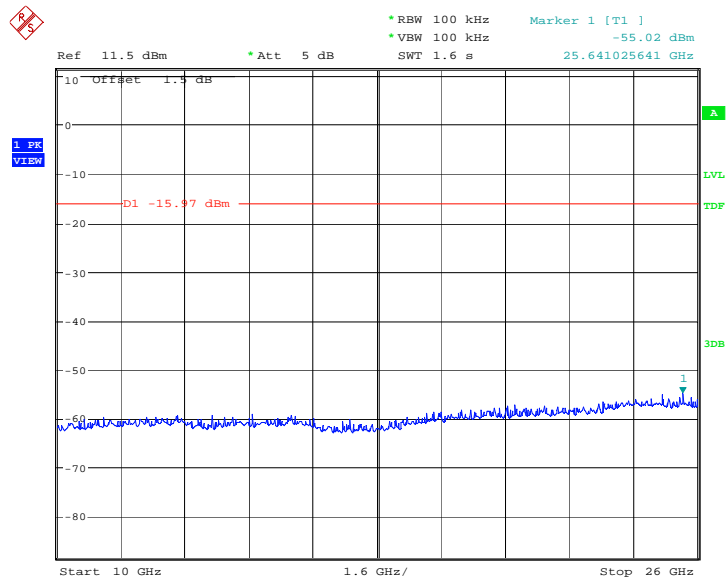
Date: 9.FEB.2012 06:17:37

Fig.35. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 1GHz - 3GHz



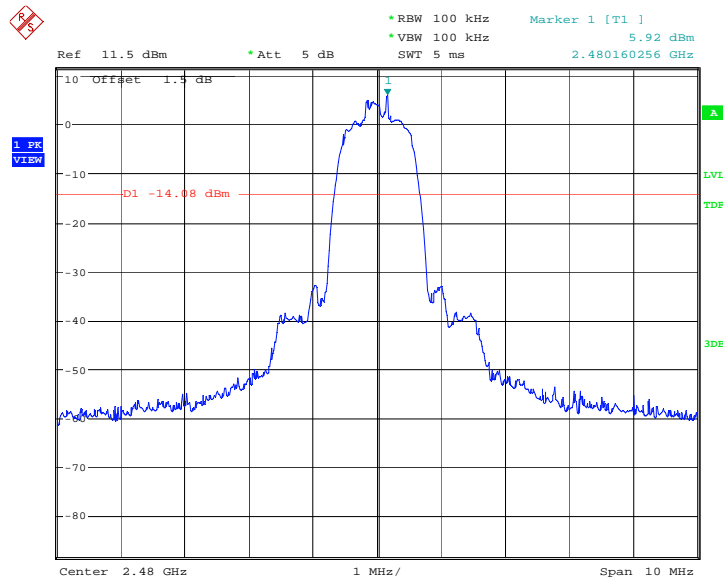
Date: 9.FEB.2012 06:17:54

Fig.36. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 3GHz - 10GHz



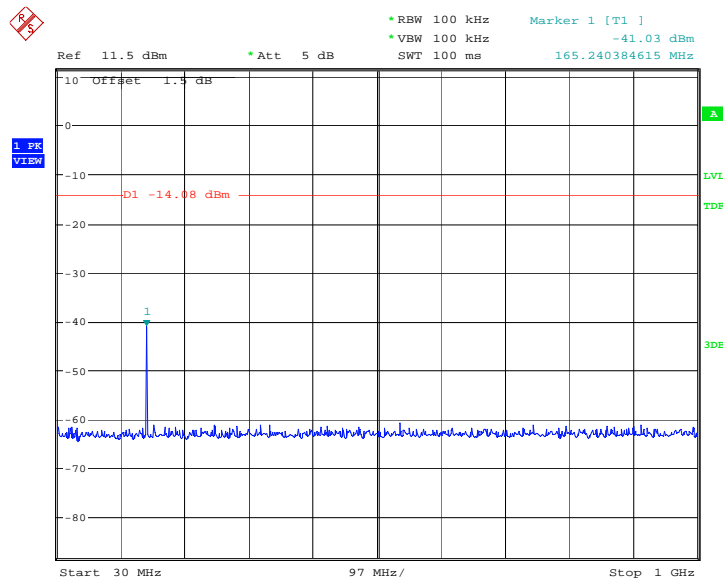
Date: 9.FEB.2012 06:18:10

Fig.37. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 10GHz – 26GHz



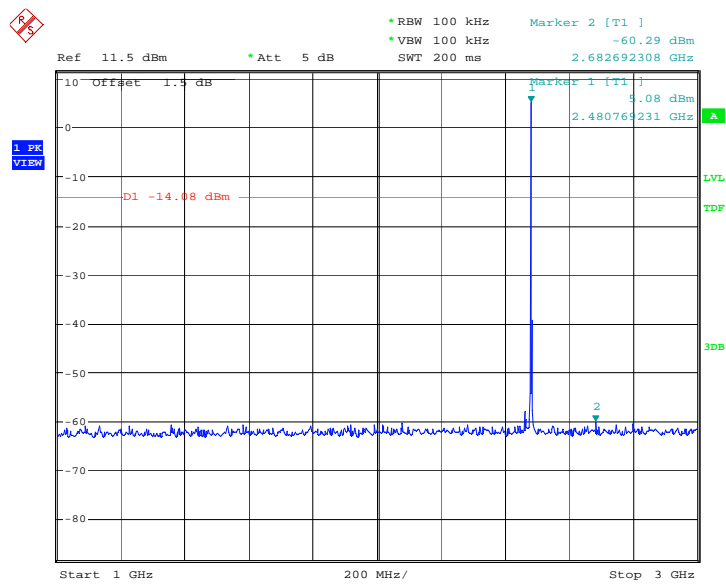
Date: 9.FEB.2012 06:18:27

Fig.38. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 2480MHz



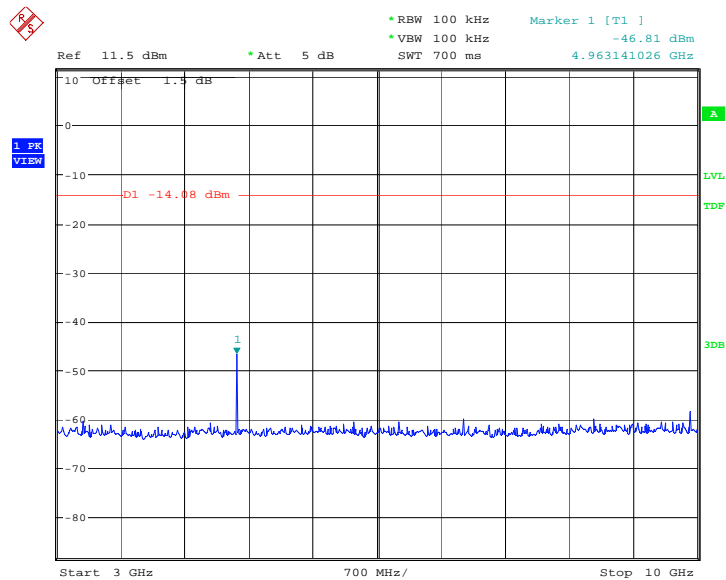
Date: 9.FEB.2012 06:18:44

Fig.39. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 30MHz - 1GHz



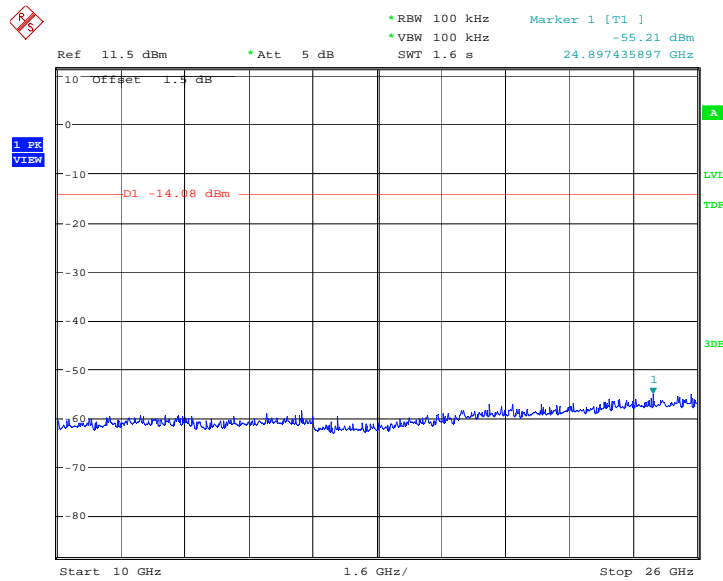
Date: 9.FEB.2012 06:19:15

Fig.40. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 1GHz - 3GHz



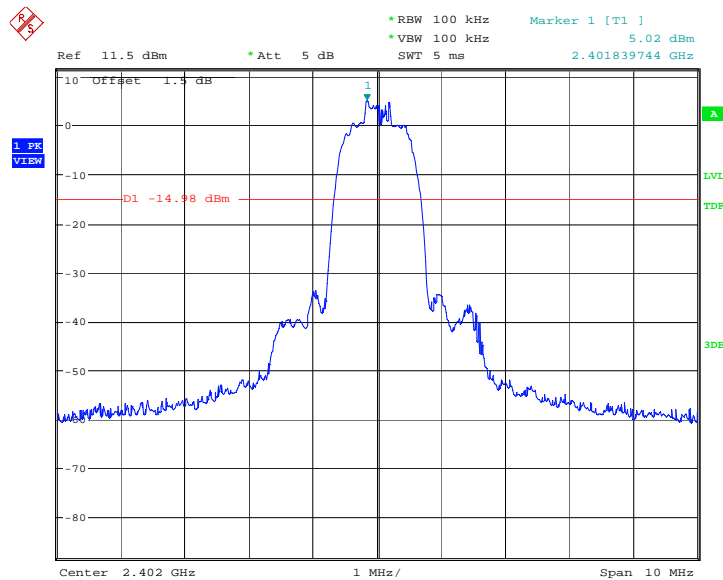
Date: 9.FEB.2012 06:19:32

Fig.41. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 3GHz - 10GHz



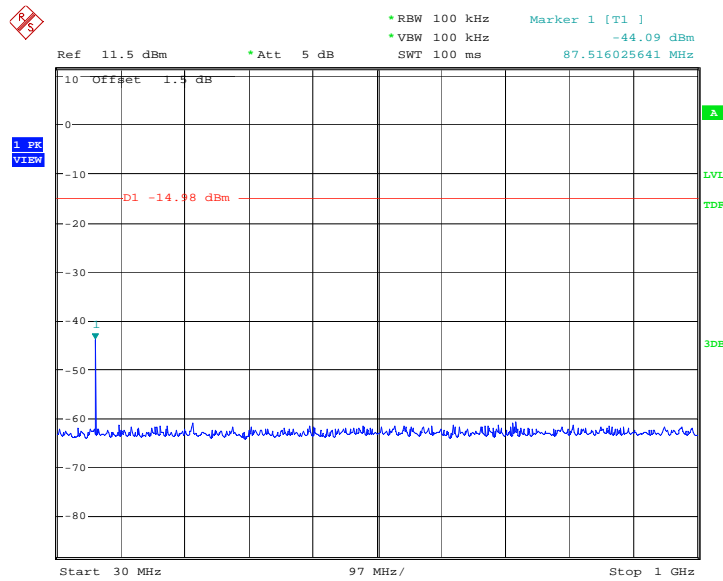
Date: 9.FEB.2012 06:19:49

Fig.42. Fig.30 Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 10GHz - 26GHz



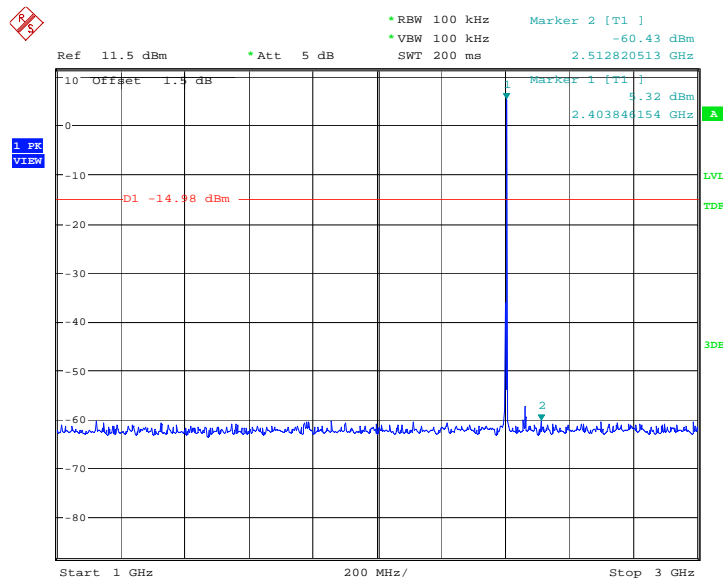
Date: 9.FEB.2012 06:37:16

Fig.43. Conducted spurious emission: 8DPSK, Channel 0,2402MHz



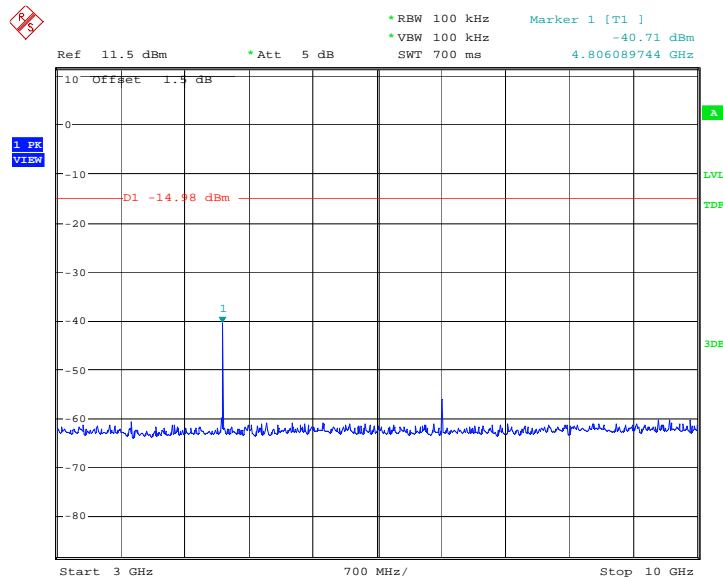
Date: 9.FEB.2012 06:37:33

Fig.44. Conducted spurious emission: 8DPSK, Channel 0, 30MHz - 1GHz



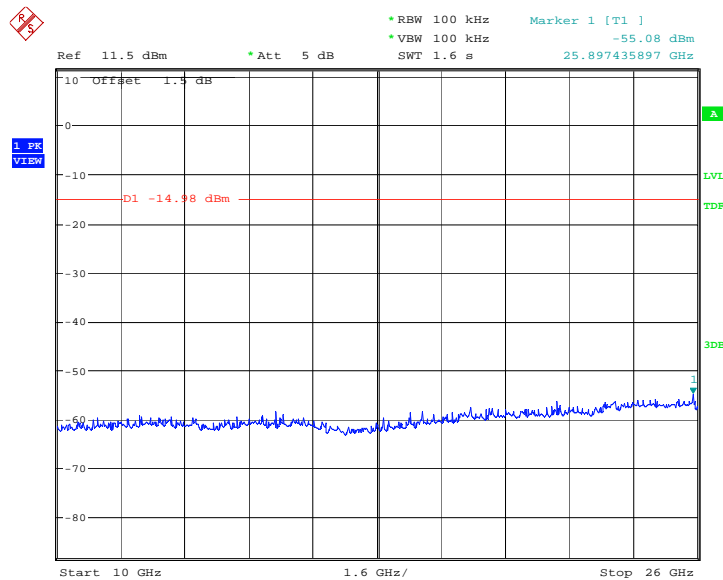
Date: 9.FEB.2012 06:38:04

Fig.45. Conducted spurious emission: 8DPSK, Channel 0, 1GHz - 3GHz



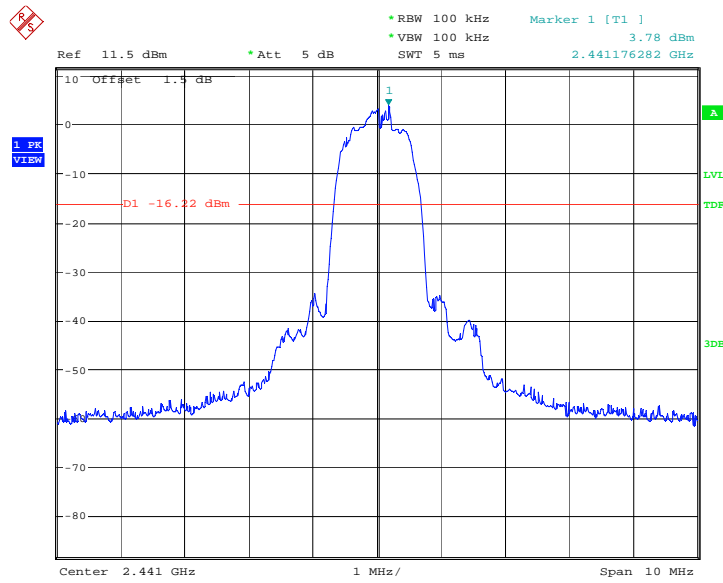
Date: 9.FEB.2012 06:38:20

Fig.46. Conducted spurious emission: 8DPSK, Channel 0, 3GHz - 10GHz



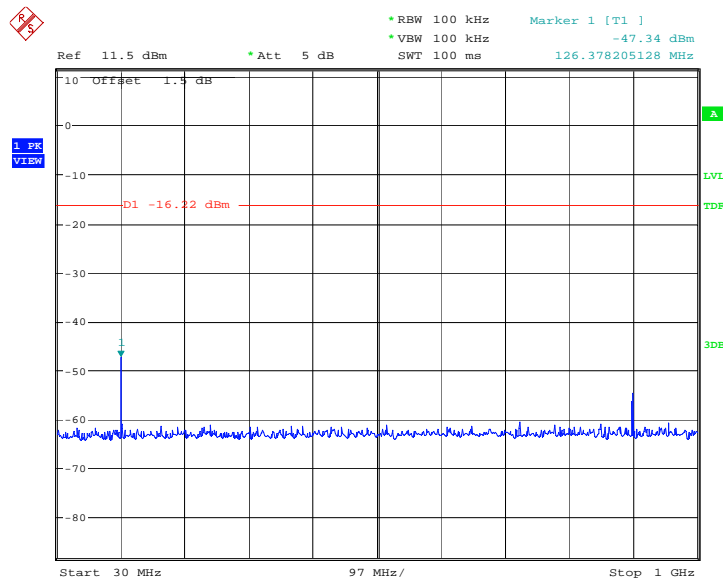
Date: 9.FEB.2012 06:38:36

Fig.47. Conducted spurious emission: 8DPSK, Channel 0, 10GHz - 26GHz



Date: 9.FEB.2012 06:38:52

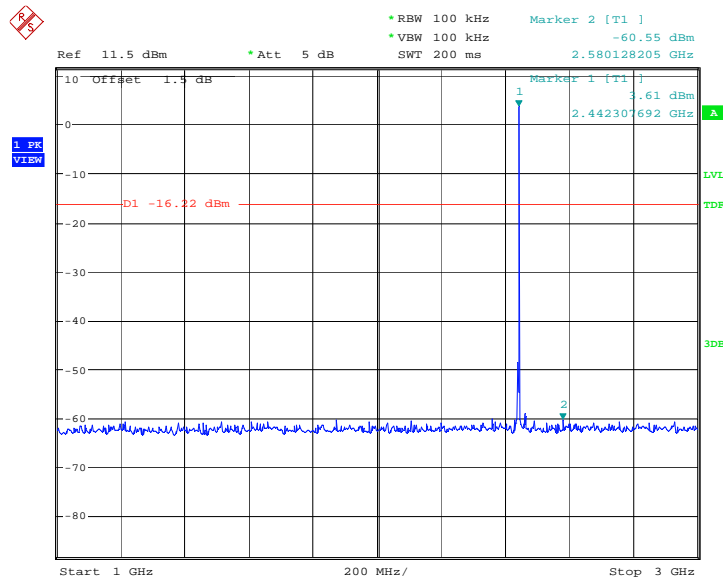
Fig.48. Conducted spurious emission: 8DPSK, Channel 39, 2441MHz



Date: 9.FEB.2012 06:39:08

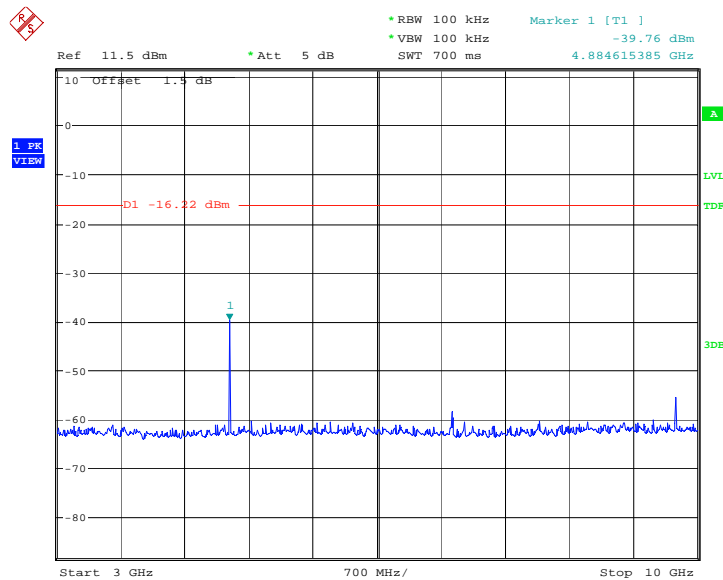
Fig.49. Conducted spurious emission: 8DPSK, Channel 39, 30MHz - 1GHz





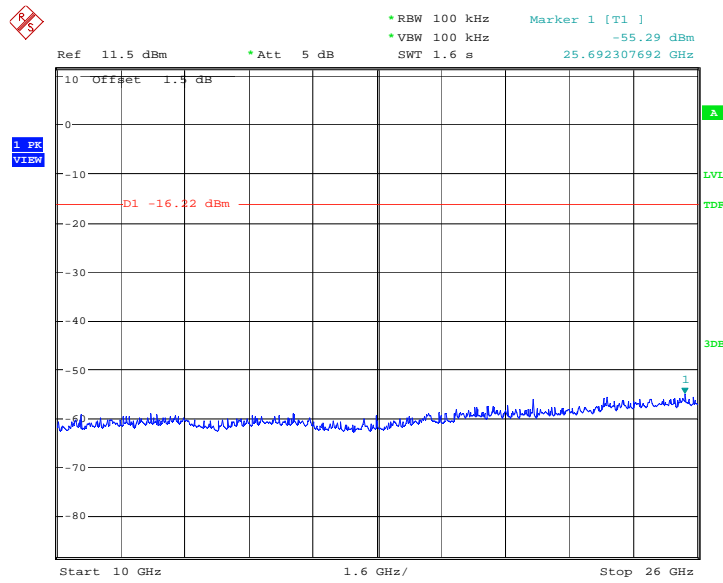
Date: 9.FEB.2012 06:39:39

Fig.50. Conducted spurious emission: 8DPSK, Channel 39, 1GHz - 3GHz



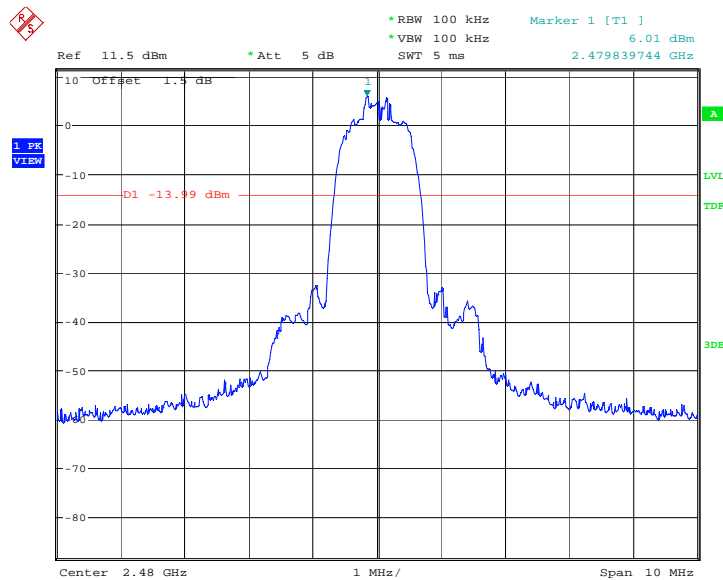
Date: 9.FEB.2012 06:39:55

Fig.51. Conducted spurious emission: 8DPSK, Channel 39, 3GHz - 10GHz



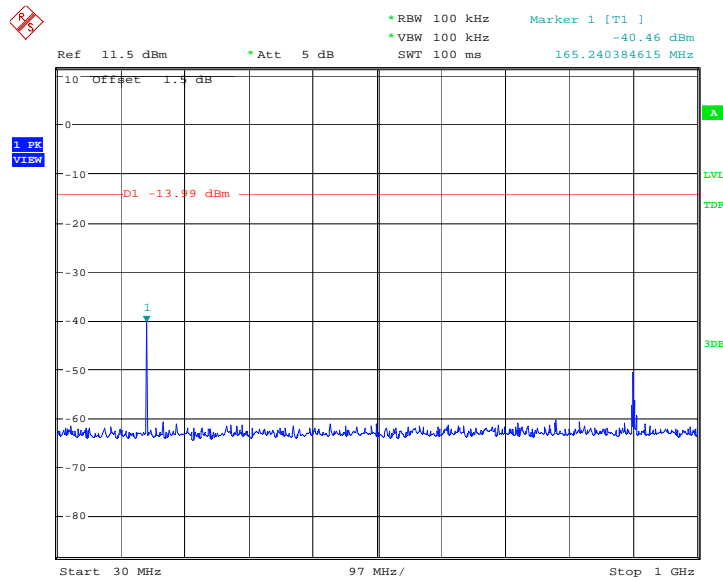
Date: 9.FEB.2012 06:40:11

Fig.52. Conducted spurious emission: 8DPSK, Channel 39, 10GHz – 26GHz



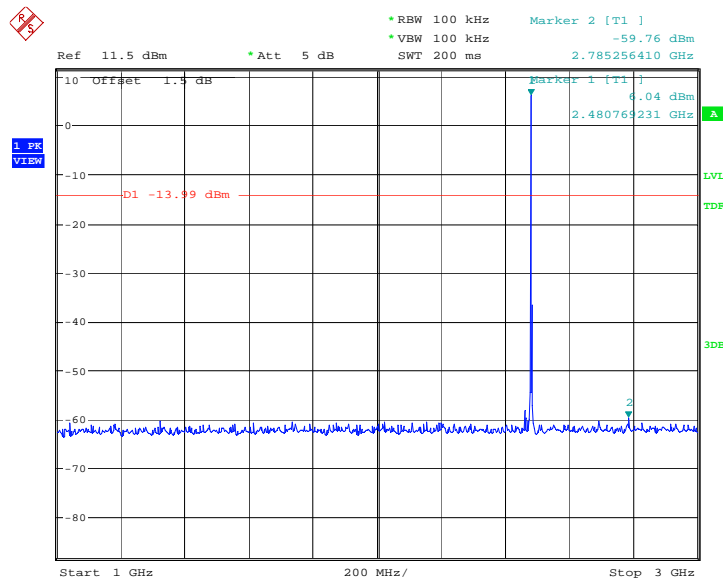
Date: 9.FEB.2012 06:40:28

Fig.53. Conducted spurious emission: 8DPSK, Channel 78, 2480MHz



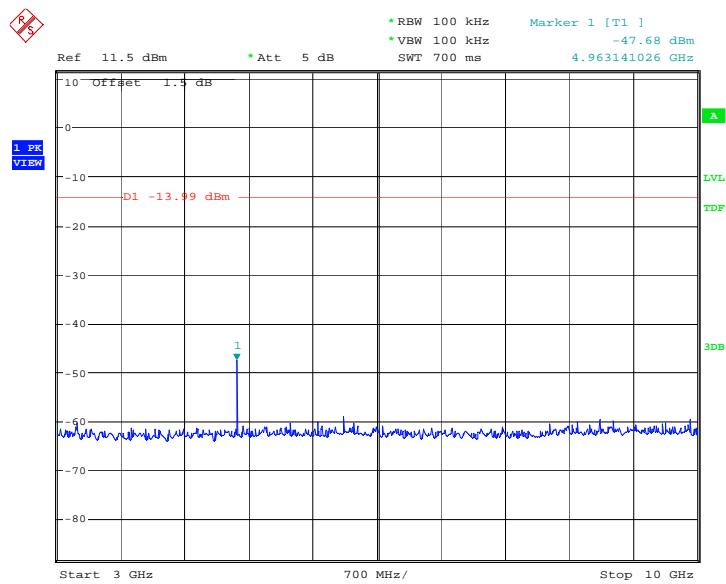
Date: 9.FEB.2012 06:40:44

Fig.54. Conducted spurious emission: 8DPSK, Channel 78, 30MHz - 1GHz



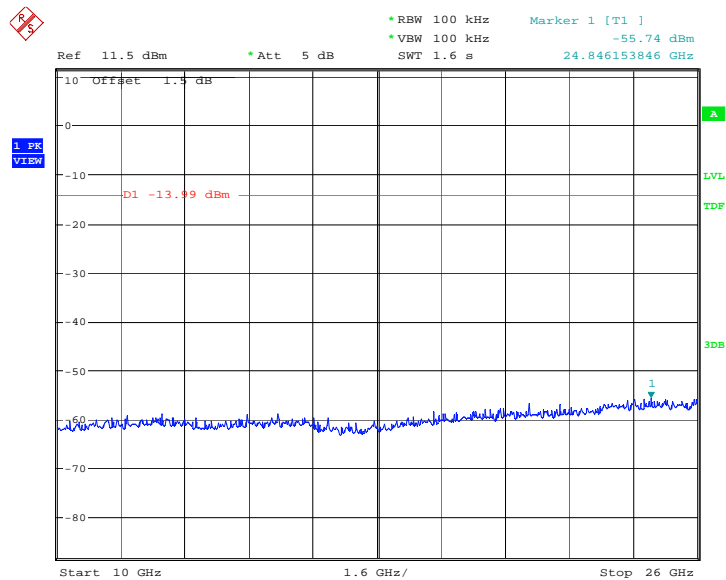
Date: 9.FEB.2012 06:41:15

Fig.55. Conducted spurious emission: 8DPSK, Channel 78, 1GHz - 3GHz



Date: 9.FEB.2012 06:41:31

Fig.56. Conducted spurious emission: 8DPSK, Channel 78, 3GHz - 10GHz



Date: 9.FEB.2012 06:41:47

Fig.57. Conducted spurious emission: 8DPSK, Channel 78, 1GHz - 26GHz

## A.5. 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)).

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

### Limit in restricted band:

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

### 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	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

### Measurement Results:

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 los.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}}$$

### For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	30 MHz ~ 1 GHz	Fig.58	P
	1 GHz ~ 4 GHz	Fig.59	P
	4 GHz ~ 18 GHz	Fig.60	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.61	P
	1 GHz ~ 4 GHz	Fig.62	P
	4 GHz ~ 18 GHz	Fig.63	P

Ch 78 2480 MHz	30 MHz ~ 1 GHz	Fig.64	P
	1 GHz ~ 4 GHz	Fig.65	P
	4 GHz ~ 18 GHz	Fig.66	P
Power	2.38GHz~2.4GHz---L	Fig.67	P
Power	2.45GHz~2.5GHz---H	Fig.68	P
For all channels	18 GHz ~ 26 GHz	Fig.69	P

**For  $\pi/4$  DQPSK**

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	30 MHz ~ 1 GHz	Fig.70	P
	1 GHz ~ 4 GHz	Fig.71	P
	4 GHz ~ 18 GHz	Fig.72	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.73	P
	1 GHz ~ 4 GHz	Fig.74	P
	4 GHz ~ 18 GHz	Fig.75	P
Ch 78 2480 MHz	30 MHz ~ 1 GHz	Fig.76	P
	1 GHz ~ 4 GHz	Fig.77	P
	4 GHz ~ 18 GHz	Fig.78	P
Power	2.38GHz~2.4GHz---L	Fig.79	P
Power	2.45GHz~2.5GHz---H	Fig.80	P
For all channels	18 GHz ~ 26 GHz	Fig.81	P

**For 8DPSK**

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	30 MHz ~ 1 GHz	Fig.82	P
	1 GHz ~ 4 GHz	Fig.83	P
	4 GHz ~ 18 GHz	Fig.84	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.85	P
	1 GHz ~ 4 GHz	Fig.86	P
	4 GHz ~ 18 GHz	Fig.87	P
Ch 78 2480 MHz	30 MHz ~ 1 GHz	Fig.88	P
	1 GHz ~ 4 GHz	Fig.89	P
	4 GHz ~ 18 GHz	Fig.90	P
Power	2.38GHz~2.4GHz---L	Fig.91	P
Power	2.45GHz~2.5GHz---H	Fig.92	P
For all channels	18 GHz ~ 26 GHz	Fig.93	P

**GFSK Ch 0**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3709.419	49.22	14.3	34.92	HORIZONTAL
3701.403	49.21	14.3	34.91	HORIZONTAL
3703.407	49.19	14.3	34.89	HORIZONTAL
3711.423	49.19	14.5	34.69	HORIZONTAL
3705.411	49.17	14.3	34.87	HORIZONTAL
3707.415	49.14	14.3	34.84	HORIZONTAL

**GFSK Ch 39**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3703.407	49.19	14.3	34.89	HORIZONTAL
3711.423	49.19	14.5	34.69	HORIZONTAL
3705.411	49.17	14.3	34.87	HORIZONTAL
3713.427	49.17	14.5	34.67	HORIZONTAL
3715.431	49.15	14.5	34.65	HORIZONTAL
3707.415	49.14	14.3	34.84	HORIZONTAL

**GFSK Ch 78**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3705.411	49.26	14.3	34.96	HORIZONTAL
3715.431	49.15	14.5	34.65	HORIZONTAL
3707.415	49.14	14.3	34.84	HORIZONTAL
3699.399	49.13	14.2	34.93	HORIZONTAL
3701.403	49.12	14.3	34.82	HORIZONTAL
3709.419	49.12	14.3	34.82	HORIZONTAL

**$\pi/4$  DQPSK Ch 0**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3709.419	49.22	14.3	34.92	HORIZONTAL
3703.407	49.19	14.3	34.89	HORIZONTAL
3705.411	49.17	14.3	34.87	HORIZONTAL
3713.427	49.17	14.5	34.67	HORIZONTAL
3715.431	49.15	14.5	34.65	HORIZONTAL
3707.415	49.14	14.3	34.84	HORIZONTAL

**$\pi/4$  DQPSK Ch 39**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3703.407	49.19	14.3	34.89	HORIZONTAL
3705.411	49.17	14.3	34.87	HORIZONTAL
3713.427	49.17	14.5	34.67	HORIZONTAL
3715.431	49.15	14.5	34.65	HORIZONTAL
3707.415	49.14	14.3	34.84	HORIZONTAL
3699.399	49.13	14.2	34.93	HORIZONTAL

**$\pi/4$  DQPSK Ch 78**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3699.399	49.22	14.2	35.02	HORIZONTAL
3709.419	49.22	14.3	34.92	HORIZONTAL
3711.423	49.19	14.5	34.69	HORIZONTAL
3705.411	49.17	14.3	34.87	HORIZONTAL
3713.427	49.17	14.5	34.67	HORIZONTAL
3715.431	49.15	14.5	34.65	HORIZONTAL

**8DPSK Ch 0**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3703.407	49.19	14.3	34.89	HORIZONTAL
3705.411	49.17	14.3	34.87	HORIZONTAL
3713.427	49.17	14.5	34.67	HORIZONTAL
3715.431	49.15	14.5	34.65	HORIZONTAL
3707.415	49.14	14.3	34.84	HORIZONTAL
3699.399	49.13	14.2	34.93	HORIZONTAL

**8DPSK Ch 39**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3705.411	49.17	14.3	34.87	HORIZONTAL
3713.427	49.17	14.5	34.67	HORIZONTAL
3707.415	49.14	14.3	34.84	HORIZONTAL
3699.399	49.13	14.2	34.93	HORIZONTAL
3701.403	49.12	14.3	34.82	HORIZONTAL
3709.419	49.12	14.3	34.82	HORIZONTAL

**8DPSK Ch 78**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3699.399	41.72	14.2	27.52	HORIZONTAL
3703.407	41.69	14.3	27.39	HORIZONTAL
3711.423	41.67	14.5	27.17	HORIZONTAL
3713.427	41.65	14.5	27.15	VERTICAL
3701.403	41.64	14.3	27.34	VERTICAL
3707.415	41.64	14.3	27.34	VERTICAL

**Conclusion: PASS**

**Test graphs as below:**



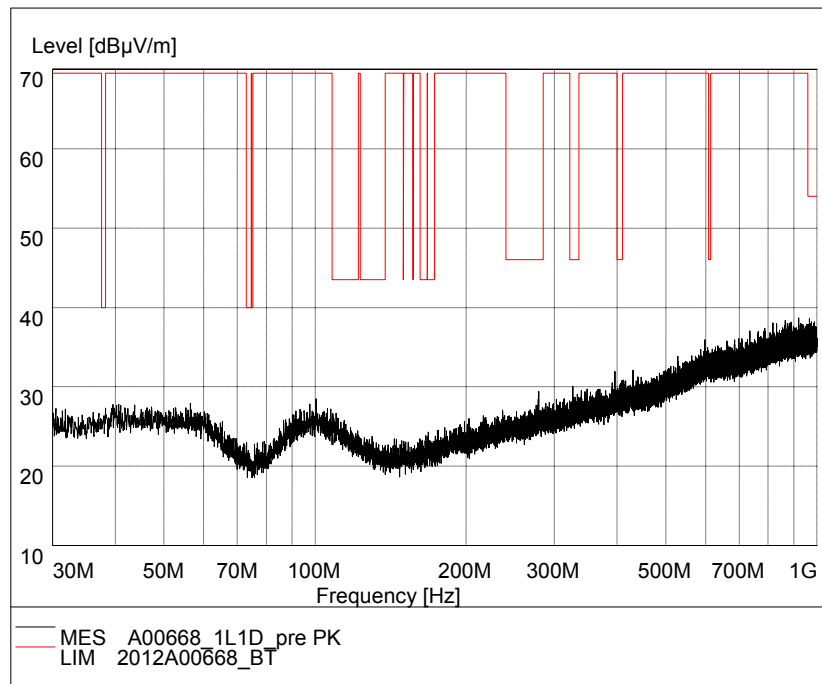


Fig.58. Radiated emission: GFSK, Channel 0, 30 MHz - 1 GHz

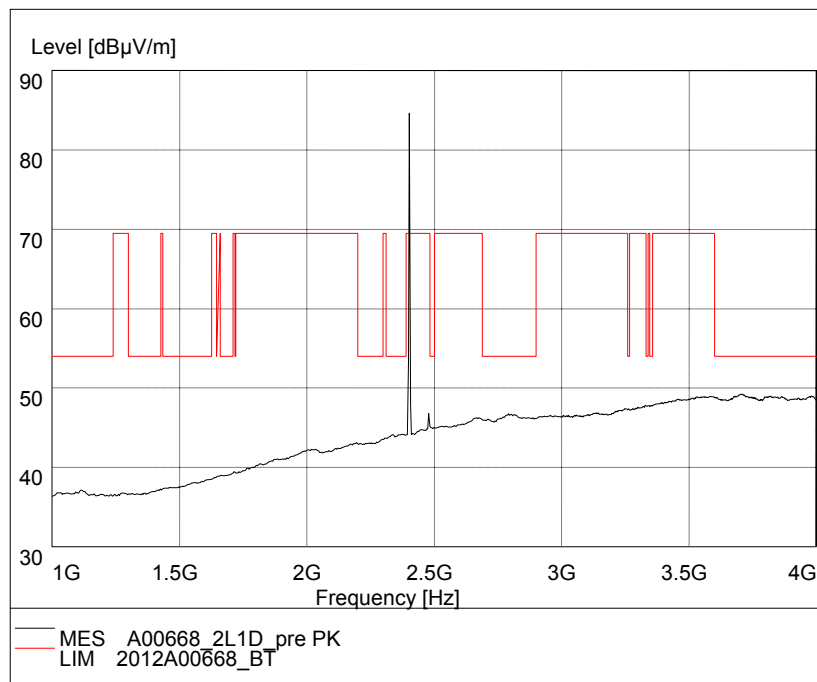


Fig.59. Radiated emission: GFSK, Channel 0, 1 GHz - 4 GHz

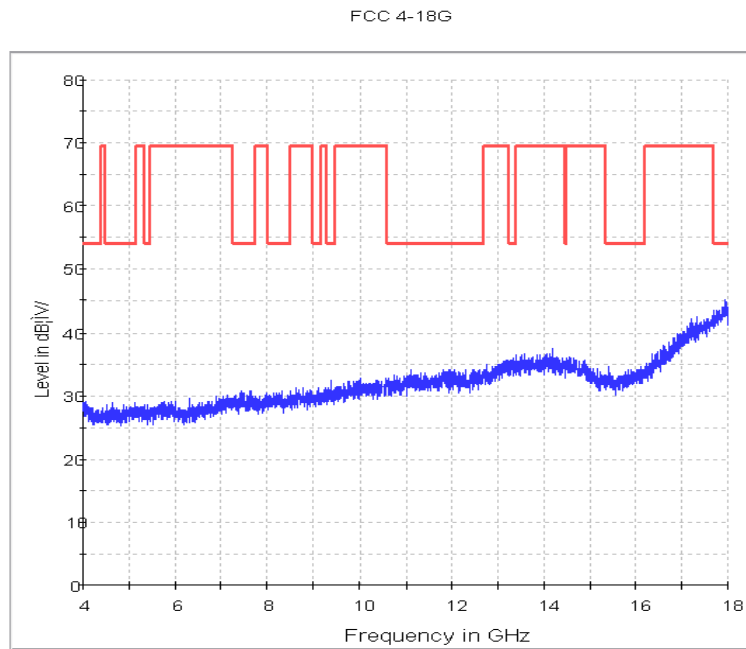


Fig.60. Radiated emission: GFSK, Channel 0, 4 GHz - 18 GHz

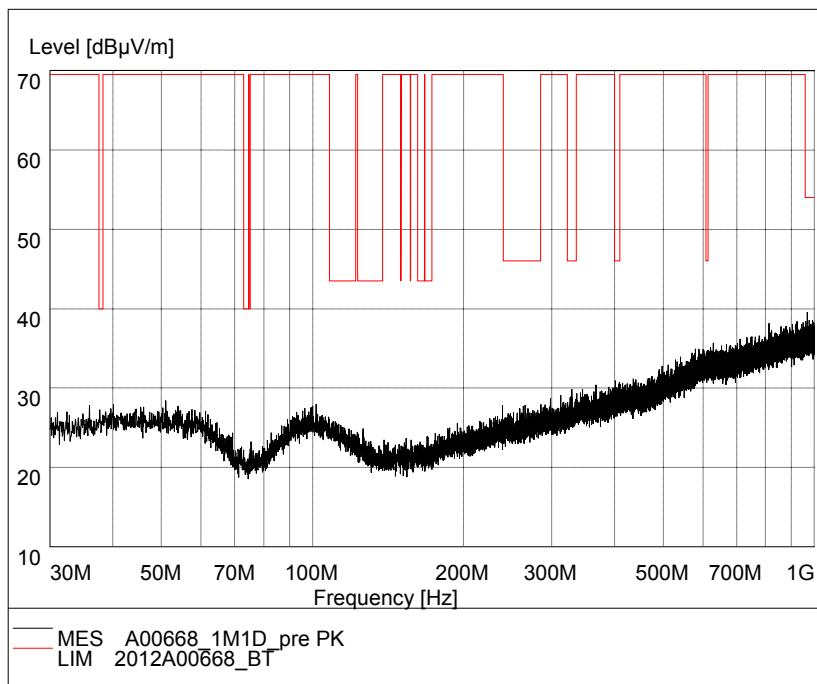


Fig.61. Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

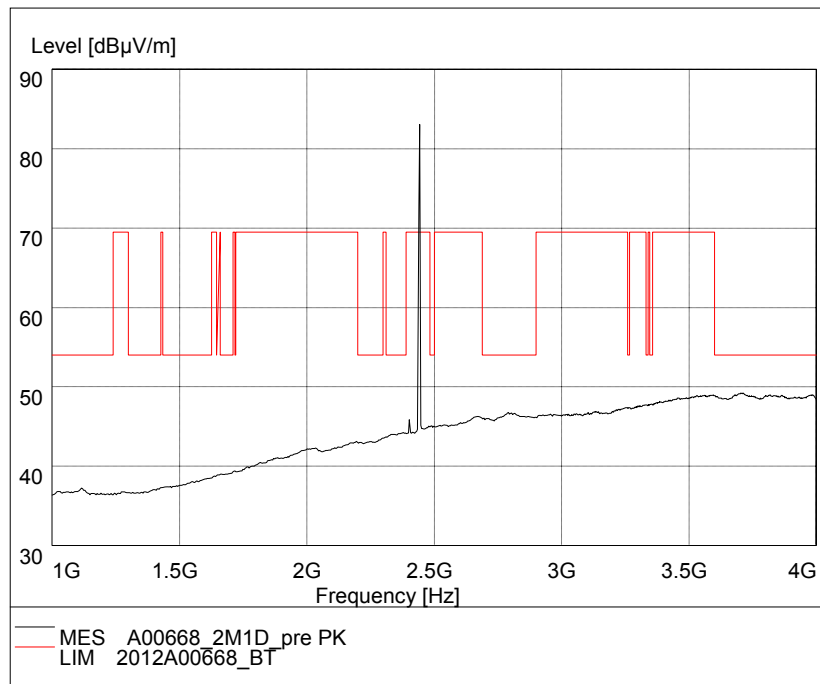


Fig.62. Radiated emission: GFSK, Channel 39, 1 GHz - 4 GHz

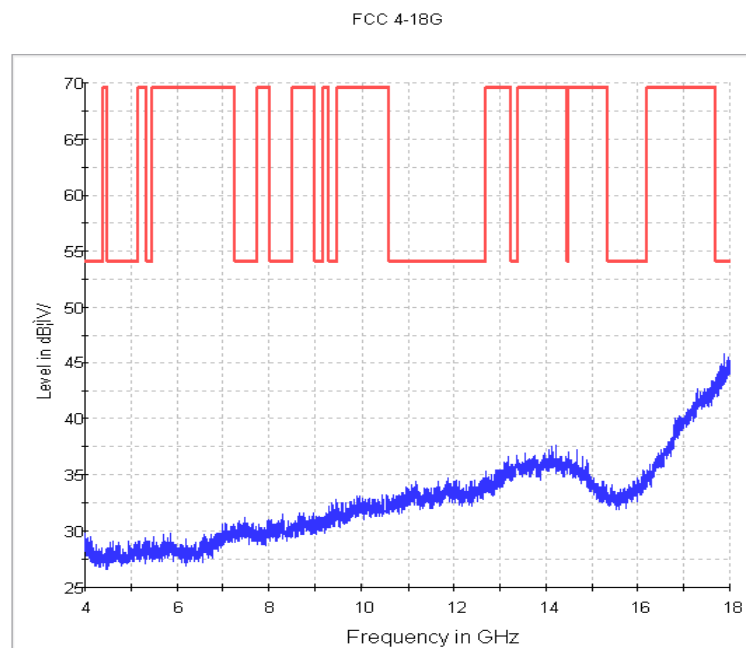


Fig.63. Radiated emission: GFSK, Channel 39, 4 GHz - 18 GHz

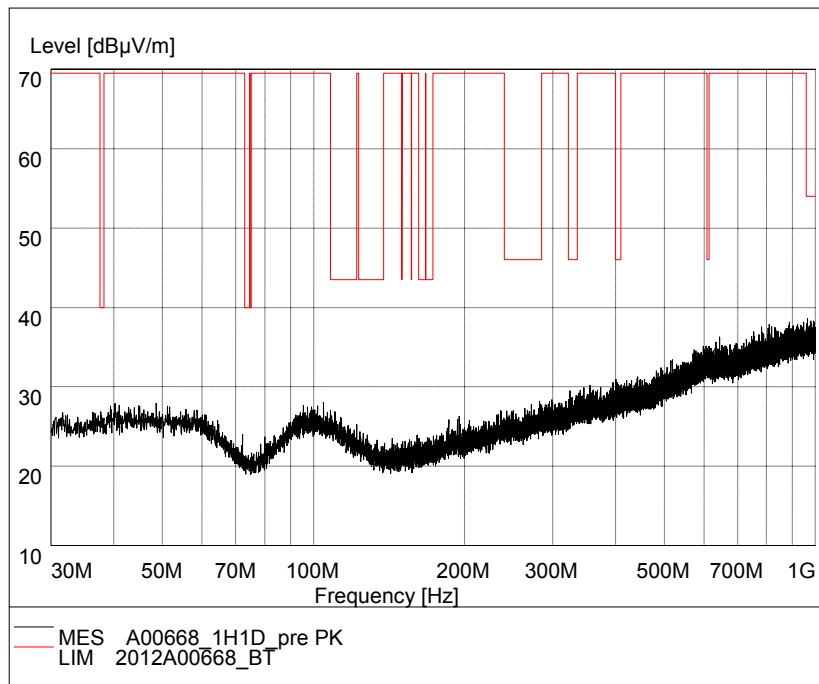


Fig.64. Radiated emission: GFSK, Channel 78, 30 MHz - 1 GHz

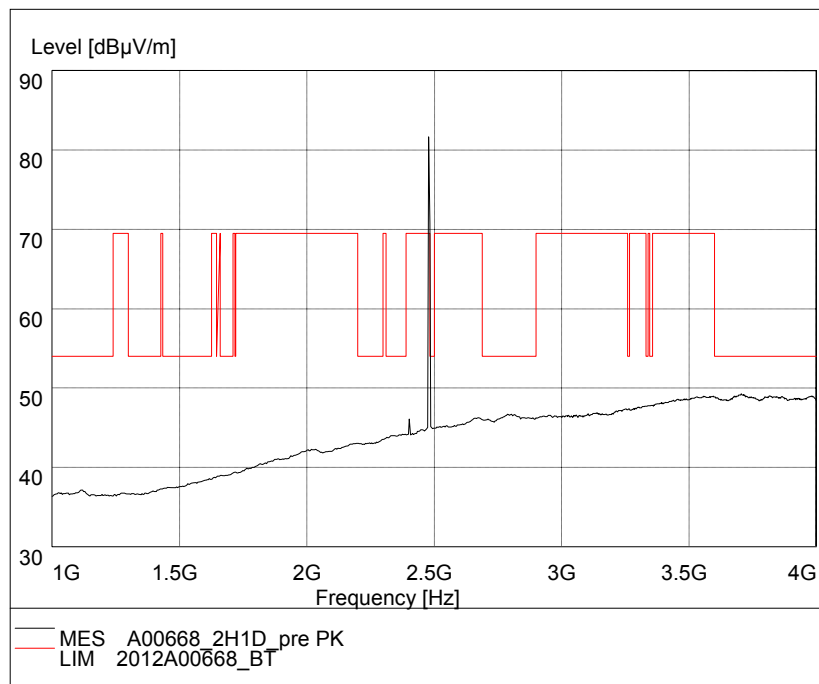


Fig.65. Fig.47 Radiated emission: GFSK, Channel 78, 1 GHz - 4 GHz

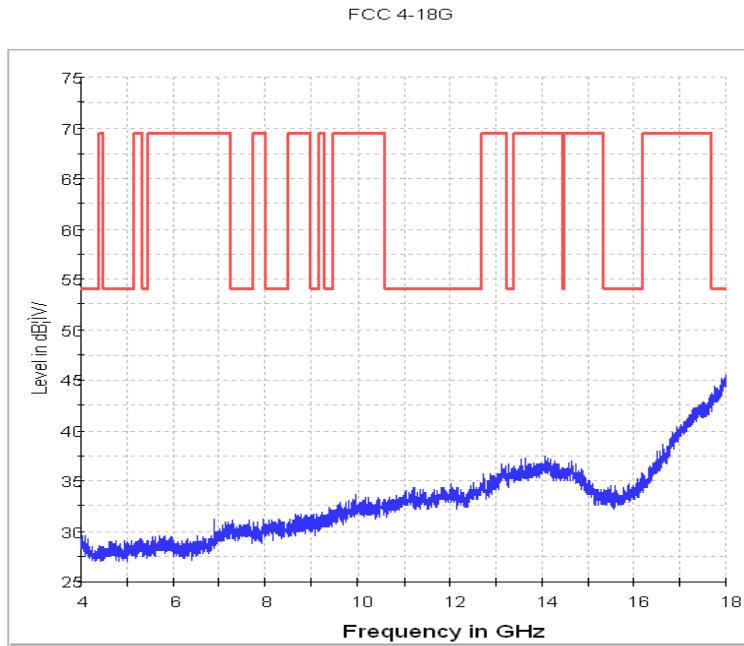


Fig.66. Radiated emission: GFSK, Channel 78, 4 GHz - 18 GHz

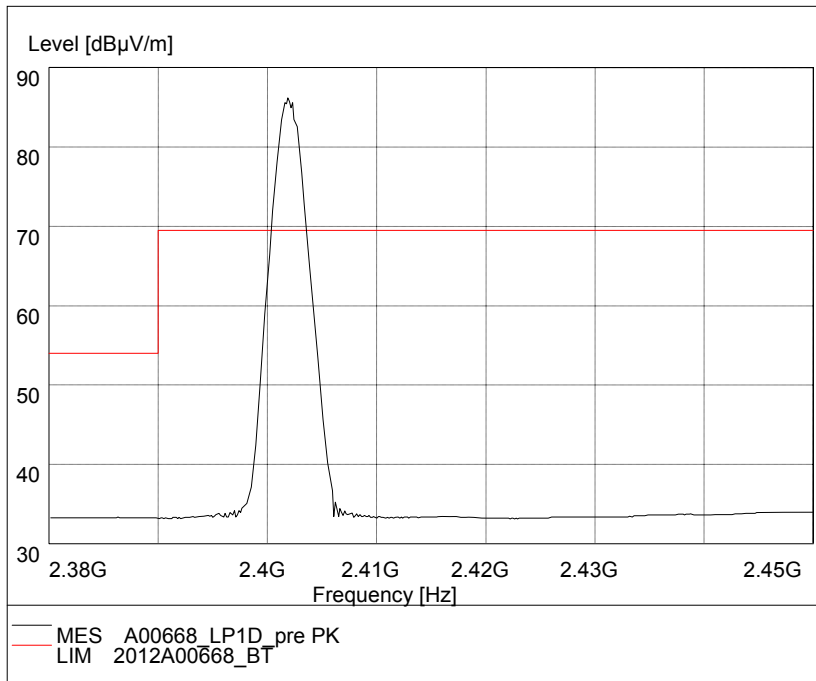


Fig.67. Radiated emission (Power): GFSK, low channel

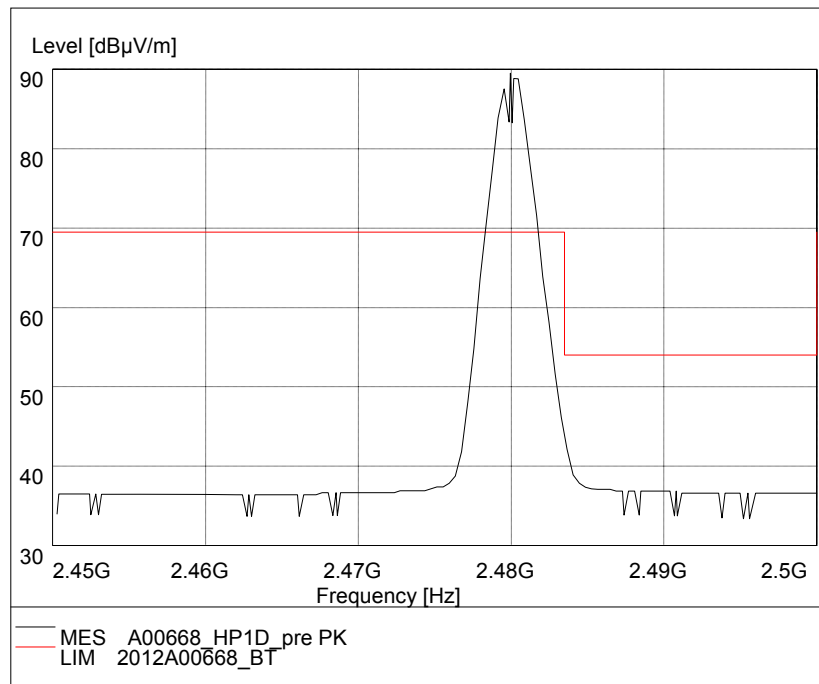


Fig.68. Radiated emission (Power) GFSK, high channel

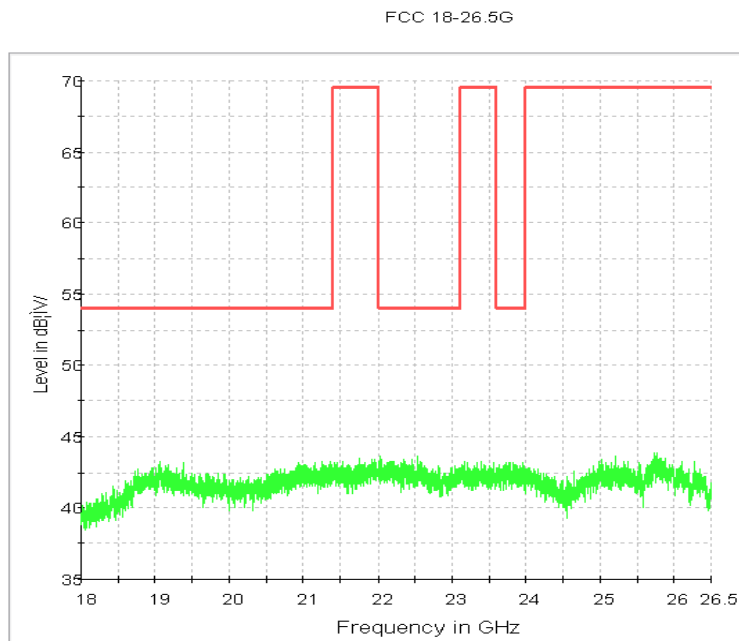


Fig.69. Radiated emission: GFSK, 18 GHz - 26 GHz

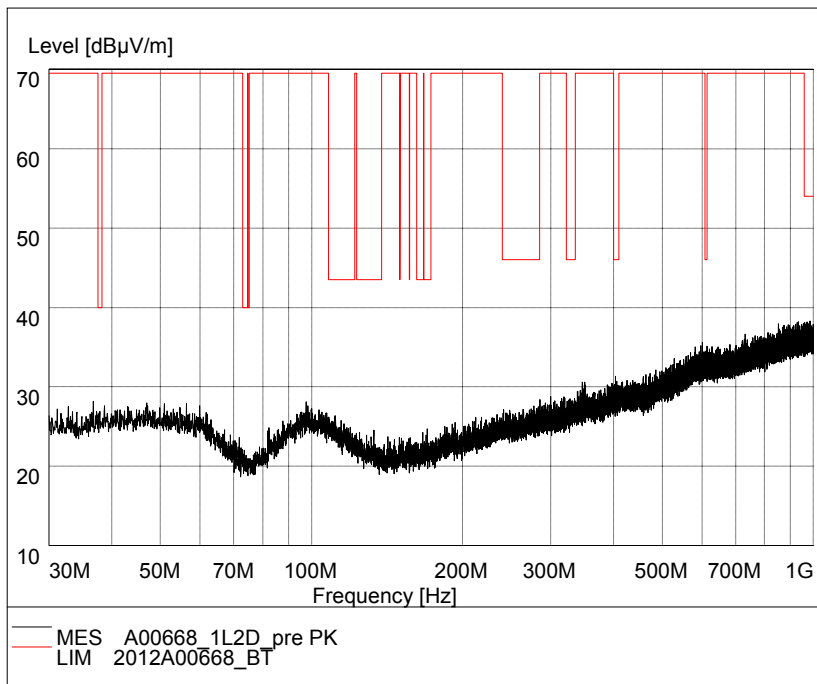


Fig.70. Radiated emission:  $\pi/4$  DQPSK, Channel 0, 30 MHz - 1 GHz

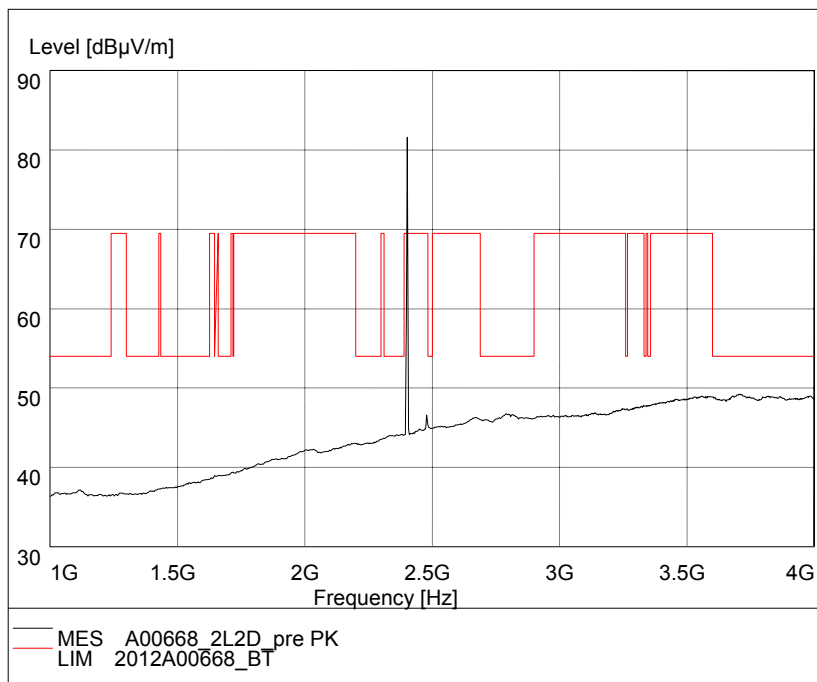


Fig.71. Radiated emission:  $\pi/4$  DQPSK, Channel 0, 1 GHz - 4 GHz

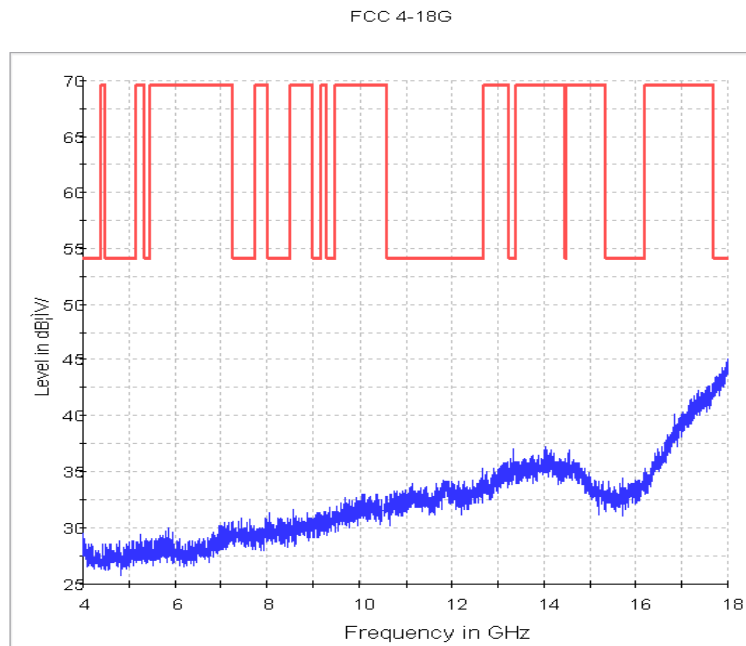


Fig.72. Radiated emission:  $\pi/4$  DQPSK, Channel 0, 4 GHz - 18 GHz

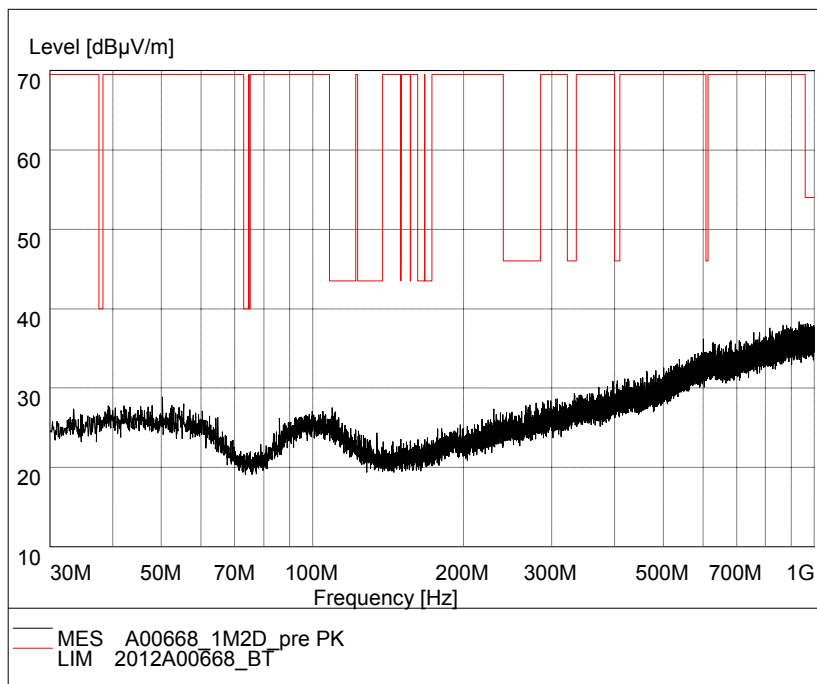


Fig.73. Radiated emission:  $\pi/4$  DQPSK, Channel 39, 30 MHz - 1 GHz



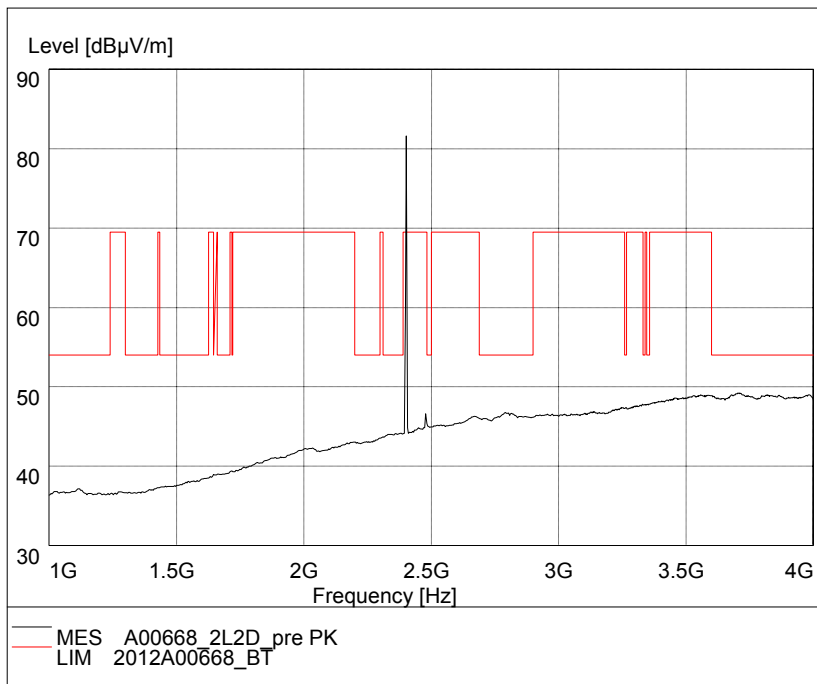


Fig.74. Radiated emission:  $\pi/4$  DQPSK, Channel 39, 1 GHz - 4 GHz

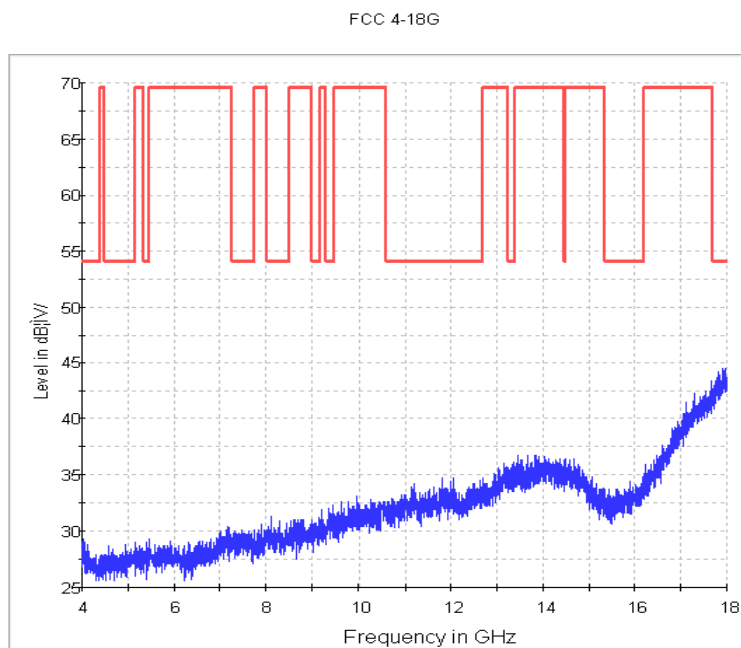


Fig.75. Radiated emission:  $\pi/4$  DQPSK, Channel 39, 4 GHz - 18 GHz

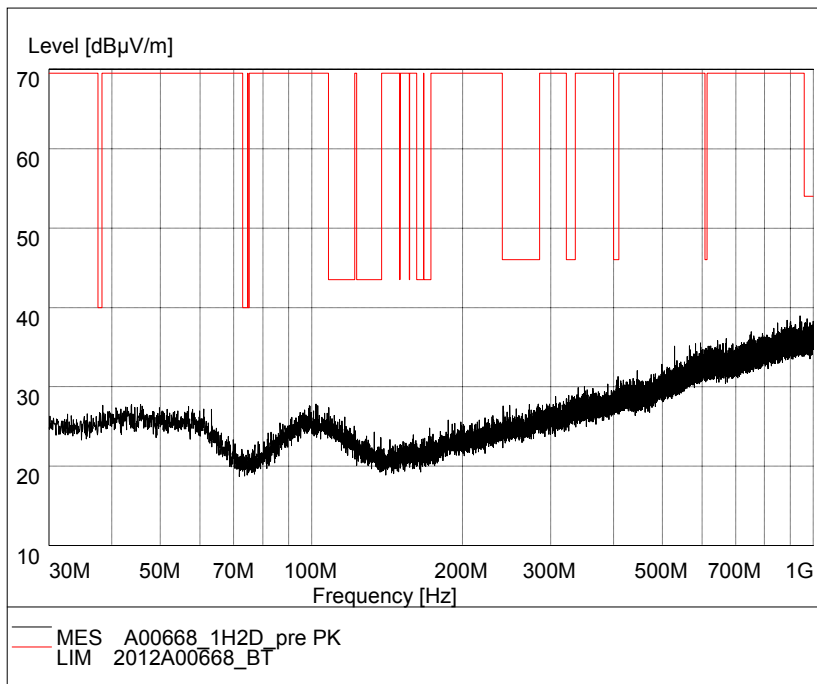


Fig.76. Radiated emission:  $\pi/4$  DQPSK, Channel 78, 30 MHz - 1 GHz

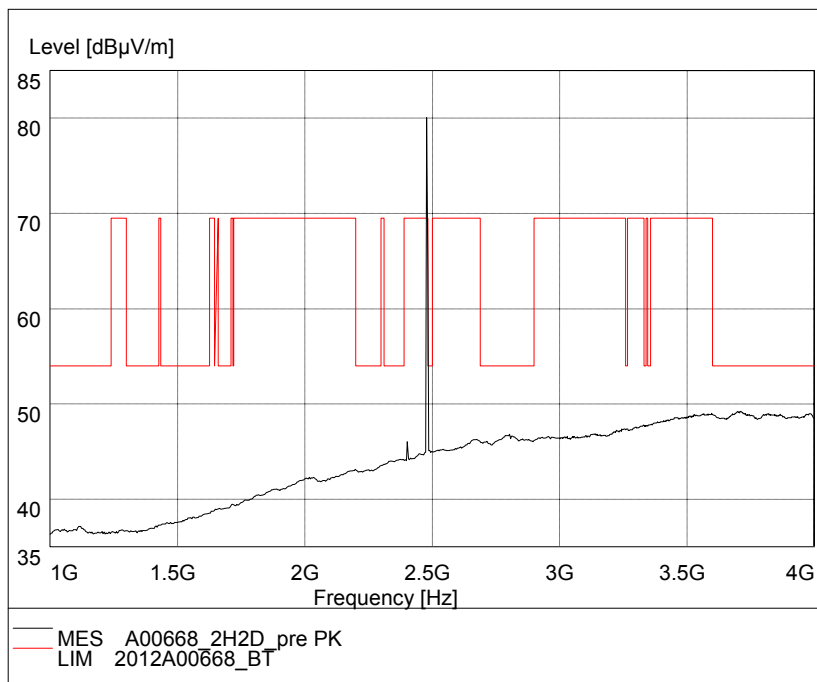


Fig.77. Radiated emission:  $\pi/4$  DQPSK, Channel 78, 1 GHz - 4 GHz

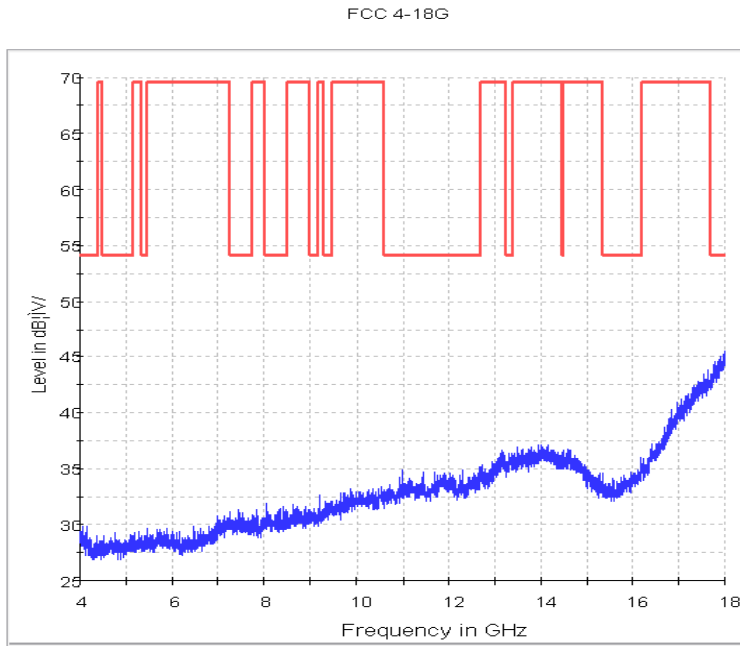


Fig.78. Radiated emission:  $\pi/4$  DQPSK, Channel 78, 4 GHz - 18 GHz

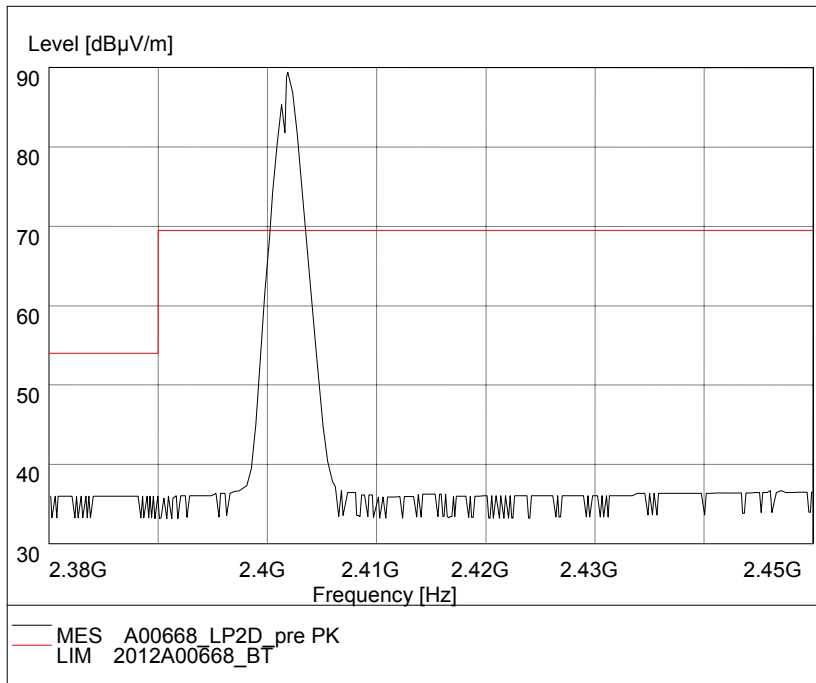


Fig.79. Radiated emission (Power):  $\pi/4$  DQPSK, low channel

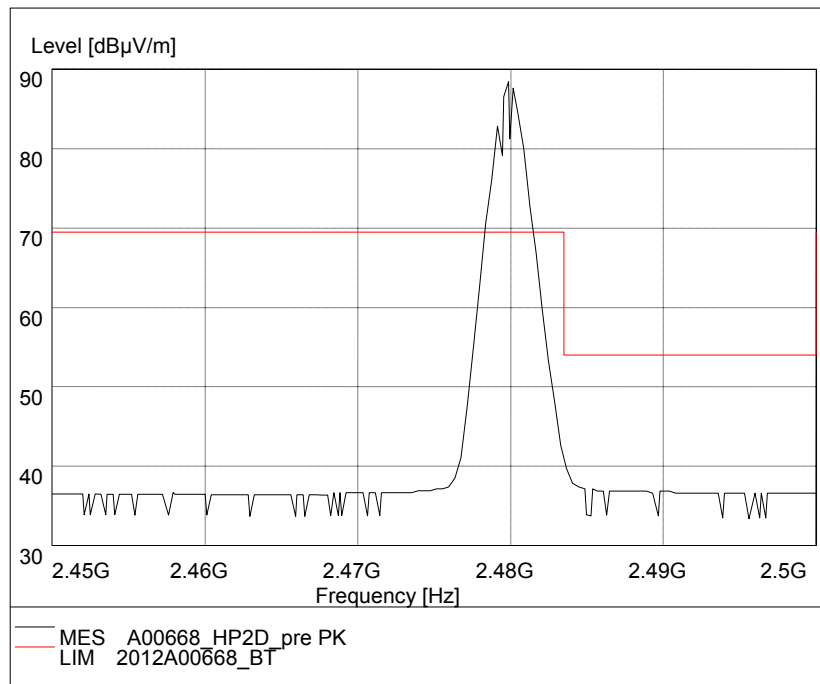


Fig.80. Radiated emission (Power):  $\pi/4$  DQPSK, high channel

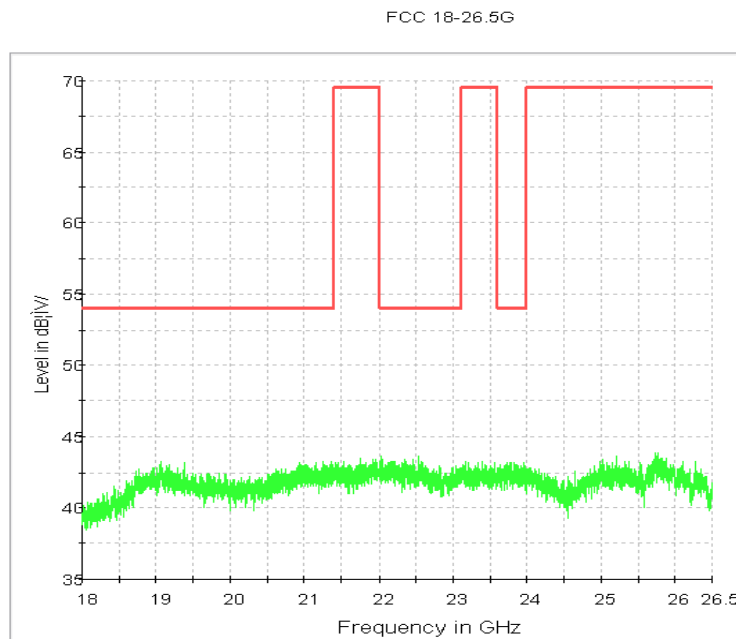


Fig.81. Radiated emission:  $\pi/4$  DQPSK, 18 GHz - 26 GHz

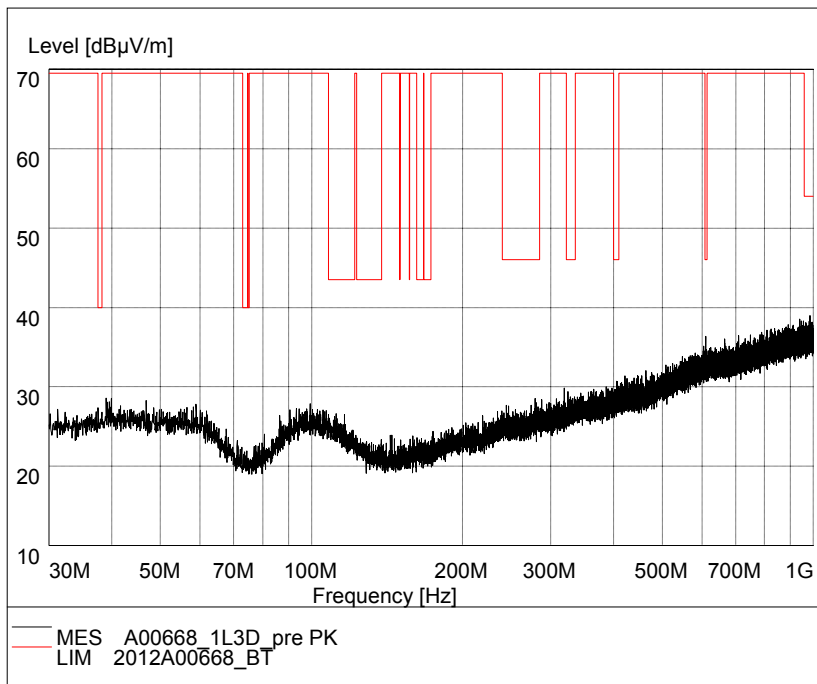


Fig.82. Radiated emission: 8DPSK, Channel 0, 30 MHz - 1 GHz

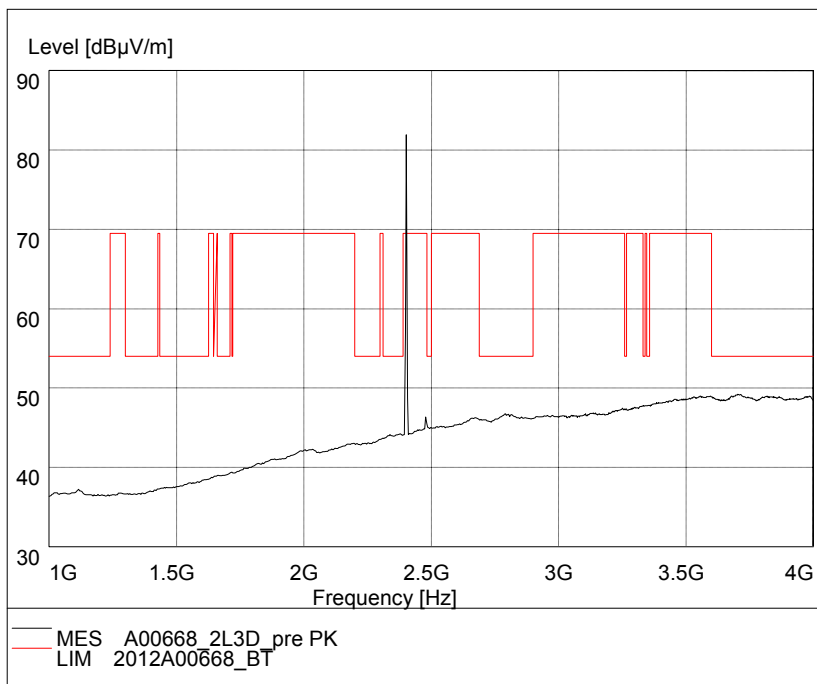


Fig.83. Radiated emission: 8DPSK, Channel 0, 1 GHz - 4 GHz

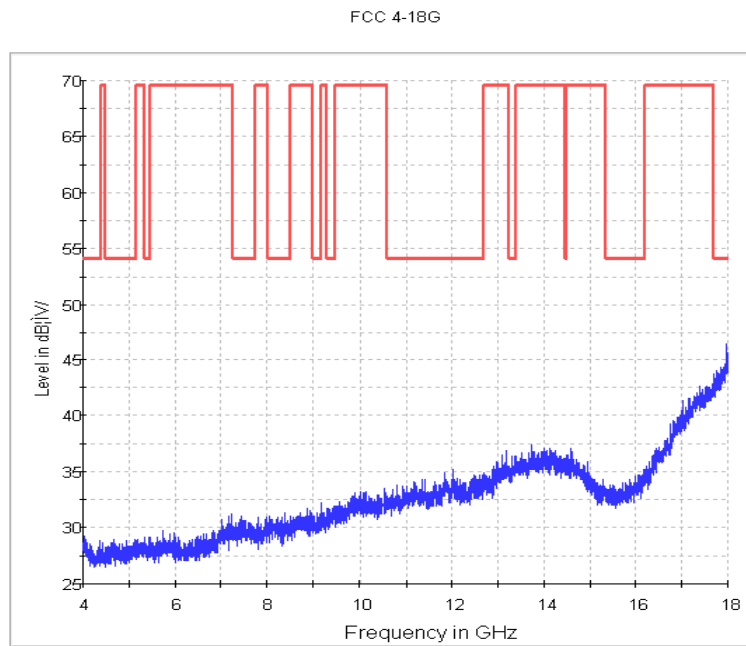


Fig.84. Radiated emission: 8DPSK, Channel 0, 4 GHz - 18 GHz

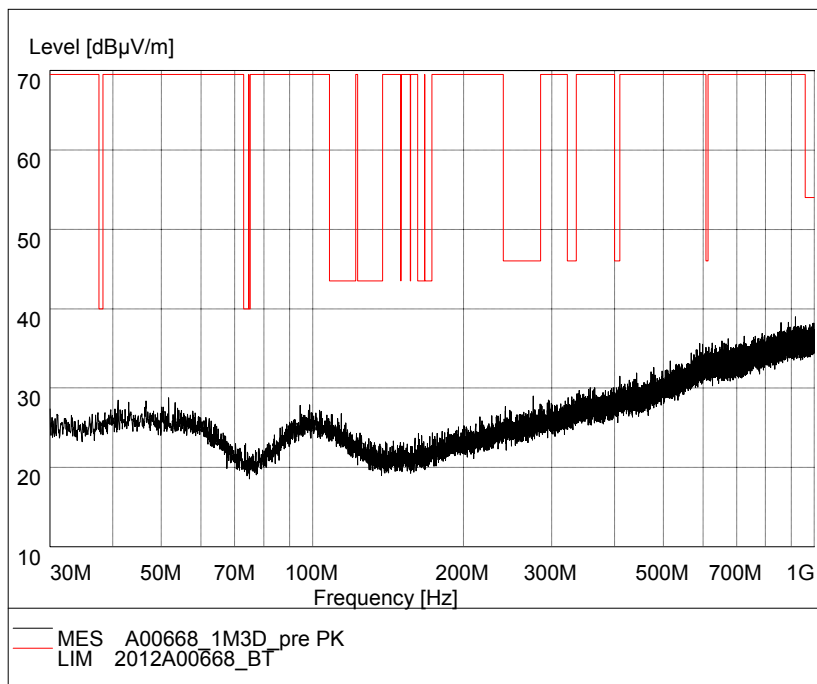


Fig.85. Radiated emission: 8DPSK, Channel 39, 30 MHz - 1 GHz

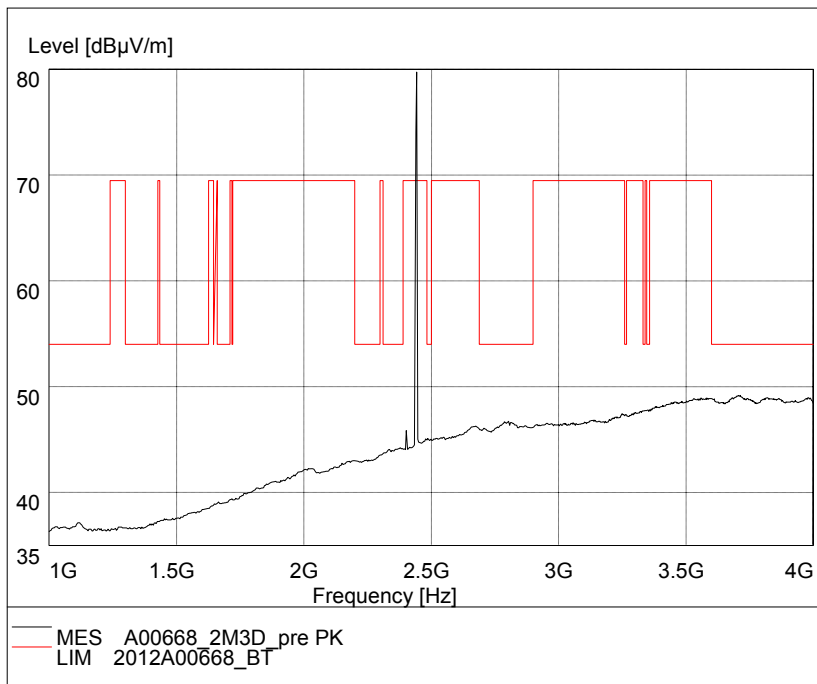


Fig.86. Radiated emission: 8DPSK, Channel 39, 1 GHz - 4 GHz

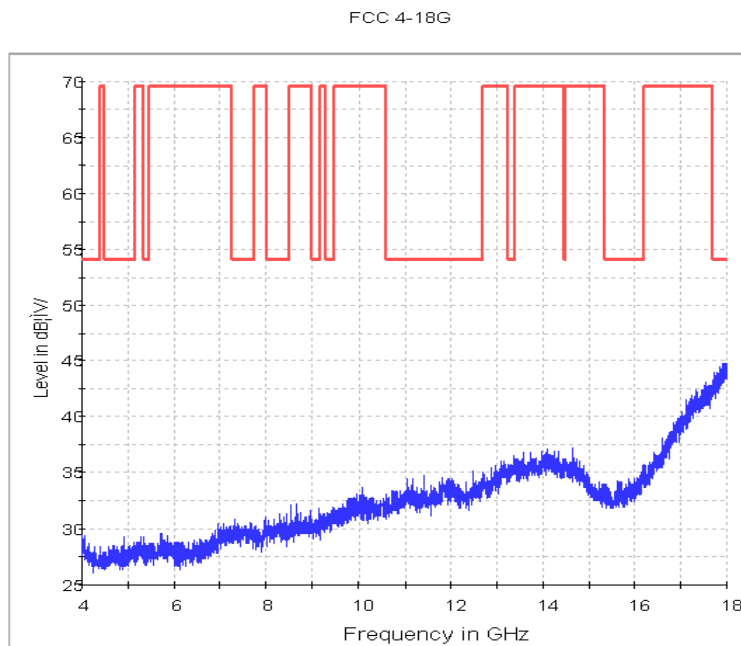


Fig.87. Radiated emission: 8DPSK, Channel 39, 4 GHz - 18 GHz

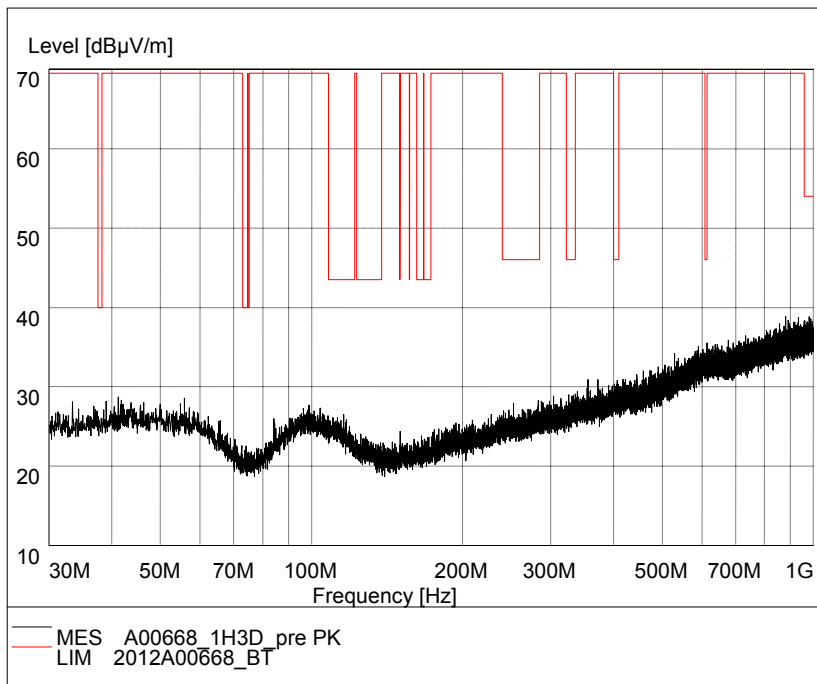


Fig.88. Radiated emission: 8DPSK, Channel 78, 30 MHz - 1 GHz

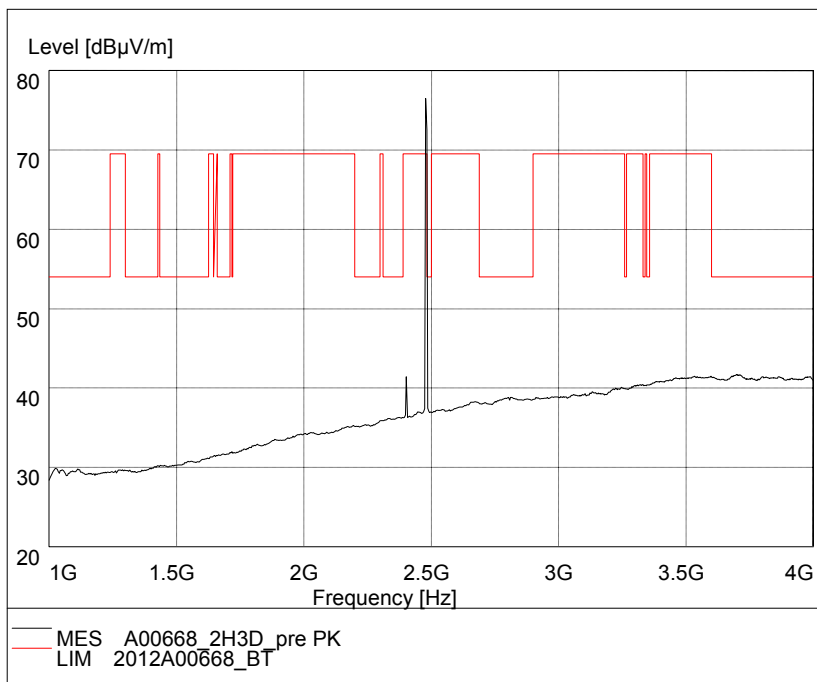


Fig.89. Radiated emission: 8DPSK, Channel 78, 1 GHz - 4 GHz



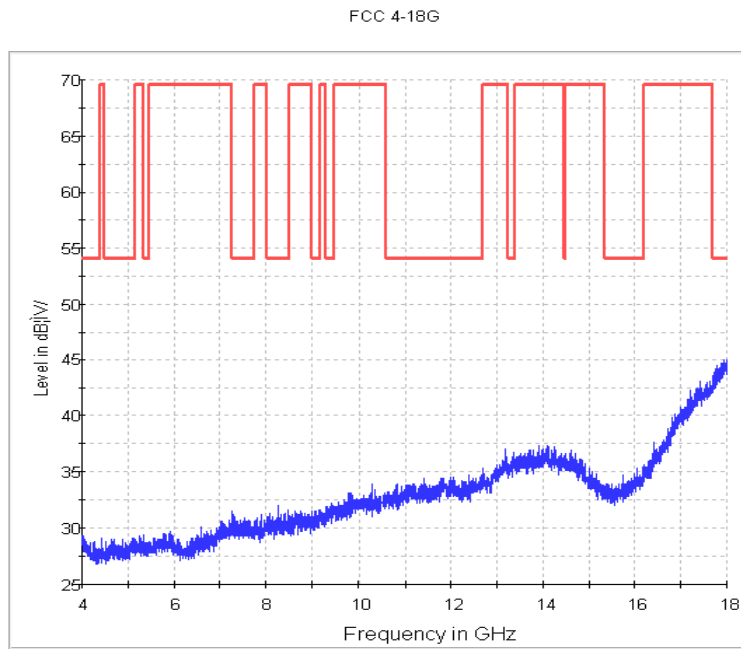


Fig.90. Radiated emission: 8DPSK, Channel 78, 4 GHz - 18 GHz

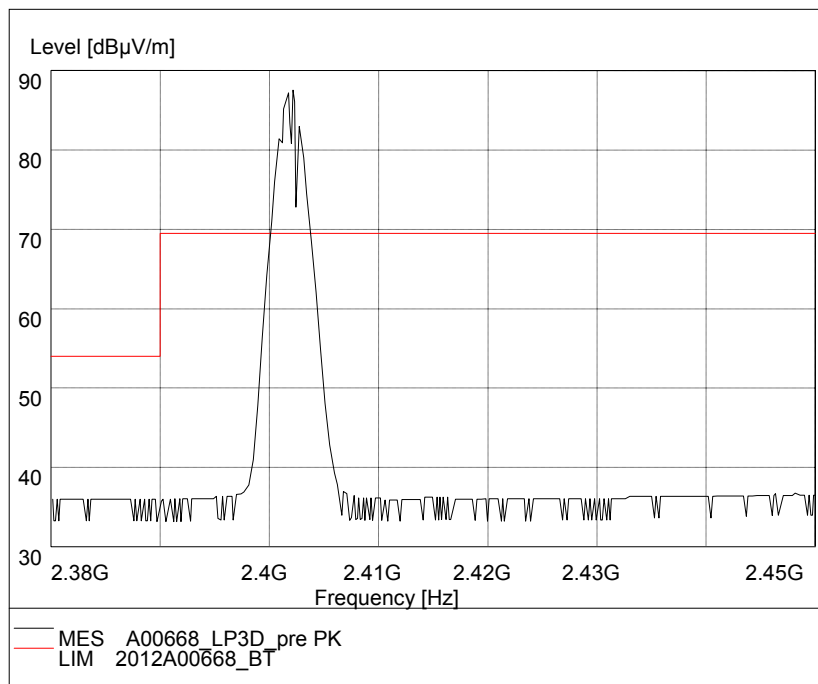


Fig.91. Radiated emission (Power): 8DPSK, low channel

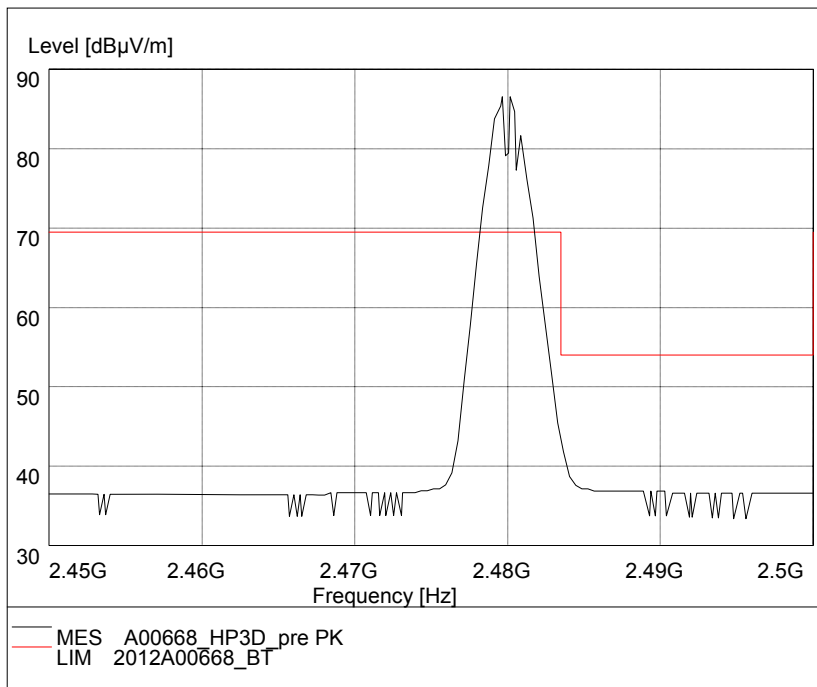


Fig.92. Radiated emission (Power): 8DPSK, high channel

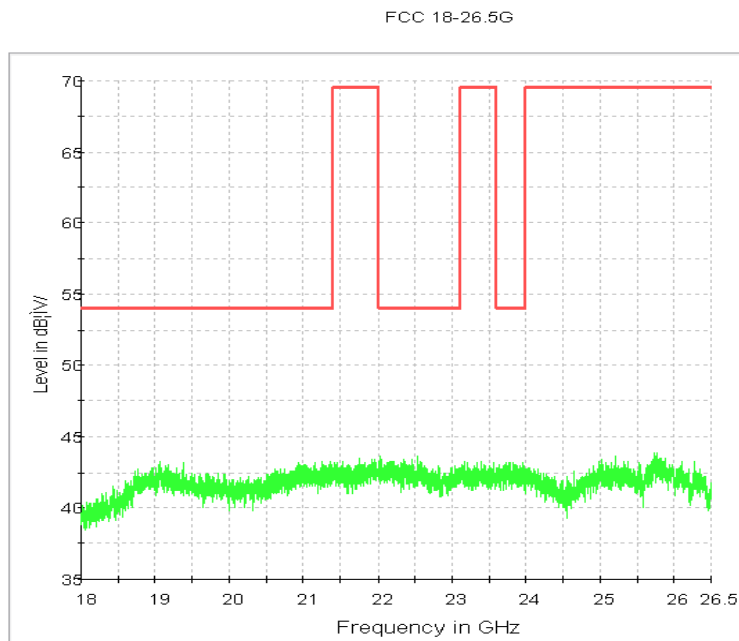


Fig.93. Radiated emission: 8DPSK, 18 GHz - 26 GHz

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

**Measurement Limit:**

Standard	Limit (ms)
FCC 47 CFR Part 15.247(a) (1)(iii)	< 400

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

**Measurement Result:**

**For GFSK**

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.94	108.89	P
		Fig.95		
	DH3	Fig.96	194.08	P
		Fig.97		
	DH5	Fig.98	199.60	P
		Fig.99		

**For  $\pi/4$  DQPSK**

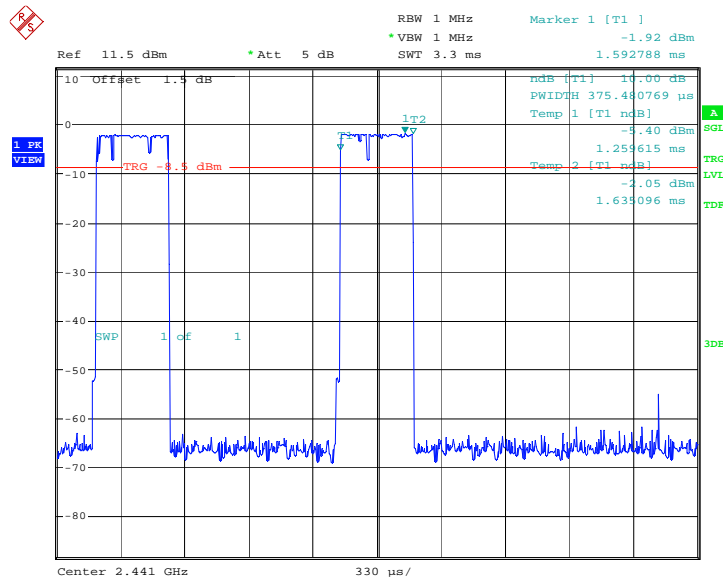
Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.100	113.09	P
		Fig.101		
	DH3	Fig.102	170.50	P
		Fig.103		
	DH5	Fig.104	162.29	P
		Fig.105		

**For 8DPSK**

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.106	110.41	P
		Fig.107		
	DH3	Fig.108	208.21	P
		Fig.109		
	DH5	Fig.110	197.43	P
		Fig.111		

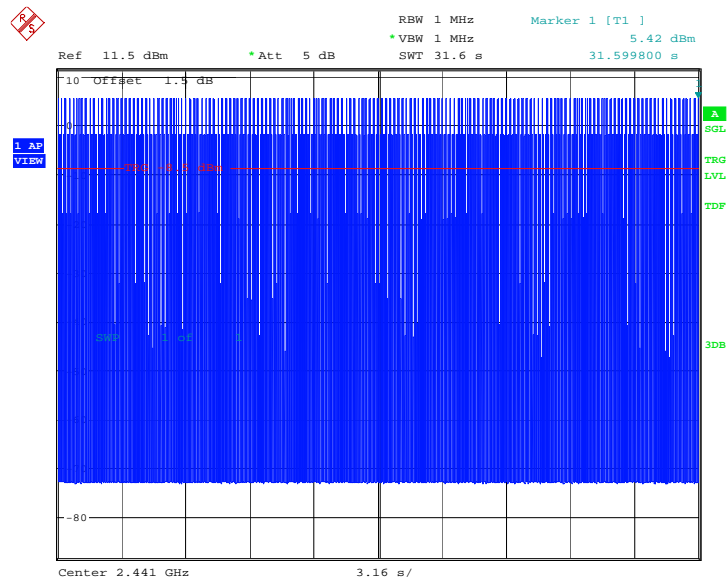
**Conclusion: PASS**

**Test graphs as below:**



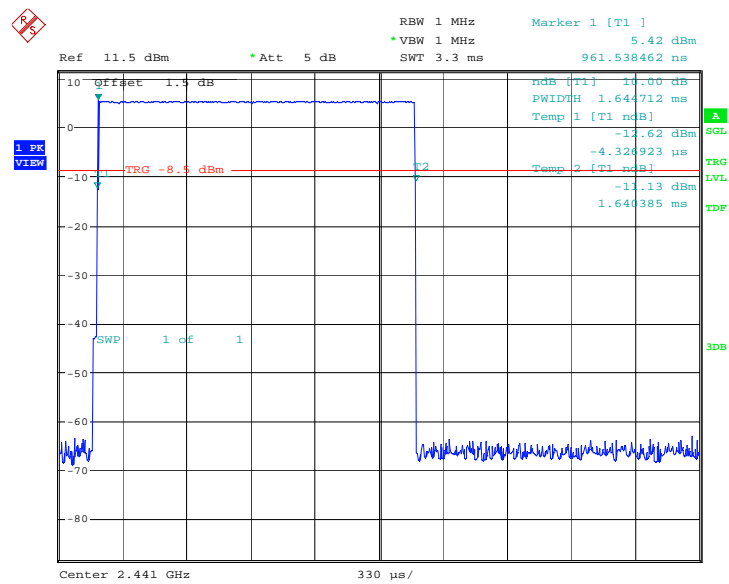
Date: 9.FEB.2012 05:59:06

Fig.94. Time of occupancy (Dwell Time): Channel 39, Packet DH1



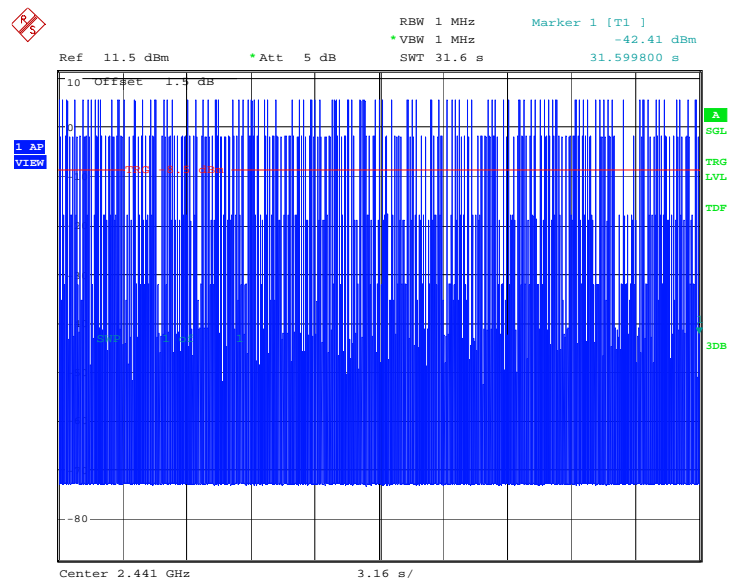
Date: 9.FEB.2012 05:58:55

Fig.95. Number of Transmissions Measurement:Channel 39,Packet DH1



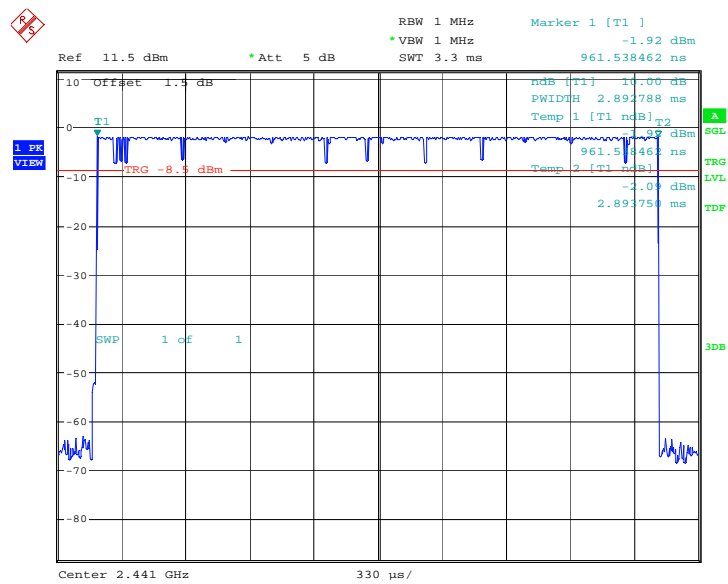
Date: 9.FEB.2012 06:00:25

Fig.96. Time of occupancy (Dwell Time): Channel 39, Packet DH3



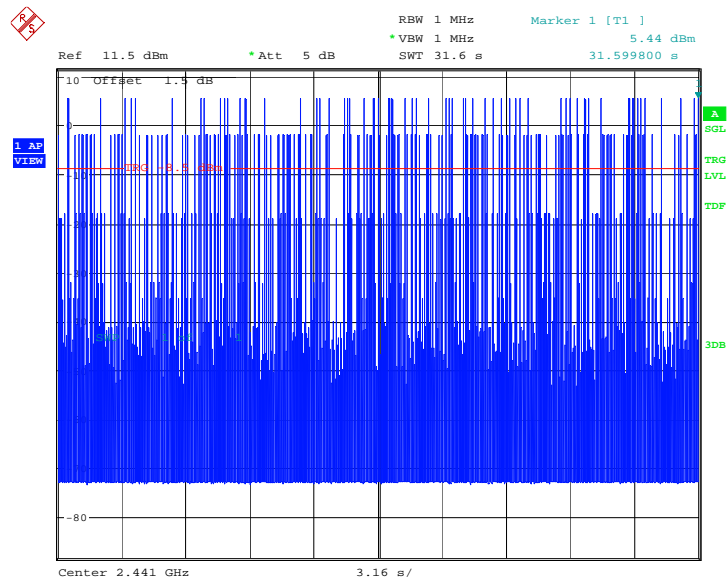
Date: 9.FEB.2012 06:00:13

Fig.97. Number of Transmissions Measurement: Channel 39, Packet DH3



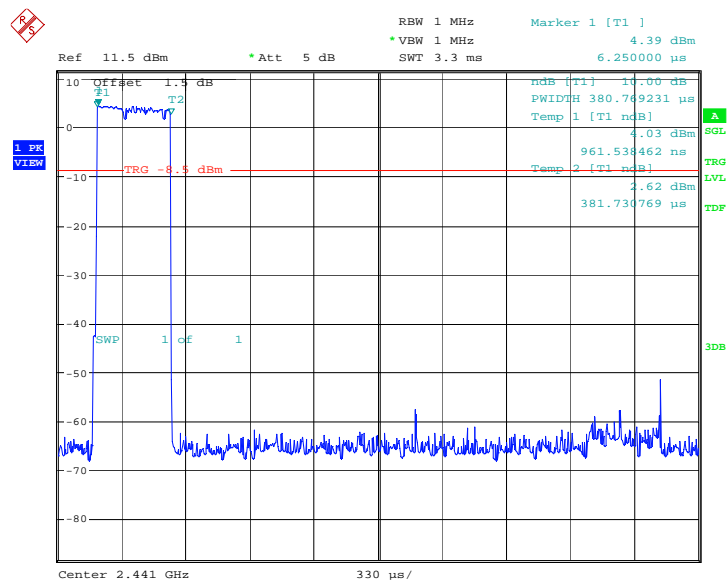
Date: 9.FEB.2012 06:01:42

Fig.98. Time of occupancy (Dwell Time): Channel 39, Packet DH5



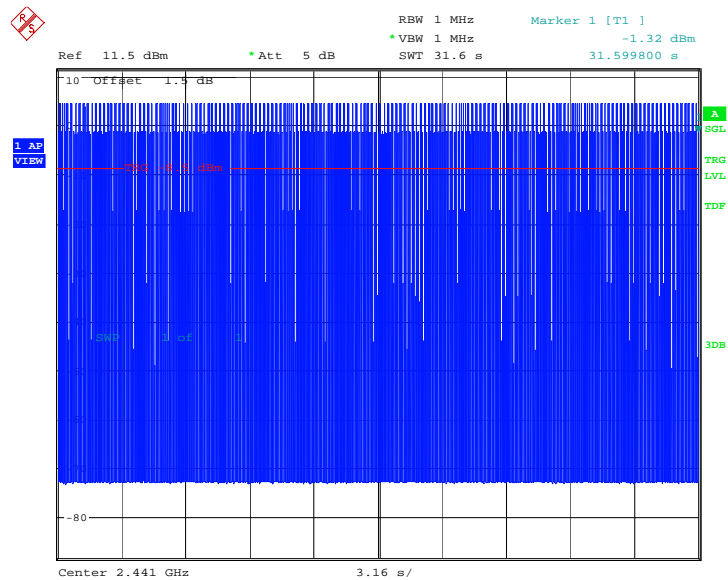
Date: 9.FEB.2012 06:01:30

Fig.99. Number of Transmissions Measurement: Channel 39, Packet DH5



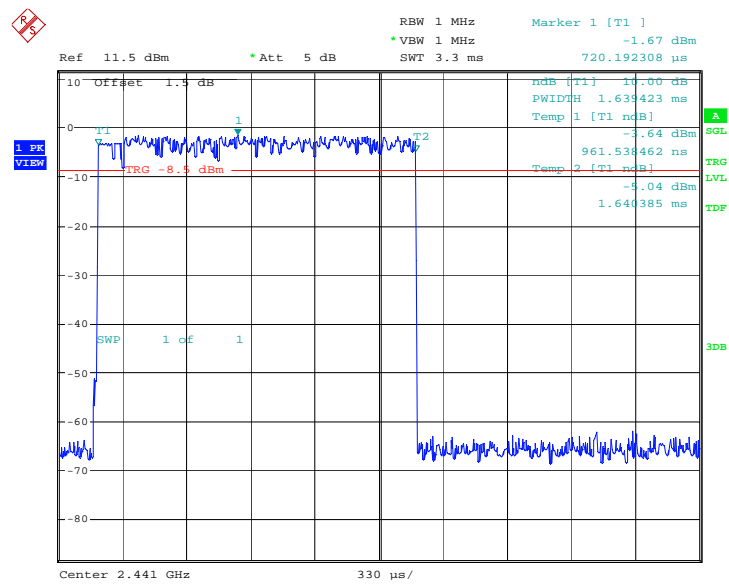
Date: 9.FEB.2012 06:21:13

Fig.100. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1



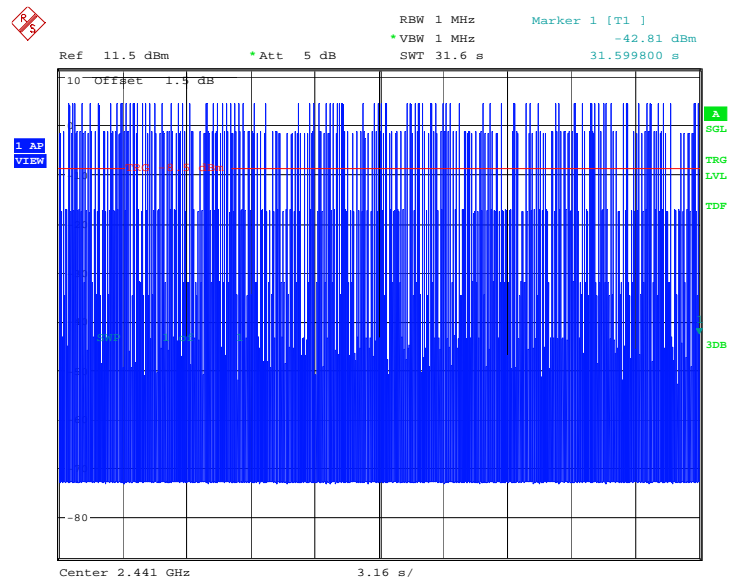
Date: 9.FEB.2012 06:21:02

Fig.101. Number of Transmissions Measurement:Channel 39,Packet 2-DH1



Date: 9.FEB.2012 06:22:32

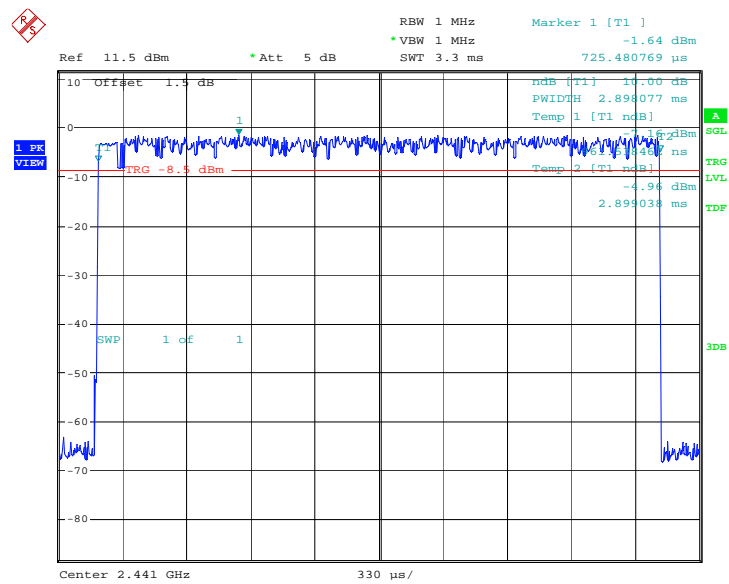
Fig.102. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3



Date: 9.FEB.2012 06:22:20

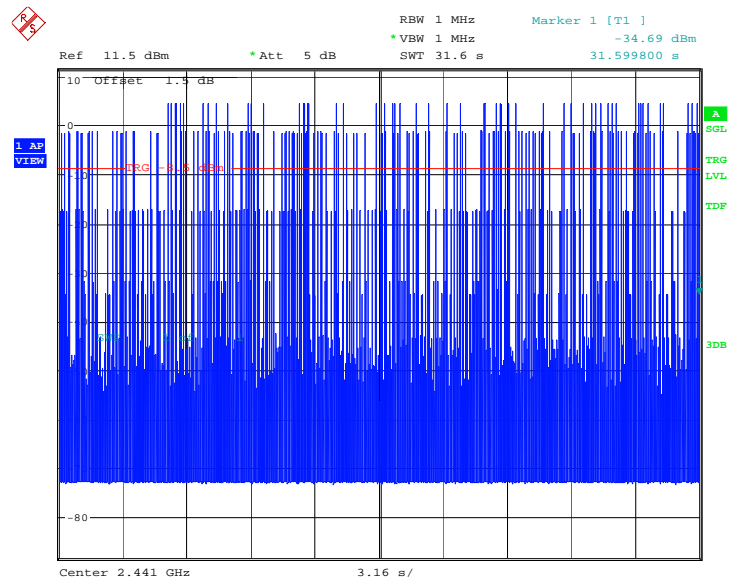
Fig.103. Number of Transmissions Measurement:Channel 39,Packet 2-DH3





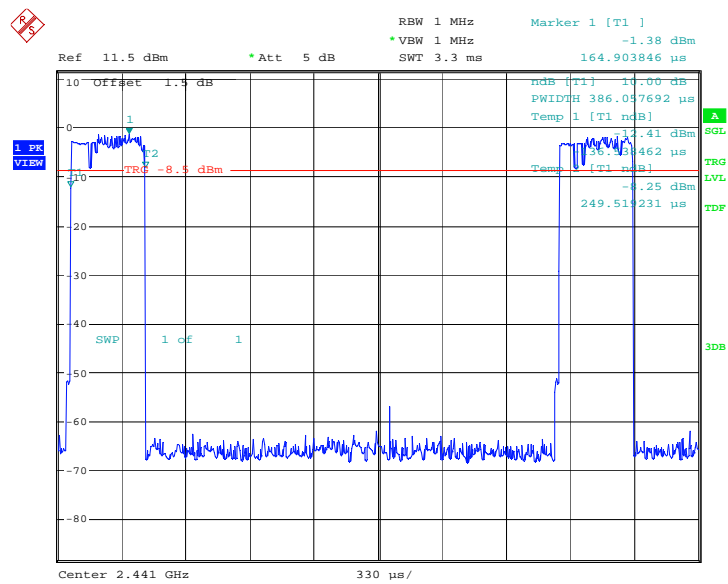
Date: 9.FEB.2012 06:23:49

Fig.104. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5



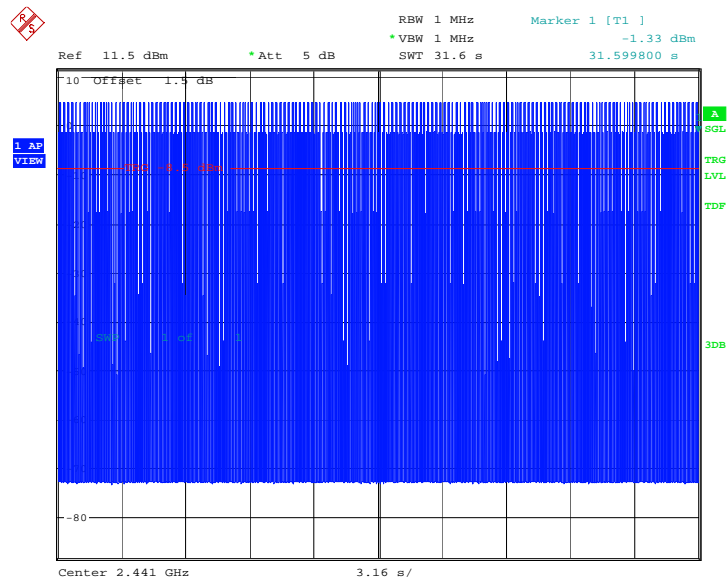
Date: 9.FEB.2012 06:23:37

Fig.105. Number of Transmissions Measurement:Channel 39,Packet 2-DH5



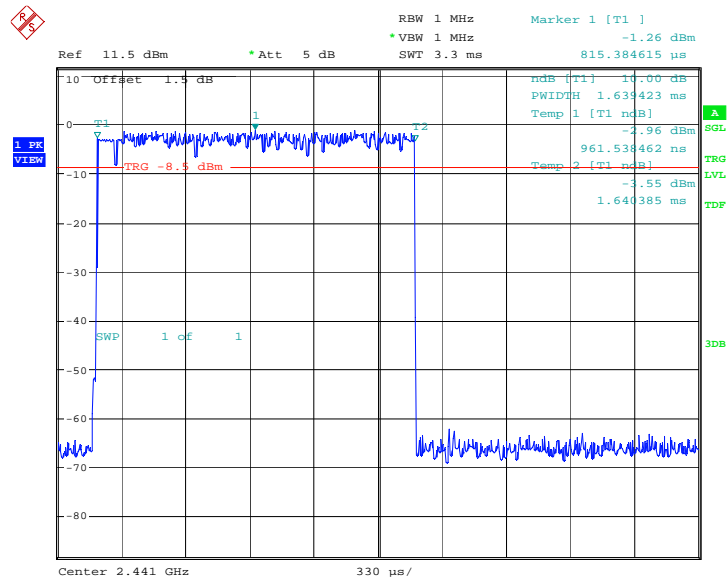
Date: 9.FEB.2012 06:43:12

Fig.106. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1



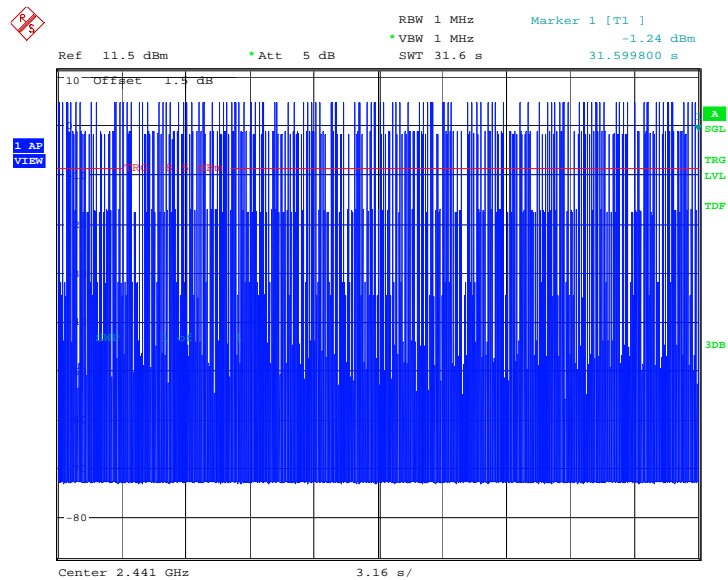
Date: 9.FEB.2012 06:43:00

Fig.107. Number of Transmissions Measurement:Channel 39,Packet 3-DH1



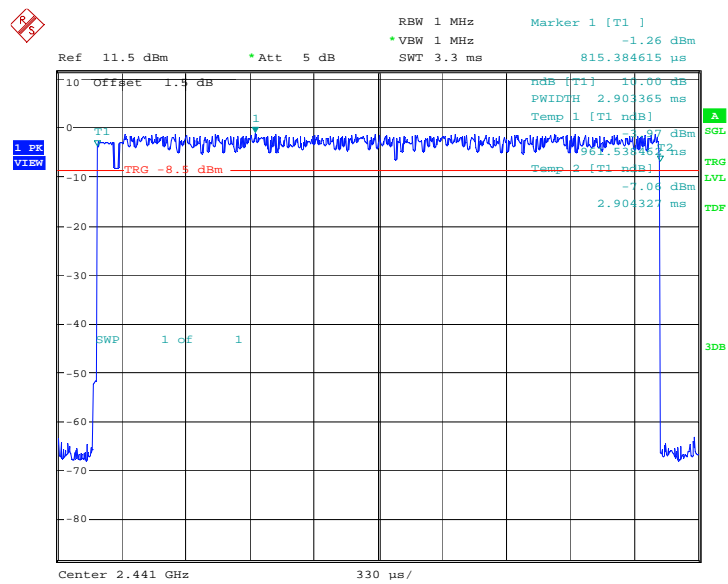
Date: 9.FEB.2012 06:44:32

Fig.108. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3



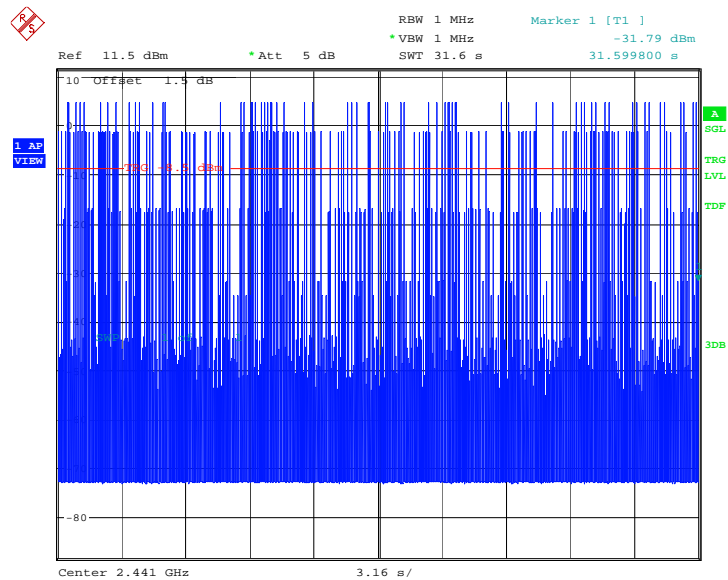
Date: 9.FEB.2012 06:44:20

Fig.109. Number of Transmissions Measurement:Channel 39,Packet 3-DH3



Date: 9.FEB.2012 06:45:50

Fig.110. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH5



Date: 9.FEB.2012 06:45:39

Fig.111. Number of Transmissions Measurement:Channel 39,Packet 3-DH5

### A.7. 20dB Bandwidth

#### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)(1)	NA *

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

\* Comment: This test case is not required according to the latest FCC 47 CFR Part 15.247. But the test results are necessary for “carrier frequency separation” test case, in Annex A.8.

#### Measurement Results:

##### For GFSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.112	826.92	NA
39	Fig.113	870.19	NA
78	Fig.114	865.38	NA

##### For $\pi/4$ DQPSK

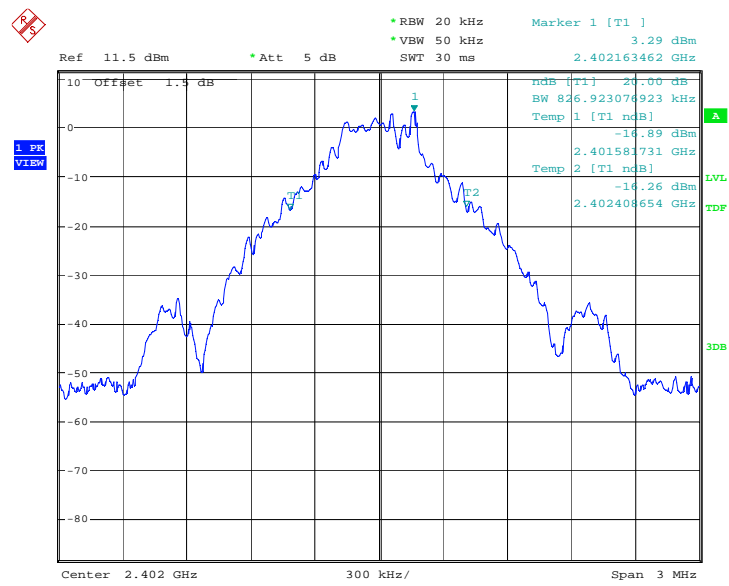
Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.115	1254.81	NA
39	Fig.116	1269.23	NA
78	Fig.117	1254.81	NA

##### For 8DPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.118	1269.23	NA
39	Fig.119	1254.81	NA
78	Fig.120	1264.42	NA

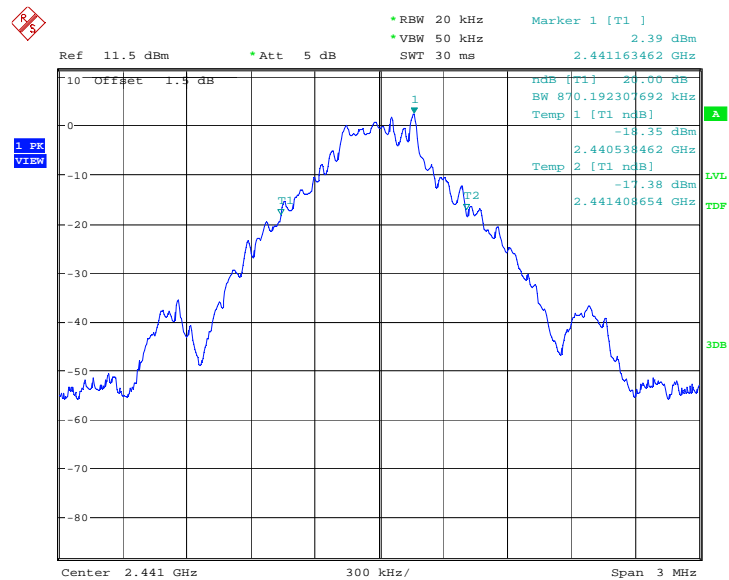
**Conclusion: NA**

**Test graphs as below:**



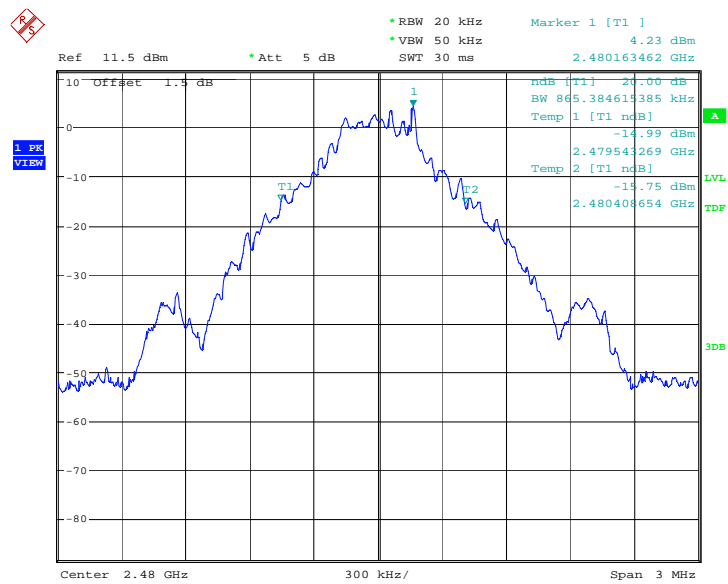
Date: 9.FEB.2012 06:02:17

Fig.112. 20dB Bandwidth: GFSK, Channel 0



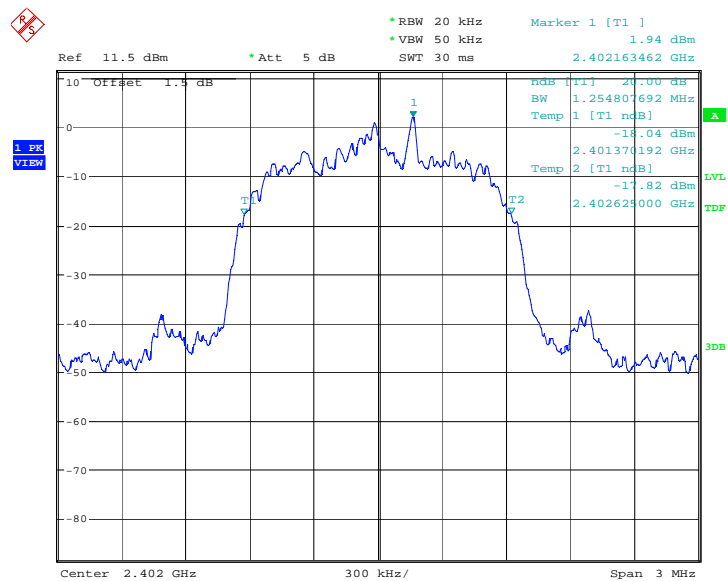
Date: 9.FEB.2012 06:02:48

Fig.113. 20dB Bandwidth: GFSK, Channel 39



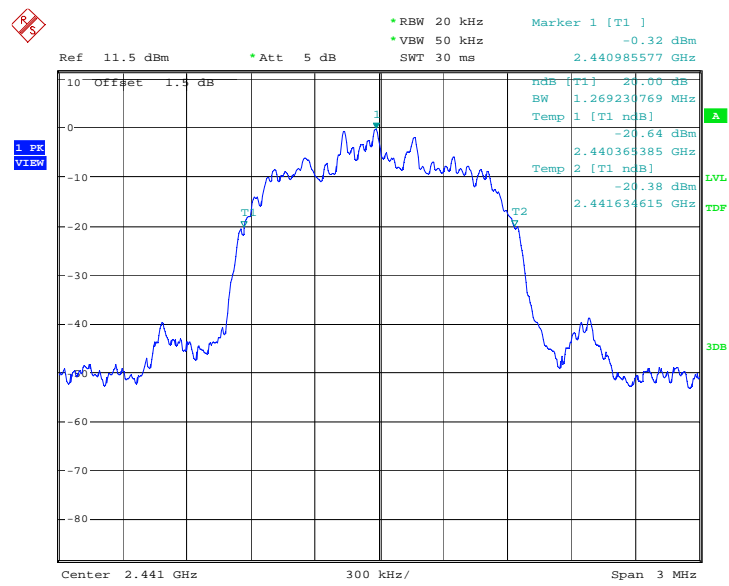
Date: 9.FEB.2012 06:03:20

Fig.114. 20dB Bandwidth: GFSK, Channel 78



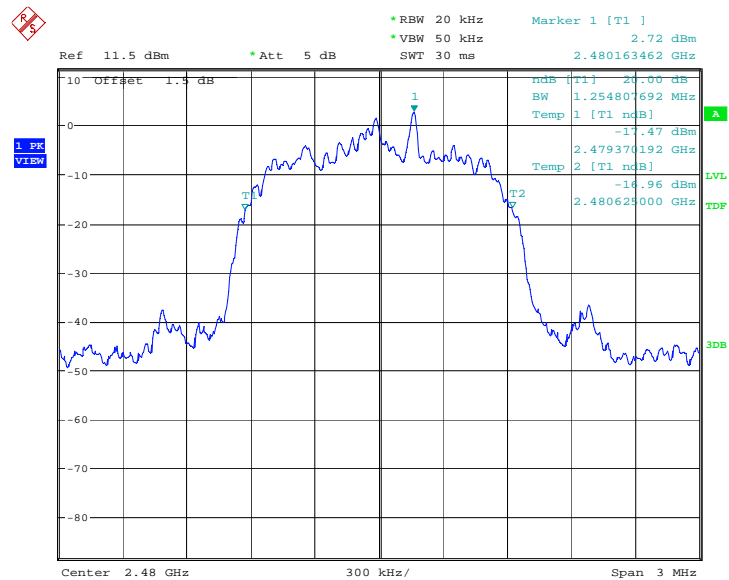
Date: 9.FEB.2012 06:24:23

Fig.115. 20dB Bandwidth:  $\pi/4$  DQPSK, Channel 0



Date: 9.FEB.2012 06:24:55

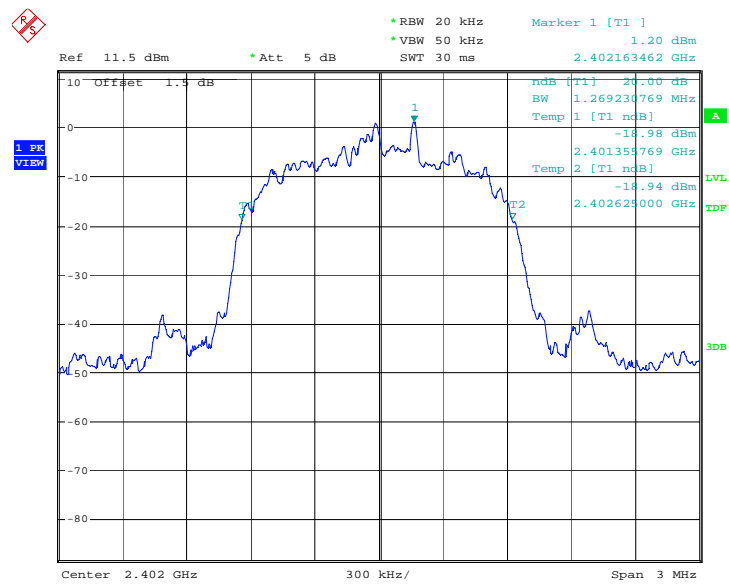
Fig.116. 20dB Bandwidth:  $\pi/4$  DQPSK, Channel 39



Date: 9.FEB.2012 06:25:27

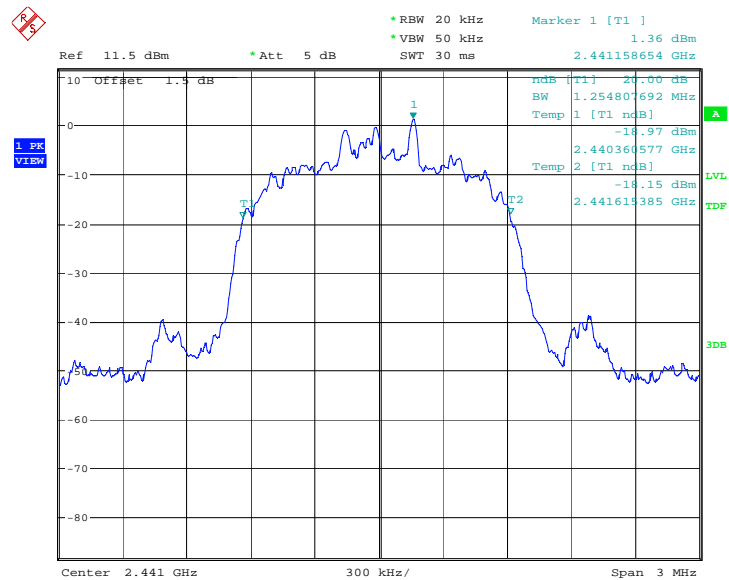
Fig.117. 20dB Bandwidth:  $\pi/4$  DQPSK, Channel 78





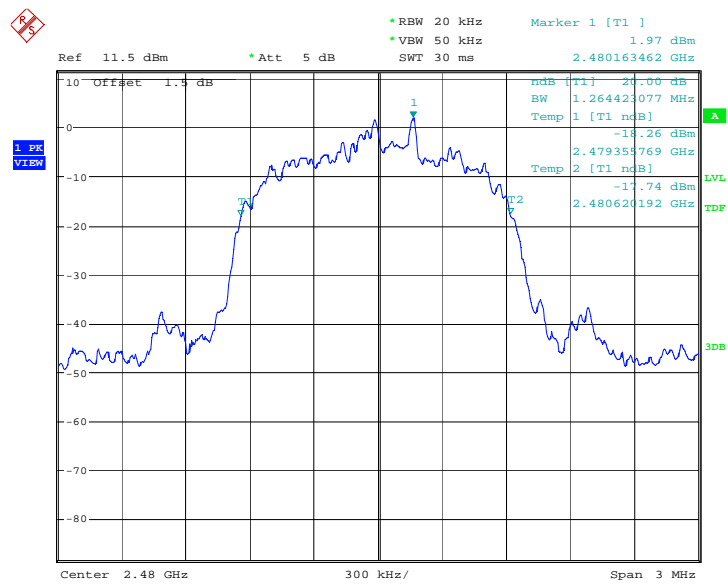
Date: 9.FEB.2012 06:46:24

Fig.118. 20dB Bandwidth: 8DPSK, Channel 0



Date: 9.FEB.2012 06:46:56

Fig.119. 20dB Bandwidth: 8DPSK, Channel 39



Date: 9.FEB.2012 06:47:28

Fig.120. 20dB Bandwidth: 8DPSK, Channel 78

### A.8. Carrier Frequency Separation

#### Measurement Limit:

Standard	Limit(kHz)
FCC 47 CFR Part 15.247(a)(1)	over 25 kHz or $(2/3) * 20\text{dB bandwidth}$

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

\* Comment: This limit should be over 25 kHz or  $(2/3) * 20\text{dB bandwidth}$ , whichever is greater.

#### Measurement Result:

##### For GFSK

Channel	Carrier frequency separation (kHz)	Conclusion
39	Fig.121	P

##### For $\pi/4$ DQPSK

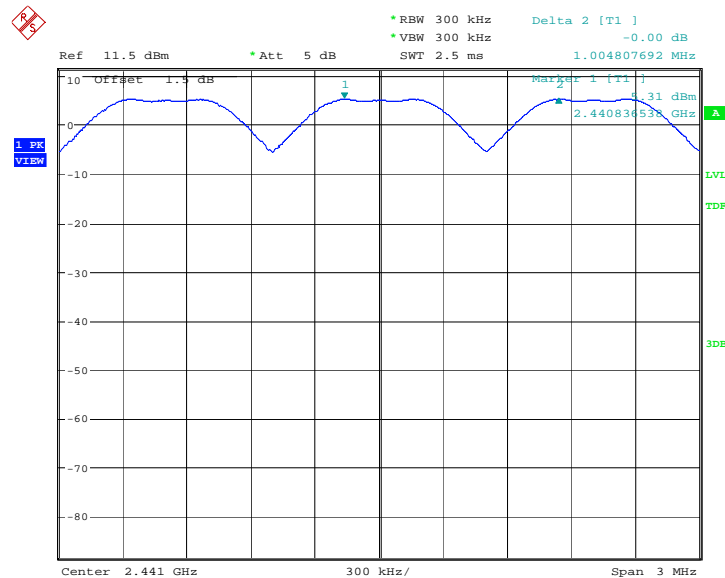
Channel	Carrier frequency separation (kHz)	Conclusion
39	Fig.122	P

##### For 8DPSK

Channel	Carrier frequency separation (kHz)	Conclusion
39	Fig.123	P

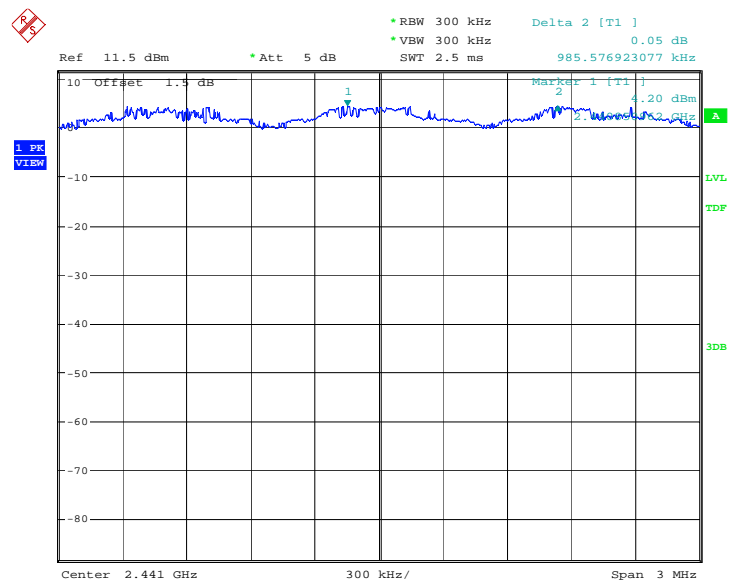
**Conclusion: PASS**

Test graphs as below:



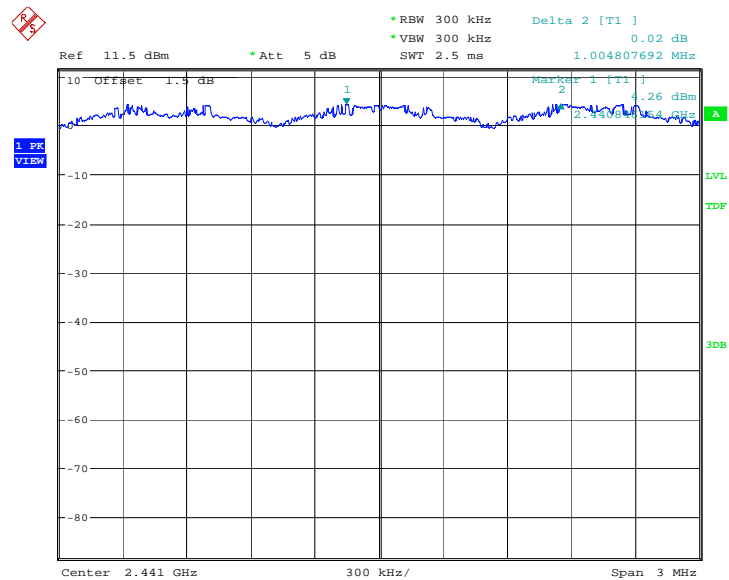
Date: 9.FEB.2012 06:05:25

Fig.121. Carrier frequency separation measurement: GFSK, Channel 39



Date: 9.FEB.2012 06:27:31

Fig.122. Carrier frequency separation measurement:  $\pi/4$  DQPSK, Channel 39



Date: 9.FEB.2012 06:49:32

Fig.123. Carrier frequency separation measurement: 8DPSK, Channel 39

### A.9. Number of Hopping Channels

#### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) (1)(iii)	At least 15 non-overlapping channels

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

#### Measurement Result:

##### For GFSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.124	P
40~78	Fig.125	

##### Forπ/4 DQPSK

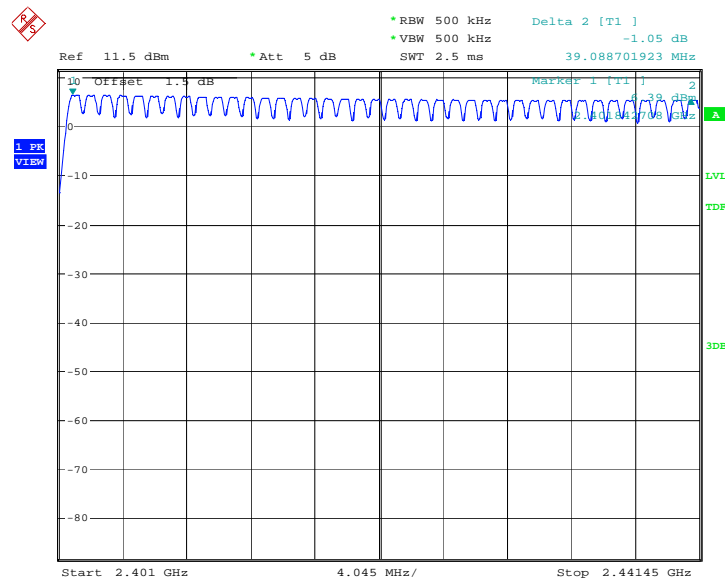
Channel	Number of hopping channels	Conclusion
0~39	Fig.126	P
40~78	Fig.127	

##### For 8DPSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.128	P
40~78	Fig.129	

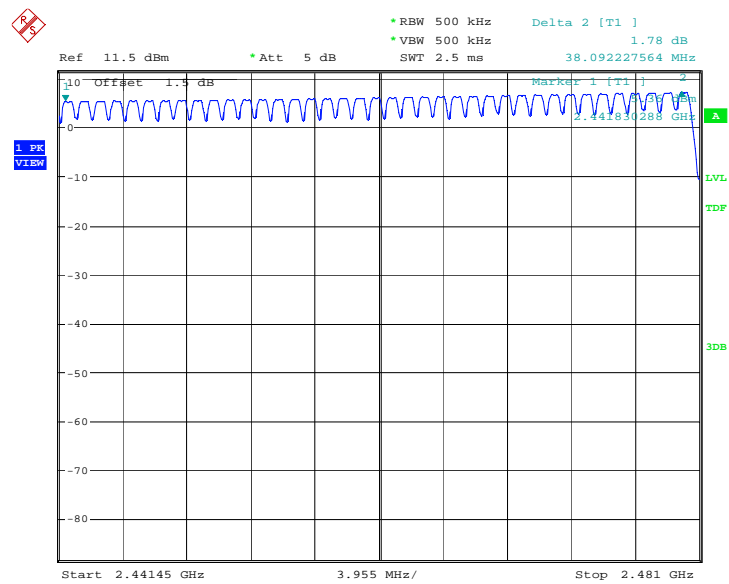
**Conclusion: PASS**

Test graphs as below:



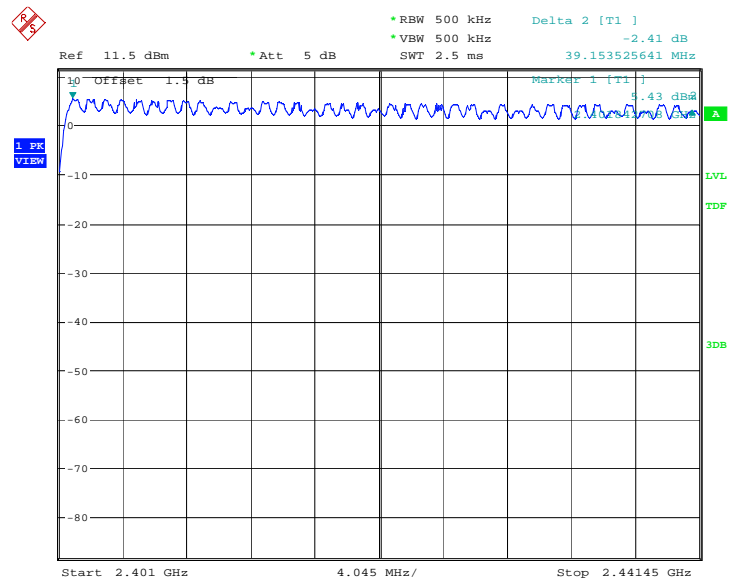
Date: 9.FEB.2012 06:07:30

Fig.124. Number of hopping frequencies: GFSK, Channel 0 - 39



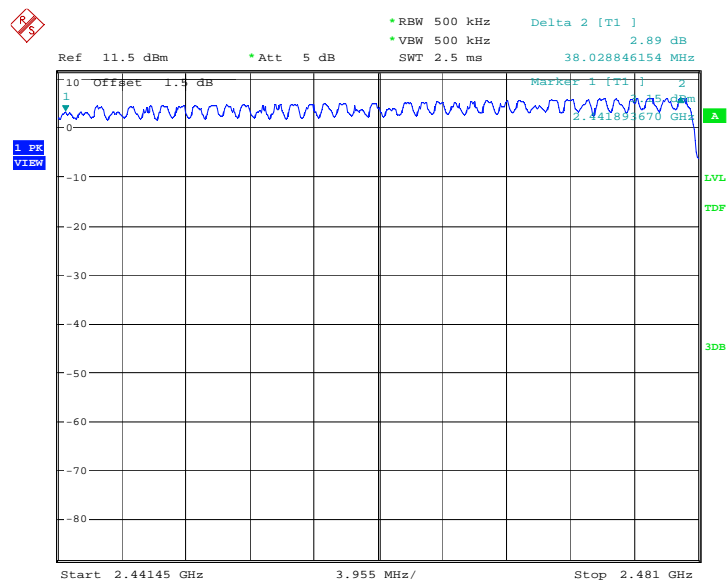
Date: 9.FEB.2012 06:09:32

Fig.125. Number of hopping frequencies: GFSK, Channel 40 - 78



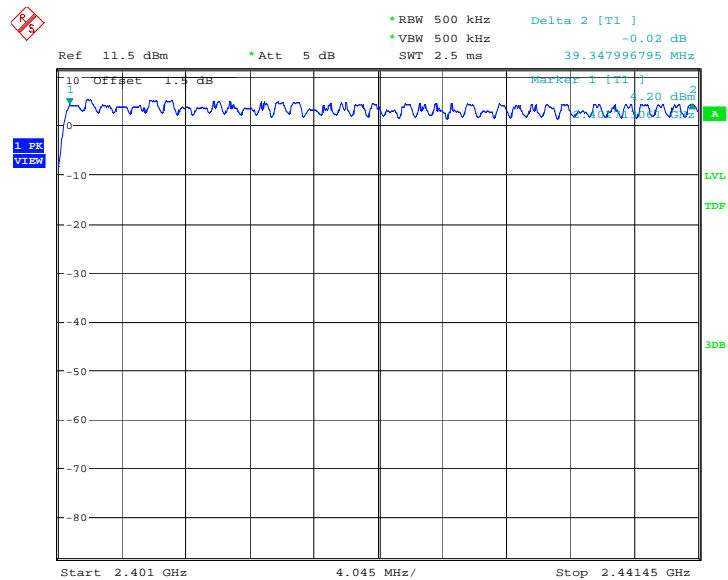
Date: 9.FEB.2012 06:29:36

Fig.126. Number of hopping frequencies:  $\pi/4$  DQPSK, Channel 0 - 39



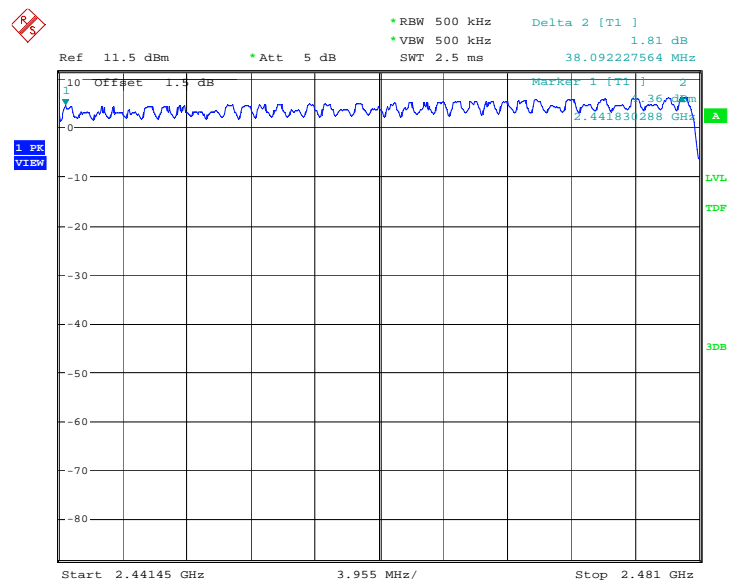
Date: 9.FEB.2012 06:31:38

Fig.127. Number of hopping frequencies:  $\pi/4$  DQPSK, Channel 40 - 78



Date: 9.FEB.2012 06:51:37

Fig.128. Number of hopping frequencies: 8DPSK, Channel 0 - 39



Date: 9.FEB.2012 06:53:39

Fig.129. Number of hopping frequencies: 8DPSK, Channel 40 - 78



## A.10. AC Powerline Conducted Emission

### Test Condition

Voltage (V)	Frequency (Hz)
120	60

### Measurement Result and limit:

#### Bluetooth (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		With Charger	
0.15 to 0.5	66 o 56	Fig.130	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.

#### Bluetooth (Average Limit)

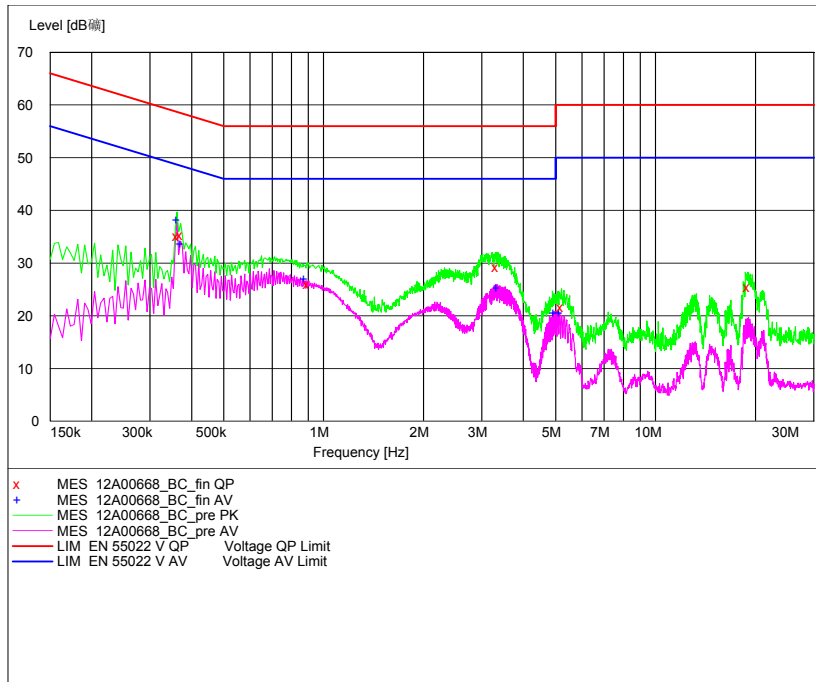
Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		With Charger	
0.15 to 0.5	56 to 46	Fig.130	P
0.5 to 5	46		
5 to 30	50		

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

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

**Conclusion: PASS**

**Test graphs as below:**

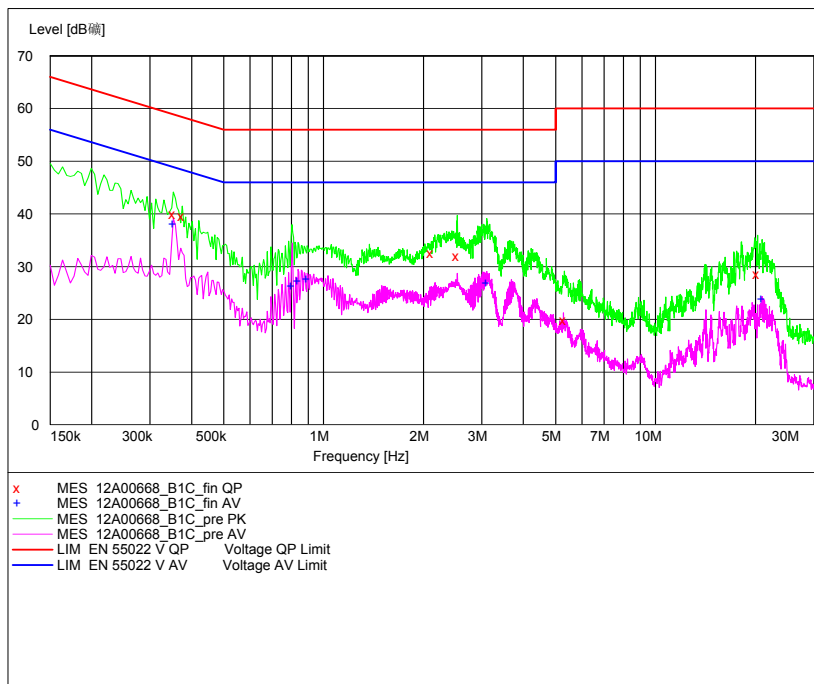


**MEASUREMENT RESULT: "12A00668\_BC\_fin QP"**

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.361500	35.20	10.1	59	23.4	L1	GND
0.370500	35.40	10.1	59	23.1	N	GND
0.897000	26.00	10.1	56	30.0	N	GND
3.322242	29.20	10.1	56	26.8	N	GND
5.207972	21.60	10.2	60	38.4	N	GND
18.970747	25.40	10.3	60	34.6	L1	GND

**MEASUREMENT RESULT: "12A00668\_BC\_fin AV"**

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.361500	38.20	10.1	49	10.5	N	GND
0.370500	33.60	10.1	49	14.8	N	GND
0.879000	27.00	10.1	46	19.0	N	GND
3.335544	25.20	10.1	46	20.8	N	GND
4.954223	20.60	10.2	46	25.4	N	GND
5.145911	20.50	10.2	50	29.5	N	GND

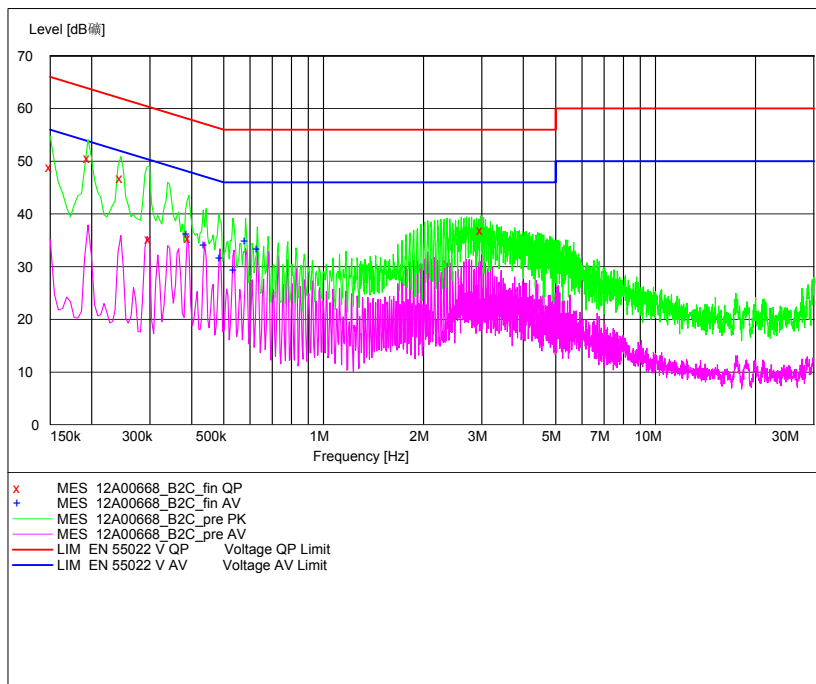


**MEASUREMENT RESULT: "12A00668\_B1C\_fin QP"**

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.352500	39.90	10.1	59	19.0	L1	GND
0.375000	39.60	10.1	58	18.8	N	GND
2.110855	32.50	10.1	56	23.5	L1	GND
2.526698	32.00	10.1	56	24.0	N	GND
5.313074	19.90	10.2	60	40.1	L1	GND
20.304251	28.60	10.2	60	31.4	L1	GND

**MEASUREMENT RESULT: "12A00668\_B1C\_fin AV"**

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.352500	38.10	10.1	49	10.8	N	GND
0.802500	26.40	10.1	46	19.6	N	GND
0.838500	27.30	10.1	46	18.7	N	GND
0.892500	27.60	10.1	46	18.4	N	GND
3.097854	26.90	10.1	46	19.1	N	GND
20.963825	23.90	10.3	50	26.1	L1	GND

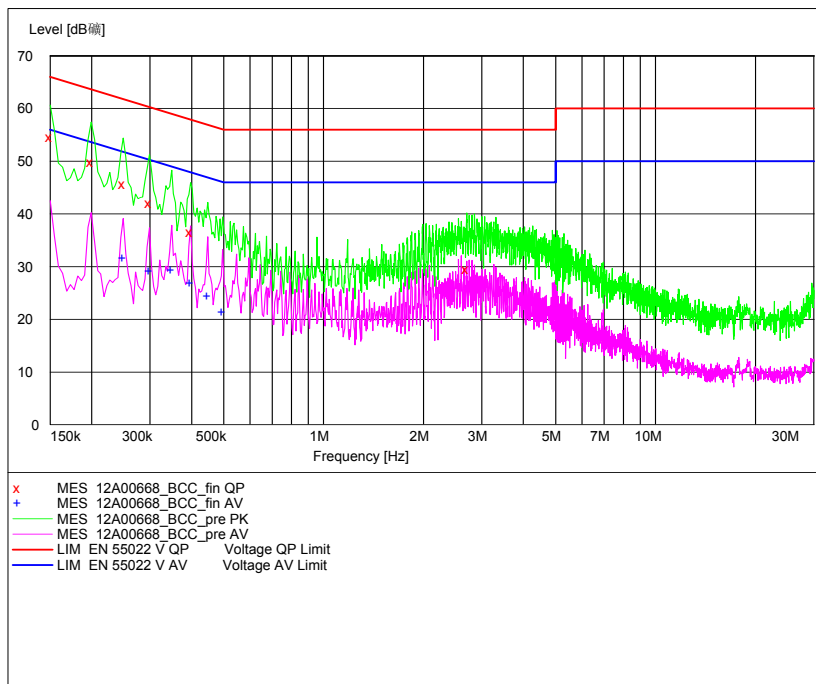


**MEASUREMENT RESULT: "12A00668\_B2C\_fin QP"**

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.150000	48.80	10.1	66	17.2	L1	GND
0.195000	50.50	10.1	64	13.3	N	GND
0.244500	46.80	10.1	62	15.2	N	GND
0.298500	35.30	10.1	60	25.0	N	GND
0.393000	35.50	10.1	58	22.5	L1	GND
2.982458	37.00	10.1	56	19.0	L1	GND

**MEASUREMENT RESULT: "12A00668\_B2C\_fin AV"**

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.388500	36.10	10.1	48	12.0	N	GND
0.438000	34.10	10.1	47	13.0	N	GND
0.487500	31.60	10.1	46	14.6	N	GND
0.537000	29.40	10.1	46	16.6	N	GND
0.582000	34.80	10.1	46	11.2	N	GND
0.631500	33.30	10.1	46	12.7	N	GND



**MEASUREMENT RESULT: "12A00668\_BCC\_fin QP"**

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.150000	54.70	10.1	66	11.3	L1	GND
0.199500	49.80	10.1	64	13.8	N	GND
0.249000	45.70	10.1	62	16.1	N	GND
0.298500	42.10	10.1	60	18.2	N	GND
0.397500	36.60	10.1	58	21.3	L1	GND
2.698909	29.60	10.1	56	26.4	L1	GND

**MEASUREMENT RESULT: "12A00668\_BCC\_fin AV"**

Frequency MHz	Level dBμV	Transd	Limit dB	Margin dBμV	Line dB	PE
0.249000	31.60	10.1	52	20.2	N	GND
0.298500	29.20	10.1	50	21.1	N	GND
0.348000	29.30	10.1	49	19.8	N	GND
0.397500	26.80	10.1	48	21.1	N	GND
0.447000	24.40	10.1	47	22.5	N	GND
0.496500	21.30	10.1	46	24.7	N	GND

\*\*\* END OF REPORT BODY \*\*\*