



FCC PART 15C TEST REPORT No. 2012TAR259

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS triband / GSM quadband mobile phone

Model Name: ONE TOUCH 991S

FCC ID: RAD256

IC ID: 9238A-0011

with

Hardware Version: PIO02

Software Version: vF1J_AWS

Issued Date: May 10, 2012



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:welcome@emcite.com. www.emcite.com

CONTENTS

CONTENTS	2
1. TEST LABORATORY	3
1.1. TESTING LOCATION	3
1.2. TESTING ENVIRONMENT.....	3
1.3. PROJECT DATA	3
1.4. SIGNATURE	3
2. CLIENT INFORMATION.....	4
2.1. APPLICANT INFORMATION	4
2.2. MANUFACTURER INFORMATION	4
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	5
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
4. REFERENCE DOCUMENTS	7
4.1. DOCUMENTS SUPPLIED BY APPLICANT	7
4.2. REFERENCE DOCUMENTS FOR TESTING.....	7
5. LABORATORY ENVIRONMENT	8
6. SUMMARY OF TEST RESULTS	9
6.1. SUMMARY OF TEST RESULTS	9
6.2. STATEMENTS.....	9
7. TEST EQUIPMENTS UTILIZED	10
ANNEX A: MEASUREMENT RESULTS.....	11
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)	73
A.7. 20dB BANDWIDTH.....	83
A.8. CARRIER FREQUENCY SEPARATION	89
A.9. NUMBER OF HOPPING CHANNELS.....	91
A.10. AC POWERLINE CONDUCTED EMISSION	95
A.11. RECEIVER RADIATION EMISSION.....	101

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

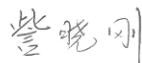
1.2. Testing Environment

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: 2012-04-01
Testing End Date: 2012-05-10

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	HSUPA/HSDPA/UMTS triband / GSM quadband mobile phone
Model Name	ONE TOUCH 991S
FCC ID	RAD256
IC	9238A-0011
Frequency Band	ISM 2400MHz~2483.5MHz
Type of Modulation	GFSK/π/4 DQPSK/8DPSK
Number of Channels	79
Power Supply	3.7V DC by Battery

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
N04	013112000020600	PIO02	vF1J_AWS
N05	013112000020626	PIO02	vF1J_AWS

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	Battery	
AE2	Battery	
AE3	Charger	
AE4	Charger	
AE5	Charger	
AE6	Charger	

AE1

Model	CAB32A0000C2
Manufacturer	SCUD
Capacitance	1500mAh
Nominal Voltage	3.7V

AE2

Model	CAB32A0000C1
Manufacturer	BYD
Capacitance	1500mAh
Nominal Voltage	3.7V

AE3

Model	CBA3002AG0C1
Manufacturer	BYD
Length of DC line	120cm

AE4

Model	CBA3001AG0C1
Manufacturer	BYD
Length of DC line	120cm

AE5

Model	CBA3001AG0C2
Manufacturer	Tenpao
Length of DC line	120cm

AE6

Model	CBA3000AG0C1
Manufacturer	Tenpao
Length of DC line	120cm

*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 HSUPA/HSDPA/UMTS triband / GSM quadband 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 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, 10, 2009 Edition
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009
FCC Public Notice DA 00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems	March 2000
RSS - Gen Issue3	Spectrum Management and Telecommunications - Radio Standards Specification	2010-12
RSS -210 Issue8	General Requirements and Information for the Certification of Radiocommunication Equipment Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment	2010-12

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

SUMMARY OF MEASUREMENT RESULTS	Sub-clause		Verdict
Peak Output Power - Conducted	15.247 (b)(1)	RSS-210 A8.4 (2)	P
Frequency Band Edges	15.247 (d)	RSS-210 A8.5	P
Conducted Emission	15.247 (d)	RSS-210 A8.5	P
Radiated Emission	15.247, 15.205, 15.209	RSS-210 A8.5	P
Time of Occupancy (Dwell Time)	15.247 (a) (1)(iii)	RSS-210 A8.1 (d)	P
20dB Bandwidth	15.247 (a)(1)	RSS-210 A8.1 (a) RSS-Gen 4.6.3	P
Carrier Frequency Separation	15.247 (a)(1)	RSS-210 A8.1 (b)	P
Number of hopping channels	15.247 (a)(b)(iii)	RSS-210 A8.1 (d)	P
AC Powerline Conducted Emission	15.107, 15.207	RSS-Gen 7.2.2	P
Receiver Radiation Emission	FCC: CFR Part 15.109, 2.1053		P

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	2013-08-06
2	Bluetooth Tester	CBT32	100649	Rohde & Schwarz	2013-09-12

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2013-06-06
2	EMI Antenna	VULB 9163	9163 301	Schwarzbeck	2013-07-12
3	EMI Antenna	3117	00034610	EMCO	2013-07-05
4	Dual-Ridge Waveguide Horn Antenna	3116	2663	EMCO	2013-07-10
5	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2013-07-05
6	Universal Radio Communication Tester	CMU200	105948	Rohde & Schwarz	2013-07-20
7	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2013-03-18
8	Pre-amplifier(18GHz)	/	1005277	Rohde & Schwarz	/
9	Pre-amplifier(26.5GHz)	/	1005277	Rohde & Schwarz	/

Anechoic chamber

Fully anechoic chamber by Frankonia German.

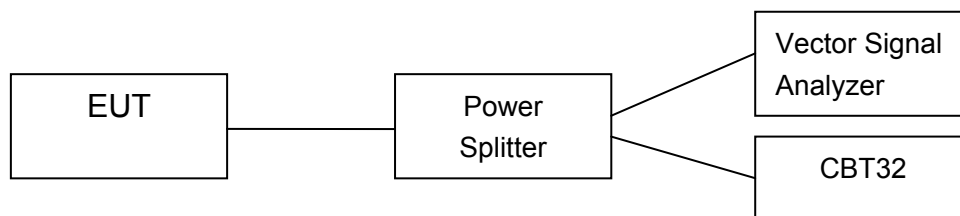
ANNEX A: MEASUREMENT RESULTS

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

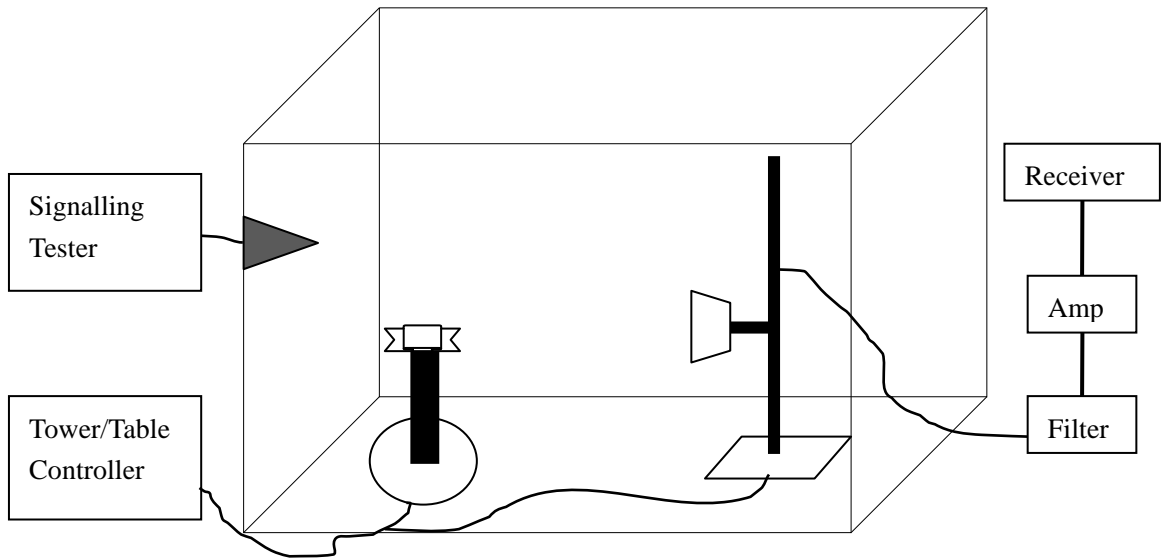
The measurement is made according to Public notice DA 00-705 and ANSI C63.4

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)	7.62	7.16	8.30	P

For $\pi/4$ DQPSK

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	6.76	6.33	7.58	P

For 8DPSK

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	8.38	7.73	8.95	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	-56.55	P
	Hopping ON	Fig.2	-58.37	P
78	Hopping OFF	Fig.3	-60.35	P
	Hopping ON	Fig.4	-61.78	P

For $\pi/4$ DQPSK

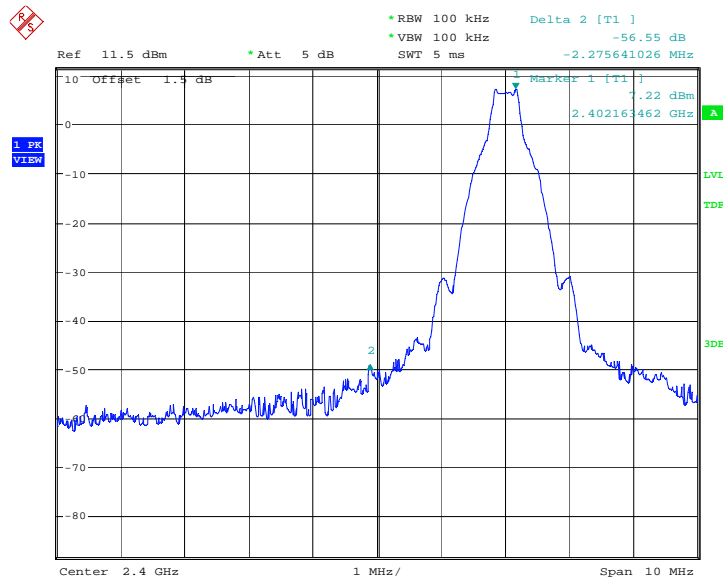
Channel	Hopping	Band Edge Power (dBc)		Conclusion
0	Hopping OFF	Fig.5	-57.96	P
	Hopping ON	Fig.6	-58.04	P
78	Hopping OFF	Fig.7	-61.49	P
	Hopping ON	Fig.8	-58.47	P

For 8DPSK

Channel	Hopping	Band Edge Power (dBc)		Conclusion
0	Hopping OFF	Fig.9	-57.60	P
	Hopping ON	Fig.10	-55.11	P
78	Hopping OFF	Fig.11	-59.65	P
	Hopping ON	Fig.12	-56.00	P

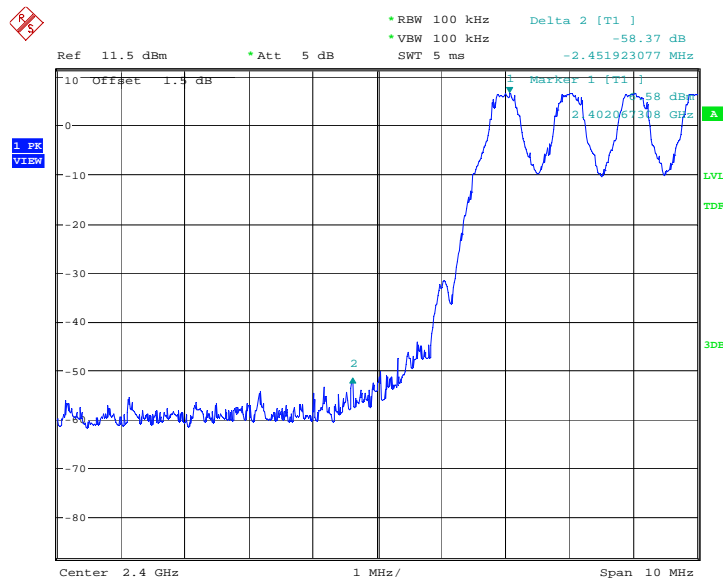
Conclusion: PASS

Test graphs as below



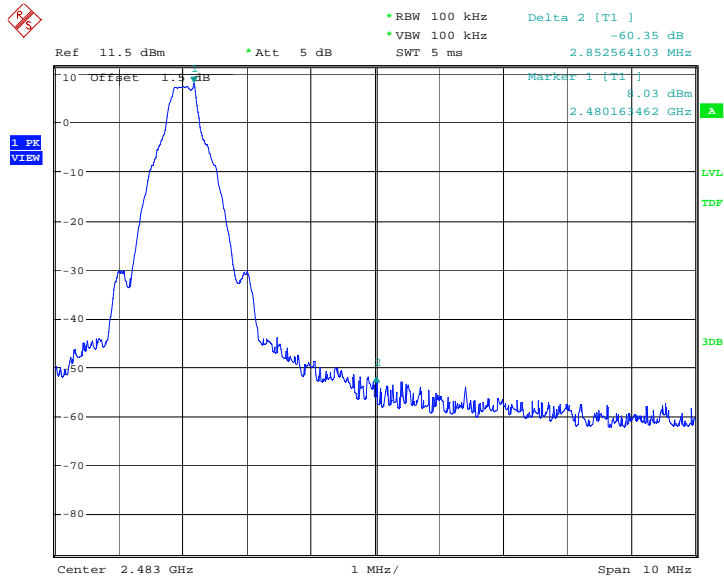
Date: 7.MAR.2012 00:36:11

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



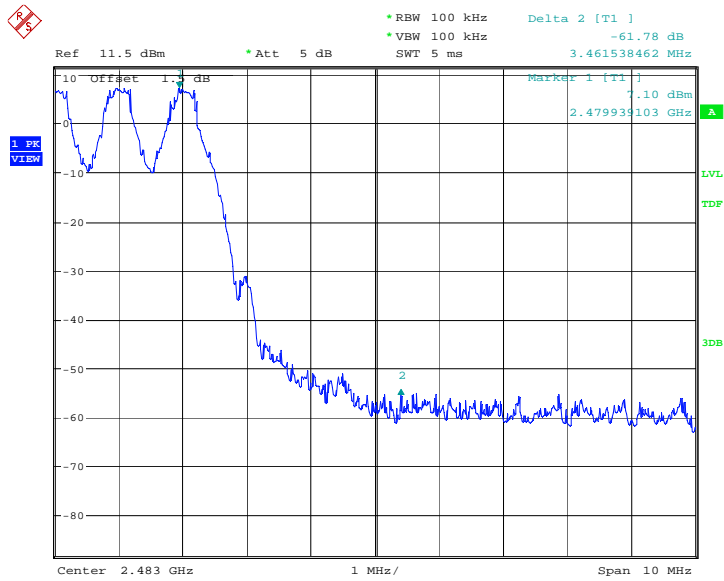
Date: 7.MAR.2012 00:38:31

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



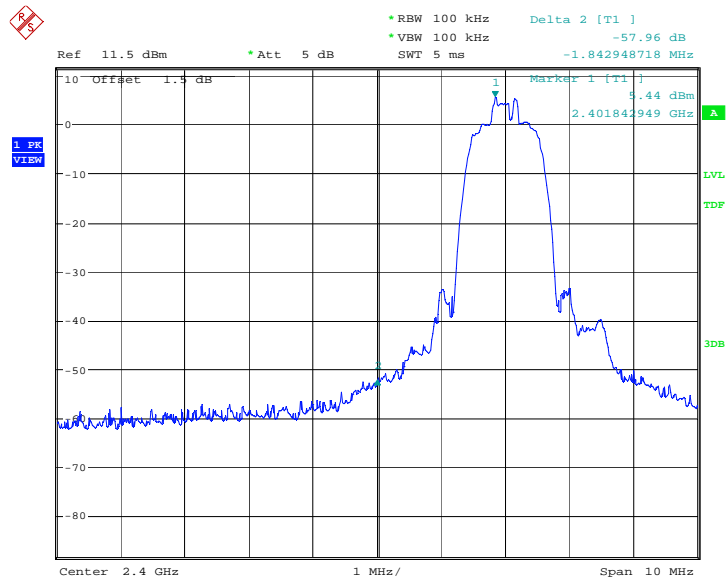
Date: 7.MAR.2012 00:36:28

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



Date: 7.MAR.2012 00:40:33

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



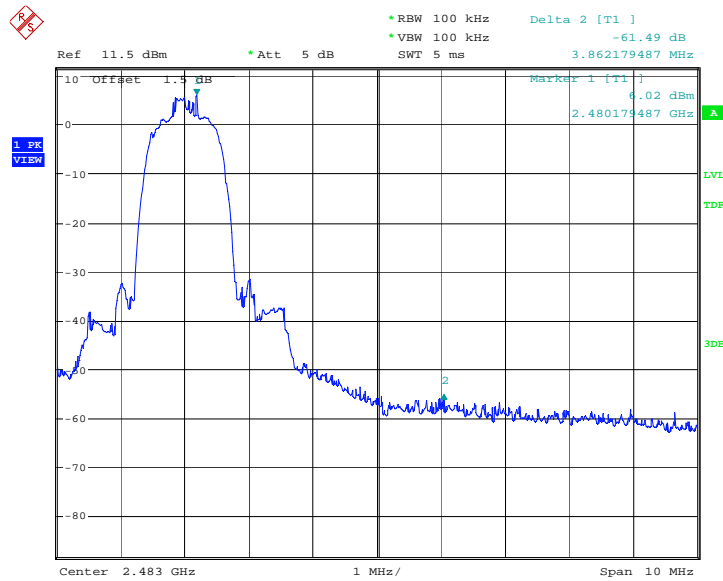
Date: 7.MAR.2012 00:58:17

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



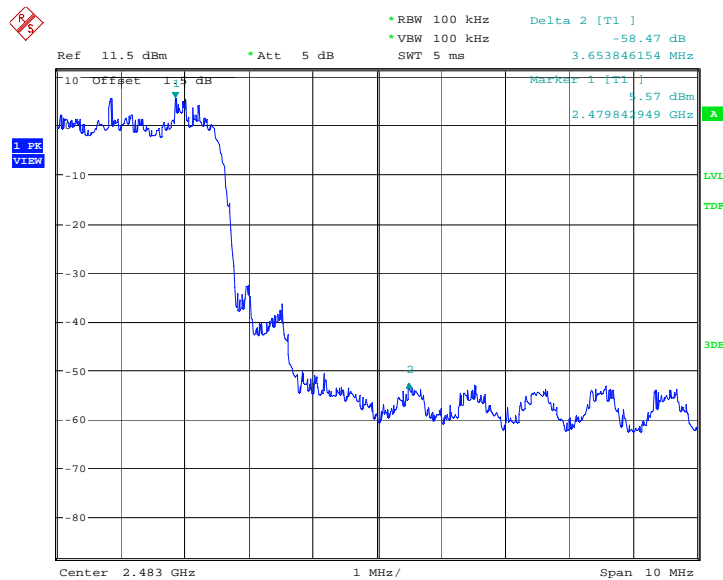
Date: 7.MAR.2012 01:00:36

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



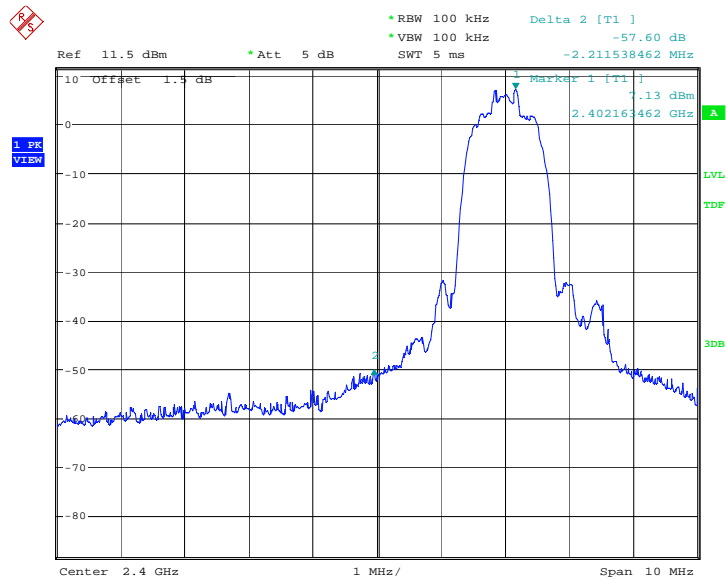
Date: 7.MAR.2012 00:58:34

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



Date: 7.MAR.2012 01:02:39

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



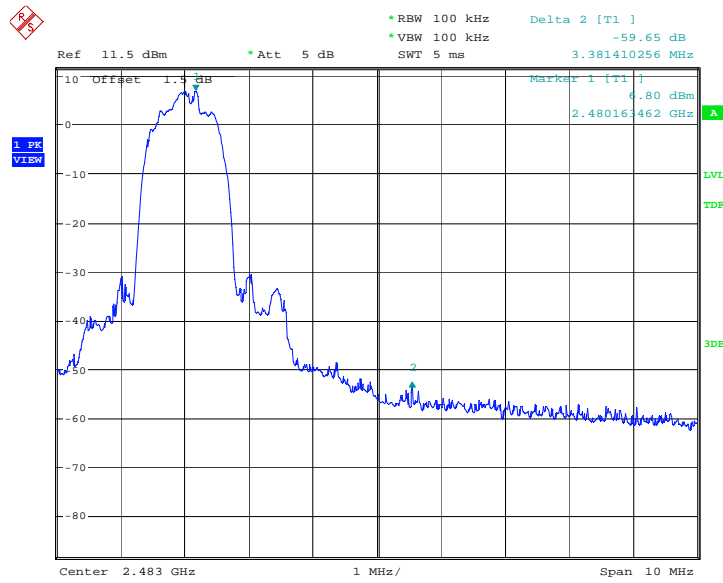
Date: 7.MAR.2012 01:20:26

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



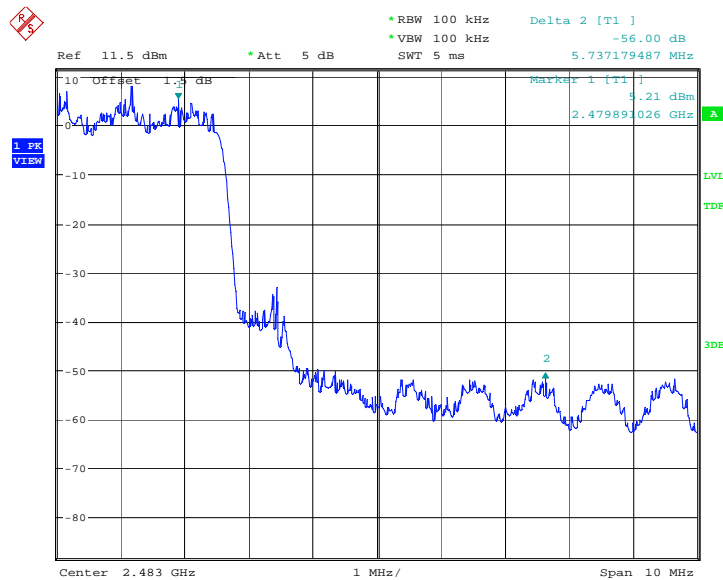
Date: 7.MAR.2012 01:22:46

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



Date: 7.MAR.2012 01:20:43

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



Date: 7.MAR.2012 01:24:48

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

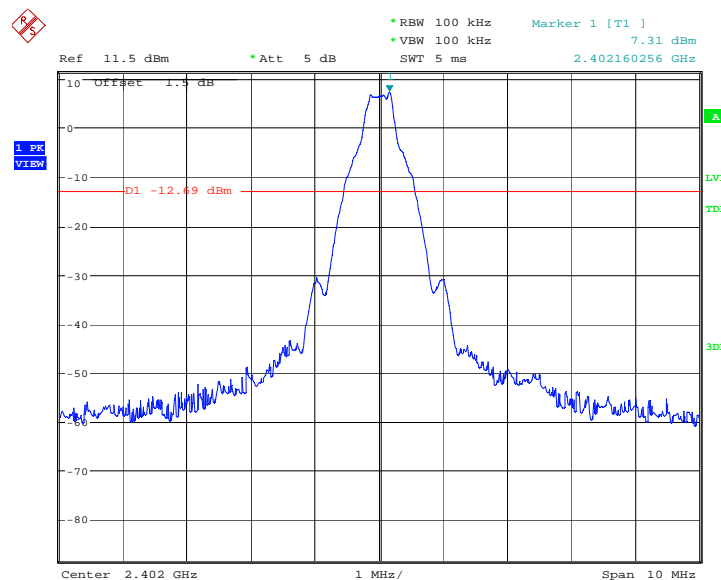
	1 GHz ~ 3 GHz	Fig.40	P
	3 GHz ~ 10 GHz	Fig.41	P
	10 GHz ~ 26 GHz	Fig.42	P

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

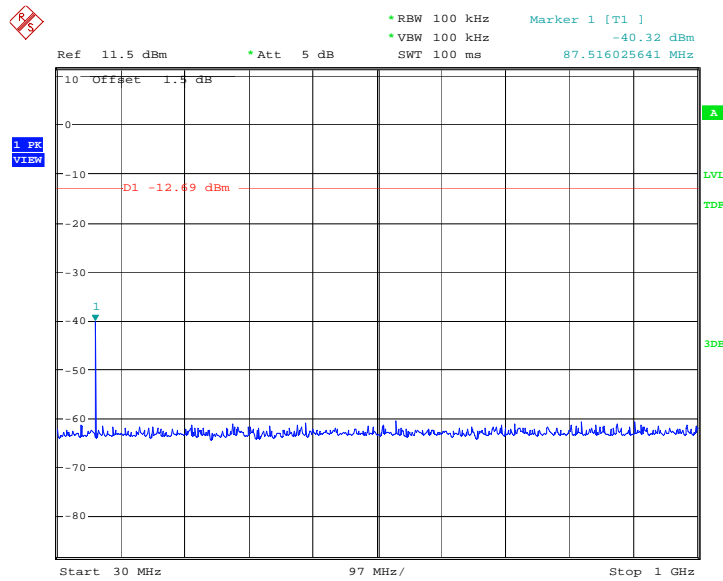
Conclusion: PASS

Test graphs as below



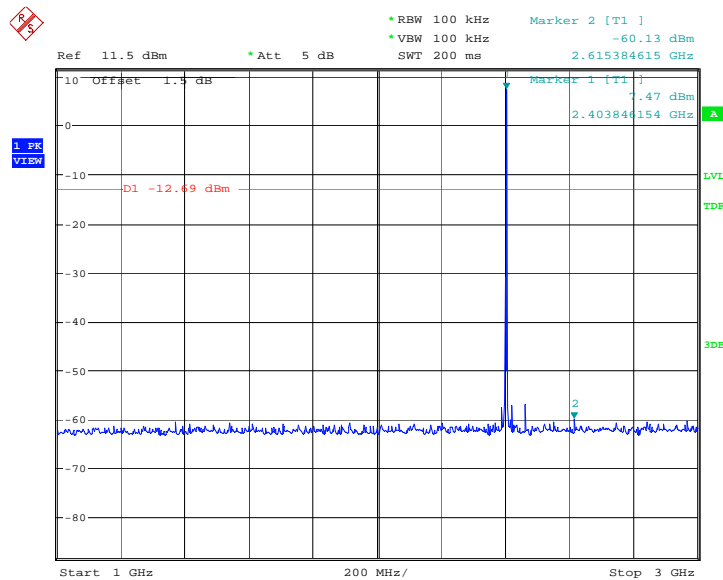
Date: 7.MAR.2012 00:40:52

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



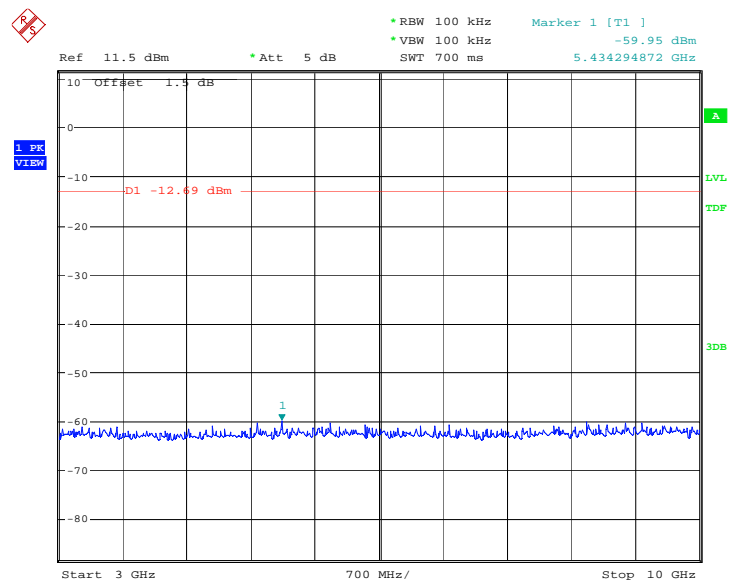
Date: 7.MAR.2012 00:41:09

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



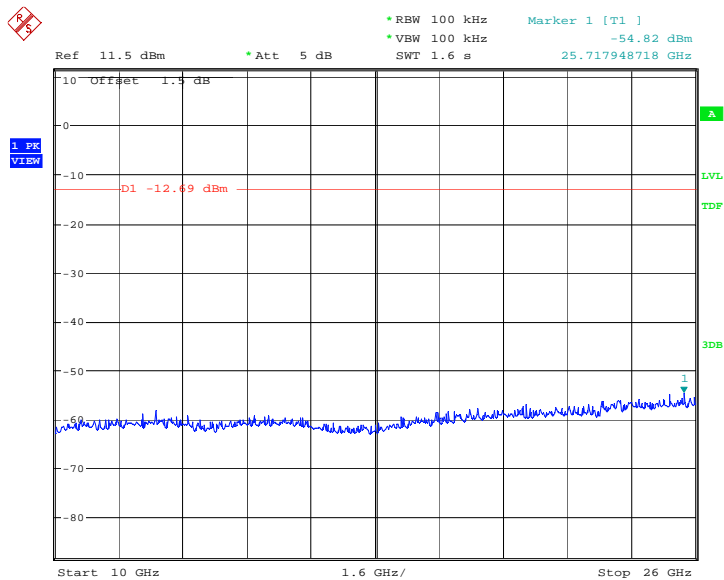
Date: 7.MAR.2012 00:41:40

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



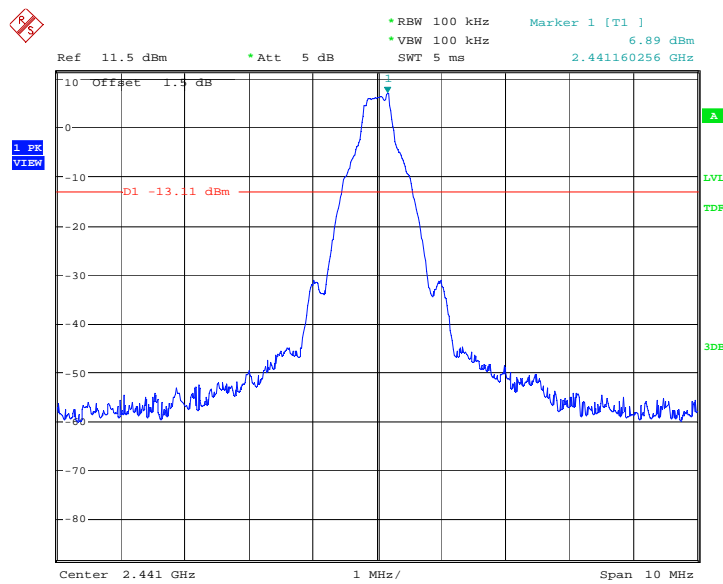
Date: 7.MAR.2012 00:41:57

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



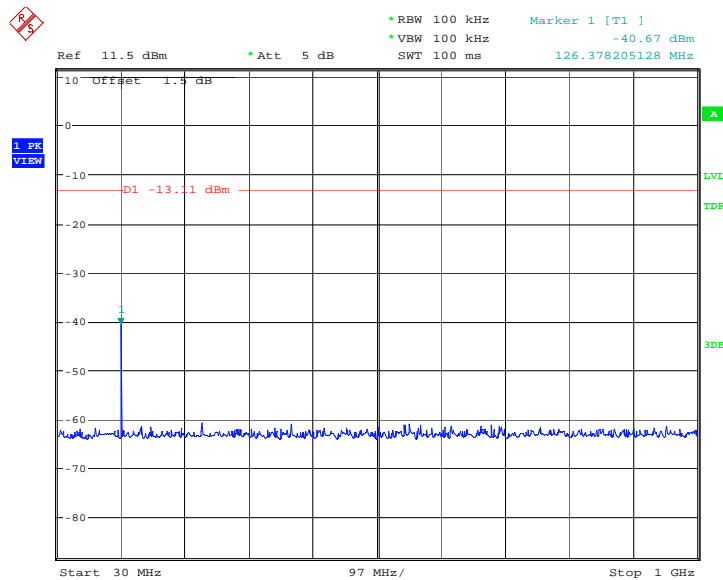
Date: 7.MAR.2012 00:42:14

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



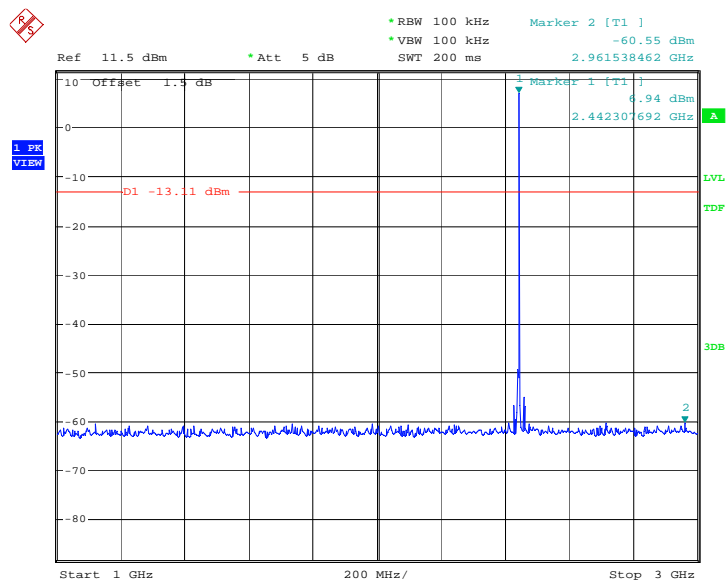
Date: 7.MAR.2012 00:42:30

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



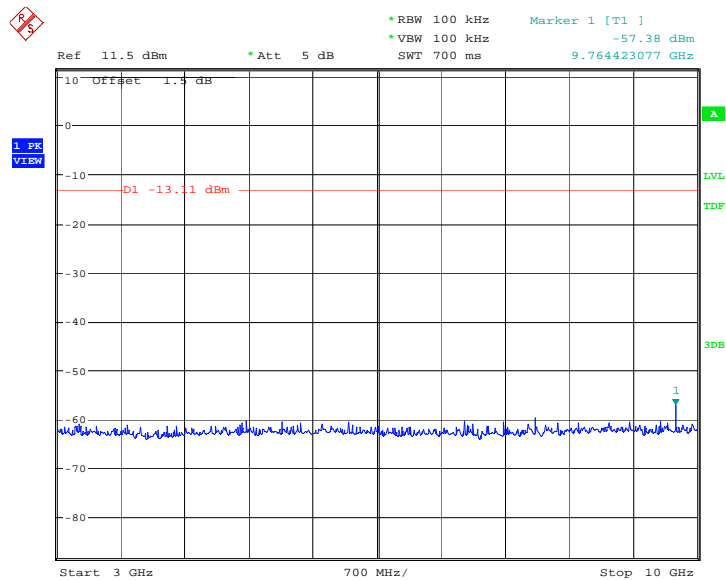
Date: 7.MAR.2012 00:42:47

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



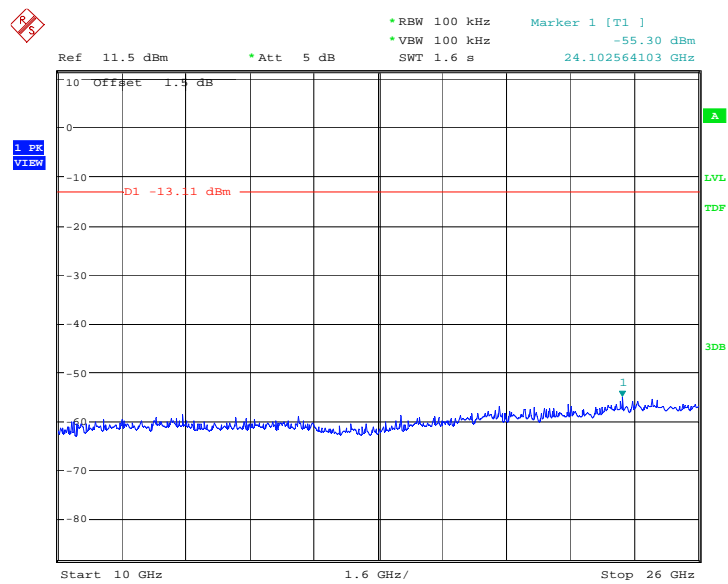
Date: 7.MAR.2012 00:43:18

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



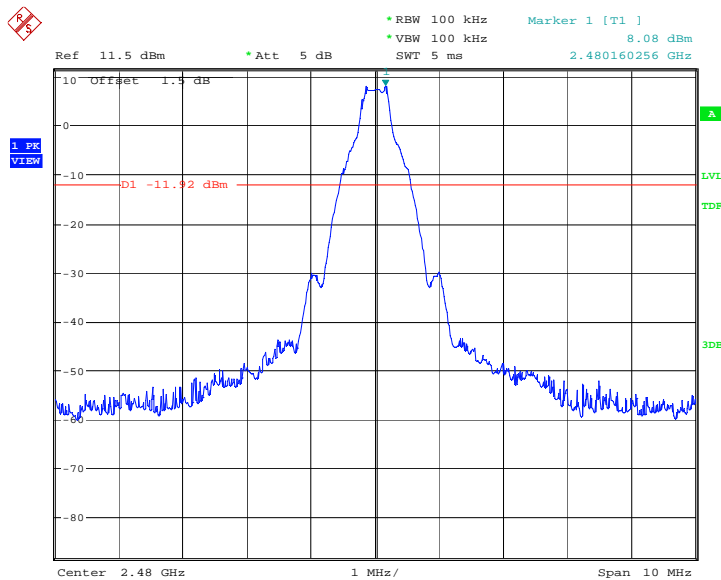
Date: 7.MAR.2012 00:43:34

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



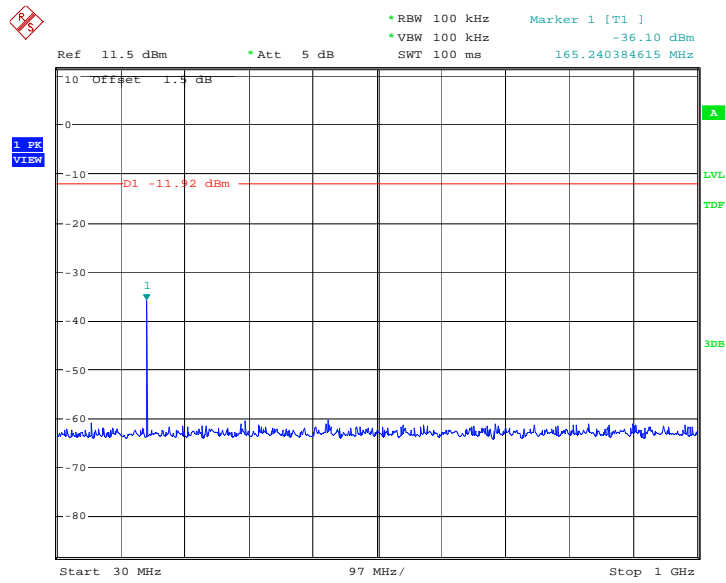
Date: 7.MAR.2012 00:43:50

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



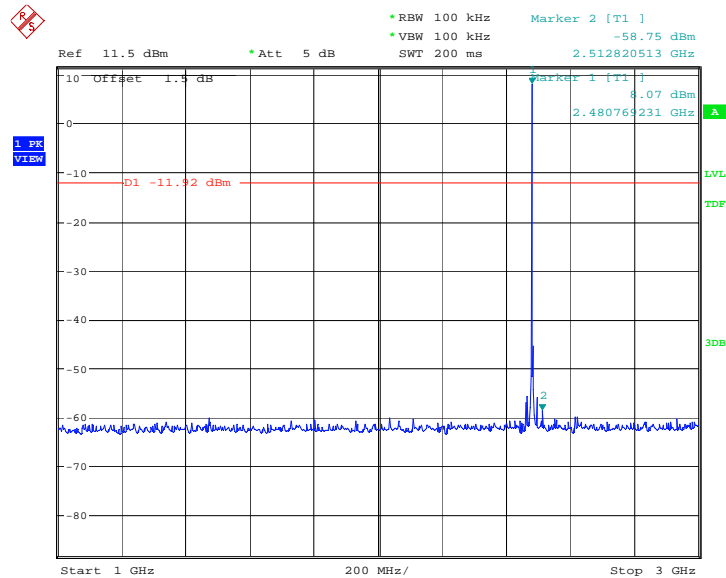
Date: 7.MAR.2012 00:44:06

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



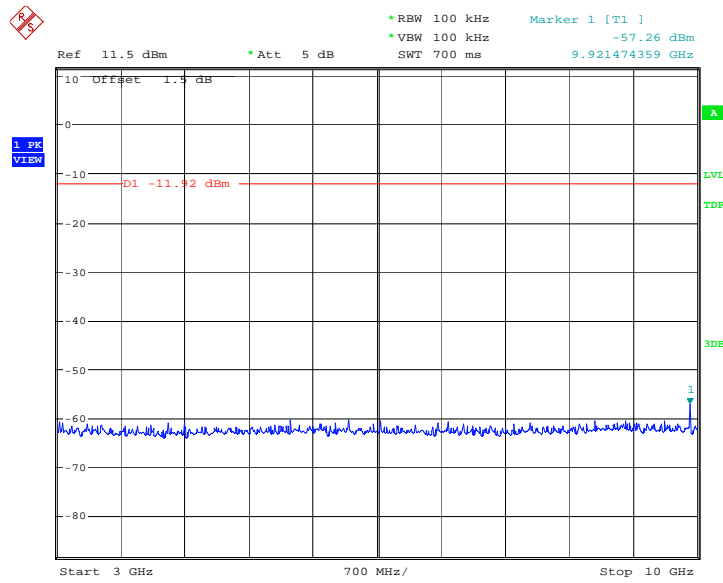
Date: 7.MAR.2012 00:44:22

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



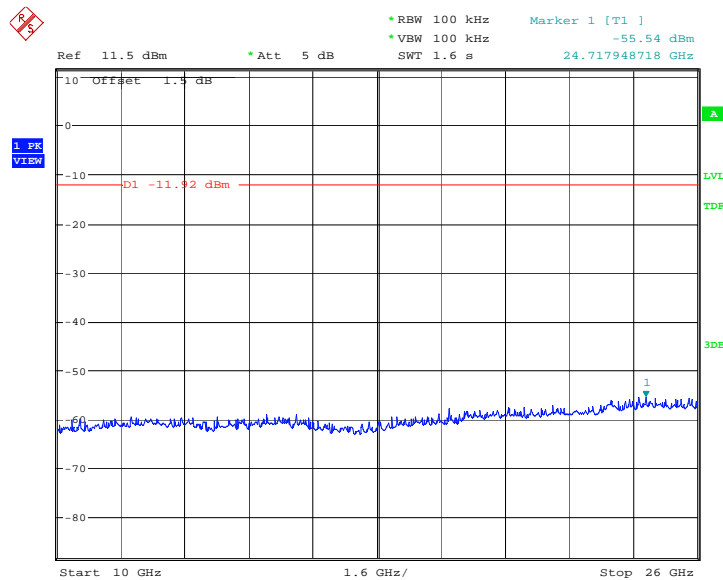
Date: 7.MAR.2012 00:44:54

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



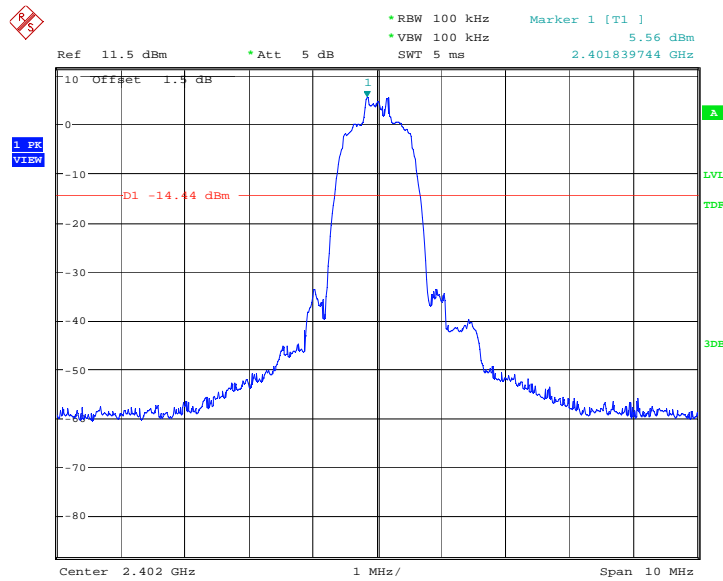
Date: 7.MAR.2012 00:45:10

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



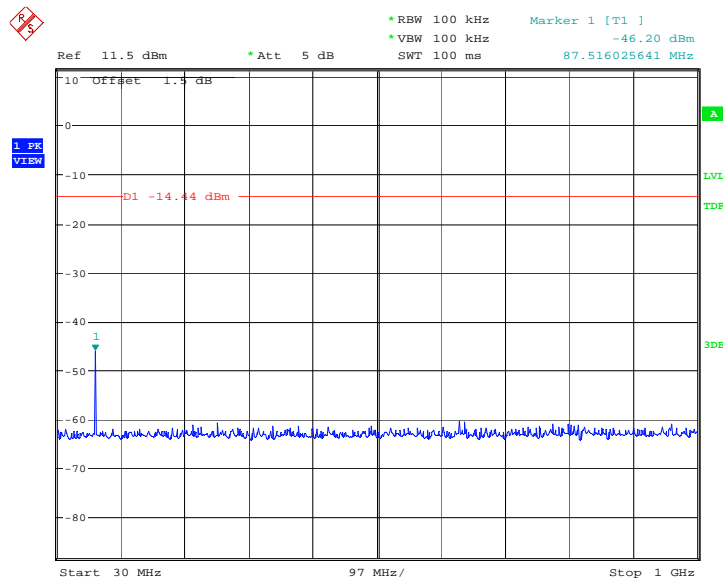
Date: 7.MAR.2012 00:45:26

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



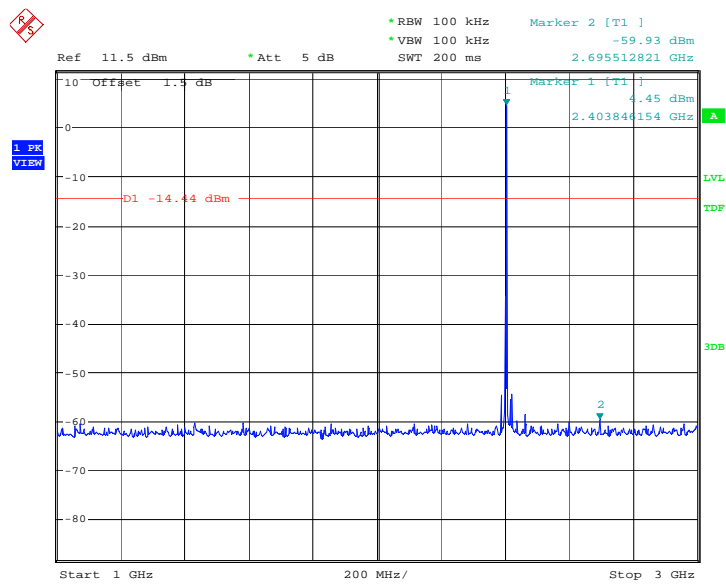
Date: 7.MAR.2012 01:02:58

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



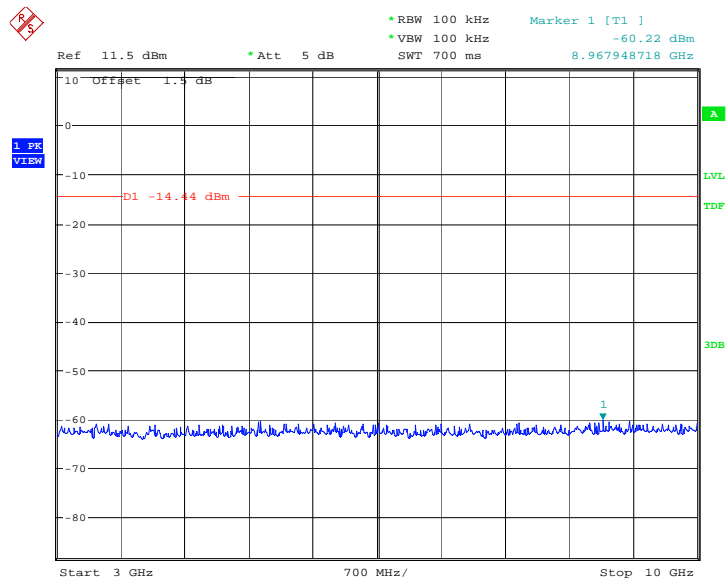
Date: 7.MAR.2012 01:03:15

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



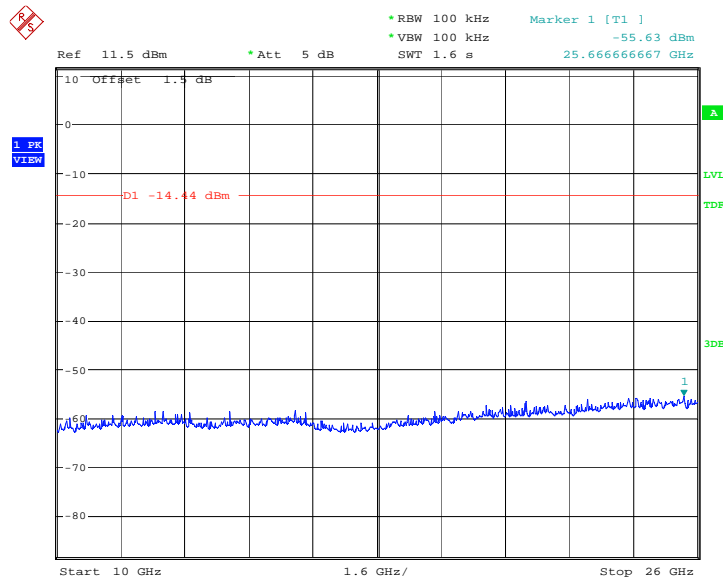
Date: 7.MAR.2012 01:03:46

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



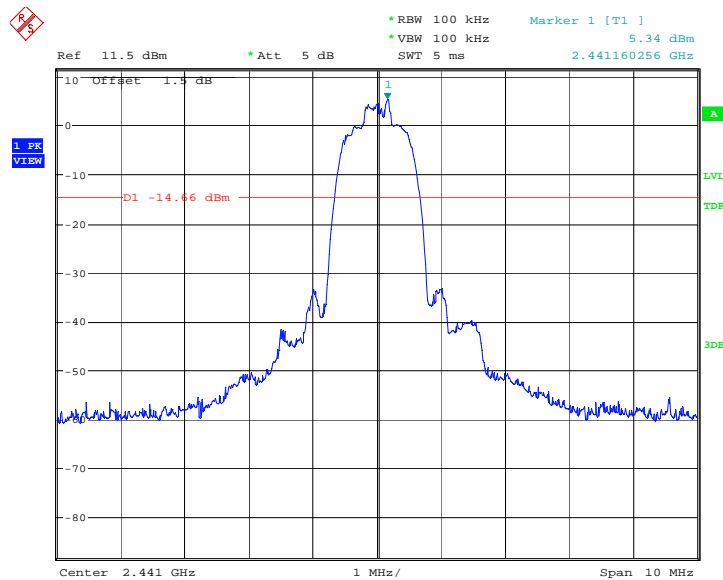
Date: 7.MAR.2012 01:04:03

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



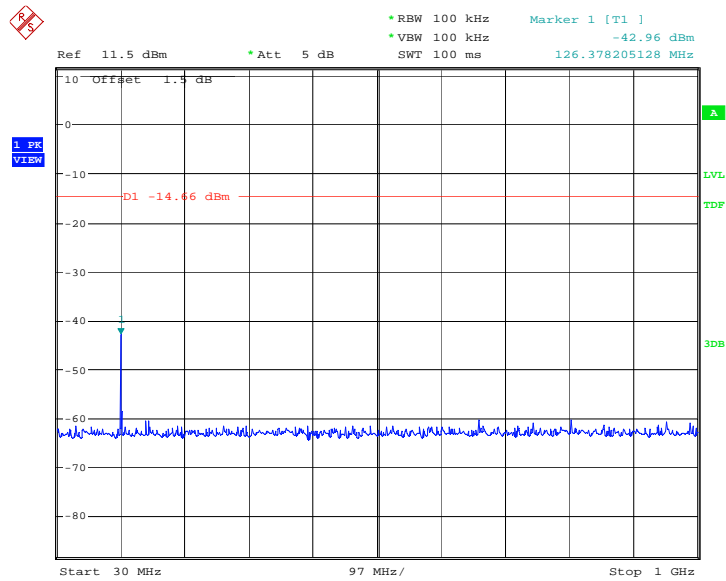
Date: 7.MAR.2012 01:04:20

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



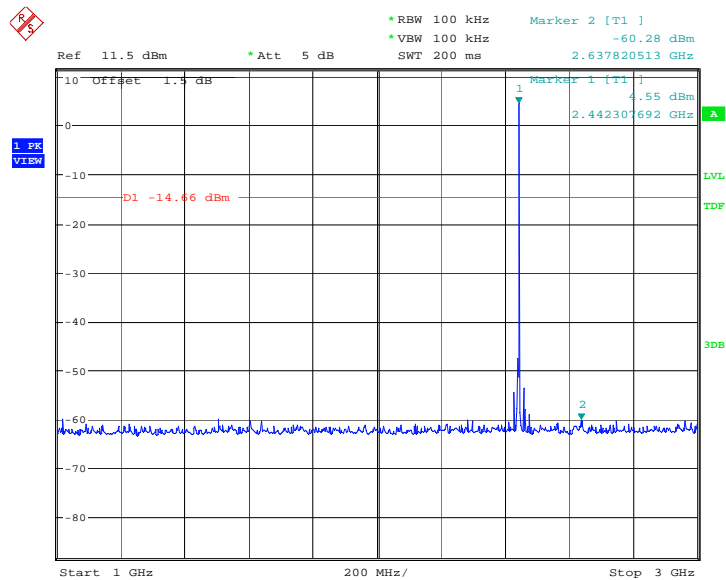
Date: 7.MAR.2012 01:04:36

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



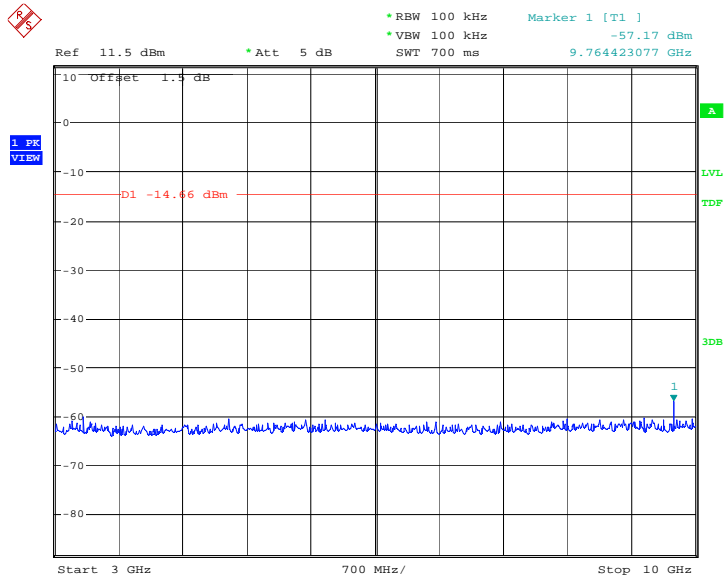
Date: 7.MAR.2012 01:04:53

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



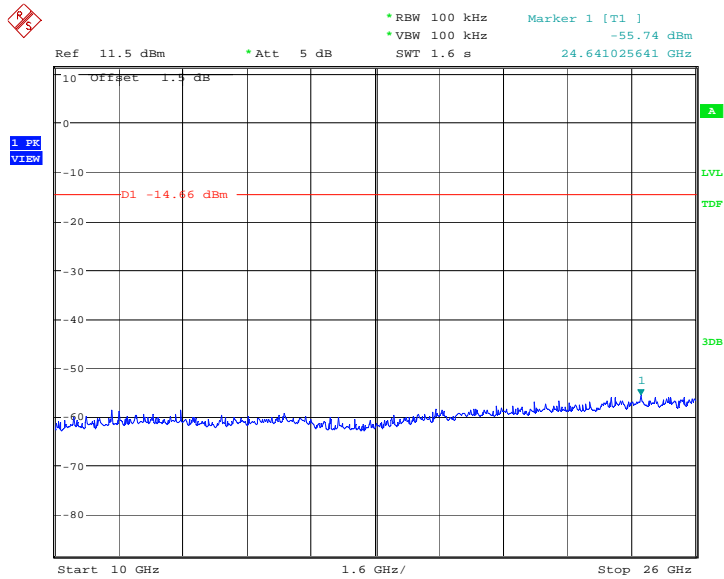
Date: 7.MAR.2012 01:05:25

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



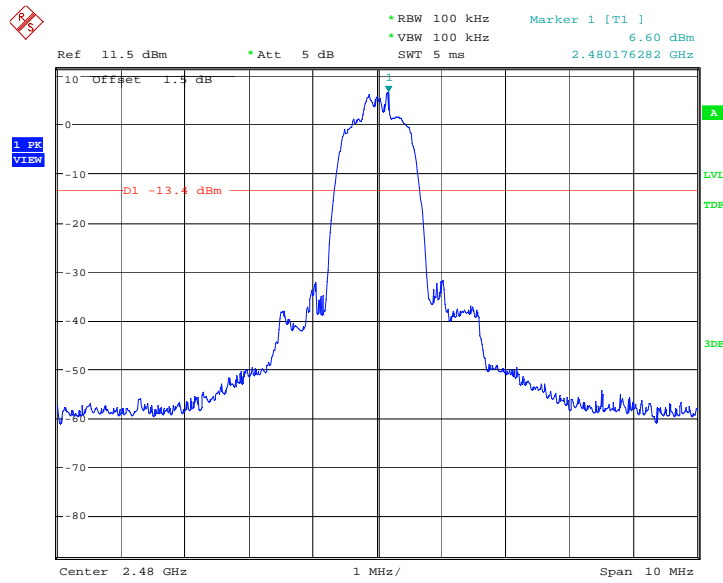
Date: 7.MAR.2012 01:05:41

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



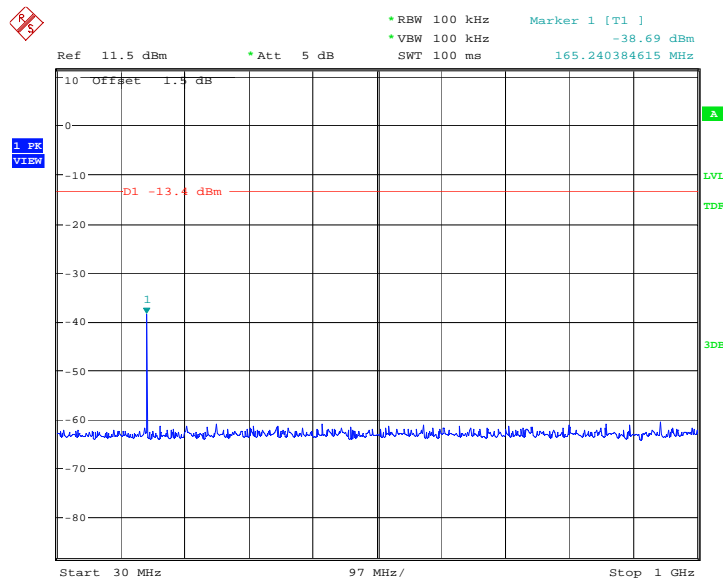
Date: 7.MAR.2012 01:05:58

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



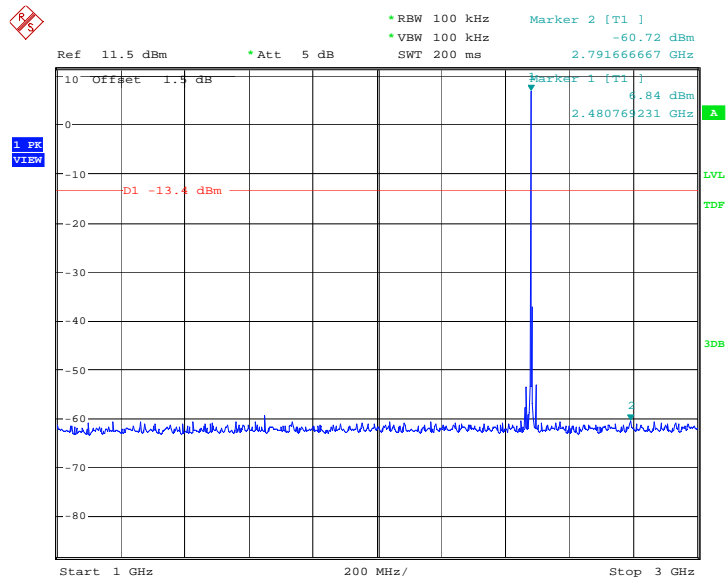
Date: 7.MAR.2012 01:06:14

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



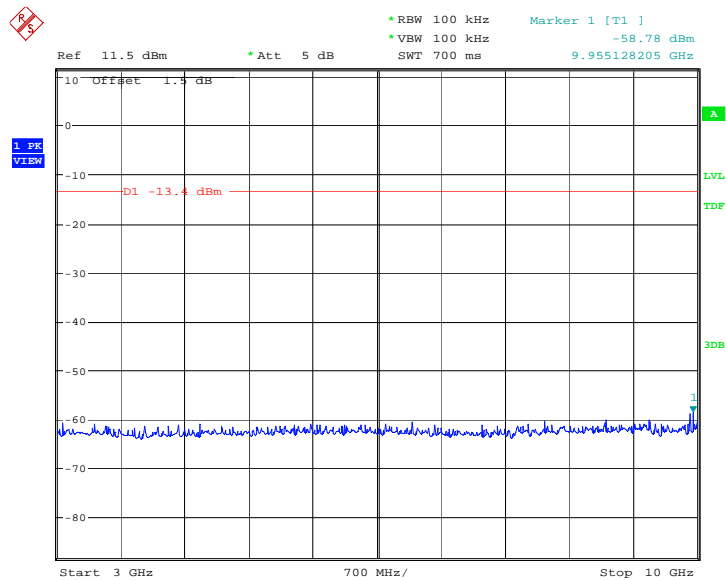
Date: 7.MAR.2012 01:06:31

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



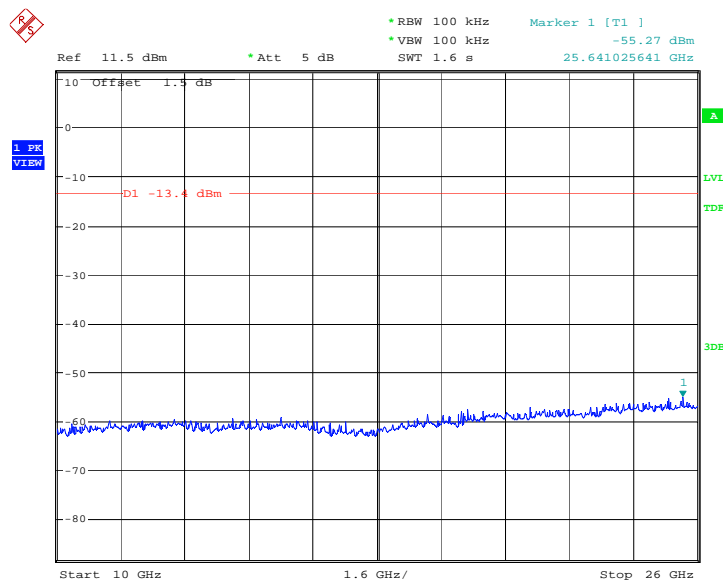
Date: 7.MAR.2012 01:07:03

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



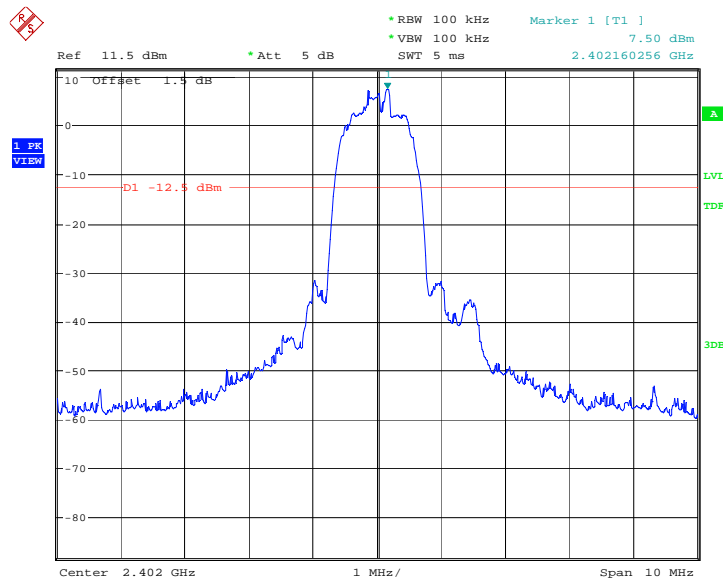
Date: 7.MAR.2012 01:07:19

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



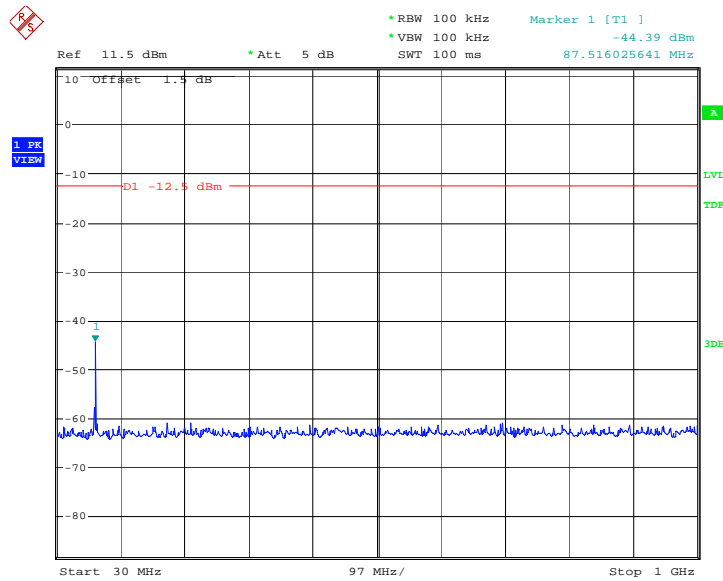
Date: 7.MAR.2012 01:07:36

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



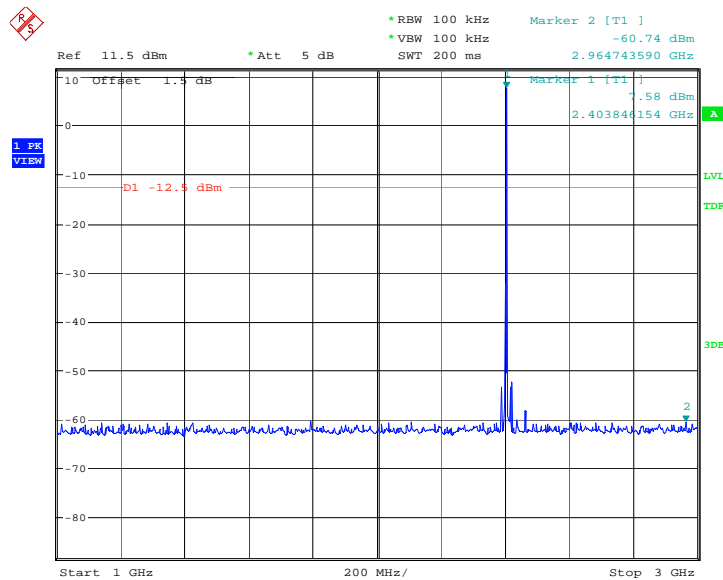
Date: 7.MAR.2012 01:25:07

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



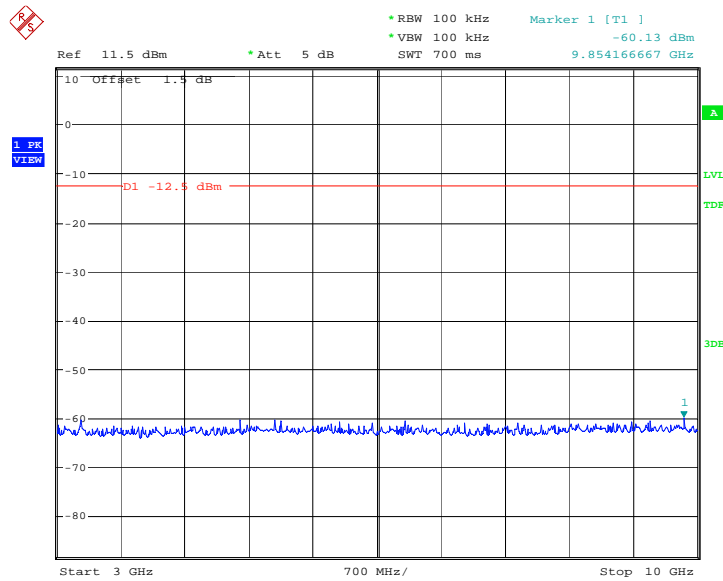
Date: 7.MAR.2012 01:25:23

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



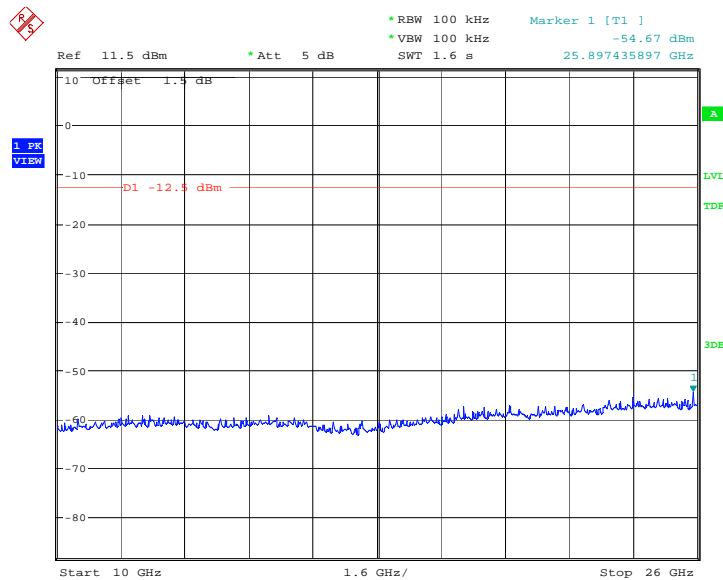
Date: 7.MAR.2012 01:25:55

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



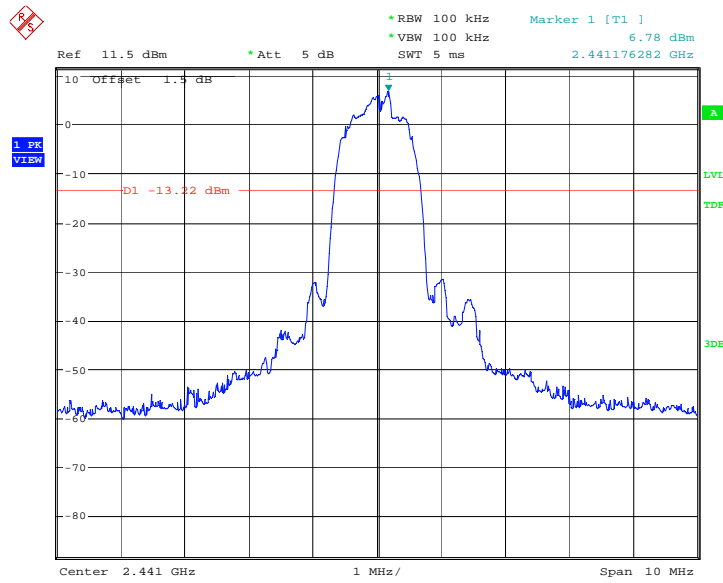
Date: 7.MAR.2012 01:26:12

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



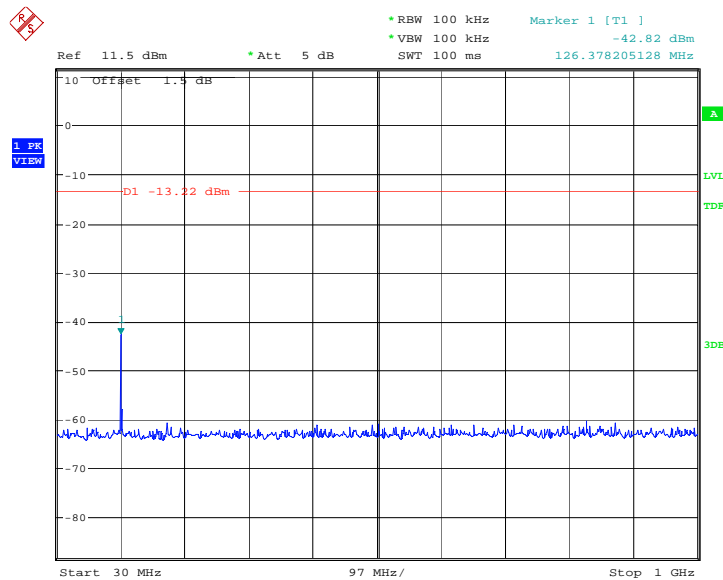
Date: 7.MAR.2012 01:26:28

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



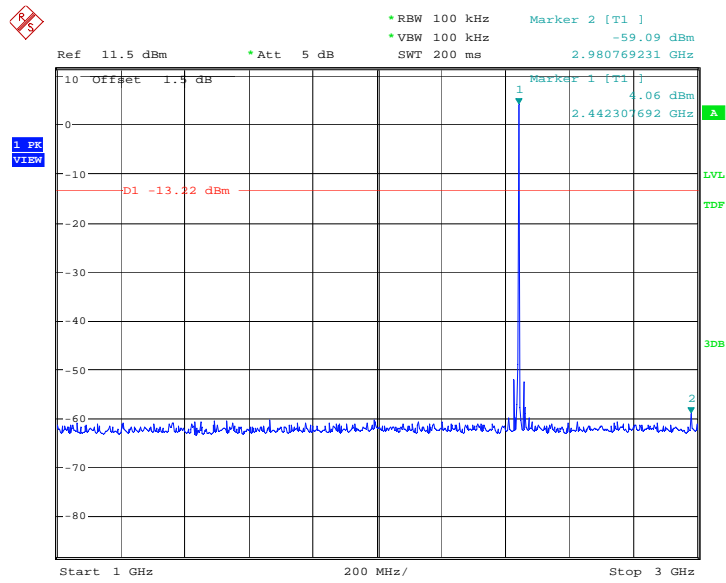
Date: 7.MAR.2012 01:26:45

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



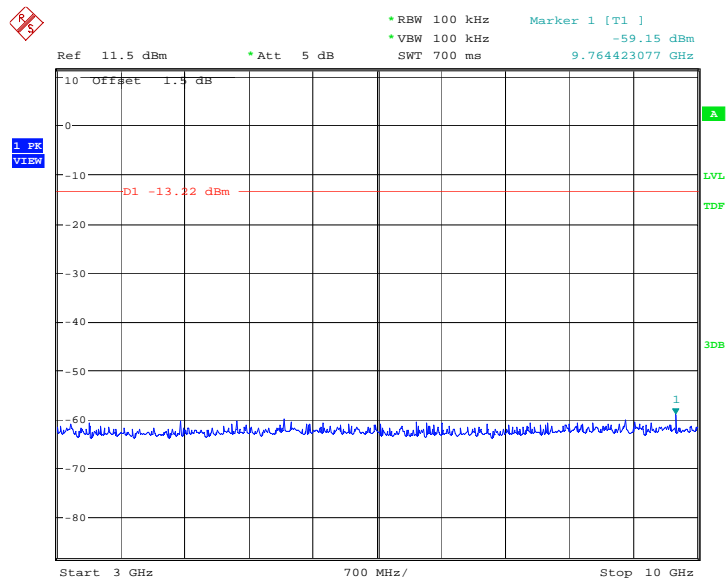
Date: 7.MAR.2012 01:27:02

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



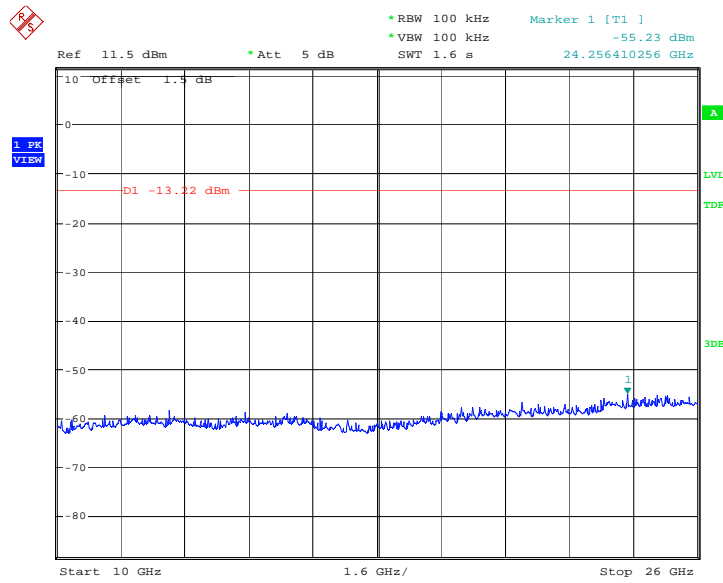
Date: 7.MAR.2012 01:27:33

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



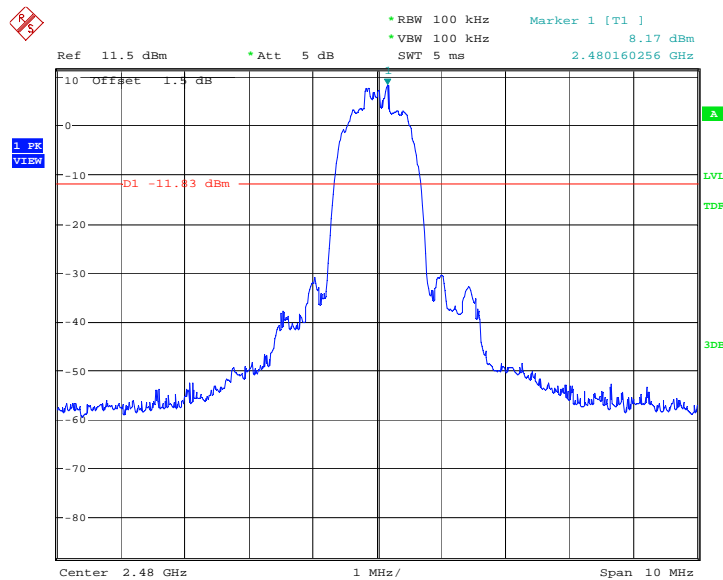
Date: 7.MAR.2012 01:27:50

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



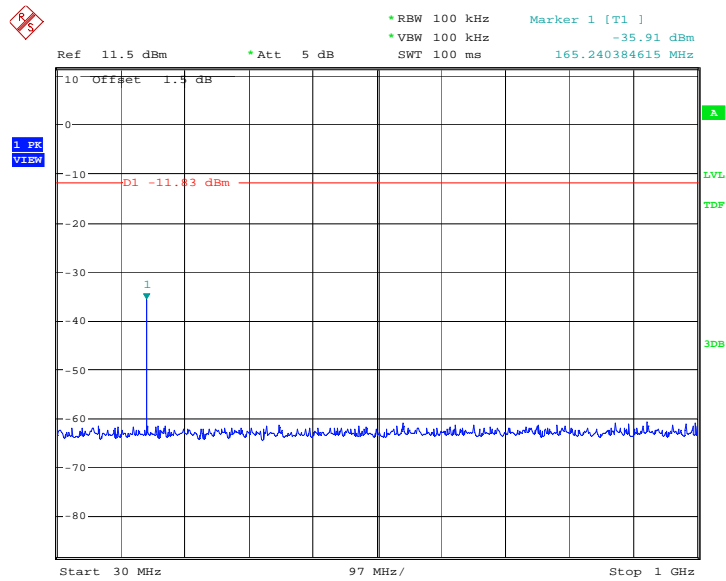
Date: 7.MAR.2012 01:28:06

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



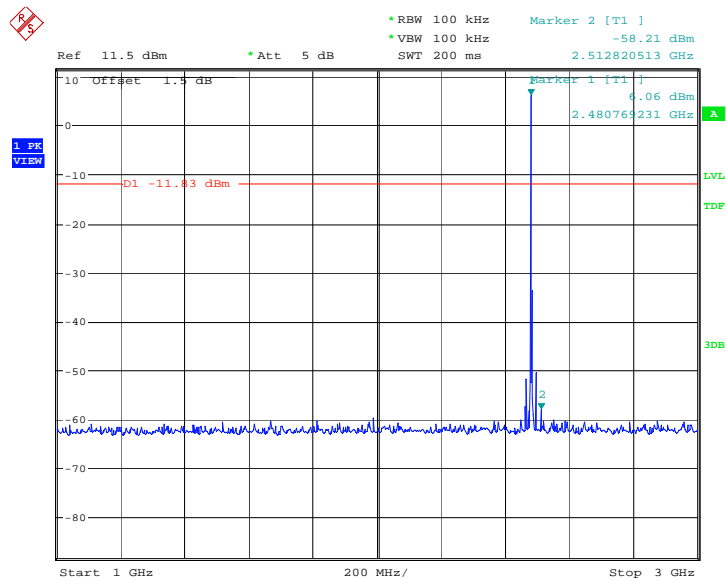
Date: 7.MAR.2012 01:28:23

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



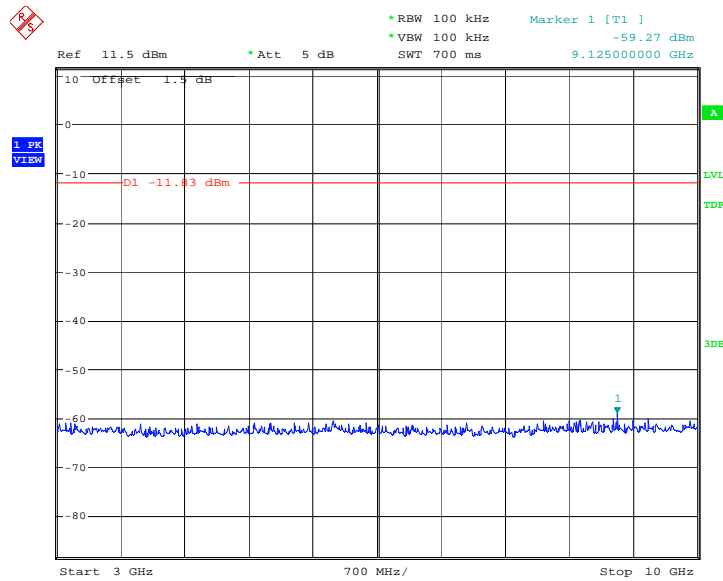
Date: 7.MAR.2012 01:28:40

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



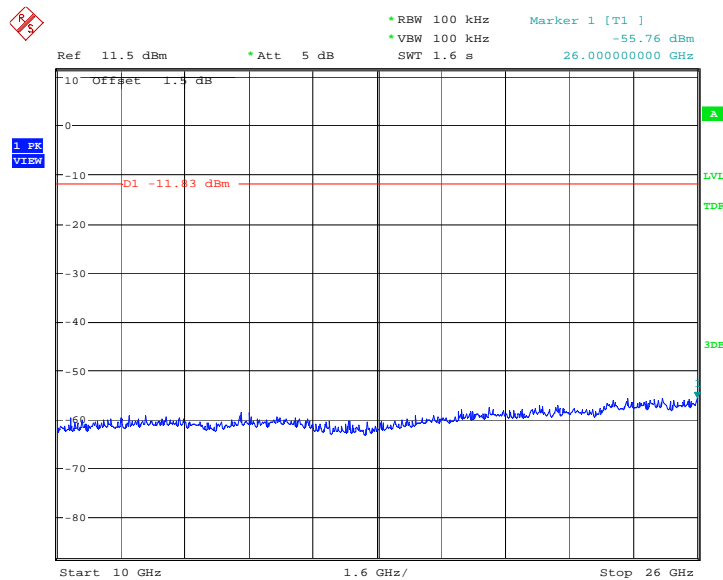
Date: 7.MAR.2012 01:29:11

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



Date: 7.MAR.2012 01:29:28

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



Date: 7.MAR.2012 01:29:44

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	Listed as follows
RSS-210 A8.5	

Frequency (MHz) Field strength	Field strength (microvolts/meter)	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

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)
0.009-30	100KHz/300KHz	5
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	9KHz~ 30MHz	Fig.58	P
	30 MHz ~ 1 GHz	Fig.59	P
	1 GHz ~ 4 GHz	Fig.60	P
	4 GHz ~ 18 GHz	Fig.61	P
Ch 39 2441 MHz	9KHz~ 30MHz	Fig.62	P
	30 MHz ~ 1 GHz	Fig.63	P
	1 GHz ~ 4 GHz	Fig.64	P
	4 GHz ~ 18 GHz	Fig.65	P
Ch 78 2480 MHz	9KHz~ 30MHz	Fig.66	P
	30 MHz ~ 1 GHz	Fig.67	P
	1 GHz ~ 4 GHz	Fig.68	P
	4 GHz ~ 18 GHz	Fig.69	P
Power	2.38GHz~2.4GHz---L	Fig.70	P
Power	2.45GHz~2.5GHz---H	Fig.71	P
For all channels	18 GHz ~ 26 GHz	Fig.72	P

For $\pi/4$ DQPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	9KHz~ 30MHz	Fig.73	
	30 MHz ~ 1 GHz	Fig.74	P
	1 GHz ~ 4 GHz	Fig.75	P
	4 GHz ~ 18 GHz	Fig.76	P
Ch 39 2441 MHz	9KHz~ 30MHz	Fig.77	
	30 MHz ~ 1 GHz	Fig.78	P
	1 GHz ~ 4 GHz	Fig.79	P
	4 GHz ~ 18 GHz	Fig.80	P
Ch 78 2480 MHz	9KHz~ 30MHz	Fig.81	
	30 MHz ~ 1 GHz	Fig.82	P
	1 GHz ~ 4 GHz	Fig.83	P
	4 GHz ~ 18 GHz	Fig.84	P
Power	2.38GHz~2.4GHz---L	Fig.85	P
Power	2.45GHz~2.5GHz---H	Fig.86	P
For all channels	18 GHz ~ 26 GHz	Fig.87	P

For 8DPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	9KHz~ 30MHz	Fig.88	P
	30 MHz ~ 1 GHz	Fig.89	P
	1 GHz ~ 4 GHz	Fig.90	P
	4 GHz ~ 18 GHz	Fig.91	P
Ch 39 2441 MHz	9KHz~ 30MHz	Fig.92	P
	30 MHz ~ 1 GHz	Fig.93	P
	1 GHz ~ 4 GHz	Fig.94	P
	4 GHz ~ 18 GHz	Fig.95	P
Ch 78 2480 MHz	9KHz~ 30MHz	Fig.96	P
	30 MHz ~ 1 GHz	Fig.97	P
	1 GHz ~ 4 GHz	Fig.98	P
	4 GHz ~ 18 GHz	Fig.99	P
Power	2.38GHz~2.4GHz---L	Fig.100	P
Power	2.45GHz~2.5GHz---H	Fig.101	P
For all channels	18 GHz ~ 26 GHz	Fig.102	P

GFSK Ch 0

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
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
3701.403	49.12	14.3	34.82	HORIZONTAL
3709.419	49.12	14.3	34.82	HORIZONTAL

GFSK Ch 39

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3713.427	49.17	14.5	34.67	HORIZONTAL
3699.399	49.13	14.2	34.93	HORIZONTAL
3701.403	49.12	14.3	34.82	HORIZONTAL
3711.423	49.10	14.5	34.60	HORIZONTAL
3705.411	49.07	14.3	34.77	HORIZONTAL
3707.415	49.05	14.3	34.75	HORIZONTAL

GFSK Ch 78

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3701.403	49.12	14.3	34.82	HORIZONTAL
3711.423	49.10	14.5	34.60	HORIZONTAL
3705.411	49.07	14.3	34.77	HORIZONTAL
3713.427	49.07	14.5	34.57	HORIZONTAL
3707.415	49.05	14.3	34.75	HORIZONTAL
3715.431	49.05	14.5	34.55	HORIZONTAL

$\pi/4$ DQPSK Ch 0

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3703.407	49.19	14.3	34.89	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
3711.423	49.10	14.5	34.60	HORIZONTAL
3705.411	49.07	14.3	34.77	HORIZONTAL

$\pi/4$ DQPSK Ch 39

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3709.419	49.12	14.3	34.82	HORIZONTAL
3711.423	49.10	14.5	34.60	HORIZONTAL
3703.407	49.09	14.3	34.79	HORIZONTAL
3705.411	49.07	14.3	34.77	HORIZONTAL
3713.427	49.07	14.5	34.57	HORIZONTAL
3707.415	49.05	14.3	34.75	HORIZONTAL

$\pi/4$ DQPSK Ch 78

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3701.403	41.64	14.3	27.34	HORIZONTAL
3711.423	41.60	14.5	27.10	HORIZONTAL
3699.399	41.58	14.2	27.38	HORIZONTAL
3697.395	41.56	14.2	27.36	HORIZONTAL
3695.391	41.54	14.2	27.34	HORIZONTAL
3703.407	41.54	14.3	27.24	HORIZONTAL

8DPSK Ch 0

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3713.427	49.17	14.5	34.67	HORIZONTAL
3701.403	49.12	14.3	34.82	HORIZONTAL
3709.419	49.12	14.3	34.82	HORIZONTAL
3711.423	49.10	14.5	34.60	HORIZONTAL
3703.407	49.09	14.3	34.79	HORIZONTAL
3705.411	49.07	14.3	34.77	HORIZONTAL

8DPSK Ch 39

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3699.399	49.13	14.2	34.93	HORIZONTAL
3709.419	49.12	14.3	34.82	HORIZONTAL
3711.423	49.10	14.5	34.60	HORIZONTAL
3703.407	49.09	14.3	34.79	HORIZONTAL
3705.411	49.07	14.3	34.77	HORIZONTAL
3713.427	49.07	14.5	34.57	HORIZONTAL

8DPSK Ch 78

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3709.419	49.12	14.3	34.82	HORIZONTAL
3711.423	49.10	14.5	34.60	HORIZONTAL
3695.391	49.09	14.2	34.89	HORIZONTAL
3703.407	49.09	14.3	34.79	HORIZONTAL
3705.411	49.07	14.3	34.77	HORIZONTAL
3713.427	49.07	14.5	34.57	HORIZONTAL

Conclusion: PASS

Test graphs as below:

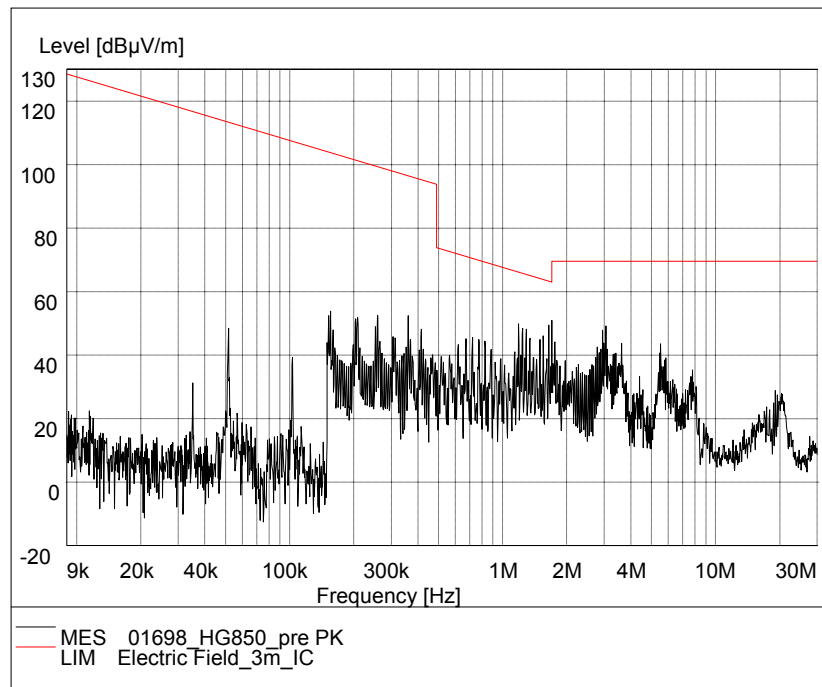


Fig.58. Radiated emission: GFSK, Channel 0, 9 KHz – 30MHz

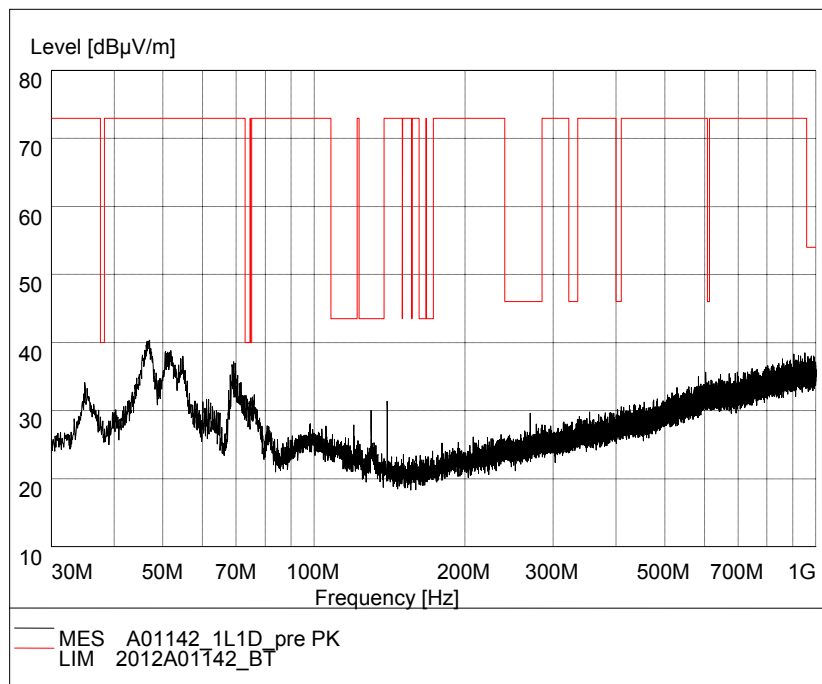


Fig.59. Radiated emission: GFSK, Channel 0, 30 MHz - 1 GHz

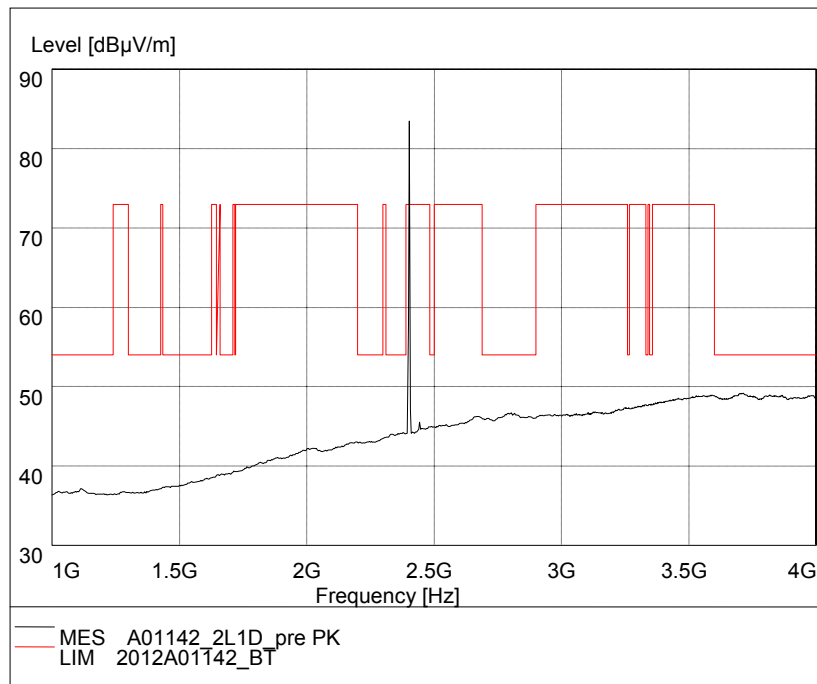


Fig.60. Radiated emission: GFSK, Channel 0, 1 GHz - 4 GHz

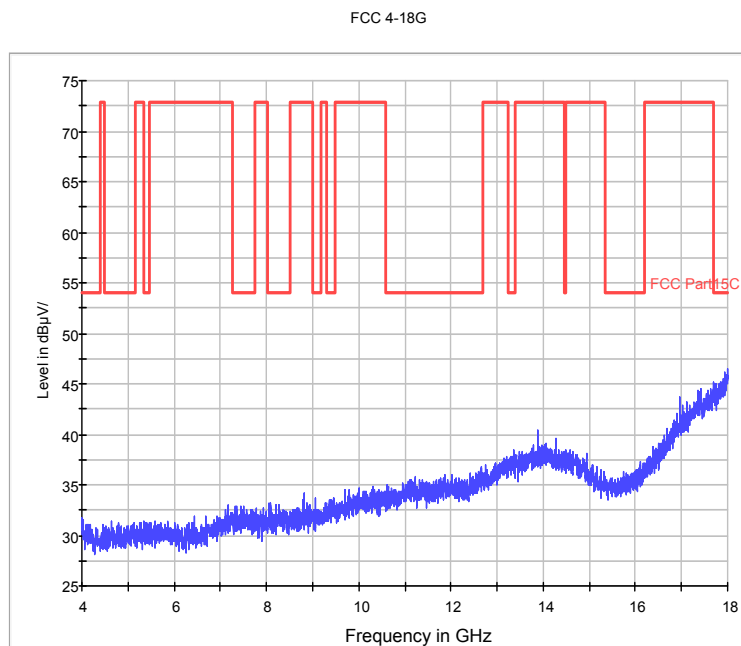


Fig.61. Radiated emission: GFSK, Channel 0, 4 GHz - 18 GHz

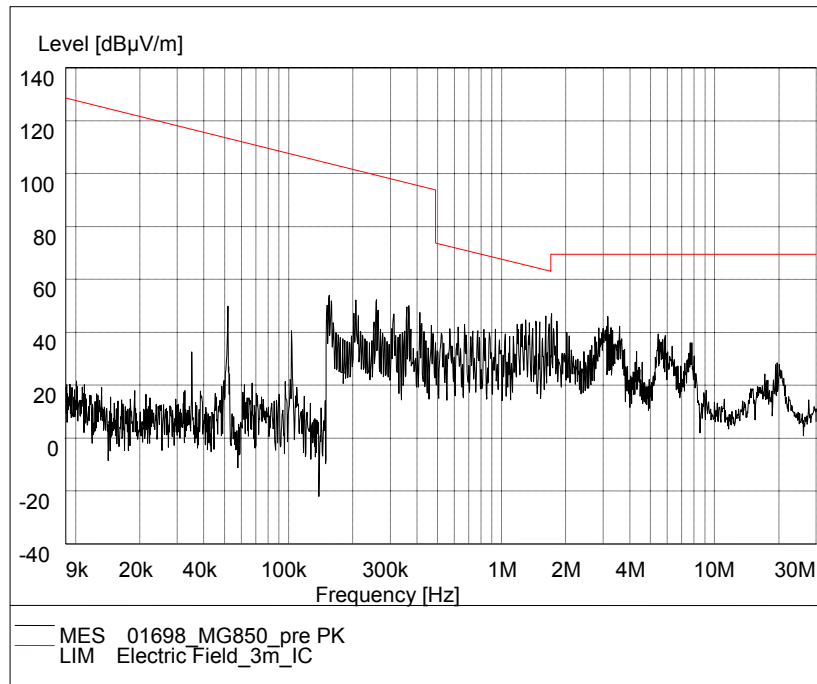


Fig.62. Radiated emission: GFSK, Channel 39, 9 KHz – 30MHz

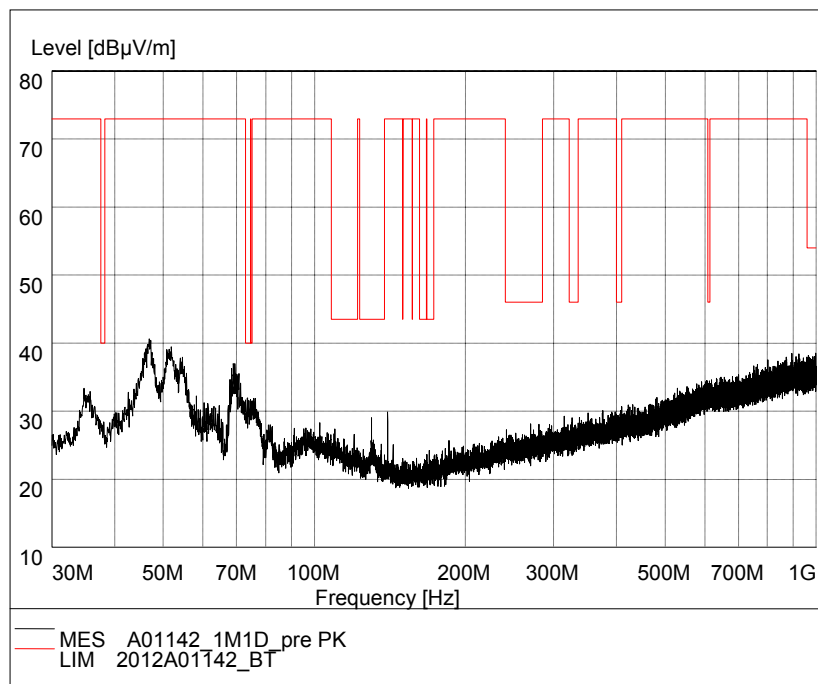


Fig.63. Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

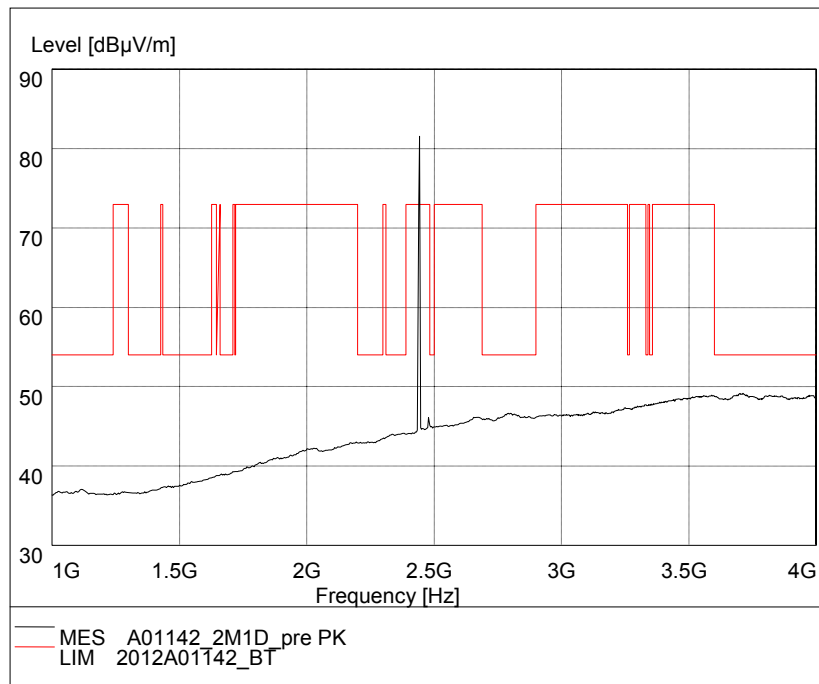


Fig.64. Radiated emission: GFSK, Channel 39, 1 GHz - 4 GHz

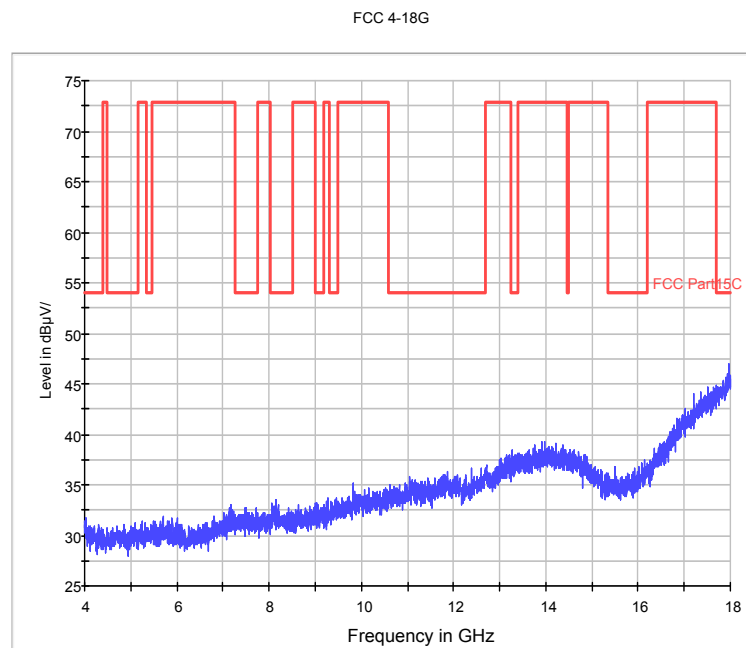


Fig.65. Radiated emission: GFSK, Channel 39, 4 GHz - 18 GHz

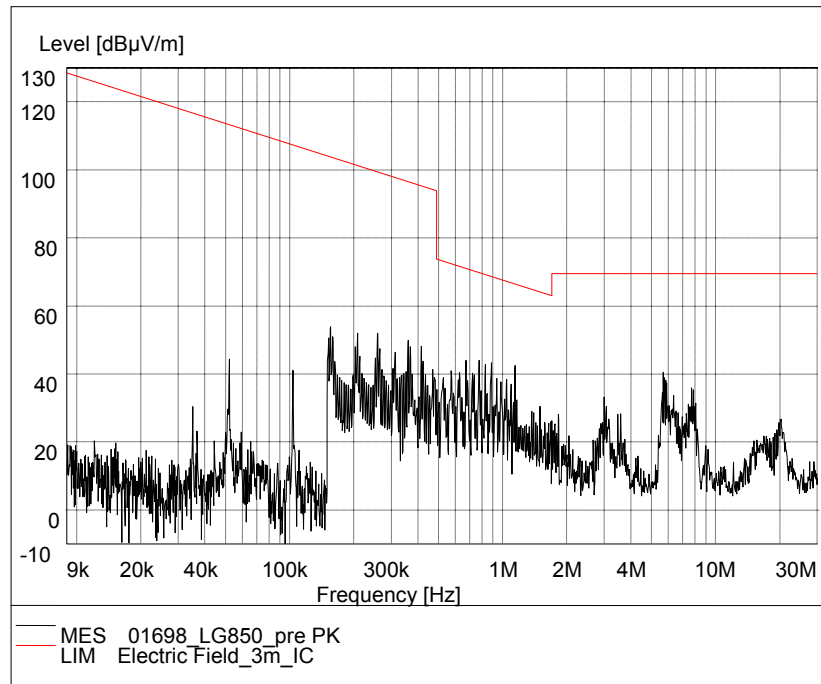


Fig.66. Radiated emission: GFSK, Channel 78, 9 KHz – 30MHz

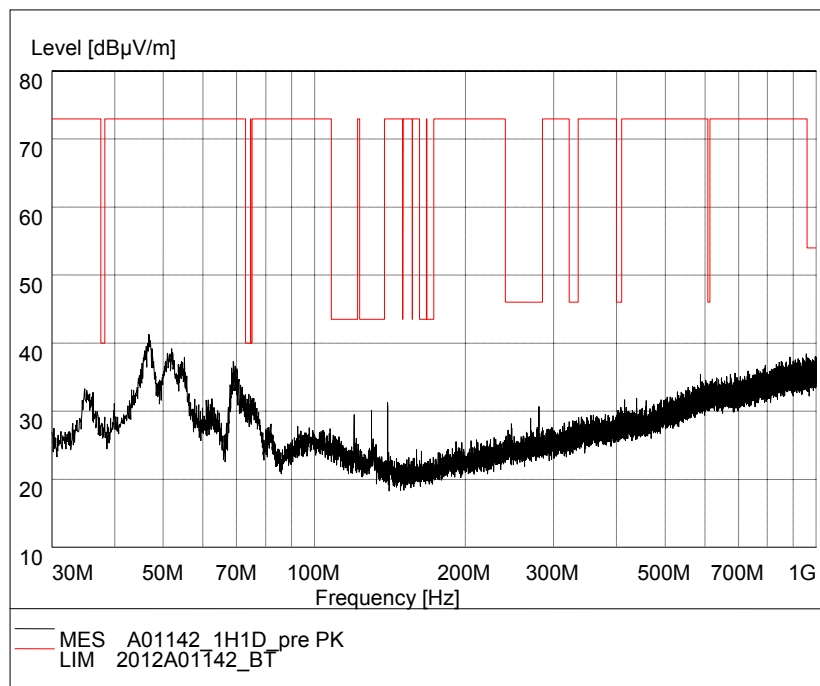


Fig.67. Radiated emission: GFSK, Channel 78, 30 MHz - 1 GHz

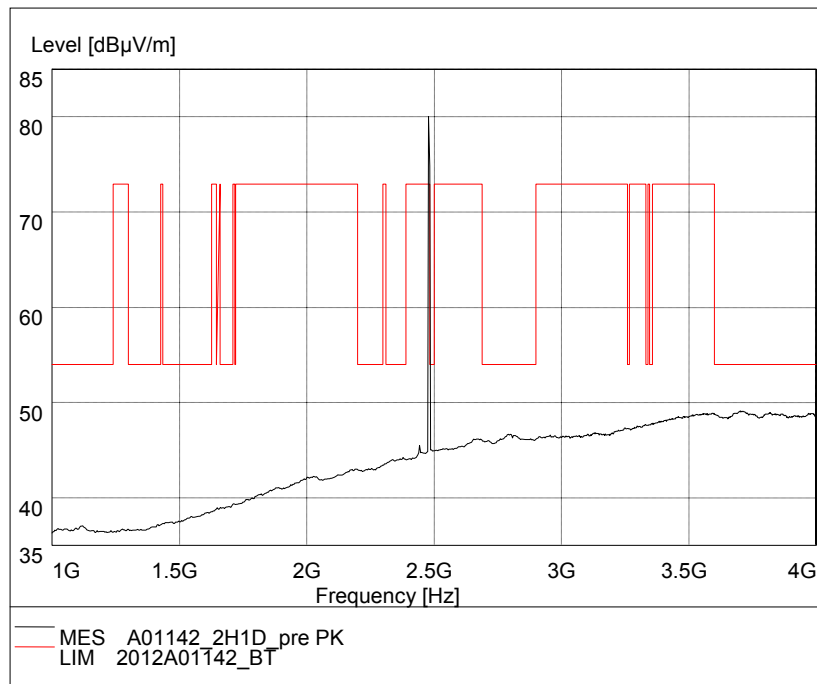


Fig.68. Fig.47 Radiated emission: GFSK, Channel 78, 1 GHz - 4 GHz

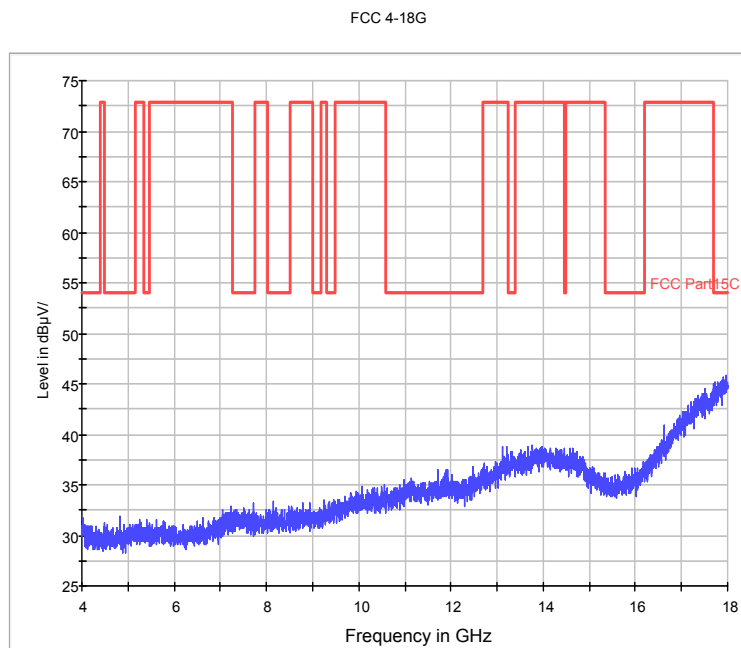


Fig.69. Radiated emission: GFSK, Channel 78, 4 GHz - 18 GHz

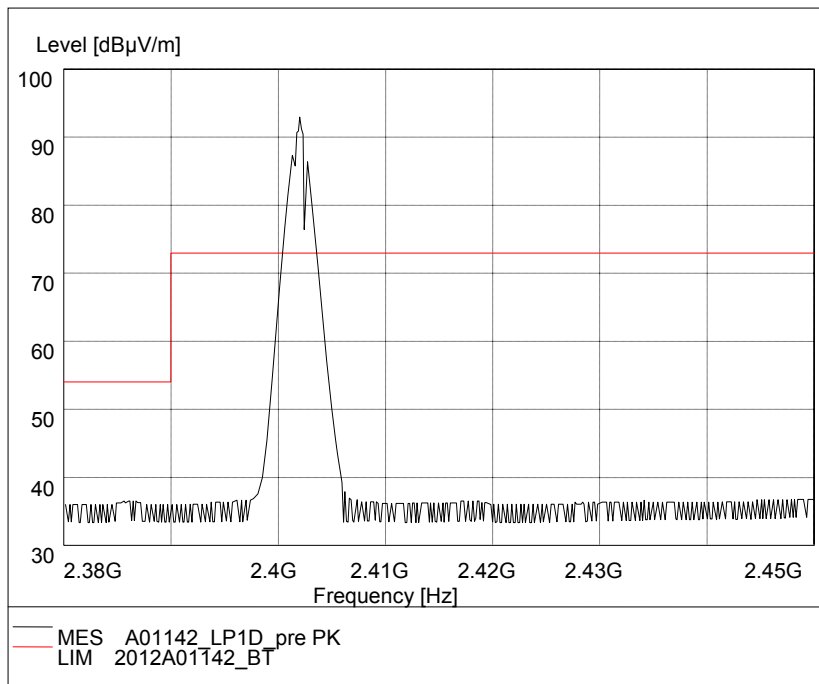


Fig.70. Radiated emission (Power): GFSK, low channel

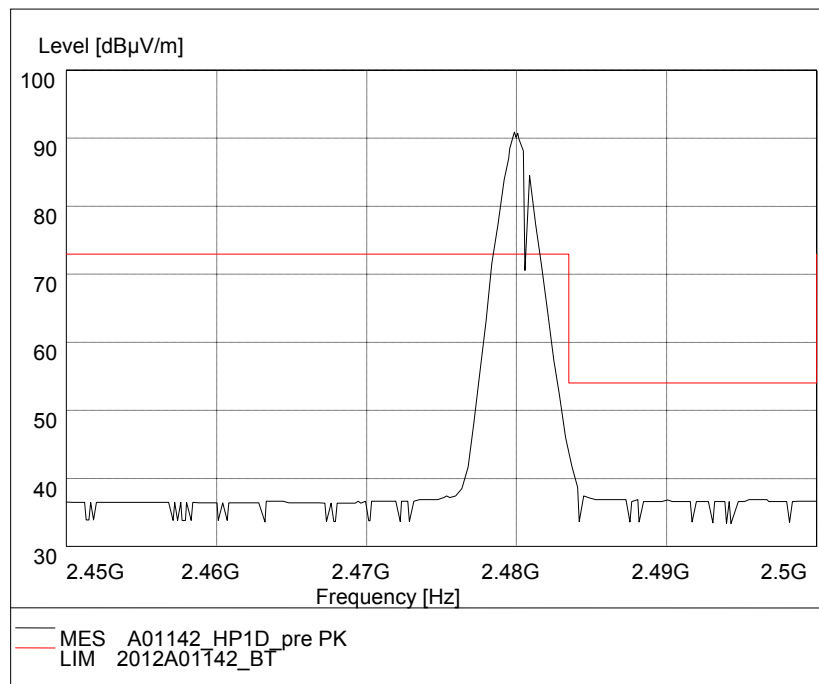


Fig.71. Radiated emission (Power) GFSK, high channel

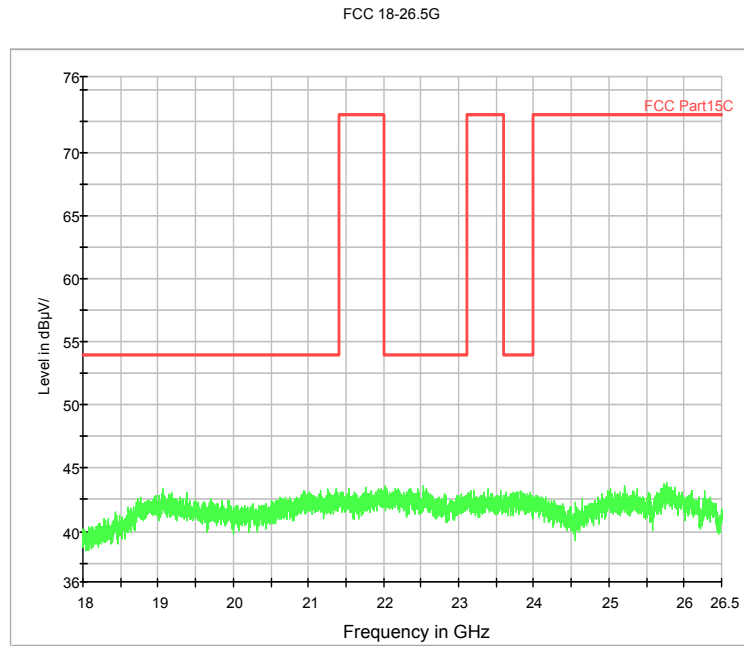


Fig.72. Radiated emission: GFSK, 18 GHz - 26 GHz

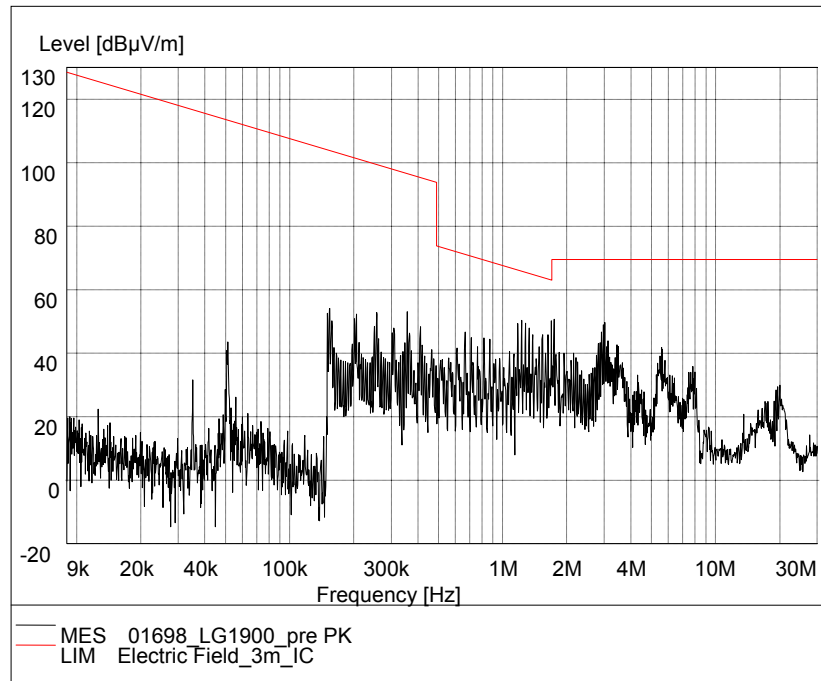


Fig.73. Radiated emission: $\pi/4$ DQPSK, Channel 0, 9 KHz – 30MHz

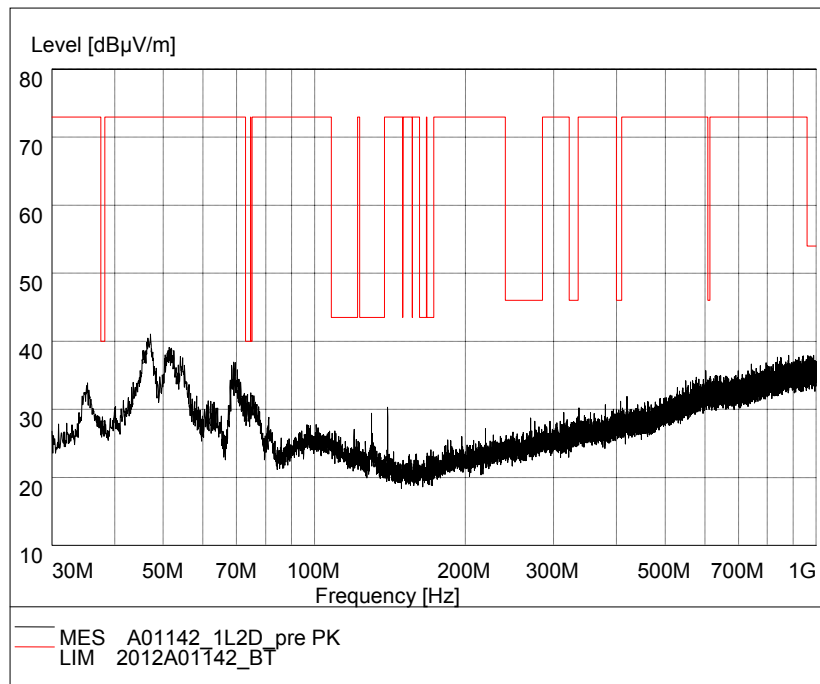


Fig.74. Radiated emission: $\pi/4$ DQPSK, Channel 0, 30 MHz - 1 GHz

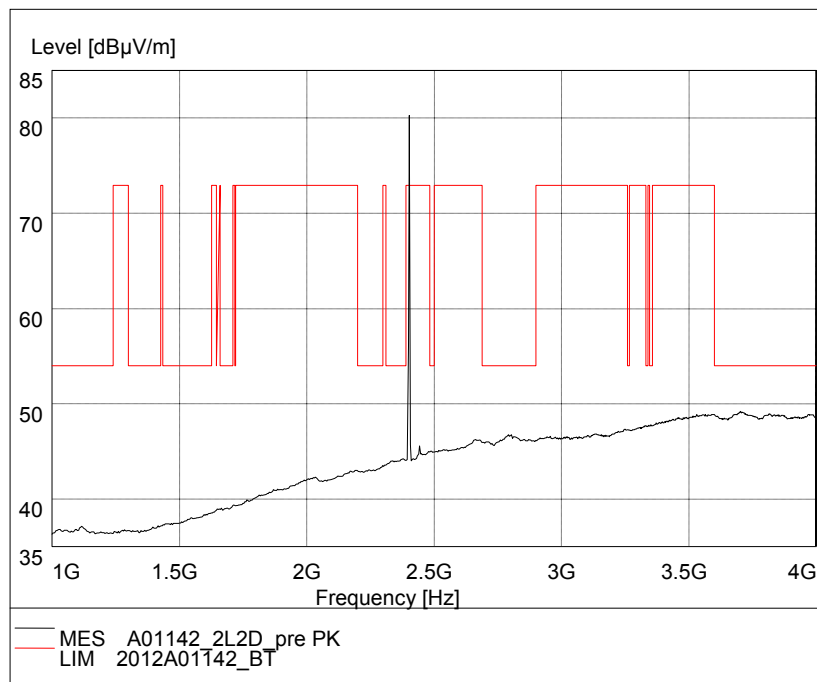


Fig.75. Radiated emission: $\pi/4$ DQPSK, Channel 0, 1 GHz - 4 GHz

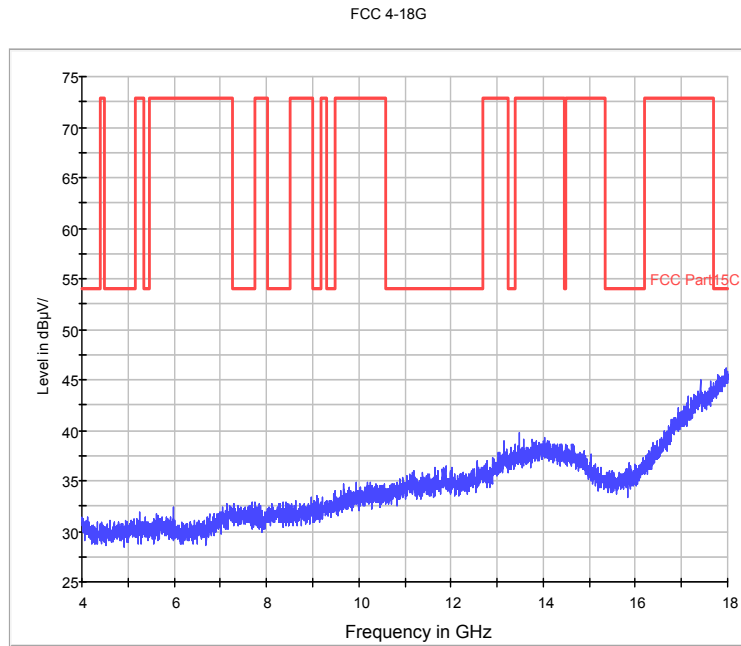


Fig.76. Radiated emission: $\pi/4$ DQPSK, Channel 0, 4 GHz - 18 GHz

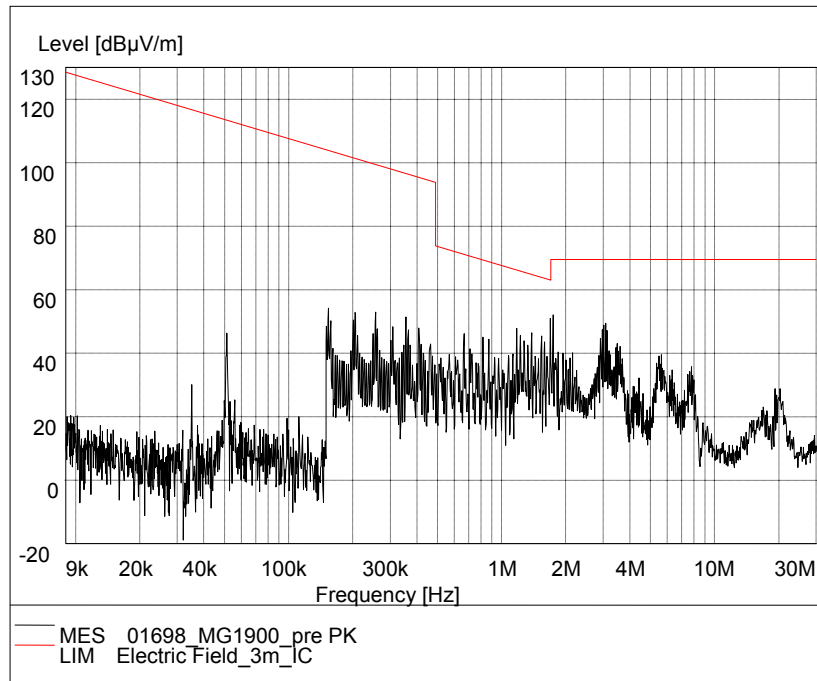


Fig.77. Radiated emission: $\pi/4$ DQPSK, Channel 39, 9 KHz – 30MHz

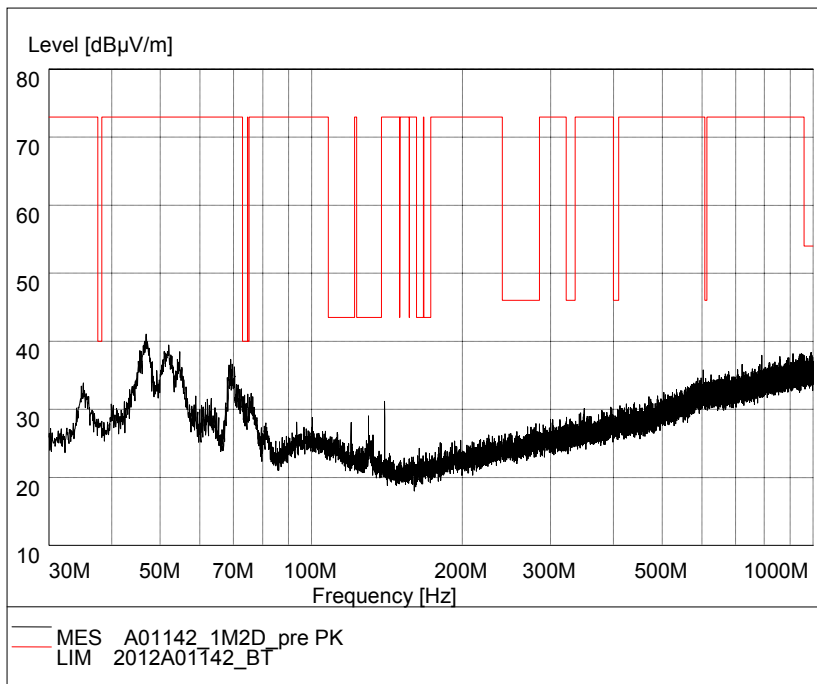


Fig.78. Radiated emission: $\pi/4$ DQPSK, Channel 39, 30 MHz - 1 GHz

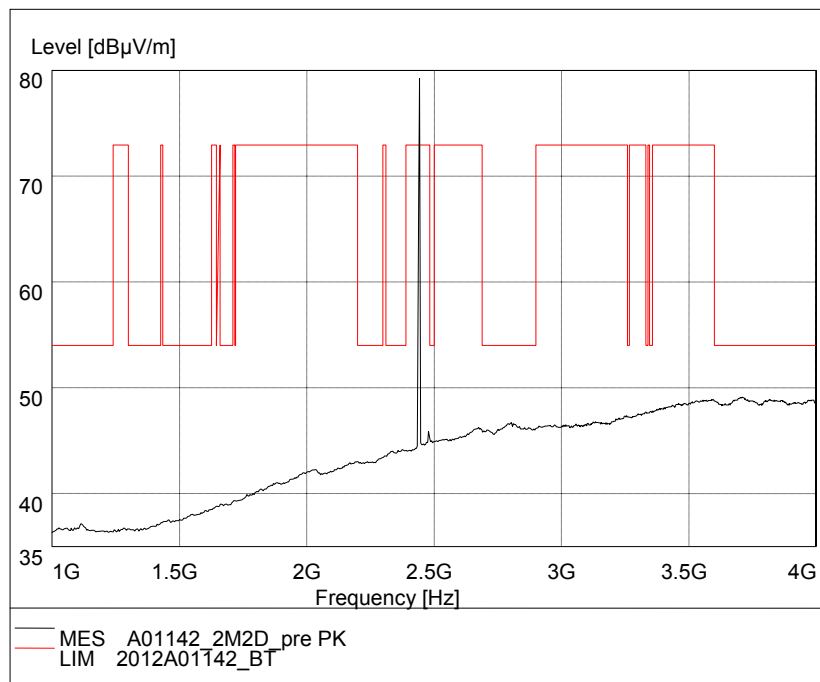


Fig.79. Radiated emission: $\pi/4$ DQPSK, Channel 39, 1 GHz - 4 GHz

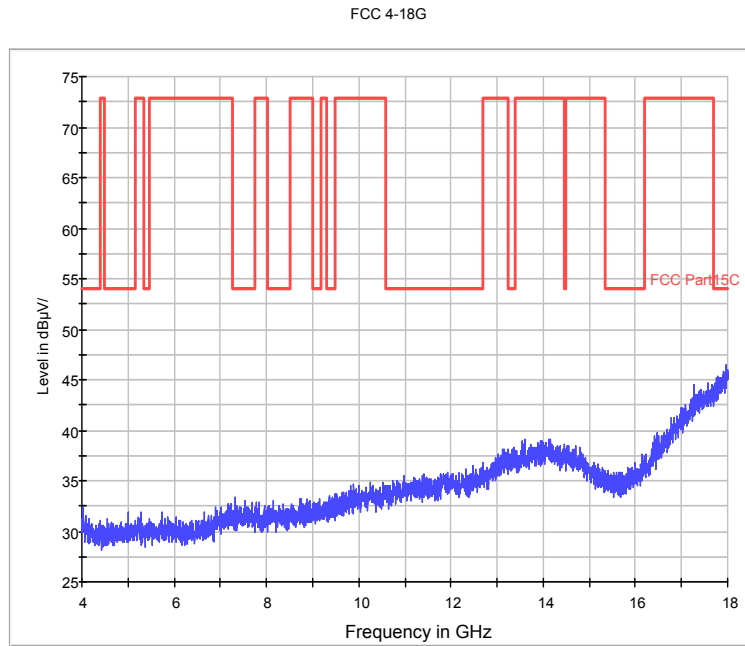


Fig.80. Radiated emission: $\pi/4$ DQPSK, Channel 39, 4 GHz - 18 GHz

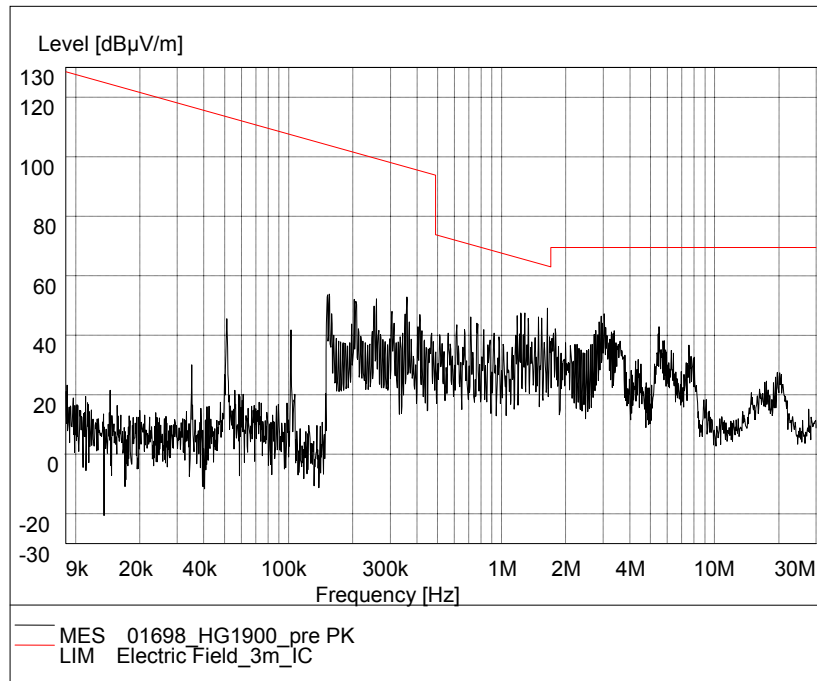


Fig.81. Radiated emission: $\pi/4$ DQPSK, Channel 78, 9 KHz – 30MHz

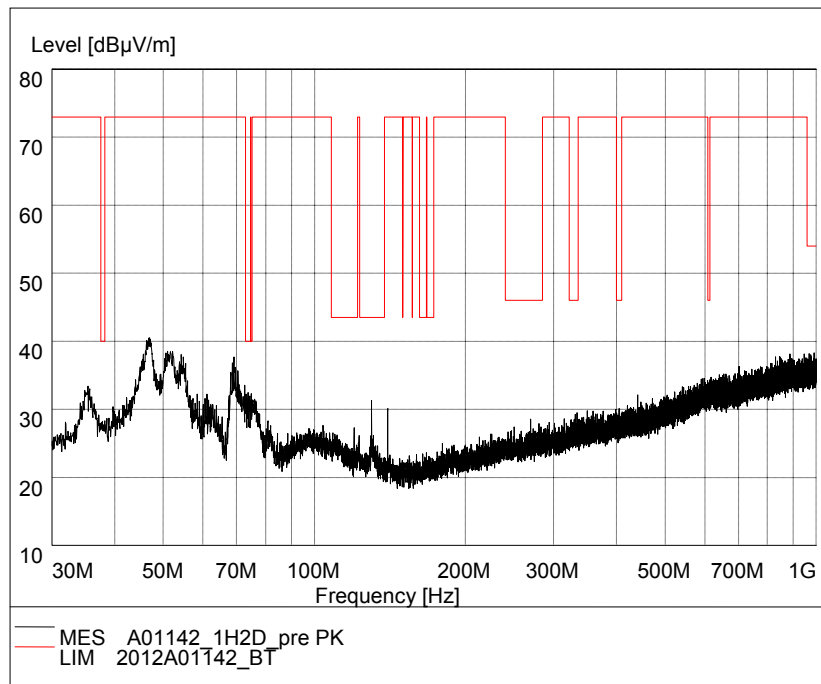


Fig.82. Radiated emission: $\pi/4$ DQPSK, Channel 78, 30 MHz - 1 GHz

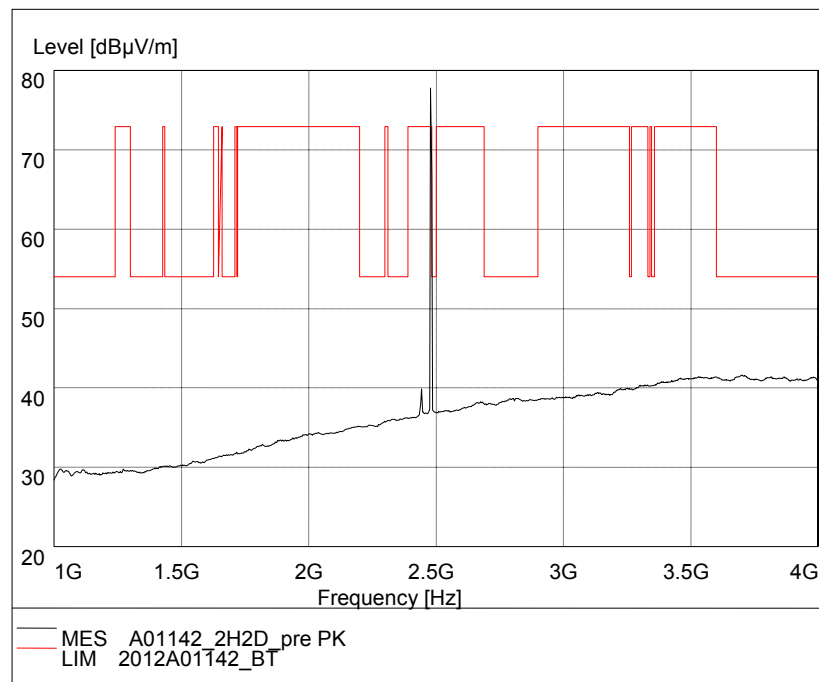


Fig.83. Radiated emission: $\pi/4$ DQPSK, Channel 78, 1 GHz - 4 GHz

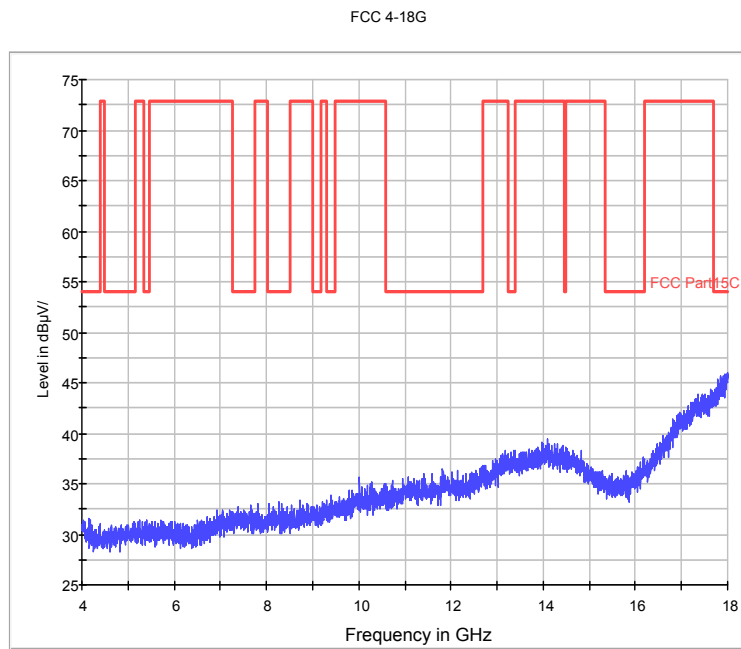


Fig.84. Radiated emission: $\pi/4$ DQPSK, Channel 78, 4 GHz - 18 GHz

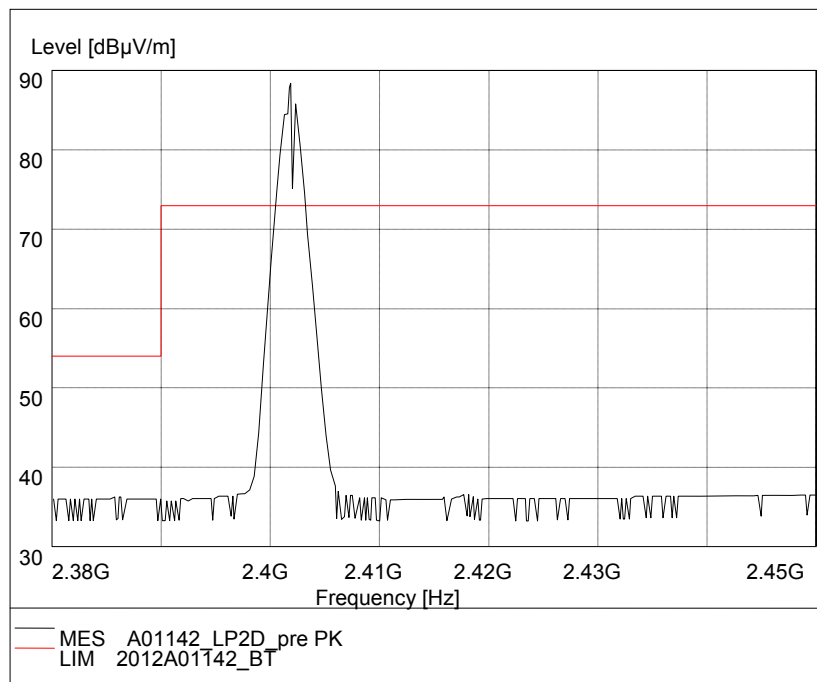


Fig.85. Radiated emission (Power): $\pi/4$ DQPSK, low channel

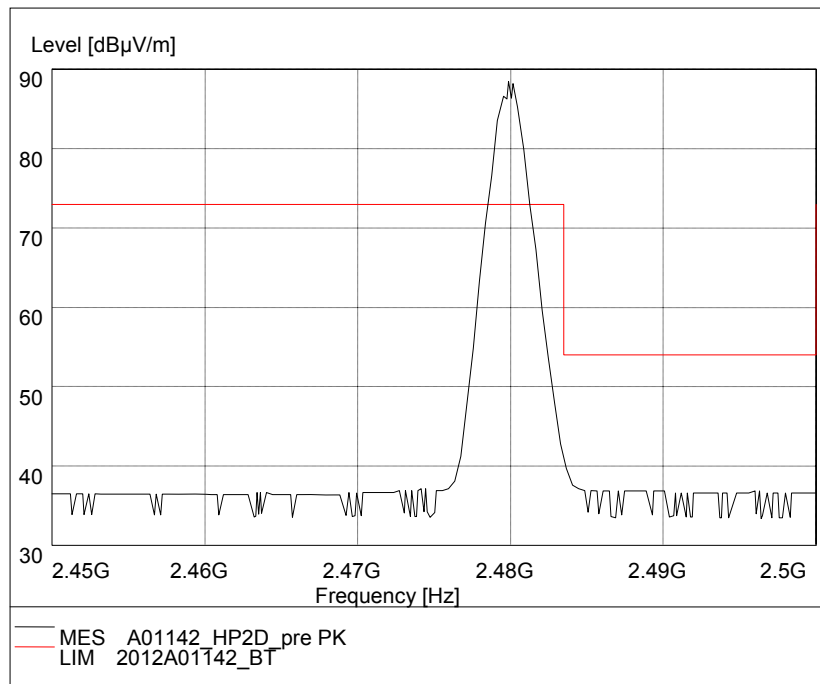


Fig.86. Radiated emission (Power): $\pi/4$ DQPSK, high channel

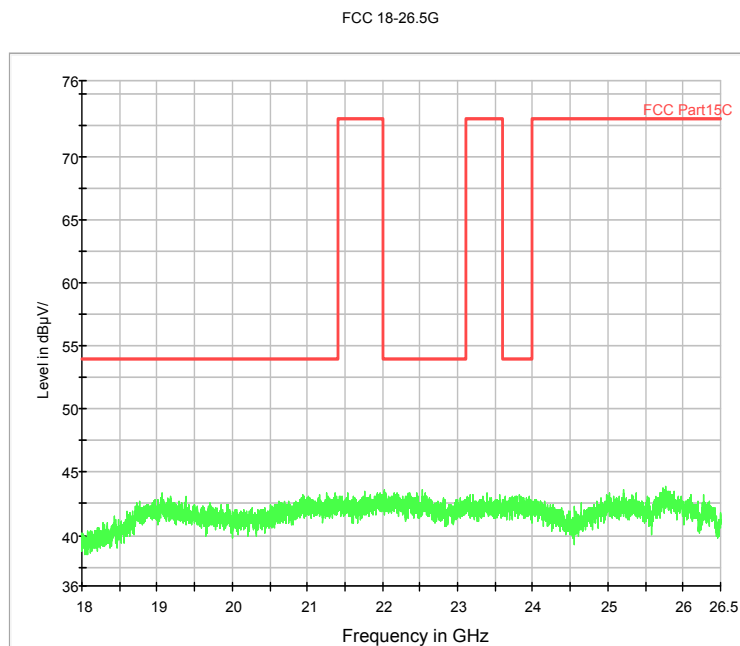


Fig.87. Radiated emission: $\pi/4$ DQPSK, 18 GHz - 26 GHz

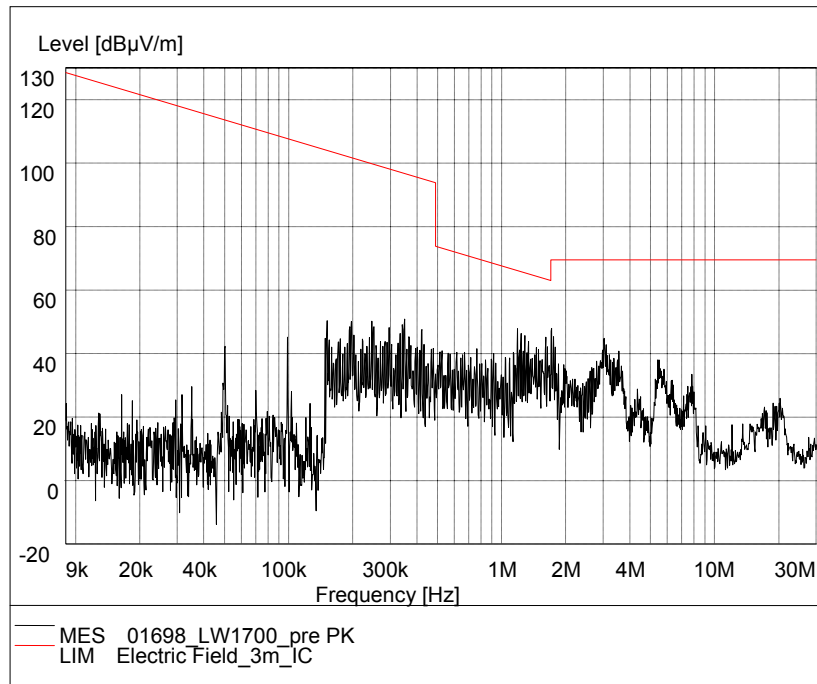


Fig.88. Radiated emission: 8DPSK, Channel 0, 9 KHz – 30MHz

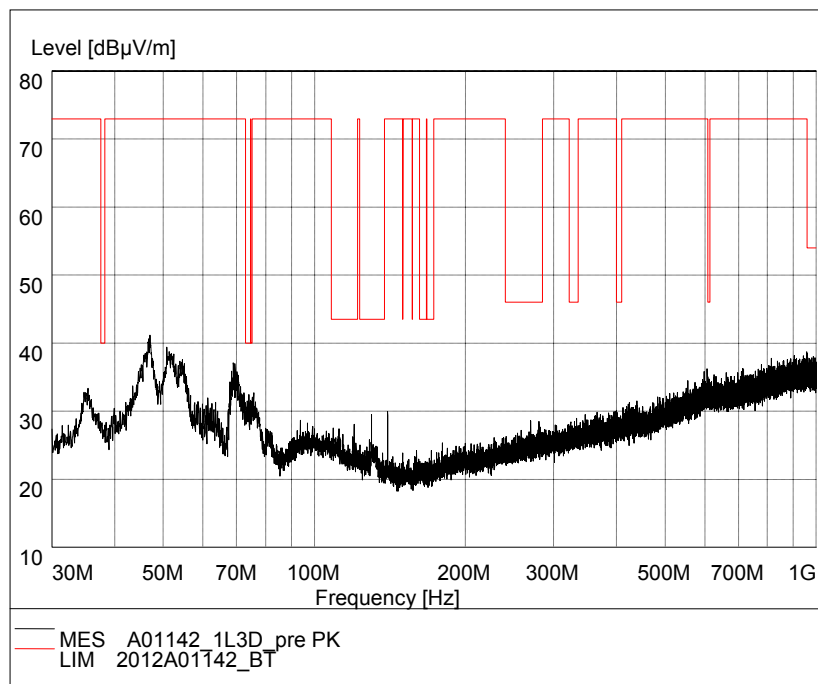


Fig.89. Radiated emission: 8DPSK, Channel 0, 30 MHz - 1 GHz

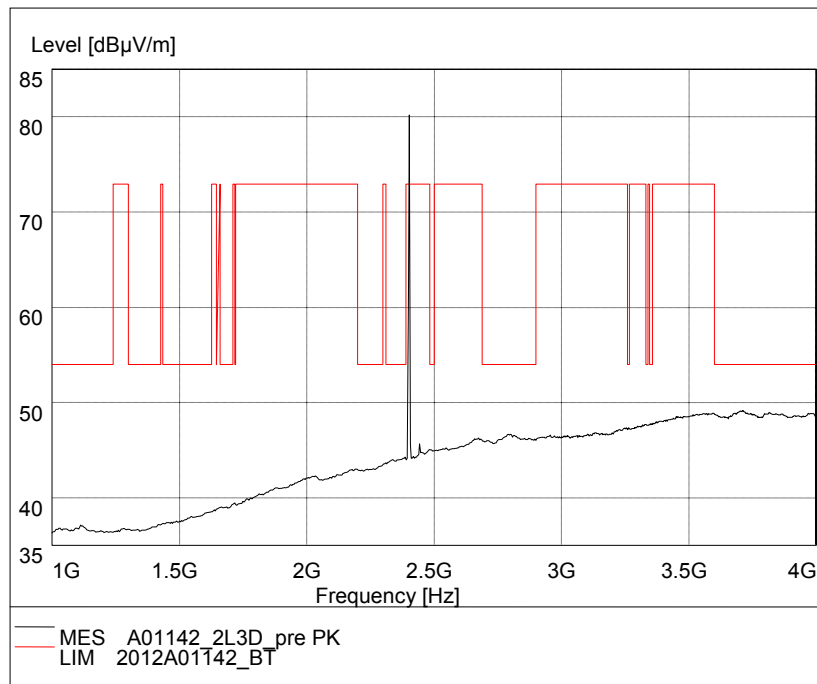


Fig.90. Radiated emission: 8DPSK, Channel 0, 1 GHz - 4 GHz

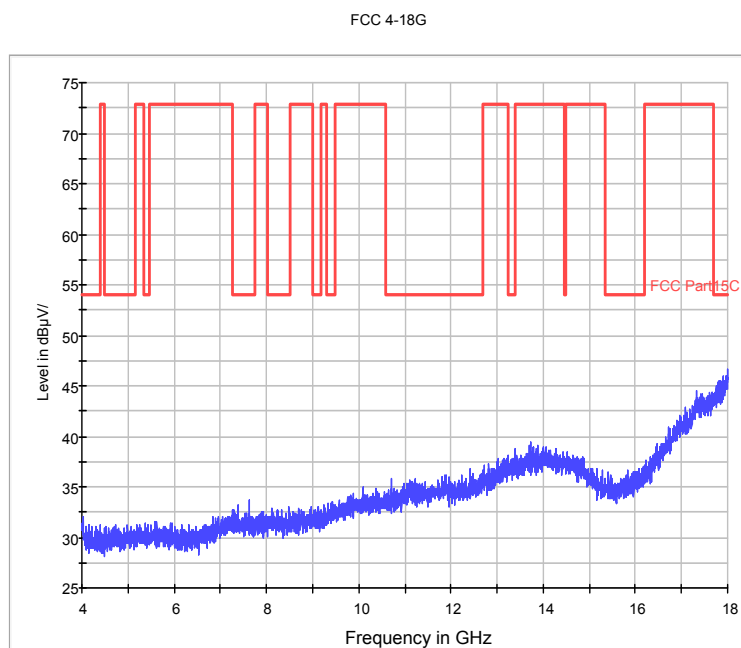


Fig.91. Radiated emission: 8DPSK, Channel 0, 4 GHz - 18 GHz

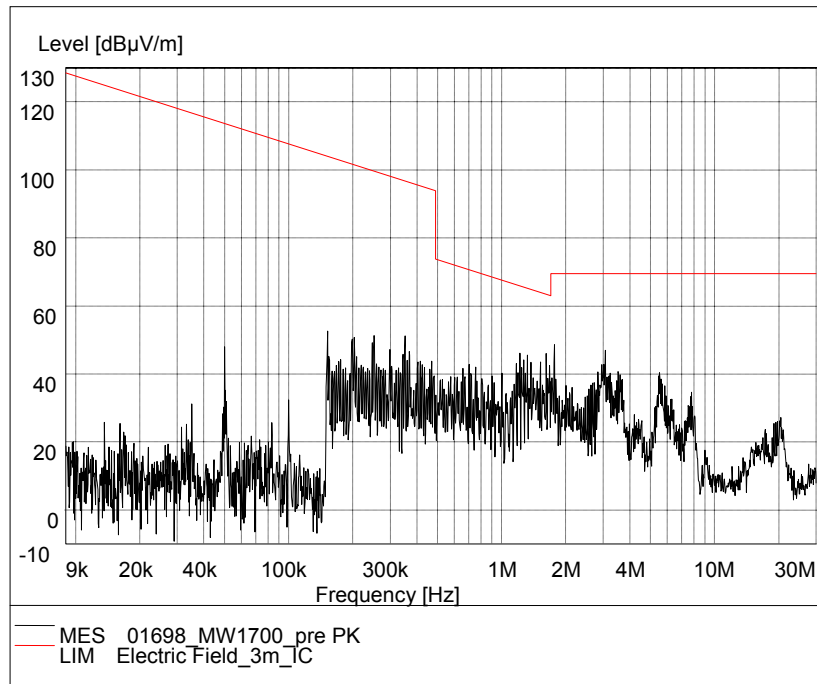


Fig.92. Radiated emission: 8DPSK, Channel 39, 9 KHz – 30MHz

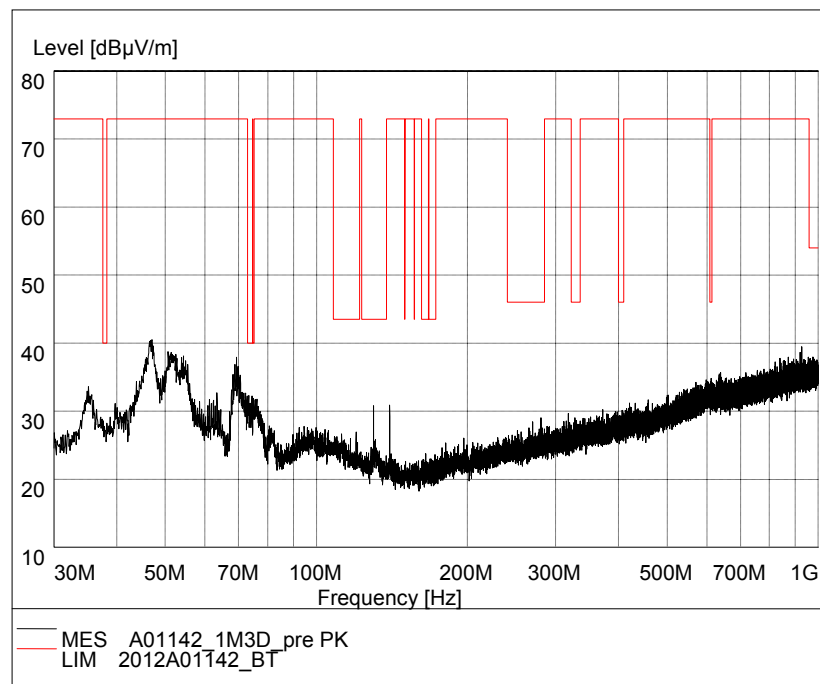


Fig.93. Radiated emission: 8DPSK, Channel 39, 30 MHz - 1 GHz

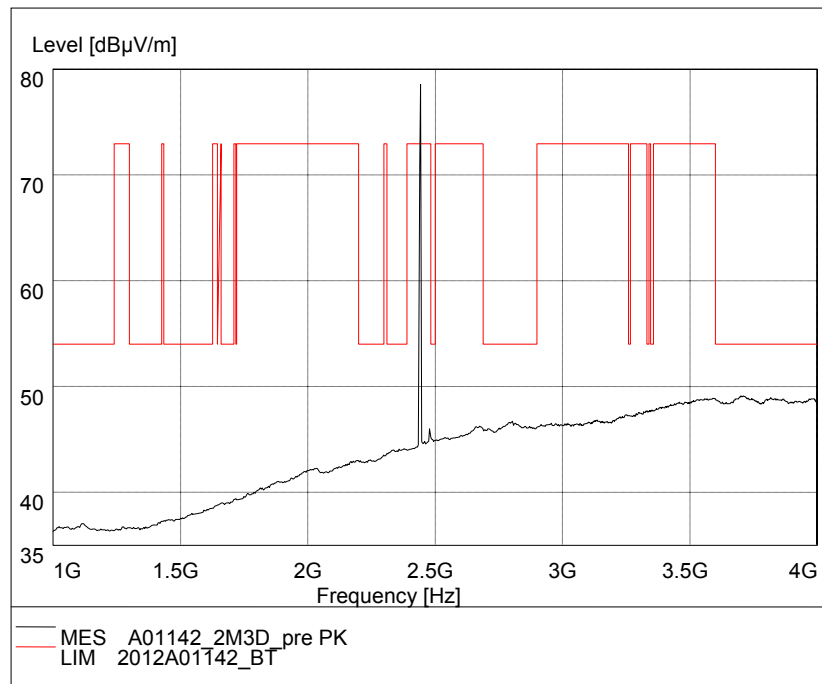


Fig.94. Radiated emission: 8DPSK, Channel 39, 1 GHz - 4 GHz

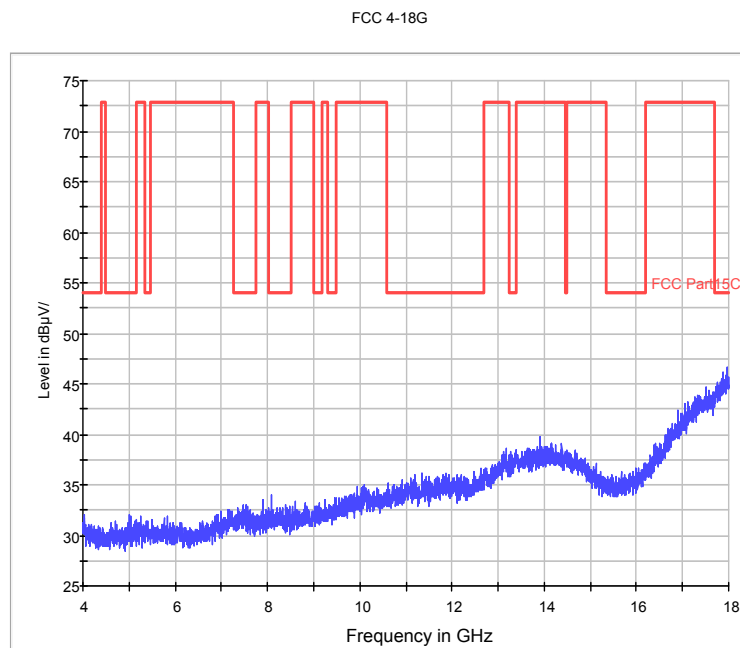


Fig.95. Radiated emission: 8DPSK, Channel 39, 4 GHz - 18 GHz

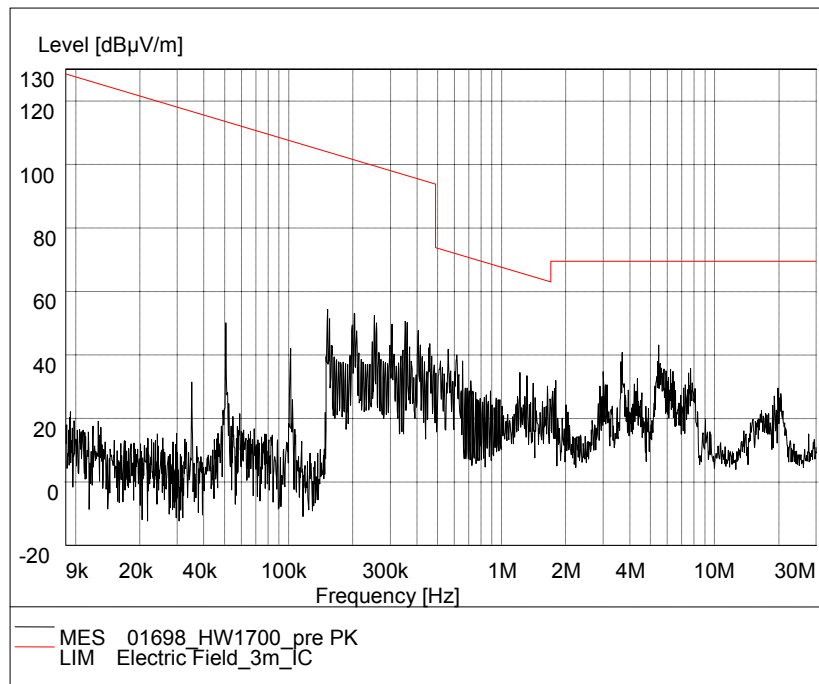


Fig.96. Radiated emission: 8DPSK, Channel 78, 9 KHz – 30MHz

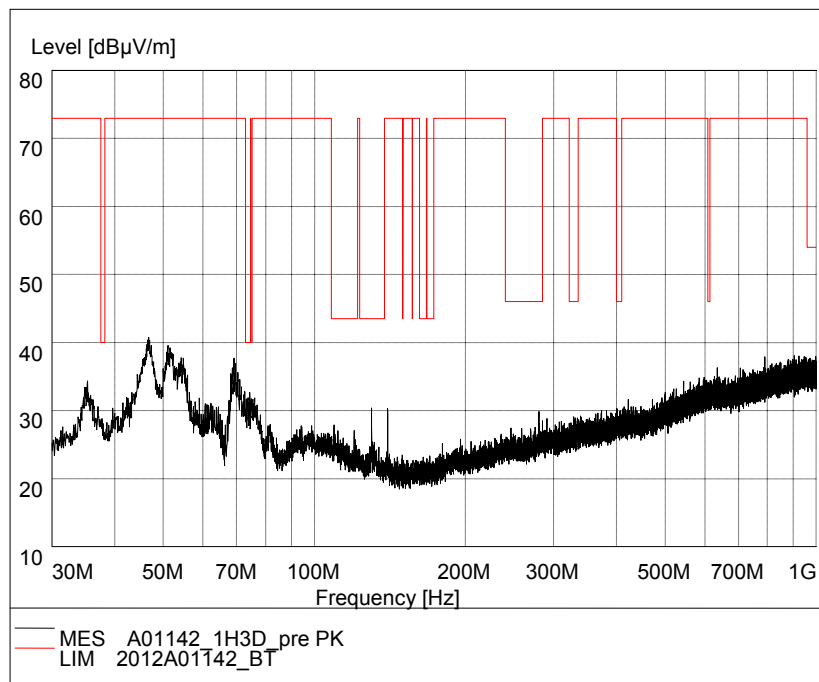


Fig.97. Radiated emission: 8DPSK, Channel 78, 30 MHz - 1 GHz

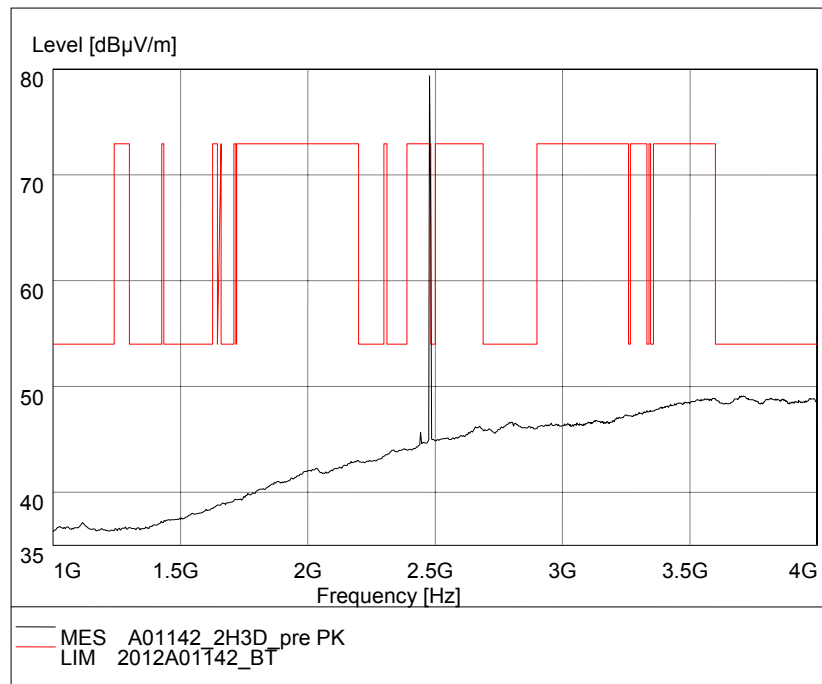


Fig.98. Radiated emission: 8DPSK, Channel 78, 1 GHz - 4 GHz

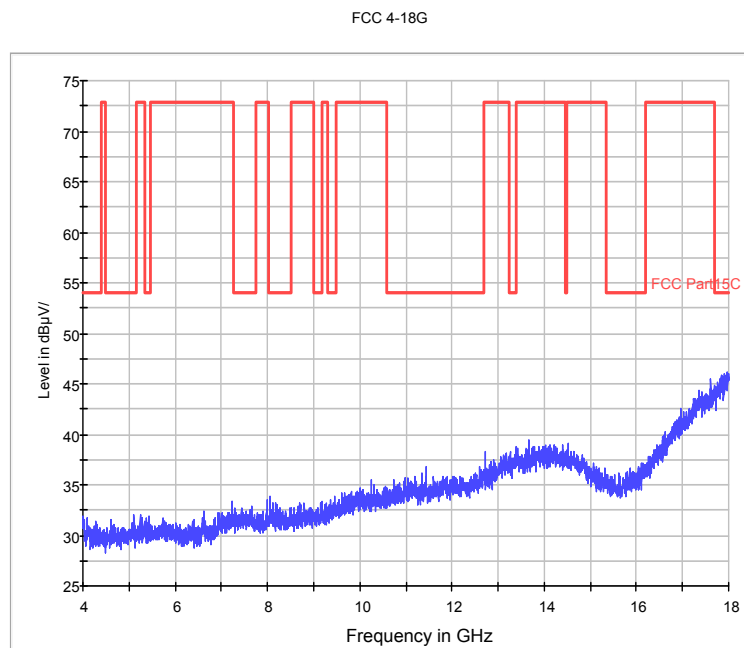


Fig.99. Radiated emission: 8DPSK, Channel 78, 4 GHz - 18 GHz

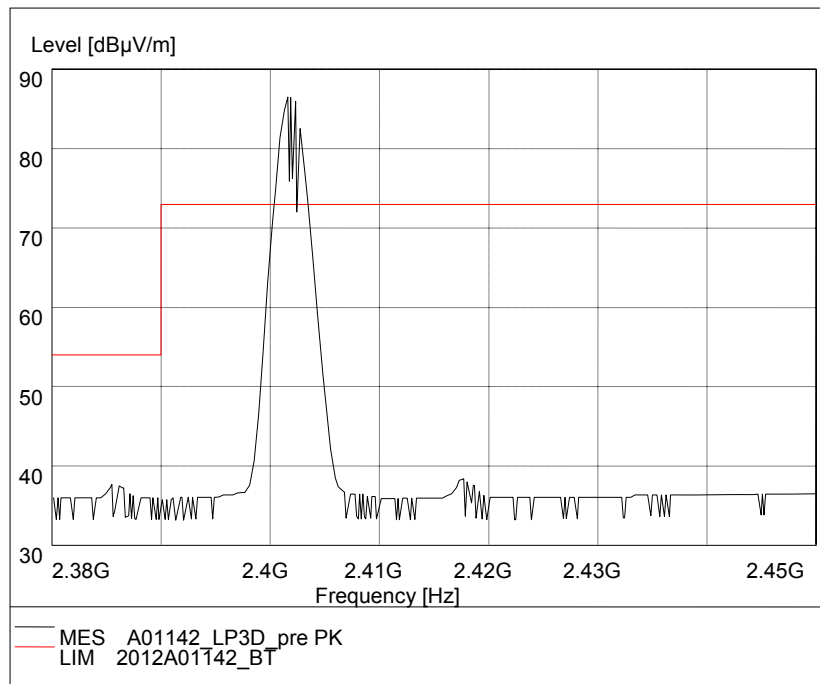


Fig.100. Radiated emission (Power): 8DPSK, low channel

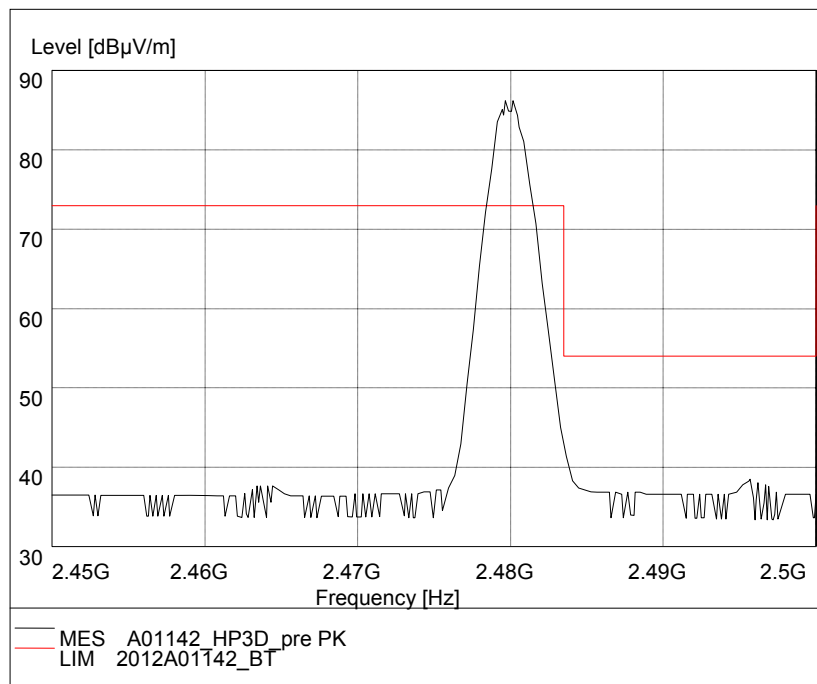


Fig.101. Radiated emission (Power): 8DPSK, high channel

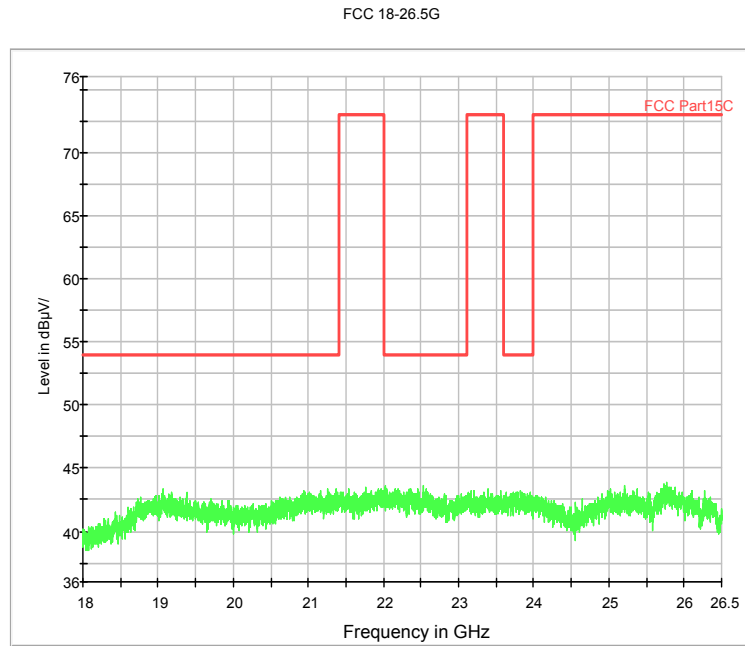


Fig.102. Radiated emission: 8DPSK, 18 GHz - 26 GHz

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.103	105.13	P
		Fig.104		
	DH3	Fig.105	186.89	P
		Fig.106		
	DH5	Fig.107	214.46	P
		Fig.108		

For $\pi/4$ DQPSK

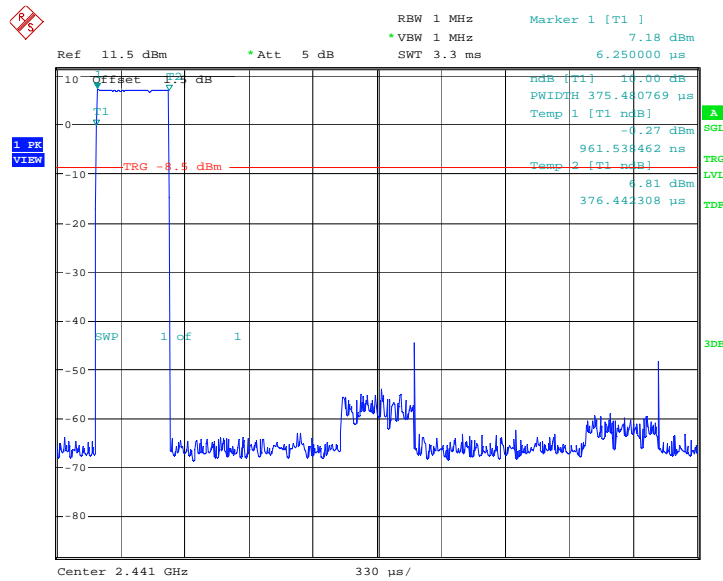
Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.109	107.76	P
		Fig.110		
	DH3	Fig.111	178.70	P
		Fig.112		
	DH5	Fig.113	223.15	P
		Fig.114		

For 8DPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.115	103.19	P
		Fig.116		
	DH3	Fig.117	178.70	P
		Fig.118		
	DH5	Fig.119	180.01	P
		Fig.120		

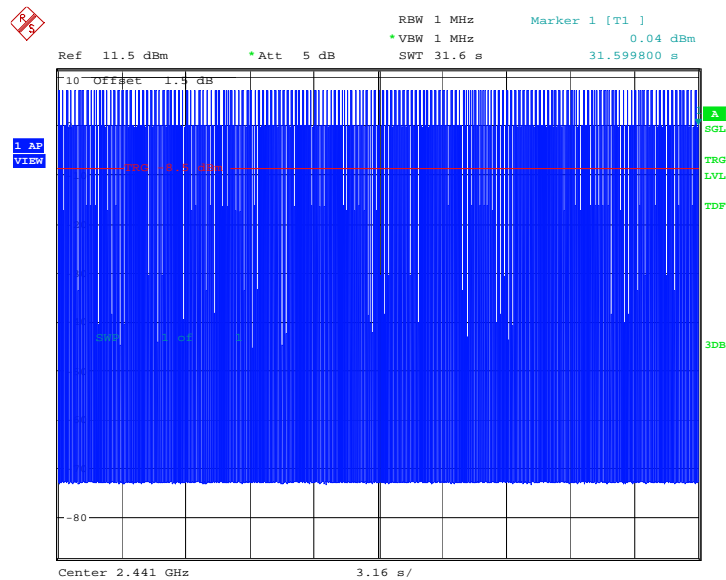
Conclusion: PASS

Test graphs as below:



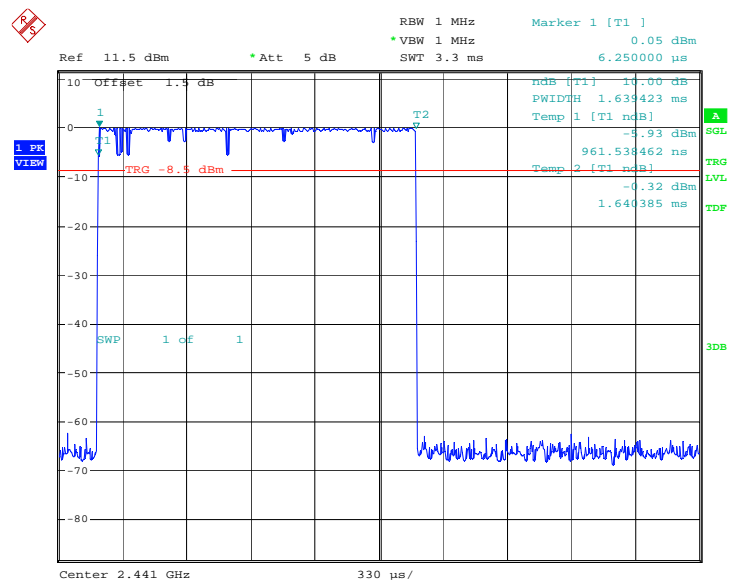
Date: 7.MAR.2012 00:46:51

Fig.103. Time of occupancy (Dwell Time): Channel 39, Packet DH1



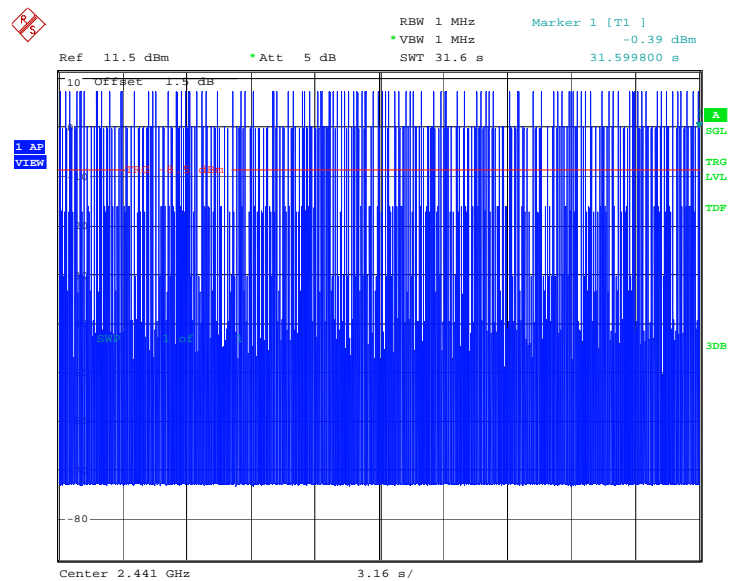
Date: 7.MAR.2012 00:46:40

Fig.104. Number of Transmissions Measurement:Channel 39,Packet DH1



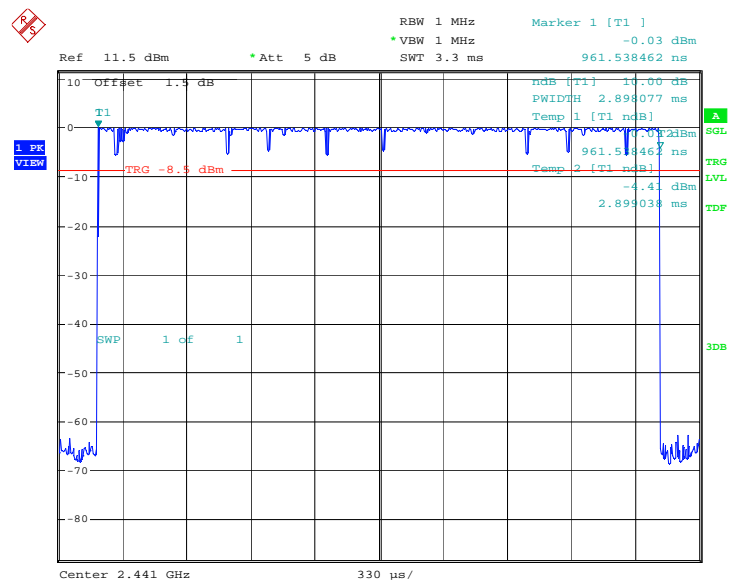
Date: 7.MAR.2012 00:48:12

Fig.105. Time of occupancy (Dwell Time): Channel 39, Packet DH3



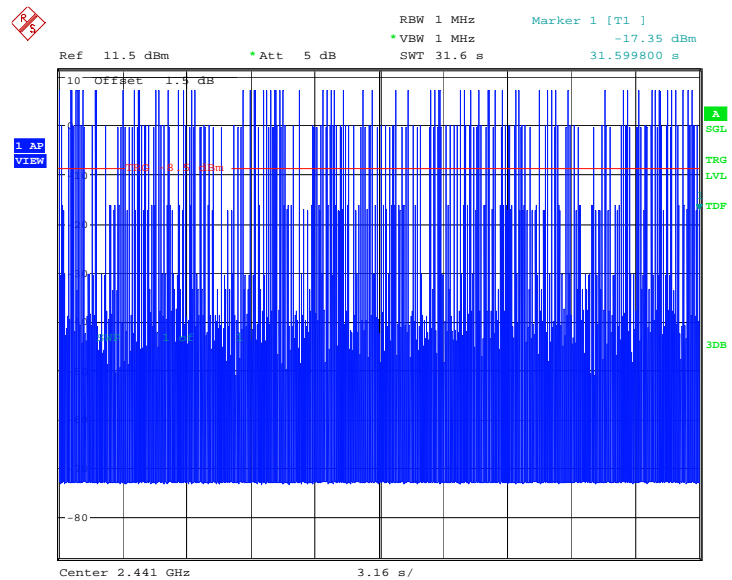
Date: 7.MAR.2012 00:48:00

Fig.106. Number of Transmissions Measurement:Channel 39,Packet DH3



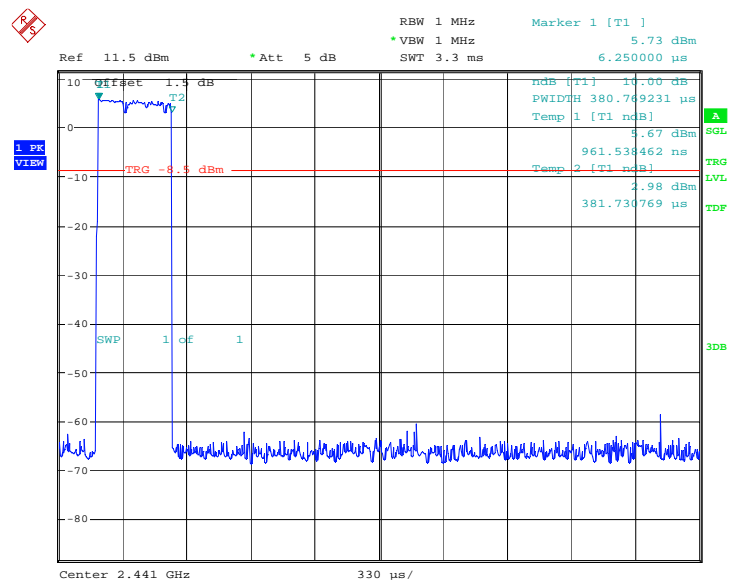
Date: 7.MAR.2012 00:49:32

Fig.107. Time of occupancy (Dwell Time): Channel 39, Packet DH5



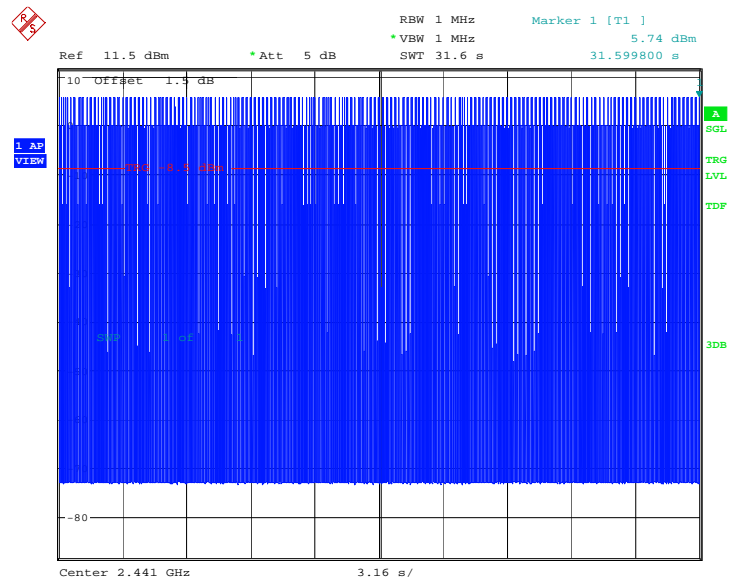
Date: 7.MAR.2012 00:49:19

Fig.108. Number of Transmissions Measurement:Channel 39,Packet DH5



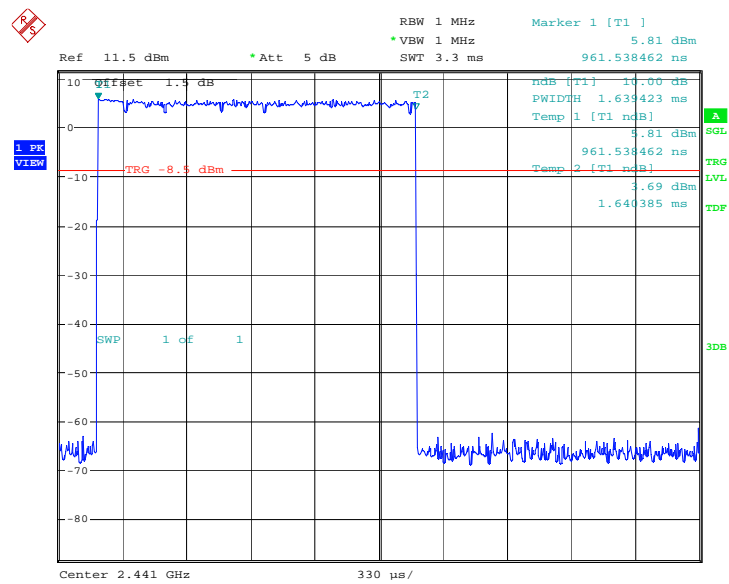
Date: 7.MAR.2012 01:09:02

Fig.109. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1



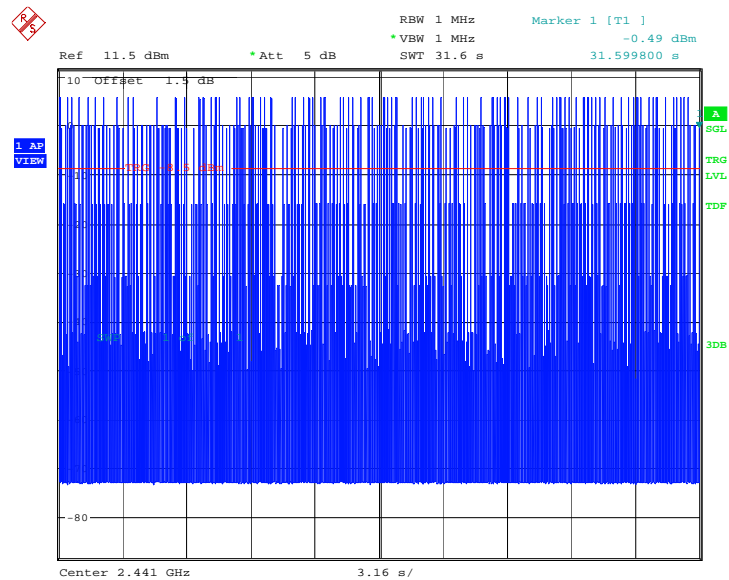
Date: 7.MAR.2012 01:08:50

Fig.110. Number of Transmissions Measurement:Channel 39,Packet 2-DH1



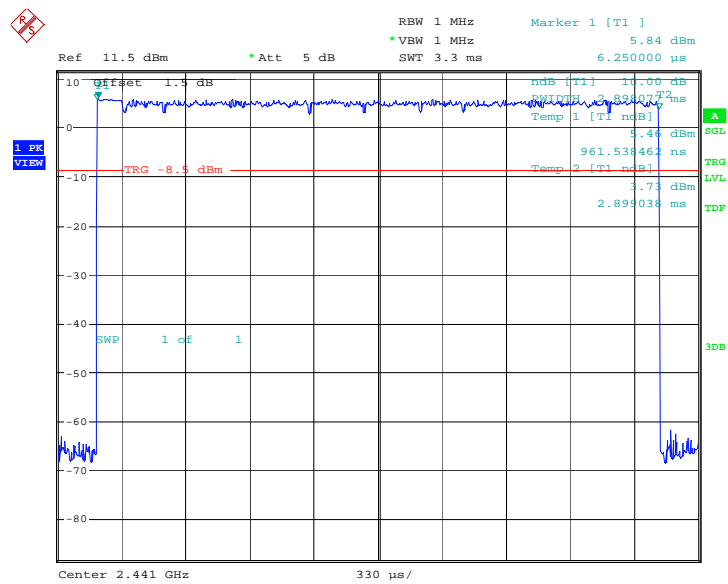
Date: 7.MAR.2012 01:10:22

Fig.111. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3



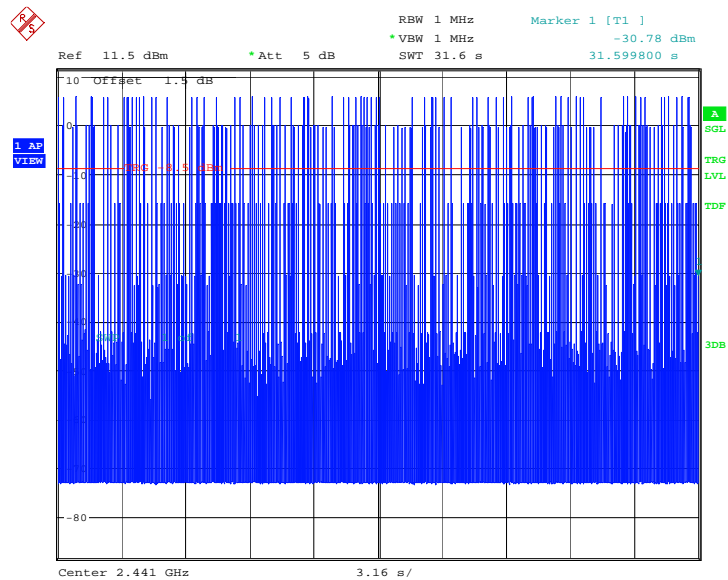
Date: 7.MAR.2012 01:10:10

Fig.112. Number of Transmissions Measurement:Channel 39,Packet 2-DH3



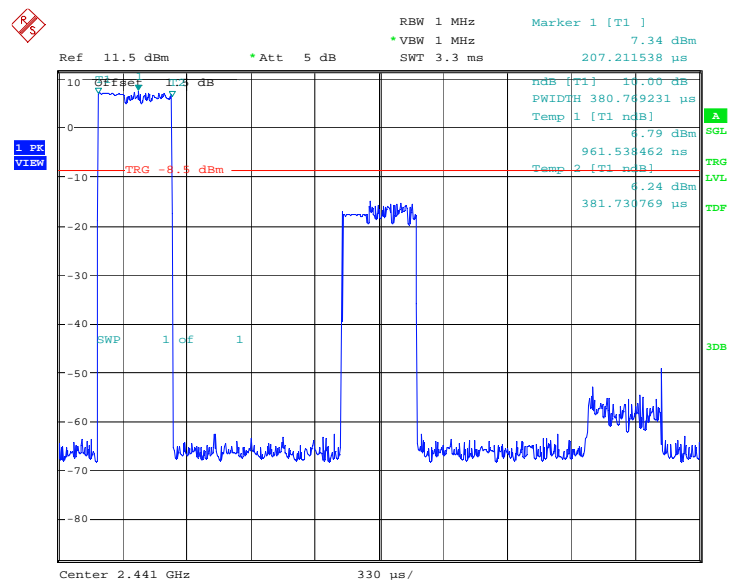
Date: 7.MAR.2012 01:11:41

Fig.113. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5



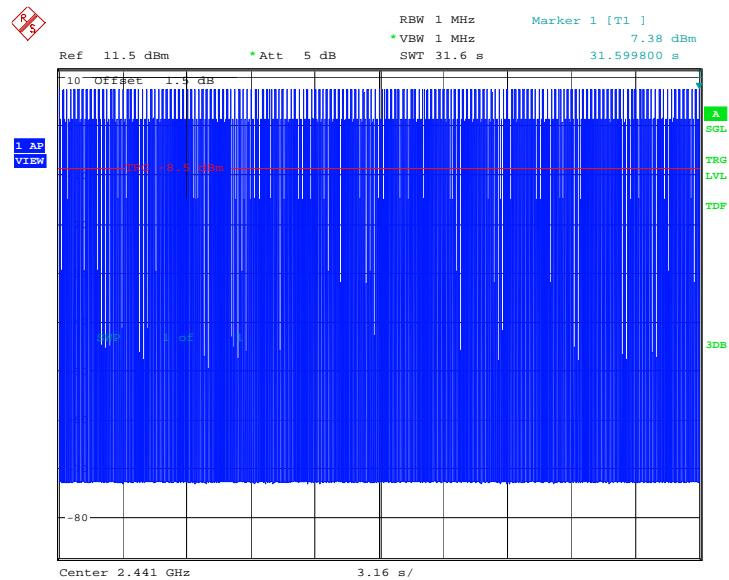
Date: 7.MAR.2012 01:11:29

Fig.114. Number of Transmissions Measurement:Channel 39,Packet 2-DH5



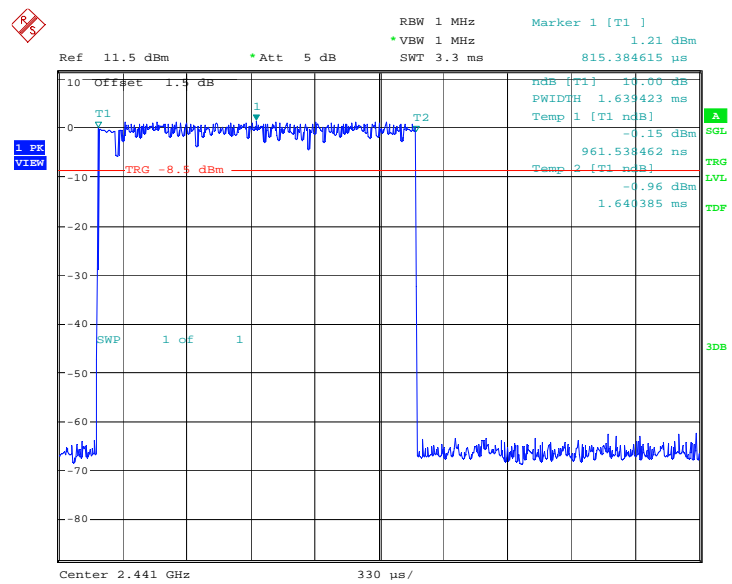
Date: 7.MAR.2012 01:31:11

Fig.115. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1



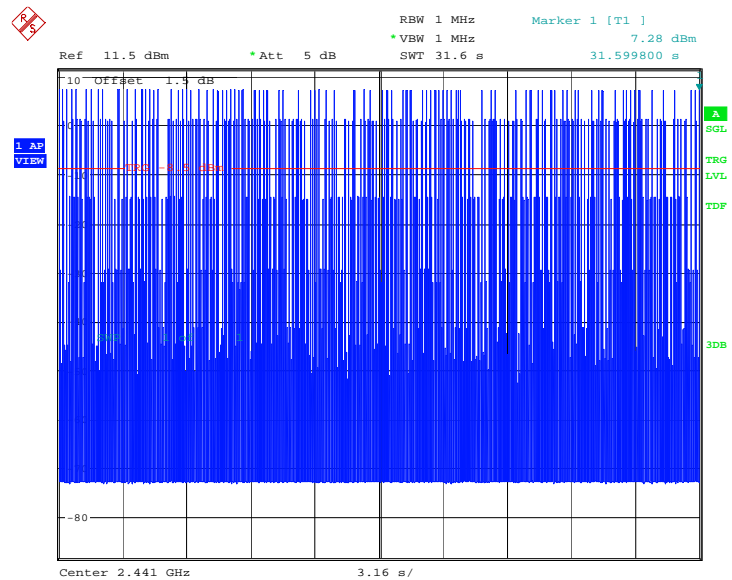
Date: 7.MAR.2012 01:30:59

Fig.116. Number of Transmissions Measurement:Channel 39,Packet 3-DH1



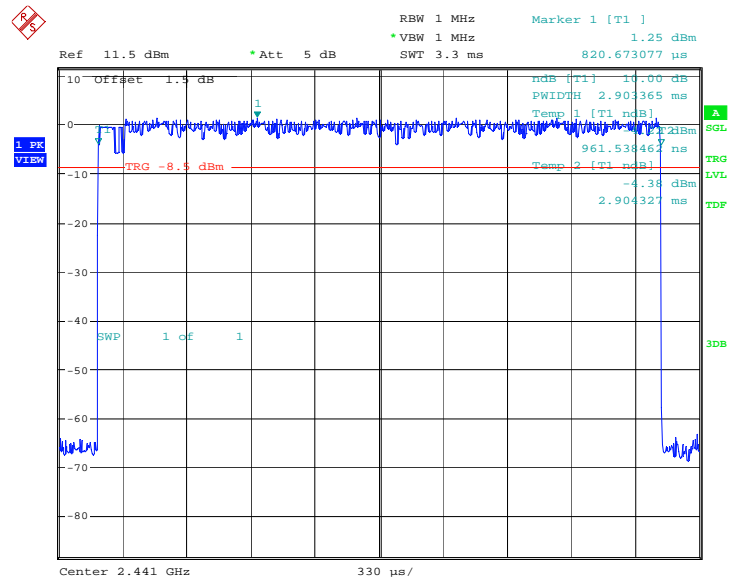
Date: 7.MAR.2012 01:32:32

Fig.117. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3



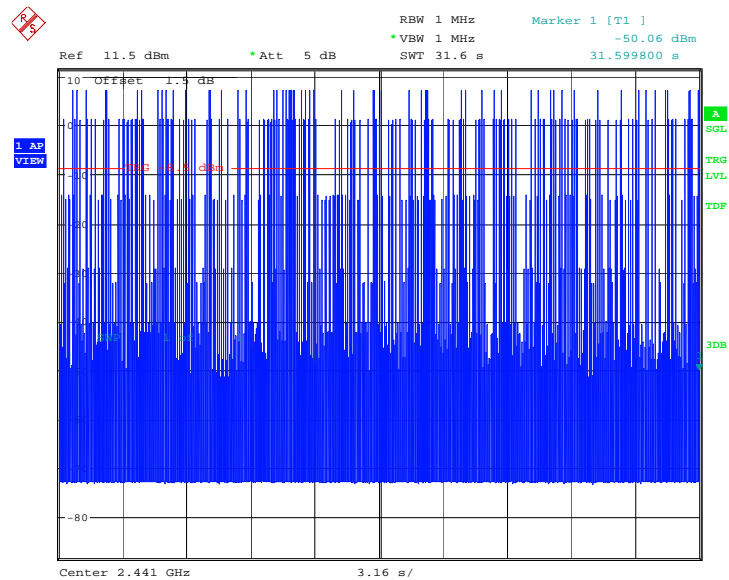
Date: 7.MAR.2012 01:32:20

Fig.118. Number of Transmissions Measurement:Channel 39,Packet 3-DH3



Date: 7.MAR.2012 01:33:51

Fig.119. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH5



Date: 7.MAR.2012 01:33:39

Fig.120. 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.121	826.92	NA
39	Fig.122	865.38	NA
78	Fig.123	826.92	NA

For $\pi/4$ DQPSK

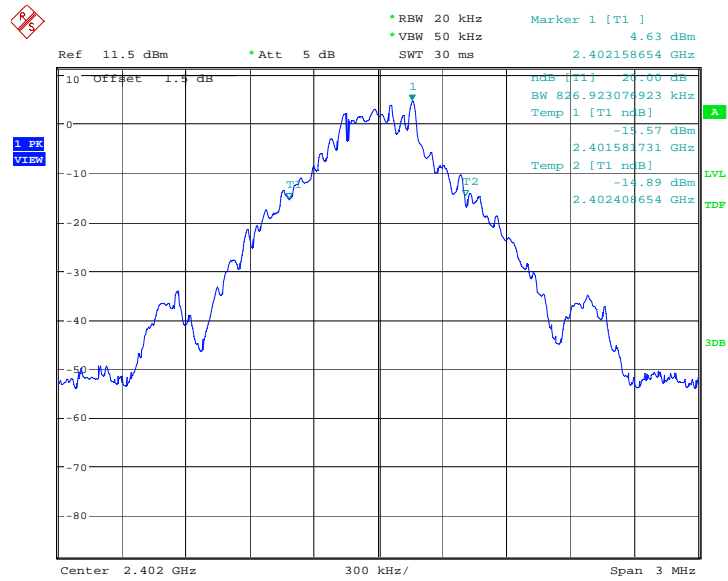
Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.124	1264.42	NA
39	Fig.125	1250.00	NA
78	Fig.126	1264.42	NA

For 8DPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.127	1211.54	NA
39	Fig.128	1259.62	NA
78	Fig.129	1211.54	NA

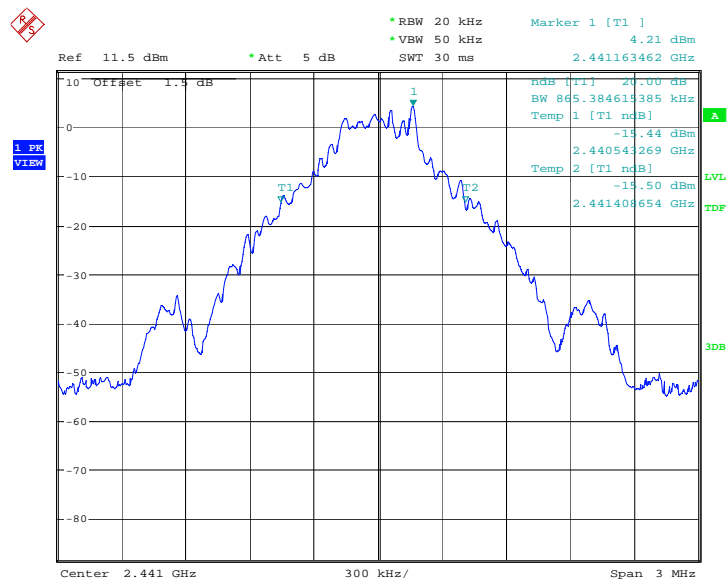
Conclusion: NA

Test graphs as below:



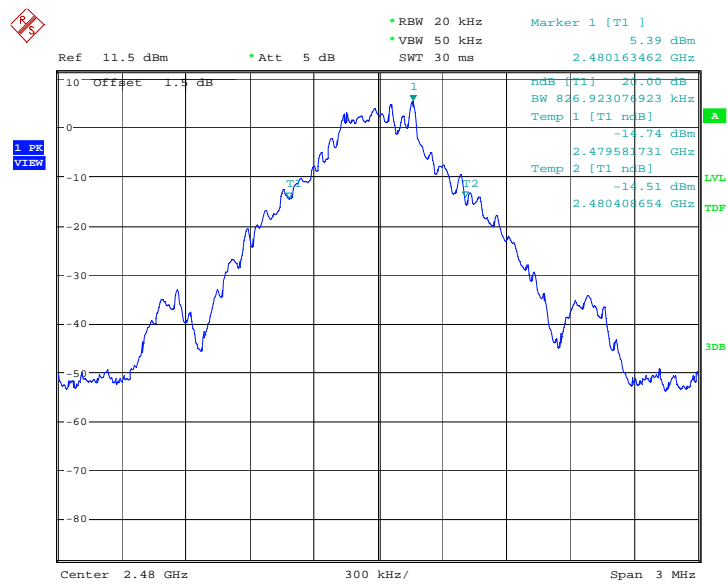
Date: 7.MAR.2012 00:50:05

Fig.121. 20dB Bandwidth: GFSK, Channel 0



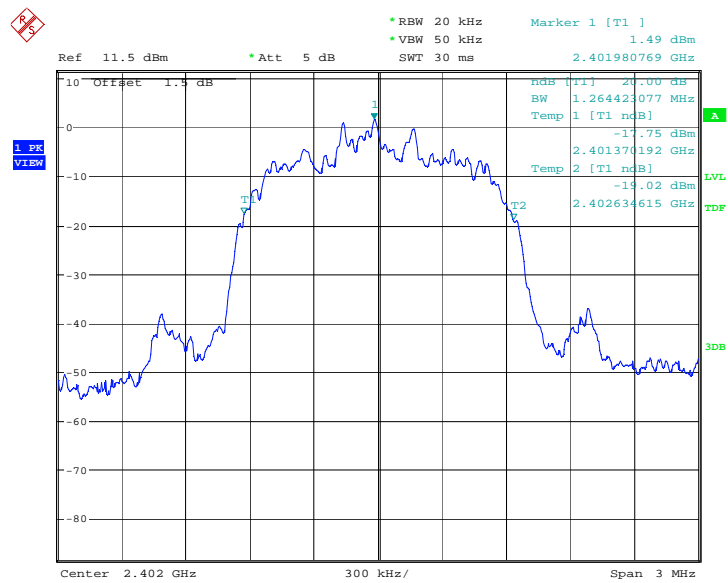
Date: 7.MAR.2012 00:50:37

Fig.122. 20dB Bandwidth: GFSK, Channel 39



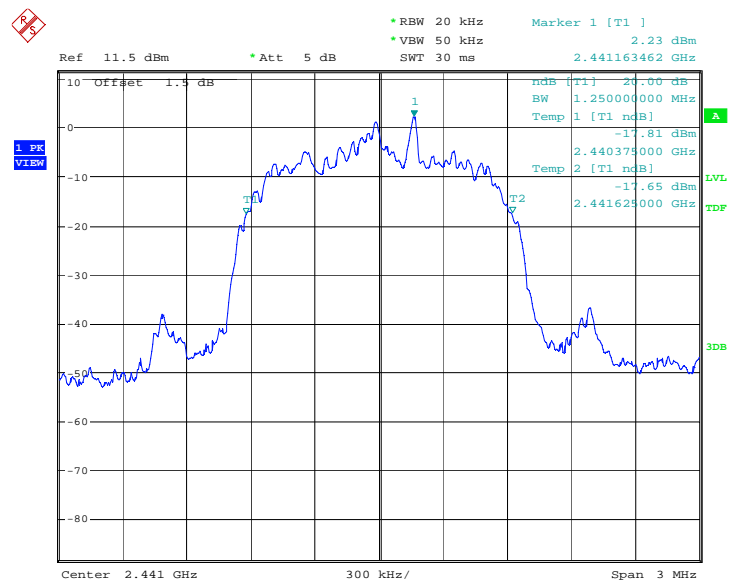
Date: 7.MAR.2012 00:51:09

Fig.123. 20dB Bandwidth: GFSK, Channel 78



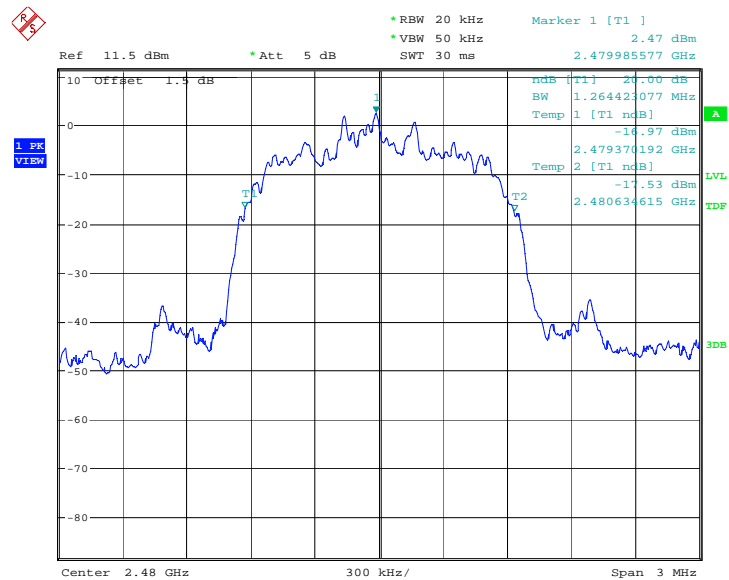
Date: 7.MAR.2012 01:12:15

Fig.124. 20dB Bandwidth: $\pi/4$ DQPSK, Channel 0



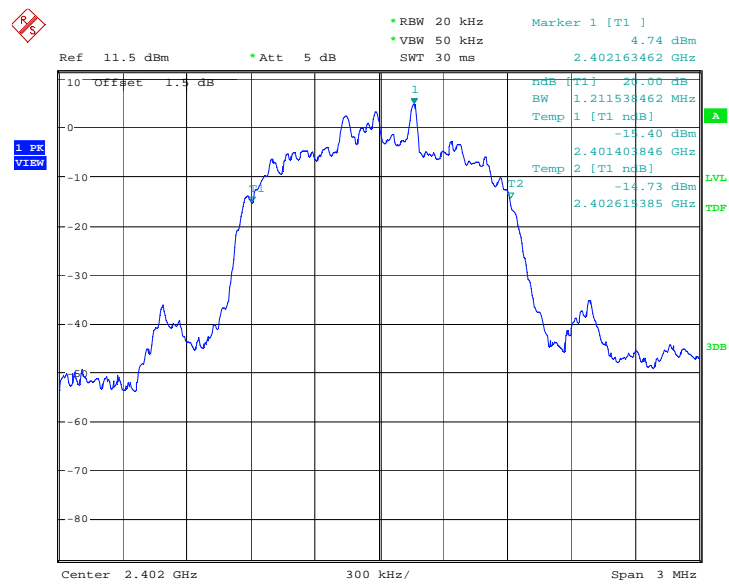
Date: 7.MAR.2012 01:12:47

Fig.125. 20dB Bandwidth: $\pi/4$ DQPSK, Channel 39



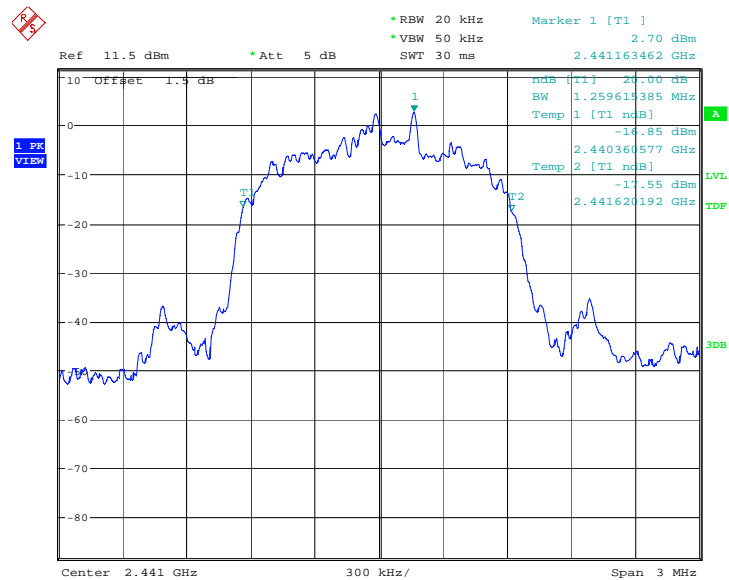
Date: 7.MAR.2012 01:13:19

Fig.126. 20dB Bandwidth: $\pi/4$ DQPSK, Channel 78



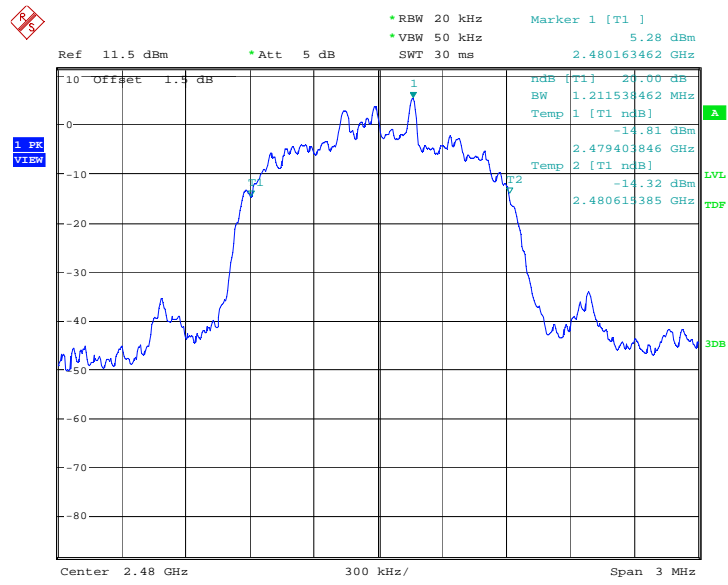
Date: 7.MAR.2012 01:34:25

Fig.127. 20dB Bandwidth: 8DPSK, Channel 0



Date: 7.MAR.2012 01:34:57

Fig.128. 20dB Bandwidth: 8DPSK, Channel 39



Date: 7.MAR.2012 01:35:29

Fig.129. 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.130	P

For $\pi/4$ DQPSK

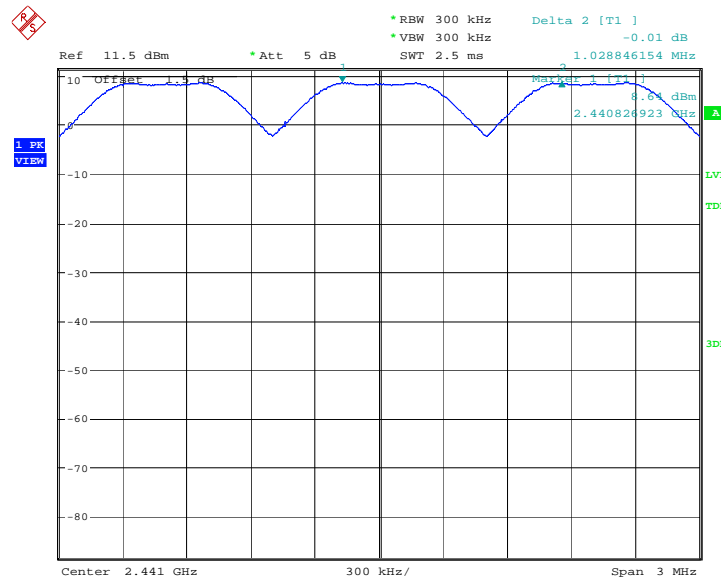
Channel	Carrier frequency separation (kHz)	Conclusion
39	Fig.131	P

For 8DPSK

Channel	Carrier frequency separation (kHz)	Conclusion
39	Fig.132	P

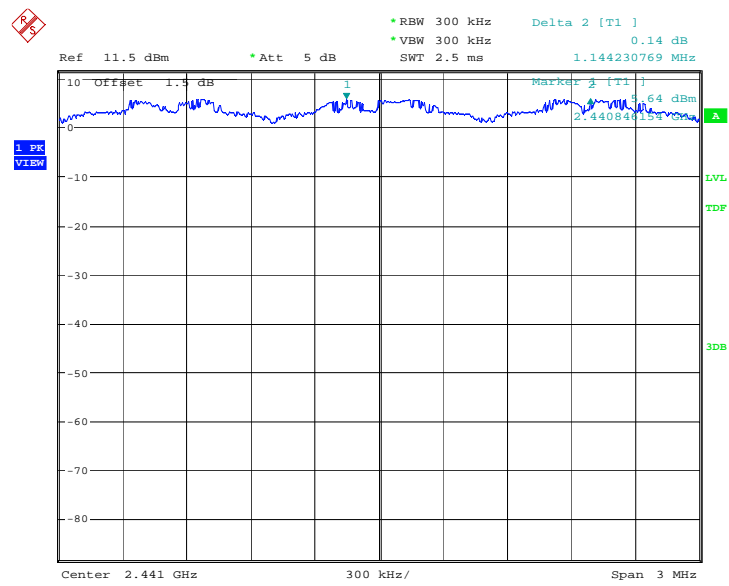
Conclusion: PASS

Test graphs as below:



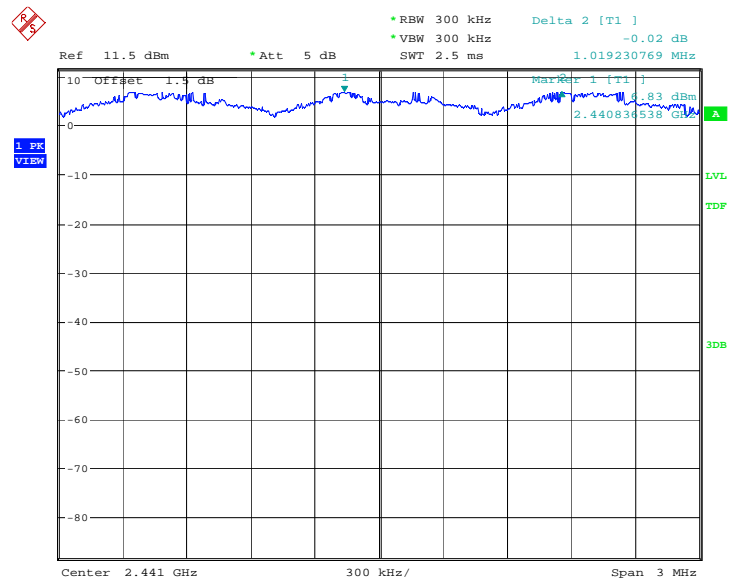
Date: 7.MAR.2012 01:47:55

Fig.130. Carrier frequency separation measurement: GFSK, Channel 39



Date: 7.MAR.2012 01:15:23

Fig.131. Carrier frequency separation measurement: $\pi/4$ DQPSK, Channel 39



Date: 7.MAR.2012 01:37:33

Fig.132. 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.133	P
40~78	Fig.134	

For $\pi/4$ DQPSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.135	P
40~78	Fig.136	

For 8DPSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.137	P
40~78	Fig.138	

Conclusion: PASS

Test graphs as below:

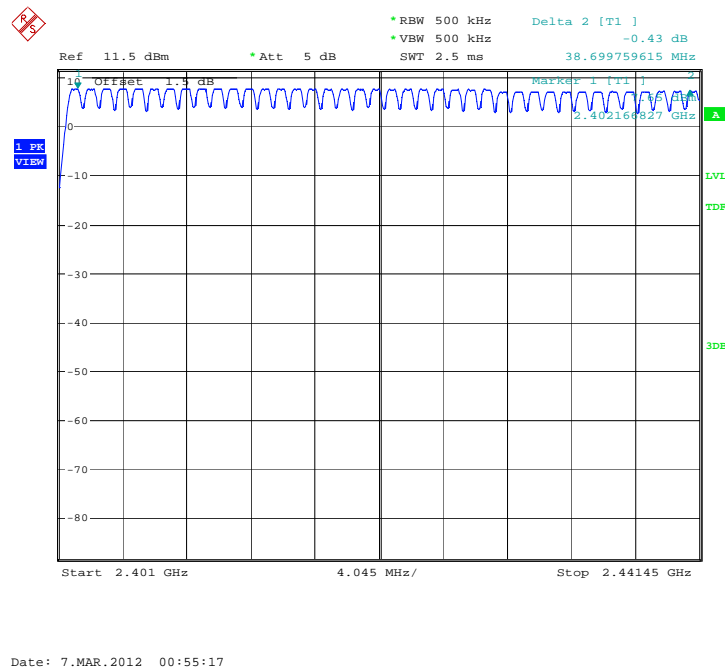
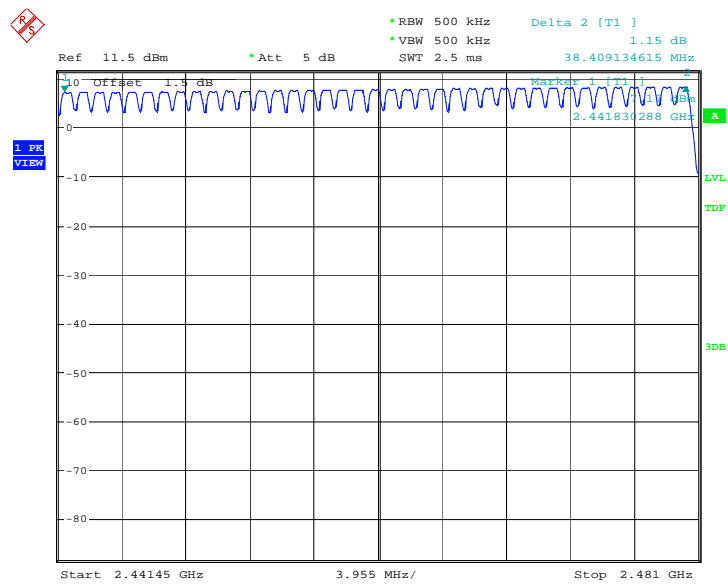
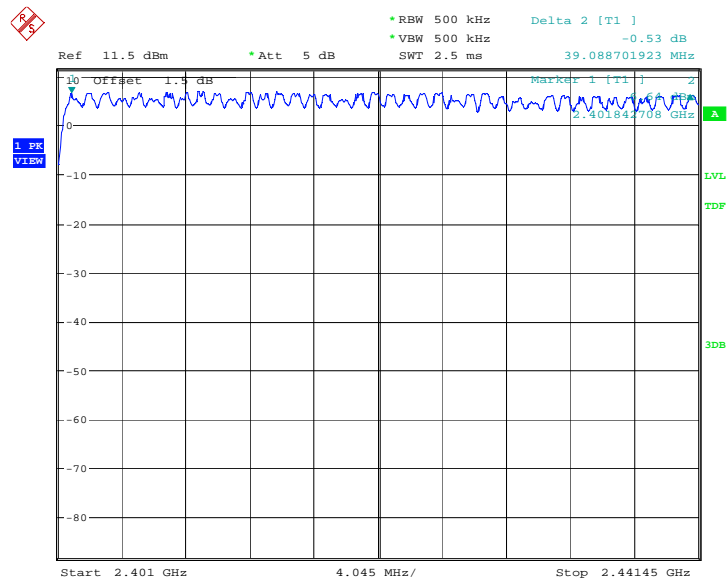


Fig.133. Number of hopping frequencies: GFSK, Channel 0 - 39



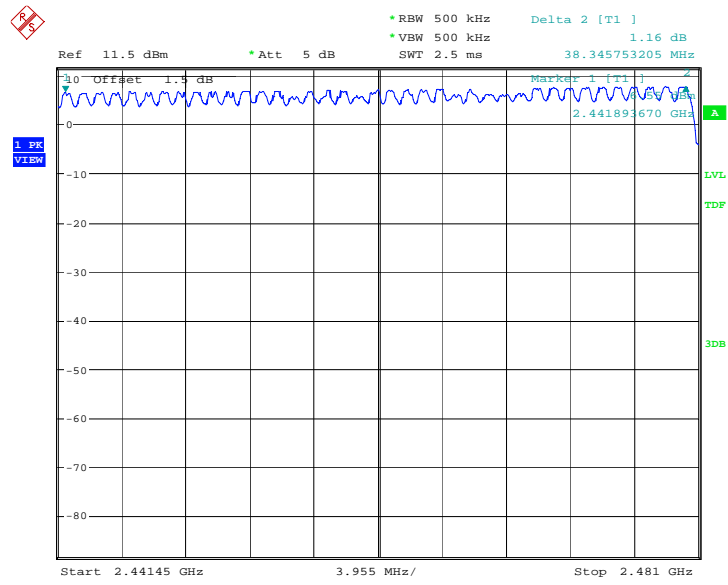
Date: 7.MAR.2012 00:57:20

Fig.134. Number of hopping frequencies: GFSK, Channel 40 - 78



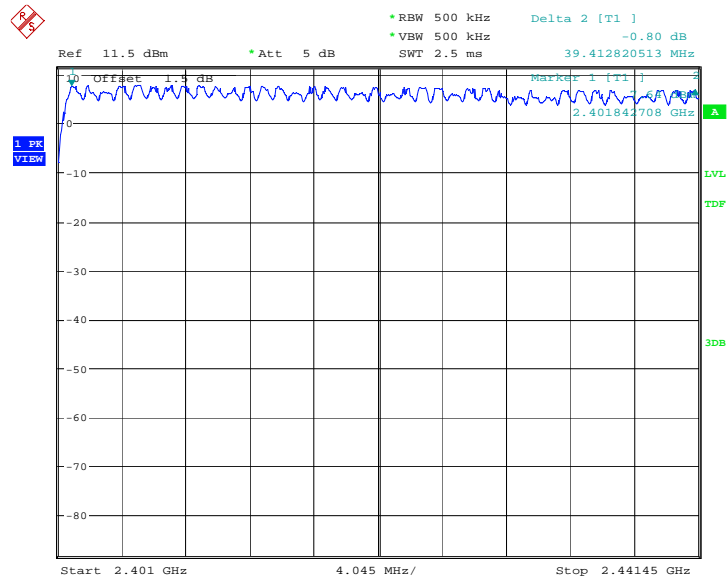
Date: 7.MAR.2012 01:17:27

Fig.135. Number of hopping frequencies: $\pi/4$ DQPSK, Channel 0 - 39



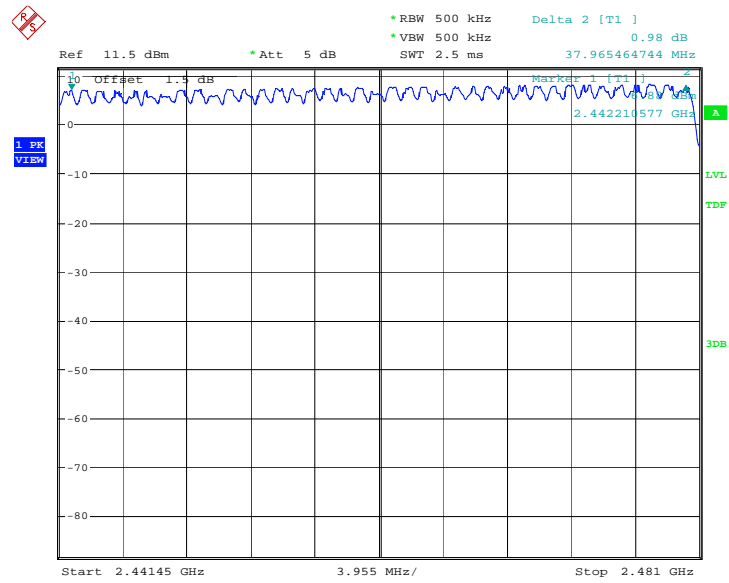
Date: 7.MAR.2012 01:19:30

Fig.136. Number of hopping frequencies: $\pi/4$ DQPSK, Channel 40 - 78



Date: 7.MAR.2012 01:39:38

Fig.137. Number of hopping frequencies: 8DPSK, Channel 0 - 39



Date: 7.MAR.2012 01:41:40

Fig.138. 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 μ V)	Result (dB μ V)	Conclusion
		With Charger	
0.15 to 0.5	66 o 56	Fig.139	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 μ V)	Result (dB μ V)	Conclusion
		With Charger	
0.15 to 0.5	56 to 46	Fig.140	P
0.5 to 5	46		
5 to 30	50		

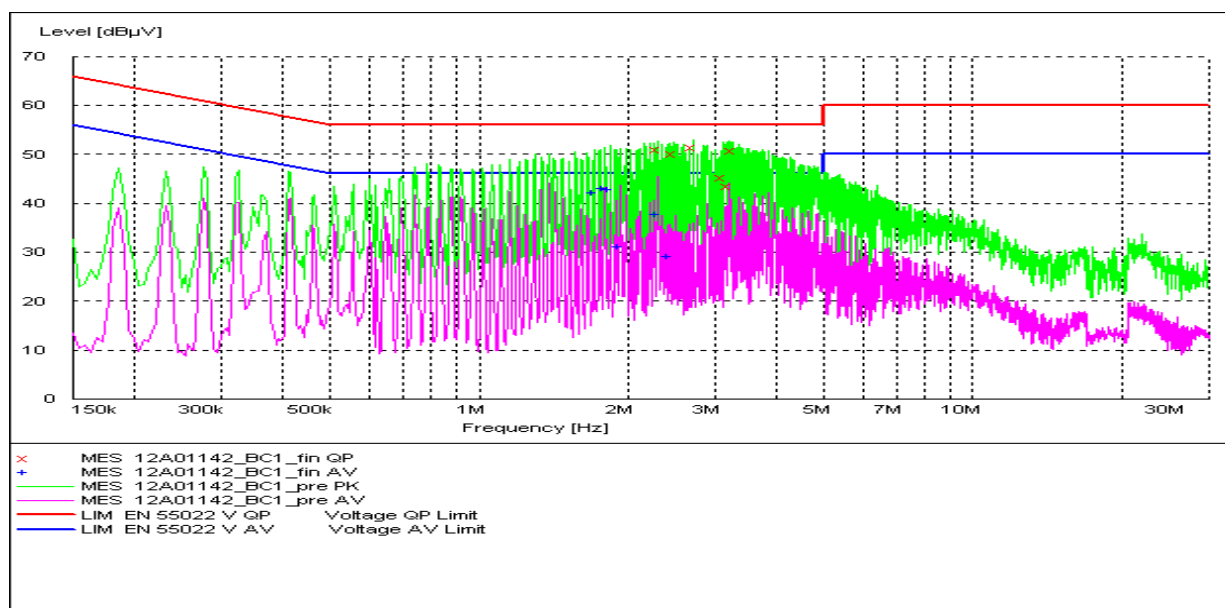
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

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

Conclusion: PASS

Test graphs as below:

AE3



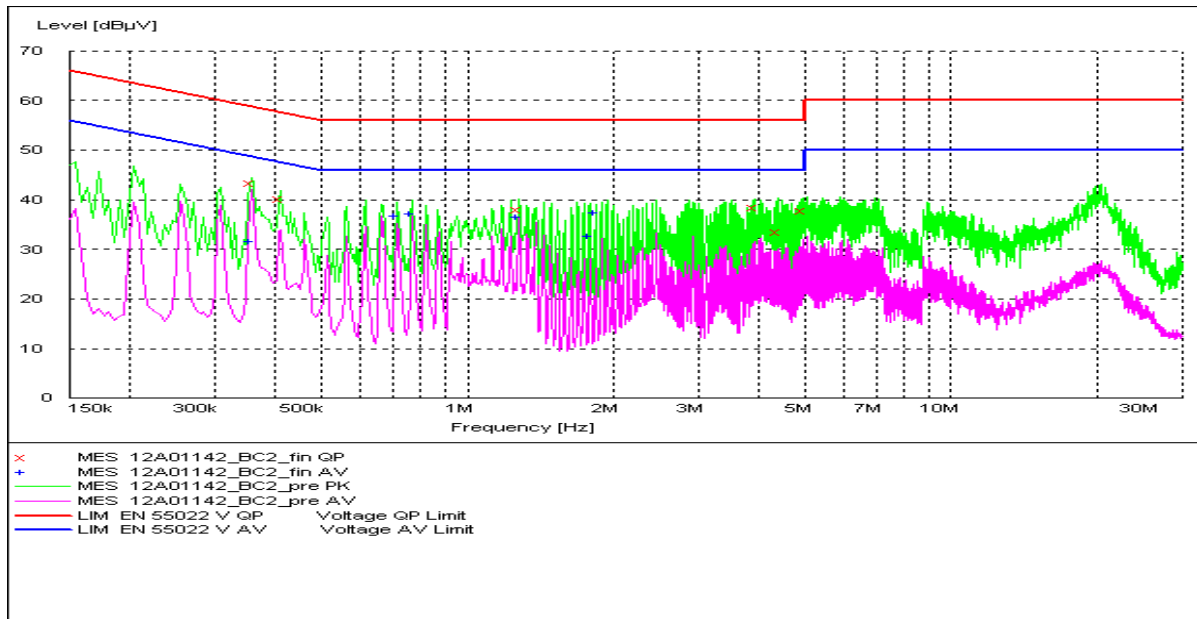
MEASUREMENT RESULT: "12A01142_BCI_fin QP"

Frequency MHz	Level dB μ V	Transd	Limit dB	Margin dB μ V	Line dB	PE
2.304826	51.00	10.1	56	5.0	L1	GND
2.486633	50.10	10.1	56	5.9	L1	GND
2.720565	51.50	10.1	56	4.5	L1	GND
3.128957	45.40	10.1	56	10.6	L1	GND
3.204884	43.50	10.1	56	12.5	L1	GND
3.276100	50.80	10.1	56	5.2	L1	GND

MEASUREMENT RESULT: "12A01142_BCI_fin AV"

Frequency MHz	Level dB μ V	Transd	Limit dB	Margin dB μ V	Line dB	PE
1.707000	42.10	10.1	46	3.9	L1	GND
1.797000	43.20	10.1	46	2.8	L1	GND
1.846500	42.80	10.1	46	3.2	L1	GND
1.923000	31.20	10.1	46	14.8	L1	GND
2.304826	37.90	10.1	46	8.1	L1	GND
2.442318	29.20	10.1	46	16.8	L1	GND

AE4



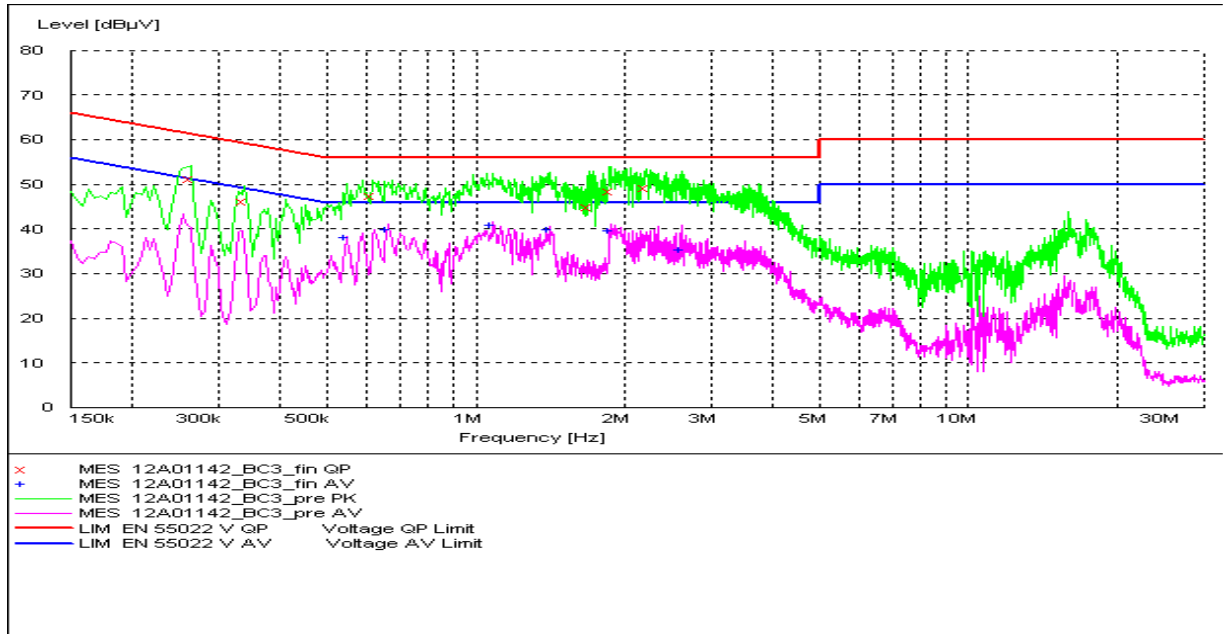
MEASUREMENT RESULT: "12A01142_BC2_fin QP"

Frequency MHz	Level dBµV	Transd	Limit dB	Margin dBµV	Line	PE
0.357000	43.50	10.1	59	15.3	L1	GND
0.411000	40.20	10.1	58	17.4	L1	GND
1.279500	38.00	10.1	56	18.0	N	GND
3.937201	38.50	10.1	56	17.5	L1	GND
4.403317	33.50	10.2	56	22.5	L1	GND
4.954223	37.70	10.2	56	18.3	L1	GND

MEASUREMENT RESULT: "12A01142_BC2_fin AV"

Frequency MHz	Level dBµV	Transd	Limit dB	Margin dBµV	Line	PE
0.357000	31.70	10.1	49	17.1	L1	GND
0.717000	36.70	10.1	46	9.3	N	GND
0.766500	37.10	10.1	46	8.9	N	GND
1.279500	36.50	10.1	46	9.5	N	GND
1.792500	32.70	10.1	46	13.3	N	GND
1.842000	37.30	10.1	46	8.7	L1	GND

AE5



MEASUREMENT RESULT: "12A01142_BC3_fin QP"

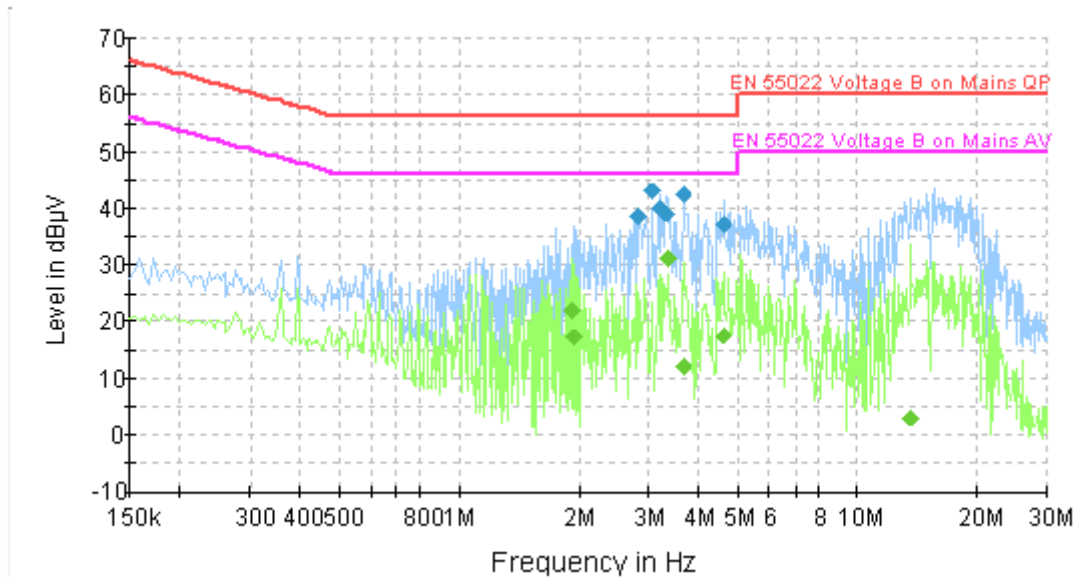
Frequency MHz	Level dBµV	Transd	Limit dB	Margin dBµV	Line dB	PE
0.262500	51.20	10.1	61	10.2	L1	GND
0.339000	46.30	10.1	59	12.9	L1	GND
0.613500	47.40	10.1	56	8.6	L1	GND
1.693500	45.00	10.1	56	11.0	N	GND
1.873500	48.40	10.1	56	7.6	L1	GND
2.210121	49.30	10.1	56	6.7	L1	GND

MEASUREMENT RESULT: "12A01142_BC3_fin AV"

Frequency MHz	Level dBµV	Transd	Limit dB	Margin dBµV	Line dB	PE
0.546000	38.20	10.1	46	7.8	L1	GND
0.663000	39.80	10.1	46	6.2	L1	GND
1.086000	41.00	10.1	46	5.0	L1	GND
1.419000	39.80	10.1	46	6.2	L1	GND
1.882500	39.60	10.1	46	6.4	L1	GND
2.629710	35.30	10.1	46	10.7	L1	GND

AE6

ESH3-Z5 Scan



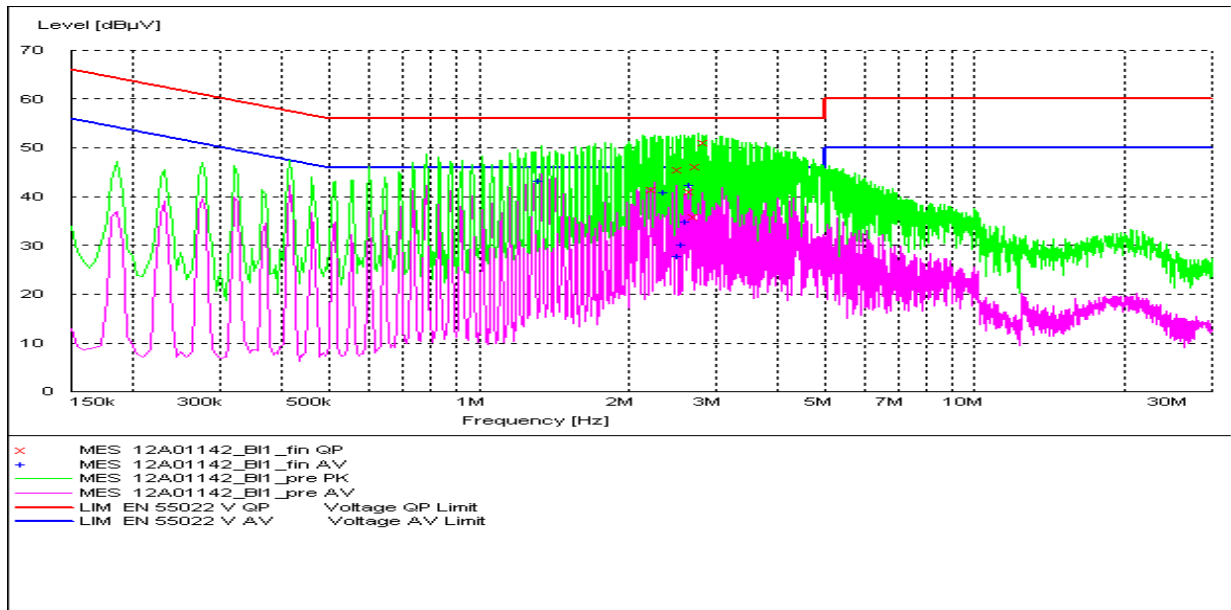
Final Result 1

Frequency	QuasiPeak	PE	Line	Corr.	Margin	Limit
2.835661	38.6	GND	N	9.8	17.4	56.0
3.086579	43.0	GND	L1	9.8	13.0	56.0
3.228286	40.0	GND	N	9.8	16.0	56.0
3.309804	39.0	GND	N	9.8	17.0	56.0
3.675273	42.5	GND	L1	9.8	13.5	56.0
4.623048	37.1	GND	L1	9.8	18.9	56.0

Final Result 2

Frequency	Average	PE	Line	Corr.	Margin	Limit
1.936500	22.1	GND	L1	9.8	23.9	46.0
1.954500	17.1	GND	N	9.8	28.9	46.0
3.359700	31.0	GND	L1	9.8	15.0	46.0
3.675273	12.2	GND	L1	9.8	33.8	46.0
4.600048	17.6	GND	L1	9.8	28.4	46.0
13.644694	2.9	GND	N	9.5	47.1	50.0

Idle



MEASUREMENT RESULT: "12A01142_BI1_fin QP"

Frequency MHz	Level dB μ V	Transd	Limit dB	Margin dB μ V	Line	PE
2.268279	41.50	10.1	56	14.5	L1	GND
2.541889	45.50	10.1	56	10.5	L1	GND
2.682780	41.00	10.1	56	15.0	N	GND
2.731458	35.80	10.1	56	20.2	N	GND
2.769929	46.30	10.1	56	9.7	L1	GND
2.865628	51.10	10.1	56	4.9	L1	GND

MEASUREMENT RESULT: "12A01142_BI1_fin AV"

Frequency MHz	Level dB μ V	Transd	Limit dB	Margin dB μ V	Line	PE
1.338000	43.20	10.1	46	2.8	L1	GND
2.394004	40.90	10.1	46	5.1	L1	GND
2.541889	27.70	10.1	46	18.3	L1	GND
2.588011	30.10	10.1	46	15.9	L1	GND
2.634969	34.80	10.1	46	11.2	N	GND
2.682780	42.30	10.1	46	3.7	L1	GND

A.11 RECEIVER RADIATION EMISSION

Reference

FCC: CFR Part 15.109, 2.1053

A.11.1 Method of Measurement

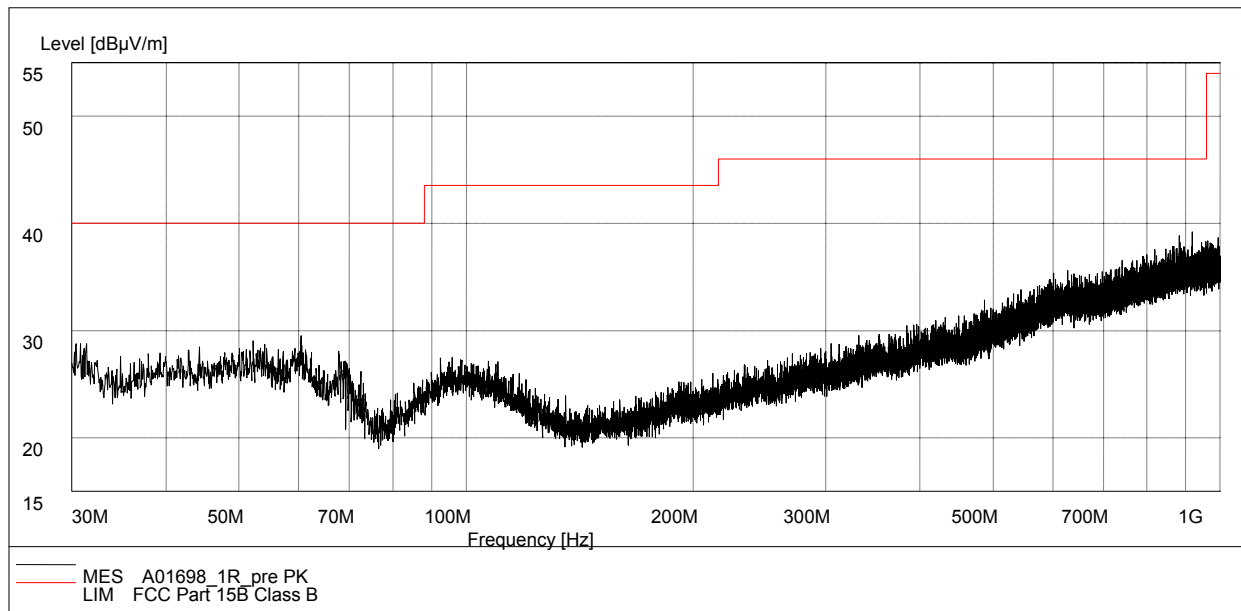
The measurement procedure in ANSI C64.4-2003 is used. The EUT is placed on a 80cm height non-conductive table locating on the center of turntable. From 30MHz-1GHz, the measurement distance is 10m. For frequency range above 1GHz, the measurement distance is 3m.

The EUT is measured with travel charger and the operating mode is idle without CMU200's signaling.

A.11.2 Method of Measurement

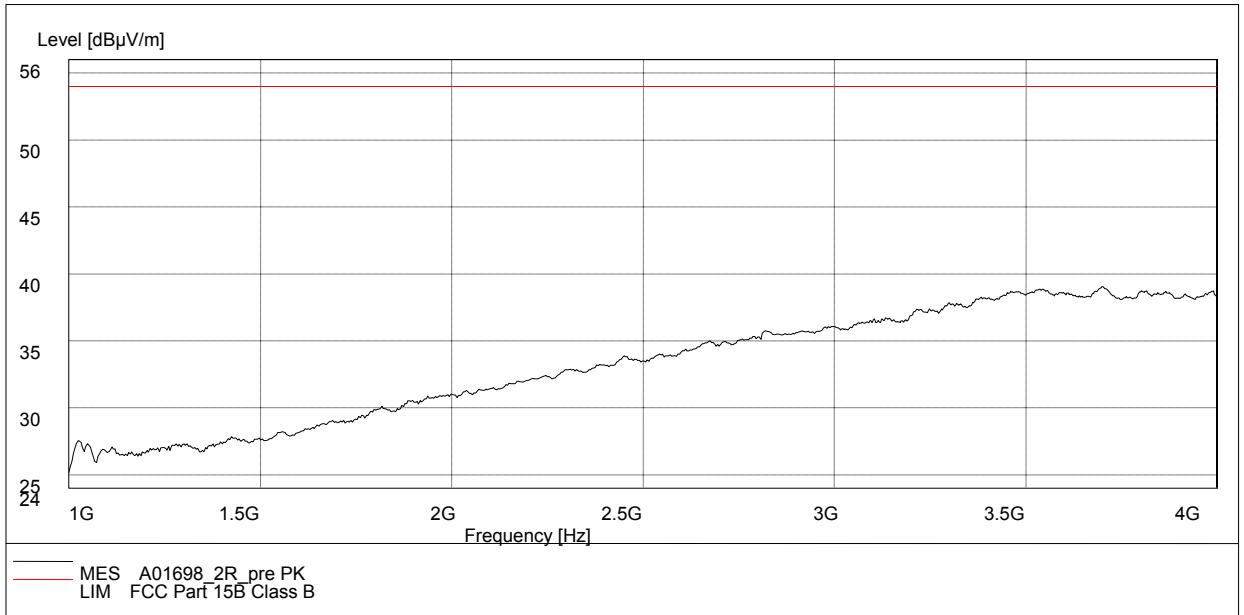
Frequency of Emission (MHz)	Limit (dB μ V/m)	Measurement Distance (m)
30-88	30	10
88-216	33.5	10
216-960	36	10
960-1000	44	10
>1000	54	3

A. 11.3 Measurement results



IF bandwidth: 120 kHz

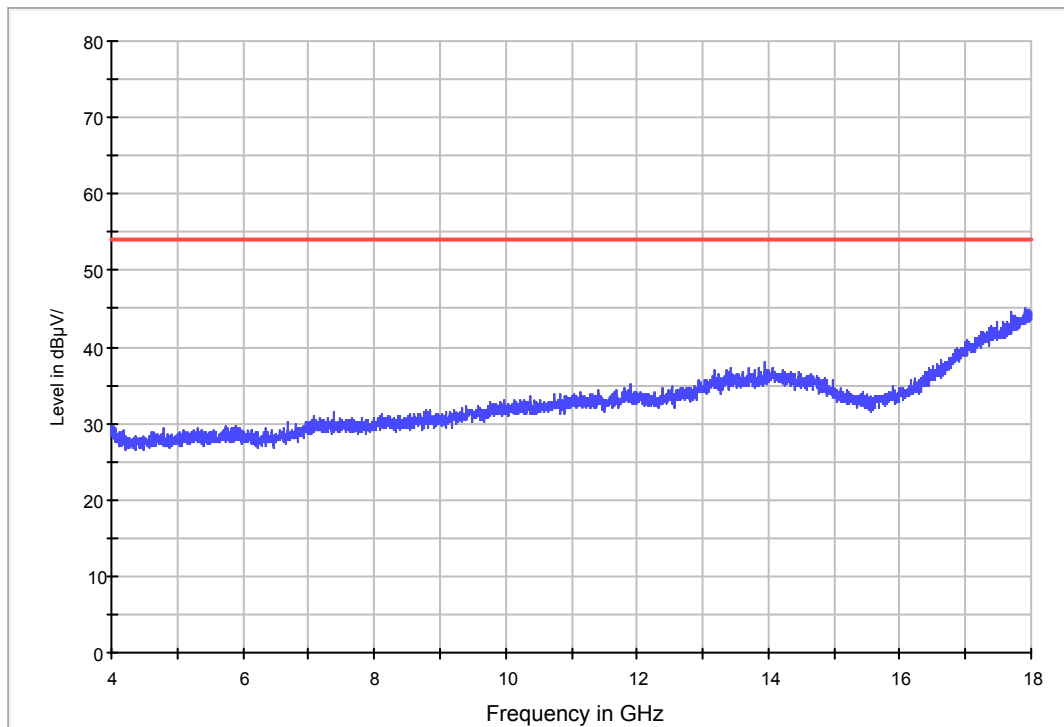
Idle Mode: 30MHz-1GHz



RBW / VBW 1 MHz

Idle Mode: 1GHz-4GHz

FCC 4-18G



RBW / VBW 1 MHz

Idle Mode: 4GHz-18GHz

*** END OF REPORT BODY ***