



Full

TEST REPORT

No. I14D00033-RFB

For

Client : Moxee Technologies

**Production : WCDMA/GSM (GPRS) Dual-Mode
Digital Mobile Phone**

Model Name : X1

FCC ID: 2ADHZ-MOXEEEX1

Hardware Version: MBV1.0

Software Version: MOXEE_X1_V1.1

Issued date: 2014-11-28

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 ECIT Shanghai.

Test Laboratory:

ECIT Shanghai, East China Institute of Telecommunications

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**Revision Version**

Report Number	Revision	Date	Memo
I14D00033-RFB	00	2014-11-28	Initial creation of test report

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1. Test Laboratory

1.1. Testing Location

Company Name:	ECIT Shanghai, East China Institute of Telecommunications
Address:	7-8F, G Area, No. 668, Beijing East Road, Huangpu District, Shanghai, P. R. China
Postal Code:	200001
Telephone:	(+86)-021-63843300
Fax:	(+86)-021-63843301

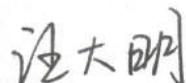
1.2. Testing Environment

Normal Temperature:	15-35°C
Extreme Temperature:	-10/+55°C
Relative Humidity:	20-75%

1.3. Project data

Project Leader:	Chen Kan
Testing Start Date:	2014-10-20
Testing End Date:	2014-11-15

1.4. Signature



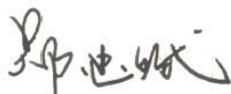
Wang Daming

(Prepared this test report)



Liu Jianquan

(Reviewed this test report)



Zheng Zhongbin

Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: Moxee Technologies
Address: 10900 NE 8th Street, #1000 washtington America
Contact Person: Joe Phillips
Telephone: 425-890-7897
Postcode: 98004

2.2. Manufacturer Information

Company Name: Moxee Technologies
Address: 10900 NE 8th Street, #1000 washtington America
Contact Person: Joe Phillips
Telephone: 425-890-7897
Postcode: 98004

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

3.1. About EUT

EUT Description	WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone
Model name	X1
Bluetooth Frequency	2402MHz-2480MHz
Bluetooth Channel	Channel0-Channel78
Bluetooth Modulation	GMSK; $\pi/4$ DQPSK;8DPSK
Extreme Temperature	N/A
Nominal Voltage	3.8V
Extreme High Voltage	4.35V
Extreme Low Voltage	3.5V

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

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
N02	862240021000672	MBV1.0	MOXEE_X1_V1.1	2014-10-20

*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	RF cable	---
AE2	---	---

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

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part15	FCC CFR 47, Part 15,Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.	2014
ANSI 63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz	2009

5. Summary of Test Results

A brief summary of the tests carried out is shown as following.

Measurement Items	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.247(a)	/	P
Peak Power Spectral Density	15.247(d)	/	P
Occupied 6dB Bandwidth	15.247(d)	/	P
Band Edges Compliance	15.247(b)	/	P
Transmitter Spurious Emission-Conducted	15.247	/	P
Transmitter Spurious Emission-Radiated	15.247,15.209,	/	P
AC Powerline Conducted Emission	15.107,15.207	/	P

Please refer to part 5 for detail.

The measurements are according to ANSI 63.10.

Terms used in Verdict column

P	Pass, the EUT complies with the essential requirements in the standard.
NP	Not Perform, the test was not performed by ECIT.
NA	Not Applicable, the test was not applicable.
F	Fail, the EUT does not comply with the essential requirements in the standard.

Test Conditions

T _{nom}	Normal Temperature
T _{min}	Low Temperature
T _{max}	High Temperature
V _{nom}	Normal Voltage
V _{min}	Low Voltage
V _{max}	High Voltage
H _{nom}	Norm Humidity
A _{nom}	Norm Air Pressure

For this report, all the test case listed above are tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:

Temperature	T _{nom}	25°C
Voltage	V _{nom}	3.7V
Humidity	H _{nom}	46%
Air Pressure	A _{nom}	1010hPa

Note:

- a. All the test data for each data were verified, but only the worst case was reported.
- b. The GFSK, $\pi/4$ DQPSK and 8DPSK were set in DH1 for GFSK, 2-DH1 for $\pi/4$ DQPSK, 3-DH1 for 8DPSK.
- c. The DC and low frequency voltages' measurement uncertainty is $\pm 2\%$.

5.1. Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with section 3.

The test results of this test report relate exclusively to the item(s) tested as specified in section 5.

The following deviation from, additions to, or exclusions from the test specifications have been made. See section 3.

5.2. Statements

The product name X1, supporting GSM/GPRS /WCDMA/HSDPA/HSUPA/ /BT/WLAN, manufactured by Shanghai Wind Communication Technologies Co.,Ltd. is a new product for testing.

Note: All tests were carried out while using a fully battery charged.

ECIT has verified that the compliance of the tested device specified in section 5 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 5 of this test report.

6. Test result

6.1. Peak Output Power-Conducted

Measurement Limit

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

The measurement is according to ANSI 63.10.

Test Condition:

Hopping Mode	RBW	VBW	Span	Sweeptime
Hopping OFF	3MHz	10MHz	9MHz	Auto

Measurement Results:

For GFSK

Channel	Ch0 2402 MHz	Ch39 2441 MHz	CH78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	5.312	5.755	5.953	P
	Fig.1	Fig.2	Fig.3	

For $\pi/4$ DQPSK

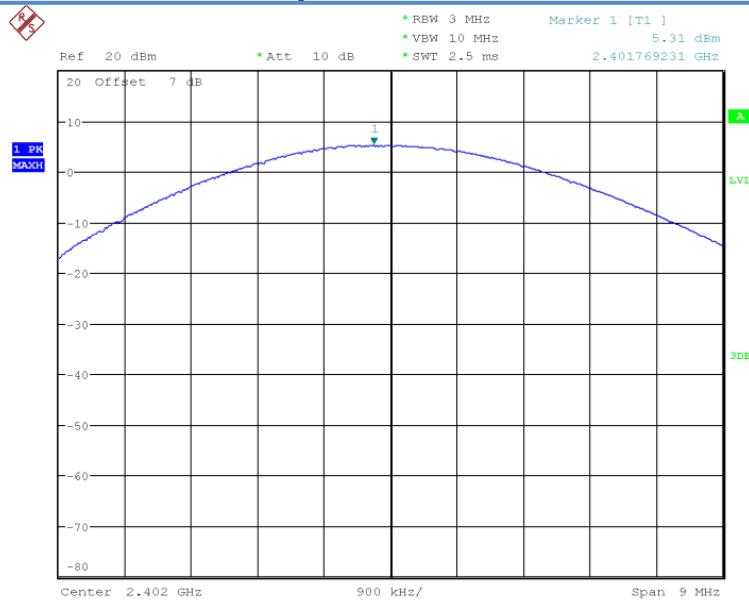
Channel	Ch0 2402 MHz	Ch39 2441 MHz	CH78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	4.618	4.976	5.037	P
	Fig.4	Fig.5	Fig.6	

For 8DPSK

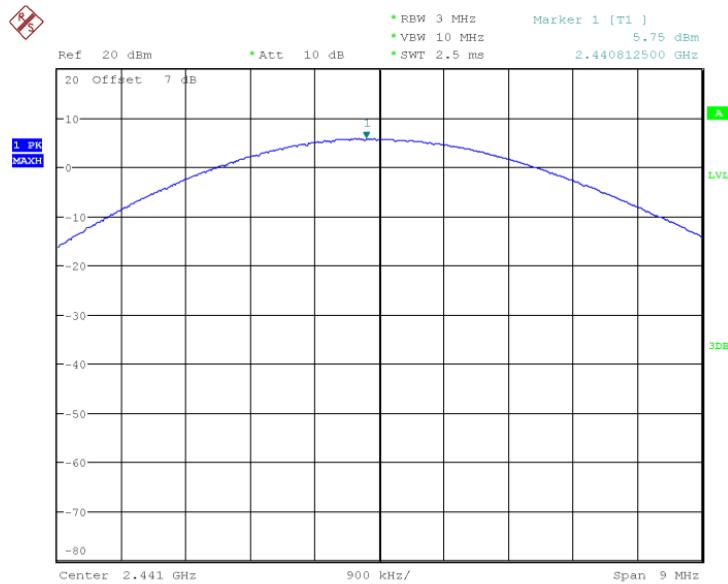
Channel	Ch0 2402 MHz	Ch39 2441 MHz	CH78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	4.625	4.984	5.053	P
	Fig.7	Fig.8	Fig.9	

Conclusion: PASS

Test graphs an below

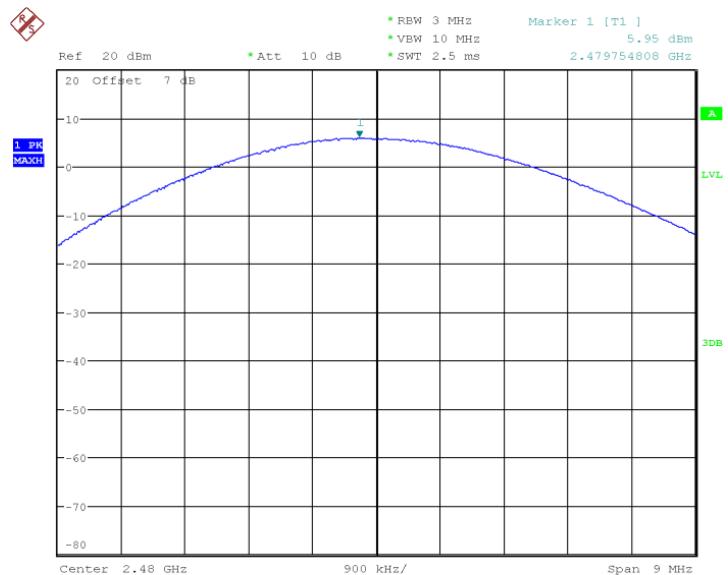


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Fig.1 Peak Conducted Output Power CH0, DH1


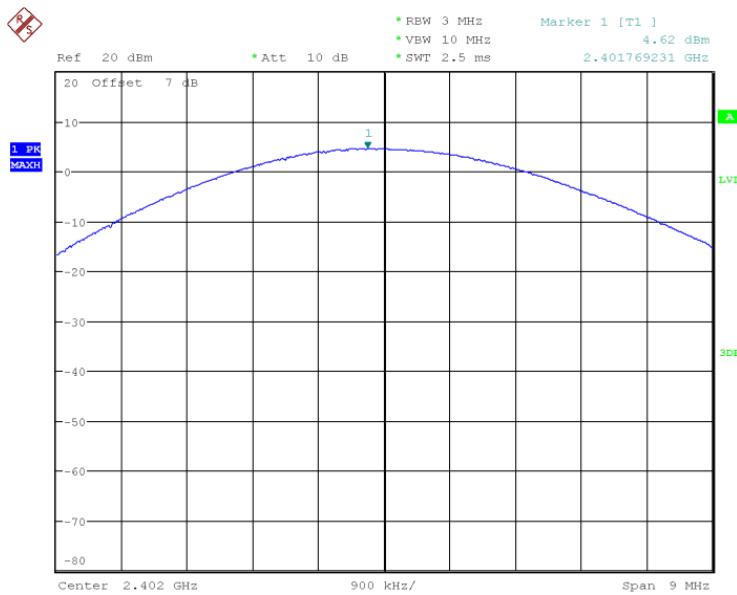
Date: 28.OCT.2014 17:08:53

Fig.2 Peak Conducted Output Power CH39, DH1



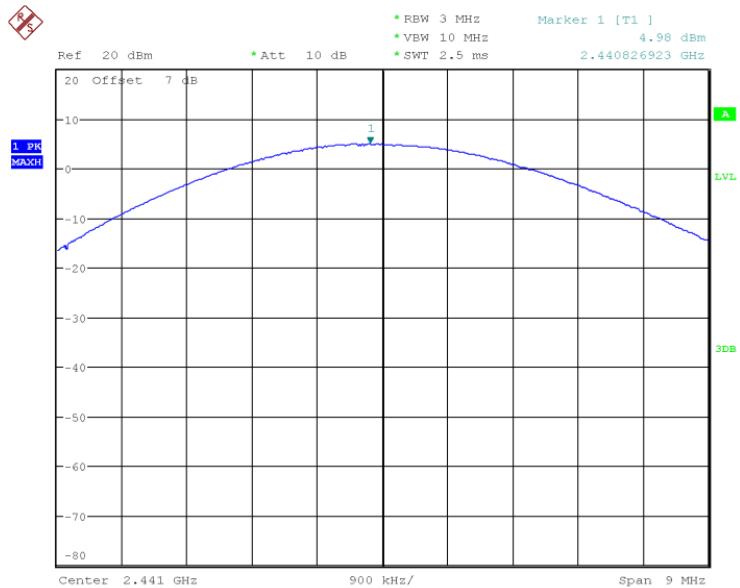
Date: 28.OCT.2014 17:09:05

Fig.3 Peak Conducted Output Power CH78, DH1



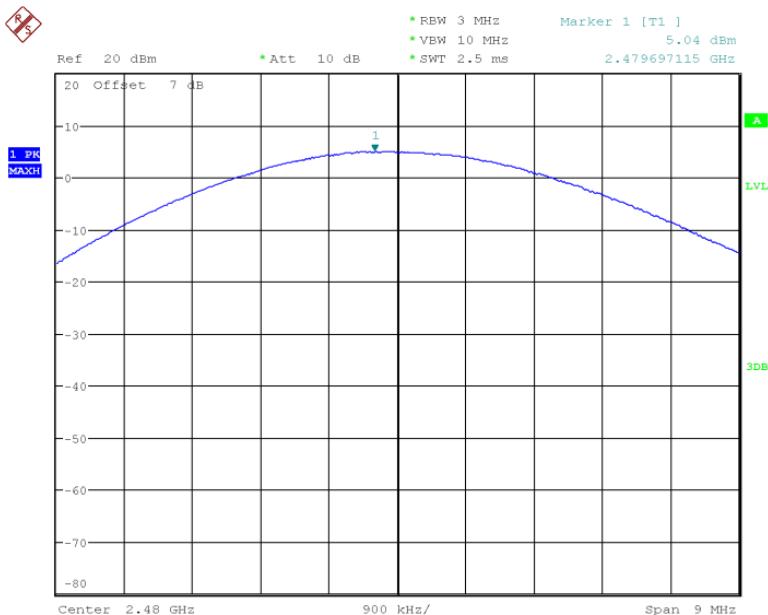
Date: 28.OCT.2014 17:09:17

Fig.4 Peak Conducted Output Power CH0, 2DH1



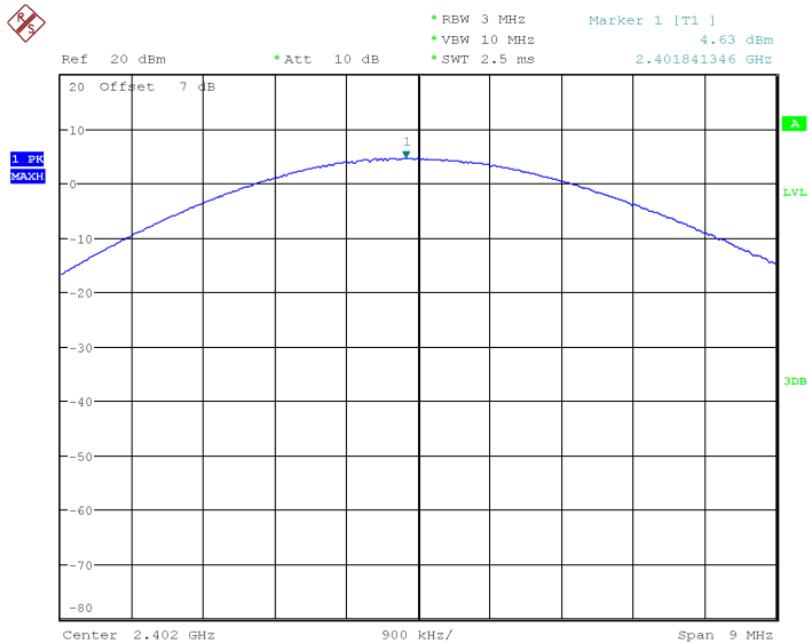
Date: 28.OCT.2014 17:09:29

Fig.5 Peak Conducted Output Power CH39, 2DH1



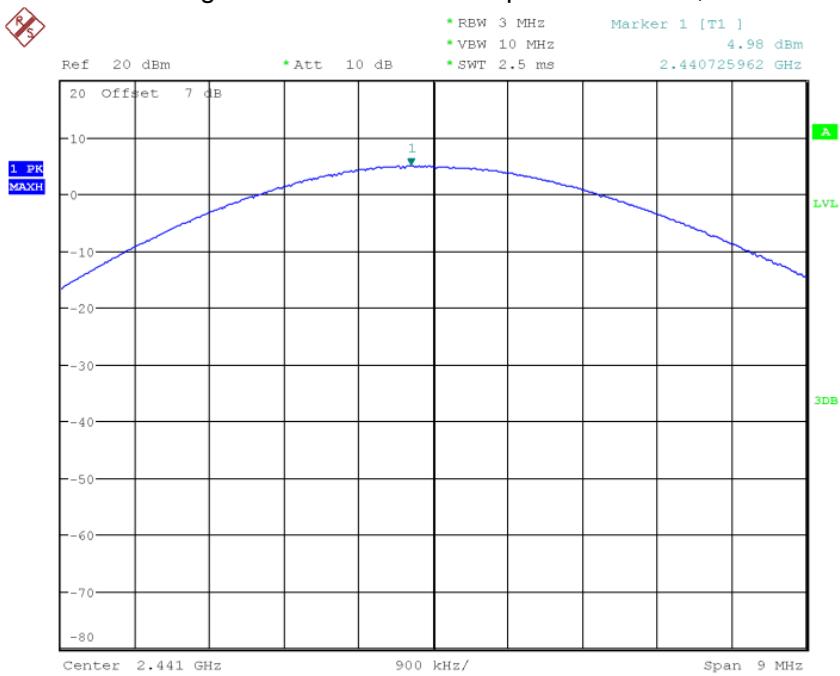
Date: 28.OCT.2014 17:09:41

Fig.6 Peak Conducted Output Power CH78, 2DH1



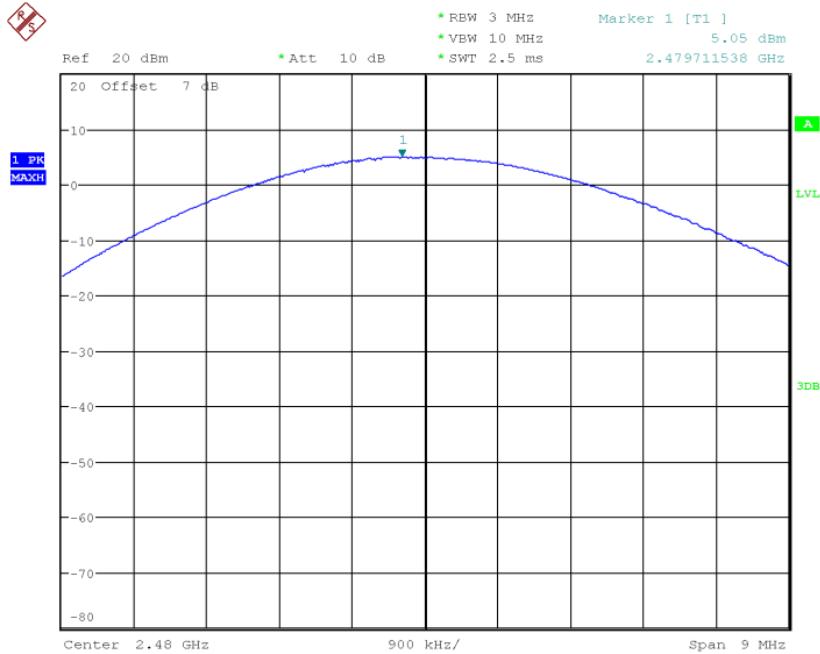
Date: 28.OCT.2014 17:09:53

Fig.7 Peak Conducted Output Power CH0, 3DH1



Date: 28.OCT.2014 17:10:05

Fig.8 Peak Conducted Output Power CH39, 3DH1



Date: 28.OCT.2014 17:10:18

Fig.9 Peak Conducted Output Power CH78, 3DH1

6.2. Frequency Band Edges-Conducted

Measurement Limit:

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

Test procedures:

1. Connect the EUT to spectrum analyzer.
2. Set RBW=100KHz, VBW=300KHz, span more than 1.5 times channel bandwidth.
3. Detector =peak, sweep time=auto couple, trace mode=max hold.

For GFSK

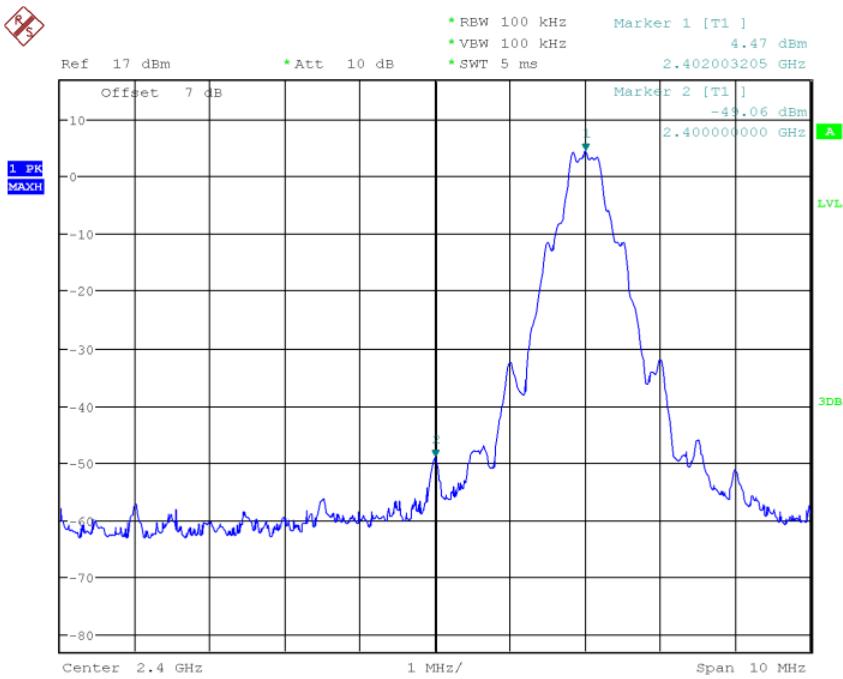
Channel	Hopping	Band Edge Power (dBc)	Conclusion
0	Hopping OFF	Fig.10	P
	Hopping ON	Fig.11	P
78	Hopping OFF	Fig.12	P
	Hopping ON	Fig.13	P

For π/4 DQPSK

Channel	Hopping	Band Edge Power (dBc)	Conclusion
0	Hopping OFF	Fig.14	P
	Hopping ON	Fig.15	P
78	Hopping OFF	Fig.16	P
	Hopping ON	Fig.17	P

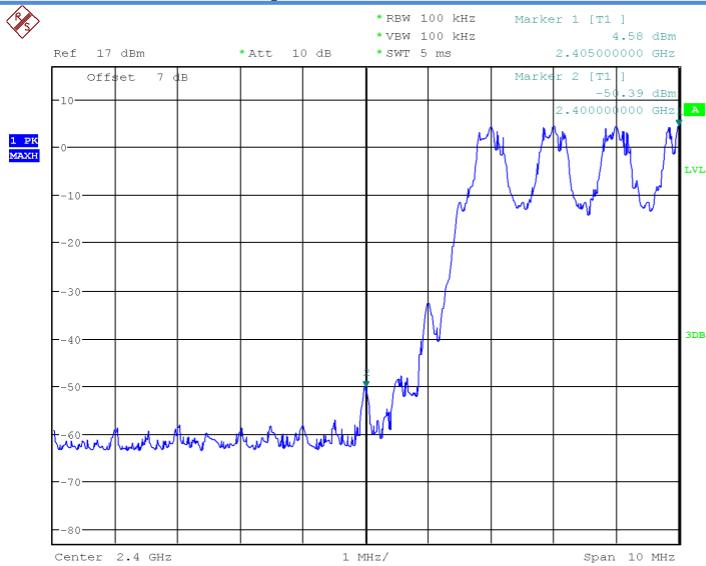
For 8DPSK

Channel	Hopping	Band Edge Power (dBc)	Conclusion
0	Hopping OFF	Fig.18	P
	Hopping ON	Fig.19	P
78	Hopping OFF	Fig.20	P
	Hopping ON	Fig.21	P

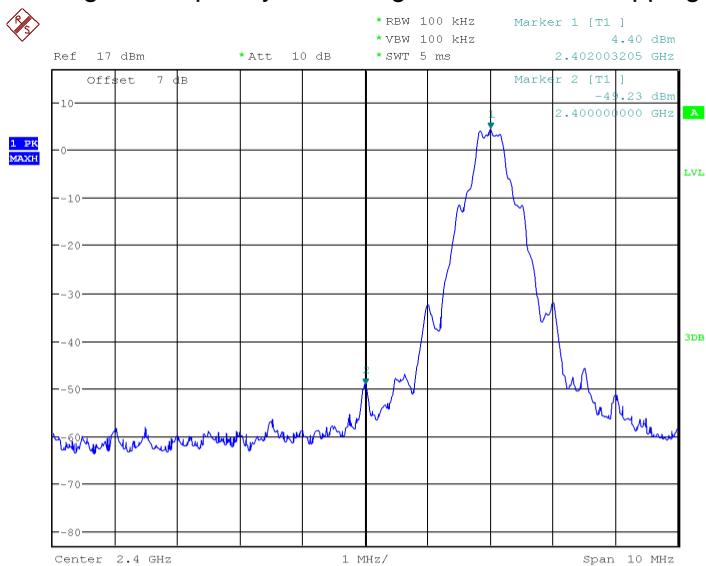
Conclusion: PASS
Test graphs an below


Date: 28.OCT.2014 17:11:24

Fig.10 Frequency Band Edge: GFSK, Ch0, Hopping OFF



Date: 28.OCT.2014 17:13:29

Fig.11 Frequency Band Edge: GFSK, Ch0, Hopping ON


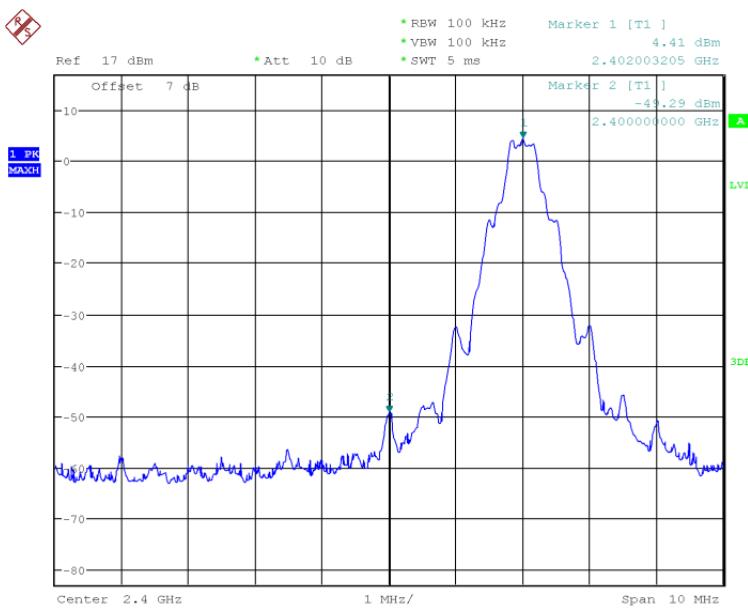
Date: 28.OCT.2014 17:14:03

Fig.12 Frequency Band Edge: GFSK, Ch78, Hopping OFF



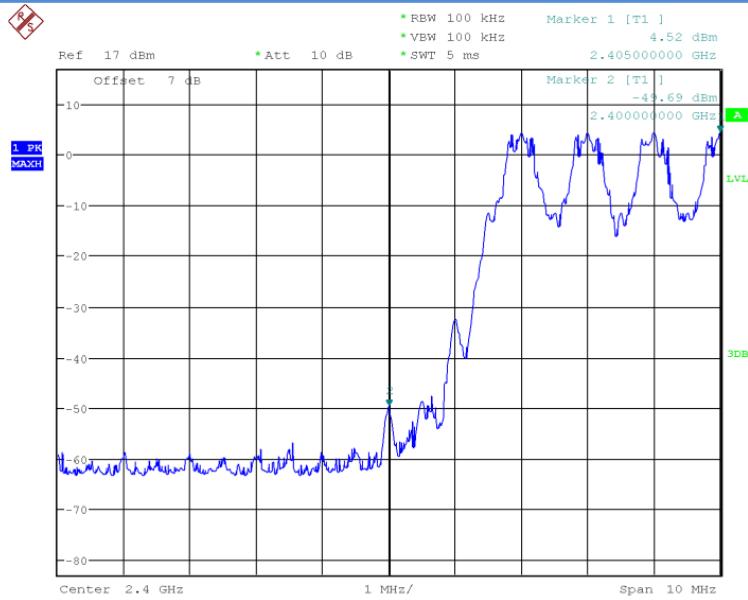
Date: 28.OCT.2014 17:16:08

Fig.13 Frequency Band Edge: GFSK, Ch78, Hopping ON



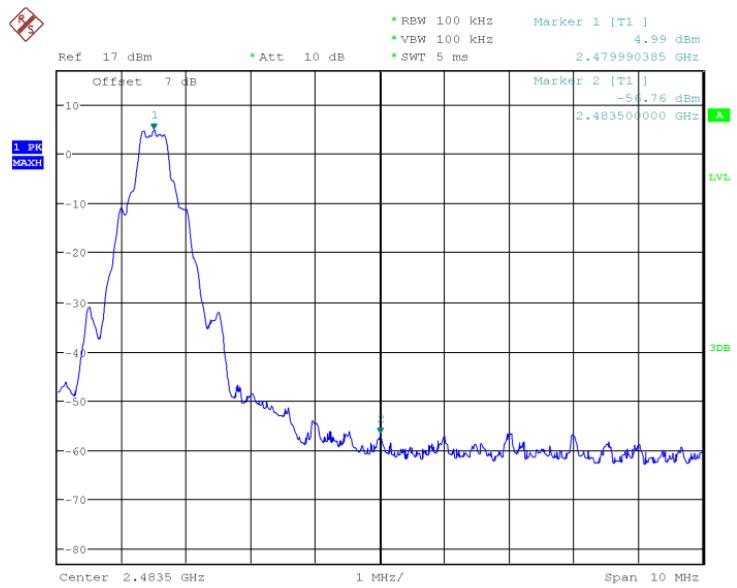
Date: 28.OCT.2014 17:16:42

Fig.14 Frequency Band Edge: $\pi/4$ DQPSK, Ch0, Hopping OFF



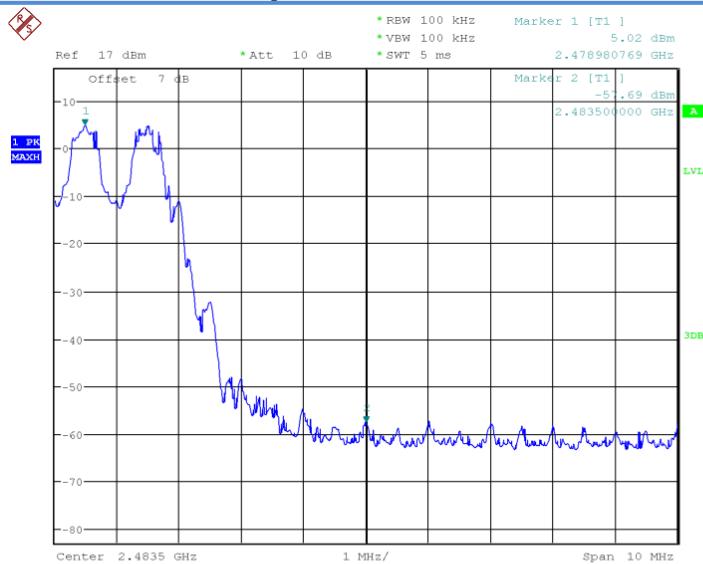
Date: 28.OCT.2014 17:18:47

Fig.15 Frequency Band Edge: $\pi/4$ DQPSK, Ch0, Hopping ON

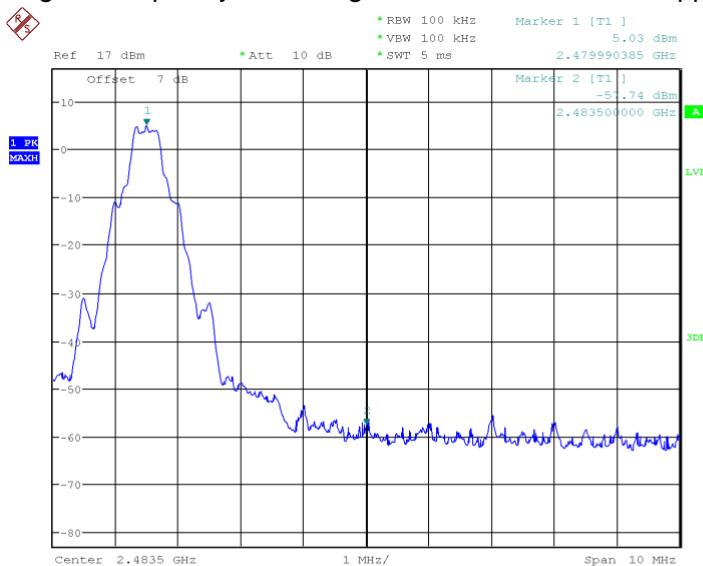


Date: 28.OCT.2014 17:19:22

Fig.16 Frequency Band Edge: $\pi/4$ DQPSK, Ch78, Hopping OFF

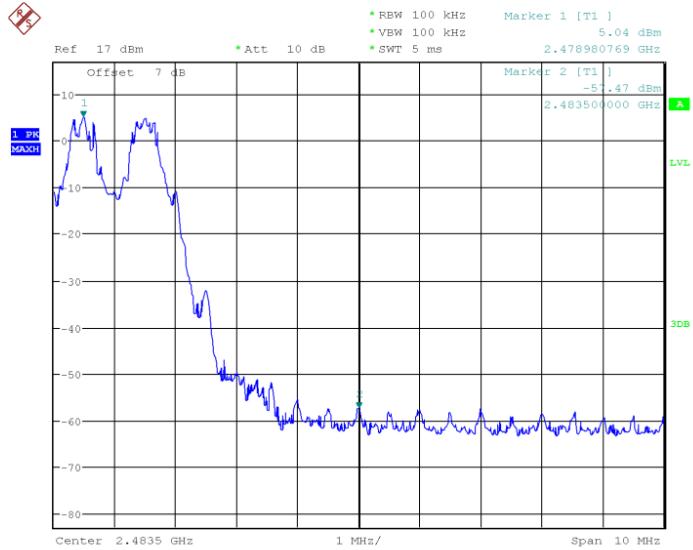


Date: 28.OCT.2014 17:21:27

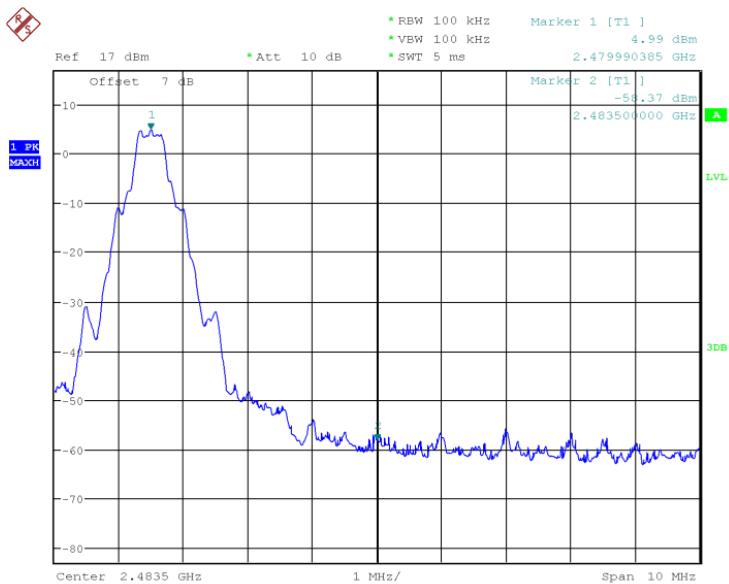
Fig.17 Frequency Band Edge: $\pi/4$ DQPSK, Ch78, Hopping ON


Date: 28.OCT.2014 17:22:02

Fig.18 Frequency Band Edge: 8DPSK, Ch0, Hopping OFF

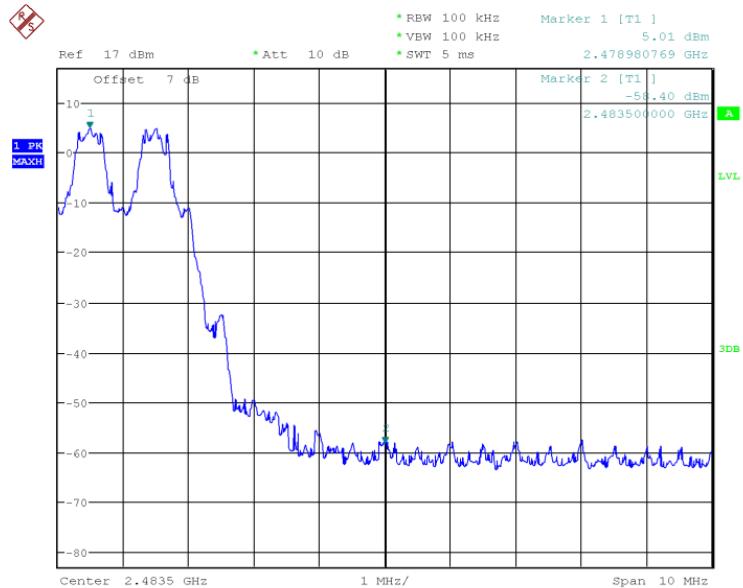


Date: 28.OCT.2014 17:24:06

Fig.19 Frequency Band Edge: 8DPSK, Ch0, Hopping ON


Date: 28.OCT.2014 17:24:41

Fig.20 Frequency Band Edge: 8DPSK, Ch78, Hopping OFF



Date: 28.OCT.2014 17:26:46

Fig.21 Frequency Band Edge: 8DPSK, Ch78, Hopping ON

6.3. Conducted Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part15.247 (d)	20dB below peak output power in 100KHz bandwidth

The measurement is according to ANSI 63.10

Test procedures:

1. Connect the EUT to spectrum analyzer.
2. Set RBW=100KHz, VBW=300KHz,span more than 1.5 times channel bandwidth.
3. Detector =peak, sweep time=auto couple, trace mode=max hold.

Measurement Results:

For GFSK

For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch0 2402MHz	Center Freq.	Fig.22	P
	30MHz~26GHz	Fig.23	P
Ch39 2441MHz	Center Freq.	Fig.24	P
	30MHz~26GHz	Fig.25	P
Ch78 2480MHz	Center Freq.	Fig.26	P



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	30MHz~26GHz	Fig.27	P
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For $\pi/4$ DQPSK

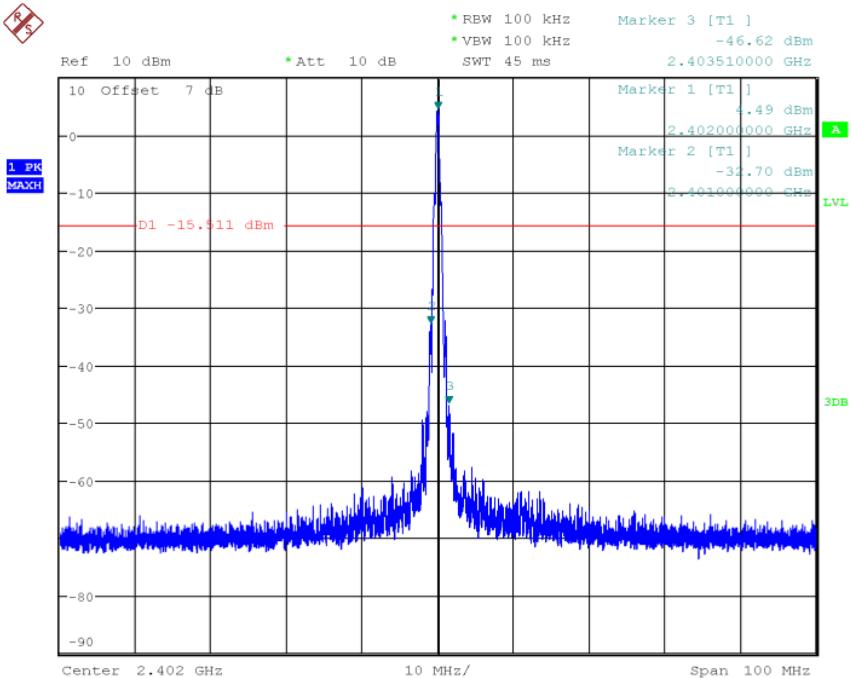
Channel	Frequency Range	Test Results	Conclusion
Ch0 2402MHz	Center Freq.	Fig.28	P
	30MHz~26GHz	Fig.29	P
Ch39 2441MHz	Center Freq.	Fig.30	P
	30MHz~26GHz	Fig.31	P
Ch78 2480MHz	Center Freq.	Fig.32	P
	30MHz~26GHz	Fig.33	P

For 8DPSK

Channel	Frequency Range	Test Results	Conclusion
Ch0 2402MHz	Center Freq.	Fig.34	P
	30MHz~26GHz	Fig.35	P
Ch39 2441MHz	Center Freq.	Fig.36	P
	30MHz~26GHz	Fig.37	P
Ch78 2480MHz	Center Freq.	Fig.38	P
	30MHz~26GHz	Fig.39	P

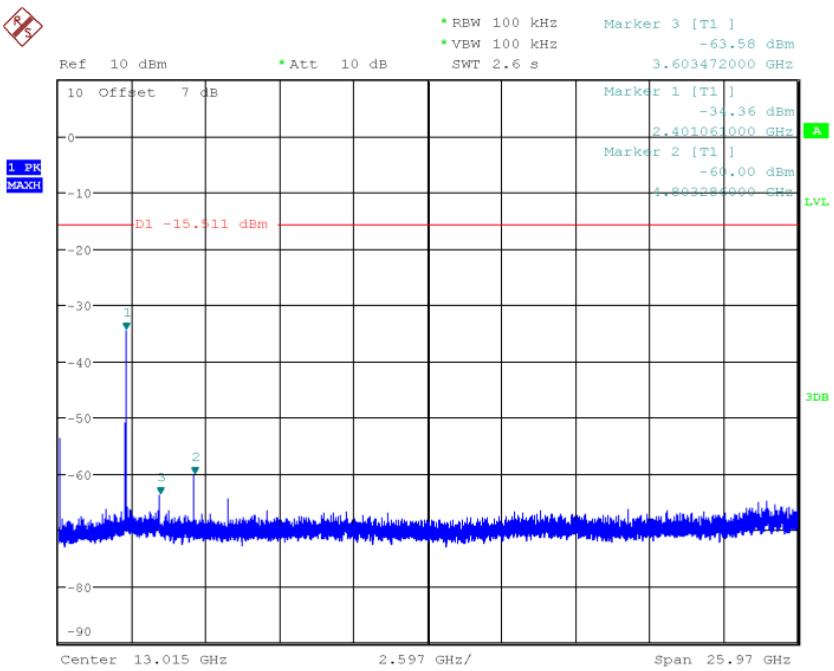
Conclusion: PASS

Test graphs as below



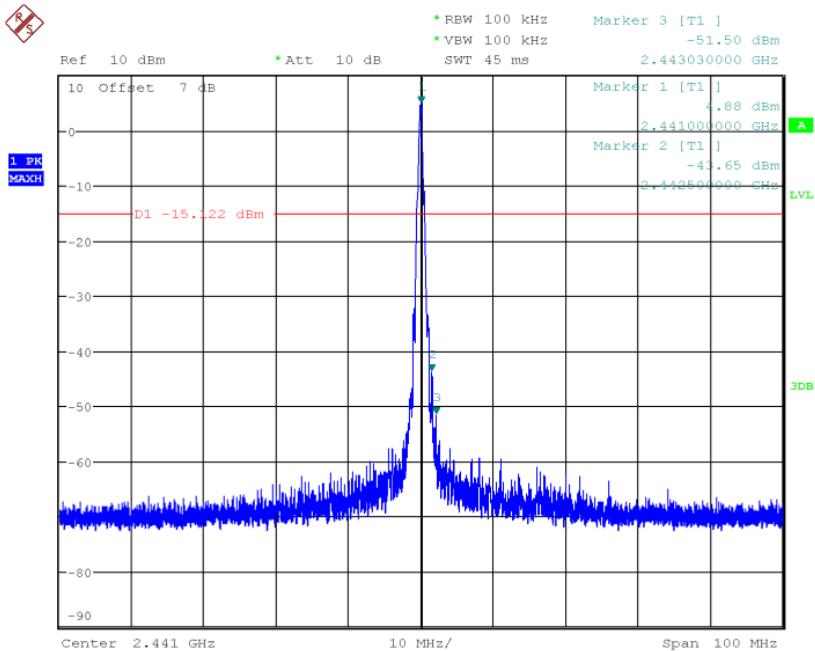
Date: 28.OCT.2014 17:27:38

Fig.22 Conducted spurious emission: GFSK, Ch0, 2402MHz



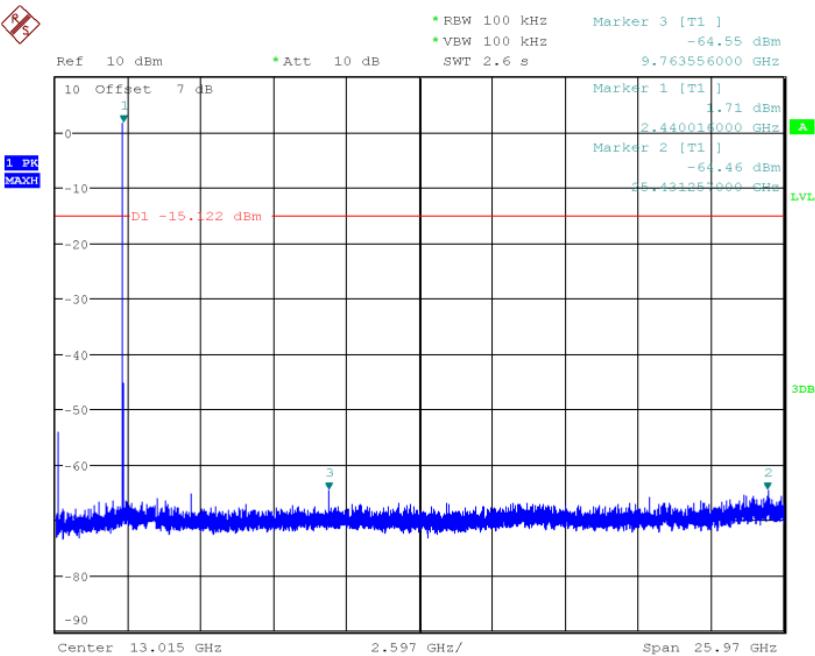
Date: 28.OCT.2014 17:28:01

Fig.23 Conducted spurious emission: GFSK, Ch0, 30MHz~26GHz



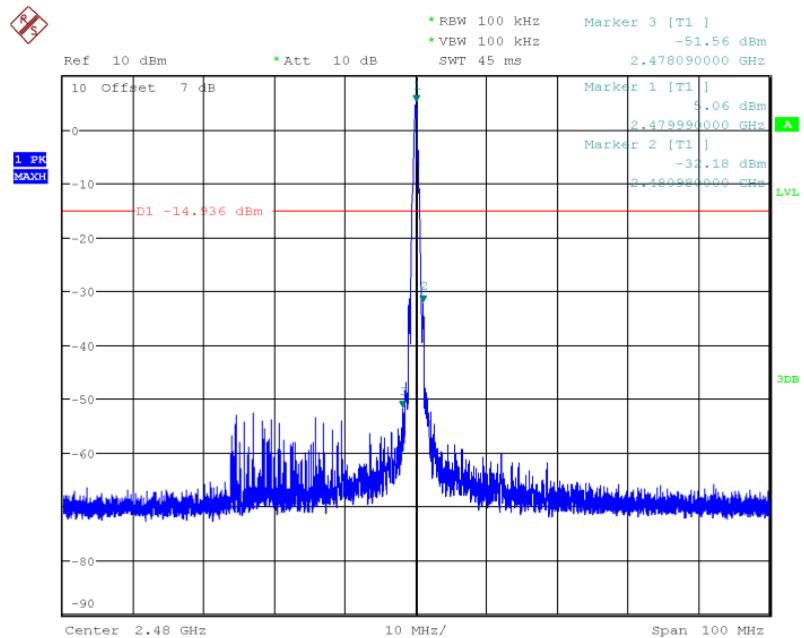
Date: 28.OCT.2014 17:28:25

Fig.24 Conducted spurious emission: GFSK, Ch39, 2441MHz



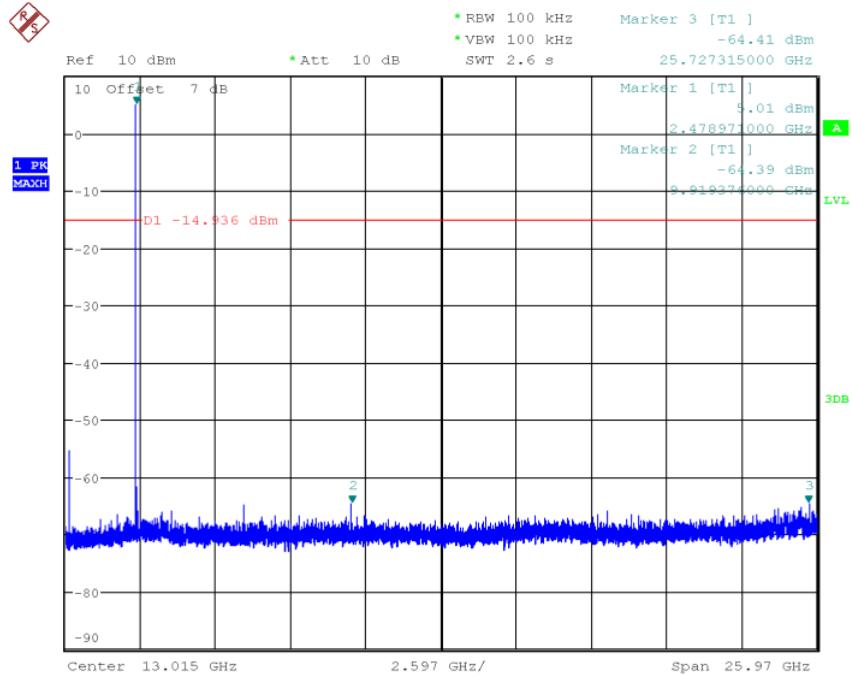
Date: 28.OCT.2014 17:28:48

Fig.25 Conducted spurious emission: GFSK, Ch39, 30MHz~26GHz



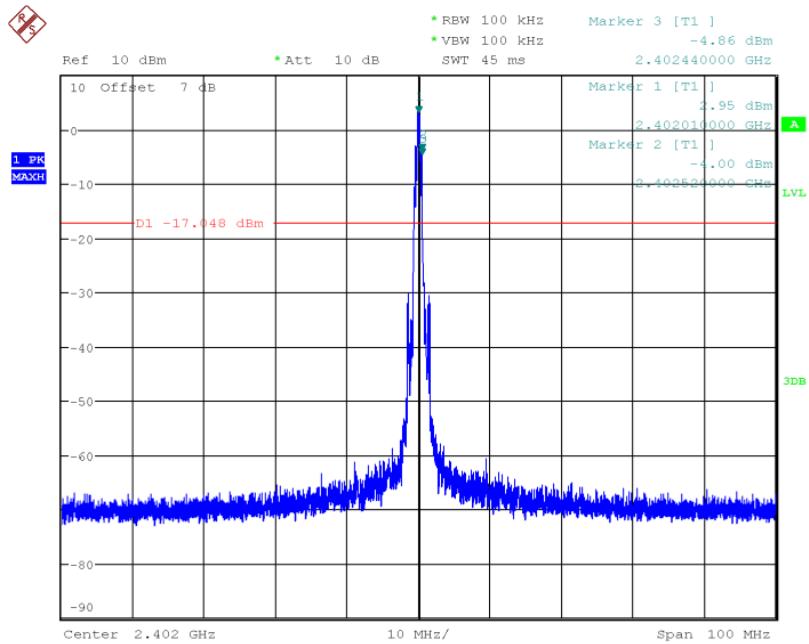
Date: 28.OCT.2014 17:29:12

Fig.26 Conducted spurious emission: GFSK, Ch78, 2480MHz



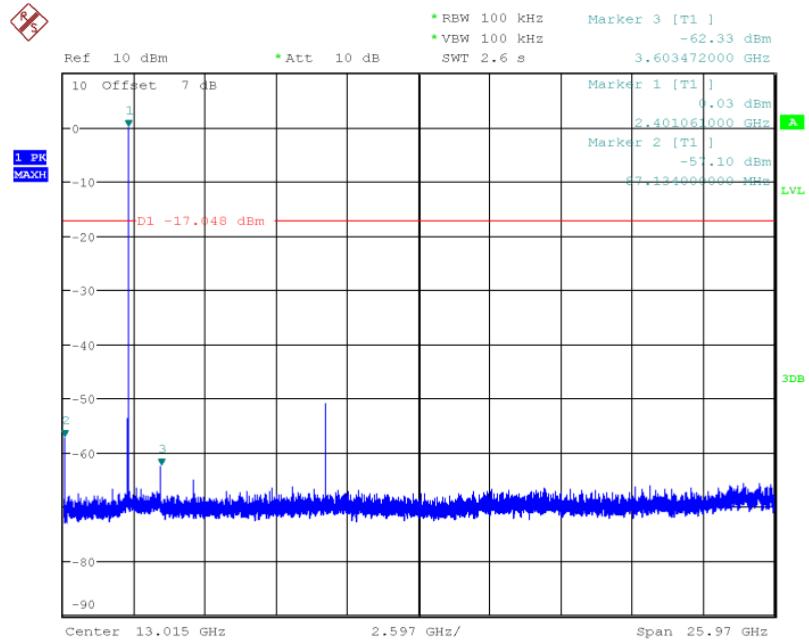
Date: 28.OCT.2014 17:29:35

Fig.27 Conducted spurious emission: GFSK, Ch78, 30MHz~26GHz



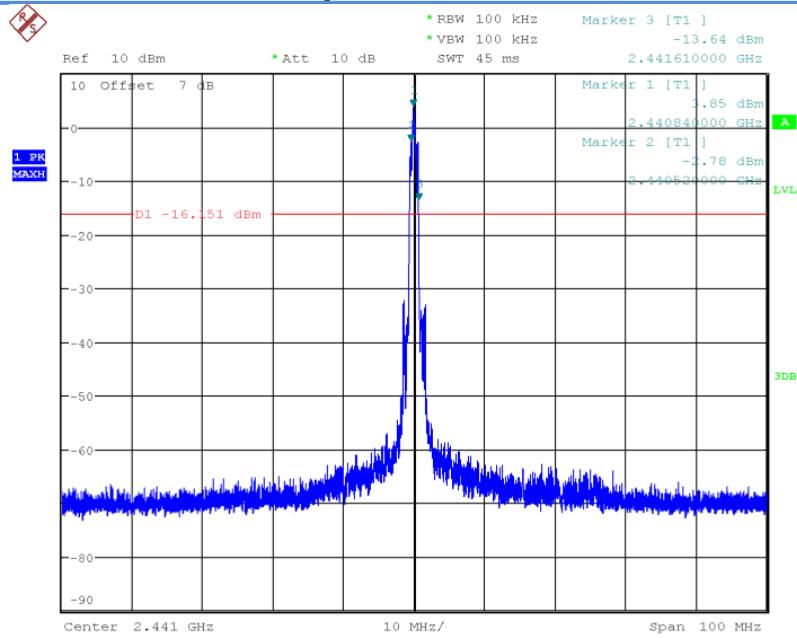
Date: 28.OCT.2014 17:30:00

Fig.28 Conducted spurious emission: $\pi/4$ DQPSK, Ch0, 2402MHz



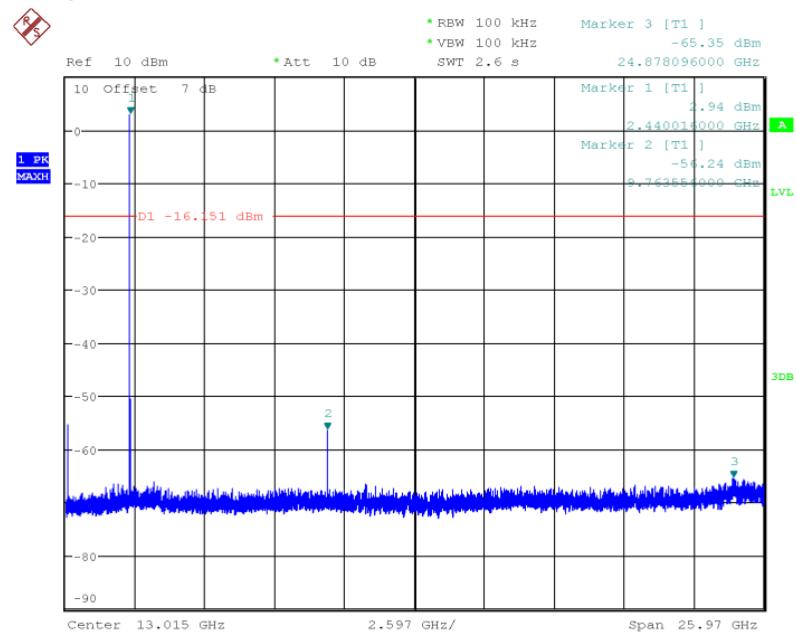
Date: 28.OCT.2014 17:30:23

Fig.29 Conducted spurious emission: $\pi/4$ DQPSK, Ch0, 30MHz~26GHz



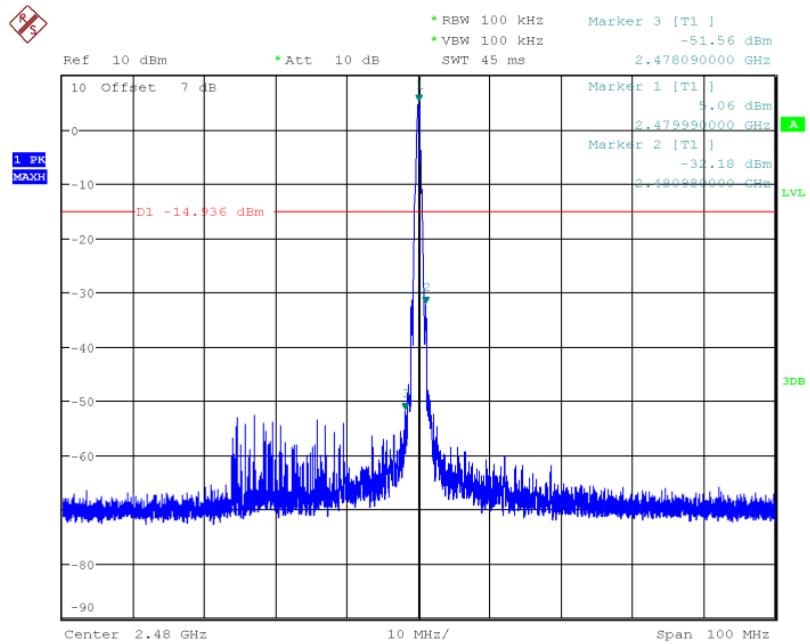
Date: 28.OCT.2014 17:30:48

Fig.30 Conducted spurious emission: $\pi/4$ DQPSK, Ch39, 2441MHz



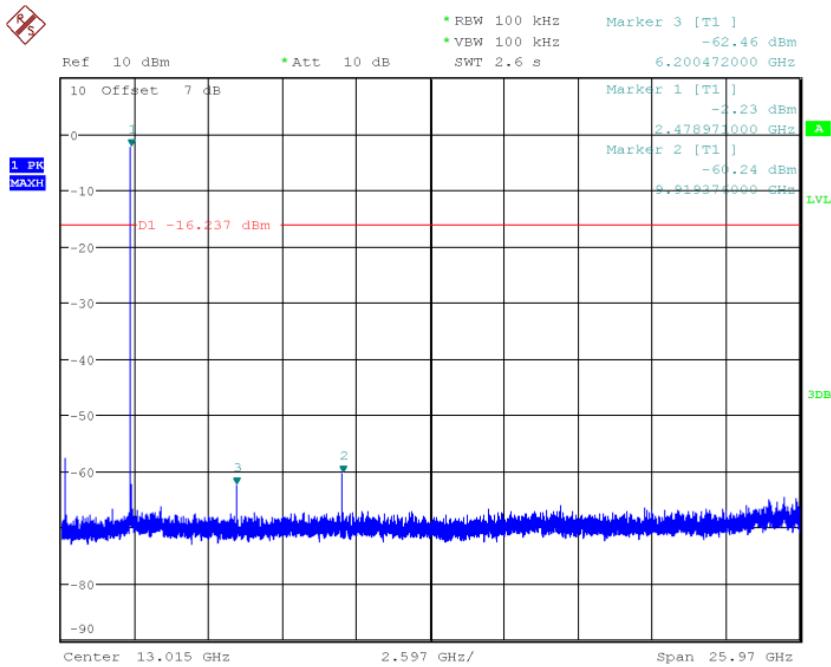
Date: 28.OCT.2014 17:31:11

Fig.31 Conducted spurious emission: $\pi/4$ DQPSK, Ch39, 30MHz~26GHz



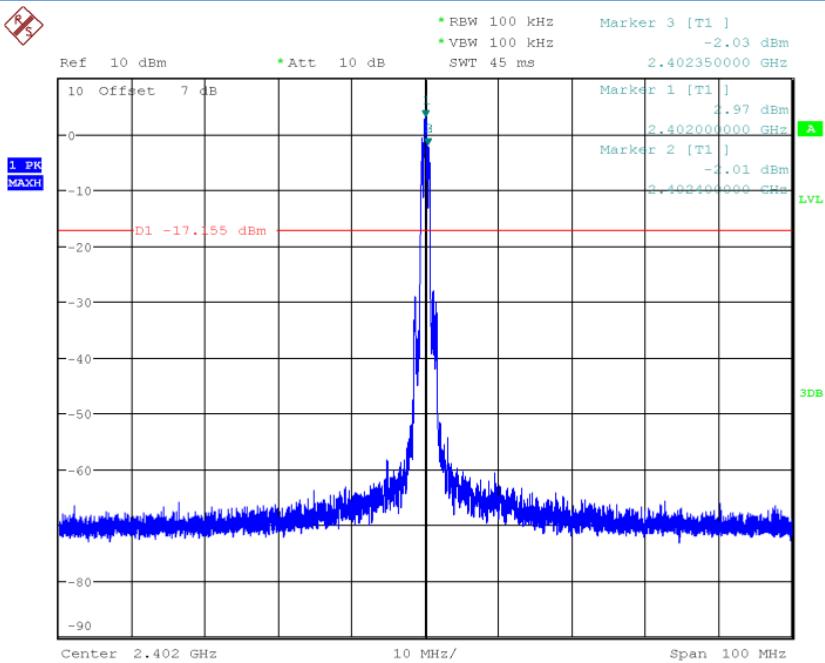
Date: 28.OCT.2014 17:29:12

Fig.32 Conducted spurious emission: $\pi/4$ DQPSK, Ch78, 2480MHz

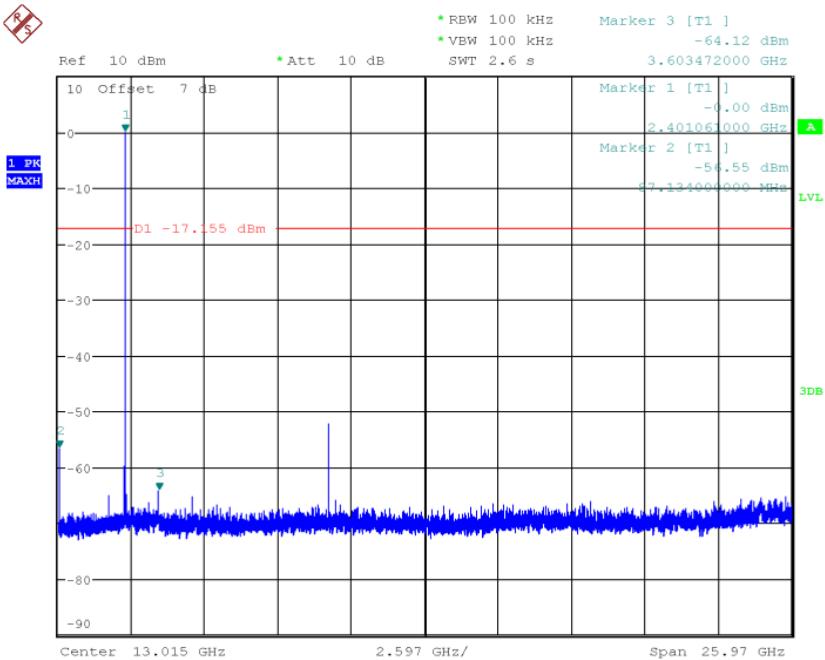


Date: 28.OCT.2014 17:31:59

Fig.33 Conducted spurious emission: $\pi/4$ DQPSK, Ch78, 30MHz~26GHz

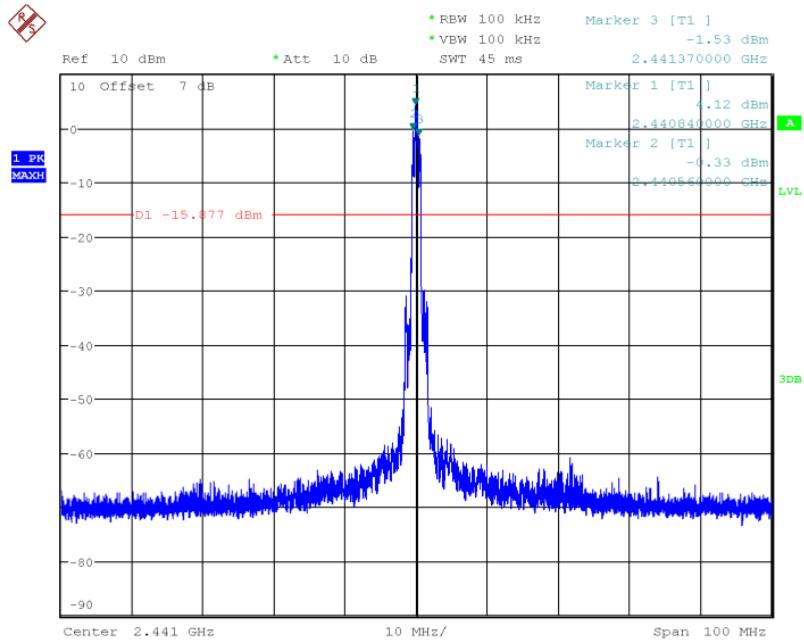


Date: 28.OCT.2014 17:32:24

Fig.34 Conducted spurious emission: 8DPSK, Ch0, 2402MHz


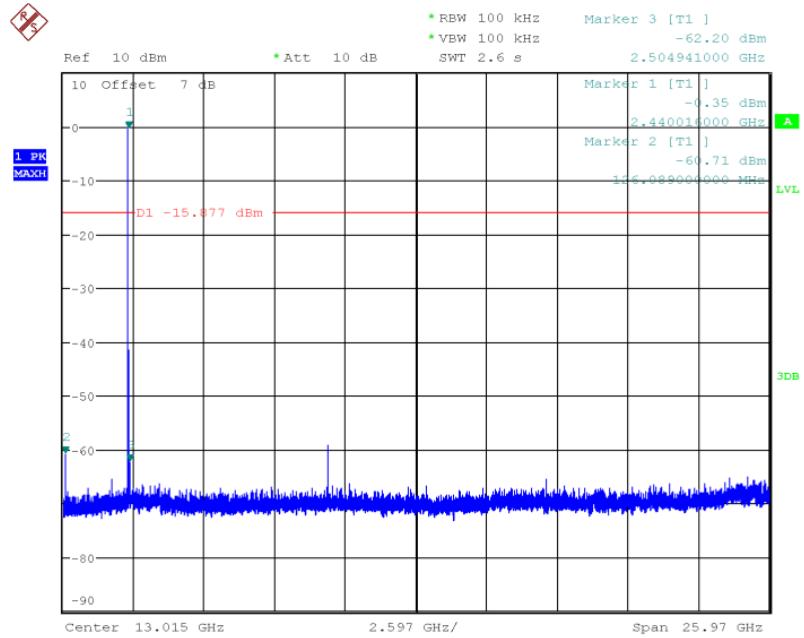
Date: 28.OCT.2014 17:32:47

Fig.35 Conducted spurious emission: 8DPSK, Ch0, 30MHz~26GHz



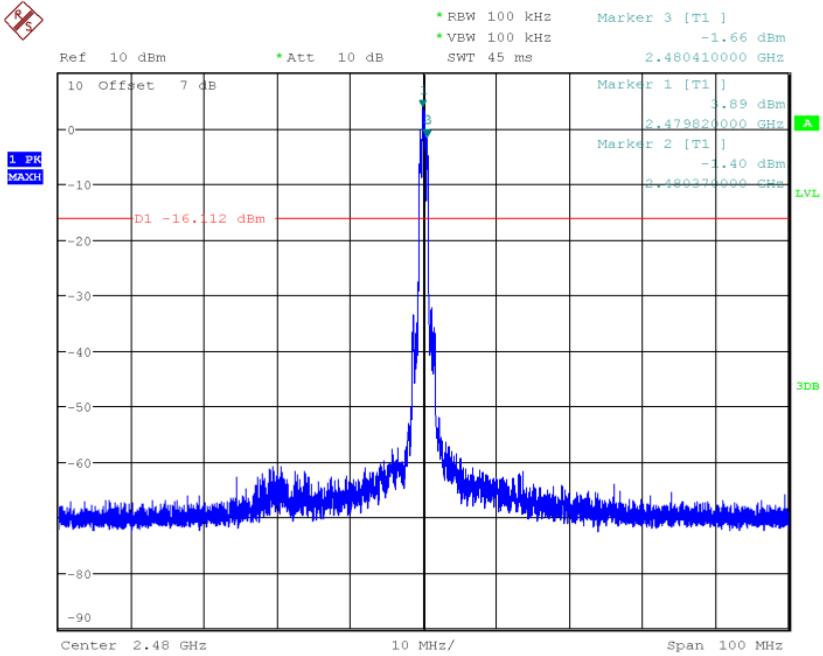
Date: 28.OCT.2014 17:33:12

Fig.36 Conducted spurious emission: 8DPSK, Ch39, 2441MHz



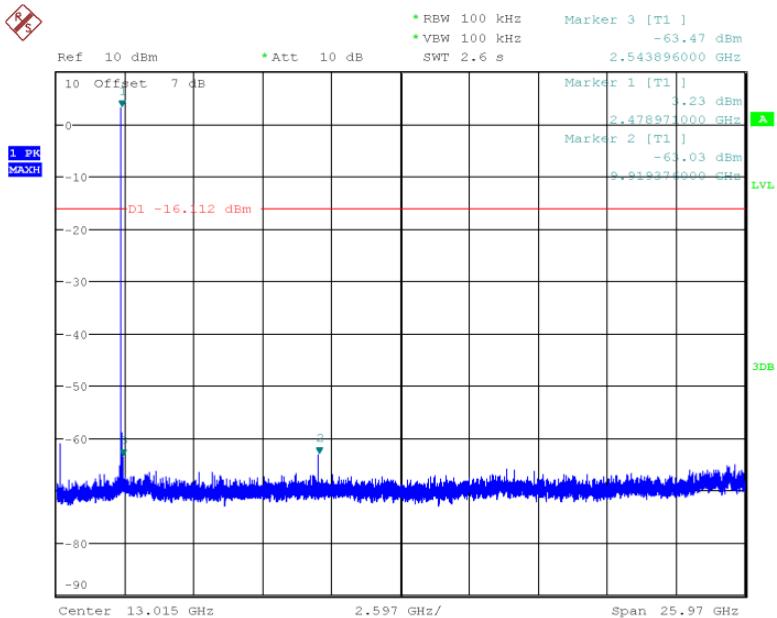
Date: 28.OCT.2014 17:33:35

Fig.37 Conducted spurious emission: 8DPSK, Ch39, 30MHz~26GHz



Date: 28.OCT.2014 17:34:00

Fig.38 Conducted spurious emission: 8DPSK, Ch78, 2480MHz



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Fig.39 Conducted spurious emission: 8DPSK, Ch78, 30MHz~26GHz

6.4. Radiated Emission

Measurement Limit:

Standard	Limit
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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 according to ANSI 63.10

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:

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a nonconducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also ANSI 63.10-2009 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

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 A_{Rpi} is the attenuation of "reference path loss", and including the gain of receive antenna , the gain of the preamplifier, the cable loss.



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The measurement results are obtained as described below:

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

For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch0 2402MHz	30MHz~1GHz	Fig.40	P
	1GHz~3GHz	Fig.41	P
	3GHz~18GHz	Fig.42	P
Power	2.38GHz~2.4GHz	Fig.43	P
Power	2.45GHz~2.5GHz	Fig.44	P
All channels	18GHz~26GHz	Fig.45	P

For $\pi/4$ DQPSK

Channel	Frequency Range	Test Results	Conclusion
Ch0 2402MHz	30MHz~1GHz	Fig.46	P
	1GHz~3GHz	Fig.47	P
	3GHz~18GHz	Fig.48	P
Power	2.38GHz~2.4GHz	Fig.49	P
Power	2.45GHz~2.5GHz	Fig.50	P
All channels	18GHz~26GHz	Fig.51	P

For 8DPSK

Channel	Frequency Range	Test Results	Conclusion
Ch0 2402MHz	30MHz~1GHz	Fig.52	P
	1GHz~3GHz	Fig.53	P
	3GHz~18GHz	Fig.54	P
Power	2.38GHz~2.4GHz	Fig.55	P
Power	2.45GHz~2.5GHz	Fig.56	P
All channels	18GHz~26GHz	Fig.57	P

GFSK Ch0 30MHz-1GHz

Frequency(MHz)	Result(dBuV/m)	ARPI (dB)	PMea(dBuV/m)	Polarity



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51.322932	20.42	-24.7	45.12	V
139.533724	18.21	-28.2	46.41	H
166.990916	19.5	-26.8	46.3	H

GFSK Ch0 1GHz-3GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2946.818654	55.43	12.6	42.83	V
2987.524808	57.18	13.7	43.48	V

GFSK Ch0 3GHz-18GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
15906.47913	58.03	24.7	33.33	V
16427.42987	58.81	26	32.81	H

$\pi/4$ DQPSK Ch0 30MHz-1GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
38.309928	14.24	-25	39.24	H
122.5986	3.51	-26.7	30.21	H
171.624736	17.74	-26.5	44.24	H

$\pi/4$ DQPSK Ch0 1GHz-3GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2892.902693	54.57	11.8	42.77	H
2957.650385	56.3	12.9	43.4	V

$\pi/4$ DQPSK Ch0 3GHz-18GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
15411.0592	57.18	23.2	33.98	V
17581.66653	63.71	28.3	35.41	V

8DPSK 30MHz-1GHz



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Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
35.748404	11.12	-25.7	36.82	V
51.452196	16.68	-24.7	41.38	H
84.6786	15.94	-27.4	43.34	V

8DPSK 1GHz-3GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2828.492693	54.29	11.3	42.99	H
2878.262885	54.81	11.8	43.01	V

8DPSK 3GHz-18GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
15709.30673	57.48	23.9	33.58	V
17545.1522	61.92	27.2	34.72	H

All Ch 18GHz~26.5GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
18238.000000	46.23	5.85	40.38	V
19050.600000	47.02	6.97	40.05	V
20128.400000	46.20	6.97	39.23	H
21179.000000	45.48	6.97	38.51	V
22391.950000	42.23	3.05	39.18	V
23469.750000	43.54	3.05	40.49	H

Note: all the test data shown was peak detected.

Conclusion: PASS

Test graphs as below:

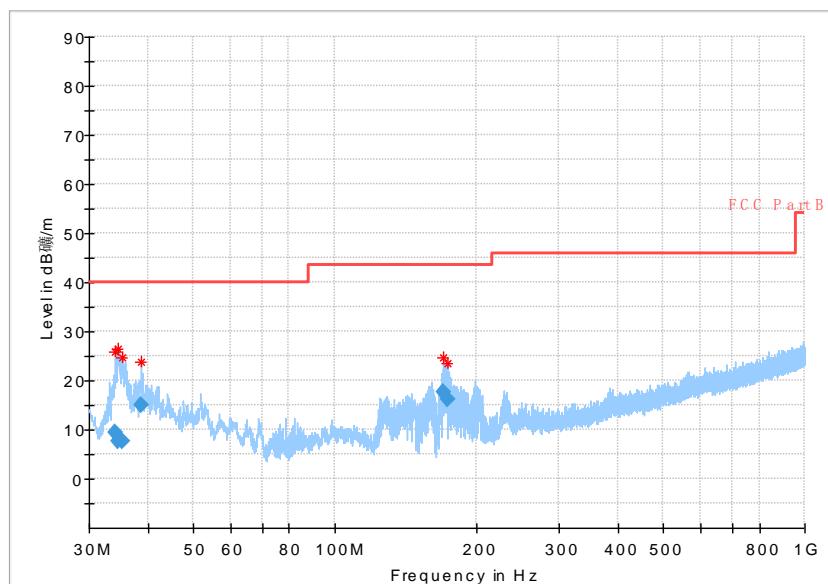


Fig.40 Radiated emission: GFSK, Ch0, 30MHz~1GHz

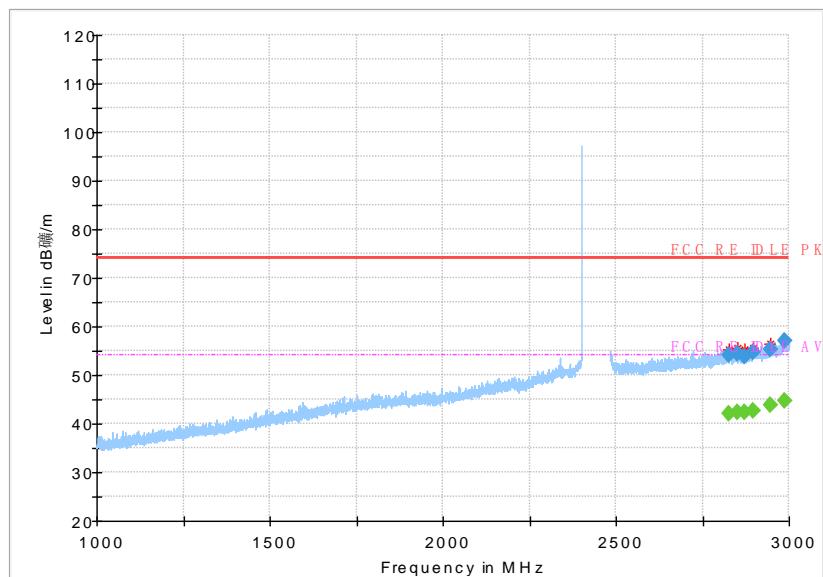


Fig.41 Radiated emission: GFSK, Ch0, 1GHz~3GHz

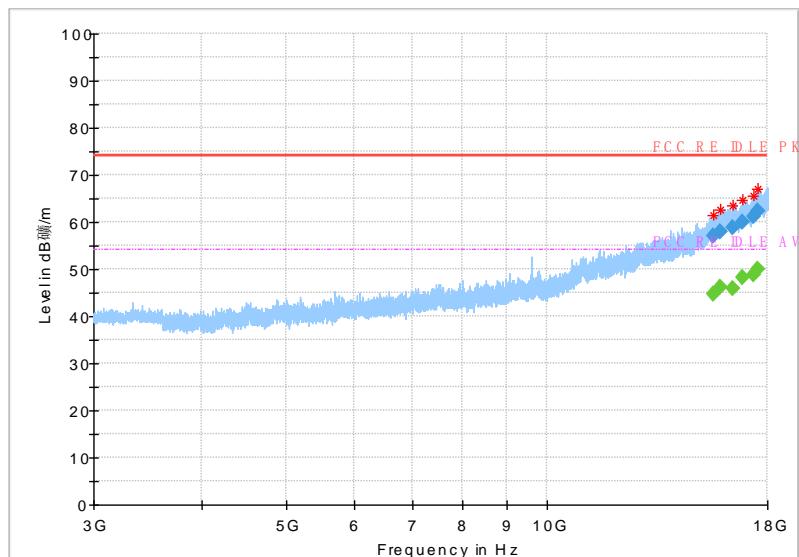


Fig.42 Radiated emission: GFSK, Ch0, 3GHz~18GHz

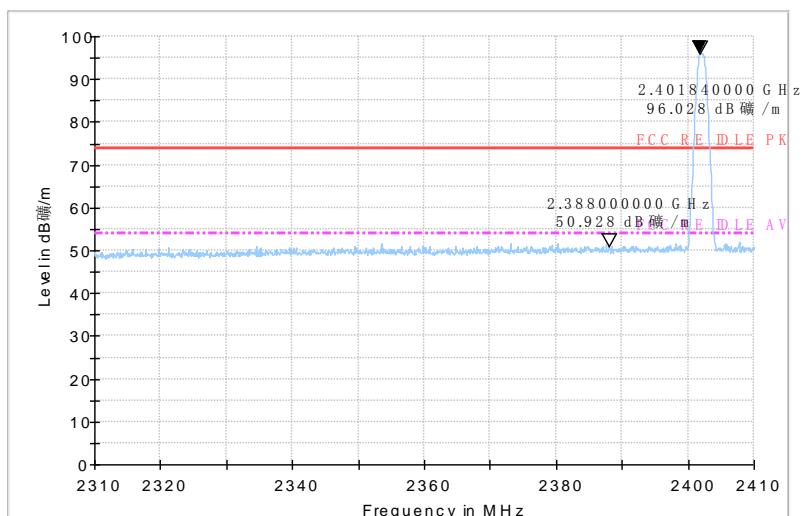


Fig.43 Radiated emission (Power): GFSK, low channel

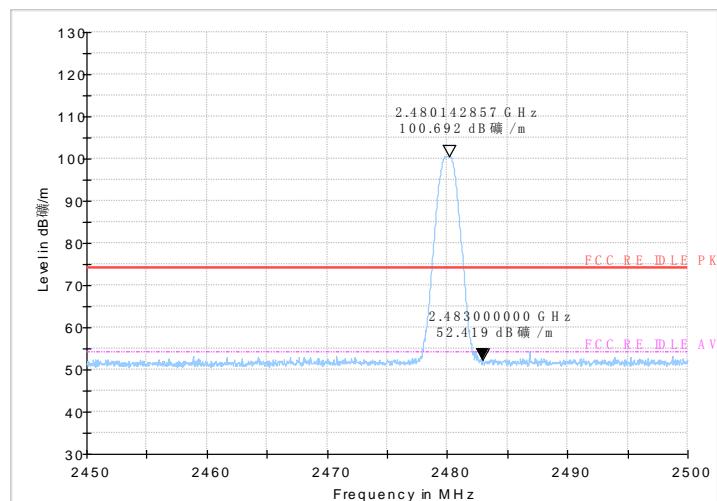


Fig.44 Radiated emission (Power): GFSK, high channel

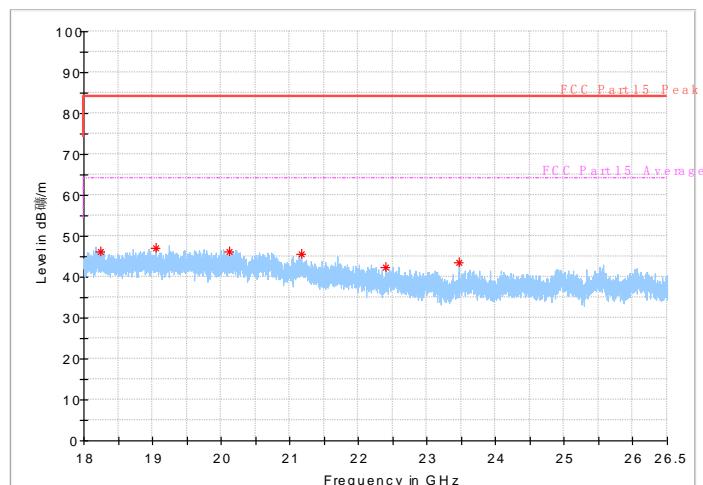


Fig.45 Radiated emission: GFSK, 18 GHz - 26 GHz

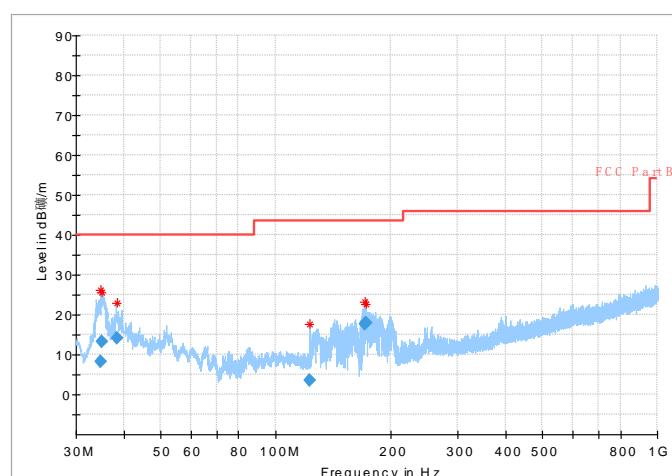


Fig.46 Radiated emission: $\pi/4$ DQPSK, Ch0, 30MHz~1GHz

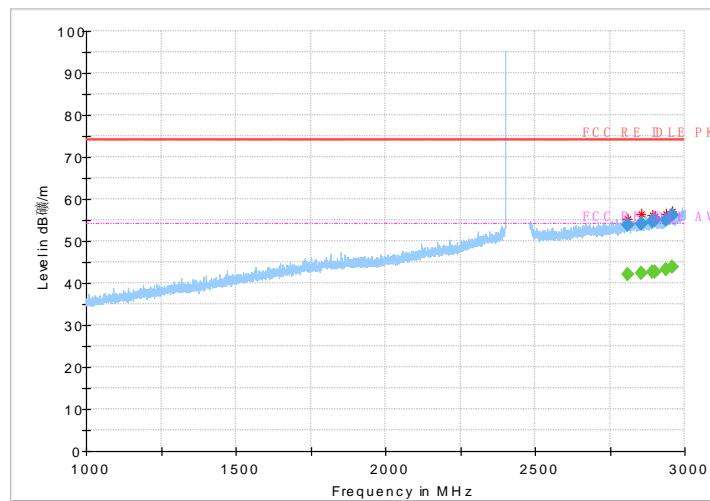
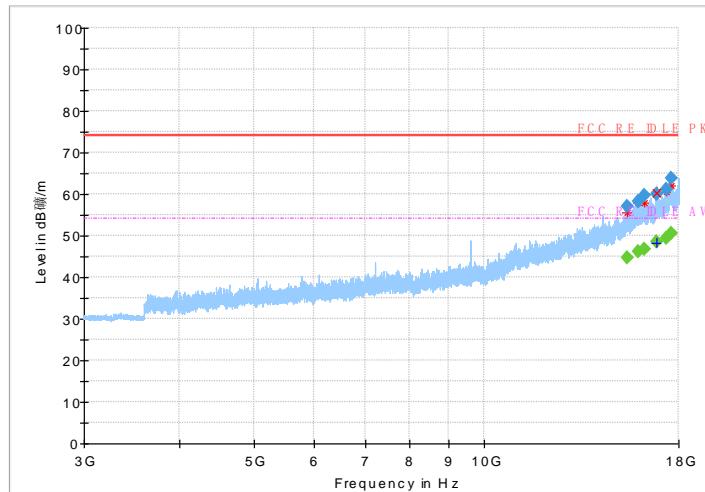
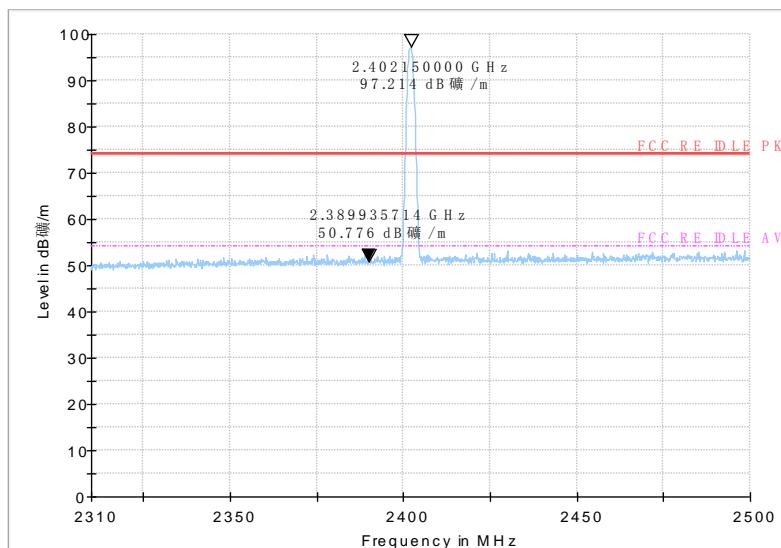
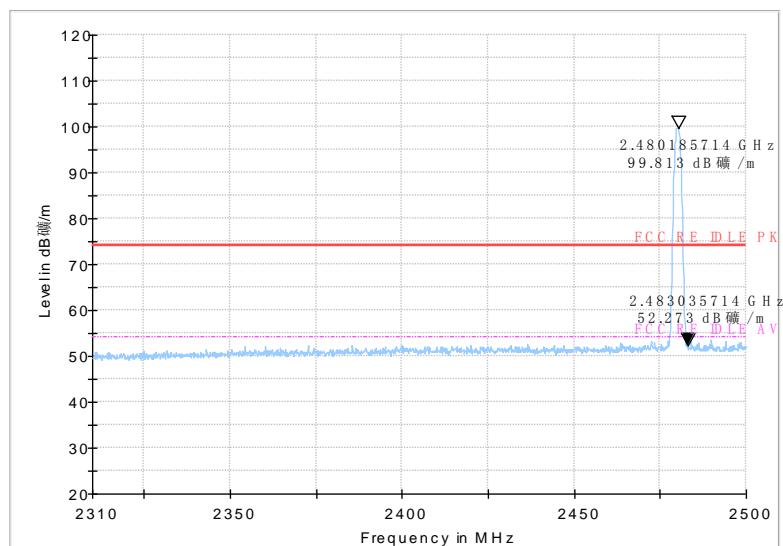
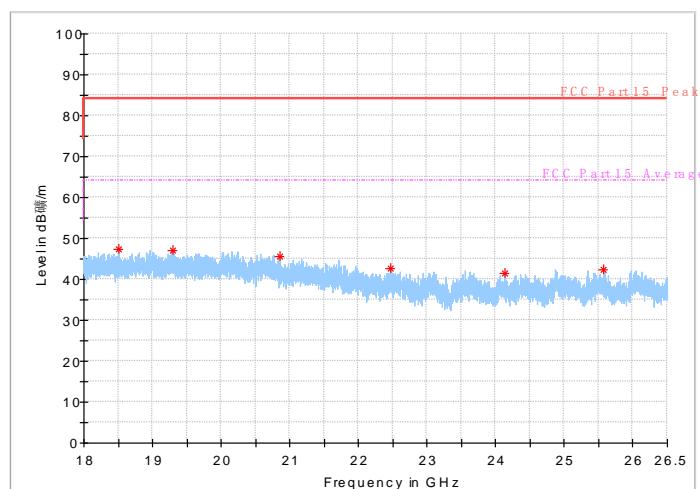

 Fig.47 Radiated emission: $\pi/4$ DQPSK, Ch0, 1GHz~3GHz

 Fig.48 Radiated emission: $\pi/4$ DQPSK, Ch0, 3GHz~18GHz


Fig.49 Radiated emission (Power): $\pi/4$ DQPSK, low channelFig.50 Radiated emission (Power): $\pi/4$ DQPSK, high channelFig.51 Radiated emission: $\pi/4$ DQPSK, 18 GHz - 26 GHz

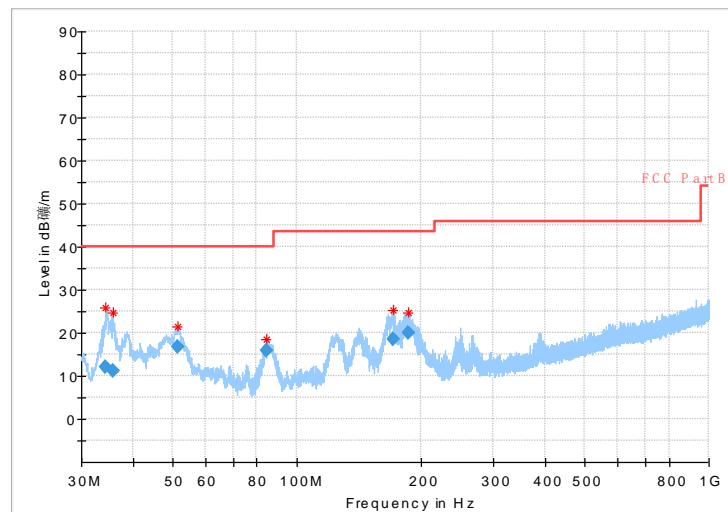


Fig.52 Radiated emission: 8DPSK, Ch0, 30MHz~1GHz

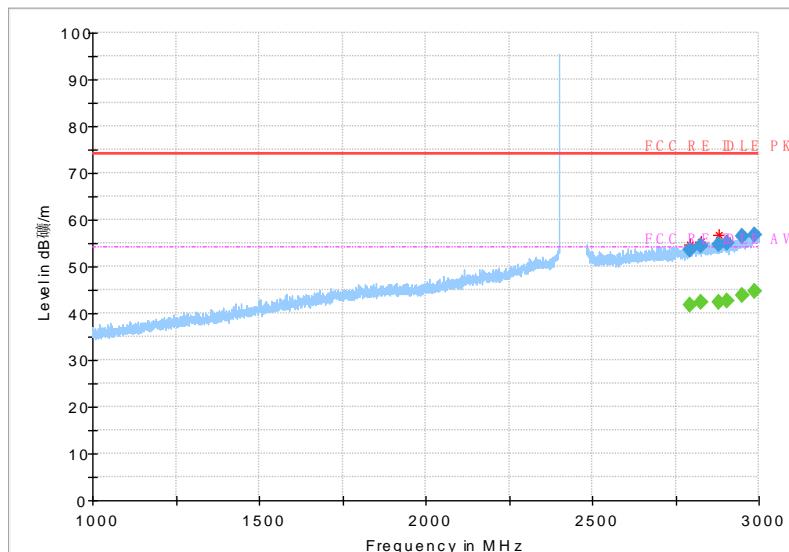


Fig.53 Radiated emission: 8DPSK, Ch0, 1GHz~3GHz

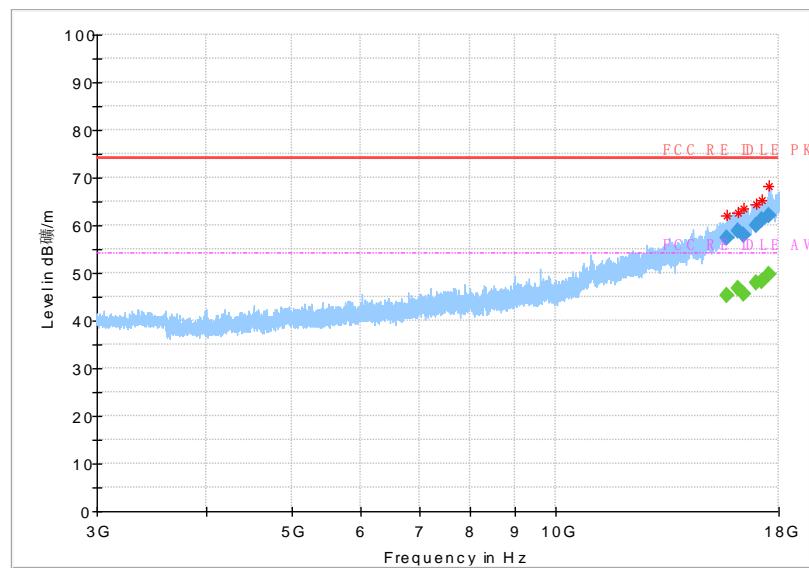


Fig.54 Radiated emission: 8DPSK, Ch0, 3GHz~18GHz

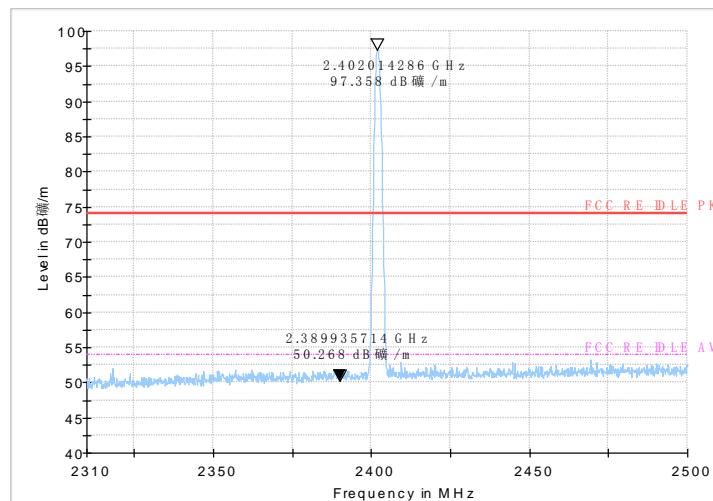


Fig.55 Radiated emission (Power): 8DPSK, low channel

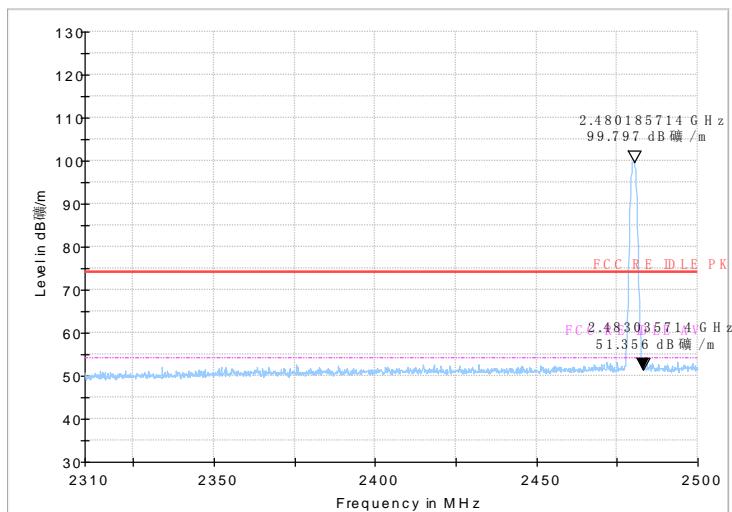


Fig.56 Radiated emission (Power): 8DPSK, high channel

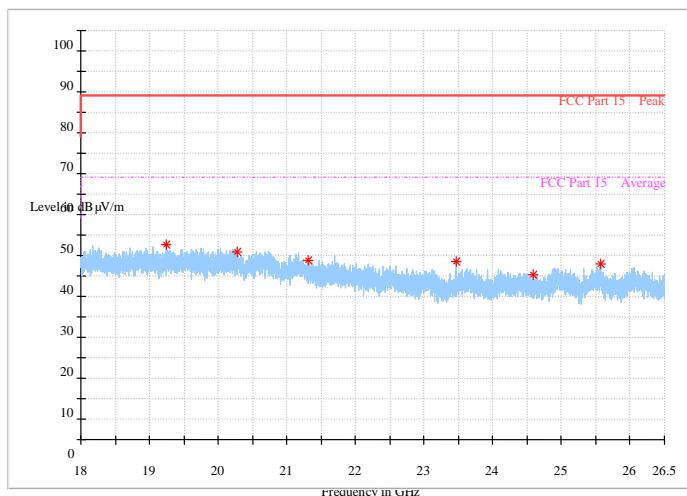


Fig.57 Radiated emission: 8DPSK, 18 GHz - 26 GHz

6.5. Time Of Occupancy (Dwell Time)

Measurement Limit:

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

The measurement is according to ANSI 63.10

Measurement Result:

For GFSK

Channel	Packet	Dwell Time (ms)	Conclusion
39	DH1	Fig.58	P

		Fig.59		
	DH3	Fig.60	281.92	P
		Fig.61		
	DH5	Fig.62	321.06	P
		Fig.63		

For $\pi/4$ DQPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	2DH1	Fig.64	163.2	P
		Fig.65		
	2DH3	Fig.66	281.92	P
		Fig.67		
	2DH5	Fig.68	321.06	P
		Fig.69		

For 8DPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	3DH1	Fig.70	166.4	P
		Fig.71		
	3DH3	Fig.72	281.92	P
		Fig.73		
	3DH5	Fig.74	321.06	P
		Fig.75		

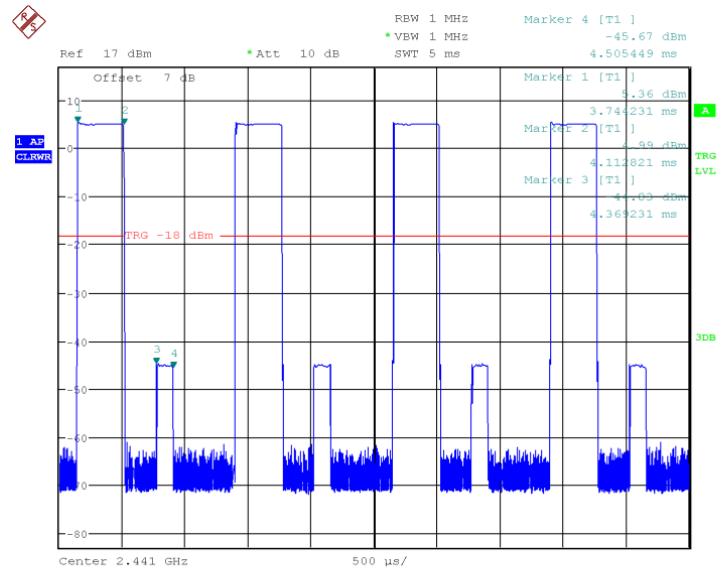
Note: the dwell time is Calculated of the sum of test time about 31.5 seconds.

Equation: dwell time = pusletime * (1600/N)/79*T . N is the number of timeslot; T is the time about 31.6s.

The time of DH5=3.01*(1600/6)/79*31.6=321.06ms.

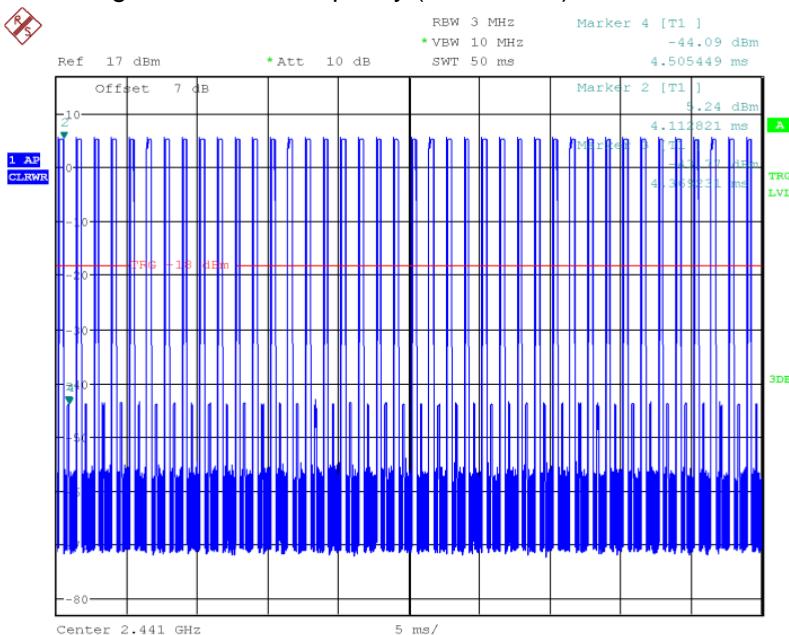
Conclusion: PASS

Test graphs as below:



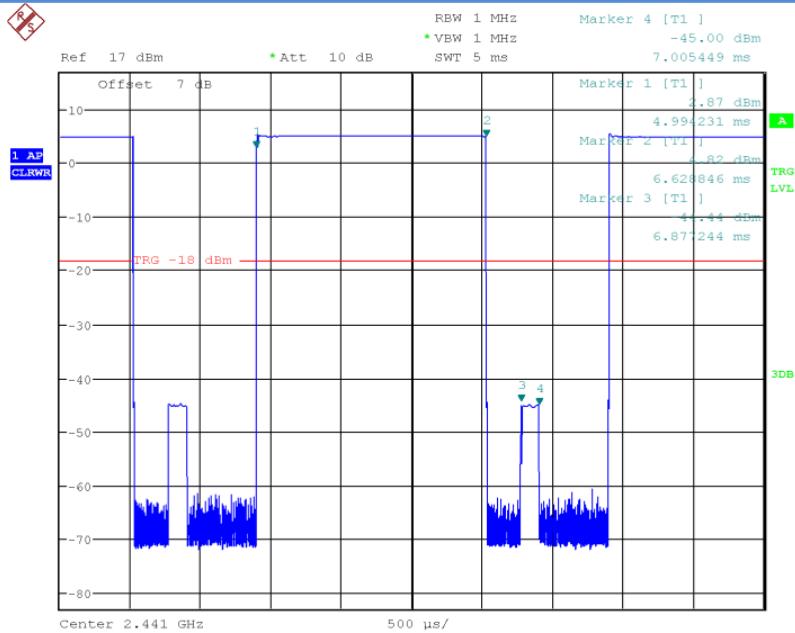
Date: 28.OCT.2014 17:35:04

Fig.58 Time of occupancy (Dwell Time): Ch39, Packet DH1



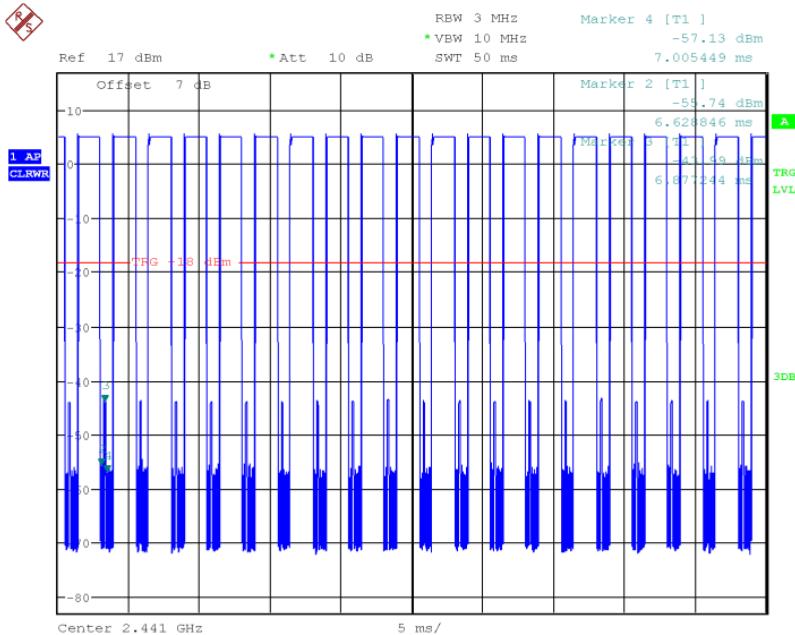
Date: 28.OCT.2014 17:35:11

Fig.59 Number of Transmissions Measurement: Ch39, Packet DH1



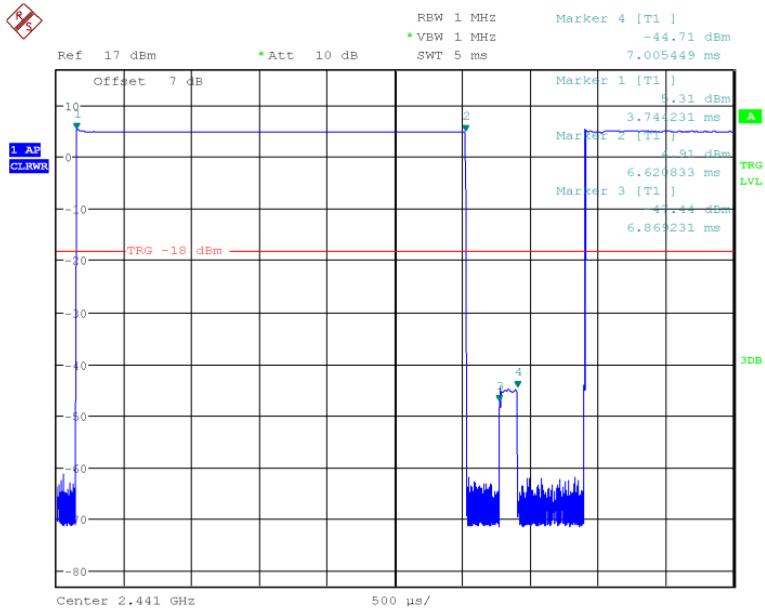
Date: 28.OCT.2014 17:35:21

Fig.60 Time of occupancy (Dwell Time): Ch39, Packet DH3



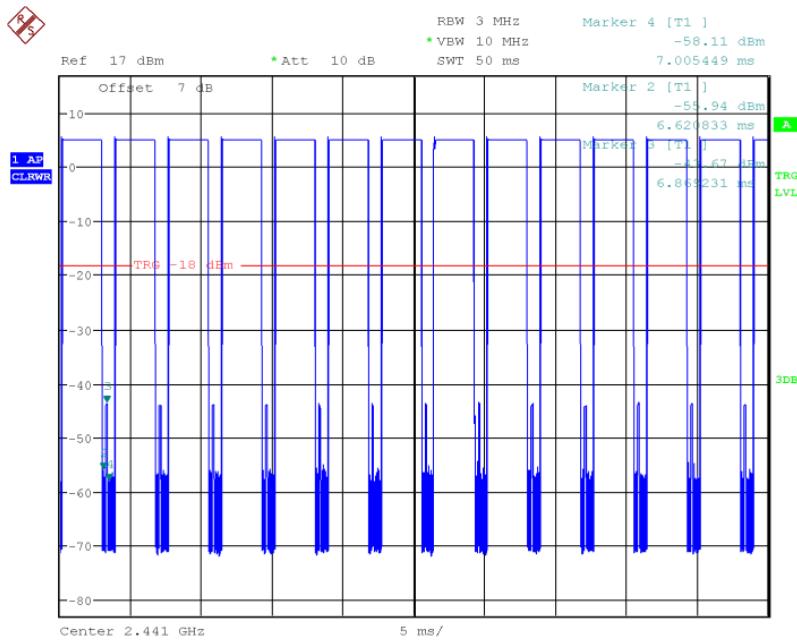
Date: 28.OCT.2014 17:35:28

Fig.61 Number of Transmissions Measurement: Ch39, Packet DH3



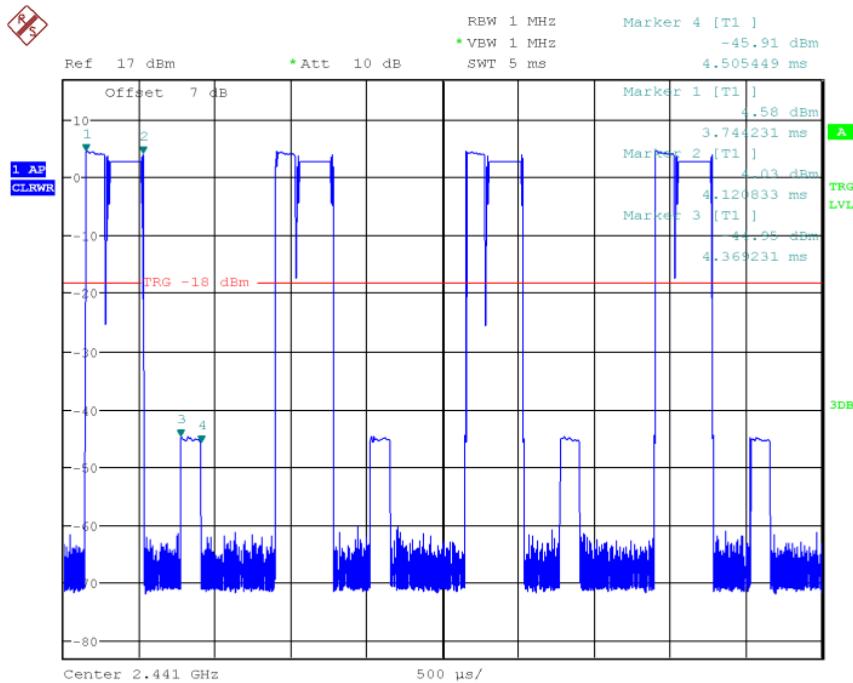
Date: 28.OCT.2014 17:35:37

Fig.62 Time of occupancy (Dwell Time): Ch39, Packet DH5



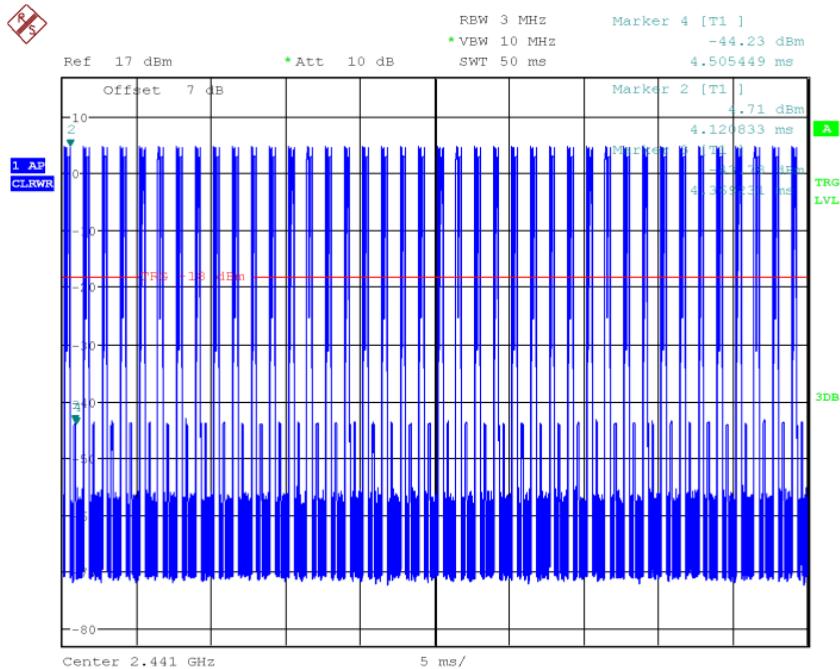
Date: 28.OCT.2014 17:35:44

Fig.63 Number of Transmissions Measurement: Ch39, Packet DH5



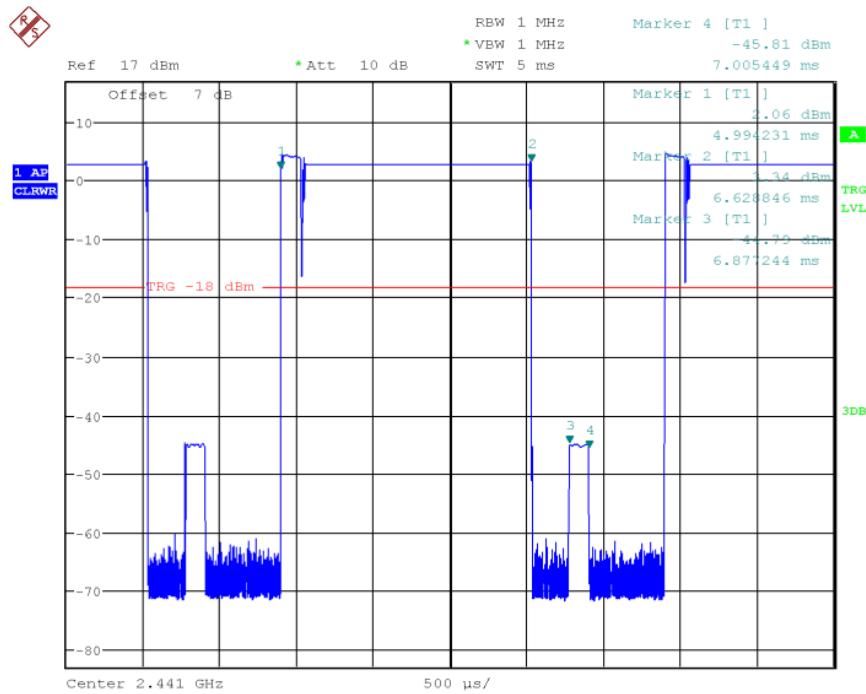
Date: 28.OCT.2014 17:35:53

Fig.64 Time of occupancy (Dwell Time): Ch39,Packet 2-DH1



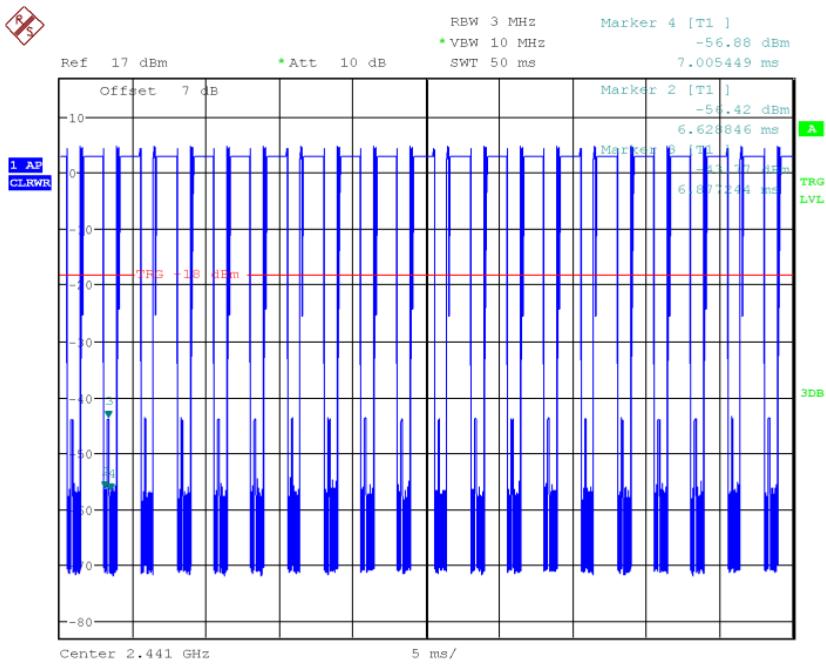
Date: 28.OCT.2014 17:36:00

Fig.65 Number of Transmissions Measurement: Ch39, Packet 2-DH1



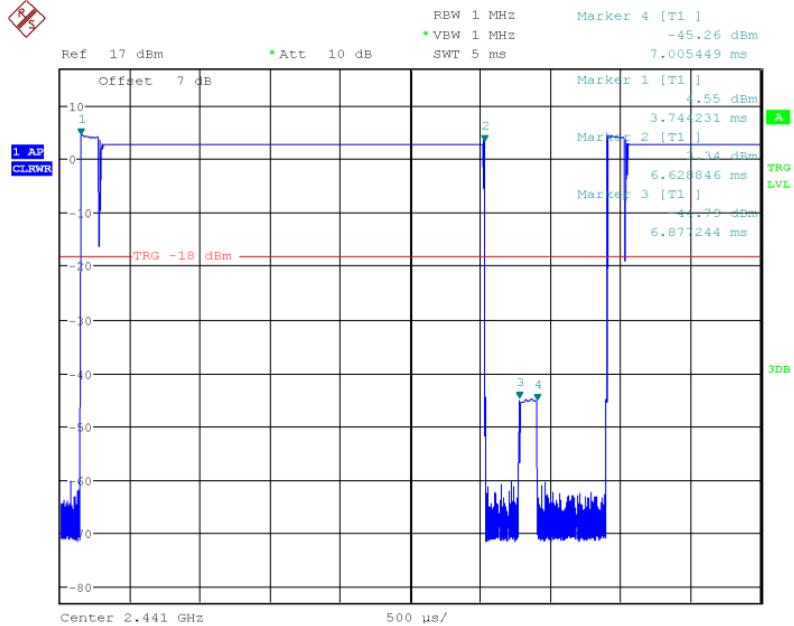
Date: 28.OCT.2014 17:36:09

Fig.66 Time of occupancy (Dwell Time): Ch39,Packet 2-DH3

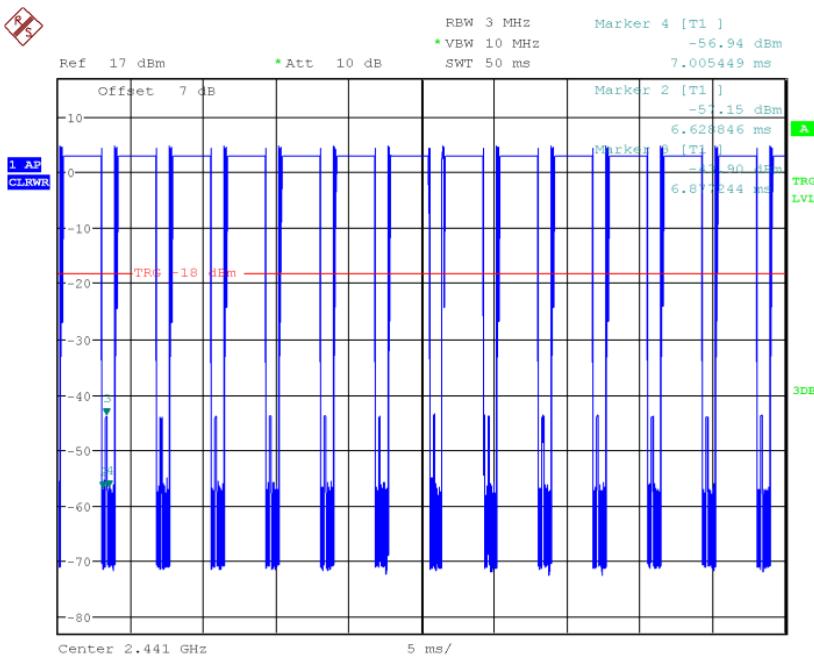


Date: 28.OCT.2014 17:36:16

Fig.67 Number of Transmissions Measurement: Ch39, Packet 2-DH3

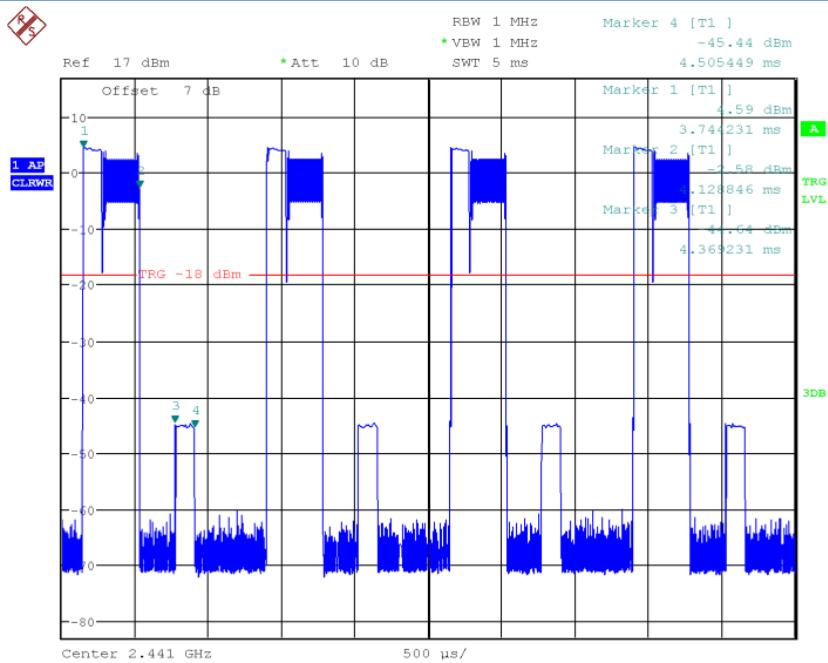


Date: 28.OCT.2014 17:36:26

Fig.68 Time of occupancy (Dwell Time): Ch39,Packet 2-DH5


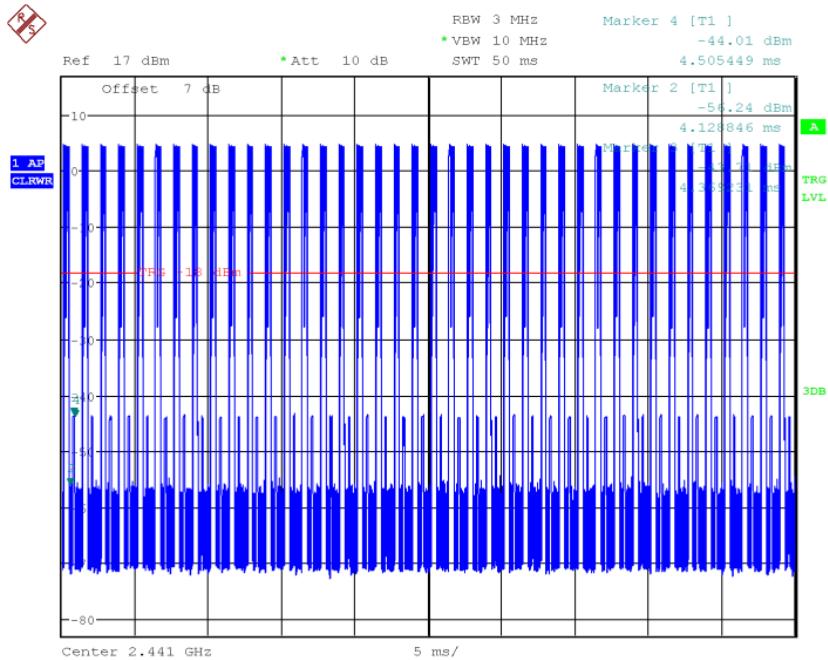
Date: 28.OCT.2014 17:36:33

Fig.69 Number of Transmissions Measurement: Ch39, Packet 2-DH5



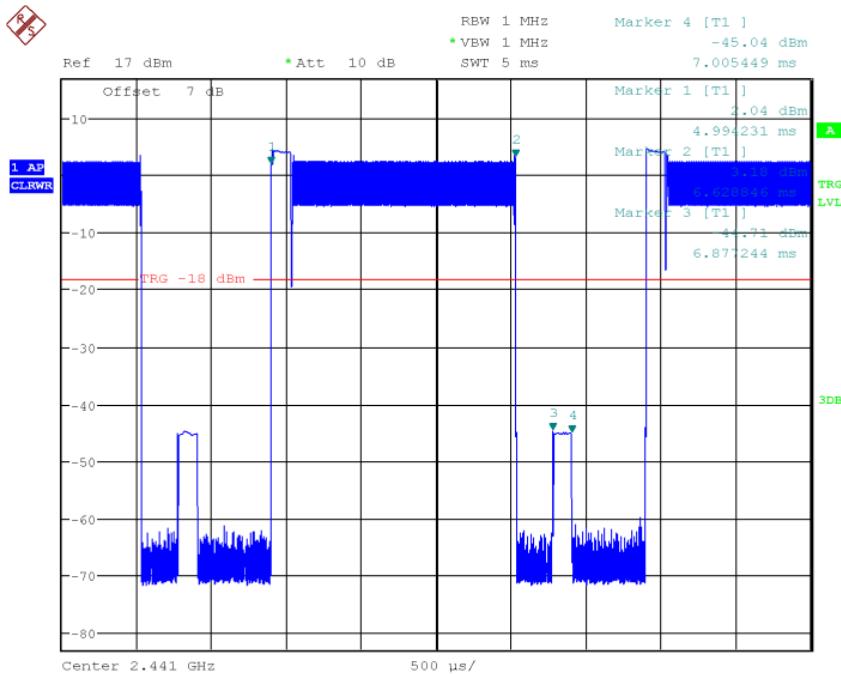
Date: 28.OCT.2014 17:36:41

Fig.70 Time of occupancy (Dwell Time): Ch39,Packet 3-DH1



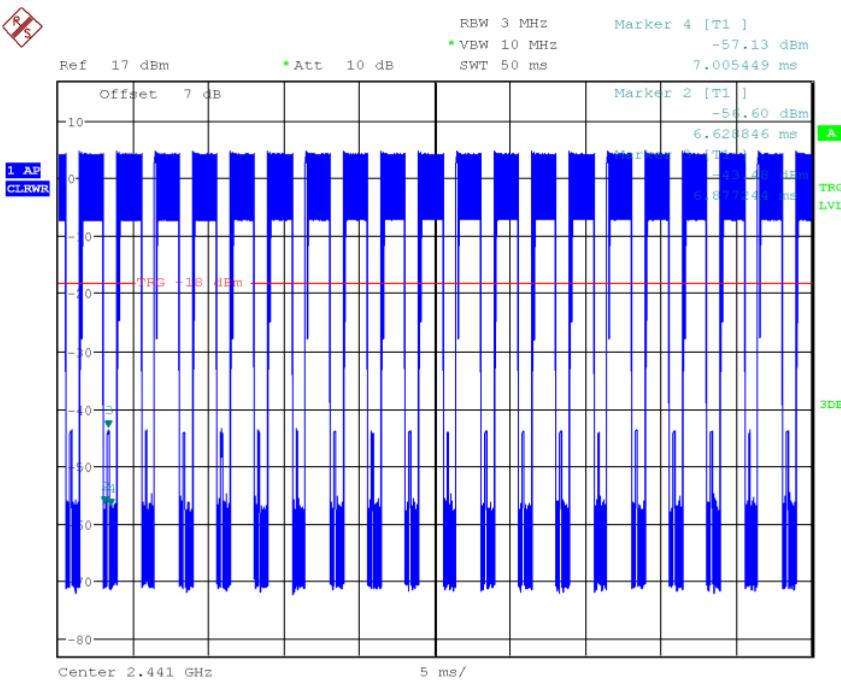
Date: 28.OCT.2014 17:36:49

Fig.71 Number of Transmissions Measurement: Ch39, Packet 3-DH1



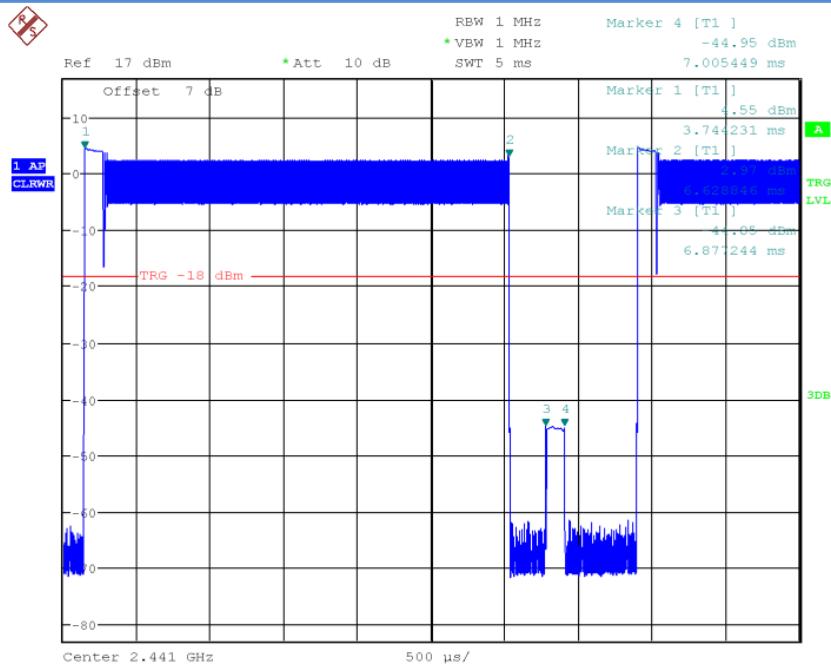
Date: 28.OCT.2014 17:36:57

Fig.72 Time of occupancy (Dwell Time): Ch39,Packet 3-DH3



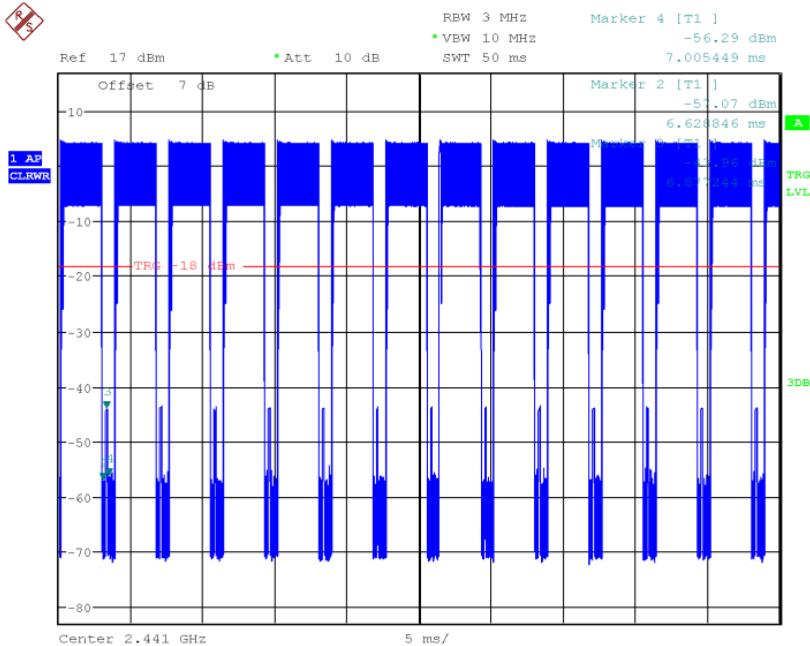
Date: 28.OCT.2014 17:37:05

Fig.73 Number of Transmissions Measurement: Ch39, Packet 3-DH3



Date: 28.OCT.2014 17:37:14

Fig.74 Time of occupancy (Dwell Time): Ch39,Packet 3-DH5



Date: 28.OCT.2014 17:37:21

Fig.75 Number of Transmissions Measurement: Ch39, Packet 3-DH5

6.6. 20dB Bandwidth

Measurement Limit:



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Standard	Limit
FCC 47 CFR Part 15.247 (a) (1)	N/A

The measurement is according to ANSI 63.10.

Measurement Result:

For GFSK

Channel	20dB Bandwidth (KHz)	Conclusion
0	Fig.76	1034
39	Fig.77	1034
78	Fig.78	1029

For $\pi/4$ DQPSK

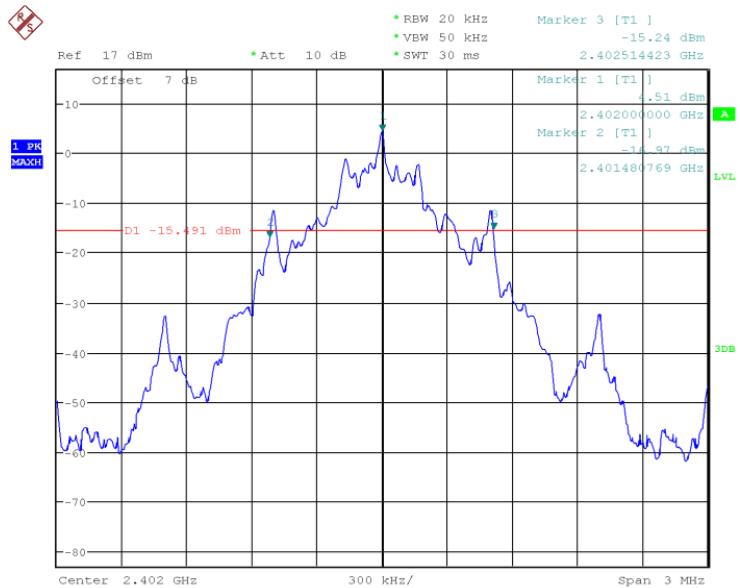
Channel	20dB Bandwidth (KHz)	Conclusion
0	Fig.79	1091
39	Fig.80	1091
78	Fig.81	1087

For 8DPSK

Channel	20dB Bandwidth (KHz)	Conclusion
0	Fig.82	1192
39	Fig.83	1192
78	Fig.84	1192

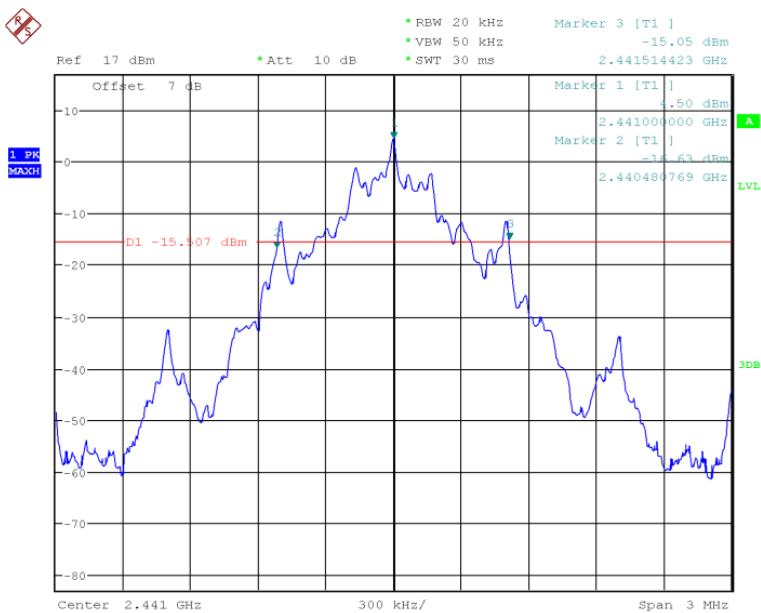
Conclusion: PASS

Test graphs as below:



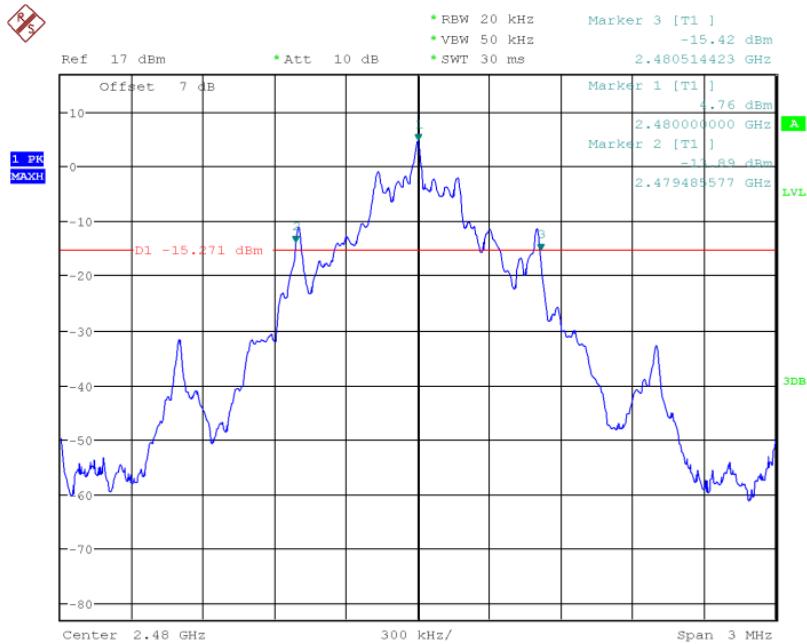
Date: 28.OCT.2014 17:38:03

Fig.76 20dB Bandwidth: GFSK, Ch0



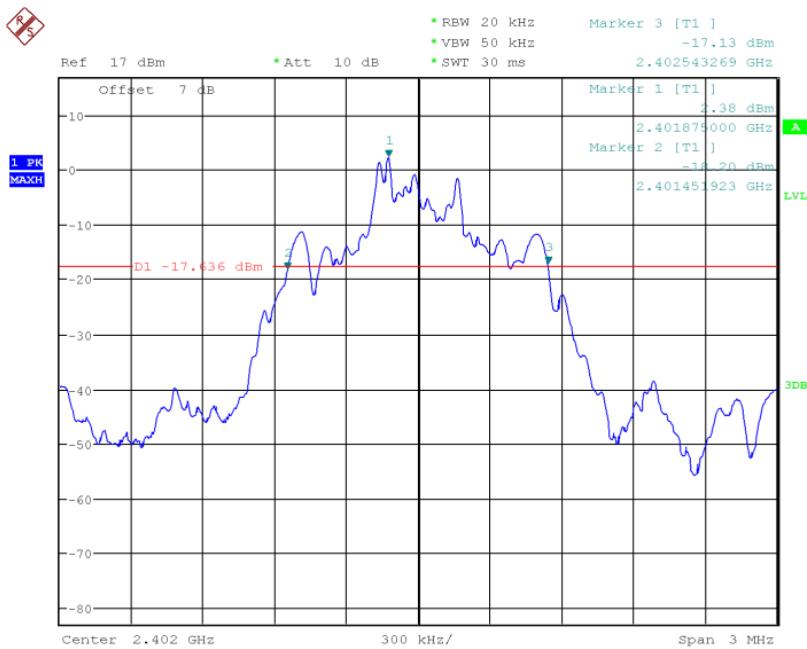
Date: 28.OCT.2014 17:38:18

Fig.77 20dB Bandwidth: GFSK, Ch39



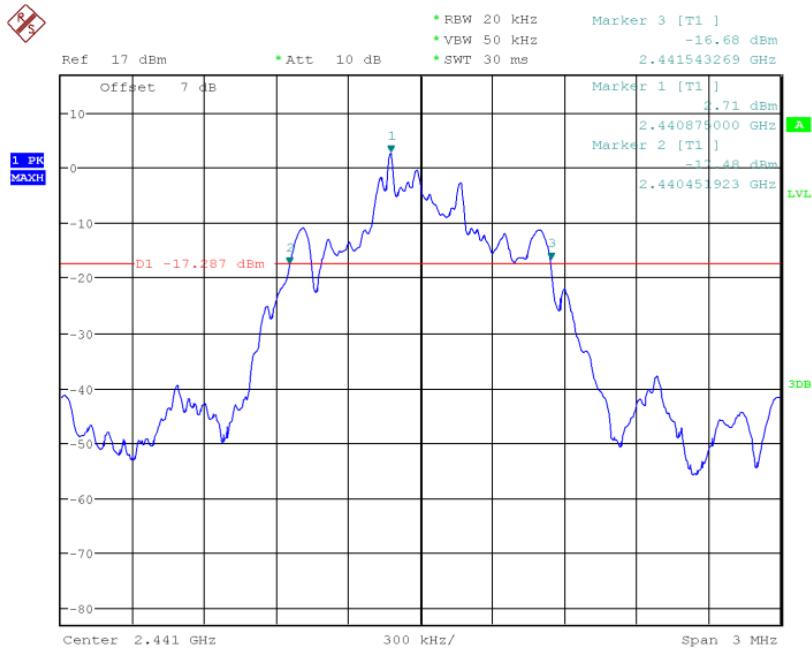
Date: 28.OCT.2014 17:38:32

Fig.78 20dB Bandwidth: GFSK, Ch78



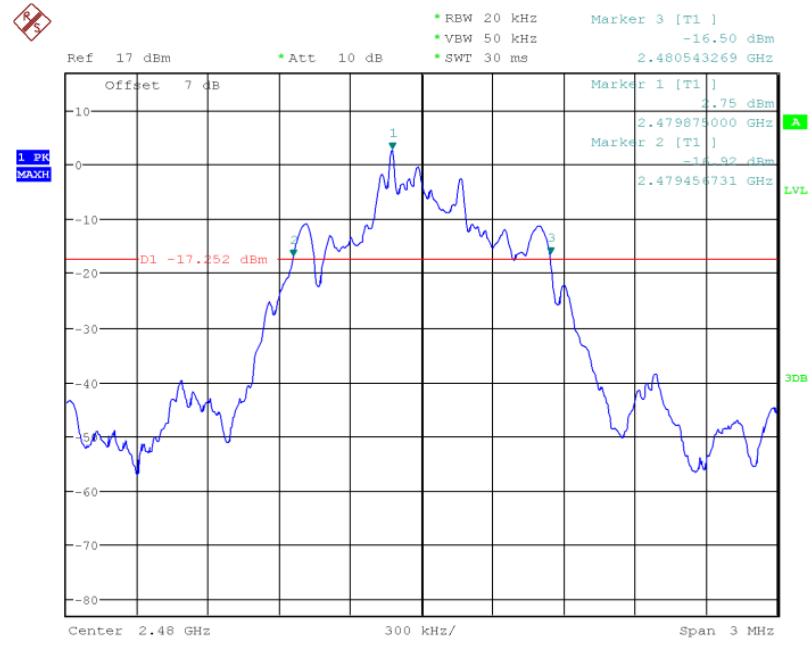
Date: 28.OCT.2014 17:38:46

Fig.79 20dB Bandwidth: π/4 DQPSK, Ch0



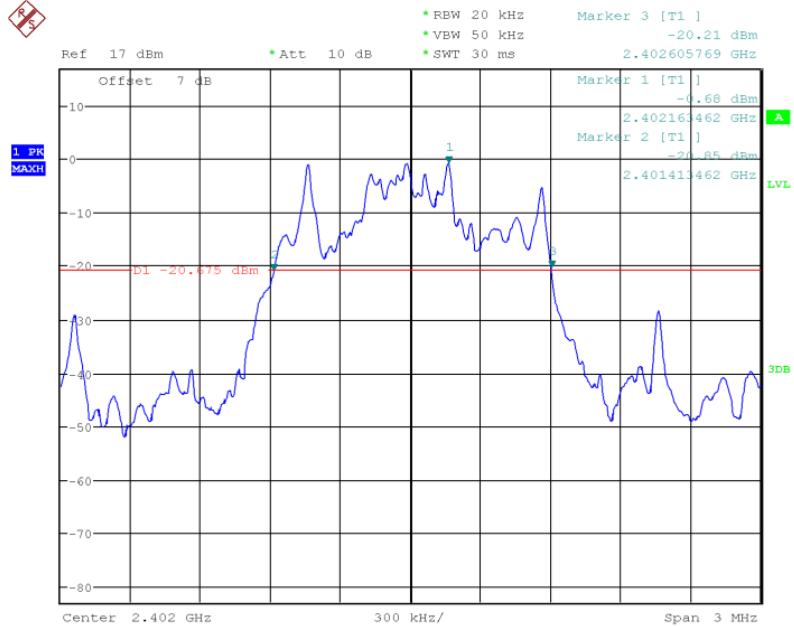
Date: 28.OCT.2014 17:39:00

Fig.80 20dB Bandwidth: $\pi/4$ DQPSK, Ch39

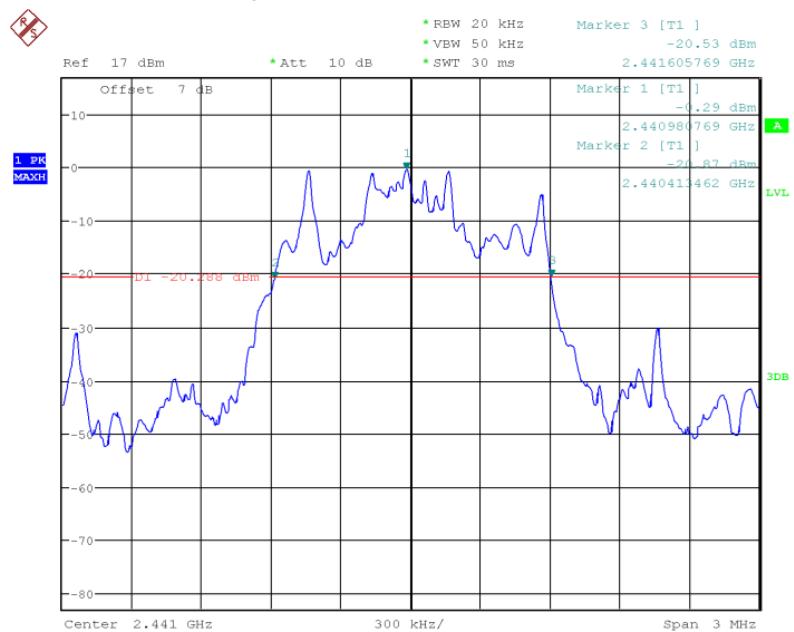


Date: 28.OCT.2014 17:39:14

Fig.81 20dB Bandwidth: $\pi/4$ DQPSK, Ch78

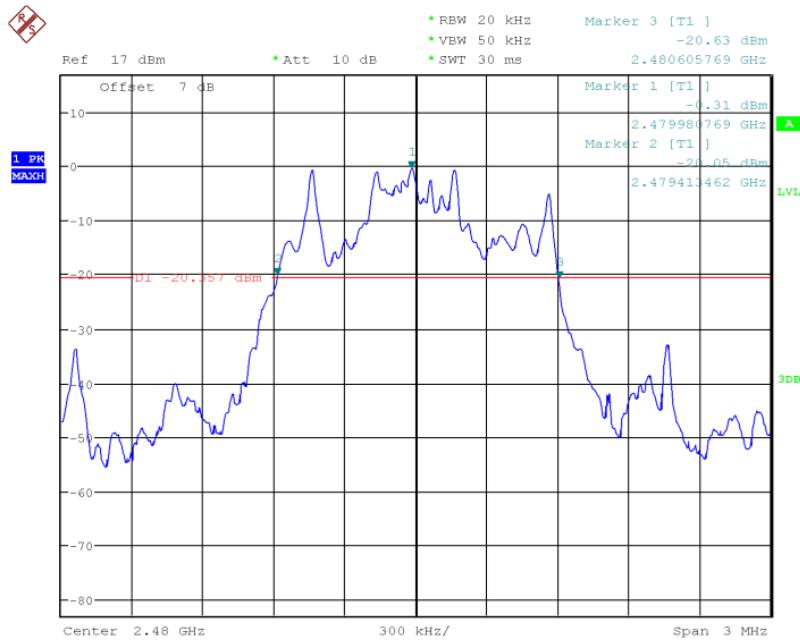


Date: 28.OCT.2014 17:39:28

Fig.82 20dB Bandwidth: 8DPSK, Ch0


Date: 28.OCT.2014 17:39:43

Fig.83 20dB Bandwidth: 8DPSK, Ch39



Date: 28.OCT.2014 17:39:57

Fig.84 20dB Bandwidth: 8DPSK, Ch78

6.7. Carrier Frequency Separation

Measurement Limit:

Standard	Limit (KHz)
FCC 47 CFR Part 15.247 (a) (1)	Over 25KHz or (2/3)*20dB bandwidth

The measurement is according to ANSI 63.10.

Measurement Result:

For GFSK

Channel	Carrier separation (KHz)	Conclusion
39	Fig.85	1014.4231 P

For $\pi/4$ DQPSK

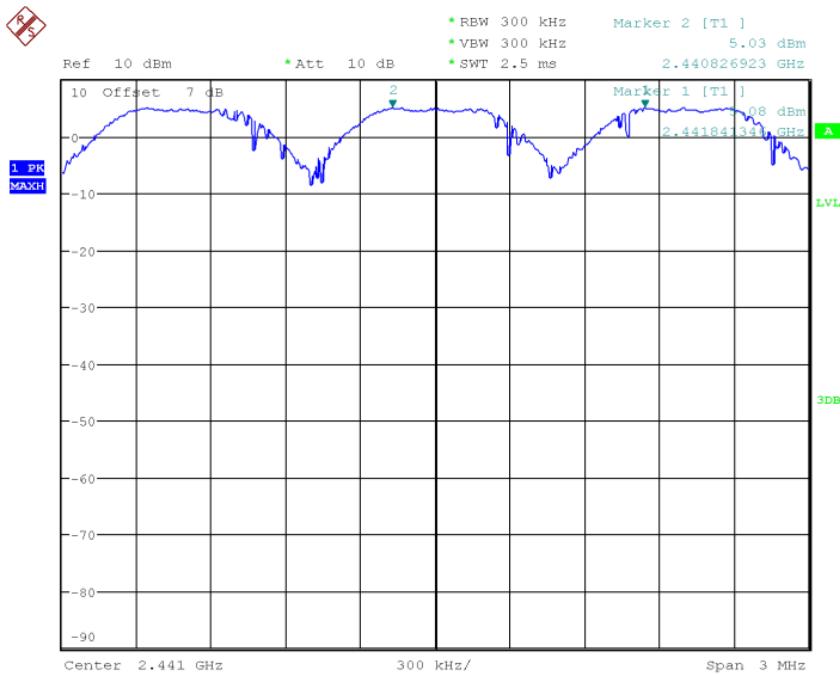
Channel	Carrier separation (KHz)	Conclusion
39	Fig.86	961.5385 P

For 8DPSK

Channel	Carrier separation (KHz)	Conclusion
39	Fig.87	1009.6154 P

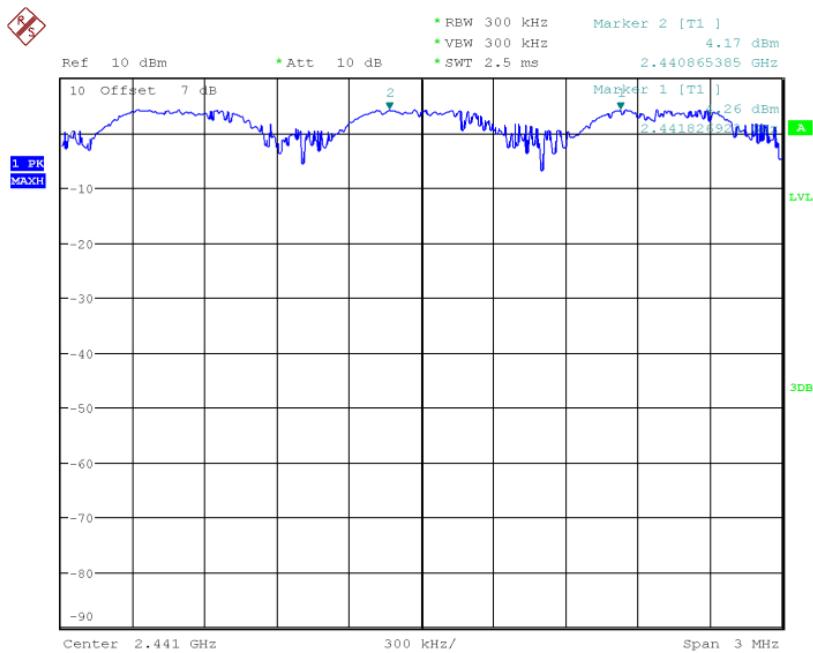
Conclusion: PASS

Test graphs as below:



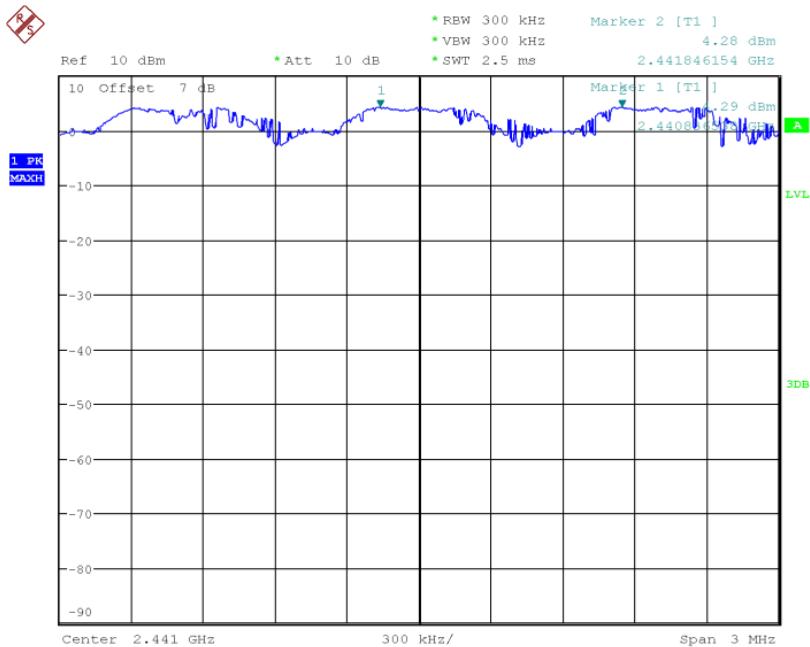
Date: 28.OCT.2014 17:41:37

Fig.85 Carrier separation measurement: GFSK, Ch39



Date: 28.OCT.2014 17:42:48

Fig.86 Carrier separation measurement: π/4 DQPSK, Ch39



Date: 28.OCT.2014 17:43:59

Fig.87 Carrier separation measurement: 8DPSK, Ch39

6.8. 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 according to ANSI 63.10.

Measurement Result:

For GFSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.88	P
40~78		

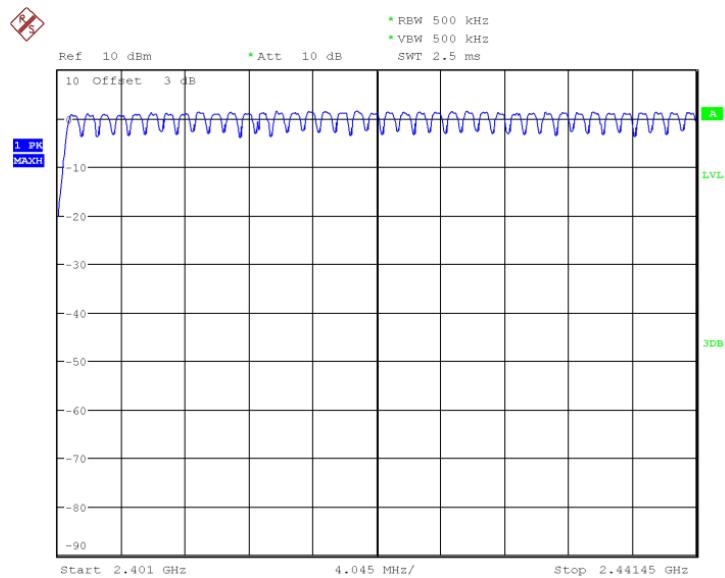
For $\pi/4$ DQPSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.90	P
40~78		

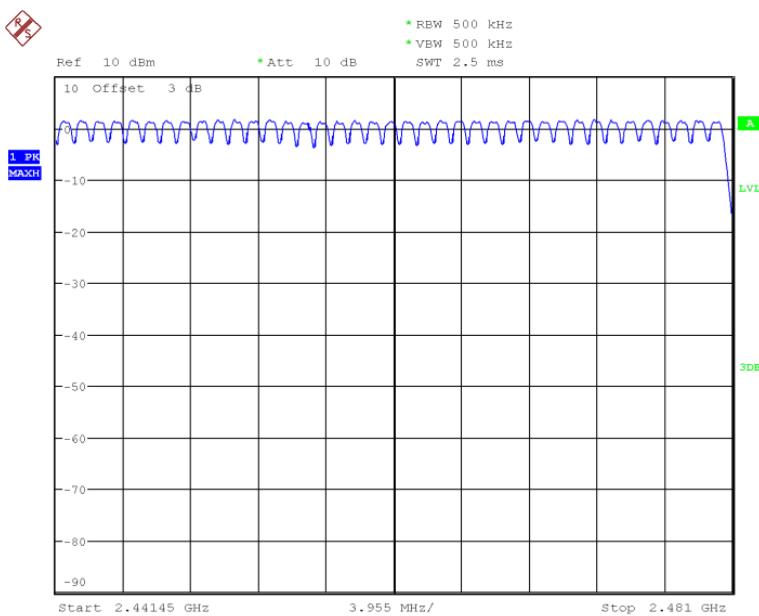
For 8DPSK

Channel	Number of hopping channels	Conclusion

0~39	Fig.92	79	P
40~78	Fig.93		P

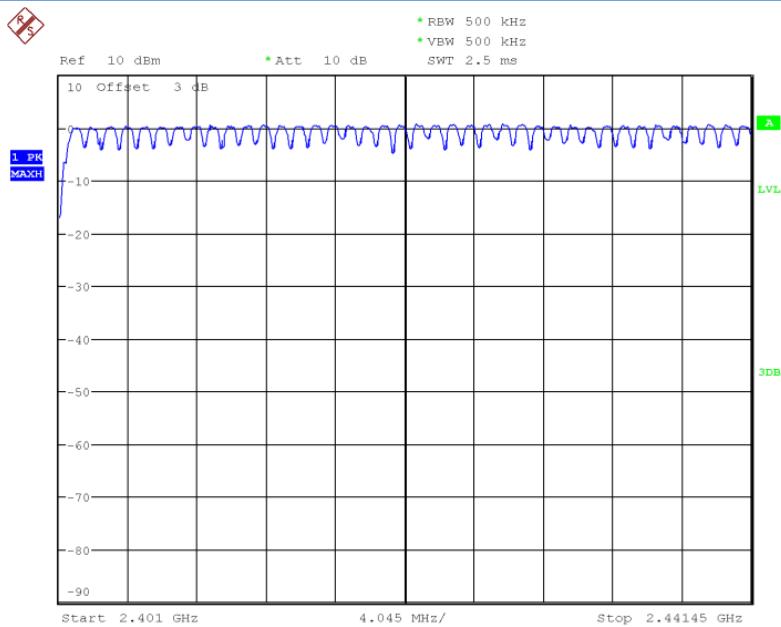
Conclusion: PASS
Test graphs as below:


Date: 28.OCT.2014 17:46:35

Fig.88 Number of hopping frequency: GFSK, Ch0~39


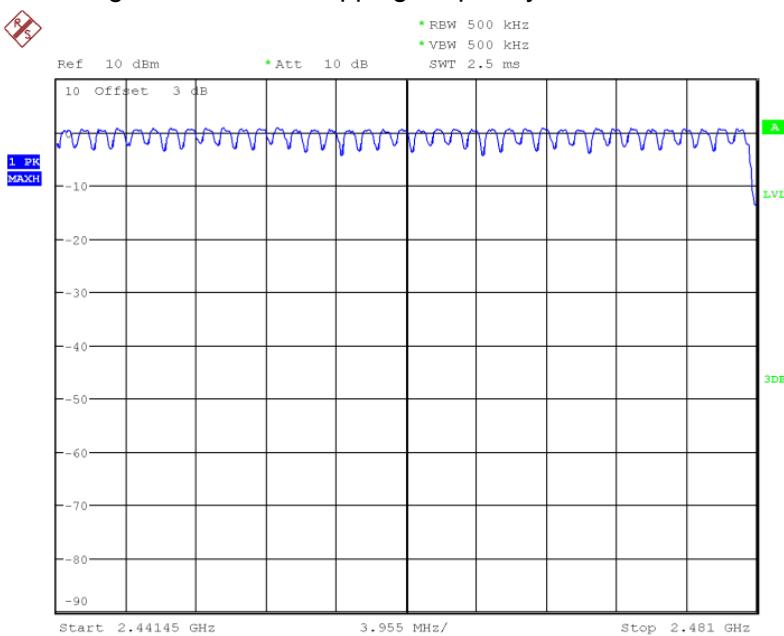
Date: 28.OCT.2014 17:48:39

Fig.89 Number of hopping frequency: GFSK, Ch40~78



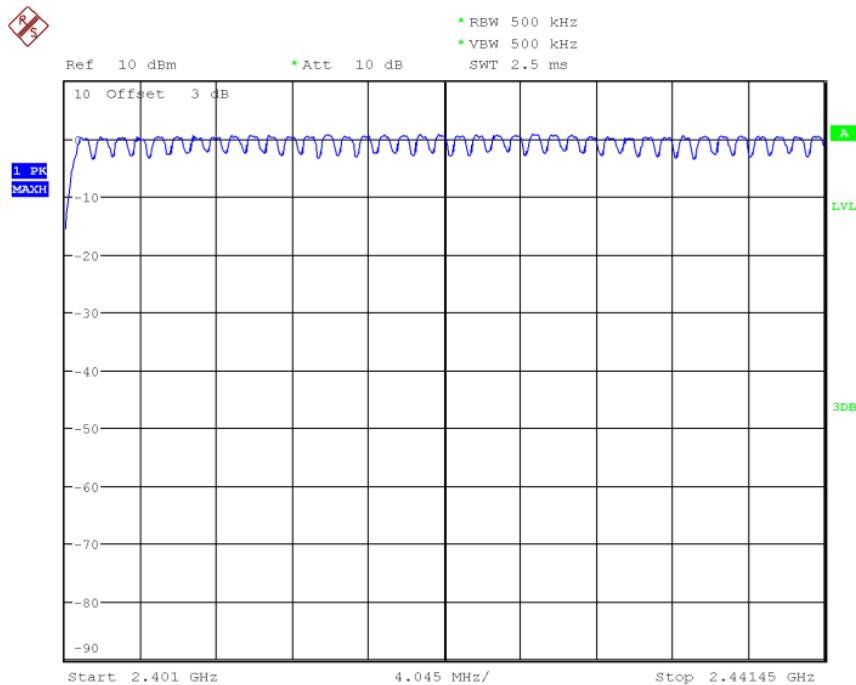
Date: 28.OCT.2014 17:50:44

Fig.90 Number of hopping frequency: $\pi/4$ DQPSK, Ch0~39



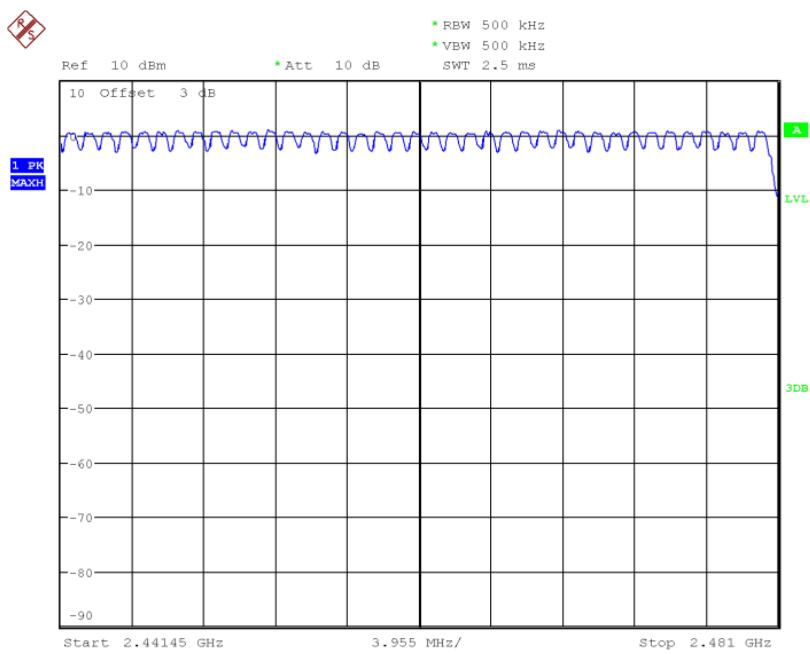
Date: 28.OCT.2014 17:52:50

Fig.91 Number of hopping frequency: $\pi/4$ DQPSK, Ch40~78



Date: 28.OCT.2014 17:54:55

Fig.92 Number of hopping frequency: 8DPSK, Ch0~39



Date: 28.OCT.2014 17:57:00

Fig.93 Number of hopping frequency: 8DPSK, Ch40~78

7. Test Equipments and Ancillaries Used For Tests

The test equipments and ancillaries used are as follows.

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSQ26	101096	Rohde&Schwarz	2015-07-06
2	DC Power Supply	ZUP60-14	LOC-220Z006	TDL-Lambda	2015-07-06
3	Bluetooth Tester	CBT32	100785	Rohde&Schwarz	2015-01-07

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Universal Radio Communication Tester	CMU200	123101	R&S	2015-07-05
3	Test Receiver	ESU40	100307	R&S	2015-07-24
4	Trilog Antenna	VULB9163	19-162515	Schwarzbeck	2017-11-04
5	Double Ridged Guide Antenna	ETS-3117	135885	ETS	2017-05-05
8	2-Line V-Network	ENV216	101380	R&S	2015-07-24

Anechoic chamber

Fully anechoic chamber by Frankonia German.

8. Test 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

Fully-anechoic chamber1 (6.8 meters×3.08 meters×3.53 meters) 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
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

Fully-anechoic chamber2 (Tapered Section: 8.75 meters×3.66 meters×3.66 meters, Rectangular Section: 7.32 meters×3.97 meters×3.66 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 30MHz to 40000MHz



ANNEX A. Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

*****End The Report*****