FCC PART 15C
TEST REPORT
No. 2012EEB00246-BT

For

Emporia Far East Ltd

GSM dual band mobile phone

Model Name: V32cu

Market Name: emporiaCLICK

With

Hardware Version: V32c_HW_V2.0

Software Version: V32c_SW_V1.04

FCC ID: ZVP-V32C

IC ID: 10262A-V32C

Issued Date: May 31th, 2012

Test Laboratory:
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.

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1. Test Laboratory

1.1. Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
Address:	No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China
Postal Code:	100191
Telephone:	00861062304633
Fax:	00861062304793

1.2. Testing Environment

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

1.3. Project data

Project Leader:	Zhou Yi
Test Engineer:	Yang Zi'an
Testing End Date:	2012-5-31

1.4. Signature

2. Client Information

2.1. Applicant Information

Company Name:	Emporia Telecom USA Inc.
Address /Post:	321 E. Glen Ave, Ridgewood
City:	New Jersey
Postal Code:	/
Country:	United States
Telephone:	(201) 962-5550
Fax:	(201) 962-5550

2.2. Manufacturer Information

Company Name:	Emporia Telecom USA Inc.
Address /Post:	321 E. Glen Ave, Ridgewood
City:	New Jersey
Postal Code:	/
Country:	United States
Telephone:	(201) 962-5550
Fax:	(201) 962-5550

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

3.1. About EUT

Description	GSM dual band mobile phone
Model Name	V32cu
Marketing Name	emporiaCLICK
Frequency Band	ISM 2400MHz~2483.5MHz
Type of Modulation	GFSK/π/4 DQPSK/8DPSK
Number of Channels	79

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
EUT1	359456040537368	V32c_HW_V2.0	V32c_SW_V1.04

*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	Type	SN
AE1	Charger	RL-V170US	/
AE2	Li-ion Battery	Li-ion battery	/

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

4. Reference Documents

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

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

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, 2400–2483.5 MHz, and 5725–5850 MHz.	Oct, 2011 Edition
IC RSS-210	RSS-210 Spectrum Management and Telecommunications Radio Standards Specification - Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category I Equipment	Issue 8 Dec 2010
IC RSS-Gen	RSS-Gen, Issue 3, sets out general requirements for and provides information on the certification of apparatus that is used for radiocommunication other than broadcasting.	Issue 3 Dec 2010
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2003
FCC Public Notice DA 00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems	March 30, 2000

5. Laboratory Environment

Half-anechoic chamber (11.20 meters×6.10 meters×5.60 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 35 %, Max. = 70 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2M Ω
Ground system resistance	< 1 Ω
Normalized Site Attenuation (NSA)	< ±3.5dB, with 3m of Measuring distance, 30MHz 1000MHz
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

Fully-anechoic chamber (11.20 meters×6.10 meters×6.60 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 35 %, Max. = 70 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 2M Ω
Ground system resistance	< 1 Ω
VSWR	Between 0 and 6 dB, from 30MHz to 18 000 MHz

Control room & Conduction Lab did not exceed following limits along the EMC testing:

Items	Control room	Conduction Lab
Temperature	Min.= 15 ℃, Max.= 30 ℃	Min.=15 ℃, Max.=30 ℃
Relative humidity	Min.=35 %, Max.= 80 %	Min.=35 %, Max.= 80 %
Shielding effectiveness	> 100 dB	> 100 dB
Electrical insulation	> 2M Ω	> 2M Ω
Ground system resistance	< 1 Ω	< 1 Ω

6. Summary of Test Results

6.1. Summary of Test Results

No	Test cases	Sub-clause of Part15C	Sub-clause of IC	Verdict
0	Antenna Requirement	15.203	/	P
1	Maximum Peak Output Power	15.247 (a)	RSS-210 Issue8 A8.1	**P**
2	Band Edges Compliance	15.247 (d)	RSS-210 Issue8 A8.5	**P**
3	Conducted Spurious Emission	15.247	RSS-210 Issue8 A8.5	**P**
4	Radiated Spurious Emission	15.247,15.205,15.209	RSS-210 Issue8 A8.5	**P**
5	Occupied 20dB bandwidth	15.247(a)	RSS-210 Issue8 A8.1	**P**
6	Time of Occupancy(Dwell Time)	15.247(a)	RSS-210 Issue8 A8.1	**P**
7	Number of Hopping Channel	15.247(a)	RSS-210 Issue8 A8.1	**P**
8	Carrier Frequency Separation	15.247(a)	RSS-210 Issue8 A8.1	**P**
9	AC Powerline Conducted Emission	15.107,15.207	RSS-Gen Issue3 7.2.4	**P**
10	Occupied bandwidth	/	RSS-Gen Issue3 4.6.1	/

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

6.3. Terms used in the result table

Terms used in Verdict column

P	Pass
NA	Not Available
F	Fail

Abbreviations

AC	Alternating Current
AFH	Adaptive Frequency Hopping
BW	Band Width
E.I.R.P.	equivalent isotropical radiated power
ISM	Industrial, Scientific and Medical
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
Tx	Transmitter

7. Test Equipments Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Spectrum Analyzer	FSP40	100378	Rohde & Schwarz	2012-12-22
2	Bluetooth Tester	CBT32	100584	Rohde & Schwarz	2013-01-12

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Chamber	FACT5-2.0	4166	ETS-Lindgren	2013-11-21
2	Test Receiver	ESCI	100701	Rohde & Schwarz	2012-08-04
3	Spectrum Analyzer	FSP40	100378	Rohde & Schwarz	2012-12-22
4	BiLog Antenna	VULB9163	9163-330	Schwarzbeck	2014-02-24
5	Dual-Ridge Waveguide Horn Antenna	3164-05	00085724	ETS-Lindgren	2014-02-17
6	Test Receiver	ESCI	100702	Rohde & Schwarz	2012-08-04
7	LISN	ESH2-Z5	100196	Rohde & Schwarz	2013-01-25
8	Signal Generator	SMR40	100541	Rohde & Schwarz	2013-01-11
9	Dual-Ridge Waveguide Horn Antenna	3117	00066585	ETS-Lindgren	2013-03-31

Anechoic chamber

Fully anechoic chamber by ETS-Lindgren.

ANNEX A: EUT photograph

Pic A-1 Mobile phone

Pic A-2 Mobile phone

Pic A-3 Battery

Pic A-4 Charger

ANNEX B: MEASUREMENT RESULTS

B.0 Antenna requirement

Measurement Limit:

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

Conclusion: The Directional gains of antenna used for transmitting is 0 dBi.
The RF transmitter uses an integrate antenna without connector.

B.1 Maximum Peak Output Power

Measurement Limit:

Standard	Limit (dBm)
FCC CRF Part 15.247(a) RSS-210 Issue8 A8.1	< 21 (125mW)

Measurement Results:

Mode	Test Result (dBm)		
	2402MHz (Ch0)	2441MHz (Ch39)	2480 MHz (Ch78)
GFSK	2.52	1.76	1.68
π /4 DQPSK	2.46	1.77	1.62
8DPSK	2.48	1.75	1.62

Conclusion: Pass

B.2 Band Edges Compliance

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d) RSS-210 Issue8 A8.5	> 20

Measurement Result:

Mode	Channel	Hopping	Test Results	Conclusion
GFSK	0	ON	Fig.1	P
	78	ON	Fig.2	P
π /4 DQPSK	0	ON	Fig.3	P
	78	ON	Fig.4	P
8DPSK	0	ON	Fig.5	P
	78	ON	Fig.6	P

See ANNEX C for test graphs.

Conclusion: Pass

B.3 Conducted Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d) RSS-210 Issue8 A8.5	20dB below peak output power in 100 kHz bandwidth

Measurement Results:

MODE	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	2.402 GHz	Fig.7	P
		30 MHz-3 GHz	Fig.8	P
		3GHz-18Ghz	Fig.9	P
	78	2.480 GHz	Fig.10	P
		30 MHz-3 GHz	Fig.11	P
		3GHz-18Ghz	Fig.12	P
π /4 DQPSK	0	2.402 GHz	Fig.13	P
		30 MHz-3 GHz	Fig.14	P
		3GHz-18Ghz	Fig.15	P
	78	2.480 GHz	Fig.16	P
		30 MHz-3 GHz	Fig.17	P
		3GHz-18Ghz	Fig.18	P
8DPSK	0	2.402 GHz	Fig.19	P
		30 MHz-3 GHz	Fig.20	P
		3GHz-18Ghz	Fig.21	P
	78	2.480 GHz	Fig.22	P
		30 MHz-3 GHz	Fig.23	P
		3GHz-12Ghz	Fig.24	P
/	All channel	18GHz-26GHz	Fig.25	P

See ANNEX C for test graphs.

Conclusion: Pass

B.4 Radiated Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209 RSS-210 Issue8 A8.5	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength(μV/m)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Condition

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

Note: According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band below 30MHz. Therefore, the measurement starts from 30MHz to tenth harmonic..

Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	30 MHz ~1 GHz	Fig.26	P
		1 GHz ~ 3 GHz	Fig.27	P
		3 GHz ~ 18 GHz	Fig.28	P
	78	30 MHz ~1 GHz	Fig.29	P
		1 GHz ~ 3 GHz	Fig.30	P
		3 GHz ~ 18 GHz	Fig.31	P
π /4 DQPSK	0	30 MHz ~1 GHz	Fig.32	P
		1 GHz ~ 3 GHz	Fig.33	P
		3 GHz ~ 18 GHz	Fig.34	P
	78	30 MHz ~1 GHz	Fig.35	P
		1 GHz ~ 3 GHz	Fig.36	P
		3 GHz ~ 18 GHz	Fig.37	P
8DPSK	0	30 MHz ~1 GHz	Fig.38	P
		1 GHz ~ 3 GHz	Fig.39	P
		3 GHz ~ 18 GHz	Fig.40	P
	78	30 MHz ~1 GHz	Fig.41	P
		1 GHz ~ 3 GHz	Fig.42	P
		3 GHz ~ 18 GHz	Fig.43	P
/	All channels	18 GHz~ 26.5 GHz	Fig.44	P

See ANNEX C for test graphs.

Conclusion: Pass

B.5 Occupied 20dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a) RSS-210 Issue8 A8.1	/

Measurement Result:

Mode	Channel	Occupied 20dB Bandwidth (MHz)		conclusion
GFSK	39	Fig.45	1.143	/
π /4 DQPSK	39	Fig.46	1.338	/
8DPSK	39	Fig.47	1.338	/

See ANNEX C for test graphs.

Conclusion: PASS

B.6 Time of Occupancy (Dwell Time)

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) RSS-210 Issue8 A8.1	< 400 ms

Measurement Results:

Mode	Channel	Packet	Dwell Time(ms)		Conclusion
GFSK	39	DH5	Fig.48 Fig.49	250.0	**P**
π /4 DQPSK	39	2-DH5	Fig.50 Fig.51	287.2	**P**
8DPSK	39	3-DH5	Fig.52 Fig.53	326.4	**P**

See ANNEX C for test graphs.

Conclusion: Pass

B.7 Number of Hopping Channels

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) RSS-210 Issue8 A8.1	At least 15 non-overlapping channels

Measurement Results:

Mode	Channel	Packet	Number of hopping channels		Test result	Conclusion
GFSK	39	DH5	Fig.54	Fig.55	79	**P**
π /4 DQPSK	39	2-DH5	Fig.56	Fig.57	79	**P**
8DPSK	39	3-DH5	Fig.58	Fig.59	79	**P**

See ANNEX C for test graphs.

Conclusion: Pass

B.8 Carrier Frequency Separation

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) RSS-210 Issue8 A8.1	By a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater

Measurement Results:

Mode	Channel	Packet	Separation of hopping channels	Test result (MHz)	Conclusion
GFSK	39	DH5	Fig.60	1.005	**P**
π /4 DQPSK	39	2-DH5	Fig.61	1.034	**P**
8DPSK	39	3-DH5	Fig.62	1.005	**P**

See ANNEX C for test graphs.

Conclusion: Pass

B.9 AC Power line Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement Result and limit:

BT (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)			Conclusion
		With charger			
		GFSK	π /4 DQPSK	8DPSK	
0.15 to 0.5	66 o 56	Fig.63	Fig.64	Fig.65	P
0.5 to 5	56				
5 to 30	60				
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.					

BT (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)			Conclusion
		With charger			
		GFSK	π /4 DQPSK	8DPSK	
0.15 to 0.5	56 to 46	Fig.63	Fig.64	Fig.65	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.					

See ANNEX C for test graphs.

Conclusion: Pass

B.10 Occupied Bandwidth

Measurement Limit:

Standard	Limit
RSS-Gen Issue3 4.6.1	/

Measurement Result:

Mode	Channel	Occupied Bandwidth (MHz)		conclusion
GFSK	0	Fig.66	1.085	/
	39	Fig.67	1.078	/
	78	Fig.68	1.121	/
π/4 DQPSK	0	Fig.69	1.353	/
	39	Fig.70	1.324	/
	78	Fig.71	1.287	/
8DPSK	0	Fig.72	1.620	/
	39	Fig.73	1.613	/
	78	Fig.74	1.628	/

Conclusion: PASS

Test graphs as below:

ANNEX C: TEST FIGURE LIST

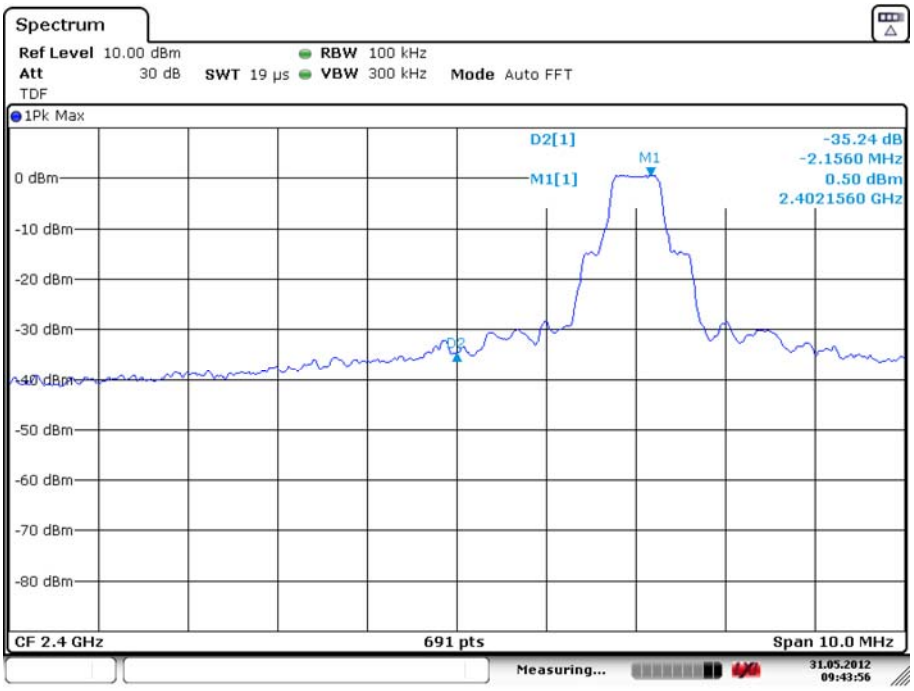

Fig. 1 Band Edges (GFSK, Ch 0, Hopping ON)

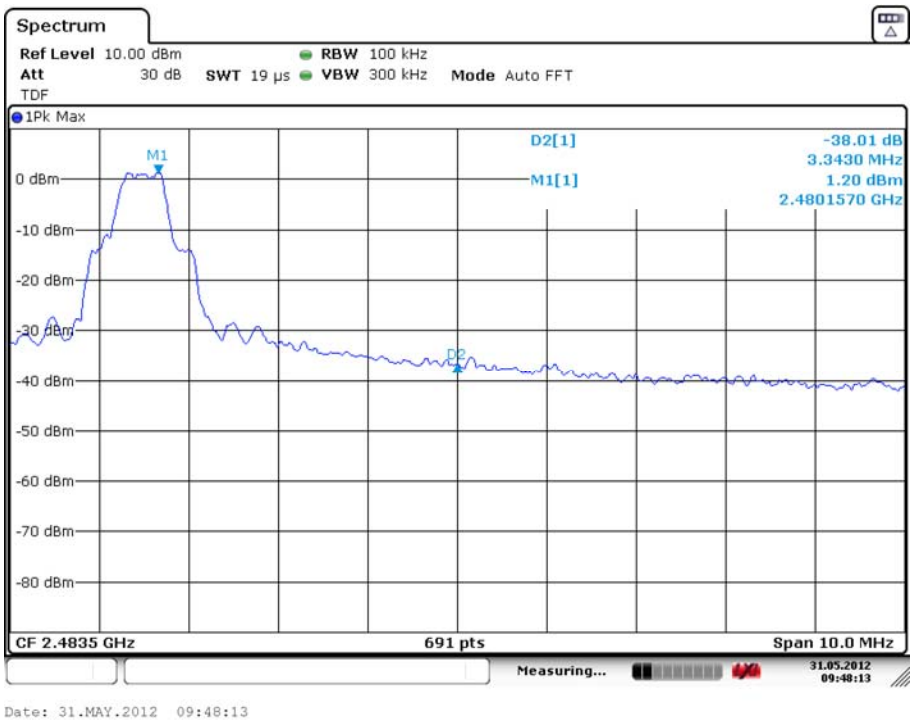

Fig. 2 Band Edges (GFSK, Ch 78, Hopping ON)

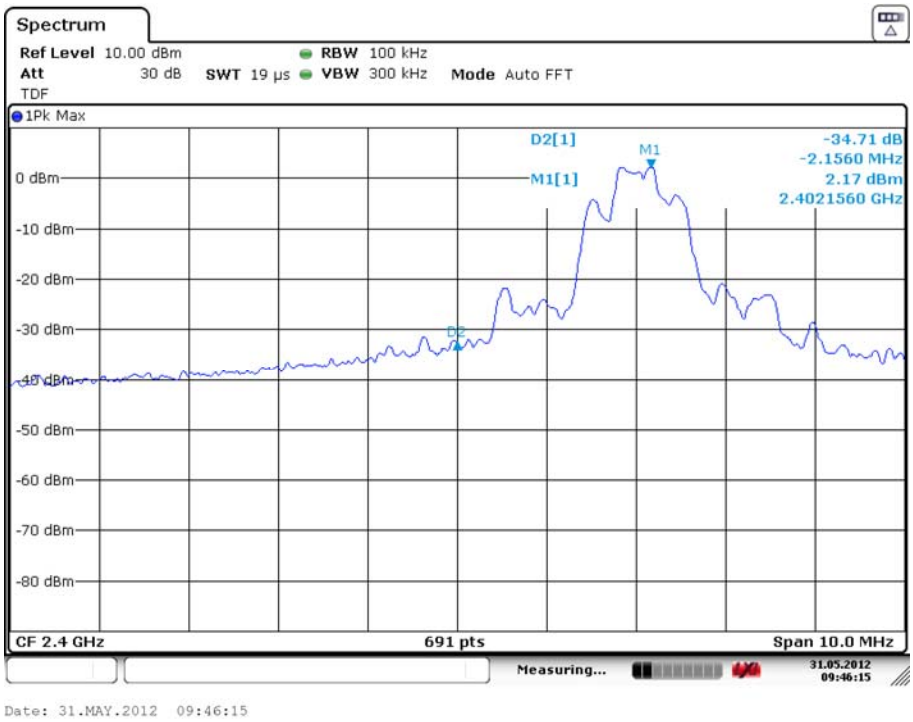

Fig. 3 Band Edges (π /4 DQPSK, Ch 0, Hopping ON)

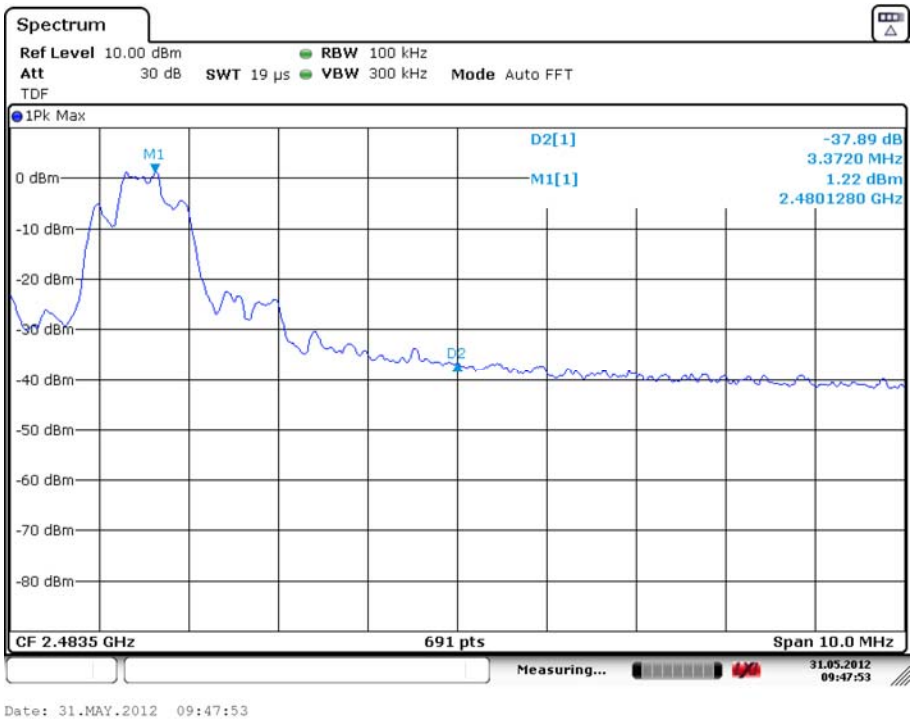

Fig. 4 Band Edges (π /4 DQPSK, Ch 78, Hopping ON)

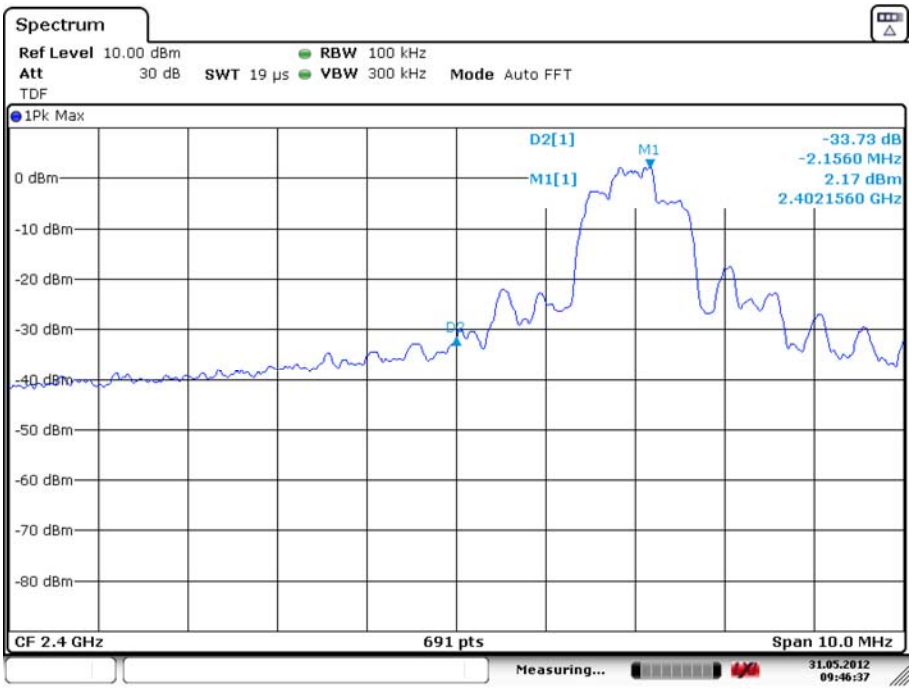

Fig. 5 Band Edges (8DPSK, Ch 0, Hopping ON)

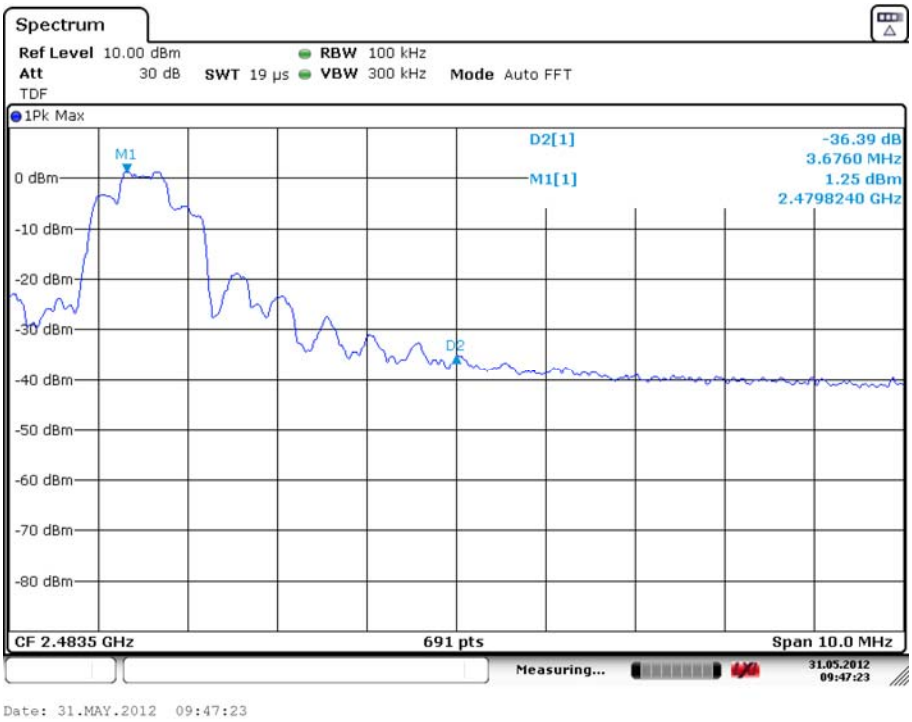

Fig. 6 Band Edges (8DPSK, Ch 78, Hopping ON)

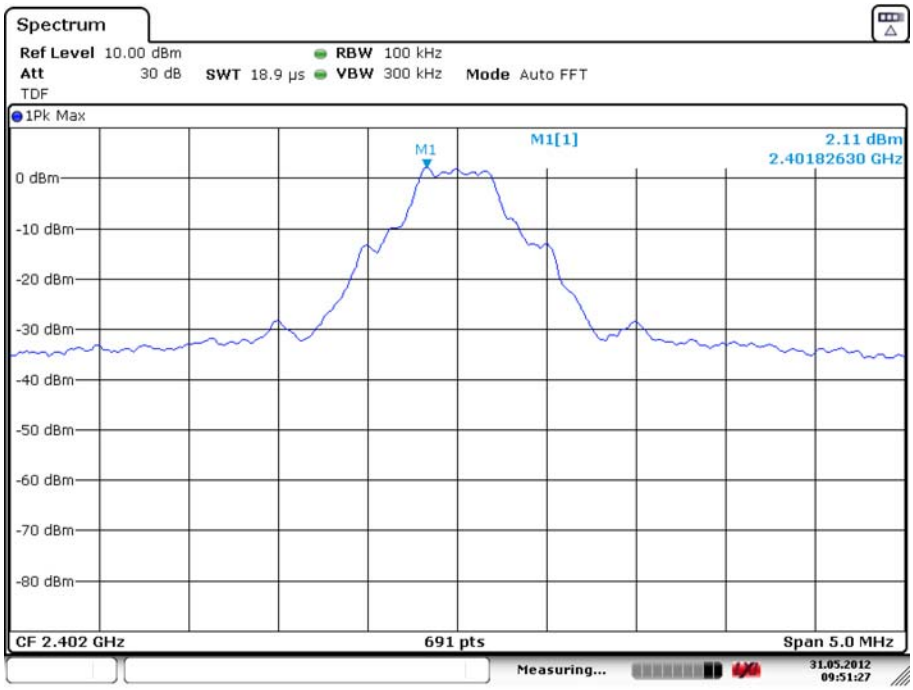

Fig. 7 Conducted Spurious Emission (GFSK, Ch0, 2.402GHz)

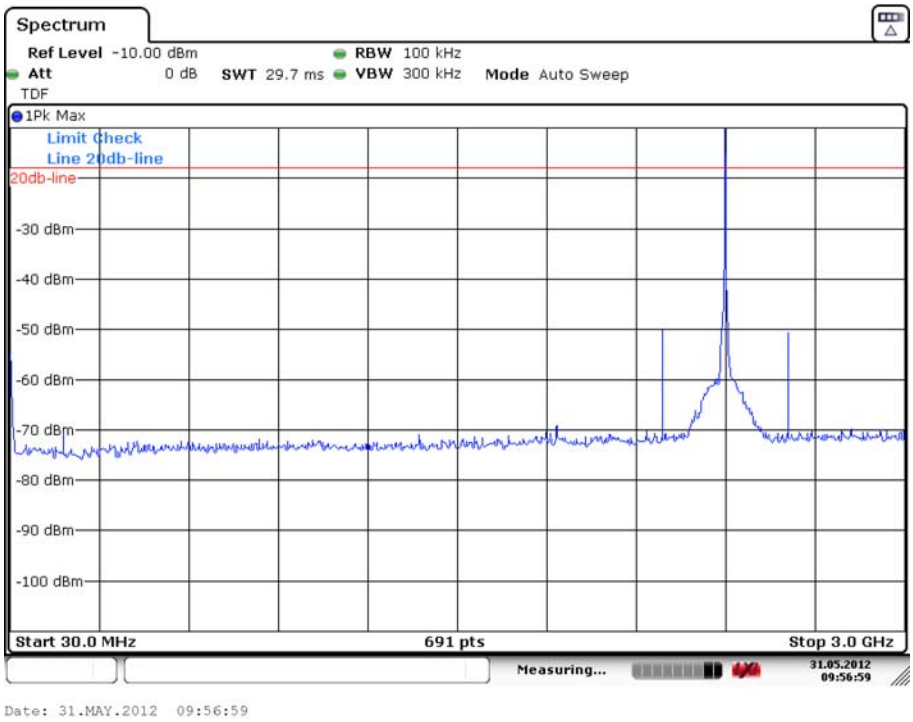

Fig. 8 Conducted Spurious Emission (GFSK, Ch0, 30 MHz-3 GHz)

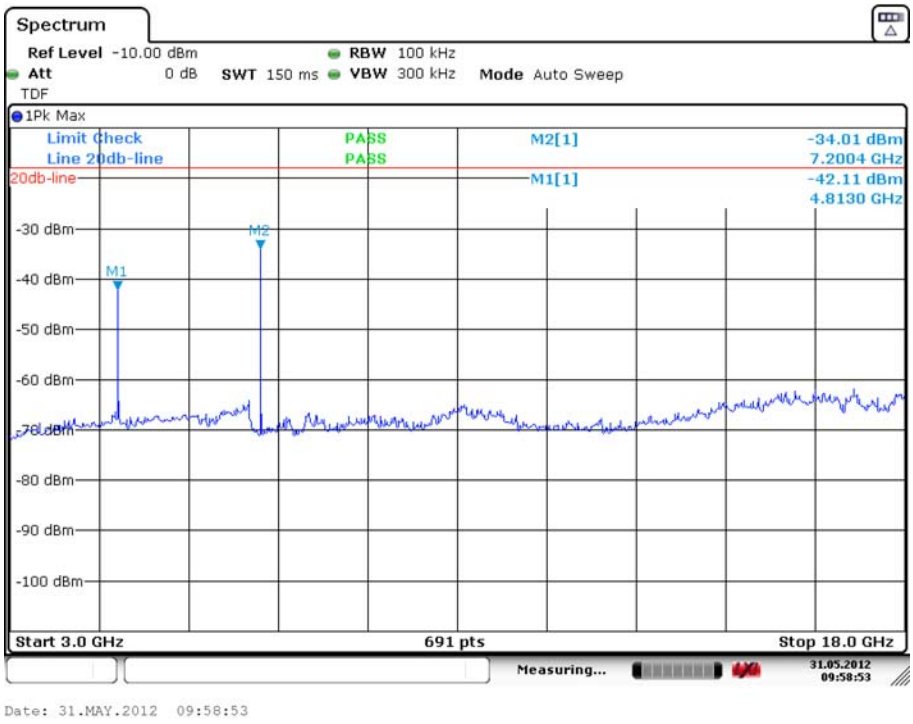

Fig. 9 Conducted Spurious Emission (GFSK, Ch0, 3GHz-18 GHz)

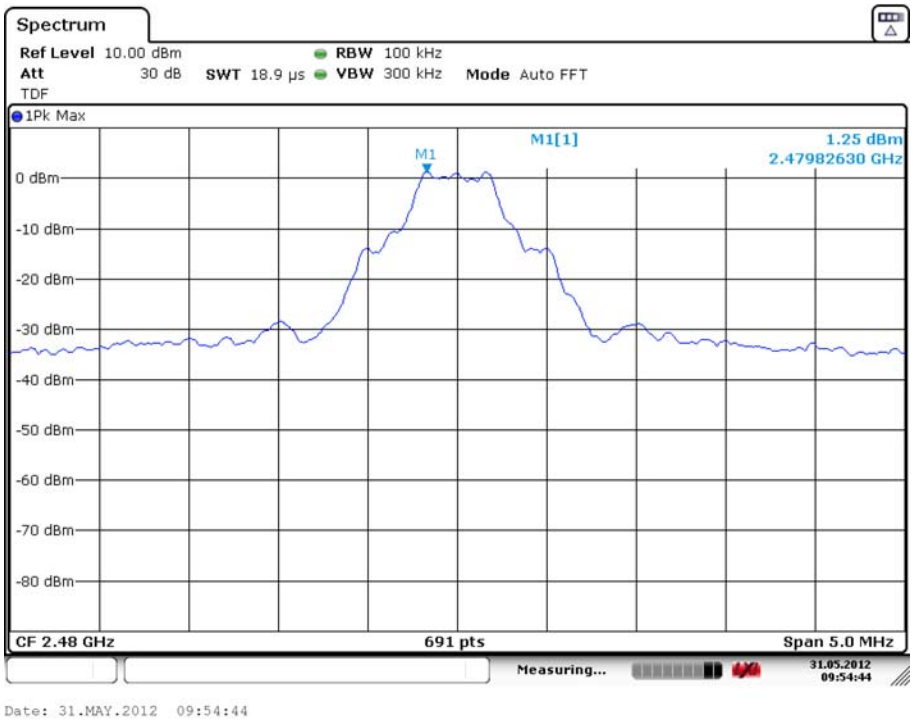

Fig. 10 Conducted Spurious Emission (GFSK, Ch78, 2.480GHz)

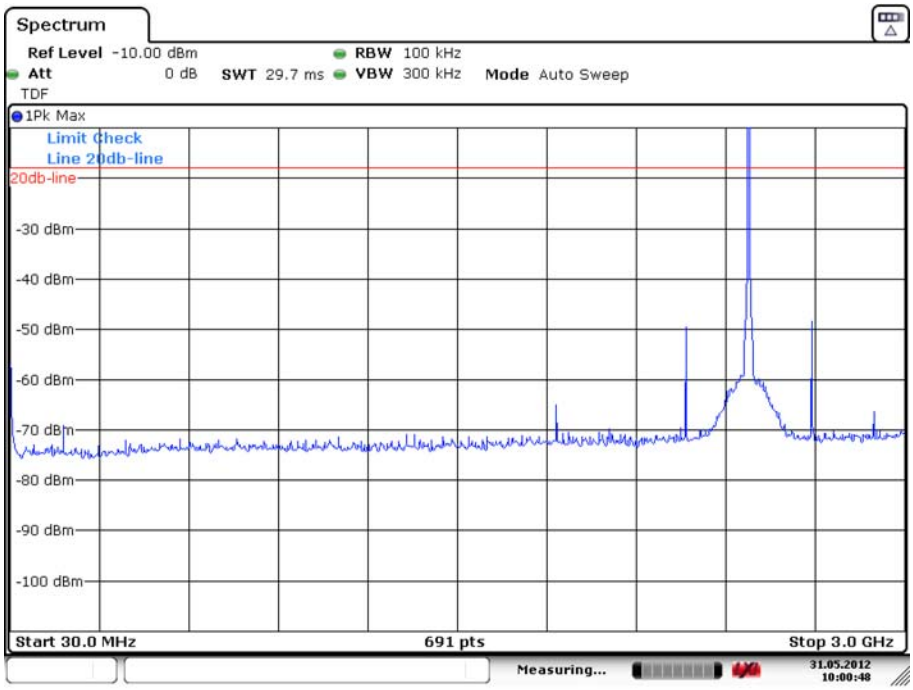

Fig. 11 Conducted Spurious Emission (GFSK, Ch78, 30 MHz-3 GHz)

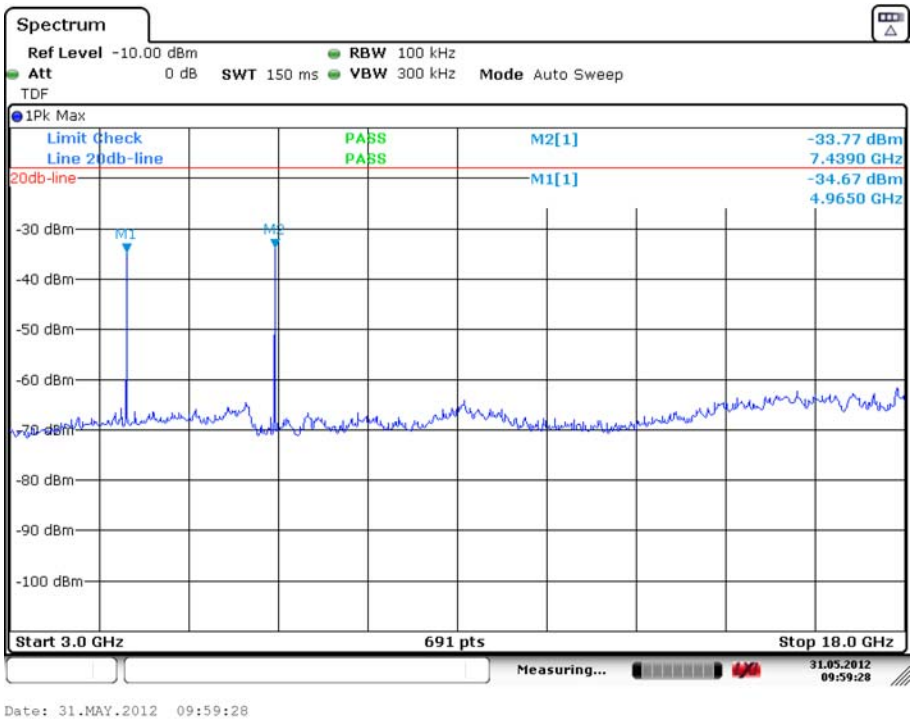

Fig. 12 Conducted Spurious Emission (GFSK, Ch78, 3GHz-18 GHz)

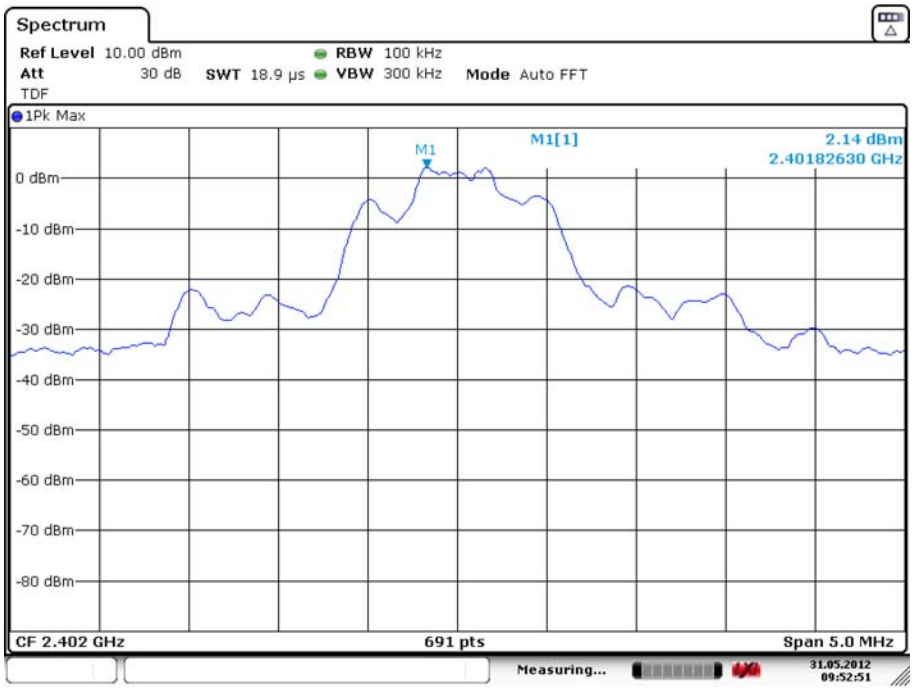

Fig. 13 Conducted Spurious Emission (π /4 DQPSK, Ch0, 2.402GHz)

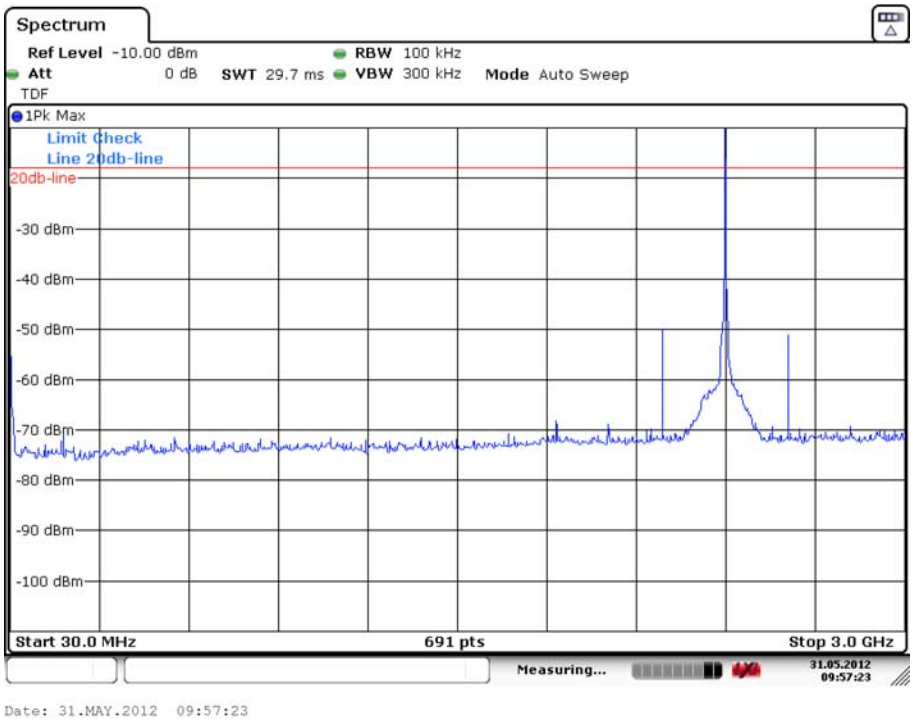

Fig. 14 Conducted Spurious Emission (π /4 DQPSK, Ch0, 30 MHz-3 GHz)

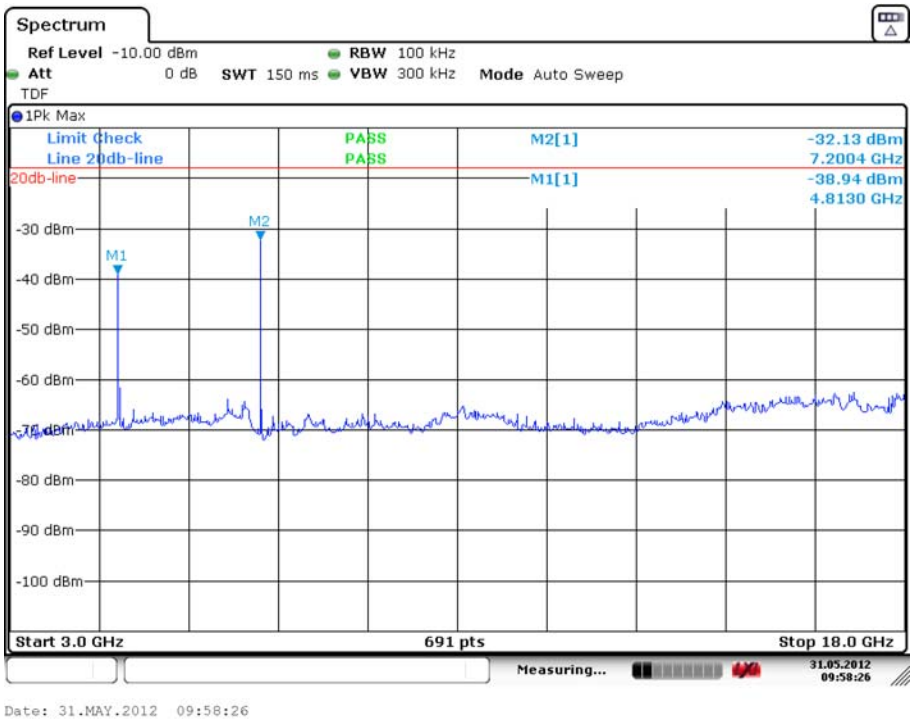

Fig. 15 Conducted Spurious Emission (π /4 DQPSK, Ch0, 3GHz-18 GHz)

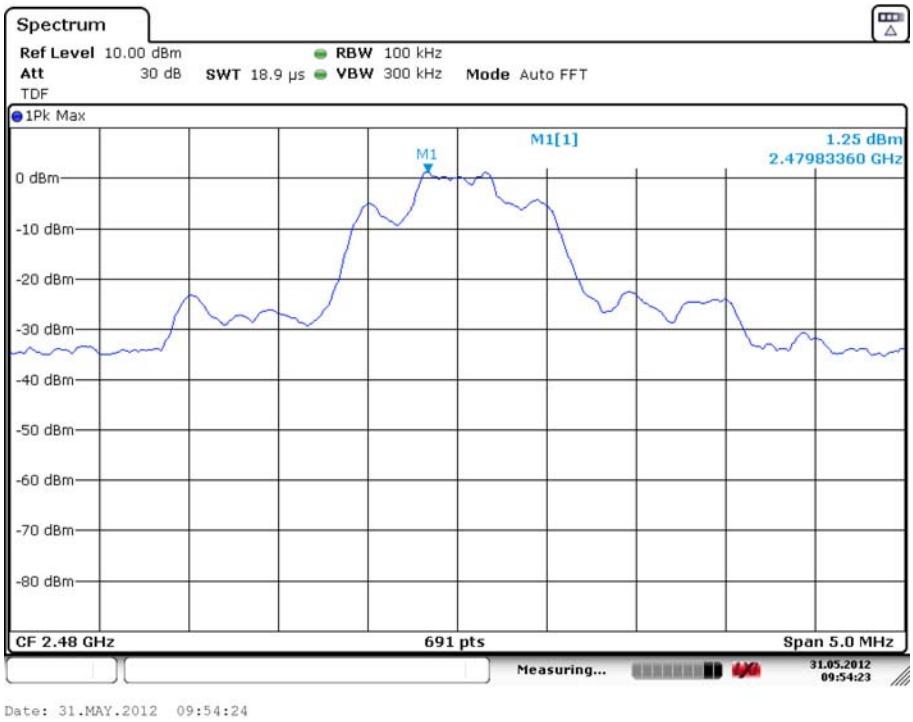

Fig. 16 Conducted Spurious Emission (π /4 DQPSK, Ch78, 2.480GHz)

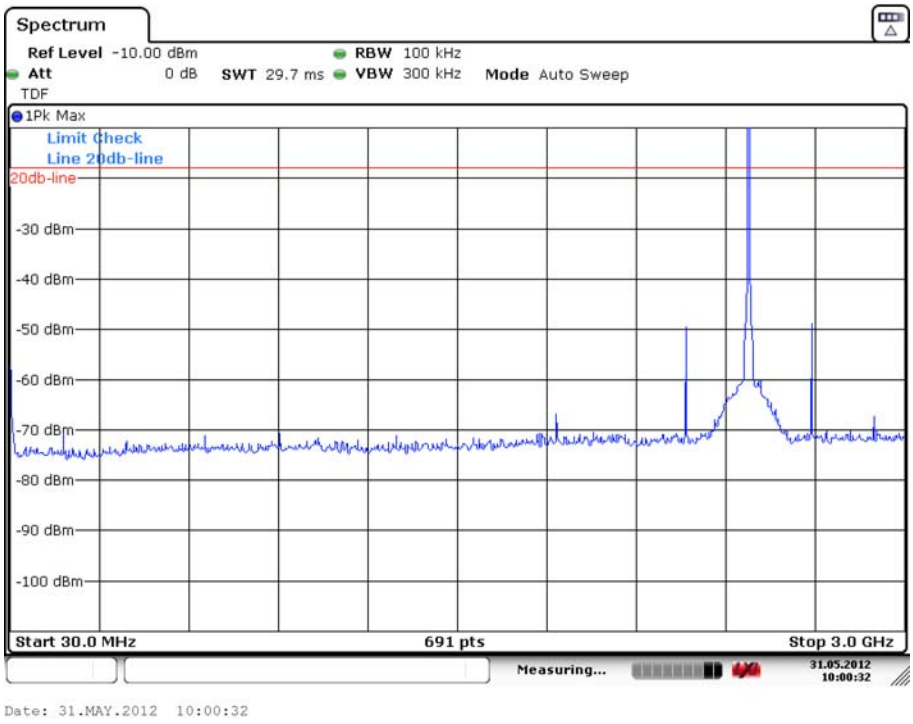

Fig. 17 Conducted Spurious Emission (π /4 DQPSK, Ch78, 30 MHz-3 GHz)

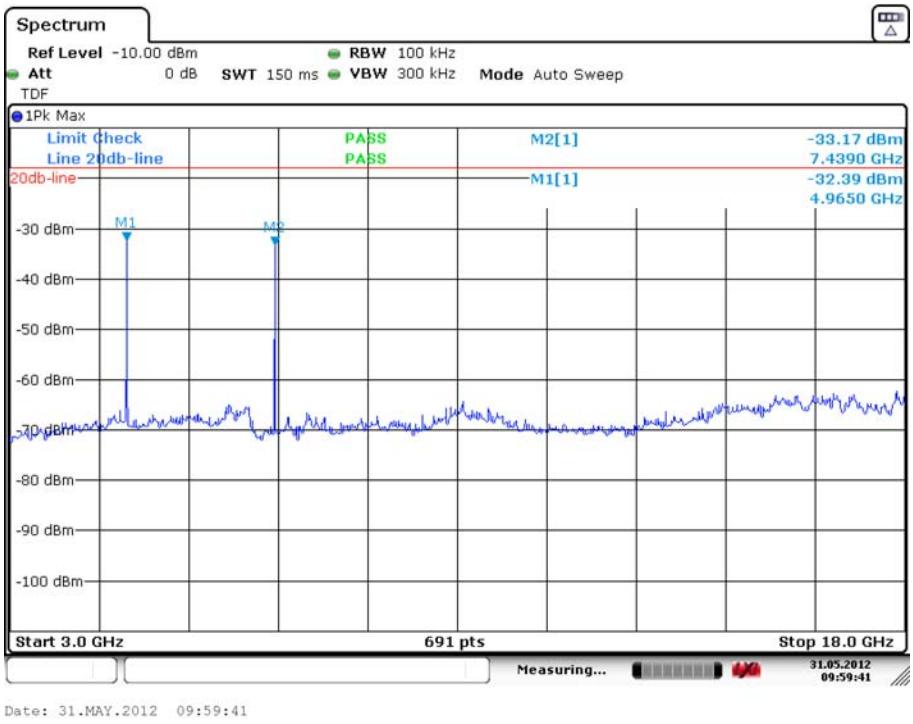

Fig. 18 Conducted Spurious Emission (π /4 DQPSK, Ch78, 3GHz-18 GHz)

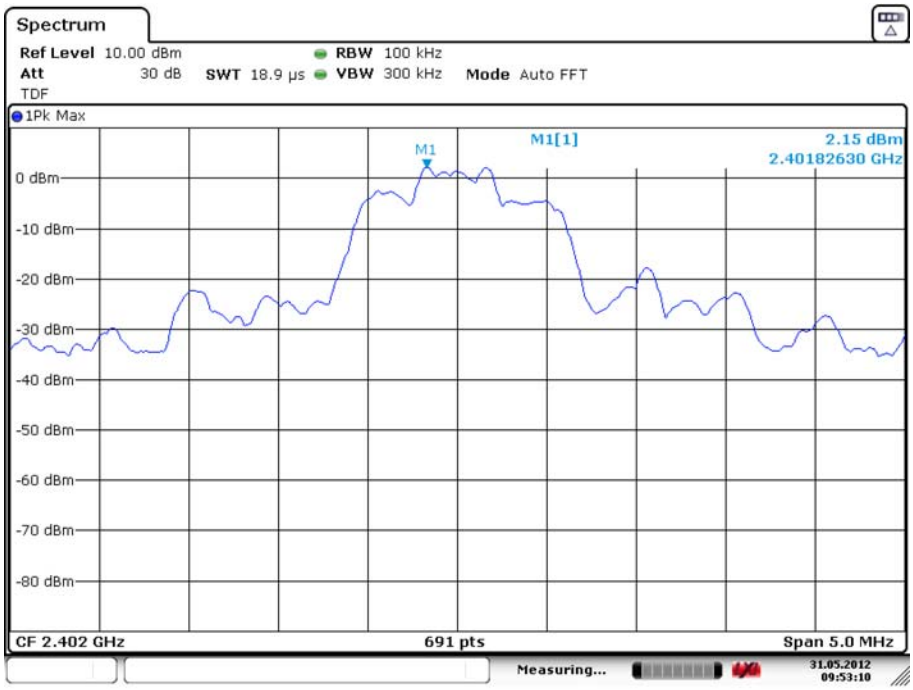

Fig. 19 Conducted Spurious Emission (8DPSK, Ch0, 2.402GHz)

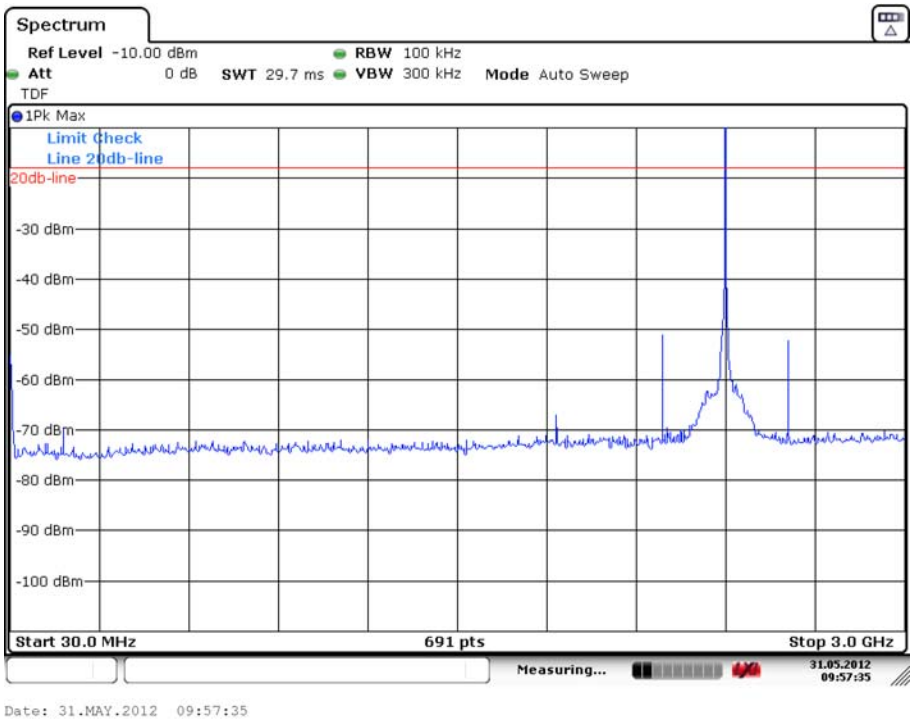

Fig. 20 Conducted Spurious Emission (8DPSK, Ch0, 30 MHz-3 GHz)

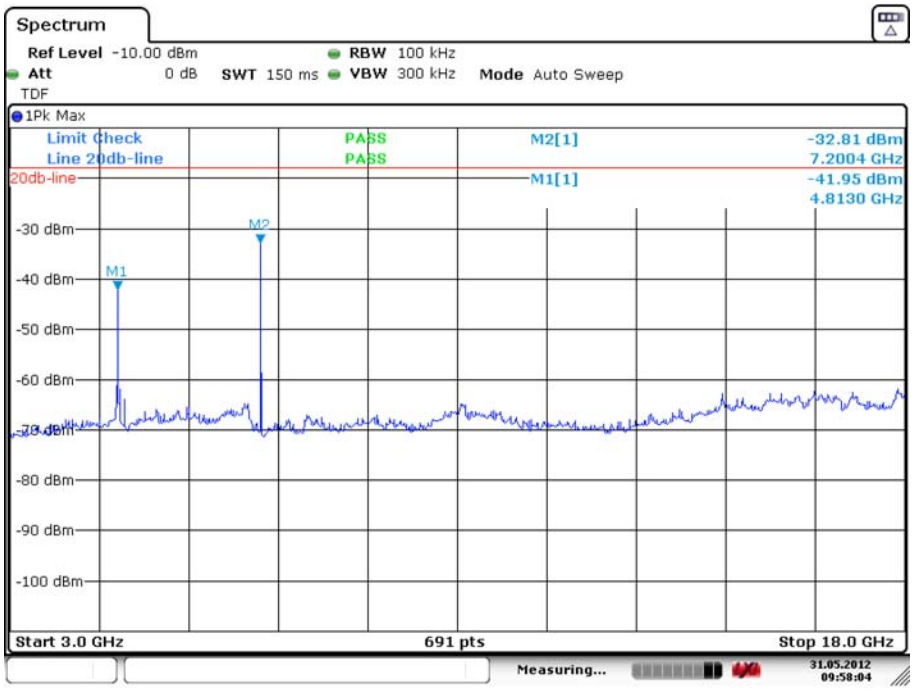

Fig. 21 Conducted Spurious Emission (8DPSK, Ch0, 3GHz-18 GHz)

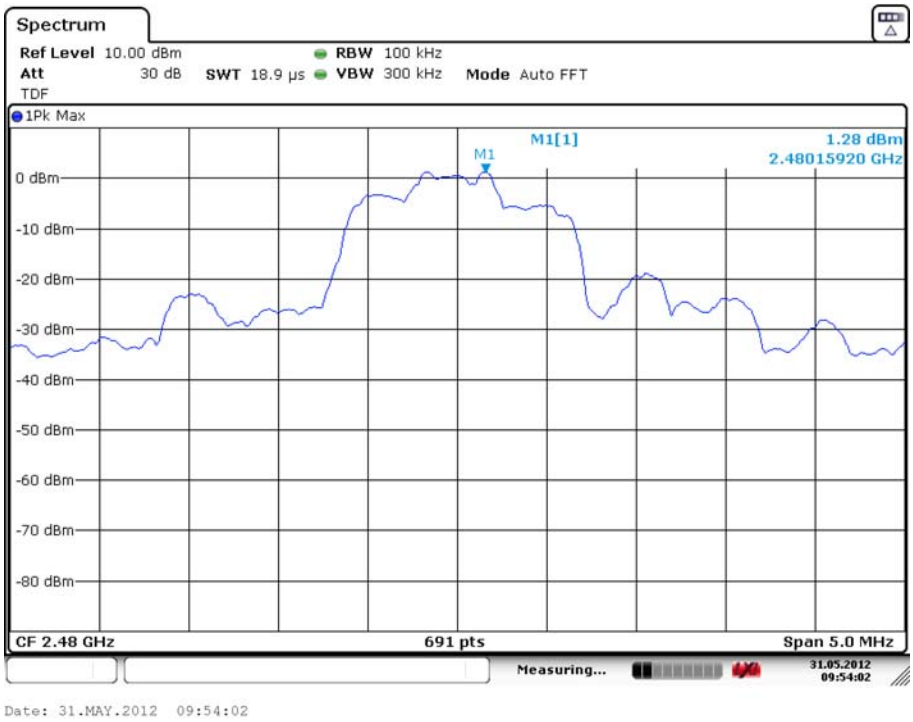

Fig. 22 Conducted Spurious Emission (8DPSK, Ch78, 2.480GHz)

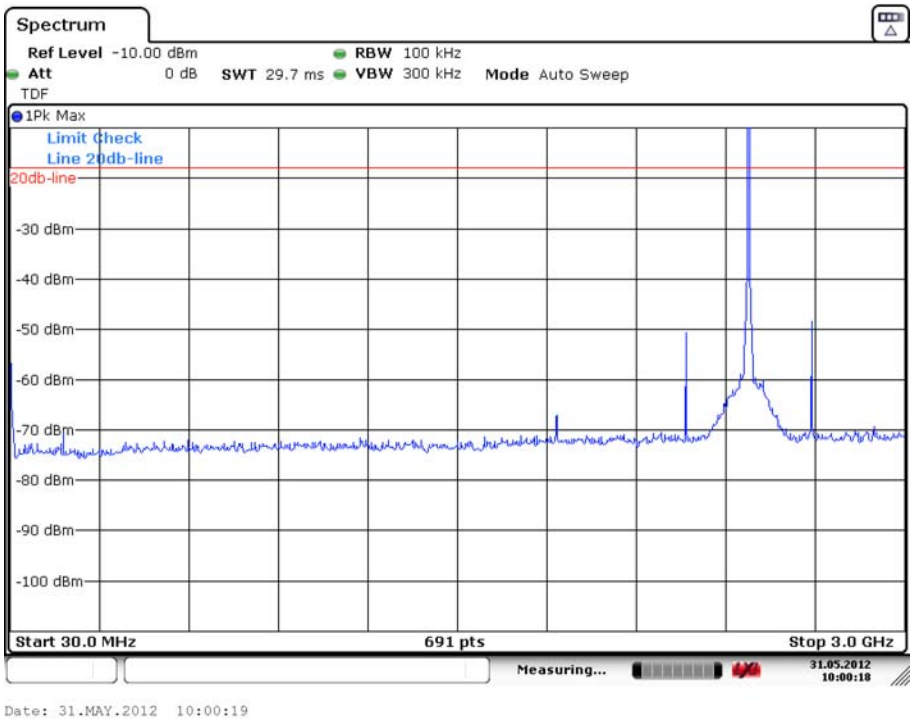

Fig. 23 Conducted Spurious Emission (8DPSK, Ch78, 30 MHz-3 GHz)

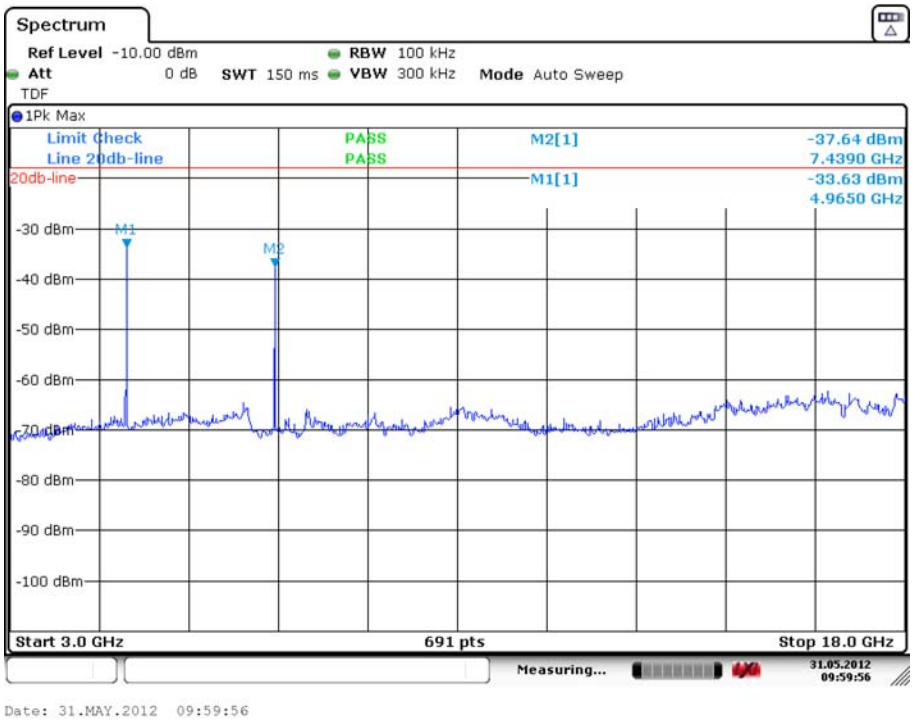

Fig. 24 Conducted Spurious Emission (8DPSK, Ch78, 3GHz-18 GHz)

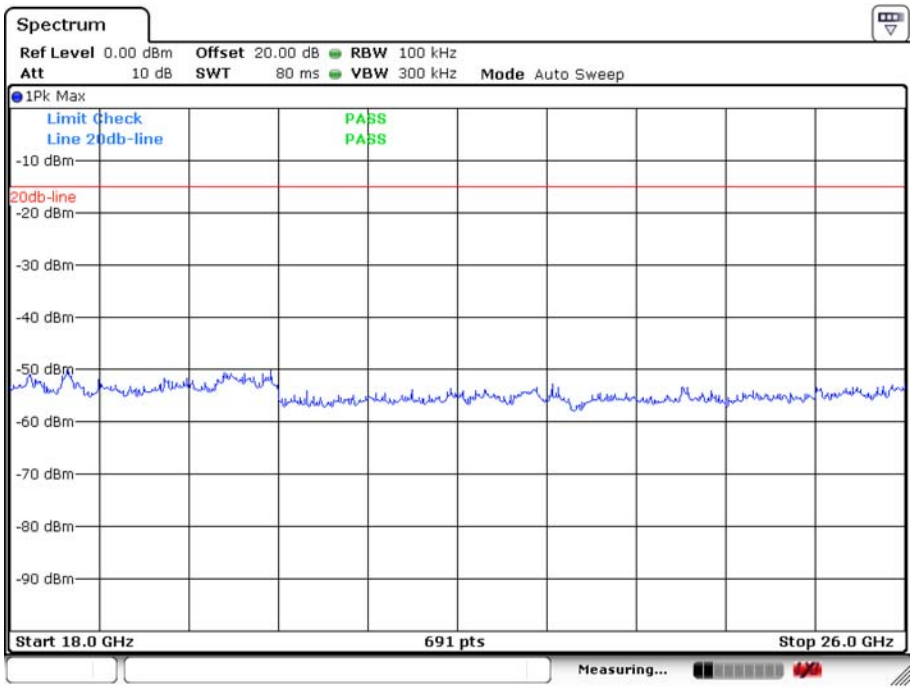

Fig. 25 Conducted Spurious Emission (All channel, 18 GHz-26 GHz)

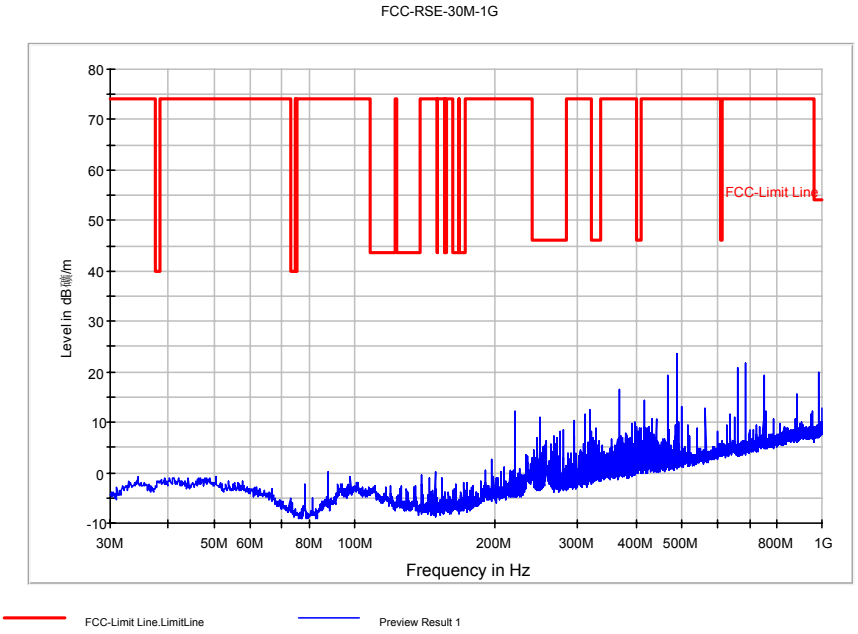

Fig. 26 Radiated Spurious Emission (GFSK, Ch0, 30 MHz ~1 GHz)

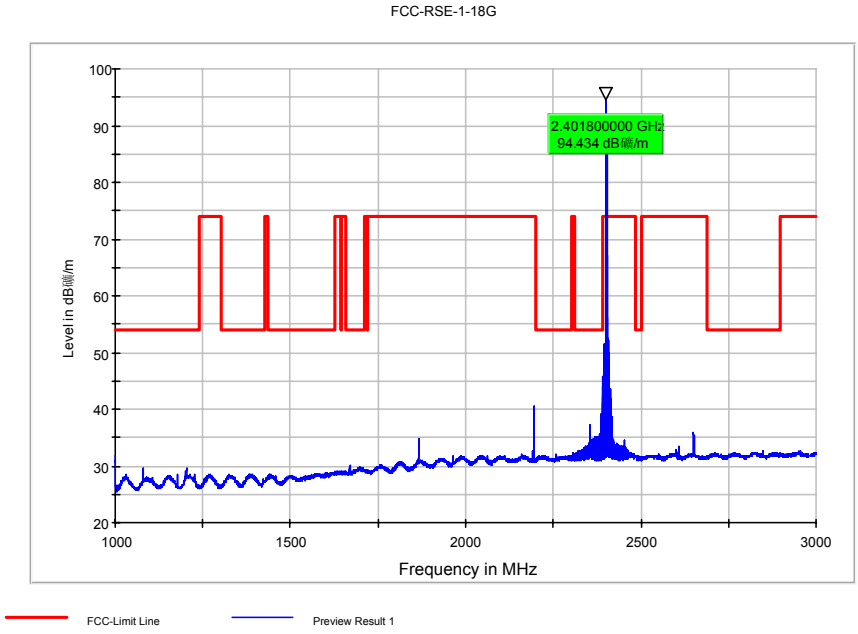

Fig. 27 Radiated Spurious Emission (GFSK, Ch0, 1 GHz ~3 GHz)

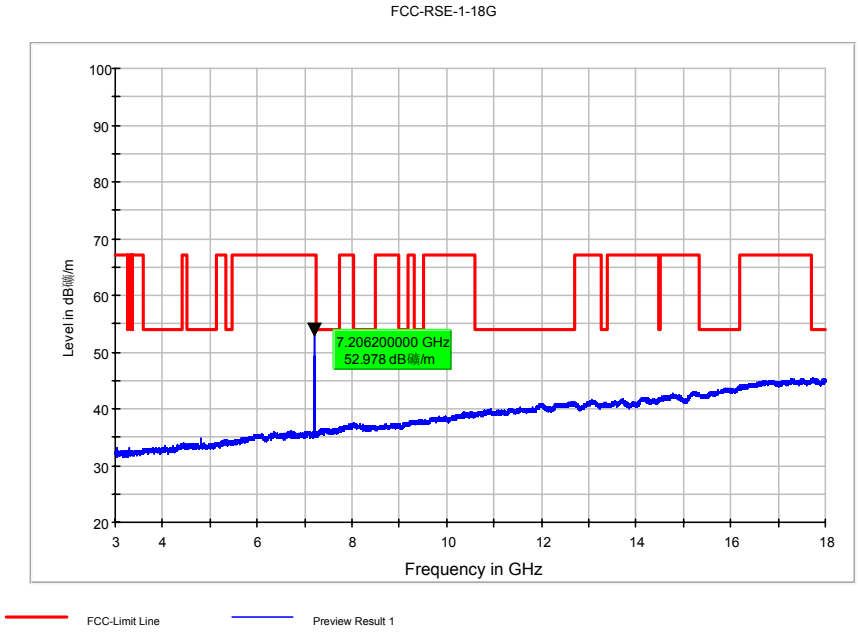

Fig. 28 Radiated Spurious Emission (GFSK, Ch0, 3 GHz ~18 GHz)

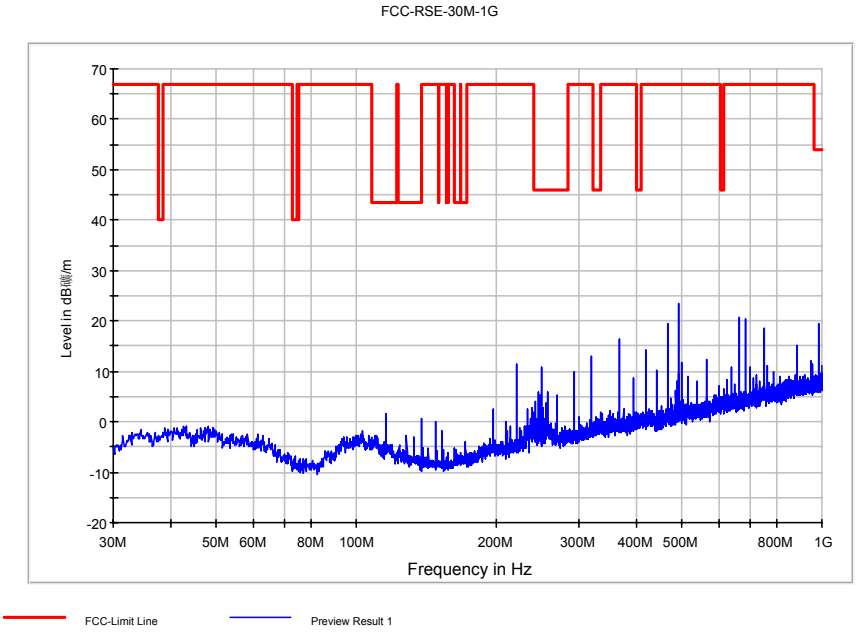

Fig. 29 Radiated Spurious Emission (GFSK, Ch78, 30 MHz ~1 GHz)

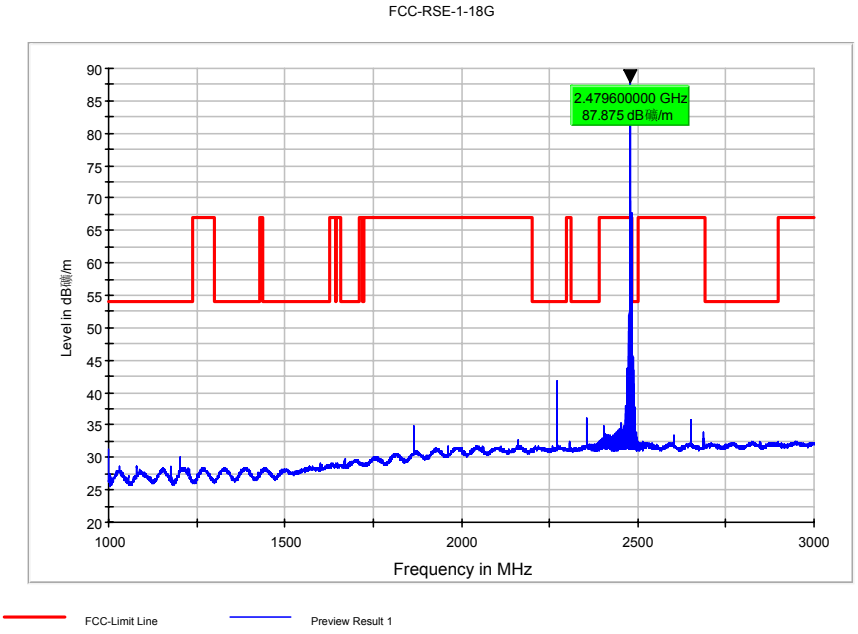

Fig. 30 Radiated Spurious Emission (GFSK, Ch78, 1 GHz ~3 GHz)

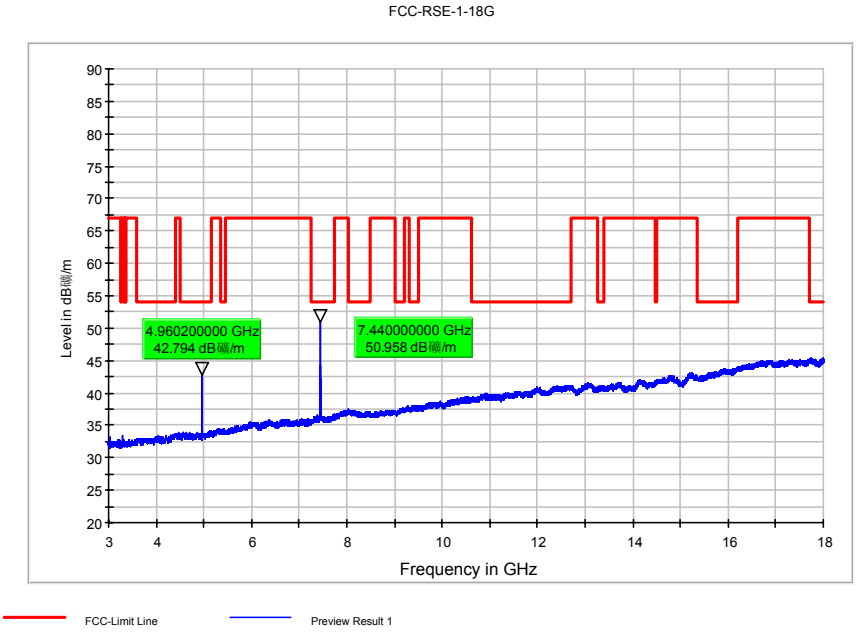

Fig. 31 Radiated Spurious Emission (GFSK, Ch78, 3 GHz ~18 GHz)

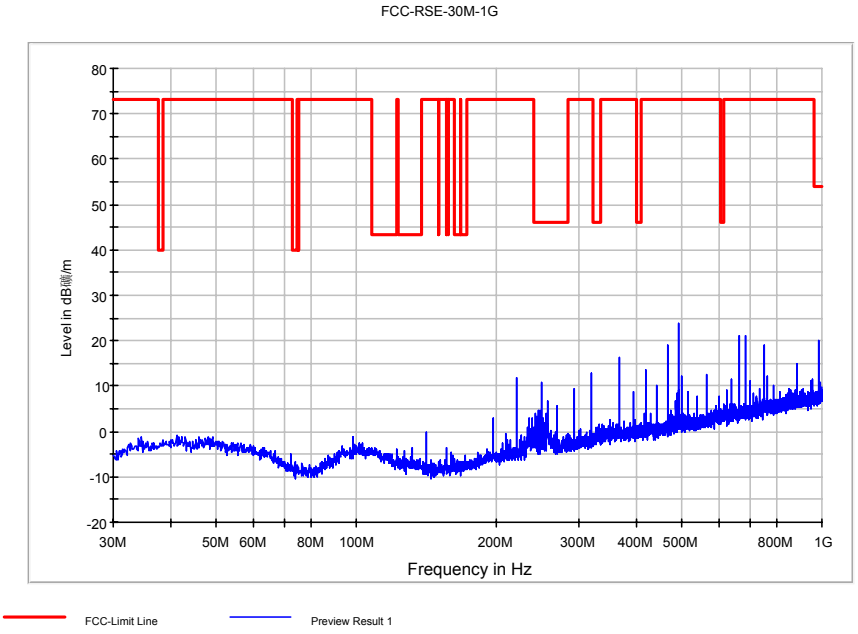

Fig. 32 Radiated Spurious Emission (π /4 DQPSK, Ch0, 30 MHz ~1 GHz)

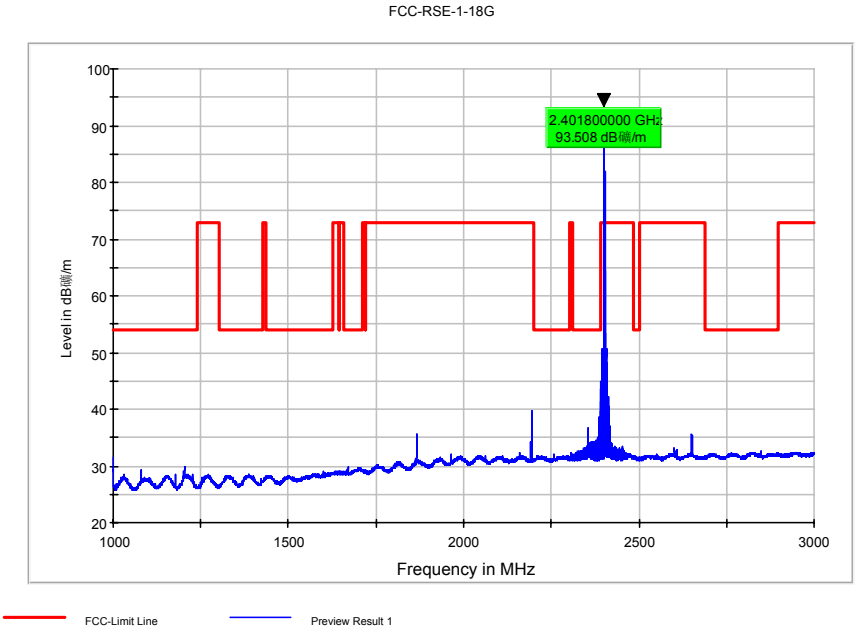

Fig. 33 Radiated Spurious Emission (π /4 DQPSK, Ch0, 1 GHz ~3 GHz)

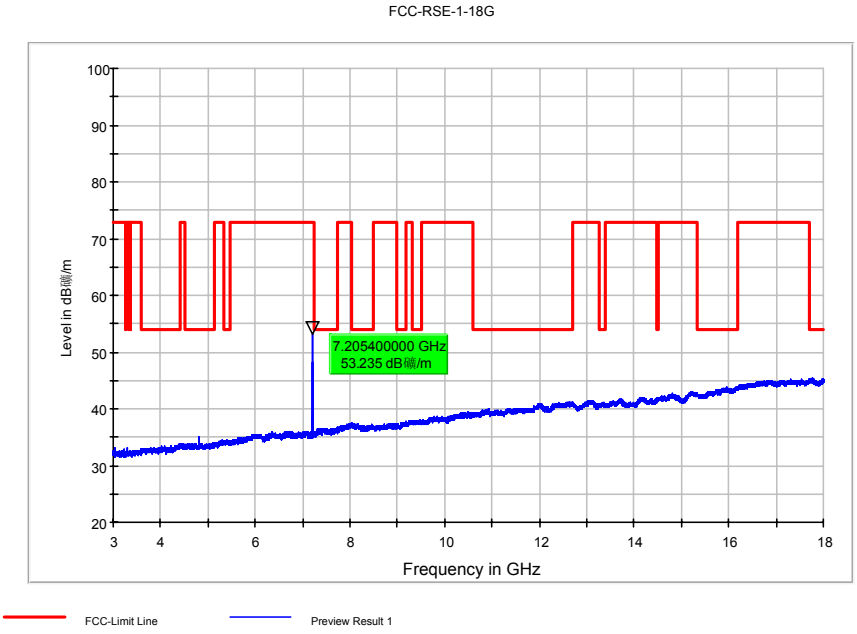

Fig. 34 Radiated Spurious Emission (π /4 DQPSK, Ch0, 3 GHz ~18 GHz)

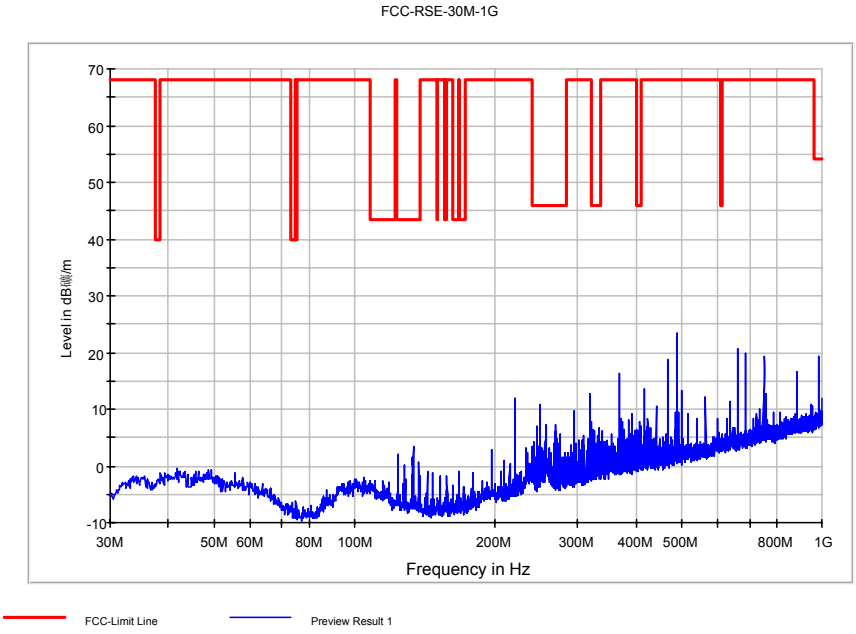

Fig. 35 Radiated Spurious Emission (π /4 DQPSK, Ch78, 30 MHz ~1 GHz)

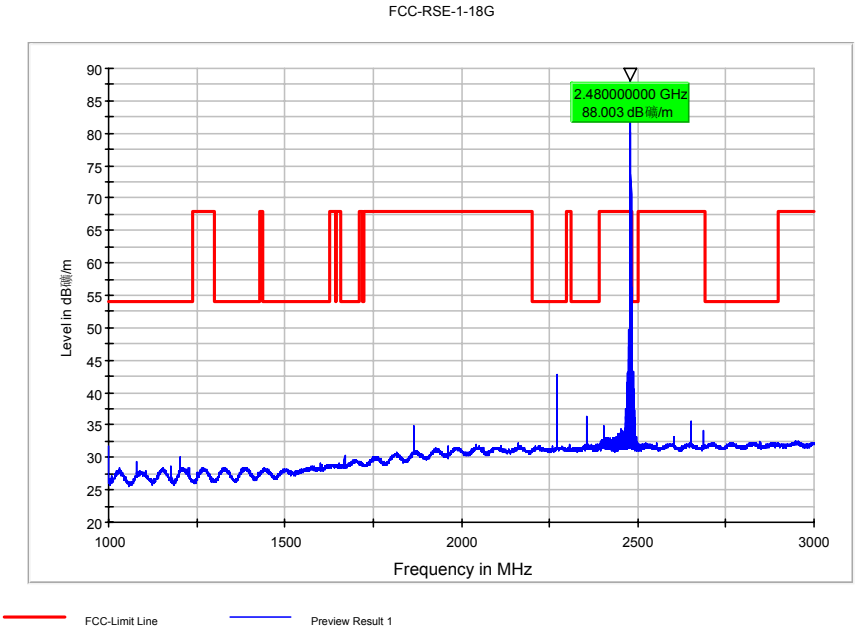

Fig. 36 Radiated Spurious Emission (π /4 DQPSK, Ch78, 1 GHz ~3 GHz)

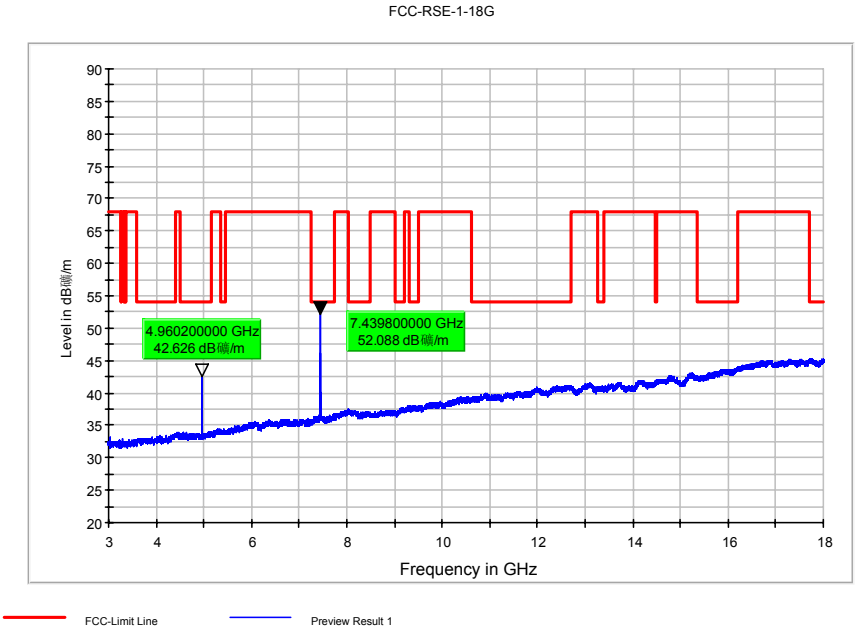

Fig. 37 Radiated Spurious Emission (π /4 DQPSK, Ch78, 3 GHz ~18 GHz)

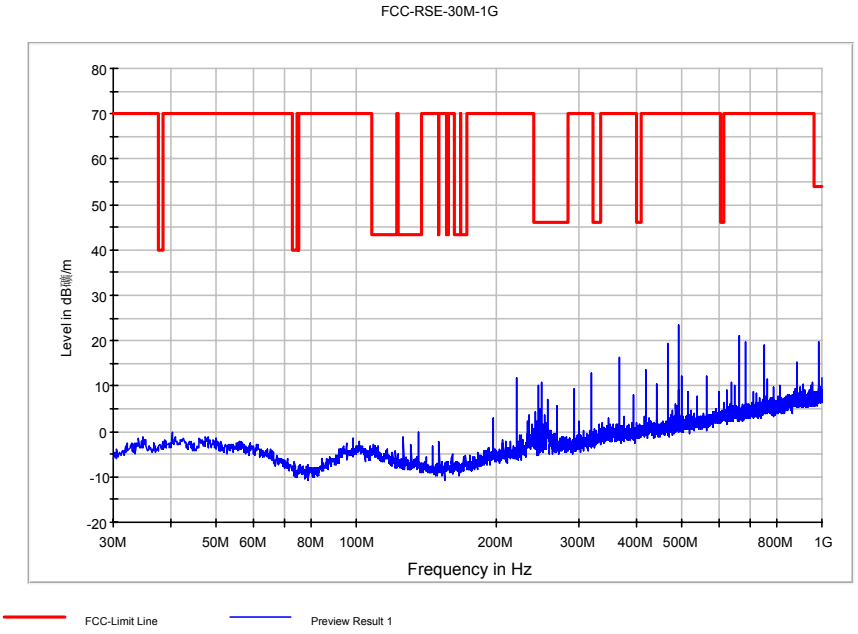

Fig. 38 Radiated Spurious Emission (8DPSK, Ch0, 30 MHz ~1 GHz)

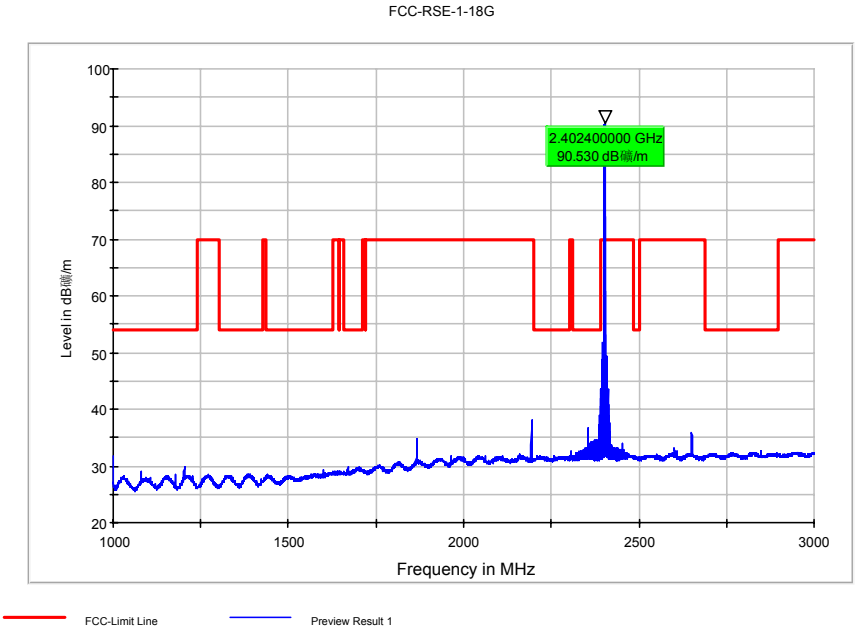

Fig. 39 Radiated Spurious Emission (8DPSK, Ch0, 1 GHz ~3 GHz)

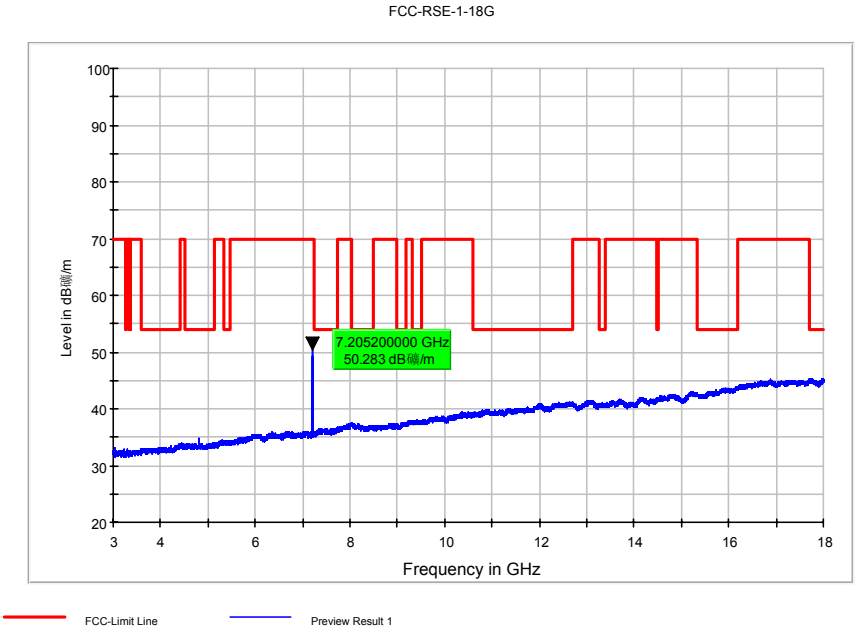

Fig. 40 Radiated Spurious Emission (8DPSK, Ch0, 3 GHz ~18 GHz)

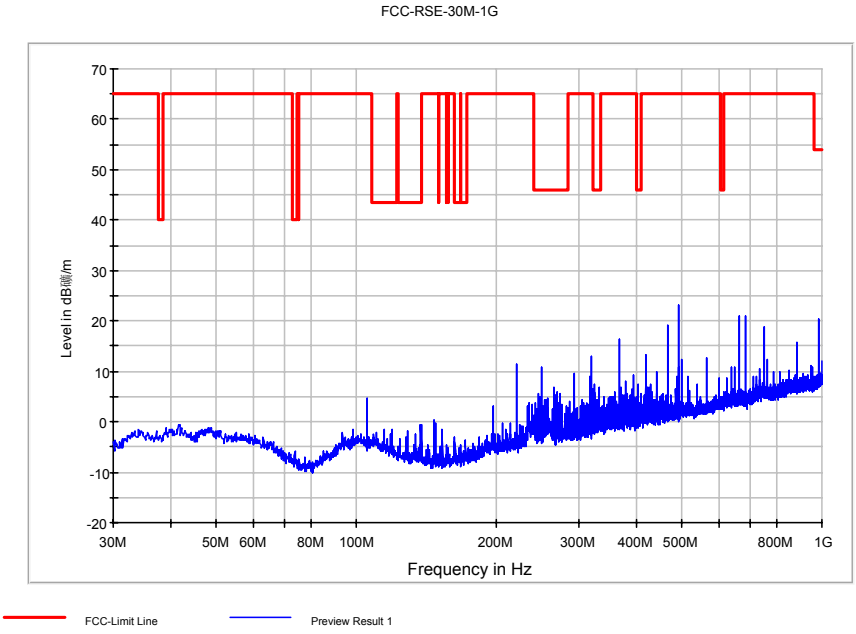

Fig. 41 Radiated Spurious Emission (8DPSK, Ch78, 30 MHz ~1 GHz)

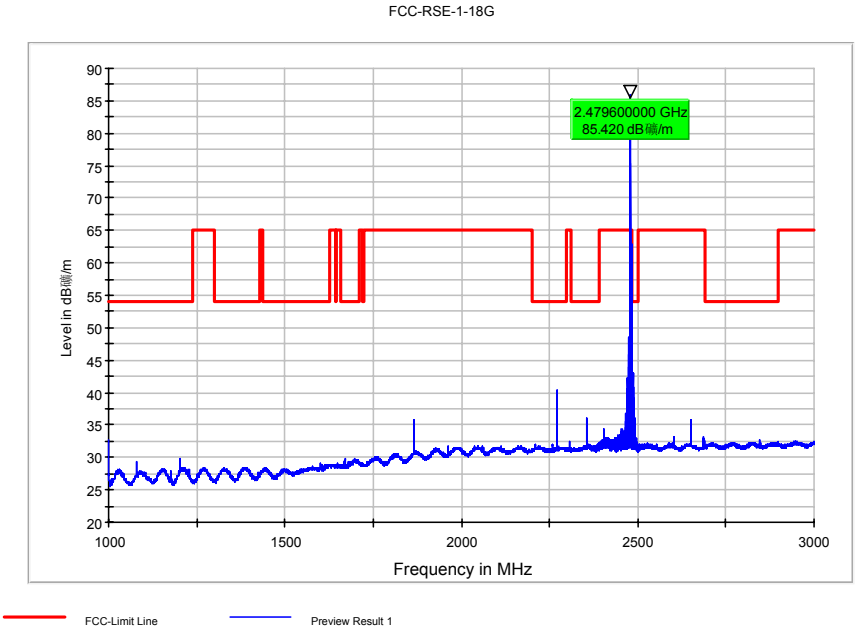

Fig. 42 Radiated Spurious Emission (8DPSK, Ch78, 1 GHz ~3 GHz)

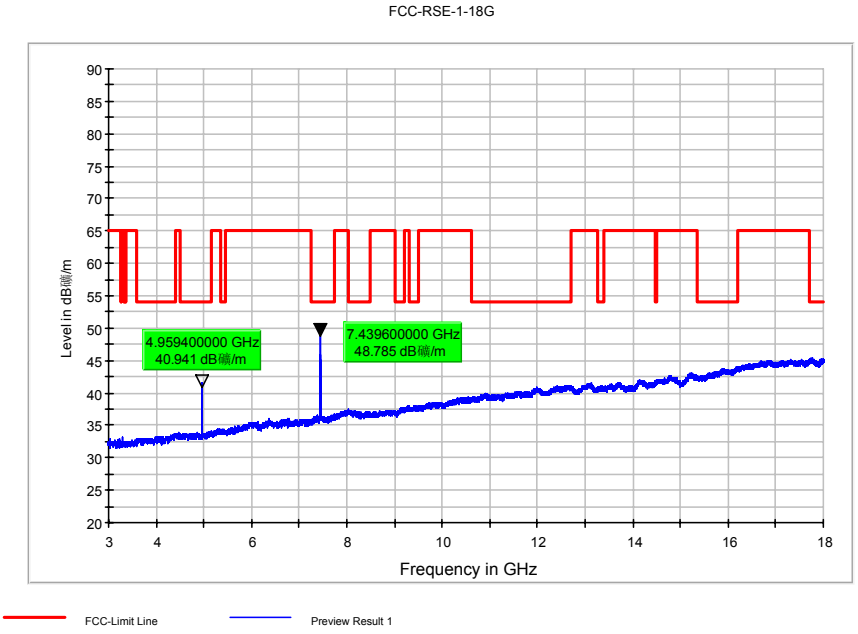

Fig. 43 Radiated Spurious Emission (8DPSK, Ch78, 3 GHz ~18 GHz)

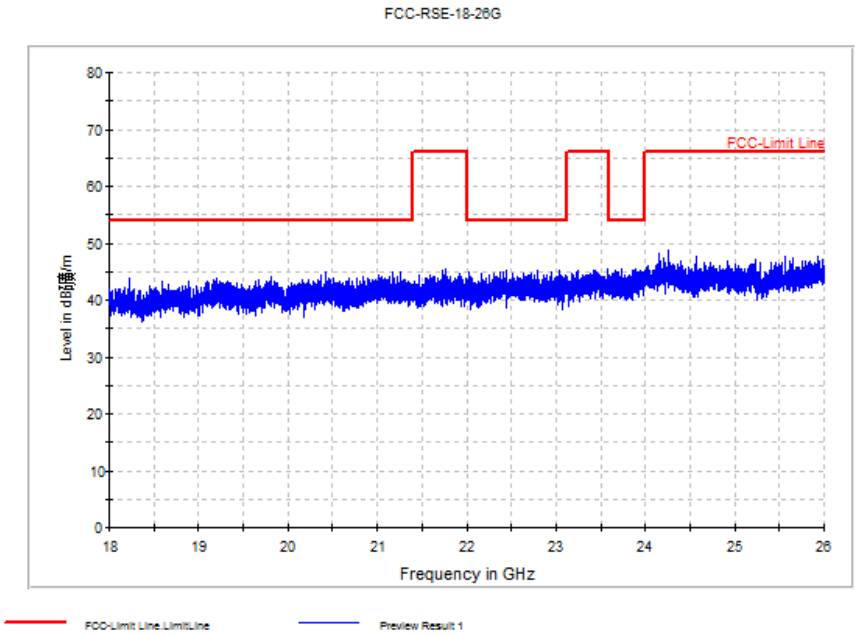

Fig. 44 Radiated Spurious Emission (All channel, 18 GHz ~26 GHz)

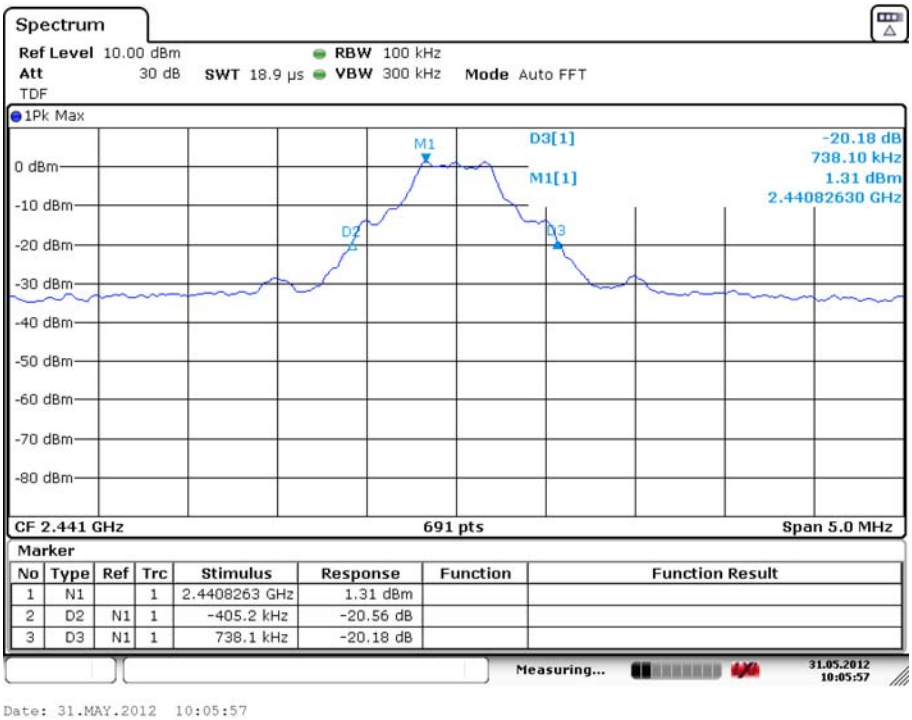

Fig. 45 Occupied 20dB Bandwidth (GFSK, Ch 39)

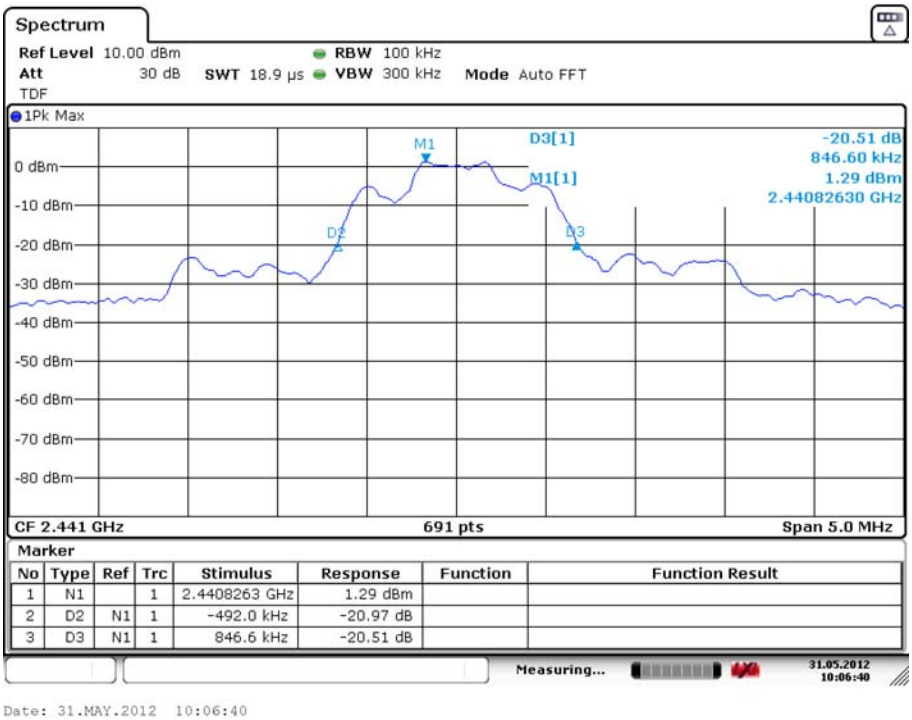

Fig. 46 Occupied 20dB Bandwidth (π /4 DQPSK, Ch 39)

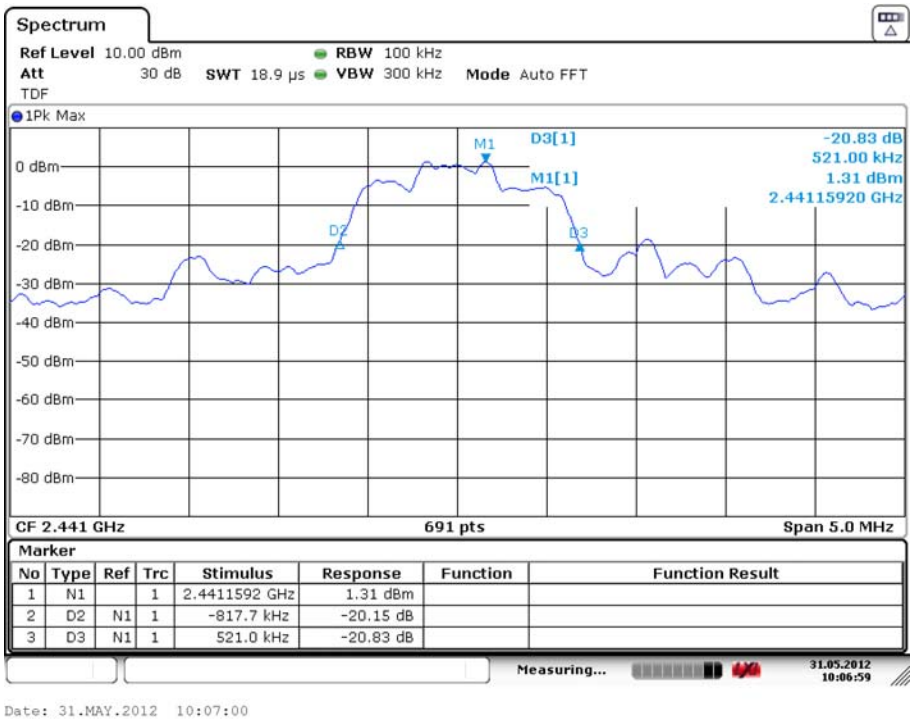

Fig. 47 Occupied 20dB Bandwidth (8DPSK, Ch 39)

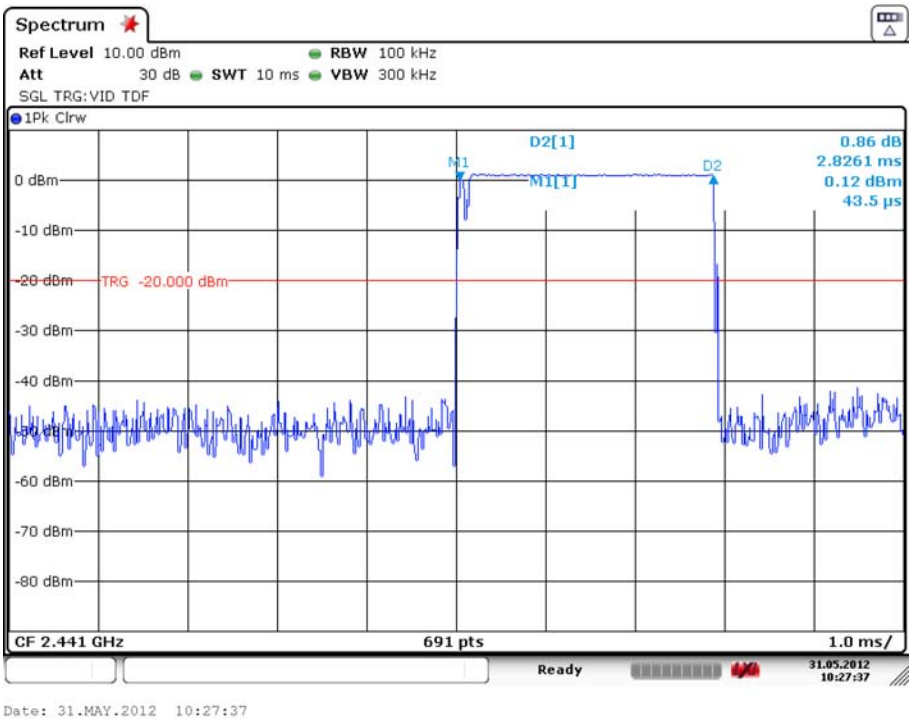

Fig. 48 Time of Occupancy(Dwell Time) (GFSK, Ch39)

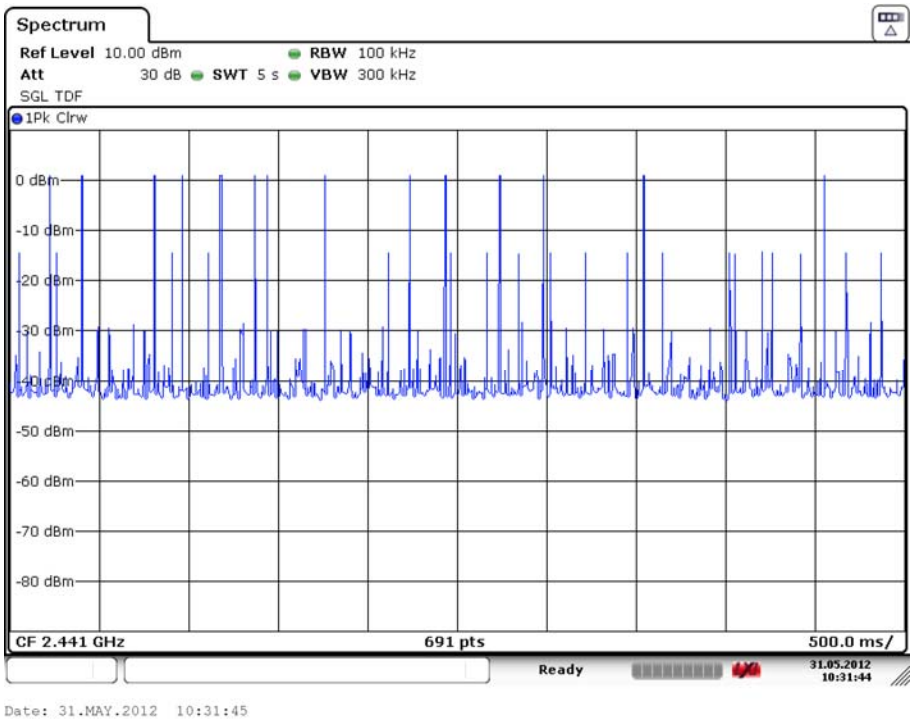

Fig. 49 Number of Transmissions (GFSK, Ch39)

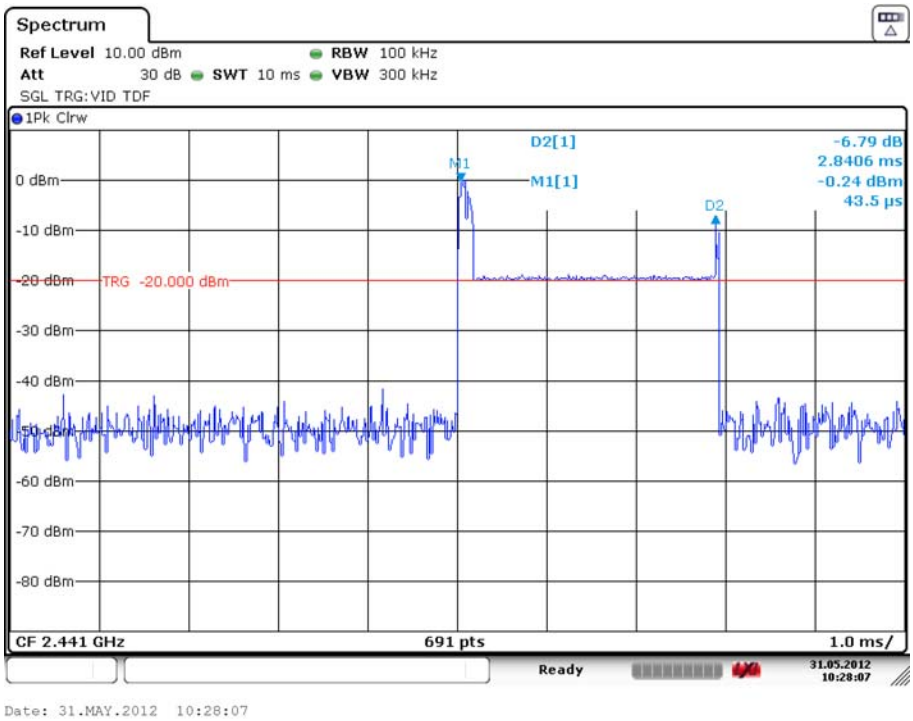

Fig. 50 Time of Occupancy(Dwell Time) (π /4 DQPSK, Ch39)

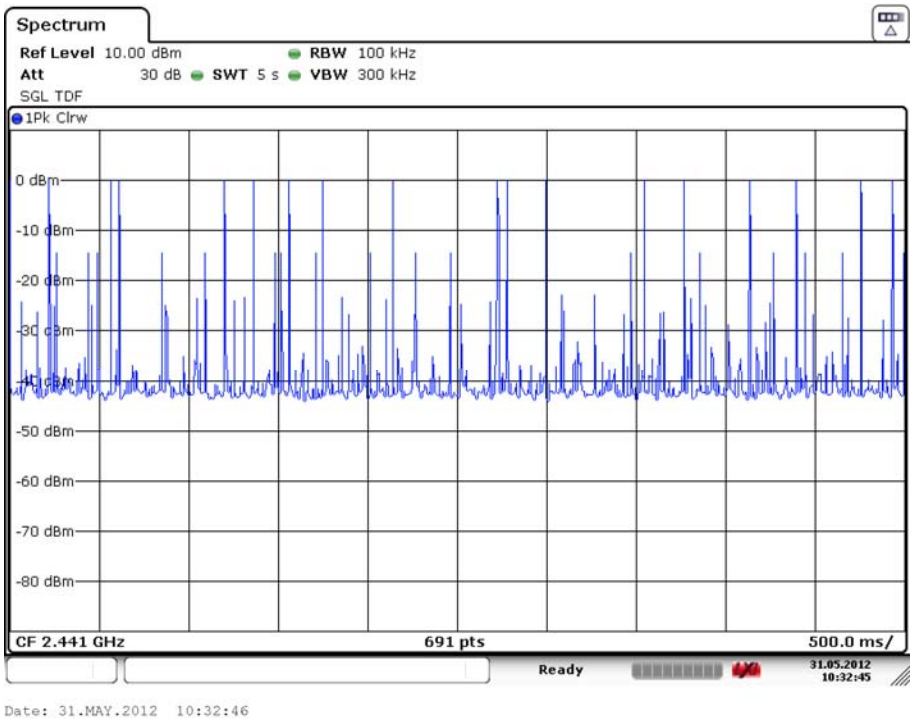

Fig. 51 Number of Transmissions (π /4 DQPSK, Ch39)

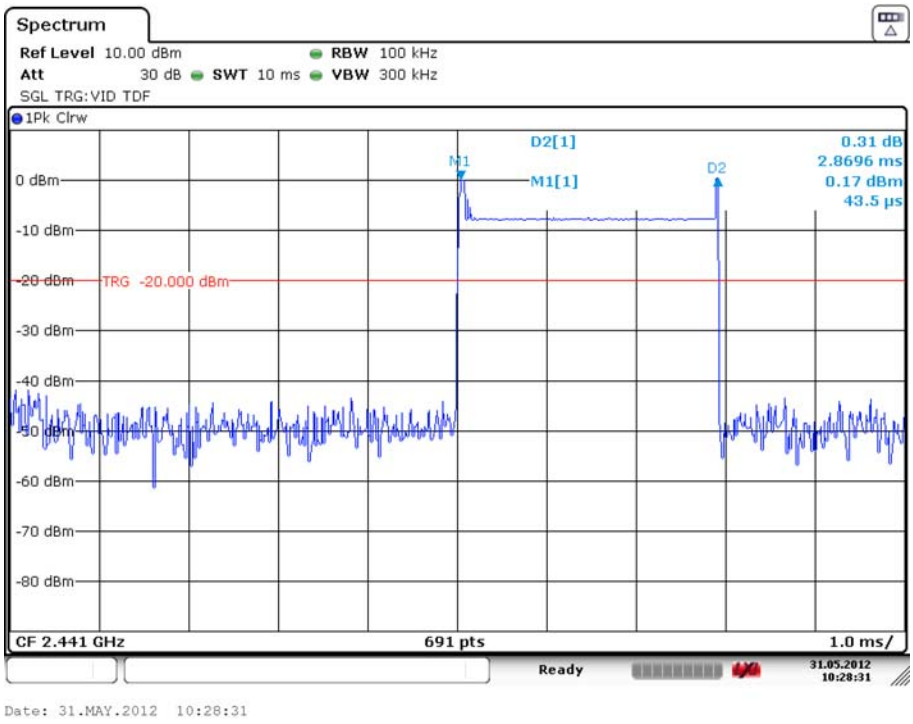

Fig. 52 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

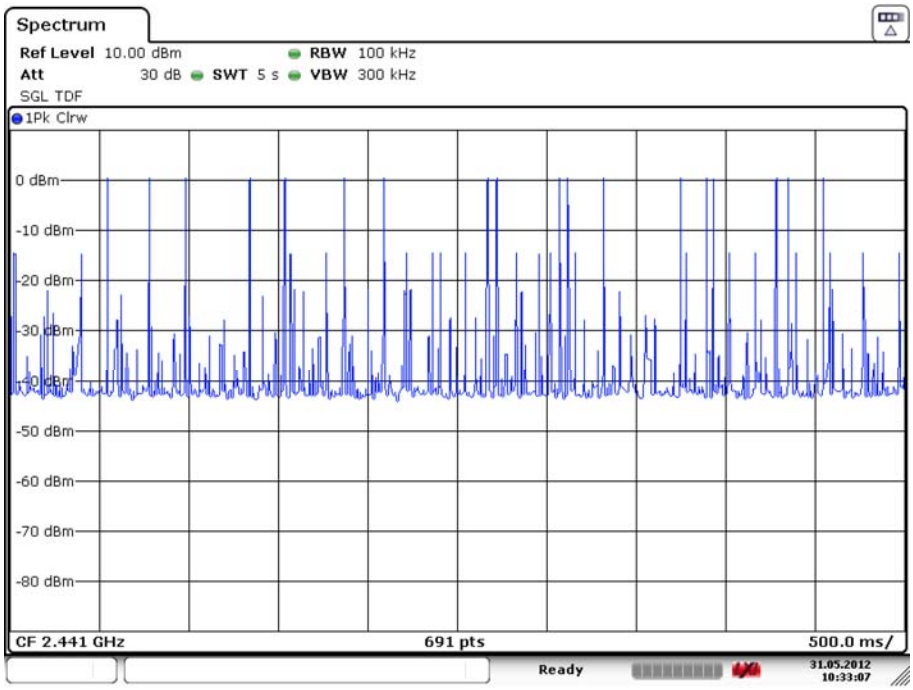

Fig. 53 Number of Transmissions (8DPSK, Ch39)

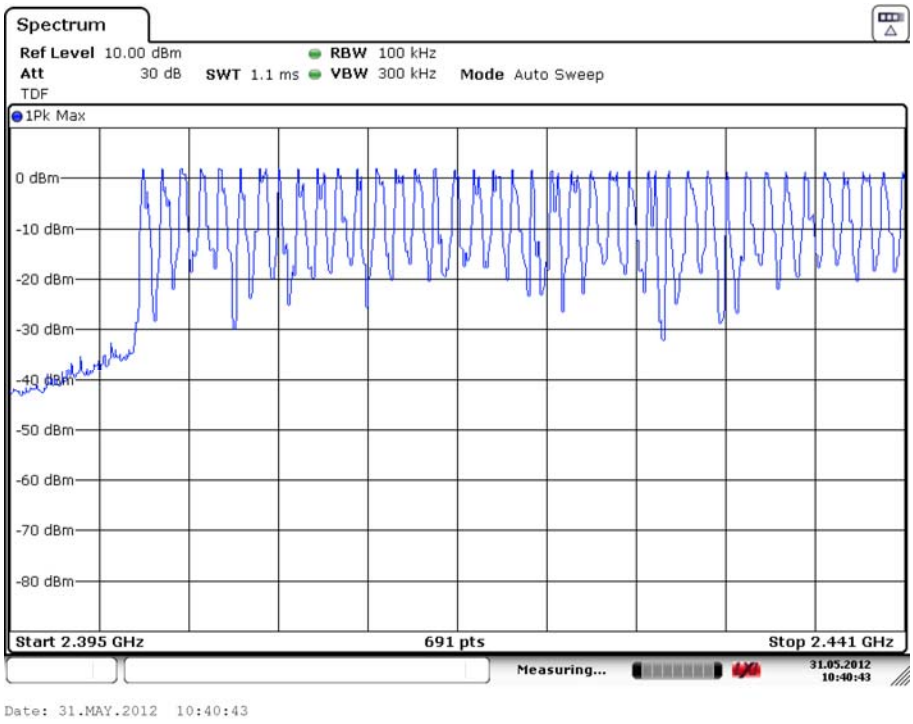

Fig. 54 Hopping channel ch0~39 (GFSK, Ch39)

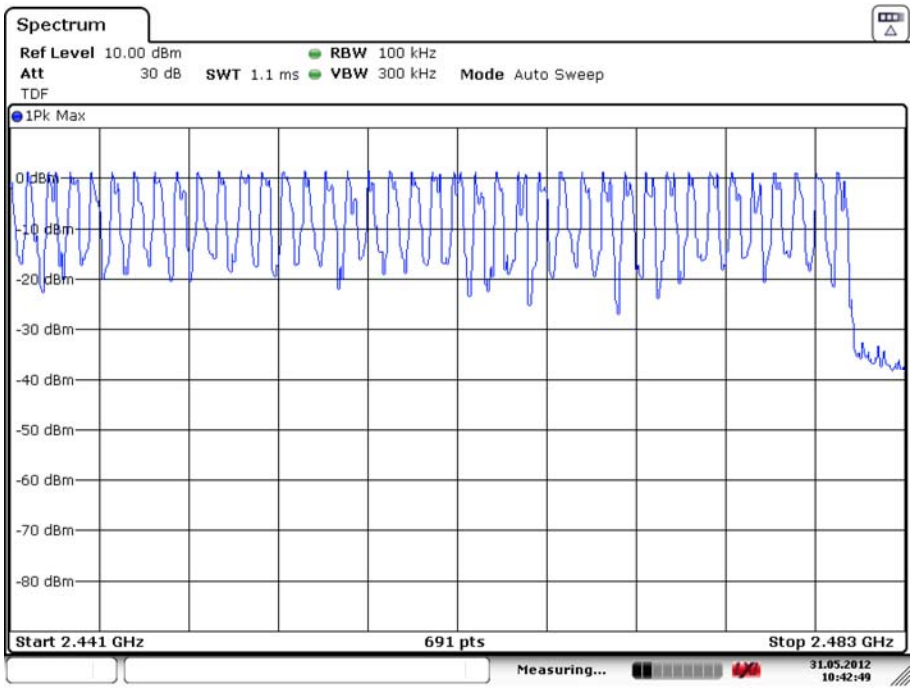

Fig. 55 Hopping channel ch39~78 (GFSK, Ch39)

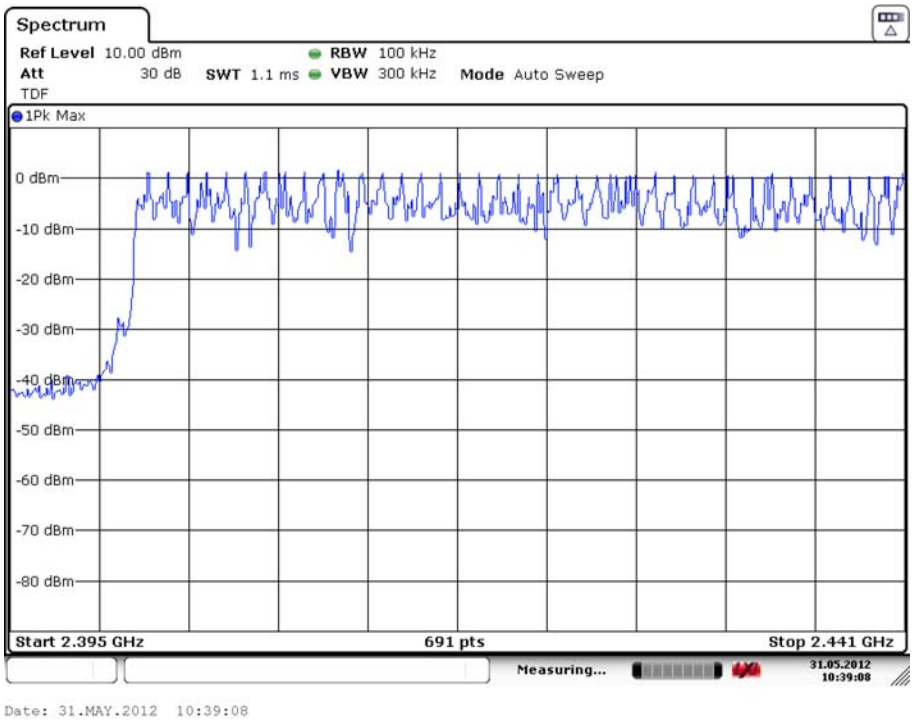

Fig. 56 Hopping channel ch0~39 (π /4 DQPSK, Ch39)

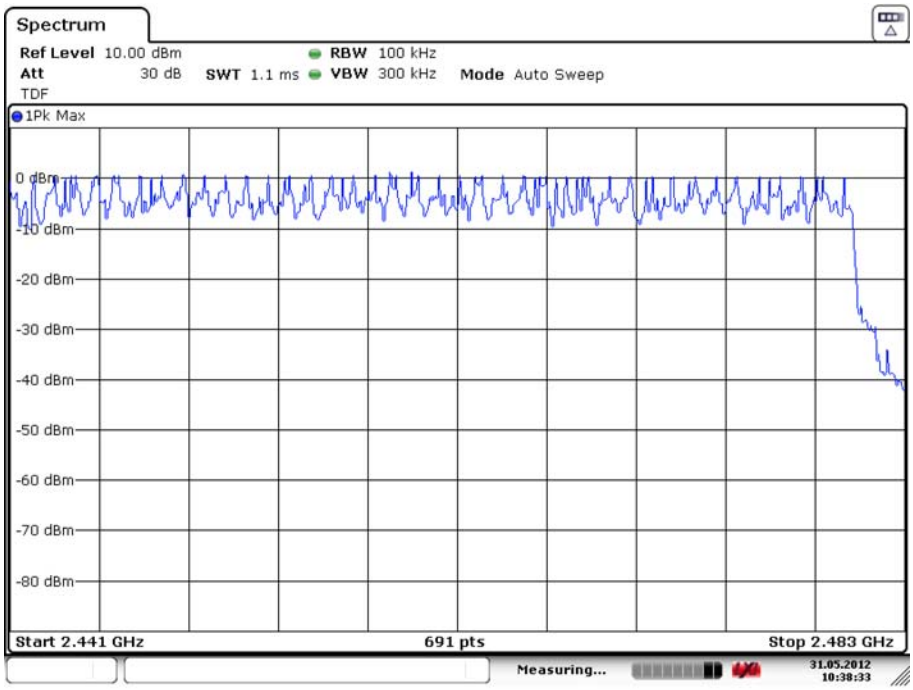

Fig. 57 Hopping channel ch39~78 (π /4 DQPSK, Ch39)

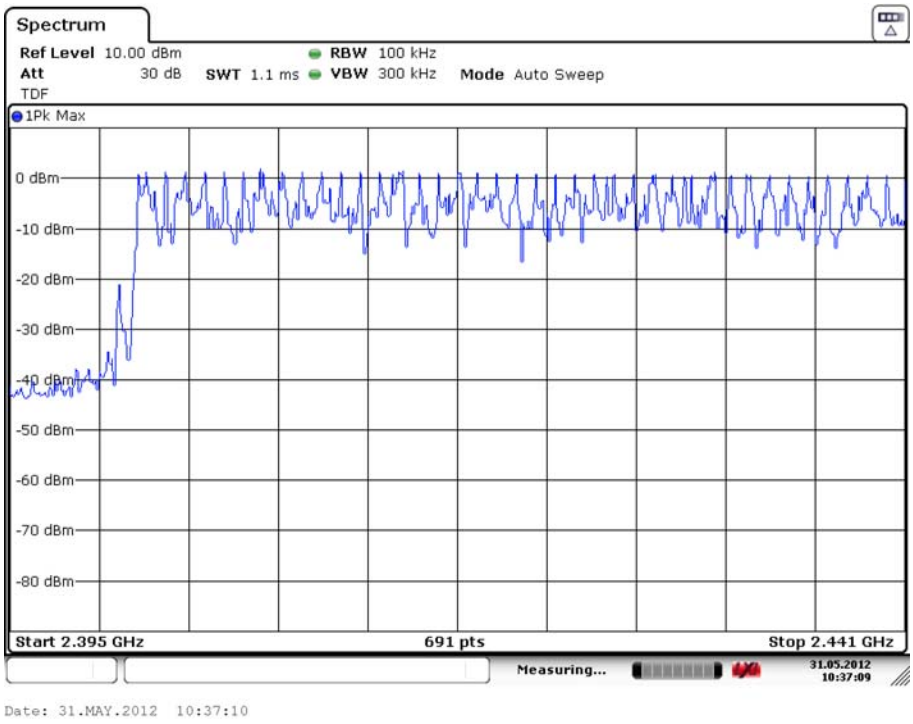

Fig. 58 Hopping channel ch0~39 (8DPSK, Ch39)

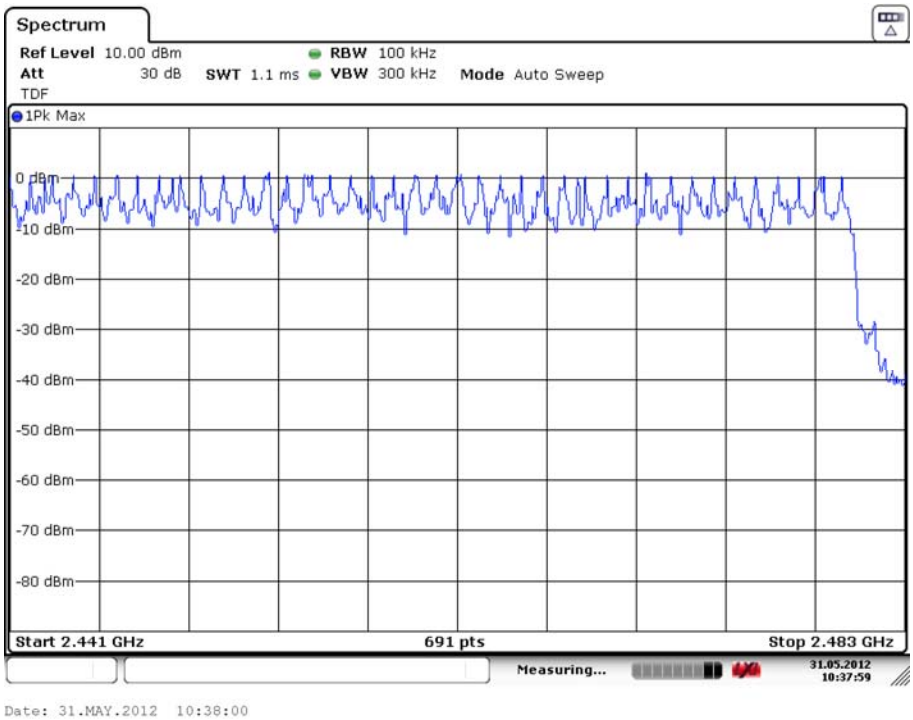

Fig. 59 Hopping channel ch39~78 (8DPSK, Ch39)

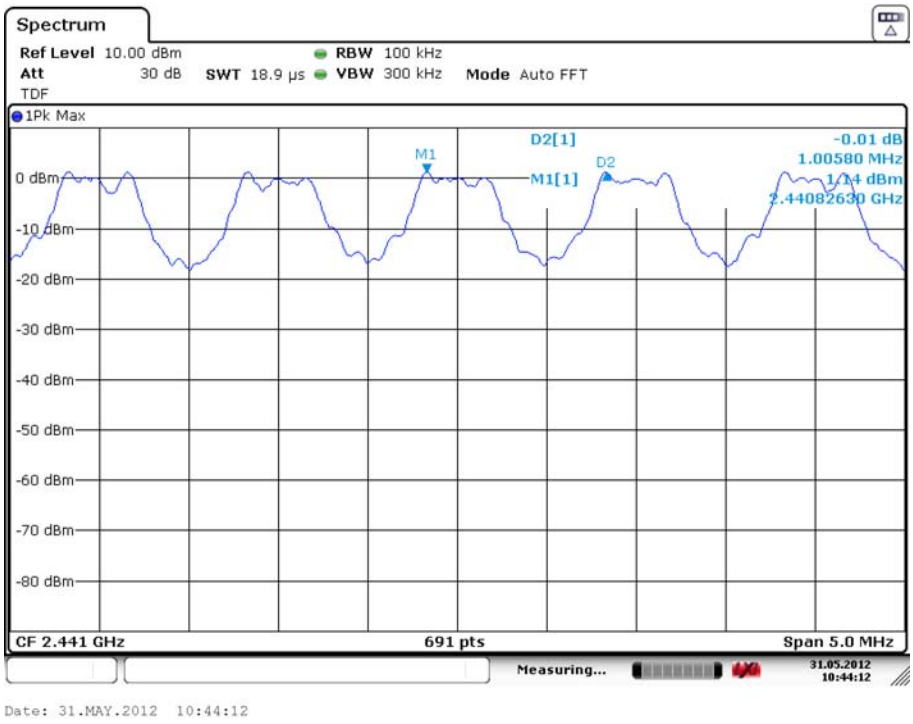

Fig. 60 Carrier Frequency Separation (GFSK, Ch39)

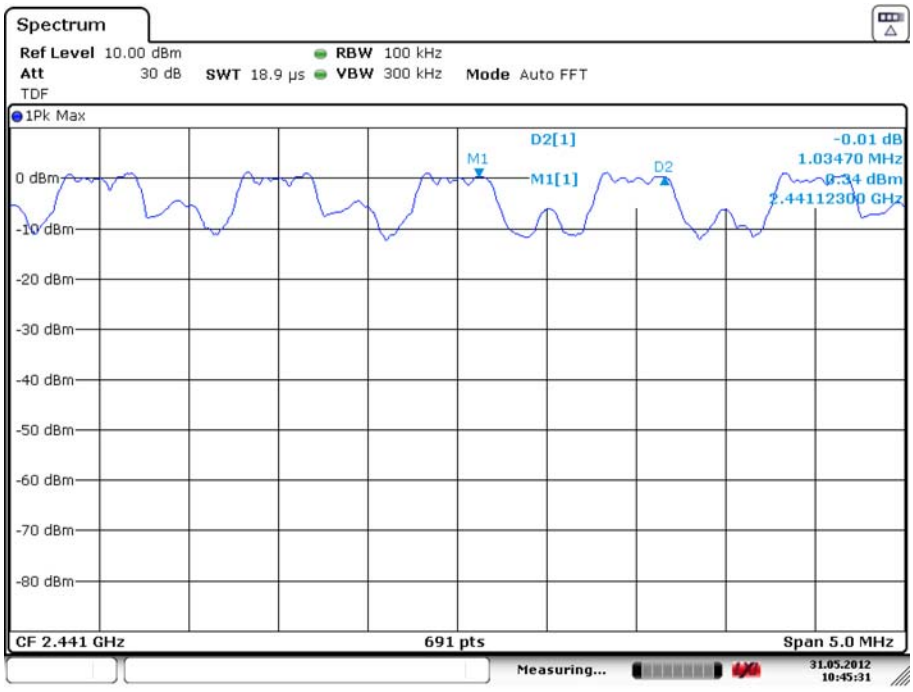

Fig. 61 Carrier Frequency Separation (π /4 DQPSK, Ch39)

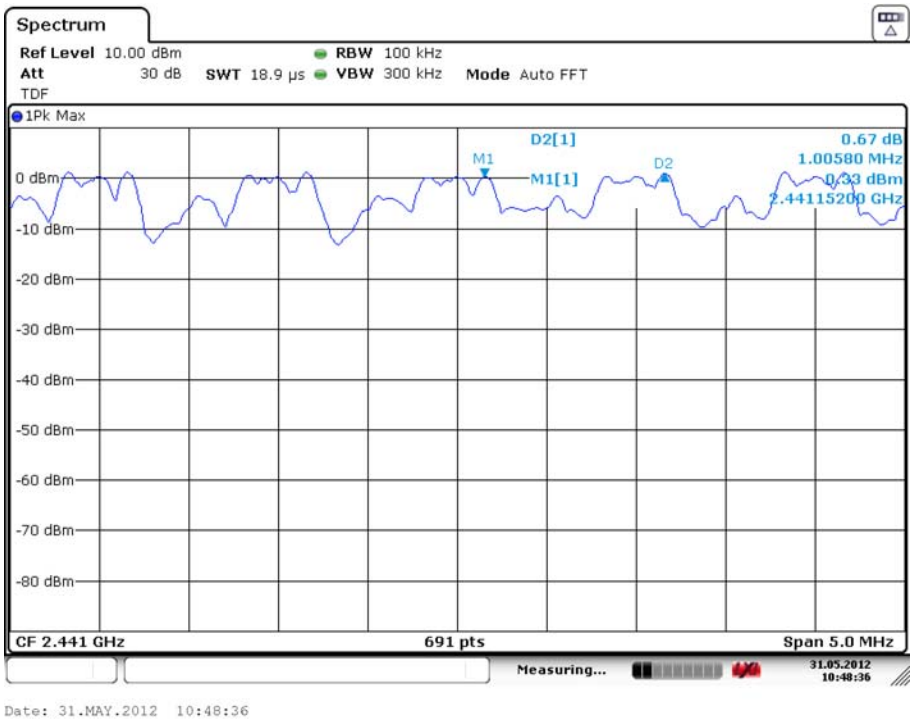

Fig. 62 Carrier Frequency Separation (8DPSK, Ch39)

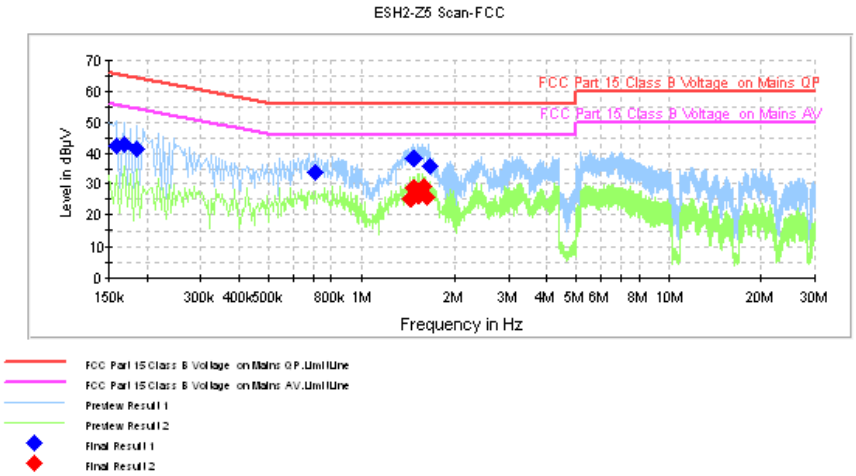

Fig. 63 AC Power line Conducted Emission (GFSK, Ch39)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159000	42.4	FLO	L1	10.0	23.1	65.5
0.168000	43.0	FLO	N	10.1	22.1	65.1
0.186000	41.2	FLO	N	10.1	23.0	64.2
0.708000	33.9	FLO	L1	10.0	22.1	56.0
1.482000	38.1	FLO	L1	10.1	17.9	56.0
1.666500	35.8	FLO	L1	10.1	20.2	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.450500	25.0	FLO	N	10.1	21.0	46.0
1.482000	28.6	FLO	L1	10.1	17.4	46.0
1.531500	26.3	FLO	N	10.1	19.7	46.0
1.549500	26.9	FLO	L1	10.1	19.1	46.0
1.590000	29.1	FLO	L1	10.1	16.9	46.0
1.630500	25.8	FLO	L1	10.1	20.2	46.0

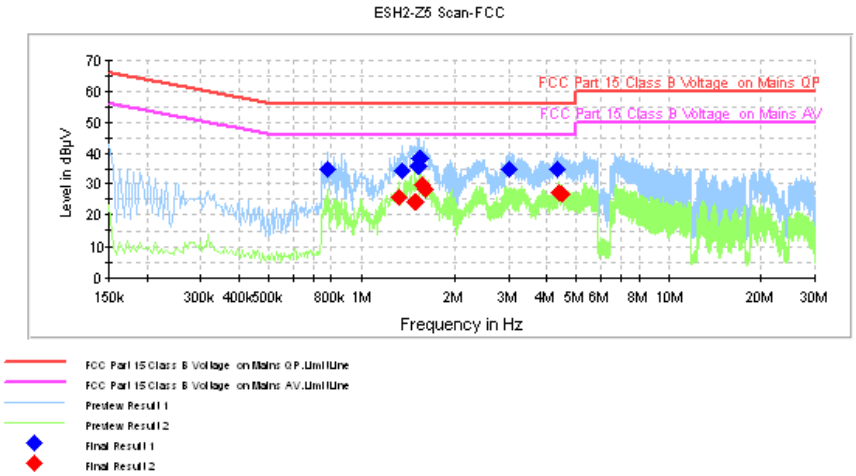

Fig. 64 AC Power line Conducted Emission (π /4 DQPSK, Ch39)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.780000	34.8	FLO	L1	10.1	21.2	56.0
1.360500	34.1	FLO	N	10.1	21.9	56.0
1.531500	35.8	FLO	N	10.1	20.2	56.0
1.554000	38.5	FLO	L1	10.1	17.5	56.0
3.007500	34.8	FLO	L1	10.2	21.2	56.0
4.339500	35.0	FLO	L1	10.2	21.0	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.333500	25.8	FLO	L1	10.1	20.2	46.0
1.500000	24.0	FLO	N	10.1	22.0	46.0
1.558500	29.9	FLO	L1	10.1	16.1	46.0
1.608000	28.3	FLO	L1	10.1	17.7	46.0
4.371000	27.1	FLO	L1	10.2	19.0	46.0
4.465500	26.6	FLO	L1	10.2	19.4	46.0

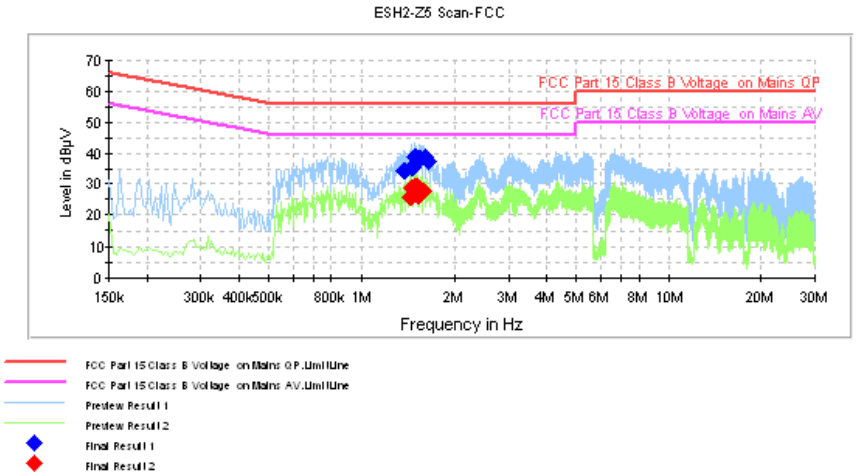

Fig. 65 AC Power line Conducted Emission (8DPSK, Ch39)

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.383000	34.2	FLO	N	10.1	21.8	56.0
1.468500	35.4	FLO	N	10.1	20.6	56.0
1.486500	38.6	FLO	L1	10.1	17.4	56.0
1.549500	38.5	FLO	L1	10.1	17.5	56.0
1.603500	38.7	FLO	L1	10.1	17.3	56.0
1.639500	37.2	FLO	L1	10.1	18.8	56.0

MEASUREMENT RESULT: " Average "

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.437000	25.6	FLO	N	10.1	20.4	46.0
1.468500	28.9	FLO	L1	10.1	17.2	46.0
1.486500	29.0	FLO	L1	10.1	17.0	46.0
1.518000	29.4	FLO	L1	10.1	16.6	46.0
1.536000	26.0	FLO	N	10.1	20.0	46.0
1.585500	27.7	FLO	L1	10.1	18.3	46.0

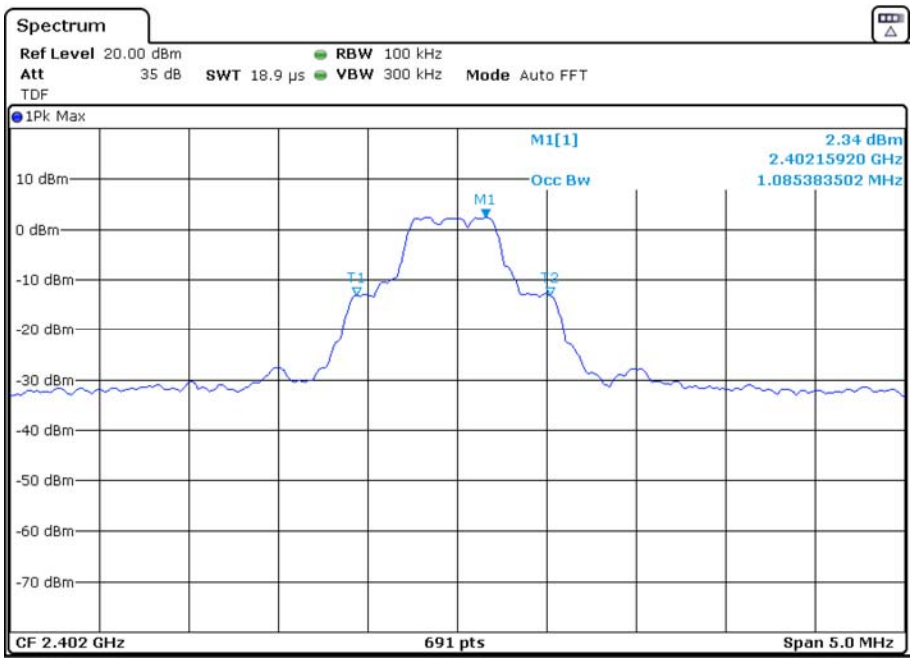

Fig. 66 Occupied Bandwidth (GFSK, Ch0)

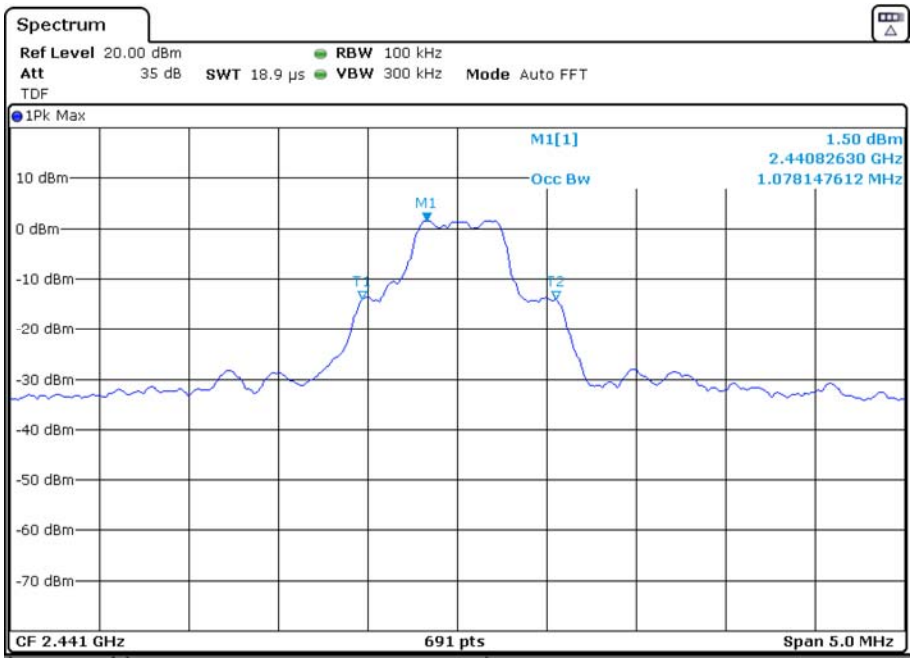

Fig. 67 Occupied Bandwidth (GFSK, Ch39)

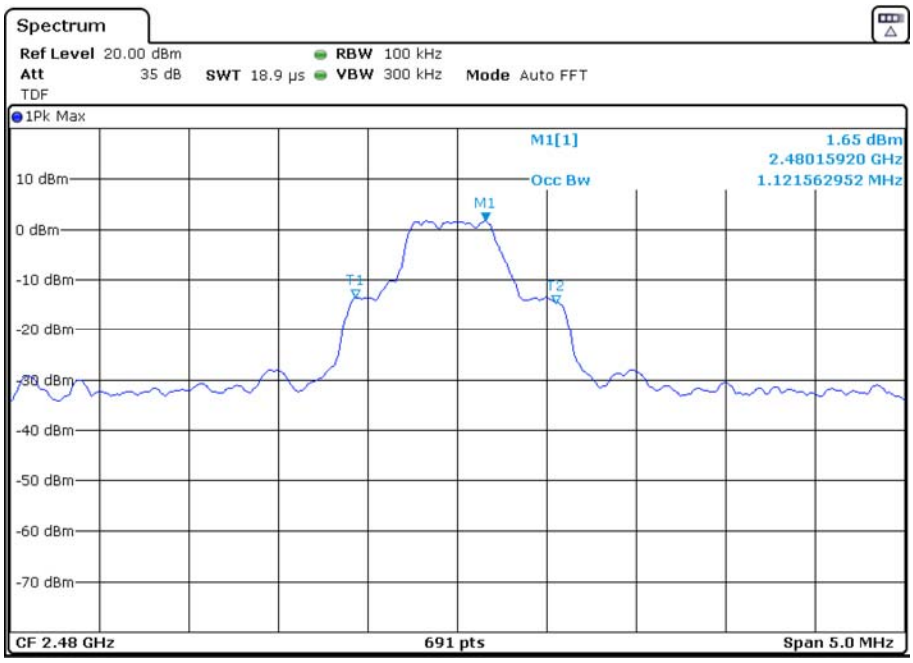

Fig. 68 Occupied Bandwidth (GFSK, Ch78)

Fig. 69 Occupied Bandwidth (π /4 DQPSK, Ch0)

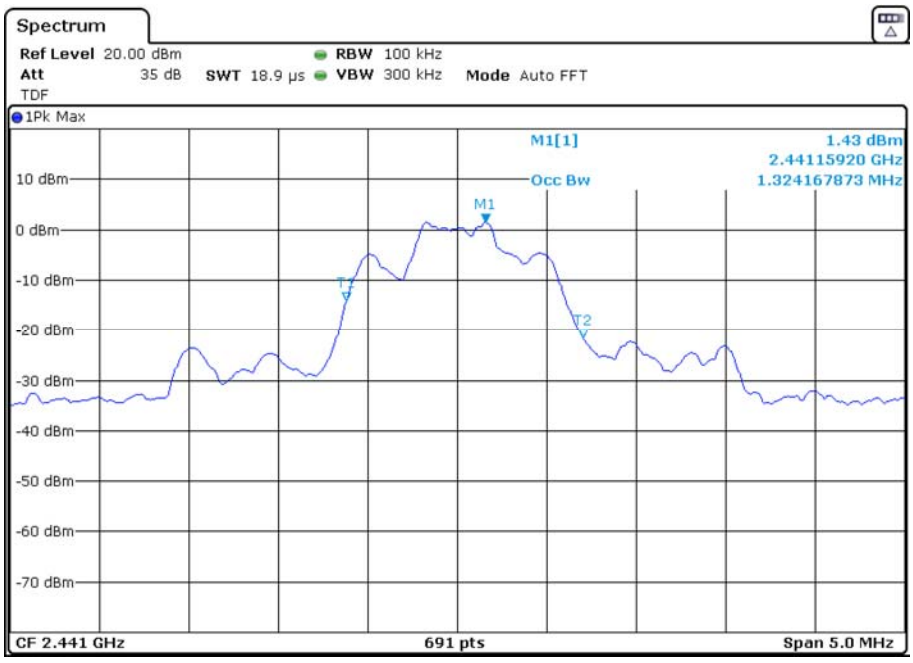

Fig. 70 Occupied Bandwidth (π /4 DQPSK, Ch39)

Fig. 71 Occupied Bandwidth (π /4 DQPSK, Ch78)

Fig. 72 Occupied Bandwidth (8DPSK, Ch0)

Fig. 73 Occupied Bandwidth (8DPSK, Ch39)

Fig. 74 Occupied Bandwidth (8DPSK, Ch78)

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