



*Full*

# TEST REPORT

**No. I18D00189-SRD01**

*For*

**Client : Shanghai Sunmi Technology Co.,Ltd.**

**Production : POS System**

**Model Name : L1321/L1323**

**Brand Name : SUNMI**

**FCC ID : 2AH25T2MININFC**

**Hardware Version: V1.03**

**Software Version: MST2MINI\_EQ000\_2EE0.123BBE2.9530**

**762\_180824\_100\_V01\_T15**

**Issued date: 2018-12-25**

**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**

<b>Report Number</b>	<b>Revision</b>	<b>Date</b>	<b>Memo</b>
I18D00189-SRD01	00	2018-12-13	Initial creation of test report
I18D00189-SRD01	01	2018-12-24	Second creation of test report
I18D00189-SRD01	02	2018-12-25	Third 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
FCC registration No	958356

### 1.2. Testing Environment

Normal Temperature:	15-35°C
Extreme Temperature:	-30/+50°C
Relative Humidity:	20-75%

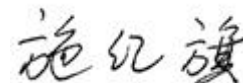
### 1.3. Project data

Project Leader:	Zhou Yan
Testing Start Date:	2018-09-18
Testing End Date:	2018-09-30

### 1.4. Signature



Yang Dejun  
(Prepared this test report)



Shi Hongqi  
(Reviewed this test report)



Zheng Zhongbin  
(Approved this test report)

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: Shanghai Sunmi Technology Co.,Ltd.  
Address: Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District,  
Shanghai, China  
Telephone: 8618721763396  
Postcode: 200433

### **2.2. Manufacturer Information**

Company Name: Shanghai Sunmi Technology Co.,Ltd.  
Address: Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District,  
Shanghai, China  
Telephone: 8618721763396  
Postcode: 200433

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

#### 3.1. About EUT

EUT Description	POS System
Model name	L1321/L1323
BT Frequency	2402MHz-2480MHz
BT Channel	Channel0-Channel78
BT type of modulation	GFSK/ $\pi/4$ DQPSK/8DPSK
GSM Frequency Band	GSM 850/GSM 1900
UMTS Frequency Band	Band 2/5
CDMA Frequency Band	BC 0
LTE Frequency Band	Band 38/41
Additional Communication Function	BT/BLE/2.4G WLAN b/g/n20/n40/NFC
Extreme Temperature	-30/+50°C
Nominal Voltage	24V
Extreme High Voltage	25V
Extreme Low Voltage	23V

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*	Model Name	SN or IMEI	HW Version	SW Version	Date of receipt
N10	L1321	/	V1.03	MST2MINI_EQ000_2EE0.123BBE2.9530762_180824_100_V01_T15	2018-09-07
N04	L1321	/	V1.03	MST2MINI_EQ000_2EE0.123BBE2.9530762_180824_100_V01_T15	2018-09-07
N01	L1323	/	V1.03	MST2MINI_EQ000_2EE0.123BBE2.9530762_180824_100_V01_T15	2018-09-07

\*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	---

\*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.	2017/10/01
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013



## 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(b)	/	P
20dB Occupied Bandwidth	15.247(a)	/	P
Band Edges Compliance	15.247(b)	/	P
Time Of Occupancy (Dwell Time)	15.247(a)	/	P
Carrier Frequency Separation	15.247(a)	/	P
Number Of Hopping Channels	15.247(a)	/	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 C63.10.

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

Tnom	Normal Temperature
Tmin	Low Temperature
Tmax	High Temperature
Vnom	Normal Voltage
Vmin	Low Voltage

Vmax	High Voltage
Hnom	Norm Humidity
Anom	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	Tnom	25°C
Voltage	Vnom	24V
Humidity	Hnom	48%
Air Pressure	Anom	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.

**5.2. Statements**

The L1321/L1323, supporting GPRS/EDGE/WCDMA/CDMA/LTE/BT/WLAN/BLE/NFC, manufactured by Shanghai Sunmi Technology Co.,Ltd., which is a new product for testing.

Note: The project has two prototypes, L1321 and L1323. The L1321 we tested all the test items. The other one we only tested worse case of RSE and AC Powerline.

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

#### 6.1.1 Measurement Limit

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

#### 6.1.2 Test Condition:

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

#### 6.1.3 Test procedure

The measurement is according to ANSI C63.10 clause 7.8.5.

1. The output power of EUT was connected to the spectrum analyzer and CBT32 by cable and divide. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Measure the conducted output power and record the results it.

#### 6.1.4 Measurement Uncertainty:

Measurement Uncertainty	$\pm 0.88\text{dB}$
-------------------------	---------------------

#### 6.1.5 Measurement Results:

##### For GFSK

Channel	Ch0 2402 MHz	Ch39 2441 MHz	CH78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	0.452	1.894	0.635	P
	Fig.1	Fig.2	Fig.3	

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

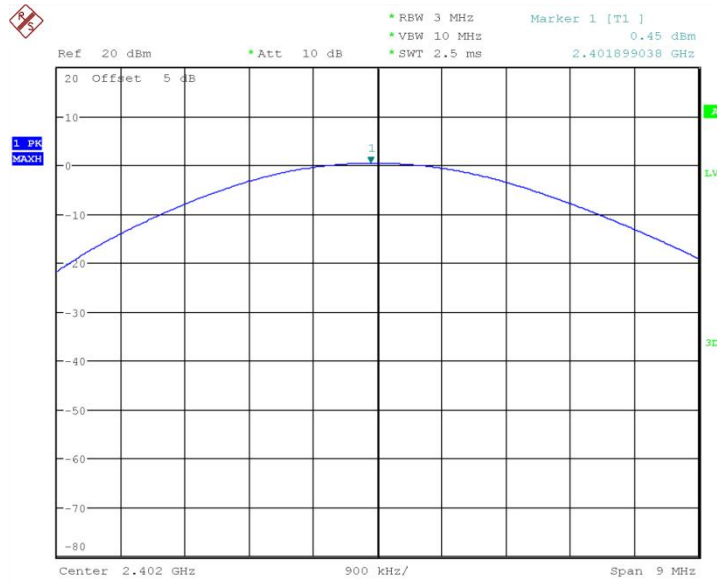
Channel	Ch0 2402 MHz	Ch39 2441 MHz	CH78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	0.063	1.482	0.2	P
	Fig.4	Fig.5	Fig.6	

##### For 8DPSK

Channel	Ch0 2402 MHz	Ch39 2441 MHz	CH78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	0.276	1.673	0.421	P
	Fig.7	Fig.8	Fig.9	

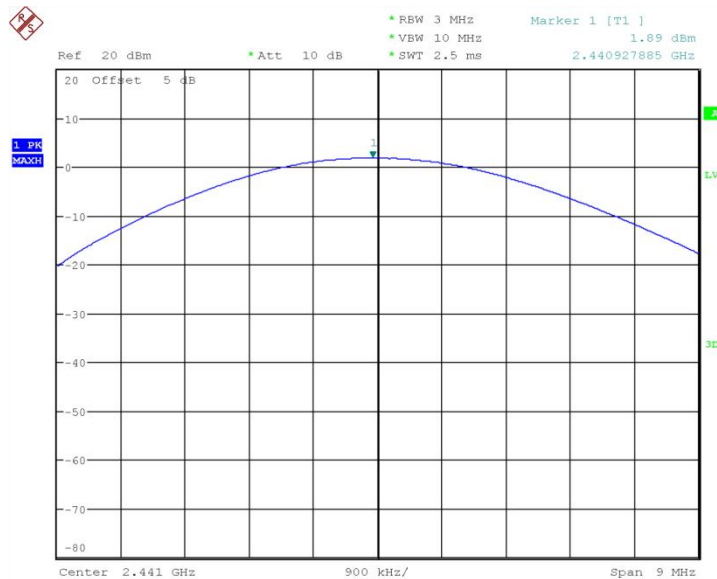
**Conclusion: PASS**

Test graphs an below



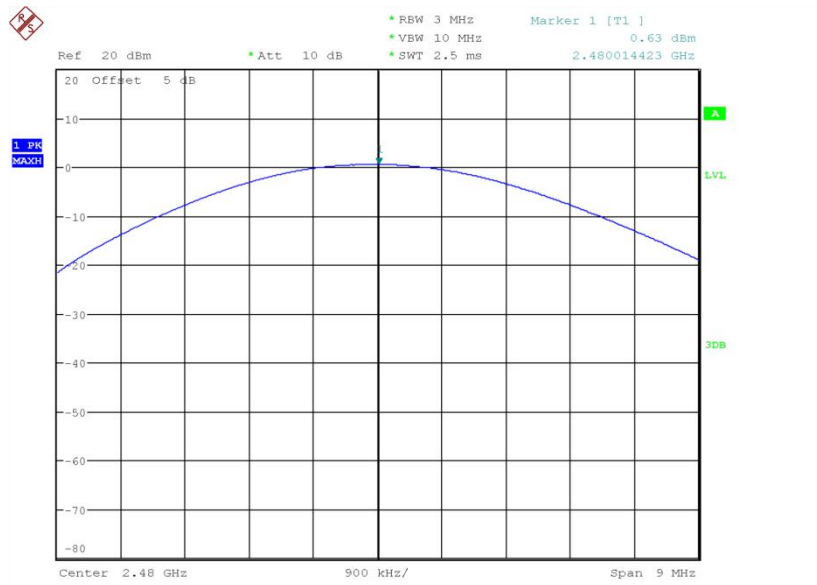
Date: 18.SEP.2018 09:13:00

Fig.1 Peak Conducted Output Power CH0, DH1



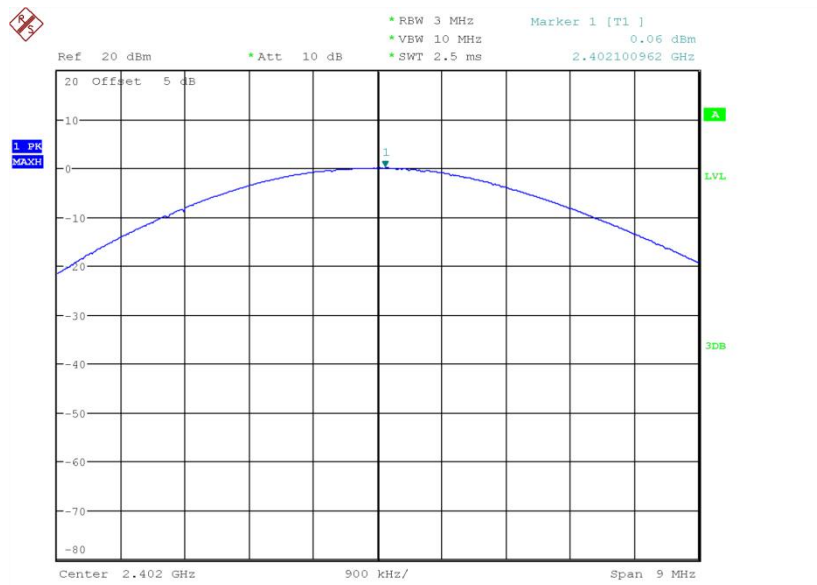
Date: 18.SEP.2018 09:13:15

Fig.2 Peak Conducted Output Power CH39, DH1



Date: 18.SEP.2018 09:13:30

Fig.3 Peak Conducted Output Power CH78, DH1



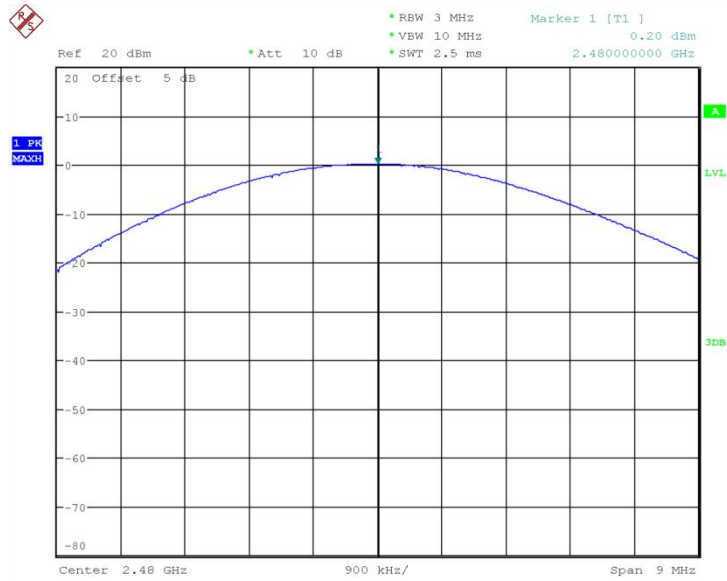
Date: 18.SEP.2018 09:13:44

Fig.4 Peak Conducted Output Power CH0, 2DH1



Date: 18.SEP.2018 09:13:59

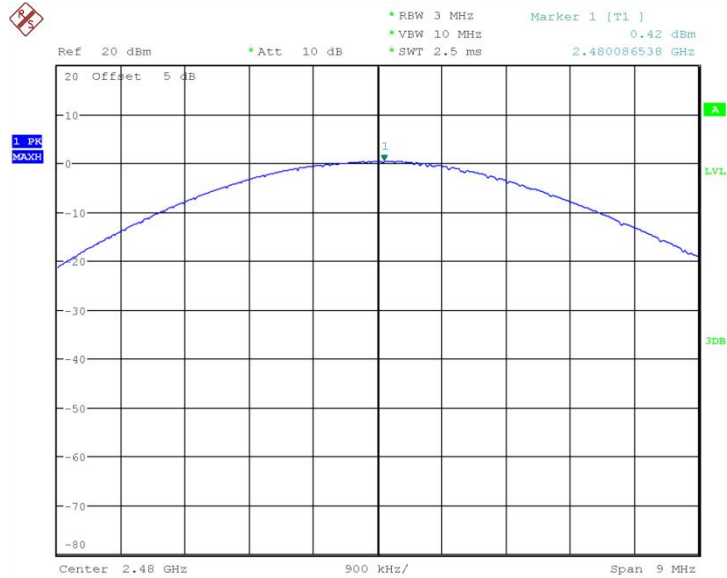
Fig.5 Peak Conducted Output Power CH39, 2DH1



Date: 18.SEP.2018 09:14:14

Fig.6 Peak Conducted Output Power CH78, 2DH1





Date: 18.SEP.2018 09:14:59

Fig.9 Peak Conducted Output Power CH78, 3DH1

## 6.2. Frequency Band Edges-Conducted

### 6.2.1 Measurement Limit:

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

### 6.2.2 Test procedure

The measurement is according to ANSI C63.10 clause 7.8.6.

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

### 6.2.3 Measurement Uncertainty:

Measurement Uncertainty	$\pm 4.56\text{dB}$
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### 6.2.3 Measurement results

#### 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  $\pi/4$  DQPSK**

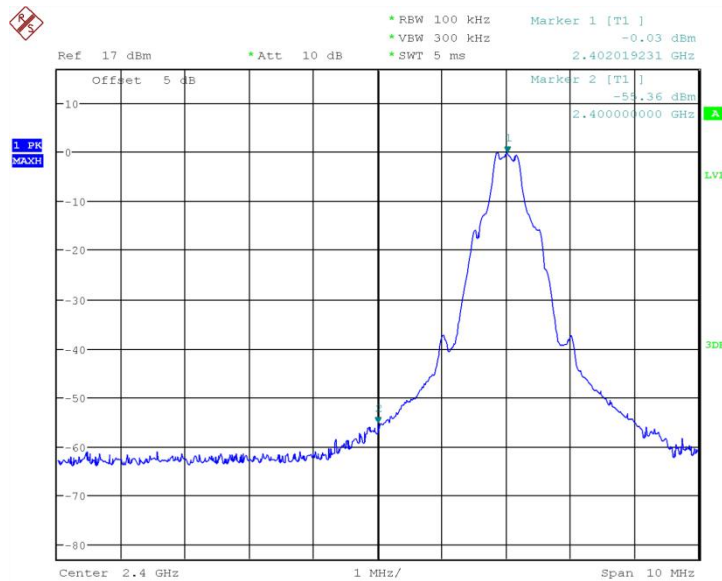
Channel	Hopping	Band Edge Power (dBc)	Conclusion
0	Hopping OFF	Fig.14	P
	Hopping ON	Fig.15	P
78	Hopping OFF	Fig.16	P
	Hopping ON	Fig.17	P

**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

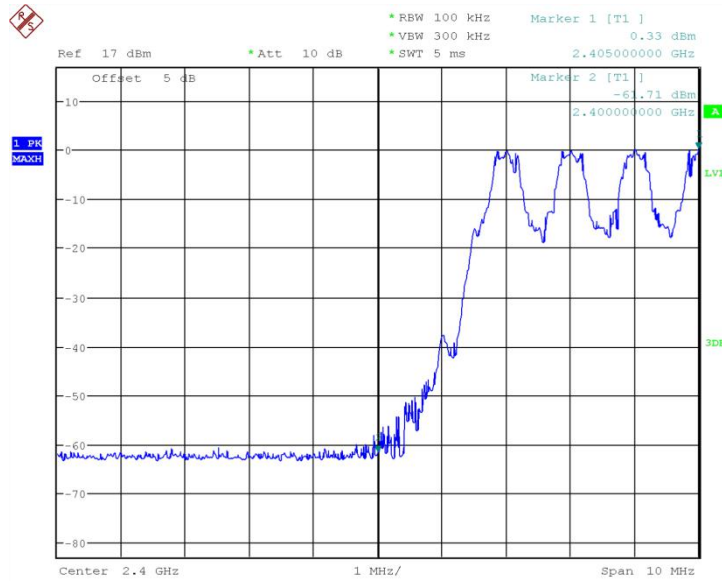
**Conclusion: PASS**

Test graphs an below



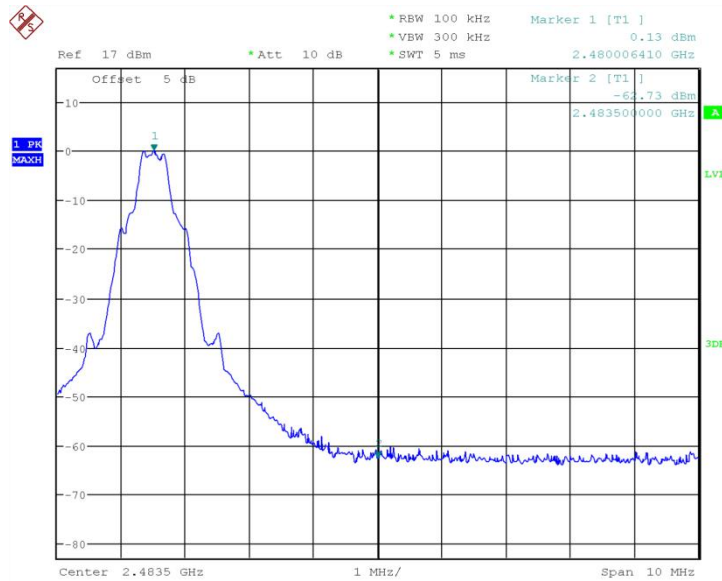
Date: 18.SEP.2018 09:18:34

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



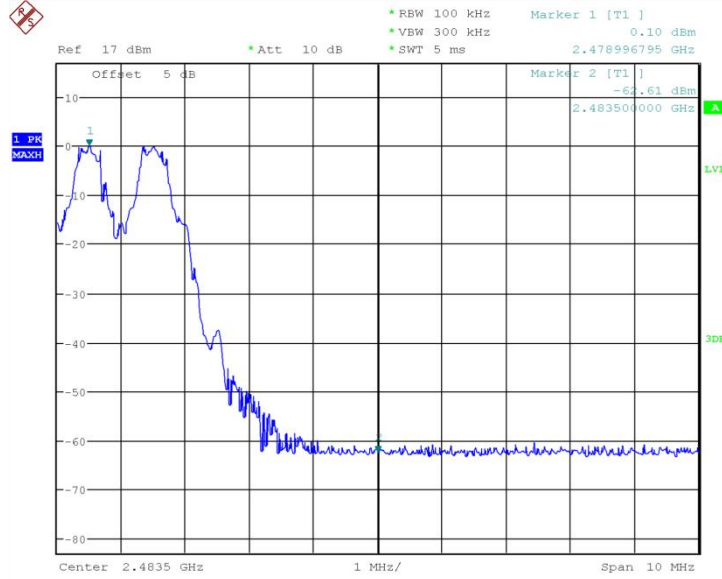
Date: 18.SEP.2018 09:20:41

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



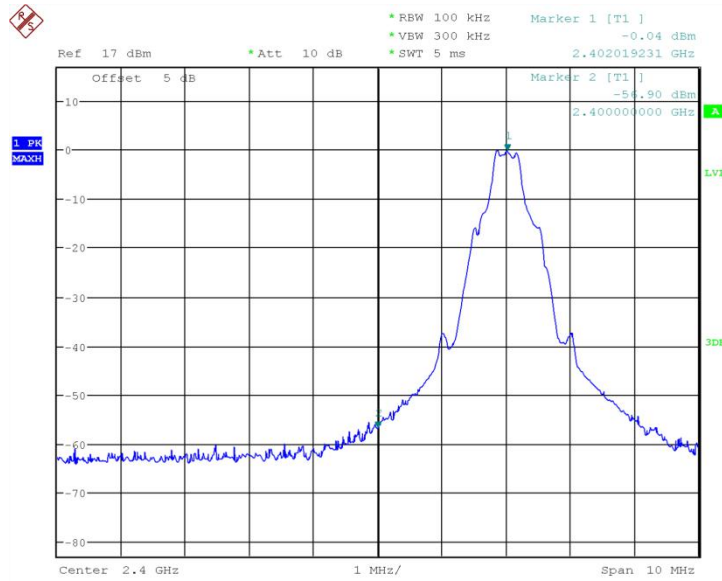
Date: 18.SEP.2018 09:26:48

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



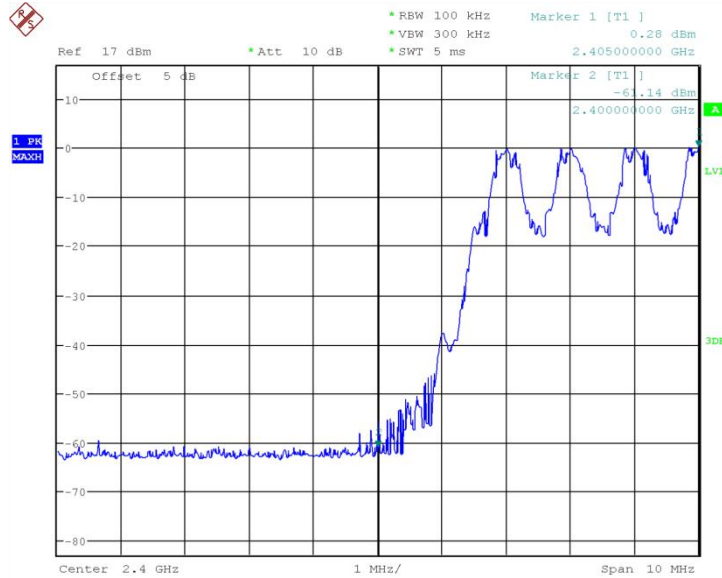
Date: 18.SEP.2018 09:28:55

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



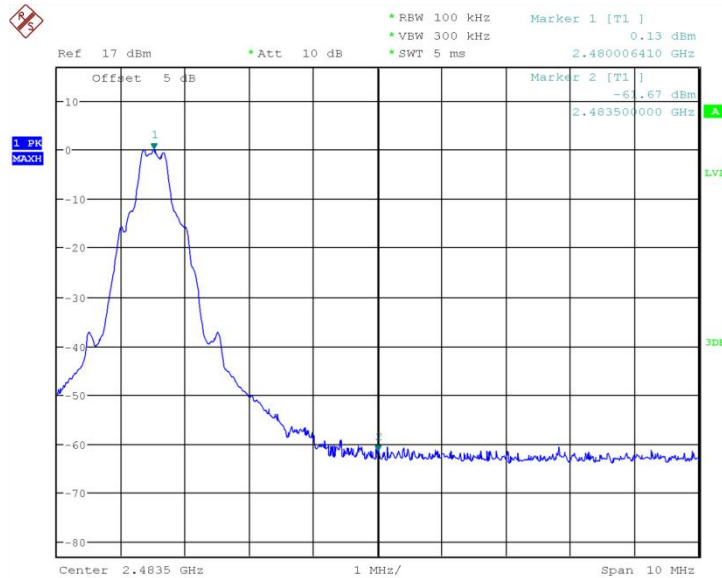
Date: 18.SEP.2018 09:21:18

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



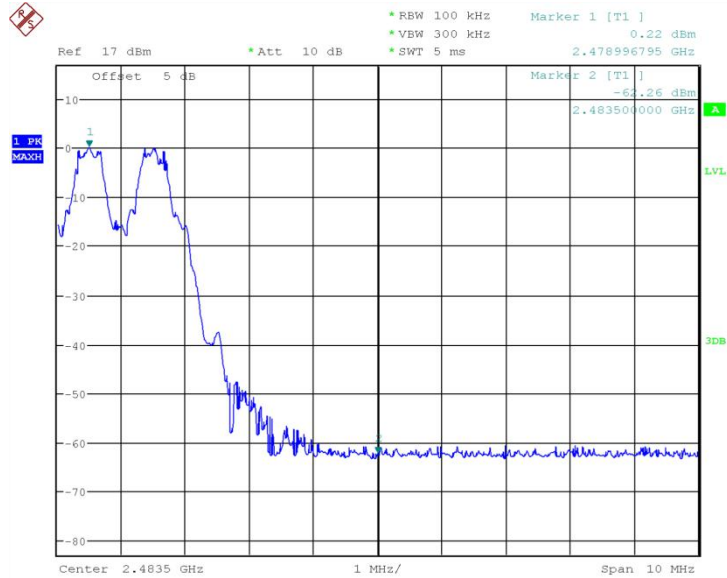
Date: 18.SEP.2018 09:23:25

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



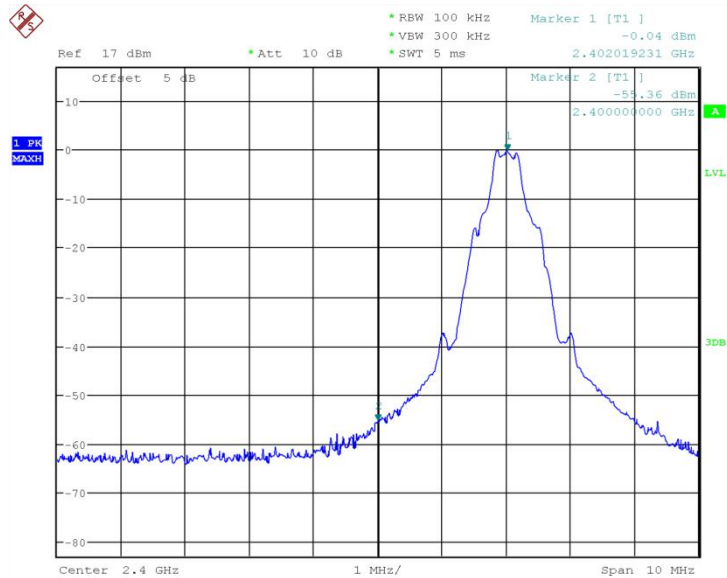
Date: 18.SEP.2018 09:29:32

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



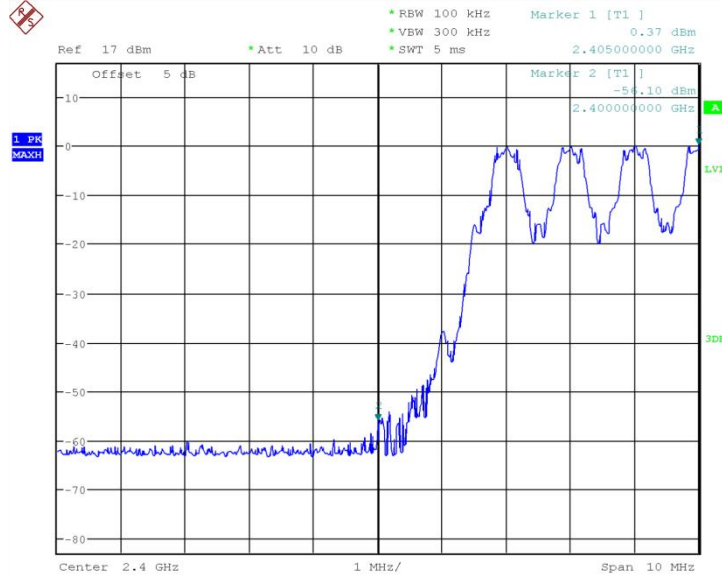
Date: 18.SEP.2018 09:31:40

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



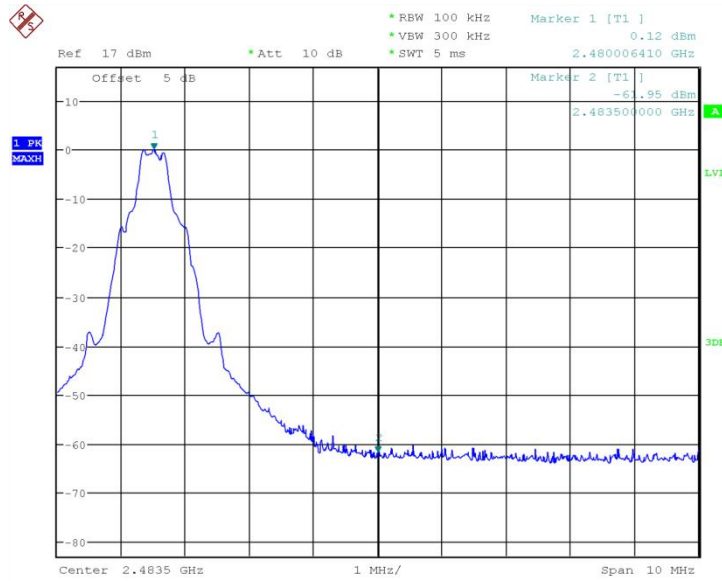
Date: 18.SEP.2018 09:24:02

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



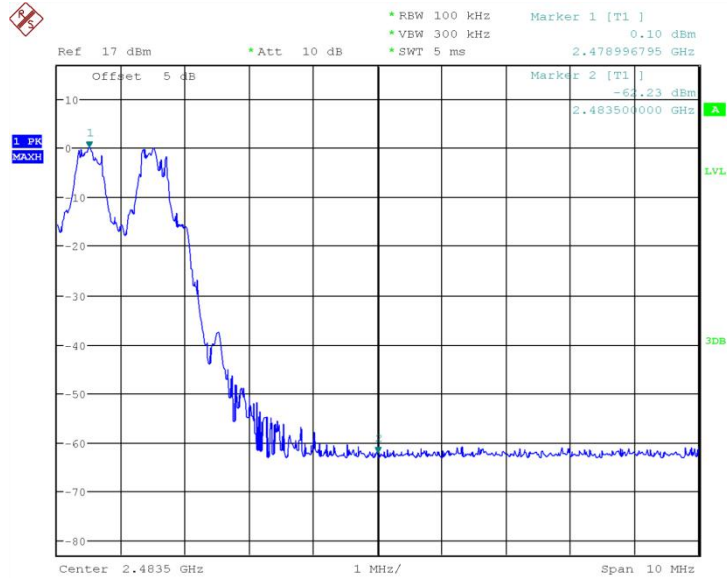
Date: 18.SEP.2018 09:26:09

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



Date: 18.SEP.2018 09:32:17

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



Date: 18.SEP.2018 09:34:24

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

## 6.3. Conducted Emission

### 6.3.1 Measurement Limit:

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

### 6.3.2 Test procedures

The measurement is according to ANSI C63.10 clause 7.8.8.

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

### 6.3.3 Measurement Uncertainty:

Measurement Uncertainty	$\pm 4.56\text{dB}$
-------------------------	---------------------

### 6.3.4 Measurement Results:

For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch0 2402MHz	Center Freq.	Fig.22	P
	30MHz~26GHz	Fig.23	P

<b>Ch39 2441MHz</b>	Center Freq.	Fig.24	P
	30MHz~26GHz	Fig.25	P
<b>Ch78 2480MHz</b>	Center Freq.	Fig.26	P
	30MHz~26GHz	Fig.27	P

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

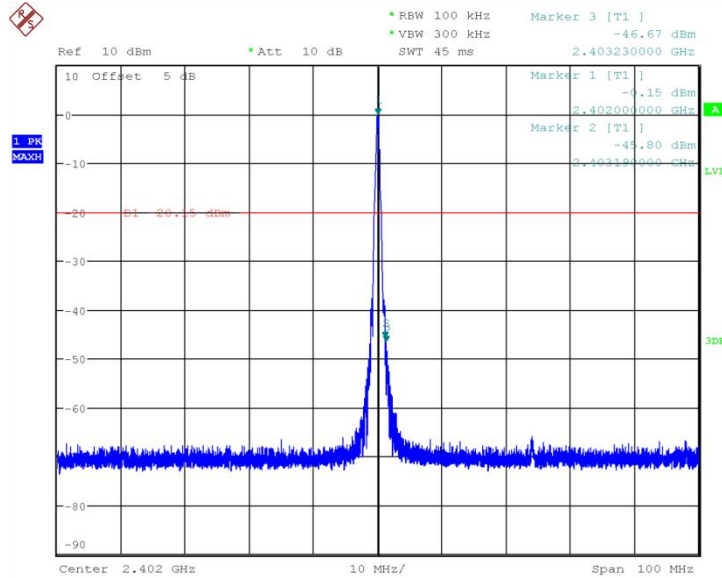
Channel	Frequency Range	Test Results	Conclusion
<b>Ch0 2402MHz</b>	Center Freq.	Fig.28	P
	30MHz~26GHz	Fig.29	P
<b>Ch39 2441MHz</b>	Center Freq.	Fig.30	P
	30MHz~26GHz	Fig.31	P
<b>Ch78 2480MHz</b>	Center Freq.	Fig.32	P
	30MHz~26GHz	Fig.33	P

**For 8DPSK**

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

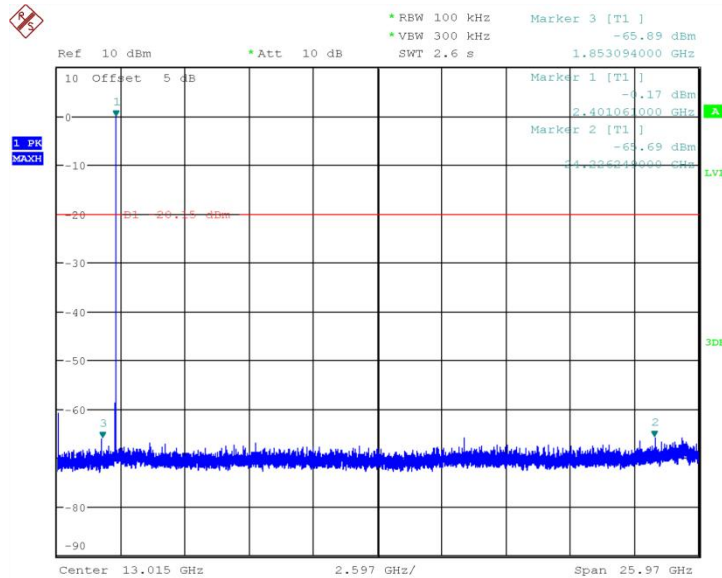
**Conclusion: PASS**
**Test graphs as below**





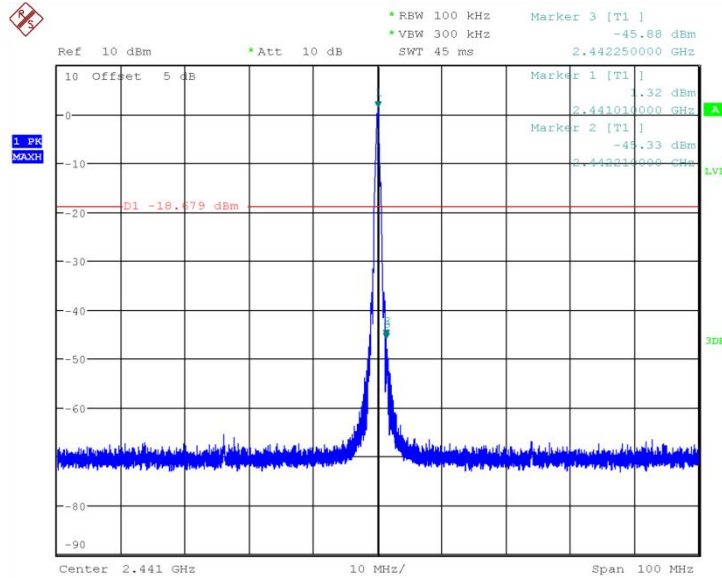
Date: 18.SEP.2018 09:35:22

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



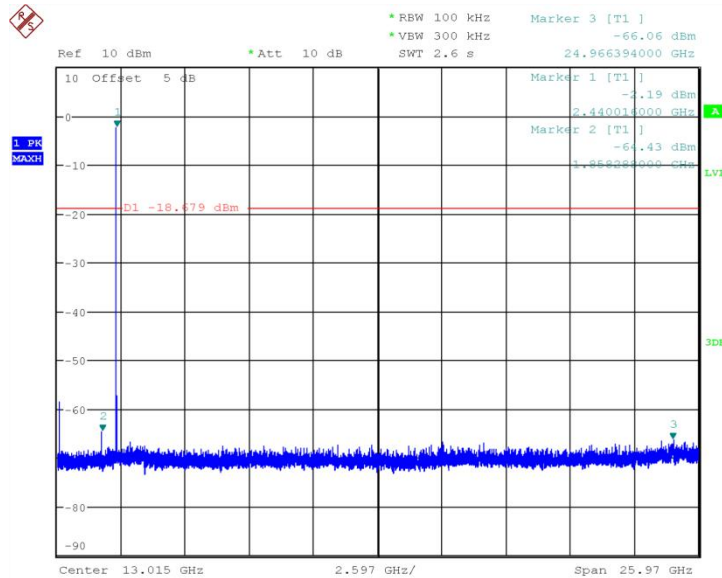
Date: 18.SEP.2018 09:35:47

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



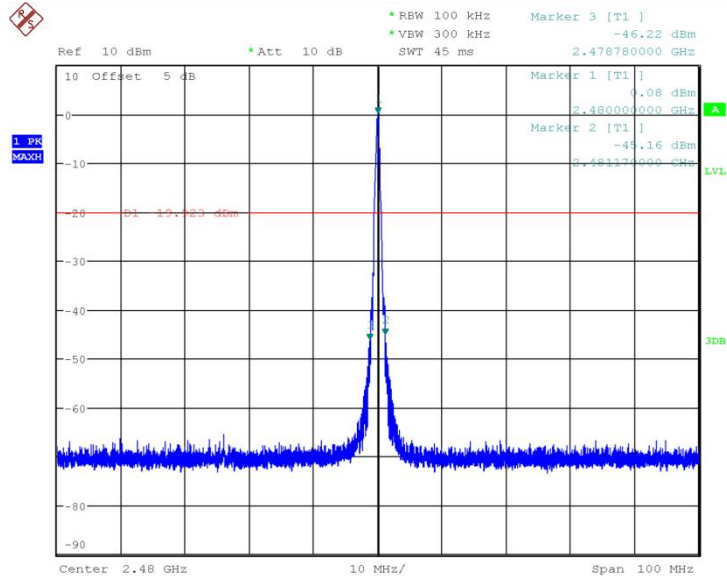
Date: 18.SEP.2018 09:36:14

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



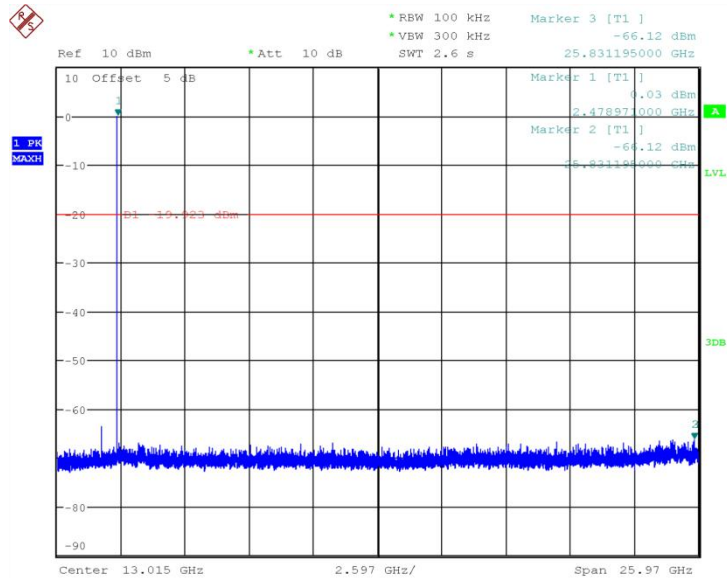
Date: 18.SEP.2018 09:36:40

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



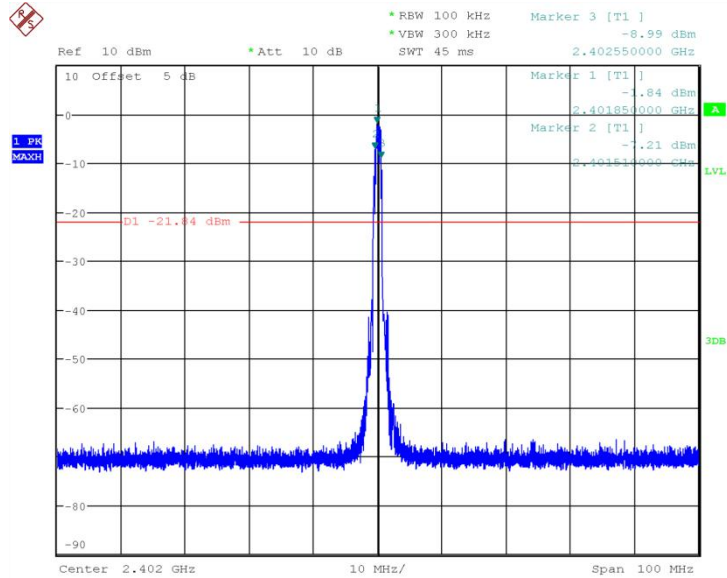
Date: 18.SEP.2018 09:37:07

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



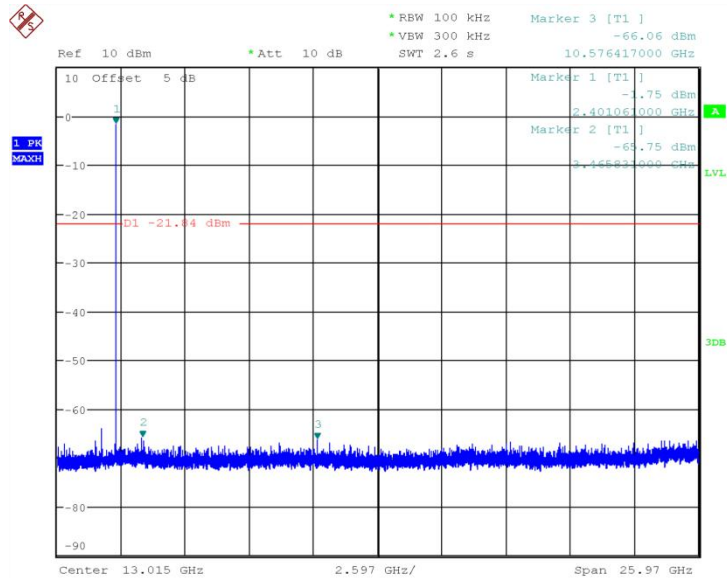
Date: 18.SEP.2018 09:37:32

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



Date: 18.SEP.2018 09:38:00

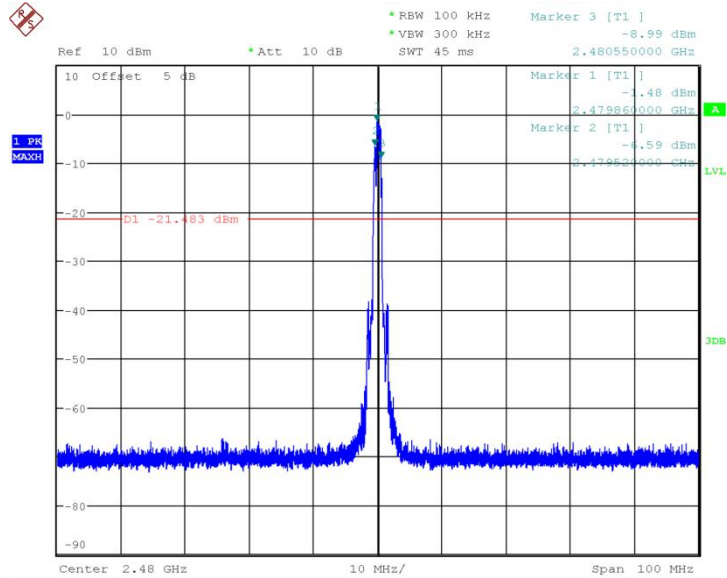
Fig.28 Conducted spurious emission:  $\pi/4$  DQPSK, Ch0, 2402MHz



Date: 18.SEP.2018 09:38:26

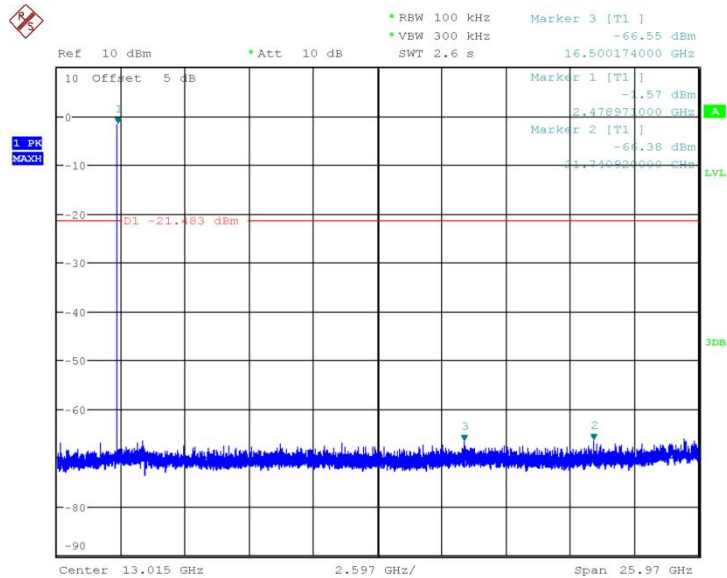
Fig.29 Conducted spurious emission:  $\pi/4$  DQPSK, Ch0, 30MHz~26GHz





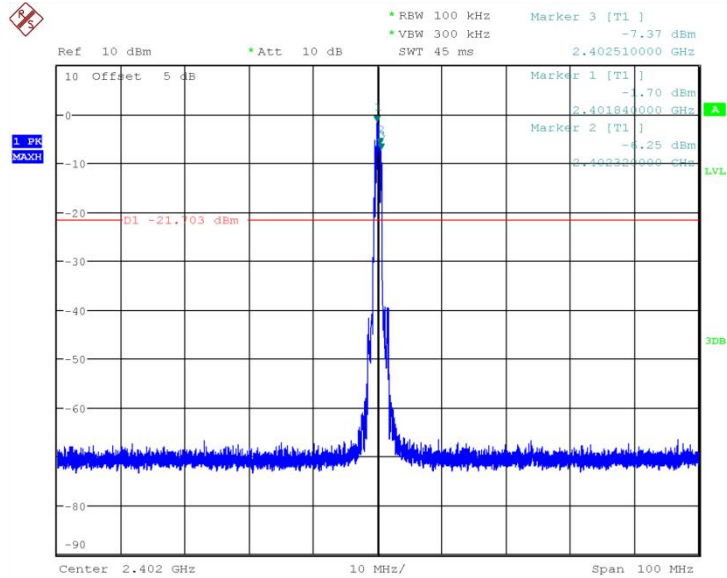
Date: 18.SEP.2018 09:39:46

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



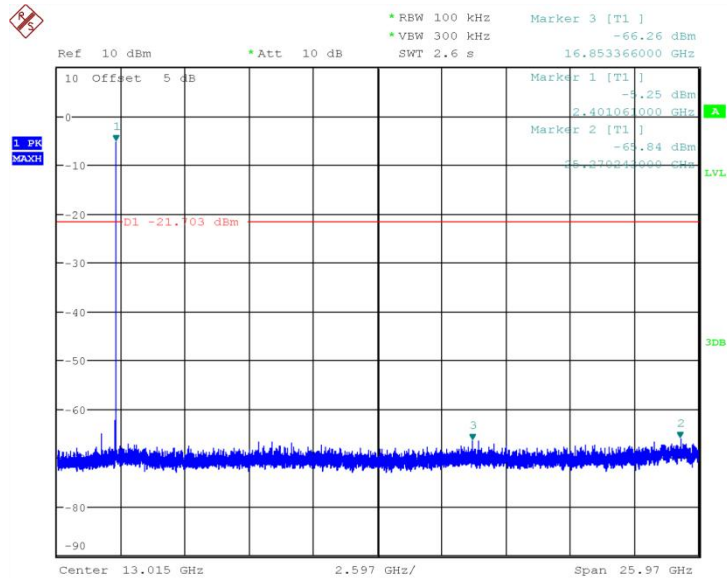
Date: 18.SEP.2018 09:40:12

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



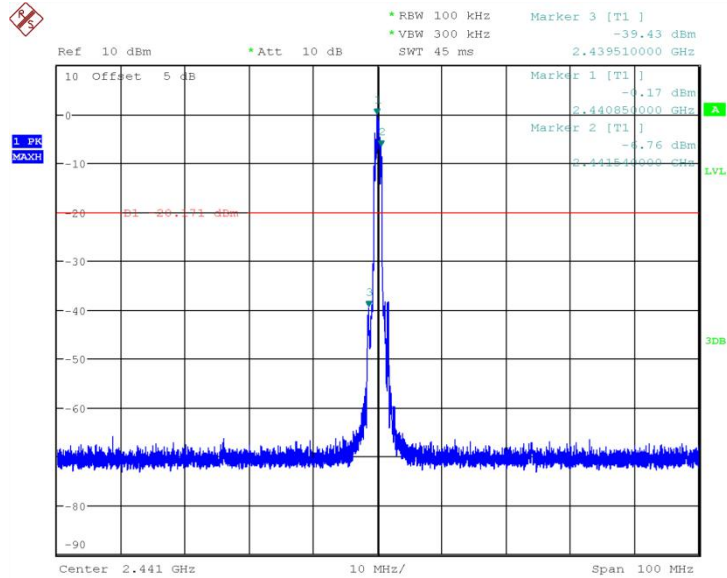
Date: 18.SEP.2018 09:40:39

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



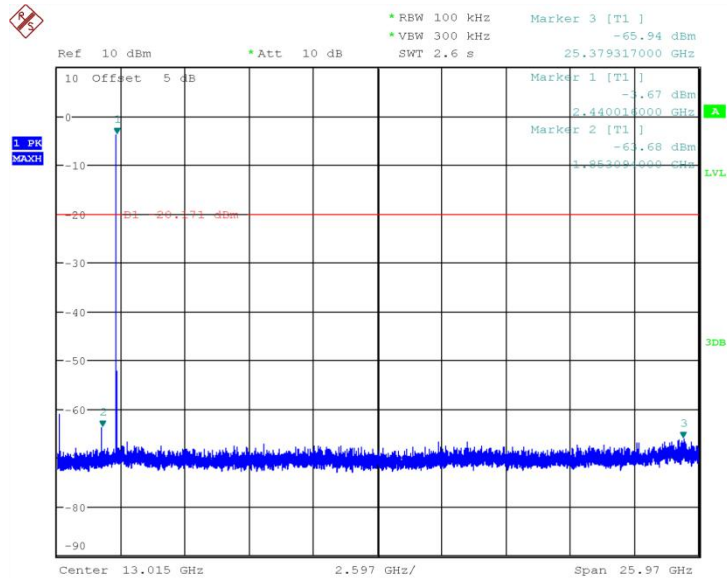
Date: 18.SEP.2018 09:41:04

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



Date: 18.SEP.2018 09:41:32

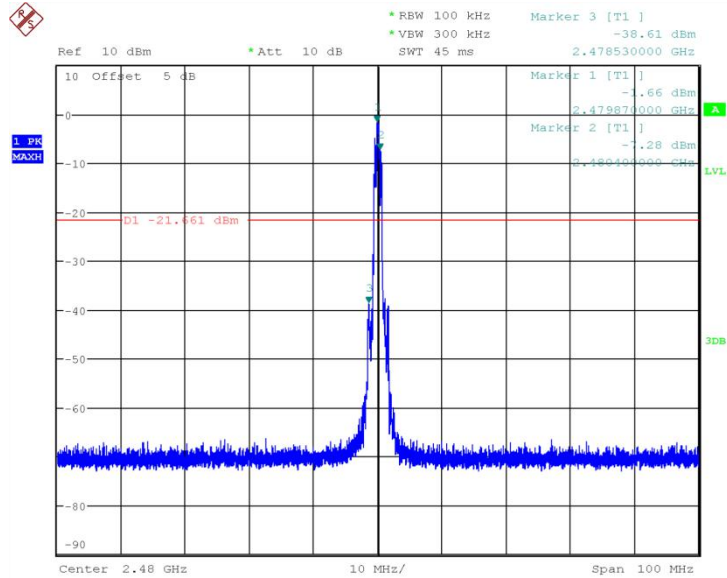
Fig.36 Conducted spurious emission: 8DPSK, Ch39, 2441MHz



Date: 18.SEP.2018 09:41:57

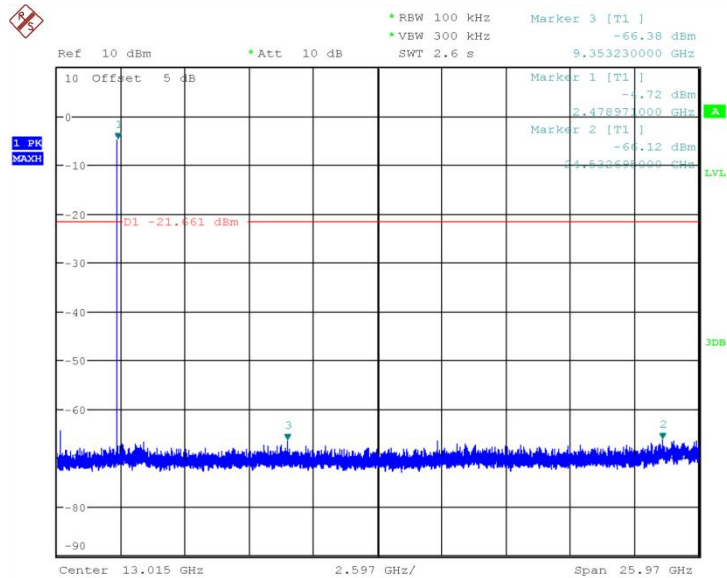
Fig.37 Conducted spurious emission: 8DPSK, Ch39, 30MHz~26GHz





Date: 18.SEP.2018 09:42:24

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



Date: 18.SEP.2018 09:42:50

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

## 6.4. Radiated Emission

### 6.4.1 Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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

**Limit in restricted band:**

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

**Measurement Uncertainty**

Measurement Items	Range	Confidence Level	Calculated Uncertainty
Transmitter Spurious Emission-Radiated	9KHz-30MHz	95%	± 5.66db
Transmitter Spurious Emission-Radiated	30MHz-1000MHz	95%	± 4.98db
Transmitter Spurious Emission-Radiated	1000MHz -18000MHz	95%	± 5.06db
Transmitter Spurious Emission-Radiated	18000MHz -40000MHz	95%	± 5.20db

**6.4.2 Test Method**

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 non-conducting 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, For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 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 C63.10-2013 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/3MHz	15
4000~18000	1MHz/3MHz	40
18000~26500	1MHz/3MHz	20

**6.4.3 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.

The measurement results are obtained as described below:

$A_{Rpi}$  = Cable loss + Antenna Gain - Preamplifier gain

Result =  $P_{Mea}$  +  $A_{Rpi}$

**L1321**
**For GFSK**

Channel	Frequency Range	Test Results	Conclusion
Ch78 2480MHz	30MH~1GHz	Fig.40	P
	1GHz~3GHz	Fig.41	P
	3GHz~18GHz	Fig.42	P
Power(low )	2.31GHz~2.5GHz	Fig.43	P
Power(high)	2.31GHz~2.5GHz	Fig.44	P

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

Channel	Frequency Range	Test Results	Conclusion
Ch78 2480MHz	30MH~1GHz	Fig.45	P
	1GHz~3GHz	Fig.46	P
	3GHz~18GHz	Fig.47	P
Power(low )	2.31GHz~2.5GHz	Fig.48	P
Power(high)	2.31GHz~2.5GHz	Fig.49	P

**For 8DPSK**

Channel	Frequency Range	Test Results	Conclusion
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Ch78 2480MHz	30MH~1GHz	Fig.50	P
	1GHz~3GHz	Fig.51	P
	3GHz~18GHz	Fig.52	P
Power(low )	2.31GHz~2.5GHz	Fig.53	P
Power(high)	2.31GHz~2.5GHz	Fig.54	P

**GFSK Ch78 30MHz-1GHz**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
32.7	30.85	-22	52.85	V
53.7	32.03	-20.7	52.73	V
71.5	38.51	-25.3	63.81	V
166.9	30.64	-26.4	57.04	H
262.4	32.9	-22.6	55.5	V
477.0	34.64	-17.4	52.04	H

**GFSK Ch78 1GHz-3GHz (Peak)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2667.1	54.47	7.8	46.67	V
2736.2	54.57	7.8	46.77	V
2784.9	56	7.8	48.2	V
2828.8	54.6	8.1	46.5	H
2882.4	56.27	8.7	47.57	H
2980.3	55.01	8.9	46.11	V

**GFSK Ch78 1GHz-3GHz (Average)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2667.1	42.4	7.8	34.6	V
2736.2	42.4	7.8	34.6	V
2784.9	42.35	7.8	34.55	V

2828.8	42.54	8.1	34.44	H
2882.4	43.11	8.7	34.41	H
2980.3	43.28	8.9	34.38	V

**GFSK Ch78 3GHz-18GHz (Peak)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
14284.4	54.91	20.6	34.31	H
14669.7	55.17	20.8	34.37	H
15352.2	55.87	22.2	33.67	V
16077.9	59.29	25	34.29	H
17233.7	60.12	27.2	32.92	V
17763.7	60.01	28	32.01	V

**GFSK Ch78 3GHz-18GHz (Average)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
14284.4	42.75	20.6	22.15	H
14669.7	42.86	20.8	22.06	H
15352.2	43.69	22.2	21.49	V
16077.9	46.76	25	21.76	H
17233.7	47.99	27.2	20.79	V
17763.7	48	28	20	V

 **$\pi/4$  DQPSK Ch78 30MHz-1GHz**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
49.6	19.07	-19.9	38.97	V
53.5	31.58	-20.7	52.28	V
71.6	38.51	-25.3	63.81	V
137.1	26.89	-27.9	54.79	H
262.4	32.92	-22.6	55.52	V

477.0	34.82	-17.4	52.22	H
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 **$\pi/4$  DQPSK Ch78 1GHz-3GHz (Peak)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2653.9	54.43	7.7	46.73	V
2737.8	54.61	7.8	46.81	H
2806.5	53.9	7.9	46	V
2881.4	55.21	8.7	46.51	V
2926.9	55.43	8.7	46.73	V
2962.9	55.16	8.7	46.46	V

 **$\pi/4$  DQPSK Ch78 1GHz-3GHz (Average)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2653.9	42.32	7.7	34.62	V
2737.8	42.35	7.8	34.55	H
2881.4	43.11	8.7	34.41	V
2926.9	43.21	8.7	34.51	V
2962.9	43.08	8.7	34.38	V

 **$\pi/4$  DQPSK Ch78 3GHz-18GHz (Peak)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
14305.2	55.48	20.7	34.78	V
14665.3	55.47	20.7	34.77	V
15665.9	59.19	23.1	36.09	H
16141.1	59.48	24.9	34.58	V
17234.0	60.74	27.2	33.54	V
17750.5	60.31	27.8	32.51	V

 **$\pi/4$  DQPSK Ch78 3GHz-18GHz (Average)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
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14305.2	43.2	20.7	22.5	V
14665.3	42.6	20.7	21.9	V
15665.9	44.84	23.1	21.74	H
16141.1	46.52	24.9	21.62	V
17234.0	48.04	27.2	20.84	V
17750.5	47.92	27.8	20.12	V

**8DPSK Ch78 30MHz-1GHz**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
34.4	20.94	-22	42.94	V
53.6	31.76	-20.7	52.46	V
71.6	38.64	-25.3	63.94	V
137.0	30.07	-27.8	57.87	H
214.6	32.02	-24.2	56.22	V
405.4	33.3	-19	52.3	H

**8DPSK Ch78 1GHz-3GHz (Peak)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2552.2	53.9	7.2	46.7	H
2651.8	54.49	7.7	46.79	H
2738.8	54.53	7.7	46.83	V
2793.0	54.7	7.8	46.9	H
2879.2	54.97	8.6	46.37	H
2979.7	56.43	8.9	47.53	V

**8DPSK Ch78 1GHz-3GHz (Average)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2651.8	42.27	7.7	34.57	H
2738.8	42.28	7.7	34.58	V

2793.0	42.4	7.8	34.6	H
2879.2	43.04	8.6	34.44	H
2979.7	43.26	8.9	34.36	V

**8DPSK Ch78 3GHz-18GHz (Peak)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
12977.2	53.37	17.3	36.07	H
14305.1	54.92	20.7	34.22	V
15404.0	55.92	22.7	33.22	H
16107.5	58.75	24.8	33.95	H
16831.4	60.3	27.3	33	H
17846.8	59.99	27.9	32.09	H

**8DPSK Ch78 3GHz-18GHz (Average)**

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
14305.1	43.1	20.7	22.4	V
15404.0	43.92	22.7	21.22	H
16107.5	46.55	24.8	21.75	H
16831.4	48.13	27.3	20.83	H
17846.8	47.93	27.9	20.03	H

**Note: Only the worst case is written in the report.**

**Conclusion: PASS**

**Test graphs as below:**