

APPLICATION CERTIFICATION
On Behalf of
NYNE MULTIMEDIA INC.

Nyne Aqua
Model No.: AQUA

FCC ID: AWANYNE-AQUA

Prepared for : NYNE MULTIMEDIA INC.
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TABLE OF CONTENTS

Description	Page
Test Report Certification	
1. GENERAL INFORMATION	5
1.1. Description of Device (EUT).....	5
1.2. Description of Test Facility	6
1.3. Measurement Uncertainty	6
2. MEASURING DEVICE AND TEST EQUIPMENT	7
3. OPERATION OF EUT DURING TESTING	8
3.1. Operating Mode	8
3.2. Configuration and peripherals	8
4. TEST PROCEDURES AND RESULTS	9
5. 20DB BANDWIDTH TEST.....	10
5.1. Block Diagram of Test Setup.....	10
5.2. The Requirement For Section 15.247(a)(1).....	10
5.3. EUT Configuration on Measurement	10
5.4. Operating Condition of EUT	10
5.5. Test Procedure	11
5.6. Test Result	11
6. CARRIER FREQUENCY SEPARATION TEST.....	21
6.1. Block Diagram of Test Setup.....	21
6.2. The Requirement For Section 15.247(a)(1).....	21
6.3. EUT Configuration on Measurement	21
6.4. Operating Condition of EUT	21
6.5. Test Procedure	22
6.6. Test Result	22
7. NUMBER OF HOPPING FREQUENCY TEST	32
7.1. Block Diagram of Test Setup.....	32
7.2. The Requirement For Section 15.247(a)(1)(iii).....	32
7.3. EUT Configuration on Measurement	32
7.4. Operating Condition of EUT	32
7.5. Test Procedure	33
7.6. Test Result	33
8. DWELL TIME TEST	36
8.1. Block Diagram of Test Setup.....	36
8.2. The Requirement For Section 15.247(a)(1)(iii).....	36
8.3. EUT Configuration on Measurement	36
8.4. Operating Condition of EUT	36
8.5. Test Procedure	37
8.6. Test Result	37
9. MAXIMUM PEAK OUTPUT POWER TEST	66
9.1. Block Diagram of Test Setup.....	66
9.2. The Requirement For Section 15.247(b)(1).....	66
9.3. EUT Configuration on Measurement	66
9.4. Operating Condition of EUT	66
9.5. Test Procedure	67

9.6.	Test Result	67
10.	RADIATED EMISSION TEST	77
10.1.	Block Diagram of Test Setup.....	77
10.2.	The Limit For Section 15.247(d)	77
10.3.	Restricted bands of operation	78
10.4.	Configuration of EUT on Measurement	78
10.5.	Test Procedure	79
10.6.	The Field Strength of Radiation Emission Measurement Results	80
11.	BAND EDGE COMPLIANCE TEST	92
11.1.	Block Diagram of Test Setup.....	92
11.2.	The Requirement For Section 15.247(d)	92
11.3.	EUT Configuration on Measurement	92
11.4.	Operating Condition of EUT	92
11.5.	Test Procedure	93
11.6.	Test Result	93
12.	AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)	119
12.1.	Block Diagram of Test Setup.....	119
12.2.	The Emission Limit	119
12.3.	Configuration of EUT on Measurement	120
12.4.	Operating Condition of EUT	120
12.5.	Test Procedure	120
12.6.	Power Line Conducted Emission Measurement Results	121
13.	ANTENNA REQUIREMENT.....	124
13.1.	The Requirement	124
13.2.	Antenna Construction	124

Test Report Certification

Applicant : NYNE MULTIMEDIA INC.
Manufacturer : NYNE MULTIMEDIA INC.
EUT Description : Nyne Aqua
(A) MODEL NO.: AQUA
(B) SERIAL NO.: N/A
(C) POWER SUPPLY: DC 3.7V (Lithium ion battery) & DC 5V
(Power by USB port)

Measurement Procedure Used:

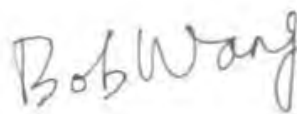
FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.4- 2009

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : June 14, 2014

Prepared by :



(Engineer)

Approved & Authorized Signer :



(Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Nyne Aqua
Model Number	:	AQUA
Frequency Band	:	2402MHz-2480MHz
Number of Channels	:	79
Modulation type	:	GFSK, $\Pi/4$ -DQPSK, 8DPSK
Antenna Gain	:	0dBi
Antenna type	:	PCB Antenna
Power Supply	:	DC 3.7V (Lithium ion battery) & DC 5V (Power by USB port)
Applicant	:	NYNE MULTIMEDIA INC.
Address	:	3451 LUNAR COURT, OXNARD, California, United States. 93030
Manufacturer	:	NYNE MULTIMEDIA INC.
Address	:	3451 LUNAR COURT, OXNARD, California, United States. 93030
Date of sample received	:	June 12, 2014
Date of Test	:	June 14, 2014

1.2. Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC
The Registration Number is 752051

Listed by Industry Canada
The Registration Number is 5077A-2

Accredited by China National Accreditation Committee
for Laboratories
The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.
Science & Industry Park, Nanshan, Shenzhen, Guangdong
P.R. China

1.3. Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2
(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2
(Above 1GHz)

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated date	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 11, 2014	Jan. 10, 2015
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 11, 2014	Jan. 10, 2015
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 11, 2014	Jan. 10, 2015
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 11, 2014	Jan. 10, 2015
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 15, 2014	Jan. 14, 2015
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 15, 2014	Jan. 14, 2015
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 11, 2014	Jan. 10, 2015
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 11, 2014	Jan. 10, 2015

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode

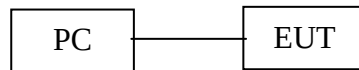
Low Channel: 2402MHz

Middle Channel: 2441MHz

High Channel: 2480MHz

Hopping

3.2.Configuration and peripherals



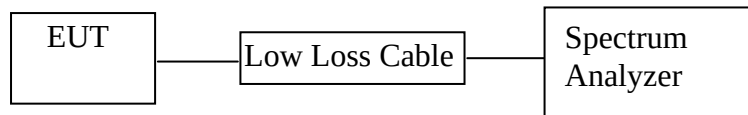
(EUT: Nyne Aqua)

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission Test	Compliant
Section 15.247(a)(1)	20dB Bandwidth Test	Compliant
Section 15.247(a)(1)	Carrier Frequency Separation Test	Compliant
Section 15.247(a)(1)(iii)	Number Of Hopping Frequency Test	Compliant
Section 15.247(a)(1)(iii)	Dwell Time Test	Compliant
Section 15.247(b)(1)	Maximum Peak Output Power Test	Compliant
Section 15.247(d) Section 15.209	Radiated Emission Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. 20DB BANDWIDTH TEST

5.1. Block Diagram of Test Setup



(EUT: Nyne Aqua)

5.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

5.5. Test Procedure

5.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

5.5.2. Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz.

5.5.3. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

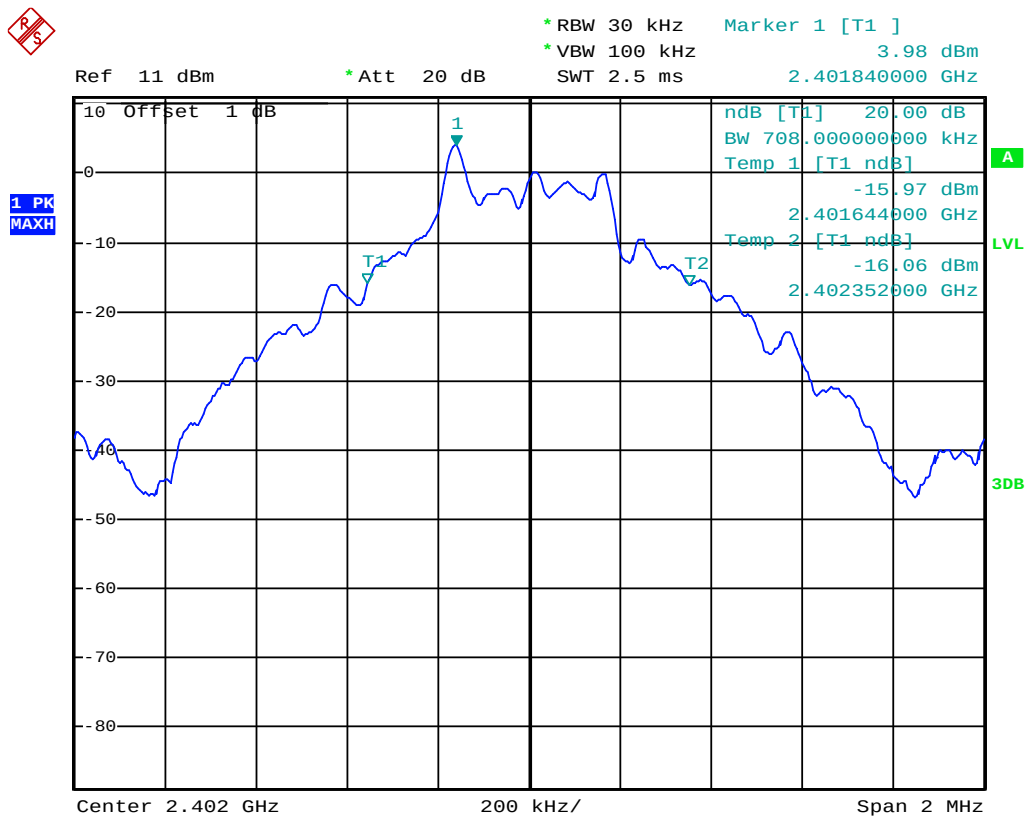
5.6. Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	$\Pi/4$ -DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	0.708	1.116	1.160	Pass
Middle	2441	0.704	1.116	1.164	Pass
High	2480	0.704	1.112	1.164	Pass

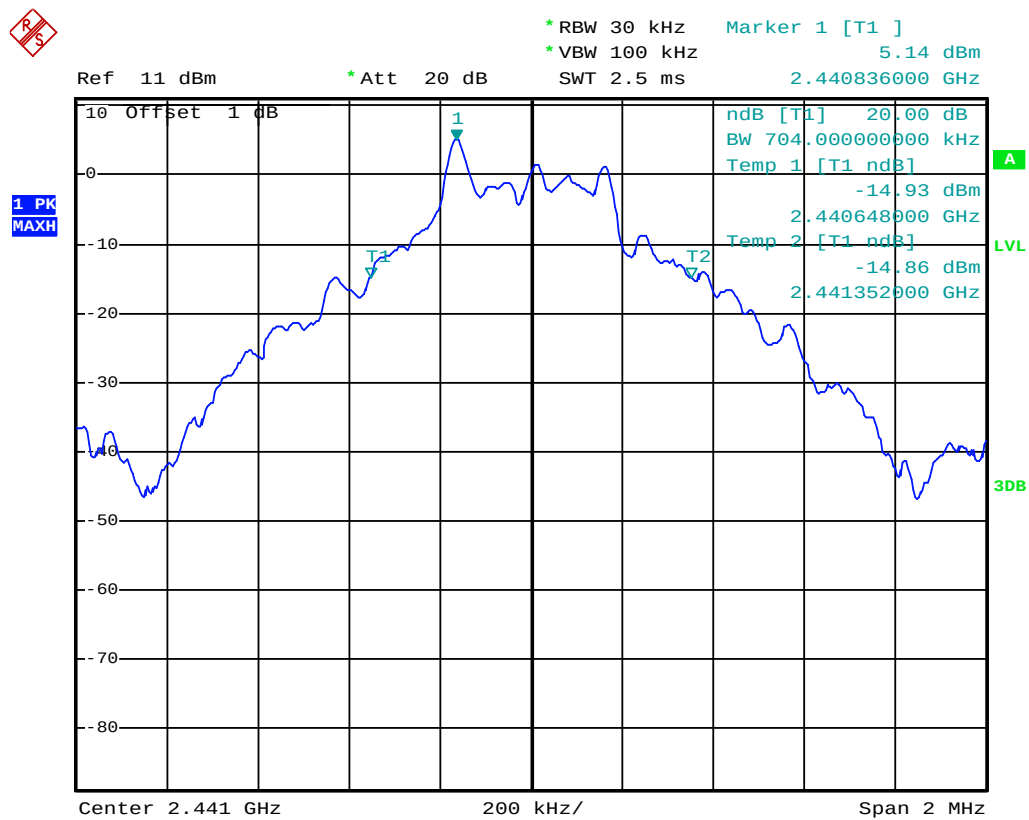
The spectrum analyzer plots are attached as below.

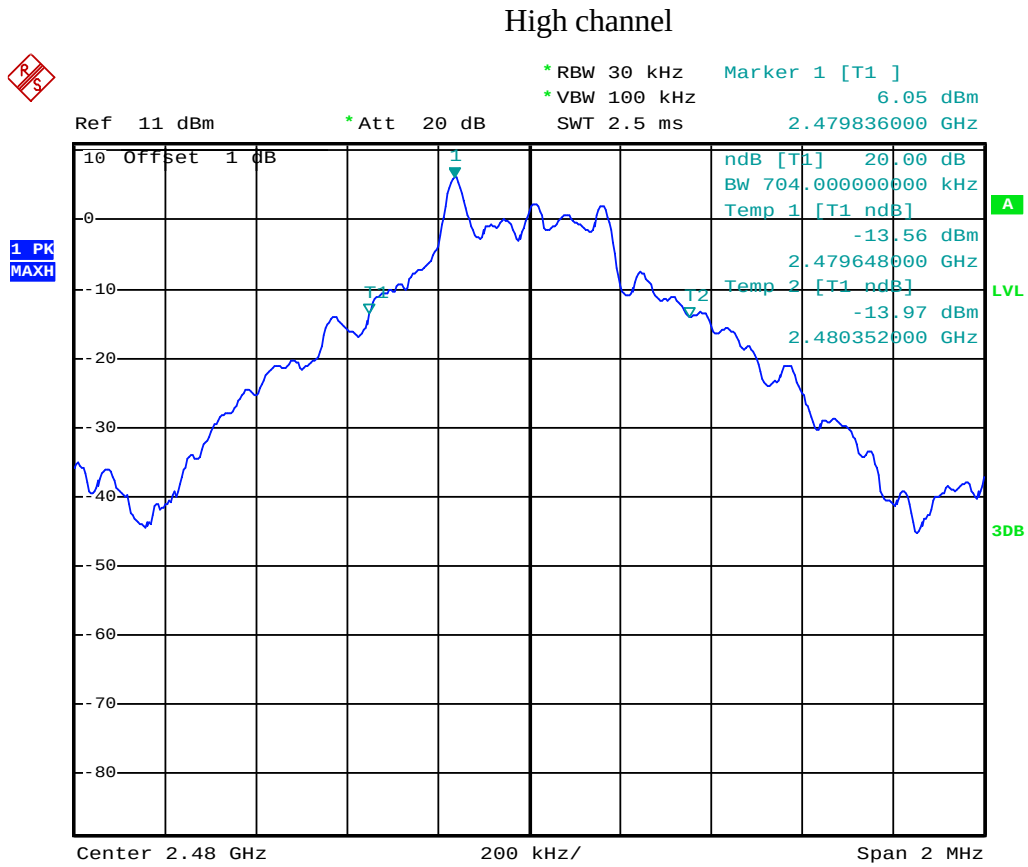
GFSK Mode

Low channel

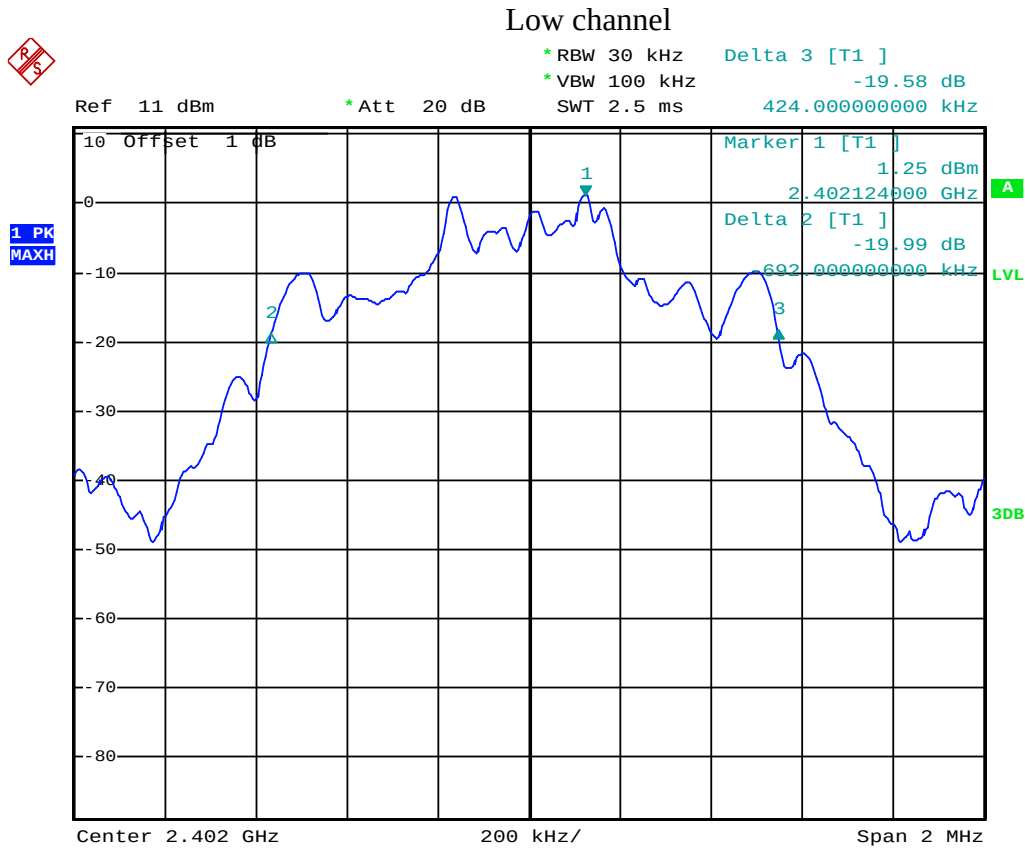


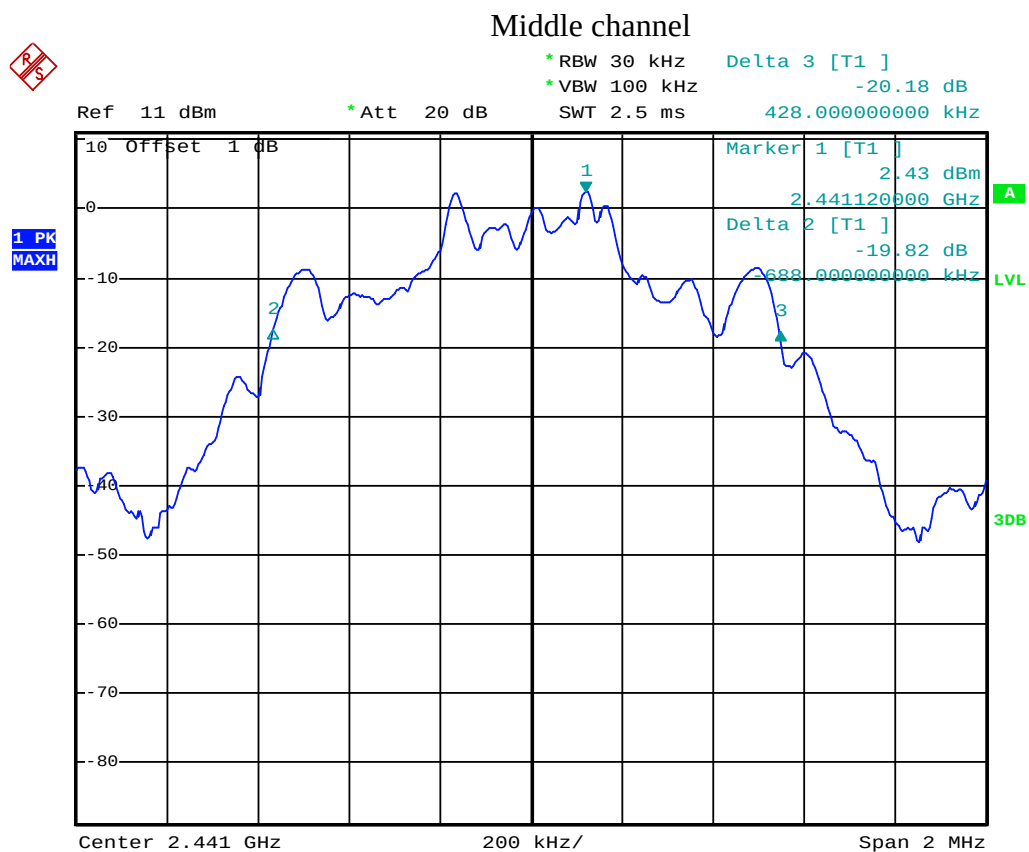
Middle channel

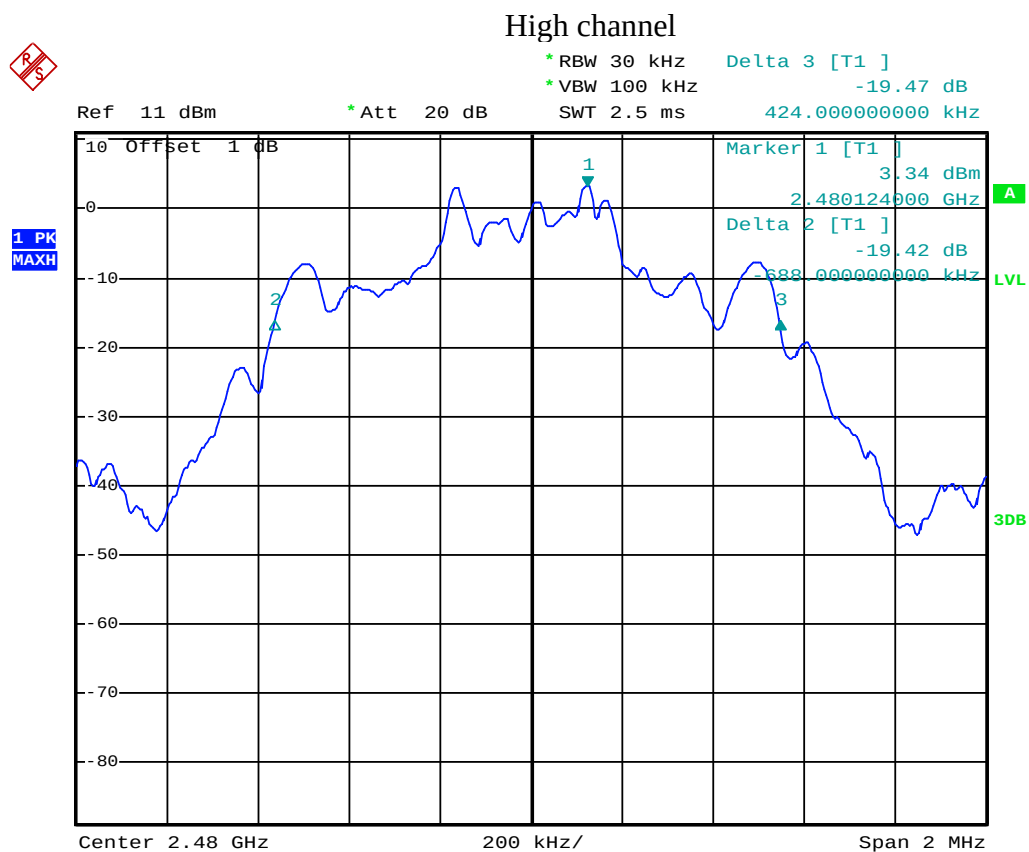




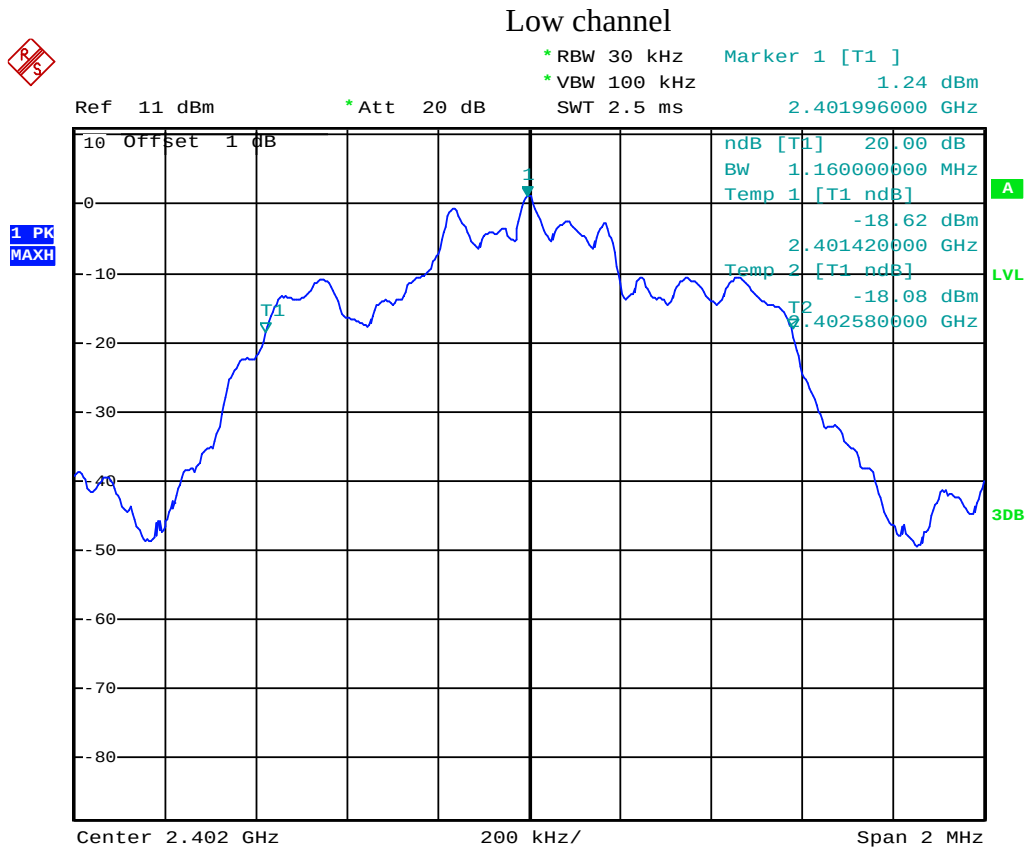
$\Pi/4$ -DQPSK Mode

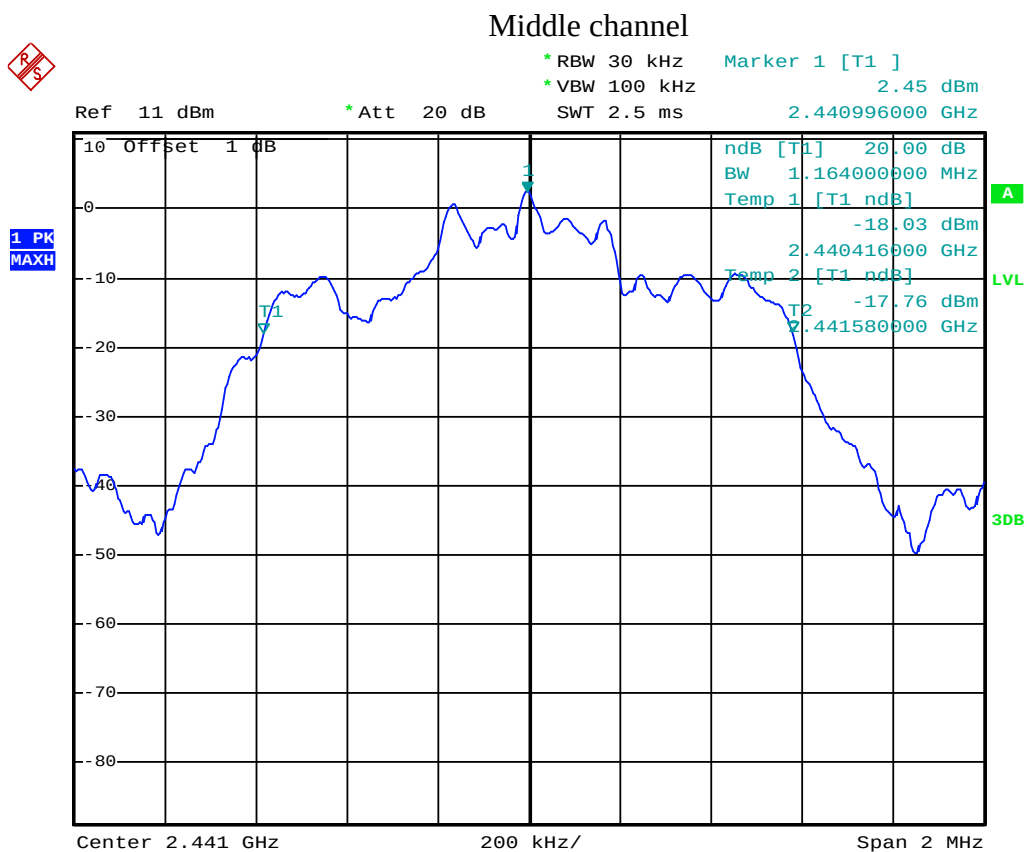


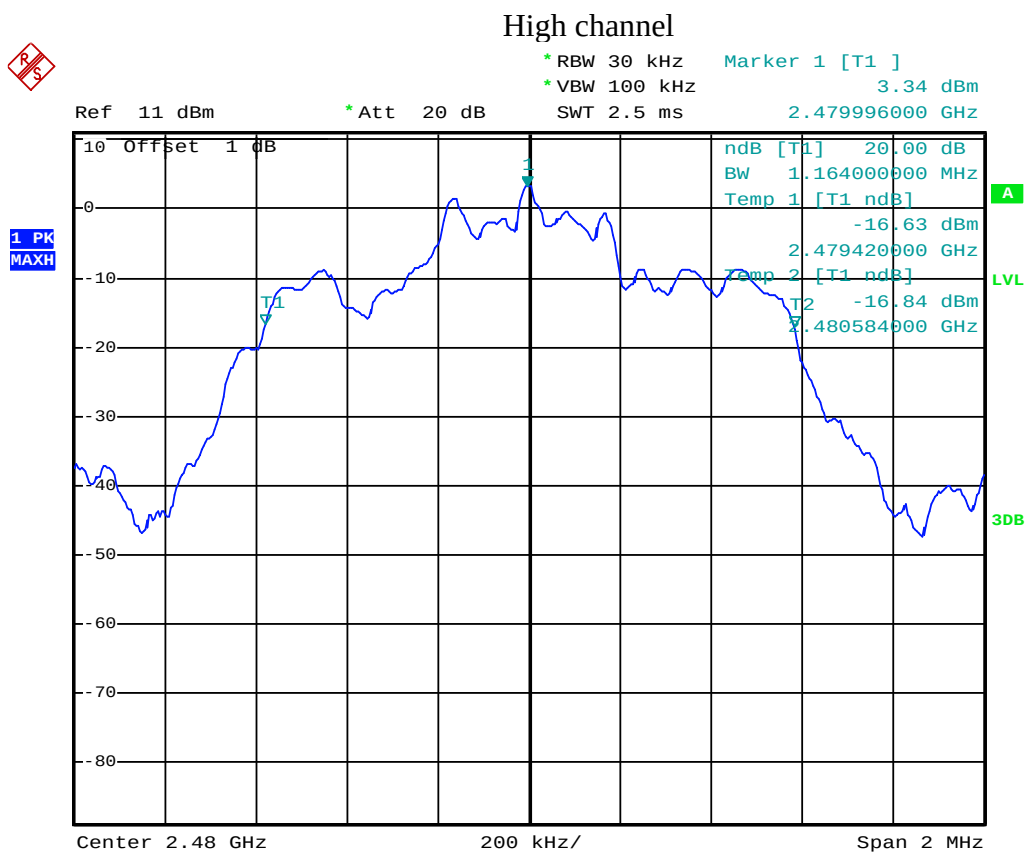




8DPSK Mode

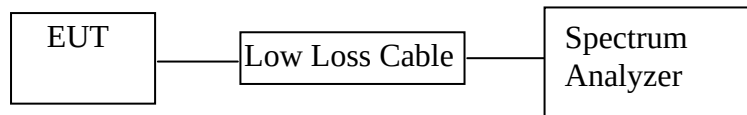






6. CARRIER FREQUENCY SEPARATION TEST

6.1. Block Diagram of Test Setup



(EUT: Nyne Aqua)

6.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

6.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

6.5. Test Procedure

- 6.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 6.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz. Adjust Span to 3 MHz.
- 6.5.3. Set the adjacent channel of the EUT maxhold another trace.
- 6.5.4. Measurement the channel separation

6.6. Test Result

GFSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.000	25KHz or 20dB bandwidth	PASS
	2403			
Middle	2440	1.000	25KHz or 20dB bandwidth	PASS
	2441			
High	2479	1.000	25KHz or 20dB bandwidth	PASS
	2480			

Π/4-DQPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

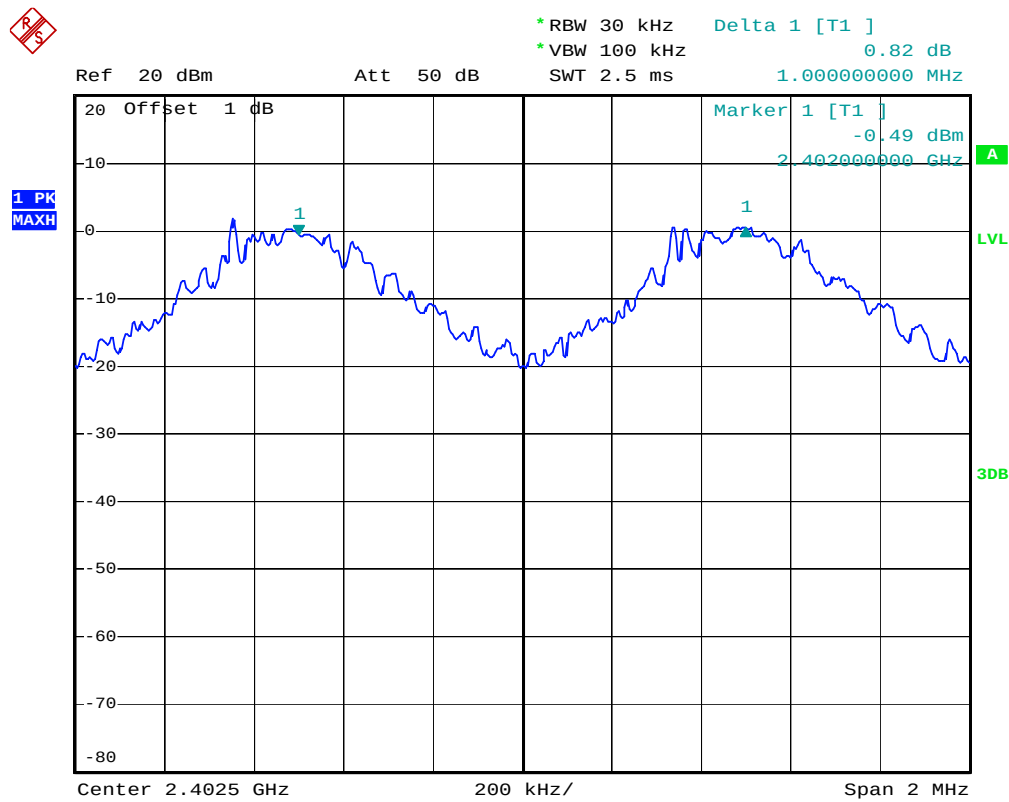
8DPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.000	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.004	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

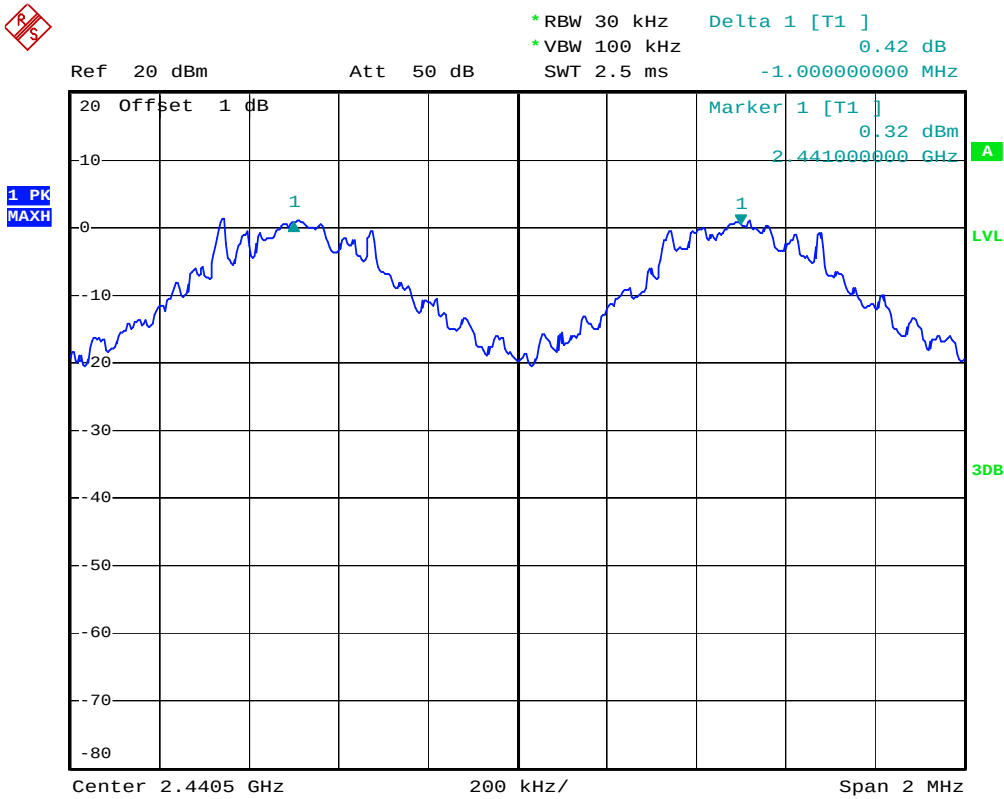
The spectrum analyzer plots are attached as below.

GFSK Mode

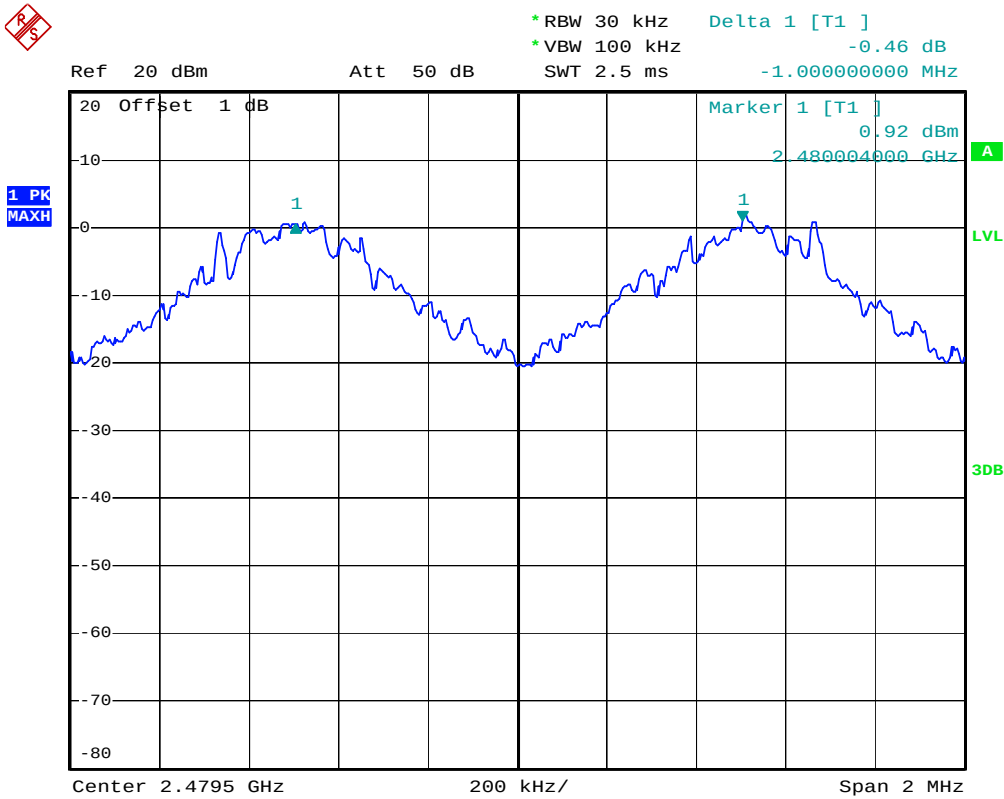
Low channel



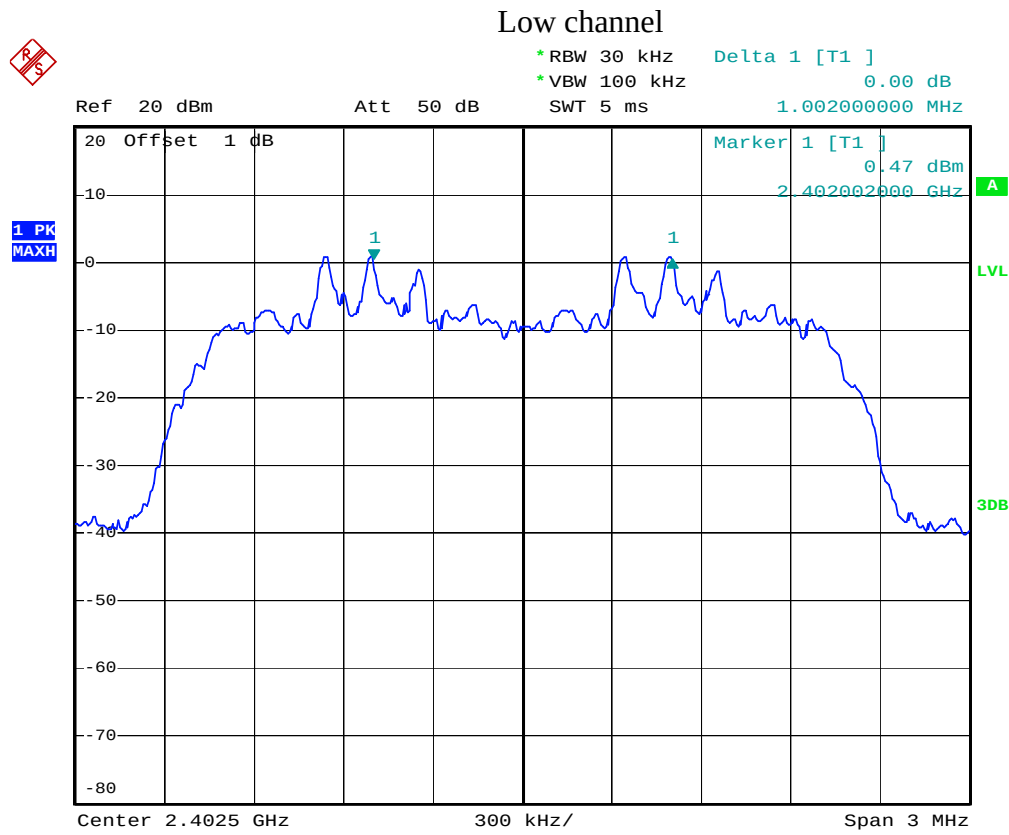
Middle channel

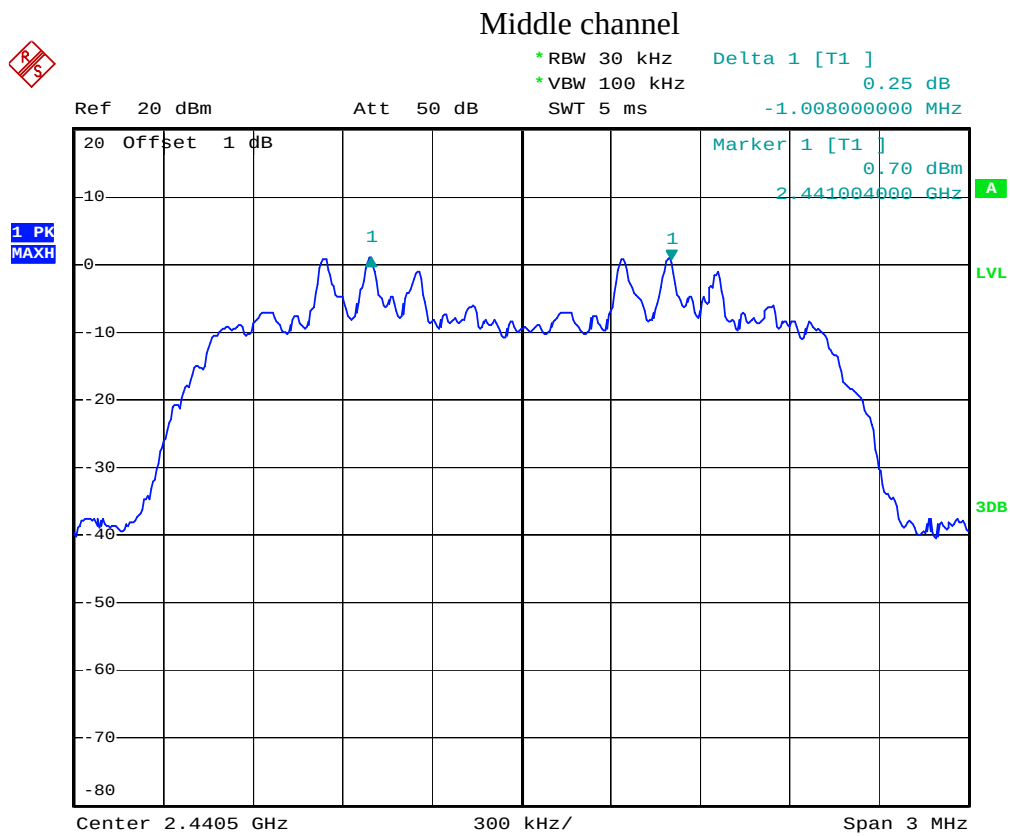


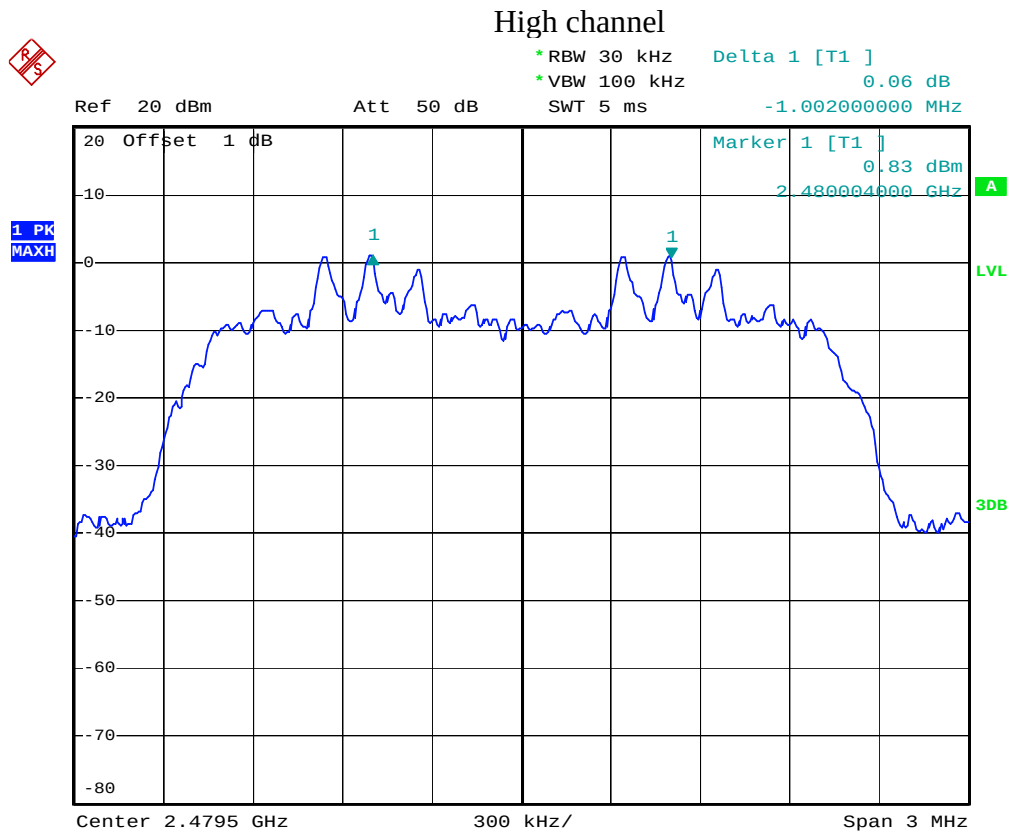
High channel



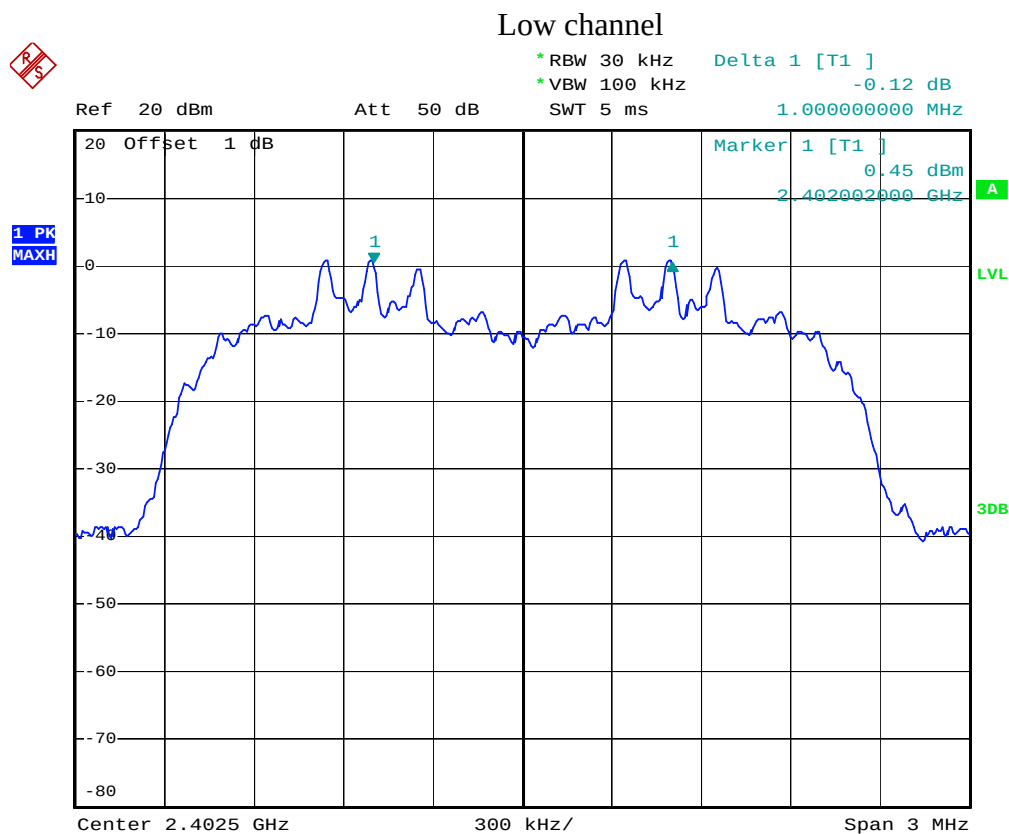
Π/4-DQPSK Mode

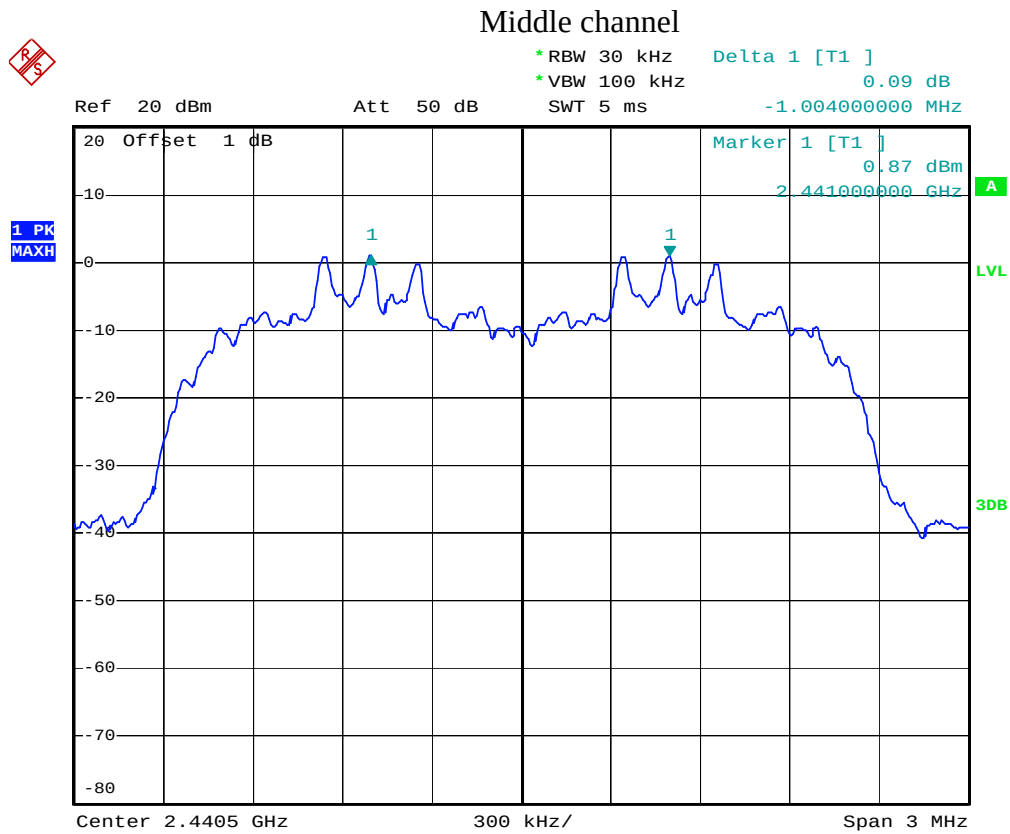


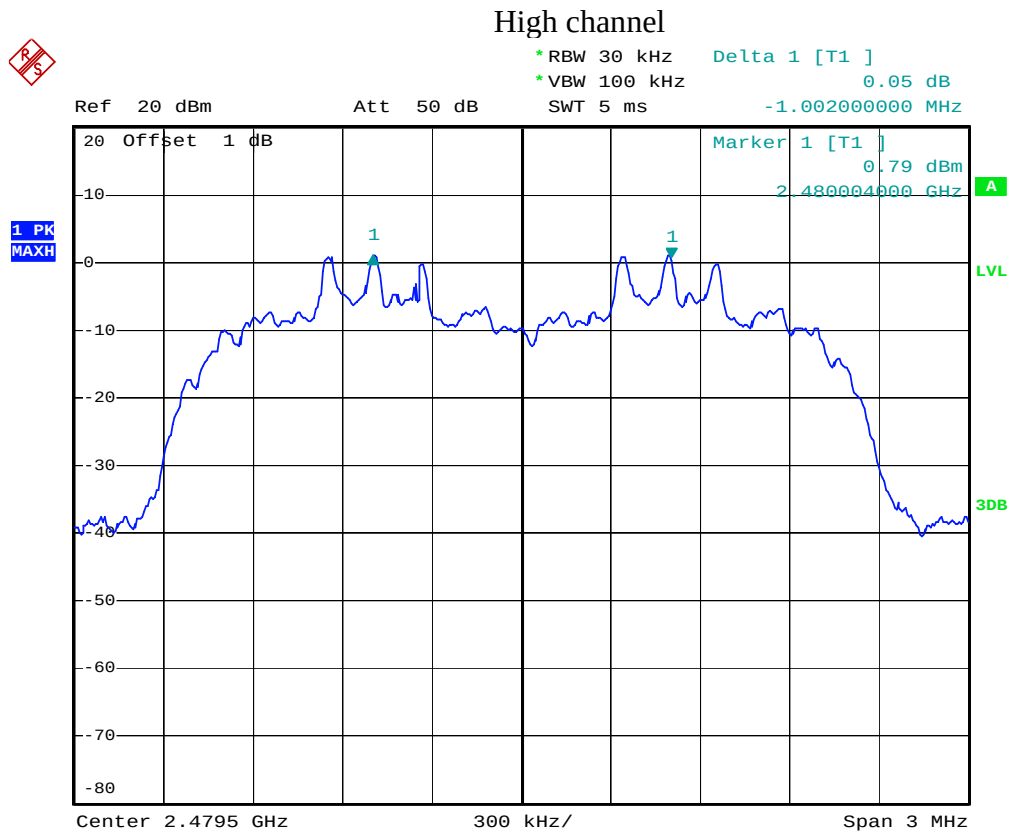




8DPSK Mode

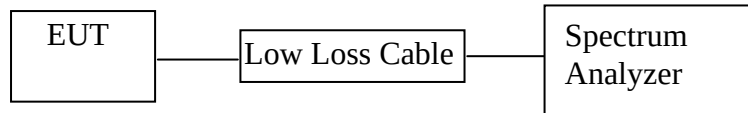






7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Block Diagram of Test Setup



(EUT: Nyne Aqua)

7.2. The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

7.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 7.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX (Hopping on) modes measure it.

7.5. Test Procedure

7.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2. Set the spectrum analyzer as Span=83.5MHz, RBW=100 kHz, VBW=300 kHz.

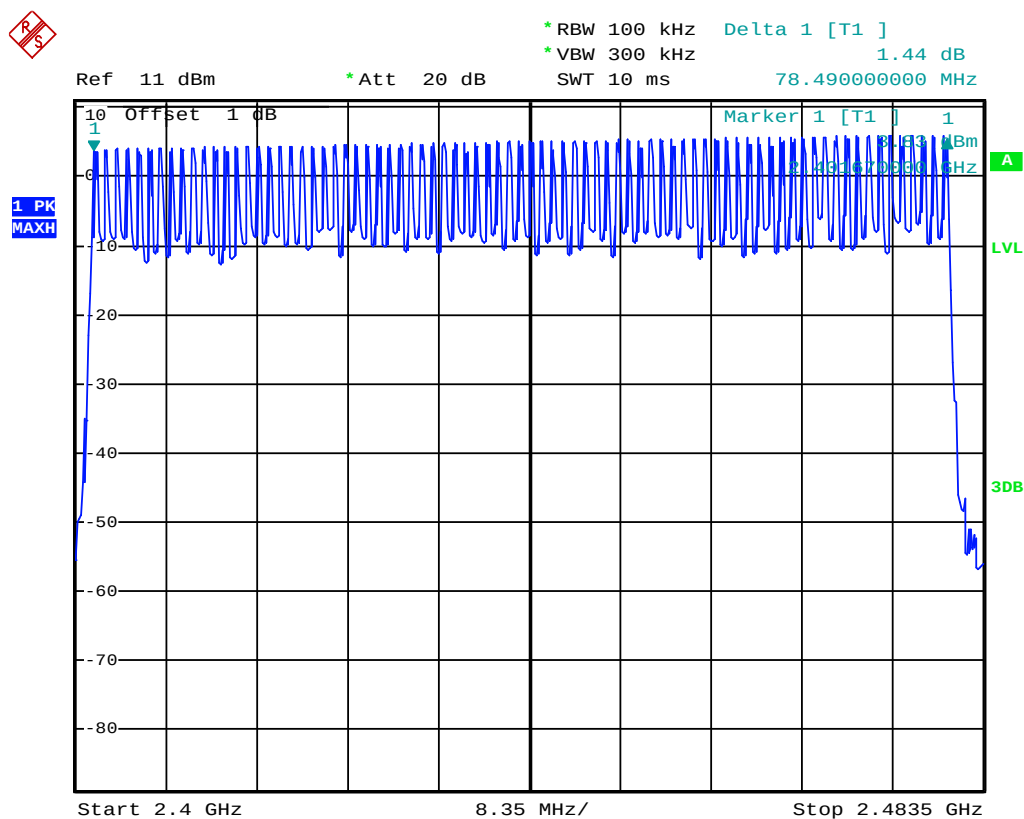
7.5.3. Max hold, view and count how many channel in the band.

7.6. Test Result

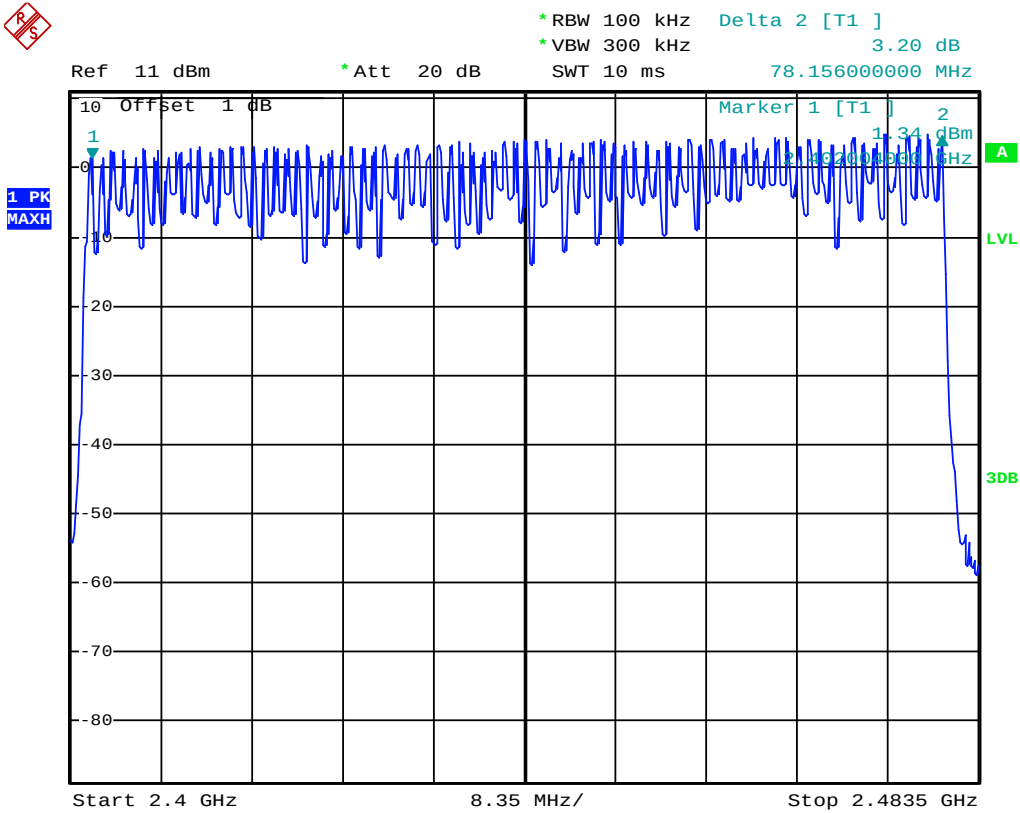
Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	≥ 15

The spectrum analyzer plots are attached as below.

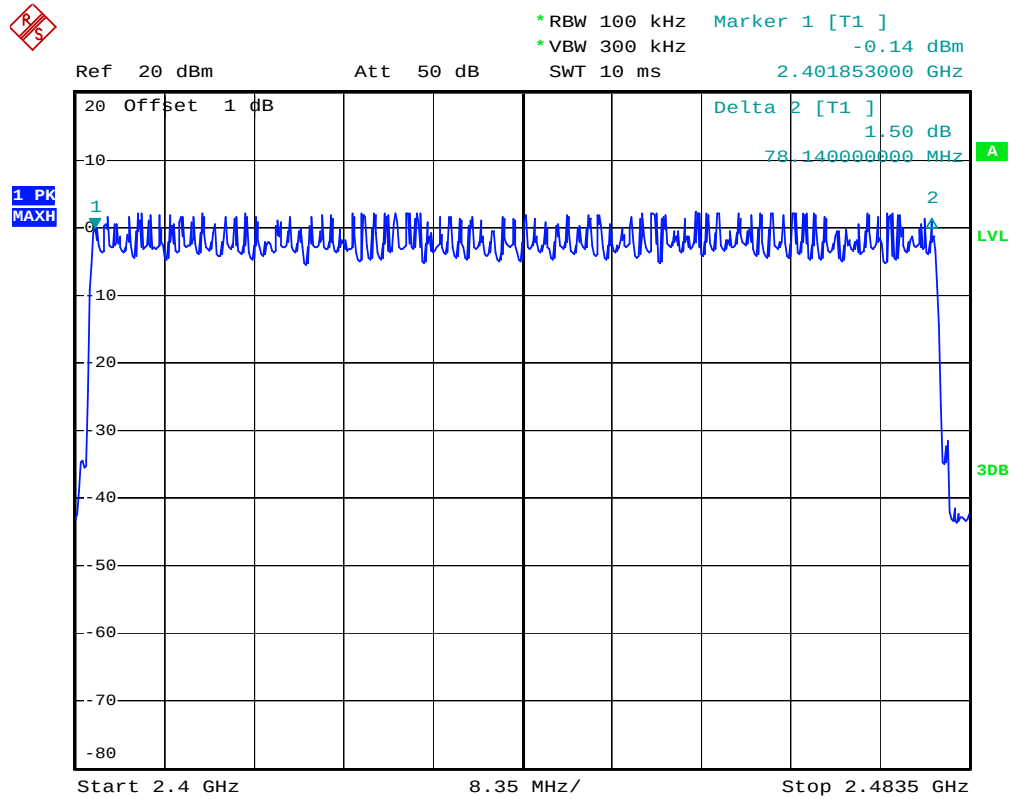
Number of hopping channels(GFSK)



Number of hopping channels($\Pi/4$ -DQPSK)

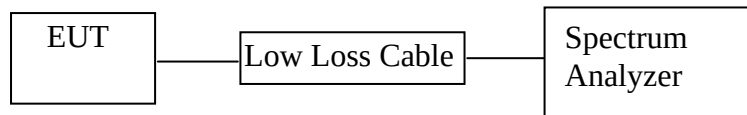


Number of hopping channels(8DPSK)



8. DWELL TIME TEST

8.1. Block Diagram of Test Setup



(EUT: Nyne Aqua)

8.2. The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

8.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4. Operating Condition of EUT

8.4.1. Setup the EUT and simulator as shown as Section 8.1.

8.4.2. Turn on the power of all equipment.

8.4.3. Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

8.5. Test Procedure

8.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2. Set center frequency of spectrum analyzer = operating frequency.

8.5.3. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Span=0Hz, Adjust Sweep=1s. Get the burst (in 1 sec.).

8.5.4. Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span=0Hz, Adjust Sweep=2ms. Get the pulse time.

8.5.5. Repeat above procedures until all frequency measured were complete.

8.6. Test Result

GFSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.415	132.80	400
	2441	0.410	131.20	400
	2480	0.415	132.80	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
DH3	2402	1.680	268.80	400
	2441	1.695	271.20	400
	2480	1.680	268.80	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
DH5	2402	2.960	315.73	400
	2441	2.960	315.73	400
	2480	2.960	315.73	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

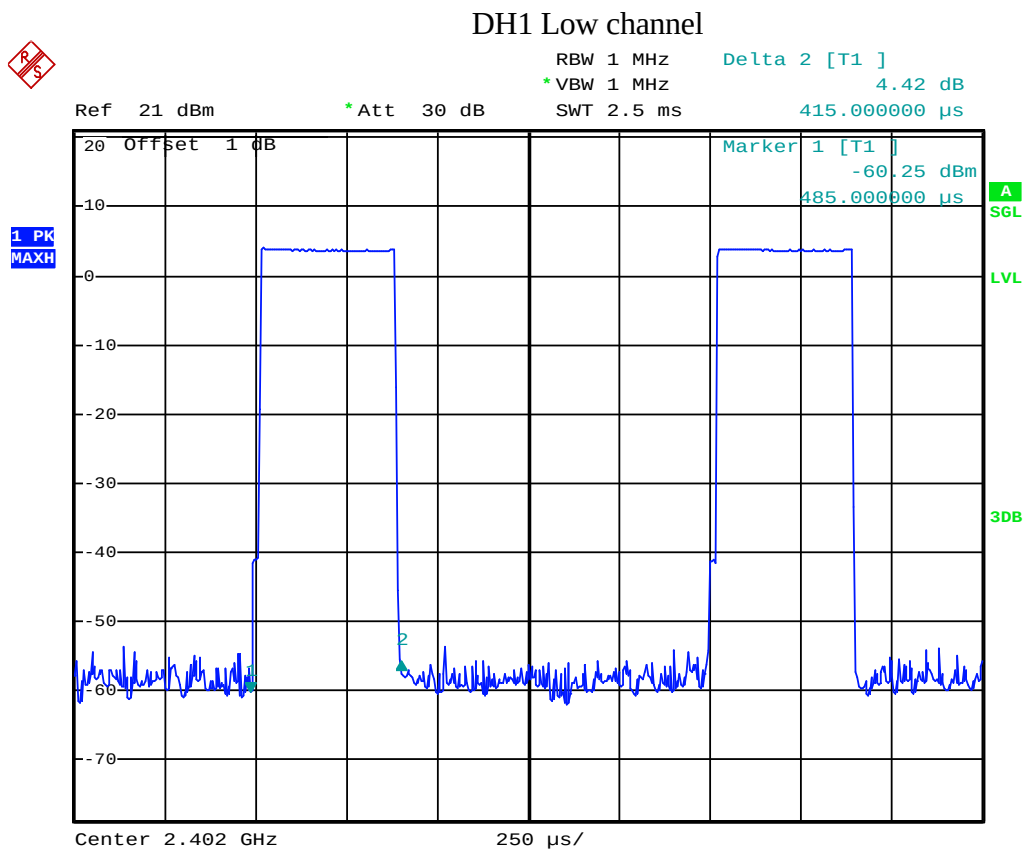
Π/4-DQPSK

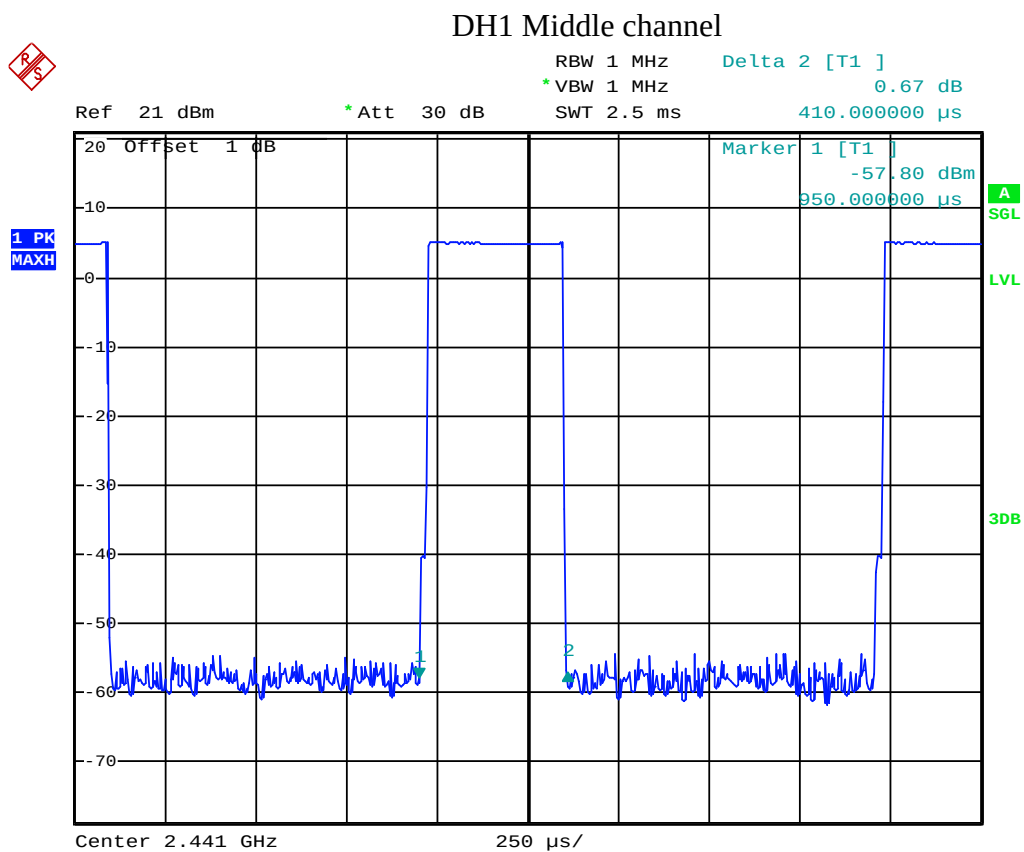
Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.415	132.80	400
	2441	0.420	134.40	400
	2480	0.420	134.40	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
DH3	2402	1.695	271.20	400
	2441	1.695	271.20	400
	2480	1.695	271.20	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
DH5	2402	2.960	315.73	400
	2441	2.960	315.73	400
	2480	2.960	315.73	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

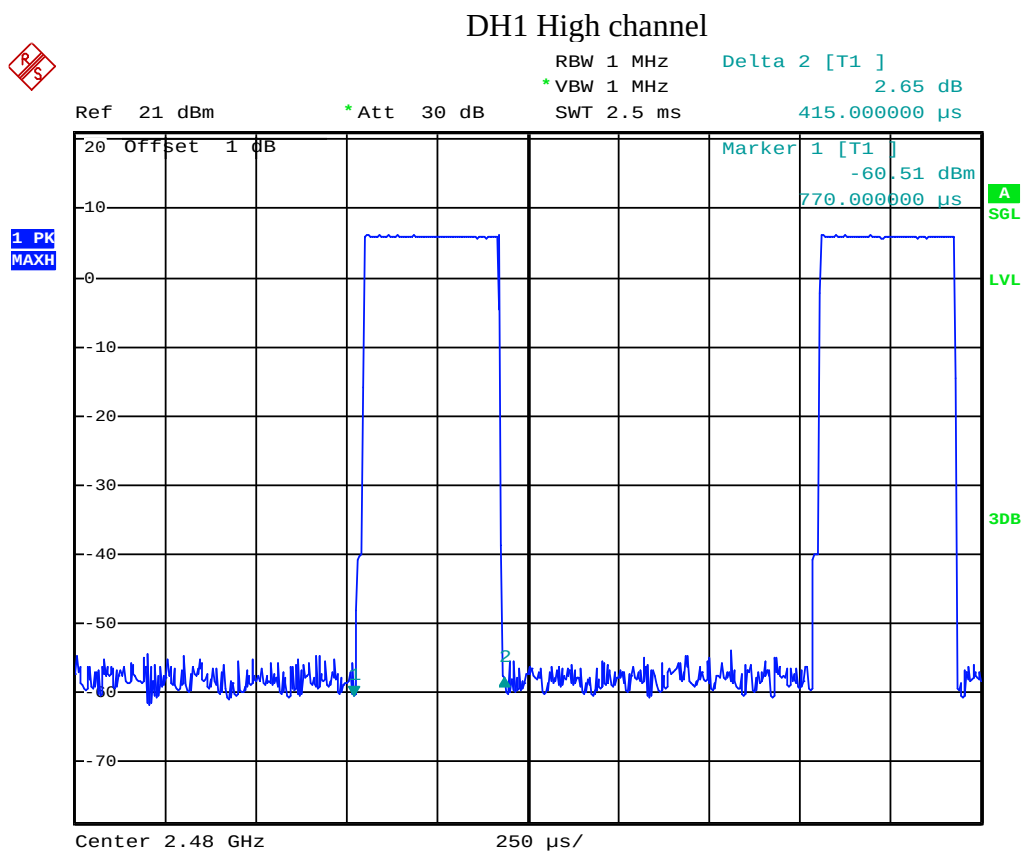
8DPSK Mode

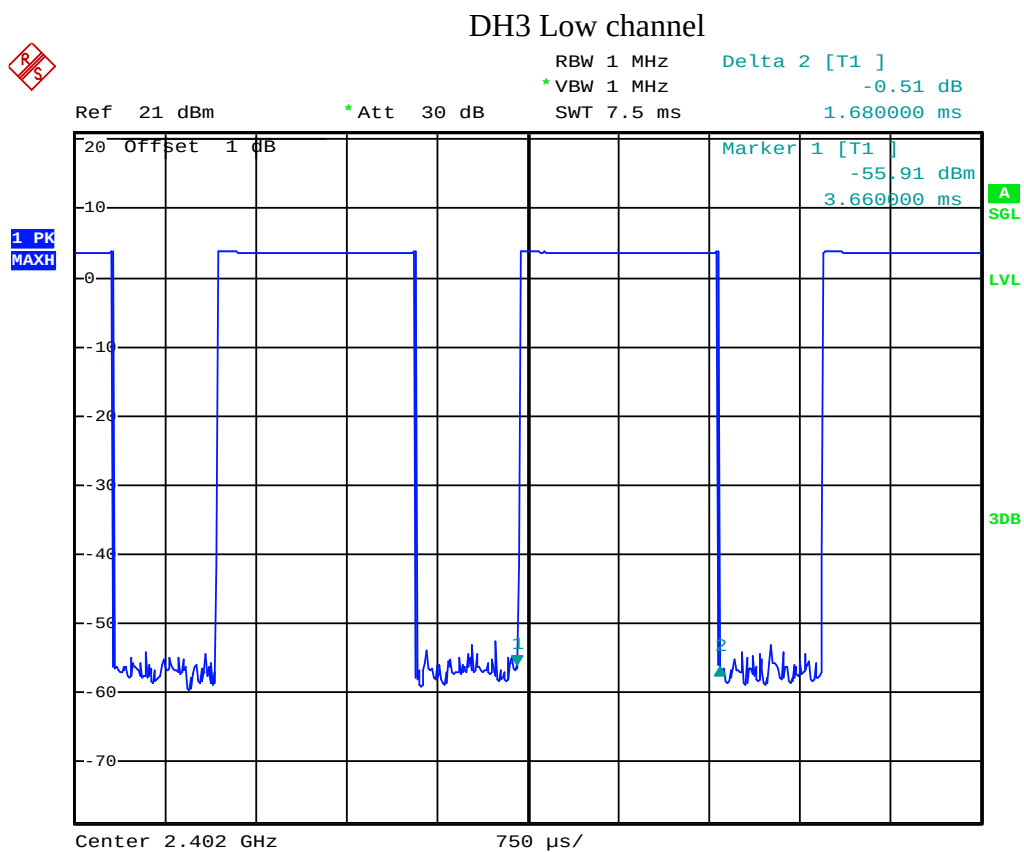
Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.420	134.40	400
	2441	0.420	134.40	400
	2480	0.420	134.40	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
DH3	2402	1.680	268.80	400
	2441	1.680	268.80	400
	2480	1.695	271.20	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
DH5	2402	2.960	315.73	400
	2441	2.960	315.73	400
	2480	2.960	315.73	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

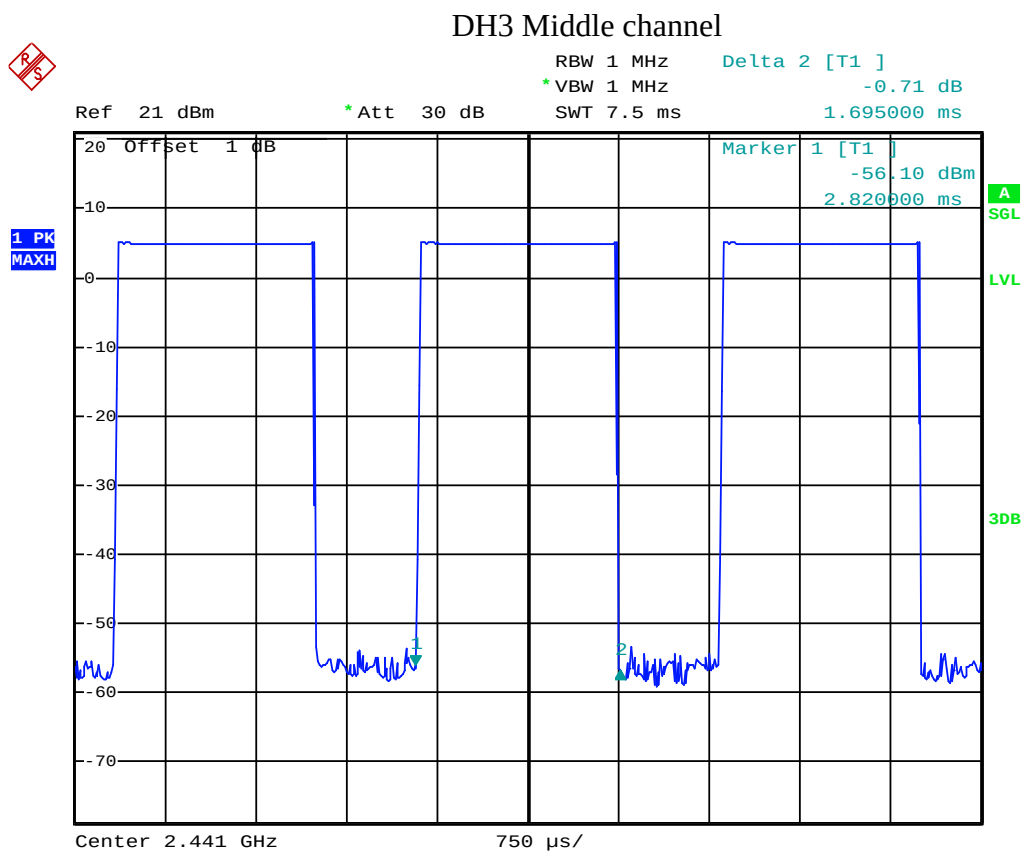
The spectrum analyzer plots are attached as below.

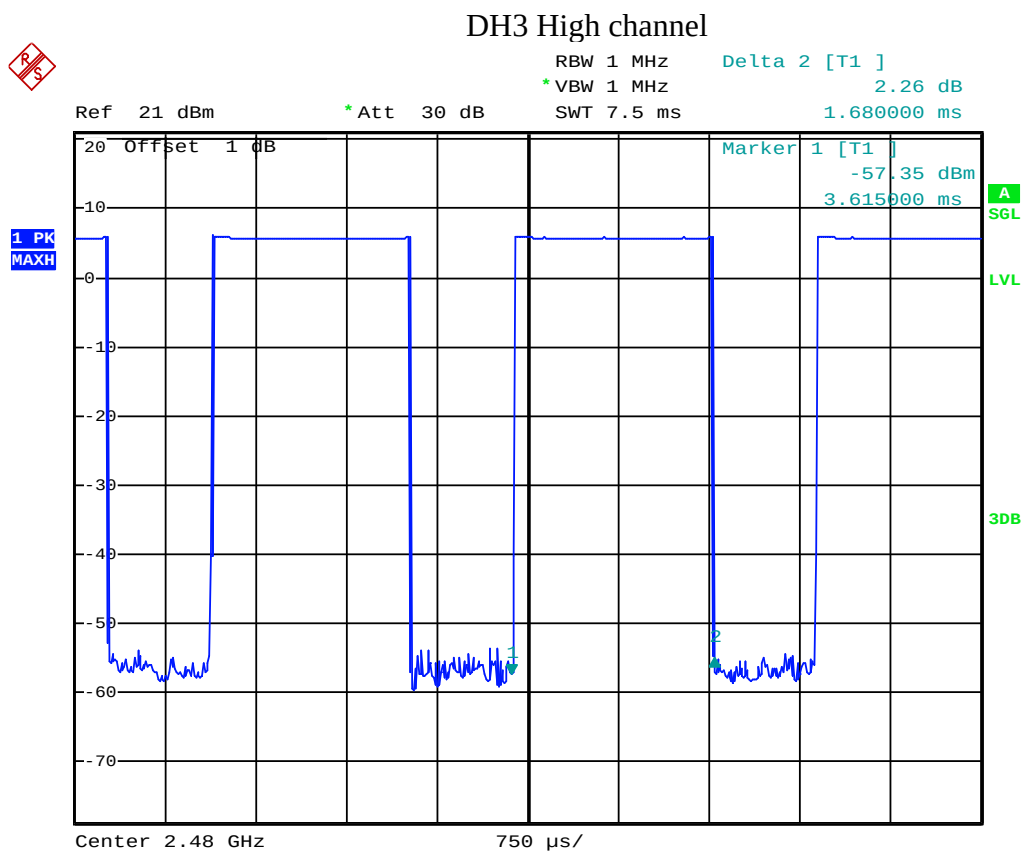


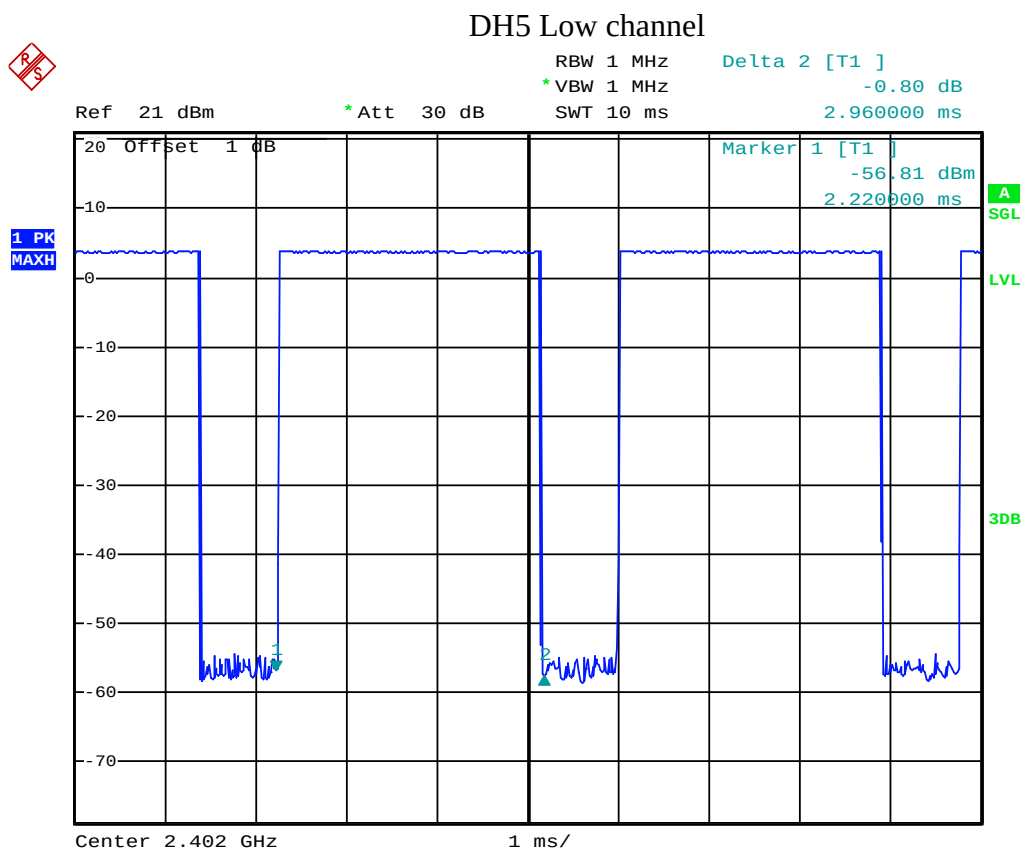


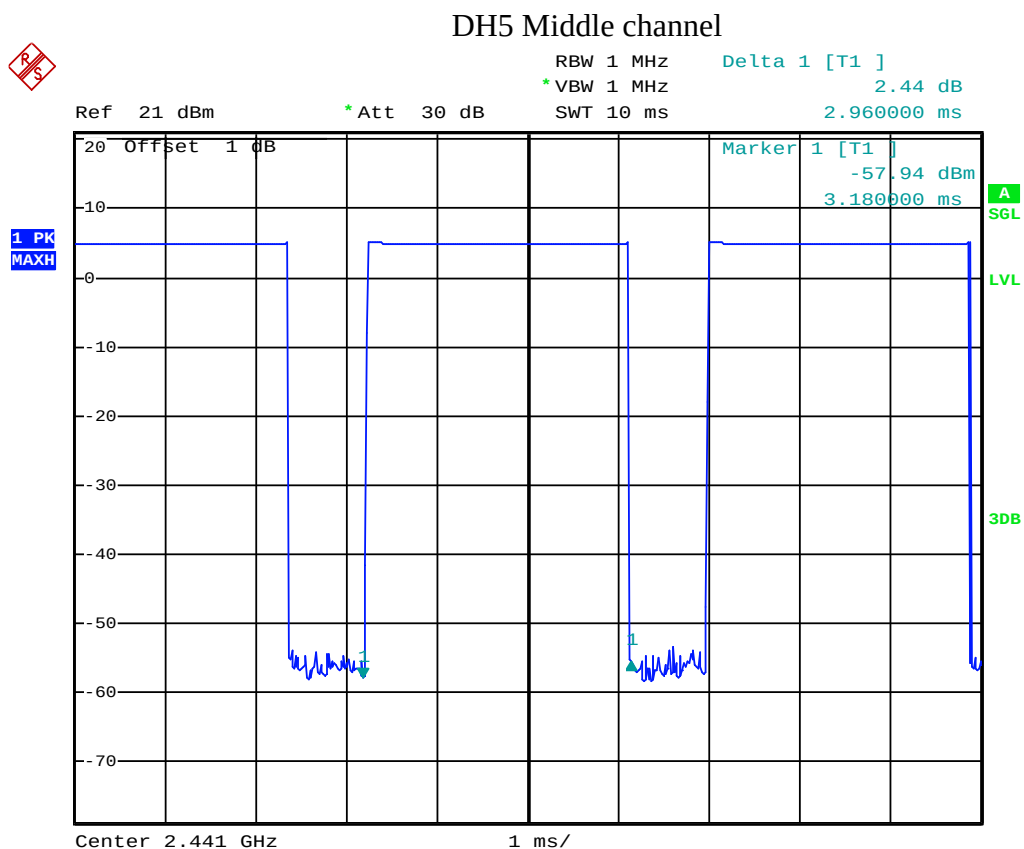


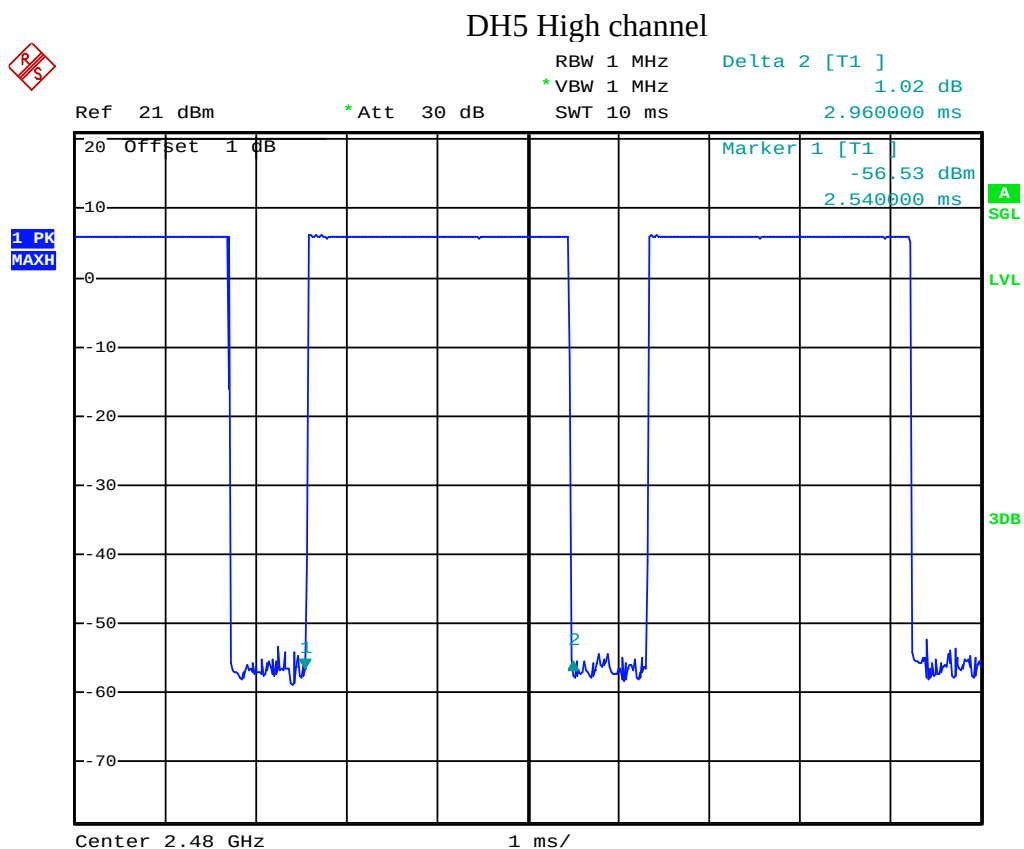


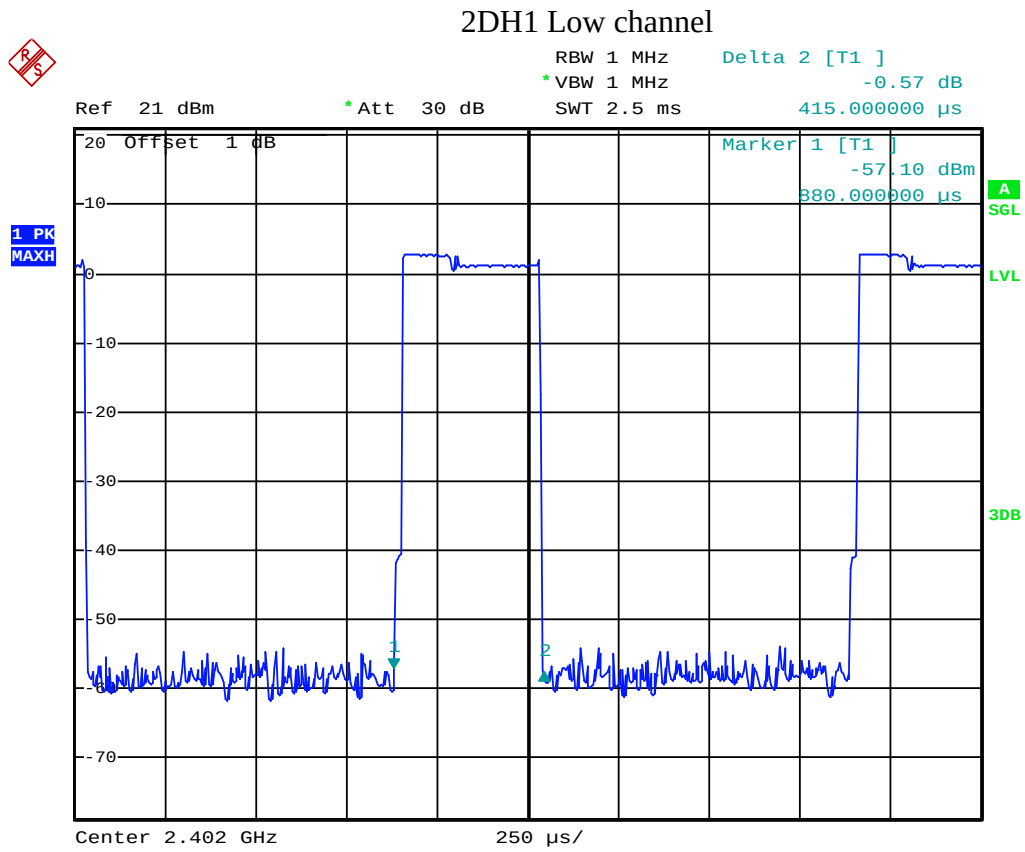


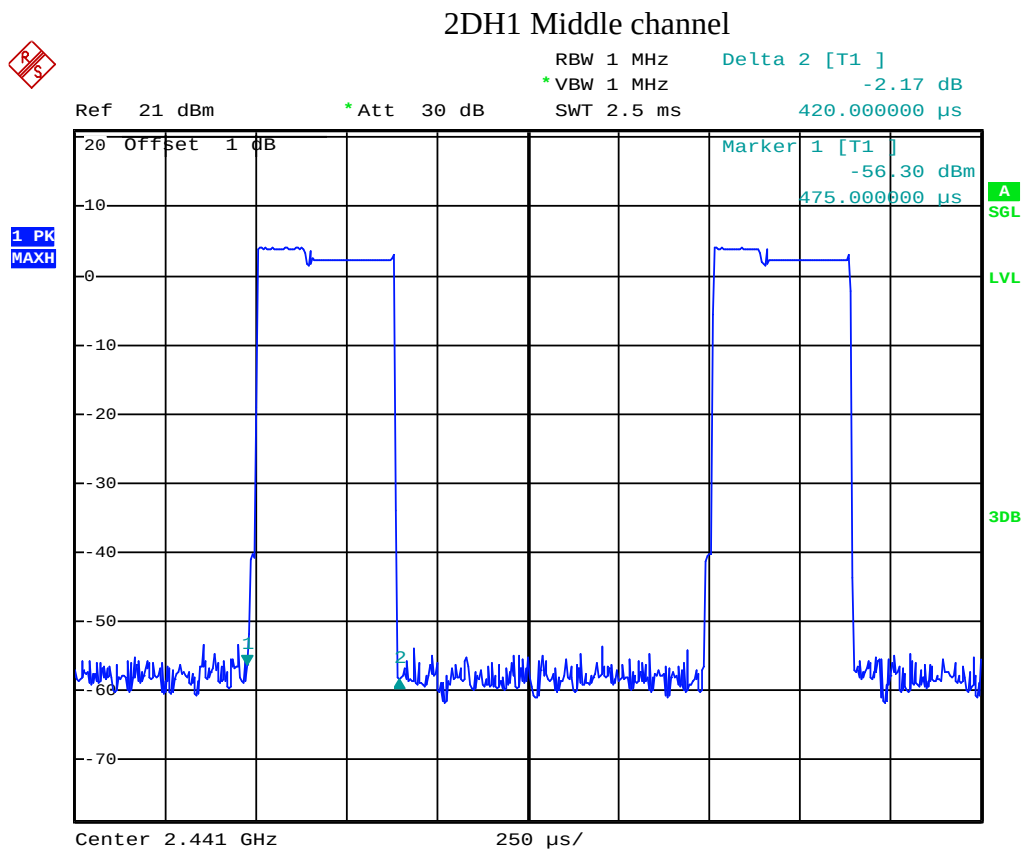


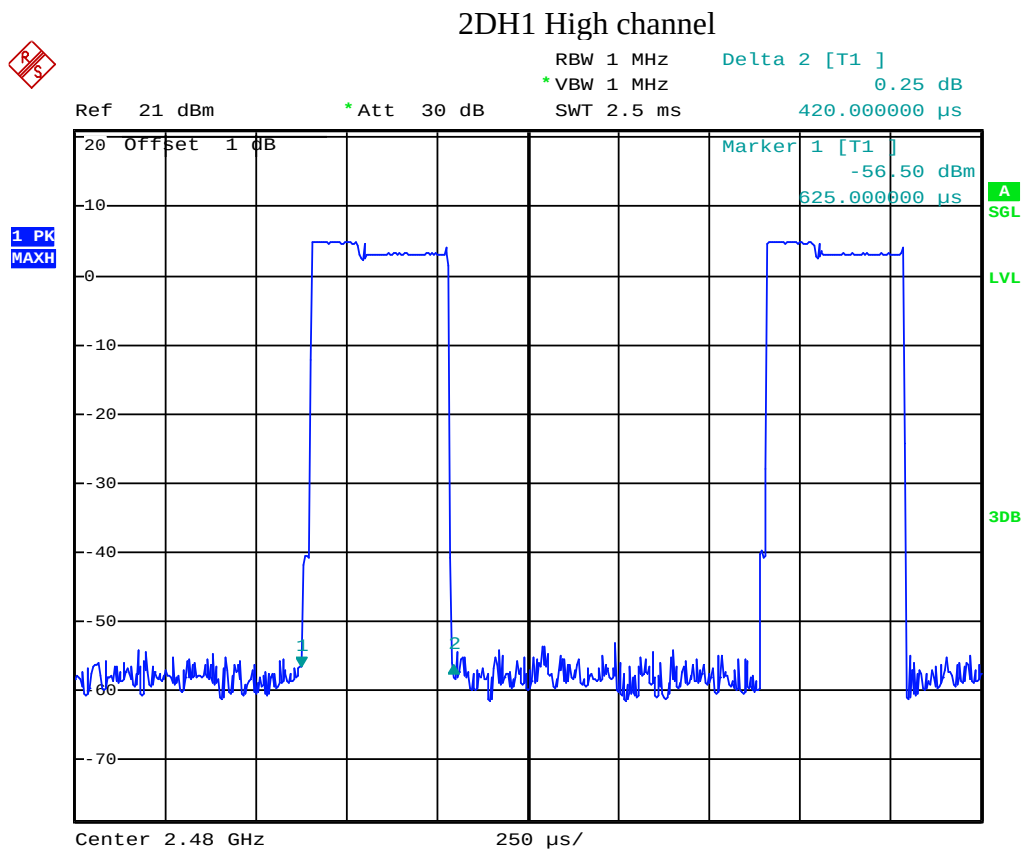


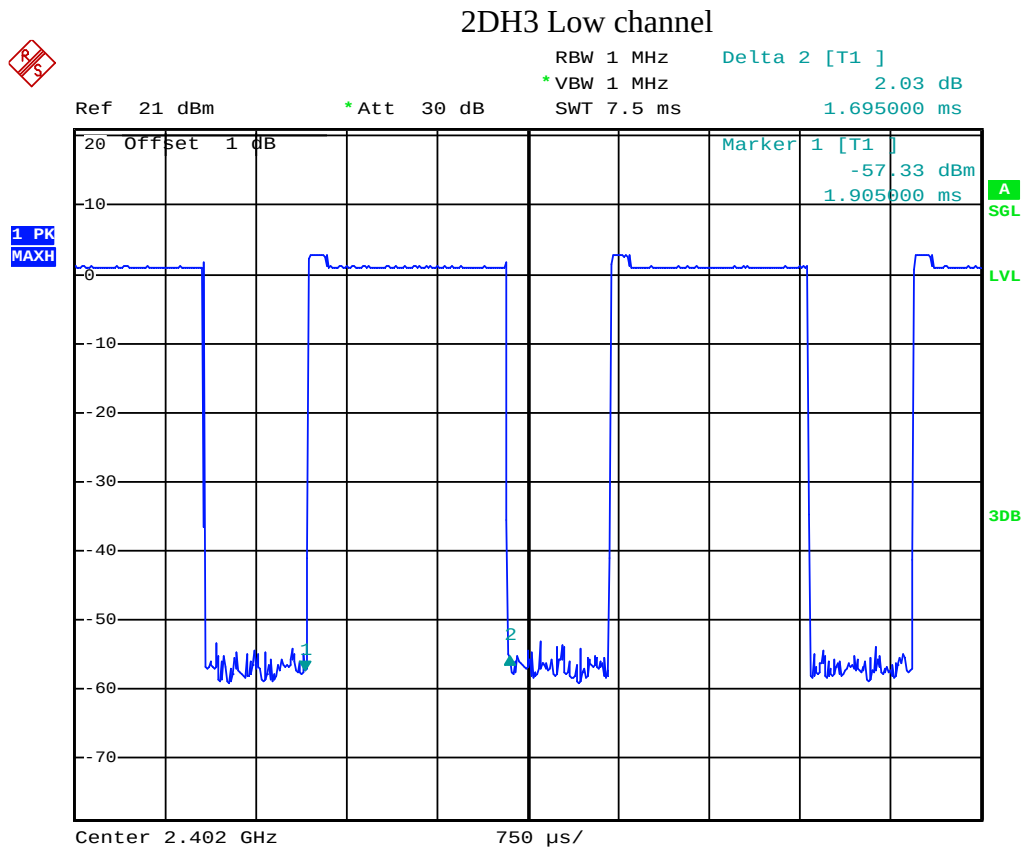


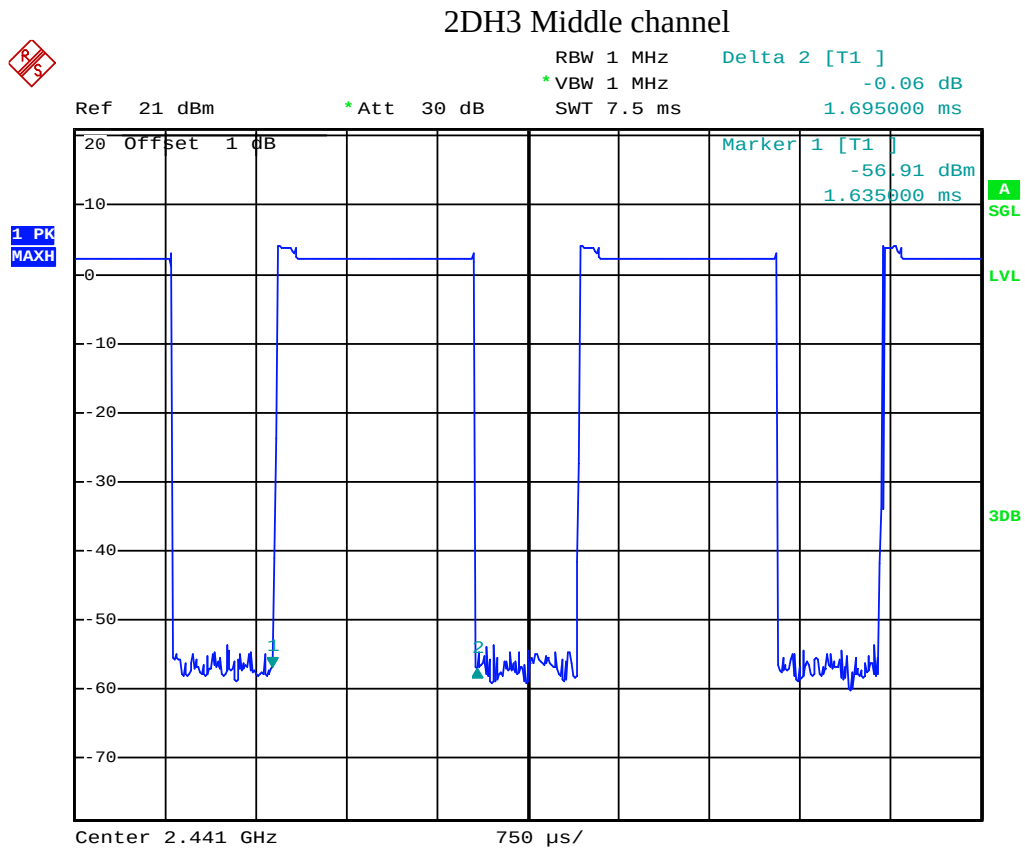


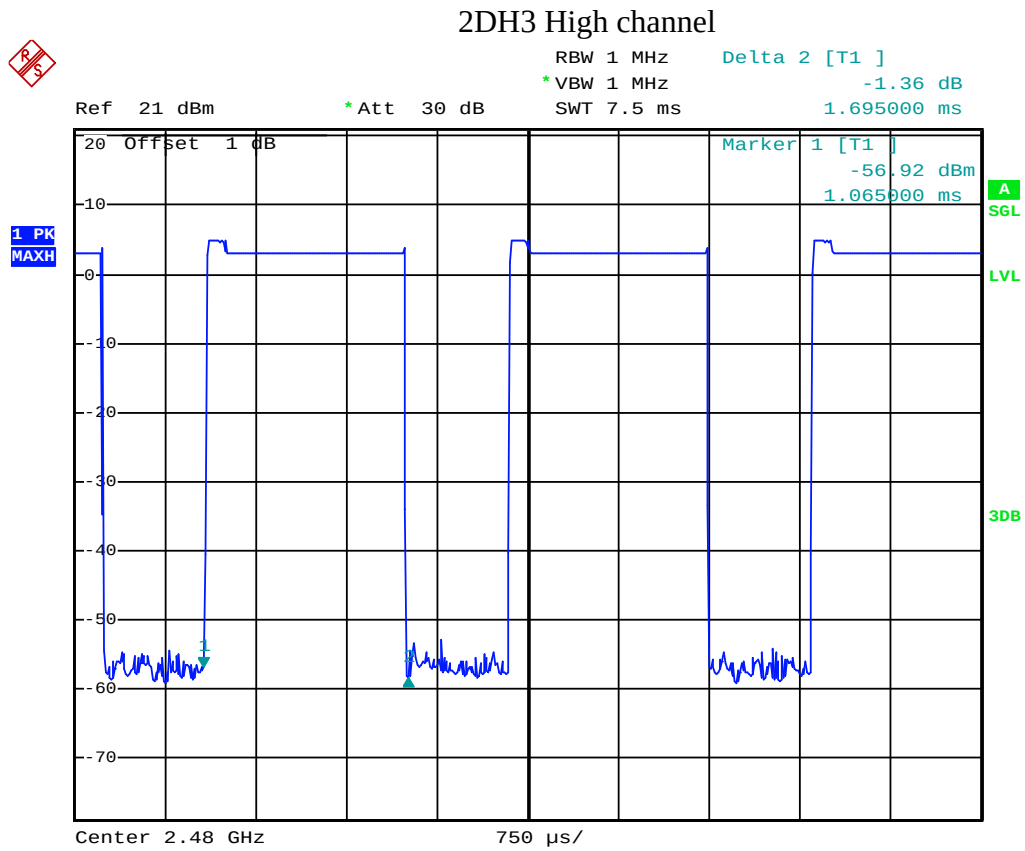


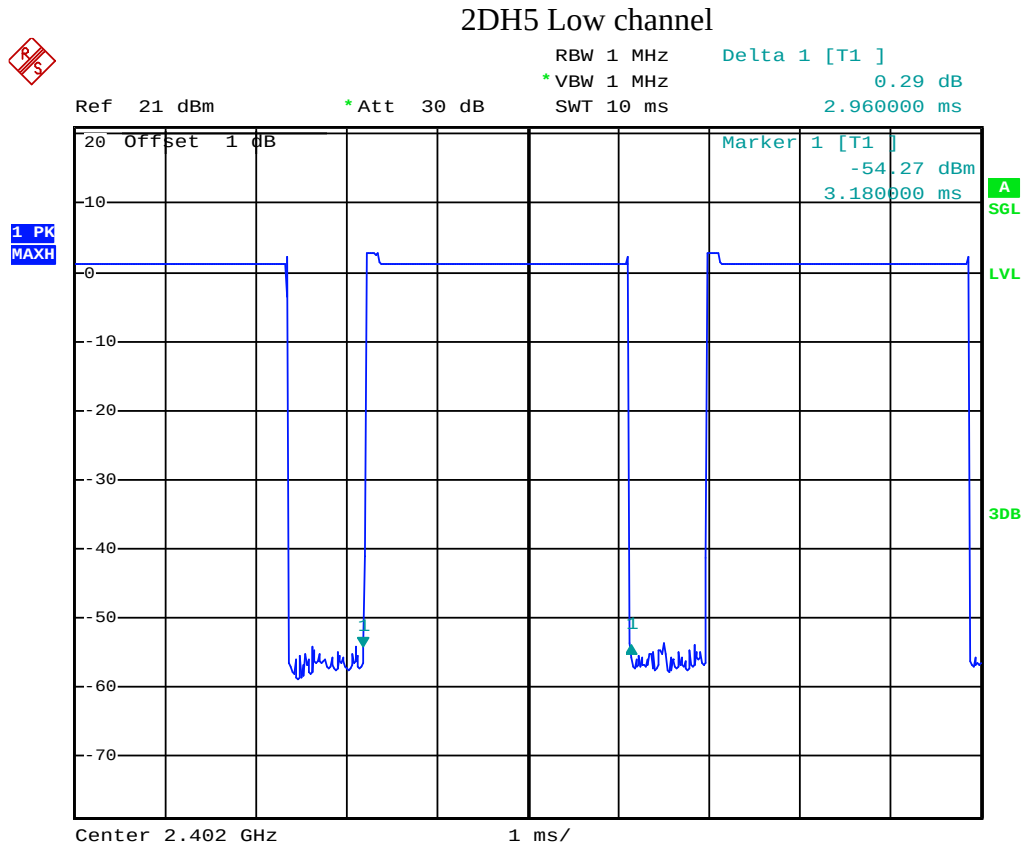


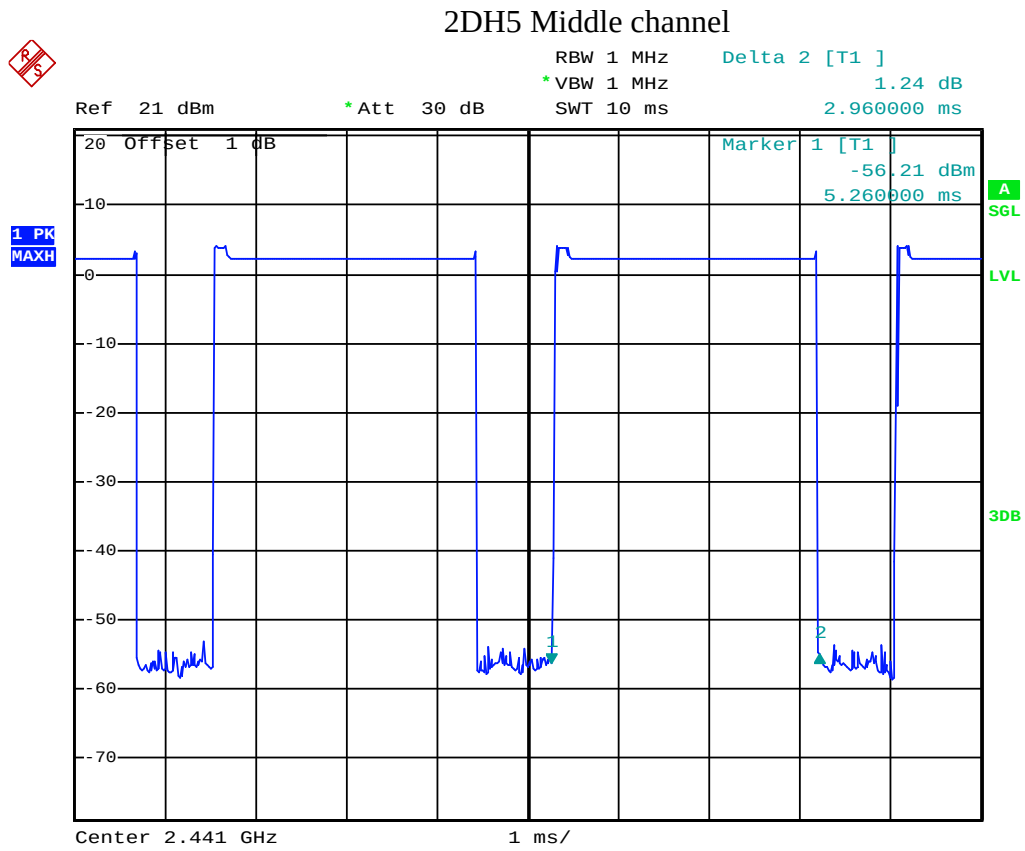


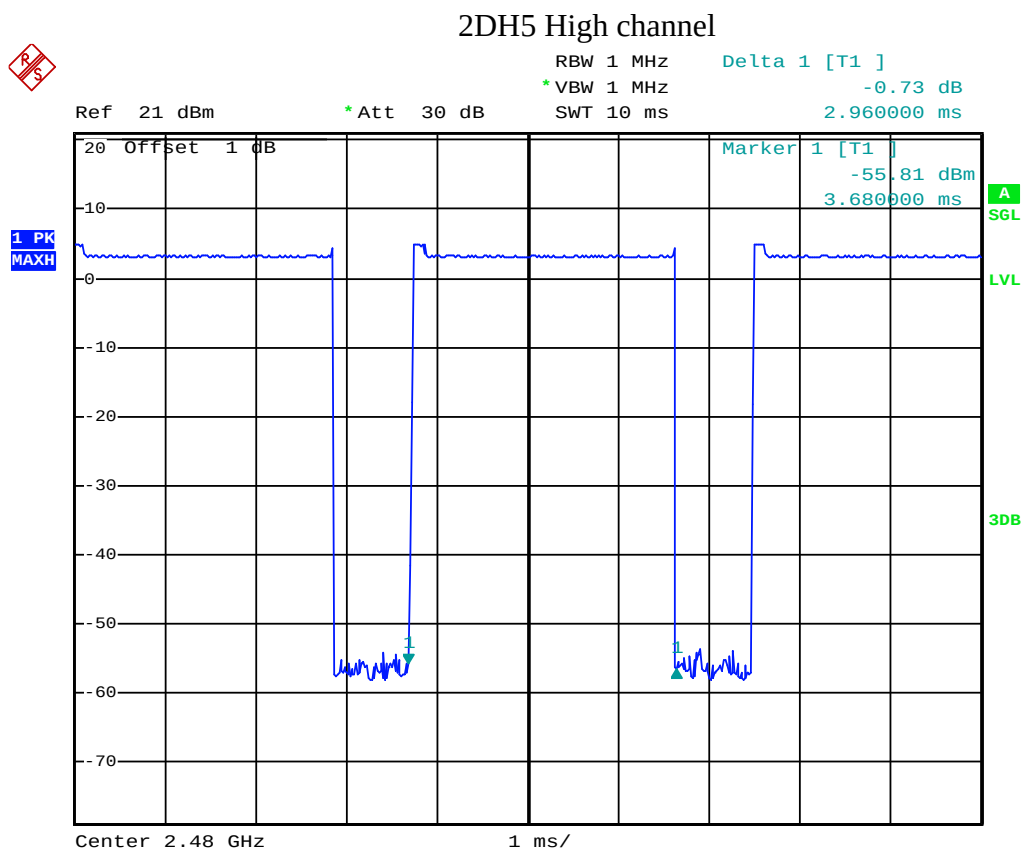


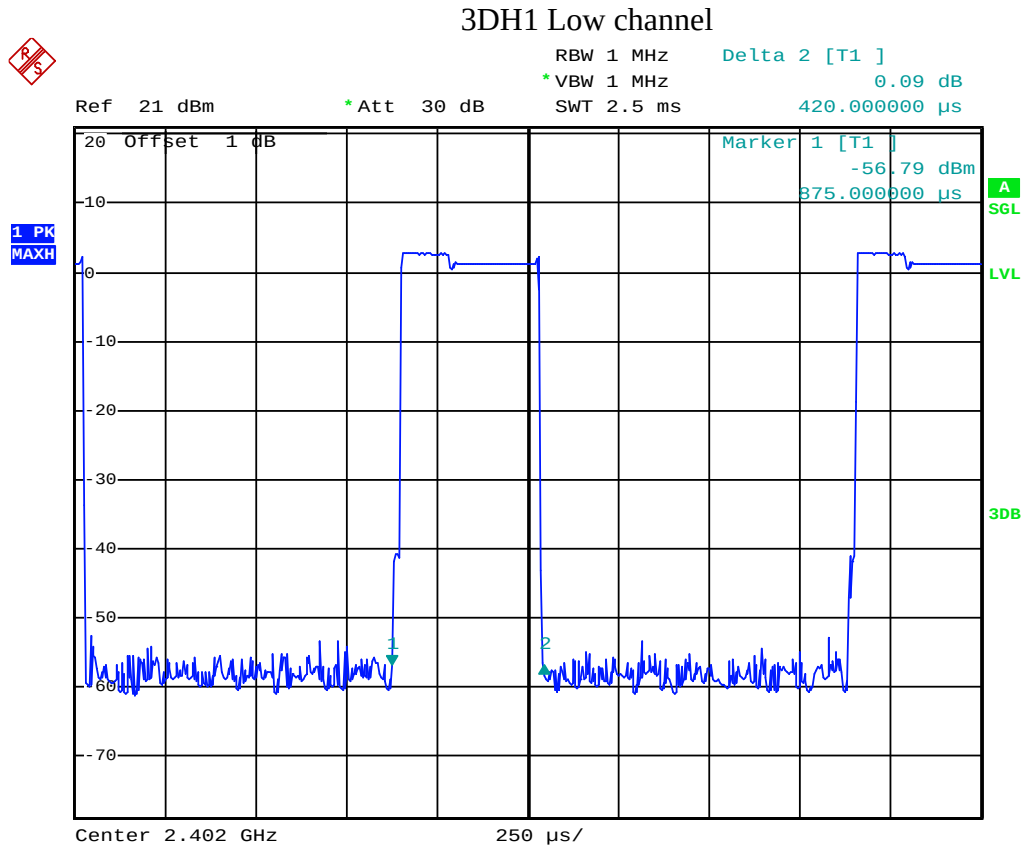


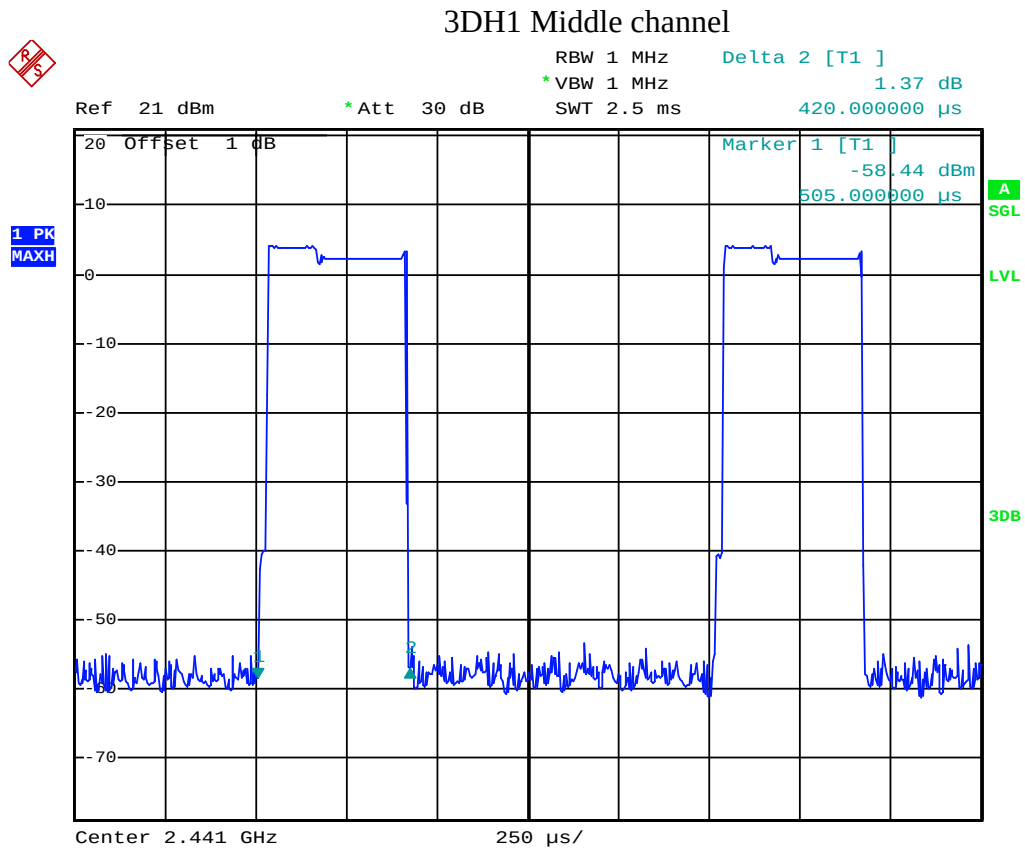


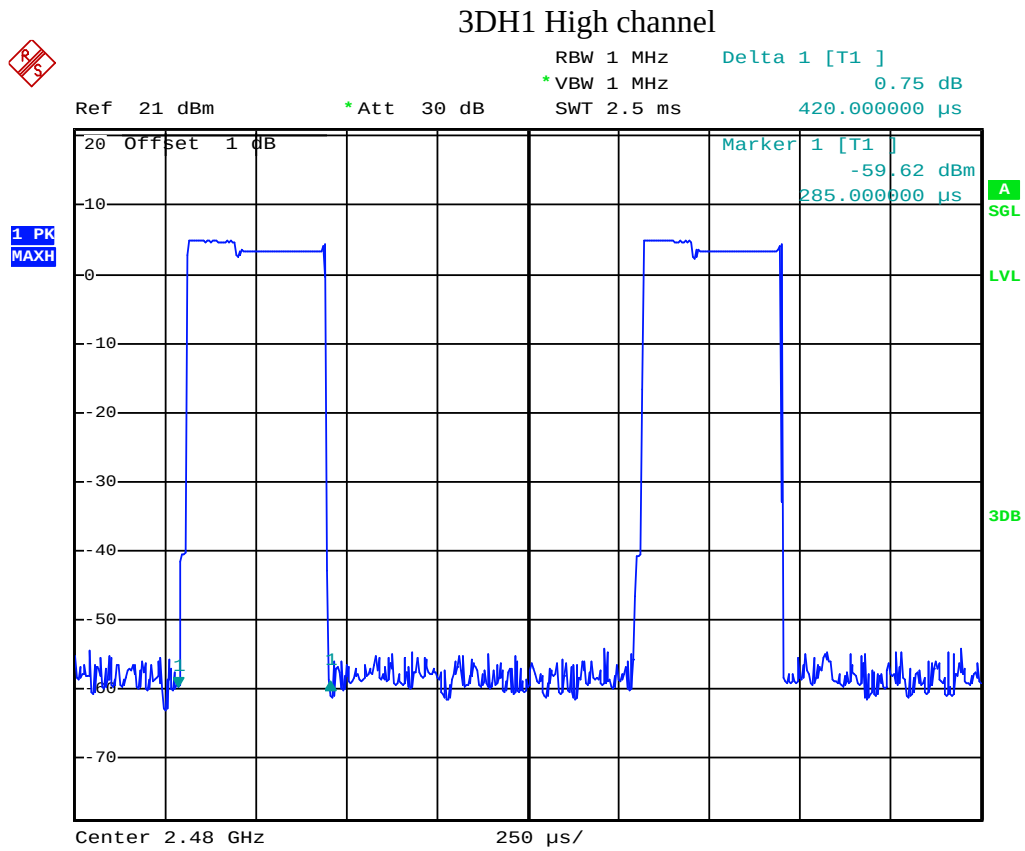


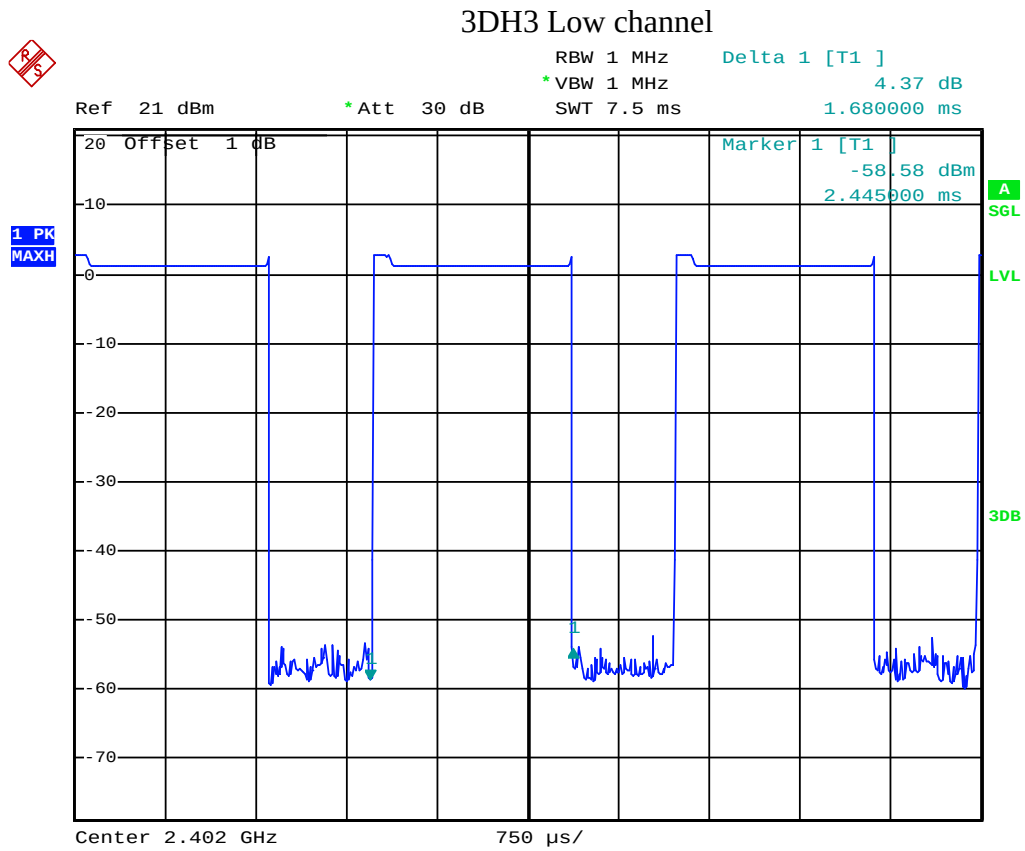


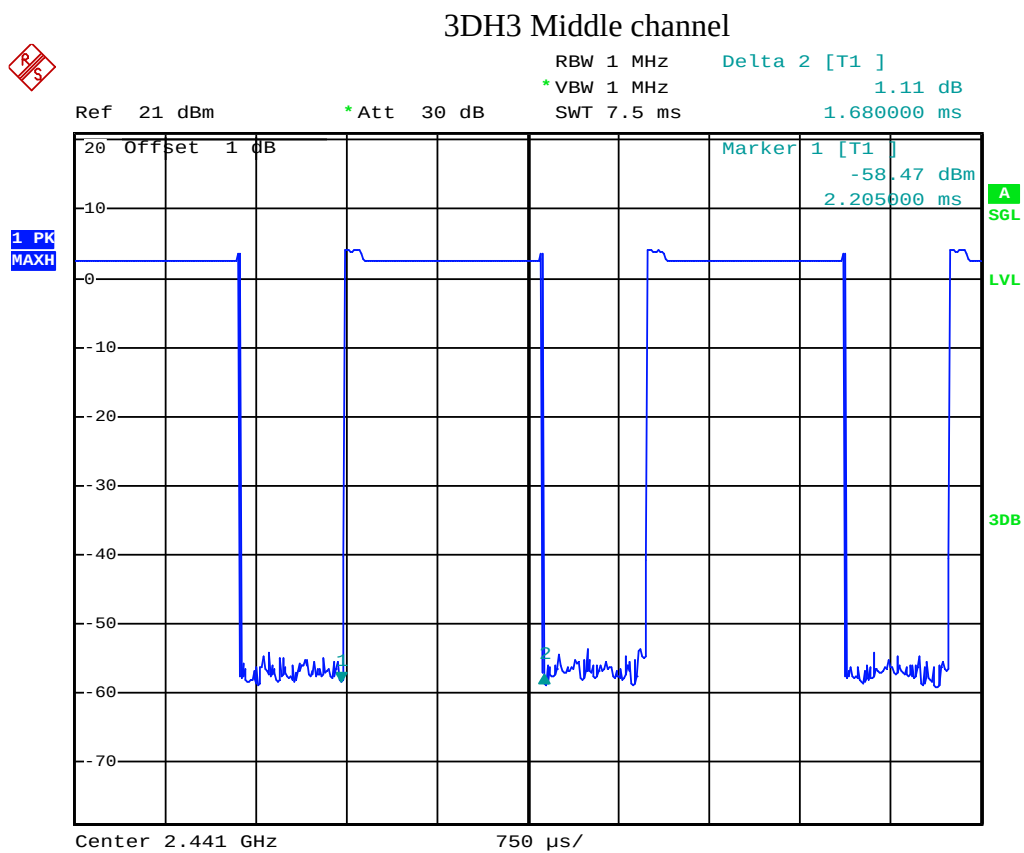


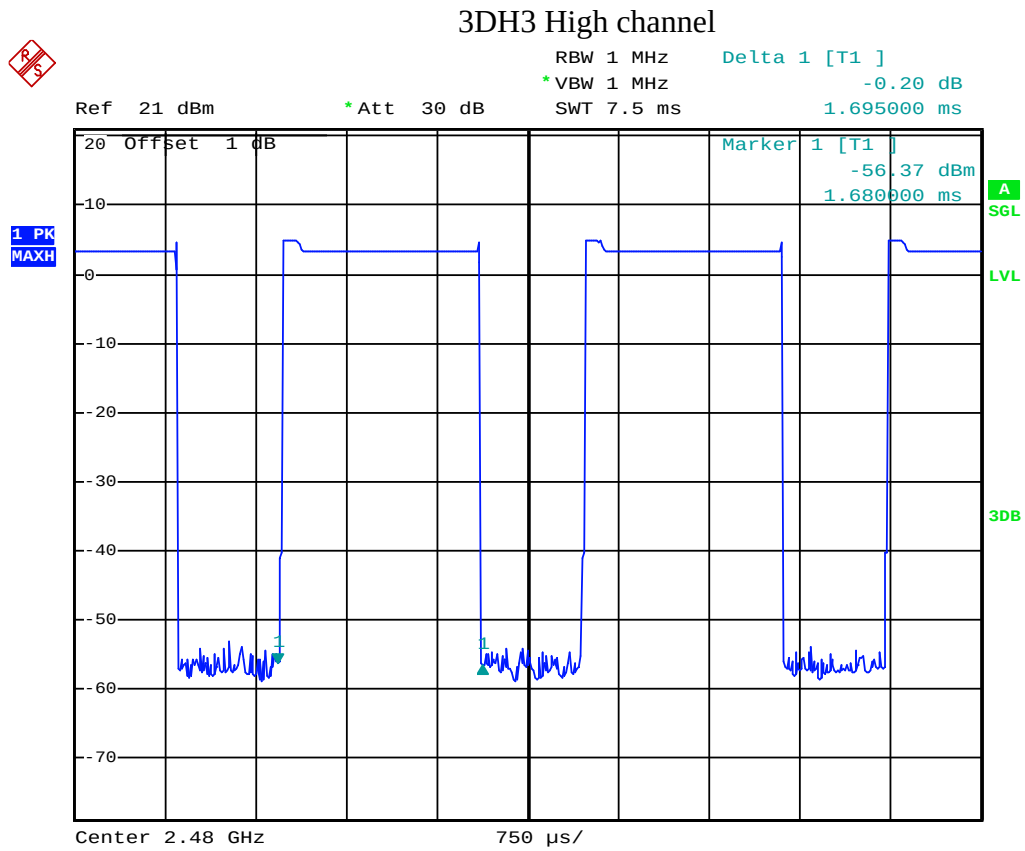


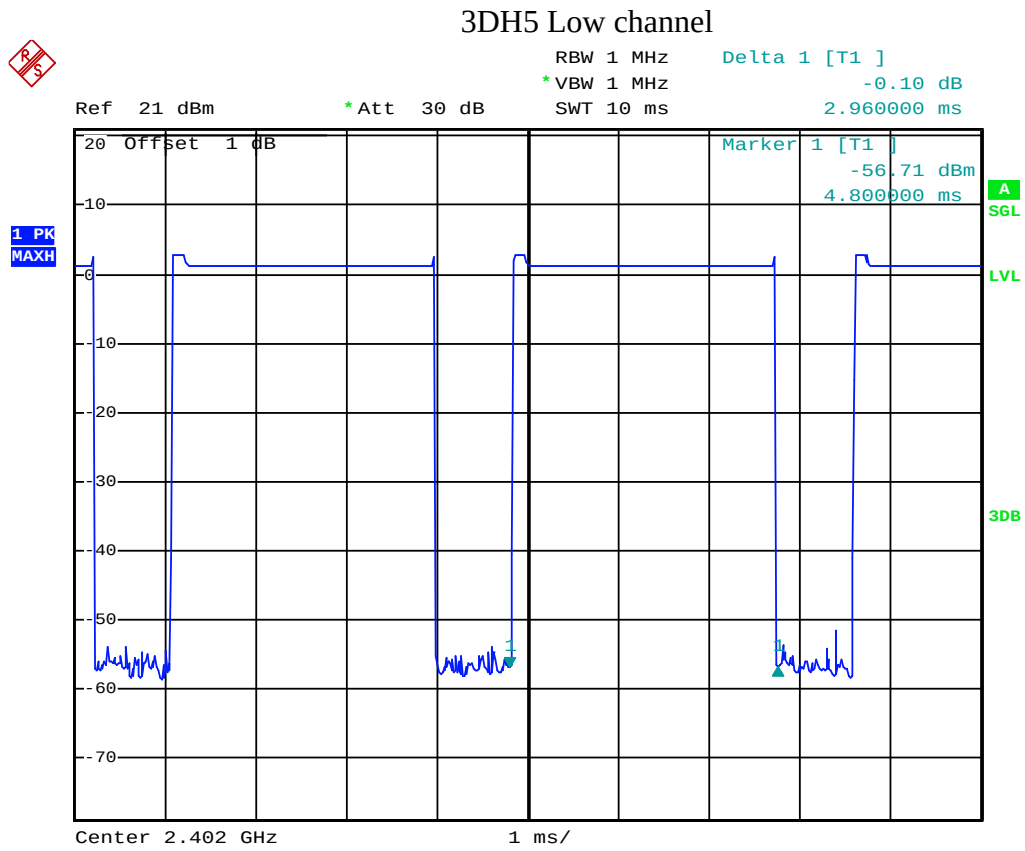


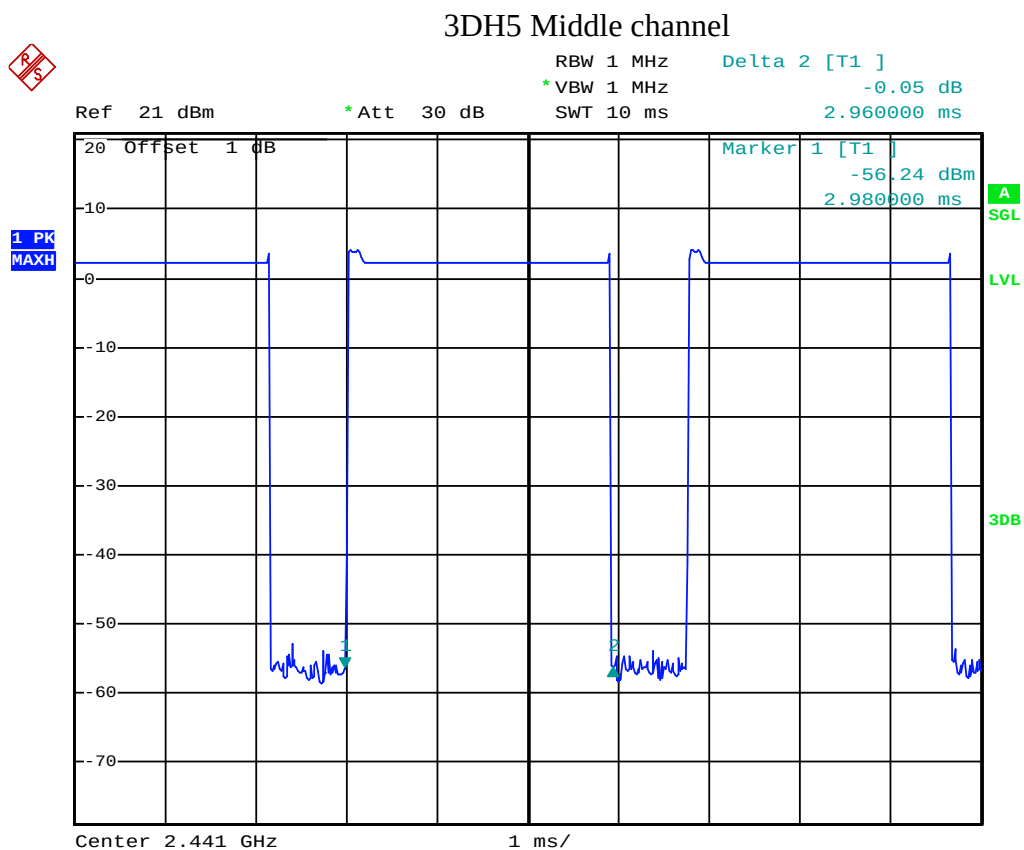


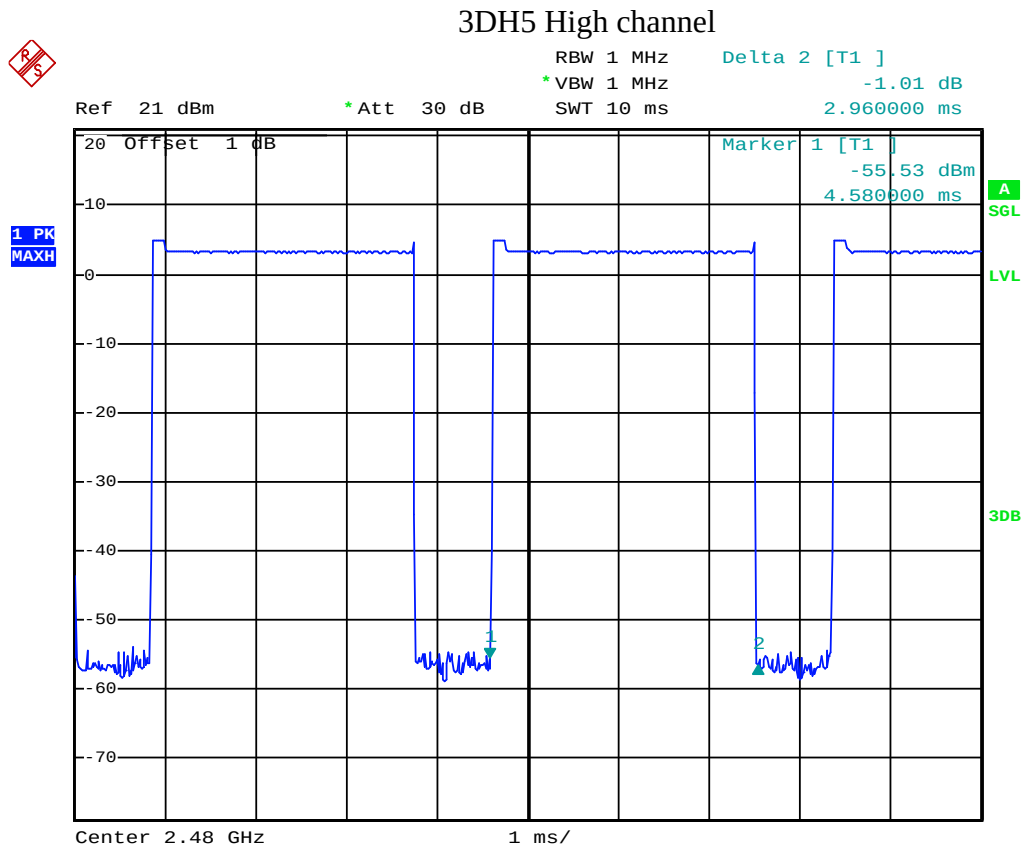






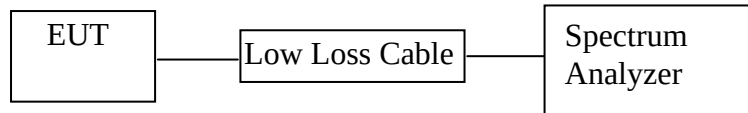






9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. Block Diagram of Test Setup



(EUT: Nyne Aqua)

9.2. The Requirement For Section 15.247(b)(1)

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.4. Operating Condition of EUT

9.4.1. Setup the EUT and simulator as shown as Section 9.1.

9.4.2. Turn on the power of all equipment.

9.4.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

9.5. Test Procedure

9.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

9.5.2. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz for GFSK mode

9.5.3. Set RBW of spectrum analyzer to 3MHz and VBW to 3MHz for other mode

9.5.4. Measurement the maximum peak output power.

9.6. Test Result

GFSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2402	3.61	2.296	30/1.0
Middle	2441	2.48	1.770	30/1.0
High	2480	2.43	1.749	30/1.0

II/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2402	2.42	1.746	21 / 0.125
Middle	2441	1.76	1.500	21 / 0.125
High	2480	2.32	1.706	21 / 0.125

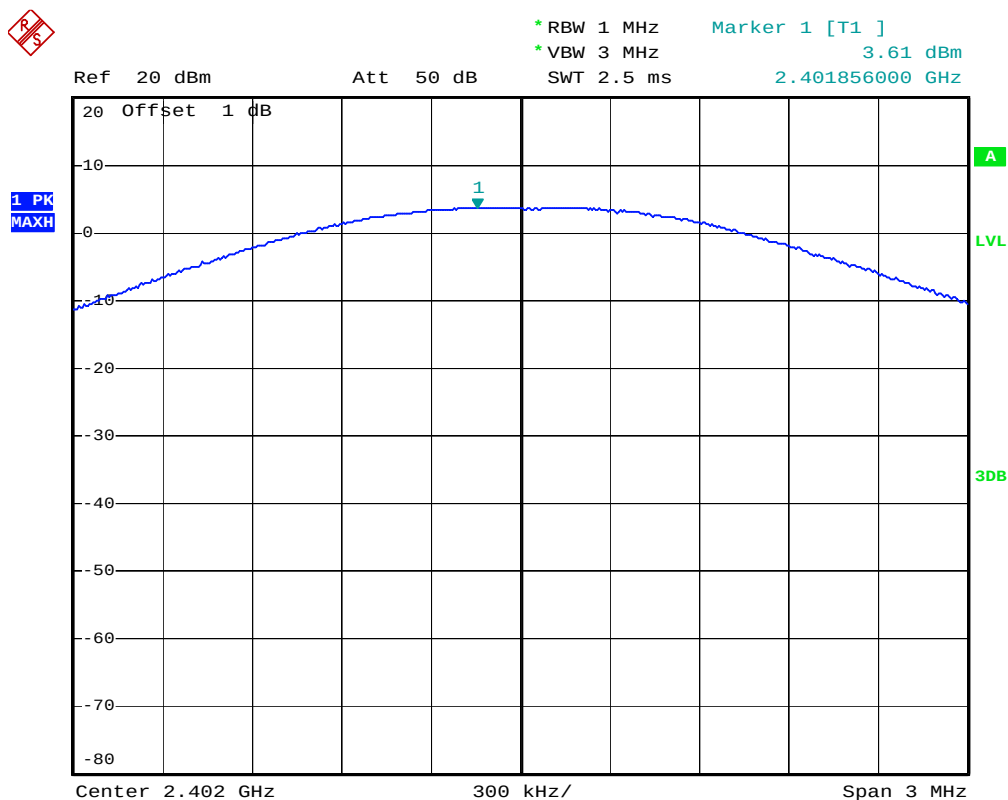
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2402	2.33	1.710	21 / 0.125
Middle	2441	1.88	1.542	21 / 0.125
High	2480	2.76	1.888	21 / 0.125

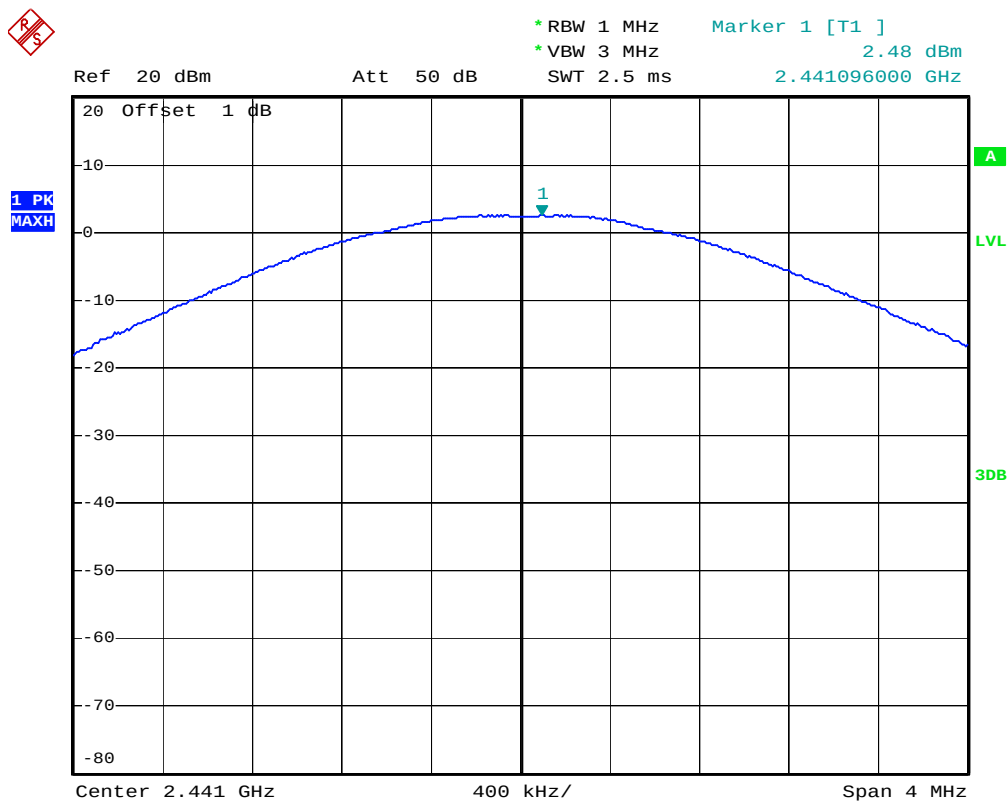
The spectrum analyzer plots are attached as below.

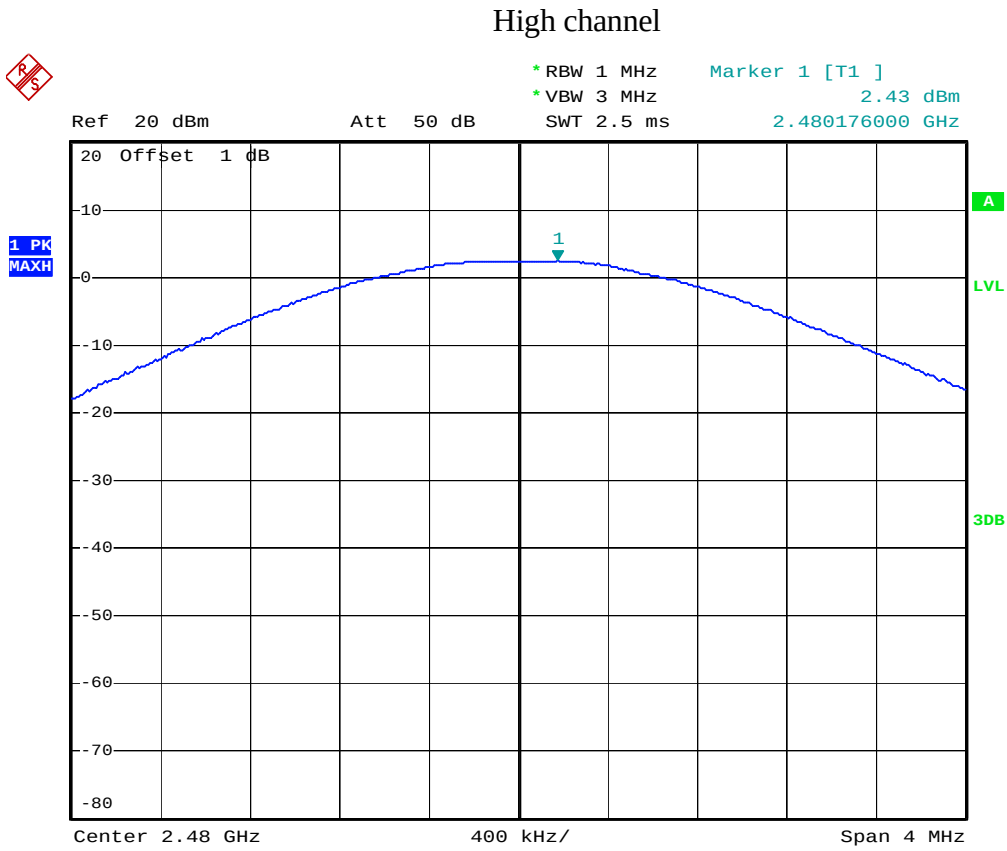
GFSK Mode

Low channel



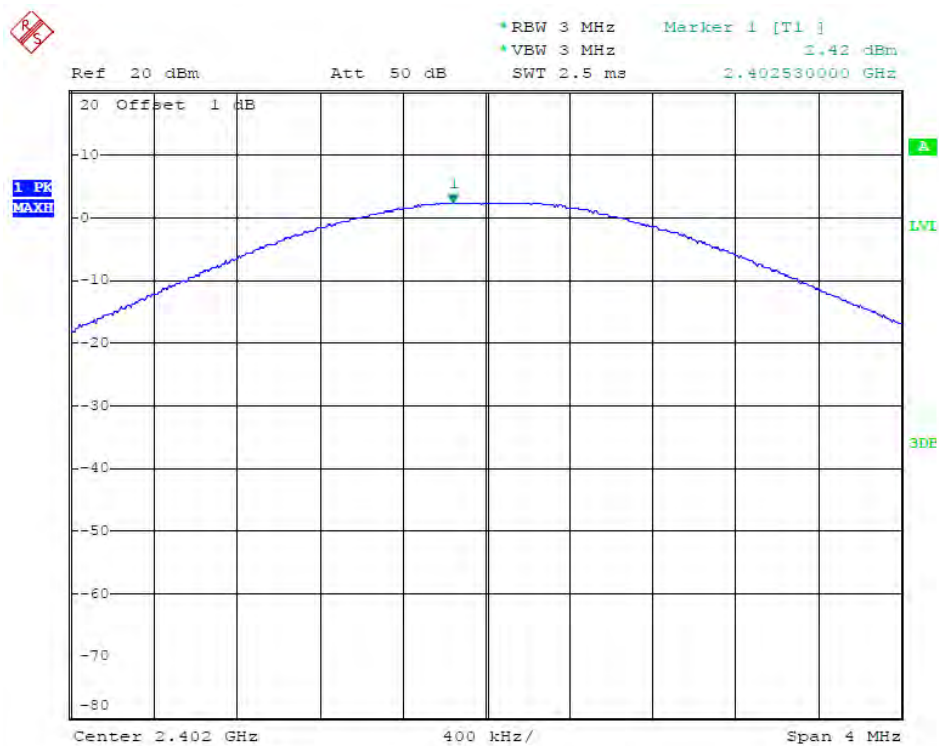
Middle channel



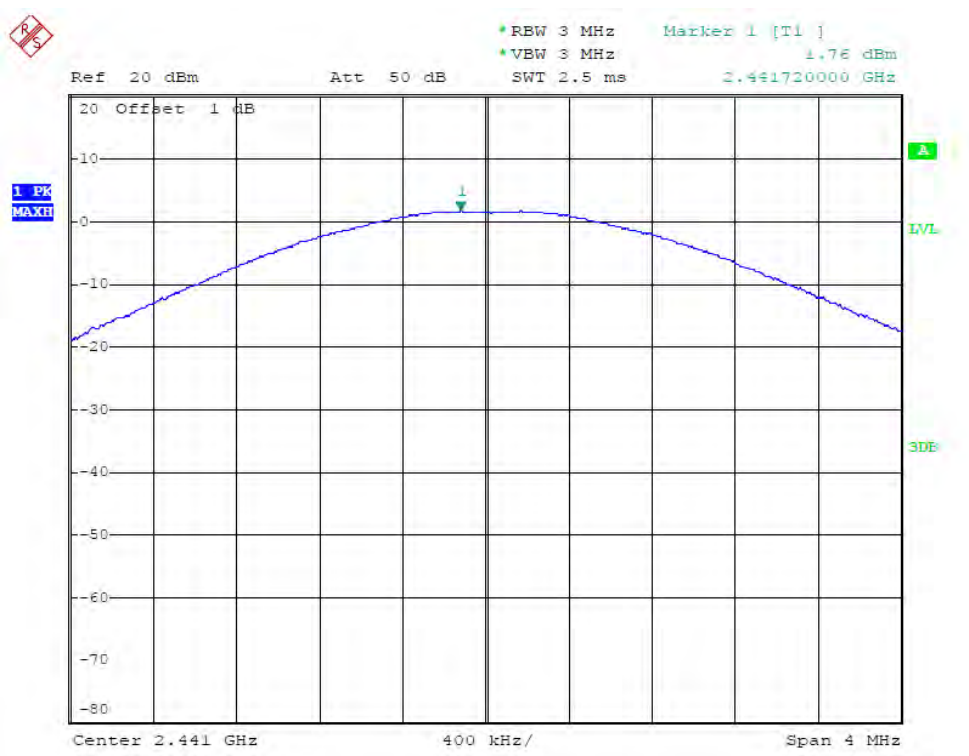


$\Pi/4$ -DQPSK Mode

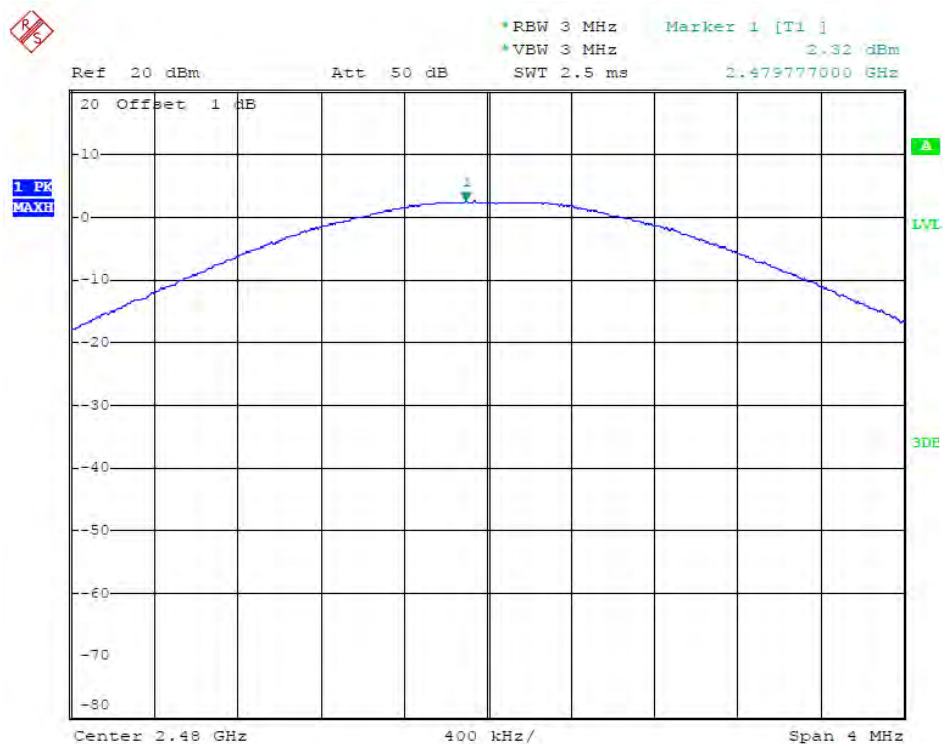
Low channel



Middle channel

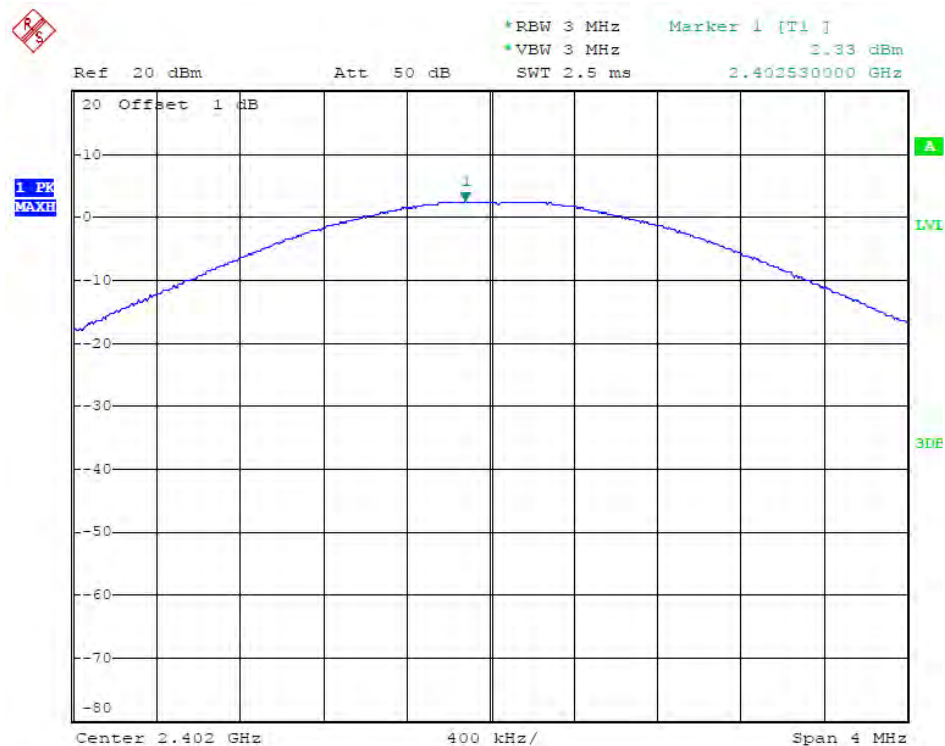


High channel

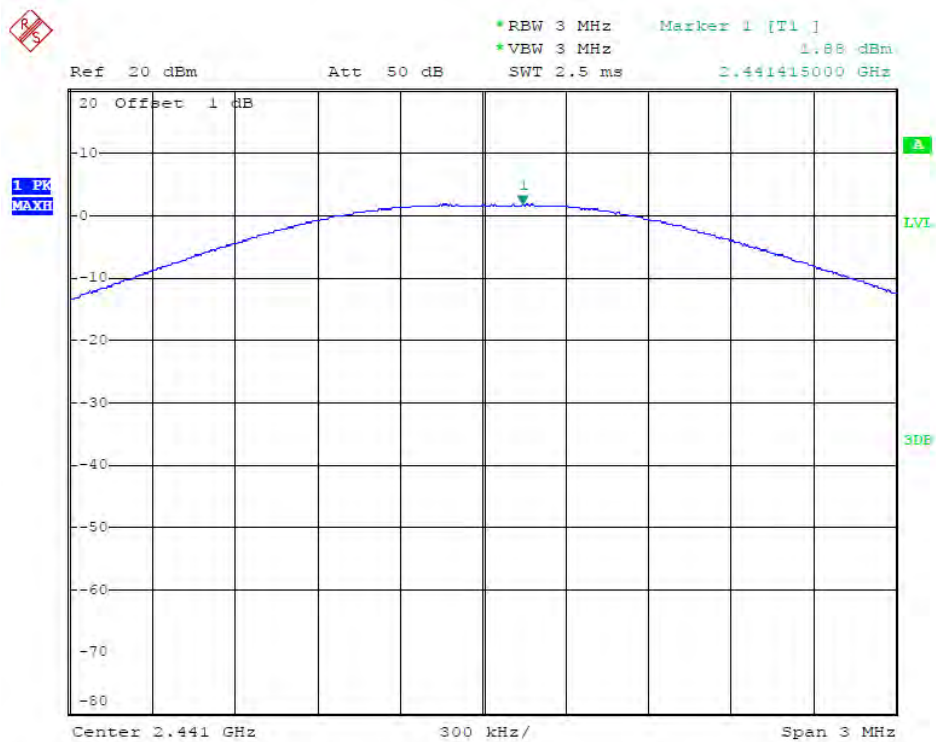


8DPSK Mode

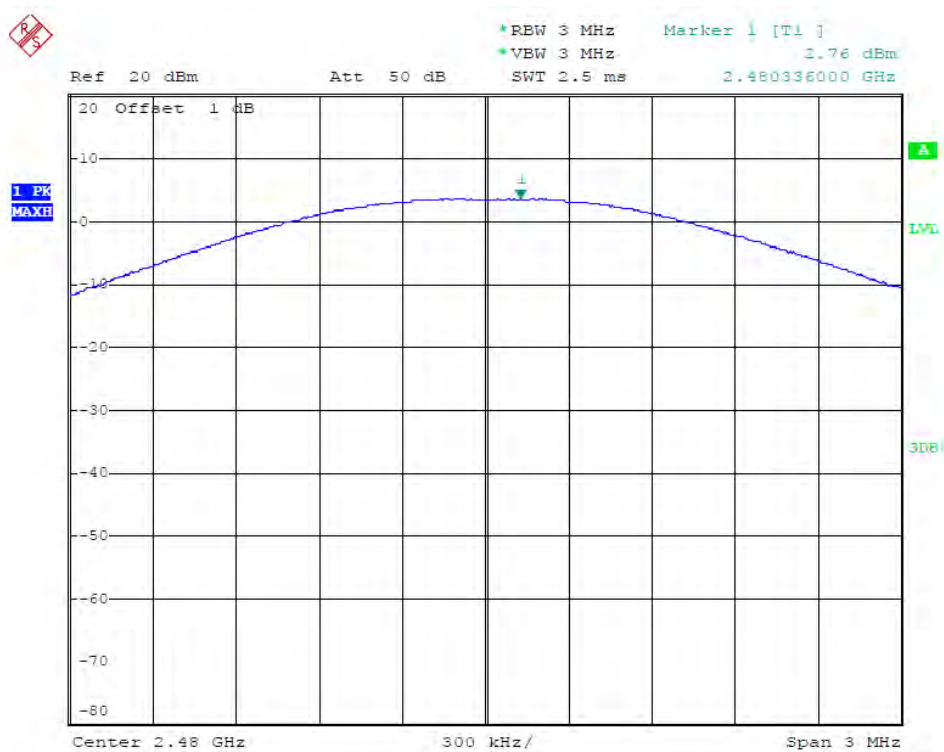
Low channel



Middle channel



High channel



10. RADIATED EMISSION TEST

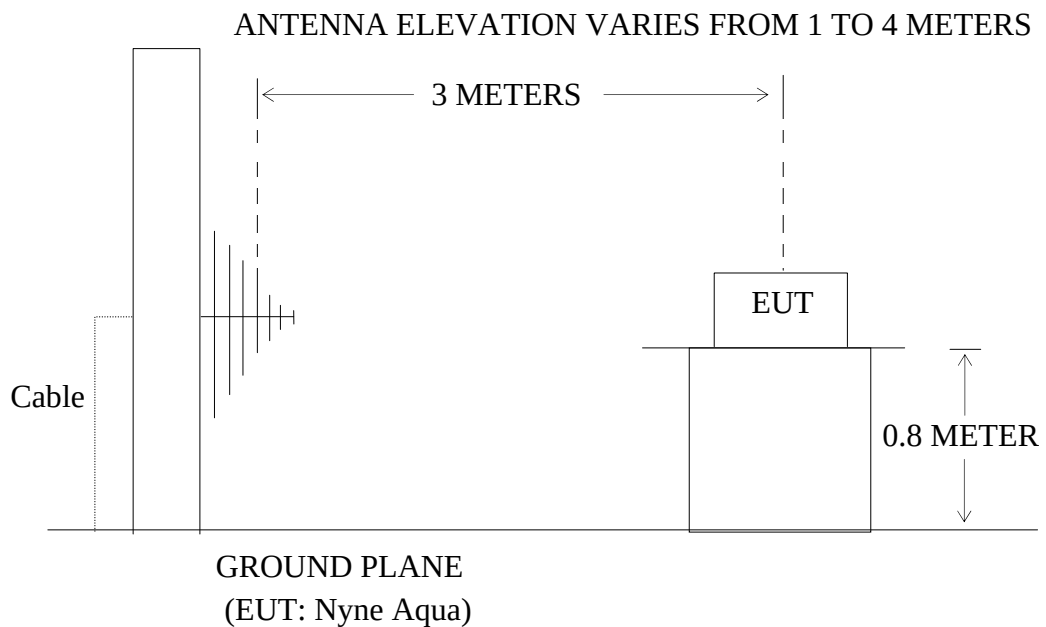
10.1. Block Diagram of Test Setup

10.1.1. Block diagram of connection between the EUT and simulators



(EUT: Nyne Aqua)

10.1.2. Anechoic Chamber Test Setup Diagram



10.2. The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

10.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

10.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4- 2009 on radiated emission measurement.

The bandwidth of test receiver (R&S ESI26) is set at 120 KHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 25000MHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

10.6.The Field Strength of Radiation Emission Measurement Results

Note: 1.We tested GFSK mode, $\Pi/4$ -DQPSK Mode & 8DPSK mode and recorded the worst case data (GFSK mode) for all test mode.

2. The fundamental radiated emissions were reduced by 2.4G Band Reject Filter in the attached plots.

3. The 18-25GHz emissions are not reported, because the levels are too low against the limit.



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Site: 1# Chamber
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Fax:+86-0755-26503396

Job No.: star2014 #400

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

Date: 14/06/14/

Time: 14/08/03

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	116.5400	52.40	-22.40	30.00	43.50	-13.50	QP			
2	211.5264	58.36	-20.00	38.36	43.50	-5.14	QP			
3	277.0935	52.36	-18.45	33.91	46.00	-12.09	QP			



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Job No.: star2014 #401

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

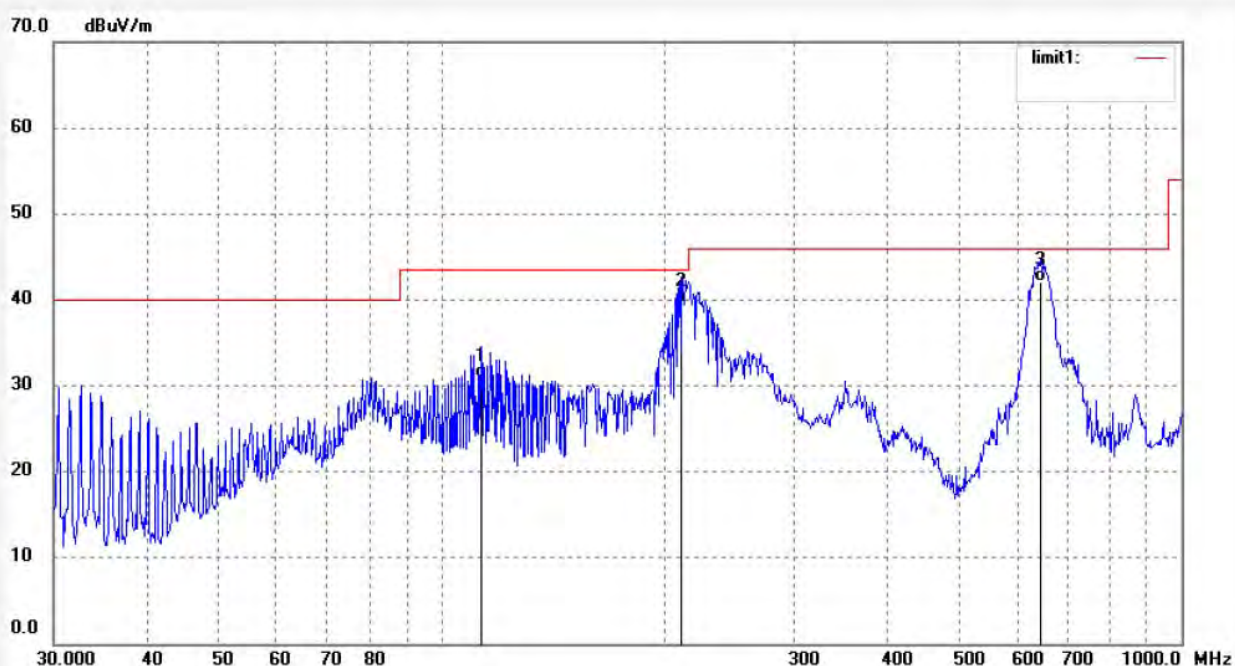
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Time: 14/14/17

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	113.3162	53.17	-22.28	30.89	43.50	-12.61	QP			
2	211.5264	59.67	-20.00	39.67	43.50	-3.83	QP			
3	645.1195	52.82	-10.75	42.07	46.00	-3.93	QP			


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Fax:+86-0755-26503396

Job No.: star2014 #406

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

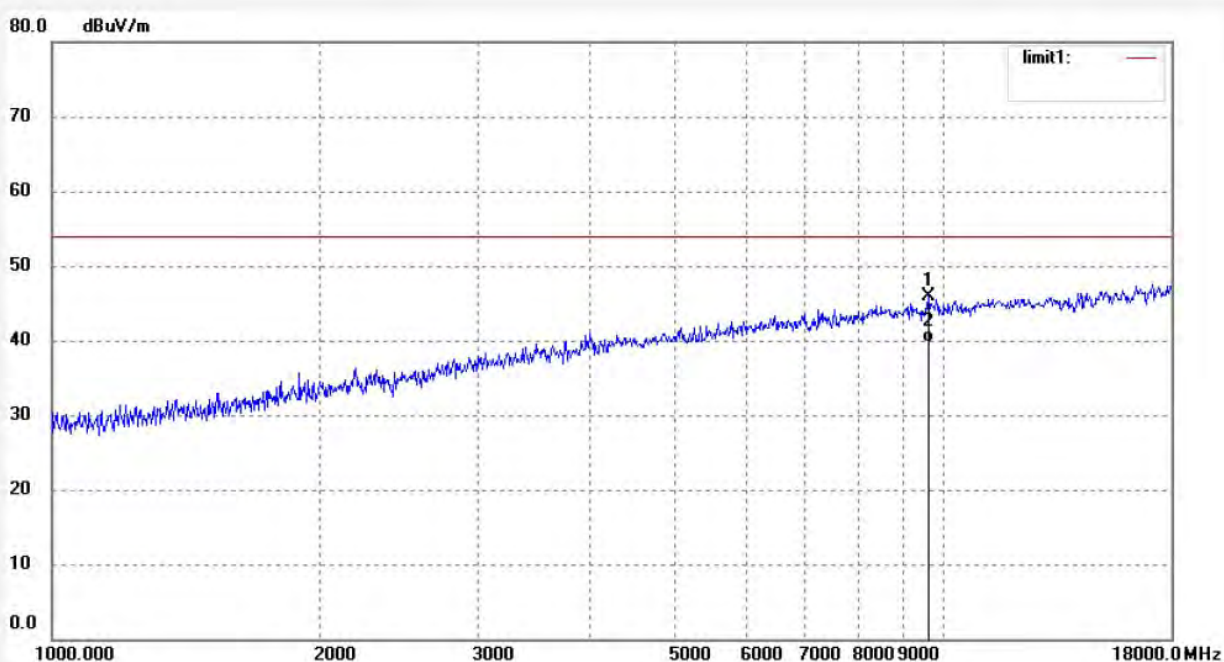
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Time: 14/34/53

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	9613.430	40.92	4.92	45.84	54.00	-8.16	peak			
2	9613.430	34.77	4.92	39.69	54.00	-14.31	AVG			



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Job No.: star2014 #407

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

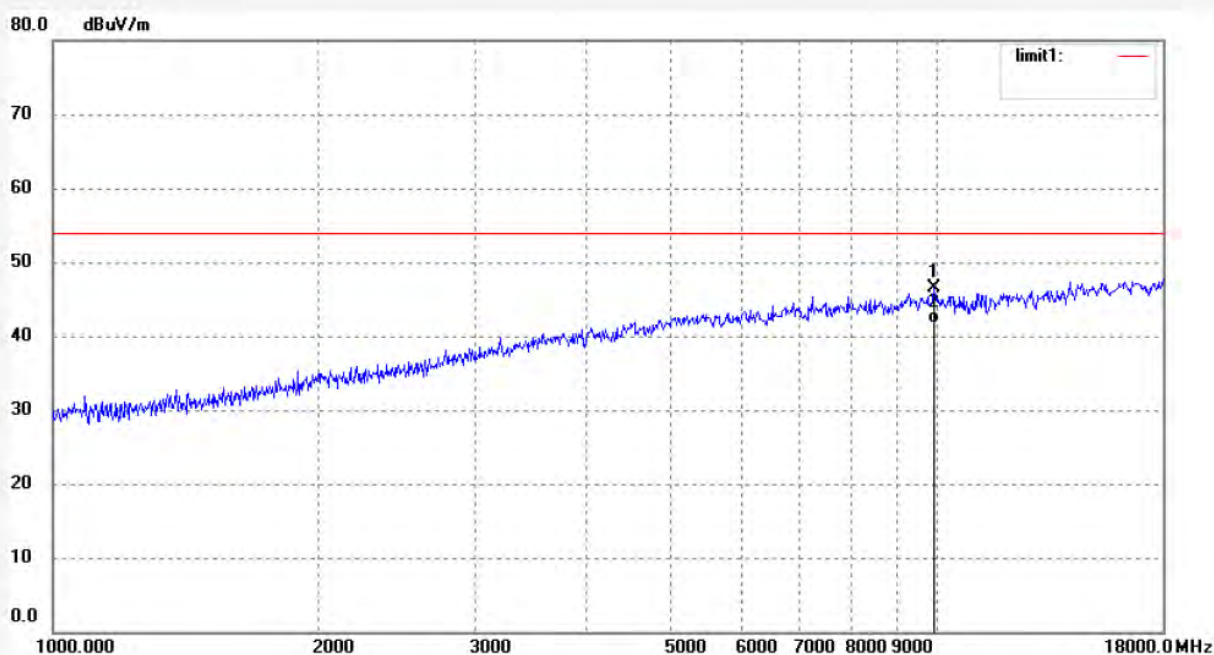
Date: 14/06/14/

Time: 14/27/25

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	9923.991	41.23	5.24	46.47	54.00	-7.53	peak			
2	9923.991	36.39	5.24	41.63	54.00	-12.37	AVG			


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Fax:+86-0755-26503396

Job No.: star2014 #402

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2441MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

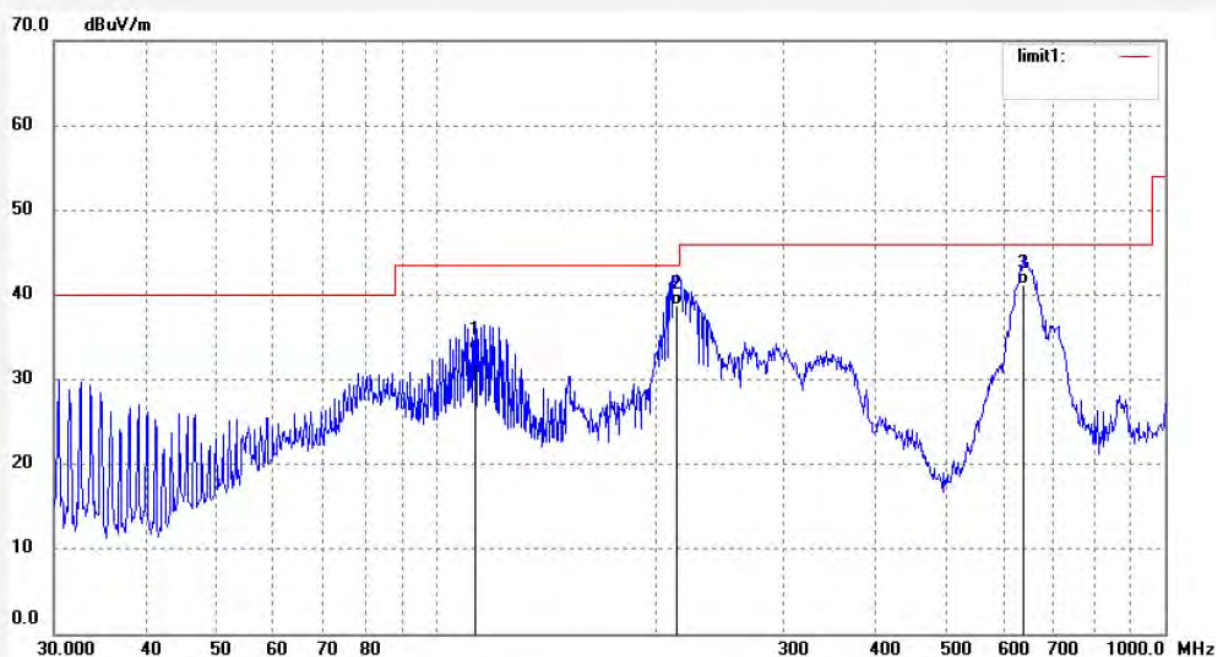
Date: 14/06/14/

Time: 14/18/27

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	113.3162	55.70	-22.28	33.42	43.50	-10.08	QP			
2	213.7633	58.67	-19.98	38.69	43.50	-4.81	QP			
3	640.6109	52.00	-10.82	41.18	46.00	-4.82	QP			



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Fax:+86-0755-26503396

Job No.: star2014 #403

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2441MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

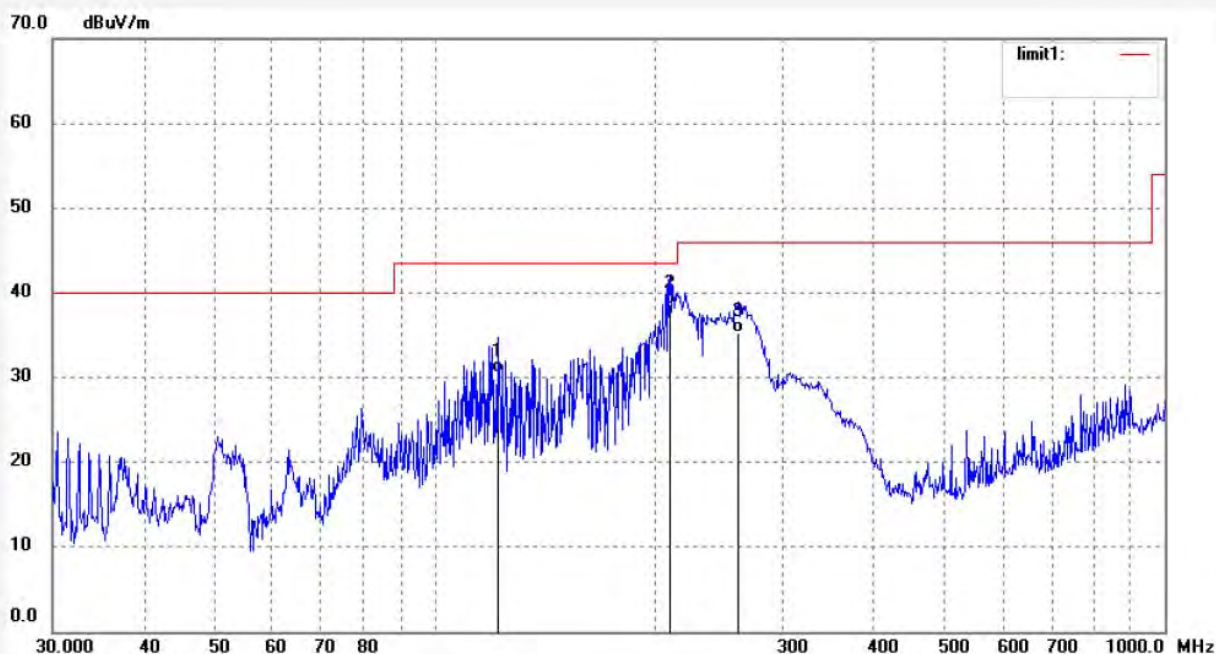
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Time: 14/22/31

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	121.9754	53.14	-22.64	30.50	43.50	-13.00	QP			
2	210.0482	58.60	-20.01	38.59	43.50	-4.91	QP			
3	261.0582	54.39	-19.08	35.31	46.00	-10.69	QP			



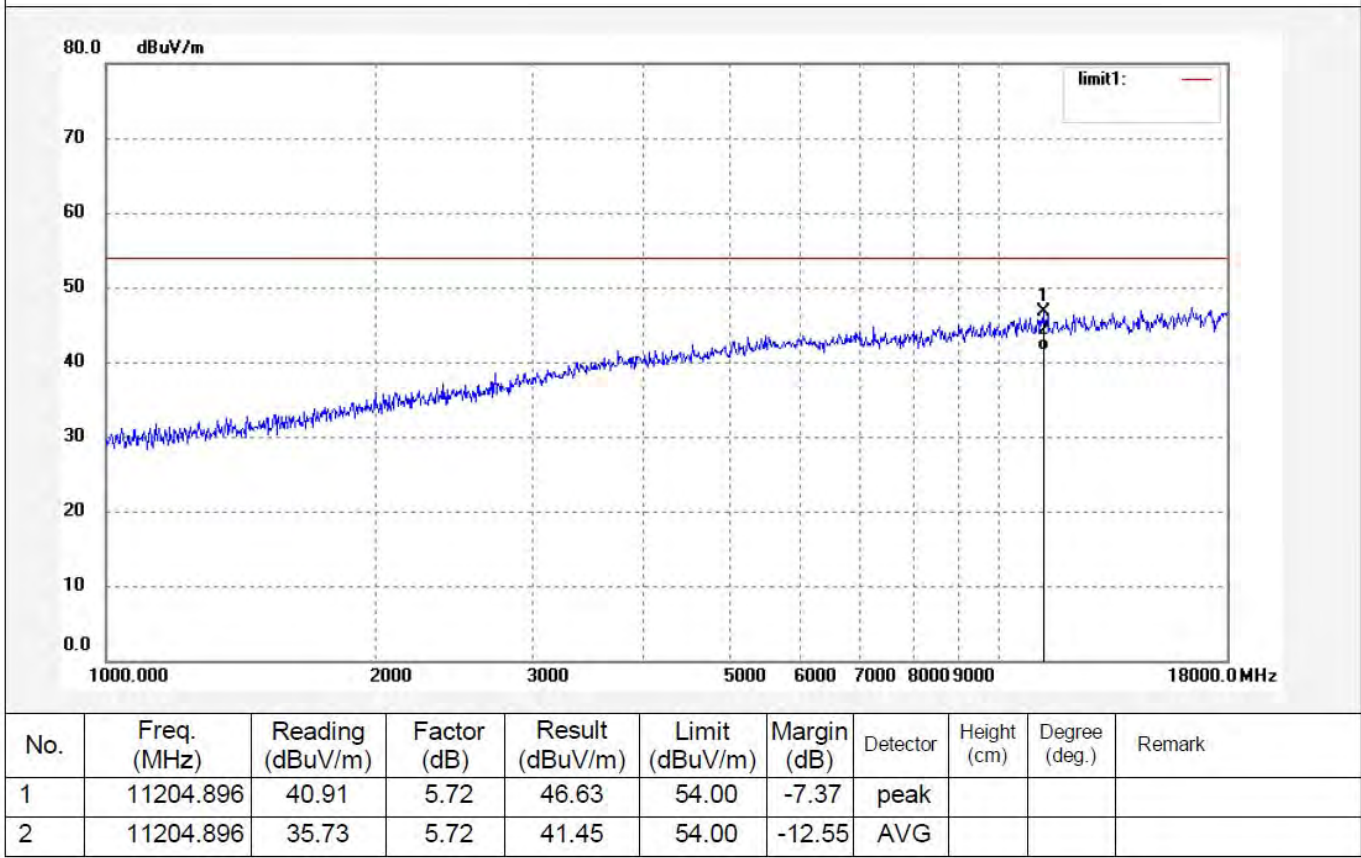
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Tel:+86-0755-26503290
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Job No.: star2014 #408	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 14/06/14/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/41/22
EUT: Nyne Aqua	Engineer Signature: STAR
Mode: TX 2441MHz	Distance: 3m
Model: AQUA	
Manufacturer: NYNE MULTIMEDIA INC.	

Note: Report No.:ATE20140958





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Job No.: star2014 #409

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2441MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

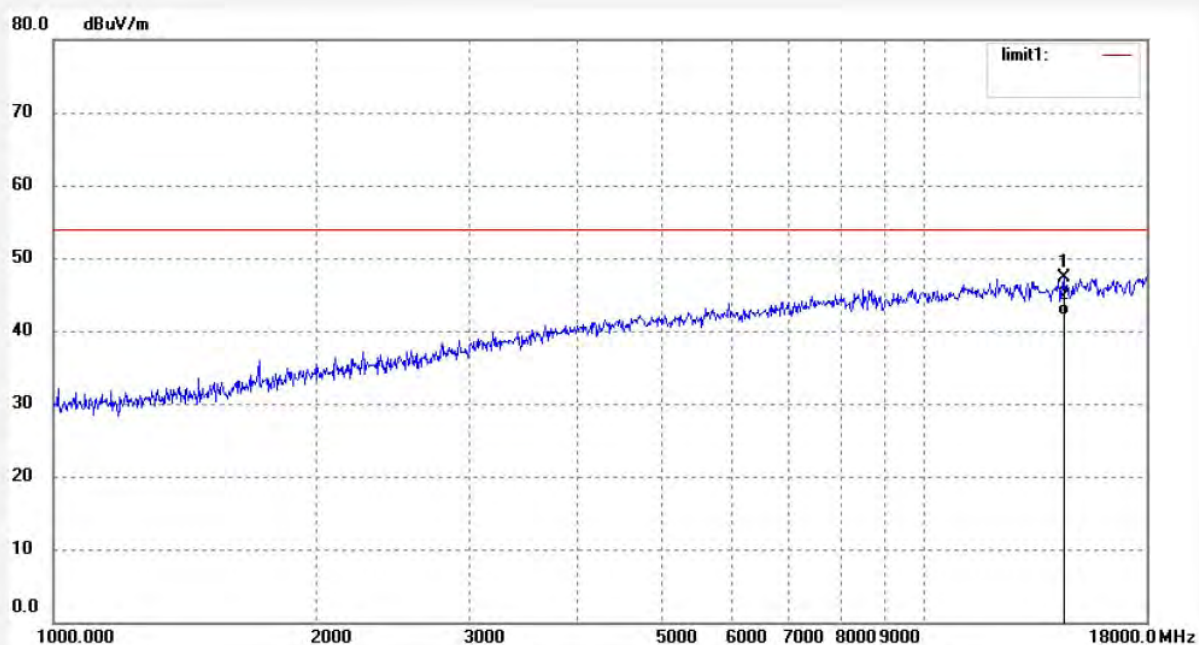
Date: 14/06/14/

Time: 14/45/30

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	14450.131	34.56	12.73	47.29	54.00	-6.71	peak			
2	14450.131	29.43	12.73	42.16	54.00	-11.84	AVG			



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Job No.: star2014 #404

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2480MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

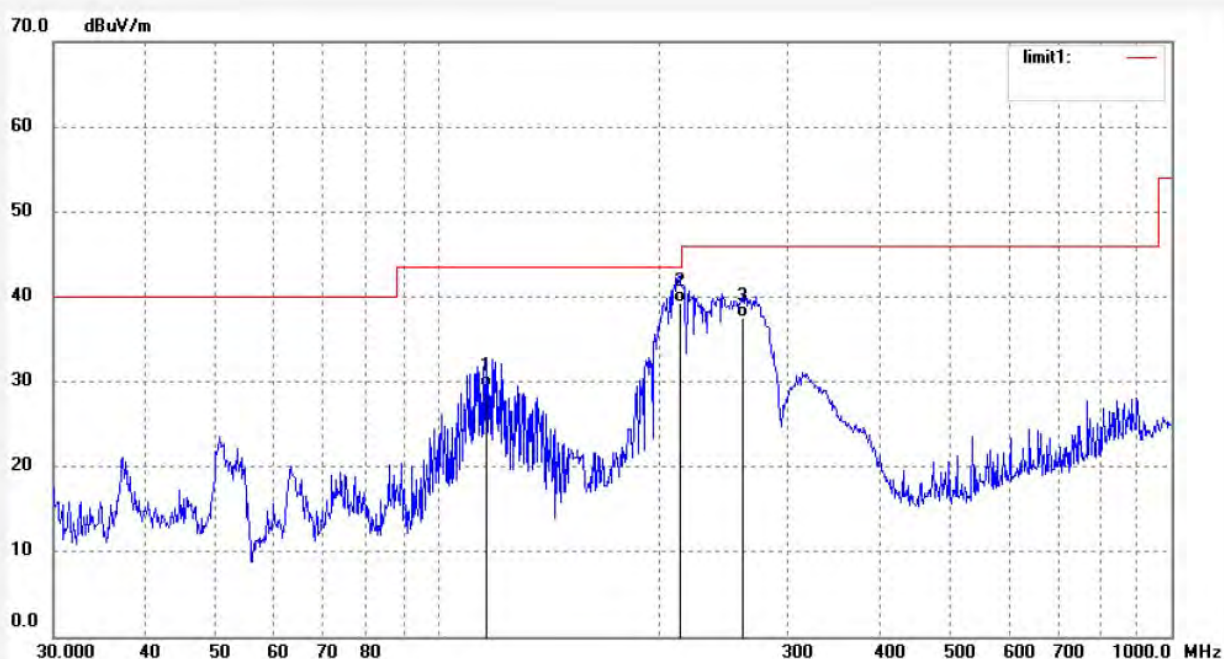
Date: 14/06/14/

Time: 14/26/28

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	116.5400	51.70	-22.40	29.30	43.50	-14.20	QP			
2	213.7633	59.30	-19.98	39.32	43.50	-4.18	QP			
3	260.1444	56.74	-19.12	37.62	46.00	-8.38	QP			



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Job No.: star2014 #405

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2480MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

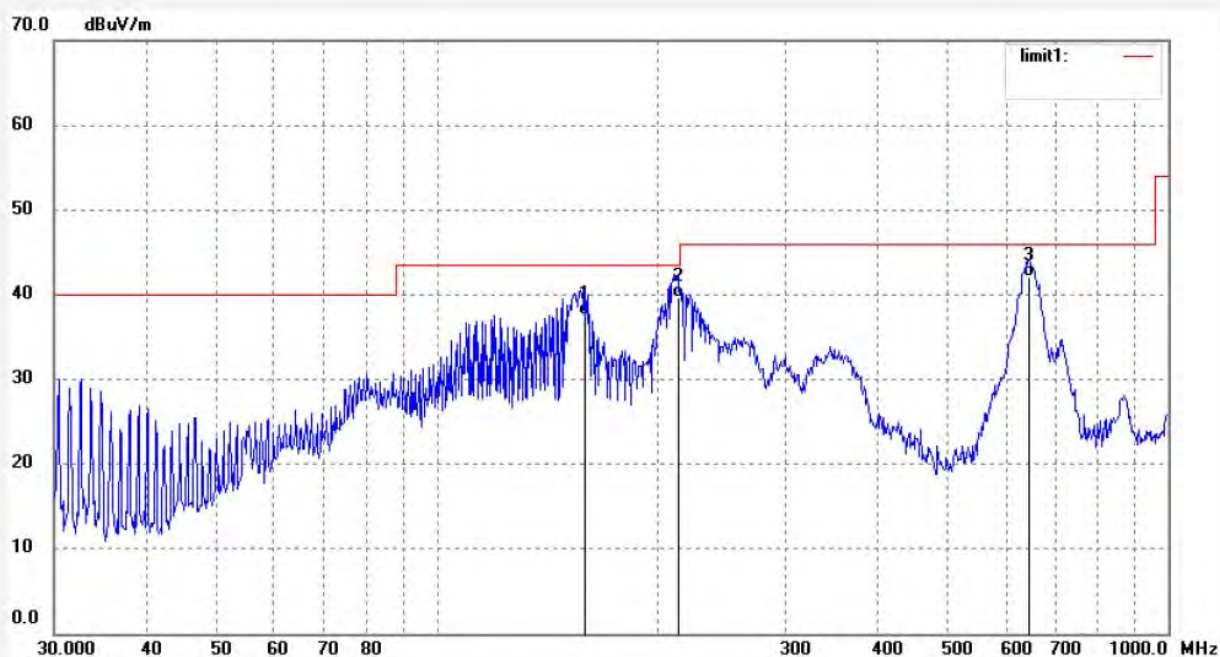
Date: 14/06/14/

Time: 14/30/14

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	159.7844	60.40	-22.87	37.53	43.50	-5.97	QP			
2	213.7634	59.63	-19.98	39.65	43.50	-3.85	QP			
3	645.1195	52.84	-10.75	42.09	46.00	-3.91	QP			


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Job No.: star2014 #410

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2480MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

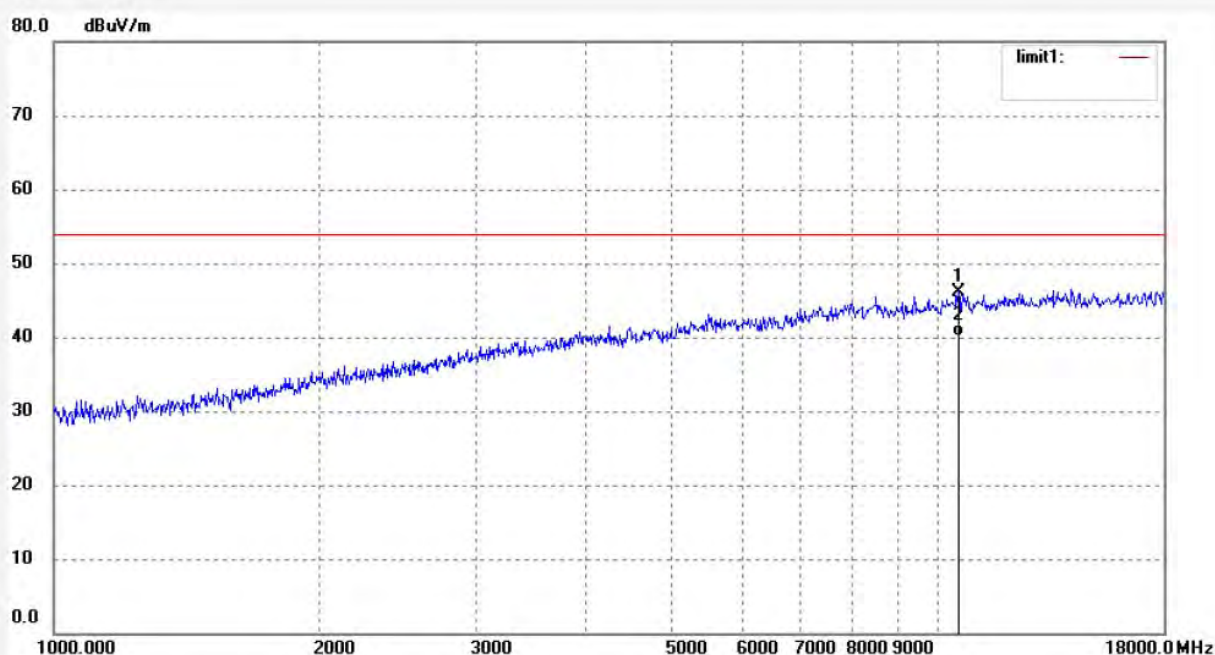
Date: 14/06/14/

Time: 14/48/19

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	10545.012	40.83	5.22	46.05	54.00	-7.95	peak			
2	10545.012	34.82	5.22	40.04	54.00	-13.96	AVG			


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Job No.: star2014 #411

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2480MHz

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

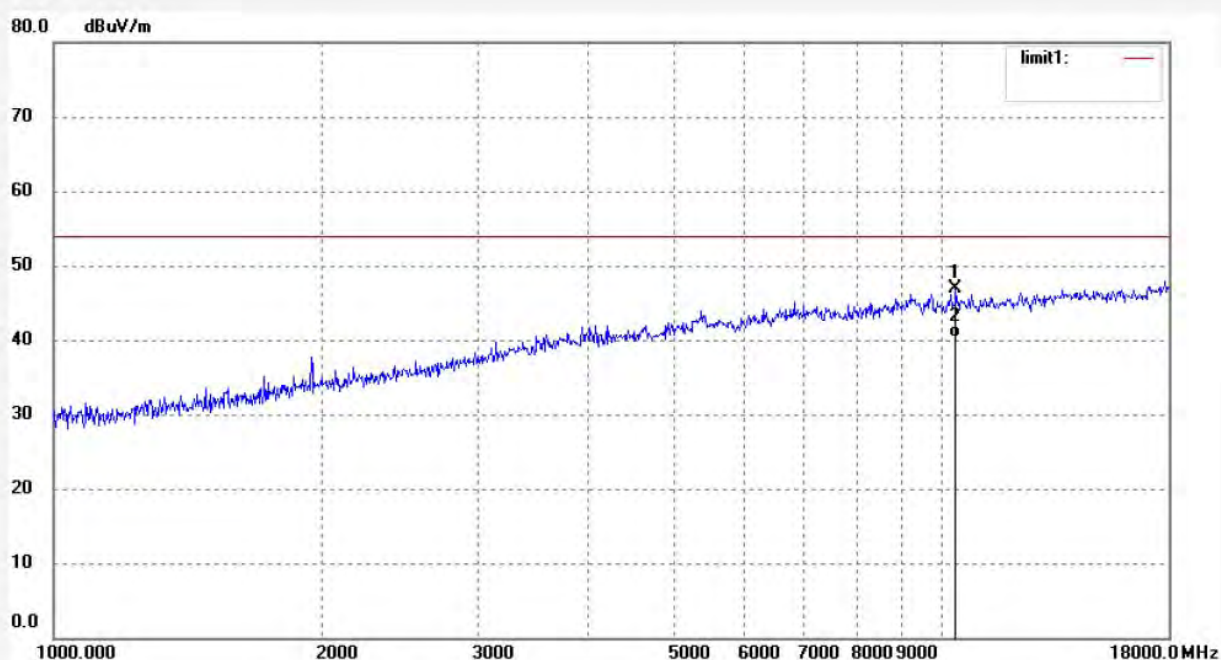
Date: 14/06/14/

Time: 14/53/18

Engineer Signature: STAR

Distance: 3m

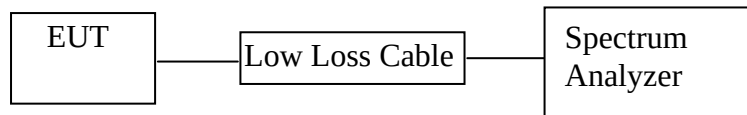
Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	10363.715	41.59	5.24	46.83	54.00	-7.17	peak			
2	10363.715	35.10	5.24	40.34	54.00	-13.66	AVG			

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Nyne Aqua)

11.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

11.5. Test Procedure

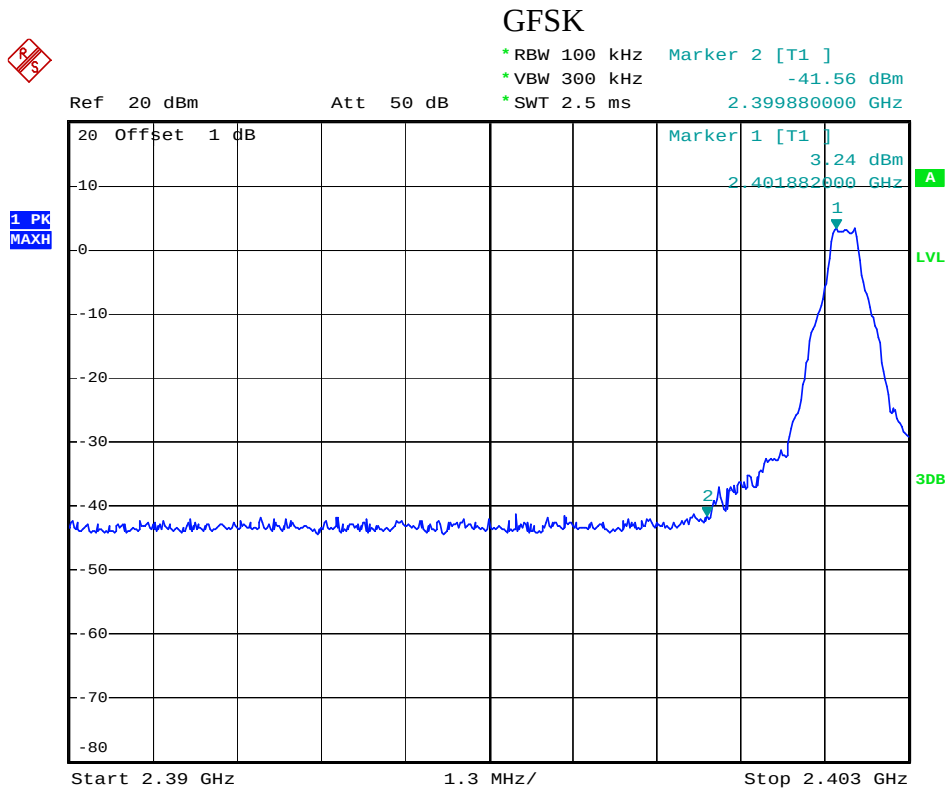
11.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

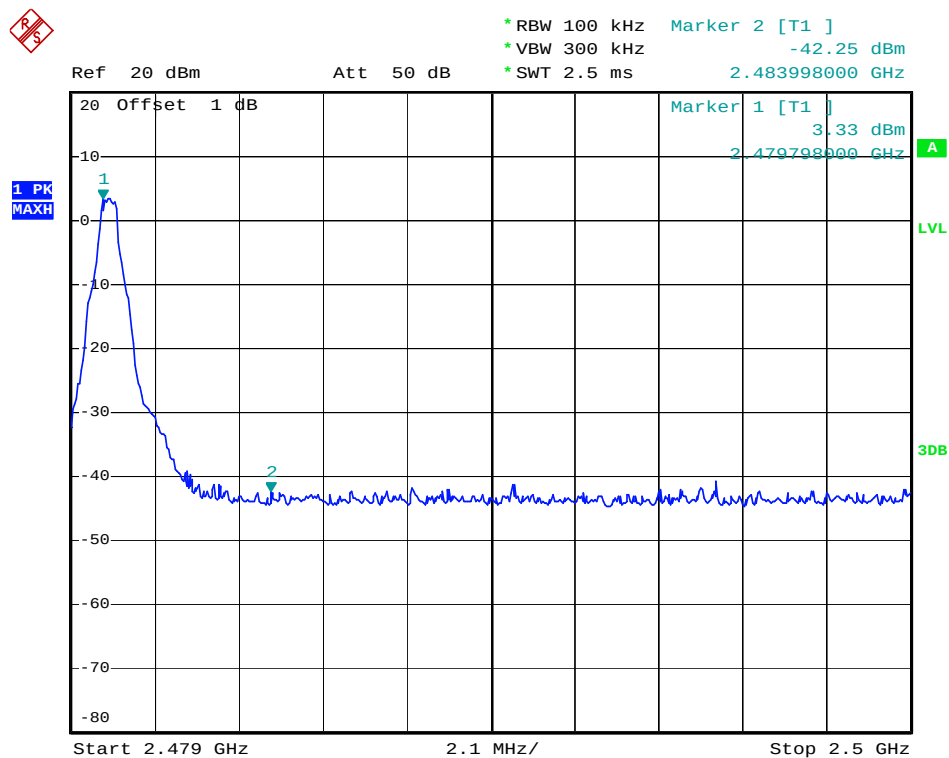
11.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

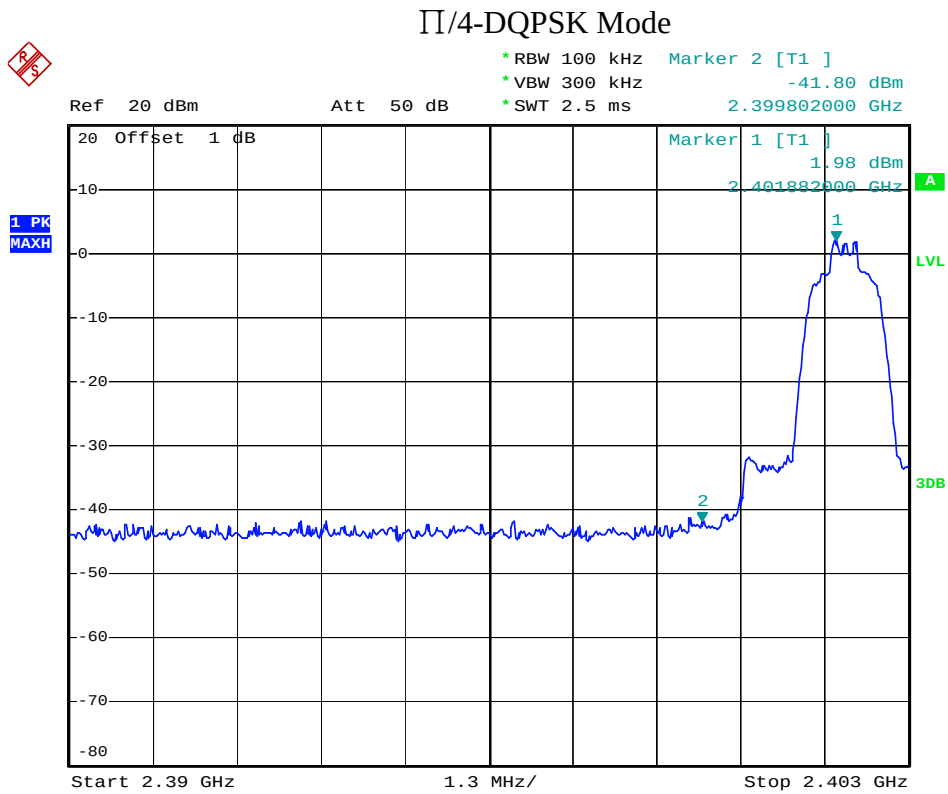
11.5.3. The band edges was measured and recorded.

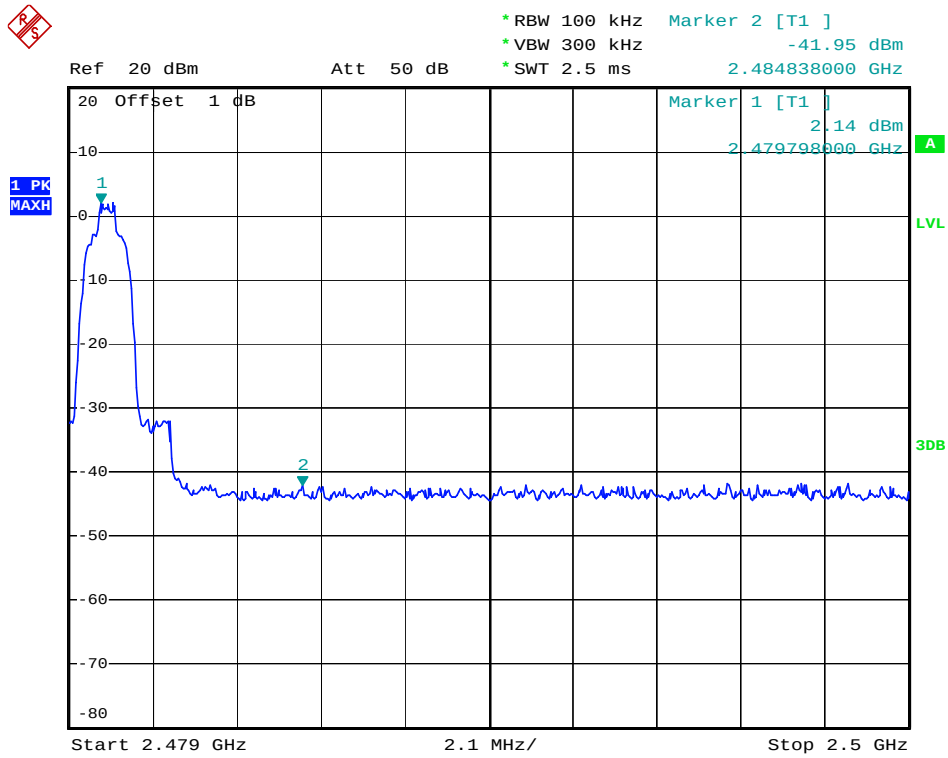
11.6. Test Result

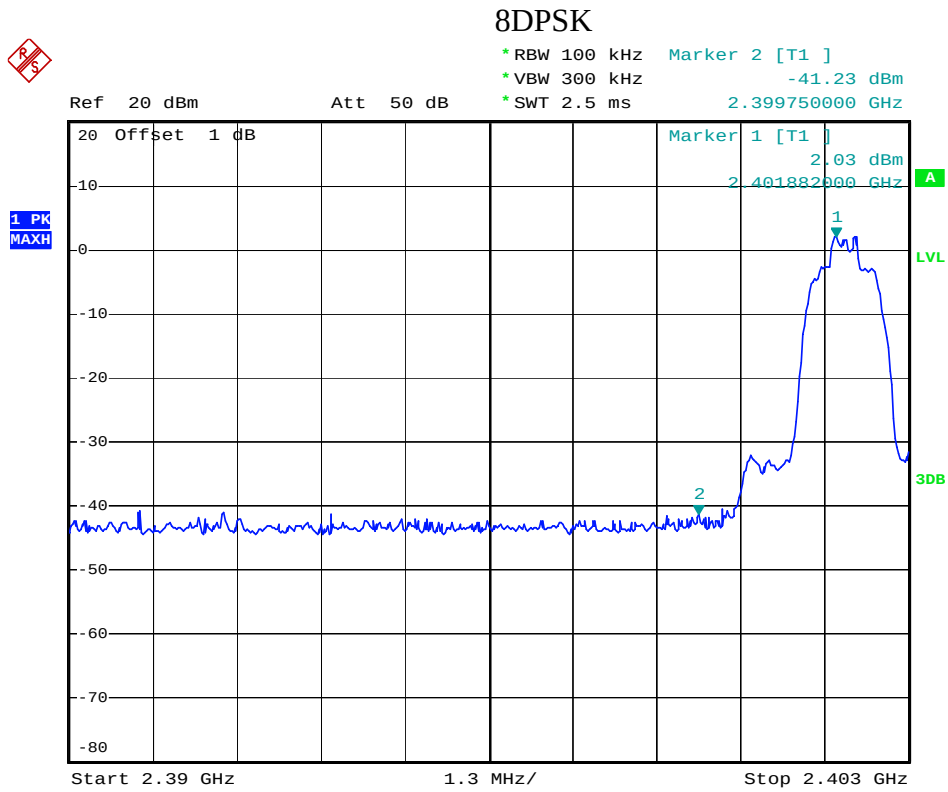
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2399.880	44.80	> 20dBc
2483.998	45.58	> 20dBc
Π/4-DQPSK Mode		
2399.802	43.79	> 20dBc
2484.838	44.09	> 20dBc
8DPSK		
2399.750	43.26	> 20dBc
2483.788	44.32	> 20dBc

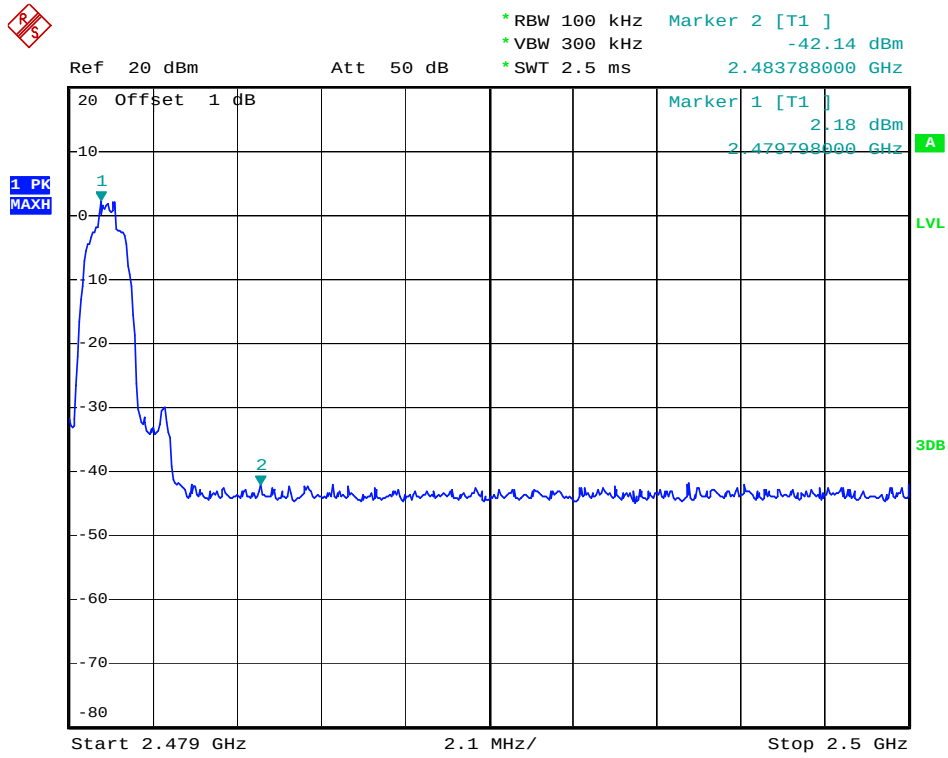












Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

3. Display the measurement of peak values.

Non-hopping mode



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Job No.: STAR #3015

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz(GFSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

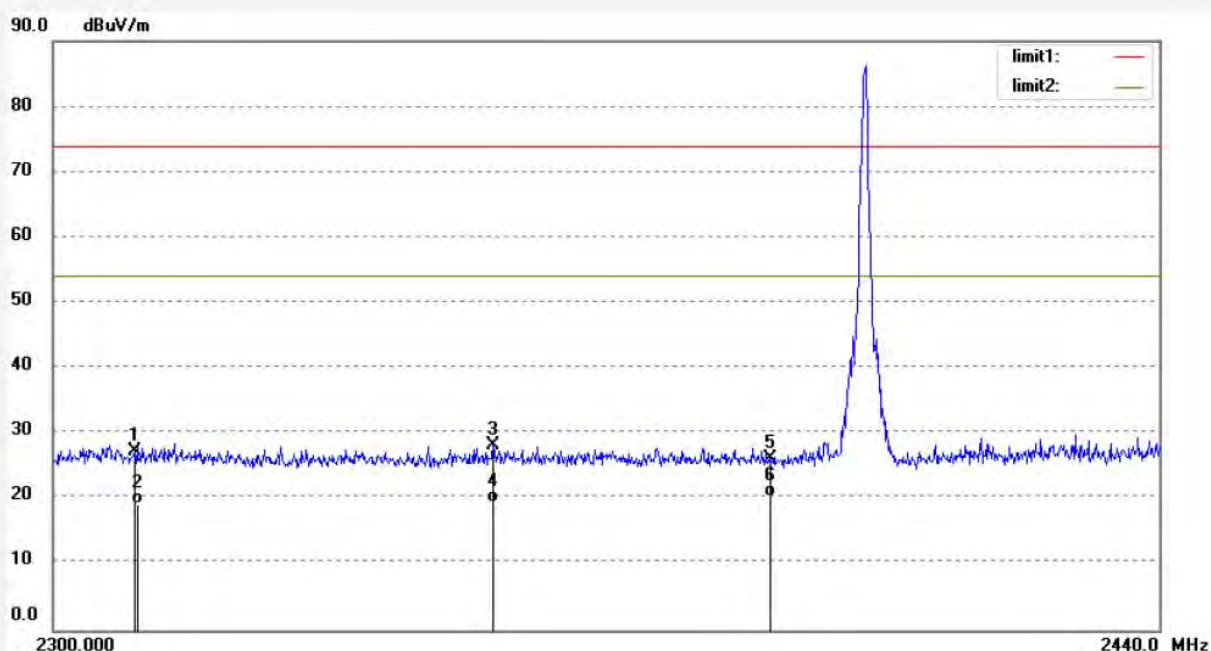
Date: 14/06/14/

Time: 14/25/37

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	34.27	-6.99	27.28	74.00	-46.72	peak			
2	2310.000	26.25	-6.99	19.26	54.00	-34.74	AVG			
3	2354.740	35.04	-6.88	28.16	74.00	-45.84	peak			
4	2354.740	26.41	-6.88	19.53	54.00	-34.47	AVG			
5	2390.000	33.03	-6.78	26.25	74.00	-47.75	peak			
6	2390.000	27.20	-6.78	20.42	54.00	-33.58	AVG			



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Job No.: STAR #3016

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz(GFSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

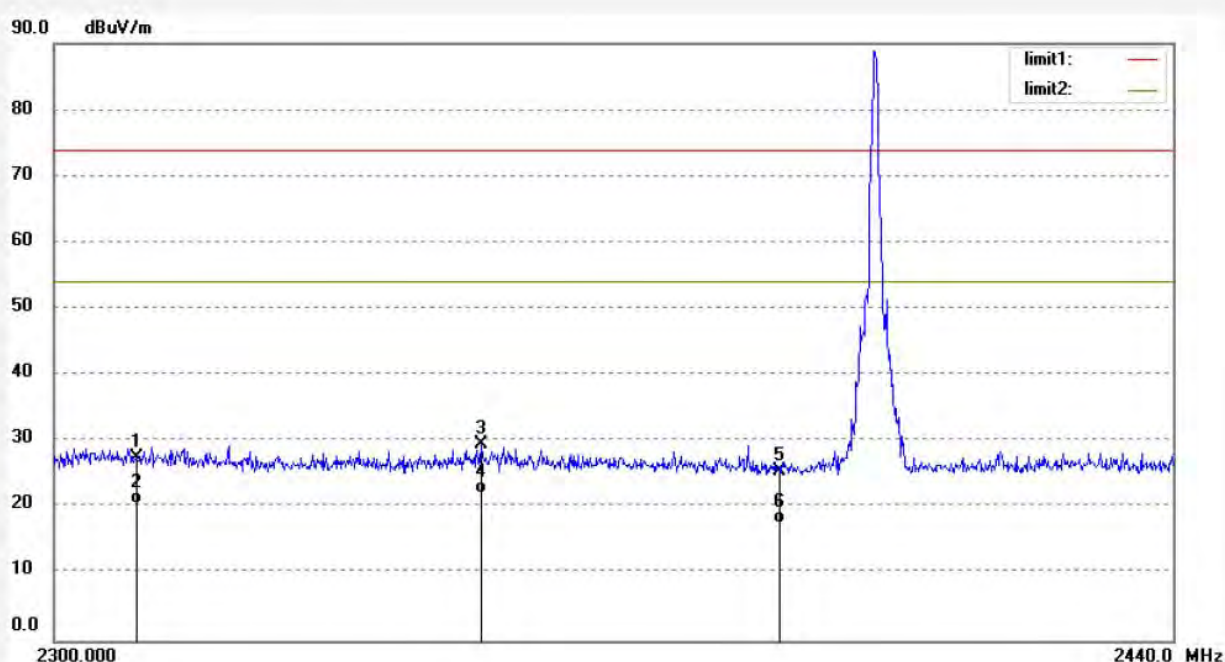
Date: 14/06/14/

Time: 14/29/06

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	34.53	-6.99	27.54	74.00	-46.46	peak			
2	2310.000	27.58	-6.99	20.59	54.00	-33.41	AVG			
3	2352.640	36.54	-6.88	29.66	74.00	-44.34	peak			
4	2352.640	28.93	-6.88	22.05	54.00	-31.95	AVG			
5	2390.000	32.43	-6.78	25.65	74.00	-48.35	peak			
6	2390.000	24.55	-6.78	17.77	54.00	-36.23	AVG			



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Job No.: STAR #3017

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2480MHz(GFSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

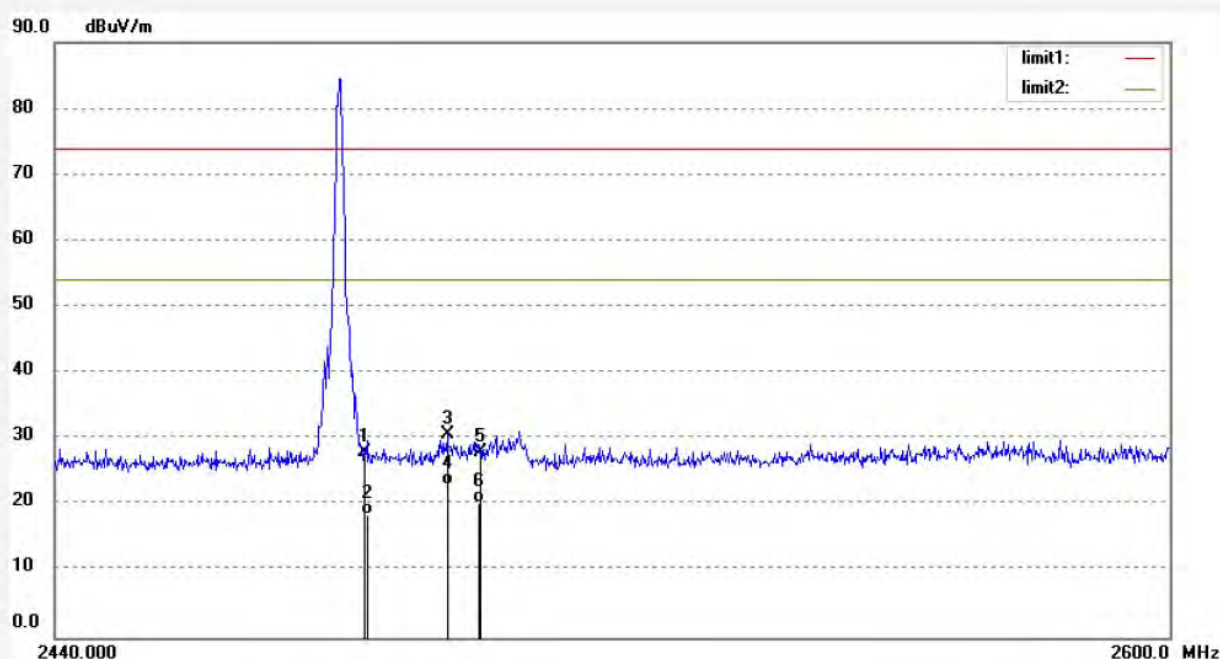
Date: 14/06/14/

Time: 14/32/02

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	34.48	-6.54	27.94	74.00	-46.06	peak			
2	2483.500	25.17	-6.54	18.63	54.00	-35.37	AVG			
3	2495.200	37.21	-6.50	30.71	74.00	-43.29	peak			
4	2495.200	29.50	-6.50	23.00	54.00	-31.00	AVG			
5	2500.000	34.56	-6.50	28.06	74.00	-45.94	peak			
6	2500.000	26.93	-6.50	20.43	54.00	-33.57	AVG			



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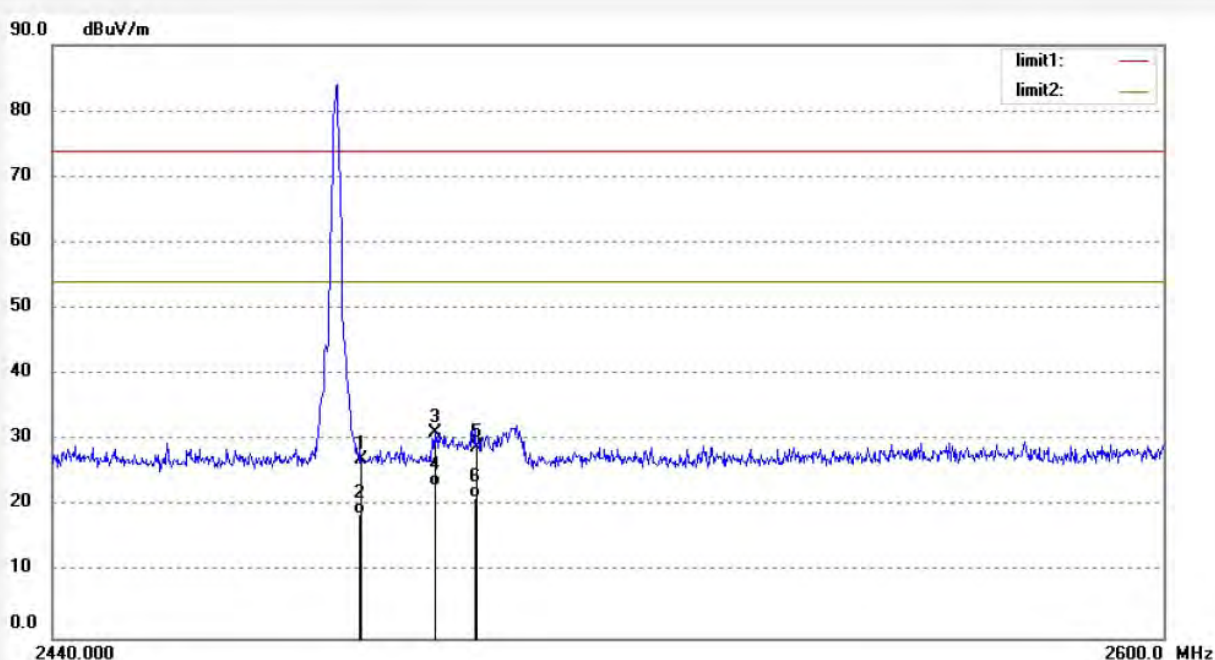
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Site: 1# Chamber
Tel:+86-0755-26503290
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Job No.: STAR #3018
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Nyne Aqua
Mode: TX 2480MHz(GFSK)
Model: AQUA
Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/14/
Time: 14/36/21
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	33.60	-6.54	27.06	74.00	-46.94	peak			
2	2483.500	25.40	-6.54	18.86	54.00	-35.14	AVG			
3	2493.920	37.76	-6.51	31.25	74.00	-42.75	peak			
4	2493.920	29.50	-6.51	22.99	54.00	-31.01	AVG			
5	2500.000	35.31	-6.50	28.81	74.00	-45.19	peak			
6	2500.000	27.80	-6.50	21.30	54.00	-32.70	AVG			



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Job No.: STAR #3019

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz(π /4-DQPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

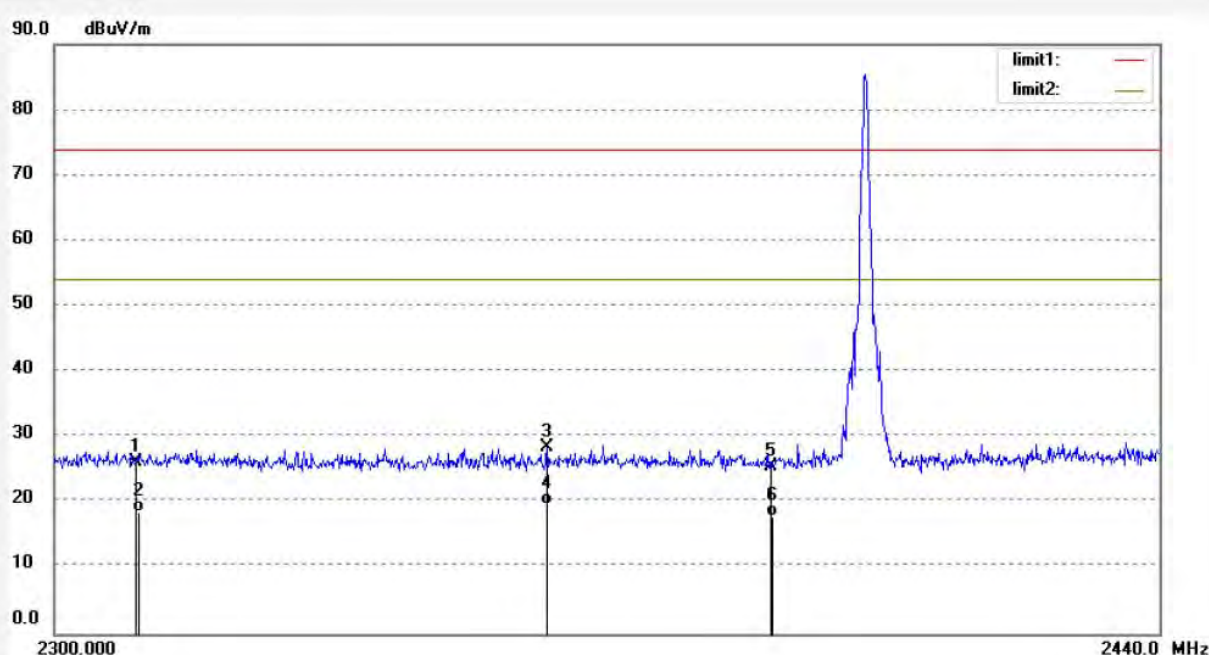
Date: 14/06/14/

Time: 14/40/13

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	33.28	-6.99	26.29	74.00	-47.71	peak			
2	2310.000	25.46	-6.99	18.47	54.00	-35.53	AVG			
3	2361.460	35.25	-6.86	28.39	74.00	-45.61	peak			
4	2361.460	26.47	-6.86	19.61	54.00	-34.39	AVG			
5	2390.000	32.29	-6.78	25.51	74.00	-48.49	peak			
6	2390.000	24.77	-6.78	17.99	54.00	-36.01	AVG			



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Job No.: STAR #3020

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz(□/4-DQPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

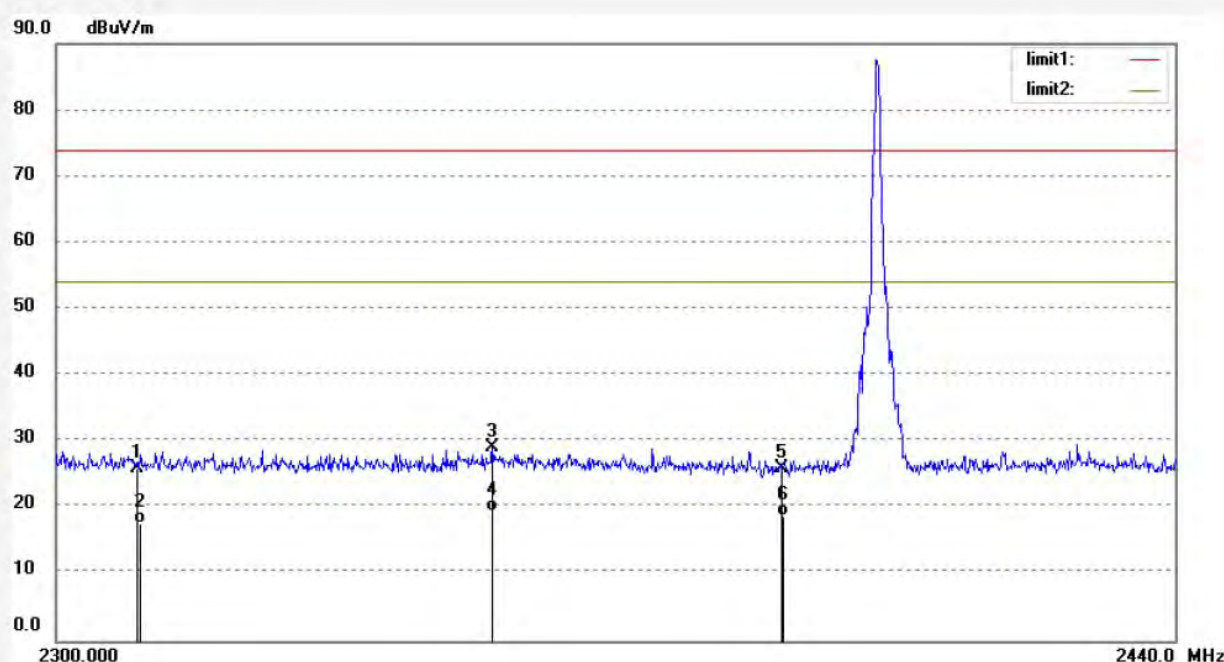
Date: 14/06/14/

Time: 14/43/43

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	33.01	-6.99	26.02	74.00	-47.98	peak			
2	2310.000	24.55	-6.99	17.56	54.00	-36.44	AVG			
3	2353.620	35.99	-6.88	29.11	74.00	-44.89	peak			
4	2353.620	26.40	-6.88	19.52	54.00	-34.48	AVG			
5	2390.000	32.72	-6.78	25.94	74.00	-48.06	peak			
6	2390.000	25.60	-6.78	18.82	54.00	-35.18	AVG			



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Job No.: STAR #3025

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2480MHz(Π/4-DQPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

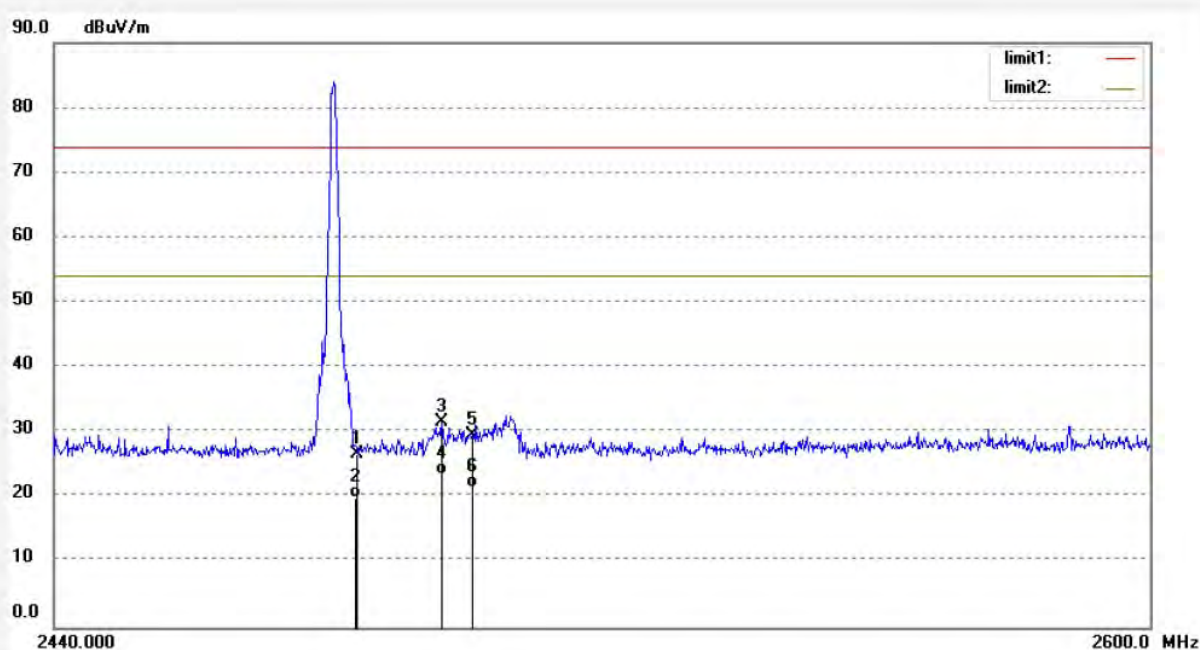
Date: 14/06/14/

Time: 15/01/26

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	33.26	-6.54	26.72	74.00	-47.28	peak			
2	2483.500	26.50	-6.54	19.96	54.00	-34.04	AVG			
3	2495.520	38.08	-6.50	31.58	74.00	-42.42	peak			
4	2495.520	30.10	-6.50	23.60	54.00	-30.40	AVG			
5	2500.000	36.02	-6.50	29.52	74.00	-44.48	peak			
6	2500.000	27.91	-6.50	21.41	54.00	-32.59	AVG			



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Job No.: STAR #3026

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2480MHz(□/4-DQPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

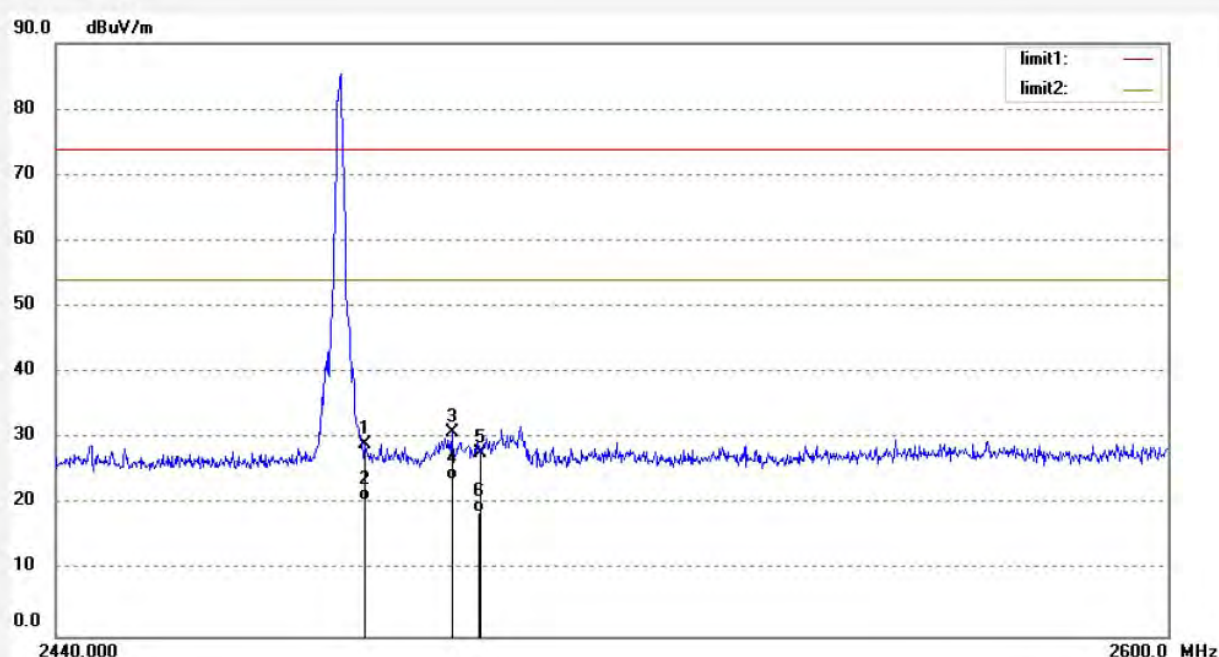
Date: 14/06/14/

Time: 15/04/18

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	35.68	-6.54	29.14	74.00	-44.86	peak			
2	2483.500	27.22	-6.54	20.68	54.00	-33.32	AVG			
3	2495.840	37.34	-6.50	30.84	74.00	-43.16	peak			
4	2495.840	30.22	-6.50	23.72	54.00	-30.28	AVG			
5	2500.000	34.21	-6.50	27.71	74.00	-46.29	peak			
6	2500.000	25.34	-6.50	18.84	54.00	-35.16	AVG			



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Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: STAR #3021

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz(8DPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

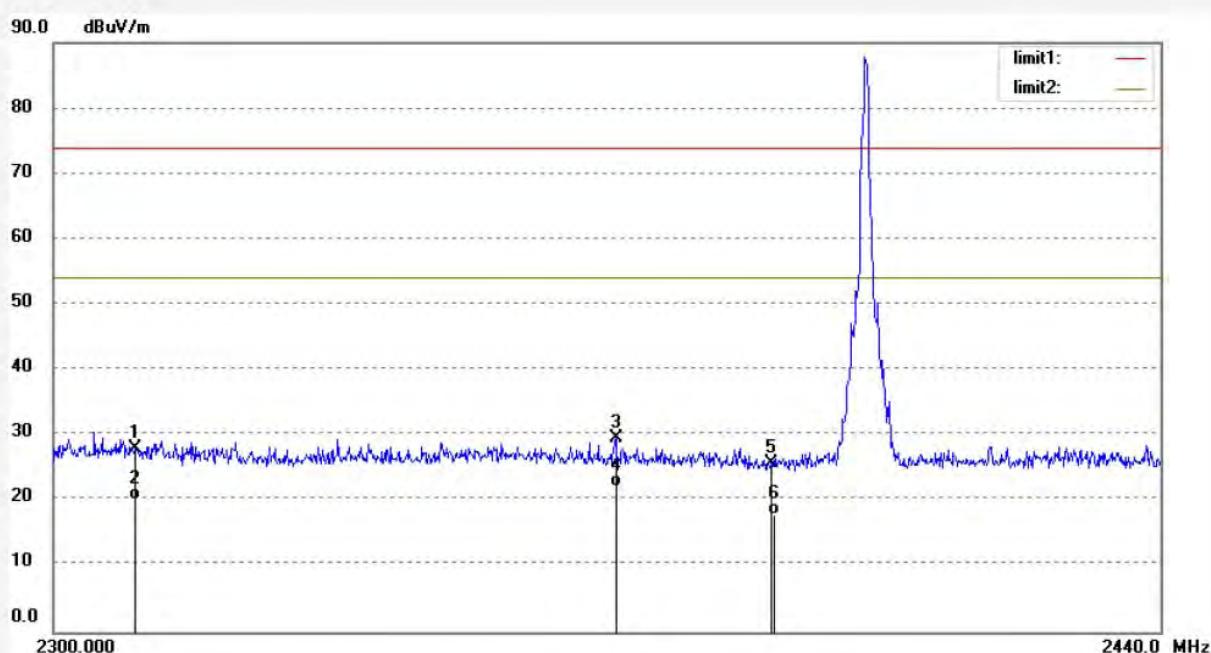
Date: 14/06/14/

Time: 14/46/17

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	35.06	-6.99	28.07	74.00	-45.93	peak			
2	2310.000	27.17	-6.99	20.18	54.00	-33.82	AVG			
3	2370.140	36.32	-6.83	29.49	74.00	-44.51	peak			
4	2370.140	28.90	-6.83	22.07	54.00	-31.93	AVG			
5	2390.000	32.52	-6.78	25.74	74.00	-48.26	peak			
6	2390.000	24.67	-6.78	17.89	54.00	-36.11	AVG			



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Fax:+86-0755-26503396

Job No.: STAR #3022

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: TX 2402MHz(8DPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

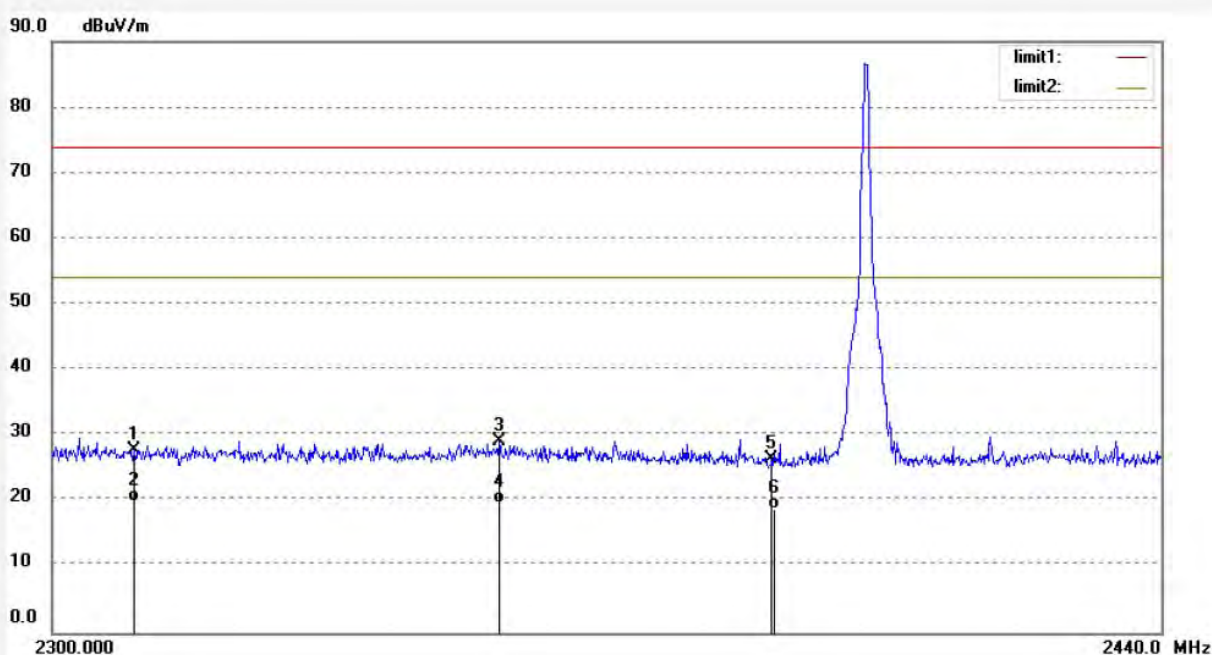
Date: 14/06/14/

Time: 14/49/56

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	34.78	-6.99	27.79	74.00	-46.21	peak			
2	2310.000	26.87	-6.99	19.88	54.00	-34.12	AVG			
3	2355.440	35.96	-6.88	29.08	74.00	-44.92	peak			
4	2355.440	26.50	-6.88	19.62	54.00	-34.38	AVG			
5	2390.000	33.12	-6.78	26.34	74.00	-47.66	peak			
6	2390.000	25.63	-6.78	18.85	54.00	-35.15	AVG			



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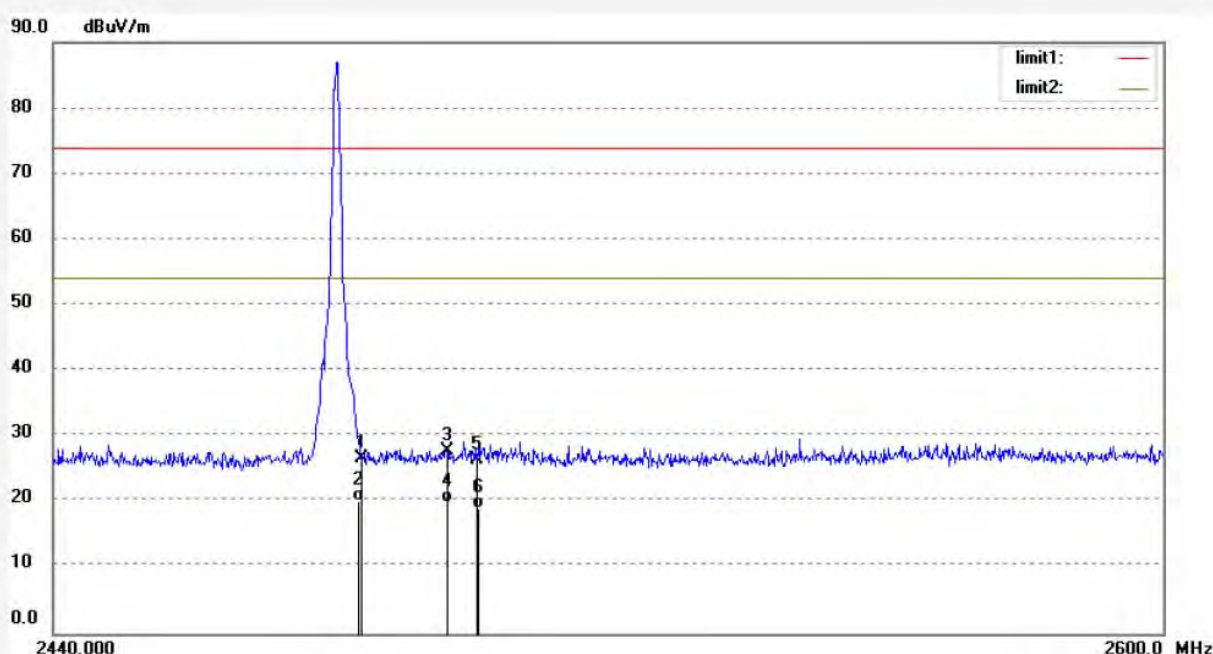
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3023
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Nyne Aqua
Mode: TX 2480MHz(8DPSK)
Model: AQUA
Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical
Power Source: DC 5V
Date: 14/01/24/
Time: 14/52/38
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	33.29	-6.54	26.75	74.00	-47.25	peak			
2	2483.500	26.78	-6.54	20.24	54.00	-33.76	AVG			
3	2495.680	34.31	-6.50	27.81	74.00	-46.19	peak			
4	2495.680	26.48	-6.50	19.98	54.00	-34.02	AVG			
5	2500.000	32.91	-6.50	26.41	74.00	-47.59	peak			
6	2500.000	25.61	-6.50	19.11	54.00	-34.89	AVG			



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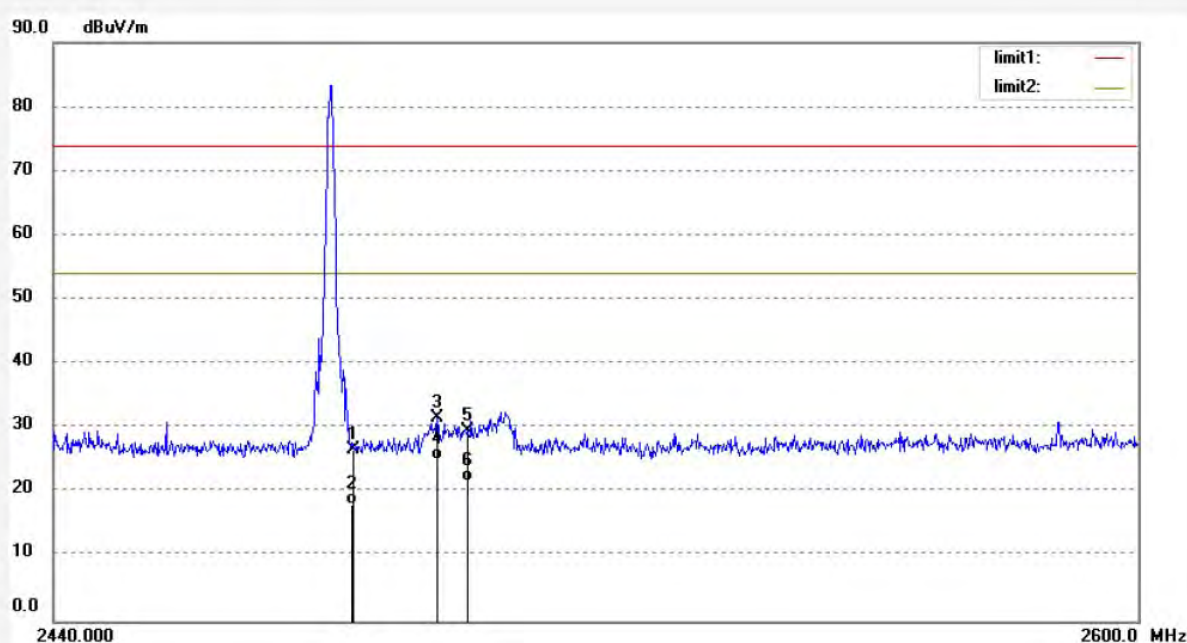
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3024
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Nyne Aqua
Mode: TX 2480MHz(8DPSK)
Model: AQUA
Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/14/
Time: 14/56/46
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	33.26	-6.54	26.72	74.00	-47.28	peak			
2	2483.500	24.60	-6.54	18.06	54.00	-35.94	AVG			
3	2495.520	38.08	-6.50	31.58	74.00	-42.42	peak			
4	2495.520	31.52	-6.50	25.02	54.00	-28.98	AVG			
5	2500.000	36.02	-6.50	29.52	74.00	-44.48	peak			
6	2500.000	28.11	-6.50	21.61	54.00	-32.39	AVG			

Hopping mode



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Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: STAR #3027

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: HOPPING (GFSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

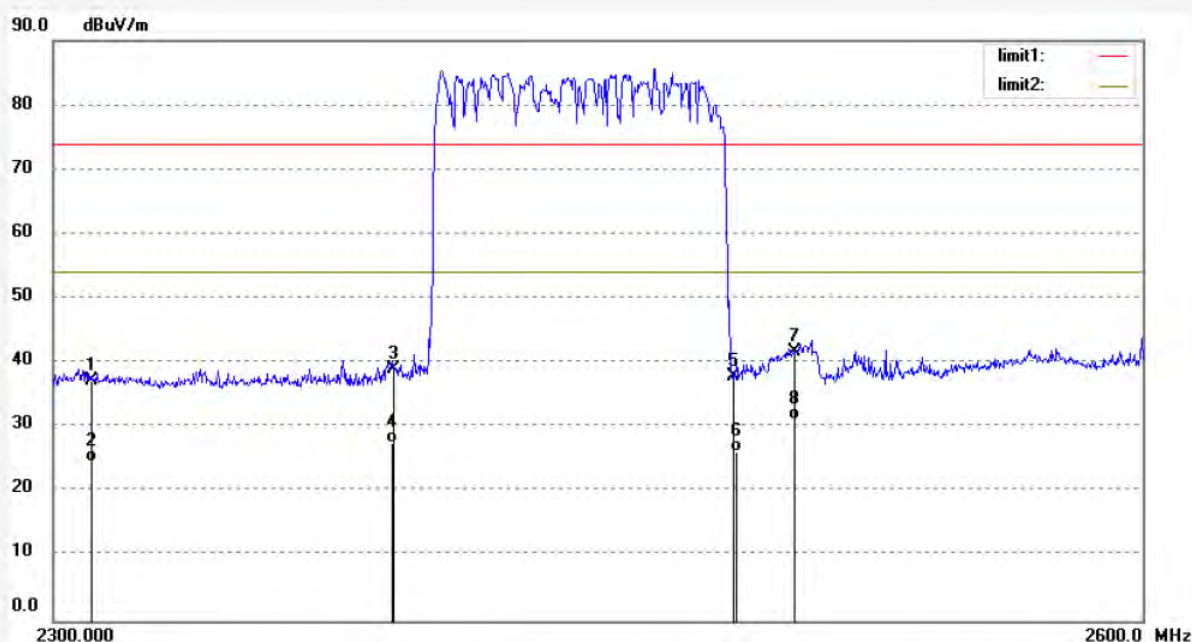
Date: 14/06/14/

Time: 11/22/51

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.18	-6.99	37.19	74.00	-36.81	peak			
2	2310.000	31.58	-6.99	24.59	54.00	-29.41	AVG			
3	2390.000	45.89	-6.78	39.11	74.00	-34.89	peak			
4	2390.000	34.25	-6.78	27.47	54.00	-26.53	AVG			
5	2483.500	44.36	-6.54	37.82	74.00	-36.18	peak			
6	2483.500	32.69	-6.54	26.15	54.00	-27.85	AVG			
7	2500.000	48.29	-6.50	41.79	74.00	-32.21	peak			
8	2500.000	37.66	-6.50	31.16	54.00	-22.84	AVG			


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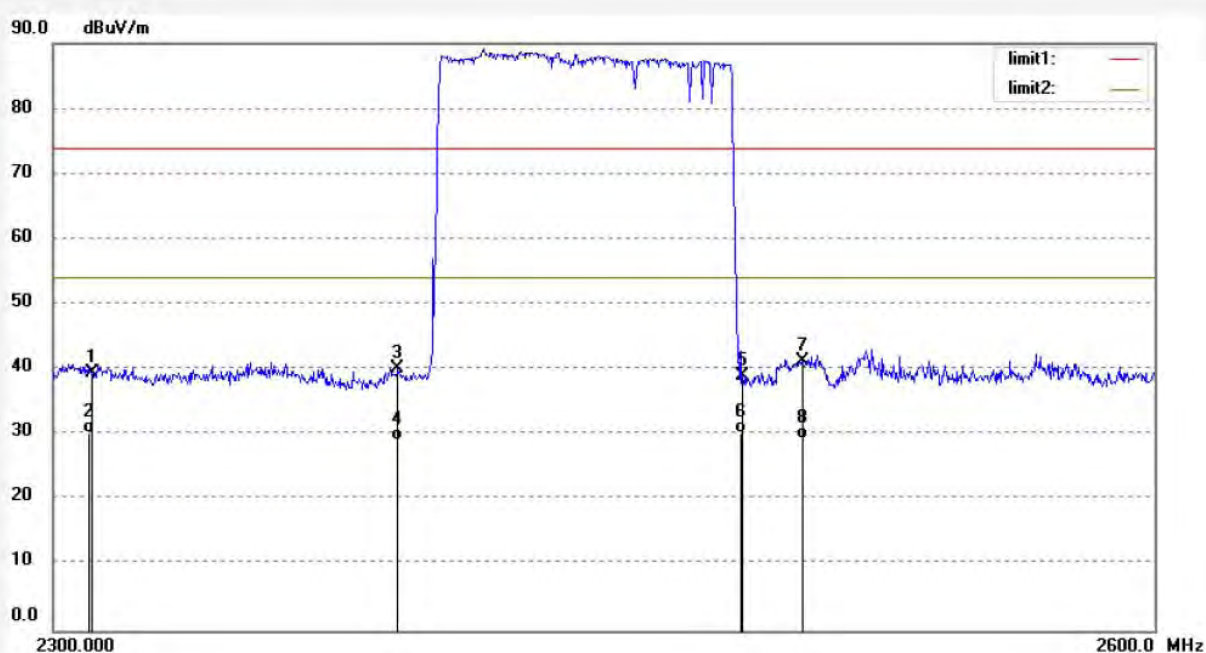
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #3028
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Nyne Aqua
Mode: HOPPING (GFSK)
Model: AQUA
Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/14/
Time: 11/25/42
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.43	-6.99	39.44	74.00	-34.56	peak			
2	2310.000	37.25	-6.99	30.26	54.00	-23.74	AVG			
3	2390.000	46.86	-6.78	40.08	74.00	-33.92	peak			
4	2390.000	35.86	-6.78	29.08	54.00	-24.92	AVG			
5	2483.500	45.50	-6.54	38.96	74.00	-35.04	peak			
6	2483.500	36.87	-6.54	30.33	54.00	-23.67	AVG			
7	2500.000	47.78	-6.50	41.28	74.00	-32.72	peak			
8	2500.000	35.88	-6.50	29.38	54.00	-24.62	AVG			



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Job No.: STAR #3029

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: HOPPING (π/4-DQPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

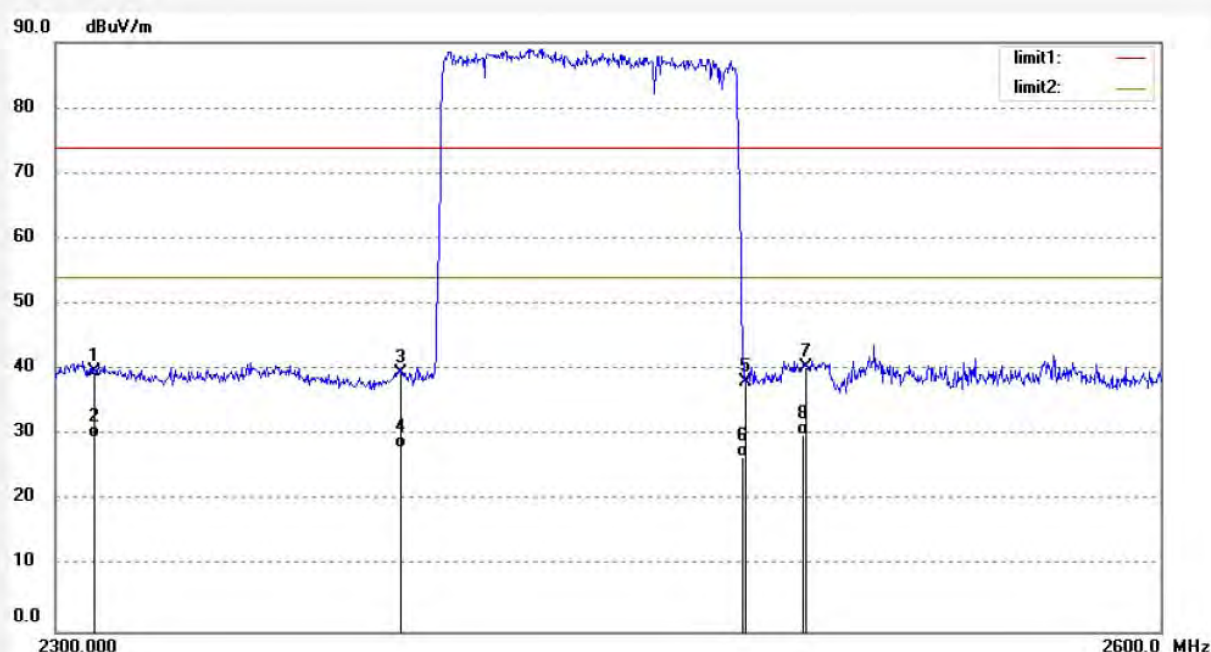
Date: 14/06/14/

Time: 11/28/17

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.75	-6.99	39.76	74.00	-34.24	peak			
2	2310.000	36.55	-6.99	29.56	54.00	-24.44	AVG			
3	2390.000	46.28	-6.78	39.50	74.00	-34.50	peak			
4	2390.000	34.89	-6.78	28.11	54.00	-25.89	AVG			
5	2483.500	44.59	-6.54	38.05	74.00	-35.95	peak			
6	2483.500	33.24	-6.54	26.70	54.00	-27.30	AVG			
7	2500.000	46.93	-6.50	40.43	74.00	-33.57	peak			
8	2500.000	36.43	-6.50	29.93	54.00	-24.07	AVG			



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Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: STAR #3030

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: HOPPING (π/4-DQPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

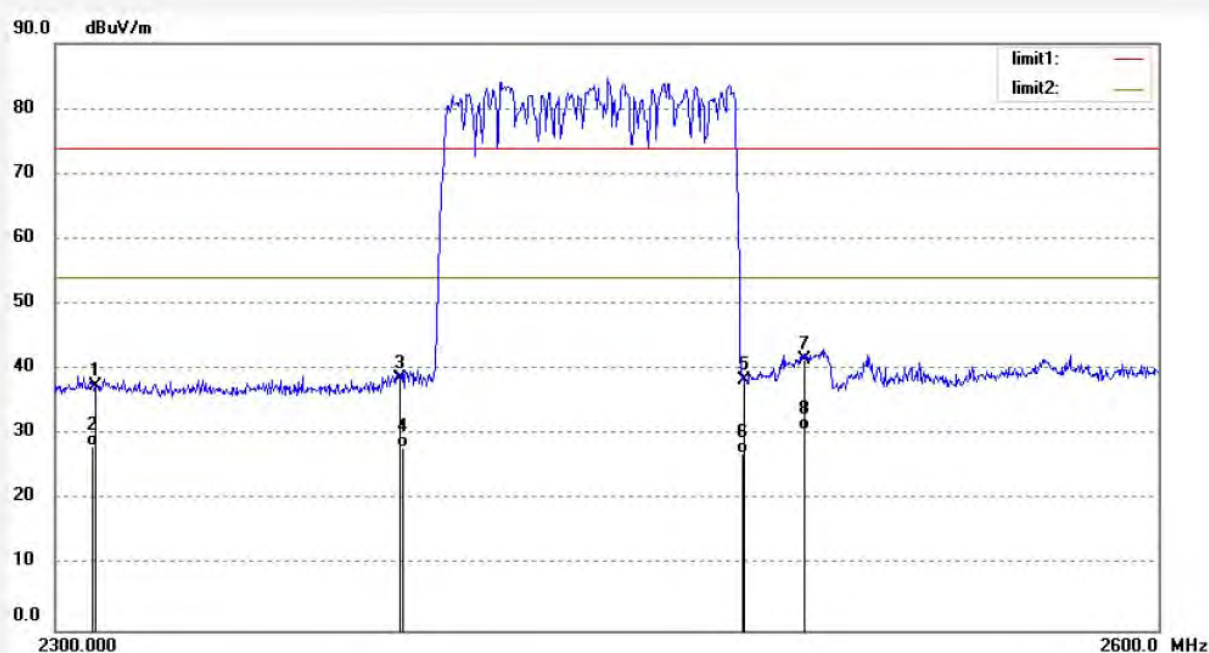
Date: 14/06/14/

Time: 11/31/16

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.36	-6.99	37.37	74.00	-36.63	peak			
2	2310.000	35.24	-6.99	28.25	54.00	-25.75	AVG			
3	2390.000	45.45	-6.78	38.67	74.00	-35.33	peak			
4	2390.000	34.80	-6.78	28.02	54.00	-25.98	AVG			
5	2483.500	44.82	-6.54	38.28	74.00	-35.72	peak			
6	2483.500	33.58	-6.54	27.04	54.00	-26.96	AVG			
7	2500.000	48.09	-6.50	41.59	74.00	-32.41	peak			
8	2500.000	37.32	-6.50	30.82	54.00	-23.18	AVG			



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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #3031

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: HOPPING (8DPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Horizontal

Power Source: DC 5V

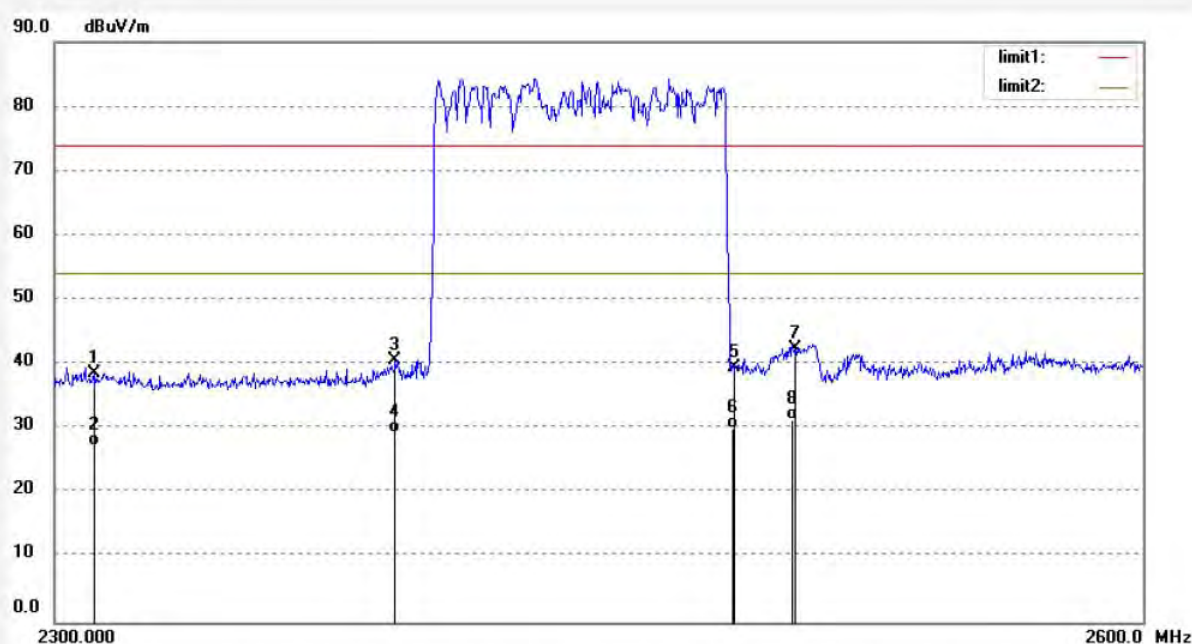
Date: 14/06/14/

Time: 11/36/34

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	45.68	-6.99	38.69	74.00	-35.31	peak			
2	2310.000	34.29	-6.99	27.30	54.00	-26.70	AVG			
3	2390.000	47.42	-6.78	40.64	74.00	-33.36	peak			
4	2390.000	36.10	-6.78	29.32	54.00	-24.68	AVG			
5	2483.500	45.92	-6.54	39.38	74.00	-34.62	peak			
6	2483.500	36.61	-6.54	30.07	54.00	-23.93	AVG			
7	2500.000	48.96	-6.50	42.46	74.00	-31.54	peak			
8	2500.000	37.88	-6.50	31.38	54.00	-22.62	AVG			



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Site: 1# Chamber

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Job No.: STAR #3032

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Nyne Aqua

Mode: HOPPING (8DPSK)

Model: AQUA

Manufacturer: NYNE MULTIMEDIA INC.

Polarization: Vertical

Power Source: DC 5V

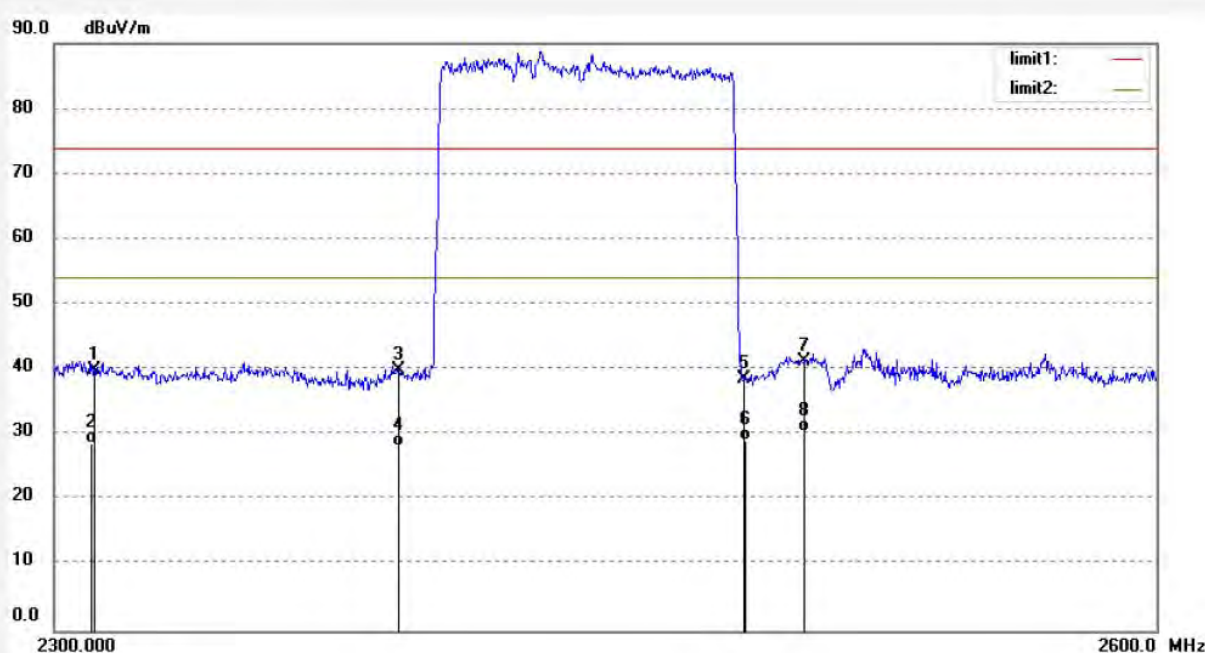
Date: 14/06/14/

Time: 11/39/37

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20140958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.88	-6.99	39.89	74.00	-34.11	peak			
2	2310.000	35.60	-6.99	28.61	54.00	-25.39	AVG			
3	2390.000	46.74	-6.78	39.96	74.00	-34.04	peak			
4	2390.000	35.10	-6.78	28.32	54.00	-25.68	AVG			
5	2483.500	45.21	-6.54	38.67	74.00	-35.33	peak			
6	2483.500	35.66	-6.54	29.12	54.00	-24.88	AVG			
7	2500.000	47.76	-6.50	41.26	74.00	-32.74	peak			
8	2500.000	36.91	-6.50	30.41	54.00	-23.59	AVG			

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

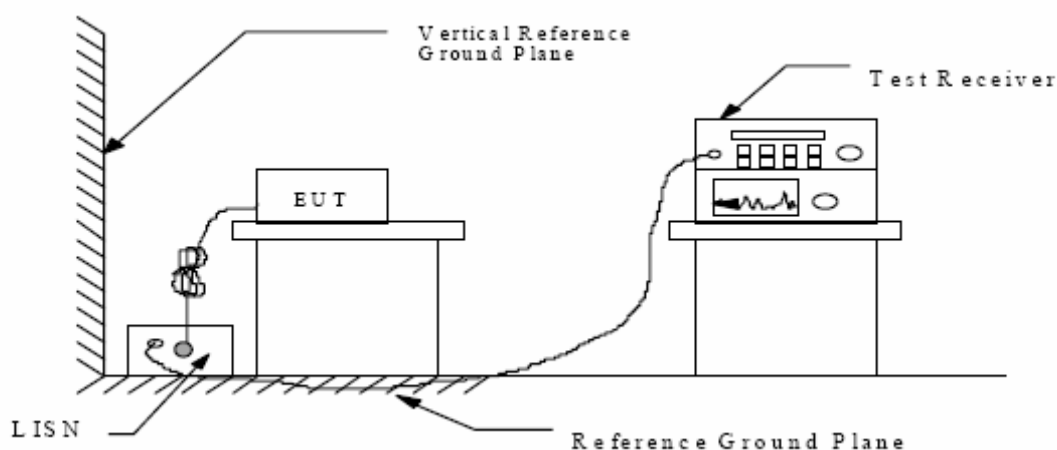
12.1.Block Diagram of Test Setup

12.1.1.Block diagram of connection between the EUT and simulators



(EUT:Nyne Aqua)

12.1.2.Shielding Room Test Setup Diagram



(EUT:Nyne Aqua)

12.2.The Emission Limit

12.2.1.Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

* Decreases with the logarithm of the frequency.

12.3.Configuration of EUT on Measurement

The following equipment are installed on the Conducted Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

12.3.1.Nyne Aqua (EUT)

Model Number : AQUA
Serial Number : N/A
Manufacturer : NYNE MULTIMEDIA INC.

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 11.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in TX (Charging) mode measure it.

12.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4- 2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz.

The frequency range from 150 kHz to 30MHz is checked.

12.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150 kHz to 30MHz is checked.

Date of Test:	<u>June 14, 2014</u>	Temperature:	<u>25°C</u>
EUT:	<u>iColor Lighting Bluetooth</u>	Humidity:	<u>50%</u>
Model No.:	<u>Speaker</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>AQUA</u>	Test Engineer:	<u>Rickey</u>
	<u>Charging</u>		

Frequency (MHz)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector	Line
0.171806	54.00	65	-10.9	QP	Neutral
0.241214	45.50	62	-15.6	QP	
2.866190	37.10	56	-18.9	QP	
0.172493	32.80	55	-22.0	AV	
0.242179	30.10	52	-21.9	AV	
3.055234	29.30	46	-16.7	AV	
0.175269	53.80	65	-10.9	QP	Live
0.241214	47.10	62	-15.0	QP	
3.457718	37.70	56	-18.3	QP	
0.178803	37.70	55	-16.8	AV	
0.240253	29.60	52	-22.5	AV	
3.179666	28.60	46	-17.4	AV	

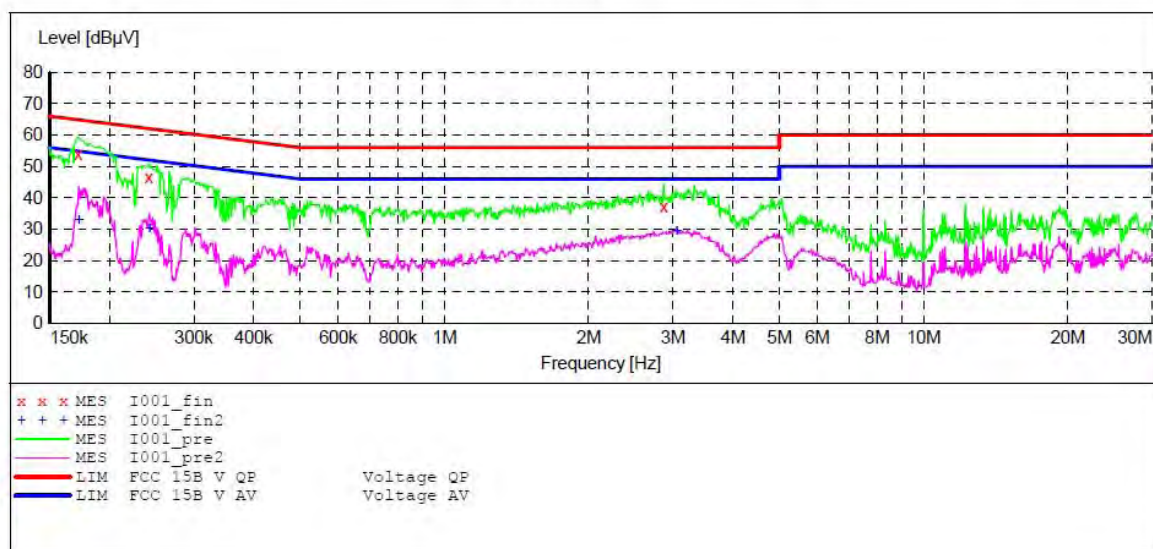
Emissions attenuated more than 20 dB below the permissible value are not reported.
The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO.,LTD**CONDUCTED EMISSION STANDARD FCC PART 15 B**

EUT: Nyne Aqua M/N:AQUA
 Manufacturer: NYNE MULTIMEDIA INC.
 Operating Condition: Charging
 Test Site: 1#Shielding Room
 Operator: star
 Test Specification: N 120V/60Hz
 Comment: Report No:ATE20140958
 Start of Test: 6/14/2014 / 1:41:05PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "I001_fin"**

6/14/2014 1:43PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.171806	54.00	10.5	65	10.9	QP	N	GND
0.241214	46.50	10.6	62	15.6	QP	N	GND
2.866190	37.10	11.0	56	18.9	QP	N	GND

MEASUREMENT RESULT: "I001_fin2"

6/14/2014 1:43PM

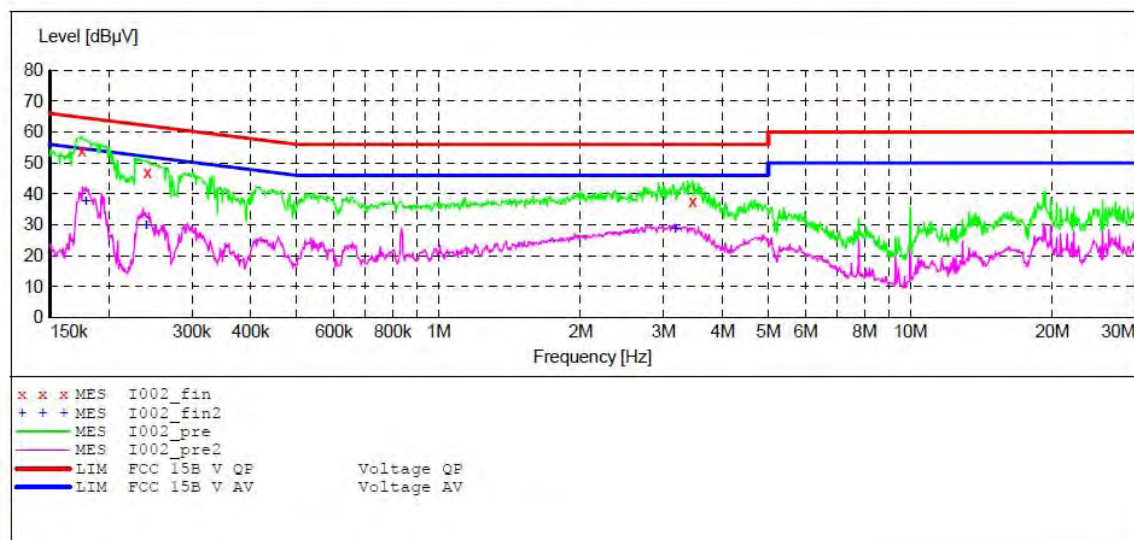
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.172493	32.80	10.5	55	22.0	AV	N	GND
0.242179	30.10	10.6	52	21.9	AV	N	GND
3.055234	29.30	11.1	46	16.7	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD**CONDUCTED EMISSION STANDARD FCC PART 15 B**

EUT: Nyne Aqua M/N:AQUA
 Manufacturer: NYNE MULTIMEDIA INC.
 Operating Condition: Charging
 Test Site: 1#Shielding Room
 Operator: star
 Test Specification: L 120V/60Hz
 Comment: Report No:ATE20140958
 Start of Test: 6/14/2014 / 1:44:07PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "I002_fin"**

6/14/2014 1:46PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.175269	53.80	10.5	65	10.9	QP	L1	GND
0.241214	47.10	10.6	62	15.0	QP	L1	GND
3.457718	37.70	11.1	56	18.3	QP	L1	GND

MEASUREMENT RESULT: "I002_fin2"

6/14/2014 1:46PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.178803	37.70	10.5	55	16.8	AV	L1	GND
0.240253	29.60	10.6	52	22.5	AV	L1	GND
3.179666	28.60	11.1	46	17.4	AV	L1	GND

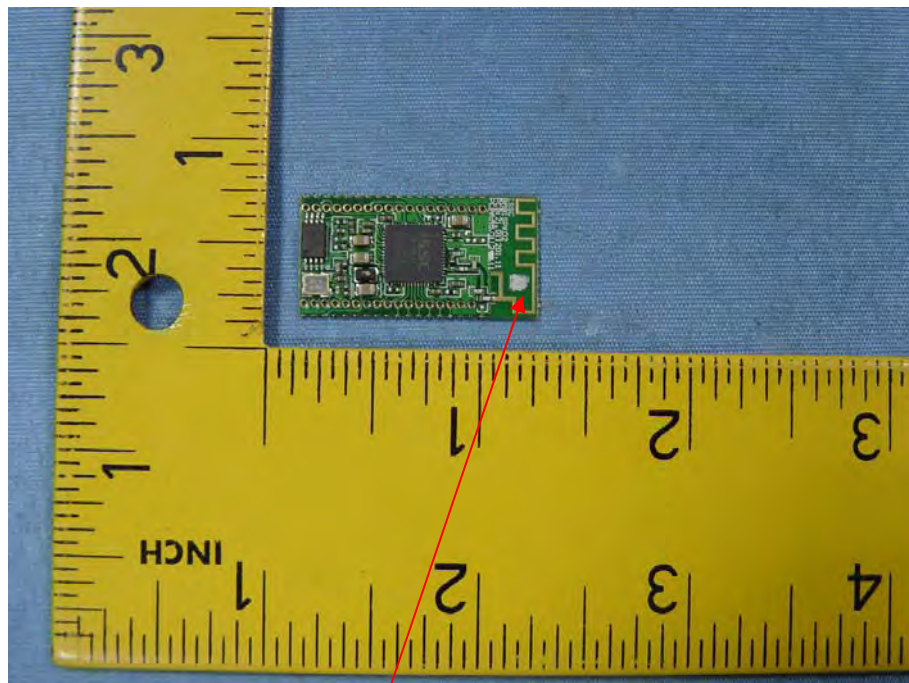
13.ANTENNA REQUIREMENT

13.1.The Requirement

According to Section 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.

13.2.Antenna Construction

The antenna is PCB Layout antenna, no consideration of replacement. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna