FCC RADIO TEST REPORT

FCC ID: 2AUX7-MDK100

Product Name:	MDK-100
Trade Mark:	N/A
Main Model:	MDK-100
Additional Model:	N/A
Report No.:	UNIA20092210ER-01

Prepared for

Estone Technology LTD

2F,Building No.1, Jia'an Industrial Park,No.2 Long Chang Road, Bao'an, Shenzhen 518101, China.

Prepared by

Shenzhen United Testing Technology Co., Ltd.

2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

TEST RESULT CERTIFICATION

Applicant:	Estone Technology LTD
Address:	2F,Building No.1, Jia'an Industrial Park,No.2 Long Chang Road, Bao'an, Shenzhen 518101, China.
Manufacturer:	Estone Technology LTD
Address:	2F,Building No.1, Jia'an Industrial Park,No.2 Long Chang Road, Bao'an, Shenzhen 518101, China.

Product description

Product Name:	MDK-100
Trade Mark:	N/A
Model Name:	MDK-100
Test Methods:	FCC Rules and Regulations Part 15 Subpart C Section 15.247, ANSI C63.10: 2013

This device described above has been tested by Shenzhen United Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
This report shall not be reproduced except in full, without the written approval of UNI, this document may be altered or revised by Shenzhen United Testing Technology Co., Ltd., personnel only, and shall be noted in the revision of the document.

Date of Test:	
Date (s) of performance of tests:	August 20~ September 17, 2020
Date of Issue:	September 18, 2020
Test Result:	Pass

Prepared by: Bob liao

Bob liao/Editor

Reviewer: Kahn.Yang

Kahn yang/Supervisor

Approved & Authorized Signer: liuze

Liuze/Manager

Table of Contents

1. GENERAL INFORMATION 6

1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST 6
1.2 RELATED SUBMITTAL(S) / GRANT (S) 8
1.3 TEST METHODOLOGY 8
1.4 EQUIPMENT MODIFICATIONS 8
1.5 SUPPORT DEVICE 8
1.6 TEST FACILITY AND LOCATION 9
1.7 SUMMARY OF TEST RESULTS 10

2. SYSTEM TEST CONFIGURATION 11

2.1 EUT CONFIGURATION 11
2.2 SPECIAL ACCESSORIES 11
2.3 DESCRIPTION OF TEST MODES 11

3. FREQUENCY HOPPING SYSTEM REQUIREMENTS 12

3.1 STANDARD AND LIMIT 12
3.2 EUT PSEUDORANDOM FREQUENCY HOPPING SEQUENCE 12
3.3 FREQUENCY HOPPING SYSTEM 13

4. AC POWER LINE CONDUCTED EMISSIONS 14

4.1 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 14
4.2 TEST CONDITION 14
4.3 MEASUREMENT RESULTS 14

5. RADIATED EMISSION 17

5.1 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 17
5.2 MEASUREMENT PROCEDURE 18
5.3 LIMIT 19
5.4 MEASUREMENT RESULTS 19

6. CHANNEL SEPARATION 40

6.1 MEASUREMENT PROCEDURE 40
6.2 LIMIT 40
6.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 40
6.4 MEASUREMENT RESULTS 40

7. 20DB BANDWIDTH 47

7.1 MEASUREMENT PROCEDURE 47
7.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 47
7.3 MEASUREMENT RESULTS 47

8. HOPPING CHANNEL NUMBER 53

8.1 MEASUREMENT PROCEDURE 53
8.2 LIMIT 53
8.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 53
8.4 MEASUREMENT RESULTS 53

9. TIME OF OCCUPANCY (DWELL TIME) 56

9.1 MEASUREMENT PROCEDURE 56
9.2 LIMIT 56
9.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 56
9.4 MEASUREMENT RESULTS 56

10. MAXIMUM PEAK OUTPUT POWER 63

10.1 MEASUREMENT PROCEDURE 63
10.2 LIMIT 63
10.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 63
10.4 MEASUREMENT RESULTS 63

11. BAND EDGE 69

11.1 MEASUREMENT PROCEDURE 69
11.2 LIMIT 69
11.3 MEASUREMENT RESULTS 69

12. ANTENNA APPLICATION 80

12.1 ANTENNA REQUIREMENT 80
12.2 MEASUREMENT RESULTS 80

13. CONDUCTED SPURIOUS EMISSIONS 81

13.1 MEASUREMENT PROCEDURE 81
13.2 LIMIT 81
13.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 81
13.4 MEASUREMENT RESULTS 81

14. TEST EQUIPMENT LIST 87

Revision History of This Test Report

Report Number	Description	Issued Date
	Initial Issue	**2020-9-18**

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

Product Name:	MDK-100
Trade Mark:	N/A
Main Model:	MDK-100
Additional Model:	N/A
Model Difference:	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: MDK-100
FCC ID:	2AUX7-MDK100
Operation Frequency:	2402MHz~2480MHz
Number of Channels:	79CH
Modulation Type:	GFSK, π/4 DQPSK, 8DPSK
Antenna Type:	PIFA Antenna
Antenna Gain:	0dBi
Battery:	Battery 1: Rated Voltage: 11.1V Charge Limit: 12.6V Capacity: 3700 mAh Battery 1: Rated Voltage: 7.4V Charge Limit: 8.4V Capacity: 440 mAh
Adapter:	Adapter 1: Input: AC100-240V, 1700 mA, 50/60Hz Output: DC19 V, 3000mA Adapter 2: Input: AC100-250V, 1.5-0.75A max, 50/60Hz Output: DC19 V, 3.15A Adapter 3: Input: AC100-240V, 1.5 A, 50/60Hz Output: DC18 V, 3.4A
Bluetooth Version:	4.2 BR+EDMR

Bluetooth Channel List

Channel	Frequency MHz	Channel	Frequency MHz	Channel	Frequency MHz	Channel	Frequency MHz
1	2402	21	2422	41	2442	61	2462
2	2403	22	2423	42	2443	62	2463
3	2404	23	2424	43	2444	63	2464
4	2405	24	2425	44	2445	64	2465
5	2406	25	2426	45	2446	65	2466
6	2407	26	2427	46	2447	66	2467
7	2408	27	2428	47	2448	67	2468
8	2409	28	2429	48	2449	68	2469
9	2410	29	2430	49	2450	69	2470
10	2411	30	2431	50	2451	70	2471
11	2412	31	2432	51	2452	71	2472
12	2413	32	2433	52	2453	72	2473
13	2414	33	2434	53	2454	73	2474
14	2415	34	2435	54	2455	74	2475
15	2416	35	2436	55	2456	75	2476
16	2417	36	2437	56	2457	76	2477
17	2418	37	2438	57	2458	77	2478
18	2419	38	2439	58	2459	78	2479
19	2420	39	2440	59	2460	79	2480
20	2421	40	2441	60	2461		

Note: According to section 15.31(m), regards to the operating frequency range over 10MHz, the Lowest, middle, and the Highest frequency of channel were selected to perform the test. The selected frequency and test software see below:

Channel	Frequency (MHz)
1	2402
40	2441
79	2480

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2AUX7-MDK100 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rule.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters.

1.4 Equipment Modifications

Not available for this EUT intended for grant.

1.5 Support Device

Description	Manufacturer	Model	S/N
Adapter	SOY	SOY-1900300	N/A
DC Cable	N/A	150cm	N/A

1.6 Test Facility and Location

Test Firm : Shenzhen United Testing Technology Co., Ltd.

Address : 2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.The testing quality system of our laboratory meets with ISO/IEC-17025 requirements. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

A2LA Certificate Number: 4747.01

The EMC Laboratory has been accredited by A2LA, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

FCC Registration Number: 674885

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission.

IC Registration Number: 21947

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada.

1.7 Summary of Test Results

FCC Rules	Description Of Test	Uncertainty	Result
§15.207 (a)	AC Power Line Conducted Emission	±1.06dB	Compliant
§15.247(d),§15.209, §15.205	Radiated Emission	±3.70dB	Compliant
§15.247(a)(1)	Channel Separation	±1.42 x10^{-4}%	Compliant
§15.247(a)(1)	20dB Bandwidth	±1.42 x10^{-4}%	Compliant
§15.247(a)(1)(iii)	Hopping Channel Number	±1.42 x10^{-4}%	Compliant
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	±5%	Compliant
§15.247(b)	Max Peak Output Power	±1.06dB	Compliant
§15.247(d)	Band Edge	±1.70dB	Compliant
§15.203	Antenna Requirement	N/A	Compliant
§15.247(d)	Conducted Spurious Emission	±1.70dB	Compliant

2. SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 Special Accessories

Not available for this EUT intended for grant.

2.3 Description of test modes

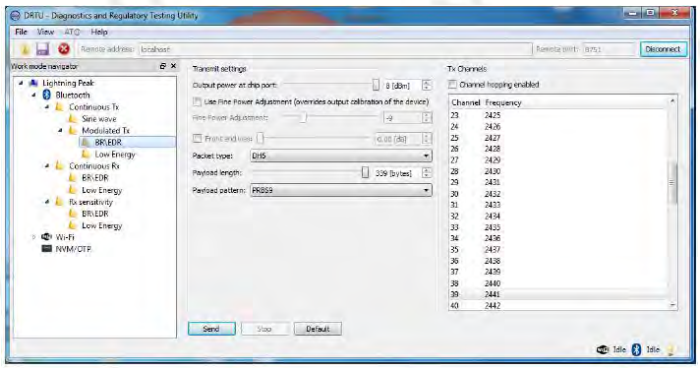
The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and normal mode is programmed. The Lowest, middle and highest channel were chosen for testing, and all packets DH1, DH3, DH5, 2-DH1, 2-DH3, 2-DH5, 3-DH1, 3-DH3, 3-DH5 mode in all modulation type GFSK, π/4-DQPSK and 8DPSK were tested.

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

Test Item	Software	Description
Conducted RF Testing and Radiated testing	DRTU	Set the EUT to different modulation and channel

Output power setting table:

Test Mode	Set Tx Output Power	Data rate
GFSK	6dBm	DH1
π/4-DQPSK	5dBm	2-DH1
8DPSK	5dBm	3-DH1



3. FREQUENCY HOPPING SYSTEM REQUIREMENTS

3.1 Standard and Limit

According to FCC Part 15.247(a)(1), The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly 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.

(g) Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

(h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

3.2 EUT Pseudorandom Frequency Hopping Sequence

Pseudorandom Frequency Hopping Sequence Table as below:
Channel: 08, 24, 40, 56, 34, 51, 72, 09, 01, 64, 22, 33, 41, 32, 47, 65, 73, 53, 69, 06, 17, 04, 20, 36, 52, 38, 66, 70, 78, 68, 76, 21, 29, 10, 26, 49, 00, 58, 44, 59, 75, 13, 03, 14, 11, 35, 43, 37, 50, 61, 77, 55, 71, 02, 23, 07, 27, 39, 54, 46, 48, 15, 63, 62, 67, 25, 31, 12, 28, 19, 60, 42, 57, 74, 16, 05, 18, 30, 45, etc.

The system receiving have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

3.3 Frequency Hopping System

This transmitter device is frequency hopping device, and complies with FCC part 15.247 rule.

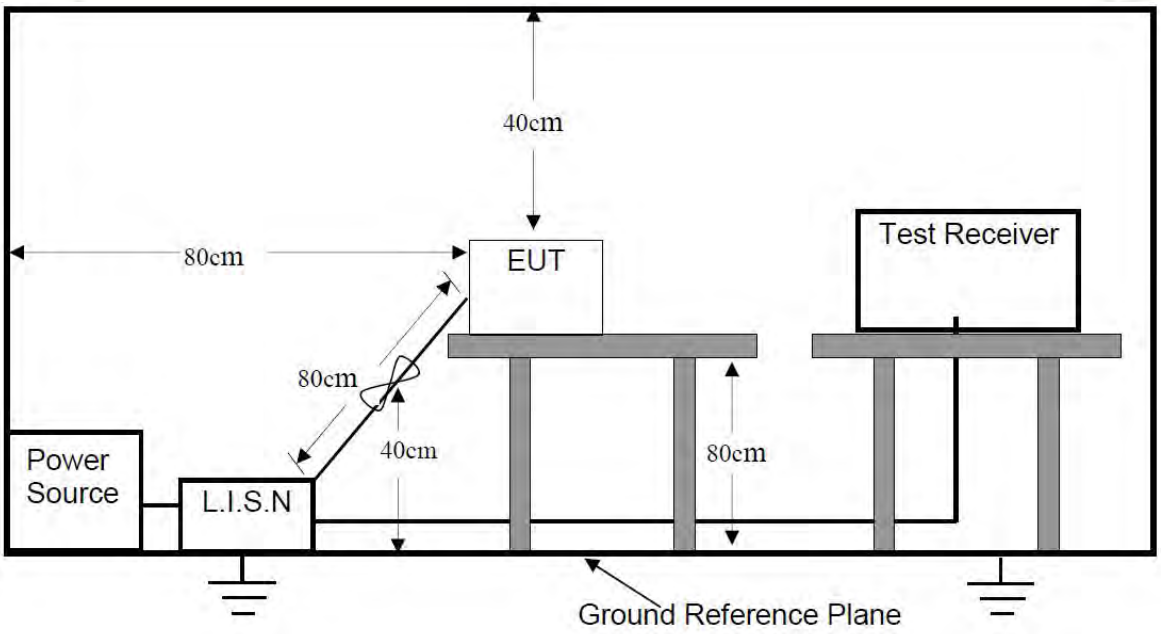
This device uses Bluetooth radio which operates in 2400-2483.5 MHz band. Bluetooth uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 bands (1 MHz each; centred from 2402 to 2480 MHz) in the range 2,400-2,483.5MHz. The transmitter switches hop frequencies 1,600 times per second to assure a high degree of data security. All Bluetooth devices participating in a given piconet are synchronized to the frequency-hopping channel for the piconet. The frequency hopping sequence is determined by the master's device address and the phase of the hopping sequence (the frequency to hop at a specific time) is determined by the master's internal clock. Therefore, all slaves in a piconet must know the master's device address and must synchronize their clocks with the master's clock.

Adaptive Frequency Hopping (AFH) was introduced in the Bluetooth specification to provide an effective way for a Bluetooth radio to counteract normal interference. AFH identifies "bad" channels, where either other wireless devices are interfering with the Bluetooth signal or the Bluetooth signal is interfering with another device. The AFH-enabled Bluetooth device will then communicate with other devices within its piconet to share details of any identified bad channels. The devices will then switch to alternative available "good" channels, away from the areas of interference, thus having no impact on the bandwidth used.

This device was tested with a bluetooth system receiver to check that the device maintained hopping synchronization, and the device complied with these requirements FCC Part 15.247 rule.

4. AC POWER LINE CONDUCTED EMISSIONS

4.1 Test SET-UP (Block Diagram of Configuration)



4.2 Test Condition

Test Requirement: FCC Part 15.207

Frequency Range: 150kHz ~ 30MHz

Detector: QP, AVG

Operation Mode: BT Communication

4.3 Measurement Results

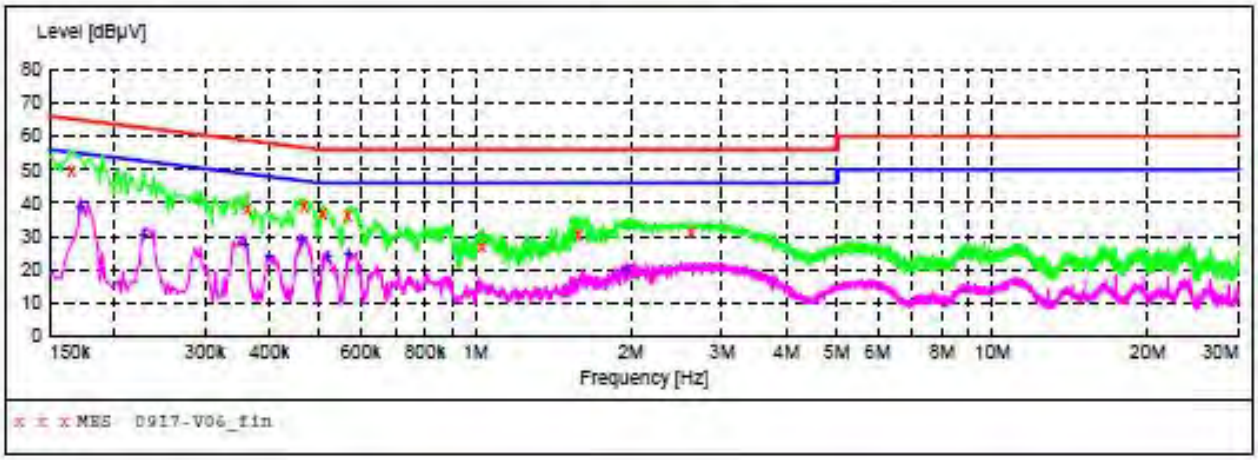
PASS

Please refer to the following pages of the worst case

E.U.T:	MDK-100	Phase:	Line
Model No.:	MDK-100	Temperature:	25 ℃
Test Mode:	On with Bluetooth	Humidity:	50 %
Test Voltage:	AC 120V/60Hz	Test By:	PEI
Test Results:	PASS		

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "0917-V06_fin"

2020-9-17

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.166000	49.40	10.6	65	15.8	QP	L1	GND
0.362000	38.10	10.9	59	20.6	QP	L1	GND
0.466000	39.20	11.0	57	17.4	QP	L1	GND
0.506000	36.70	11.0	56	19.3	QP	L1	GND
0.566000	36.40	11.0	56	19.6	QP	L1	GND
1.030000	27.20	11.0	56	28.8	QP	L1	GND
1.584000	30.90	11.0	56	25.1	QP	L1	GND
2.616500	31.20	11.0	56	24.8	QP	L1	GND

MEASUREMENT RESULT: "0917-V06_fin2"

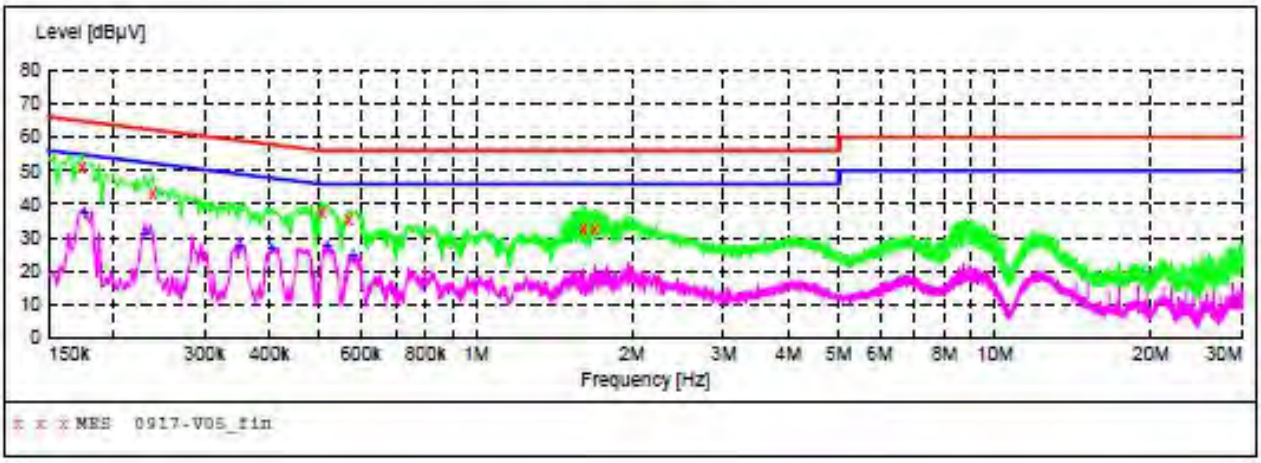
2020-9-17

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.172000	38.80	10.6	55	16.1	AV	L1	GND
0.228000	30.30	10.7	53	22.2	AV	L1	GND
0.358000	27.80	10.9	49	21.0	AV	L1	GND
0.398000	24.60	10.9	48	23.3	AV	L1	GND
0.460000	28.90	11.0	47	17.8	AV	L1	GND
0.518000	24.40	11.0	46	21.6	AV	L1	GND
0.568000	25.30	11.0	46	20.7	AV	L1	GND
1.956000	19.70	10.9	46	26.3	AV	L1	GND

E.U.T:	MDK-100	Phase:	Neutral
Model No.:	MDK-100	Temperature:	25 ℃
Test Mode:	On with Bluetooth	Humidity:	50 %
Test Voltage:	AC 120V/60Hz	Test By:	PEI
Test Results:	PASS		

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "0917-V05_fin"

2020-9-17

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.174000	51.40	10.6	65	13.4	QP	N	GND
0.238000	43.30	10.7	62	18.9	QP	N	GND
0.504000	37.80	11.0	56	18.2	QP	N	GND
0.568000	35.40	11.0	56	20.6	QP	N	GND
1.610000	32.80	11.0	56	23.2	QP	N	GND
1.694000	32.70	11.0	56	23.3	QP	N	GND

MEASUREMENT RESULT: "0917-V05_fin2"

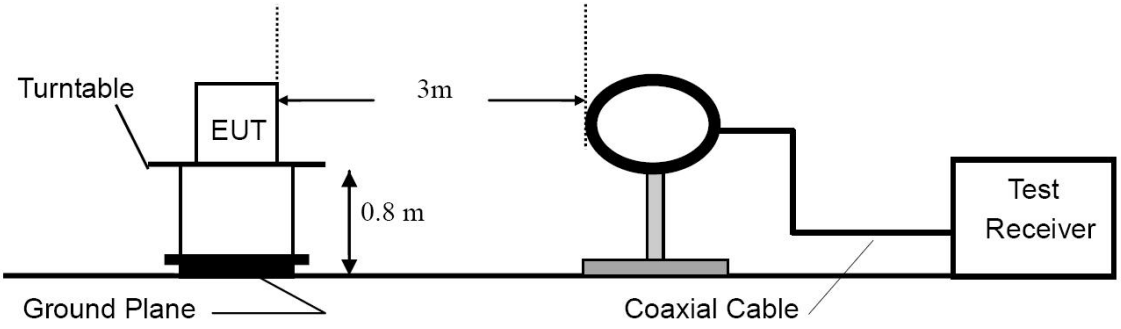
2020-9-17

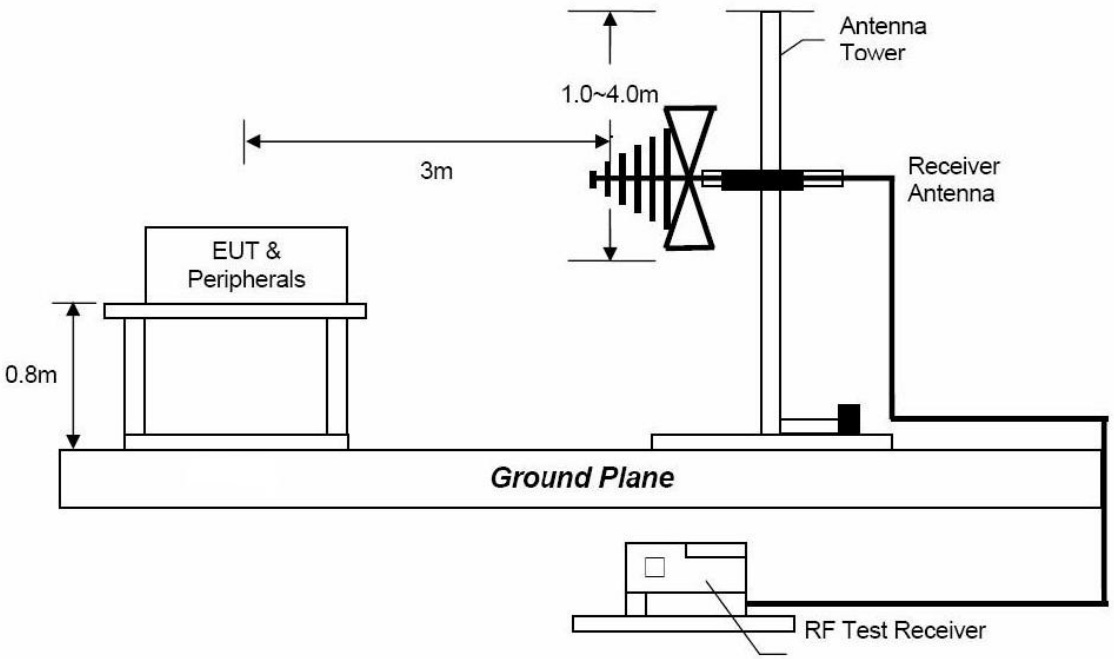
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.176000	37.50	10.6	55	17.2	AV	N	GND
0.230000	31.40	10.7	52	21.0	AV	N	GND
0.350000	27.60	10.9	49	21.4	AV	N	GND
0.404000	26.90	10.9	48	20.9	AV	N	GND
0.516000	27.50	11.0	46	18.5	AV	N	GND
0.580000	24.80	11.0	46	21.2	AV	N	GND

5. RADIATED EMISSION

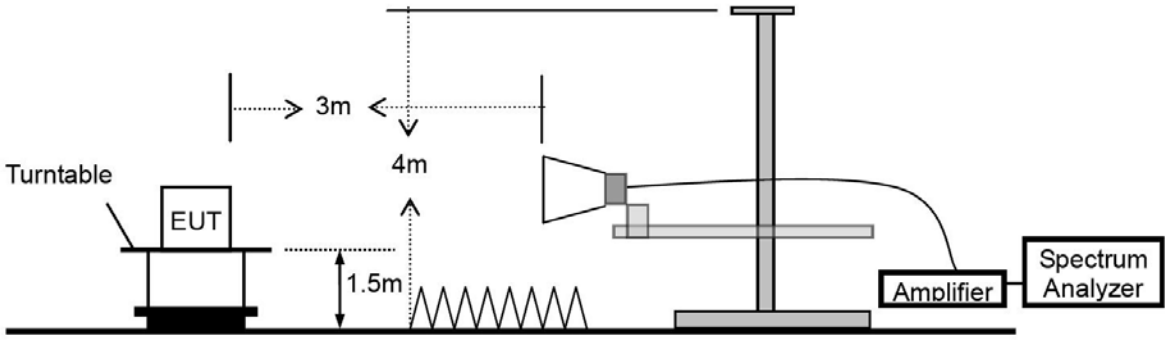
5.1 Test SET-UP (Block Diagram of Configuration)

5.1.1 Radiated Emission Test Set-Up, Frequency below 30MHz





5.1.2 Radiated Emission Test Set-Up, Frequency above 1GHz



5.2 Measurement Procedure

a. Blow 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room.

b. For the radiated emission test above 1GHz:
The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.

f. A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Band (MHz)	Level	Resolution Bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	3 MHz
	Average	1 MHz	If D≥98 then VBW ≥ 3*RBW, If D≤98 then VBW ≥1/T

5.3 Limit

Frequency range MHz	Distance Meters	Field Strengths Limit (15.209) μV/m
0.009 ~ 0.490	300	2400/F(kHz)
0.490 ~ 1.705	30	24000/F(kHz)
1.705 ~ 30	30	30
30 ~ 88	3	100
88 ~ 216	3	150
216 ~ 960	3	200
Above 960	3	500

Remark：(1) Emission level (dB)μV = 20 log Emission level μV/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

(4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

5.4 Measurement Results

Please refer to following plots of the worst case: GFSK Low channel.

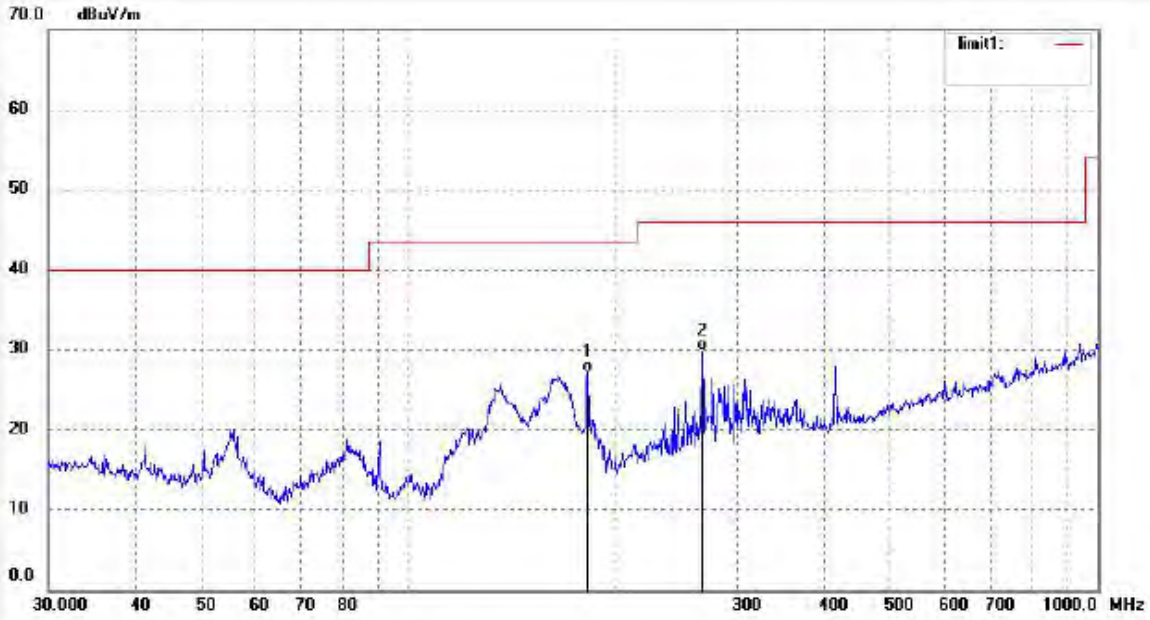
Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit. Therefore, 9kHz-30MHz data were not recorded.

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2402MHz (GFSK)	Humidity:	48 %
Frequency Range:	30MHz-1GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data #50
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2402MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Horizontal
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



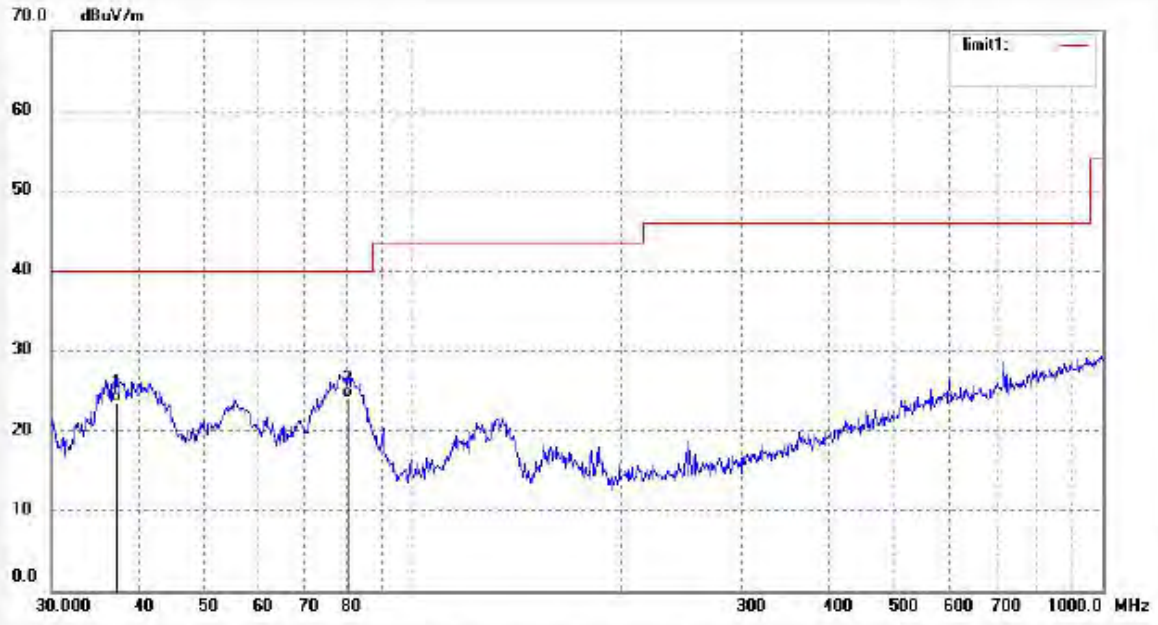
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	181.9202	40.46	-13.18	27.28	43.50	-16.22	QP			
2	266.6089	40.25	-10.35	29.90	46.00	-16.10	QP			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2402MHz (GFSK)	Humidity:	48 %
Frequency Range:	30MHz-1GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data #51
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2402MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



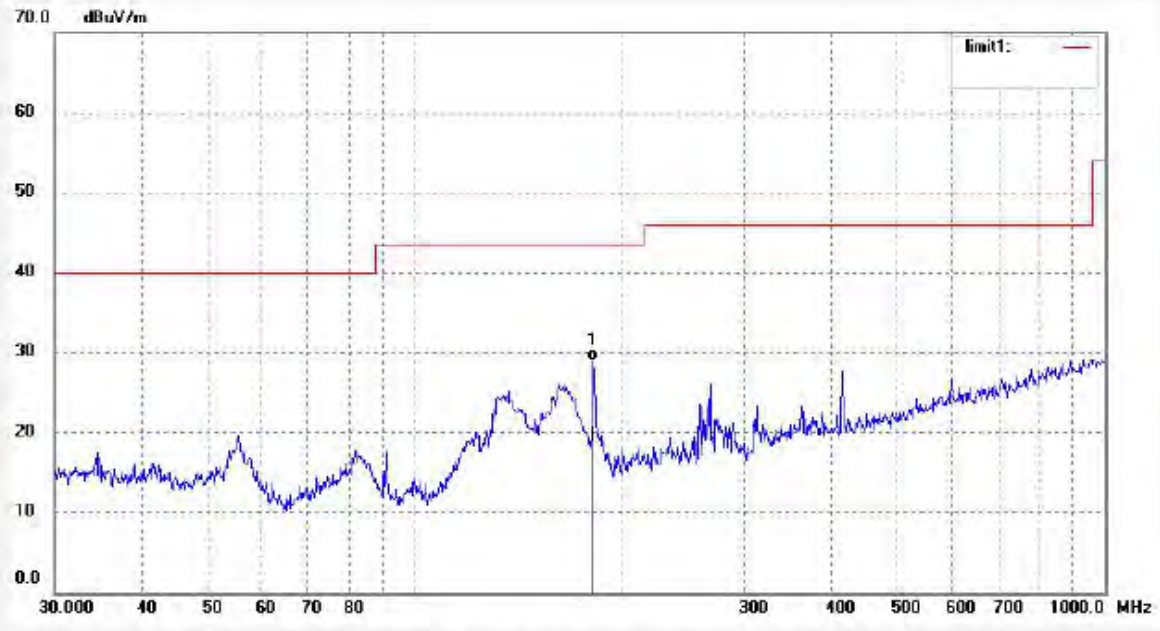
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	37.2855	34.53	-10.93	23.60	40.00	-16.40	QP			
2	80.6442	40.43	-16.36	24.07	40.00	-15.93	QP			

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2441MHz (GFSK)	Humidity:	48 %
Frequency Range:	30MHz-1GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data #53
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2441MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Horizontal
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



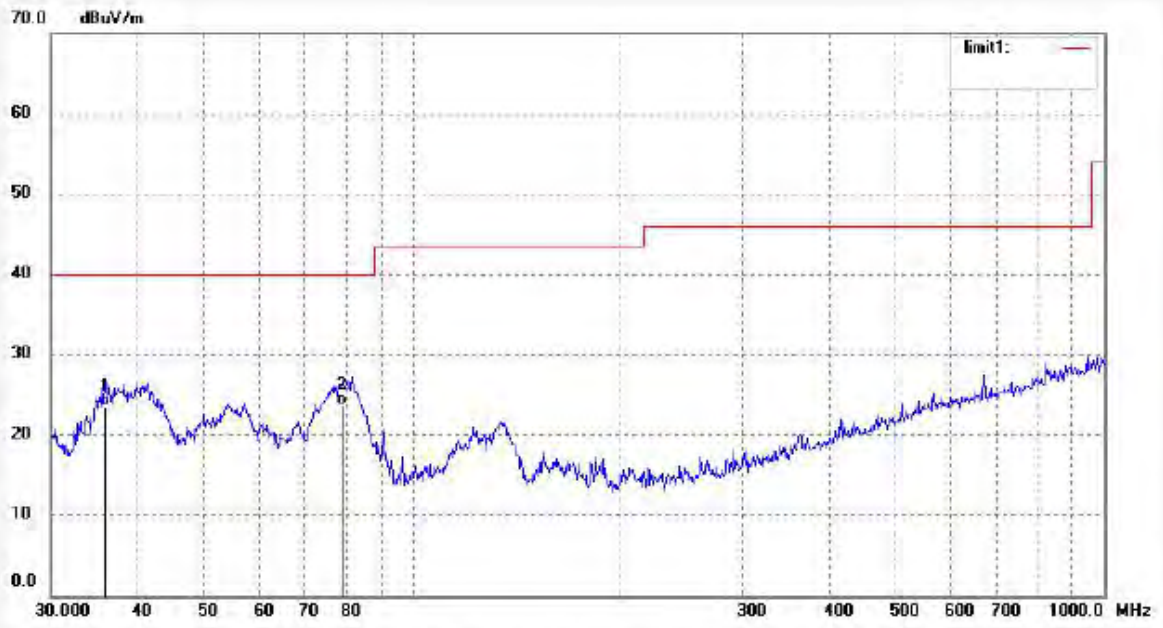
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	181.2834	42.30	-13.28	29.02	43.50	-14.48	QP			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2441MHz (GFSK)	Humidity:	48 %
Frequency Range:	30MHz-1GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data #52
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2441MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:

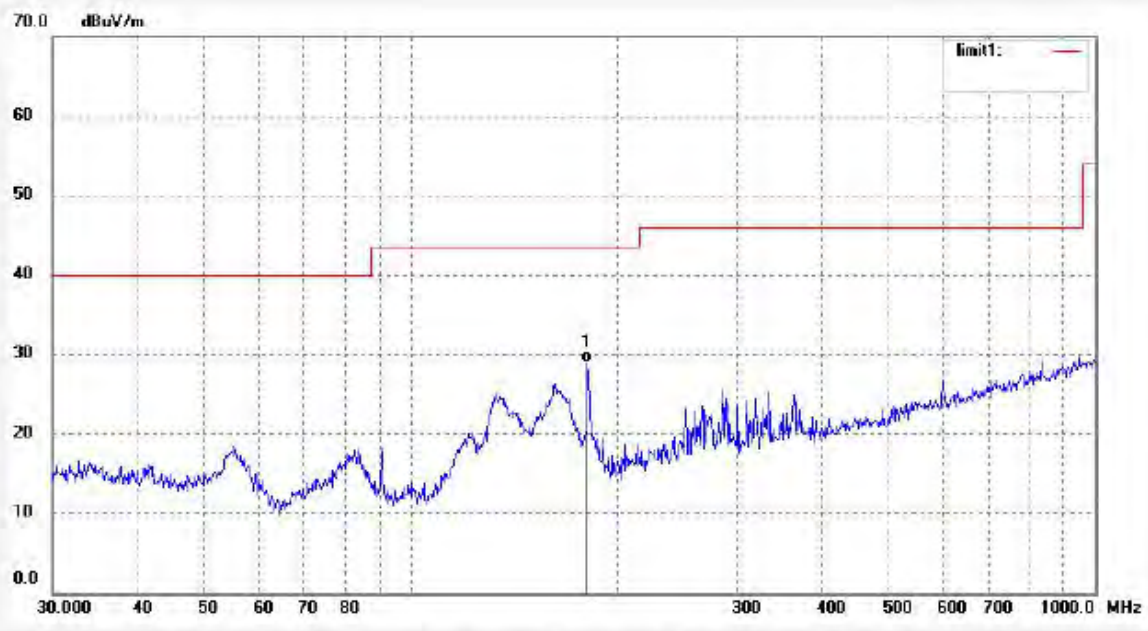


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.8746	34.16	-10.62	23.54	40.00	-16.46	QP			
2	79.2426	40.24	-16.56	23.68	40.00	-16.32	QP			

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2480MHz (GFSK)	Humidity:	48 %
Frequency Range:	30MHz-1GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data #54	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 11.1V
Test item: Radiation Test	Date: 2020/09/07
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MDK-100	Engineer Signature: PEI
Mode: TX 2480MHz	Distance: 3m
Model: MDK-100	
Manufacturer: Estone	

Note:



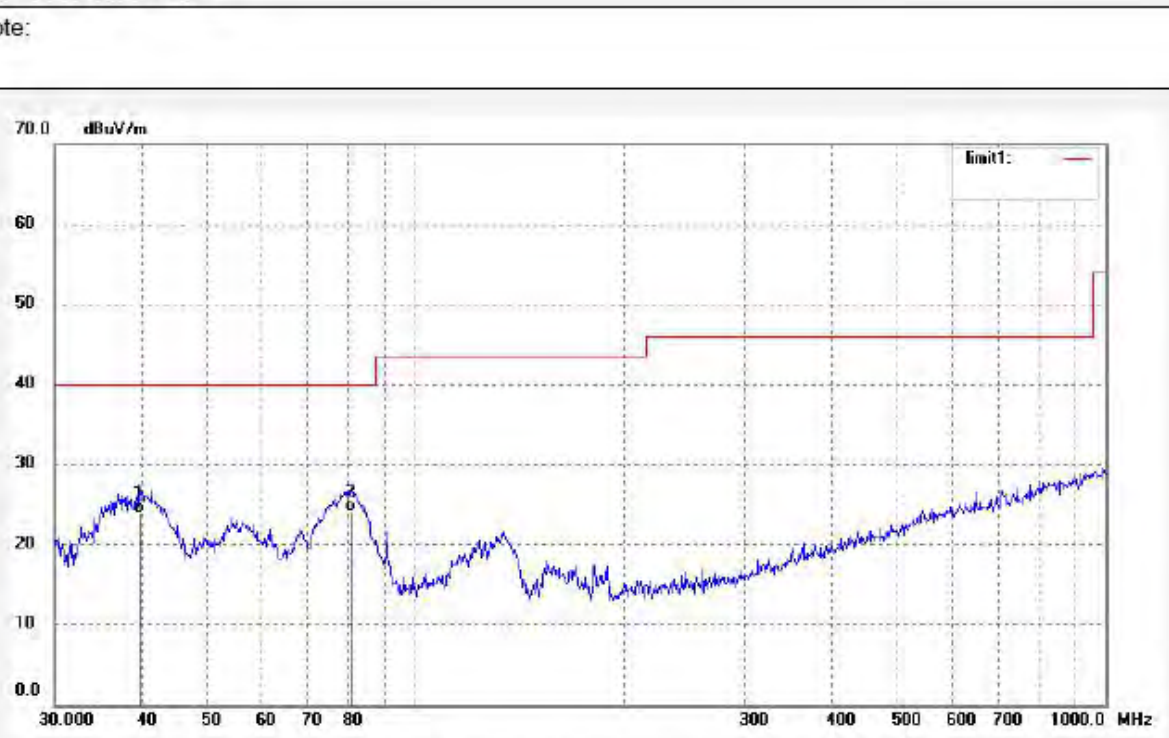
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	181.2834	42.16	-13.28	28.88	43.50	-14.62	QP			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2480MHz (GFSK)	Humidity:	48 %
Frequency Range:	30MHz-1GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data #55
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2480MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



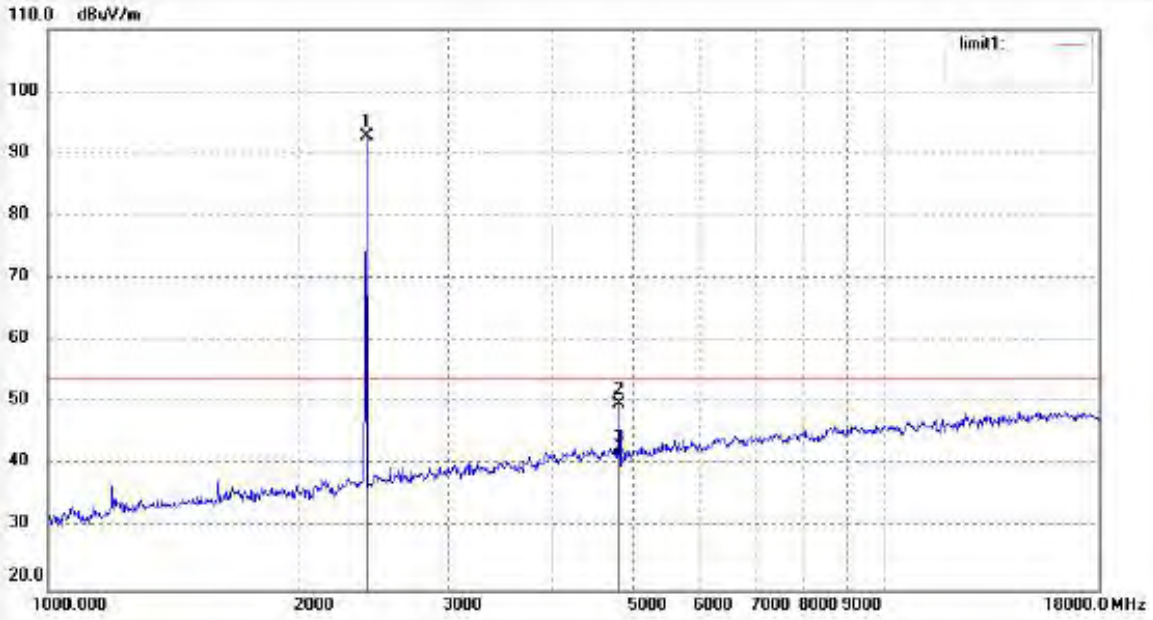
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	39.7146	35.34	-11.48	23.86	40.00	-16.14	QP			
2	80.6441	40.38	-16.36	24.02	40.00	-15.98	QP			

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2402MHz (GFSK)	Humidity:	48 %
Frequency Range:	1GHz-18GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #60
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2402MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Horizontal
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



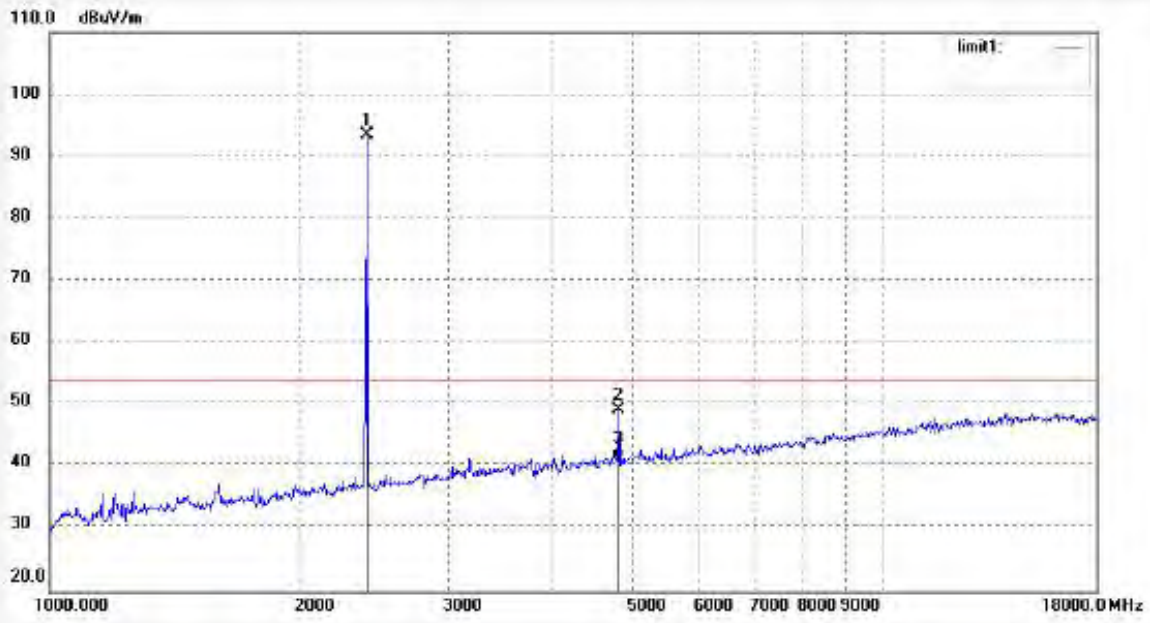
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	91.97	0.89	92.86	/	/	peak			
2	4804.027	42.39	7.40	49.79	74.00	-24.21	peak			
3	4804.027	33.84	7.40	41.24	54.00	-12.76	AVG			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2402MHz (GFSK)	Humidity:	48 %
Frequency Range:	1GHz-18GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #59
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2402MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



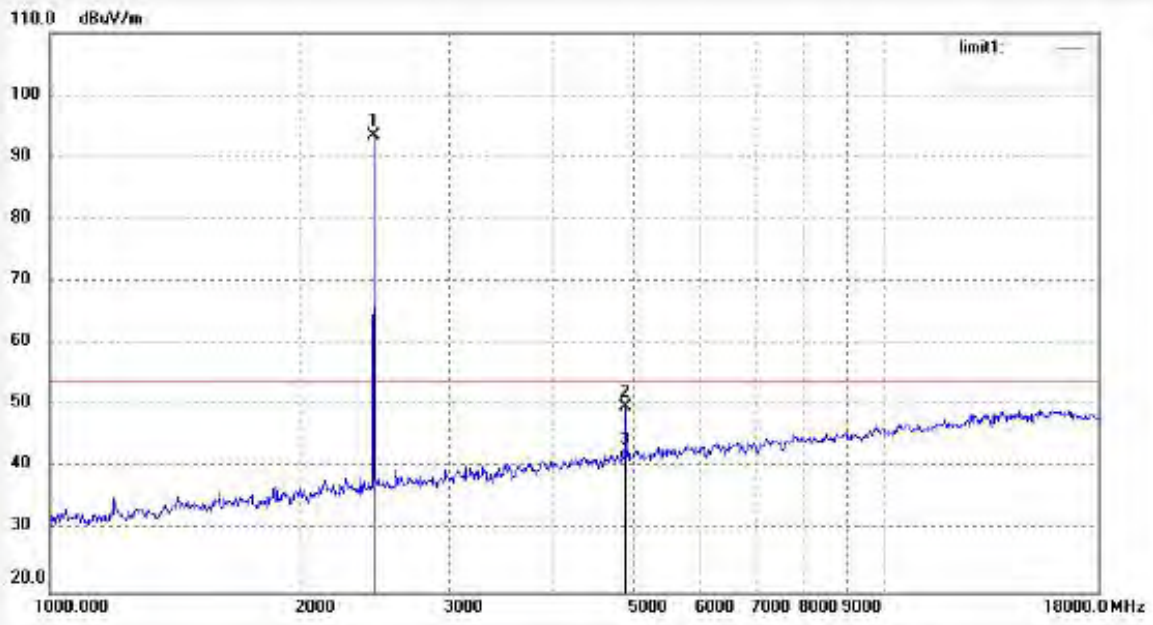
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	92.52	0.89	93.41	/	/	peak			
2	4804.025	41.71	7.40	49.11	74.00	-24.89	peak			
3	4804.025	33.92	7.40	41.32	54.00	-12.68	AVG			

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2441MHz (GFSK)	Humidity:	48 %
Frequency Range:	1GHz-18GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #62
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2441MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Horizontal
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



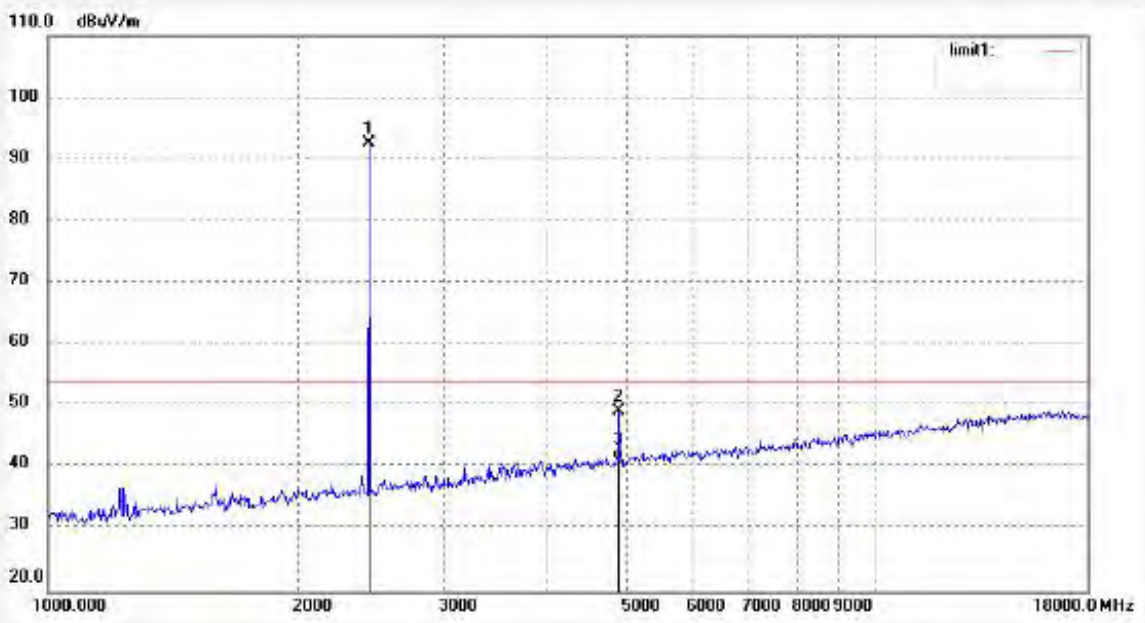
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	92.33	1.06	93.39	/	/	peak			
2	4882.028	41.61	8.11	49.72	74.00	-24.28	peak			
3	4882.028	33.15	8.11	41.26	54.00	-12.74	AVG			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2441MHz (GFSK)	Humidity:	48 %
Frequency Range:	1GHz-18GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #61
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2441MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:

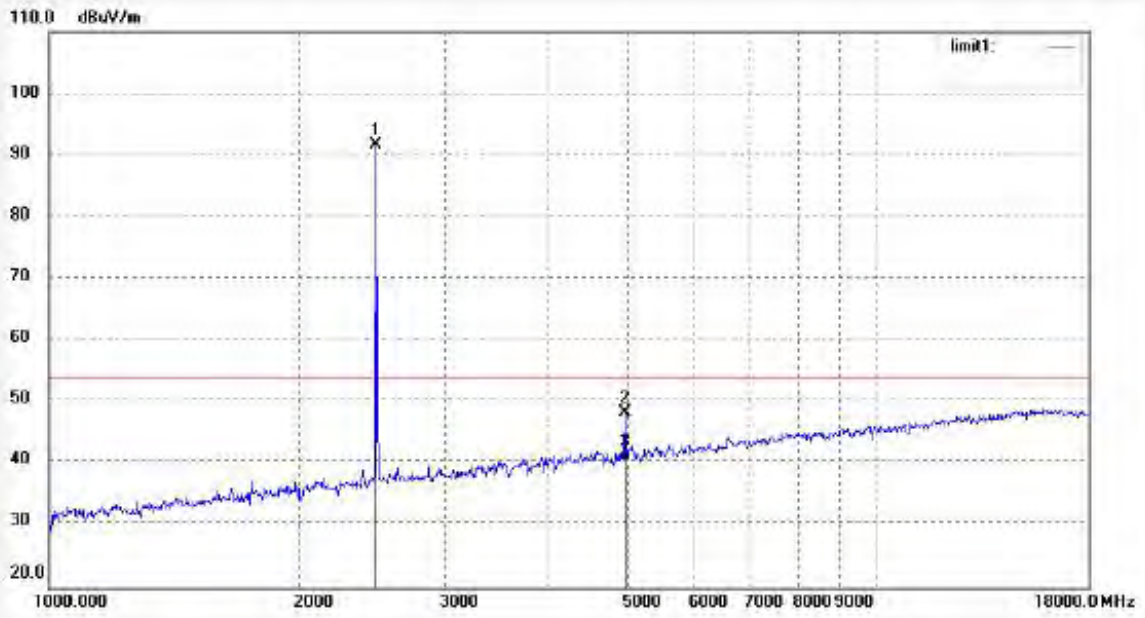


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	91.40	1.06	92.46	/	/	peak			
2	4882.026	40.96	8.11	49.07	74.00	-24.93	peak			
3	4882.026	33.14	8.11	41.25	54.00	-12.75	AVG			

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2480MHz (GFSK)	Humidity:	48 %
Frequency Range:	1GHz-18GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #63	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 11.1V
Test item: Radiation Test	Date: 2020/09/07
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MDK-100	Engineer Signature: PEI
Mode: TX 2480MHz	Distance: 3m
Model: MDK-100	
Manufacturer: Estone	

Note:



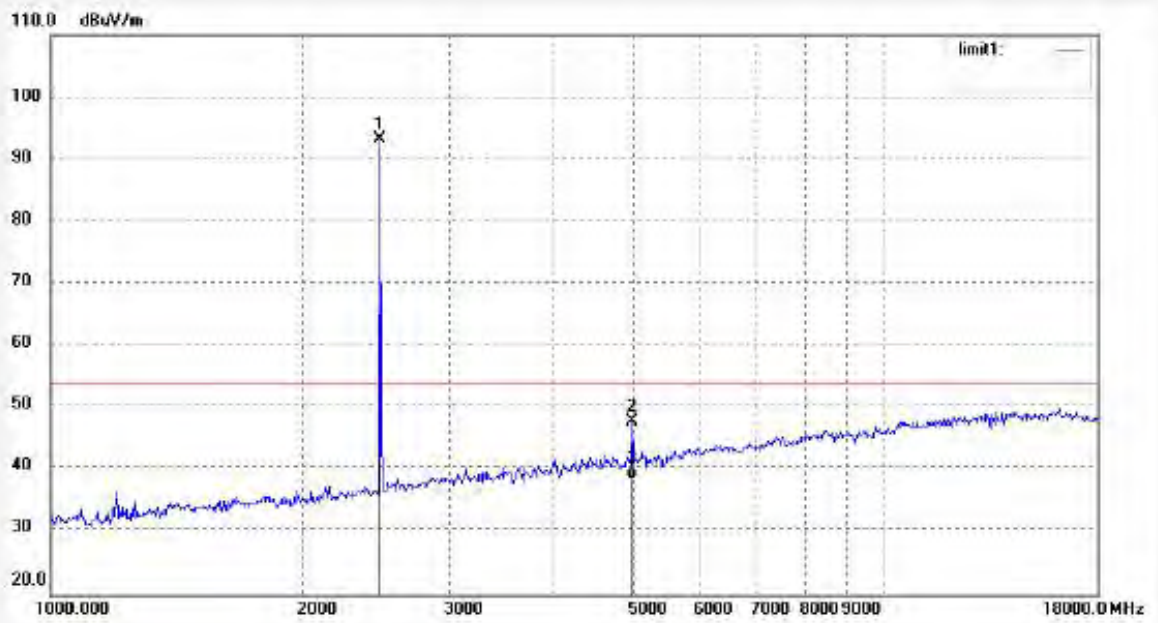
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	90.59	1.10	91.69	/	/	peak			
2	4960.030	39.64	8.60	48.24	74.00	-25.76	peak			
3	4960.030	31.75	8.60	40.35	54.00	-13.65	AVG			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2480MHz (GFSK)	Humidity:	48 %
Frequency Range:	1GHz-18GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #64
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2480MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



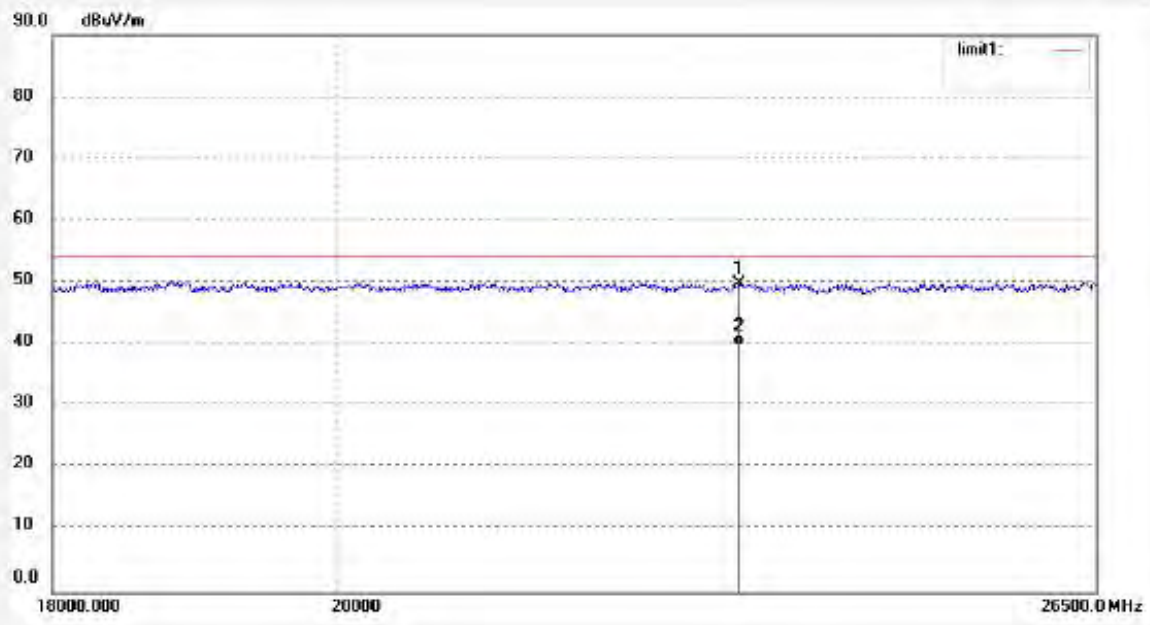
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	92.11	1.10	93.21	/	/	peak			
2	4960.029	39.18	8.60	47.78	74.00	-26.22	peak			
3	4960.029	29.85	8.60	38.45	54.00	-15.55	AVG			

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2402MHz (GFSK)	Humidity:	48 %
Frequency Range:	18GHz-26.5GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #65
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2402MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Horizontal
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



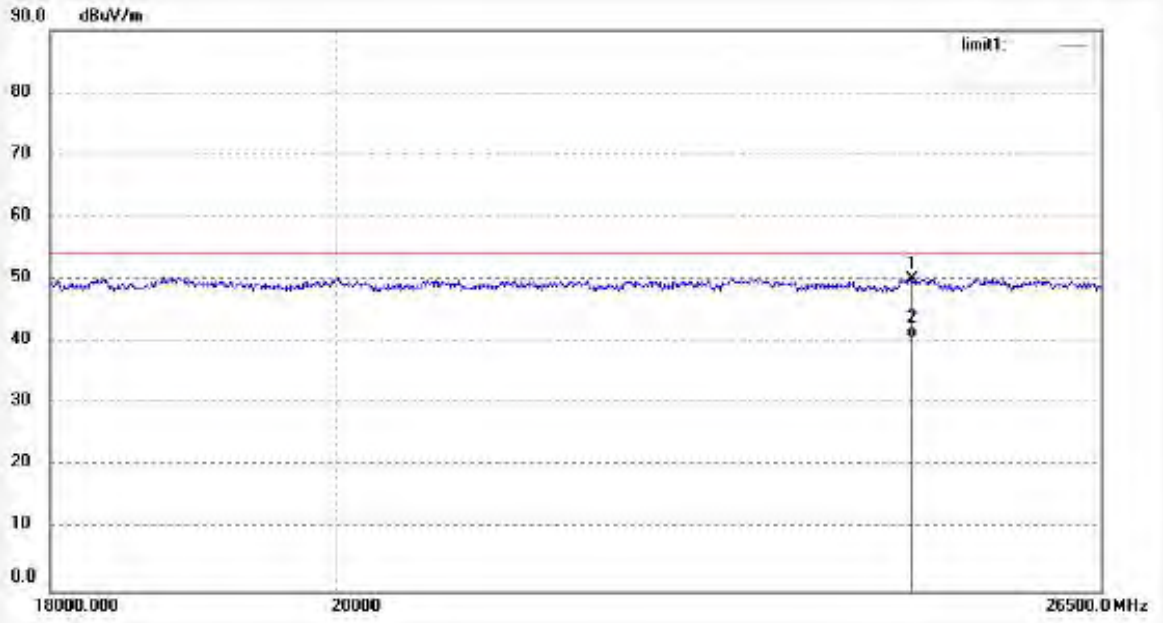
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	23216.619	10.13	39.78	49.91	74.00	-24.09	peak			
2	23216.619	-0.10	39.78	39.68	54.00	-14.32	AVG			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2402MHz (GFSK)	Humidity:	48 %
Frequency Range:	18GHz-26.5GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #66
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2402MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



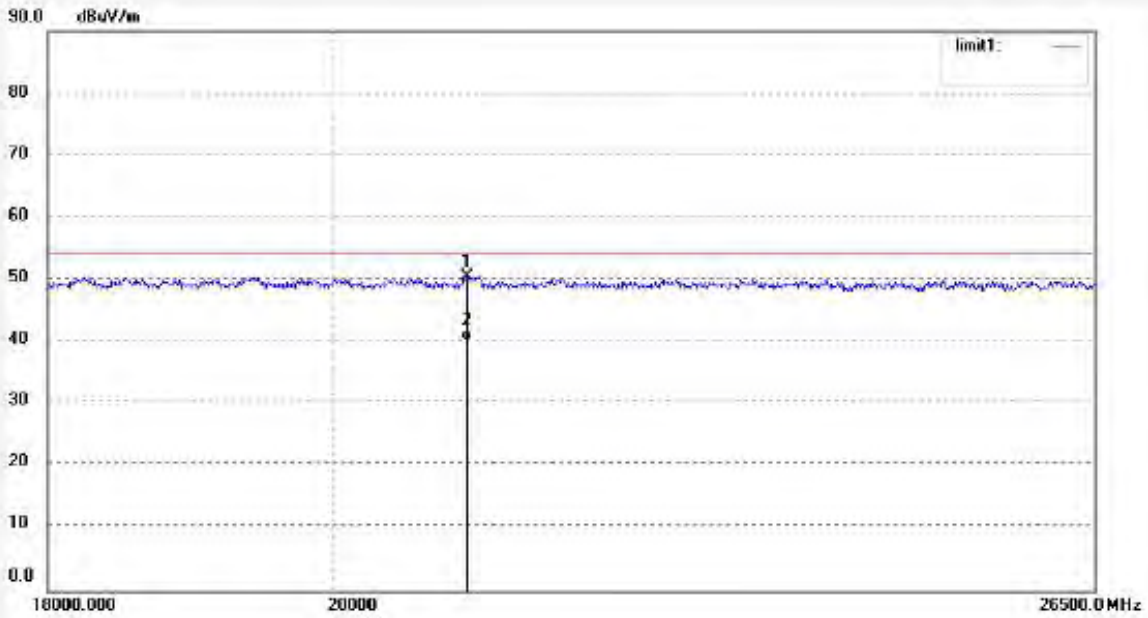
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	24717.849	9.47	40.60	50.07	74.00	-23.93	peak			
2	24717.849	-0.03	40.60	40.57	54.00	-13.43	AVG			

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2441MHz (GFSK)	Humidity:	48 %
Frequency Range:	18GHz-26.5GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #68
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2441MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Horizontal
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



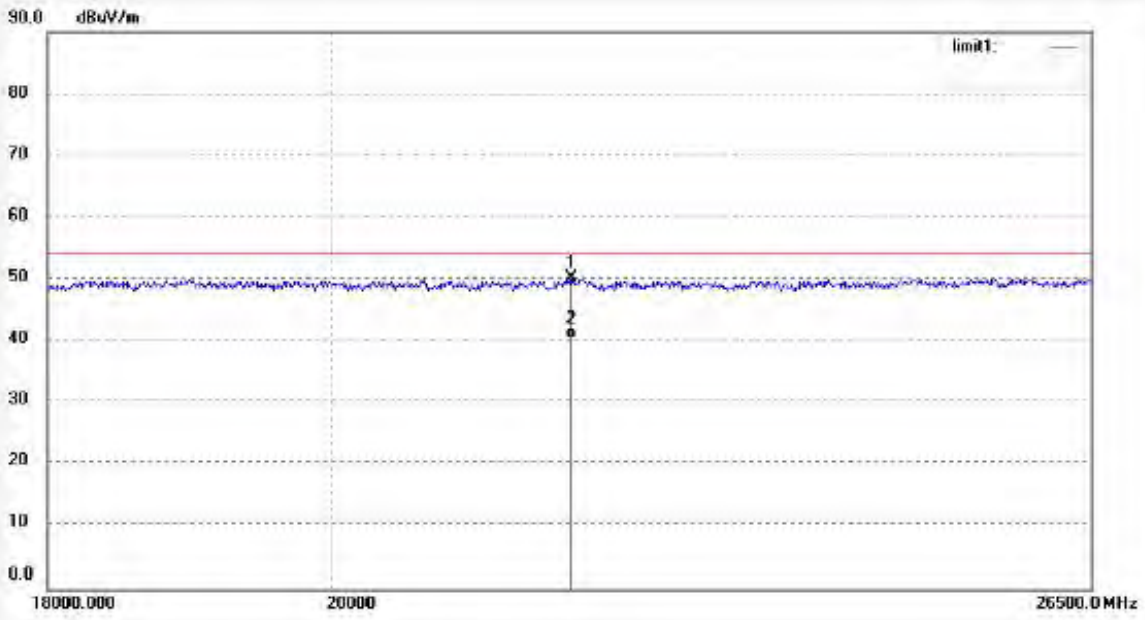
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21011.732	12.11	38.42	50.53	74.00	-23.47	peak			
2	21011.732	1.83	38.42	40.25	54.00	-13.75	AVG			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2441MHz (GFSK)	Humidity:	48 %
Frequency Range:	18GHz-26.5GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #67
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2441MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



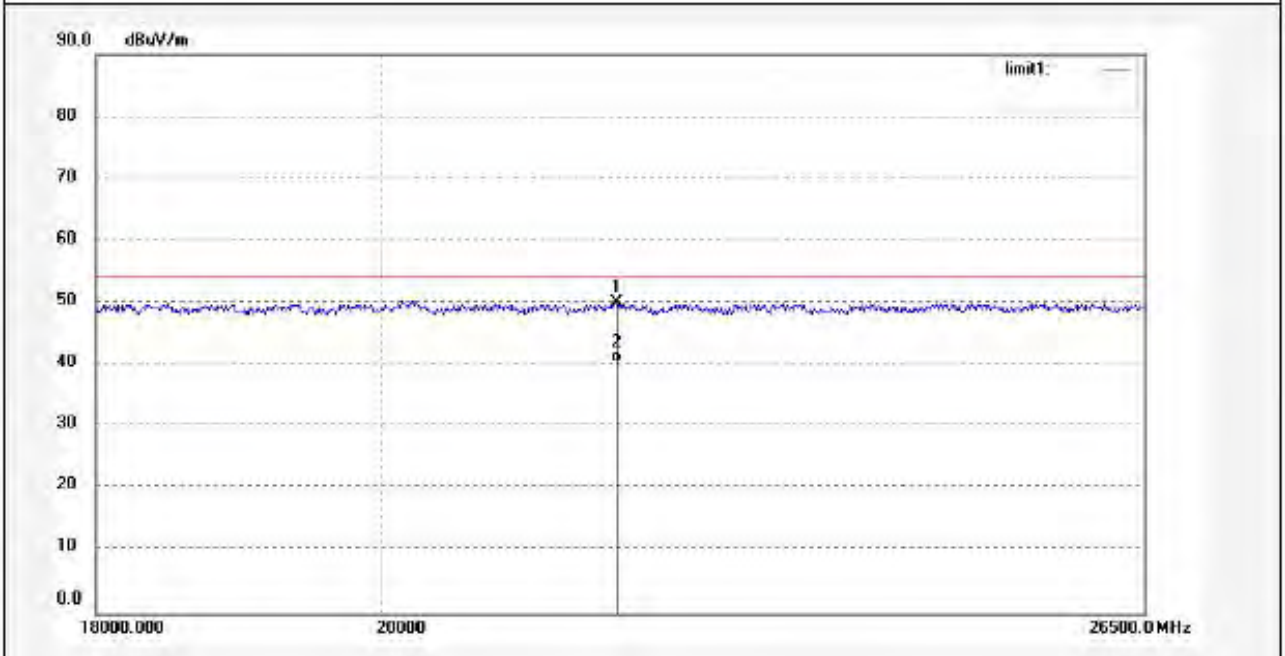
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21857.231	10.96	39.24	50.20	74.00	-23.80	peak			
2	21857.231	1.11	39.24	40.35	54.00	-13.65	AVG			

E.U.T:	MDK-100	Polarization:	Horizontal
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2480MHz (GFSK)	Humidity:	48 %
Frequency Range:	18GHz-26.5GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #69
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2480MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Horizontal
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



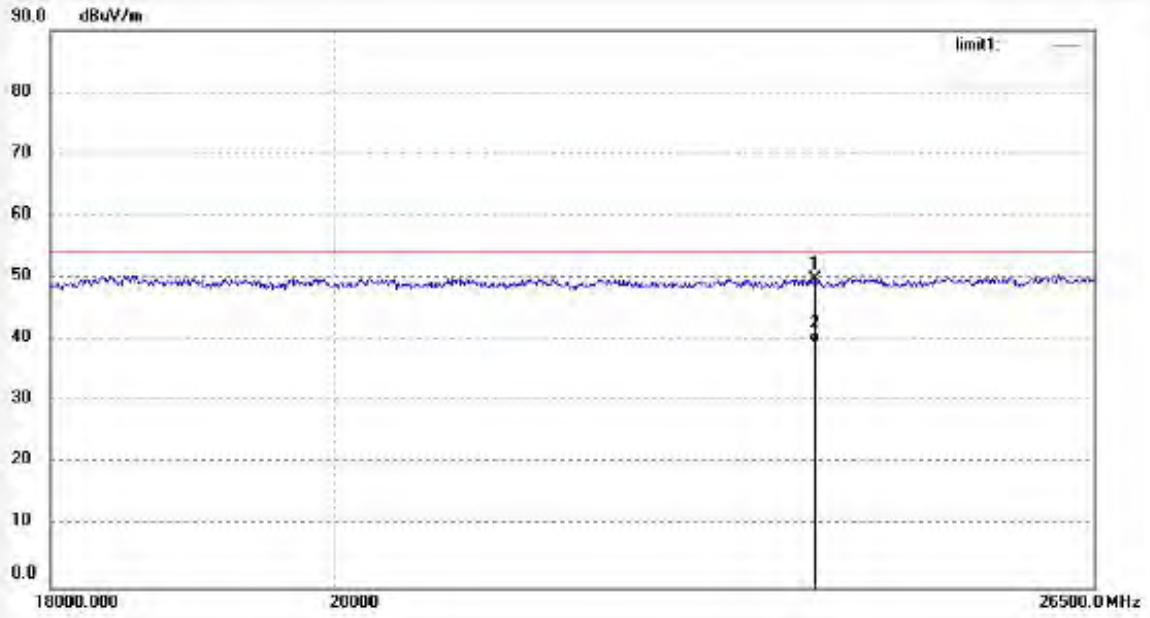
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21815.002	11.09	39.08	50.17	74.00	-23.83	peak			
2	21815.002	1.28	39.08	40.36	54.00	-13.64	AVG			

E.U.T:	MDK-100	Polarization:	Vertical
Model No.:	MDK-100	Temperature:	23 ℃
Test Mode:	TX 2480MHz (GFSK)	Humidity:	48 %
Frequency Range:	18GHz-26.5GHz	Test By:	PEI
Test Distance:	3m	Test Voltage	DC 11.1V
Test Results:	PASS		

Job No.: Data 2020 #70
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MDK-100
Mode: TX 2480MHz
Model: MDK-100
Manufacturer: Estone

Polarization: Vertical
Power Source: DC 11.1V
Date: 2020/09/07
Time:
Engineer Signature: PEI
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	23890.708	10.10	39.72	49.82	74.00	-24.18	peak			
2	23890.708	-0.18	39.72	39.54	54.00	-14.46	AVG			

Note: (1) All Readings are Peak Value and AV.

(2) Emission Level= Reading Level + Factor

(3) Factor= Antenna Gain + Cable Loss – Amplifier Gain

(4) Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits, therefore, than 20 dB below the limit do no reported.

(5) Measurement uncertainty: ±3.7dB.

(6) Horn antenna used for the emission over 1000MHz.

6. CHANNEL SEPARATION

6.1 Measurement Procedure

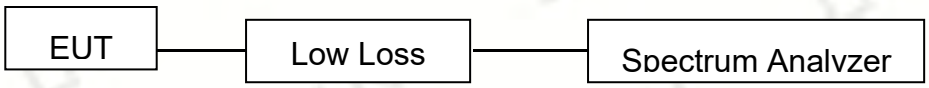
Minimum Hopping Channel Carrier Frequency Separation, FCC Rule 15.247(a)(1):

Connect EUT antenna terminal to the spectrum analyzer with a low loss cable, and using the Marker and Max-Hold function to record the separation of two adjacent channels.

6.2 Limit

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.

6.3 Test SET-UP (Block Diagram of Configuration)



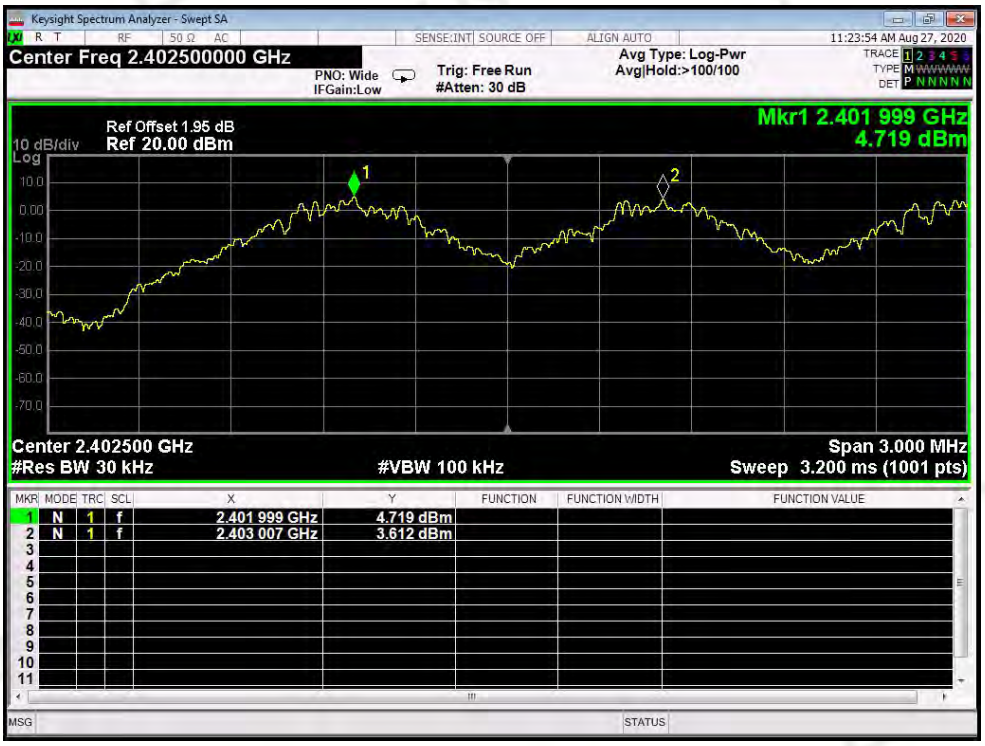
6.4 Measurement Results

Refer to attached data chart.

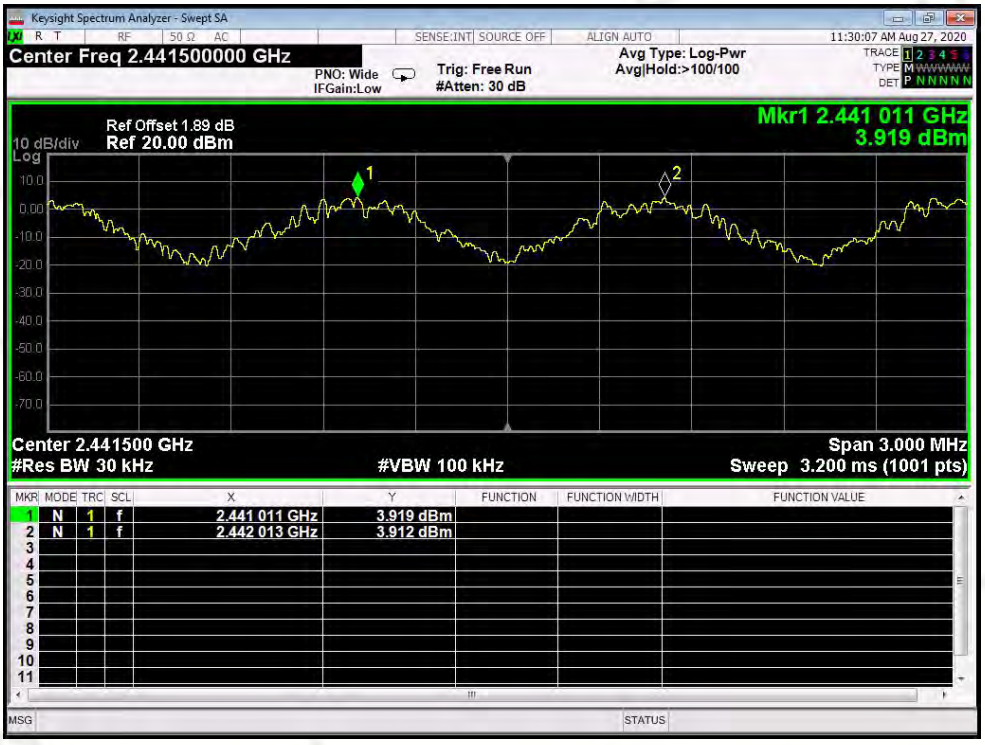
RBW:	30kHz	Temperature:	24 ℃
VBW:	100kHz	Humidity:	50 %
Spectrum Detector:	PK	Test By:	PEI
Packet:	DH1, 2DH1, 3DH1(Worst case)	Test Date:	August 27, 2020
Test Result:	PASS		

Channel	Test Frequency (MHz)	Separation Read Value (kHz)	Separation Limit 2/3 20dB Bandwidth (kHz)
GFSK			
Lowest	2402	1.008	>624.0
Middle	2441	1.002	>604.0
Highest	2480	1.035	>616.0
π/4-DQPSK			
Lowest	2402	0.987	>948.0
Middle	2441	0.987	>952.0
Highest	2480	0.996	>948.0
8DPSK			
Lowest	2402	1.011	>962.0
Middle	2441	0.999	>962.0
Highest	2480	0.99	>963.0

GFSK Lowest Channel

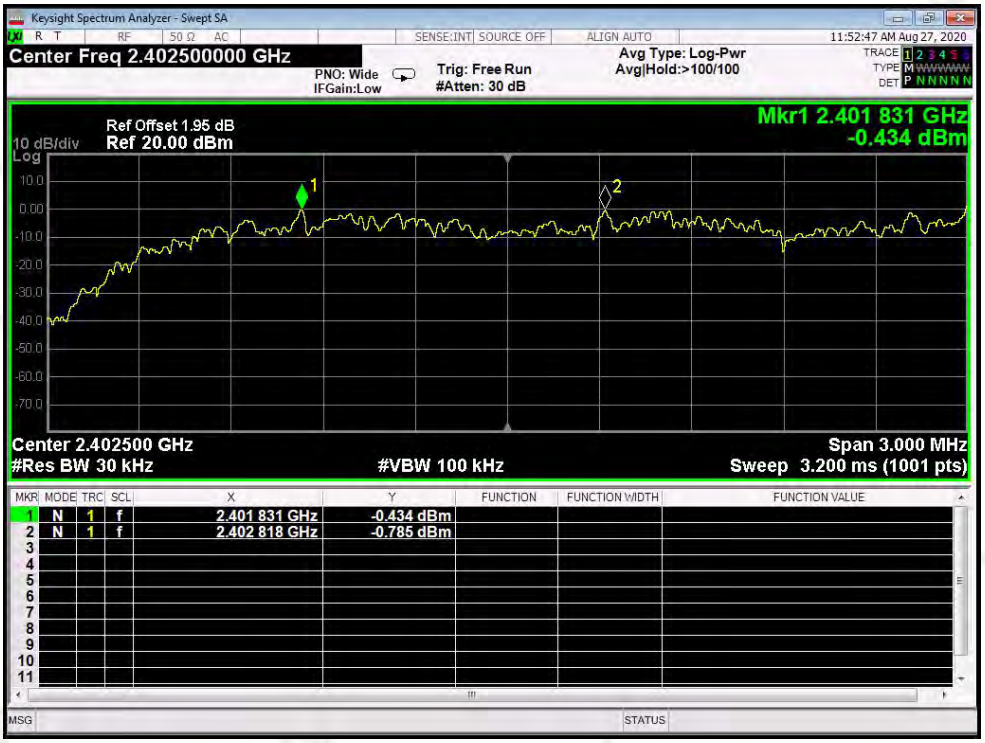


GFSK Middle Channel

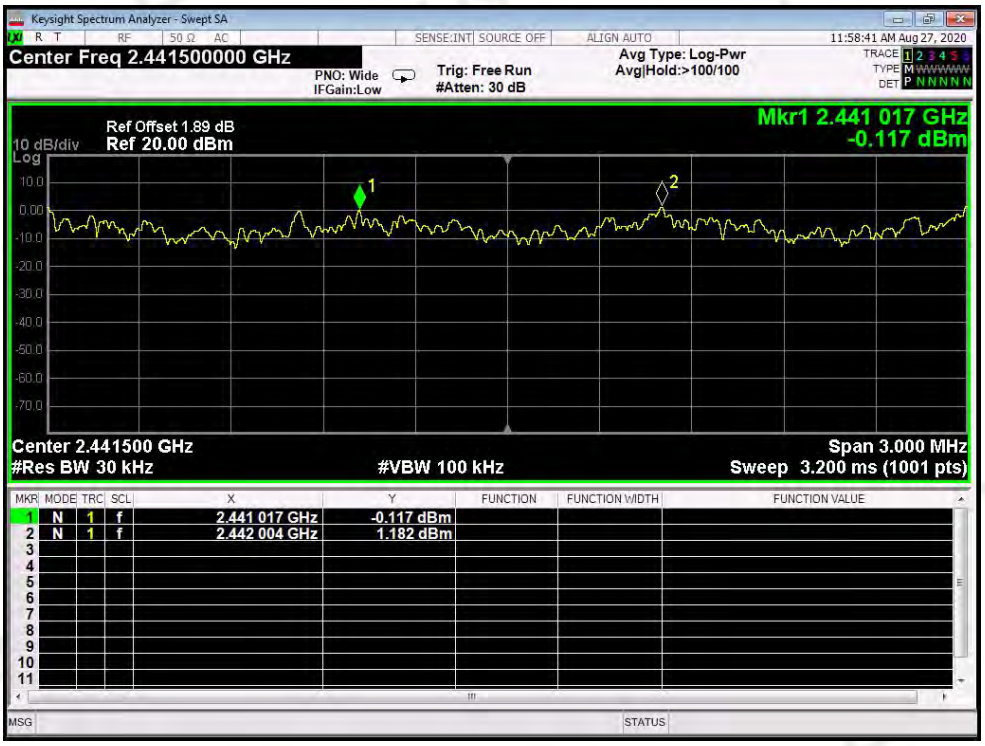


GFSK Highest Channel

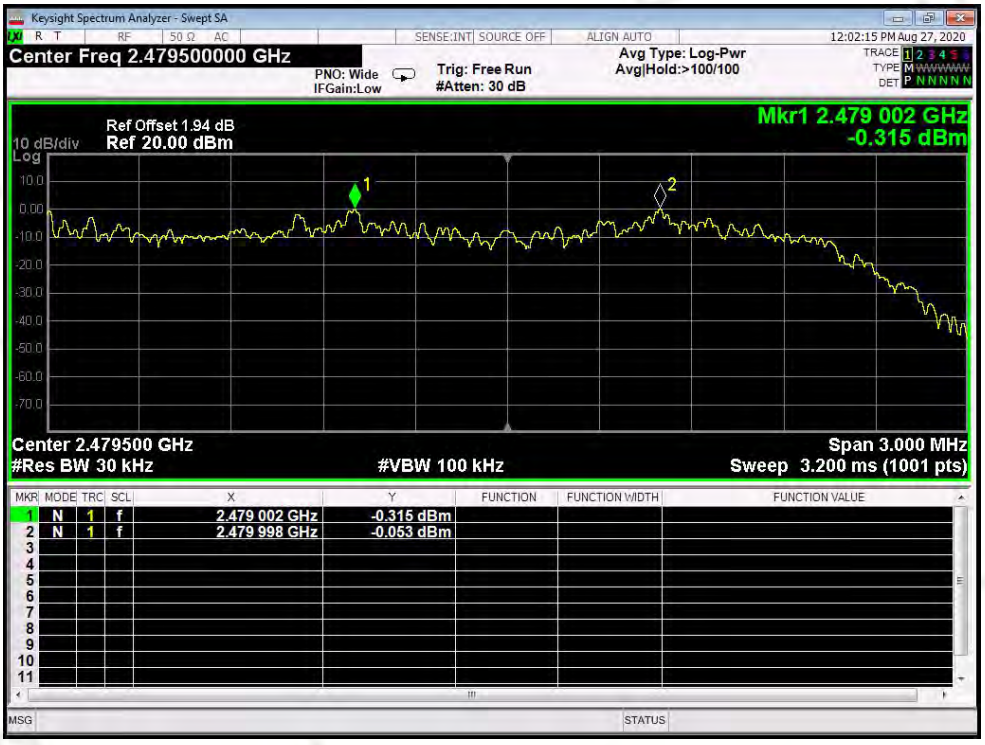
π/4-DQPSK Lowest Channel



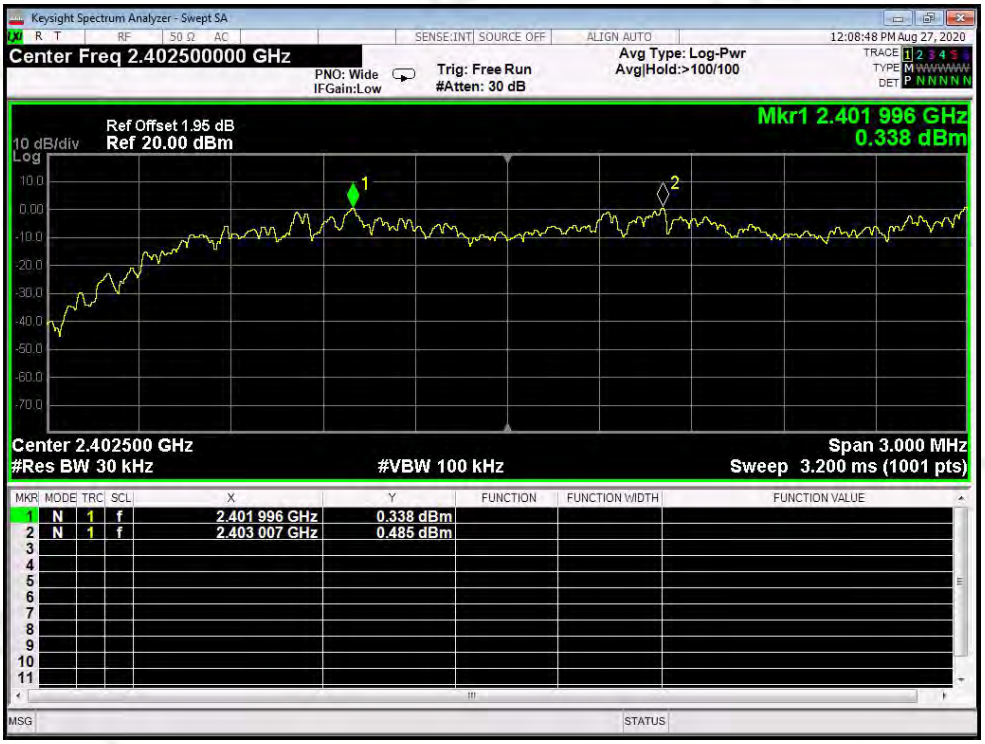
π/4-DQPSK Middle Channel



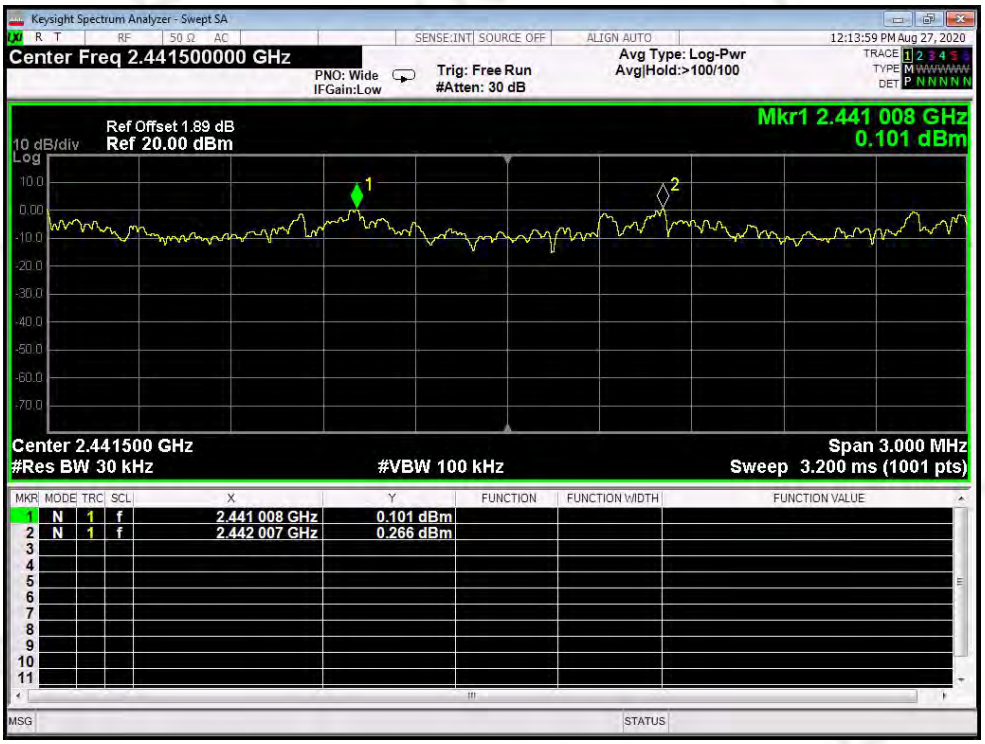
π/4-DQPSK Highest Channel



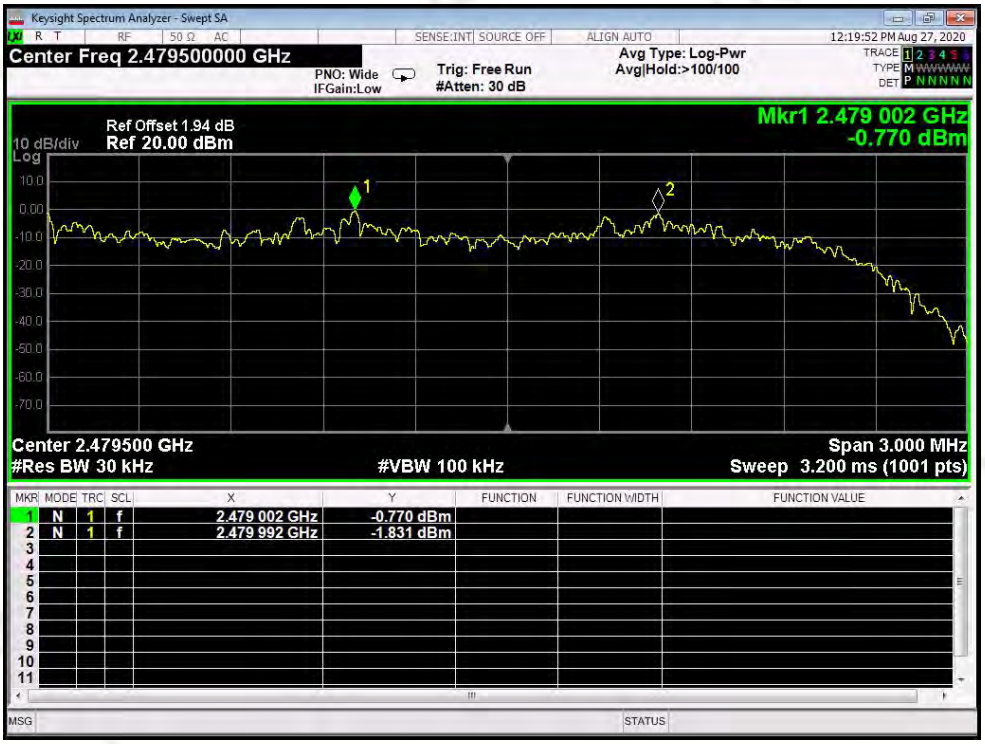
8DPSK Lowest Channel



8DPSK Middle Channel



8DPSK Highest Channel



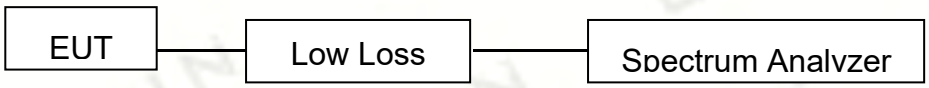
7. 20DB BANDWIDTH

7.1 Measurement Procedure

Maximum 20dB RF Bandwidth, FCC Rule 15.247(a)(1):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was chosen so that the display was a result of the hopping channel modulation. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. Use the spectrum 20dB down delta function to measure the bandwidth.

7.2 Test SET-UP (Block Diagram of Configuration)



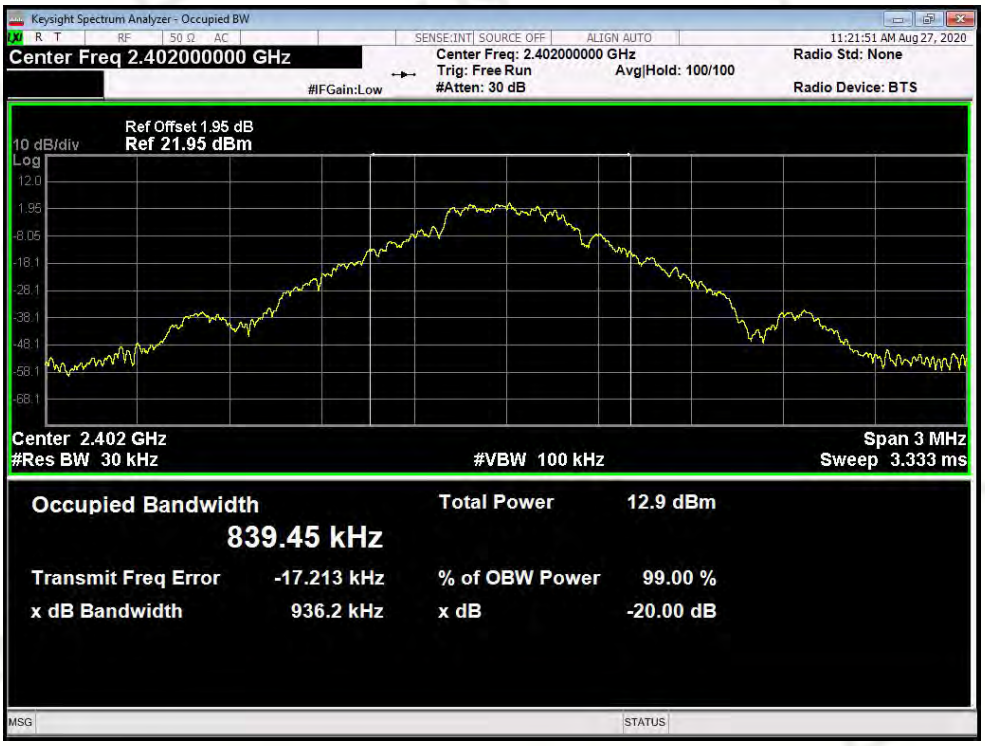
7.3 Measurement Results

Refer to attached data chart.

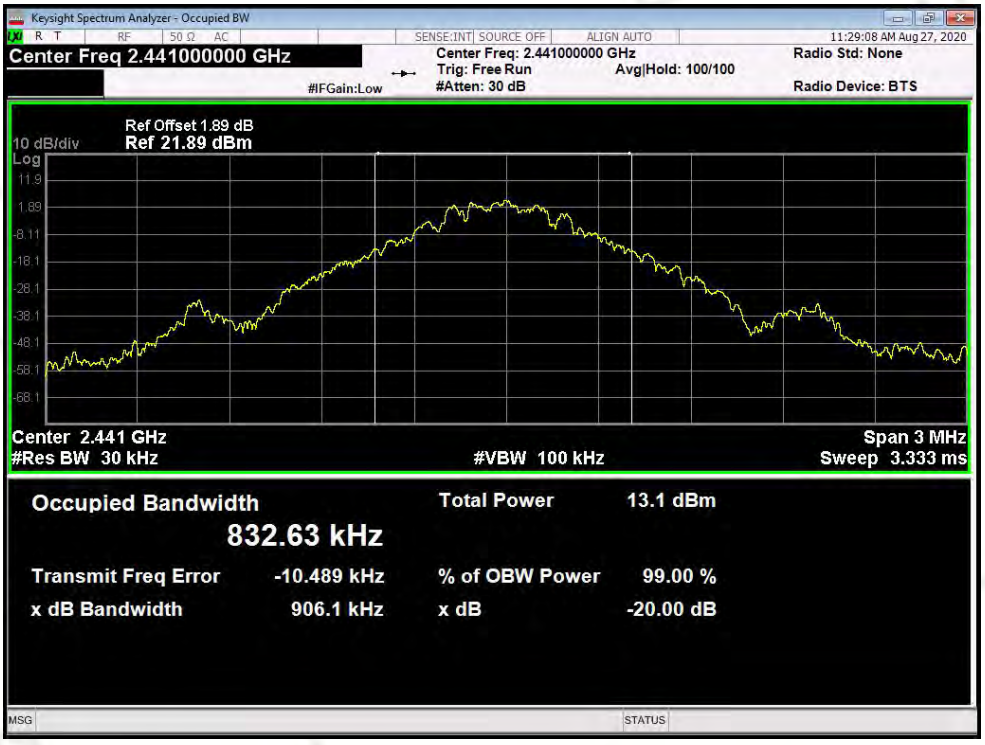
RBW:	30kHz	Temperature:	24 ℃
VBW:	100kHz	Humidity:	50 %
Spectrum Detector:	PK	Test By:	PEI
Packet:	DH1, 2DH1, 3DH1(Worst case)	Test Date:	August 27, 2020
Test Result:	PASS		

Channel	Test Frequency (MHz)	20dB Down BW (MHz)
GFSK		
Lowest	2402	0.936
Middle	2441	0.906
Highest	2480	0.924
π/4-DQPSK		
Lowest	2402	1.423
Middle	2441	1.428
Highest	2480	1.422
8DPSK		
Lowest	2402	1.443
Middle	2441	1.443
Highest	2480	1.445

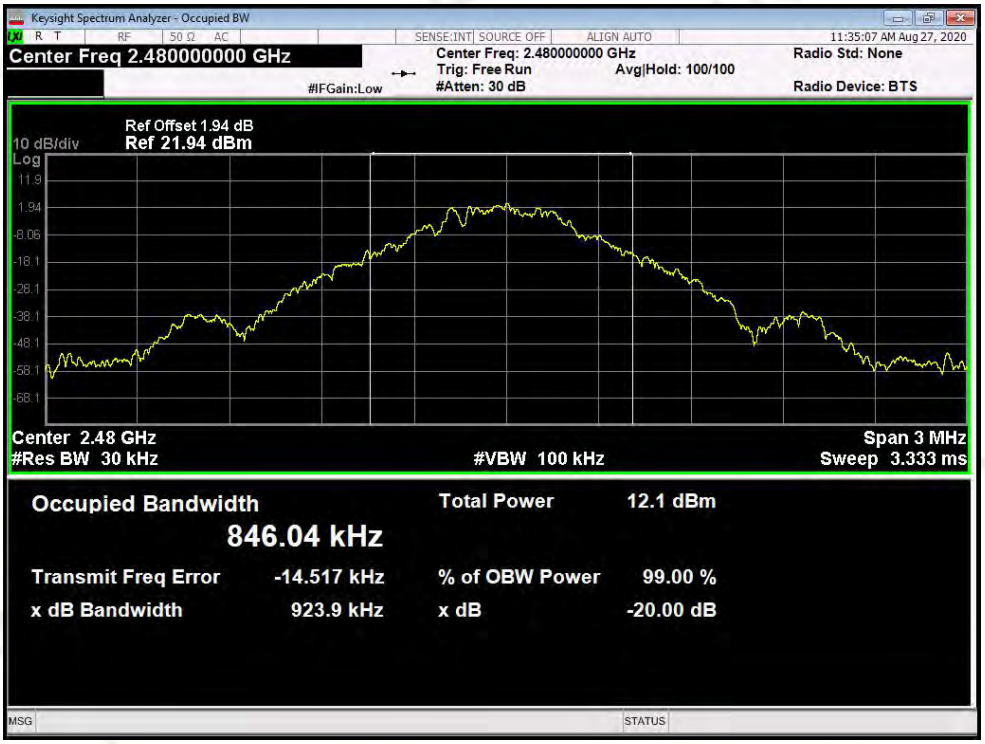
GFSK Lowest Channel



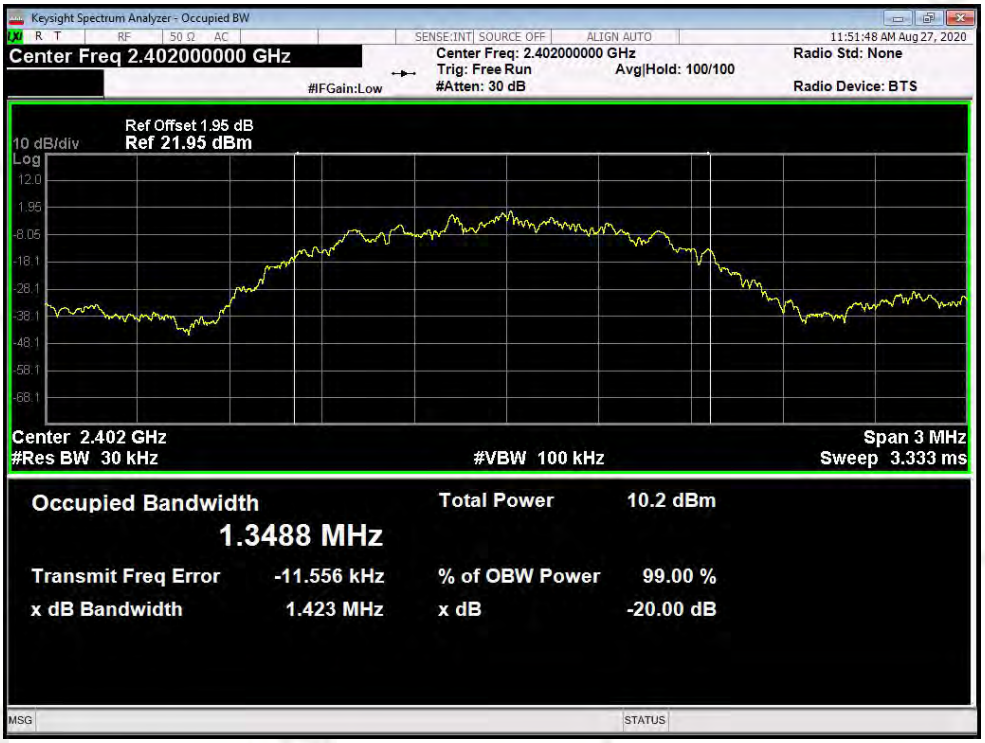
GFSK Middle Channel



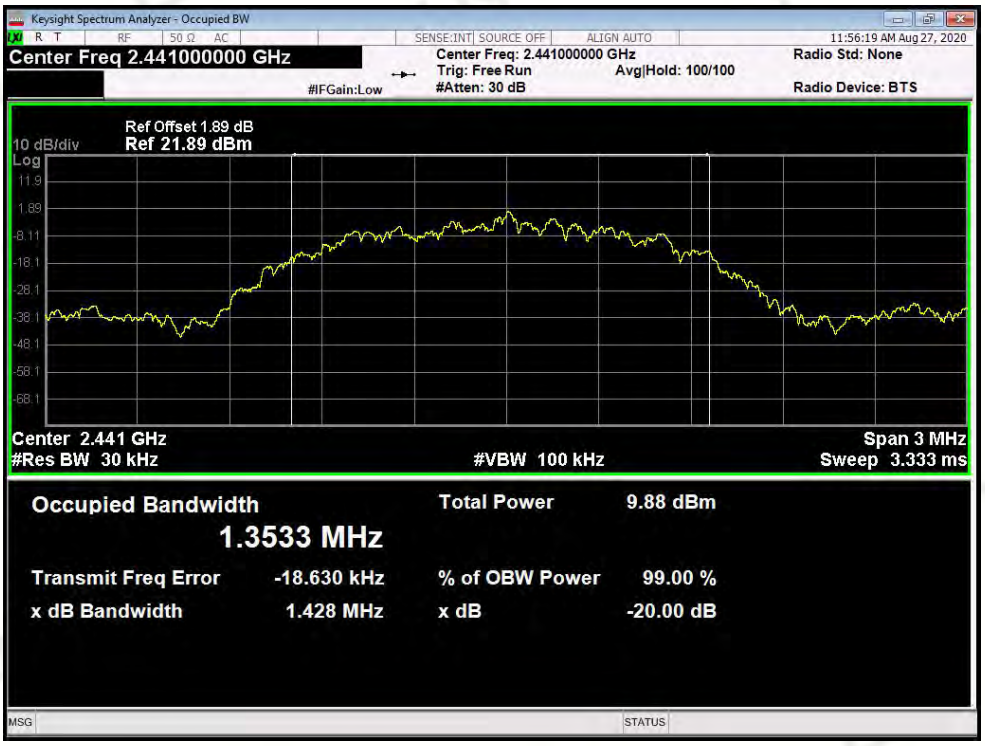
GFSK Highest Channel



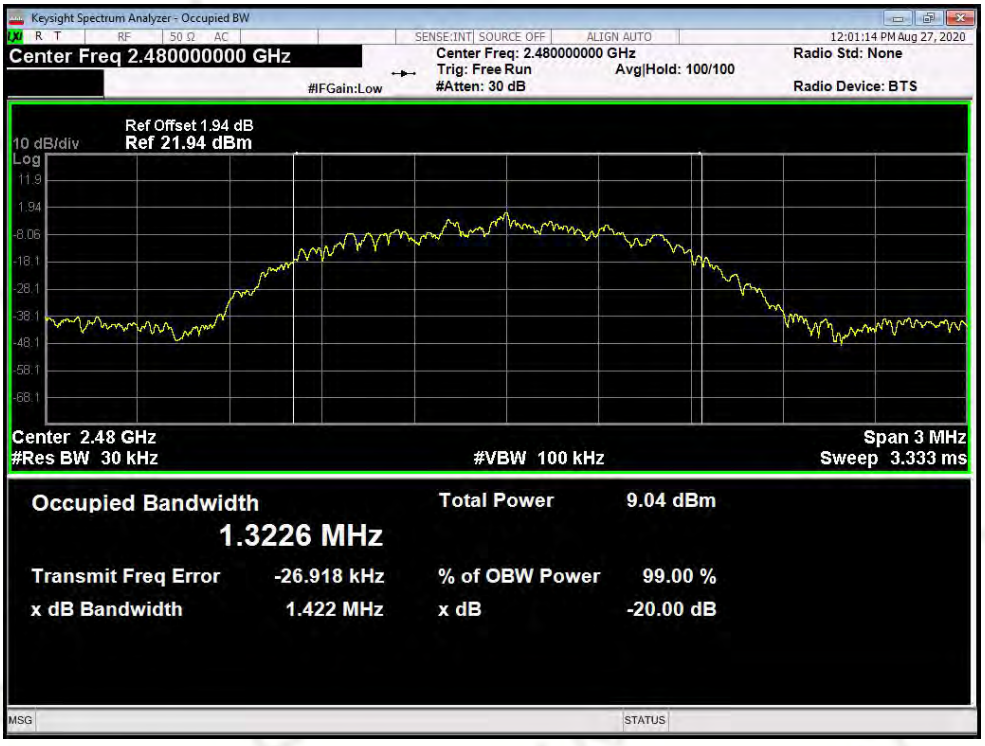
π/4-DQPSK Lowest Channel



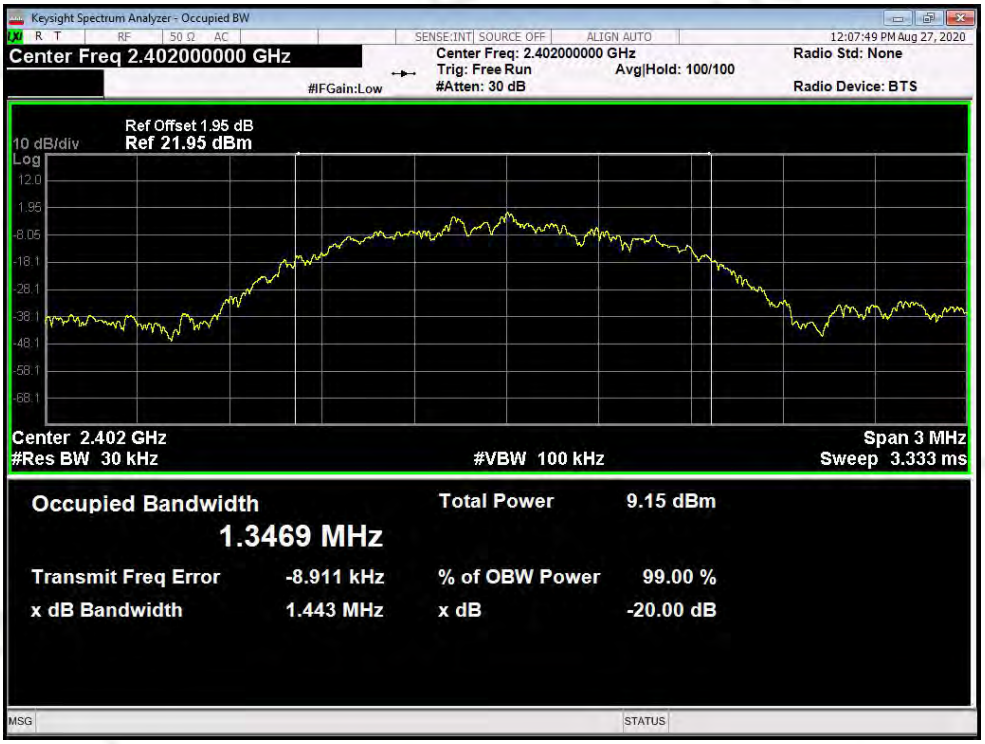
π/4-DQPSK Middle Channel



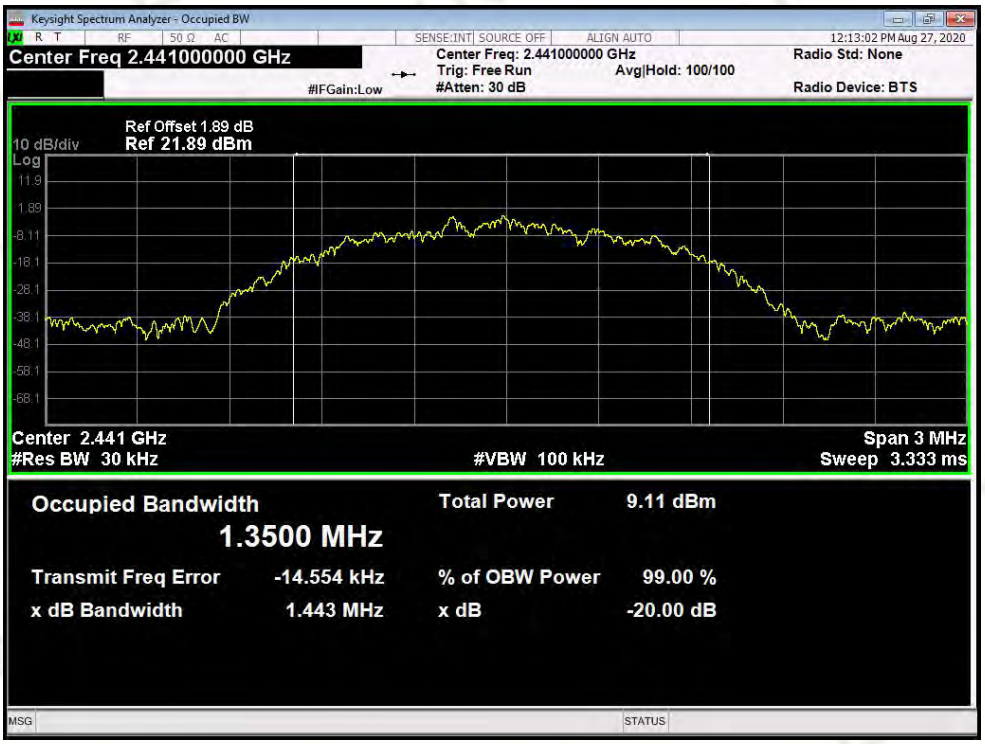
π/4-DQPSK Highest Channel



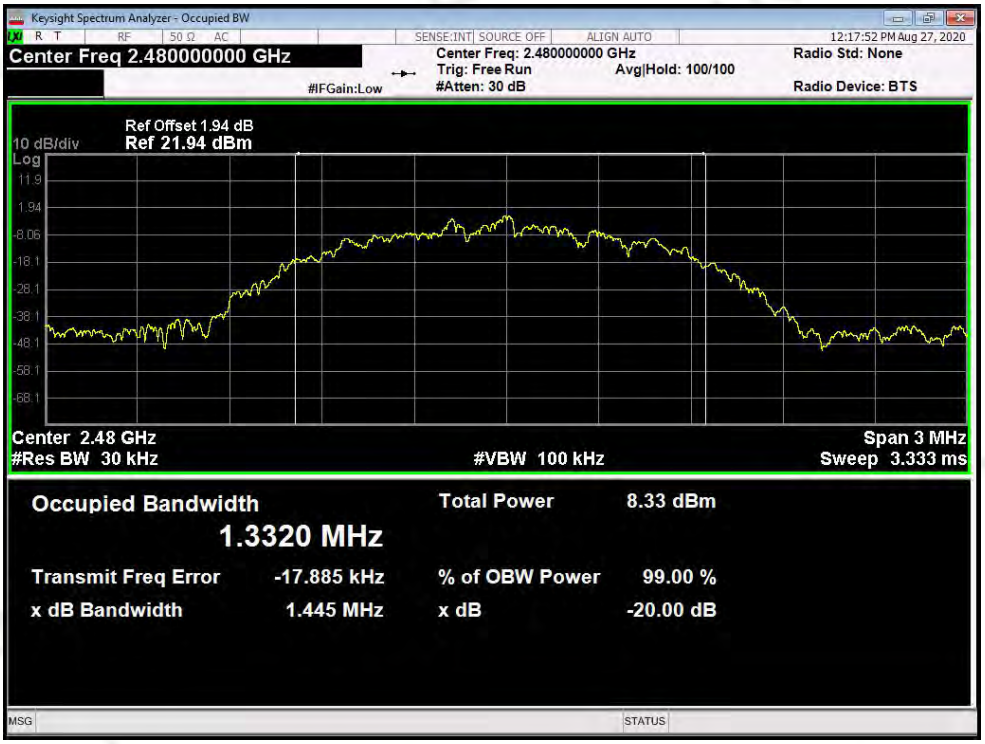
8DPSK Lowest Channel



8DPSK Middle Channel



8DPSK Highest Channel



8. HOPPING CHANNEL NUMBER

8.1 Measurement Procedure

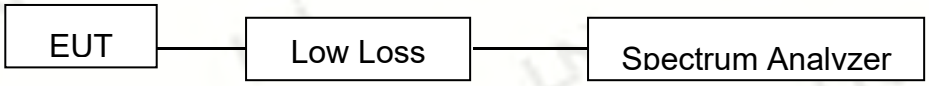
Minimum Number of Hopping Frequencies, FCC Rule 15.247(a)(1)(iii):

Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum, and the spectrum analyzer set to MAX HOLD readings were taken for 3-5 minutes. The channel peaks so recorded were added together, and the total number compared to the minimum number of channels required in the regulation.

8.2 Limit

Frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 channels.

8.3 Test SET-UP (Block Diagram of Configuration)

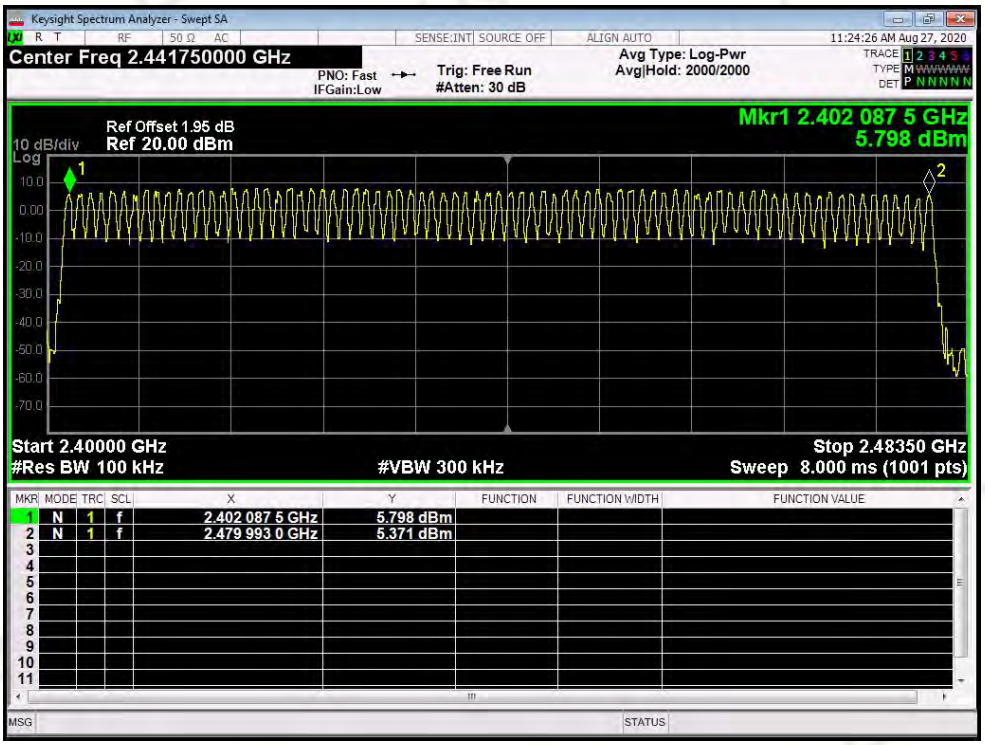


8.4 Measurement Results

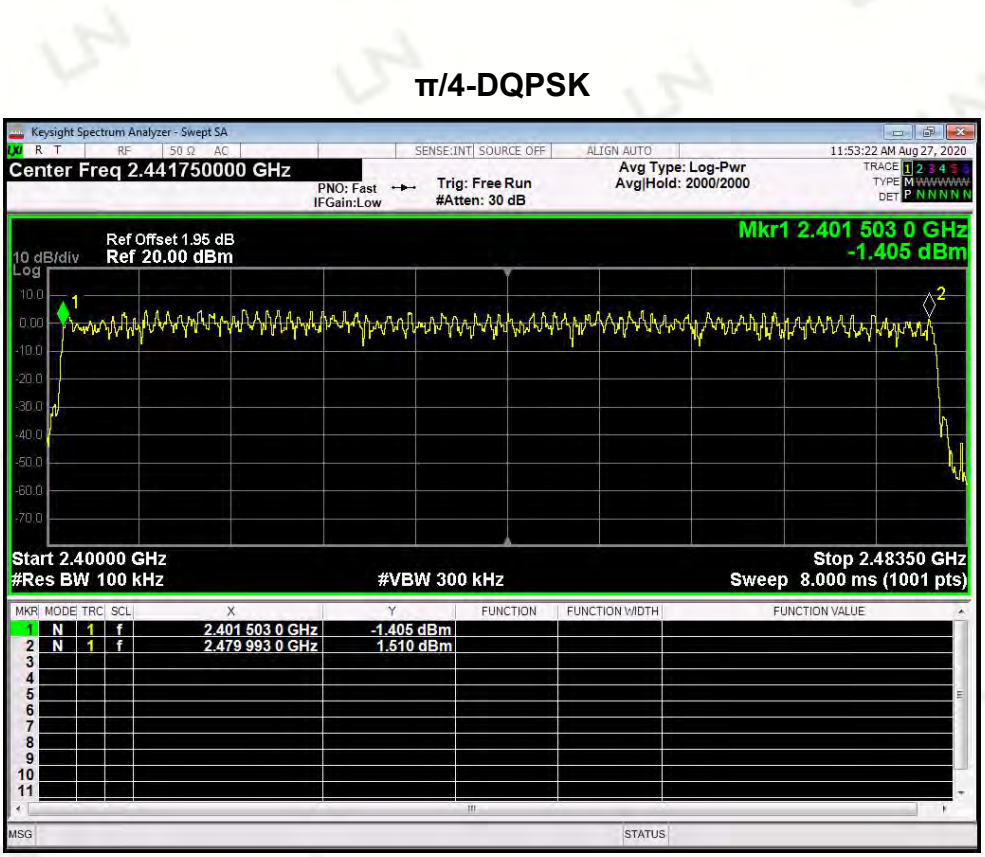
RBW:	100kHz	Temperature:	24 ℃
VBW:	300kHz	Humidity:	50 %
Spectrum Detector:	PK	Test By:	PEI
Packet:	DH1, 2DH1, 3DH1(Worst case)	Test Date:	August 27, 2020
Test Result:	PASS		

Hopping Channel Frequency Range	Number of Hopping Channels	Limit
2400-2483.5	79	≥15

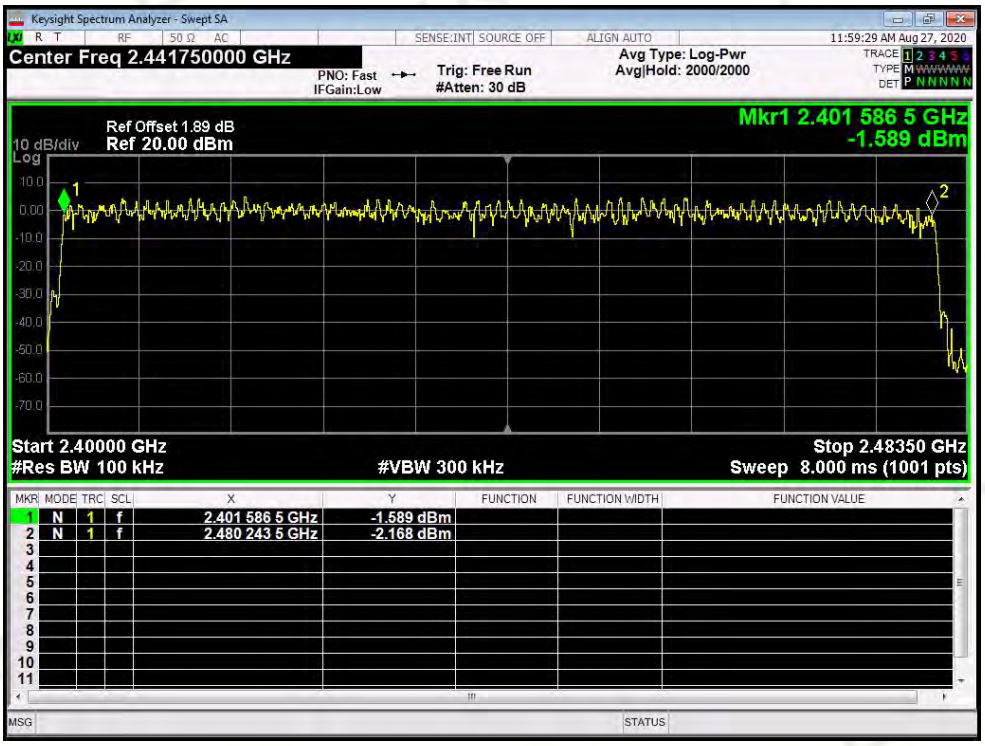
GFSK



π/4-DQPSK



8DPSK


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 2000/2000
11:59:29 AM Aug 27, 2020
Ref Offset 1.89 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.401 586 5 GHz
-1.589 dBm
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (1001 pts)
1 N 1 f 2.401 586 5 GHz -1.589 dBm
2 N 1 f 2.480 243 5 GHz -2.168 dBm