

RADIO PERFORMANCE TEST REPORT

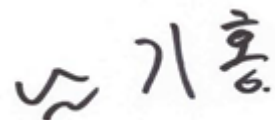
Test Report No. : OT-217-RWD-063
Reception No. : 2104002916
Applicant : LG Electronics USA
Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States
Manufacturer : LG Electronics Inc.
Address : 222 LG-ro, Jinwi-Myeon, Pyeongtaek -Si, Gyeonggi-Do, 451-713, Korea
Type of Equipment : Premium Magic Remote
FCC ID. : BEJPM22GN
Model Name : PM22GN
Multiple Model Name : N/A
Serial number : N/A
Total page of Report : 47 pages (including this page)
Date of Incoming : June 24, 2021
Date of issue : July 26, 2021

SUMMARY

The equipment complies with the regulation; **FCC PART 15 SUBPART C Section 15.247**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.



Tested by
/ Su-Min You / Assistant Manager
ONETECH Corp.

Reviewed by
/ Ha-Ram Lee / Manager
ONETECH Corp.

Approved by
/ Ki-Hong, Nam / General Manager
ONETECH Corp.

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ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-217-RWD-063	July 26, 2021	Initial Release	All

1. VERIFICATION OF COMPLIANCE

Applicant : LG Electronics USA

Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States

Contact Person : Sung Soo Kim / Team Leader

Telephone No. : 201-266-2419

FCC ID : BEJPM22GN

Model Name : PM22GN

Brand Name : N/A

Serial Number : N/A

Date : July 26, 2021

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM
E.U.T. DESCRIPTION	Premium Magic Remote
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.247 (a) (2)	Minimum 6 dB Bandwidth	Met the Limit / PASS
15.247 (b) (3)	Maximum Peak Conducted Output Power	Met the Limit / PASS
15.247 (d)	100 kHz Bandwidth Outside the Frequency Band	Met the Limit / PASS
15.247 (d)	Radiated Emission which fall in the Restricted Band	Met the Limit / PASS
15.247 (e)	Peak Power Spectral Density	Met the Limit / PASS
15.209	Radiated Emission Limits	Met the Limit / PASS
15.207	Conducted Limits	N/A / See Note
15.203	Antenna Requirement	Met requirement / PASS

Note.: As EUT using DC battery, This test has not been performed

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 15 SUBPART C Section 15.247.

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-20122/ C-14617/ G-10666/ T-11842

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

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3. GENERAL INFORMATION

3.1 Product Description

The LG Electronics USA, Model PM22GN (referred to as the EUT in this report) is a Premium Magic Remote. The product specification described herein was obtained from product data sheet or user's manual.

Device Type	Premium Magic Remote	
Operating Frequency	2 402 MHz ~ 2 480 MHz	
RF Output Power	Packet Length: 37 Byte	3.50 dBm
	Packet Length: 255 Byte	3.50 dBm
Number of Channel	40 Channels	
Modulation Type	GFSK	
Antenna Type	Dielectric Chip Antenna	
Antenna Gain	1.81 dBi	
Rated Supply Voltage	DC 3.0 V	
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	40 MHz	

3.2 Alternative type(s)/model(s); also covered by this test report.

-. None

4. EUT MODIFICATIONS

-. None

5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	LG Electronics Inc.	PPCFA1559A	N/A
Wheel Board	LG Electronics Inc.	PLCFA1435A	N/A

5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	Description	Connected to
PM22GN	LG Electronics Inc.	Premium Magic Remote (EUT)	-
HP Probook	HP	Notebook PC	EUT
PPP009L-E	LIE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD.	AC Adapter	Notebook PC

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing, the EUT was set at 2 402 MHz, 2 440 MHz, and 2 480 MHz to get a maximum emission levels from the EUT. The EUT was moved throughout the XY, XZ, and YZ planes and the worst case is "XY" axis, but the worst data was recorded in this report.

-. Frequency / Channel Operations

Channel	Frequency
0	2 402
19	2 440
39	2 480

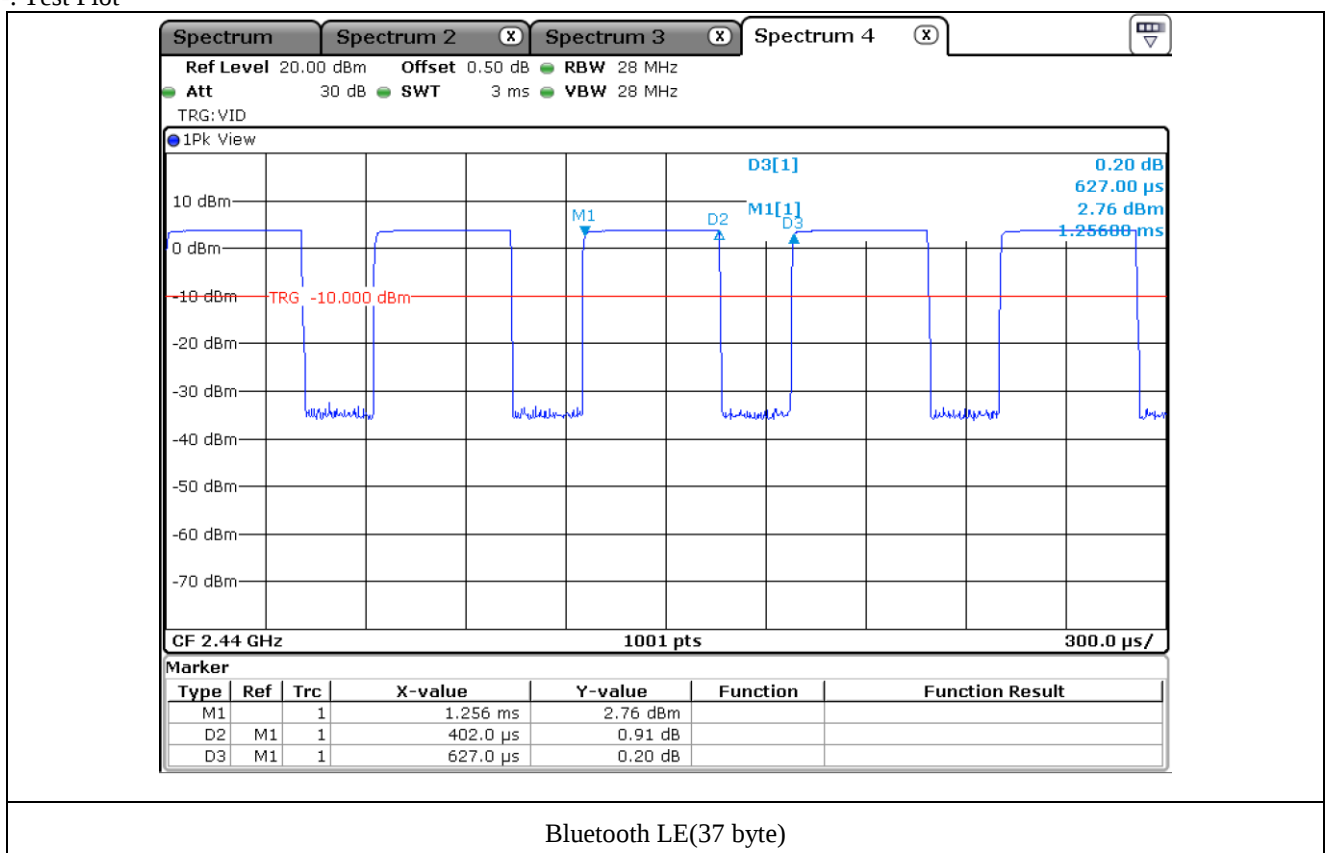
-. Duty Cycle

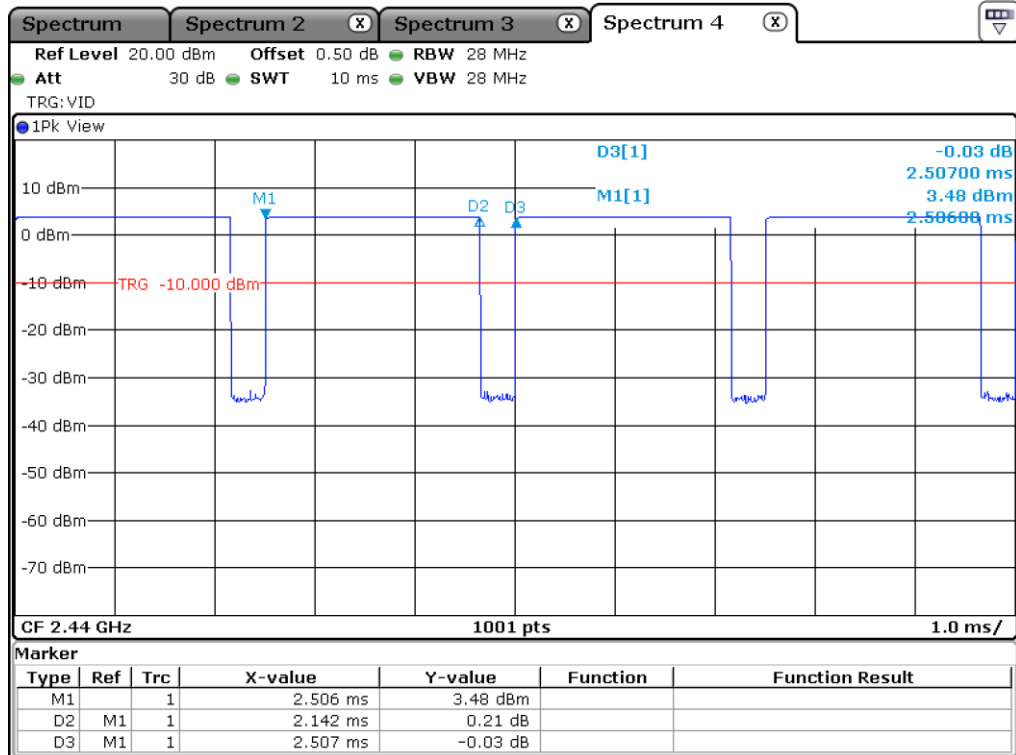
Mode	Tx On Time [ms]	Tx Off Time [ms]	Duty Cycle [%]	Correction Factor [dB]
Bluetooth LE(37 byte)	0.402	0.225	64.11	1.93
Bluetooth LE(255 byte)	2.142	0.365	85.44	0.68

Note – Duty Cycle : (Tx On Time / (Tx On Time + Tx Off Time)) * 100

Correction Factor : 10 * Log(1 / (Duty Cycle / 100))

-. Test Plot





Bluetooth LE(255 byte)

5.4 Configuration of Test System

Line Conducted Test: As This product is only using DC battery, AC conducted emission test has not been performed.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

For intentional device, 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.

Antenna Construction:

The antenna of the EUT is Dielectric Chip Antenna on the main board in the EUT, so no consideration of replacement by the user.

6. PRELIMINARY TEST

6.1 AC Power line Conducted Emissions Tests

As the EUT is operated by DC battery, this test item is not requirement to be performed.

6.2 General Radiated Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

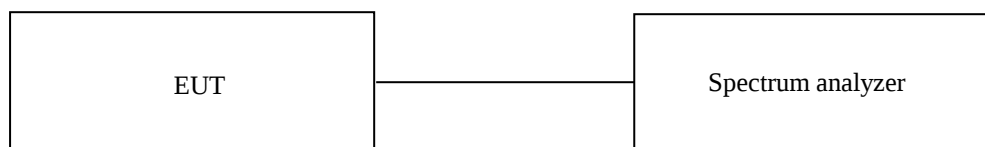
7. MINIMUM 6 dB BANDWIDTH

7.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 % R.H.

7.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, and peak detection was used. The 6 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 6 dB.



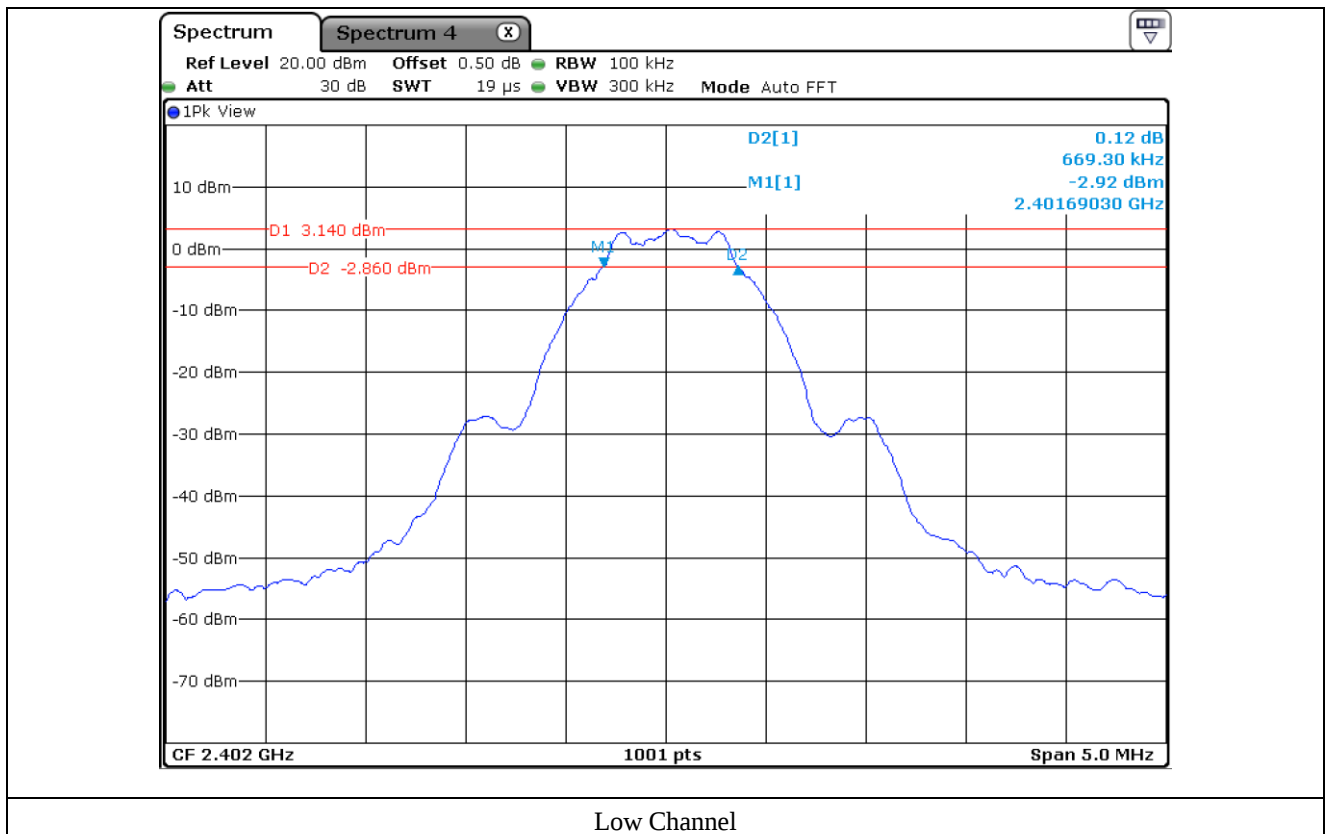
7.3 Test Date

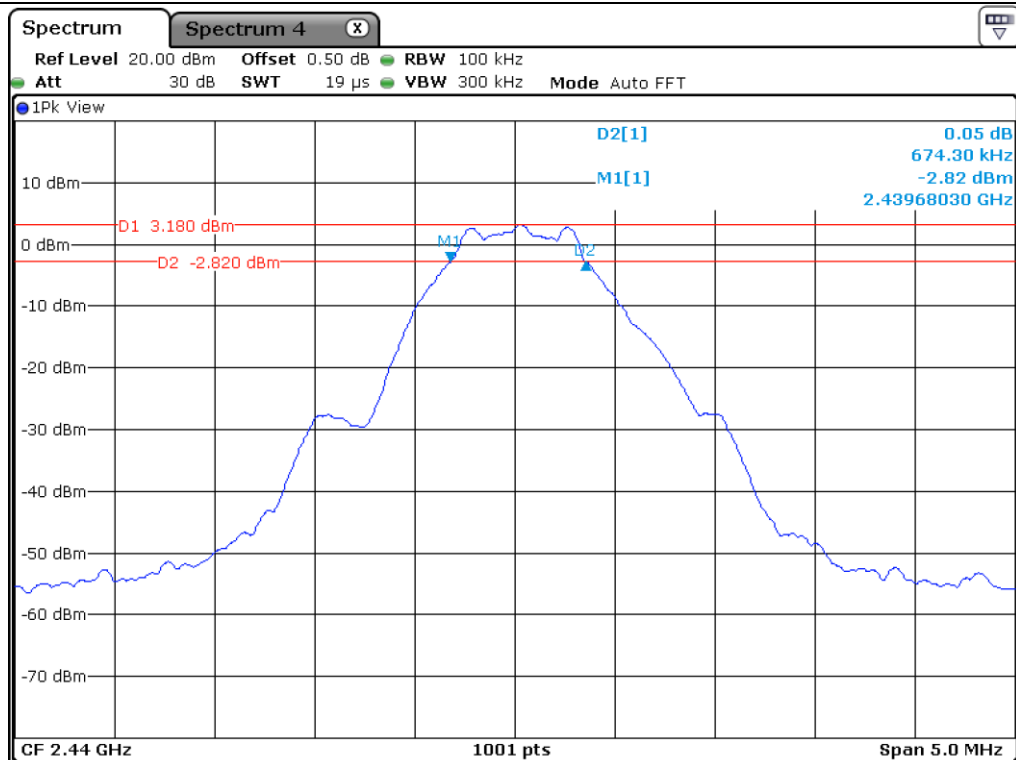
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7.4 Test data for 37 byte

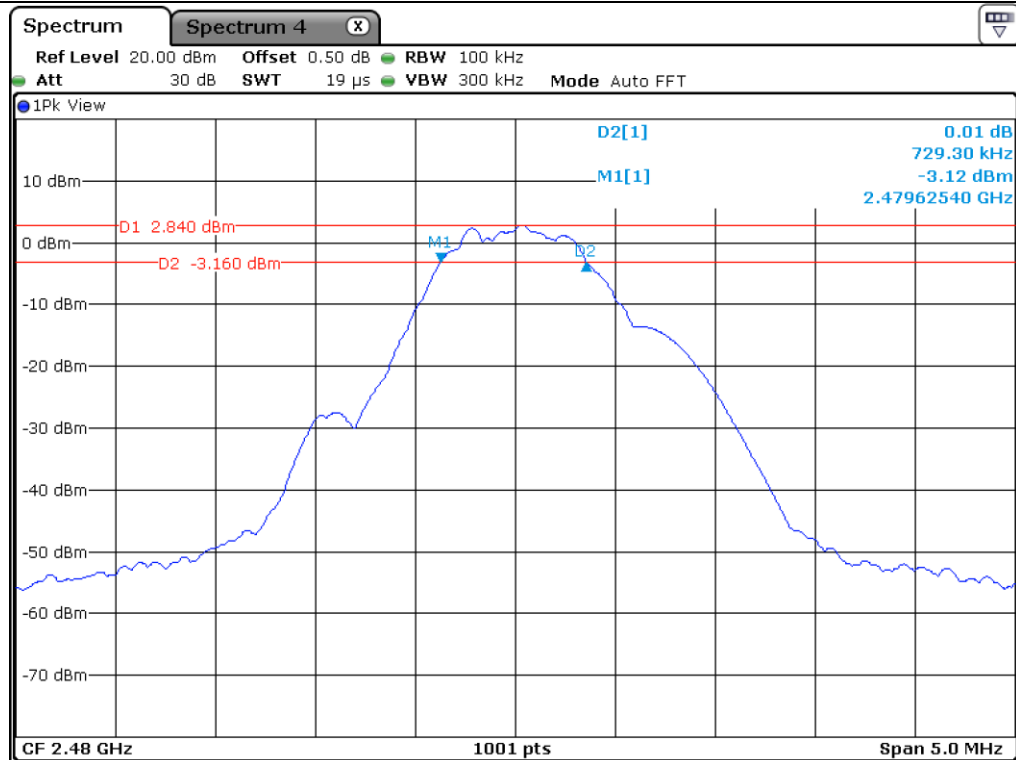
Channel	Frequency (MHz)	Measured Value (kHz)	Limit (kHz)	Margin (kHz)
Low	2 402.00	669.30	500.00	169.30
Middle	2 440.00	674.30	500.00	174.30
High	2 480.00	729.30	500.00	229.30

Remark. Margin = Measured Value - Limit





Middle Channel



High Channel

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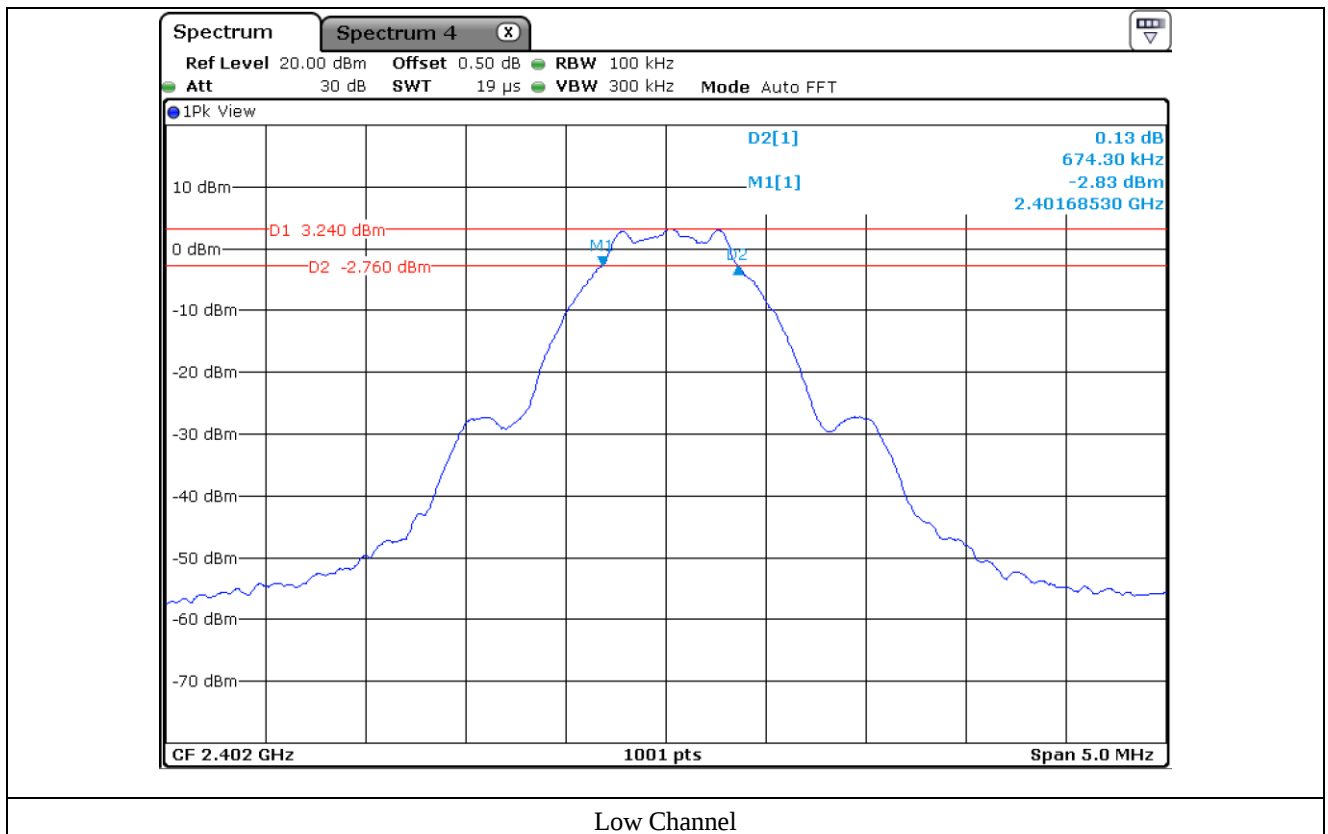
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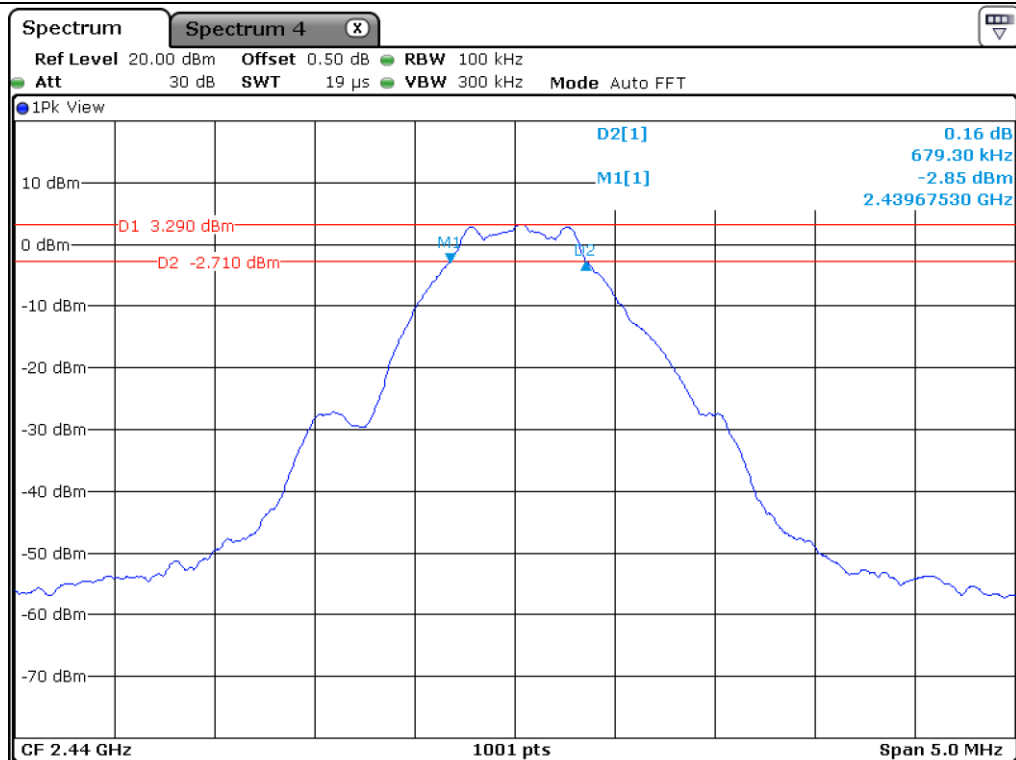
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7.5 Test data for 255 byte

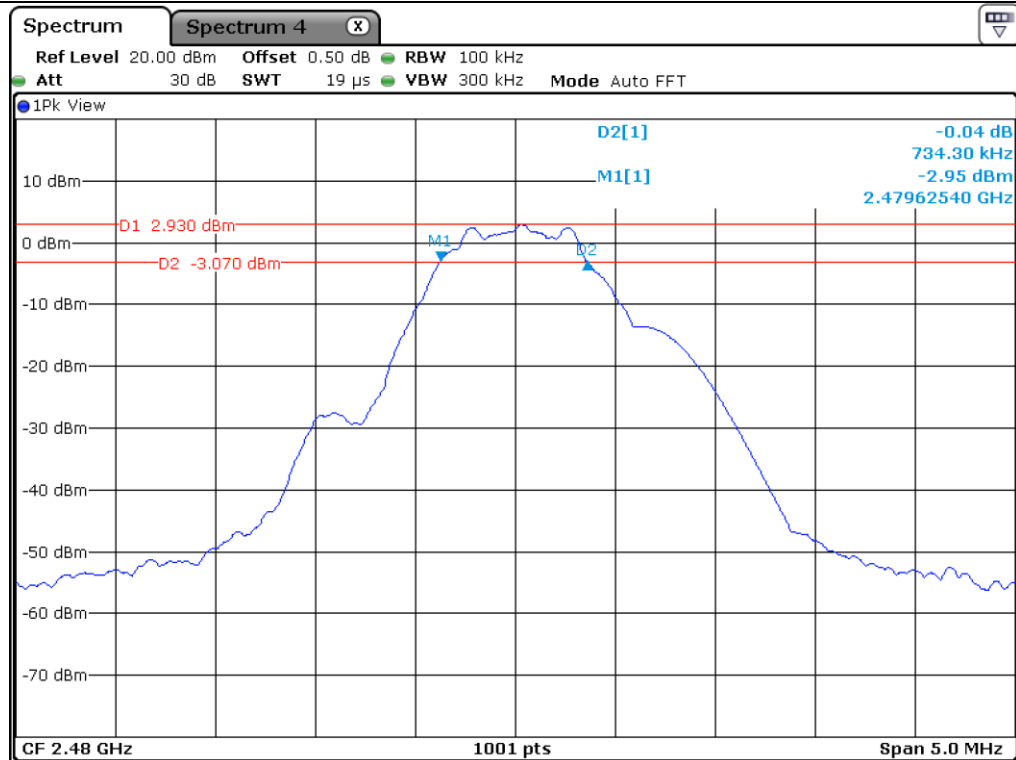
Channel	Frequency (MHz)	Measured Value (kHz)	Limit (kHz)	Margin (kHz)
Low	2 402.00	674.30	500.00	174.30
Middle	2 440.00	679.30	500.00	179.30
High	2 480.00	734.30	500.00	234.30

Remark. Margin = Measured Value - Limit





Middle Channel



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8. MAXIMUM PEAK OUTPUT POWER

8.1 Operating environment

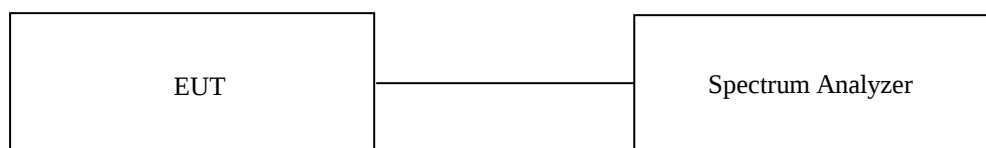
Temperature : 22 °C

Relative humidity : 46 % R.H.

8.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to $\geq$ DTS Bandwidth, the video bandwidth is set to 3 times the resolution bandwidth.



8.3 Test Date

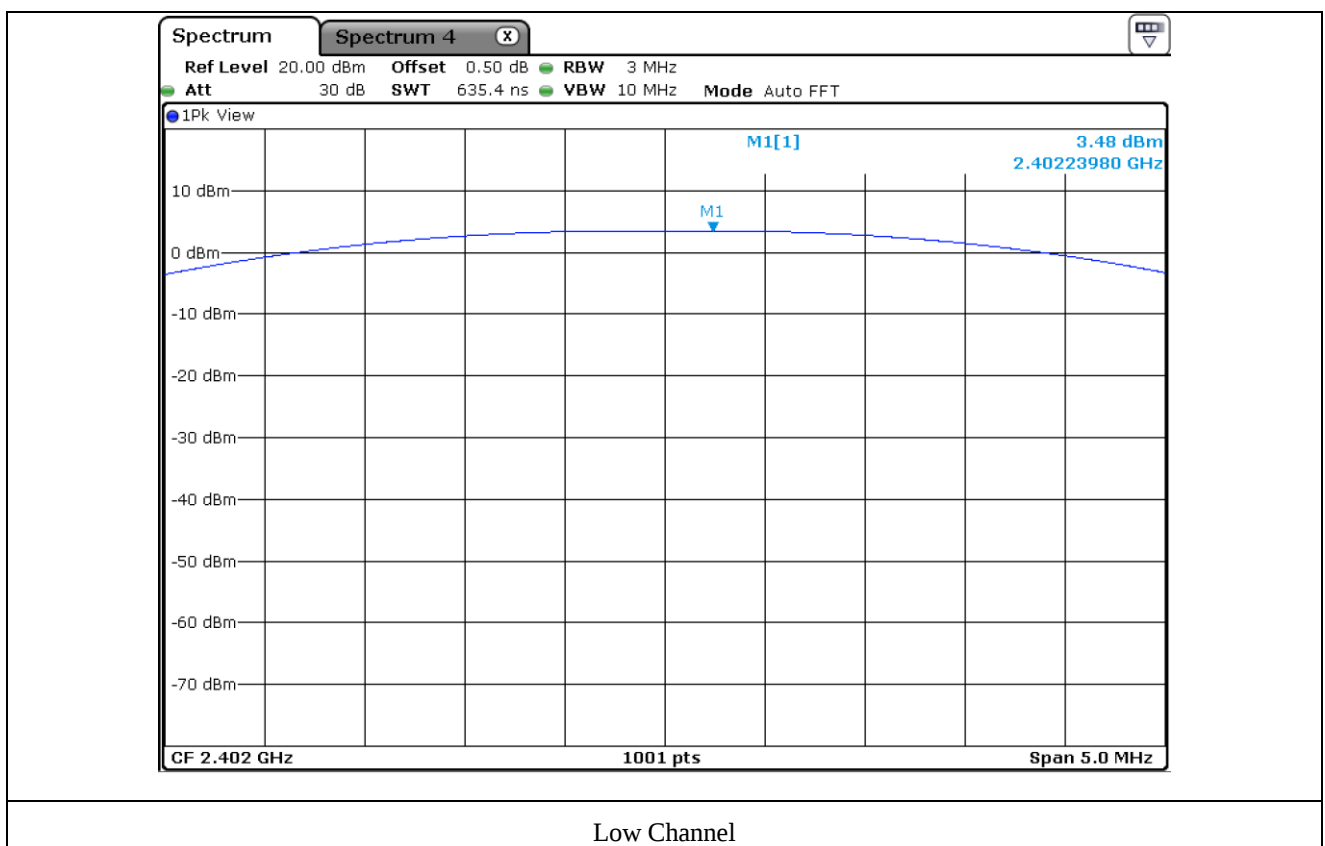
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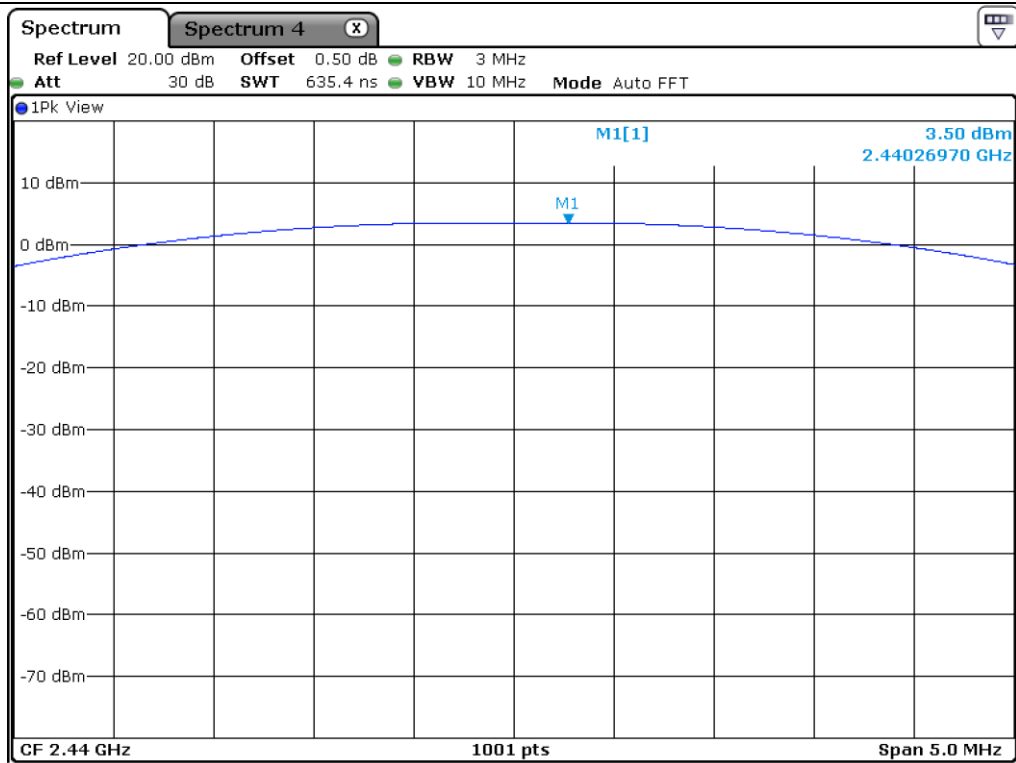
8.4 Test data for 37 byte

-. Test Result : Pass

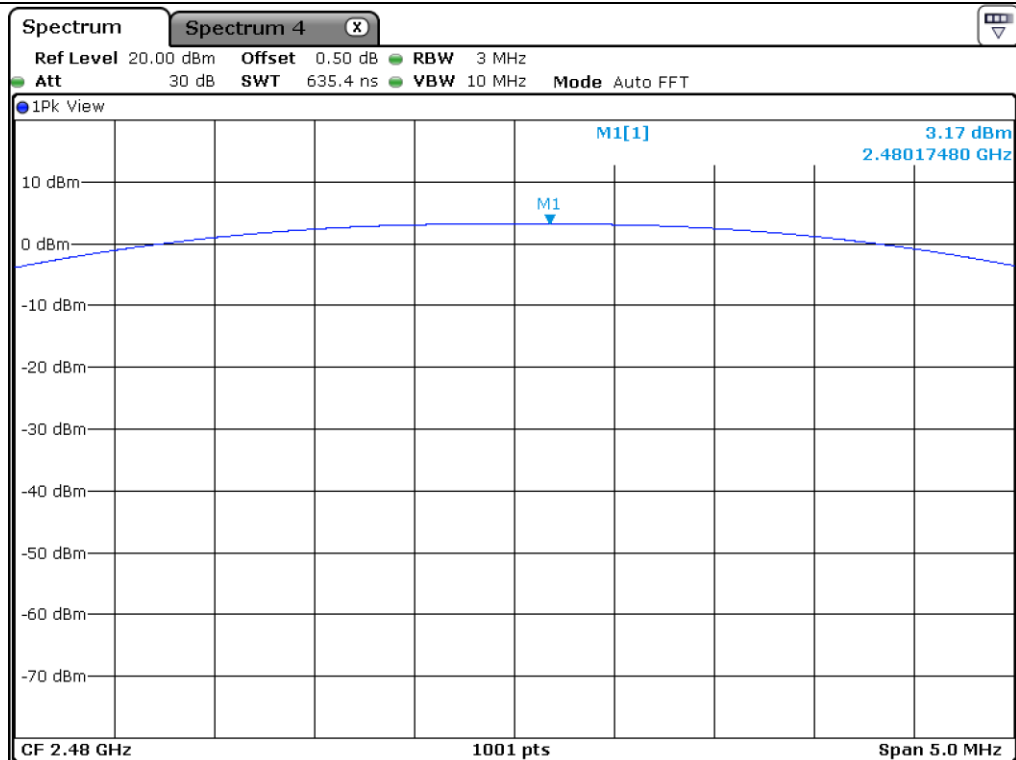
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Measured Value (dBm)	Limit (dBm)	Margin (dB)
Low	2 402.00	669.30	3.48	30.00	26.52
Middle	2 440.00	674.30	3.50	30.00	26.50
High	2 480.00	729.30	3.17	30.00	26.83

Remark. Margin = Limit – Measured value (=Receiver Reading + Cable Loss)





Middle Channel



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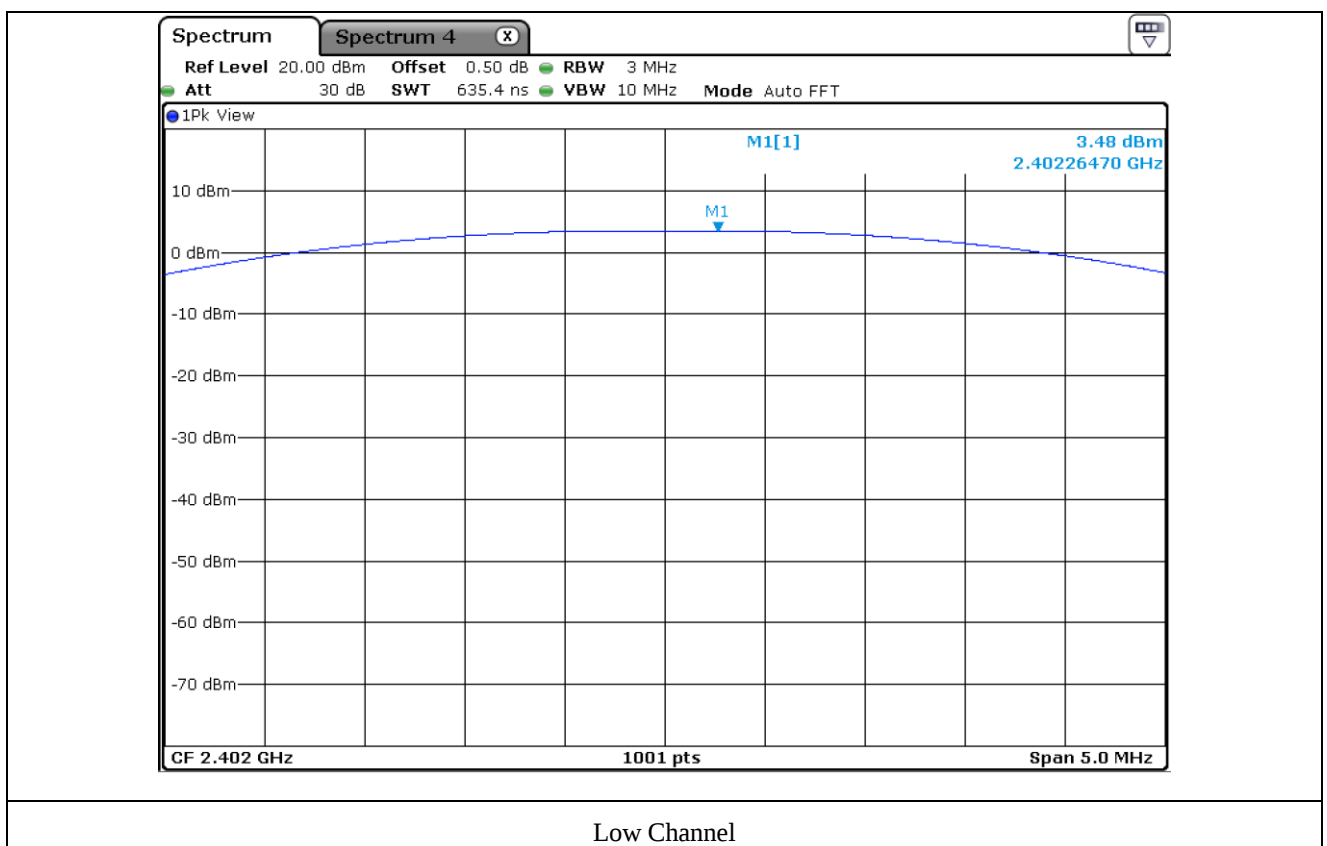
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

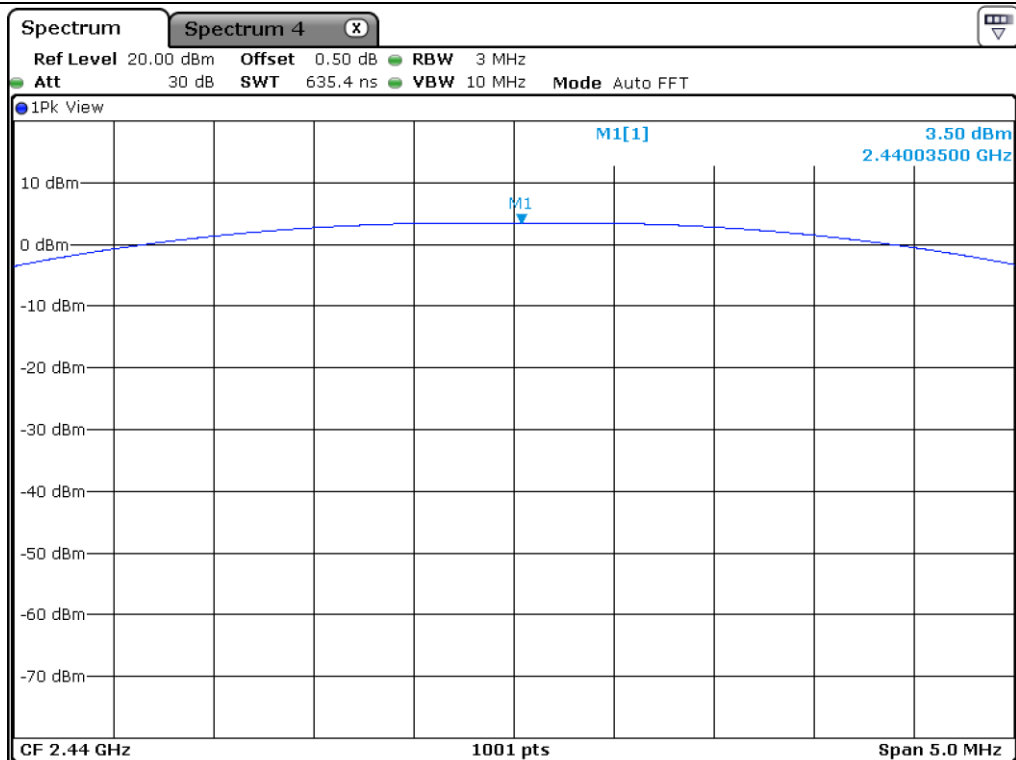
8.5 Test data for 255 byte

-. Test Result : Pass

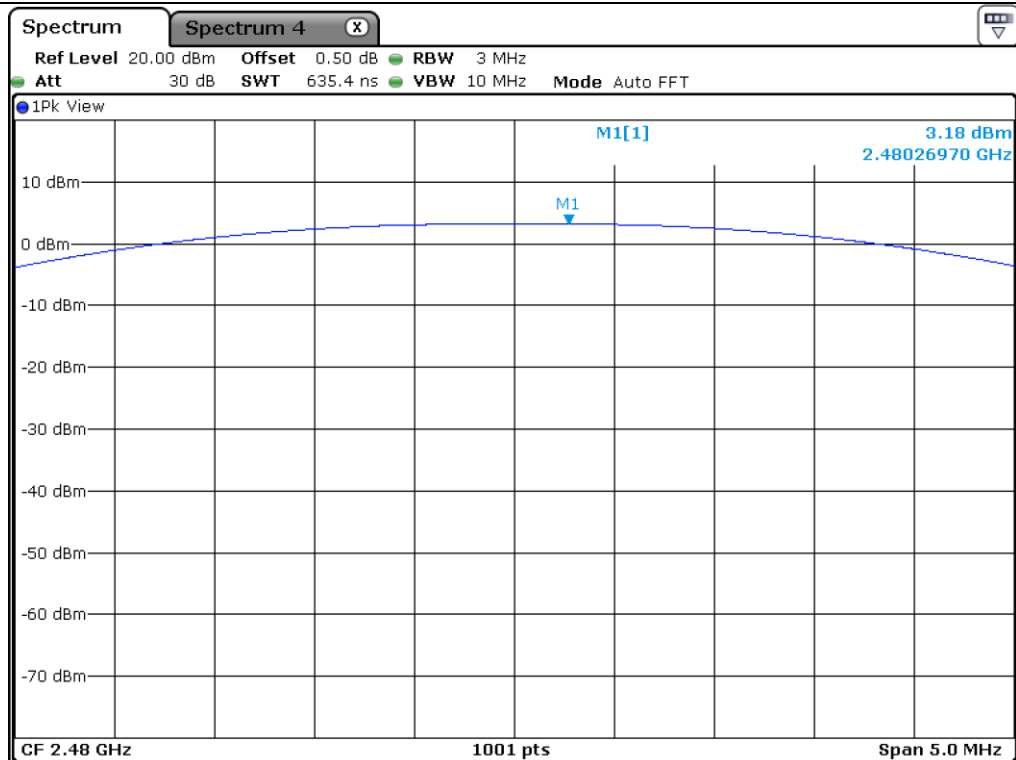
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Measured Value (dBm)	Limit (dBm)	Margin (dB)
Low	2 402.00	674.30	3.48	30.00	26.52
Middle	2 440.00	679.30	3.50	30.00	26.50
High	2 480.00	734.30	3.18	30.00	26.82

Remark. Margin = Limit – Measured value (=Receiver Reading + Cable Loss)





Middle Channel



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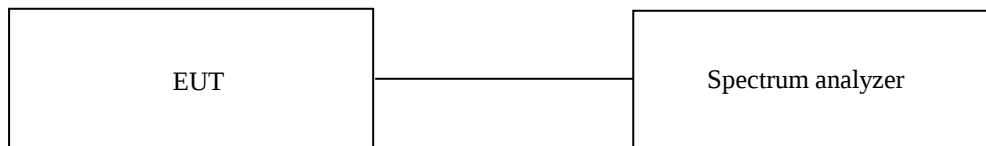
9. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

9.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 % R.H.

9.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, the video bandwidth is set to 3 times the resolution bandwidth and peak detection was used.



9.3 Test set-up for radiated measurement

The radiated emissions measurements were performed on the 3 m semi anechoic chamber. The EUT was placed on turntable approximately 1.5 m above the ground plane.

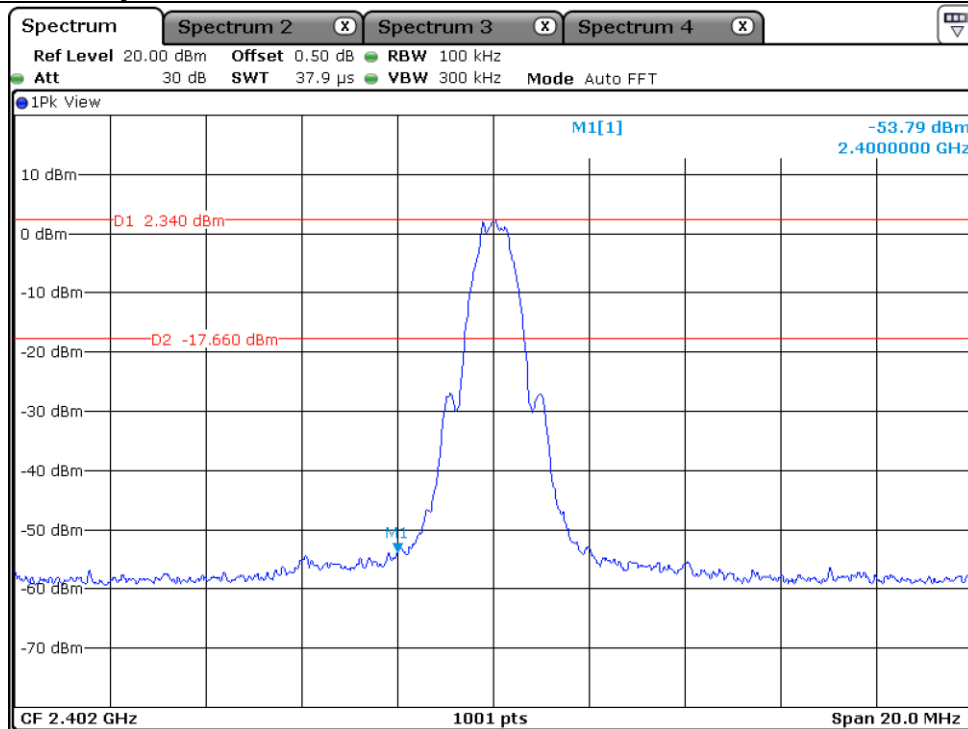
The frequency spectrum from 30 MHz to 26.5 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

9.4 Test Date

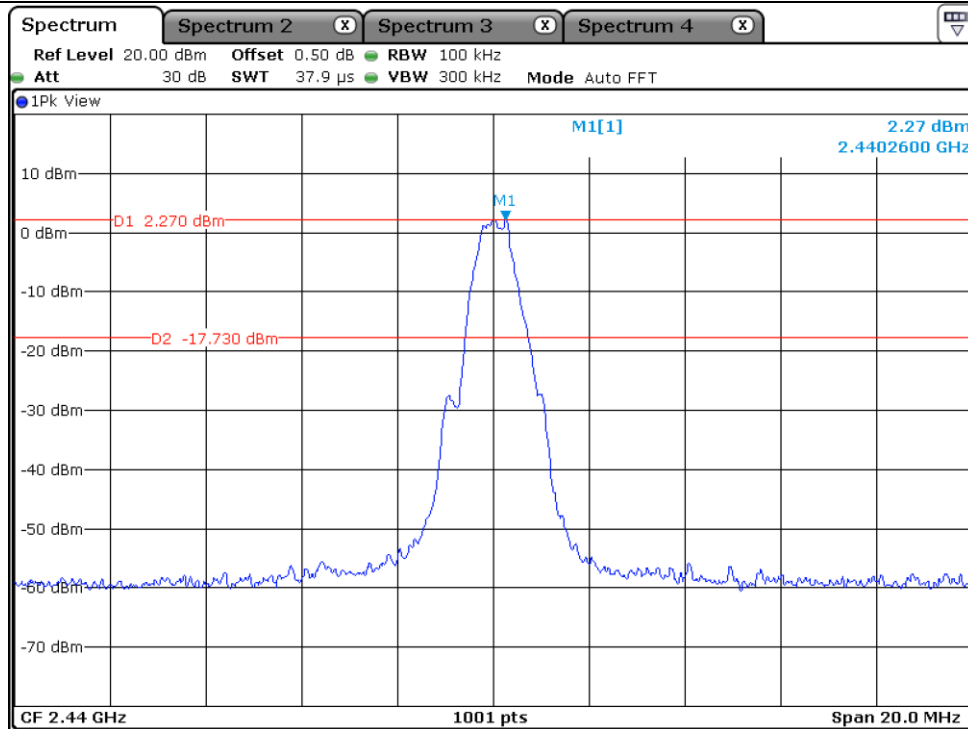
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9.5 Test data for conducted emission

9.5.1 Test data for 37 byte



Low Channel



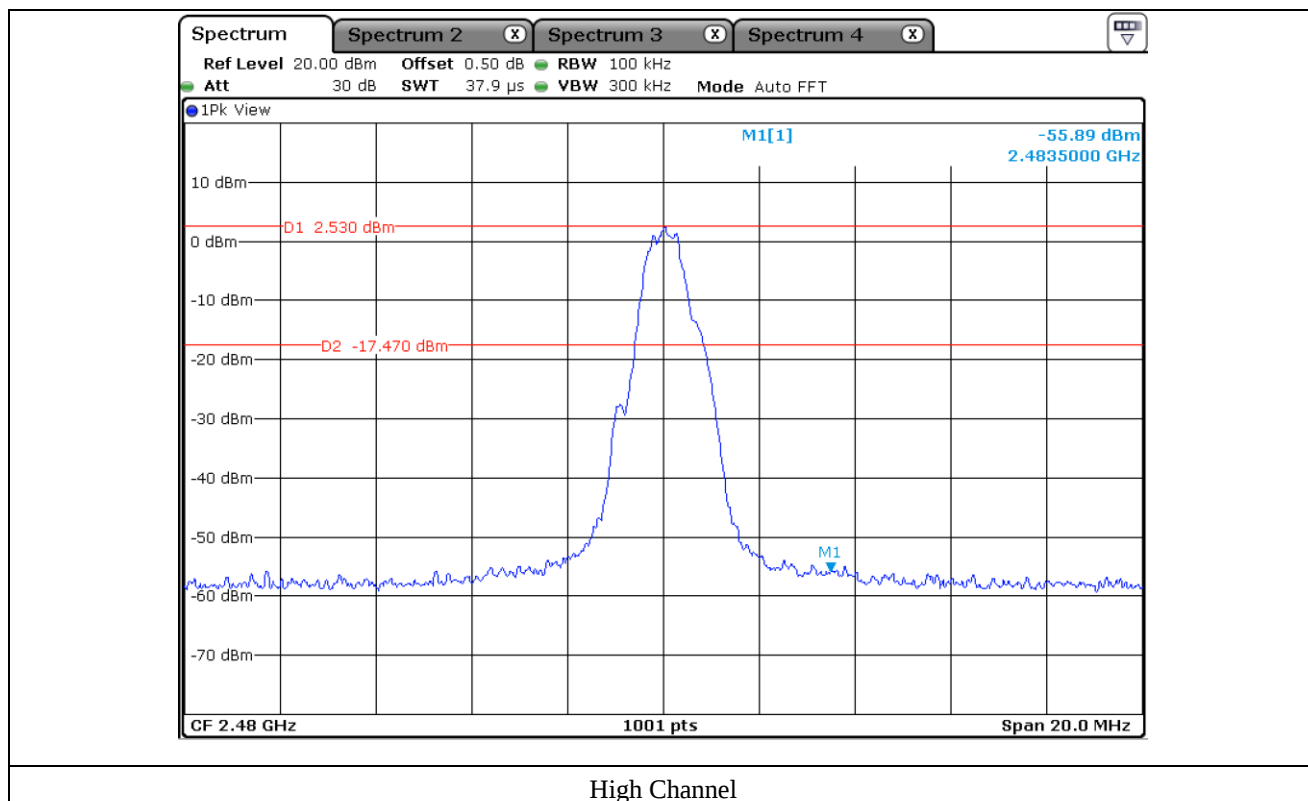
Middle Channel

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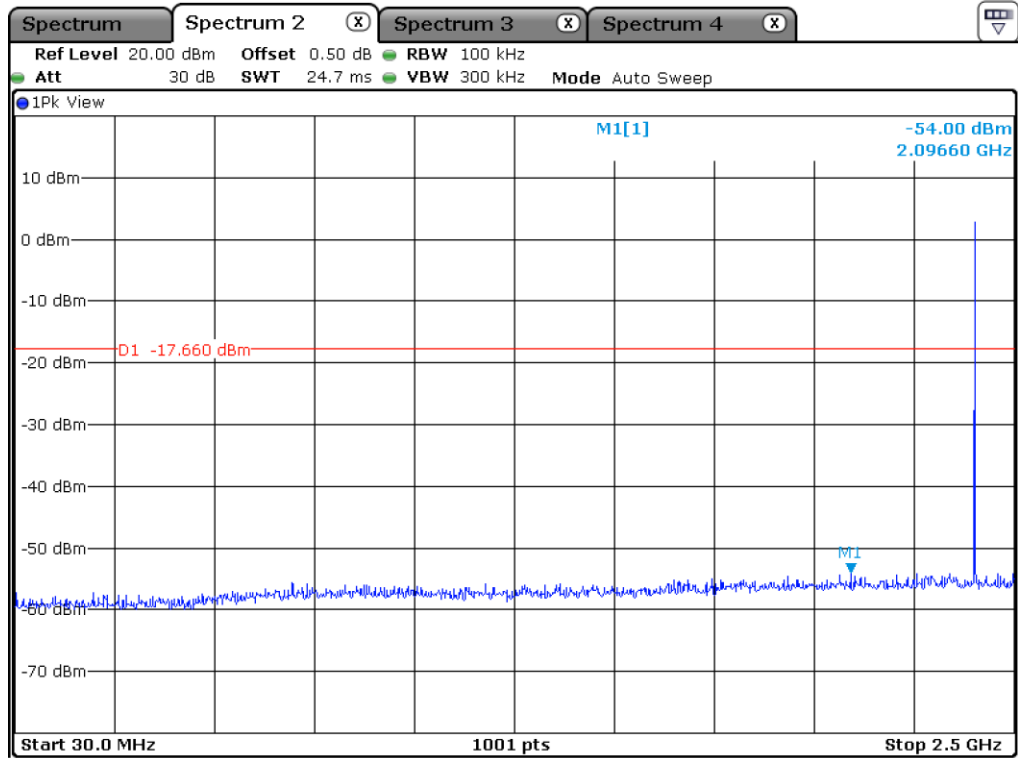


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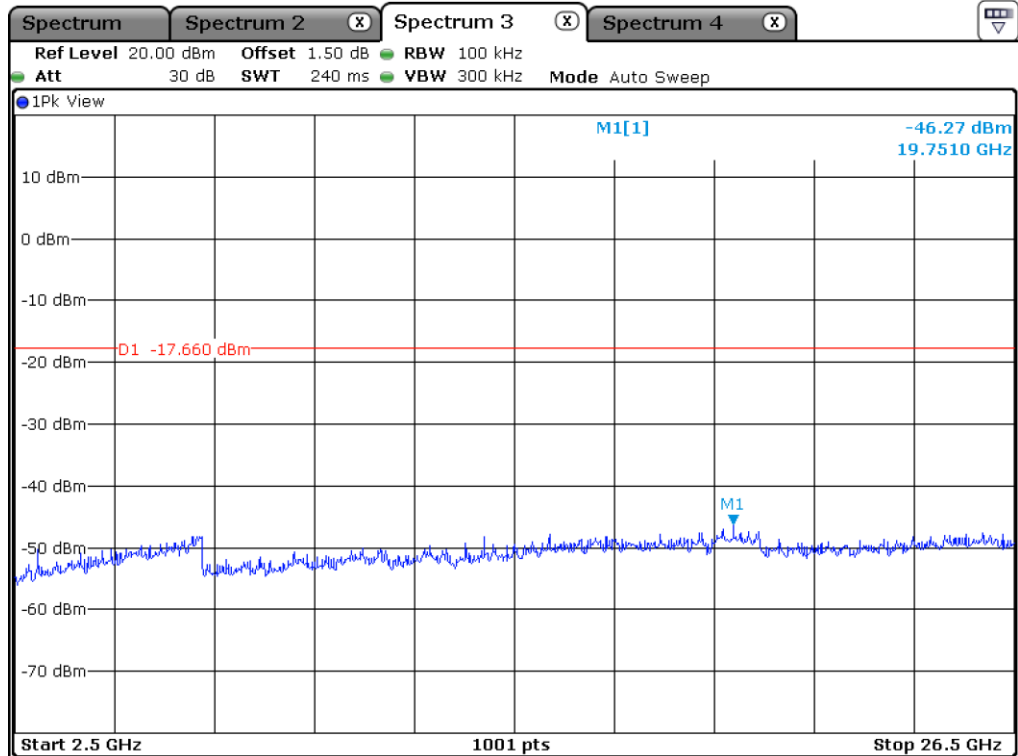
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Low Channel



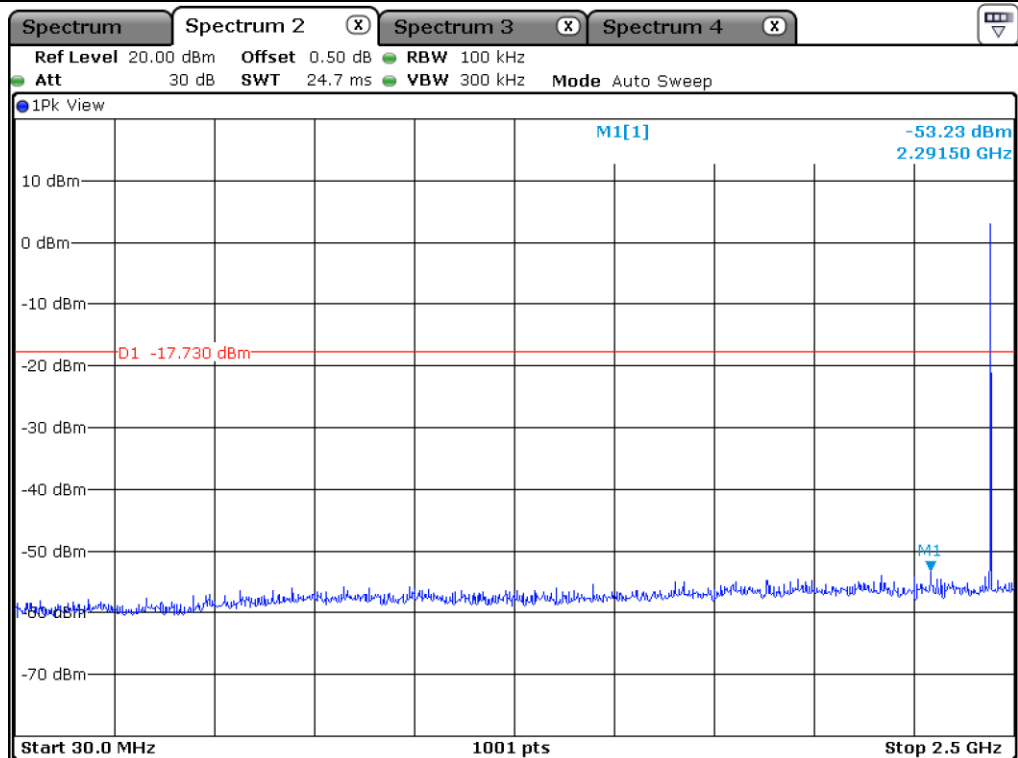
Low Channel

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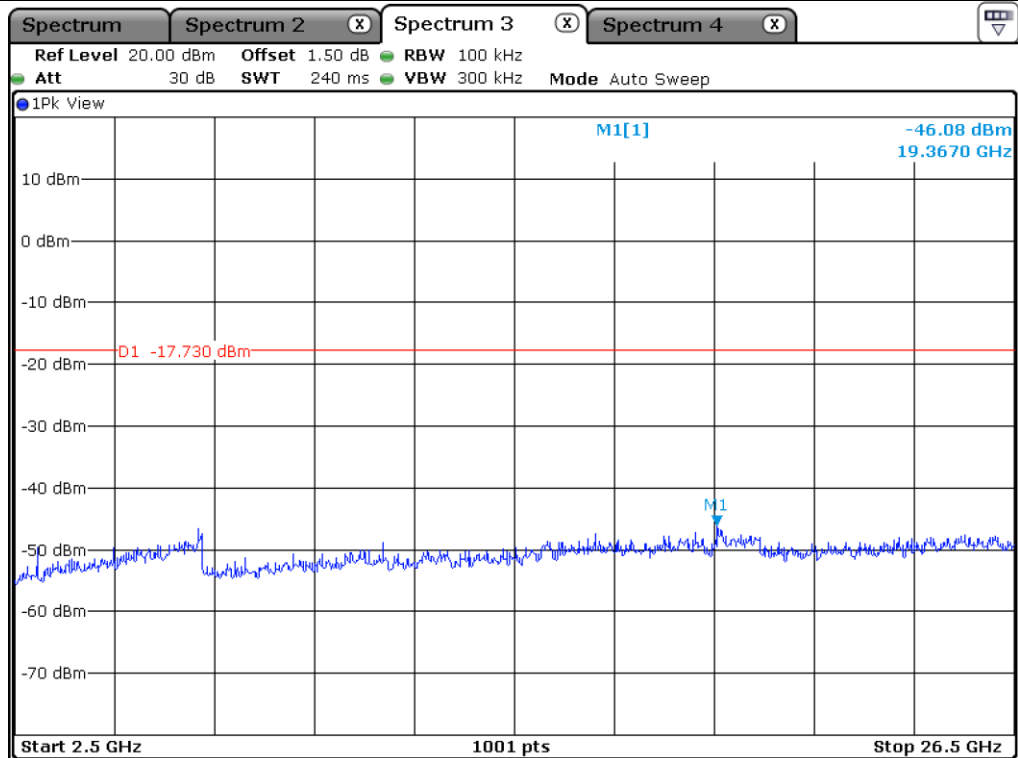
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Middle Channel



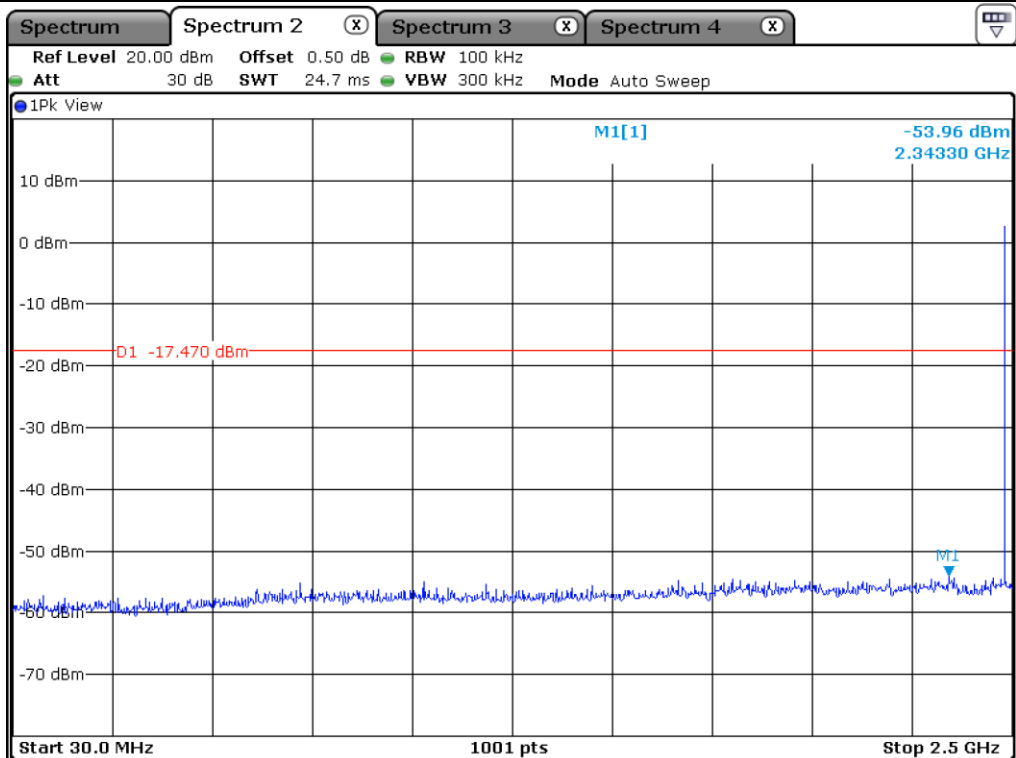
Middle Channel

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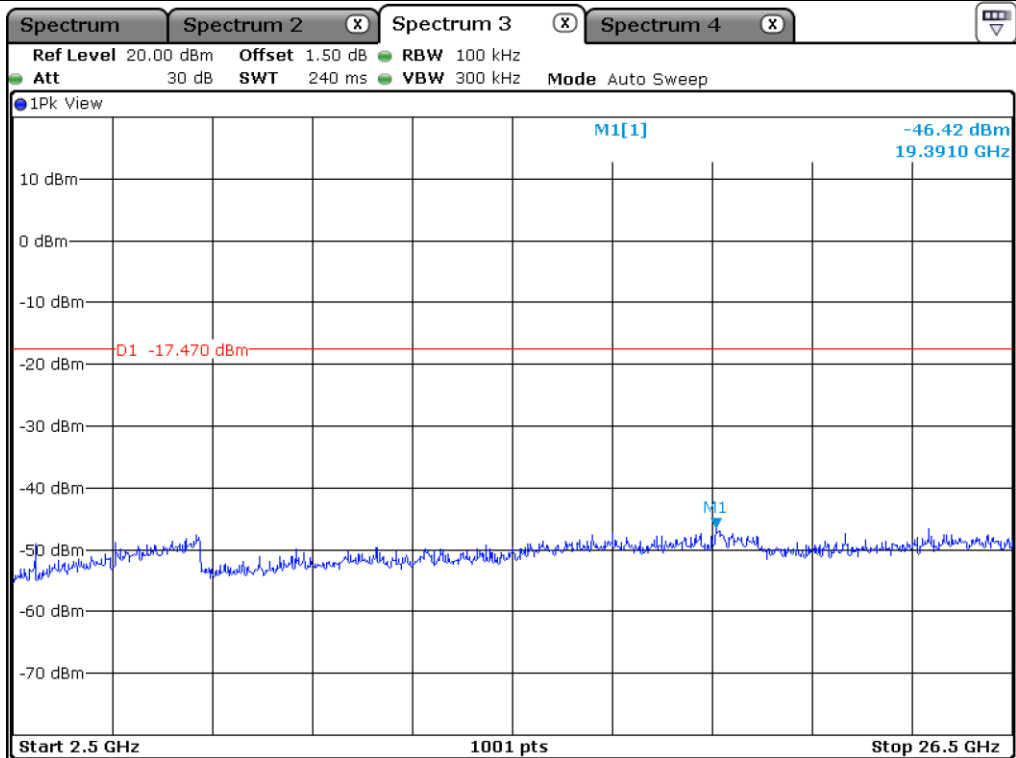
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High Channel



High Channel

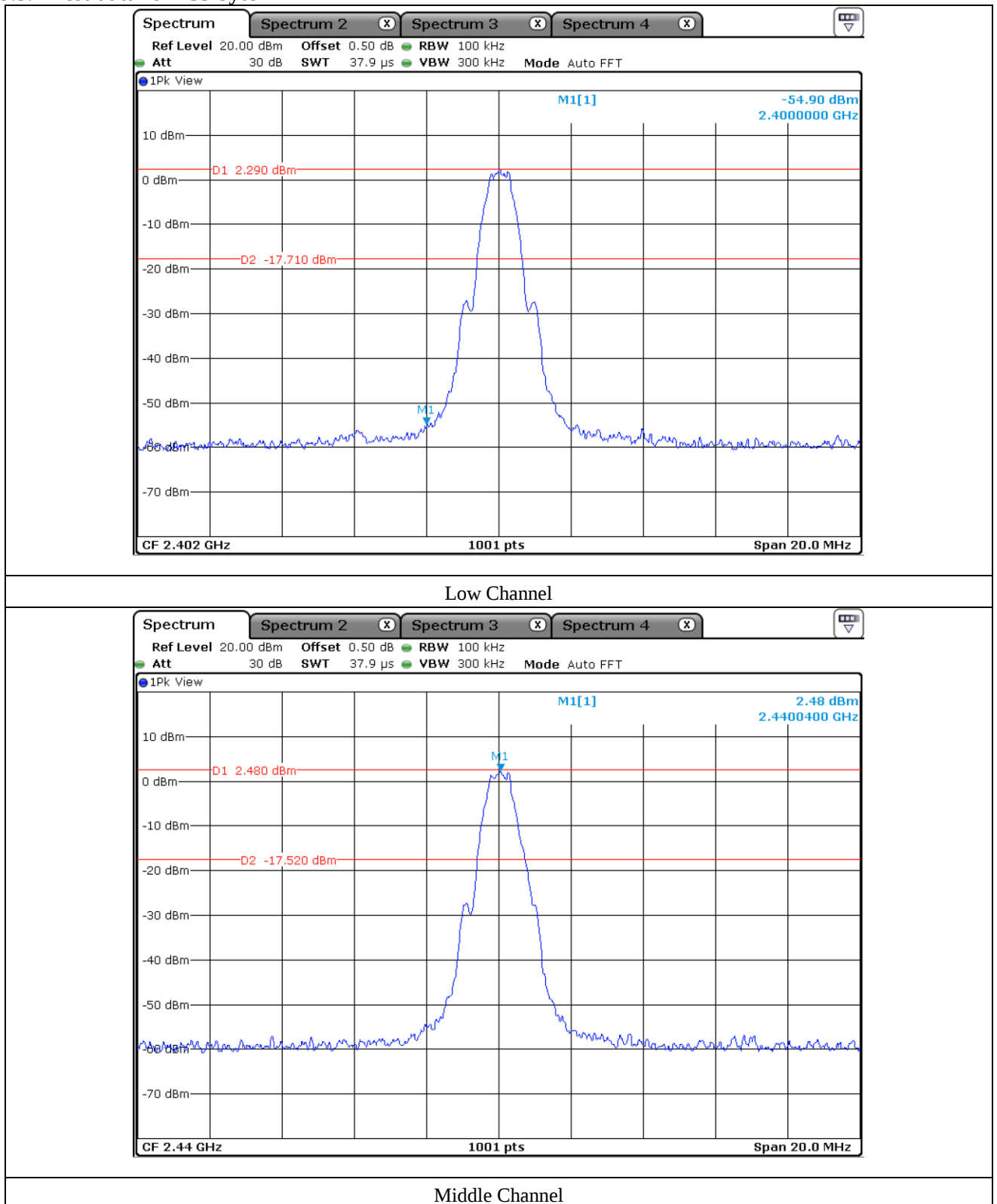
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9.5.2 Test data for 255 byte

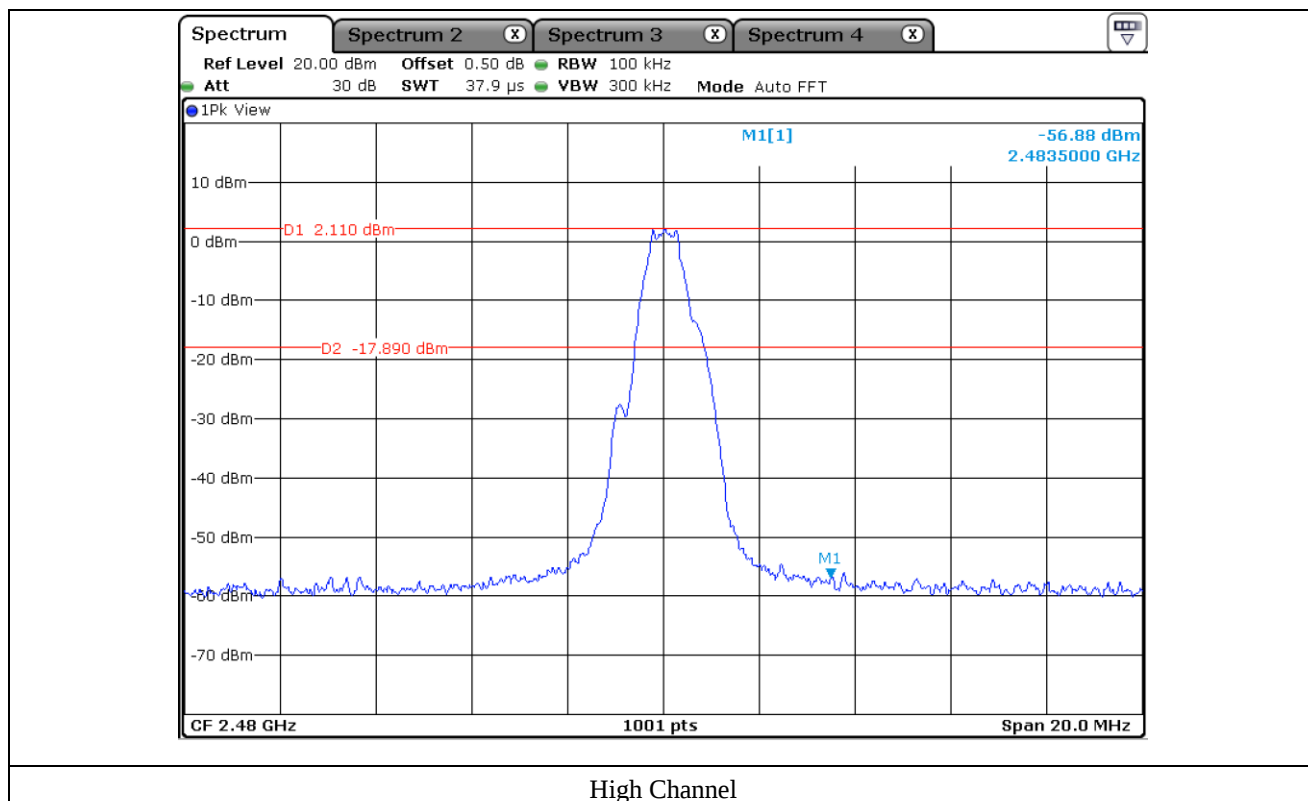


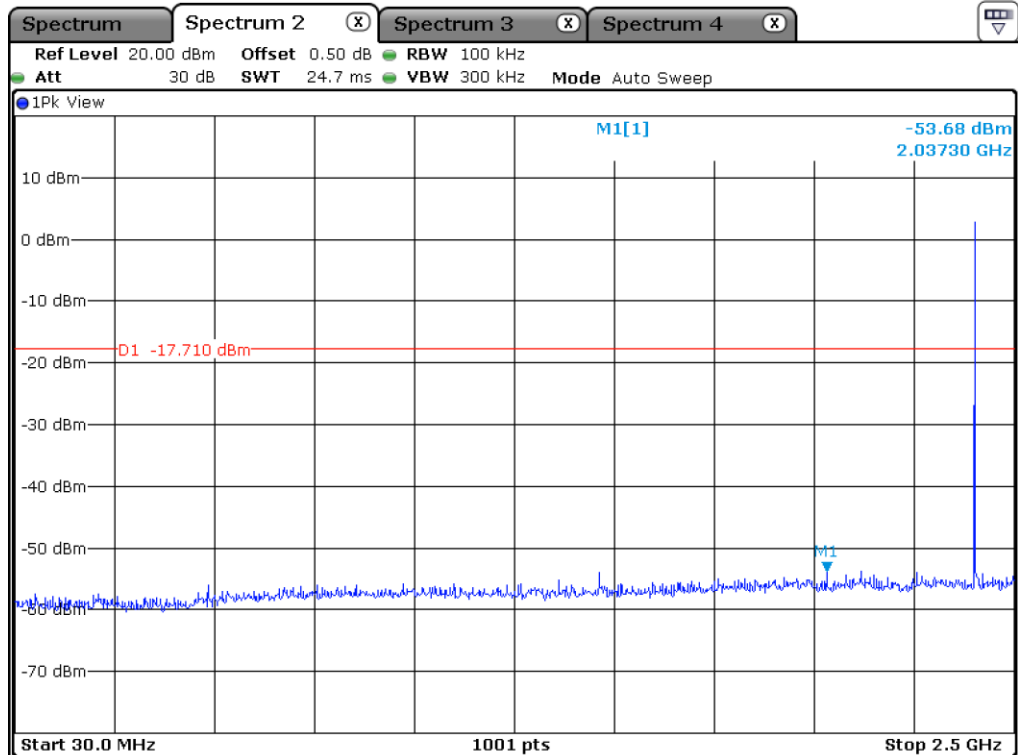
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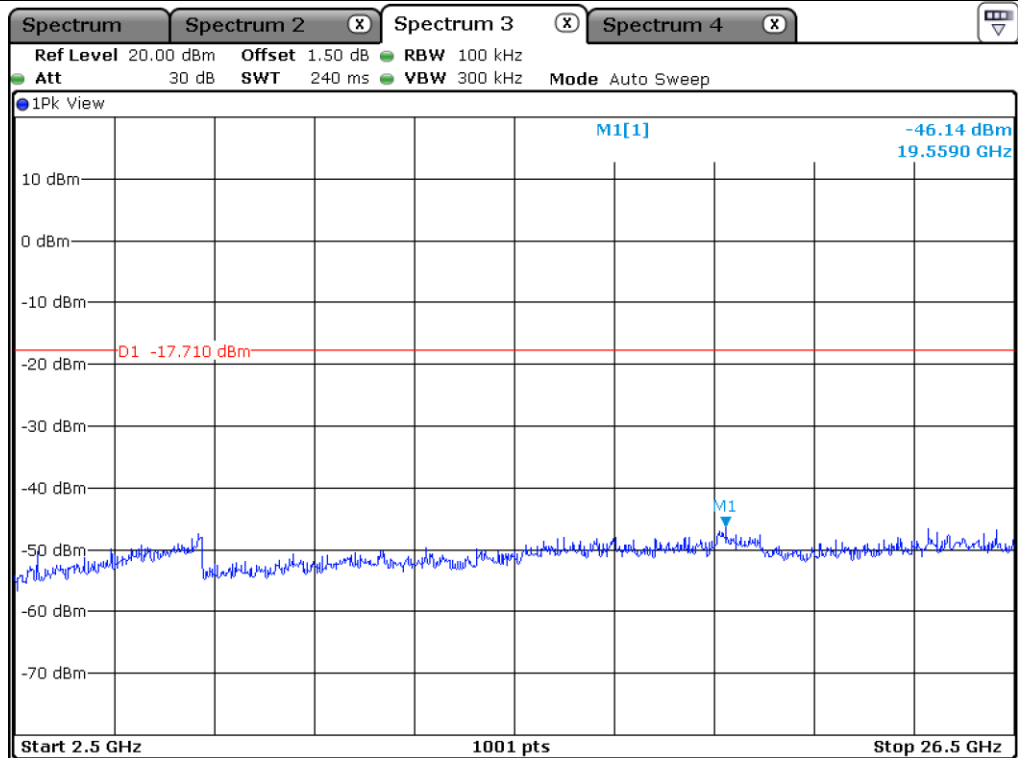
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Low Channel



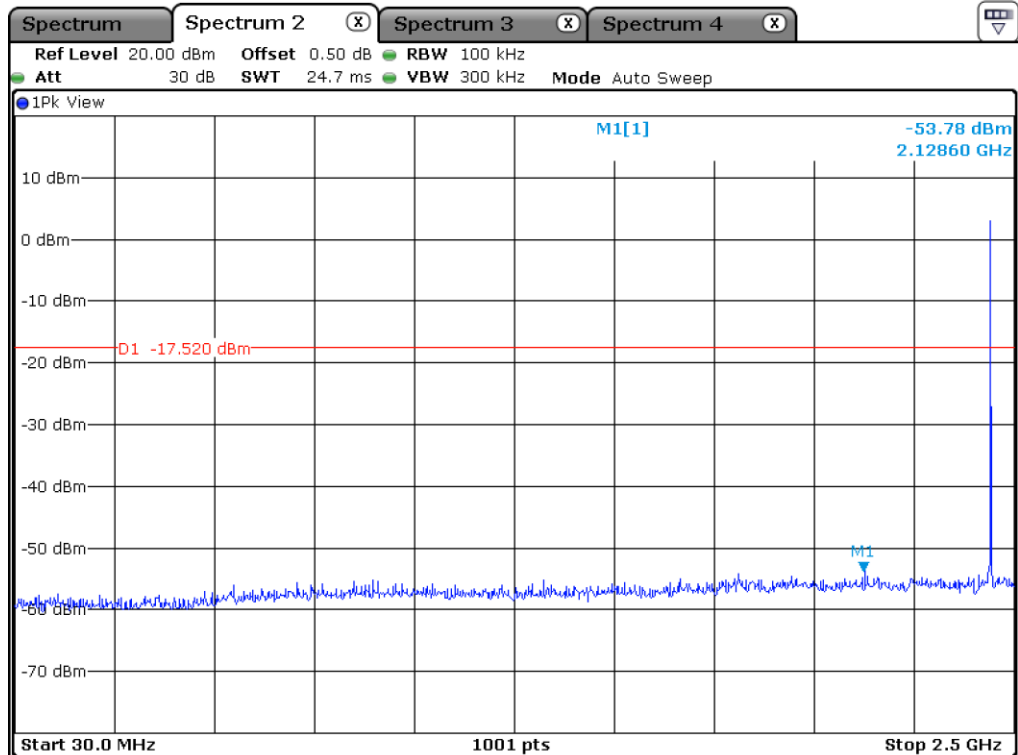
Low Channel

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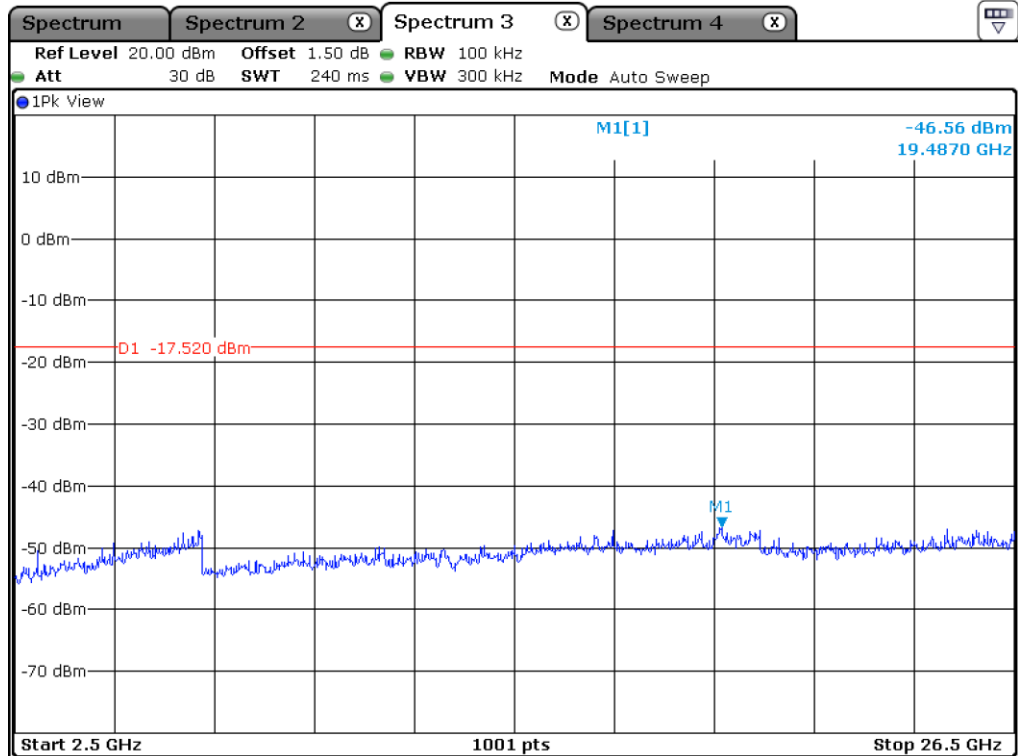
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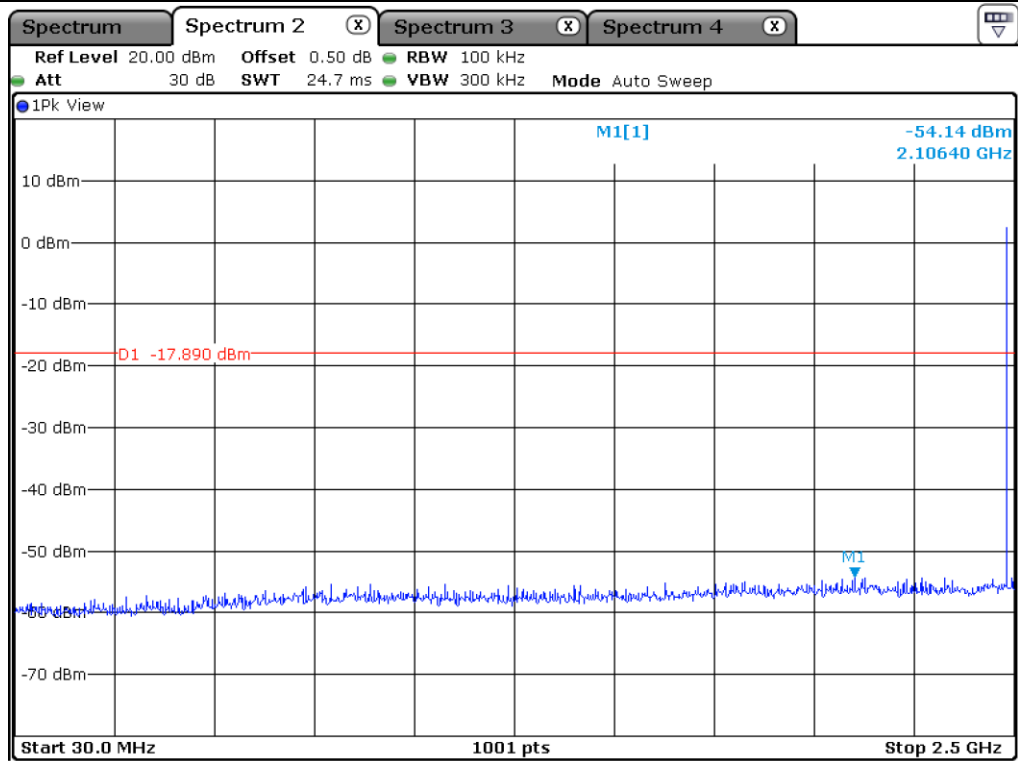
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



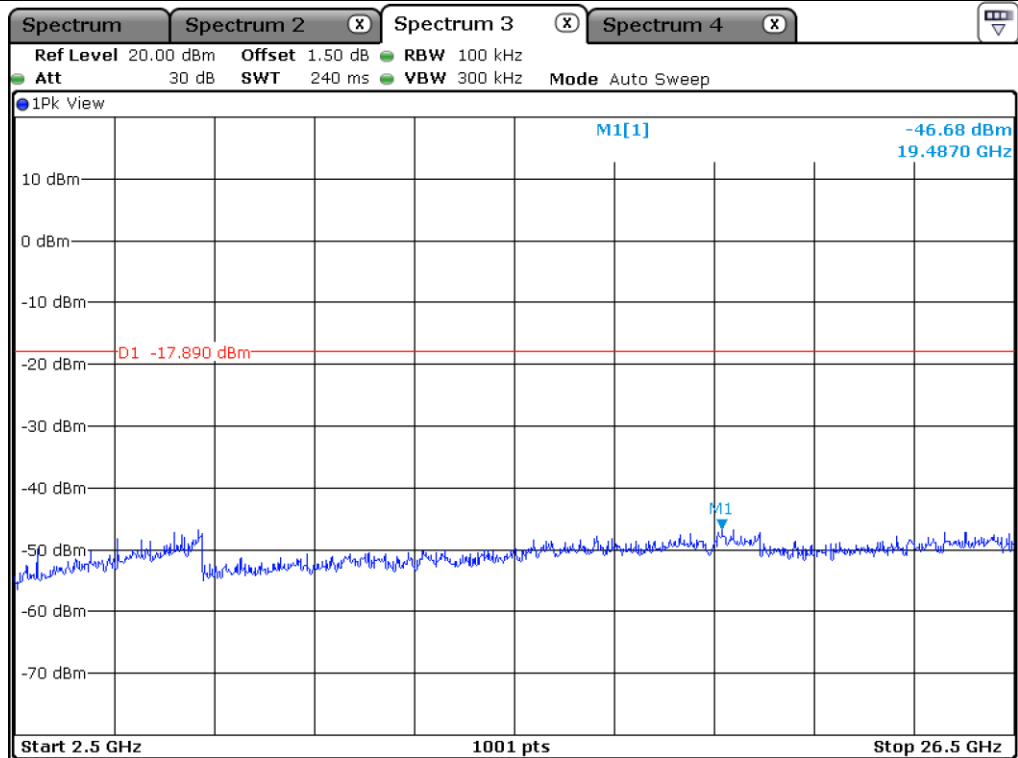
Middle Channel



Middle Channel



High Channel



High Channel

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9.6 Test data for radiated emission

9.6.1 Test data for 37 byte

9.6.1.1 Radiated Emission which fall in the Restricted Band

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 64.11 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
2 320.92	51.60	Peak	H	27.80	8.20	46.15	-	41.45	74.00	32.55
2 386.29	41.94	Average	H	28.30	8.20	46.15	1.93	34.22	54.00	19.78
2 326.05	51.89	Peak	V	27.80	8.20	46.15	-	41.74	74.00	32.26
2 367.86	41.45	Average	V	28.30	8.20	46.15	1.93	33.73	54.00	20.27
Test Data for High Channel										
2 486.40	51.21	Peak	H	28.80	8.33	46.06	-	42.28	74.00	31.72
2 487.56	41.54	Average	H	28.80	8.33	46.06	1.93	34.54	54.00	19.46
2 487.32	50.45	Peak	V	28.80	8.33	46.06	-	41.52	74.00	32.48
2 484.30	41.45	Average	V	28.80	8.33	46.06	1.93	34.45	54.00	19.55

Tabulated test data for Restricted Band

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Duty Factor - AMP Gain

9.6.1.2 Spurious & Harmonic Radiated Emission

- Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
1 MHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 64.11 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 804.00	52.61	Peak	H	33.40	11.21	45.73	-	51.49	74.00	22.51
4 804.00	43.30	Average	H	33.40	11.21	45.73	1.93	44.11	54.00	9.89
4 804.00	51.52	Peak	V	33.40	11.21	45.73	-	50.40	74.00	23.60
4 804.00	42.56	Average	V	33.40	11.21	45.73	1.93	43.37	54.00	10.63
Test Data for Middle Channel										
4 880.00	52.38	Peak	H	33.30	11.23	45.80	-	51.11	74.00	22.89
4 880.00	42.51	Average	H	33.30	11.23	45.80	1.93	43.17	54.00	10.83
4 880.00	51.27	Peak	V	33.30	11.23	45.80	-	50.00	74.00	24.00
4 880.00	41.84	Average	V	33.30	11.23	45.80	1.93	42.50	54.00	11.50
Test Data for High Channel										
4 960.00	51.47	Peak	H	33.60	11.31	45.89	-	50.49	74.00	23.51
4 960.00	42.06	Average	H	33.60	11.31	45.89	1.93	43.01	54.00	10.99
4 960.00	50.98	Peak	V	33.60	11.31	45.89	-	50.00	74.00	24.00
4 960.00	41.46	Average	V	33.60	11.31	45.89	1.93	42.41	54.00	11.59

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} + \text{Duty Factor} - \text{AMP Gain}$$

9.6.2 Test data for 255 byte

9.6.2.1 Radiated Emission which fall in the Restricted Band

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 85.44 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
2 347.09	52.19	Peak	H	27.80	8.20	46.15	-	42.04	74.00	31.96
2 384.76	41.80	Average	H	28.30	8.20	46.15	0.68	32.83	54.00	21.17
2 332.79	50.96	Peak	V	27.80	8.20	46.15	-	40.81	74.00	33.19
2 334.05	41.70	Average	V	27.80	8.20	46.15	0.68	32.23	54.00	21.77
Test Data for High Channel										
2 484.05	51.53	Peak	H	28.80	8.33	46.06	-	42.60	74.00	31.40
2 483.50	41.40	Average	H	28.80	8.33	46.06	0.68	33.15	54.00	20.85
2 491.74	51.46	Peak	V	28.80	8.33	46.06	-	42.53	74.00	31.47
2 484.85	41.25	Average	V	28.80	8.33	46.06	0.68	33.00	54.00	21.00

Tabulated test data for Restricted Band

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} + \text{Duty Factor} - \text{AMP Gain}$$

9.6.2.2 Spurious & Harmonic Radiated Emission

- Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
1 MHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 85.44 %
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	Duty Factor (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel										
4 804.00	51.68	Peak	H	33.40	11.21	45.73	-	50.56	74.00	23.44
4 804.00	43.90	Average	H	33.40	11.21	45.73	0.68	43.46	54.00	10.54
4 804.00	51.38	Peak	V	33.40	11.21	45.73	-	50.26	74.00	23.74
4 804.00	42.38	Average	V	33.40	11.21	45.73	0.68	41.94	54.00	12.06
Test Data for Middle Channel										
4 880.00	51.94	Peak	H	33.30	11.23	45.80	-	50.67	74.00	23.33
4 880.00	42.95	Average	H	33.30	11.23	45.80	0.68	42.36	54.00	11.64
4 880.00	51.38	Peak	V	33.30	11.23	45.80	-	50.11	74.00	23.89
4 880.00	41.88	Average	V	33.30	11.23	45.80	0.68	41.29	54.00	12.71
Test Data for High Channel										
4 960.00	51.57	Peak	H	33.60	11.31	45.89	-	50.59	74.00	23.41
4 960.00	42.05	Average	H	33.60	11.31	45.89	0.68	41.75	54.00	12.25
4 960.00	51.35	Peak	V	33.60	11.31	45.89	-	50.37	74.00	23.63
4 960.00	41.52	Average	V	33.60	11.31	45.89	0.68	41.22	54.00	12.78

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} + \text{Duty Factor} - \text{AMP Gain}$$

10. PEAK POWER SPECTRAL DENSITY

10.1 Operating environment

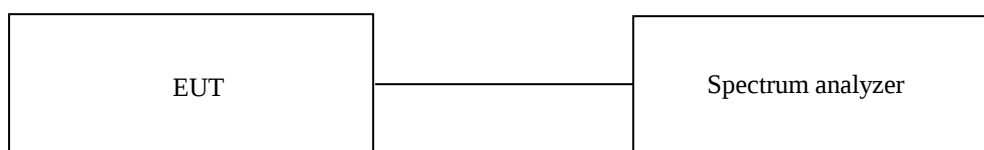
Temperature : 22 °C

Relative humidity : 46 % R.H.

10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$, the video bandwidth is set to 3 times the resolution bandwidth.



10.3 Test Date

June 24, 2021 ~ July 01, 2021

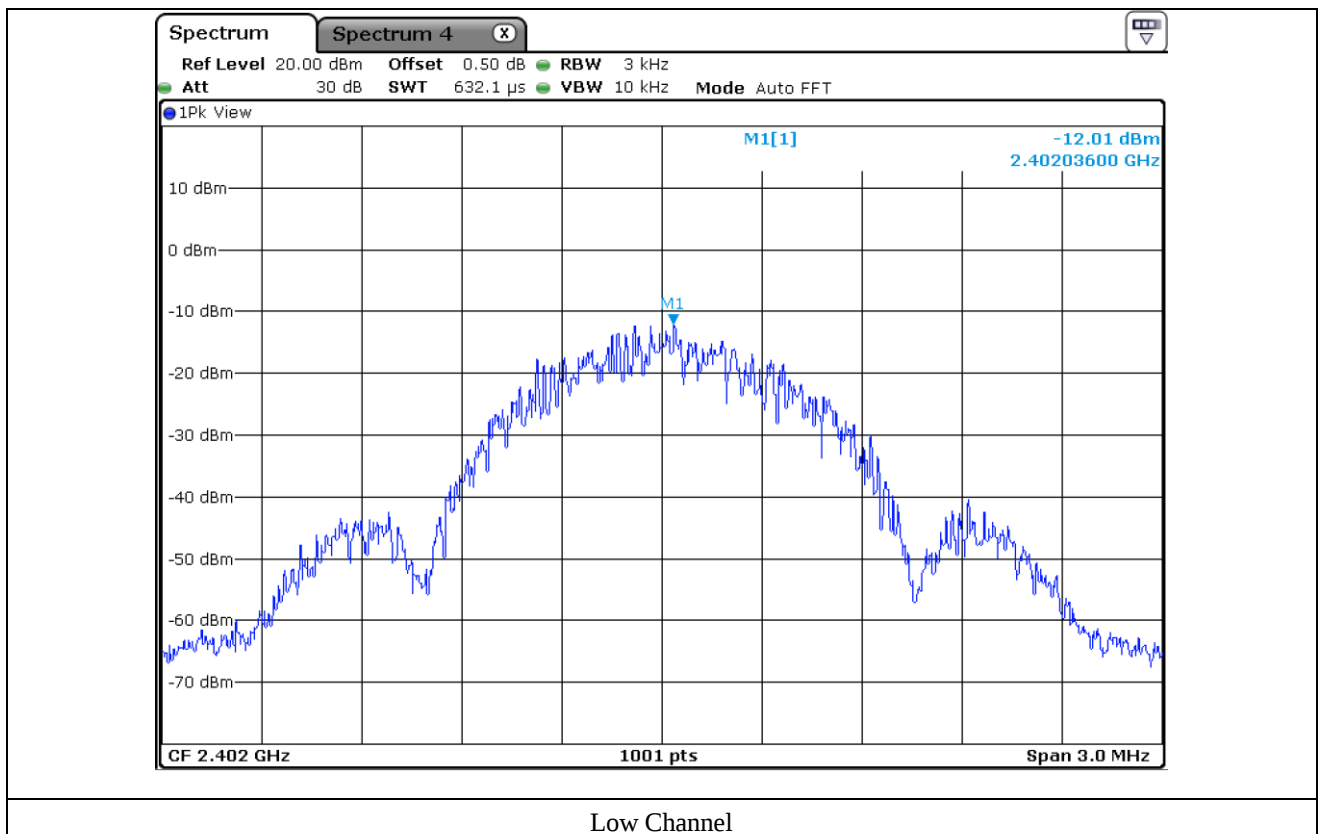
10.4 Test data for 37 byte

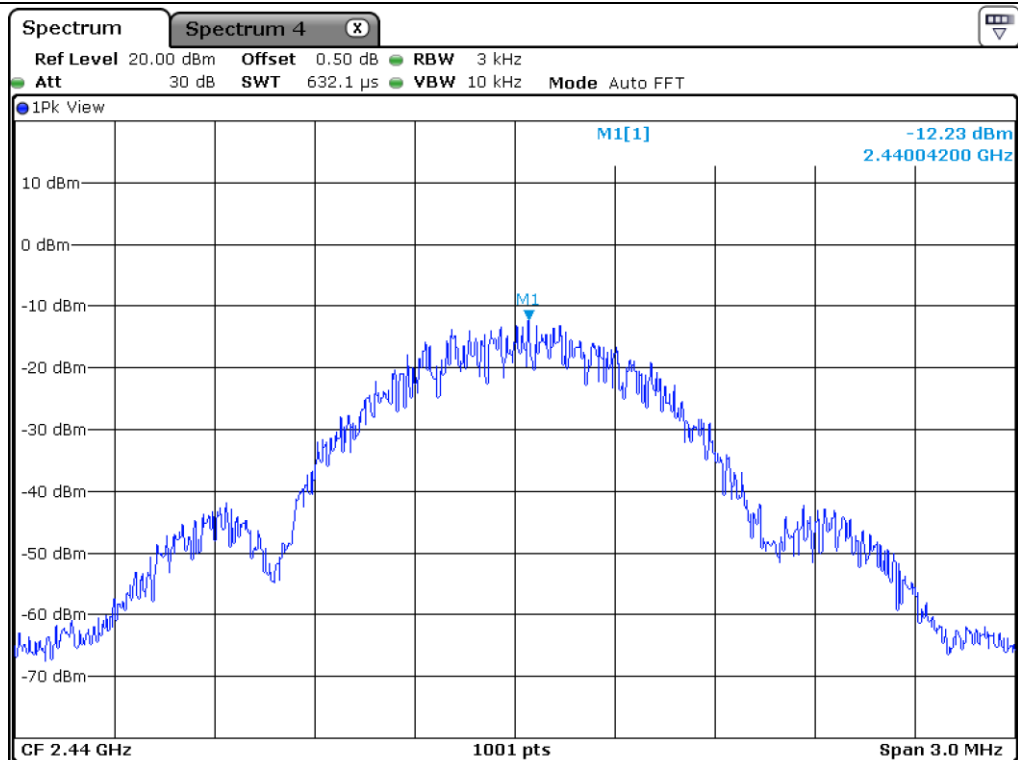
-. Test Result : Pass

-. Operating Condition : Continuous transmitting mode

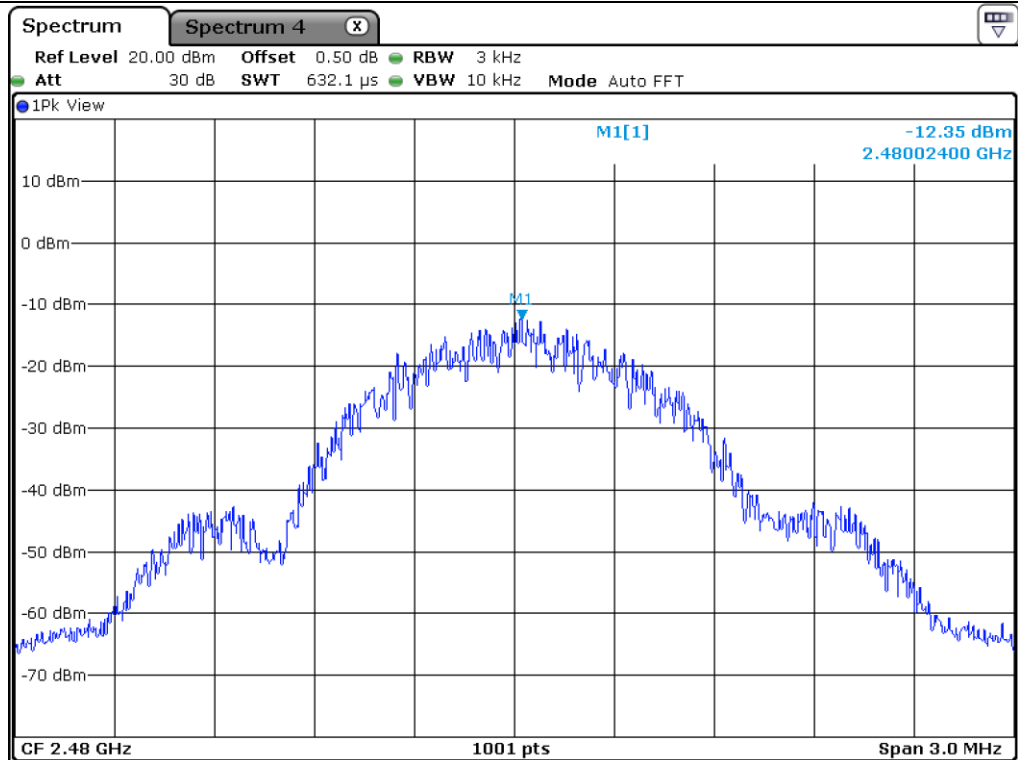
Channel	Frequency (MHz)	Measured Value (dBm)	Limit (dBm)	Margin (dB)
Low	2 402.00	-12.01	8.00	20.01
Middle	2 440.00	-12.23	8.00	20.23
High	2 480.00	-12.35	8.00	20.35

Remark. Margin = Limit – Measured value (=Receiver Reading + Cable Loss)





Middle Channel



High Channel

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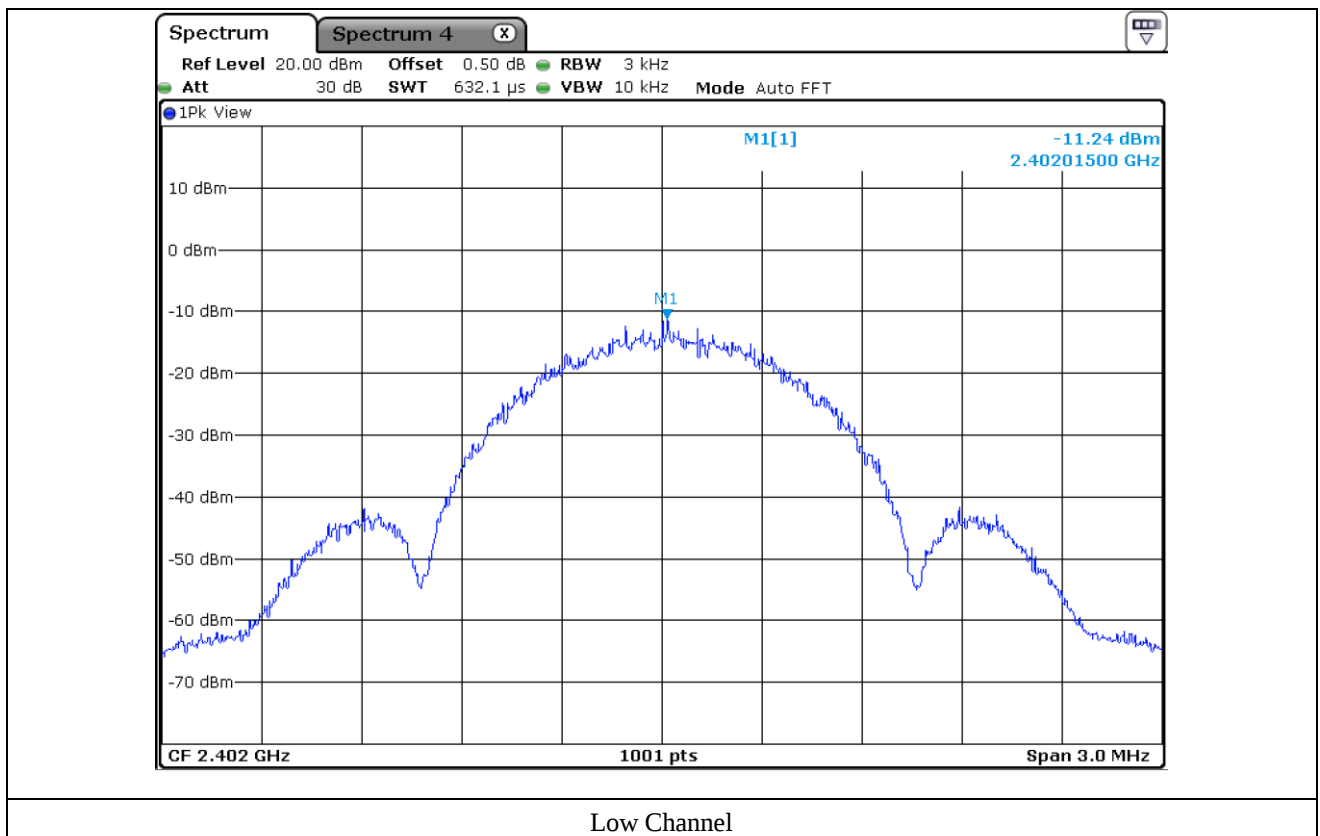
10.5 Test data for 255 byte

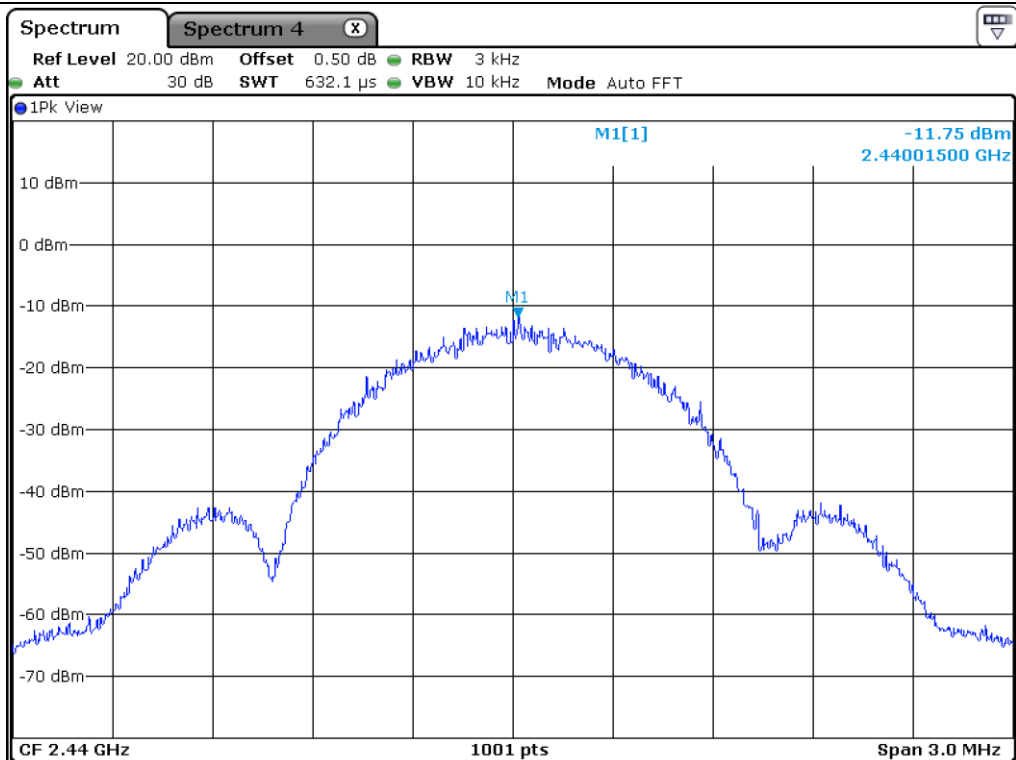
-. Test Result : Pass

-. Operating Condition : Continuous transmitting mode

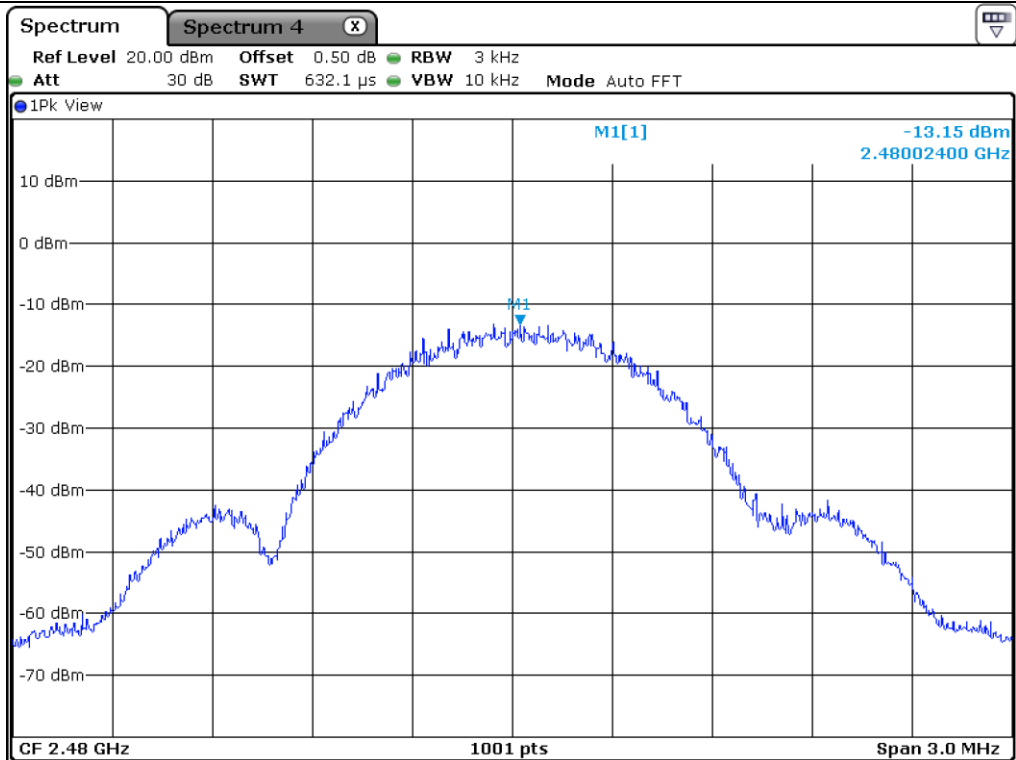
Channel	Frequency (MHz)	Measured Value (dBm)	Limit (dBm)	Margin (dB)
Low	2 402.00	-11.24	8.00	19.24
Middle	2 440.00	-11.75	8.00	19.75
High	2 480.00	-13.15	8.00	21.15

Remark. Margin = Limit – Measured value (=Receiver Reading + Cable Loss)





Middle Channel



High Channel

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11. RADIATED EMISSION TEST

11.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 % R.H.

11.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

11.3 Test Date

June 24, 2021 ~ July 01, 2021

11.4 Test data for 37 byte

11.4.1 Test data for 30 MHz ~ 1000 MHz

Humidity Level : 46 % R.H.

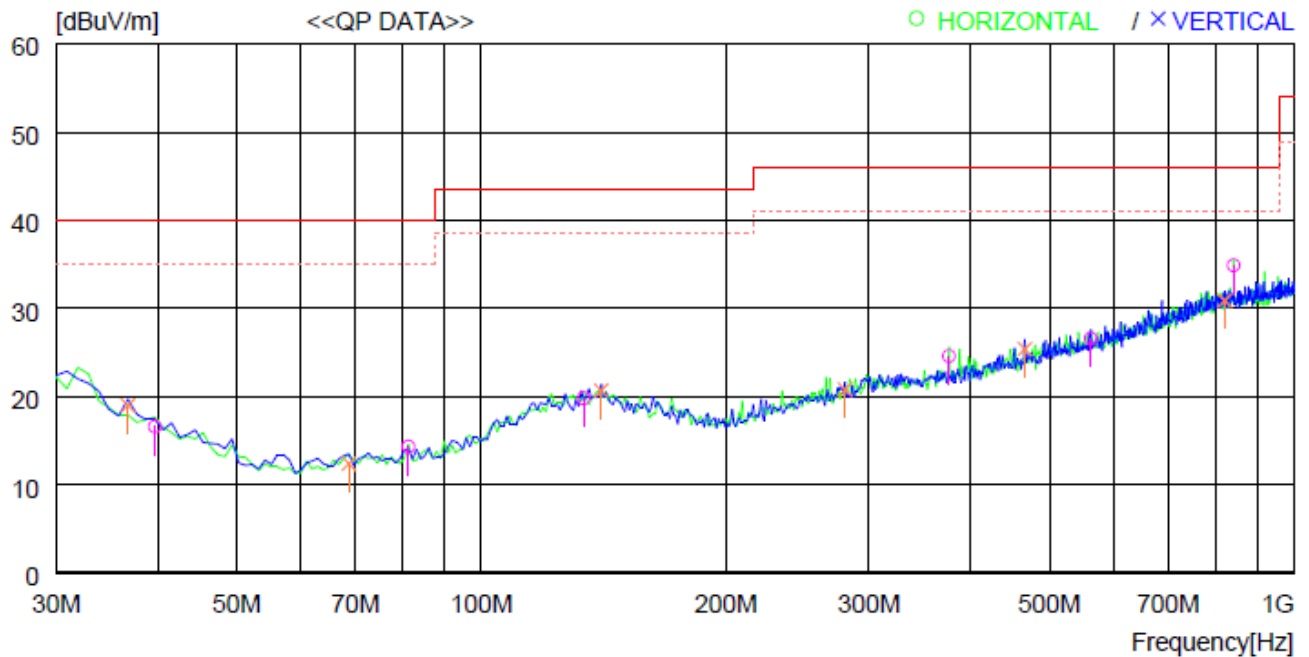
Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : Premium Magic Remote

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	39.700	26.2	17.4	1.3	28.3	16.6	40.0	23.4	300	359
2	81.410	27.8	13.0	1.7	28.2	14.3	40.0	25.7	300	262
3	133.790	26.5	19.2	2.1	28.0	19.8	43.5	23.7	300	280
4	376.290	29.0	20.3	3.4	28.1	24.6	46.0	21.4	100	346
5	562.529	27.4	23.8	4.1	28.7	26.6	46.0	19.4	400	104
6	842.851	30.5	27.3	5.1	28.0	34.9	46.0	11.1	100	359
----- Vertical -----										
7	36.790	27.5	18.5	1.3	28.3	19.0	40.0	21.0	200	9
8	68.800	26.2	12.8	1.6	28.2	12.4	40.0	27.6	300	0
9	140.580	27.1	19.5	2.1	28.0	20.7	43.5	22.8	400	359
10	280.260	26.9	18.6	2.9	27.6	20.8	46.0	25.2	300	0
11	466.501	28.0	22.3	3.7	28.6	25.4	46.0	20.6	200	359
12	821.511	26.8	27.2	5.0	28.1	30.9	46.0	15.1	200	359

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11.4.2 Test data for Below 30 MHz

- . Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- . Frequency range : 9 kHz ~ 30 MHz
- . Measurement distance : 3 m
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.									

11.4.3 Test data for above 1 GHz

- . Resolution bandwidth : 1 MHz for Peak and Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Frequency range : 1 GHz ~ 26.5 GHz
- . Measurement distance : 3 m
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.									

11.5 Test data for 255 byte

11.5.1 Test data for 30 MHz ~ 1000 MHz

Humidity Level : 46 % R.H.

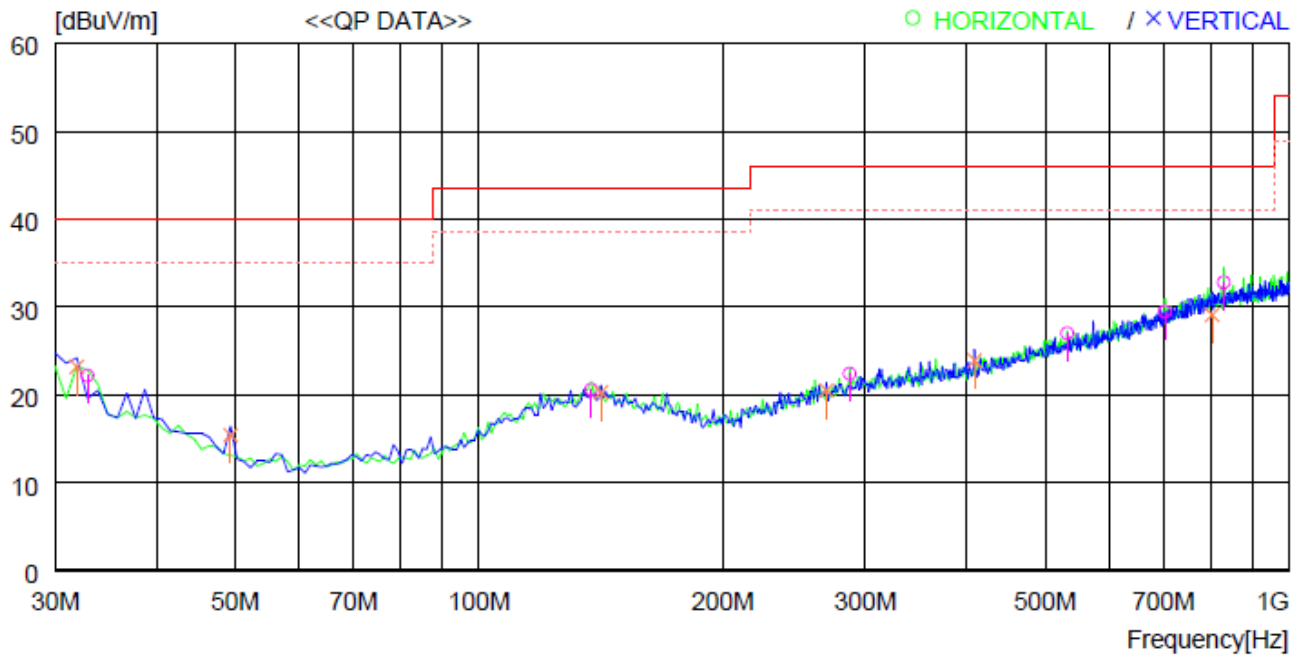
Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : Premium Magic Remote

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR							
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	32.910	29.4	19.9	1.2	28.3	22.2	40.0	17.8	100	39
2	137.670	27.1	19.4	2.1	28.0	20.6	43.5	22.9	100	330
3	287.050	28.2	18.8	3.0	27.6	22.4	46.0	23.6	400	0
4	532.460	28.2	23.5	4.0	28.7	27.0	46.0	19.0	400	321
5	703.175	27.7	25.6	4.7	28.5	29.5	46.0	16.5	100	359
6	831.211	28.6	27.2	5.1	28.1	32.8	46.0	13.2	300	359
----- Vertical -----										
7	31.940	30.0	20.3	1.2	28.3	23.2	40.0	16.8	400	359
8	49.400	28.9	13.4	1.4	28.3	15.4	40.0	24.6	200	359
9	141.550	26.8	19.4	2.1	28.0	20.3	43.5	23.2	100	0
10	268.620	26.9	18.3	2.9	27.6	20.5	46.0	25.5	200	321
11	409.270	27.8	20.9	3.5	28.3	23.9	46.0	22.1	300	254
12	804.052	25.2	27.1	5.0	28.2	29.1	46.0	16.9	400	359

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11.5.2 Test data for Below 30 MHz

- . Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- . Frequency range : 9 kHz ~ 30 MHz
- . Measurement distance : 3 m
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.									

11.5.3 Test data for above 1 GHz

- . Resolution bandwidth : 1 MHz for Peak and Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Frequency range : 1 GHz ~ 26.5 GHz
- . Measurement distance : 3 m
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.									

12. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSV30	Rohde & Schwarz	Signal Analyzer	101200	Jul. 14, 2021 (1Y)
ESW 44	Rohde & Schwarz	EMI Test Receiver	101851	Mar. 23, 2021 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 16, 2021 (1Y)
BBV 9718C	Schwarzbeck	Broadband Preamplifier	00083	Oct. 18, 2021 (1Y)
SCU40A	Rohde & Schwarz	Signal Conditioning unit	100436	Feb. 28, 2021 (1Y)
SCU18	Rohde & Schwarz	Signal Conditioning unit	102266	Jul. 14, 2021 (1Y)
DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
HLP-2008	TDK RF Solutions	Hybrid Antenna	131316	Feb. 27, 2020 (2Y)
AH-118	Com-Power	Horn Antenna	10050061	Oct. 15, 2020 (1Y)
VULB9163	Schwarzbeck	TRILOG Broadband Antenna	777	Apr. 08, 2020 (2Y)
BBHA 9120D	Schwarzbeck	Horn Antenna	9120D-1366	Jul. 20, 2021 (1Y)
BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 07, 2021(1Y)
FMZB 1513	Schwarzbeck	Loop Antenna	1513-235	Mar. 24, 2020 (2Y)
HPF 3GHz	Rohde & Schwarz	High Pass Filter	N/A	Feb. 08, 2021 (1Y)

This Report is not correlated with the authentication of KOLAS

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ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)