

FCC - TEST REPORT

Report Number : **60.792.21.086.02R01** Date of Issue : November 10, 2021

Model : MD 45000, M1912, 22400, The Next Beat

Product Type : DJ CONTROLLER

Applicant : Shenzhen Youjun Electronics Limited

Address : B12 Building Of The First Industrial Area, Baihuadong, Guanguang Road, Guangming, Shenzhen, Guangdong, China

Production Facility : Shenzhen Youjun Electronics Limited

Address : B12 Building Of The First Industrial Area, Baihuadong, Guanguang Road, Guangming, Shenzhen, Guangdong, China

Test Result : **nPositive** **o Negative**

Total pages including Appendices : 68

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2 Description of Equipment Under Test

Description of the Equipment Under Test

Product: DJ CONTROLLER

Model no.: MD 45000, M1912, 22400, The Next Beat

FCC ID: **2A3HF-22400**

Rating: 120V AC, 50Hz (adapter input)
5VDC form USB port

Adapter information:
Model: JF005WR-0500100UU
Input: 100-240VAC 50/60Hz 0.18A
Output: 5.0VDC 1.0A 5.0W

Frequency: 2402MHz-2480MHz (Tx and Rx)

Antenna gain: 0 dBi

Number of operated channel: 79

Modulation: GFSK, $\pi/4$ DQPSK

Auxiliary Equipment and Software Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.	S/N
Computer	Lenovo	X220	0A72168
Smart Phone	Apple	iPhone 11	/

Auxiliary Software Used during Test:

DESCRIPTION	SOFTWARE NAME	VERSION	REMARK
RF Test Mode Software	FCC Assist	1.4	Provided by applicant

3 Summary of Test Standards

Test Standards
FCC Part 15 Subpart C 10-1-20 Edition Federal Communications Commission, PART 15 — Radio Frequency Devices, Subpart C —Intentional Radiators

All the test methods were according to ANSI C63.10 (2013).

4 Details about the Test Laboratory

Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
 Building 12&13 Zhiheng Wisdomland Business Park,
 Nantou Checkpoint Road 2,
 Shenzhen 518052, P.R.China
 FCC Registration Number: 514049
 ISED test site number: 10320A

Emission Tests	
Test Item	Test Site
FCC Part 15 Subpart C	
FCC Title 47 Part 15.205, 15.209 & 15.247(d) Spurious Radiated Emission	Site 1
FCC Title 47 Part 15.207(a) AC Line Conducted Emission	Site 1
FCC Title 47 Part 15.247(a)(1) 20dB & 99% Bandwidth	Site 1
FCC Title 47 Part 15.247(b) Peak Output Power	Site 1
FCC Title 47 Part 2.1051 & 15.247(d) Spurious Emissions at Antenna Terminals	Site 1
FCC Title 47 Part 15.247(d) 100kHz Bandwidth of band edges	Site 1
FCC Title 47 Part 15.247(a)(1) Minimum Number of Hopping Frequencies	Site 1
FCC Title 47 Part 15.247(a)(1) Minimum Hopping Channel Carrier Frequency Separation	Site 1
FCC Title 47 Part 15.247(a)(1) Average Time of Occupancy	Site 1
FCC Title 47 Part 15.203 & 15.247(b) Antenna Requirement	Site 1

4.1 Test Equipment Site List

Radiated emission Test – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2022-6-4
Signal Analyzer	Rohde & Schwarz	FSV40	101031	2022-6-3
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100398	2022-8-25
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2022-7-23
Horn Antenna	Rohde & Schwarz	HF907	102294	2022-6-23
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2022-7-21
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2022-6-6
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2022-7-27
Attenuator	Mini-circuits	UNAT-6+	15542	2022-8-23
3m Semi-anechoic chamber	TDK	9X6X6	----	2023-5-28
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

Conducted Emission Test – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2022-6-4
LISN	Rohde & Schwarz	ENV4200	100249	2022-6-5
LISN	Rohde & Schwarz	ENV432	101318	2022-6-5
LISN	Rohde & Schwarz	ENV216	100326	2022-6-5
ISN	Rohde & Schwarz	ENY81	100177	2022-6-5
ISN	Rohde & Schwarz	ENY81-CA6	101664	2022-6-5
High Voltage Probe	Schwarzbeck	TK9420(VT9420)	9420-584	2022-6-5
RF Current Probe	Rohde & Schwarz	EZ-17	100816	2022-6-5
Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	2022-6-3
Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A
Shielding Room	TDK	CSR #1	----	2022-11-07

20dB & 99% Bandwidth, Peak Output Power, Spurious Emissions at Antenna Terminals, 100kHz Bandwidth of band edges, hopping items – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2022-6-3
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2022-6-3

4.2 Measurement System Uncertainty

Measurement System Uncertainty Emissions

System Measurement Uncertainty	
Items	Extended Uncertainty
Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz	4.76dB
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 5.12dB; Vertical: 5.10dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-25000MHz	Horizontal: 5.01dB; Vertical: 5.00dB;
Uncertainty for Conducted Emission at AC Power Line 150kHz-30MHz	3.21dB
Uncertainty for conducted power test	1.16dB
Uncertainty for frequency test	0.6×10^{-7}

5 Summary of Test Results

Emission Tests				
FCC Part 15 Subpart C				
Test Condition	Pages	Test Result		
		Pass	Fail	N/A
FCC Title 47 Part 15.205, 15.209 & 15.247(d) Spurious Radiated Emission	12-15	☒	☐	☐
FCC Title 47 Part 15.207(a) AC Line Conducted Emission	16-17	☒	☐	☐
FCC Title 47 Part 15.247(a)(2) 20dB & 99% Bandwidth	18-23	☒	☐	☐
FCC Title 47 Part 15.247(b) Peak Output Power	24-29	☒	☐	☐
FCC Title 47 Part 2.1051 & 15.247(d) Spurious Emissions at Antenna Terminals	30-41	☒	☐	☐
FCC Title 47 Part 15.247(d) 100kHz Bandwidth of band edges	42-45	☒	☐	☐
FCC Title 47 Part 15.247(a)(1) Min. No. of Hopping Frequencies	46-47	☒	☐	☐
FCC Title 47 Part 15.247(a)(1) Min. of Hopping Channel Carrier Frequency Separation	48-49	☒	☐	☐
FCC Title 47 Part 15.247(a)(1) Average Time of Occupancy	50-55	☒	☐	☐
FCC Title 47 Part 15.203 & 15.247(b) Antenna Requirement	56	☒	☐	☐

6 General Remarks

Remarks

Client informs that the **M1912, 22400, The Next Beat** has the same technical construction including circuit diagram and electrical construction, with the product **DJ CONTROLLER**, model **MD 45000**, The difference lies only in the model name due to business purpose. (Client's conformation letter shown at Appendix B)

EMC tests were performed on model: **MD 45000**. All data packet type modes have been tested, only the worst case is shown on the report.

This submittal(s) (test report) is intended for **FCC ID: 2A3HF-22400**, complies with Section 15.203, 15.205, 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C rules for the DSS grant.

The TX and RX range is 2402MHz-2480MHz.

SUMMARY:

- All tests according to the regulations cited on page 8 were

n - Performed

o - **Not** Performed

- The Equipment Under Test

n - **Fulfills** the general approval requirements.

o - **Does not** fulfill the general approval requirements.

Sample Received Date: August 25, 2021

Testing Start Date: August 30, 2021

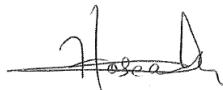
Testing End Date: September 27, 2021

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

Reviewed by:

Prepared by:

Tested by:



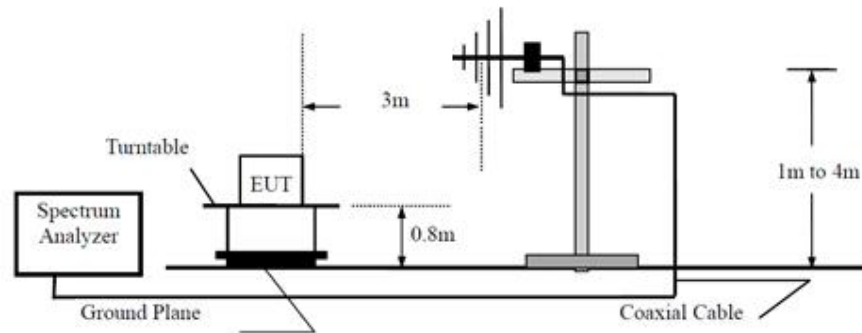
Eric Li
EMC Project Manager

Hosea CHAN
EMC Project Engineer

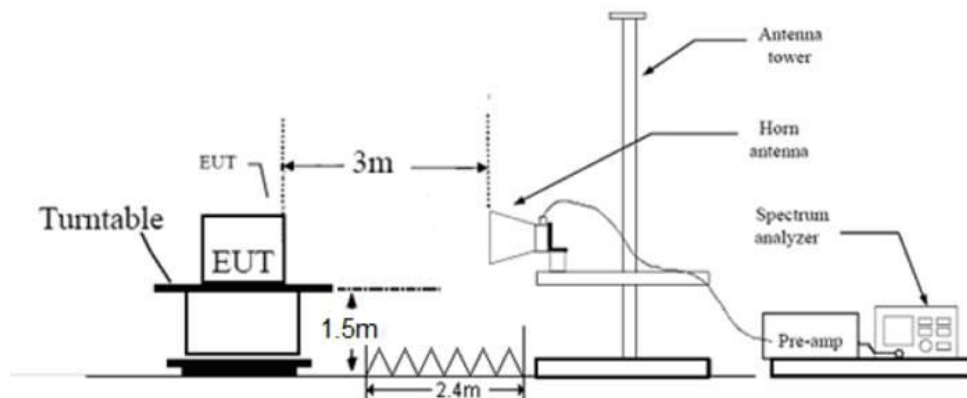
Louise Liu
EMC Test Engineer

7 Test Setups

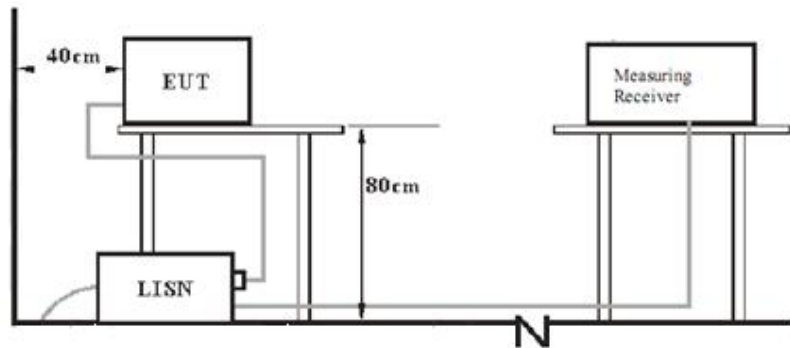
7.1 Radiated test setups Below 1GHz



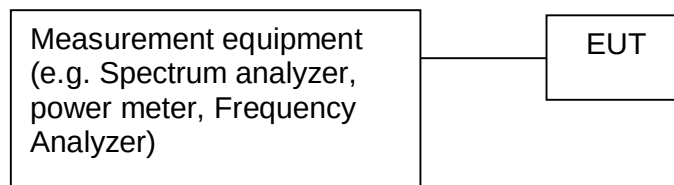
7.2 Radiated test setups Above 1GHz



7.3 AC Power Line Conducted Emission test setups



7.4 Conducted RF test setups



8 Emission Test Results

8.1 Spurious Radiated Emission

EUT: MD 45000
 Op Condition: Operated, TX Mode (2DH5)
 (Highest channel is the worst case)
 Test Specification: FCC15.205, 15.209 & 15.247(d)
 Comment: 120V AC, 60Hz
 Remark: Below 1GHz

Test Result
☒ Passed
☐ Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector PK/QP/AV	Ant. Polarity H/V	Corr. (dB)
51.016667	26.59	40.00	13.41	PK	H	20.84
95.960000	37.18	43.50	6.32	QP	H	18.01
142.196667	31.28	43.50	12.22	PK	H	14.94
226.856111	33.89	46.00	12.11	PK	H	18.97
302.516111	35.38	46.00	10.62	PK	H	20.86
417.784444	37.55	46.00	8.45	PK	H	23.90
50.423889	28.22	40.00	11.78	PK	V	20.89
71.979444	27.32	40.00	12.68	PK	V	15.57
164.506667	35.92	43.50	7.58	PK	V	15.80
222.113889	34.21	46.00	11.79	PK	V	18.70
272.176667	36.06	46.00	9.94	PK	V	20.12
516.077778	36.48	46.00	9.52	PK	V	25.53

Remark:

1. As the measured peak value not exceeded the Quasi-peak limit, Quasi-peak value no need to be measured.
2. Result Level=Reading Level + Correction Factor
 Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
 Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
 (The Reading Level is recorded by software which is not shown in the sheet)

Spurious Radiated Emission

EUT: MD 45000
 Op Condition: Operated, TX Mode (2402MHz, 2DH5)
 Test Specification: FCC15.205, 15.209 & 15.247(d)
 Comment: 120V AC, 60Hz
 Remark: 1GHz to 25GHz

Test Result	
☒	Passed
☐	Not Passed

Frequency MHz	Result dBμV/m	Limit dBμV/m	Margin dB	Detector PK/QP/AV	Ant. Polarity H/V	Corr. (dB)
1743.000000	39.86	74.00	34.14	PK	H	-6.83
3234.500000	44.08	74.00	29.92	PK	H	-0.92
4436.000000	46.69	74.00	27.31	PK	H	2.19
4804.500000	52.78	74.00	21.22	PK	H	2.87
4804.500000	50.78	54.00	3.22	AV	H	2.87
7206.500000	53.31	74.00	20.69	PK	H	7.04
7206.500000	50.31	54.00	3.69	AV	H	7.04
1206.000000	36.99	74.00	37.01	PK	V	-9.02
1799.000000	40.40	74.00	33.60	PK	V	-6.05
4803.500000	49.36	74.00	24.64	PK	V	2.87
7205.500000	48.00	74.00	26.00	PK	V	7.04
9045.000000	43.42	74.00	30.58	PK	V	8.88

Remark:

1. According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in data table if the peak value complies with average limit.
2. Consequence Level=Reading Level + Correction Factor
 Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
 Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
 (The Reading Level is recorded by software which is not shown in the sheet)

Spurious Radiated Emission

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 Test Specification: FCC15.205, 15.209 & 15.247(d)
 Comment: 120V AC, 60Hz
 Remark: 1GHz to 25GHz

Test Result	
☒	Passed
☐	Not Passed

Frequency	Result	Limit	Margin	Detector	Ant. Polarity	Corr.
MHz	dBμV/m	dBμV/m	dB	PK/QP/AV	H/V	(dB)
1828.000000	39.78	74.00	34.22	PK	H	-5.70
3642.500000	44.66	74.00	29.34	PK	H	-0.30
4882.500000	55.90	74.00	18.10	PK	H	3.36
4882.500000	51.90	54.00	2.10	AV	H	3.36
7322.500000	55.77	74.00	18.23	PK	H	7.21
7322.500000	52.77	54.00	1.23	AV	H	7.21
9932.000000	44.78	74.00	29.22	PK	H	10.00
1563.500000	37.85	74.00	36.15	PK	V	-8.95
1954.500000	41.10	74.00	32.90	PK	V	-4.73
3269.500000	44.35	74.00	29.65	PK	V	-0.87
4882.000000	50.96	74.00	23.04	PK	V	3.36
7323.000000	43.59	74.00	30.41	PK	V	7.21

Remark:

1. According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in data table if the peak value complies with average limit.
2. Consequence Level=Reading Level + Correction Factor
 Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
 Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
 (The Reading Level is recorded by software which is not shown in the sheet)

Spurious Radiated Emission

EUT: MD 45000
 Op Condition: Operated, TX Mode (2480MHz, 2DH5)
 Test Specification: FCC15.205, 15.209 & 15.247(d)
 Comment: 120V AC, 60Hz
 Remark: 1GHz to 25GHz

Test Result	
☒	Passed
☐	Not Passed

Frequency	Result	Limit	Margin	Detector	Ant. Polarity	Corr.
MHz	dBμV/m	dBμV/m	dB	PK/QP/AV	H/V	(dB)
1966.500000	41.06	74.00	32.94	PK	H	-4.66
3000.000000	44.61	74.00	29.39	PK	H	-1.20
4960.500000	54.74	74.00	19.26	PK	H	2.95
4960.500000	50.74	54.00	3.26	AV	H	2.95
7440.500000	55.36	74.00	18.64	PK	H	7.37
7440.500000	50.36	54.00	3.64	AV	H	7.37
7440.500000	50.36	54.00	3.64	PK	H	11.14
1094.000000	39.13	74.00	34.87	PK	V	-10.78
1798.000000	42.45	74.00	31.55	PK	V	-6.07
2268.000000	41.06	74.00	32.94	PK	V	-3.57
4960.500000	50.78	74.00	23.22	PK	V	2.95
4960.500000	50.28	54.00	3.72	AV	V	2.95
7440.500000	52.03	74.00	21.97	PK	V	7.37
7440.500000	50.03	54.00	3.97	AV	V	7.37

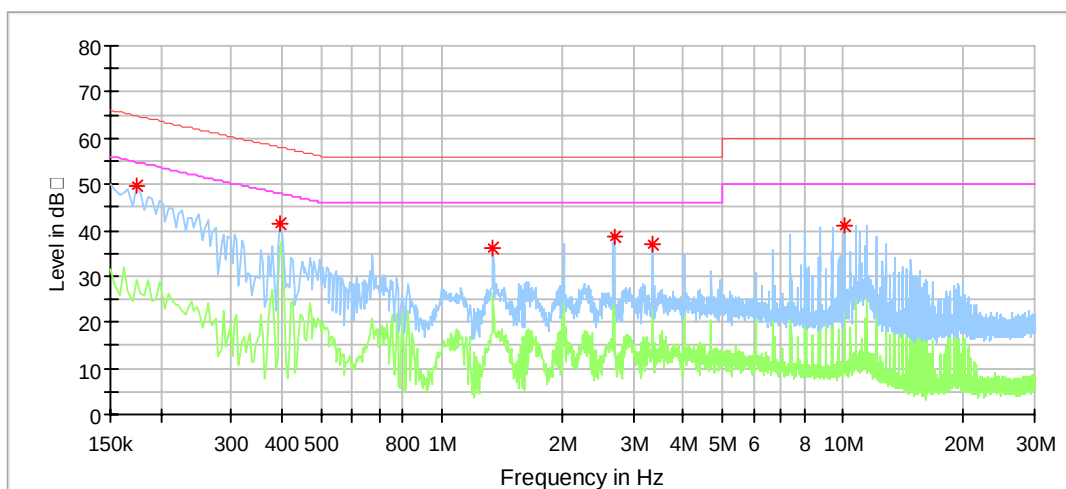
Remark:

1. According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in data table if the peak value complies with average limit.
2. Consequence Level=Reading Level + Correction Factor
 Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
 Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
 (The Reading Level is recorded by software which is not shown in the sheet)

8.2 Conducted Emission at AC Power line

EUT: MD 45000
 Op Condition: BT Link
 Test Specification: AC Mains, L Line
 Comment: 120V AC, 60Hz (supporting adapter input)

Test Result	
☒	Passed
☐	Not Passed



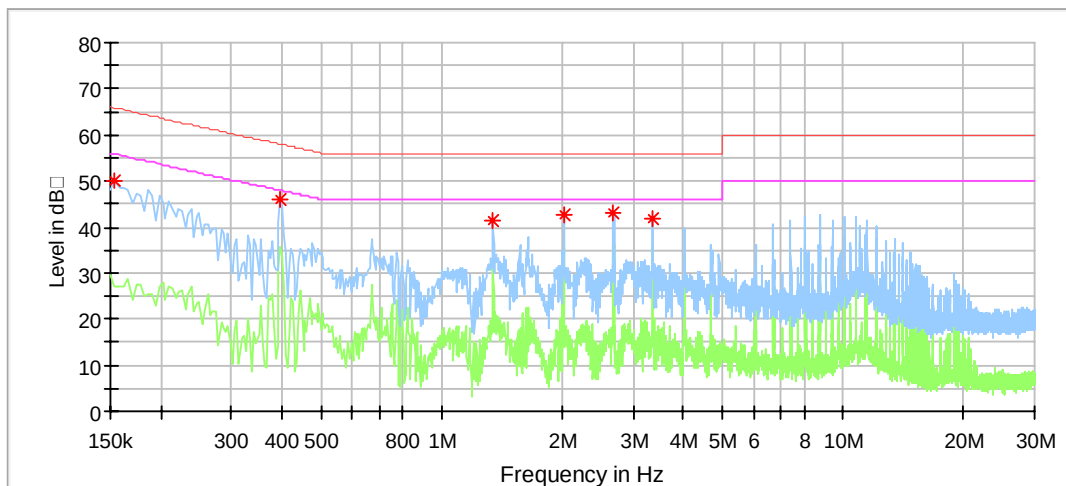
Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Corr. (dB)
0.174000	49.81	---	64.77	14.95	9.25
0.398000	41.45	---	57.90	16.45	9.21
1.346000	36.06	---	56.00	19.94	9.21
2.690000	38.77	---	56.00	17.23	9.25
3.362000	37.08	---	56.00	18.92	9.26
10.082000	41.00	---	60.00	19.00	9.39

Conducted Emission Test

EUT: MD 45000
 Op Condition: BT Link
 Test Specification: AC Mains, N Line
 Comment: 120V AC, 60Hz (supporting adapter input)

Test Result

☒ Passed

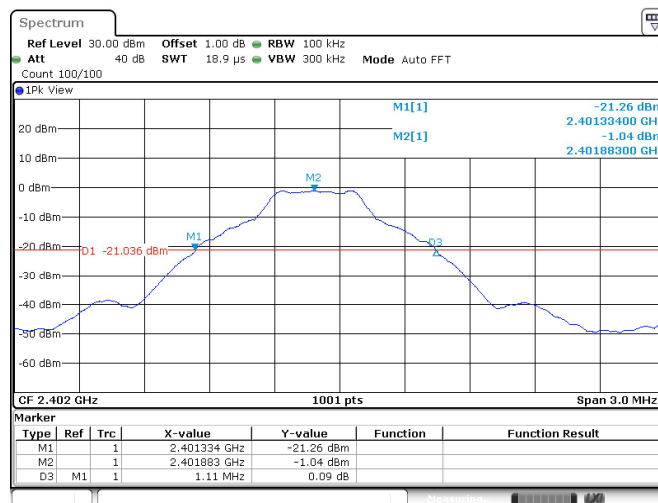
☐ Not Passed


Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Corr. (dB)
0.154000	50.15	---	65.78	15.63	9.40
0.398000	45.98	---	57.90	11.92	9.38
1.342000	41.54	---	56.00	14.46	9.41
2.014000	42.65	---	56.00	13.35	9.42
2.686000	43.21	---	56.00	12.79	9.44
3.358000	42.01	---	56.00	13.99	9.45

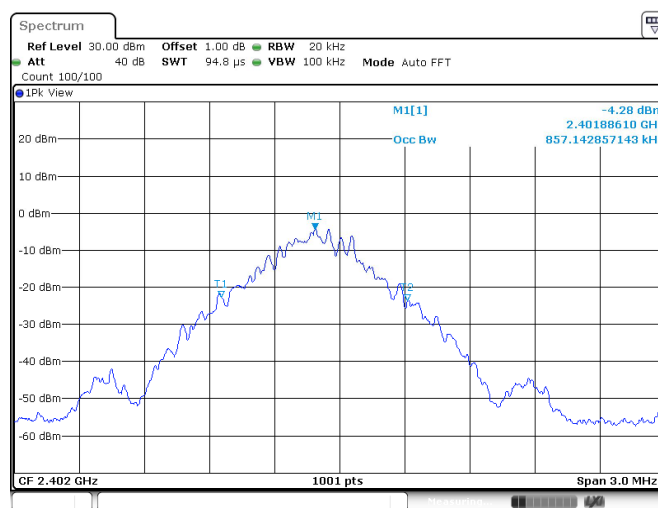
8.3 20dB & 99% Bandwidth

EUT: MD 45000
 Op Condition: Operated, TX Mode (2402MHz, DH5)
 Test Specification: FCC15.247(a)(1), 20dB Bandwidth & 99% Bandwidth
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:37:28



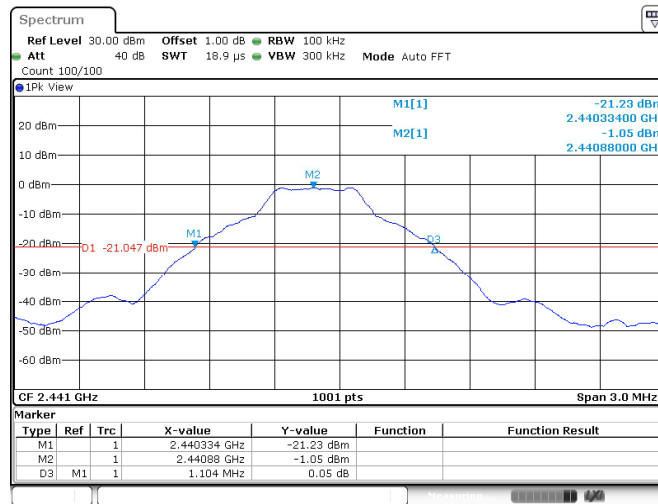
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Bandwidth	Measured Value	Limit
20dB bandwidth	1.110 MHz	NA
99% OCB	0.857 MHz	NA

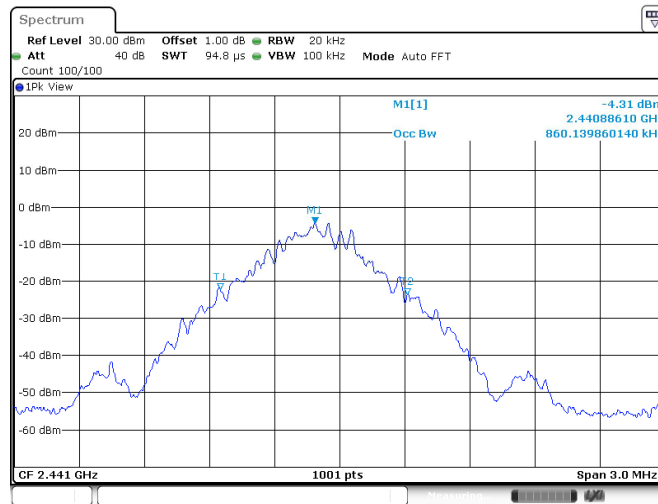
20dB & 99% Bandwidth

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, DH5)
 Test Specification: FCC15.247(a)(1), 20dB Bandwidth & 99% Bandwidth
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:39:27



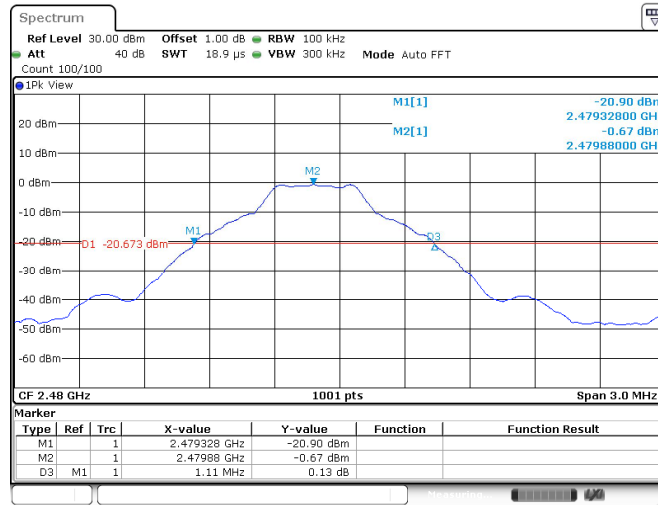
Date: 5 SEP 2021 17:39:38

Bandwidth	Measured Value	Limit
20dB bandwidth	1.104 MHz	NA
99% OCB	0.860 MHz	NA

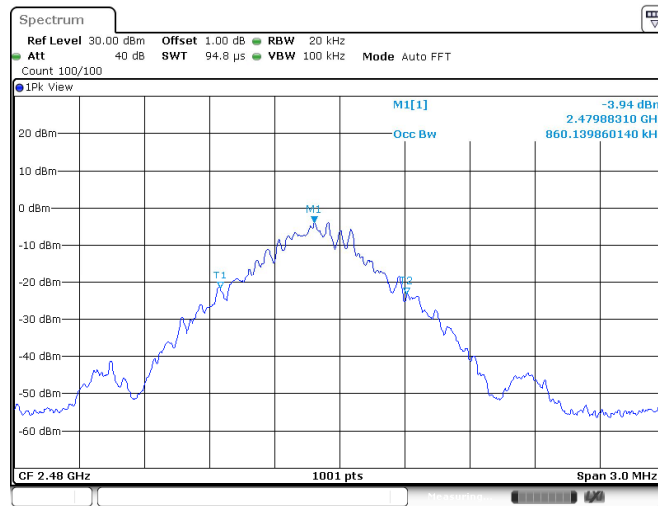
20dB & 99% Bandwidth

EUT: MD 45000
 Op Condition: Operated, TX Mode (2480MHz, DH5)
 Test Specification: FCC15.247(a)(1), 20dB Bandwidth & 99% Bandwidth
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:40:54



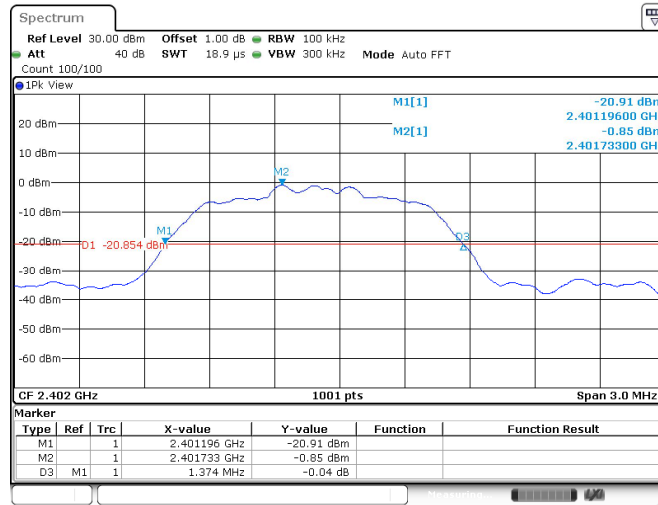
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Bandwidth	Measured Value	Limit
20dB bandwidth	1.110 MHz	NA
99% OCB	0.860 MHz	NA

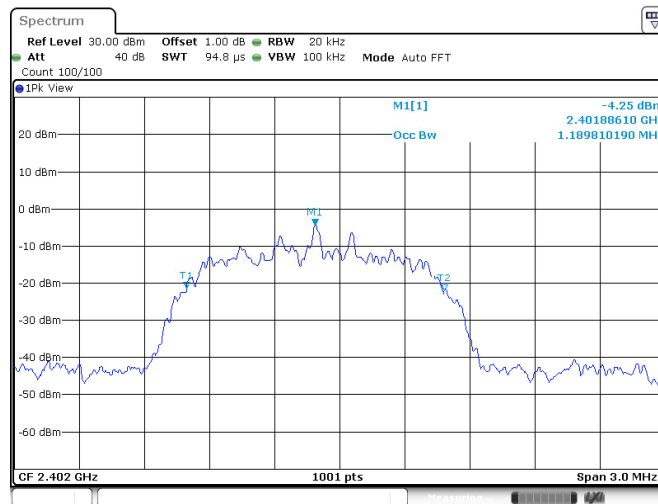
20dB & 99% Bandwidth

EUT: MD 45000
 Op Condition: Operated, TX Mode (2402MHz, 2DH5)
 Test Specification: FCC15.247(a)(1), 20dB Bandwidth & 99% Bandwidth
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:44:11



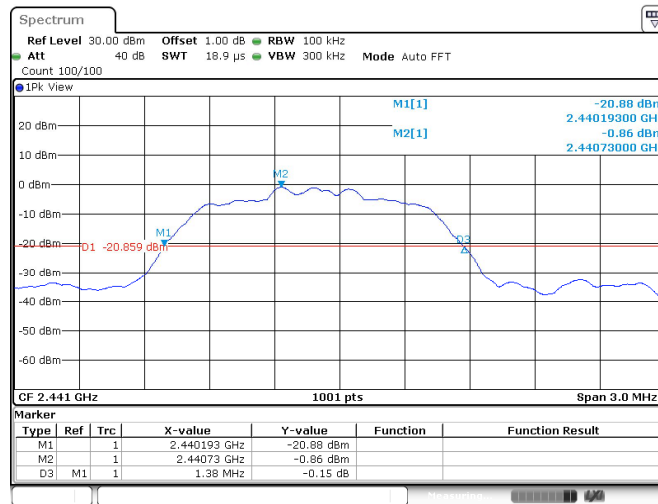
Date: 5 SEP 2021 17:44:22

Bandwidth	Measured Value	Limit
20dB bandwidth	1.374 MHz	NA
99% OCB	1.190 MHz	NA

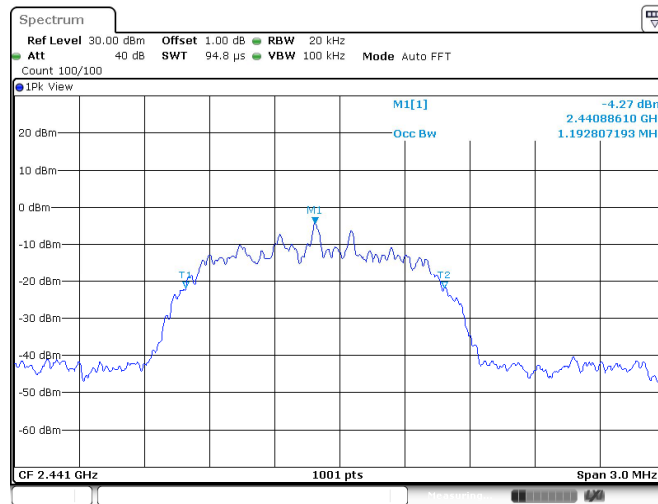
20dB & 99% Bandwidth

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 Test Specification: FCC15.247(a)(1), 20dB Bandwidth & 99% Bandwidth
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:46:29



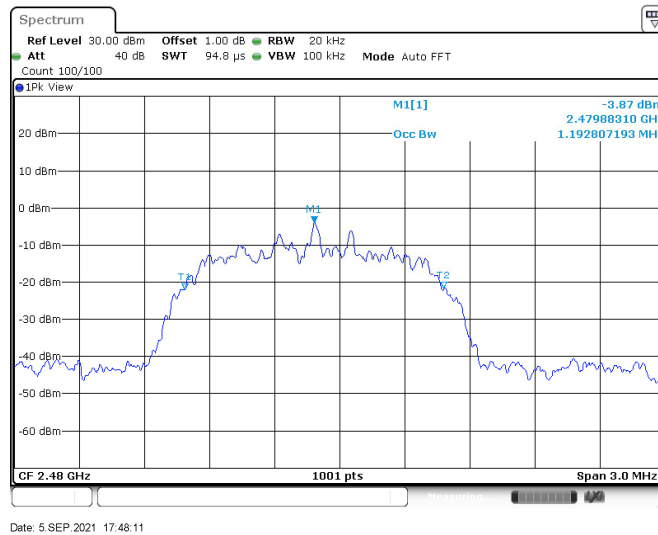
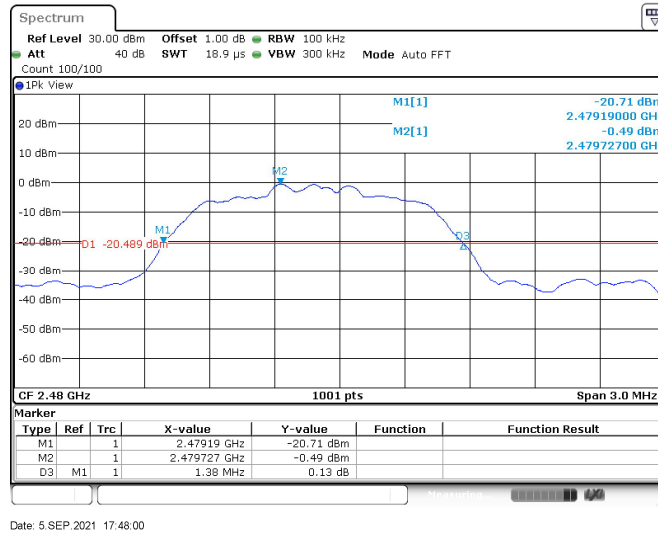
Date: 5 SEP 2021 17:46:40

Bandwidth	Measured Value	Limit
20dB bandwidth	1.380 MHz	NA
99% OCB	1.193 MHz	NA

20dB & 99% Bandwidth

EUT: MD 45000
 Op Condition: Operated, TX Mode (2480MHz, 2DH5)
 Test Specification: FCC15.247(a)(1), 20dB Bandwidth & 99% Bandwidth
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed

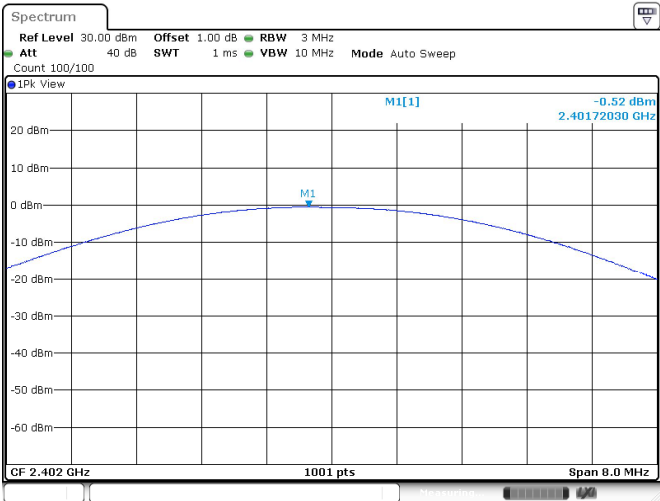


Bandwidth	Measured Value	Limit
20dB bandwidth	1.380 MHz	NA
99% OCB	1.193 MHz	NA

8.4 Peak Output Power

EUT: MD 45000
Op Condition: Operated, TX Mode (2402MHz, DH5)
Test Specification: FCC15.247(b)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



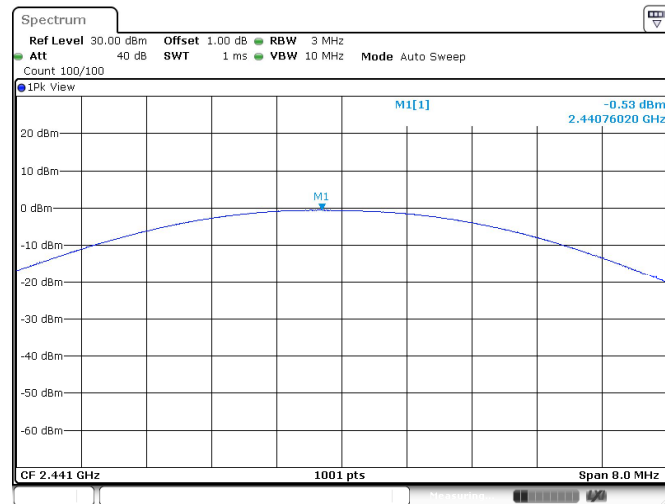
Date: 5 SEP 2021 18:08:56

Conducted Output Power	Limit
-0.52 dBm	< 30dBm

Peak Output Power

EUT: MD 45000
Op Condition: Operated, TX Mode (2441MHz, DH5)
Test Specification: FCC15.247(b)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



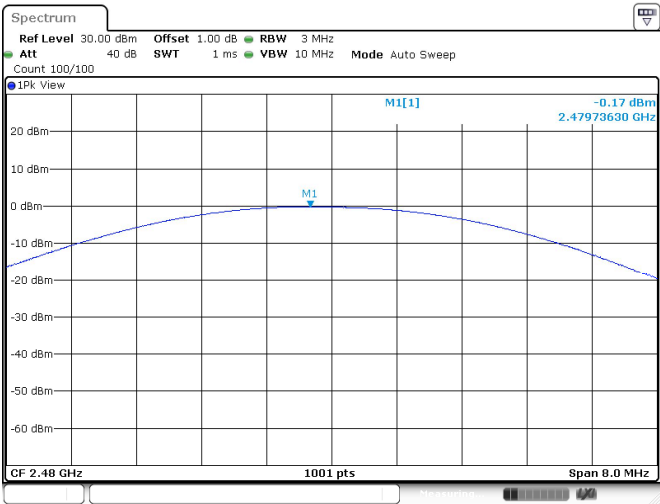
Date: 5 SEP. 2021 18:09:21

Conducted Output Power	Limit
-0.53 dBm	< 30dBm

Peak Output Power

EUT: MD 45000
Op Condition: Operated, TX Mode (2480MHz, DH5)
Test Specification: FCC15.247(b)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



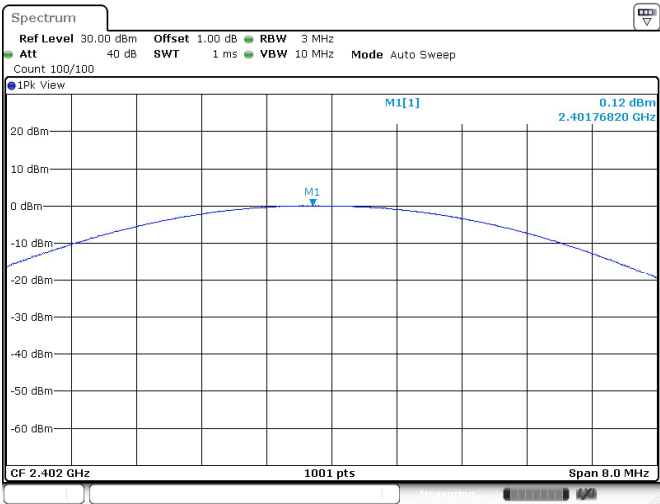
Date: 5 SEP 2021 18:10:16

Conducted Output Power	Limit
-0.17 dBm	< 30dBm

Peak Output Power

EUT: MD 45000
Op Condition: Operated, TX Mode (2402MHz, 2DH5)
Test Specification: FCC15.247(b)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



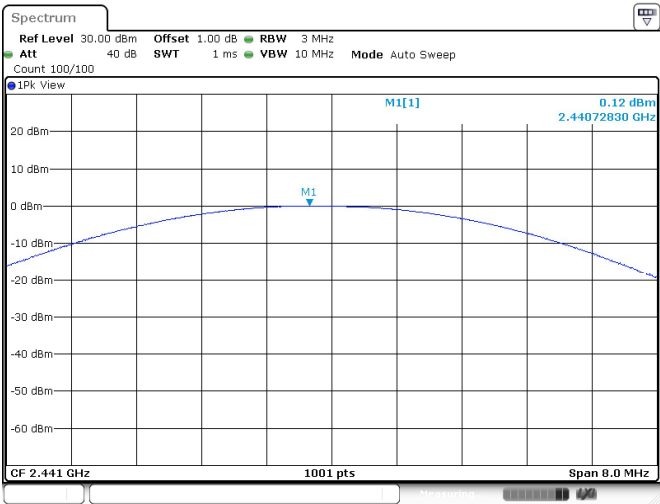
Date: 5 SEP 2021 18:10:48

Conducted Output Power	Limit
0.12 dBm	< 30dBm

Peak Output Power

EUT: MD 45000
Op Condition: Operated, TX Mode (2441MHz, 2DH5)
Test Specification: FCC15.247(b)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



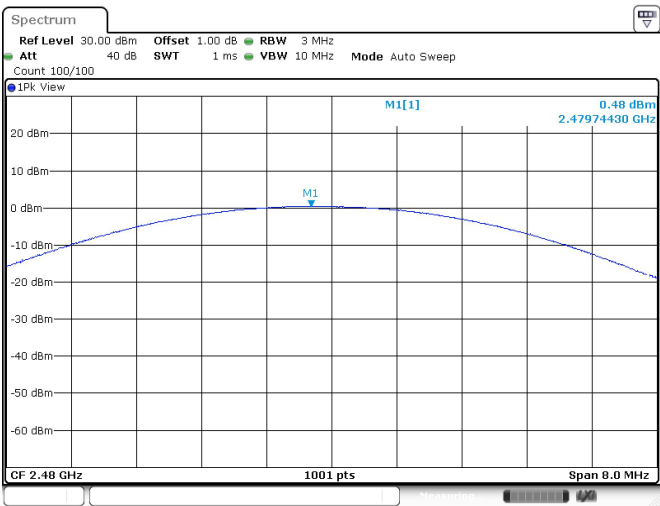
Date: 5 SEP 2021 18:11:37

Conducted Output Power	Limit
0.12 dBm	< 30dBm

Peak Output Power

EUT: MD 45000
Op Condition: Operated, TX Mode (2480MHz, 2DH5)
Test Specification: FCC15.247(b)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 18:11:59

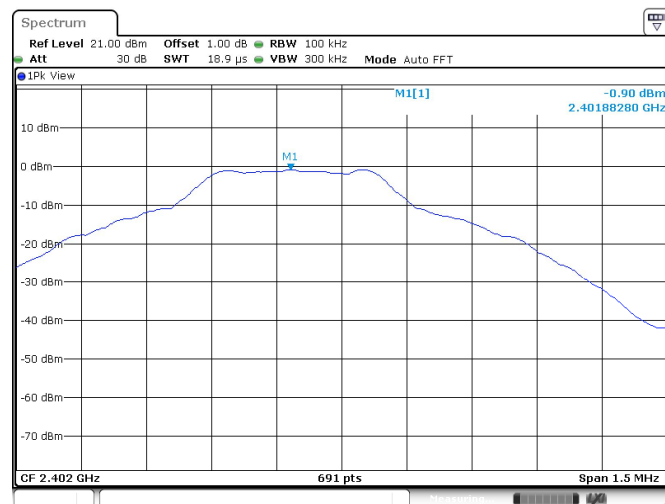
Conducted Output Power	Limit
0.48 dBm	< 30dBm

8.5 Spurious Emissions at Antenna Terminals

EUT: MD 45000
 Op Condition: Operated, TX Mode (2402MHz, DH5)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 120V AC, 60Hz

Test Result	
☒	Passed
☐	Not Passed

Channel	FreqRange MHz	RefLevel dBm	Result dBm	Limit dBm	Verdict
2402	2402	-0.90	-0.90	---	PASS
2402	30~1000	-0.90	-67.47	<=-20.9	PASS
2402	1000~26500	-0.90	-35.95	<=-20.9	PASS

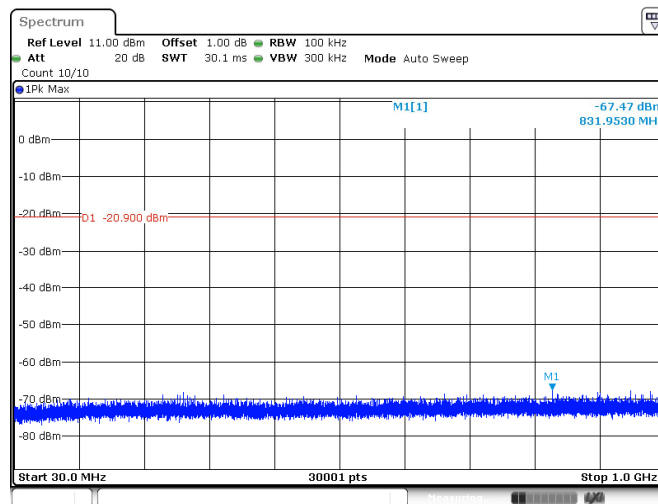


Date: 5 SEP 2021 17:37:54

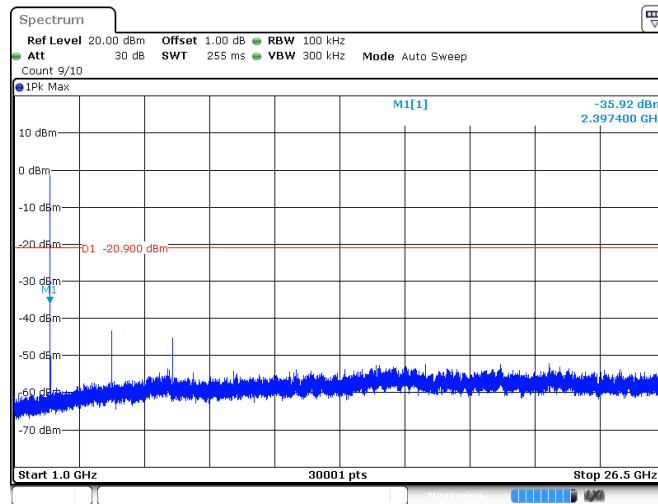
Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2402MHz, DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:38:00



Date: 5 SEP 2021 17:38:08

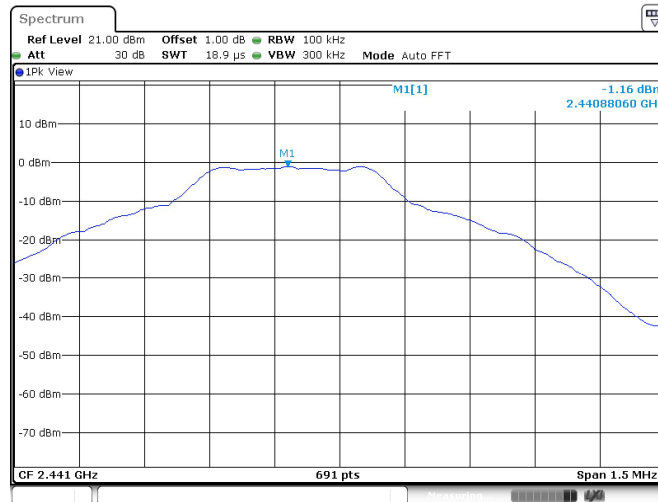
Spurious Emissions at Antenna Terminals

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, DH5)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 120V AC, 60Hz

Test Result

☒ Passed
☐ Not Passed

Channel	FreqRange MHz	RefLevel dBm	Result dBm	Limit dBm	Verdict
2441	2441	-1.16	-1.16	---	PASS
2441	30~1000	-1.16	-68.57	<=-21.16	PASS
2441	1000~26500	-1.16	-44.72	<=-21.16	PASS

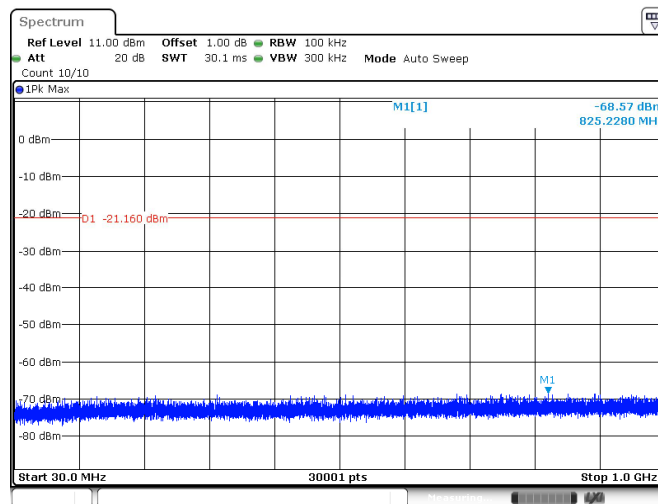


Date: 5 SEP 2021 17:39:43

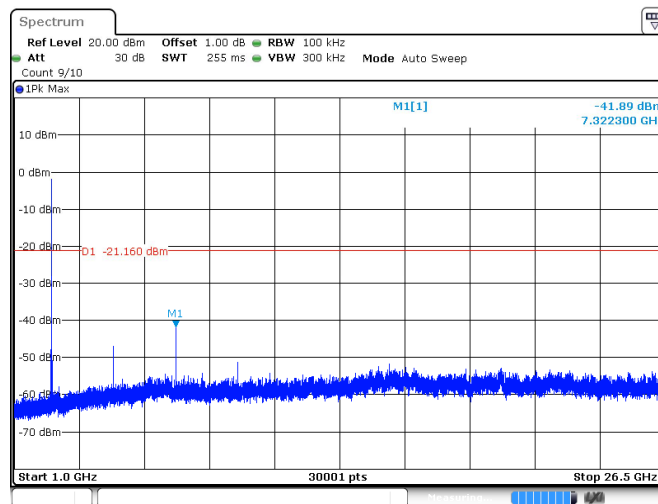
Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2441MHz, DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:39:49



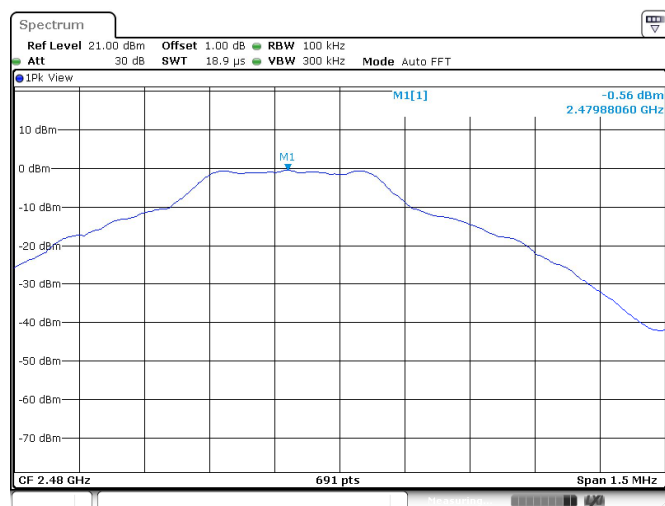
Date: 5 SEP 2021 17:39:57

Spurious Emissions at Antenna Terminals

EUT: MD 45000
 Op Condition: Operated, TX Mode (2480MHz, DH5)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed

Channel	FreqRange MHz	RefLevel dBm	Result dBm	Limit dBm	Verdict
2480	2480	-0.56	-0.56	---	PASS
2480	30~1000	-0.56	-68.09	<=-20.56	PASS
2480	1000~26500	-0.56	-43.16	<=-20.56	PASS

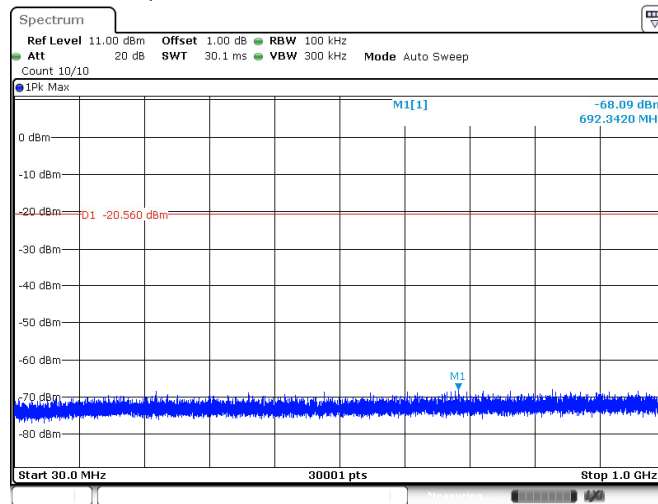


Date: 5 SEP 2021 17:41:20

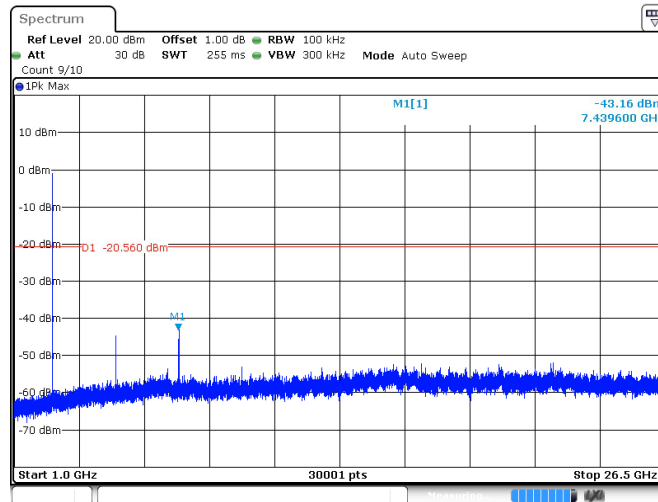
Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2480MHz, DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:41:26



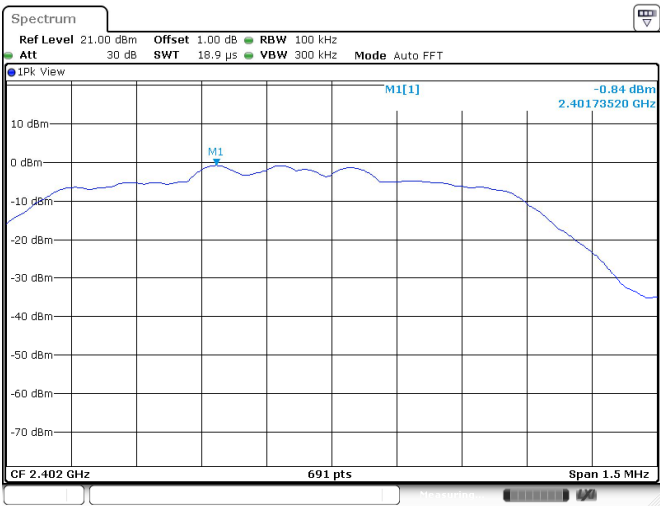
Date: 5 SEP 2021 17:41:34

Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2402MHz, 2DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed

Channel	FreqRange MHz	RefLevel dBm	Result dBm	Limit dBm	Verdict
2402	2402	-0.84	-0.84	---	PASS
2402	30~1000	-0.84	-67.01	<=-20.84	PASS
2402	1000~26500	-0.84	-35.47	<=-20.84	PASS

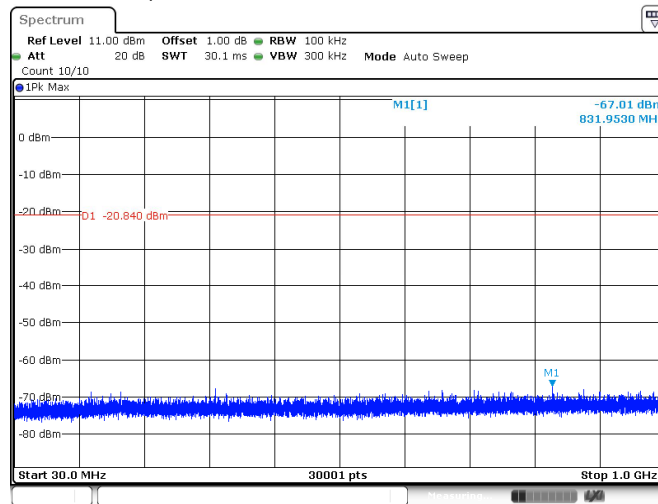


Date: 5 SEP 2021 17:44:37

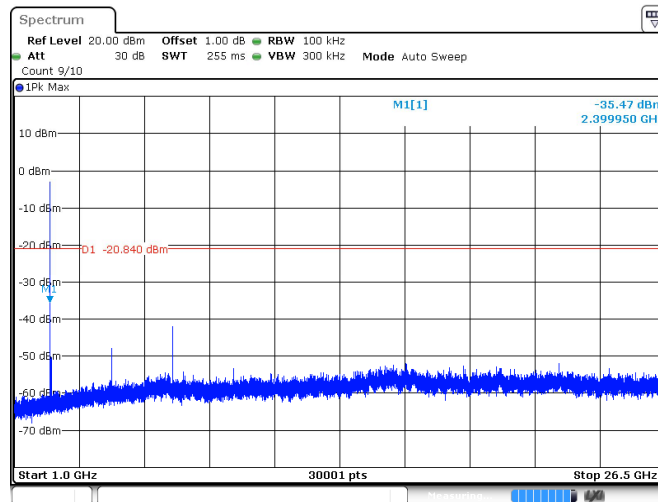
Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2402MHz, DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP. 2021 17:44:43



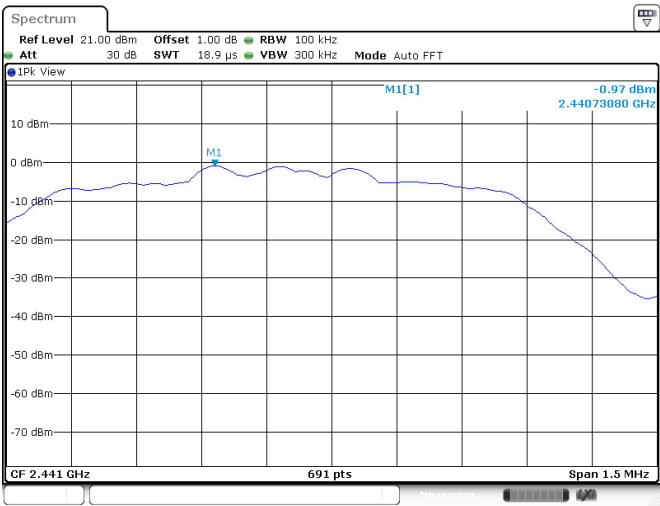
Date: 5 SEP. 2021 17:44:51

Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2441MHz, 2DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed

Channel	FreqRange MHz	RefLevel dBm	Result dBm	Limit dBm	Verdict
2441	2441	-0.97	-0.97	---	PASS
2441	30~1000	-0.97	-67.45	<=-20.97	PASS
2441	1000~26500	-0.97	-47.89	<=-20.97	PASS

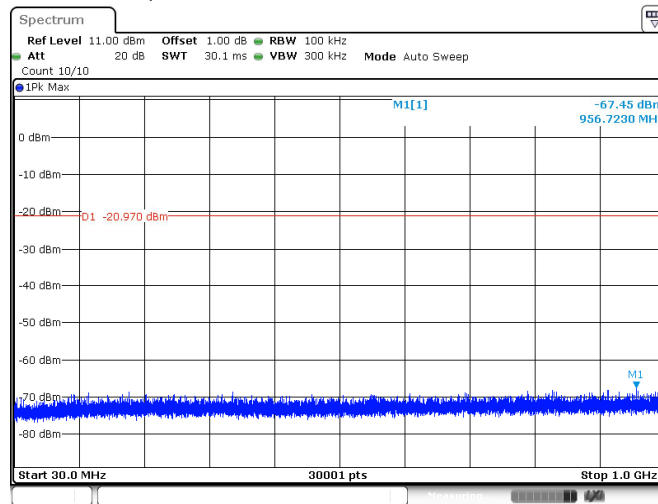


Date: 5 SEP 2021 17:46:45

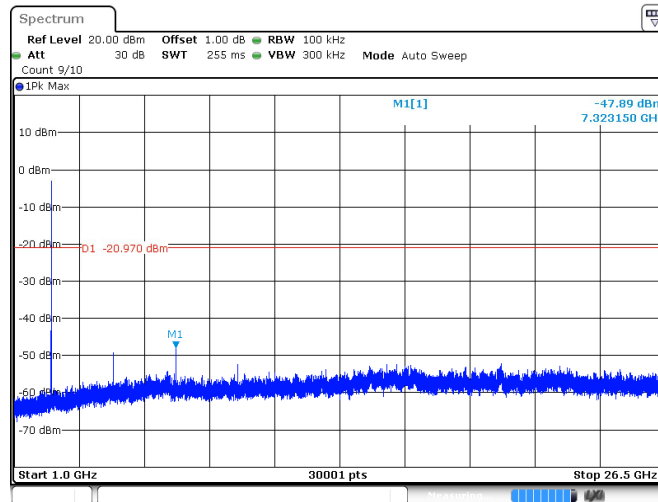
Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2441MHz, 2DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP. 2021 17:46:51



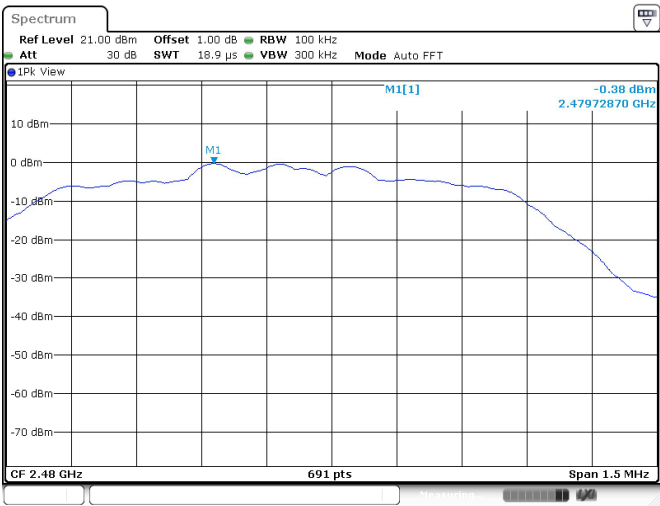
Date: 5 SEP. 2021 17:46:59

Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2480MHz, 2DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed

Channel	FreqRange MHz	RefLevel dBm	Result dBm	Limit dBm	Verdict
2480	2480	-0.38	-0.38	---	PASS
2480	30~1000	-0.38	-68.05	<=-20.38	PASS
2480	1000~26500	-0.38	-46.47	<=-20.38	PASS

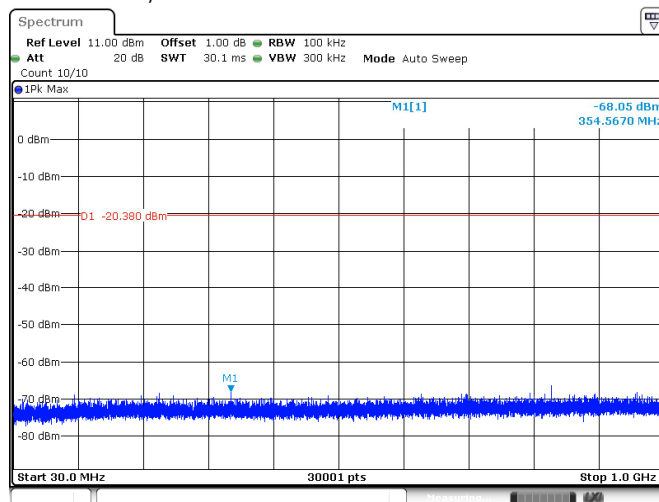


Date: 5 SEP 2021 17:48:25

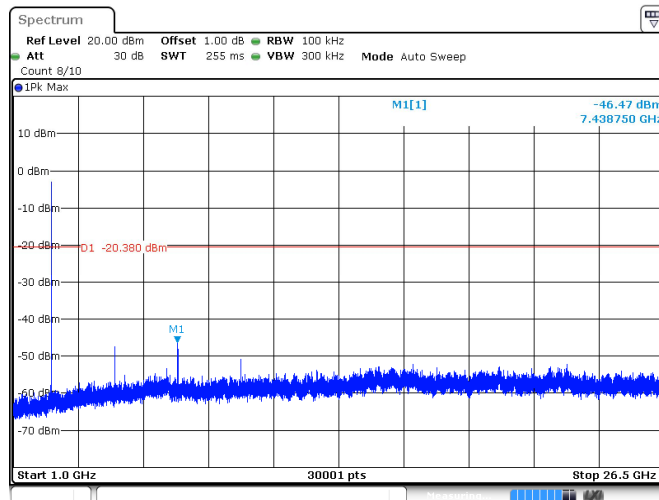
Spurious Emissions at Antenna Terminals

EUT: MD 45000
Op Condition: Operated, TX Mode (2480MHz, 2DH5)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP. 2021 17:48:31

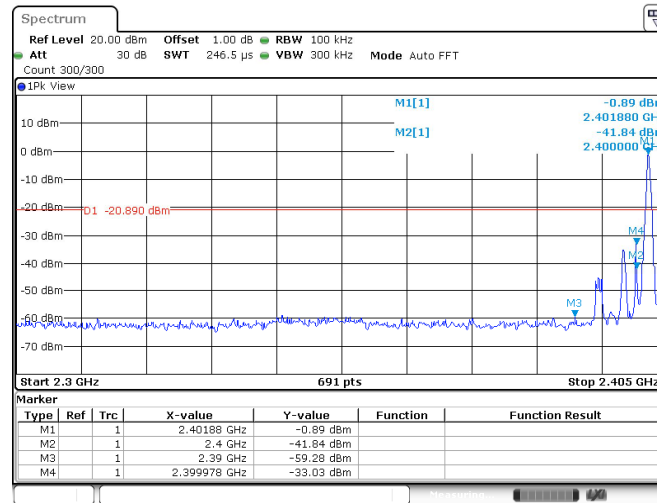


Date: 5 SEP. 2021 17:48:39

8.6 100kHz Bandwidth of band edges

EUT: MD 45000
Op Condition: Operated, TX Mode (2402MHz, DH5)
Test Specification: FCC15.247(d), Conducted
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



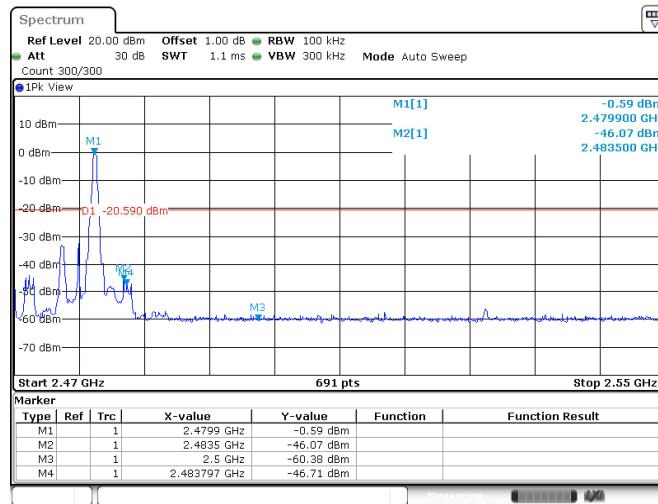
Date: 5 SEP 2021 17:37:48

Band edges	Limit
40.95 dB	> 20dB

100kHz Bandwidth of band edges

EUT: MD 45000
 Op Condition: Operated, TX Mode (2480MHz, DH5)
 Test Specification: FCC15.247(d), Conducted
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



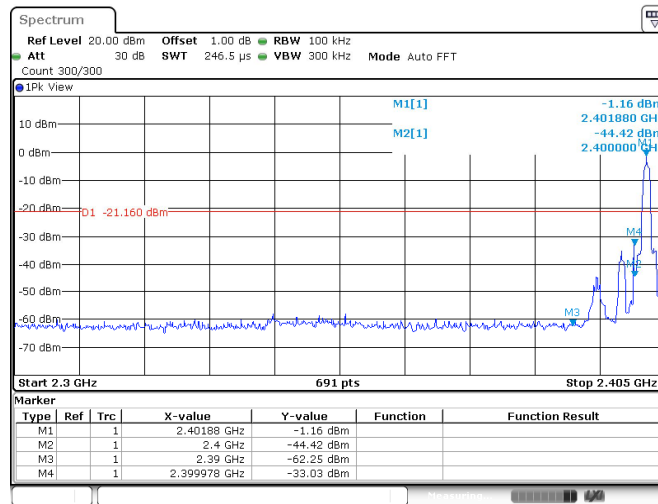
Date: 5 SEP 2021 17:41:14

Band edges	Limit
45.48 dB	> 20dB

100kHz Bandwidth of band edges

EUT: MD 45000
 Op Condition: Operated, TX Mode (2402MHz, 2DH5)
 Test Specification: FCC15.247(d), Conducted
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



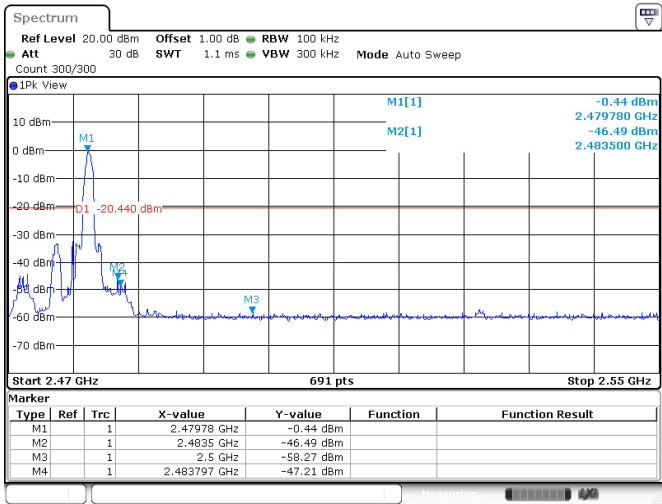
Date: 5 SEP. 2021 17:44:31

Band edges	Limit
43.26 dB	> 20dB

100kHz Bandwidth of band edges

EUT: MD 45000
Op Condition: Operated, TX Mode (2480MHz, 2DH5)
Test Specification: FCC15.247(d), Conducted
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:48:20

Band edges	Limit
46.05 dB	> 20dB

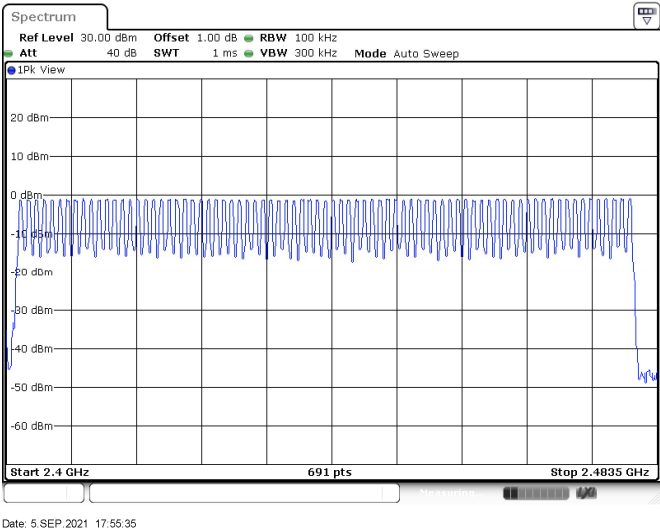
8.7 Minimum. Number of Hopping Frequencies

EUT:
Op Condition:
Test Specification:
Comment:

MD 45000
Operated, TX Mode (2402-2480MHz, DH5)
FCC15.247(a)(1)
120V AC, 60Hz

Test Result

☒ Passed
☐ Not Passed

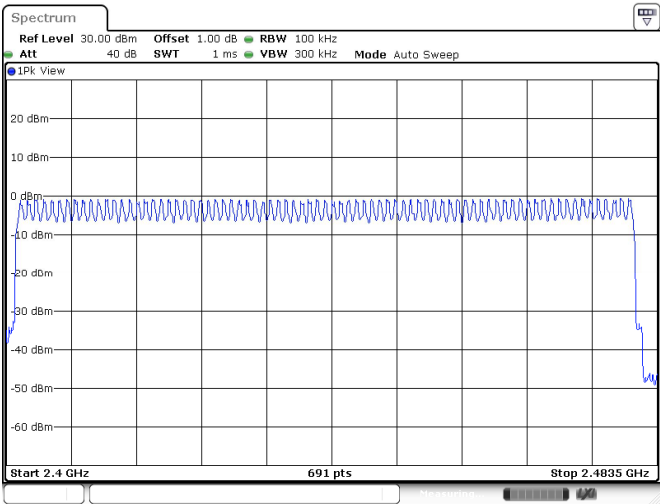


Hopping Channels	Limit
79	≥ 15

Minimum. Number of Hopping Frequencies

EUT: MD 45000
Op Condition: Operated, TX Mode (2402-2480MHz, 2DH5)
Test Specification: FCC15.247(a)(1)
Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed

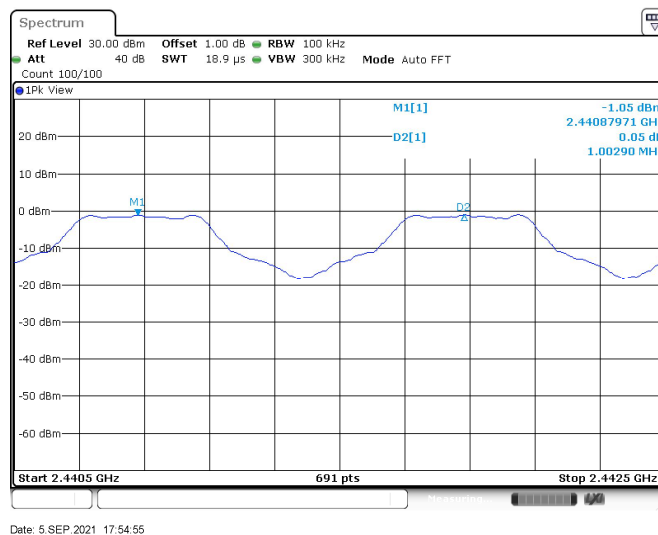


Hopping Channels	Limit
79	≥ 15

8.8 Minimum Hopping Channel Carrier Frequency Separation

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 120V AC, 60Hz

Test Result	
☒	Passed
☐	Not Passed



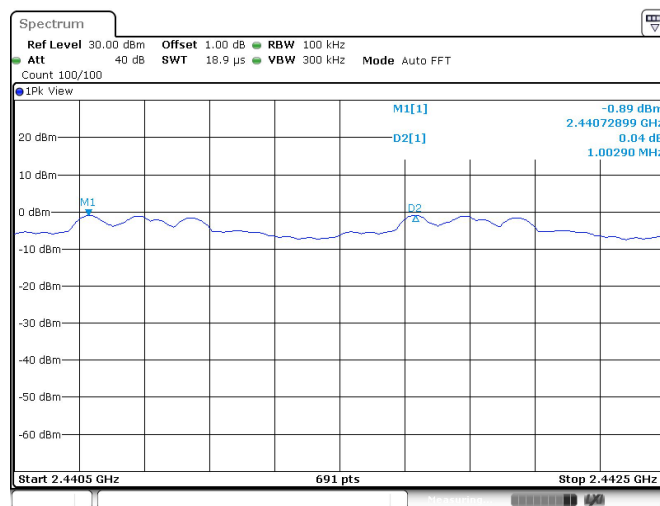
Chanel Separation	Limit
1003 kHz	740 kHz

Limit: 2/3 of 20dB bandwidth of hopping channel

Minimum Hopping Channel Carrier Frequency Separation

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP. 2021 18:01:28

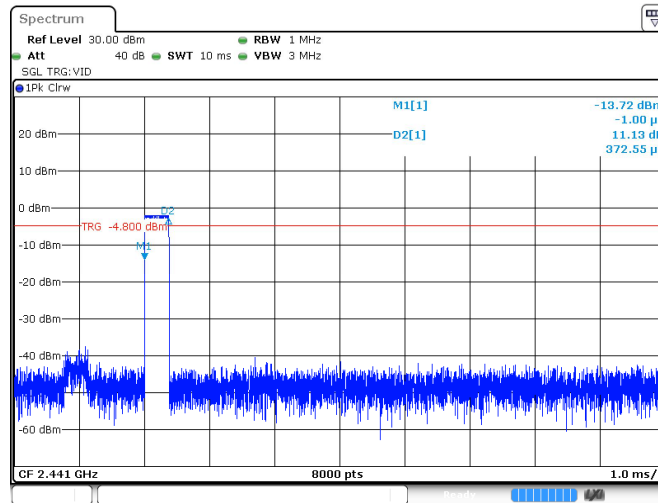
Chanel Separation	Limit
1003 kHz	920 kHz

Limit: 2/3 of 20dB bandwidth of hopping channel

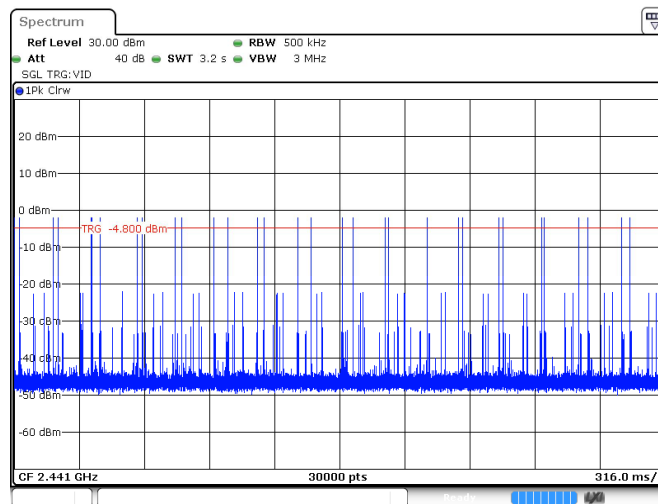
8.9 Average Channel Occupancy Time

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, DH1)
 Test Specification: FCC15.247(a)(1)
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5.SEP.2021 17:56:28



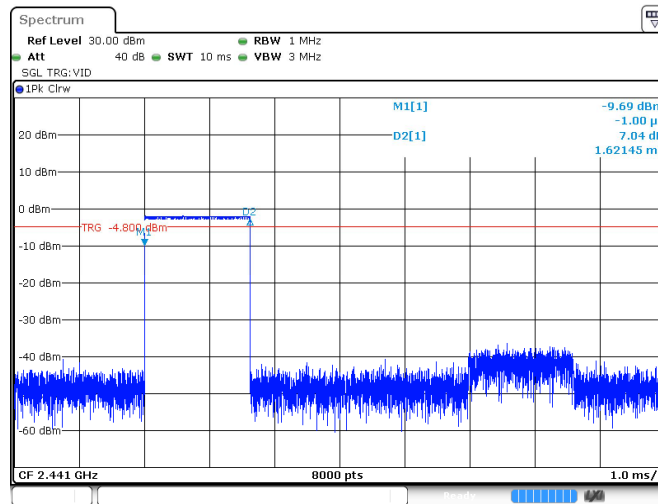
Date: 5.SEP.2021 17:56:33

TestMode	BurstWidth	TotalHops	Result	Limit	Verdict
DH1	0.37	330	0.123	<=0.4	PASS

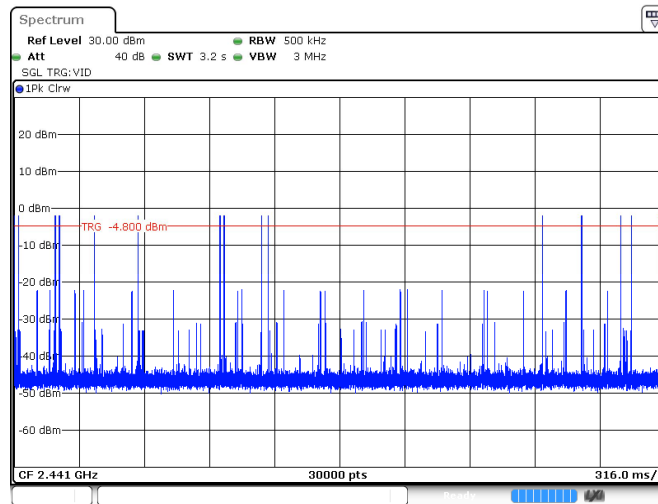
Average Channel Occupancy Time

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, DH3)
 Test Specification: FCC15.247(a)(1)
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 17:58:11



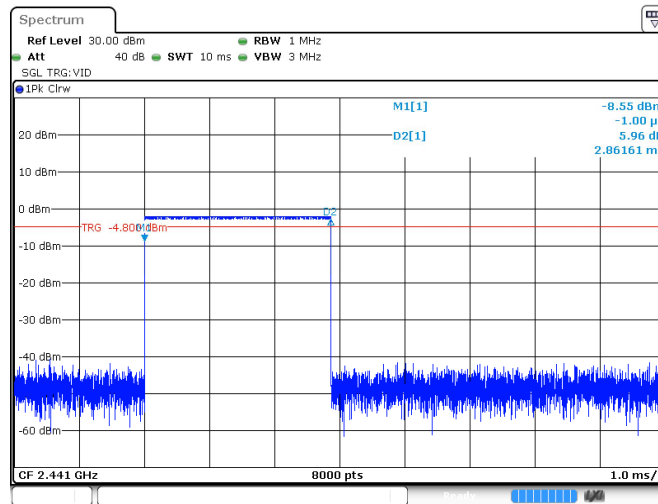
Date: 5 SEP 2021 17:58:17

TestMode	BurstWidth	TotalHops	Result	Limit	Verdict
DH3	1.62	150	0.243	<=0.4	PASS

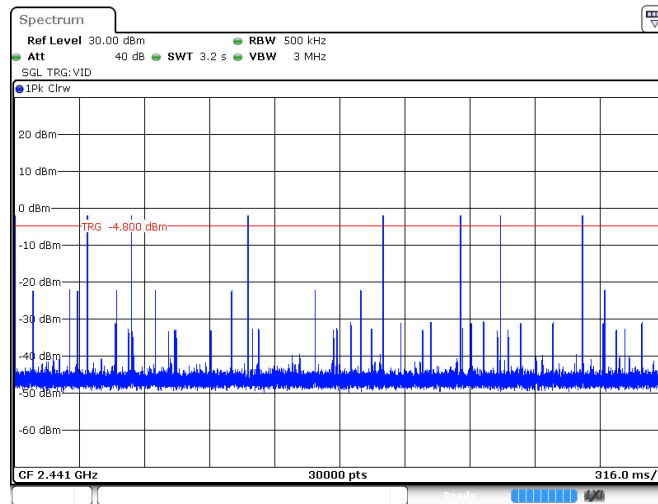
Average Channel Occupancy Time

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 18:12:36



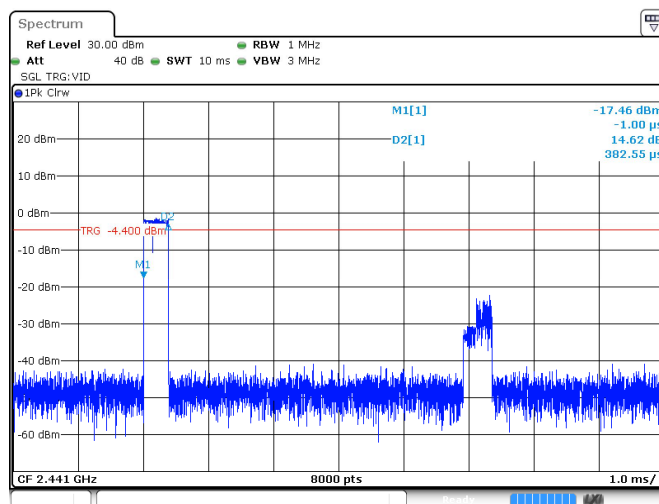
Date: 5 SEP 2021 18:12:42

TestMode	BurstWidth	TotalHops	Result	Limit	Verdict
DH5	2.86	80	0.229	≤ 0.4	PASS

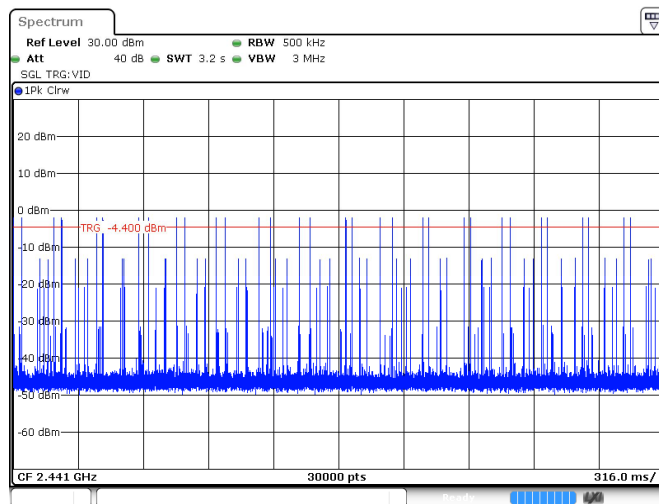
Average Channel Occupancy Time

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, 2DH1)
 Test Specification: FCC15.247(a)(1)
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 18:05:21



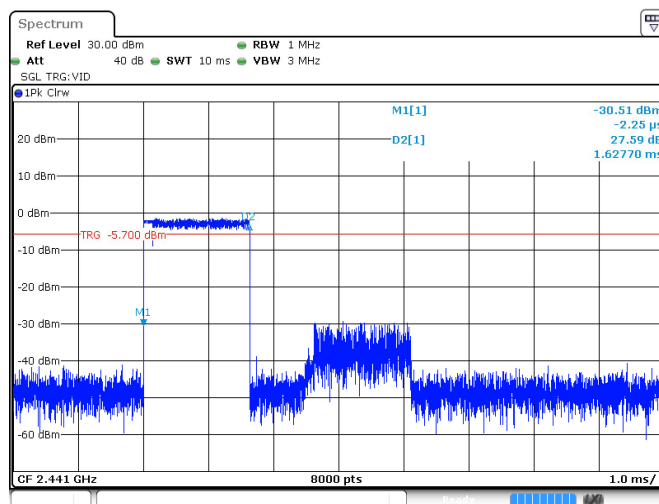
Date: 5 SEP 2021 18:05:26

TestMode	BurstWidth	TotalHops	Result	Limit	Verdict
2DH1	0.38	320	0.122	≤ 0.4	PASS

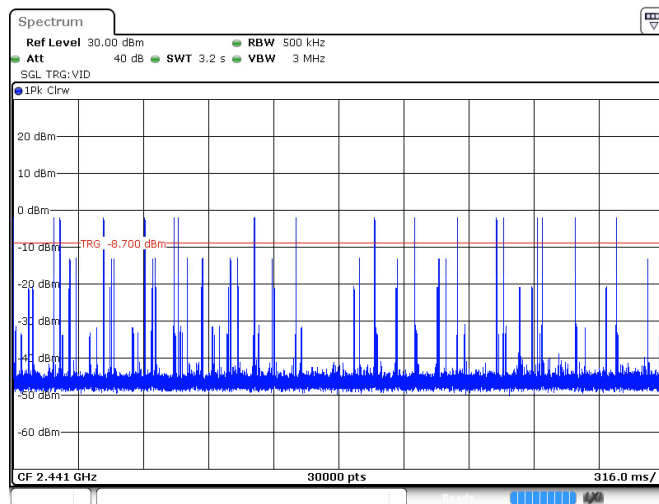
Average Channel Occupancy Time

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, 2DH3)
 Test Specification: FCC15.247(a)(1)
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 18:05:54



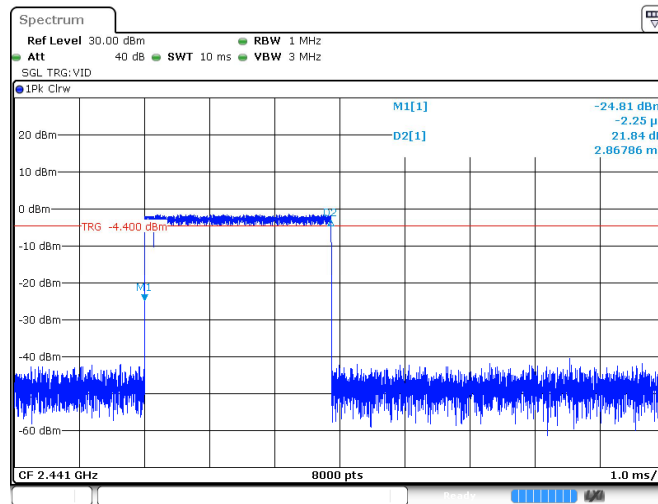
Date: 5 SEP 2021 18:05:59

TestMode	BurstWidth	TotalHops	Result	Limit	Verdict
2DH3	1.63	180	0.293	<=0.4	PASS

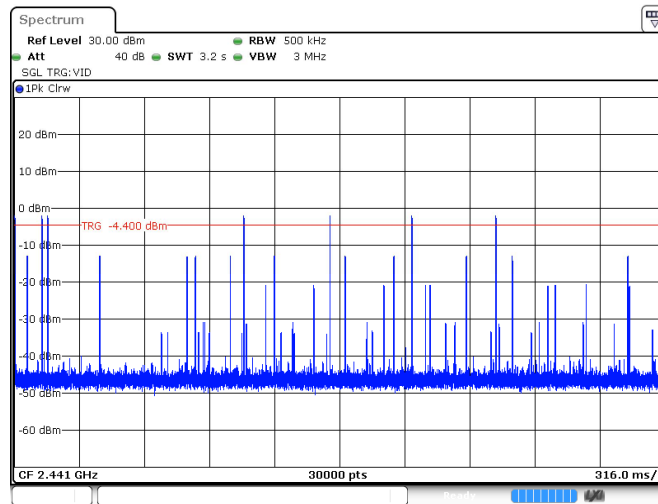
Average Channel Occupancy Time

EUT: MD 45000
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 120V AC, 60Hz

Test Result
☒ Passed
☐ Not Passed



Date: 5 SEP 2021 18:03:52



Date: 5 SEP 2021 18:03:57

TestMode	BurstWidth	TotalHops	Result	Limit	Verdict
2DH5	2.87	70	0.201	<=0.4	PASS

8.10 Antenna Requirement

EUT: MD 45000
Op Condition: Operated, TX Mode
Test Specification: FCC15.203 & 15.247(b)
Comment: 120V AC, 60Hz

Test Result	
☒	Passed
☐	Not Passed

Limit

For intentional device, according to FCC Title 47 Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC Title 47 Part 15.247(b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The antenna used in this product is an integrated antenna on PCB, and the maximum gain of this antenna is 0dBi.

9 Test setup procedure

9.1 Spurious Radiated Emission

Test Method

1: The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

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

3: 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.

4: 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.

5: Use the following spectrum analyzer settings According to C63.10:

For Below 1GHz

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious

RBW = 100 KHz to 120KHz, VBW $\geq$ RBW for peak measurement, Sweep = auto,

Detector function = peak, Trace = max hold.

For Peak unwanted emissions Above 1GHz:

Span = wide enough to capture the peak level of the in-band emission and all spurious

RBW = 1MHz, VBW $\geq$ RBW for peak measurement, Sweep = auto,

Detector function = peak, Trace = max hold.

Procedures for average unwanted emissions measurements above 1000 MHz:

Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 1MHz, VBW=10Hz, Sweep = auto, Detector function = peak, Trace = max hold.

If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$, in an effort to demonstrate compliance with the 15.209 limit.

If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.

The setting method can refer to DA00-705.

Spurious Radiated Emission

Limit

The radio emission outside the operating frequency band 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. Radiated emissions which fall in the restricted bands, as defined in section 15.205, must comply with the radiated emission limits specified in section 15.209.

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB.

Attenuation below the general field strength limits specified in RSS-Gen is not required.

Frequency MHz	Field Strength uV/m	Field Strength dBμV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

9.2 Conducted Emission at AC Power line

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

Limit

According to §15.207 & RSS-GEN 8.8, conducted emissions limit as below:

Frequency MHz	QP Limit dB μ V	AV Limit dB μ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Remark: “*” Decreasing linearly with logarithm of the frequency

9.3 20dB & 99% Bandwidth

Test Method

1. Use the following spectrum analyzer settings:
RBW=100K, VBW $\geq$ 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
2. Use the automatic bandwidth measurement capability of an instrument, may be employed using the X dB bandwidth mode with X set to 20 dB, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be $\geq$ 20 dB.
3. Allow the trace to stabilize, record the X dB Bandwidth value.

Limit

Limit [kHz]

NA

9.4 Peak Output Power

Test Method

1. Connect the spectrum analyzer to the EUT
 - a) The EUT is configured to transmit continuously, or to transmit with a constant duty factor.
 - b) At all times the EUT is transmitting at its maximum power control level.
 - c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Adjust the measurement in dBm by adding $10\log(1/x)$, where x is the duty cycle to the measurement result.

Limits

According to §15.247 (b) (1) & RSS-247 5.4(d), conducted peak output power limit as below:

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤ 1	≤ 30

For e.i r.p:

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤ 4	≤ 30

9.5 Spurious Emissions at Antenna Terminals

Test Method

1. Establish a reference level by using the following procedure:
 - a. Set RBW=100 kHz. VBW $\geq$ 3RBW. Detector =peak, Sweep time = auto couple, Trace mode = max hold.
 - b. Allow trace to fully stabilize, use the peak marker function to determine the maximum PSD level.
2. Use the maximum PSD level to establish the reference level.
 - a. Set the center frequency and span to encompass frequency range to be measured.
 - b. Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements, report the three highest emissions relative to the limit.
3. Repeat above procedures until other frequencies measured were completed.

Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

9.6 100kHz Bandwidth of band edges

Test Method

- 1 Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW $\geq$ RBW, Sweep = auto, Detector function = peak, Trace = max hold.
- 2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
- 3 The level displayed must comply with the limit specified in this Section.

Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

9.7 Number of hopping frequencies

Test Method

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- a) Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
- b) RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
- c) VBW $\geq$ RBW.
- d) Sweep: Auto.
- e) Detector function: Peak.
- f) Trace: Max hold.
- g) Allow the trace to stabilize.
- h) Count the number of hopping frequencies

Limit

Limit

≥ 15

9.8 Minimum Hopping Channel Carrier Frequency Separation

Test Method

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- a) Span: Wide enough to capture the peaks of two adjacent channels.
- b) RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
- c) Video (or average) bandwidth (VBW) $\geq$ RBW.
- d) Sweep: Auto.
- e) Detector function: Peak.
- f) Trace: Max hold.
- g) Allow the trace to stabilize.

Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Compliance of an EUT with the appropriate regulatory limit shall be determined. A plot of the data shall be included in the test report.

Limit

Limit

$\geq 2/3$ of 20dB bandwidth of hopping channel

9.9 Average Channel Occupancy Time

Test Method

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- a) Span: Zero span, centered on a hopping channel.
- b) RBW shall be $\leq$ channel spacing and where possible RBW should be set $\gg 1 / T$, where T is the expected dwell time per channel.
- c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
- d) Detector function: Peak.
- e) Trace: Max hold.

Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time.

Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements. Determine the number of hops over the sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation:

(Number of hops in the period specified in the requirements) =

(number of hops on spectrum analyzer) $\times$ (period specified in the requirements / analyzer sweep time)

The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements. If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation.

The measured transmit time and time between hops shall be consistent with the values described in the operational description for the EUT.

Limit

Limit

$\leq 0.4s$

10 Appendix A - General Product Information

Radiofrequency radiation exposure evaluation

This exposure evaluation is intended for **FCC ID: 2A3HF-22400**

According to KDB 447498 D01v06 section 4.3.1, For frequencies between 100 MHz to 6GHz and test separation distances ≤ 50 mm, the Numeric threshold is determined as:

Step a)

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR

>> The fundamental frequency of the EUT is 2402-2480MHz,
the test separation distance is ≤ 50 mm.
(Manufacturer specified the separation distance is: 5mm)
(5mm is the worst case according to the KDB)

Step b)

>> Numeric threshold (2402MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.402\text{GHz}} \leq 3.0$
Numeric threshold (2402MHz) $\leq 9.678\text{mW}$

>> Numeric threshold (2441MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.440\text{GHz}} \leq 3.0$
Numeric threshold (2441MHz) $\leq 9.602\text{mW}$

>> Numeric threshold (2480MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.480\text{GHz}} \leq 3.0$
Numeric threshold (2480MHz) $\leq 9.525\text{mW}$

>> The power (measured + tune up tolerance) of EUT at 2402MHz is: 0.12dBm = 1.028mW
The power (measured + tune up tolerance) of EUT at 2441MHz is: 0.12dBm = 1.028mW
The power (measured + tune up tolerance) of EUT at 2480MHz is: 0.48dBm = 1.117mW

Which is smaller than the Numeric threshold.

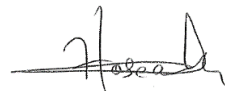
Therefore, the device is exempt from stand-alone SAR test requirements.

Reviewed by:



Eric LI
EMC Project Manager

Prepared by:

Hosea CHAN
EMC Project Engineer

11 Appendix B – DECLARATION

DECLARATION LETTER FOR MODEL DIFFERENCE

To: TÜV SÜD HKG Ltd.

Attention:

From:

Fax No:

Date: November 5, 2021

Total Page (Cover Included): 1

Declaration Letter

Subject:

We:

Officially notify TÜV SÜD HKG Ltd. that the <<Additional Model>> have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction, with <<PRODUCT>>, <<Main Test Model>>. The difference lies only on the model number & appearance of the different models.

<<Additional Model >>: MD 45000

<<Main Test Model >>: The Next Beat , MD 45000, M1912, 22400

<<Product>>: DJ Controller

Applicant: Shenzhen Youjun Electronics Limited

Luo zhan



(Applicant's authorized signature and company stamp)

file: declaration letter-template

Page 1 of 1