



Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26544737

Fax: +86-755-26648637

Website: www.cqa-cert.com

Report Template Version: V05

Report Template Revision Date: 2021-11-03

TEST REPORT

Report No.: CQASZ20221101948E -02
Applicant: Shenzhen DO Intelligent Technology Co., Ltd
Address of Applicant: 11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China
Equipment Under Test (EUT):
EUT Name: Smart Watch
Model No.: IDW13, IDW13 Plus, IDW13 Plus BT
Test Model No.: IDW13
Brand Name: IDO
FCC ID: 2AHFT497
Standards: 47 CFR Part 15.247
Date of Receipt: 2022-11-16
Date of Test: 2022-11-21 to 2022-11-23
Date of Issue: 2022-12-30
Test Result: PASS*

* In the configuration tested, the EUT complied with the standards with above.

Tested By:

Lewis Zhou

(Lewis Zhou)

Reviewed By:

Timo Lei

(Timo Lei)

Approved By:

Jack Ai

(Jack Ai)



The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History of Report

Report No.	Version	Description	Issue Date
CQASZ20221101948E -02	Rev. 01	Initial report	2022-12-30

2 Test Summary

Test Item	Standard	Test Method	Class / Severity	Result
Antenna requirement	47 CFR Part 15.247		Part 15.203	Init
Occupied Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013, section 11.8	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	ANSI C63.10-2013, section 11.9.1	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	ANSI C63.10-2013, section 11.10	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	ANSI C63.10-2013 section 11.11	47 CFR 15.247(d)	Pass
Emissions around the fundamental	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (below 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (above 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4	47 CFR 15.247(d)	Pass

3 Contents

	Page
1 VERSION	2
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	6
4.1 CLIENT INFORMATION	6
4.2 GENERAL DESCRIPTION OF EUT	6
4.3 DESCRIPTION OF SUPPORT UNITS	6
4.4 TEST MODE	6
4.5 TEST LOCATION	8
4.6 TEST FACILITY	8
4.7 DEVIATION FROM STANDARDS	8
4.8 ABNORMALITIES FROM STANDARD CONDITION	8
4.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER	8
4.10 MEASUREMENT UNCERTAINTY (95% CONFIDENCE LEVELS, K=2)	9
5 EQUIPMENT LIST	10
6 EVALUATION RESULTS (EVALUATION)	13
6.1 ANTENNA REQUIREMENT	13
7 RADIO SPECTRUM MATTER TEST RESULTS (RF)	13
7.1 OCCUPIED BANDWIDTH	13
7.1.1 E.U.T. Operation:	14
7.1.2 Test Setup Diagram:	14
7.1.3 Test Data:	14
7.2 MAXIMUM CONDUCTED OUTPUT POWER	15
7.2.1 E.U.T. Operation:	15
7.2.2 Test Setup Diagram:	16
7.2.3 Test Data:	16
7.3 POWER SPECTRAL DENSITY	17
7.3.1 E.U.T. Operation:	17
7.3.2 Test Setup Diagram:	17
7.3.3 Test Data:	17
7.4 EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS	18
7.4.1 E.U.T. Operation:	18
7.4.2 Test Setup Diagram:	19
7.4.3 Test Data:	19
7.5 EMISSIONS AROUND THE FUNDAMENTAL	20
7.5.1 E.U.T. Operation:	20
7.5.2 Test Data:	21
7.6 EMISSIONS IN RESTRICTED FREQUENCY BANDS (BELOW 1GHz)	22
7.6.1 E.U.T. Operation:	22
7.6.2 Test Data:	23
7.7 EMISSIONS IN RESTRICTED FREQUENCY BANDS (ABOVE 1GHz)	39
7.7.1 E.U.T. Operation:	40
7.7.2 Test Data:	41
8 TEST SETUP PHOTOS	43
9 PHOTOGRAPHS OF EUT	45
9.1 APPENDIX A: DTS BANDWIDTH	47

9.1.1 Test Result	47
9.1.2 Test Graphs	48
9.2 APPENDIX B: OCCUPIED CHANNEL BANDWIDTH	51
9.2.1 Test Result	51
9.2.2 Test Graphs	52
9.3 APPENDIX C: MAXIMUM CONDUCTED OUTPUT POWER	55
9.3.1 Test Result	55
9.3.2 Test Graphs	56
9.4 APPENDIX D: MAXIMUM POWER SPECTRAL DENSITY	59
9.4.1 Test Result	59
9.4.2 Test Graphs	60
9.5 APPENDIX E: BAND EDGE MEASUREMENTS	63
9.5.1 Test Result	63
9.5.2 Test Graphs	64
9.6 APPENDIX F: CONDUCTED SPURIOUS EMISSION	66
9.6.1 Test Result	66
9.6.2 Test Graphs	67

4 General Information

4.1 Client Information

Applicant:	Shenzhen DO Intelligent Technology Co., Ltd
Address of Applicant:	11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China
Manufacturer:	Shenzhen DO Intelligent Technology Co., Ltd
Address of Manufacturer:	11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China
Factory:	Shenzhen DO Intelligent Technology Co., Ltd
Address of Factory:	11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China

4.2 General Description of EUT

Product Name:	Smart Watch
Model No.:	IDW13, IDW13 Plus, IDW13 Plus BT
Test Model No.:	IDW13
Trade Mark:	IDO
Power Supply:	Li-ion battery DC 3.8V 300mAh, Charge by DC 5V for adapter
Operation Frequency:	2402MHz to 2480MHz
Number of Channels:	40
Software Version:	IDW13_V1.0.1
Hardware Version:	V1.1
Modulation Type:	GFSK
Antenna Type:	FPC
Antenna Gain:	-0.18dBi
Bluetooth Version:	V5.3

4.3 Description of Support Units

The EUT was tested as an independent device.

4.4 Test Mode

No	Title	Description
TM1	TX mode	Keep the EUT works in continuously transmitting mode with GFSK modulation.
TM2	Test of difference 1#	Keep the EUT works in continuously transmitting mode with GFSK modulation.
TM3	Test of difference 2#	Keep the EUT works in continuously transmitting mode with GFSK modulation.
TM4	Test of difference 3#	Keep the EUT works in continuously transmitting mode with GFSK modulation.
TM5	Test of difference 4#	Keep the EUT works in continuously transmitting mode with GFSK modulation.

TM6	Test of difference 5#	Keep the EUT works in continuously transmitting mode with GFSK modulation.
TM7	Test of difference 6#	Keep the EUT works in continuously transmitting mode with GFSK modulation.
TM8	Test of difference 7#	Keep the EUT works in continuously transmitting mode with GFSK modulation.

Note:

The flash in EUT of TM1-9 and TM10-13 is different, the former is 64Mb and the latter is 128Mb

EUT Flash comes in two sizes, 128Mb and 64Mb, and there are four screen vendors

The four screen differences are internal wiring, layout, supplier, component LCD ID resistor resistance value
these changes does not affect the radio performance

4.5 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.6 Test Facility

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

- IC Registration No.: 22984-1

The 3m Semi-anechoic chamber of Shenzhen Huaxia Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- CNAS (No. CNAS L5785)

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC

Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

- FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Condition

None

4.9 Other Information Requested by the Customer

None.

4.10 Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Measurement Uncertainty
Occupied Bandwidth	1.1%
RF Conducted Power	0.86dB
RF Power Density	0.74dB
Conducted Spurious Emissions	0.86dB

5 Equipment List

Occupied Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC power	KEYSIGHT	E3631A	CQA-028	2022-09-09	2023-09-08
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	CQA-022	2022-09-09	2023-09-08
Signal generator	R&S	SME06	CQA-024	2022-09-09	2023-09-08
Vector signal generator	R&S	SMBV100A	CQA-039	2022-09-09	2023-09-08
Antenna Connector	CQA	RFC-01	CQA-080	2022-09-09	2023-09-08
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2022-09-09	2023-09-08
RF Control Unit	Tonsced	JS0806-2	CQA-057	2022-09-09	2023-09-08
RF Cable (9KHz~40GHz)	CQA	N/A	C005	2022-09-09	2023-09-08
high-low temperature chamber	Auchno	OJN-9606	CQA-S003	2022-09-09	2023-09-08

Maximum Conducted Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC power	KEYSIGHT	E3631A	CQA-028	2022-09-09	2023-09-08
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	CQA-022	2022-09-09	2023-09-08
Signal generator	R&S	SME06	CQA-024	2022-09-09	2023-09-08
Vector signal generator	R&S	SMBV100A	CQA-039	2022-09-09	2023-09-08
Antenna Connector	CQA	RFC-01	CQA-080	2022-09-09	2023-09-08
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2022-09-09	2023-09-08
RF Control Unit	Tonsced	JS0806-2	CQA-057	2022-09-09	2023-09-08
RF Cable (9KHz~40GHz)	CQA	N/A	C005	2022-09-09	2023-09-08
high-low temperature chamber	Auchno	OJN-9606	CQA-S003	2022-09-09	2023-09-08

Power Spectral Density					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC power	KEYSIGHT	E3631A	CQA-028	2022-09-09	2023-09-08
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	CQA-022	2022-09-09	2023-09-08
Signal generator	R&S	SME06	CQA-024	2022-09-09	2023-09-08

Vector signal generator	R&S	SMBV100A	CQA-039	2022-09-09	2023-09-08
Antenna Connector	CQA	RFC-01	CQA-080	2022-09-09	2023-09-08
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2022-09-09	2023-09-08
RF Control Unit	Tonsced	JS0806-2	CQA-057	2022-09-09	2023-09-08
RF Cable (9KHz~40GHz)	CQA	N/A	C005	2022-09-09	2023-09-08
high-low temperature chamber	Auchno	OJN-9606	CQA-S003	2022-09-09	2023-09-08

Emissions in non-restricted frequency bands

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC power	KEYSIGHT	E3631A	CQA-028	2022-09-09	2023-09-08
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	CQA-022	2022-09-09	2023-09-08
Signal generator	R&S	SME06	CQA-024	2022-09-09	2023-09-08
Vector signal generator	R&S	SMBV100A	CQA-039	2022-09-09	2023-09-08
Antenna Connector	CQA	RFC-01	CQA-080	2022-09-09	2023-09-08
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2022-09-09	2023-09-08
RF Control Unit	Tonsced	JS0806-2	CQA-057	2022-09-09	2023-09-08
RF Cable (9KHz~40GHz)	CQA	N/A	C005	2022-09-09	2023-09-08
high-low temperature chamber	Auchno	OJN-9606	CQA-S003	2022-09-09	2023-09-08

Emissions around the fundamental

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Loop antenna	SCHWARZBECK	FMZB 1516	CQA-060	2021-09-16	2024-09-15
Horn Antenna	R&S	BBHA 9170	CQA-088	2021-09-16	2024-09-15
Horn Antenna	R&S	HF906	CQA-012	2021-09-16	2024-09-15
Bilog Antenna	R&S	HL562	CQA-011	2021-09-16	2024-09-15
EMI Test Receiver	R&S	ESR7	CQA-005	2022-09-09	2023-09-08
Spectrum analyzer	R&S	FSU26	CQA-038	2022-09-09	2023-09-08
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2022-09-09	2023-09-08
Coaxial cable (1GHz~40GHz)	CQA	N/A	C007	2022-09-09	2023-09-08
Coaxial cable (9KHz~1GHz)	CQA	N/A	C013	2022-09-09	2023-09-08

Full anechoic chamber	CQA	966	CQA-009	2022-09-09	2023-09-08
-----------------------	-----	-----	---------	------------	------------

Emissions in restricted frequency bands (below 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Loop antenna	SCHWARZBECK	FMZB 1516	CQA-060	2021-09-16	2024-09-15
Horn Antenna	R&S	BBHA 9170	CQA-088	2021-09-16	2024-09-15
Horn Antenna	R&S	HF906	CQA-012	2021-09-16	2024-09-15
Bilog Antenna	R&S	HL562	CQA-011	2021-09-16	2024-09-15
EMI Test Receiver	R&S	ESR7	CQA-005	2022-09-09	2023-09-08
Spectrum analyzer	R&S	FSU26	CQA-038	2022-09-09	2023-09-08
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2022-09-09	2023-09-08
Coaxial cable (1GHz~40GHz)	CQA	N/A	C007	2022-09-09	2023-09-08
Coaxial cable (9KHz~1GHz)	CQA	N/A	C013	2022-09-09	2023-09-08
Full anechoic chamber	CQA	966	CQA-009	2022-09-09	2023-09-08

Emissions in restricted frequency bands (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Loop antenna	SCHWARZBECK	FMZB 1516	CQA-060	2021-09-16	2024-09-15
Horn Antenna	R&S	BBHA 9170	CQA-088	2021-09-16	2024-09-15
Horn Antenna	R&S	HF906	CQA-012	2021-09-16	2024-09-15
Bilog Antenna	R&S	HL562	CQA-011	2021-09-16	2024-09-15
EMI Test Receiver	R&S	ESR7	CQA-005	2022-09-09	2023-09-08
Spectrum analyzer	R&S	FSU26	CQA-038	2022-09-09	2023-09-08
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2022-09-09	2023-09-08
Coaxial cable (1GHz~40GHz)	CQA	N/A	C007	2022-09-09	2023-09-08
Coaxial cable (9KHz~1GHz)	CQA	N/A	C013	2022-09-09	2023-09-08
Full anechoic chamber	CQA	966	CQA-009	2022-09-09	2023-09-08

6 Evaluation Results (Evaluation)

6.1 Antenna requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)
15.203 requirement: 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
EUT Antenna:	
The antenna is FPC antenna. The best case gain of the antenna is -0.18dBi.	

7 Radio Spectrum Matter Test Results (RF)

7.1 Occupied Bandwidth

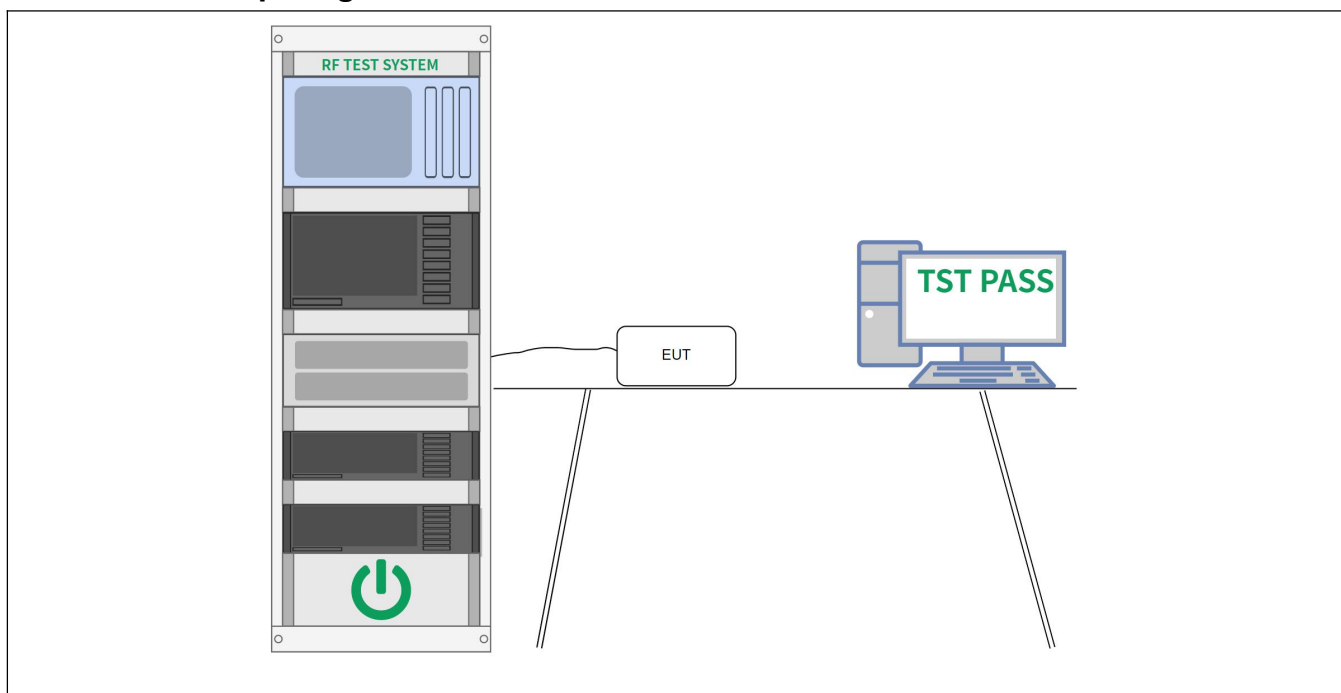
Test Requirement:	Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	DTS bandwidth
Test Limit:	Section (a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Procedure:	a) Set RBW = 100 kHz. b) Set the VBW $\geq [3 \times \text{RBW}]$. c) Detector = peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and

lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.1.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.9 °C
Humidity:	43.8 %
Atmospheric Pressure:	100.9 kPa
Pre test mode:	TM1
Final test mode:	TM1

7.1.2 Test Setup Diagram:



7.1.3 Test Data:

Please Refer to Appendix for Details.

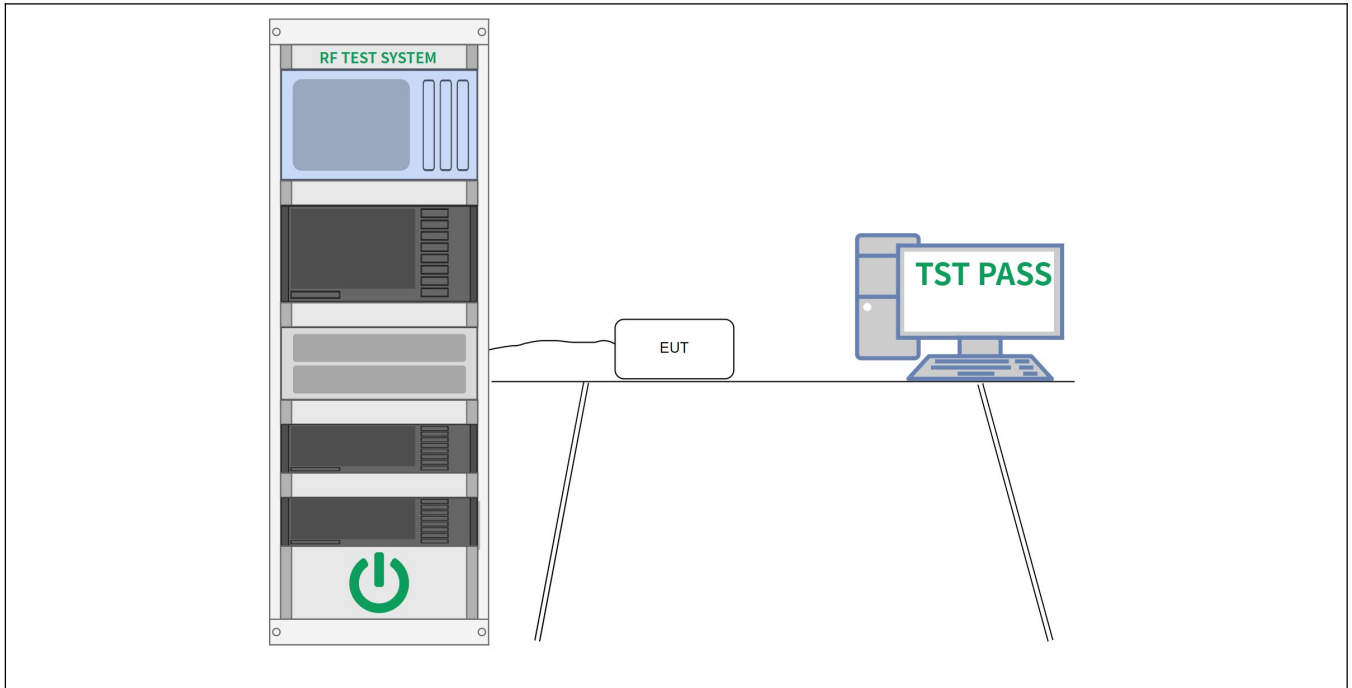
7.2 Maximum Conducted Output Power

Test Requirement:	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	Maximum peak conducted output power
Test Limit:	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Procedure:	ANSI C63.10-2013, section 11.9.1 Maximum peak conducted output power

7.2.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.9 °C
Humidity:	43.8 %
Atmospheric Pressure:	100.9 kPa
Pre test mode:	TM1
Final test mode:	TM1

7.2.2 Test Setup Diagram:



7.2.3 Test Data:

Please Refer to Appendix for Details.

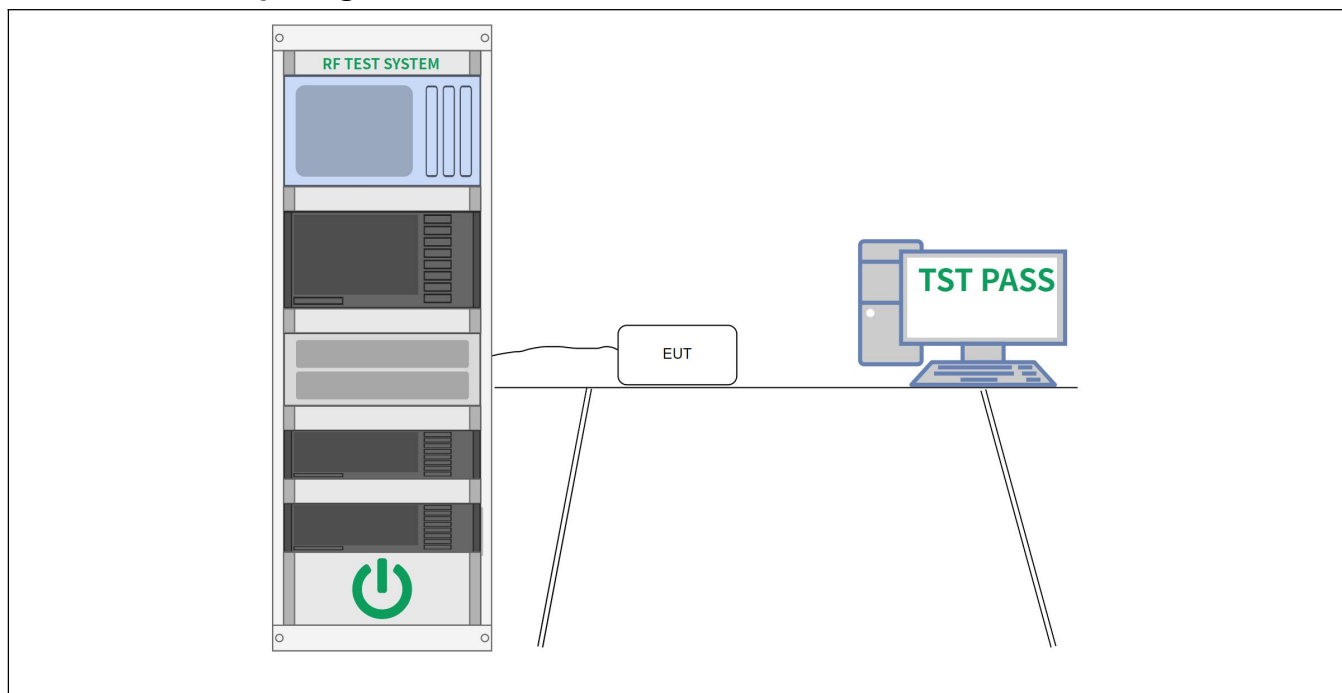
7.3 Power Spectral Density

Test Requirement:	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	Maximum power spectral density level in the fundamental emission
Test Limit:	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

7.3.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.9 °C
Humidity:	43.8 %
Atmospheric Pressure:	100.9 kPa
Pre test mode:	TM1
Final test mode:	TM1

7.3.2 Test Setup Diagram:



7.3.3 Test Data:

Please Refer to Appendix for Details.

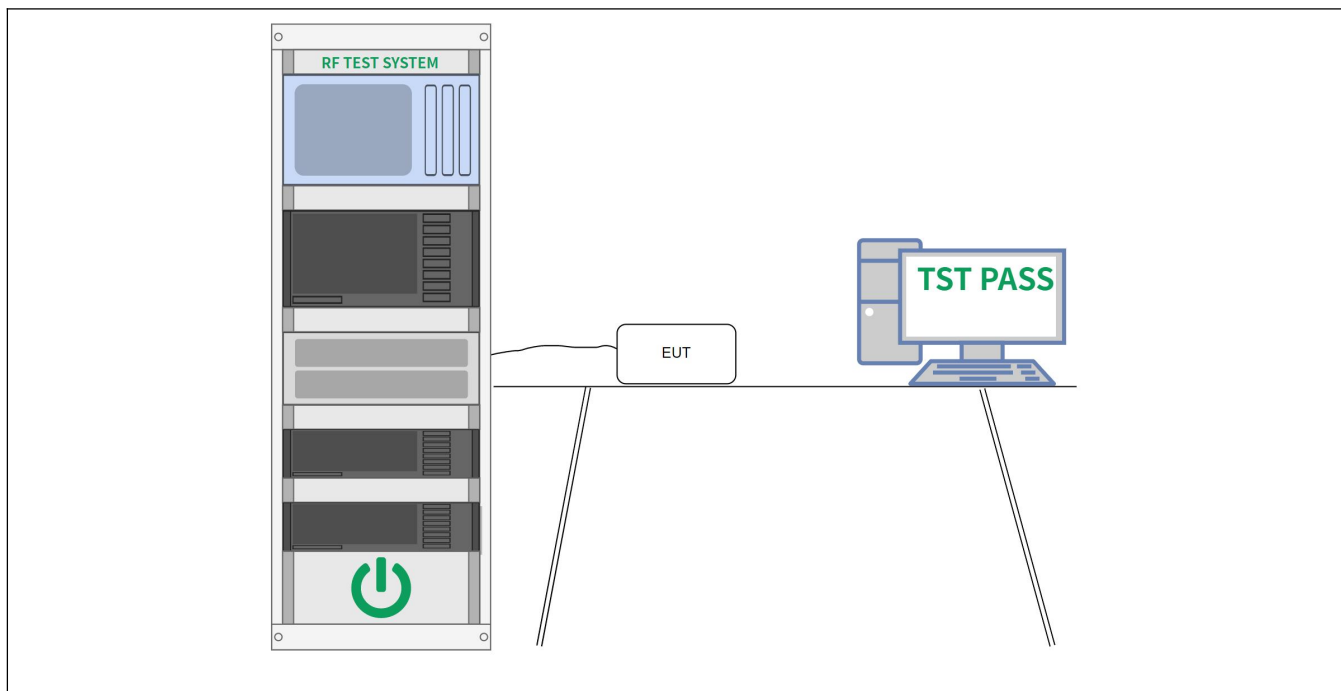
7.4 Emissions in non-restricted frequency bands

Test Requirement:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Test Method:	Emissions in nonrestricted frequency bands
Test Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Procedure:	ANSI C63.10-2013 Section 11.11.1, Section 11.11.2, Section 11.11.3

7.4.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.9 °C
Humidity:	43.8 %
Atmospheric Pressure:	100.9 kPa
Pre test mode:	TM1
Final test mode:	TM1

7.4.2 Test Setup Diagram:



7.4.3 Test Data:

Please Refer to Appendix for Details.

7.5 Emissions around the fundamental

Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Method:	Radiated emissions tests		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Procedure:	ANSI C63.10-2013 section 6.6.4		

7.5.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	53 %
Atmospheric Pressure:	100.9 kPa
Pre test mode:	TM1
Final test mode:	TM1

7.5.2 Test Data:

*** Please upload the appendix. (Task Appendix) ***

7.6 Emissions in restricted frequency bands (below 1GHz)

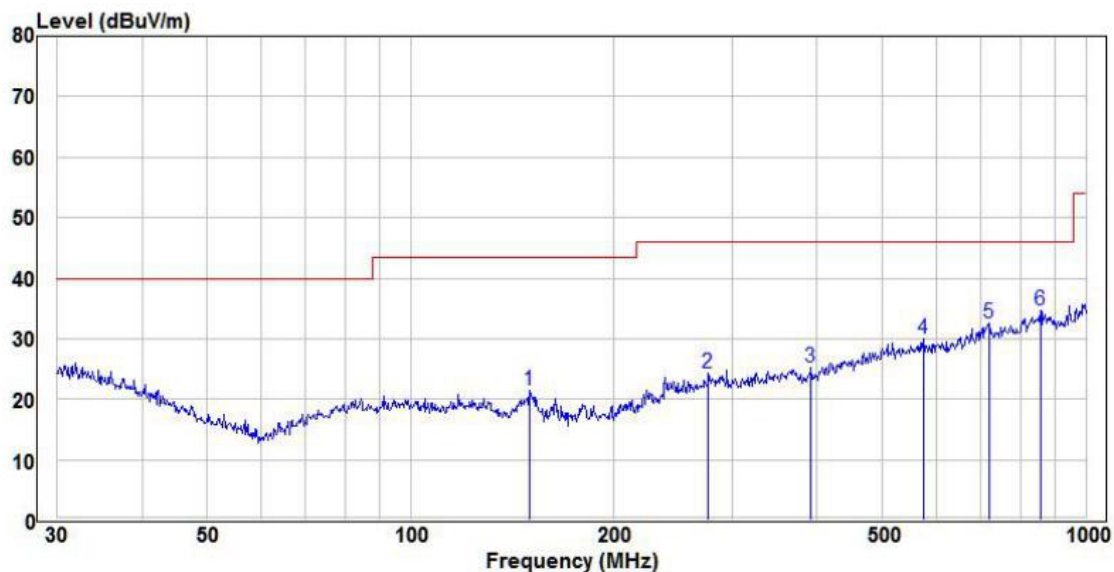
Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Method:	Radiated emissions tests		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Procedure:	ANSI C63.10-2013 section 6.6.4		

7.6.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	53 %
Atmospheric Pressure:	100.9 kPa
Pre test mode:	TM1, TM2, TM3, TM4, TM5, TM6, TM7, TM8
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6, TM7, TM8

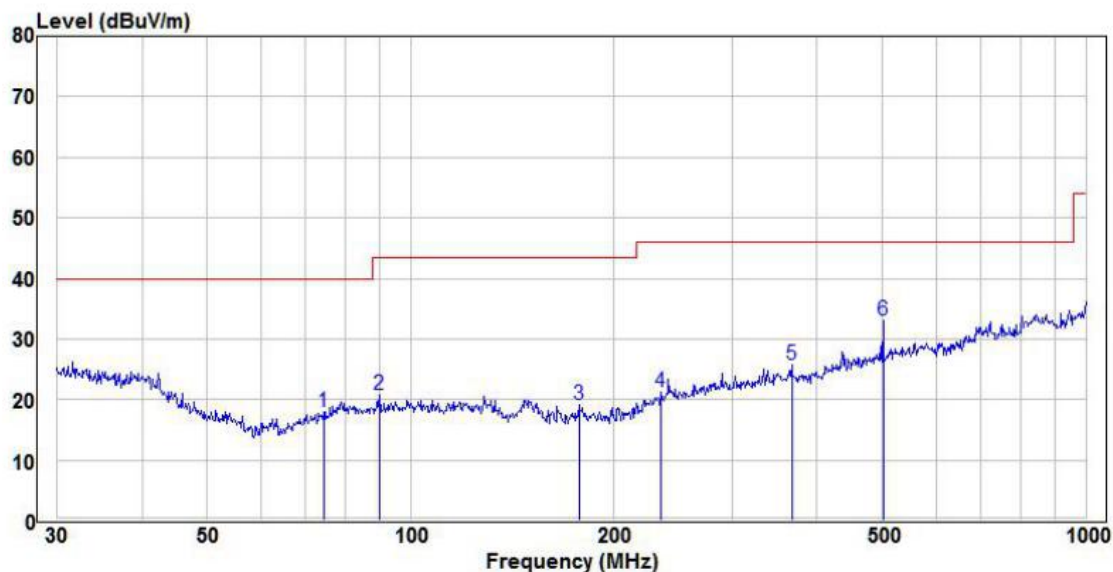
7.6.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



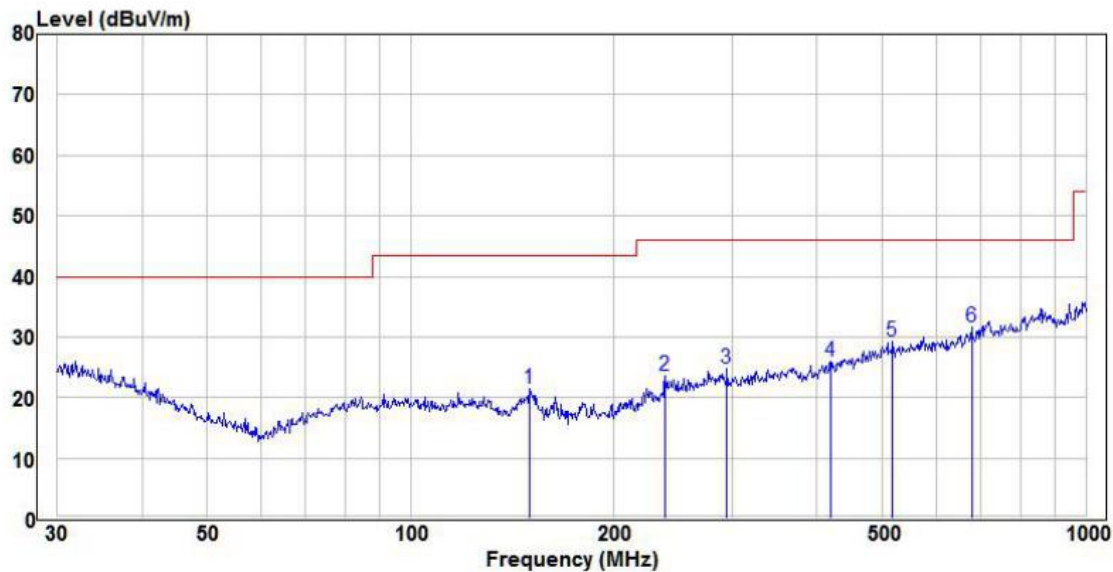
	Freq.	Read	Factor	Level	Limit	Over	Remark	Pol/Phase	APos	TPos
		Level			Line	Limit				
		dBuV	dBuV	dBuV	dBuV	dBuV				
1	150.01	13.01	7.90	21.48	43.50	-22.02	Peak	HORIZONTAL	---	---
2	276.12	11.33	10.16	24.27	46.00	-21.73	Peak	HORIZONTAL	---	---
3	392.10	10.42	13.02	25.38	46.00	-20.62	Peak	HORIZONTAL	---	---
4	574.63	10.83	16.77	29.87	46.00	-16.13	Peak	HORIZONTAL	---	---
5	719.20	11.26	18.82	32.48	46.00	-13.52	Peak	HORIZONTAL	---	---
6	857.02	10.60	18.96	34.62	46.00	-11.38	Peak	HORIZONTAL	---	---

TM1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



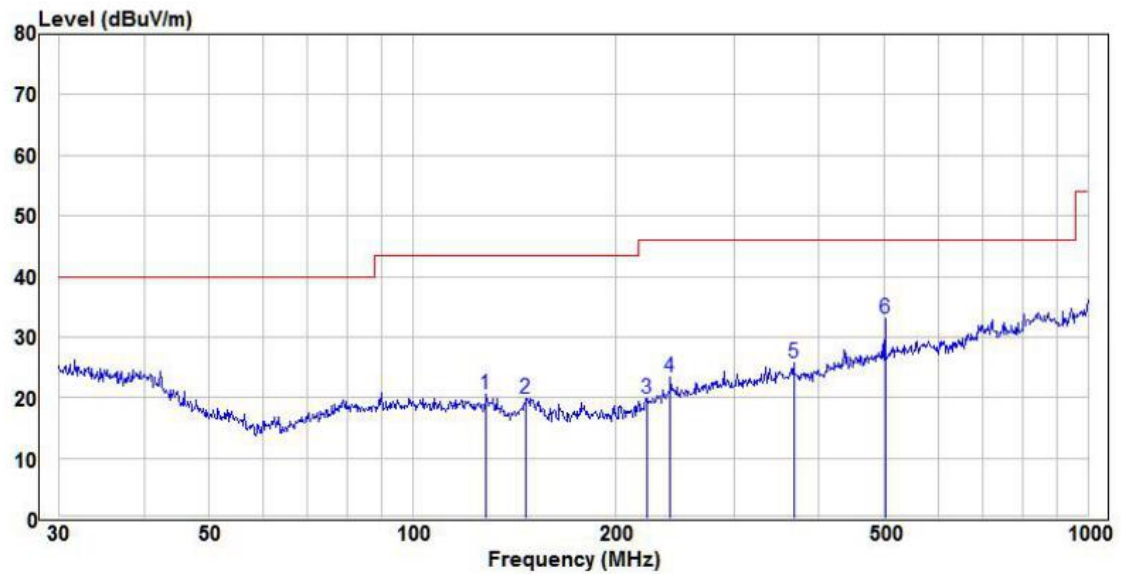
	Freq.	Read		Limit	Over				
		Level	Factor	Level	Limit	Remark	Pol/Phase	APos	TPos
	dBuV	dBuV	dBuV	dBuV	dBuV				
1	74.40	9.10	8.50	17.97	40.00	-22.03 Peak	VERTICAL	---	---
2	89.90	10.76	9.60	20.78	43.50	-22.72 Peak	VERTICAL	---	---
3	177.51	11.00	7.53	19.17	43.50	-24.33 Peak	VERTICAL	---	---
4	234.99	10.13	8.88	21.13	46.00	-24.87 Peak	VERTICAL	---	---
5	366.82	10.30	12.44	25.66	46.00	-20.34 Peak	VERTICAL	---	---
6	501.18	14.78	16.11	33.07	46.00	-12.93 Peak	VERTICAL	---	---

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



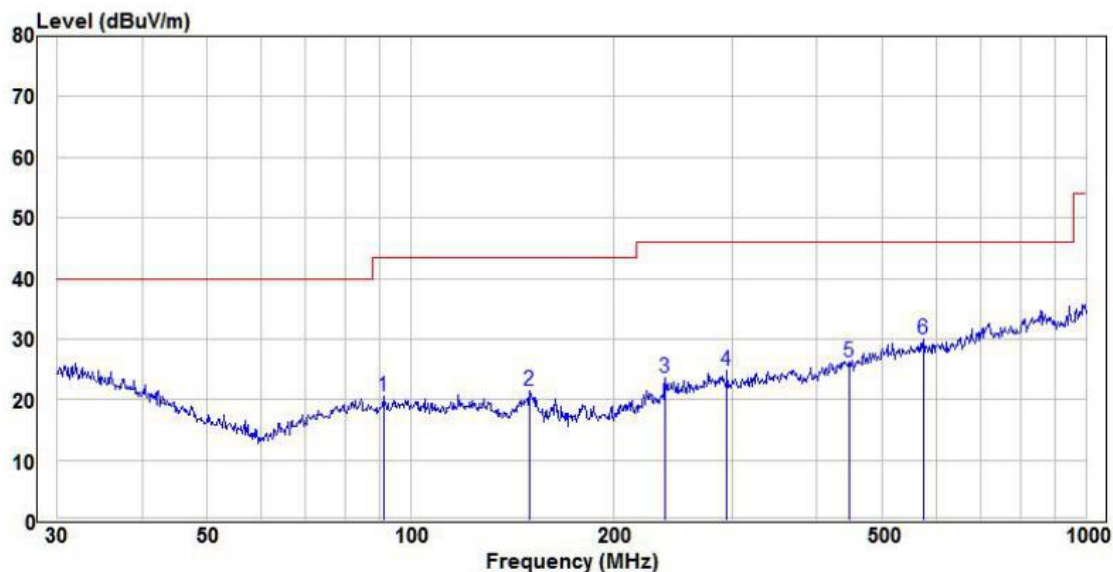
	Freq.	Read	Factor	Level	Limit	Over				
		Level			Line	Limit	Remark	Pol/Phase	APos	TPos
	dBuV	dBuV	dBuV	dBuV	dBuV	dBuV				
1	150.01	13.01	7.90	21.48	43.50	-22.02	Peak	HORIZONTAL	---	---
2	238.31	12.19	8.99	23.56	46.00	-22.44	Peak	HORIZONTAL	---	---
3	294.11	11.18	10.72	24.72	46.00	-21.28	Peak	HORIZONTAL	---	---
4	419.11	10.27	13.75	26.02	46.00	-19.98	Peak	HORIZONTAL	---	---
5	517.25	10.73	16.26	29.19	46.00	-16.81	Peak	HORIZONTAL	---	---
6	677.58	11.34	18.32	31.52	46.00	-14.48	Peak	HORIZONTAL	---	---

TM2 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



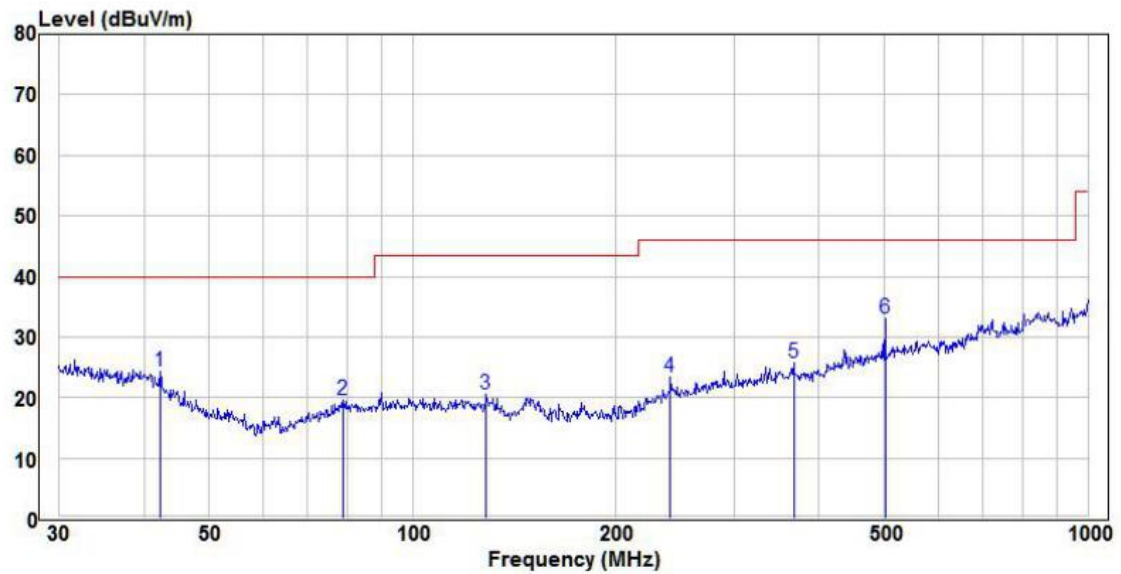
	Freq.	Read	Factor	Level	Limit	Over	Remark	Pol/Phase	APos	TPos
		Level			Line	Limit				
		dBuV	dBuV	dBuV	dBuV	dBuV				
1	128.56	10.17	9.86	20.55	43.50	-22.95	Peak	VERTICAL	---	---
2	147.40	11.45	7.80	19.81	43.50	-23.69	Peak	VERTICAL	---	---
3	222.95	10.20	8.51	19.72	46.00	-26.28	Peak	VERTICAL	---	---
4	240.83	11.76	9.07	23.38	46.00	-22.62	Peak	VERTICAL	---	---
5	366.82	10.30	12.44	25.66	46.00	-20.34	Peak	VERTICAL	---	---
6	501.18	14.78	16.11	33.07	46.00	-12.93	Peak	VERTICAL	---	---

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



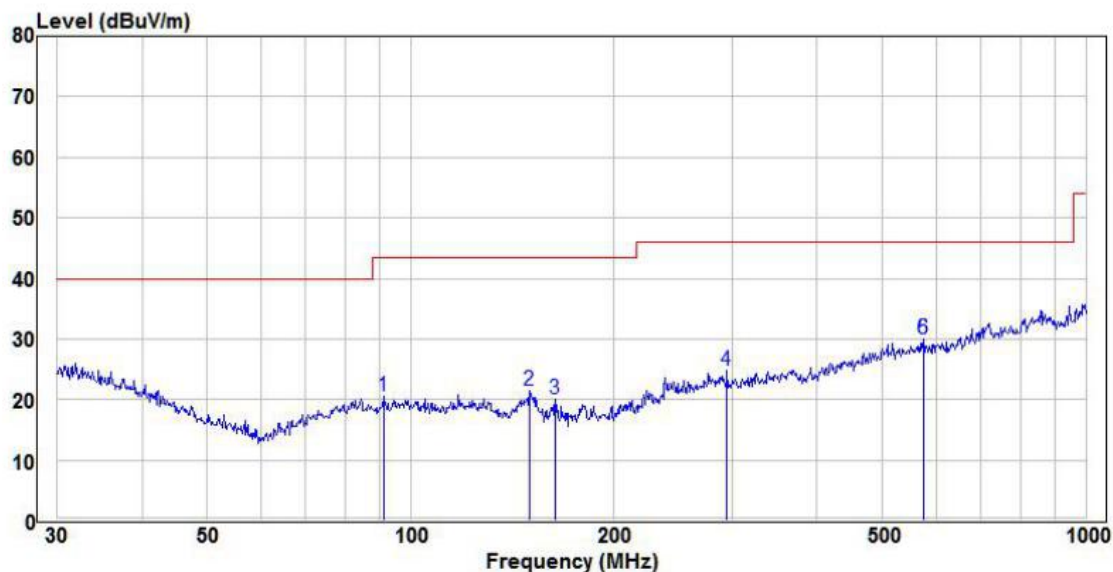
Freq.	Read	Factor	Level	Limit	Over	Remark	Pol/Phase	APos	TPos
	dBuV	dBuV	dBuV	dBuV	dBuV				
1	91.17	10.42	9.67	20.51	43.50	-22.99 Peak	HORIZONTAL	---	---
2	150.01	13.01	7.90	21.48	43.50	-22.02 Peak	HORIZONTAL	---	---
3	238.31	12.19	8.99	23.56	46.00	-22.44 Peak	HORIZONTAL	---	---
4	294.11	11.18	10.72	24.72	46.00	-21.28 Peak	HORIZONTAL	---	---
5	446.41	9.61	14.55	26.23	46.00	-19.77 Peak	HORIZONTAL	---	---
6	574.63	10.83	16.77	29.87	46.00	-16.13 Peak	HORIZONTAL	---	---

TM3 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



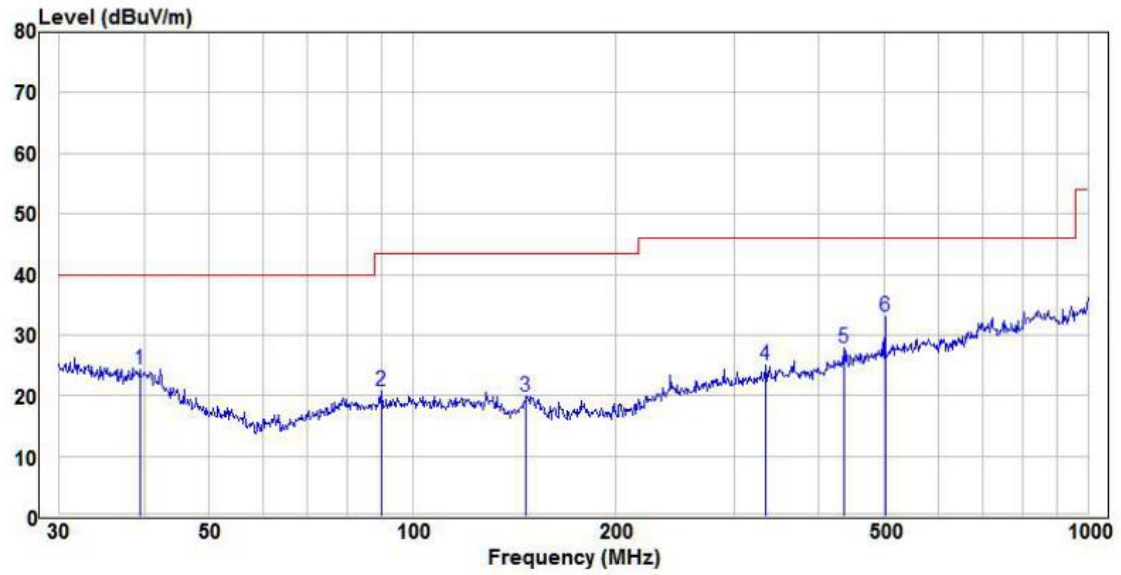
Freq.	Read	Factor	Level	Limit	Over	Remark	Pol/Phase	APos	TPos
	dBuV		dBuV	dBuV	dBuV				
1	42.30	12.59	13.19	24.31	40.00	-15.69 Peak	VERTICAL	---	---
2	78.97	9.87	9.23	19.48	40.00	-20.52 Peak	VERTICAL	---	---
3	128.56	10.17	9.86	20.55	43.50	-22.95 Peak	VERTICAL	---	---
4	240.83	11.76	9.07	23.38	46.00	-22.62 Peak	VERTICAL	---	---
5	366.82	10.30	12.44	25.66	46.00	-20.34 Peak	VERTICAL	---	---
6	501.18	14.78	16.11	33.07	46.00	-12.93 Peak	VERTICAL	---	---

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



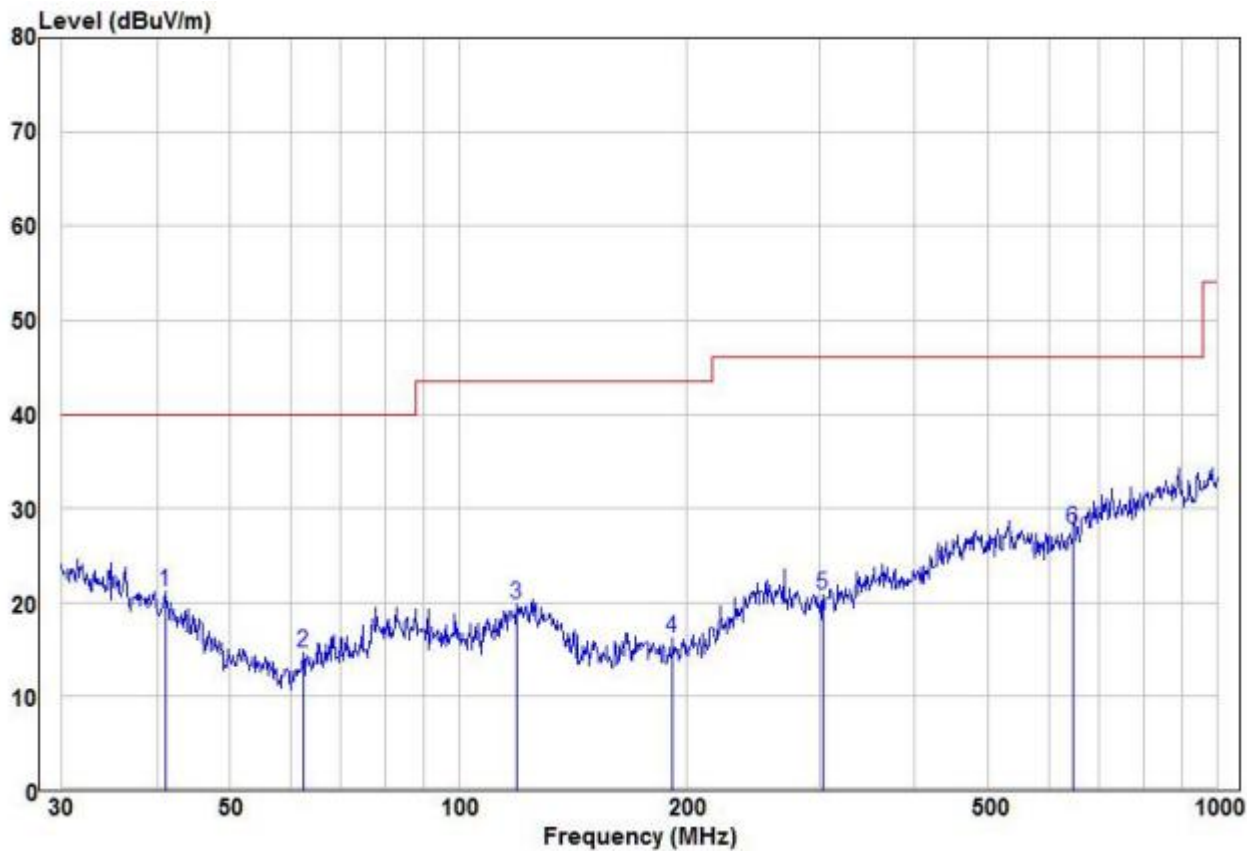
Freq.	Read	Factor	Level	Limit	Over	Remark	Pol/Phase	APos	TPos
dBuV	dBuV	dBuV	dBuV	dBuV	dBuV				
1 91.17	10.42	9.67	20.51	43.50	-22.99	Peak	HORIZONTAL	---	---
2 150.01	13.01	7.90	21.48	43.50	-22.02	Peak	HORIZONTAL	---	---
3 163.76	12.43	7.12	20.15	43.50	-23.35	Peak	HORIZONTAL	---	---
4 294.11	11.18	10.72	24.72	46.00	-21.28	Peak	HORIZONTAL	---	---
5 574.63	10.83	16.77	29.87	46.00	-16.13	Peak	HORIZONTAL	---	---
6 574.63	10.83	16.77	29.87	46.00	-16.13	Peak	HORIZONTAL	---	---

TM4 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



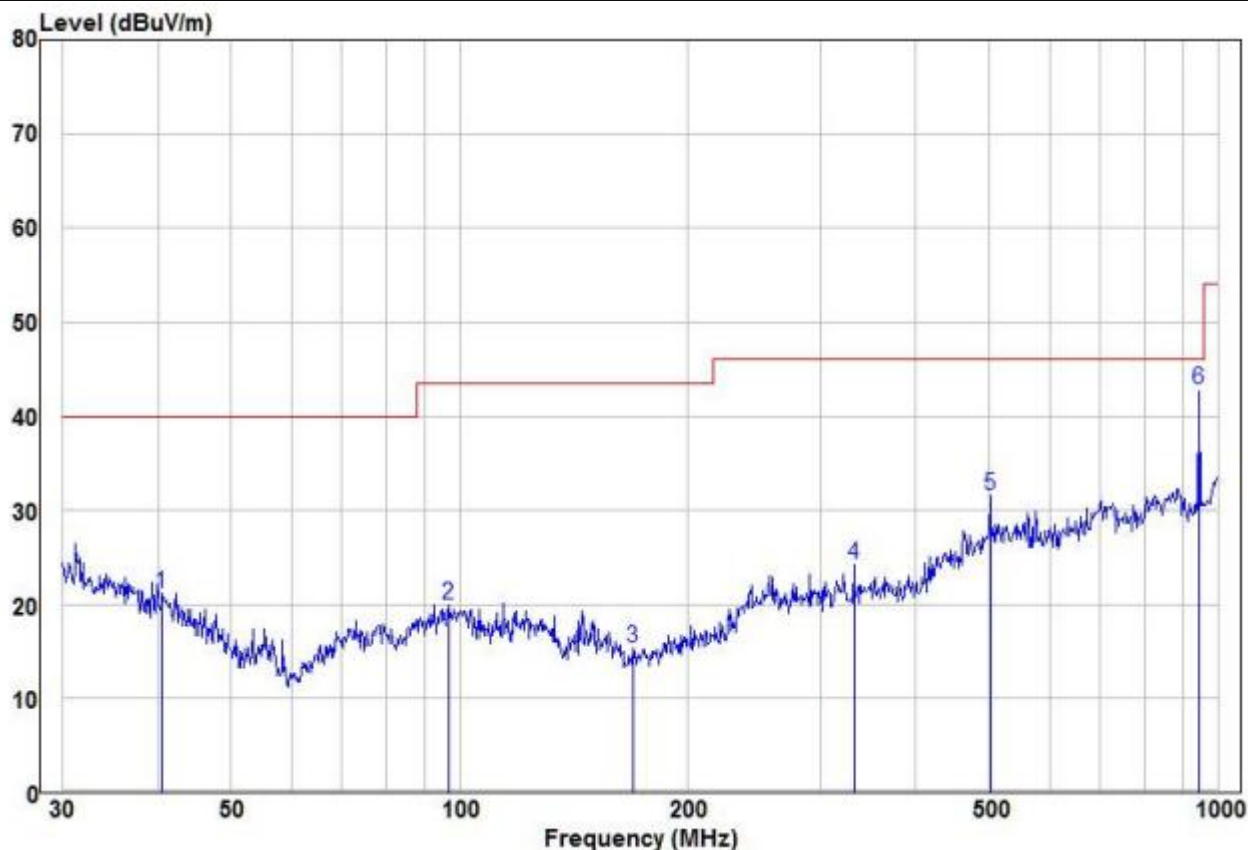
Freq.	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase	APos	TPos
dBuV	dBuV	dBuV	dBuV	dBuV	dBuV				
1 39.44	11.36	14.70	24.36	40.00	-15.64	Peak	VERTICAL	---	---
2 89.90	10.76	9.60	20.78	43.50	-22.72	Peak	VERTICAL	---	---
3 147.40	11.45	7.80	19.81	43.50	-23.69	Peak	VERTICAL	---	---
4 333.69	10.51	11.67	25.06	46.00	-20.94	Peak	VERTICAL	---	---
5 435.59	11.48	14.23	27.75	46.00	-18.25	Peak	VERTICAL	---	---
6 501.18	14.78	16.11	33.07	46.00	-12.93	Peak	VERTICAL	---	---

TM5 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



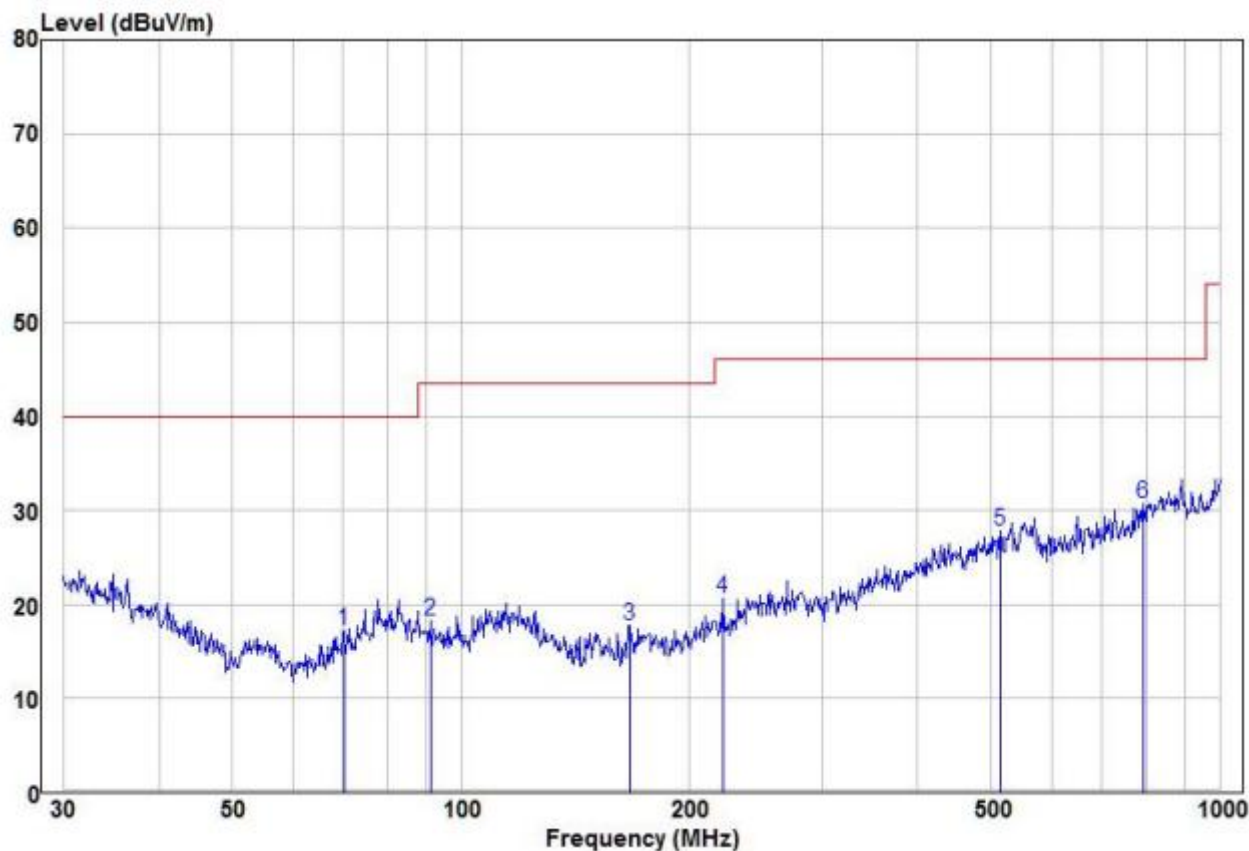
	Freq	Read Level	Factor	Limit Level	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dB		
1	40.99	8.80	12.34	21.14	40.00	-18.86 Peak	HORIZONTAL
2	62.43	8.83	5.78	14.61	40.00	-25.39 Peak	HORIZONTAL
3	119.44	9.09	10.67	19.76	43.50	-23.74 Peak	HORIZONTAL
4	191.75	8.23	8.06	16.29	43.50	-27.21 Peak	HORIZONTAL
5	302.48	7.03	13.79	20.82	46.00	-25.18 Peak	HORIZONTAL
6 pp	647.39	8.15	19.64	27.79	46.00	-18.21 Peak	HORIZONTAL

TM5 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



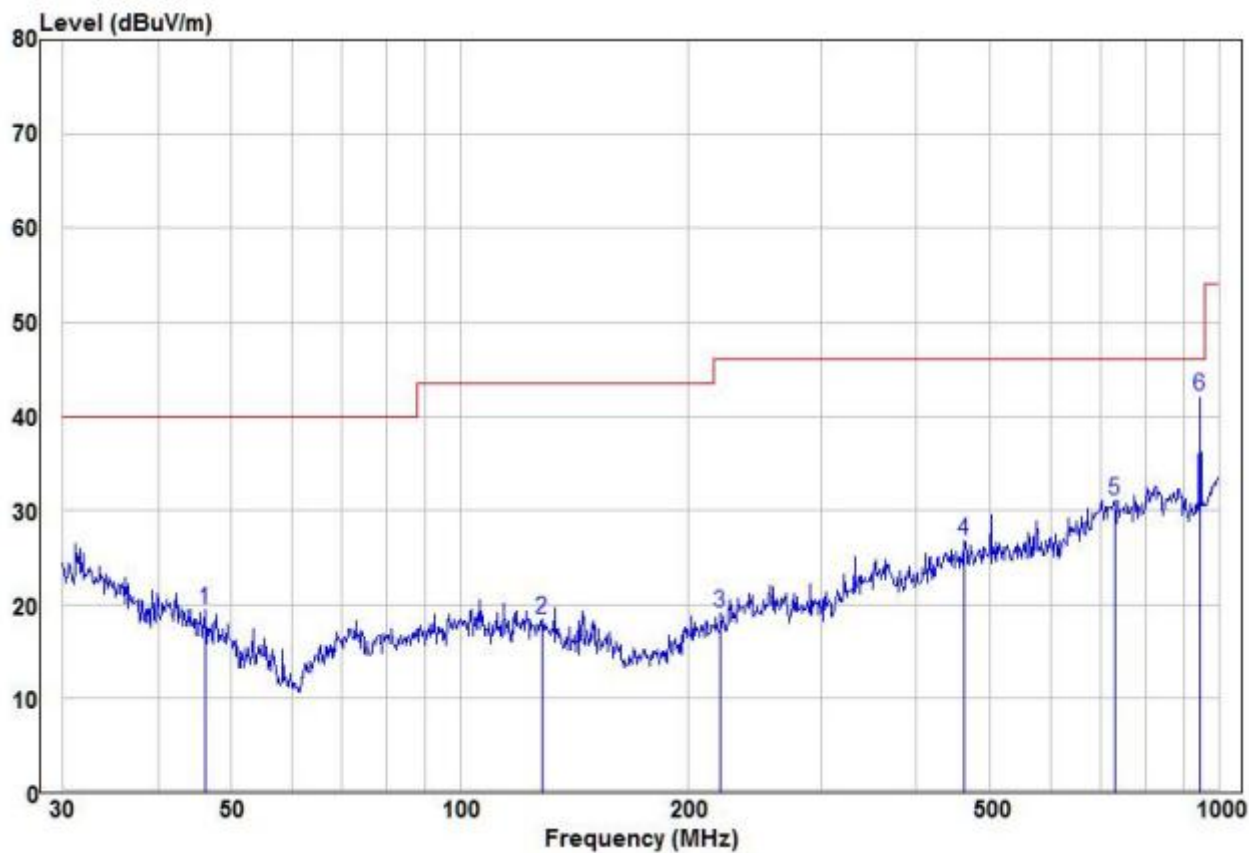
	Freq	Read		Limit	Over		
	MHz	Level	Factor	Line	Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	40.56	8.65	12.54	21.19	40.00	-18.81 Peak	VERTICAL
2	96.77	9.45	10.45	19.90	43.50	-23.60 Peak	VERTICAL
3	169.01	7.71	7.64	15.35	43.50	-28.15 Peak	VERTICAL
4	331.35	9.66	14.49	24.15	46.00	-21.85 Peak	VERTICAL
5	501.18	13.26	18.29	31.55	46.00	-14.45 Peak	VERTICAL
6 pp	945.44	19.16	23.62	42.78	46.00	-3.22 Peak	VERTICAL

TM6 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



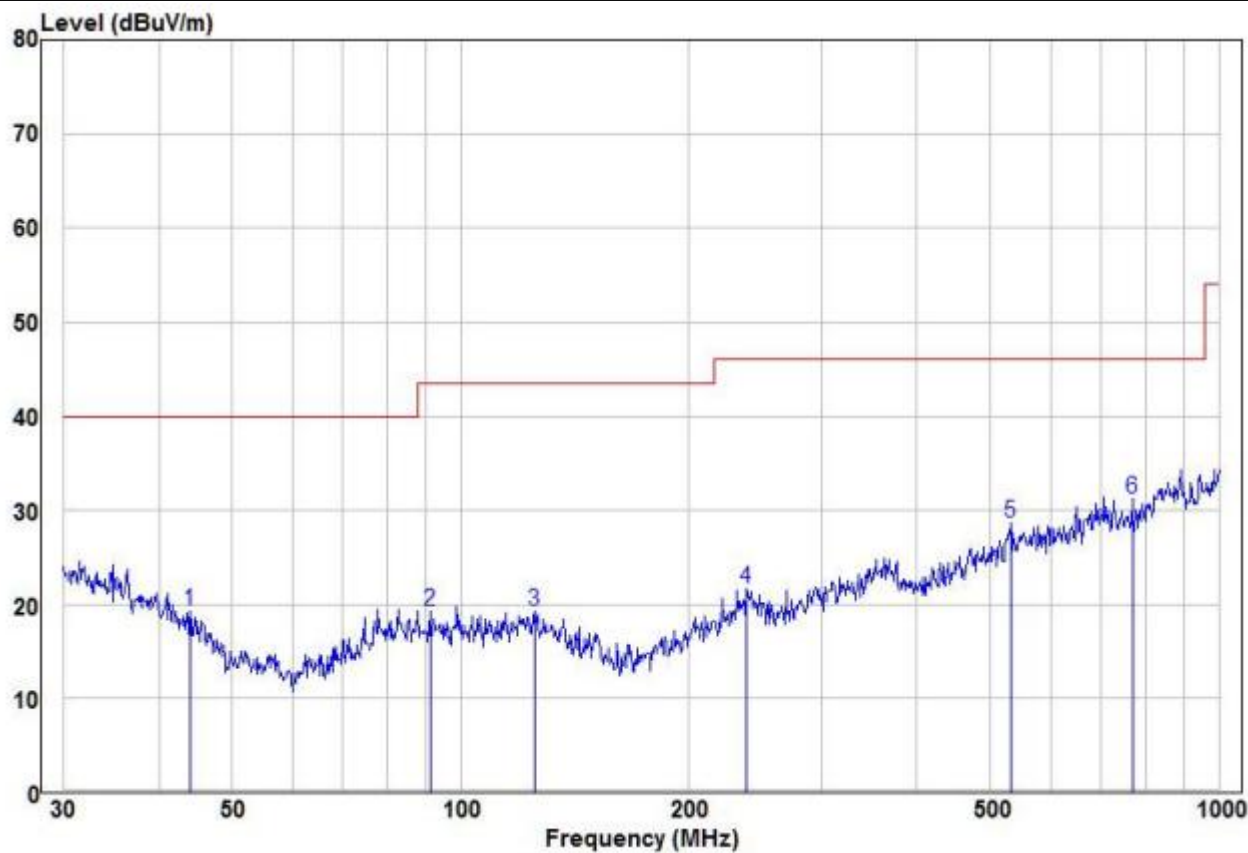
	Freq	Read	Factor	Limit	Over	Remark	Pol/Phase
	MHz	Level		Line	Limit		
		dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	70.09	9.04	8.16	17.20	40.00	-22.80 Peak	HORIZONTAL
2	91.17	8.14	10.09	18.23	43.50	-25.27 Peak	HORIZONTAL
3	166.65	10.00	7.68	17.68	43.50	-25.82 Peak	HORIZONTAL
4	221.39	11.27	9.31	20.58	46.00	-25.42 Peak	HORIZONTAL
5	513.63	9.31	18.42	27.73	46.00	-18.27 Peak	HORIZONTAL
6 pp	793.40	8.37	22.27	30.64	46.00	-15.36 Peak	HORIZONTAL

TM6 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



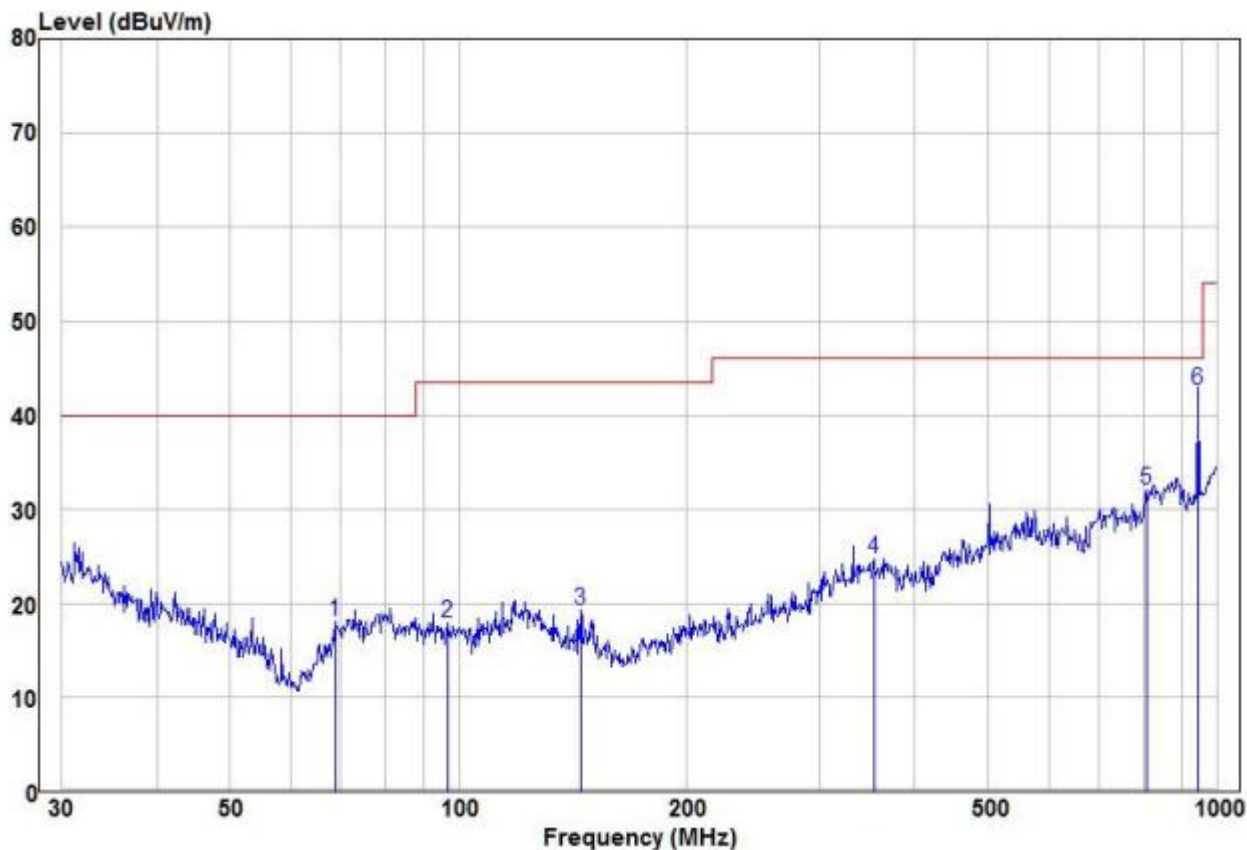
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	46.18	9.59	9.89	19.48	40.00	-20.52	Peak	VERTICAL
2	128.56	8.09	10.38	18.47	43.50	-25.03	Peak	VERTICAL
3	220.62	9.91	9.21	19.12	46.00	-26.88	Peak	VERTICAL
4	462.35	9.75	17.11	26.86	46.00	-19.14	Peak	VERTICAL
5 pk	729.36	9.83	21.29	31.12	46.00	-14.88	Peak	VERTICAL
6 pp	945.44	18.48	23.62	42.10	46.00	-3.90	QP	VERTICAL

TM7 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



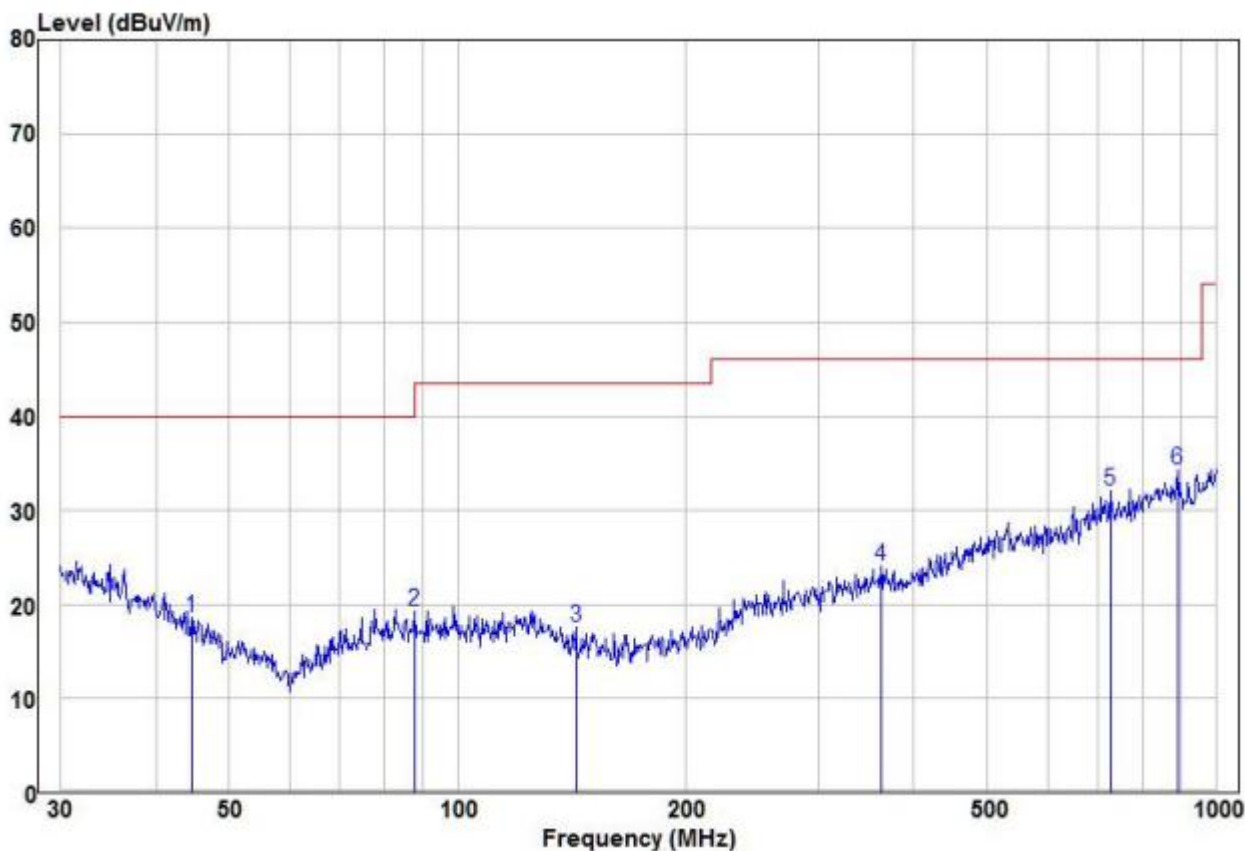
	Read		Limit	Over			
Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	43.97	8.36	10.94	19.30	40.00	-20.70 Peak	HORIZONTAL
2	91.17	9.14	10.09	19.23	43.50	-24.27 Peak	HORIZONTAL
3	125.01	8.75	10.51	19.26	43.50	-24.24 Peak	HORIZONTAL
4	238.31	10.22	11.37	21.59	46.00	-24.41 Peak	HORIZONTAL
5	531.96	9.98	18.61	28.59	46.00	-17.41 Peak	HORIZONTAL
6 pp	768.75	9.10	22.07	31.17	46.00	-14.83 Peak	HORIZONTAL

TM7 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



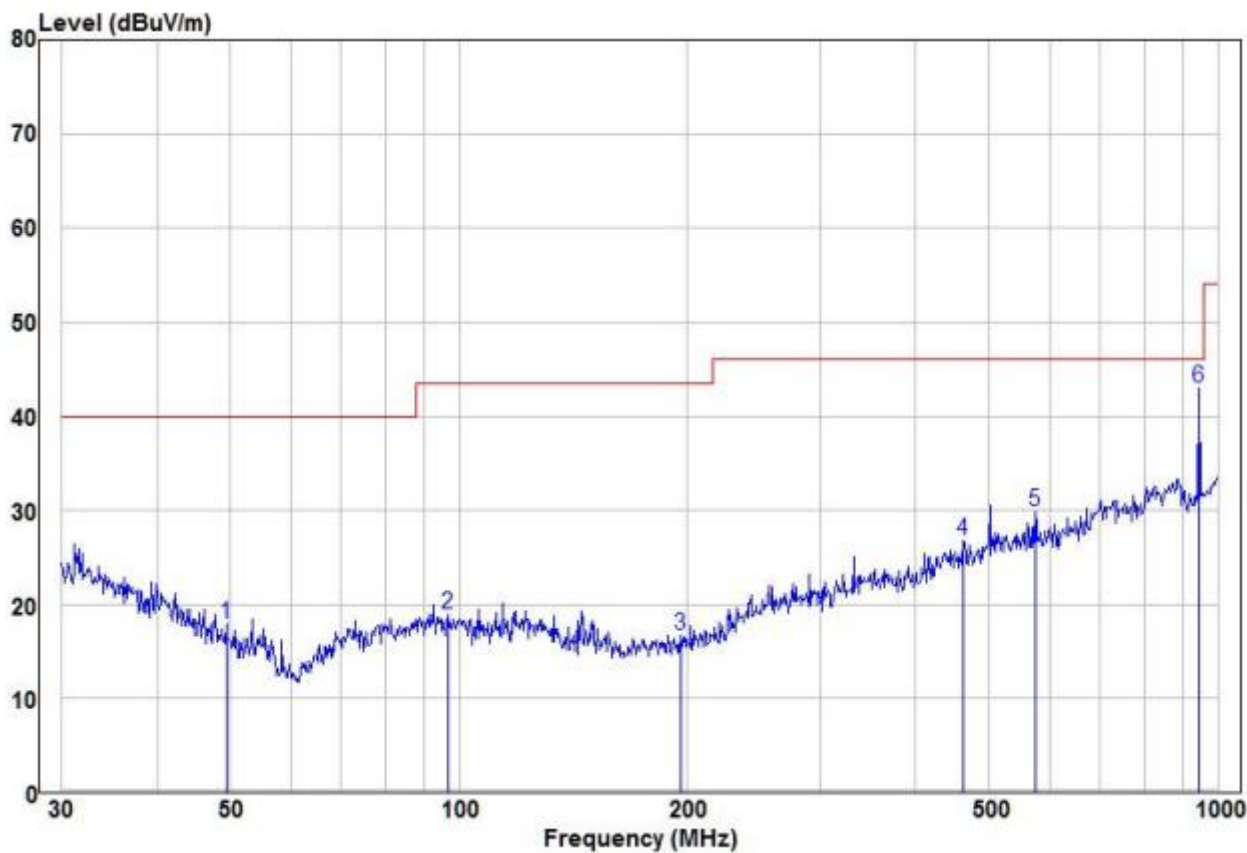
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	68.87	10.34	7.80	18.14	40.00	-21.86	Peak	VERTICAL
2	96.77	7.45	10.45	17.90	43.50	-25.60	Peak	VERTICAL
3	144.84	11.00	8.25	19.25	43.50	-24.25	Peak	VERTICAL
4	352.94	9.77	15.02	24.79	46.00	-21.21	Peak	VERTICAL
5	807.43	8.82	23.28	32.10	46.00	-13.90	Peak	VERTICAL
6 pp	945.44	19.11	23.62	42.73	46.00	-3.27	Peak	VERTICAL

TM8 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



	Freq	Read		Limit	Over		
	MHz	Level	Factor	Line	Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	44.59	7.91	10.65	18.56	40.00	-21.44 Peak	HORIZONTAL
2	87.72	9.41	9.96	19.37	40.00	-20.63 Peak	HORIZONTAL
3	143.33	9.31	8.18	17.49	43.50	-26.01 Peak	HORIZONTAL
4	361.71	8.76	15.23	23.99	46.00	-22.01 Peak	HORIZONTAL
5	726.81	10.78	21.27	32.05	46.00	-13.95 Peak	HORIZONTAL
6 pp	890.73	10.45	23.88	34.33	46.00	-11.67 Peak	HORIZONTAL

TM8 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



	Freq	Read	Factor	Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	49.36	9.49	8.40	17.89	40.00	-22.11	Peak	VERTICAL
2	96.77	8.45	10.45	18.90	43.50	-24.60	Peak	VERTICAL
3	195.82	8.39	8.27	16.66	43.50	-26.84	Peak	VERTICAL
4	462.35	9.75	17.11	26.86	46.00	-19.14	Peak	VERTICAL
5	574.63	10.79	19.04	29.83	46.00	-16.17	Peak	VERTICAL
6 pp	945.44	19.38	23.62	43.00	46.00	-3.00	Peak	VERTICAL

7.7 Emissions in restricted frequency bands (above 1GHz)

Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Method:	Radiated emissions tests		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Procedure:	a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. Note: For the radiated emission test above 1GHz: 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. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height 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. a. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. b. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. c. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would		

	be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. d. Test the EUT in the lowest channel (2402MHz), the middle channel (2441MHz), the Highest channel (2480MHz) e. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. Repeat above procedures until all frequencies measured was complete. Remark: The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Factor= Antenna Factor + Cable Factor – Preamplifier Factor, Level = Read Level + Factor, Over Limit=Level-Limit Line. 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor Scan from 9kHz to 25GHz, the disturbance above 10GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.
--	---

7.7.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.5 °C
Humidity:	53 %
Atmospheric Pressure:	100.9 kPa
Pre test mode:	TM1

7.7.2 Test Data:

Worse case mode:		GFSK(1Mbps)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
2390	53.89	-9.2	44.69	74	-29.31	Peak	H
2400	56.61	-9.39	47.22	74	-26.78	Peak	H
4804	51.94	-4.33	47.61	74	-26.39	Peak	H
7206	51.09	1.01	52.10	74	-21.90	Peak	H
2390	52.53	-9.2	43.33	74	-30.67	Peak	V
2400	51.83	-9.39	42.44	74	-31.56	Peak	V
4804	52.55	-4.33	48.22	74	-25.78	Peak	V
7206	49.13	1.01	50.14	74	-23.86	Peak	V

Worse case mode:		GFSK(1Mbps)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4880	51.54	-4.11	47.43	74	-26.57	peak	H
7320	49.66	1.51	51.17	74	-22.83	peak	H
4880	53.74	-4.11	49.63	74	-24.37	peak	V
7320	49.10	1.51	50.61	74	-23.39	peak	V

Worse case mode:		GFSK(1Mbps)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
2483.5	55.41	-9.29	46.12	74	-27.88	Peak	H
4960	51.89	-4.04	47.85	74	-26.15	Peak	H
7440	50.26	1.57	51.83	74	-22.17	Peak	H
2483.5	56.91	-9.29	47.62	74	-26.38	Peak	V
4960	51.04	-4.04	47.00	74	-27.00	Peak	V
7440	50.35	1.57	51.92	74	-22.08	Peak	V

Worse case mode:		GFSK(2Mbps)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
2390	55.68	-9.2	46.48	74	-27.52	Peak	H
2400	57.20	-9.39	47.81	74	-26.19	Peak	H
4804	53.11	-4.33	48.78	74	-25.22	Peak	H
7206	49.70	1.01	50.71	74	-23.29	Peak	H
2390	54.75	-9.2	45.55	74	-28.45	Peak	V
2400	50.95	-9.39	41.56	74	-32.44	Peak	V
4804	52.66	-4.33	48.33	74	-25.67	Peak	V
7206	49.00	1.01	50.01	74	-23.99	Peak	V

Worse case mode:		GFSK(2Mbps)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4880	50.27	-4.11	46.16	74	-27.84	peak	H
7320	50.14	1.51	51.65	74	-22.35	peak	H
4880	51.68	-4.11	47.57	74	-26.43	peak	V
7320	49.93	1.51	51.44	74	-22.56	peak	V

Worse case mode:		GFSK(2Mbps)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
2483.5	54.24	-9.29	44.95	74	-29.05	Peak	H
4960	52.12	-4.04	48.08	74	-25.92	Peak	H
7440	50.12	1.57	51.69	74	-22.31	Peak	H
2483.5	55.31	-9.29	46.02	74	-27.98	Peak	V
4960	49.88	-4.04	45.84	74	-28.16	Peak	V
7440	48.53	1.57	50.10	74	-23.90	Peak	V

Remark:

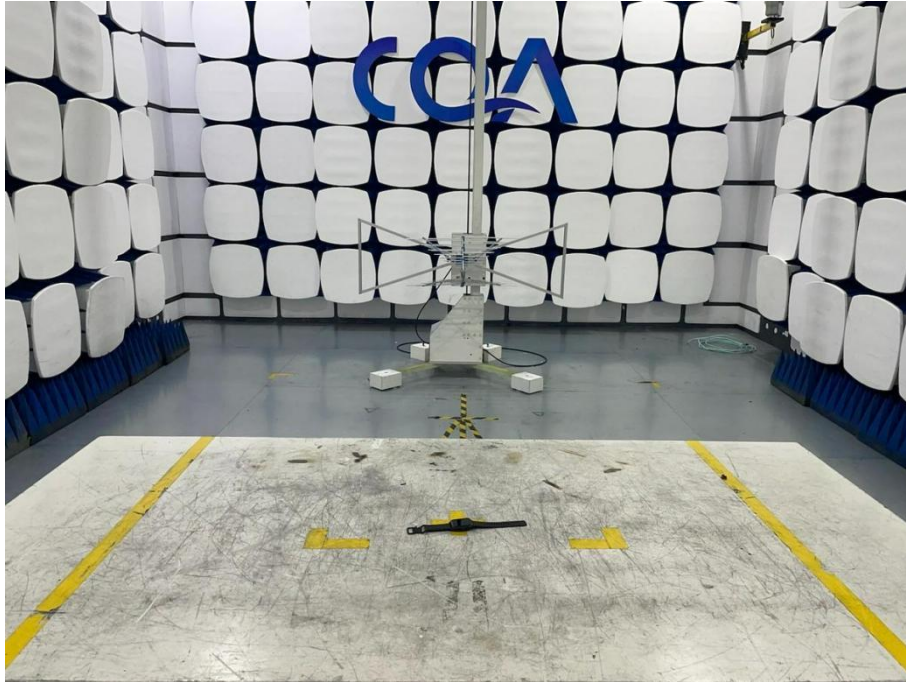
- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

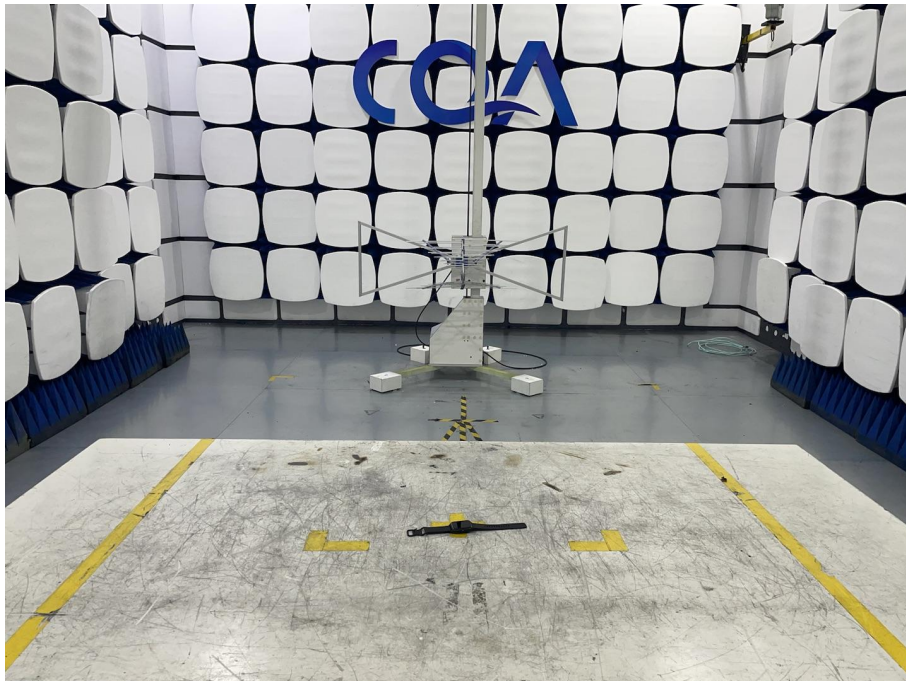
Scan from 9kHz to 25GHz, the disturbance above 10GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

8 Test Setup Photos

Emissions around the fundamental



Emissions in restricted frequency bands (below 1GHz)



Emissions in restricted frequency bands (above 1GHz)



9 Photographs of EUT

Refer to PHOTOGRAPHS OF EUT for CQASZ20221101948E-01.

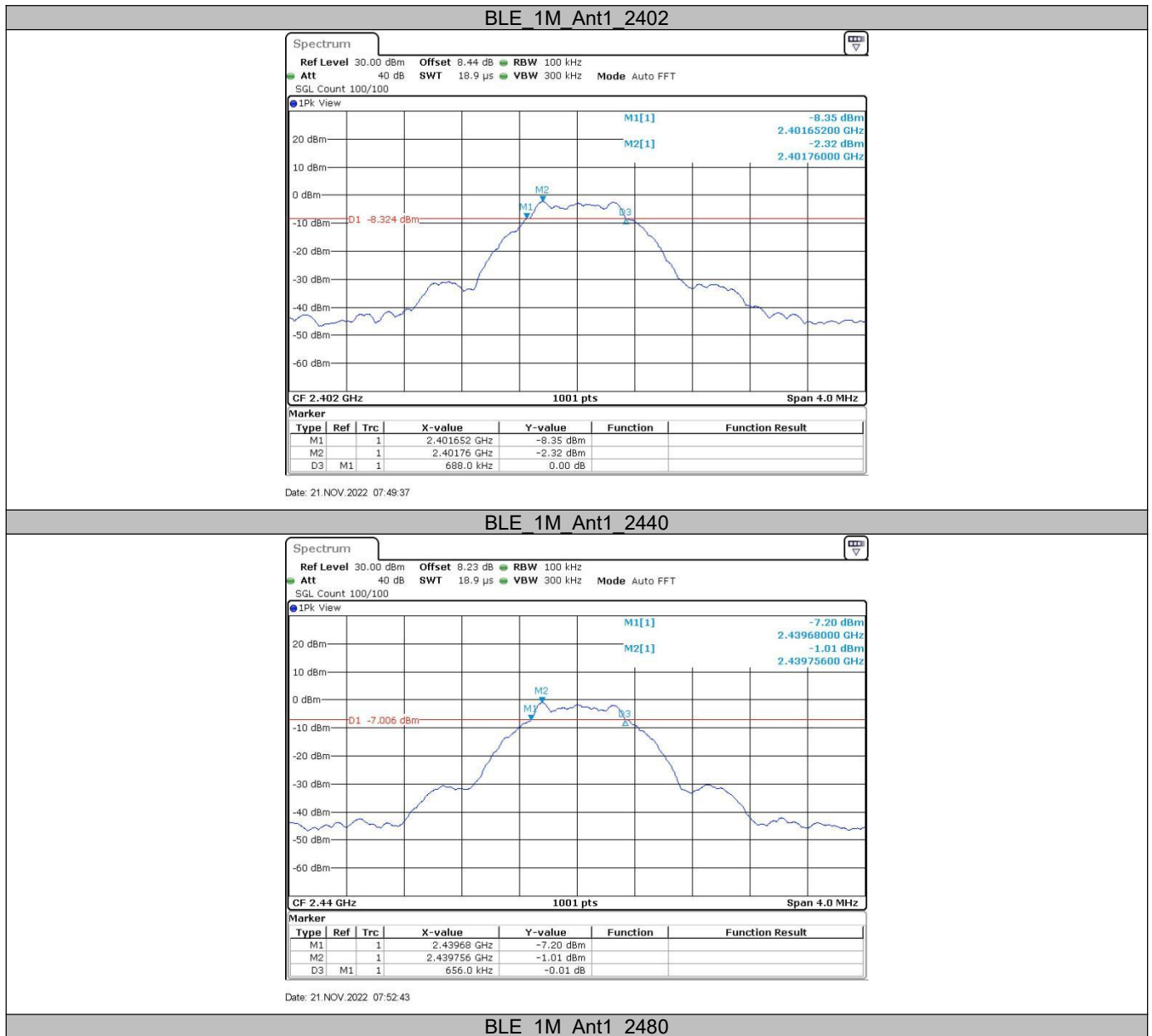
Appendix

9.1 Appendix A: DTS Bandwidth

9.1.1 Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.688	2401.652	2402.340	0.5	PASS
		2440	0.656	2439.680	2440.336	0.5	PASS
		2480	0.664	2479.680	2480.344	0.5	PASS
BLE_2M	Ant1	2402	1.120	2401.432	2402.552	0.5	PASS
		2440	1.136	2439.432	2440.568	0.5	PASS
		2480	1.136	2479.432	2480.568	0.5	PASS

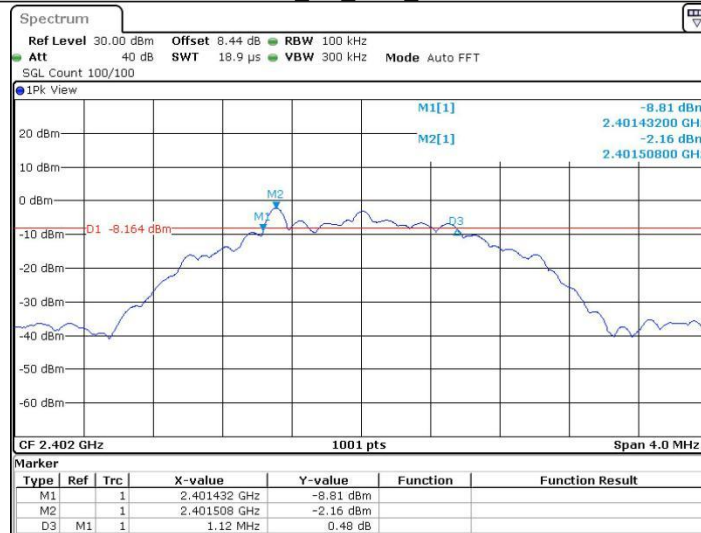
9.1.2 Test Graphs





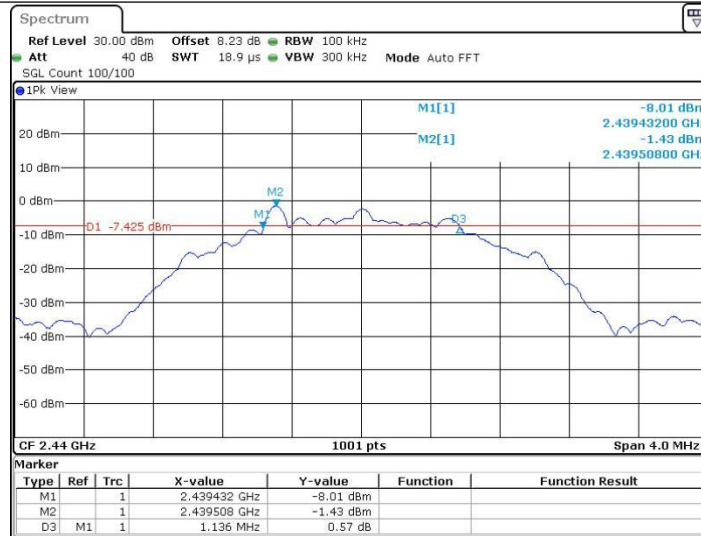
Date: 21.NOV.2022 07:54:26

BLE 2M Ant1 2402



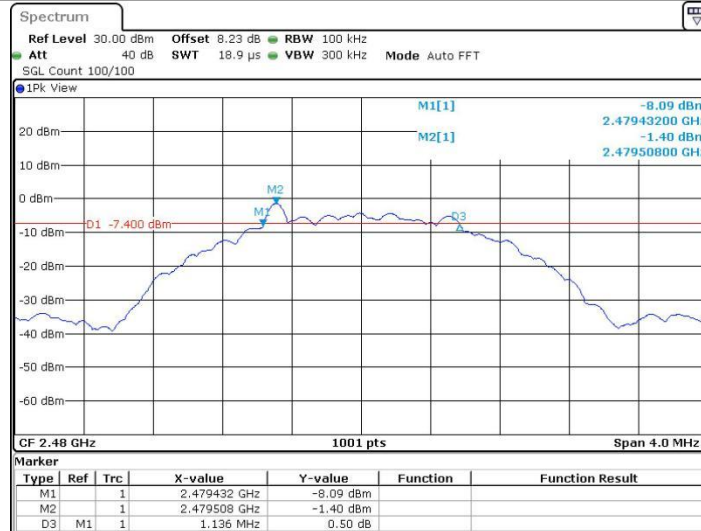
Date: 21.NOV.2022 07:57:15

BLE 2M Ant1 2440



Date: 21.NOV.2022 08:00:02

BLE 2M Ant1 2480



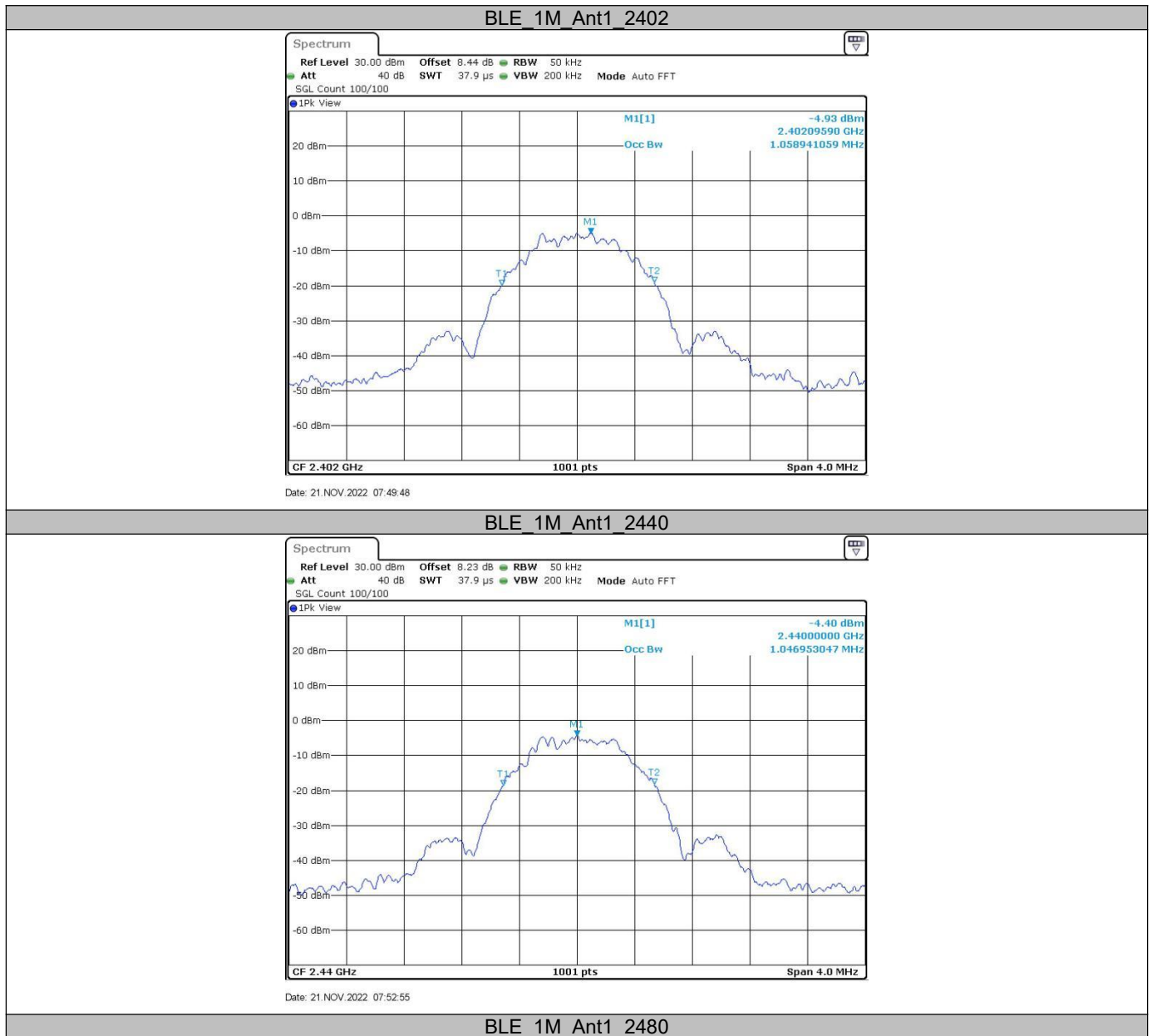
Date: 21.NOV.2022 08:02:13

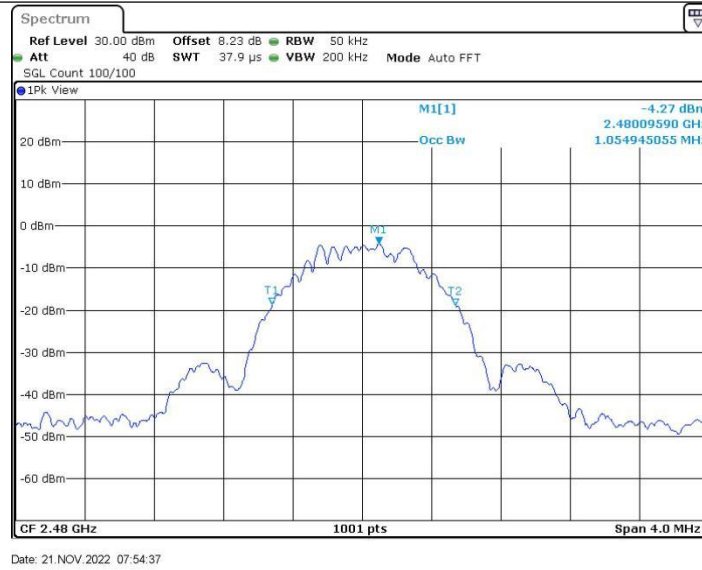
9.2 Appendix B: Occupied Channel Bandwidth

9.2.1 Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.059	2401.477	2402.535	---	PASS
		2440	1.047	2439.489	2440.535	---	PASS
		2480	1.055	2479.481	2480.535	---	PASS
BLE_2M	Ant1	2402	2.034	2401.001	2403.035	---	PASS
		2440	2.042	2438.997	2441.039	---	PASS
		2480	2.046	2478.993	2481.039	---	PASS

9.2.2 Test Graphs





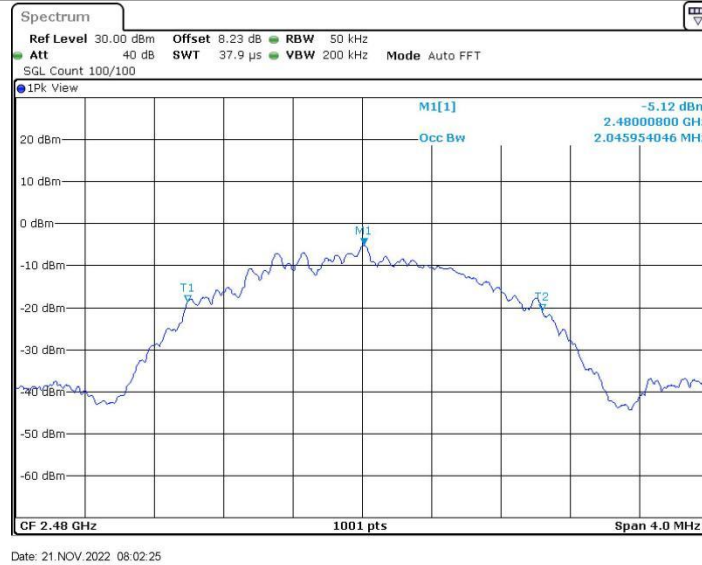
BLE 2M Ant1 2402



BLE 2M Ant1 2440



BLE 2M Ant1 2480

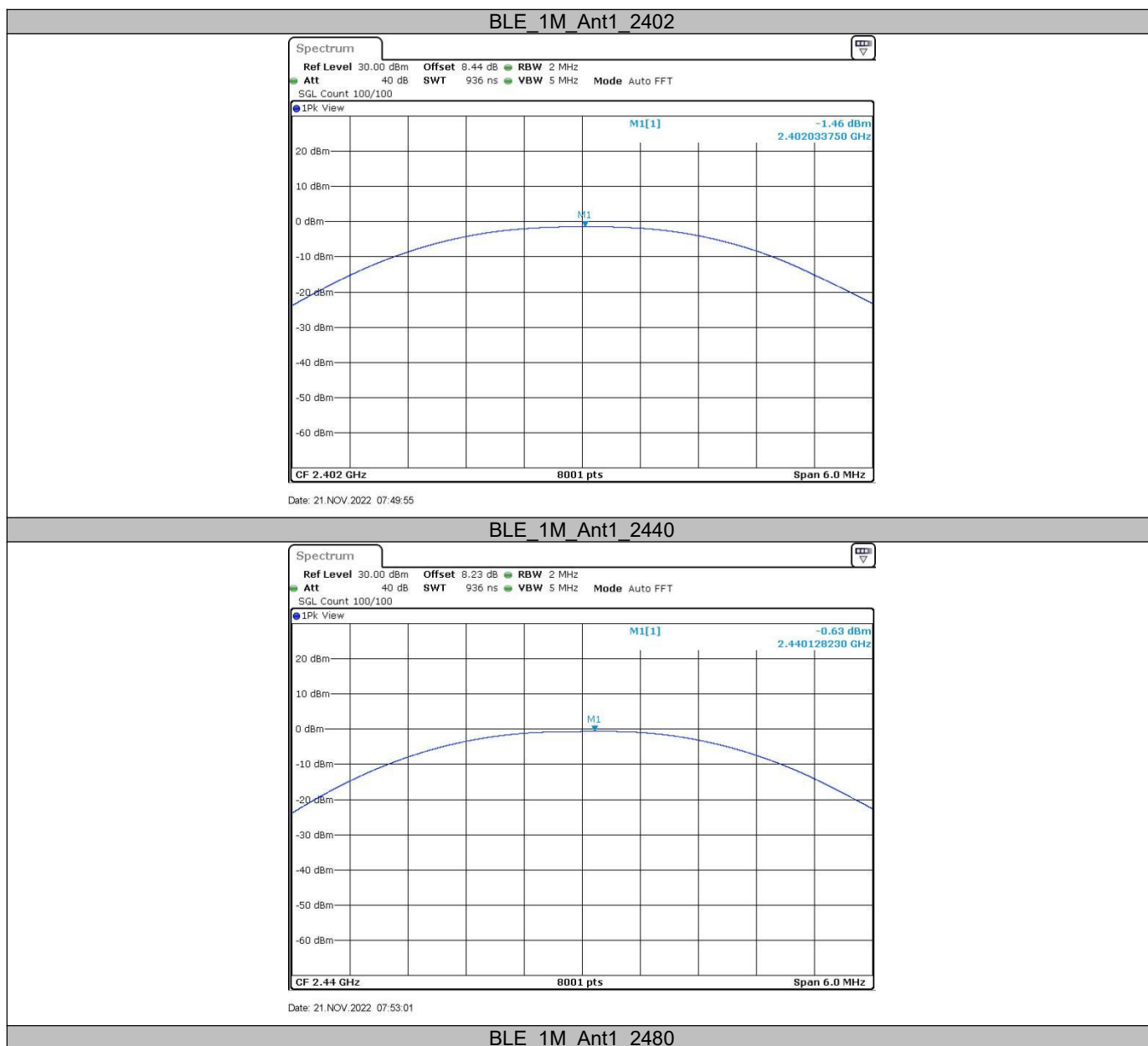


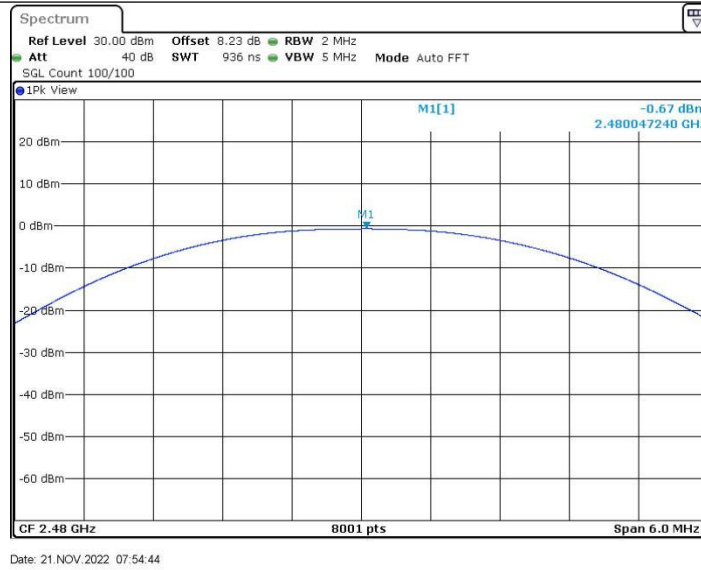
9.3 Appendix C: Maximum conducted output power

9.3.1 Test Result

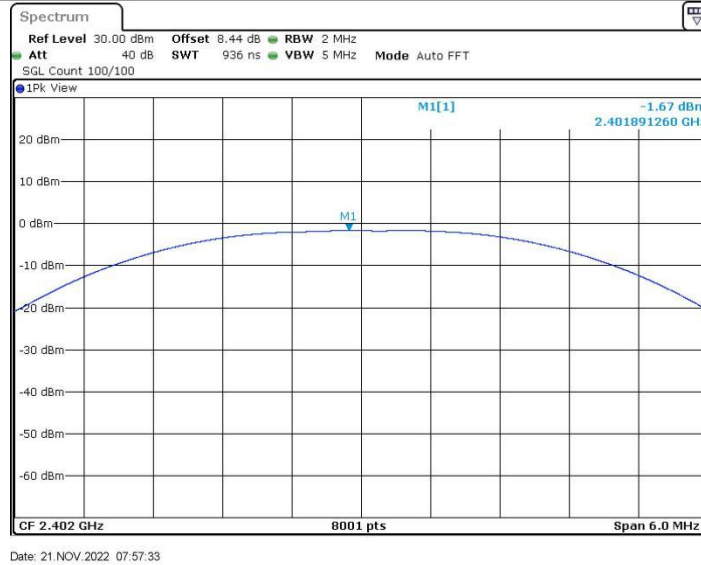
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-1.46	≤30	PASS
		2440	-0.63	≤30	PASS
		2480	-0.67	≤30	PASS
BLE_2M	Ant1	2402	-1.67	≤30	PASS
		2440	-0.9	≤30	PASS
		2480	-0.85	≤30	PASS

9.3.2 Test Graphs

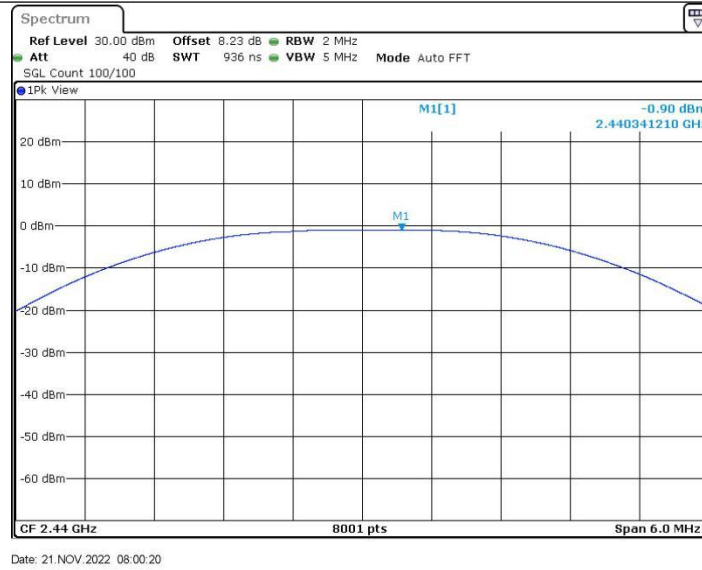




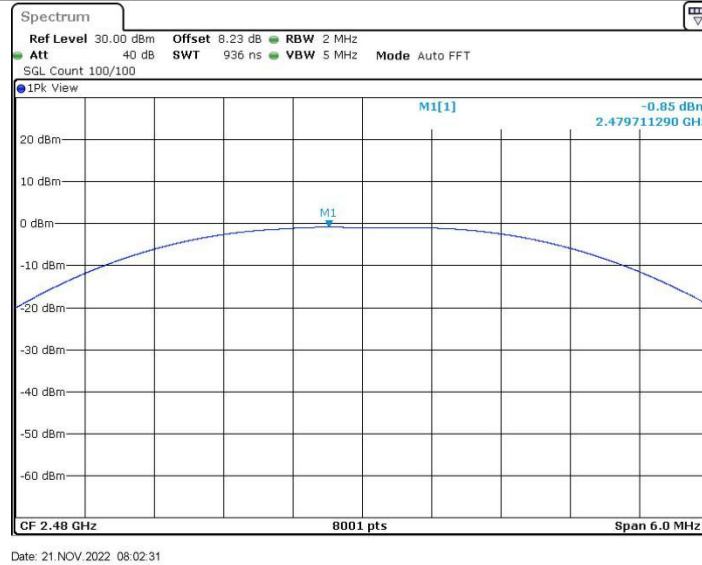
BLE 2M Ant1 2402



BLE 2M Ant1 2440



BLE 2M Ant1 2480



9.4 Appendix D: Maximum power spectral density

9.4.1 Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-17.48	≤8	PASS
		2440	-16.61	≤8	PASS
		2480	-16.68	≤8	PASS
BLE_2M	Ant1	2402	-20.94	≤8	PASS
		2440	-20.06	≤8	PASS
		2480	-20.14	≤8	PASS

9.4.2 Test Graphs

