Shenzhen Huaxia Testing Technology Co., Ltd.

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

Telephone: +86-755-26648640
Fax: +86-755-26648637
Website: www.cqa-cert.com

Report Template Version: V05
Report Template Revision Date: 2021-11-03

TEST REPORT

Report No.:	CQASZ20240601163E-01
Applicant:	Lexar Electronics (Shenzhen) Co., Ltd.
Address of Applicant:	Unit 01-04, L4, Tower 1, Qianhai Kerry Center, Qianhai Avenue, Nanshan Street, Qianhai Shenzhen-Hong Kong Cooperation Zone, Shenzhen, China
Equipment Under Test (EUT):	
Product:	Pexar Digital Picture Frame
Model No.:	PX-110, PX-101
Test Model No.:	PX-110
Brand Name:	N/A
FCC ID:	2BGZN-110
Standards:	47 CFR Part 15, Subpart C KDB558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10:2013
Date of Receipt:	2024-06-25
Date of Test:	2024-06-25 to 2024-07-10
Date of Issue:	2024-08-09
Test Result :	**PASS***

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

Tested By: lewis zhou

(Lewis Zhou)

Reviewed By: Timo Lei

(Timo Lei)

Approved By: Alex

(Alex Wang)

.

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
CQASZ20240601163E-01	Rev.01	Initial report	2024-08-09

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15.203	N/A	PASS
AC Power Line Conducted Emission	47 CFR Part 15.207	ANSI C63.10-2013	PASS
Conducted Peak & Average Output Power	47 CFR Part 15.247	ANSI C63.10-2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Power Spectral Density	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15.247	ANSI C63.10-2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Radiated Spurious Emissions	47 CFR Part 15.209	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15.205/15.209	ANSI C63.10-2013	PASS

Remark:

The tested sample(s) and the sample information are provided by the client.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

CH: In this whole report CH means channel.

Volt: In this whole report Volt means Voltage.

Temp: In this whole report Temp means Temperature.

Humid: In this whole report Humid means humidity.

Press: In this whole report Press means Pressure.

N/A: In this whole report not application

3 Contents

Page

1 VERSION 2
2 TEST SUMMARY 3
3 CONTENTS 4
4 GENERAL INFORMATION 5
4.1 CLIENT INFORMATION 5
4.2 GENERAL DESCRIPTION OF EUT 5
4.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD 6
4.4 TEST ENVIRONMENT AND MODE 8
4.5 DESCRIPTION OF SUPPORT UNITS 9
4.6 TEST LOCATION 9
4.7 TEST FACILITY 9
4.8 STATEMENT OF THE MEASUREMENT UNCERTAINTY 10
4.9 DEVIATION FROM STANDARDS 10
4.10 ABNORMALITIES FROM STANDARD CONDITIONS 10
4.11 OTHER INFORMATION REQUESTED BY THE CUSTOMER 10
4.12 EQUIPMENT LIST 11
5 TEST RESULTS AND MEASUREMENT DATA 12
5.1 ANTENNA REQUIREMENT 12
5.2 CONDUCTED EMISSIONS 13
5.3 CONDUCTED PEAK & AVERAGE OUTPUT POWER 23
Test Result 24
Note: 24
When Duty cycle >98%, D.C.F is not required. 24
Test Graphs 25
5.4 6DB OCCUPIED BANDWIDTH 30
Test Result 31
Test Graphs 32
5.5 POWER SPECTRAL DENSITY 37
Test Result 38
Test Graphs 39
5.6 BAND-EDGE FOR RF CONDUCTED EMISSIONS 44
Test Result 45
5.6.1 Test Graphs 46
5.7 RF CONDUCTED SPURIOUS EMISSIONS 50
Test Result 51
Test Graphs 53
5.8 RADIATED SPURIOUS EMISSIONS 68
5.8.1 Radiated emission below 1GHz 71
5.8.2 Transmitter emission above 1GHz 79
5.9 RESTRICTED BANDS AROUND FUNDAMENTAL FREQUENCY 87
6 PHOTOGRAPHS - EUT TEST SETUP 93
7 PHOTOGRAPHS - EUT CONSTRUCTIONAL DETAILS 94

4 General Information

4.1 Client Information

Applicant:	Lexar Electronics (Shenzhen) Co., Ltd.
Address of Applicant:	Unit 01-04, L4, Tower 1, Qianhai Kerry Center, Qianhai Avenue, Nanshan Street, Qianhai Shenzhen-Hong Kong Cooperation Zone, Shenzhen, China
Manufacturer:	Lexar Electronics (Shenzhen) Co., Ltd.
Address of Manufacturer:	Unit 01-04, L4, Tower 1, Qianhai Kerry Center, Qianhai Avenue, Nanshan Street, Qianhai Shenzhen-Hong Kong Cooperation Zone, Shenzhen, China
Factory:	Lexar Electronics (Shenzhen) Co., Ltd.
Address of Factory:	Unit 01-04, L4, Tower 1, Qianhai Kerry Center, Qianhai Avenue, Nanshan Street, Qianhai Shenzhen-Hong Kong Cooperation Zone, Shenzhen, China

4.2 General Description of EUT

Product Name:	Pexar Digital Picture Frame
Model No.:	PX-110, PX-101
Test Model No.:	PX-110
Trade Mark:	N/A
Software Version:	Android 11
Hardware Version:	DPF1106MK-MT8167N-PCDDR4-MB-VER1.1
Power Supply:	Power supply DC 12V form adapter
	1#adapter: Model:TEKA-TB120100XX Input:100-240V~50/60Hz 0.35A MAX Output:12V 1A 12W
	2#adapter: Model:TEKA-TB120100US Input:100-240V~50/60Hz 0.35A MAX Output:12V 1A
	3#adapter: Model:RD1201000-225MG Input:100-240V~50/60Hz 0.6A MAX Output:12V 1A
	4#adapter: Model:TEKA-TC120100XX Input:100-240V~50/60Hz 0.5A MAX Output:12V 1A 12W
EUT Supports Radios application:	2.4GHz: Wi-Fi: 802.11b/g/n(HT20): 2412MHz~2462MHz; 802.11n(HT40): 2422MHz~2452MHz
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report. ☒ Simultaneous TX is not supported.

4.3 Product Specification subjective to this standard

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK, BPSK)
Transfer Rate:	IEEE for 802.11b: 1Mbps/2Mbps/5.5Mbps/11Mbps IEEE for 802.11g : 6Mbps/9Mbps/12Mbps/18Mbps/24Mbps/36Mbps/48Mbps/54Mbps IEEE for 802.11n(HT20) : 6.5Mbps/13Mbps/19.5Mbps/26Mbps/39Mbps/52Mbps/58.5Mbps/65Mbps IEEE for 802.11n(HT40) : 13.5Mbps/27Mbps/40.5Mbps/54Mbps/81Mbps/108Mbps/121.5Mbps/135Mbps
Product Type:	☒ Mobile ☐ Portable
Test Software of EUT:	Android
Antenna Type:	FPC antenna
Antenna Gain:	2.33dBi

Operation Frequency each of channel(802.11b/g/n HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Operation Frequency each of channel(802.11n HT40)					
Channel	Frequency	Channel	Frequency	Channel	Frequency
3	2422MHz	6	2437MHz	9	2452MHz
4	2427MHz	7	2442MHz		
5	2432MHz	8	2447MHz		

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

For 802.11b/g/n (HT20):

Channel	Frequency
The Lowest channel	2412MHz
The Middle channel	2437MHz
The Highest channel	2462MHz

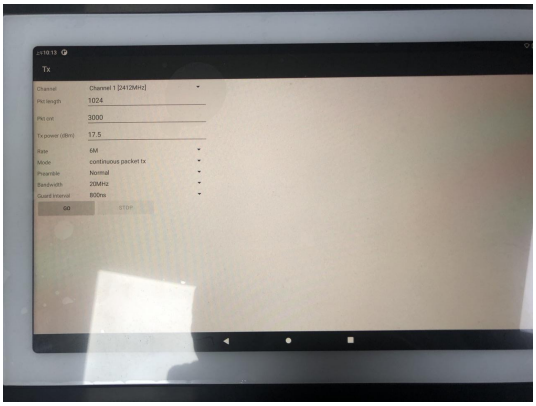
For 802.11n (HT40):

Channel	Frequency
The Lowest channel	2422MHz
The Middle channel	2437MHz
The Highest channel	2452MHz

Note:
Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.4 Test Environment and Mode

Operating Environment:	
Radiated Emissions:	
Temperature:	25.3 °C
Humidity:	55 % RH
Atmospheric Pressure:	1009 mbar
Conducted Emissions:	
Temperature:	25.6 °C
Humidity:	60 % RH
Atmospheric Pressure:	1009 mbar
Radio conducted item test (RF Conducted test room):	
Temperature:	25.5 °C
Humidity:	52 % RH
Atmospheric Pressure:	1009 mbar
Test mode:	
Transmitting mode:	EUT is set in RF test mode in all supported modulation types, bandwidth and data rate, etc.
Run Software:	



4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
/	/	/	/	/

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

4.6 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

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

4.7 Test Facility

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

- **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

4.8 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty	Notes
1	Radiated Emission (Below 1GHz)	5.12dB	(1)
2	Radiated Emission (Above 1GHz)	4.60dB	(1)
3	Conducted Disturbance (0.15~30MHz)	3.34dB	(1)
4	Radio Frequency	3×10^{-8}	(1)
5	Duty cycle	0.6 %.	(1)
6	Occupied Bandwidth	1.1%	(1)
7	RF conducted power	0.86dB	(1)
8	RF power density	0.74	(1)
9	Conducted Spurious emissions	0.86dB	(1)
10	Temperature test	0.8℃	(1)
11	Humidity test	2.0%	(1)
12	Supply voltages	0.5 %.	(1)
13	Frequency Error	5.5 Hz	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.9 Deviation from Standards

None.

4.10 Abnormalities from Standard Conditions

None.

4.11 Other Information Requested by the Customer

None.

4.12 Equipment List

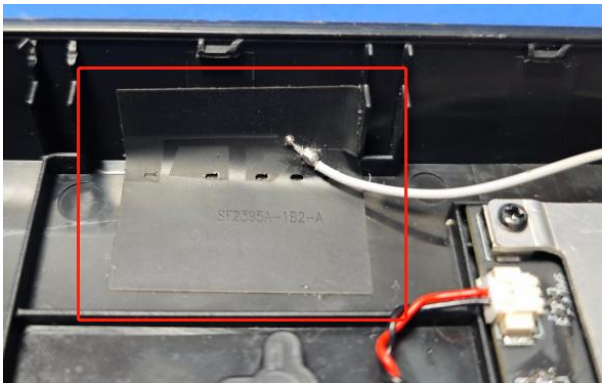
Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2023/09/08	2024/09/07
Spectrum analyzer	R&S	FSU26	CQA-038	2023/09/08	2024/09/07
Spectrum analyzer	R&S	FSU40	CQA-075	2023/09/08	2024/09/07
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2023/09/08	2024/09/07
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2023/09/08	2024/09/07
Preamplifier	EMCI	EMC184055SE	CQA-089	2023/09/08	2024/09/07
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2021/09/16	2024/09/15
Bilog Antenna	R&S	HL562	CQA-011	2021/09/16	2024/09/15
Horn Antenna	R&S	HF906	CQA-012	2021/09/16	2024/09/15
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2021/09/16	2024/09/15
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2023/09/08	2024/09/07
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2023/09/08	2024/09/07
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2023/09/08	2024/09/07
Antenna Connector	CQA	RFC-01	CQA-080	2023/09/08	2024/09/07
Power Sensor	KEYSIGHT	U2021XA	CQA-30	2023/09/08	2024/09/07
N1918A Power Analysis Manager Power Panel	Agilent	N1918A	CQA-074	2023/09/08	2024/09/07
Power meter	R&S	NRVD	CQA-029	2023/09/08	2024/09/07
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2023/09/08	2024/09/07
EMI Test Receiver	R&S	ESR7	CQA-005	2023/09/08	2024/09/07
LISN	R&S	ENV216	CQA-003	2023/09/08	2024/09/07
Coaxial cable	CQA	N/A	CQA-C009	2023/09/08	2024/09/07
DC power	KEYSIGHT	E3631A	CQA-028	2023/09/08	2024/09/07

Test software:

	Manufacturer	Software brand
Radiated Emissions test software	Tonscend	JS1120-3
Conducted Emissions test software	Audix	e3
RF Conducted test software	Audix	e3

5 Test results and Measurement Data

5.1 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 connection/connection type between the antenna to the EUT's antenna port is: unique coupling. This is either permanently attachment or a unique coupling that satisfies the requirement.	

5.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207
Test Method:	ANSI C63.10: 2013
Test Frequency Range:	150kHz to 30MHz
Limit:	

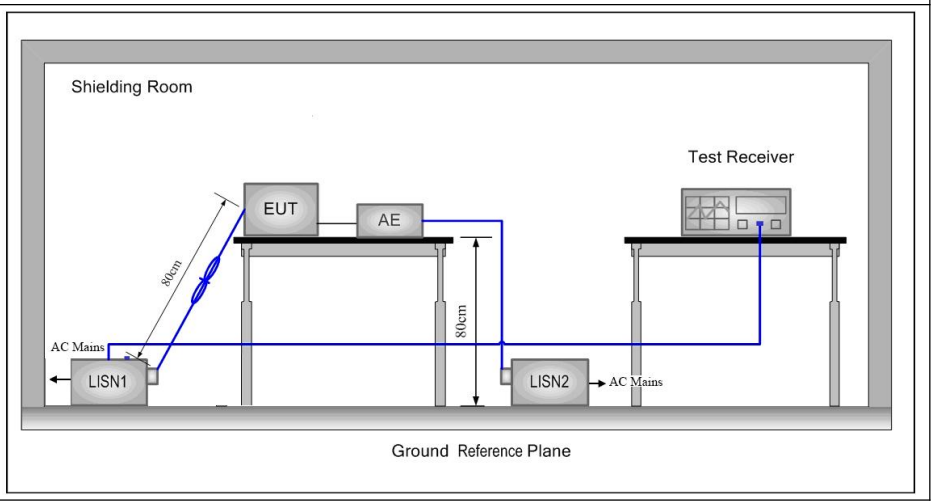
Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

Test Procedure:

1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.

Test Setup:

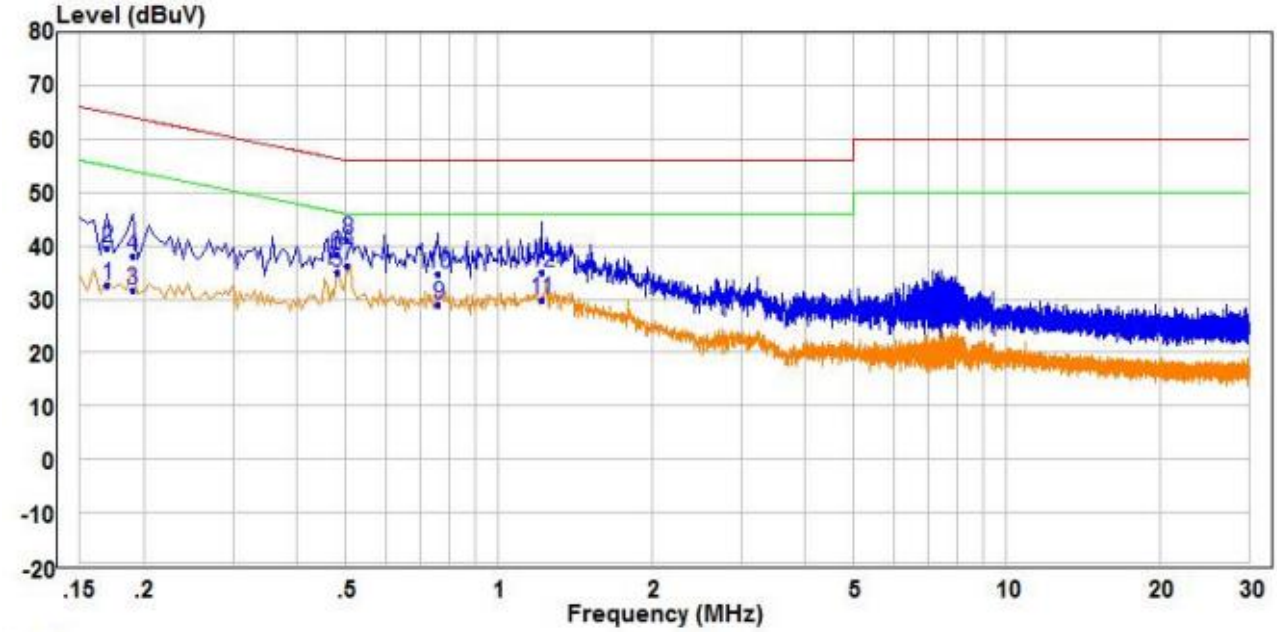


Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate of 802.11b at middle channel is the worst case. Only the worst case is recorded in the report.
Test Voltage:	AC120V/60Hz
Test Results:	Pass

Measurement Data

1#

Live Line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.170	23.17	9.49	32.66	54.96	-22.30	Average	Line
2		0.170	29.99	9.49	39.48	64.96	-25.48	QP	Line
3		0.190	22.30	9.49	31.79	54.04	-22.25	Average	Line
4		0.190	28.47	9.49	37.96	64.04	-26.08	QP	Line
5		0.480	25.40	9.52	34.92	46.34	-11.42	Average	Line
6		0.480	28.79	9.52	38.31	56.34	-18.03	QP	Line
7	PP	0.505	26.82	9.53	36.35	46.00	-9.65	Average	Line
8	QP	0.505	31.57	9.53	41.10	56.00	-14.90	QP	Line
9		0.760	19.14	9.80	28.94	46.00	-17.06	Average	Line
10		0.760	24.83	9.80	34.63	56.00	-21.37	QP	Line
11		1.215	20.33	9.53	29.86	46.00	-16.14	Average	Line
12		1.215	25.56	9.53	35.09	56.00	-20.91	QP	Line

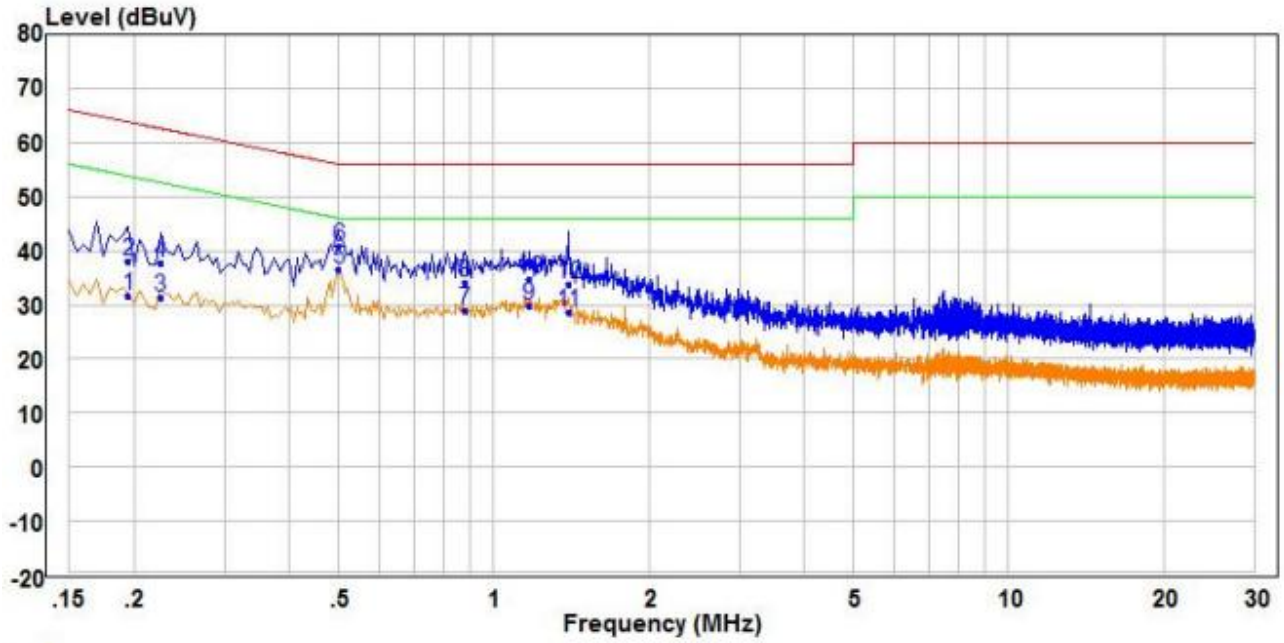
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral Line:



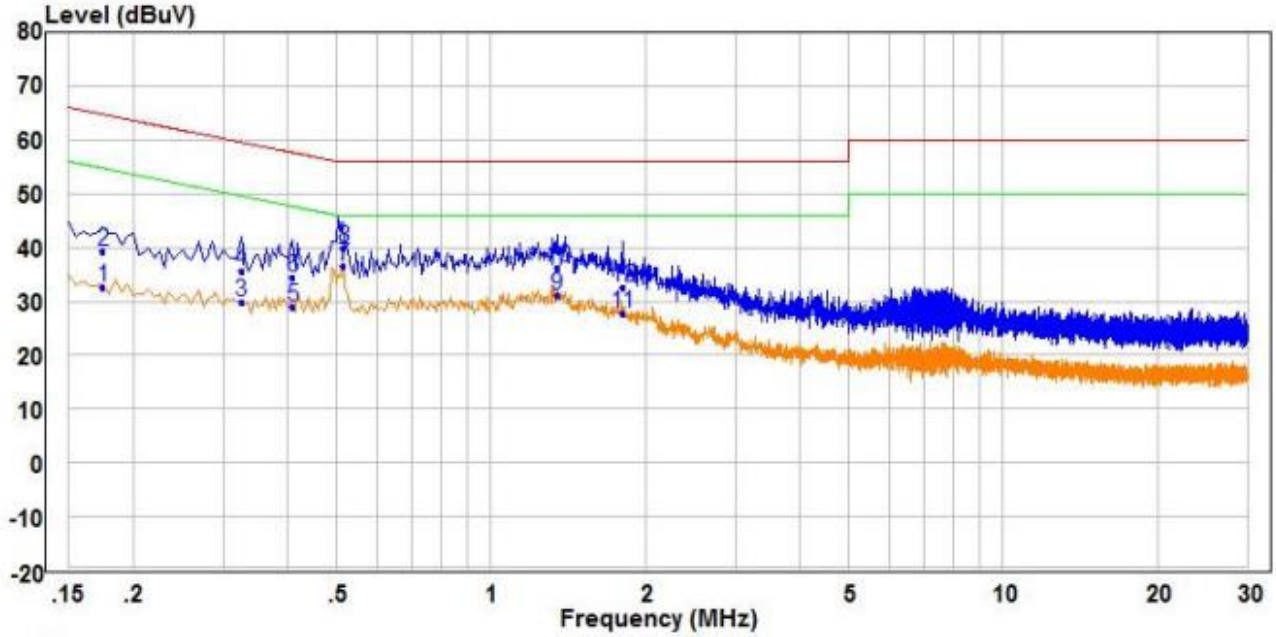
		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.195	22.03	9.62	31.65	53.82	-22.17	Average	Neutral
2		0.195	28.49	9.62	38.11	63.82	-25.71	QP	Neutral
3		0.225	21.75	9.57	31.32	52.63	-21.31	Average	Neutral
4		0.225	28.08	9.57	37.65	62.63	-24.98	QP	Neutral
5	PP	0.500	26.70	9.70	36.40	46.00	-9.60	Average	Neutral
6	QP	0.500	31.23	9.70	40.93	56.00	-15.07	QP	Neutral
7		0.880	19.05	9.78	28.83	46.00	-17.17	Average	Neutral
8		0.880	24.48	9.78	34.26	56.00	-21.74	QP	Neutral
9		1.170	20.23	9.71	29.94	46.00	-16.06	Average	Neutral
10		1.170	25.16	9.71	34.87	56.00	-21.13	QP	Neutral
11		1.395	18.96	9.72	28.68	46.00	-17.32	Average	Neutral
12		1.395	24.18	9.72	33.90	56.00	-22.10	QP	Neutral

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

2#

Live Line:

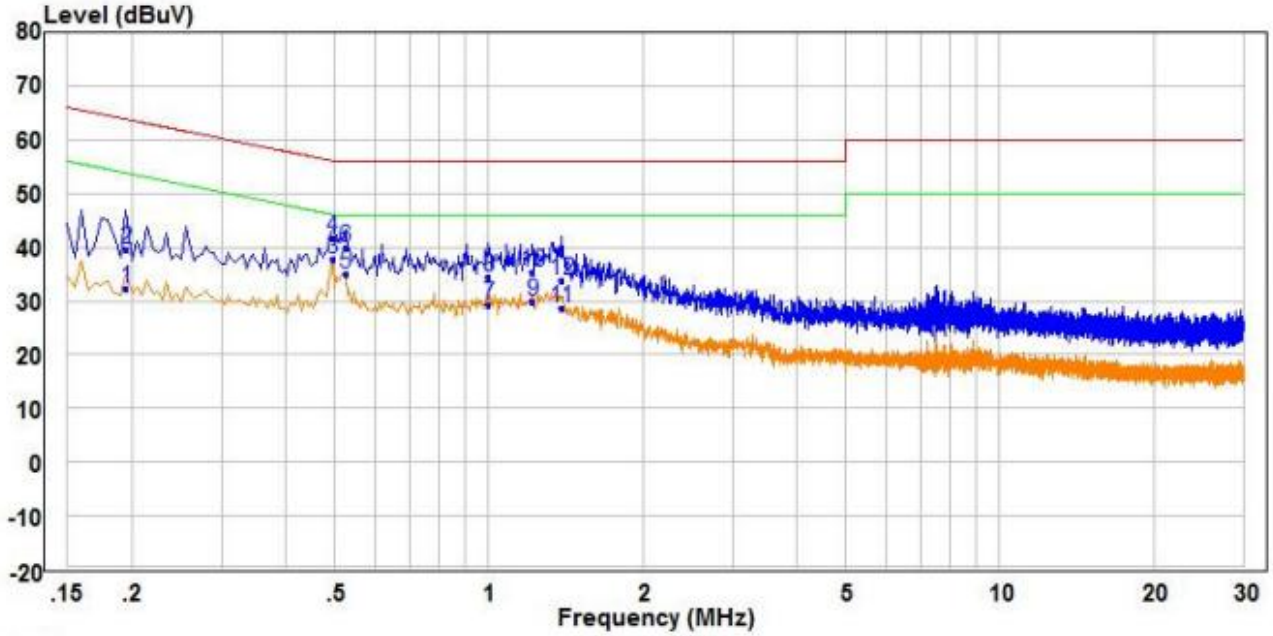


		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.175	23.01	9.65	32.66	54.72	-22.06	Average	Line
2		0.175	29.58	9.65	39.23	64.72	-25.49	QP	Line
3		0.325	20.19	9.52	29.71	49.58	-19.87	Average	Line
4		0.325	26.16	9.52	35.68	59.58	-23.90	QP	Line
5		0.410	19.38	9.62	29.00	47.65	-18.65	Average	Line
6		0.410	24.79	9.62	34.41	57.65	-23.24	QP	Line
7	PP	0.515	26.84	9.72	36.56	46.00	-9.44	Average	Line
8	QP	0.515	30.32	9.72	40.04	56.00	-15.96	QP	Line
9		1.345	20.62	10.53	31.15	46.00	-14.85	Average	Line
10		1.345	25.84	10.53	36.37	56.00	-19.63	QP	Line
11		1.805	16.34	11.36	27.70	46.00	-18.30	Average	Line
12		1.805	21.26	11.36	32.62	56.00	-23.38	QP	Line

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral Line:



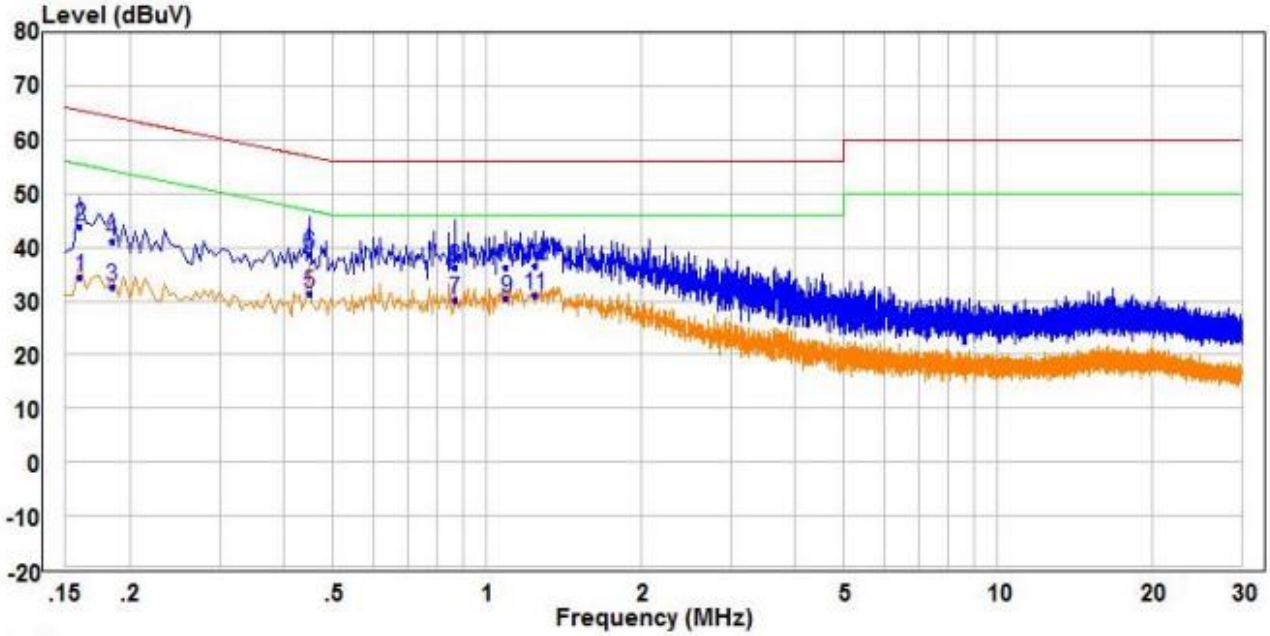
		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.195	22.72	9.62	32.34	53.82	-21.48	Average	Neutral
2		0.195	30.02	9.62	39.64	63.82	-24.18	QP	Neutral
3	PP	0.495	27.97	9.70	37.67	46.08	-8.41	Average	Neutral
4	QP	0.495	32.16	9.70	41.86	56.08	-14.22	QP	Neutral
5		0.525	25.25	9.72	34.97	46.00	-11.03	Average	Neutral
6		0.525	30.29	9.72	40.01	56.00	-15.99	QP	Neutral
7		1.000	19.62	9.70	29.32	46.00	-16.68	Average	Neutral
8		1.000	24.86	9.70	34.56	56.00	-21.44	QP	Neutral
9		1.220	20.28	9.71	29.99	46.00	-16.01	Average	Neutral
10		1.220	25.48	9.71	35.19	56.00	-20.81	QP	Neutral
11		1.385	18.86	9.72	28.58	46.00	-17.42	Average	Neutral
12		1.385	23.95	9.72	33.67	56.00	-22.33	QP	Neutral

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

3#

Live Line:

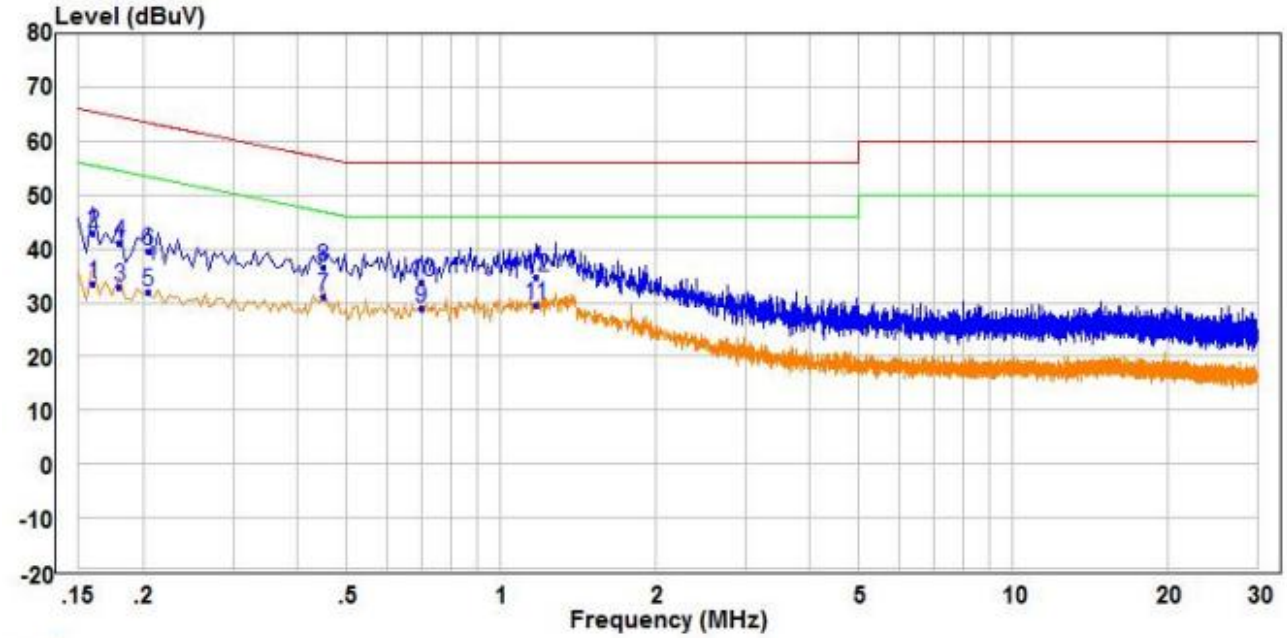


		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.160	24.87	9.68	34.55	55.46	-20.91	Average	Line
2		0.160	34.13	9.68	43.81	65.46	-21.65	QP	Line
3		0.185	23.06	9.64	32.70	54.26	-21.56	Average	Line
4		0.185	31.39	9.64	41.03	64.26	-23.23	QP	Line
5		0.450	21.74	9.66	31.40	46.88	-15.48	Average	Line
6	QP	0.450	29.16	9.66	38.82	56.88	-18.06	QP	Line
7		0.865	20.30	9.79	30.09	46.00	-15.91	Average	Line
8		0.865	26.35	9.79	36.14	56.00	-19.86	QP	Line
9		1.090	20.47	9.94	30.41	46.00	-15.59	Average	Line
10		1.090	26.27	9.94	36.21	56.00	-19.79	QP	Line
11	PP	1.240	20.66	10.30	30.96	46.00	-15.04	Average	Line
12		1.240	26.34	10.30	36.64	56.00	-19.36	QP	Line

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral Line:



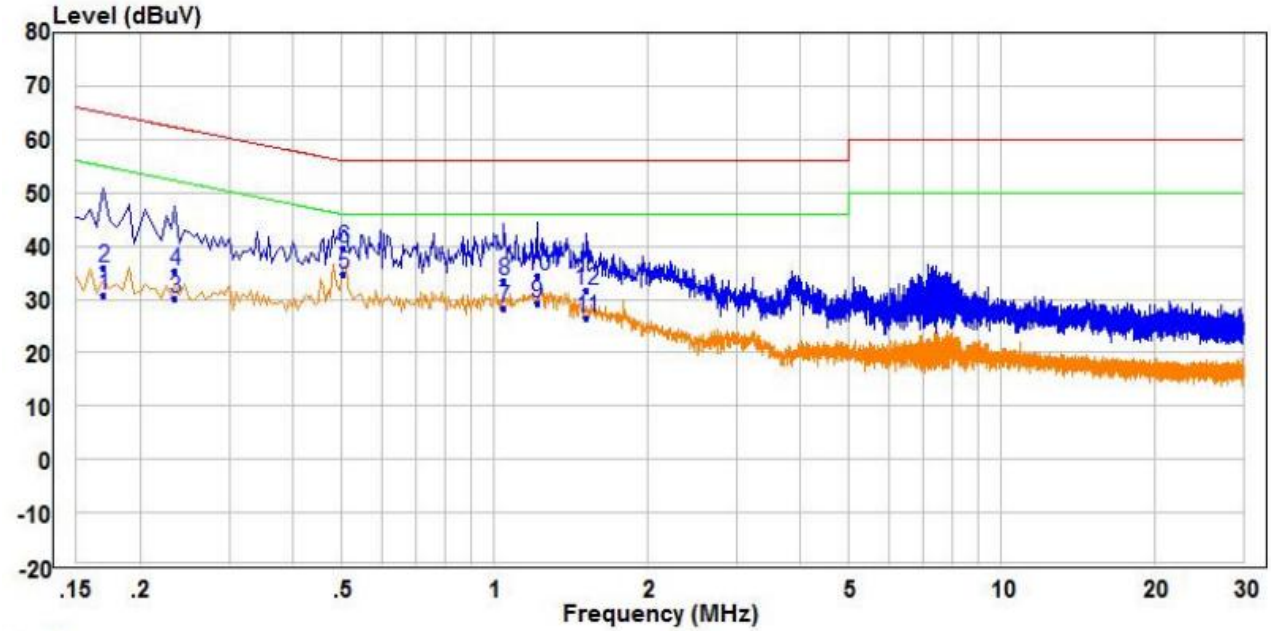
		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.160	23.94	9.68	33.62	55.46	-21.84	Average	Neutral
2		0.160	33.31	9.68	42.99	65.46	-22.47	QP	Neutral
3		0.180	23.16	9.64	32.80	54.49	-21.69	Average	Neutral
4		0.180	31.38	9.64	41.02	64.49	-23.47	QP	Neutral
5		0.205	22.40	9.60	32.00	53.41	-21.41	Average	Neutral
6		0.205	30.09	9.60	39.69	63.41	-23.72	QP	Neutral
7	PP	0.450	21.57	9.65	31.22	46.88	-15.66	Average	Neutral
8	QP	0.450	26.79	9.65	36.44	56.88	-20.44	QP	Neutral
9		0.700	19.17	9.90	29.07	46.00	-16.93	Average	Neutral
10		0.700	23.93	9.90	33.83	56.00	-22.17	QP	Neutral
11		1.170	19.94	9.71	29.65	46.00	-16.35	Average	Neutral
12		1.170	25.07	9.71	34.78	56.00	-21.22	QP	Neutral

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

4#

Live Line:

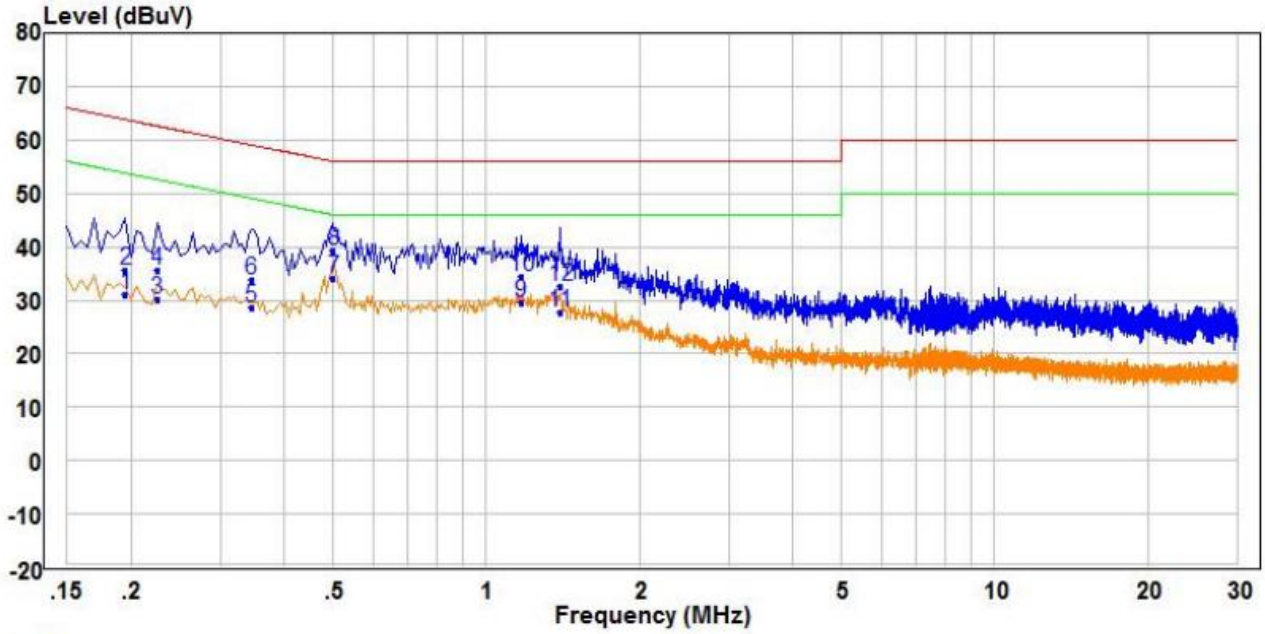


		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.170	21.32	9.49	30.81	54.96	-24.15	Average	Line
2		0.170	26.42	9.49	35.91	64.96	-29.05	QP	Line
3		0.235	20.79	9.49	30.28	52.27	-21.99	Average	Line
4		0.235	25.87	9.49	35.36	62.27	-26.91	QP	Line
5	PP	0.505	25.16	9.53	34.69	46.00	-11.31	Average	Line
6	QP	0.505	30.14	9.53	39.67	56.00	-16.33	QP	Line
7		1.045	18.81	9.53	28.34	46.00	-17.66	Average	Line
8		1.045	24.06	9.53	33.59	56.00	-22.41	QP	Line
9		1.215	19.66	9.53	29.19	46.00	-16.81	Average	Line
10		1.215	24.90	9.53	34.43	56.00	-21.57	QP	Line
11		1.520	17.02	9.53	26.55	46.00	-19.45	Average	Line
12		1.520	22.06	9.53	31.59	56.00	-24.41	QP	Line

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral Line:

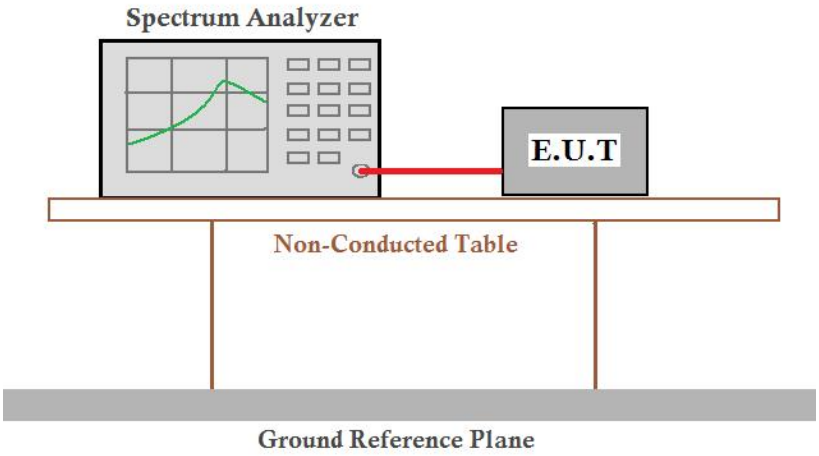


		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.195	21.38	9.62	31.00	53.82	-22.82	Average	Neutral
2		0.195	26.17	9.62	35.79	63.82	-28.03	QP	Neutral
3		0.225	20.71	9.57	30.28	52.63	-22.35	Average	Neutral
4		0.225	25.95	9.57	35.52	62.63	-27.11	QP	Neutral
5		0.345	19.25	9.54	28.79	49.08	-20.29	Average	Neutral
6		0.345	24.27	9.54	33.81	59.08	-25.27	QP	Neutral
7	PP	0.500	24.48	9.70	34.18	46.00	-11.82	Average	Neutral
8	QP	0.500	29.46	9.70	39.16	56.00	-16.84	QP	Neutral
9		1.170	19.73	9.71	29.44	46.00	-16.56	Average	Neutral
10		1.170	24.66	9.71	34.37	56.00	-21.63	QP	Neutral
11		1.395	17.94	9.72	27.66	46.00	-18.34	Average	Neutral
12		1.395	22.79	9.72	32.51	56.00	-23.49	QP	Neutral

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

5.3 Conducted Peak & Average Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10: 2013
Test Setup:	*Setup for Power meter measurement method* *Setup for Spectrum analyser measurement method* 
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Only the worst case is recorded in the report.
Limit:	30dBm
Test Results:	Pass

Test Result

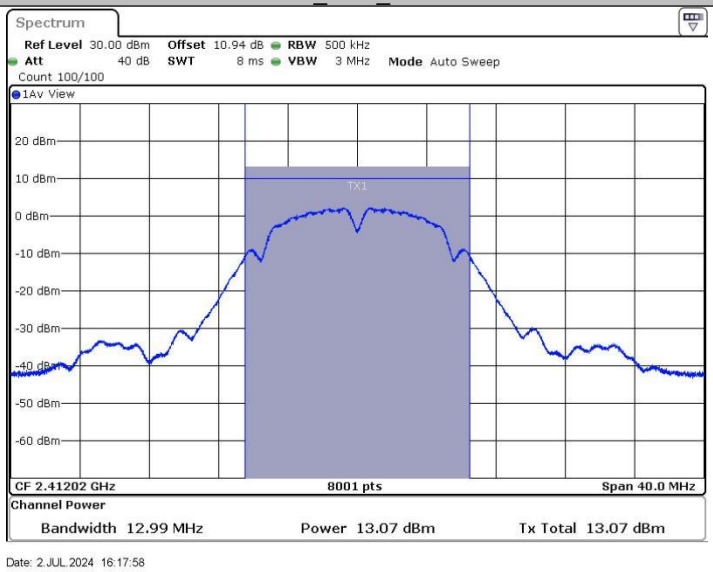
Test Mode	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11B	2412	13.07	≤30.00	PASS
	2437	12.81	≤30.00	PASS
	2462	14.03	≤30.00	PASS
11G	2412	11.72	≤30.00	PASS
	2437	11.13	≤30.00	PASS
	2462	12.20	≤30.00	PASS
11N20SISO	2412	11.22	≤30.00	PASS
	2437	11.06	≤30.00	PASS
	2462	12.22	≤30.00	PASS
11N40SISO	2422	9.36	≤30.00	PASS
	2437	9.40	≤30.00	PASS
	2452	10.35	≤30.00	PASS

Note:

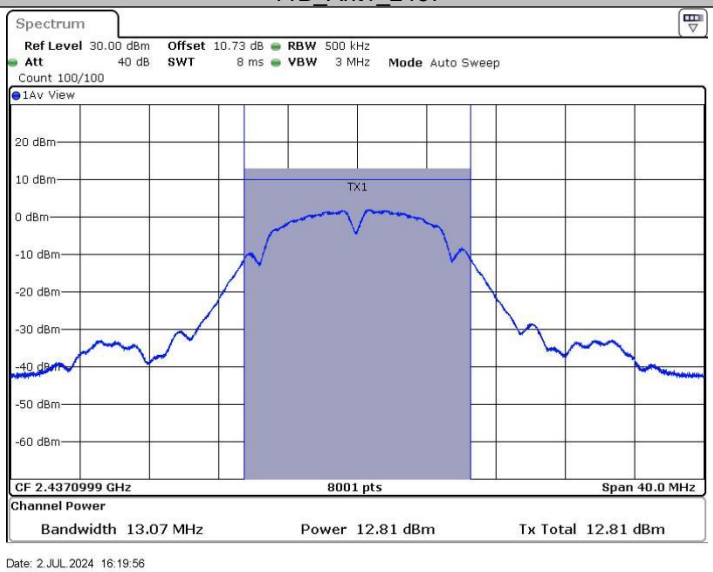
When Duty cycle >98%, D.C.F is not required.

Test Graphs

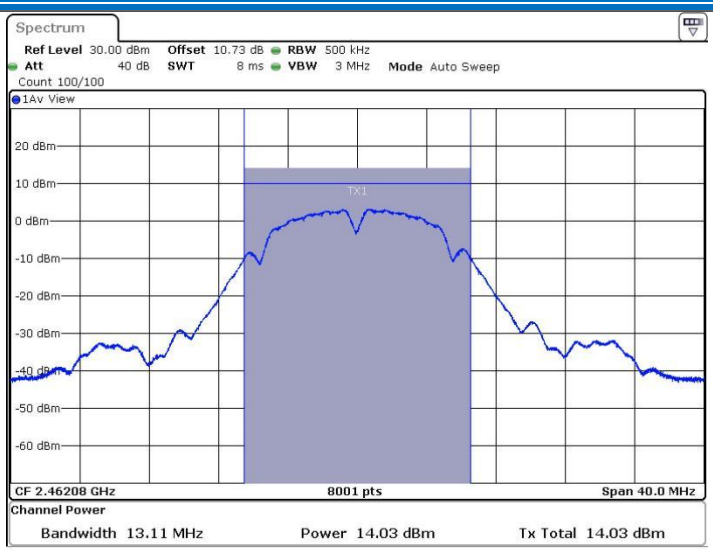
11B_Ant1_2412



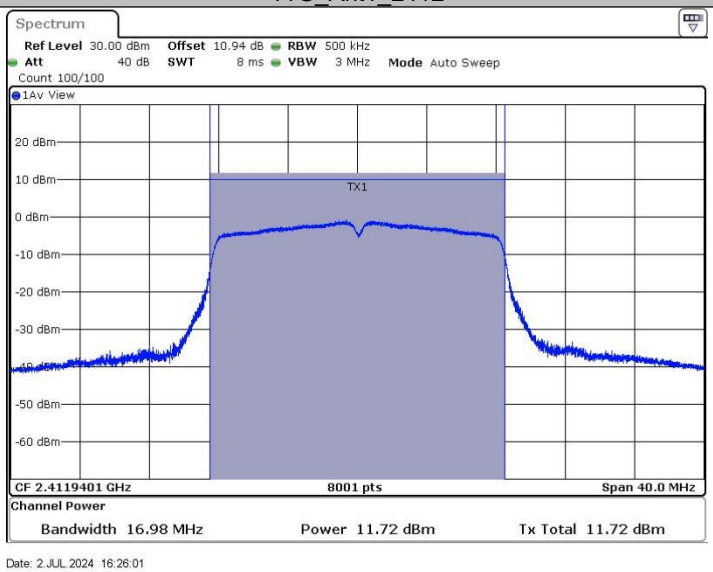
11B_Ant1_2437



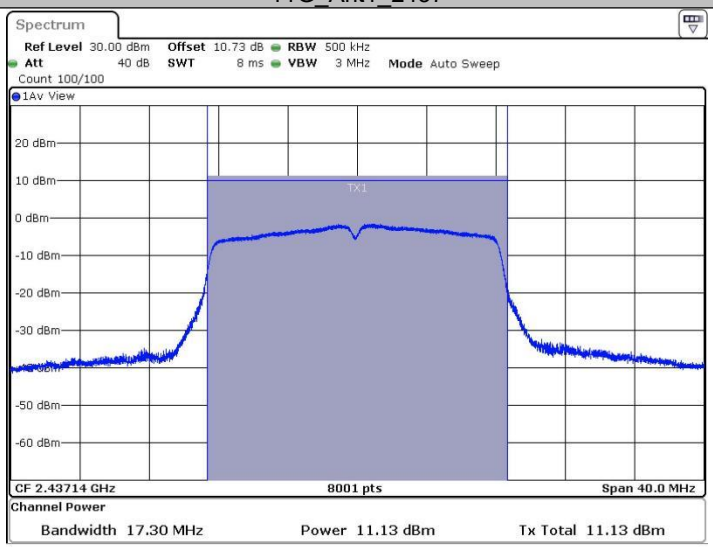
11B_Ant1_2462



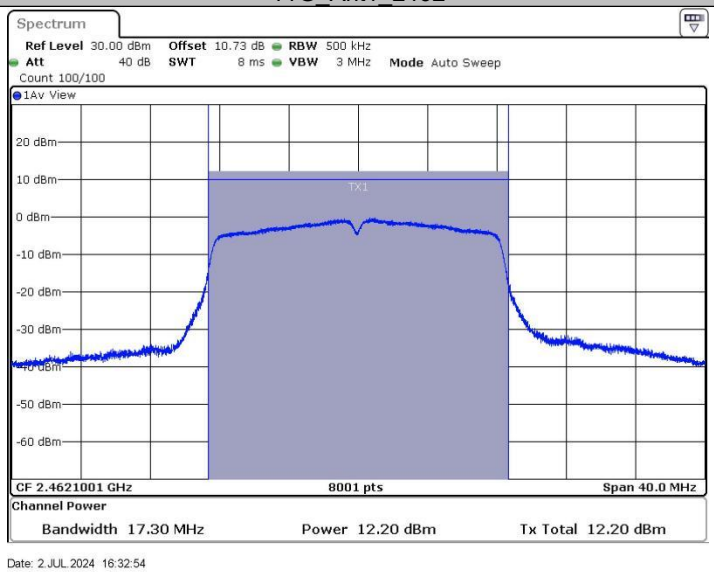
11G_Ant1_2412



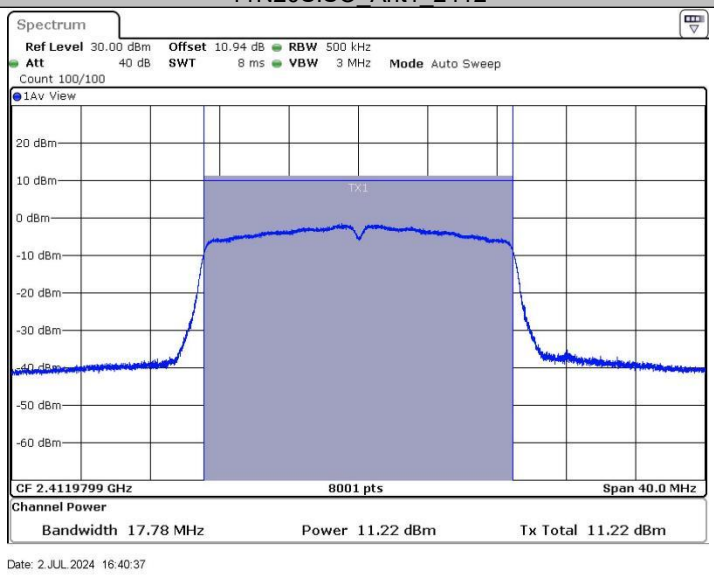
11G_Ant1_2437



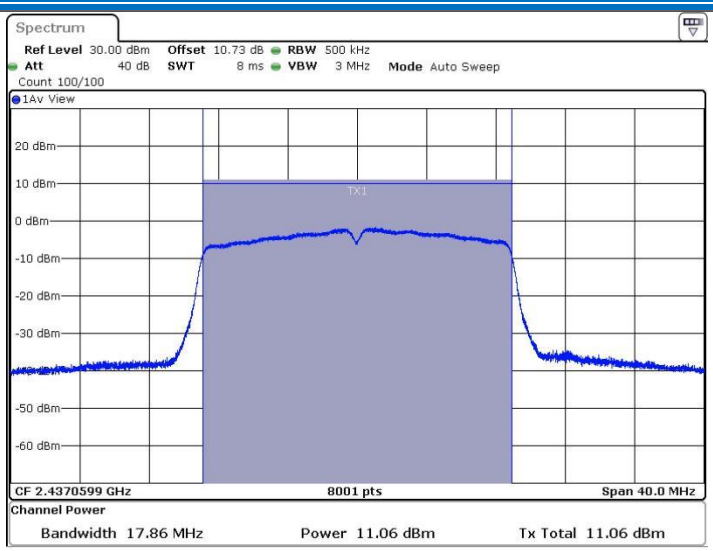
11G_Ant1_2462



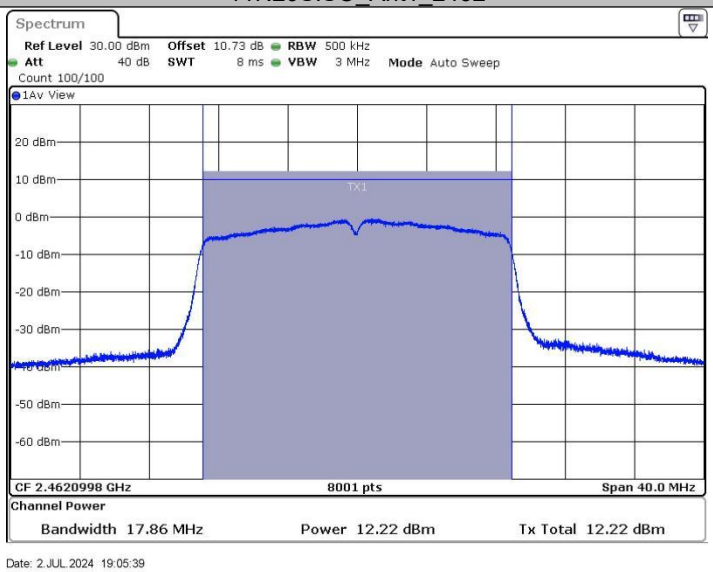
11N20SISO_Ant1_2412



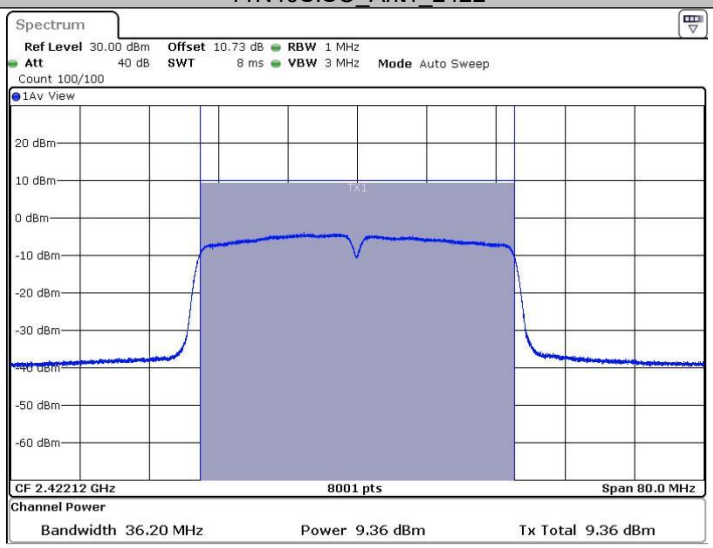
11N20SISO_Ant1_2437



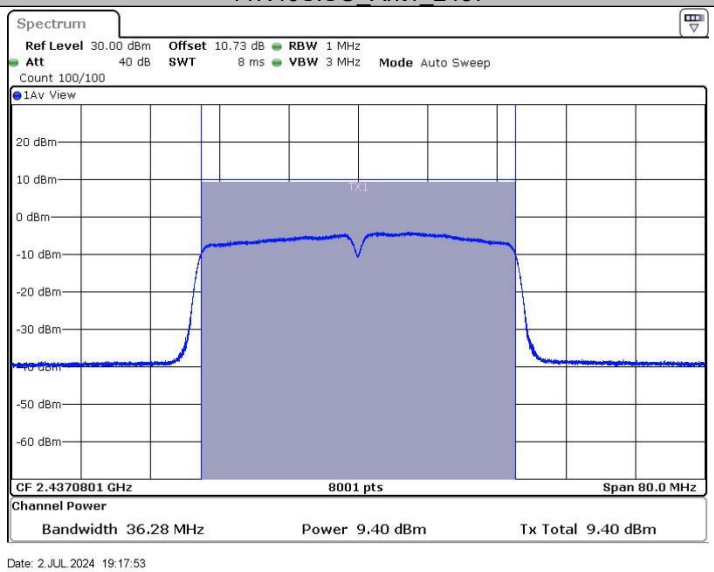
11N20SISO_Ant1_2462



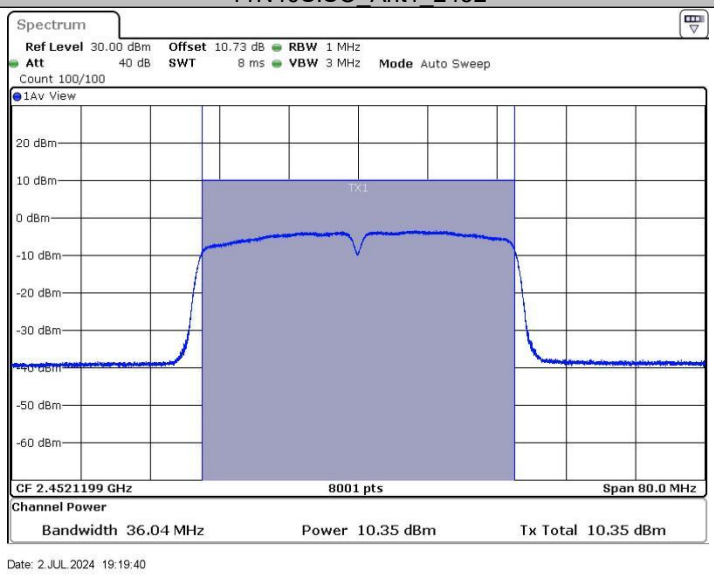
11N40SISO_Ant1_2422



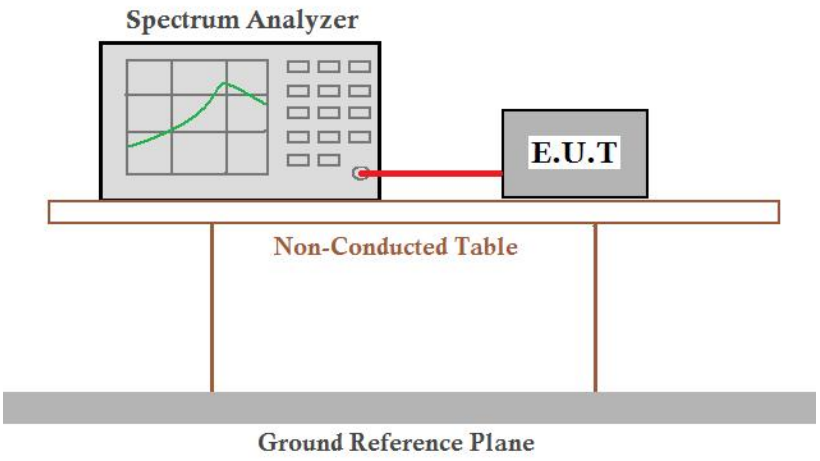
11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



5.4 6dB Occupied Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013
Test Setup:	 Offset=cable loss+ attenuation factor
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Only the worst case is recorded in the report.
Limit:	≥ 500 kHz
Test Results:	Pass

Test Result

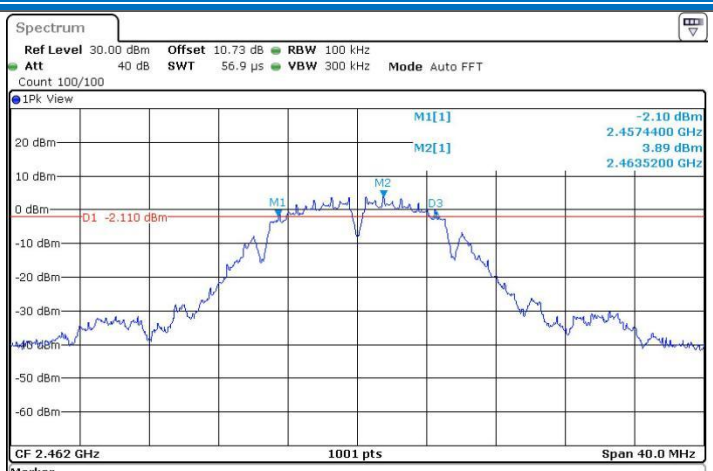
TestMode	Antenna	Channel	DTS BW [MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.12	0.5	PASS
		2437	9.24	0.5	PASS
		2462	9.12	0.5	PASS
11G	Ant1	2412	16.32	0.5	PASS
		2437	16.36	0.5	PASS
		2462	16.32	0.5	PASS
11N20SISO	Ant1	2412	17.56	0.5	PASS
		2437	17.56	0.5	PASS
		2462	17.56	0.5	PASS
11N40SISO	Ant1	2422	36.32	0.5	PASS
		2437	36.32	0.5	PASS
		2452	36.40	0.5	PASS

Test Graphs

11B_Ant1_2412

11B_Ant1_2437

11B_Ant1_2462

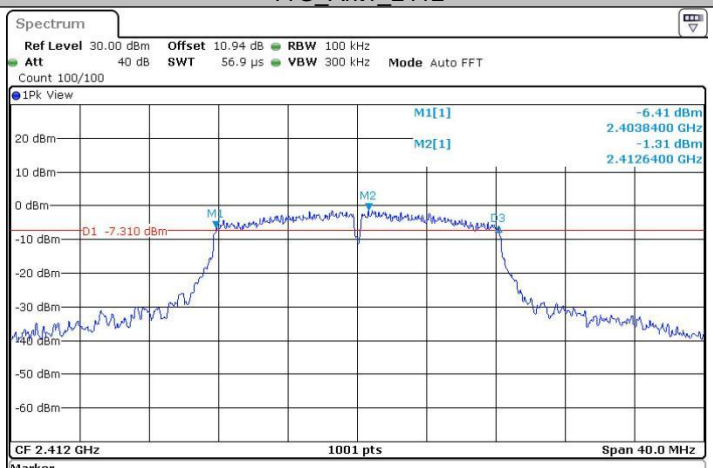


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45744 GHz	-2.10 dBm		
M2		1	2.46352 GHz	3.89 dBm		
D3	M1	1	9.12 MHz	1.59 dB		

Date: 2.JUL.2024 16:21:44

11G_Ant1_2412

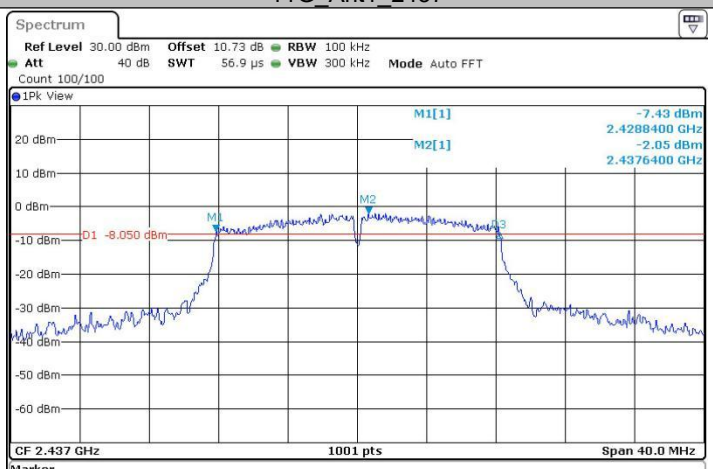


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40384 GHz	-6.41 dBm		
M2		1	2.41264 GHz	-1.31 dBm		
D3	M1	1	16.32 MHz	0.39 dB		

Date: 2.JUL.2024 16:25:48

11G_Ant1_2437

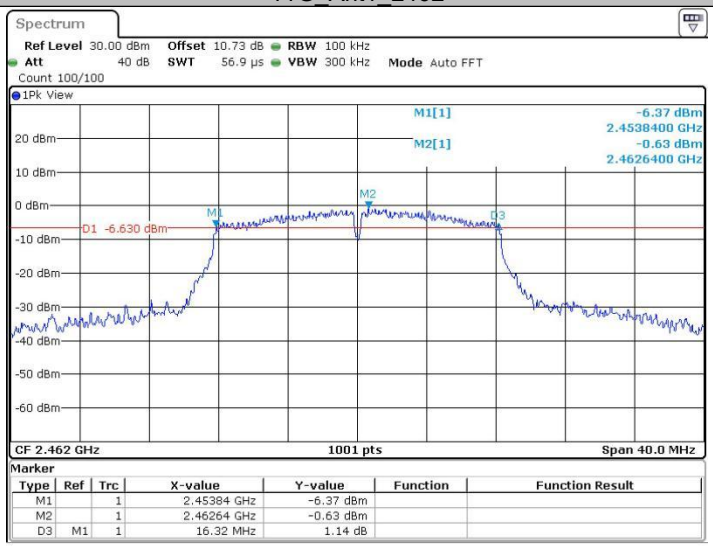


Marker

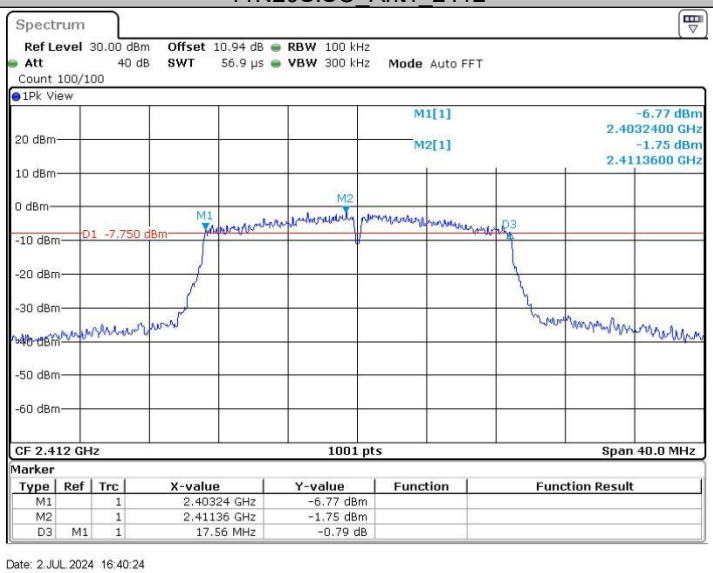
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.42884 GHz	-7.43 dBm		
M2		1	2.43764 GHz	-2.05 dBm		
D3	M1	1	16.36 MHz	-0.00 dB		

Date: 2.JUL.2024 16:30:51

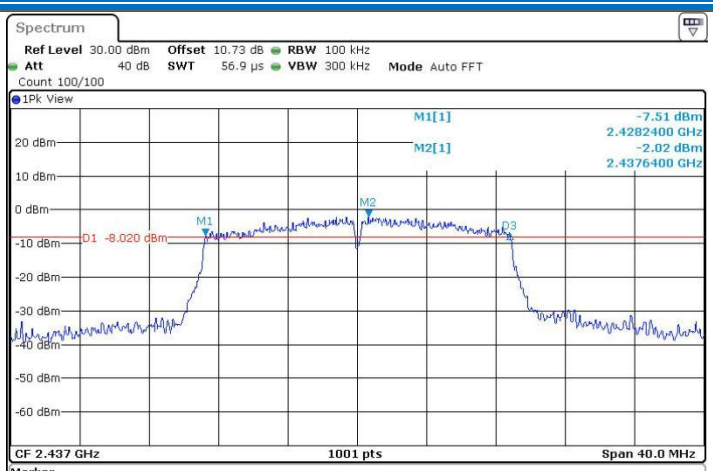
11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437

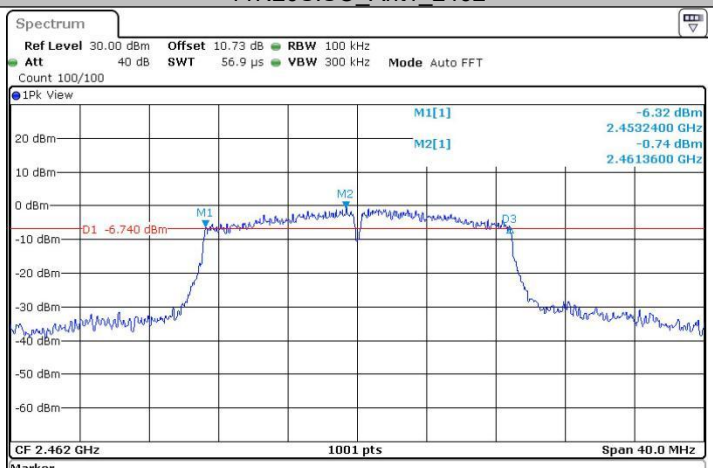


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.42824 GHz	-7.51 dBm		
M2		1	2.43764 GHz	-2.02 dBm		
D3	M1	1	17.56 MHz	0.37 dB		

Date: 2.JUL.2024 19:01:53

11N20SISO_Ant1_2462

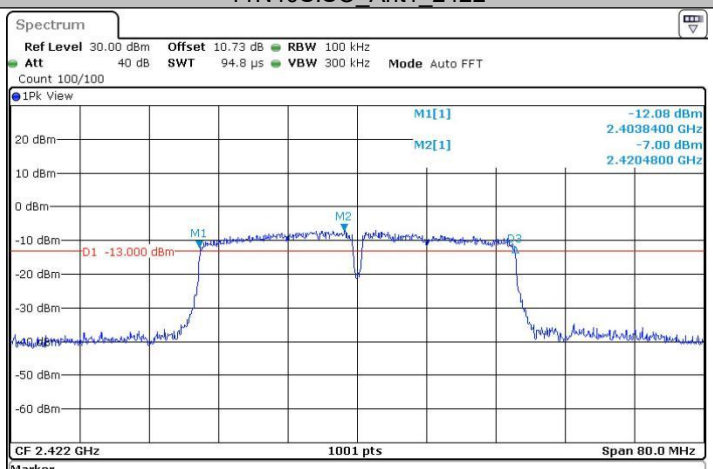


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45324 GHz	-6.32 dBm		
M2		1	2.46136 GHz	-0.74 dBm		
D3	M1	1	17.56 MHz	0.15 dB		

Date: 2.JUL.2024 19:05:25

11N40SISO_Ant1_2422

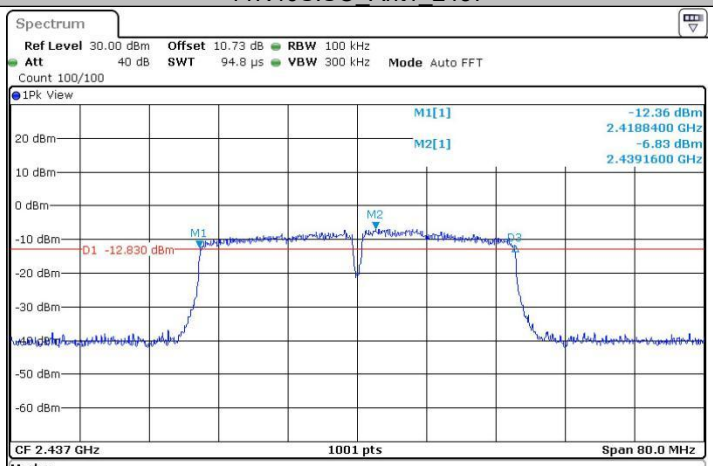


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40384 GHz	-12.08 dBm		
M2		1	2.42048 GHz	-7.00 dBm		
D3	M1	1	36.32 MHz	0.36 dB		

Date: 2.JUL.2024 19:15:37

11N40SISO_Ant1_2437

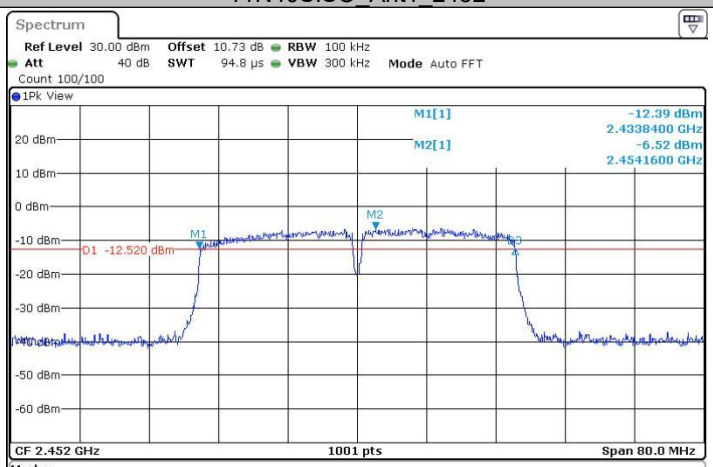


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41884 GHz	-12.36 dBm		
M2		1	2.43916 GHz	-6.83 dBm		
D3	M1	1	36.32 MHz	0.62 dB		

Date: 2.JUL.2024 19:17:40

11N40SISO_Ant1_2452

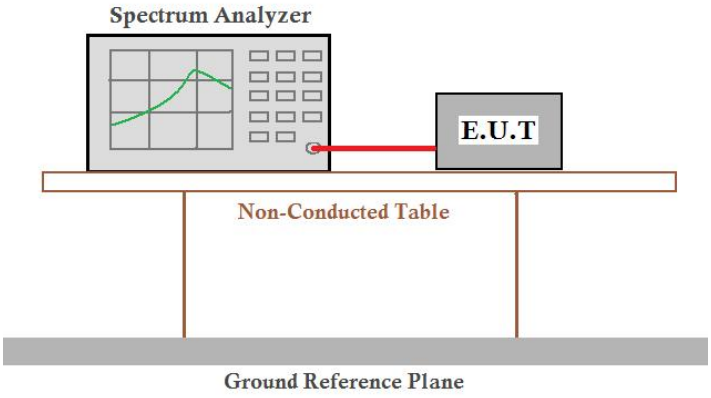


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.43384 GHz	-12.39 dBm		
M2		1	2.45416 GHz	-6.52 dBm		
D3	M1	1	36.4 MHz	0.06 dB		

Date: 2.JUL.2024 19:19:27

5.5 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10: 2013
Test Setup:	 Offset=cable loss+ attenuation factor
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Only the worst case is recorded in the report.
Limit:	≤8.00dBm/3kHz
Test Results:	Pass

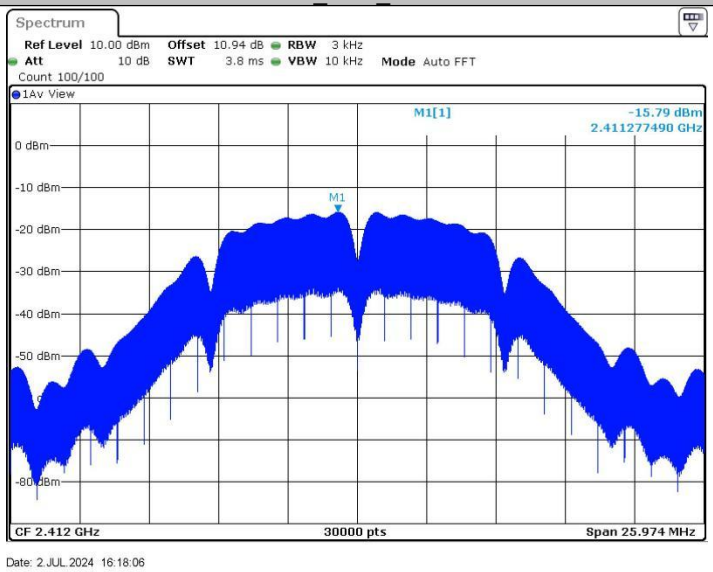
Test Result

TestMode	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	2412	-15.79	≤8.00	PASS
	2437	-16	≤8.00	PASS
	2462	-14.72	≤8.00	PASS
11G	2412	-19.13	≤8.00	PASS
	2437	-19.45	≤8.00	PASS
	2462	-18.39	≤8.00	PASS
11N20SISO	2412	-20.52	≤8.00	PASS
	2437	-20.56	≤8.00	PASS
	2462	-19.33	≤8.00	PASS
11N40SISO	2422	-24.72	≤8.00	PASS
	2437	-24.44	≤8.00	PASS
	2452	-23.66	≤8.00	PASS

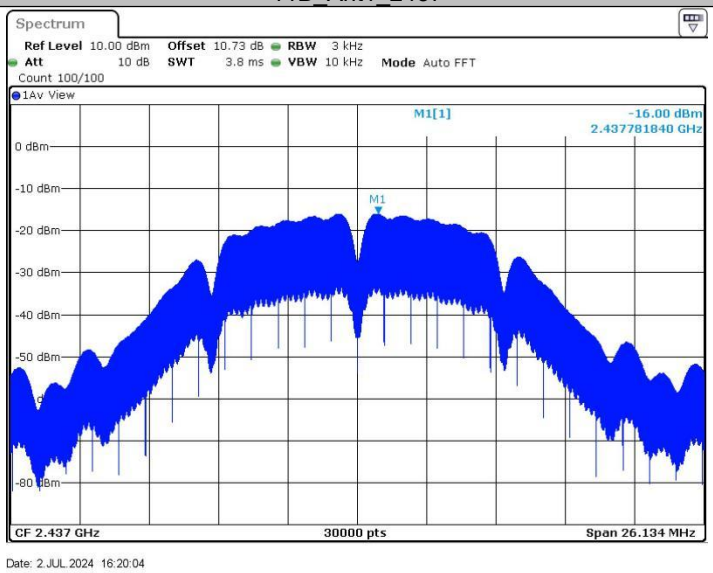
Note:
When Duty cycle >98%, D.C.F is not required.

Test Graphs

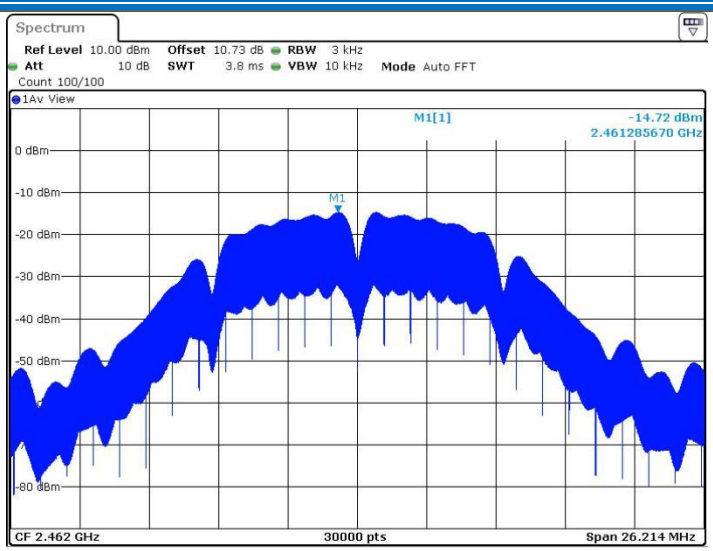
11B_Ant1_2412



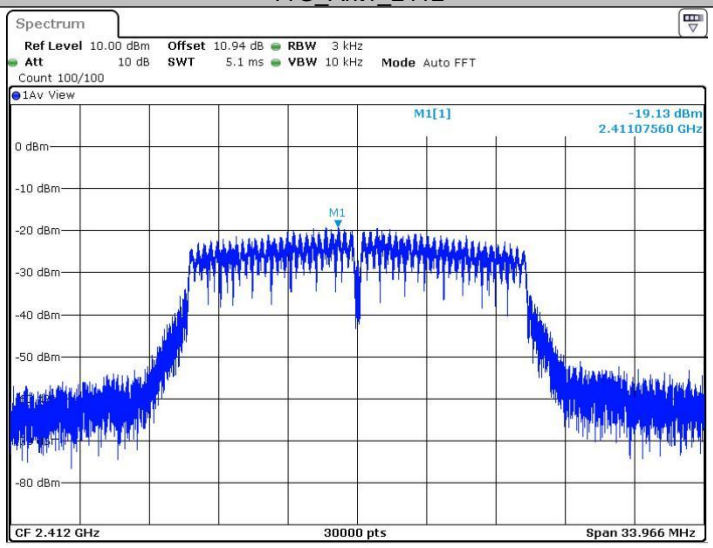
11B_Ant1_2437



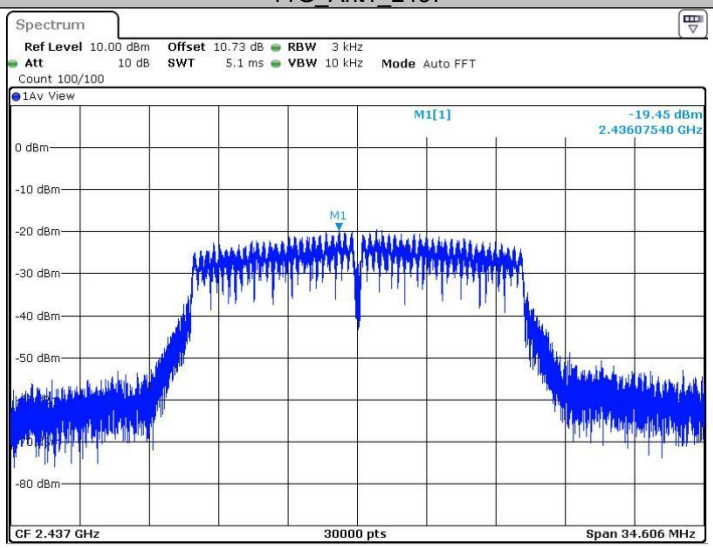
11B_Ant1_2462



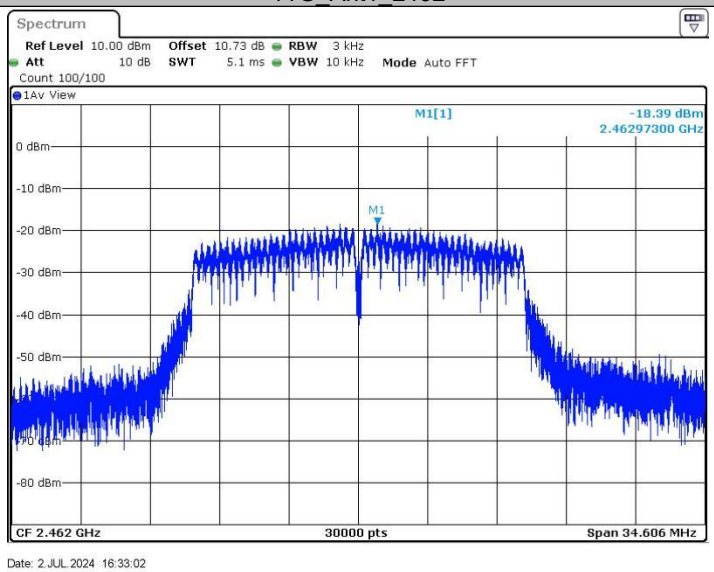
11G_Ant1_2412



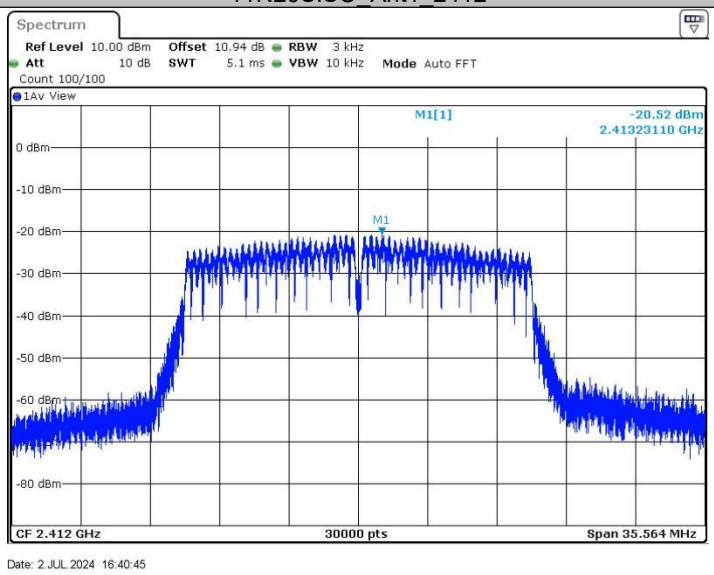
11G_Ant1_2437



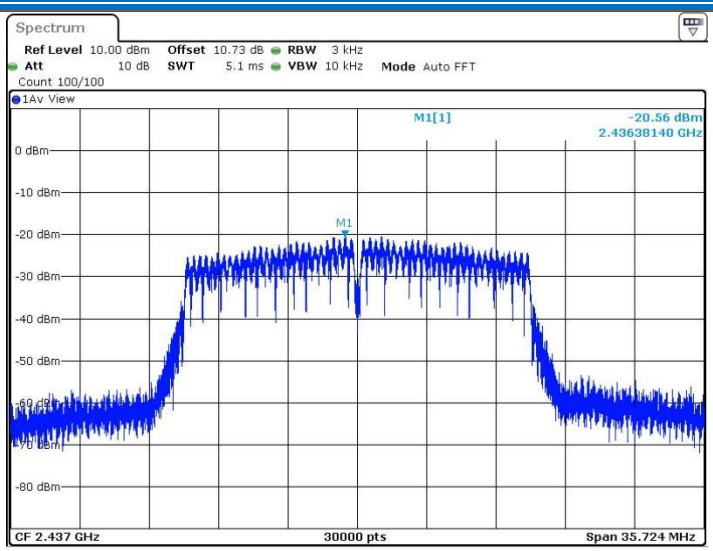
11G_Ant1_2462



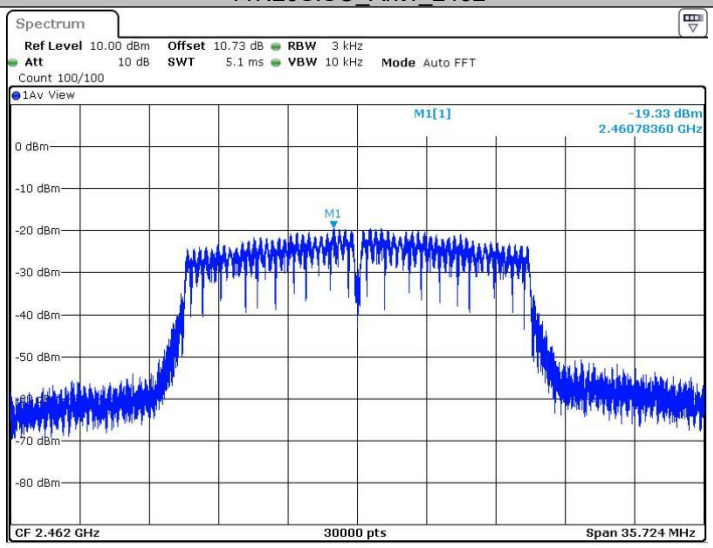
11N20SISO_Ant1_2412



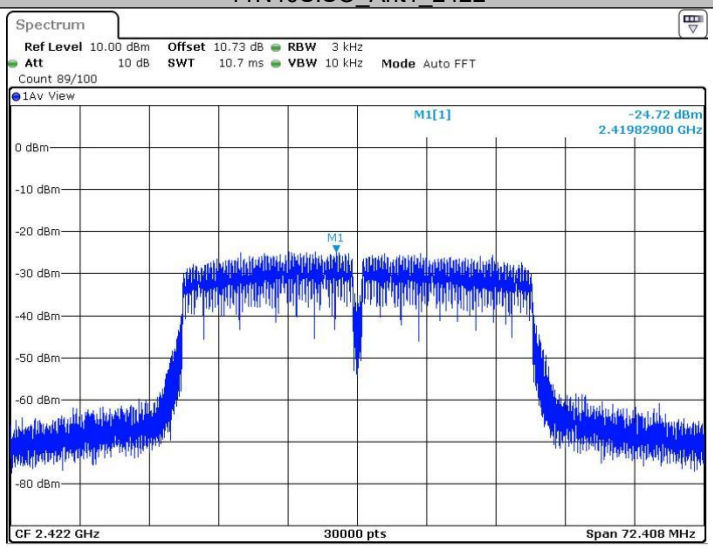
11N20SISO_Ant1_2437



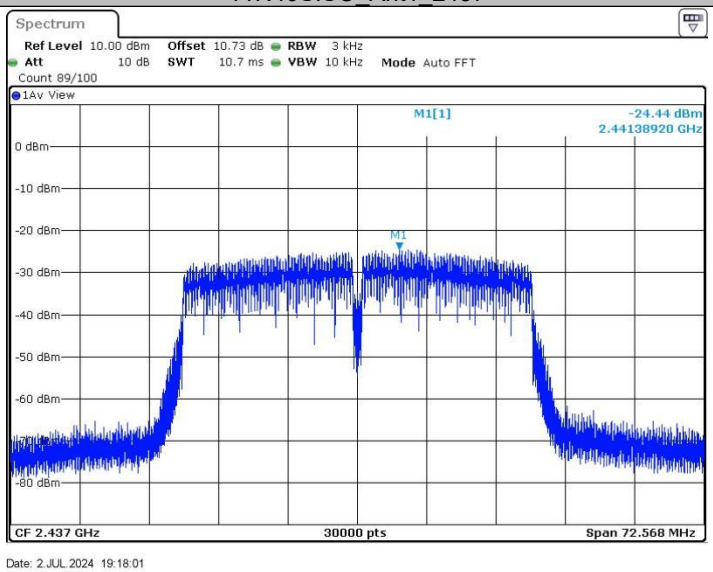
11N20SISO_Ant1_2462



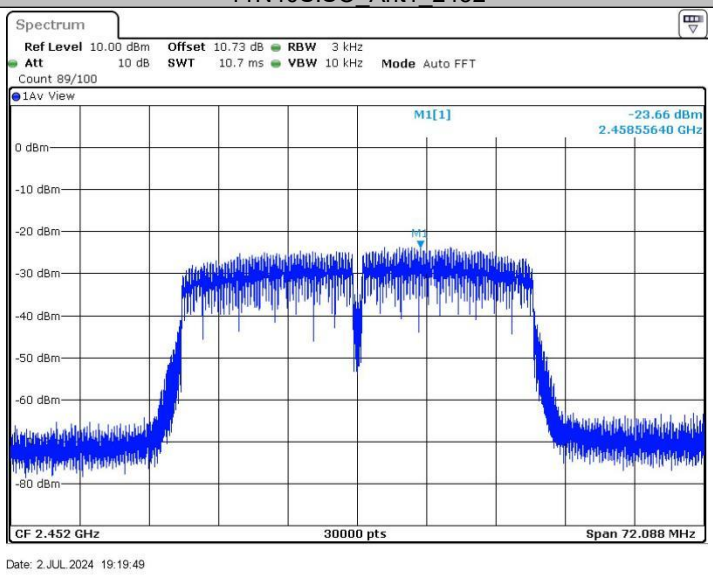
11N40SISO_Ant1_2422



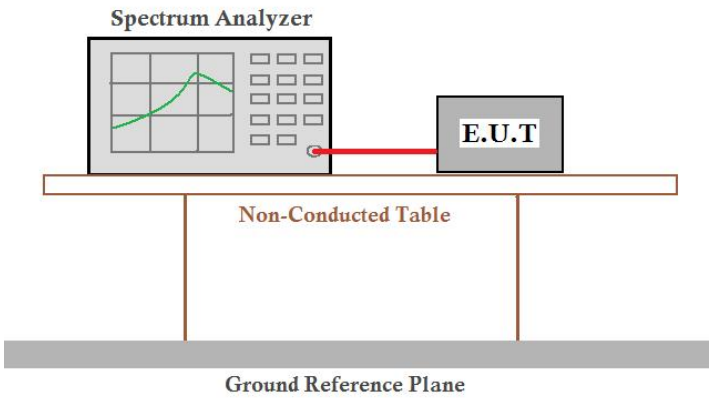
11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



5.6 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013
Test Setup:	 Offset=cable loss+ attenuation factor
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
. Final Test Mode:	Only the worst case is recorded in the report.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 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.
Test Results:	Pass

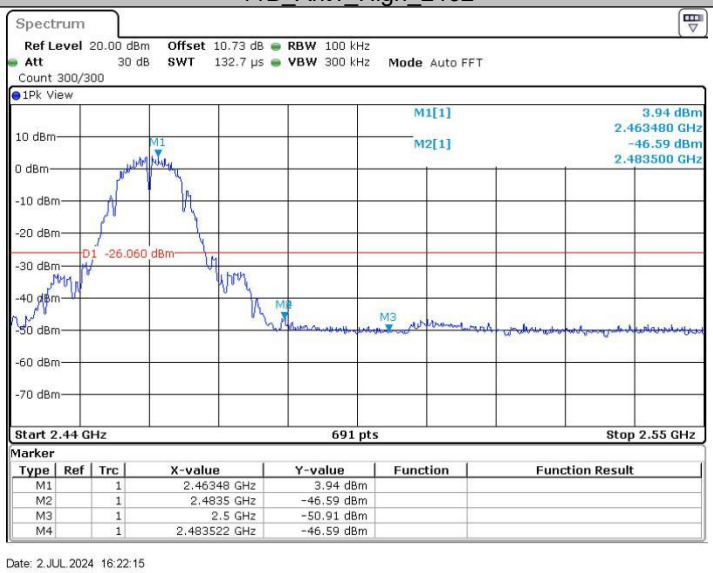
Test Result

TestMode	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Low	2412	2.93	-34.08	≤-27.07	PASS
	High	2462	3.94	-46.59	≤-26.06	PASS
11G	Low	2412	-7.92	-45.96	≤-37.92	PASS
	High	2462	-0.53	-38.66	≤-30.53	PASS
11N20SISO	Low	2412	-1.52	-35.62	≤-31.52	PASS
	High	2462	-0.64	-37.02	≤-30.64	PASS
11N40SISO	Low	2422	-6.96	-38.55	≤-36.96	PASS
	High	2452	-6.36	-40.13	≤-36.36	PASS

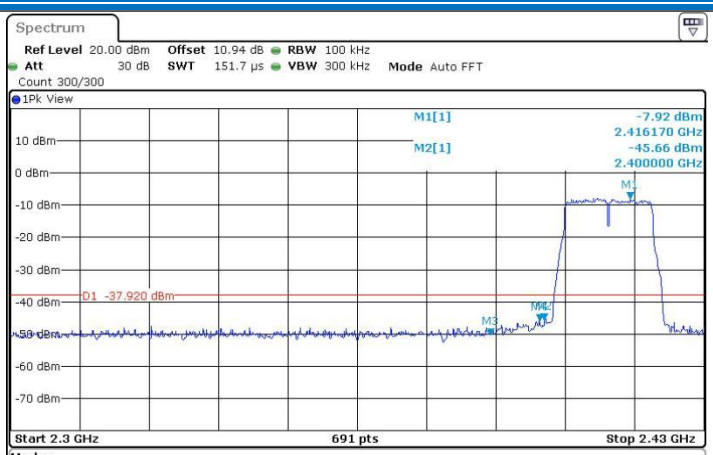
5.6.1 Test Graphs

11B_Ant1_Low_2412

11B_Ant1_High_2462



11G_Ant1_Low_2412

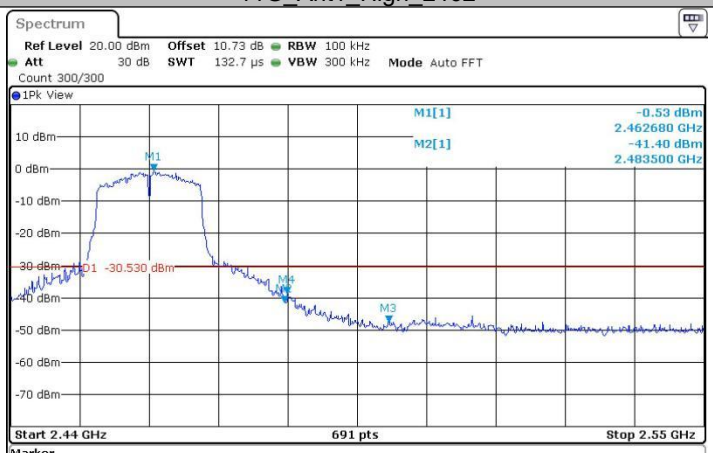


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41617 GHz	-7.92 dBm		
M2		1	2.4 GHz	-45.66 dBm		
M3		1	2.39 GHz	-50.40 dBm		
M4		1	2.399101 GHz	-45.96 dBm		

Date: 2.JUL.2024 19:23:16

11G_Ant1_High_2462

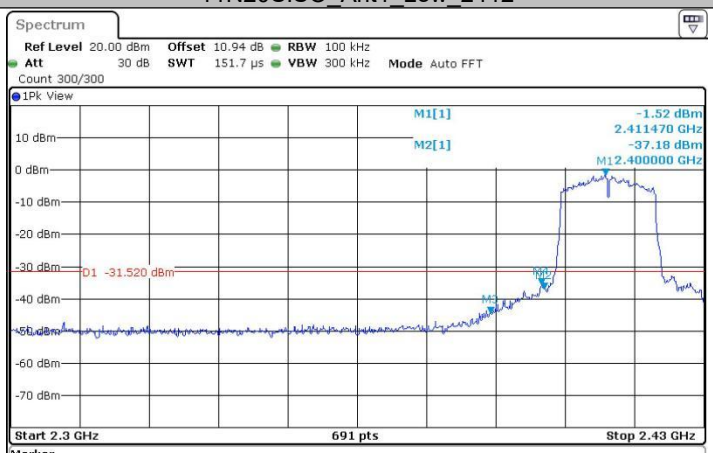


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46268 GHz	-0.53 dBm		
M2		1	2.4835 GHz	-41.40 dBm		
M3		1	2.5 GHz	-47.64 dBm		
M4		1	2.483841 GHz	-38.66 dBm		

Date: 2.JUL.2024 16:33:13

11N20SISO_Ant1_Low_2412

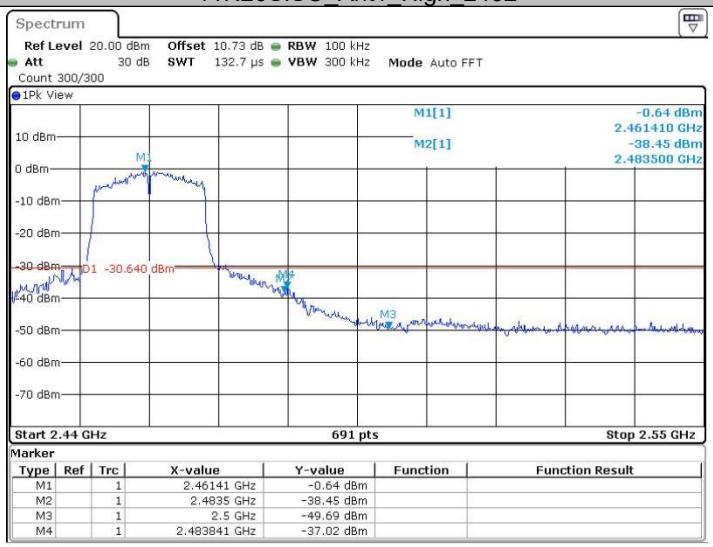


Marker

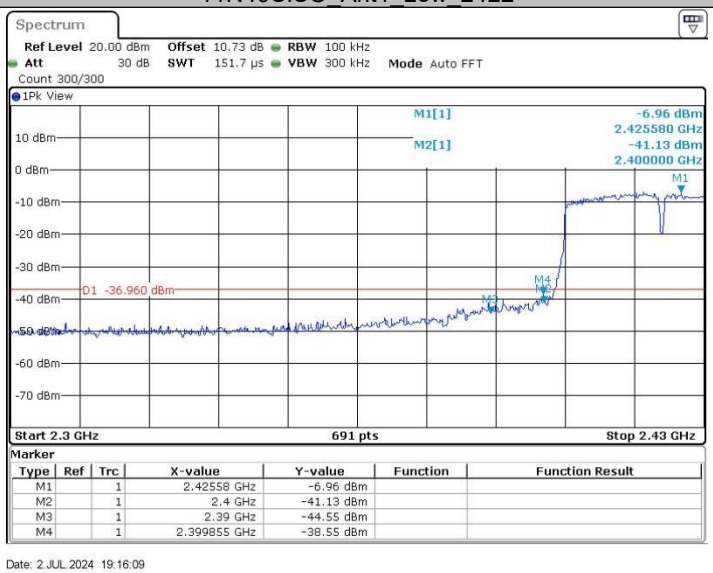
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41147 GHz	-1.52 dBm		
M2		1	2.4 GHz	-37.18 dBm		
M3		1	2.39 GHz	-44.52 dBm		
M4		1	2.399478 GHz	-35.62 dBm		

Date: 2.JUL.2024 16:40:55

11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



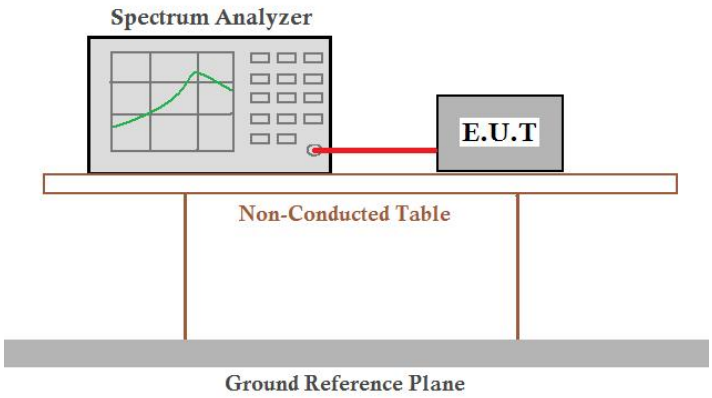
11N40SISO_Ant1_High_2452

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46205 GHz	-6.36 dBm		
M2		1	2.4835 GHz	-41.30 dBm		
M3		1	2.5 GHz	-47.54 dBm		
M4		1	2.486072 GHz	-40.13 dBm		

Date: 2.JUL.2024 19:19:59

5.7 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013
Test Setup:	 Offset=cable loss+ attenuation factor
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Only the worst case is recorded in the report.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 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.
Test Results:	Pass

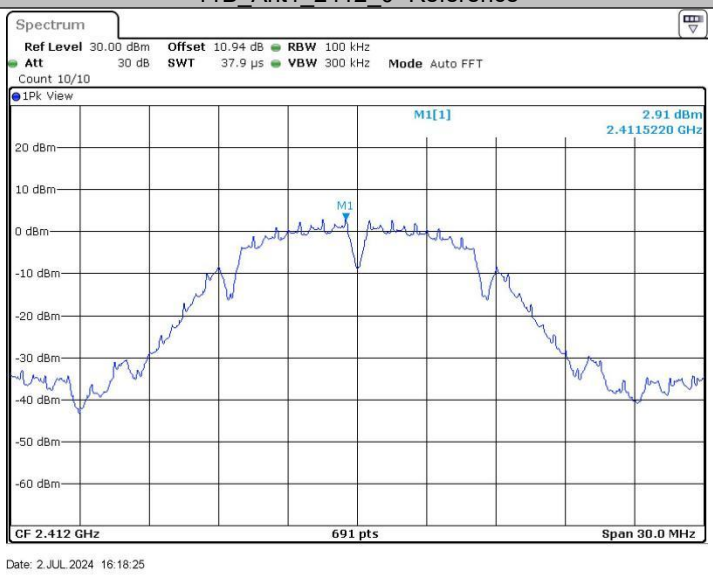
Test Result

TestMode	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	2412	Reference	2.91	2.91	---	PASS
		30~1000	2.91	-56.04	≤-27.09	PASS
		1000~26500	2.91	-52.39	≤-27.09	PASS
	2437	Reference	2.62	2.62	---	PASS
		30~1000	2.62	-54.94	≤-27.38	PASS
		1000~26500	2.62	-52.49	≤-27.38	PASS
	2462	Reference	3.84	3.84	---	PASS
		30~1000	3.84	-55.83	≤-26.16	PASS
		1000~26500	3.84	-51.35	≤-26.16	PASS
11G	2412	Reference	-1.34	-1.34	---	PASS
		30~1000	-1.34	-55.2	≤-31.34	PASS
		1000~26500	-1.34	-51.9	≤-31.34	PASS
	2437	Reference	-1.87	-1.87	---	PASS
		30~1000	-1.87	-55.36	≤-31.87	PASS
		1000~26500	-1.87	-52.54	≤-31.87	PASS
	2462	Reference	-0.69	-0.69	---	PASS
		30~1000	-0.69	-56.34	≤-30.69	PASS
		1000~26500	-0.69	-52.98	≤-30.69	PASS
11N20SISO	2412	Reference	-1.55	-1.55	---	PASS
		30~1000	-1.55	-55.83	≤-31.55	PASS
		1000~26500	-1.55	-52.4	≤-31.55	PASS
	2437	Reference	-1.88	-1.88	---	PASS
		30~1000	-1.88	-55.79	≤-31.88	PASS
		1000~26500	-1.88	-52.17	≤-31.88	PASS
	2462	Reference	-0.82	-0.82	---	PASS
		30~1000	-0.82	-55.54	≤-30.82	PASS
		1000~26500	-0.82	-52.39	≤-30.82	PASS
11N40SISO	2422	Reference	-7.05	-7.05	---	PASS
		30~1000	-7.05	-56.07	≤-37.05	PASS
		1000~26500	-7.05	-52.69	≤-37.05	PASS
	2437	Reference	-6.19	-6.19	---	PASS
		30~1000	-6.19	-56.05	≤-36.19	PASS
		1000~26500	-6.19	-53.14	≤-36.19	PASS
	2452	Reference	-6.06	-6.06	---	PASS

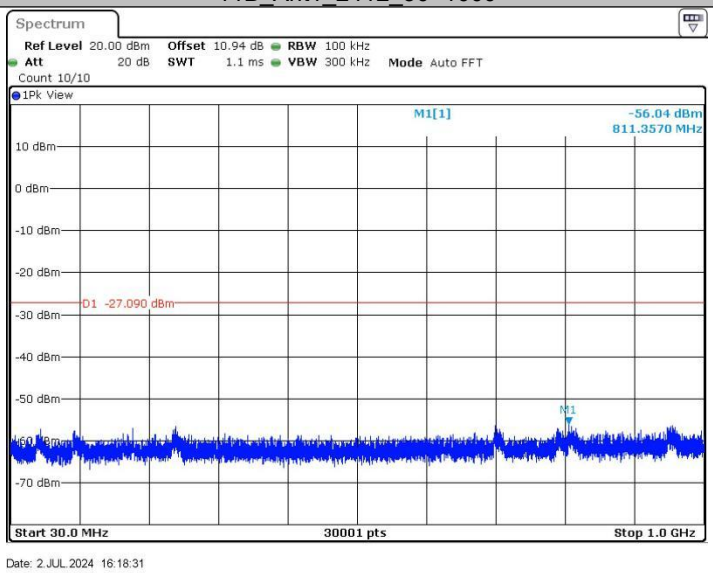
		30~1000	-6.06	-56.24	≤-36.06	PASS
		1000~26500	-6.06	-51.38	≤-36.06	PASS

Test Graphs

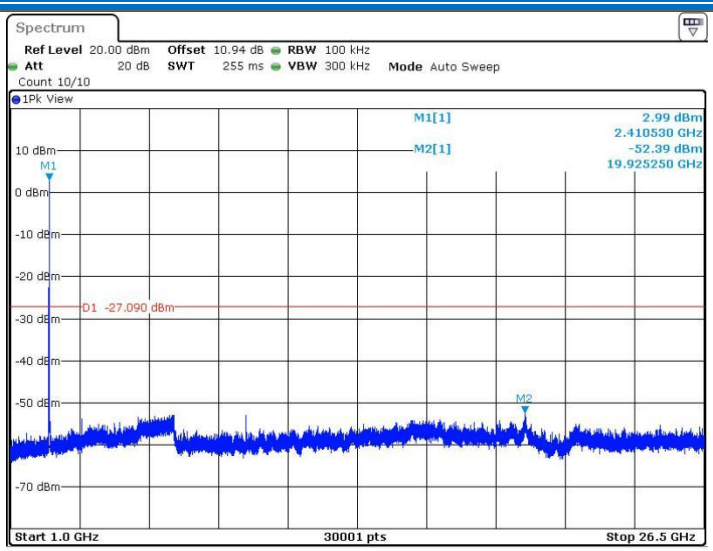
11B_Ant1_2412_0~Reference



11B_Ant1_2412_30~1000

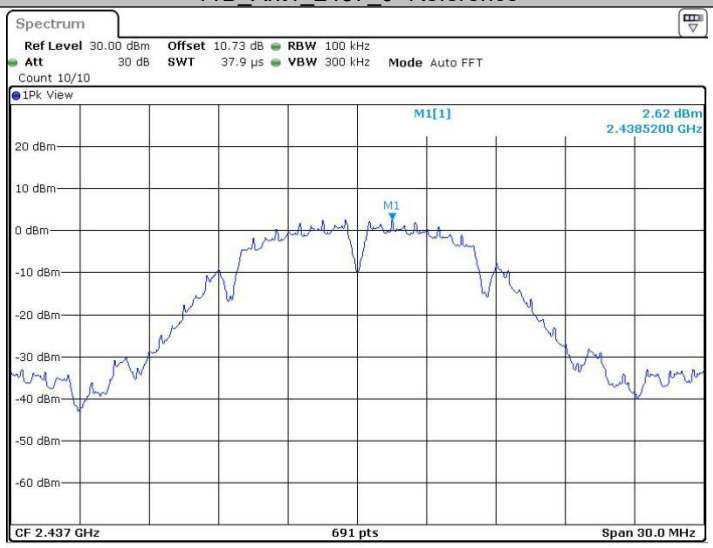


11B_Ant1_2412_1000~26500



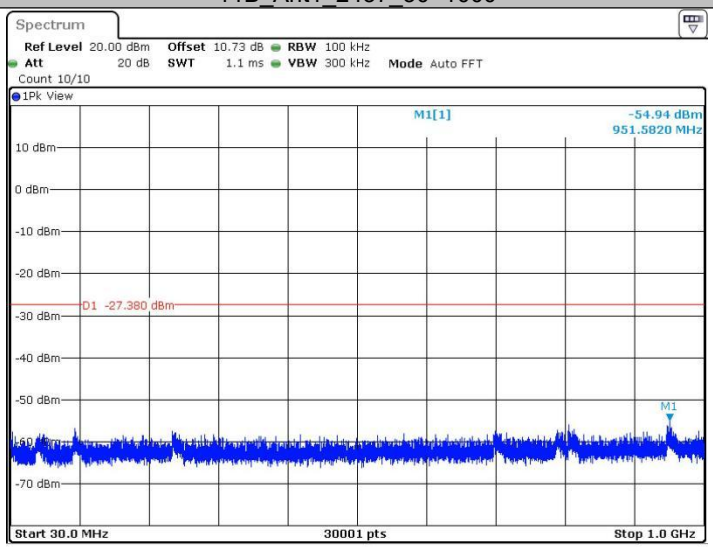
Date: 2.JUL.2024 16:18:53

11B_Ant1_2437_0~Reference



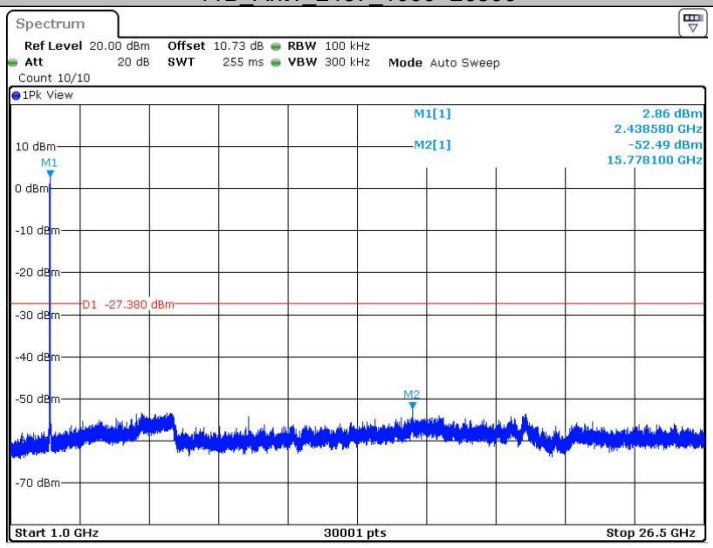
Date: 2.JUL.2024 16:20:12

11B_Ant1_2437_30~1000



Date: 2.JUL.2024 16:20:19

11B_Ant1_2437_1000~26500

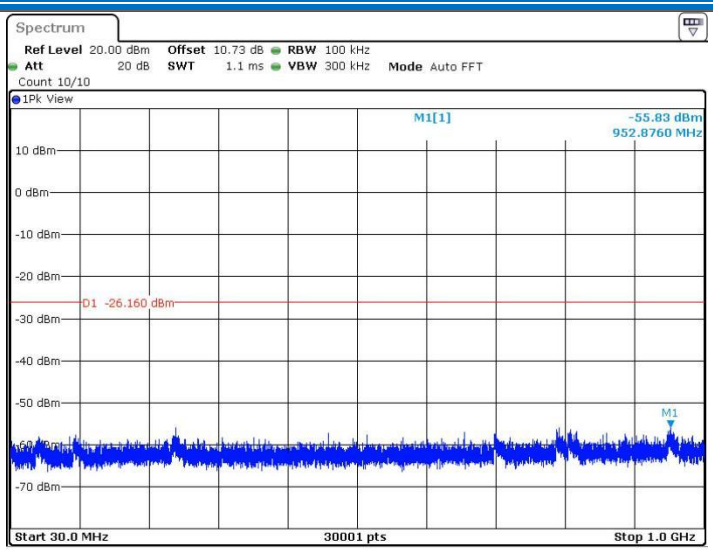


Date: 2.JUL.2024 16:20:41

11B_Ant1_2462_0~Reference

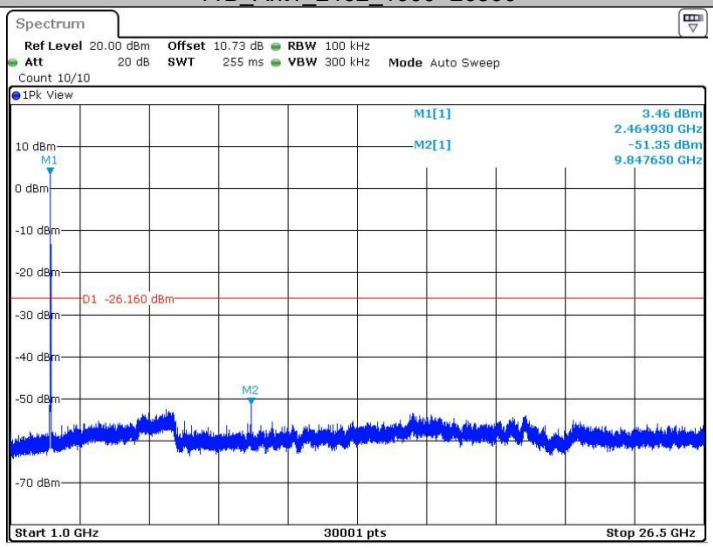
Date: 2.JUL.2024 16:22:24

11B_Ant1_2462_30~1000



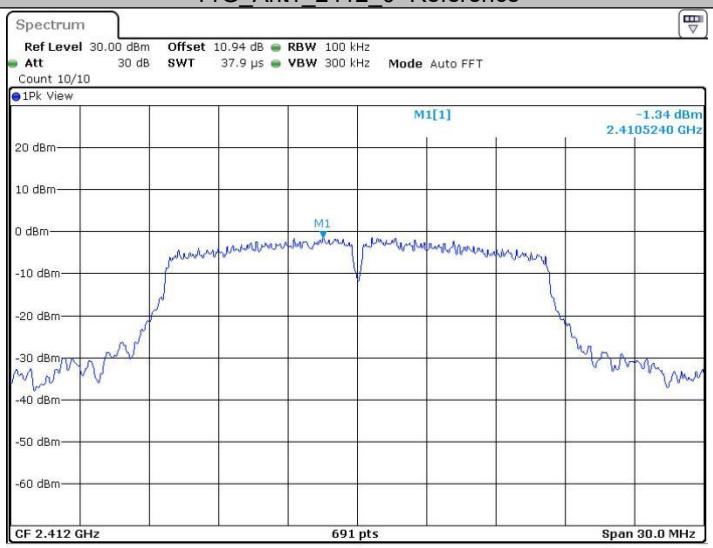
Date: 2.JUL.2024 16:22:30

11B_Ant1_2462_1000~26500



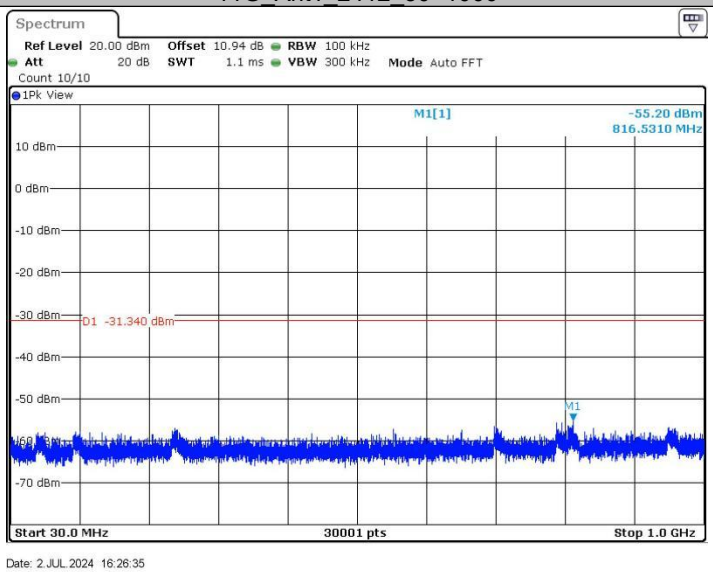
Date: 2.JUL.2024 16:22:53

11G_Ant1_2412_0~Reference

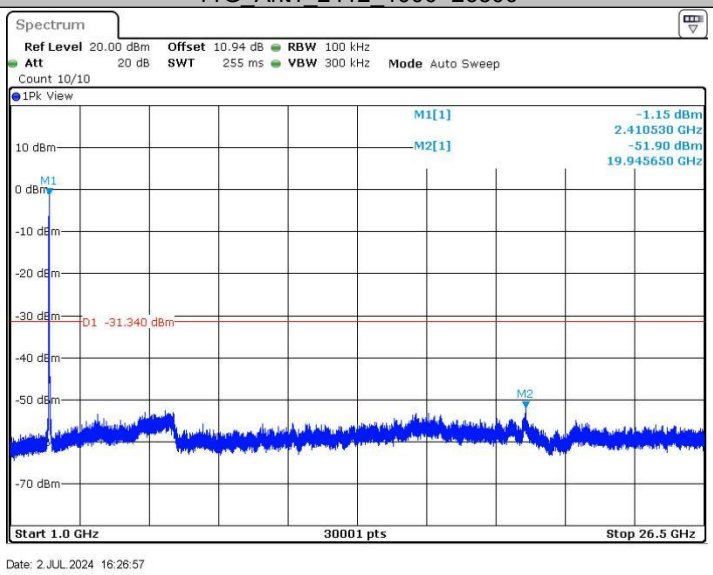


Date: 2.JUL.2024 16:26:28

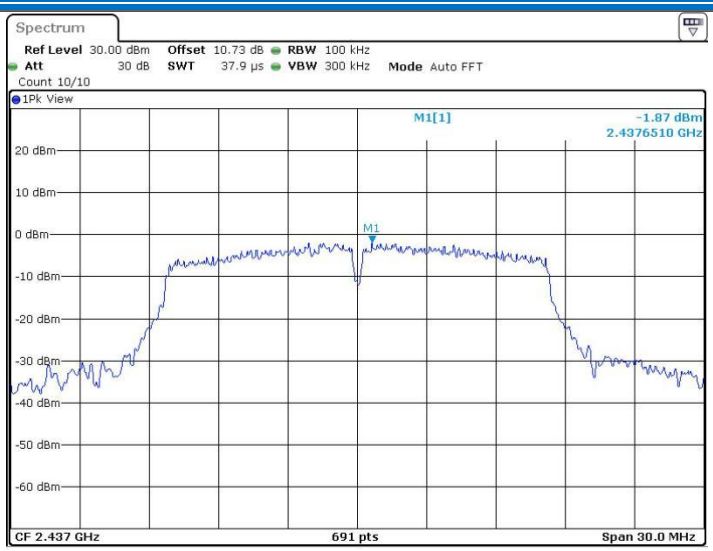
11G_Ant1_2412_30~1000



11G_Ant1_2412_1000~26500

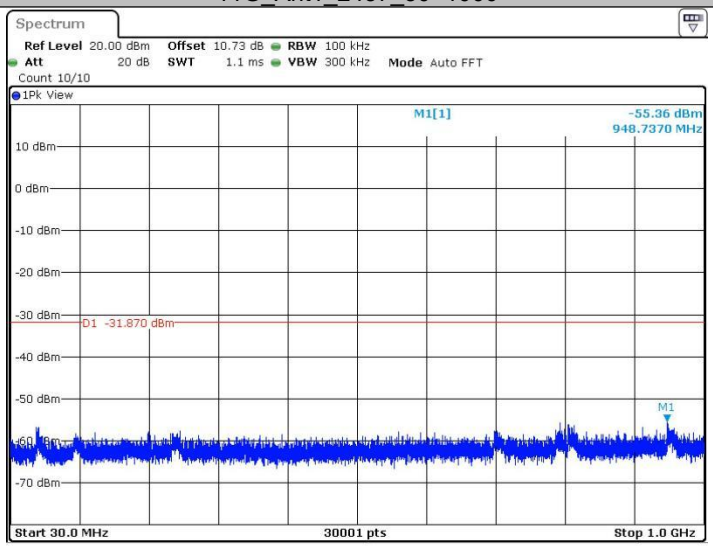


11G_Ant1_2437_0~Reference



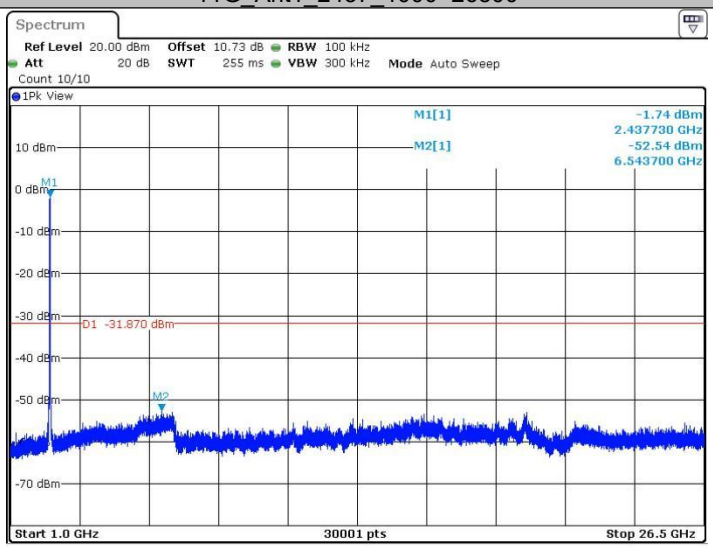
Date: 2.JUL.2024 16:31:21

11G_Ant1_2437_30~1000



Date: 2.JUL.2024 16:31:27

11G_Ant1_2437_1000~26500



Date: 2.JUL.2024 16:31:49