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TEST REPORT

Report No.: CQASZ20231202343E-03

Applicant: Shenzhen Jiteng Network Technology Co., Ltd

Address of Applicant: Floor 7, Building B, Boton Science and Technology Park, Chaguang Road, Xili Street Nanshan District, Shenzhen, China

Equipment Under Test (EUT):

Product: Mini PC

Model No.: XT13 Pro, XT***Pro, XT***Max, AX***, AX***Pro, AX***Max, AE***, AE***Pro, AE***Max, GT***, GT***Max, GT***Pro, XU***, XU***Pro, XU***Max, AG***Pro, AG***Max, GT***Ultra, GT***Mega, U***Ultra, U***Mega, XT***Ultra, XT***Mega, IT***Ultra, IT***Mega (*Representing numbers 0-9, letters A-Z, a-z, "-" or spaces)

Test Model No.: XT13 Pro

Brand Name: GEEKOM, geeknuc

FCC ID: 2AY4C-GXT01

Standards: 47 CFR Part 15, Subpart C

Date of Receipt: 2023-12-18

Date of Test: 2023-12-18 to 2024-06-07

Date of Issue: 2024-06-07

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
CQASZ20231202343E-03	Rev.01	Initial report	2024-06-07

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

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4 General Information

4.1 Client Information

Applicant:	Shenzhen Jiteng Network Technology Co., Ltd
Address of Applicant:	Floor 7, Building B, Boton Science and Technology Park, Chaguang Road, Xili Street Nanshan District, Shenzhen, China
Manufacturer:	Shenzhen Jiteng Network Technology Co., Ltd
Address of Manufacturer:	Floor 7, Building B, Boton Science and Technology Park, Chaguang Road, Xili Street Nanshan District, Shenzhen, China
Factory:	China Greatwall Technology Group Co., Ltd. Shiyang Branch
Address of Factory:	Great-Wall Computer Industry Park, Baoshi East Rd. Shiyang County, Baoan, Shenzhen, P.R. China

4.2 General Description of EUT

Product Name:	Mini PC
Model No.:	XT13 Pro, XT***Pro, XT***Max, AX***, AX***Pro, AX***Max, AE***, AE***Pro, AE***Max, GT***, GT***Max, GT***Pro, XU***, XU***Pro, XU***Max, AG***Pro, AG***Max, GT***Ultra, GT***Mega, U***Ultra, U***Mega, XT***Ultra, XT***Mega, IT***Ultra, IT***Mega (*Representing numbers 0-9, letters A-Z, a-z, "-" or spaces)
Test Model No.:	XT13 Pro
Trade Mark:	GEEKOM, geeknuc
Software Version:	Windows 11
Hardware Version:	NUCAL02_MB_V30
Power Supply:	Power supply adapter 1# Model No.:BSY120T1906323D Input:100-240V~50/60Hz 2.5A Output:19V 6.32A 120W 2# Model No.:hyleton-120W1906320 Input:100-240V~50/60Hz 1.4A Output:19V 6.32A 120W 3# Model No.:J130-190006320DMI Input:100-240V~50/60Hz 2.5A Output:19V 6.32A 120.08W 4# Model No.:MSS-Z6320WR190-120C0-E Input:100-240V~50/60Hz 2.0A Output:19V 6.32A

	5# Model No.:FSP120-ABBU3 Input:100-240V~50/60Hz 1.4A Output:19V 6.32A 120W
EUT Supports Radios application:	IEEE 802.11b/g/n(HT20)/ax(HE20): 2412MHz to 2462MHz IEEE 802.11n(HT40)/ax(HE40) : 2422 MHz to 2452 MHz
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:	2412MHz to 2462MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20 ax HE20: 11 Channels IEEE 802.11n HT40 ax HE 40: 7 Channels
Channel Separation:	5MHz
Type of Modulation:	802.11b: DSSS(CCK/QPSK/BPSK) 802.11g: OFDM(BPSK/QPSK/16QAM/64QAM) 802.11n (HT20)(HT40): OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11ax(HE20)(HE40) :OFDMA(1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Transfer Rate:	802.11b: 1M/2M/5.5M/11M bps 802.11g: 6M/9M/12M/18M/24M/36M/48M/54M bps 802.11n(HT20)(HT40): 7.2M/14.4M/21.7M/28.9M/43.3M/57.8M/65M/72.2M bps 802.11ax(HE20)(HE40): 8.6M/17.2M/25.8M/34.4M/51.6M/68.8M/77.4M/86M/103.2M/114.7M/129M/143.4Mbps
Product Type:	☒ Mobile ☐ Portable
Test Software of EUT:	WCN Combo Tool
Antenna Type:	PIFA antenna
Antenna Gain:	Ant1:1.32dBi, Ant2:2.25dBi Ant1+Ant2:4.8dBi

Operation Frequency each of channel(802.11b/g/n/ax 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 channe(802.11n/ax HT40)							
Channel		Frequency		Channel		Frequency	
3		2422MHz		6		2437MHz	
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/ax (HT20):

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

For 802.11n/ax (HT40):

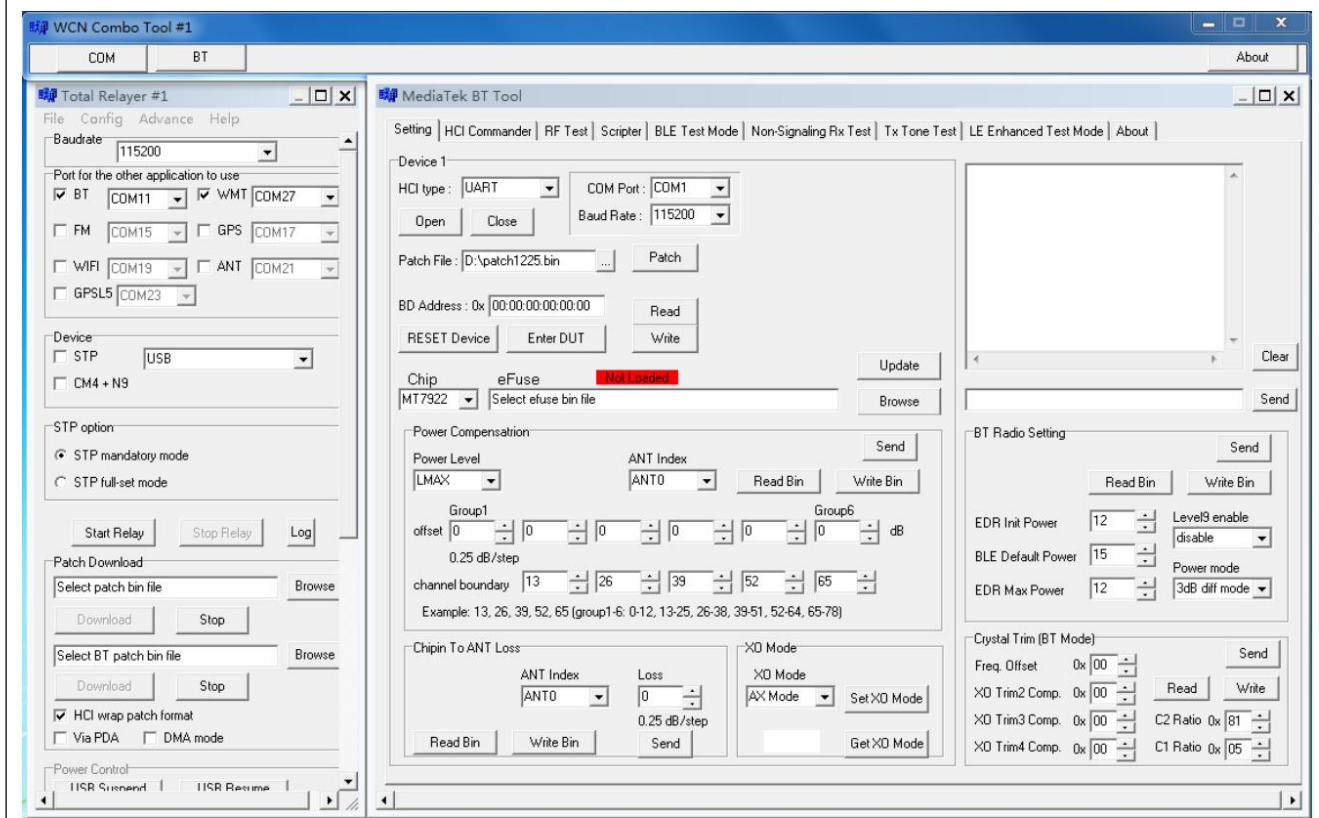
Channel	Frequency
The Lowest channel	2422MHz
The Middle channel	2437MHz
The Highest channel	2452MHz

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

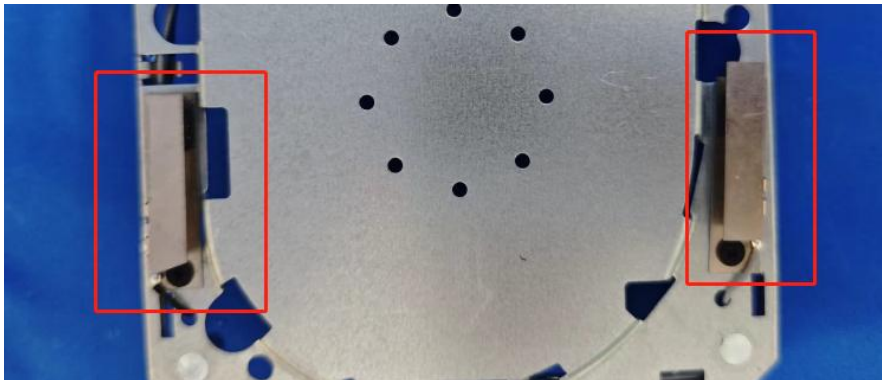
Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2023/09/08	2024/09/07
Spectrum analyzer	R&S	FSU26	CQA-038	2023/09/08	2024/09/07
Spectrum analyzer	R&S	FSU40	CQA-075	2023/09/08	2024/09/07
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	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:

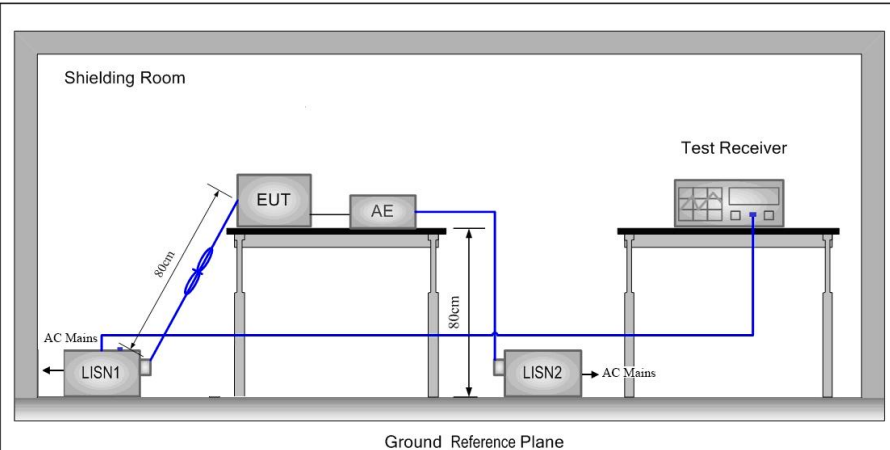
	Manufacturer	Software brand
Radiated Emissions test software	Tonscend	JS1120-3
Conducted Emissions test software	Audix	e3
RF Conducted test software	Audix	e3

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 PIFA 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

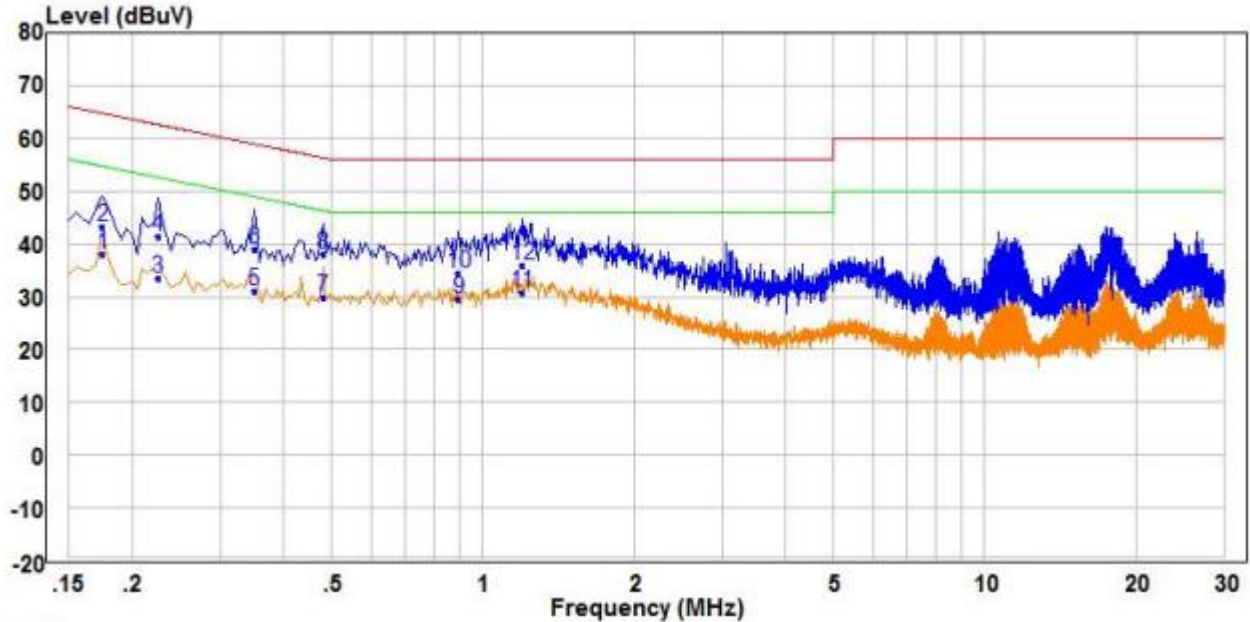
Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	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 $50\Omega/50\mu\text{H} + 5\Omega$ 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:

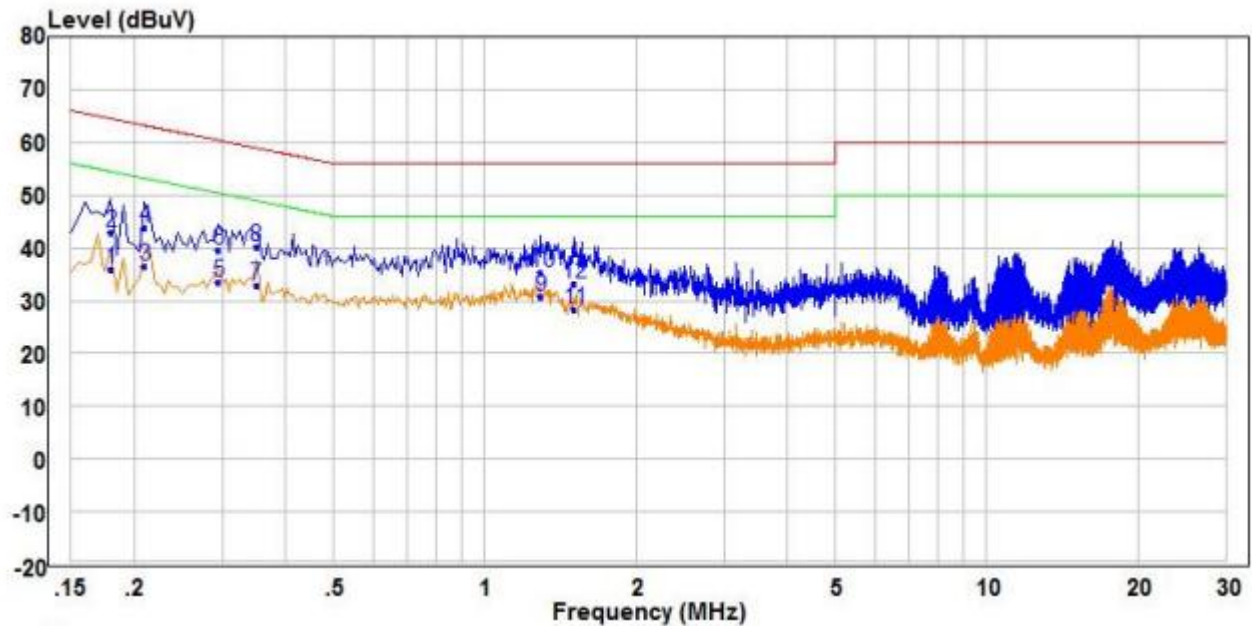


	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.175	27.47	10.65	38.12	54.72	-16.60	Average	Line
2	0.175	32.50	10.65	43.15	64.72	-21.57	QP	Line
3	0.225	22.86	10.58	33.44	52.63	-19.19	Average	Line
4	0.225	30.88	10.58	41.46	62.63	-21.17	QP	Line
5	0.350	20.62	10.55	31.17	48.96	-17.79	Average	Line
6	0.350	28.43	10.55	38.98	58.96	-19.98	QP	Line
7	0.480	19.30	10.68	29.98	46.34	-16.36	Average	Line
8 QP	0.480	27.51	10.68	38.19	56.34	-18.15	QP	Line
9	0.895	18.68	10.77	29.45	46.00	-16.55	Average	Line
10	0.895	23.71	10.77	34.48	56.00	-21.52	QP	Line
11 PP	1.195	19.63	11.20	30.83	46.00	-15.17	Average	Line
12	1.195	24.75	11.20	35.95	56.00	-20.05	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:



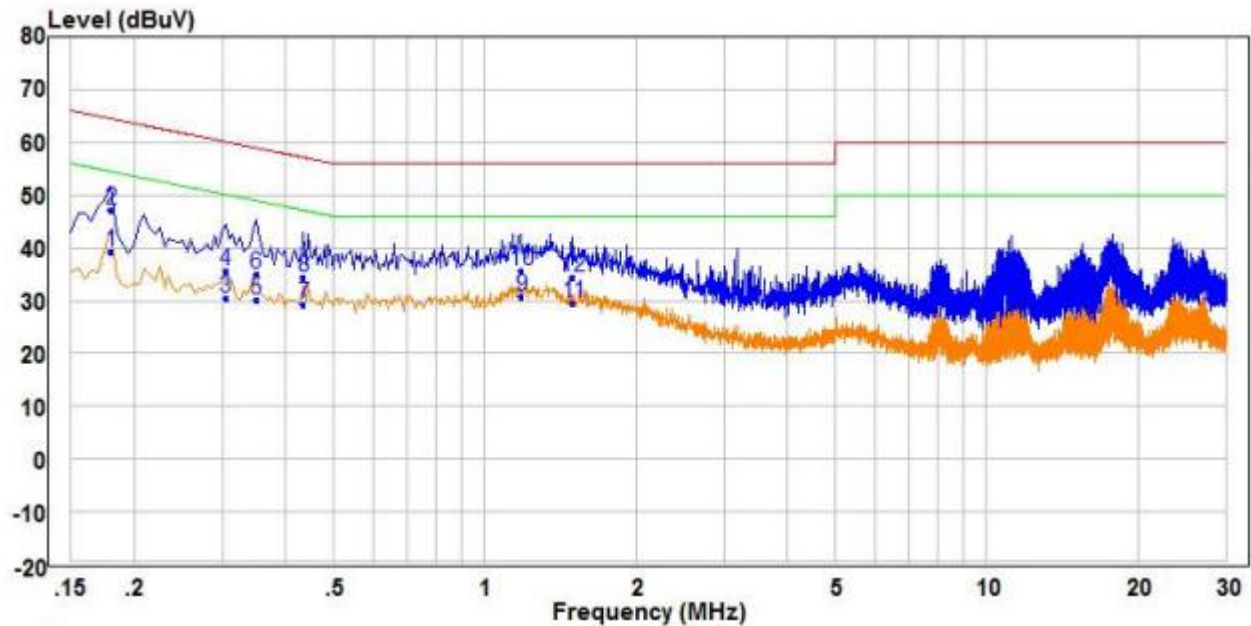
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.180	25.26	10.64	35.90	54.49	-18.59	Average	Neutral
2	0.180	32.33	10.64	42.97	64.49	-21.52	QP	Neutral
3	0.210	25.89	10.59	36.48	53.21	-16.73	Average	Neutral
4	0.210	33.30	10.59	43.89	63.21	-19.32	QP	Neutral
5	0.295	23.06	10.49	33.55	50.38	-16.83	Average	Neutral
6	0.295	29.03	10.49	39.52	60.38	-20.86	QP	Neutral
7	0.350	22.35	10.55	32.90	48.96	-16.06	Average	Neutral
8 QP	0.350	29.54	10.55	40.09	58.96	-18.87	QP	Neutral
9 PP	1.295	19.91	10.71	30.62	46.00	-15.38	Average	Neutral
10	1.295	24.73	10.71	35.44	56.00	-20.56	QP	Neutral
11	1.510	17.61	10.73	28.34	46.00	-17.66	Average	Neutral
12	1.510	22.58	10.73	33.31	56.00	-22.69	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:

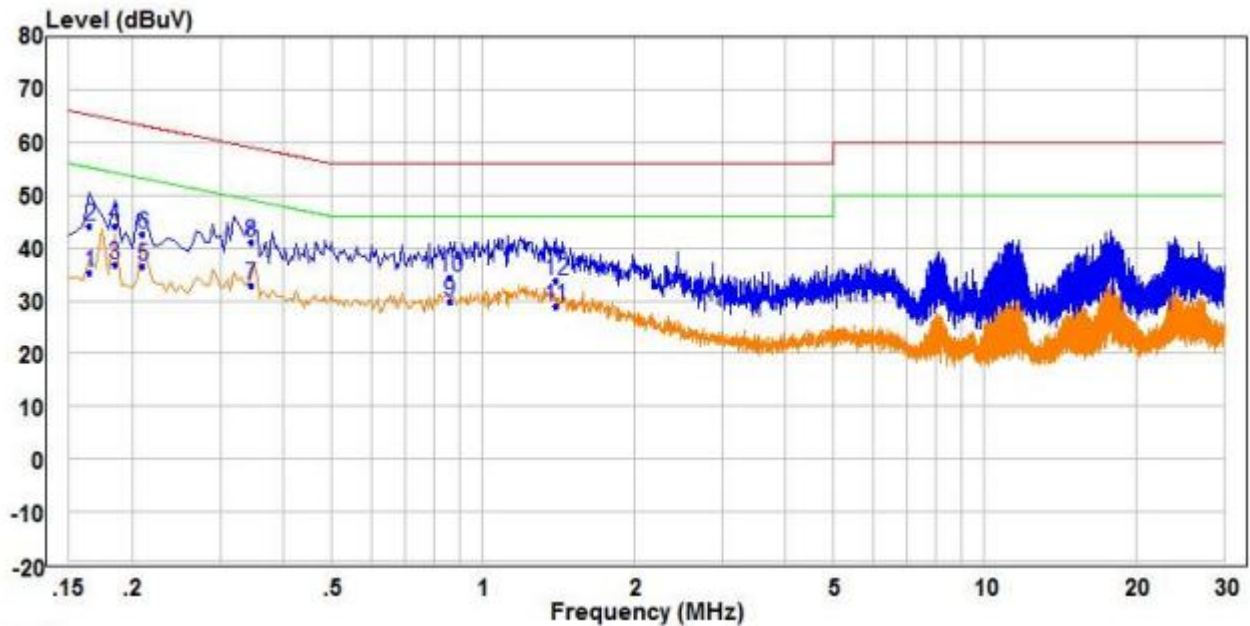


	Freq	Read	Factor	Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.180	28.51	10.64	39.15	54.49	-15.34	Average	Line
2 QP	0.180	36.49	10.64	47.13	64.49	-17.36	QP	Line
3	0.305	20.11	10.50	30.61	50.11	-19.50	Average	Line
4	0.305	25.11	10.50	35.61	60.11	-24.50	QP	Line
5	0.350	19.55	10.55	30.10	48.96	-18.86	Average	Line
6	0.350	24.40	10.55	34.95	58.96	-24.01	QP	Line
7	0.435	18.63	10.64	29.27	47.16	-17.89	Average	Line
8	0.435	23.81	10.64	34.45	57.16	-22.71	QP	Line
9 PP	1.185	19.74	11.18	30.92	46.00	-15.08	Average	Line
10	1.185	24.49	11.18	35.67	56.00	-20.33	QP	Line
11	1.500	17.60	11.83	29.43	46.00	-16.57	Average	Line
12	1.500	22.68	11.83	34.51	56.00	-21.49	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:



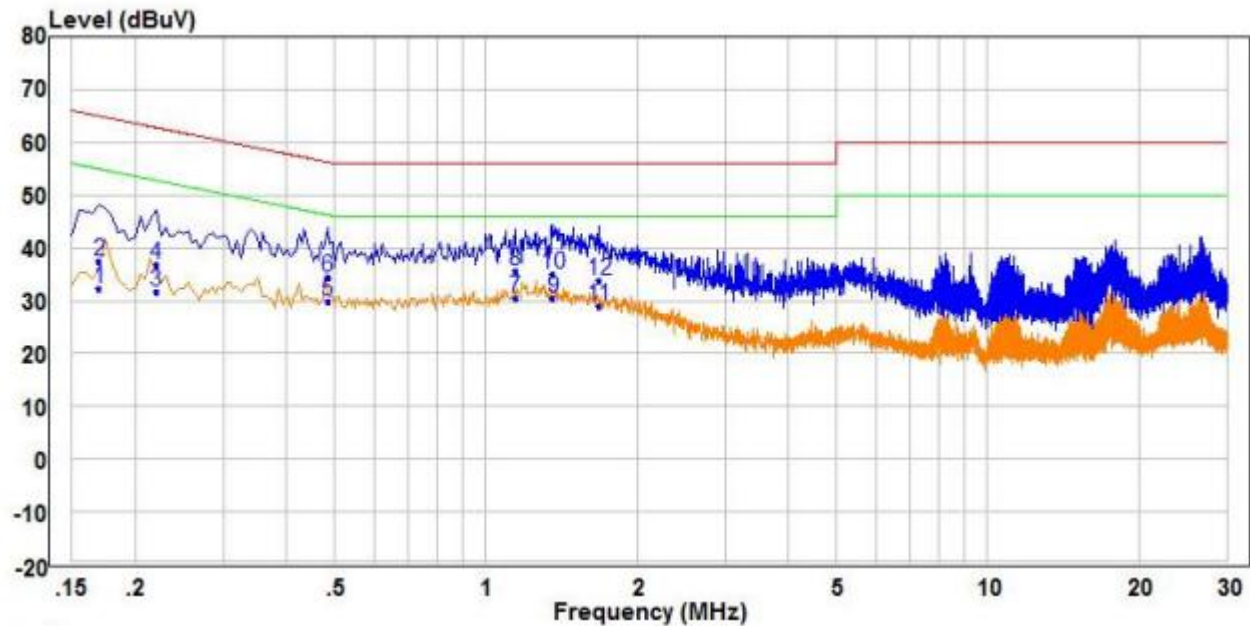
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.165	24.69	10.67	35.36	55.21	-19.85	Average	Neutral
2	0.165	33.52	10.67	44.19	65.21	-21.02	QP	Neutral
3	0.185	26.34	10.63	36.97	54.26	-17.29	Average	Neutral
4	0.185	33.60	10.63	44.23	64.26	-20.03	QP	Neutral
5	0.210	26.04	10.59	36.63	53.21	-16.58	Average	Neutral
6	0.210	31.99	10.59	42.58	63.21	-20.63	QP	Neutral
7 PP	0.345	22.42	10.54	32.96	49.08	-16.12	Average	Neutral
8 QP	0.345	30.44	10.54	40.98	59.08	-18.10	QP	Neutral
9	0.860	18.93	10.79	29.72	46.00	-16.28	Average	Neutral
10	0.860	23.59	10.79	34.38	56.00	-21.62	QP	Neutral
11	1.395	18.16	10.72	28.88	46.00	-17.12	Average	Neutral
12	1.395	23.12	10.72	33.84	56.00	-22.16	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:

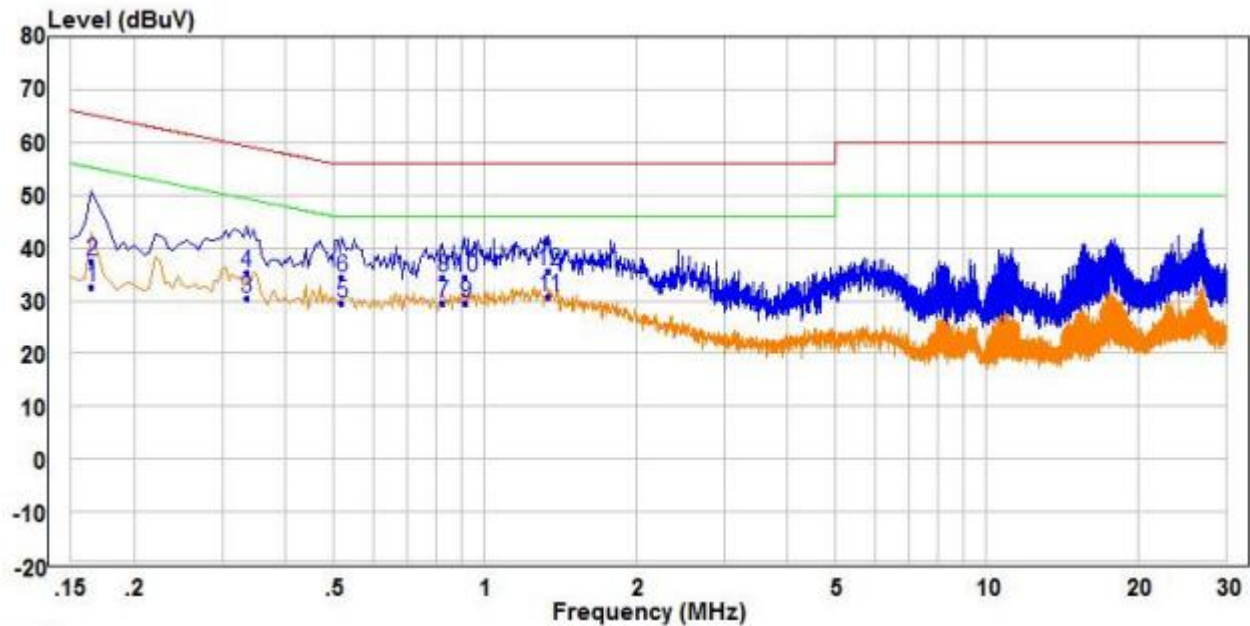


	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.170	21.52	10.66	32.18	54.96	-22.78	Average	Line
2	0.170	26.74	10.66	37.40	64.96	-27.56	QP	Line
3	0.220	21.25	10.58	31.83	52.82	-20.99	Average	Line
4	0.220	26.34	10.58	36.92	62.82	-25.90	QP	Line
5	0.485	19.03	10.69	29.72	46.25	-16.53	Average	Line
6	0.485	23.69	10.69	34.38	56.25	-21.87	QP	Line
7 PP	1.145	19.40	11.08	30.48	46.00	-15.52	Average	Line
8 QP	1.145	24.43	11.08	35.51	56.00	-20.49	QP	Line
9	1.360	18.79	11.56	30.35	46.00	-15.65	Average	Line
10	1.360	23.55	11.56	35.11	56.00	-20.89	QP	Line
11	1.680	16.91	12.15	29.06	46.00	-16.94	Average	Line
12	1.680	21.70	12.15	33.85	56.00	-22.15	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:



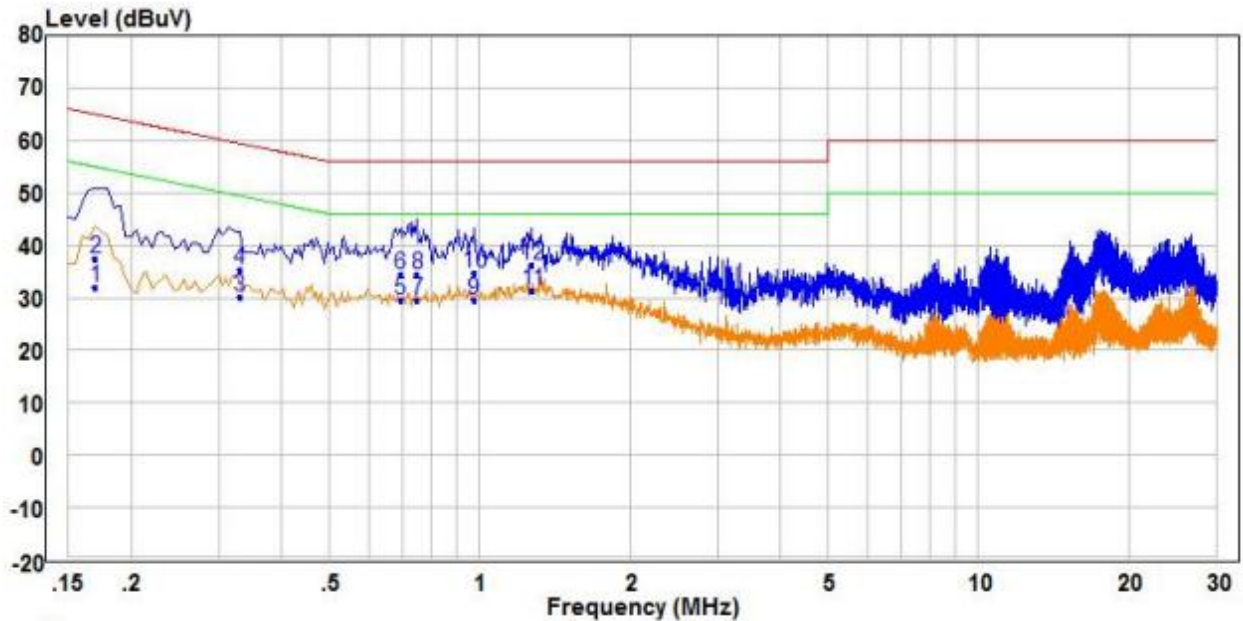
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.165	21.99	10.67	32.66	55.21	-22.55	Average	Neutral
2	0.165	26.77	10.67	37.44	65.21	-27.77	QP	Neutral
3	0.335	19.81	10.53	30.34	49.33	-18.99	Average	Neutral
4	0.335	24.71	10.53	35.24	59.33	-24.09	QP	Neutral
5	0.520	18.77	10.72	29.49	46.00	-16.51	Average	Neutral
6	0.520	23.71	10.72	34.43	56.00	-21.57	QP	Neutral
7	0.825	18.60	10.82	29.42	46.00	-16.58	Average	Neutral
8	0.825	23.56	10.82	34.38	56.00	-21.62	QP	Neutral
9	0.915	18.87	10.76	29.63	46.00	-16.37	Average	Neutral
10	0.915	23.78	10.76	34.54	56.00	-21.46	QP	Neutral
11 PP	1.340	20.11	10.72	30.83	46.00	-15.17	Average	Neutral
12 QP	1.340	25.05	10.72	35.77	56.00	-20.23	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:

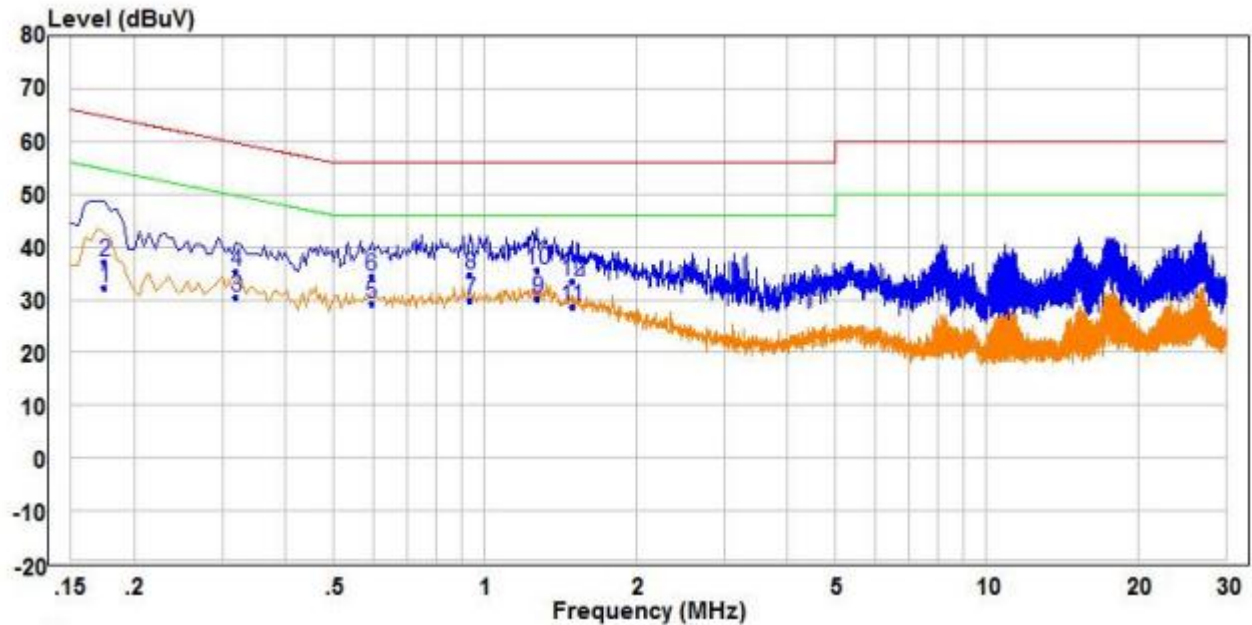


	Freq	Read		Limit	Over		
	MHz	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	Pol/Phase
1	0.170	21.46	10.66	32.12	54.96	-22.84	Average
2	0.170	26.70	10.66	37.36	64.96	-27.60	QP
3	0.330	19.73	10.53	30.26	49.45	-19.19	Average
4	0.330	24.85	10.53	35.38	59.45	-24.07	QP
5	0.695	18.63	10.89	29.52	46.00	-16.48	Average
6	0.695	23.38	10.89	34.27	56.00	-21.73	QP
7	0.750	18.63	10.87	29.50	46.00	-16.50	Average
8	0.750	23.49	10.87	34.36	56.00	-21.64	QP
9	0.975	18.90	10.72	29.62	46.00	-16.38	Average
10	0.975	24.13	10.72	34.85	56.00	-21.15	QP
11 PP	1.275	19.94	11.38	31.32	46.00	-14.68	Average
12 QP	1.275	24.97	11.38	36.35	56.00	-19.65	QP

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:



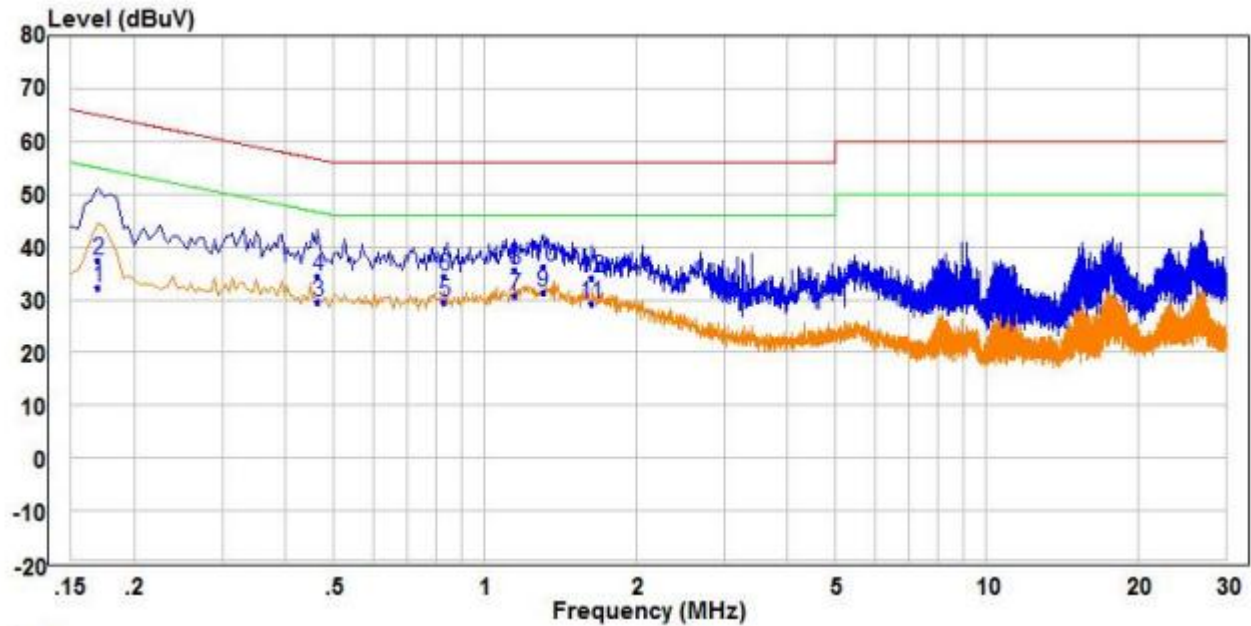
	Freq	Read		Limit	Over		
	MHz	Level	Factor	Line	Limit	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.175	21.73	10.65	32.38	54.72	-22.34	Average
2	0.175	26.63	10.65	37.28	64.72	-27.44	QP
3	0.320	20.03	10.51	30.54	49.71	-19.17	Average
4	0.320	24.86	10.51	35.37	59.71	-24.34	QP
5	0.595	18.57	10.80	29.37	46.00	-16.63	Average
6	0.595	23.52	10.80	34.32	56.00	-21.68	QP
7	0.935	19.13	10.74	29.87	46.00	-16.13	Average
8	0.935	24.05	10.74	34.79	56.00	-21.21	QP
9 PP	1.275	19.52	10.71	30.23	46.00	-15.77	Average
10 QP	1.275	24.97	10.71	35.68	56.00	-20.32	QP
11	1.495	17.98	10.72	28.70	46.00	-17.30	Average
12	1.495	22.78	10.72	33.50	56.00	-22.50	QP

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#

Live Line:

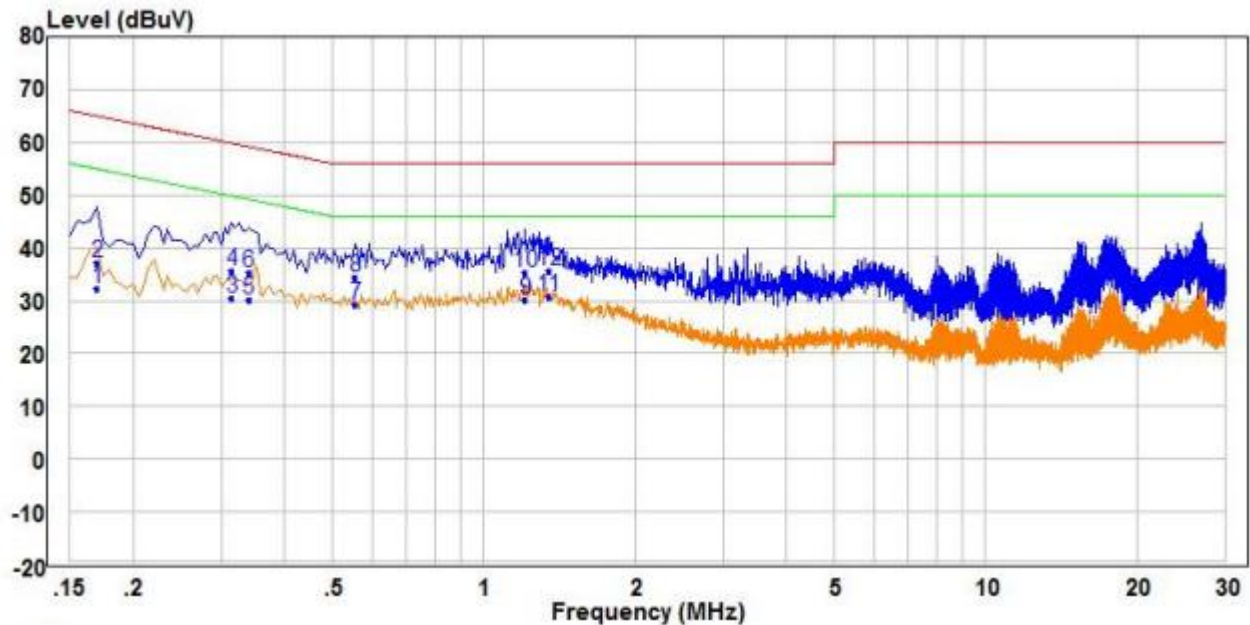


	Freq	Read	Factor	Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.170	21.74	10.66	32.40	54.96	-22.56	Average	Line
2	0.170	26.75	10.66	37.41	64.96	-27.55	QP	Line
3	0.465	18.77	10.67	29.44	46.60	-17.16	Average	Line
4	0.465	23.83	10.67	34.50	56.60	-22.10	QP	Line
5	0.830	18.72	10.81	29.53	46.00	-16.47	Average	Line
6	0.830	23.65	10.81	34.46	56.00	-21.54	QP	Line
7	1.150	19.64	11.09	30.73	46.00	-15.27	Average	Line
8	1.150	24.58	11.09	35.67	56.00	-20.33	QP	Line
9 PP	1.305	20.06	11.45	31.51	46.00	-14.49	Average	Line
10 QP	1.305	24.93	11.45	36.38	56.00	-19.62	QP	Line
11	1.630	17.14	12.07	29.21	46.00	-16.79	Average	Line
12	1.630	21.98	12.07	34.05	56.00	-21.95	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:

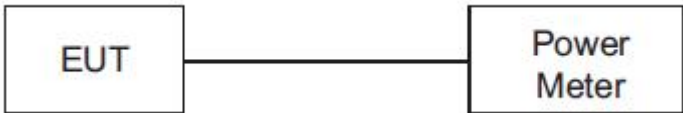
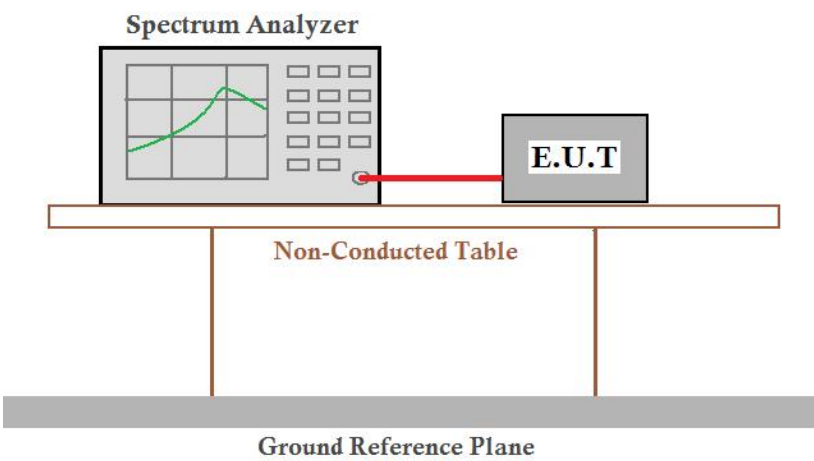


	Freq	Read	Factor	Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.170	21.73	10.66	32.39	54.96	-22.57	Average	Neutral
2	0.170	26.55	10.66	37.21	64.96	-27.75	QP	Neutral
3	0.315	19.89	10.50	30.39	49.84	-19.45	Average	Neutral
4	0.315	25.15	10.50	35.65	59.84	-24.19	QP	Neutral
5	0.340	19.76	10.53	30.29	49.20	-18.91	Average	Neutral
6	0.340	24.68	10.53	35.21	59.20	-23.99	QP	Neutral
7	0.555	18.53	10.75	29.28	46.00	-16.72	Average	Neutral
8	0.555	23.53	10.75	34.28	56.00	-21.72	QP	Neutral
9	1.210	19.58	10.71	30.29	46.00	-15.71	Average	Neutral
10	1.210	24.73	10.71	35.44	56.00	-20.56	QP	Neutral
11 PP	1.345	20.09	10.72	30.81	46.00	-15.19	Average	Neutral
12 QP	1.345	24.99	10.72	35.71	56.00	-20.29	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:	<i>Setup for Power meter measurement method</i>  <i>Setup for Spectrum analyser measurement method</i> 
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

ANT1:

Test Mode	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11B	2412	12.12	≤30.00	PASS
	2437	11.91	≤30.00	PASS
	2462	11.89	≤30.00	PASS
11G	2412	10.92	≤30.00	PASS
	2437	10.83	≤30.00	PASS
	2462	10.77	≤30.00	PASS
11N20SISO	2412	9.93	≤30.00	PASS
	2437	9.79	≤30.00	PASS
	2462	9.78	≤30.00	PASS
11N40SISO	2422	9.92	≤30.00	PASS
	2437	9.92	≤30.00	PASS
	2452	9.82	≤30.00	PASS
11AX20SISO	2412	12.73	≤30.00	PASS
	2437	12.01	≤30.00	PASS
	2462	12.46	≤30.00	PASS
11AX40SISO	2422	12.62	≤30.00	PASS
	2437	12.71	≤30.00	PASS
	2452	13.00	≤30.00	PASS

ANT2:

Test Mode	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11B	2412	12.28	≤30.00	PASS
	2437	12.03	≤30.00	PASS
	2462	12.03	≤30.00	PASS
11G	2412	11.08	≤30.00	PASS
	2437	10.97	≤30.00	PASS
	2462	10.94	≤30.00	PASS
11N20SISO	2412	9.92	≤30.00	PASS
	2437	9.84	≤30.00	PASS
	2462	9.81	≤30.00	PASS
11N40SISO	2422	9.96	≤30.00	PASS
	2437	9.95	≤30.00	PASS
	2452	9.85	≤30.00	PASS
11AX20SISO	2412	12.24	≤30.00	PASS
	2437	11.82	≤30.00	PASS
	2462	12.12	≤30.00	PASS
11AX40SISO	2422	12.15	≤30.00	PASS
	2437	12.16	≤30.00	PASS
	2452	12.47	≤30.00	PASS

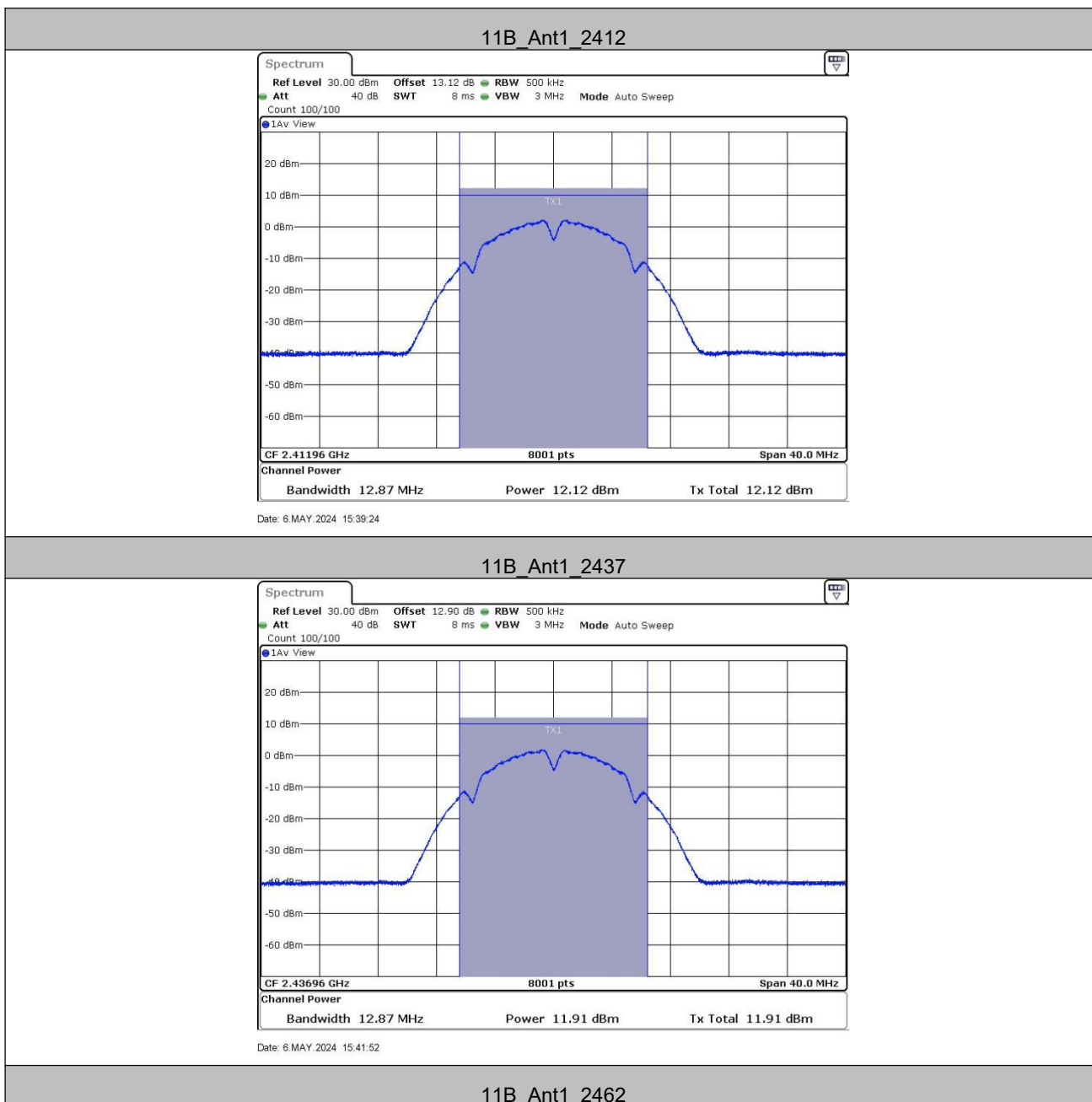
ANT1+ANT2:

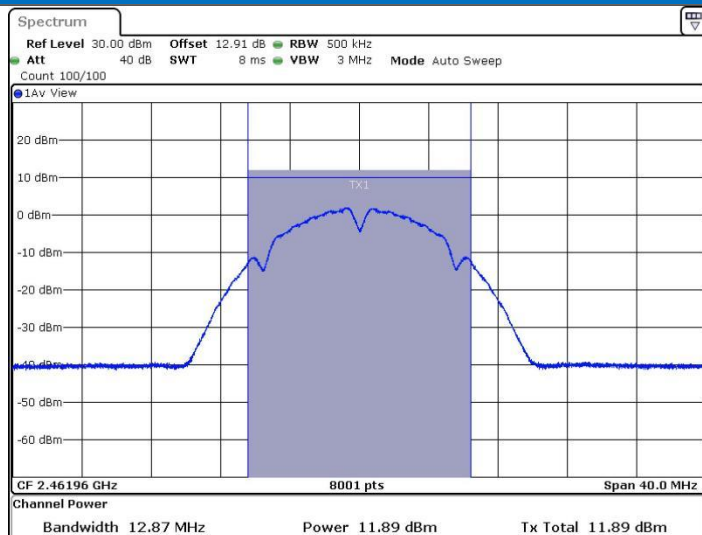
Test Mode	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11N20MIMO	2412	12.94	≤30.00	PASS
	2437	12.83	≤30.00	PASS
	2462	12.81	≤30.00	PASS
11N40MIMO	2422	12.95	≤30.00	PASS
	2437	12.95	≤30.00	PASS
	2452	12.85	≤30.00	PASS
11AX20MIMO	2412	15.50	≤30.00	PASS
	2437	14.93	≤30.00	PASS
	2462	15.30	≤30.00	PASS
11AX40MIMO	2422	15.40	≤30.00	PASS
	2437	15.45	≤30.00	PASS
	2452	15.75	≤30.00	PASS

Note:

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

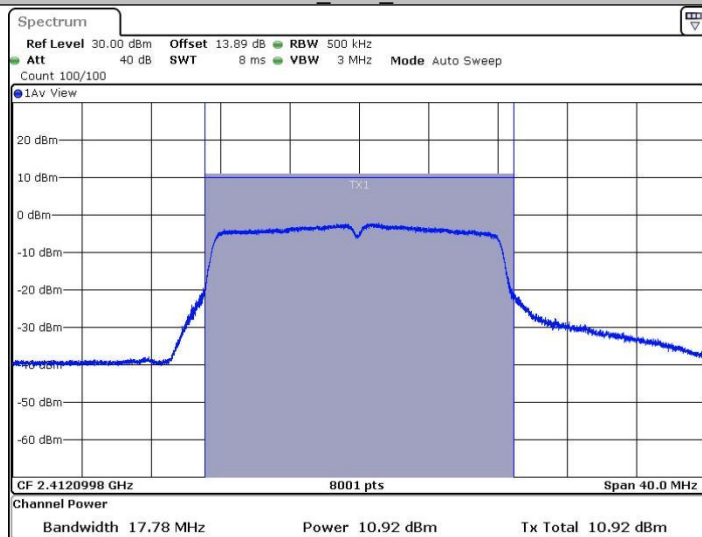
Test Graphs





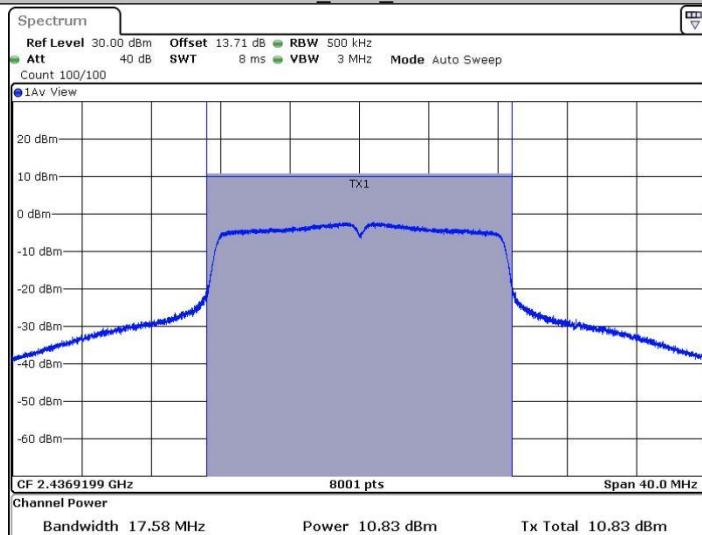
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11G_Ant1_2412



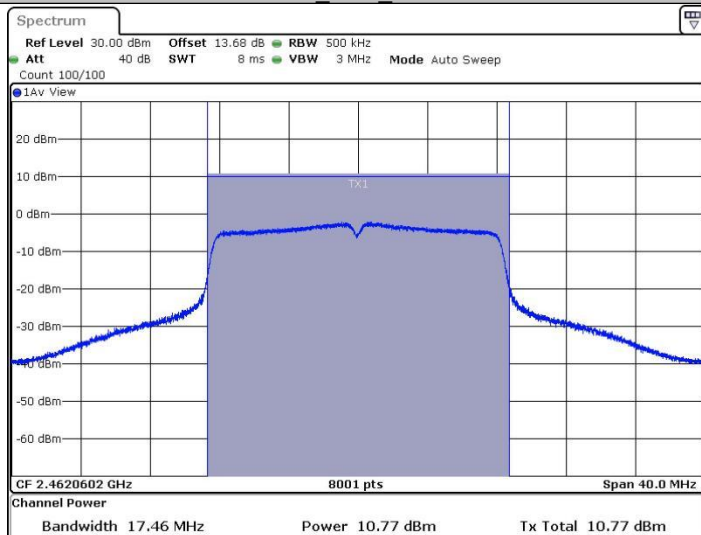
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11G_Ant1_2437



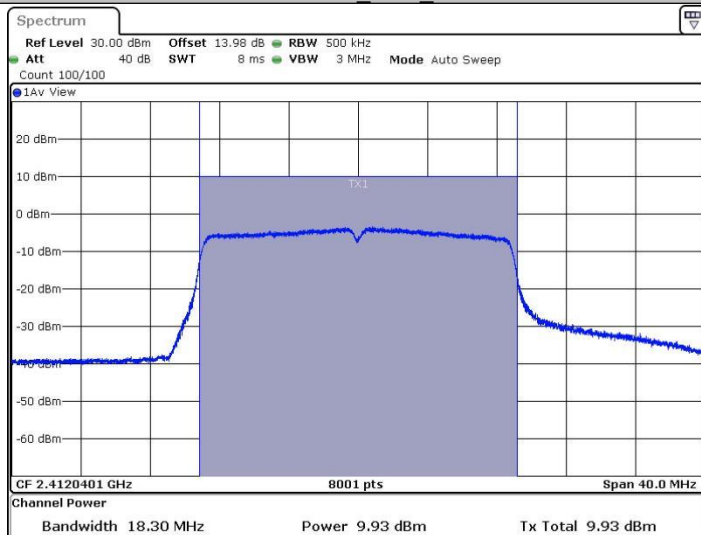
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11G_Ant1_2462



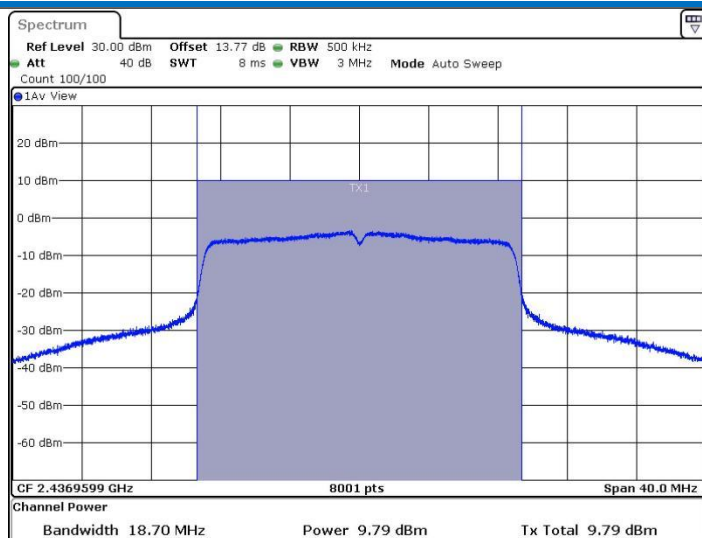
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11N20SISO_Ant1_2412



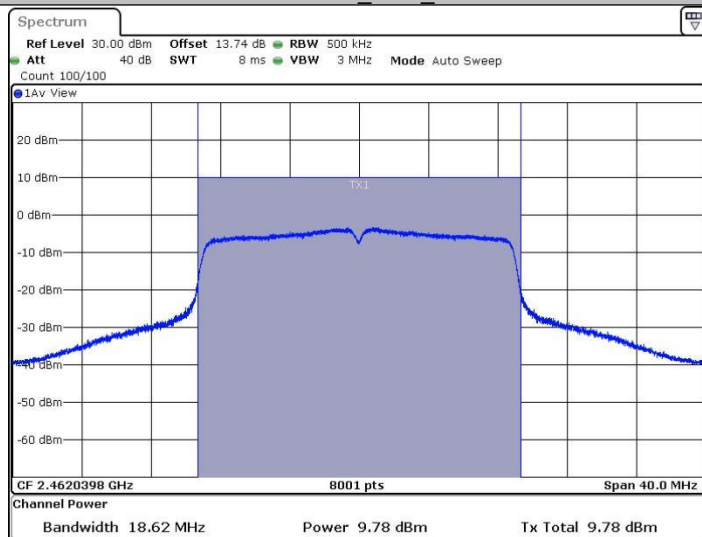
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11N20SISO_Ant1_2437



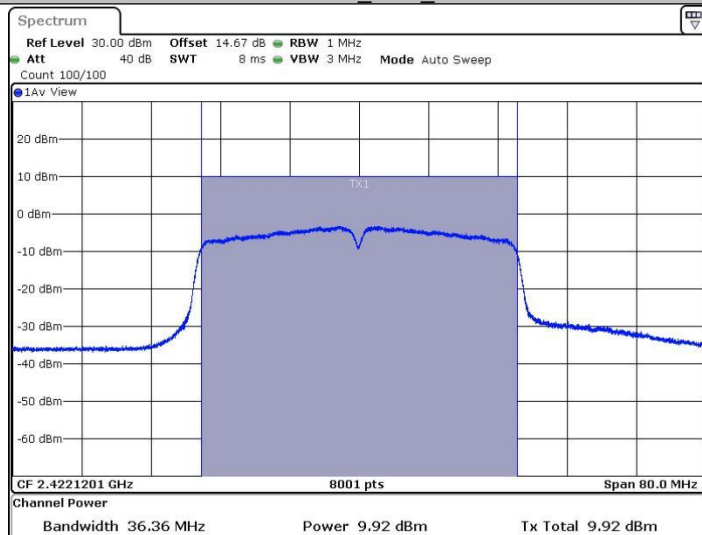
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11N20SISO_Ant1_2462



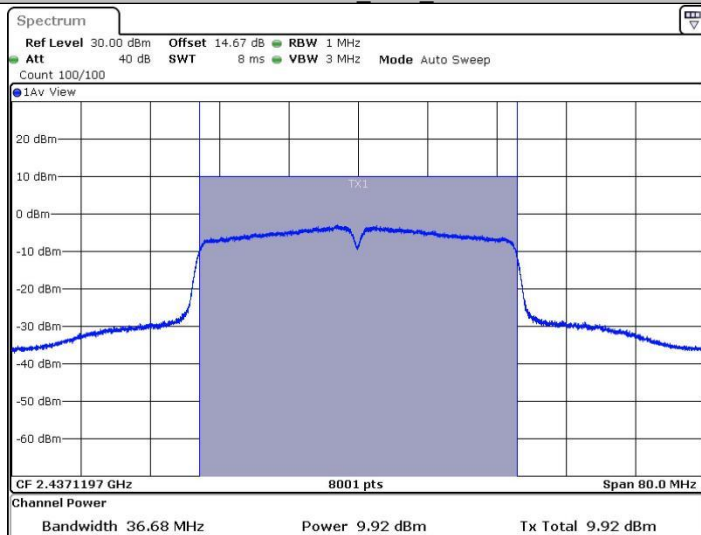
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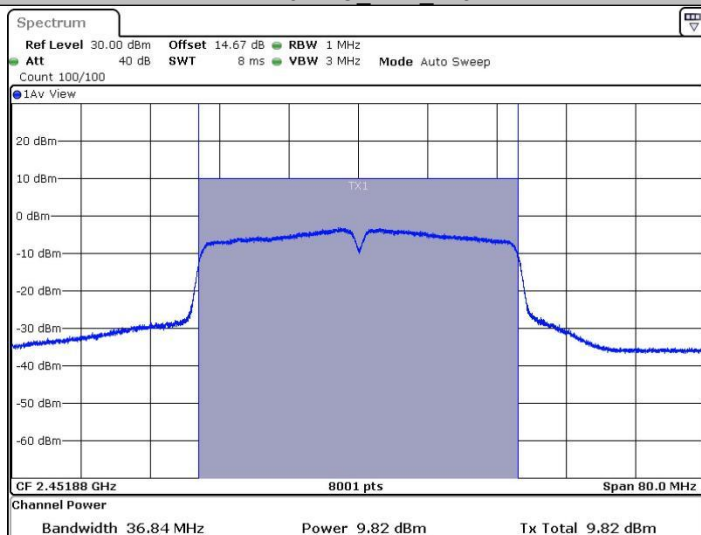
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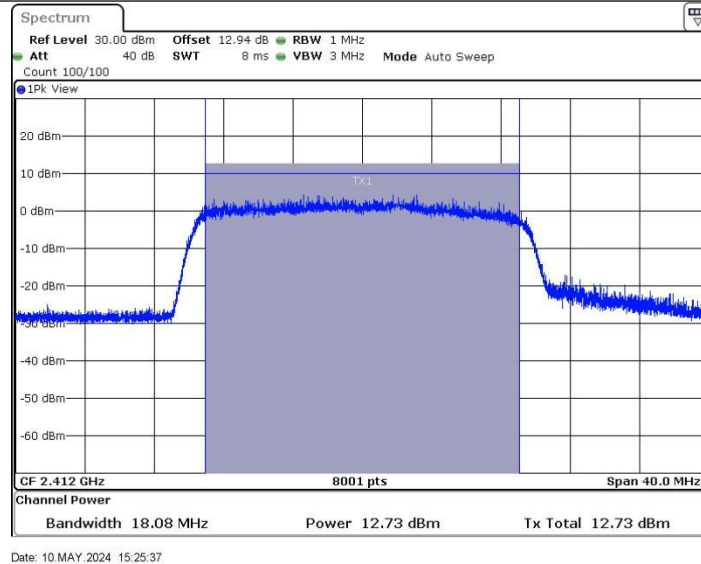
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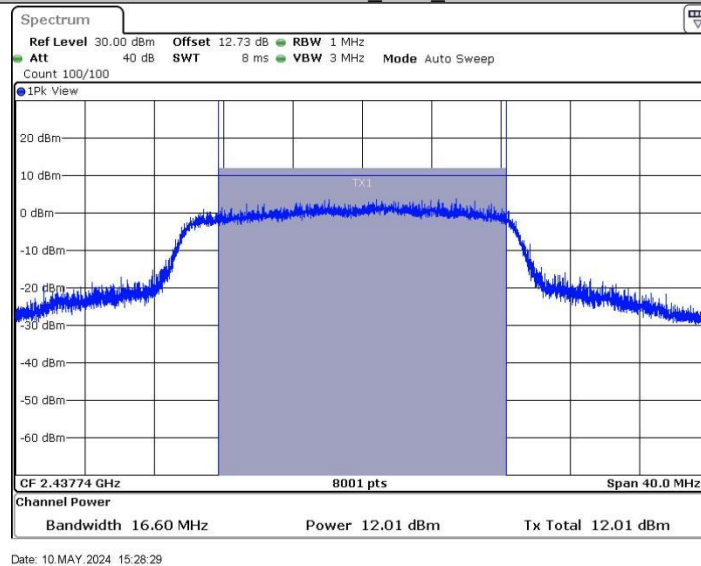


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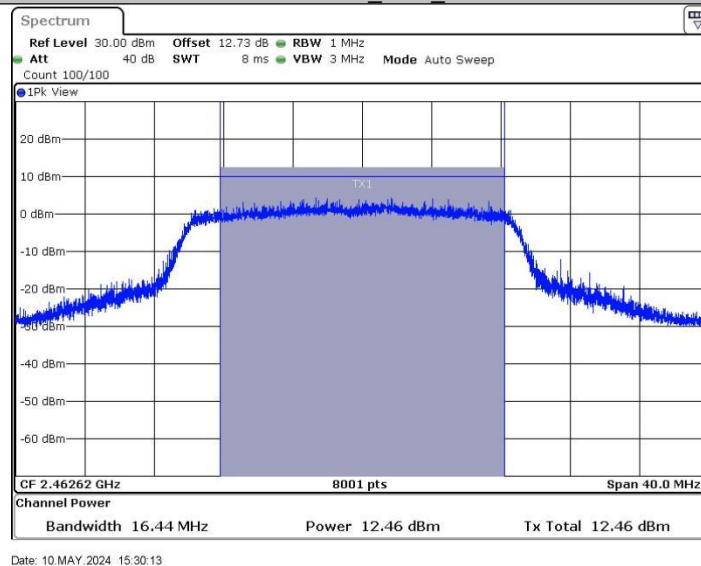
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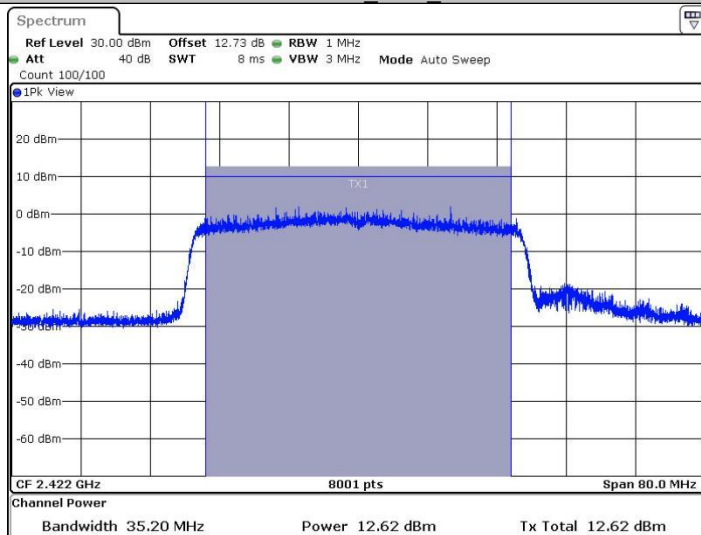
11AX20SISO_Ant1_2437



11AX20SISO_Ant1_2462

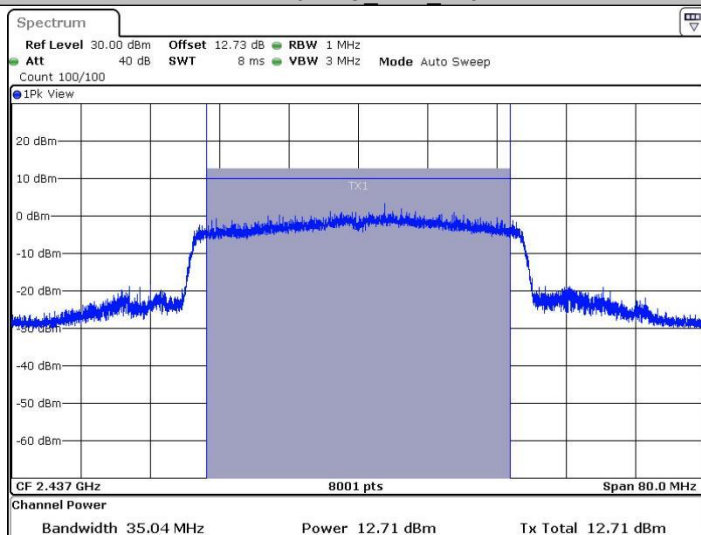


11AX40SISO_Ant1_2422



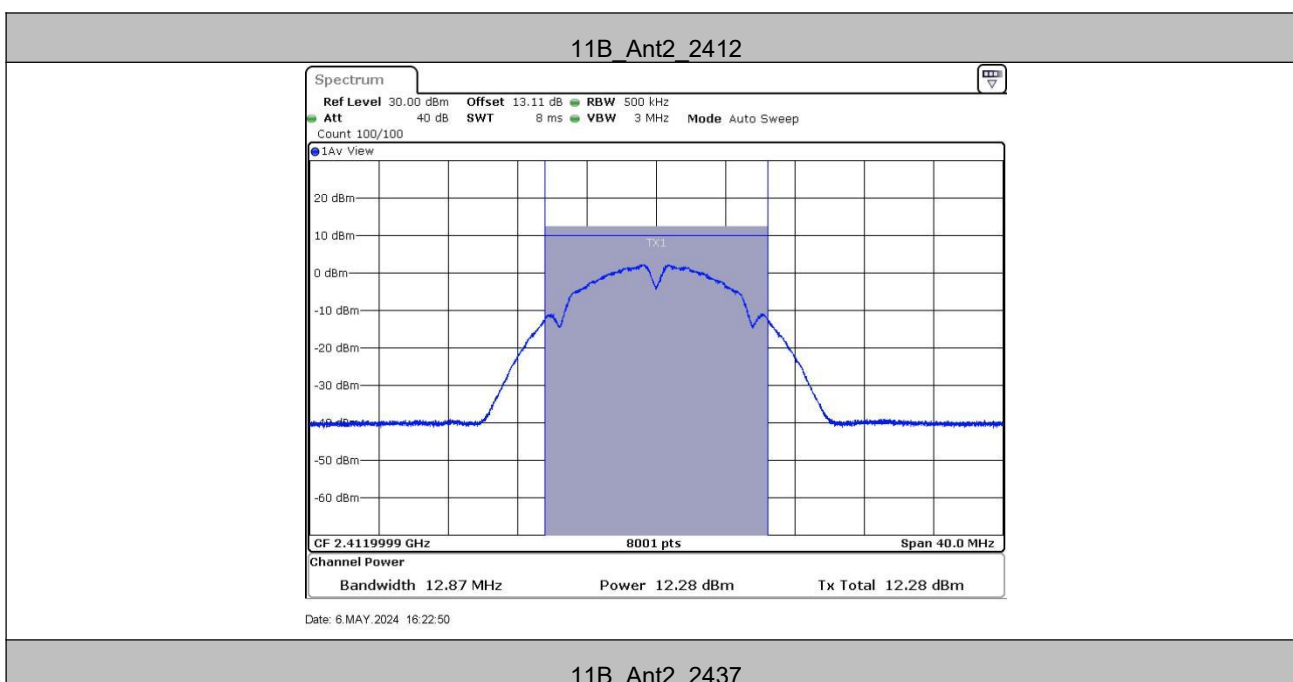
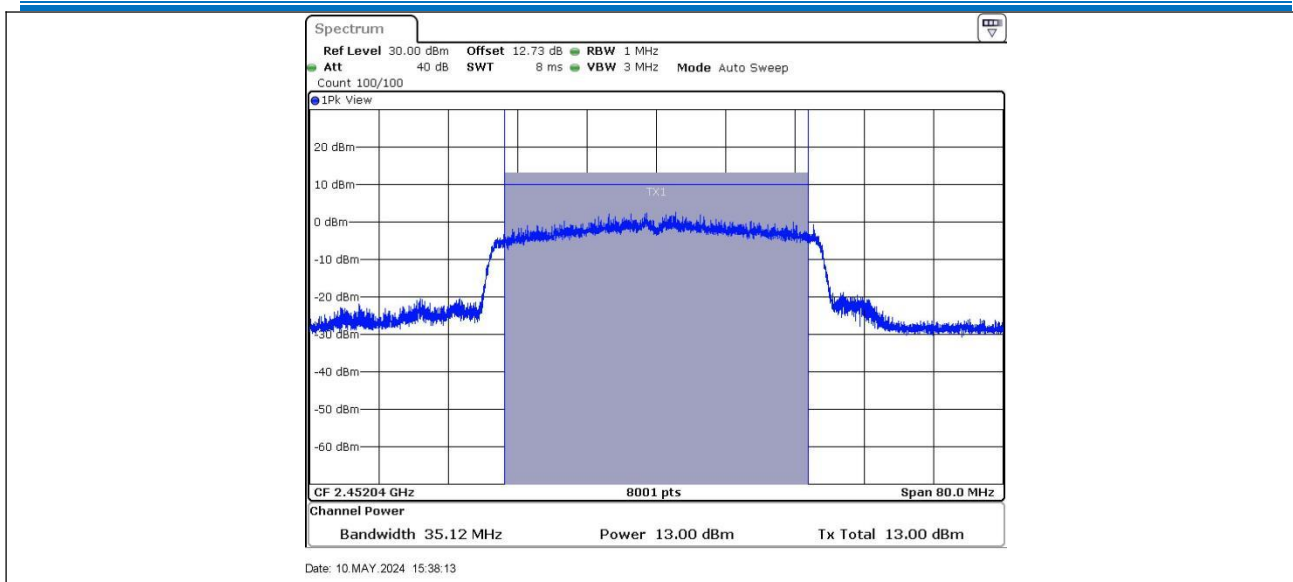
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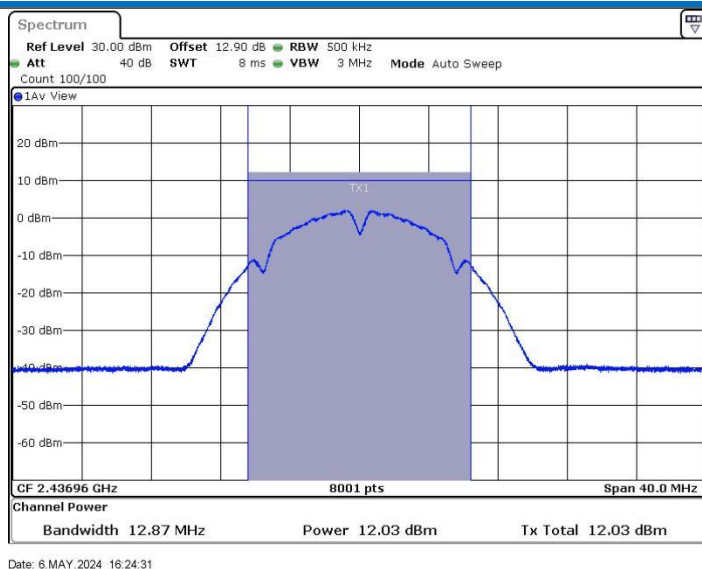
11AX40SISO_Ant1_2437



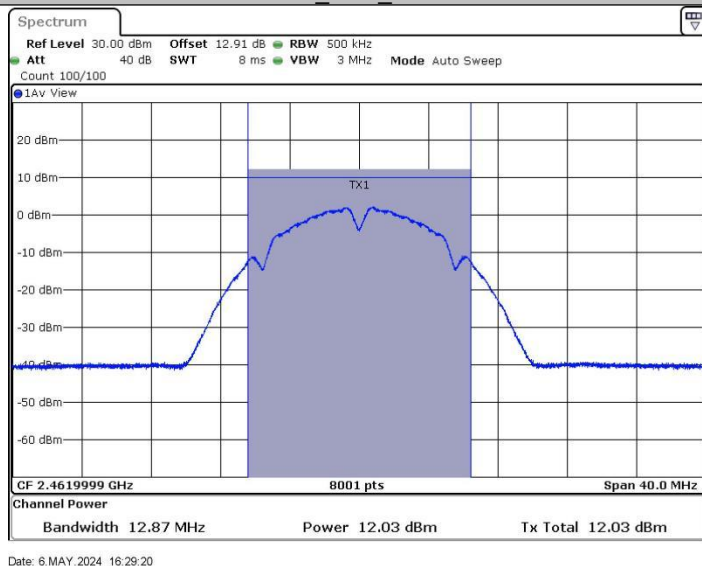
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11AX40SISO_Ant1_2452

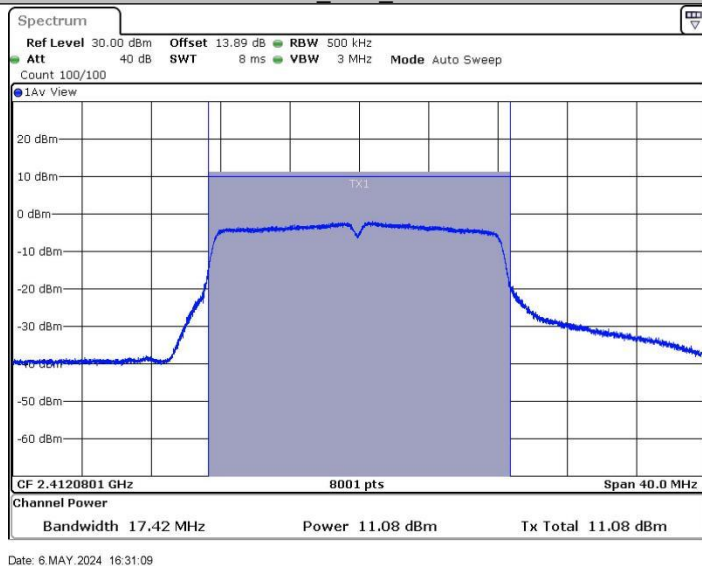




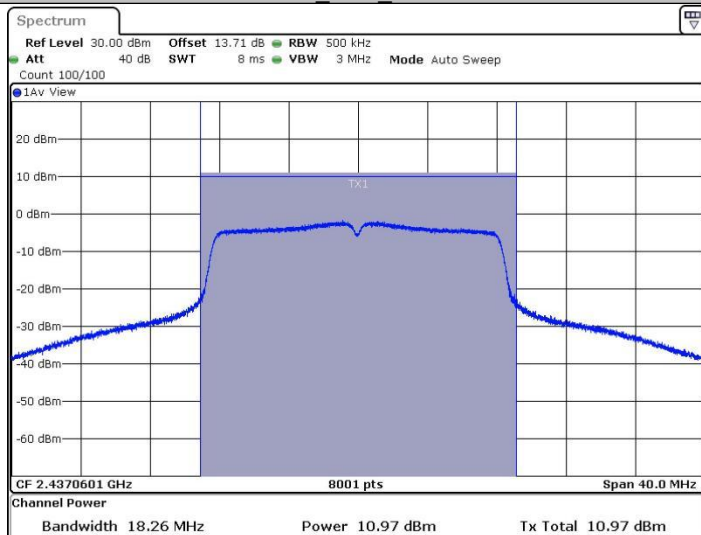
11B_Ant2_2462



11G_Ant2_2412

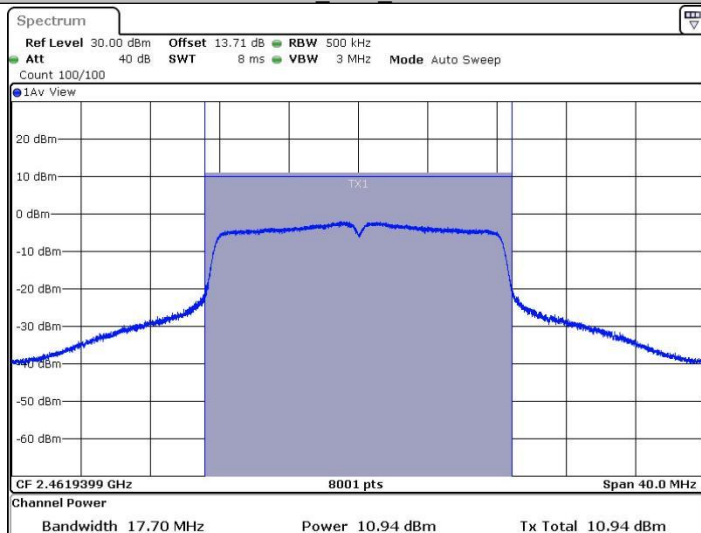


11G_Ant2_2437



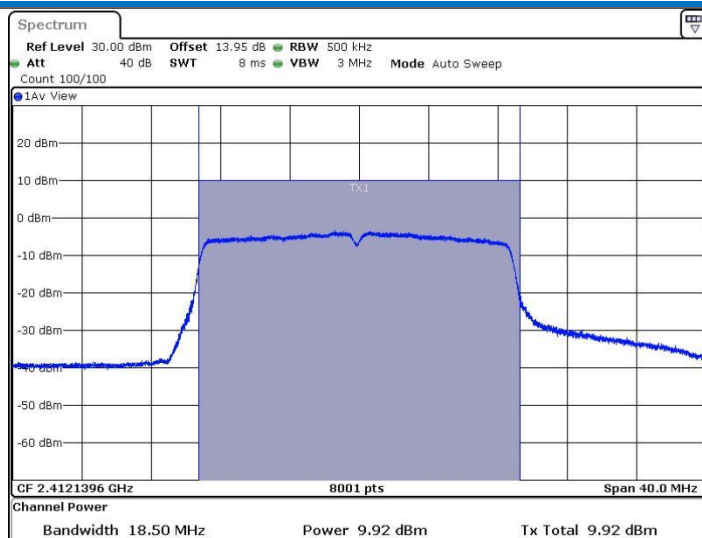
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11G_Ant2_2462



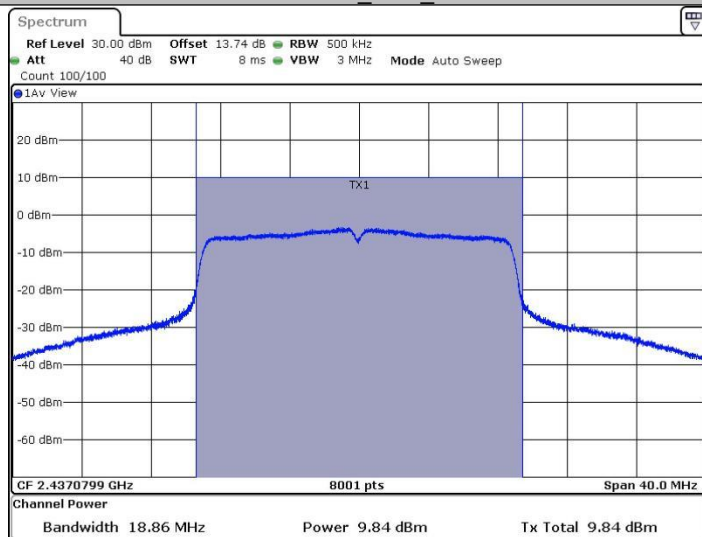
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11N20SISO_Ant2_2412



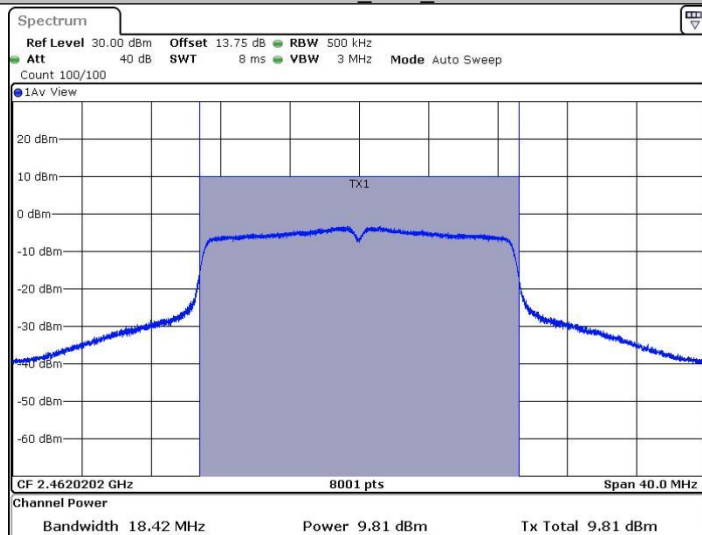
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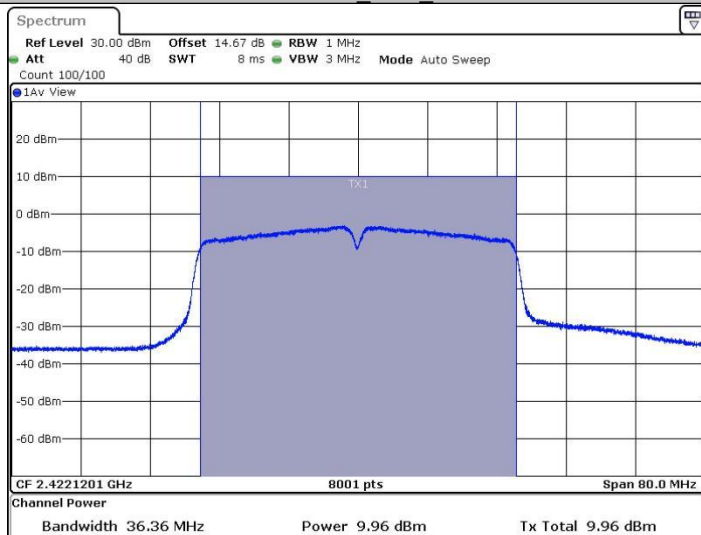
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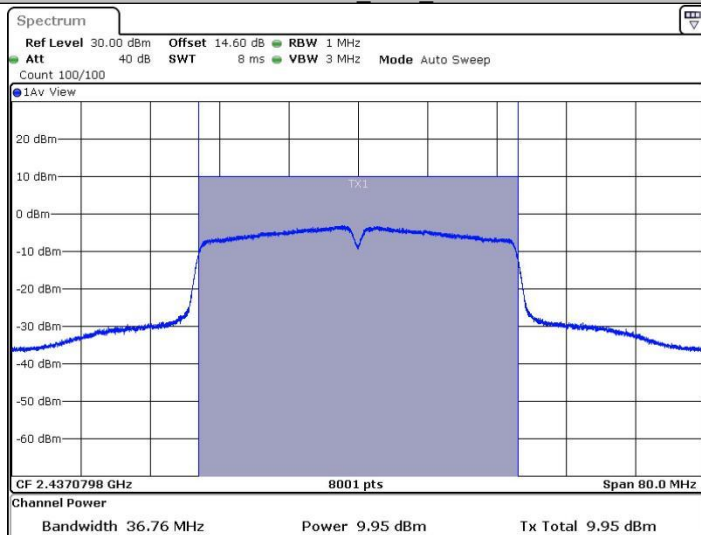


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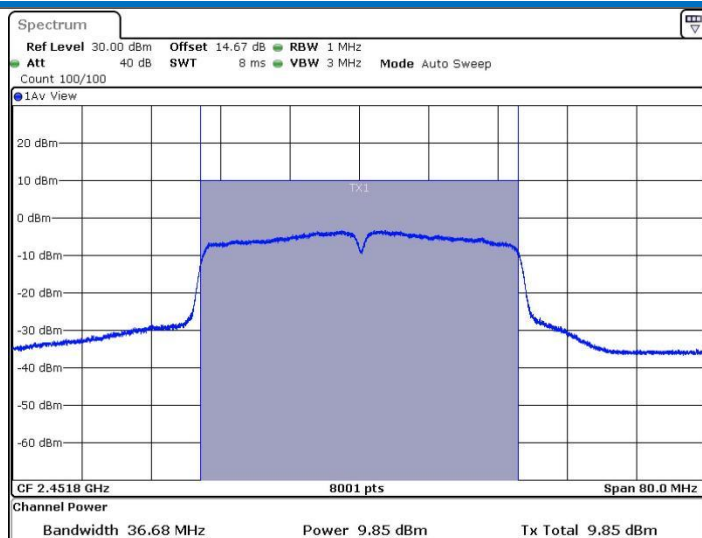
11N40SISO_Ant2_2422



11N40SISO_Ant2_2437

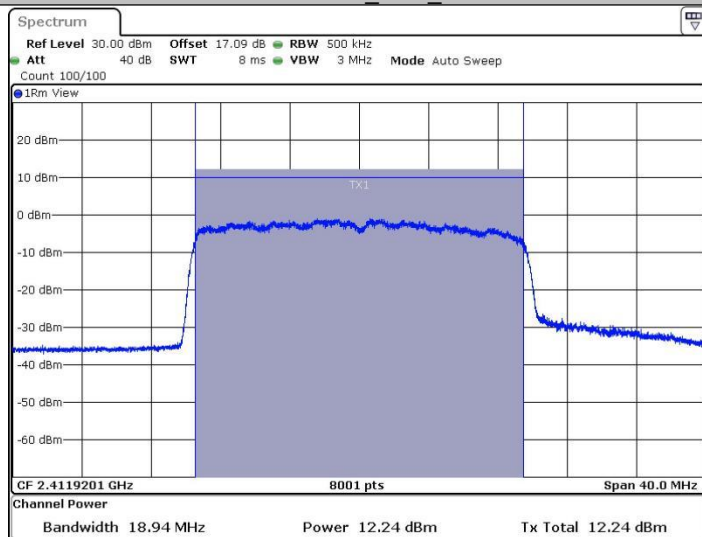


11N40SISO_Ant2_2452



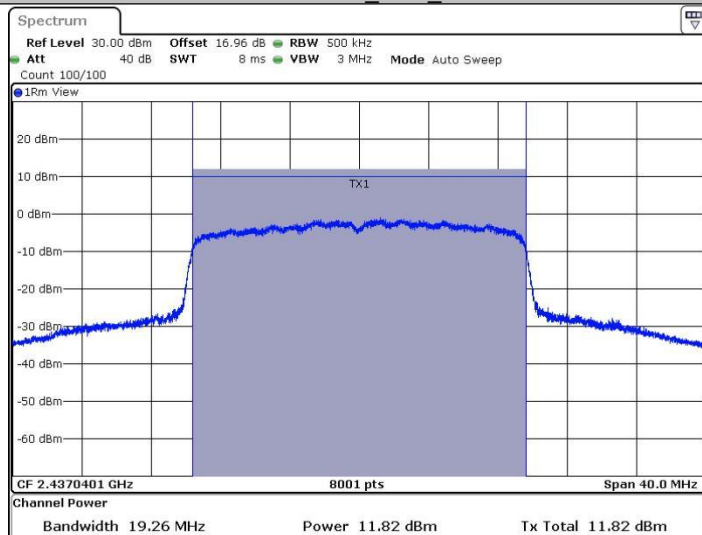
Date: 6 MAY 2024 16:51:39

11AX20SISO_Ant2_2412



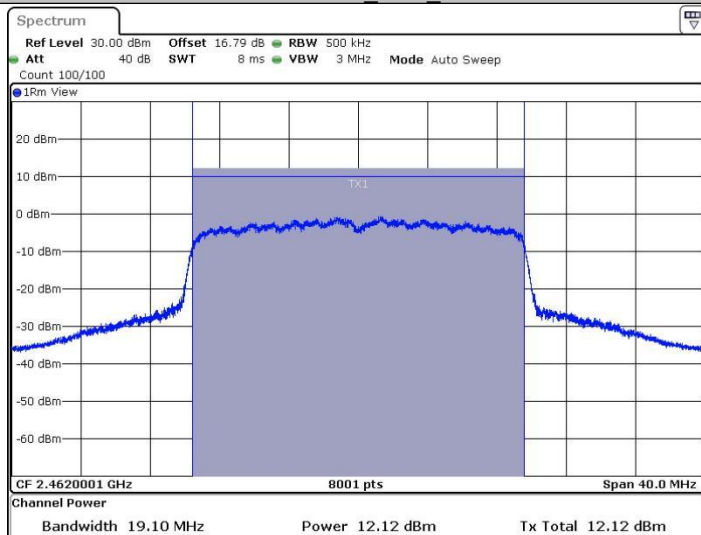
Date: 10 MAY 2024 15:01:34

11AX20SISO_Ant2_2437



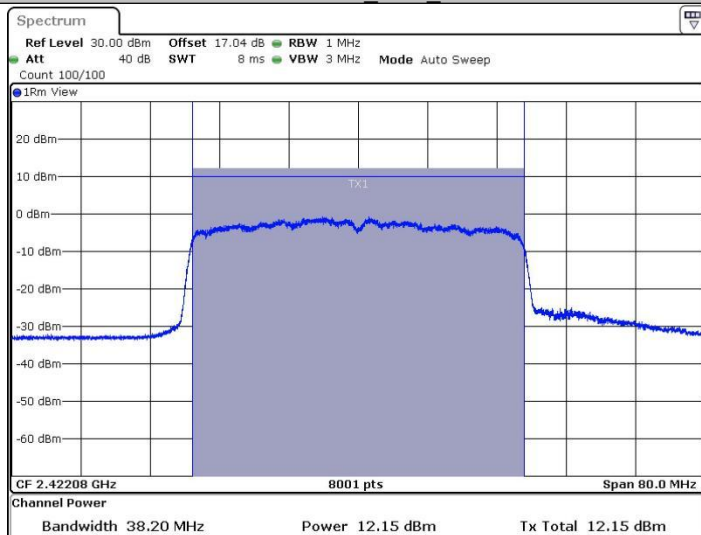
Date: 10 MAY 2024 15:04:11

11AX20SISO_Ant2_2462



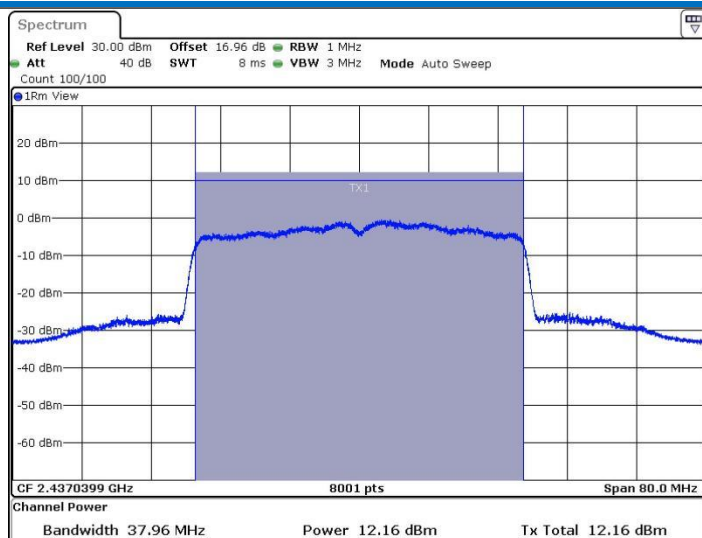
Date: 10 MAY 2024 15:05:39

11AX40SISO_Ant2_2422



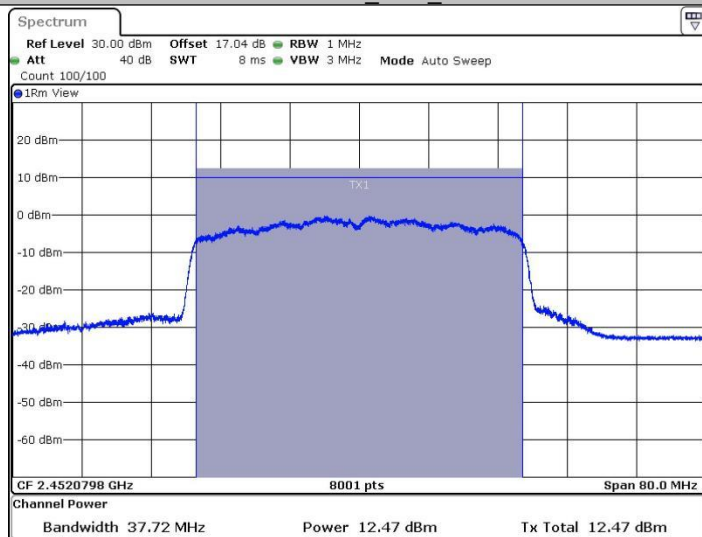
Date: 10 MAY 2024 15:08:21

11AX40SISO_Ant2_2437



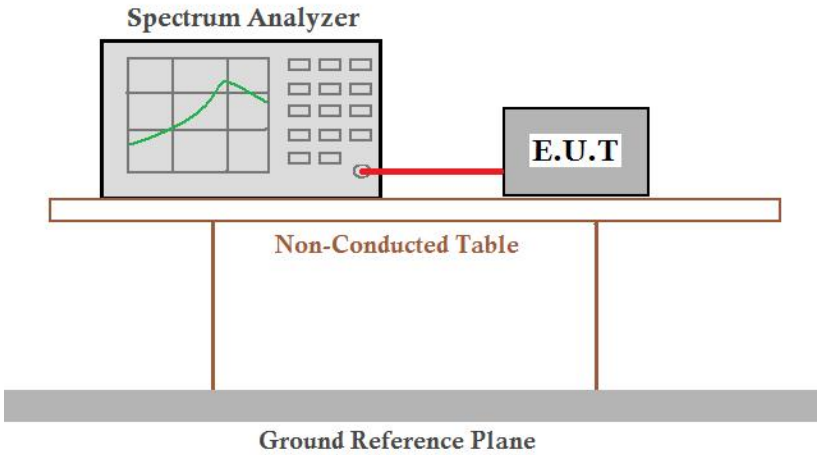
Date: 10 MAY 2024 15:11:04

11AX40SISO_Ant2_2452



Date: 10 MAY 2024 15:12:52

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

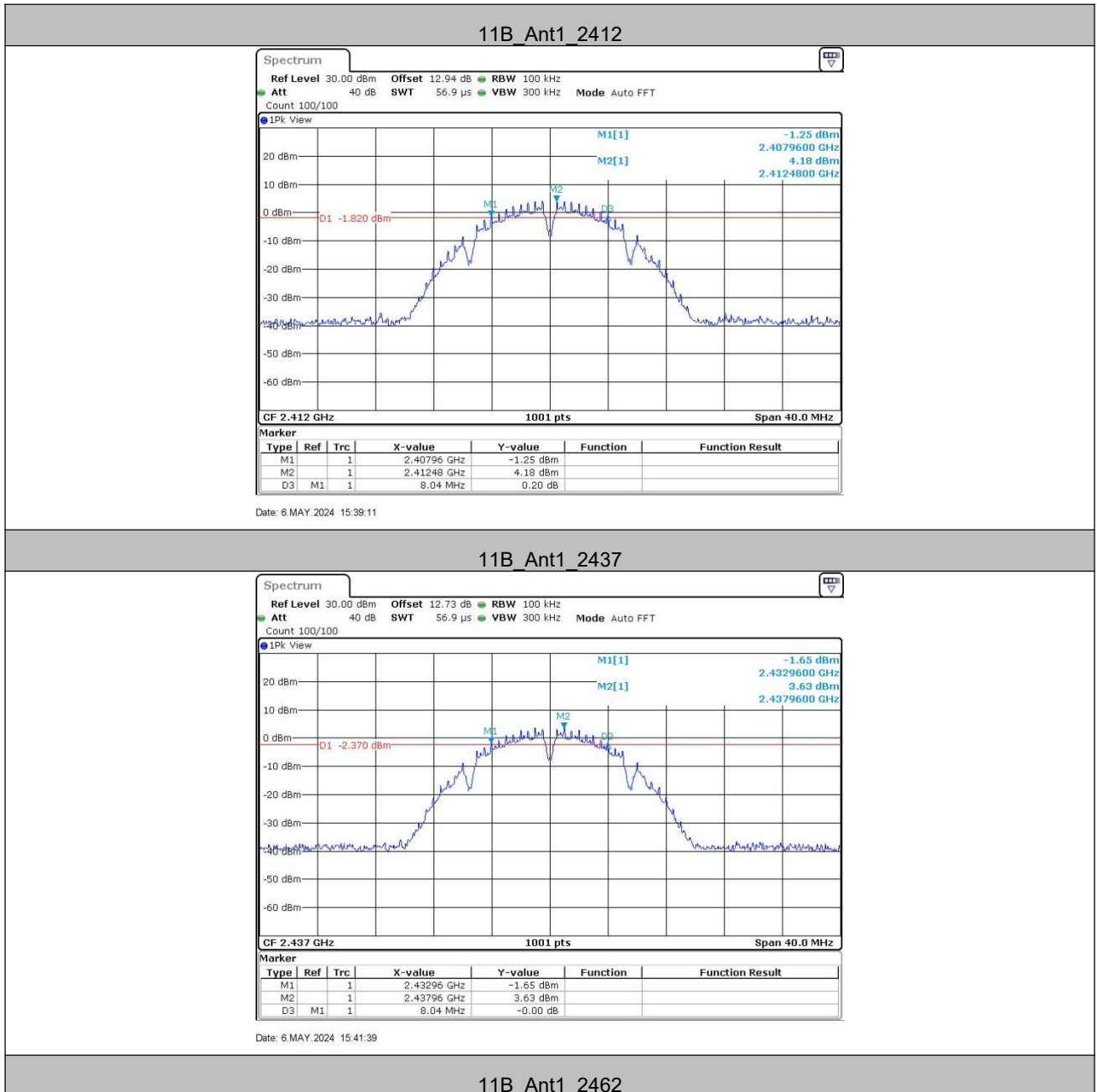
ANT1:

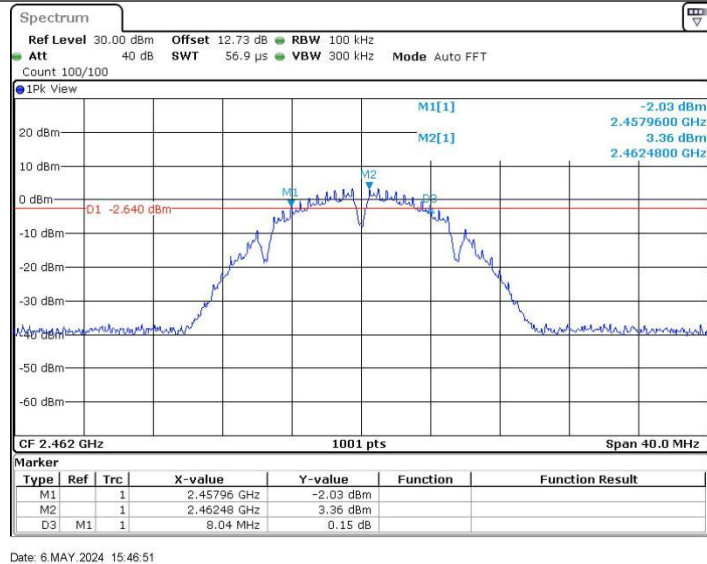
TestMode	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	2412	8.04	2407.96	2416.00	0.5	PASS
	2437	8.04	2432.96	2441.00	0.5	PASS
	2462	8.04	2457.96	2466.00	0.5	PASS
11G	2412	16.36	2403.80	2420.16	0.5	PASS
	2437	16.28	2428.84	2445.12	0.5	PASS
	2462	15.64	2454.20	2469.84	0.5	PASS
11N20SISO	2412	17.16	2403.20	2420.36	0.5	PASS
	2437	15.92	2428.84	2444.76	0.5	PASS
	2462	16.28	2453.84	2470.12	0.5	PASS
11N40SISO	2422	35.12	2404.40	2439.52	0.5	PASS
	2437	33.84	2420.68	2454.52	0.5	PASS
	2452	35.36	2434.40	2469.76	0.5	PASS
11AX20SISO	2412	18.08	2402.96	2421.04	0.5	PASS
	2437	16.60	2429.44	2446.04	0.5	PASS
	2462	16.44	2454.40	2470.84	0.5	PASS
11AX40SISO	2422	35.20	2404.40	2439.60	0.5	PASS
	2437	35.04	2419.48	2454.52	0.5	PASS
	2452	35.12	2434.48	2469.60	0.5	PASS

ANT2:

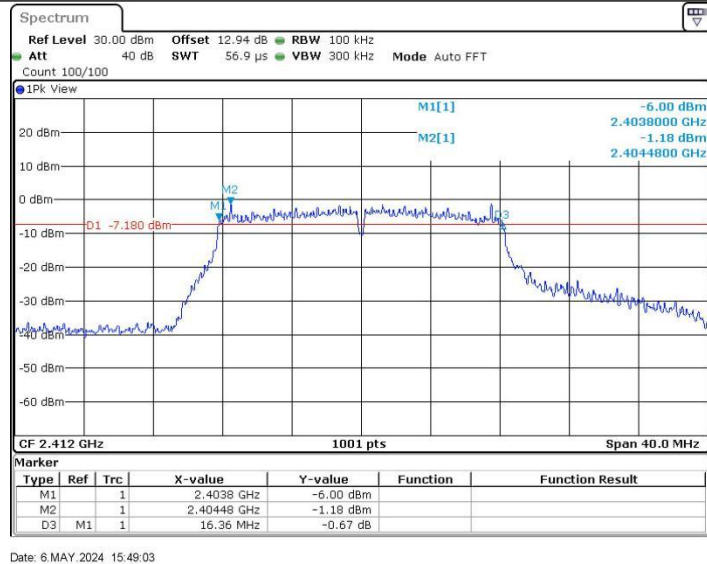
TestMode	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	2412	8.04	2407.96	2416.00	0.5	PASS
	2437	8.04	2432.96	2441.00	0.5	PASS
	2462	8.04	2457.96	2466.00	0.5	PASS
11G	2412	16.36	2403.80	2420.16	0.5	PASS
	2437	16.32	2428.80	2445.12	0.5	PASS
	2462	16.32	2453.84	2470.16	0.5	PASS
11N20SISO	2412	17.56	2403.20	2420.76	0.5	PASS
	2437	16.04	2428.84	2444.88	0.5	PASS
	2462	17.56	2453.20	2470.76	0.5	PASS
11N40SISO	2422	35.04	2404.48	2439.52	0.5	PASS
	2437	35.12	2419.40	2454.52	0.5	PASS
	2452	35.12	2434.40	2469.52	0.5	PASS
11AX20SISO	2412	18.76	2402.48	2421.24	0.5	PASS
	2437	17.80	2428.44	2446.24	0.5	PASS
	2462	18.04	2452.72	2470.76	0.5	PASS
11AX40SISO	2422	35.12	2404.40	2439.52	0.5	PASS
	2437	35.12	2419.40	2454.52	0.5	PASS
	2452	35.04	2434.48	2469.52	0.5	PASS

Test Graphs

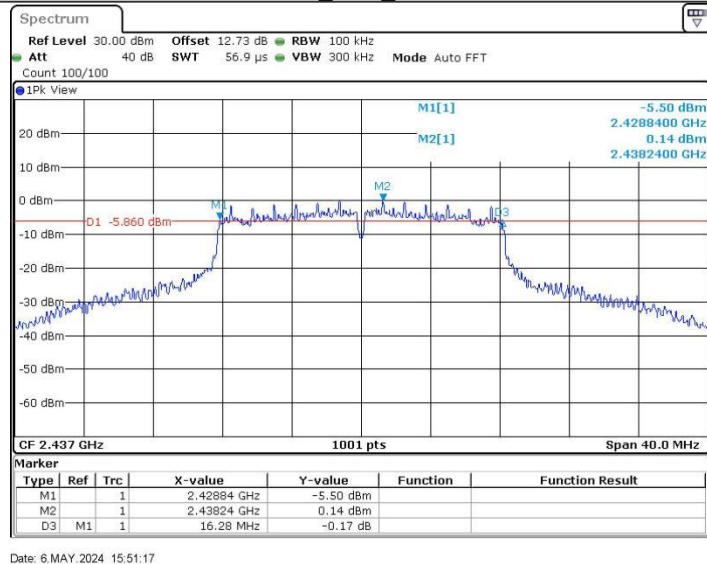




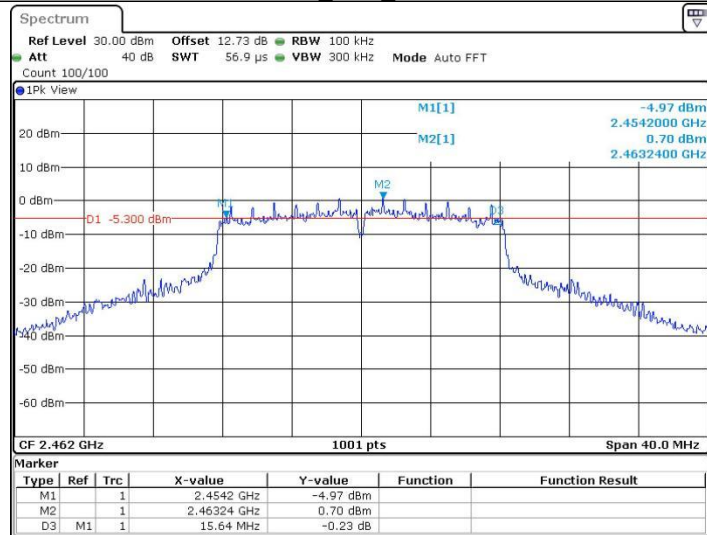
11G_Ant1_2412



11G_Ant1_2437

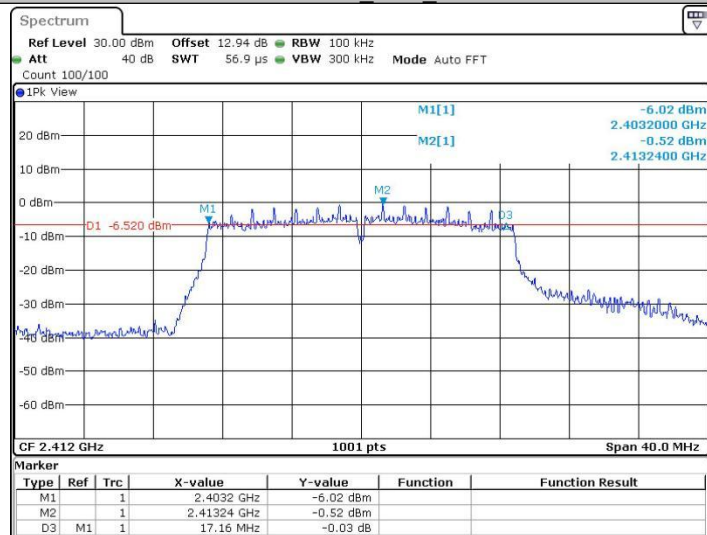


11G_Ant1_2462



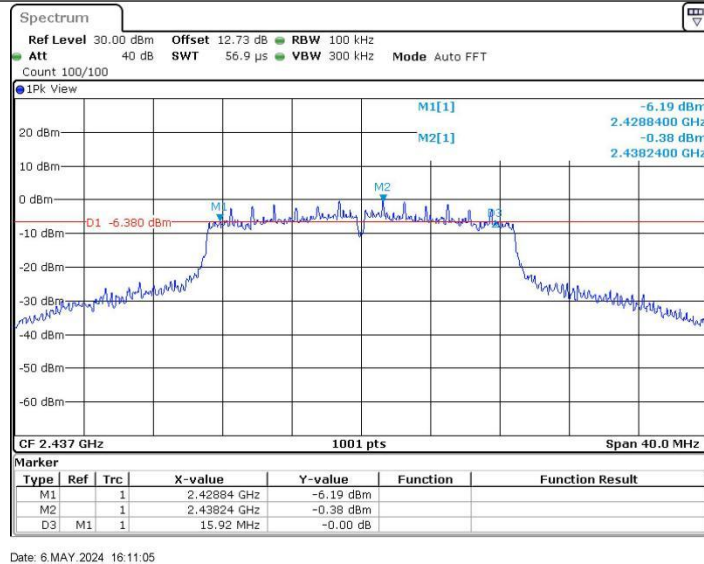
Date: 6.MAY.2024 15:54:06

11N20SISO_Ant1_2412

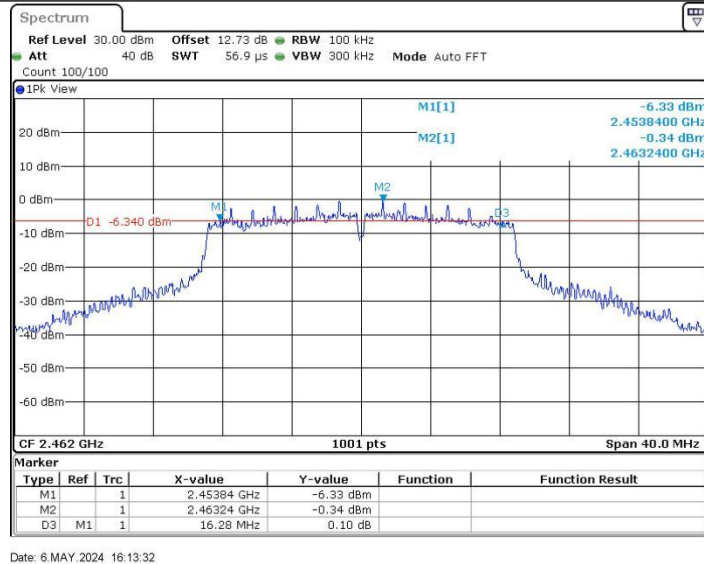


Date: 6.MAY.2024 16:08:44

11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



11N40SISO_Ant1_2422

