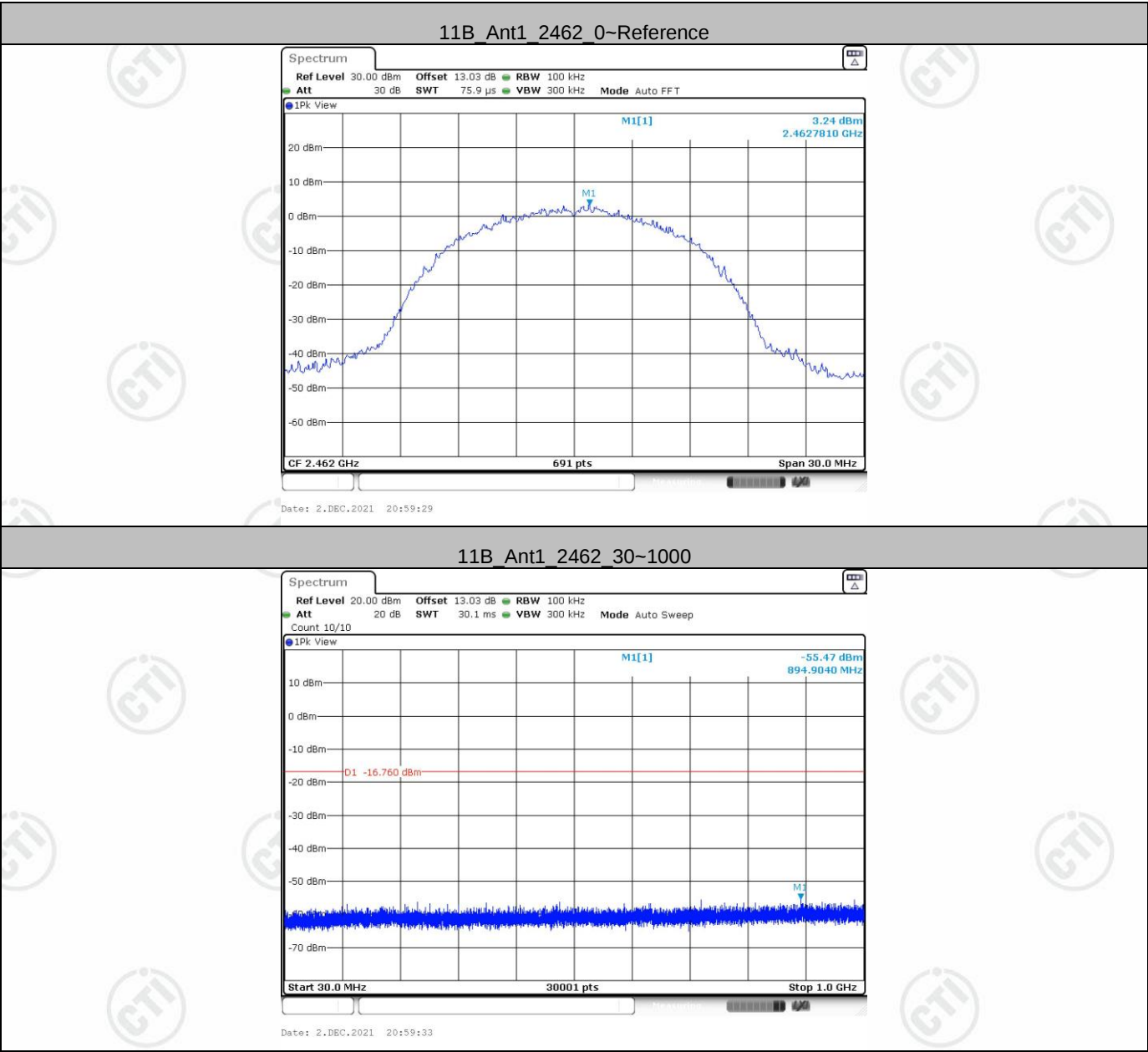
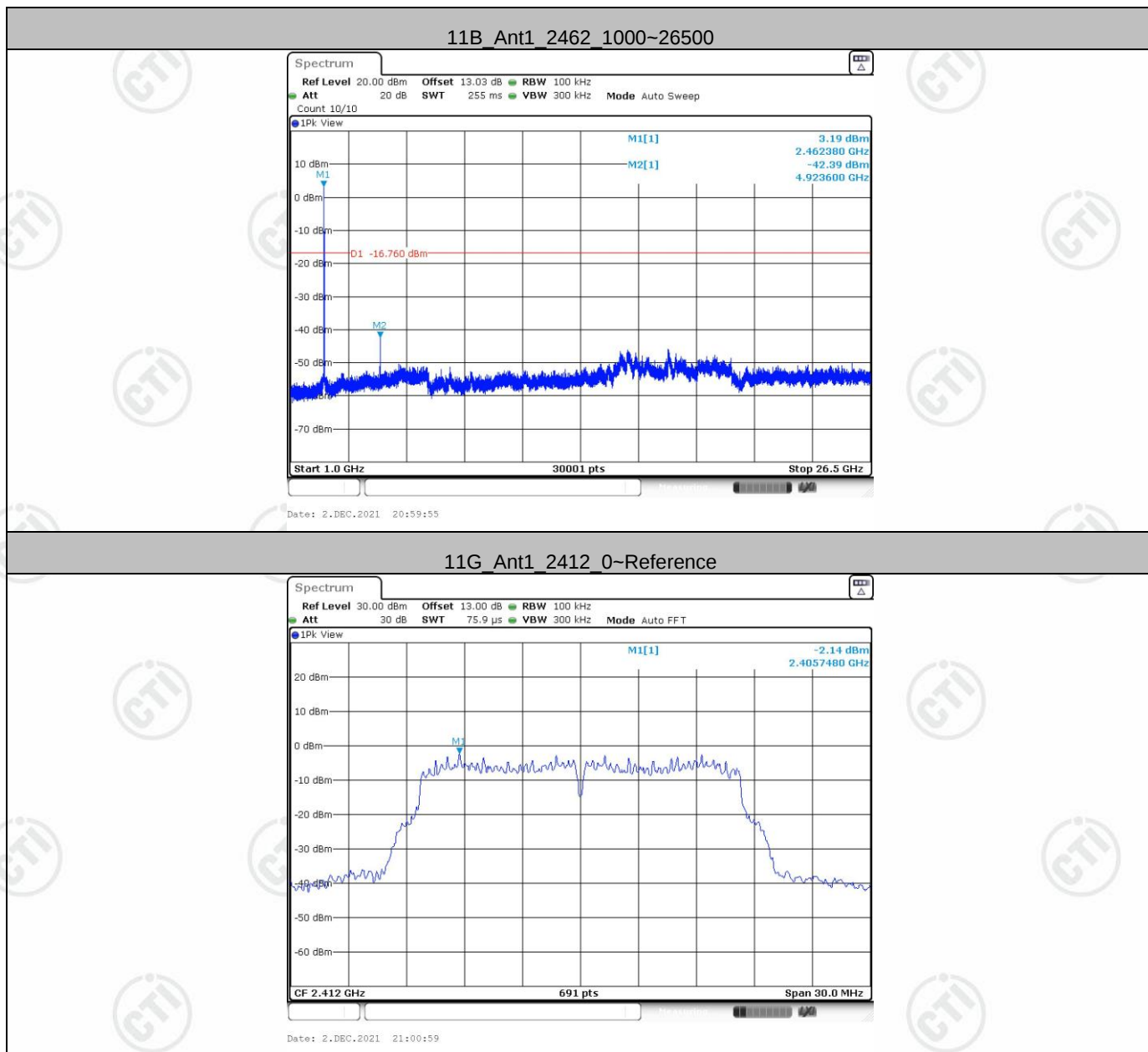
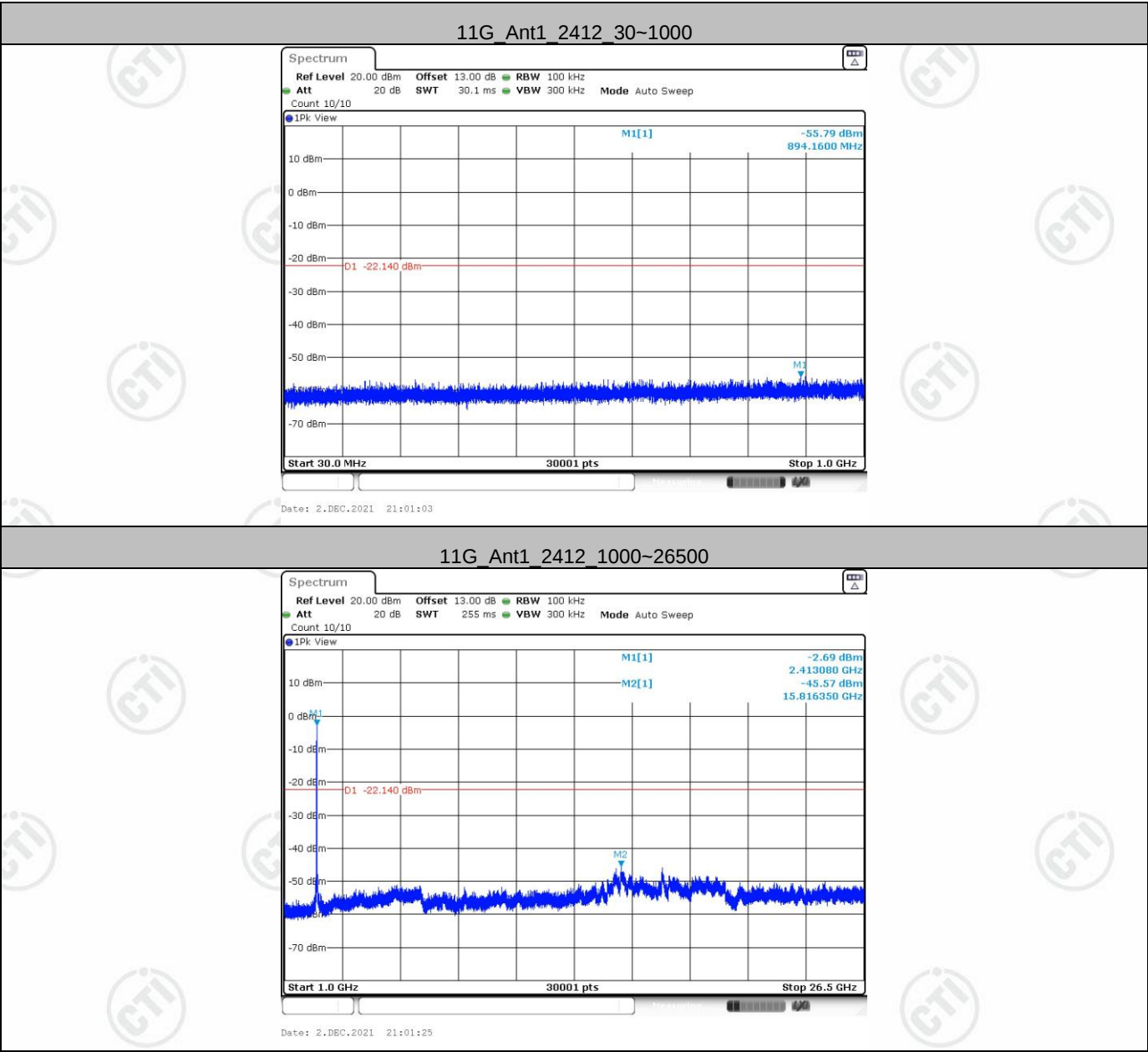
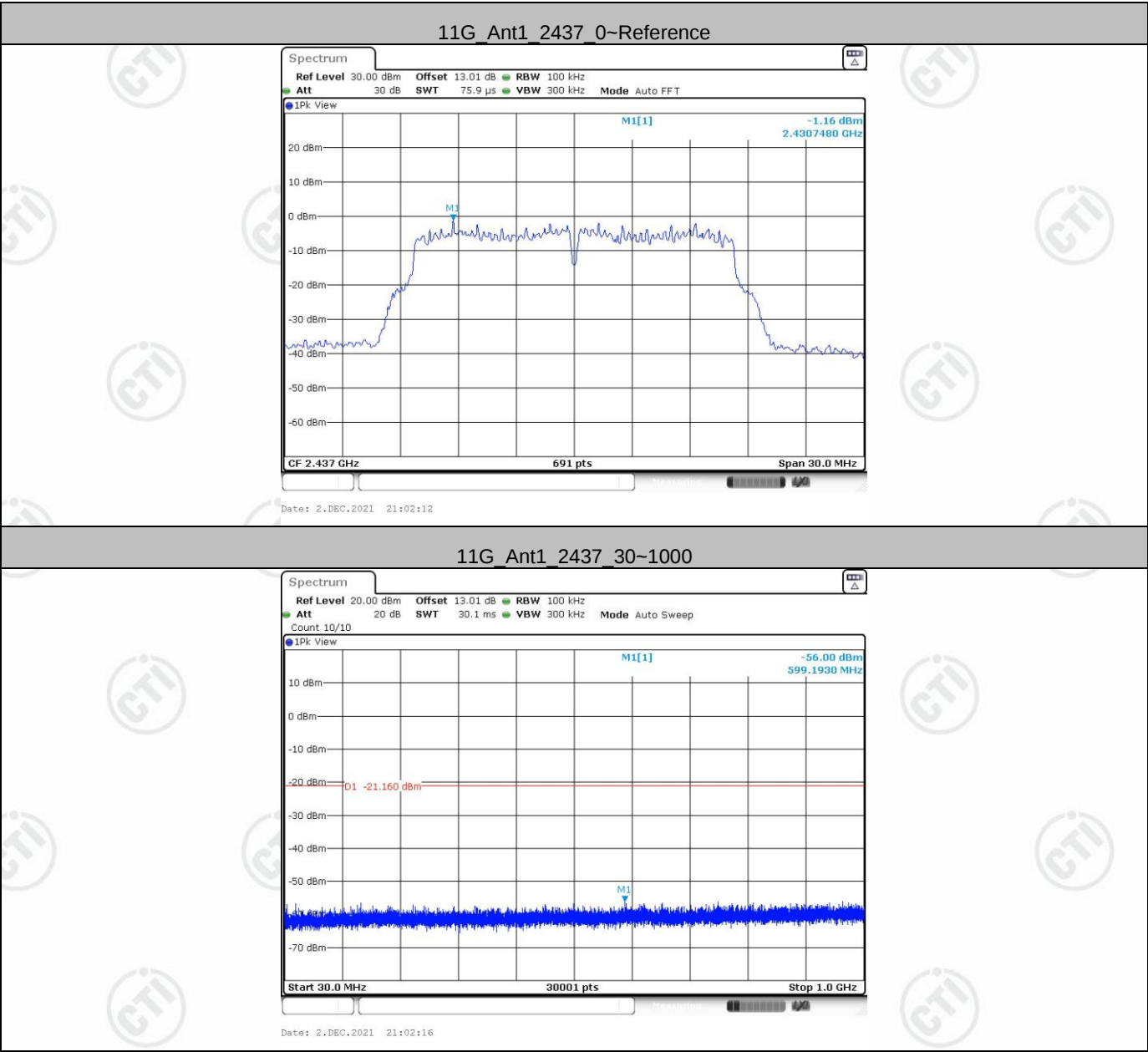
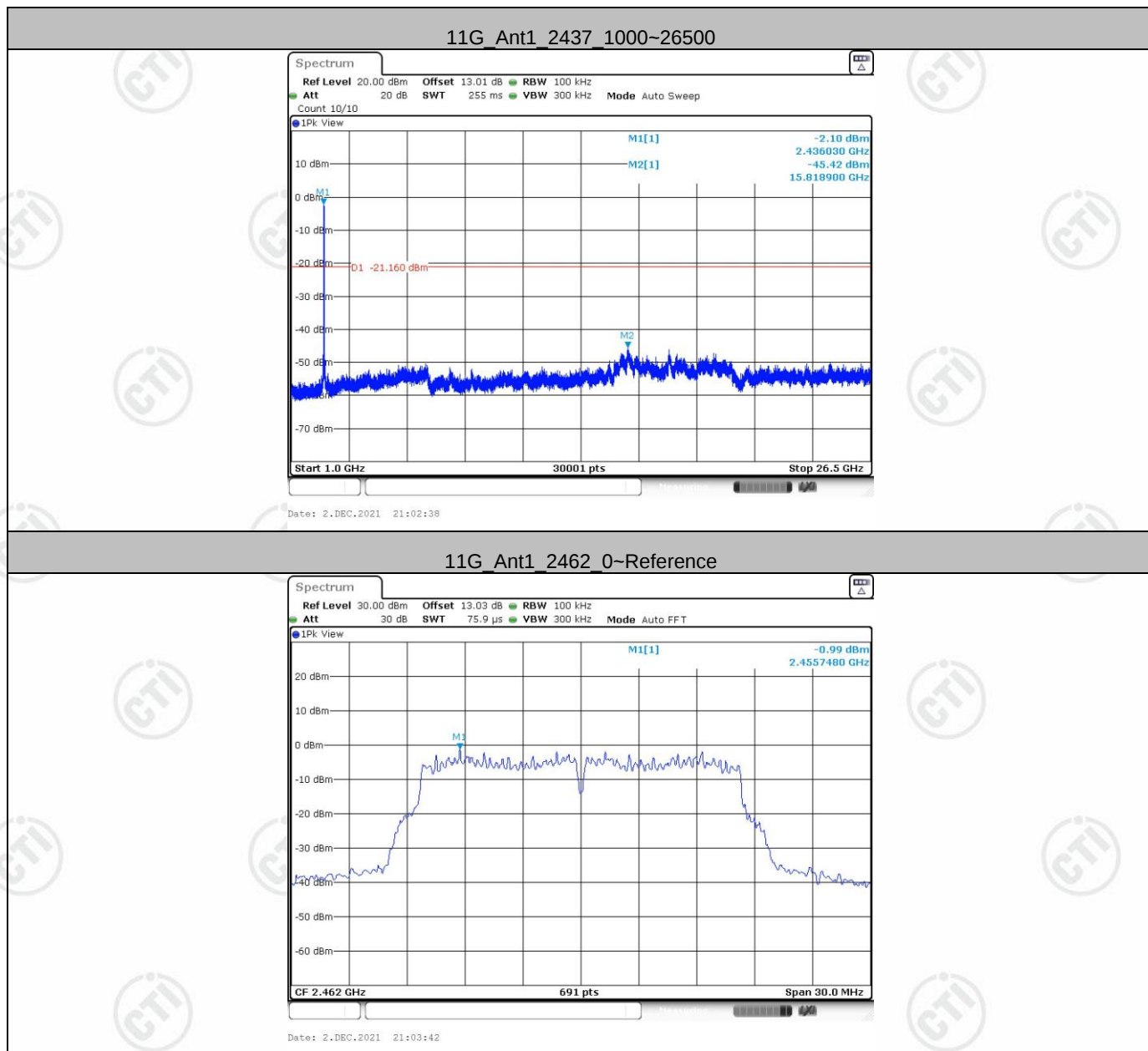


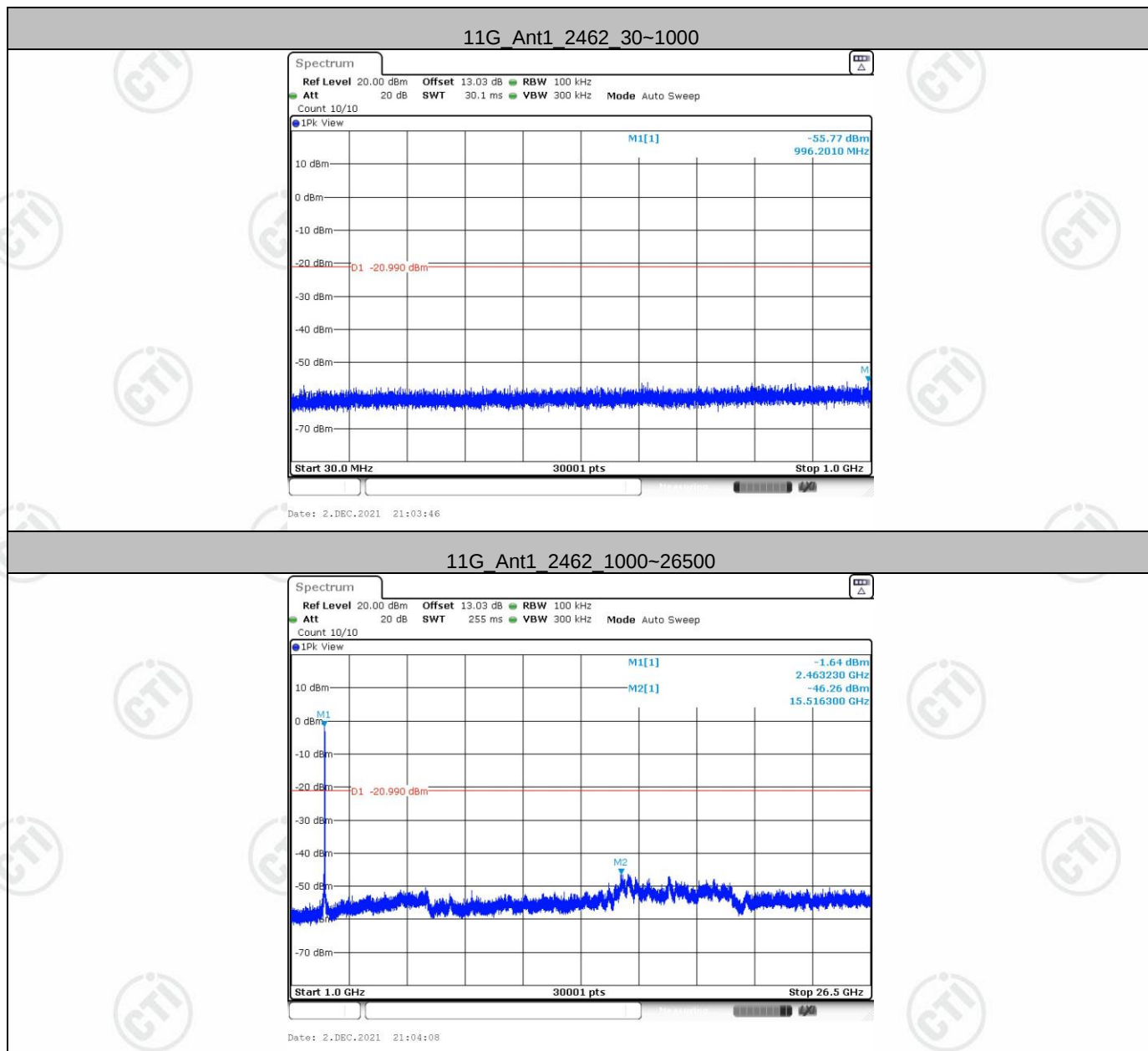




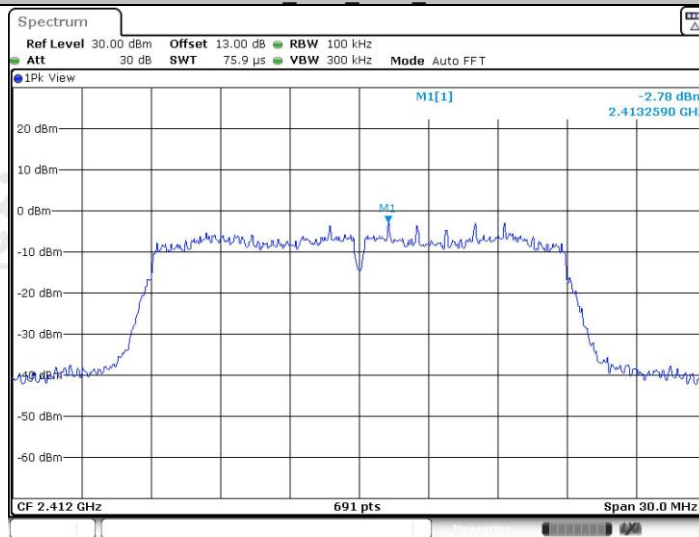




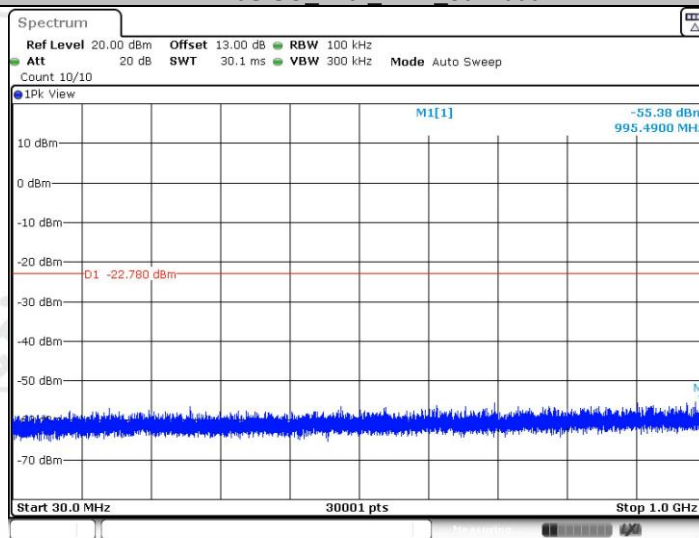




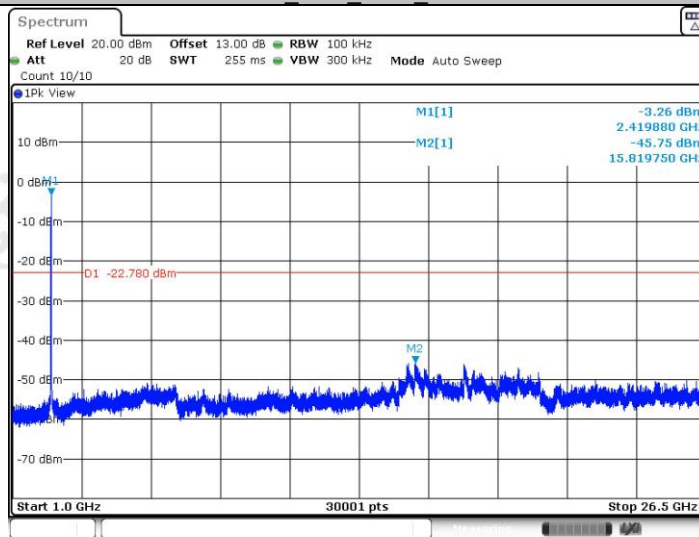
11N20SISO_Ant1_2412_0~Reference



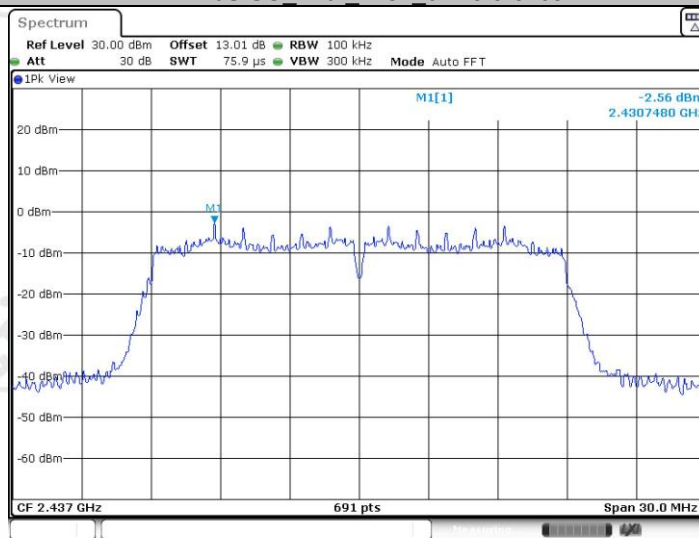
11N20SISO_Ant1_2412_30~1000

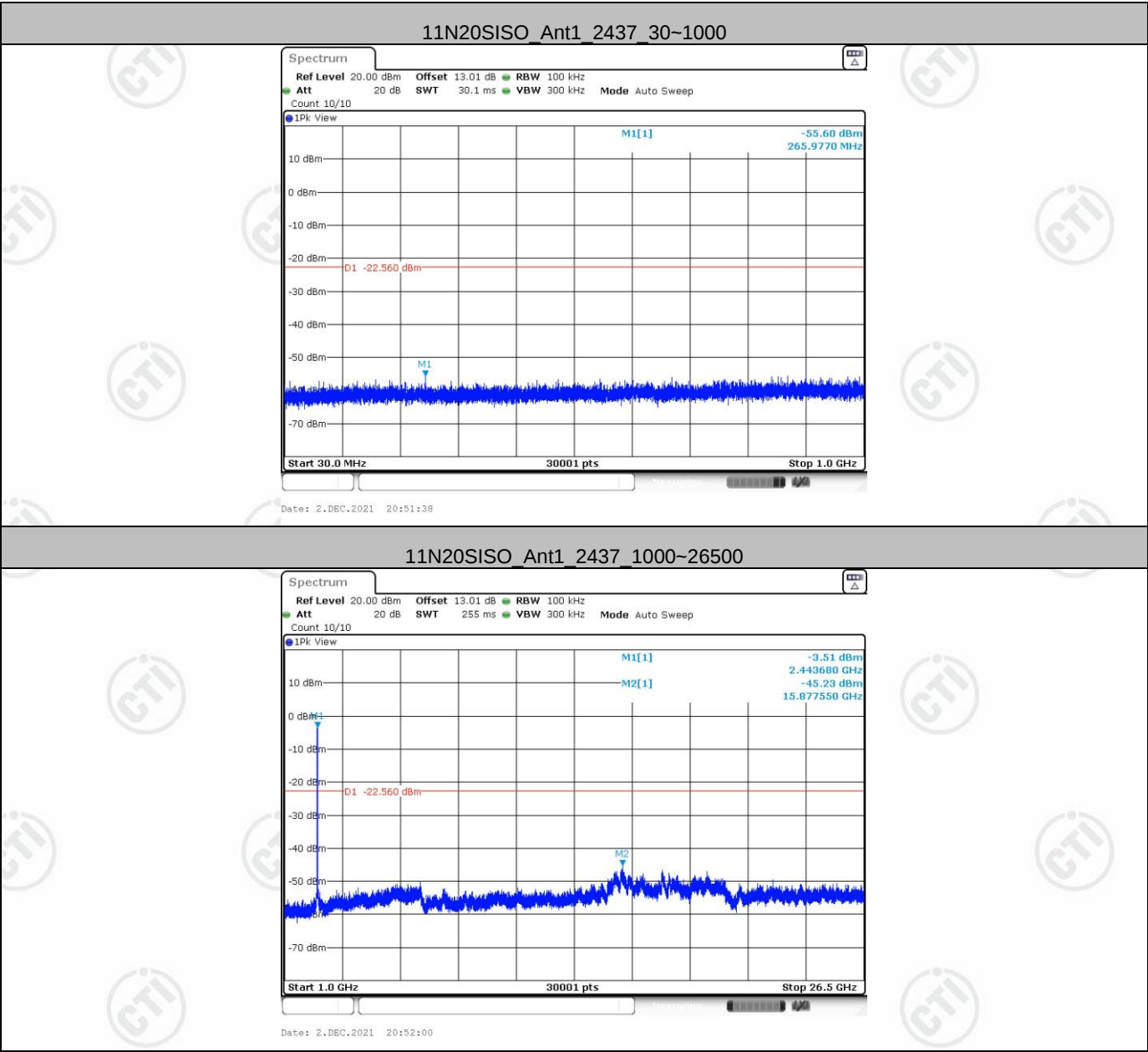


11N20SISO Ant1 2412 1000~26500

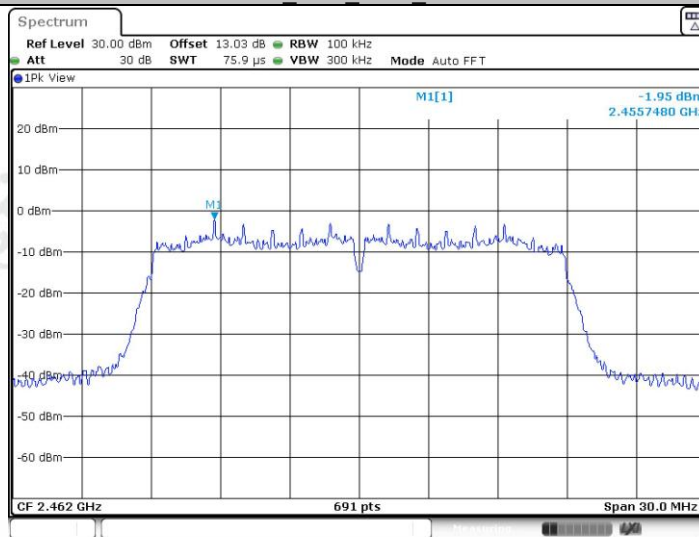


11N20SISO Ant1 2437 0~Reference

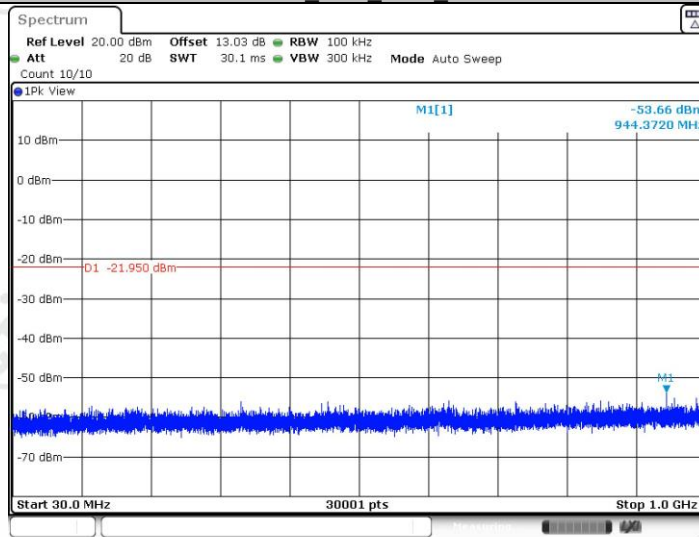


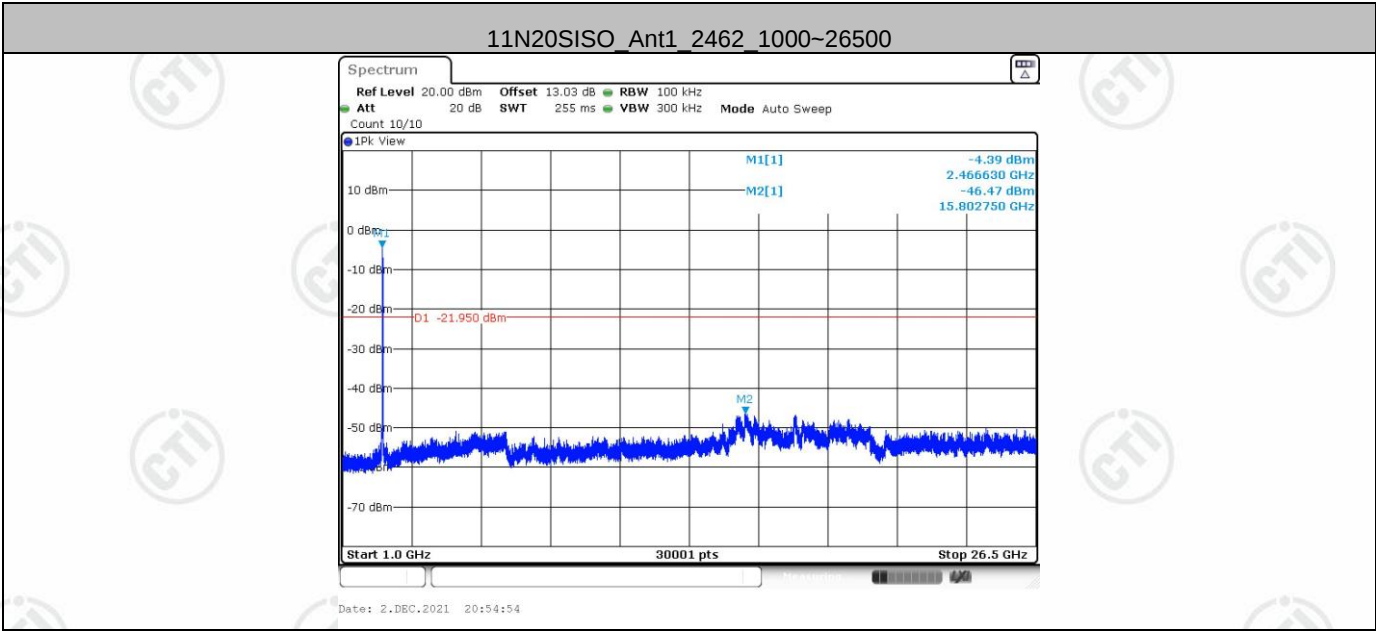


11N20SISO_Ant1_2462_0~Reference

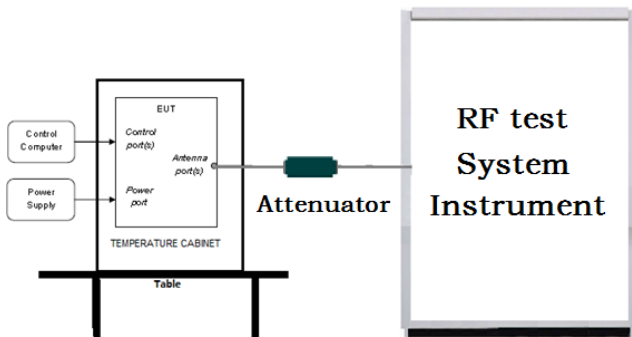


11N20SISO_Ant1_2462_30~1000





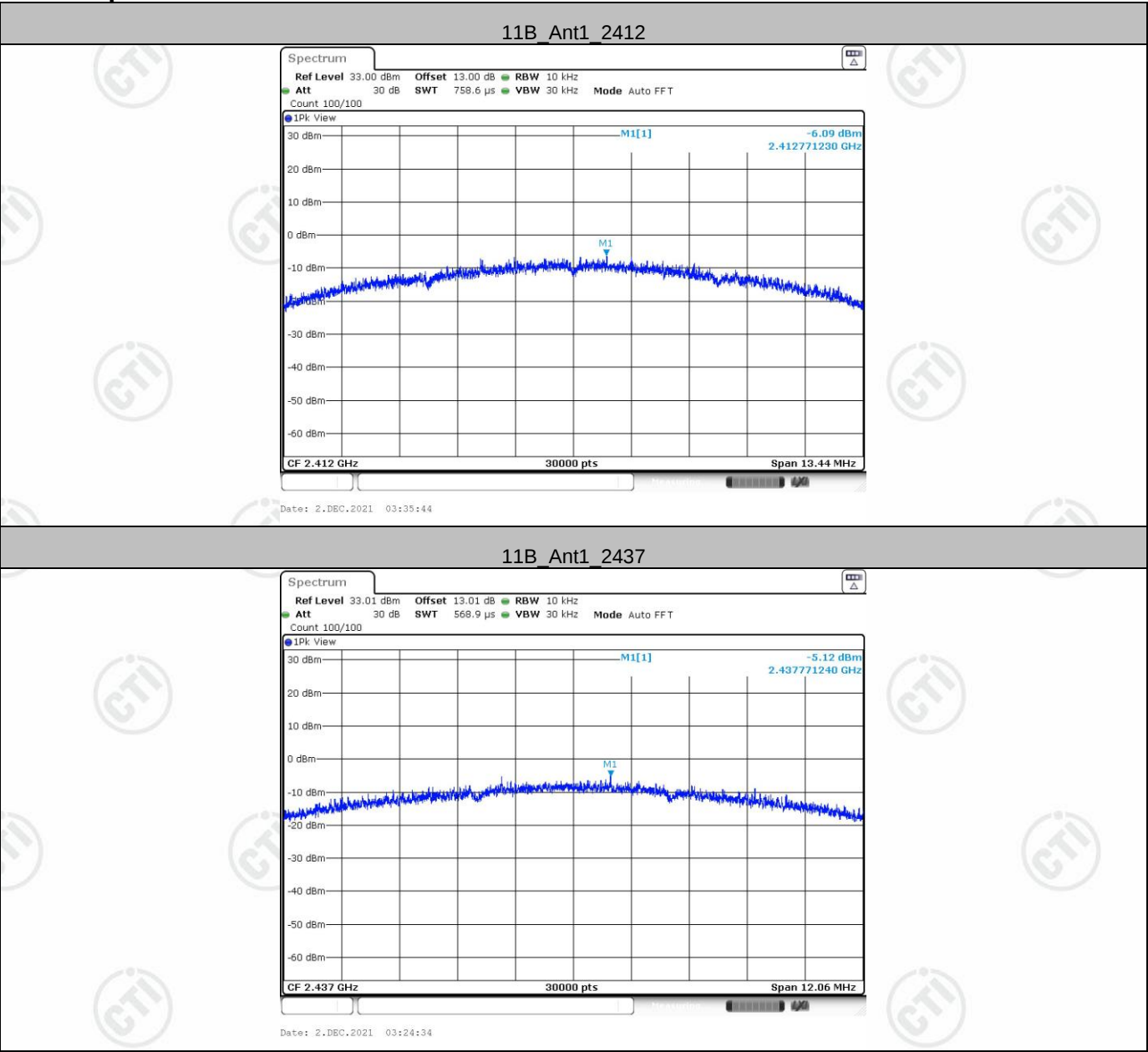
Appendix E): Maximum Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 2013
Test Setup:	 Remark: Offset=Cable loss+ attenuation factor.
Test Procedure:	a) Set analyzer center frequency to DTS channel center frequency. b) Set the span to 1.5 times the DTS bandwidth. c) Set the RBW to 3 kHz < RBW < 100 kHz. d) Set the VBW > [3 × RBW]. e) Detector = peak. f) Sweep time = auto couple. g) Trace mode = max hold. h) Allow trace to fully stabilize. i) Use the peak marker function to determine the maximum amplitude level within the RBW. j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
Limit:	≤8.00dBm/3kHz
Test Mode:	Refer to clause 2.2
Test Results:	Pass

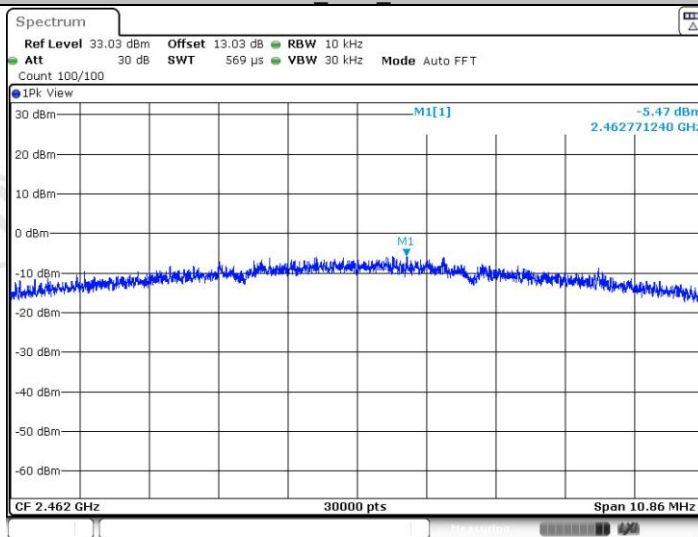
Result Table:

Test Mode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-6.09	≤8	PASS
		2437	-5.12	≤8	PASS
		2462	-5.47	≤8	PASS
11G	Ant1	2412	-11.5	≤8	PASS
		2437	-10.44	≤8	PASS
		2462	-10.15	≤8	PASS
11N20SISO	Ant1	2412	-10.11	≤8	PASS
		2437	-11.22	≤8	PASS
		2462	-10.93	≤8	PASS

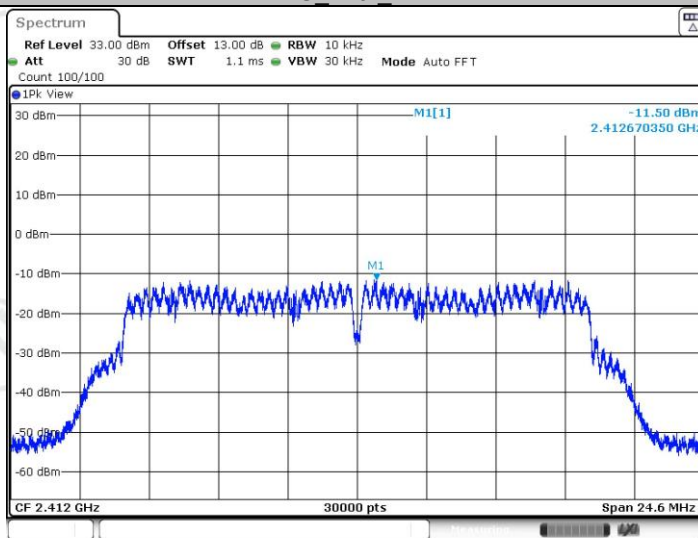
Test Graph:



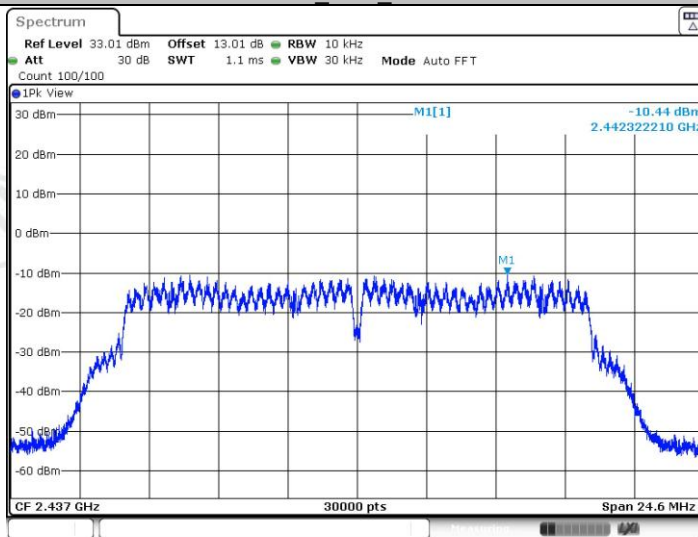
11B_Ant1_2462



11G_Ant1_2412

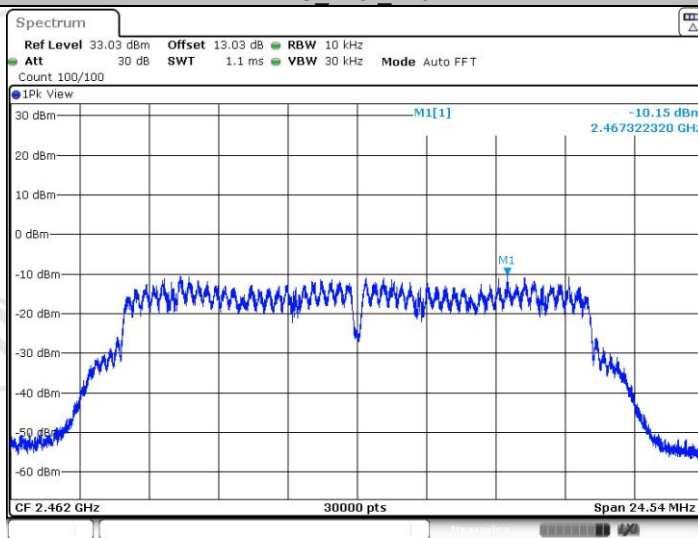


11G_Ant1_2437



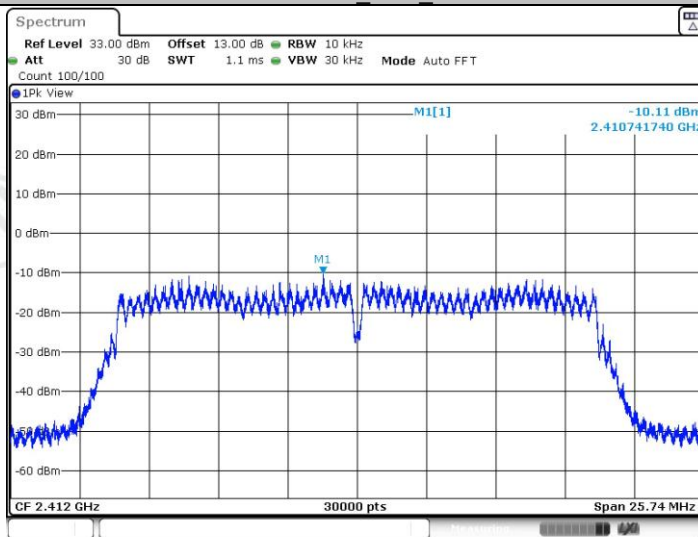
Date: 2.DEC.2021 03:53:36

11G_Ant1_2462



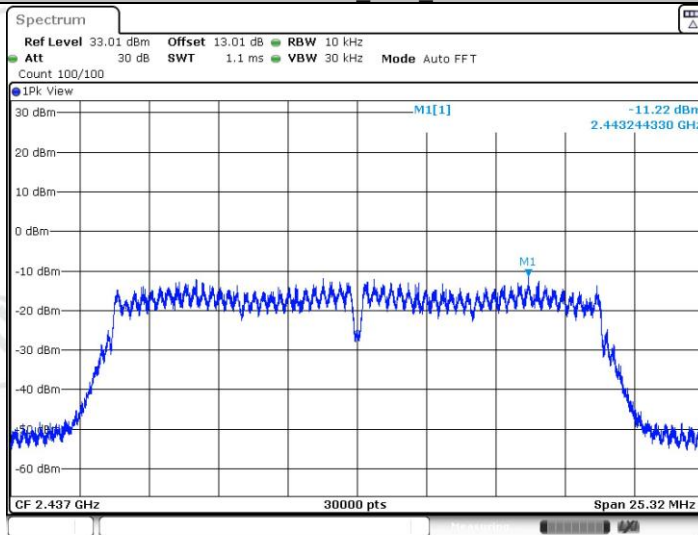
Date: 2.DEC.2021 04:01:41

11N20SISO_Ant1_2412

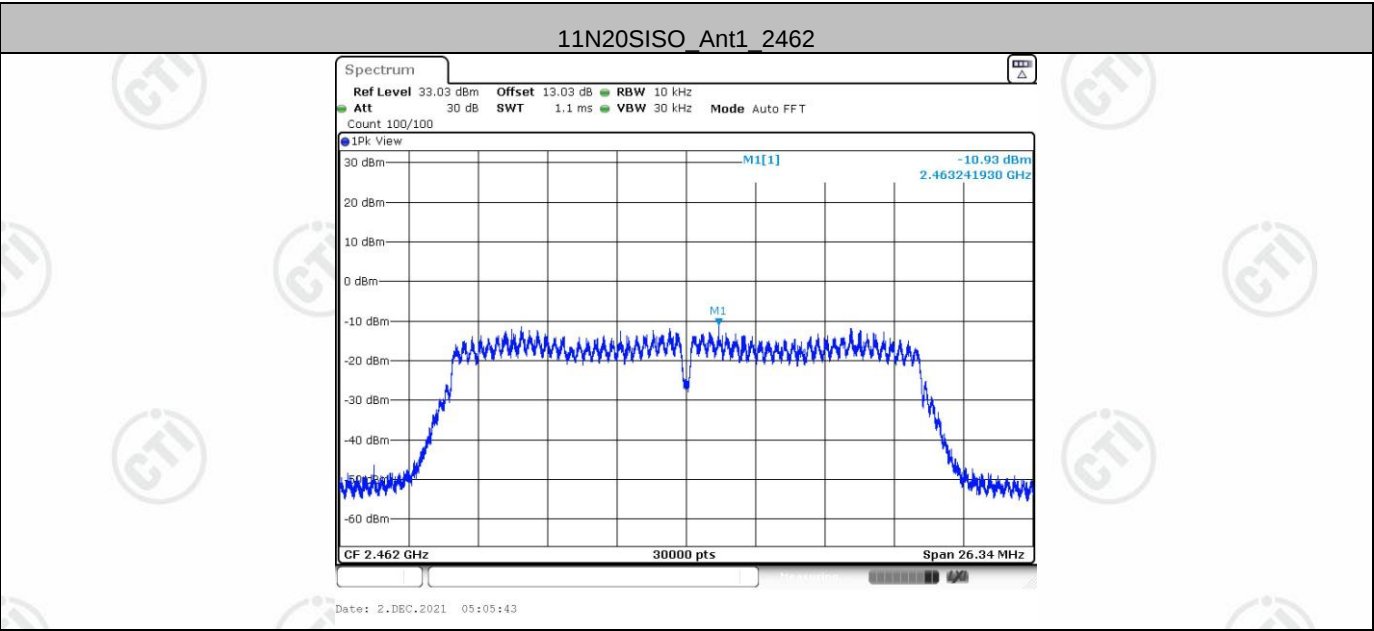


Date: 2.DEC.2021 04:06:43

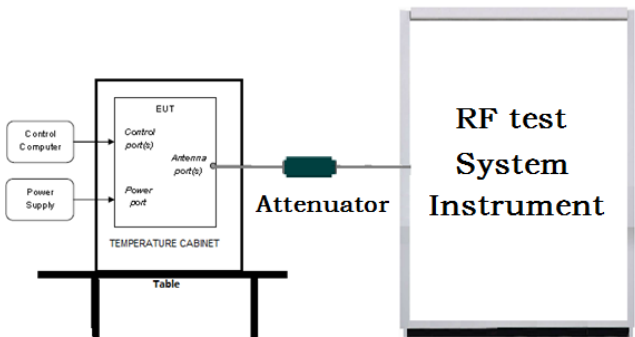
11N20SISO_Ant1_2437



Date: 2.DEC.2021 04:56:07



Appendix F): Duty cycle

Test Requirement:	47 CFR Part15C Section 15.35 (c)
Test Method:	ANSI C63.10 2013
Test Setup:	 Remark: Offset=Cable loss+ attenuation factor.
Test Procedure:	a) Set RBW $\geq$ OBW if possible; otherwise, set RBW to the largest available value. b) Set VBW $\geq$ RBW. c) detector = peak or average. d) The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
Limit:	---
Test Mode:	Refer to clause 2.2
Test Results:	Pass

Test Result:

Test Mode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	X Factor	Limit	Verdict
11B	Ant1	2412	0.84	0.89	0.9438	94.38	0.25	---	PASS
		2437	0.84	0.89	0.9438	94.38	0.25	---	PASS
		2462	0.84	0.88	0.9545	95.45	0.20	---	PASS
11G	Ant1	2412	0.17	0.20	0.8500	85.00	0.71	---	PASS
		2437	0.17	0.20	0.8500	85.00	0.71	---	PASS
		2462	0.18	0.21	0.8571	85.71	0.67	---	PASS
11N20SISO	Ant1	2412	1.30	1.34	0.9701	97.01	0.13	---	PASS
		2437	1.30	1.34	0.9701	97.01	0.13	---	PASS
		2462	1.30	1.34	0.9701	97.01	0.13	---	PASS

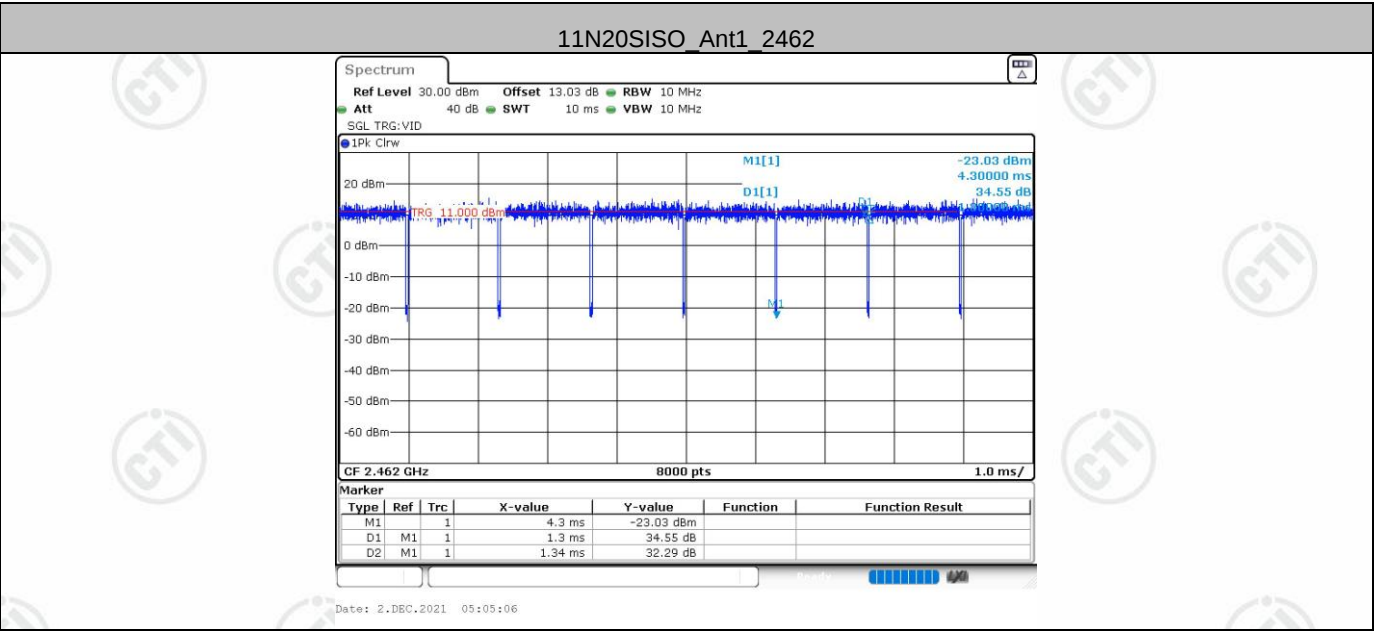
Result Table:











Appendix G): Antenna Requirement

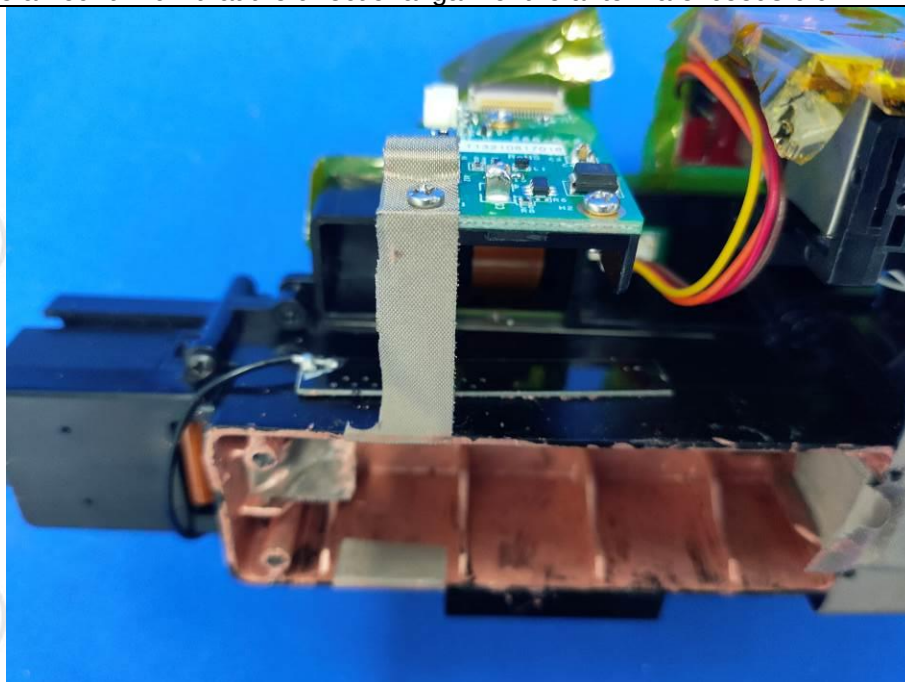
15.203 requirement:

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:

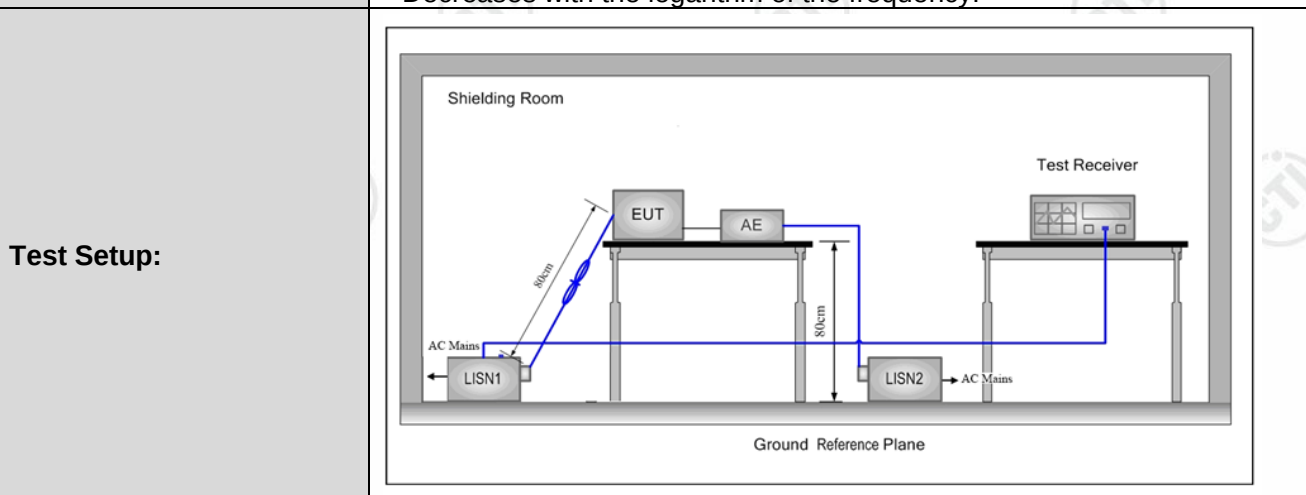
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output 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 integrated on the main PCB and no consideration of replacement.

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto		
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.		

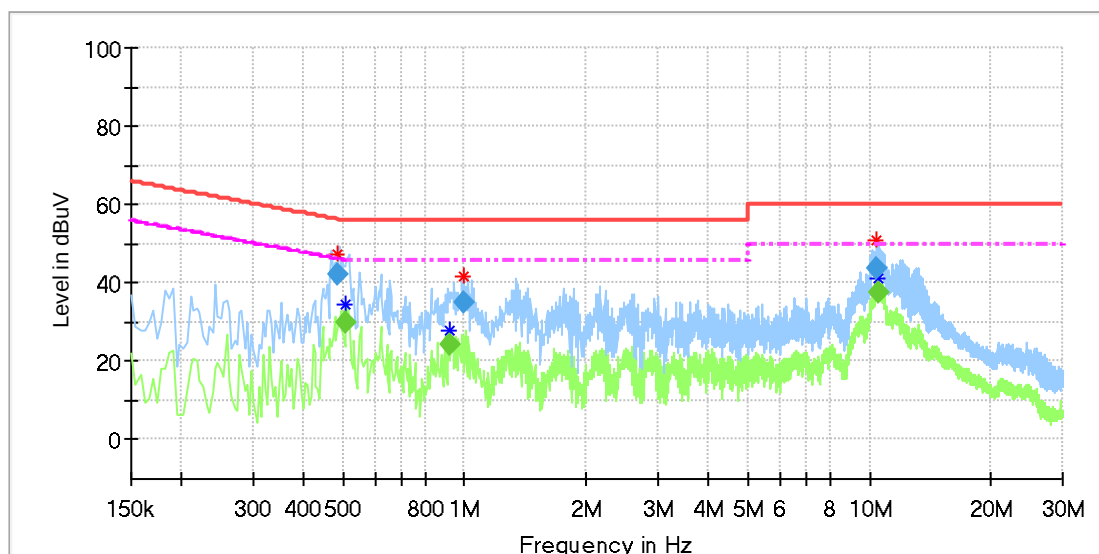


- | | |
|-------------------------------|--|
| <p>Test Procedure:</p> | <ol style="list-style-type: none"> 1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 50\Omega$ 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. |
|-------------------------------|--|

Measurement Data :

Operation Mode : Data link
Temperature : 20.5°C

Test Date : 2021-12-03
Humidity : 40.9%



Final Result

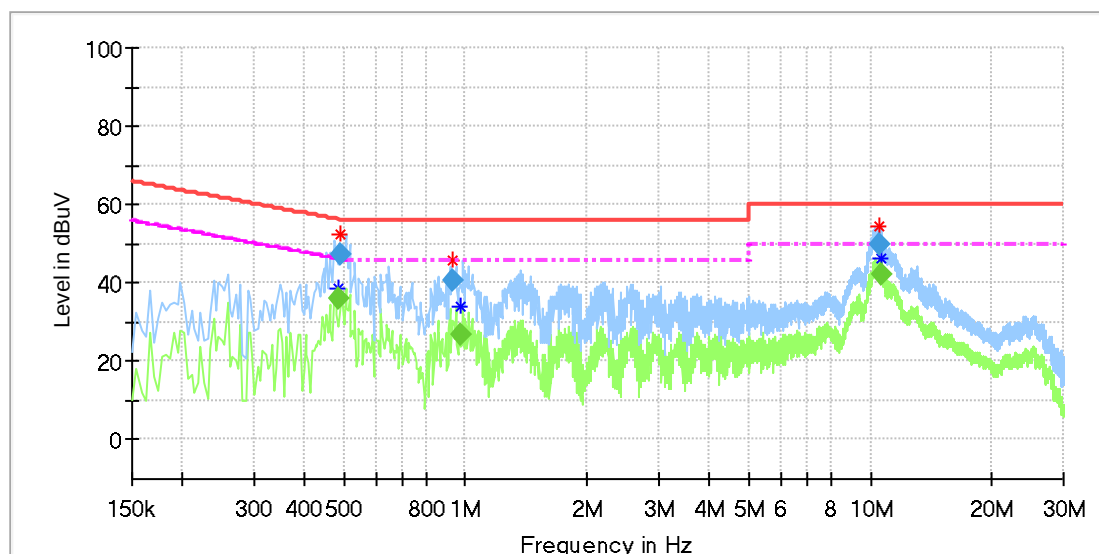
Frequency (MHz)	Quasi Peak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.483296	42.34	---	56.28	13.94	1000.0	9.000	L1	20.1
0.505252	---	29.89	46.00	16.11	1000.0	9.000	L1	20.1
0.922210	---	24.18	46.00	21.82	1000.0	9.000	L1	20.1
0.997828	34.87	---	56.00	21.13	1000.0	9.000	L1	20.1
10.421232	43.57	---	60.00	16.43	1000.0	9.000	L1	20.0
10.553962	---	37.70	50.00	12.30	1000.0	9.000	L1	20.0

Remark:

- 1) Measuring frequencies from 0.15 MHz to 30MHz.
- 2) The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
- 3) The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;

Operation Mode : Data link
Temperature : 20.5°C

Test Date : 2021-12-03
Humidity : 40.9%



Final_Result

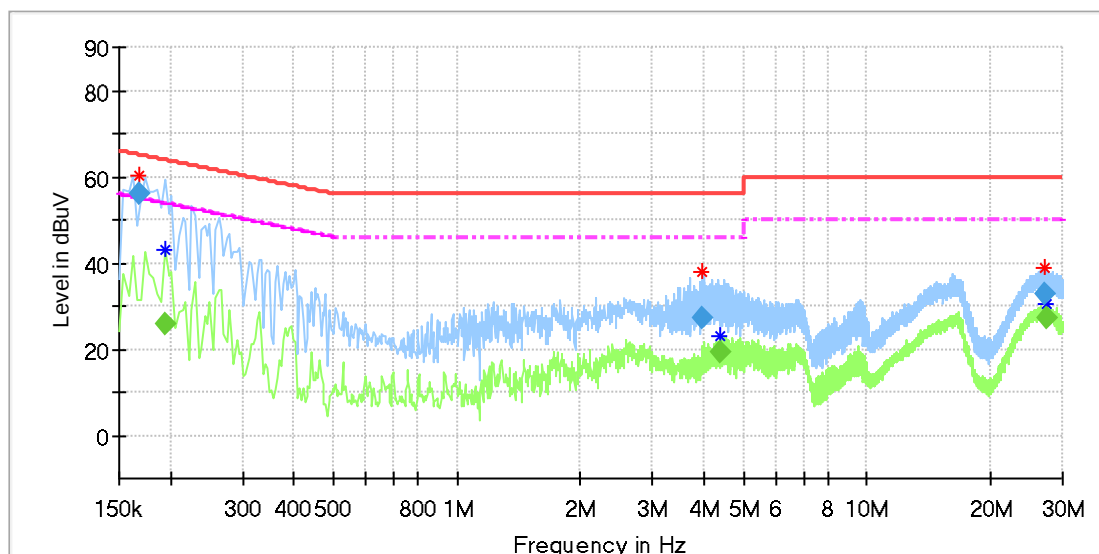
Frequency (MHz)	Quasi Peak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.487664	---	35.81	46.21	10.40	1000.0	9.000	N	19.9
0.490508	47.46	---	56.16	8.70	1000.0	9.000	N	19.9
0.923588	40.60	---	56.00	15.40	1000.0	9.000	N	19.8
0.971122	---	26.88	46.00	19.12	1000.0	9.000	N	19.8
10.540882	50.01	---	60.00	9.99	1000.0	9.000	N	19.7
10.665946	---	42.04	50.00	7.96	1000.0	9.000	N	19.8

Remark:

- 1) Measuring frequencies from 0.15 MHz to 30MHz.
- 2) The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
- 3) The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;

Operation Mode : Copy photo
Temperature : 20.0°C

Test Date : 2022-01-26
Humidity : 40.9%



Final_Result

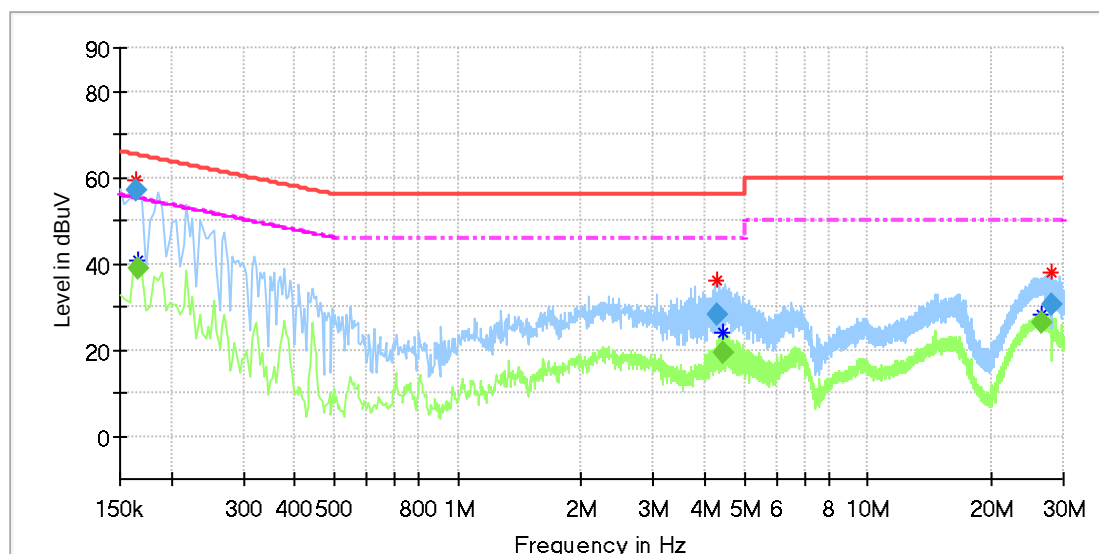
Frequency (MHz)	Quasi Peak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.168142	55.92	---	65.05	9.13	1000.0	9.000	L1	20.0
0.194000	---	26.03	53.86	27.83	1000.0	9.000	L1	20.0
3.969272	27.32	---	56.00	28.68	1000.0	9.000	L1	20.1
4.402000	---	19.38	46.00	26.62	1000.0	9.000	L1	20.1
27.225600	32.59	---	60.00	27.41	1000.0	9.000	L1	20.5
27.346000	---	27.21	50.00	22.79	1000.0	9.000	L1	20.5

Remark:

- 1) Measuring frequencies from 0.15 MHz to 30MHz.
- 2) The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
- 3) The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;

Operation Mode : Copy photo
Temperature : 20.0℃

Test Date : 2022-01-26
Humidity : 40.9%



Final_Result

Frequency (MHz)	Quasi Peak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.163780	56.88	---	65.27	8.39	1000.0	9.000	N	19.9
0.166000	---	38.69	55.16	16.47	1000.0	9.000	N	19.9
4.292450	28.37	---	56.00	27.63	1000.0	9.000	N	19.8
4.446000	---	19.42	46.00	26.58	1000.0	9.000	N	19.8
26.606000	---	26.07	50.00	23.93	1000.0	9.000	N	20.3
28.002898	30.36	---	60.00	29.64	1000.0	9.000	N	20.3

Remark:

- 1) Measuring frequencies from 0.15 MHz to 30MHz.
- 2) The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
- 3) The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;

Appendix I): Restricted Bands around Fundamental Frequency (Radiated)

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205				
Test Method:	ANSI C63.10 2013				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10kHz	Average
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.				