from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.

5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.

6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.

7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.3ms) =S (12000ms) / B (4000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.3ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.

8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

13.4 TEST DATA

Pass: Please Refer To DFS Report: BLA-EMC-202209-A6406

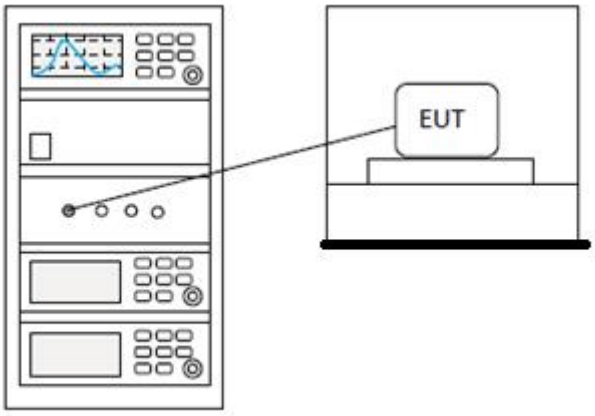
14 DFS: NON-OCCUPANCY PERIOD

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 905462 D02 Section 7.8.3
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

14.1 LIMITS

Limit:	Minimum 30 minutes

14.2 BLOCK DIAGRAM OF TEST SETUP



14.3 PROCEDURE

1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
4) EUT will associate with the master at channel. The file ¡°iperf.exe¡± specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel.

Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.

7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.3ms) =S (12000ms) / B (4000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.3ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.

8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

14.4 TEST DATA

Pass: Please Refer To DFS Report: BLA-EMC-202209-A6406

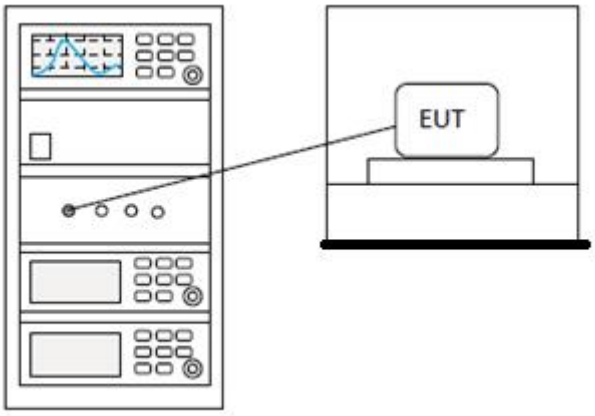
15 PEAK POWER SPECTRUM DENSITY

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II F
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

15.1 LIMITS

Frequency band(MHz)	Limit
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device
5725-5850	≤30dBm in 500 kHz
Remark:	The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.

15.2 BLOCK DIAGRAM OF TEST SETUP



15.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

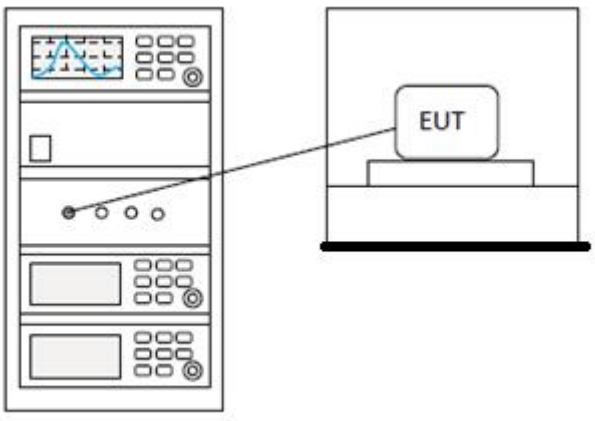
16 MAXIMUM CONDUCTED OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II E
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

16.1 LIMITS

Frequency band(MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) for client device or 11dBm+10logB*
5470-5725	≤250mW(24dBm) for client device or 11dBm+10logB*
5725-5850	≤1W(30dBm)
Remark:	* Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

16.2 BLOCK DIAGRAM OF TEST SETUP



16.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

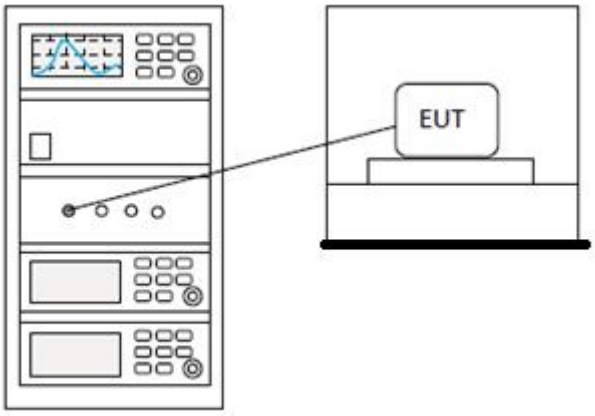
17 MINIMUM 6 DB BANDWIDTH (5.725-5.85 GHZ BAND)

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II C 2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

17.1 LIMITS

Limit:	≥500 kHz

17.2 BLOCK DIAGRAM OF TEST SETUP



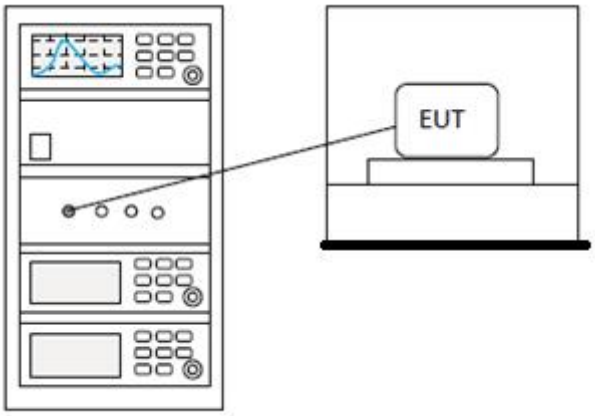
17.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

18 26DB EMISSION BANDWIDTH

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II C 1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

18.1 BLOCK DIAGRAM OF TEST SETUP



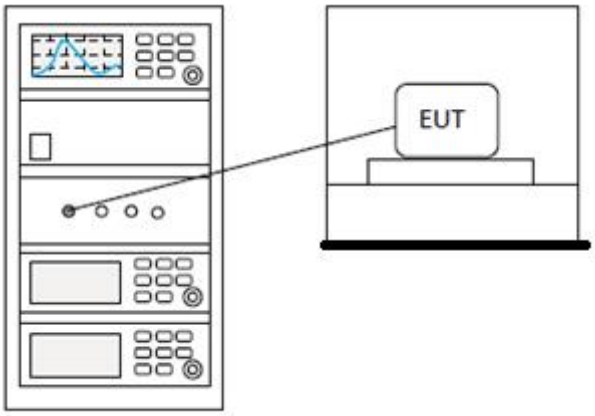
18.2 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

19 99% BANDWIDTH

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 II D
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

19.1 BLOCK DIAGRAM OF TEST SETUP



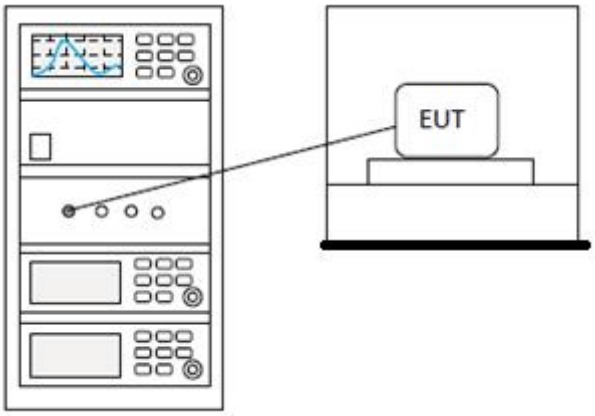
19.2 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

20 DUTY CYCLE

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 II B 1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

20.1 BLOCK DIAGRAM OF TEST SETUP



20.2 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

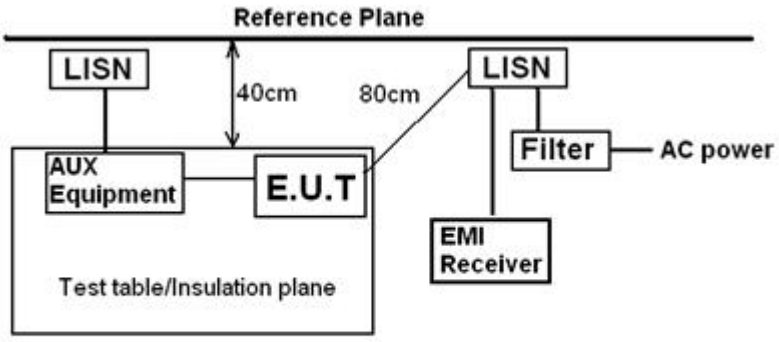
21 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	Transmitting mode
Test Mode (Final Test)	Transmitting mode
Tester	Jozu
Temperature	25℃
Humidity	60%

21.1 LIMITS

Frequency of emission(MHz)	Conducted limit(dBμV)	
	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.		

21.2 BLOCK DIAGRAM OF TEST SETUP



Remark
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

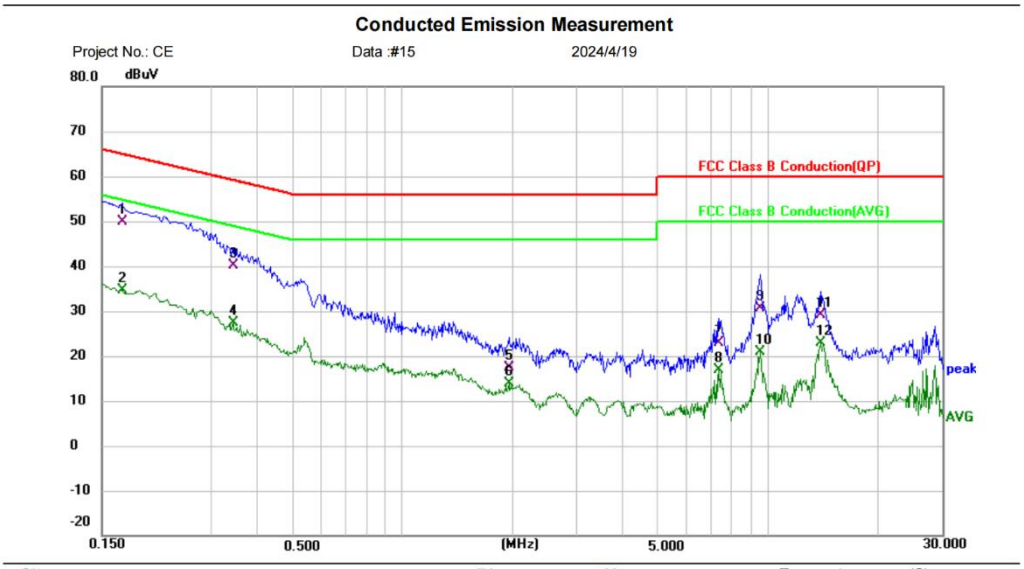
21.3 PROCEDURE

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 50ohm/50H + 5ohm 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 on conducted measurement.
Remark: LISN=Read Level+ Cable Loss+ LISN Factor

21.4 TEST DATA

[TestMode: Transmitting mode]; [Line: Nutral] ;[Power:AC120V/60Hz]



Site
Limit: FCC Class B Conduction(QP)
EUT: Android TV Box
M/N: MODEL X
Mode: 5.1GWIFI Mode
Note:

Phase: N
Power:
Distance:
RBW: 9 KHz
VBW: 30 KHz

Temperature: (C)
Humidity: %RH
Sweep Time: 10 ms

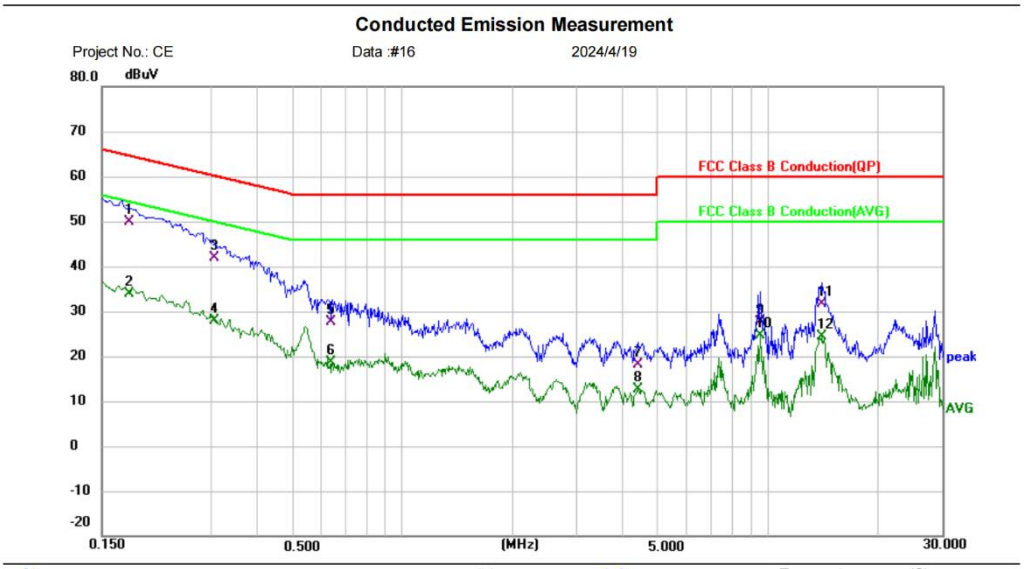
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1	*	0.1700	39.66	10.17	49.83	64.96	-15.13	QP			
2		0.1700	24.44	10.17	34.61	54.96	-20.35	AVG			
3		0.3420	30.24	9.83	40.07	59.15	-19.08	QP			
4		0.3420	17.54	9.83	27.37	49.15	-21.78	AVG			
5		1.9500	7.29	10.01	17.30	56.00	-38.70	QP			
6		1.9500	3.84	10.01	13.85	46.00	-32.15	AVG			
7		7.3580	11.88	11.06	22.94	60.00	-37.06	QP			
8		7.3580	5.89	11.06	16.95	50.00	-33.05	AVG			
9		9.5300	19.11	11.41	30.52	60.00	-29.48	QP			
10		9.5300	9.59	11.41	21.00	50.00	-29.00	AVG			
11		13.9700	30.46	-1.25	29.21	60.00	-30.79	QP			
12		13.9700	24.16	-1.25	22.91	50.00	-27.09	AVG			

*:Maximum data x:Over limit !:over margin 〈Reference Only

Receiver: ESPI_1
L.I.S.N:
Spectrum Analyzer: ESPI
Engineer Signature:

Test Result: Pass

[TestMode: Transmitting mode]; [Line: Line] ;[Power:AC120V/60Hz]



Site
Limit: FCC Class B Conduction(QP)
EUT: Android TV Box
M/N: MODEL X
Mode: 5.1GWIFI Mode
Note:

Phase: L1
Power:
Distance:

Temperature: (C)
Humidity: %RH
RBW: 9 KHz
VBW: 30 KHz
Sweep Time: 10 ms

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1	*	0.1780	39.71	10.19	49.90	64.58	-14.68	QP			
2		0.1780	23.60	10.19	33.79	54.58	-20.79	AVG			
3		0.3051	31.92	9.96	41.88	60.10	-18.22	QP			
4		0.3051	18.04	9.96	28.00	50.10	-22.10	AVG			
5		0.6419	17.76	9.96	27.72	56.00	-28.28	QP			
6		0.6419	8.56	9.96	18.52	46.00	-27.48	AVG			
7		4.4180	8.02	10.08	18.10	56.00	-37.90	QP			
8		4.4180	2.47	10.08	12.55	46.00	-33.45	AVG			
9		9.5340	16.31	11.43	27.74	60.00	-32.26	QP			
10		9.5340	13.25	11.43	24.68	50.00	-25.32	AVG			
11		14.0660	32.95	-1.25	31.70	60.00	-28.30	QP			
12		14.0660	25.74	-1.25	24.49	50.00	-25.51	AVG			

*:Maximum data x:Over limit !:over margin 〈Reference Only

Receiver: ESPI_1
Spectrum Analyzer: ESPI
L.I.S.N:
Engineer Signature:

Test Result: Pass

22 ANTENNA REQUIREMENT

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	N/A

22.1 CONCLUSION

Standard 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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:
The best case gain of the antenna is 2dBi.

23 USER ACCSESS RESTRICTIONS

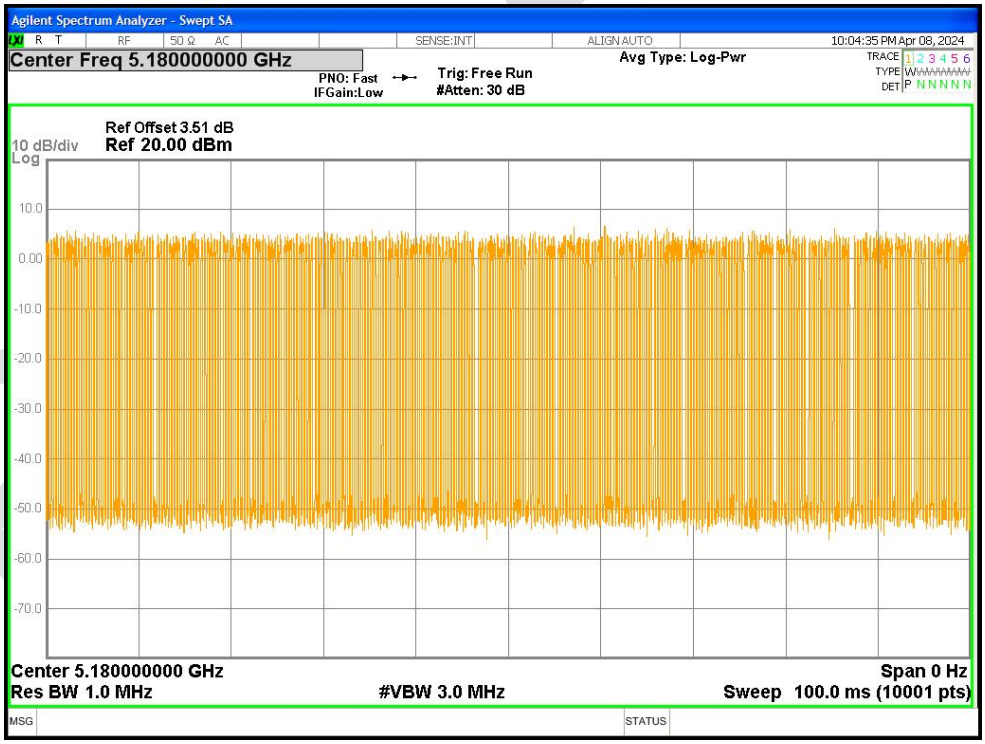
Requirement:	The equipment shall be so constructed that settings (hardware and/or software) related to DFS shall not be accessible to the user if changing those settings result in the equipment no longer being compliant with the DFS requirements in 47 CFR Part 15, Subpart C 15.407 (i)(1)
Description:	Users cannot access DFS-related settings (hardware and / or software) and the device meets the DFS requirements in Section 15.407 (i)(1).

24 APPENDIX

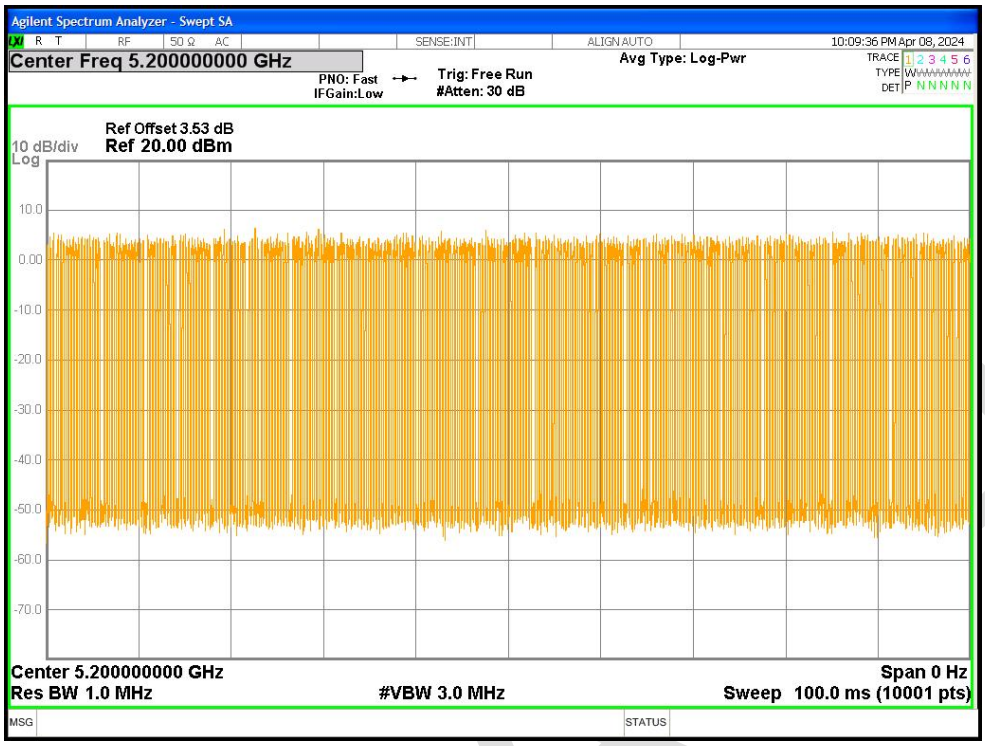
24.1 DUTY CYCLE

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
NVNT	a	5180	Ant1	55.29	2.57
NVNT	a	5200	Ant1	55.28	2.57
NVNT	a	5240	Ant1	54.97	2.6
NVNT	ac20	5180	Ant1	82.21	0.85
NVNT	ac20	5200	Ant1	81.67	0.88
NVNT	ac20	5240	Ant1	81.94	0.86
NVNT	ac40	5190	Ant1	71.11	1.48
NVNT	ac40	5230	Ant1	71.08	1.48
NVNT	ac80	5210	Ant1	54.04	2.67
NVNT	n20	5180	Ant1	82.64	0.83
NVNT	n20	5200	Ant1	82.59	0.83
NVNT	n20	5240	Ant1	82.6	0.83
NVNT	n40	5190	Ant1	70.96	1.49
NVNT	n40	5230	Ant1	71.09	1.48

Duty Cycle NVNT a 5180MHz Ant1

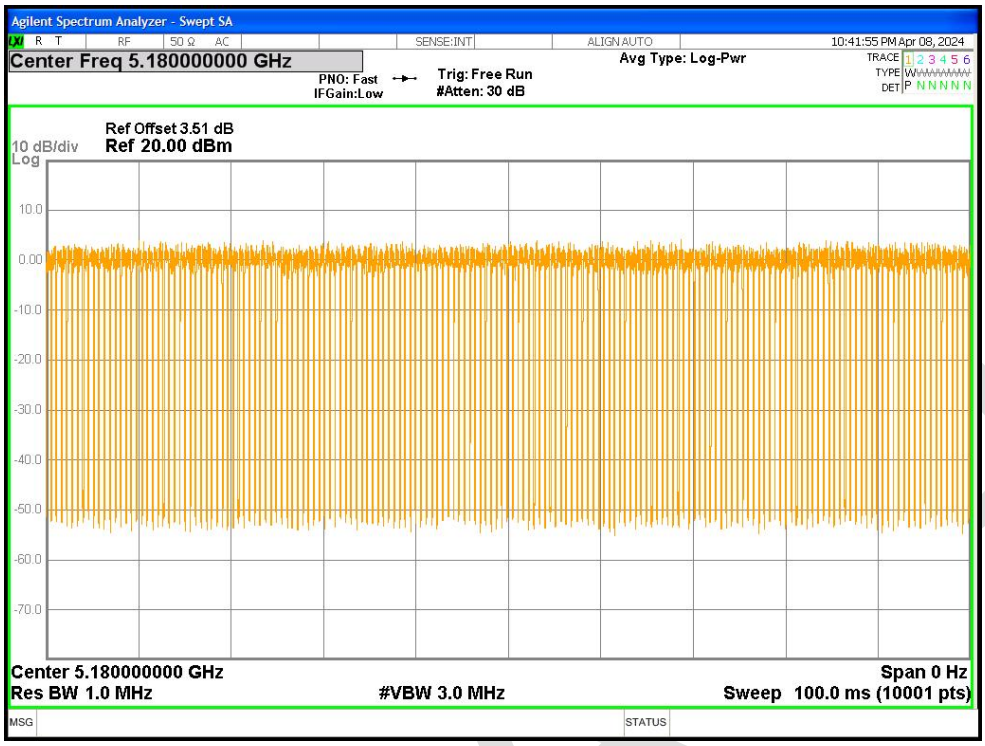


Duty Cycle NVNT a 5200MHz Ant1

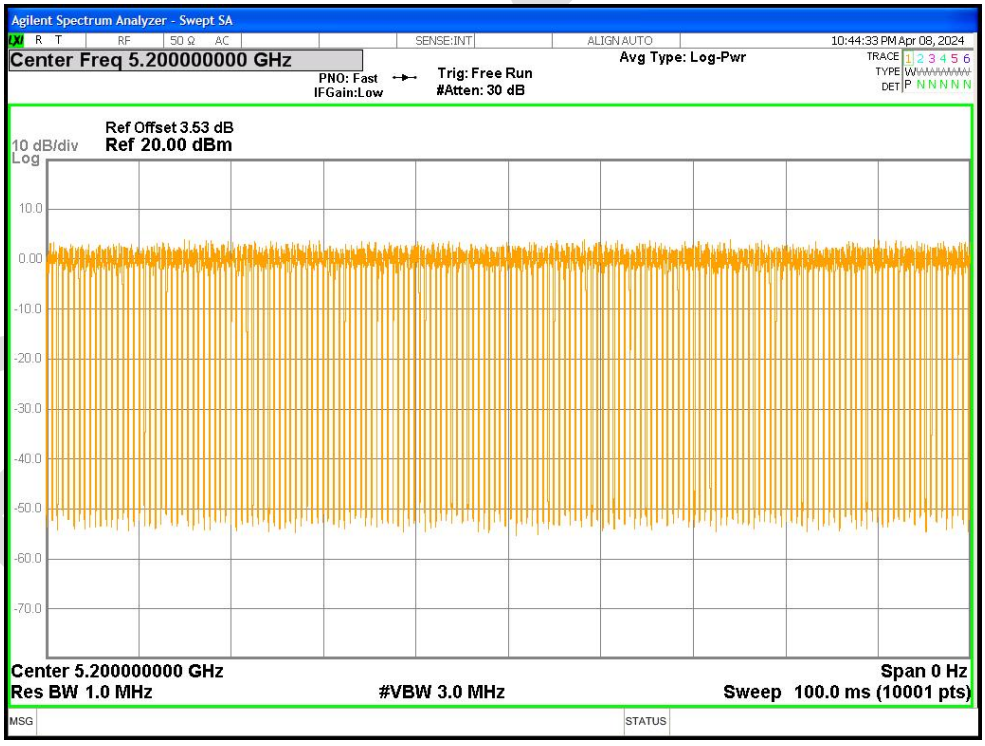


Duty Cycle NVNT a 5240MHz Ant1

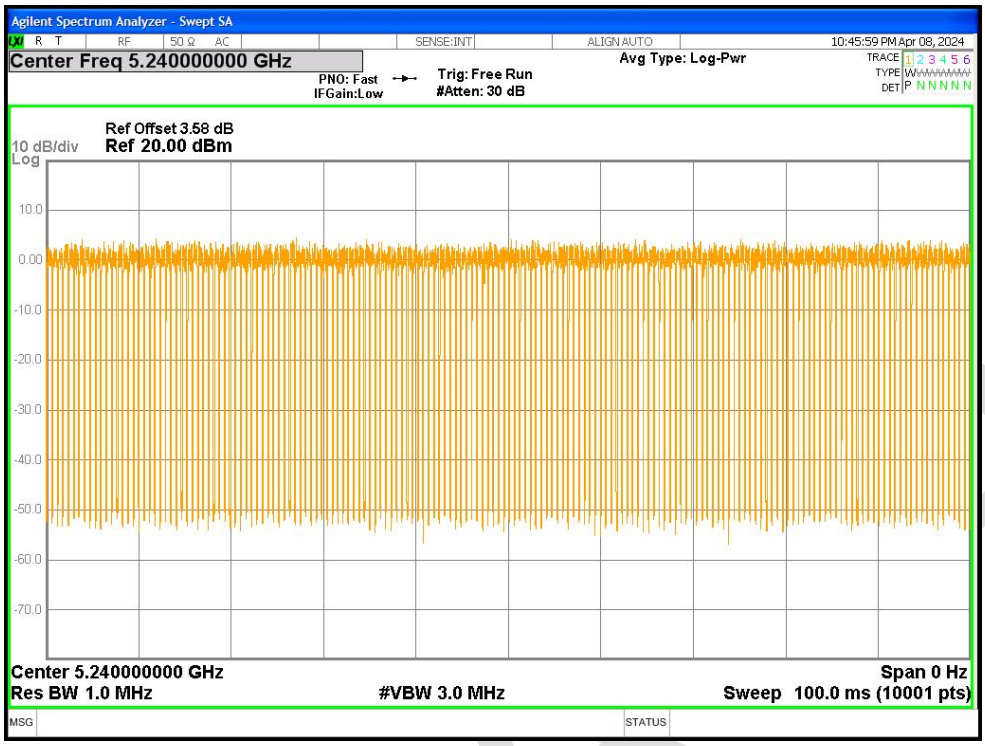
Duty Cycle NVNT ac20 5180MHz Ant1



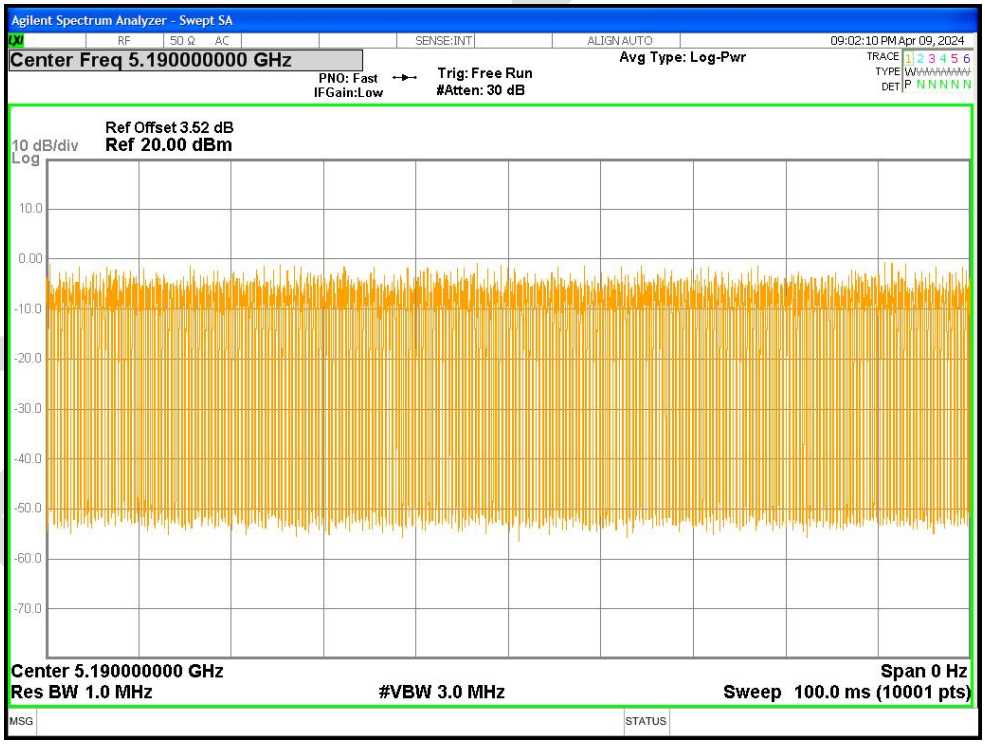
Duty Cycle NVNT ac20 5200MHz Ant1



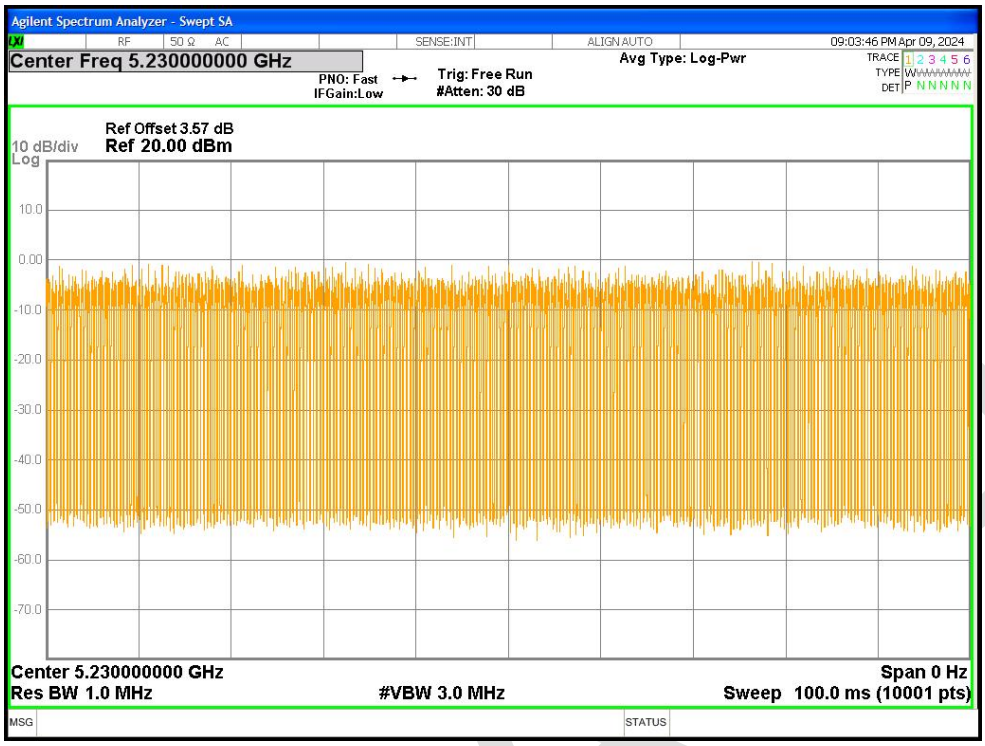
Duty Cycle NVNT ac20 5240MHz Ant1



Duty Cycle NVNT ac40 5190MHz Ant1

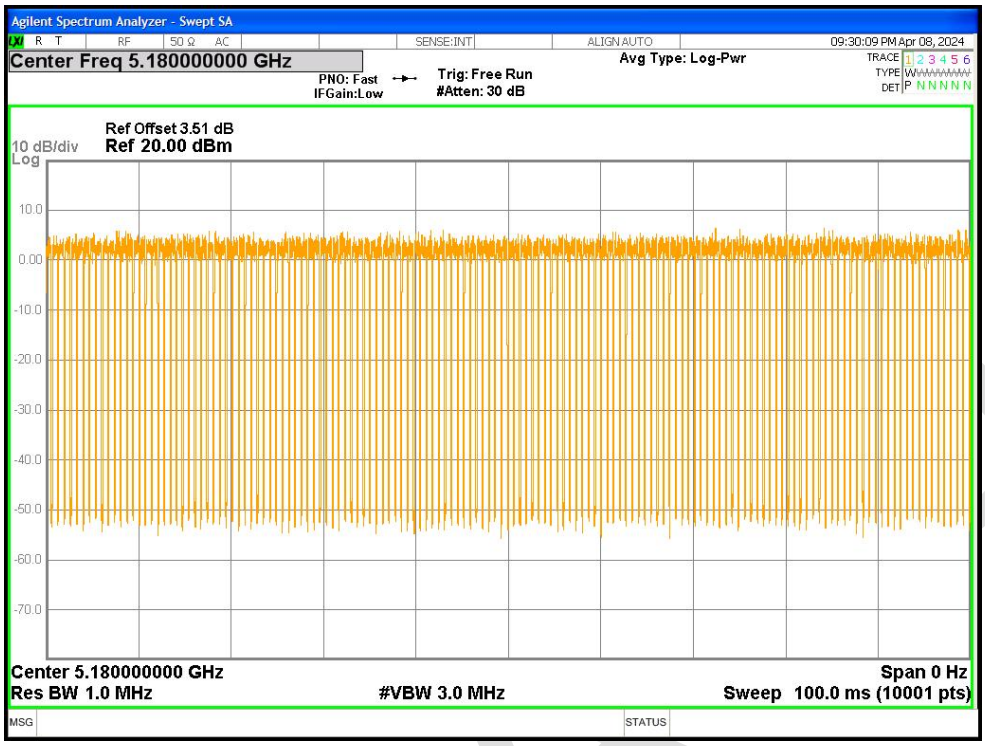


Duty Cycle NVNT ac40 5230MHz Ant1

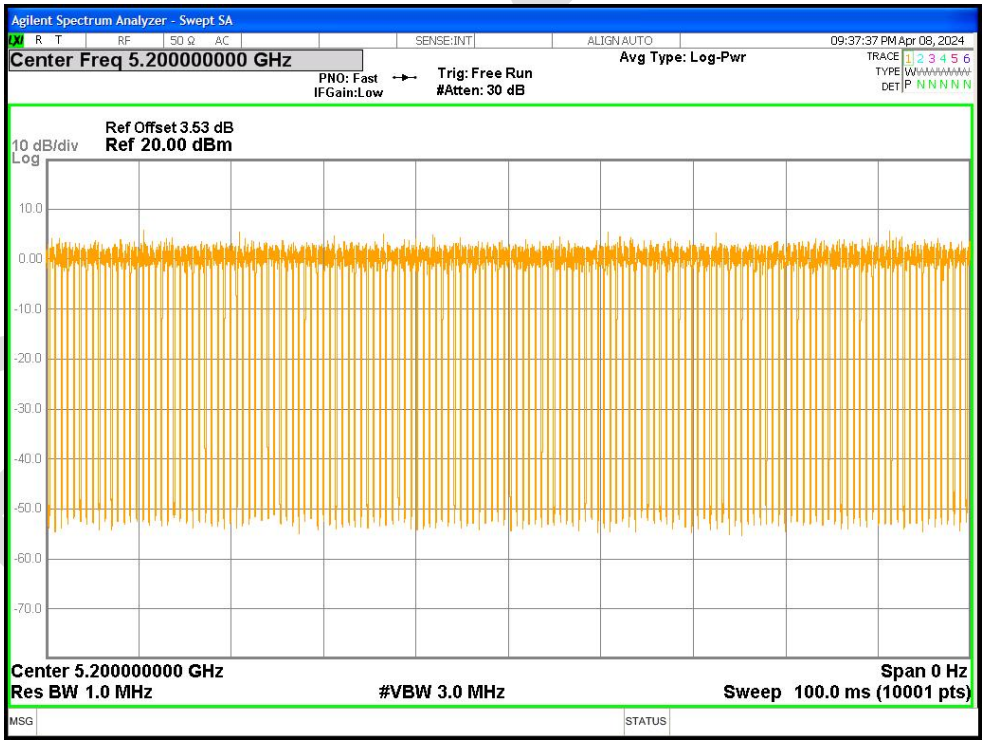


Duty Cycle NVNT ac80 5210MHz Ant1

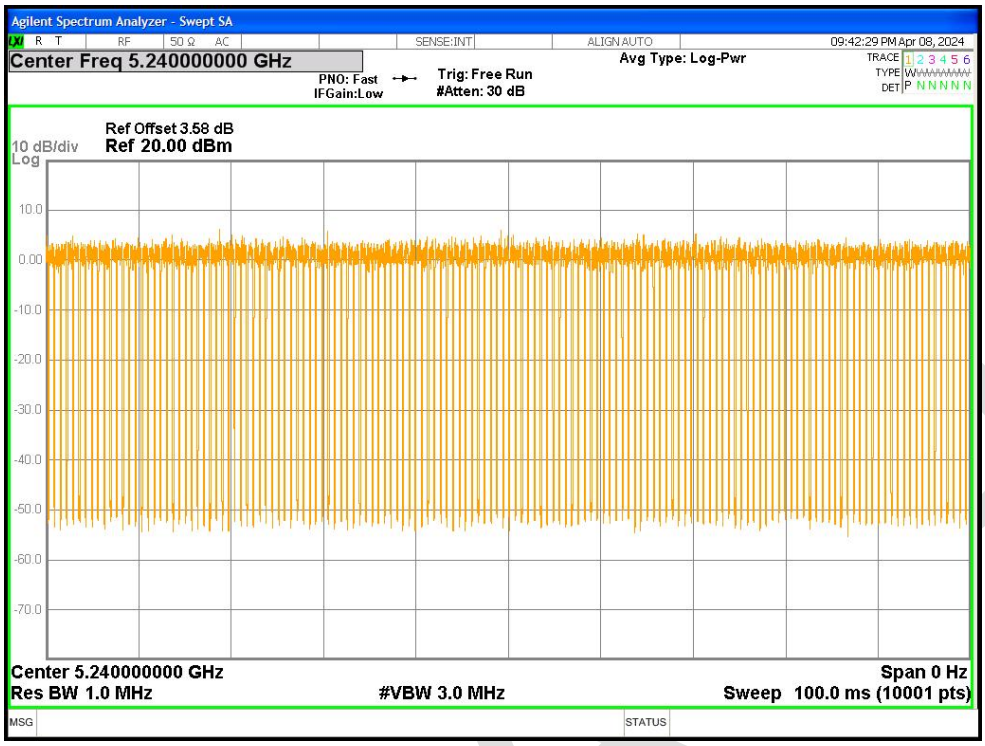
Duty Cycle NVNT n20 5180MHz Ant1



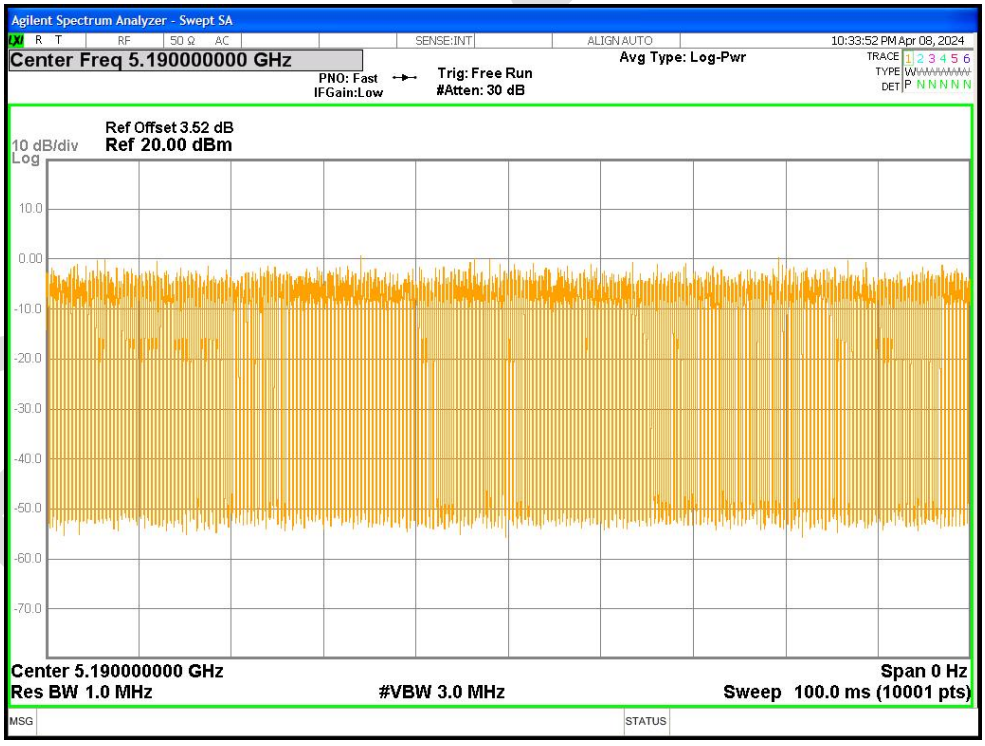
Duty Cycle NVNT n20 5200MHz Ant1



Duty Cycle NVNT n20 5240MHz Ant1



Duty Cycle NVNT n40 5190MHz Ant1



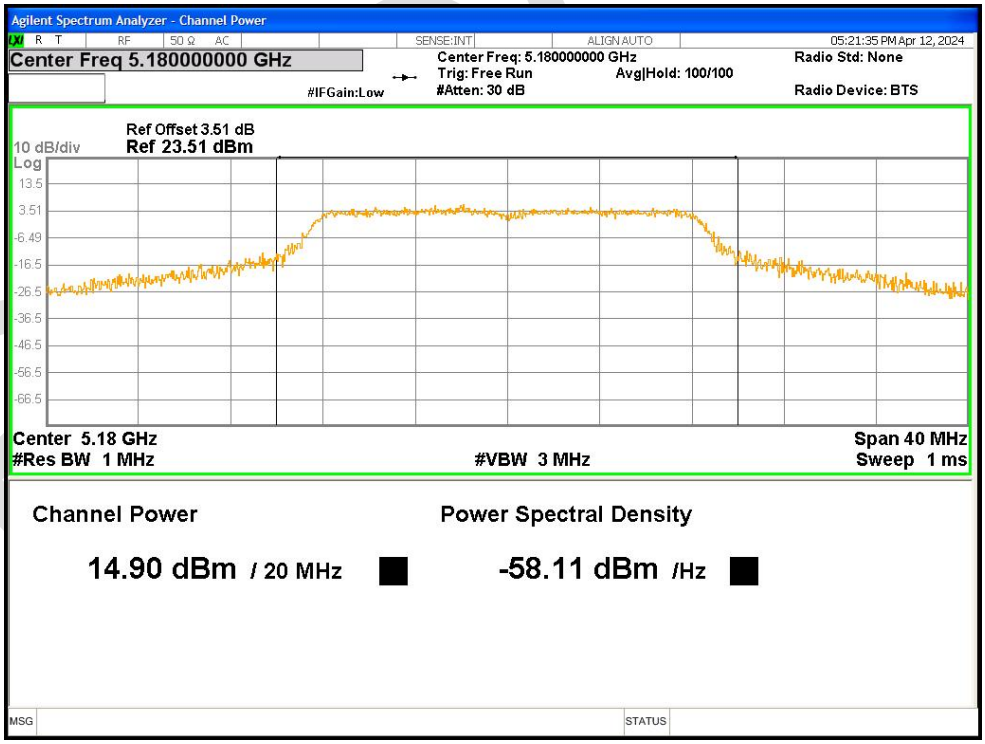
Duty Cycle NVNT n40 5230MHz Ant1


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.230000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
10:38:11 PM Apr 08, 2024
Ref Offset 3.57 dB
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 5.230000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 100.0 ms (10001 pts)

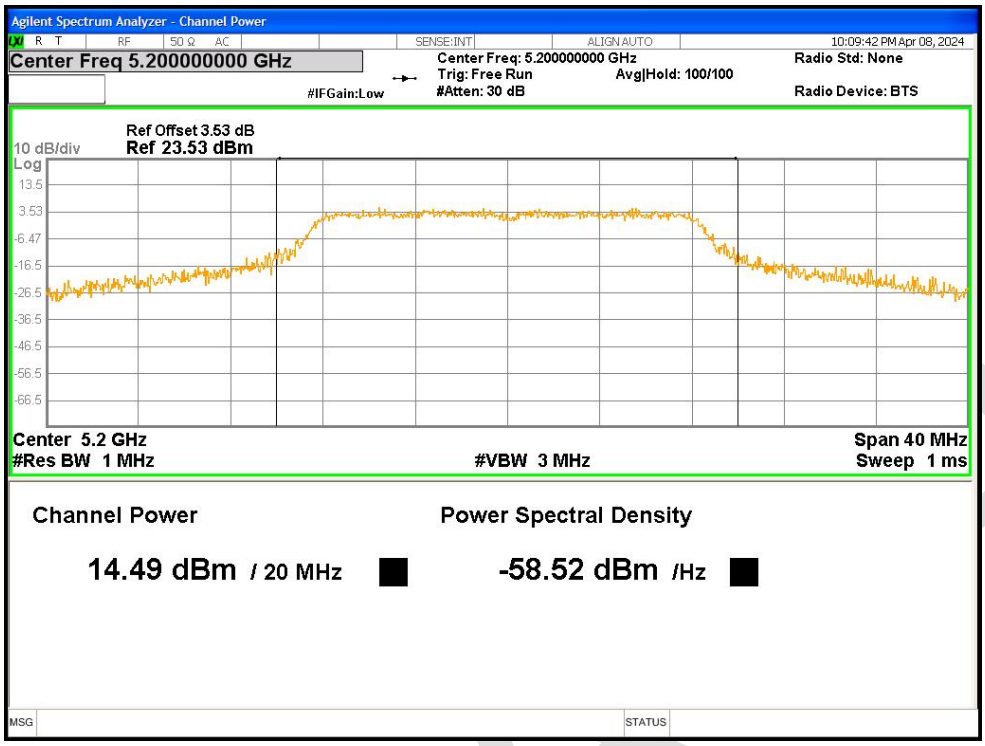
24.2 MAXIMUM CONDUCTED OUTPUT POWER

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	14.897	0	14.897	24	Pass
NVNT	a	5200	Ant1	14.486	2.57	17.056	24	Pass
NVNT	a	5240	Ant1	14.647	2.6	17.247	24	Pass
NVNT	ac20	5180	Ant1	13.11	0.85	13.96	24	Pass
NVNT	ac20	5200	Ant1	13.065	0.88	13.945	24	Pass
NVNT	ac20	5240	Ant1	13.228	0.86	14.088	24	Pass
NVNT	ac40	5190	Ant1	12.395	1.48	13.875	24	Pass
NVNT	ac40	5230	Ant1	12.524	1.48	14.004	24	Pass
NVNT	ac80	5210	Ant1	10.394	2.67	13.064	24	Pass
NVNT	n20	5180	Ant1	13.642	0.83	14.472	24	Pass
NVNT	n20	5200	Ant1	13.311	0.83	14.141	24	Pass
NVNT	n20	5240	Ant1	13.841	0.83	14.671	24	Pass
NVNT	n40	5190	Ant1	13.511	1.49	15.001	24	Pass
NVNT	n40	5230	Ant1	13.857	1.48	15.337	24	Pass

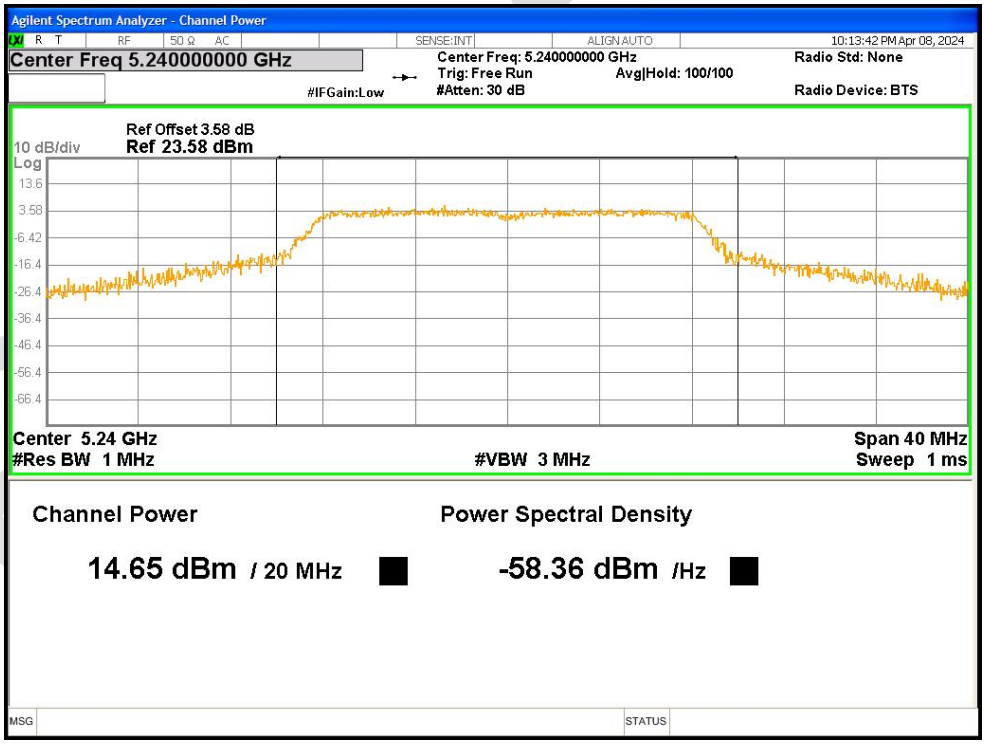
Power NVNT a 5180MHz Ant1



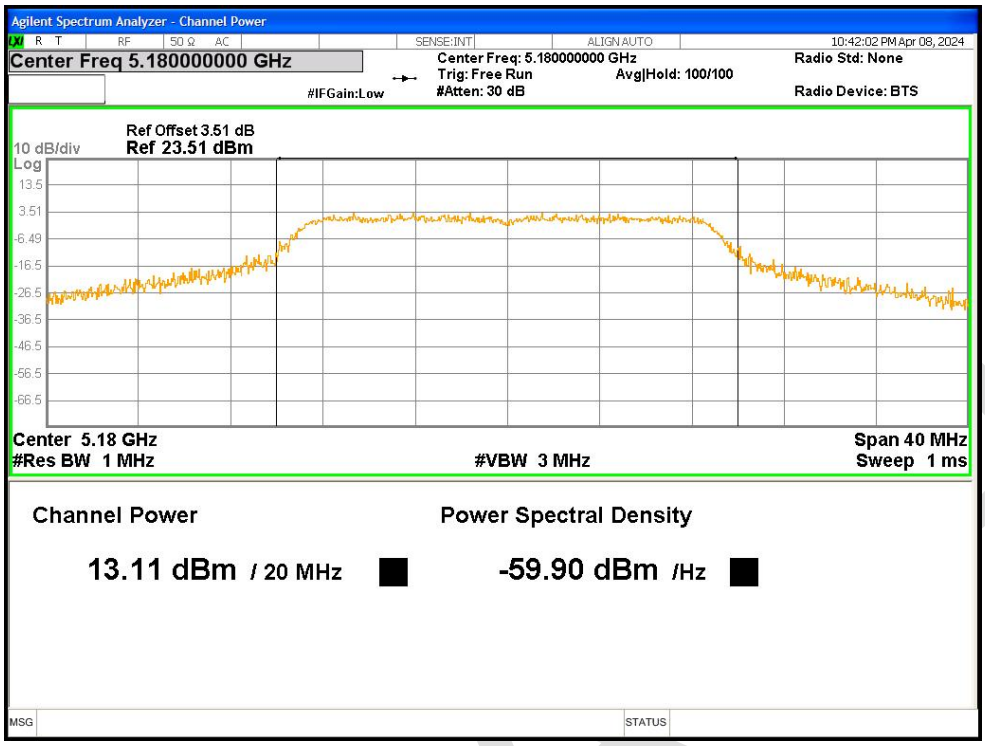
Power NVNT a 5200MHz Ant1



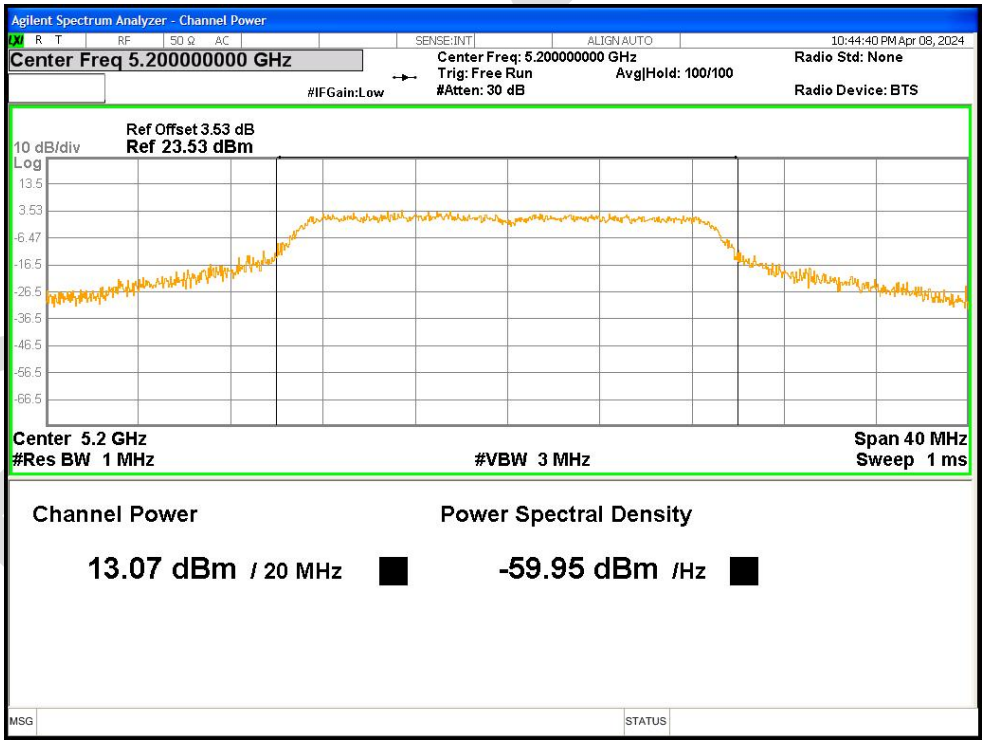
Power NVNT a 5240MHz Ant1



Power NVNT ac20 5180MHz Ant1



Power NVNT ac20 5200MHz Ant1



Power NVNT ac20 5240MHz Ant1