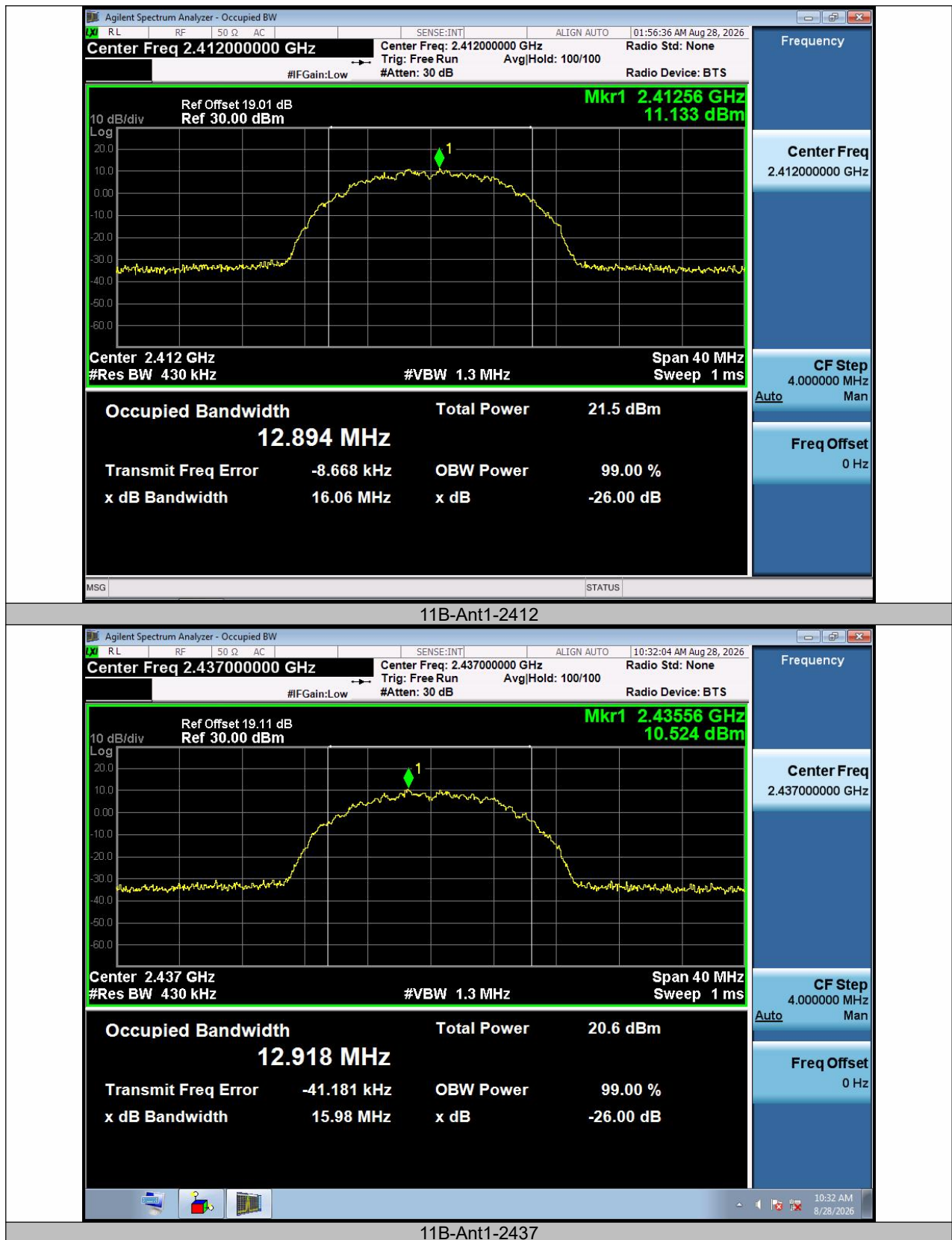
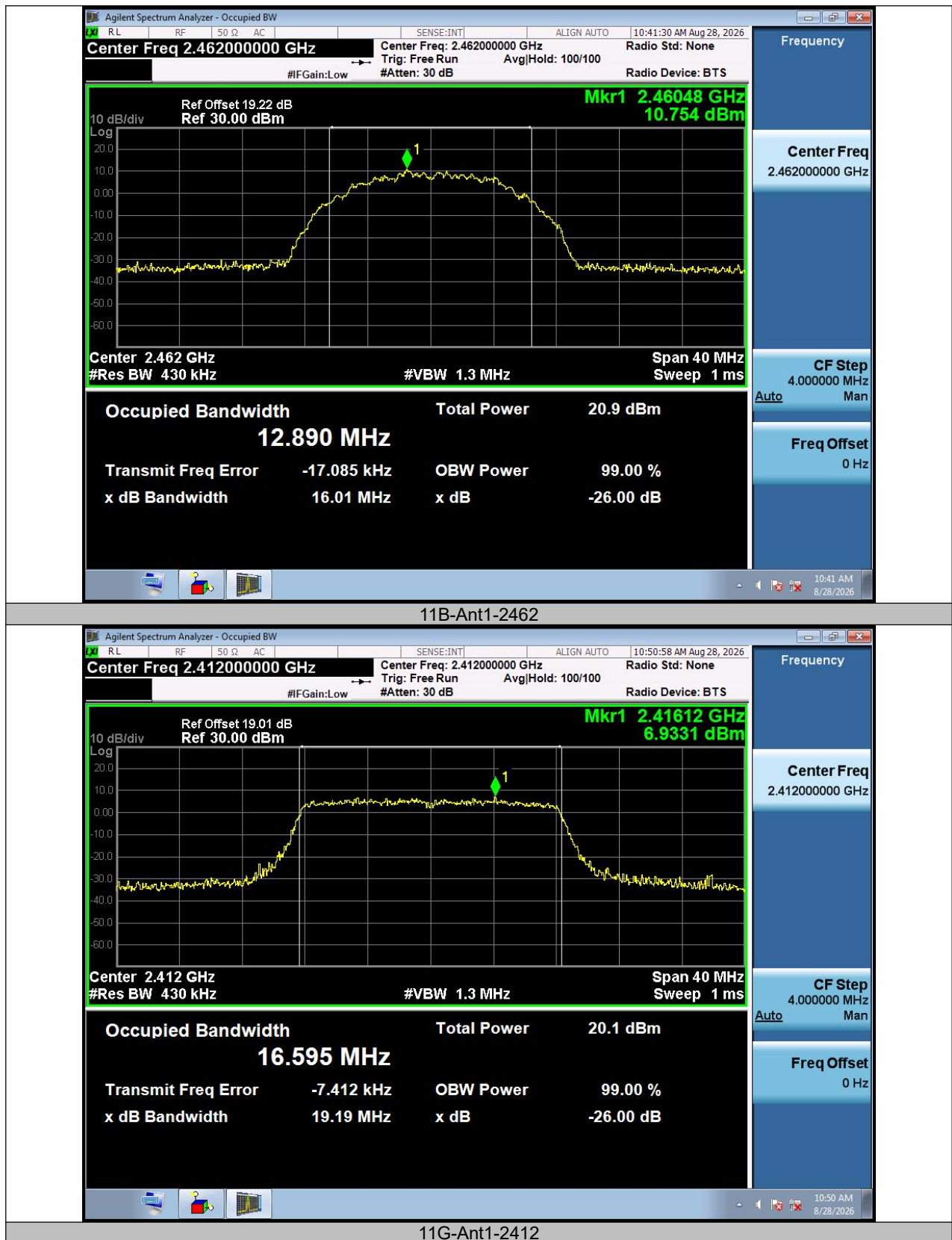
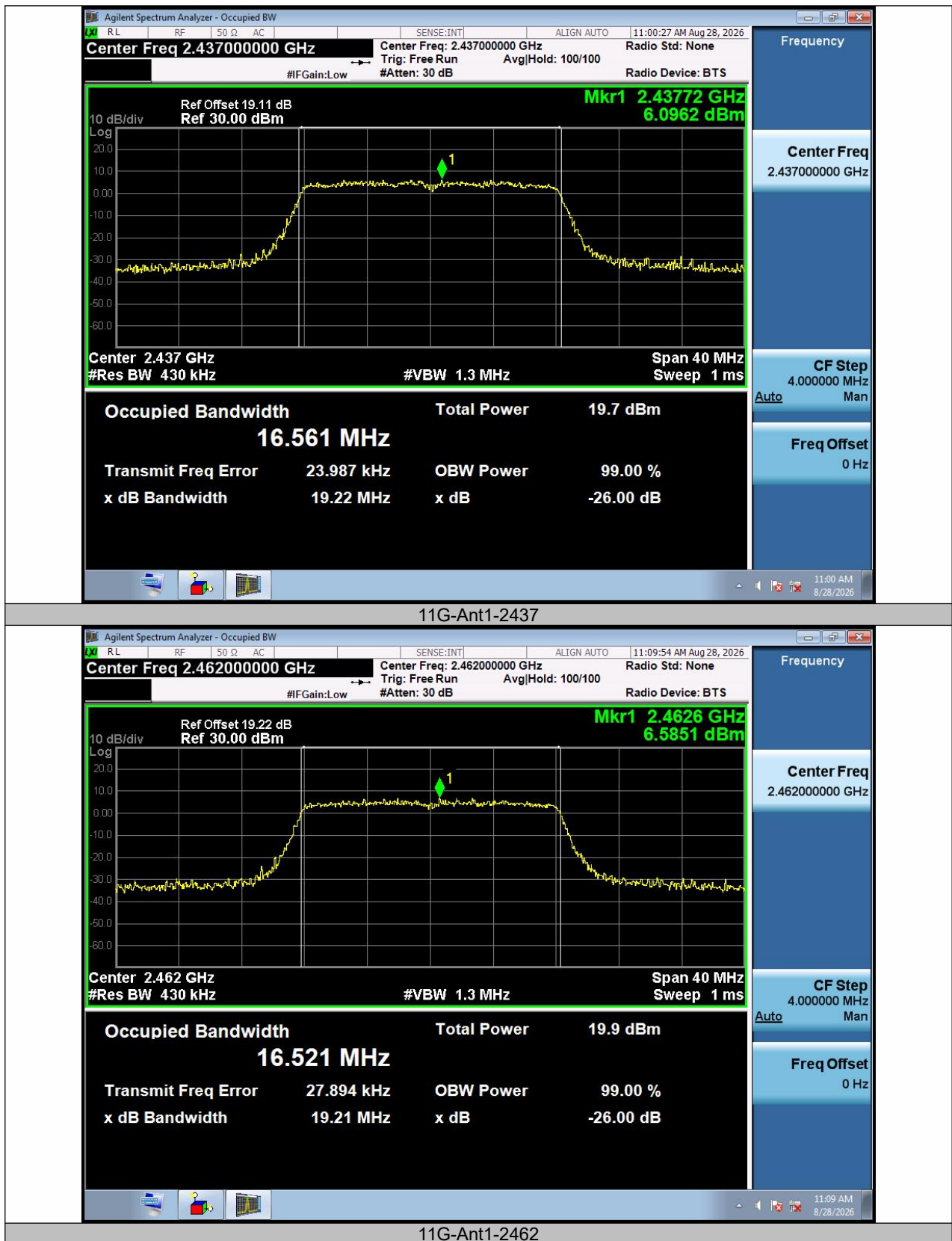
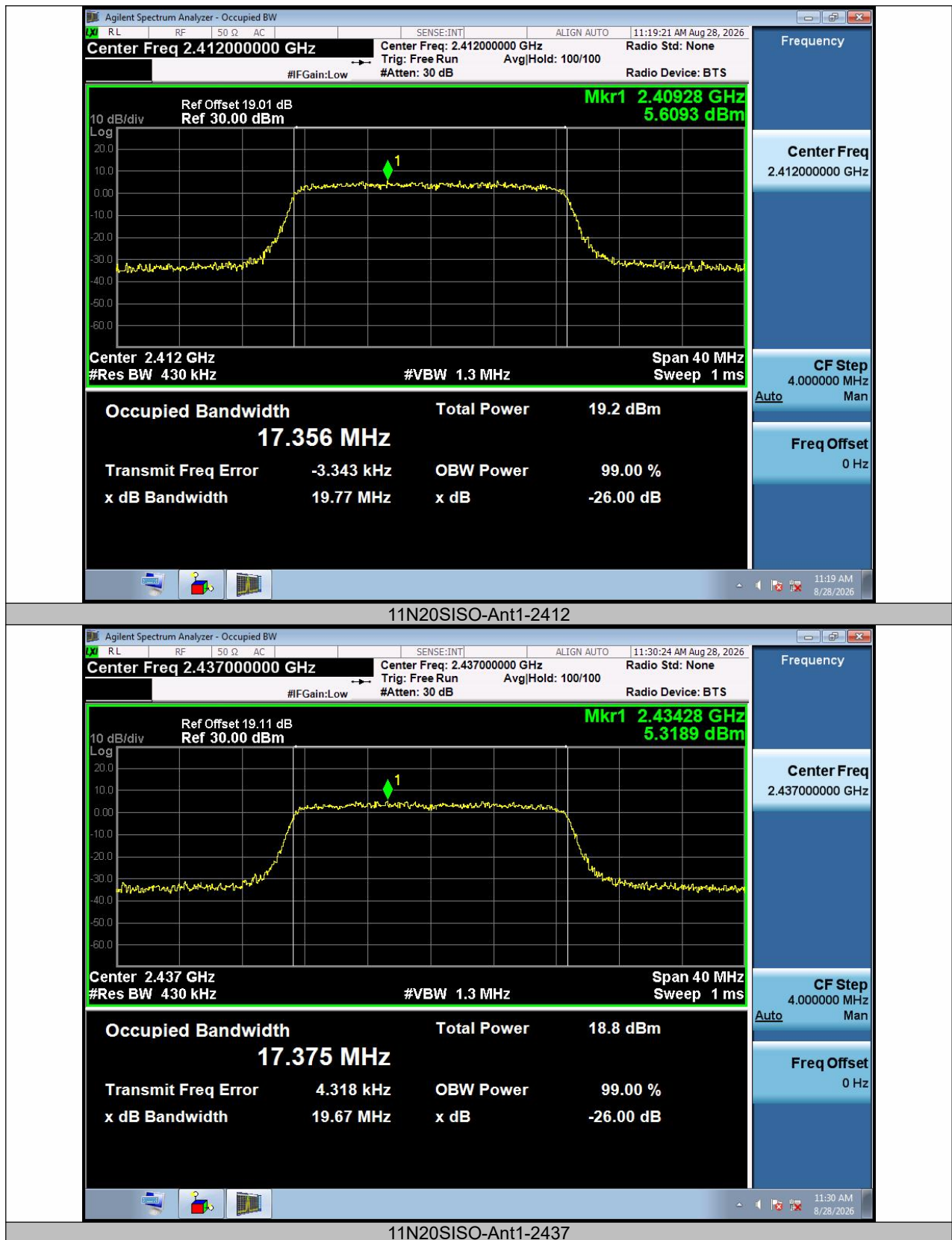
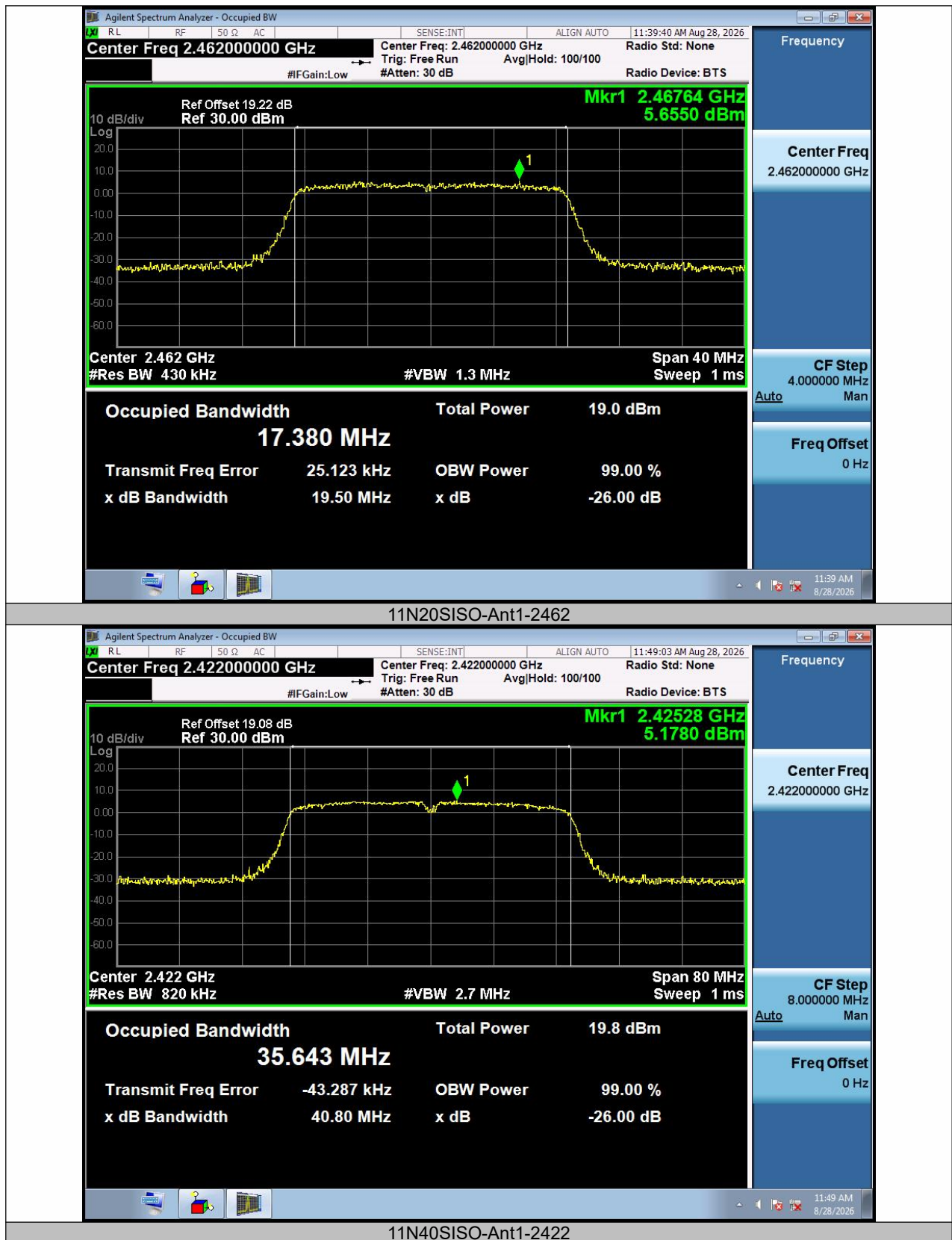


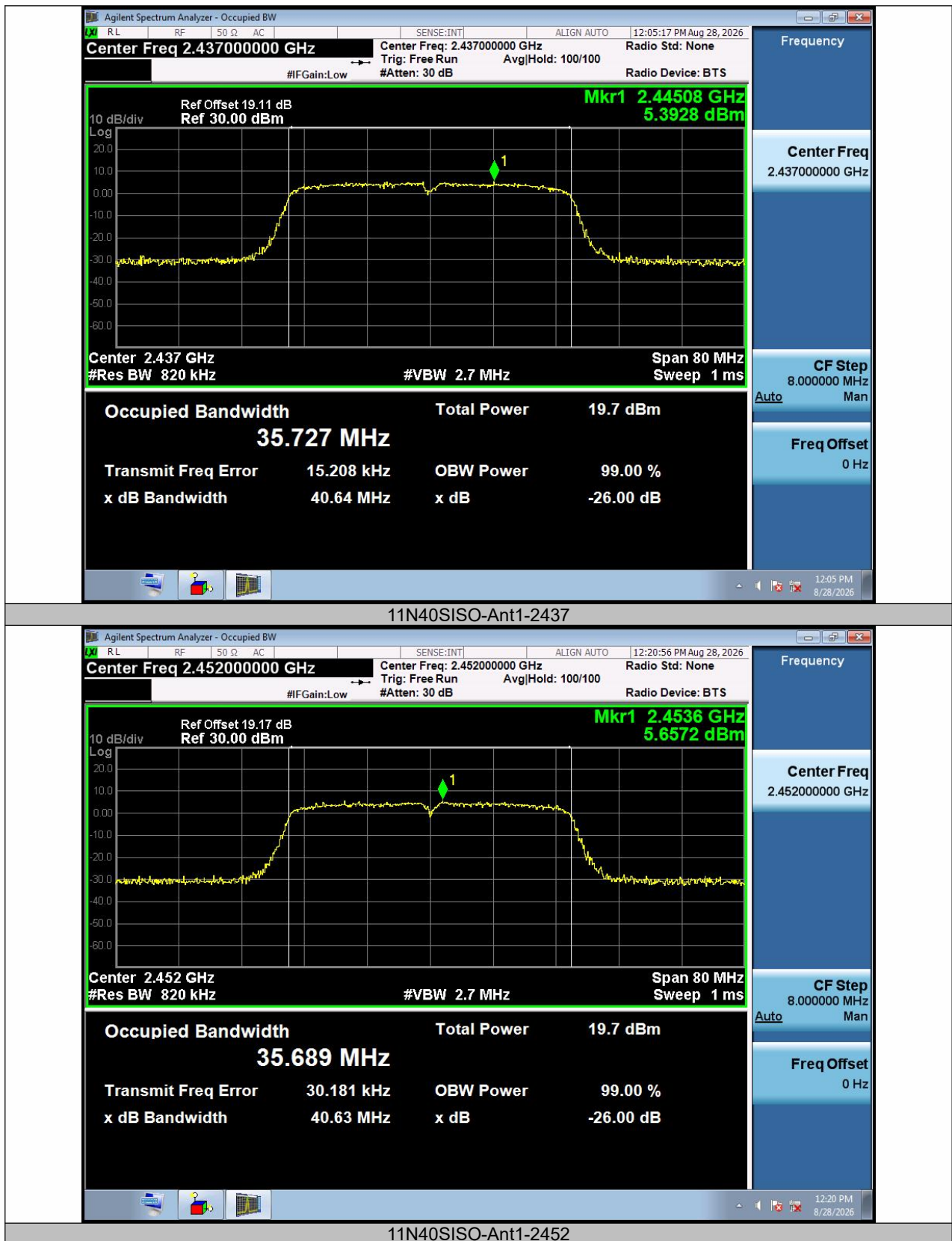












8.3 MAXIMUM PEAK CONDUCTED OUTPUT POWER

8.3.1 Applicable Standard

According to FCC Part 15.247 (b)(3) and KDB 558074 D01 15.247 Meas Guidance v05r02
According to RSS-247 and RSS-Gen

8.3.2 Conformance Limit

The maximum conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm).

8.3.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.3.4 Test Procedure

- a) Set span to at least 1.5 times the OBW.
- b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
- c) Set VBW $\geq 3 \times$ RBW.
- d) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This gives bin-to-bin spacing $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)
- e) Sweep time = auto.
- f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- g) If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle $\geq 98 \%$, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
- h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

■ According to FCC Part 15.247(b)(4):

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. 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)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note: If antenna Gain exceeds 6 dBi, then Output power Limit = $30 - (\text{Gain} - 6)$

8.3.5 Test Results

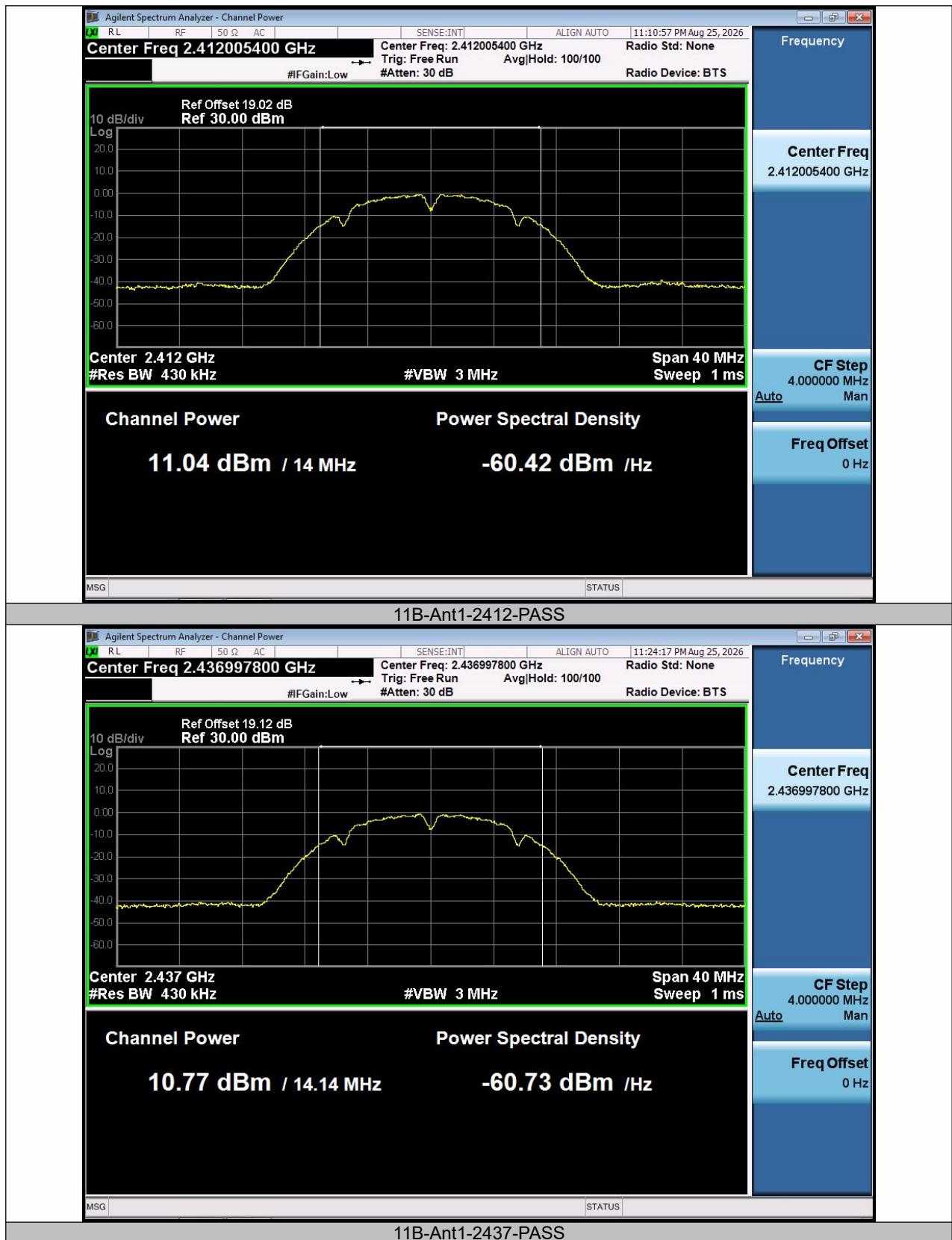
Temperature:	25.8°C
Relative Humidity:	49%
ATM Pressure:	1011 mbar

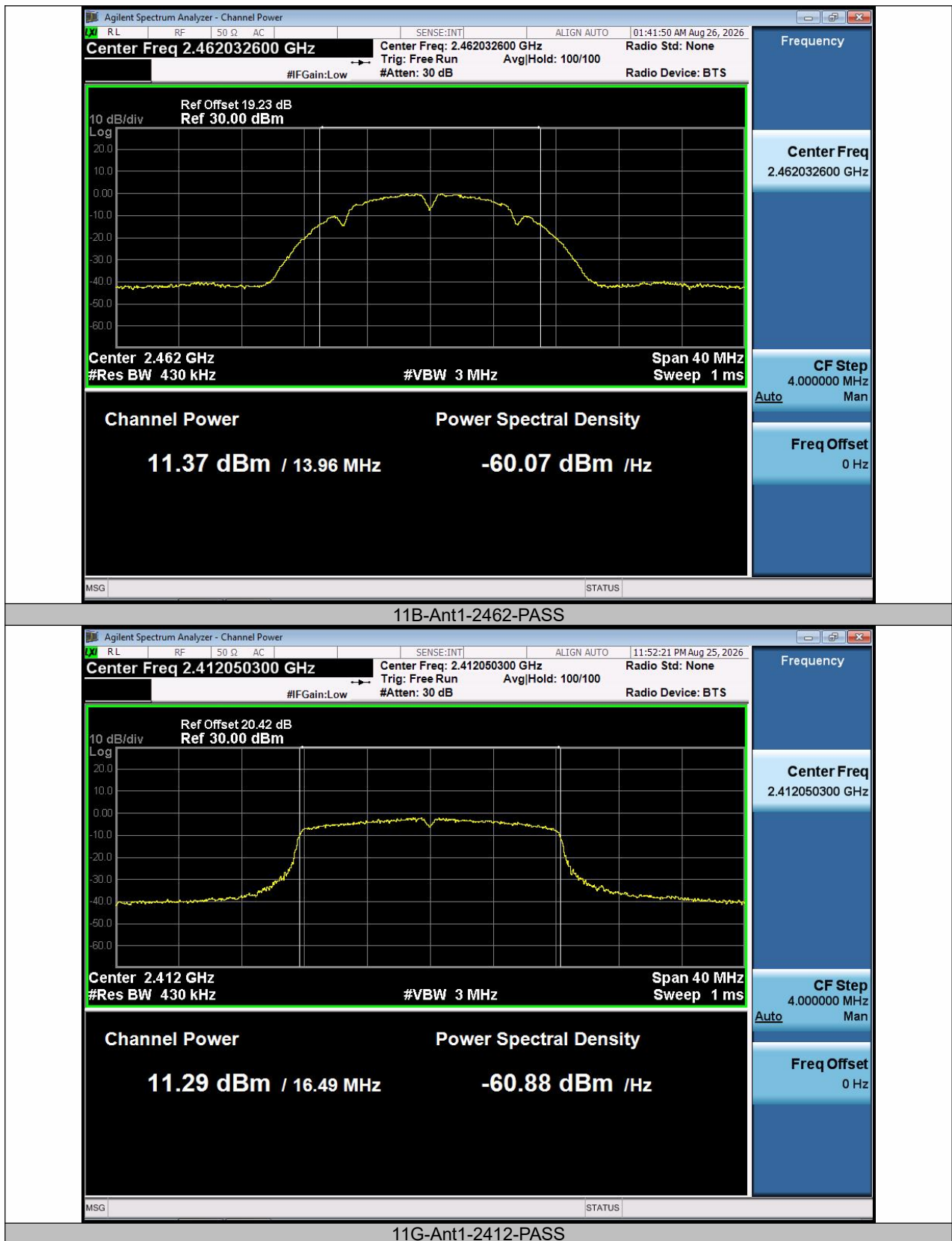
Note: N/A

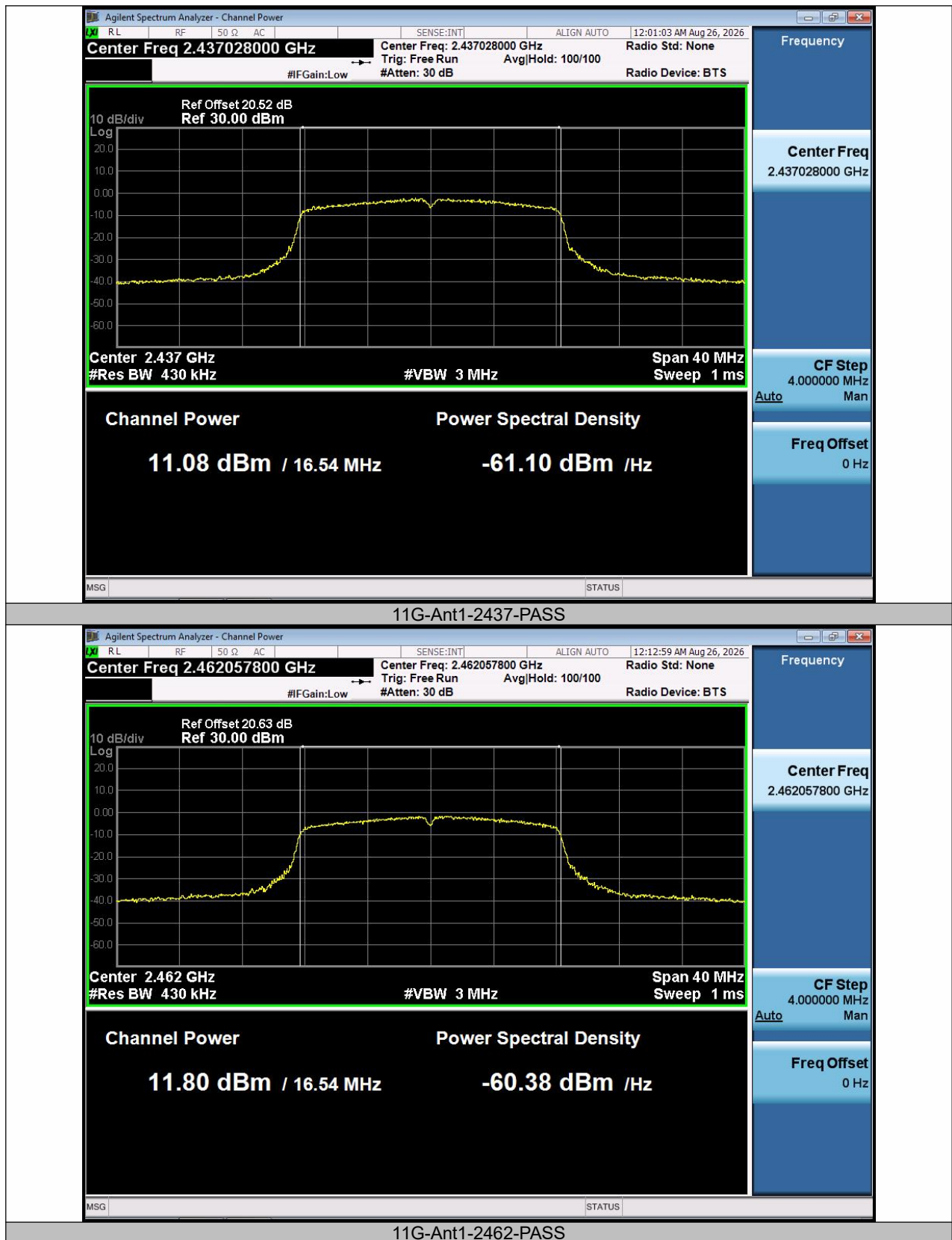
Module1:RBT-AM9421-3IN1_V1

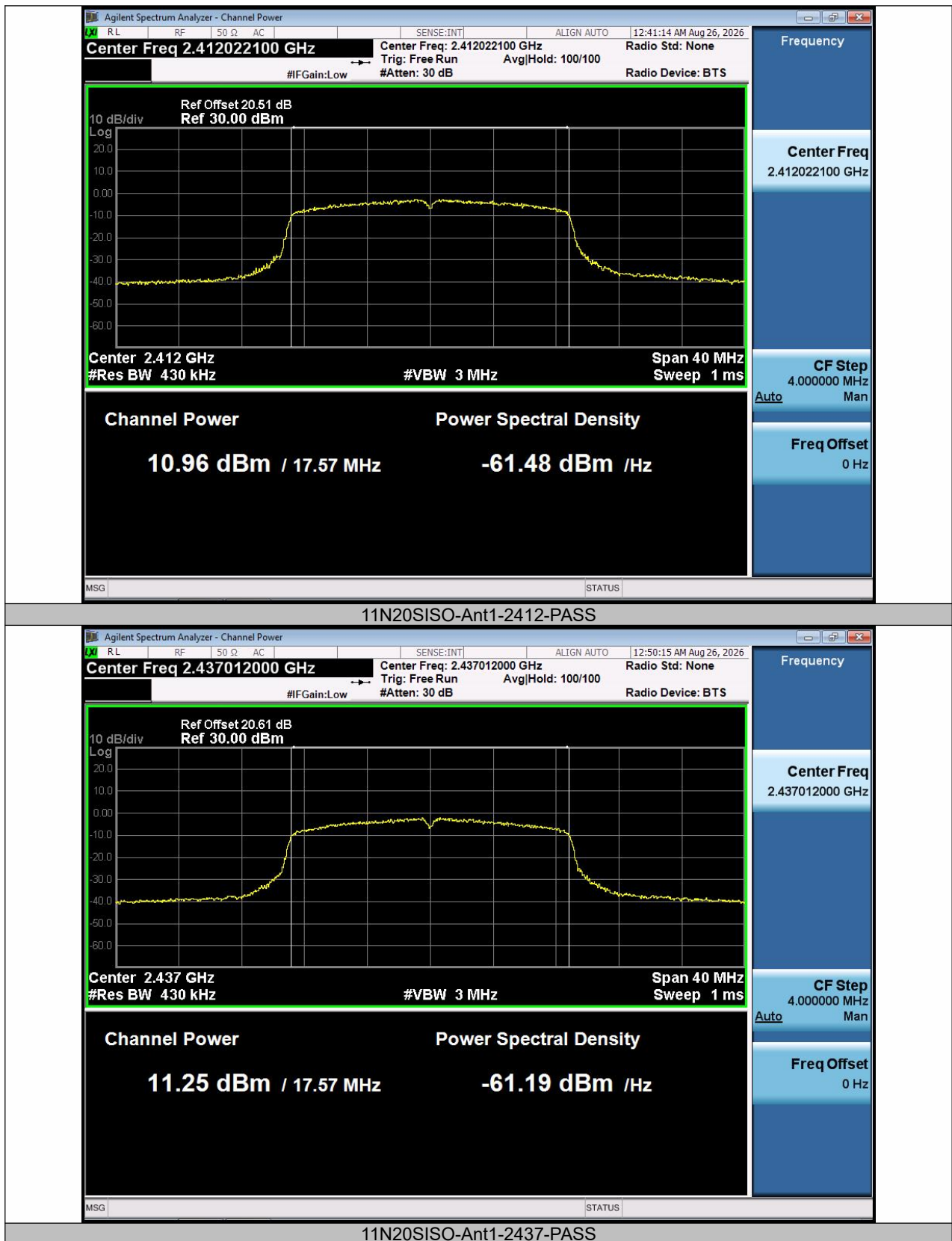
Test Mode	Antenna	Frequency [MHz]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11B	Ant1	2412	99.76	0.01	11.04	≤30.00	0.86	11.90	≤36.00	PASS
11B	Ant1	2437	99.76	0.01	10.77	≤30.00	0.86	11.63	≤36.00	PASS
11B	Ant1	2462	99.76	0.01	11.37	≤30.00	0.86	12.23	≤36.00	PASS
11G	Ant1	2412	72.34	1.41	11.29	≤30.00	0.86	12.15	≤36.00	PASS
11G	Ant1	2437	72.34	1.41	11.08	≤30.00	0.86	11.94	≤36.00	PASS
11G	Ant1	2462	72.34	1.41	11.80	≤30.00	0.86	12.66	≤36.00	PASS
11N20SISO	Ant1	2412	70.79	1.50	10.96	≤30.00	0.86	11.82	≤36.00	PASS
11N20SISO	Ant1	2437	70.79	1.50	11.25	≤30.00	0.86	12.11	≤36.00	PASS
11N20SISO	Ant1	2462	70.79	1.50	11.56	≤30.00	0.86	12.42	≤36.00	PASS

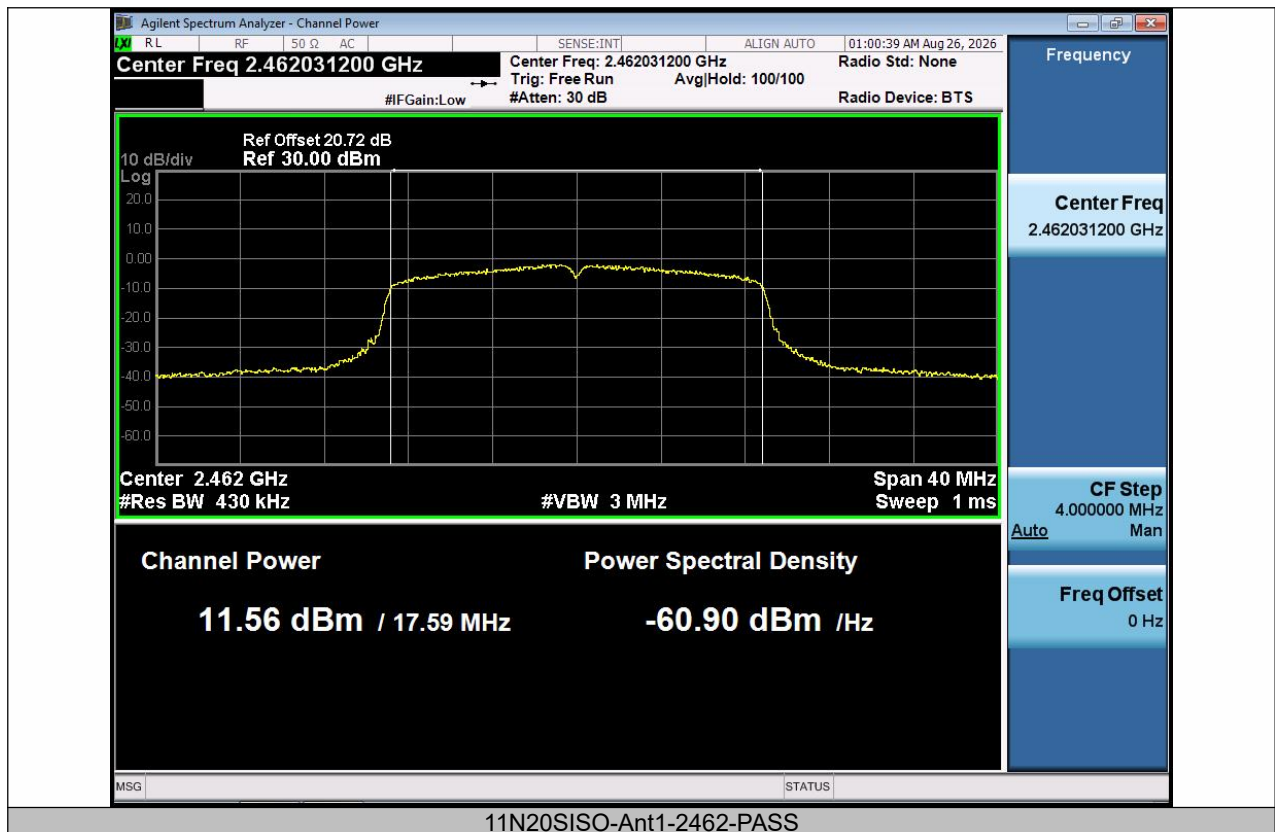








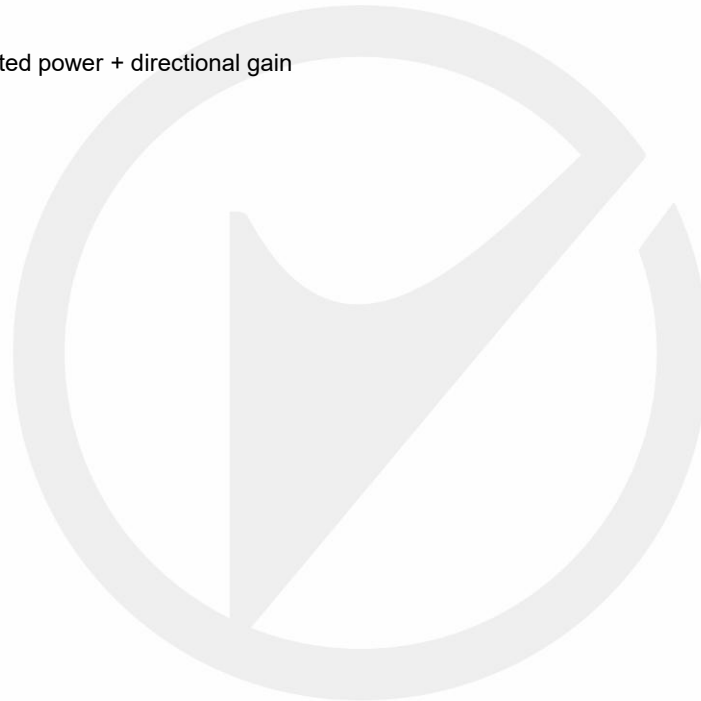


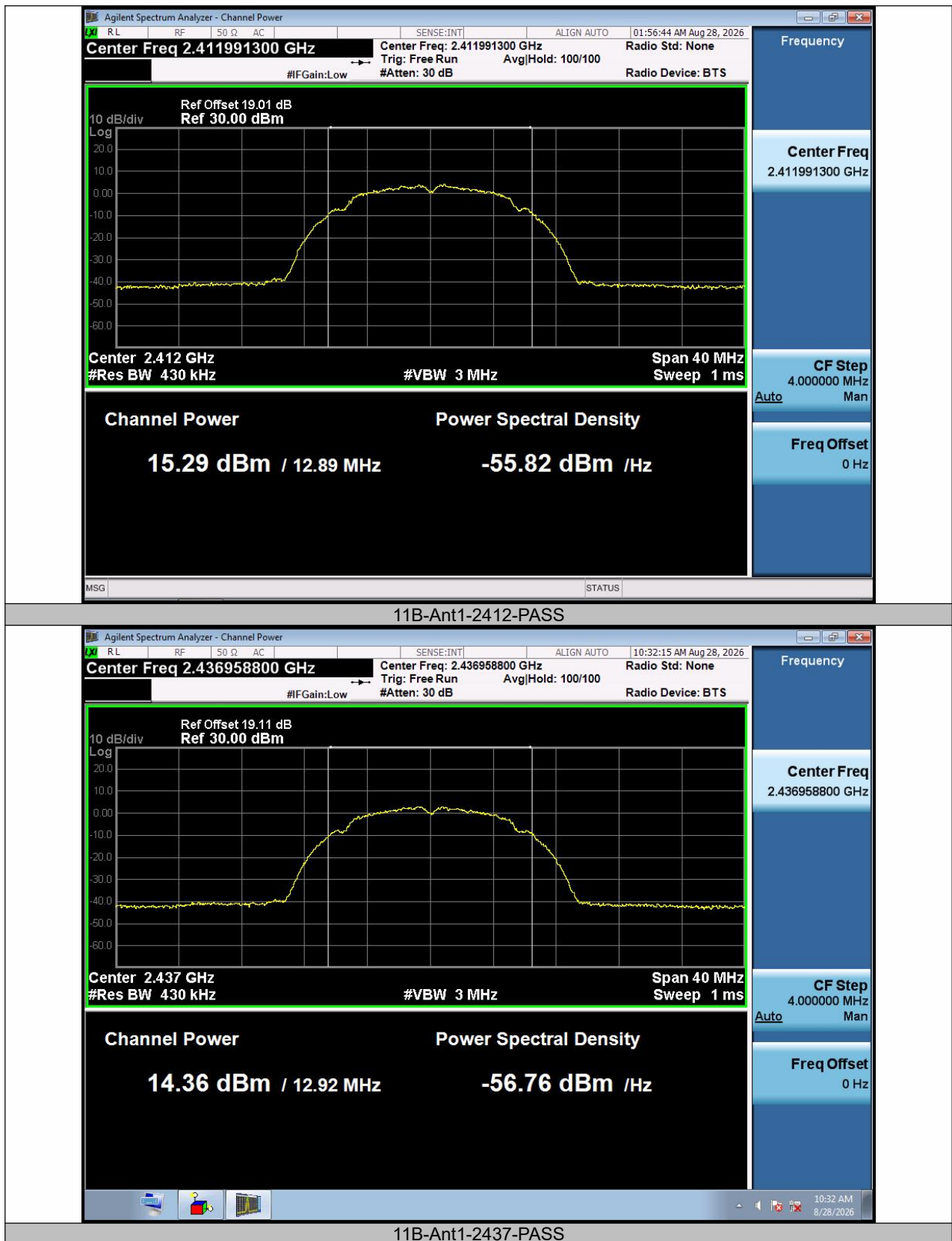


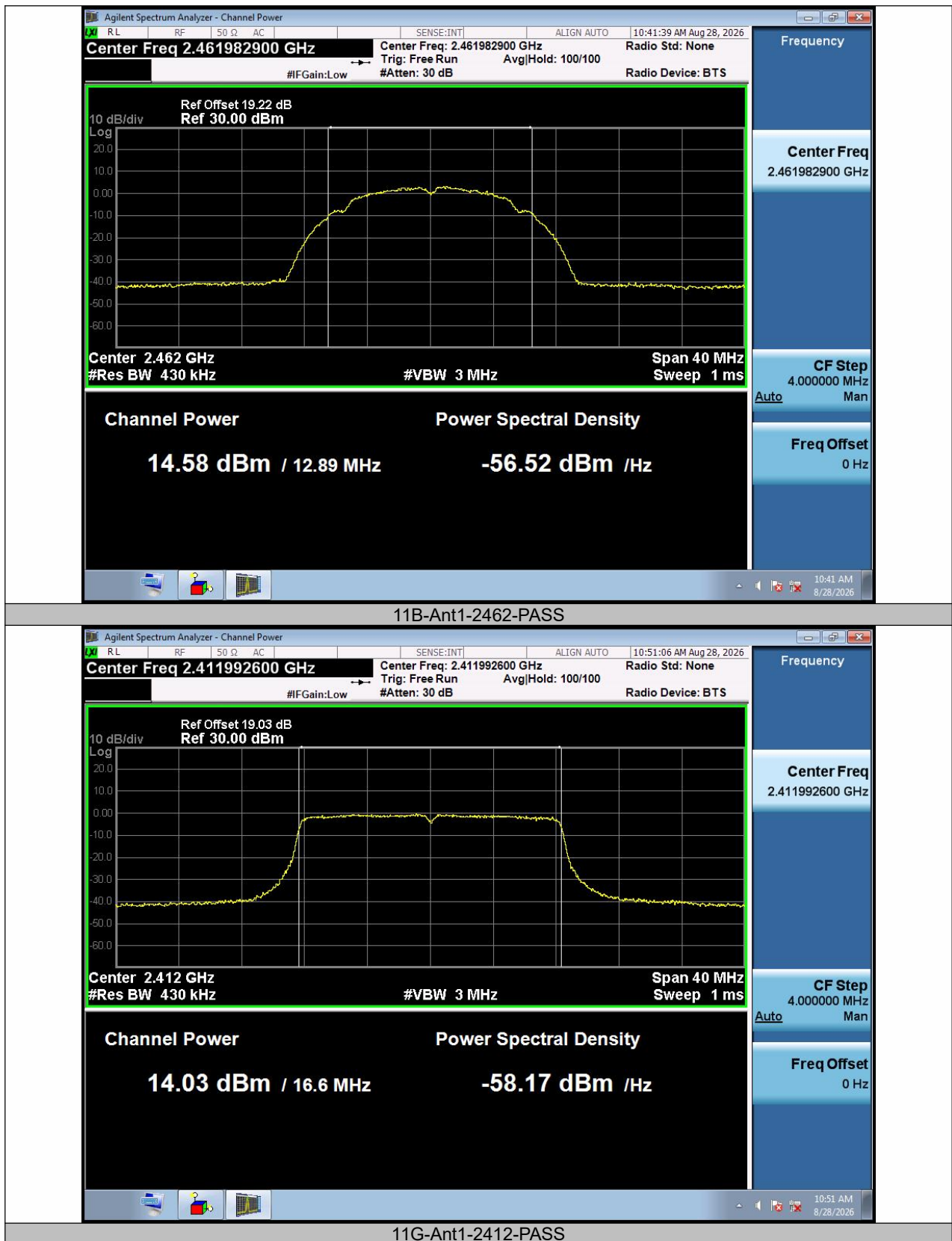
Module2:ESP32-S3

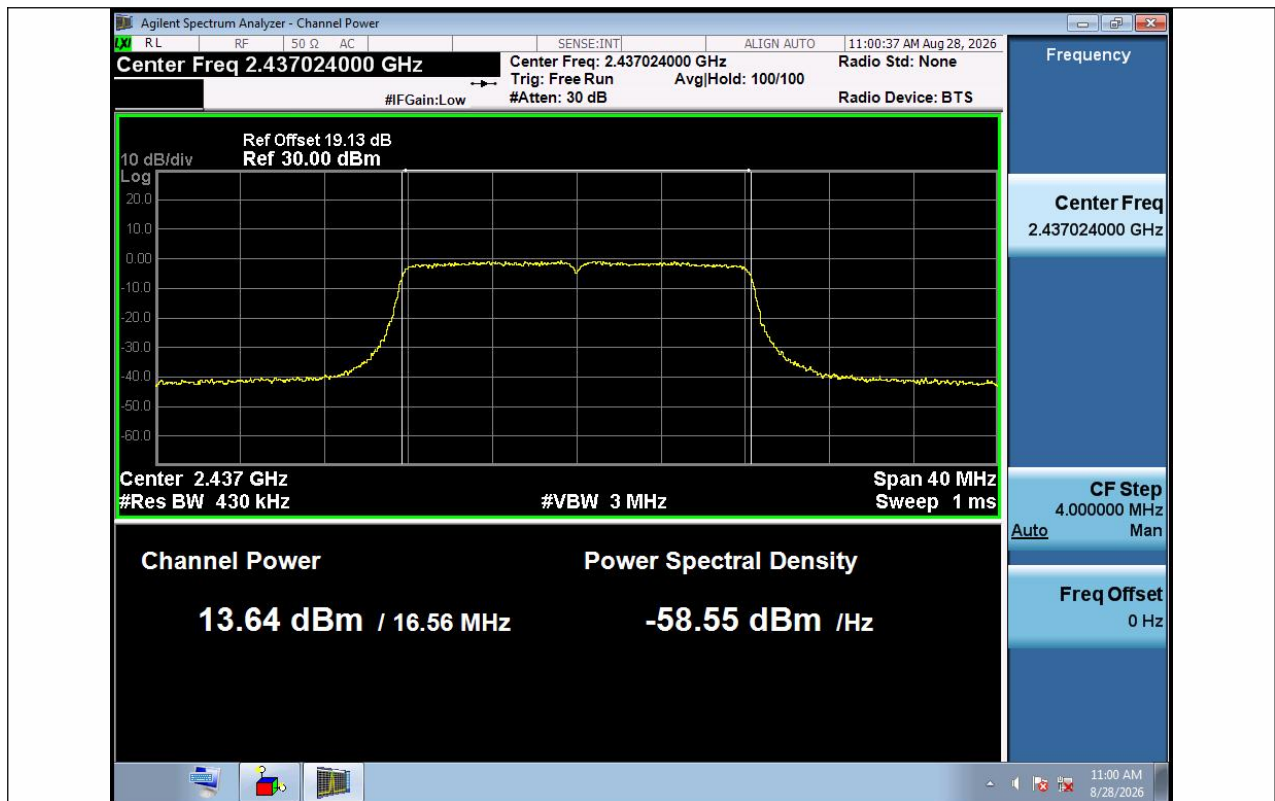
Test Mode	Antenna	Frequency [MHz]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11B	Ant1	2412	100.00	0.00	15.29	≤30.00	2.58	17.87	≤36.00	PASS
11B	Ant1	2437	100.00	0.00	14.36	≤30.00	2.58	16.94	≤36.00	PASS
11B	Ant1	2462	100.00	0.00	14.58	≤30.00	2.58	17.16	≤36.00	PASS
11G	Ant1	2412	99.46	0.02	14.03	≤30.00	2.58	16.61	≤36.00	PASS
11G	Ant1	2437	99.46	0.02	13.64	≤30.00	2.58	16.22	≤36.00	PASS
11G	Ant1	2462	99.28	0.03	13.82	≤30.00	2.58	16.40	≤36.00	PASS
11N20SISO	Ant1	2412	99.41	0.03	13.14	≤30.00	2.58	15.72	≤36.00	PASS
11N20SISO	Ant1	2437	99.41	0.03	12.80	≤30.00	2.58	15.38	≤36.00	PASS
11N20SISO	Ant1	2462	99.41	0.03	12.98	≤30.00	2.58	15.56	≤36.00	PASS
11N40SISO	Ant1	2422	97.63	0.10	12.92	≤30.00	2.58	15.50	≤36.00	PASS
11N40SISO	Ant1	2437	98.41	0.07	12.64	≤30.00	2.58	15.22	≤36.00	PASS
11N40SISO	Ant1	2452	98.40	0.07	12.75	≤30.00	2.58	15.33	≤36.00	PASS

Note: EIRP = conducted power + directional gain

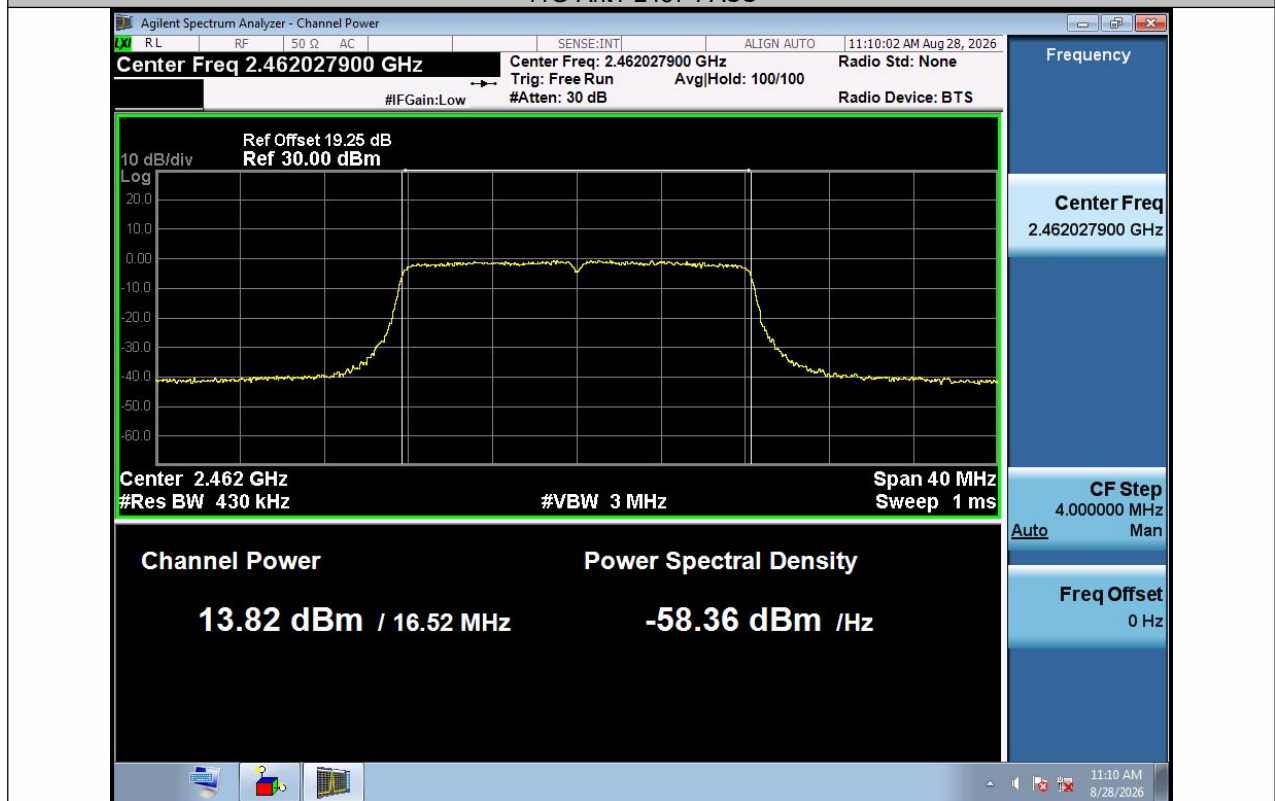




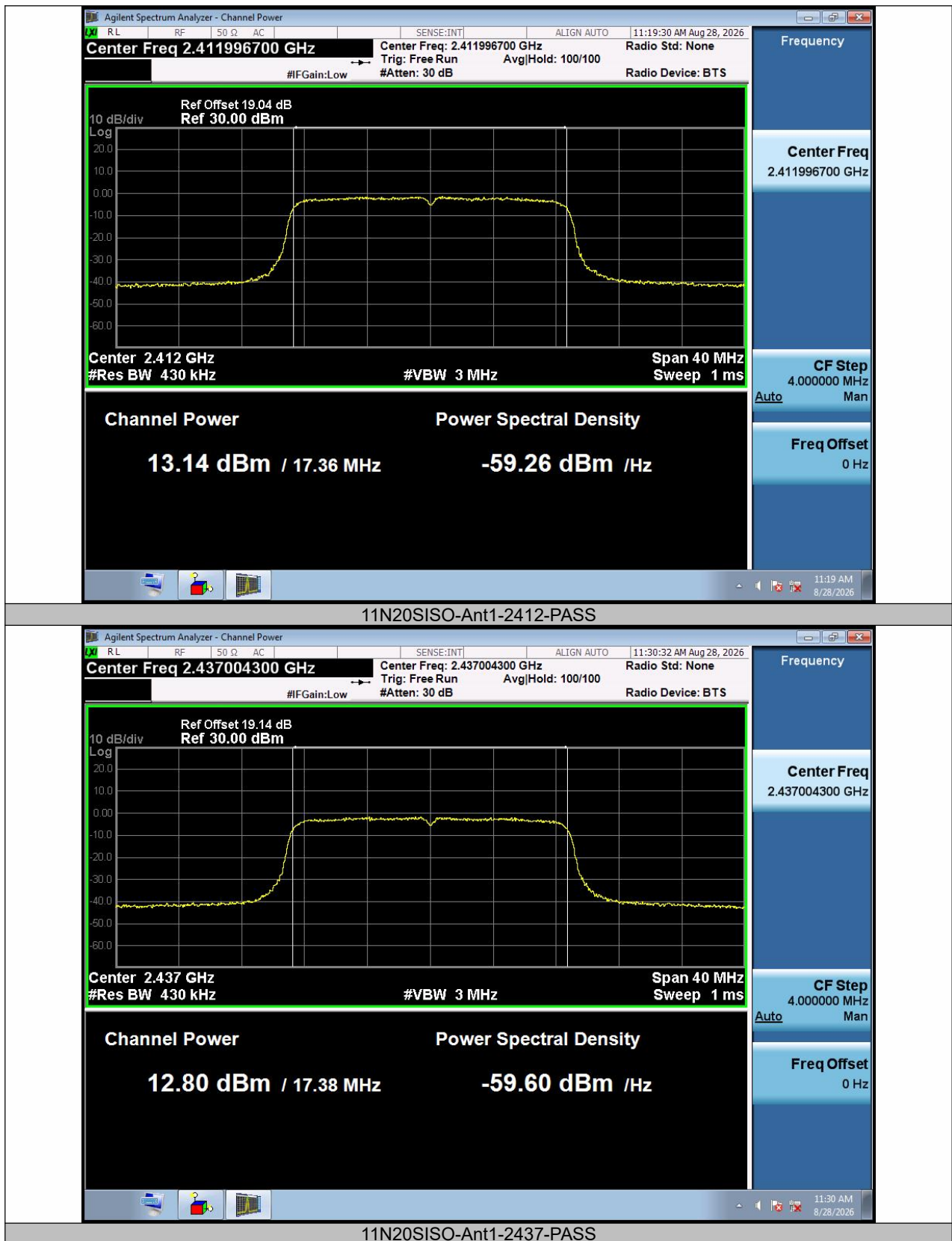


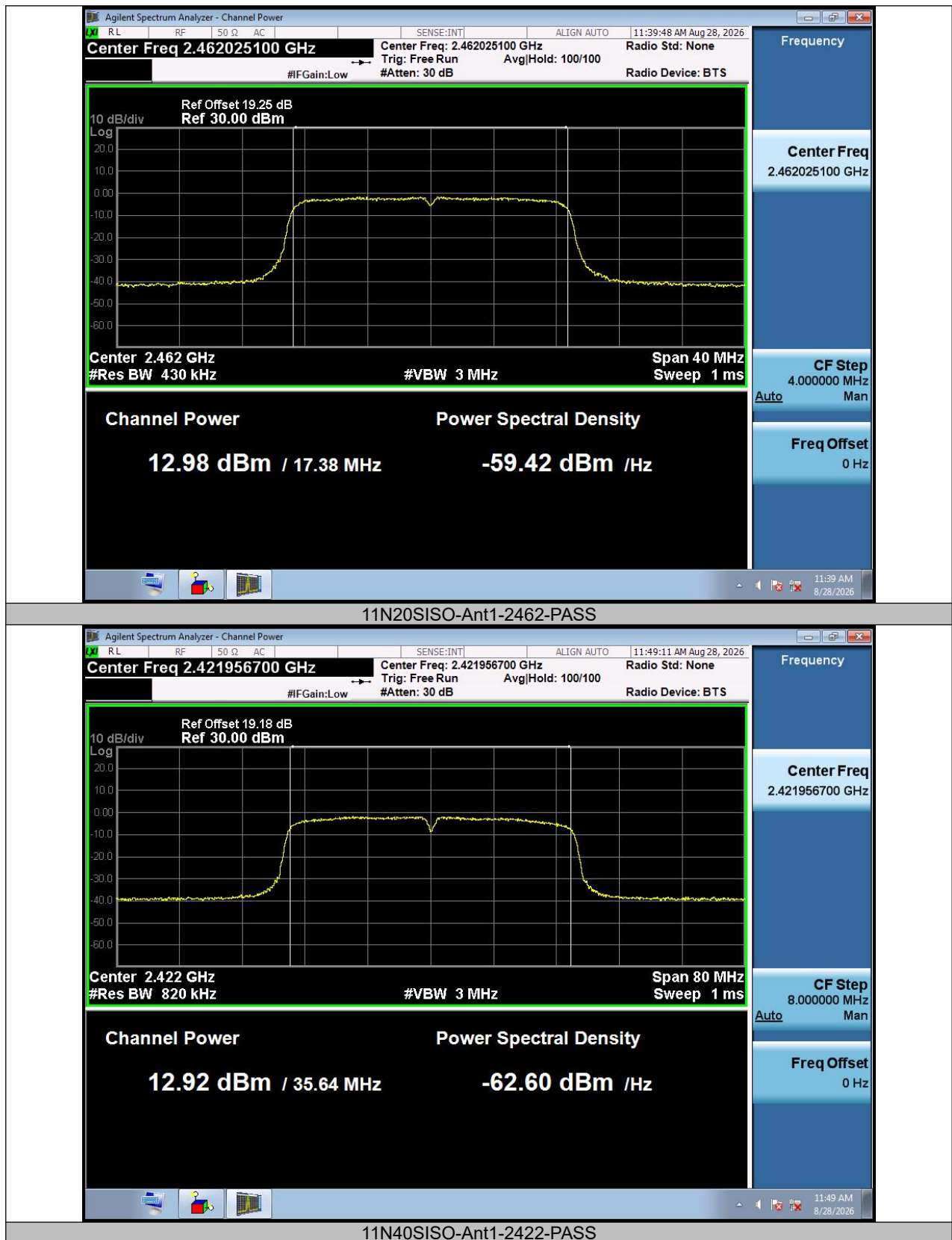


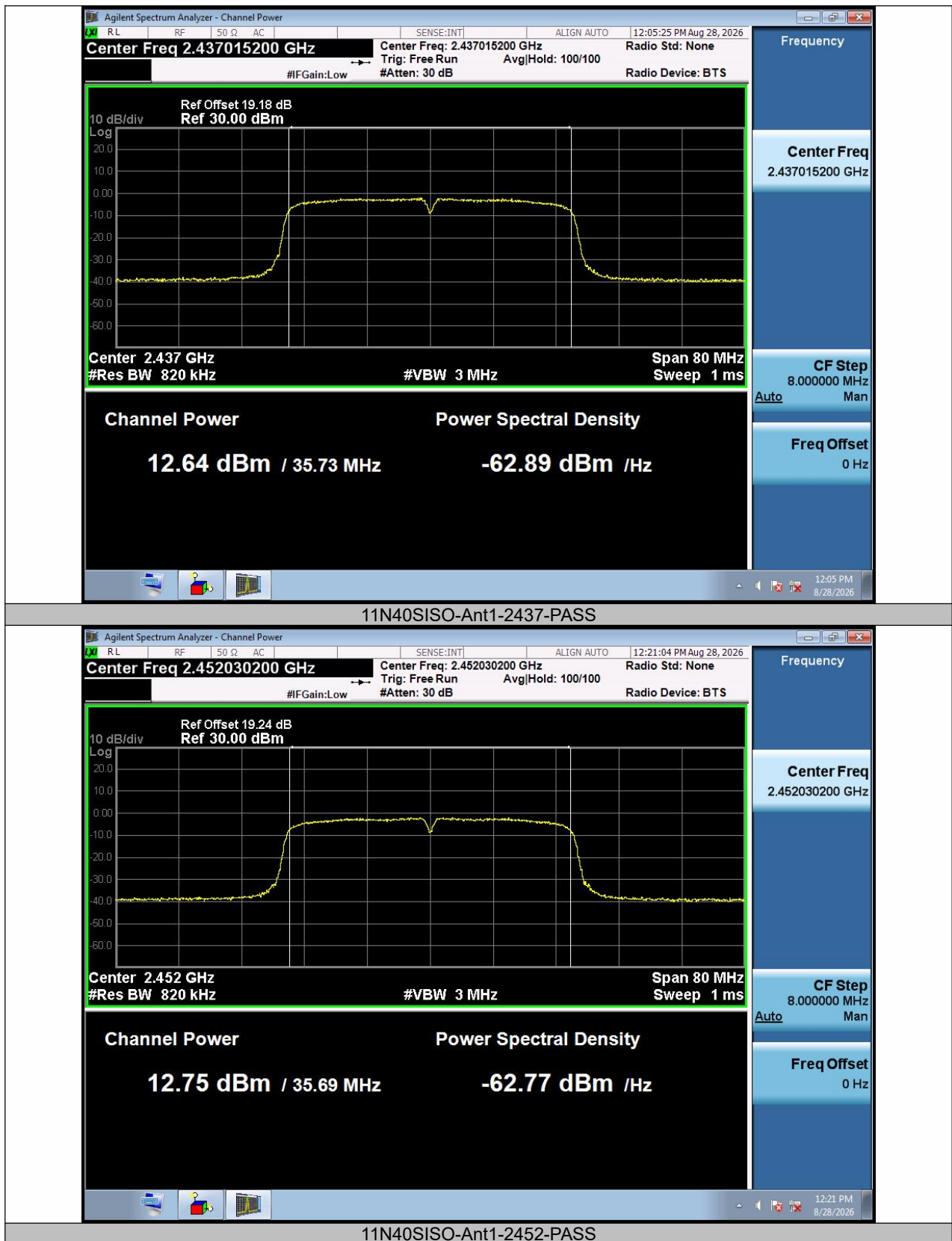
11G-Ant1-2437-PASS



11G-Ant1-2462-PASS







8.4 MAXIMUM POWER SPECTRAL DENSITY

8.4.1 Applicable Standard

According to FCC Part15.247(e) and KDB 558074 D01 15.247 Meas Guidance v05r02
According to RSS-247 and RSS-Gen

8.4.2 Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

8.4.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.4.4 Test Procedure

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance

The transmitter output (antenna port) was connected to the spectrum analyzer

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz

Set the VBW to: 10 kHz.

Set Detector = peak.

Set Sweep time = auto couple.

Set Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

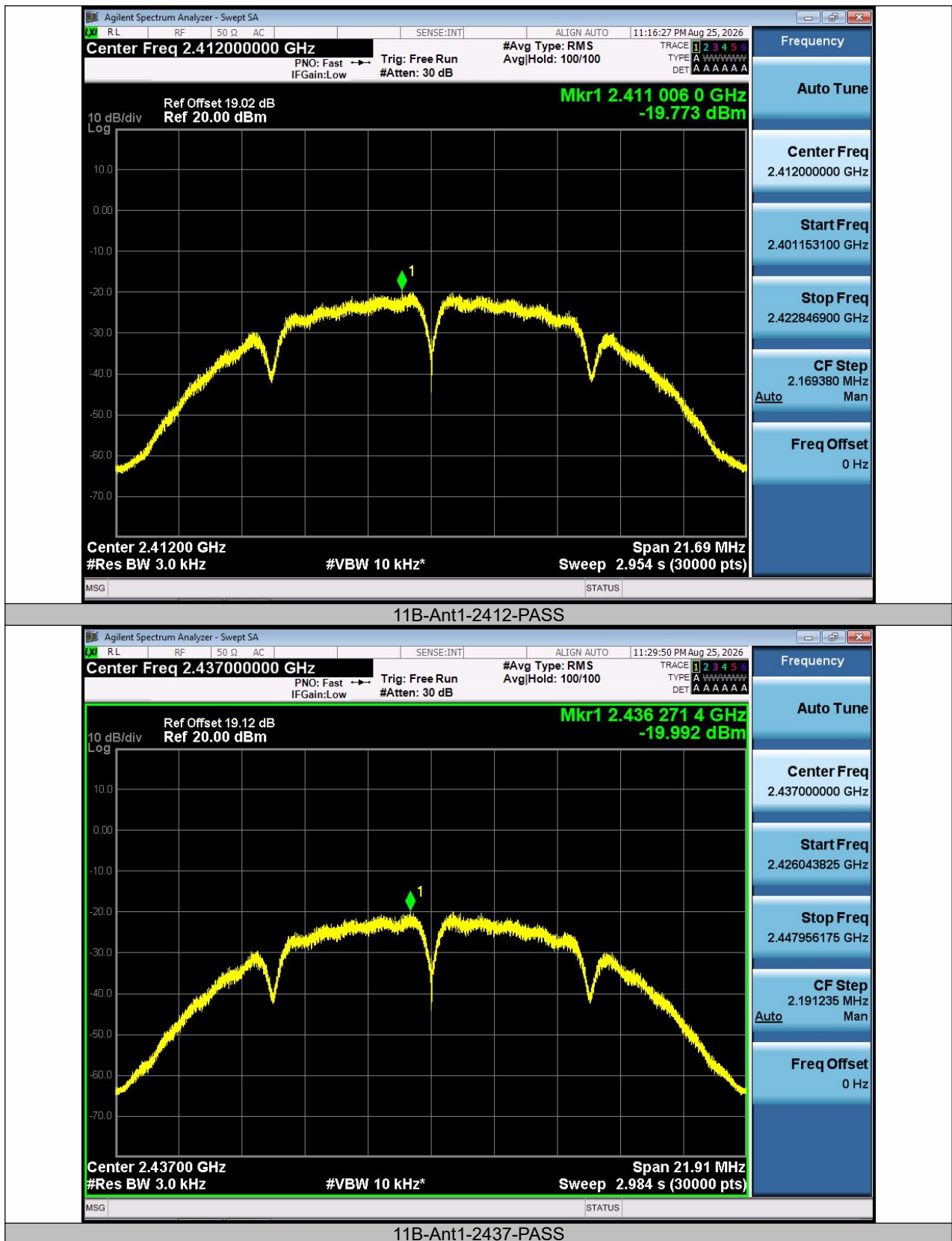
8.4.5 Test Results

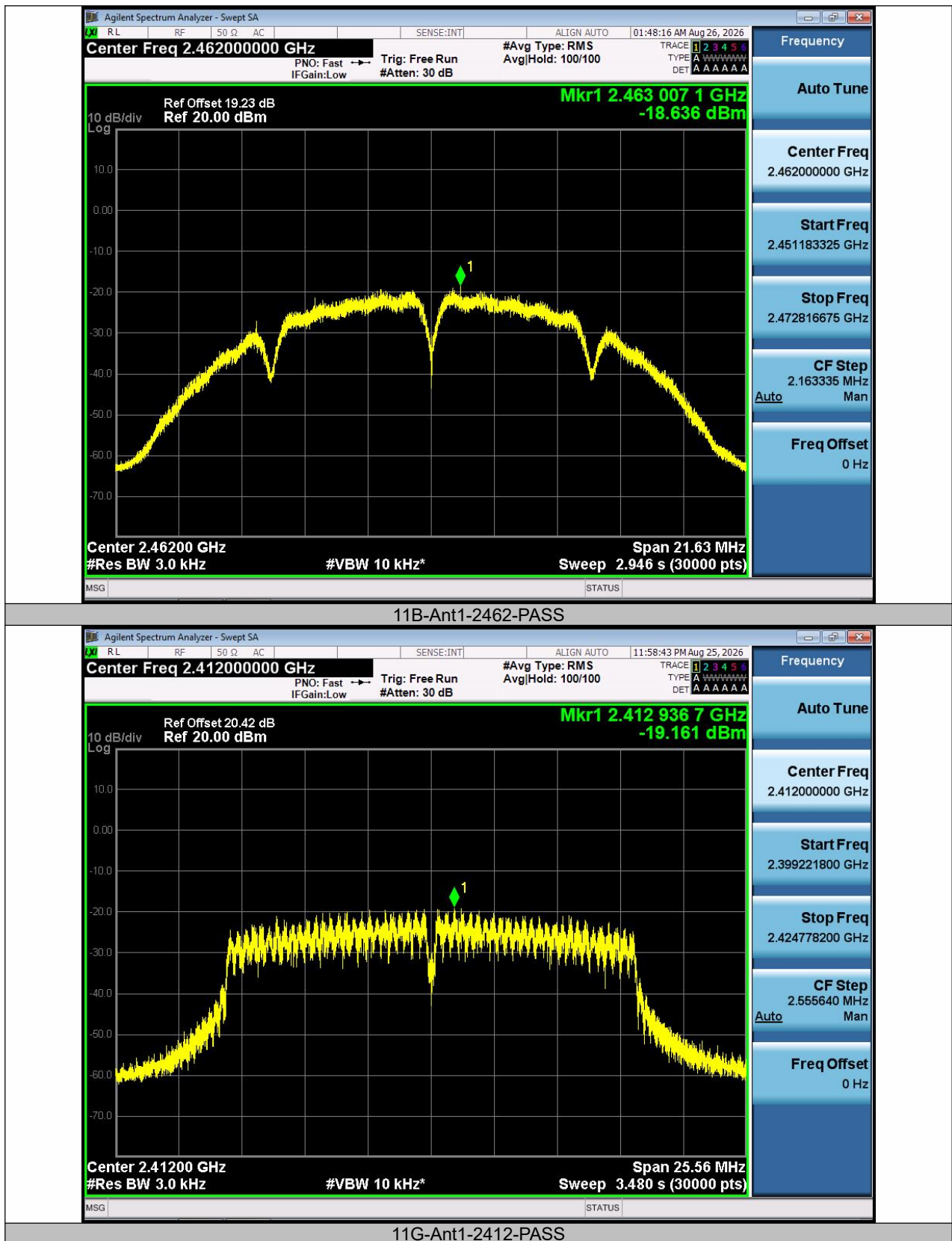
Temperature:	25.8°C
Relative Humidity:	49%
ATM Pressure:	1011 mbar

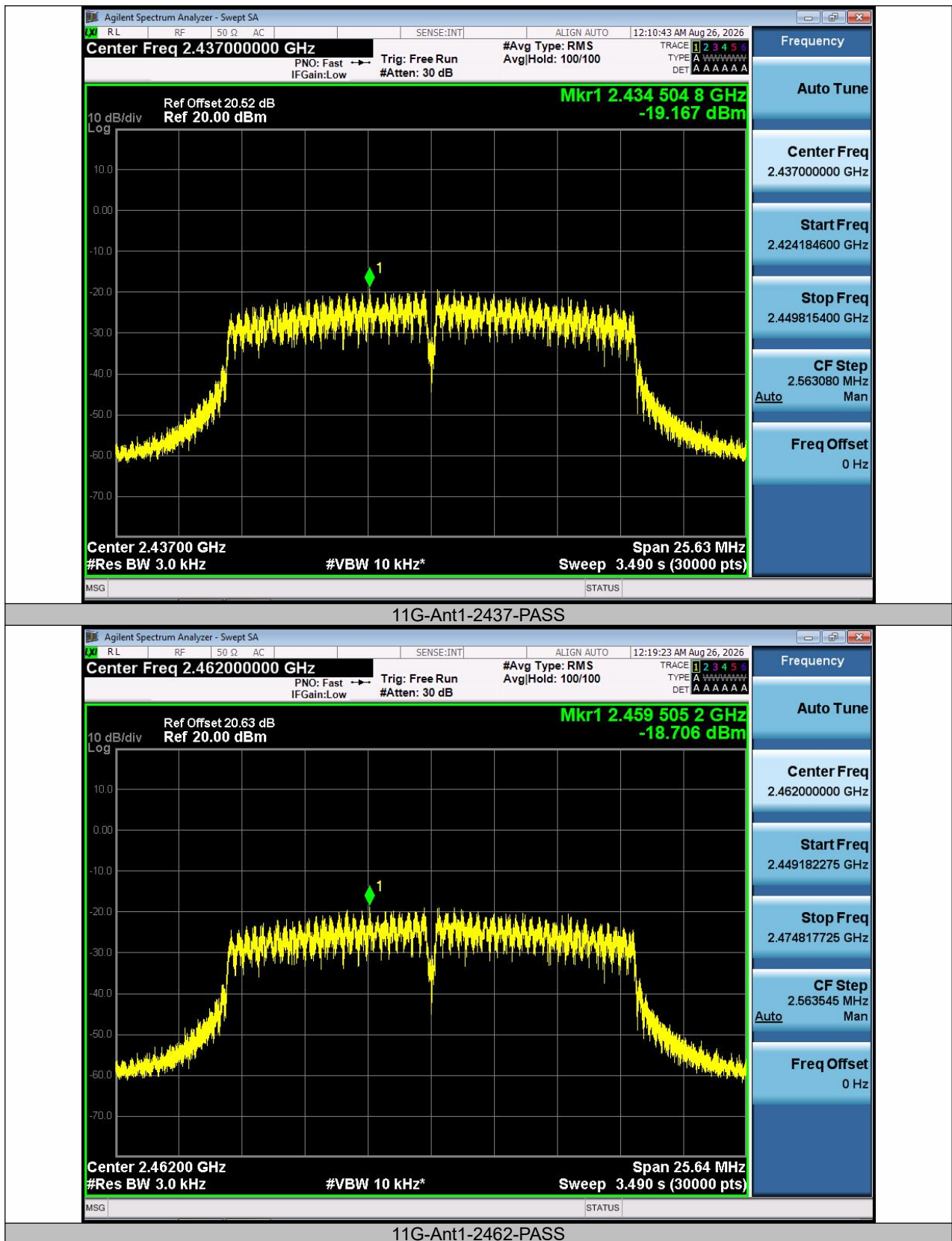
Note: N/A

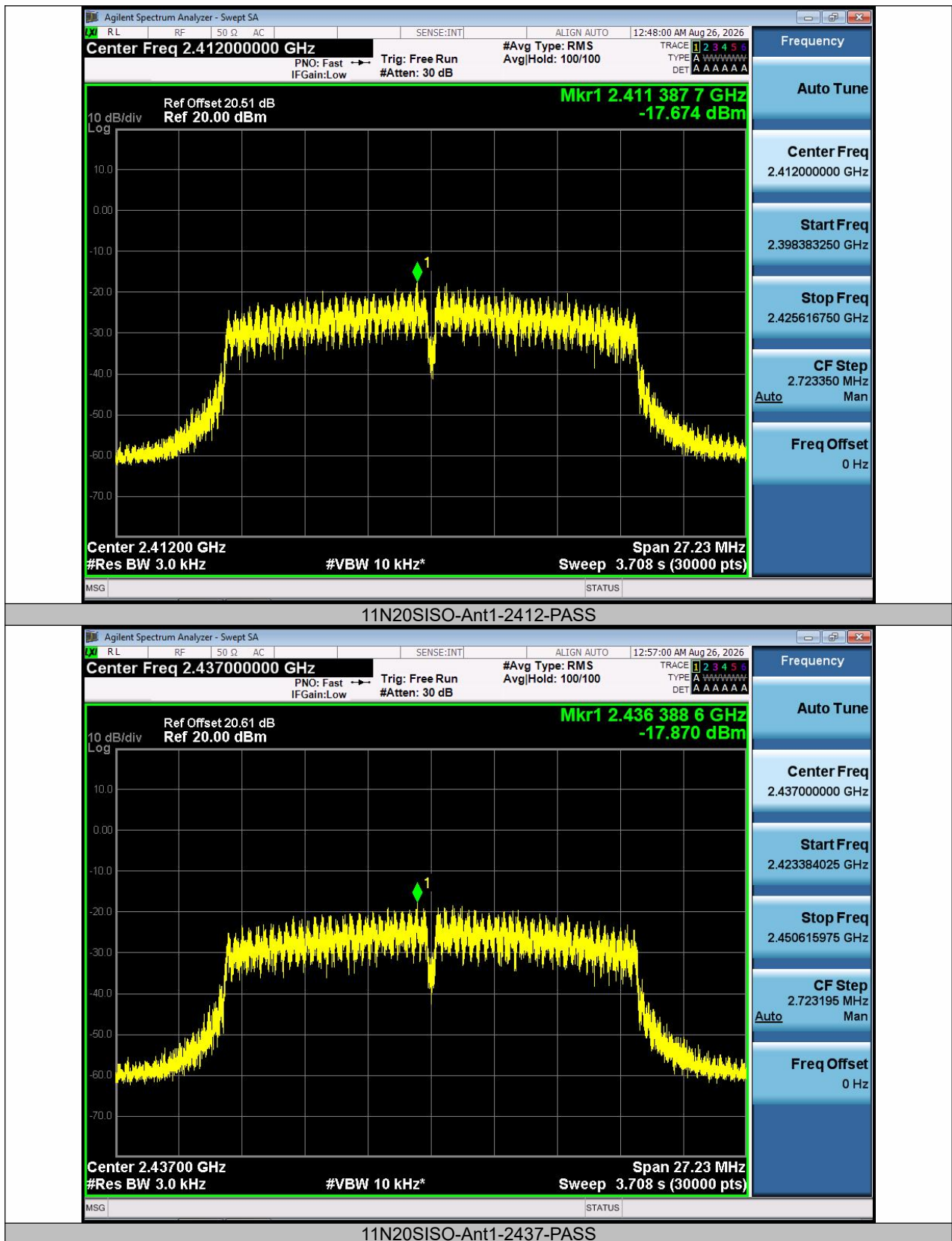
Module1:RBT-AM9421-3IN1_V1

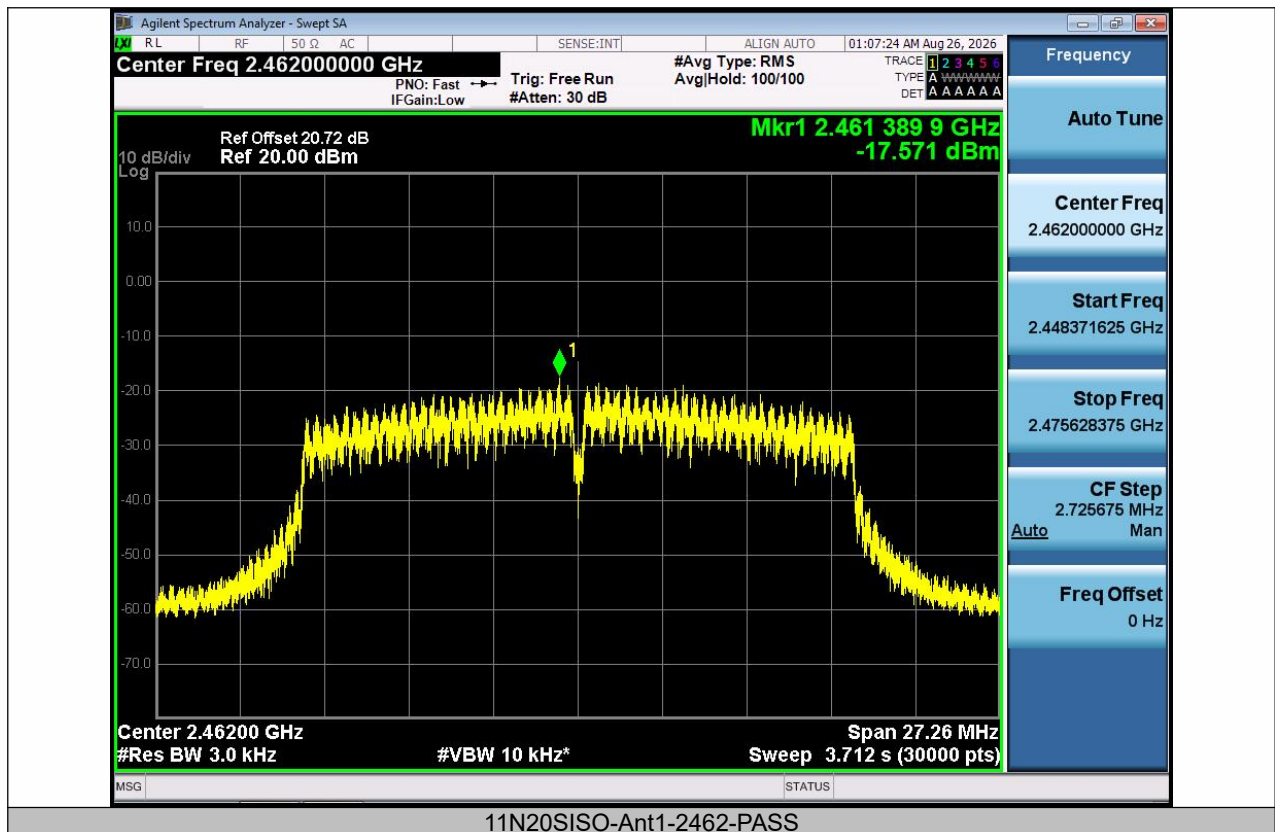
TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-19.77	≤8.00	PASS
11B	Ant1	2437	-19.99	≤8.00	PASS
11B	Ant1	2462	-18.64	≤8.00	PASS
11G	Ant1	2412	-19.16	≤8.00	PASS
11G	Ant1	2437	-19.17	≤8.00	PASS
11G	Ant1	2462	-18.71	≤8.00	PASS
11N20SISO	Ant1	2412	-17.67	≤8.00	PASS
11N20SISO	Ant1	2437	-17.87	≤8.00	PASS
11N20SISO	Ant1	2462	-17.57	≤8.00	PASS











Module2:ESP32-S3

TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-15.55	≤8.00	PASS
11B	Ant1	2437	-17.10	≤8.00	PASS
11B	Ant1	2462	-16.93	≤8.00	PASS
11G	Ant1	2412	-18.09	≤8.00	PASS
11G	Ant1	2437	-18.51	≤8.00	PASS
11G	Ant1	2462	-18.17	≤8.00	PASS
11N20SISO	Ant1	2412	-19.17	≤8.00	PASS
11N20SISO	Ant1	2437	-19.57	≤8.00	PASS
11N20SISO	Ant1	2462	-19.31	≤8.00	PASS
11N40SISO	Ant1	2422	-20.42	≤8.00	PASS
11N40SISO	Ant1	2437	-20.70	≤8.00	PASS
11N40SISO	Ant1	2452	-21.03	≤8.00	PASS

