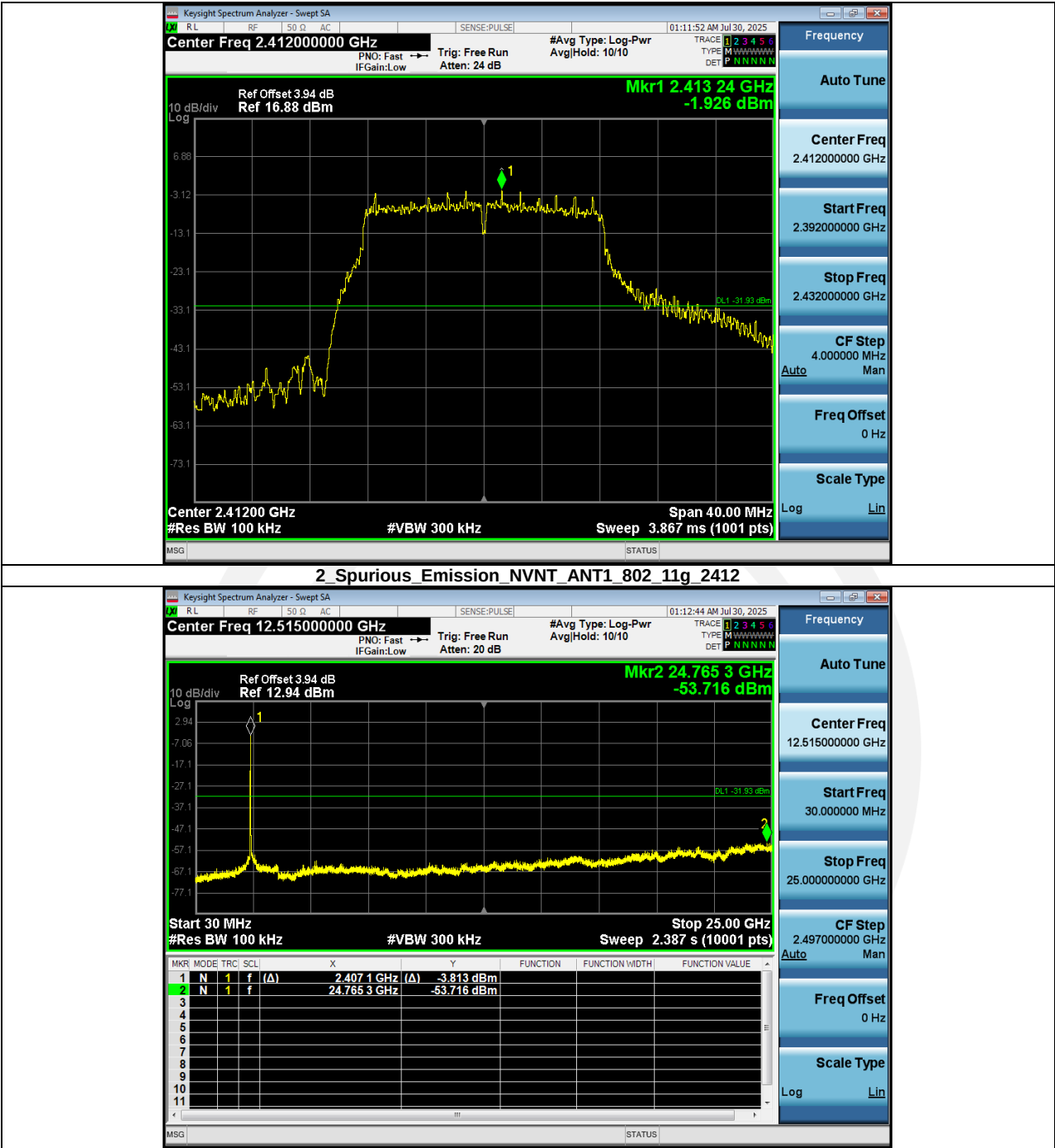
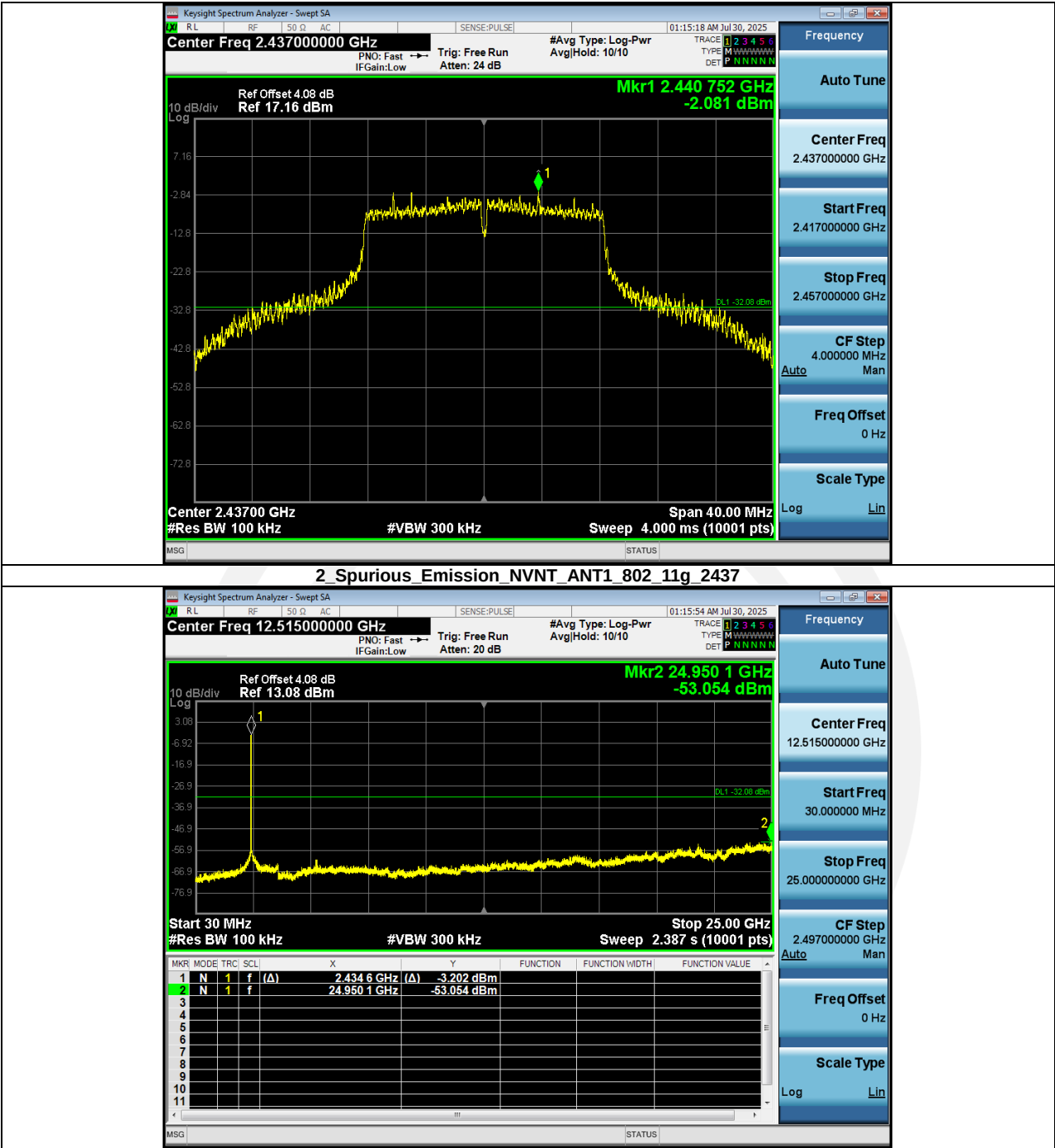
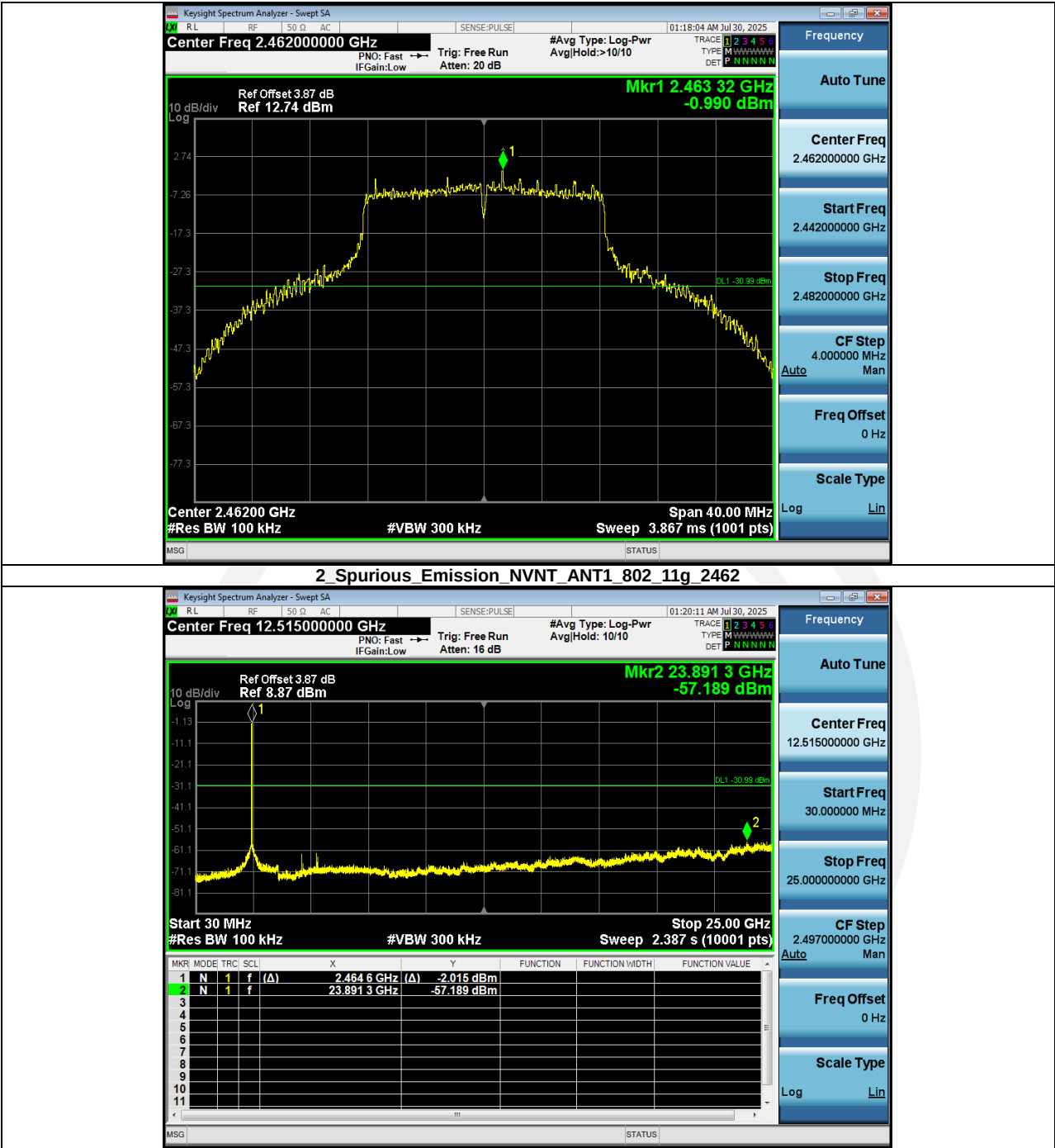


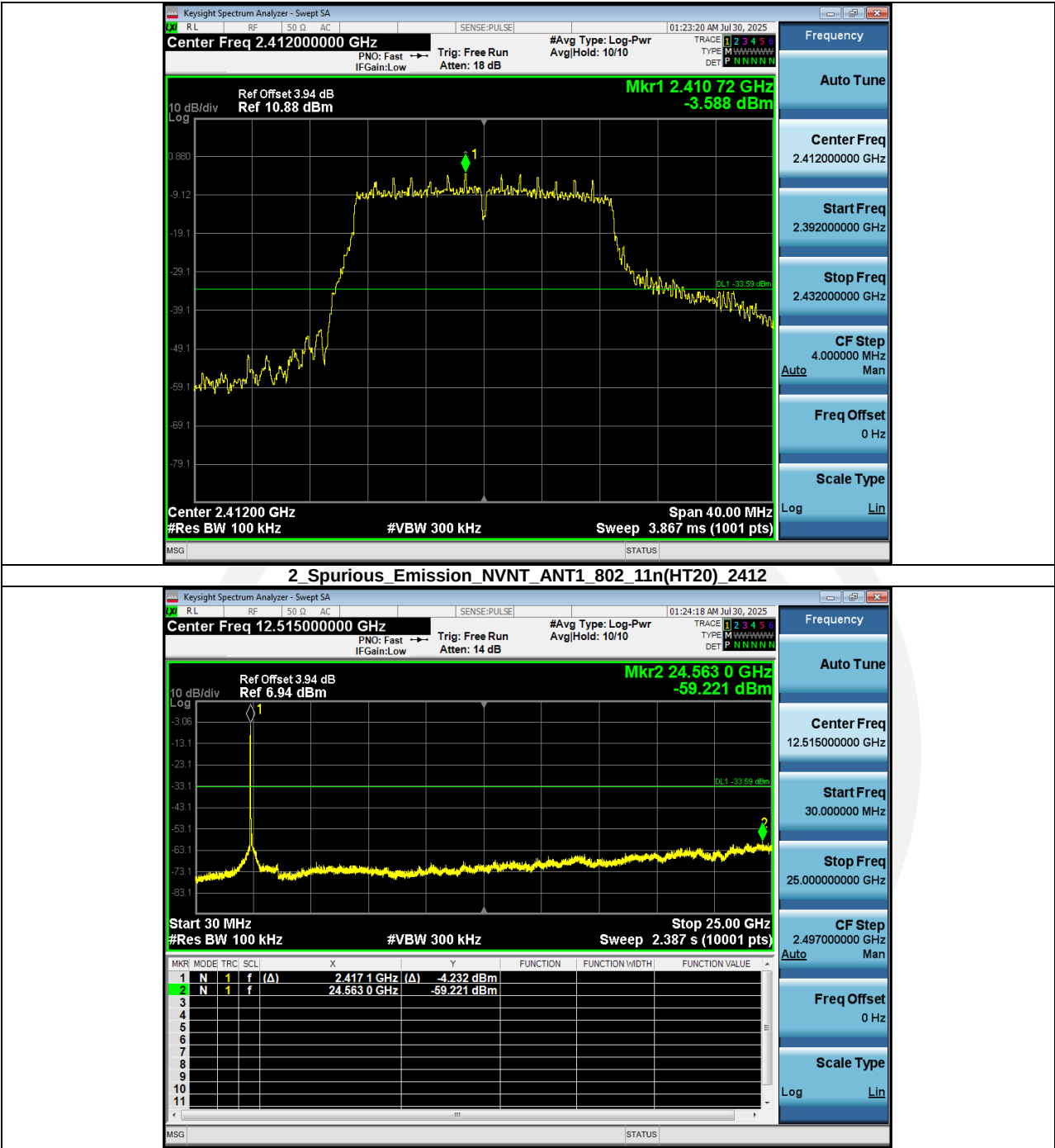


1. Reference Level NVNT_ANT1_802_11g_2437

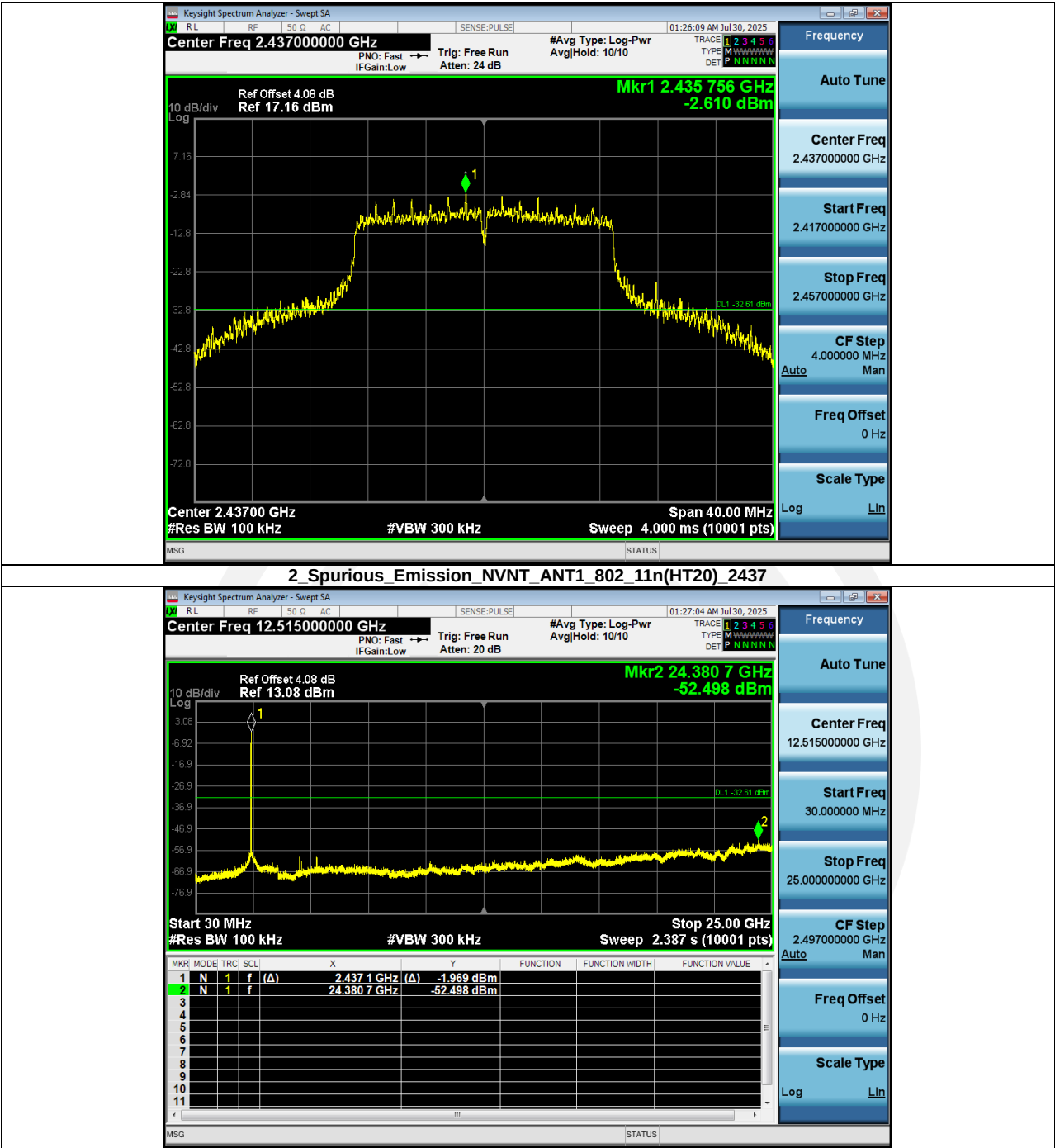


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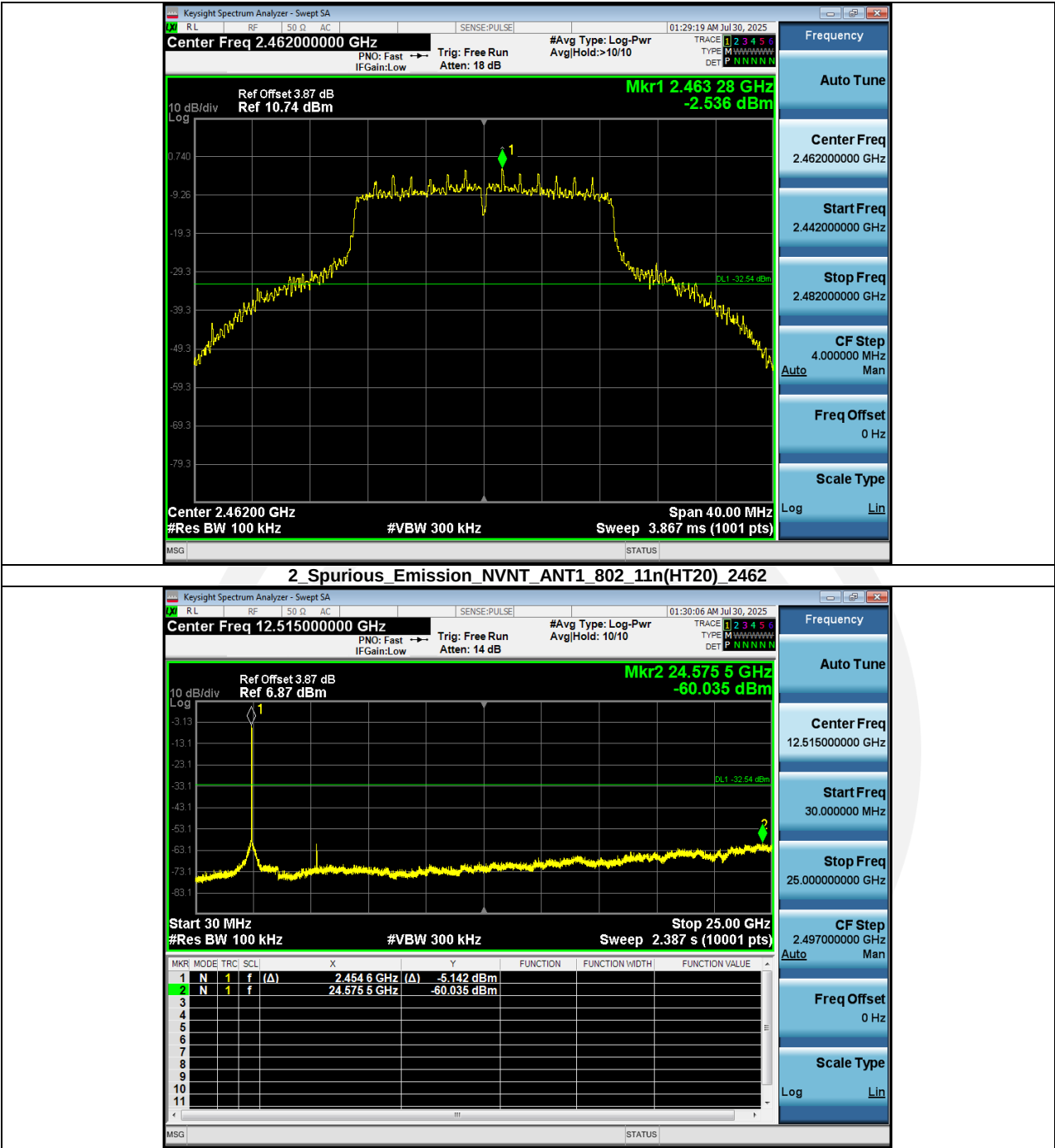




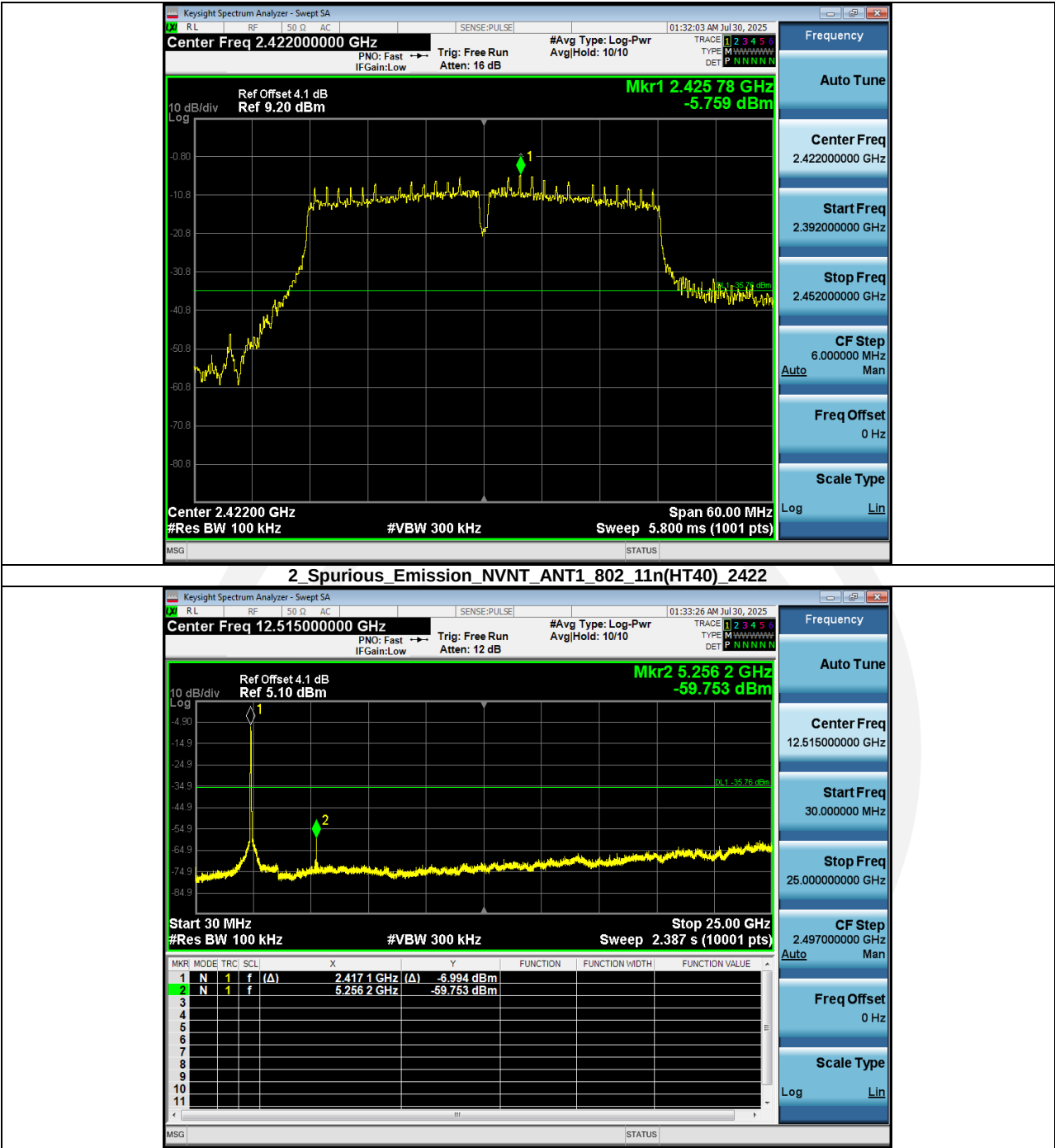
1 Reference Level NVNT_ANT1_802_11n(HT20)_2437



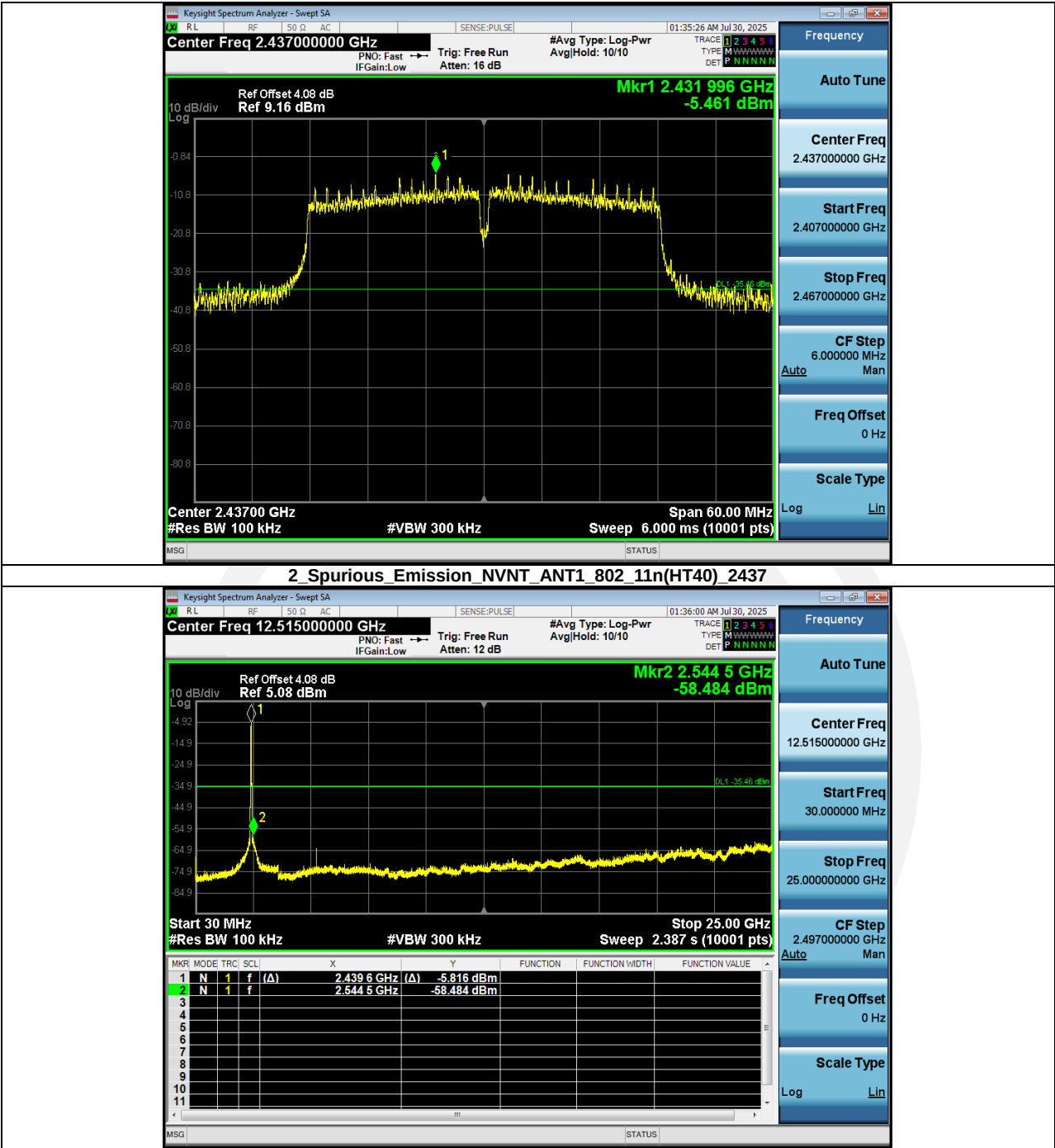
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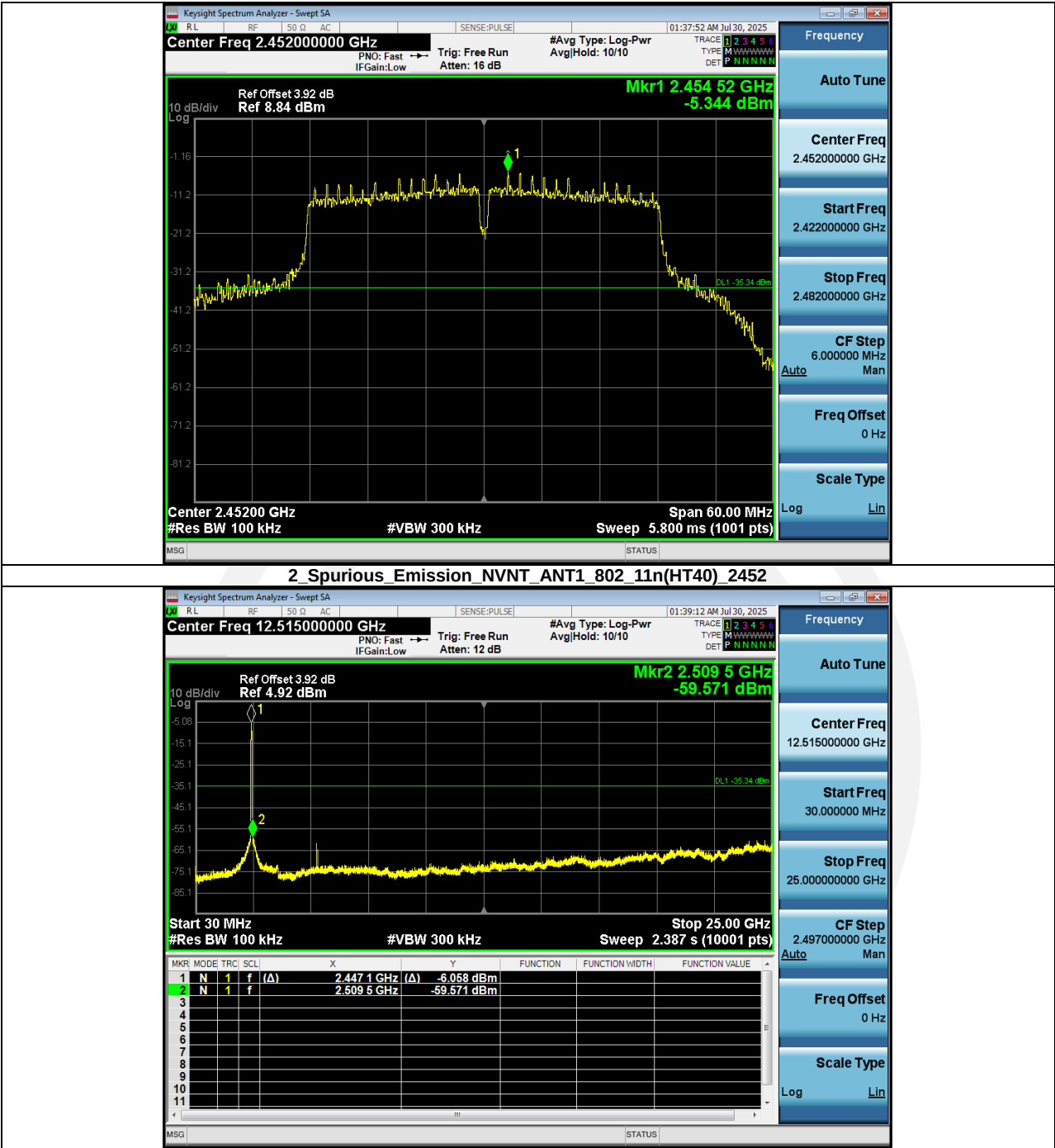
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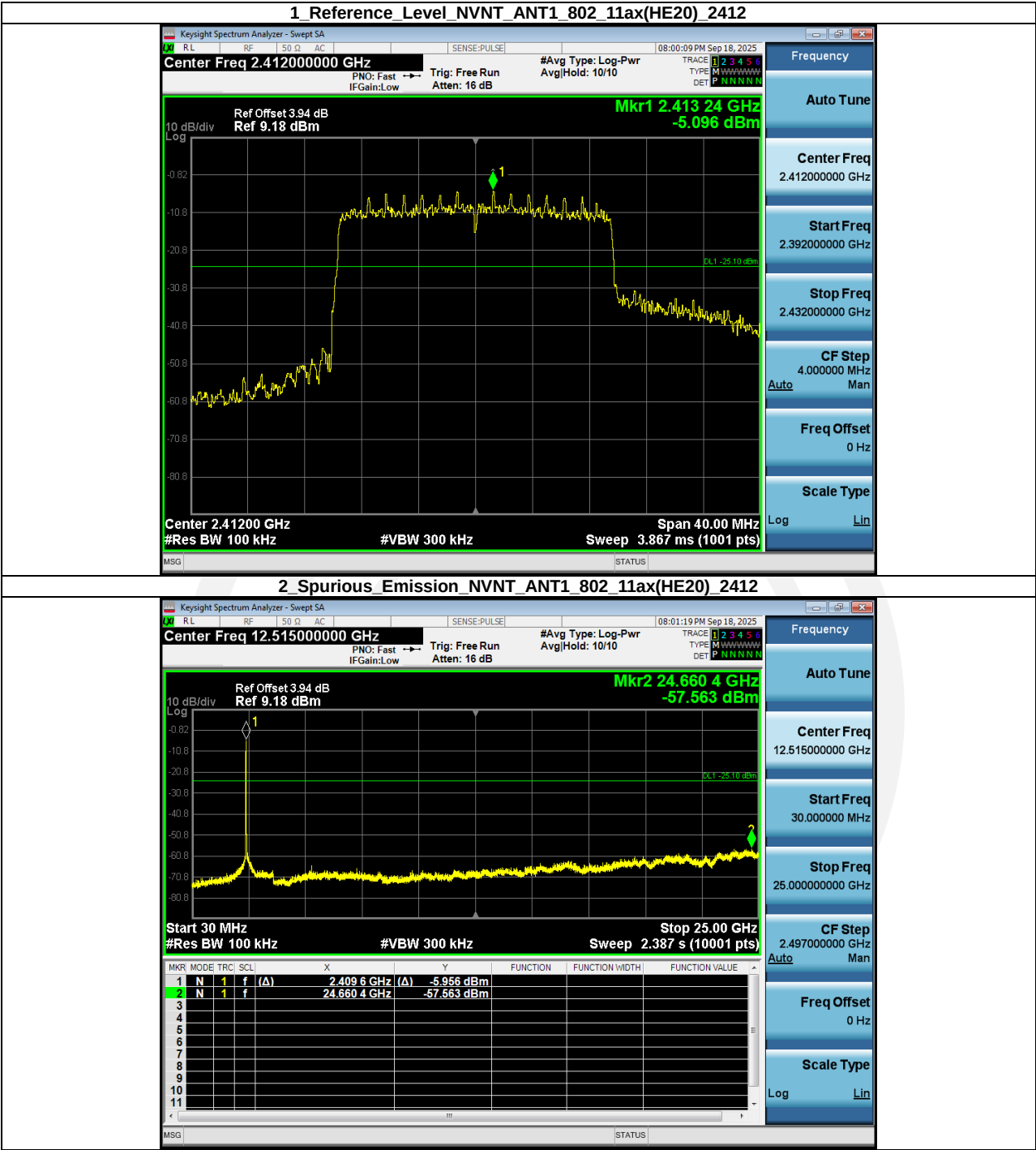


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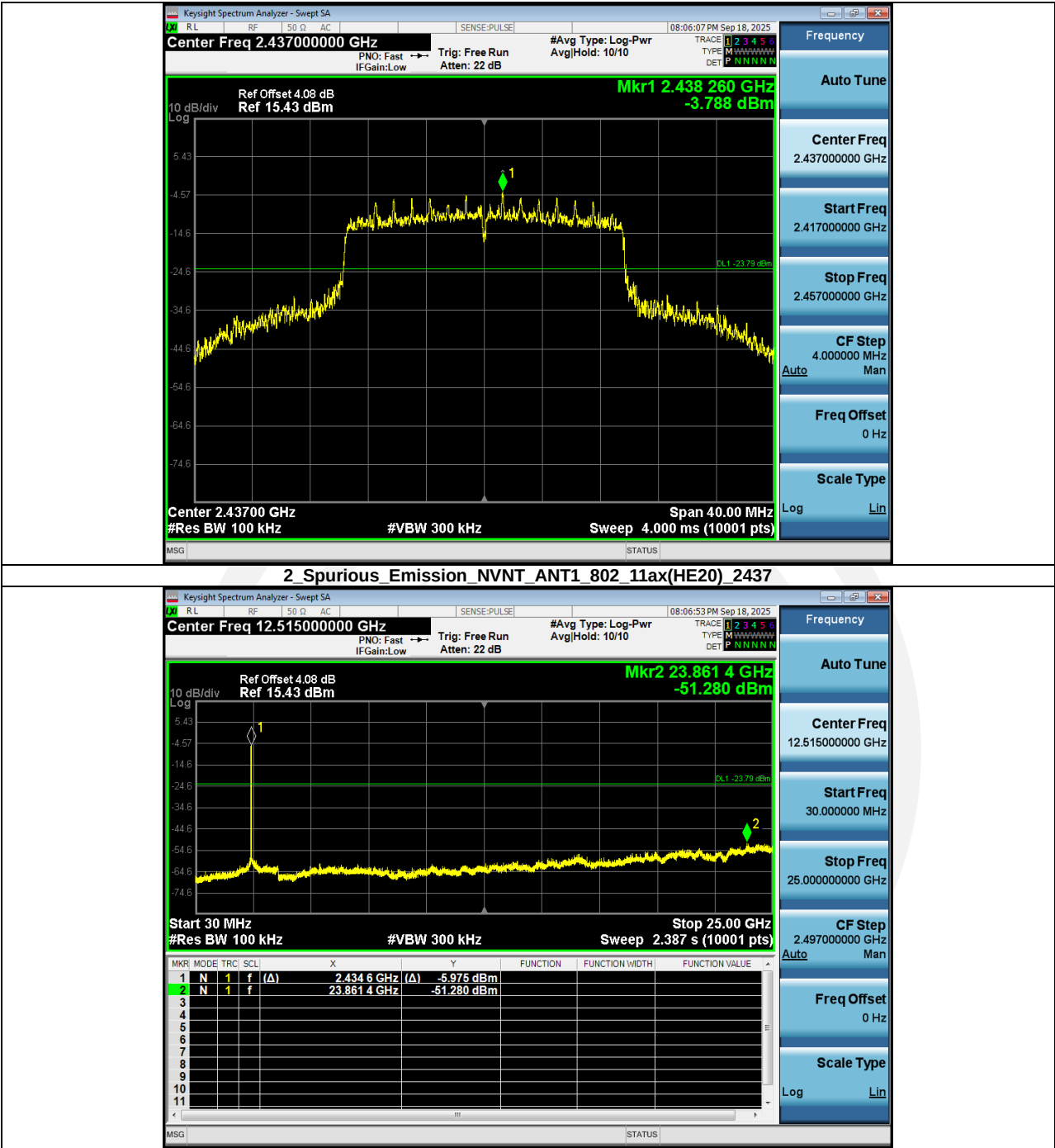


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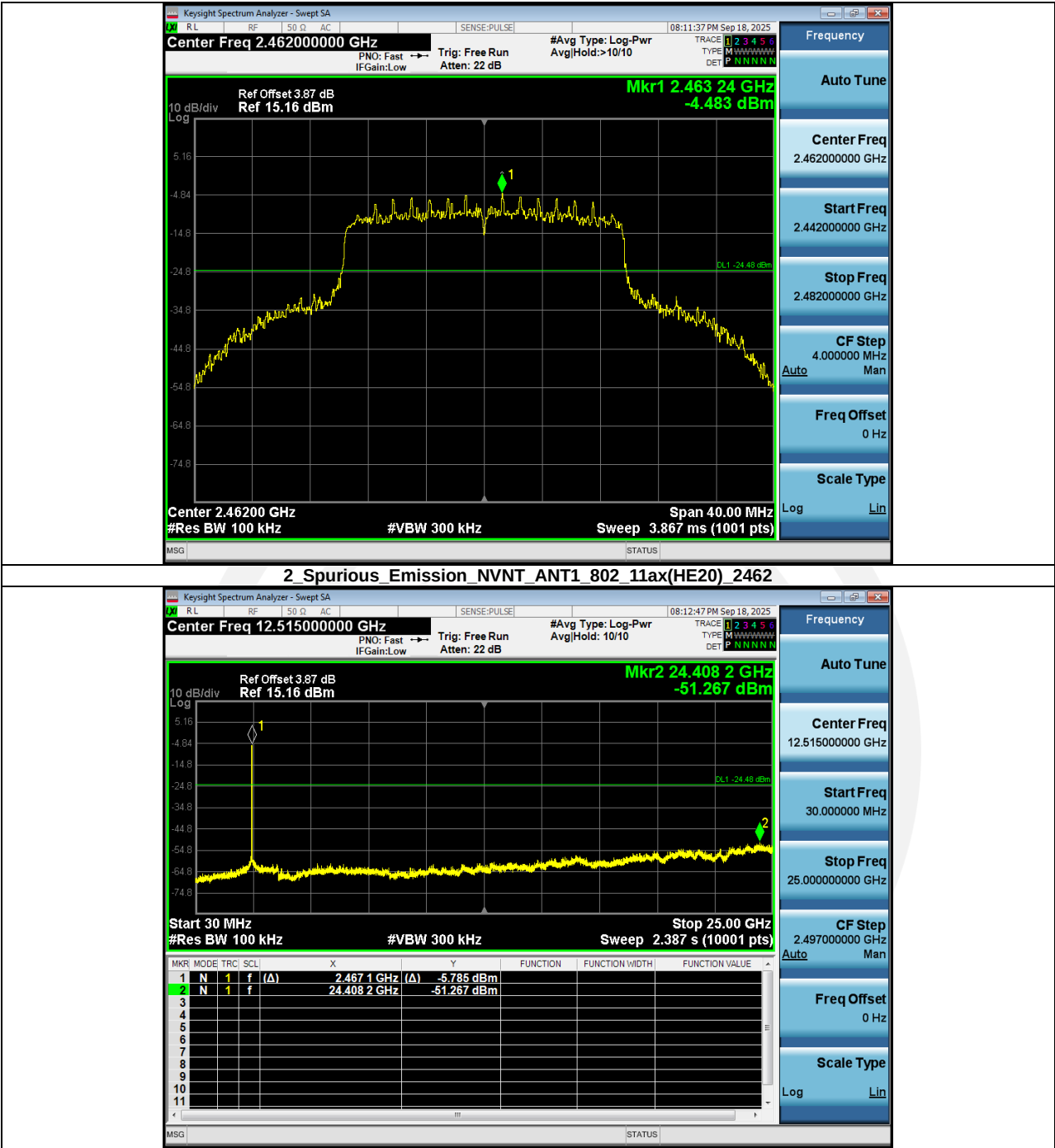


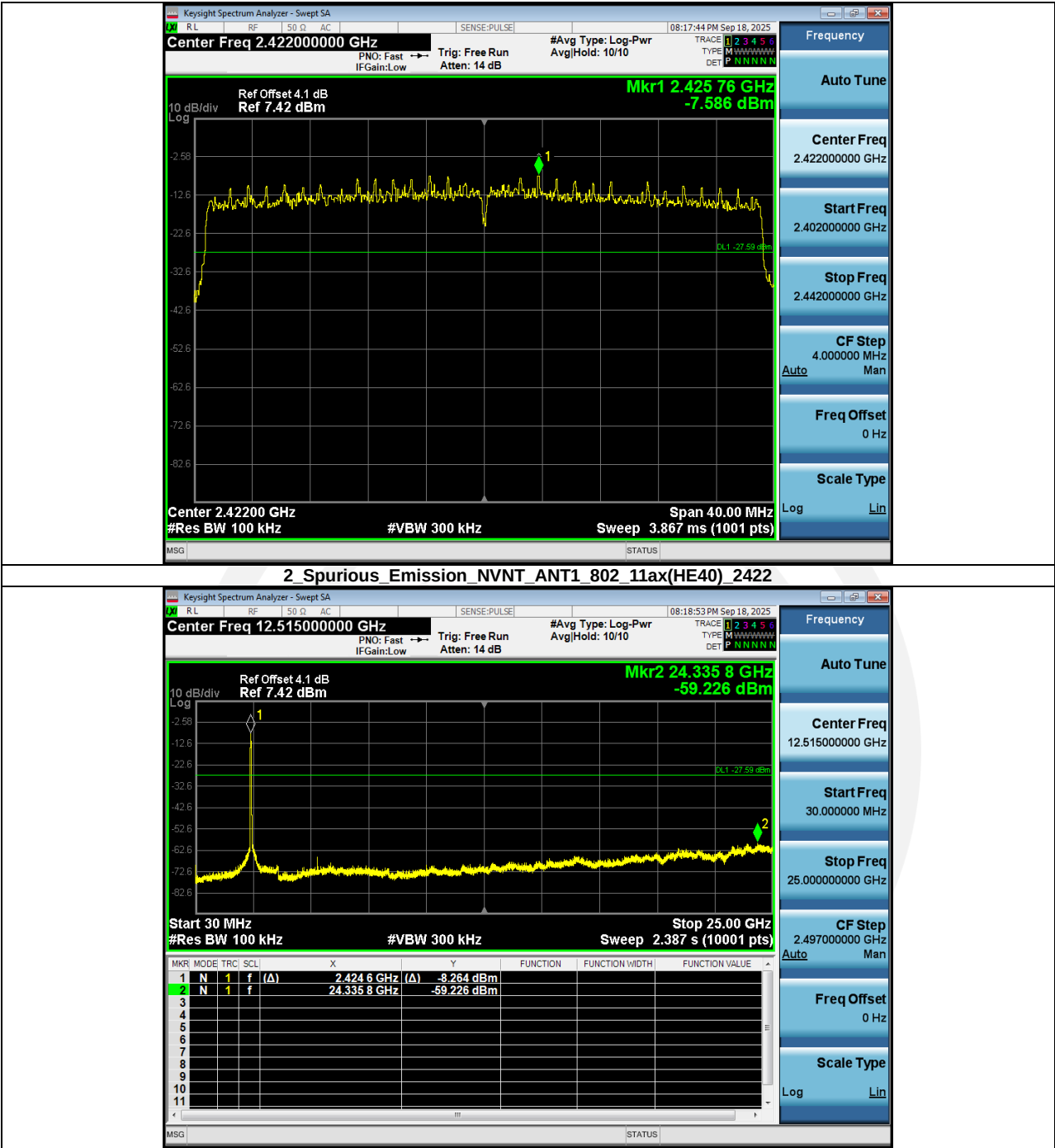


1 Reference Level NVNT_ANT1_802_11ax(HE20)_2437

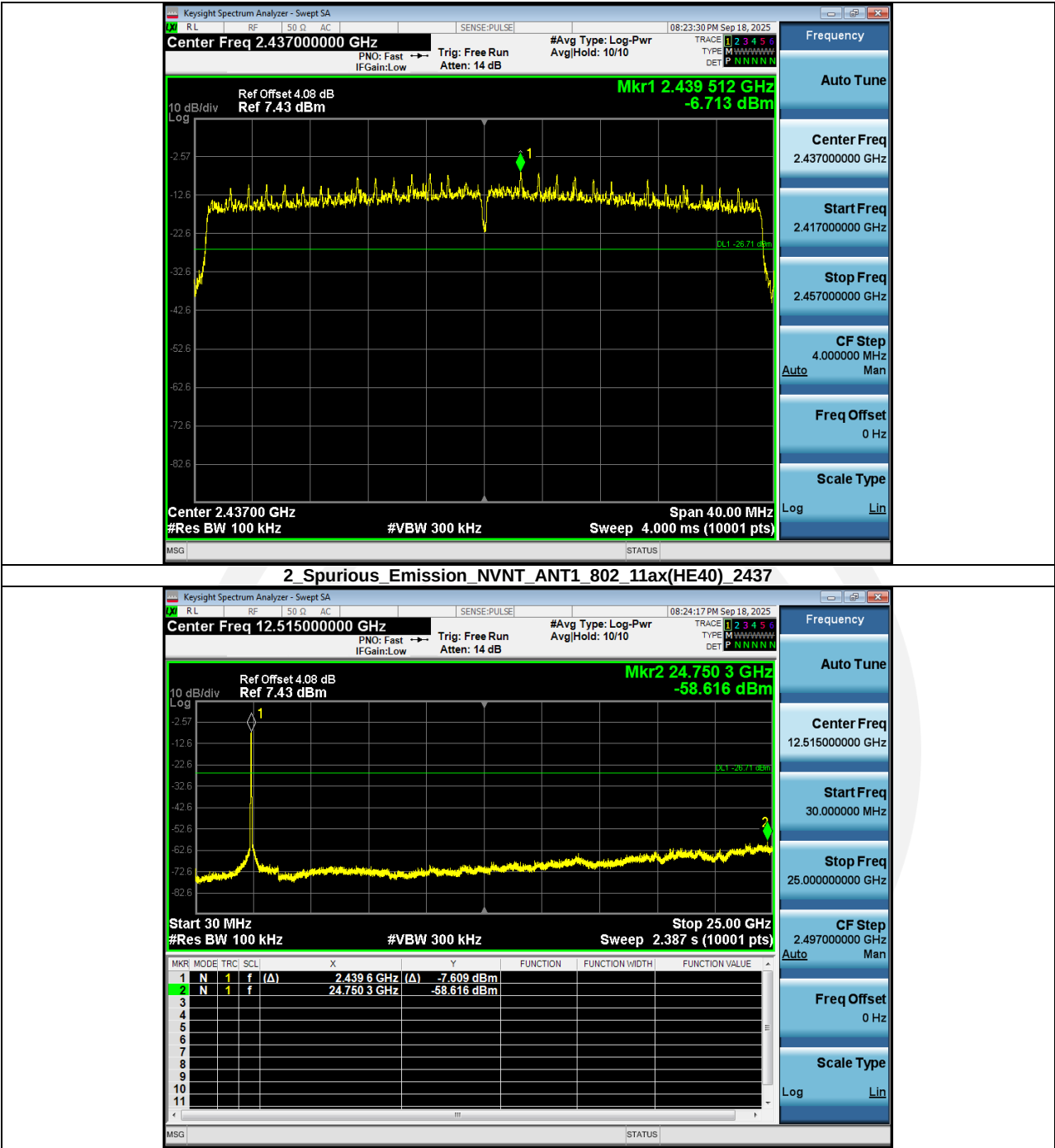


1 Reference Level NVNT ANT1_802_11ax(HE20)_2462

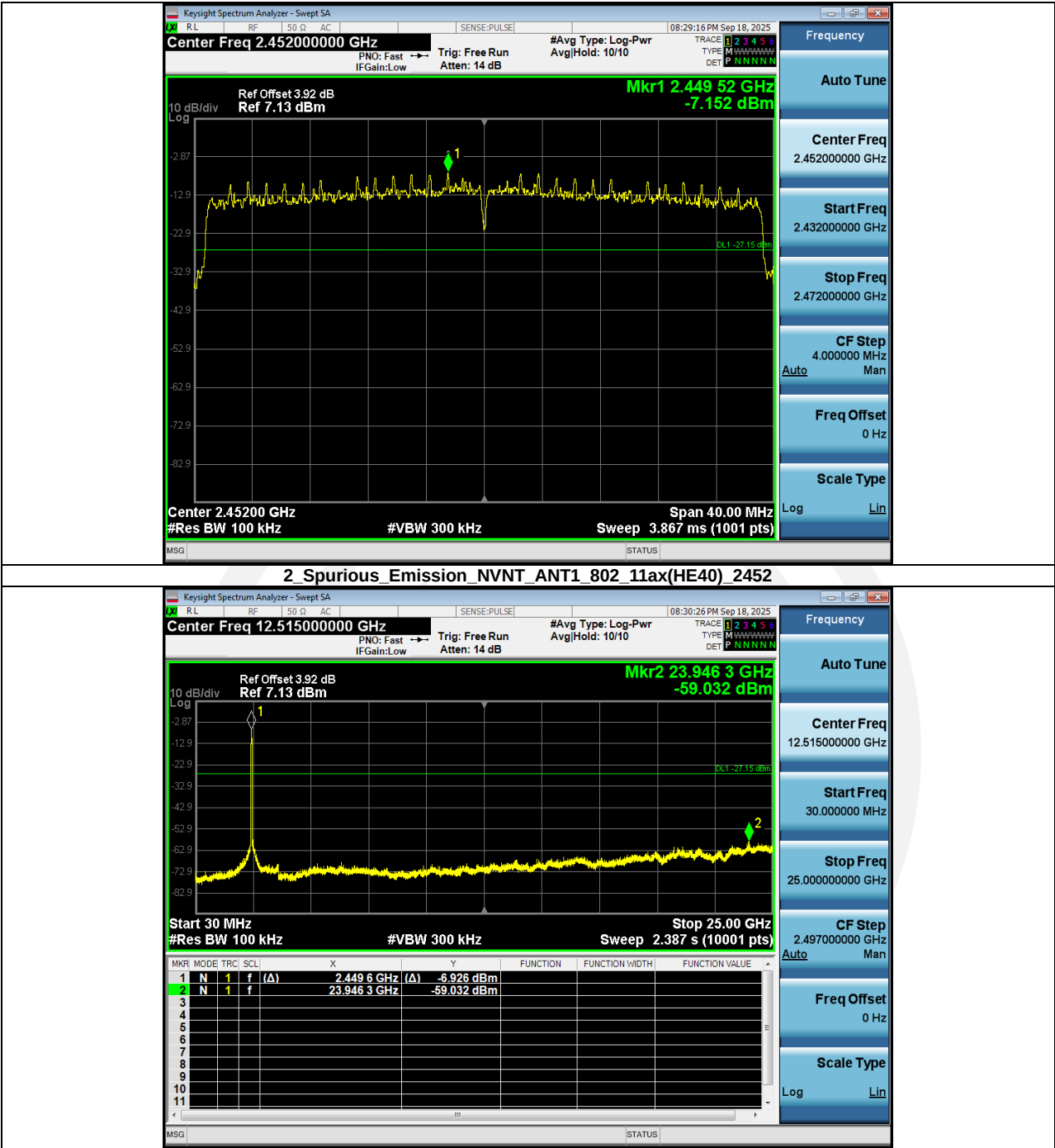




1 Reference Level_NVNT ANT1_802_11ax(HE40)_2437



1 Reference Level_NVNT ANT1_802_11ax(HE40)_2452



6. Conducted Maximum Output Power

6.1. Test limits

Please refer FCC PART 15.247.

Regulation 15.247(b) The limit of Maximum Peak Output Power Measurement is 1 W(30dBm)

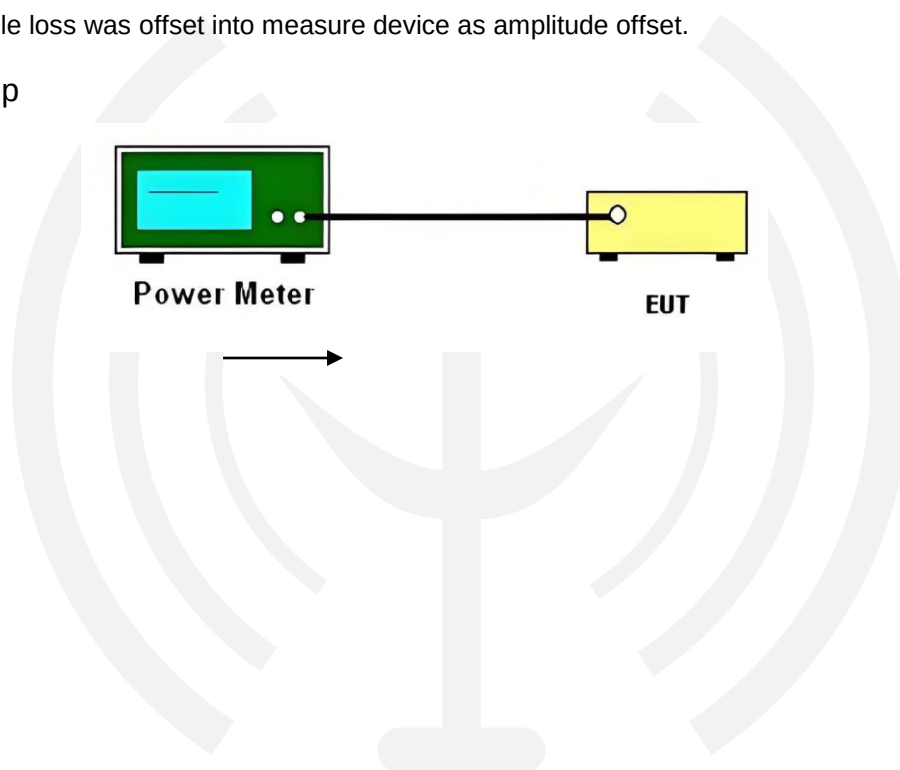
6.2. Test Procedure

Details see the KDB558074 D01 Meas Guidance v05r02

1. Place the EUT on the table and set it in transmitting mode.
2. Connected the EUT's antenna port to peak power meter.
3. Measure out each mode and each bands peak output power of EUT.

Note: The cable loss was offset into measure device as amplitude offset.

6.3. Test Setup



6.4. Test Results

Condition	Antenna	Modulation	Frequency (MHz)	Detector	Conducted Power(dBm)	Duty factor(dB)	Total Power(dBm)	Limit (dBm)	Result
NVNT	ANT1	802.11b	2412.00	Peak	14.13	N/A	14.13	30	Pass
NVNT	ANT2	802.11b	2412.00	Peak	14.72	N/A	14.72	30	Pass
NVNT	ANT1	802.11b	2437.00	Peak	14.57	N/A	14.57	30	Pass
NVNT	ANT2	802.11b	2437.00	Peak	14.49	N/A	14.49	30	Pass
NVNT	ANT1	802.11b	2462.00	Peak	14.46	N/A	14.46	30	Pass
NVNT	ANT2	802.11b	2462.00	Peak	14.07	N/A	14.07	30	Pass
NVNT	ANT1	802.11g	2412.00	Peak	14.72	N/A	14.72	30	Pass
NVNT	ANT2	802.11g	2412.00	Peak	15.37	N/A	15.37	30	Pass
NVNT	ANT1	802.11g	2437.00	Peak	15.52	N/A	15.52	30	Pass
NVNT	ANT2	802.11g	2437.00	Peak	15.75	N/A	15.75	30	Pass
NVNT	ANT1	802.11g	2462.00	Peak	15.18	N/A	15.18	30	Pass
NVNT	ANT2	802.11g	2462.00	Peak	15.26	N/A	15.26	30	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	Peak	14.56	N/A	14.56	30	Pass
NVNT	ANT2	802.11n(HT20)	2412.00	Peak	15.20	N/A	15.20	30	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	Peak	14.17	N/A	14.17	30	Pass
NVNT	ANT2	802.11n(HT20)	2437.00	Peak	15.10	N/A	15.10	30	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	Peak	13.93	N/A	13.93	30	Pass
NVNT	ANT2	802.11n(HT20)	2462.00	Peak	14.84	N/A	14.84	30	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	Peak	13.89	N/A	13.89	30	Pass
NVNT	ANT2	802.11n(HT40)	2422.00	Peak	15.16	N/A	15.16	30	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	Peak	13.85	N/A	13.85	30	Pass
NVNT	ANT2	802.11n(HT40)	2437.00	Peak	14.85	N/A	14.85	30	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	Peak	13.74	N/A	13.74	30	Pass
NVNT	ANT2	802.11n(HT40)	2452.00	Peak	15.07	N/A	15.07	30	Pass
NVNT	ANT1	802.11ax(HE20)	2412.00	Peak	14.34	N/A	14.34	30	Pass
NVNT	ANT2	802.11ax(HE20)	2412.00	Peak	14.25	N/A	14.25	30	Pass
NVNT	ANT1	802.11ax(HE20)	2437.00	Peak	14.11	N/A	14.11	30	Pass
NVNT	ANT2	802.11ax(HE20)	2437.00	Peak	14.18	N/A	14.18	30	Pass
NVNT	ANT1	802.11ax(HE20)	2462.00	Peak	13.69	N/A	13.69	30	Pass
NVNT	ANT2	802.11ax(HE20)	2462.00	Peak	13.77	N/A	13.77	30	Pass
NVNT	ANT1	802.11ax(HE40)	2422.00	Peak	13.65	N/A	13.65	30	Pass
NVNT	ANT2	802.11ax(HE40)	2422.00	Peak	14.56	N/A	14.56	30	Pass
NVNT	ANT1	802.11ax(HE40)	2437.00	Peak	14.28	N/A	14.28	30	Pass
NVNT	ANT2	802.11ax(HE40)	2437.00	Peak	14.33	N/A	14.33	30	Pass
NVNT	ANT1	802.11ax(HE40)	2452.00	Peak	14.03	N/A	14.03	30	Pass
NVNT	ANT2	802.11ax(HE40)	2452.00	Peak	14.28	N/A	14.28	30	Pass

Condition	Antenna	Modulation	Frequency (MHz)	Duty cycle(%)	Duty factor(dB)
NVNT	ANT1	802.11b	2412.00	99.53	0.00
NVNT	ANT2	802.11b	2412.00	99.53	0.00
NVNT	ANT1	802.11b	2437.00	99.53	0.00
NVNT	ANT2	802.11b	2437.00	99.53	0.00
NVNT	ANT1	802.11b	2462.00	99.53	0.00
NVNT	ANT2	802.11b	2462.00	99.53	0.00
NVNT	ANT1	802.11g	2412.00	97.26	0.12
NVNT	ANT2	802.11g	2412.00	97.26	0.12
NVNT	ANT1	802.11g	2437.00	97.26	0.12
NVNT	ANT2	802.11g	2437.00	97.26	0.12
NVNT	ANT1	802.11g	2462.00	97.26	0.12
NVNT	ANT2	802.11g	2462.00	97.22	0.12
NVNT	ANT1	802.11n(HT20)	2412.00	94.44	0.25
NVNT	ANT2	802.11n(HT20)	2412.00	94.59	0.24
NVNT	ANT1	802.11n(HT20)	2437.00	94.44	0.25
NVNT	ANT2	802.11n(HT20)	2437.00	94.59	0.24
NVNT	ANT1	802.11n(HT20)	2462.00	94.59	0.24
NVNT	ANT2	802.11n(HT20)	2462.00	94.44	0.25
NVNT	ANT1	802.11n(HT40)	2422.00	90.48	0.43
NVNT	ANT2	802.11n(HT40)	2422.00	90.00	0.46
NVNT	ANT1	802.11n(HT40)	2437.00	90.00	0.46
NVNT	ANT2	802.11n(HT40)	2437.00	90.00	0.46
NVNT	ANT1	802.11n(HT40)	2452.00	95.00	0.22
NVNT	ANT2	802.11n(HT40)	2452.00	90.00	0.46
NVNT	ANT1	802.11ax(HE20)	2412.00	84.62	0.73
NVNT	ANT2	802.11ax(HE20)	2412.00	84.62	0.73
NVNT	ANT1	802.11ax(HE20)	2437.00	84.62	0.73
NVNT	ANT2	802.11ax(HE20)	2437.00	84.62	0.73
NVNT	ANT1	802.11ax(HE20)	2462.00	84.62	0.73
NVNT	ANT2	802.11ax(HE20)	2462.00	84.62	0.73
NVNT	ANT1	802.11ax(HE40)	2422.00	92.31	0.35
NVNT	ANT2	802.11ax(HE40)	2422.00	84.62	0.73
NVNT	ANT1	802.11ax(HE40)	2437.00	84.62	0.73
NVNT	ANT2	802.11ax(HE40)	2437.00	92.31	0.35
NVNT	ANT1	802.11ax(HE40)	2452.00	84.62	0.73
NVNT	ANT2	802.11ax(HE40)	2452.00	92.31	0.35

Condition	Antenna	Mode	Frequency(MHz)	MIMO_Conducted_Power(dBm)	Limit(dBm)	Result
NVNT	MIMO_TX	802.11n(HT20)	2412.00	17.90	30	Pass
NVNT	MIMO_TX	802.11n(HT20)	2437.00	17.67	30	Pass
NVNT	MIMO_TX	802.11n(HT20)	2462.00	17.42	30	Pass
NVNT	MIMO_TX	802.11n(HT40)	2422.00	17.58	30	Pass
NVNT	MIMO_TX	802.11n(HT40)	2437.00	17.39	30	Pass
NVNT	MIMO_TX	802.11n(HT40)	2452.00	17.47	30	Pass
NVNT	MIMO_TX	802.11ax(HE20)	2412.00	17.31	30	Pass
NVNT	MIMO_TX	802.11ax(HE20)	2437.00	17.16	30	Pass
NVNT	MIMO_TX	802.11ax(HE20)	2462.00	16.74	30	Pass
NVNT	MIMO_TX	802.11ax(HE40)	2422.00	17.14	30	Pass
NVNT	MIMO_TX	802.11ax(HE40)	2437.00	17.32	30	Pass
NVNT	MIMO_TX	802.11ax(HE40)	2452.00	17.17	30	Pass

7. Peak Power Spectral Density

7.1. Test limits

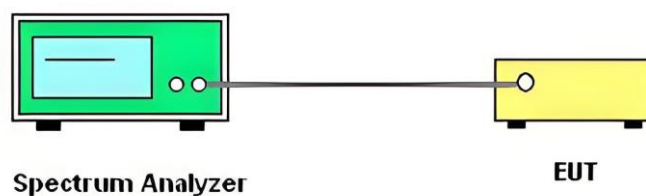
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

7.2. Test Procedure

Details see the KDB558074 D01 Meas Guidance v05r02

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 30kHz(Set the RBW to: $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$), VBW = 100kHz(Set the VBW $\geq 3 \times \text{RBW}$), span $\geq 1.5 \times \text{DTS bandwidth}$., detail see the test plot.
4. Record the max reading.
5. Repeat the above procedure until the measurements for all frequencies are completed.

7.3. Test Setup



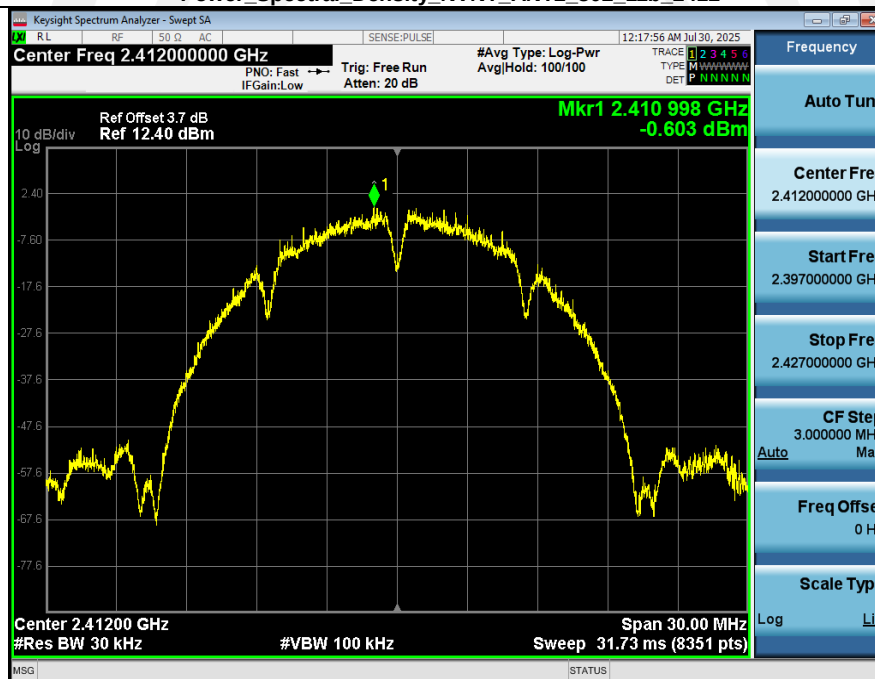
7.4. Test Results

Condition	Antenna	Modulation	Frequency (MHz)	SA PSD (dBm/30kHz)	Duty factor(dB)	RB factor(dB)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
NVNT	ANT1	802.11b	2412.00	-1.13	N/A	-10.00	-11.13	8	Pass
NVNT	ANT2	802.11b	2412.00	-0.60	N/A	-10.00	-10.60	8	Pass
NVNT	ANT1	802.11b	2437.00	0.02	N/A	-10.00	-9.98	8	Pass
NVNT	ANT2	802.11b	2437.00	-0.16	N/A	-10.00	-10.16	8	Pass
NVNT	ANT1	802.11b	2462.00	-0.96	N/A	-10.00	-10.96	8	Pass
NVNT	ANT2	802.11b	2462.00	-1.28	N/A	-10.00	-11.28	8	Pass
NVNT	ANT1	802.11g	2412.00	-6.25	N/A	-10.00	-16.25	8	Pass
NVNT	ANT2	802.11g	2412.00	-5.28	N/A	-10.00	-15.28	8	Pass
NVNT	ANT1	802.11g	2437.00	-5.88	N/A	-10.00	-15.88	8	Pass
NVNT	ANT2	802.11g	2437.00	-5.38	N/A	-10.00	-15.38	8	Pass
NVNT	ANT1	802.11g	2462.00	-6.37	N/A	-10.00	-16.37	8	Pass
NVNT	ANT2	802.11g	2462.00	-6.34	N/A	-10.00	-16.34	8	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	-9.09	N/A	-10.00	-19.09	8	Pass
NVNT	ANT2	802.11n(HT20)	2412.00	-7.76	N/A	-10.00	-17.76	8	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	-8.14	N/A	-10.00	-18.14	8	Pass
NVNT	ANT2	802.11n(HT20)	2437.00	-6.86	N/A	-10.00	-16.86	8	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	-8.68	N/A	-10.00	-18.68	8	Pass
NVNT	ANT2	802.11n(HT20)	2462.00	-7.03	N/A	-10.00	-17.03	8	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	-10.59	N/A	-10.00	-20.59	8	Pass
NVNT	ANT2	802.11n(HT40)	2422.00	-9.68	N/A	-10.00	-19.68	8	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	-10.19	N/A	-10.00	-20.19	8	Pass
NVNT	ANT2	802.11n(HT40)	2437.00	-9.65	N/A	-10.00	-19.65	8	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	-10.57	N/A	-10.00	-20.57	8	Pass
NVNT	ANT2	802.11n(HT40)	2452.00	-10.09	N/A	-10.00	-20.09	8	Pass
NVNT	ANT1	802.11ax(HE20)	2412.00	-9.31	N/A	-10.00	-19.31	8	Pass
NVNT	ANT2	802.11ax(HE20)	2412.00	-9.88	N/A	-10.00	-19.88	8	Pass
NVNT	ANT1	802.11ax(HE20)	2437.00	-8.52	N/A	-10.00	-18.52	8	Pass
NVNT	ANT2	802.11ax(HE20)	2437.00	-9.92	N/A	-10.00	-19.92	8	Pass
NVNT	ANT1	802.11ax(HE20)	2462.00	-9.05	N/A	-10.00	-19.05	8	Pass
NVNT	ANT2	802.11ax(HE20)	2462.00	-10.41	N/A	-10.00	-20.41	8	Pass
NVNT	ANT1	802.11ax(HE40)	2422.00	-11.82	N/A	-10.00	-21.82	8	Pass
NVNT	ANT2	802.11ax(HE40)	2422.00	-10.59	N/A	-10.00	-20.59	8	Pass
NVNT	ANT1	802.11ax(HE40)	2437.00	-11.20	N/A	-10.00	-21.20	8	Pass
NVNT	ANT2	802.11ax(HE40)	2437.00	-10.85	N/A	-10.00	-20.85	8	Pass
NVNT	ANT1	802.11ax(HE40)	2452.00	-11.27	N/A	-10.00	-21.27	8	Pass
NVNT	ANT2	802.11ax(HE40)	2452.00	-10.75	N/A	-10.00	-20.75	8	Pass

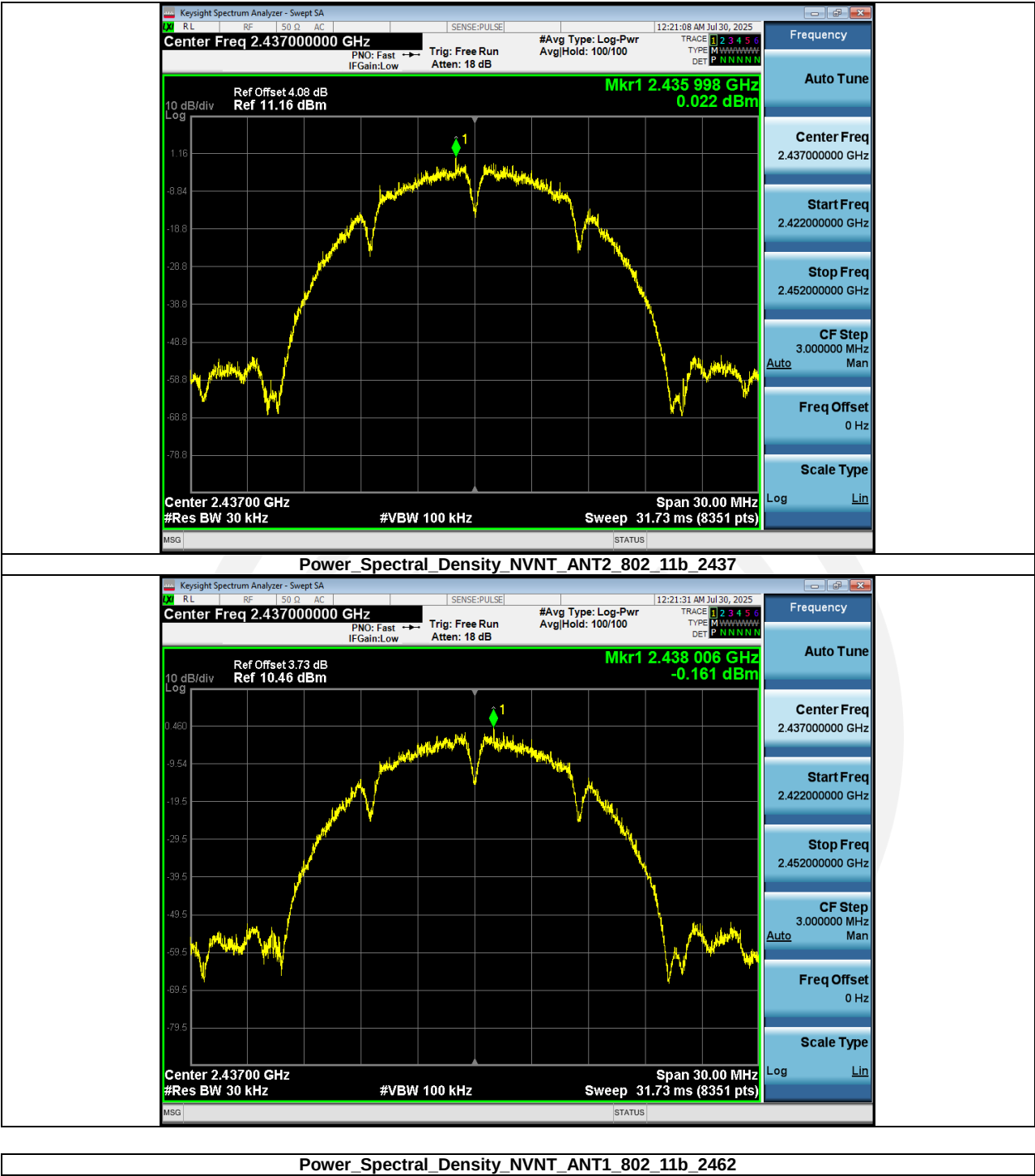
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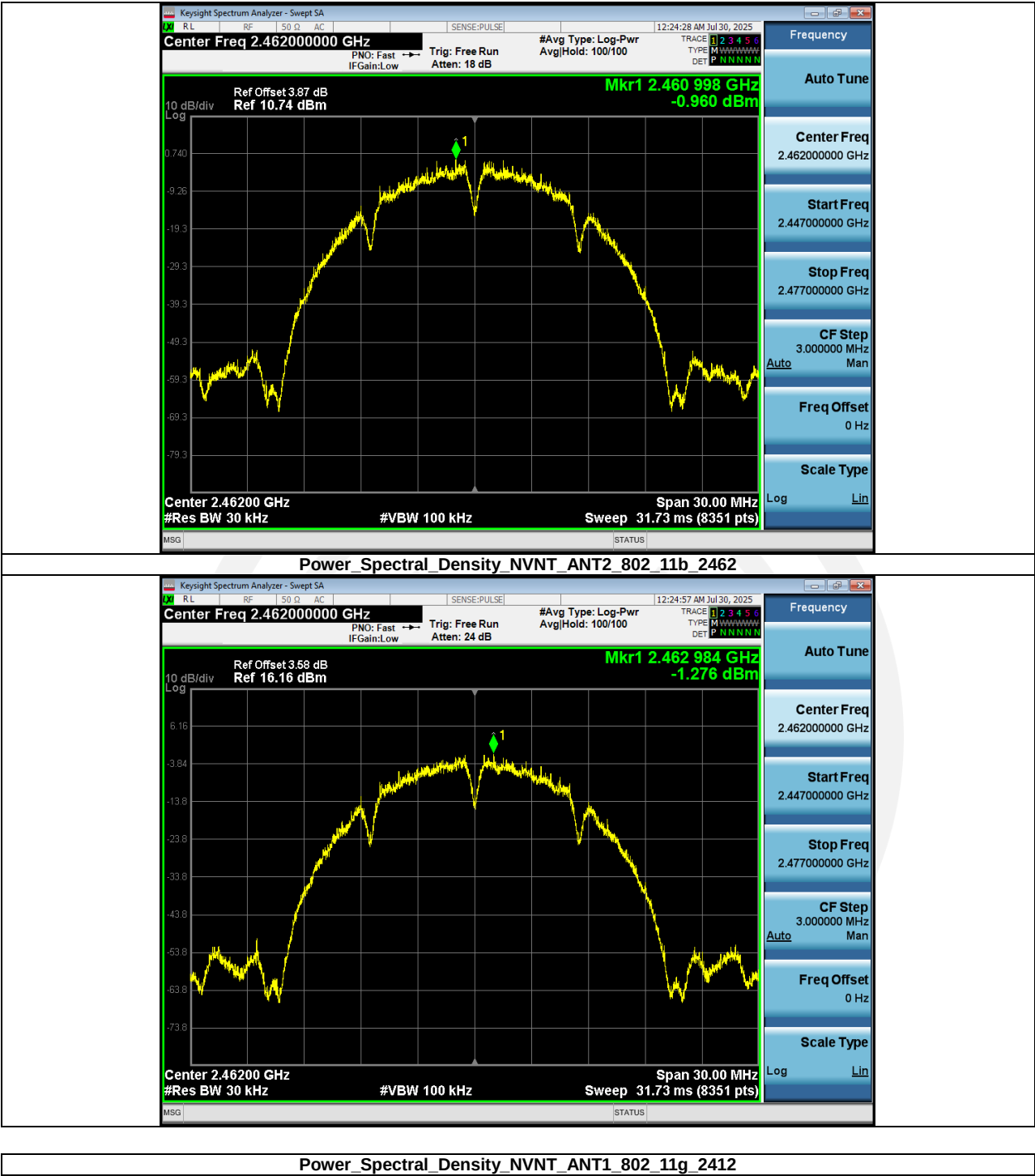


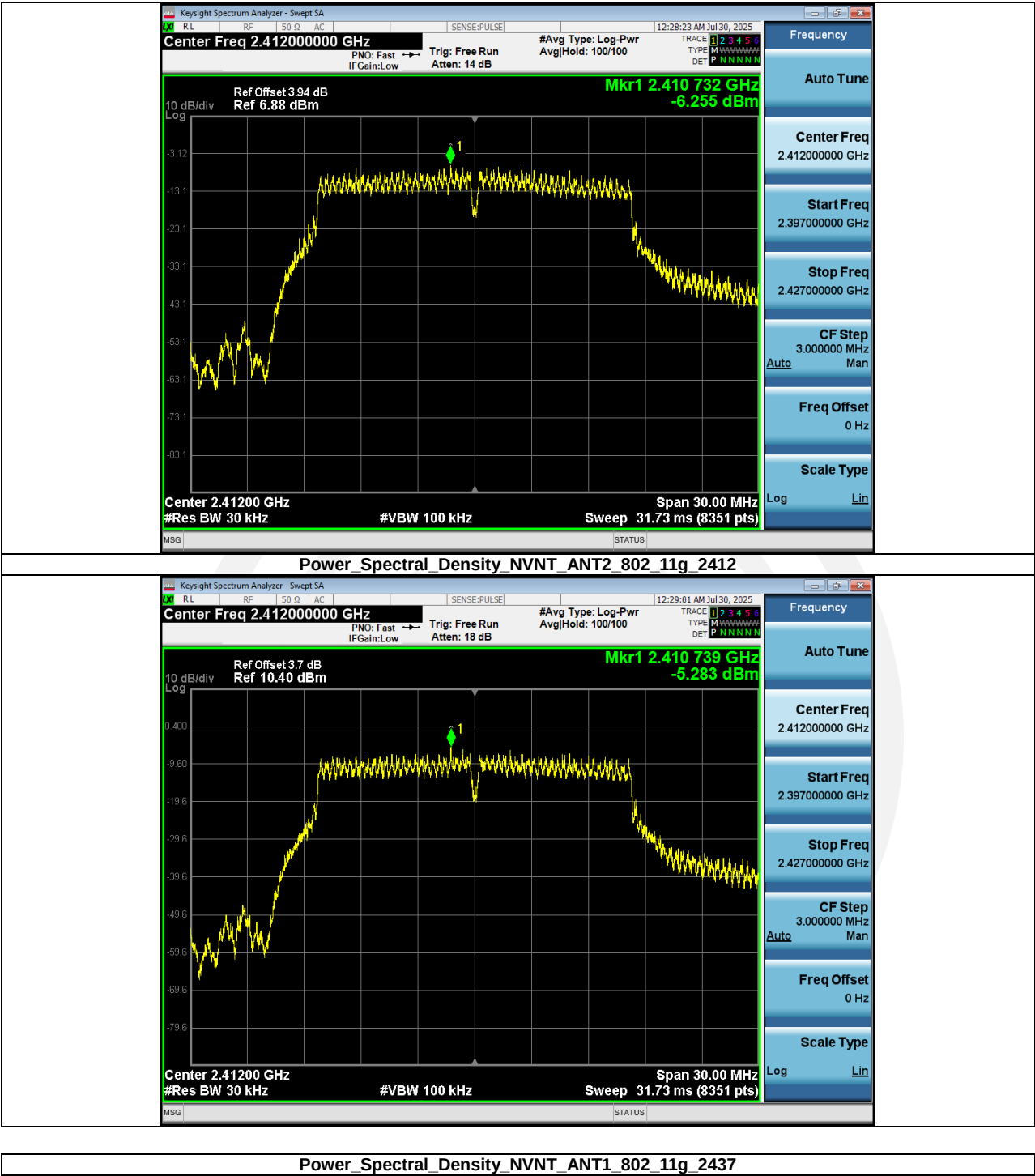
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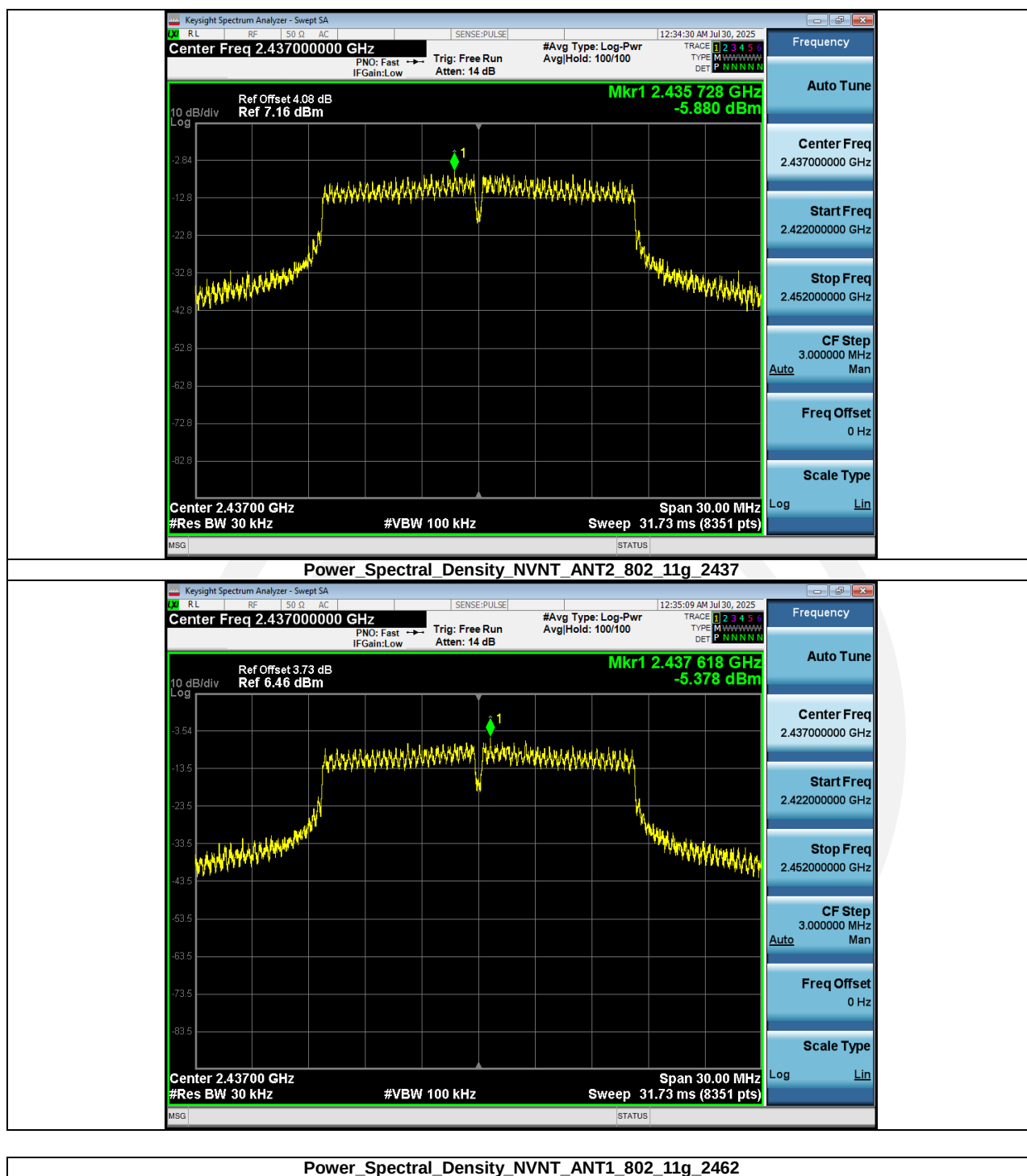


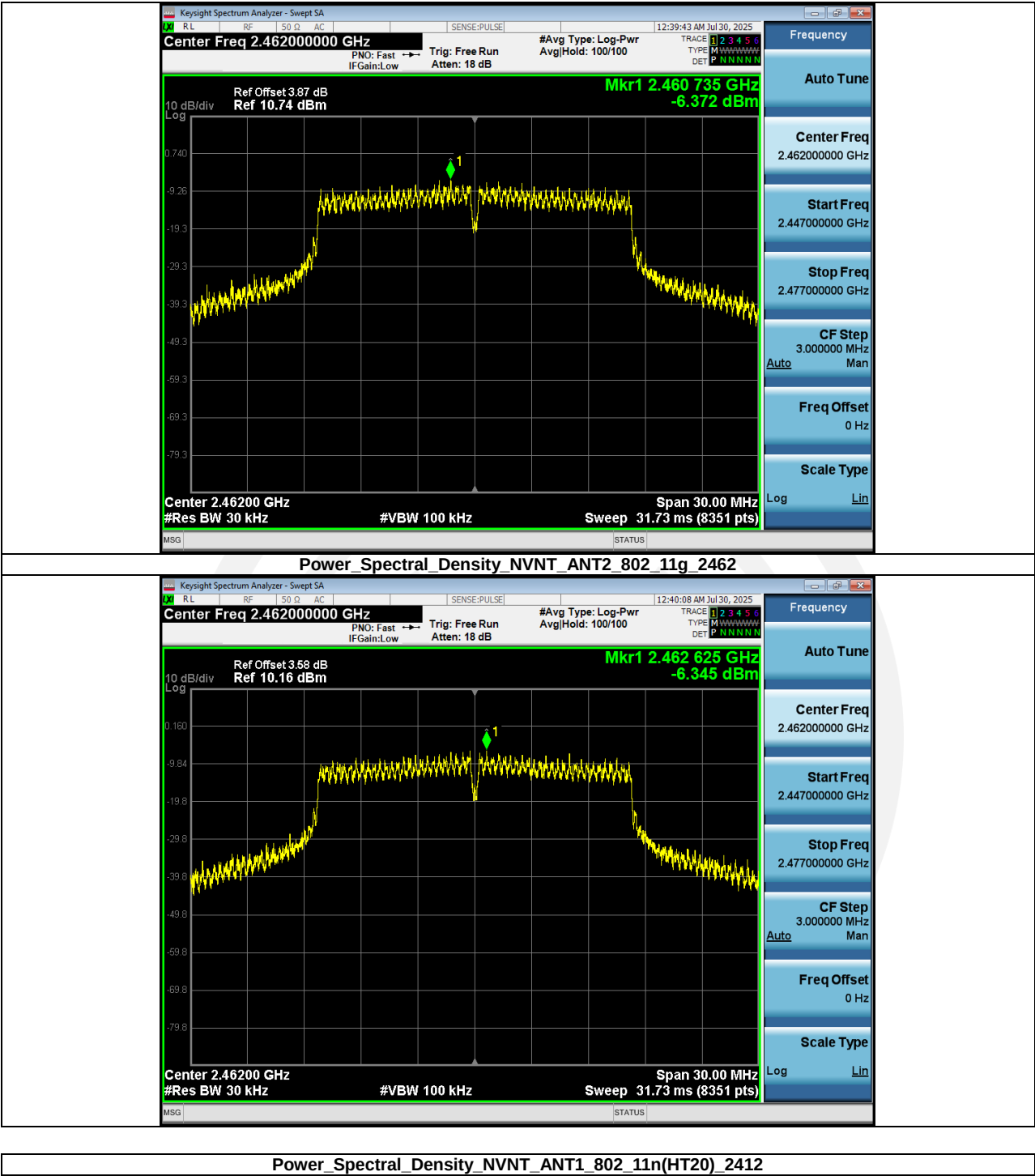
Power Spectral Density NVNT_ANT1_802_11b_2437



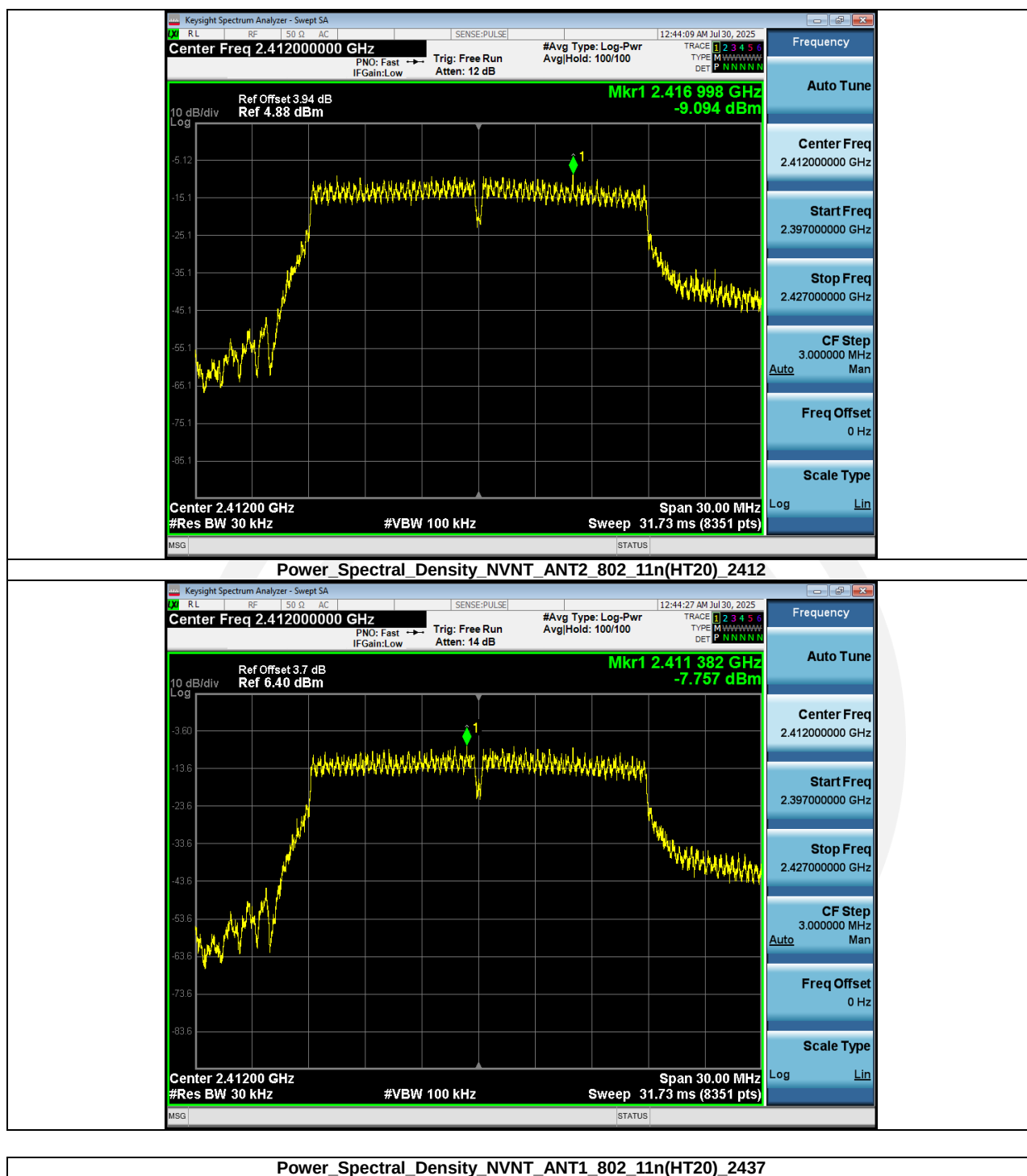


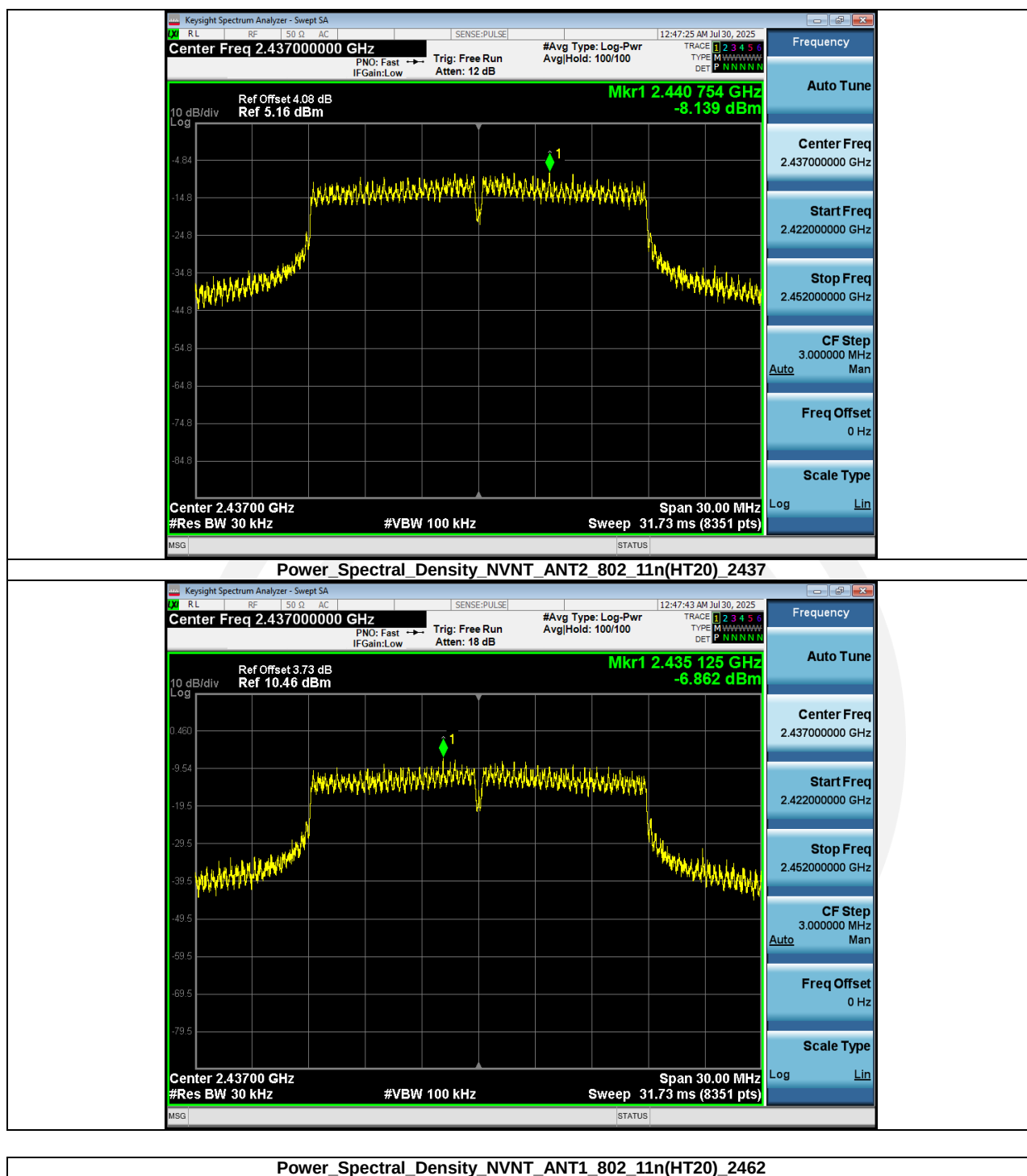


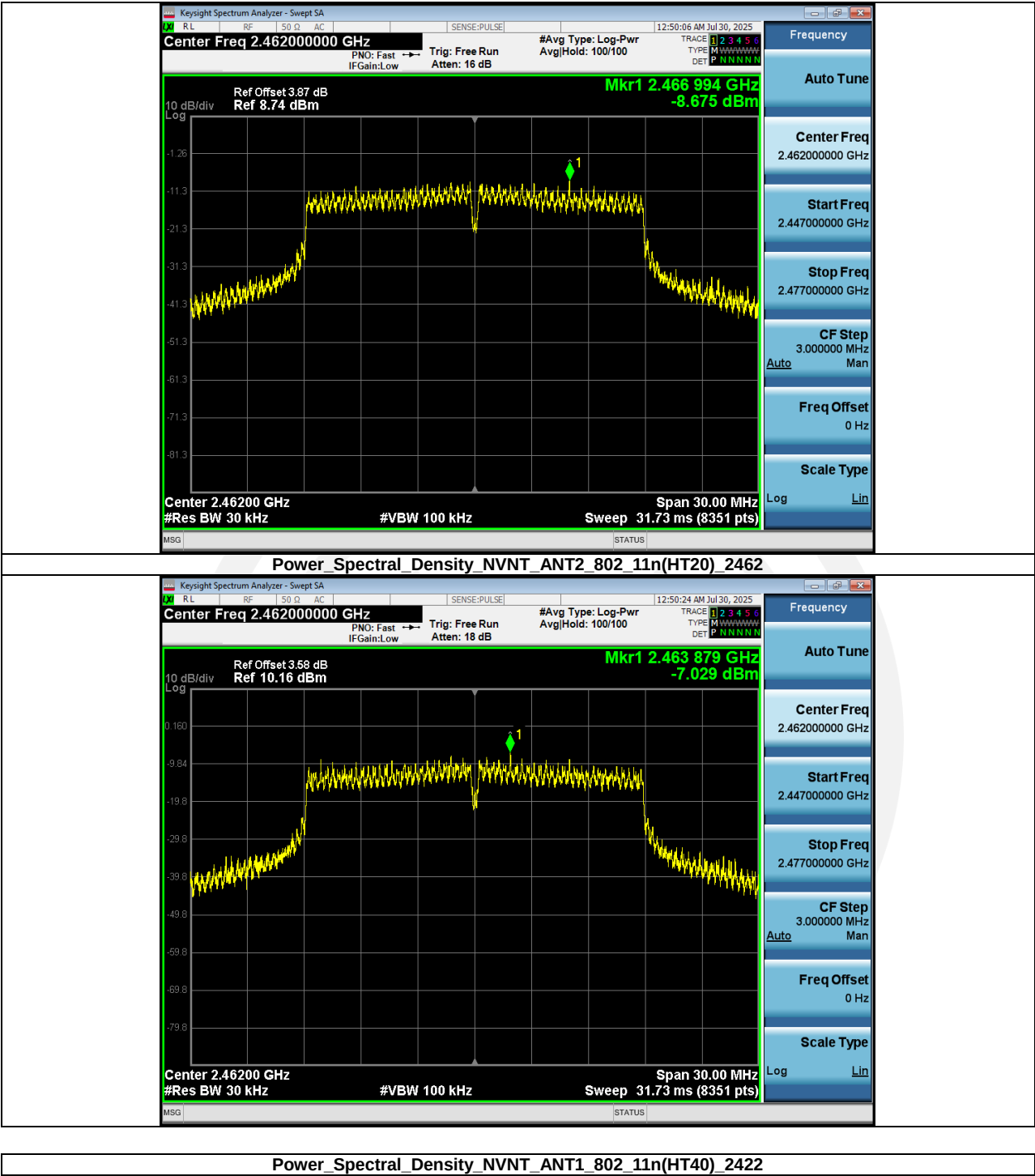


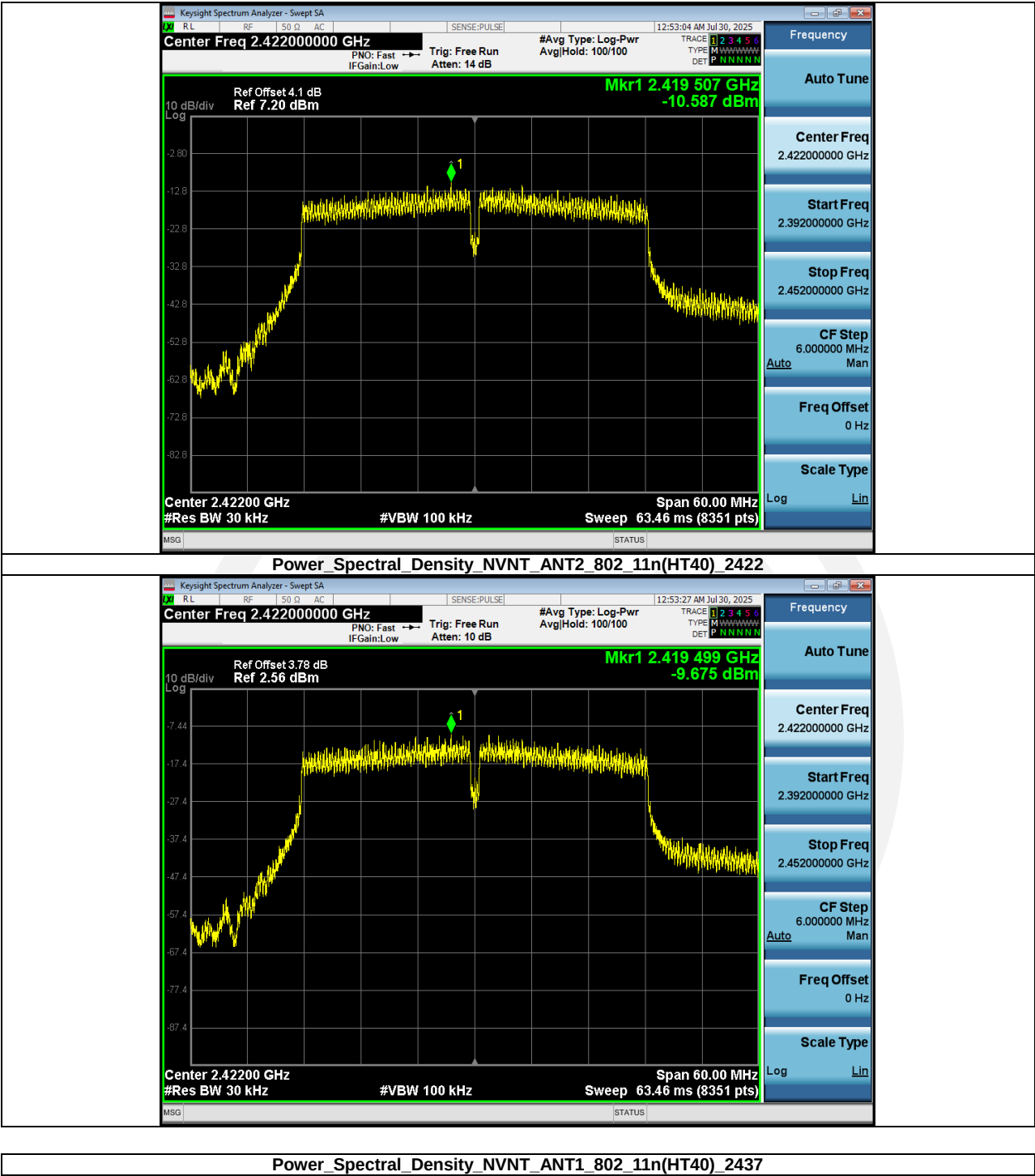


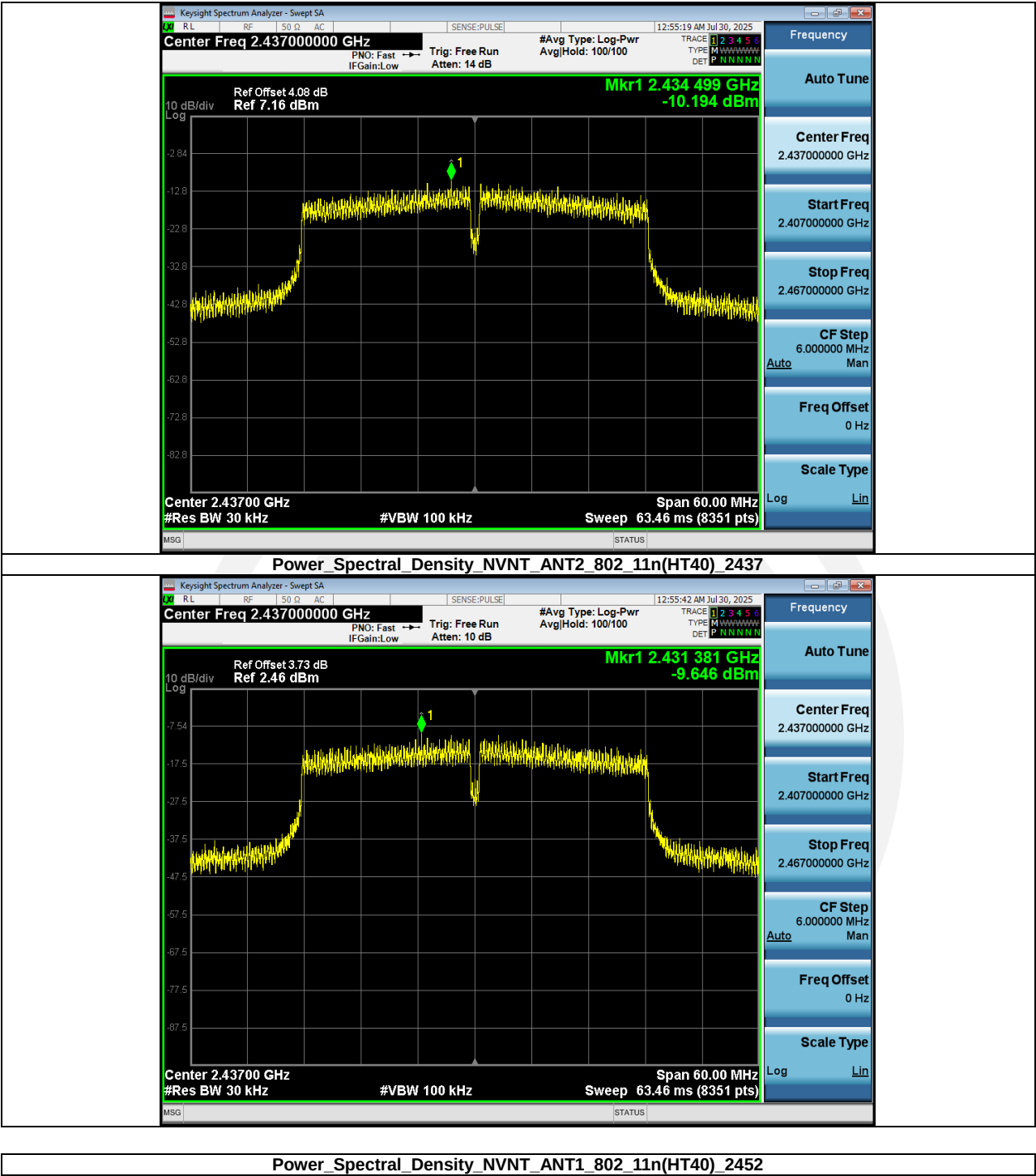
Power Spectral Density NVNT ANT1 802 11n(HT20) 2412

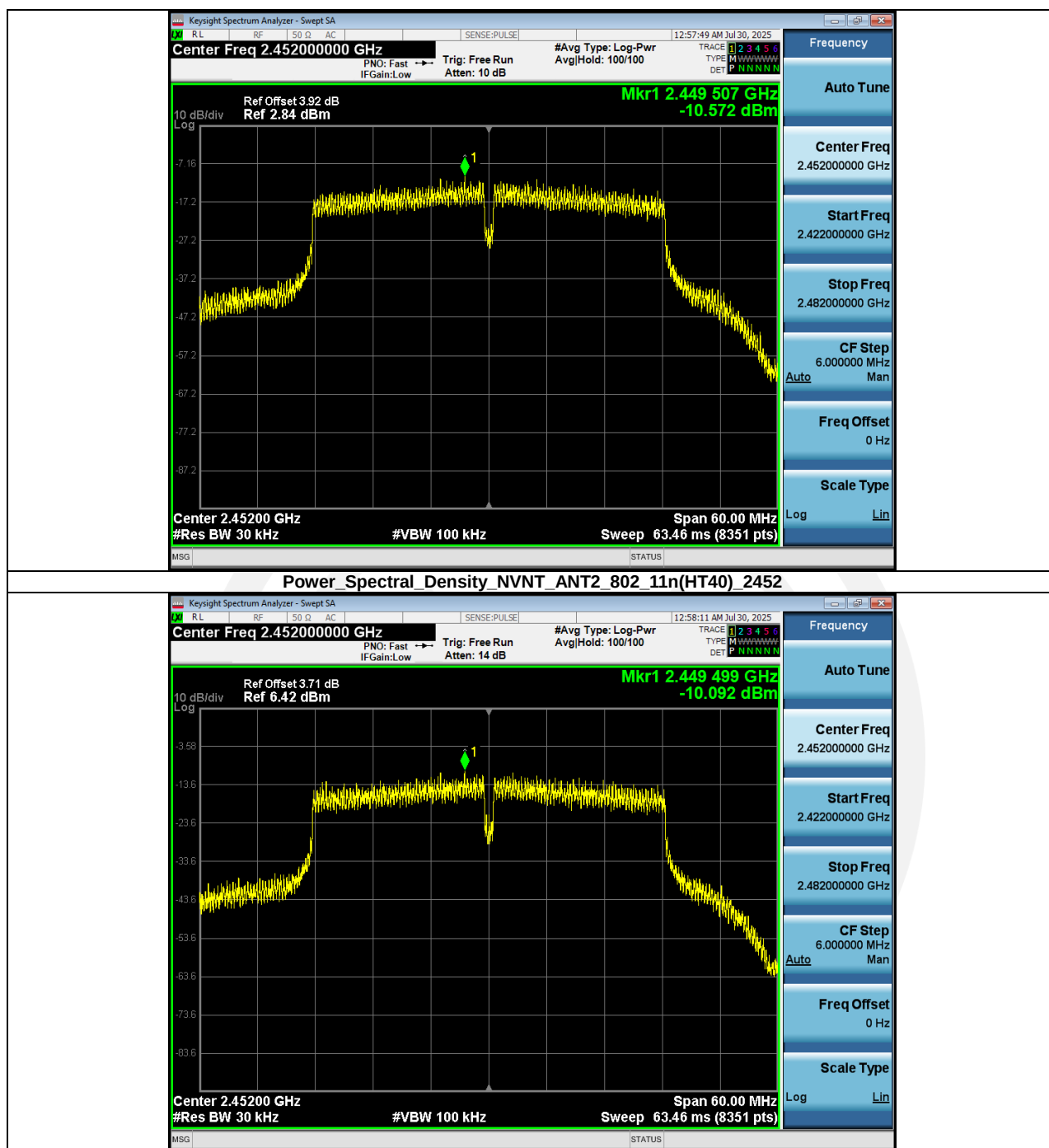




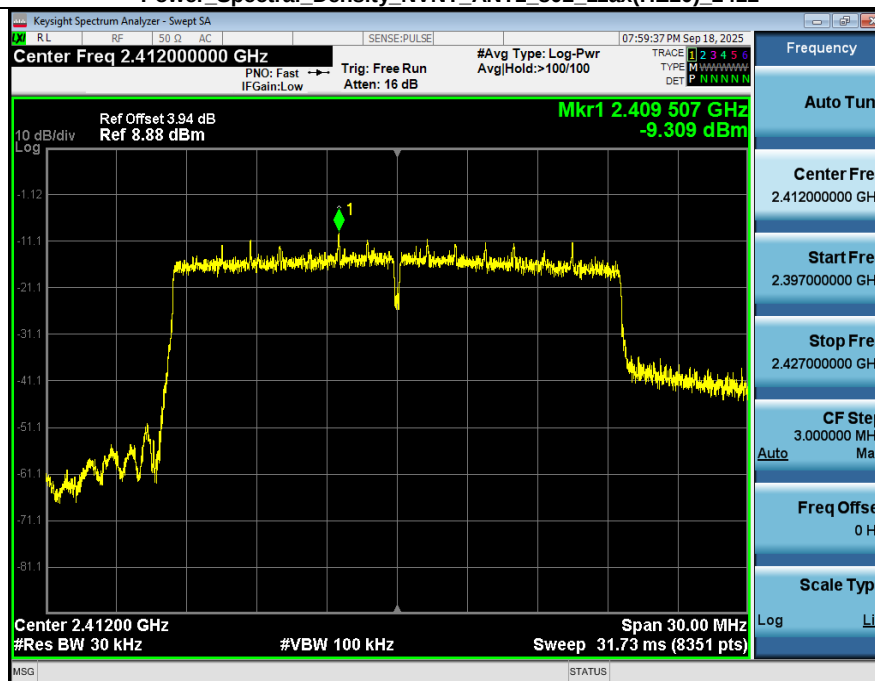








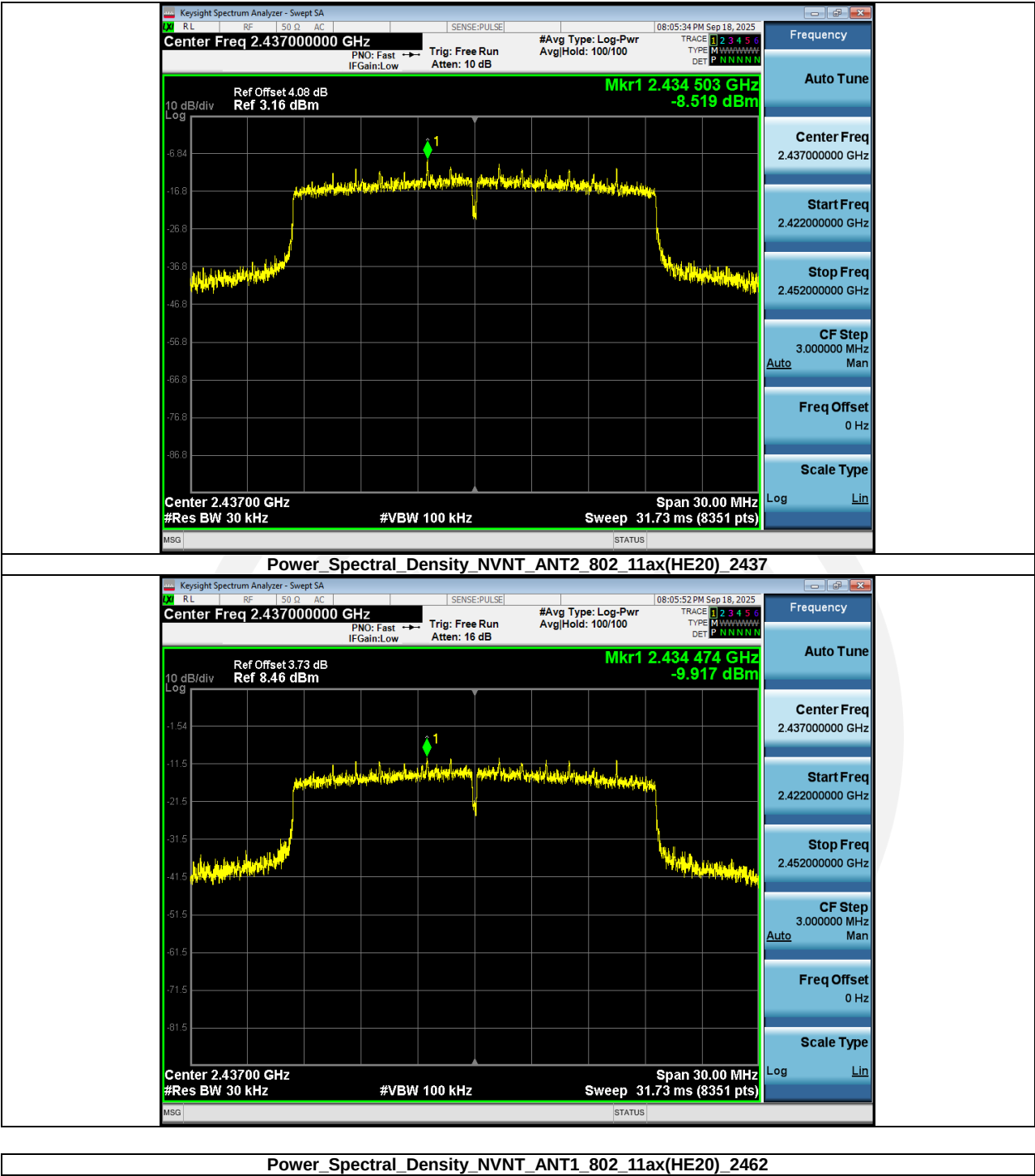
Power Spectral Density NVNT ANT1_802_11ax(HE20)_2412

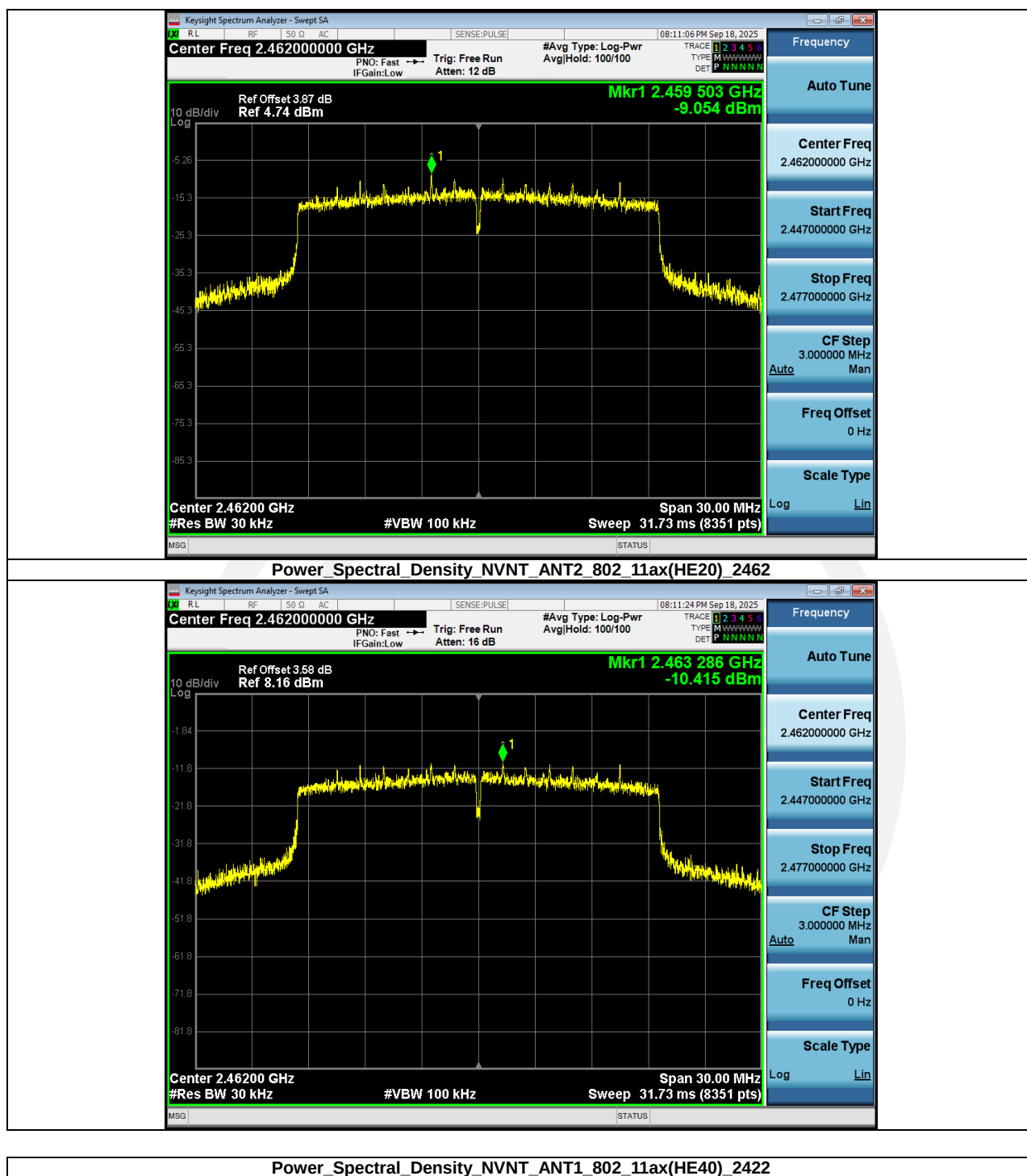


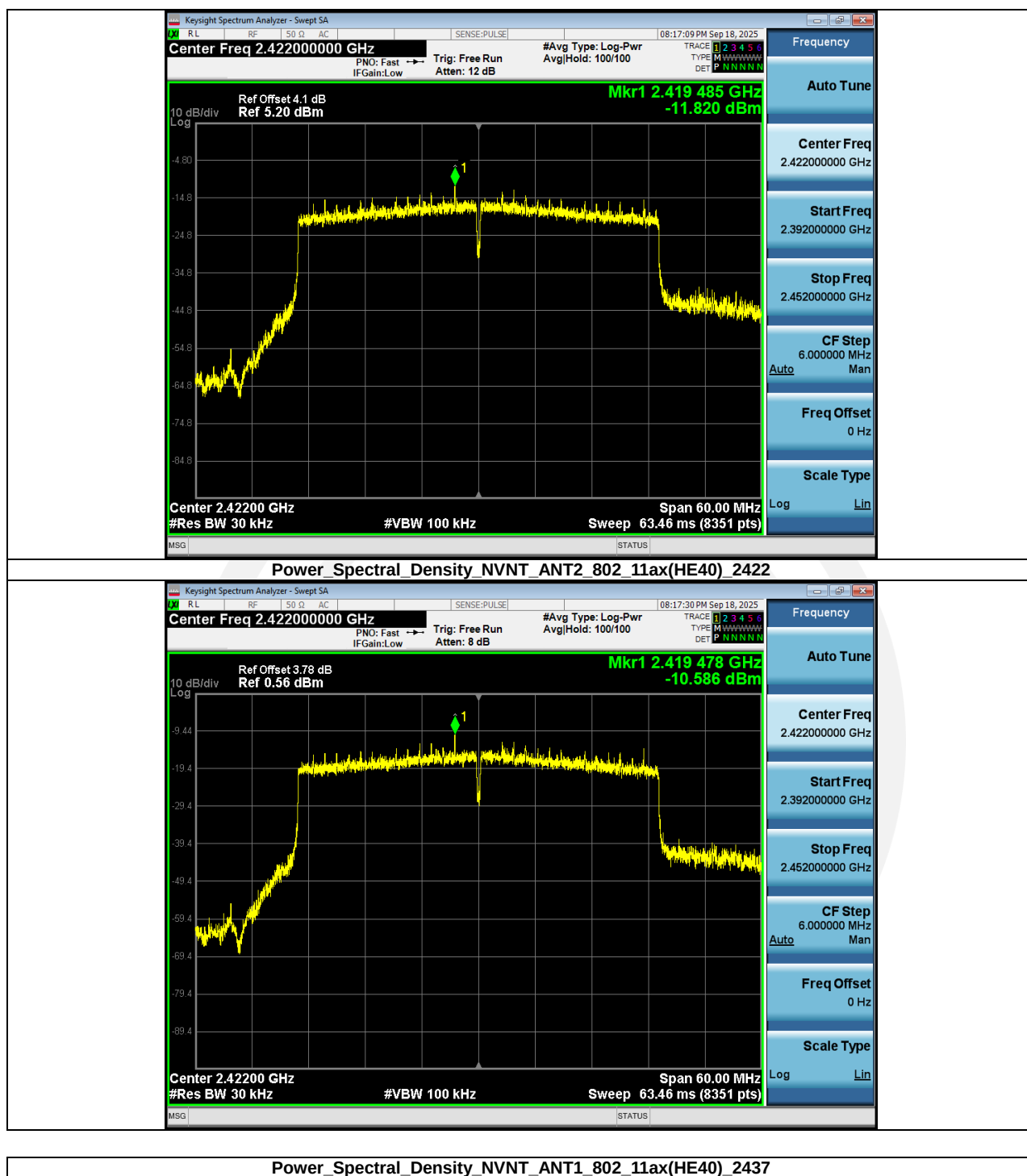
Power Spectral Density NVNT ANT2_802_11ax(HE20)_2412

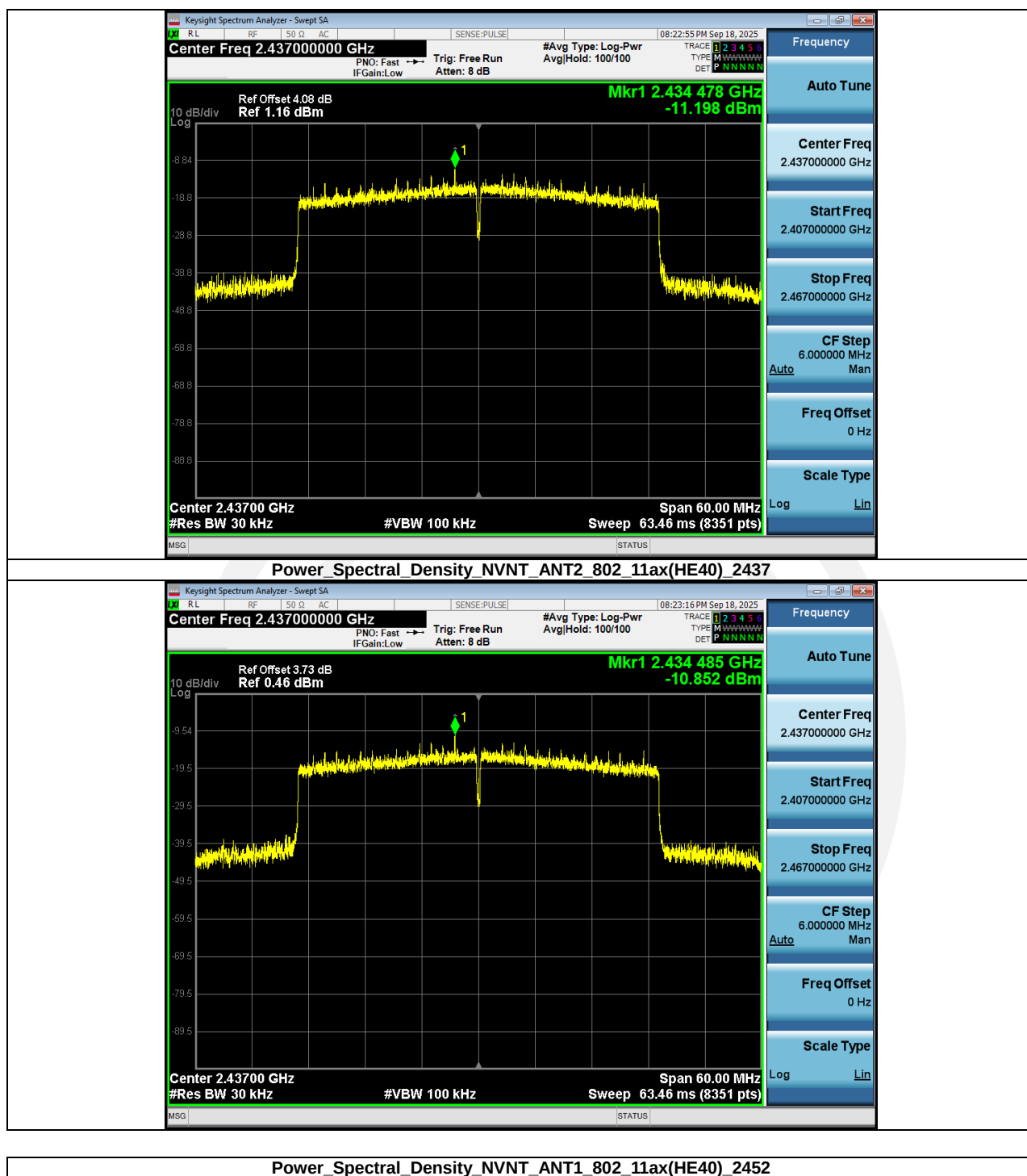


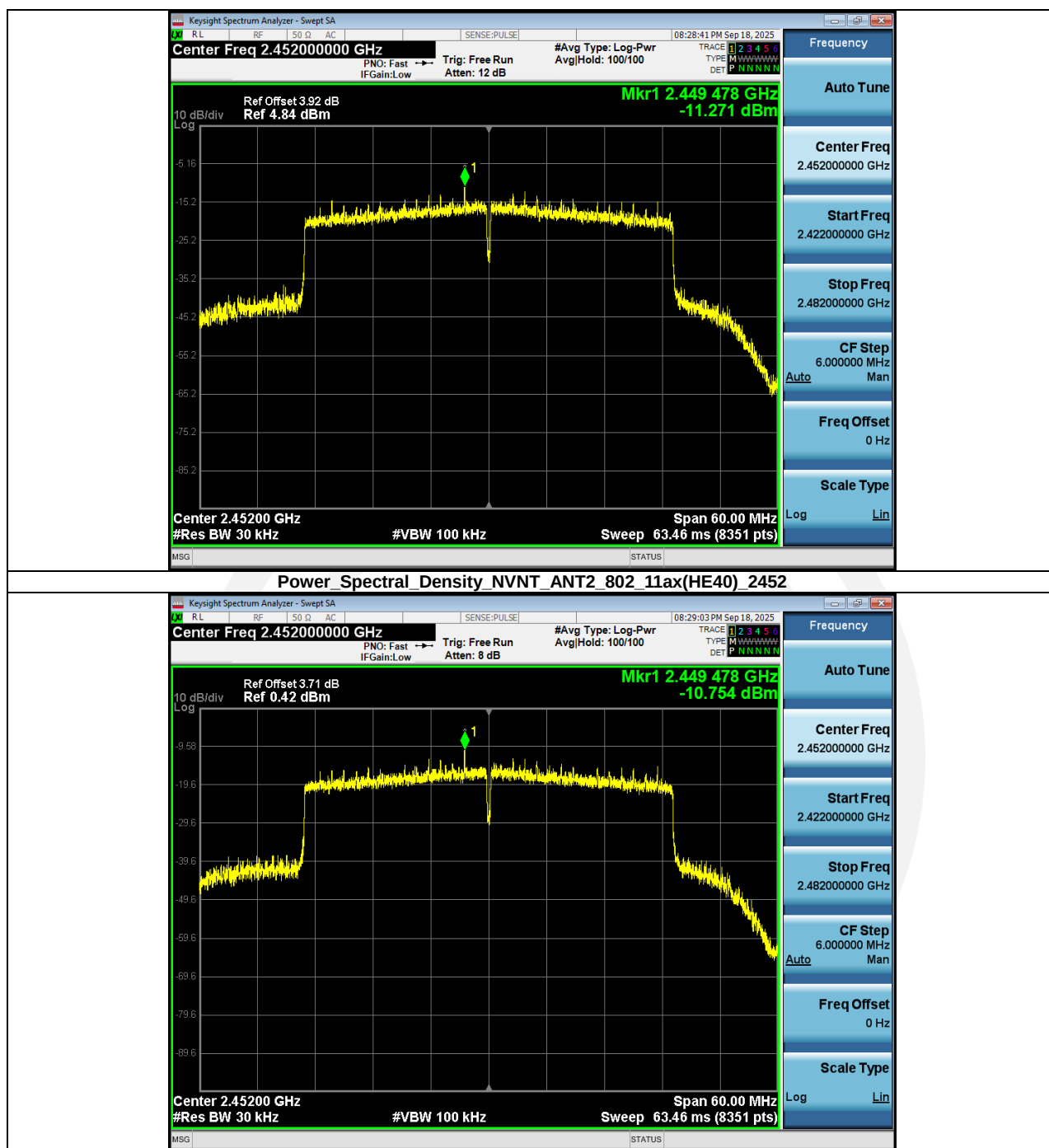
Power Spectral Density NVNT ANT1_802_11ax(HE20)_2437











Condition	Antenna	Modulation	Frequency (MHz)	SA_MIMO_PSD(dBm/30kHz)	RB factor(dB)	MIMO_PSD(dBm/30kHz)	limit(dBm/30kHz)	Result
NVNT	MIMO_TX	802.11n(HT20)	2412.00	-5.51	-10	-15.51	8	Pass
NVNT	MIMO_TX	802.11n(HT20)	2437.00	-4.91	-10	-14.91	8	Pass
NVNT	MIMO_TX	802.11n(HT20)	2462.00	-5.11	-10	-15.11	8	Pass
NVNT	MIMO_TX	802.11n(HT40)	2422.00	-7.10	-10	-17.10	8	Pass
NVNT	MIMO_TX	802.11n(HT40)	2437.00	-7.06	-10	-17.06	8	Pass
NVNT	MIMO_TX	802.11n(HT40)	2452.00	-7.32	-10	-17.32	8	Pass
NVNT	MIMO_TX	802.11ax(HE20)	2412.00	-6.96	-10	-16.96	8	Pass
NVNT	MIMO_TX	802.11ax(HE20)	2437.00	-6.55	-10	-16.55	8	Pass
NVNT	MIMO_TX	802.11ax(HE20)	2462.00	-7.04	-10	-17.04	8	Pass
NVNT	MIMO_TX	802.11ax(HE40)	2422.00	-8.15	-10	-18.15	8	Pass
NVNT	MIMO_TX	802.11ax(HE40)	2437.00	-8.08	-10	-18.08	8	Pass
NVNT	MIMO_TX	802.11ax(HE40)	2452.00	-7.99	-10	-17.99	8	Pass

Internal antenna 1, maximum gain is 2.73dBi.

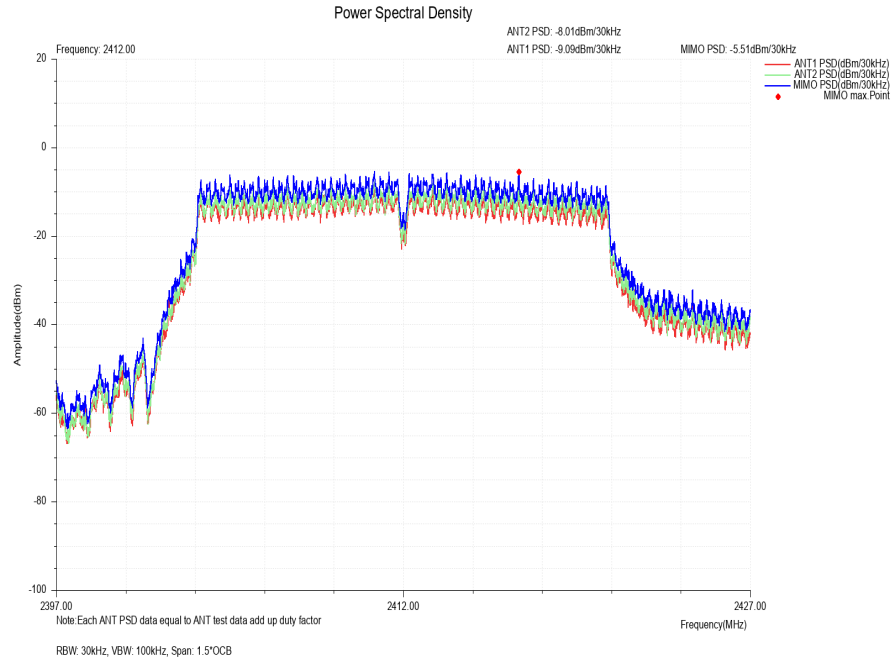
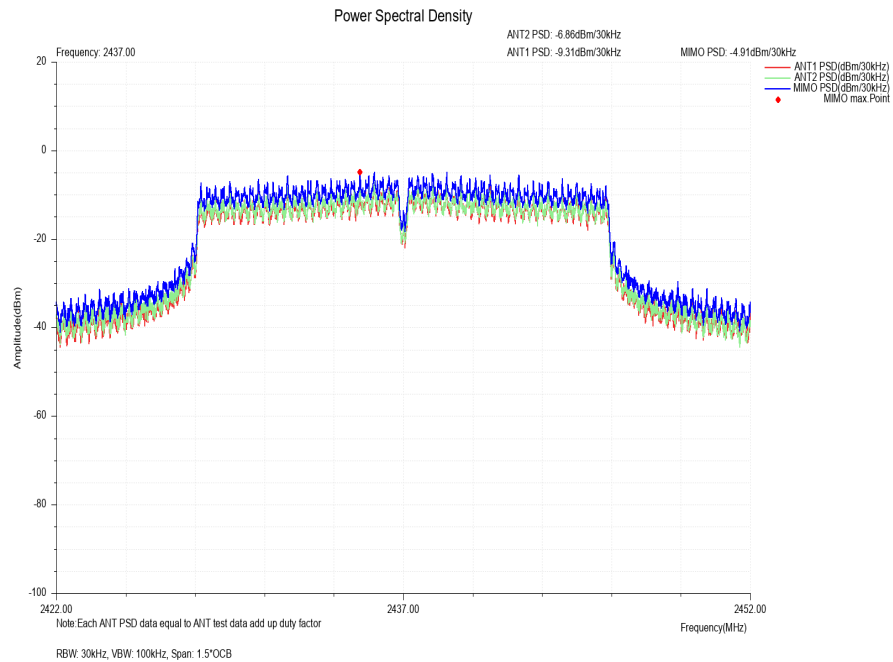
Internal antenna 2, maximum gain is 1.35dBi.

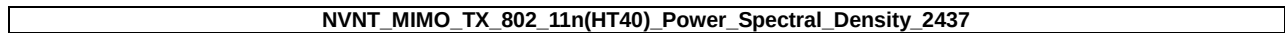
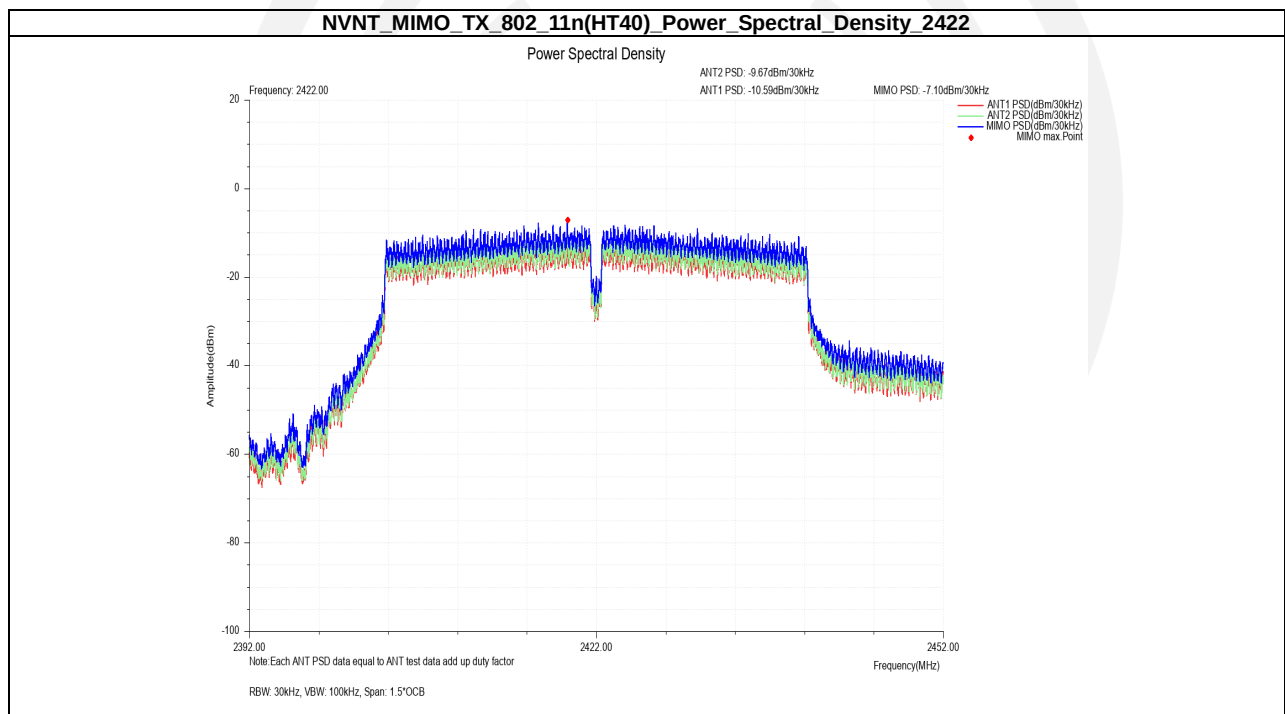
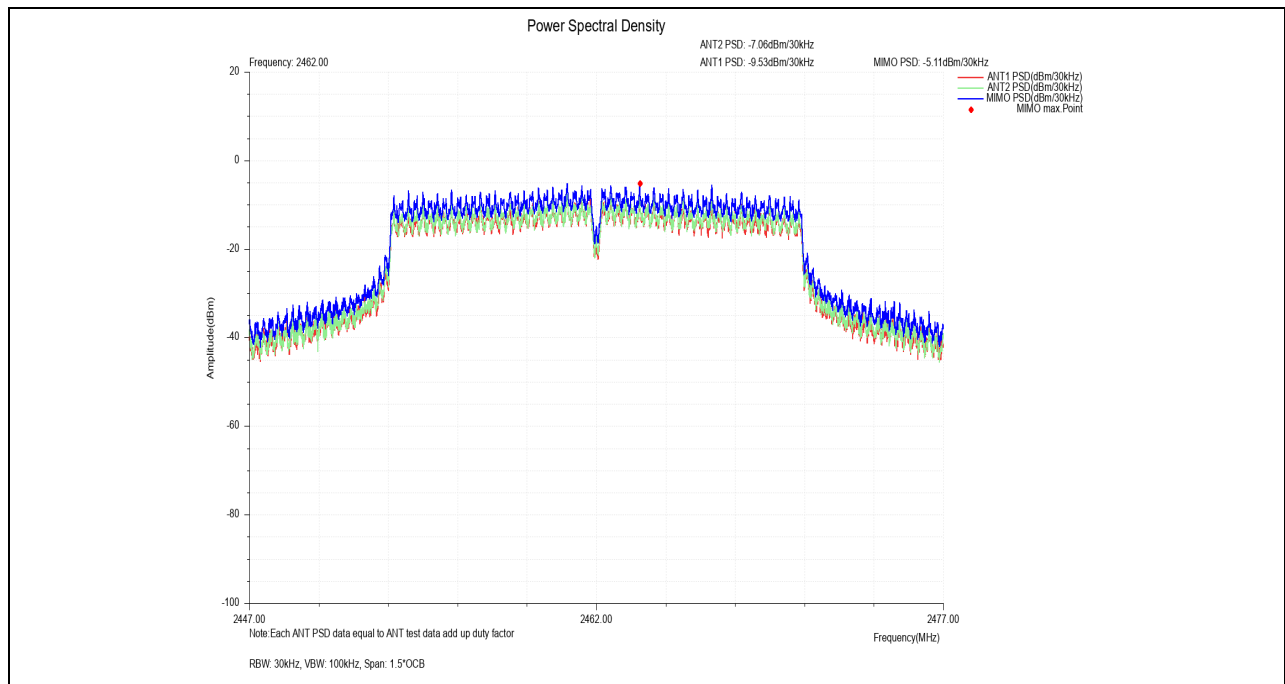
MIMO gain= $G_{ANT\ MAX} + 10 \log(N_{ANT}/N_{SS})$ dBi = $2.73 + 10 \log(2)$ dBi = 5.73dBi

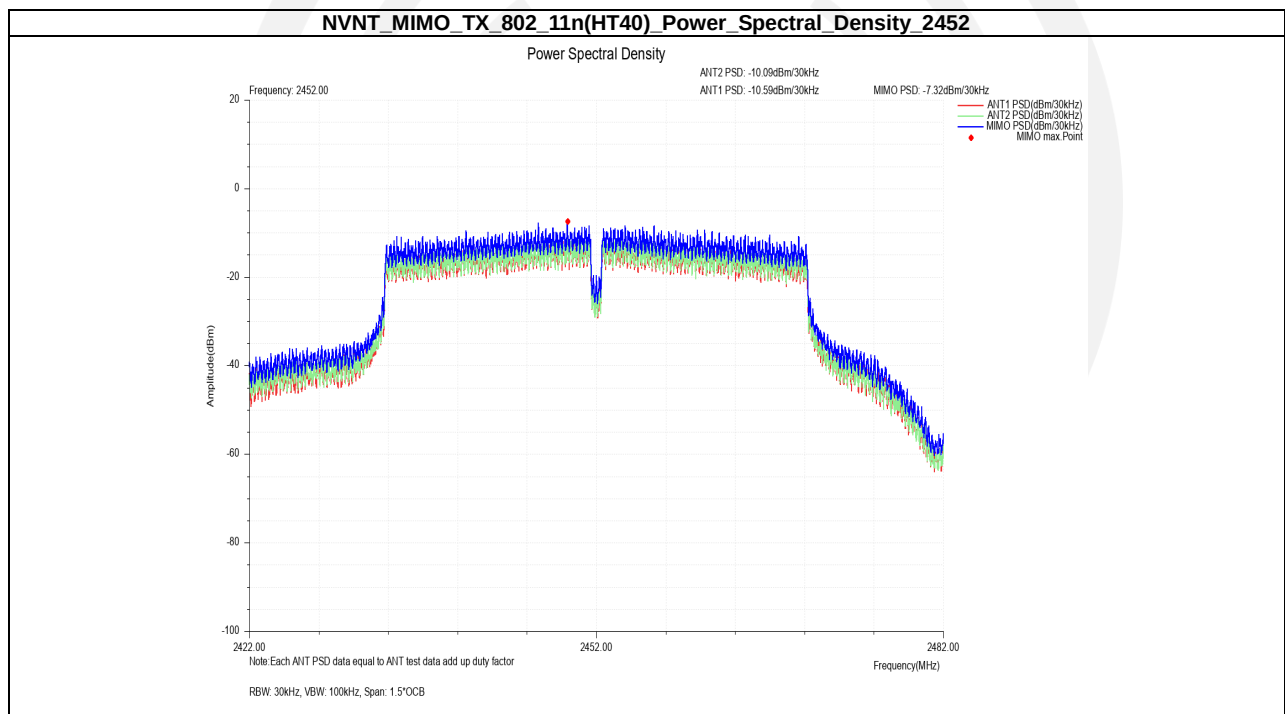
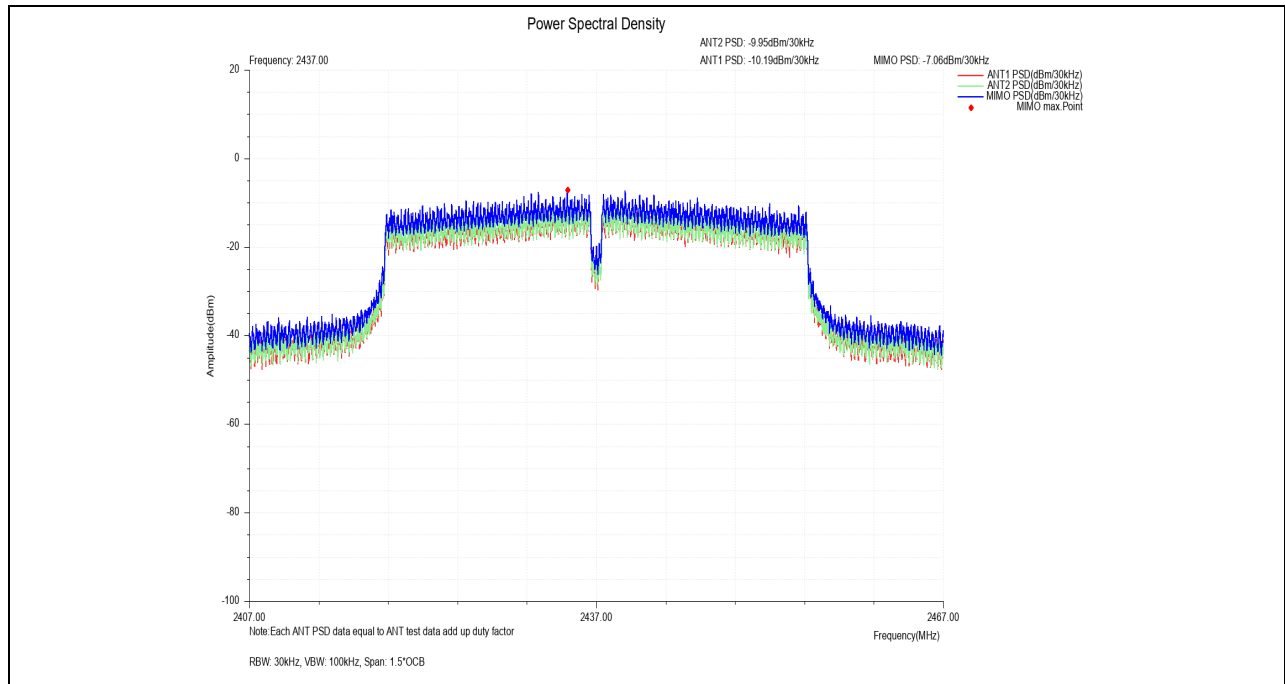
N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas;

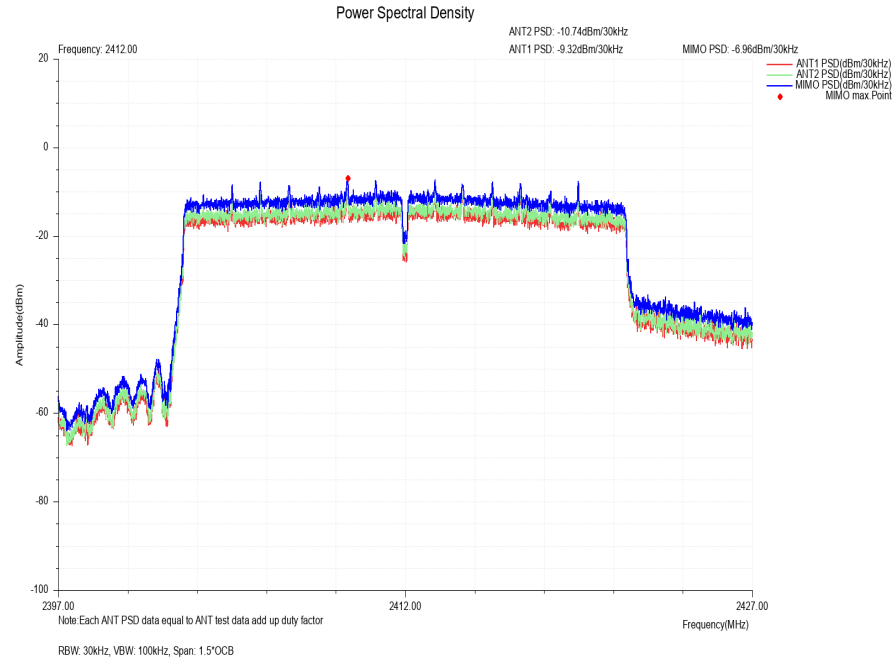
$G_{ANT\ MAX}$ is the gain of the antenna having the highest gain (in dBi).

NVNT_MIMO_TX_802_11n(HT20) Power Spectral Density 2412**NVNT_MIMO_TX_802_11n(HT20) Power Spectral Density 2437****NVNT_MIMO_TX_802_11n(HT20) Power Spectral Density 2462**

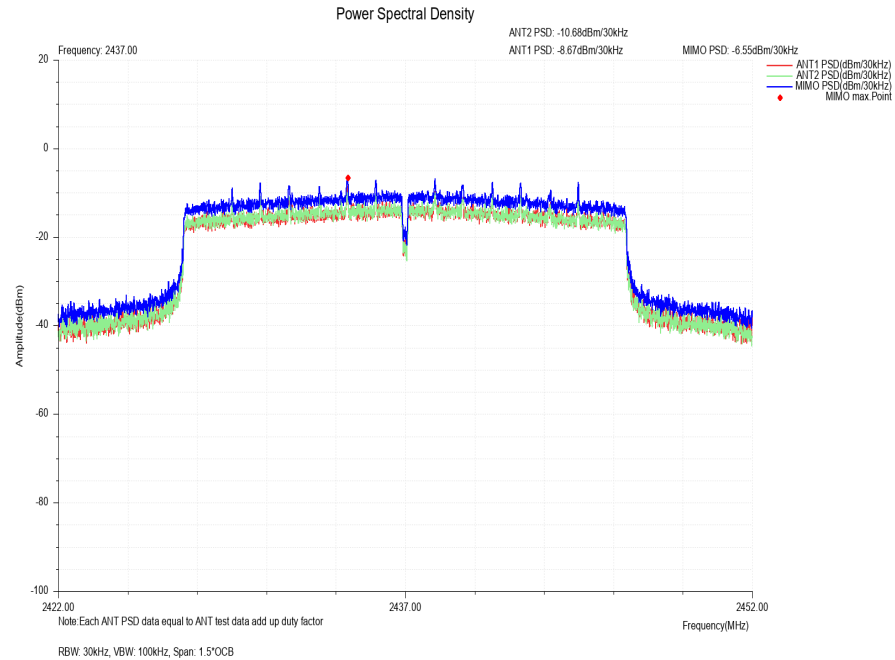




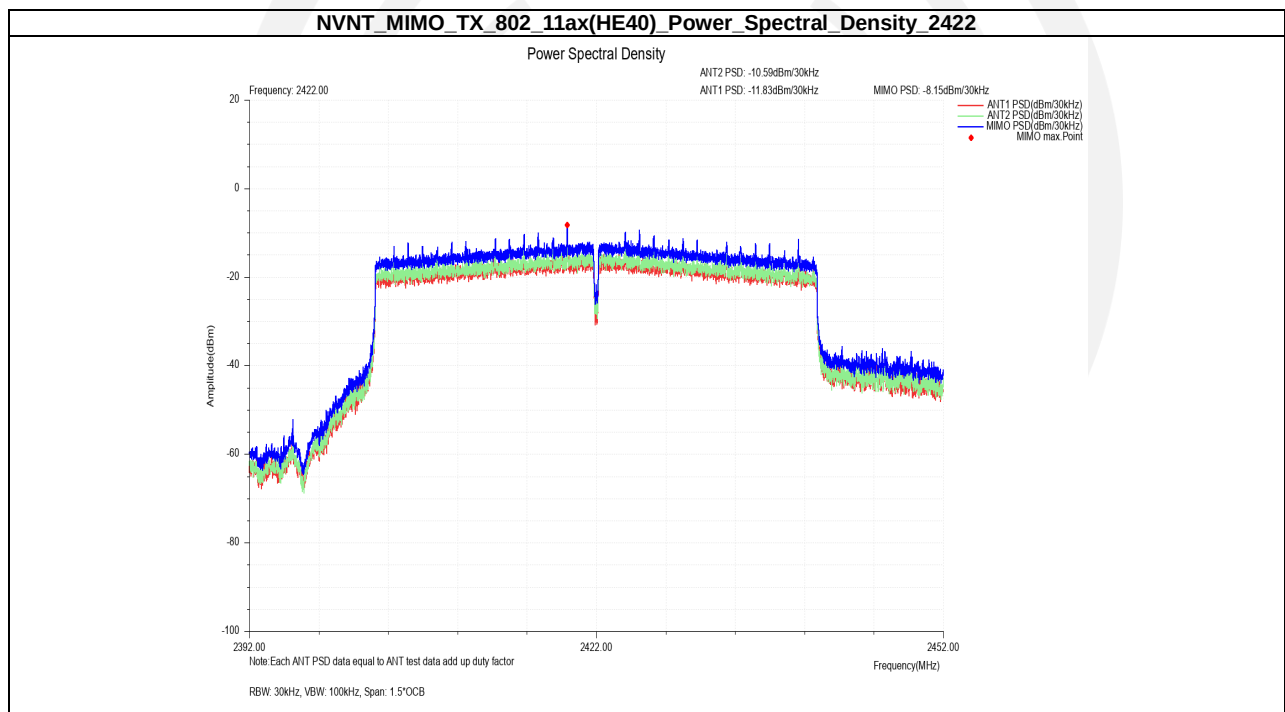
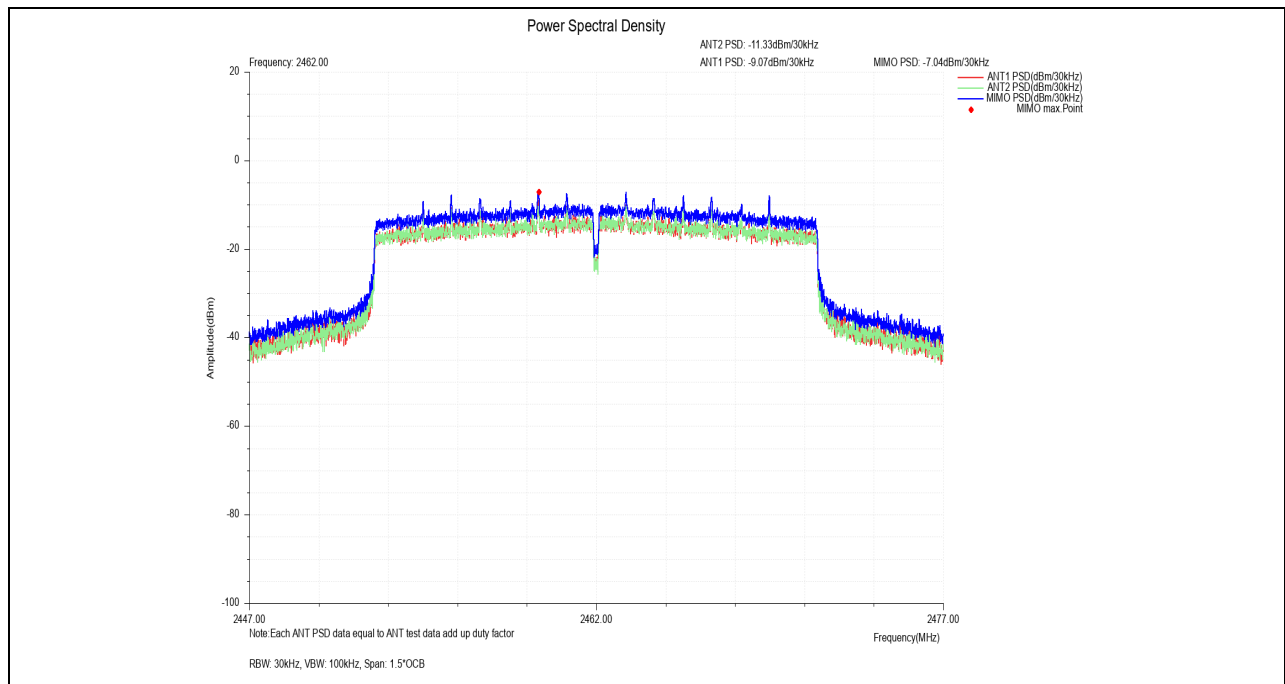
NVNT_MIMO_TX_802_11ax(HE20)_Power_Spectral_Density_2412



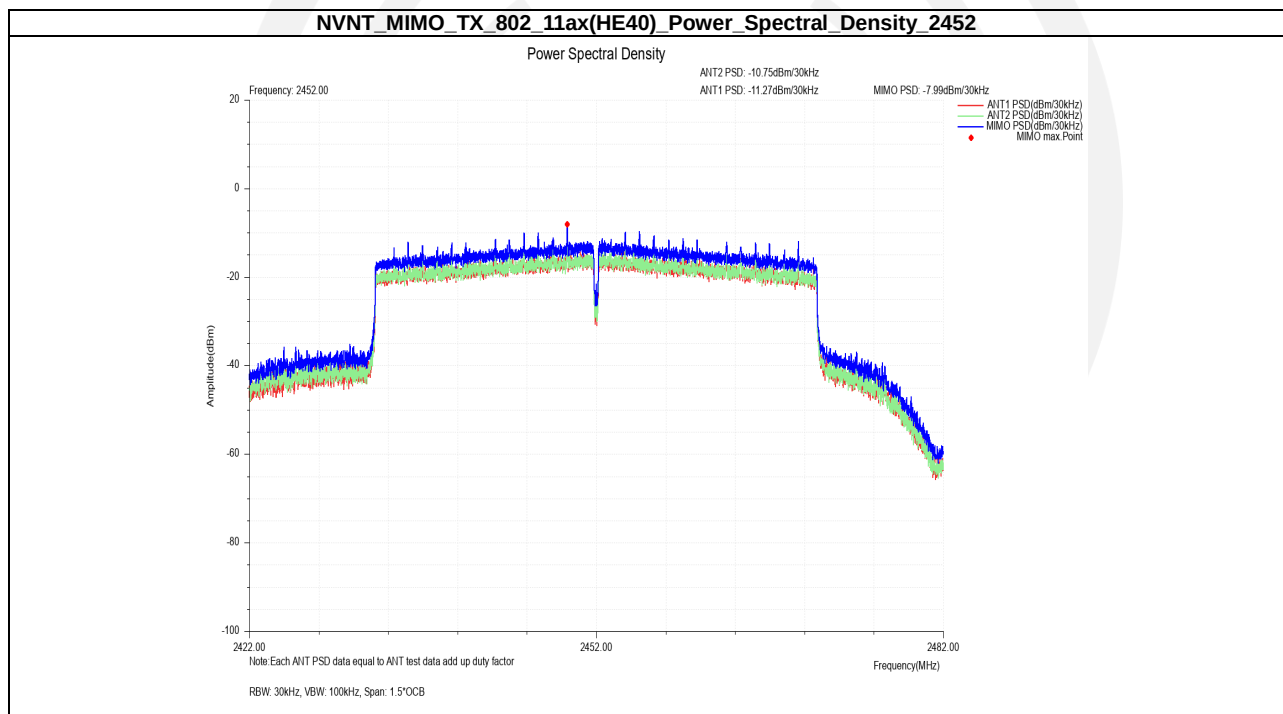
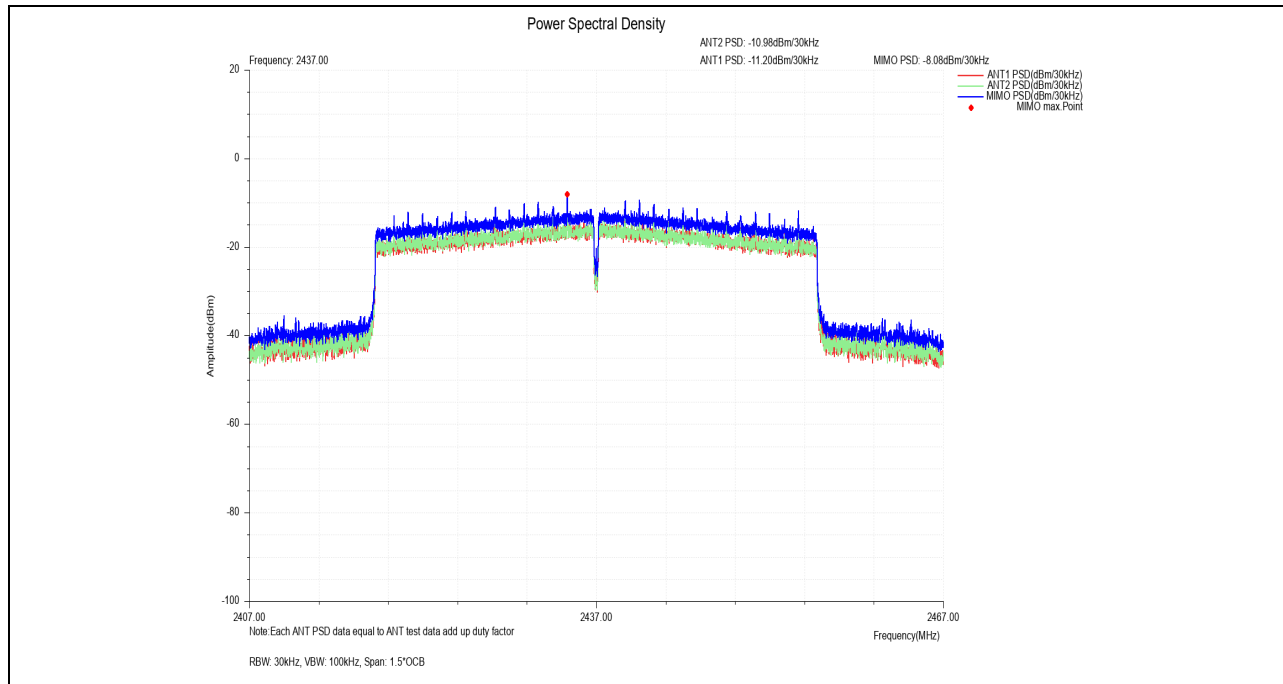
NVNT_MIMO_TX_802_11ax(HE20)_Power_Spectral_Density_2437



NVNT_MIMO_TX_802_11ax(HE20)_Power_Spectral_Density_2462



NVNT MIMO TX 802_11ax(HE40) Power Spectral Density 2437



8. Bandwidth

8.1. Test limits

Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz

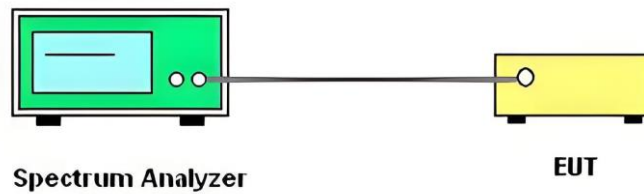
8.2. Test Procedure

Details see the KDB558074 D01 Meas Guidance v05r02

a) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

b) The test receiver set RBW = 100kHz, VBW $\geq$ 3*RBW =300kHz, Peak Detector, Sweep time set auto, detail see the test plot.

8.3. Test Setup

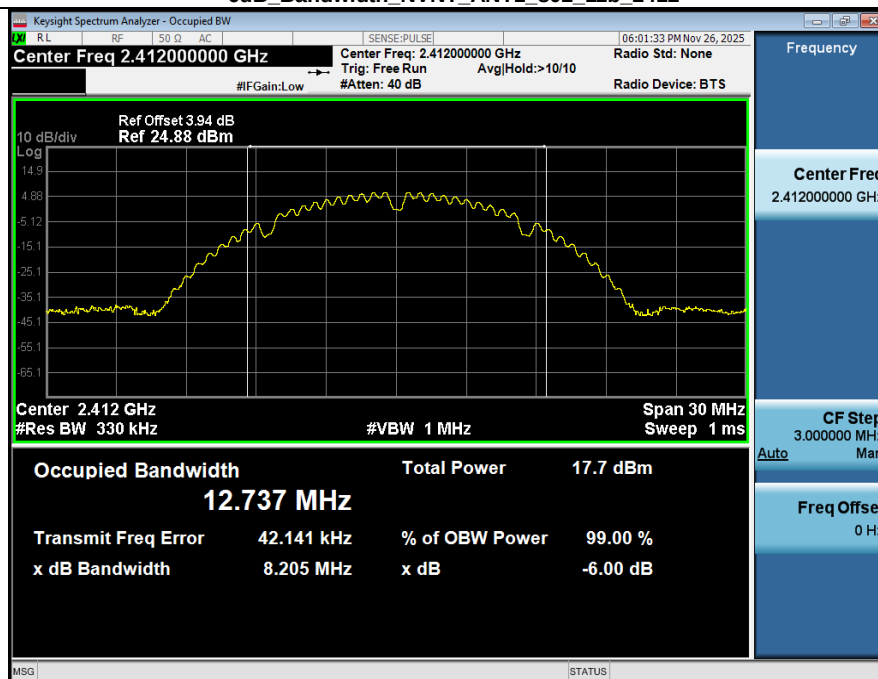


8.4. Test Results

Condition	Antenna	Modulation	Frequency (MHz)	-6dB BW(MHz)	limit(kHz)	Result
NVNT	ANT1	802.11b	2412.00	8.20	500	Pass
NVNT	ANT2	802.11b	2412.00	8.21	500	Pass
NVNT	ANT1	802.11b	2437.00	8.21	500	Pass
NVNT	ANT2	802.11b	2437.00	8.21	500	Pass
NVNT	ANT1	802.11b	2462.00	8.20	500	Pass
NVNT	ANT2	802.11b	2462.00	8.21	500	Pass
NVNT	ANT1	802.11g	2412.00	16.32	500	Pass
NVNT	ANT2	802.11g	2412.00	16.37	500	Pass
NVNT	ANT1	802.11g	2437.00	16.34	500	Pass
NVNT	ANT2	802.11g	2437.00	16.36	500	Pass
NVNT	ANT1	802.11g	2462.00	16.26	500	Pass
NVNT	ANT2	802.11g	2462.00	16.39	500	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	17.55	500	Pass
NVNT	ANT2	802.11n(HT20)	2412.00	17.57	500	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	17.41	500	Pass
NVNT	ANT2	802.11n(HT20)	2437.00	17.47	500	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	17.54	500	Pass
NVNT	ANT2	802.11n(HT20)	2462.00	17.54	500	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	35.79	500	Pass
NVNT	ANT2	802.11n(HT40)	2422.00	35.57	500	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	36.16	500	Pass
NVNT	ANT2	802.11n(HT40)	2437.00	35.69	500	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	36.16	500	Pass
NVNT	ANT2	802.11n(HT40)	2452.00	35.87	500	Pass
NVNT	ANT1	802.11ax(HE20)	2412.00	18.98	500	Pass
NVNT	ANT2	802.11ax(HE20)	2412.00	18.87	500	Pass

NVNT	ANT1	802.11ax(HE20)	2437.00	18.78	500	Pass
NVNT	ANT2	802.11ax(HE20)	2437.00	19.01	500	Pass
NVNT	ANT1	802.11ax(HE20)	2462.00	18.85	500	Pass
NVNT	ANT2	802.11ax(HE20)	2462.00	18.96	500	Pass
NVNT	ANT1	802.11ax(HE40)	2422.00	37.44	500	Pass
NVNT	ANT2	802.11ax(HE40)	2422.00	37.61	500	Pass
NVNT	ANT1	802.11ax(HE40)	2437.00	37.37	500	Pass
NVNT	ANT2	802.11ax(HE40)	2437.00	37.19	500	Pass
NVNT	ANT1	802.11ax(HE40)	2452.00	37.27	500	Pass
NVNT	ANT2	802.11ax(HE40)	2452.00	37.69	500	Pass



-6dB_Bandwidth_NVNT_ANT1_802_11b_2412**-6dB_Bandwidth_NVNT_ANT2_802_11b_2412****-6dB_Bandwidth_NVNT_ANT1_802_11b_2437**

