

Appendix B

RF Test Data for Zigbee (Conducted Measurement)

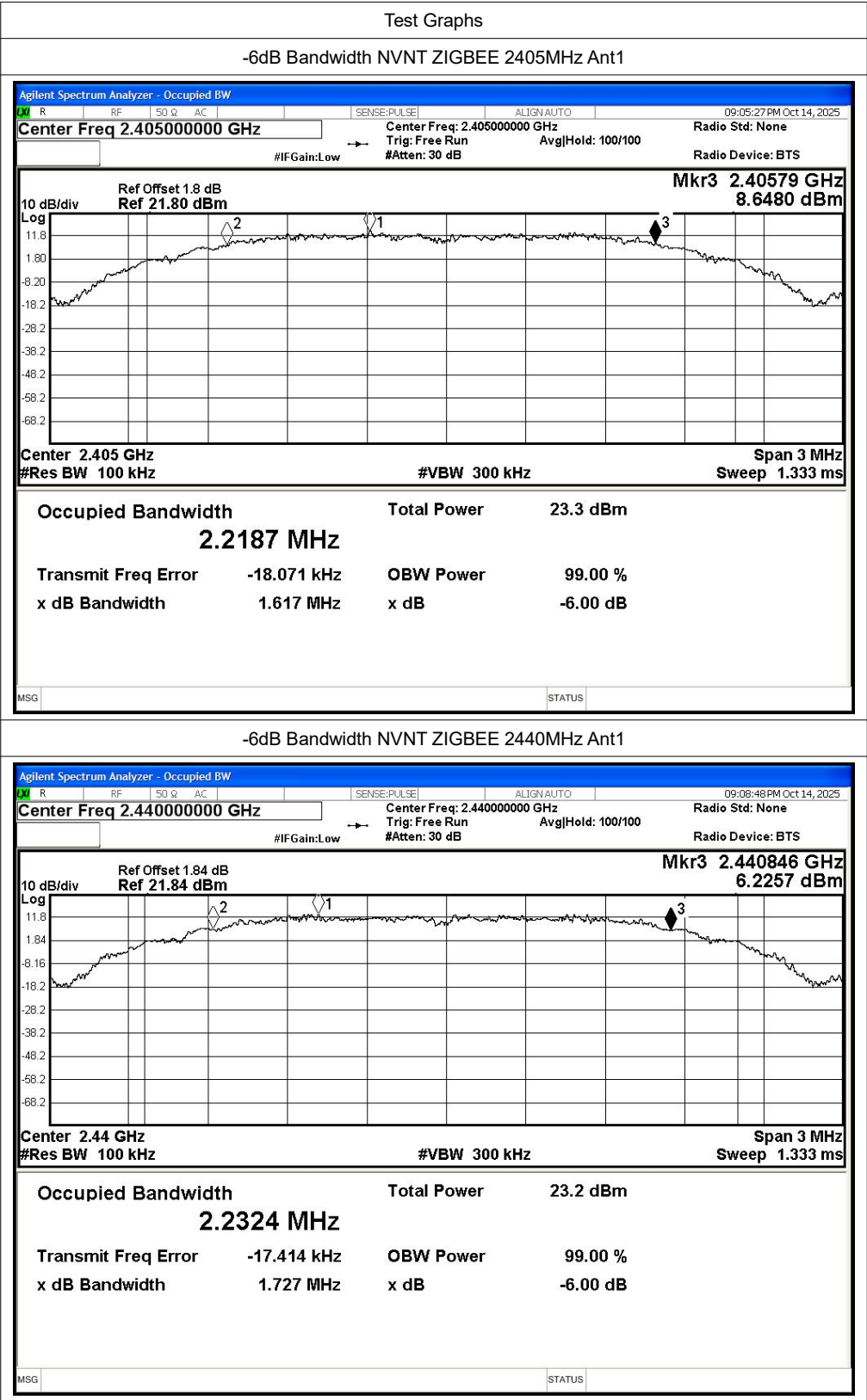
Product Name: CTCC-MGM240P-SM2-SWN
Test Model: CTCC-MGM240P-SM2-SWN

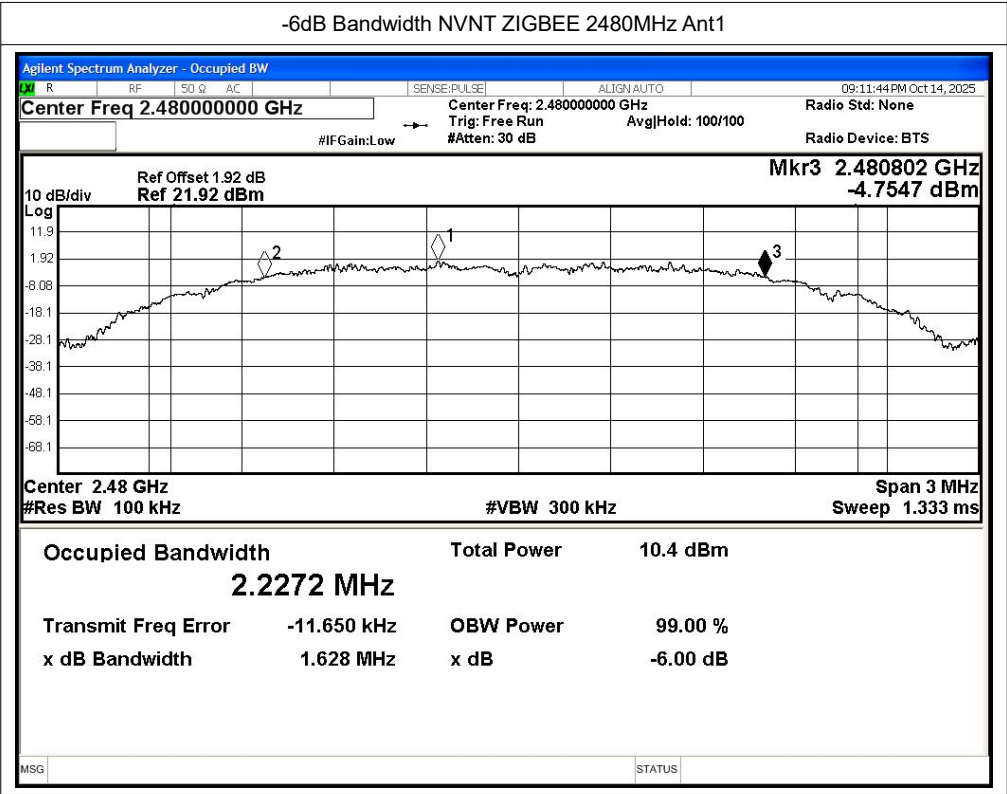
Environmental Conditions

Temperature:	23.9 °C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Jone Lee
Supervised by:	Fengliu Tang

B.1 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	ZIGBEE	2405	Ant1	1.617	≥ 0.5	Pass
NVNT	ZIGBEE	2440	Ant1	1.727	≥ 0.5	Pass
NVNT	ZIGBEE	2480	Ant1	1.628	≥ 0.5	Pass



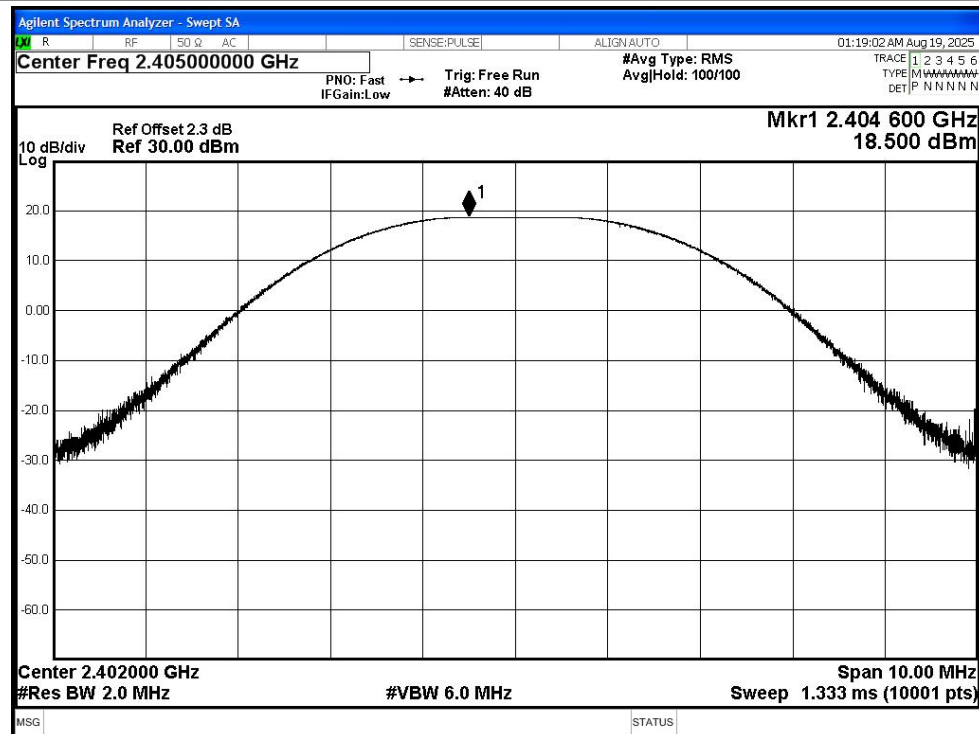


B.2 Maximum Peak Conducted Output Power

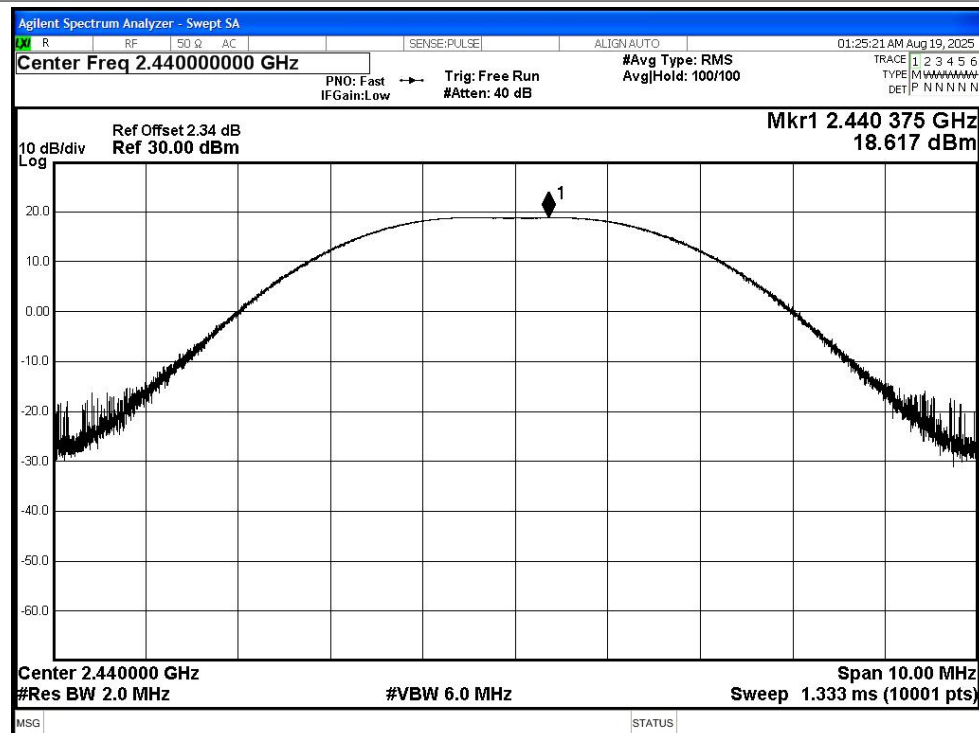
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	ZIGBEE	2405	Ant1	18.50	30	Pass
NVNT	ZIGBEE	2440	Ant1	18.62	30	Pass
NVNT	ZIGBEE	2480	Ant1	4.94	30	Pass

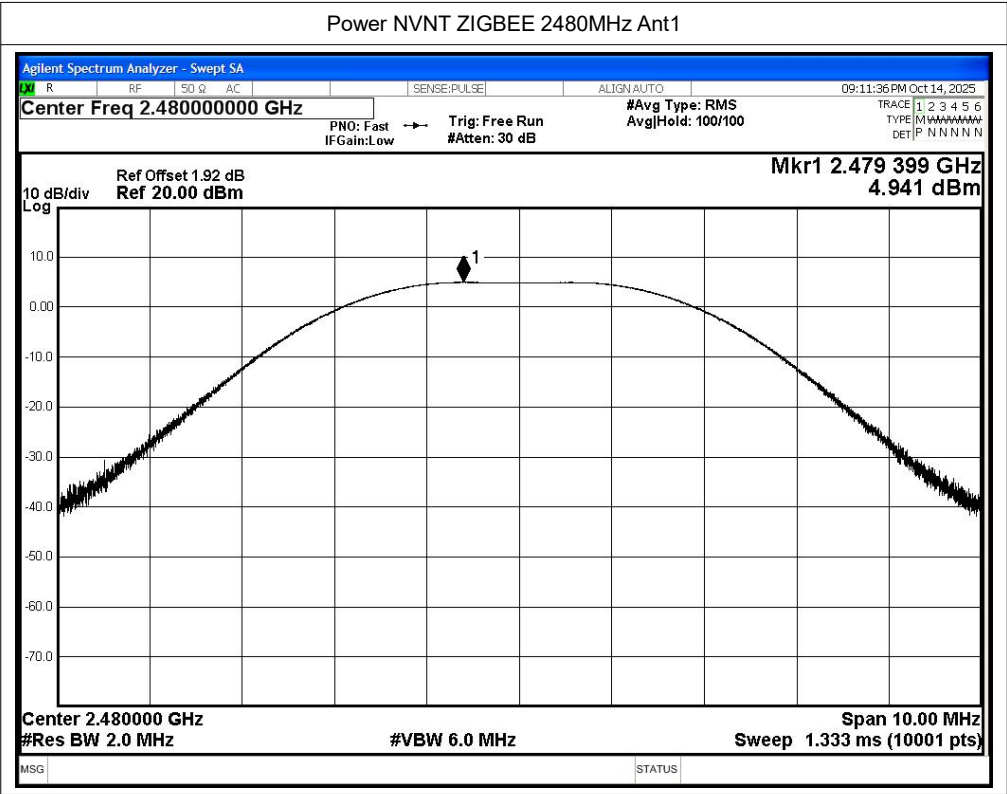
Test Graphs

Power NVNT ZIGBEE 2405MHz Ant1



Power NVNT ZIGBEE 2440MHz Ant1



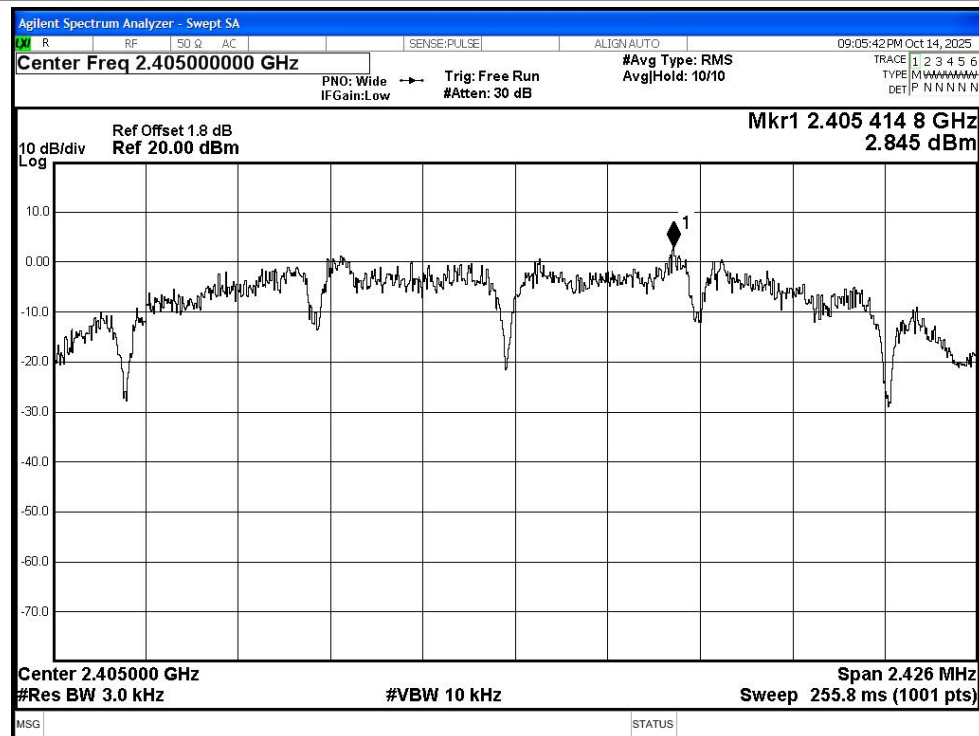


B.3 Maximum Power Spectral Density Level

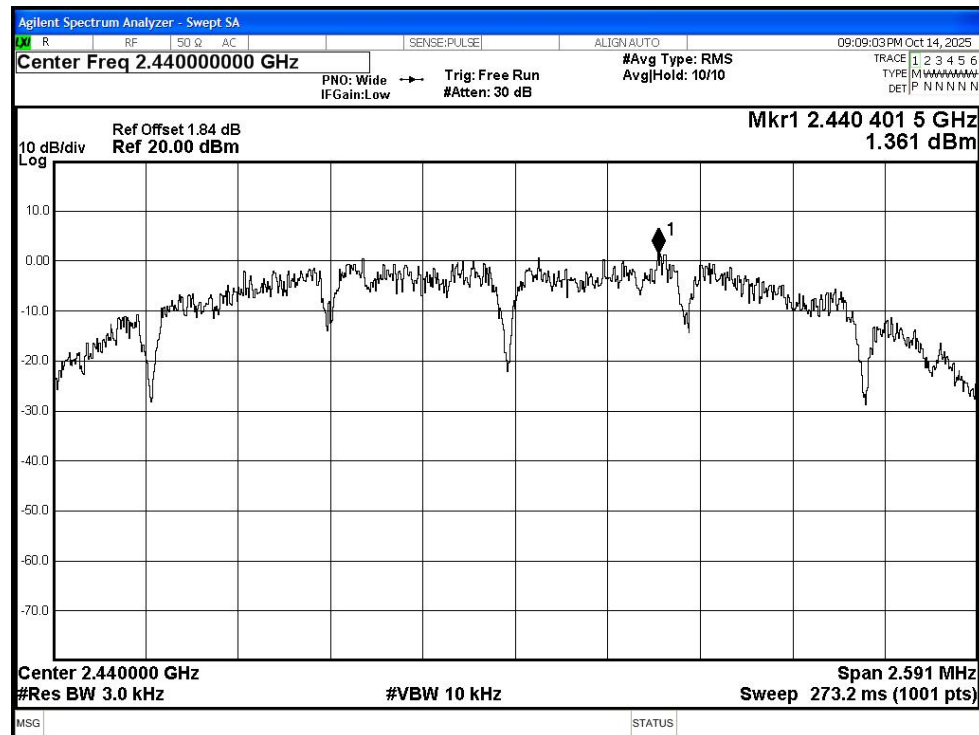
Condition	Mode	Frequency (MHz)	Antenna	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	ZIGBEE	2405	Ant1	2.85	8	Pass
NVNT	ZIGBEE	2440	Ant1	1.36	8	Pass
NVNT	ZIGBEE	2480	Ant1	-10.94	8	Pass

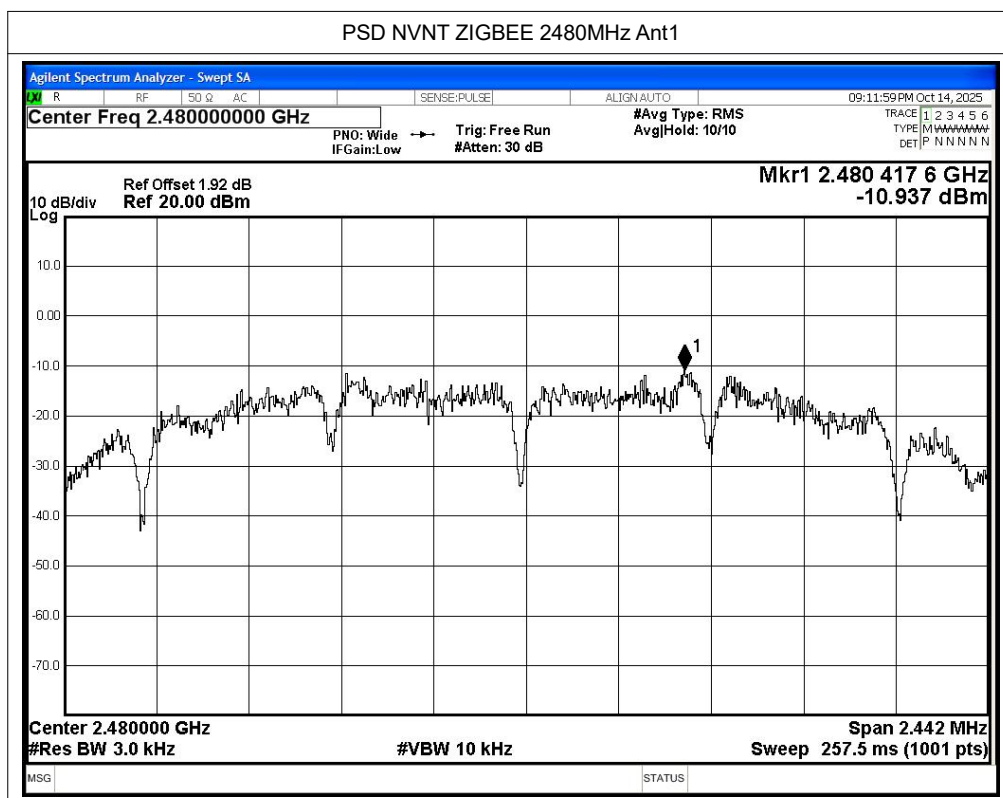
Test Graphs

PSD NVNT ZIGBEE 2405MHz Ant1



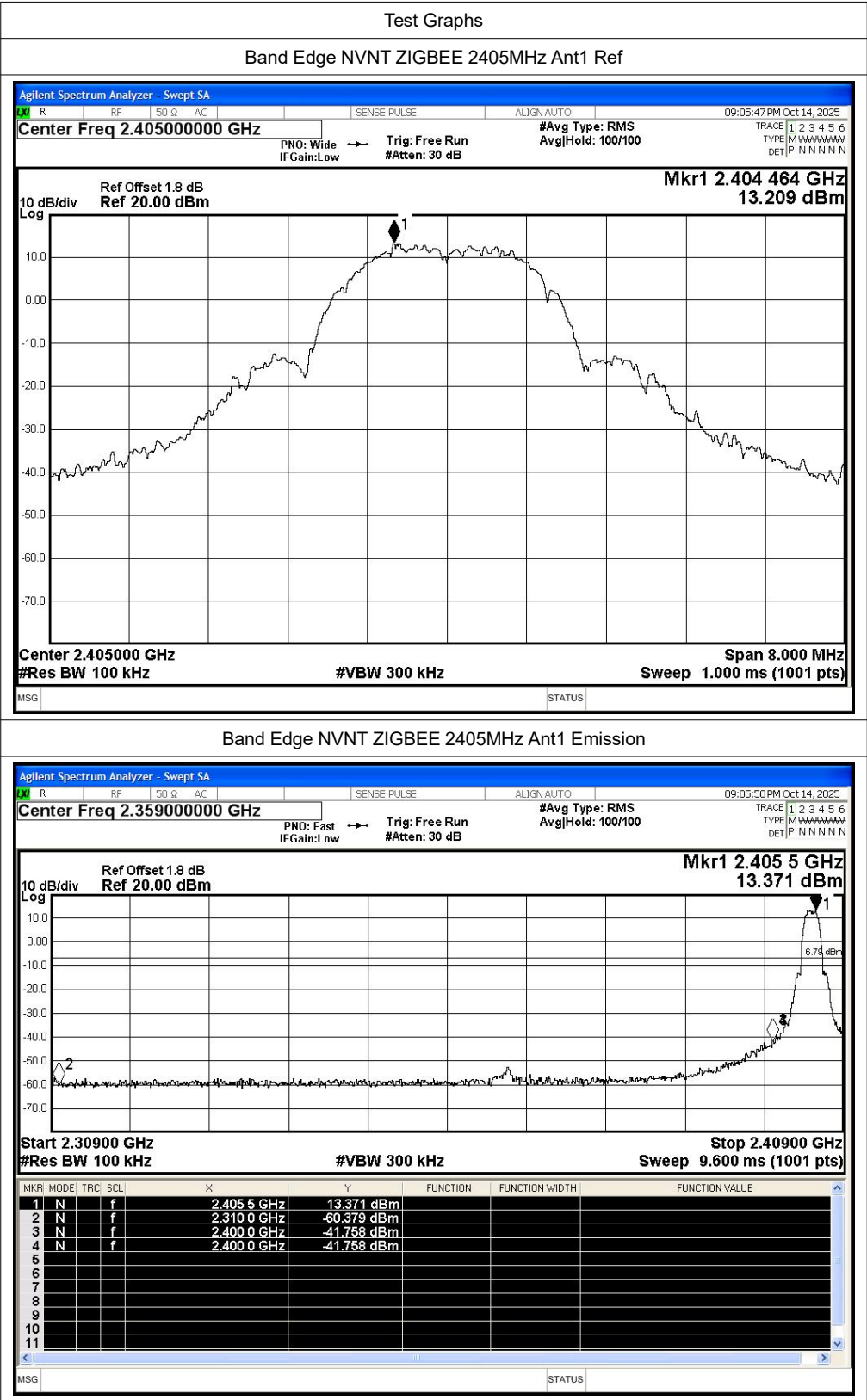
PSD NVNT ZIGBEE 2440MHz Ant1

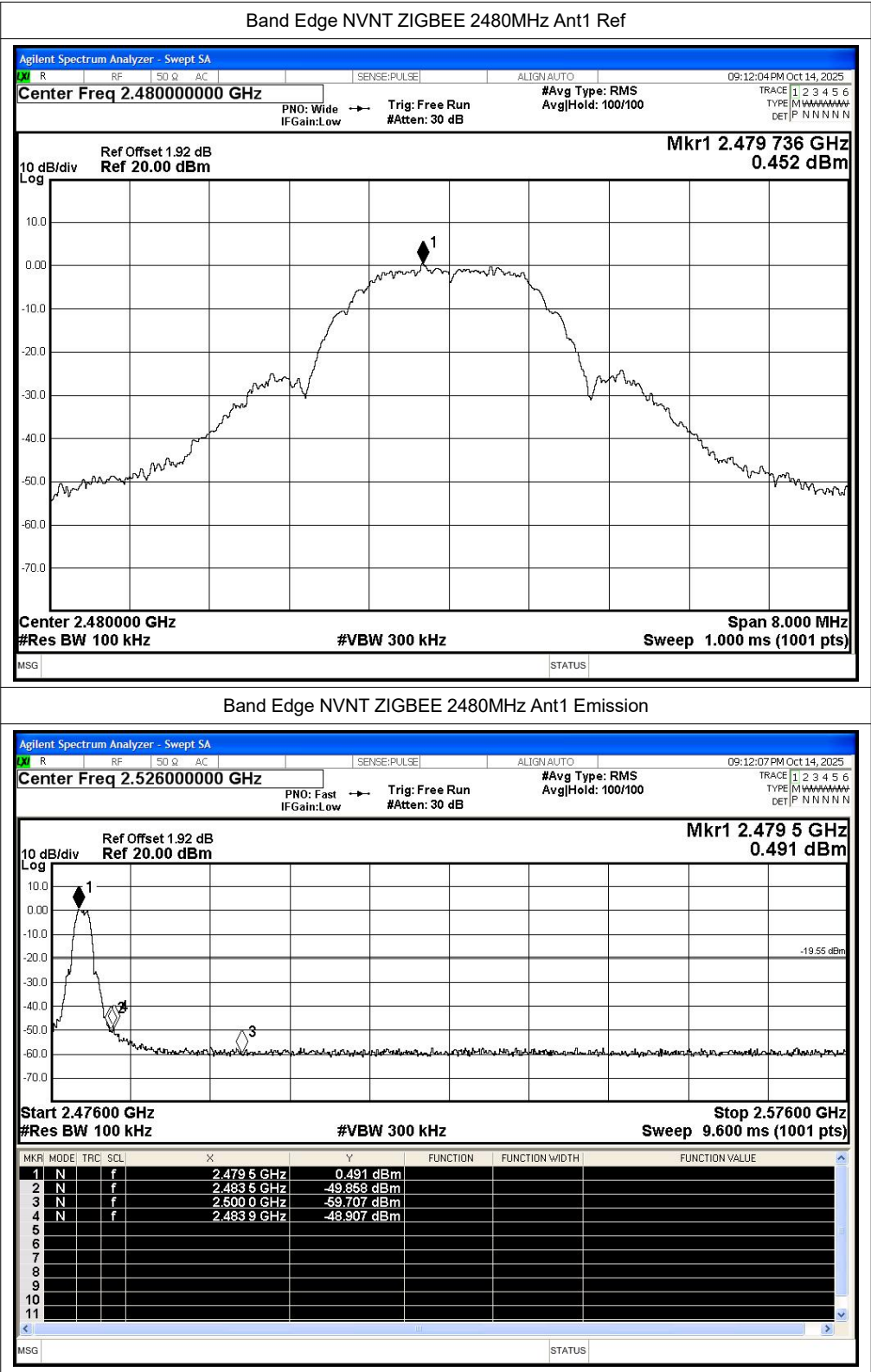




B.4 Band Edge

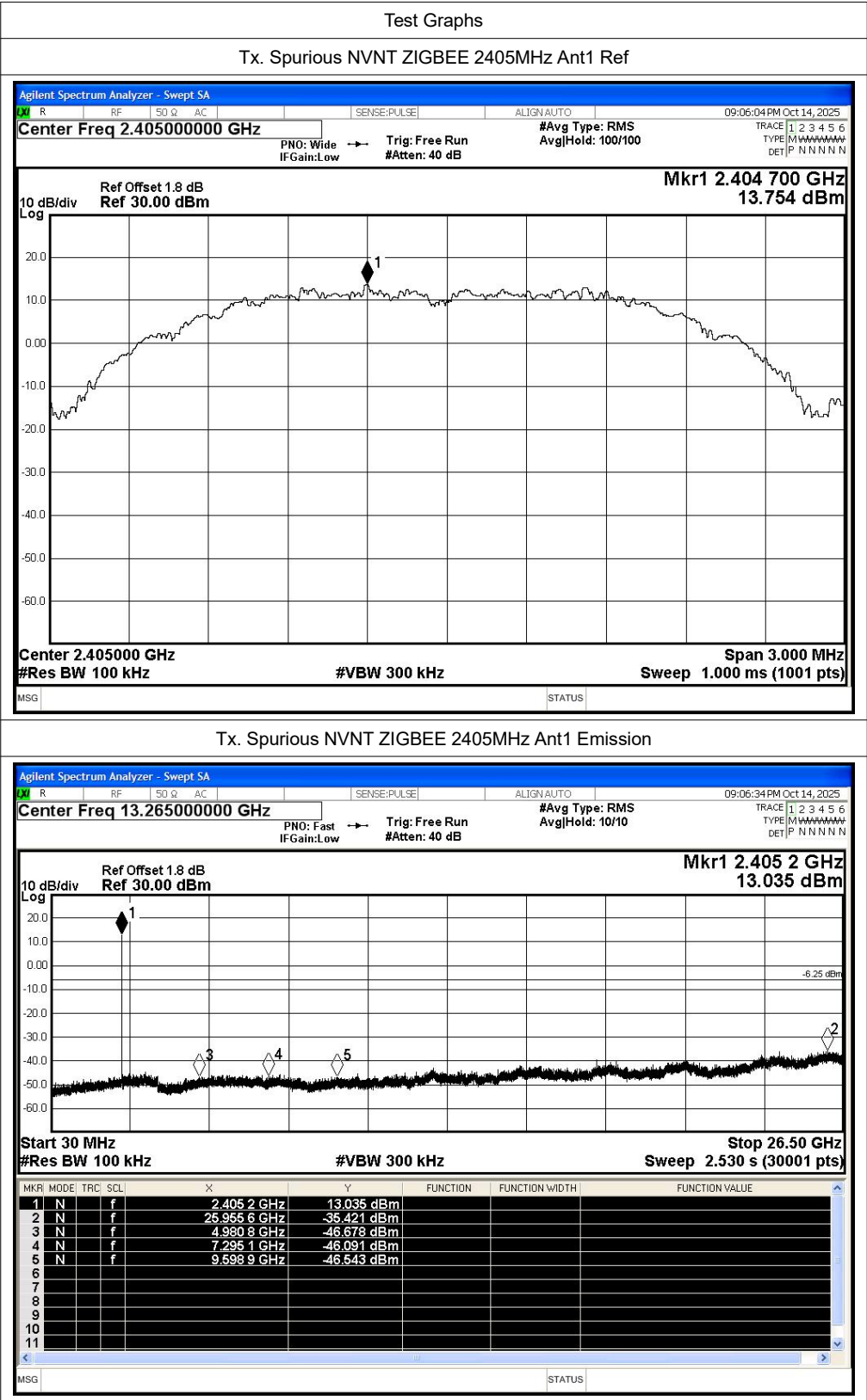
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	ZIGBEE	2405	Ant1	-54.97	-20	Pass
NVNT	ZIGBEE	2480	Ant1	-49.36	-20	Pass



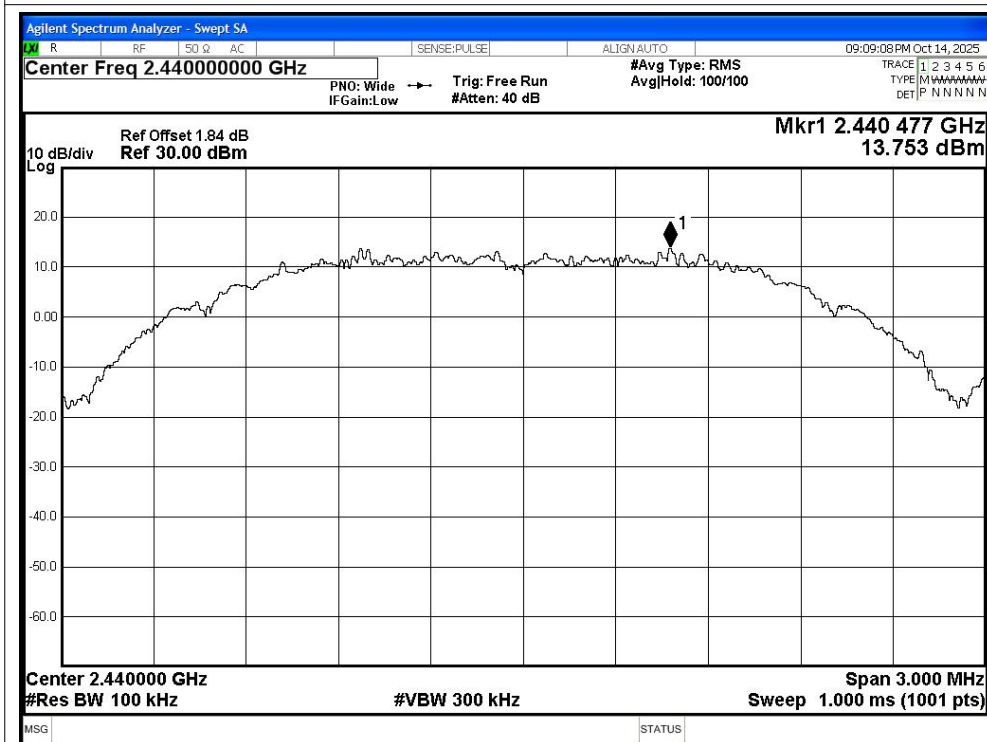


B.5 Conducted RF Spurious Emission

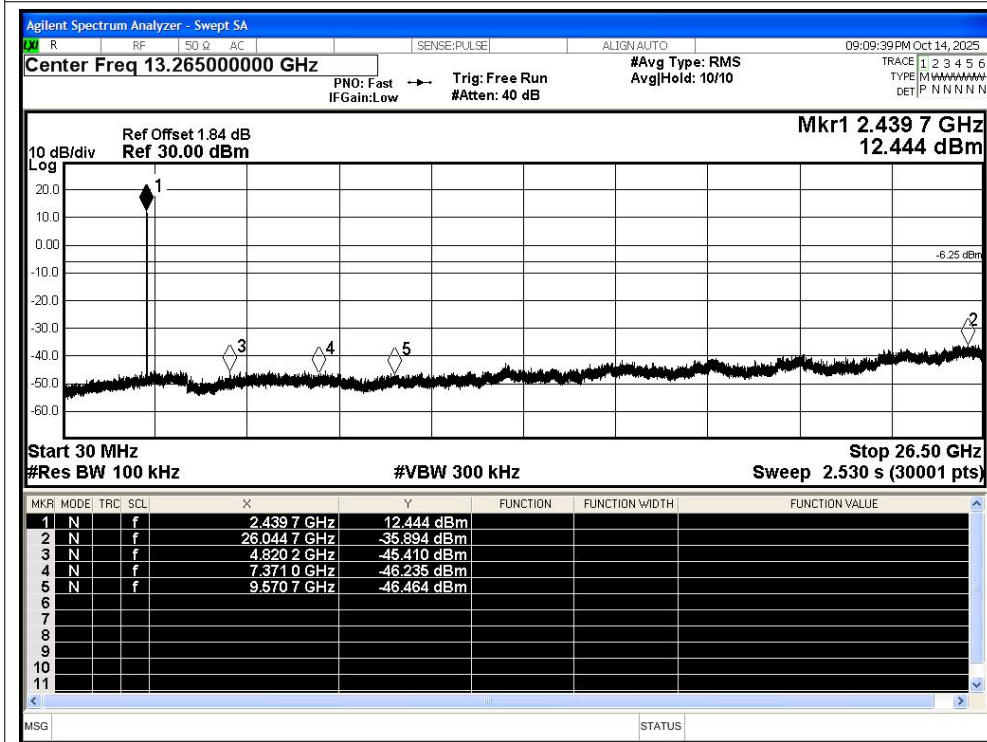
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	ZIGBEE	2405	Ant1	-49.18	-20	Pass
NVNT	ZIGBEE	2440	Ant1	-49.65	-20	Pass
NVNT	ZIGBEE	2480	Ant1	-56.09	-20	Pass

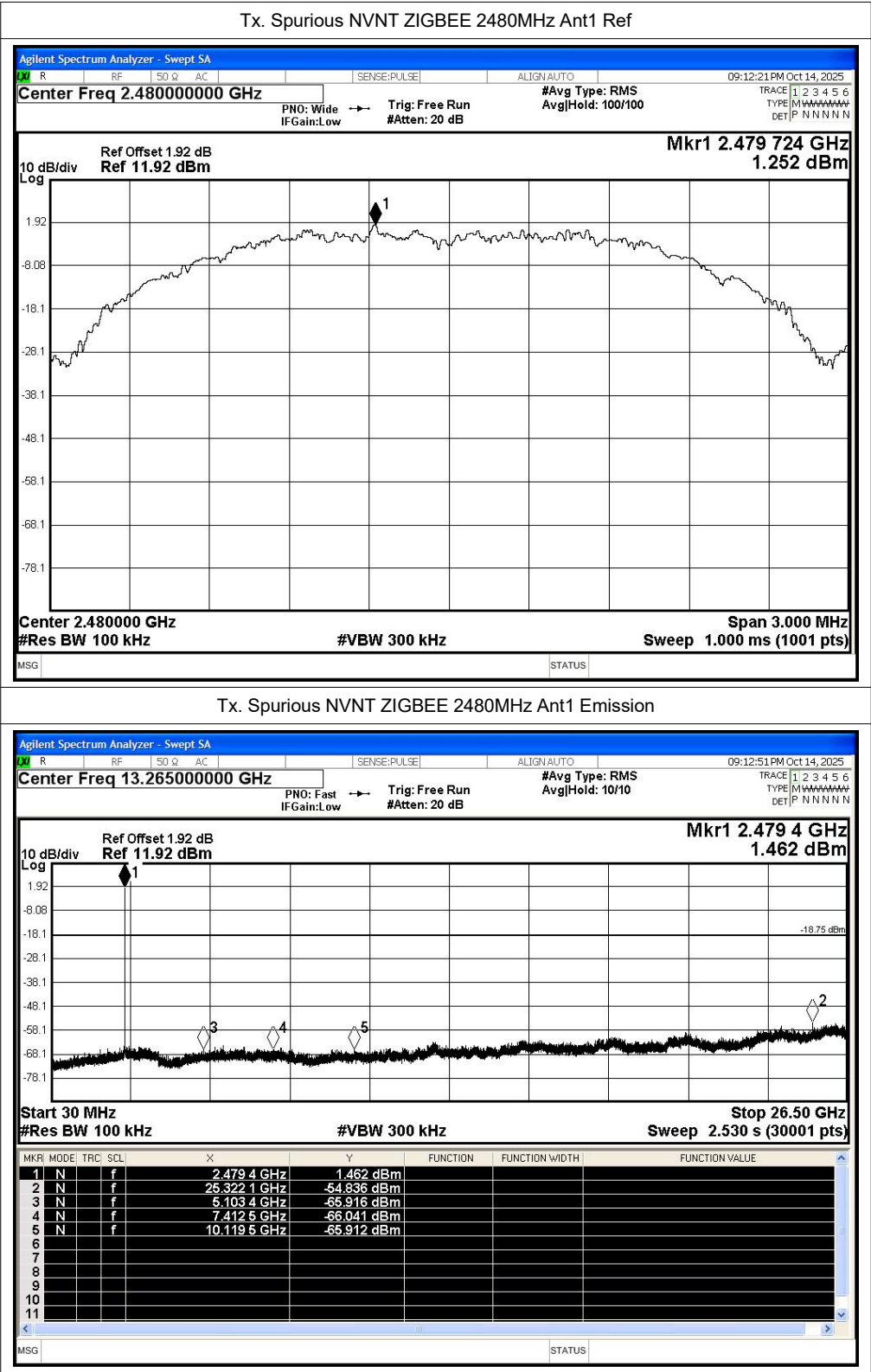


Tx. Spurious NVNT ZIGBEE 2440MHz Ant1 Ref



Tx. Spurious NVNT ZIGBEE 2440MHz Ant1 Emission



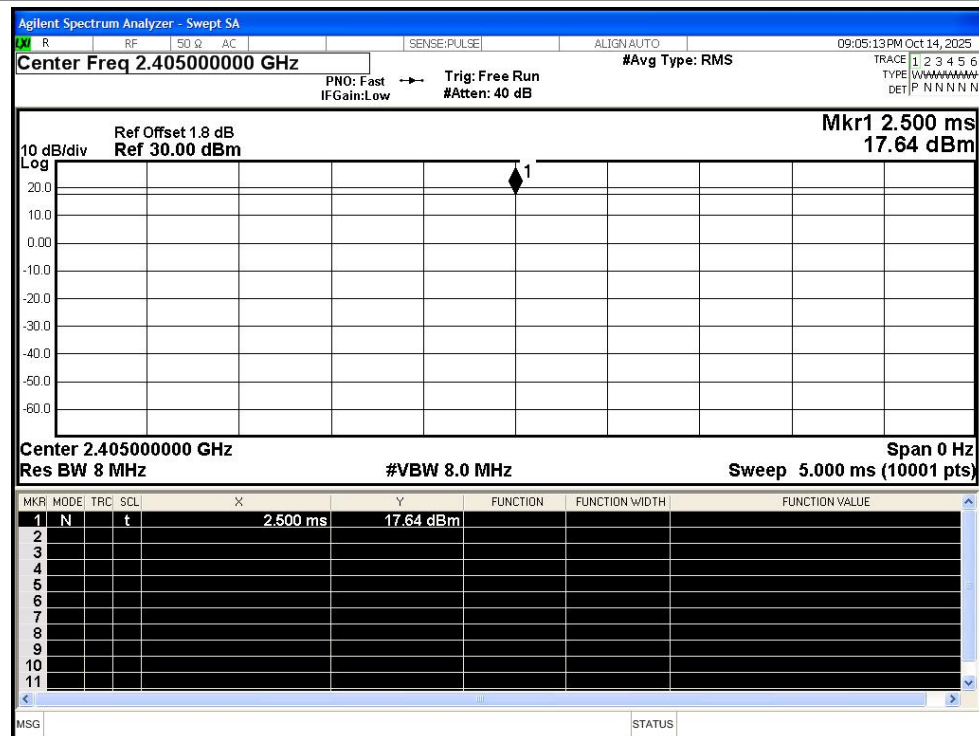


B.6 Duty Cycle

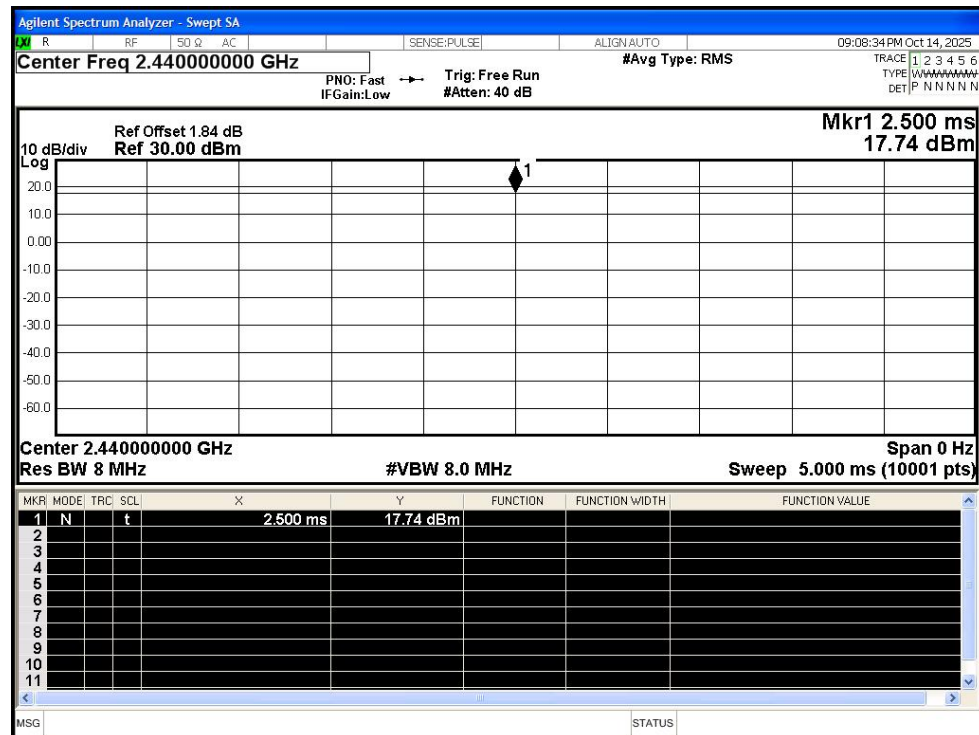
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	ZIGBEE	2405	Ant1	100	0	0
NVNT	ZIGBEE	2440	Ant1	100	0	0
NVNT	ZIGBEE	2480	Ant1	100	0	0

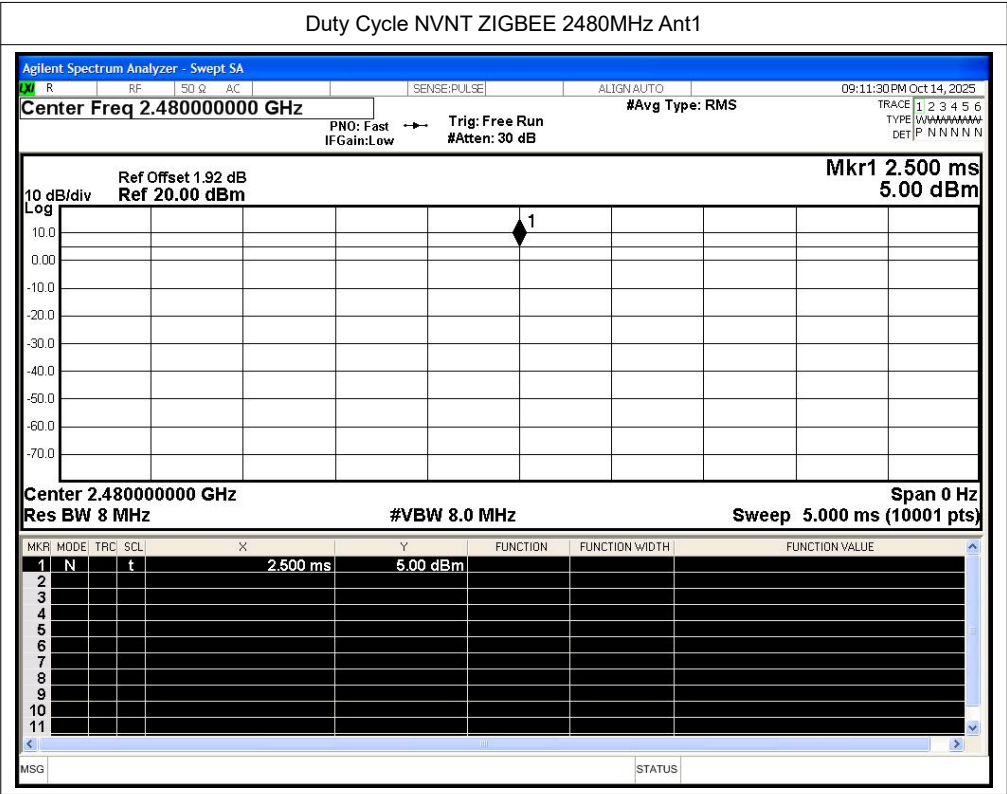
Test Graphs

Duty Cycle NVNT ZIGBEE 2405MHz Ant1



Duty Cycle NVNT ZIGBEE 2440MHz Ant1

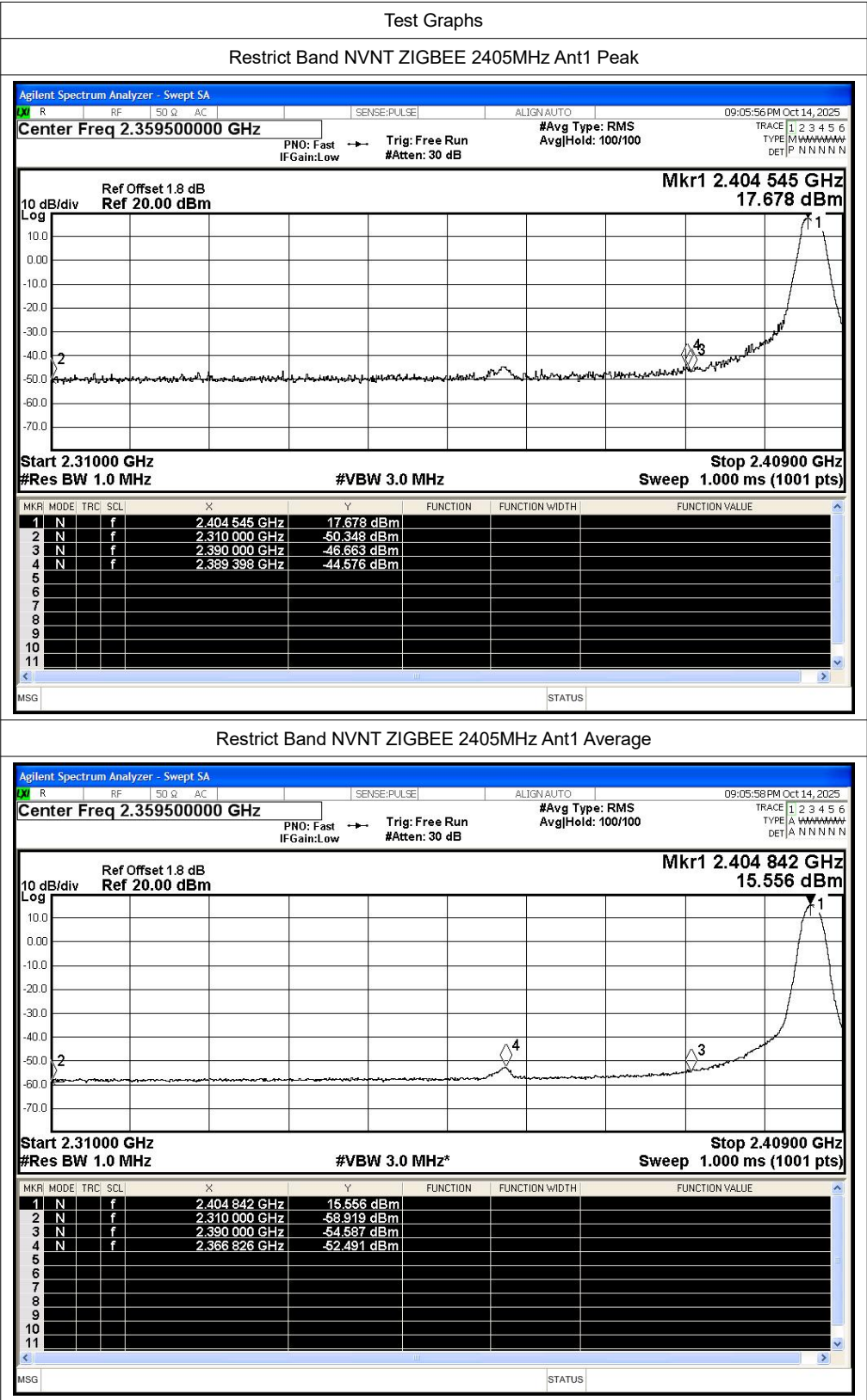




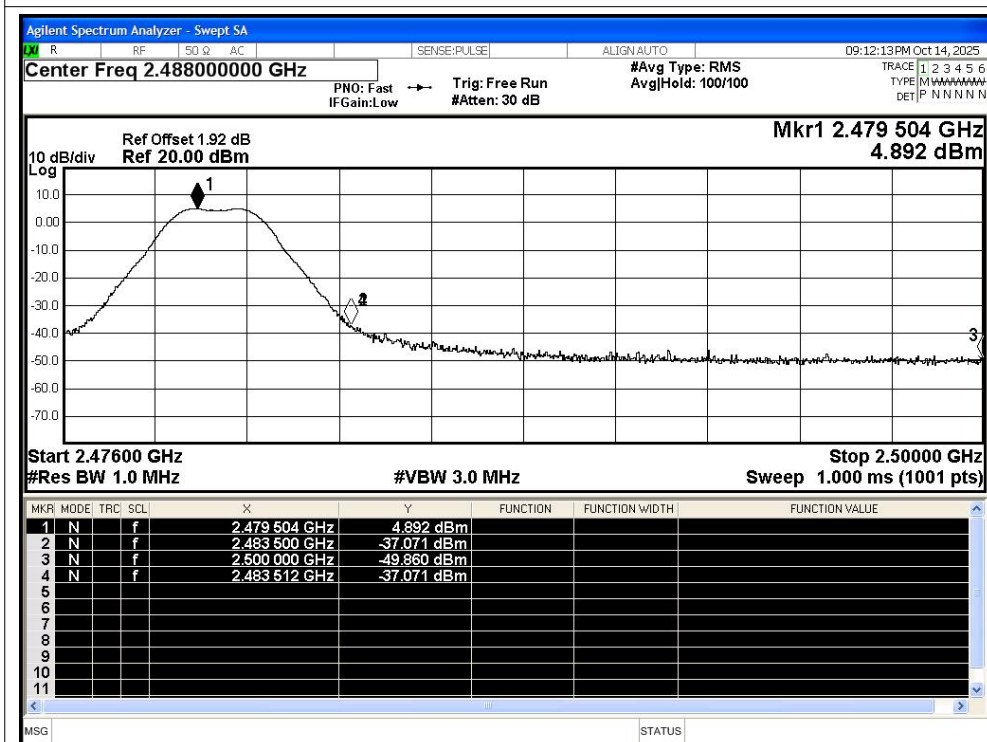
B.7 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	ZIGBEE	2405	Ant1	2310	-50.35	5.23	-	50.14	Peak	74	Pass
NVNT	ZIGBEE	2405	Ant1	2310	-58.92	5.23	0	41.57	Average	54	Pass
NVNT	ZIGBEE	2405	Ant1	2389.398	-44.58	5.23	-	55.91	Peak	74	Pass
NVNT	ZIGBEE	2405	Ant1	2366.826	-52.49	5.23	0	48.00	Average	54	Pass
NVNT	ZIGBEE	2405	Ant1	2390	-46.66	5.23	-	53.83	Peak	74	Pass
NVNT	ZIGBEE	2405	Ant1	2390	-54.59	5.23	0	45.90	Average	54	Pass
NVNT	ZIGBEE	2480	Ant1	2483.5	-37.07	5.23	-	63.42	Peak	74	Pass
NVNT	ZIGBEE	2480	Ant1	2483.5	-48.34	5.23	0	52.15	Average	54	Pass
NVNT	ZIGBEE	2480	Ant1	2483.512	-37.07	5.23	-	63.42	Peak	74	Pass
NVNT	ZIGBEE	2480	Ant1	2483.56	-48.27	5.23	0	52.22	Average	54	Pass
NVNT	ZIGBEE	2480	Ant1	2500	-49.86	5.23	-	50.63	Peak	74	Pass
NVNT	ZIGBEE	2480	Ant1	2500	-57.56	5.23	0	42.93	Average	54	Pass

Note: For restrict band, only max antenna gain recorded in this report



Restrict Band NVNT ZIGBEE 2480MHz Ant1 Peak



Restrict Band NVNT ZIGBEE 2480MHz Ant1 Average

