



Appendix A

RF Test Data for ZigBee (Conducted Measurement)

Product Name: Water Timer

Trade Mark: None

Test Model: SAS980SWT-7

Environmental Conditions

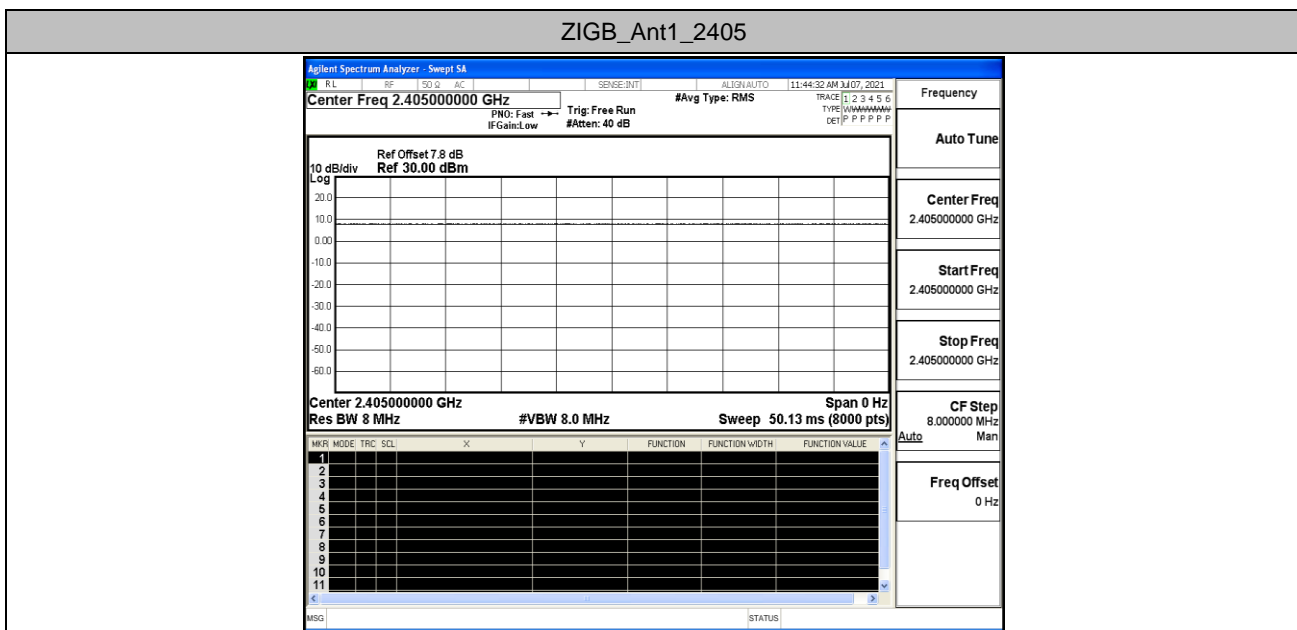
Temperature:	21.6° C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Ken He
Supervised by:	Li Huan

A.1 Duty Cycle

Test Result

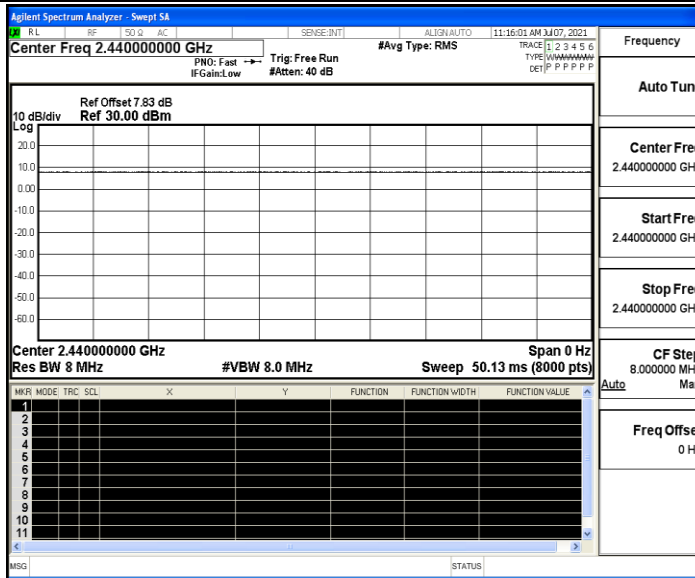
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
ZIGB	Ant1	2405	50.00	50.00	100.00	---	PASS
		2440	50.00	50.00	100.00	---	PASS
		2480	50.00	50.00	100.00	---	PASS

Test Graphs

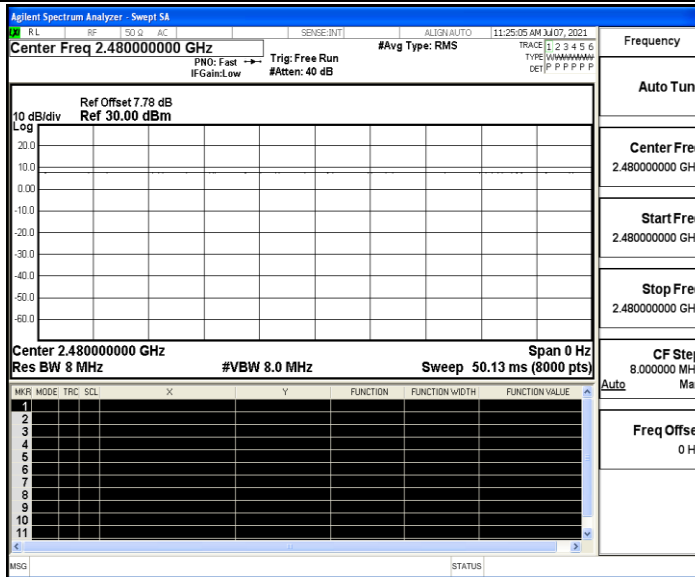




ZIGB_Ant1_2440



ZIGB_Ant1_2480



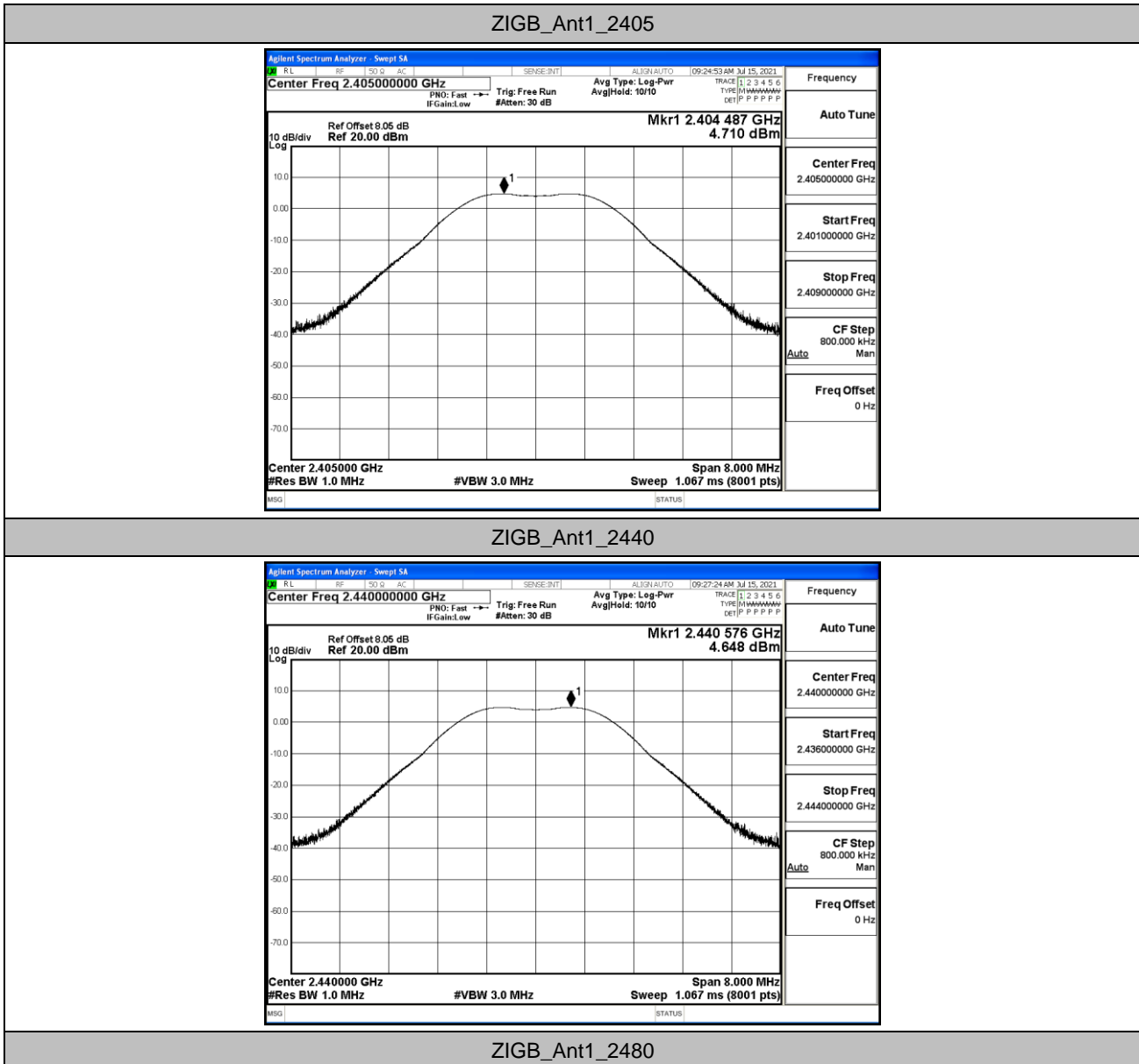


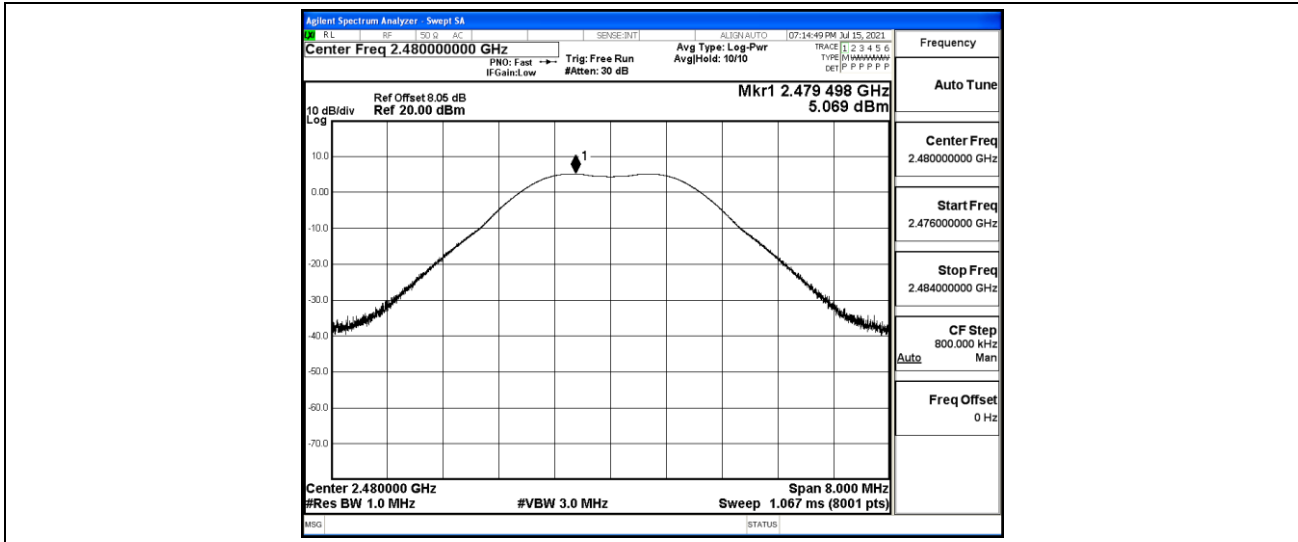
A.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
ZIGB	Ant1	2405	4.710	≤30	PASS
		2440	4.648	≤30	PASS
		2480	5.069	≤30	PASS

Test Graphs





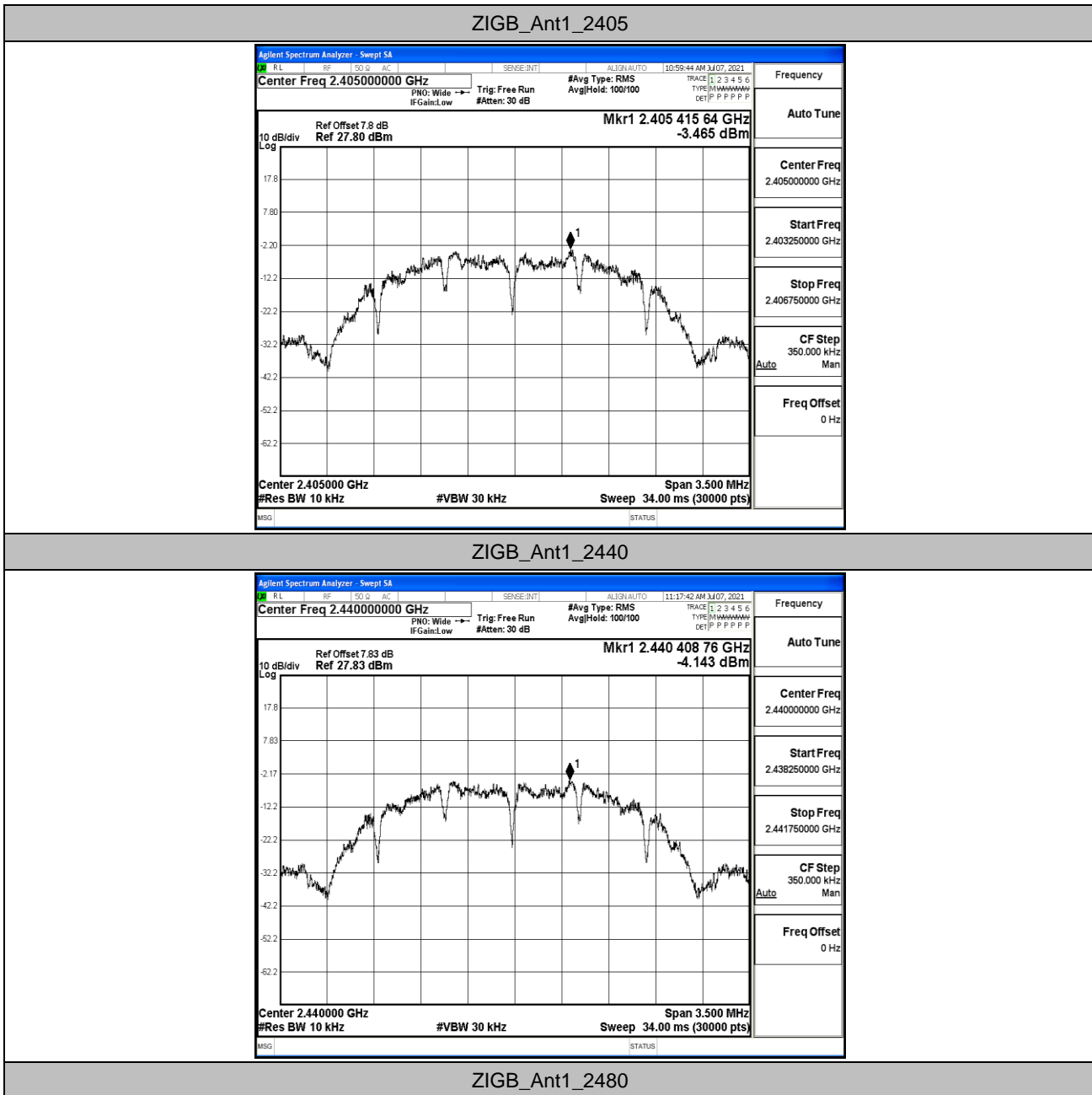


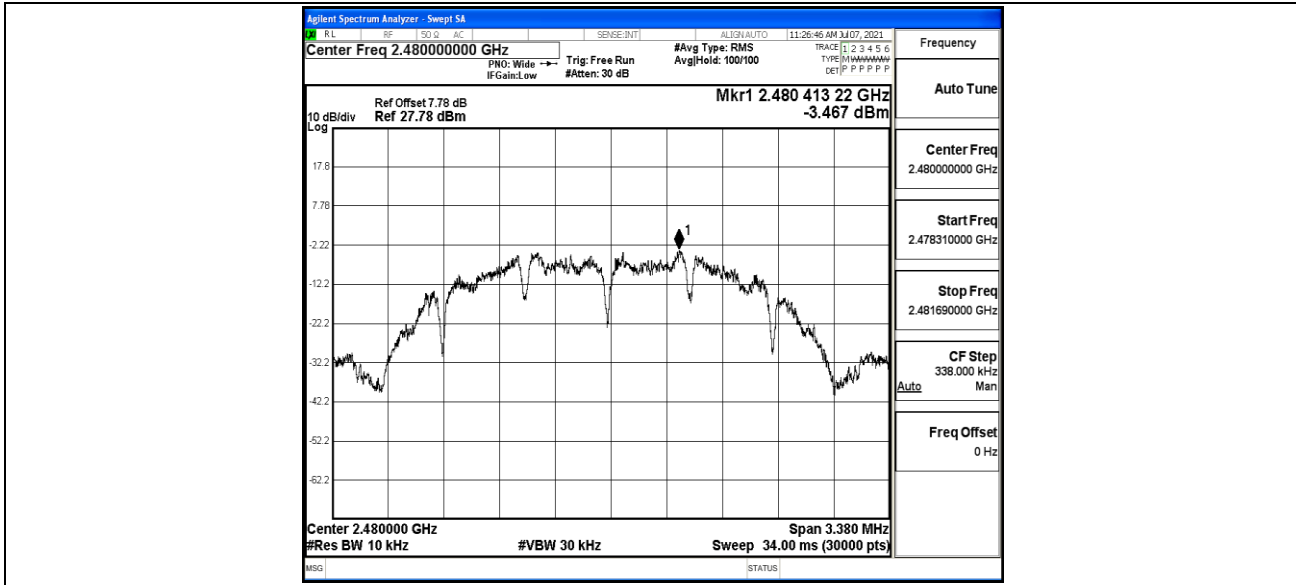
A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
ZIGB	Ant1	2405	-3.47	≤8	PASS
		2440	-4.14	≤8	PASS
		2480	-3.47	≤8	PASS

Test Graphs





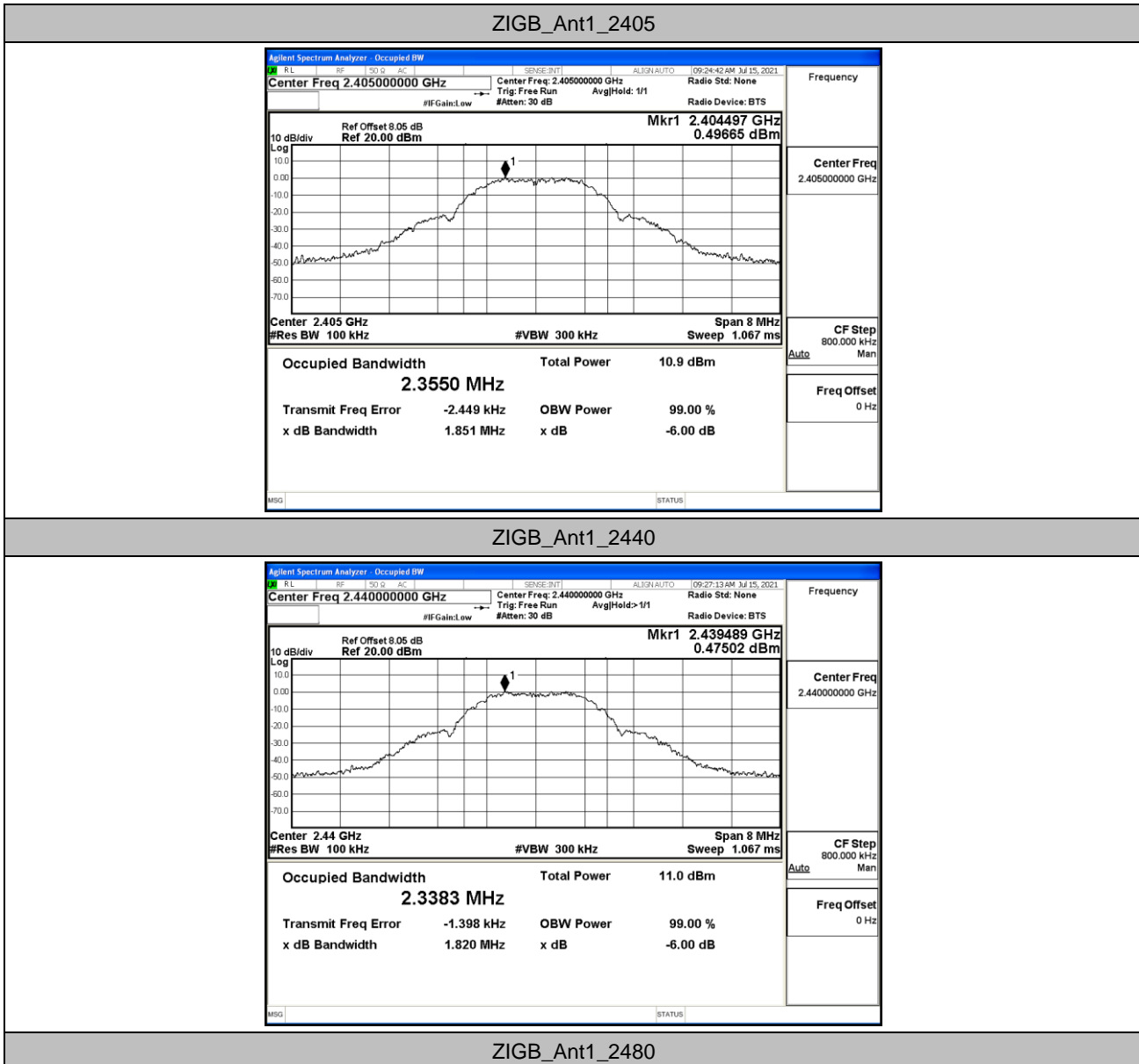


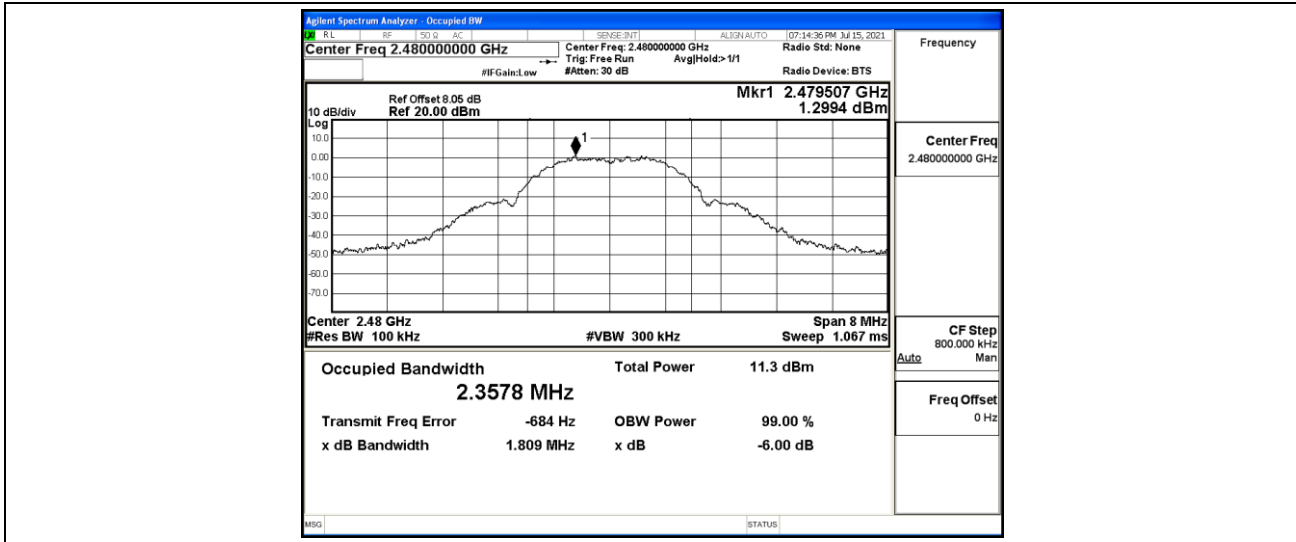
A.4 Occupied Channel Bandwidth

Test Result

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
Zigbee	LCH	1.851	≥0.5	PASS
Zigbee	MCH	1.820	≥0.5	PASS
Zigbee	HCH	1.809	≥0.5	PASS

Test Graphs





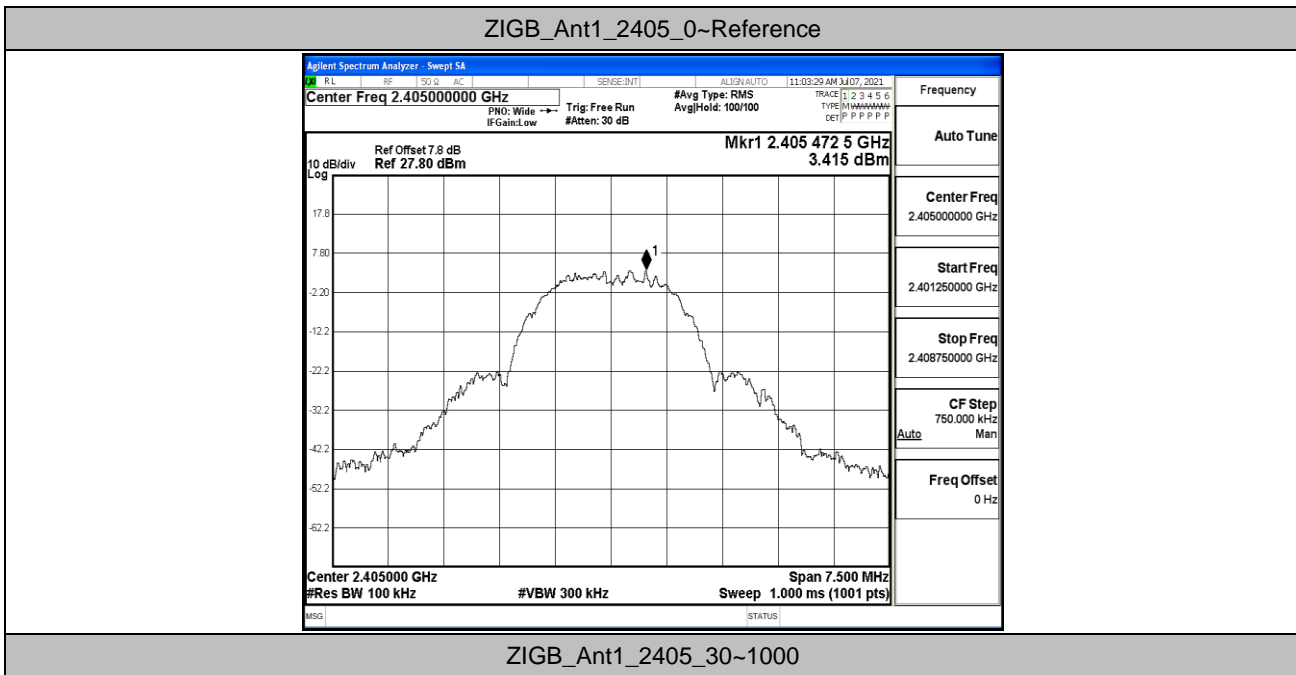


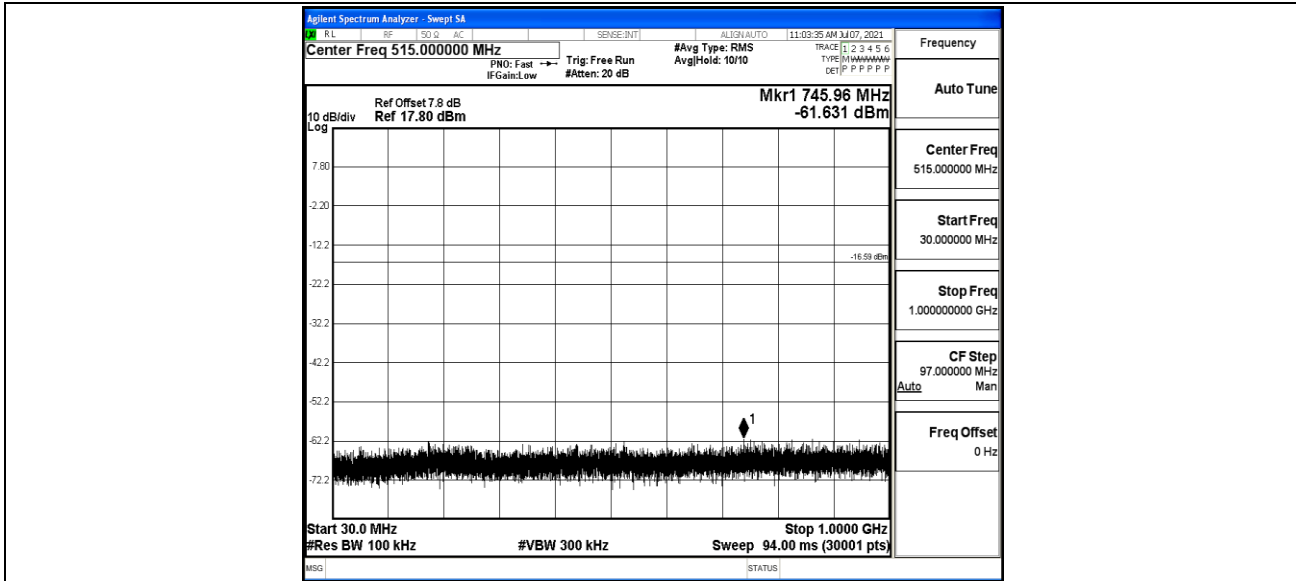
A.5 Conducted Spurious Emission

Test Result

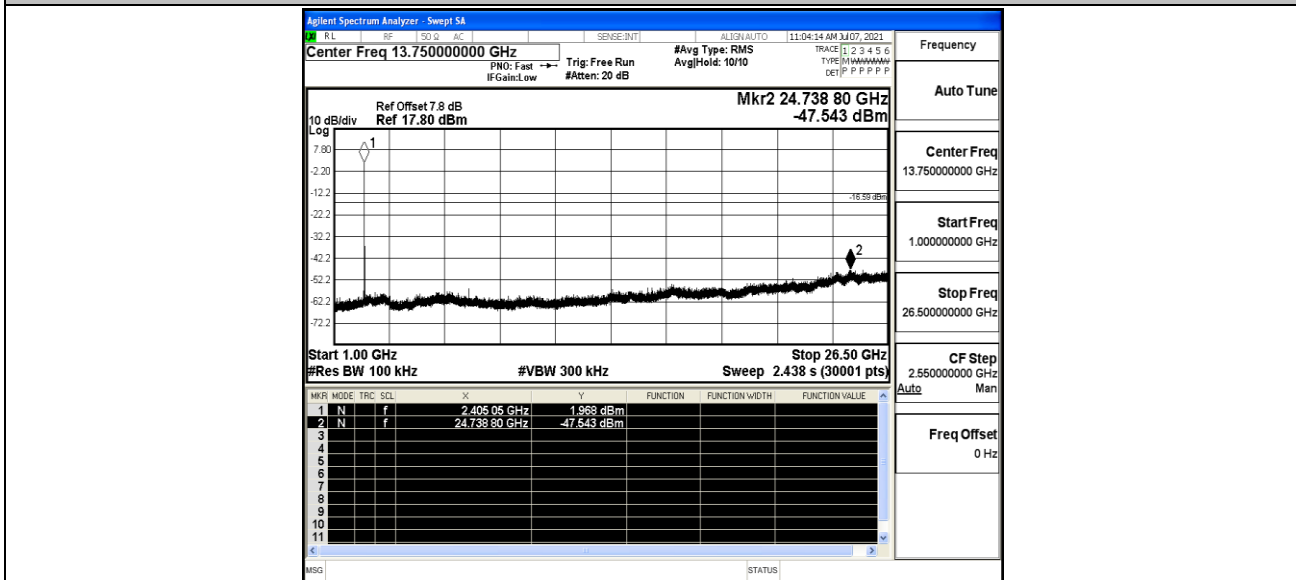
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
ZIGB	Ant1	2405	Reference	3.42	3.42	---	PASS
			30~1000	3.42	-61.63	≤-16.59	PASS
			1000~26500	3.42	-47.54	≤-16.59	PASS
		2440	Reference	3.29	3.29	---	PASS
			30~1000	3.29	-61.22	≤-16.71	PASS
			1000~26500	3.29	-47.4	≤-16.71	PASS
		2480	Reference	2.86	2.86	---	PASS
			30~1000	2.86	-61.76	≤-17.15	PASS
			1000~26500	2.86	-47.58	≤-17.15	PASS

Test Graphs

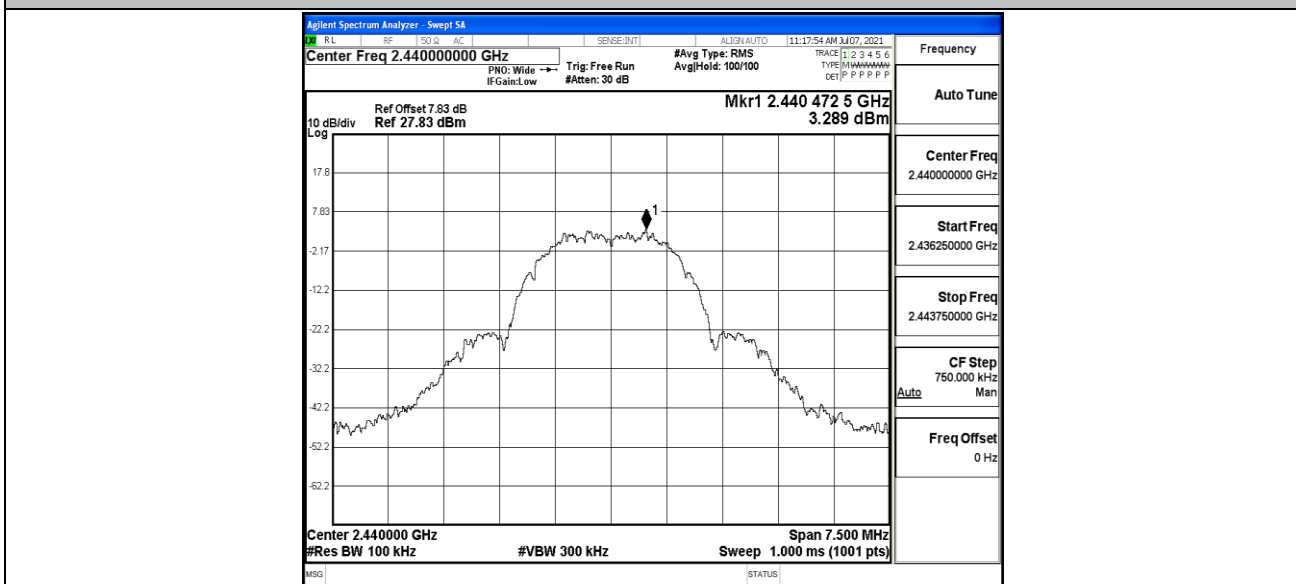




ZIGB_Ant1_2405_1000~26500

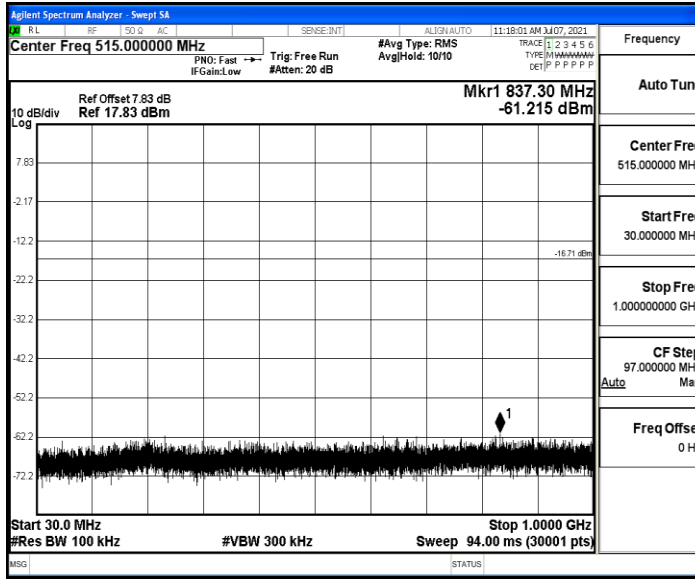


ZIGB_Ant1_2440_0~Reference

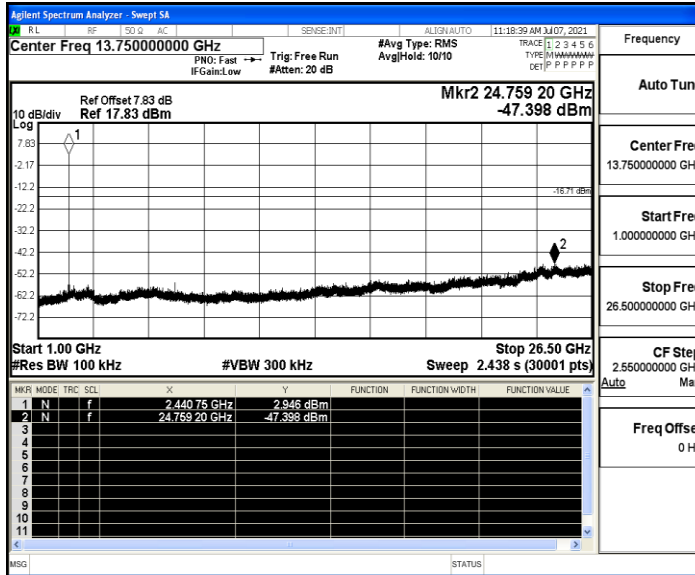




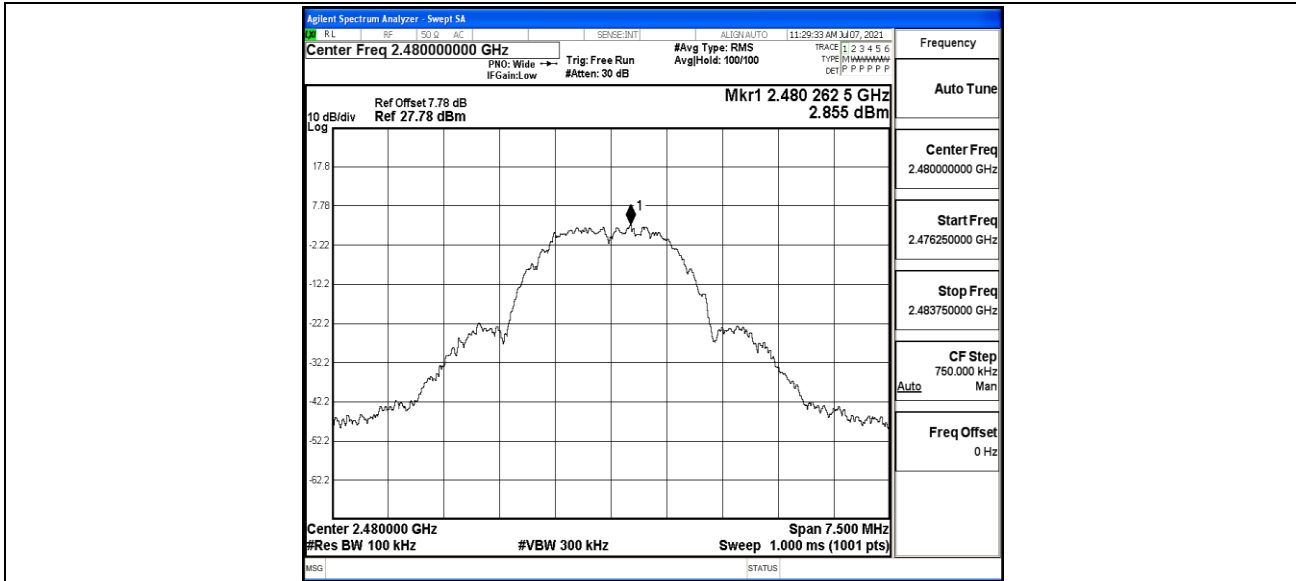
ZIGB_Ant1_2440_30~1000



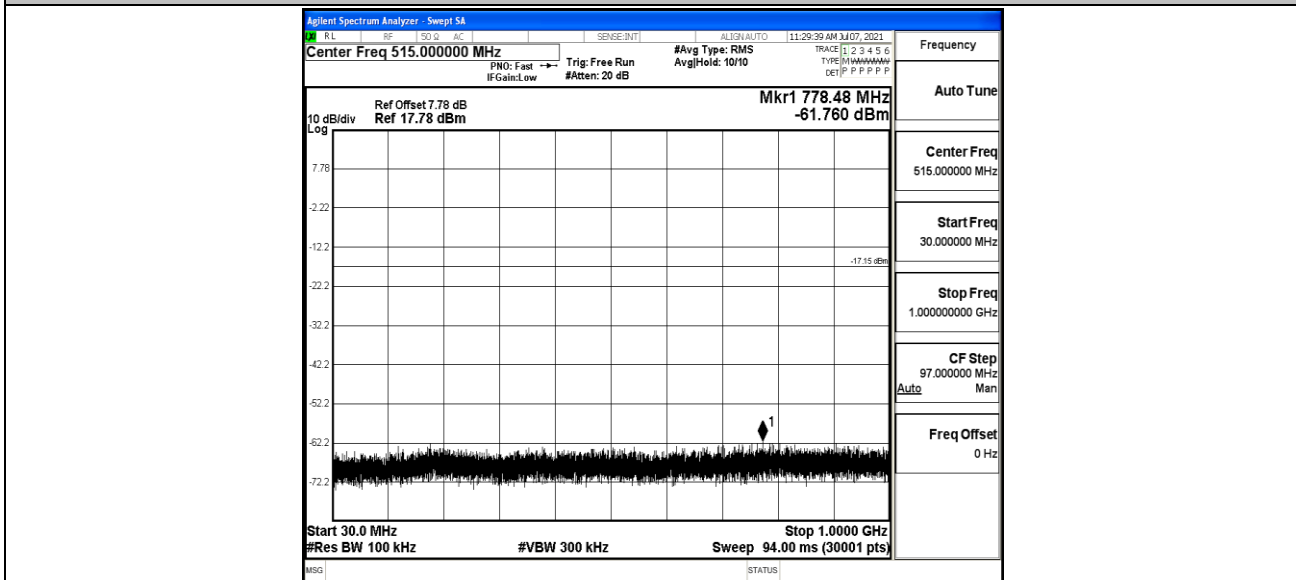
ZIGB_Ant1_2440_1000~26500



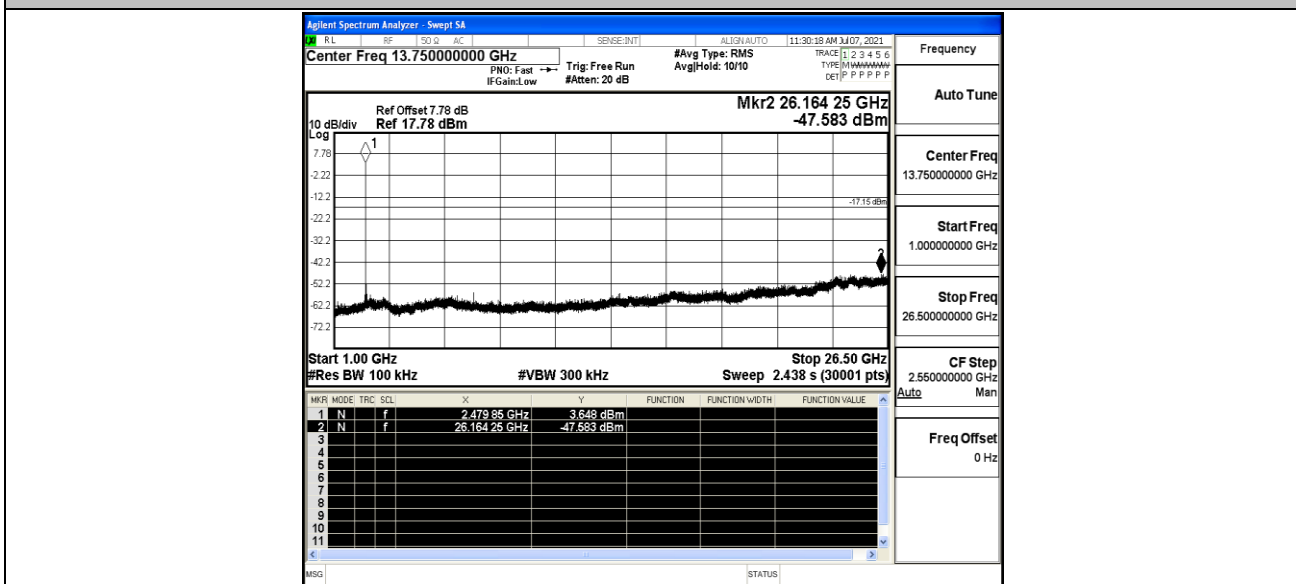
ZIGB_Ant1_2480_0~Reference



ZIGB_Ant1_2480_30~1000



ZIGB_Ant1_2480_1000~26500



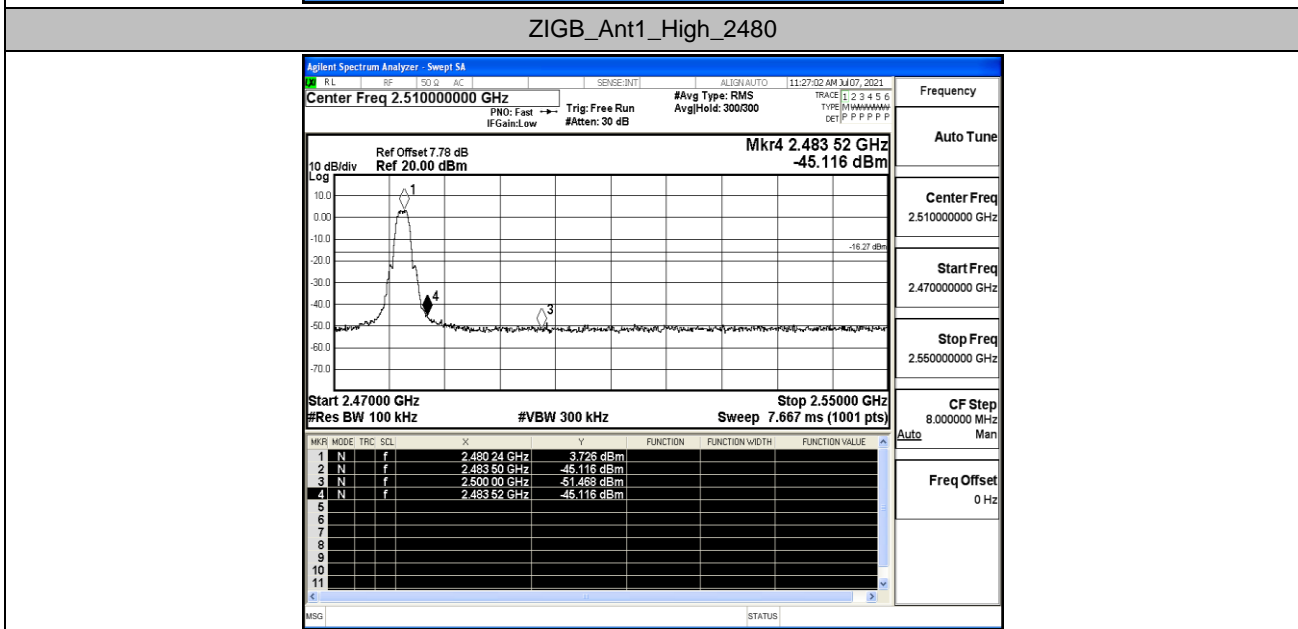
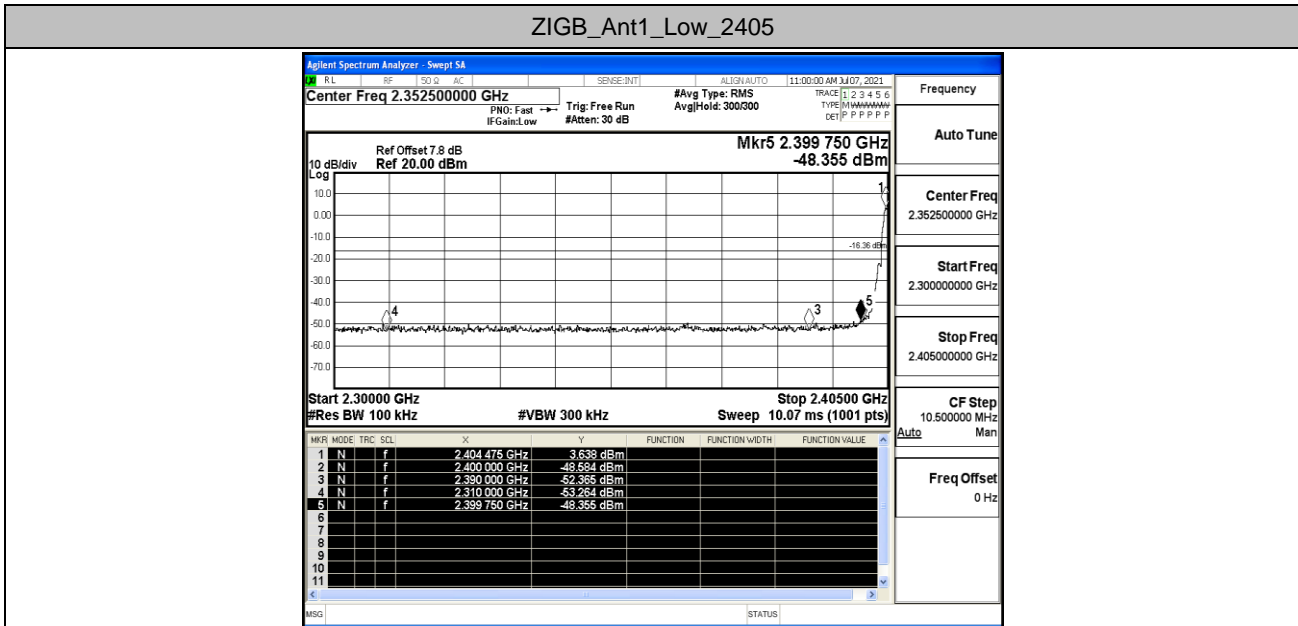


A.6 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
ZIGB	Ant1	Low	2405	3.64	-48.36	≤-16.36	PASS
		High	2480	3.73	-45.12	≤-16.27	PASS

Test Graphs





7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
ZIGB	Ant1	Low	2405	AV	2310.000	-49.26	≤-41.20	PASS
				AV	2366.360	-47.91	≤-41.20	PASS
				AV	2390.000	-48.80	≤-41.20	PASS
				Peak	2310.000	-45.21	≤-21.20	PASS
				Peak	2383.265	-39.71	≤-21.20	PASS
				Peak	2390.000	-43.86	≤-21.20	PASS
		High	2480	AV	2483.500	-47.53	≤-41.20	PASS
				AV	2483.520	-47.53	≤-41.20	PASS
				AV	2500.000	-48.00	≤-41.20	PASS
				Peak	2483.500	-39.40	≤-21.20	PASS
				Peak	2483.600	-37.63	≤-21.20	PASS
				Peak	2500.000	-39.49	≤-21.20	PASS

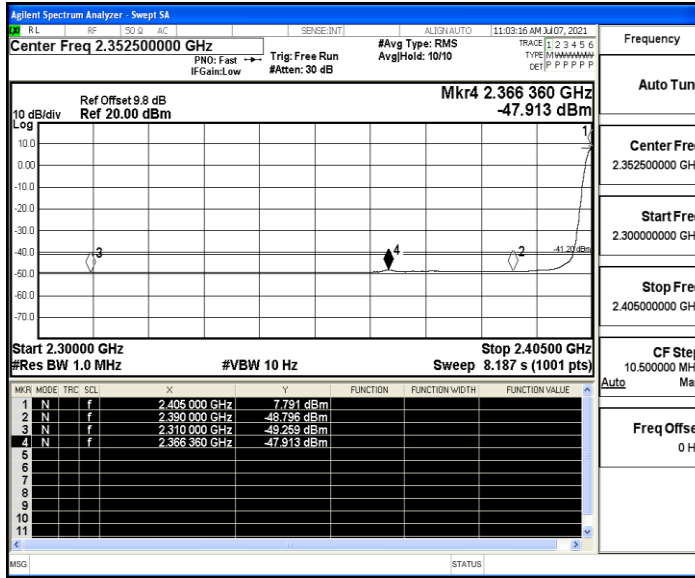
Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

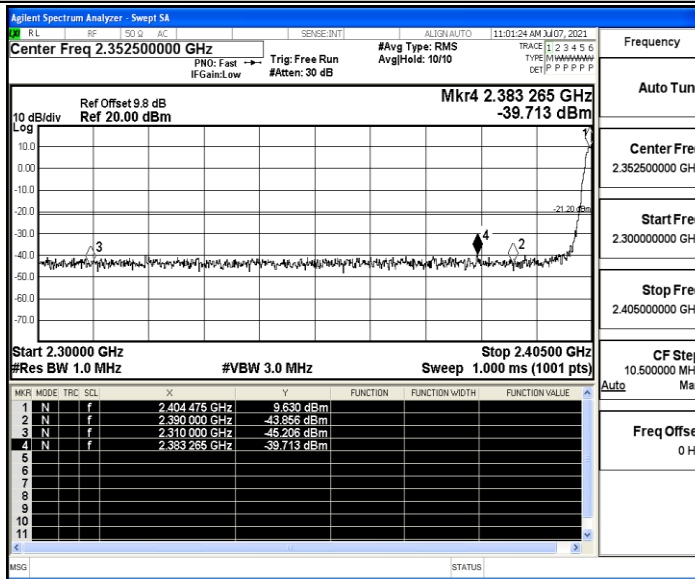


Test Graphs

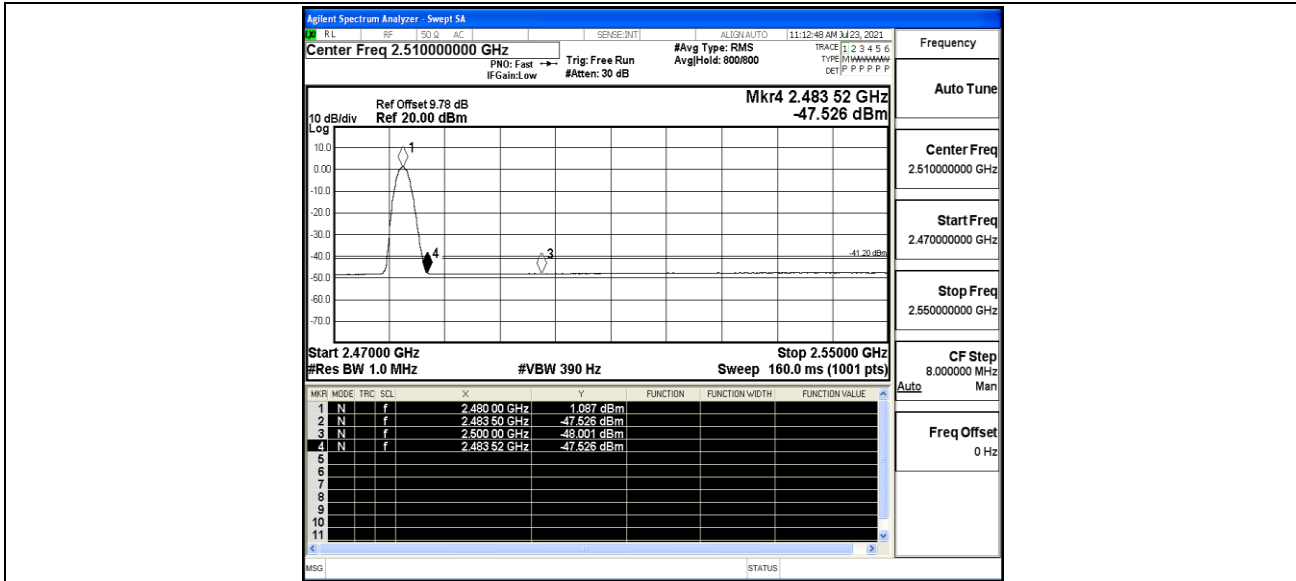
ZIGB_Ant1_Low_2405_AV



ZIGB_Ant1_Low_2405_Peak



ZIGB_Ant1_High_2480_AV



ZIGB_Ant1_High_2480_Peak

