



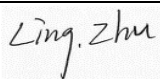
Appendix A

RF Test Data for Zigbee (Conducted Measurement)

Product Name: Hub

Test Model: MCH100

Environmental Conditions

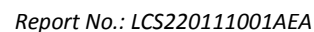
Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	 Ling Zhu
Supervised by:	 Li Huan

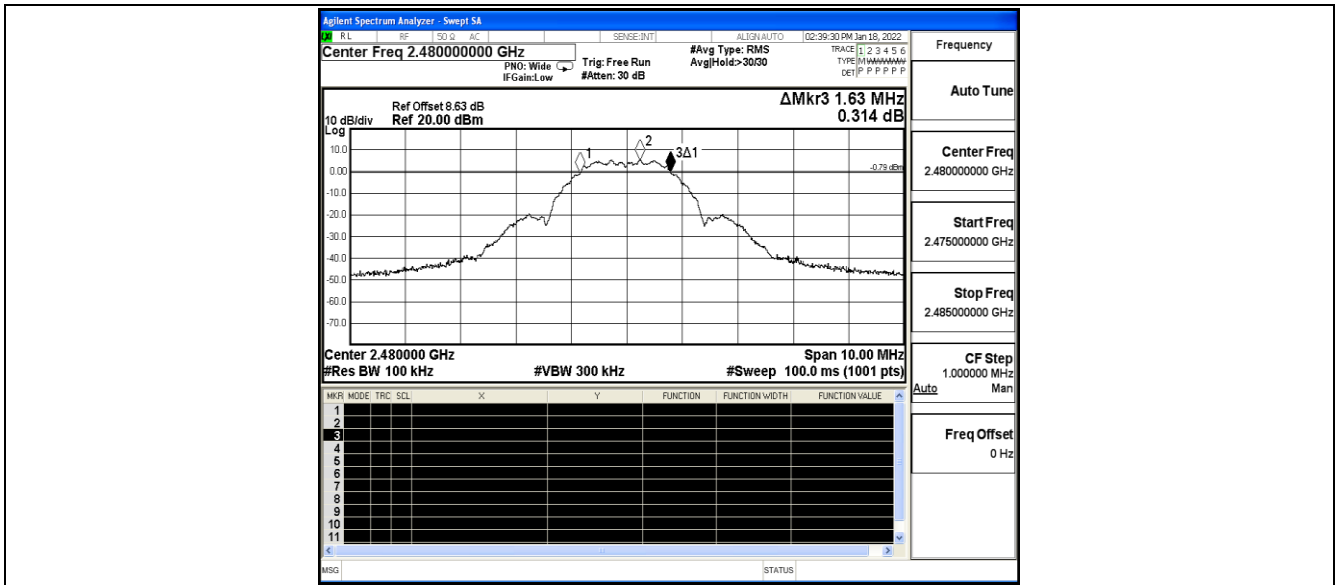


A.1 DTS Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
Zigbee	Ant	2405	1.640	2404.160	2405.800	0.5	PASS
		2440	1.640	2439.160	2440.800	0.5	PASS
		2480	1.630	2479.160	2480.790	0.5	PASS







A.2 Maximum peak conducted output power

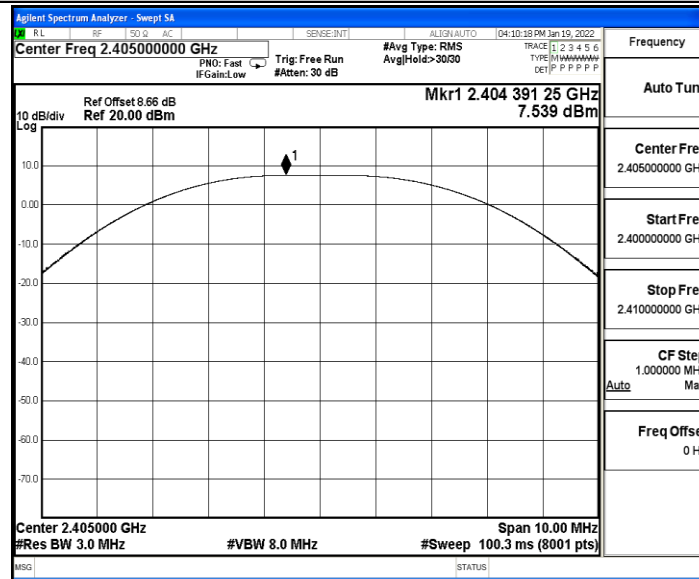
Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant	2405	7.54	≤ 30	PASS
		2440	7.53	≤ 30	PASS
		2480	7.16	≤ 30	PASS

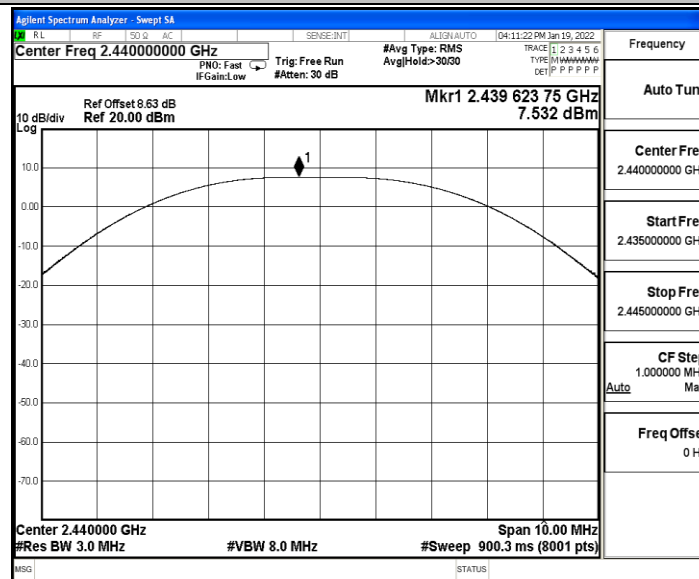


Test Graphs

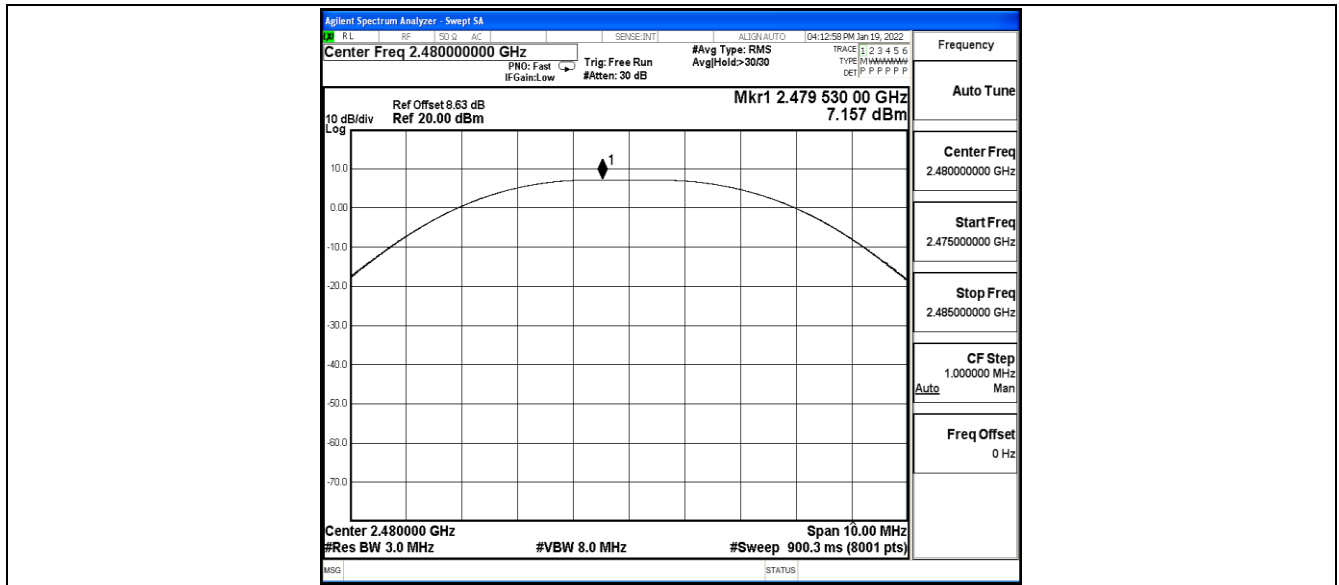
Zigbee_Ant_2405



Zigbee_Ant_2440



Zigbee_Ant_2480





A.3 Maximum power spectral density

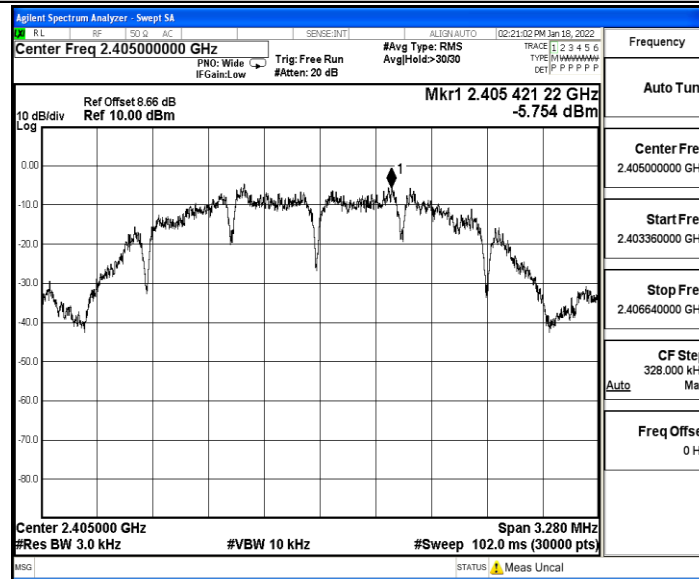
Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
Zigbee	Ant	2405	-5.75	≤ 8.00	PASS
		2440	-6.16	≤ 8.00	PASS
		2480	-6.50	≤ 8.00	PASS

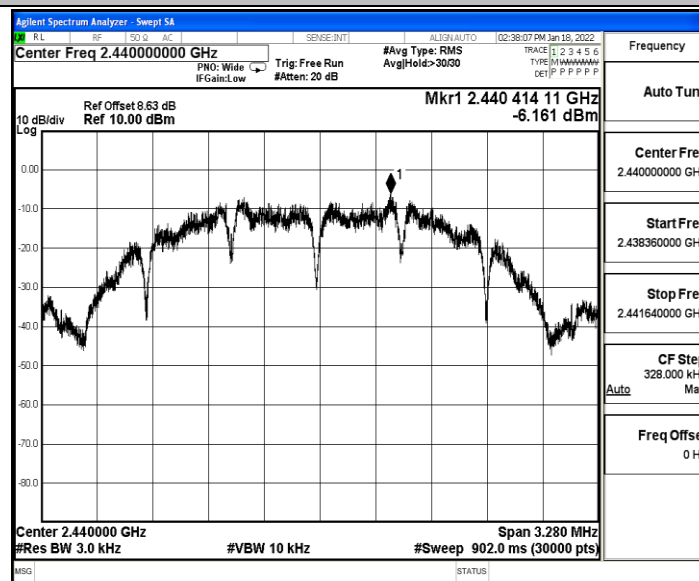


Test Graphs

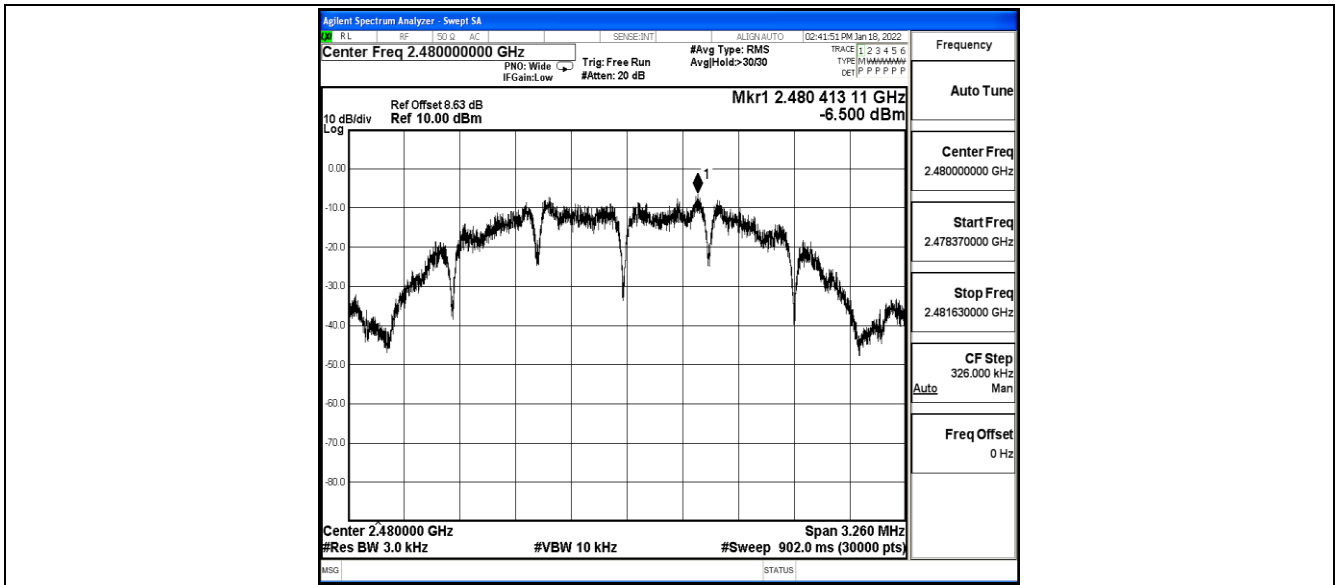
Zigbee_Ant_2405



Zigbee_Ant_2440



Zigbee_Ant_2480





A.4 Band edge measurements

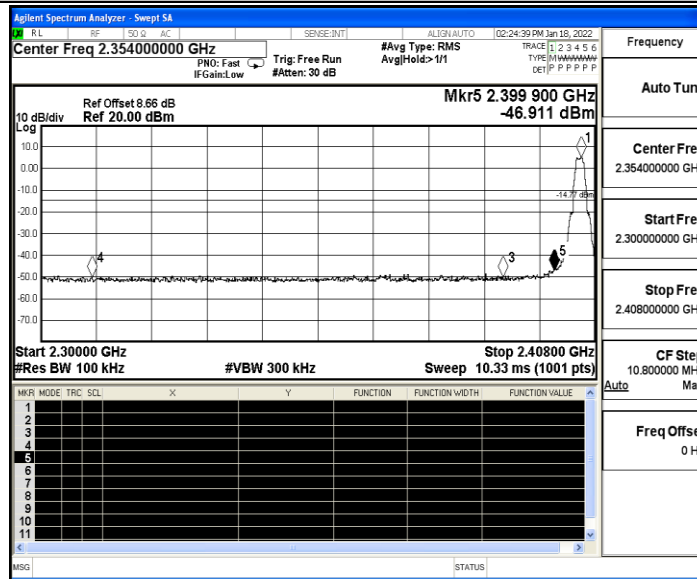
Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant	Low	2405	5.23	-46.91	≤ -14.77	PASS
		High	2480	5.58	-42.6	≤ -14.43	PASS

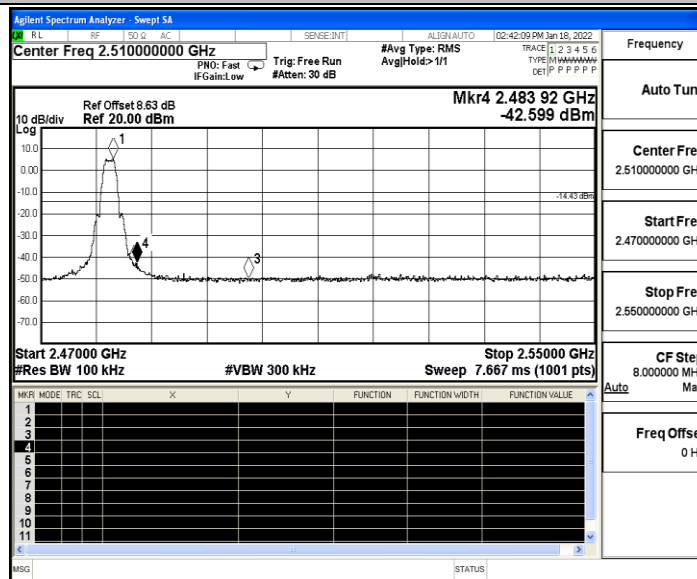


Test Graphs

Zigbee_Ant_Low_2405



Zigbee_Ant_High_2480





A.5 Conducted Spurious Emission

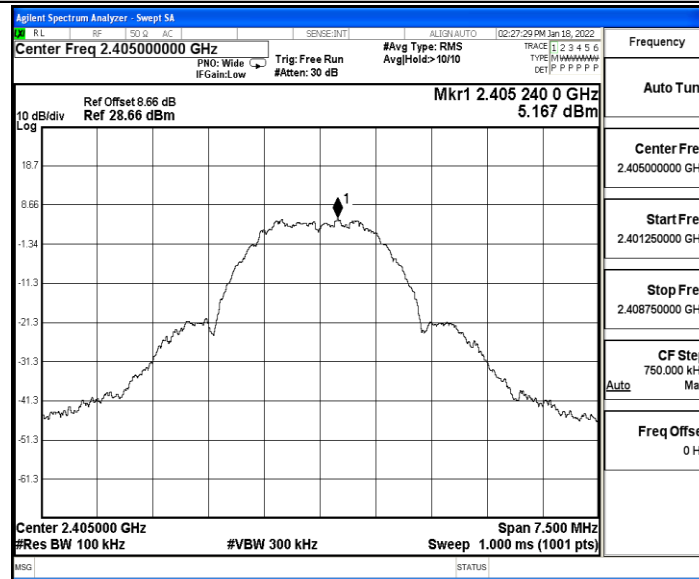
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant	2405	Reference	5.17	5.17	---	PASS
			30~1000	5.17	-60.3	≤ -14.83	PASS
			1000~26500	5.17	-45.54	≤ -14.83	PASS
		2440	Reference	5.58	5.58	---	PASS
			30~1000	5.58	-60.55	≤ -14.42	PASS
			1000~26500	5.58	-46.2	≤ -14.42	PASS
		2480	Reference	5.20	5.20	---	PASS
			30~1000	5.20	-60.78	≤ -14.8	PASS
			1000~26500	5.20	-45.92	≤ -14.8	PASS

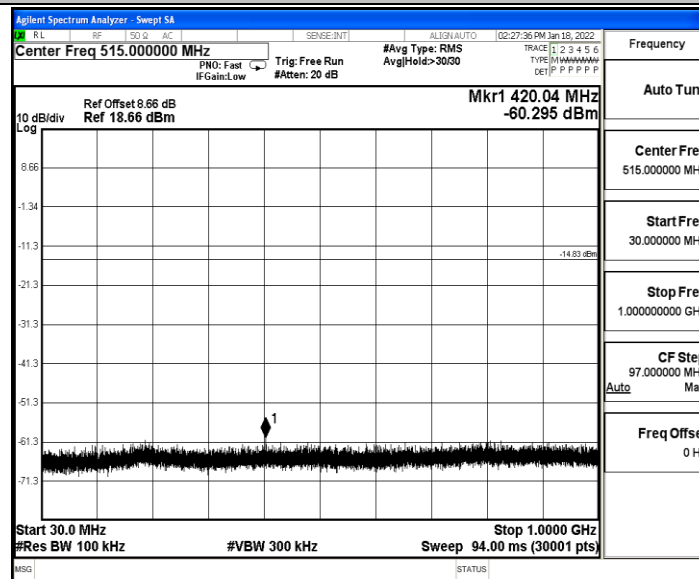


Test Graphs

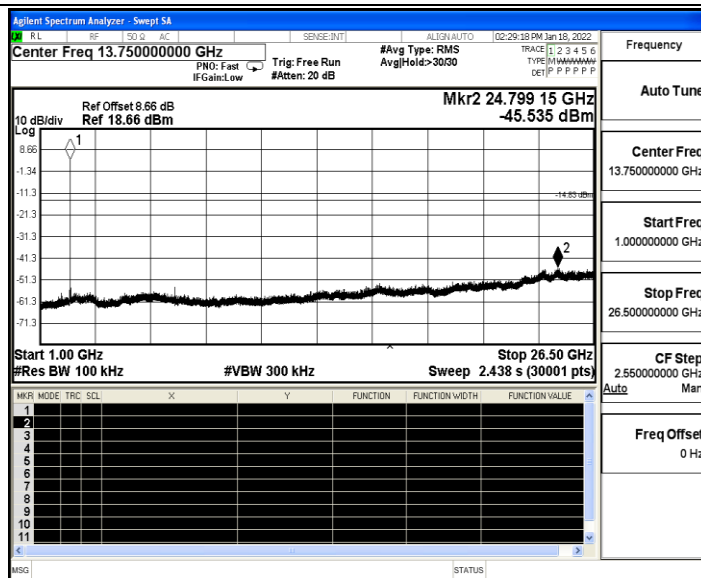
Zigbee_Ant_2405_0~Reference



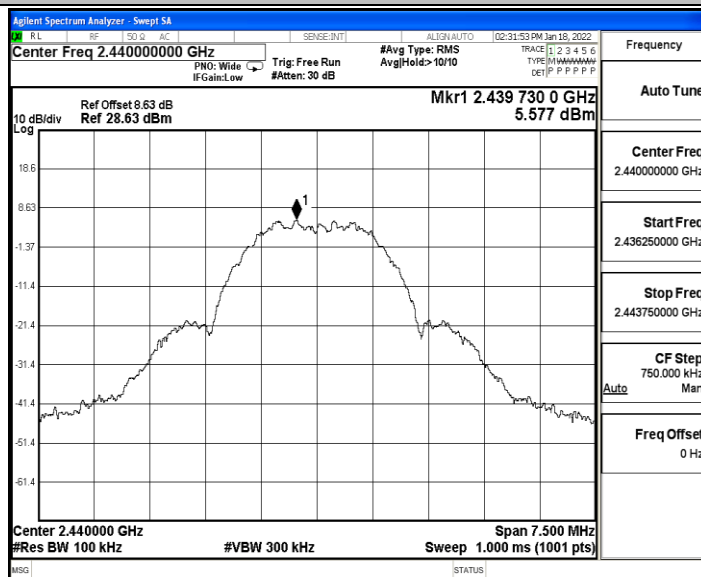
Zigbee_Ant_2405_30~1000



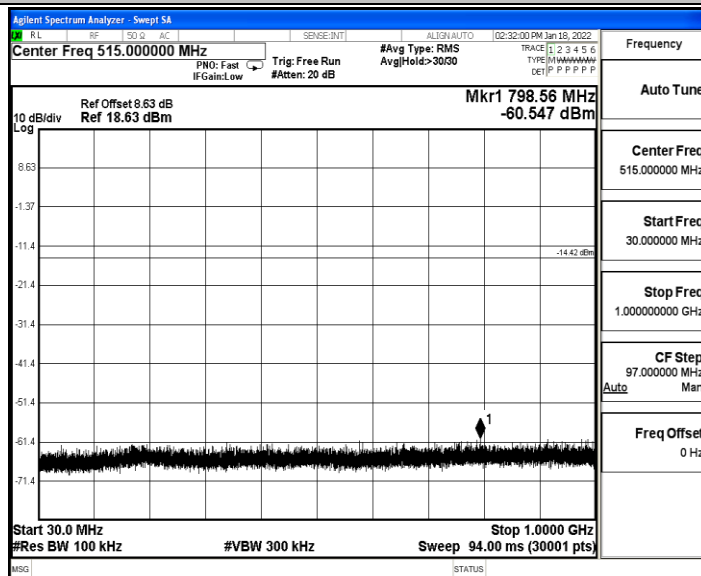
Zigbee_Ant_2405_1000~26500



Zigbee_Ant_2440_0~Reference

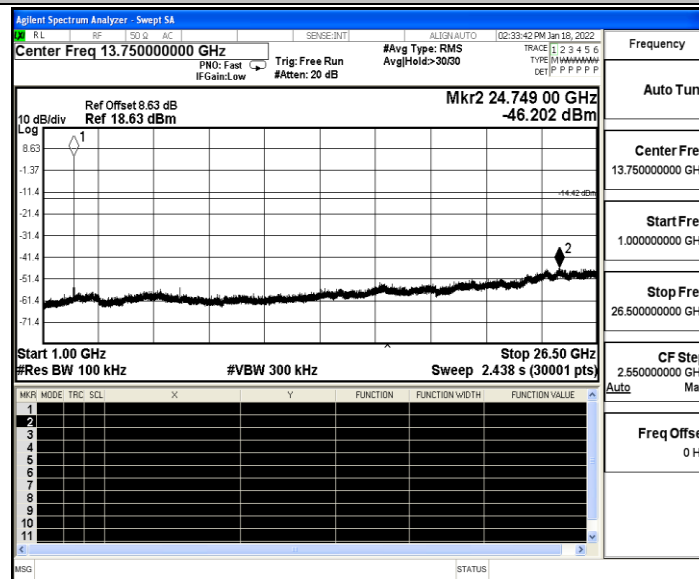


Zigbee_Ant_2440_30~1000

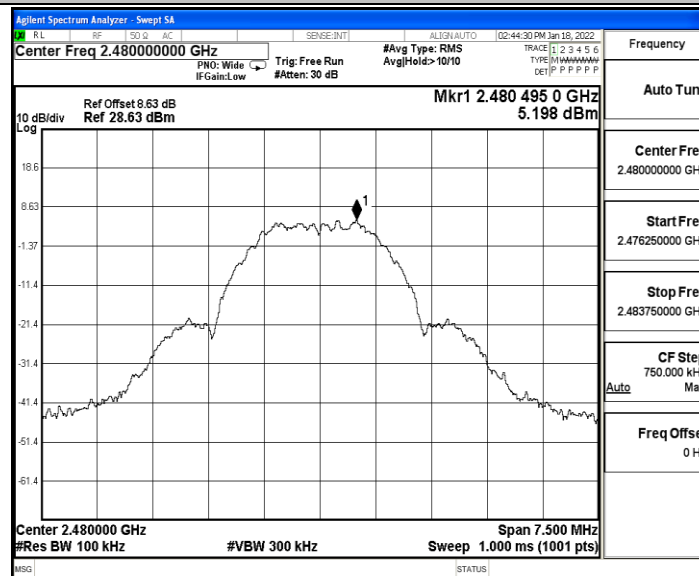




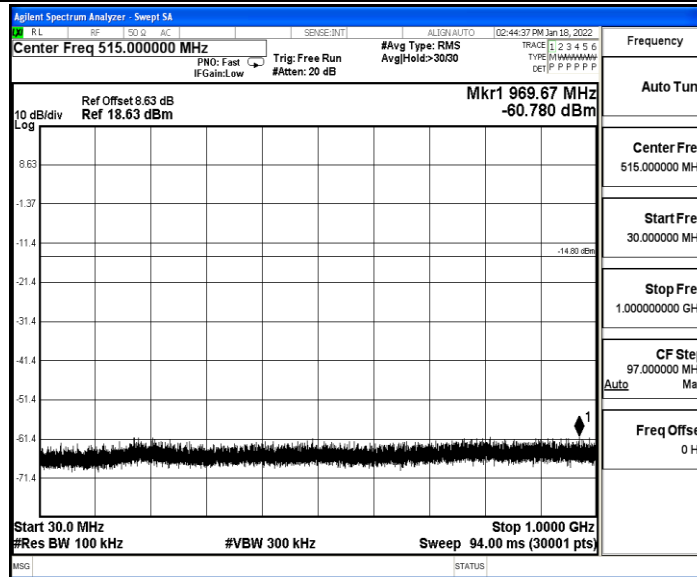
Zigbee_Ant_2440_1000~26500



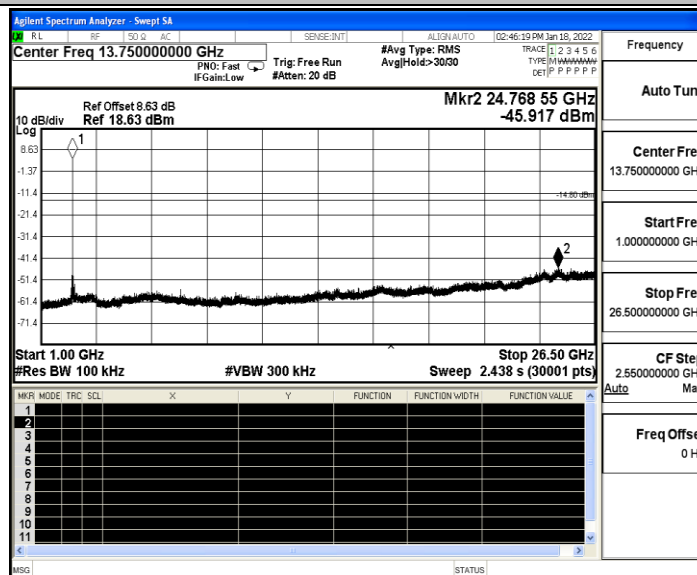
Zigbee_Ant_2480_0~Reference



Zigbee_Ant_2480_30~1000



Zigbee_Ant_2480_1000~26500





A.6 Duty Cycle

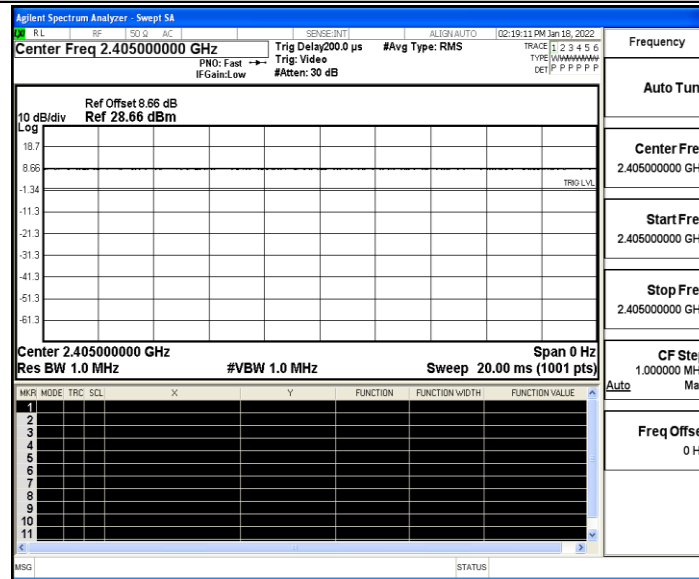
Test Result

TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
Zigbee	Ant	2405	20.00	20.00	100.00	---	---
		2440	20.00	20.00	100.00	---	---
		2480	20.00	20.00	100.00	---	---

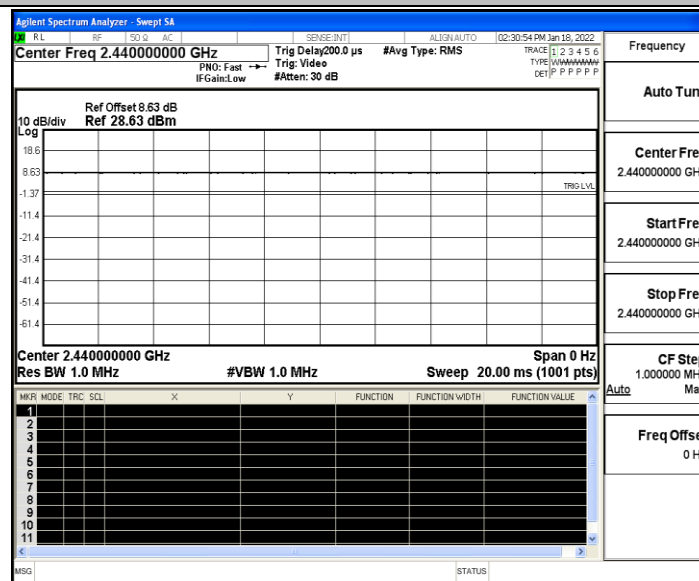


Test Graphs

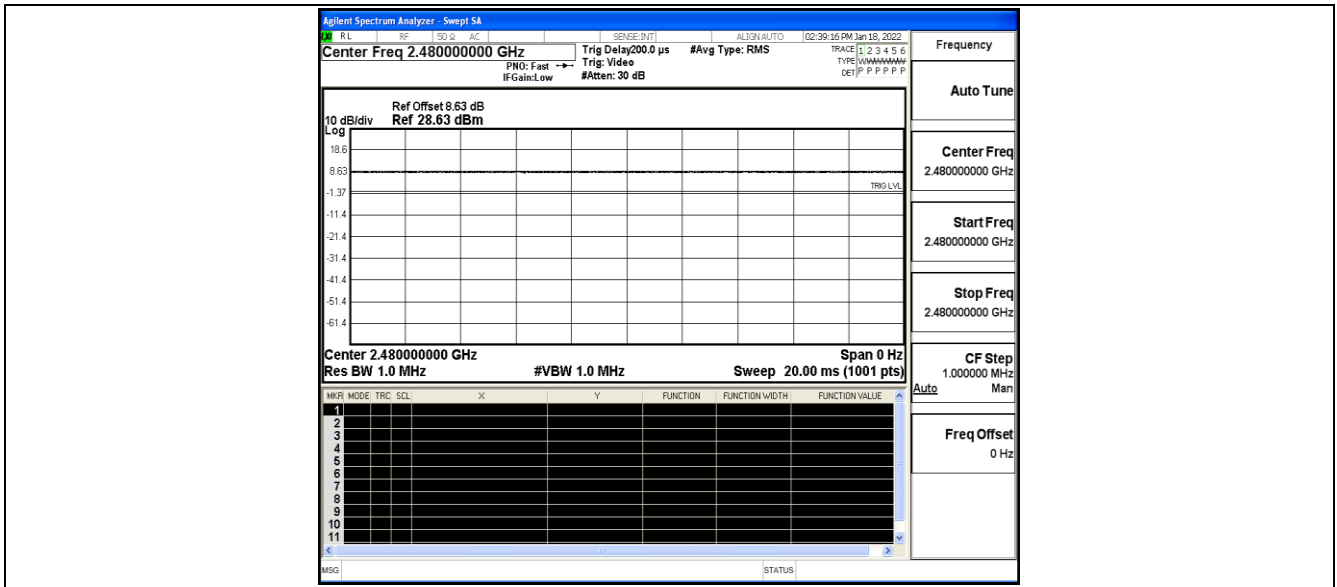
Zigbee_Ant_2405



Zigbee_Ant_2440



Zigbee_Ant_2480





A.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Frequenc y[MHz]	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBu V/m]	Verdict
Zigbee	Ant	Low	2405	AV	2310.000	-48.62	≤ -41.20	46.58	≤ 54	PASS
				AV	2366.312	-47.16	≤ -41.20	48.04	≤ 54	PASS
				AV	2390.000	-48.17	≤ -41.20	47.03	≤ 54	PASS
				Peak	2310.000	-38.36	≤ -21.20	56.84	≤ 74	PASS
				Peak	2311.340	-36.25	≤ -21.20	58.95	≤ 74	PASS
				Peak	2390.000	-37.83	≤ -21.20	57.37	≤ 74	PASS
		High	2480	AV	2483.500	-47.72	≤ -41.20	47.48	≤ 54	PASS
				AV	2499.920	-47.7	≤ -41.20	47.50	≤ 54	PASS
				AV	2500.000	-47.72	≤ -41.20	47.48	≤ 54	PASS
				Peak	2483.500	-38.88	≤ -21.20	56.32	≤ 74	PASS
				Peak	2499.760	-36.72	≤ -21.20	58.48	≤ 74	PASS
				Peak	2500.000	-37.8	≤ -21.20	57.40	≤ 74	PASS

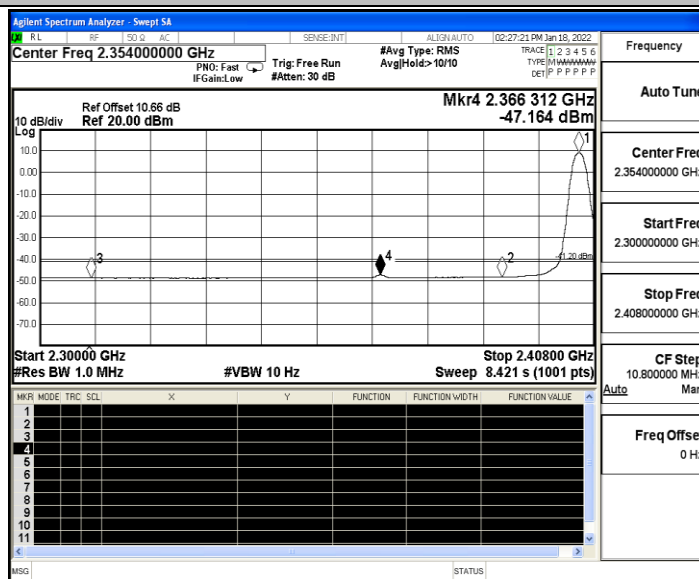
Note:

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.

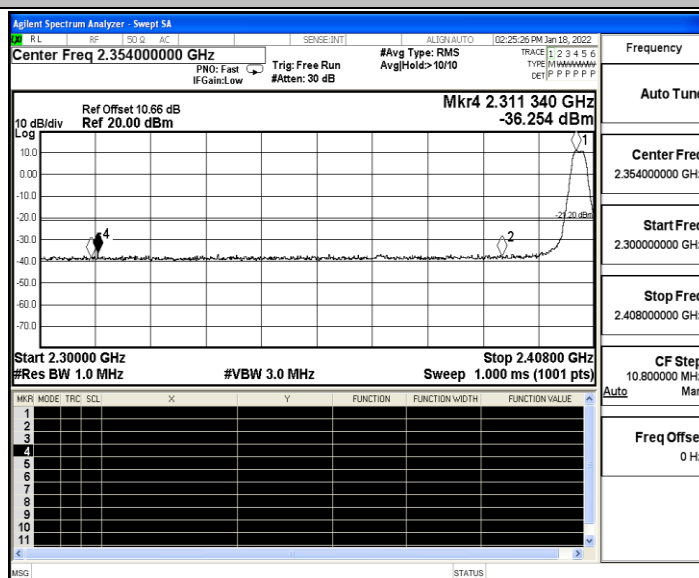


Test Graphs

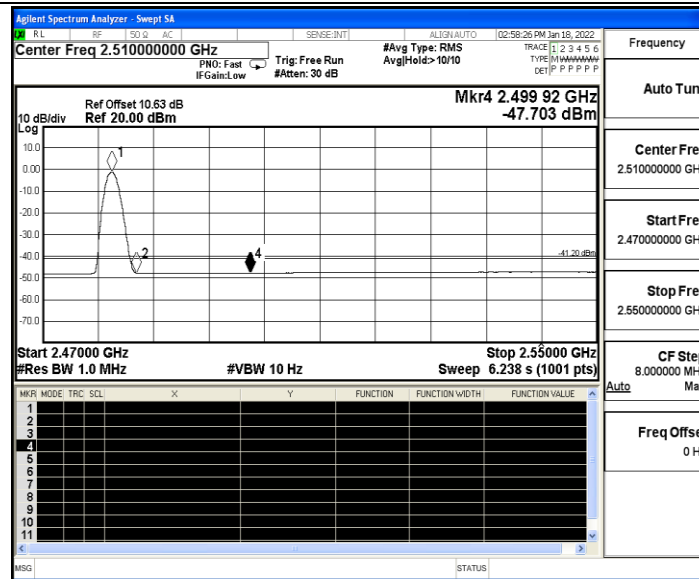
Zigbee_Ant_Low_2405_AV



Zigbee_Ant_Low_2405_Peak



Zigbee_Ant_High_2480_AV



Zigbee_Ant_High_2480_Peak

