



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Fivestars-Pegasus

Test Model: SBC2.0a

HVIN: SBC2.0a

Environmental Conditions

Temperature:	21.1° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

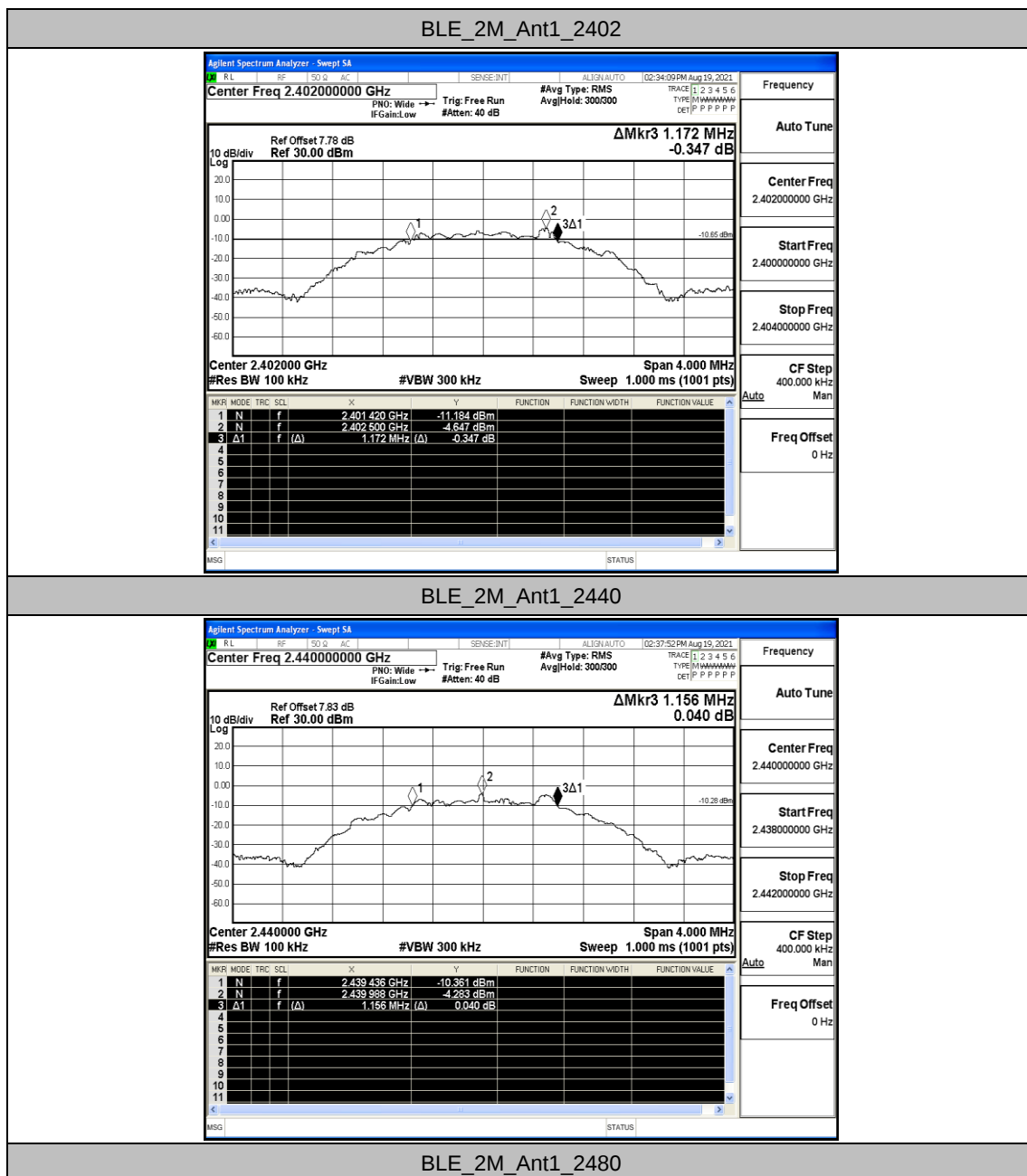


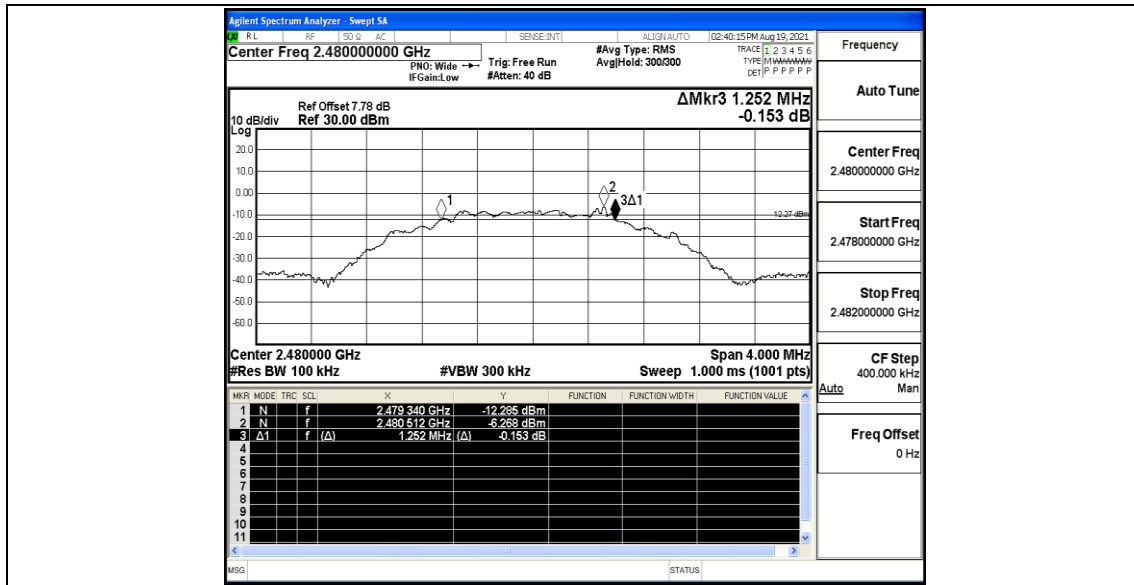
A.1 6dB Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_2M	Ant1	2402	1.172	2401.420	2402.592	≥0.5	PASS
		2440	1.156	2439.436	2440.592	≥0.5	PASS
		2480	1.252	2479.340	2480.592	≥0.5	PASS

Test Graphs





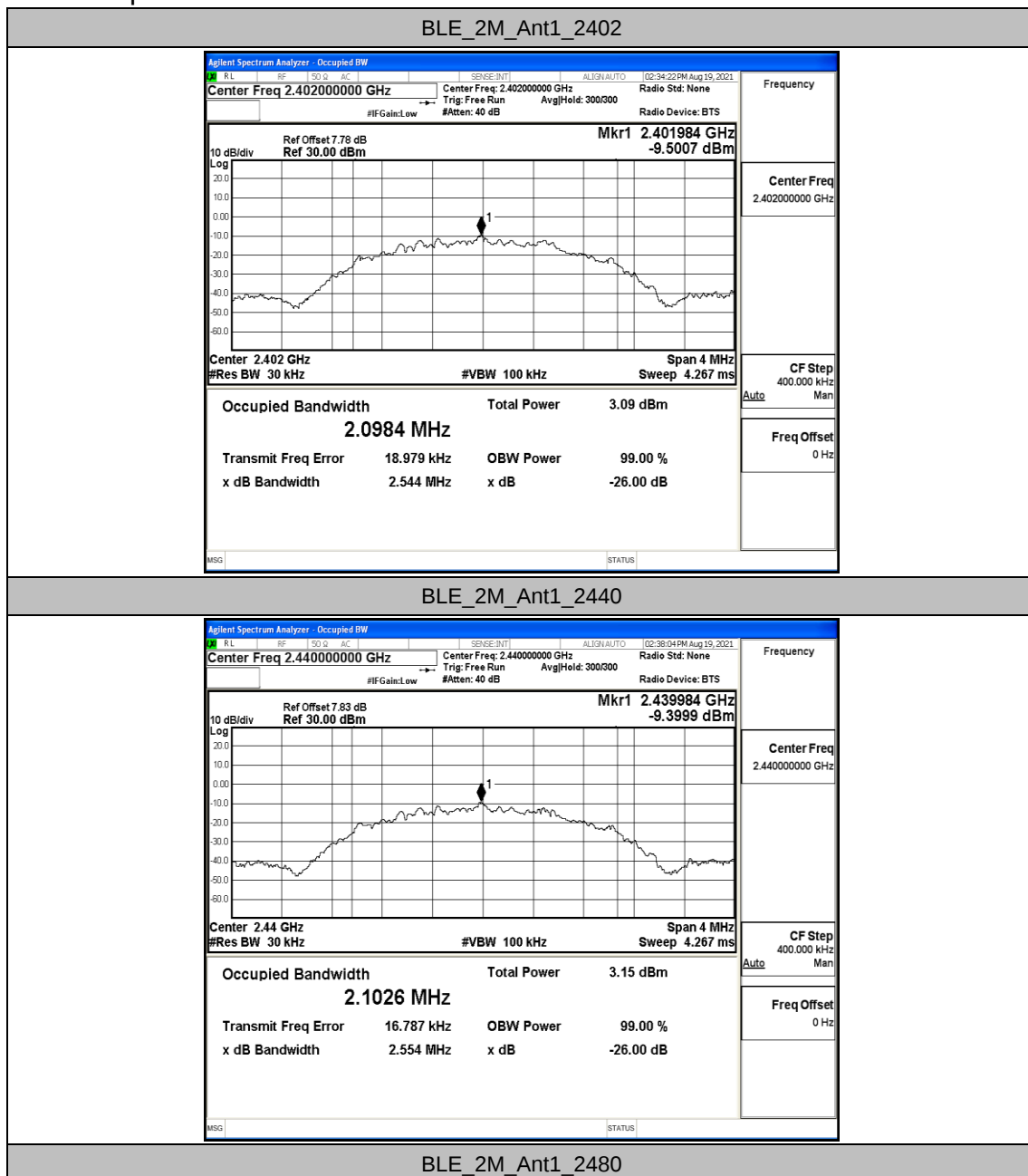


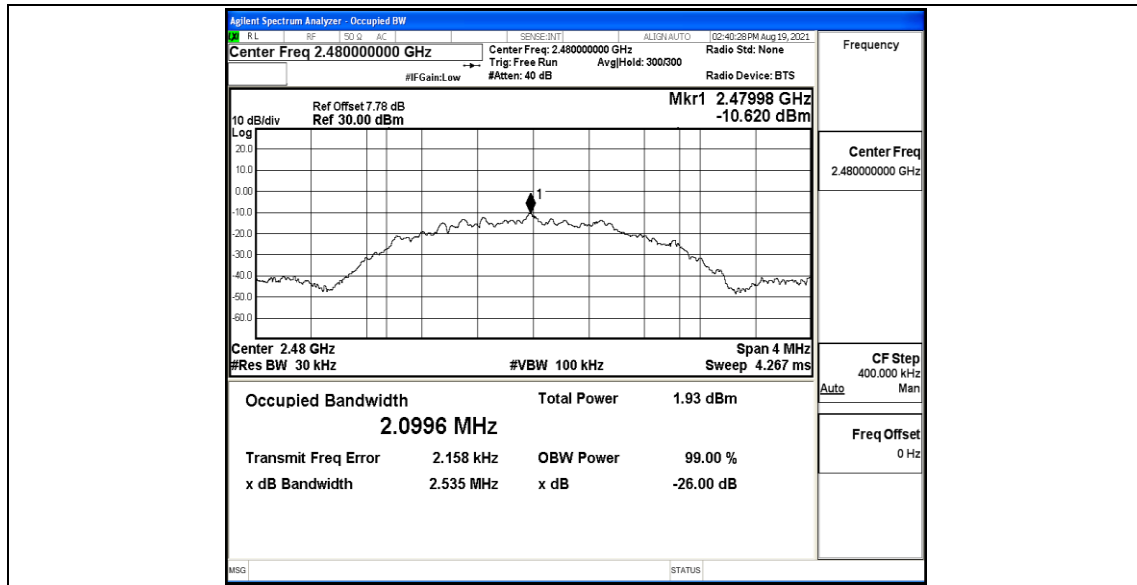
A.2 Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_2M	Ant1	2402	2.0984	2400.970	2403.068	---	PASS
		2440	2.1026	2438.965	2441.068	---	PASS
		2480	2.0996	2478.952	2481.052	---	PASS

Test Graphs





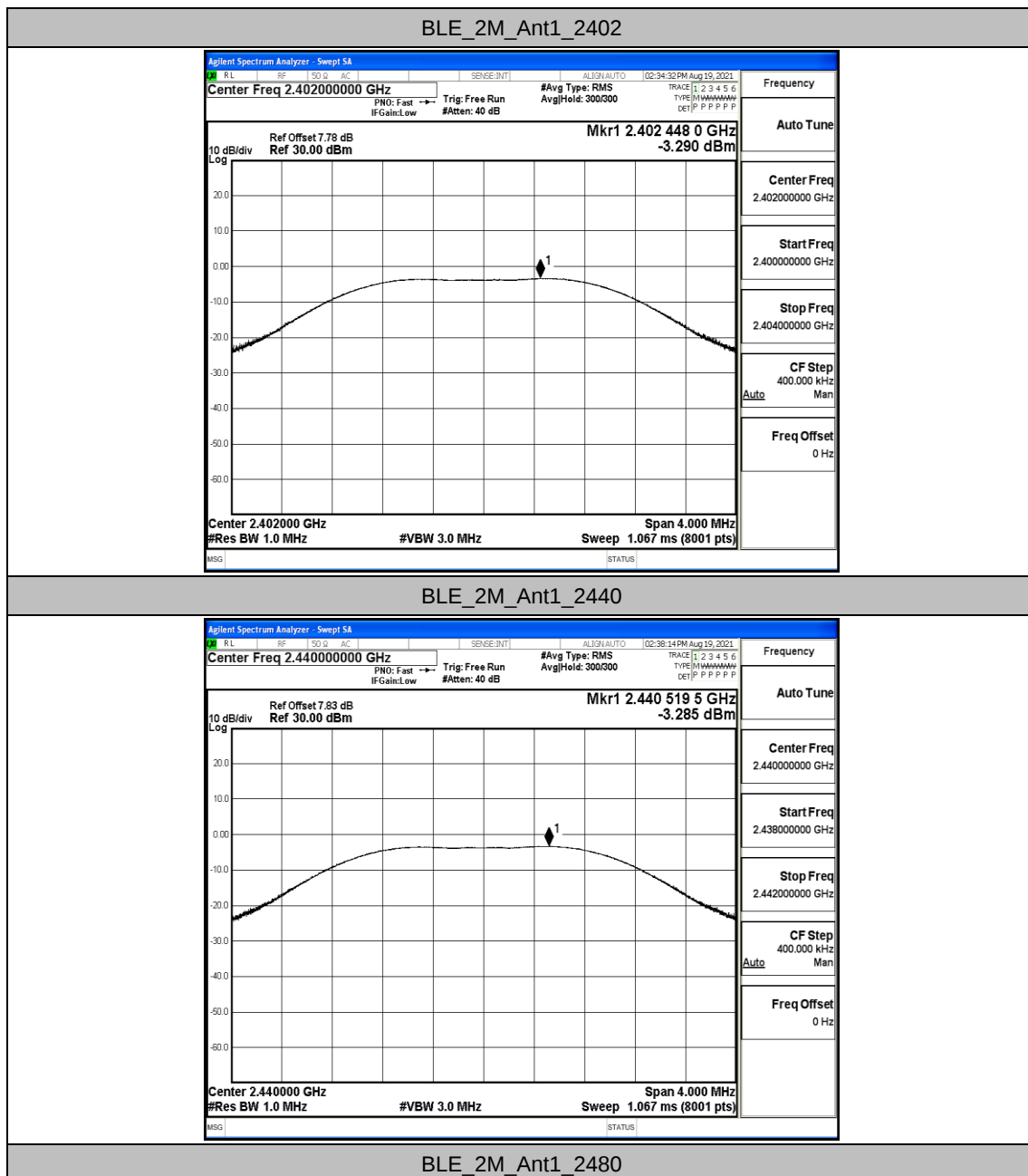


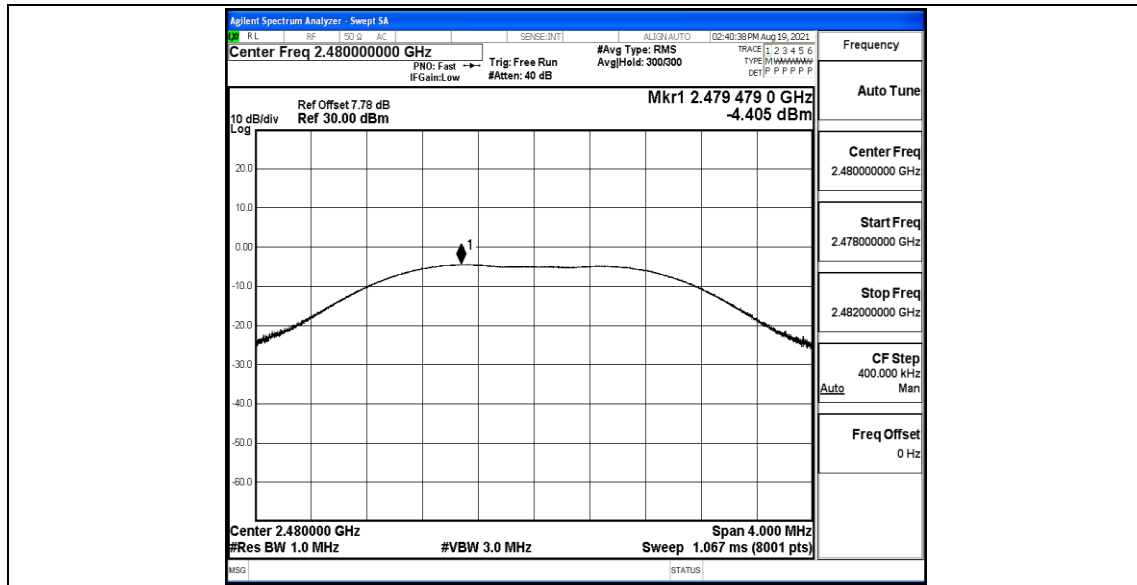
A.3 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_2M	Ant1	2402	-3.29	≤30	PASS
		2440	-3.29	≤30	PASS
		2480	-4.41	≤30	PASS

Test Graphs





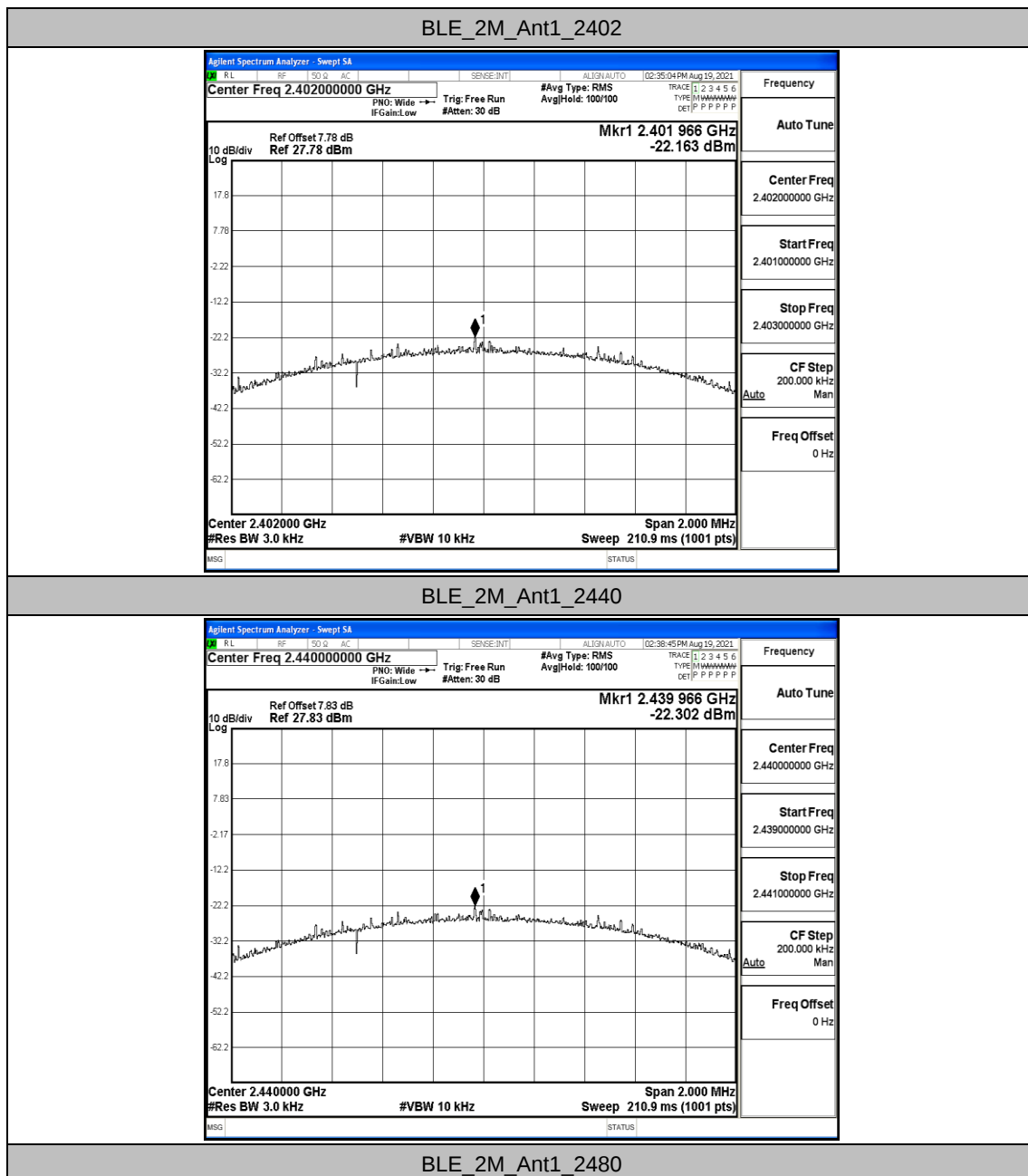


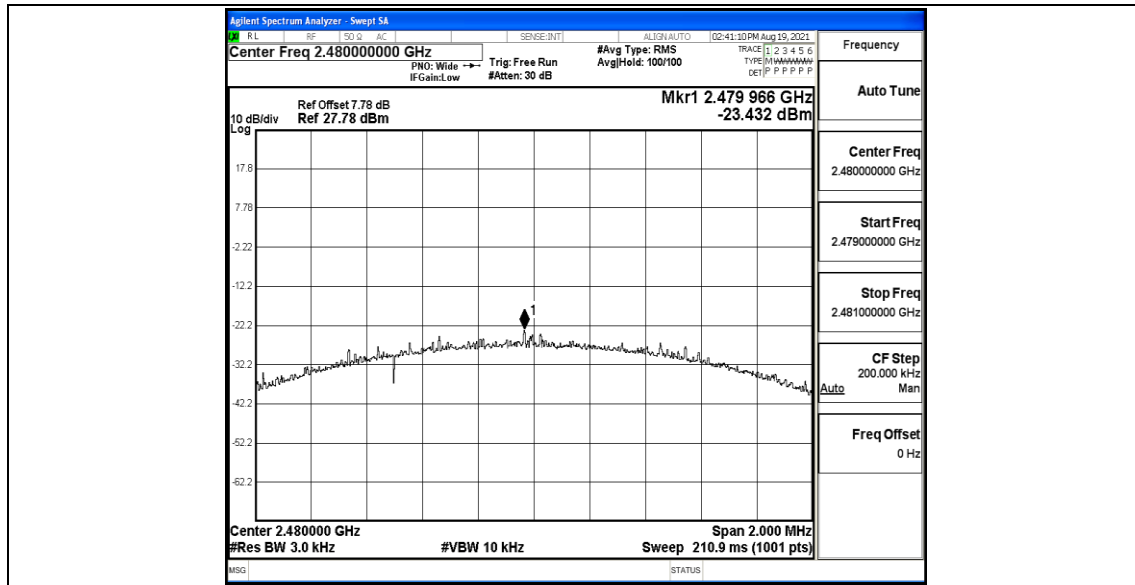
A.4 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_2M	Ant1	2402	-22.16	≤8	PASS
		2440	-22.3	≤8	PASS
		2480	-23.43	≤8	PASS

Test Graphs





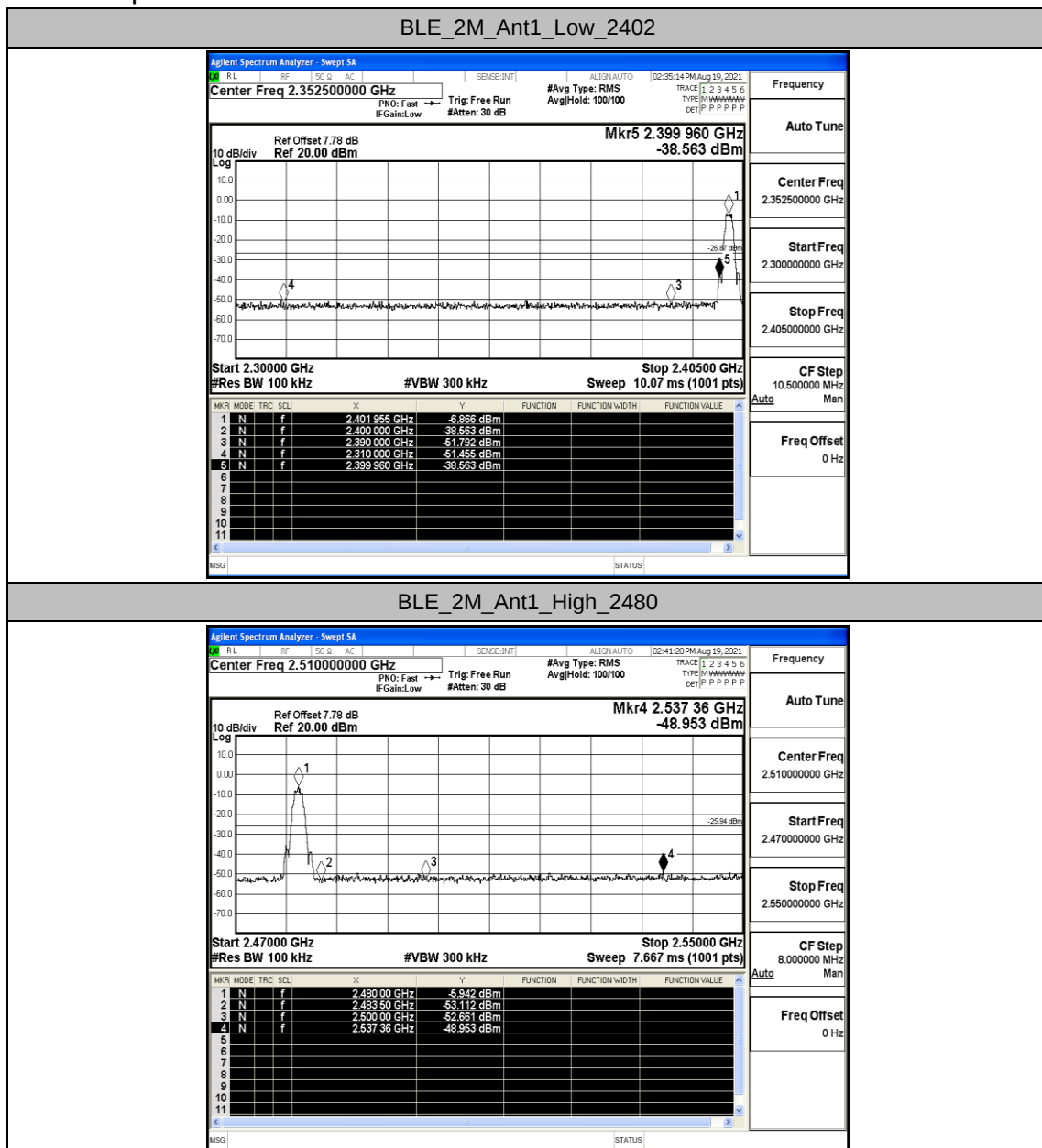


A.5 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_2M	Ant1	Low	2402	-6.87	-38.56	≤-26.87	PASS
		High	2480	-5.94	-48.95	≤-25.94	PASS

Test Graphs



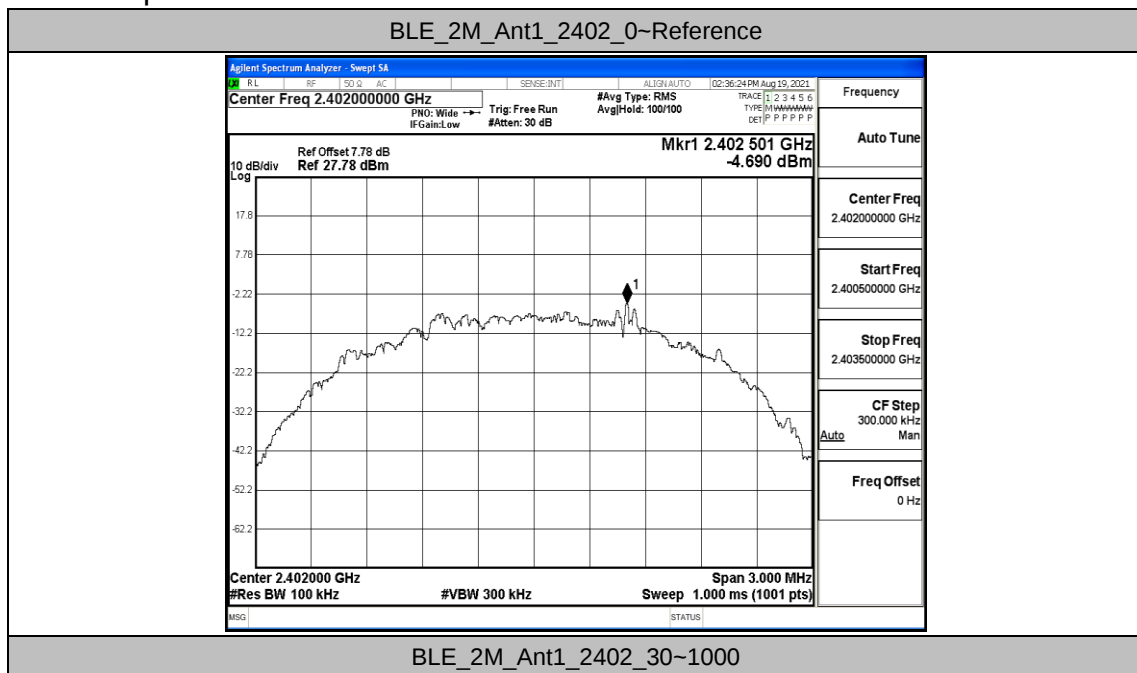


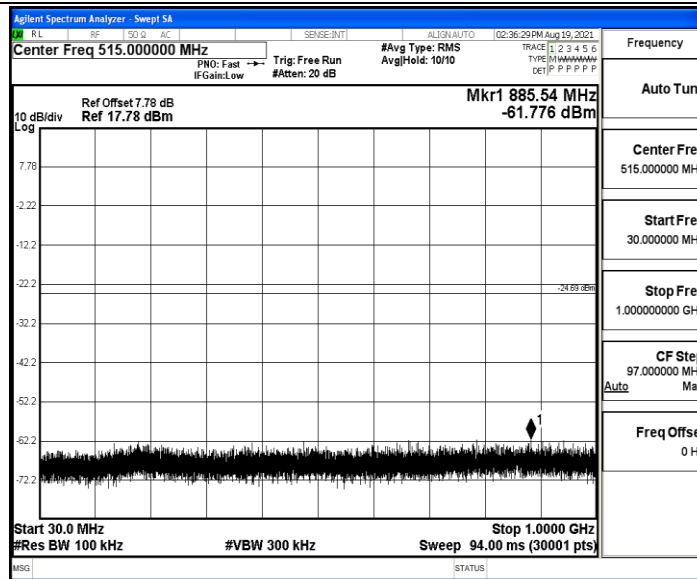
A.6 Conducted Spurious Emission

Test Result

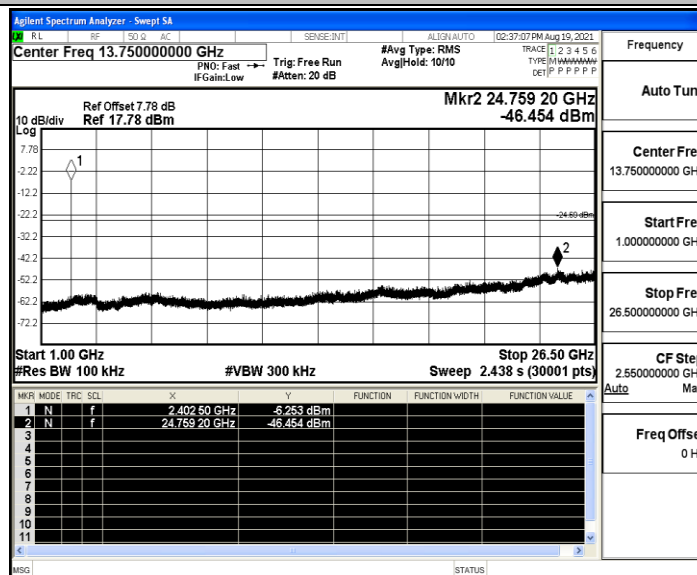
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_2M	Ant1	2402	Reference	-4.69	-4.69	---	PASS
			30~1000	-4.69	-61.78	≤-24.69	PASS
			1000~26500	-4.69	-46.45	≤-24.69	PASS
		2440	Reference	-4.36	-4.36	---	PASS
			30~1000	-4.36	-61.82	≤-24.36	PASS
			1000~26500	-4.36	-46.76	≤-24.36	PASS
		2480	Reference	-5.48	-5.48	---	PASS
			30~1000	-5.48	-62.28	≤-25.48	PASS
			1000~26500	-5.48	-47.34	≤-25.48	PASS

Test Graphs

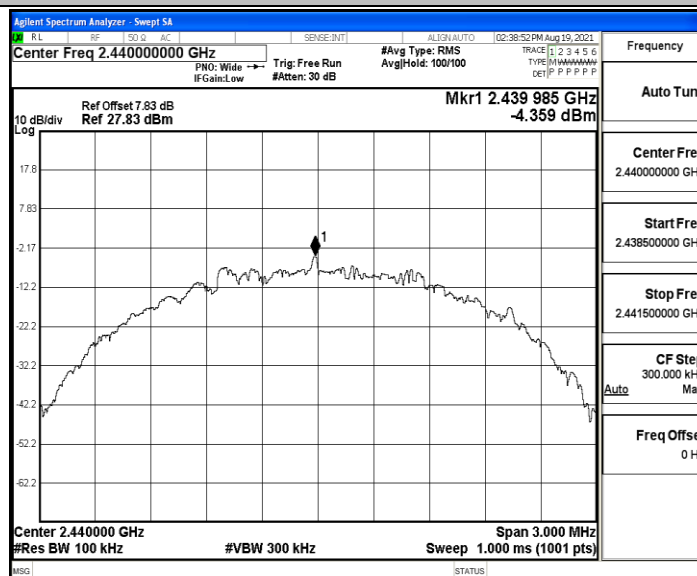




BLE_2M_Ant1_2402_1000~26500

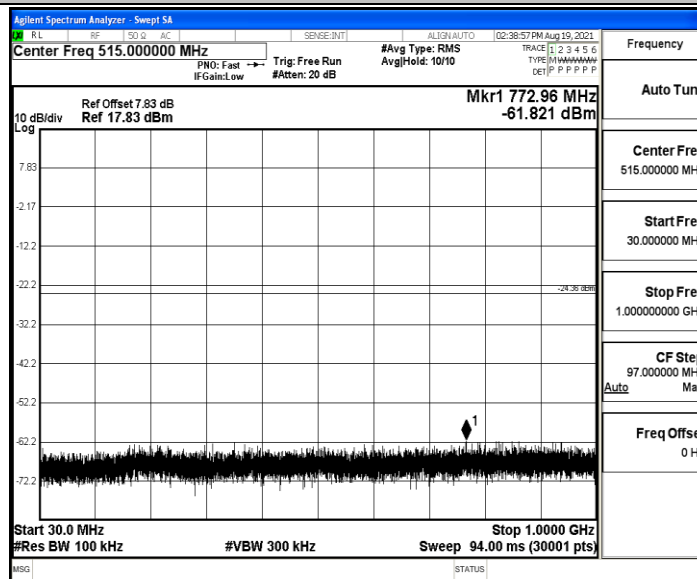


BLE_2M_Ant1_2440_0~Reference

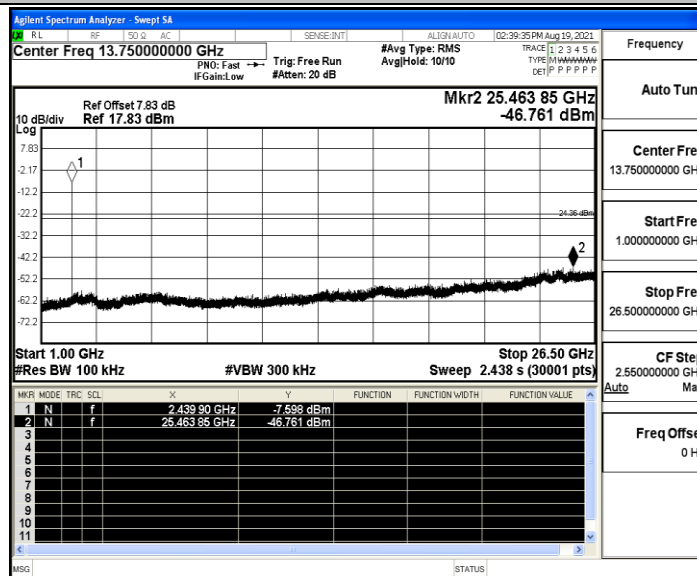




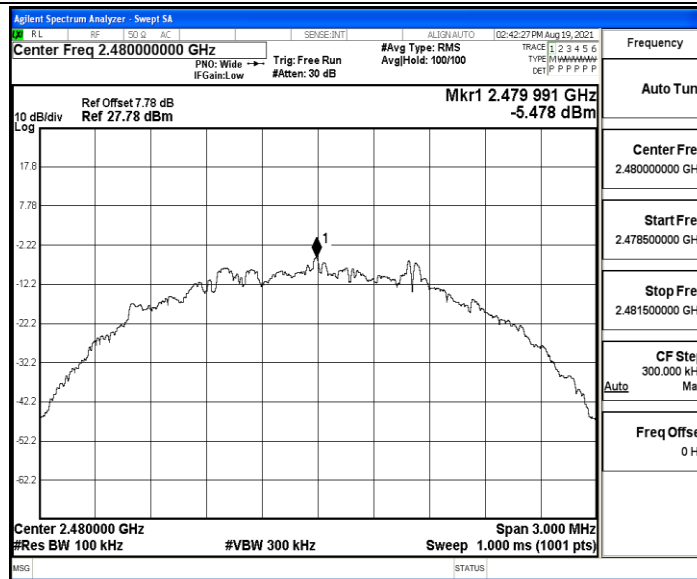
BLE_2M_Ant1_2440_30~1000



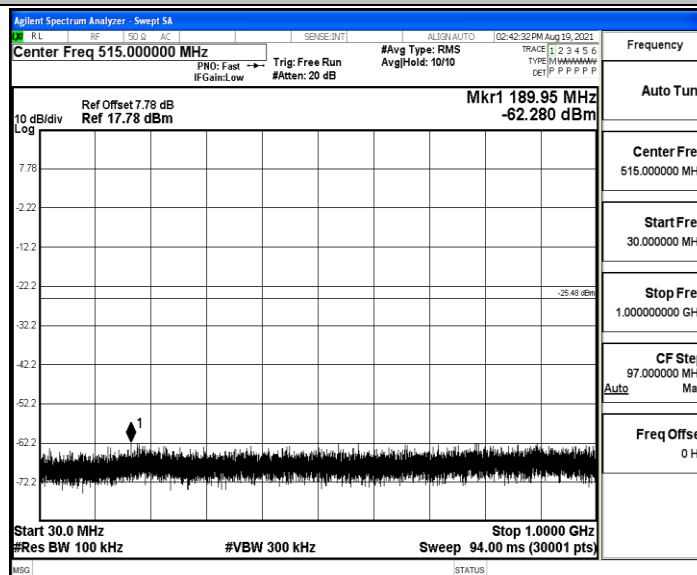
BLE_2M_Ant1_2440_1000~26500



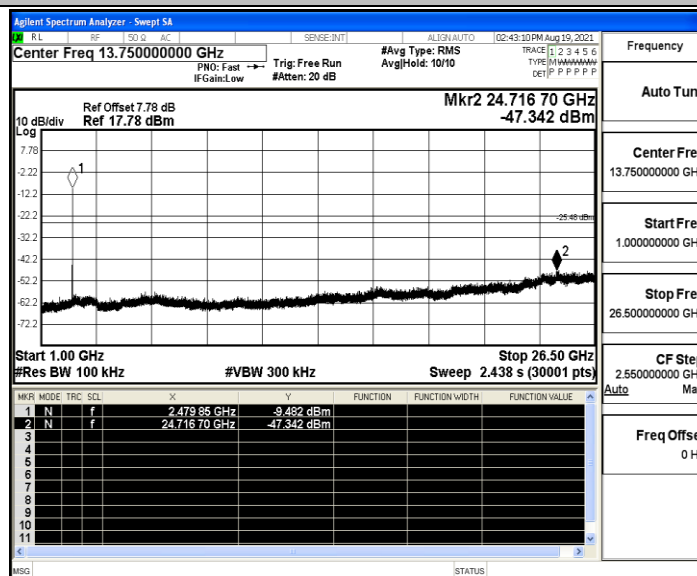
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500





A.7 Duty Cycle

Test Result

TestMode	Channel	ON Time [ms]	Period [ms]	X	DC [%]	X Factor	Minimum VBW(KHz)	Limit	Verdict
BLE_2M	2402	1.07	1.88	0.5691	56.91	2.45	0.93	---	PASS
	2440	1.07	1.88	0.5691	56.91	2.45	0.93	---	PASS
	2480	1.07	1.88	0.5691	56.91	2.45	0.93	---	PASS

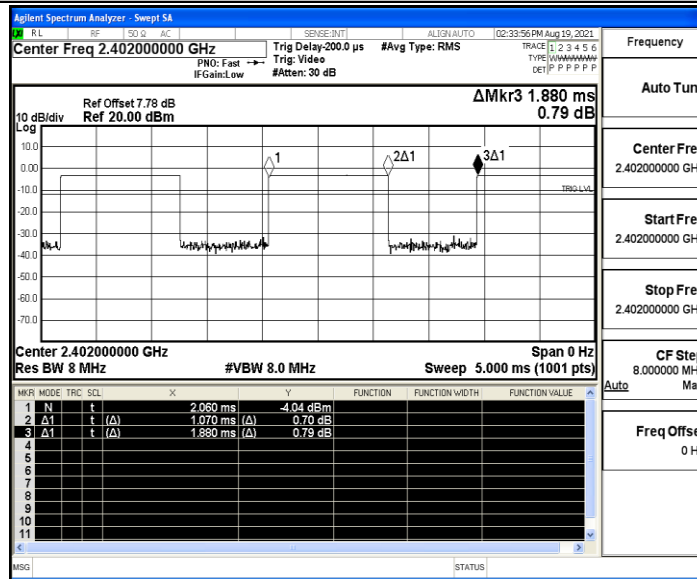
Note: $X = \text{ON Time} / \text{Period}$; $X \text{ Factor} = 10\log(X)$

AV Minimum VBW [KHz] = $1 / \text{ON Time [ms]}$

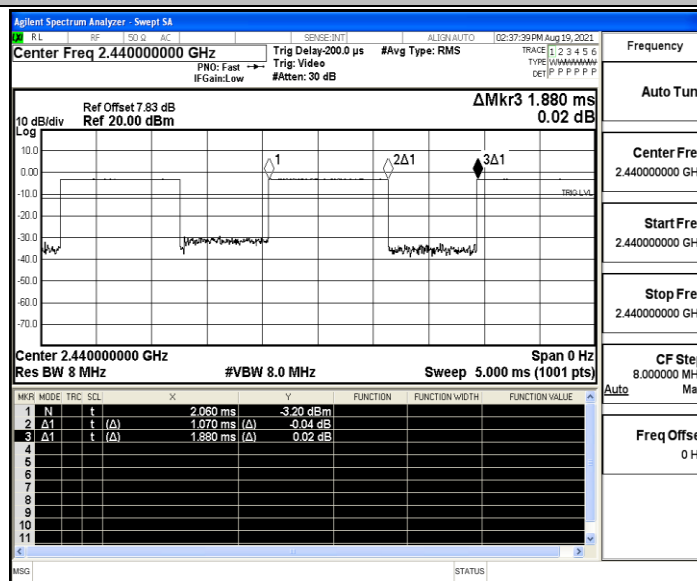


Test Graphs

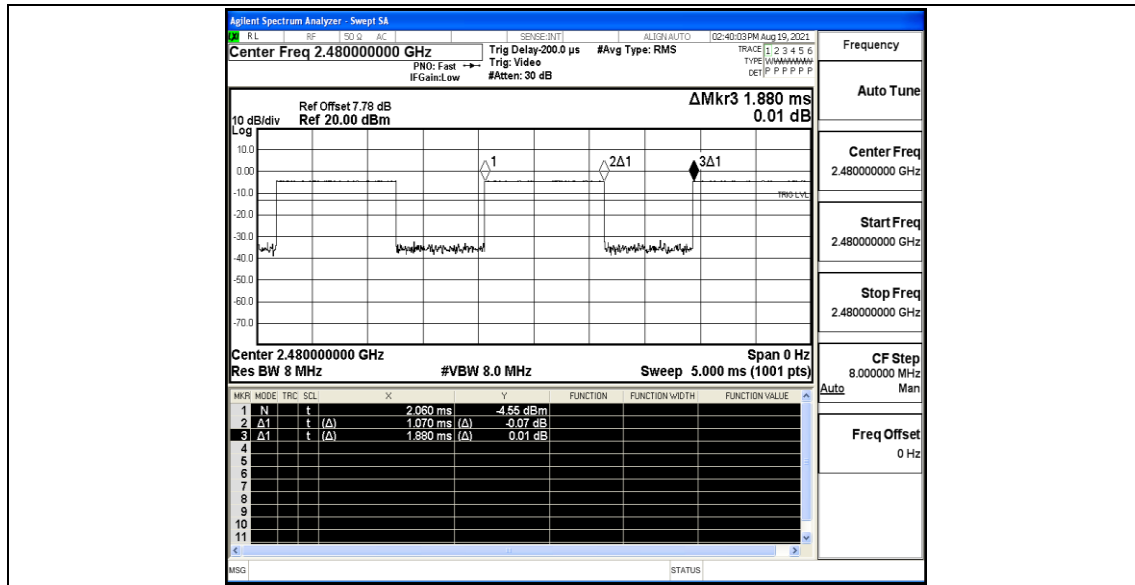
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480





A.8 Emissions in Restricted Bands

Test Result

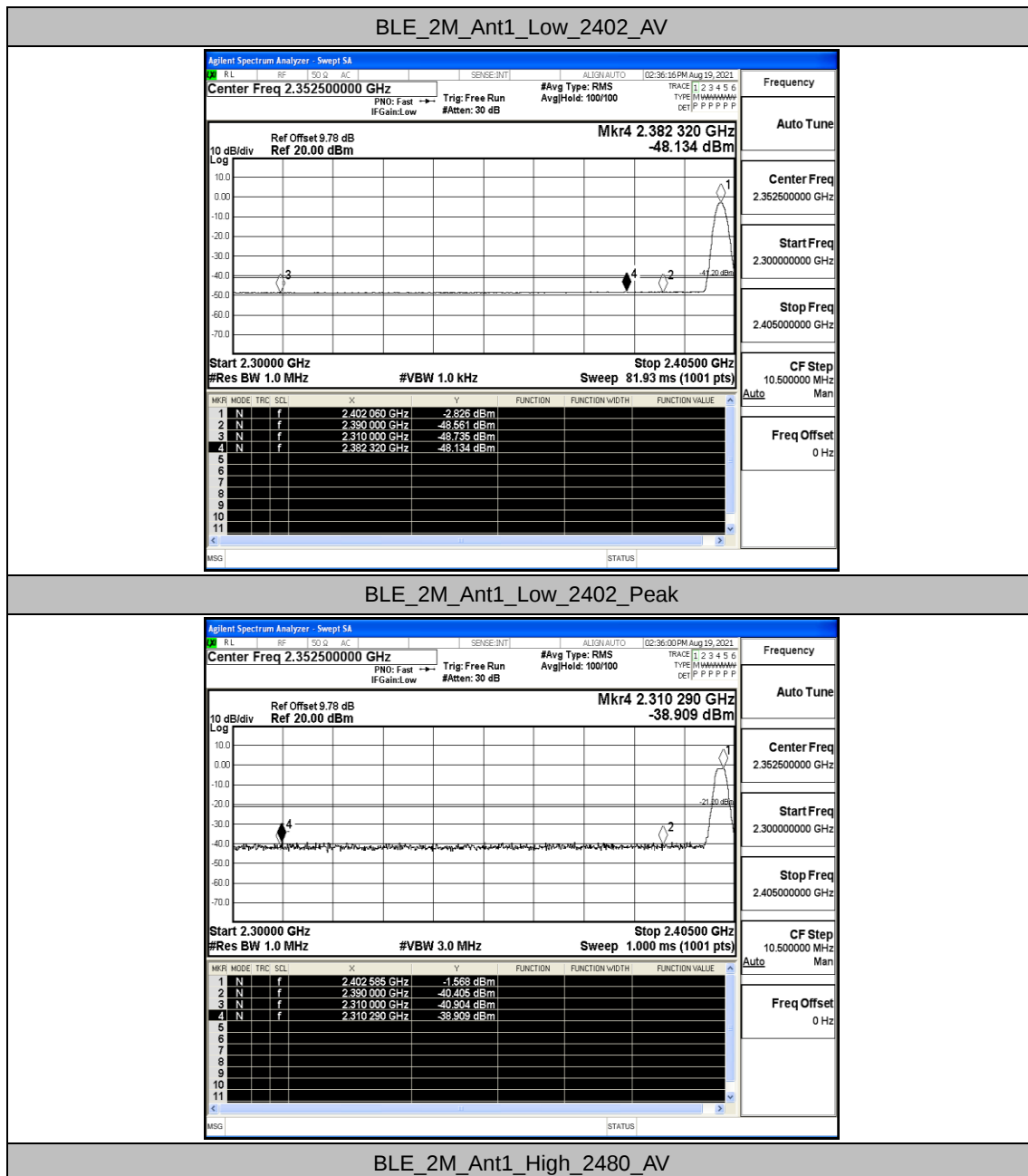
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_2M	Ant1	Low	2402	AV	2310.000	-48.74	≤-41.20	46.46	≤54	PASS
				AV	2382.320	-48.13	≤-41.20	47.07	≤54	PASS
				AV	2390.000	-48.56	≤-41.20	46.64	≤54	PASS
				Peak	2310.000	-40.9	≤-21.20	54.30	≤74	PASS
				Peak	2310.290	-38.91	≤-21.20	56.29	≤74	PASS
				Peak	2390.000	-40.41	≤-21.20	54.79	≤74	PASS
		High	2480	AV	2483.500	-47.47	≤-41.20	47.73	≤54	PASS
				AV	2483.520	-47.47	≤-41.20	47.73	≤54	PASS
				AV	2500.000	-47.8	≤-41.20	47.40	≤54	PASS
				Peak	2483.500	-41.52	≤-21.20	53.68	≤74	PASS
				Peak	2493.200	-38.01	≤-21.20	57.19	≤74	PASS
				Peak	2500.000	-39.95	≤-21.20	55.25	≤74	PASS

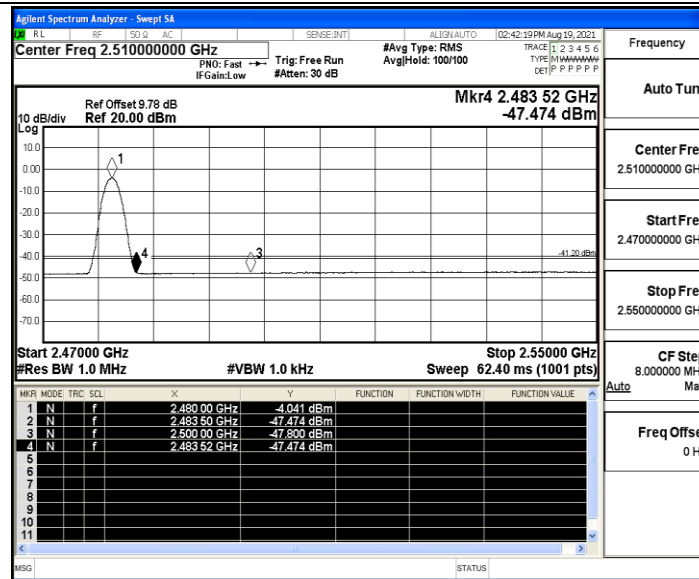
Note:

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





BLE_2M_Ant1_High_2480_Peak

