

Appendix A

RF Test Data for BT(BLE) (Conducted Measurement)

Product Name: Timelapse Trigger

Trade Mark: N/A

Test Model: AF-E1

FCC ID: 2AVSW-AFE1

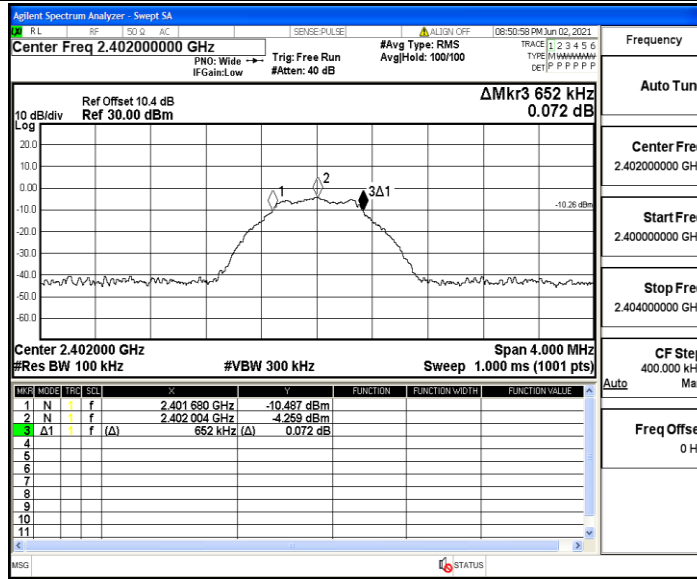
Environmental Conditions

Temperature:	23.2°C
Relative Humidity:	57%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

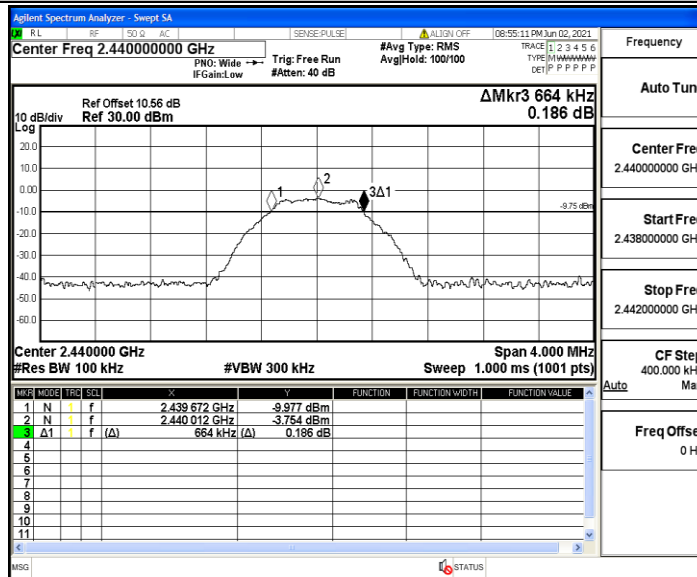
A.1. 6dB Bandwidth

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.652	2401.680	2402.332	0.5	PASS
		2440	0.664	2439.672	2440.336	0.5	PASS
		2480	0.640	2479.684	2480.324	0.5	PASS

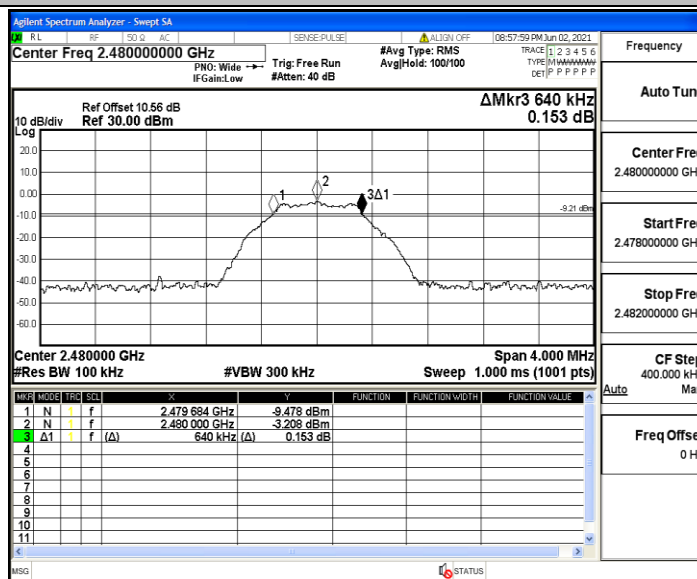
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



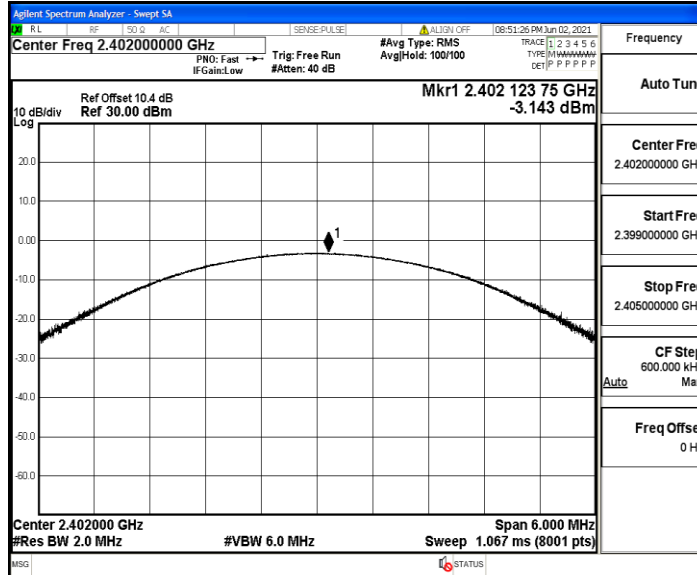
A.2. Occupied Bandwidth

Test Mode	Test Channel	Ant	OBW[MHz]	Limit[MHz]	Verdict
-----------	--------------	-----	----------	------------	---------

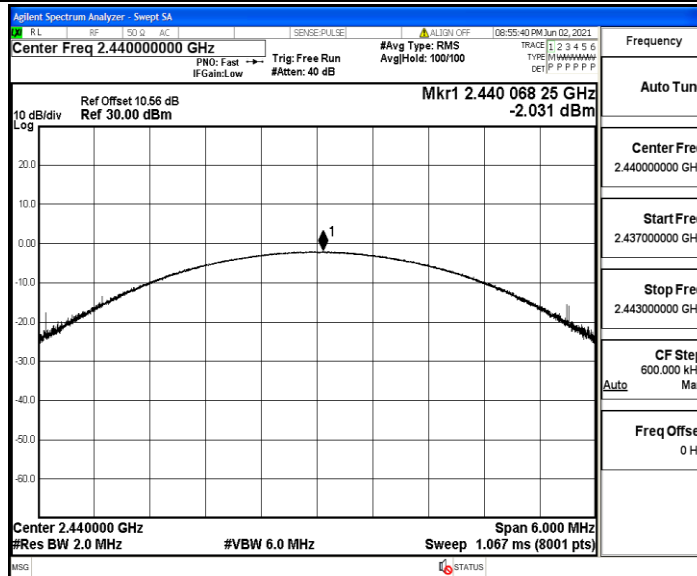
A.3. Maximum peak conducted output power

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.14	<=30	PASS
		2440	-2.03	<=30	PASS
		2480	-2.07	<=30	PASS

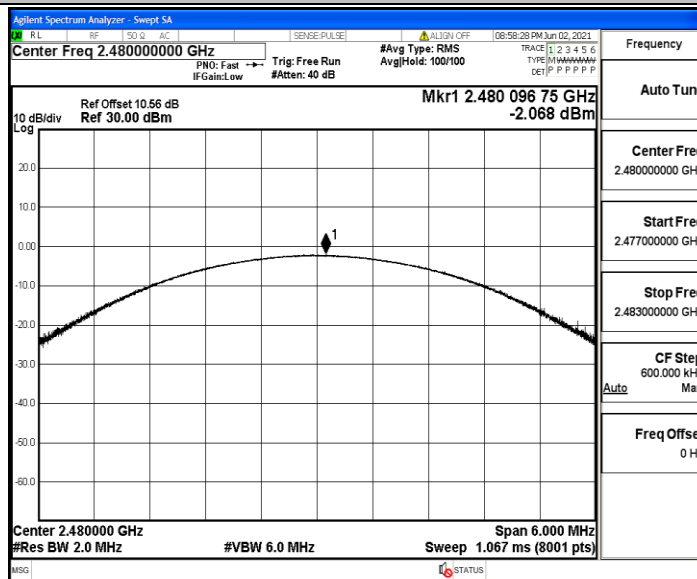
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



A.4. Maximum Peak power spectral density

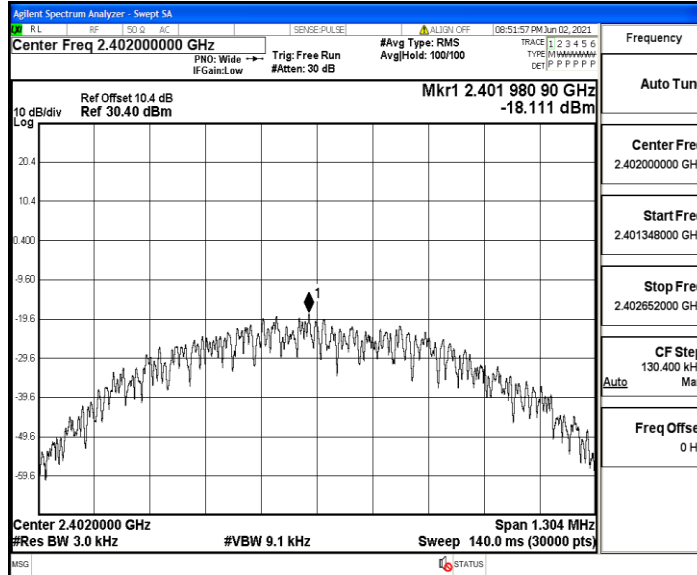
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-18.11	<=8	PASS
		2440	-16.99	<=8	PASS
		2480	-17.09	<=8	PASS

Note:

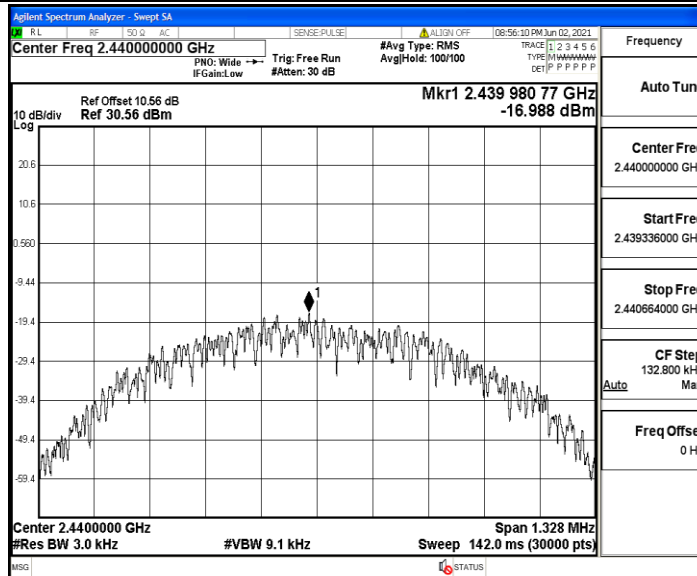
1, Converter factor = $10 * \lg(\text{RBW}/3 \text{ kHz}) = 5.23 \text{ (dB)}$

2, $\text{PSD}[\text{dBm}/3\text{kHz}] = \text{PSD}[\text{dBm}/10\text{kHz}] - \text{Converter Factor}$

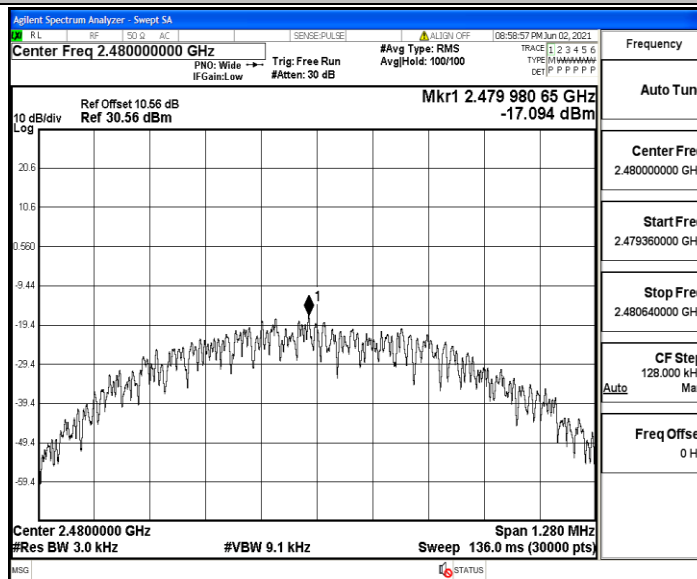
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



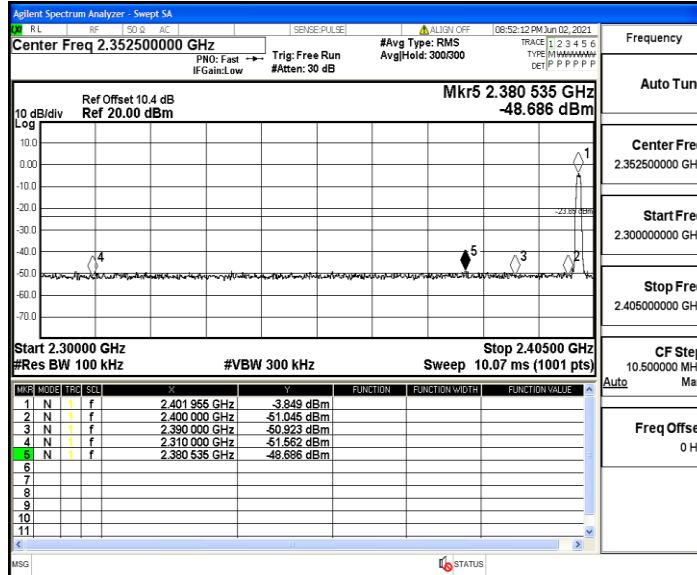
BLE_1M_Ant1_2480



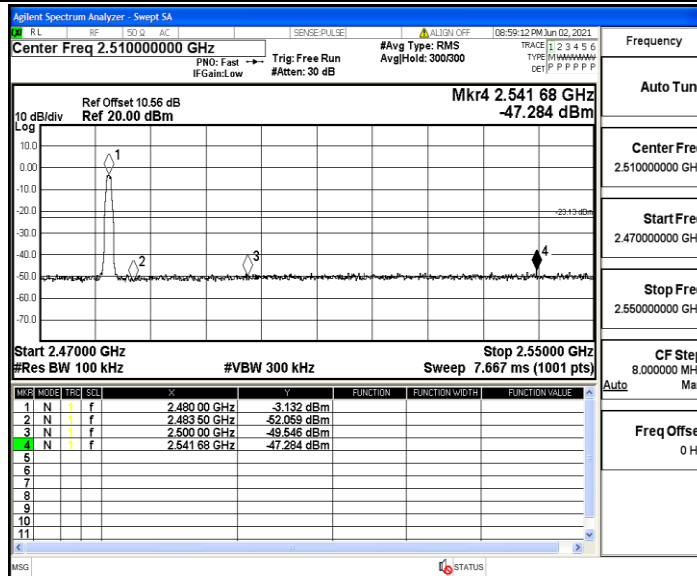
A.5. Band-edge for RF Conducted Emissions

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.85	-48.69	<=-23.85	PASS
		High	2480	-3.13	-47.28	<=-23.13	PASS

BLE_1M_Ant1_Low_2402



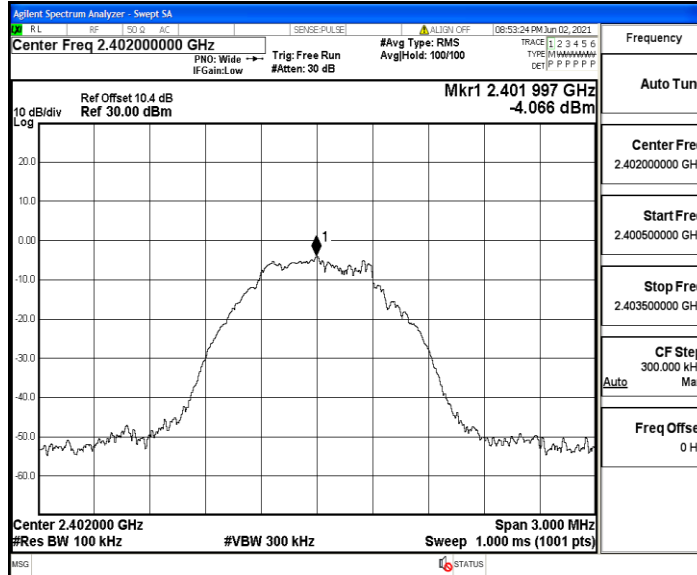
BLE_1M_Ant1_High_2480



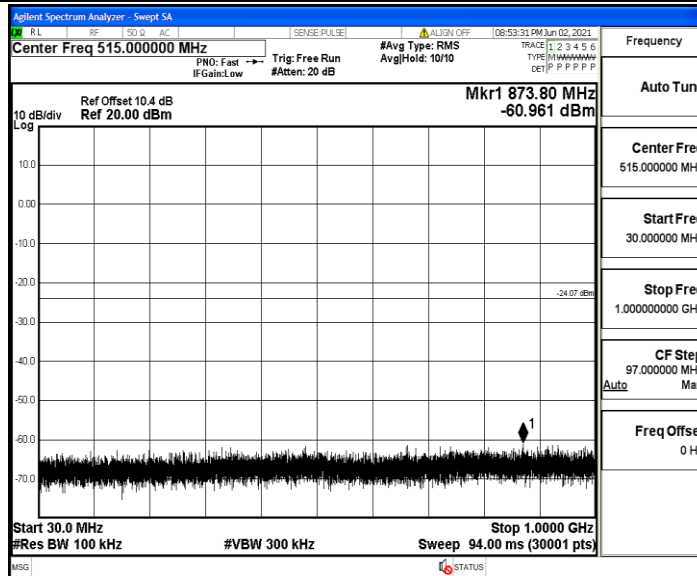
A.6. RF Conducted Spurious Emissions

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.07	-4.07	---	PASS
			30~1000	-4.07	-60.96	<=-24.07	PASS
			1000~26500	-4.07	-51.43	<=-24.07	PASS
		2440	Reference	-2.92	-2.92	---	PASS
			30~1000	-2.92	-60.31	<=-22.92	PASS
			1000~26500	-2.92	-51.32	<=-22.92	PASS
		2480	Reference	-3.05	-3.05	---	PASS
			30~1000	-3.05	-61.1	<=-23.05	PASS
			1000~26500	-3.05	-51	<=-23.05	PASS

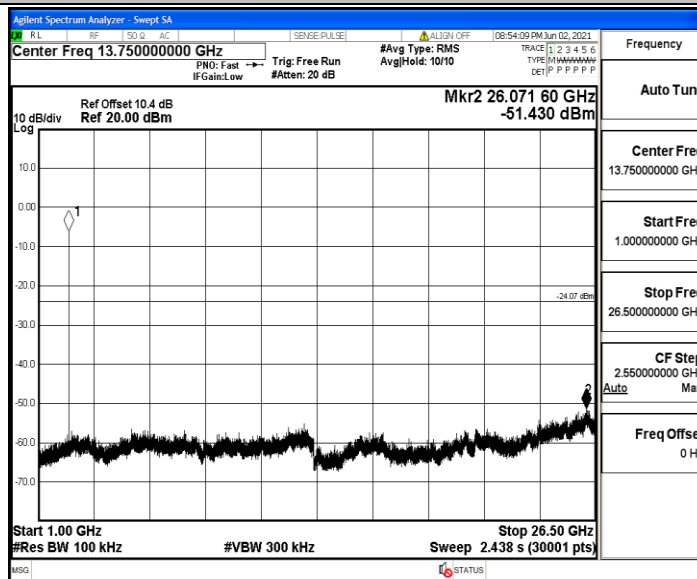
BLE_1M_Ant1_2402_0~Reference



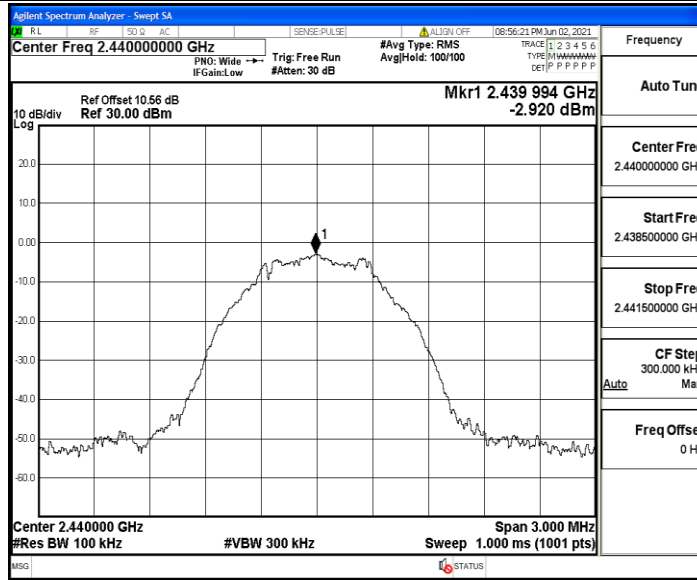
BLE_1M_Ant1_2402_30~1000



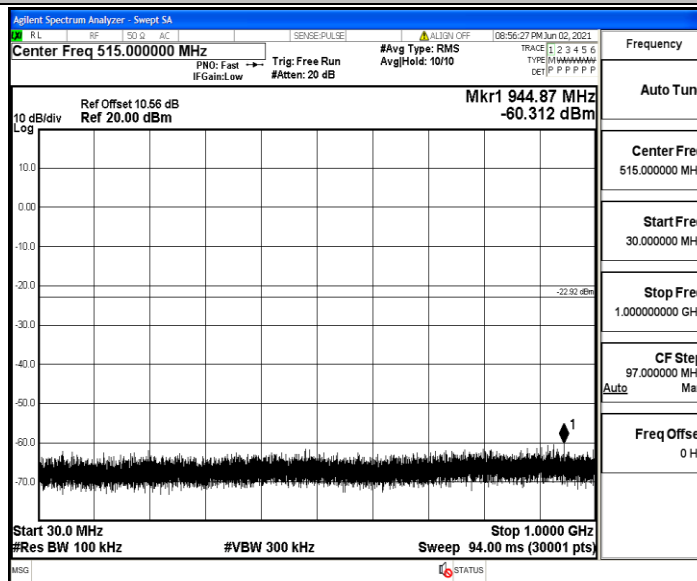
BLE_1M_Ant1_2402_1000~26500



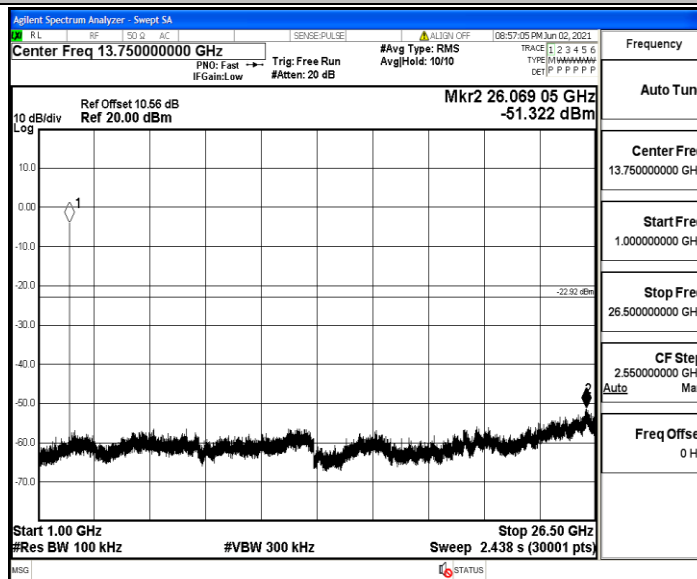
BLE_1M_Ant1_2440_0~Reference



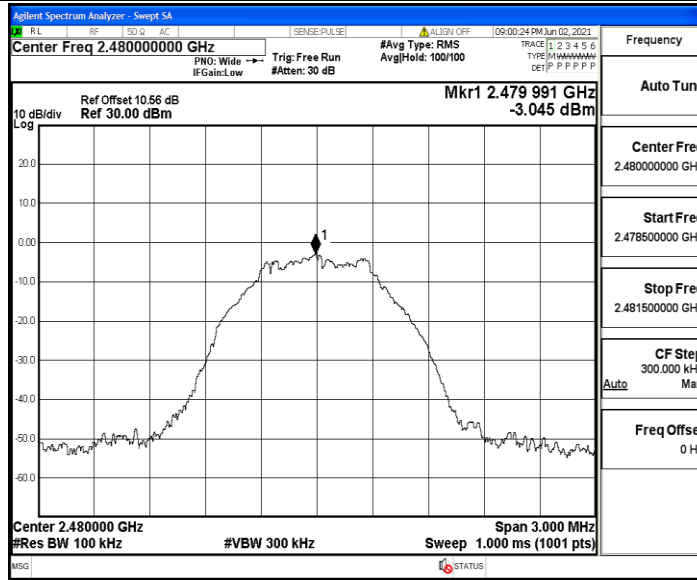
BLE_1M_Ant1_2440_30~1000



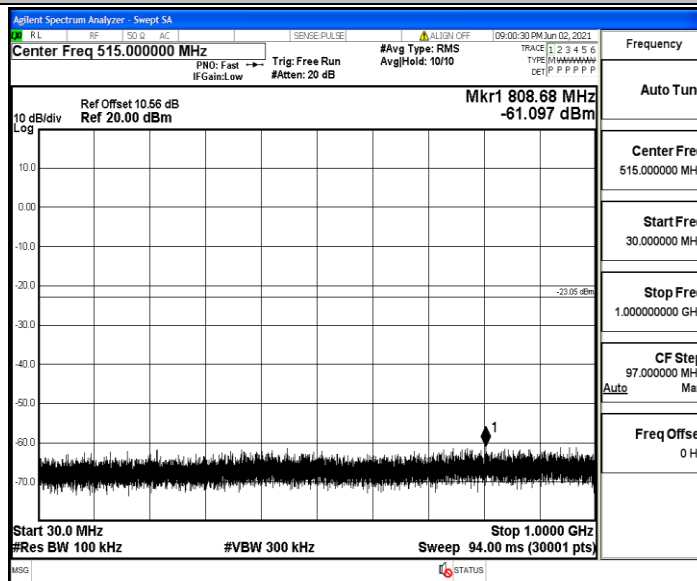
BLE_1M_Ant1_2440_1000~26500



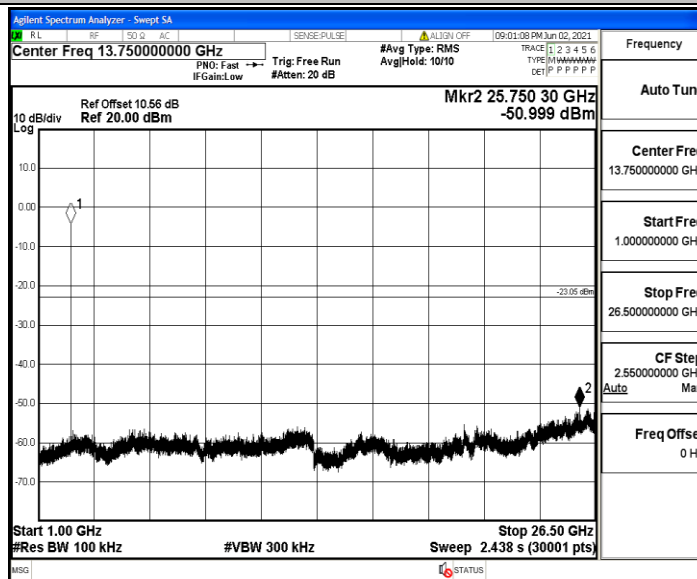
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



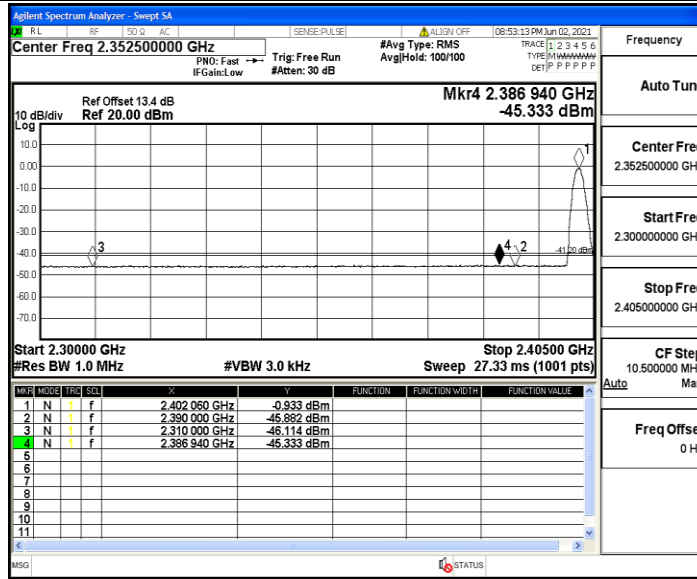
A.7. Restrict-band band-edge measurements

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-46.11	<=-41.20	PASS
				AV	2386.940	-45.33	<=-41.20	PASS
				AV	2390.000	-45.88	<=-41.20	PASS
				Peak	2310.000	-40.31	<=-21.20	PASS
				Peak	2365.415	-35.94	<=-21.20	PASS
				Peak	2390.000	-39.94	<=-21.20	PASS
		High	2480	AV	2483.500	-45.19	<=-41.20	PASS
				AV	2497.680	-44.71	<=-41.20	PASS
				AV	2500.000	-45.16	<=-41.20	PASS
				Peak	2483.500	-38.31	<=-21.20	PASS
				Peak	2487.040	-35.38	<=-21.20	PASS
				Peak	2500.000	-39.08	<=-21.20	PASS

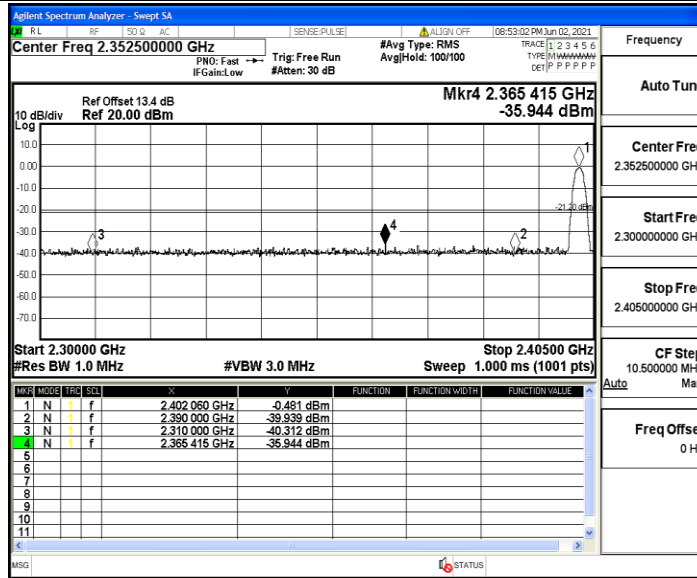
Note:

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.

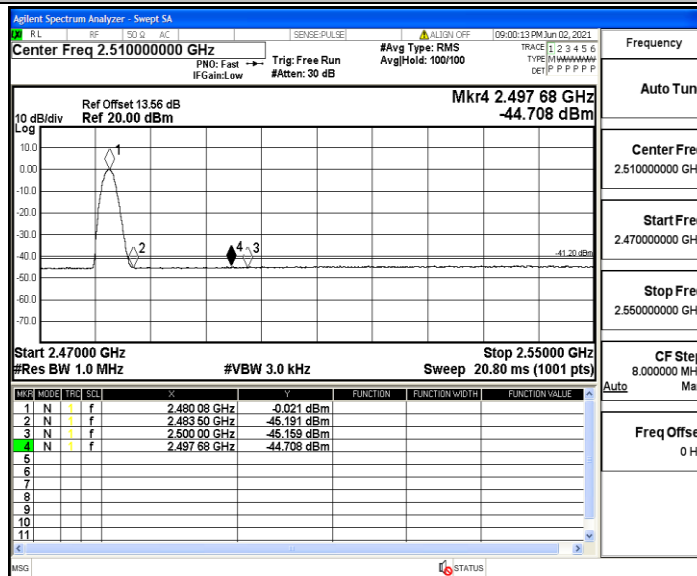
BLE_1M_Ant1_Low_2402_AV



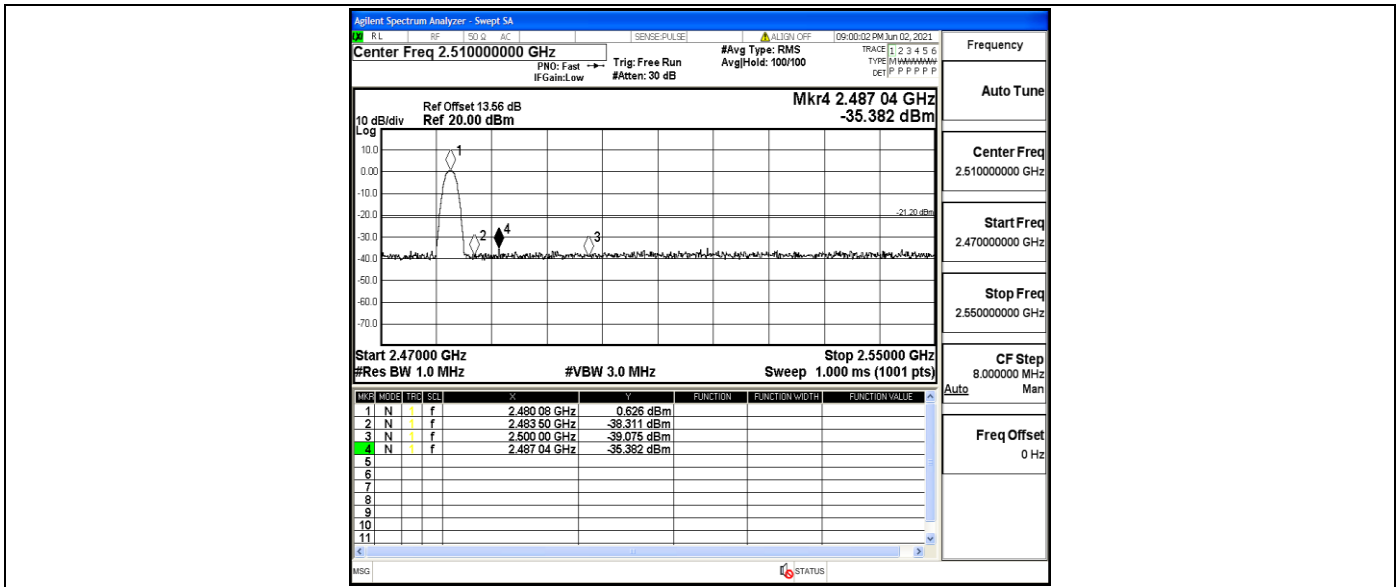
BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



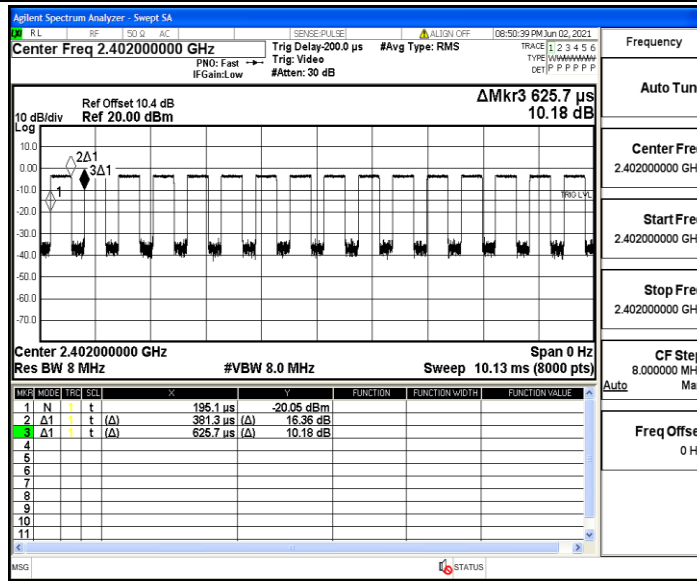
BLE_1M_Ant1_High_2480_Peak



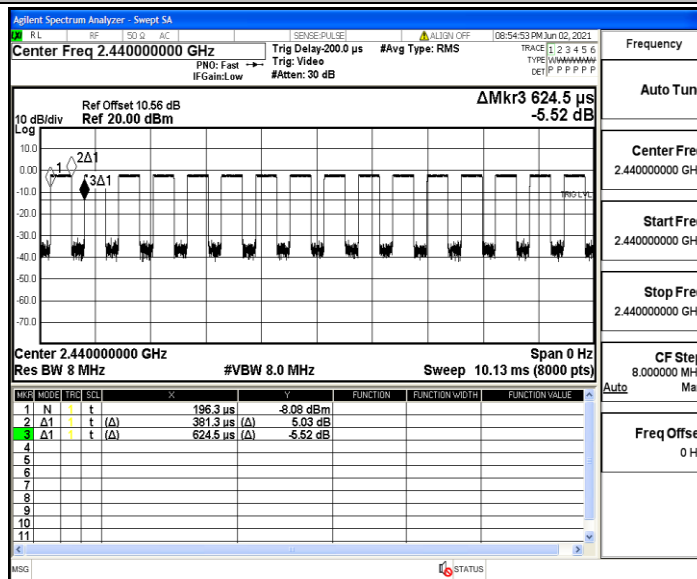
A.8. Duty Cycle

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
BLE_1M	Ant1	2402	0.38	0.63	60.32
		2440	0.38	0.62	61.29
		2480	0.38	0.62	61.29

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

