



Appendix O

RF Test Data for Zigbee(Conducted Measurement)

Product Name: SmartHub

Test Model: SmartHub v2

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li Huan





O.1 DTS Bandwidth

Test Result

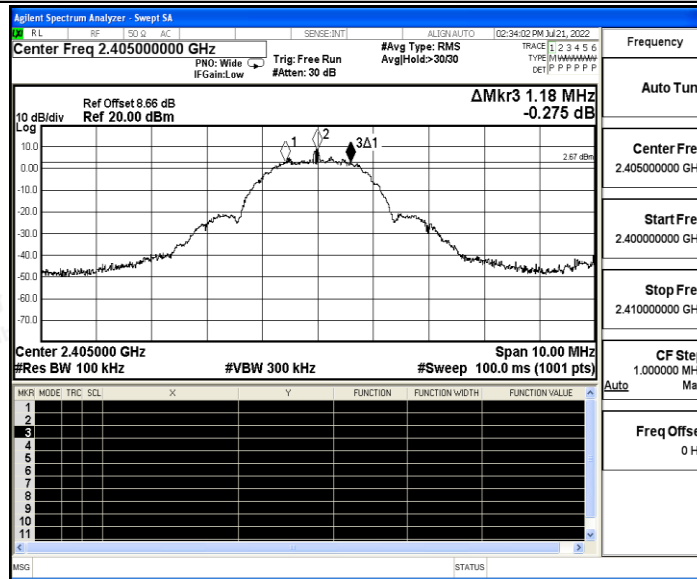
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
ZIGB	Ant1	2405	1.180	2404.410	2405.590	0.5	PASS
		2440	1.080	2439.450	2440.530	0.5	PASS
		2480	1.070	2479.420	2480.490	0.5	PASS



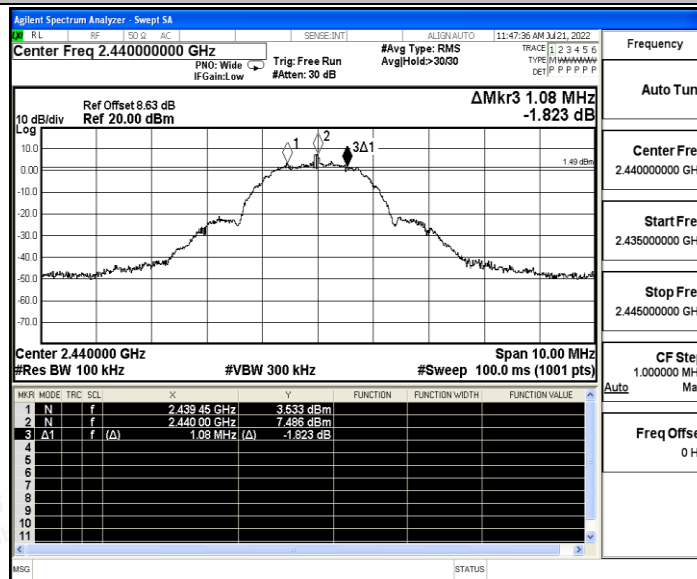


Test Graphs

ZIGB_Ant1_2405

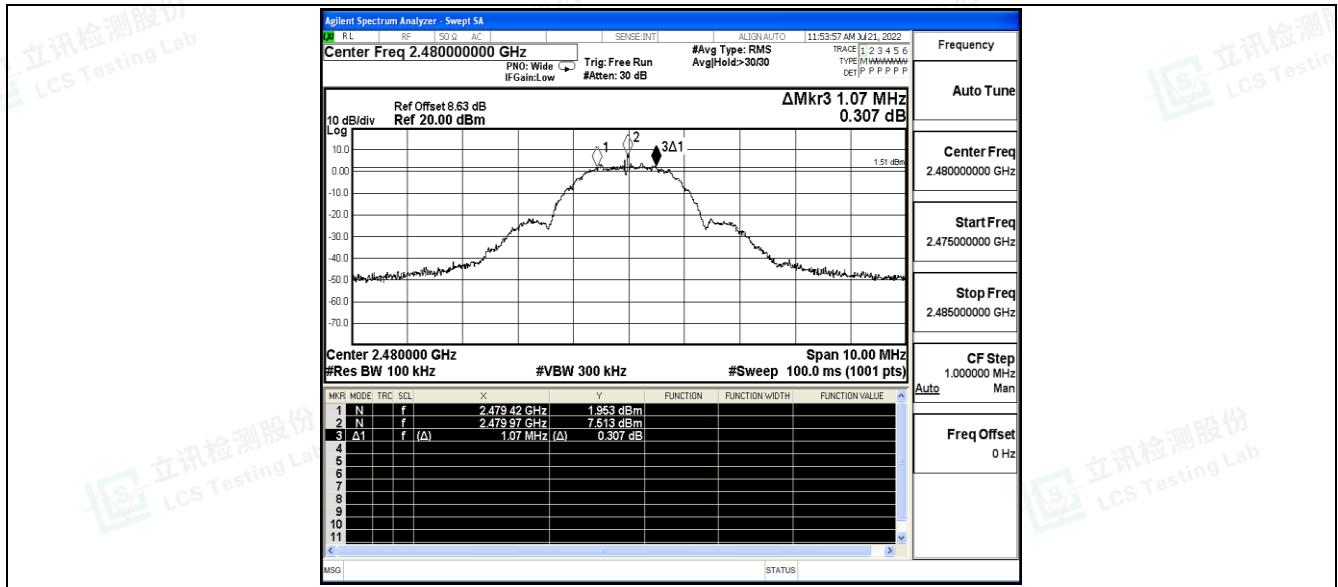


ZIGB_Ant1_2440



ZIGB_Ant1_2480







O.2 Maximum peak conducted output power

Test Result

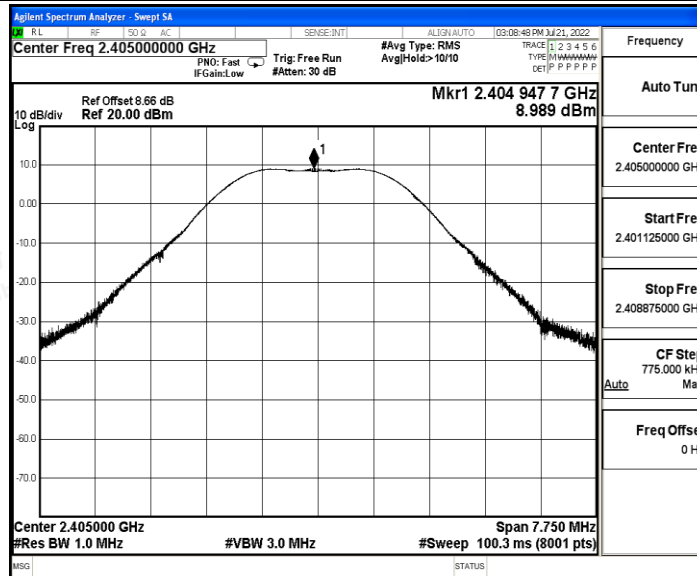
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
ZIGB	Ant1	2405	8.99	≤30	PASS
		2440	8.21	≤30	PASS
		2480	7.54	≤30	PASS



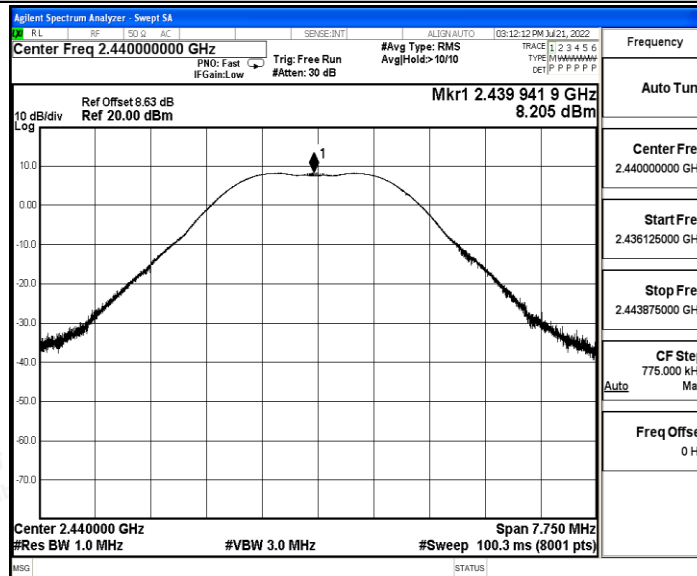


Test Graphs

ZIGB_Ant1_2405

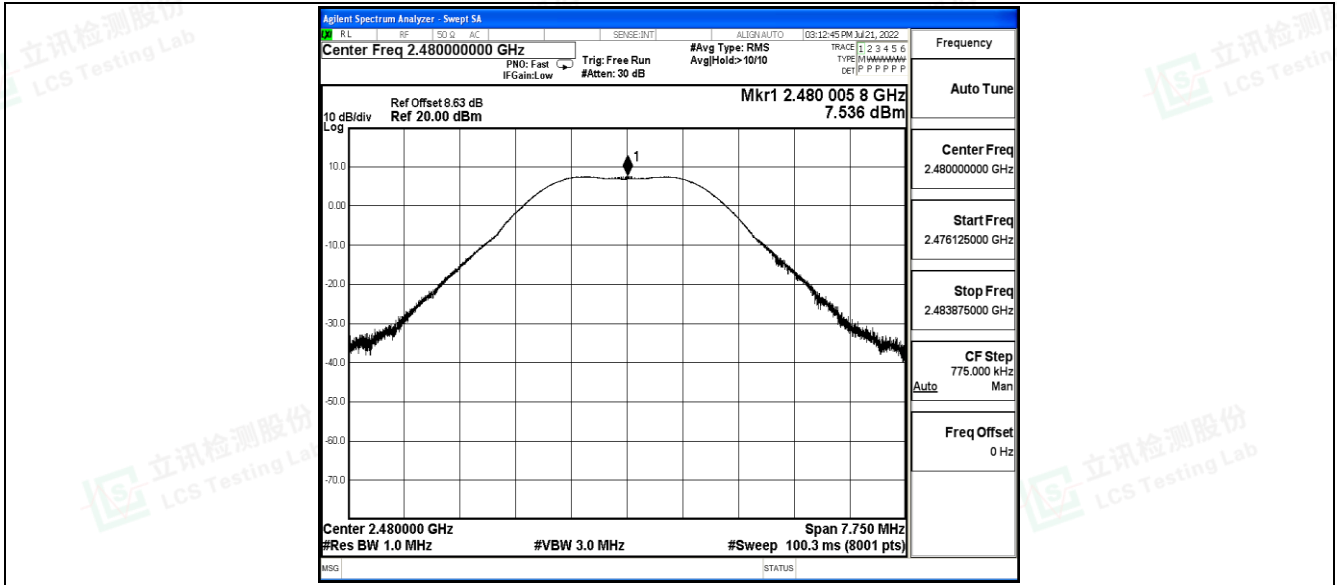


ZIGB_Ant1_2440



ZIGB_Ant1_2480







O.3 Maximum power spectral density

Test Result

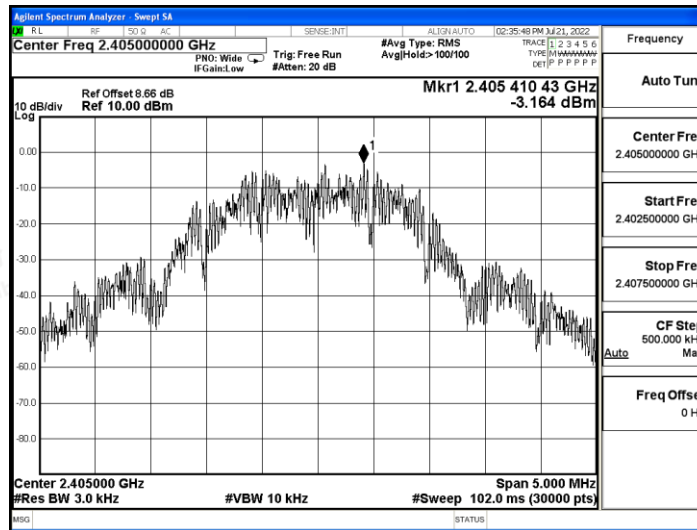
TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
ZIGB	Ant1	2405	-3.16	≤8.00	PASS
		2440	-3.62	≤8.00	PASS
		2480	-4.36	≤8.00	PASS



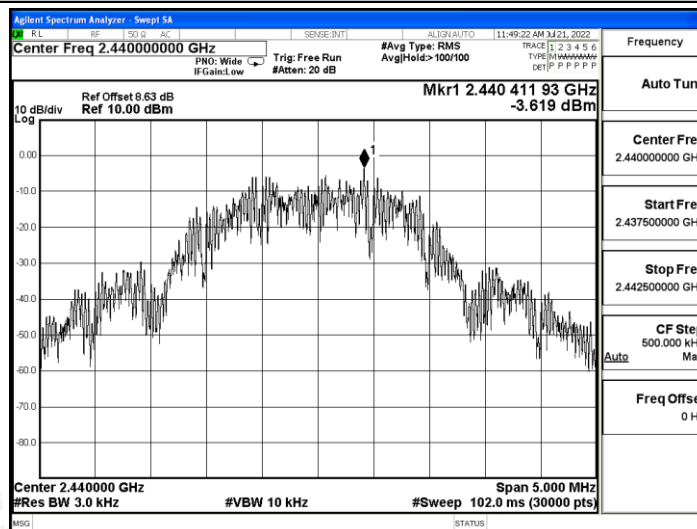


Test Graphs

ZIGB_Ant1_2405

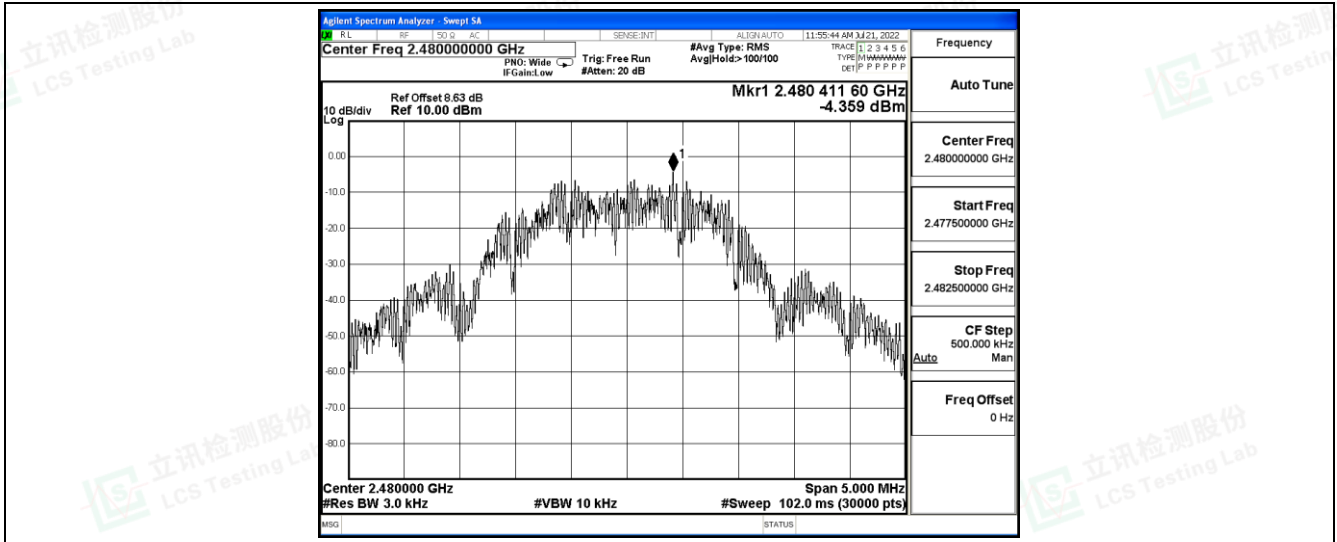


ZIGB_Ant1_2440



ZIGB_Ant1_2480







O.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
ZIGB	Ant1	Low	2405	7.81	-47.81	≤-12.19	PASS
		High	2480	7.47	-45.54	≤-12.53	PASS

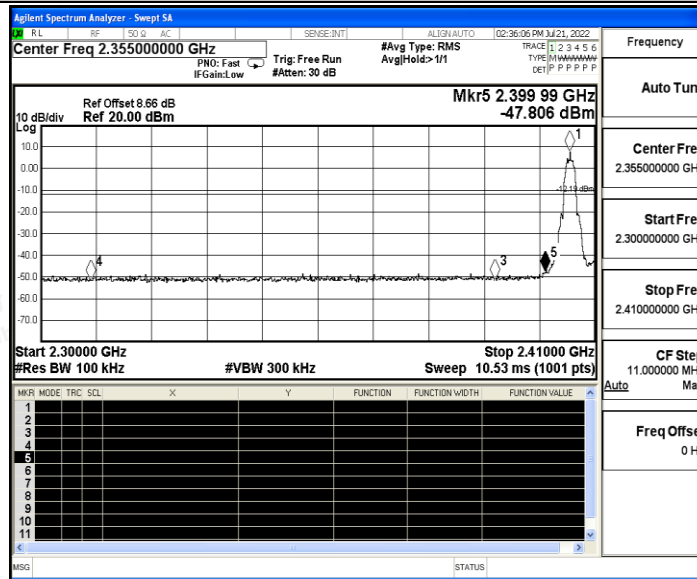


Shenzhen LCS Compliance Testing Laboratory Ltd.
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com
Scan code to check authenticity

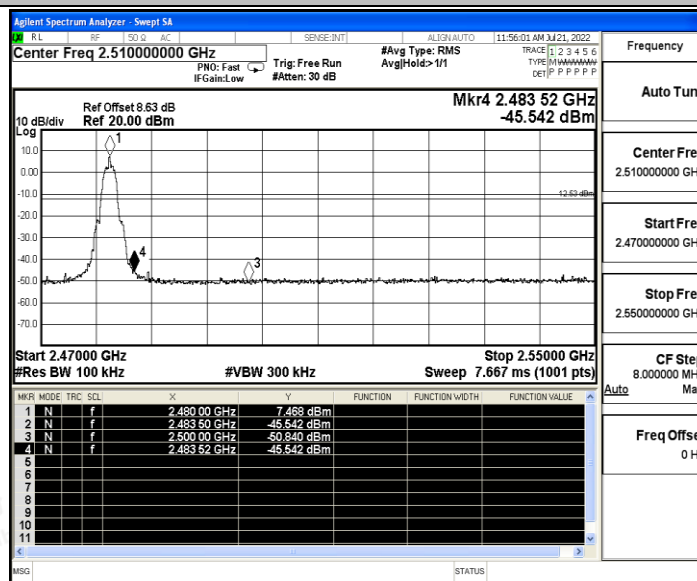


Test Graphs

ZIGB_Ant1_Low_2405



ZIGB_Ant1_High_2480





O.5 Conducted Spurious Emission

Test Result

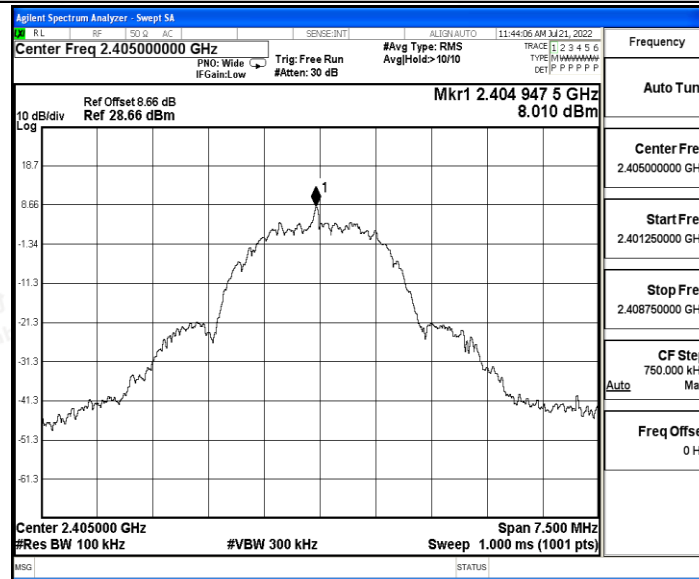
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
ZIGB	Ant1	2405	Reference	7.61	7.61	---	PASS
			30~1000	7.61	-58.22	≤-12.39	PASS
			1000~26500	7.61	-36.23	≤-12.39	PASS
		2440	Reference	5.30	5.30	---	PASS
			30~1000	5.30	-59.19	≤-14.7	PASS
			1000~26500	5.30	-38.53	≤-14.7	PASS
		2480	Reference	2.96	2.96	---	PASS
			30~1000	2.96	-58.23	≤-17.04	PASS
			1000~26500	2.96	-39.76	≤-17.04	PASS



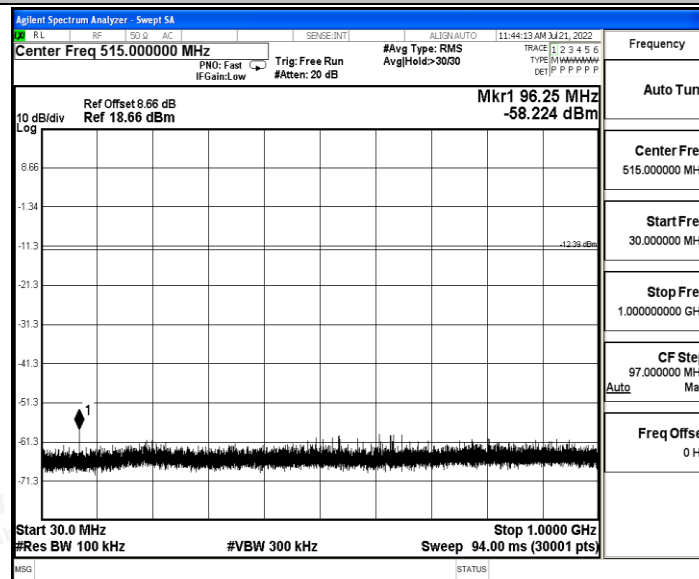


Test Graphs

ZIGB_Ant1_2405_0~Reference

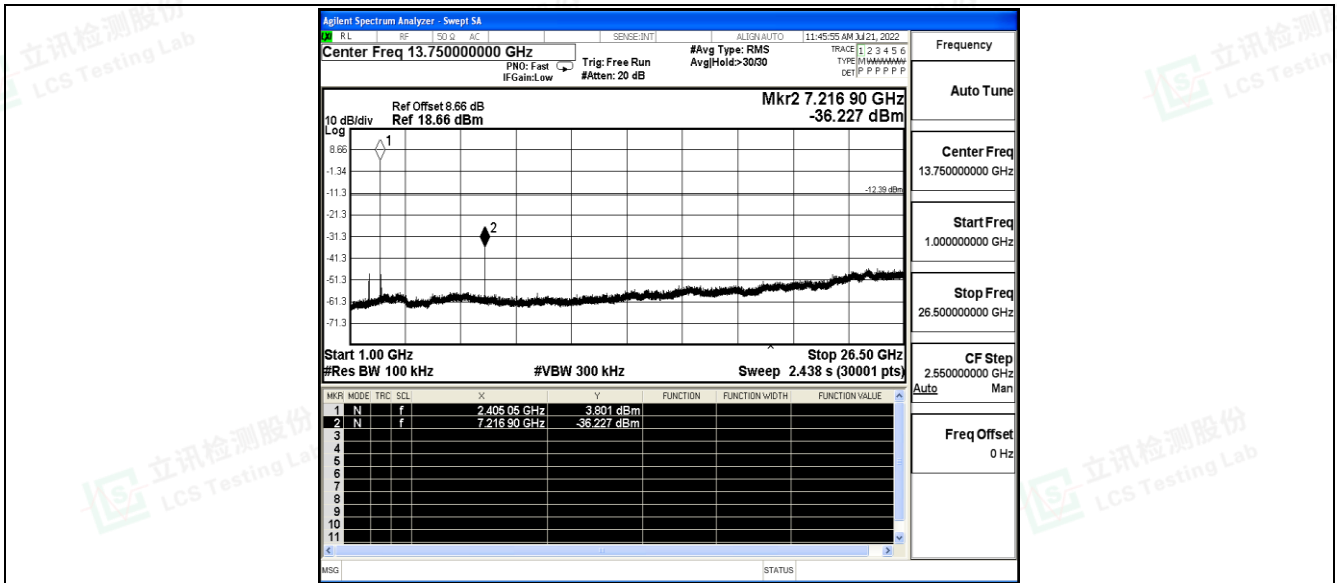


ZIGB_Ant1_2405_30~1000

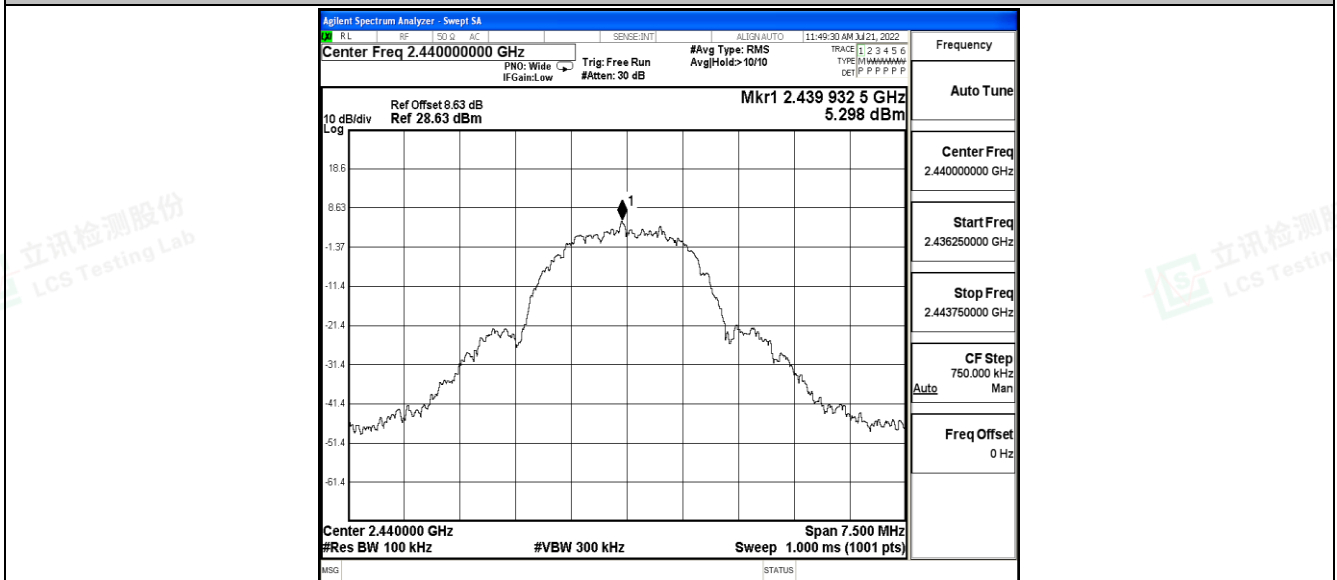


ZIGB_Ant1_2405_1000~26500



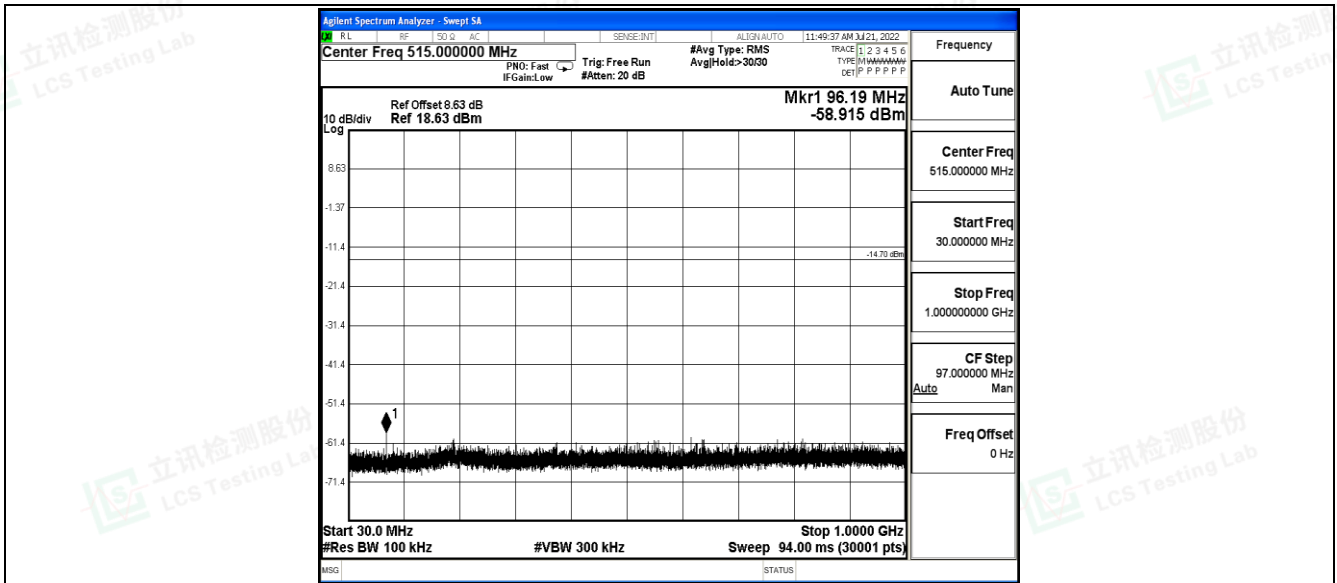


ZIGB_Ant1_2440_0~Reference

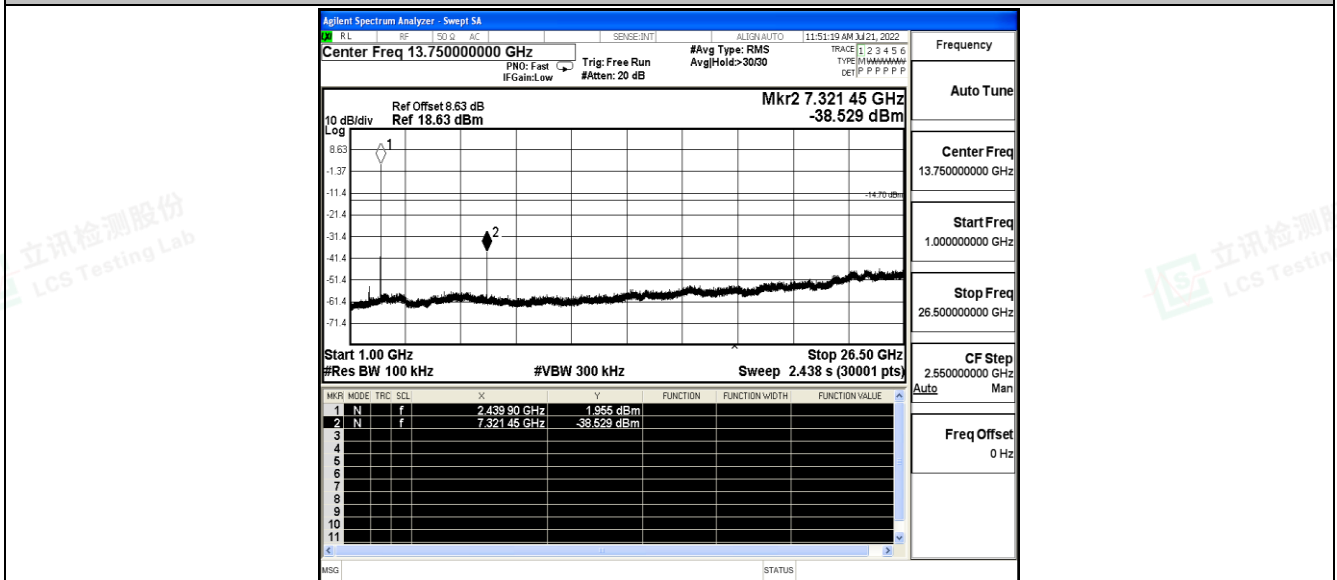


ZIGB_Ant1_2440_30~1000



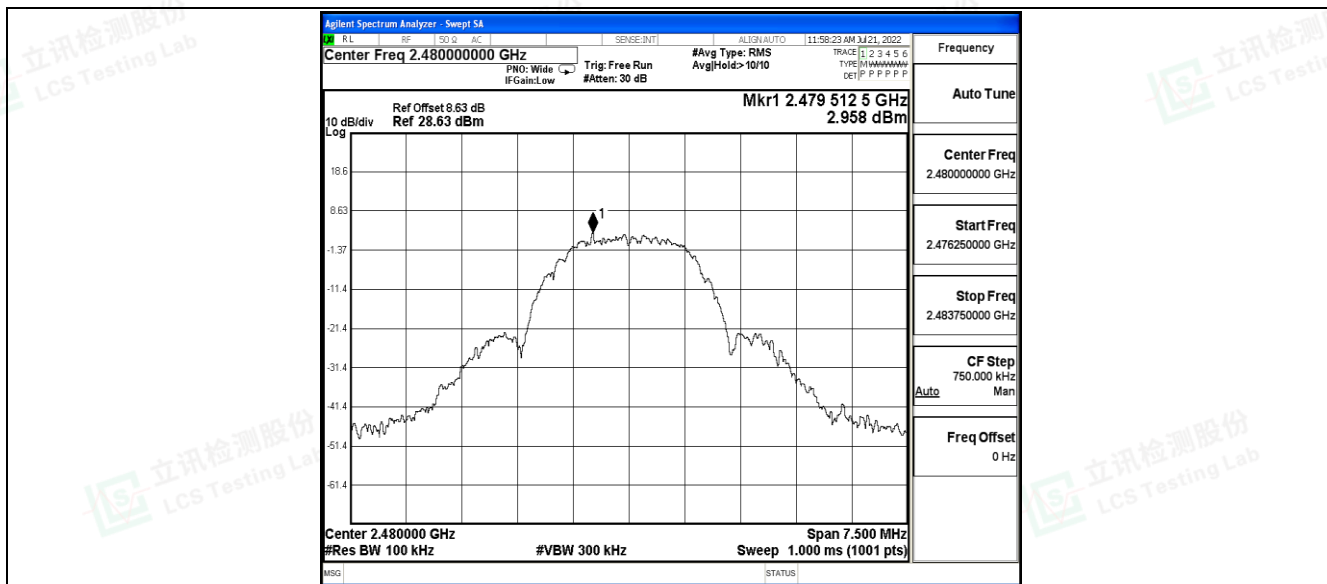


ZIGB_Ant1_2440_1000~26500

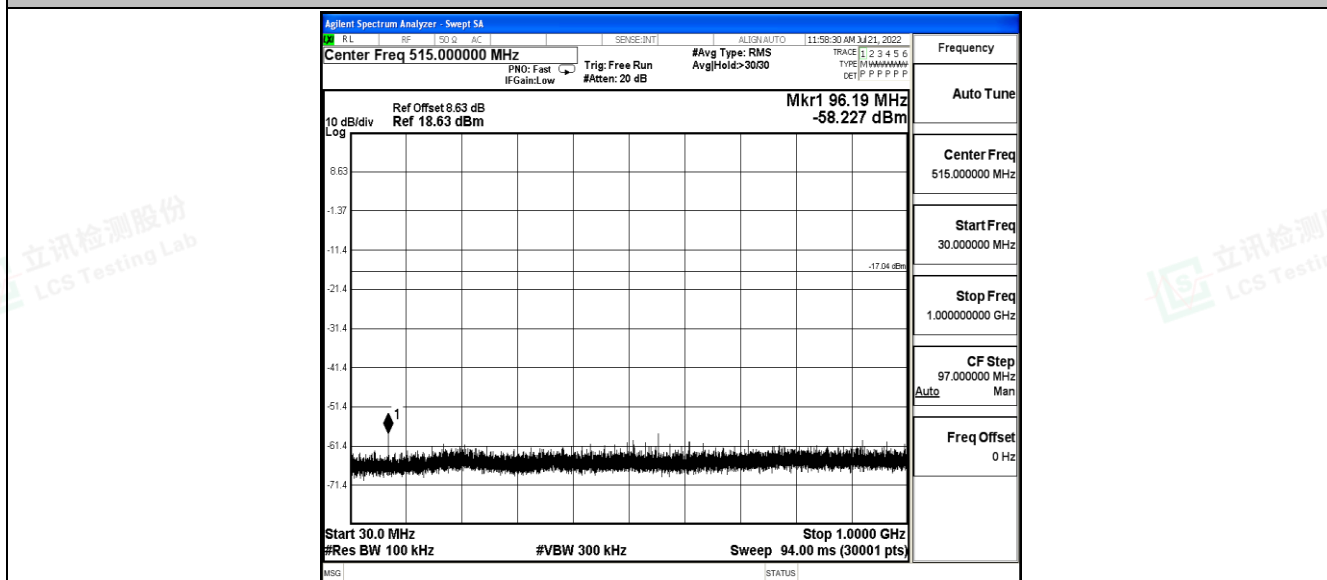


ZIGB_Ant1_2480_0~Reference



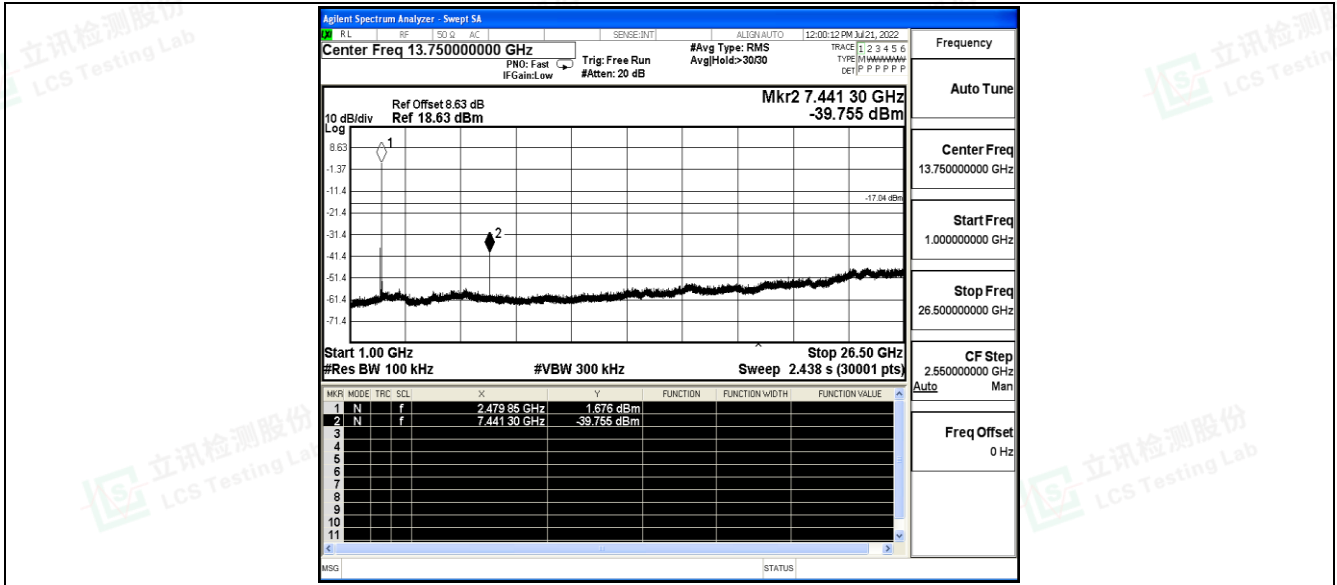


ZIGB_Ant1_2480_30~1000



ZIGB_Ant1_2480_1000~26500







O.6 Duty Cycle

Test Result

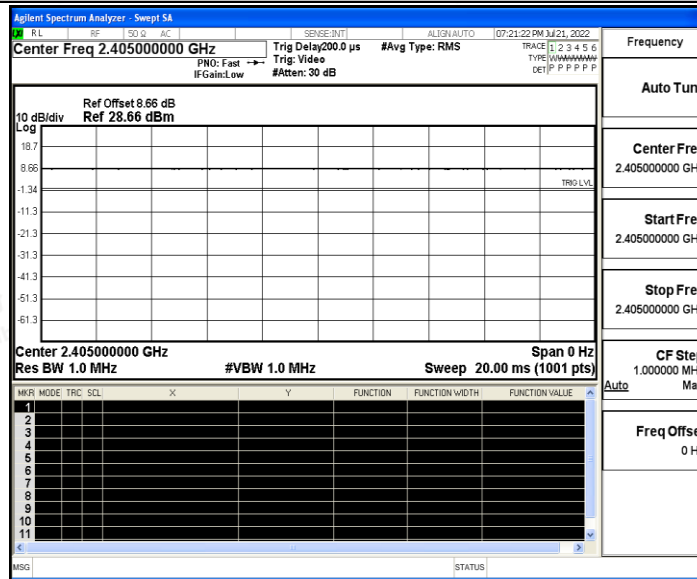
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	1/T
ZIGB	Ant1	2405	20.00	20.00	100.00	0.00	1
		2440	20.00	20.00	100.00	0.00	1
		2480	20.00	20.00	100.00	0.00	1



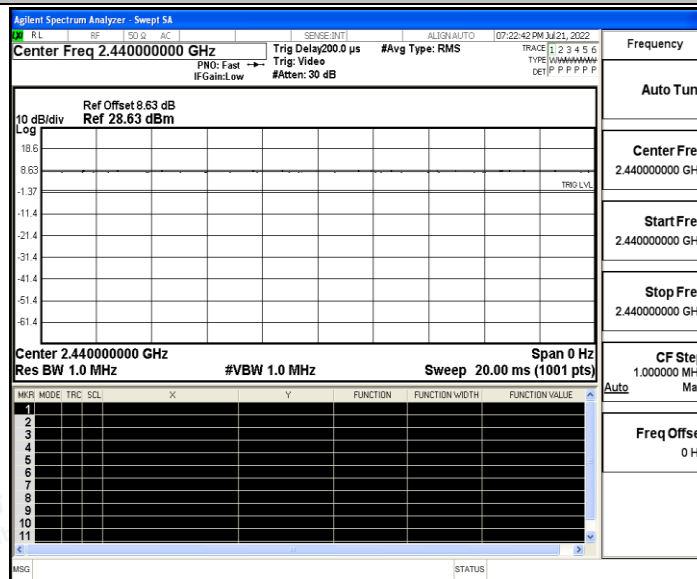


Test Graphs

ZIGB_Ant1_2405

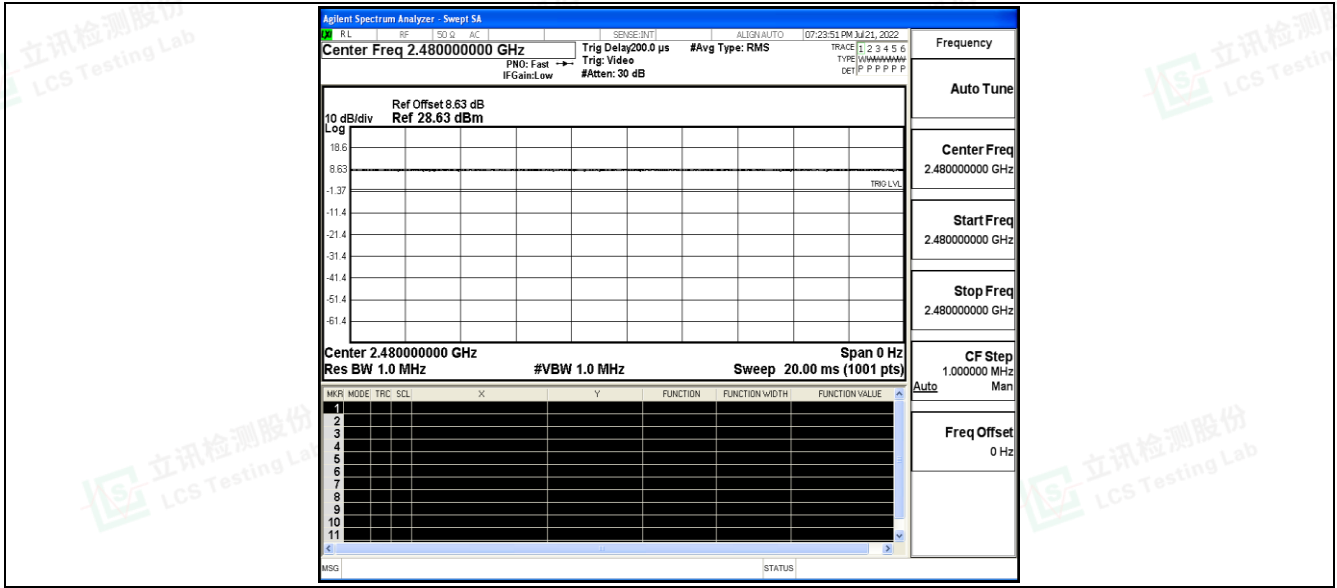


ZIGB_Ant1_2440



ZIGB_Ant1_2480







O.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	-48.44	≤-41.20	PASS
				AV	2389.540	-48.07	≤-41.20	PASS
				AV	2390.000	-48.08	≤-41.20	PASS
				Peak	2310.000	-38.68	≤-21.20	PASS
				Peak	2383.270	-36.4	≤-21.20	PASS
				Peak	2390.000	-37.81	≤-21.20	PASS
		High	2480	AV	2483.500	-43.82	≤-41.20	PASS
				AV	2483.520	-43.82	≤-41.20	PASS
				AV	2500.000	-47.49	≤-41.20	PASS
				Peak	2483.500	-30.35	≤-21.20	PASS
				Peak	2483.520	-30.35	≤-21.20	PASS
				Peak	2500.000	-37.9	≤-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.

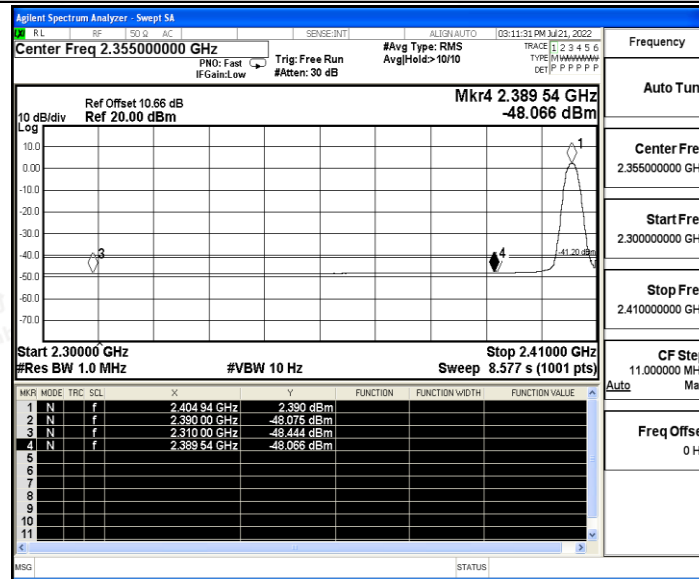


Shenzhen LCS Compliance Testing Laboratory Ltd.
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com
Scan code to check authenticity

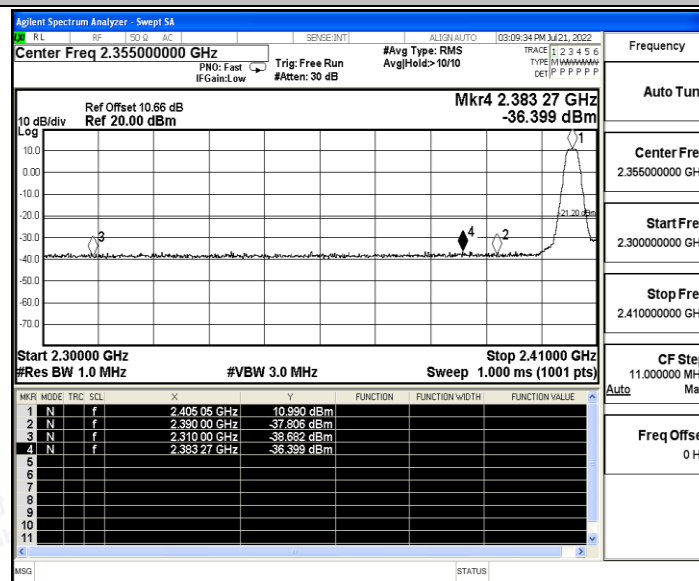


Test Graphs

ZIGB_Ant1_Low_2405_AV

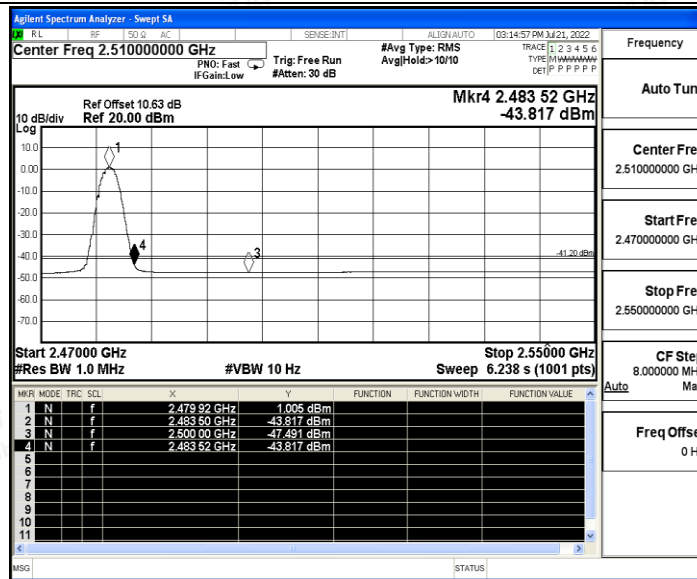


ZIGB_Ant1_Low_2405_Peak



ZIGB_Ant1_High_2480_AV





ZIGB_Ant1_High_2480_Peak

