

Appendix C: Test Results of 2.4GHz SRD

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Appendix C.1: Test Results of 6dB Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
SRD	Ant1	2400.8	0.508	2400.456	2400.964	0.5	PASS
		2440	0.508	2439.656	2440.164	0.5	PASS
		2480	0.512	2479.648	2480.160	0.5	PASS

Test Graphs

SRD_Ant1_2400.8



SRD_Ant1_2440



SRD_Ant1_2480

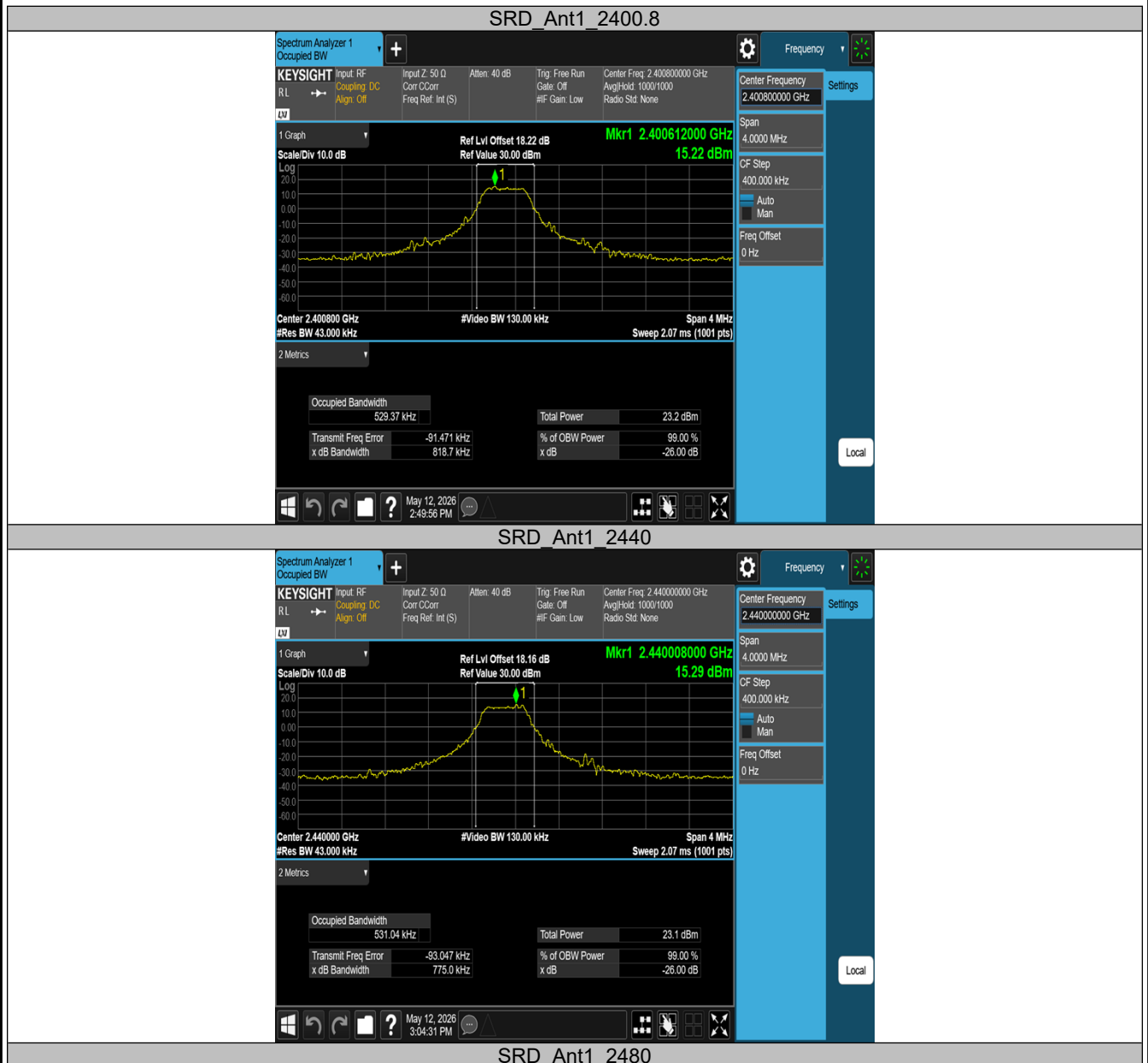


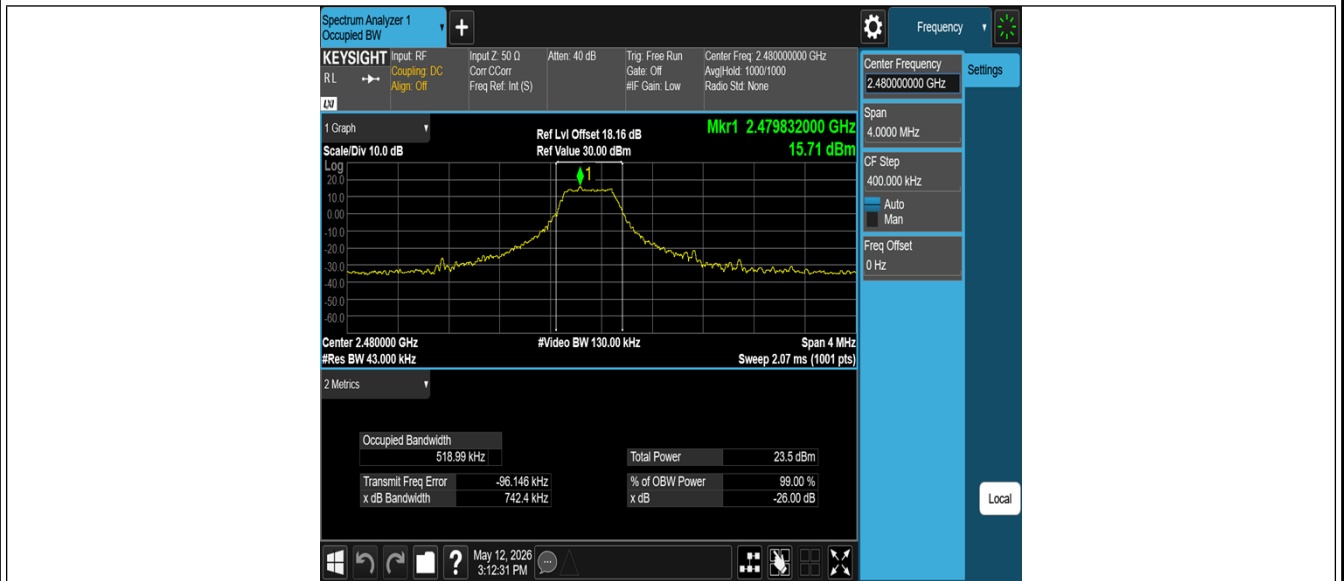
Appendix C.2: Test Results of 99% Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
SRD	Ant1	2400.8	0.52937	2400.4438	2400.9732	---	PASS
		2440	0.53104	2439.6414	2440.1725	---	PASS
		2480	0.51899	2479.6444	2480.1633	---	PASS

Test Graphs





Appendix C.3: Test Results of Conducted Power Spectral Density

Test Result

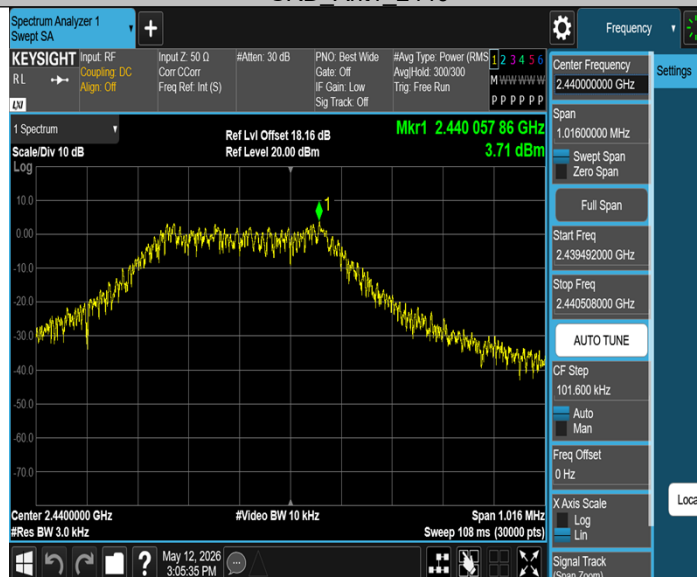
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
SRD	Ant1	2400.8	3.54	≤8.00	PASS
		2440	3.71	≤8.00	PASS
		2480	3.14	≤8.00	PASS

Test Graphs

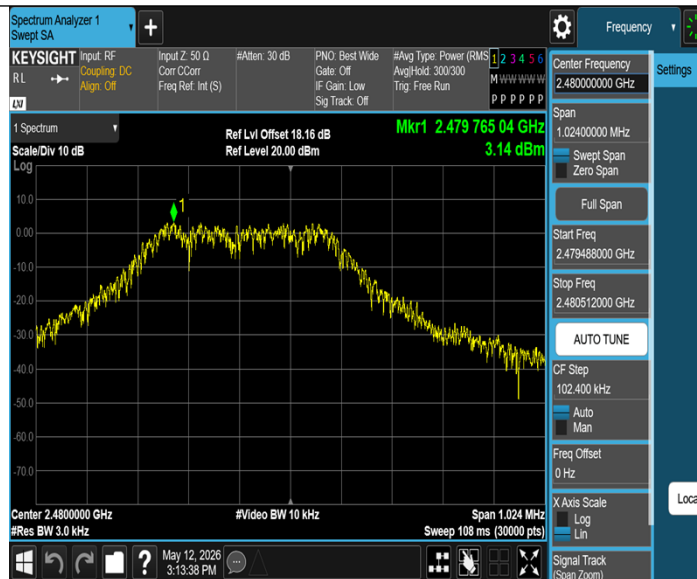
SRD_Ant1_2400.8



SRD_Ant1_2440



SRD_Ant1_2480



Appendix C.4: Test Results of Band Edge Measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
SRD	Ant1	Low	2400.8	16.08	-18.05	≤ -3.92	PASS
		High	2480	16.13	-39.42	≤ -3.87	PASS

Test Graphs

SRD_Ant1_Low_2400.8



SRD_Ant1_High_2480

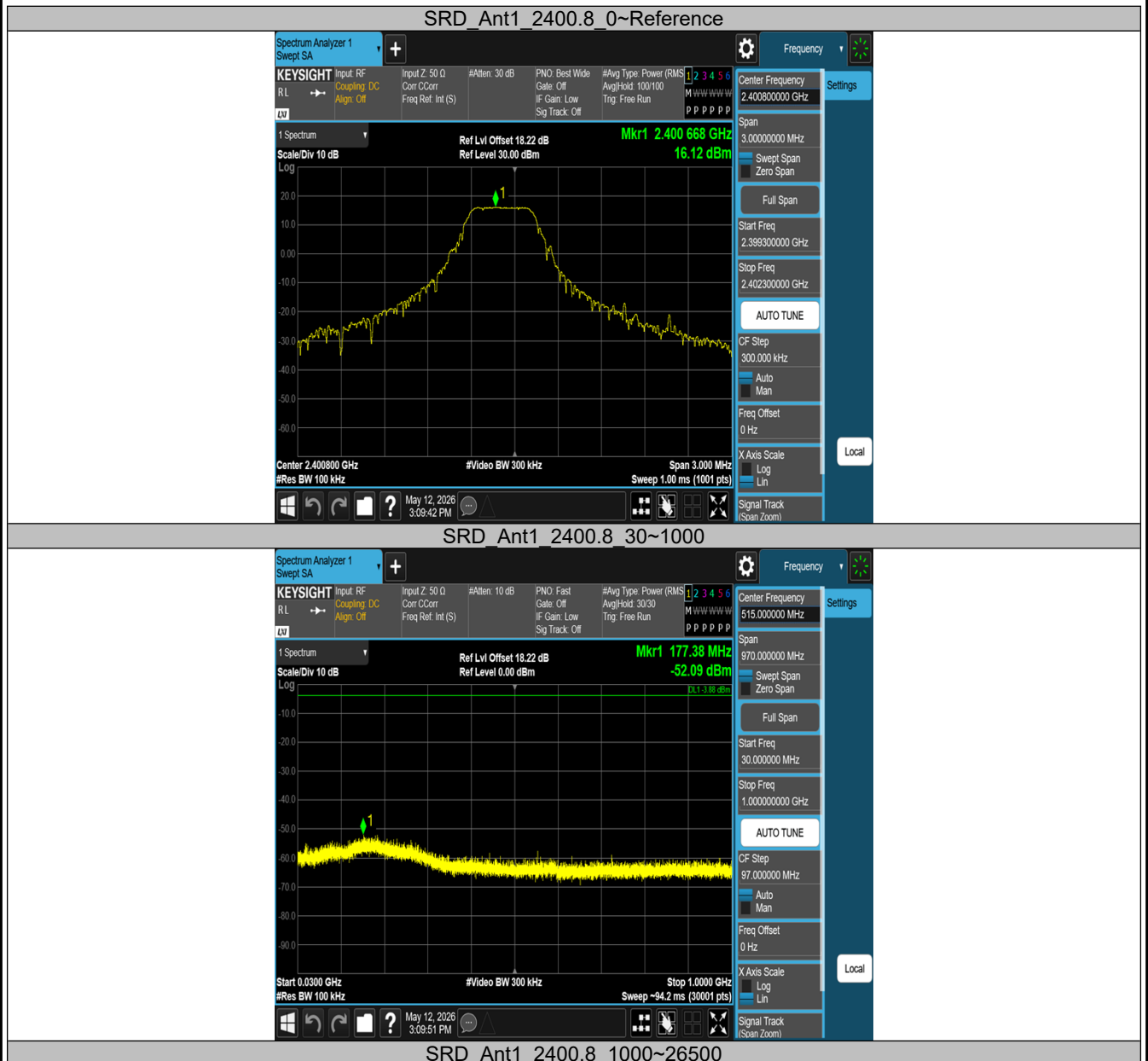


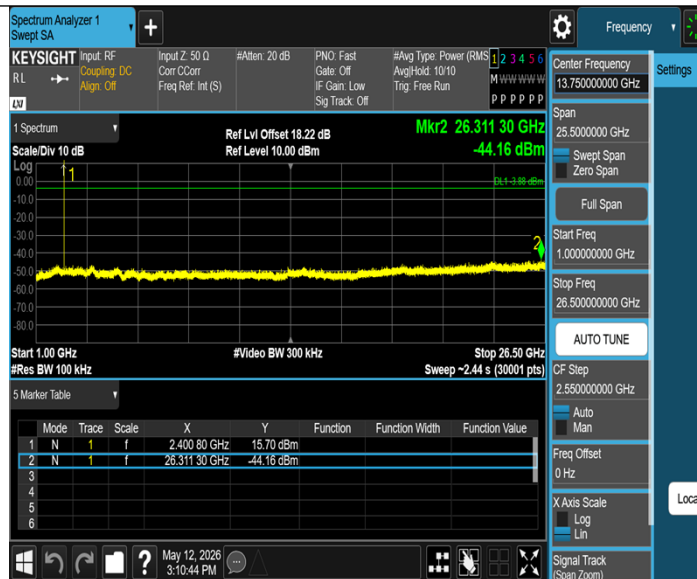
Appendix C.5: Test Results of Conducted Spurious Emission

Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
SRD	Ant1	2400.8	Reference	16.12	16.12	---	PASS
			30~1000	16.12	-52.09	≤-3.88	PASS
			1000~26500	16.12	-44.16	≤-3.88	PASS
		2440	Reference	15.96	15.96	---	PASS
			30~1000	15.96	-51.43	≤-4.04	PASS
			1000~26500	15.96	-43.72	≤-4.04	PASS
		2480	Reference	16.31	16.31	---	PASS
			30~1000	16.31	-50.96	≤-3.69	PASS
			1000~26500	16.31	-44.2	≤-3.69	PASS

Test Graphs

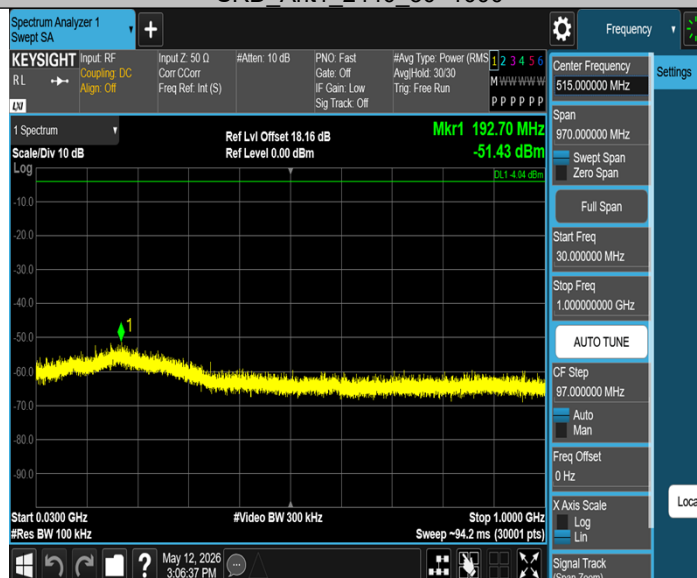




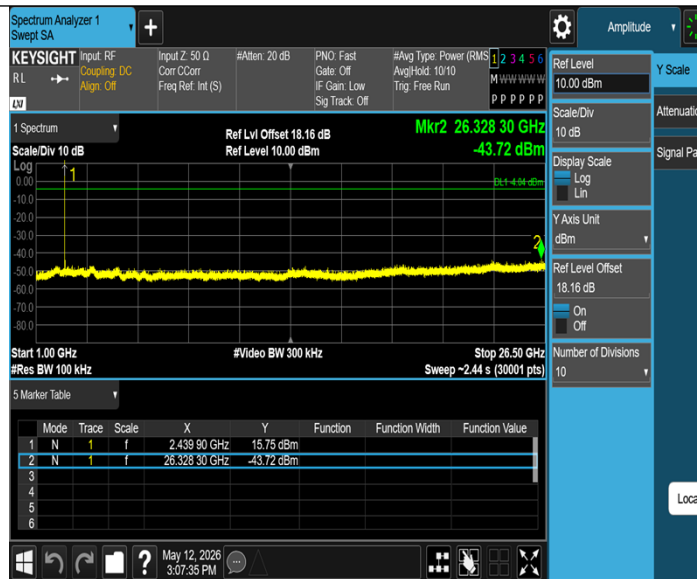
SRD_Ant1_2440_0~Reference



SRD_Ant1_2440_30~1000



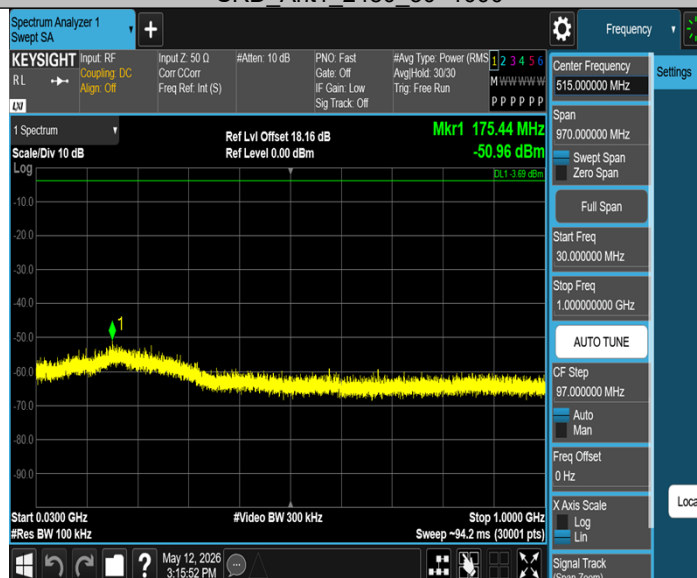
SRD_Ant1_2440_1000~26500



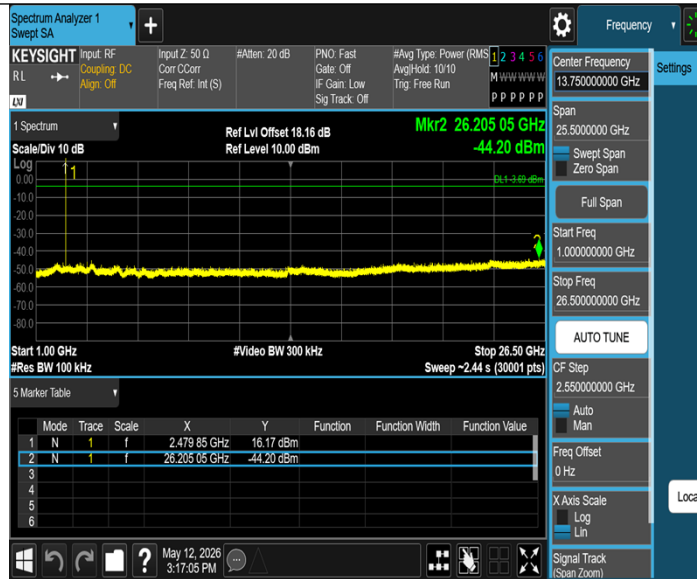
SRD_Ant1_2480_0~Reference



SRD_Ant1_2480_30~1000



SRD_Ant1_2480_1000~26500



Appendix C.6: Test Results of Radiated Spurious Emissions

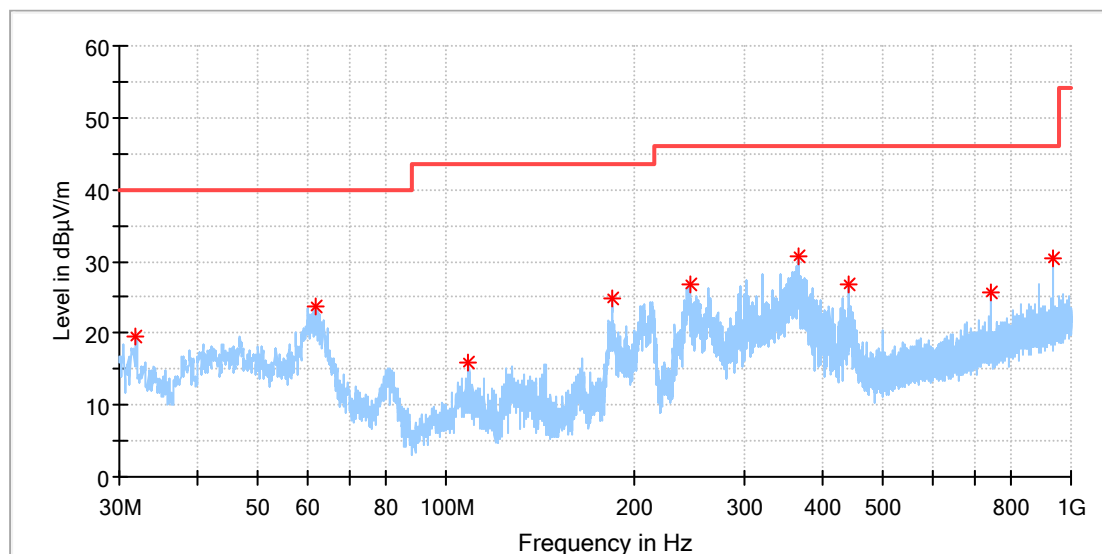
Note:

- 1) This testing was carried out on different modulations, but only the worst case was presented in this report.
- 2) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

30MHz - 1GHz

EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_Mid channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

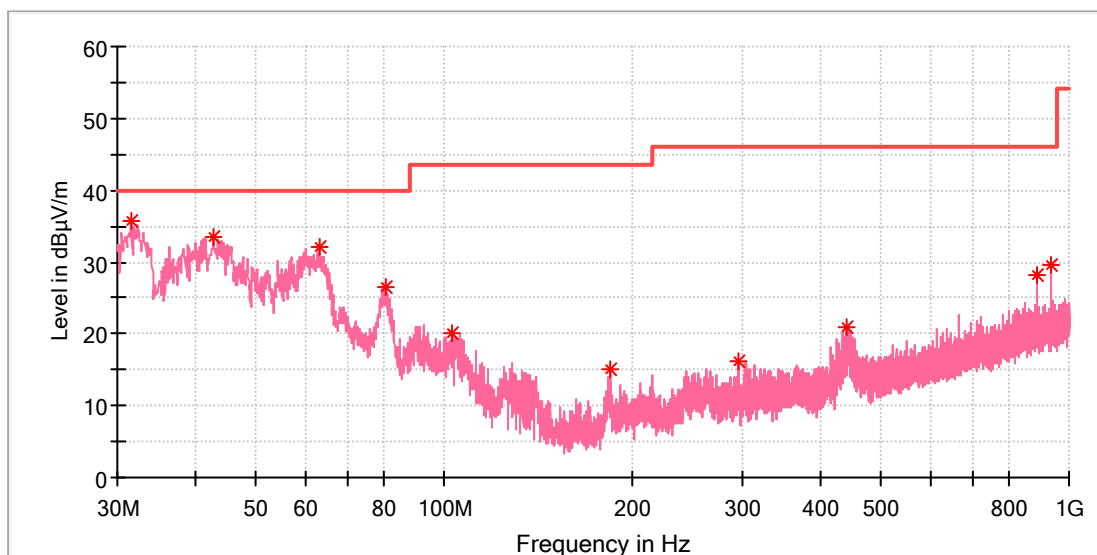
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
31.940000	19.65	40.00	20.35	100.0	H	358.0	-22.7
61.848333	23.72	40.00	16.28	100.0	H	138.0	-19.5
108.785556	15.79	43.50	27.71	100.0	H	68.0	-19.1
184.176111	24.74	43.50	18.76	100.0	H	284.0	-20.2
245.070556	26.70	46.00	19.30	100.0	H	146.0	-17.5
365.188889	30.66	46.00	15.34	100.0	H	265.0	-14.5
439.393889	26.91	46.00	19.09	100.0	H	284.0	-13.0
742.518889	25.57	46.00	20.43	100.0	H	320.0	-7.2
938.405000	30.51	46.00	15.49	100.0	H	120.0	-4.4

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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EUT Information

EUT Name: Humanoid Robot
Model: R1 EDU
Test Mode: 2.4G SRD_Mid channel
Order No/Sample No: 27200463/A004260434-001
Test Voltage: Battery
Remark: Temp 23 Humi:54%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
31.562778	35.73	40.00	4.27	100.0	V	73.0	-22.8
42.663889	33.50	40.00	6.50	100.0	V	6.0	-19.5
63.087778	32.17	40.00	7.83	100.0	V	357.0	-19.8
80.925000	26.44	40.00	13.56	100.0	V	109.0	-23.4
103.181111	19.98	43.50	23.52	100.0	V	226.0	-19.0
184.122222	15.03	43.50	28.47	100.0	V	0.0	-20.2
296.265000	16.20	46.00	29.80	100.0	V	33.0	-16.3
440.417778	20.86	46.00	25.14	100.0	V	150.0	-13.0
890.982778	28.12	46.00	17.88	100.0	V	120.0	-4.9
938.458889	29.50	46.00	16.50	100.0	V	63.0	-4.4

Final Result

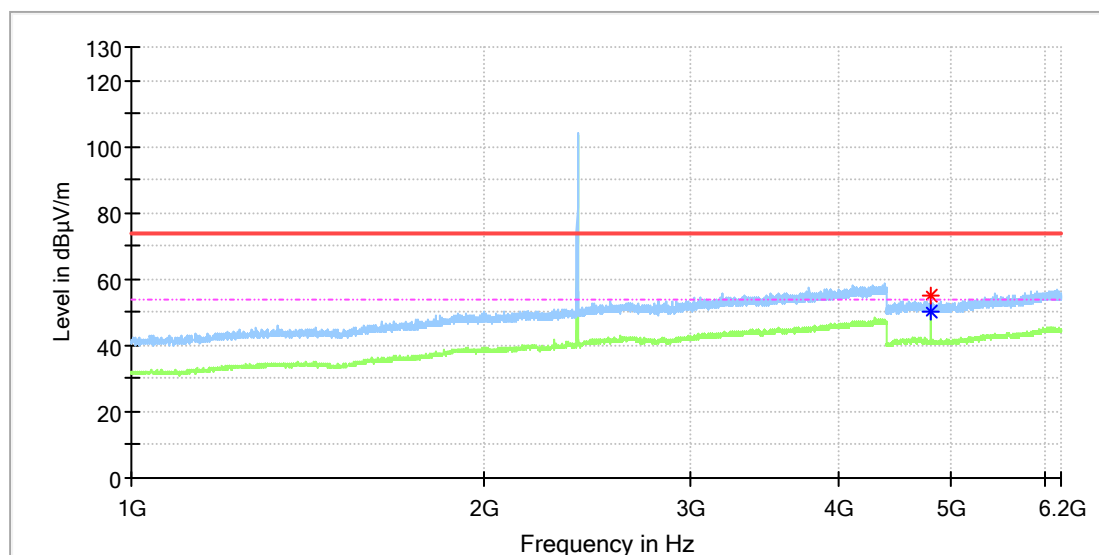
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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1GHz - 18GHz

Note: The highest waveform in the figure is 2.4GHz SRD Fundamental.

EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_Low channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

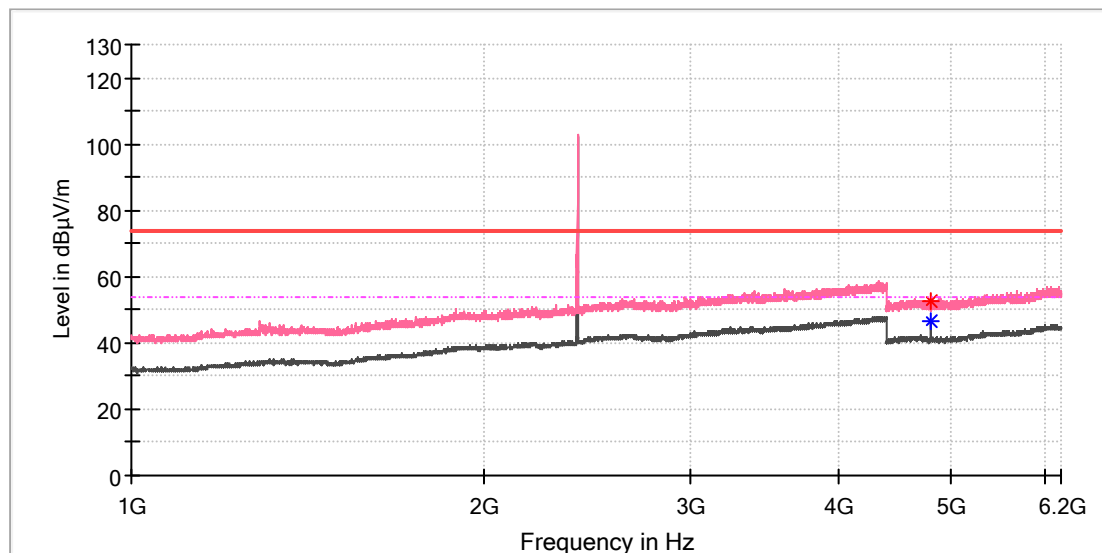
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4801.500000	54.80	---	74.00	19.20	150.0	H	27.0	13.3
4801.500000	---	50.47	54.00	3.53	150.0	H	27.0	13.3

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_Low channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4800.500000	52.61	---	74.00	21.39	150.0	V	119.0	13.3
4801.500000	---	46.77	54.00	7.23	150.0	V	119.0	13.3

Final_Result

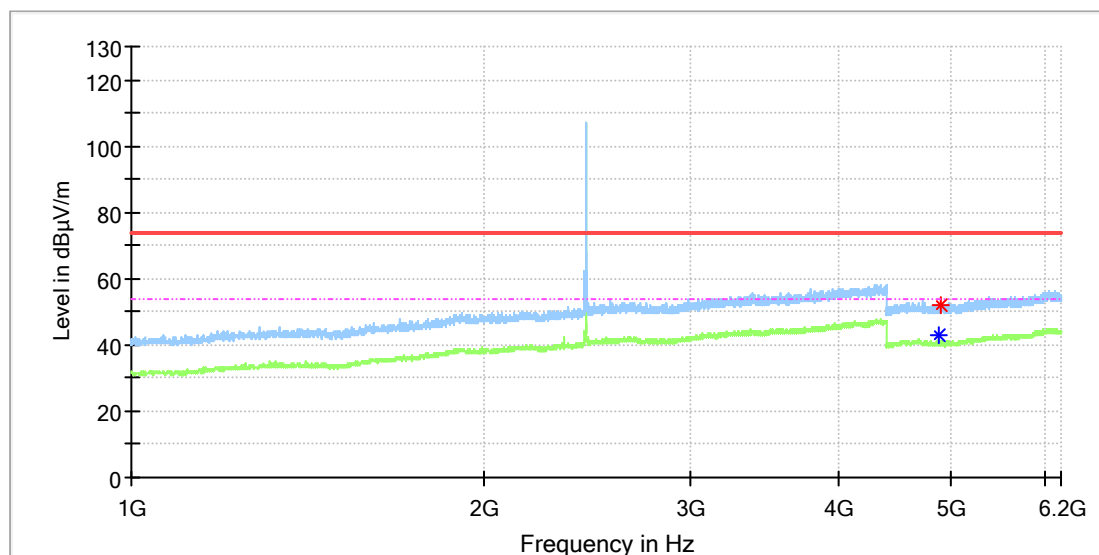
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
100.000000	100.000000	100.000000	100.000000	100.000000	100.000000		100.000000	100.000000

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

EUT Information

EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_Mid channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

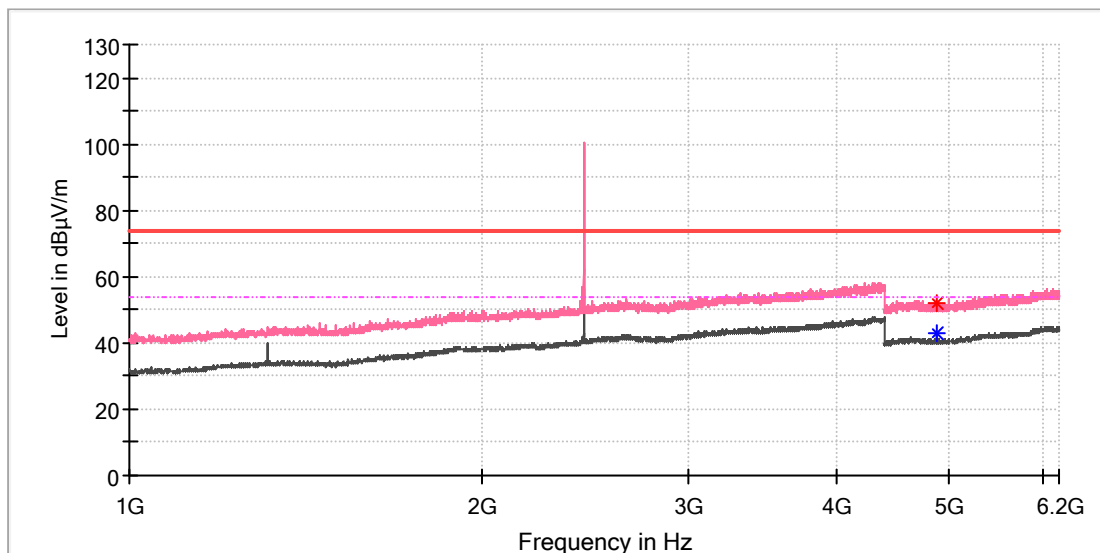
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4880.000000	---	42.71	54.00	11.29	150.0	H	31.0	13.3
4896.000000	51.84	---	74.00	22.16	150.0	H	18.0	13.3

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_Mid channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

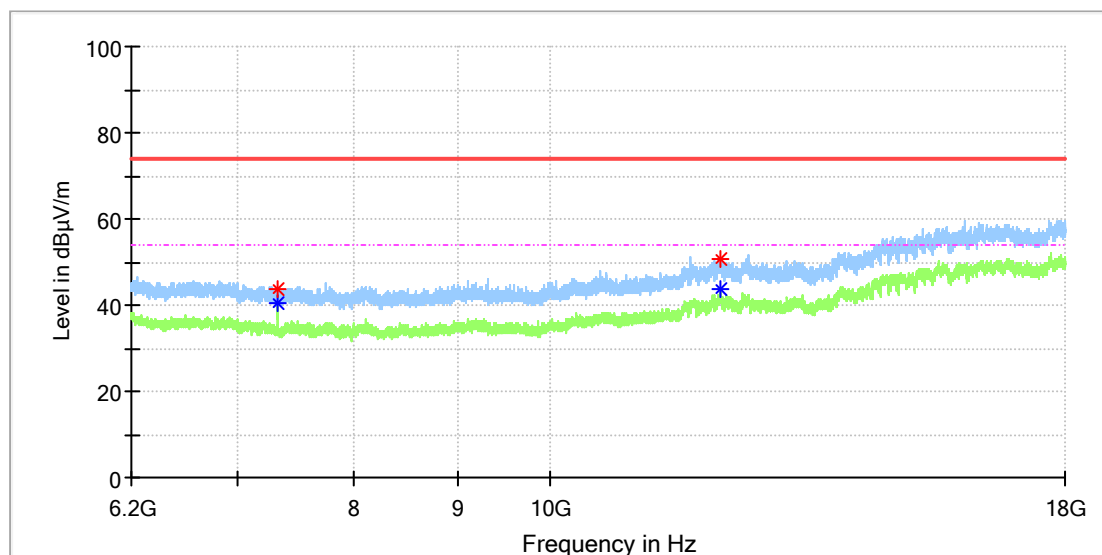
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4879.500000	51.75	---	74.00	22.25	150.0	V	58.0	13.3
4879.500000	---	42.73	54.00	11.27	150.0	V	58.0	13.3

Final_Result

[illegible]

EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_Mid channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

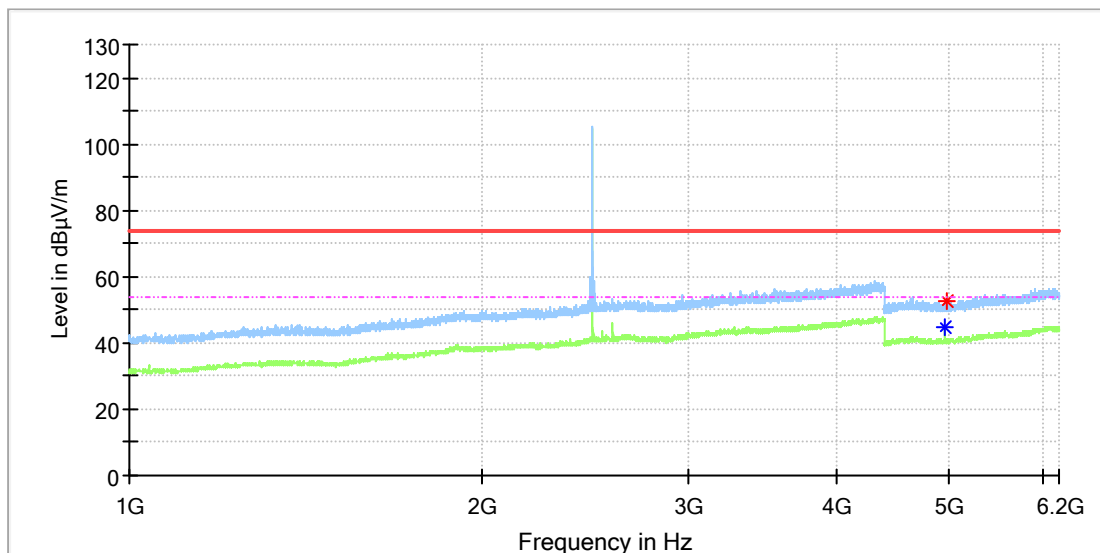
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	PoI	Azimuth (deg)	Corr. (dB/m)
7319.033333	---	40.52	54.00	13.48	150.0	H	246.0	8.2
7320.508333	43.86	---	74.00	30.14	150.0	H	246.0	8.2
12145.725000	---	43.50	54.00	10.50	150.0	H	2.0	16.6
12153.100000	50.76	---	74.00	23.24	150.0	H	350.0	16.6

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
93.75	118.00	118.00	118.00	0.00	10.00	00	00	00

EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_High channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4959.500000	---	44.78	54.00	9.22	150.0	H	124.0	13.3
4968.500000	52.62	---	74.00	21.38	150.0	H	225.0	13.3

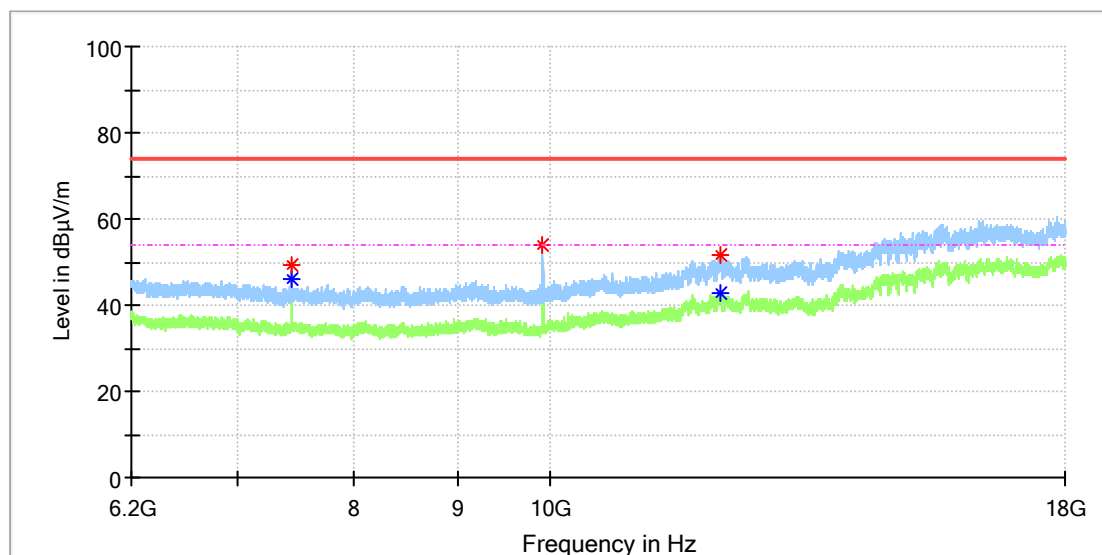
Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
90.000	-78.000	-78.000	-78.000	22.000	100.000	V	0.000	0.000

EUT Information

EUT Information

EUT Name:	Humanoid Robot
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Test Mode:	2.4G SRD_High channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

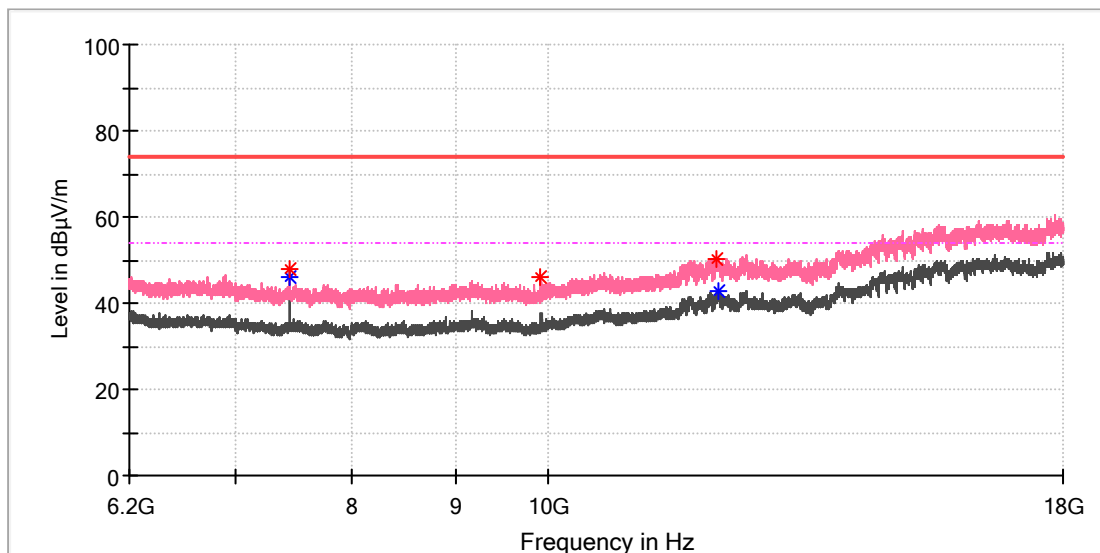
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	PoI	Azimuth (deg)	Corr. (dB/m)
7439.000000	---	46.26	54.00	7.74	150.0	H	278.0	8.4
7439.000000	49.27	---	74.00	24.73	150.0	H	278.0	8.4
9919.458333	54.07	---	68.20	14.13	150.0	H	4.0	10.8
12139.333333	---	42.88	54.00	11.12	150.0	H	273.0	16.5
12143.758333	51.41	---	74.00	22.59	150.0	H	343.0	16.6

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_High channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	PoI	Azimuth (deg)	Corr. (dB/m)
7439.491667	---	46.16	54.00	7.84	150.0	V	38.0	8.4
7439.491667	48.05	---	74.00	25.95	150.0	V	38.0	8.4
9919.950000	46.01	---	68.20	22.19	150.0	V	215.0	10.8
12106.883333	50.11	---	74.00	23.89	150.0	V	348.0	15.6
12142.775000	---	42.71	54.00	11.29	150.0	V	125.0	16.5

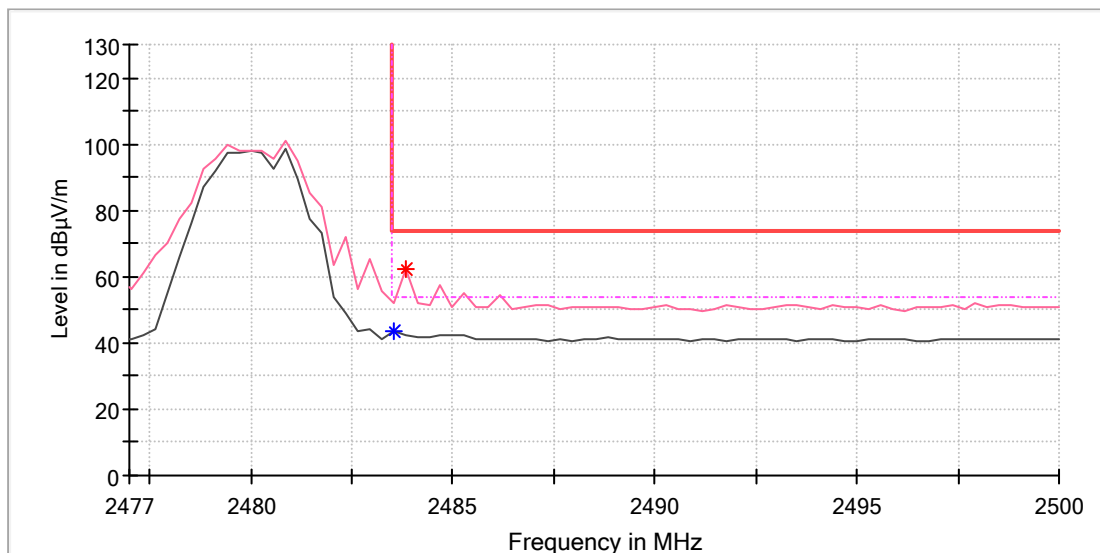
Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	

EUT Information

EUT Information

EUT Name:	Humanoid Robot
Model:	R1 EDU
Test Mode:	2.4G SRD_High channel
Order No/Sample No:	27200463/A004260434-001
Test Voltage:	Battery
Remark:	Temp 23 Humi:54%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.529412	---	43.27	54.00	10.73	150.0	V	343.0	9.0
2483.823529	62.38	---	74.00	11.62	150.0	V	343.0	9.0

Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
100.000000	100.000000	100.000000	100.000000	100.000000	100.000000		100.000000	100.000000