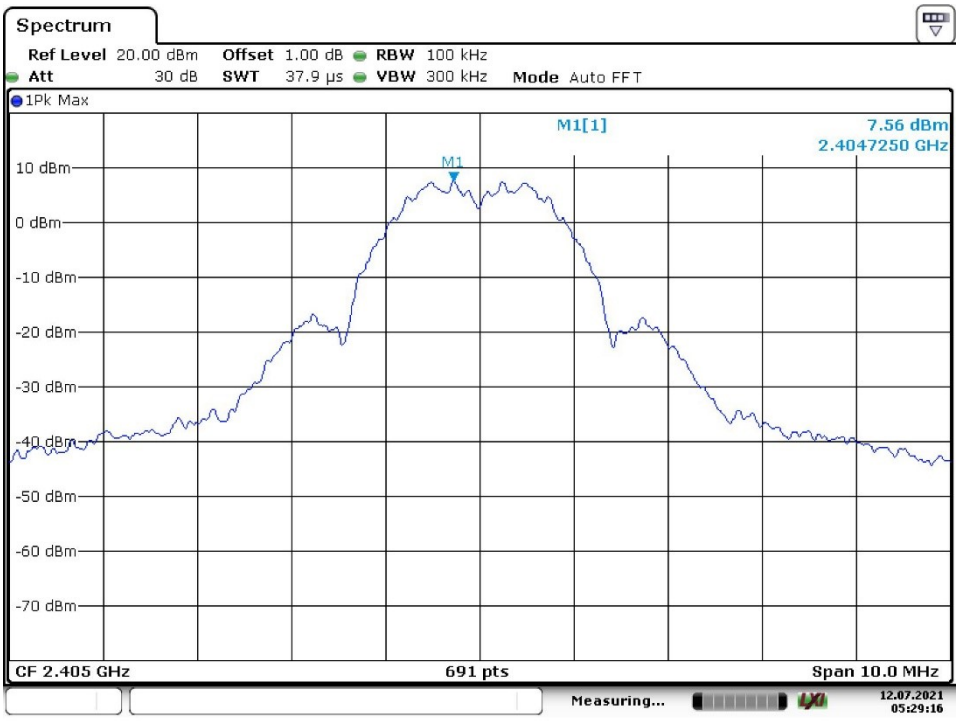
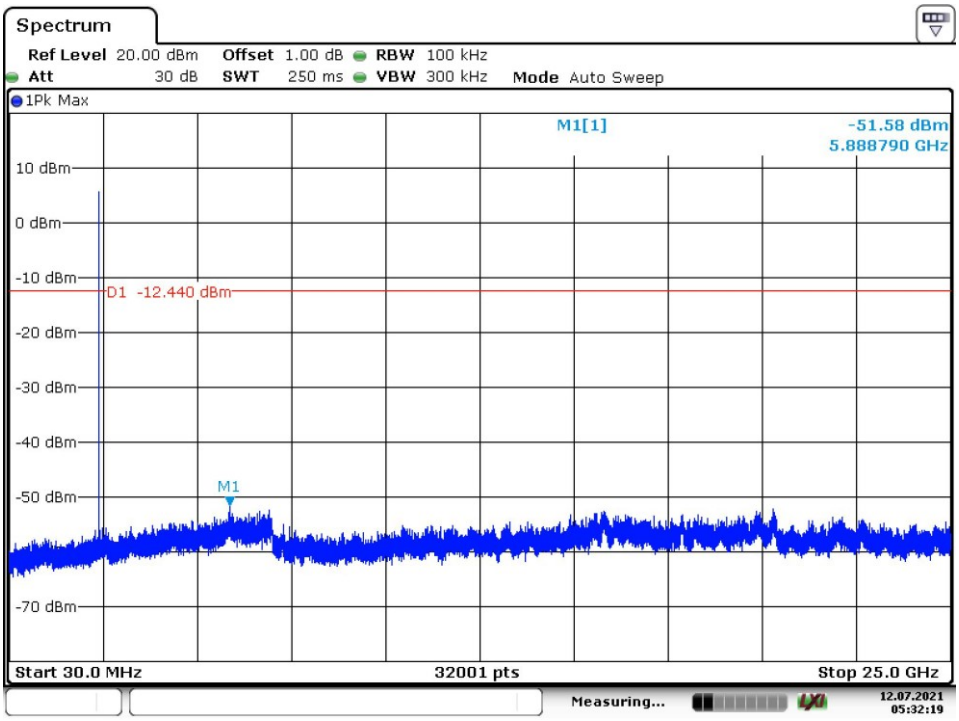
Appendix B: Test Results

Appendix B.1: Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Low Channel

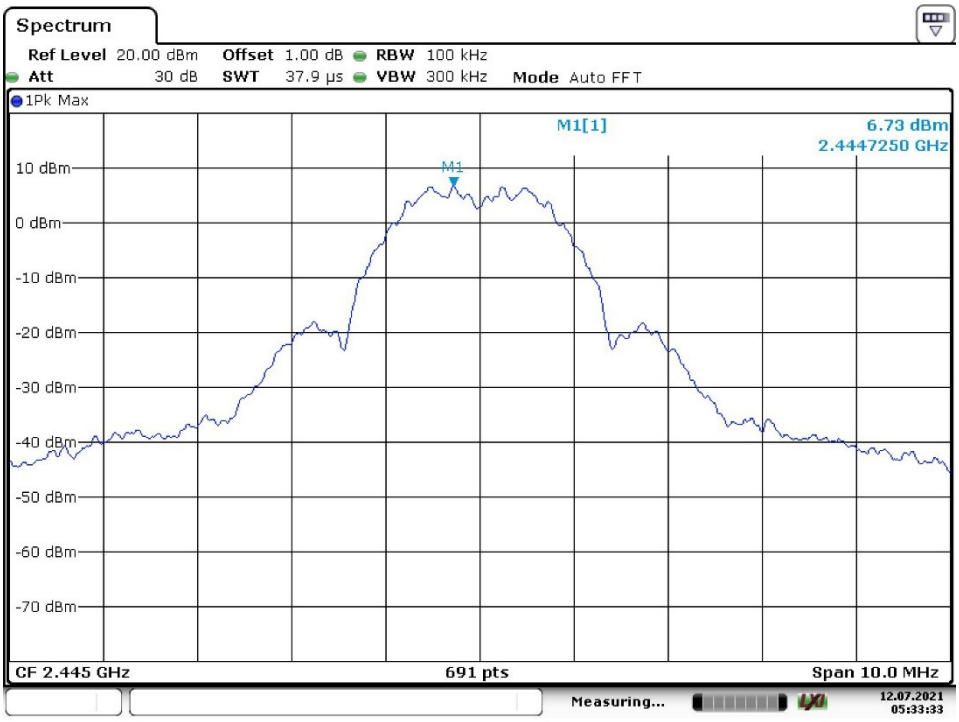


Date: 12.JUL.2021 05:29:16

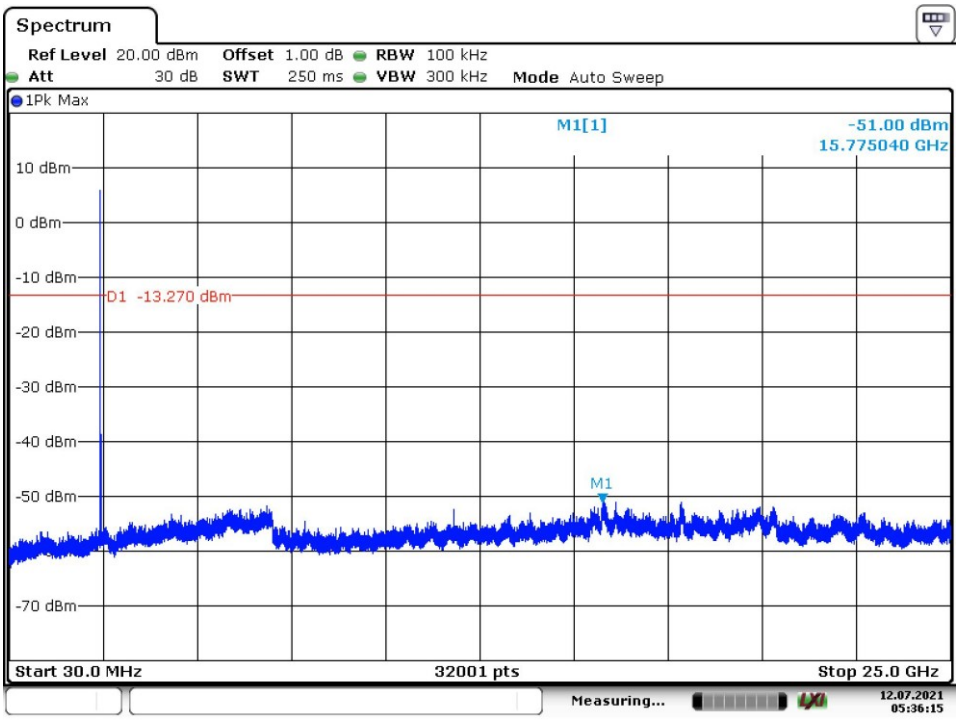


Date: 12.JUL.2021 05:32:20

Middle Channel

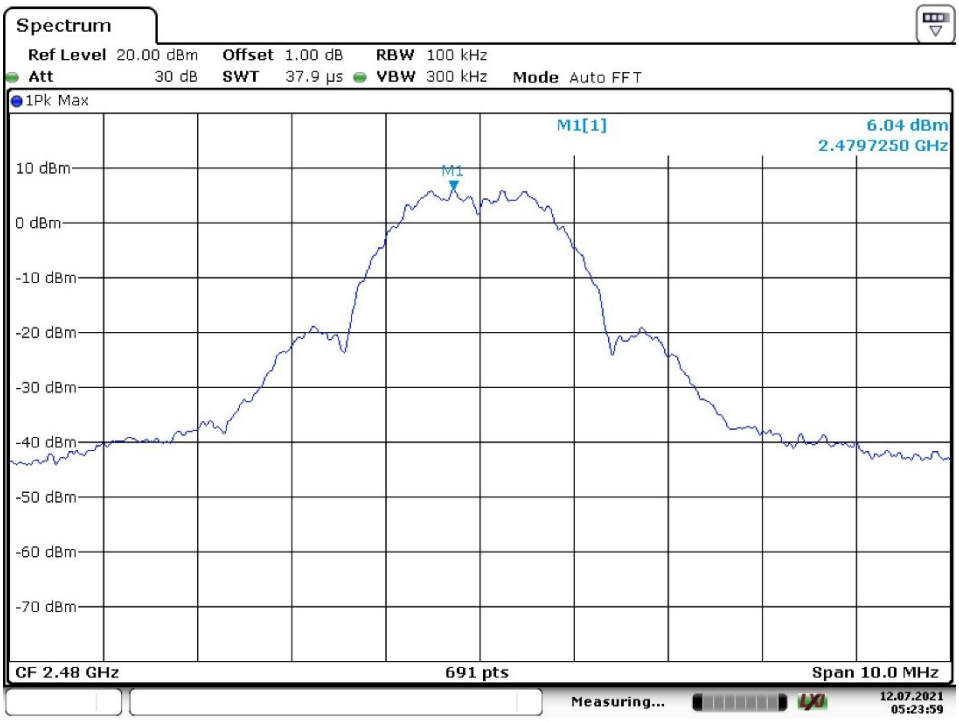


Date: 12.JUL.2021 05:33:33

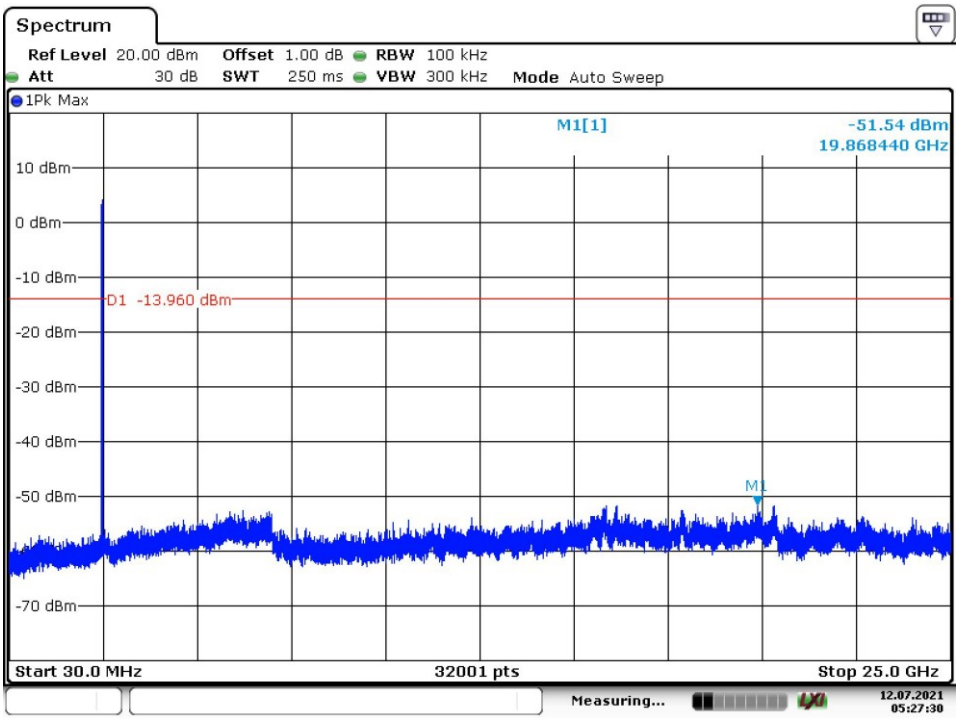


Date: 12.JUL.2021 05:36:15

High Channel

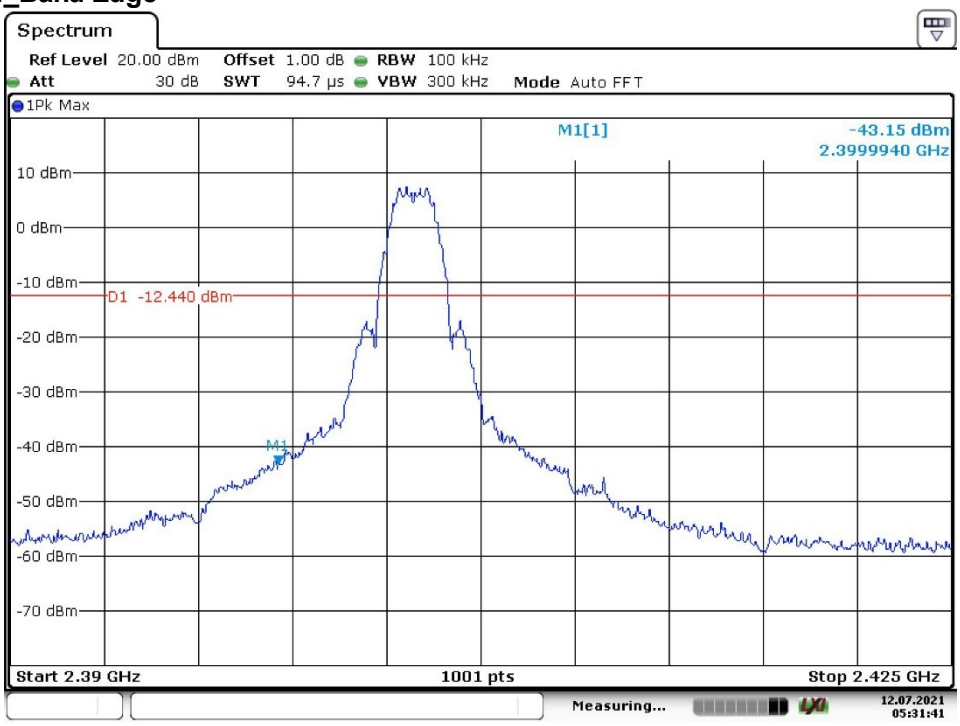


Date: 12.JUL.2021 05:23:59



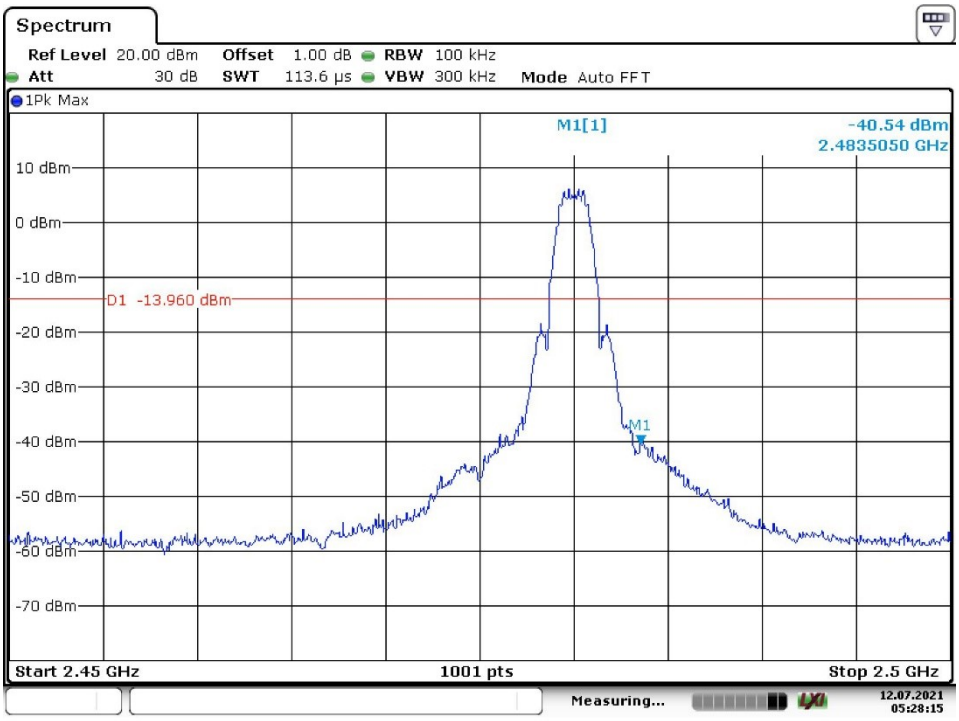
Date: 12.JUL.2021 05:27:30

Low Channel_Band Edge



Date: 12.JUL.2021 05:31:41

High Channel_Band Edge



Date: 12.JUL.2021 05:28:15

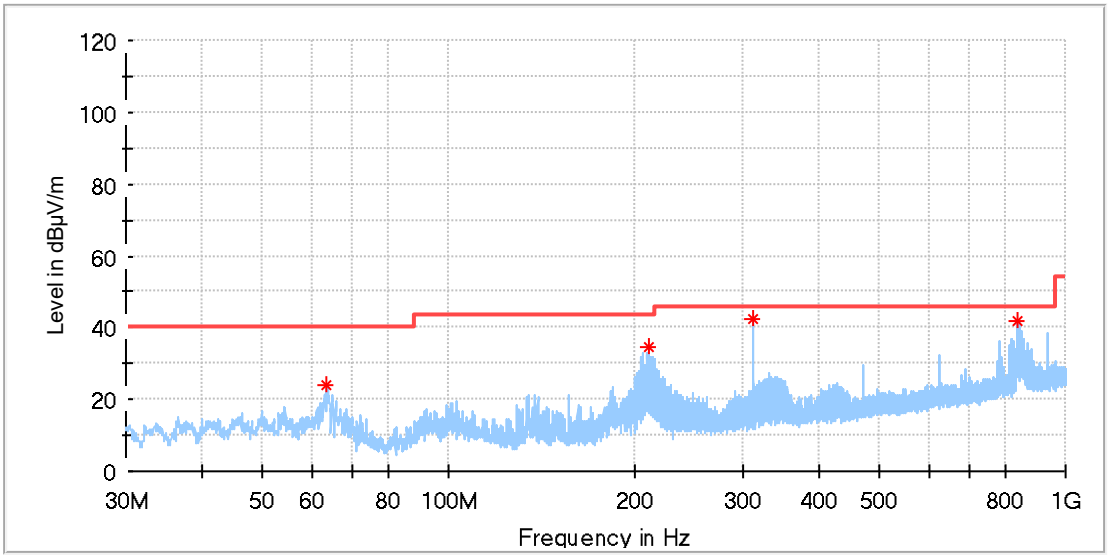
Appendix B.2: Test Results of Radiated Spurious Emissions

Note 1: Testing was carried out within frequency range 9 kHz to the tenth harmonics. The measurement results below 30MHz and above 18GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Low channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
63.562000	24.13	40.00	15.87	100.0	H	203.0	-19.7
210.711000	34.54	43.50	8.96	100.0	H	294.0	-18.9
312.512500	42.31	46.00	3.69	100.0	H	92.0	-15.9
837.088500	42.06	46.00	3.94	100.0	H	286.0	-5.7

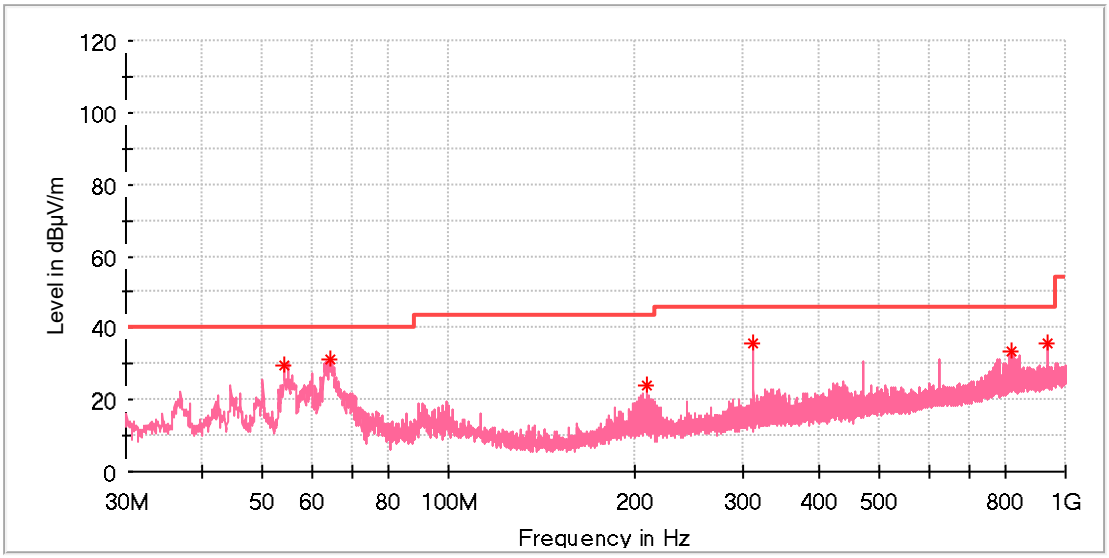
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Low channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
54.201500	29.77	40.00	10.23	100.0	V	2.0	-18.4
64.241000	31.23	40.00	8.77	100.0	V	131.0	-19.9
209.450000	24.04	43.50	19.46	100.0	V	241.0	-18.9
312.512500	35.46	46.00	10.54	100.0	V	261.0	-15.9
818.319000	33.50	46.00	12.50	100.0	V	17.0	-6.0
937.532000	35.97	46.00	10.03	100.0	V	287.0	-4.6

Final_Result

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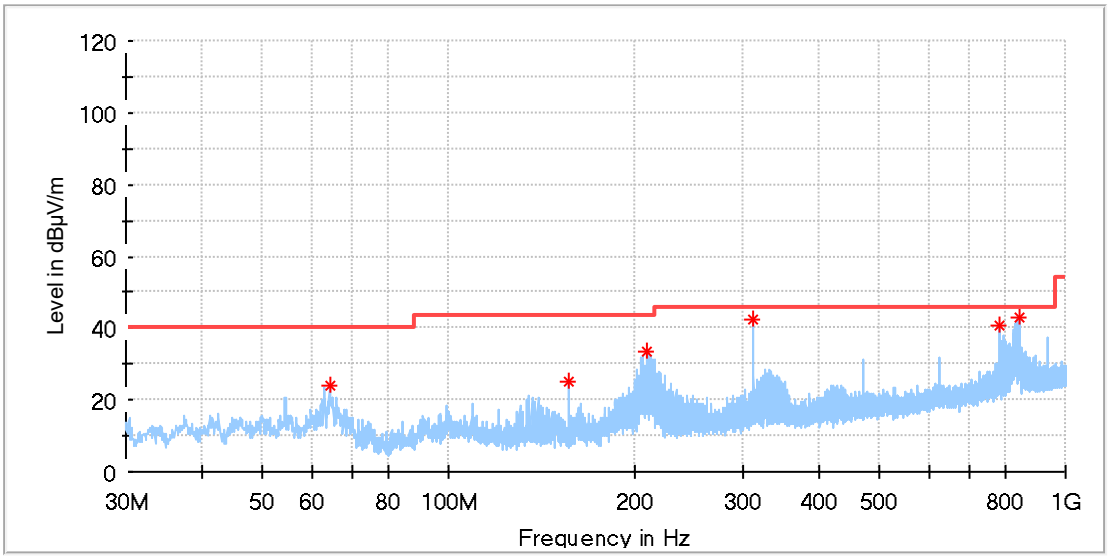
Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_High channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
64.144000	24.27	40.00	15.73	100.0	H	216.0	-19.9
156.245500	24.88	43.50	18.62	100.0	H	204.0	-22.0
209.304500	33.58	43.50	9.92	100.0	H	286.0	-18.9
312.512500	42.43	46.00	3.57	100.0	H	91.0	-15.9
781.265000	40.56	46.00	5.44	100.0	H	114.0	-6.7
841.308000	42.97	46.00	3.03	100.0	H	297.0	-5.6

Final_Result

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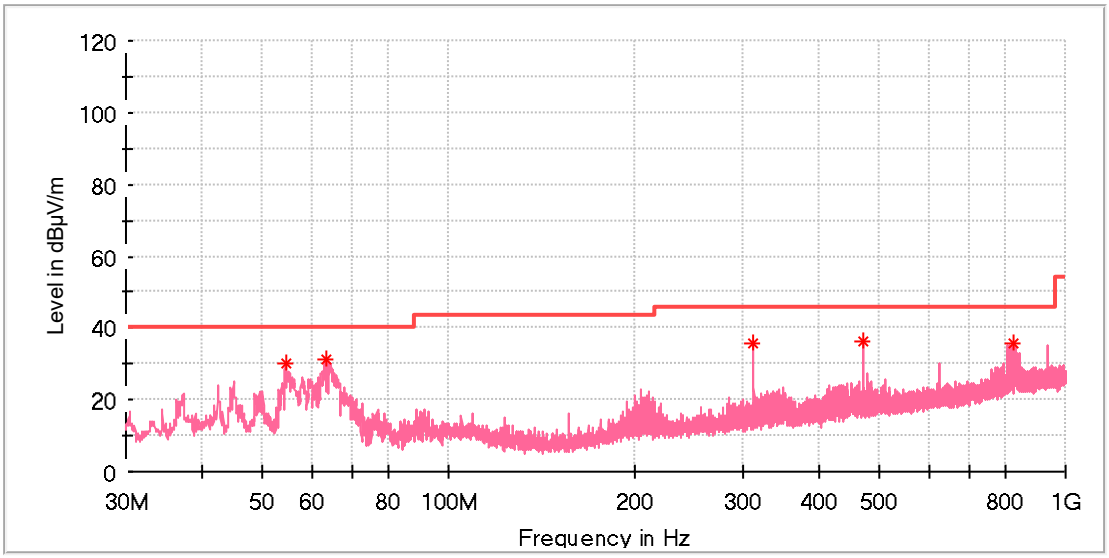
Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_High channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
54.444000	30.01	40.00	9.99	100.0	V	107.0	-18.4
63.465000	31.06	40.00	8.94	100.0	V	310.0	-19.7
312.512500	35.46	46.00	10.54	100.0	V	239.0	-15.9
468.779500	36.51	46.00	9.49	100.0	V	231.0	-12.5
824.090500	35.84	46.00	10.16	100.0	V	288.0	-5.9

Final_Result

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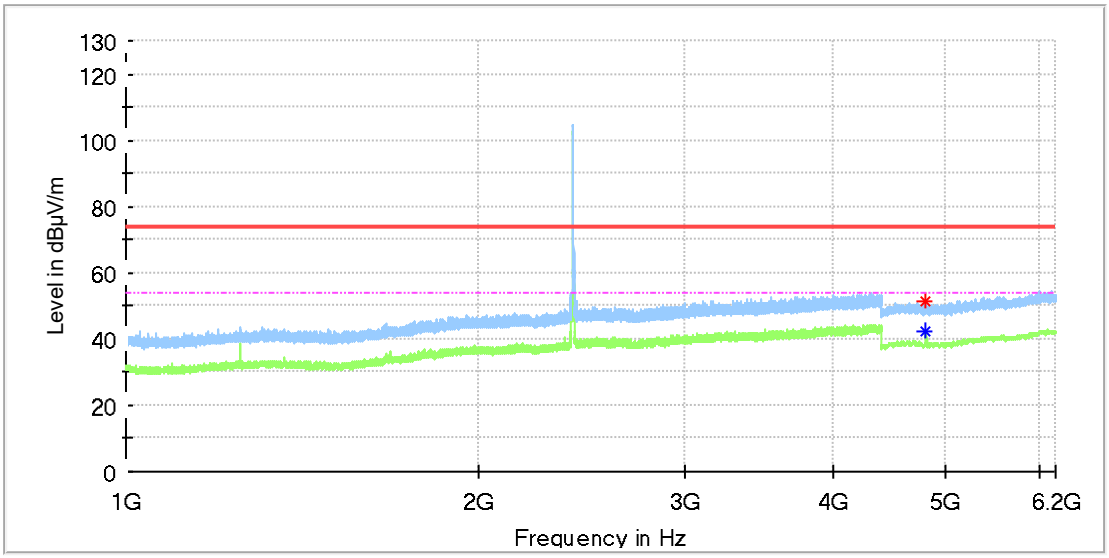
Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Low channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
4808.500000	51.24	---	74.00	22.76	100.0	H	1.0	11.8
4809.000000	---	42.41	54.00	11.59	100.0	H	354.0	11.8

Final_Result

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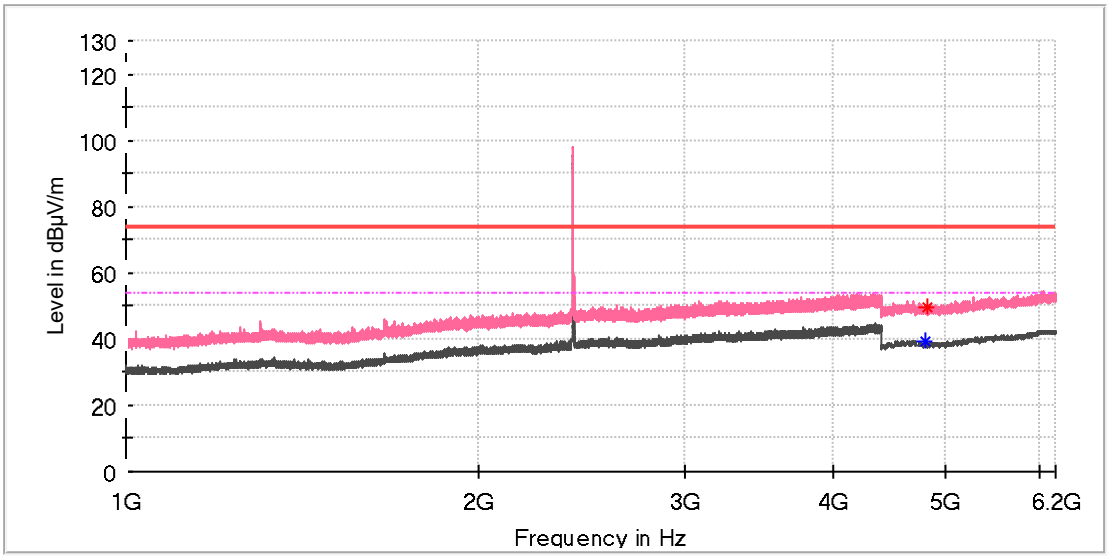
Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Low channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
4810.500000	---	39.22	54.00	14.78	100.0	V	44.0	11.8
4812.000000	49.61	---	74.00	24.39	100.0	V	38.0	11.8

Final_Result

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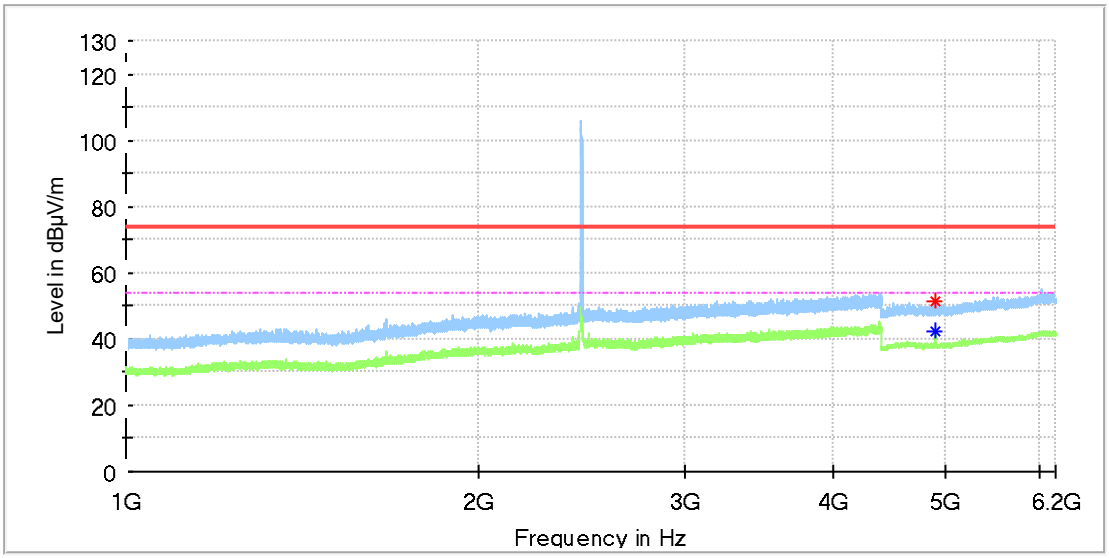
Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Mid channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
4889.000000	51.32	---	74.00	22.68	100.0	H	0.0	11.8
4891.000000	---	42.27	54.00	11.73	100.0	H	0.0	11.8

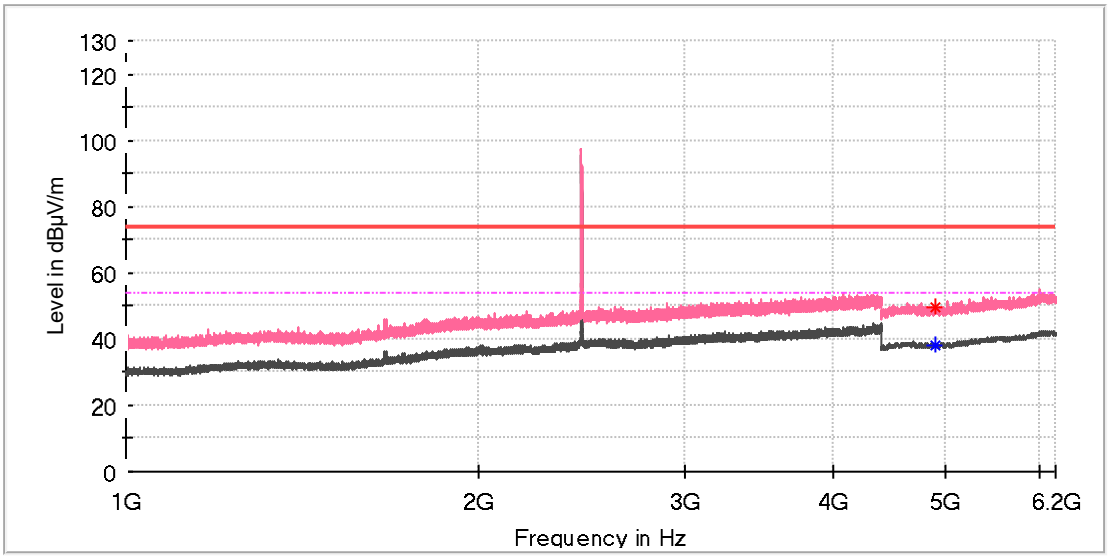
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Mid channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
4889.500000	49.29	---	74.00	24.71	100.0	V	96.0	11.8
4892.500000	---	38.39	54.00	15.61	100.0	V	175.0	11.8

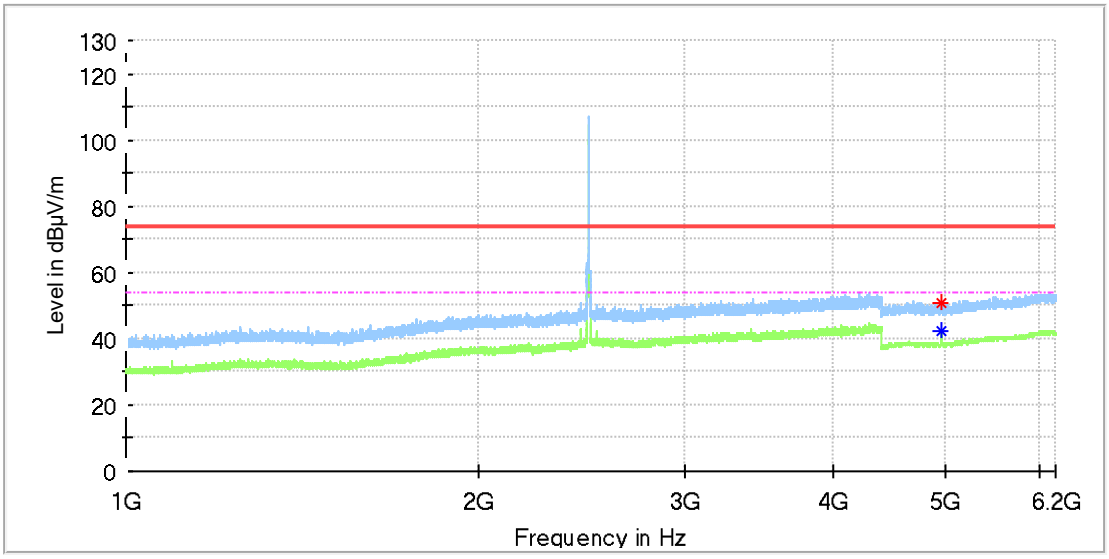
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_High channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
4959.000000	50.97	---	74.00	23.03	100.0	H	349.0	11.8
4959.000000	---	42.03	54.00	11.97	100.0	H	349.0	11.8

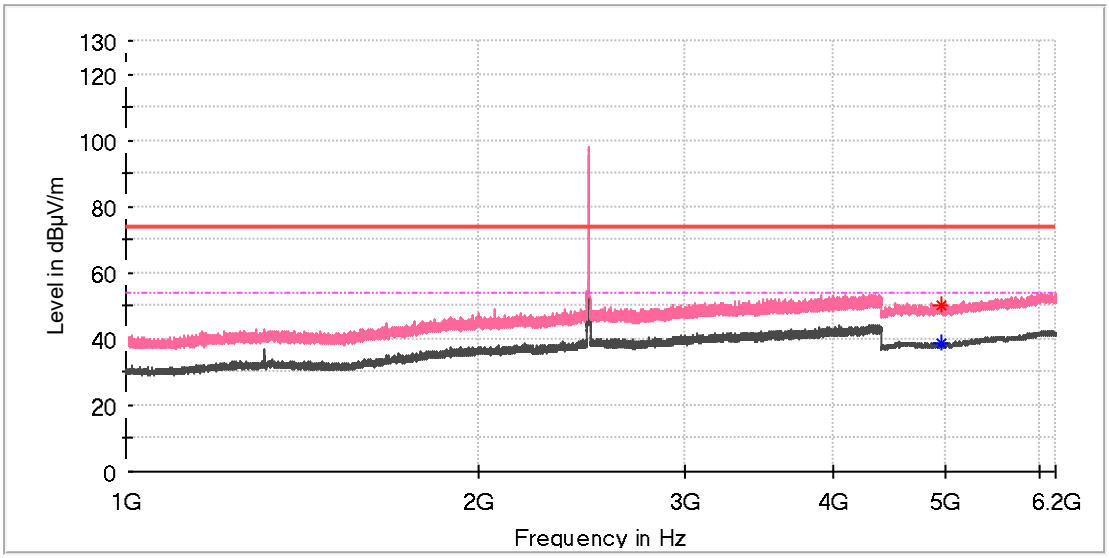
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_High channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
4952.500000	50.44	---	74.00	23.56	100.0	V	212.0	11.8
4961.000000	---	38.91	54.00	15.09	100.0	V	227.0	11.8

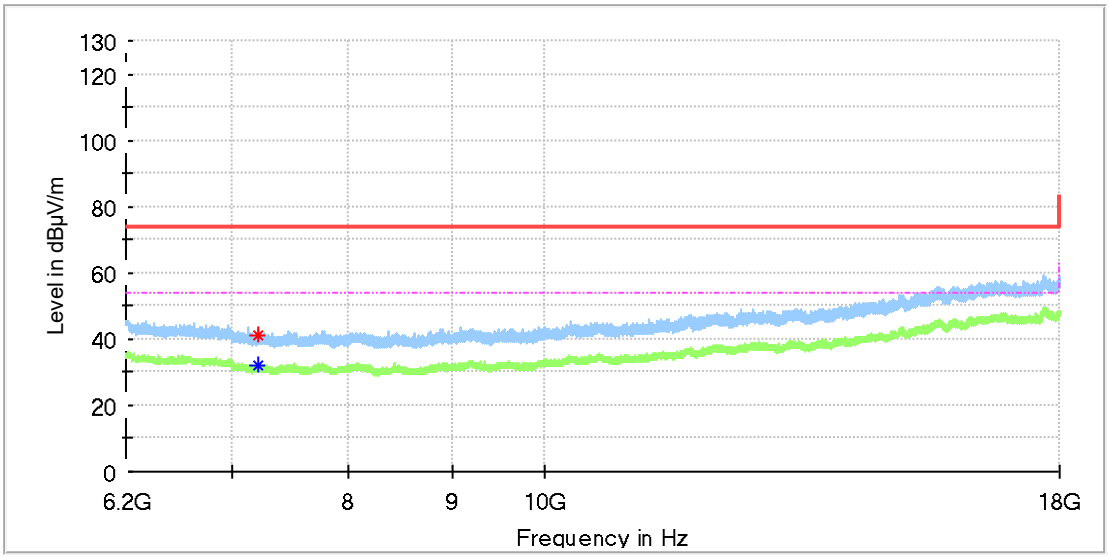
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Low channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
7216.275000	40.94	---	74.00	33.06	100.0	H	0.0	8.7
7216.766667	---	31.81	54.00	22.19	100.0	H	80.0	8.7

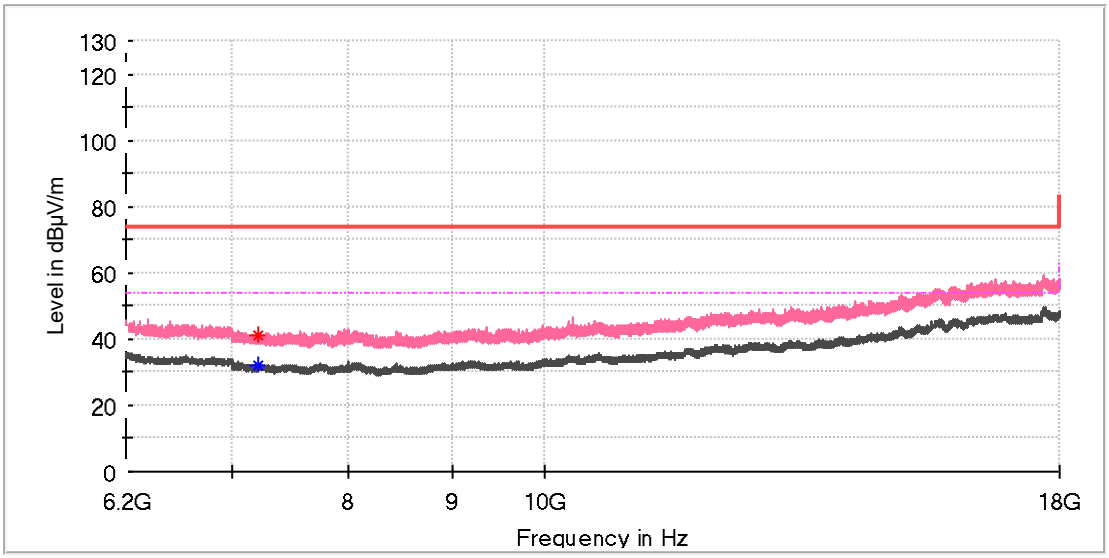
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Low channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
7211.358333	---	32.21	54.00	21.79	100.0	V	221.0	8.7
7217.750000	41.23	---	74.00	32.77	100.0	V	221.0	8.7

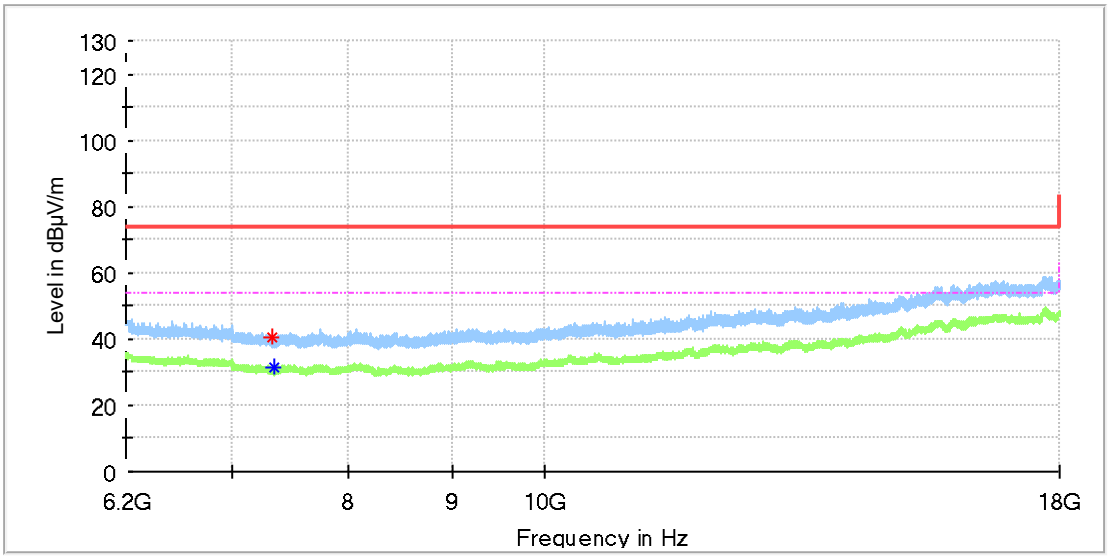
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Mid channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
7333.291667	40.42	---	74.00	33.58	100.0	H	248.0	8.1
7337.716667	---	31.27	54.00	22.73	100.0	H	305.0	8.1

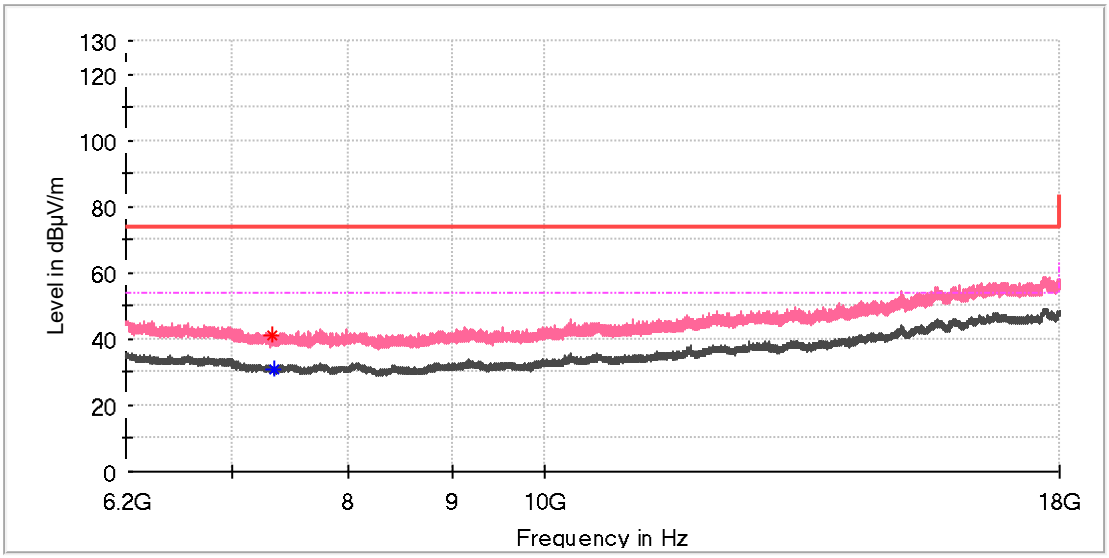
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Mid channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
7333.291667	40.95	---	74.00	33.05	100.0	V	121.0	8.1
7336.241667	---	31.10	54.00	22.90	100.0	V	178.0	8.1

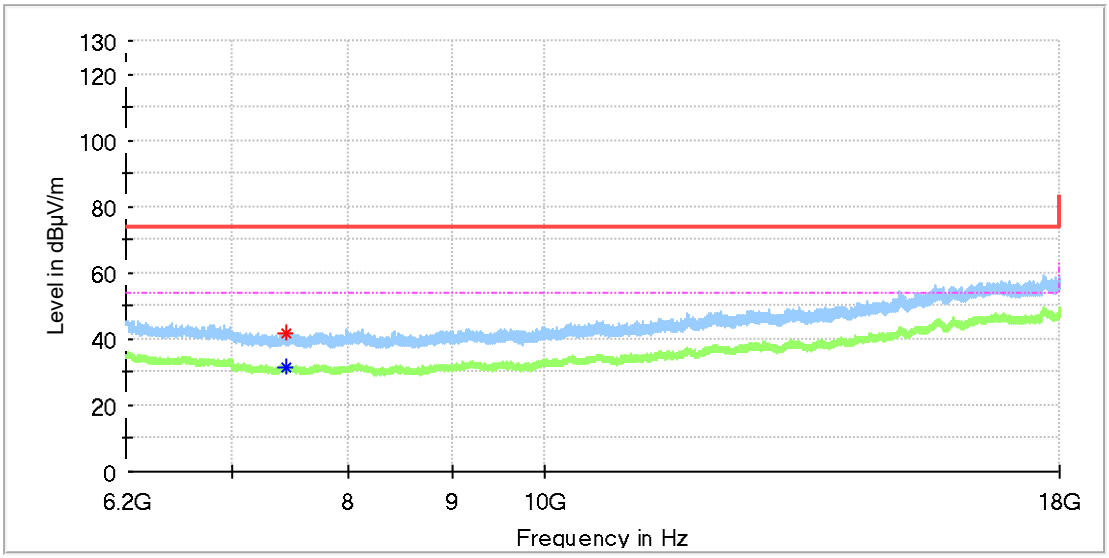
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_High channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
7437.033333	---	31.59	54.00	22.41	100.0	H	33.0	8.4
7444.408333	41.81	---	74.00	32.19	100.0	H	33.0	8.5

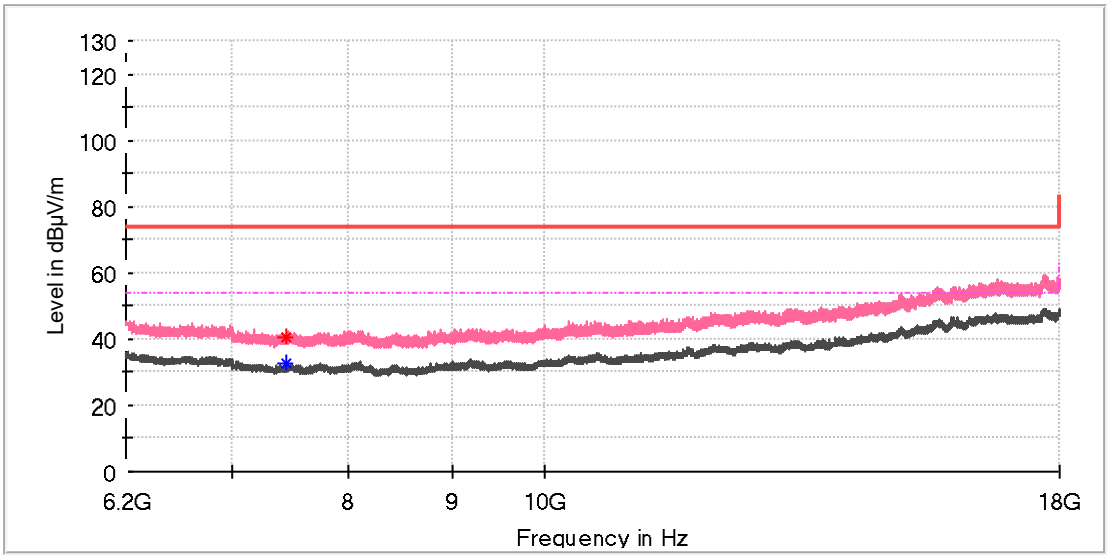
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_High channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
7441.458333	---	32.45	54.00	21.55	100.0	V	193.0	8.4
7444.900000	40.71	---	74.00	33.29	100.0	V	331.0	8.5

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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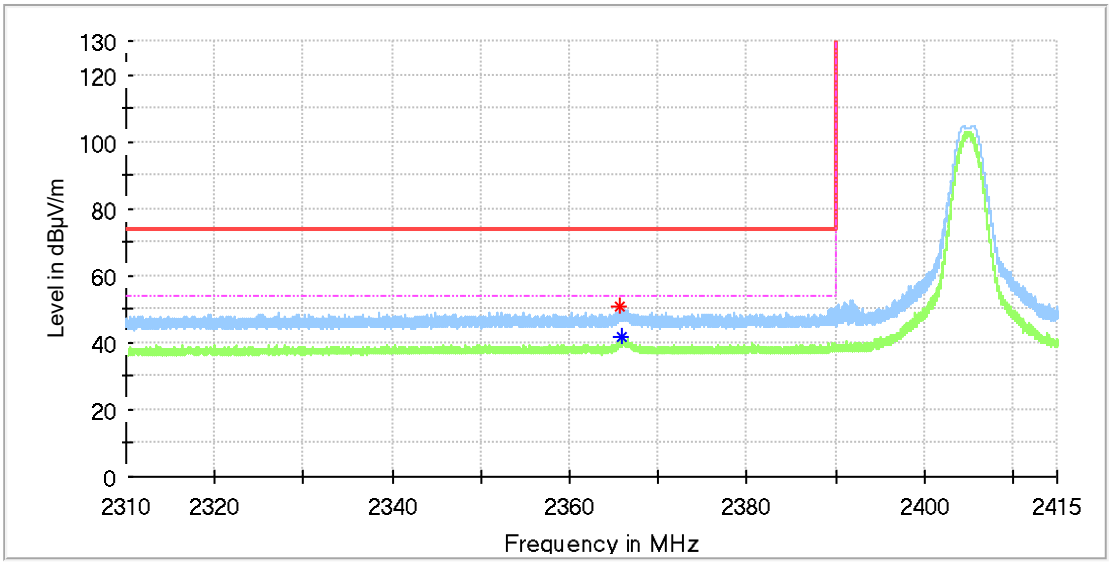
Appendix B.3: Test Results of Radiated Emissions in Restricted Bands

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Low channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
2365.734000	50.73	---	74.00	23.27	100.0	H	333.0	6.9
2365.875750	---	41.44	54.00	12.56	100.0	H	344.0	6.9

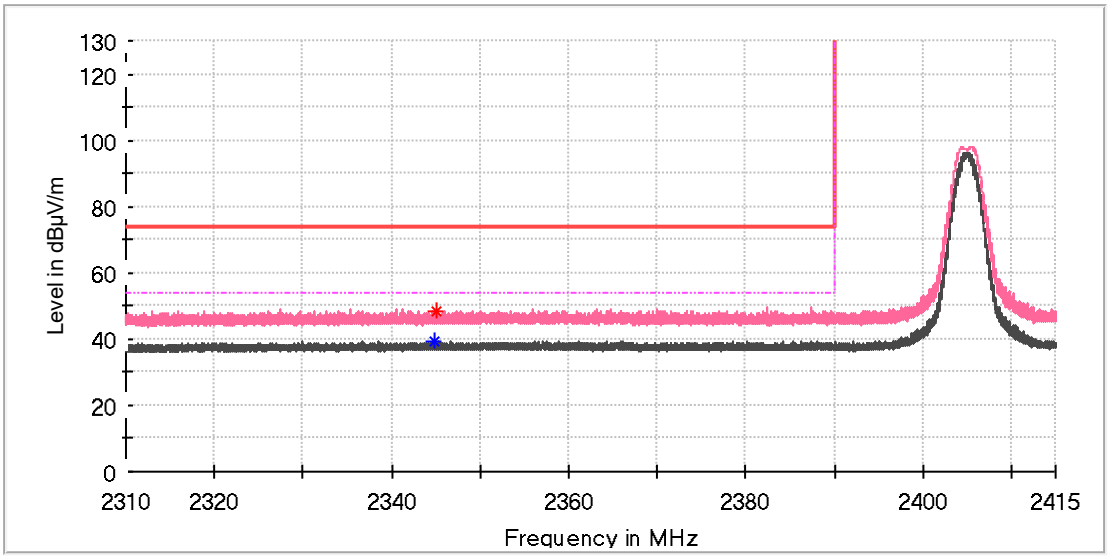
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_Low channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
2344.749750	---	39.05	54.00	14.95	100.0	V	205.0	6.9
2344.965000	48.63	---	74.00	25.37	100.0	V	57.0	6.9

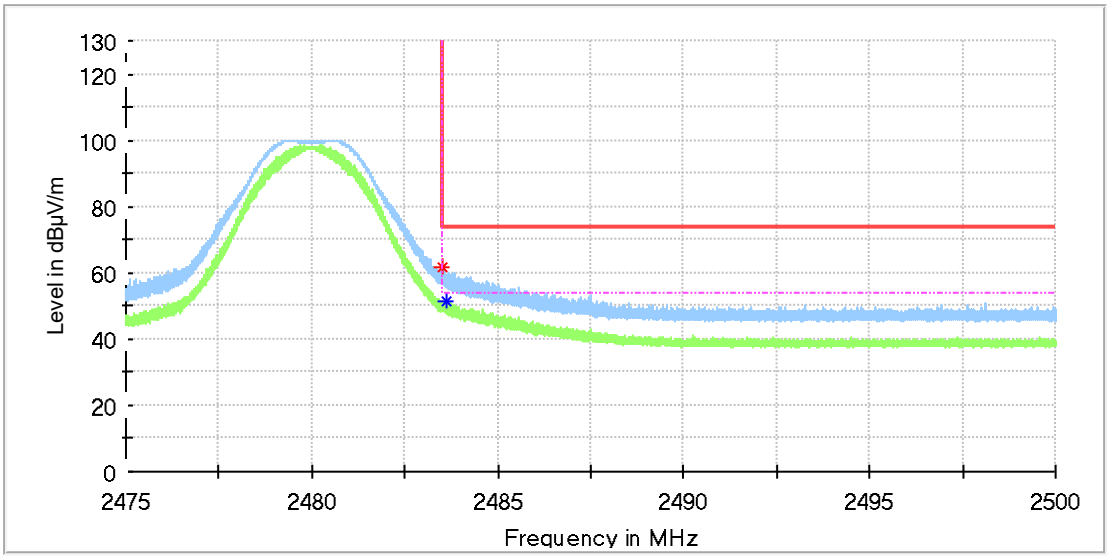
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_High channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
2483.502500	61.80	---	74.00	12.20	100.0	H	308.0	7.4
2483.600000	---	51.63	54.00	2.37	100.0	H	308.0	7.4

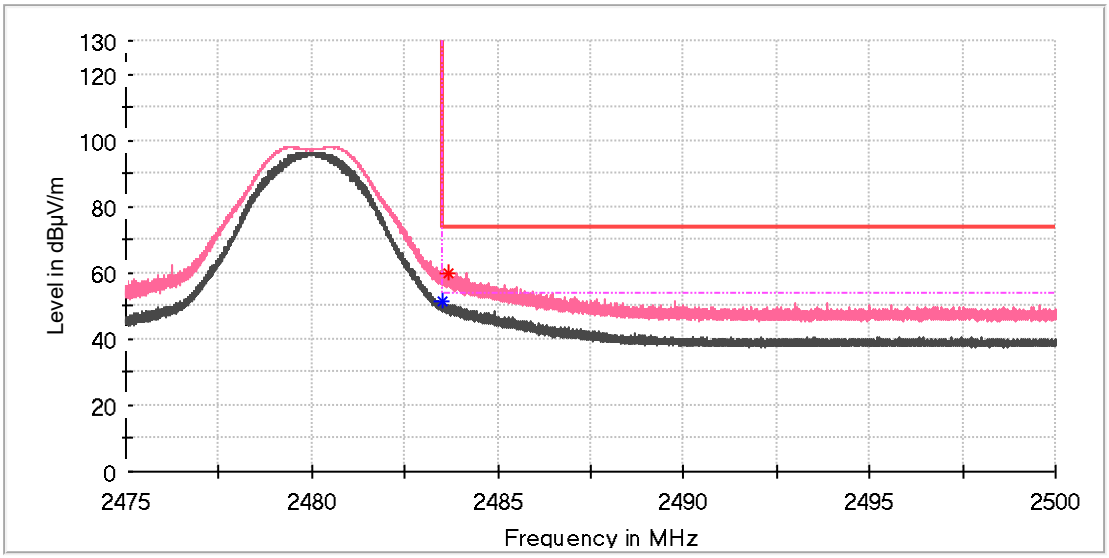
Final_Result

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

Test Report

EUT Information

EUT Name:	Smart Gateway
Model:	GW2001
Test Mode:	Zigbee_High channel
Test Voltage::	DC 5V from USB
Remark:	Temp 23 Humi:45%
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)
2483.517500	---	51.45	54.00	2.55	100.0	V	91.0	7.4
2483.656250	60.04	---	74.00	13.96	100.0	V	213.0	7.4

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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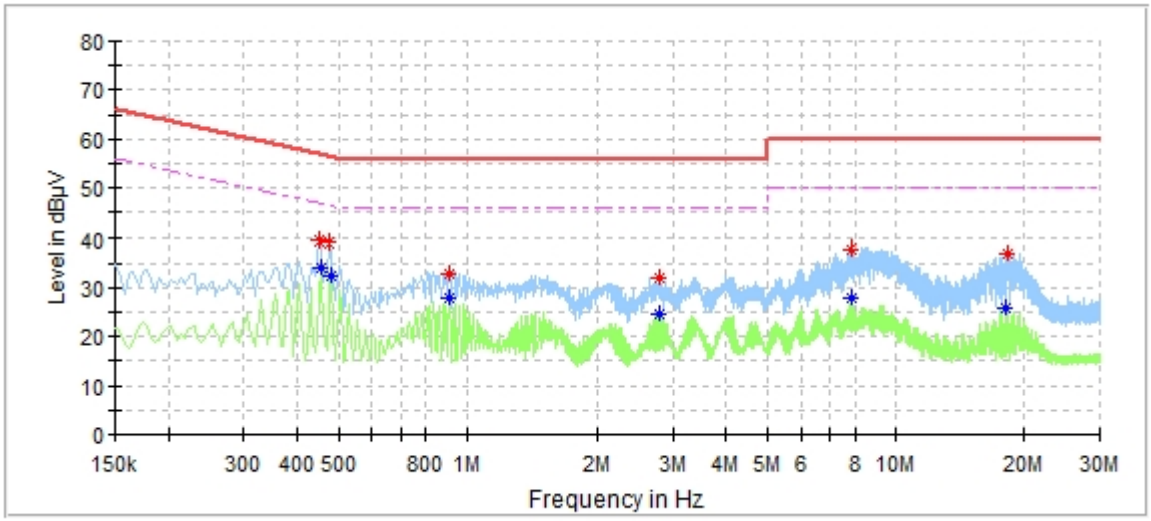
Appendix B.4: Test Results of Conducted Emissions on AC Mains

Test Report

EUT Information

EUT Name:	Smart Gateway(Zigbee)
Order No.:	168318237 60
Model:	GW2001
Test Mode:	Communication by Zigbee
Test Voltage:	AC 120V/60Hz
Test By:	Shower Dai
Review By:	Gary Chen
Remark:	SR1



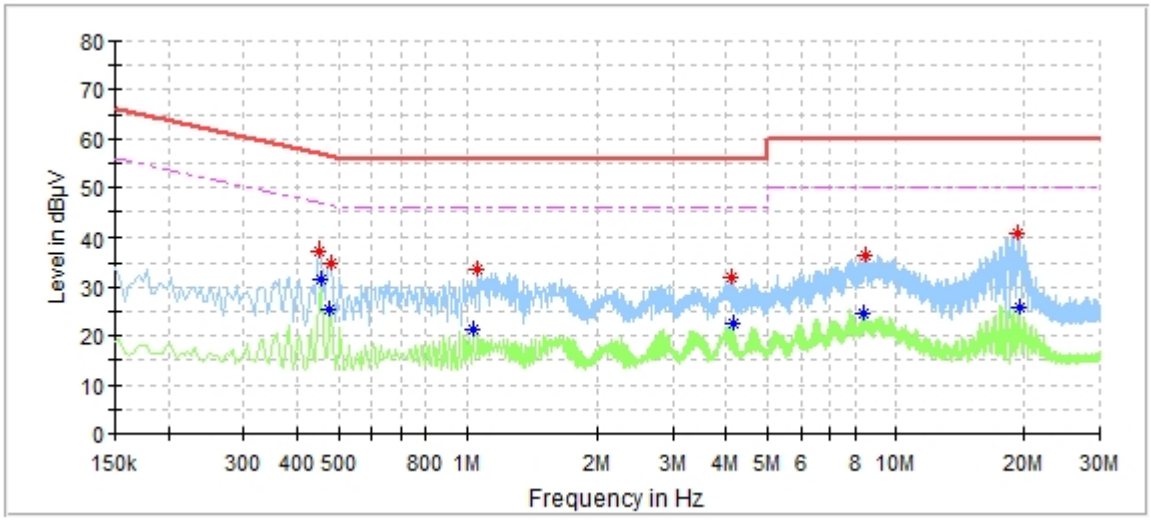
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.450000	39.21	---	56.88	17.66	L1	9.70
0.454000	---	33.96	46.80	12.84	L1	9.70
0.478000	38.79	---	56.37	17.58	L1	9.70
0.482000	---	32.26	46.31	14.04	L1	9.70
0.912000	---	27.71	46.00	18.29	L1	9.71
0.912000	32.98	---	56.00	23.02	L1	9.71
2.784000	---	24.46	46.00	21.54	L1	9.83
2.804000	32.02	---	56.00	23.98	L1	9.83
7.844000	37.57	---	60.00	22.43	L1	9.99
7.844000	---	27.72	50.00	22.28	L1	9.99
18.112000	---	26.04	50.00	23.96	L1	10.47
18.184000	36.78	---	60.00	23.22	L1	10.47

Test Report

EUT Information

EUT Name:	Smart Gateway(Zigbee)
Order No.:	168318237 60
Model:	GW2001
Test Mode:	Communication by Zigbee
Test Voltage:	AC 120V/60Hz
Test By:	Shower Dai
Review By:	Gary Chen
Remark:	SR1



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.450000	37.27	---	56.88	19.61	N	9.70
0.454000	---	31.67	46.80	15.13	N	9.70
0.478000	---	25.60	46.37	20.77	N	9.70
0.482000	34.96	---	56.31	21.35	N	9.70
1.036000	---	21.16	46.00	24.84	N	9.70
1.060000	33.44	---	56.00	22.56	N	9.70
4.128000	32.09	---	56.00	23.91	N	9.84
4.152000	---	22.42	46.00	23.58	N	9.84
8.376000	---	24.62	50.00	25.38	N	10.00
8.528000	36.67	---	60.00	23.33	N	10.00
19.372000	40.74	---	60.00	19.26	N	10.51
19.388000	---	25.80	50.00	24.20	N	10.51