

Test Report No.50224374 001

Appendix D: Radiated Spurious Emission Data

(File: 50224374 001 Appendix D)

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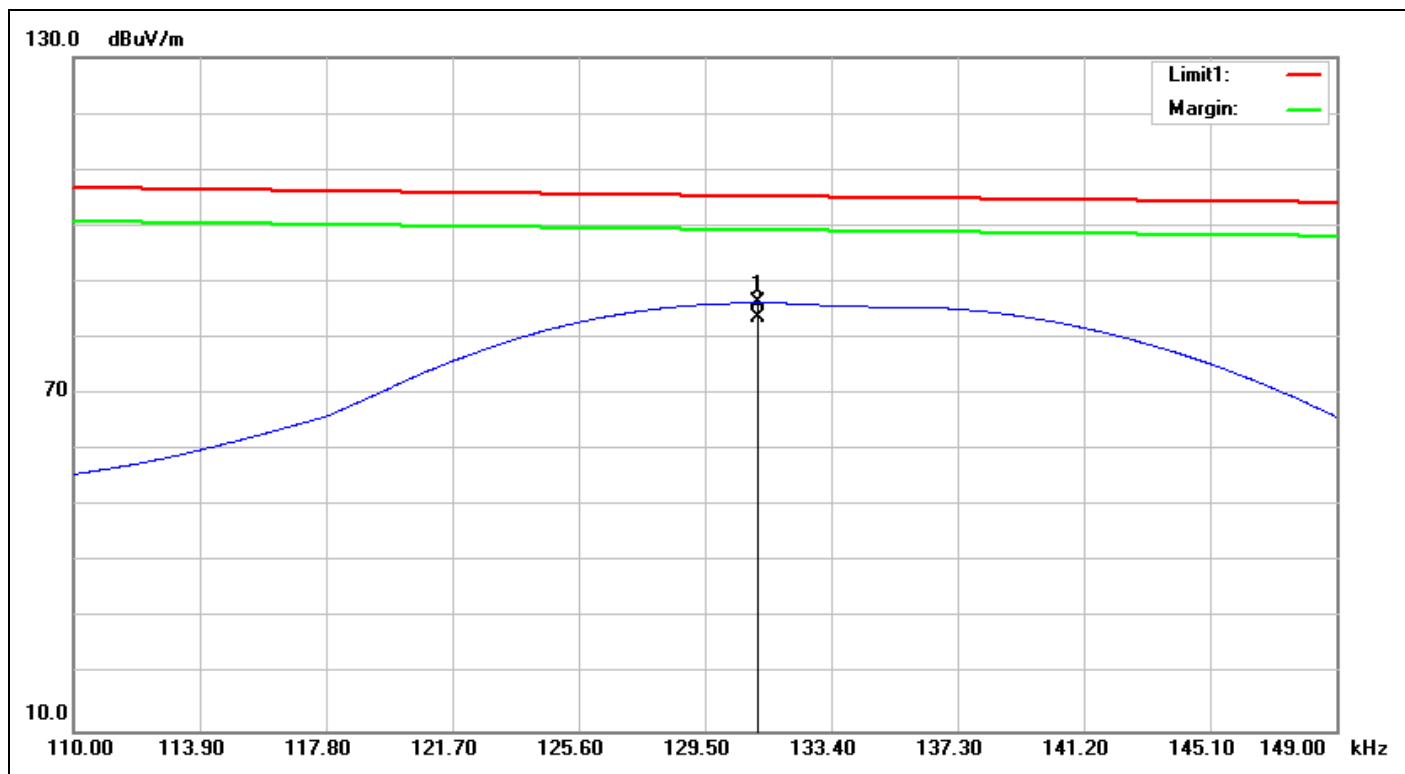
Spurious Emissions, Fundamental



TUV Rheinland Taiwan Ltd.

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Service No.:	238100815	Test Distance:	3m
Test Standard:	NCC2.8_9k-1G_3m	Ant. Polarization:	
Test item:	Radiation Emission	Test Time:	2019/2/15 14:08:57
Applicant:	H.P.B. HI-TECH CORP.	Test Rating:	DC 9V
Product:	Hand Gesture Controller	Temp.(°C)/Hum.(%):	19(°C)/56%
Model No.:	Wave1210	Test Engineer:	Kevin Kuo
Test Mode:	Fundamental		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.1311	18.35	67.93	86.28	105.25	-18.97	peak	100	251	
2	0.1311	18.35	65.35	83.70	105.25	-21.55	Average	100	251	

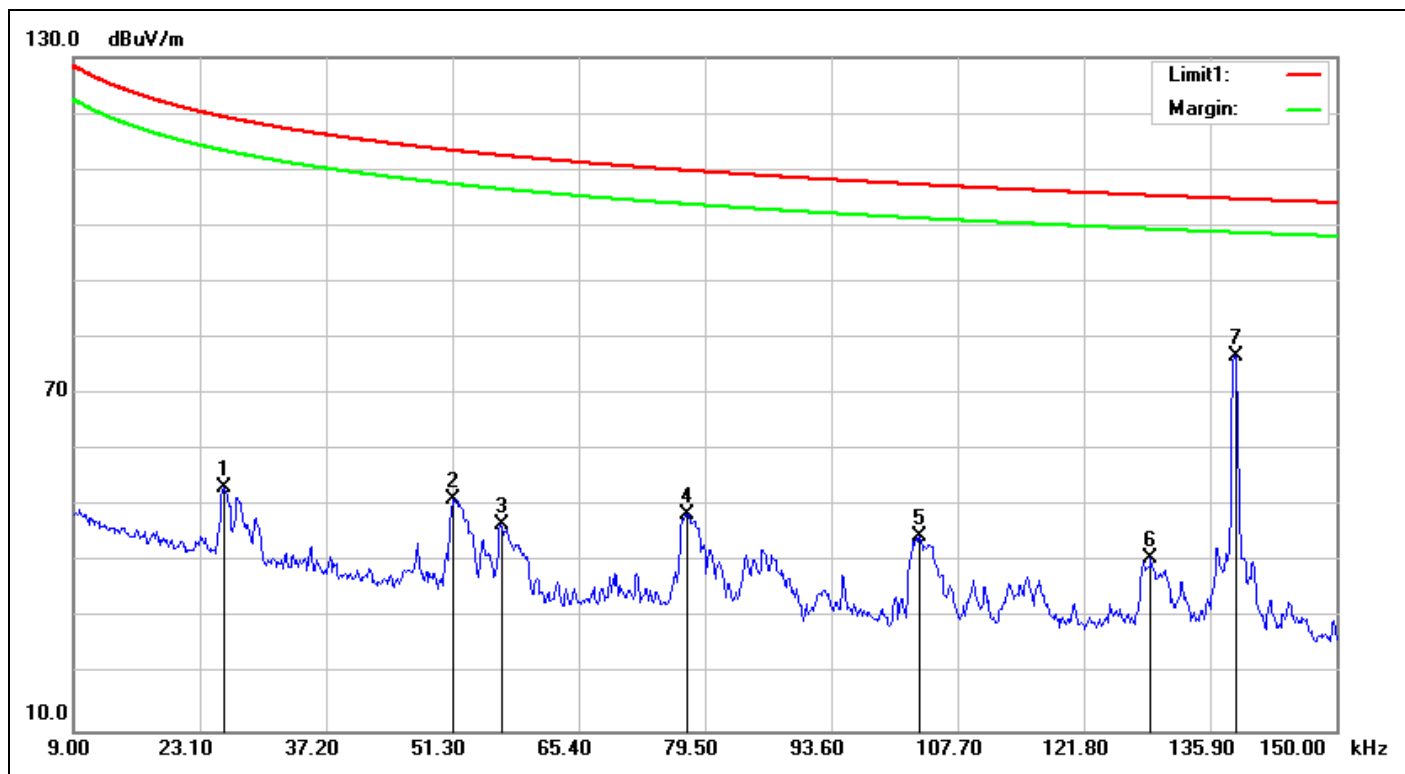
Spurious Emissions, Transceiver Mode, 9kHz – 30MHz



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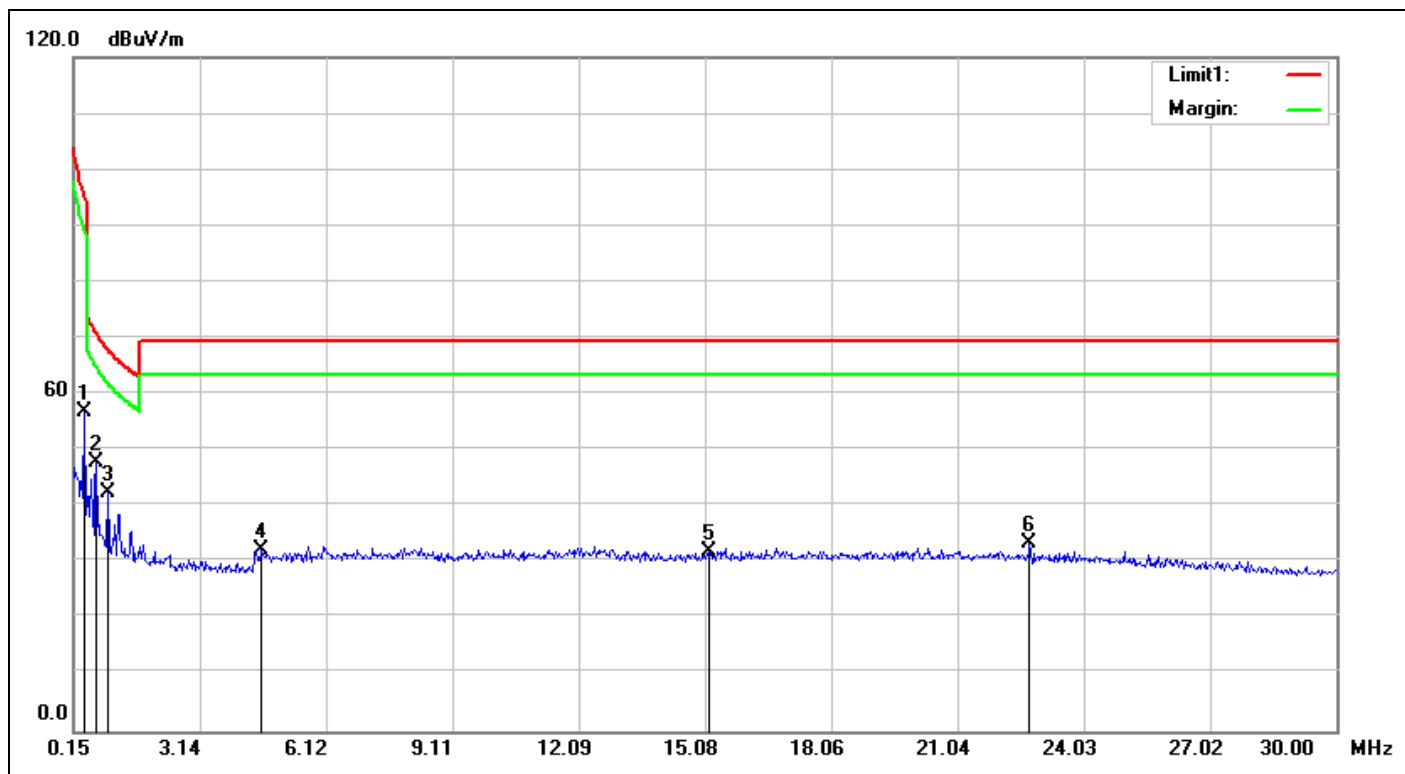
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Service No.:	238100815	Test Distance:	3m
Test Standard:	NCC2.8_9k-1G_3m	Ant. Polarization:	
Test item:	Radiation Emission	Test Time:	2019/2/19 09:48:48
Applicant:	H.P.B. HI-TECH CORP.	Test Rating:	DC 9V
Product:	Hand Gesture Controller	Temp.(°C)/Hum.(%)	22.3(°C)/51%
Model No.:	Wave1210	Test Engineer:	Kevin Kuo
Test Mode:	TX+RX-9K-150K		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.0258	19.15	34.17	53.32	119.36	-66.04	QP	100	36	
2	0.0513	18.90	32.31	51.21	113.39	-62.18	QP	100	299	
3	0.0567	18.84	27.85	46.69	112.52	-65.83	QP	100	246	
4	0.0775	18.59	30.02	48.61	109.81	-61.20	QP	100	185	
5	0.1035	18.33	26.22	44.55	107.30	-62.75	QP	100	236	
6	0.1293	18.34	22.43	40.77	105.37	-64.60	QP	100	178	
7	0.1387	18.35	58.44	76.79	104.76	-27.97	QP	100	54	



Service No.:	238100815	Test Distance:	3m
Test Standard:	NCC2.8_9k-1G_3m	Ant. Polarization:	
Test item:	Radiation Emission	Test Time:	2019/2/19 09:50:48
Applicant:	H.P.B. HI-TECH CORP.	Test Rating:	DC 9V
Product:	Hand Gesture Controller	Temp.(°C)/Hum.(%):	22.3(°C)/51%
Model No.:	Wave1210	Test Engineer:	Kevin Kuo
Test Mode:	TX+RX-9K-150K		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.3888	18.53	38.39	56.92	95.81	-38.89	QP	100	301	
2	0.6873	18.66	29.26	47.92	70.87	-22.95	QP	100	106	
3	0.9560	18.68	23.83	42.51	68.01	-25.50	QP	100	229	
4	4.5977	19.28	12.93	32.21	69.50	-37.29	QP	100	341	
5	15.1646	21.04	11.05	32.09	69.50	-37.41	QP	100	188	
6	22.7465	21.70	11.80	33.50	69.50	-36.00	QP	100	231	

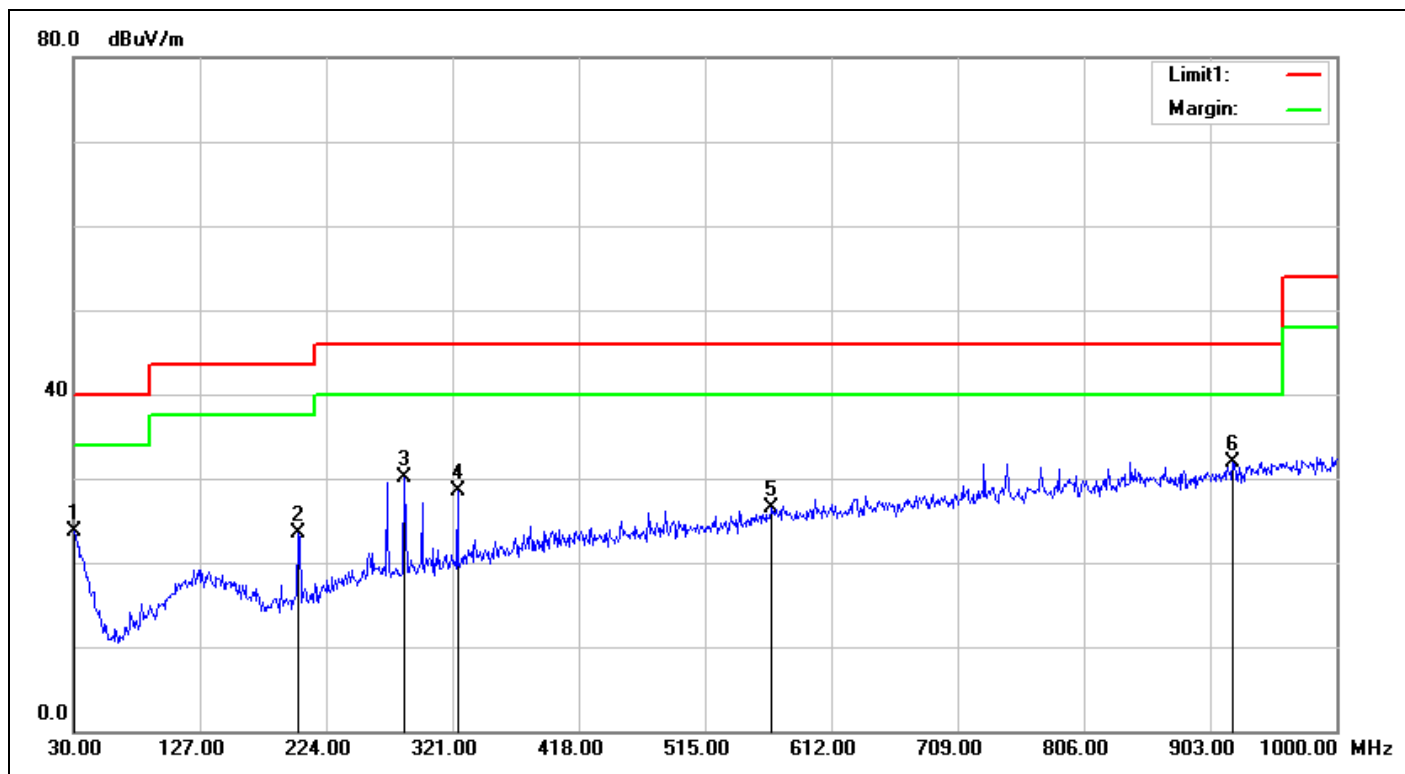
Spurious Emissions, Transceiver Mode, 30MHz - 1GHz



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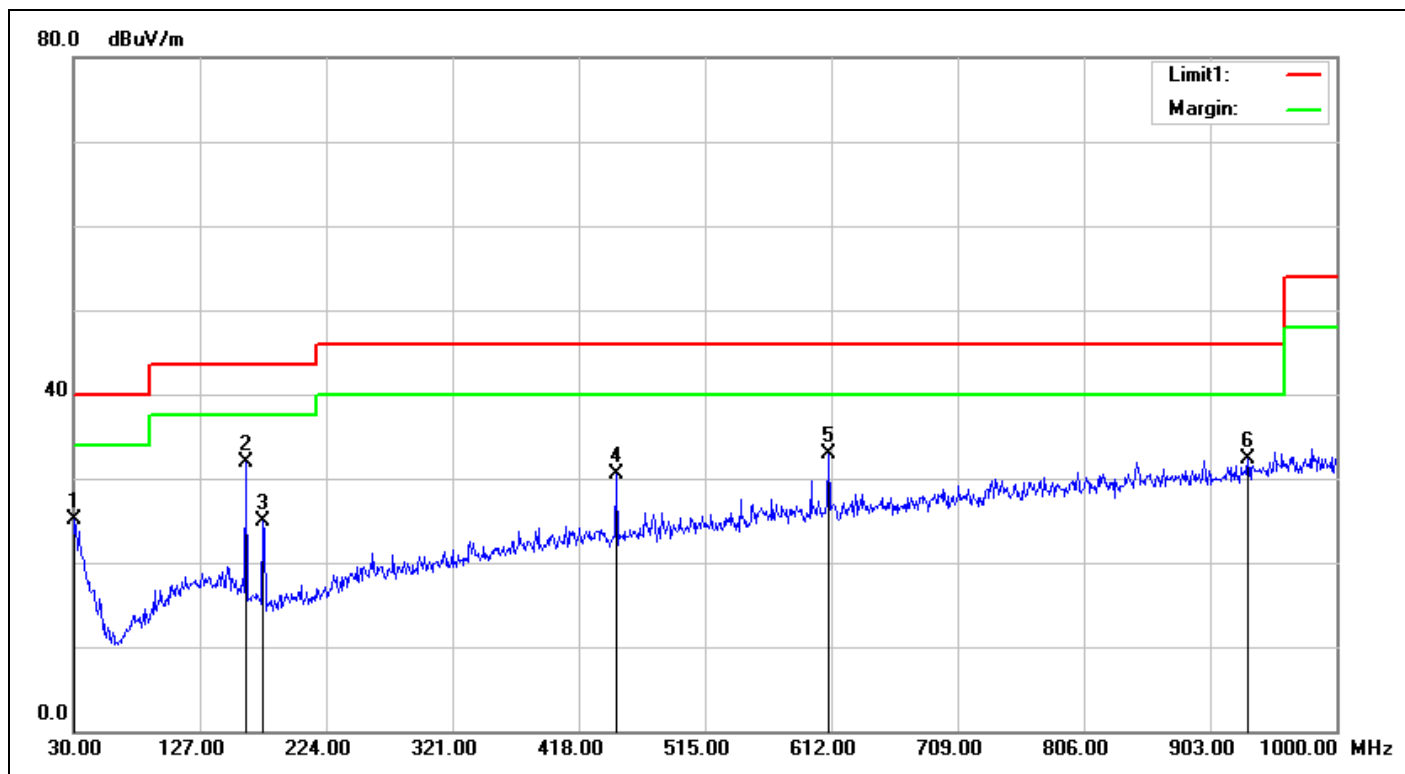
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Service No.:	238100815	Test Distance:	3m
Test Standard:	NCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2019/2/19 10:32:27
Applicant:	H.P.B. HI-TECH CORP.	Test Rating:	DC 9V
Product:	Hand Gesture Controller	Temp.(°C)/Hum.(%)	22.3(°C)/51%
Model No.:	Wave1210	Test Engineer:	Kevin Kuo
Test Mode:	TX+RX-30M-1G		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	30.9699	-0.52	24.30	23.78	40.00	-16.22	QP	100	13	
2	202.6599	-8.70	32.17	23.47	43.50	-20.03	QP	100	132	
3	284.1399	-4.95	34.96	30.01	46.00	-15.99	QP	100	99	
4	324.8798	-4.18	32.75	28.57	46.00	-17.43	QP	100	33	
5	566.4099	0.07	26.53	26.60	46.00	-19.40	QP	100	23	
6	920.4600	4.69	27.30	31.99	46.00	-14.01	QP	100	316	



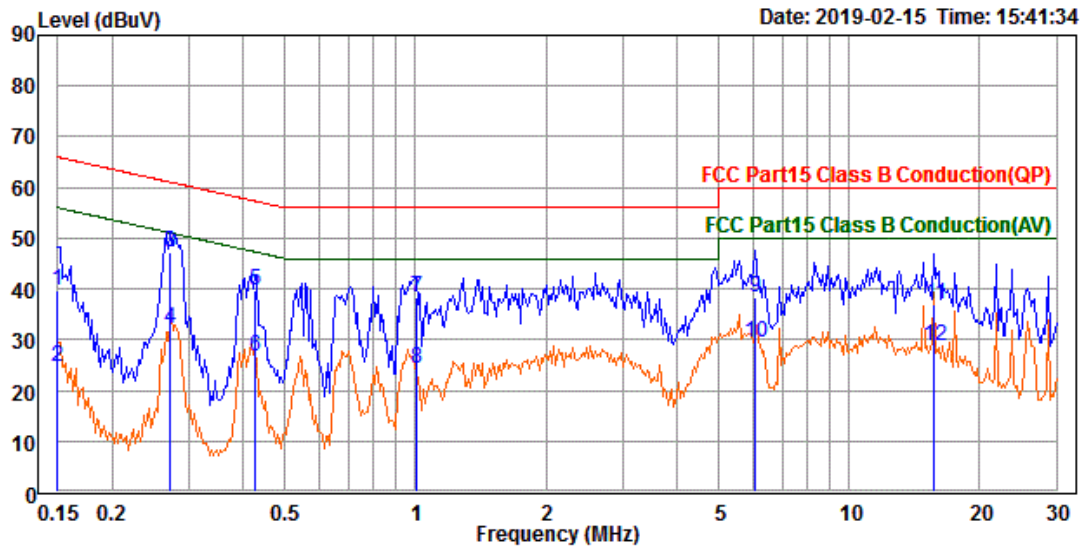
Service No.:	238100815	Test Distance:	3m
Test Standard:	NCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2019/2/19 10:46:20
Applicant:	H.P.B. HI-TECH CORP.	Test Rating:	DC 9V
Product:	Hand Gesture Controller	Temp.(°C)/Hum.(%):	22.3(°C)/51%
Model No.:	Wave1210	Test Engineer:	Kevin Kuo
Test Mode:	TX+RX-30M-1G		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	30.0000	-0.03	25.14	25.11	40.00	-14.89	QP	100	357	
2	161.9200	-8.22	40.18	31.96	43.50	-11.54	QP	100	229	
3	175.5000	-9.42	34.41	24.99	43.50	-18.51	QP	100	190	
4	447.1000	-2.01	32.46	30.45	46.00	-15.55	QP	100	223	
5	610.0600	0.24	32.66	32.90	46.00	-13.10	QP	100	357	
6	932.1000	5.17	27.22	32.39	46.00	-13.61	QP	100	348	

Spurious Emissions, AC Mains



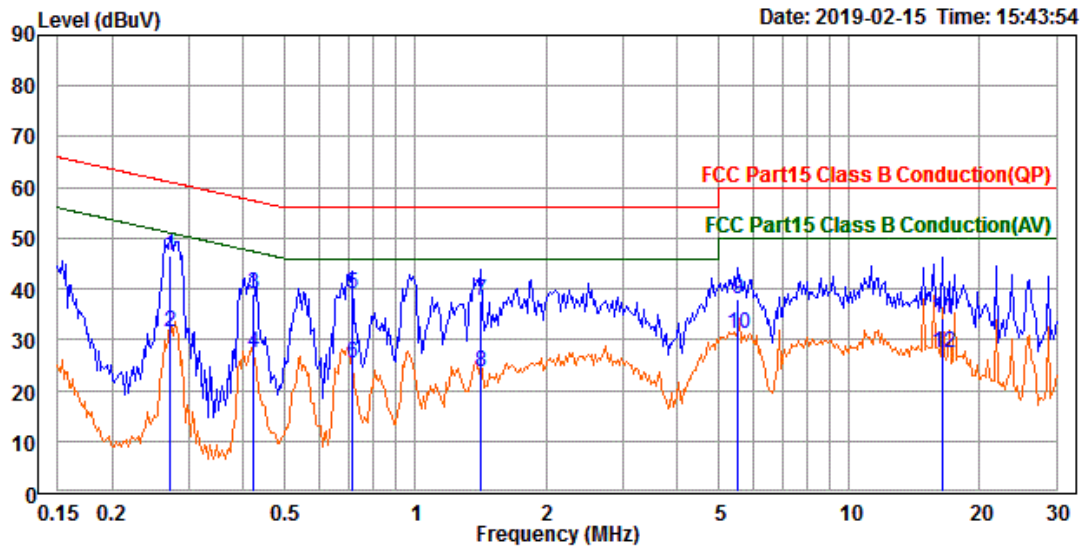
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Trace: 1

Site : Conduction room
Condition : FCC Part15 Class B Conduction(QP) line1
Test Engineer: Amy Hsu
Applicant : H.P.B. HI-TECH CORP.
Product : Hand Gesture Controller
Model No. : Wave1210
Test Rating : 120Vac/60Hz
Tmp/Hum : 22.3°C/53%
Memo :

	Read			Limit	Over	
	Freq	Level	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB	dBuV	dBuV	dB
1	0.150	30.07	9.68	39.75	66.00	-26.25 QP
2	0.150	14.98	9.68	24.66	56.00	-31.34 Average
3	0.272	37.66	9.68	47.34	61.05	-13.71 QP
4	0.272	22.38	9.68	32.06	51.05	-18.99 Average
5	0.426	29.84	9.69	39.53	57.33	-17.80 QP
6	0.426	16.97	9.69	26.66	47.33	-20.67 Average
7	1.002	28.57	9.70	38.27	56.00	-17.73 QP
8	1.002	14.56	9.70	24.26	46.00	-21.74 Average
9	6.054	28.50	9.78	38.28	60.00	-21.72 QP
10	6.054	19.58	9.78	29.36	50.00	-20.64 Average
11	15.722	27.22	9.84	37.06	60.00	-22.94 QP
12	15.722	18.88	9.84	28.72	50.00	-21.28 Average



Trace: 1

Site : Conduction room

Condition : FCC Part15 Class B Conduction(QP) neutral

Test Engineer: Amy Hsu

Applicant : H.P.B. HI-TECH CORP.

Product : Hand Gesture Controller

Model No. : Wave1210

Test Rating : 120Vac/60Hz

Tmp/Hum : 22.3°C/53%

Memo :

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.272	36.97	9.68	46.65	61.05	-14.40	QP
2	0.272	21.85	9.68	31.53	51.05	-19.52	Average
3	0.422	29.47	9.68	39.15	57.41	-18.26	QP
4	0.422	17.56	9.68	27.24	47.41	-20.17	Average
5	0.714	29.35	9.69	39.04	56.00	-16.96	QP
6	0.714	15.47	9.69	25.16	46.00	-20.84	Average
7	1.418	28.04	9.71	37.75	56.00	-18.25	QP
8	1.418	13.77	9.71	23.48	46.00	-22.52	Average
9	5.536	28.23	9.77	38.00	60.00	-22.00	QP
10	5.536	21.45	9.77	31.22	50.00	-18.78	Average
11	16.360	24.32	9.89	34.21	60.00	-25.79	QP
12	16.360	17.45	9.89	27.34	50.00	-22.66	Average