

Test Report No.10044733 001

Appendix D: Radiated and Mains Spurious Emission Data

(File: 10044733AppendixD)

Contents

Spurious Emissions, Fundamental and Band Edges	2
Spurious Emissions, TX Mode, 1-18G.....	12
Spurious Emissions, TX Mode, 18-26G.....	18
Spurious Emissions, TX Mode, 30M-1G	24
Spurious Emissions, Mains, 150kHz - 30MHz.....	27

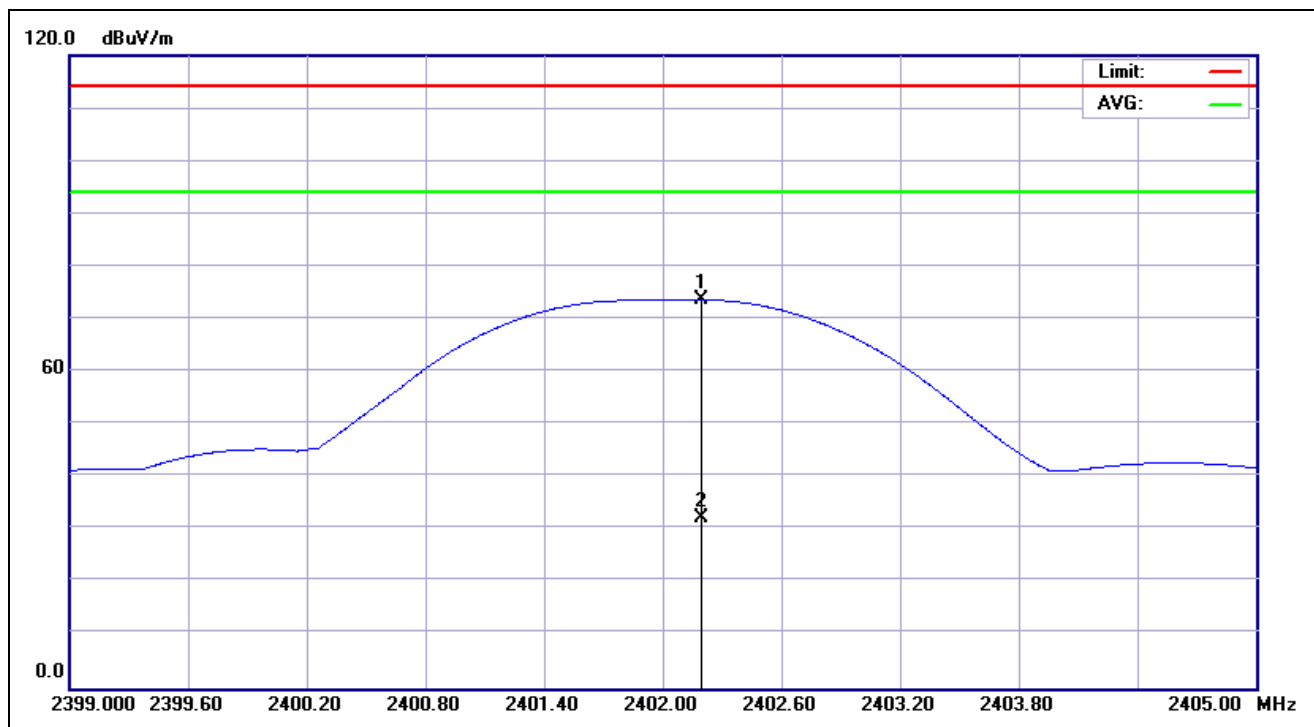
Spurious Emissions, Fundamental and Band Edges



TUV Taiwan

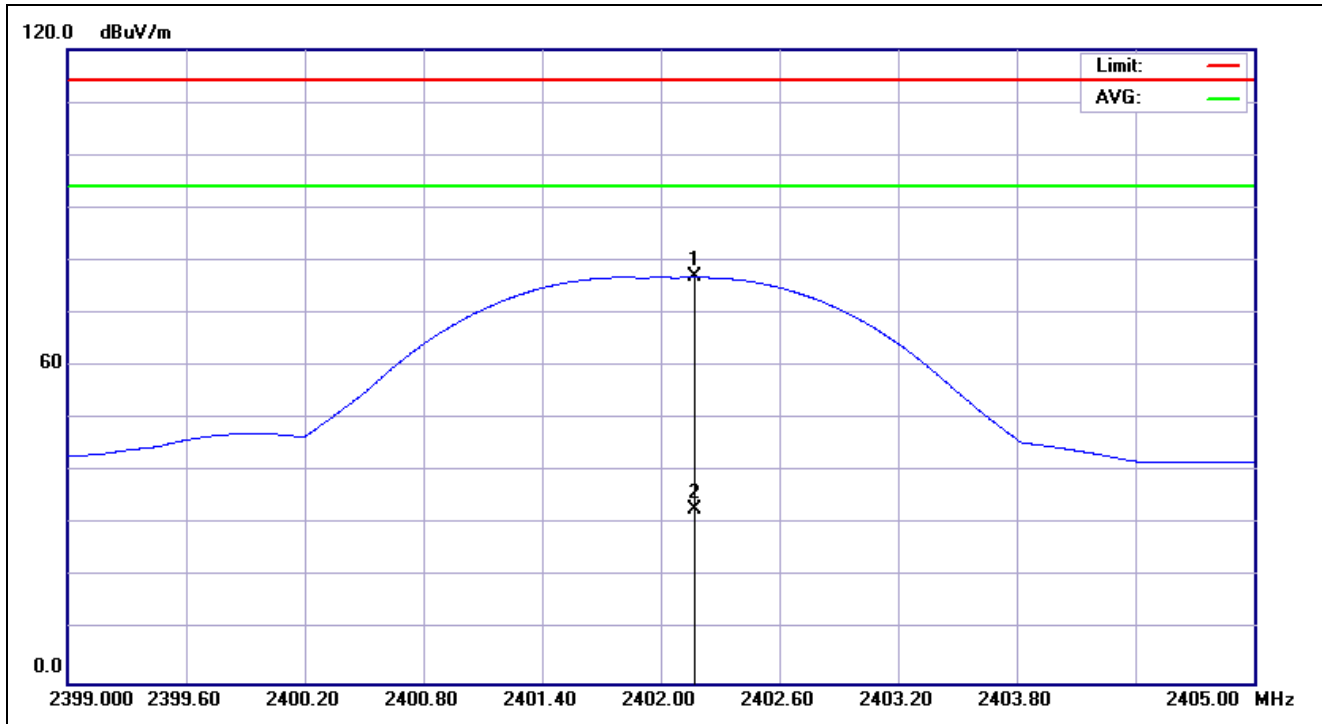
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

Tel:+886-2172-7000 fax:+886-2528-0018



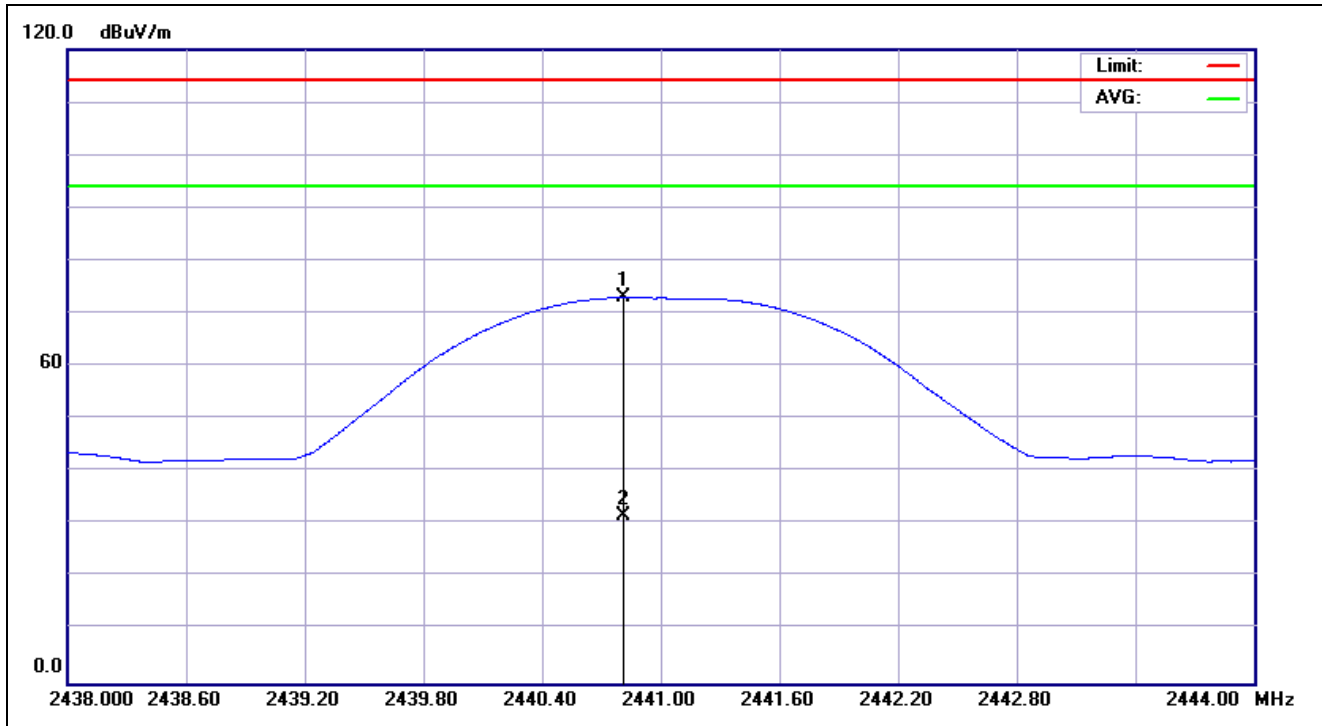
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC 15.249_2.4-2.5G_3m PK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 17:13:07
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%)	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2402-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	2402.192	-7.97	81.61	73.64	114.00	-40.36	peak			
2	2402.192	-7.97	40.18	32.21	94.00	-61.79	AVG			



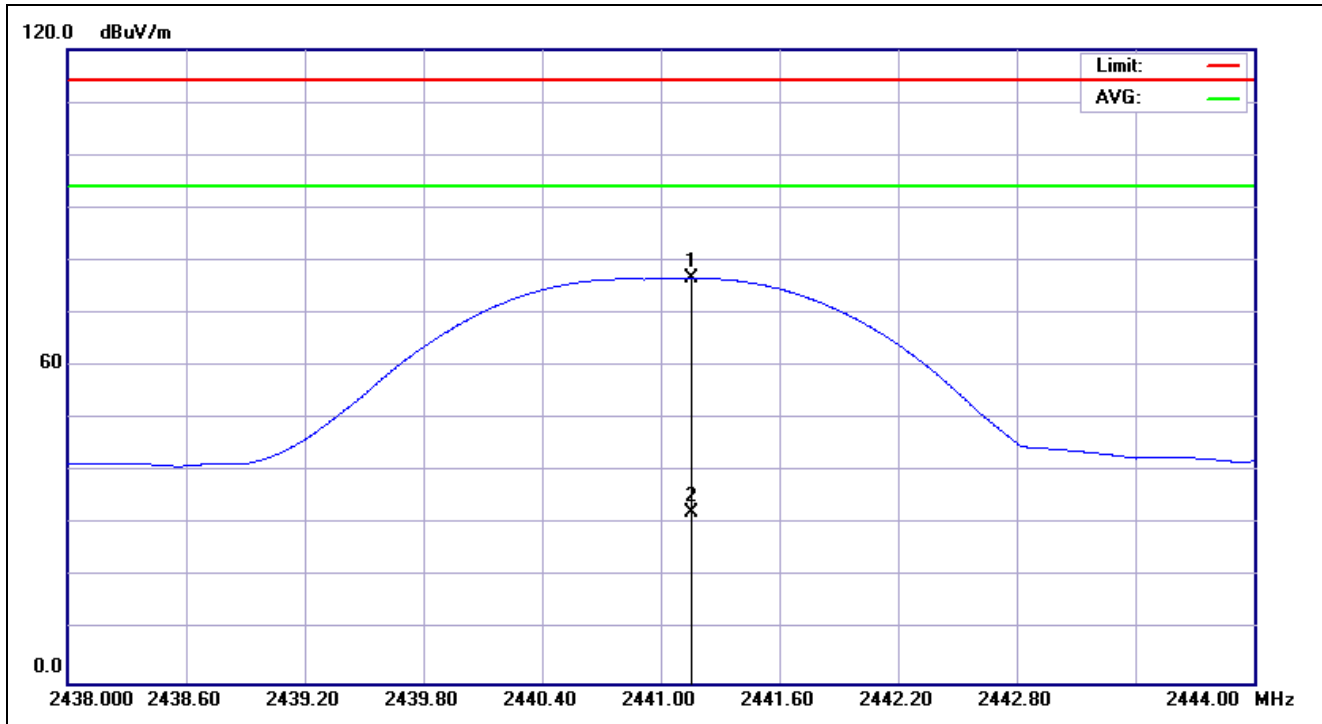
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC 15.249_2.4-2.5G_3m PK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 17:14:29
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2402-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	2402.174	-7.97	84.82	76.85	114.00	-37.15	peak			
2	2402.174	-7.97	40.94	32.97	94.00	-61.03	AVG			



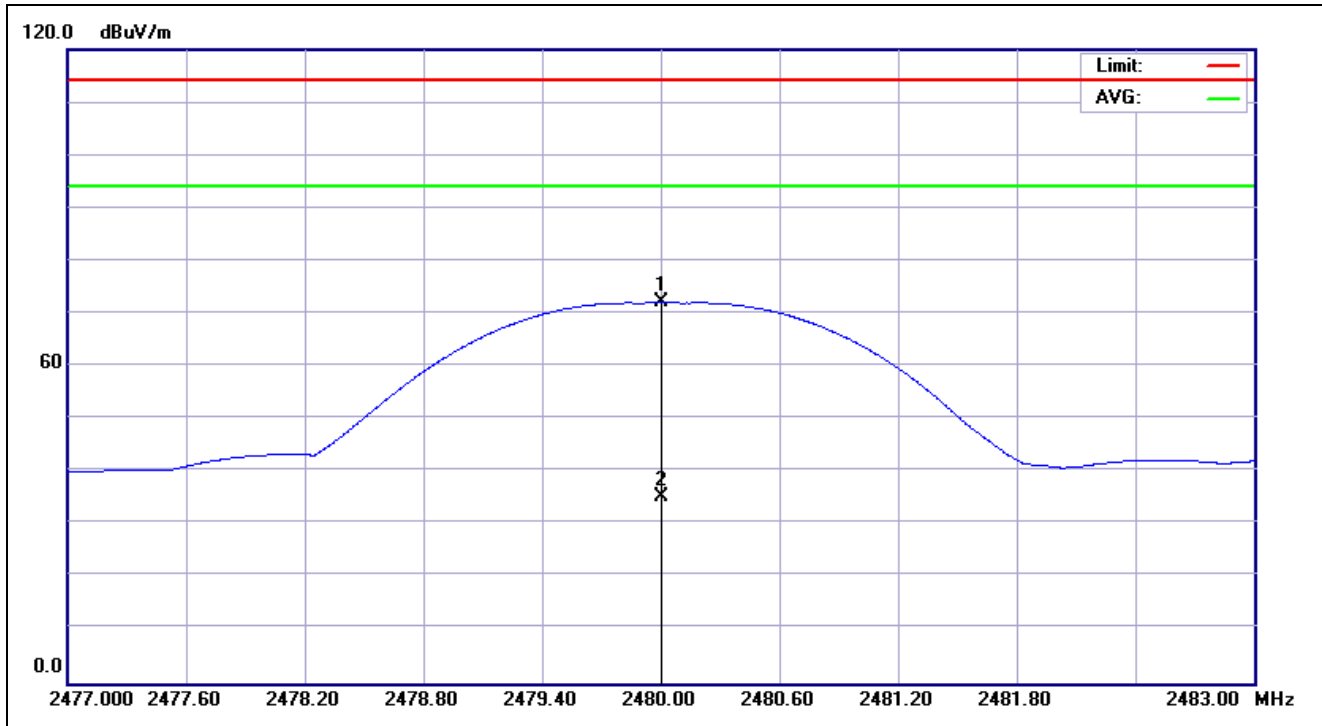
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC 15.249_2.4-2.5G_3m PK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 17:11:39
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	2440.814	-7.92	80.92	73.00	114.00	-41.00	peak			
2	2440.814	-7.92	39.49	31.57	94.00	-62.43	AVG			



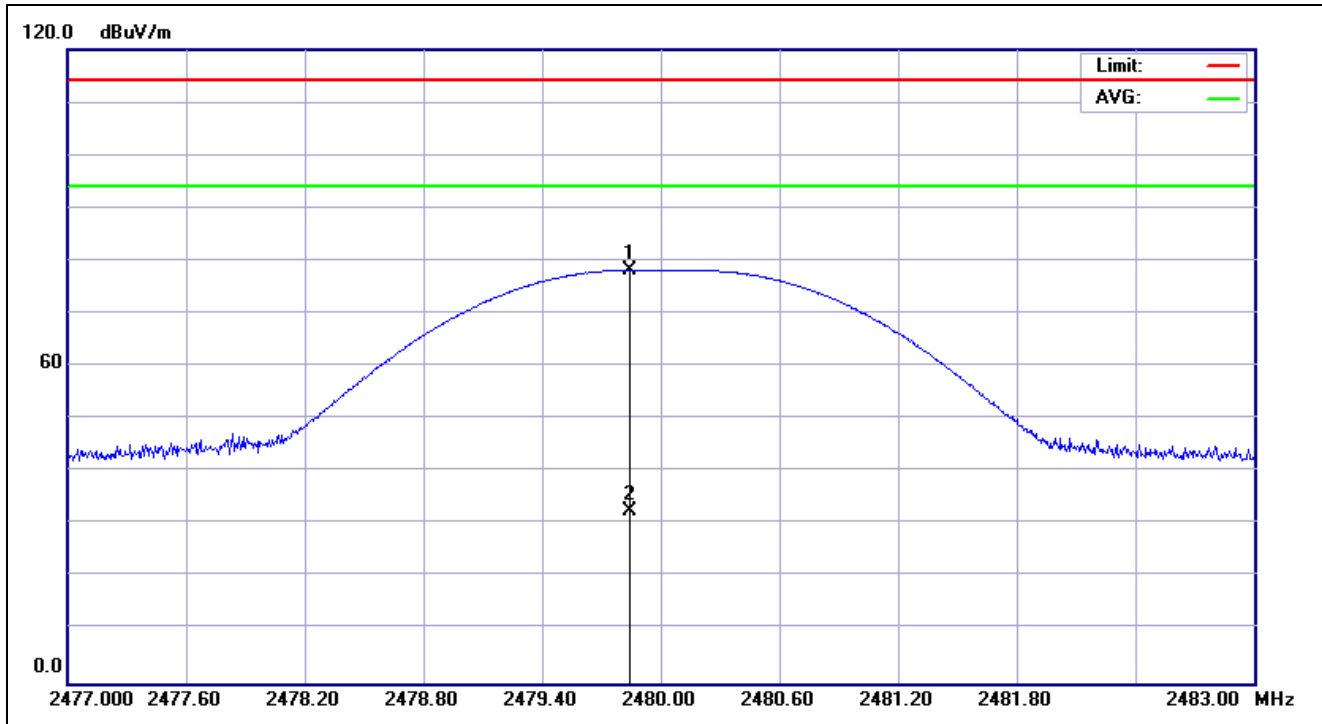
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC 15.249_2.4-2.5G_3m PK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 17:10:11
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	2441.156	-7.92	84.57	76.65	114.00	-37.35	peak			
2	2441.156	-7.92	40.06	32.14	94.00	-61.86	AVG			



Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC 15.249_2.4-2.5G_3m PK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 17:03:41
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2480-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	2480.006	-7.88	79.97	72.09	114.00	-41.91	peak			
2	2480.006	-7.88	43.26	35.38	94.00	-58.62	AVG			

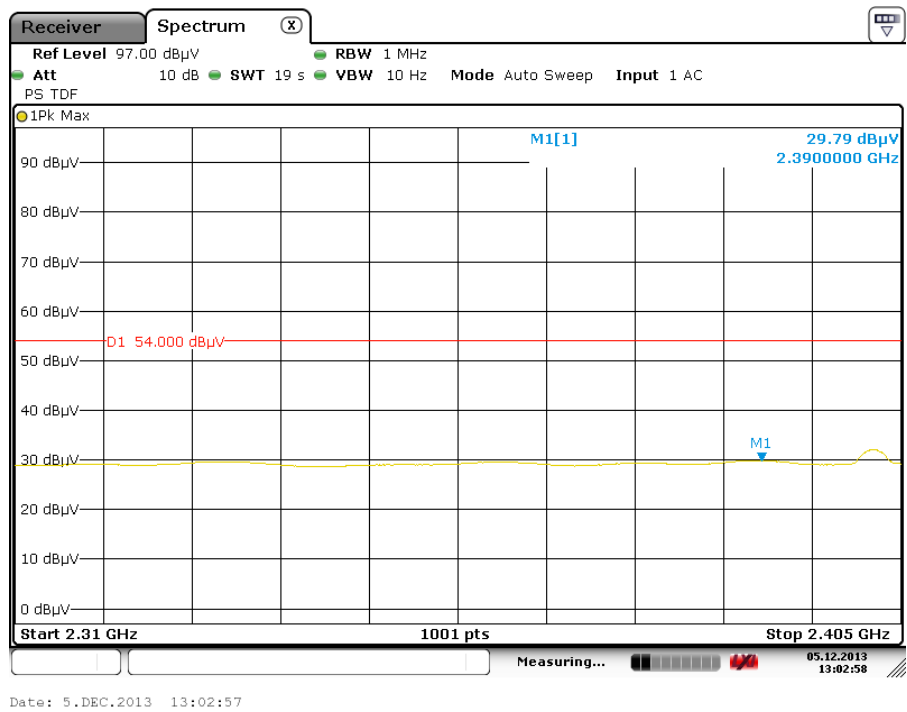
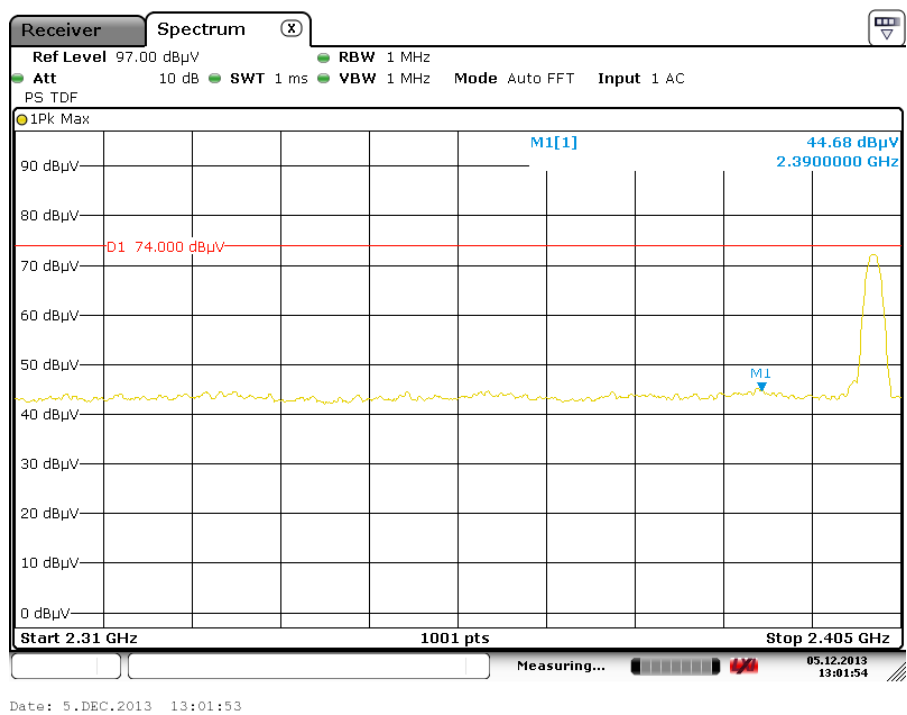


Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC 15.249_2.4-2.5G_3m PK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 17:08:02
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2480-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	2479.844	-7.88	86.09	78.21	114.00	-35.79	peak			
2	2479.844	-7.88	40.30	32.42	94.00	-61.58	AVG			

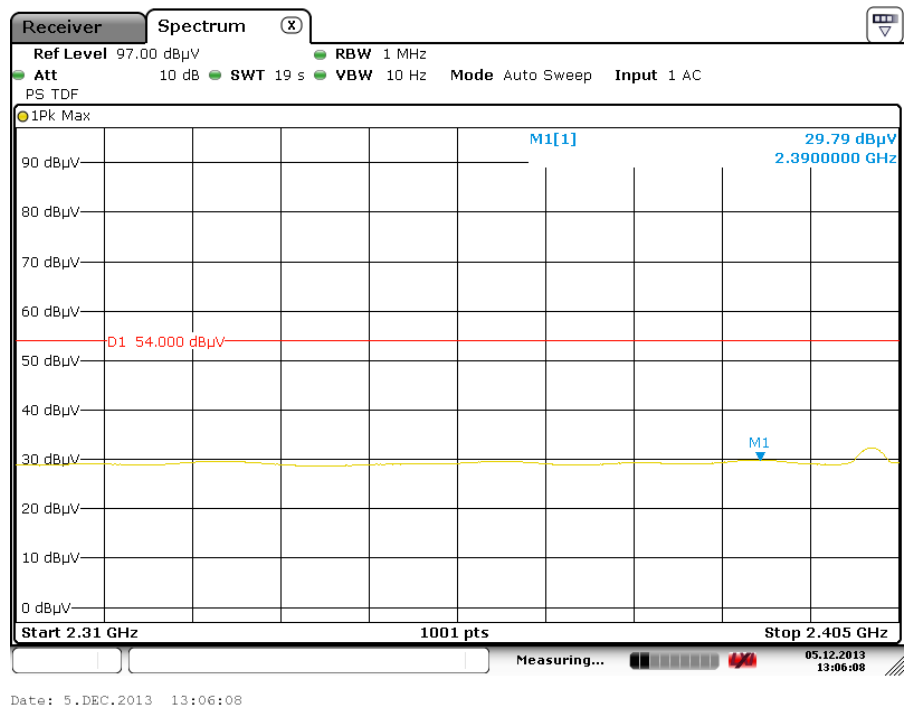
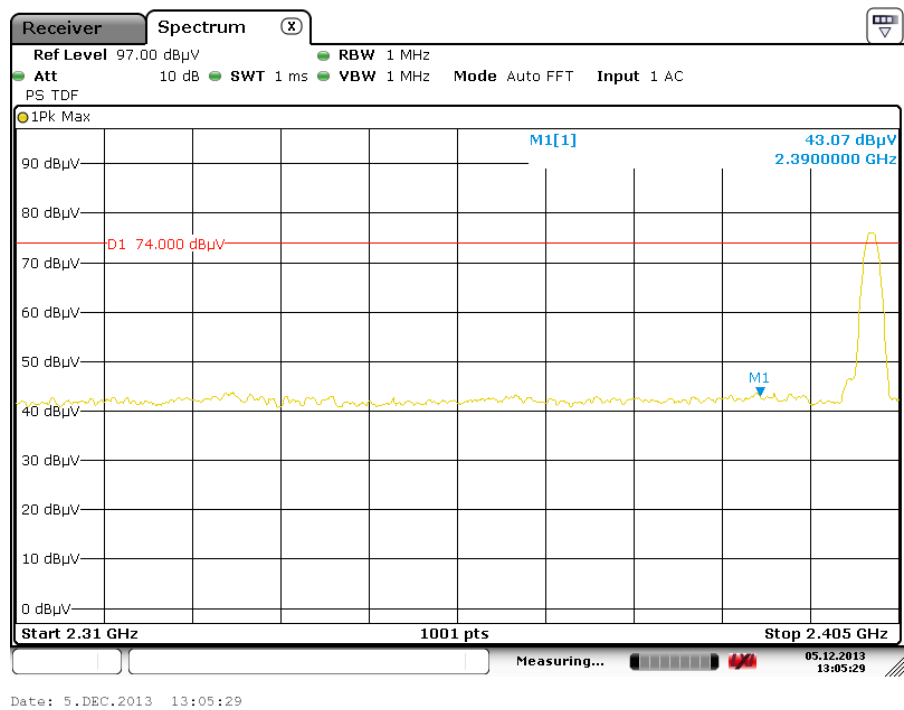
Radiated Bandedge

Low Channel (Hor)

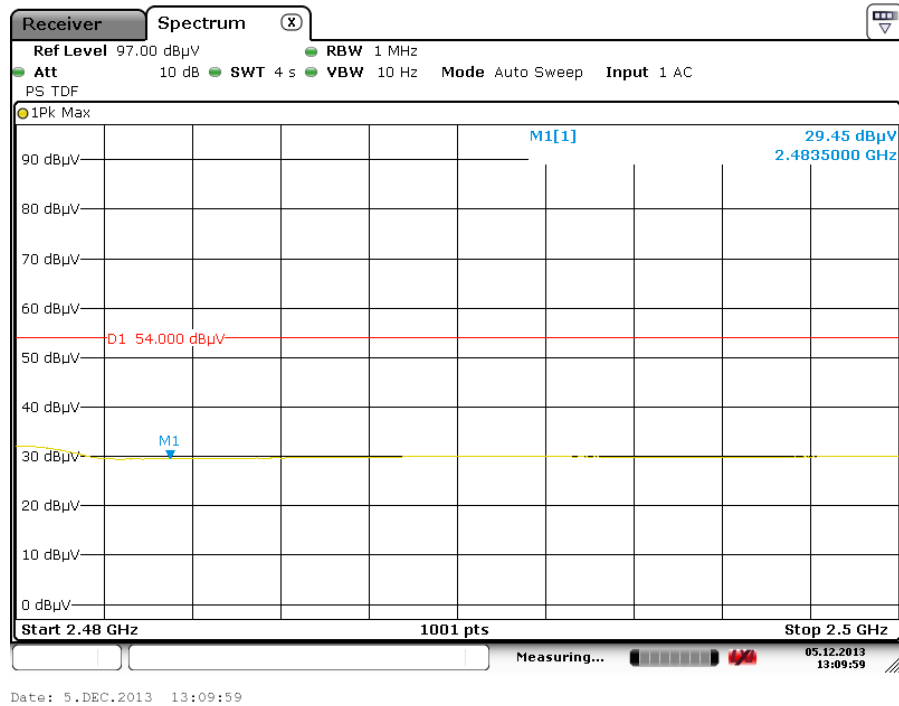
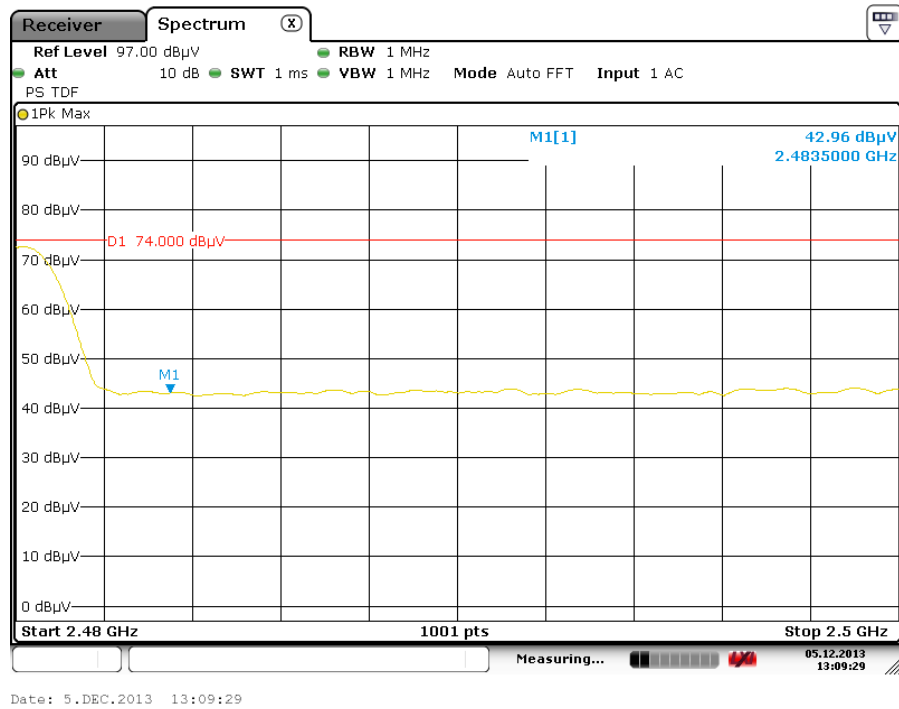


Spurious Emissions, Fundamental and Band Edges

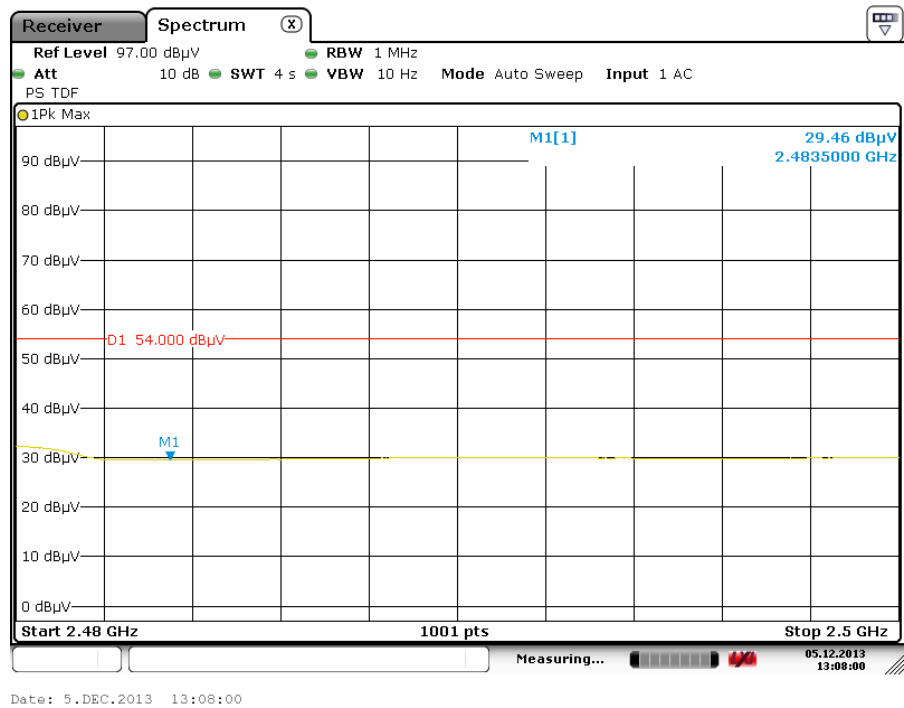
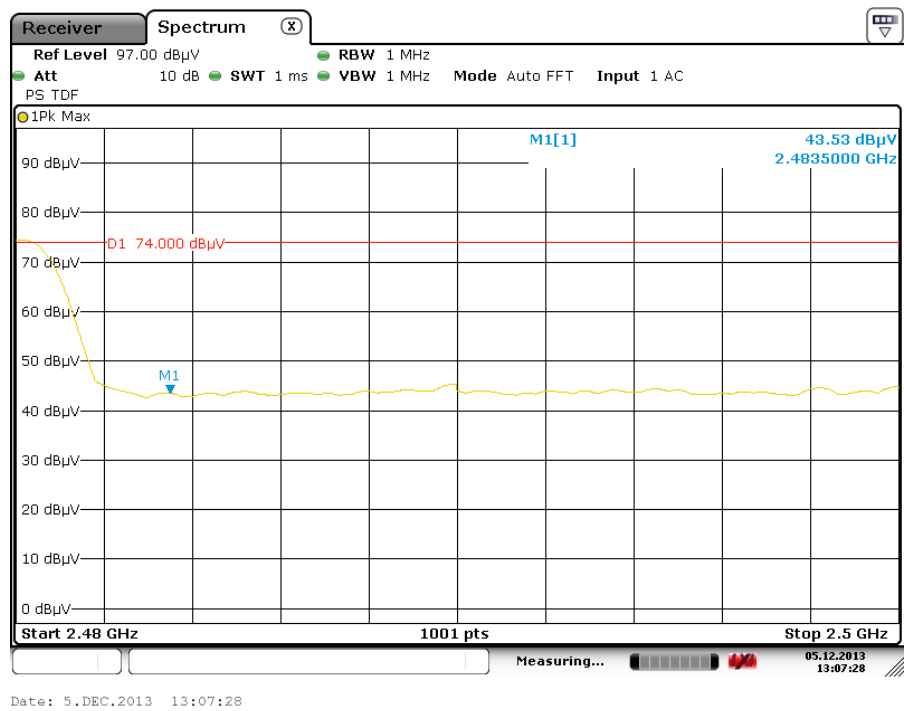
Low Channel (Ver)



High Channel (Hor)



High Channel (Ver)



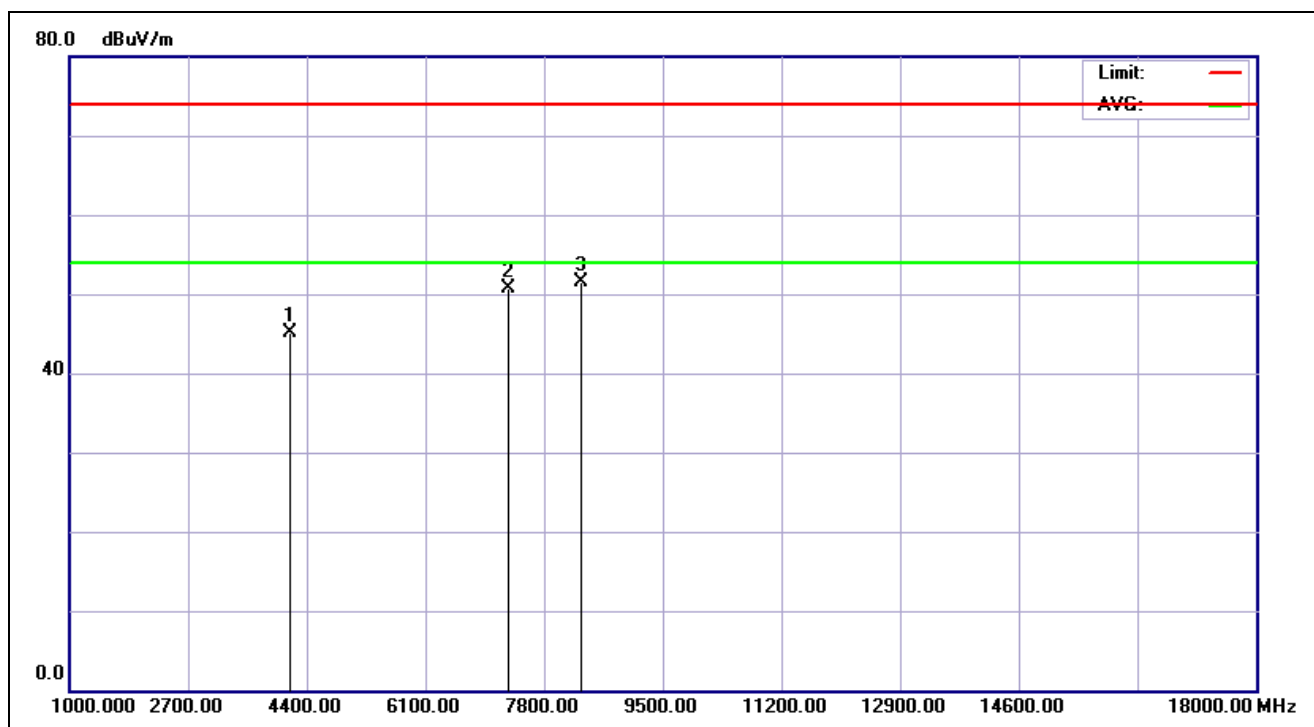
Spurious Emissions, TX Mode, 1-18G



TUV Taiwan

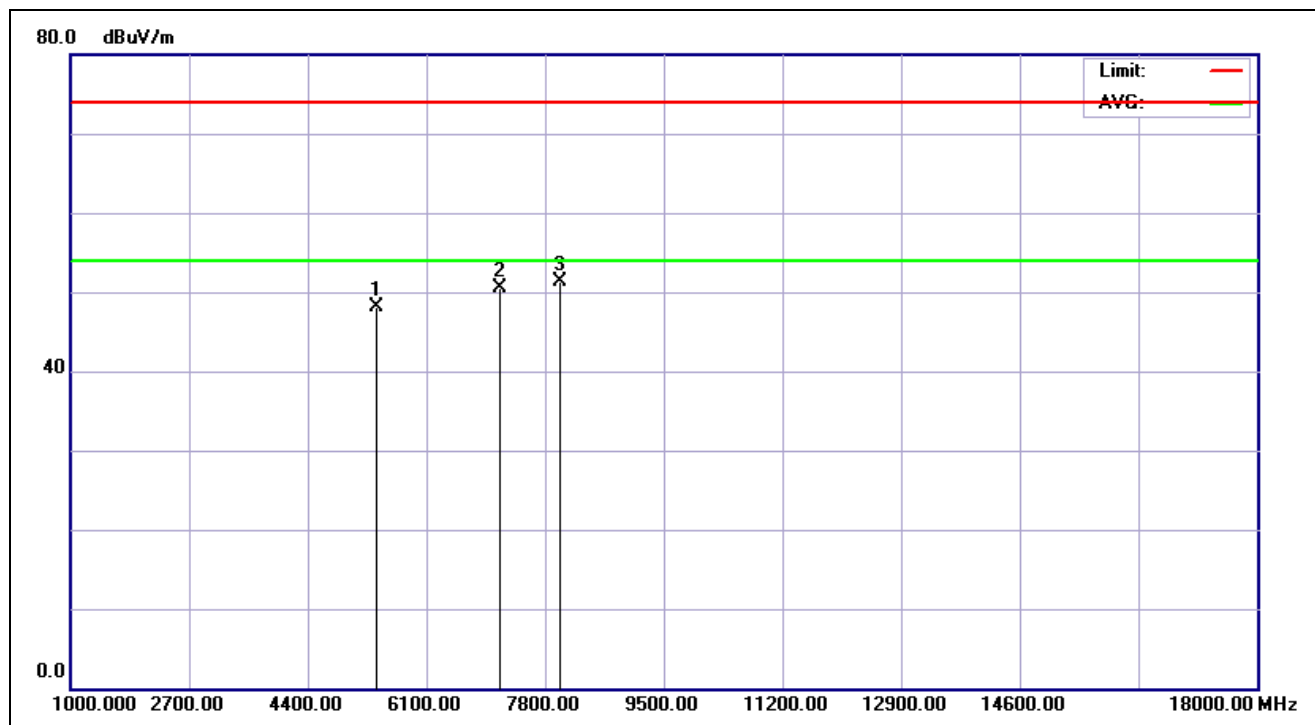
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

Tel: +886-2172-7000 fax: +886-2528-0018



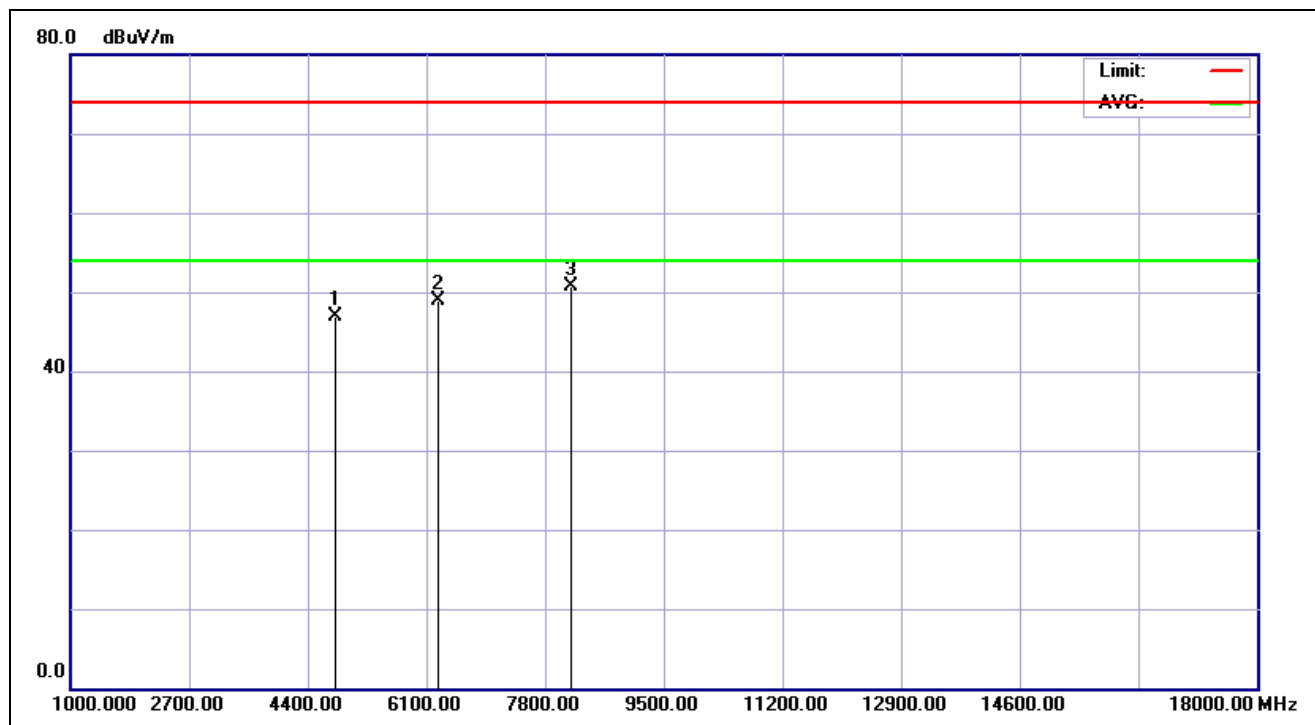
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 14:34:16
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2402-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4162.000	-4.67	49.80	45.13	74.00	-28.87	peak	100	27	
2	7290.000	5.67	45.12	50.79	74.00	-23.21	peak	100	76	
3	8327.000	6.30	45.13	51.43	74.00	-22.57	peak	100	285	



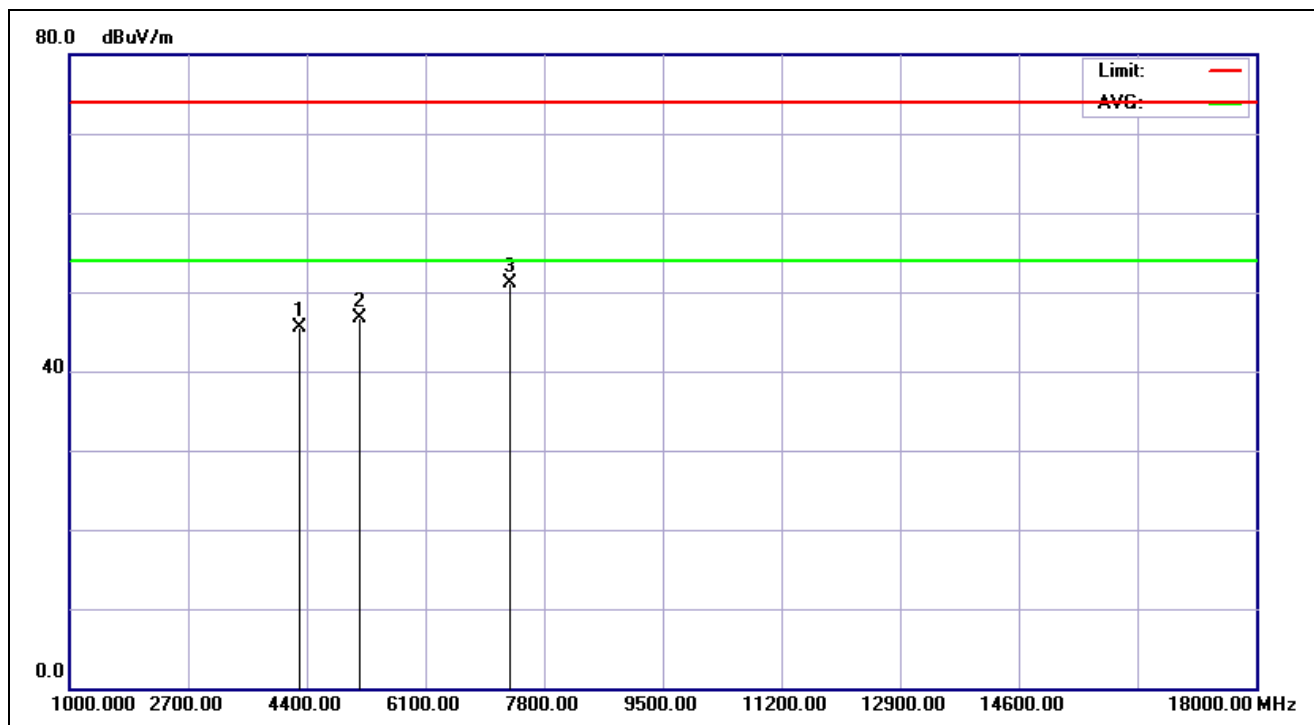
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 14:35:24
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2402-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	5386.000	-0.21	48.35	48.14	74.00	-25.86	peak	100	113	
2	7154.000	5.29	45.28	50.57	74.00	-23.43	peak	100	122	
3	8021.000	6.03	45.19	51.22	74.00	-22.78	peak	100	273	



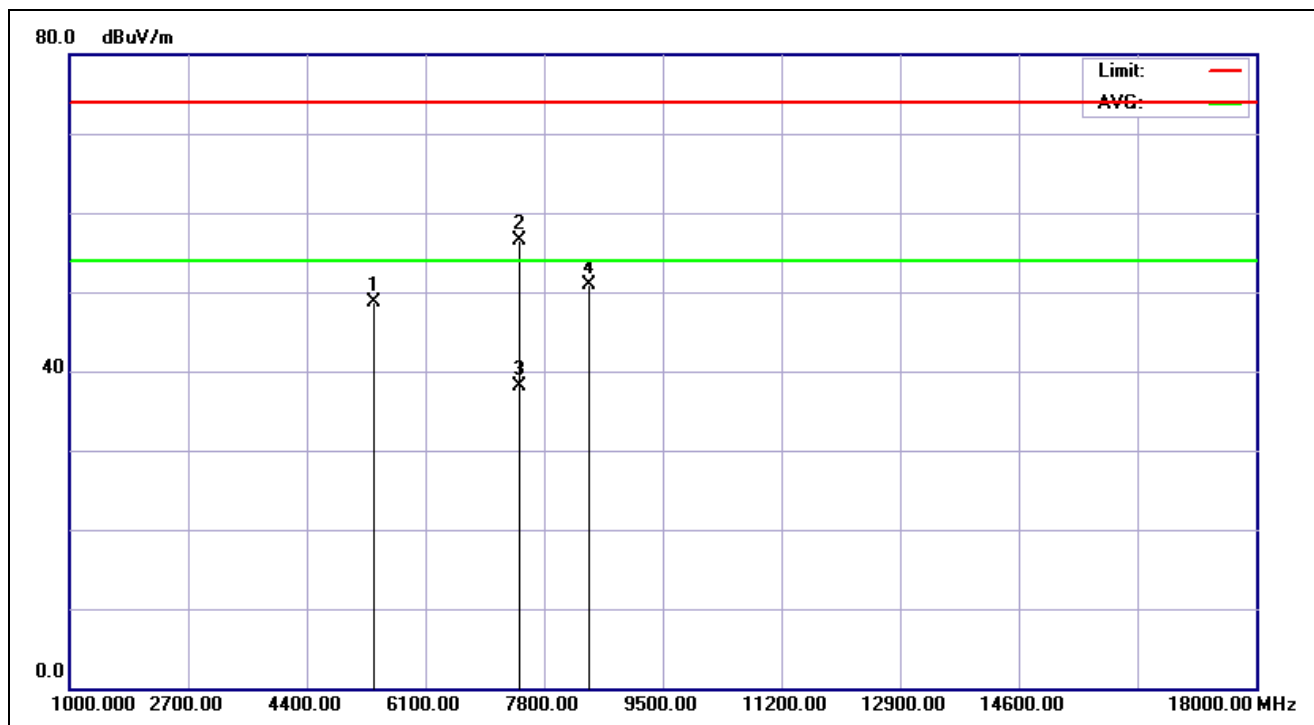
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 14:30:46
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4791.000	-2.62	49.47	46.85	74.00	-27.15	peak	100	102	
2	6270.000	4.65	44.33	48.98	74.00	-25.02	peak	100	188	
3	8174.000	6.16	44.64	50.80	74.00	-23.20	peak	100	0	



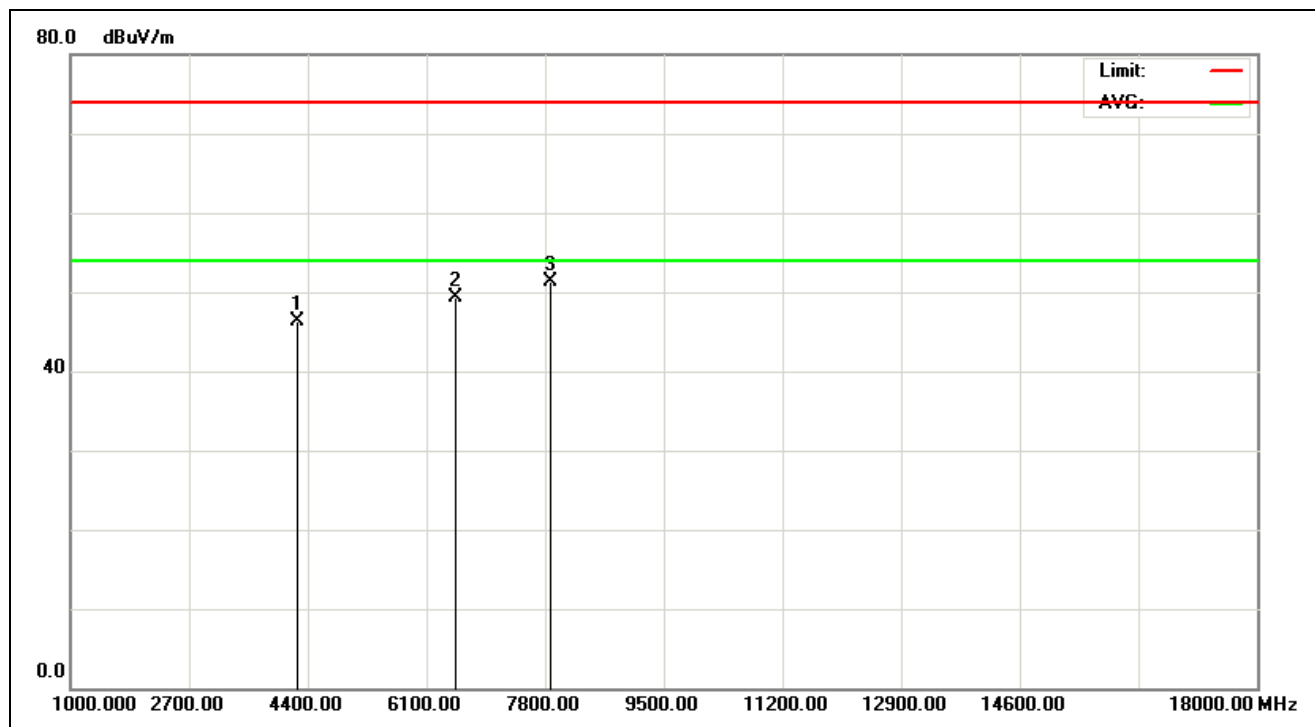
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 14:31:53
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4298.000	-4.15	49.71	45.56	74.00	-28.44	peak	100	209	
2	5165.000	-1.29	48.04	46.75	74.00	-27.25	peak	100	151	
3	7307.000	5.73	45.41	51.14	74.00	-22.86	peak	100	319	



Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 14:01:07
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2480-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	5352.000	-0.38	48.99	48.61	74.00	-25.39	peak	100	120	
2	7443.000	6.10	50.36	56.46	74.00	-17.54	peak	100	141	
3	7443.000	6.10	31.97	38.07	54.00	-15.93	AVG	100	141	
4	8446.000	6.39	44.46	50.85	74.00	-23.15	peak	100	241	



Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 13:59:36
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	19.8(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2480-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4247.000	-4.34	50.72	46.38	74.00	-27.62	peak	100	144	
2	6525.000	5.43	43.85	49.28	74.00	-24.72	peak	100	341	
3	7868.000	6.07	45.20	51.27	74.00	-22.73	peak	100	74	

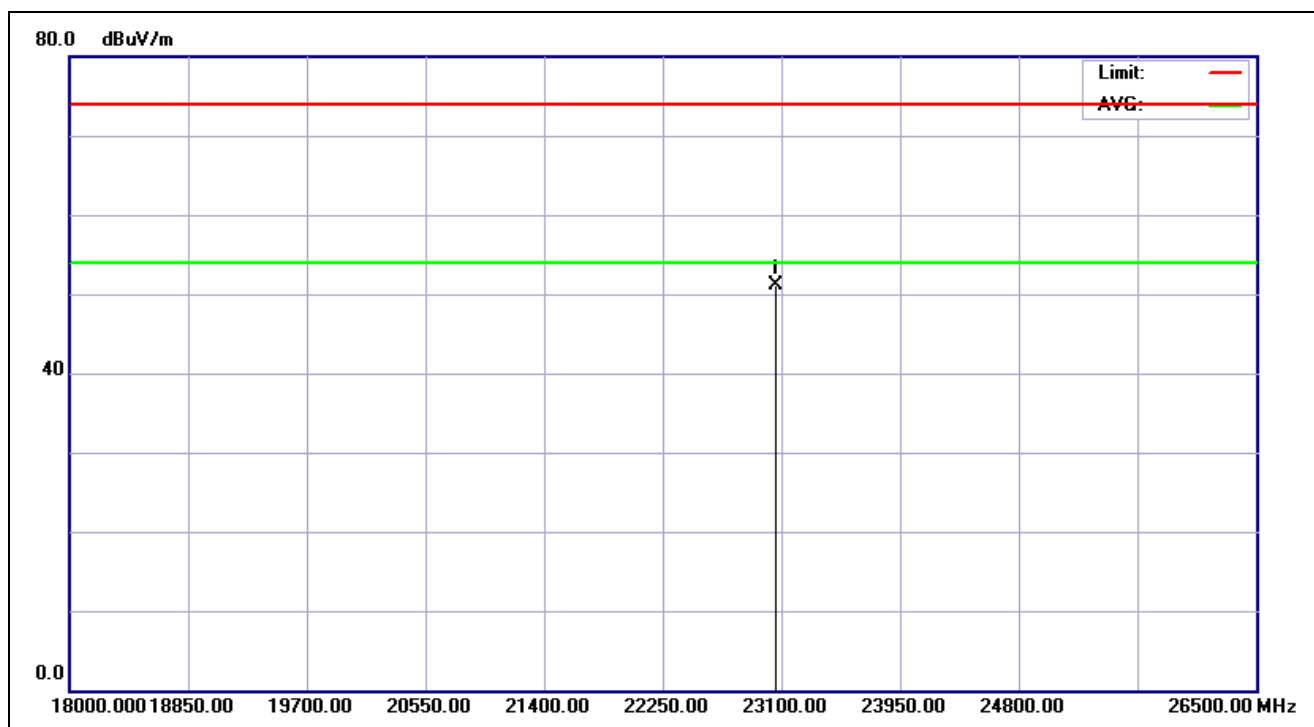
Spurious Emissions, TX Mode, 18-26G



TUV Taiwan

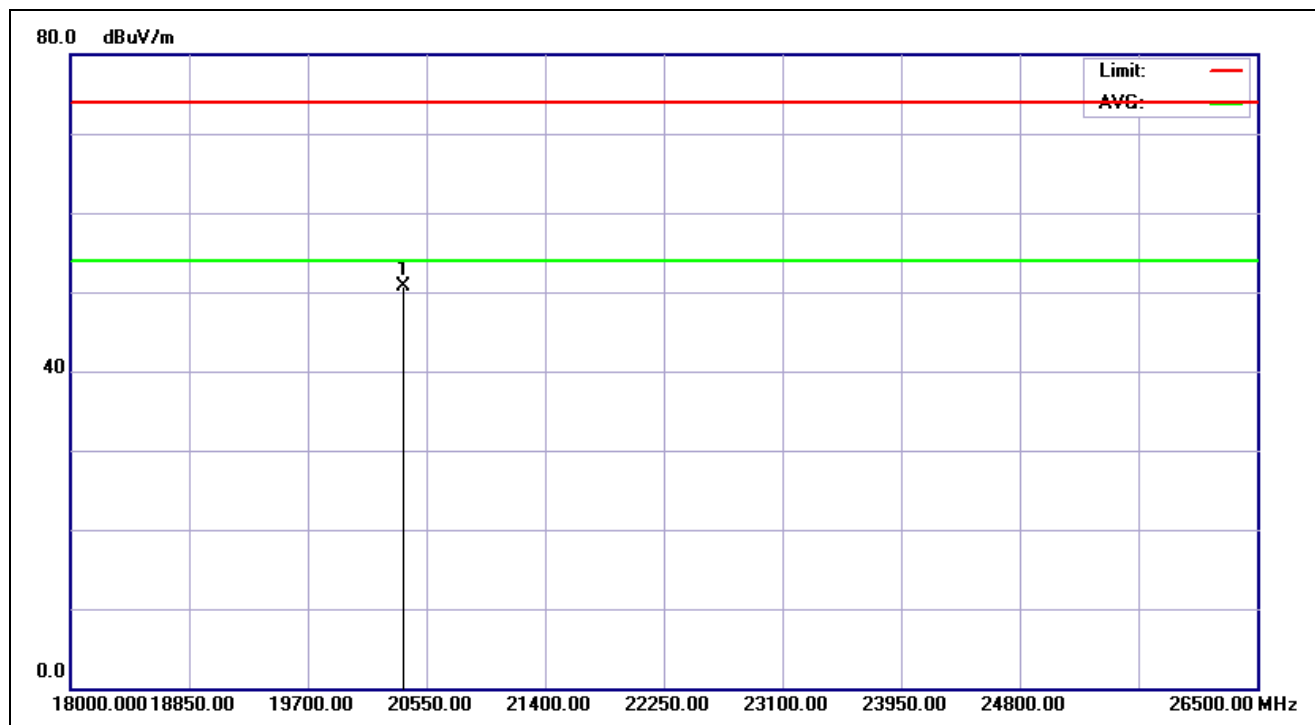
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

Tel: +886-2172-7000 fax: +886-2528-0018



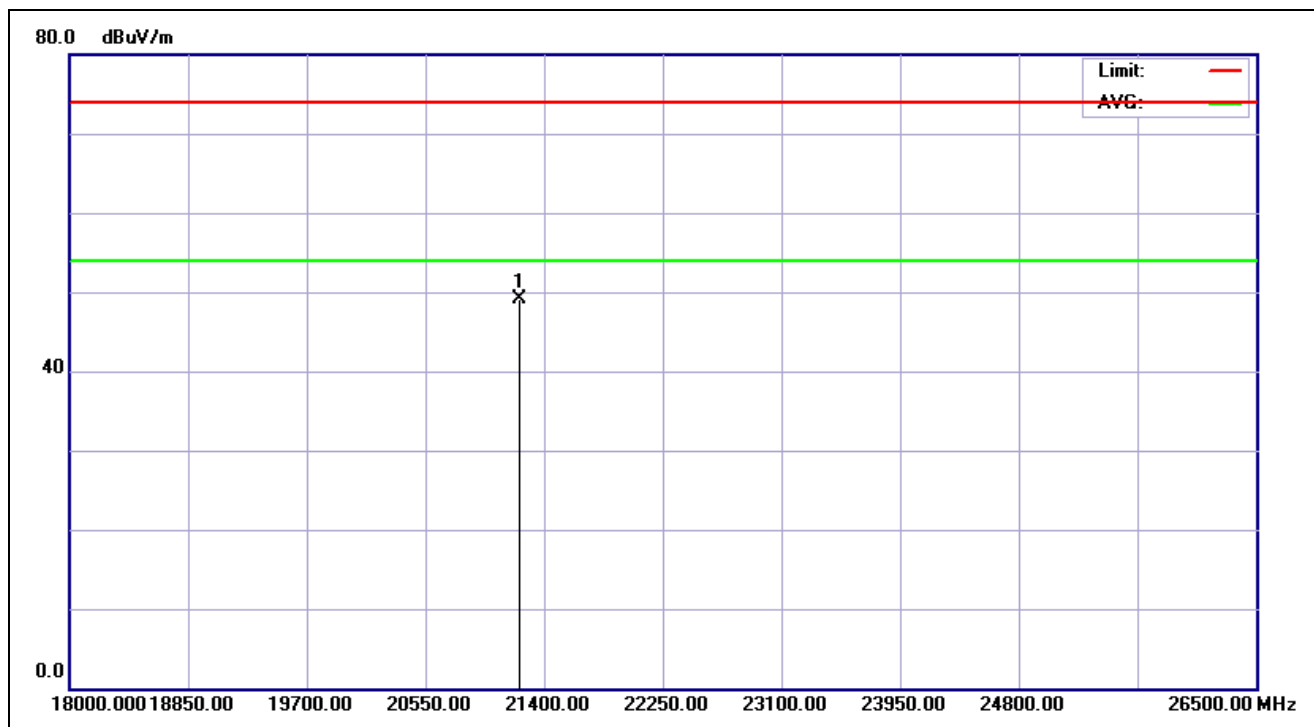
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 15:32:09
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	20(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2402-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	23057.500	30.27	20.85	51.12	74.00	-22.88	peak			



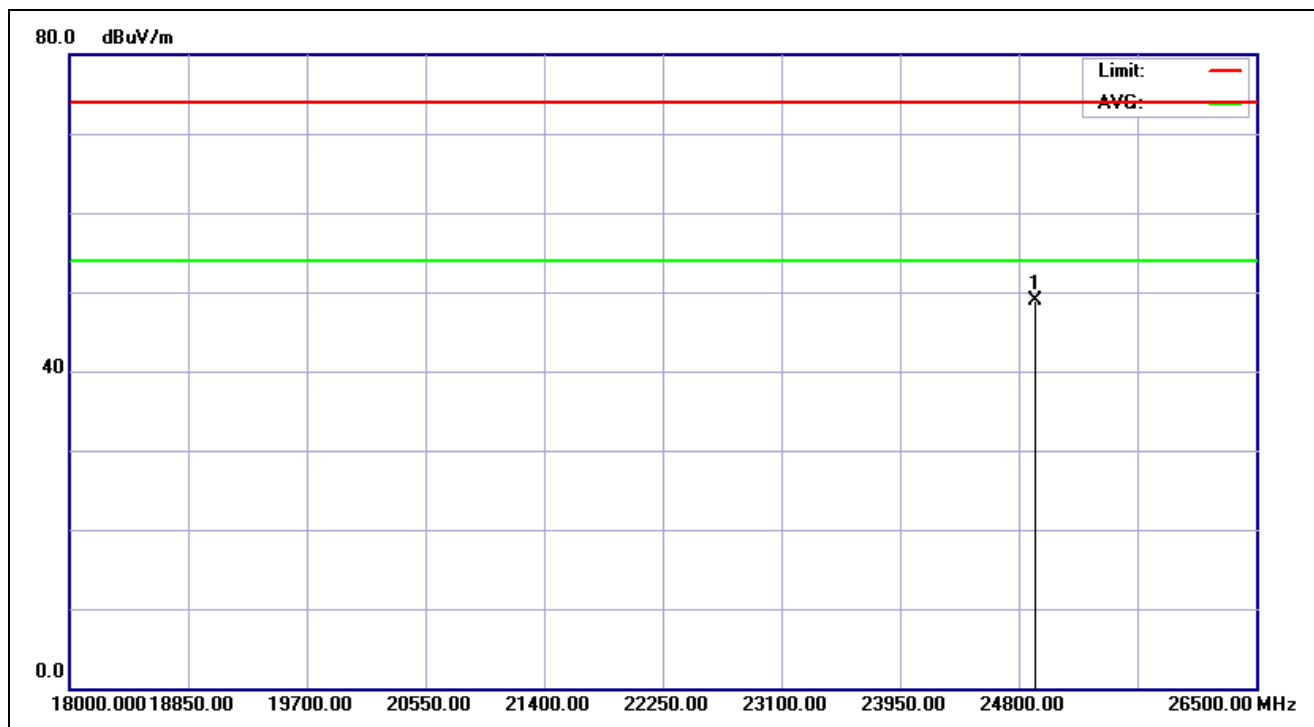
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 15:32:36
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	20(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2402-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	20380.000	29.51	21.23	50.74	74.00	-23.26	peak			



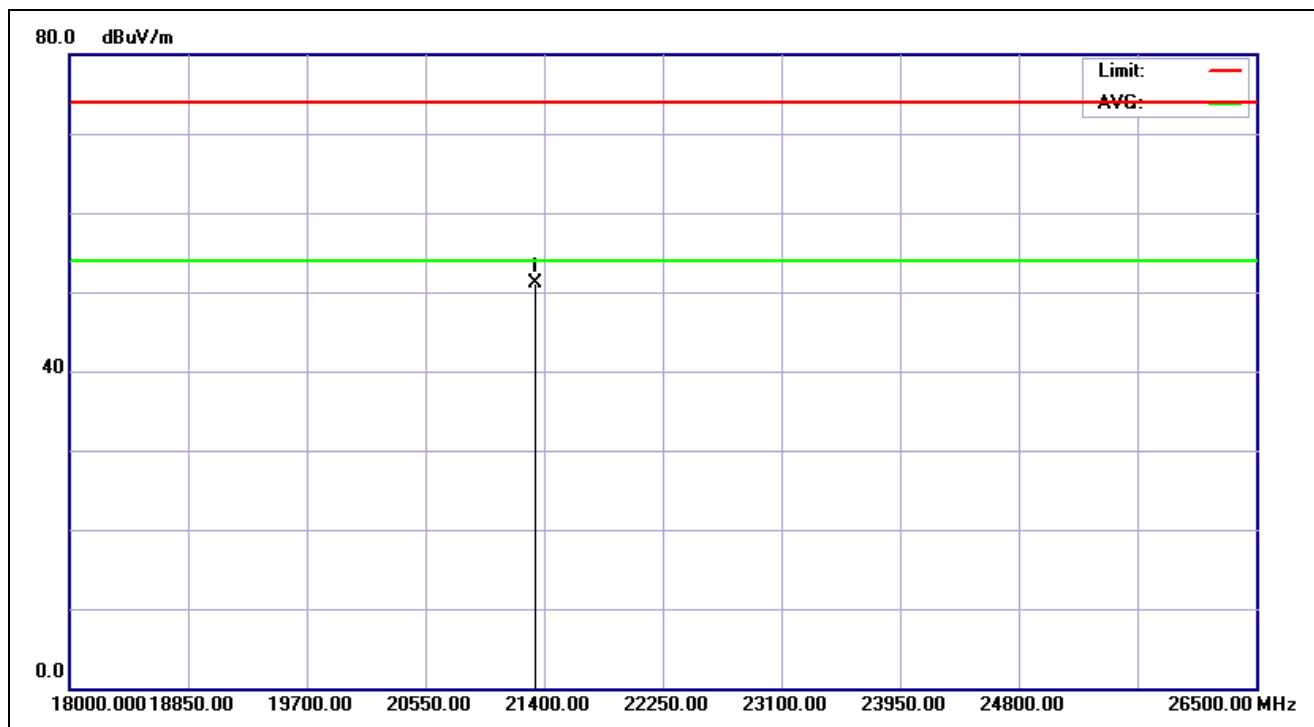
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 15:33:41
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	20(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	21221.500	29.51	19.66	49.17	74.00	-24.83	peak			



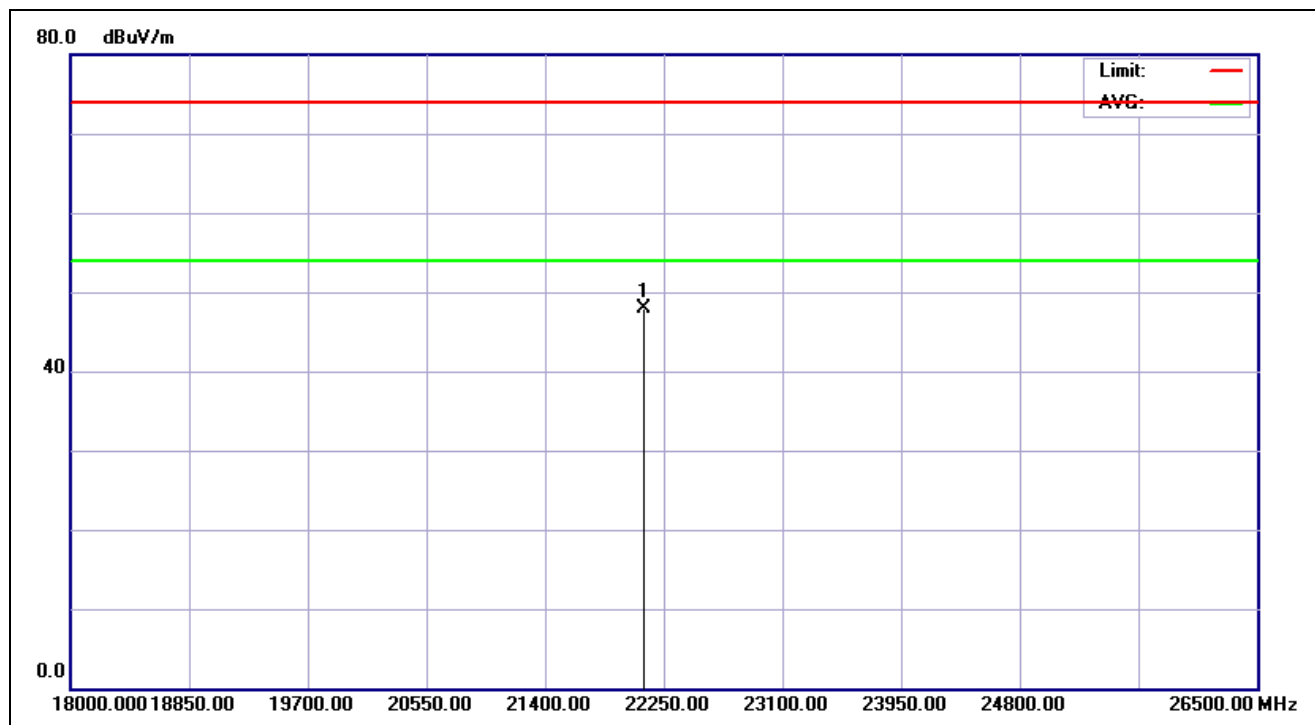
Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 15:34:57
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	20(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	24919.000	30.51	18.46	48.97	74.00	-25.03	peak			



Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/5 15:35:38
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	20(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2480-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	21332.000	29.49	21.61	51.10	74.00	-22.90	peak			



Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/5 15:36:42
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%)	20(°C)/53%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	BT-2480-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	22105.500	29.31	18.63	47.94	74.00	-26.06	peak			

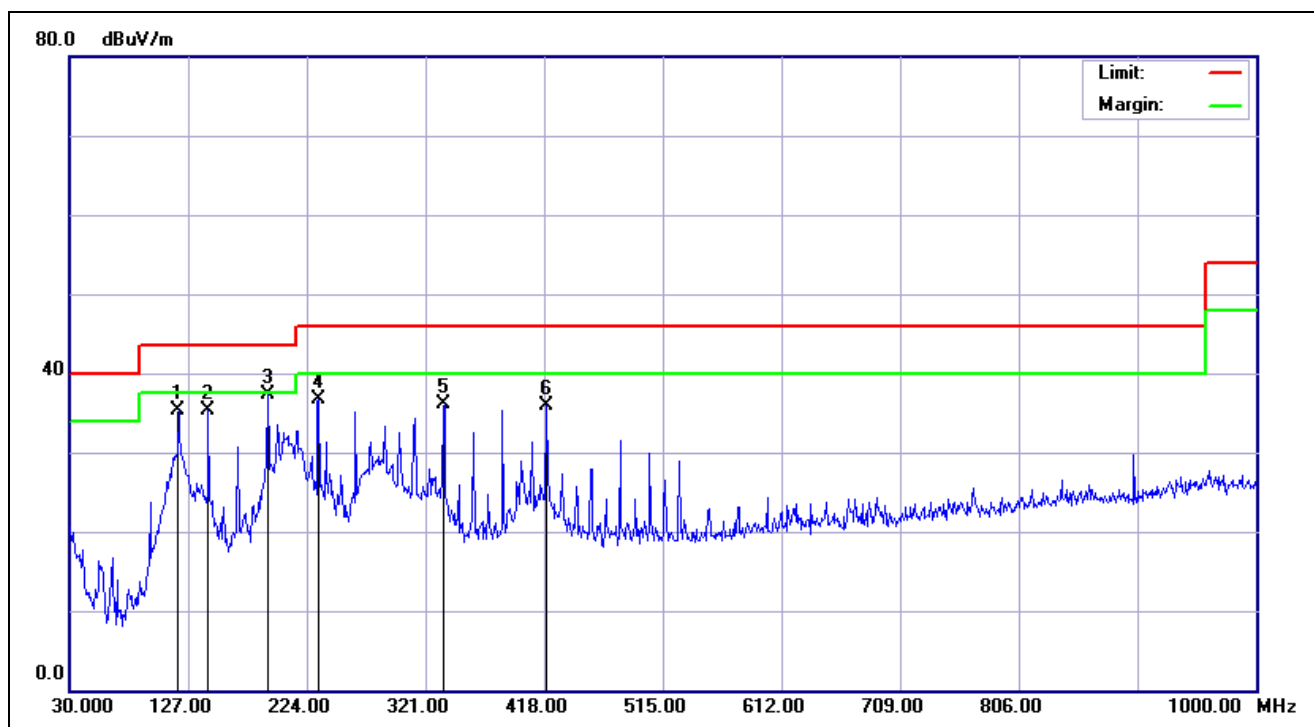
Spurious Emissions, TX Mode, 30M-1G



TUV Taiwan

11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

Tel: +886-2172-7000 fax: +886-2528-0018

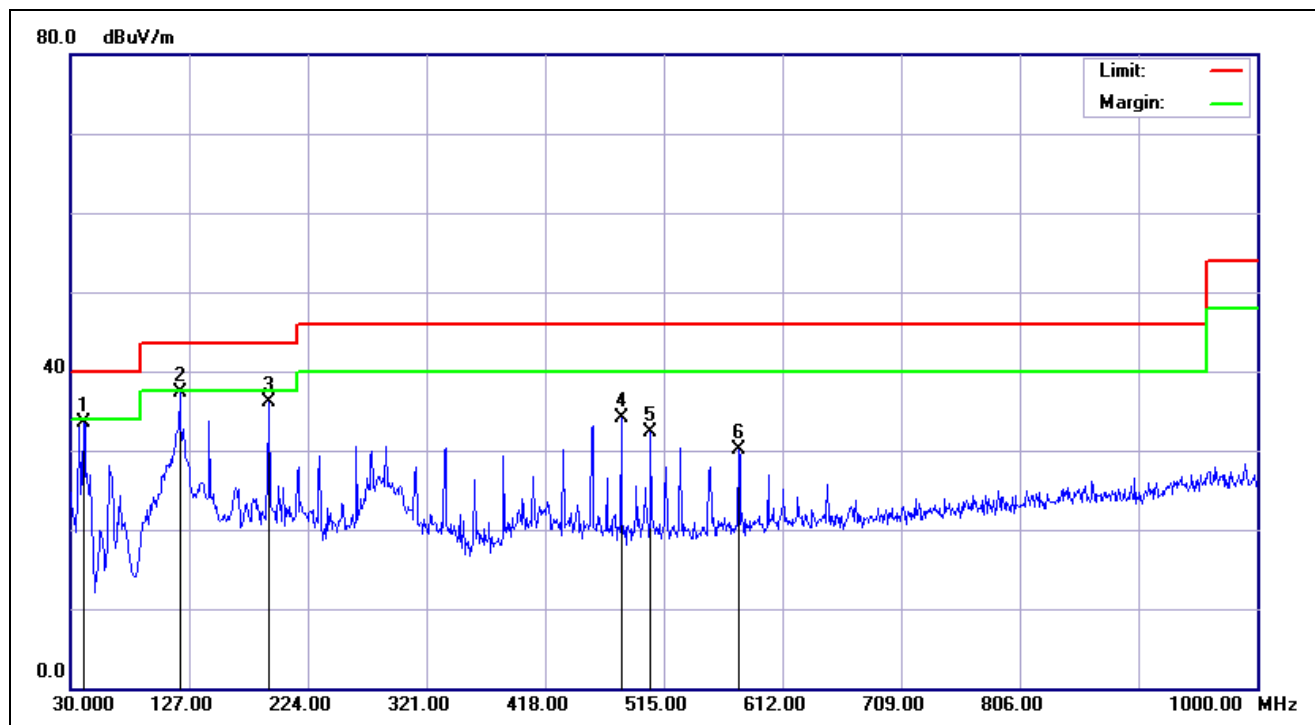


Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	NCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2013/12/3 14:45:02
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%)	20.3(°C)/52%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	119.2399	-13.36	48.58	35.22	43.50	-8.28	QP	200	76	
2	143.4900	-13.03	48.43	35.40	43.50	-8.10	QP	200	216	
3	191.9900	-15.47	52.77	37.30	43.50	-6.20	QP	200	157	
4	233.6999	-13.23	50.00	36.77	46.00	-9.23	QP	200	106	

Spurious Emissions, TX Mode, 30M-1G

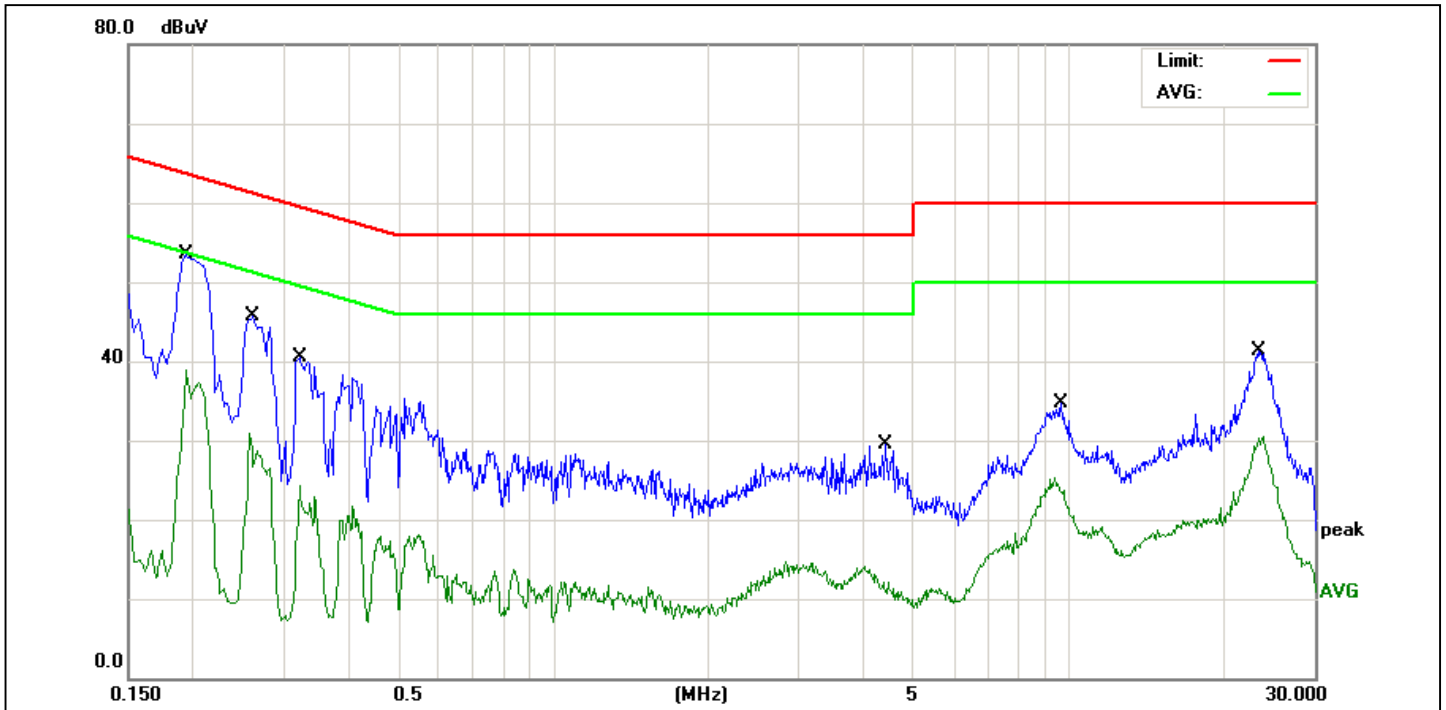
5	336.5199	-9.74	45.86	36.12	46.00	-9.88	QP	200	111	
6	419.9399	-8.35	44.16	35.81	46.00	-10.19	QP	200	205	



Service No.:	114015157-RF	Test Distance:	3m
Test Standard:	NCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/12/3 14:46:10
Applicant:	ICHIA	Test Rating:	DC 5V
Product:	Bluetooth keyboard	Temp.(°C)/Hum.(%):	20.3(°C)/52%
Model No.:	TK1001	Test Engineer:	Hugo Chang
Test Mode:	TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	40.6699	-11.98	45.53	33.55	40.00	-6.45	QP	100	236	
2	119.2400	-13.36	50.65	37.29	43.50	-6.21	QP	100	336	
3	191.9900	-15.47	51.50	36.03	43.50	-7.47	QP	100	206	
4	480.0800	-7.56	41.66	34.10	46.00	-11.90	QP	100	167	
5	504.3300	-7.27	39.64	32.37	46.00	-13.63	QP	100	182	
6	576.1100	-6.41	36.59	30.18	46.00	-15.82	QP	100	86	

Mains Spurious Emissions


Service No.: 11401517

Test Standard: FCC Part 15 Class B Conduction

Test item: Conducted Emission

Applicant: ICHIA

Product: Bluetooth keyboard

Model No.: XXX

Phase: L1

Temp.(°C)/Hum.(%): 26(°C) / 54 %

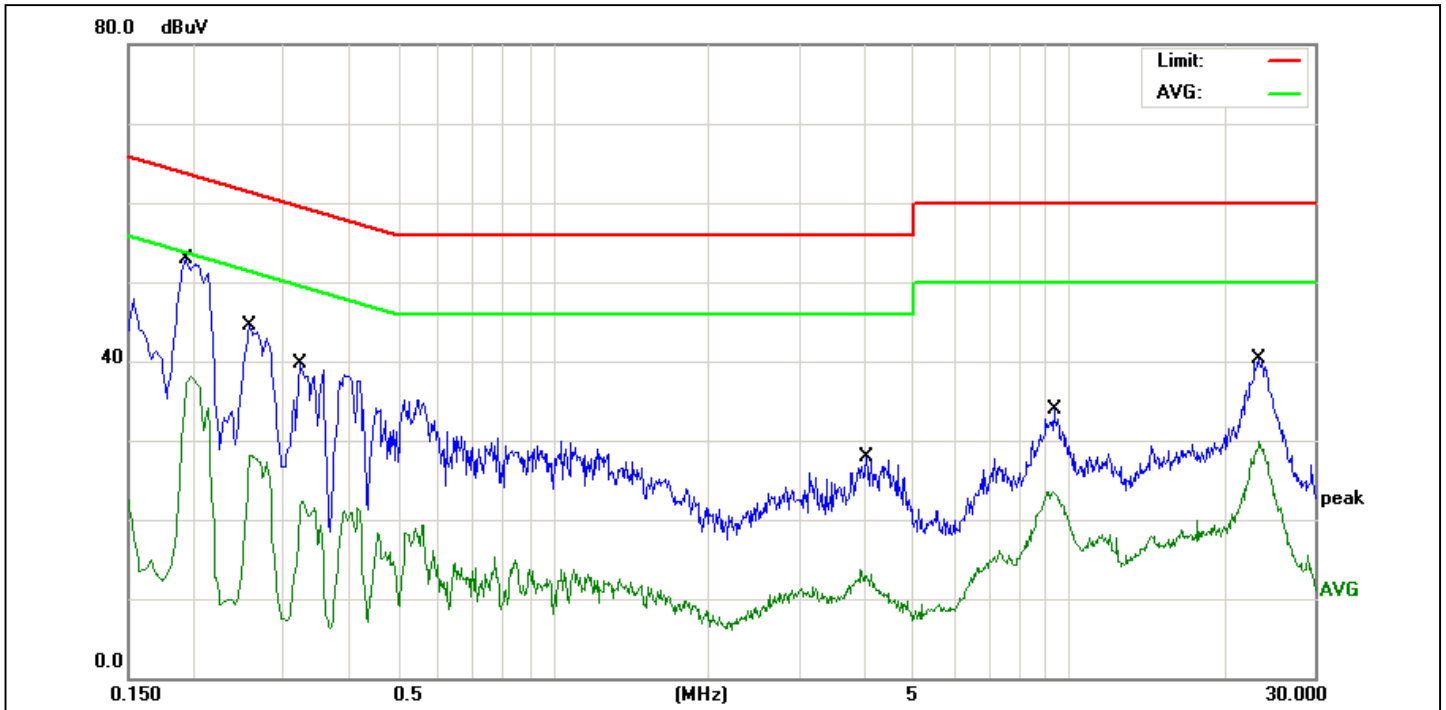
Power Rating: AC 120V/60Hz

Test Engineer: Hugo Chang

Test Mode: Charge mode

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1940	9.60	41.37	50.97	63.86	-12.89	QP	P	
2	0.1940	9.60	24.04	33.64	53.86	-20.22	AVG	P	
3	0.2620	9.59	32.22	41.81	61.36	-19.55	QP	P	
4	0.2620	9.59	17.88	27.47	51.36	-23.89	AVG	P	
5	0.3220	9.59	26.59	36.18	59.65	-23.47	QP	P	
6	0.3220	9.59	9.87	19.46	49.65	-30.19	AVG	P	
7	4.4220	9.64	8.44	18.08	56.00	-37.92	QP	P	
8	4.4220	9.64	0.05	9.69	46.00	-36.31	AVG	P	
9	9.6820	9.71	17.56	27.27	60.00	-32.73	QP	P	
10	9.6820	9.71	12.26	21.97	50.00	-28.03	AVG	P	
11	23.3020	9.82	26.16	35.98	60.00	-24.02	QP	P	
12	23.3020	9.82	19.06	28.88	50.00	-21.12	AVG	P	


Service No.: 114015157

Test Standard: FCC Part 15 Class B Conduction

Test item: Conducted Emission

Phase: N

Applicant: ICHIA

Temp.(°C)/Hum.(%): 26(°C) / 54 %

Product: Bluetooth keyboard

Power Rating: AC 120V/60Hz

Model No.: XXX

Test Engineer: Hugo Chang

Test Mode: Charge mode

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1940	9.57	41.01	50.58	63.86	-13.28	QP	P	
2	0.1940	9.57	24.08	33.65	53.86	-20.21	AVG	P	
3	0.2580	9.56	31.69	41.25	61.49	-20.24	QP	P	
4	0.2580	9.56	16.14	25.70	51.49	-25.79	AVG	P	
5	0.3220	9.57	26.15	35.72	59.65	-23.93	QP	P	
6	0.3220	9.57	9.43	19.00	49.65	-30.65	AVG	P	
7	4.0500	9.60	9.72	19.32	56.00	-36.68	QP	P	
8	4.0500	9.60	1.84	11.44	46.00	-34.56	AVG	P	
9	9.3580	9.67	18.06	27.73	60.00	-32.27	QP	P	
10	9.3580	9.67	12.99	22.66	50.00	-27.34	AVG	P	
11	23.3540	9.86	24.42	34.28	60.00	-25.72	QP	P	
12	23.3540	9.86	17.32	27.18	50.00	-22.82	AVG	P	