

Test Report No.50091482 001

Appendix D: Radiated and Mains Spurious Emission Data

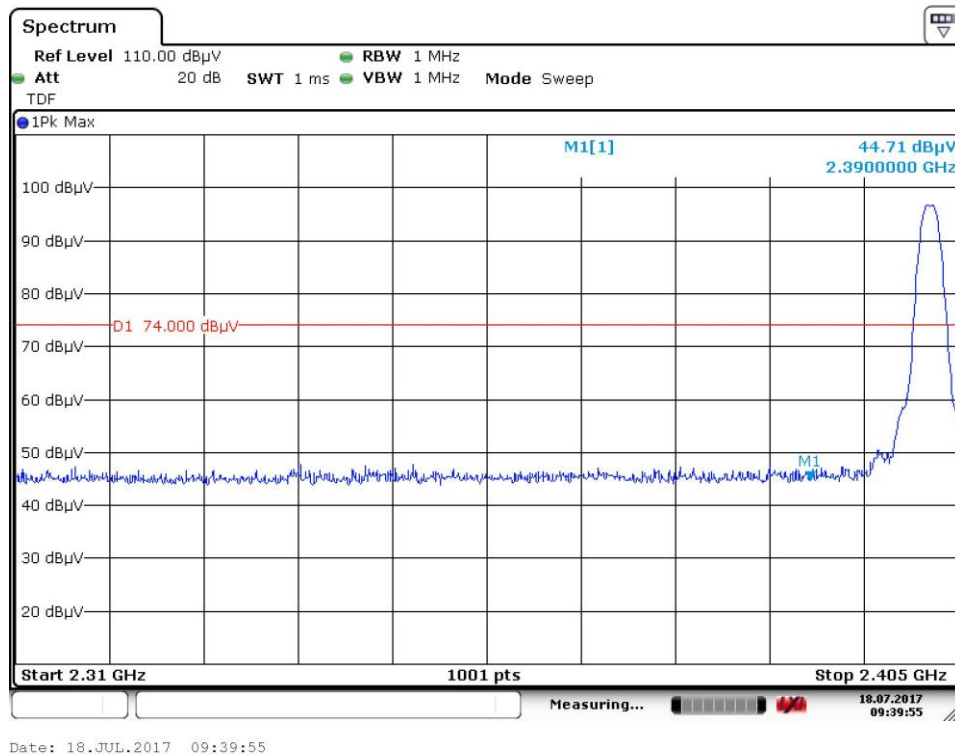
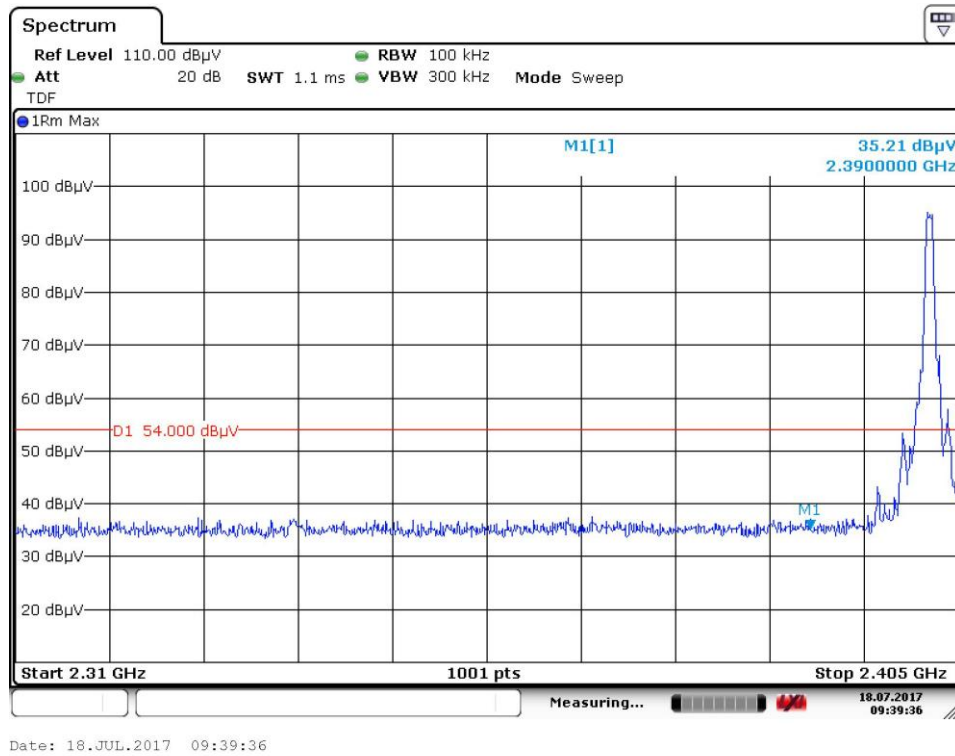
(File: 50091482AppendixD)

Contents

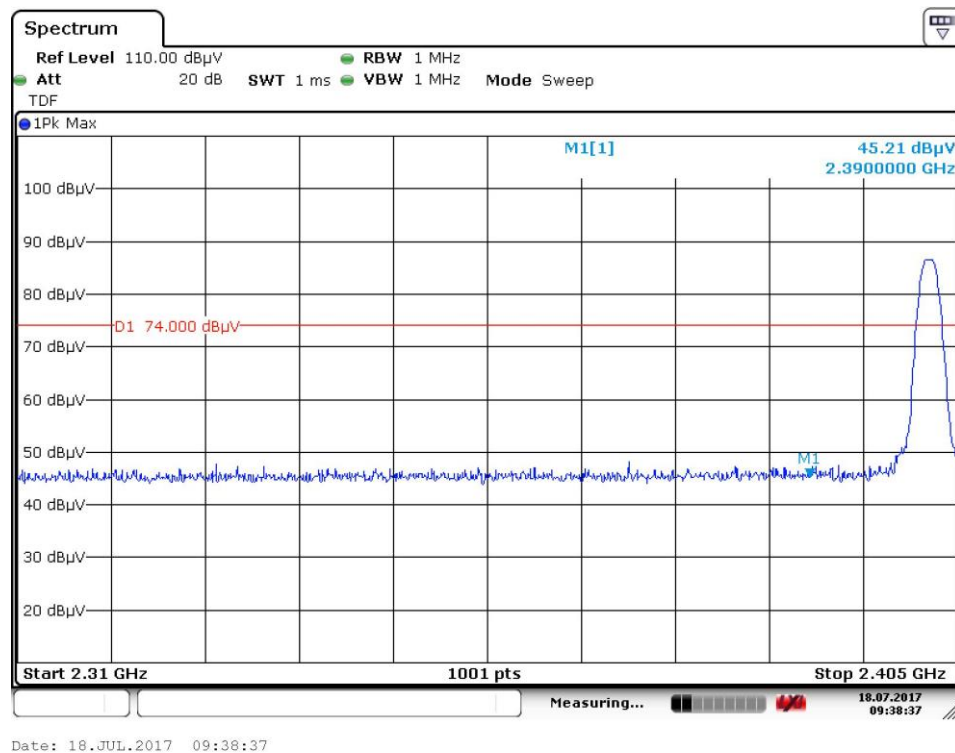
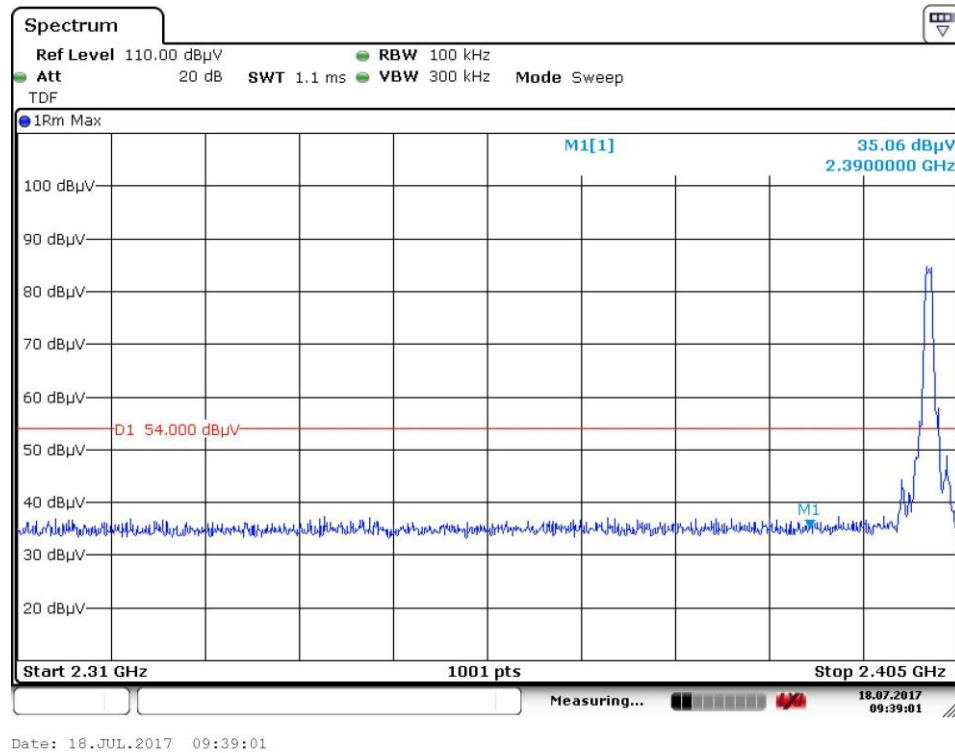
Spurious Emissions, Band Edges, 2.35-2.5G	2
Spurious Emissions, TX Mode, 1-18G.....	6
Spurious Emissions, TX Mode, 18-26G.....	12
Spurious Emissions, TX Mode, 30M-1G	18
Spurious Emissions, TX Mode, 150K-30M	20
Spurious Emissions, TX Mode, 9K-150K.....	21

Radiated Bandedge (GFSK)

Low Channel (Hor)

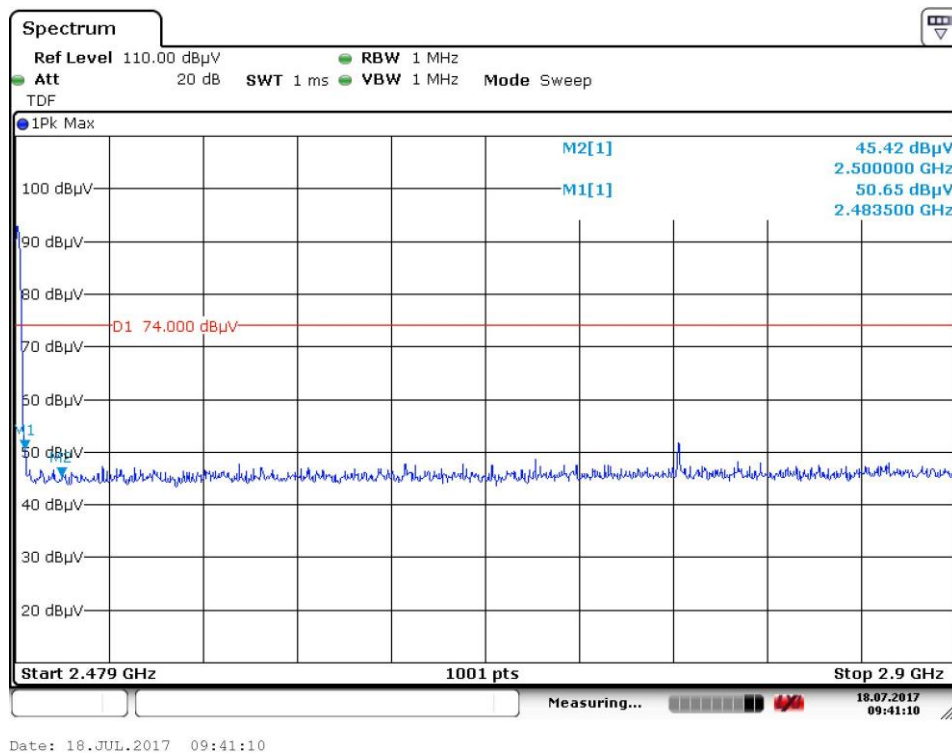
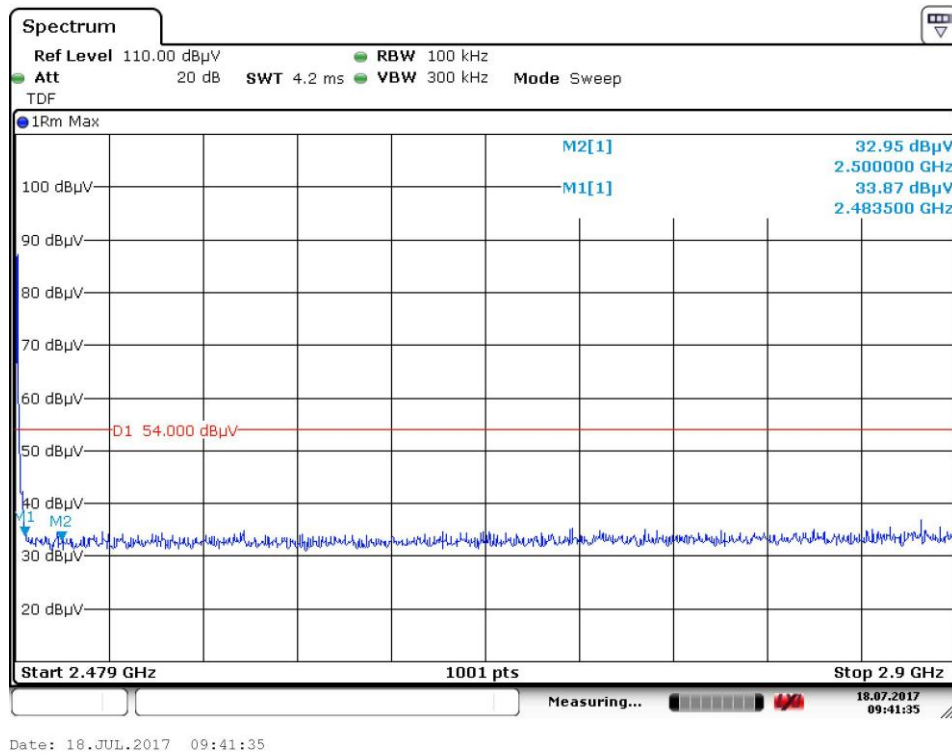


Low Channel (Ver)

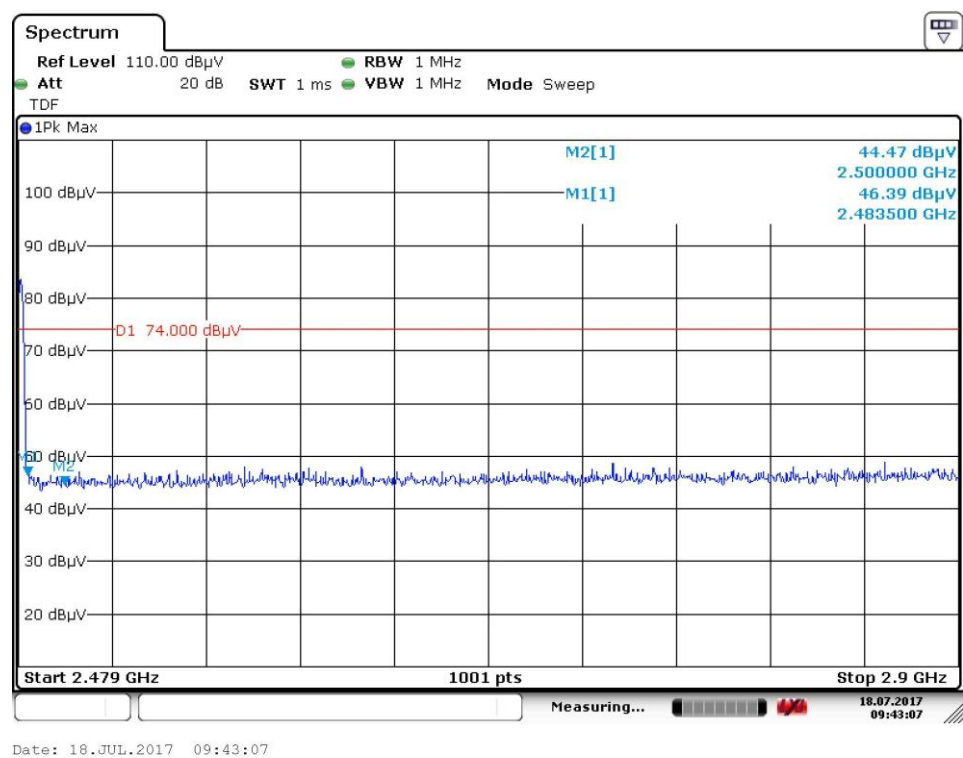
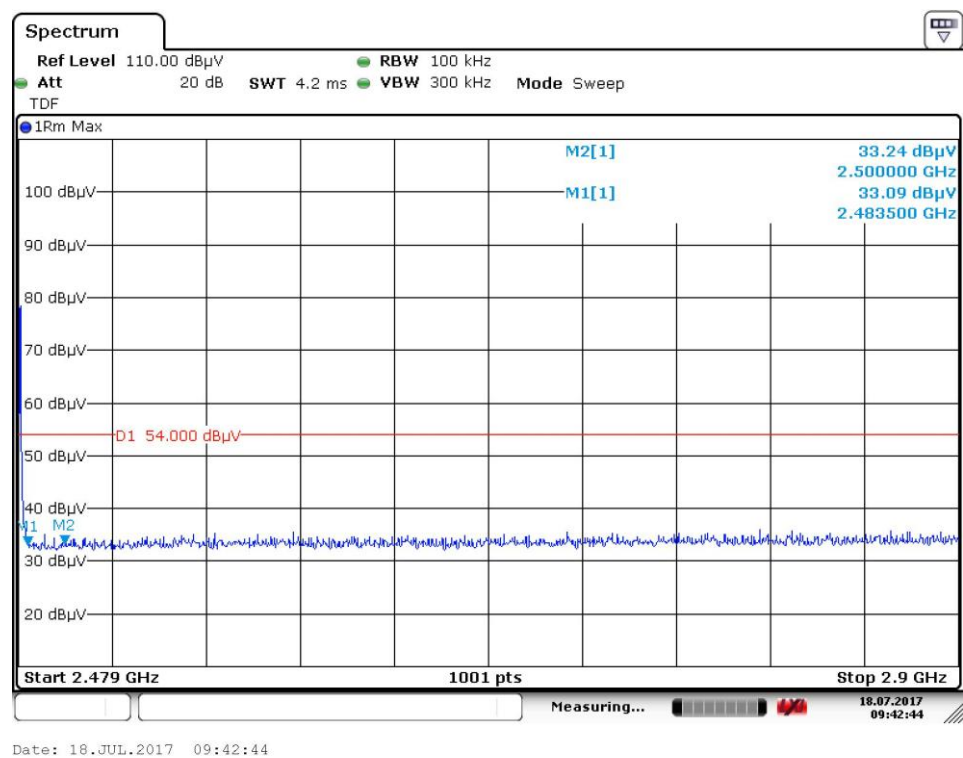


Radiated Bandedge (GFSK)

High Channel (Hor)



High Channel (Ver)



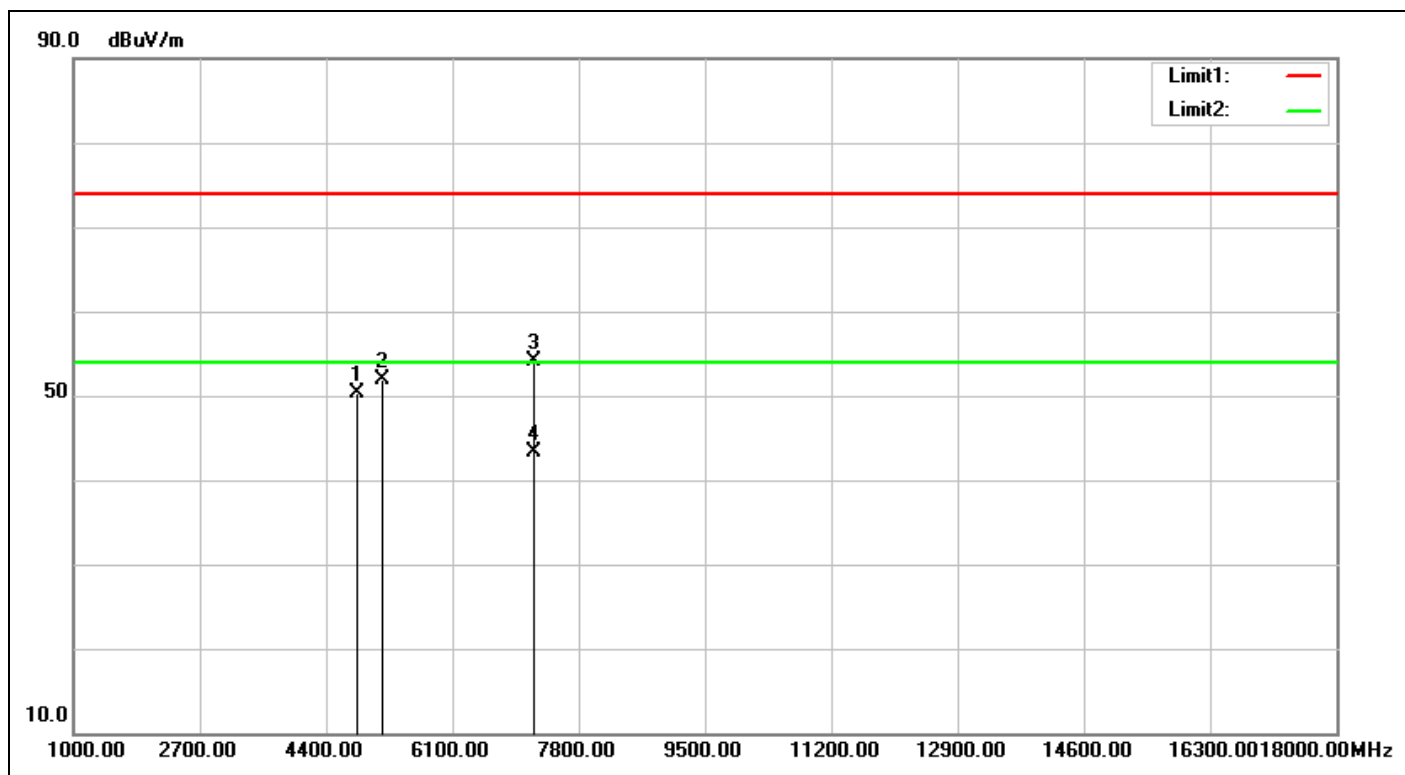
Spurious Emissions, TX Mode, 1-18G



TUV Taiwan

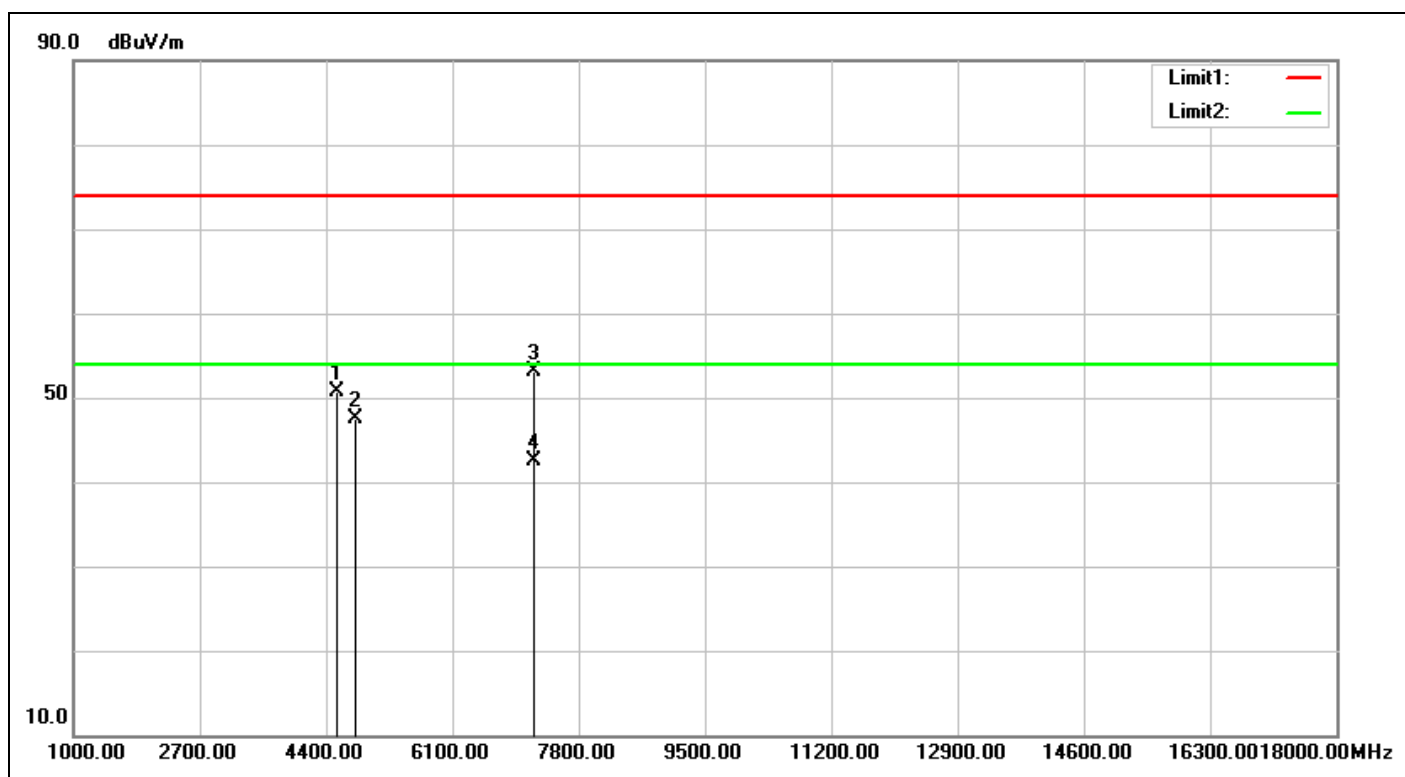
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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



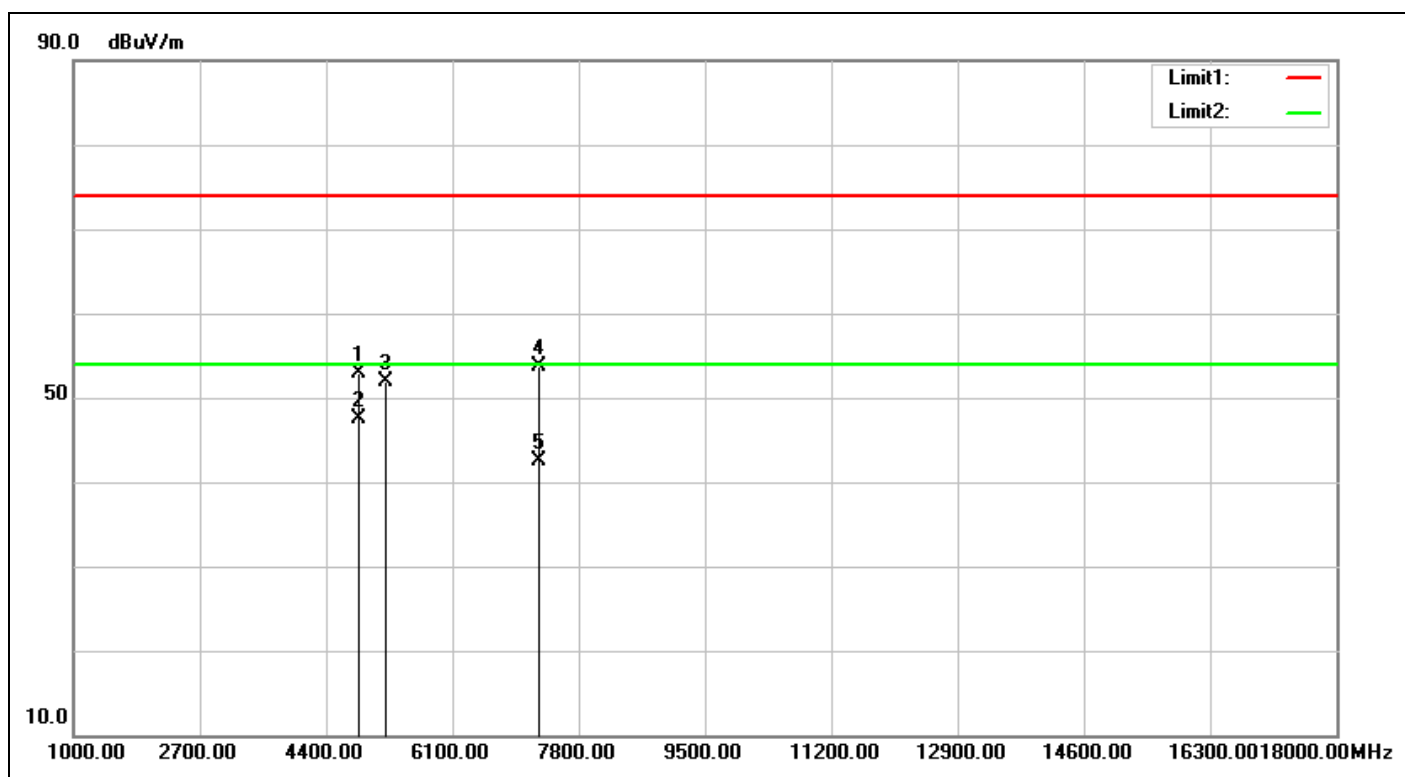
Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2017/7/18 10:01:38
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	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	4804.000	0.43	49.87	50.30	74.00	-23.70	peak			
2	5148.000	1.77	50.22	51.99	74.00	-22.01	peak	100	55	
3	7206.000	9.11	45.02	54.13	74.00	-19.87	peak			
4	7206.000	9.11	34.19	43.30	54.00	-10.70	AVG			



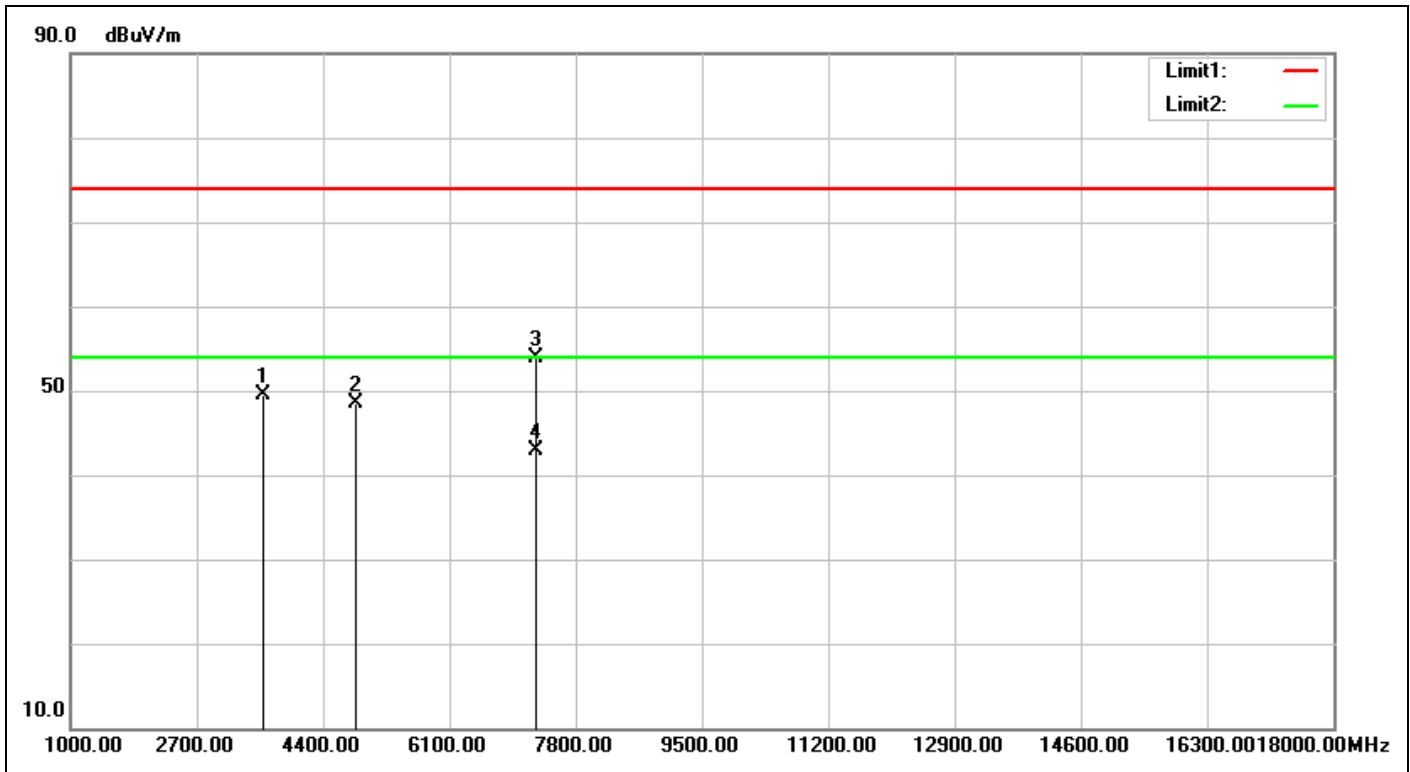
Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2017/7/18 10:02:41
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%)	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	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	4553.000	-0.32	50.98	50.66	74.00	-23.34	peak	100	147	
2	4804.000	0.43	47.12	47.55	74.00	-26.45	peak			
3	7206.000	9.11	43.97	53.08	74.00	-20.92	peak			
4	7206.000	9.11	33.43	42.54	54.00	-11.46	AVG			



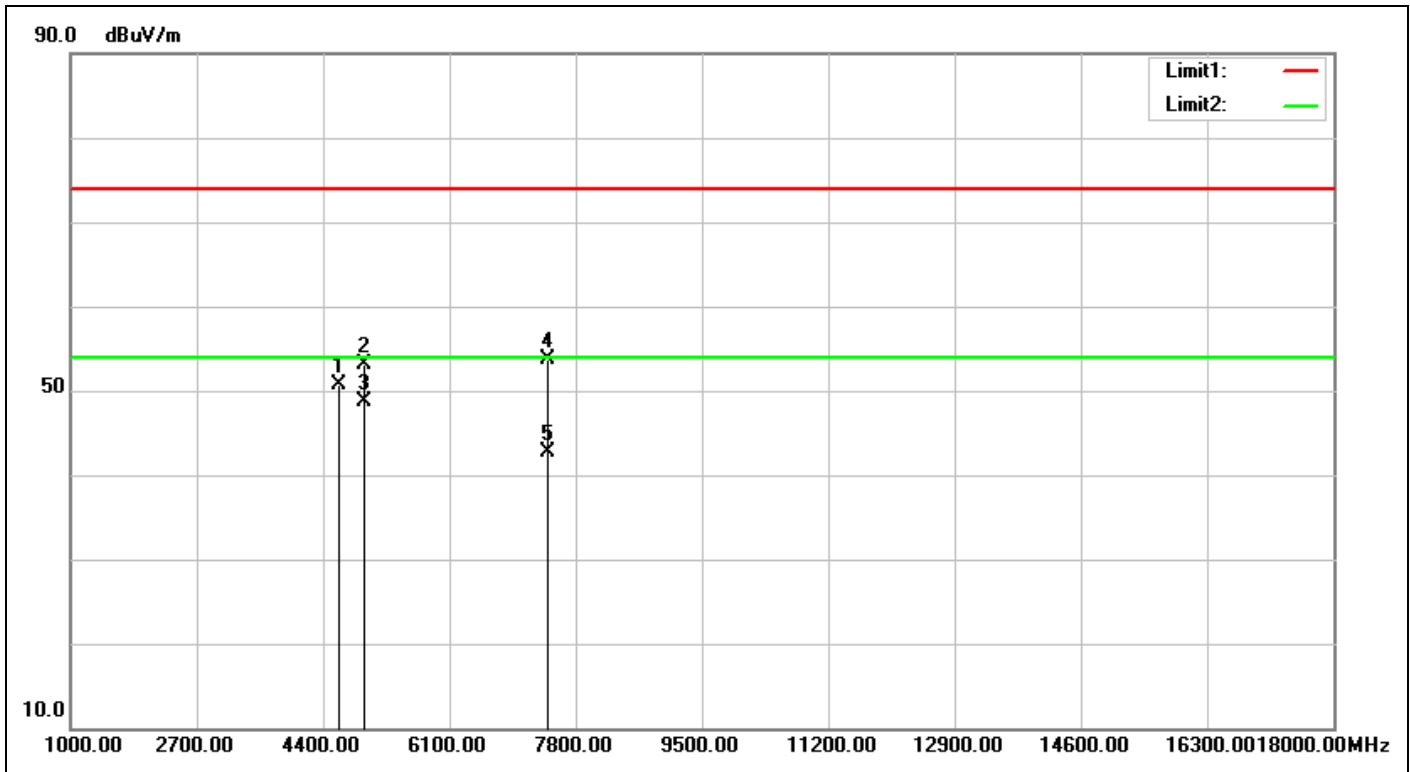
Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2017/7/18 09:54:54
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	2426-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4852.000	0.59	52.27	52.86	74.00	-21.14	peak	100	340	
2	4852.000	0.59	46.94	47.53	54.00	-6.47	AVG	100	340	
3	5199.000	2.02	49.80	51.82	74.00	-22.18	peak	100	136	
4	7278.000	9.31	44.35	53.66	74.00	-20.34	peak			
5	7278.000	9.31	33.13	42.44	54.00	-11.56	AVG			



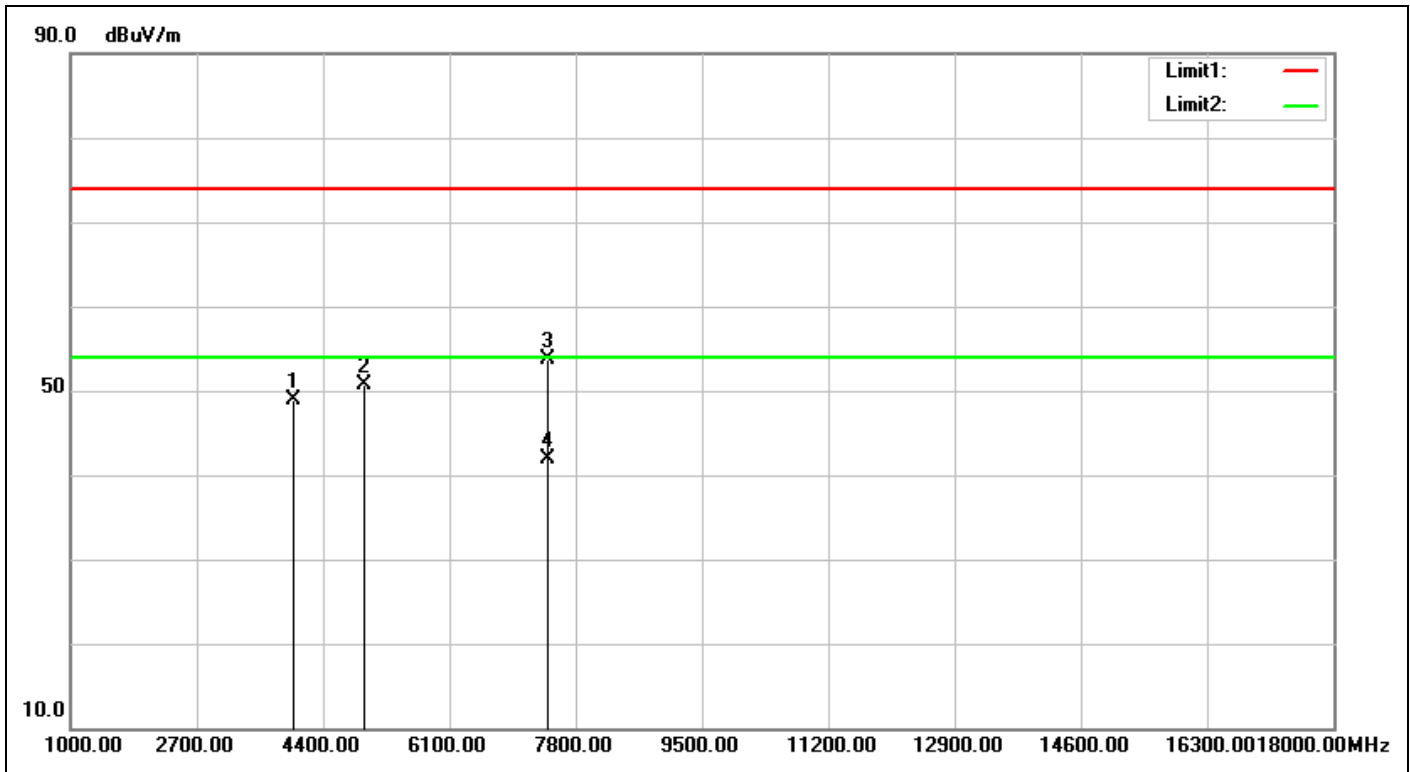
Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2017/7/18 09:55:57
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	2426-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	3601.000	-3.33	52.83	49.50	74.00	-24.50	peak	100	200	
2	4852.000	0.59	47.99	48.58	74.00	-25.42	peak			
3	7278.000	9.31	44.68	53.99	74.00	-20.01	peak			
4	7278.000	9.31	33.69	43.00	54.00	-11.00	AVG			



Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2017/7/18 09:40:59
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	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	4604.000	-0.17	50.89	50.72	74.00	-23.28	peak	100	282	
2	4960.000	0.90	52.15	53.05	74.00	-20.95	peak	100	340	
3	4960.000	0.90	47.80	48.70	54.00	-5.30	AVG	100	340	
4	7440.000	9.79	43.98	53.77	74.00	-20.23	peak		0	
5	7440.000	9.79	32.83	42.62	54.00	-11.38	AVG		0	



Service No.: 114065545(BLE SENSOR 2)-FCC

Test Distance: 3m

Test Standard: FCC Above 1G PEAK

Ant. Polarization: Vertical

Test item: Radiation Emission

Test Time: 2017/7/18 09:42:01

Applicant: CUB

Test Rating: DC 3V

Product: BLE SENSOR 2

Temp.(°C)/Hum.(%): 22.1(°C)/54%

Model No.: BLE SENSOR 2

Test Engineer: George Yang

Test Mode: 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	4009.000	-2.71	51.58	48.87	74.00	-25.13	peak	167	280	
2	4960.000	0.90	49.85	50.75	74.00	-23.25	peak			
3	7440.000	9.79	43.82	53.61	74.00	-20.39	peak			
4	7440.000	9.79	32.18	41.97	54.00	-12.03	AVG			

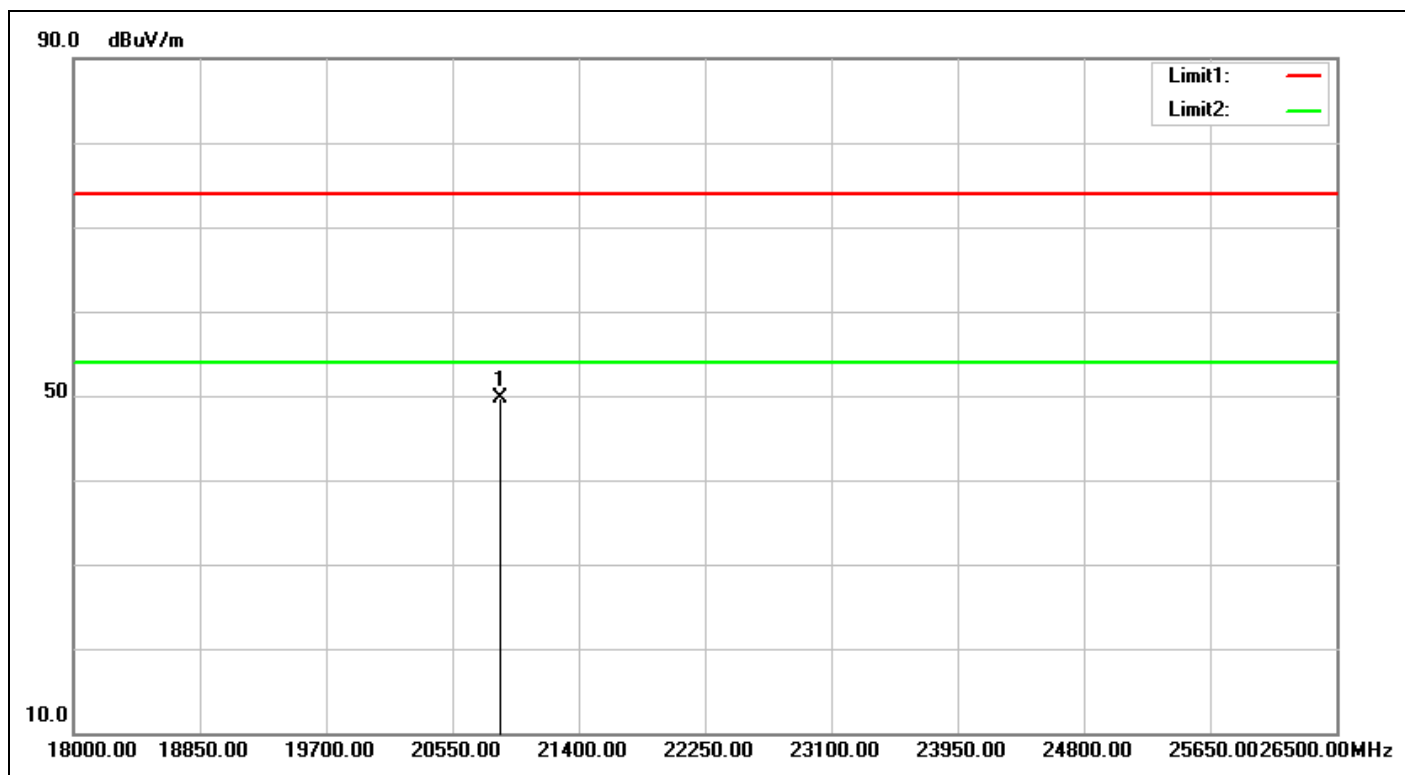
Spurious Emissions, TX Mode, 18-26G



TUV Taiwan

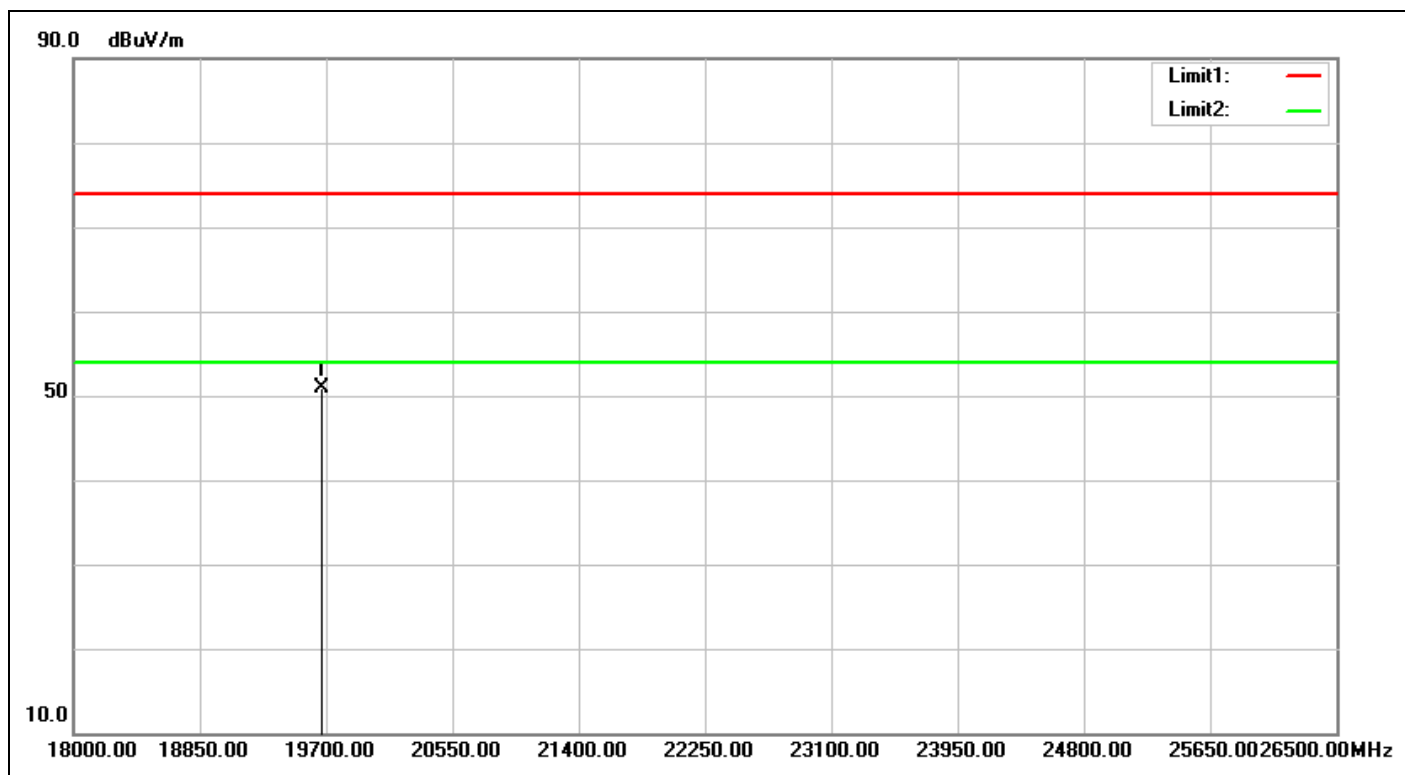
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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



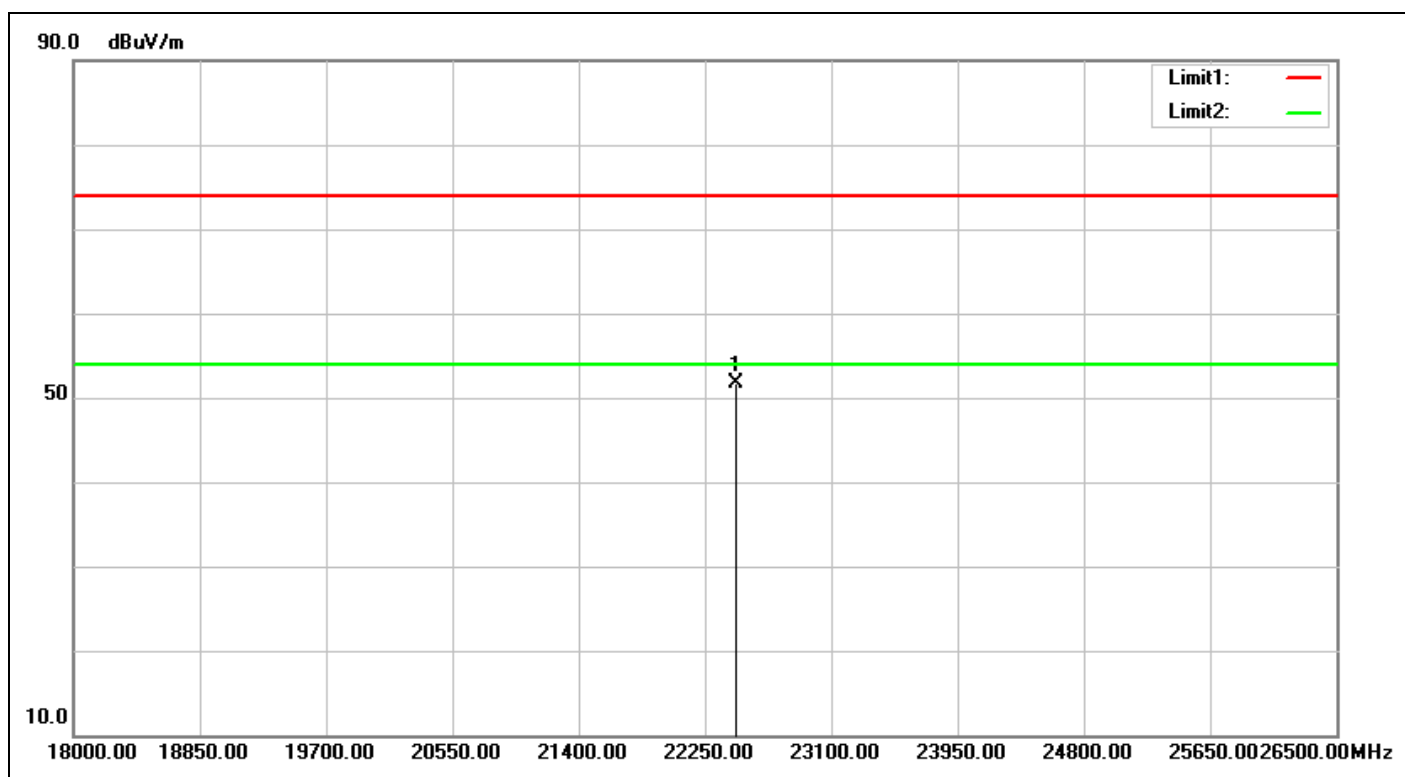
Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2017/7/18 10:12:37
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	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	20873.000	31.38	18.40	49.78	74.00	-24.22	peak	100	244	



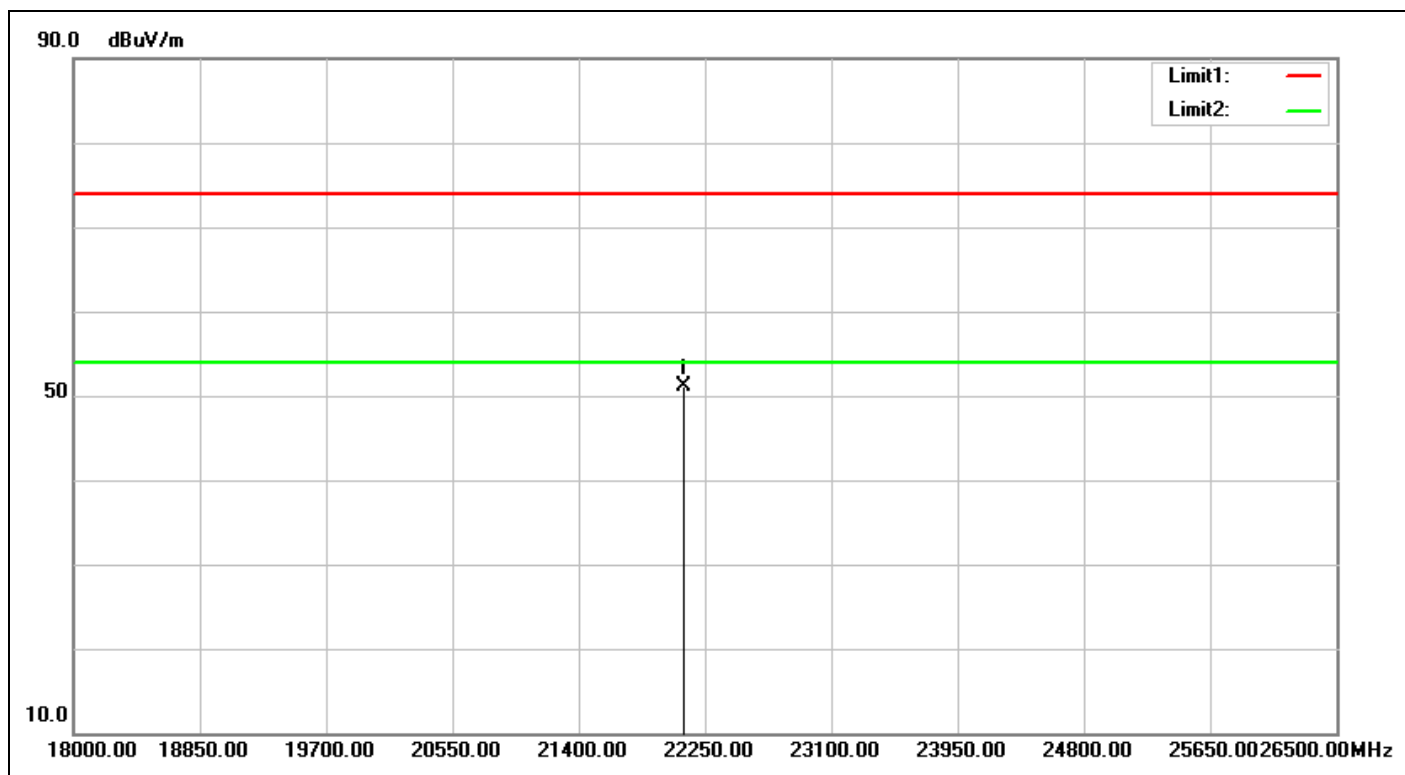
Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2017/7/18 10:12:49
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	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	19666.000	30.38	20.44	50.82	74.00	-23.18	peak	100	231	



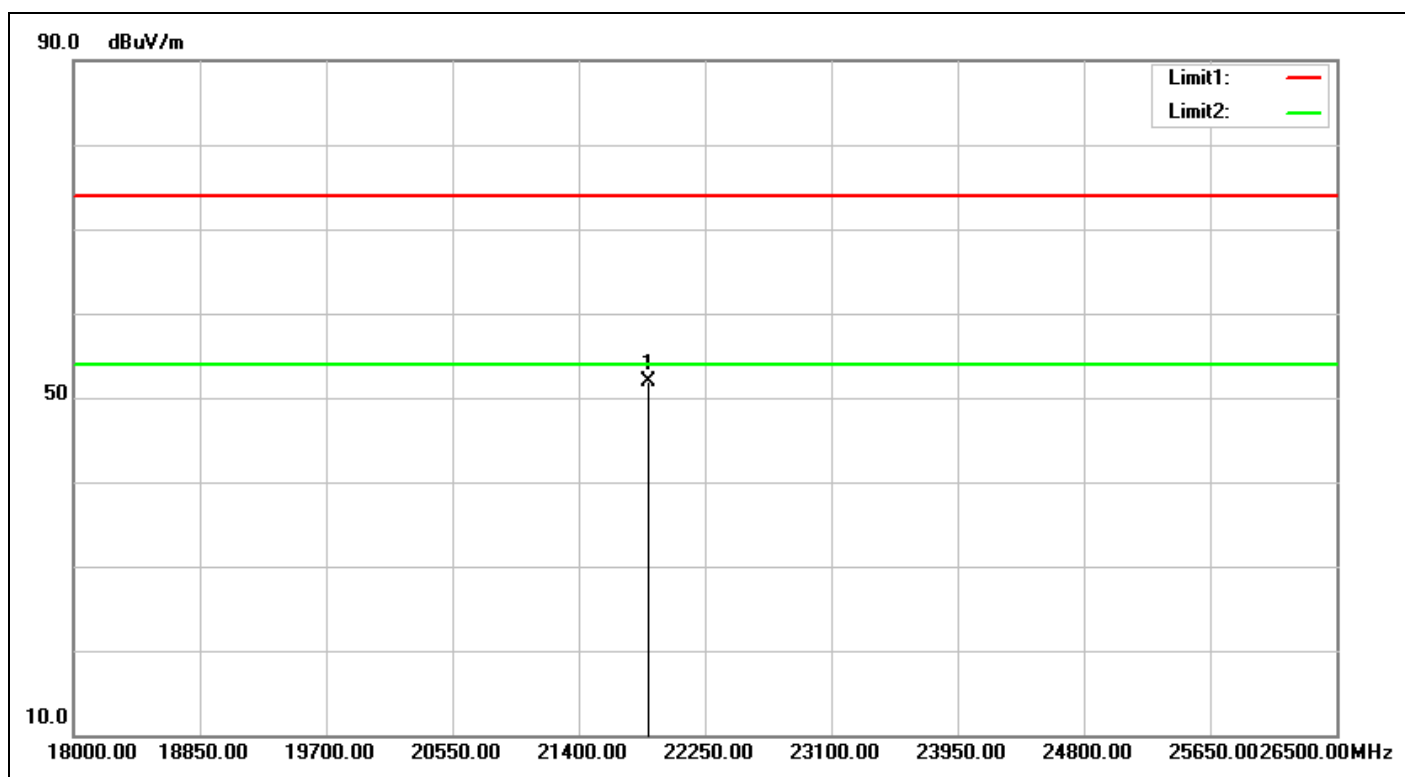
Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2017/7/18 10:13:04
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	2426-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	22454.000	32.41	19.29	51.70	74.00	-22.30	peak			



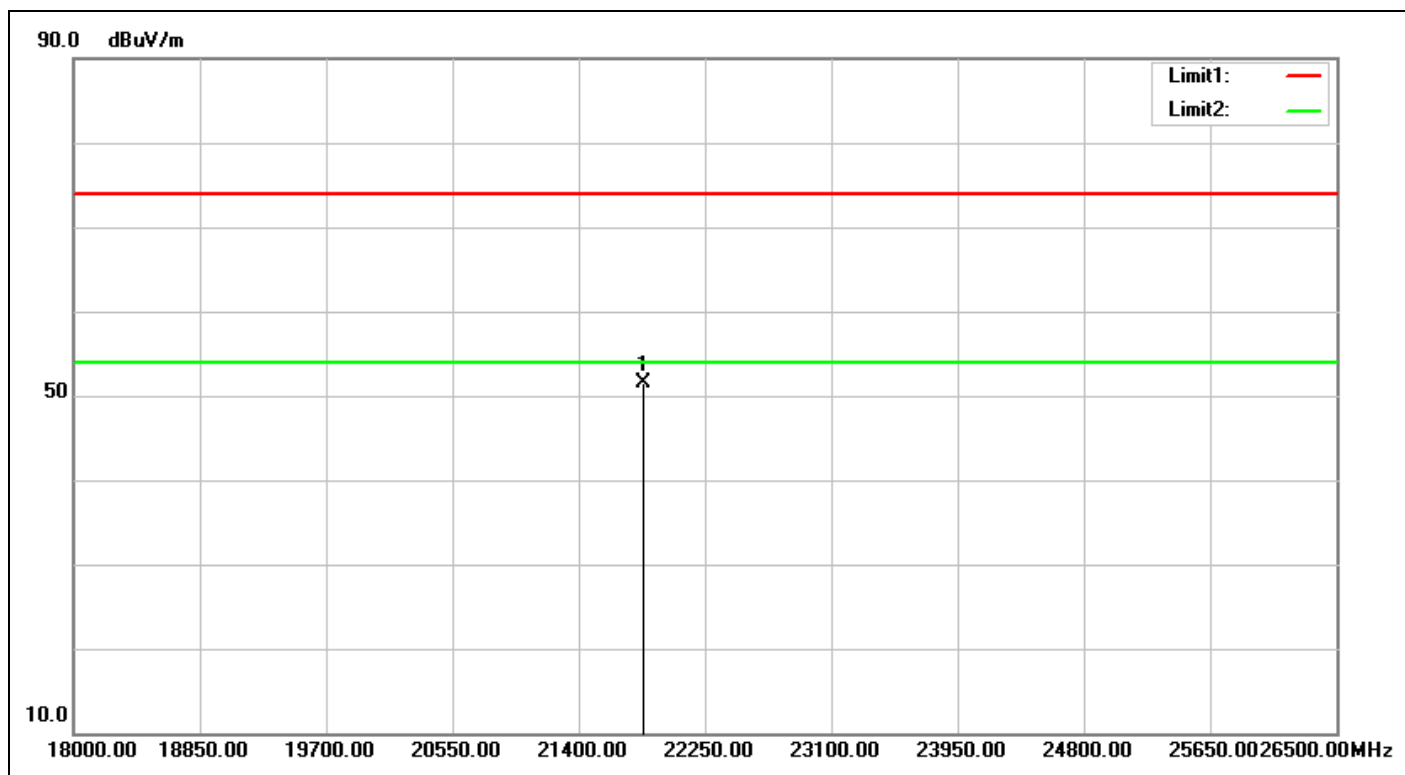
Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2017/7/18 10:13:19
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	2426-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	32.61	18.50	51.11	74.00	-22.89	peak			



Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2017/7/18 10:14:33
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	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	21867.500	32.55	19.34	51.89	74.00	-22.11	peak			



Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2017/7/18 10:15:35
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	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	21833.500	32.51	19.06	51.57	74.00	-22.43	peak	100	108	

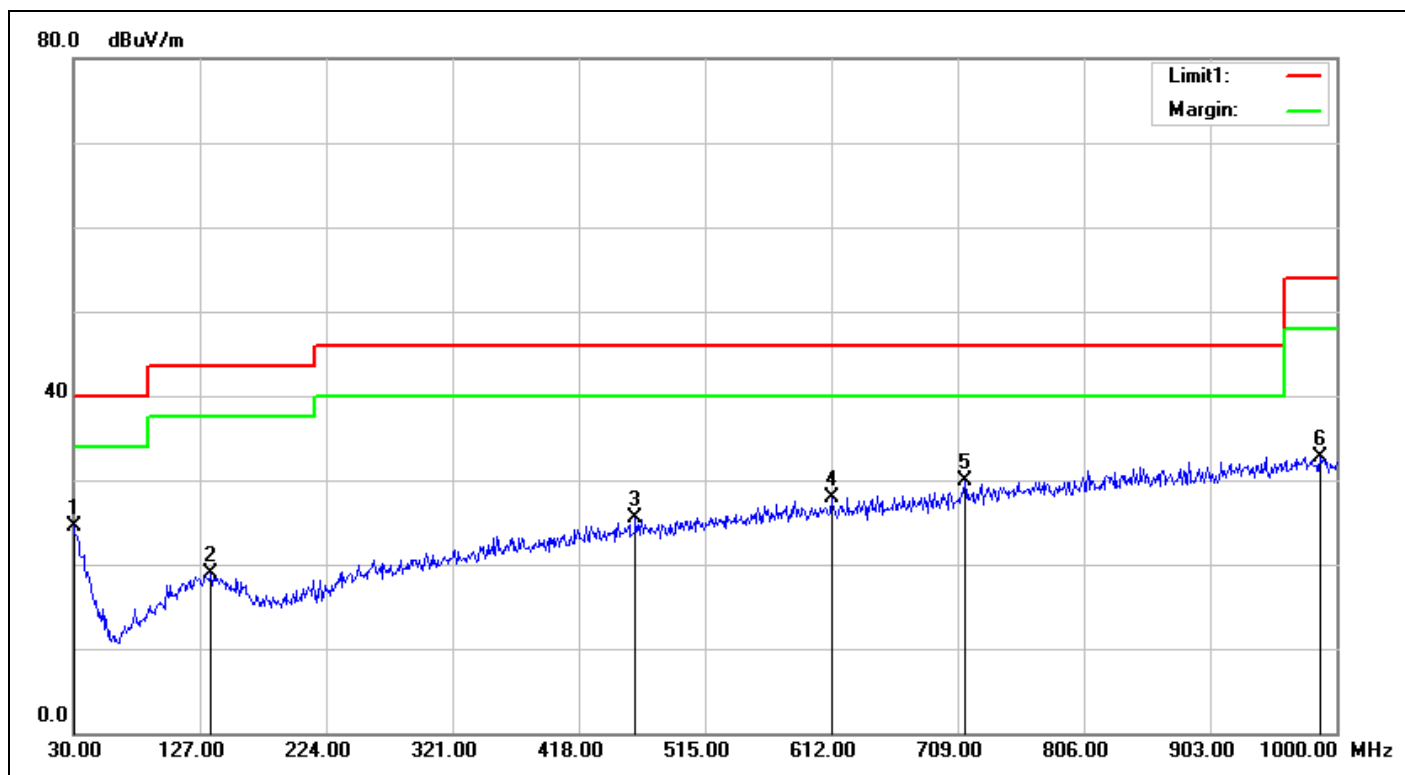
Spurious Emissions, TX Mode, 30M-1G



TUV Taiwan

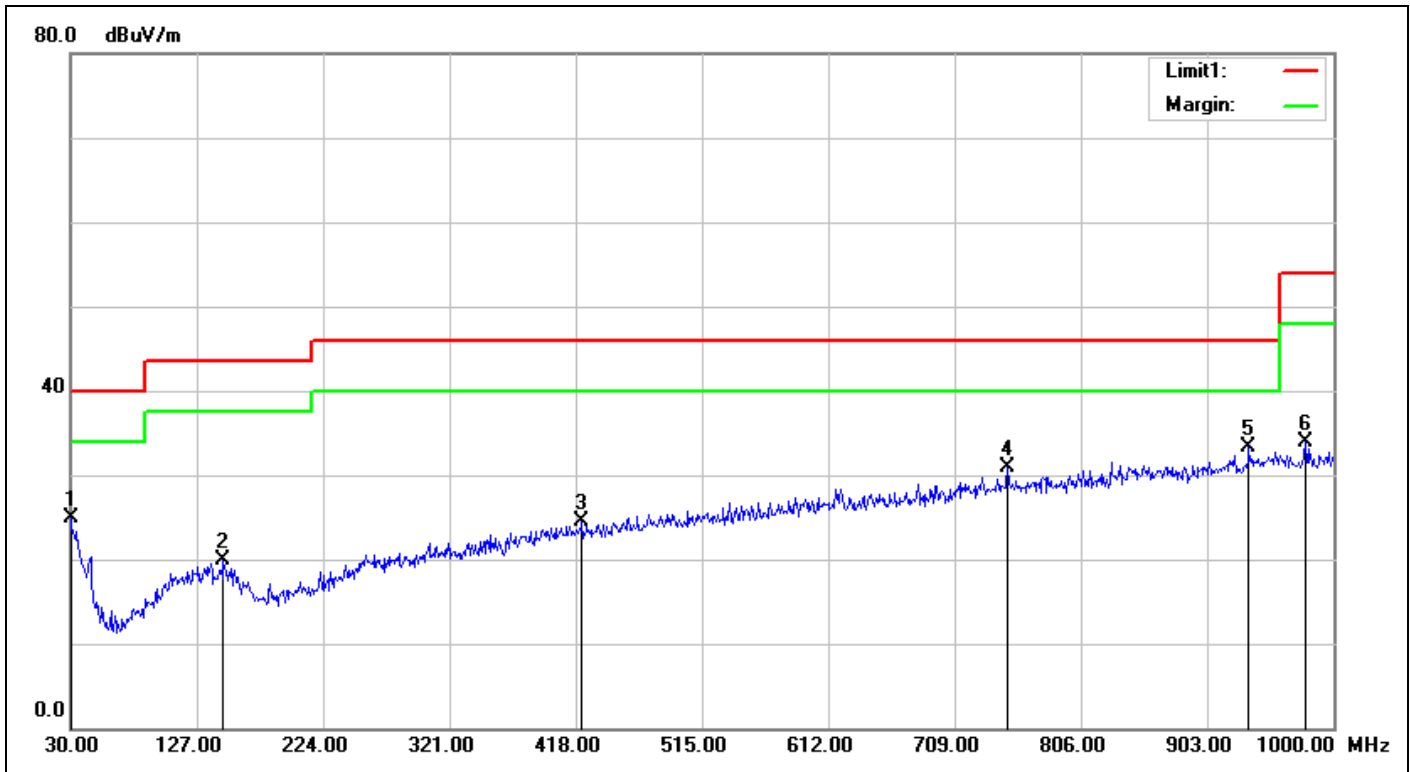
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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



Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2017/7/18 10:25:11
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	2426-TX		
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	-0.08	24.60	24.52	40.00	-15.48	QP	100	127	
2	135.7300	-7.05	25.99	18.94	43.50	-24.56	QP	100	216	
3	461.6500	-1.77	27.23	25.46	46.00	-20.54	QP	100	9	
4	612.0000	0.08	27.81	27.89	46.00	-18.11	QP	100	257	
5	714.8200	1.47	28.42	29.89	46.00	-16.11	QP	100	284	
6	987.3900	5.68	27.02	32.70	54.00	-21.30	QP	100	192	



Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2017/7/18 10:26:14
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	2426-TX		
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	-0.08	24.93	24.85	40.00	-15.15	QP	100	98	
2	147.3700	-7.37	27.29	19.92	43.50	-23.58	QP	100	55	
3	422.8500	-2.24	26.81	24.57	46.00	-21.43	QP	100	212	
4	749.7400	2.35	28.55	30.90	46.00	-15.10	QP	100	128	
5	935.0100	5.02	28.20	33.22	46.00	-12.78	QP	100	336	
6	978.6600	5.61	28.20	33.81	54.00	-20.19	QP	100	223	

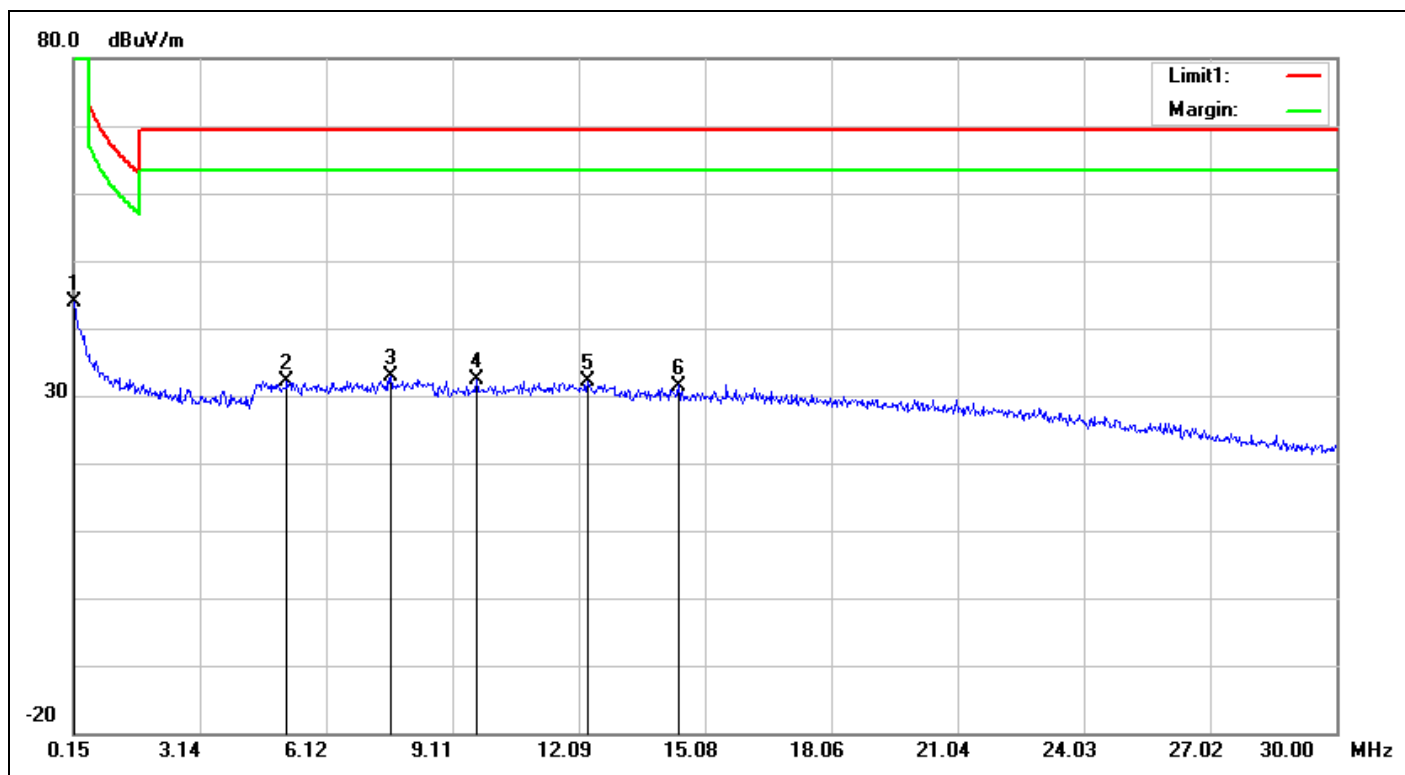
Spurious Emissions, TX Mode, 150K-30M



TUV Taiwan

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

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



Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC15.209_9k-1G_3m	Ant. Polarization:	
Test item:	Radiation Emission	Test Time:	2017/7/18 10:36:53
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	2426-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.1799	19.06	24.75	43.81	102.50	-58.69	QP	100	67	
2	5.1947	19.78	12.46	32.24	69.50	-37.26	QP	100	334	
3	7.6424	20.00	13.00	33.00	69.50	-36.50	QP	100	155	
4	9.6722	20.19	12.21	32.40	69.50	-37.10	QP	100	358	
5	12.2990	20.62	11.50	32.12	69.50	-37.38	QP	100	111	
6	14.4482	21.01	10.49	31.50	69.50	-38.00	QP	100	28	

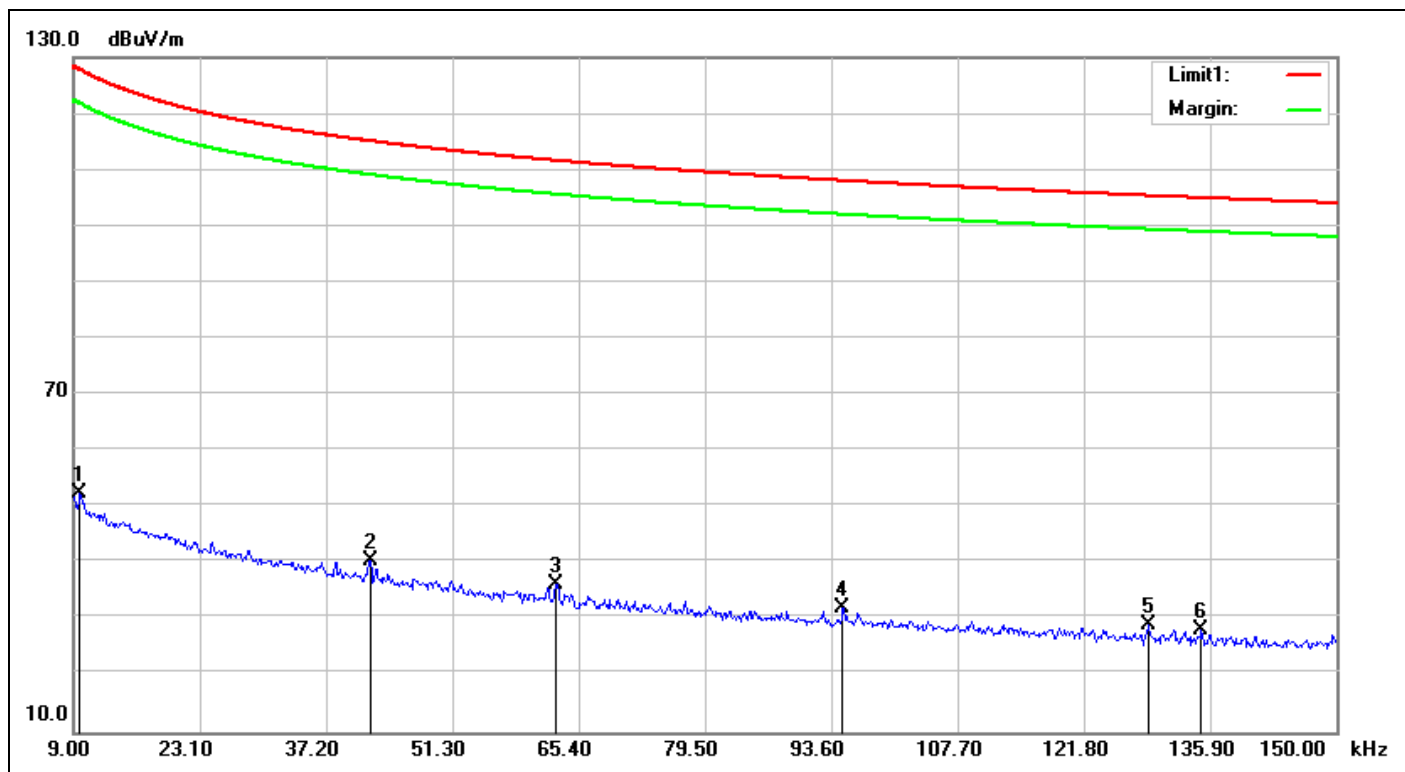
Spurious Emissions, TX Mode, 9K-150K



TUV Taiwan

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

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



Service No.:	114066803	Test Distance:	3m
Test Standard:	FCC15.209_9k-1G_3m	Ant. Polarization:	
Test item:	Radiation Emission	Test Time:	2017/7/18 10:34:37
Applicant:	CUB	Test Rating:	DC 3V
Product:	BLE SENSOR 2	Temp.(°C)/Hum.(%):	22.1(°C)/54%
Model No.:	BLE SENSOR 2	Test Engineer:	George Yang
Test Mode:	2426-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.0097	19.81	32.56	52.37	127.85	-75.48	QP	100	360	
2	0.0421	19.71	20.67	40.38	115.11	-74.73	QP	100	40	
3	0.0629	19.35	16.90	36.25	111.62	-75.37	QP	100	261	
4	0.0949	19.16	12.92	32.08	108.05	-75.97	QP	100	328	
5	0.1290	19.10	9.86	28.96	105.39	-76.43	QP	100	54	
6	0.1349	19.10	9.08	28.18	105.00	-76.82	QP	100	40	