

Test Report No.10051342 001

Appendix D: Radiated and Mains Spurious Emission Data

(File: 10051342AppendixD)

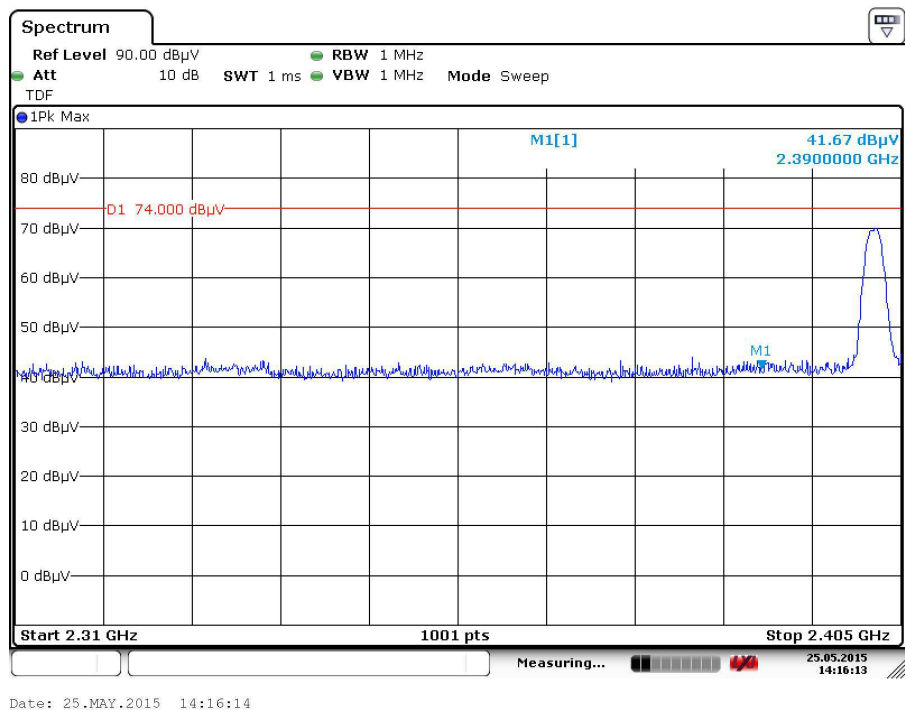
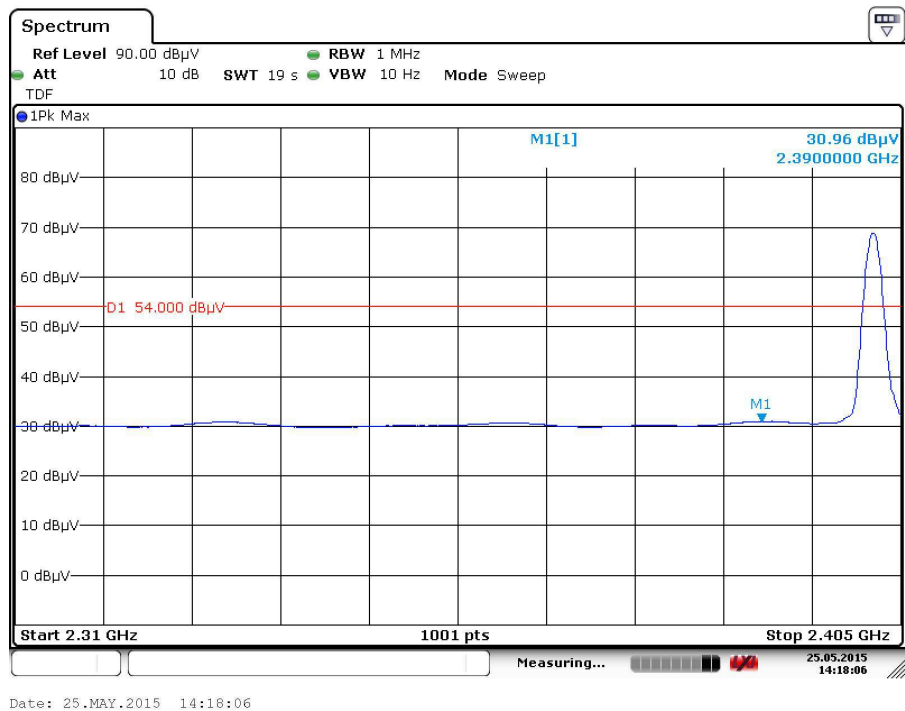
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Spurious Emissions, Band Edges, 2.35-2.5G

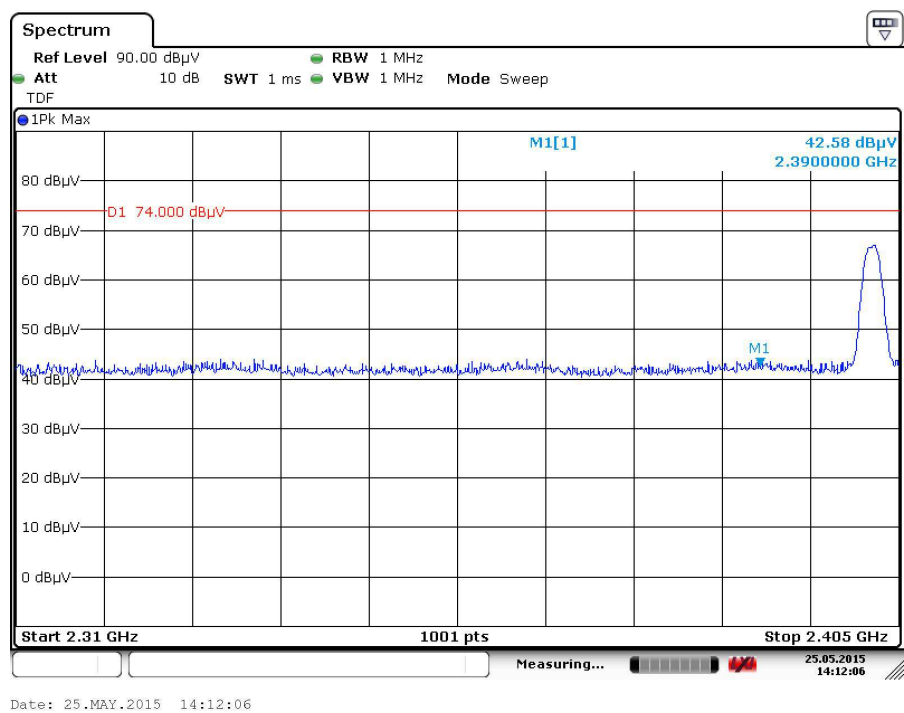
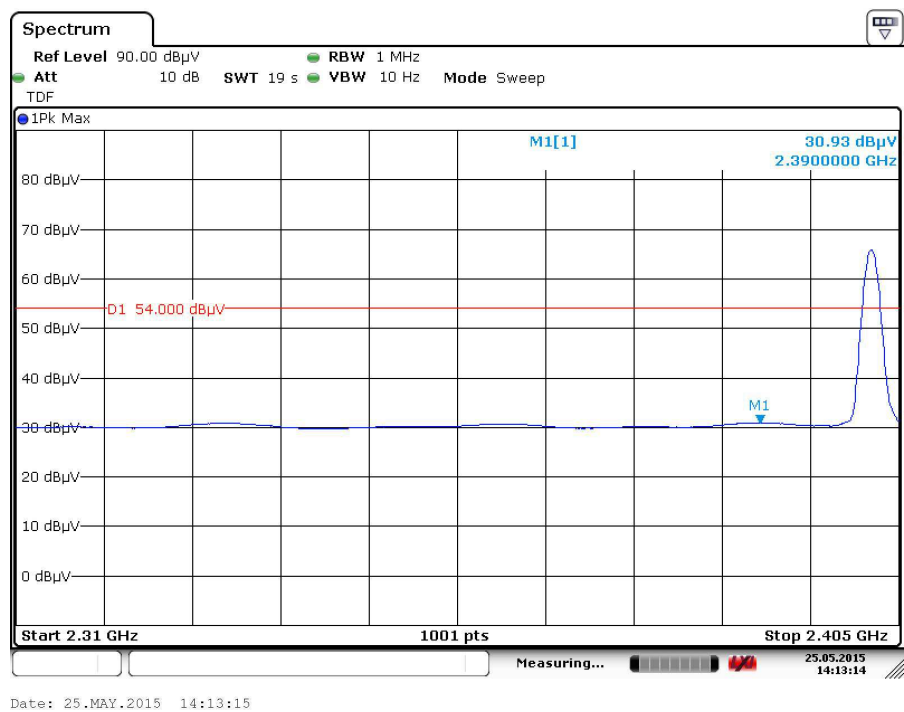
Radiated Bandedge (GFSK)

Low Channel (Hor)



Spurious Emissions, Band Edge, 2.35-2.5G

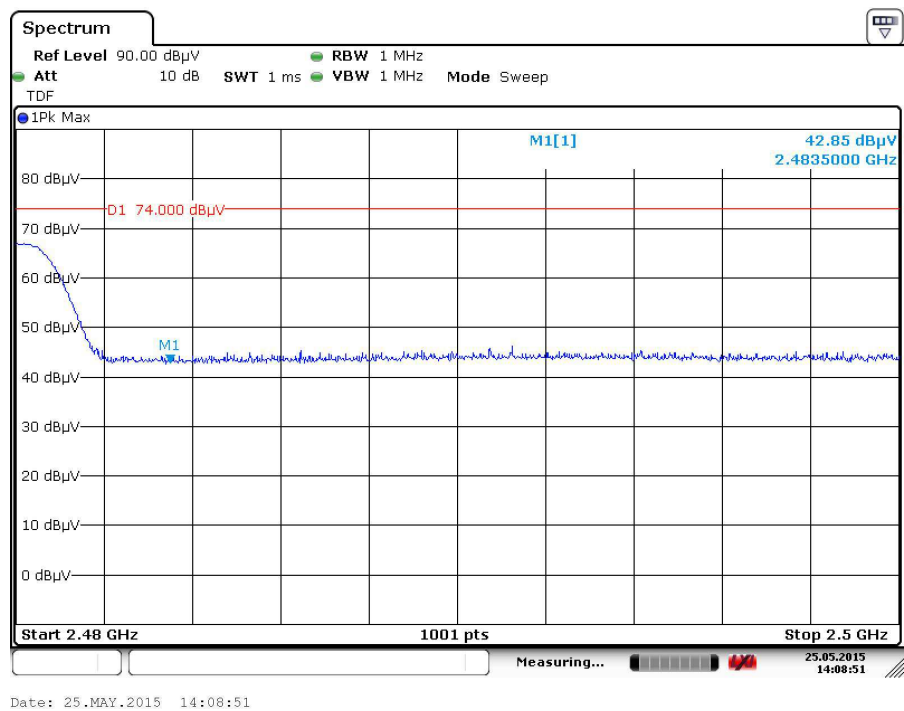
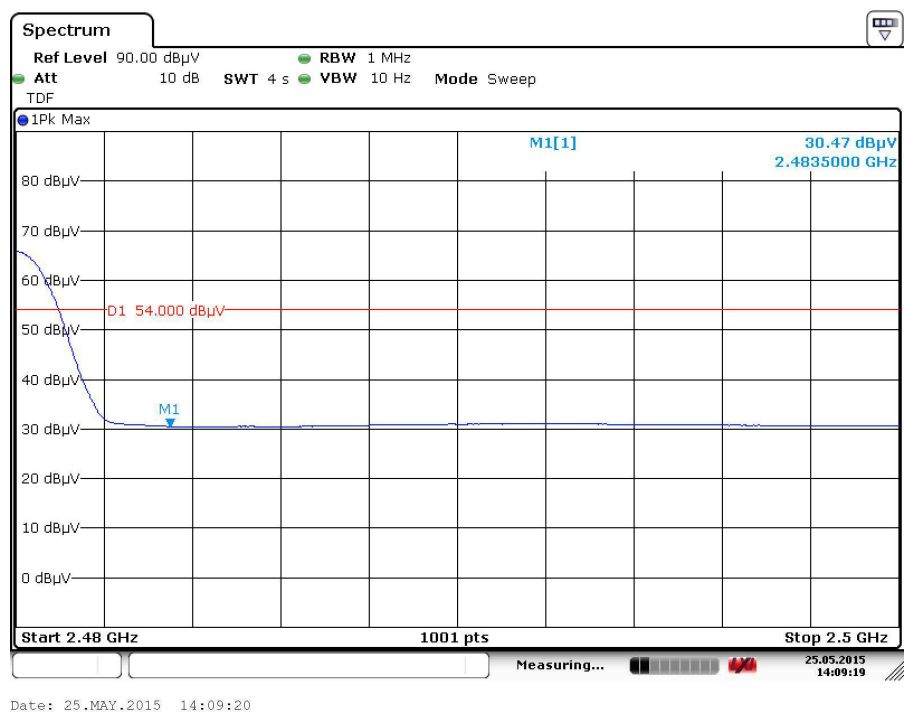
Low Channel (Ver)



Spurious Emissions, Band Edge, 2.35-2.5G

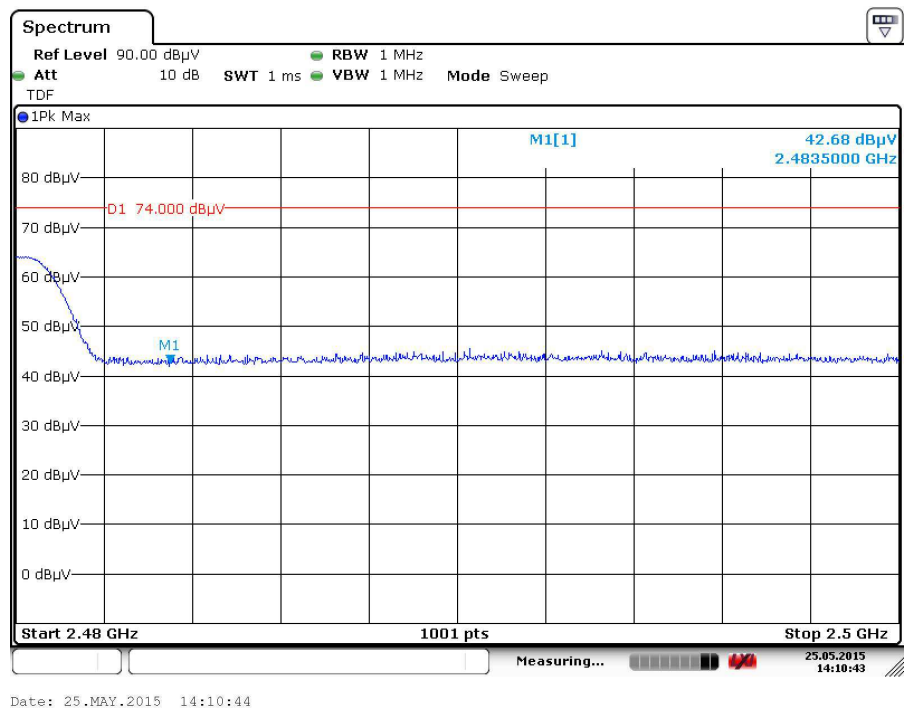
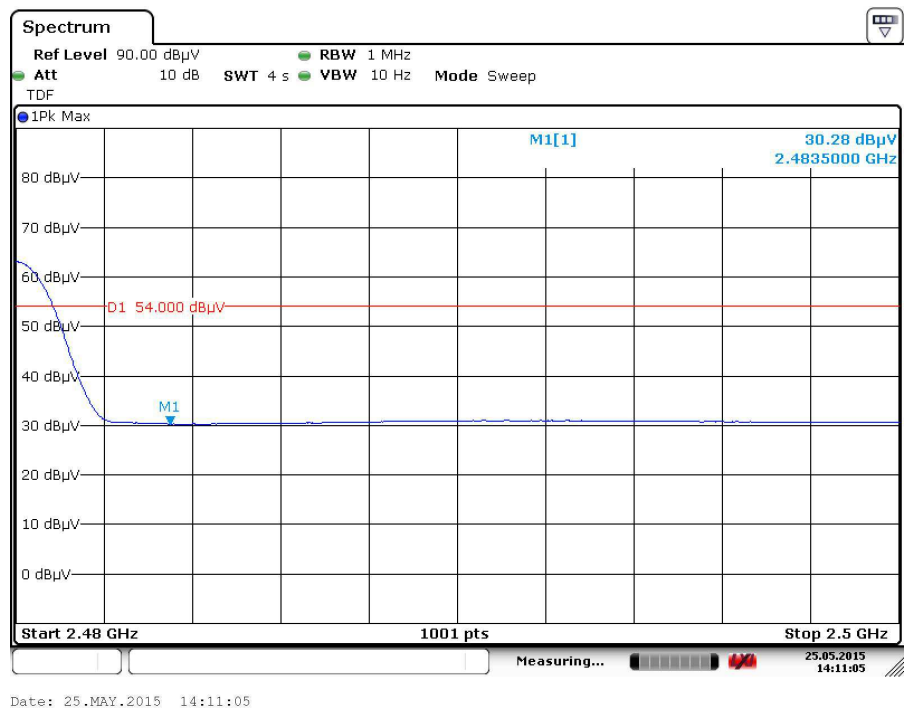
Radiated Bandedge (GFSK)

High Channel (Hor)



Spurious Emissions, Band Edge, 2.35-2.5G

High Channel (Ver)



Spurious Emissions, Band Edge, 2.35-2.5G

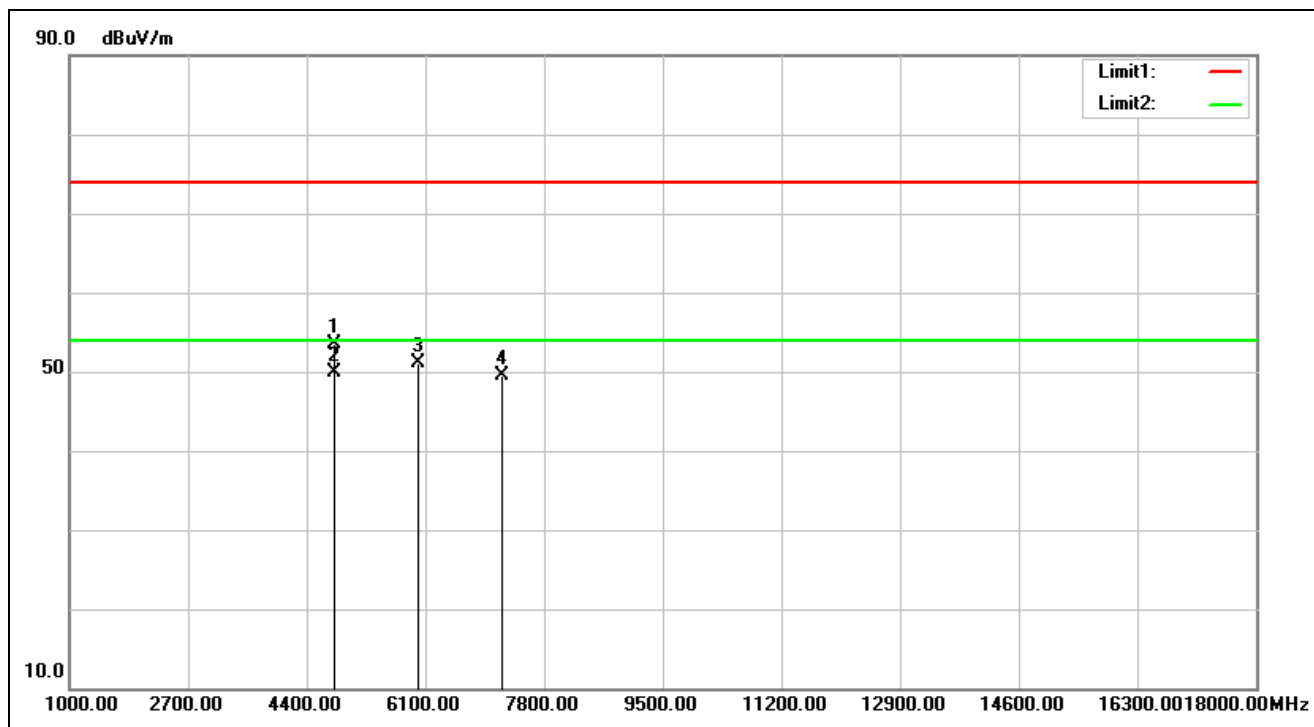
Spurious Emissions, TX Mode, 1-18G



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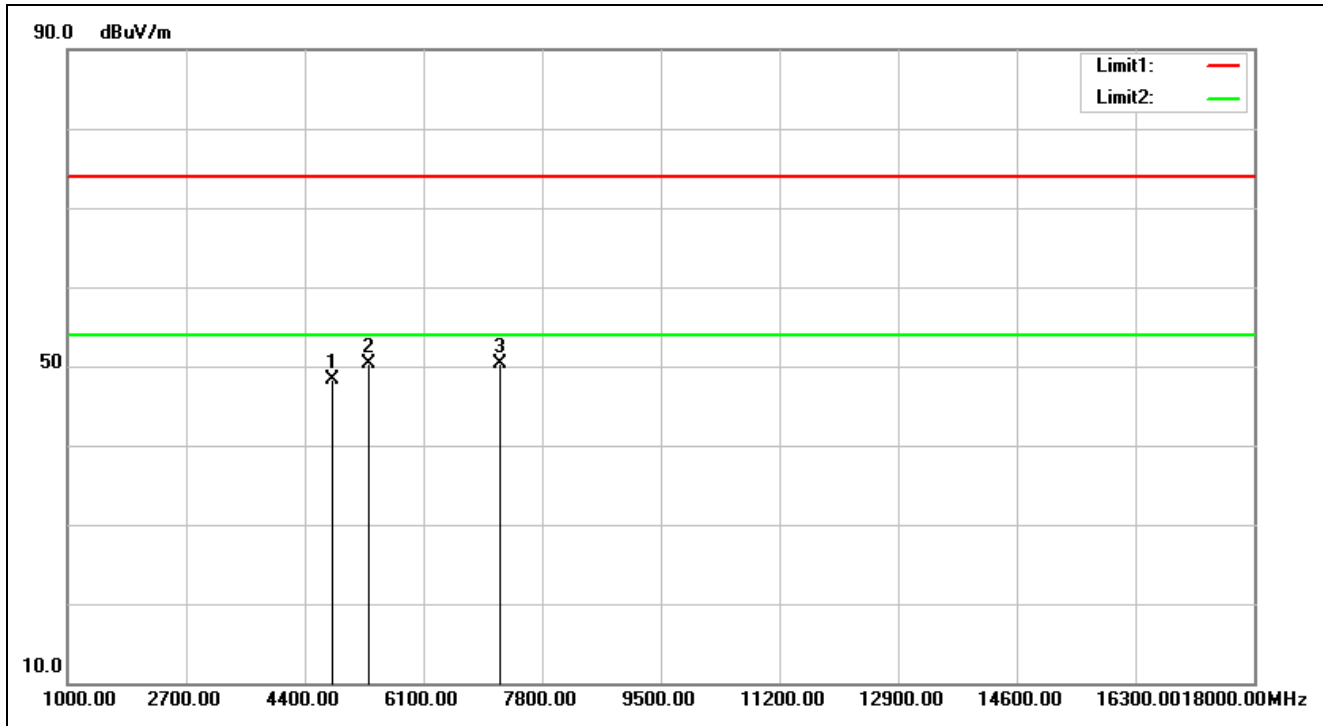
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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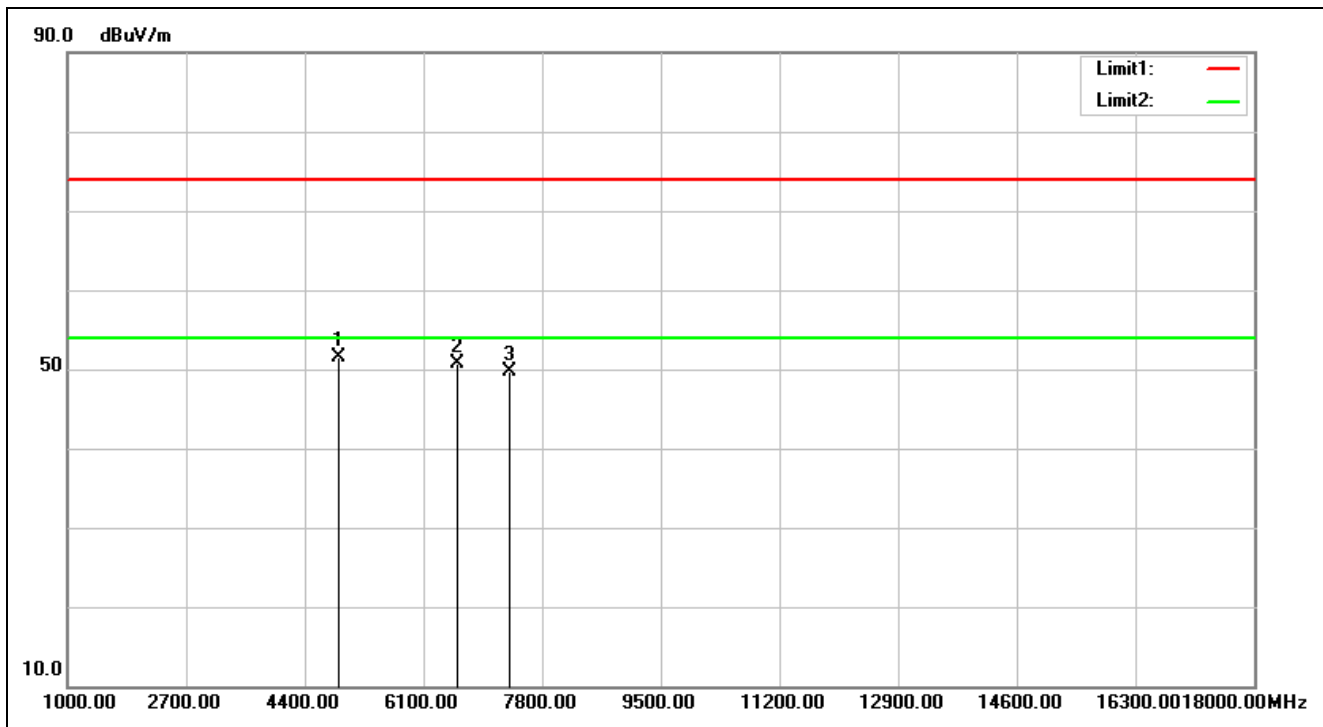
Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/5/25 13:47:07
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%)	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
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	-2.35	55.80	53.45	74.00	-20.55	peak	100	321	
2	4804.000	-2.35	52.20	49.85	54.00	-4.15	AVG		0	
3	5998.000	4.07	47.05	51.12	74.00	-22.88	peak	100	19	
4	7206.000	5.78	43.63	49.41	74.00	-24.59	peak		0	



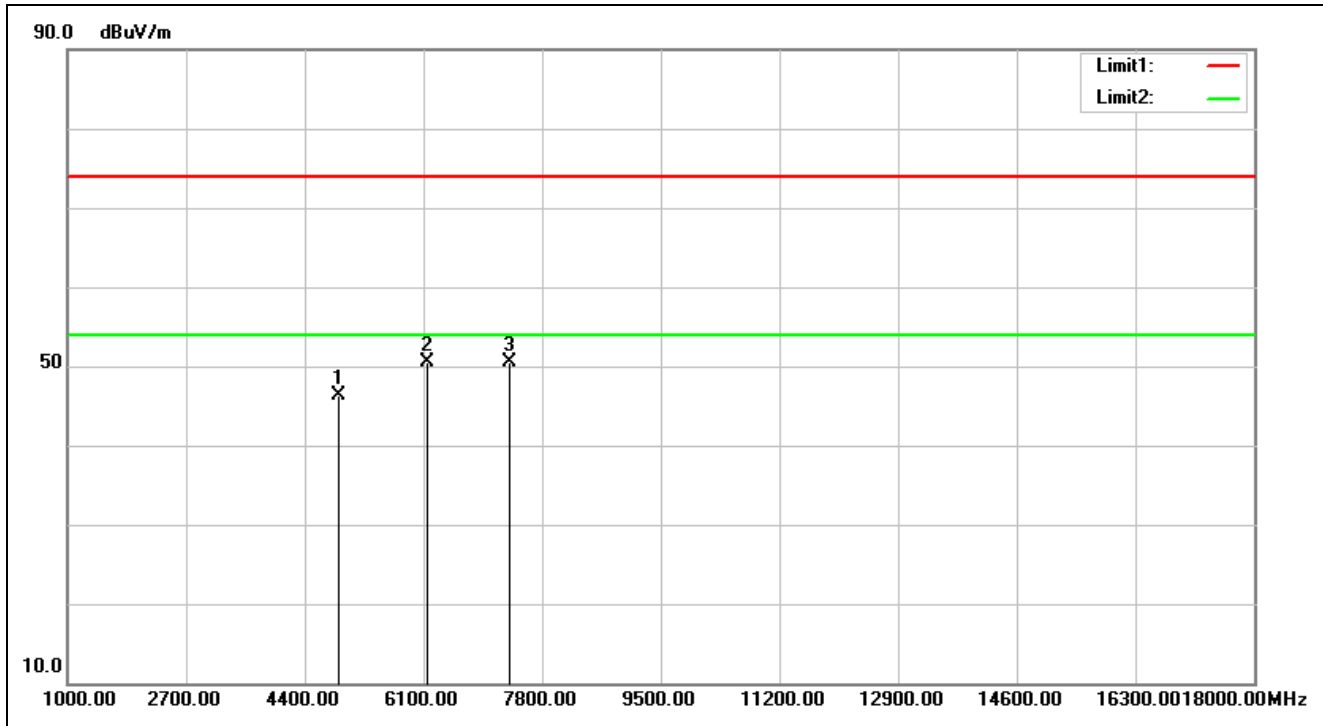
Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/5/25 13:48:10
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%)	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
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	-2.35	50.62	48.27	74.00	-25.73	peak			
2	5318.000	-0.15	50.49	50.34	74.00	-23.66	peak	100	264	
3	7206.000	5.78	44.59	50.37	74.00	-23.63	peak			



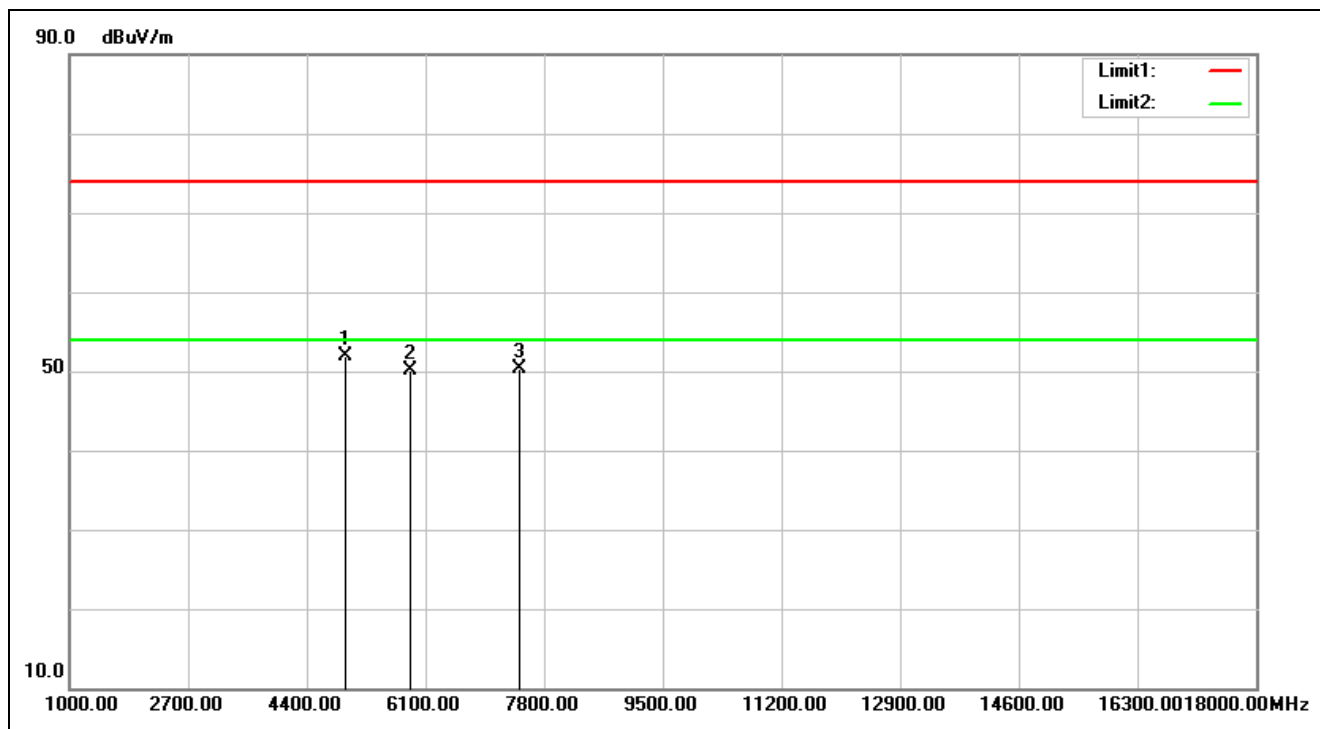
Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/5/25 13:51:24
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%)	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
Test Mode:	2442-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4884.000	-2.15	53.60	51.45	74.00	-22.55	peak	100	312	
2	6576.000	5.91	44.80	50.71	74.00	-23.29	peak	100	207	
3	7326.000	6.14	43.63	49.77	74.00	-24.23	peak			



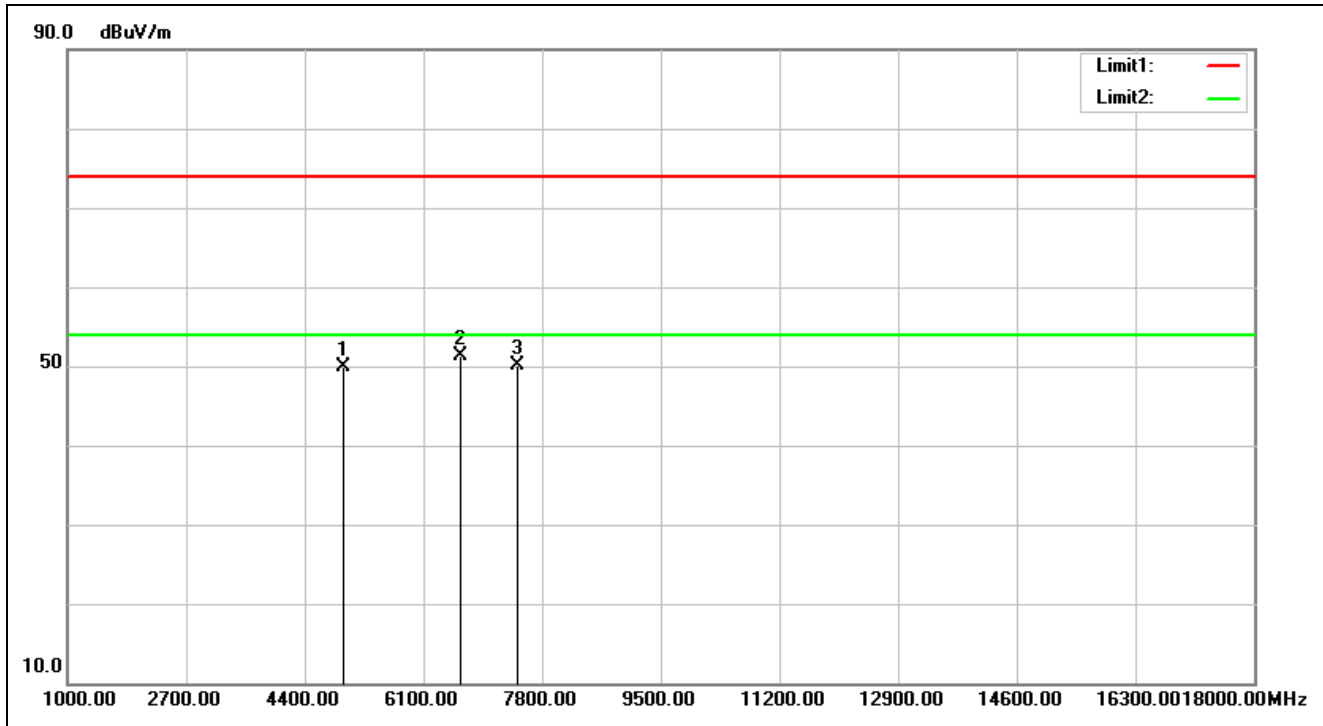
Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/5/25 13:52:26
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%)	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
Test Mode:	2442-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4884.000	-2.15	48.51	46.36	74.00	-27.64	peak			
2	6151.000	4.67	45.76	50.43	74.00	-23.57	peak	100	344	
3	7326.000	6.14	44.28	50.42	74.00	-23.58	peak			



Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/5/25 13:56:26
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%):	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
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	4961.000	-1.97	53.94	51.97	74.00	-22.03	peak	100	326	
2	5879.000	3.30	46.83	50.13	74.00	-23.87	peak	100	86	
3	7440.000	6.47	43.86	50.33	74.00	-23.67	peak			



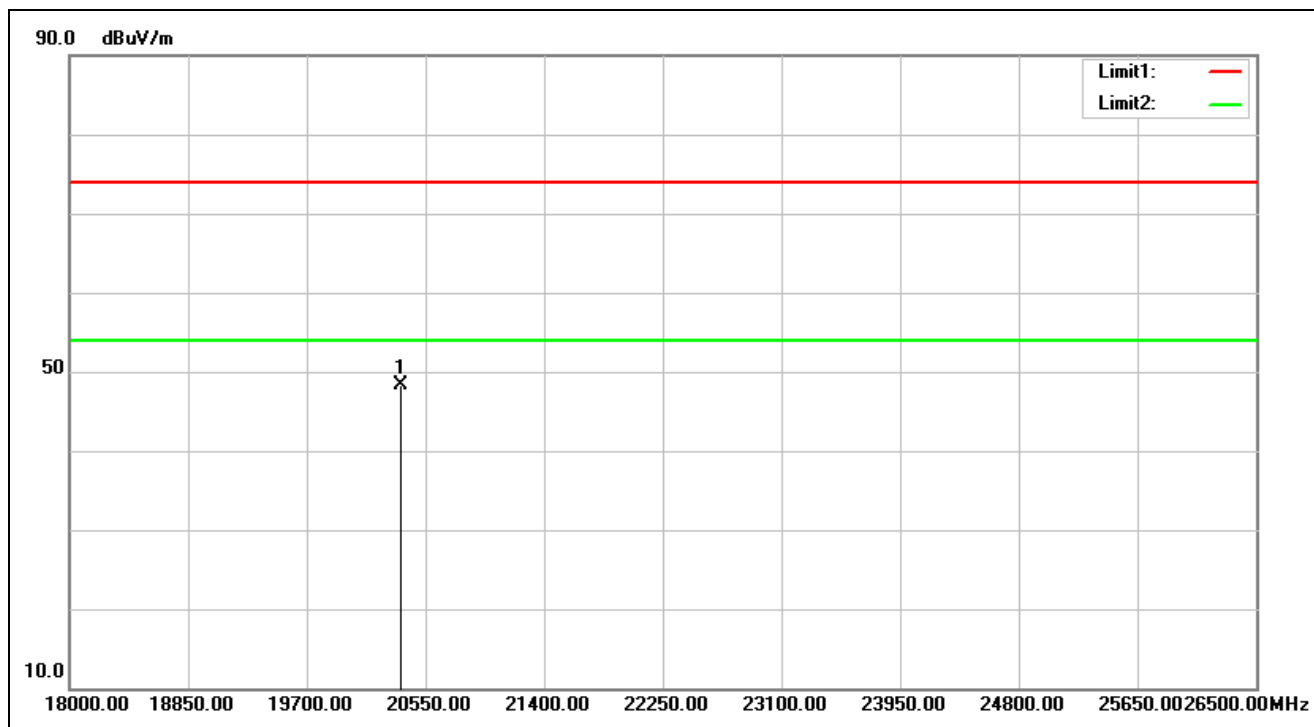
Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/5/25 13:57:29
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%):	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
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	4960.000	-1.97	51.82	49.85	74.00	-24.15	peak			
2	6627.000	5.81	45.59	51.40	74.00	-22.60	peak	100	178	
3	7440.000	6.47	43.63	50.10	74.00	-23.90	peak			

Spurious Emissions, TX Mode, 18-26G

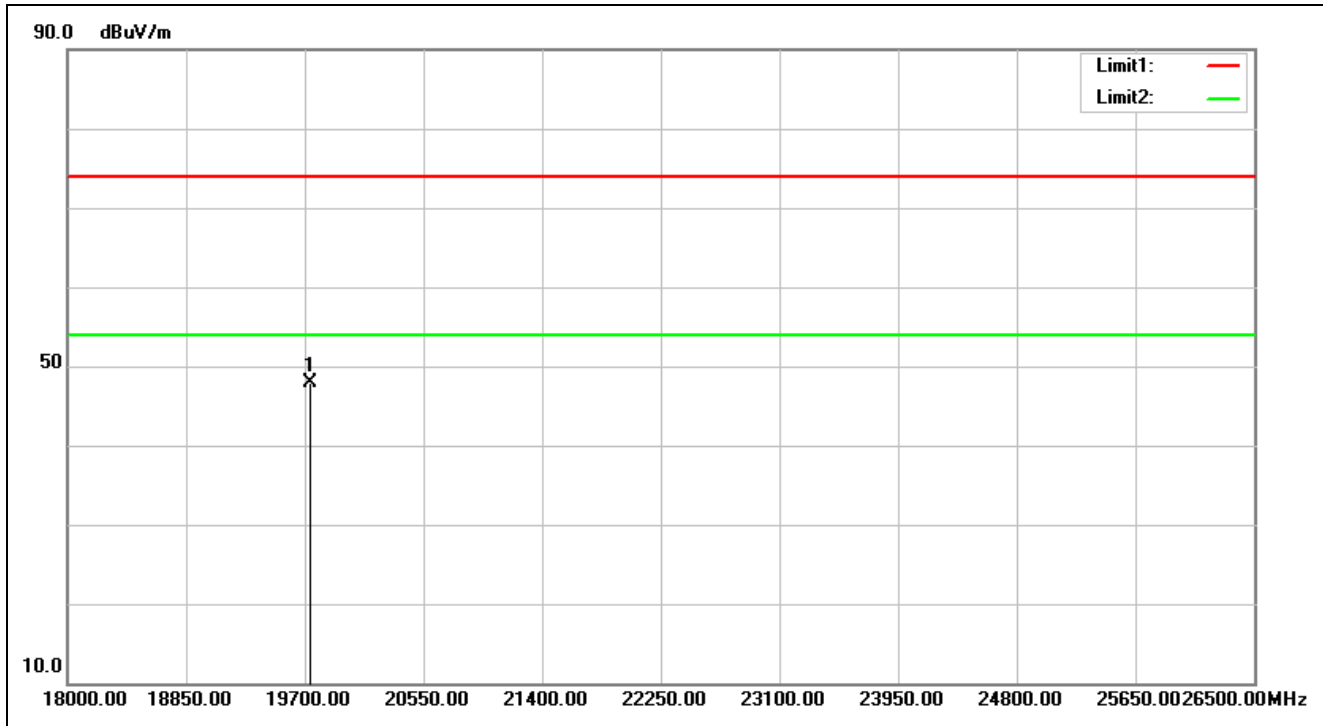


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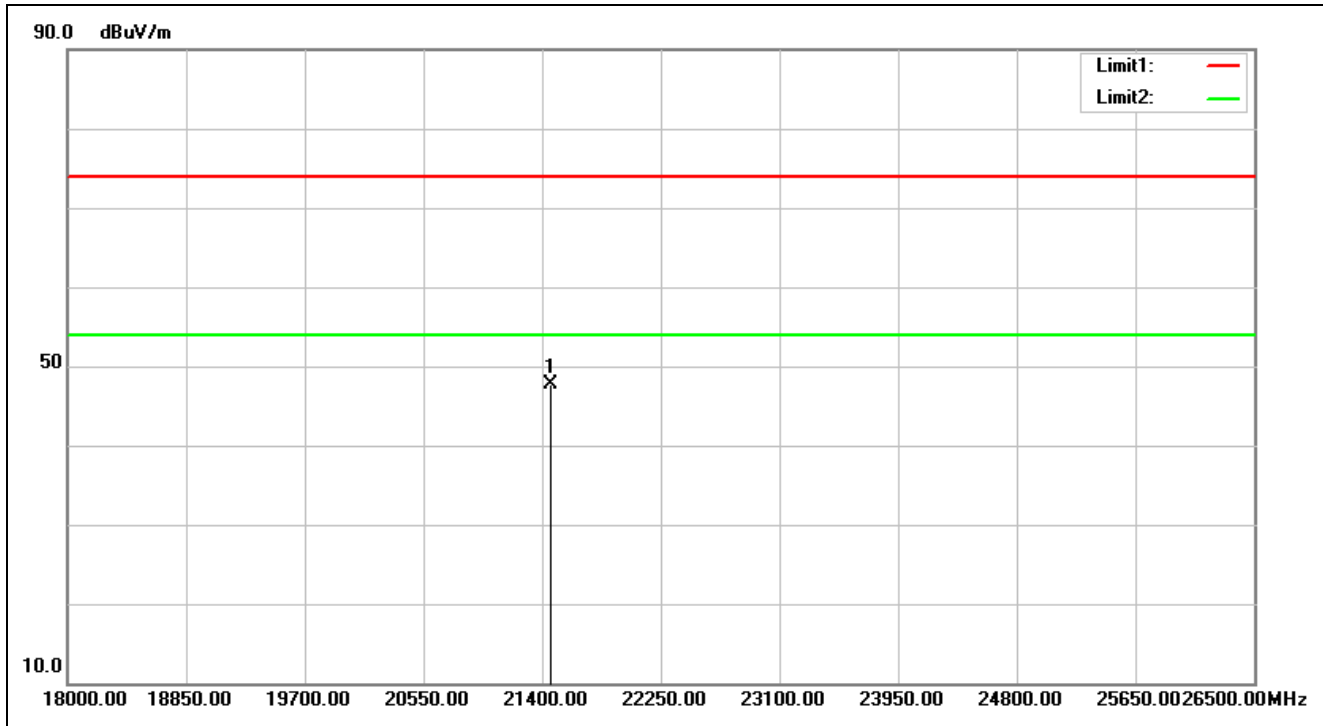
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Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/5/25 14:23:29
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%)	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
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	20371.500	29.16	19.05	48.21	74.00	-25.79	peak	100	352	



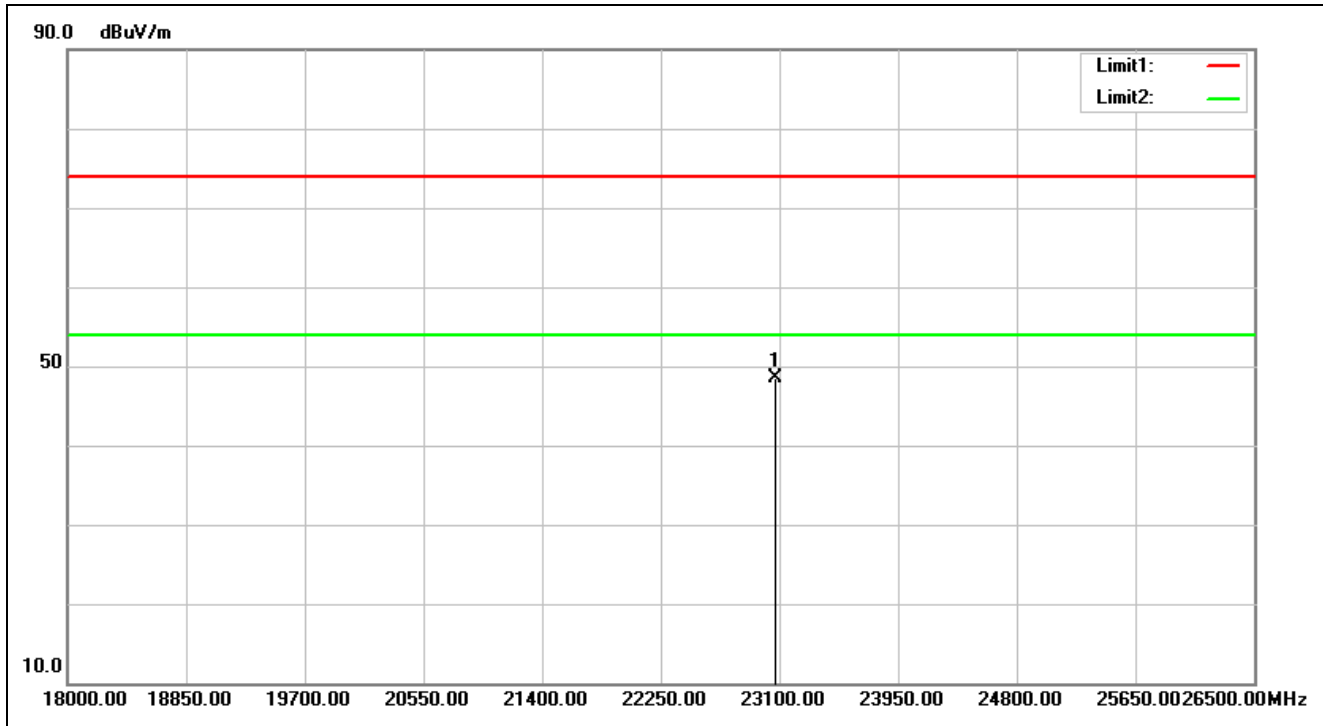
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Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/5/25 14:23:37
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%):	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
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	19742.500	28.95	18.95	47.90	74.00	-26.10	peak	100	153	



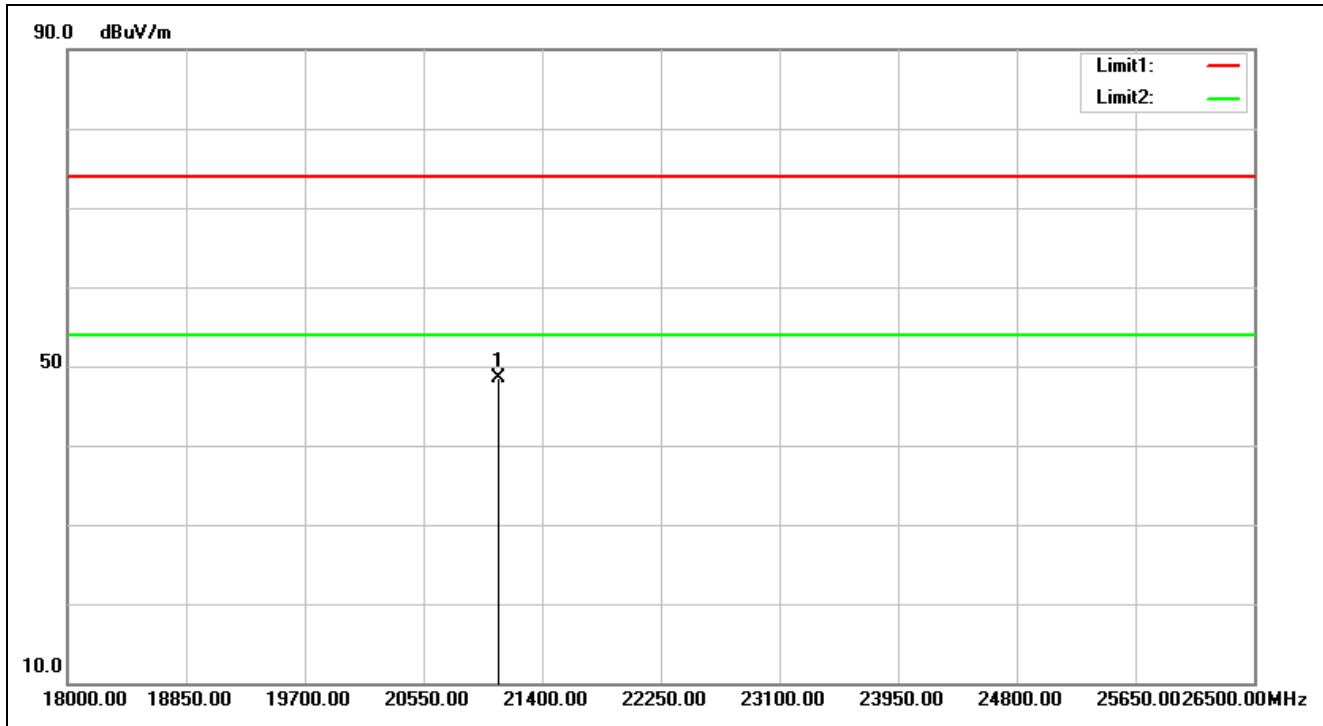
Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/5/25 14:23:51
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%):	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
Test Mode:	2442-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	21459.500	28.95	18.82	47.77	74.00	-26.23	peak	100	73	



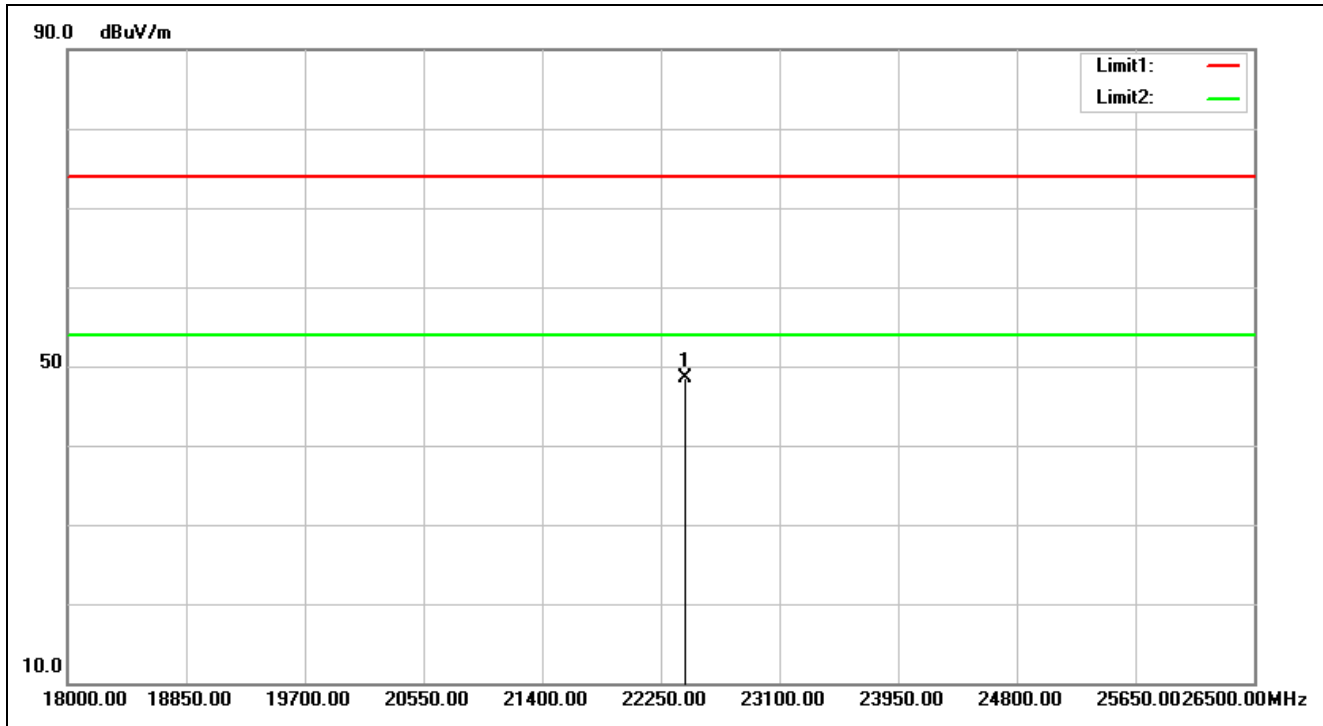
Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/5/25 14:24:00
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%):	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
Test Mode:	2442-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	23074.500	29.84	18.76	48.60	74.00	-25.40	peak	100	322	



Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/5/25 14:24:14
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%):	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
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	21085.500	29.28	19.21	48.49	74.00	-25.51	peak	100	346	



Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/5/25 14:24:25
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%):	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
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	22420.000	29.10	19.36	48.46	74.00	-25.54	peak	100	183	

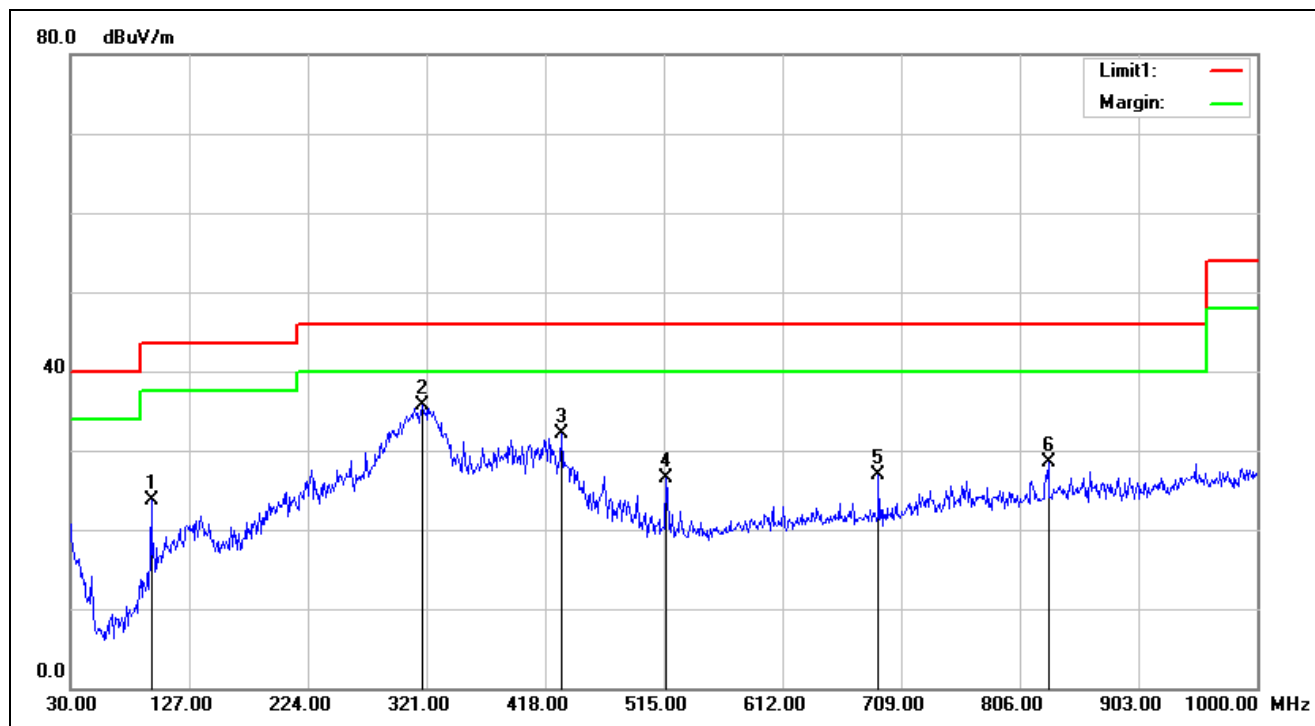
Spurious Emissions, TX Mode, 30M-1G



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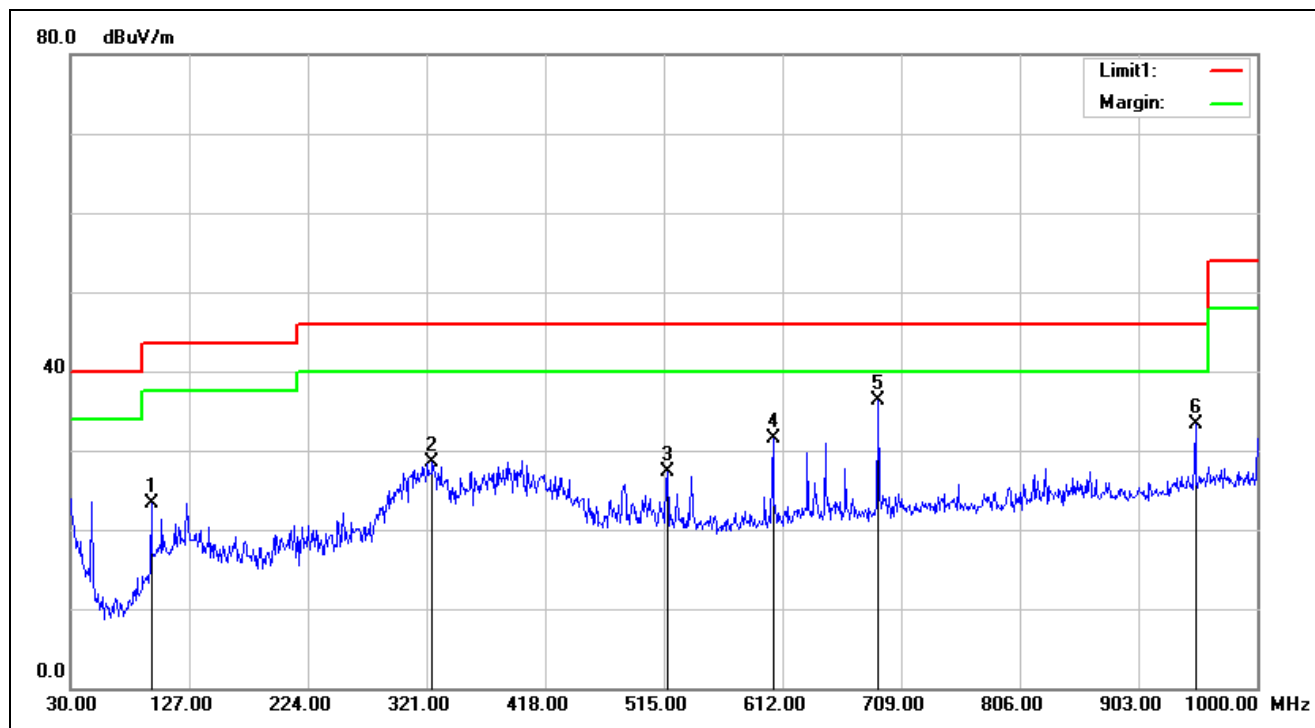
Tel: +886-2172-7000 fax: +886-2528-0018



Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/5/25 21:11:38
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%)	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
Test Mode:	2442-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	95.9599	-15.43	39.08	23.65	43.50	-19.85	QP	100	130	
2	318.0899	-10.09	45.75	35.66	46.00	-10.34	QP	100	115	
3	431.5800	-8.24	40.25	32.01	46.00	-13.99	QP	100	138	
4	516.9400	-7.15	33.60	26.45	46.00	-19.55	QP	100	1	
5	690.5700	-5.14	32.08	26.94	46.00	-19.06	QP	100	1	
6	829.2800	-2.98	31.58	28.60	46.00	-17.40	QP	100	130	

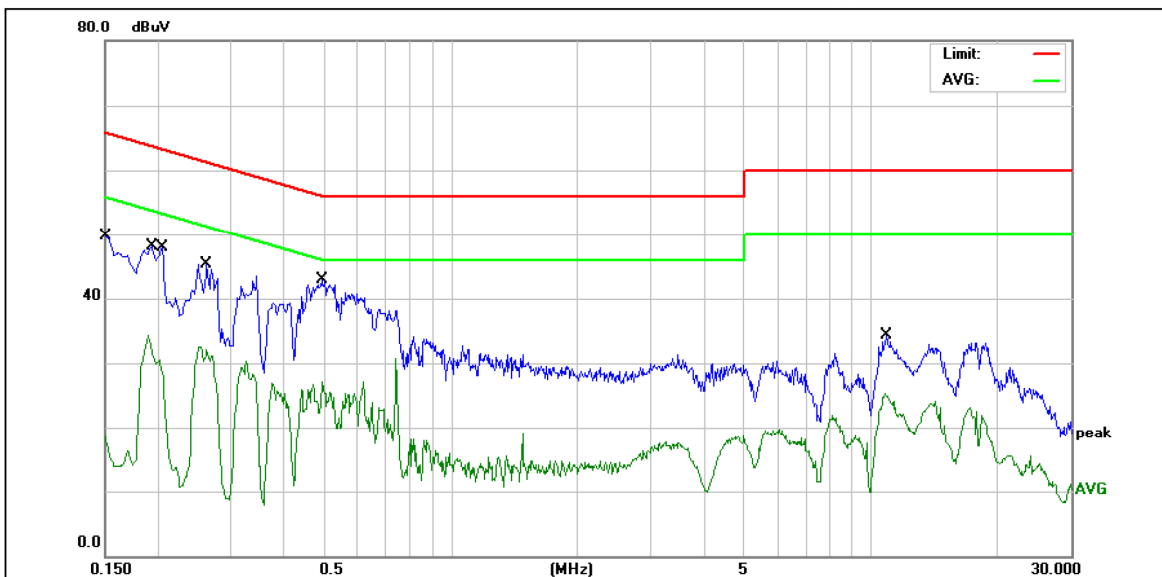
Spurious Emissions, Mains, 150kHz - 30MHz



Service No.:	114035147-FCC	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/5/25 21:12:41
Applicant:	RIFO	Test Rating:	DC 5V
Product:	BLE Module	Temp.(°C)/Hum.(%)	23.4(°C)/57%
Model No.:	TX41B1412-SF256	Test Engineer:	Hugo Chang
Test Mode:	2442-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	95.9600	-15.43	38.77	23.34	43.50	-20.16	QP	100	89	
2	325.8500	-9.90	38.39	28.49	46.00	-17.51	QP	100	197	
3	517.9100	-7.14	34.51	27.37	46.00	-18.63	QP	100	139	
4	604.2400	-5.92	37.33	31.41	46.00	-14.59	QP	100	25	
5	690.5700	-5.14	41.36	36.22	46.00	-9.78	QP	100	91	
6	949.5600	-0.55	33.80	33.25	46.00	-12.75	QP	100	9	

Mains Spurious Emissions



Service No.: 114035147

Test Standard: FCC Class B Conduction(QP)

Test item: Conducted Emission

Phase: L1

Applicant: RIFO

Temp.(°C)/Hum.(%): 23.6(°C) / 47 %

Product: BLE module

Power Rating: AC 120V/60Hz

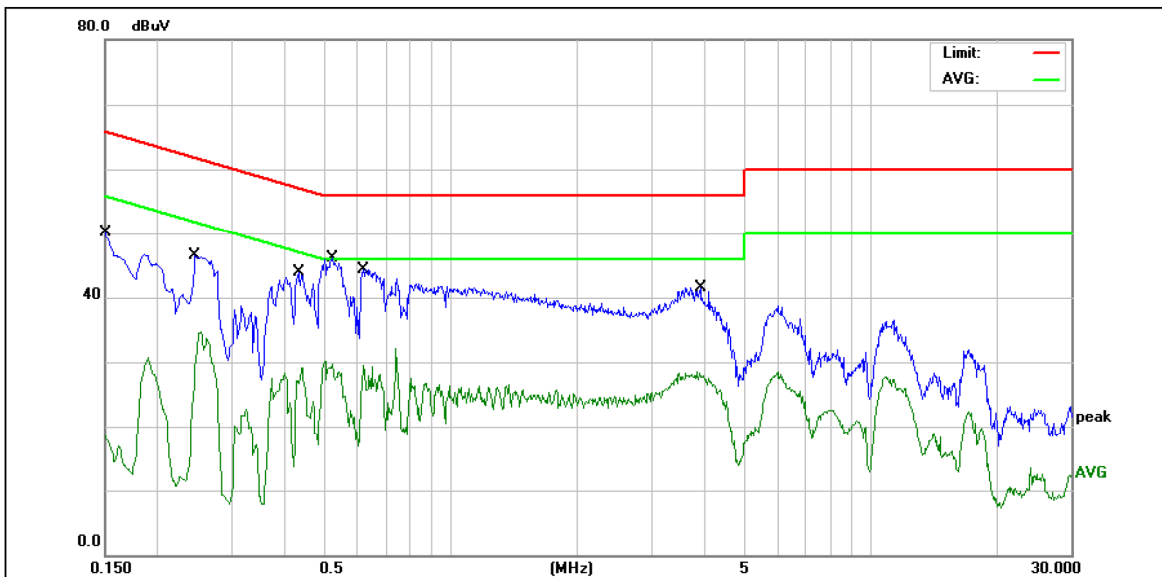
Model No.: TM41B1412-SF256

Test Engineer: Sam Su

Test Mode: Continuous transmit

Remark:

No.	Frequency (MHz)	Factor ()	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	9.65	32.00	41.65	65.99	-24.34	QP	P	
2	0.1500	9.65	5.73	15.38	55.99	-40.61	AVG	P	
3	0.1940	9.63	34.97	44.60	63.86	-19.26	QP	P	
4	0.1940	9.63	21.51	31.14	53.86	-22.72	AVG	P	
5	0.2060	9.63	32.93	42.56	63.36	-20.80	QP	P	
6	0.2060	9.63	16.34	25.97	53.36	-27.39	AVG	P	
7	0.2620	9.62	31.45	41.07	61.36	-20.29	QP	P	
8	0.2620	9.62	21.38	31.00	51.36	-20.36	AVG	P	
9	0.4940	9.63	32.06	41.69	56.10	-14.41	QP	P	
10	0.4940	9.63	17.53	27.16	46.10	-18.94	AVG	P	
11	10.9220	9.77	18.48	28.25	60.00	-31.75	QP	P	
12	10.9220	9.77	13.93	23.70	50.00	-26.30	AVG	P	



Service No.: 114035147

Test Standard: FCC Class B Conduction(QP)

Test item: Conducted Emission

Phase: N

Applicant: RIFO

Temp.(°C)/Hum.(%): 23.6(°C) / 47 %

Product: BLE module

Power Rating: AC 120V/60Hz

Model No.: TM41B1412-SF256

Test Engineer: Sam Su

Test Mode: Continuous transmit

Remark:

No.	Frequency (MHz)	Factor ()	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	9.66	31.76	41.42	65.99	-24.57	QP	P	
2	0.1500	9.66	5.71	15.37	55.99	-40.62	AVG	P	
3	0.2460	9.65	32.57	42.22	61.89	-19.67	QP	P	
4	0.2460	9.65	19.45	29.10	51.89	-22.79	AVG	P	
5	0.4340	9.64	32.56	42.20	57.18	-14.98	QP	P	
6	0.4340	9.64	19.38	29.02	47.18	-18.16	AVG	P	
7	0.5220	9.64	33.06	42.70	56.00	-13.30	QP	P	
8	0.5220	9.64	18.97	28.61	46.00	-17.39	AVG	P	
9	0.6180	9.64	29.77	39.41	56.00	-16.59	QP	P	
10	0.6180	9.64	14.04	23.68	46.00	-22.32	AVG	P	
11	3.9340	9.68	25.63	35.31	56.00	-20.69	QP	P	
12	3.9340	9.68	16.82	26.50	46.00	-19.50	AVG	P	