

Test Report No.10045883 002

Appendix D: Radiated and Mains Spurious Emission Data

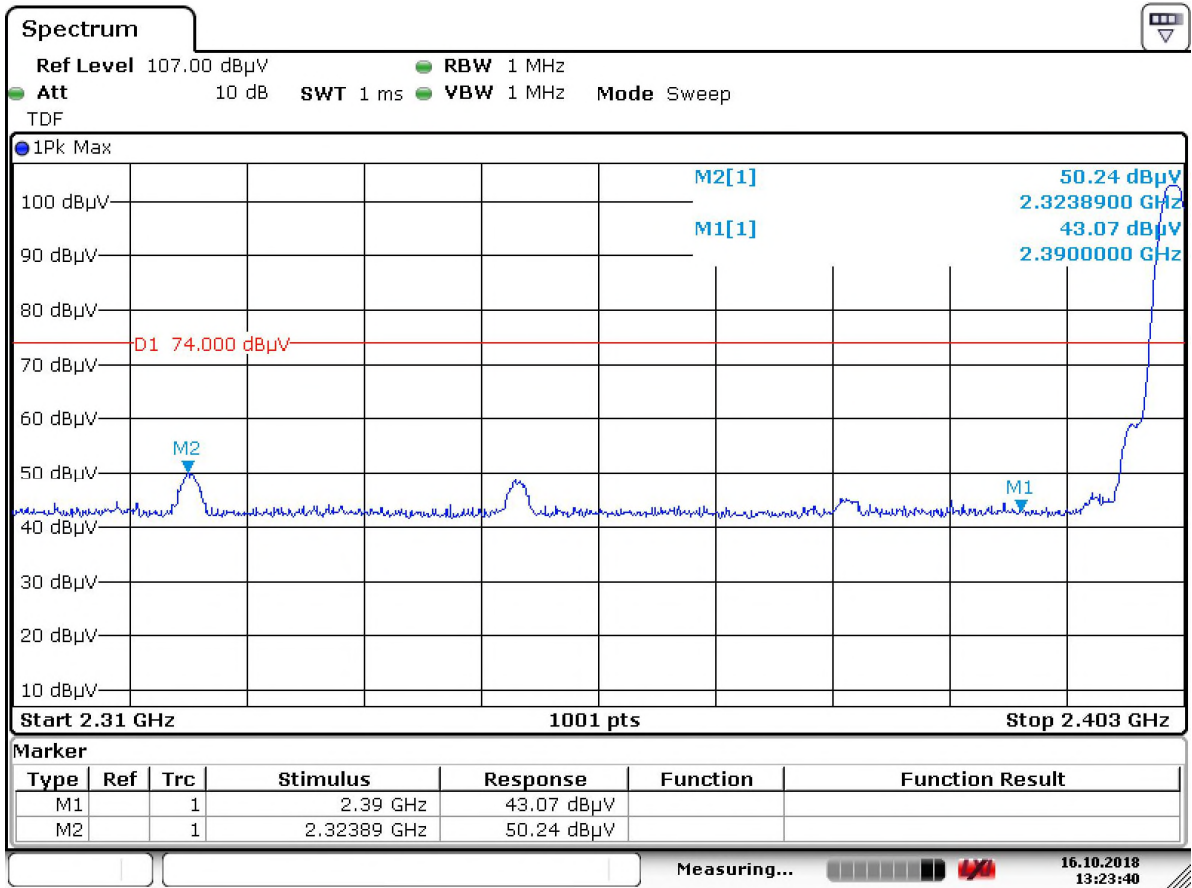
(File: 10045883 002 AppendixD)

Contents

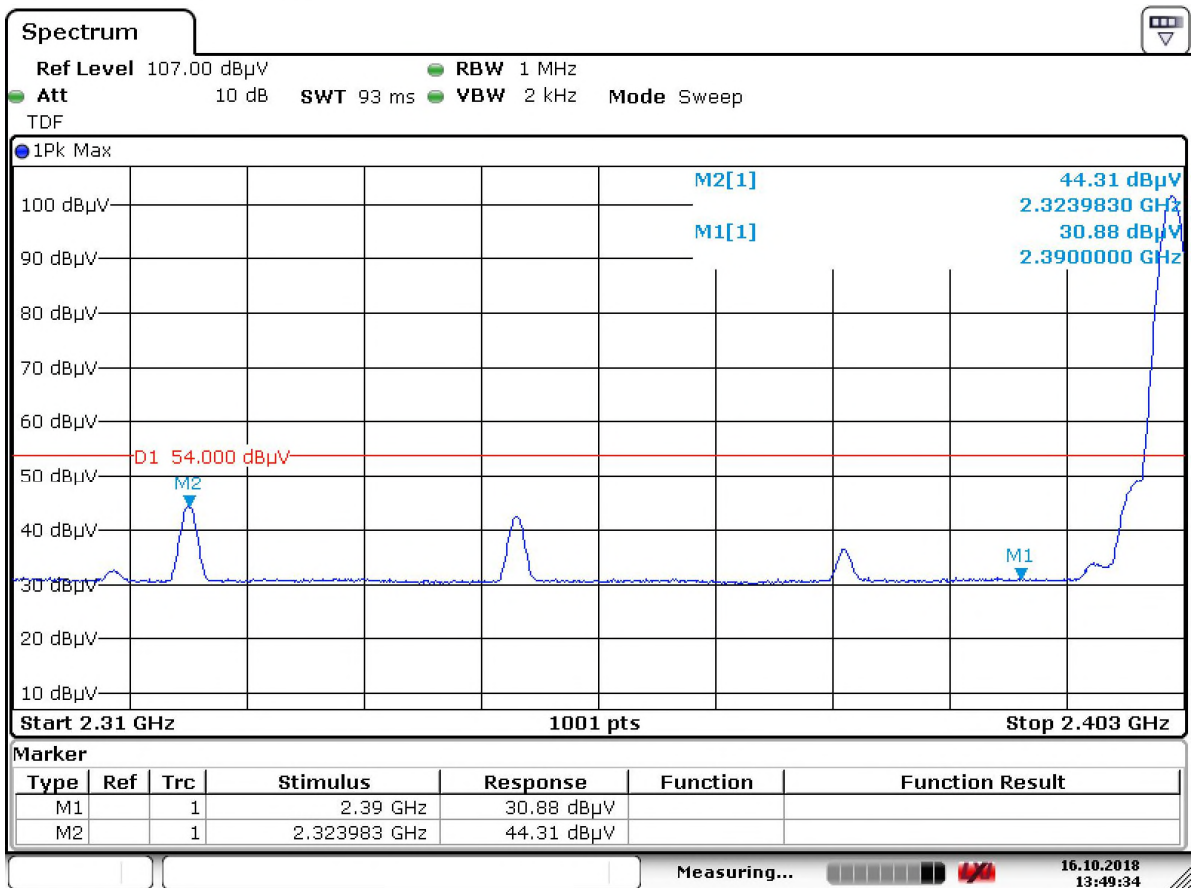
Spurious Emissions, Band Edges, 2.35-2.5G	2
Spurious Emissions, TX Mode, 1-18G.....	6
Spurious Emissions, TX Mode, 18-26G.....	12
Spurious Emissions, TX Mode, 30M-1G	18
Spurious Emissions, TX Mode, 9K-30M	20
Spurious Emissions, AC Mains	22

Spurious Emissions, Band Edges, 2.35-2.5G

Low Channel (Horizontal)

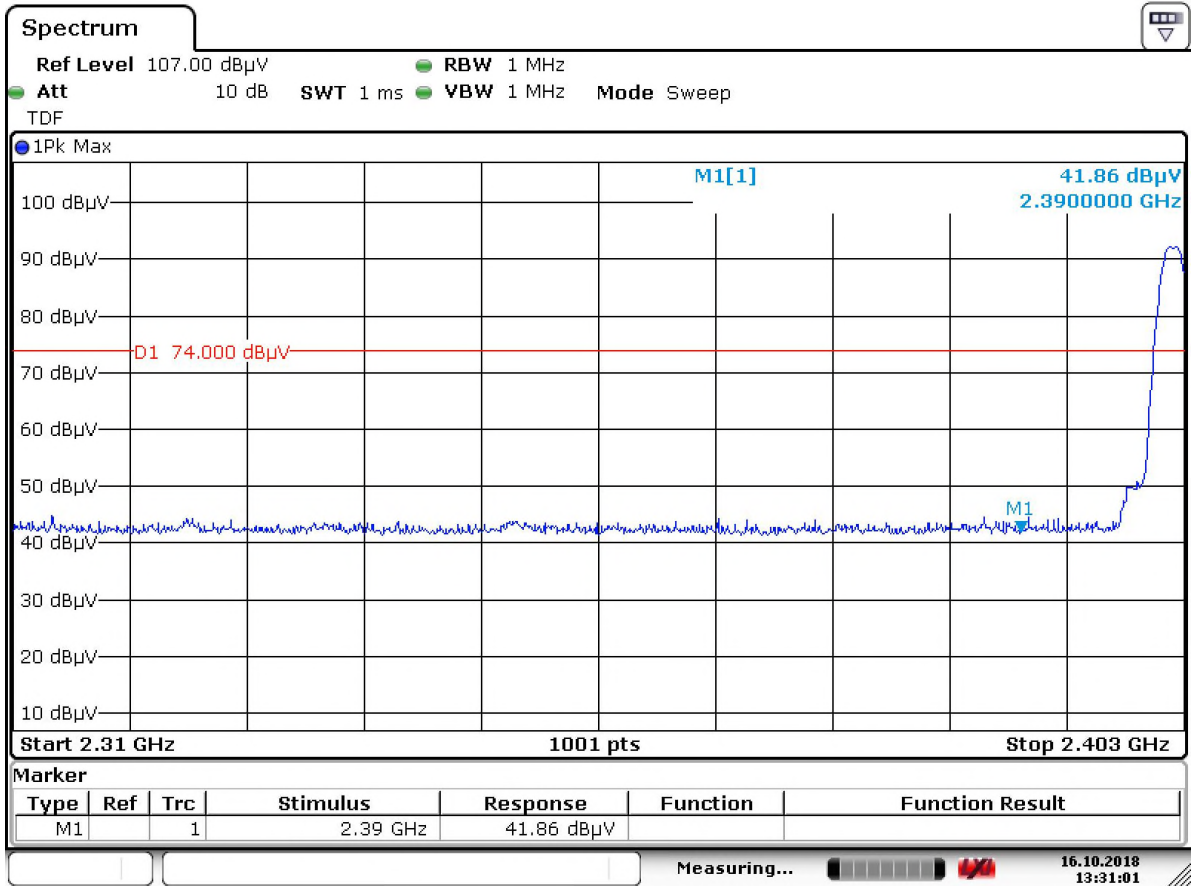


Date: 16.OCT.2018 13:23:41

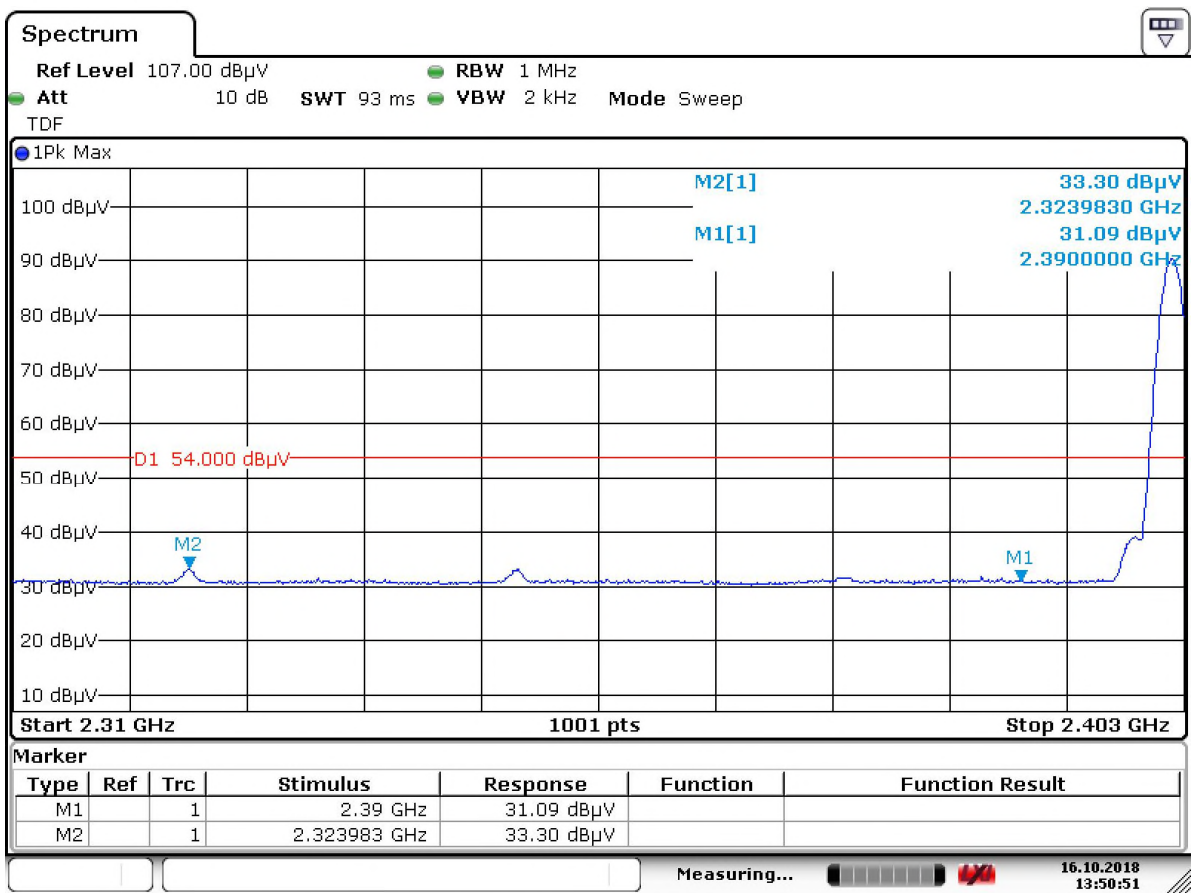


Date: 16.OCT.2018 13:49:34

Low Channel (Vertical)

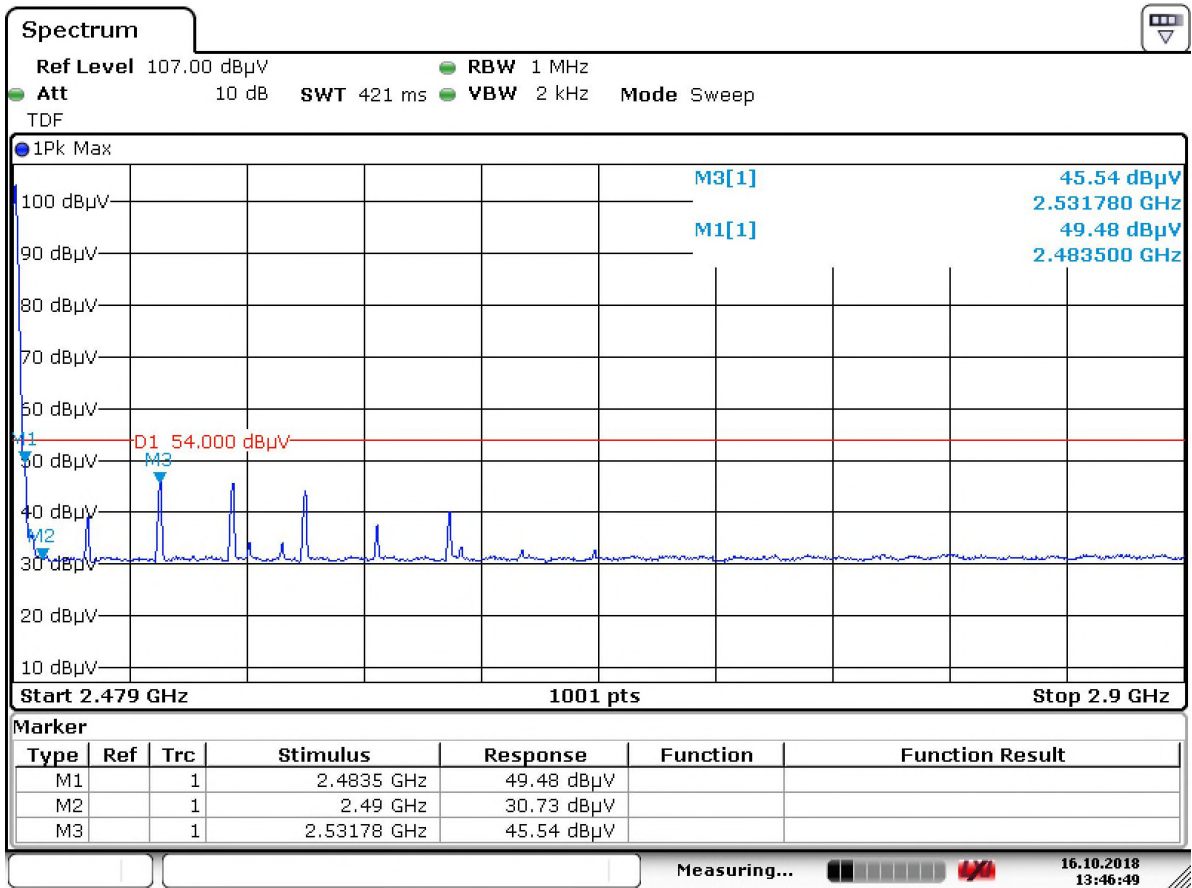


Date: 16.OCT.2018 13:31:01

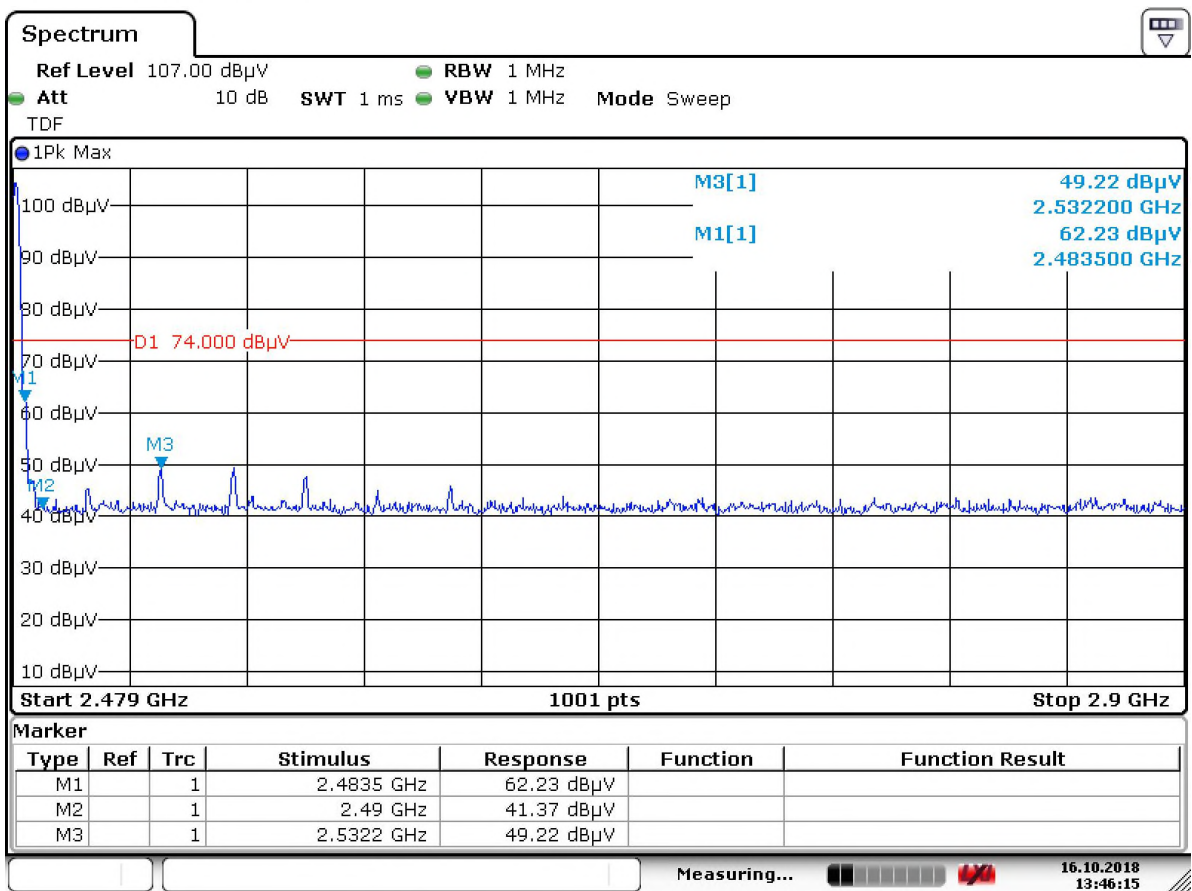


Date: 16.OCT.2018 13:50:51

High Channel (Horizontal)

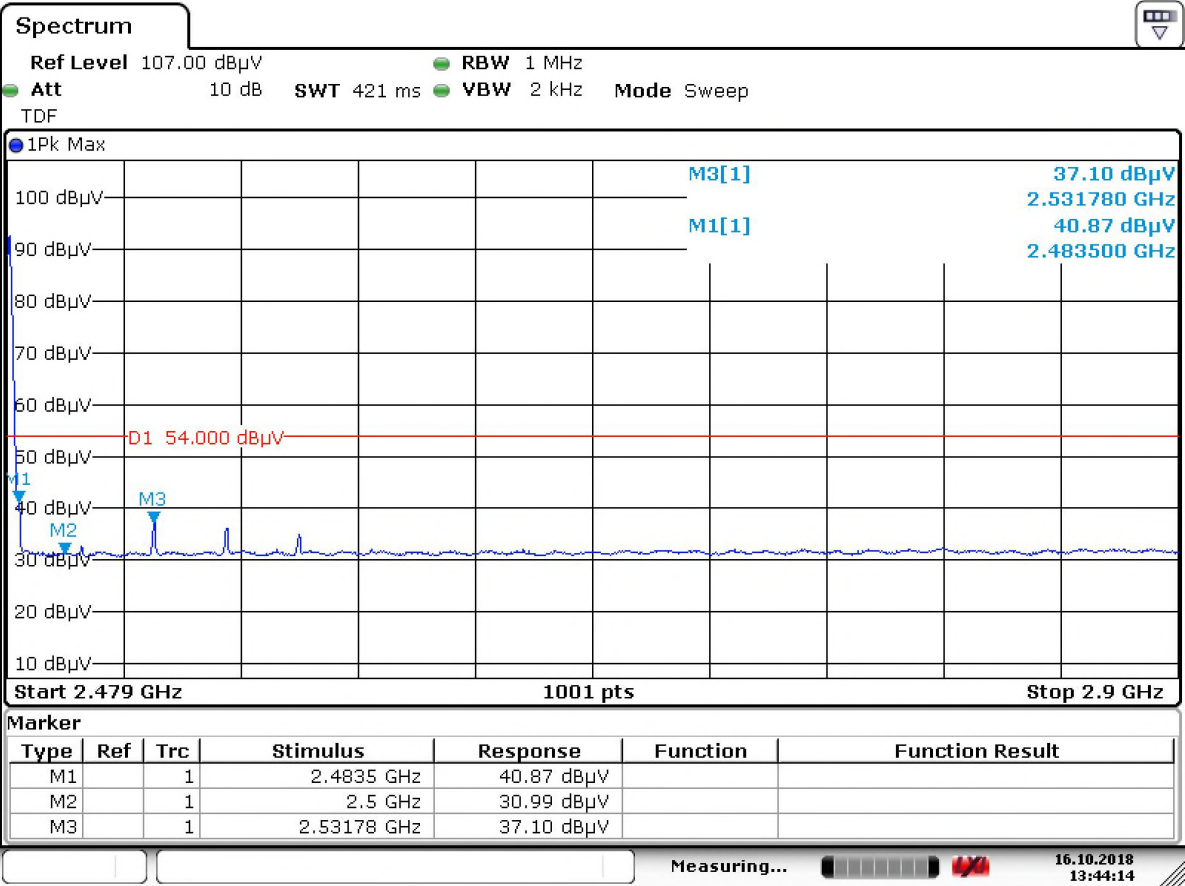


Date: 16.OCT.2018 13:46:49

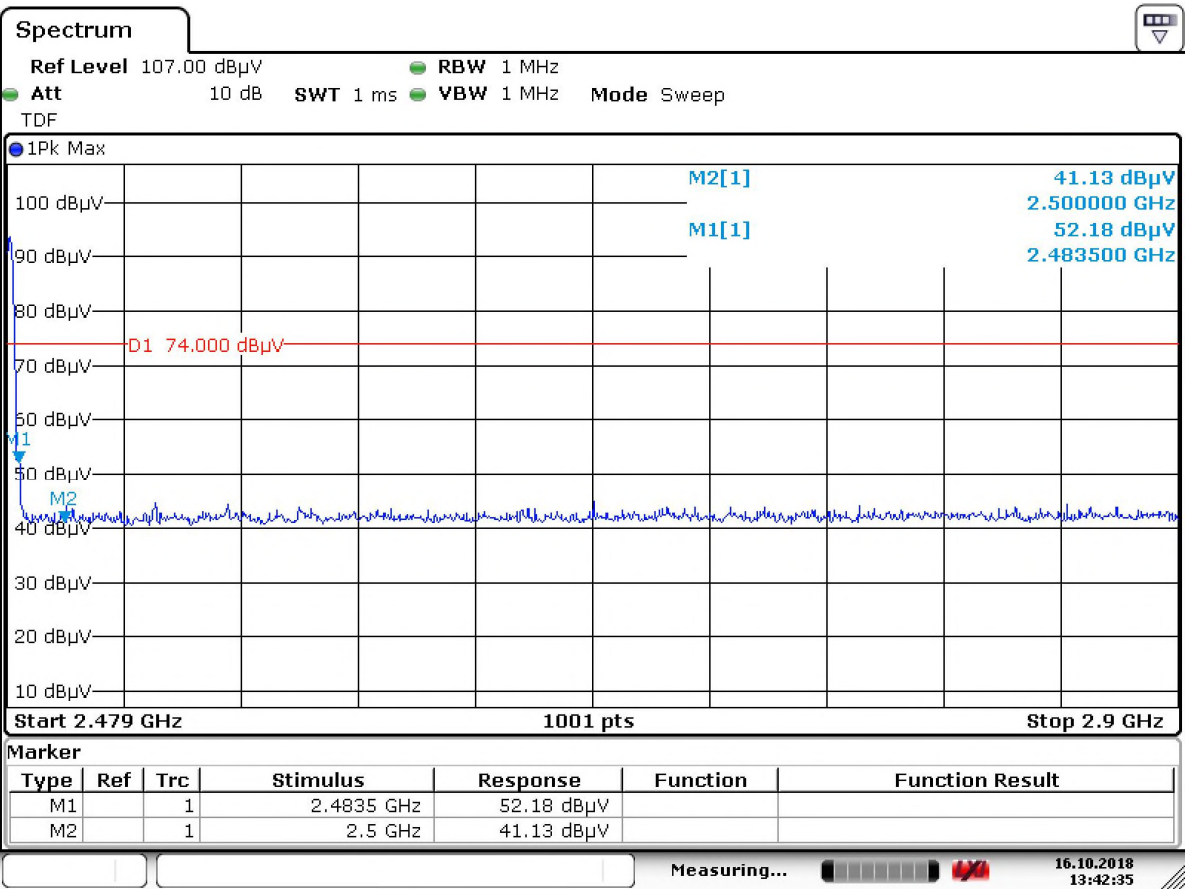


Date: 16.OCT.2018 13:46:15

High Channel (Vertical)



Date: 16.OCT.2018 13:44:15



Date: 16.OCT.2018 13:42:36

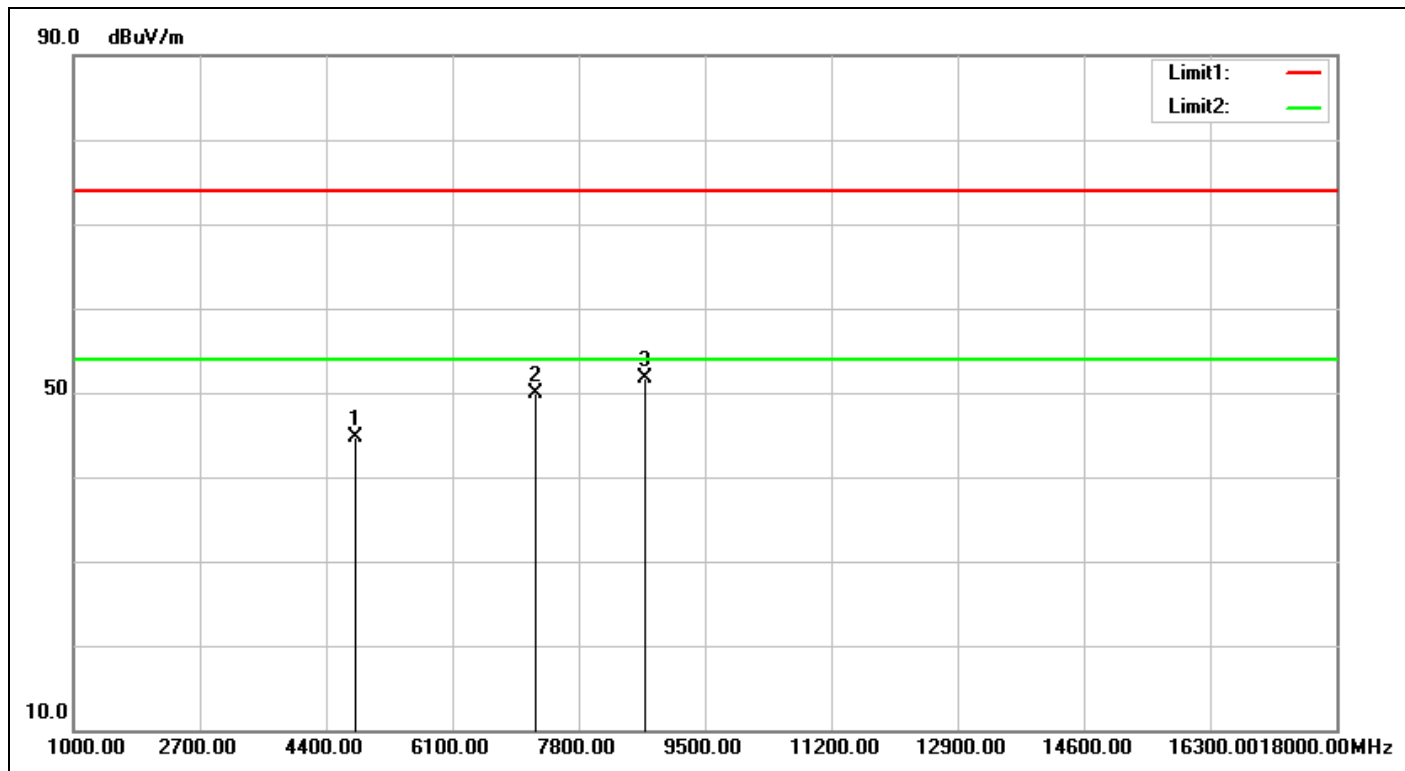
Spurious Emissions, TX Mode, 1-18G



TUV Rheinland Taiwan Ltd.

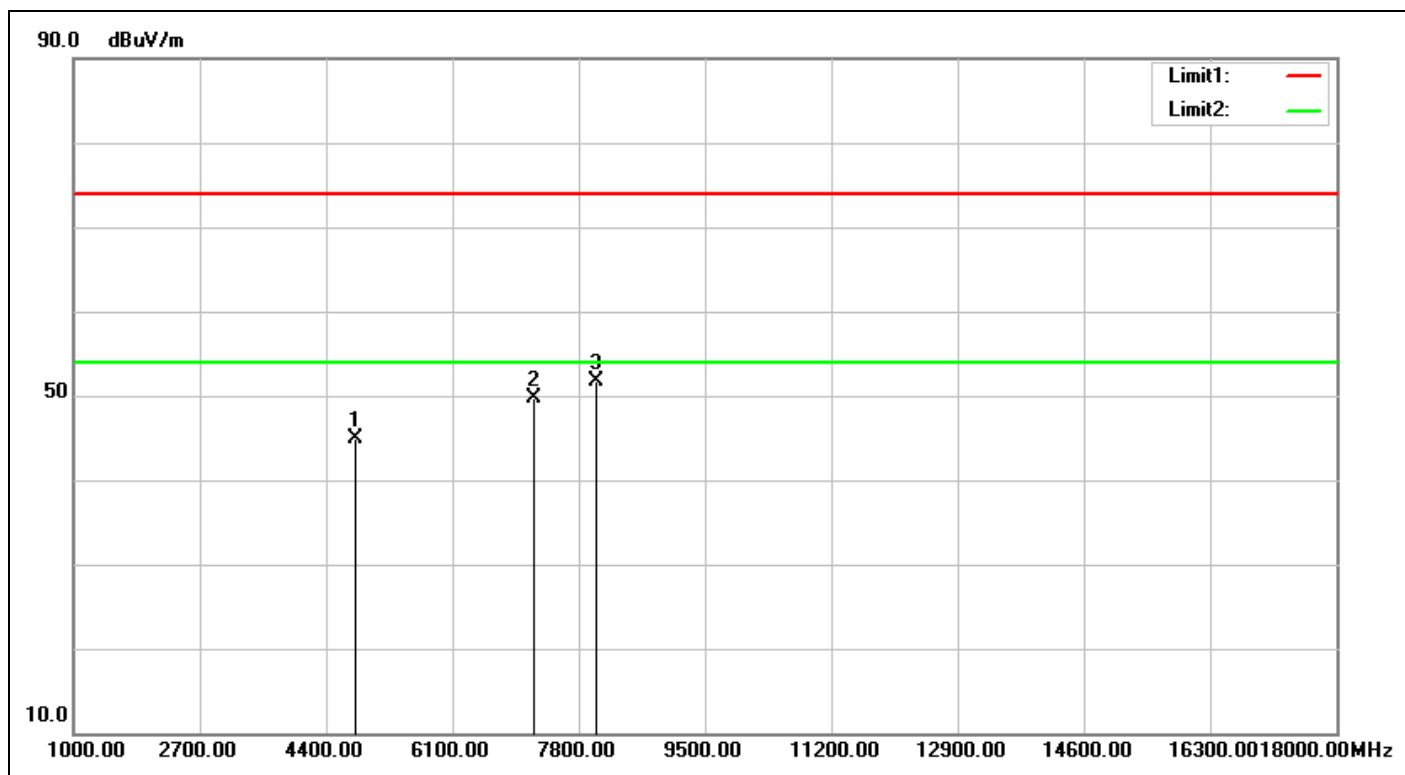
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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



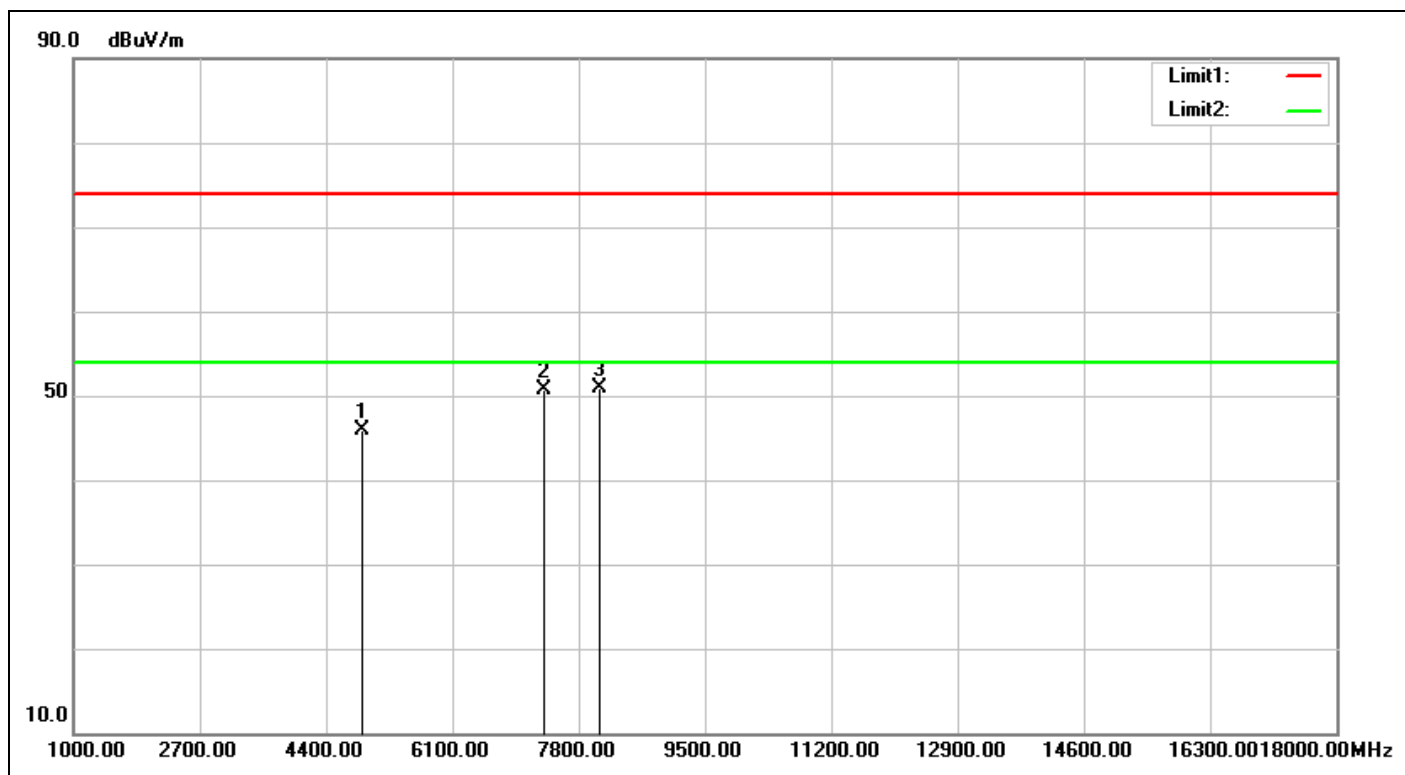
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/10/16 13:42:55
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%):	22(°C)/65%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
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	-2.65	47.37	44.72	74.00	-29.28	peak		0	
2	7206.000	5.26	44.63	49.89	74.00	-24.11	peak		0	
3	8701.000	6.53	45.13	51.66	74.00	-22.34	peak	100	20	



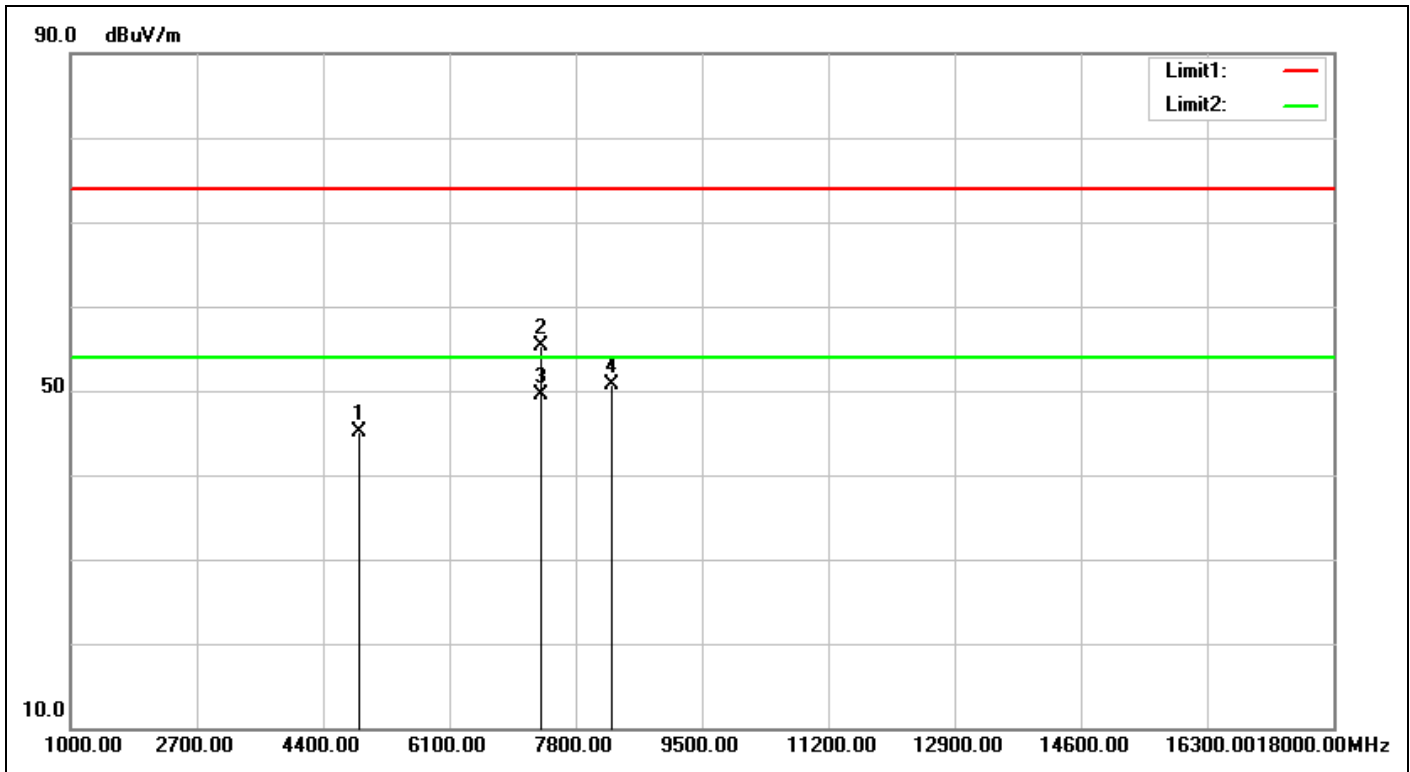
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/10/16 13:43:48
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%)	22(°C)/65%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
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	-2.65	47.47	44.82	74.00	-29.18	peak			
2	7206.000	5.26	44.53	49.79	74.00	-24.21	peak			
3	8038.000	5.83	45.87	51.70	74.00	-22.30	peak	100	12	



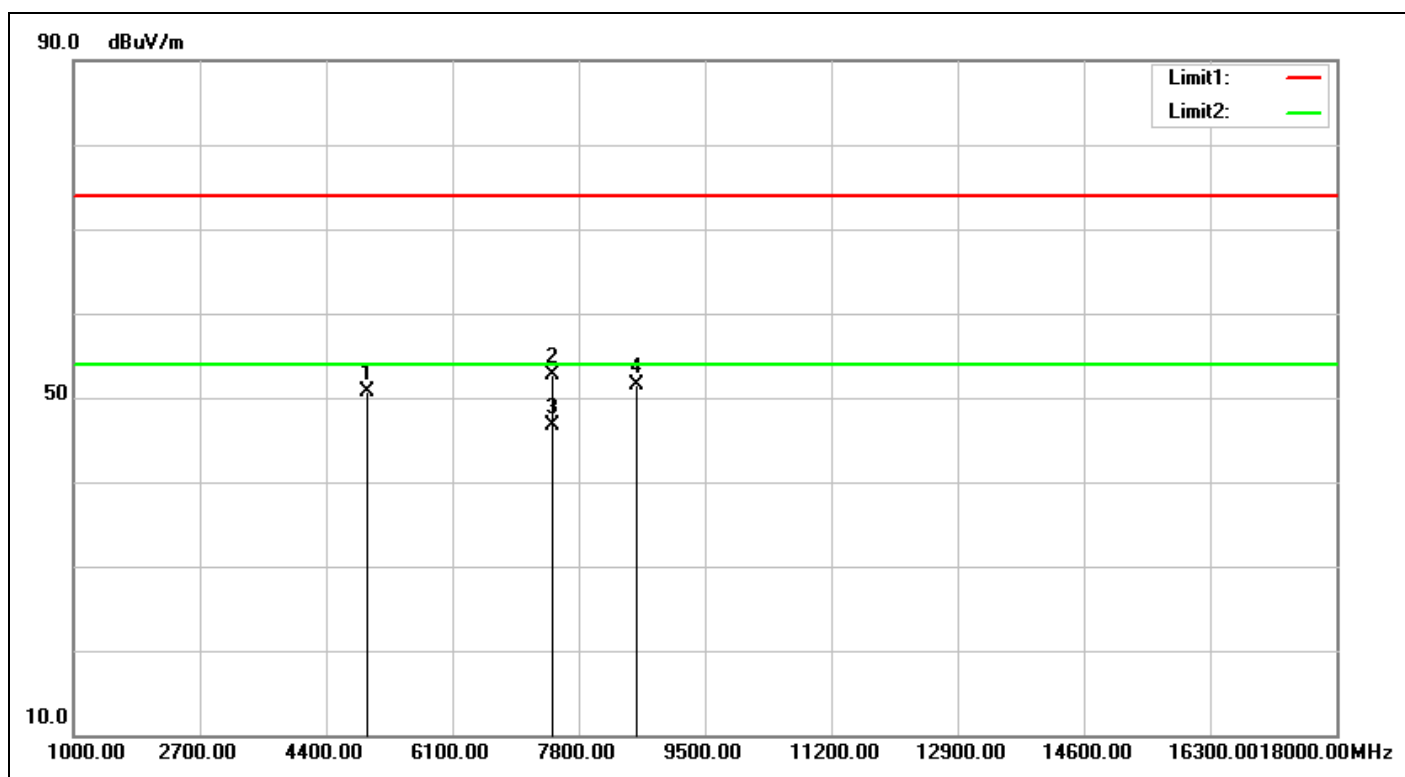
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/10/16 13:46:21
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%)	22(°C)/65%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
Test Mode:	2440-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4880.000	-2.44	48.43	45.99	74.00	-28.01	peak			
2	7320.000	5.52	45.21	50.73	74.00	-23.27	peak			
3	8089.000	5.90	45.07	50.97	74.00	-23.03	peak	100	143	



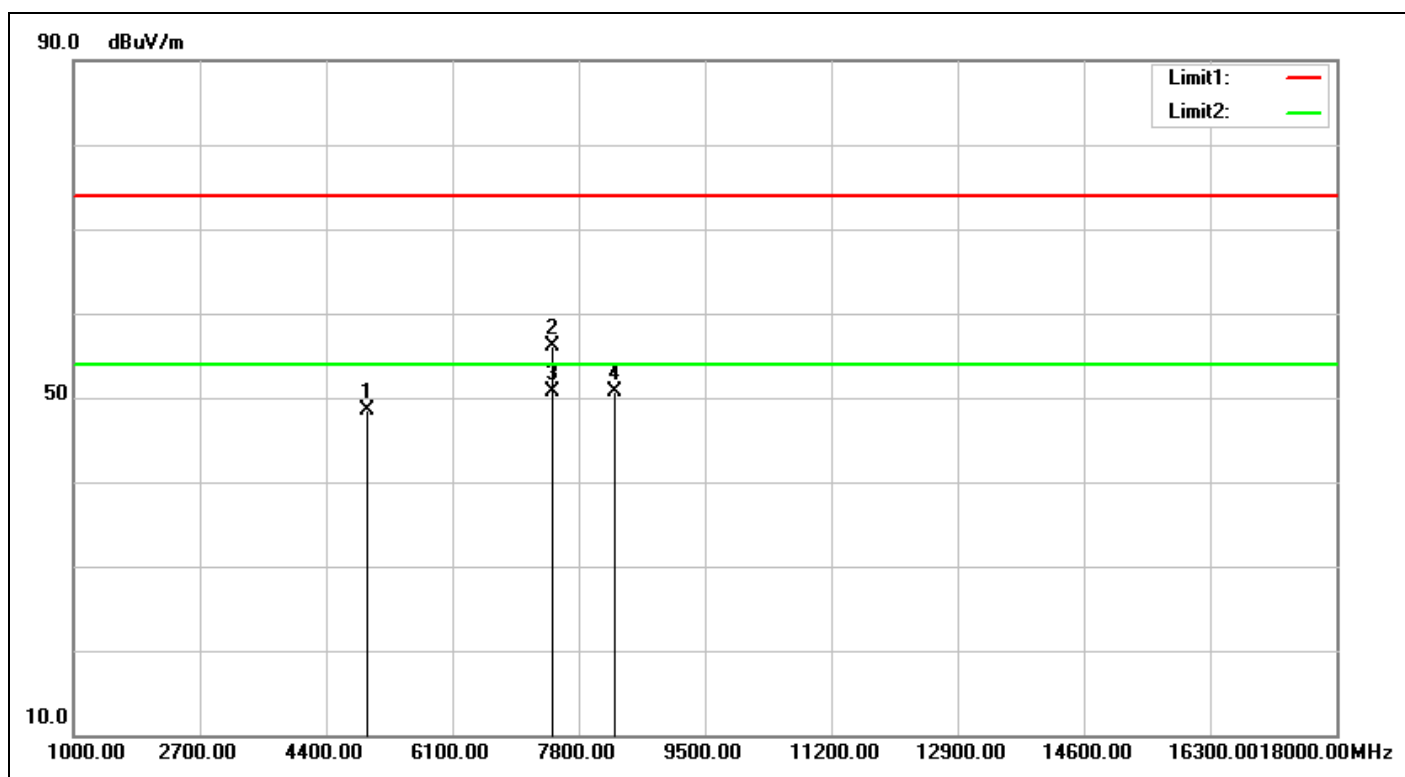
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/10/16 13:47:13
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%)	22(°C)/65%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
Test Mode:	2440-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4880.000	-2.44	47.59	45.15	74.00	-28.85	peak			
2	7320.000	5.52	49.71	55.23	74.00	-18.77	peak	100	316	
3	7320.000	5.52	43.93	49.45	54.00	-4.55	AVG	100	316	
4	8276.000	6.18	44.62	50.80	74.00	-23.20	peak	100	111	



Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/10/16 13:53:21
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%):	22(°C)/65%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
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	-2.22	53.01	50.79	74.00	-23.21	peak	100	196	
2	7440.000	5.79	46.87	52.66	74.00	-21.34	peak	100	43	
3	7440.000	5.79	40.88	46.67	54.00	-7.33	AVG	100	43	
4	8582.000	6.52	44.95	51.47	74.00	-22.53	peak	100	255	



Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/10/16 13:54:14
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%)	22(°C)/65%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
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	-2.22	50.76	48.54	74.00	-25.46	peak	100	68	
2	7440.000	5.79	50.38	56.17	74.00	-17.83	peak	100	321	
3	7440.000	5.79	44.89	50.68	54.00	-3.32	AVG	100	321	
4	8293.000	6.21	44.50	50.71	74.00	-23.29	peak	100	137	

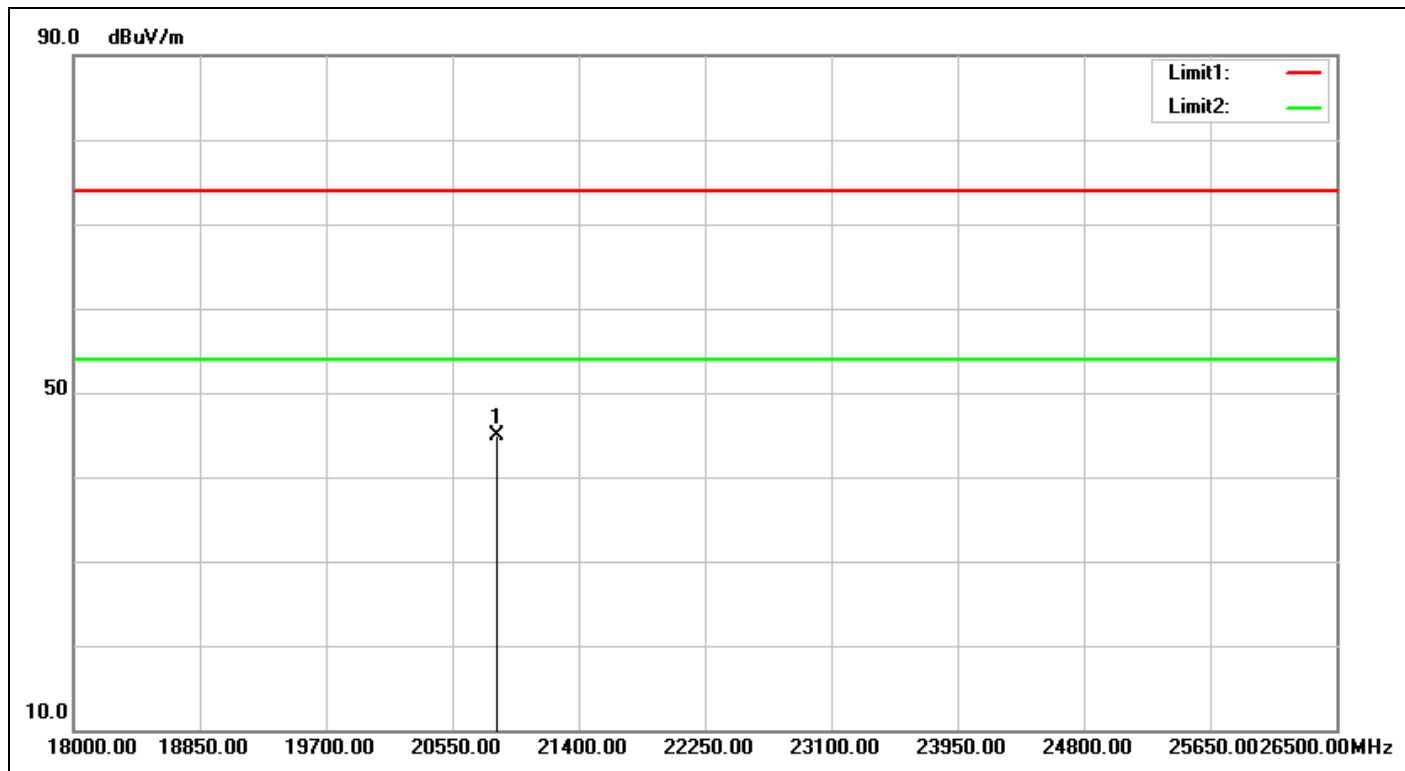
Spurious Emissions, TX Mode, 18-26G



TUV Rheinland Taiwan Ltd.

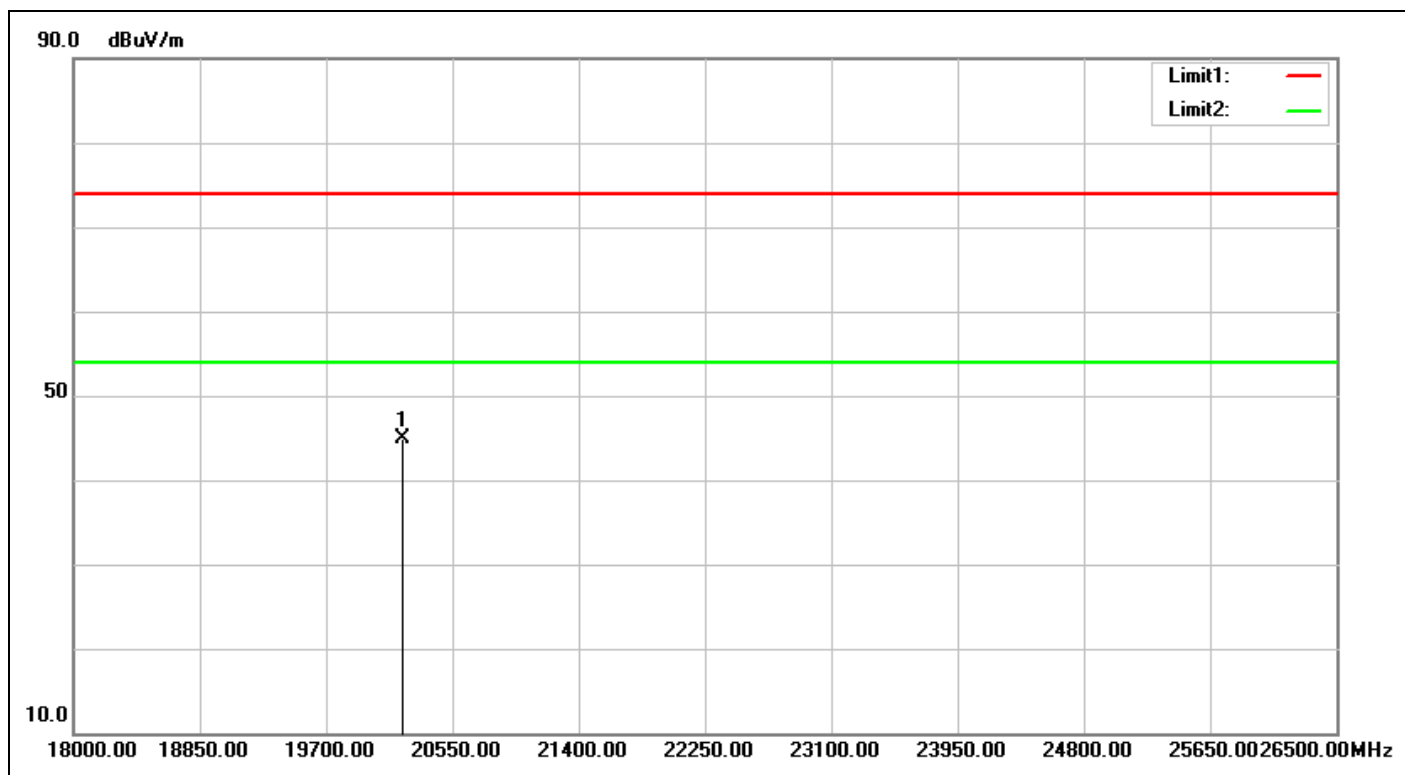
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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



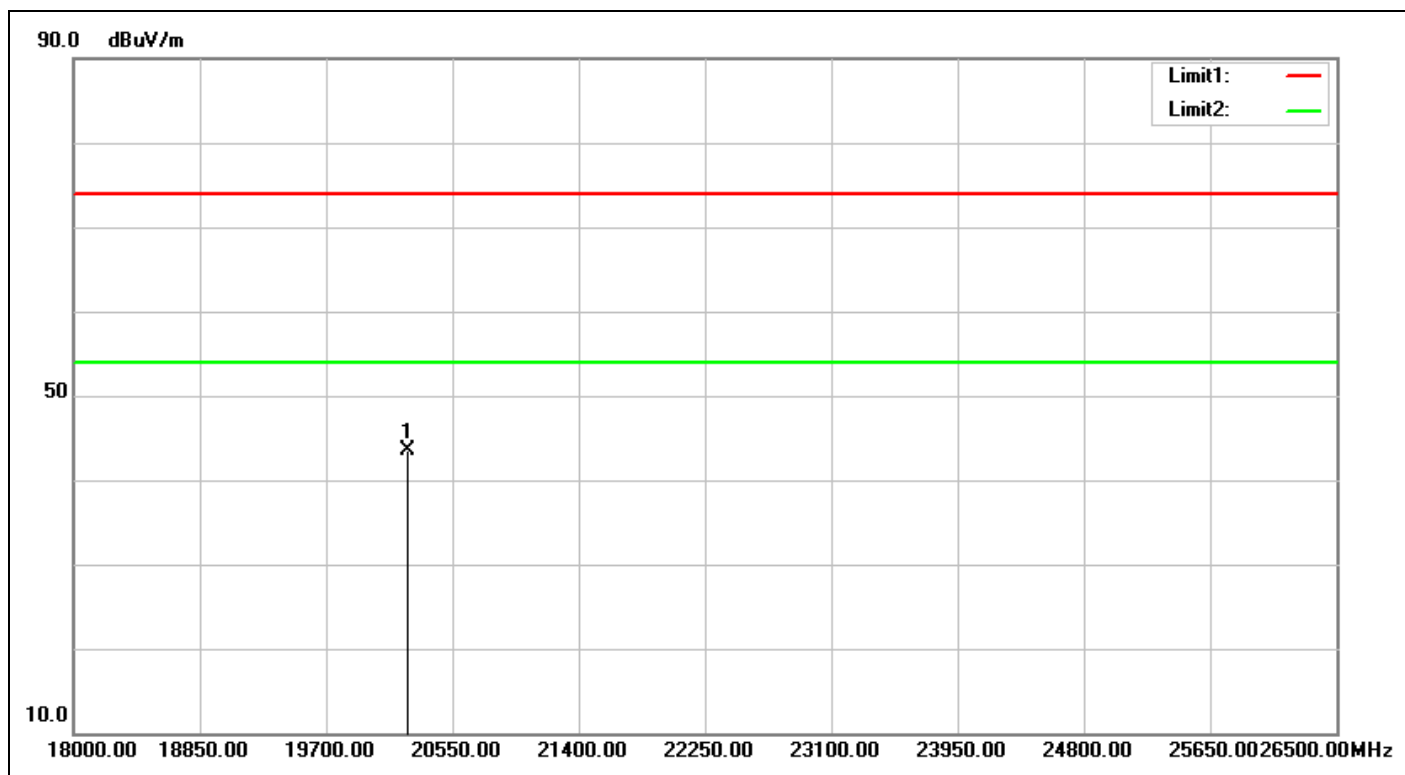
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/10/17 16:57:12
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%):	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
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	20847.500	4.61	40.28	44.89	74.00	-29.11	peak		0	



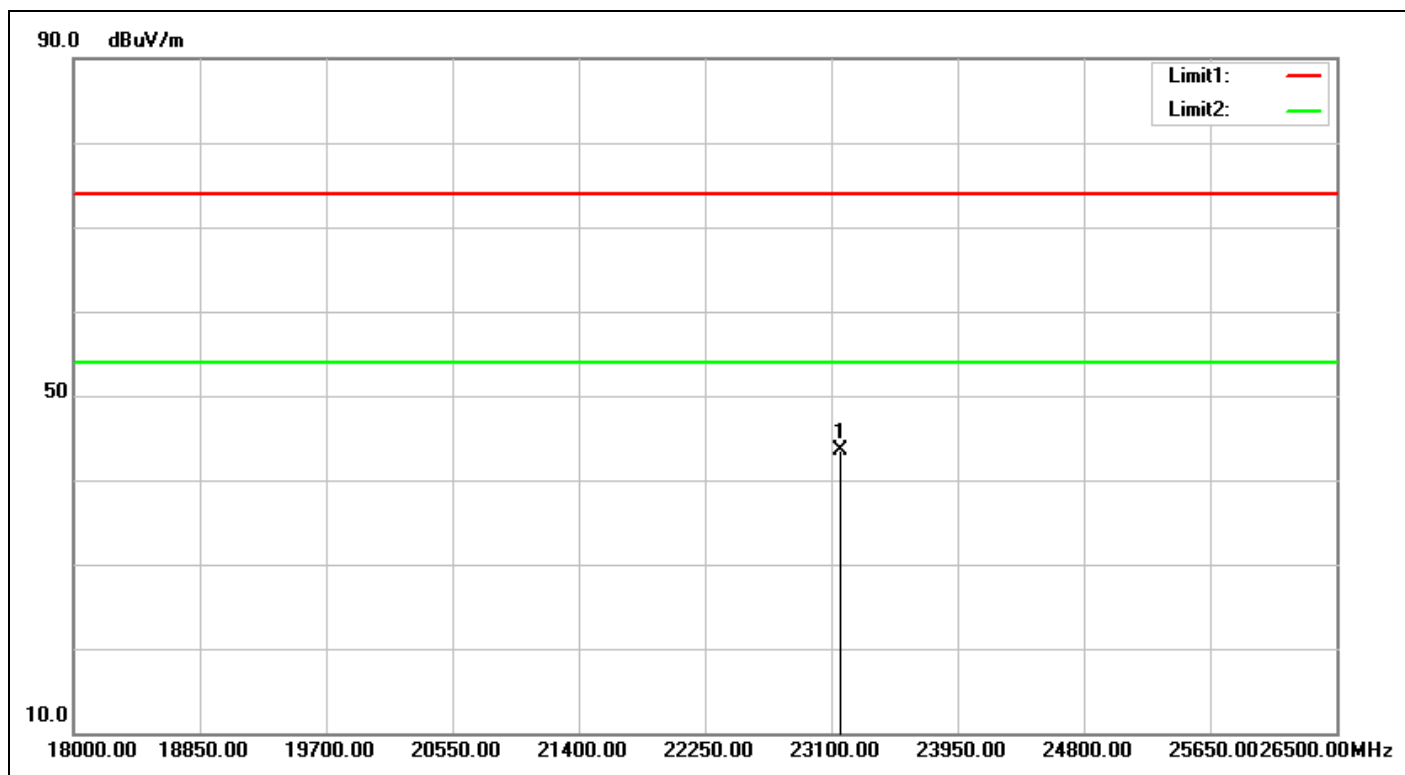
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/10/17 16:57:19
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%)	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
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	20218.500	4.24	40.62	44.86	74.00	-29.14	peak			



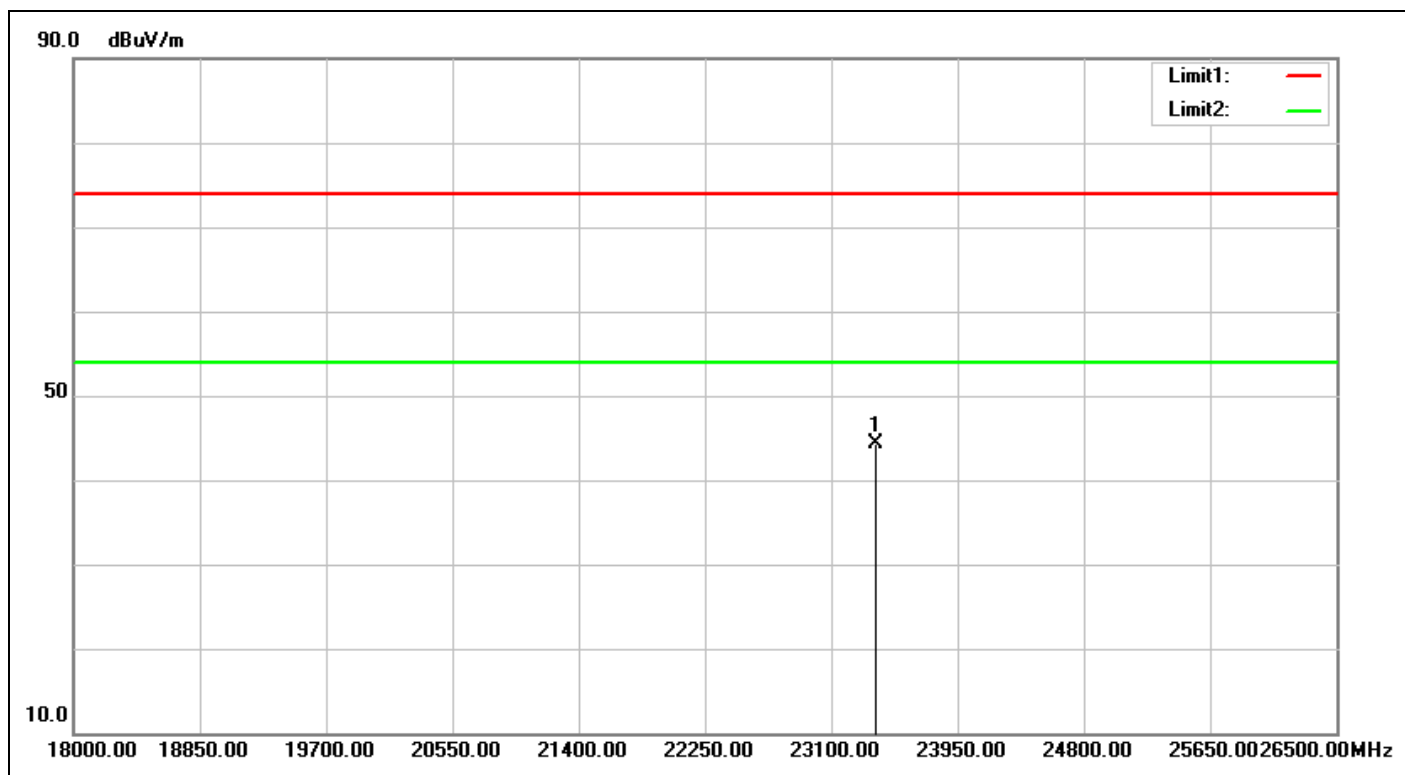
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/10/17 16:58:00
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%):	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
Test Mode:	2440-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	20244.000	4.23	39.29	43.52	74.00	-30.48	peak			



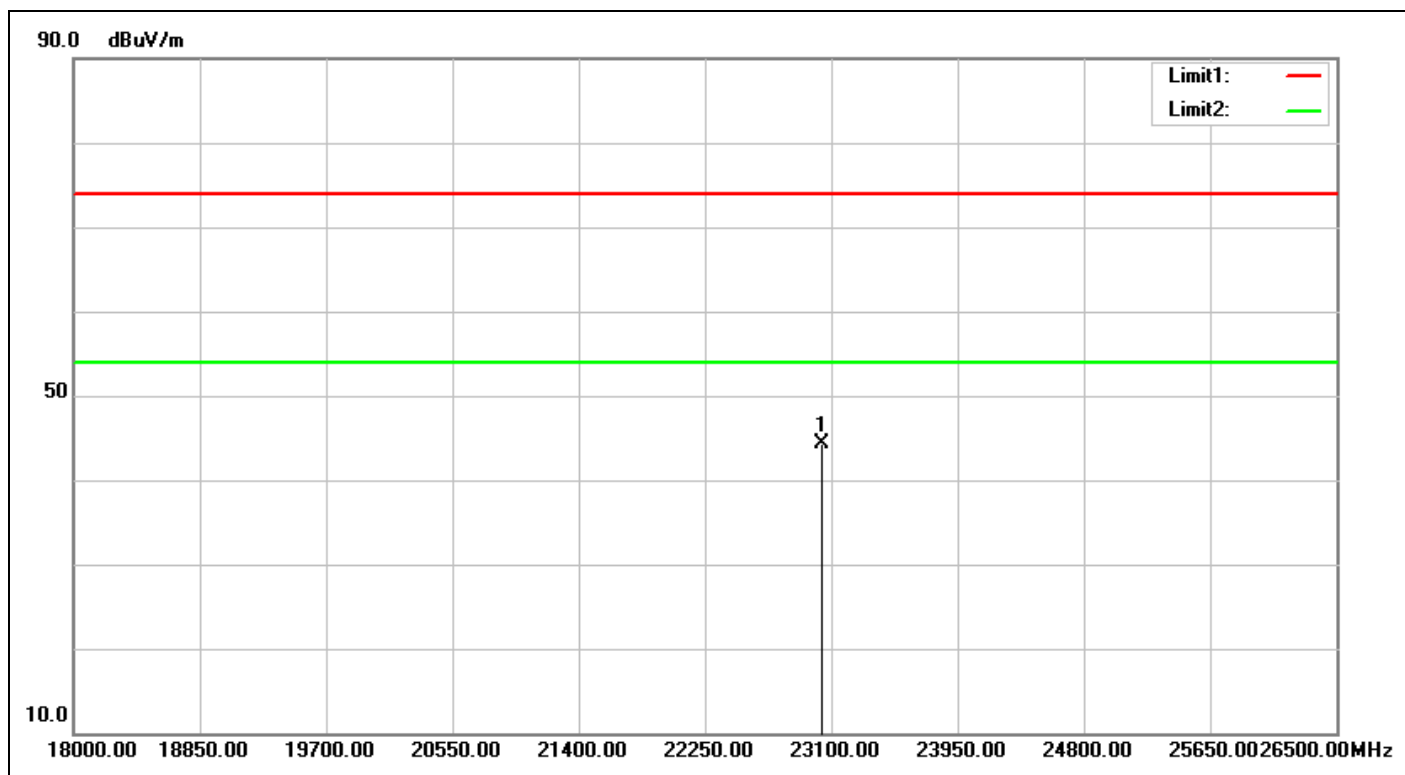
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/10/17 16:58:07
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%):	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
Test Mode:	2440-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	23159.500	5.49	38.04	43.53	74.00	-30.47	peak			



Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/10/17 16:58:48
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%):	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
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	23397.500	5.76	38.47	44.23	74.00	-29.77	peak			



Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/10/17 16:58:55
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%):	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
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	23040.500	5.35	38.89	44.24	74.00	-29.76	peak			

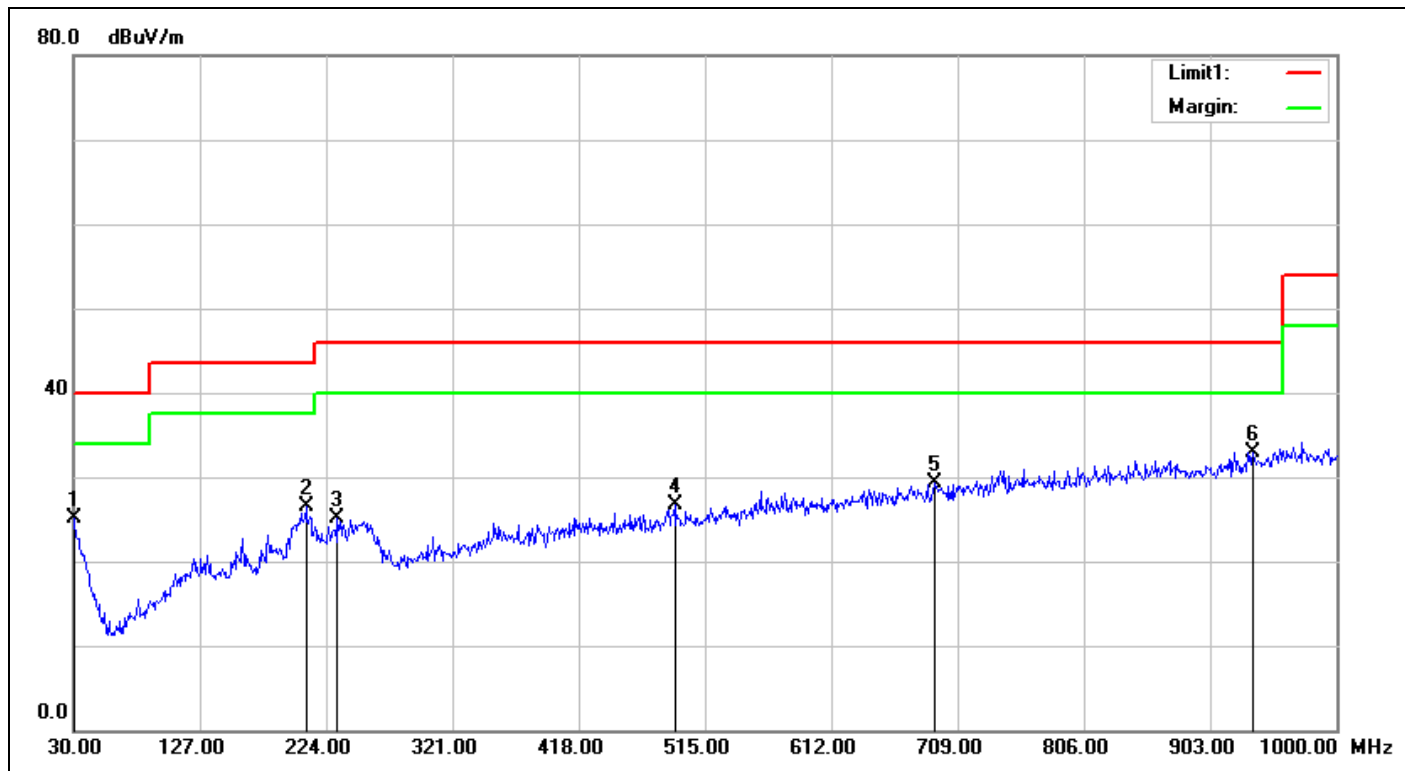
Spurious Emissions, TX Mode, 30M-1G



TUV Rheinland Taiwan Ltd.

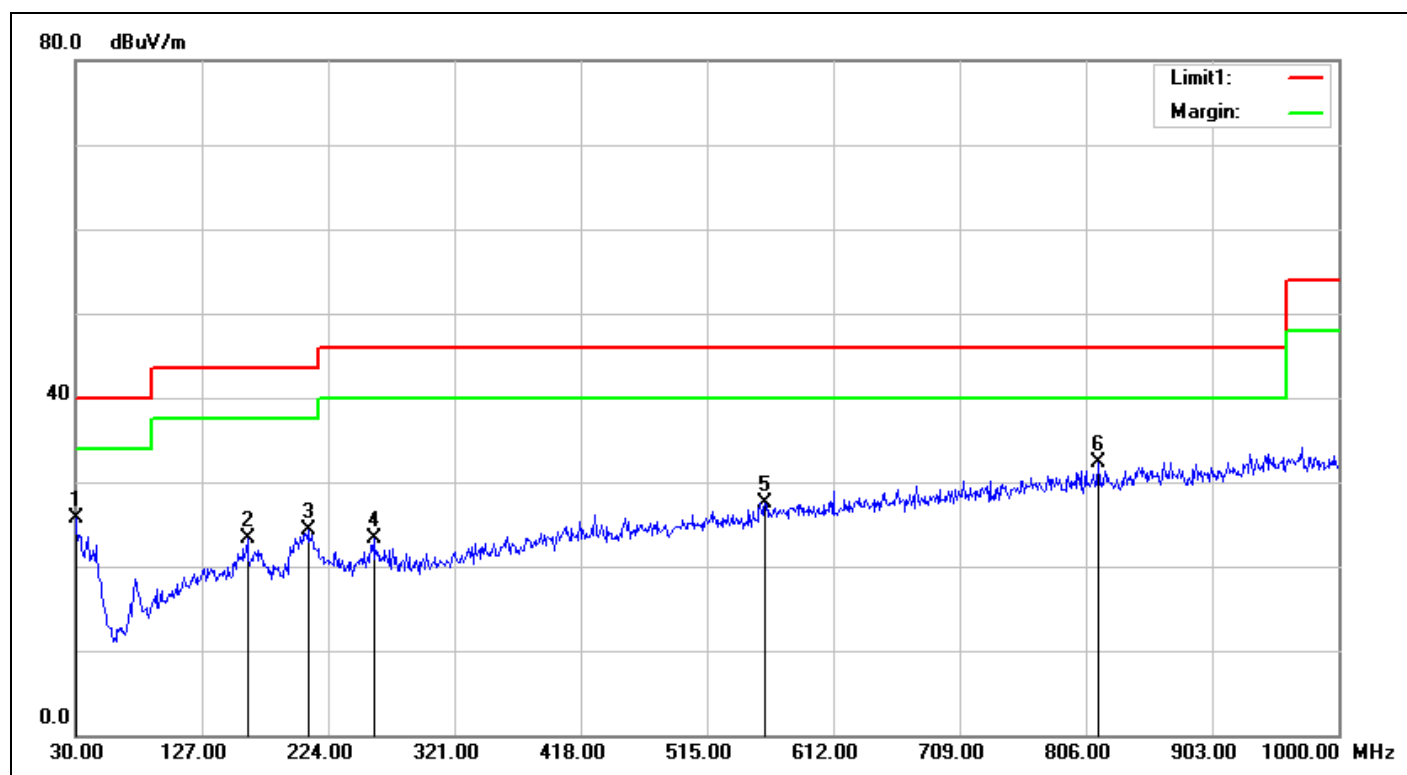
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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



Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/10/17 16:18:59
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%)	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
Test Mode:	2440-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	-0.03	25.07	25.04	40.00	-14.96	QP	100	128	
2	208.4800	-8.59	35.00	26.41	43.50	-17.09	QP	100	190	
3	232.7300	-7.35	32.43	25.08	46.00	-20.92	QP	100	240	
4	491.7200	-1.31	28.05	26.74	46.00	-19.26	QP	100	197	
5	691.5400	1.37	27.91	29.28	46.00	-16.72	QP	100	112	
6	935.9800	5.27	27.73	33.00	46.00	-13.00	QP	100	0	



Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/10/17 16:19:52
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%)	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
Test Mode:	2440-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	-0.03	25.76	25.73	40.00	-14.27	QP	100	22	
2	161.9200	-8.22	31.54	23.32	43.50	-20.18	QP	100	111	
3	208.4800	-8.59	32.80	24.21	43.50	-19.29	QP	100	187	
4	258.9200	-4.94	28.19	23.25	46.00	-22.75	QP	100	157	
5	559.6200	0.02	27.50	27.52	46.00	-18.48	QP	100	334	
6	815.7000	3.36	28.88	32.24	46.00	-13.76	QP	100	282	

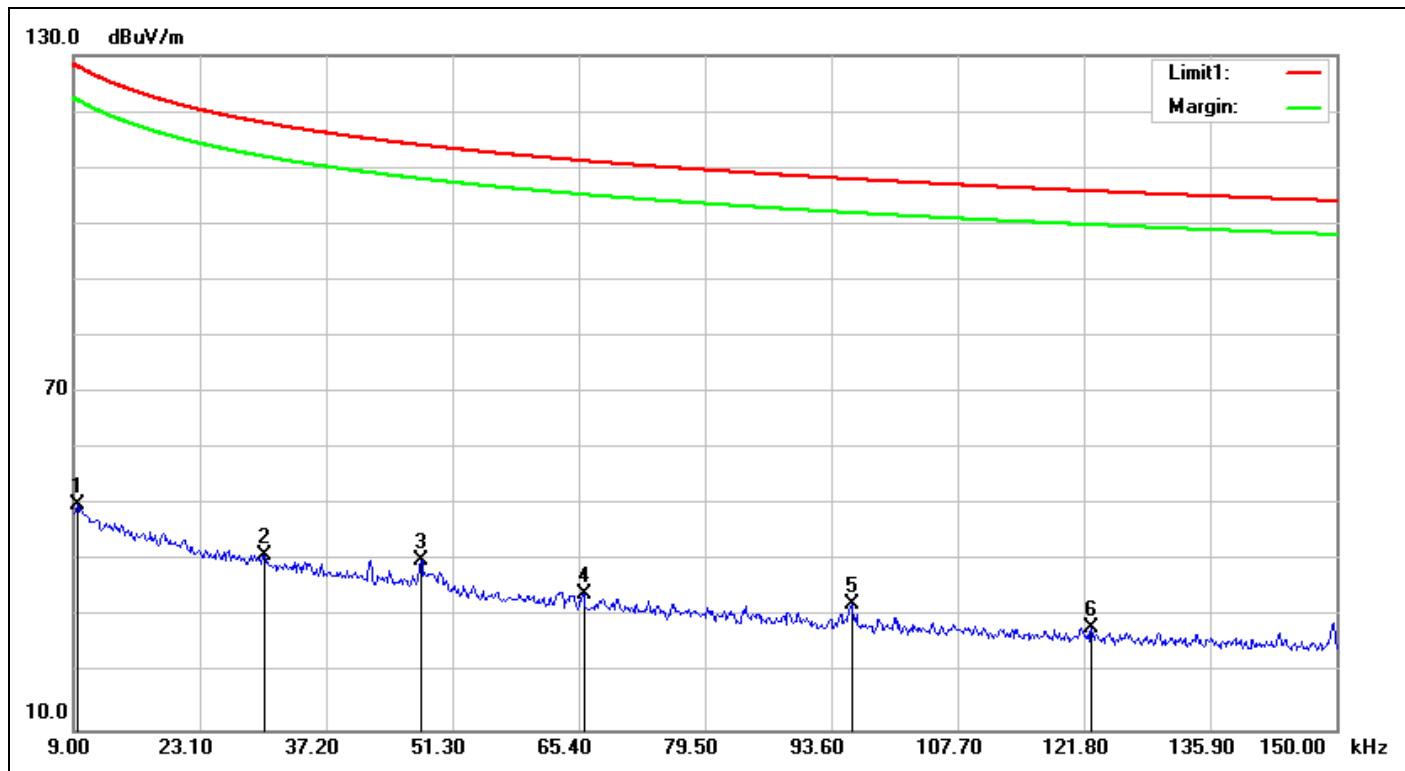
Spurious Emissions, TX Mode, 9K-30M



TUV Rheinland Taiwan Ltd.

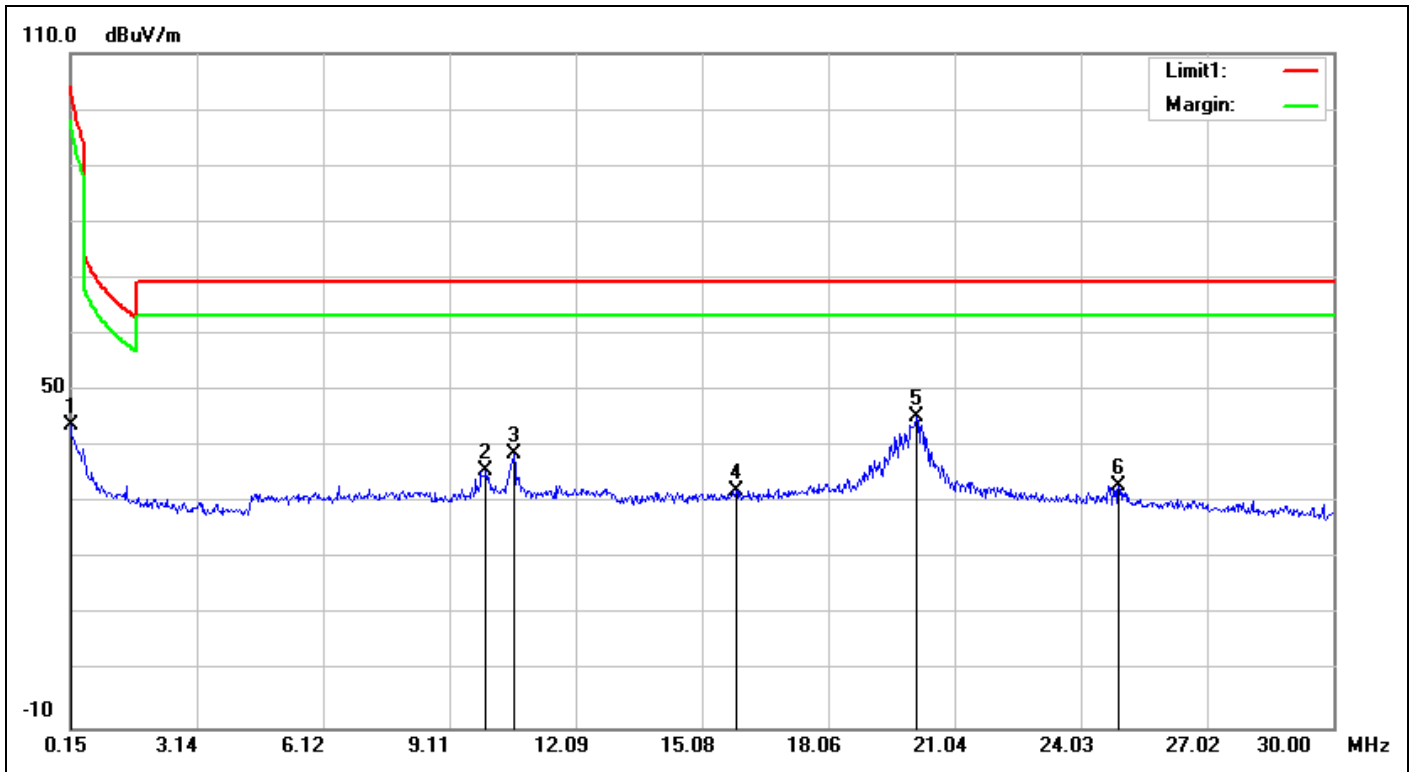
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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



Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC15.209_9k-1G_3m	Ant. Polarization:	
Test item:	Radiation Emission	Test Time:	2018/10/17 16:25:16
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%):	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
Test Mode:	2440-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.0094	18.40	31.54	49.94	128.12	-78.18	QP	100	321	
2	0.0303	19.31	21.89	41.20	117.96	-76.76	QP	100	282	
3	0.0478	18.96	21.34	40.30	114.00	-73.70	QP	100	216	
4	0.0660	18.73	15.47	34.20	111.20	-77.00	QP	100	94	
5	0.0959	18.38	13.86	32.24	107.96	-75.72	QP	100	147	
6	0.1226	18.34	9.75	28.09	105.83	-77.74	QP	100	268	



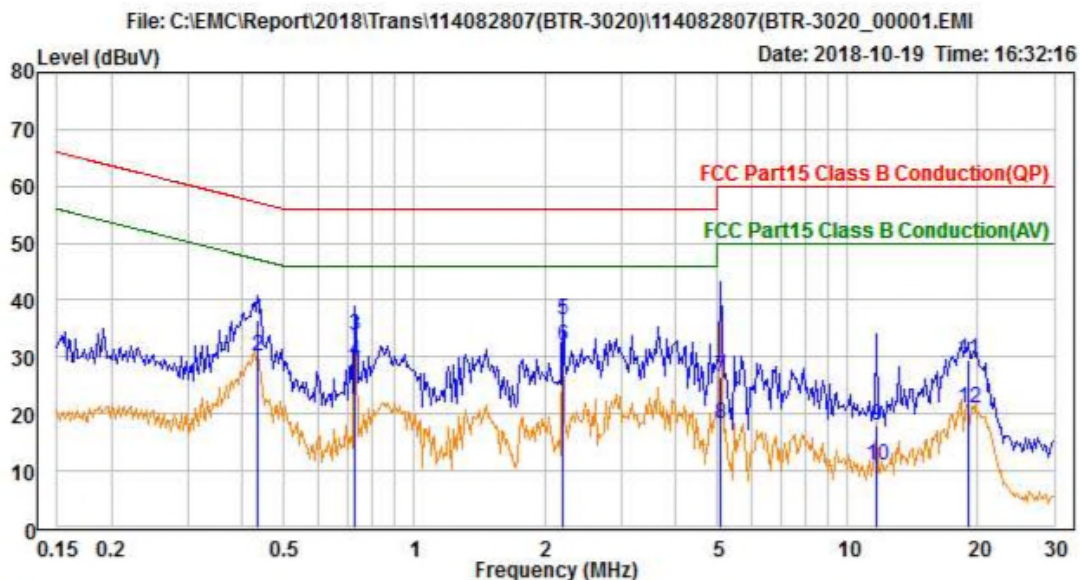
Service No.:	114082807	Test Distance:	3m
Test Standard:	FCC15.209_9k-1G_3m	Ant. Polarization:	
Test item:	Radiation Emission	Test Time:	2018/10/17 16:27:02
Applicant:	Trans Electric Co.,	Test Rating:	AC 110V
Product:	Bluetooth Music Receiver	Temp.(°C)/Hum.(%)	21(°C)/60%
Model No.:	BTR-3020	Test Engineer:	Curry Chen
Test Mode:	2440-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.1500	18.36	25.59	43.95	104.08	-60.13	QP	100	78	
2	9.9706	20.43	15.22	35.65	69.50	-33.85	QP	100	18	
3	10.6274	20.51	18.29	38.80	69.50	-30.70	QP	100	347	
4	15.8810	21.13	11.08	32.21	69.50	-37.29	QP	100	150	
5	20.1495	21.61	23.79	45.40	69.50	-24.10	QP	100	203	
6	24.9255	21.79	11.36	33.15	69.50	-36.35	QP	100	360	

Spurious Emissions, AC Mains



TUV Rheinland Taiwan Ltd.
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105
Tel:+886-2172-7000 Fax:+886-2528-0018



Trace: 1

Site : Conduction room

Condition : FCC Part15 Class B Conduction(QP) line1

Test Engineer: Amy Hsu

Applicant : Trans

Product : Bluetooth music receiver

Model No. : BTR-3020

Test Rating : 120Vac/60Hz

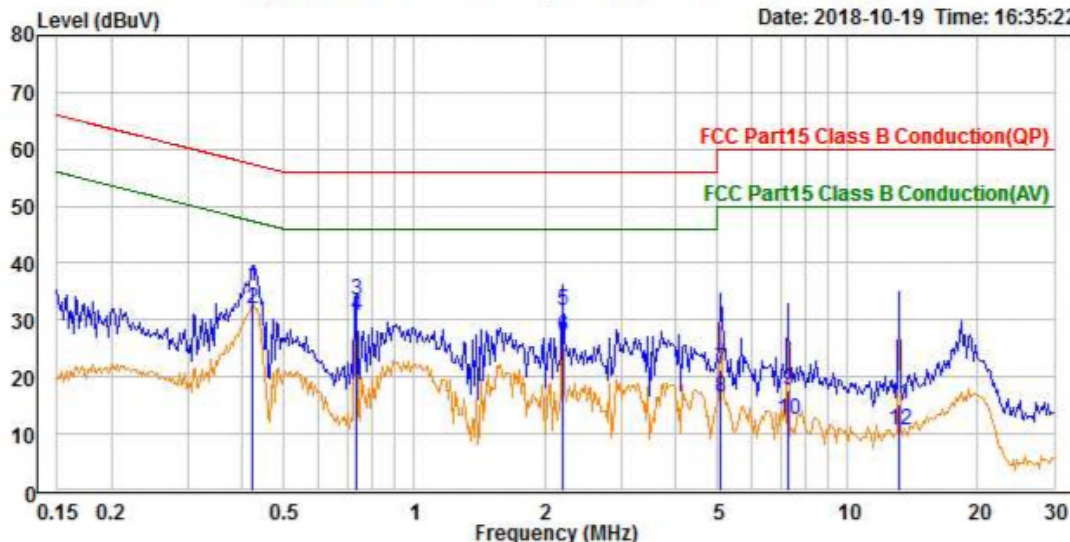
Tmp/Hum : 21.6°C/49%

Memo : BT link

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.435	26.82	9.69	36.51	57.17	-20.66	QP
2	0.435	20.43	9.69	30.12	47.17	-17.05	Average
3	0.729	24.04	9.69	33.73	56.00	-22.27	QP
4	0.729	19.61	9.69	29.30	46.00	-16.70	Average
5	2.196	26.90	9.72	36.62	56.00	-19.38	QP
6	2.196	22.31	9.72	32.03	46.00	-13.97	Average
7	5.113	16.68	9.76	26.44	60.00	-33.56	QP
8	5.113	8.43	9.76	18.19	50.00	-31.81	Average
9	11.668	8.12	9.84	17.96	60.00	-42.04	QP
10	11.668	1.16	9.84	11.00	50.00	-39.00	Average
11	18.990	19.75	9.86	29.61	60.00	-30.39	QP
12	18.990	11.10	9.86	20.96	50.00	-29.04	Average

File: C:\EMC\Report\2018\Trans\114082807(BTR-3020)\114082807(BTR-3020_00003.EMI

Date: 2018-10-19 Time: 16:35:22



Trace: 1

Site : Conduction room
Condition : FCC Part15 Class B Conduction(QP) neutral
Test Engineer: Amy Hsu
Applicant : Trans
Product : Bluetooth music receiver
Model No. : BTR-3020
Test Rating : 120Vac/60Hz
Tmp/Hum : 21.6°C /49%
Memo : BT link

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.422	26.06	9.68	35.74	57.41	-21.67	QP
2	0.422	22.17	9.68	31.85	47.41	-15.56	Average
3	0.736	23.88	9.69	33.57	56.00	-22.43	QP
4	0.736	20.90	9.69	30.59	46.00	-15.41	Average
5	2.196	21.82	9.72	31.54	56.00	-24.46	QP
6	2.196	17.38	9.72	27.10	46.00	-18.90	Average
7	5.113	11.46	9.77	21.23	60.00	-38.77	QP
8	5.113	6.75	9.77	16.52	50.00	-33.48	Average
9	7.313	7.84	9.80	17.64	60.00	-42.36	QP
10	7.313	2.81	9.80	12.61	50.00	-37.39	Average
11	13.146	5.25	9.86	15.11	60.00	-44.89	QP
12	13.146	0.75	9.86	10.61	50.00	-39.39	Average