

Test Report No.50054896 001

Appendix D: Radiated and Mains Spurious Emission Data

(File: 50054896AppendixD)

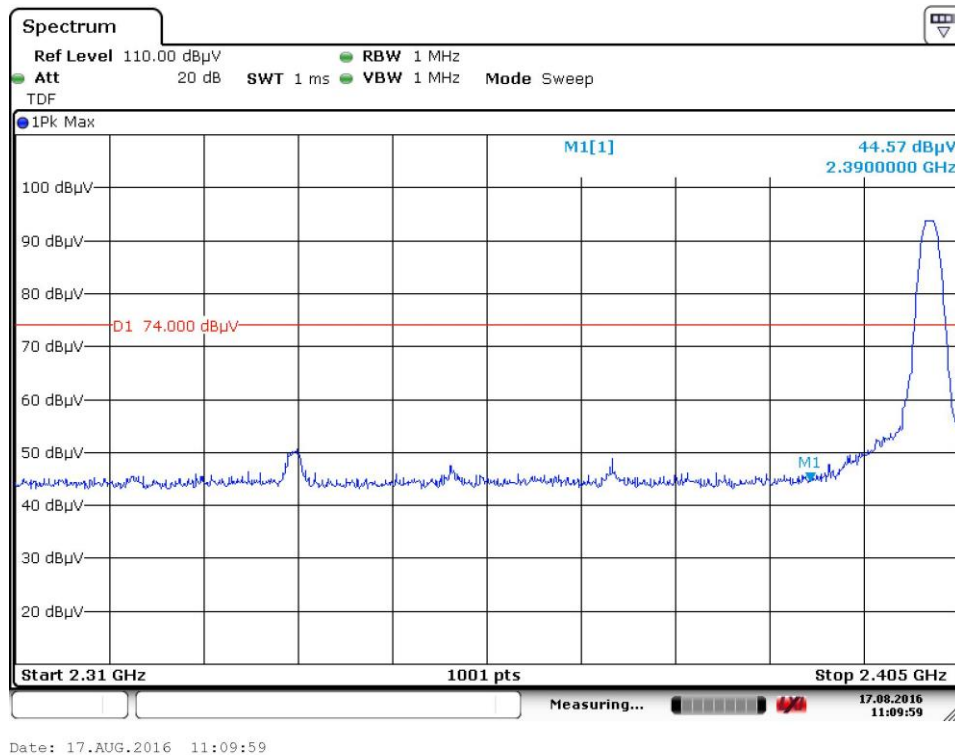
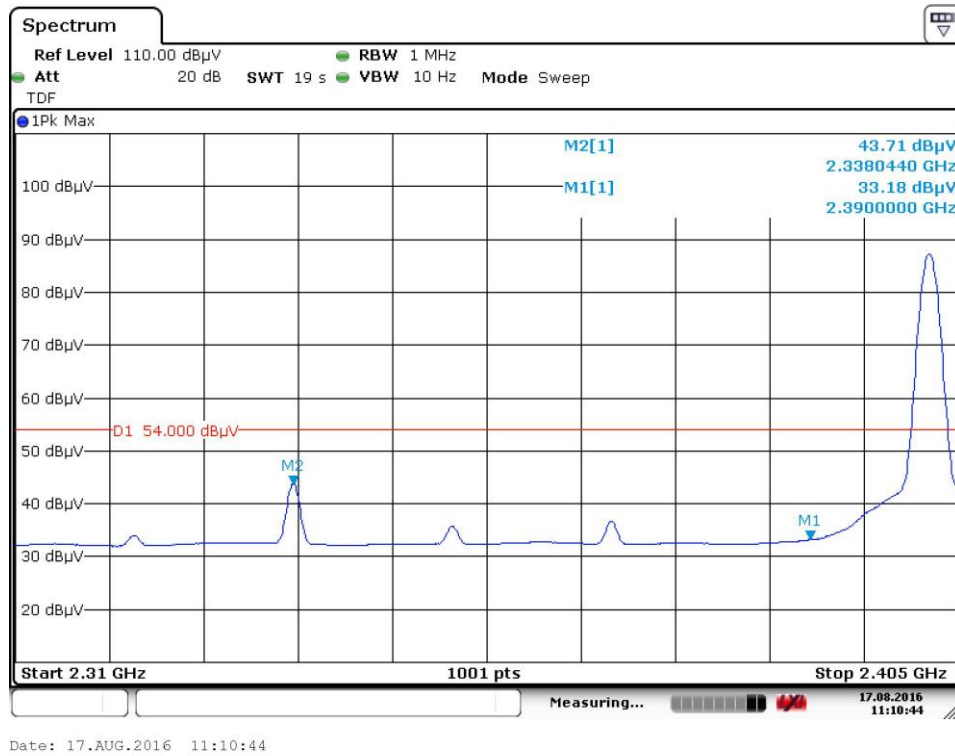
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Spurious Emissions, Band Edges, 2.35-2.5G

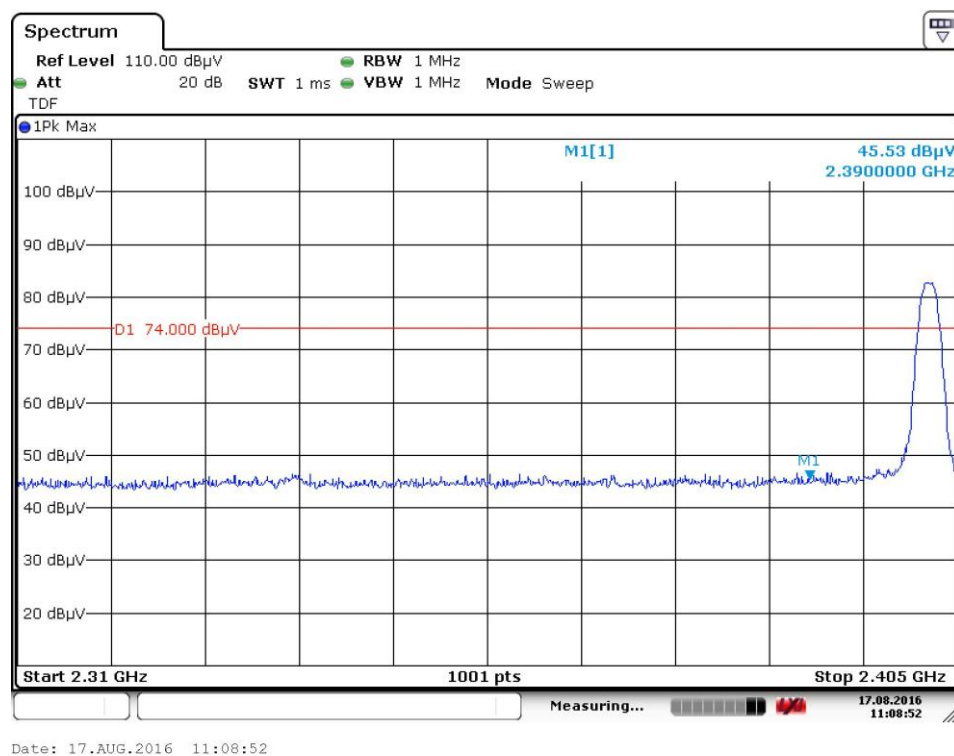
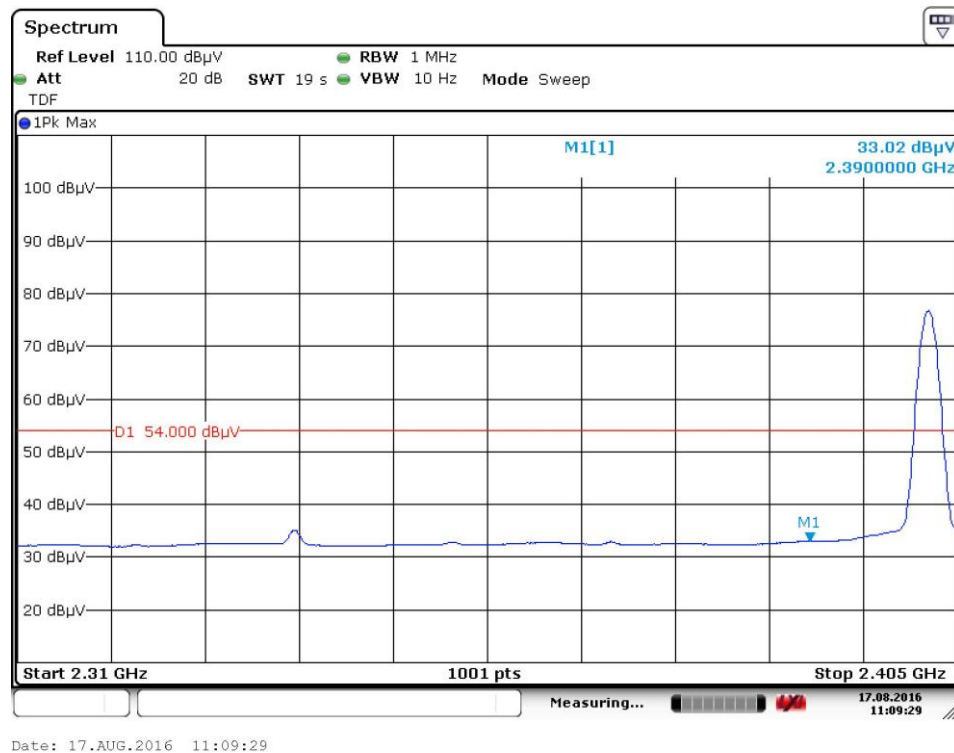
Radiated Bandedge (GFSK)

Low Channel (Hor)



Spurious Emissions, Band Edge, 2.35-2.5G

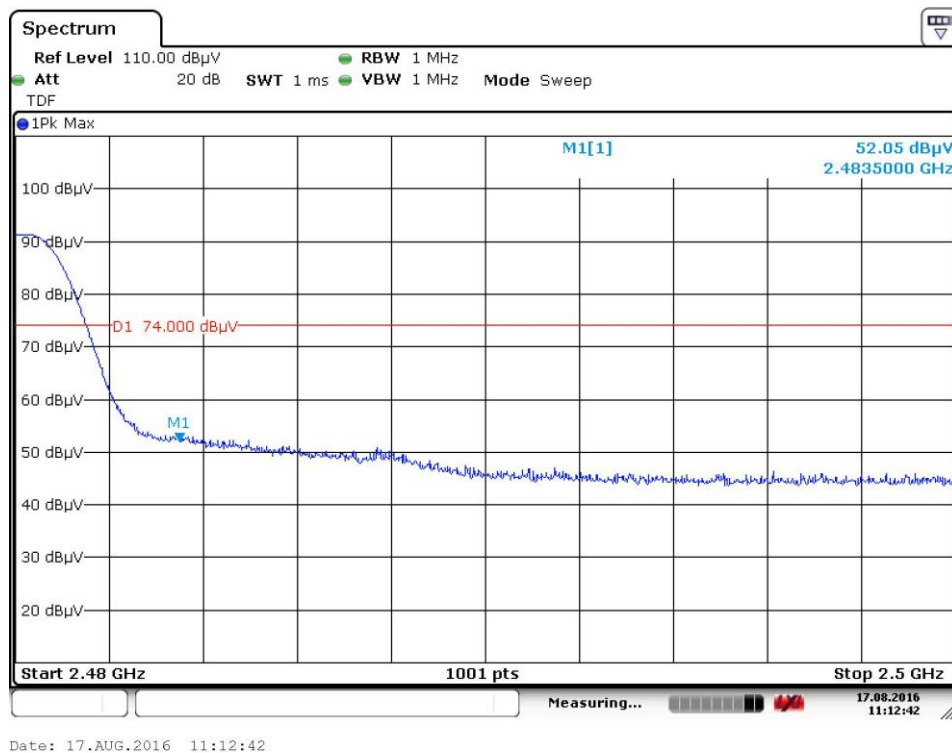
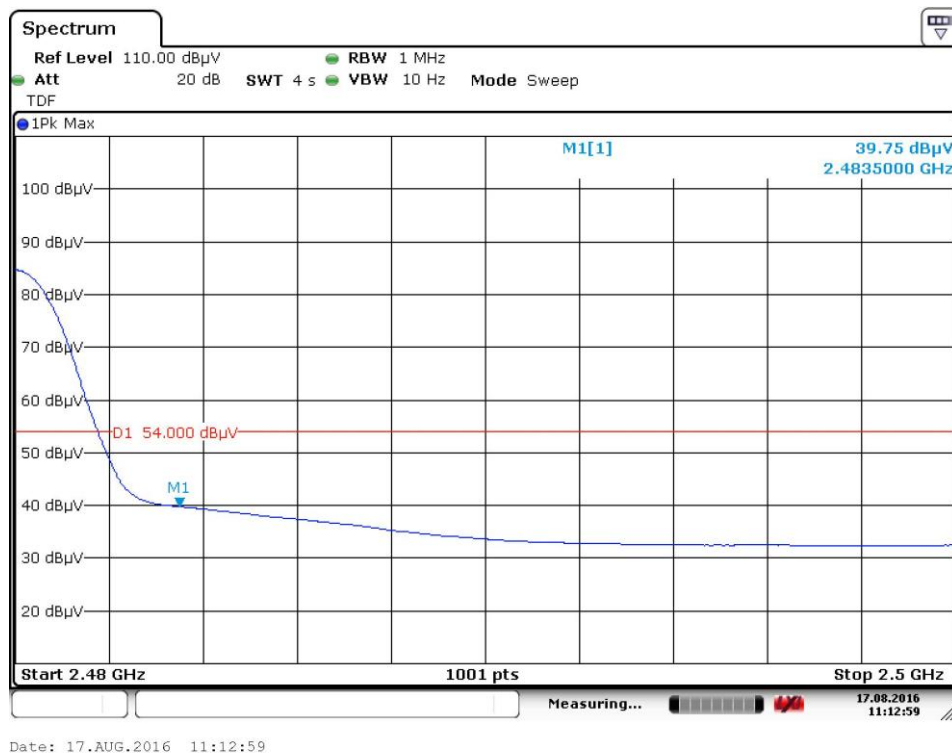
Low Channel (Ver)



Spurious Emissions, Band Edge, 2.35-2.5G

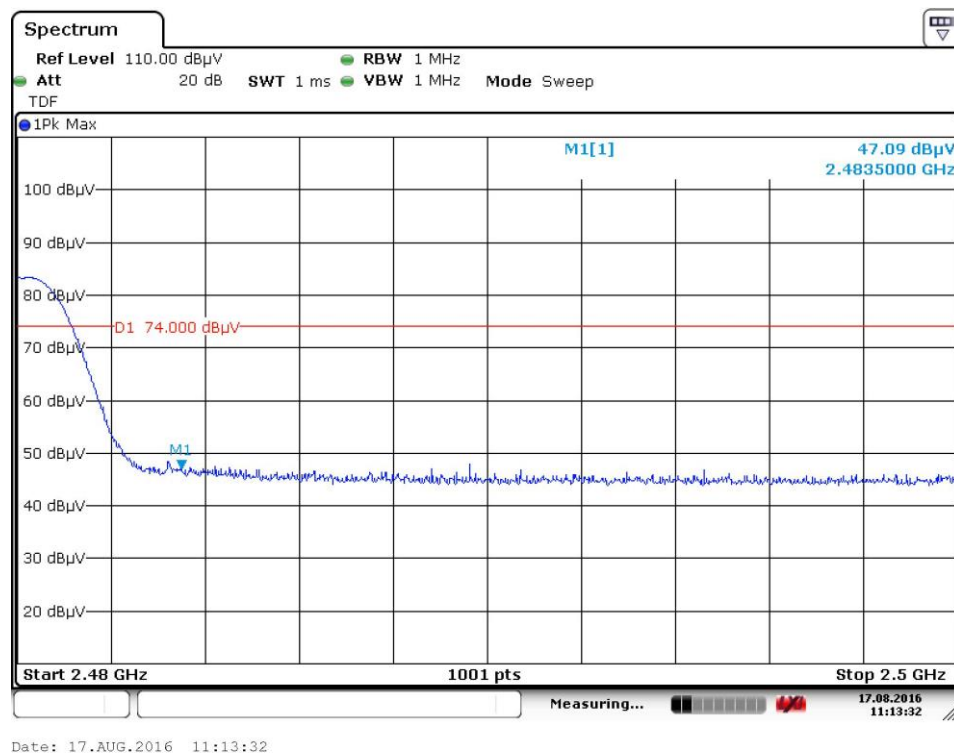
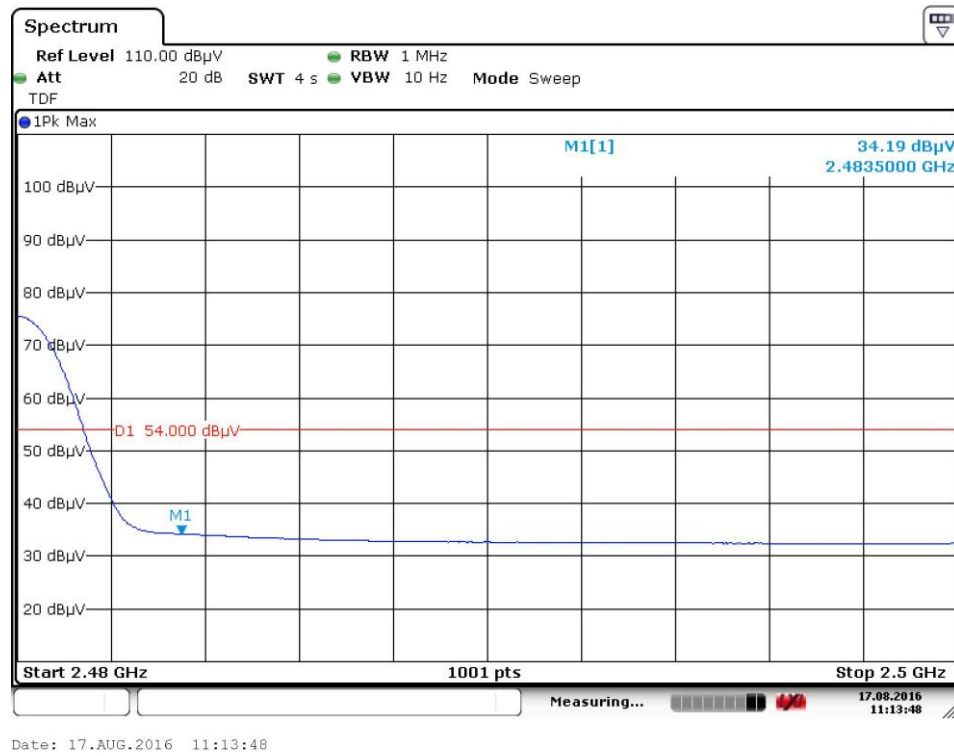
Radiated Bandedge (GFSK)

High Channel (Hor)



Spurious Emissions, Band Edge, 2.35-2.5G

High Channel (Ver)



Spurious Emissions, Band Edge, 2.35-2.5G

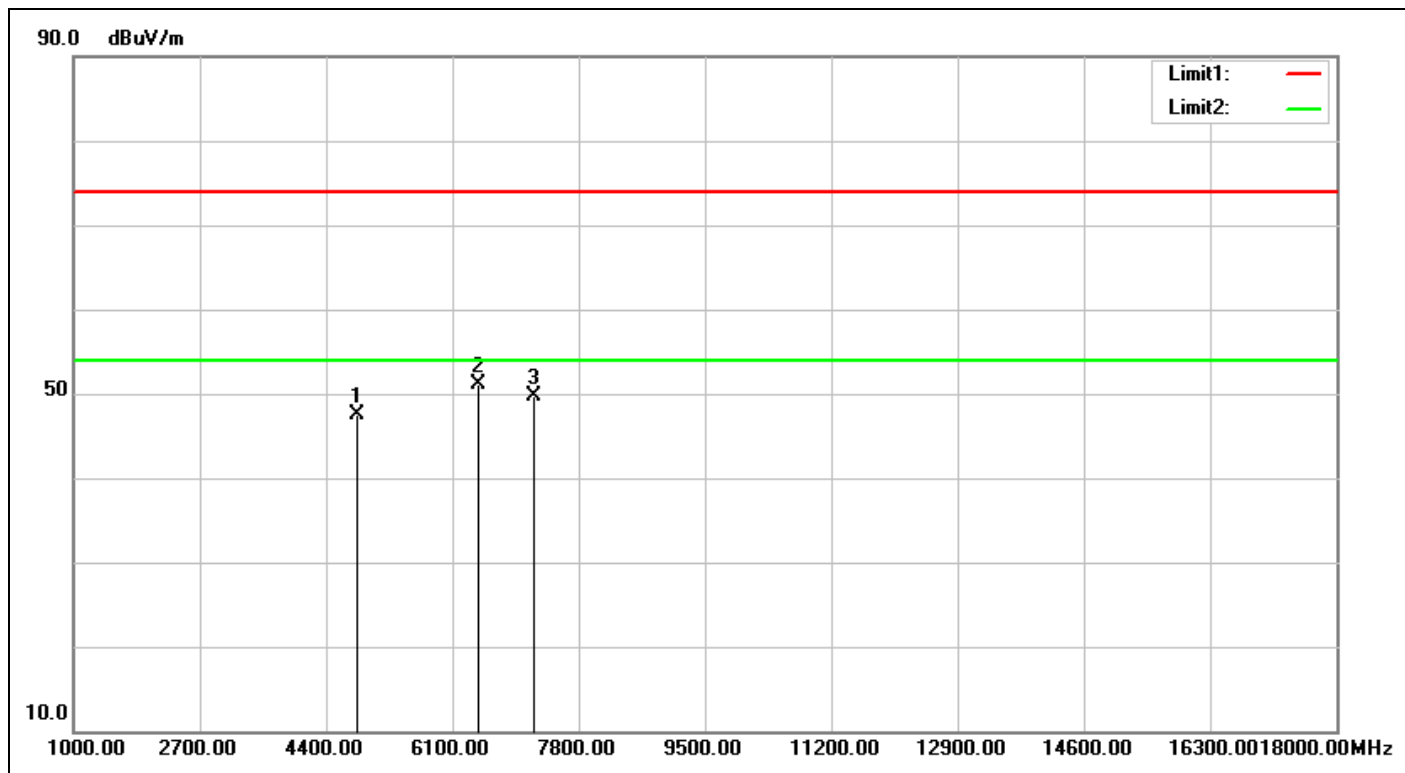
Spurious Emissions, TX Mode, 1-18G



TUV Taiwan

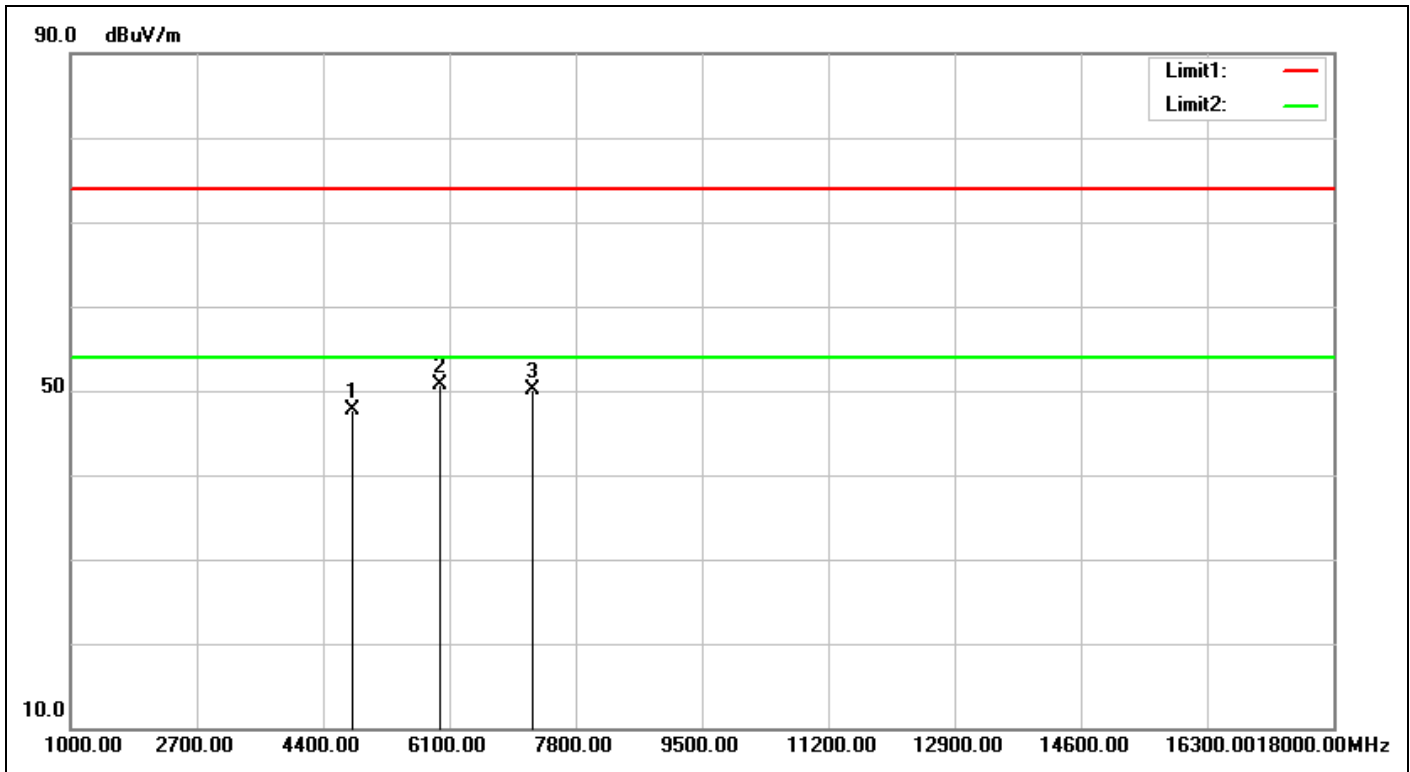
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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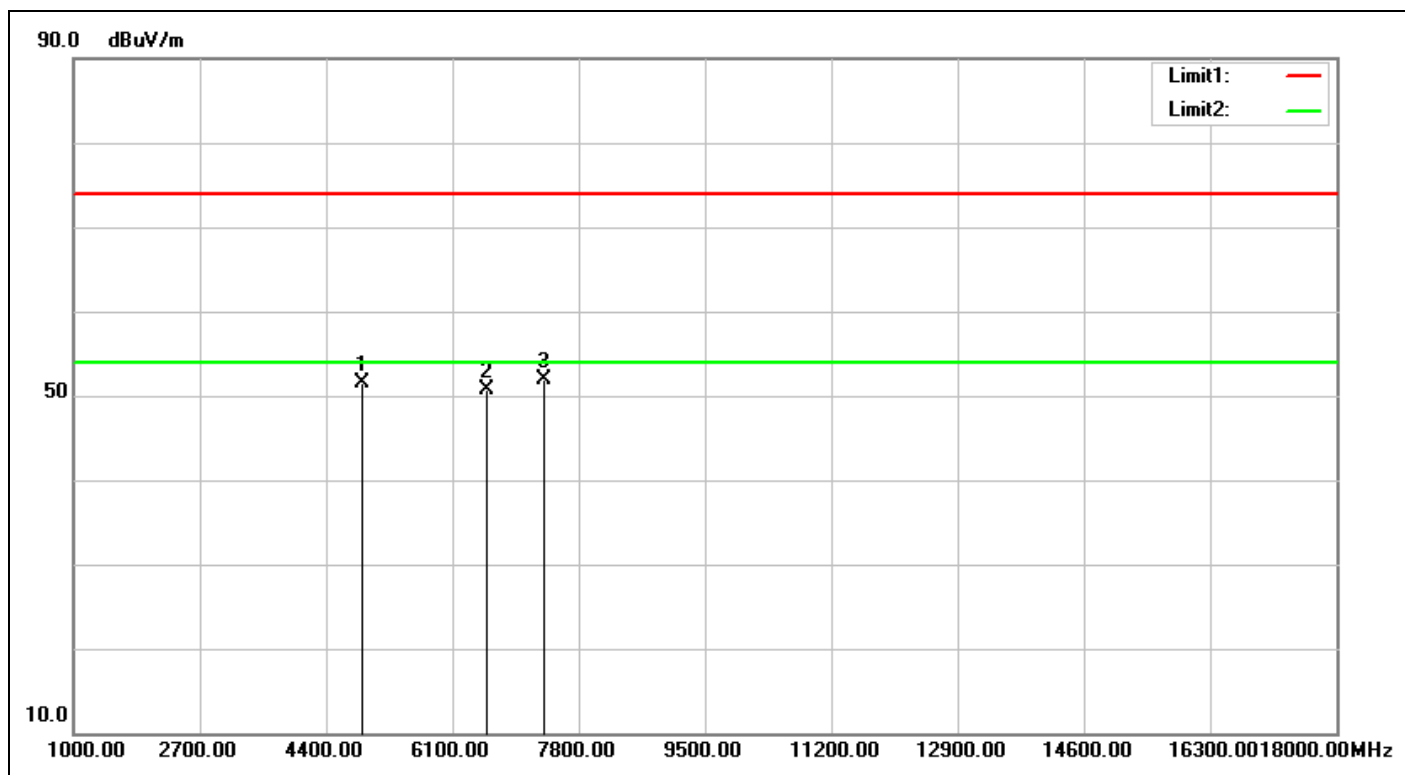
Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2016/8/17 10:04:33
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	Test Engineer:	George 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	-2.64	50.19	47.55	74.00	-26.45	peak		0	
2	6457.000	5.38	45.67	51.05	74.00	-22.95	peak	100	85	
3	7206.000	5.57	44.19	49.76	74.00	-24.24	peak		0	



Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2016/8/17 10:05:35
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	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	-2.64	50.31	47.67	74.00	-26.33	peak			
2	5981.000	3.79	46.94	50.73	74.00	-23.27	peak	100	319	
3	7206.000	5.57	44.58	50.15	74.00	-23.85	peak			



Service No.: 20160817(ZPP004T)

Test Distance: 3m

Test Standard: FCC Above 1G PEAK

Ant. Polarization: Horizontal

Test item: Radiation Emission

Test Time: 2016/8/17 10:09:40

Applicant: Zeroplus

Test Rating: 5Vdc via USB

Product: SNIPER

Temp.(°C)/Hum.(%): 22.6(°C)/53%

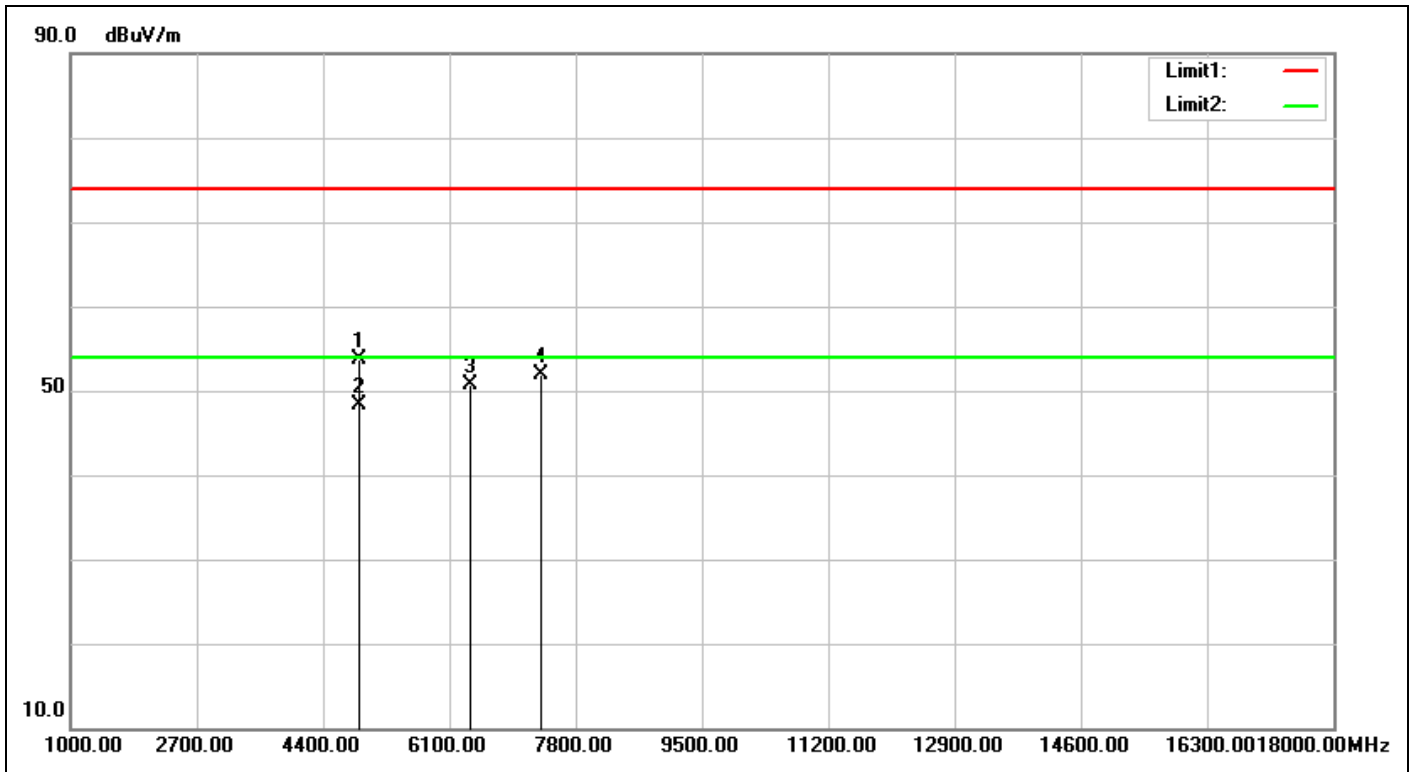
Model No.: ZPP004T

Test Engineer: George Yang

Test Mode: 2440-TX

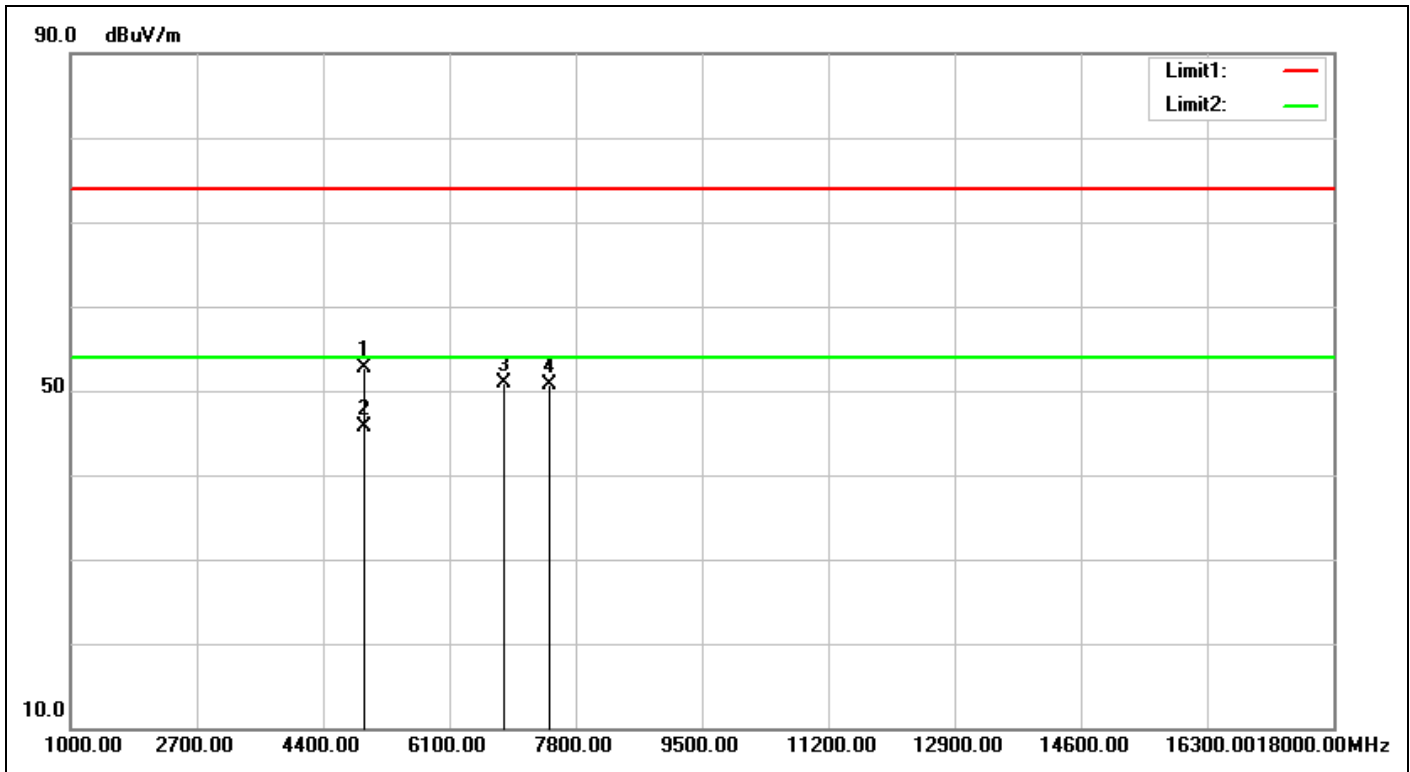
Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4876.000	-2.47	53.96	51.49	74.00	-22.51	peak	100	332	
2	6559.000	5.46	45.15	50.61	74.00	-23.39	peak	100	33	
3	7320.000	5.90	45.98	51.88	74.00	-22.12	peak	100	77	



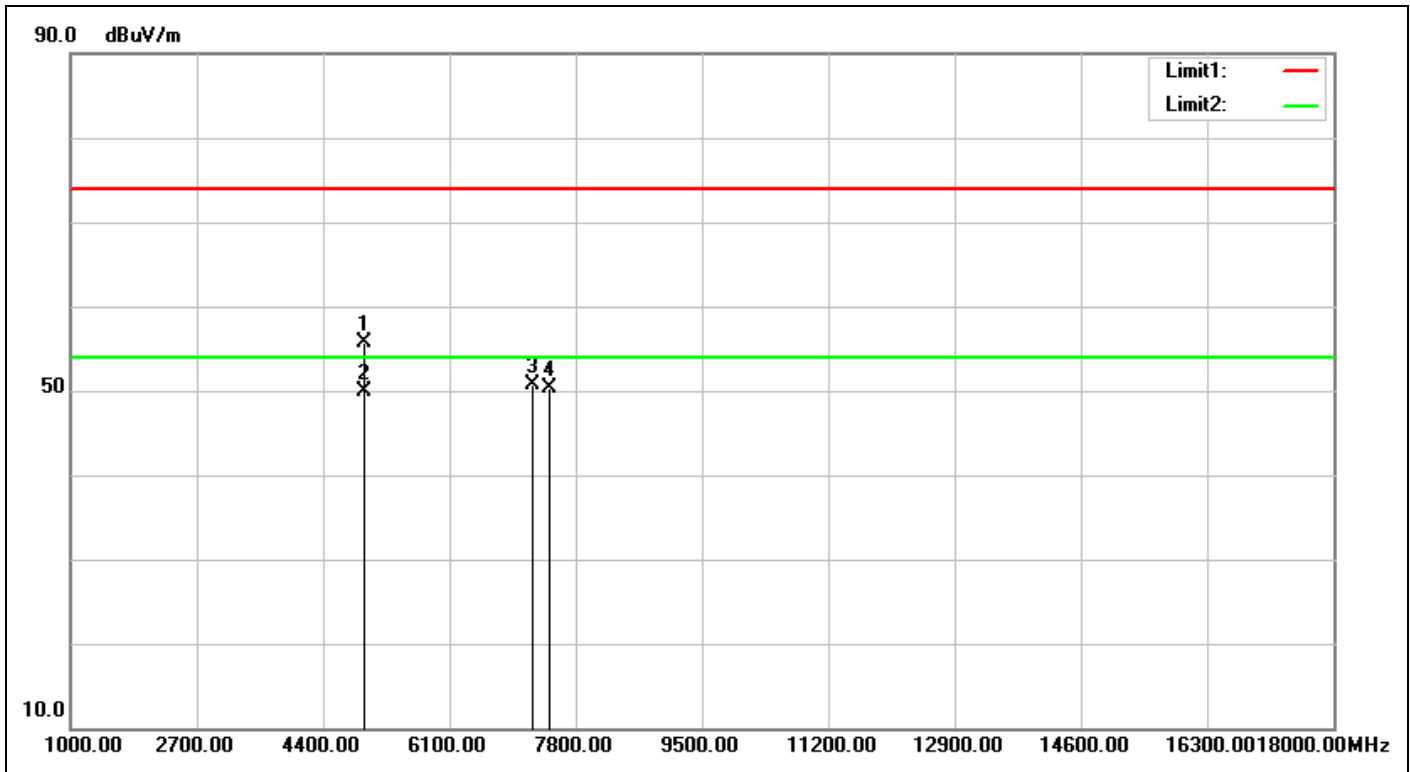
Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2016/8/17 10:10:43
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	Test Engineer:	George Yang
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	-2.47	56.26	53.79	74.00	-20.21	peak	100	230	
2	4880.000	-2.47	50.69	48.22	54.00	-5.78	AVG	100	230	
3	6389.000	5.17	45.47	50.64	74.00	-23.36	peak	100	111	
4	7320.000	5.90	46.03	51.93	74.00	-22.07	peak		0	



Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2016/8/17 10:18:19
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	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	4960.000	-2.30	55.04	52.74	74.00	-21.26	peak	100	15	
2	4960.000	-2.30	48.09	45.79	54.00	-8.21	AVG	100	15	
3	6831.000	5.16	45.67	50.83	74.00	-23.17	peak	100	211	
4	7440.000	6.24	44.39	50.63	74.00	-23.37	peak			



Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2016/8/17 10:19:22
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	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	4960.000	-2.30	57.93	55.63	74.00	-18.37	peak	100	218	
2	4960.000	-2.30	52.24	49.94	54.00	-4.06	AVG	100	218	
3	7222.000	5.63	45.10	50.73	74.00	-23.27	peak	100	55	
4	7440.000	6.24	44.11	50.35	74.00	-23.65	peak			

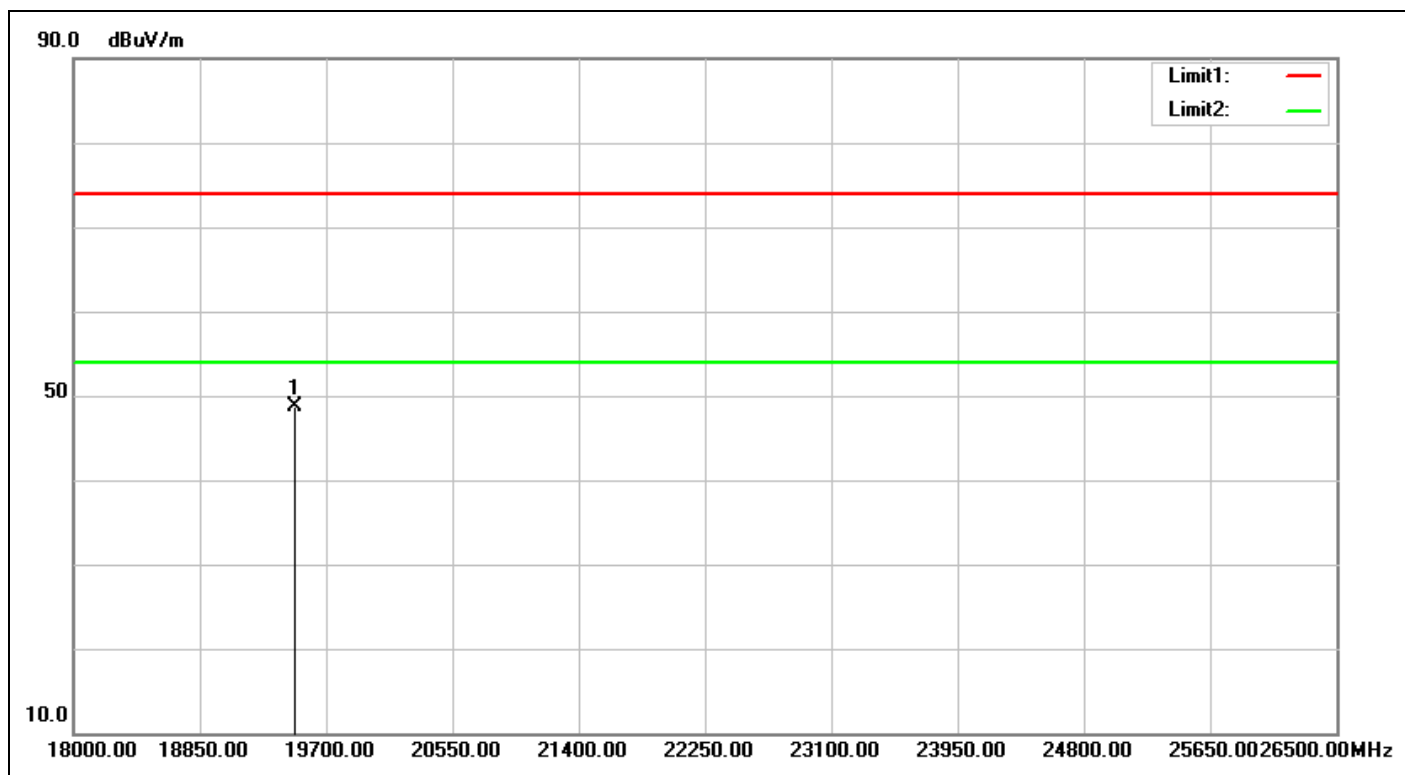
Spurious Emissions, TX Mode, 18-26G



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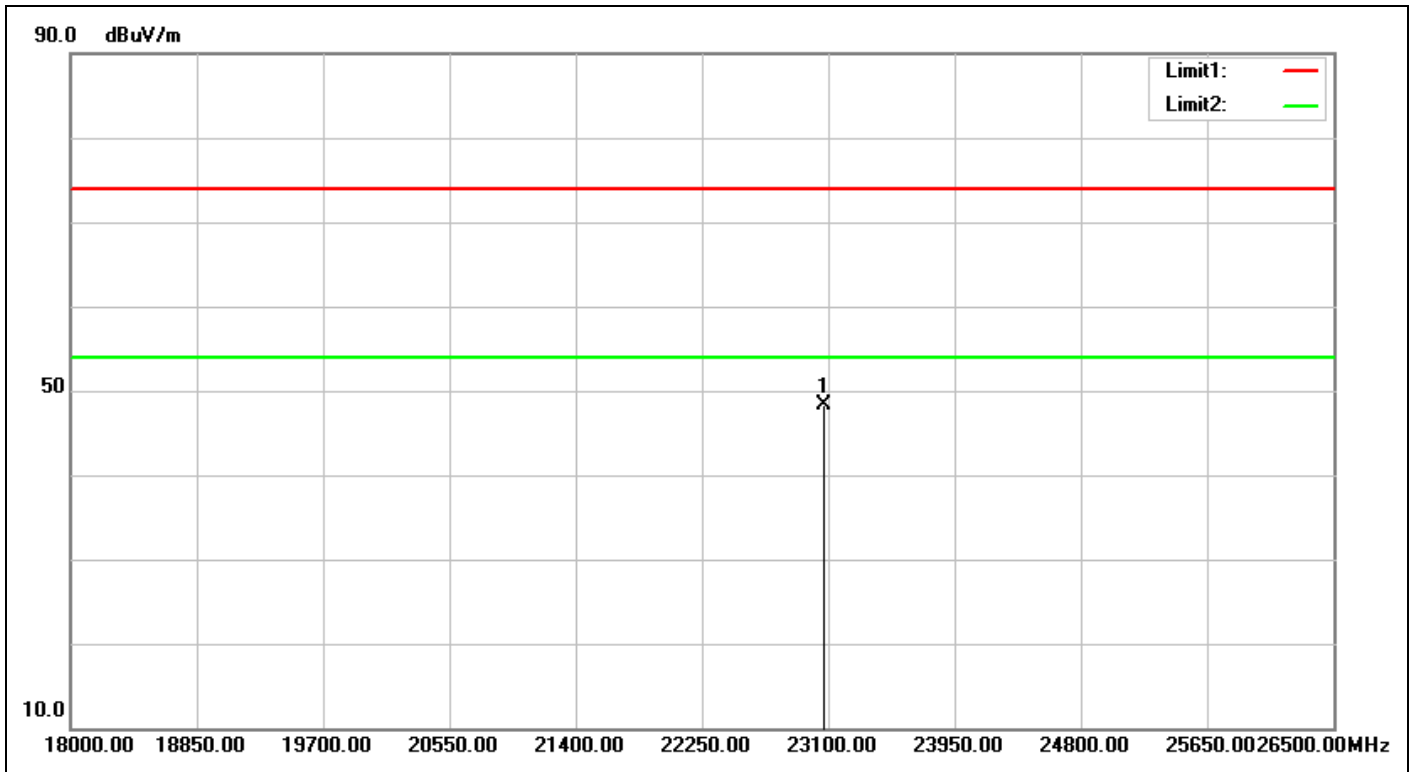
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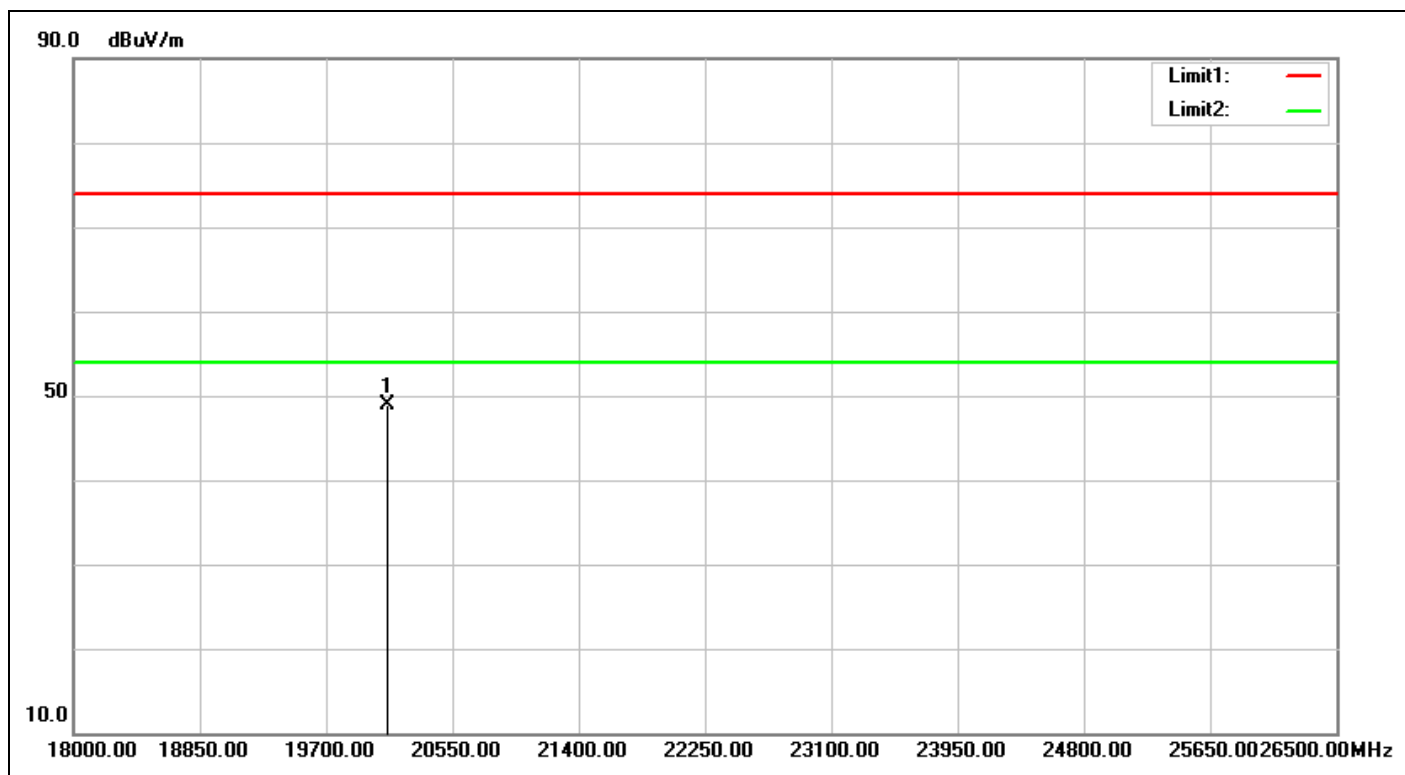
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Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2016/8/17 11:10:23
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	Test Engineer:	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	19487.500	29.58	19.08	48.66	74.00	-25.34	peak		0	



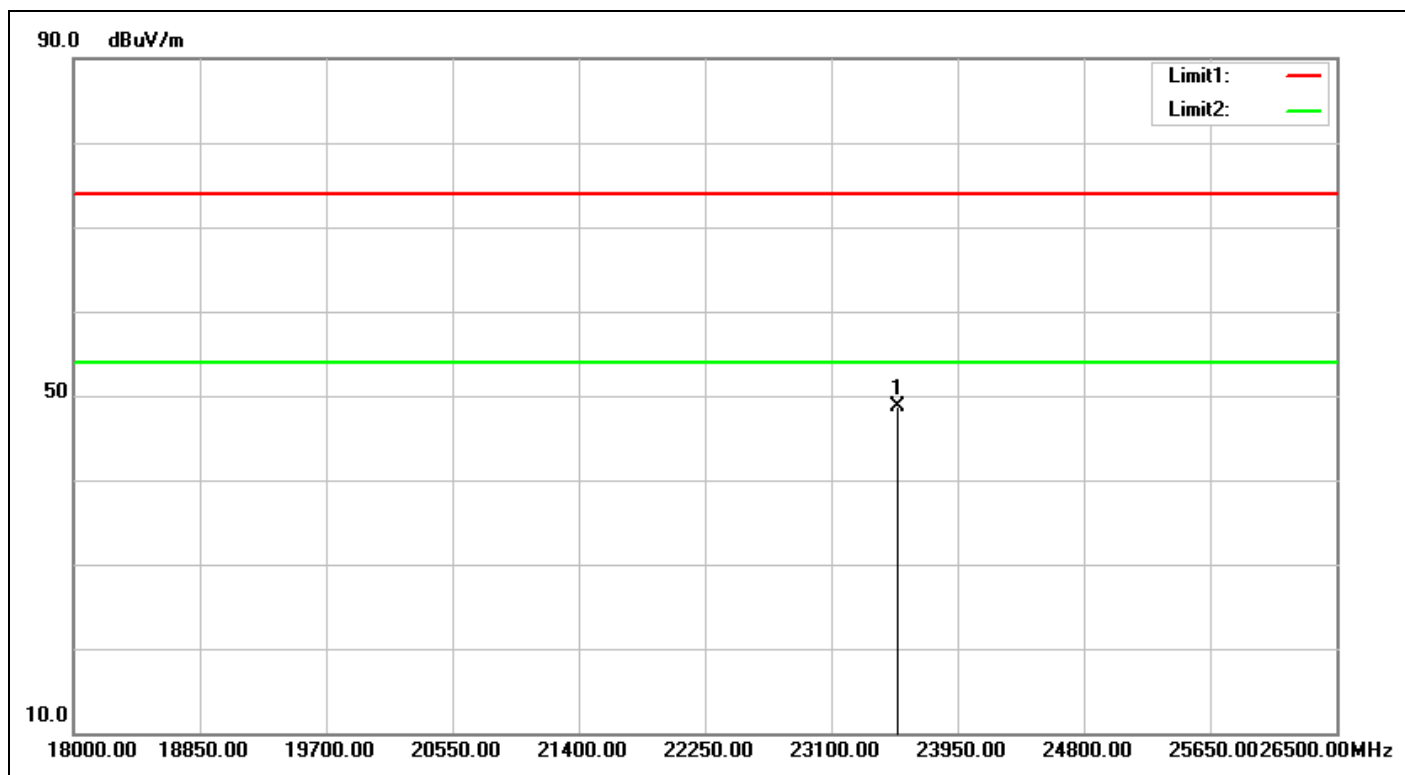
Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2016/8/17 11:10:32
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	Test Engineer:	George 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	23074.500	30.00	18.30	48.30	74.00	-25.70	peak			



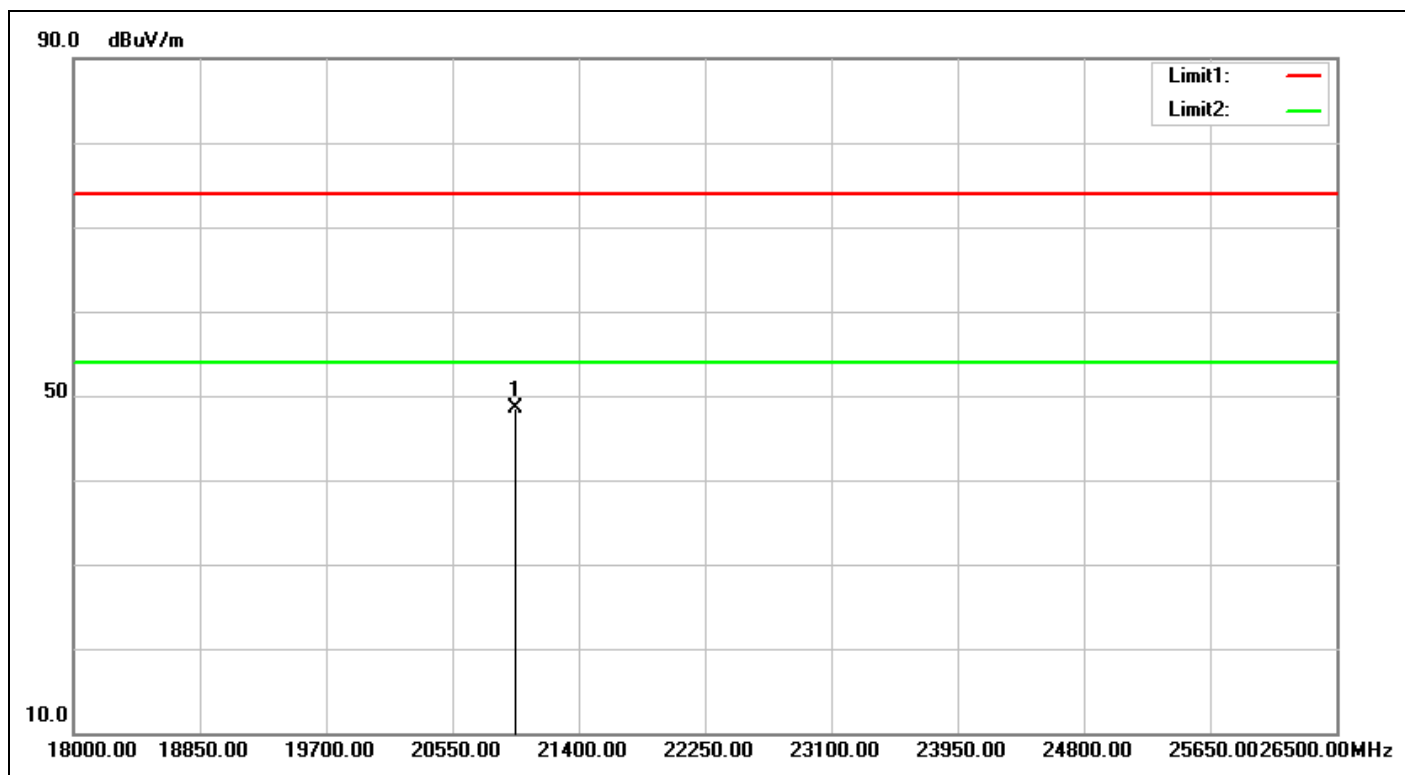
Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2016/8/17 11:12:21
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%)	22.6(°C)/53%
Model No.:	ZPP004T	Test Engineer:	George Yang
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	20116.500	29.80	19.03	48.83	74.00	-25.17	peak			



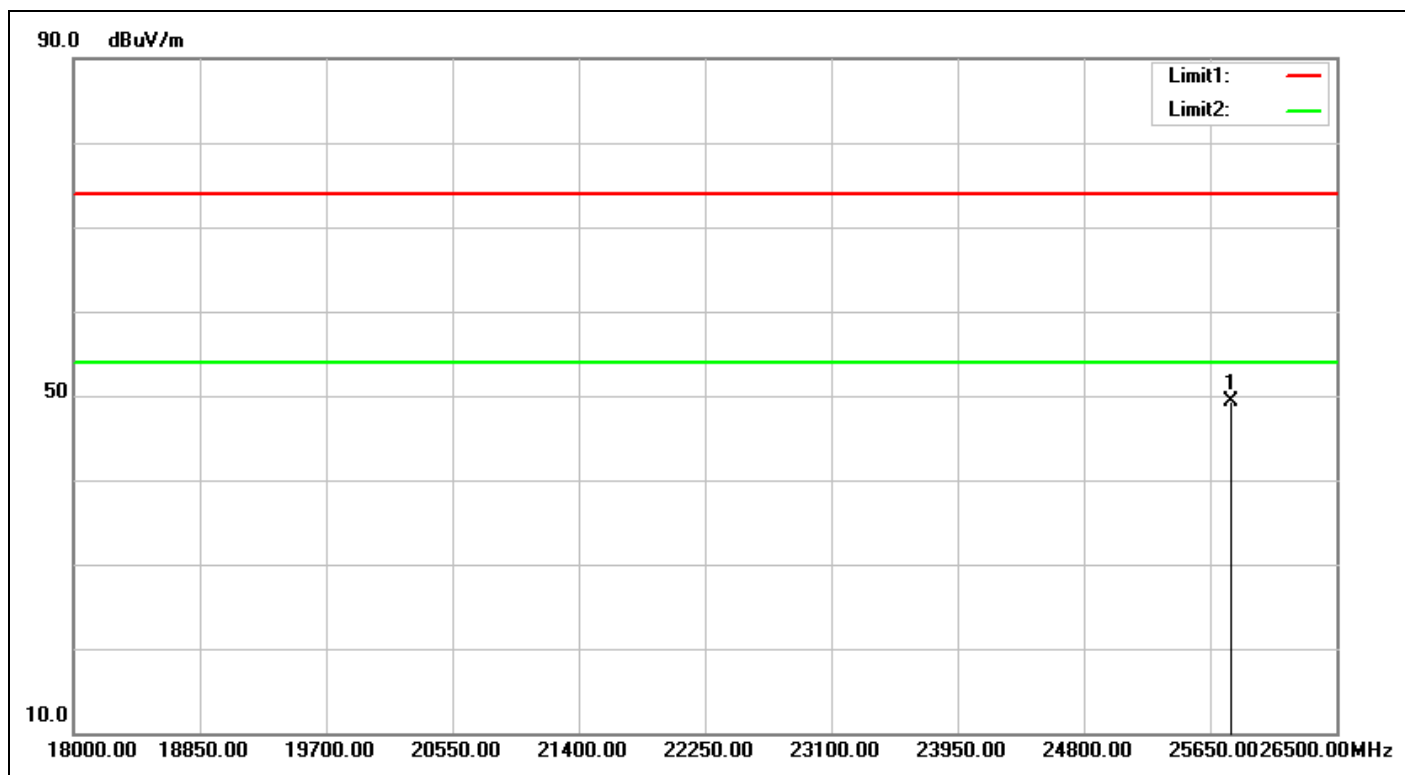
Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2016/8/17 11:12:31
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	Test Engineer:	George Yang
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	23550.500	30.02	18.70	48.72	74.00	-25.28	peak			



Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2016/8/17 11:12:44
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	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	20975.000	29.79	18.67	48.46	74.00	-25.54	peak			



Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2016/8/17 11:12:53
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	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	25786.000	31.72	17.56	49.28	74.00	-24.72	peak			

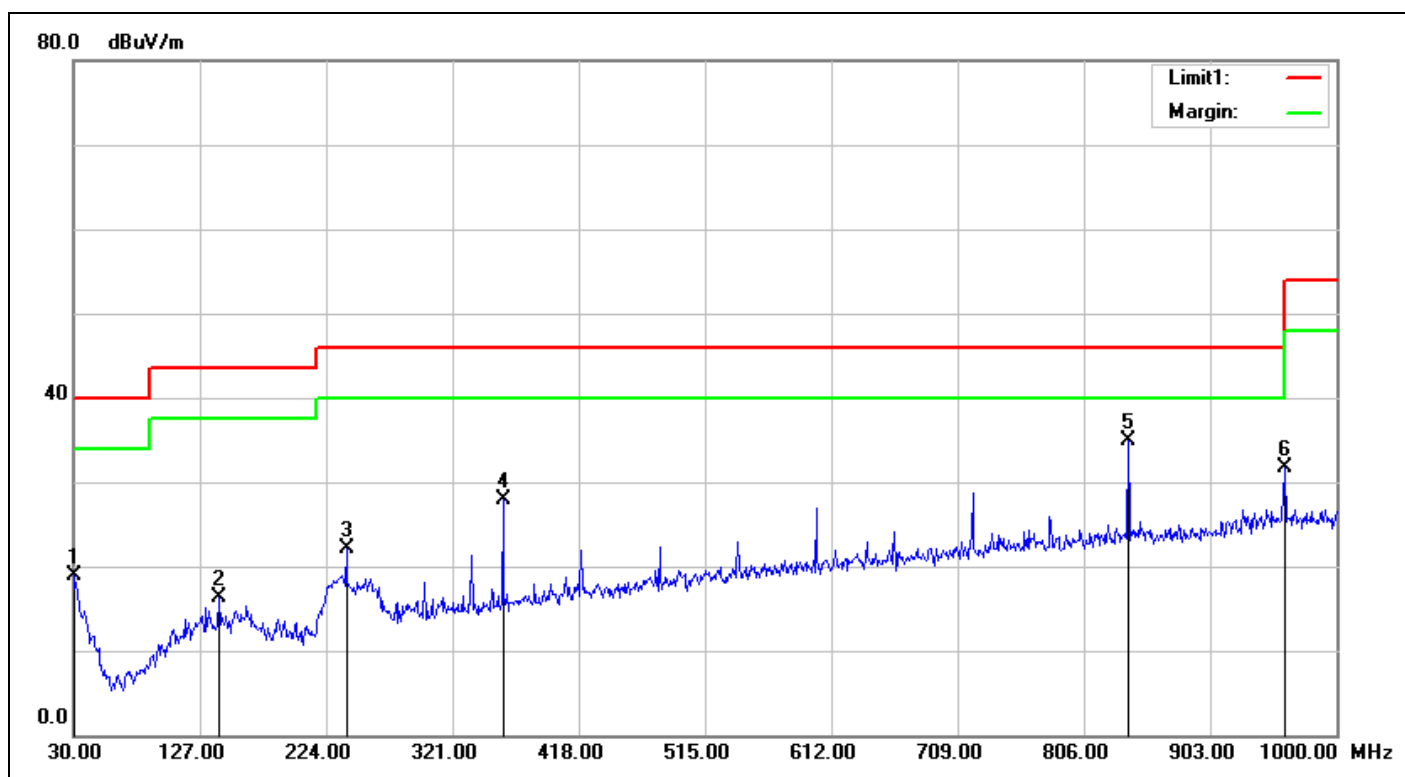
Spurious Emissions, TX Mode, 30M-1G



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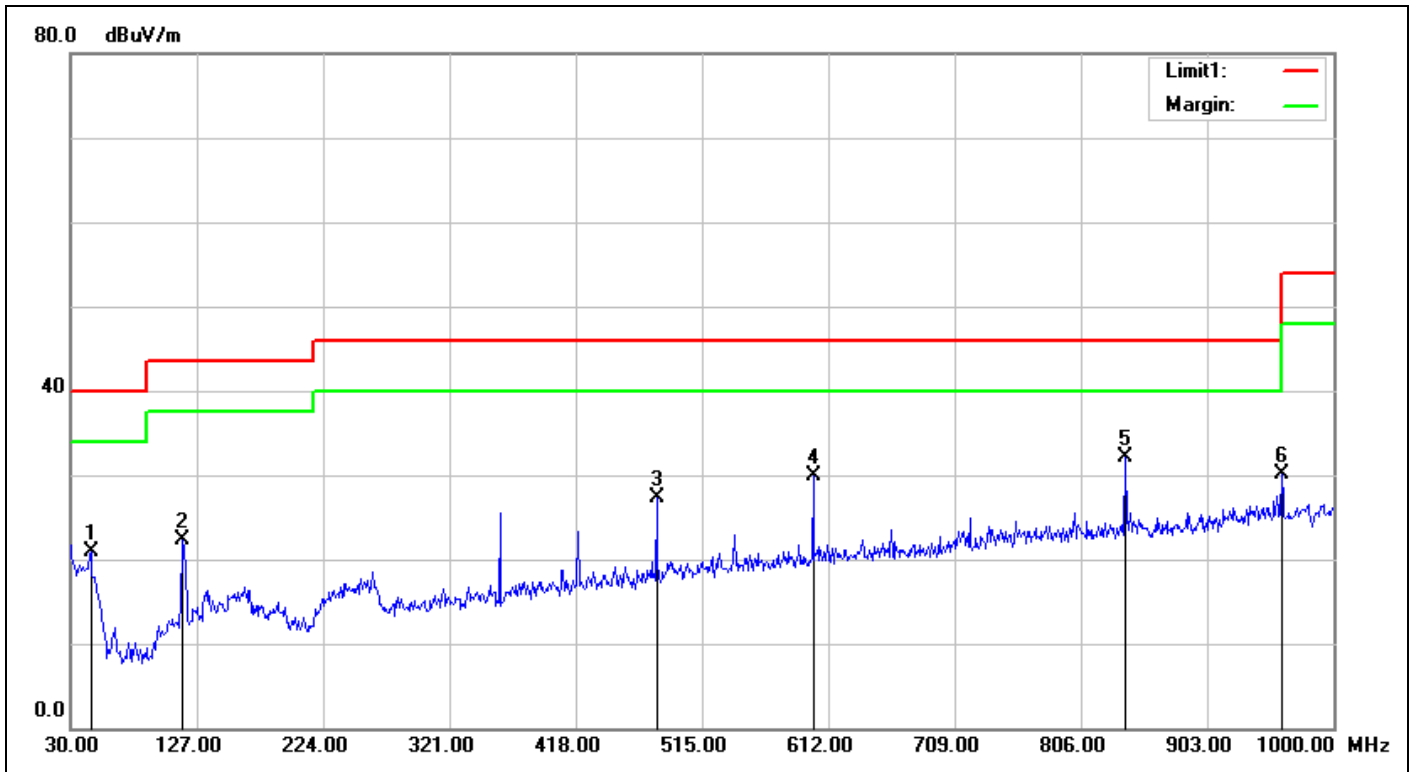
Tel: +886-2172-7000 fax: +886-2528-0018



Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2016/8/17 11:34:59
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%)	22.6(°C)/53%
Model No.:	ZPP004T	Test Engineer:	George Yang
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	-5.98	24.85	18.87	40.00	-21.13	QP	100	221	
2	141.5500	-12.95	29.35	16.40	43.50	-27.10	QP	100	96	
3	239.5200	-12.86	34.90	22.04	46.00	-23.96	QP	100	315	
4	359.8000	-9.36	37.26	27.90	46.00	-18.10	QP	100	125	
5	839.9500	-2.61	37.57	34.96	46.00	-11.04	QP	100	211	
6	960.2300	-0.35	31.97	31.62	54.00	-22.38	QP	100	256	

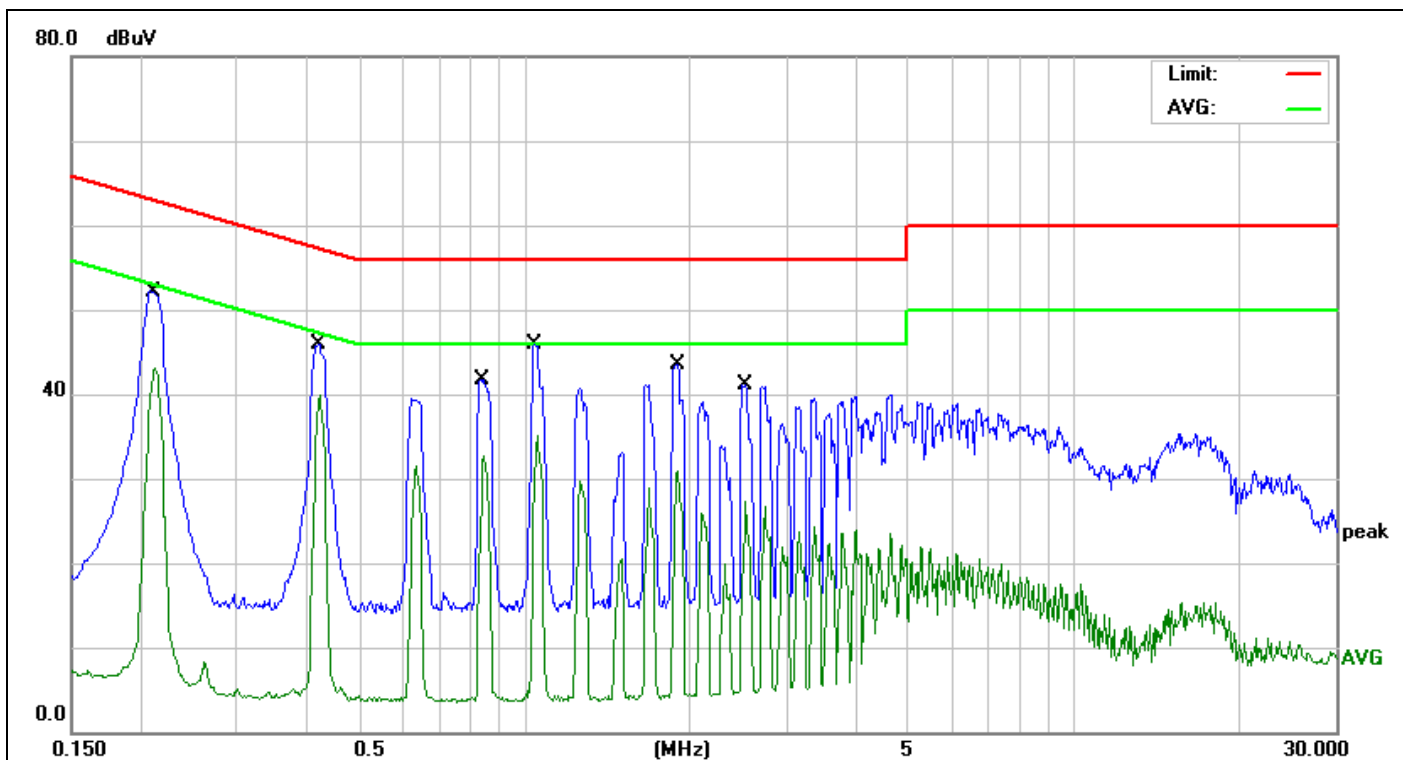
Spurious Emissions, TX Mode, 30M-1G



Service No.:	20160817(ZPP004T)	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2016/8/17 11:36:03
Applicant:	Zeroplus	Test Rating:	5Vdc via USB
Product:	SNIPER	Temp.(°C)/Hum.(%):	22.6(°C)/53%
Model No.:	ZPP004T	Test Engineer:	George Yang
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	45.5200	-14.72	35.64	20.92	40.00	-19.08	QP	100	194	
2	116.3300	-13.15	35.51	22.36	43.50	-21.14	QP	100	231	
3	480.0800	-7.60	34.82	27.22	46.00	-18.78	QP	100	175	
4	600.3600	-5.90	35.83	29.93	46.00	-16.07	QP	100	210	
5	839.9500	-2.61	34.62	32.01	46.00	-13.99	QP	100	181	
6	960.2300	-0.35	30.39	30.04	54.00	-23.96	QP	100	157	

Mains Spurious Emissions



Service No.: 114054097

Test Standard: FCC Class B Conduction(QP)

Probe: L1

Test item: Conduction Emission

Test Time: 2016/8/30 16:18:35

Applicant: Zeroplus

Test Rating: AC 120V/60Hz

Product: SNIPER

Temp.(°C)/Hum.(%): 22(°C)/44%

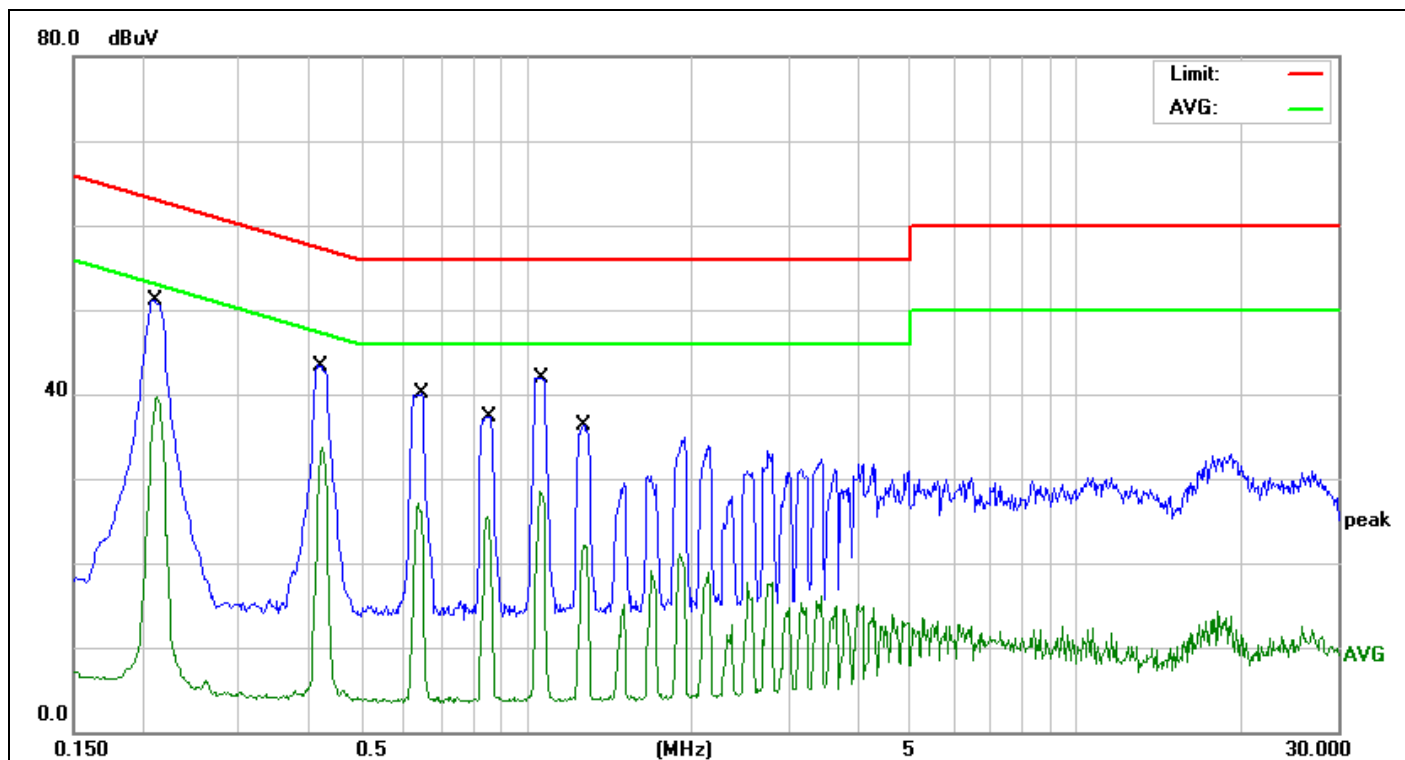
Model No.: ZPP004T

Test Engineer: George Yang

Test Mode: Mains

Remark:

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Remark
1	0.2130	9.76	40.11	49.87	63.08	-13.21	QP	
2	0.2130	9.76	30.72	40.48	53.08	-12.60	AVG	
3	0.4245	9.75	33.71	43.46	57.36	-13.90	QP	
4	0.4245	9.75	27.88	37.63	47.36	-9.73	AVG	
5	0.8452	9.75	30.47	40.22	56.00	-15.78	QP	
6	0.8452	9.75	19.37	29.12	46.00	-16.88	AVG	
7	1.0567	9.75	34.11	43.86	56.00	-12.14	QP	
8	1.0567	9.75	20.38	30.13	46.00	-15.87	AVG	
9	1.8983	9.77	31.58	41.35	56.00	-14.65	QP	
10	1.8983	9.77	16.02	25.79	46.00	-20.21	AVG	
11	2.5305	9.78	28.92	38.70	56.00	-17.30	QP	
12	2.5305	9.78	12.27	22.05	46.00	-23.95	AVG	



Service No.: 114054097
 Test Standard: FCC Class B Conduction(QP) Probe: N
 Test item: Conduction Emission Test Time: 2016/8/30 16:19:50
 Applicant: Zeroplus Test Rating: AC 120V/60Hz
 Product: SNIPER Temp.(°C)/Hum.(%): 22(°C)/44%
 Model No.: ZPP004T Test Engineer: George Yang
 Test Mode: Mains
 Remark:

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Remark
1	0.2130	9.69	39.37	49.06	63.09	-14.03	QP	
2	0.2130	9.69	26.84	36.53	53.09	-16.56	AVG	
3	0.4245	9.68	31.22	40.90	57.36	-16.46	QP	
4	0.4245	9.68	20.85	30.53	47.36	-16.83	AVG	
5	0.6360	9.69	26.22	35.91	56.00	-20.09	QP	
6	0.6360	9.69	12.62	22.31	46.00	-23.69	AVG	
7	0.8497	9.69	23.67	33.36	56.00	-22.64	QP	
8	0.8497	9.69	12.26	21.95	46.00	-24.05	AVG	
9	1.0635	9.70	28.42	38.12	56.00	-17.88	QP	
10	1.0635	9.70	14.36	24.06	46.00	-21.94	AVG	
11	1.2750	9.70	19.57	29.27	56.00	-26.73	QP	
12	1.2750	9.70	7.80	17.50	46.00	-28.50	AVG	