

# Test Report No.10046528 001

## Appendix D: Radiated and Mains Spurious Emission Data

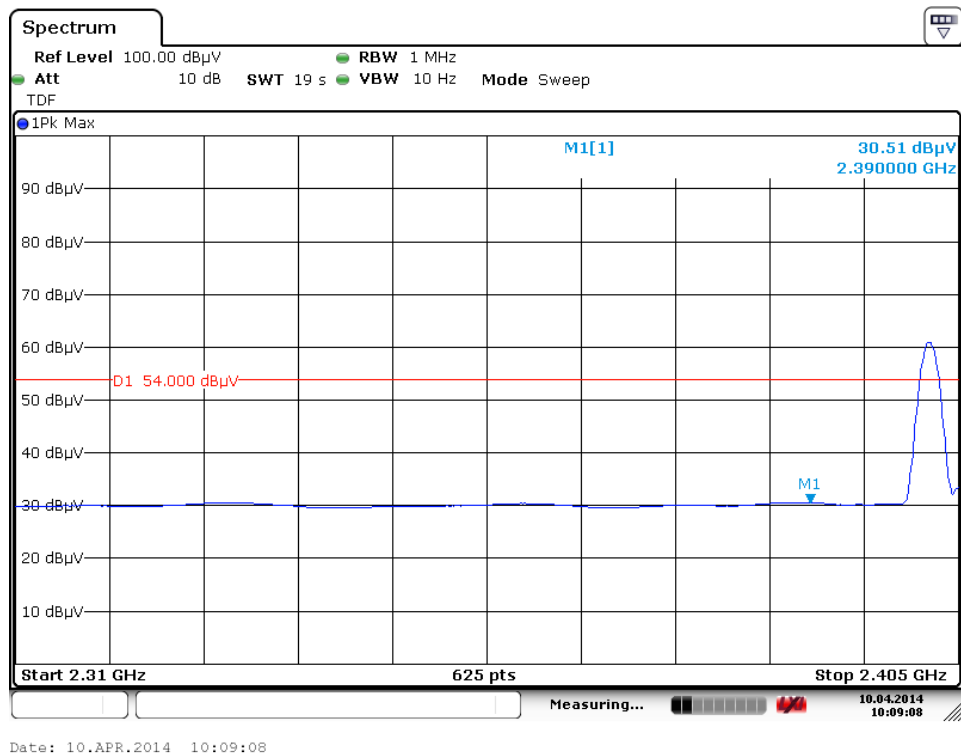
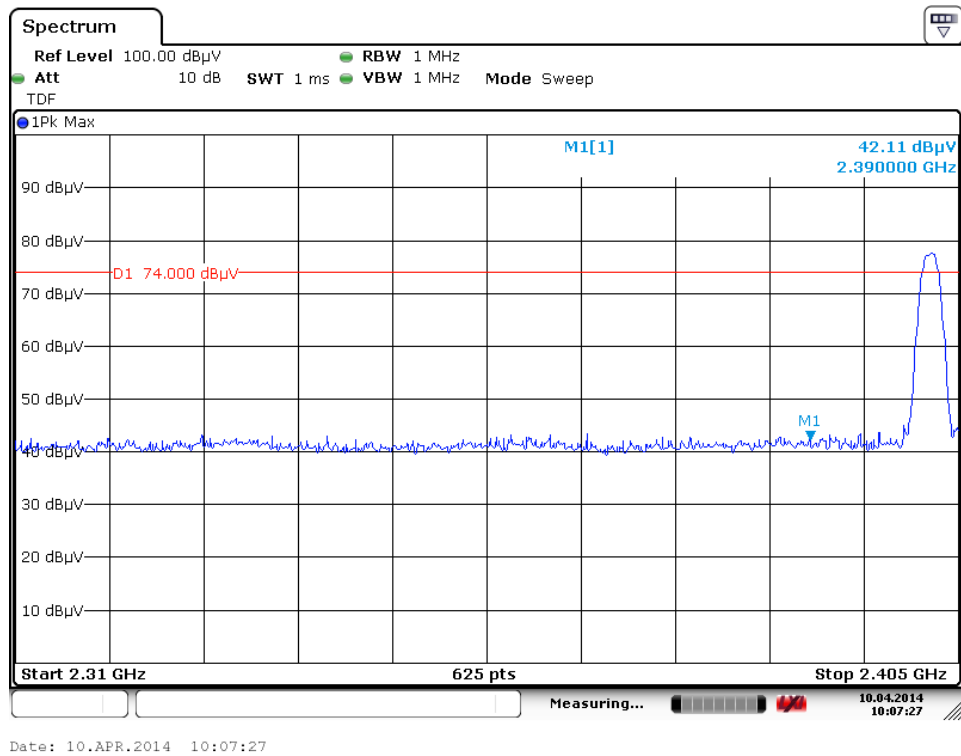
(File: 10046528AppendixD)

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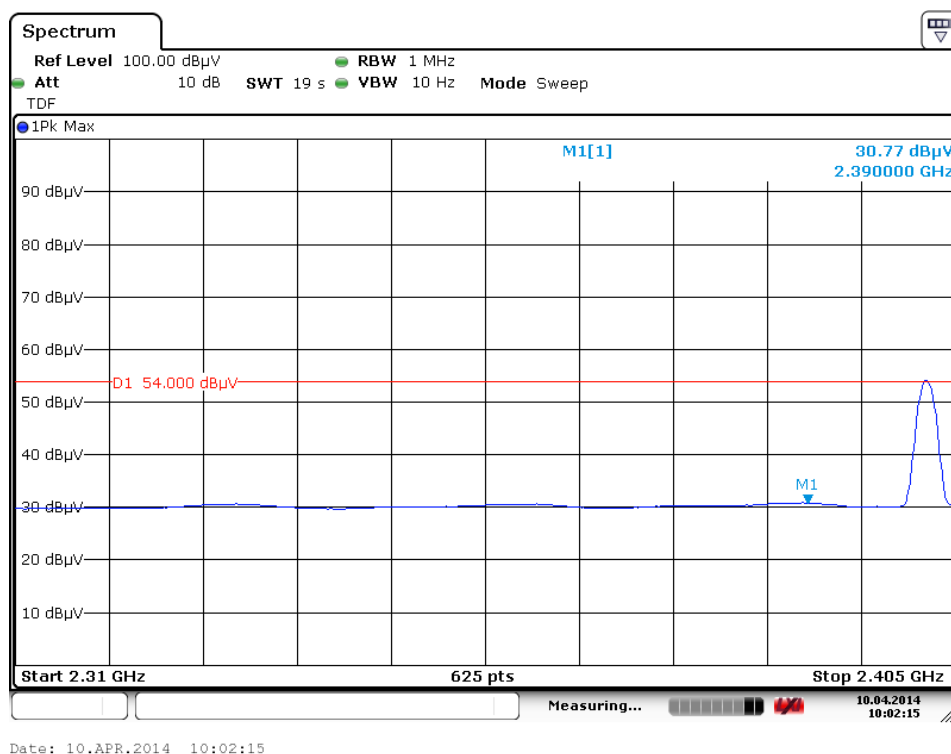
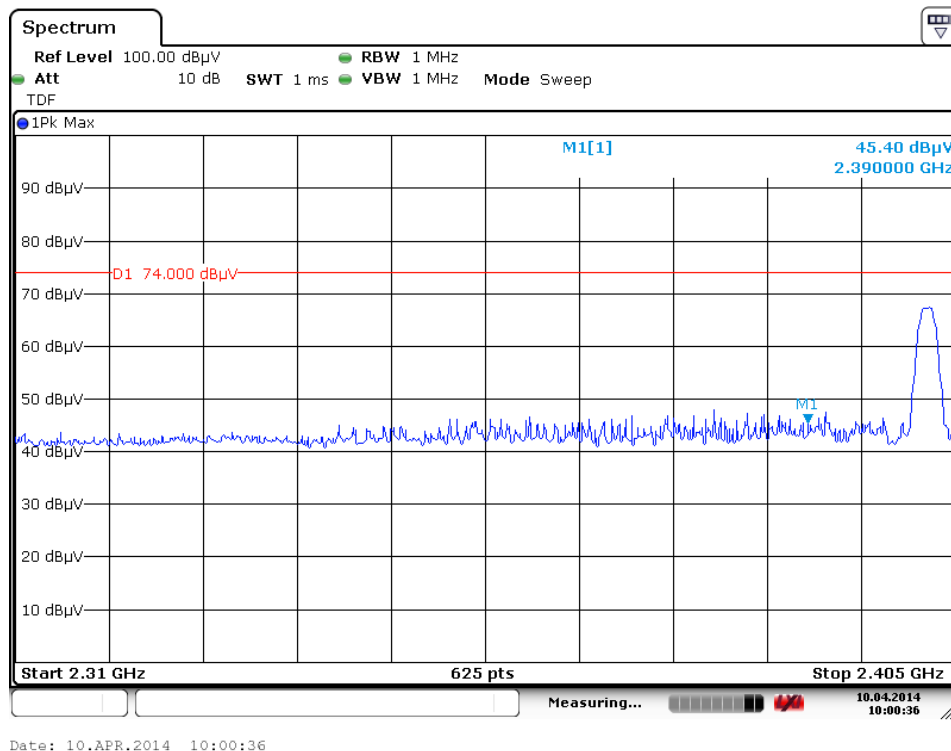
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# Radiated Bandedge

## Low Channel (Hor)

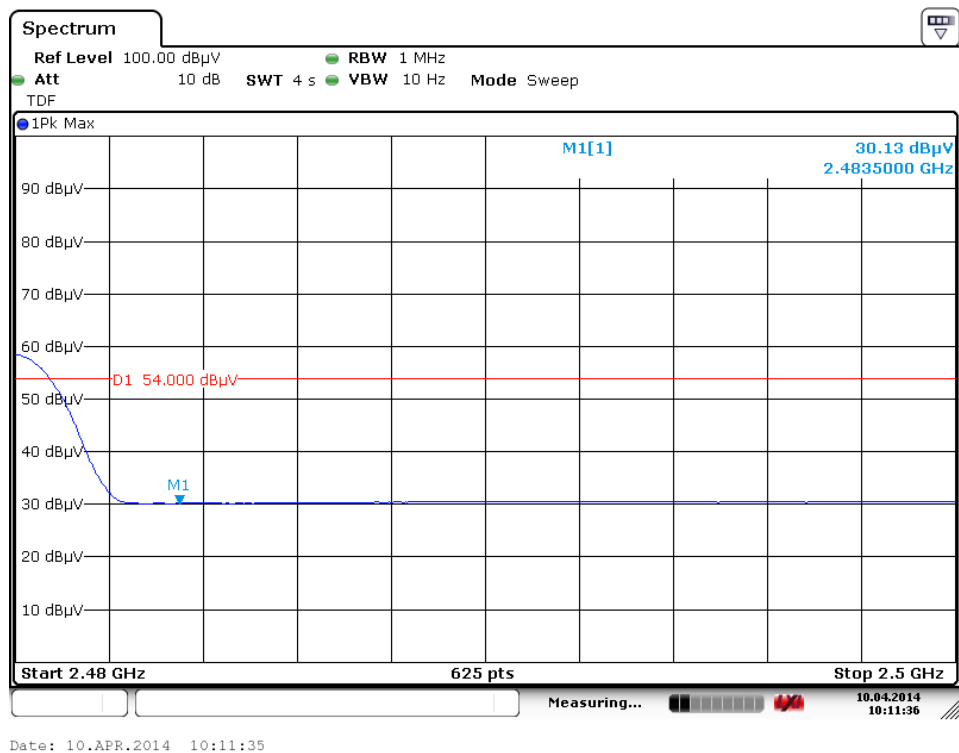
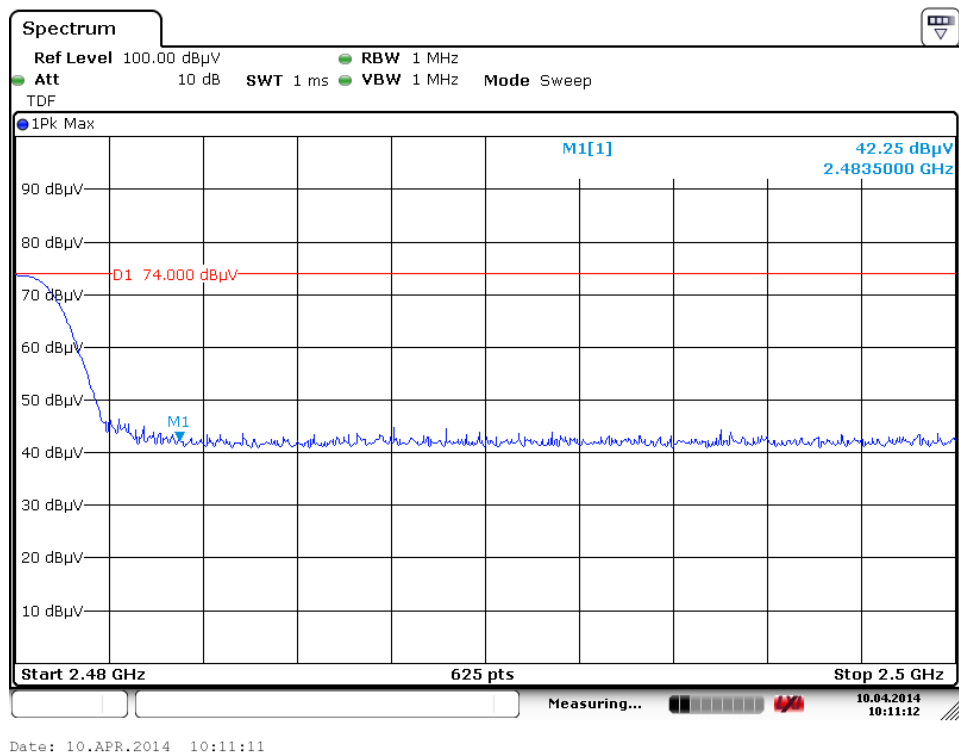


## Low Channel (Ver)

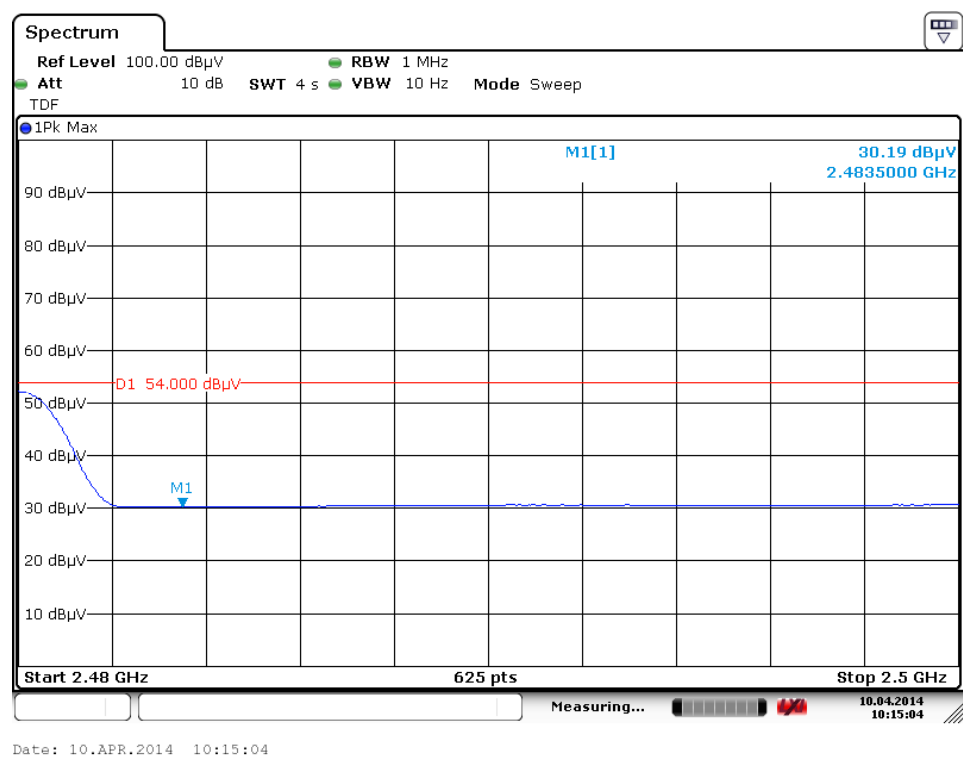
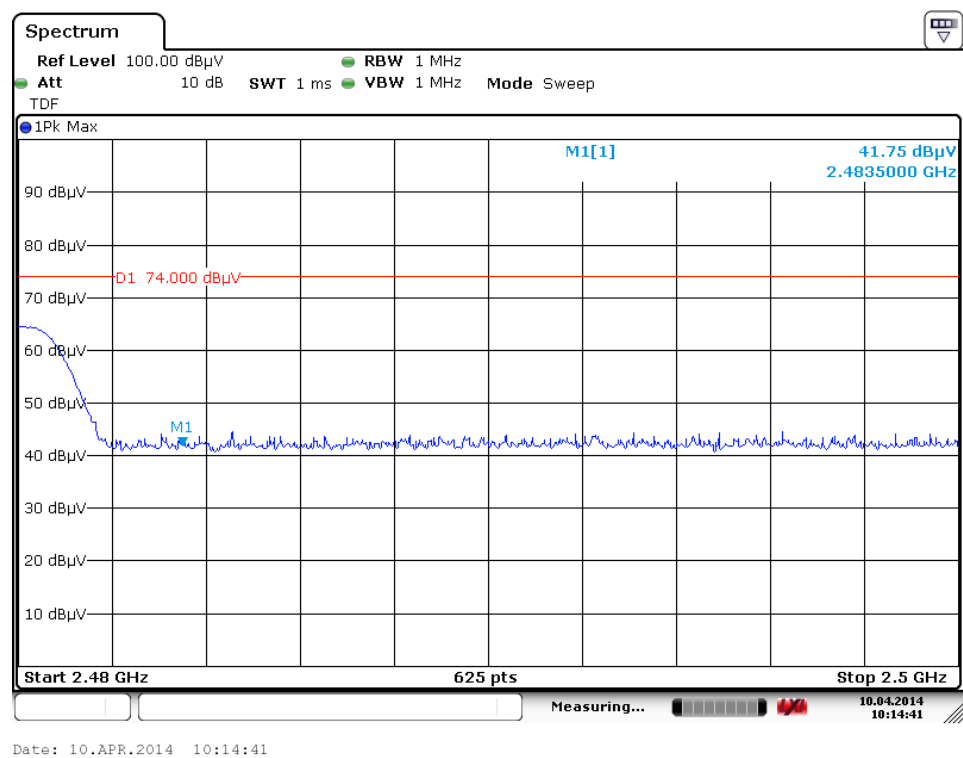


## Spurious Emissions, Band Edge, 2.35-2.5G

## High Channel (Hor)



High Channel (Ver)



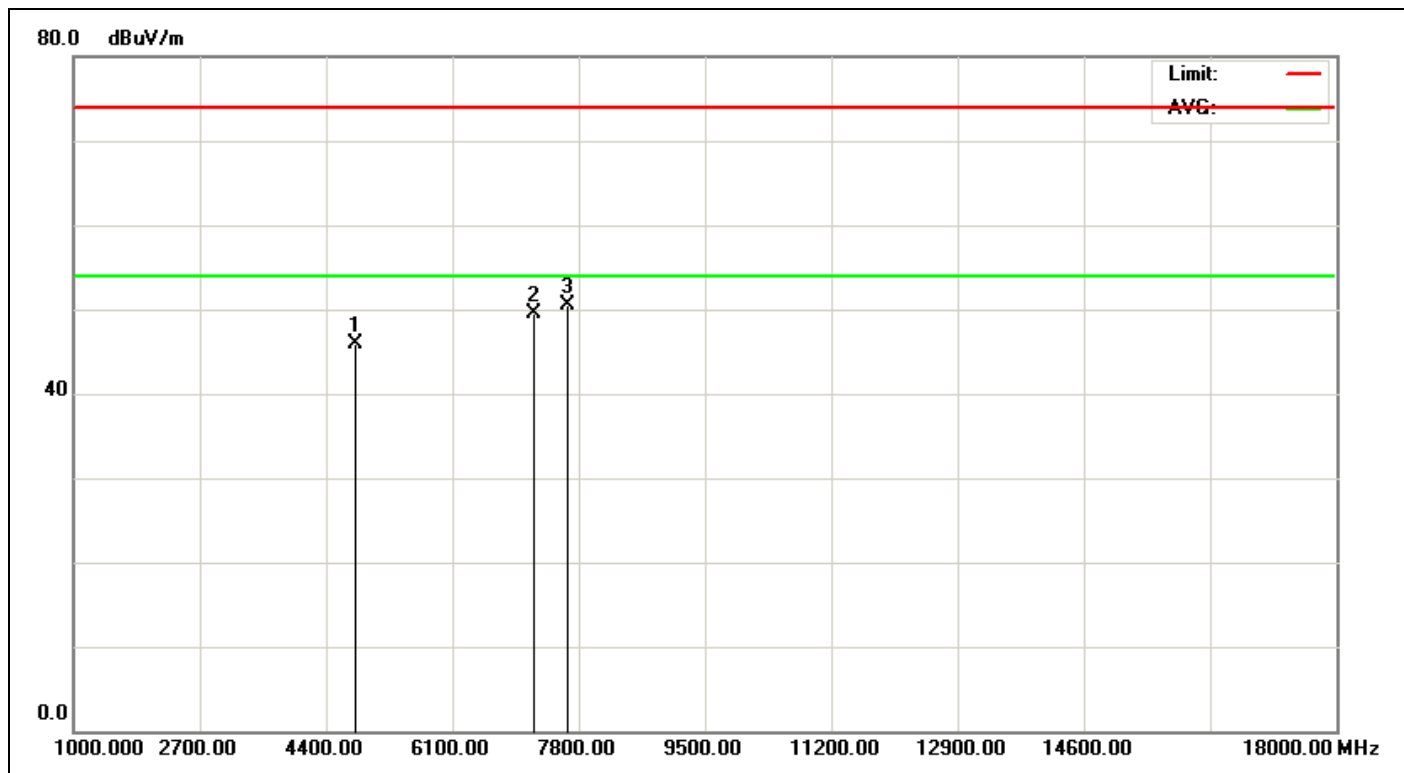
## Spurious Emissions, TX Mode, 1-18G



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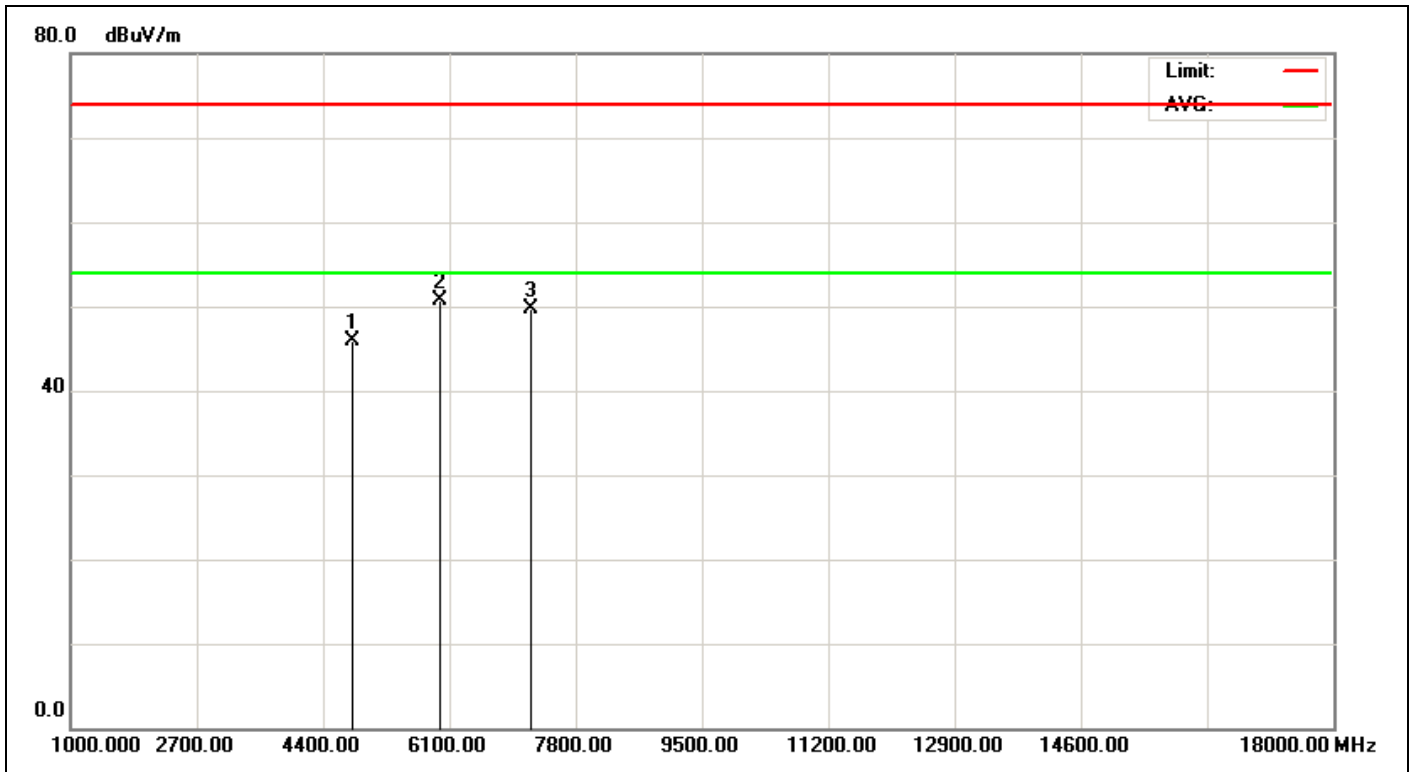
11F.,No.758,Sec. 4,Bade Rd.,Songshan Dist.,Taipei 105,Taiwan

Tel:+886-2-2172-7000 Fax:+886-2-2528-0018



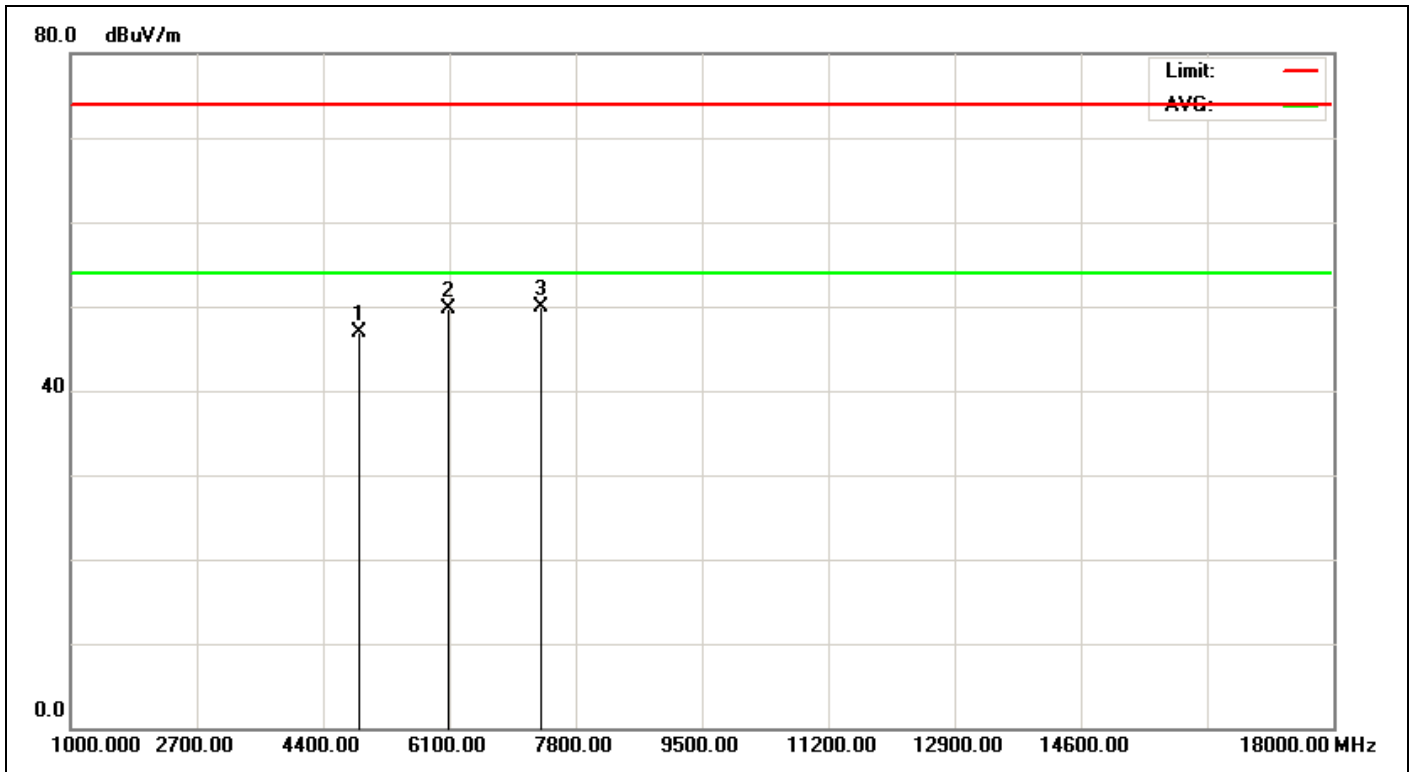
Service No.:	114017450-LE FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2014/4/10 10:31:29
Applicant:	Adonit	Test Rating:	DC 3.7V
Product:	2.4GHz BLE Touch Pen	Temp.(°C)/Hum.(%)	22.4(°C)/61%
Model No.:	Mighty	Test Engineer:	Hugo Chang
Test Mode:	CH2402		
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	-2.59	48.54	45.95	74.00	-28.05	peak			
2	7206.000	5.44	44.02	49.46	74.00	-24.54	peak			
3	7647.436	6.19	44.38	50.57	74.00	-23.43	peak	100	357	



<b>Service No.:</b>	<b>114017450-LE FCC</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Vertical</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2014/4/10 10:32:31</b>
<b>Applicant:</b>	<b>Adonit</b>	<b>Test Rating:</b>	<b>DC 3.7V</b>
<b>Product:</b>	<b>2.4GHz BLE Touch Pen</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>22.4(°C)/61%</b>
<b>Model No.:</b>	<b>Mighty</b>	<b>Test Engineer:</b>	<b>Hugo Chang</b>
<b>Test Mode:</b>	<b>CH2402</b>		
<b>Remark:</b>			

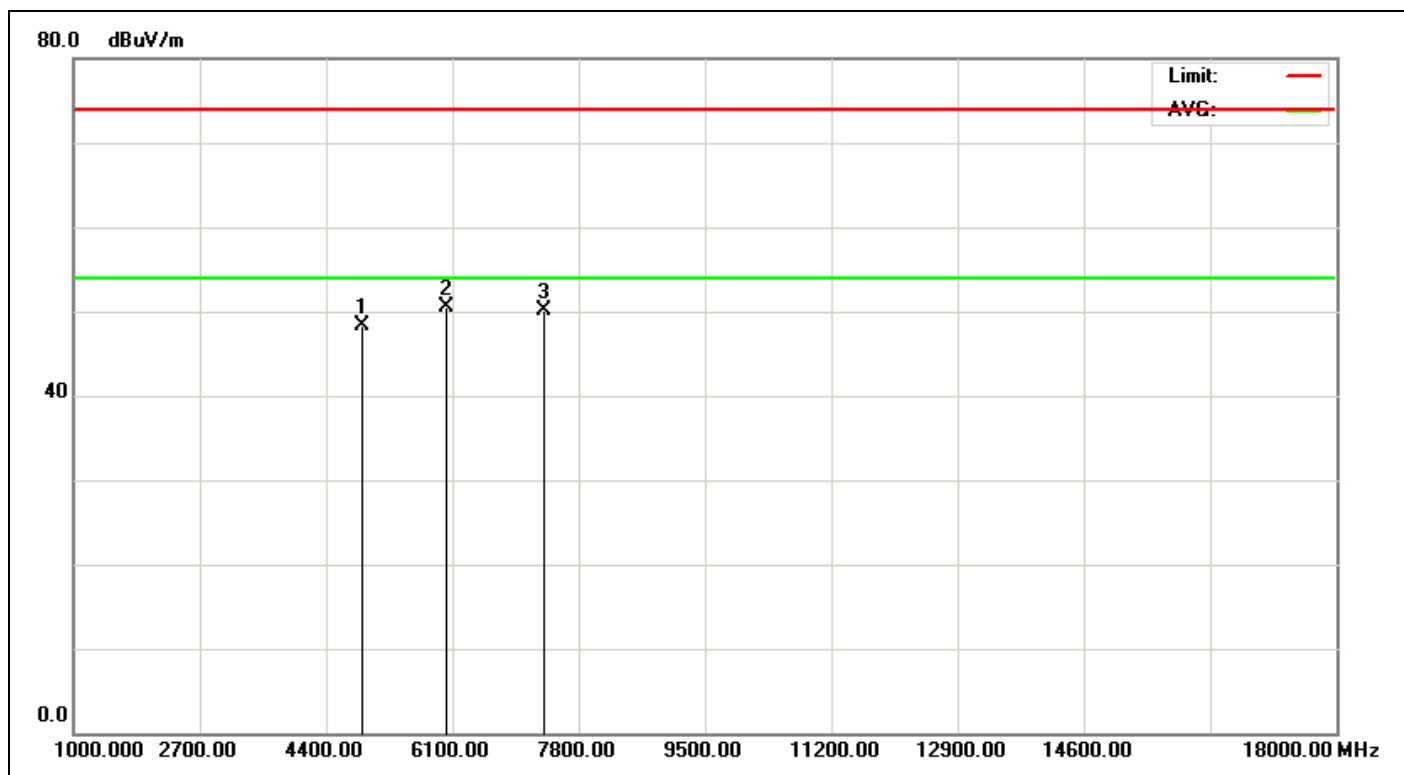
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	4804.000	-2.59	48.52	45.93	74.00	-28.07	peak			
2	5985.577	3.62	47.06	50.68	74.00	-23.32	peak	100	131	
3	7206.000	5.44	44.29	49.73	74.00	-24.27	peak			



<b>Service No.:</b>	<b>114017450-LE FCC</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2014/4/10 10:24:31</b>
<b>Applicant:</b>	<b>Adonit</b>	<b>Test Rating:</b>	<b>DC 3.7V</b>
<b>Product:</b>	<b>2.4GHz BLE Touch Pen</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>22.4(°C)/61%</b>
<b>Model No.:</b>	<b>Mighty</b>	<b>Test Engineer:</b>	<b>Hugo Chang</b>
<b>Test Mode:</b>	<b>CH2442</b>		
<b>Remark:</b>			

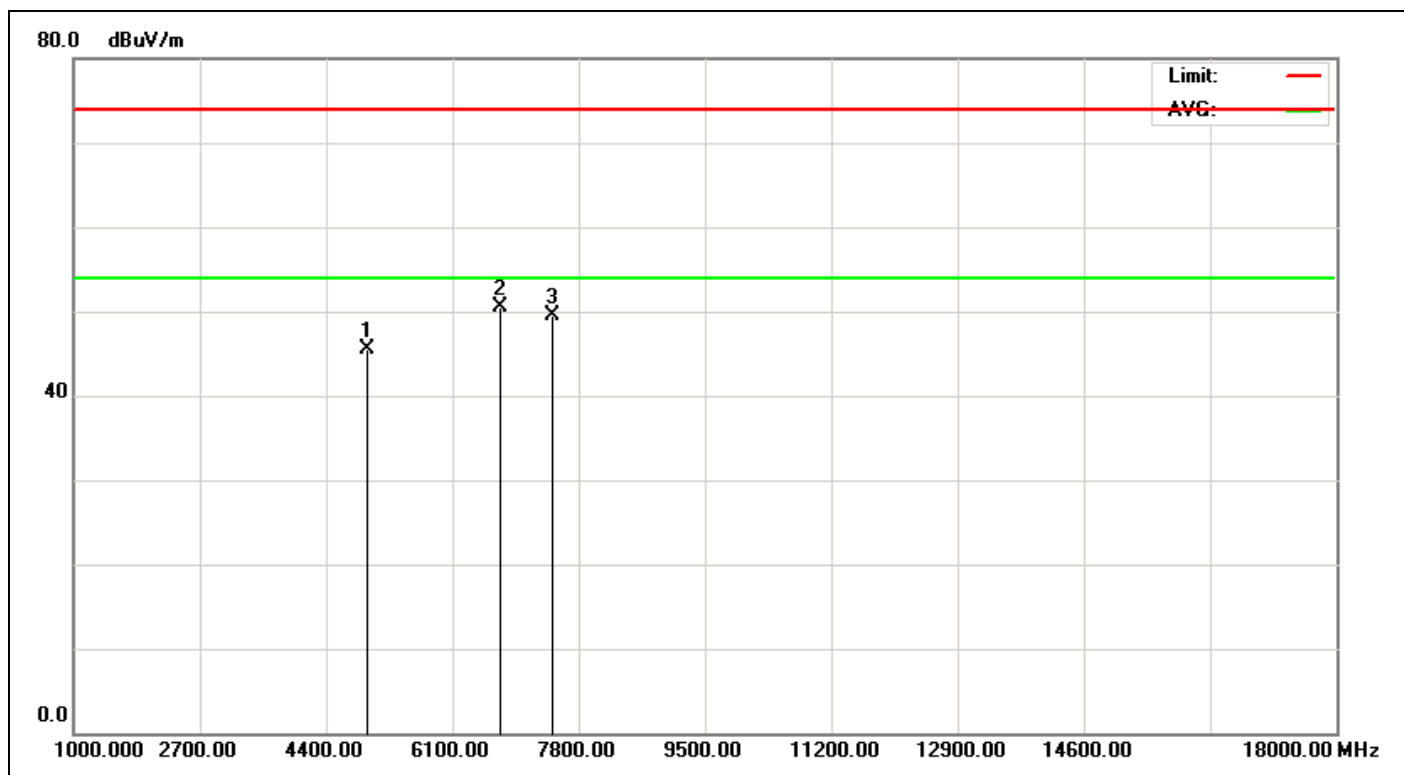
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	4884.000	-2.38	49.36	46.98	74.00	-27.02	peak			
2	6094.551	4.05	45.64	49.69	74.00	-24.31	peak	100	200	
3	7326.000	5.78	44.10	49.88	74.00	-24.12	peak			





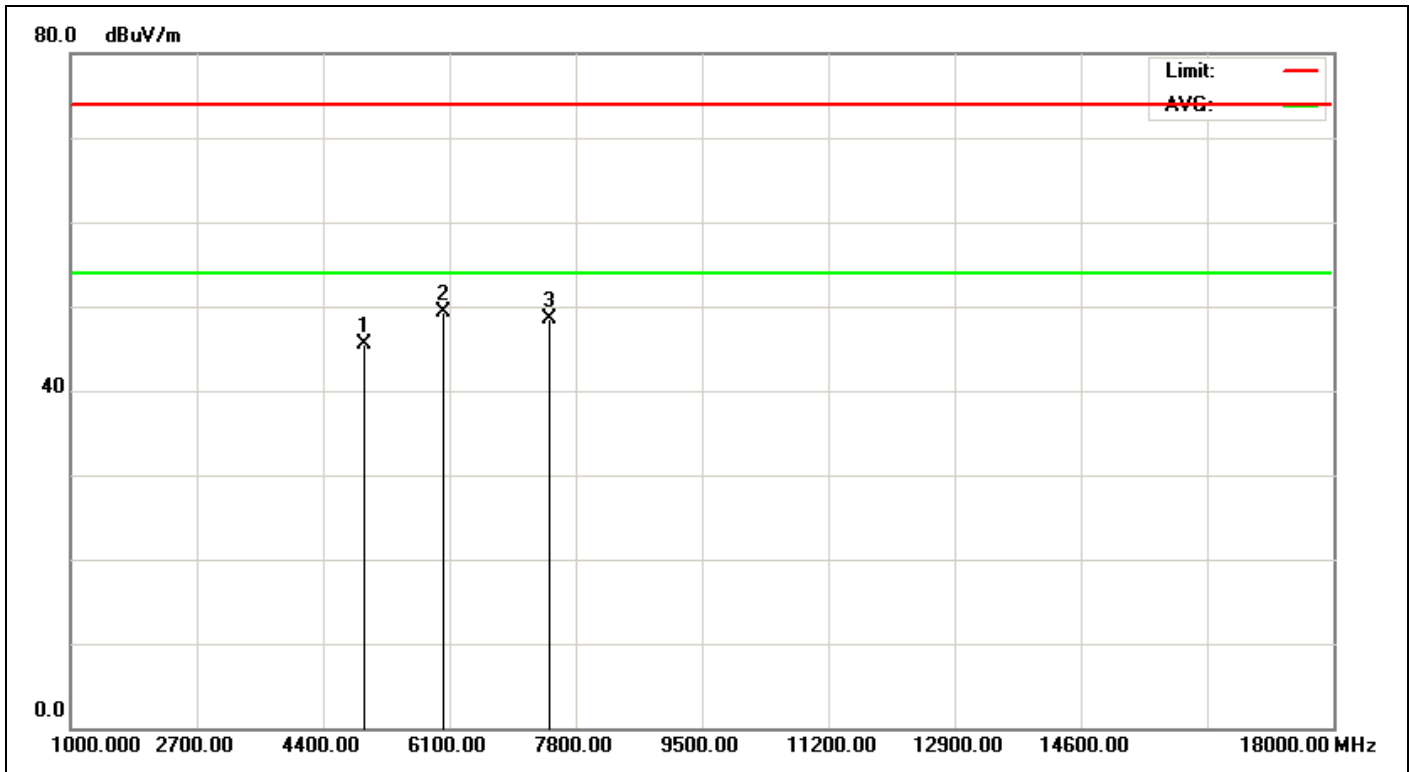
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<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Vertical</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2014/4/10 10:25:33</b>
<b>Applicant:</b>	<b>Adonit</b>	<b>Test Rating:</b>	<b>DC 3.7V</b>
<b>Product:</b>	<b>2.4GHz BLE Touch Pen</b>	<b>Temp.(°C)/Hum.(%)</b>	<b>22.4(°C)/61%</b>
<b>Model No.:</b>	<b>Mighty</b>	<b>Test Engineer:</b>	<b>Hugo Chang</b>
<b>Test Mode:</b>	<b>CH2442</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	4884.000	-2.38	50.70	48.32	74.00	-25.68	peak			
2	6012.820	3.75	46.66	50.41	74.00	-23.59	peak	100	112	
3	7326.000	5.78	44.38	50.16	74.00	-23.84	peak			



<b>Service No.:</b>	<b>114017450-LE FCC</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2014/4/10 10:15:53</b>
<b>Applicant:</b>	<b>Adonit</b>	<b>Test Rating:</b>	<b>DC 3.7V</b>
<b>Product:</b>	<b>2.4GHz BLE Touch Pen</b>	<b>Temp.(°C)/Hum.(%)</b>	<b>22.4(°C)/61%</b>
<b>Model No.:</b>	<b>Mighty</b>	<b>Test Engineer:</b>	<b>Hugo Chang</b>
<b>Test Mode:</b>	<b>CH2480</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	4960.000	-2.19	47.66	45.47	74.00	-28.53	peak			
2	6748.397	5.16	45.31	50.47	74.00	-23.53	peak	100	139	
3	7440.000	6.09	43.49	49.58	74.00	-24.42	peak			



Service No.:	114017450-LE FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2014/4/10 10:16:55
Applicant:	Adonit	Test Rating:	DC 3.7V
Product:	2.4GHz BLE Touch Pen	Temp.(°C)/Hum.(%)	22.4(°C)/61%
Model No.:	Mighty	Test Engineer:	Hugo Chang
Test Mode:	CH2480		
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	-2.19	47.62	45.43	74.00	-28.57	peak			
2	6012.820	3.75	45.53	49.28	74.00	-24.72	peak	100	227	
3	7440.000	6.09	42.45	48.54	74.00	-25.46	peak			

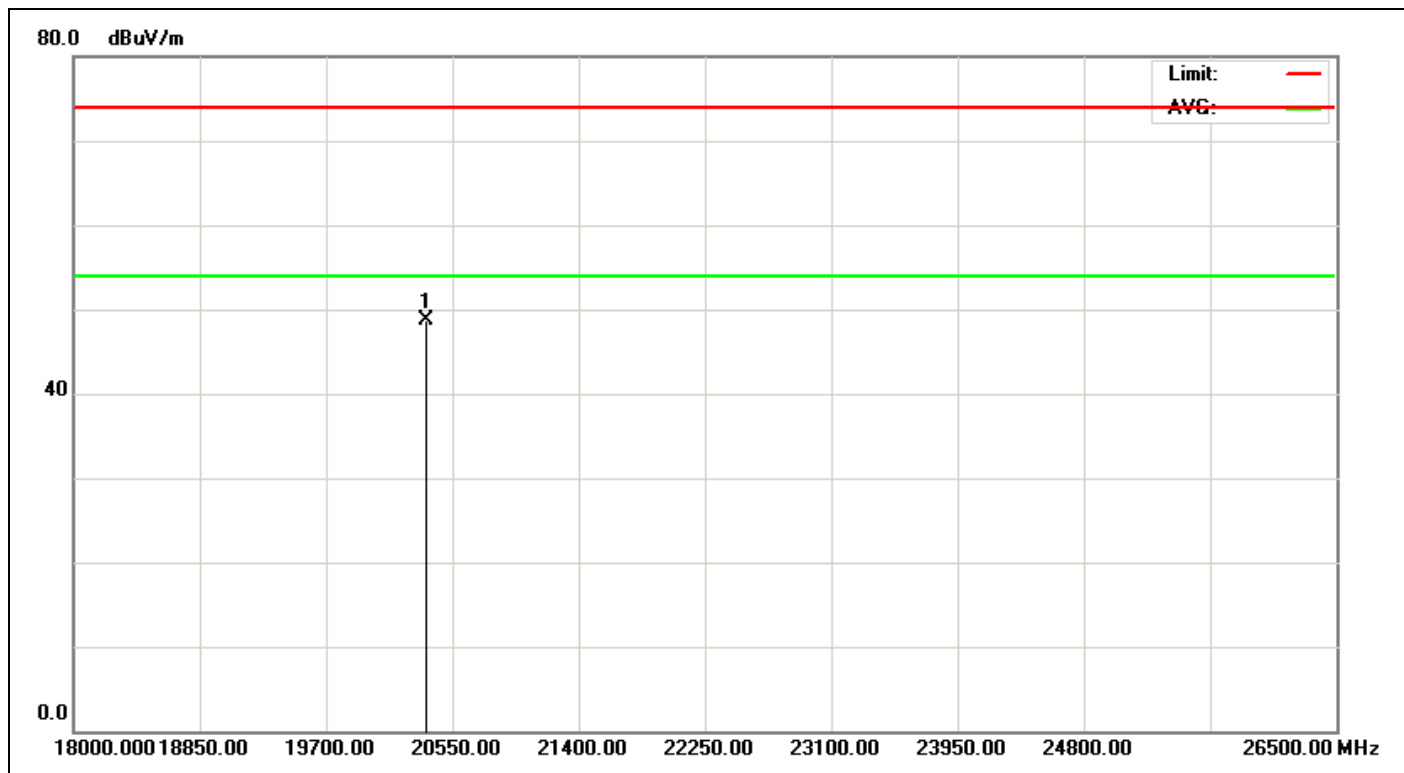
## Spurious Emissions, TX Mode, 18-26G



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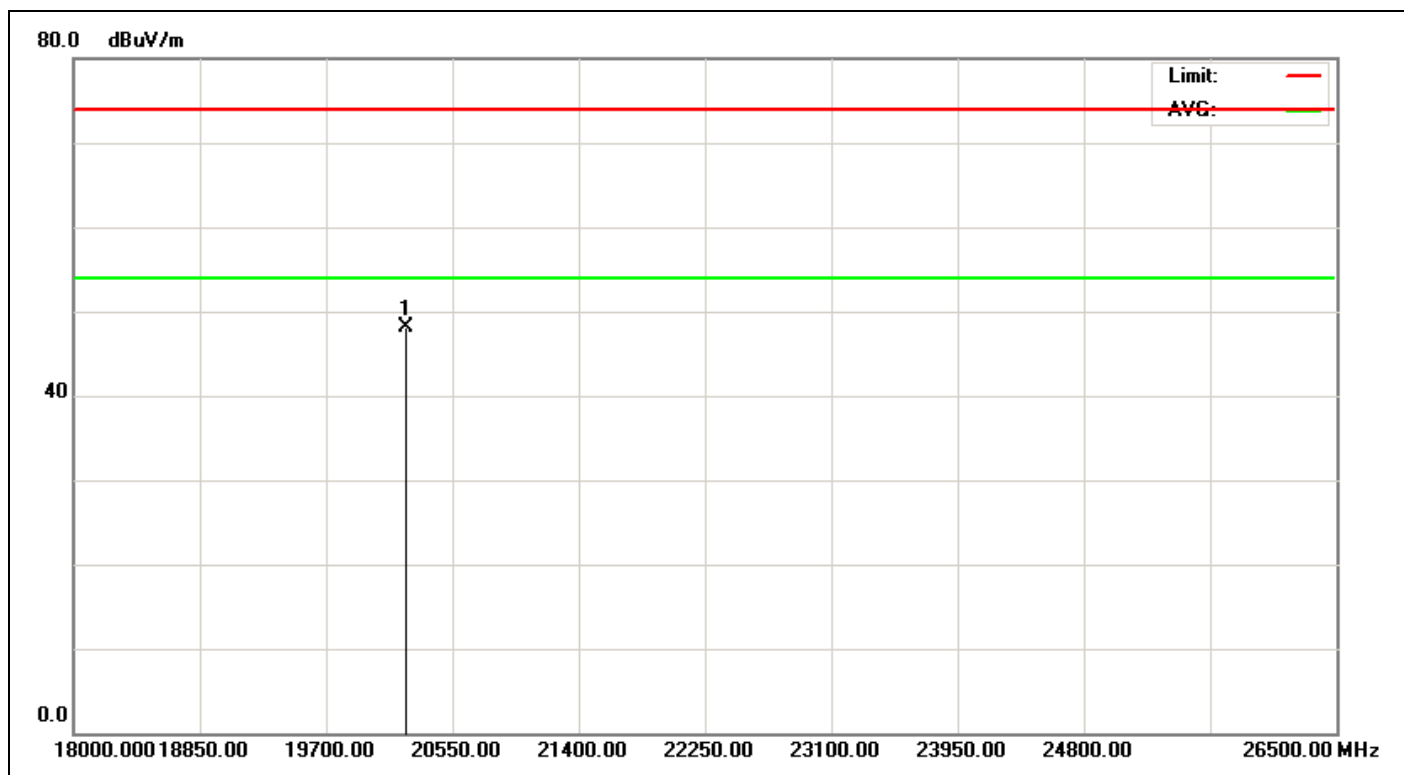
11F.,No.758,Sec. 4,Bade Rd.,Songshan Dist.,Taipei 105,Taiwan

Tel:+886-2-2172-7000 Fax:+886-2-2528-0018



<b>Service No.:</b>	<b>114017450-LE FCC</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2014/4/10 10:43:31</b>
<b>Applicant:</b>	<b>Adonit</b>	<b>Test Rating:</b>	<b>DC 3.7V</b>
<b>Product:</b>	<b>2.4GHz BLE Touch Pen</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>22.4(°C)/61%</b>
<b>Model No.:</b>	<b>Mighty</b>	<b>Test Engineer:</b>	<b>Hugo Chang</b>
<b>Test Mode:</b>	<b>CH2402</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	20370.192	29.50	19.24	48.74	74.00	-25.26	peak			



**Service No.:** 114017450-LE FCC

**Test Distance:** 3m

**Test Standard:** FCC Above 1G PEAK

**Ant. Polarization:** Vertical

**Test item:** Radiation Emission

**Test Time:** 2014/4/10 10:44:17

**Applicant:** Adonit

**Test Rating:** DC 3.7V

**Product:** 2.4GHz BLE Touch Pen

**Temp.(°C)/Hum.(%):** 22.4(°C)/61%

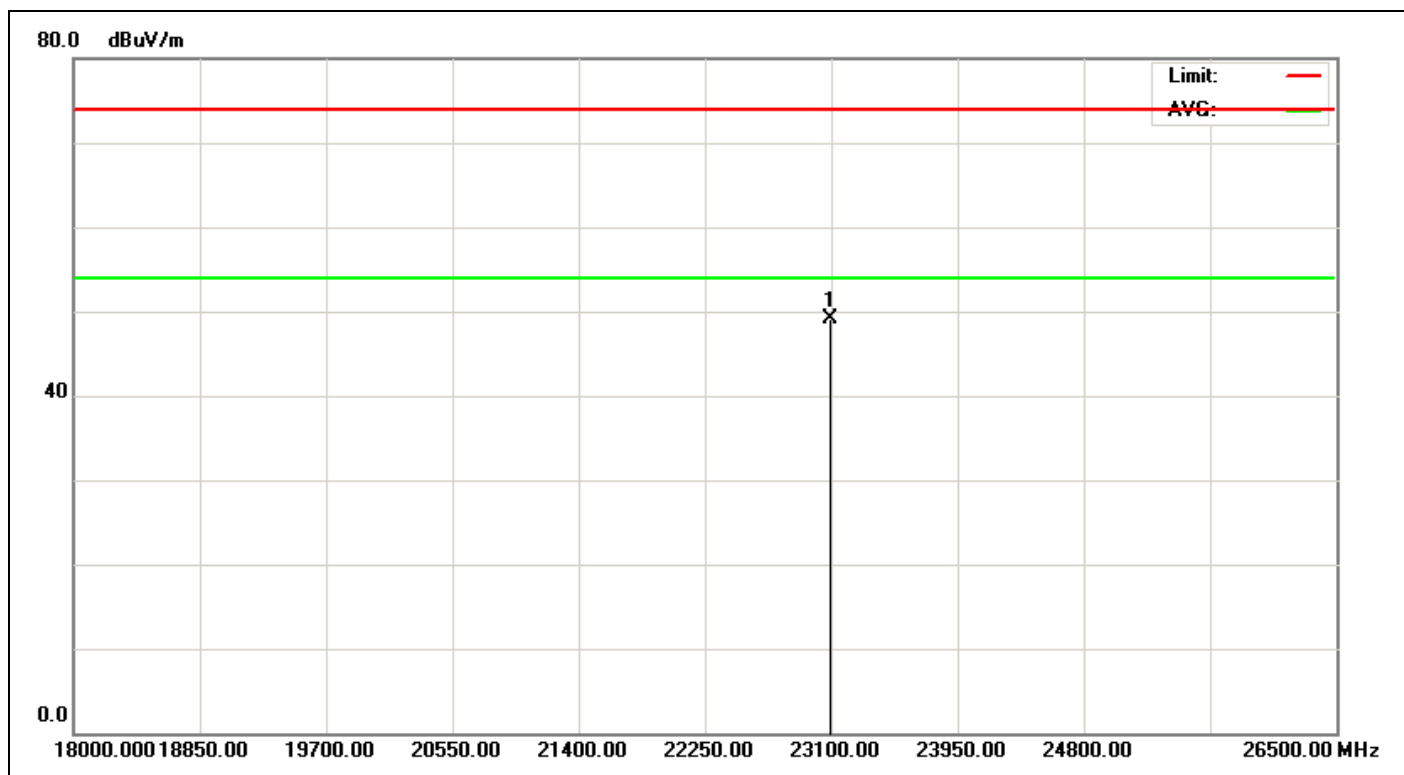
**Model No.:** Mighty

**Test Engineer:** Hugo Chang

**Test Mode:** CH2402

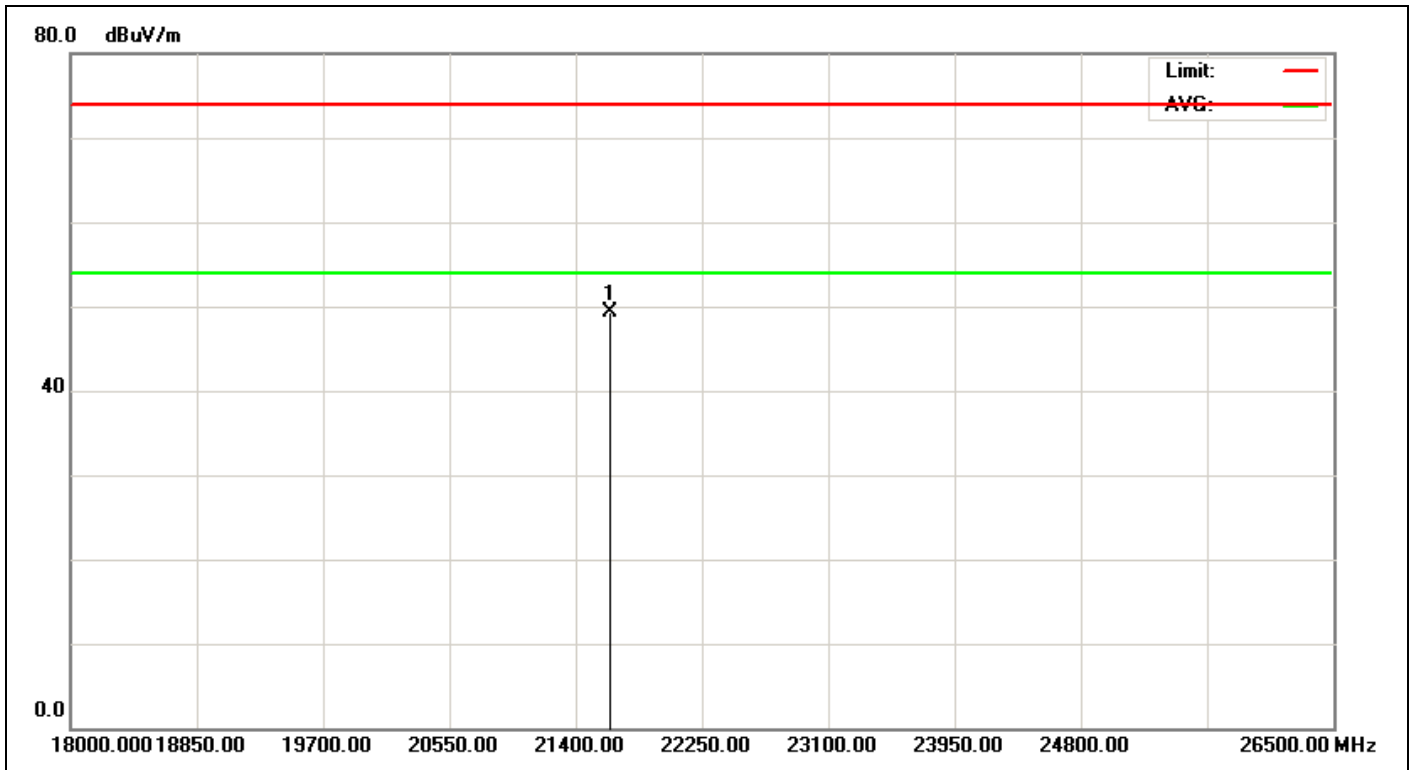
**Remark:**

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	20233.974	29.44	18.74	48.18	74.00	-25.82	peak			



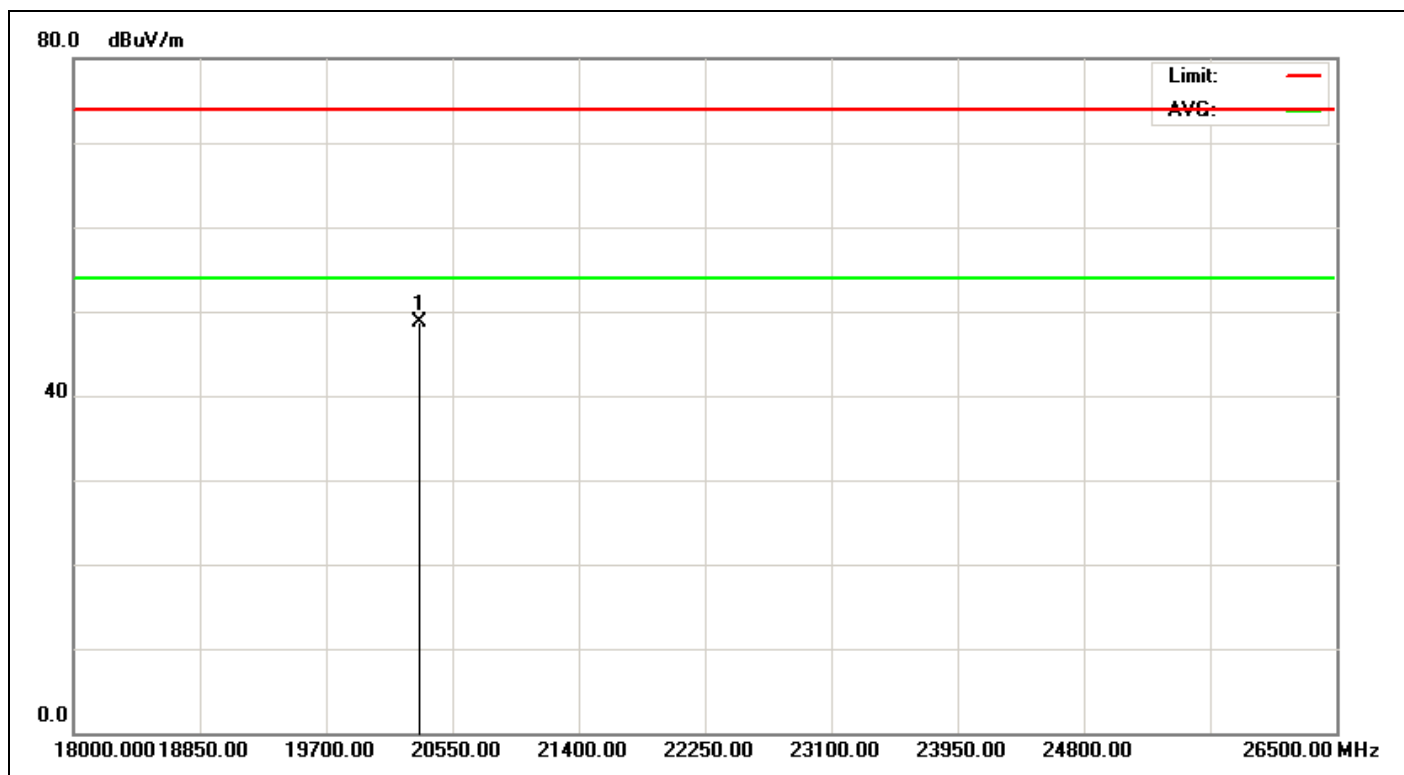
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<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2014/4/10 10:44:52</b>
<b>Applicant:</b>	<b>Adonit</b>	<b>Test Rating:</b>	<b>DC 3.7V</b>
<b>Product:</b>	<b>2.4GHz BLE Touch Pen</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>22.4(°C)/61%</b>
<b>Model No.:</b>	<b>Mighty</b>	<b>Test Engineer:</b>	<b>Hugo Chang</b>
<b>Test Mode:</b>	<b>CH2442</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	23094.551	30.24	18.94	49.18	74.00	-24.82	peak			



Service No.:	114017450-LE FCC	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2014/4/10 10:45:21
Applicant:	Adonit	Test Rating:	DC 3.7V
Product:	2.4GHz BLE Touch Pen	Temp.(°C)/Hum.(%)	22.4(°C)/61%
Model No.:	Mighty	Test Engineer:	Hugo Chang
Test Mode:	CH2442		
Remark:			

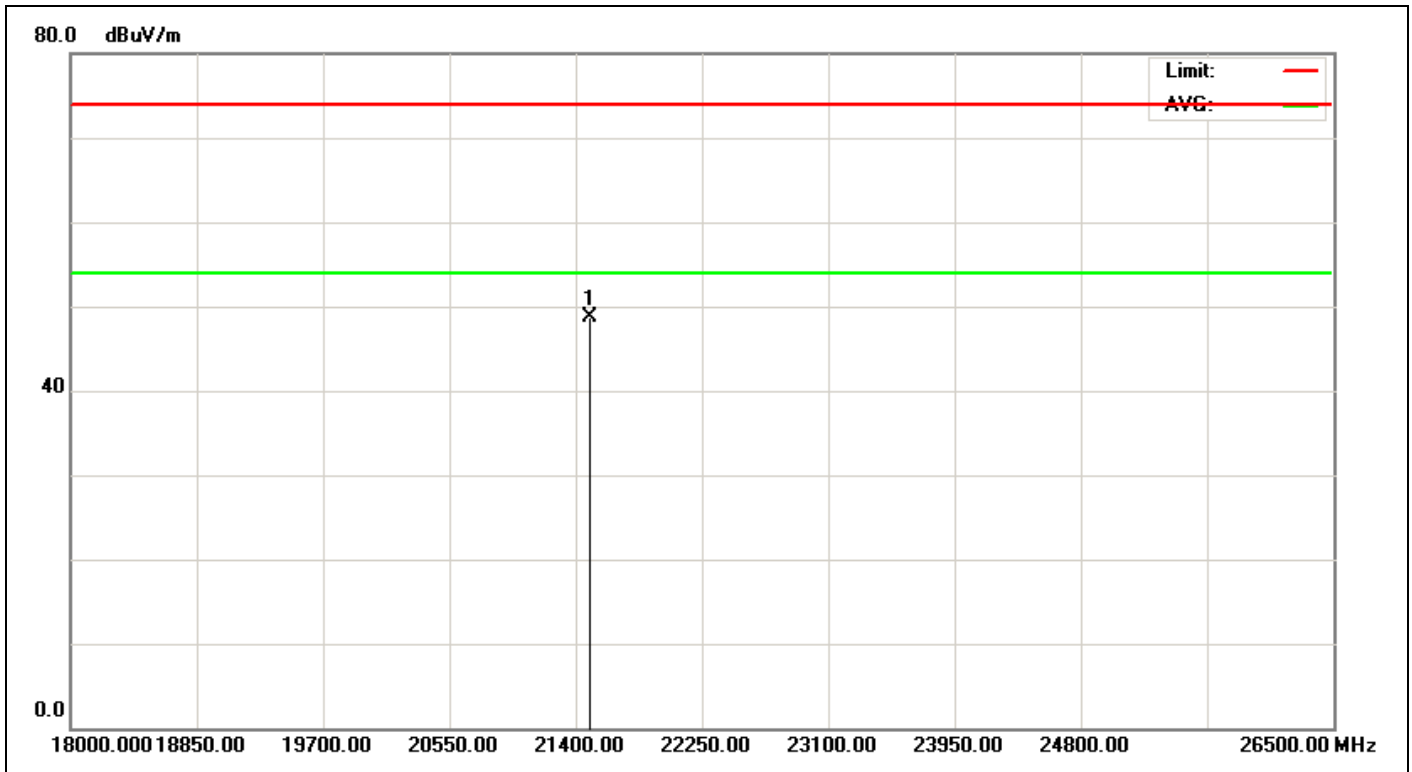
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	21637.019	29.42	19.91	49.33	74.00	-24.67	peak			



<b>Service No.:</b>	<b>114017450-LE FCC</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2014/4/10 10:45:53</b>
<b>Applicant:</b>	<b>Adonit</b>	<b>Test Rating:</b>	<b>DC 3.7V</b>
<b>Product:</b>	<b>2.4GHz BLE Touch Pen</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>22.4(°C)/61%</b>
<b>Model No.:</b>	<b>Mighty</b>	<b>Test Engineer:</b>	<b>Hugo Chang</b>
<b>Test Mode:</b>	<b>CH2480</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	20329.327	29.49	19.23	48.72	74.00	-25.28	peak			





<b>Service No.:</b>	<b>114017450-LE FCC</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Vertical</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2014/4/10 10:46:18</b>
<b>Applicant:</b>	<b>Adonit</b>	<b>Test Rating:</b>	<b>DC 3.7V</b>
<b>Product:</b>	<b>2.4GHz BLE Touch Pen</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>22.4(°C)/61%</b>
<b>Model No.:</b>	<b>Mighty</b>	<b>Test Engineer:</b>	<b>Hugo Chang</b>
<b>Test Mode:</b>	<b>CH2480</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	21500.801	29.44	19.26	48.70	74.00	-25.30	peak			

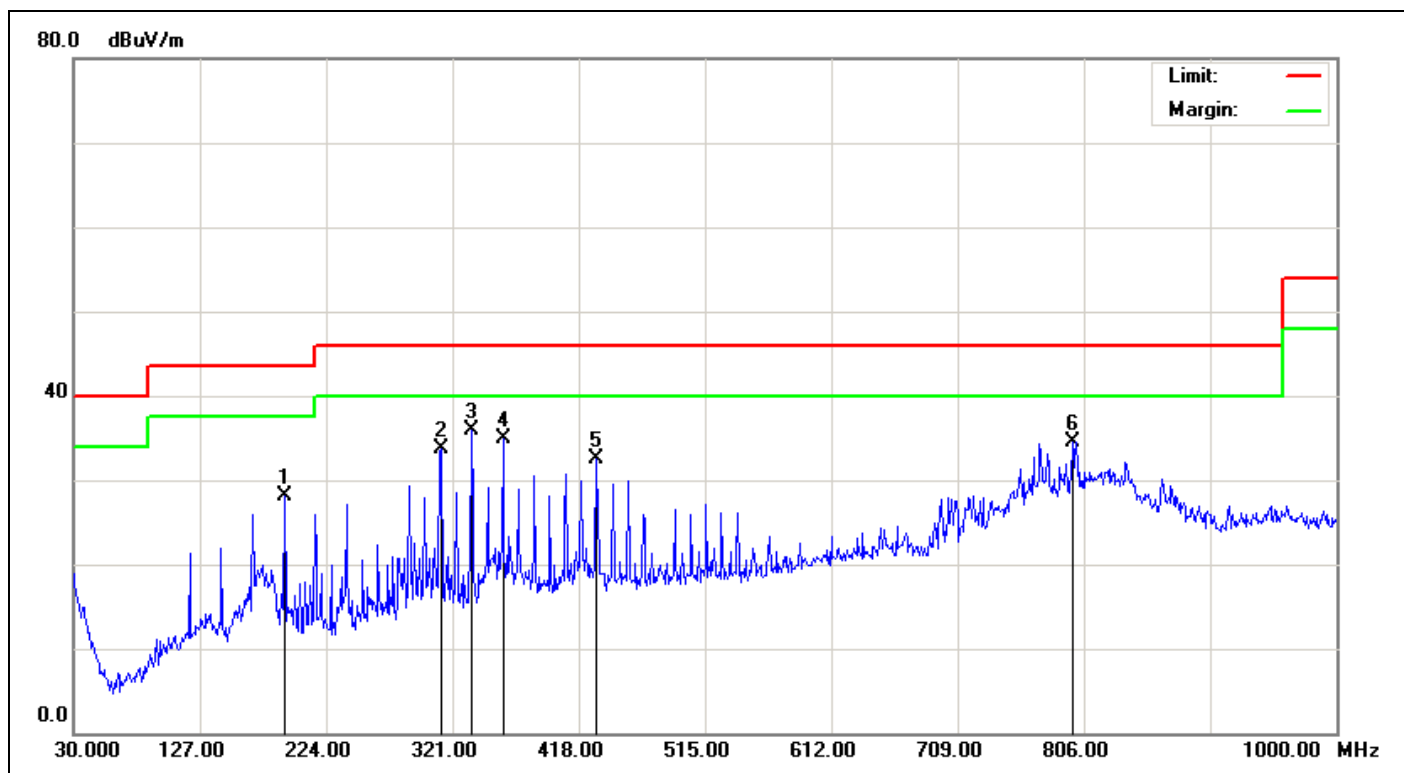
# Spurious Emissions, TX Mode, 30M-1G



**TUV Rheinland Taiwan**

11F.,No.758,Sec. 4,Bade Rd.,Songshan Dist.,Taipei 105,Taiwan

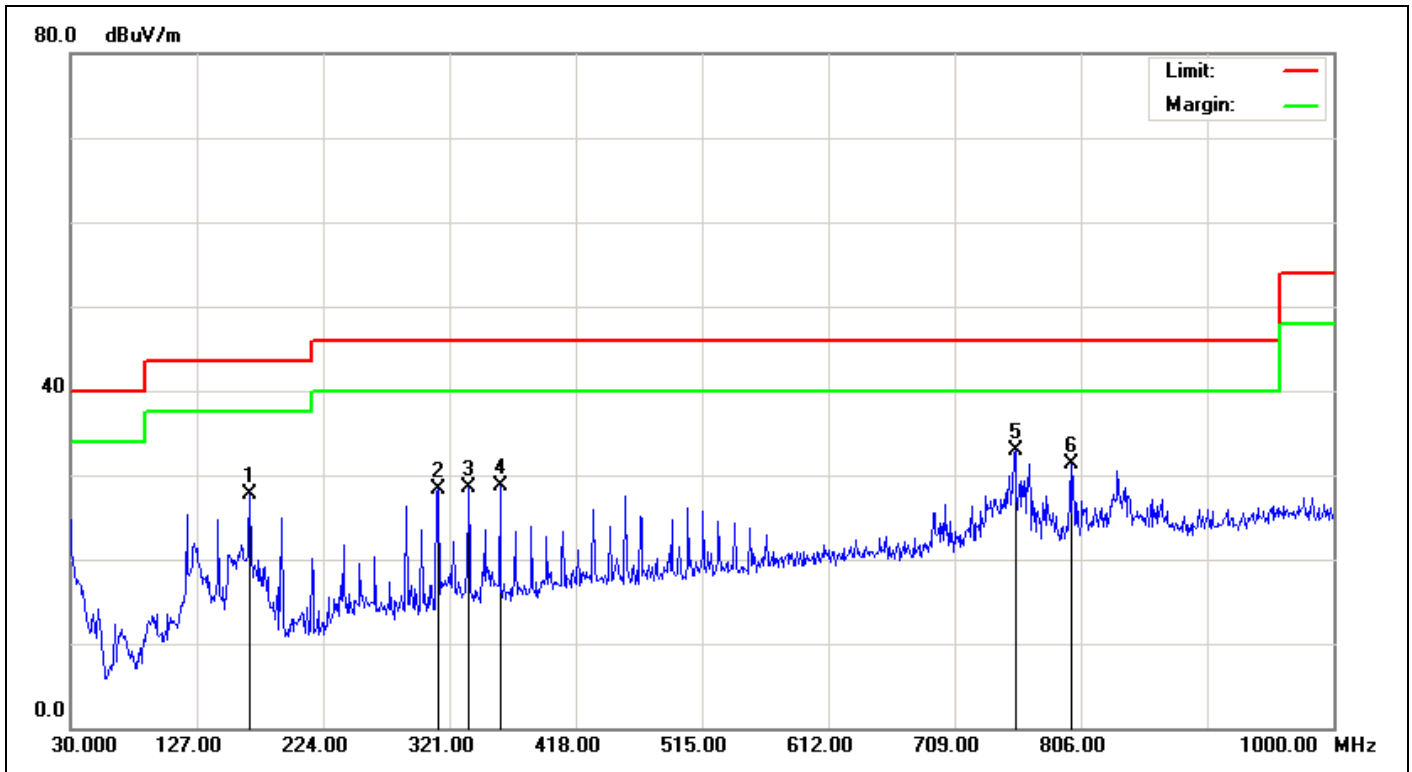
Tel:+886-2-2172-7000 Fax:+886-2-2528-0018



Service No.:	114017450-LE FCC	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2014/4/10 10:55:15
Applicant:	Adonit	Test Rating:	DC 3.7V
Product:	2.4GHz BLE Touch Pen	Temp.(°C)/Hum.(%)	22.4(°C)/61%
Model No.:	Mighty	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	191.9900	-15.47	43.61	28.14	43.50	-15.36	QP	100	253	
2	312.2699	-10.17	43.81	33.64	46.00	-12.36	QP	100	200	
3	335.5500	-9.76	45.58	35.82	46.00	-10.18	QP	100	200	
4	359.8000	-9.33	44.33	35.00	46.00	-11.00	QP	100	213	
5	431.5799	-8.19	40.61	32.42	46.00	-13.58	QP	100	28	
6	797.2698	-3.64	38.16	34.52	46.00	-11.48	QP	100	179	

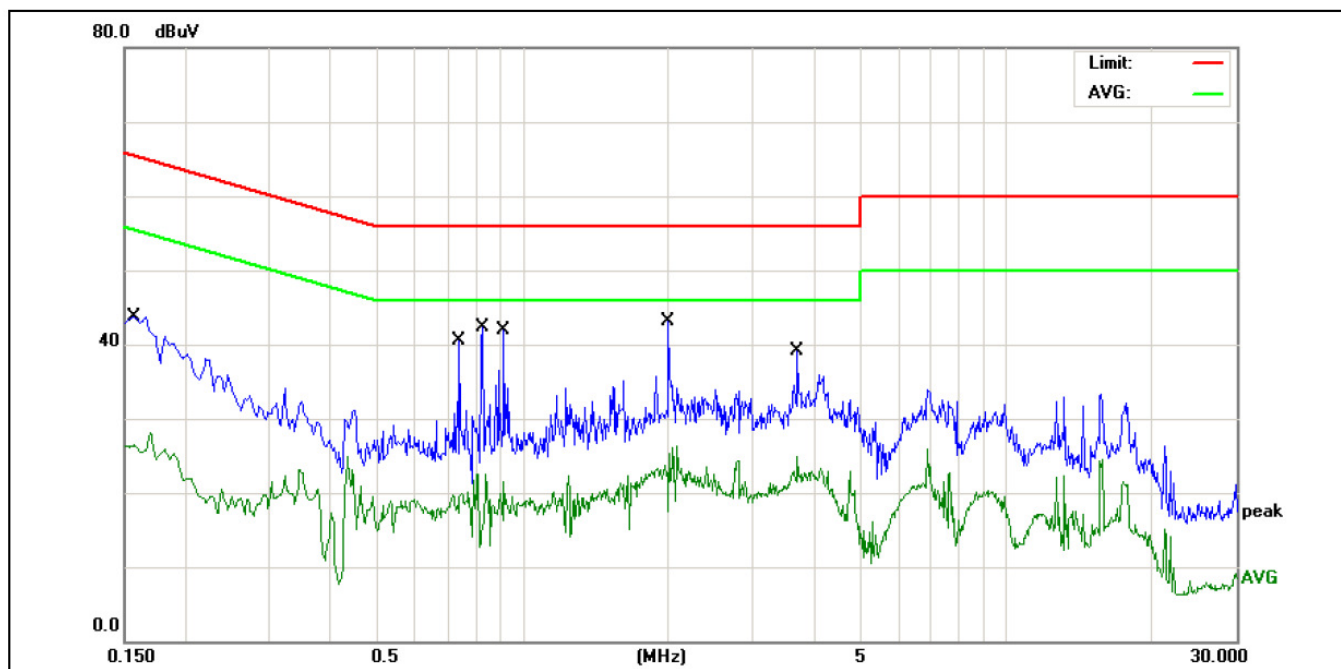
## Spurious Emissions, TX Mode, 30M-1G



<b>Service No.:</b>	114017450-LE FCC	<b>Test Distance:</b>	3m
<b>Test Standard:</b>	FCC Class B 3M Radiation	<b>Ant. Polarization:</b>	Vertical
<b>Test item:</b>	Radiation Emission	<b>Test Time:</b>	2014/4/10 10:56:19
<b>Applicant:</b>	Adonit	<b>Test Rating:</b>	DC 3.7V
<b>Product:</b>	2.4GHz BLE Touch Pen	<b>Temp.(°C)/Hum.(%):</b>	22.4(°C)/61%
<b>Model No.:</b>	Mighty	<b>Test Engineer:</b>	Hugo Chang
<b>Test Mode:</b>	TX		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth ( ° )	Remark
1	167.7400	-14.67	42.36	27.69	43.50	-15.81	QP	100	184	
2	312.2700	-10.17	38.57	28.40	46.00	-17.60	QP	100	338	
3	335.5500	-9.76	38.25	28.49	46.00	-17.51	QP	100	327	
4	359.8000	-9.33	38.02	28.69	46.00	-17.31	QP	100	266	
5	755.5600	-3.96	36.87	32.91	46.00	-13.09	QP	100	53	
6	798.2400	-3.63	35.02	31.39	46.00	-14.61	QP	100	22	

# Mains Spurious Emissions



Service No.: 114017450

Test Standard: FCC Part 15 Class B Conduction

Test item: Conducted Emission

Phase: L1

Applicant: Adonit Co., Ltd

Temp.(°C)/Hum.(%): 24.5(°C) / 53 %

Product: 2.4GHz BLE Touch Pen

Power Rating: AC 120V/60Hz

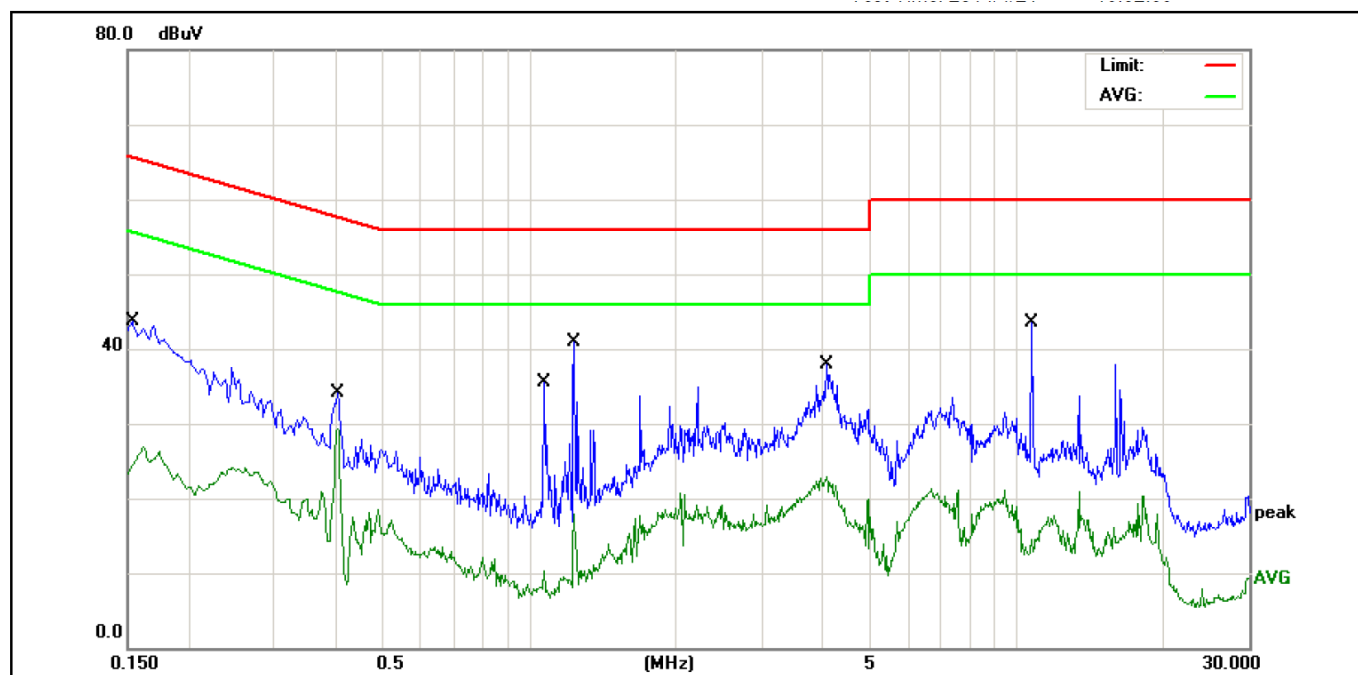
Model No.: Mighty

Test Engineer: Sam Su

Test Mode: Charge mode

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1580	9.62	26.62	36.24	65.56	-29.32	QP	P	
2	0.1580	9.62	17.40	27.02	55.56	-28.54	AVG	P	
3	0.7420	9.60	13.22	22.82	56.00	-33.18	QP	P	
4	0.7420	9.60	7.90	17.50	46.00	-28.50	AVG	P	
5	0.8300	9.60	8.01	17.61	56.00	-38.39	QP	P	
6	0.8300	9.60	1.84	11.44	46.00	-34.56	AVG	P	
7	0.9180	9.60	14.13	23.73	56.00	-32.27	QP	P	
8	0.9180	9.60	8.36	17.96	46.00	-28.04	AVG	P	
9	2.0059	9.62	18.56	28.18	56.00	-27.82	QP	P	
10	2.0059	9.62	13.36	22.98	46.00	-23.02	AVG	P	
11	3.7180	9.64	18.05	27.69	56.00	-28.31	QP	P	
12	3.7180	9.64	10.74	20.38	46.00	-25.62	AVG	P	



Service No.: 114017450

Test Standard: FCC Part 15 Class B Conduction

Test item: Conducted Emission

Phase: N

Applicant: Adonit Co., Ltd

Temp.(°C)/Hum.(%): 24.5(°C) / 53 %

Product: 2.4GHz BLE Touch Pen

Power Rating: AC 120V/60Hz

Model No.: Mighty

Test Engineer: Sam Su

Test Mode: Charge mode

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1539	9.59	26.94	36.53	65.78	-29.25	QP	P	
2	0.1539	9.59	14.49	24.08	55.78	-31.70	AVG	P	
3	0.4060	9.57	20.52	30.09	57.73	-27.64	QP	P	
4	0.4060	9.57	18.75	28.32	47.73	-19.41	AVG	P	
5	1.0740	9.57	1.13	10.70	56.00	-45.30	QP	P	
6	1.0740	9.57	-2.67	6.90	46.00	-39.10	AVG	P	
7	1.2420	9.57	6.26	15.83	56.00	-40.17	QP	P	
8	1.2420	9.57	2.10	11.67	46.00	-34.33	AVG	P	
9	4.0899	9.60	21.53	31.13	56.00	-24.87	QP	P	
10	4.0899	9.60	10.72	20.32	46.00	-25.68	AVG	P	
11	10.7539	9.70	9.41	19.11	60.00	-40.89	QP	P	
12	10.7539	9.70	2.45	12.15	50.00	-37.85	AVG	P	