

FCC PART 15B

TEST REPORT

For

SZ DJI Osmo Technology Co.,Ltd.

12th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave,
Nanshan District, Shenzhen, China

FCC ID: 2ANDR-MST11804

Report Type: Original Report	Product Type: Master Wheels
Report Number: RDG180410002-00A	
Report Date: 2018-04-17	
Reviewed By:	Jerry Zhang EMC Manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

This report must not be used by the customer to claim product certification, approval, or endorsement by A2LA* or any agency of the Federal Government. * This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk

“*”

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		Master Wheels
EUT Model:		MST1
FCC ID:		2ANDR-MST11804
Rated Input Voltage:		DC 22.8V from battery DC 12-27V from DC-in Port
Adapter Information	Model:	IN2C180
	UP/N:	A180A007L
	Input:	100-240V~2.5A, 50-60Hz
	Output:	DC 26.1V, 6.9A(Total) DC 26.1V, 0-5A(Output 1) DC 26.1V, 0-6.9A(Output 2)
The Highest Operating Frequency:		5843 MHz
External Dimension:		440 mm (L) x 365 mm (W) x 225 mm (H)
Serial Number:		180410002
EUT Received Date:		2018-04-11

Objective

This report is prepared on behalf of *SZ DJI Osmo Technology Co.,Ltd.* in accordance with FCC Part 15B Part 2, Part J, and Part 15, Subpart A and B of the Federal Communications Commission's rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15 B Class B.

Related Submittal(s)/Grant(s)

FCC submissions with Part 15C DSS, FCC ID: 2ANDR-MST11804.

FCC submissions with Part 15E NII, FCC ID: 2ANDR-MST11804.

Part of system submissions with FCC ID: 2ANDR-R21708.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB, 200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~40G: 5.47 dB
Temperature	±1 °C
Humidity	±5%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user) as below, that was provided manufacturer.

Test mode 1: battery operating

Powered the device by battery, and operating the Camera(Ronin 2)

Test mode 2: DC power operating

Powered the device by DC power input port, and operating the Camera(Ronin 2)

Equipment Modifications

No modification was made to the EUT.

EUT Exercise Software

No software was used during test.

Support Equipment List and Details

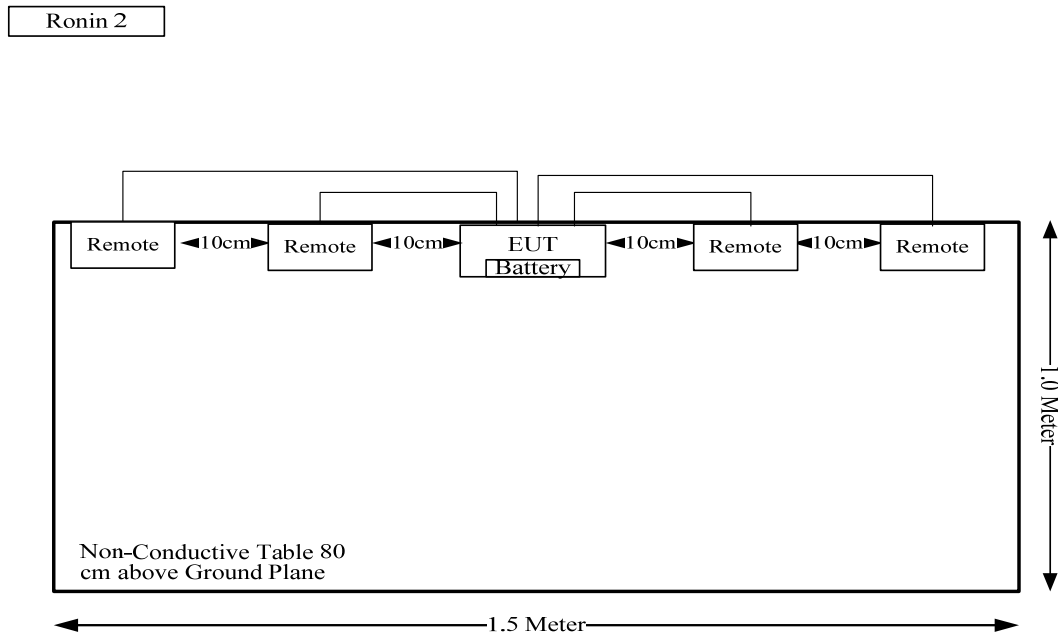
Manufacturer	Description	Model	Serial Number	FCC ID
DJI	Ronin 2	R2	170730002	2ANDR-R21708
DJI	Remoter*4	/	/	/
DJI	External Battery	TB47S	TB47S-4500-22.2-6S	/

Support Cable List and Details

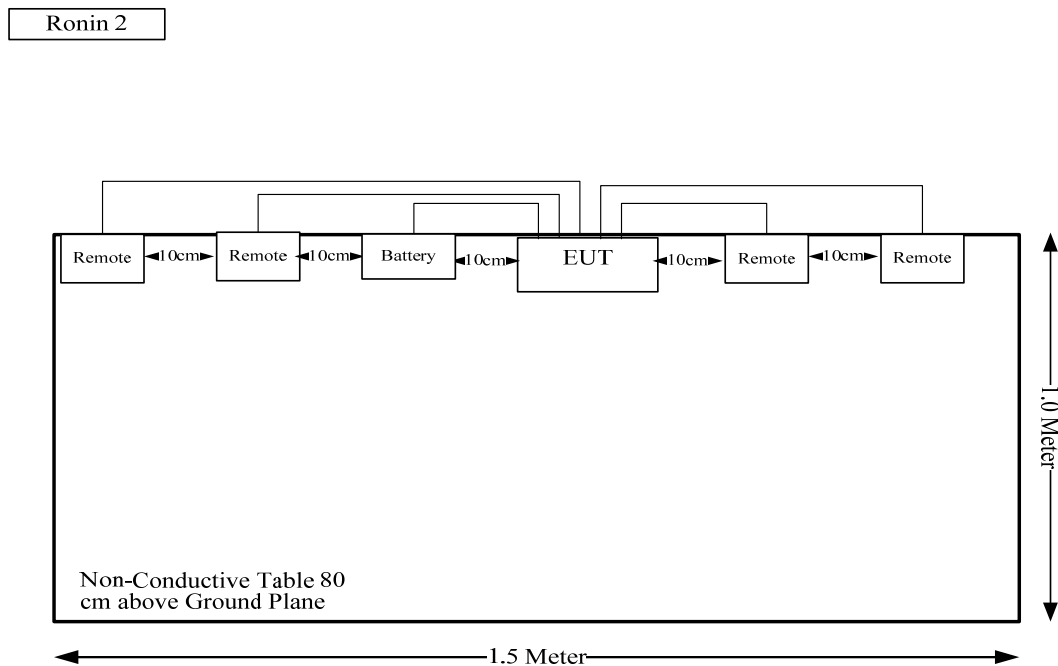
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
CAN-BUS Cable*4	Yes	No	1.2	EUT	Remote
DC Power Cable	Yes	No	1.2	Battery	EUT

Block Diagram of Test Setup

Test Mode 1:



Test Mode 2:



SUMMARY OF TEST RESULTS

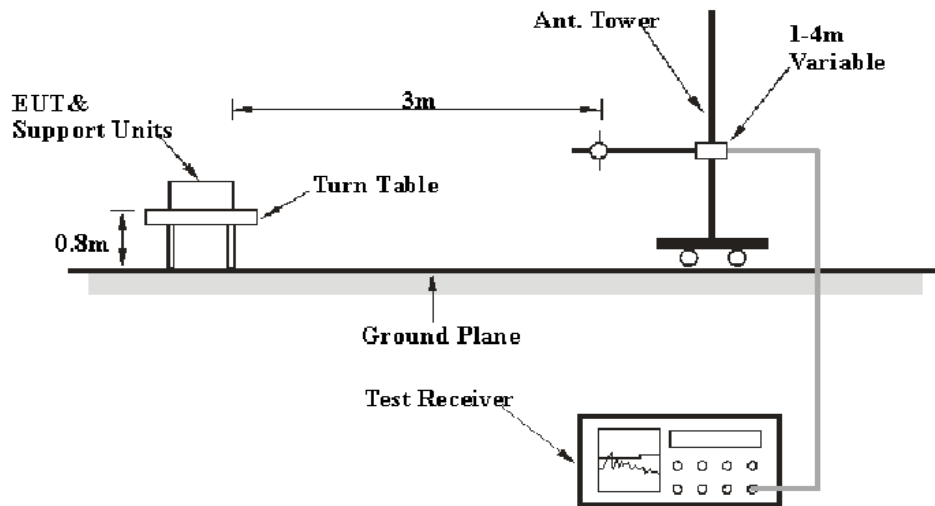
FCC Rules	Description of Test	Results
§15.107	Conducted Emissions	Not applicable*
§15.109	Radiated Emissions	Compliant

Not Applicable: The device powered by battery.

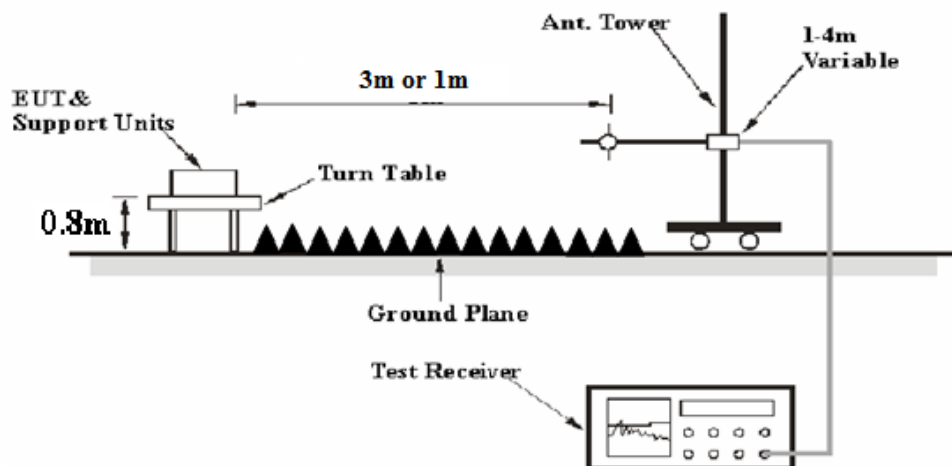
FCC PART 15B §15.109-RADIATED EMISSIONS

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed at the 3 meters Test Site A and B, 1GHz-26.5GHz were performed at the 3 m distance and 26.5-40GHz was performed at 1 m distance, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	10Hz	/	AVG

Test Procedure

During the radiated emissions, the adapter of laptop was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

According to C63.4, the above 26.5G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1 m

Distance extrapolation factor = $20 \log (\text{specific distance [3m]}/\text{test distance [1m]})$ dB= 9.54 dB

All emissions under the average limit and under the noise floor have not recorded in the report.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2017-12-08	2018-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
MITEQ	Amplifier	AFS42-00101800-2 5-S-42	2001271	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2017-06-27	2018-06-27
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Ducommun Technologies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:

Corrected = Antenna Factor + Cable Loss - Amplifier Gain

or

Corrected = Antenna Factor + Cable Loss- Amplifier Gain+ Distance extrapolation factor

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Result}$$

Test Data

Environmental Conditions

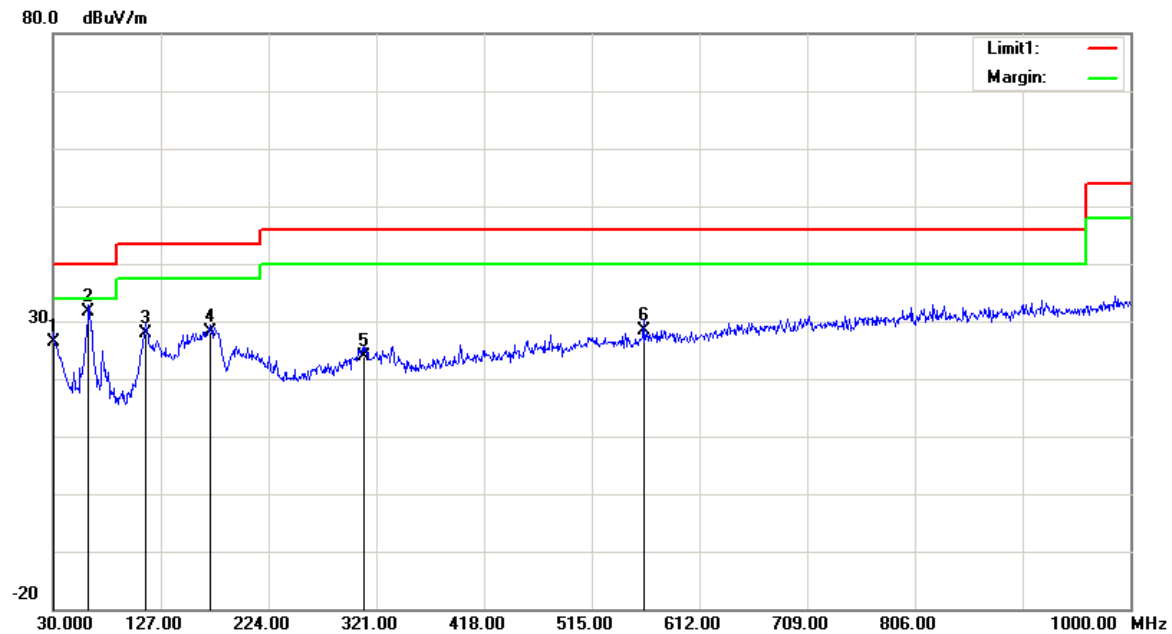
Temperature:	22.6 ~ 25.1 °C
Relative Humidity:	30 %
ATM Pressure:	100.8 ~ 100.9 kPa

** The testing was performed by Vern Shen & Steve Zuo on 2018-03-28 & 2018-03-29.*

Please refer to following table and plots:

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

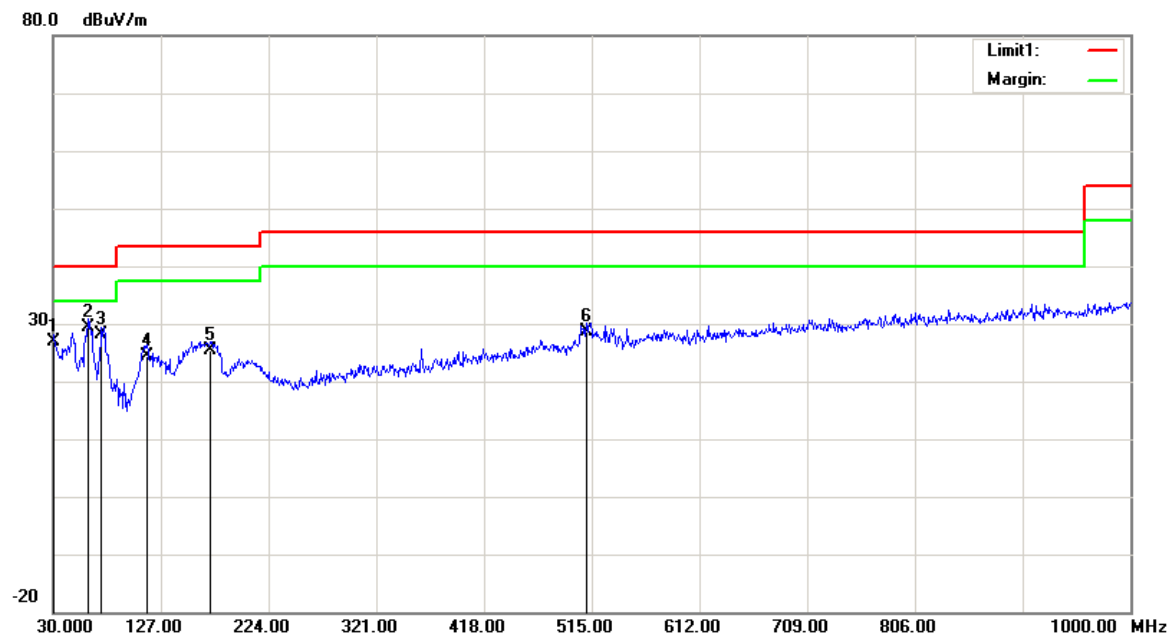
Polarization: Horizontal
Power: DC 22.8V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	30.0000	24.76	QP	1.54	26.30	40.00	13.70
2	62.0100	43.79	QP	-12.19	31.60	40.00	8.40
3	113.4200	33.52	QP	-5.72	27.80	43.50	15.70
4	171.6200	35.20	QP	-7.00	28.20	43.50	15.30
5	310.3300	27.64	QP	-3.84	23.80	46.00	22.20
6	561.5600	27.78	QP	0.52	28.30	46.00	17.70

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

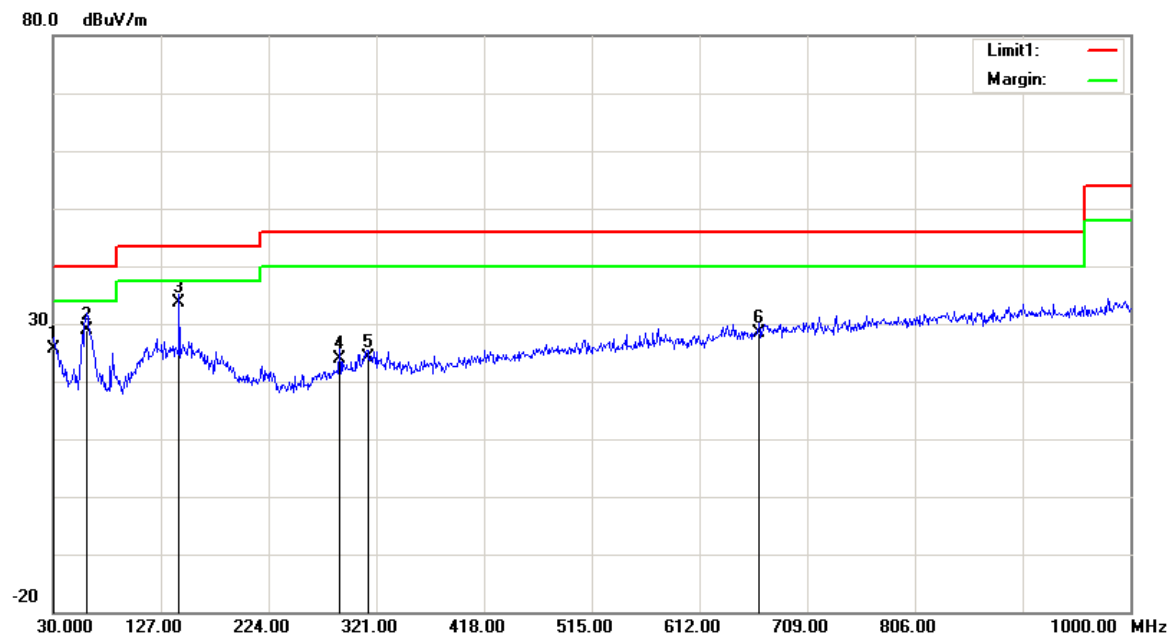
Polarization: Vertical
Power: DC 22.8V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	30.0000	25.26	QP	1.54	26.80	40.00	13.20
2	62.0100	41.49	QP	-12.19	29.30	40.00	10.70
3	73.6500	39.38	QP	-11.18	28.20	40.00	11.80
4	114.3900	30.02	QP	-5.52	24.50	43.50	19.00
5	171.6200	32.30	QP	-7.00	25.30	43.50	18.20
6	510.1500	28.86	QP	-0.26	28.60	46.00	17.40

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

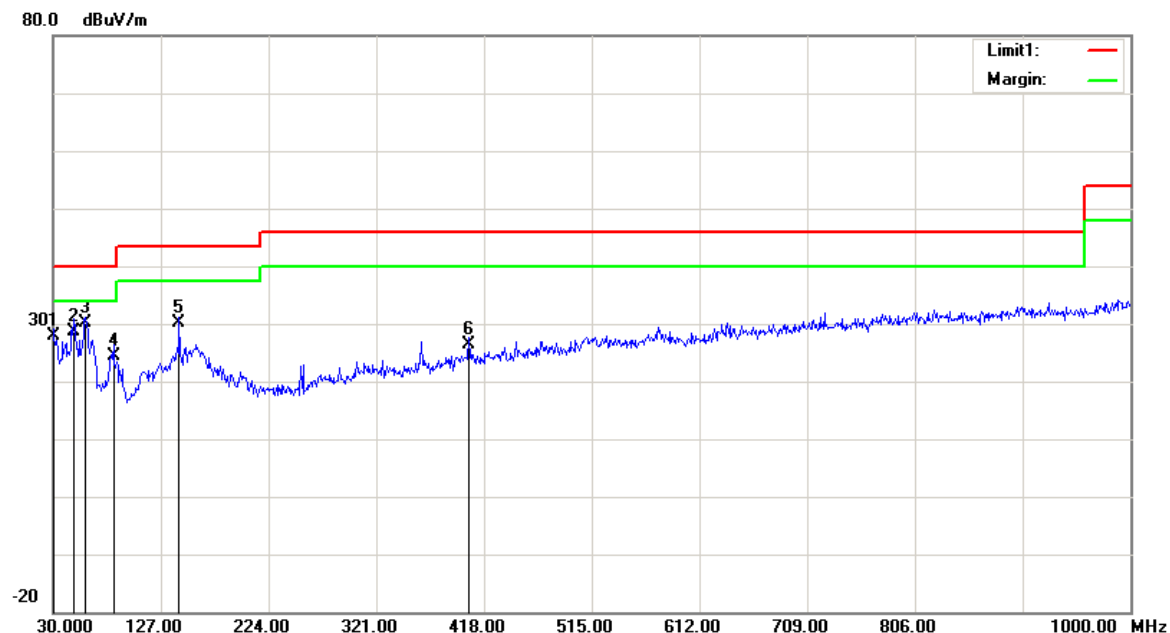
Polarization: Horizontal
Power: DC 22.2V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	30.9700	24.79	QP	0.81	25.60	40.00	14.40
2	60.0700	41.08	QP	-12.18	28.90	40.00	11.10
3	143.4900	39.57	QP	-5.97	33.60	43.50	9.90
4	288.0200	27.90	QP	-4.10	23.80	46.00	22.20
5	313.2400	27.80	QP	-3.70	24.10	46.00	21.90
6	665.3500	25.86	QP	2.44	28.30	46.00	17.70

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

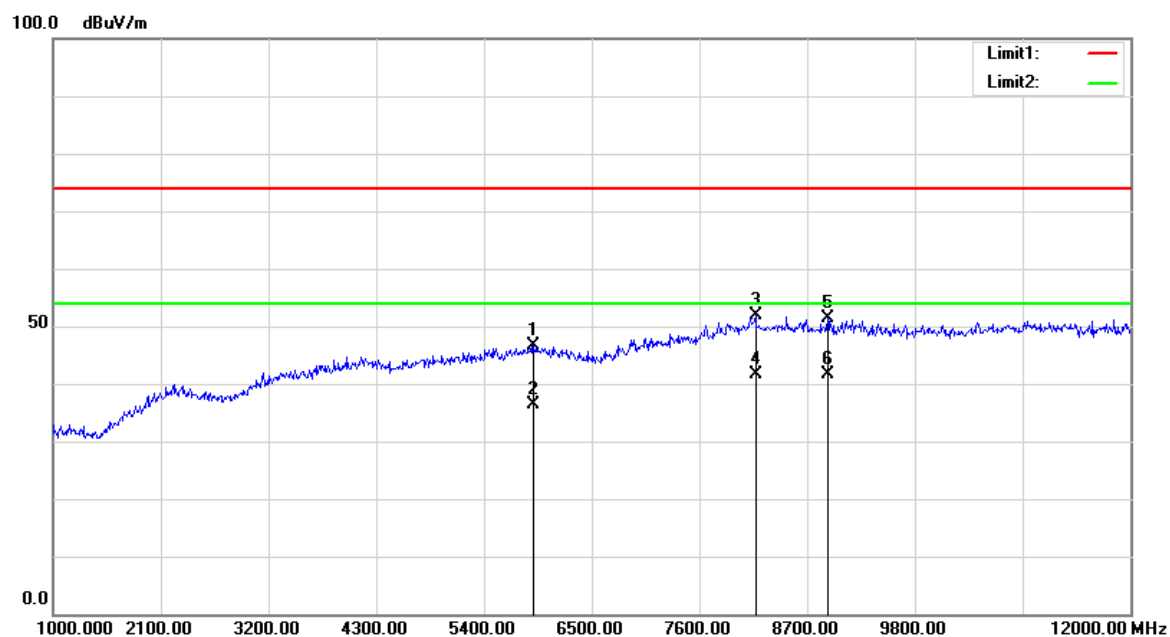
Polarization: Vertical
Power: DC 22.2V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	30.0000	26.26	QP	1.54	27.80	40.00	12.20
2	48.4300	39.40	QP	-10.80	28.60	40.00	11.40
3	59.1000	42.49	QP	-12.29	30.20	40.00	9.80
4	84.3200	35.76	QP	-11.46	24.30	40.00	15.70
5	143.4900	36.07	QP	-5.97	30.10	43.50	13.40
6	404.4200	28.47	QP	-1.97	26.50	46.00	19.50

Condition: FCC Part 15 Class B
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

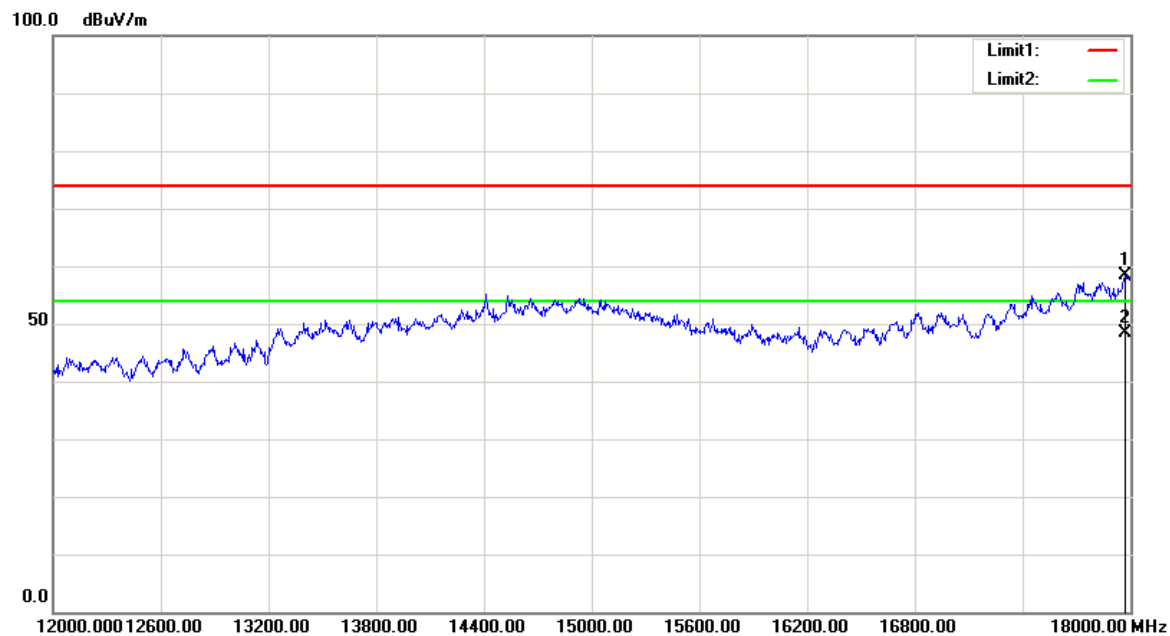
Polarization: Horizontal
Power: DC 22.8V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	5911.500	45.87	peak	0.82	46.69	74.00	27.31
2	5911.500	35.63	AVG	0.82	36.45	54.00	17.55
3	8172.000	46.79	peak	5.05	51.84	74.00	22.16
4	8172.000	36.52	AVG	5.05	41.57	54.00	12.43
5	8909.000	45.32	peak	6.12	51.44	74.00	22.56
6	8909.000	35.60	AVG	6.12	41.72	54.00	12.28

Condition: FCC Part 15 Class B
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

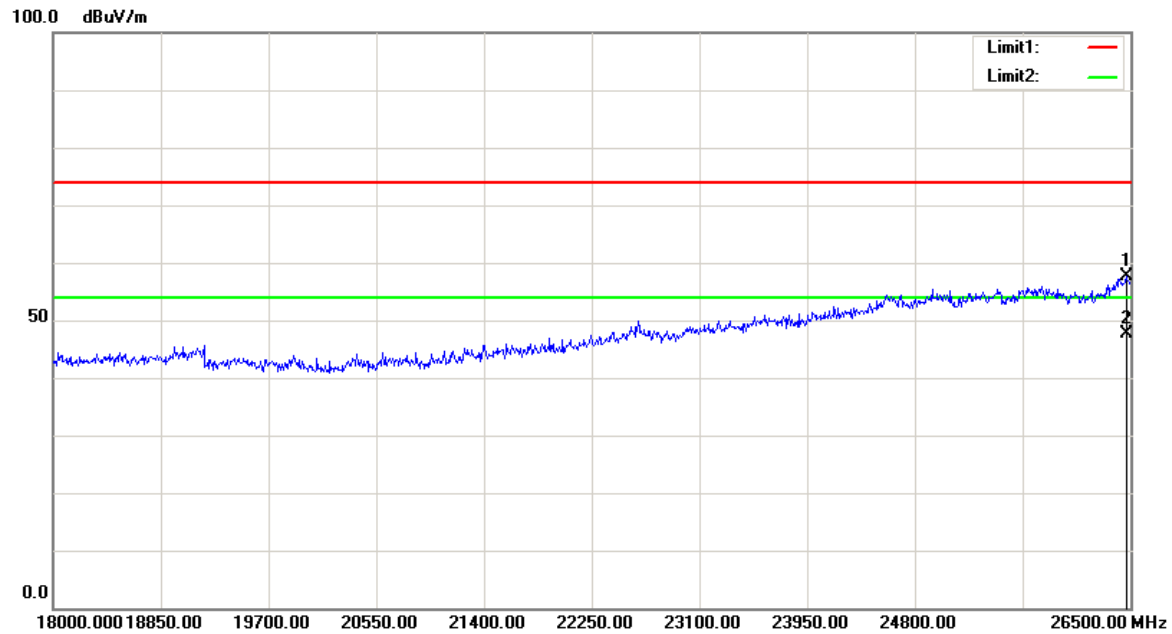
Polarization: Horizontal
Power: DC 22.8V
Distance: 3m



No.	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected dB/m	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	17973.000	41.33	peak	16.95	58.28	74.00	15.72
2	17973.000	31.50	AVG	16.95	48.45	54.00	5.55

Condition: FCC Part 15 Class B
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

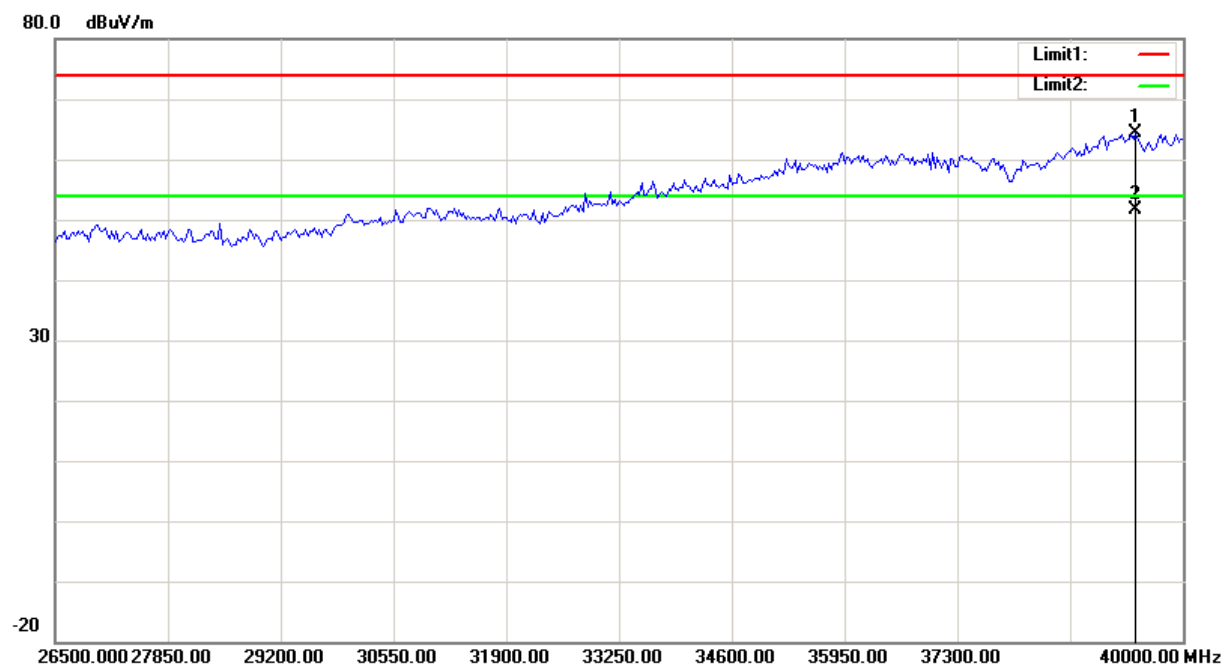
Polarization: Horizontal
Power: DC 22.8V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	26466.000	35.96	peak	21.69	57.65	74.00	16.35
2	26466.000	25.83	AVG	21.69	47.52	54.00	6.48

Condition: FCC Part 15 Class B
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

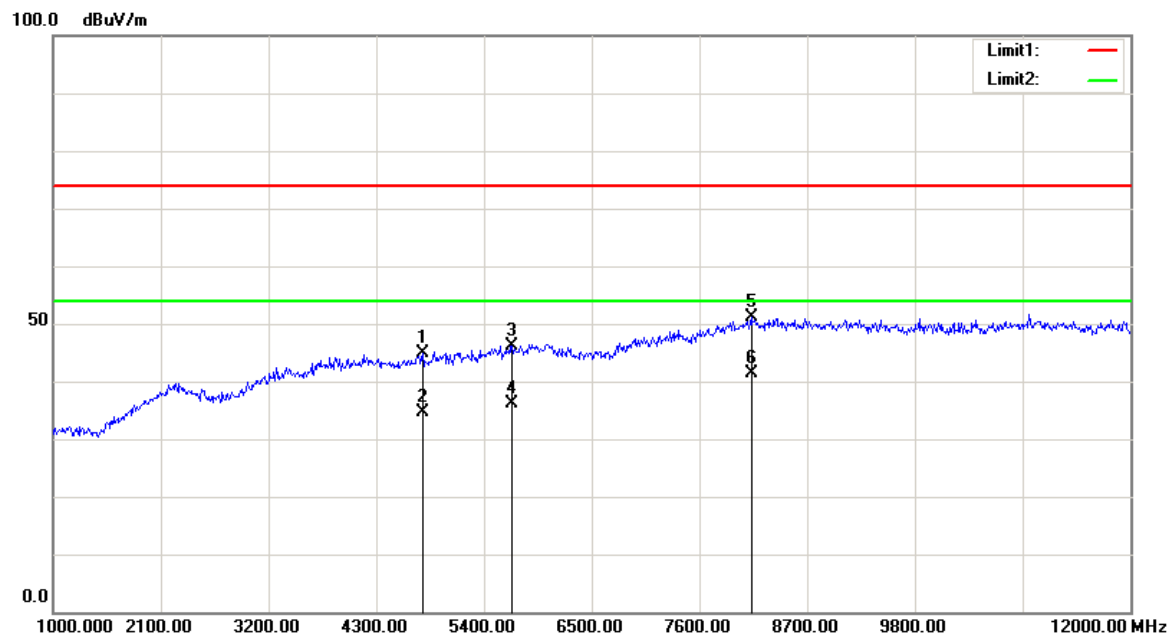
Polarization: Horizontal
Power: DC 22.8V
Distance: 1m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	39433.000	48.38	peak	15.90	64.28	74.00	9.72
2	39433.000	35.84	AVG	15.90	51.74	54.00	2.26

Condition: FCC Part 15 Class B
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

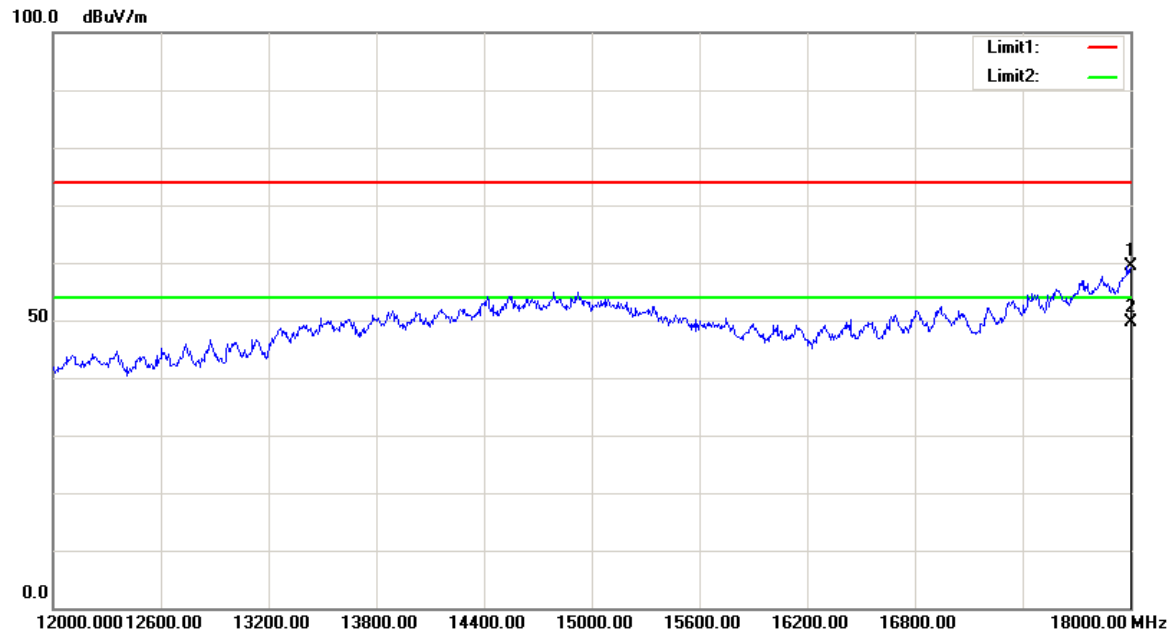
Polarization: Vertical
Power: DC 22.8V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	4778.500	46.01	peak	-1.18	44.83	74.00	29.17
2	4778.500	35.90	AVG	-1.18	34.72	54.00	19.28
3	5686.000	45.75	peak	0.45	46.20	74.00	27.80
4	5686.000	35.79	AVG	0.45	36.24	54.00	17.76
5	8133.500	46.06	peak	5.00	51.06	74.00	22.94
6	8133.500	36.27	AVG	5.00	41.27	54.00	12.73

Condition: FCC Part 15 Class B
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

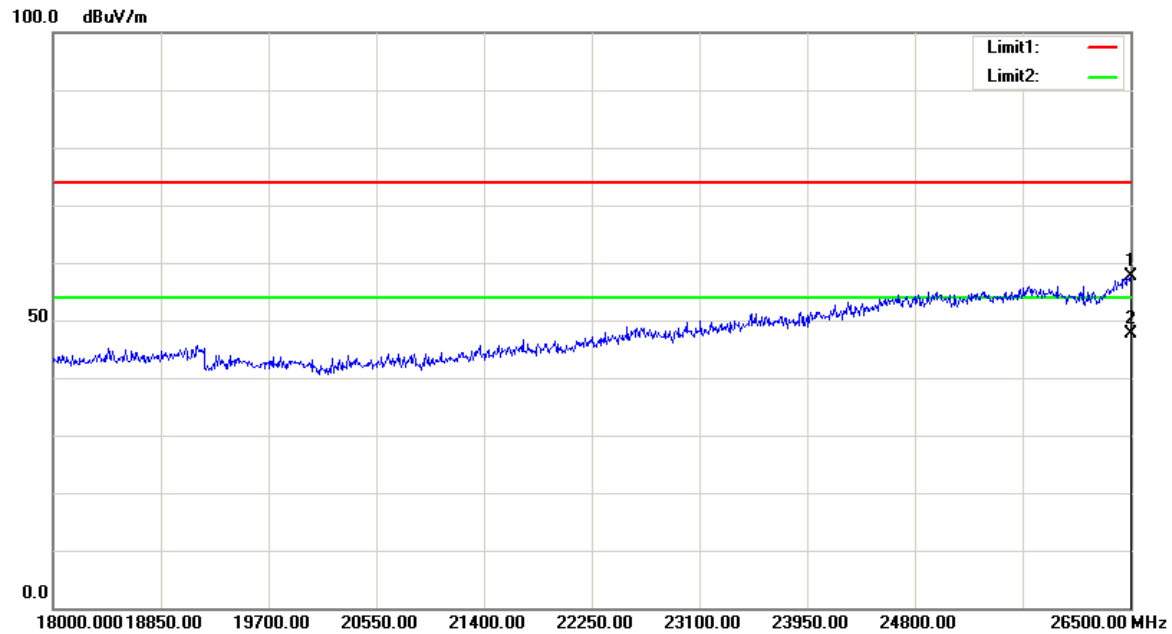
Polarization: Horizontal
Power: DC 22.8V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	18000.000	42.18	peak	17.15	59.33	74.00	14.67
2	18000.000	32.57	AVG	17.15	49.72	54.00	4.28

Condition: FCC Part 15 Class B
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

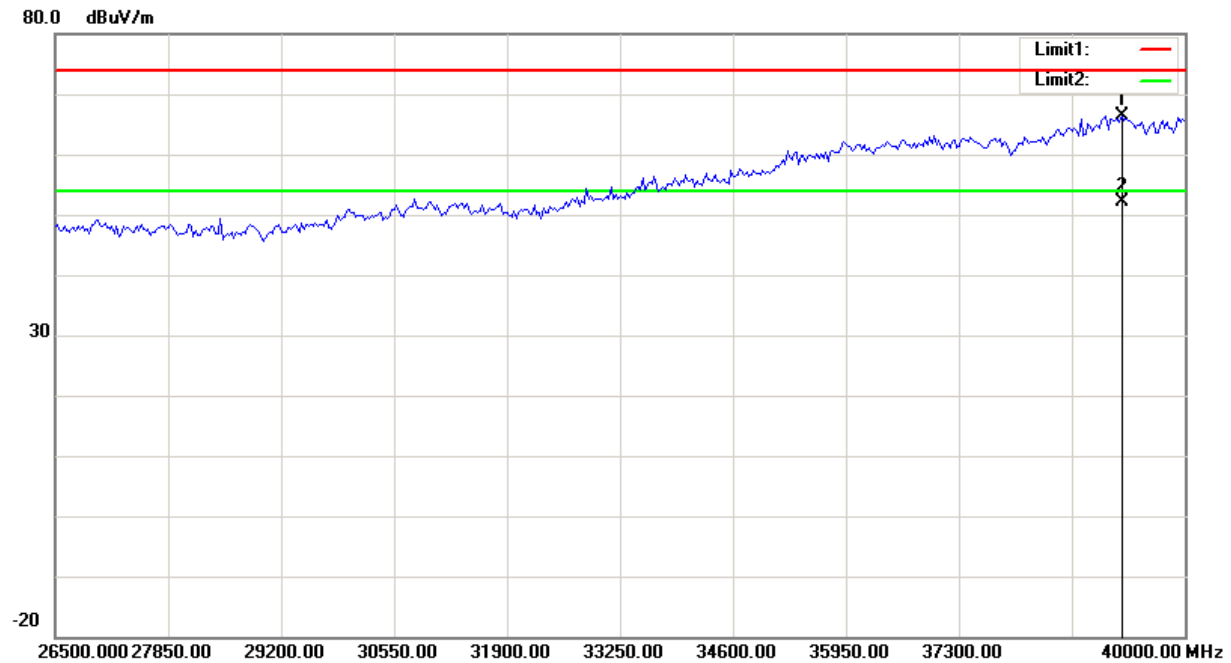
Polarization: Vertical
Power: DC 22.8
Distance: 3m



No.	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected dB/m	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	26500.000	35.91	peak	21.84	57.75	74.00	16.25
2	26500.000	25.70	AVG	21.84	47.54	54.00	6.46

Condition: FCC Part 15 Class B
EUT: Master Wheels
Model: MST1
Test Mode: battery operating
Note:

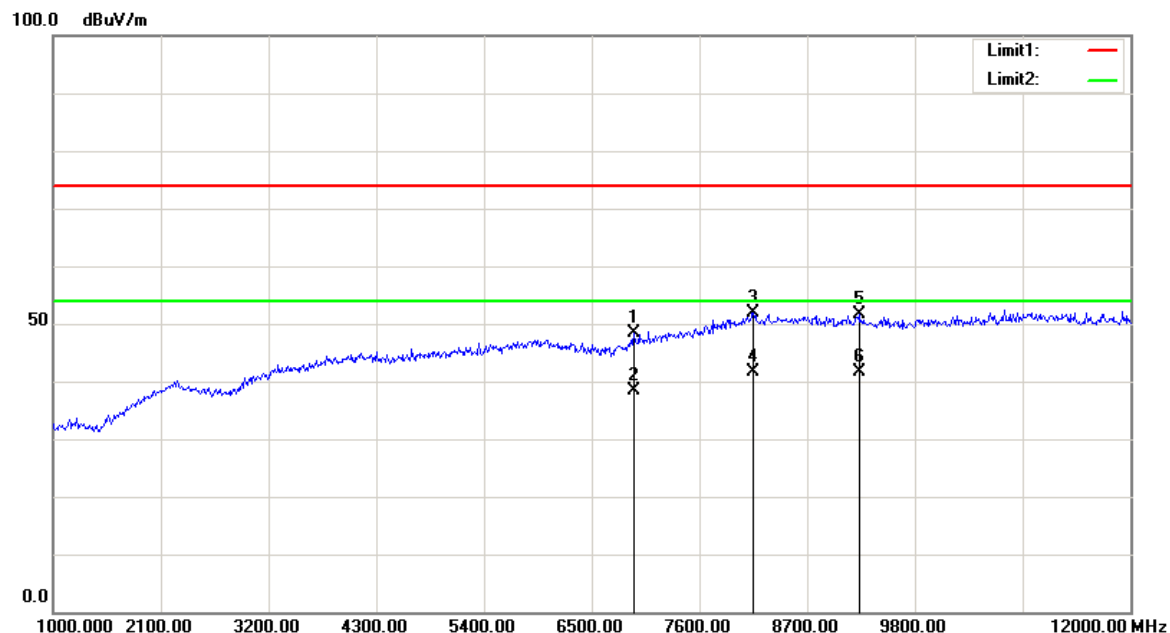
Polarization: Vertical
Power: DC 22.8
Distance: 1m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	39244.000	50.41	peak	15.99	66.40	74.00	7.60
2	39244.000	36.19	AVG	15.99	52.18	54.00	1.82

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

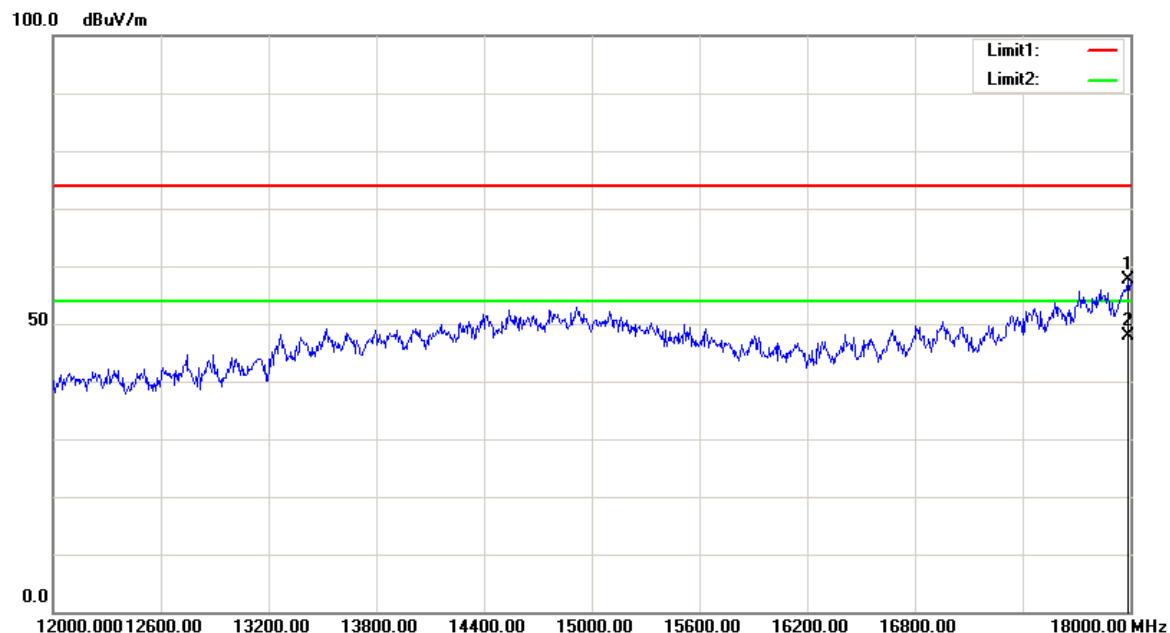
Polarization: Horizontal
Power: DC 22.2V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	6934.500	45.20	peak	3.21	48.41	74.00	25.59
2	6934.500	35.24	AVG	3.21	38.45	54.00	15.55
3	8155.500	46.95	peak	5.04	51.99	74.00	22.01
4	8155.500	36.71	AVG	5.04	41.75	54.00	12.25
5	9228.000	45.13	peak	6.61	51.74	74.00	22.26
6	9228.000	34.96	AVG	6.61	41.57	54.00	12.43

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

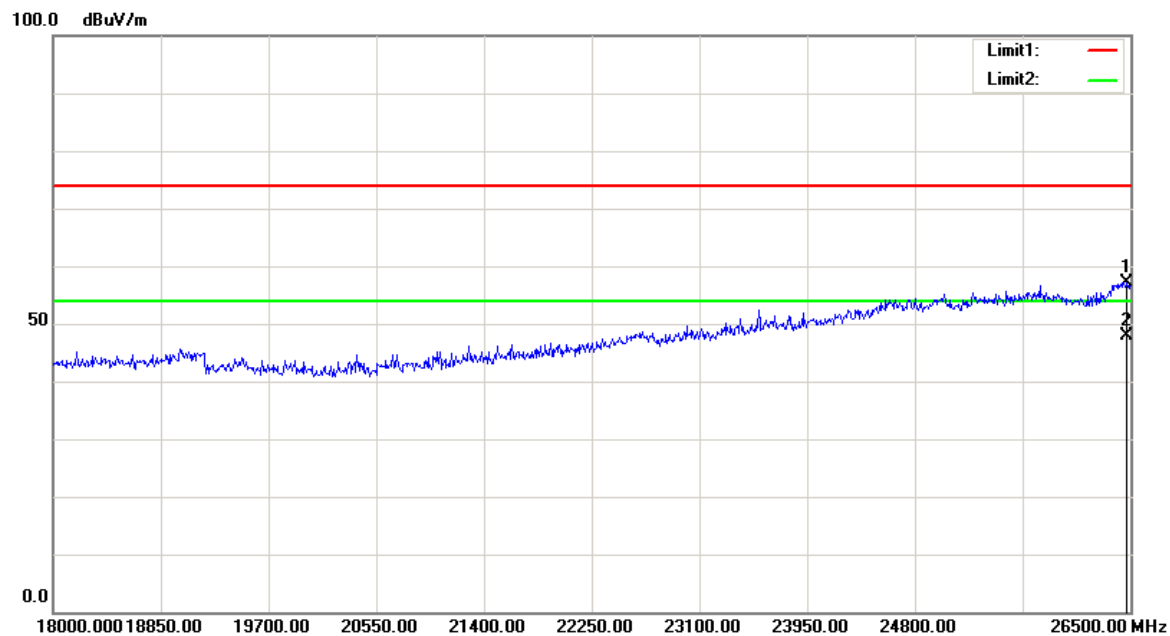
Polarization: Horizontal
Power: DC 22.2V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	17991.000	40.44	peak	17.08	57.52	74.00	16.48
2	17991.000	30.77	AVG	17.08	47.85	54.00	6.15

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

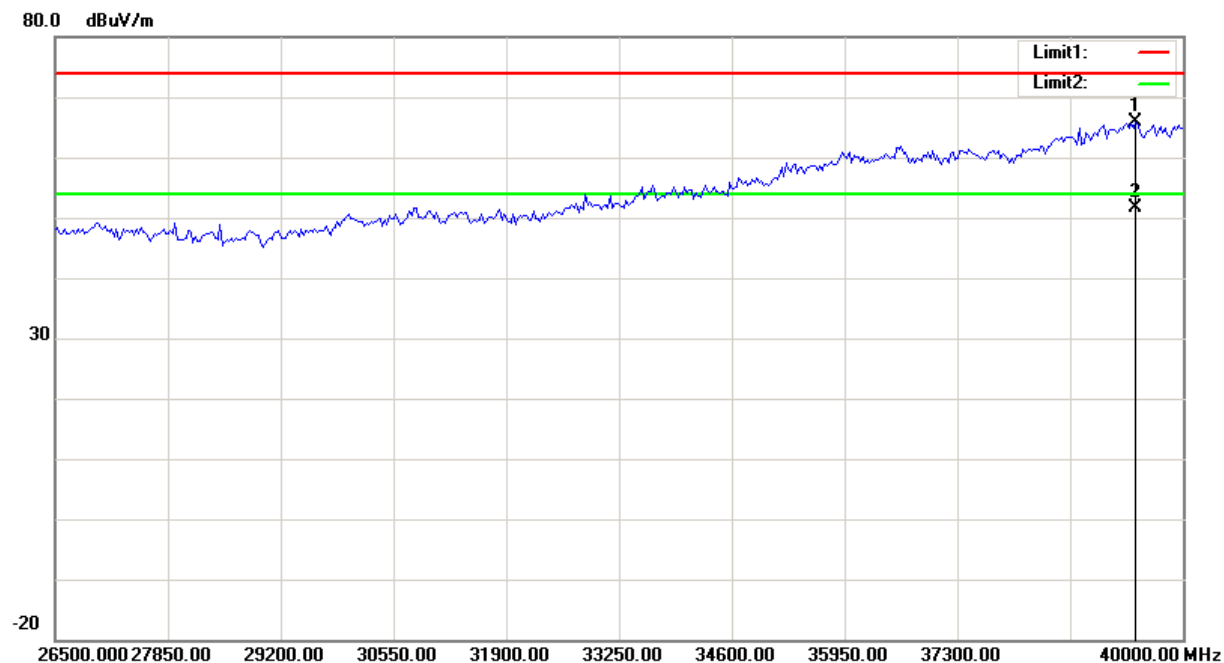
Polarization: Horizontal
Power: DC 22.2V
Distance: 3m



No.	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected dB/m	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	26478.750	35.49	peak	21.74	57.23	74.00	16.77
2	26478.750	26.03	AVG	21.74	47.77	54.00	6.23

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

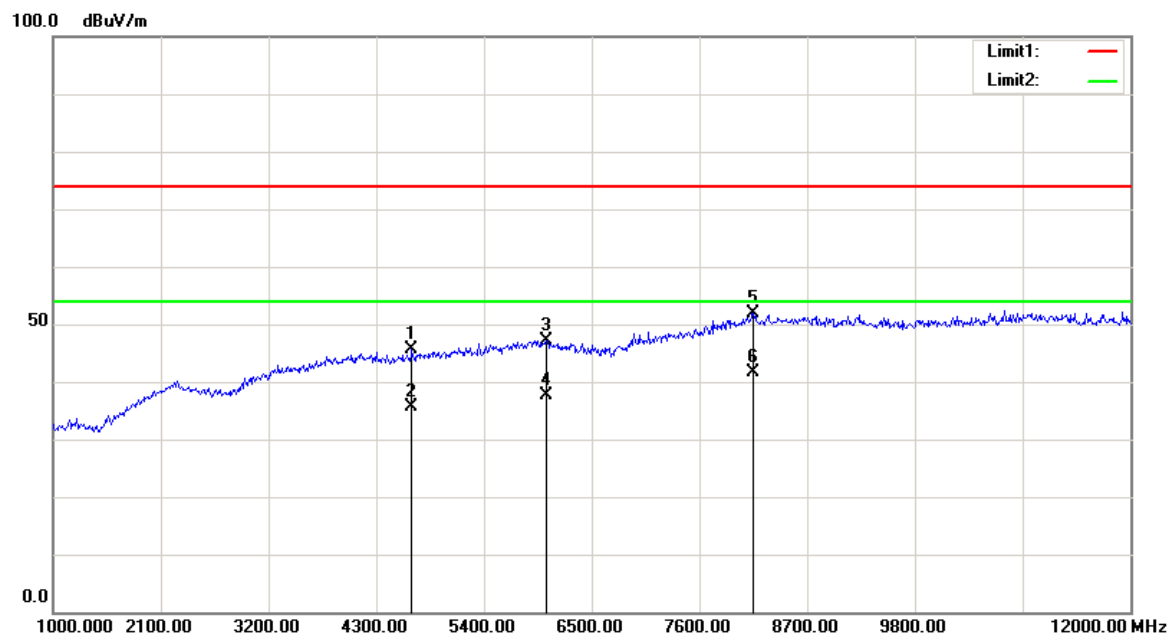
Polarization: Horizontal
Power: DC 22.2V
Distance: 1m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	39433.000	49.88	peak	15.90	65.78	74.00	8.22
2	39433.000	35.74	AVG	15.90	51.64	54.00	2.36

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

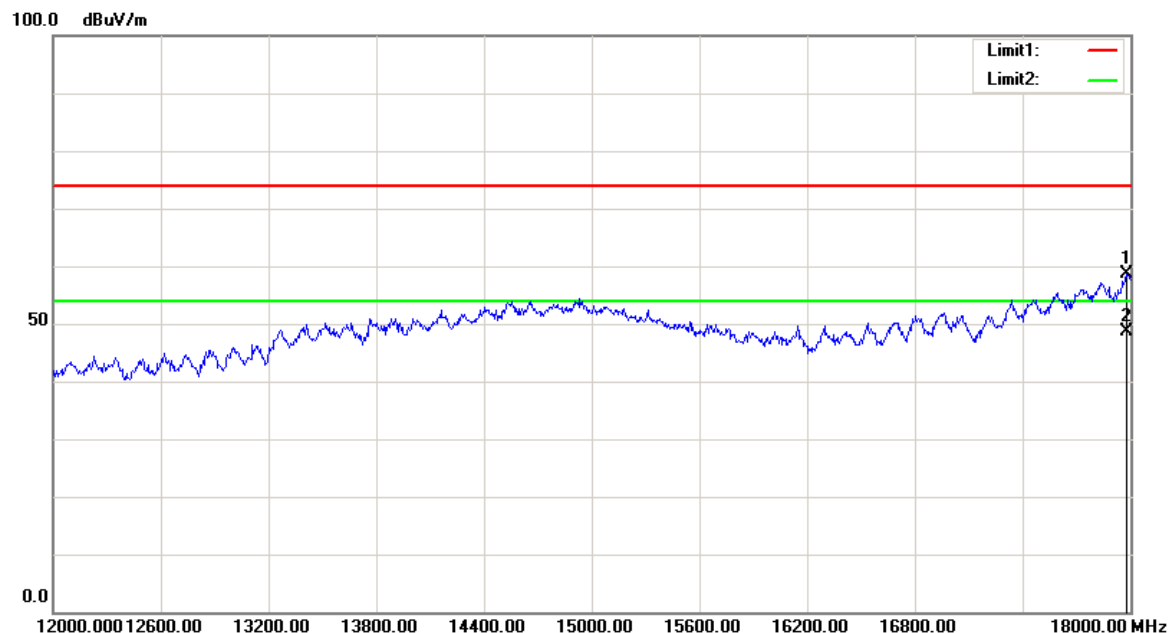
Polarization: Vertical
Power: DC 22.2V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	4663.000	47.05	peak	-1.41	45.64	74.00	28.36
2	4663.000	37.13	AVG	-1.41	35.72	54.00	18.28
3	6038.000	46.35	peak	0.88	47.23	74.00	26.77
4	6038.000	36.66	AVG	0.88	37.54	54.00	16.46
5	8155.500	46.95	peak	5.04	51.99	74.00	22.01
6	8155.500	36.71	AVG	5.04	41.75	54.00	12.25

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

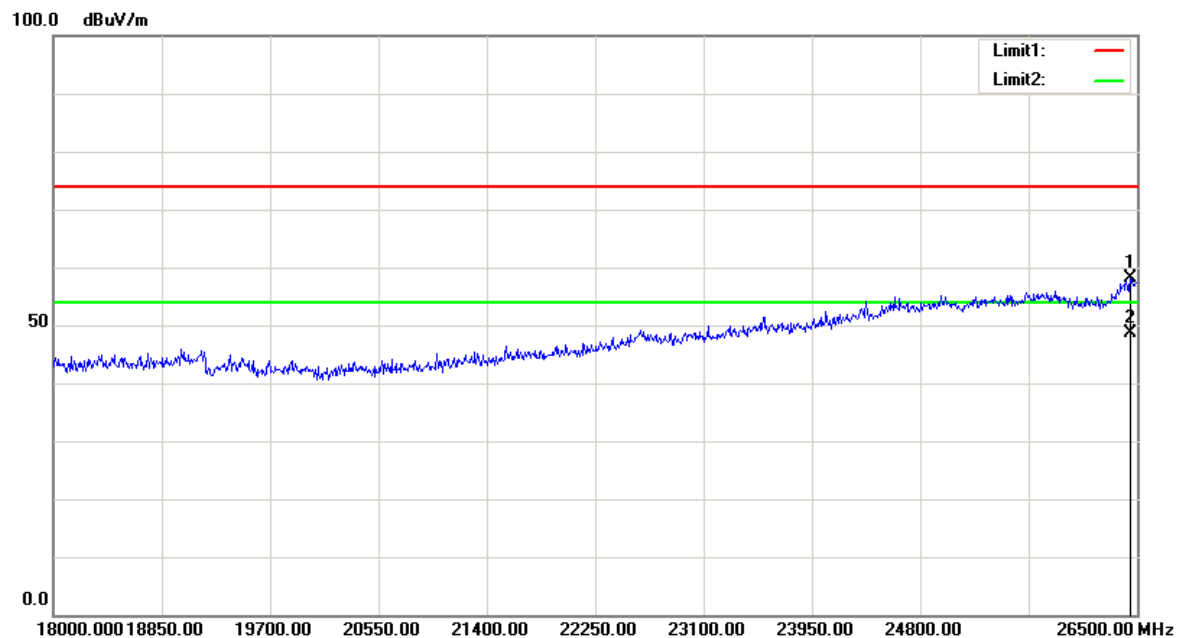
Polarization: Vertical
Power: DC 22.2V
Distance: 3m



No.	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected dB/m	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	17979.000	41.65	peak	17.00	58.65	74.00	15.35
2	17979.000	31.72	AVG	17.00	48.72	54.00	5.28

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

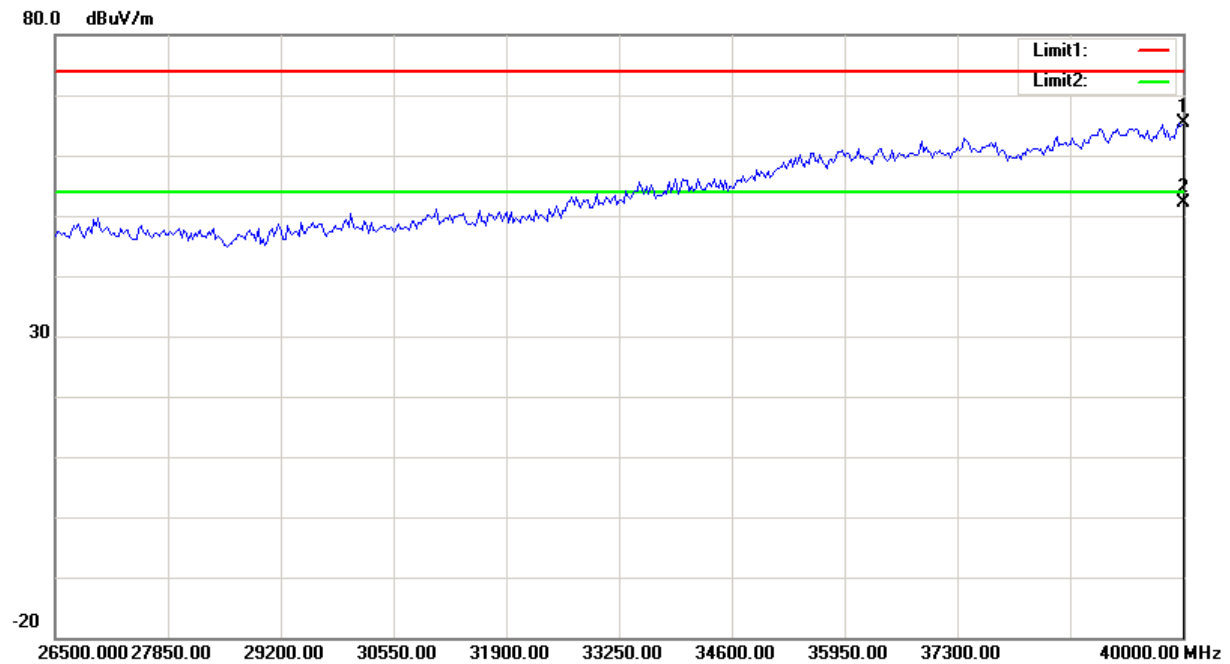
Polarization: Vertical
Power: DC 22.2V
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	26453.250	36.50	peak	21.64	58.14	74.00	15.86
2	26453.250	27.08	AVG	21.64	48.72	54.00	5.28

Condition: FCC Class B 3M Radiation
EUT: Master Wheels
Model: MST1
Test Mode: DC power operating
Note:

Polarization: Vertical
Power: DC 22.2V
Distance: 1m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected dB/m	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	40000.000	49.50	peak	15.97	65.47	74.00	8.53
2	40000.000	36.19	AVG	15.97	52.16	54.00	1.84

*****END OF REPORT*****