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No. : HM162427

Applicant (MUE001): Musical Electronics Limited.

8/F., Wider Industrial Building, 58 Tsun Yip Street, Kwun

Tong, Kowloon, Hong Kong.

Manufacturer: Musical Electronics (Qing Yuan) Ltd.

Tai He Industrial Park, Qing Xin County, Qing Yuan, Quang

Dong, China

Description of Samples: Product: Opp Wireless Speaker – Sizzler

Brand Name: Rocketfish

Model Number: RF-WS01 SPEAKER FCC ID: AUISP706LRX

Date Samples Received: 2008-06-24

Date Tested: 2008-07-03 to 2008-07-22

Investigation Requested: Perform ElectroMagnetic Interference measurement in

accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2007 and ANSI C63.4:2003 for FCC Certification.

Conclusions: The submitted product COMPLIED with the requirements of

Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this

Test Report.

Remarks: For additional models details, see page 4.

Dr. LEE Kam Chuen, ElectroMagnetic Compatibility Department For and on behalf of

The Hong Kong Standards and Testing Centre Ltd.



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Appendix B

Photographs

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1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd. EMC Laboratory 10 Dai Wang Street, Taipo Industrial Estate New Territories, Hong Kong

1.2 Applicant Details Applicant

Musical Electronics Limited. 8/F., Wider Industrial Building, 58 Tsun Yip Street, Kwun Tong, Kowloon, Hong Kong.

Manufacturer

Musical Electronics (Qing Yuan) Ltd.

Tai He Industrial Park, Qing Xin County, Qing Yuan, Quang Dong, China



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1.3 Equipment Under Test [EUT] Description of Sample

Product: Opp Wireless Speaker – Sizzler
Manufacturer: Musical Electronics (Qing Yuan) Ltd.

Brand Name: Rocketfish

Model Number: RF-WS01 SPEAKER
Additional Model Number(s): RF-WS01-W SPEAKER
Input Voltage: 12Vd.c. 1000mA

The AC/DC Adaptor used for the tests was provided by the applicant with the following details: Two pins (Live / Neutral) only adaptor, Model Number: KSS12-120-1000U, Input: 100-

240Va.c. 50/60Hz 350mA, Output: 12Vd.c. 1000mA

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Musical Electronics Limited., OPP WIRELESS SPEAKER – SIZZLER, the transmission signal is within the 2.405-2.477GHz frequency range.

1.4 Date of Order

2008-06-24

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2008-07-03 to 2008-07-22

1.7 Country of Origin

N/A



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2.0 <u>Technical Details</u>

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2007 Regulations and ANSI C63.4:2003 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class /	Test I	Result	
			Severity	Pass	Fail	
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.4:2003	N/A			
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2003	N/A			

Note: N/A - Not Applicable



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3.0 **Test Results**

3.1 **Emission**

Radiated Emissions 3.1.1

FCC 47CFR 15.249 Test Requirement: Test Method: ANSI C63.4:2003 2008-07-03

Test Date:

Mode of Operation: Communication mode and Communication mode (spurious except

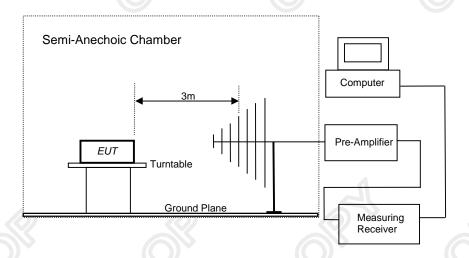
harmonics)

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

Semi-anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:





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Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental	Field Strength of Fundamental Emission	Field Strength of Harmonics Emission	
[MHz]	[microvolts/meter]	[microvolts/meter]	
902-928	50,000 [Average]	500 [Average]	
2400-2483.5	50,000 [Average]	500 [Average]	

Results of Communication mode (Tx mode - Lowest Channel Frequency): Pass

	Field Strength of Fundamental Emissions					
	3.7 1	G ::	Peak Value	F: 11	1: :: 62	E E' 11
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	$dB\mu V/m$	$dB\mu V/m$	$dB\mu V/m$	uV/m	μV/m	
2405.0	64.5	29.1	93.6	47,863.0	500,000	Horizontal
* 4810.0					500	Vertical
7215.0					500	Vertical
9620.0					500	Vertical
* 12025.0					500	Vertical
14430.0		No Emissio	on Detected		500	Vertical
16835.0					500	Vertical
* 19240.0		500 Vertical				
21645.0					500	Vertical
24050.0					500	Vertical

	Field Strength of Fundamental Emissions						
	Average Value						
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field	
	Level @3m	Factor	Strength	Strength		Polarity	
MHz	$dB\mu V/m$	dBμV/m	$dB\mu V/m$	uV/m	μV/m		
2405.0	39.1	29.1	68.2	2,570.4	50,000	Horizontal	

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB 1GHz to 18GHz 5.1dB

^{*:} Denotes restricted band of operation.



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Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental	Field Strength of Fundamental Emission	Field Strength of Harmonics Emission		
[MHz]	[microvolts/meter]	[microvolts/meter]		
902-928	50,000 [Average]	500 [Average]		
2400-2483.5	50,000 [Average]	500 [Average]		

Results of Communication mode (Tx mode - Mid Channel Frequency): Pass

	F	ield Strength	of Fundame	ntal Emissions		
			Peak Value			
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	$dB\mu V/m$	$dB\mu V/m$	$dB\mu V/m$	uV/m	μV/m	
2439.0	64.6	29.5	94.1	50,699.1	500,000	Horizontal
* 4878.0					500	Vertical
7317.0					500	Vertical
9756.0					500	Vertical
* 12195.0					500	Vertical
14634.0		No Emissio	on Detected		500	Vertical
17073.0					500	Vertical
* 19512.0	500 Vertica					
21951.0					500	Vertical
24390.0					500	Vertical

	Field Strength of Fundamental Emissions					
	Average Value					
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	$dB\mu V/m$	dBμV/m	$dB\mu V/m$	uV/m	μV/m	
2439.0	41.8	29.5	71.3	3,672.8	50,000	Horizontal

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB 1GHz to 18GHz 5.1dB

^{*:} Denotes restricted band of operation.



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Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of	Field Strength of	Field Strength of	
Fundamental	Fundamental Emission	Harmonics Emission	
[MHz]	[microvolts/meter]	[microvolts/meter]	
902-928	50,000 [Average]	500 [Average]	
2400-2483.5	50,000 [Average]	500 [Average]	

Results of Communication mode (Tx mode – Highest Channel Frequency): Pass

	F	ield Strength	of Fundame	ntal Emissions			
			Peak Value				
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field	
	Level @3m	Factor	Strength	Strength		Polarity	
MHz	dBμV/m	$dB\mu V/m$	$dB\mu V/m$	uV/m	μV/m		
2477.0	60.6	29.7	90.3	32,734.1	500,000	Horizontal	
* 4954.0					500	Vertical	
7431.0					500	Vertical	
9908.0					500	Vertical	
* 12385.0					500	Vertical	
14862.0		No Emissio	on Detected		500	Vertical	
17339.0					500	Vertical	
* 19816.0	500 Vertical						
22293.0		500					
24770.0					500	Vertical	

	Field Strength of Fundamental Emissions						
	Average Value						
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field	
	Level @3m	Factor	Strength	Strength		Polarity	
MHz	$dB\mu V/m$	dBμV/m	$dB\mu V/m$	μV/m	μV/m		
2477.0	32.4	29.7	62.1	1,273.5	50,000	Horizontal	

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB 1GHz to 18GHz 5.1dB

^{*:} Denotes restricted band of operation.



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Quasi-Peak Limits
$[\mu V/m]$
100
150
200
500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Communication mode (Tx Spurious except harmonics): Pass

Results of Communication mode (1x Spurious except narmonics). 1 ass							
Radiated Emissions							
Quasi - Peak							
Emission	E-Field	Level	Limit	Level	Limit		
Frequency	Polarity	@3m	@3m	@3m	@3m		
MHz	-	dBμV/m	dBμV/m	$\mu V/m$	μV/m		
45.1	Vertical	27.3	40.0	23.2	100		
128.0	Horizontal	39.1	43.5	90.2	150		
144.0	Vertical	32.0	43.5	39.8	150		
192.0	Horizontal	28.5	43.5	26.6	150		
384.0	Vertical	37.8	46	77.6	200		

Results of Communication mode (Rx Spurious except harmonics): Pass

Quasi - Peak								
Emission	E-Field	Level	Limit	Level	Limit			
Frequency	Polarity	@3m	@3m	@3m	@3m			
MHz		dBμV/m	dBμV/m	$\mu V/m$	$\mu V/m$			

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

1GHz to 18GHz 5.1dB



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3.2 Conducted Emissions (0.15MHz to 30MHz)

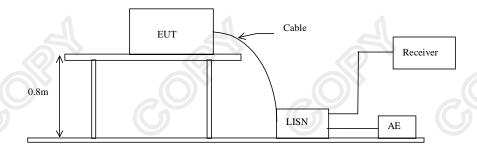
Test Requirement: FCC 47CFR 15.107
Test Method: ANSI C63.4:2003
Test Date: 2008-07-22

Mode of Operation: Communication mode

Test Method:

The test was performed in accordance with ANSI C63.4: 2003, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:





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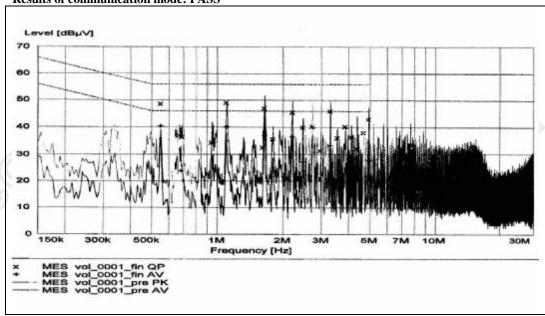
Limit for Conducted Emissions (FCC 47 CFR 15.107):

Frequency Range		Quasi-Peak Limits	Average	
	[MHz]	[dBµV]	[dBµV]	
	0.15-0.5	66 to 56*	56 to 46*	
7	0.5-5.0	56	46	
	5.0-30.0	60	50	

^{*} Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of communication mode: PASS



Remarks:

Calculated measurement uncertainty: 3.97dB



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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range	20dB Bandwidth		
[GHz]	[MHz]		
2.405	1.32		

20dB Bandwidth of Fundamental Emission 30 kHz RF Att 40 dB 30 kHz Ref Lv1 48.10 dByV VBW 127 dByV 2.40565531 GHz SWT 6 ms Unit dByV [T1] 48.10 dBy 12 V2 [T1] 68.87 dBy 2.40516633 GHz 11 41 [T1] d.56 dB 1.32264529 MHz 100 TW1 1VIEW IMA TOF Center 2.405 GHz 200 kHz/ Span 2 MHz

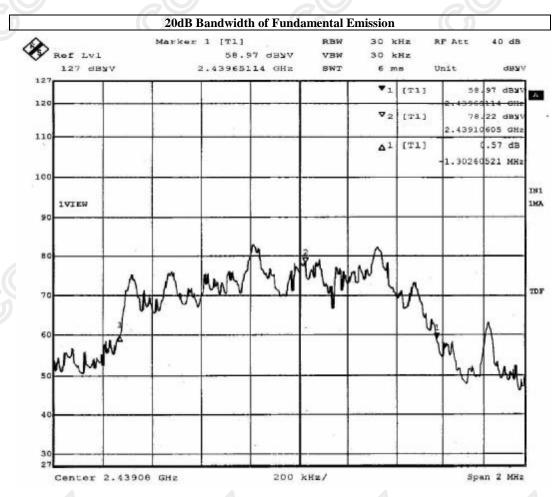


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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range	20dB Bandwidth
[GHz]	[MHz]
2.439	1.30



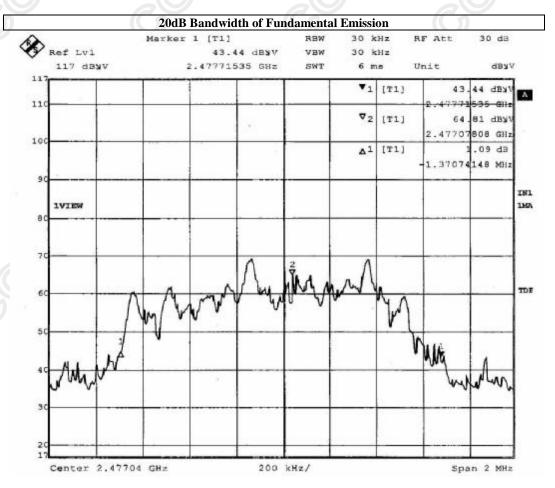


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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Rang	ge 20dB Bandwidth
[GHz]	[MHz]
2.477	1.37





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Appendix A

List of Measurement Equipment

Radiated Emission

Radiated Ellission						
EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM020	HORN ANTENNA	EMCO	3115	4032	2006/07/11	2009/07/11
EM215	MULTIDEVICE CONTROLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3		2006/05/02	2009/05/02
EM174	BICONILOG ANTENNA	EMCO	3142C	00029071	2008/01/24	2009/01/24
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2008/06/16	2009/06/16
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2006/07/26	2009/07/26

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM197	LISN	EMCO	4825/2	1193	2007/10/30	2009/10/30
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2008/06/16	2009/06/16
EM154	SHIELDING ROOM	SIEMENS MATSUSHITA COMPONENTS	N/A	803-740-057- 99A	2008/01/23	2009/01/23

Remarks:-

CM Corrective Maintenance

N/A Not Applicable or Not Available

TBD To Be Determined



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Appendix B

Photographs of EUT

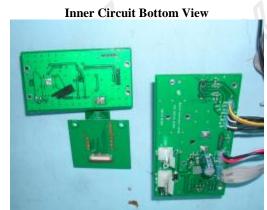
Front View of the product





Inner Circuit Top View



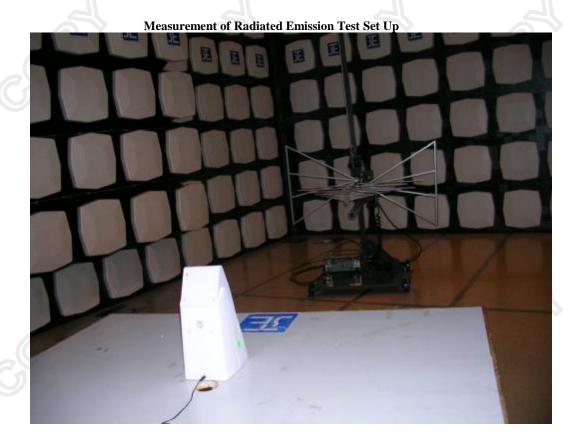




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Photographs of EUT





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Photographs of EUT



***** End of Test Report *****