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No. : MH181995

Applicant (SHL012): Sheenway Technology Ltd.

Room 1313, 13/F., Austin Tower, 22-26 Austin Avenue,

TsimShaTsui, Kowloon, Hong Kong

Manufacturer: N/A

Description of Samples: Product: iPod/iPhone TuneCast Auto

Brand Name: BELKIN
Model Number: F8Z182
FCC ID: UOTF8Z182

Date Samples Received: 2007-11-16

Date Tested: 2007-11-12 to 2007-11-20

Investigation Requested: Perform ElectroMagnetic Interference measurement in

accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2006 and ANSI C63.4:2003 for FCC Certification.

Conclusions: The submitted product <u>COMPLIED</u> 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: ---

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

The Hong Kong Standards and Testing Centre Ltd.



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List of Measurement Equipment

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Photographs

The Hong Kong Standards and Testing Centre Ltd.
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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

Telephone: 852 2666 1888 Fax: 852 2664 4353

1.2 Applicant Details Applicant

Sheenway Technology Ltd. Room 1313, 13/F., Austin Tower, 22-26 Austin Avenue, TsimShaTsui, Kowloon, Hong Kong

Manufacturer

N/A

The Hong Kong Standards and Testing Centre Ltd. 10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong



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1.3 **Equipment Under Test [EUT] Description of Sample**

Model Name: iPod/iPhone TuneCast Auto

Manufacturer: N/A Brand Name: **BELKIN** Model Number: F8Z182 Input Voltage: 12Vd.c.

1.3.1 **Description of EUT Operation**

The Equipment Under Test (EUT) is a Sheenway Technology Ltd., iPod/iPhone TuneCast Auto. The transmitter is a 2 button transmitter. The EUT continues to transmit while EUT is switched on. It is button transmitter, Modulation by IC and type is frequency modulation.

1.4 **Date of Order**

2007-11-16

1.5 **Submitted Sample(s):**

1 Sample

Test Duration 1.6

2007-11-12 to 2007-11-20

1.7 **Country of Origin**

CHINA



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<u>2.0</u> **Technical Details**

2.1 **Investigations Requested**

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2006 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 /	Т	est Result		
			Severity	Pass	Failed	N/A	
Field Strength of Fundamental Emissions & Spurious Emissions	FCC 47CFR 15.239	ANSI C63.4:2003	N/A				
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2003	N/A	\boxtimes			

Note: N/A - Not Applicable



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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

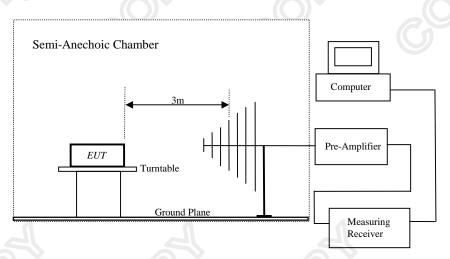
Test Requirement: FCC 47CFR 15.239
Test Method: ANSI C63.4:2003
Test Date: 2007-11-20
Mode of Operation: Tx mode

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 HKSTC 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 Emissions [FCC 47CFR 15.239]:

Frequency Range of	Peak Limits	Average Limits
Fundamental		
[MHz]	[μV/m]	[μV/m]
88-108	2,500	250

Results of Tx mode (88.1MHz): PASS

Field Strength of Fundamental Emissions							
Peak Value							
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field	
	Level @3m	Factor	Strength	Strength		Polarity	
MHz	dBµV	dB/m	dBμV/m	μV/m	μV/m		
88.10	34.70	9.6	44.3	164.1	2,500	Horizontal	

Field Strength of Fundamental Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
A	Level @ 3m	Factor	Strength	Strength	0	Polarity
MHz	$dB\mu V$	dB/m	dBμV/m	μV/m	μV/m	
88.10	33.80	9.6	43.4	147.9	250	Horizontal

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty: 30MHz to 1GHz 5.2dB

According to FCC 47CFR15.35, the limit on the radio frequency emissions as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.



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

Frequency Range [MHz]	Limits [μV/m]
30-88	100
88-216	150
216-960	200
Above960	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 Tx mode (88.1MHz): PASS

Radiated Emissions Quasi-Peak									
Frequency	Me	asured	Correction	Ī	Field		Field	Limit @3m	E-Field
1 3	Leve	el @3m	Factor	S	trength	S	trength		Polarity
MHz	dl	BμV	dB/m		BμV/m		μV/m	$\mu V/m$	Ĭ
176.20	<	1.0	11.1	<	12.1	<	4.0	150	Vertical
264.30	<	1.0	14.0	<	15.0	<	5.6	200	Vertical
352.40	<	1.0	17.5	<	18.5	<	8.4	200	Vertical
440.50	<	1.0	10.2	<	11.2	<	3.6	200	Vertical
528.60	<	1.0	11.9	<	12.9	<	4.4	200	Vertical
616.70	<	1.0	12.4	<	13.4	<	4.7	200	Vertical
704.80	<	1.0	13.2	<	14.2	<	5.1	200	Vertical
792.90	<	1.0	15.0	<	16.0	<	6.3	200	Vertical
881.00	<	1.0	16.1	<	17.1	<	7.2	200	Vertical

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation. Calculated measurement uncertainty: 30MHz to 1GHz 5.2dB



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Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.239]:

Frequency Range of	Peak Limits	Average Limits
Fundamental [MHz]	[μV/m]	[μV/m]
88-108	2,500	250

Results of Tx mode (98.1MHz): PASS

Field Strength of Fundamental Emissions							
Peak Value							
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field	
	Level @3m	Factor	Strength	Strength		Polarity	
MHz	dBµV	dB/m	dBμV/m	μV/m	$\mu V/m$		
98.10	34.20	10.1	44.3	164.1	2,500	Horizontal	

Field Strength of Fundamental Emissions							
Average Value							
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field	
4	Level @3m	Factor	Strength	Strength		Polarity	
MHz	dBµV	dB/m	dBμV/m	μV/m	μV/m		
98.10	33.10	10.1	43.2	144.5	250	Horizontal	

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty: 30MHz to 1GHz 5.2dB

According to FCC 47CFR15.35, the limit on the radio frequency emissions as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.



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

Frequency Range [MHz]	Limits [µV/m]
30-88	100
88-216	150
216-960	200
Above960	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 Tx mode (98.1MHz): PASS

	Radiated Emissions					
			Quasi-Peak	<u> </u>		
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	dBuV	dB/m	dBμV/m	$\mu V/m$	μV/m	
196.20	< 1.0	11.0	< 12.0	< 4.0	150	Vertical
294.30	< 1.0	14.0	< 15.0	< 5.6	200	Vertical
392.40	< 1.0	17.5	< 18.5	< 8.4	200	Vertical
490.50	< 1.0	10.2	< 11.2	< 3.6	200	Vertical
588.60	< 1.0	11.9	< 12.9	< 4.4	200	Vertical
686.70	< 1.0	12.4	< 13.4	< 4.7	200	Vertical
784.80	< 1.0	13.2	< 14.2	< 5.1	200	Vertical
882.90	< 1.0	15.0	< 16.0	< 6.3	200	Vertical
981.00	< 1.0	16.1	< 17.1	< 7.2	500	Vertical

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation. Calculated measurement uncertainty: 30MHz to 1GHz 5.2dB



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Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.239]:

Frequency Range of	Peak Limits	Average Limits
Fundamental		
[MHz]	[μV/m]	[μV/m]
88-108	2,500	250

Results of Tx mode (107.9MHz): PASS

Field Strength of Fundamental Emissions									
Peak Value									
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field			
	Level @3m	Factor	Strength	Strength		Polarity			
MHz	dBµV	dB/m	dBμV/m	μV/m	μV/m	•			
107.90	35.50	9.7	45.2	182.0	2,500	Horizontal			

Field Strength of Fundamental Emissions										
Average Value										
Frequency	Measured	Measured Correction Field Field Limit @3m E-Field								
	Level @3m	Factor	Strength	Strength		Polarity				
MHz	dΒμV	dB/m	dBμV/m	μV/m	μV/m					
107.90	34.60	9.7	44.3	164.1	250	Horizontal				

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty: 30MHz to 1GHz 5.2dB

According to FCC 47CFR15.35, the limit on the radio frequency emissions as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.



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

Frequency Range [MHz]	Limits [µV/m]
30-88	100
88-216	150
216-960	200
Above960	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 Tx mode (107.9MHz): PASS

Radiated Emissions									
Quasi-Peak									
Frequency	Mea	asured	Correction		Field		Field	Limit @3m	E-Field
	Leve	1 @3m	Factor	Strength		Strength			Polarity
MHz	dE	ЗμV	dB/m	ď	BμV/m		μV/m	$\mu V/m$	
215.80	<	1.0	11.0	<	12.0	<	4.0	150	Vertical
323.70	<	1.0	14.0	<	15.0	<	5.6	200	Vertical
431.60	<	1.0	17.5	<	18.5	<	8.4	200	Vertical
539.50	<	1.0	10.2	<	11.2	<	3.6	200	Vertical
647.40	<	1.0	11.9	<	12.9	<	4.4	200	Vertical
755.30	<	1.0	12.4	<	13.4	<	4.7	200	Vertical
863.20	<	1.0	13.2	<	14.2	<	5.1	200	Vertical
971.10	<	1.0	15.0	<	16.0	\	6.3	500	Vertical
1079.00	<	1.0	16.1	<	17.1	<	7.2	500	Vertical

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation. Calculated measurement uncertainty: 30MHz to 1GHz 5.2dB



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3.2 20B Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.227

Test Method: ANSI C63.4:2003 (Section 13.1.7)

Test Date: 2007-11-20 Mode of Operation: Tx mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

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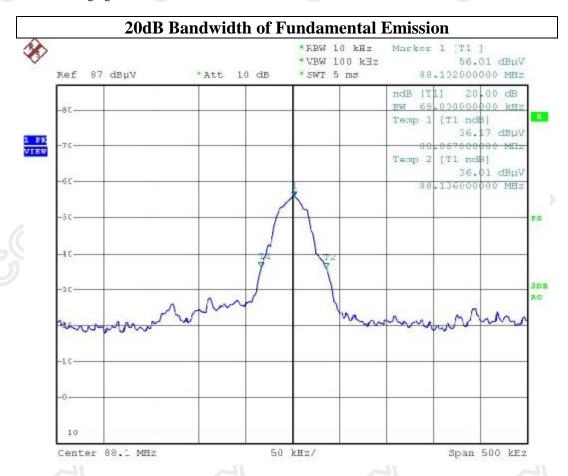
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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range	20dB Bandwidth	FCC Limits
[MHz]	[kHz]	[kHz]
88.1	69	200

Result:

The following figure is the measured bandwidth of Fundamental Emission.



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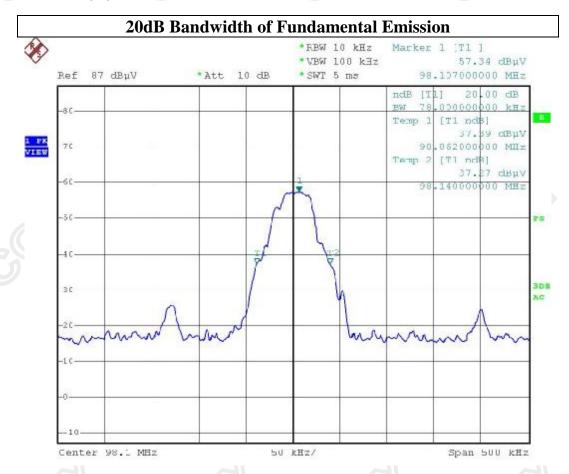
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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range	20dB Bandwidth	FCC Limits
[MHz]	[kHz]	[kHz]
98.1	78	200

Result:

The following figure is the measured bandwidth of Fundamental Emission.





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Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range	20dB Bandwidth	FCC Limits
[MHz]	[kHz]	[kHz]
107.9	78	200

Result:

The following figure is the measured bandwidth of Fundamental Emission.

20dB Bandwidth of Fundamental Emission *RBW 10 kHz Marker 1 [T1] *VBW 100 kHz 56.86 dBµV Ref 87 dBµV *Att 10 dB *SWT 5 ms 107.897080808 MHz ndB [TL] 20,00 dB noncogogo kH: Temp 1 [T1 ndB] 36.40 dBµV .066000000 MIIz 70 107 Temp Z [TI nell] 36.55 d3µV ED. 107.944600000 MHz Span 500 kHz Center 107.9 MHz



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Operation Description

The transmitter is a FM transmitter operating at 88.1-107.9MHz band. The transmitter is powered by 12Vd.c. and the transmitting frequency is crystal controlled. The operation is achieved by different combinations of from frequency modulation signal on the 88.1-107.9MHz carrier frequency.



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Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLER	ETS-Linggren	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM ETS-Linggren		2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	ETS-Linggren	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3		2006/05/02	2009/05/02
EM219	BICONILOG ANTENNA	ETS-Linggren	3142C	00029071	2006/02/01	2008/02/01
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2007/03/17	2008/03/17

Remarks:-

CMCorrective 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



Rear View of the product



Front View of the product



Rear View of the product

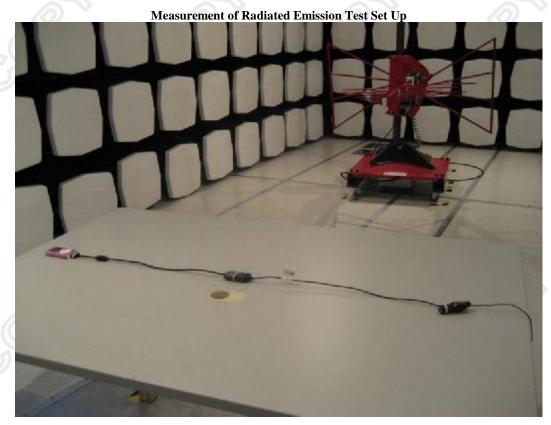




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Photographs of EUT



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