

Hong Kong Standards and Testing Centre

No.: HM155892

Applicant: WIDE ASIA INDUSTRIAL LIMITED

Block B, 8/F., JING HO INDUSTRIAL BUILDING, 78-84 WANG LUNG STREET, TSUEN WAN, N.T.,

HONG KONG.

Description of Samples: Model name: FM transmitter for iPod nano

Model no.: IP-NANFMTX

Brand name: BTI

FCC ID: S8GAWWINWD2006

Date Samples Received: 2006-01-19

Date Tested: 2006-02-23

Investigation Requested: FCC Part 15 Subpart C

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: For additional models details, see page 5.

LEE Kam Chuen, EMD For and on behalf of

The Hong Kong Standards and Testing Centre Ltd.

This report shall not be reproduced unless with prior written approval from the Hong Kong Standards and Testing Centre.



香港 標 準 及 檢 定 中 心

Hong Kong Standards and Testing Centre

No.: HM155892

CONTENT:

	Cover Content	Page 1 of 21 Page 2-3 of 21
<u>1.0</u>	General Details	
1.1	Test Laboratory	Page 4 of 21
1.2	Applicant Details Applicant HKSTC Code Number for Applicant Manufacturer	Page 4 of 21
1.3	Equipment Under Test [EUT] Description of EUT operation	Page 5 of 21
1.4	Date of Order	Page 5 of 21
1.5	Submitted Samples	Page 5 of 21
1.6	Test Duration	Page 5 of 21
1.7	Country of Origin	Page 5 of 21
<u>2.0</u>	Technical Details	
2.1	Investigations Requested	Page 6 of 21
2.2	Test Standards and Results Summary	Page 6 of 21
<u>3.0</u>	Test Results	
3.1	Emission	Page 7-16 of 21
3.2	Bandwidth Measurement	Page 17-18 of 21



Hong Kong Standards and Testing Centre

No.: HM155892

Appendix A

List of Measurement Equipment Page 19 of 21

Appendix B

Photographs Page 20-21 of 21

香港新界大埔工業村大宏街 10 號



香港 標 準 及 檢 定 中 心

Hong Kong Standards and Testing Centre

No.: HM155892

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

WIDE ASIA INDUSTRIAL LIMITED Block B, 8/F., JING HO INDUSTRIAL BUILDING, 78-84 WANG LUNG STREET, TSUEN WAN, N.T., HONG KONG.

Manufacturer

Pinghu Wanya Manufactory Pinghu China



Hong Kong Standards and Testing Centre

No.: HM155892

1.3 Equipment Under Test [EUT] Description of Sample

Model Name: FM transmitter for iPod nano Manufacturer: Pinghu Wanya Manufactory

Brand Name: BTI

Model Number: IP-NANFMTX Additional Model Number: iAiR13, iAiR

Input Voltage: The product draws power from the signal port of the console.

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a WIDE ASIA INDUSTRIAL LIMITED., It is voice transmitter, modulation by I-Pod and type is frequency modulation.

1.4 Date of Order

2006-01-19

1.5 Submitted Sample(s):

2 Samples per model

1.6 Test Duration

2006-02-23

1.7 Country of Origin

China



香港標準及檢定中心 Hong Kong Standards and Testing Centre

No.: HM155892

2.0 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 /	Te	est Resul					
			Severity	Pass	Failed	N/A				
Field Strength of Fundamental Emissions & Spurious Emissions	FCC 47CFR 15.239	ANSI C63.4:2003	N/A	\boxtimes						
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.209	ANSI C63.4:2003	Class B	\boxtimes						
Conducted Emissions on AC, 0.15MHz to 30MHz	FCC 47CFR 15.207	ANSI C63.4:2003	Class B			\boxtimes				

Note: N/A - Not Applicable



Hong Kong Standards and Testing Centre

Date: 2006-02-28 **TEST REPORT** Page 7 of 7

No.: HM155892

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: 2006-02-23

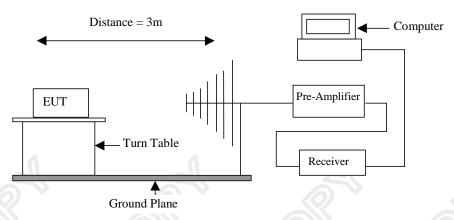
Mode of Operation: Tx mode and connected to I-Pod

Test Method:

The sample was placed 0.8m above the ground plane on a standard radiated emission test site. 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.

*: On a standard radiated emission test site located at HKSTC with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 90657 or 607756.

Test Setup:





Hong Kong Standards and Testing Centre

No.: HM155892

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 and connected to I-Pod: PASS

Field Strength of Fundamental Emissions Peak Value						
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	dΒμV	dB/m	dBµV/m	μV/m	μV/m	,
88.10	17.14	9.5	26.6	21.5	2,500	Horizontal

Field Strength of Fundamental Emissions								
Average Value								
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field		
	Level @3m	Factor	Strength	Strength		Polarity		
MHz	dΒμV	dB/m	dBµV/m	μV/m	μV/m			
88.10	15.87	9.5	25.4	18.6	250	Horizontal		

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB

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.

For effective averaging, the bandwidth of the video filter must be smaller than the resolution bandwidth. The higher the ratio of resolution bandwidth to video bandwidth, the greater the averaging will be. Below setting for HP8572A EMI Receiver.

Resolution Bandwidth : 3MHz
Video Bandwidth 1Hz



Hong Kong Standards and Testing Centre

No.: HM155892

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

Frequency Range	Limits
[MHz]	[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 quasipeak detector and above 1000MHz are based on measurements employing an average detector.

Results of Tx mode and connected to I-Pod: PASS

Radiated Emissions Quasi-Peak							
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field	
	Level @3m	Factor	Strength	Strength	4	Polarity	
MHz	dΒμV	dB/m	dBμV/m	μV/m	μV/m	-	
176.20	< 1.0	10.9	< 11.9	< 3.9	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 included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB



Hong Kong Standards and Testing Centre

No.: HM155892

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

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

Results of Tx mode and connected to I-Pod: PASS

Field Strength of Fundamental Emissions Peak Value						
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	dΒμV	dB/m	dBµV/m	μV/m	μV/m	
98.00	15.30	10.1	25.4	18.6	2,500	Horizontal

Field Strength of Fundamental Emissions								
Average Value								
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field		
	Level @3m	Factor	Strength	Strength		Polarity		
MHz	dΒμV	dB/m	dBµV/m	μV/m	μV/m			
98.00	13.78	10.1	23.9	15.6	250	Horizontal		

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB

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.

For effective averaging, the bandwidth of the video filter must be smaller than the resolution bandwidth. The higher the ratio of resolution bandwidth to video bandwidth, the greater the averaging will be. Below setting for HP8572A EMI Receiver.

Resolution Bandwidth : 3MHz Video Bandwidth 1Hz



Hong Kong Standards and Testing Centre

Date : 2006-02-28 **TEST REPORT** Page 11 of 11

No.: HM155892

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

Frequency Range	Limits
[MHz]	[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 quasipeak detector and above 1000MHz are based on measurements employing an average detector.

Results of Tx mode and connected to I-Pod: PASS

	Radiated Emissions Quasi-Peak							
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field		
	Level @3m	Factor	Strength	Strength	4	Polarity		
MHz	dΒμV	dB/m	dBμV/m	μV/m	μV/m			
196.00	< 1.0	11.3	< 12.3	< 4.1	150	Vertical		
294.00	< 1.0	14.8	< 15.8	< 6.2	200	Vertical		
392.00	< 1.0	18.4	< 19.4	< 9.3	200	Vertical		
490.00	< 1.0	10.2	< 11.2	< 3.6	200	Vertical		
588.00	< 1.0	11.9	< 12.9	< 4.4	200	Vertical		
686.00	< 1.0	12.4	< 13.4	< 4.7	200	Vertical		
784.00	< 1.0	13.2	< 14.2	< 5.1	200	Vertical		
882.00	< 1.0	15.0	< 16.0	< 6.3	200	Vertical		
980.00	< 1.0	16.1	< 17.1	< 7.2	200	Vertical		

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB



Hong Kong Standards and Testing Centre

No.: HM155892

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 and connected to I-Pod: PASS

Field Strength of Fundamental Emissions Peak Value							
Frequency	Frequency 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	10.13	9.8	19.9	9.9	2,500	Horizontal	

Field Strength of Fundamental Emissions							
	Average Value						
Frequency	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	6.89	9.8	16.7	6.8	250	Horizontal	

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB

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.

For effective averaging, the bandwidth of the video filter must be smaller than the resolution bandwidth. The higher the ratio of resolution bandwidth to video bandwidth, the greater the averaging will be. Below setting for HP8572A EMI Receiver.

Resolution Bandwidth : 3MHz Video Bandwidth 1Hz



Hong Kong Standards and Testing Centre

Date : 2006-02-28 **TEST REPORT** Page 13 of 13

No.: HM155892

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

Frequency Range	Limits		
[MHz]	[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 quasipeak detector and above 1000MHz are based on measurements employing an average detector.

Results of Tx mode and connected to I-Pod: PASS

	Radiated Emissions Quasi-Peak						
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field	
	Level @3m	Factor	Strength	Strength	4	Polarity	
MHz	dΒμV	dB/m	dBμV/m	μV/m	μV/m		
215.80	< 1.0	12.2	< 13.2	< 4.6	150	Vertical	
323.70	< 1.0	16.3	< 17.3	< 7.3	200	Vertical	
431.60	< 1.0	18.7	< 19.7	< 9.7	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	200	Vertical	
1079.00	< 1.0	16.1	< 17.1	< 7.2	200	Vertical	

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB



Hong Kong Standards and Testing Centre

No.: HM155892

3.1.2 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement: FCC 47CFR 15.107
Test Method: ANSI C63.4:2003

Test Date: N/A Mode of Operation: N/A

Results: N/A

The EUT is operated by a single source of car battery power, therefore power line conducted emission was deemed unnecessary.



Hong Kong Standards and Testing Centre

Date : 2006-02-28 **TEST REPORT** Page 15 of 15

No.: HM155892

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: 2006-02-23 Mode of Operation: On 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.



Hong Kong Standards and Testing Centre

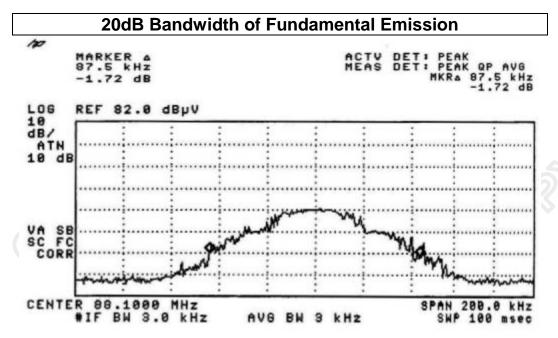
No.: HM155892

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range	20dB Bandwidth	FCC Limits
[MHz]	[kHz]	[kHz]
88.1	87.5	200

Result:

The following figure is the measured bandwidth of Fundamental Emission.





Hong Kong Standards and Testing Centre

Date: 2006-02-28

TEST REPORT

Page 17 of 17

No.: HM155892

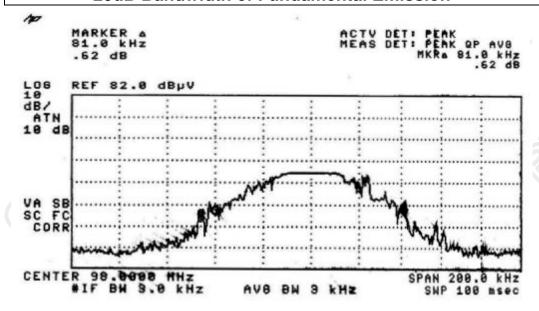
Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range	20dB Bandwidth	FCC Limits
[MHz]	[kHz]	[kHz]
98.0	81.0	200

Result:

The following figure is the measured bandwidth of Fundamental Emission.

20dB Bandwidth of Fundamental Emission





香港 標 準 及 檢 定 中 心

Hong Kong Standards and Testing Centre

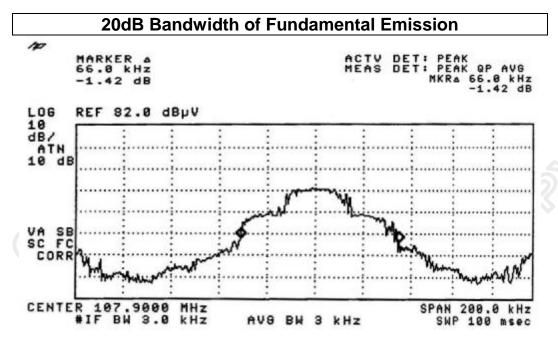
No.: HM155892

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range	20dB Bandwidth	FCC Limits
[MHz]	[kHz]	[kHz]
107.9	66.0	200

Result:

The following figure is the measured bandwidth of Fundamental Emission.





Hong Kong Standards and Testing Centre

Date : 2006-02-28 **TEST REPORT** Page 19 of 19

No.: HM155892

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM007	SPECTRUM ANALYZER	HEWLETT PACKARD	HP85660B	3144A21192	27/06/05
EM008	SPECTRUM ANALYZER DISPLAY	HEWLETT PACKARD	HP85662A	3144A20514	27/06/05
EM009	QUASI PEAK ADAPTOR	HEWLETT PACKARD	HP85650A	3303A01702	27/06/05
EM010	RF PRESELECTOR	HEWLETT PACKARD	HP85685A	3221A01410	27/06/05
EM011	ATTENUATOR/SWITCH	HEWLETT PACKARD	HP11713A	2508A10595	27/06/05
EM012	PRE-AMPLIFIER	HEWLETT PACKARD	HP8449B	3008A00262	27/06/05
EM013	CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD , MOUSE & FLOPPY DRIVE	HEWLETT PACKARD	HP9000 HP A1097C HP9133L	6226A60314 3151J39517 2623A02468	N/A
EM020	HORN ANTENNA	ETS-Linggren	3115	4032	30/07/03
EM022	LOOP ANTENNA	ETS-Linggren	6502	1189-2424	19/09/03
EM072	SIGNAL GENERATOR	HEWLETT PACKARD	8640B	1948A11892	N/A
EM083	OPEN AREA TEST SITE	HKSTC	N/A	N/A	08/02/03
EM131	EMC ANALYZER	HEWLETT PACKARD	8595EM	3710A00155	13/01/04
EM145	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESCS 30	830245/021	04/10/04
EM195	ANTENNA POSITIONING MAST	ETS-Linggren	2075	2368	N/A
EM196	MULTI-DEVICE CONTROLLER	ETS-Linggren	2090	1662	N/A
EM215	MULTIDEVICE CONTROLER	ETS-Linggren	2090	00024676	N/A
EM216	MINI MAST SYSTEM	ETS-Linggren	2075	00026842	N/A
EM217	ELECTRIC POWERED TURNTABLE	ETS-Linggren	2088	00029144	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3		19/03/04
EM219	BICONILOG ANTENNA	ETS-Linggren	3142C	00029071	28/10/03

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM078	VARIAC	SHANGHAI VOLTAGE	TDGC-3/0.5	N/A	CM
EM081	SMALL SCREENED ROOM	MIKO INST HK	N/A	N/A	27/01/05
EM119	LISN	ROHDE & SCHWARZ	ESH3-Z5	0831.5518.52	14/10/04
EM127	ISOLATION TRANSFORMER 220 TO 300V	WING SUN	N/A	N/A	CM
EM142	PULSE LIMITER	ROHDE & SCHWARZ	ESH3Z2	357.8810.52	04/08/04
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	06/01/04
EM154	SHIELDING ROOM	SIEMENA MATSUSHITA COMPONENTS	N/A	803-740-057- 99A	27/01/05
EM197	LISN	ETS-Linggren	4825/2	1193	27/06/05
EM213	DIGITAL POWER METER	VICNOBL	VIP120	00277	14/09/04

Remarks:

CM Corrective Maintenance N/A Not Applicable or Not Available

TBD To Be Determined



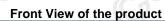
Hong Kong Standards and Testing Centre

Date : 2006-02-28 **TEST REPORT** Page 20 of 20

No.: HM155892

Appendix B

Photographs of EUT





Rear View of the product



Front View of the product



Rear View of the product





香港 標 準 及 檢 定 中 心

Hong Kong Standards and Testing Centre

Date : 2006-02-28 **TEST REPORT** Page 21 of 21

No.: HM155892

Photographs of EUT

Measurement of Radiated Emission Test Set Up

Weasurement of Radiated Emission Test Set Up

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