Test Report

Product Name : Zune FM Transmitter with AutoSeek

Model No. : 1100

FCC ID : H8NPMA9010-D68

Applicant : ASKEY COMPUTER CORP.

Address : 10F,NO.119,CHIENKANG RD., CHUNG-HO,
TAIPEI, TAIWAN, R.O.C

Date of Receipt : Sep. 05, 2006

Date of Test : Sep. 26, 2006

Report No. : 069L049-RF-US-P02V01

Test Report Certification

Test Date : Sep. 26, 2006
Report No. : 069L049-RF-US-P02V01

Accredited by NIST (NVLAP)
NVLAP Lab Code: 200533-0

Product Name	: Zune FM Transmitter with AutoSeek
Applicant	: ASKEY COMPUTER CORP.
Address	: 10F,NO.119,CHIENKANG RD., CHUNG-HO, TAIPEI, TAIWAN, R.O.C
Manufacturer	: ASKEY COMPUTER CORP.
Model No.	: 1100
FCC ID.	: H8NPMA9010-D68
Rated Voltage	: AC 120V/60Hz
Trade Name	: Microsoft
Measurement Standard	: FCC CFR Title 47 Part 15 Subpart C: 2005
Measurement Procedure	: ANSI C63.4: 2003
Test Result	: Complied

NVLAP Lab Code: 200533-0

The Test Results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : Michelle Lin
(Michelle Lin)

Tested By : Tom Hsieh
(Tom Hsieh)

Approved By : George Chen
(George Chen)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Zune FM Transmitter with AutoSeek
Trade Name	Microsoft
Model No.	1100
Frequency Range	88.1~107.9MHz
Channel Number	199
Type of Modulation	FM
Antenna Type	Planar Antenna
Operator Selection of Operating Frequency	Autoseek /Manual Switch
Power Adapter	MFR: N/A , M/N: 1097 Input DC10V~24V, 1.5A Output DC5V, 1.5A Cable Out: Non-Shielded, 0.35m
Power Adapter	MFR: SAMSUNG, M/N: N/A Input AC 100-240V, 41~63Hz Cable Out: Shielded, 1.3m

Frequency of each Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	88.1 MHz	Channel 2:	88.2 MHz	Channel 3:	88.3 MHz	Channel 4:	88.4 MHz
Channel 5:	88.5 MHz	Channel 6:	88.6 MHz	Channel 7:	88.7 MHz	Channel 8:	88.8 MHz
Channel 9:	88.9 MHz	Channel 10:	89.0 MHz	Channel 11:	89.1 MHz	Channel 12:	89.2 MHz
Channel 13:	89.3 MHz	Channel 14:	89.4 MHz	Channel 15:	89.5 MHz	Channel 16:	89.6 MHz
Channel 17:	89.7 MHz	Channel 18:	89.8 MHz	Channel 19:	89.9 MHz	Channel 20:	90.0 MHz
Channel 21:	90.1 MHz	Channel 22:	90.2 MHz	Channel 23:	90.3 MHz	Channel 24:	90.4 MHz
Channel 25:	90.5 MHz	Channel 26:	90.6 MHz	Channel 27:	90.7 MHz	Channel 28:	90.8 MHz
Channel 29:	90.9 MHz	Channel 30:	91.0 MHz	Channel 31:	91.1 MHz	Channel 32:	91.2 MHz
Channel 33:	91.3 MHz	Channel 34:	91.4 MHz	Channel 35:	91.5 MHz	Channel 36:	91.6 MHz
Channel 37:	91.7 MHz	Channel 38:	91.8 MHz	Channel 39:	91.9 MHz	Channel 40:	92.0 MHz
Channel 41:	92.1 MHz	Channel 42:	92.2 MHz	Channel 43:	92.3 MHz	Channel 44:	92.4 MHz
Channel 45:	92.5 MHz	Channel 46:	92.6 MHz	Channel 47:	92.7 MHz	Channel 48:	92.8 MHz
Channel 49:	92.9 MHz	Channel 50:	93.0 MHz	Channel 51:	93.1 MHz	Channel 52:	93.2 MHz
Channel 53:	93.3 MHz	Channel 54:	93.4 MHz	Channel 55:	93.5 MHz	Channel 56:	93.6 MHz
Channel 57:	93.7 MHz	Channel 58:	93.8 MHz	Channel 59:	93.9 MHz	Channel 60:	94.0 MHz
Channel 61:	94.1 MHz	Channel 62:	94.2 MHz	Channel 63:	94.3 MHz	Channel 64:	94.4 MHz
Channel 65:	94.5 MHz	Channel 66:	94.6 MHz	Channel 67:	94.7 MHz	Channel 68:	94.8 MHz
Channel 69:	94.9 MHz	Channel 70:	95.0 MHz	Channel 71:	95.1 MHz	Channel 72:	95.2 MHz
Channel 73:	95.3 MHz	Channel 74:	95.4 MHz	Channel 75:	95.5 MHz	Channel 76:	95.6 MHz
Channel 77:	95.7 MHz	Channel 78:	95.8 MHz	Channel 79:	95.9 MHz	Channel 80:	96.0 MHz
Channel 81:	96.1 MHz	Channel 82:	96.2 MHz	Channel 83:	96.3 MHz	Channel 84:	96.4 MHz
Channel 85:	96.5 MHz	Channel 86:	96.6 MHz	Channel 87:	96.7 MHz	Channel 88:	96.8 MHz

Channel 89:	96.9 MHz	Channel 90:	97.0 MHz	Channel 91:	97.1 MHz	Channel 92:	97.2 MHz
Channel 93:	97.3 MHz	Channel 94:	97.4 MHz	Channel 95:	97.5 MHz	Channel 96:	97.6 MHz
Channel 97:	97.7 MHz	Channel 98:	97.8 MHz	Channel 99:	97.9 MHz	Channel 100:	98.0 MHz
Channel 101:	98.1 MHz	Channel 102:	98.2 MHz	Channel 103:	98.3 MHz	Channel 104:	98.4 MHz
Channel 105:	98.5 MHz	Channel 106:	98.6 MHz	Channel 107:	98.7 MHz	Channel 108:	98.8 MHz
Channel 109:	98.9 MHz	Channel 110:	99.0 MHz	Channel 111:	99.1 MHz	Channel 112:	99.2 MHz
Channel 113:	99.3 MHz	Channel 114:	99.4 MHz	Channel 115:	99.5 MHz	Channel 116:	99.6 MHz
Channel 117:	99.7 MHz	Channel 118:	99.8 MHz	Channel 119:	99.9 MHz	Channel 120:	100.0 MHz
Channel 121:	100.1 MHz	Channel 122:	100.2 MHz	Channel 123:	100.3 MHz	Channel 124:	100.4 MHz
Channel 125:	100.5 MHz	Channel 126:	100.6 MHz	Channel 127:	100.7 MHz	Channel 128:	100.8 MHz
Channel 129:	100.9 MHz	Channel 130:	101.0 MHz	Channel 131:	101.1 MHz	Channel 132:	101.2 MHz
Channel 133:	101.3 MHz	Channel 134:	101.4 MHz	Channel 135:	101.5 MHz	Channel 136:	101.6 MHz
Channel 137:	101.7 MHz	Channel 138:	101.8 MHz	Channel 139:	101.9 MHz	Channel 140:	102.0 MHz
Channel 141:	102.1 MHz	Channel 142:	102.2 MHz	Channel 143:	102.3 MHz	Channel 144:	102.4 MHz
Channel 145:	102.5 MHz	Channel 146:	102.6 MHz	Channel 147:	102.7 MHz	Channel 148:	102.8 MHz
Channel 149:	102.9 MHz	Channel 150:	103.0 MHz	Channel 151:	103.1 MHz	Channel 152:	103.2 MHz
Channel 153:	103.3 MHz	Channel 154:	103.4 MHz	Channel 155:	103.5 MHz	Channel 156:	103.6 MHz
Channel 157:	103.7 MHz	Channel 158:	103.8 MHz	Channel 159:	103.9 MHz	Channel 160:	104.0 MHz
Channel 161:	104.1 MHz	Channel 162:	104.2 MHz	Channel 163:	104.3 MHz	Channel 164:	104.4 MHz
Channel 165:	104.5 MHz	Channel 166:	104.6 MHz	Channel 167:	104.7 MHz	Channel 168:	104.8 MHz
Channel 169:	104.9 MHz	Channel 170:	105.0 MHz	Channel 171:	105.1 MHz	Channel 172:	105.2 MHz
Channel 173:	105.3 MHz	Channel 174:	105.4 MHz	Channel 175:	105.5 MHz	Channel 176:	105.6 MHz
Channel 177:	105.7 MHz	Channel 178:	105.8 MHz	Channel 179:	105.9 MHz	Channel 180:	106.0 MHz
Channel 181:	106.1 MHz	Channel 182:	106.2 MHz	Channel 183:	106.3 MHz	Channel 184:	106.4 MHz
Channel 185:	106.5 MHz	Channel 186:	106.6 MHz	Channel 187:	106.7 MHz	Channel 188:	106.8 MHz
Channel 189:	106.9 MHz	Channel 190:	107.0 MHz	Channel 191:	107.1 MHz	Channel 192:	107.2 MHz
Channel 193:	107.3 MHz	Channel 194:	107.4 MHz	Channel 195:	107.5 MHz	Channel 196:	107.6 MHz
Channel 197:	107.7 MHz	Channel 198:	107.8 MHz	Channel 199:	107.9 MHz		

Note:

1. This device is an 88-108MHz Zune FM Transmitter with AutoSeek included a 88-108MHz transmitting function.
2. Regards to the frequency band operation, the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
3. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.239.
4. QuieTek had verified the construction and function in typical operation, and then shown in this test report. Mode 1: FM Transmitter + AC Adapter

1.2. Operation Description

The EUT is Zune FM Transmitter with AutoSeek. The operation frequency is from 88.1MHz to 107.9MHz with FM modulation. 199 manually selectable channels were built in the EUT. The channels are separated by 100kHz. The signals are modulated by FM. RF signals are transmitted from the planar antenna. AC 120V/60Hz shall be provided for EUT operation.

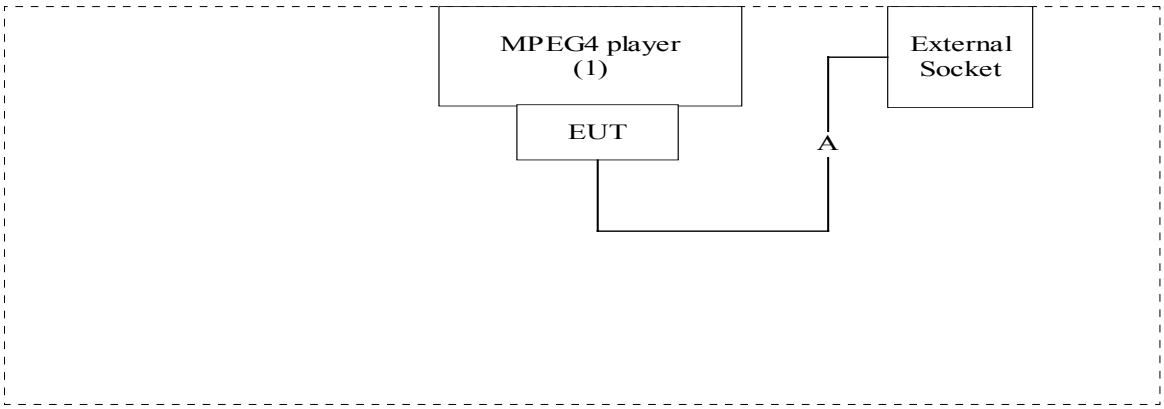
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
(1)	MPEG4 player	Microsoft	ZUNE	ES0386	Shielded, 1.3m

Signal Cable Type		Signal cable Description
A.	USB Power Cable	Shielded, 1.3m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1 Setup the EUT as shown in Section 1.4.
2 Play music files on the MPEG4 player.
3 The EUT will start transmitting RF signals.
4 Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description:

Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation

Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

2. Conducted Emission

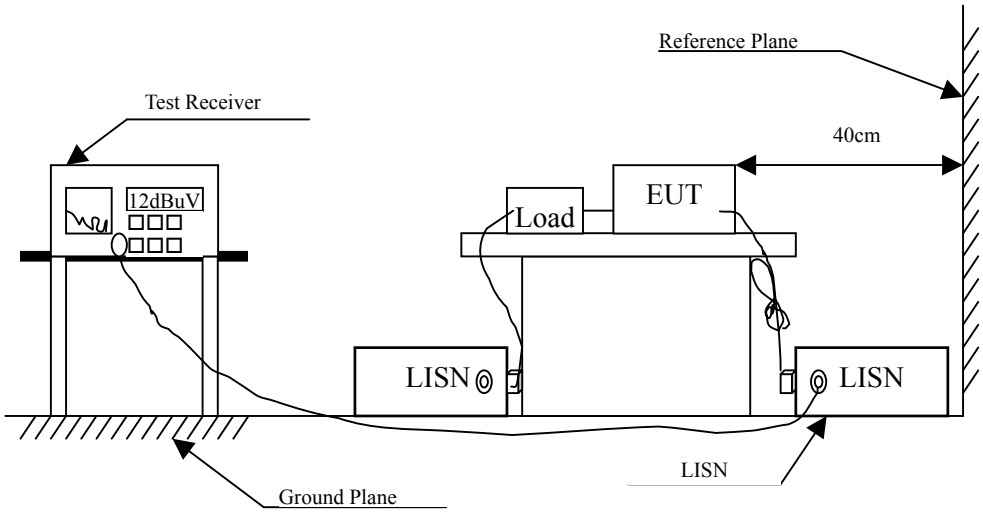
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2006	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2006	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2006	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2006	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	uV	dBuV
0.15 - 0.50	66-56(注)	56-46(注)
0.50-5.0	56	46
5.0 - 30	60	50

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Zune FM Transmitter with AutoSeek
Test Item : Conducted Emission
Power Line : Line 1
Test Mode : Mode 1: FM Transmitter + AC Adapter (88.1 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.177	0.749	45.840	46.589	-18.640	65.229
0.225	0.473	40.680	41.153	-22.704	63.857
0.390	0.300	37.340	37.640	-21.503	59.143
0.657	0.310	38.750	39.060	-16.940	56.000
0.885	0.310	36.490	36.800	-19.200	56.000
1.385	0.330	36.870	37.200	-18.800	56.000
Average					
0.177	0.749	35.080	35.829	-19.400	55.229
0.225	0.473	34.940	35.413	-18.444	53.857
0.390	0.300	32.660	32.960	-16.183	49.143
0.657	0.310	31.870	32.180	-13.820	46.000
0.885	0.310	29.470	29.780	-16.220	46.000
1.385	0.330	31.370	31.700	-14.300	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Zune FM Transmitter with AutoSeek
Test Item : Conducted Emission
Power Line : Line 2
Test Mode : Mode 1: FM Transmitter + AC Adapter (88.1 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.166	0.300	48.520	48.820	-16.723	65.543
0.216	0.300	42.760	43.060	-21.054	64.114
0.513	0.310	37.560	37.870	-18.130	56.000
0.642	0.310	37.910	38.220	-17.780	56.000
0.755	0.320	41.760	42.080	-13.920	56.000
1.158	0.330	40.510	40.840	-15.160	56.000
Average					
0.166	0.300	38.530	38.830	-16.713	55.543
0.216	0.300	32.450	32.750	-21.364	54.114
0.513	0.310	28.980	29.290	-16.710	46.000
0.642	0.310	29.180	29.490	-16.510	46.000
0.755	0.320	33.540	33.860	-12.140	46.000
1.158	0.330	33.490	33.820	-12.180	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Zune FM Transmitter with AutoSeek
Test Item : Conducted Emission
Power Line : Line 1
Test Mode : Mode 1: FM Transmitter + AC Adapter (98 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.170	0.621	46.530	47.151	-18.278	65.429
0.220	0.511	41.540	42.051	-21.949	64.000
0.397	0.300	37.160	37.460	-21.483	58.943
0.757	0.310	41.780	42.090	-13.910	56.000
0.771	0.310	42.430	42.740	-13.260	56.000
1.166	0.320	40.220	40.540	-15.460	56.000
Average					
0.170	0.621	39.550	40.171	-15.258	55.429
0.220	0.511	34.140	34.651	-19.349	54.000
0.397	0.300	32.170	32.470	-16.473	48.943
0.757	0.310	34.290	34.600	-11.400	46.000
0.771	0.310	34.510	34.820	-11.180	46.000
1.166	0.320	33.780	34.100	-11.900	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Zune FM Transmitter with AutoSeek
Test Item : Conducted Emission
Power Line : Line 2
Test Mode : Mode 1: FM Transmitter + AC Adapter (98 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.166	0.300	47.930	48.230	-17.313	65.543
0.261	0.300	41.150	41.450	-21.379	62.829
0.488	0.310	37.320	37.630	-18.713	56.343
0.616	0.310	38.850	39.160	-16.840	56.000
1.116	0.323	39.320	39.643	-16.357	56.000
1.596	0.340	35.140	35.480	-20.520	56.000
Average					
0.166	0.300	38.120	38.420	-17.123	55.543
0.261	0.300	35.890	36.190	-16.639	52.829
0.488	0.310	31.600	31.910	-14.433	46.343
0.616	0.310	32.980	33.290	-12.710	46.000
1.116	0.323	33.830	34.153	-11.847	46.000
1.596	0.340	28.130	28.470	-17.530	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Zune FM Transmitter with AutoSeek
Test Item : Conducted Emission
Power Line : Line 1
Test Mode : Mode 1: FM Transmitter + AC Adapter (107.9 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.170	0.621	45.970	46.591	-18.838	65.429
0.262	0.317	39.240	39.557	-23.243	62.800
0.352	0.300	35.900	36.200	-24.029	60.229
0.655	0.309	38.770	39.079	-16.921	56.000
1.055	0.320	39.950	40.270	-15.730	56.000
1.295	0.320	38.830	39.150	-16.850	56.000
Average					
0.170	0.621	39.550	40.171	-15.258	55.429
0.262	0.317	35.660	35.977	-16.823	52.800
0.352	0.300	31.300	31.600	-18.629	50.229
0.655	0.309	31.800	32.109	-13.891	46.000
1.055	0.320	32.170	32.490	-13.510	46.000
1.295	0.320	32.680	33.000	-13.000	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Zune FM Transmitter with AutoSeek
Test Item : Conducted Emission
Power Line : Line 2
Test Mode : Mode 1: FM Transmitter + AC Adapter (107.9 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.177	0.300	45.280	45.580	-19.649	65.229
0.262	0.300	40.900	41.200	-21.600	62.800
0.680	0.310	35.560	35.870	-20.130	56.000
1.040	0.320	39.670	39.990	-16.010	56.000
1.360	0.330	35.340	35.670	-20.330	56.000
1.440	0.330	35.770	36.100	-19.900	56.000
Average					
0.177	0.300	34.000	34.300	-20.929	55.229
0.262	0.300	36.470	36.770	-16.030	52.800
0.680	0.310	28.200	28.510	-17.490	46.000
1.040	0.320	32.850	33.170	-12.830	46.000
1.360	0.330	29.540	29.870	-16.130	46.000
1.440	0.330	28.450	28.780	-17.220	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Radiated Emission

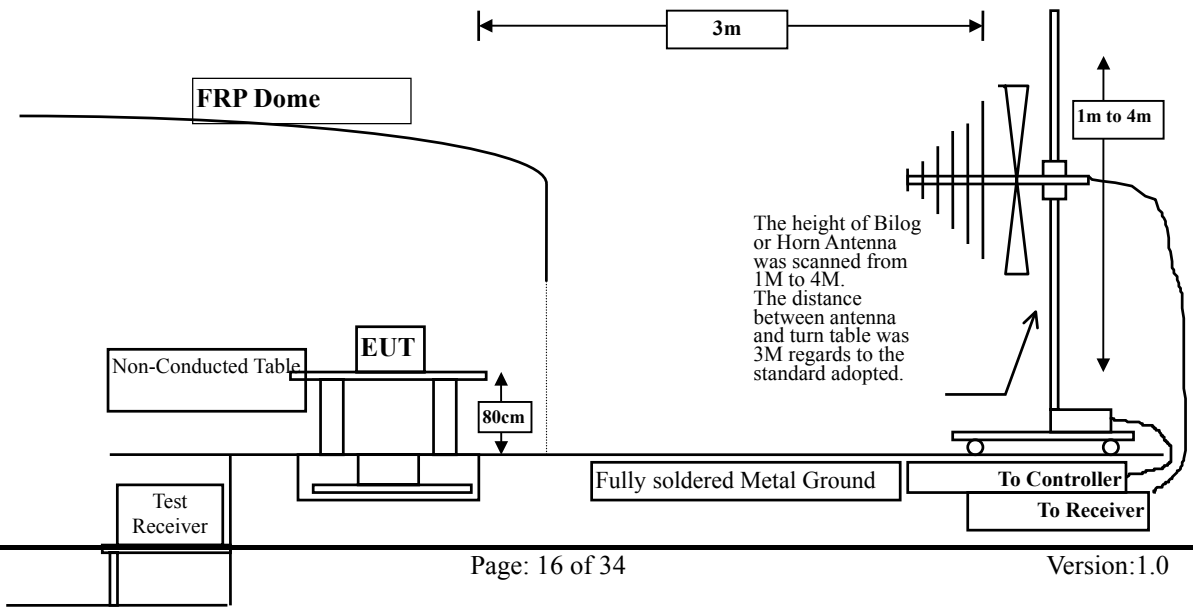
3.1. Test Equipment

The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☐Site # 1		Test Receiver	R & S	ESVS 10 / 834468/003	May, 2006
		Spectrum Analyzer	Advantest	R3162/ 00803480	May, 2006
		Pre-Amplifier	Advantest	BB525C/ 3307A01812	May, 2006
		Bilog Antenna	SCHAFFNER	CBL6112B / 2697	Sep., 2006
☐Site # 2		Test Receiver	R & S	ESCS 30 / 836858 / 022	May, 2006
		Spectrum Analyzer	Advantest	R3162 / 100803466	May, 2006
		Pre-Amplifier	Advantest	BB525C/3307A01814	May, 2006
		Bilog Antenna	SCHAFFNER	CBL6112B / 2705	May, 2006
		Horn Antenna	ETS	3115 / 0005-6160	Sep., 2006
		Pre-Amplifier	QTK	QTK-AMP-01/ 0001	May, 2006
☒Site # 3	X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2006
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2006
	X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2006
	X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2006
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2006
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2006
	X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2006

Note: 1. All equipments are calibrated every one year.
2. Test equipments marked by "X" are used to measure the final test results.

3.2. Test Setup



3.3. Limits

➢ **Fundamental and Harmonics Emission Limits**

FCC Part 15 Subpart C Paragraph 15.239 Limits	
Frequency MHz	Field Strength of Fundamental (uV/m @3m)
88-108	250

Remarks : 1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➢ **General Radiated Emission Limits**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart B Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks : 1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 3 meters.
The frequency range from 30MHz to 10th harminics is checked.

3.5. Uncertainty

± 3.9 dB above 1GHz
± 3.8 dB below 1GHz

3.6. Test Result of Radiated Emission

Product : Zune FM Transmitter with AutoSeek
Test Item : Fundamental Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
88.100	10.201	33.300	43.501	-24.449	67.950
98.000	11.981	31.400	43.381	-24.569	67.950
107.900	13.214	30.800	44.015	-23.935	67.950
Average Detector:					
88.100	10.201	27.760	37.961	-9.989	47.950
98.000	11.981	29.530	41.511	-6.439	47.950
107.900	13.214	27.990	41.205	-6.745	47.950
Vertical					
Peak Detector:					
88.100	10.201	38.700	48.901	-19.049	67.950
98.000	11.981	38.500	50.481	-17.469	67.950
107.900	13.214	36.200	49.415	-18.535	67.950
Average Detector:					
88.100	10.201	36.370	46.571	-1.379	47.950
98.000	11.981	34.970	46.951	-0.999	47.950
107.900	13.214	34.000	47.215	-0.735	47.950

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:120KHz。
3. Receiver setting (AVG Detector) : RBW:120KHz。
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Zune FM Transmitter with AutoSeek
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter (88.1 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
175.249	11.333	16.700	28.033	-15.467	43.500
176.200	11.263	9.610	20.873	-22.627	43.500
264.000	16.182	13.070	29.252	-16.748	46.000
264.300	16.185	3.650	19.835	-26.165	46.000
660.000	24.864	8.700	33.564	-12.436	46.000
792.000	26.734	1.600	28.334	-17.666	46.000
Vertical					
80.000	8.518	18.470	26.989	-13.011	40.000
175.246	11.333	8.460	19.793	-23.707	43.500
176.200	11.263	13.460	24.723	-18.777	43.500
263.980	16.182	18.200	34.382	-11.618	46.000
264.300	16.185	7.770	23.955	-22.045	46.000
660.000	24.864	15.950	40.814	-5.186	46.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. " " means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product : Zune FM Transmitter with AutoSeek
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter (98 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
196.000	11.516	18.760	30.277	-13.223	43.500
245.766	14.874	1.840	16.714	-29.286	46.000
264.000	16.182	12.410	28.592	-17.408	46.000
285.041	16.157	17.880	34.037	-11.963	46.000
294.000	16.523	7.770	24.292	-21.708	46.000
659.995	24.864	6.820	31.684	-14.316	46.000
Vertical					
80.000	8.518	18.050	26.569	-13.431	40.000
196.000	11.516	19.000	30.517	-12.983	43.500
294.000	16.523	13.260	29.782	-16.218	46.000
392.000	19.830	1.430	21.260	-24.740	46.000
489.500	22.187	12.360	34.547	-11.453	46.000
687.500	24.966	3.990	28.956	-17.044	46.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. " " means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product : Zune FM Transmitter with AutoSeek
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter (107.9 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
192.497	11.354	6.050	17.404	-26.096	43.500
215.800	11.316	19.550	30.867	-12.633	43.500
263.997	16.182	12.350	28.532	-17.468	46.000
323.700	17.561	1.850	19.411	-26.589	46.000
659.996	24.864	10.010	34.874	-11.126	46.000
755.300	26.577	0.290	26.867	-19.133	46.000
Vertical					
79.976	8.514	16.640	25.154	-14.846	40.000
215.800	11.316	24.020	35.337	-8.163	43.500
263.999	16.182	19.180	35.362	-10.638	46.000
323.700	17.561	4.380	21.941	-24.059	46.000
431.600	20.931	1.000	21.932	-24.068	46.000
659.995	24.864	15.550	40.414	-5.586	46.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. " " means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product : Zune FM Transmitter with AutoSeek
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter (107.9 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
1079.000	-5.588	38.943	33.355	-40.645	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
1079.000	-5.588	39.745	34.157	-39.843	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

4. Occupied Bandwidth

4.1. Test Equipment

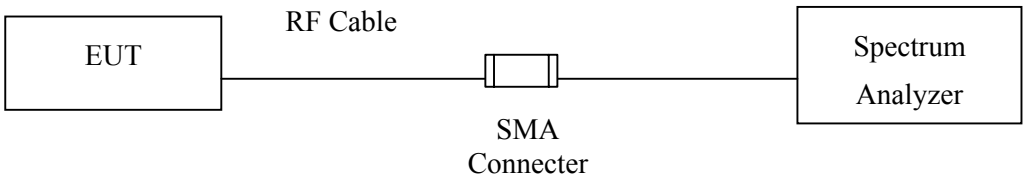
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	HP	E4407B/US39440758	May, 2006

Note: 1. All instruments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

4.2. Test Setup



4.3. Limits

FCC Part 15 Subpart C Paragraph 15.239 Limits	
Frequency MHz	Occupied Bandwidth
	kHz
88-108	200

4.4. Uncertainty

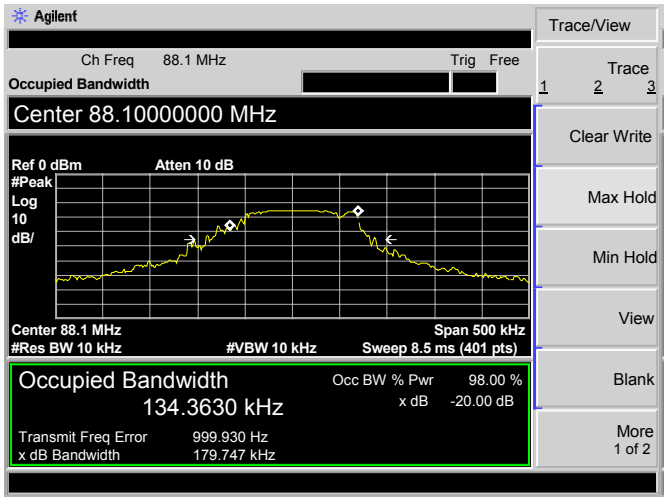
± 150Hz

4.5. Test Result of Occupied Bandwidth

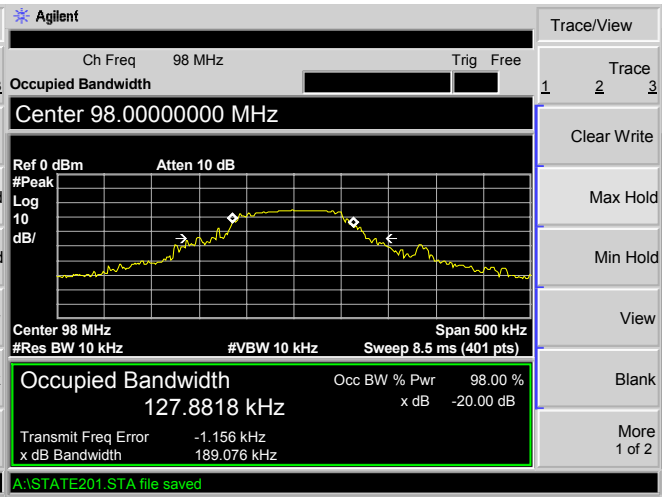
Product : Zune FM Transmitter with AutoSeek
Test Item : Occupied Bandwidth
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	88.1	179.747	200	Pass
100	98	189.076	200	Pass
199	107.9	186.565	200	Pass

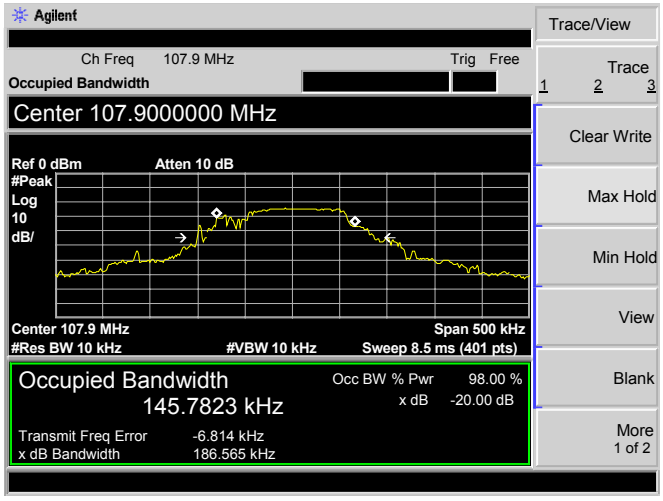
Channel 1:



Channel 100



Channel 199:



5. Band Edge

5.1. Test Equipment

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2006
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006
X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2006
X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2006
X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2006
X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2006
X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2006
X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2006

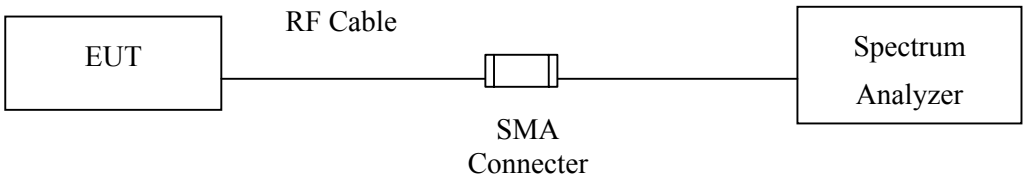
OATS No.3

Note: 1. All equipments are calibrated every one year.

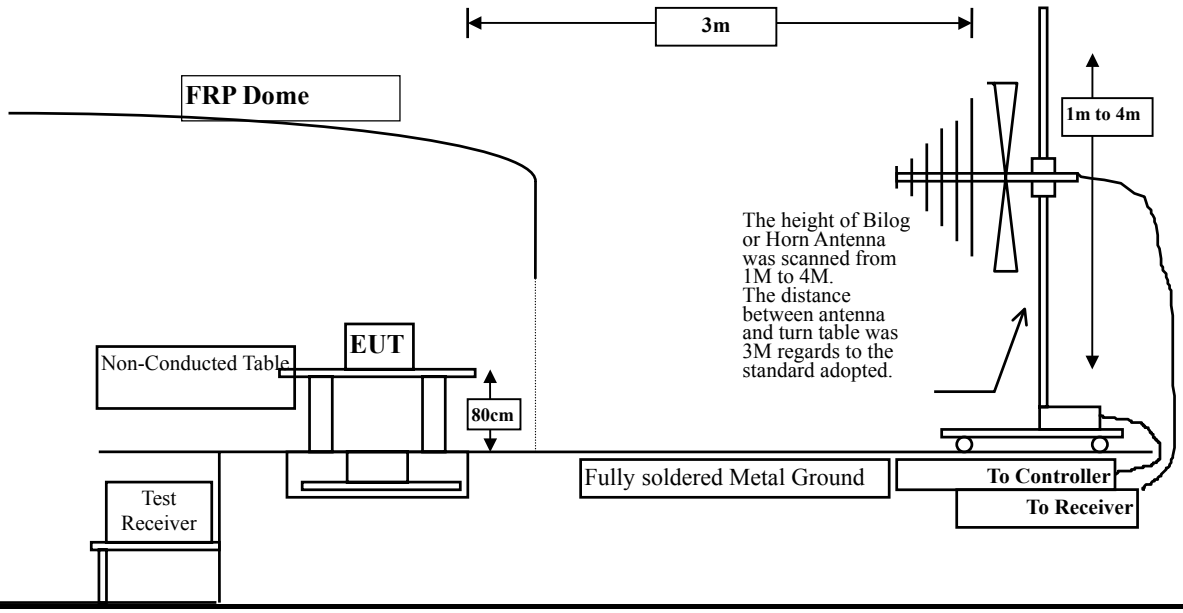
2. The test equipments marked by "X" are used to measure the final test results.

5.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



5.3. Limits

The 200 kHz band shall lie wholly within the frequency range of 88–108 MHz. The field strength of any emissions appearing outside of this band shall not exceed the general radiated emission limits shown in Section 15.209. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.
The bandwidth below 30MHz setting on the field strength meter (R&S Test Receiver ESI 26)is 9 kHz, 30MHz to 1GHz is 120 kHz and above 1GHz are 1 MHz.

5.5. Uncertainty

± 3.8 dB below 1GHz

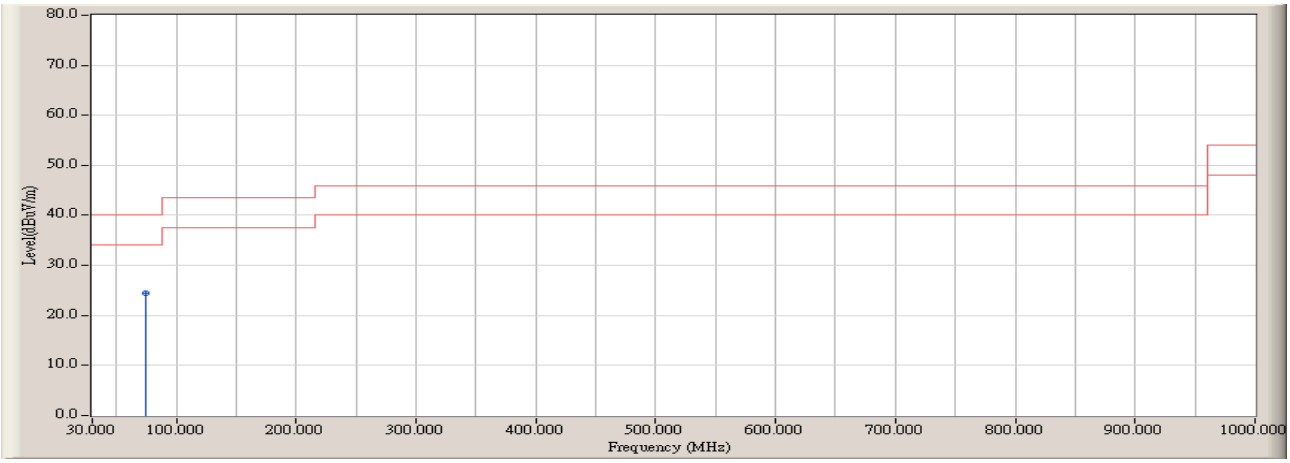
5.6. Test Result of Band Edge

Product : Zune FM Transmitter with AutoSeek
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter (88.1 MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Quasi-Peak Limit (dBuV/m)	Result
1 (Quasi-Peak)	75.200	7.567	16.900	24.467	40.00	Pass

Figure Channel 1: Horizontal (Quasi-Peak)



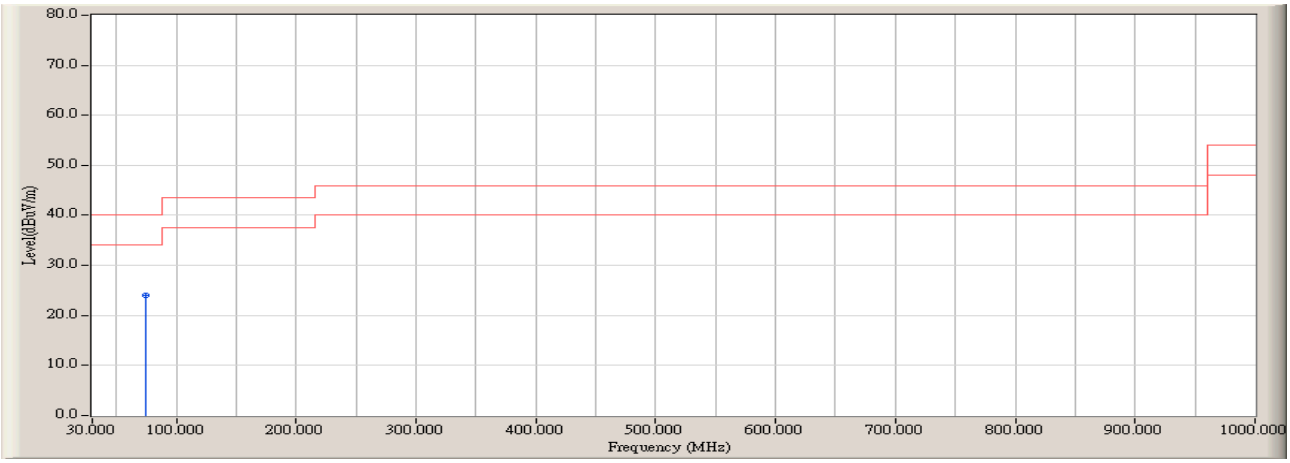
Note: RBW=120KHz

Product : Zune FM Transmitter with AutoSeek
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter (88.1 MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Quasi-Peak Limit (dBuV/m)	Result
1 (Quasi-Peak)	75.200	7.188	16.900	24.087	40.00	Pass

Figure Channel 1: Vertical (Quasi-Peak)



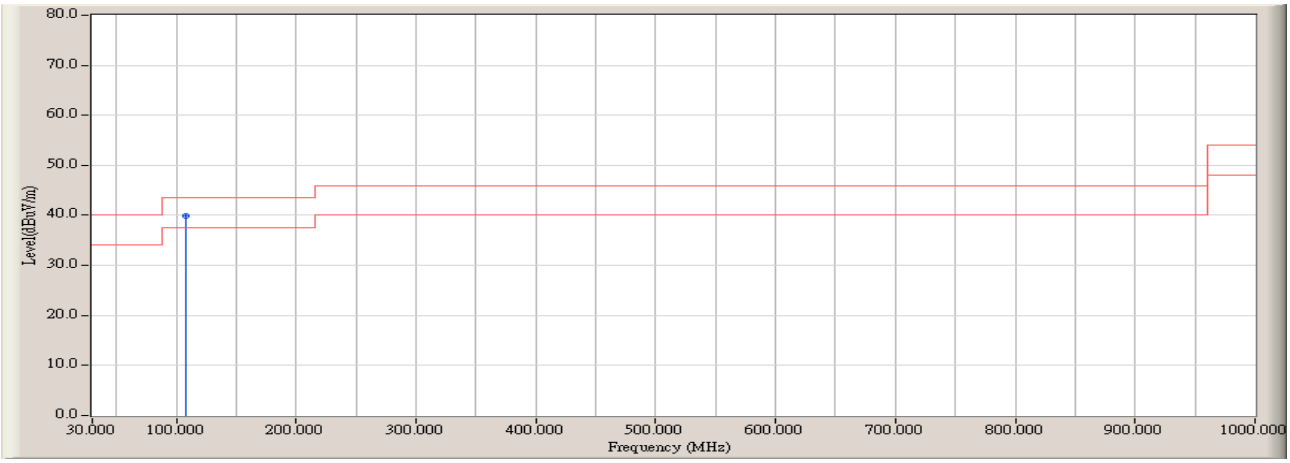
Note: RBW=120KHz

Product : Zune FM Transmitter with AutoSeek
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter (107.9 MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Quasi-Peak Limit (dBuV/m)	Result
1 (Quasi-Peak)	108.000	12.299	27.660	39.959	40.00	Pass

Figure Channel 199: Horizontal (Quasi-Peak)



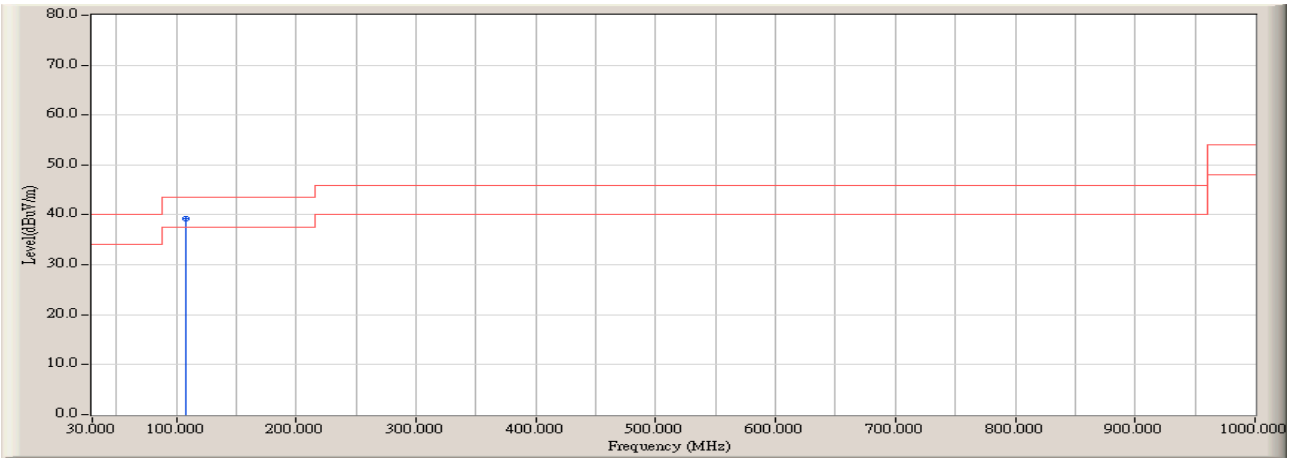
Note: RBW=120KHzs

Product : Zune FM Transmitter with AutoSeek
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: FM Transmitter + AC Adapter (107.9 MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Quasi-Peak Limit (dBuV/m)	Result
1 (Quasi-Peak)	108.000	10.841	28.410	39.250	40.00	Pass

Figure Channel 199: Vertical (Quasi-Peak)



Note: RBW=120KHzs

6. EMI Reduction Method During Compliance Testing

No modification was made during testing.