

# FC

## Test Report

Product Name	Advanced iPod Controller with Bluetooth
Model No.	eX-10
FCC ID.	PPQALPINE

Applicant	LITE-ON TECHNOLOGY CORP.
Address	4F, 90, Chien 1 Road, Chung-Ho, Taipei Hsien 235, Taiwan, R.O.C.

Date of Receipt	Oct. 15, 2007
Issued Date	Nov. 09, 2007
Report No.	07A226R-RFUSP06V01-A

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

# Test Report Certification

Test Date : Nov. 09, 2007

Report No. : 07A226R-RFUSP06V01-A



Product Name	Advanced iPod Controller with Bluetooth
Applicant	LITE-ON TECHNOLOGY CORP.
Address	4F, 90, Chien 1 Road, Chung-Ho, Taipei Hsien 235, Taiwan, R.O.C.
Manufacturer	LITE-ON TECHNOLOGY CORP.
Model No.	eX-10
FCC ID.	PPQALPINE
EUT Voltage	DC 12V
Rated Voltage	AC 120V/60Hz
Trade Name	ALPINE
Measurement Standard	FCC CFR Title 47 Part 15 Subpart C: 2006
Measurement Procedure	ANSI C63.4: 2003
Test Result	Complied



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Documented By : Leven Huang  
 ( Engineering Adm. Assistant / Leven Huang )



1313

ILAC MRA

Tested By : Dino Chen  
 ( Engineer / Dino Chen )

Approved By : Vincent Lin  
 ( Deputy Manager / Vincent Lin )



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## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Advanced iPod Controller with Bluetooth
Trade Name	ALPINE
Model No.	eX-10
FCC ID.	PPQALPINE
Frequency Range	88 – 108 MHz
Channel Number	199
Channel Control	Manual
Type of Modulation	FM
Antenna Type	PCB Module
Antenna Gain	Refer to the table “Antenna List”

#### Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	COXOC	925AE021100101DJ	N/A

## Frequency of Each Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	88.1 MHz	53	93.3 MHz	105	98.5 MHz	157	103.7 MHz
2	88.2 MHz	54	93.4 MHz	106	98.6 MHz	158	103.8 MHz
3	88.3 MHz	55	93.5 MHz	107	98.7 MHz	159	103.9 MHz
4	88.4 MHz	56	93.6 MHz	108	98.8 MHz	160	104.0 MHz
5	88.5 MHz	57	93.7 MHz	109	98.9 MHz	161	104.1 MHz
6	88.6 MHz	58	93.8 MHz	110	99.0 MHz	162	104.2 MHz
7	88.7 MHz	59	93.9 MHz	111	99.1 MHz	163	104.3 MHz
8	88.8 MHz	60	94.0 MHz	112	99.2 MHz	164	104.4 MHz
9	88.9 MHz	61	94.1 MHz	113	99.3 MHz	165	104.5 MHz
10	89.0 MHz	62	94.2 MHz	114	99.4 MHz	166	104.6 MHz
11	89.1 MHz	63	94.3 MHz	115	99.5 MHz	167	104.7 MHz
12	89.2 MHz	64	94.4 MHz	116	99.6 MHz	168	104.8 MHz
13	89.3 MHz	65	94.5 MHz	117	99.7 MHz	169	104.9 MHz
14	89.4 MHz	66	94.6 MHz	118	99.8 MHz	170	105.0 MHz
15	89.5 MHz	67	94.7 MHz	119	99.9 MHz	171	105.1 MHz
16	89.6 MHz	68	94.8 MHz	120	100.0 MHz	172	105.2 MHz
17	89.7 MHz	69	94.9 MHz	121	100.1 MHz	173	105.3 MHz
18	89.8 MHz	70	95.0 MHz	122	100.2 MHz	174	105.4 MHz
19	89.9 MHz	71	95.1 MHz	123	100.3 MHz	175	105.5 MHz
20	90.0 MHz	72	95.2 MHz	124	100.4 MHz	176	105.6 MHz
21	90.1 MHz	73	95.3 MHz	125	100.5 MHz	177	105.7 MHz
22	90.2 MHz	74	95.4 MHz	126	100.6 MHz	178	105.8 MHz
23	90.3 MHz	75	95.5 MHz	127	100.7 MHz	179	105.9 MHz
24	90.4 MHz	76	95.6 MHz	128	100.8 MHz	180	106.0 MHz
25	90.5 MHz	77	95.7 MHz	129	100.9 MHz	181	106.1 MHz
26	90.6 MHz	78	95.8 MHz	130	101.0 MHz	182	106.2 MHz
27	90.7 MHz	79	95.9 MHz	131	101.1 MHz	183	106.3 MHz
28	90.8 MHz	80	96.0 MHz	132	101.2 MHz	184	106.4 MHz
29	90.9 MHz	81	96.1 MHz	133	101.3 MHz	185	106.5 MHz
30	91.0 MHz	82	96.2 MHz	134	101.4 MHz	186	106.6 MHz
31	91.1 MHz	83	96.3 MHz	135	101.5 MHz	187	106.7 MHz
32	91.2 MHz	84	96.4 MHz	136	101.6 MHz	188	106.8 MHz
33	91.3 MHz	85	96.5 MHz	137	101.7 MHz	189	106.9 MHz
34	91.4 MHz	86	96.6 MHz	138	101.8 MHz	190	107.0 MHz
35	91.5 MHz	87	96.7 MHz	139	101.9 MHz	191	107.1 MHz
36	91.6 MHz	88	96.8 MHz	140	102.0 MHz	192	107.2 MHz
37	91.7 MHz	89	96.9 MHz	141	102.1 MHz	193	107.3 MHz
38	91.8 MHz	90	97.0 MHz	142	102.2 MHz	194	107.4 MHz
39	91.9 MHz	91	97.1 MHz	143	102.3 MHz	195	107.5 MHz
40	92.0 MHz	92	97.2 MHz	144	102.4 MHz	196	107.6 MHz
41	92.1 MHz	93	97.3 MHz	145	102.5 MHz	197	107.7 MHz
42	92.2 MHz	94	97.4 MHz	146	102.6 MHz	198	107.8 MHz
43	92.3 MHz	95	97.5 MHz	147	102.7 MHz	199	107.9 MHz
44	92.4 MHz	96	97.6 MHz	148	102.8 MHz		
45	92.5 MHz	97	97.7 MHz	149	102.9 MHz		
46	92.6 MHz	98	97.8 MHz	150	103.0 MHz		
47	92.7 MHz	99	97.9 MHz	151	103.1 MHz		
48	92.8 MHz	100	98.0 MHz	152	103.2 MHz		
49	92.9 MHz	101	98.1 MHz	153	103.3 MHz		
50	93.0 MHz	102	98.2 MHz	154	103.4 MHz		
51	93.1 MHz	103	98.3 MHz	155	103.5 MHz		
52	93.2 MHz	104	98.4 MHz	156	103.6 MHz		

## Note:

1. This device is an Advanced iPod Controller with built-in FM transmitter.
2. Regarding to the operation frequency, the lowest, middle, and highest channels are selected to perform the test.
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 verified the construction and function in typical operation, and then shown in this test report.

Mode 1: Transmitter

## 1.2. Operation Description

The EUT is an Advanced iPod Controller with built-in FM transmitter. The operation frequency is from 88.1 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 monopole antenna. DC 12V shall be provided for EUT operation.

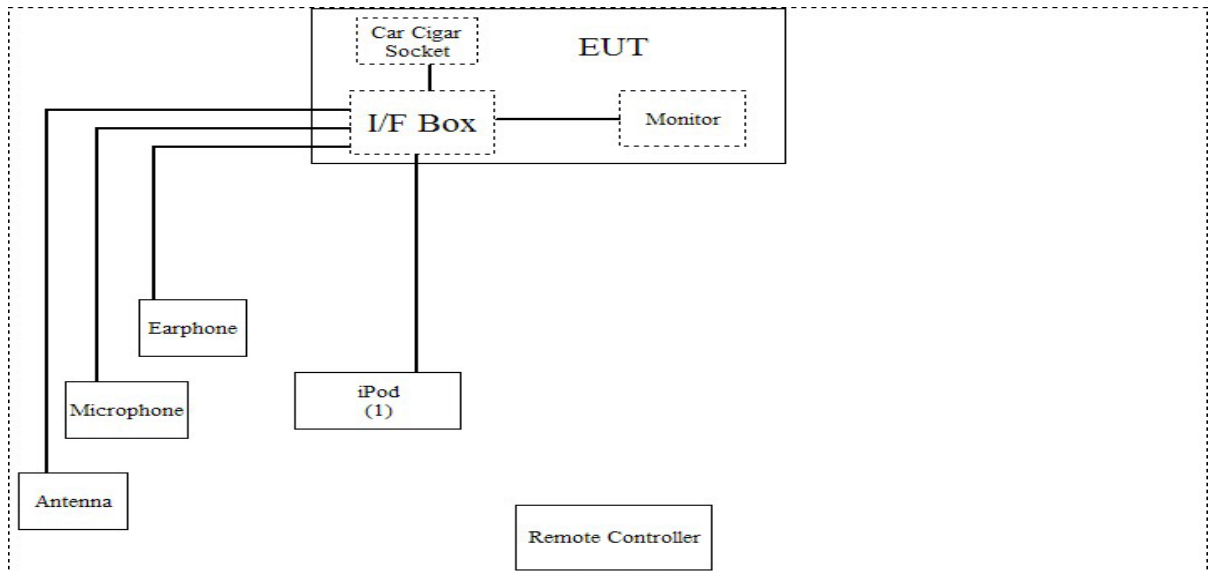
**1.3. Test System Details**

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)	iPod	Apple	A1199	5U705F9HVQ5	N/A

Signal Cable Type	Signal cable Description
	N/A

**1.4. Configuration of Tested System**



**1.5. EUT Exercise Description**

1	EUT shall be placed on the center of the testing table.
2	Starting FM Transmitter function after the power on.
3	With the FM Transmitter set-up to the test channel as follow: CH01, CH101, CH199
4	Entering MP3 Player mode after set-up and then playing 1KHz tone.
5	The volume shall be adjusted to give the maximum.
6	After the set-up, starting the test and data shall be recorded in the test report.

**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:

File on  
 Federal Communications Commission  
 Laboratory Division  
 7435 Oakland Mills Road  
 Columbia, MD 21046  
 Registration Number: 365520



Accredited by CNLA  
 Accreditation Number: 1313  
 Effective through: September 27, 2007



**1313**  
**ILAC MRA**

Accredited by NVLAP  
 NVLAP Lab Code: 200347-0  
 Effective through: September 30, 2007



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 E-Mail : [service@quietek.com](mailto:service@quietek.com)

FCC Accreditation Number: TW1013



## 2. Conducted Emission

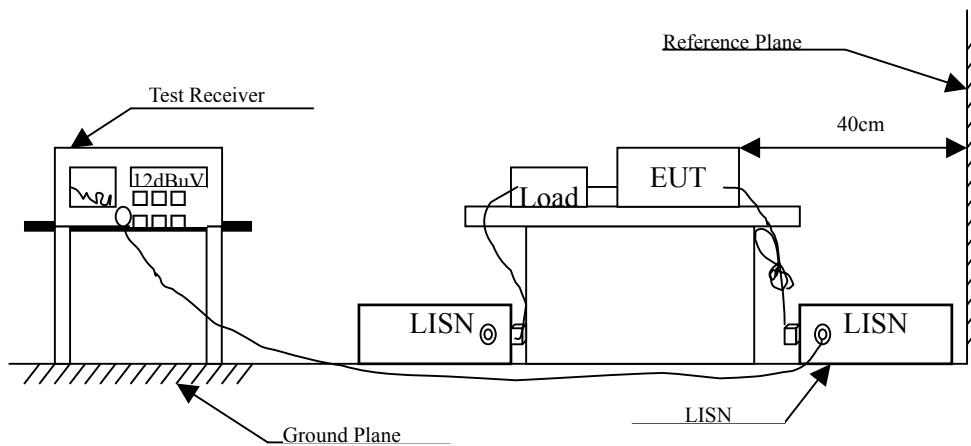
### 2.1. Test Equipment

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 30/825442/014	Feb., 2007	
2	L.I.S.N.	R & S	ESH3-Z5/825562/002	Feb., 2007	EUT
3	L.I.S.N.	R & S	ENV4200/848411/010	Feb., 2007	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2/100410	July, 2007	
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	
	QP	AV
0.15 - 0.50	66-56 <sup>(註)</sup>	56-46 <sup>(註)</sup>
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 investigated 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

Owing to the DC operation of EUT, this test item is not performed.

### 3. Radiated Emission

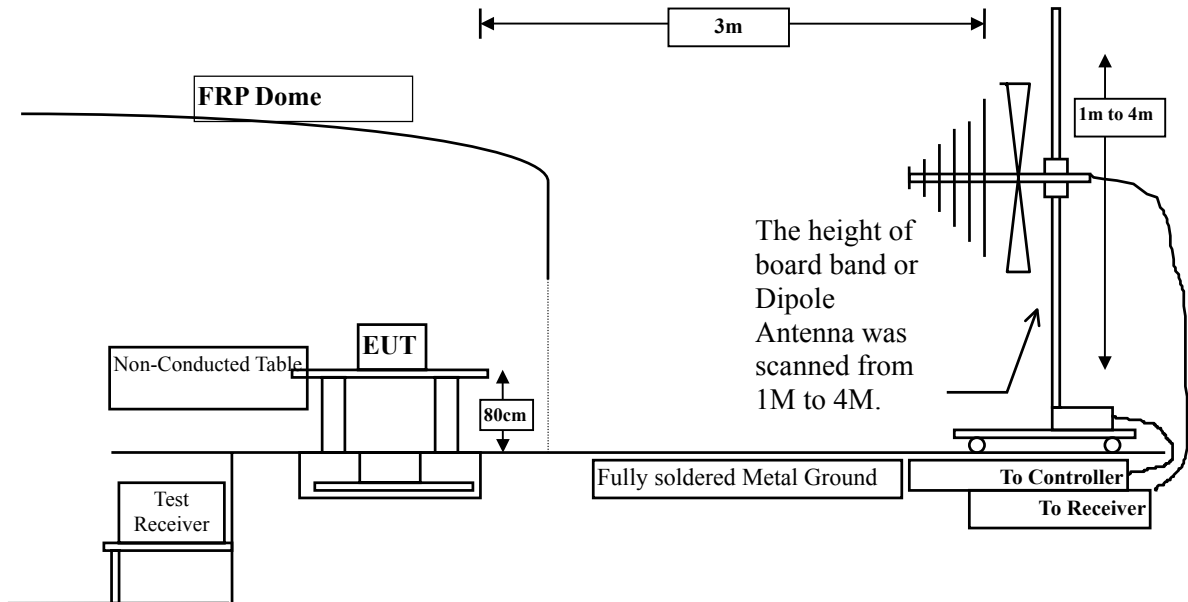
#### 3.1. Test Equipment

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2007
	X	Pre-Amplifier	HP	8447D/2944A09549	Sep., 2007
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2007
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2007
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2007
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

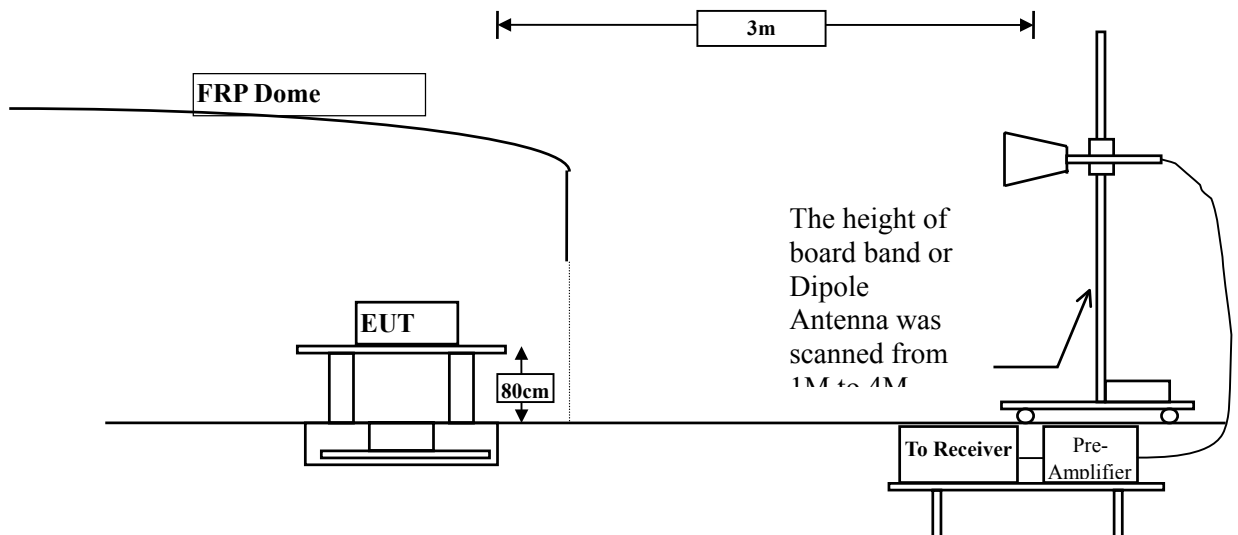
- Note:
1. All equipments are calibrated every one year.
  2. Test equipments marked by "X" are used to measure the final test results.

### 3.2. Test Setup

Below 1GHz



Above 1GHz



### 3.3. Limits

#### ➤ General Radiated Emission Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in FCC 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a), must also comply in FCC 15.209(a) (see FCC 15.205(c)).

FCC Part 15 Subpart C 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) = 20 log RF Voltage (uV)
  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.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The frequency range from 30MHz to 10th harmonics is checked.

### 3.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

### 3.6. Test Result of Radiated Emission

Product : Advanced iPod Controller with Bluetooth  
 Test Item : Fundamental Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
88.100	12.238	32.340	44.578	-23.372	67.950
98.100	16.930	30.660	47.590	-20.360	67.950
107.900	15.412	24.450	39.862	-28.088	67.950
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
88.100	13.809	36.560	50.369	-17.581	67.950
98.100	17.322	32.140	49.462	-18.488	67.950
107.900	16.113	30.020	46.133	-21.817	67.950
<b>Average Detector:</b>					
88.100	13.809	22.660	36.469	-11.481	47.950
98.100	17.322	18.240	35.562	-12.388	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 : Advanced iPod Controller with Bluetooth  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (88.1 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
176.200	9.721	17.423	27.144	-16.376	43.520
264.300	14.249	17.024	31.273	-14.747	46.020
352.400	14.943	16.554	31.497	-14.523	46.020
440.500	17.590	16.284	33.874	-12.146	46.020
528.600	18.638	16.245	34.883	-11.137	46.020
616.700	21.047	16.211	37.258	-8.762	46.020
<b>Vertical</b>					
176.200	9.652	17.715	27.367	-16.153	43.520
264.300	14.501	17.024	31.526	-14.494	46.020
352.400	15.397	16.250	31.647	-14.373	46.020
440.500	18.934	16.139	35.073	-10.947	46.020
528.600	18.993	16.052	35.046	-10.974	46.020

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Product : Advanced iPod Controller with Bluetooth  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (98.1 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
196.200	9.442	16.520	25.962	-17.558	43.520
294.300	13.915	16.447	30.362	-15.658	46.020
392.400	16.065	16.255	32.320	-13.700	46.020
490.500	18.314	16.069	34.382	-11.638	46.020
588.600	20.066	16.067	36.133	-9.887	46.020
686.700	21.020	16.361	37.381	-8.639	46.020
<b>Vertical</b>					
196.200	9.430	16.312	25.742	-17.778	43.520
294.300	13.808	17.254	31.062	-14.958	46.020
392.400	17.398	16.488	33.886	-12.134	46.020
490.500	18.314	16.324	34.637	-11.383	46.020
588.600	21.842	16.781	38.623	-7.397	46.020
686.700	20.321	16.514	36.835	-9.185	46.020

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Product : Advanced iPod Controller with Bluetooth  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (107.9 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
215.800	9.487	17.849	27.336	-16.184	43.520
323.700	13.928	17.596	31.523	-14.497	46.020
431.600	17.740	16.842	34.582	-11.438	46.020
539.500	19.518	16.419	35.937	-10.083	46.020
647.400	20.998	16.522	37.520	-8.500	46.020
755.300	21.436	16.059	37.495	-8.525	46.020
<b>Vertical</b>					
215.800	10.701	17.614	28.315	-15.205	43.520
323.700	14.297	17.024	31.321	-14.699	46.020
431.600	19.267	16.455	35.722	-10.298	46.020
539.500	20.049	16.471	36.519	-9.501	46.020
647.400	20.244	16.382	36.626	-9.394	46.020
755.300	23.113	16.296	39.409	-6.611	46.020

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Product : Advanced iPod Controller with Bluetooth  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (107.9 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
1079.000	-6.429	37.629	31.200	-42.800	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
1079.000	-6.429	37.929	31.500	-42.500	74.000
<b>Average Detector:</b>					
--					

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

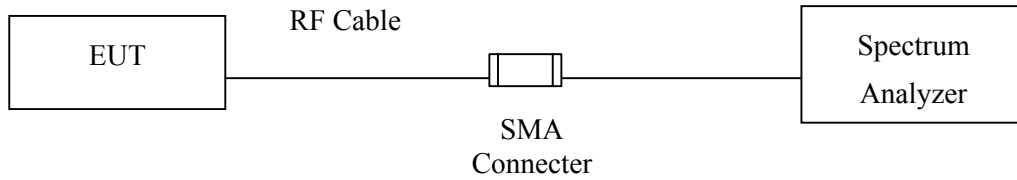
### 4.1. Test Equipment

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, 2007

Note: 1. All equipments 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

N/A

### 4.4. Uncertainty

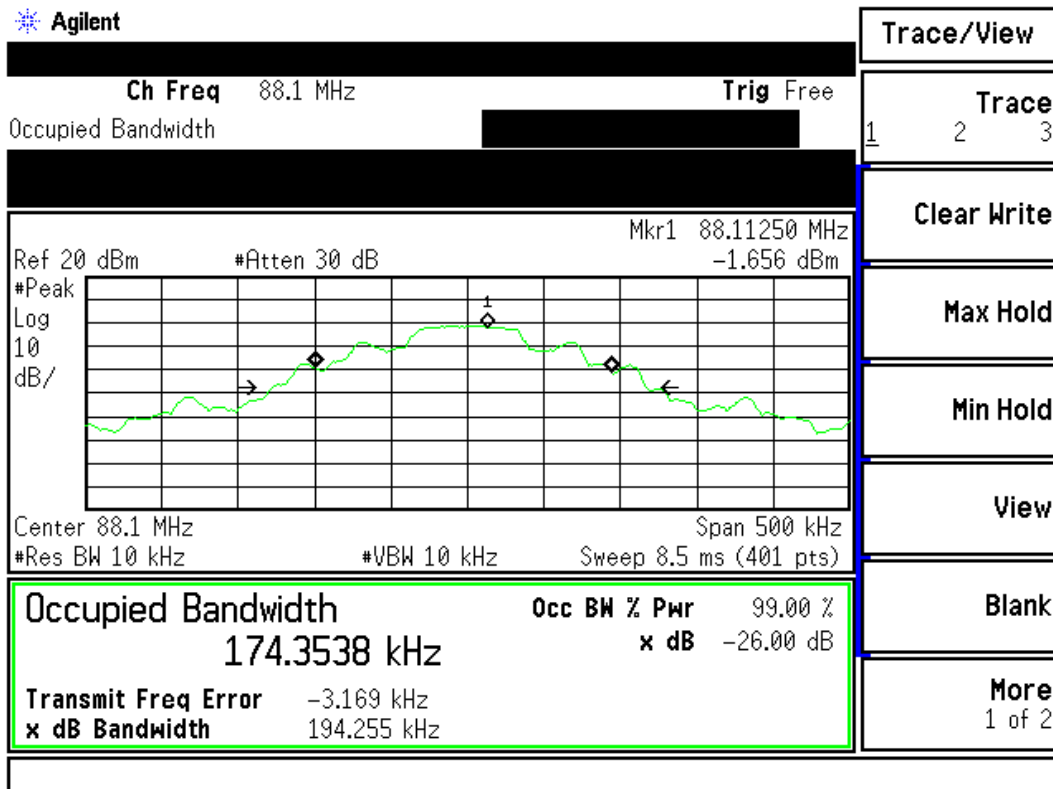
± 150Hz

### 4.5. Test Result of Occupied Bandwidth

Product : Advanced iPod Controller with Bluetooth  
 Test Item : Occupied Bandwidth (modulation)  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	88.1	194.255	200	Pass
101	98.1	180.428	200	Pass
199	107.9	187.625	200	Pass

**Channel 1:**



**Channel 101**

**Agilent**

**Ch Freq** 98.1 MHz **Trig** Free

Occupied Bandwidth

Ref 20 dBm #Atten 30 dB Mkr1 98.09250 MHz -2.26 dBm

Center 98.1 MHz Span 500 kHz  
#Res BW 10 kHz #VBW 10 kHz Sweep 8.5 ms (401 pts)

<b>Occupied Bandwidth</b>	<b>Occ BW % Pwr</b>	99.00 %
166.6192 kHz	<b>x dB</b>	-26.00 dB
<b>Transmit Freq Error</b>		-2.190 kHz
<b>x dB Bandwidth</b>		180.428 kHz

**Peak Search**

**Meas Tools**

**Next Peak**

**Next Pk Right**

**Next Pk Left**

**Min Search**

**Pk-Pk Search**

**More**  
1 of 2

**Channel 199:**

**Agilent**

**Ch Freq** 107.9 MHz **Trig** Free

Occupied Bandwidth

Ref 20 dBm #Atten 30 dB Mkr1 107.89375 MHz -2.045 dBm

Center 107.9 MHz Span 500 kHz  
#Res BW 10 kHz #VBW 10 kHz Sweep 8.5 ms (401 pts)

<b>Occupied Bandwidth</b>	<b>Occ BW % Pwr</b>	99.00 %
169.0169 kHz	<b>x dB</b>	-26.00 dB
<b>Transmit Freq Error</b>		-2.011 kHz
<b>x dB Bandwidth</b>		187.625 kHz

**Peak Search**

**Meas Tools**

**Next Peak**

**Next Pk Right**

**Next Pk Left**

**Min Search**

**Pk-Pk Search**

**More**  
1 of 2

## 5. Band Edge

### 5.1. Test Equipment

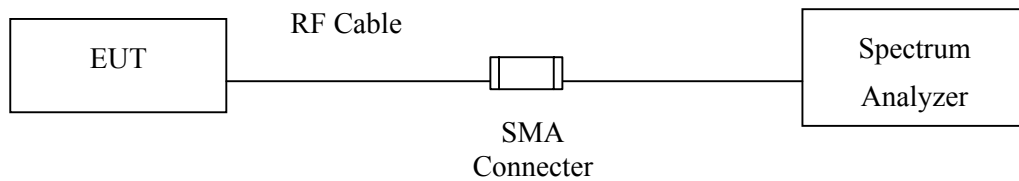
Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI 26 / 838786/004	May, 2007
X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007
X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2007
X Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2007
X Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2007
X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2007
X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2007
X Pre-Amplifier	HP	8449B / 3008A01123	July, 2007

OATS No.3

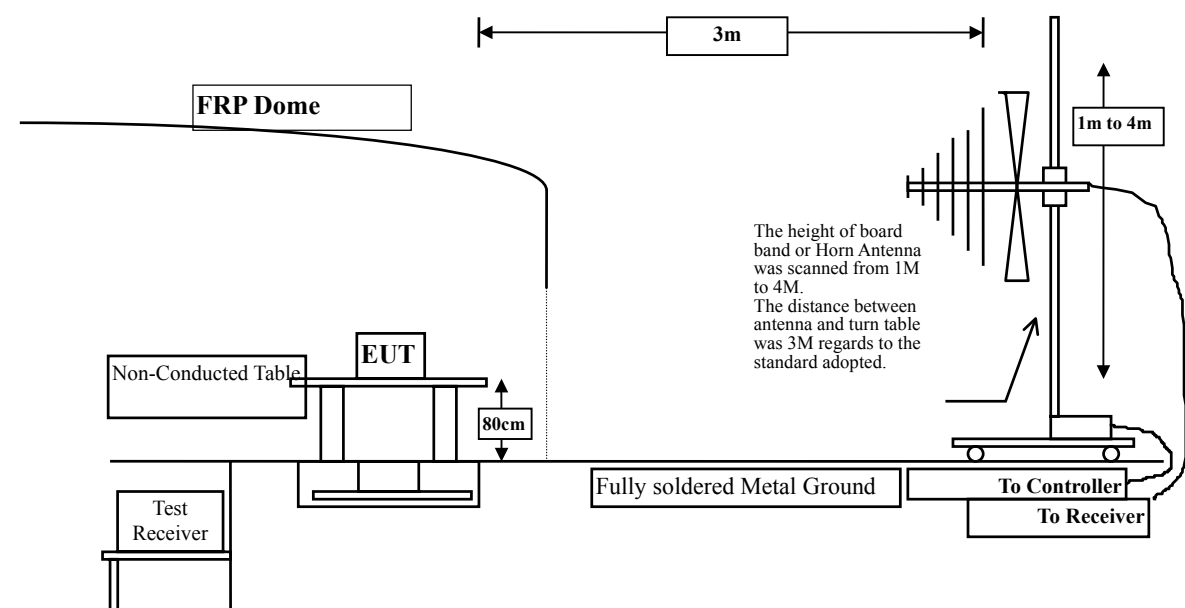
- Note:
1. All equipments are calibrated every one year.
  2. The test equipments marked by "X" are used to measure the final test results.

### 5.2. Test Setup

#### RF Conducted Measurement:



#### RF Radiated Measurement:





### 5.3. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in FCC 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a), must also comply in FCC 15.209(a) (see FCC 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 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

### 5.5. Uncertainty

Conducted is  $\pm 1$  MHz

Radiated is  $\pm 3.9$  dB

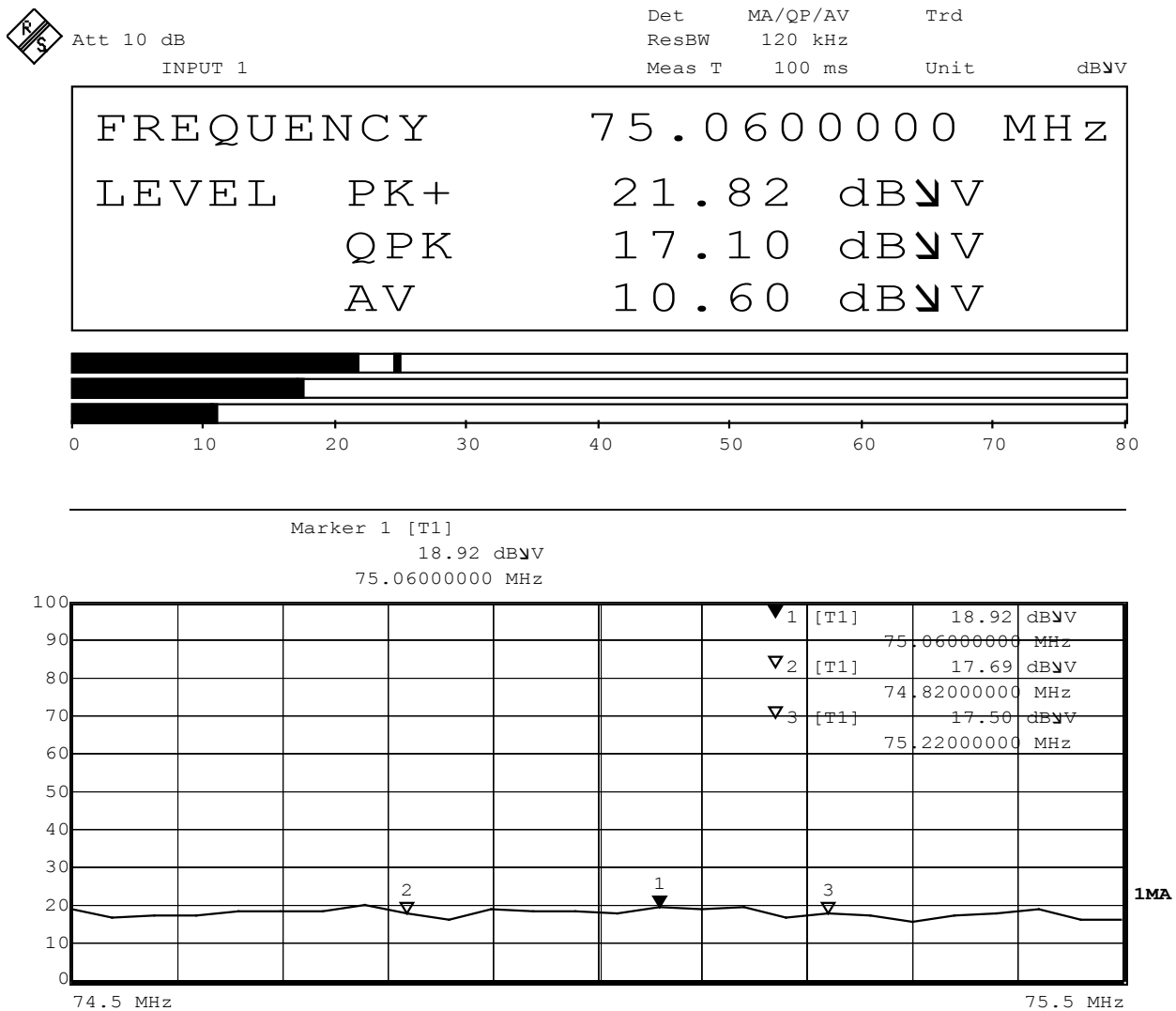
### 5.6. Test Result of Band Edge

Product : Advanced iPod Controller with Bluetooth  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (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	75.060	12.691	17.100	29.792	40.000	Pass

**Figure Channel 1: Horizontal (Quasi-Peak)**



Date: 30.OCT.2007 21:11:48

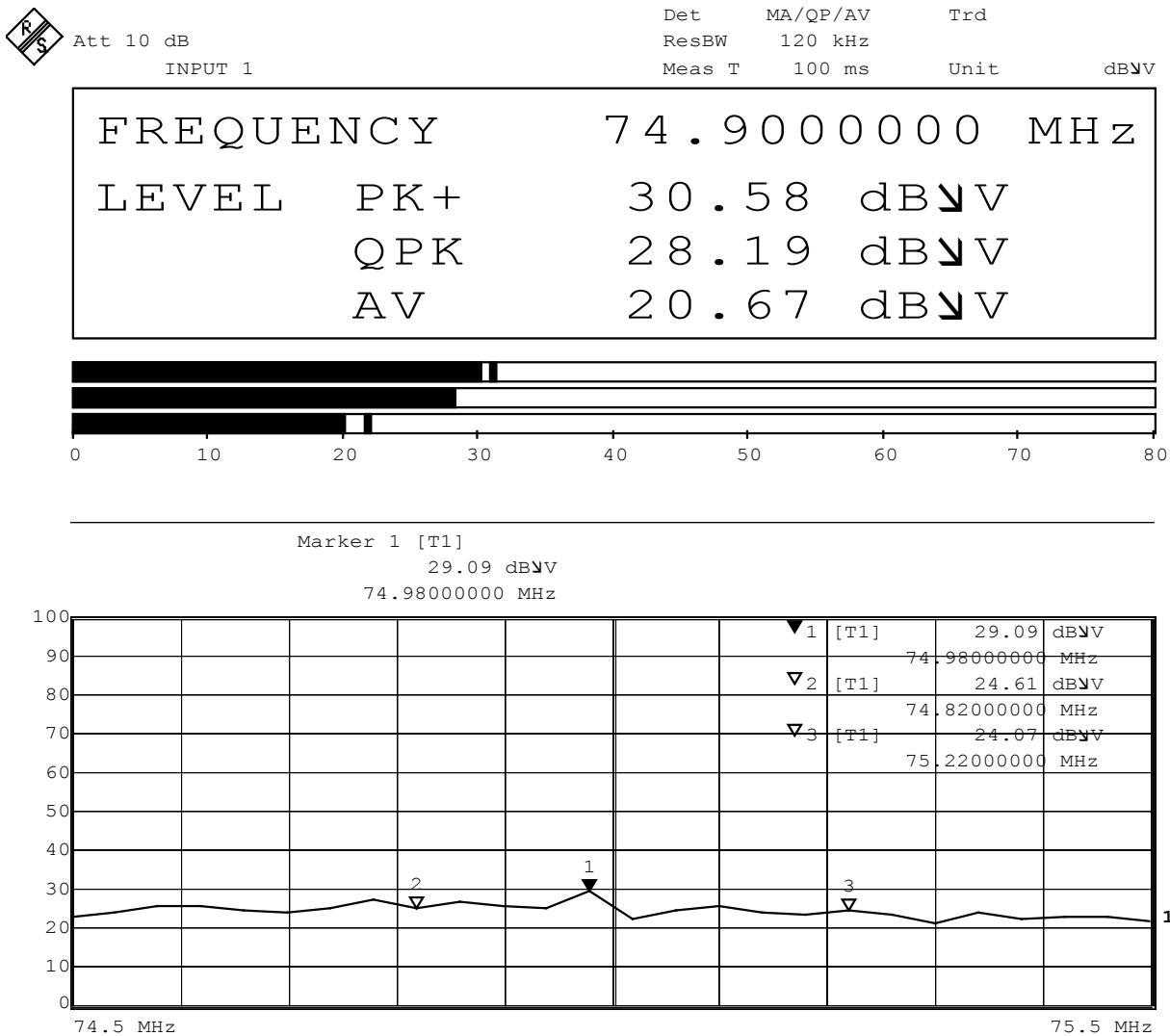
Note: RBW=120KHz

Product : Advanced iPod Controller with Bluetooth  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (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	74.900	10.658	25.890	36.548	40.000	Pass

**Figure Channel 1: Vertical (Quasi-Peak)**



Date: 30.OCT.2007 21:18:17

Note: RBW=120KHz

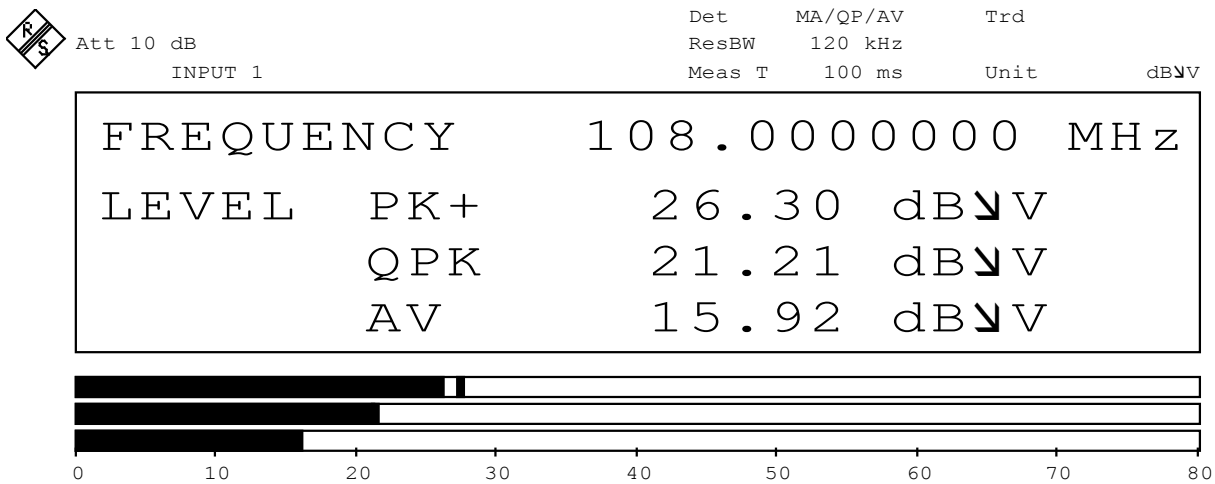
Product : Advanced iPod Controller with Bluetooth  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (107.9 MHz)

**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Quasi-Peak Limit (dBuV/m)	Result
199	108.000	15.378	21.210	36.588	43.520	Pass

**Figure Channel 199:**

**Horizontal (Quasi-Peak)**



Marker 2 [T1]  
 21.28 dBuV  
 108.00000000 MHz



Date: 30.OCT.2007 21:32:03

Note: RBW=120KHz

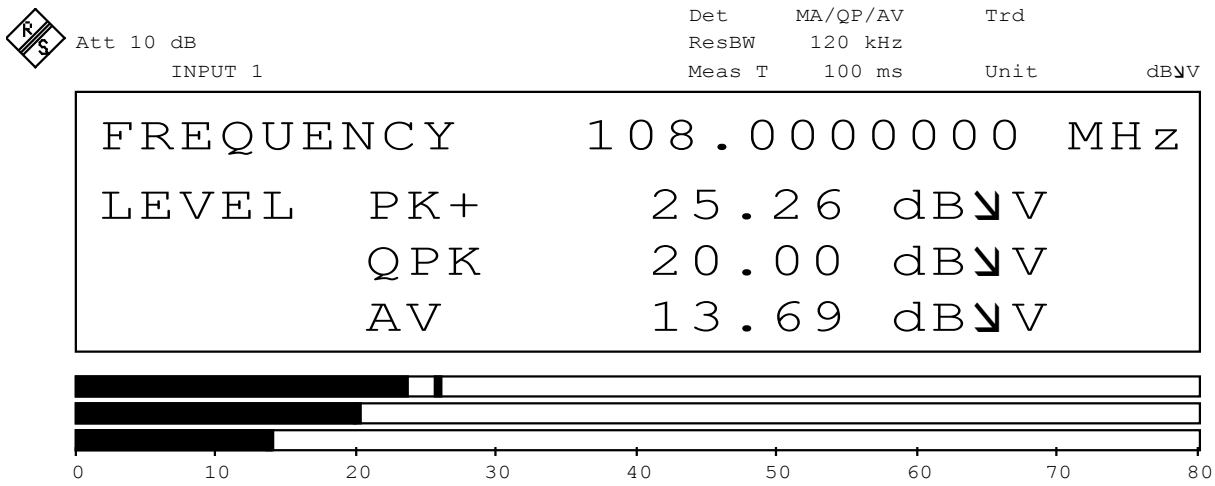
Product : Advanced iPod Controller with Bluetooth  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (107.9 MHz)

**RF Radiated Measurement (Vertical):**

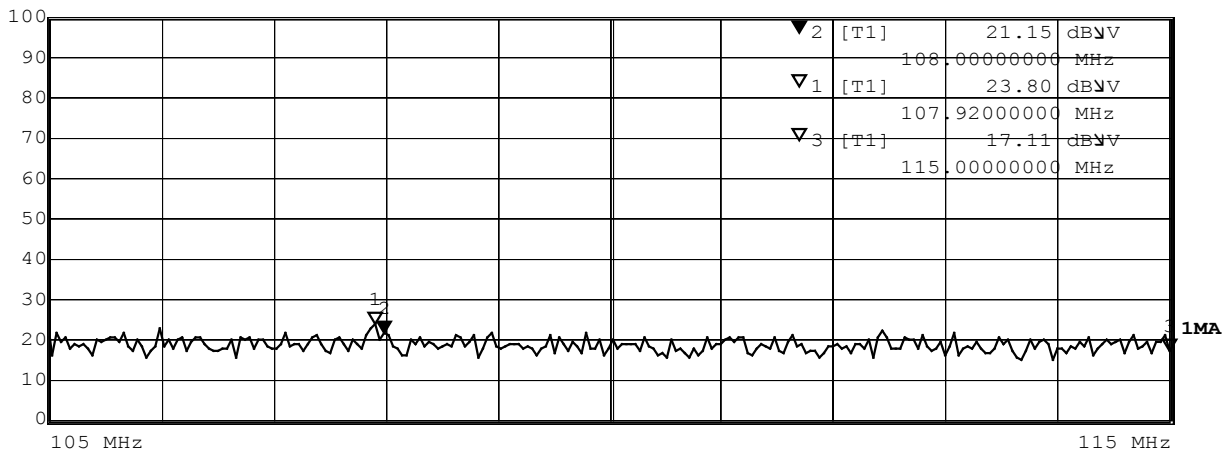
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Quasi-Peak Limit (dBuV/m)	Result
199	108.000	16.089	20.000	36.089	43.520	Pass

**Figure Channel 199:**

**Vertical (Quasi-Peak)**



Marker 2 [T1]  
 21.15 dBuV  
 108.00000000 MHz



Date: 30.OCT.2007 21:27:52

Note: RBW=120KHz

## 6. EMI Reduction Method During Compliance Testing

No modification was made during testing.