

TEST REPORT OF FCC DoC

On Behalf of

Sonos, Inc.

Zone Player

Model No.: ZP100

Brand: SONOS

Prepared for : Sonos, Inc.
506 Chapala St., Santa Barbara,
CA 93101

Prepared by : Audix Corporation
Technical Division EMC Department
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APPENDIX I(Photos of EUT)

TEST REPORT FOR FCC COMPLIANCE DECLARATION

Applicant : Sonos, Inc.
 Manufacturer : Inventec Electronics (M) Sdn Bhd
 EUT Description : Zone Player
 (A) MODEL NO. : ZP100
 (B) SERIAL NO. : N/A
 (C) BRAND : SONOS
 (D) POWER SUPPLY : 100/240Vac, 50/60Hz, Switchable
 (E) TEST VOLTAGE : AC 120V/60Hz

Measurement Regulations and Procedure Used:

FCC CFR 47 Part 15 Subpart B/July 2004 and CISPR 22/1997
 ANSI C63.4-2003

The device described above was tested by AUDIX Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 Sections 15.107(a) and 15.109(g) Class B limits both conducted and radiated emissions.

The measurement results are contained in this test report and AUDIX Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only and which shall not be reproduced in part without written approval of AUDIX Corporation.

The applicant to claim product endorsement by NVLAP or any agency of the U.S. Government must not use this report.

Date of Test : Dec. 14 ~ 16, 2004

Prepared by : Cherry Wang Dec. 27, 2004
 (Cherry Wang/Section Manager)

Test Engineer : Ben Cheng Dec. 27, 2004
 (Ben Cheng/Section Manager)

Approved & Authorized Signer : Leon Liu Dec. 27, 2004
 (Leon Liu/Senior Manager)

Name of the Representative of the Responsible Party : _____

Signature : _____

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Zone Player This devices is a digital music system using a wired or wireless connection.
Model Number	:	ZP100
Serial Number	:	N/A
Brand	:	SONOS
Applicant	:	Sonos, Inc. 506 Chapala St., Santa Barbara, CA 93101
Manufacturer	:	Inventec Electronics (M) Sdn. Bhd. Plot 102, Bayan Lepas Industrial Estate, 11900 Bayan Lepas, Penang, Malaysia.
High Frequency of Used	:	16.0MHz 、 20.0MHz 、 25.0MHz 、 33.0MHz 、 32.768kHz for Main Controller 11.289MHz 、 20.0MHz for Audio Controller
Wireless LAN Card	:	Samsung, M/N SWL-2700M IEEE 802.11g FCC ID. E2XSWL-2700M
Interfaces of EUT	:	<ul style="list-style-type: none"> • Stereo Speaker Outputs (Right/Left channel) • Stereo Audio In (RCA x2) • Stereo Audio Out (RCA x2) • Subwoofer Out (RCA x1) • 10/100 Base-T Ethernet RJ45 x4 • Wireless Ethernet (Mini-PCI x1) • AC In x1
RJ45 LAN Cable x1	:	Non-Shielded, Detachable, 2.0m
AC Power Cord (3Pin)	:	Non-Shielded, Detachable, 2.0m

Date of Receipt of Sample : Dec. 14, 2004
 Date of Test : Dec. 14 ~16, 2004

1.2. Tested Supporting System Details

1.2.1. NOTEBOOK PC

Model Number : 2672
 Serial Number : N/A
 FCC ID : By DoC
 Manufacturer : IBM
 Power Adapter : IBM, M/N 02K6808
 DC Cord: Non-Shielded, Undetachable, 1.0m
 AC Cord: Non-Shielded, Detachable, 1.8m
 RJ45 LAN Cable *1EA : Non-Shielded, Detachable, 20m

1.2.2. 8 OHM LOAD #1

Model Number : N/A
 Serial Number : N/A
 Manufacturer : Sonos
 Audio Cable *1EA : Non-Shielded, Detachable, 2.1m

1.2.3. 8 OHM LOAD #2

Model Number : N/A
 Serial Number : N/A
 Manufacturer : Sonos
 Audio Cable *1EA : Non-Shielded, Detachable, 2.1m

1.2.4. AUDIO INPUT/OUTPUT LOAD

Model Number : N/A
 Serial Number : N/A
 Manufacturer : Sonos
 Audio Cable-In *1EA : Non-Shielded, Detachable, 1.8m
 Audio Cable-Out *2EA : Non-Shielded, Detachable, 1.8m

1.2.5. ETHERNET TERMINATOR (100 OHM)

Model Number : N/A
 Serial Number : N/A
 Manufacturer : Sonos
 RJ45 LAN Cable *3EA : Non-Shielded, Detachable, 1.8m

1.3. Description of Test Facility

Name of Firm	:	Audix Corporation Technical Division EMC Department No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei County, Taiwan, R.O.C.
Test Site & Facility (C2/AC/R6)	:	No. 2 Shielded Room No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei County, Taiwan, R.O.C. Semi-Anechoic Chamber No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei Hsien 24443, Taiwan, R.O.C. May 16, 2003 Renewal on Federal Communication Commission Registration Number: 90993 No. 6 Open Field Test Site No. 67-4, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei Hsien 24443, Taiwan, R.O.C. June. 11, 2003 Renewal on Federal Communication Commission Registration Number: 98448
NVLAP Lab. Code	:	200077-0 (NVLAP is a NATA accredited body under Mutual Recognition Agreement)
DAR-Registration No.	:	DAT-P-145/03-01

1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150kHz~30MHz	±1.73dB
Radiation Test (Distance: 10m)	30MHz~300MHz	±2.99dB
	300MHz~1000MHz	±2.73dB
Radiation Test (Distance: 3m)	30MHz~300MHz	± 2.91dB
	300MHz~1000MHz	± 2.94dB

Remark : Uncertainty = $ku_c(y)$

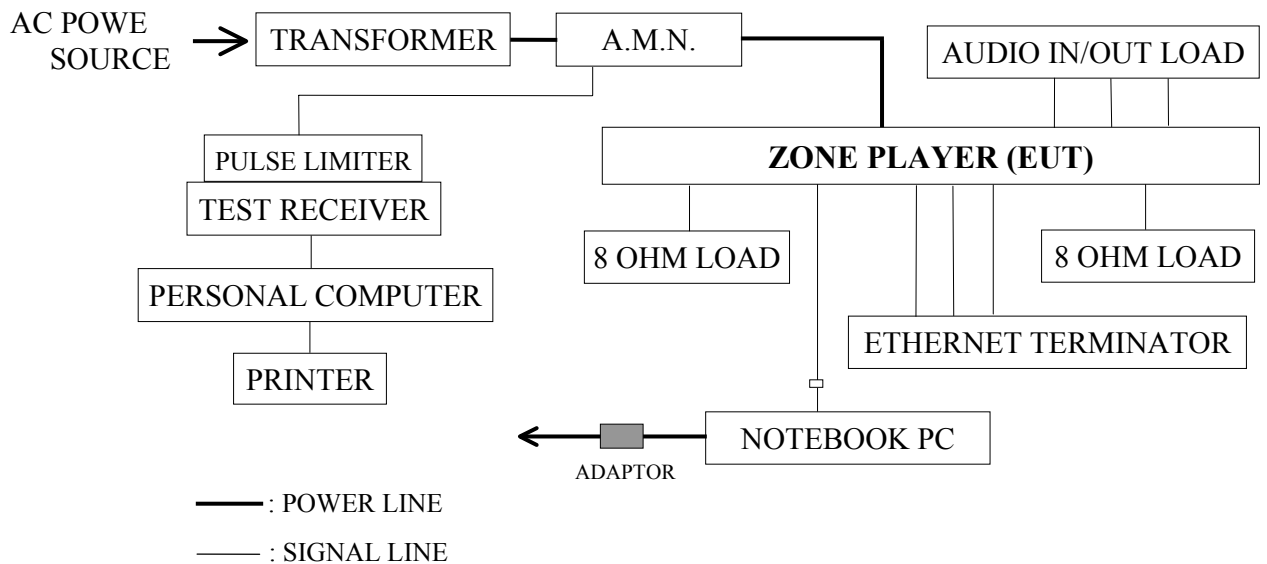
2. CONDUCTED EMISSION MEASUREMENT

2.1. Test Equipment

The following test equipment was used during the conducted emission measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCS30	100265	Oct. 05, 04'	Oct. 04, 05'
2.	A.M.N.	R & S	ESH2-Z5	890485/023	Feb. 05, 04'	Feb. 04, 05'
3.	Pulse Limiter	R & S	ESH3Z2	001	Apr. 28, 04'	Apr. 27, 05'

2.2. Block Diagram of Test Setup



2.3. Conducted Emission Limits (§15.107, Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ V

Remark1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

2.4. EUT's Configuration during Compliance Measurement

The following equipment were installed on RF LINE VOLTAGE measurement to meet the commission requirement and operating in a manner which tended to maximize its emission characteristics in a normal application.

2.4.1. Zone Player (EUT)

Model Number	:	ZP100
Serial Number	:	N/A
Manufacturer	:	Inventec Electronics (M) Sdn. Bhd.
Wireless LAN Card	:	Samsung, M/N SWL-2700M IEEE 802.11g
RJ45 LAN Cable	:	Non-Shielded, Detachable, 2.0m
AC Power Cord (3Pin)	:	Non-Shielded, Detachable, 2.0m

2.4.2. Supporting System : As in section 1.2

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown on 2.2.

2.5.2. Turn on the power of all equipment.

2.5.3. Run telnet on notebook PC (IBM ThinkPad) to run test software "dsp-write" on the EUT (Zone Player) through RJ45 Ethernet during the testing.

2.5.4. The Zone Player (EUT) was on normal function during all testing.

2.6. Test Procedure

The EUT was put on the table which was above the ground by 80cm and its power cord was connected to the AC mains through a Artificial Mains Network (A.M.N.). The other peripheral devices power cord were connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to FCC ANSI C63.4-2003 on conducted measurement.

The bandwidth of the R&S Test Receiver ESCS30 was set at 9kHz.

The frequency range from 0.15MHz to 30MHz was checked with a peak detector.

The all final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. (Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

2.7. Conducted Emission Measurement Results

PASSED.

(All emissions not reported below are too low against the prescribed limits.)

The EUT with following test modes were tested with AC 120V/60Hz supplying voltage during conducted measurement and all the test results are attached in next pages.

EUT : Zone Player M/N : ZP100

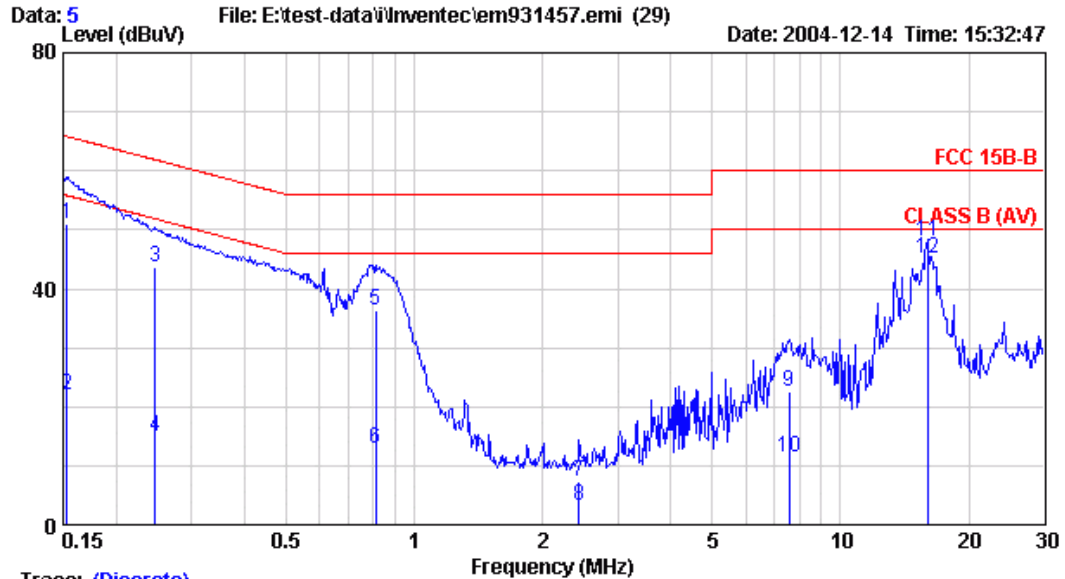
Test Date : Dec. 14, 2004 Temperature : 21°C Humidity : 62%

The details of test modes and reference test data are as follows:

Mode	Operating Mode of EUT	Reference Test Data No.	
		Line	Neutral
1.	Playing (LAN)	# 5	# 6
2.	Receiving, Channel: 6	# 3	# 4



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Trace: (Discrete)

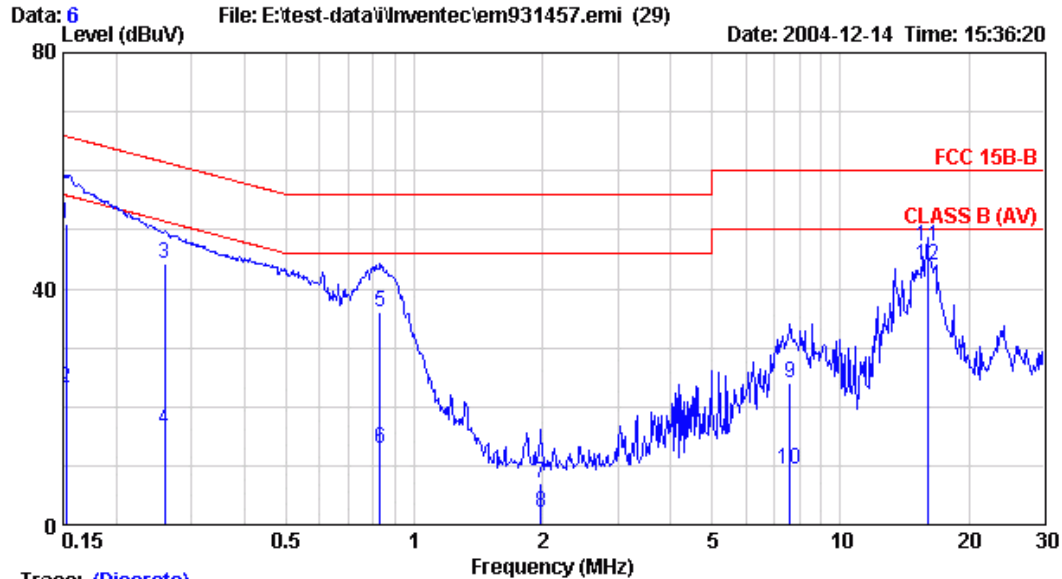
Site	: No.2 Shielded room	Data	: 5
Condition	: ESH2-Z5	Phase	: LINE
Limit	: FCC 15B-B	Engineer:	Cater Chou
Env. / Ins.	: 21°C,62% / ESCS 30		
EUT	: Zone Player M/N: ZP100		
Power Rating	: 120Vac/60Hz		
Test Mode	: Operating(Play)		

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.153	0.10	0.24	50.58	50.92	65.82	14.91	QP
2	0.153	0.10	0.24	21.56	21.90	55.82	33.93	AVERAGE
3	0.247	0.10	0.28	43.34	43.72	61.86	18.15	QP
4	0.247	0.10	0.28	14.60	14.98	51.86	36.89	AVERAGE
5	0.813	0.18	0.38	35.66	36.22	56.00	19.78	QP
6	0.813	0.18	0.38	12.43	12.99	46.00	33.01	AVERAGE
7	2.430	0.20	0.40	6.81	7.41	56.00	48.59	QP
8	2.430	0.20	0.40	2.54	3.14	46.00	42.86	AVERAGE
9	7.570	0.27	0.61	21.67	22.55	60.00	37.45	QP
10	7.570	0.27	0.61	10.58	11.46	50.00	38.54	AVERAGE
11	15.997	0.47	0.70	46.81	47.98	60.00	12.02	QP
12	15.997	0.47	0.70	44.06	45.23	50.00	4.77	AVERAGE

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Trace: (Discrete)

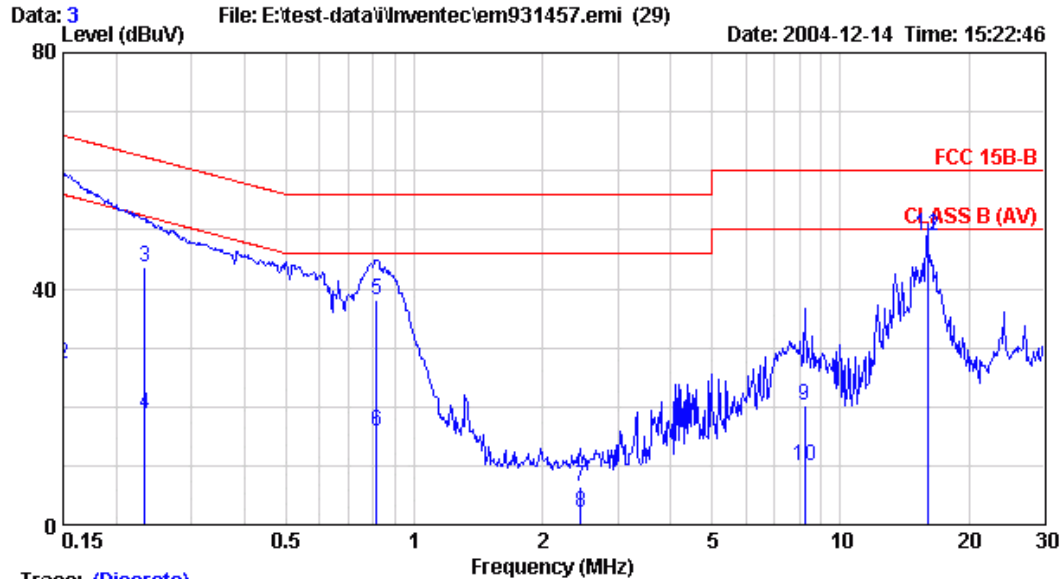
Site	: No.2 Shielded room	Data	: 6
Condition	: ESH2-Z5	Phase	: NEUTRAL
Limit	: FCC 15B-B	Engineer:	Cater Chou
Env. / Ins.	: 21°C,62% / ESCS 30		
EUT	: Zone Player M/N: ZP100		
Power Rating	: 120Vac/60Hz		
Test Mode	: Operating(Play)		

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.152	0.10	0.24	50.75	51.09	65.87	14.78	QP
2	0.152	0.10	0.24	22.82	23.16	55.87	32.71	AVERAGE
3	0.260	0.10	0.28	43.94	44.32	61.43	17.10	QP
4	0.260	0.10	0.28	15.59	15.97	51.43	35.45	AVERAGE
5	0.830	0.18	0.38	35.34	35.90	56.00	20.10	QP
6	0.830	0.18	0.38	12.43	12.99	46.00	33.01	AVERAGE
7	1.980	0.20	0.40	6.51	7.11	56.00	48.89	QP
8	1.980	0.20	0.40	1.55	2.15	46.00	43.85	AVERAGE
9	7.610	0.27	0.61	23.11	23.99	60.00	36.01	QP
10	7.610	0.27	0.61	8.45	9.33	50.00	40.67	AVERAGE
11	15.996	0.42	0.70	46.19	47.31	60.00	12.69	QP
12	15.996	0.42	0.70	42.91	44.03	50.00	5.97	AVERAGE

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Trace: (Discrete)

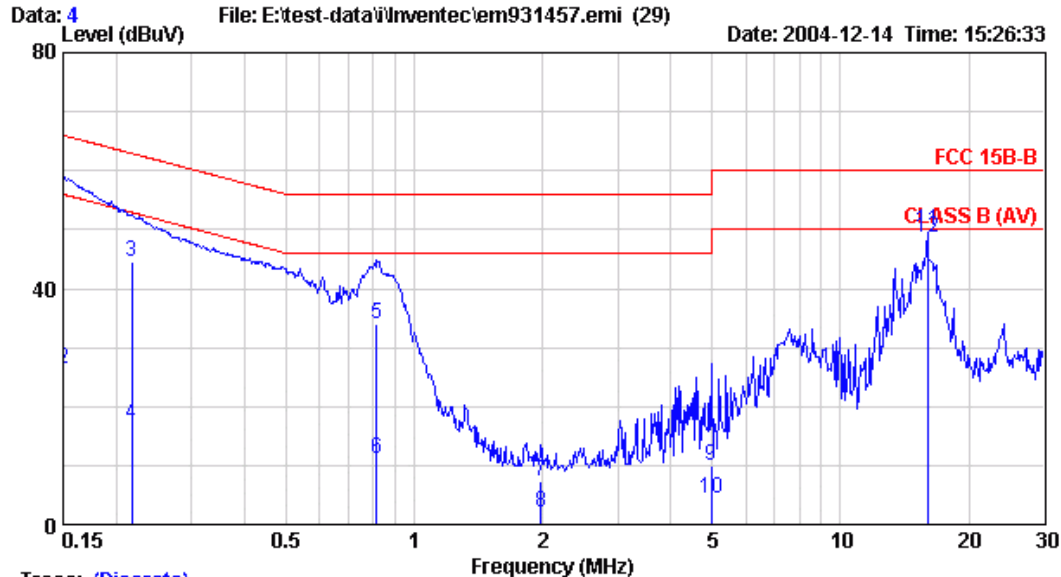
Site	: No.2 Shielded room	Data	: 3
Condition	: ESH2-Z5	Phase	: LINE
Limit	: FCC 15B-B	Engineer:	Cater Chou
Env. / Ins.	: 21°C,62% / ESCS 30		
EUT	: Zone Player M/N: ZP100		
Power Rating	: 120Vac/60Hz		
Test Mode	: Operating(RX-CH6)		

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.150	0.10	0.24	51.44	51.78	66.00	14.22	QP
2	0.150	0.10	0.24	27.01	27.35	56.00	28.65	AVERAGE
3	0.233	0.10	0.27	43.21	43.58	62.35	18.77	QP
4	0.233	0.10	0.27	18.46	18.83	52.35	33.52	AVERAGE
5	0.817	0.18	0.38	37.68	38.24	56.00	17.76	QP
6	0.817	0.18	0.38	15.39	15.95	46.00	30.05	AVERAGE
7	2.460	0.20	0.40	5.73	6.33	56.00	49.67	QP
8	2.460	0.20	0.40	1.49	2.09	46.00	43.91	AVERAGE
9	8.240	0.28	0.64	19.34	20.26	60.00	39.74	QP
10	8.240	0.28	0.64	9.18	10.10	50.00	39.90	AVERAGE
11	15.997	0.47	0.70	48.10	49.27	60.00	10.73	QP
12	15.997	0.47	0.70	47.63	48.80	50.00	1.20	AVERAGE

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Trace: (Discrete)

Site	: No.2 Shielded room	Data	: 4
Condition	: ESH2-Z5	Phase	: NEUTRAL
Limit	: FCC 15B-B	Engineer:	Cater Chou
Env. / Ins.	: 21°C,62% / ESCS 30		
EUT	: Zone Player M/N: ZP100		
Power Rating	: 120Vac/60Hz		
Test Mode	: Operating(RX-CH6)		

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.150	0.10	0.24	51.76	52.10	66.00	13.90	QP
2	0.150	0.10	0.24	26.01	26.35	56.00	29.65	AVERAGE
3	0.217	0.10	0.27	44.24	44.61	62.92	18.31	QP
4	0.217	0.10	0.27	16.61	16.98	52.92	35.94	AVERAGE
5	0.817	0.18	0.38	33.48	34.04	56.00	21.96	QP
6	0.817	0.18	0.38	10.43	10.99	46.00	35.01	AVERAGE
7	1.980	0.20	0.40	6.81	7.41	56.00	48.59	QP
8	1.980	0.20	0.40	1.55	2.15	46.00	43.85	AVERAGE
9	4.980	0.22	0.47	9.40	10.10	56.00	45.90	QP
10	4.980	0.22	0.47	3.76	4.46	46.00	41.54	AVERAGE
11	15.998	0.42	0.70	48.57	49.69	60.00	10.31	QP
12	15.998	0.42	0.70	47.55	48.67	50.00	1.33	AVERAGE

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the radiated emission measurement :

3.1.1. For 30MHz~1000MHz Frequency at No. 6 Open Area Test Site

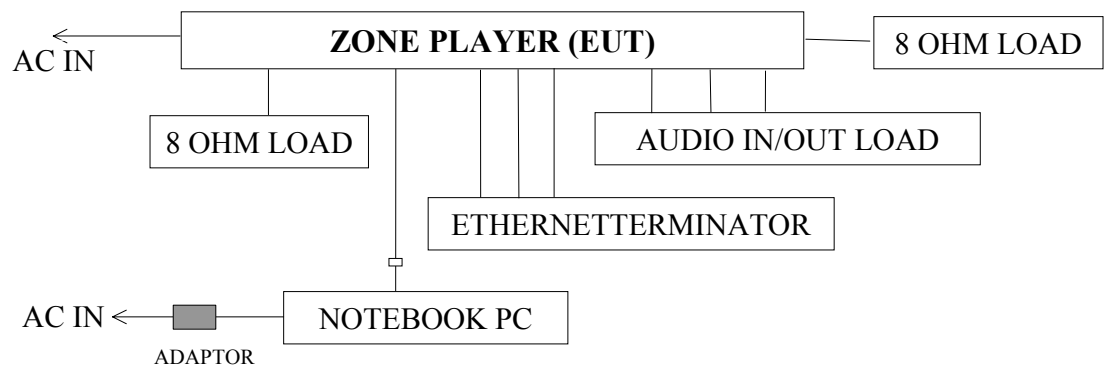
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E7405A	MY42000132	May 28, 04'	May 27, 05'
2.	Test Receiver	R&S	ESCS30	100338	May 06, 04'	May 05, 05'
3.	Bilog Antenna	Schwarzbeck	CBL6112B	2828	May 18, 04'	May 17, 05'

3.1.2. For 1GHz~2GHz Frequency at Semi-Anechoic Chamber

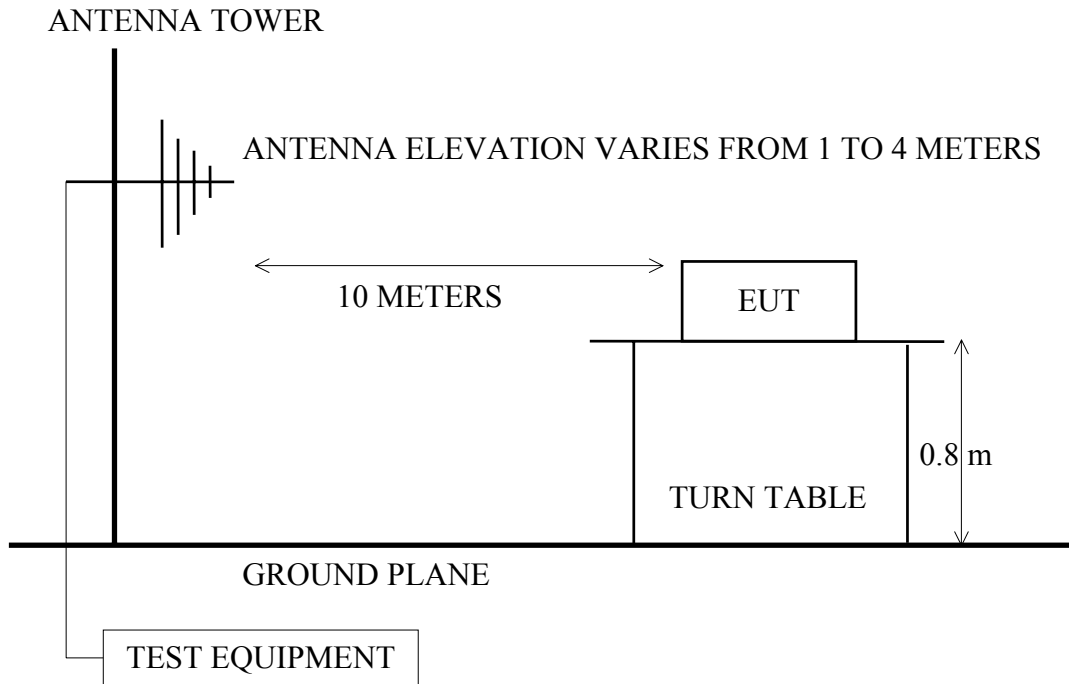
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8593EM	3826A00248	Oct. 04, 04'	Oct. 03, 05'
2.	Amplifier	HP	8449B	3008A00529	Jan. 29, 04'	Jan. 28, 05'
3.	Horn Antenna	EMCO	3115	9112-3775	May 05, 04'	May 04, 05'

3.2. Block Diagram of Test Setup

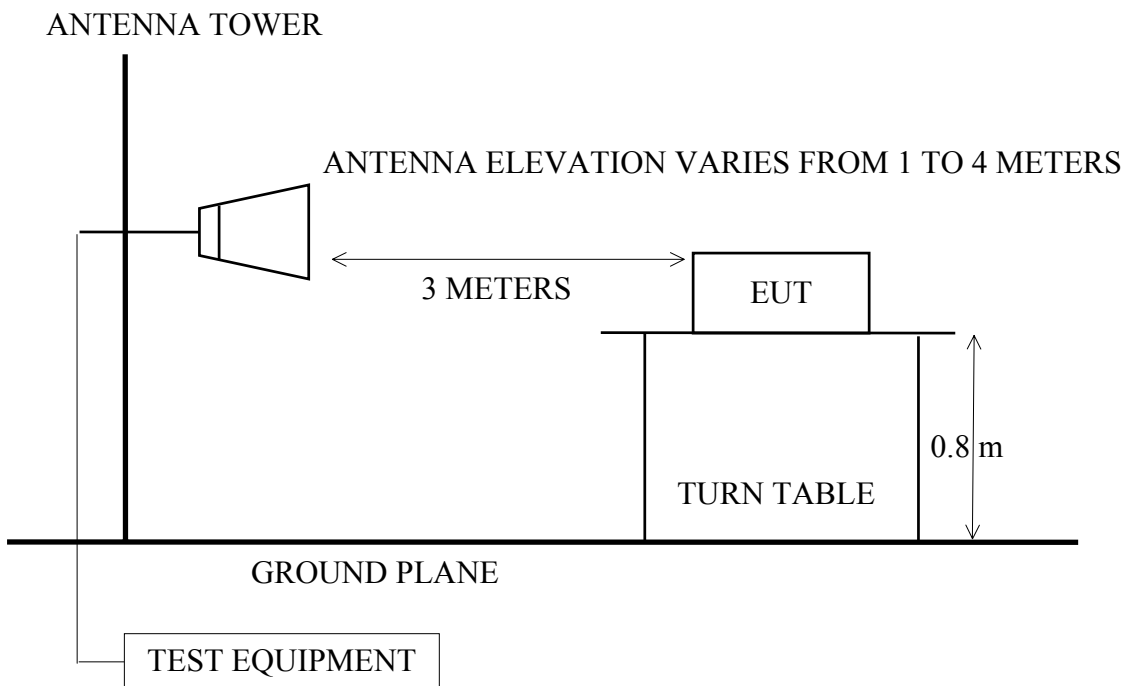
3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Open Area Test Site (10m) Setup Diagram for 30-1000MHz Frequency Range



3.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for 1-2GHz Frequency Range



3.3. Radiated Emission Limits (§15.109/CISPR 22, Class B)

All emanations from a class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB μ V/m)
30 ~ 230	10	30
230 ~ 1000	10	37
Above 1GHz	3	74.0 (Peak)
Above 1GHz	3	54.0 (Average)

- Note :
- (1) The tighter limit applies at the edge between two frequency bands.
 - (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the E.U.T.
 - (3) There is no over 1GHz limits in CISPR 22 standard. Therefore, a FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.109 (a), (g).
 - (4) The 3m limit apply relation: $L2 = L1(d1/d2)$

3.4. EUT's Configuration during Compliance Measurement

The ANSI C63.4 test method was used to find the maximum emission during radiated measurement against §15.31 (a)(b) of FCC Part 15.

The configuration of EUT was same as used in conducted measurement. Please refer to 2.4.

3.5. Operating Condition of EUT

Same as conducted measurement which was listed in 2.5. except the test set up replaced by section 3.2.

3.6. Test Procedure

3.6.1. For frequency range 30MHz-1000MHz measurement at distance of 10m at open area test site

The EUT and its simulators were placed on a turn table which was 0.8 meter above ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 10 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Bilog antenna (calibrated biconical) and dipole antenna were used as receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2003 and CISPR 22 on radiated measurement.

The bandwidth of the R&S Test Receiver ESCS30 was set at 120kHz. The frequency range from 30MHz to 1000MHz was checked with Peak detector and all final readings from test receiver were with Quasi-Peak detector.

3.6.2. For frequency range 1GHz-2GHz measurement at distance of 3m at semi-anechoic chamber

The EUT and its simulators were placed on a turn table which was 0.8 meter above ground. The turn table rotated 360 degrees to determine the position of the maximum emission level, EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. A calibrated Horn Antenna was used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement, and both average and peak emission level were recorded from spectrum analyzer. In order to find the maximum emission level, all the interface cables were manipulated according to ANSI C63.4-2003 on radiated measurement.

The resolution bandwidth of spectrum analyzer 8593EM was set at 1MHz. The frequency range from 1GHz to 2GHz was checked and all final readings from spectrum analyzer were measured with Peak detector and Average detector.

3.7. Radiated Emission Measurement Results

PASSED.

(All emissions not reported below are too low against the prescribed limits.)

For 30MHz~1000MHz frequency range:

The EUT with following test modes were tested with AC 120V/60Hz supplying voltage during radiated measurement and all the test results are attached in section 3.7.1, which include:

EUT : Zone Player M/N : ZP100

Test Date : Dec. 16, 2004 Temperature : 19°C Humidity : 68%

The details of test modes and reference test data are as follows:

Mode	Operating Mode of EUT	Reference Test Data No.	
		Horizontal	Vertical
1.	Playing (LAN)	# 2	# 1
2.	Receiving, Channel: 6	# 3	# 4

For 1GHz~2GHz frequency range:

To selected the **test mode 1** performed measurement at semi-anechoic chamber from 1GHz to 2GHz frequency range and all the test results are attached in section 3.7.2, which include:

EUT : Zone Player M/N : ZP100

Test Date : Dec. 14, 2004 Temperature : 23°C Humidity : 56%

The details of test modes and reference test data are as follows :

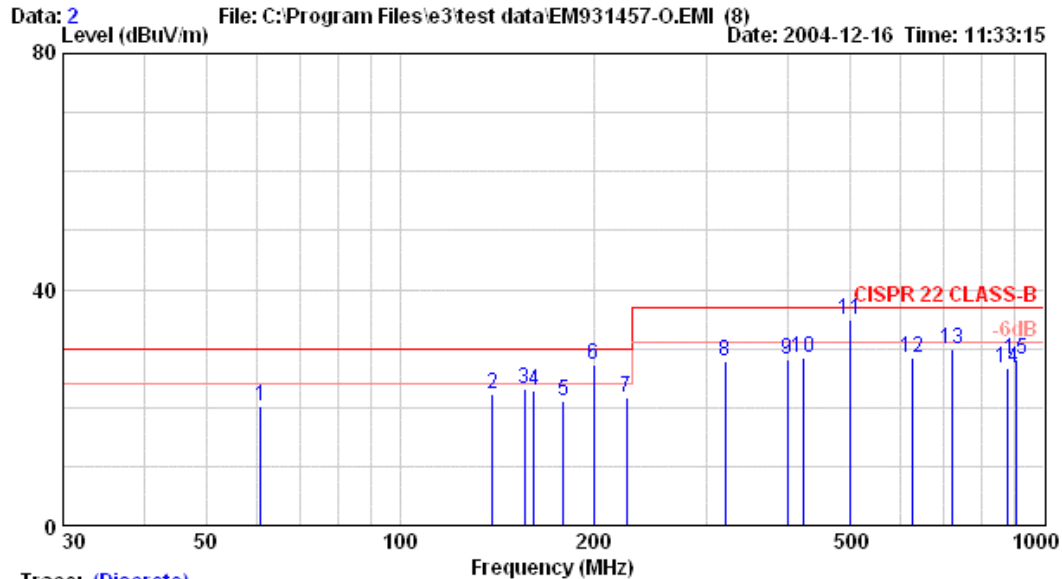
Mode	Operating Mode of EUT	Reference Test Data No.			
		Horizontal		Vertical	
1.	Playing (LAN)	Peak	#5	Peak	#6

There is not a disturbance above (L-20) dB that has to report, where L is the limit level against the FCC 15.35(b) and 15.109(a) (g) radiated emission measurement of those emission data were pre-scanned in semi-anechoic chamber and attached in section 3.7.2.

3.7.1. 30MHz to 1000MHz frequency range and at 10 meters distance measurement



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Trace: (Discrete)

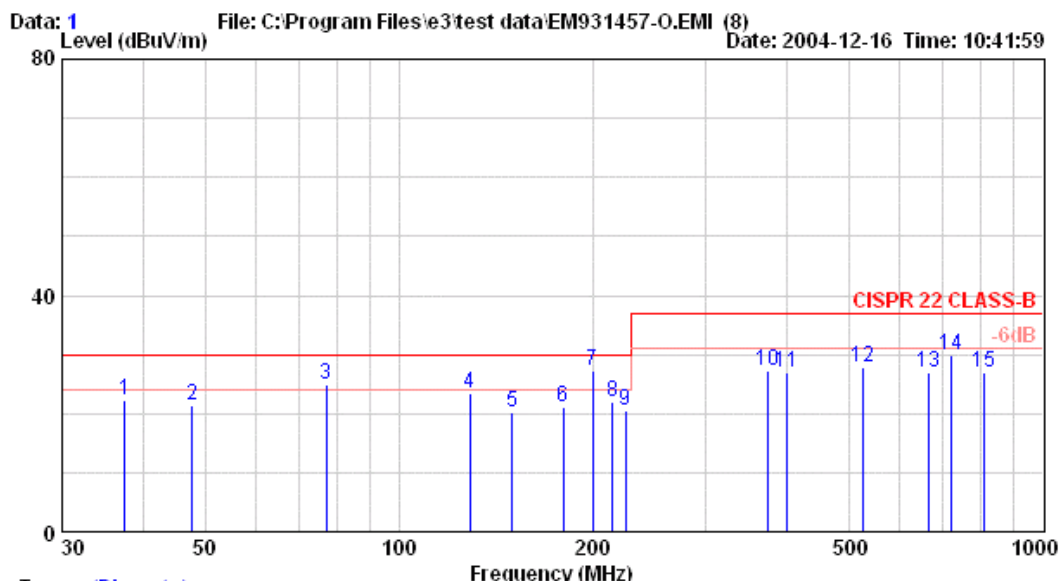
Site no. : NO.6 OPEN SITE	Data no. : 2
Dis. / Ant. : 10m CBL6112B(2828)	Ant. pol. : HORIZONTAL
Limit : CISPR 22 CLASS-B	
Env. / Ins. : 19°C / 68% ESCS30	Engineer : Tim
EUT : Zone player M/N:ZP100	
Power Rating : 120Vac/60Hz	
Test Mode : Play (LAN)	

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	60.885	5.75	1.04	13.43	20.21	30.00	9.79	
2	139.090	11.31	1.46	9.61	22.38	30.00	7.62	
3	156.313	10.09	1.62	11.56	23.28	30.00	6.72	
4	161.635	10.06	1.65	11.22	22.94	30.00	7.06	
5	179.240	9.26	1.75	10.03	21.04	30.00	8.96	
6	200.008	9.39	1.84	16.10	27.33	30.00	2.67	
7	225.015	9.86	1.91	9.85	21.62	30.00	8.38	
8	320.075	13.60	2.35	11.78	27.73	37.00	9.27	
9	399.994	15.42	2.59	10.22	28.23	37.00	8.77	
10	422.125	16.28	2.65	9.55	28.47	37.00	8.53	
11	500.030	16.76	2.90	15.30	34.96	37.00	2.04	
12	623.225	18.63	3.25	6.68	28.56	37.00	8.44	
13	719.992	19.17	3.53	7.05	29.75	37.00	7.25	
14	879.990	20.29	4.00	2.30	26.60	37.00	10.40	
15	905.155	20.21	4.04	3.75	28.00	37.00	9.00	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Trace: (Discrete)

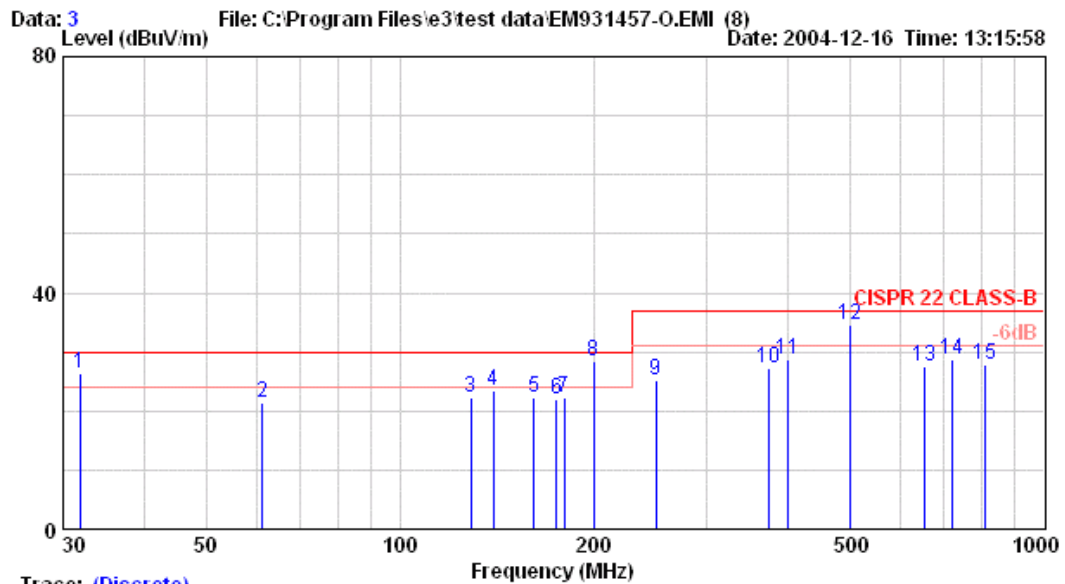
Site no. : NO.6 OPEN SITE Data no. : 1
 Dis. / Ant. : 10m CBL6112B(2828) Ant. pol. : VERTICAL
 Limit : CISPR 22 CLASS-B
 Env. / Ins. : 19°C / 68% ESCS30 Engineer : Tim
 EUT : Zone player M/N: ZP100
 Power Rating : 120Vac/60Hz
 Test Mode : Play (LAN)

	Ant.	Cable	Emission		Limits	Margin	Remark
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Reading (dBuV)	Level (dBuV/m)	(dBuV/m)	(dB)	
1	37.540	12.19	0.68	9.50	22.37	30.00	7.63
2	47.800	7.20	0.88	13.40	21.48	30.00	8.52
3	77.207	7.77	1.19	15.82	24.78	30.00	5.22
4	128.750	11.36	1.44	10.70	23.50	30.00	6.50
5	150.010	9.86	1.55	8.82	20.24	30.00	9.76
6	180.000	9.07	1.75	10.17	20.99	30.00	9.01
7	200.007	9.15	1.84	16.40	27.38	30.00	2.62
8	214.780	8.96	1.87	11.25	22.08	30.00	7.92
9	225.012	9.69	1.91	8.96	20.56	30.00	9.44
10	375.023	14.96	2.54	9.80	27.29	37.00	9.71
11	400.000	16.15	2.59	8.33	27.07	37.00	9.93
12	525.654	17.02	2.98	7.95	27.95	37.00	9.05
13	664.963	18.69	3.51	4.77	26.97	37.00	10.03
14	719.992	19.40	3.53	7.10	30.03	37.00	6.97
15	812.221	20.58	3.83	2.50	26.91	37.00	10.09

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Trace: (Discrete)

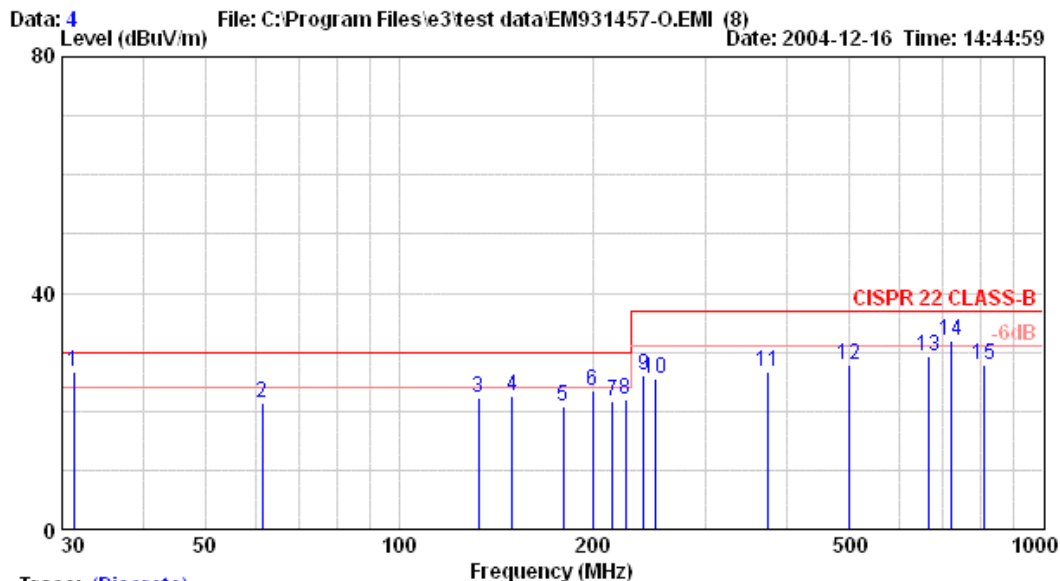
Site no.	: NO.6 OPEN SITE	Data no.	: 3
Dis. / Ant.	: 10m CBL6112B(2828)	Ant. pol.	: HORIZONTAL
Limit	: CISPR 22 CLASS-B		
Env. / Ins.	: 19°C / 68% ESCS30	Engineer	: Tim
EUT	: Zone player M/N:ZP100		
Power Rating	: 120Vac/60Hz		
Test Mode	: CH6 RX		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	31.825	15.66	0.68	10.10	26.45	30.00	3.55	
2	61.175	5.75	1.04	14.54	21.33	30.00	8.67	
3	128.840	11.80	1.44	9.07	22.31	30.00	7.69	
4	139.710	11.28	1.46	10.63	23.37	30.00	6.63	
5	161.730	10.06	1.65	10.42	22.14	30.00	7.86	
6	175.012	9.44	1.72	10.81	21.97	30.00	8.03	
7	180.001	9.23	1.75	11.17	22.15	30.00	7.85	
8	200.010	9.39	1.84	17.20	28.43	30.00	1.57	*
9	250.014	12.44	2.00	10.69	25.13	37.00	11.87	
10	375.023	14.54	2.54	10.18	27.25	37.00	9.75	
11	399.994	15.42	2.59	10.60	28.61	37.00	8.39	
12	500.030	16.76	2.90	14.90	34.56	37.00	2.44	
13	651.838	18.64	3.43	5.38	27.45	37.00	9.55	
14	719.993	19.17	3.53	5.90	28.60	37.00	8.40	
15	810.015	19.65	3.83	4.39	27.88	37.00	9.12	

- Remarks:
1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.
 3. The worst emission was detected at 200.010MHz with corrected signal level of 28.43dBuV/m (limit is 30.0dBuV/m) when the antenna was at horizontal polarization and was at 4m high and the turn table was at 160°.
 4. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.



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Trace: (Discrete)

Site no.	: NO.6 OPEN SITE	Data no.	: 4
Dis. / Ant.	: 10m CBL6112B(2828)	Ant. pol.	: VERTICAL
Limit	: CISPR 22 CLASS-B		
Env. / Ins.	: 19°C / 68% ESCS30	Engineer	: Tim
EUT	: Zone player M/N:ZP100		
Power Rating	: 120Vac/60Hz		
Test Mode	: CH6 RX		

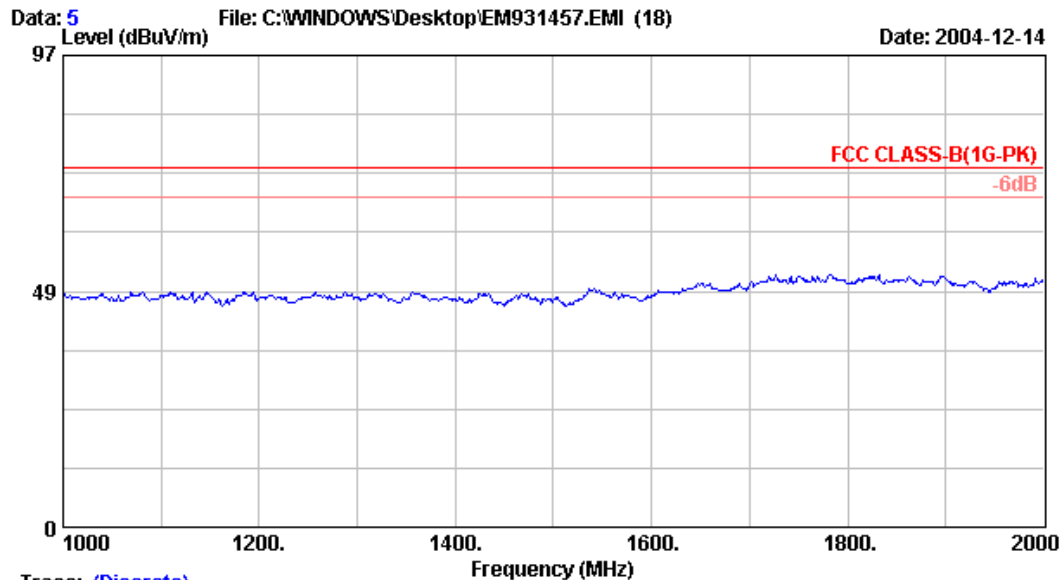
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	31.254	16.73	0.69	9.36	26.77	30.00	3.23	*
2	61.465	5.80	1.05	14.46	21.31	30.00	8.69	
3	132.966	11.59	1.45	9.34	22.39	30.00	7.61	
4	150.003	9.86	1.55	11.20	22.62	30.00	7.38	
5	180.002	9.07	1.75	10.01	20.83	30.00	9.17	
6	200.010	9.15	1.84	12.40	23.38	30.00	6.62	
7	214.781	8.96	1.87	10.81	21.64	30.00	8.36	
8	225.001	9.69	1.91	10.29	21.89	30.00	8.11	
9	240.000	11.09	1.96	13.05	26.10	37.00	10.90	
10	250.015	12.18	2.00	11.35	25.53	37.00	11.47	
11	375.020	14.96	2.54	9.08	26.57	37.00	10.43	
12	500.030	16.92	2.90	7.98	27.80	37.00	9.20	
13	665.750	18.69	3.53	7.15	29.37	37.00	7.63	
14	719.995	19.40	3.53	9.10	32.03	37.00	4.97	
15	808.260	20.45	3.81	3.51	27.77	37.00	9.23	

- Remarks:
1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.
 3. The worst emission was detected at 31.254MHz with corrected signal level of 26.77dBuV/m (limit is 30.0dBuV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 75°.
 4. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

3.7.2. 1GHz to 2GHz frequency range and at 3 meters distance measurement

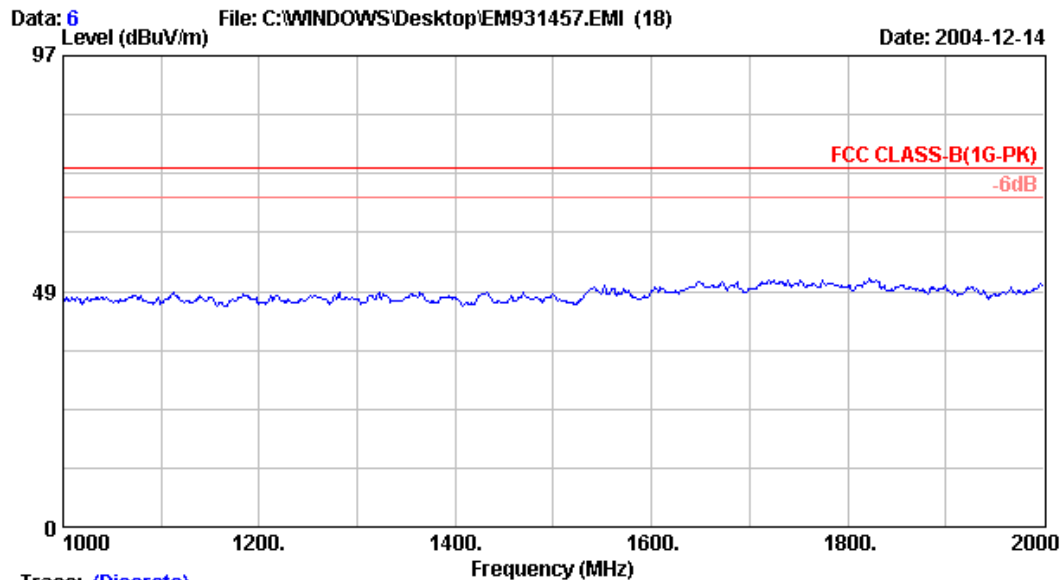


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Trace: (Discrete)

Site no. : A/C Chamber	Data no. : 5
Dis. / Ant. : 3m 3115	Ant. pol. : HORIZONTAL
Limit : FCC CLASS-B(1G-PK)	
Env. / Ins. : 8593EM 23*C/56%	Engineer : Hyper Chang
EUT : Zone Player M/N:ZP100	
Power Rating : 120Vac/60Hz	
Test Mode : Operating	



Trace: (Discrete)

Site no. : A/C Chamber	Data no. : 6
Dis. / Ant. : 3m 3115	Ant. pol. : VERTICAL
Limit : FCC CLASS-B(1G-PK)	
Env. / Ins. : 8593EM 23*C/56%	Engineer : Hyper Chang
EUT : Zone Player M/N:ZP100	
Power Rating : 120Vac/60Hz	
Test Mode : Operating	

4. DEVIATION TO TEST SPECIFICATIONS

【NONE】