

RADIATED EMISSIONS TEST REPORT 1 – 26 GHz

I. GENERAL INFORMATION

Requirement: Federal Communications Commission
Class 2 Permissive Change Application

Test Requirements: 15.205, 15.207, 15.209, 15.247

Applicant: Sonos Inc.
506 Chapala
Santa Barbara, CA 93101

Product ID: FCC ID: SBVCR000 (Sonos Controller)
Date of Original Grant: 19 October 200

II. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

The SBVCR000 is an 802.11g-only controller for a wireless music distribution system.

RF Specifications

RF Frequency Band	2412-2462 MHz
RF Channels	1, 6, and 11 only (limited by firmware)
Modulation Type	802.11g OFDM only (limited by firmware)
Transmitter Output Power	+23 dBm maximum (0.200 watt)
Antenna to be added:	5 dBi circuit card antenna

III. TEST LOCATION

All emissions tests were performed at:

Compliance Certification Services
571F Monterey Road
Morgan Hill, CA 95037

Testing performed 28 July 2004.



T.N. Cokenias
Agent for Sonos Inc.

31 December 2004

TEST PROCEDURES

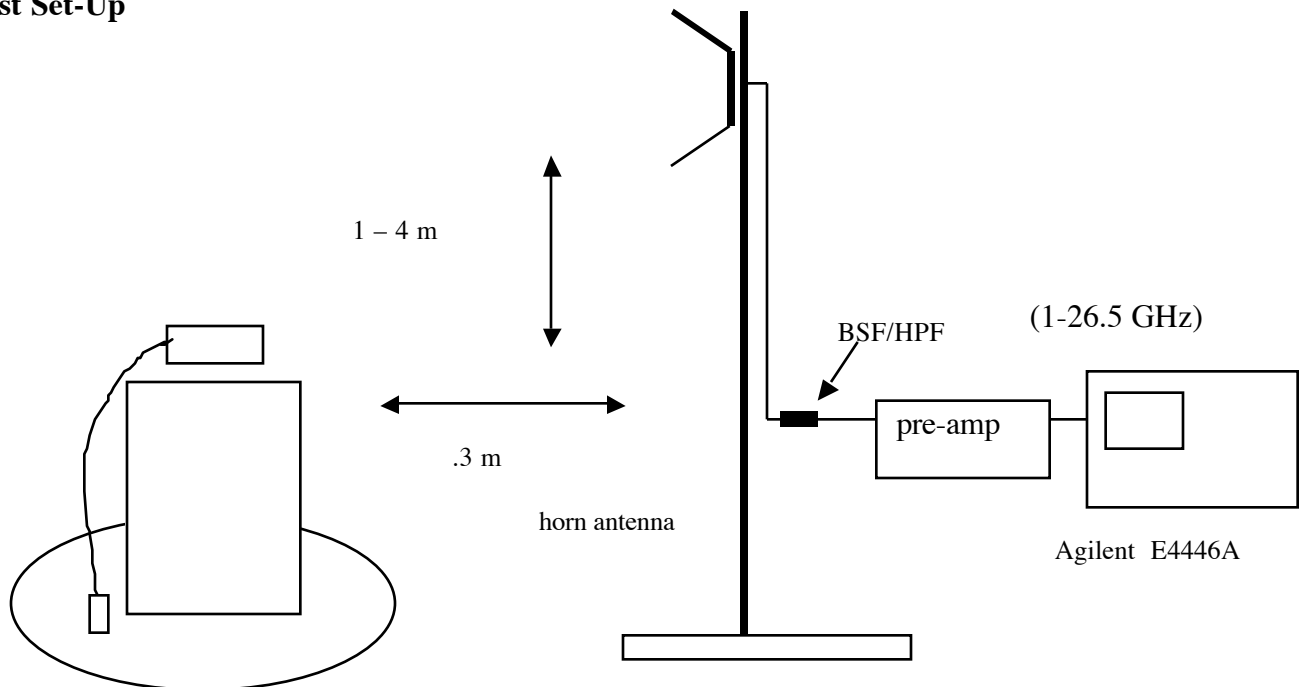
Radiated emissions testing per the methods of ANSI C63.4.

Measurement Equipment Used:

Agilent E4446A spectrum analyzer
EMCO 3115 horn antenna, 1-18 GHz
ARA MWH-1826/B horn antenna, 18-26.5 GHz
Miteq 924321 pre-amplifier, 1-26 GHz
Band stop filter 2.4-2.5 GHz

Radiated Emissions Above 1 GHz
Test Requirement: 15.205, 15.209, 15.247

Test Set-Up



Test Procedures, 1- 26 GHz:

1. The EUT was placed on a wooden table resting on a turntable on the Site A 10m open area test site. The search antenna was placed 3m from the EUT. The EUT antenna was mounted vertically as per normal installation.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205.

3. Radiated emissions were investigated for a LOW channel, a MID channel, and HIGH channel. Emissions were investigated to the 10th harmonic.
4. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

Testing was performed at 3 different frequencies

Channel	Frequency, MHz
1 (Low)	2412
6 (Mid)	2437
11 (High)	2462

Radiated emissions were performed at each frequency for the following antenna:.

Antenna Type	Deployment	Gain	Antenna Mfr.	Model
Ckt card omni	Point to Multipoint	5 dBi max	Ricon Networks	HH

Test Results: PASS. Worst case results are presented. Refer to data below.

02/28/04 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: HITESH SOLANKI
 Project #: 04U2886
 Company: SONOS
 EUT Descrip.: MUSIC PLAYER CONTROLLER
 EUT M/N: SONOS
 Test Target:
 Mode Oper: 802.11g

Test Equipment:

EMCO Horn 1-18GHz T60; S/N: 2238 @3m	Spectrum Analyzer	Pre-amplifier 1-26GHz T63 Miteq 646456	Pre-amplifier 26-40GHz	Horn > 18GHz
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Hi Frequency Cables
 (2 ft) (2 ~ 3 ft) (4 ~ 6 ft) (12 ft)

Peak Measurements:
 1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:
 1 MHz Resolution Bandwidth
 10Hz Video Bandwidth

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
LOW CHANNEL HARMONICS															
4.824	9.8	46.8	31.9	33.1	2.3	-35.3	0.0	1.0	47.9	32.9	74.0	54.0	-26.1	-21.1	V
7.236	9.8	46.5	32.1	36.1	2.9	-34.6	0.0	1.0	51.8	37.5	74.0	54.0	-22.2	-16.5	V
4.824	9.8	41.7	30.4	33.1	2.3	-35.3	0.0	1.0	42.8	31.4	74.0	54.0	-31.2	-22.6	H
7.236	9.8	42.5	30.6	36.1	2.9	-34.6	0.0	1.0	47.9	36.0	74.0	54.0	-26.1	-18.0	H
MID CHANNEL HARMONICS															
4.874	9.8	42.7	30.4	33.1	2.3	-35.3	0.0	1.0	43.8	31.5	74.0	54.0	-30.2	-22.5	H
7.311	9.8	42.9	30.5	36.2	3.0	-34.6	0.0	1.0	48.4	36.1	74.0	54.0	-25.6	-17.9	H
4.874	9.8	43.3	30.4	33.1	2.3	-35.3	0.0	1.0	44.4	31.5	74.0	54.0	-29.6	-22.5	V
7.311	9.8	43.0	30.5	36.2	3.0	-34.6	0.0	1.0	48.5	36.1	74.0	54.0	-25.5	-17.9	V
HIGH CHANNEL HARMONICS															
4.924	9.8	47.3	33.3	33.2	2.3	-35.3	0.0	1.0	48.4	34.5	74.0	54.0	-25.6	-19.5	V
7.386	9.8	64.1	42.4	36.3	3.0	-34.5	0.0	1.0	69.8	48.1	74.0	54.0	-4.2	-5.9	V
4.924	9.8	43.3	30.6	33.2	2.3	-35.3	0.0	1.0	44.4	31.8	74.0	54.0	-29.6	-22.2	H
7.386	9.8	56.2	38.0	36.3	3.0	-34.5	0.0	1.0	62.0	43.8	74.0	54.0	-12.0	-10.2	H