



Date: Wednesday, June 01, 2011

**Channel plan and software operational info**

**Question 1**

Submit a channel/frequency plan for this device showing the channels that have active scanning or passive scanning. Active scanning is where the device can transmit a probe (beacon) and passive scanning is where the device is can listen only with no probes.

<Sonos Reply>

The radio supports 802.11d and will not transmit until a valid Master device is detected. In the case when 802.11d is not activated then only non-DFS channels are actively probed as shows in the following table.

Band	Channel #	center Freq. (GHz)	Comment	DFS Client Scan Mode
	1	2.412	11g 24Mbps	Not Applicable
			11n HT20, MCS3, 9	Not Applicable
	6	2.437	11g 24Mbps	Not Applicable
			11n HT20, MCS3, 9	Not Applicable
	11	2.462	11g 24Mbps	Not Applicable
			11n HT20, MCS3, 9	Not Applicable
UNII-1	36	5.18	11n HT20, MCS3, 9	Active
UNII-1	40	5.2	11n HT20, MCS3, 9	Active
UNII-1	44	5.22	11n HT20, MCS3, 9	Active
UNII-1	48	5.24	11n HT20, MCS3, 9	Active
UNII-3	149	5.745	11n HT20, MCS3, 9	Active
UNII-3	153	5.765	11n HT20, MCS3, 9	Active
UNII-3	157	5.785	11n HT20, MCS3, 9	Active
UNII-3	161	5.805	11n HT20, MCS3, 9	Active
UNII-3	165	5.825	11n HT20, MCS3, 9	Active

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**Question 2**

Verify that this device does not have ad-hoc mode.

<Sonos Reply>

This device does not support ad-hoc mode on any DFS channel.

**Question 3**

Verify that this application contains a complete User's Manual and/or Professional Installers Manual. If the manual is not complete, upload an updated User's Manual exhibit.

<Sonos Reply>

The submitted manual is the latest complete User's Manual.

**Question 4**

Can this device act as an access point on the non-DFS legacy frequencies (5.15-5.25GHz)

<Sonos Reply>

This device does not act as an Access Point on 5.15 – 5.25 GHz.

**Question 5**

Verify that this device meets the frequency requirements of Section 15.202

<Sonos Reply>

For 5G band:

This device supports 802.11d that operates the WLAN transmitter passively until a valid master device is detected in compliance to 15.202. In the case when 802.11d is not activated then the radio will only operate on US non-DFS frequencies until it's under the control of a master device.

For 2.4G band:

The product does support AP function (master) on 2.4G Band but can only transmit on US channels (ch1, ch6 and ch11).

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### Question 6

For client devices that have software configuration control to operate in different modes (active scanning in some and passive scanning in others) in different bands (devices with multiple equipment classes or those that operate on non-DFS frequencies) or modular devices which configure the modes of operations through software, the application must provide software and operations description on how the software and / or hardware is implemented to ensure that proper operations modes cannot be modified by end user or an installer.

<Sonos Reply>

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On DFS channels, the WLAN subsystem operates under the control of an AP at all times. As described in the answer to question 1, the device passively scans (without transmitting) DFS frequencies until a master device is detected. As part of the DFS functionality in the WLAN driver, software is implemented to react to radar detection messages and move to a new channel. The control of this functionality is not accessible to anyone under any conditions. Furthermore, the firmware cannot be changed or modified by end user.

A regulatory-region token is set in non-volatile memory in the hardware prior to sale of the device. The device software inspects this token and ensures the radio parameters it applies comply with the regulatory region for which the device was sold. The device software cannot be modified by the end user. There is no open source code that controls transmission parameters that affect RF properties. The code that controls RF parameters is an intricate web of low level microcontroller C code that writes to registers which are not publicly documented.

Information from the wireless card manufacturer is only accessed through a password protected partner account, with a password that is unique to Sonos engineering personnel. Verification of a cryptographic signature prevents the loading of unauthorized code onto the device.

Sincerely yours,

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