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Re: FCC ID: LDK102086
Applicant: Cisco Systems Inc
Correspondence Reference Number: 43680
Form 731 Confirmation Number: EA730561
Date of Original E-mail: 04/16/2013

1. The Radio Theory of Operation on Page 3 lists operation frequencies. Some channels fall in the prohibited 5600-5650 MHz TDWR band or exceed the band limit. Please review the following channels: 20 MHz modes - Channels 120, 124, 128; 40 MHz modes - Channels 118, 126, 142; 80 MHz modes - Channel 122).

The Radio Theory of Operation lists all channels supported by the hardware. For the FCC configuration, we do not support any channel in the 5600-5600MHz band.

2. With 7.2 ppm frequency tolerance in the 5 GHz band (Radio Theory of Operation), compliance with 15.407(g) is a concern. No data are presented in the EMC reports. This is not appropriate when many operations channels are immediately adjacent to band edges or the prohibited 5600-5650 MHz band (20 MHz modes: Channels 48, 52, 132; 40 MHz modes: Channels 46, 54, 134; 80 MHz modes: Channels 42, 58, 138). Please amend test reports.

We do provide 20dB BW data beginning on page 163 of the test report. The worst case bandedge margin for the 5600-5650 MHz band is 1 MHz as per this data. The 7.2ppm frequency tolerance would provide a worst case offset of ~41kHz, so the device will maintain compliance.

3. The "Justification for worst case test configuration" section mentioned in Section 4 of the EMC reports is missing.

I intended to remove that statement from the report. I can update the report if you desire.

4. The maximum antenna gains are listed to be 2 dBi (2.4 GHz) and 5 dBi (5 GHz) in the Antenna Specification and EMC reports. However, 5.5 dBi (2.4 GHz) and 7.25 dBi (5 GHz) are stated in the Radio Theory of Operation. The MPE reports use 10 dBi as the antenna gain. Please clarify. Note that a > 6 dBi gain would require a conducted power and PSD backoff in some cases.

The 5.5 dBi (2.4 GHz) and 7.25 dBi (5 GHz) shown in the Radio Theory of Operation are the antenna gains for the Broadcom reference design. The product being submitted under this application uses 2 dBi (2.4 GHz) and 5 dBi (5 GHz). 10 dBi is the worst case gain for 3Tx paths and full beam forming gain correlation [5dBi+10log(3)].

5. Why does the 11ac module have its own domain (country) code while the other two radio modules obtain their country codes from the AP?

The other two radios are part of the complete AP, and will always ship together. The 11ac module will ship/sell separately, and will be pre-configured with the appropriate



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domain for its intended use. The module will only operate in the AP if the domains "match".

6. In addition, the 11ac module has its firmware image installed on the module instead of being included in the AP software release package. Please explain future software upgrade procedure for the 11ac module.

Future 11ac module upgrades will be "packaged" and controlled in software upgrades for the host access point.

7. The "Section 3.0 Software Security against Unauthorized Firmware Images" mentioned in Q&A 5) and 9) of the Theory of Operation does not exist. Please justify the removal of this section or add it back.

I have added the section back and reposted the Software Theory of Operation

8. In Q&A 6) and 7) of Software Theory of Operation, domain-specifying label is mentioned. Please confirm that "-A" is used to indicate US country code which will be used on the label for US products. Furthermore, products shipped to or installed in other regions would not carry an FCC ID at all. What should users do when the domain code indicated on the label does not agree with what is shown via, for example, AP web interface? This is not described in the user's manual.

Yes, "-A" indicates the US configuration, and will be used on the label for US products. Other countries may also use the -A domain configuration, and the FCC ID will be displayed in those regions. Domains other than -A will not carry an FCC ID. Manufacturing quality controls will not provide a -A label on any unit not configured as -A, so you're last concern will not occur.

9. Are the procedure and commands described in Q&A 7) of Theory of Operation applicable to the 11ac module as well?

Yes.

10. Please confirm that the US version would not allow country code setting either via console command, web page, or network configuration interface.

The US version will not allow country code settings via console command, web page, or network configuration interface that will alter RF performance or channel configurations.

Best Regards,

A handwritten signature in blue ink that reads "Jim Nicholson".

Jim Nicholson
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