

answer to FCC/IC questions: Cisco Systems, Inc., Certification No.: 2461B-102062 and LDK102062, Assessment NO.: AN07I1974 and AN07T6586 (07U10883) [Inbox](#)

★ from **Claire Hoque** <claire.hoque@ccsemc.com>

[hide details](#) 1:29 pm (1 hour ago)  [Reply](#)

to Tim Dwyer - TCB <Timothy_Dwyer@ieee.org>,
"Timothy M. Dwyer" <tim.dwyer@ccsemc.com>
cc Chi Tsou <chi.tsou@ccsemc.com>,
Christine Vu <christine.vu@ccsemc.com>

date Apr 17, 2007 1:29 PM

subject answer to FCC/IC questions: Cisco Systems, Inc., Certification No.: 2461B-102062 and LDK102062, Assessment NO.: AN07I1974 and AN07T6586 (07U10883)

Hi Tim,

Pls see answers below which apply to both FCC and IC.
Grant defer-date is May 21.

Thanks,

Claire

-----Original Message-----

From: Timothy M. Dwyer
Sent: Monday, March 12, 2007 9:46 AM
To: Michael Heckrotte
Cc: Timothy M. Dwyer
Subject: Cisco Systems, Inc., Certification No.: 2461B-102062,
Assessment NO.: AN07I1974, Notice#1

Hello Mike,

Following are the items following review of the IC application. Please note that this list will be retransmitted as a second notice for the corresponding FCC application as it appears that the intent is to use the same report and other documentation for both applications.

AN07I1974 Cisco 2461B-102062 Review Notes

1. Although the test report includes test parameters, it does not include reference to the specific standards and procedures employed. Please confirm that standards and procedures listed below were used in the testing of this product. Please either revise the test report or in this case it will be adequate to provide this confirmation via email. It is recommended that future test reports include specific references to the standards and procedures used.

"Measurement of Digital Transmission Systems Operating under Section 15.247" FCC, March 23, 2005

ANSI C63.4-2003

<answer>Cisco confirms that the standards and procedures conform to the referenced document.

2. Page 23 of the test report includes reference to testing performed in the 5150-5725 MHz frequency range. This appears to be erroneous. Please revise the test report or provide additional explanation.
<answer>revised test report is attached.

3. Page 8 of the test report refers to 5GHz average power that appears to be in error. Please revise.
<answer>revised test report is attached.

4. Page 6 of the test report makes reference to Appendix E. The test report submitted has no Appendix E. Please revise the report.
<answer>Cisco has removed the reference from the test report.

5. MIMO and Beamforming modes of operation are mentioned on page 5 of the test report. Please provide additional information in the test report, operational description or separate document relative to compliance with sections 15.247(c)(2)(i)-(iv) and the issues in the documents which can be accessed at the following URL's.

http://www.fcc.gov/oet/ea/presentations/files/may05/Smart_Antenna_Systems_JD.pdf

http://www.fcc.gov/oet/ea/presentations/files/oct04/Oct_04-Part_15_Updates-JD.pdf

Specifically, provide information relative to the following:

(a) number of beams formed

<answer> When in beam forming mode, one beam is formed.

(b) Confirm that the system uses Spatially Multiplexed MIMO technology only and not in combination with phased array or sectorized antennas.

<answer> Most operating modes use only Spatially Multiplexed MIMO technology.

Beam Forming is supported and covered in both the test report and theory of operation.

(c) Confirm this is not a "Smart Antenna System"

<answer> Beam Forming is supported and covered in both the test report and theory of operation.

(d) Provide a block diagram and or description of how the test equipment was connected for output power, PSD, and spurious measurements

<answer> A photo of the conducted test setup is included in the test filing.

It consists of the EUT connected to the spectrum analyzer through a combiner.

(e) Whether simultaneous operation on multiple channels is possible and if so if this was investigated.

<answer> Operation on only one channel at a time is possible.

6. The test setup photos show setups with co-located 2.4 and 5 GHz antennas. The EUT for radiated measurements has 6 rather than 3 antenna ports. No 5 GHz mode of operation information or 5 GHz measurement data (except spurious emissions) is included in the test report. Please provide additional information explaining the test modes and configuration.

<answer>The 5 GHz radio shown in the test setup was submitted to the FCC in a separate filing(FCC ID: LDK102061).

7. The internal or external photos should show how and where connections are made to the antennas or antenna connectors.

<answer> The antenna connections are clearly demonstrated in the Assembly Photos document included with the filing.

8. Please revise the user manual to include the following statements as required by IC RSS-GEN 7.1.4 and 7.1.5.

"This device has been designed to operate with the antennas listed below, and having a maximum gain of [x] dB. Antennas not included in this list or having a gain greater than [x] dB are strictly prohibited for use with this device. The required antenna impedance is [y] ohms."

"To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication."

<answer>Revised on page 5-2 of the attached manual.

9. The test report does not include receiver spurious emissions data as required by RSS-Gen Clause 4.8. Please revise the test report to include receiver measurements.

<answer>Added to the attached test report.

10. Please confirm that the HP E4448 Spectrum Analyzer and TTE Hi Pass Filter shown in the test report equipment list were not used for these measurements as the calibration dates shown put them beyond the calibration period for the dates of measurement

<answer>All measurements using the TTE filter were performed in December 2006, and all measurements using the Spectrum Analyzer were performed in December 2006-January 2007, so the calibration was still valid.

11. Tests for radiated emissions with 5GHz co-located antennas were included in the test report. Although these measurements may be valid, co-located antenna operation cannot be justified based solely on the content of this report. The standard "no co-location" statement will be included on the grant when issued unless additional data is submitted and reviewed prior to the grant. If submission of an additional application(s) for operation in 5 GHz bands is pending, please advise.

<answer>The 5 GHz radio shown in the test setup was submitted to the FCC in a separate filing(FCC ID: LDK102061).

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of the original e-mail date may result in application dismissal and forfeiture of the filing fee. Also, please note that partial responses increase processing time and should not be submitted. Any questions about the content of this correspondence should be directed to the e-mail address listed below the name of the sender.

2 attachments — [Download all attachments](#)



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