

November 6, 2006

RE: FCC ID: LDK7900001\_ATCB004212 Attention: Craig N. Mullis / Lisa Bevington

I have a few comments on this Application. Please note that further comments may arise in response to answers provided to the questions below.

## 2,4GHz

- 1. Please note that the 731 form calls this device an "Access Point". Please note that Access points are typically a mobile device used by other devices to establish connection to a network via 802.11 protocol and in the case of DFS requirements act as the master. Please note that the manual identifies this as an Wireless IP Phone. Please note that while a client device which acts strictly as a slave unit and which does not in itself have DFS may be certified by a TCB, if this is in actuality an access point and contains any DFS modes where by it acts as a master, the this device would have to be certified by the FCC only. Please explain.
- 2. Please note that the power for the 2.4GHz range listed on the 731 is a max 38mW. Please note that the max power shown on page 19 of the report is 38.6mW. Please correct the 731 to reflect the actual measured power values reported.
- 3. Please note that page 3 of the 2.4 GHz test report states the use of DA000705 test method. Please note that DA00705 is for FHSS devices not DTS devices. As this is a WLAN type device the proper test method should be the DTS test method found in FCC KDB (knowledge data base) KDB558074. Please correct "Theseus\_CP-7921G\_FCC\_2\_4GHz\_Radio\_Test\_Report.pdf" test report to show the proper test methods. Please use and provide proper reference to the accepted FCC test procedures.
- 4. Please note that as the reference measurement procedure as stated in item 2 above is incorrect, it is not possible to adequately identify how average power measurements were made on page 10 of the above mentioned report. Please provide an explanation of how power measurements were made on the device. Please note that measurements on devices with integral antennae and not made at the antenna connector, the power should be listed in eirp per the proper test method. If power was made using this method, please also provide the factors and verification for the use of the formula eirp=(ED)^2/30G as specified in the accepted test procedure.
- 5. FYI When reporting power measurements the same type power should be used. Please note that page 10 clearly states average power, however, page 19 states peak power. Please explain and please be consistent in reporting power measurements.

5GHz

- 6. Please note that page 3 of the 5 GHz test report states the use of DA000705 test method. Please note that DA00705 is for FHSS devices not DTS devices. As this is a WLAN type device the proper test method should be the DTS test method found in FCC KDB (knowledge data base) KDB558074. Please correct "CP-7921G\_FCC\_5GHz\_Radio\_Test\_Report-pg1-65.pdf" test report to show the proper test methods. Please use and provide proper reference to the accepted FCC test procedures.
- 7. Please note that as the reference measurement procedure as stated in item 6 above is incorrect, it is not possible to adequately identify how average power measurements were made on page 9 of the above mentioned report. Please provide an explanation of how power measurements were made on the device. Please note that measurements on devices with integral antennae and not made at the antenna connector, the power should be listed in eirp per the proper test method. If power was made using this method, please also provide the factors and verification for the use of the formula eirp=(ED)^2/30G as specified in the accepted test procedure.
- 8. Please note that the maximum power listed on the 731 is 23mW. Please note that the maximum measured power on 17 of the 5GHz report is 25mW. Please correct the 731 to reflect the highest power shown in the report.

Page 2

- 9. Please note that when reporting conducted power levels in the SAR report the maximum variations allowed between the SAR and EMC reports are 0.5dBm. Please note that the maximum report conducted power in the SAR report for the 2.4GHz operation is 15dBm, but the maximum reported conducted power in the EMC report is 15.87dBm. Please also note that when the power between the EMC and SAR reports is different the SAR power level must be the higher power. Please note that not only is there a 0.87dB difference between the EMC and SAR, the SAR is the lesser value. Please explain and please provide a SAR report meeting the power requirements imposed by the FCC. Please retest as necessary. Please note that this situation exists for the other operating bands as well. Please address all bands.
- 10. Please note that when testing SAR for 802.11 devices, the FCC has stated that "Normal network operating configurations are not suitable for measuring the SAR of 801.11a/b/g transmitters. ..... The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable." Please note that the SAR report does not indicate that the test configurations met this criterion and only indicates that testing was done using "Cisco protocol software". Please explain and please provide evidence that SAR testing of this device using this software meets the requirement of testing performed using a 'chipset based test mode' for SAR.
- 11. Please note that the FCC guidance on SAR testing for 9-2.11 devices stipulates that multiple channels for each band are to be tested. It appears from the SAR report that only one channel in each band has been tested. Please test SAR for each band as specified in the 802.11 SAR testing guidance KDB248227.
- 12. Please note that the response to item 11 may also affect the calibration of the probe. Please also verify and provide appropriate calibration information for any retesting involved. Please note that the 100MHz calibration range for the probe is only valid for Dasy 4.4 and higher systems. Please note that it is not clear from the report if this system meets this restriction. Please note sure that any retesting involved considers this limitation.
- 13. Please note that the FCC has stated in their 802.11 SAR guidance notes that the probe used for frequencies above 4.5GHz must have a 3mm or less probe tip diameter and less than a 1.5mm probe tip to sensor distance. It is not clear from the SAR report if the probe meets this requirement. Please explain and please verify that the probe meets the requirements of KDB248227 guidance.
- 14. Please note that additional questions may be required based on the response to the above.

Dennis Ward

Dennis Ward mailto:dward@AmericanTCB.com

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information may result in application termination. Correspondence should be considered part of the permanent submission and may be viewed from the Internet after a Grant of Equipment Authorization is issued.

Please do not respond to this correspondence using the email reply button. In order for your response to be processed expeditiously, you must submit your documents through the AmericanTCB.com website. 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 sender.

## Cisco Systems, Inc. response to ATCB Questions 1-14. 2.4GHz

- FCC 731 Form is corrected to state it is a "Wireless IP Phone". Uploaded revised Form to ATCB website: ATCB-2.4GHz-Form-731-revised.pdf
- FCC 731 Form corrected to list the max power for the 2.4GHz range found in the FCC SAR Test Report (EMCS20759-FCC SAR\_pt1.pdf).
   Uploaded revised Form to ATCB website: ATCB-2.4GHz-Form-731-revised.pdf
- 3. On Page 3 of the FCC 2.4GHz Radio test report was updated to include the DTS test method found in FCC KDB, KDB558074. The CP-7921G was tested with the proper test procedures for DTS product. Testing is done per FCC requirements using the correct procedures as referenced in the FCC KDB. These procedures are incorporated into our test plan. The test report should of included listing the following FCC procedures, DA02-2138 for 2.4 and 5GHz using OFDM modulation and ET Docket 96-8 which includes the procedures for DTS systems not using OFDM modulation. Uploaded revised test report to ATCB website:
  Theseus\_CP-7921G\_FCC\_2\_4GHz\_Radio\_Test\_Report\_rev-1.pdf
- 4. Testing was done in compliance with the FCC procedures as referenced in our answers in #3 and amended report. The conducted testing was done using the antenna test port on the radio board. This is the port which is used at the factory to calibrate the radio. Using a test port at the antenna feed is in compliance with the intent of the FCC rules which allows using a test antenna port if one is available or can be added without de tuning the radio or altering its operational characteristics. A number of radios both licensed and unlicensed services have been granted FCC certification including 802.11 a/b/g phones such as this.
- The FCC 2.4GHz Radio Test Report was corrected to include only the peak measurements. The average measurements were done only to verify the system was operating for other tests and included for reference only. Uploaded revised test report to ATCB website: Theseus\_CP-7921G\_FCC\_2\_4GHz\_Radio\_Test\_Report\_rev-1.pdf

## 5GHz

6. On Page 3 of the FCC 5GHz Radio test report was updated to include the DTS test method found in FCC KDB, KDB558074. The CP-7921G was tested with the proper test procedures for DTS product. Testing is done per FCC requirements using the correct procedures as referenced in the FCC KDB. These procedures are incorporated into our test plan. The test report should of included listing the following FCC procedures, DA02-2138 for 2.4 and 5GHz using OFDM modulation and ET Docket 96-8 which includes the procedures for DTS systems not using OFDM modulation. Uploaded revised test report to ATCB website:

CP-7921G FCC 5GHz Radio Test Report-pg1-63\_rev-2.pdf CP-7921G FCC 5GHz Radio Test Report-pg64-125\_rev-2.pdf

7. The issue for number 7 will be resolved by the correction made in number 6.

 FCC 731 Form corrected to list the max power for the 5GHz range found in the FCC SAR Test Report (EMCS20759-FCC SAR\_pt1.pdf).
 Uploaded revised Form to ATCB website: ATCB-5GHz-Form-731-revised.pdf

## SAR

- 9. Note: SAR power levels are being used.
- 10. The software that was used for testing this device is called RadioScope. It is software that was provided to us by TI for testing of there RF Board. This Software can ONLY be used for this product. It can not be used to evaluate all Cisco Radio Products. The software meets the intent FCC rules.
- 11. Testing was performed at the mid point of each UNII band due to the probe calibration points in order to give the most accurate results. KDB248227 stipulates that when the extrapolated maximum peak SAR for the maximum output channel is ≤ 1.6 W/Kg and the 1-g averaged SAR is ≤ 0.8 W/Kg testing of other channels in the "default test channels" or "required test channels" configuration is optional. The highest reported extrapolated SAR was 1.21 W/Kg with a corresponding 1-g averaged SAR if 0.491 W/Kg.
- 12. The DASY 4 system used in the SAR measurements uses the latest v4.7 build 44 software and is indicated on each plot contained in Appendix A, which is included in the SAR filing. Therefore, the calibration range of the probe is valid for frequencies  $\pm$  100 MHz from the probe calibrated frequencies.
- 13. The probe used in all SAR measurements is a well-known industry standard EX3DV3 manufactured by Speag. Below is the manufactures description of the probe.

Dimensions	Overall length: 330 mm (Tip: 20 mm)
	Tip diameter: 2.5 mm (Body: 12 mm)
	Typical distance from probe tip to dipole centers:
	1 mm