

From: amanda@adt.com.tw
Sent: Wednesday, April 01, 2009 5:42 AM
To: Mike Kuo
Cc: jennyes_huang@adt.com.tw; Caroline Yu; Michael Green; Yan Zheng; eric@adt.com.tw; hank@adt.com.tw
Subject: done file-1 : RE: Re : RE: Re : RE: Atheros Communications, Inc. FCC ID:PPD-AR5BDT92, TCB assessment no: AN09T8979 (UNII portion)
Attachments: UserMan_PPD-AR5BDT92-revised.pdf; Coverletter - ModularRequest Letter_PPD-AR5BDT92-revised.pdf; ExtPho_PPD-AR5BDT92-revised.pdf; IntPho_PPD-AR5BDT92-revised.pdf; TestRpt-15C_PPD-AR5BDT92-revised.pdf; TestRpt-DFS_PPD-AR5BDT92-revised.pdf; TSUP-15C & 15E_PPD-AR5BDT92-revised.pdf

Dear Mike,

Thank you for your comments on this application!

The following items are our replies for your comments:

Question #1: The request for module approval listed FCC public notice DA 00-1407 requirements which has been replaced by section 15.212 of FCC rules. Please review the update requirements as stated in section 15.212 and submit revised request letter for modular approval. Please make sure to use section 15.212 as the basis for the request.

[Caroline Yu]

I have provided the modular list on the product information file, which should offer sufficient info required for modular approval.

ADT: Please make sure you address reviewer's question with info we provided.

ADT: Sorry for typo. We revised the test report, pls. help us check it.

Question #2: User Manual: The user manual submitted looks like it is written for 802.11 b/g/n device (Page 7) which is not match with this 802.11 a/b/g/n device. Please review this user manual and submit the updated user manual.

[Caroline Yu]

Mike: Please see attached modified manual adding a on page 7.

ADT: Our client provided us the revised user's manual.

Question #3: Mini-PCI transmitter module when it is installed in the personal computer, it is also classified as PC peripheral device which either subject to TCB certification or FCC DoC equipment authorization procedure. As indicated in the section 3.4 of test report, Part 15B class B portion has been tested and FCC DoC procedure is elected. Please provide revised FCC ID label format to comply with FCC DoC labeling requirement.

[Caroline Yu]

ADT: we requested for 15B peripheral certification. Please file composite applications to cover 15B cert for pc peripheral device.

ADT: Per your response today, we applied 15B application from CCS web today. Pls. help us check it.

Question #4: 15.247/DTS test report: section 3.1 (7), preliminary tests were performed on device with SMA and without SMA connector. Please be informed that unlicensed transmitter equipped with SMA connector (define as standard antenna connector- non-unique connector) requires professional installation. Please change the antenna connector description to the one listed in section 3.1(1).

[Caroline Yu]

ADT: Please make sure you make the change immediately. Please be confirmed that we maintain to use unique antenna connector.

ADT: Sorry for typo. We revised the test report, pls. help us check it.

Question #5: As required per KDB 178919, Part 15 unlicensed transmitter shall provide the antenna photos during certification filing. Please provide antenna photos.

[Caroline Yu]

ADT: Please take immediate action to address this.

ADT: We revised the external photo and internal photo.

Question #6: As indicated in section 3.1 (7) of test report, preliminary tests were performed on the device with SMA (RPSMA) connector but such configuration is not considered as the worst case. Please advise which antenna and what is the gain was used. Preliminary tests were made on RF conducted tests or radiated emission tests?

[Caroline Yu]

ADT: Please make sure to address the question immediately. Please work with Yan should you need any guidance from her.

ADT: We revised the test report, pls. help us check it.

Question #7: By reviewing the test report, all RF conducted measurement were made with both TX chains-on. For a 802.11 a/b/g/n device, there are several mode of operations shall be addressed and measured: a) MIMO mode : when the EUT is communicating with MIMO Access Point, both TX chains are transmitting, B) CDD mode : when the EUT is communicating with non-MIMO Access Point, EUT is not in MIMO mode but in CDD mode, both TX chains are transmitting, C) in the MIMO power save mode, only one of transmitting chain is transmitting. The following questions are asked to address these mode of operation:

Question #7-1: Is this device capable of single TX chain operation? What is the output power when only one TX chain is activated?

In MIMO power save mode, one transmitter may be active (tx #0) while other is inactive (tx #1). Output power is no different compared to operation when both tx chains are active. Tx power is not increased or decreased for tx#0 when in single chain mode, compared to dual chain active mode.

Question #7-2: Is this device capable of supporting CDD mode with both transmitting chain-on ? What is the output power when the EUT is CDD mode?

Yes. The reported 802.11b/g & 11a legacy modulation test results in the current reports reflect both tx chain's on using CDD. So these results are already reported.

Question #7-3: When the EUT is in CDD mode, the antenna gain shall be calculated with combined antenna gain. If the combined antenna gain is over 6 dBi, output power limits and PSD limits shall be taken into consideration and may resulting in reducing the rated output power.

We will updated data.

Question #8: Is this EUT complied with definition of Client device as stated in section 15.202?

[Caroline Yu]

Mike: Please see the attached FCC general declaration.doc file and see if your questions is addressed in that letter. Please be confirmed that AR5BDT92 is a client device.

ADT: pls. help us check if the file which Caroline provided to you is ok?

Question #9: Per the requirements stated in section 15.31(f)(1), when making the measurement at the distance other than those specified, the measurement result shall be extrapolated to the specific distance using an extrapolation factor of 20 dB/decade. In the test report, when 1 meter measurement distance was used, the limits is changed based upon the distance which is not correct. Please use distance correction factor to adjust measurement result but do not change the limits.

[Caroline Yu]

ADT: Please address immediately and seek guidance from Yan if you need to without delay..

Question #10: Please indicate in the test report which method was used during PPSD measurement. Section 4.6 of test report.

[Caroline Yu]

ADT: Please address immediately and seek guidance from Yan if you need to without delay..

Question #11: Based upon FCC presentation during May 2005 TCB workshop, for PSD measurement, a combiner shall be used when the mode of operation enables multiple antenna transmitting at the same frequency . FCC requires PSD measurement shall be measured on

each of TX transmitter chain without using combiner and multiple transmitting chains with combiner. Individual and multiple transmitting chain shall comply with the limits. By reviewing the test report, the tests were not performed with combiner, please provide such data in the test report. (applicable to DTS portion of test report as well)

[Caroline Yu]

ADT: Please address immediately and seek guidance from Yan if you need to without delay..

Question #12: Based upon FCC presentation during May 2005 TCB workshop, for RF conducted spurious emission measurement, EUT shall comply with individual TX chain and also with multiple TX chains operation with Combiner. By reviewing the test report, the tests were not performed with combiner, please provide such data in the test report. (applicable to DTS portion of test report as well)

[Caroline Yu]

ADT: Please address immediately and seek guidance from Yan if you need to without delay..

for Question Q9-12:

ADT: We revised the test report per your requirement, pls. help us check it.

FYI: When submitting composite application, please submit separate exhibits to each of device category. Do not submit all files in one assessment number and without any attachment submitted for the other.

FYI: When submitting TCB application, please make sure to enter the output power in Watt and enter all frequency range (start – stop) in the equipment specification. DTS and UNII applications have only partial equipment specification entered.

ADT: Sorry for the inconvenience. We will follow the rule next time.

Besides that, we also revised some typo on page 5&6 of DFS test report.

Pls. refer to the all attached revised files.

If you still have any further question, please contact us.

Your earliest response of this matter would be greatly appreciated!

Thanks!

Best Regards,

Amanda Chu / 朱芳誼

BV CPS Taoyuan Branch, Hsinchu Testing Service Div.

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"Mike Kuo" <mike.kuo@ccsemc.com>

2009/04/01 上午 07:58

收件人: <jennyyes_huang@adt.com.tw>, "Caroline Yu" <caroline.yu@Atheros.com>

副本: <amanda@adt.com.tw>, "Michael Green" <Michael.Green@Atheros.com>, "Yan Zheng" <Yan.Zheng@Atheros.com>

主旨: RE: Re : RE: Re : RE: Atheros Communications, Inc. FCC ID:PPD-AR5BDT92, TCB assessment no: AN09T8979 (UNII portion)

Hi Jennyes:

Caroline has confirmed to use TCB certification to address JBP portion of compliance, please submit another TCB application under JBP equipment class and mark this application as composite device under same FCC ID number.

Since JBP portion will be certified, thus FCC ID label format does not need to be changed.

Best Regards

Mike Kuo
Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Direct: (510) 771-1105
Fax: (510) 661-0888
Main: (510) 771-1000
e-mail: mike.kuo@ccsemc.com
Web Site: www.ccsemc.com

From: jennyes_huang@adt.com.tw [mailto:jennyes_huang@adt.com.tw]

Sent: Tuesday, March 31, 2009 3:08 AM

To: Caroline Yu

Cc: amanda@adt.com.tw; Michael Green; Mike Kuo; Yan Zheng

Subject: Re : RE: Re : RE: Atheros Communications, Inc. FCC ID:PPD-AR5BDT92, TCB assessment no: AN09T8979 (UNII portion)

Dear Caroline,

OK, we will confirm with CCS. Thanks!!



黃玫瑛 / Jennyes Huang

Bureau Veritas ADT, Hsinchu Testing Service Div.

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e-mail: jennyes_huang@adt.com.tw mobile: 0921-196-866

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Caroline Yu
<caroline.yu@Atheros.com>

2009/03/31 下午 03:20

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人

副本 "amanda@adt.com.tw" <amanda@adt.com.tw>, Michael Green <Michael.Green@Atheros.com>, "Mike Kuo
抄送 (mike.kuo@ccsemc.com)" <mike.kuo@ccsemc.com>, Yan Zheng <Yan.Zheng@Atheros.com>

主旨 RE: Re : RE: Atheros Communications, Inc. FCC ID:PPD-AR5BDT92, TCB assessment no: AN09T8979 (UNII portion)

Jenny:es:

FCC logo is required when we do DoC. Now we need class B certification as peripheral device, and with certification, no FCC logo is necessary, correct? Please make sure that we file composite application with FCC for both radio modular and peripheral certification.

Thanks

Caroline Yu

Atheros Communications
5480 Great America Parkway
Santa Clara, CA 95051
USA

+1 (408) 830 5751

From: jenny:es_huang@adt.com.tw [mailto:jenny:es_huang@adt.com.tw]
Sent: Friday, March 27, 2009 7:11 PM
To: Caroline Yu
Cc: amanda@adt.com.tw; Michael Green; Mike Kuo (mike.kuo@ccsemc.com); Yan Zheng
Subject: Re : RE: Atheros Communications, Inc. FCC ID:PPD-AR5BDT92, TCB assessment no: AN09T8979 (UNII portion)

Dear Caroline,

For the Q3, I think CCS is asking to send the revised label with FCC DoC requirement. I recheck the label you sent to us as attached. It seems lack the logo of FCC which DoC requires. Could you help to put it on? Thanks!!



黃玫瑛 / **Jenny:es Huang**

Bureau Veritas ADT, Hsinchu Testing Service Div.

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Caroline Yu
<caroline.yu@Atheros.com>

2009/03/27 上午 05:53

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抄送
主旨 RE: Atheros Communications, Inc. FCC ID:PPD-AR5BDT92, TCB assessment no: AN09T8979 (UNII portion)

All:

Please find below my response and/or designated responsible party per my discussion with Yan.

Our deadline imposed by our customer has passed and we are under pressure to get approvals ASAP. I appreciate your support in taking immediate action.

Thanks

Caroline Yu
Atheros Communications
5480 Great America Parkway
Santa Clara, CA 95051
USA

+1 (408) 830 5751

From: Yan Zheng
Sent: Thursday, March 26, 2009 2:01 PM
To: Caroline Yu
Subject: FW: Atheros Communications, Inc. FCC ID:PPD-AR5BDT92, TCB assessment no: AN09T8979 (UNII portion)

From: Mike Kuo [mailto:mike.kuo@ccsemc.com]

Sent: Thursday, March 26, 2009 2:00 PM

To: amanda@adt.com.tw; Yan Zheng

Subject: Atheros Communications, Inc. FCC ID:PPD-AR5BDT92, TCB assessment no: AN09T8979 (UNII portion)

Dear Amanda:

You are listed as the Technical Contact for the above referenced TCB application. The following item(s) need(s) to be resolved before the review can be continued:

Question #1: The request for module approval listed FCC public notice DA 00-1407 requirements which has been replaced by section 15.212 of FCC rules. Please review the update requirements as stated in section 15.212 and submit revised request letter for modular approval. Please make sure to use section 15.212 as the basis for the request.

[Caroline Yu]

I have provided the modular list on the product information file, which should offer sufficient info required for modular approval.

ADT: Please make sure you address reviewer's question with info we provided.

Question #2: User Manual: The user manual submitted looks like it is written for 802.11 b/g/n device (Page 7) which is not match with this 802.11 a/b/g/n device. Please review this user manual and submit the updated user manual.

[Caroline Yu]

Mike: Please see attached modified manual adding a on page 7.

Question #3: Mini-PCI transmitter module when it is installed in the personal computer, it is also classified as PC peripheral device which either subject to TCB certification or FCC DoC equipment authorization procedure. As indicated in the section 3.4 of test report, Part 15B class B portion has been tested and FCC DoC procedure is elected. Please provide revised FCC ID label format to comply with FCC DoC labeling requirement.

[Caroline Yu]

ADT: we requested for 15B peripheral certification. Please file composite applications to cover 15B cert for pc peripheral device.

Question #4: 15.247/DTS test report: section 3.1 (7), preliminary tests were performed on device with SMA and without SMA connector. Please be informed that unlicensed transmitter equipped with SMA connector (define as standard antenna connector- non-unique connector) requires professional installation. Please change the antenna connector description to the one listed in section 3.1(1).

[Caroline Yu]

ADT: Please make sure you make the change immediately. Please be confirmed that we maintain to use unique antenna connector.

Question #5: As required per KDB 178919, Part 15 unlicensed transmitter shall provide the antenna photos during certification filing. Please provide antenna photos.

[Caroline Yu]

ADT: Please take immediate action to address this.

Question #6: As indicated in section 3.1 (7) of test report, preliminary tests were performed on the device with SMA (RPSMA) connector but such configuration is not considered as the worst case. Please advise which antenna and what is the gain was used. Preliminary tests were made on RF conducted tests or radiated emission tests?

[Caroline Yu]

ADT: Please make sure to address the question immediately. Please work with Yan should you need any guidance from her.

Question #7: By reviewing the test report, all RF conducted measurement were made with both TX chains-on. For a 802.11 a/b/g/n device,

there are several mode of operations shall be addressed and measured: a) MIMO mode : when the EUT is communicating with MIMO Access Point, both TX chains are transmitting, B) CDD mode : when the EUT is communicating with non-MIMO Access Point, EUT is not in MIMO mode but in CDD mode, both TX chains are transmitting, C) in the MIMO power save mode, only one of transmitting chain is transmitting. The following questions are asked to address these mode of operation:

Question #7-1: Is this device capable of single TX chain operation? What is the output power when only one TX chain is activated?

Question #7-2: Is this device capable of supporting CDD mode with both transmitting chain-on ? What is the output power when the EUT is CDD mode?

Question #7-3: When the EUT is in CDD mode, the antenna gain shall be calculated with combined antenna gain. If the combined antenna gain is over 6 dBi, output power limits and PSD limits shall be taken into consideration and may resulting in reducing the rated output power.

[Caroline Yu]

Yan will work with ADT to address the entire Question #7-*

Question #8: Is this EUT complied with definition of Client device as stated in section 15.202?

[Caroline Yu]

Mike: Please see the attached FCC general declaration.doc file and see if your questions is addressed in that letter. Please be confirmed that AR5BDT92 is a client device.

Question #9: Per the requirements stated in section 15.31(f)(1), when making the measurement at the distance other than those specified, the measurement result shall be extrapolated to the specific distance using an extrapolation factor of 20 dB/decade. In the test report, when 1 meter measurement distance was used, the limits is changed based upon the distance which is not correct. Please use distance correction factor to adjust measurement result but do not change the limits.

[Caroline Yu]

ADT: Please address immediately and seek guidance from Yan if you need to without delay..

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[Caroline Yu]

ADT: Please address immediately and seek guidance from Yan if you need to without delay..

Question #11: Based upon FCC presentation during May 2005 TCB workshop, for PSD measurement, a combiner shall be used when the mode of operation enables multiple antenna transmitting at the same frequency . FCC requires PSD measurement shall be measured on each of TX transmitter chain without using combiner and multiple transmitting chains with combiner. Individual and multiple transmitting chain shall comply with the limits. By reviewing the test report, the tests were not performed with combiner, please provide such data in the test report. (applicable to DTS portion of test report as well)

[Caroline Yu]

ADT: Please address immediately and seek guidance from Yan if you need to without delay..

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[Caroline Yu]

ADT: Please address immediately and seek guidance from Yan if you need to without delay..

FYI: When submitting composite application, please submit separate exhibits to each of device category. Do not submit all files in one assessment number and without any attachment submitted for the other.

FYI: When submitting TCB application, please make sure to enter the output power in Watt and enter all frequency range (start – stop) in the equipment specification. DTS and UNII applications have only partial equipment specification entered.

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.

Best Regards

Mike Kuo
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