

Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1 [Inbox](#)

★ from "tim.dwyer@ccsemc.com" <tim.dwyer@ccsemc.com>

[hide details](#) Jan 13 (4 days ago)

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to chieu@emctech.com.au  
cc tim.dwyer@ccsemc.com  
date Jan 13, 2008 10:29 PM  
subject Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1

Dear Chieu,

The review of the application is complete. Please reply to the following items relative to the NII part of this application. If you have questions, please ask.

Q1: If the NII device operates in MIMO mode(s) in this configuration then combined output power measurement is required. Please refer to pages 128-130 of the original report. Please explain whether the output power measurements on pages 14 & 15 of the EMCT report are combined output power for MIMO operation, or if they are measurements performed on a single chain. Also please briefly explain why the output power measurements were repeated, but not other measurements like spectral density, bandwidth, etc.

Q2: The powers listed on pages 14 & 15 of the EMCT report appear significantly lower than the powers shown in the original Intel report. Please provide a brief explanation.

Q3: Please explain whether the product was operating in MIMO mode during the radiated and conducted spurious emissions modes.

Q4: For MIMO operation, please confirm whether MIMO is in 2x2 and 2x3 mode or in 2x2 mode only.

Q5: FCC now requires new filings for NII devices to be listed separately for each sub-band. It is understood that this filing is based on a previous application, but since this is in fact a new filing, the frequency listing must be split into two ranges. It appears from output power measurements on page 14 & 15 that output power over the full range may comply with the lower power limits for 5150-5250 MHz operation. Please provide revised frequency specifications and confirmation that the product complies with specific limits for each sub-band (5150-5250 and 5250-5350 MHz) including band-edge limits at 5250 MHz.

You will also receive separate notices for the two other composite parts.

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,

Tim Dwyer  
Technical Reviewer

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★ from "Rao, Praveen" <Praveen.Rao@au.fujitsu.com>

[hide details](#) Jan 14 (3 days ago)

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to "Timothy M. Dwyer" <tim.dwyer@ccsemc.com>  
cc chieu@emctech.com.au  
date Jan 14, 2008 9:18 PM  
subject RE: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1

Hi Tim,

We are working on the response to your questions. These are new questions that we never had for our previous original applications. The MIMO mode issues we need to check with Intel.

Regarding your Q5:

"Please provide revised frequency specifications and confirmation that the product complies with specific limits for each sub-band (5150-5250 and 5250-5350 MHz) including band-edge limits at 5250 MHz."

As you know this is a new request by FCC during the recent TCBC meeting.

This actually raises a problem for 5250 channel. This channel will never pass the band edge test as the BW is 20MHz. Which means 5250 can never be used but still there are tens and thousands of products already approved for this channel and currently being used. In fact a recent grant issued by FCC (refer: 'PY307300070') report 6 for bandedge (attached) where the mid band and high band freq were never tested for bandedge.

This request for a C2PC application is a bit harsh (not by you but FCC) and there must be some re-consideration. Otherwise going back to the lab for re-testing and then blocking 5250 is just not realistic !

Please let me know if there is any alternative or have I misunderstood something ?

Cheers,

Praveen

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☆ from **Tim Dwyer** <Timothy\_Dwyer@ieee.org>

[hide details](#) Jan 14 (3 days ago)

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to "Rao, Praveen" <Praveen.Rao@au.fujitsu.com>

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

date Jan 14, 2008 9:43 PM

subject Re: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1

mailed-by gmail.com

Hi Praveen,

As you know, I am only following FCC guidelines as recently re-emphasized. I will discuss more with Mike to see if there is any other consideration.

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☆ from **Tim Dwyer** <Timothy\_Dwyer@ieee.org>

[hide details](#) Jan 14 (3 days ago)

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

date Jan 14, 2008 10:02 PM

subject Fwd: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1  
mailed-by gmail.com

Hi Mike,

I am not sure if my reply to Praveen with cc to you included the full email chain, so here it is.

They are questioning my Item Q5 and want to know if there is any additional consideration possible.

I don't think they need to go back to the lab as Praveen said, but I would like to see a statement/explanation that they meet the requirements of 15.407(b)(1) and 15.407(b)(2)

In general for most of the questions, it appears that they may intend to use less than the full capability of the module - but they have not made this clear in the application.

Best regards,

Tim

## Forwarded conversation

Subject: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1

From: <[tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com)>

Date: Jan 13, 2008 10:29 PM

To: [chieu@emctech.com.au](mailto:chieu@emctech.com.au)

Cc: [tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com)

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Tim Dwyer  
Technical Reviewer

From: Rao, Praveen <[Praveen.Rao@au.fujitsu.com](mailto:Praveen.Rao@au.fujitsu.com)>

Date: Jan 14, 2008 9:18 PM  
To: "Timothy M. Dwyer" <[tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com)>  
Cc: [chieu@emctech.com.au](mailto:chieu@emctech.com.au)

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From: Tim Dwyer <[Timothy\\_Dwyer@ieee.org](mailto:Timothy_Dwyer@ieee.org)>  
Date: Jan 14, 2008 9:43 PM  
To: "Rao, Praveen" <[Praveen.Rao@au.fujitsu.com](mailto:Praveen.Rao@au.fujitsu.com)>  
Cc: Mike Kuo <[mike.kuo@ccsemc.com](mailto:mike.kuo@ccsemc.com)>

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★ from "Rao, Praveen" <[Praveen.Rao@au.fujitsu.com](mailto:Praveen.Rao@au.fujitsu.com)>

[hide details](#) Jan 16 (1 day ago)

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to Tim Dwyer <[Timothy\\_Dwyer@ieee.org](mailto:Timothy_Dwyer@ieee.org)>

cc Mike Kuo <[mike.kuo@ccsemc.com](mailto:mike.kuo@ccsemc.com)>

date Jan 16, 2008 6:30 AM

subject RE: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1

Hi Mike,

Does the latest FCC update have anything related to this current discussion (email below')

Best Regards,  
Praveen

---

**From:** [rfspectrum@gmail.com](mailto:rfspectrum@gmail.com) [mailto:[rfspectrum@gmail.com](mailto:rfspectrum@gmail.com)] **On Behalf Of** Tim Dwyer  
**Sent:** Tuesday, 15 January 2008 1:44 PM  
**To:** Rao, Praveen  
**Cc:** Mike Kuo  
**Subject:** Re: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1

Hi Praveen,  
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★ from **CHIEU** <[chieu@emctech.com.au](mailto:chieu@emctech.com.au)>

[hide details](#) Jan 16 (12 hours ago)  [Reply](#)

reply-to [chieu@emctech.com.au](mailto:chieu@emctech.com.au)  
to [tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com)  
cc "Rao, Praveen" <[Praveen.Rao@au.fujitsu.com](mailto:Praveen.Rao@au.fujitsu.com)>  
date Jan 16, 2008 10:05 PM  
subject RE: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1

Dear Tim,

Replies to NII questions are below.

Best Regards  
Chieu Huynh

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

From: [tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com) [mailto:[tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com)]  
Sent: Monday, 14 January 2008 2:30 PM  
To: [chieu@emctech.com.au](mailto:chieu@emctech.com.au)  
Cc: [tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com)  
Subject: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.: AN08T7482, Notice#1

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Answer1: See pages 83 - 85 (attached pdf document) of the original INTEL report for output power measurement both single Tx and dual Tx with

aggregate power shown. With our (EMCT) report Measurements were performed on both chains A and B. The output power reported on pages 14 and 15 of EMCT report are of a single chain (worst case of A or B). Therefore, in MIMO mode (HT8) the maximum combined output power is 3dB (50%) higher than reported on pages 14 and 15. Test report will be revised to clarify this for future applications.

The output power measurements were repeated (but not other measurements) to confirm that the power is not higher than originally reported.

Q2: The powers listed on pages 14 & 15 of the EMCT report appear significantly lower than the powers shown in the original Intel report. Please provide a brief explanation.

Answer2: Different measurement methods were used. EMCT used integration method as per test method # 3 of DA 02-2138. Intel used the power meter method.

Q3: Please explain whether the product was operating in MIMO mode during the radiated and conducted spurious emissions modes.

Answer3: Yes, MIMO mode was operating during the test. In the INTEL's original report, both radiated and conducted emissions tables and plots are clearly marked with the mode and applicable Transmit chain operation.

Q4: For MIMO operation, please confirm whether MIMO is in 2x2 and 2x3 mode or in 2x2 mode only.

Answer4: MIMO modes capable are 1x1, 1x2, 2x2 and 2x3

Q5: FCC now requires new filings for NII devices to be listed separately for each sub-band. It is understood that this filing is based on a previous application, but since this is in fact a new filing, the frequency listing must be split into two ranges. It appears from output power measurements on page 14 & 15 that output power over the full range may comply with the lower power limits for 5150-5250 MHz operation. Please provide revised frequency specifications and confirmation that the product complies with specific limits for each sub-band (5150-5250 and 5250-5350 MHz) including band-edge limits at 5250 MHz.

Answer5: From the output power measurements on page 14 & 15, the output power complied with the power requirements over the full range (5150 - 5250 MHz and 5250 - 5350 MHz). Frequency specifications reporting will be revised for future applications. The band-edge requirements at 5250 MHz were tested by INTEL/AEGIS LABS and Granted. Refer to attached test report (page 69 to 71 of the test report OR 86 to 88 pdf document).

The channels and frequencies are:

36 = 5180, 40 = 5200, 44 = 5220, 48 = 5240, 52 = 5260, 56 = 5280, 60 = 5300 & 64 = 5320 (802.11a and 802.11n 20MHz modes)

38(F) = 5190, 46(F) = 5230, 54(F) = 5270 & 62(F) = 5310 (802.11n 40MHz)


Considering that this module has been Granted several times in the past and this current application is ONLY for addition of an UMTS module and NO change to the WLAN module itself, we hope that the above response to your questions should suffice.

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4965AGN test report UNII.pdf

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 **CHIEU** Dear Tim, Replies to NII questions are below. Best Regards Chieu Huynh Answer... Jan 16 (3 days ago) 

 from **Tim Dwyer** <Timothy\_Dwyer@ieee.org> [hide details](#) Jan 18 (2 days ago) 

to chieu@emctech.com.au,  
cc tim.dwyer@ccsemc.com,  
"Rao, Praveen" <Praveen.Rao@au.fujitsu.com>,  
date Jan 18, 2008 12:25 AM

 [Reply](#) 

subject Re: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment  
NO.: AN08T7482, Notice#1

mailed-by gmail.com

Hello Chieu,

Thank you for your responses. I have reviewed them and they are adequate to support completion of the application. I am ready to send for certification except I need to make sure of the NII listing.

The NII section for the most recent C2PC Grant for the module is attached.

It lists

5180-5240 MHz 0.05 W  
5260-5320 MHz 0.123 W

Power is peak aggregate.

Are these the powers to be listed on the grant for the Fujitsu product? If not, please specify the peak aggregate powers to be listed.

Best regards,

Tim

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 from **CHIEU** <chieu@emctech.com.au>  
reply-to chieu@emctech.com.au,  
to Tim Dwyer <Timothy\_Dwyer@ieee.org>,  
cc tim.dwyer@ccsemc.com,  
"Rao, Praveen" <Praveen.Rao@au.fujitsu.com>,  
date Jan 18, 2008 12:54 AM  
subject RE: Fujitsu Limited, FCC ID: EJE-WB0054, Assessment NO.:  
AN08T7482, Notice#1

[hide details](#) Jan 18 (2 days ago)

 Reply

Thanks Tim,

Powers to be listed for Fujitsu are same as Intel.

**5180-5240 MHz 0.05 W**

**5260-5320 MHz 0.123 W**

PS: We are hoping P1620 applications (AN08T7491, AN08T7492 and AN08T7493) to be complete soon.

Regards

Chieu Huynh