



Tim Dwyer &lt;rfspectrum@gmail.com&gt;

---

## answer: Meraki Inc., FCC ID: UDX-62009015, Assessment NO.: AN09T8944 (DTS) and AN09T8945 (NII), Notice#1

6 messages

---

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

Fri, Mar 13, 2009 at 4:48 PM

To: "Timothy M. Dwyer" &lt;tim.dwyer@ccsemc.com&gt;, Tim Dwyer - TCB &lt;Timothy\_Dwyer@ieee.org&gt;

Cc: Neena Jain &lt;neena.jain@ccsemc.com&gt;

Hi Tim,

Here are the answers, if no questions, pls kindly issue grant this week.

Q1: The application appears to include MPE evaluation for only the lowest gain antenna. Please provide MPE data for other antennas or further explanation.

<answer> Attached are the MPE calculations for Q1.

Q2: MPE separation distances are not specified in the user manual or elsewhere for any antennas. Please provide minimum separation distances in user manual or other document that will be provided to installers and users for all antennas.

<answer> pls see regulatory notice attached.

Q3: It appears that professional installation of the final product incorporating the module is appropriate. Please confirm or explain. If non-professional end user installation is intended, additional information describing how the output power will be limited for higher gain antennas is required. If professional installation will be required only for certain antennas, please specify which antennas require professional installation.

<answer> **Yes, the final product is meant for professional installation. As such, we are using N-type antenna ports which are a unique fitting as described in FCC 47 CFR 15.203.**

Q4: Document does not exist at [meraki.com/oursolution/hardware/MR58/meraki\\_MR58\\_reg.pdf](http://meraki.com/oursolution/hardware/MR58/meraki_MR58_reg.pdf)

If information for above items is included in this document, please provide a copy.

<answer> **Link now exists online.**

Q5: Please confirm that MPE evaluation is for worst case of combined power and antenna gain for all frequencies and antennas.

<answer> **Confirmed**

Q6: User manual for MR58 shows total of 6 antennas. The modular device has only 2 antenna ports. Please explain and provide relation between module and MR58 if necessary. If MR58 Guide is the final manual for a product including the module, then it should include RF exposure information.

<answer> **The MR58 contains 3 of the modules and each module has 2 antenna ports, so the MR58 has 6 antenna ports total.**

Q7: The NII test report refers to frequency ranges not shown in the CCS application specifications. And CCS specifications show a frequency range for which no measurement data was submitted. No measurement data is included in the Quietech test report for frequency ranges in 5250-5350 and 5500-5700 Mhz although these ranges are mentioned on pages 6-7 of the report. Line 1 of the CCS application form specification is 5180-5320 MHz, but the test report data includes data only for 5180-5240 MHz (Band I) and 5745-5805 MHz (Band IV) bands. Please confirm the intended frequency bands, and that the product will not be enabled for other frequency bands until such time as a permissive change or other additional filing is approved.

<answer> **Confirmed. Only DTS, UNII-1 and UNII-3 are intended for use until we file a permissive change to add further bands.**

Q8: It appears from application that the following are true, but please confirm:

(1) that the device is limited to spatial multiplexing MIMO and single chain legacy modes,

<answer> **Yes, we use spatial mutliplexing MIMO. Please clarify what single chain legacy mode is . To me it means 802.11b/g, but in fact the device can also do 802.11a/b/g/n.**

(2) that the device does not use beam-forming or smart antenna technology,

<answer> **True**

(3) that simultaneous 2.4 and 5 Ghz band operation is not possible, and

<answer> **True for the module. The AP (which contains 3 modules) will have simultaneous 2.4 and 5GHz band operation**

(4) that simultaneous operation on multiple channels within a band is not possible.

<answer> **True for module and AP.**

Q9: Please specify in the antenna document which antennas are intended for point-to-point and point-to-multipoint operation.

<answer> **All directional antennas are meant for point-to-point operation. All omni-directional antennas are meant for point-to-multipoint operation.**

Q10: Permanent Confidentiality was requested for the antenna specification document. An antenna specification document was not submitted. The antenna document submitted is not actually an antenna specification, but rather an antenna list and power setting document, so is not really a type of document that is subject to permanent confidentiality.

<answer>**This is fine. We only require permanent confidentiality for our schematics, block diagram, and theory of operation. Attached pls find revised confi. letter.**

Thanks,

Claire Hoque  
Compliance Certification Services  
47173 Benicia Street  
Fremont, CA 94538, USA  
Tel: (510) 771-1123  
Fax: (510) 661-0888

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

From: Timothy M. Dwyer  
Sent: Thursday, March 12, 2009 3:47 PM  
To: Thu Chan  
Cc: Timothy M. Dwyer; Claire Hoque  
Subject: Meraki Inc., FCC ID: UDX-62009015, Assessment NO.: AN09T8944 (DTS) and AN09T8945 (NII), Notice#1

Hello Thu, Claire,

Review of these applications is complete.  
This is a combined notice for Assessment numbers AN09T8944 (DTS) and AN09T8945 (NII)

Please reply to the following items:

Q1: The application appears to include MPE evaluation for only the lowest gain antenna. Please provide MPE data for other antennas or further explanation.

Q2: MPE separation distances are not specified in the user manual or elsewhere for any antennas. Please provide minimum separation distances in user manual or other document that will be provided to installers and users for all antennas.

Q3: It appears that professional installation of the final product incorporating the module is appropriate. Please confirm or explain. If non-professional end user installation is intended, additional information describing how the output power will be limited for higher gain antennas is required. If professional

installation will be required only for certain antennas, please specify which antennas require professional installation.

Q4: Document does not exist at [meraki.com/oursolution/hardware/MR58/meraki\\_MR58\\_reg.pdf](http://meraki.com/oursolution/hardware/MR58/meraki_MR58_reg.pdf)

If information for above items is included in this document, please provide a copy.

Q5: Please confirm that MPE evaluation is for worst case of combined power and antenna gain for all frequencies and antennas.

Q6: User manual for MR58 shows total of 6 antennas. The modular device has only 2 antenna ports. Please explain and provide relation between module and MR58 if necessary. If MR58 Guide is the final manual for a product including the module, then it should include RF exposure information.

Q7: The NII test report refers to frequency ranges not shown in the CCS application specifications. And CCS specifications show a frequency range for which no measurement data was submitted. No measurement data is included in the Quietech test report for frequency ranges in 5250-5350 and 5500-5700 Mhz although these ranges are mentioned on pages 6-7 of the report. Line 1 of the CCS application form specification is 5180-5320 MHz, but the test report data includes data only for 5180-5240 MHz (Band I) and 5745-5805 MHz (Band IV) bands. Please confirm the intended frequency bands, and that the product will not be enabled for other frequency bands until such time as a permissive change or other additional filing is approved.

Q8: It appears from application that the following are true, but please confirm:

- (1) that the device is limited to spatial multiplexing MIMO and single chain legacy modes,
- (2) that the device does not use beam-forming or smart antenna technology,
- (3) that simultaneous 2.4 and 5 Ghz band operation is not possible, and
- (4) that simultaneous operation on multiple channels within a band is not possible.

Q9: Please specify in the antenna document which antennas are intended for point-to-point and point-to-multipoint operation.

Q10: Permanent Confidentiality was requested for the antenna specification document. An antenna specification document was not submitted. The antenna document submitted is not actually an antenna specification, but rather an antenna list and power setting document, so is not really a type of document that is subject to permanent confidentiality.

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

---

**3 attachments**

 **MR58\_MPE (revised).pdf**  
70K

 **FCC CONFIDENTIALITY (revised).pdf**  
1028K

 **meraki\_MR58\_regulatory notice.pdf**  
361K

---

**Tim Dwyer** <tim.dwyer@ccsemc.com>

**Fri, Mar 13, 2009 at 5:46 PM**

To: Claire Hoque <claire.hoque@ccsemc.com>

Cc: Neena Jain <neena.jain@ccsemc.com>

Hi Claire,

All is resolved except the following.

Q4: I still do not get the link to work. However, a copy of the document was attached so this item is complete and this is information only.

Q6: The module normally would have the standard "no co-location" grant condition, however since it is documented herein that there will be co-location of up to 3 modules, RF exposure needs to be addressed for up to 3 modules according to KDB 447478 Paragraph (7).

We need one of the following:

(1) a statement that the antennas for each of the 3 modules are separated from antennas of other modules by at least 20cm. (This does not appear to be the case)

or

(2) MPE compliance exhibit for 3 modules with simultaneous transmission and worst case combination for all possible antennas. Based on this the grant can approve co-location for up to 3 modules.

I will be away from my office for the next 2-3 hours, but will check again when I return.

Best regards,

Tim

[Quoted text hidden]

--

Tim Dwyer  
Quasi-Peak Wireless  
766 Pucker Street  
Coventry, CT 06238 USA

(860) 558-1791  
email: [tdwyer@quasi-peak.com](mailto:tdwyer@quasi-peak.com)  
[timothy\\_dwyer@ieee.org](mailto:timothy_dwyer@ieee.org)  
web: [www.quasi-peak.com](http://www.quasi-peak.com)

---

**Claire Hoque** <[claire.hoque@ccsemc.com](mailto:claire.hoque@ccsemc.com)>  
To: "Timothy M. Dwyer" <[tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com)>  
Cc: Neena Jain <[neena.jain@ccsemc.com](mailto:neena.jain@ccsemc.com)>

Fri, Mar 13, 2009 at 6:36 PM

Hi Tim,

Pls kindly if we could find KDB 447478 in FCC website, could you pls forward us the link?

Thanks,

Claire Hoque  
Compliance Certification Services  
47173 Benicia Street  
Fremont, CA 94538, USA  
Tel: (510) 771-1123  
Fax: (510) 661-0888  
-----Original Message-----

[Quoted text hidden]

---

**Neena Jain** <[neena.jain@ccsemc.com](mailto:neena.jain@ccsemc.com)>  
To: "Timothy M. Dwyer" <[tim.dwyer@ccsemc.com](mailto:tim.dwyer@ccsemc.com)>, Claire Hoque <[claire.hoque@ccsemc.com](mailto:claire.hoque@ccsemc.com)>

Fri, Mar 13, 2009 at 6:41 PM

Tim,

Please find the answer to Question 6. Pls advise if you accept this answer.

The worst case co-location problem would be with the dual band monopole omni antennas connected on all 6 antenna ports. The reason the higher gain antennas are not the worst case is because any all the panel/directional antennas would be connected to the device with an N-type pigtail, and would therefore not be within 20cm of any other antenna.

The way our modules work is that one is always operating at 2.4GHz and the other two are always operating at 5GHz. So using the S calculations from the MR58\_MPE.xls spreadsheet that you have from my earlier email, we would have  $2 \times 2.4\text{GHz} + 4 \times 5\text{GHz} = 2(.05) + 4(.08)$

= .42. This is below the limit of  $1\text{mW}/\text{cm}^2$  at 20cm.

Regards,

**Neena Jain**

Account Executive

47173 Benicia Street

Fremont, CA 94538

Voice: 510.771.1114

Fax: 510.661.0888

[neena.jain@ccsemc.com](mailto:neena.jain@ccsemc.com)

<http://www.ccsemc.com>

---

[Quoted text hidden]

[Quoted text hidden]

---

**Tim Dwyer <tim.dwyer@ccsemc.com>**

**Fri, Mar 13, 2009 at 9:50 PM**

To: Neena Jain <neena.jain@ccsemc.com>

Cc: Claire Hoque <claire.hoque@ccsemc.com>

Neena,

This is acceptable for this application. I will include the email as part of the filing.

For future similar applications, it would be better if all of this could be considered and included in the MPE exhibit.

Best regards,

Tim

[Quoted text hidden]

---

**Neena Jain <neena.jain@ccsemc.com>**

**Mon, Mar 16, 2009 at 11:21 AM**

To: "Timothy M. Dwyer" <tim.dwyer@ccsemc.com>

Cc: Claire Hoque <claire.hoque@ccsemc.com>

Tim,

Thanks! Noted.

Rgds,

**Neena Jain**

Account Executive

47173 Benicia Street

Fremont, CA 94538

Voice: 510.771.1114

Fax:510.661.0888

[neena.jain@ccsemc.com](mailto:neena.jain@ccsemc.com)

<http://www.ccsemc.com>

---

**From:** [rfpectrum@gmail.com](mailto:rfpectrum@gmail.com) [mailto:[rfpectrum@gmail.com](mailto:rfpectrum@gmail.com)] **On Behalf Of** Tim Dwyer

**Sent:** Friday, March 13, 2009 6:51 PM

**To:** Neena Jain

**Cc:** Claire Hoque

[Quoted text hidden]

[Quoted text hidden]

---