

**WJ COMMUNICATIONS INC, FCC ID: NTTWJM3000, Assessment NO.: AN06T6406, Notice#1** [Inbox](#)

☆ from **"tim.dwyer@ccsemc.com"** <tim.dwyer@ccsemc.com> [hide details](#) Jan 3 [Reply](#) ▼

to tom@tncokenias.org  
cc tim.dwyer@ccsemc.com  
date Jan 3, 2007 9:40 PM  
subject WJ COMMUNICATIONS INC, FCC ID: NTTWJM3000, Assessment NO.: AN06T6406, Notice#1

Dear Tom,

The technical review is complete. Please reply to the following issues.

Q1. Models WJM-H, WJM-F, and WJM-P are described in the user manual. Please clarify which model(s) are addressed in this application. In the user manual, handheld operation is mentioned for the WJM-F. Please provide clarification and include specific information with regard to RF exposure in the user manual if handheld operation is intended.

Q2. Please provide justification for the test configuration on the metal heatsink. Item 1 of DA 00-1407 requires testing in a standalone configuration. If a heatsink such as the one tested is part of the product as sold or if user instructions require use of such a heatsink, then the test configuration could be considered justified. Please provide additional information and revised user installation instructions as appropriate.

Q3. The operational description submitted is an overview of RFID technology in general. Please submit an operational description specific to this application including information required by 2.1033(b)(4): A brief description of the circuit functions of the device along with a statement describing how the device operates. This statement should contain a description of the ground system and antenna, if any, used with the device. (Refer also to item Q7 below)

Q4. Please revise section 4.1.3 of the test report to show calculations or describe how the occupancy time was calculated. Following are examples taken from reports in the FCC database:

EXAMP 1: The maximum duration of the RF transmission is 364ms during a 700ms channel dwell time. There is a minimum of 50 channels used during the hopping sequence therefore a channel will not be re-occupied until at least 35s. Therefore the average time of occupancy on any one channel in a 20 second period is 364ms.. A detailed description of the RF timing and a timing diagram are included in the theory of operation.

EXAMP 2: Each transmission is 5.887 mS long. Each transmission takes place on one of 50 different channels in a pseudo-random sequence. All 50 channels are used equally on the average. The algorithm that determines the pseudo-random hop sequence does not allow the device to transmit on the same channel more than once in a 20 second period.

5. Please provide the second label format referred to in the modular request letter.

6. Please provide an antenna list and specifications exhibit. Antenna type, model number, gain, and connector type for each antenna should be included.

7. Please address the requirements of 15.247(g) 15.247(h) and in the operational description or test report.

Best regards,

Tim Dwyer  
CCS Technical Reviewer

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.

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☆ from **Thomas Cokenias** <tom@tncokenias.org> [hide details](#) Jan 8 (4 days ago) [Reply](#) ▼

to "<tim.dwyer@ccsemc.com>" <tim.dwyer@ccsemc.com>  
date Jan 8, 2007 7:26 PM  
subject Re: WJ COMMUNICATIONS INC, FCC ID: NTTWJM3000, Assessment NO.: AN06T6406, Notice#1

Hi Tim, and Happy New Year!

Answers follow questions. I'm in the office most of this week.

best regards

Tom

office 650 726 1263

On Jan 3, 2007, at 6:40 PM, <tim.dwyer@ccsemc.com>  
<tim.dwyer@ccsemc.com> wrote:

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ANS1 The user manual has been corrected to reference the two models that will be sold: WJM1000 (24dBm max output power) and WJM3000 (30dBm maximum output power). The antennas used with either model will always be located at least 20cm from all persons, as described in the installation manual.

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- > Q2. Please provide justification for the test configuration on the metal heatsink. Item 1 of DA 00-1407 requires testing in a standalone configuration. If a heatsink such as the one tested is part of the product as sold or if user instructions require use of such a heatsink, then the test configuration could be considered justified. Please provide additional information and revised user installation instructions as appropriate.

ANS2 In the revised user manual, WJ recommends that the module be mounted on a heat sink. The heat sink used during testing is representative of a typical heat sink, but it is expected that integrators will use as heat sinks the metal cases that usually house devices of this type.

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- > Q3. The operational description submitted is an overview of RFID technology in general. Please submit an operational description specific to this application including information required by 2.1033(b)(4): A brief description of the circuit functions of the device along with a statement describing how the device operates. This statement should contain a description of the ground system and antenna, if any, used with the device. (Refer also to item Q7 below)

ANS3 A revised operational description is attached.

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- > Q4. Please revise section 4.1.3 of the test report to show calculations or describe how the occupancy time was calculated .
- > Following are examples taken from reports in the FCC database:
- >
- > EXAMP 1: The maximum duration of the RF transmission is 364ms during a 700ms channel dwell time. There is a minimum of 50 channels used during the hopping sequence therefore a channel will not be re-occupied until at least 35s. Therefore the average time of occupancy on any one channel in a 20 second period is 364ms.. A detailed description of the RF timing and a timing diagram are included in the theory of operation.
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- > EXAMP 2: Each transmission is 5.887 mS long. Each transmission takes place on one of 50 different channels in a pseudo-random sequence. All 50 channels are used equally on the average. The algorithm that determines the pseudo-random hop sequence does not allow the device to transmit on the same channel more than once in a 20 second period.

ANS4 A revised test report is attached

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- > 5. Please provide the second label format referred to in the modular request letter.

ANS 5 The second label format is attached

- >
- > 6. Please provide an antenna list and specifications exhibit.
- > Antenna type, model number, gain, and connector type for each antenna should be included.

ANS Antenna data sheets are attached.

- >
- > 7. Please address the requirements of 15.247(g) 15.247(h) and in the operational description or test report.

ANS 7 These paragraphs are addressed in the attached operational description

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- > CCS Technical Reviewer
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from **Tim Dwyer** <Timothy\_Dwyer@ieee.org>

[hide details](#) Jan 9 (3 days ago) [Reply](#)

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

date Jan 9, 2007 1:14 PM

subject Fwd: WJ COMMUNICATIONS INC, FCC ID: NTTWJM3000, Assessment NO.:  
AN06T6406, Notice#1

mailed-by gmail.com

Hi Mike,

Tom replied to my questions and everything on this one is ok except I would like your opinion on one issue related to Q2 in my list.

This is a modular filing and the module was tested mounted to a metal heatsink. I asked Tom for further justification and for the test configuration and WJ did add a recommendation for mounting on a metal surface to the user instructions. DA 00-1407 says to test "standalone" and "not inside another device" so very technically those requirements are met but I think it's still on the edge.

I would like your opinion on whether a heat sink is a conflict to the stand-alone requirement.

I've attached copies of the user manual and test setup photos

Thanks and best regards,

Tim

- Show quoted text -

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★ from **Mike Kuo** <mike.kuo@ccsemc.com> [hide details](#) Jan 9 (3 days ago) [Reply](#) ▼  
to Tim Dwyer - TCB <Timothy\_Dwyer@ieee.org>  
date Jan 9, 2007 2:08 PM  
subject RE: WJ COMMUNICATIONS INC, FCC ID: NTTWJM3000, Assessment NO.: AN06T6406, Notice#1

Hi Tim:

Figure 1 page 8 does not show the metal heat sink as the typical configuration. If they can include heat sink ( metal plate ) in this photo, then it is O.K.

Best Regards

Mike Kuo

Compliance Certification Services

561F Monterey Road

Morgan Hill CA 95037

Tel:(408)463-0885 x:105

Fax:(408)463-0888

e-mail:[mike.kuo@ccsemc.com](mailto:mike.kuo@ccsemc.com)

Web Site:[www.ccsemc.com](http://www.ccsemc.com)

---

**From:** [rfspectrum@gmail.com](mailto:rfspectrum@gmail.com) [mailto:[rfspectrum@gmail.com](mailto:rfspectrum@gmail.com)] **On Behalf Of** Tim Dwyer  
**Sent:** Tuesday, January 09, 2007 10:15 AM  
**To:** Mike Kuo  
**Subject:** Fwd: WJ COMMUNICATIONS INC, FCC ID: NTTWJM3000, Assessment NO.: AN06T6406, Notice#1

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★ from **Tim Dwyer** <Timothy\_Dwyer@ieee.org> [hide details](#) Jan 9 (3 days ago) [Reply](#) ▼  
to Thomas Cokenias <tom@tncokenias.org>  
date Jan 9, 2007 2:54 PM  
subject Re: WJ COMMUNICATIONS INC, FCC ID: NTTWJM3000, Assessment NO.: AN06T6406, Notice#1  
mailed-by gmail.com

Hi Tom,

Almost there. Two minor items left:

1. I already checked this with Mike. If you can replace the photo in the manual (page 8) with one showing the heatsink (like the ID label photo) it will be sufficient. I realize the photo in the manual does the heatsink, but it goes all the way to the photo border, so it looks only like a background.
2. The linear antenna document is great. Can you add the circular polarized antenna or provide a similar document?

Best regards.

Tim

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☆ from **Thomas Cokenias** <tom@tncokenias.org> [hide details](#) Jan 10 (2 days ago) [↩ Reply](#) ▼  
to Tim Dwyer <Timothy\_Dwyer@ieee.org>  
date Jan 10, 2007 5:23 PM  
subject Re: WJ COMMUNICATIONS INC, FCC ID: NTTWJM3000, Assessment NO.:  
AN06T6406, Notice#1

Hi Tim,

Attached is the manual with the photo you requested, along with the data sheet for the circularly polarized antenna.

Hope this does it but if you need more info, I'll get it to you as soon as I can.

best regards

Tom

On Jan 9, 2007, at 11:54 AM, Tim Dwyer wrote:

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office 650 726 1263

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