

Currently Display Inquiry Tracking Number: **194449**

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**Inquiry Details:**

First Inquiry Category: **Radio Service Rules**  
Second Inquiry Category: **Part 15 Intentional Radiators**  
Third Inquiry Category: **UNII devices - 15.401**

Hello!

We are looking at performing DFS tests on a series of products from our customer (Ubiquiti) that use very similar transceivers (actually identical transceivers with some small differences in layouts between the devices). We would like to propose a test plan that avoids having to fully test all of the different models (we would fully test one model and base tests on subsequent devices based on the radar waveform that was the most difficult to detect for each bandwidth). Each model supports up to 6 different channel bandwidths so the amount of testing if we had to fully evaluate each unit in each bandwidth would be considerable.

If the test plan is agreeable then we would also like to take advantage of the expedite process (if still available).

The test plan and product information will be attached to this inquiry. Any suggestions/comments necessary to make the plan acceptable would be appreciated.

Thanks

Mark

Mark Briggs

---Reply from Customer on 05/10/2011---

Following up to see if the Commission had any feedback on the proposal for reduction in DFS testing. We are expecting to complete the testing on the system with the lowest gain antenna in the next couple of weeks and would really appreciate any suggestions that could avoid fully testing the other models in the series.

Thanks

Mark

---Reply from Customer on 05/11/2011---

The devices are multiple bandwidth devices, supporting 6 different bandwidths (5, 8, 10, 20, 30 and 40 MHz) in MIMO modes and just the 20MHz bandwidth in SISO mode. We are proposing to fully test all 6 bandwidths for the device with the lowest gain antenna.

While I understand that each application must stand on its own, creating a single test report to cover the four different models based on fully testing one of the models and partial testing on the other models would seem to be a reasonable approach. Is there any additional information we can provide that would allow us to take that approach - either in terms of product details and/or in terms of the proposed tests to perform on the other samples? Extending the testing on the variants with higher gain antennas to do more than the detection probability for the "worst-case" radar types is an option? What about the worst case radar type in each bandwidth and confirm detection bandwidth on the narrow, mid and wide bandwidths (5, 20, 40 MHz)?

Similar approaches have been made for variants with depopulated boards where one version has been fully tested and others spot-checked.

I have re-attached the test plan, revised to better explain the number of operating bandwidths.

Many thanks,

Mark

---Reply from Customer on 06/17/2011---

We have updated the test plan to provide more information about the products, specifically the receive path. If it is easiest to discuss in person what additional information you might like please let me know and I can set up a conference call between the manufacturer and the FCC.

Many thanks,

Mark

---Reply from Customer on 06/29/2011---

Good morning!

We are getting close to completing the full suite of tests on the system with the lowest gain antenna and would appreciate some feedback on the proposed plan before starting an evaluation of the other products in the series. If a summary of results for the first device would help in the decision process please let me know.

Many thanks

Mark

---Reply from Customer on 12/22/2011---

FCC,

Would it be possible to change the email address associated with this KDB to svdoc@nts.com, as Mark Briggs is no longer with NTS/Elliott Labs?

On behalf of Ubiquiti, I have uploaded the following items:

1. Email correspondence between FCC and Ubiquiti concerning the use of an average measurement method for UNII out-of-band, non-restricted band emissions for a family of Ubiquiti devices
2. Email correspondence between FCC and Ubiquiti concerning request for further information about the non-standard bandwidths used by the Ubiquiti devices
3. DFS Test Plan\_rev4 - this incorporates the information provided in response to item (2) above.

Thanks,  
Mark Hill

**---Reply from Customer on 03/19/2012---**

Hi Andy,  
Please find attached the revised test plan which clarifies the test plan for each BW mode, updated FCC IDs and models.

We hope to add the RocketM5 model to the test plan, as this model is identical to all other M5 models. Only difference is the external antenna and form factor. DFS chip/radio chip are identical and operate the same as the other listed models.

Regards  
Jennifer

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**[Response\(s\):](#)**

**--OET response sent on May 11 2011 4:27PM--**

You are only required to have one MIMO transmission chain (spacial stream). This device appears to be a dual BW device (20/40 MHz). All BWs must be tested in full. It is not clear why you stated that there are 6 BWs. If there are 6 BWs they all must be tested in full. Since these are going to be submitted as separate FCC IDs, your proposal is unacceptable. All DFS tests will have to be performed in full for each device. Each application must stand on its own.

**--OET response sent on May 16 2011 1:55PM--**

**What are the differences between many ?very similar transceivers?? What are the product differences and why they need so many IDs? Have they considered a modular approach so that there is a need for only one approval?**

**--OET response sent on Jun 30 2011 3:44PM--**

Each filing must show individual device compliance. This means that each application must be tested with the lowest antenna gain. The test plan does not indicate how these devices will be filed. I assume that they will be multiple FCC IDs but there is no indication of how the various devices will be grouped together.

FYI: We will be paying particular attention to software configuration control (KDB 594280) for this applicant and all applicants in the future.

**--OET response sent on Jan 4 2012 4:09PM--**

Mark Briggs - The KDB system would not let me change the E-mail address so you will have to forward this response to [svdoc@nts.com](mailto:svdoc@nts.com). Thanks.

Management has approved your test plan v4. However, we may ask for some additional tests when we review the data or if there is too much variation in the results. Be sure to upload a copy of the approved test plan to the applicable applications.

**--OET response sent on Mar 19 2012 1:49PM--**

Your test plan (Revision 5)has been approved.