

Date: April 10, 2007
To: FCC
From: CCS
Re: Orthogonal (Motorola) EA397650 RT Question

These responses are to questions sent by Andrew Leimer on Thursday, April 5, 2007 to Michael Heckrotte of CCS.

1. How does the optimization in the system configuration page affect the performance level? For example:

- Link mode optimization: 1) IP traffic 2) TDM traffic -> how does either one affect RF channel loading based on duty cycle?

Response : As far as DFS is concerned there is no impact; TDM traffic is generally low rate but more sensitive to errors; the software is therefore more conservative in selecting higher order modulation modes in TDM mode. Everything else is the same

2. Link Symmetry: There are couple of ratio indicated here. Is the ratio representing the transmission time vs. receiving time? Why would only radar detection bandwidth test require the ratio to be set at 1:2 while the rest of the test use the symmetric link? According to the setup documentation on page 13 and 14, the link symmetry had to be changed from symmetric to test mode. What exactly does this change affect the system behavior?

Response: The reason for setting the ratio differently for the detection bandwidth test is that the FCC requirement for testing the Radar Detection Bandwidth says (Para 7.8.1 of FCC 06-96)

'Set the UUT up as a standalone device (no associated Client or Master, as appropriate) and no traffic. Frame based systems will be set to a talk/listen ratio of 0%/100% during this test.'

The PTP54400 product cannot be set to 100% receive mode; the TDD structure is always operating. We determined in our own testing that we could best demonstrate meeting the detection bandwidth requirements by testing with 1:2 assymetric mode as this gets closest to 100% receive mode on the Master (note that 1:2 is purely a test mode, not available on the production software). All other tests were performed with the TDD structure available to users.

3. Throughput optimization: What's the difference in optimizing between data and low latency? How does it affect the detection rate?

Response : Data Throughput allows for longer Transmit and Receive intervals, whereas Low Latency has a shorter Tx/Rx cycle to prevent queuing of packets. Data Throughput offers Tx/Rx intervals of 16/16 OFDM Symbols (Symmetric) or 16/8 (Assymmetric) where the first number refers to Master Tx Length. Low Latency operation is always 8/8.

Our simulations and tests showed that all options comfortably met the requirements but the worst case involved receive periods of 8 OFDM Symbols. As the Low Latency option is the factory default setting and that operates with a fixed receive period of 8 OFDM symbols, that mode selected for the formal DFS testing.