

## Coupling between antennas and the 5000HD DX Engineering receiver guard

The following tests were run to simulate a diversity-reception setup for a transceiver with dual receivers and separate antenna input ports.

I ran tests on the coupling level between my two 20m Yagis pointed at each other. Transmit antenna was a 204BA while receiving on the 203BA. The 203BA is approximately 200 feet south-south east of the 204BA.

Initial measurement of power level coming out of the 5000HD receiver guard was +16.4 dBm. Spec is +14 dBm with 10 watts input. Measurements were then made as to the absolute power impinging on the 5000D receiver guard.

It was necessary to put a 20-dB 50-watt attenuator between the receiving antenna and the termination feeding the Fluke 8920A. Listed below is the power level being absorbed by the receiver guard.

If an operator doesn't have a receiver guard, damage to a second receiver is almost certain at even 100 watts.

Transmit power	Power impinging on the receiver guard in dBm & watts	
100 watts	33.76 dBm	2.37 watts
1000 watts	43.75 dBm	23.7 watts
1500 watts	45.50 dBm	35.5 watts

No wonder the specified +14 dBm clamping level at 10 watts input was exceeded with my initial measurement. At first I thought a 10 watt power spec was overkill, but the 5000HD handled 35 watts of RF. If one considers some of the careless lash-ups that occur on Field Day, it is easy to see why equipment damage can occur.

While I would not normally be pointing my 20m beams at each other, the potential for damage from operator error is still there.

Rev C