

Contention Based Protocol (conducted) –Test Report

The following figure shows the conducted test setup, for testing the base-station interference threshold detection (BST – Unit Under Test). To establish a WiMax link, the test uses BST and CPE (Customer Premises Equipment). The CPE is Runcom's CPE (Runcom's remote terminal). Both BST and CPE are operating in normal operational mode. The BST is transmitting control and traffic, in downlink direction, at constant power. In parallel, BST is receiving, from CPE, the control and traffic, in uplink direction.

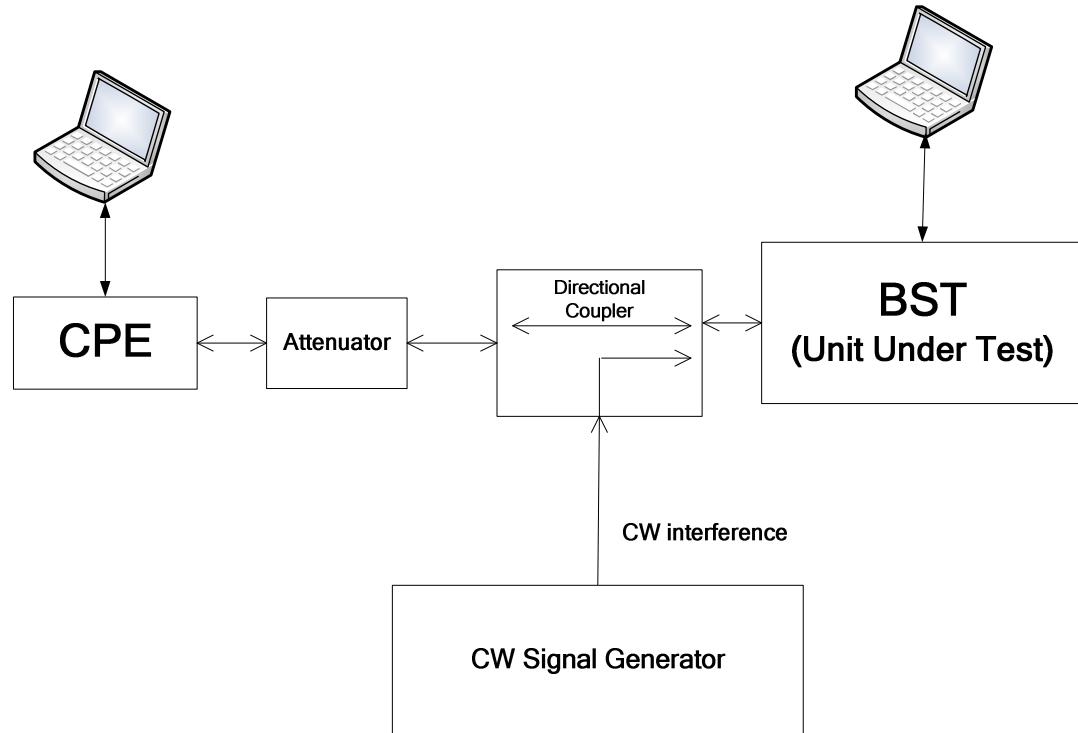


Figure 1: Contention Based interference detection - test setup

CW signal is coupled to the uplink WiMax signal. The setup tests the behavior of the BST, as a result of the frequency and the level, of the injected CW signal (interfering signal). When BST detects the CW signal and considers it as interfering signal, it remarks the existing frequency as interrupted frequency. Each test starts with CW signal level 10 dB, below the configured threshold. The level is increased, in 0.1dB steps, until interference detection is reached.

Measurements have been defined over the range of the configured interfering level detection: Four points have been chosen in the range: -92dBm, -82dBm, -72dBm and -62dBm.

The measurements have been performed in five frequency points:

1. Outside and below occupied BW ($F_c - 0.6BW$)
2. Inside at low and of occupied BW ($F_c - 0.4BW$)
3. Inside at the middle of occupied BW ($F_c + 0.01BW$)
4. Inside at high end of occupied BW ($F_c + 0.4BW$)
5. Outside and above occupied BW ($F_c + 0.6BW$)

The chosen F_c was the mid range of the unrestricted band = 3687.5MHz

Tests have been performed in two types of channel bandwidths: 10MHz and 5MHz.

The following tables show the detection results of different frequencies and power levels.

Configured Threshold	Fc-0.6BW Out-of-band	Fc-0.4BW In-band	Fc+0.1BW In-band	Fc+0.4BW In-band	Fc+0.6BW Out-of-band
-92dBm	-89.4 No	-92.8 Yes	-92.4 Yes	-92.8 Yes	-88.9 No
-82dBm	-79.6 No	-82.7 Yes	-82.5 Yes	-82.5 Yes	-79.6 No
-72dBm	-69.3 No	-72.6 Yes	-72.2 Yes	-72.4 Yes	-69.2 No
-62dBm	-59.4 No	-62.7 Yes	-62.3 Yes	-62.5 Yes	-59.6 No

Table 1: Test results @10MHz BW

Configured Threshold	Fc-0.6BW Out-of-band	Fc-0.4BW In-band	Fc+0.1BW In-band	Fc+0.4BW In-band	Fc+0.6BW Out-of-band
-92dBm	-89.1 No	-92.4 Yes	-92.3 Yes	-92.8 Yes	-89.1 No
-82dBm	-79.9 No	-82.6 Yes	-82.5 Yes	-82.4 Yes	-80.2 No
-72dBm	-69.4 No	-72.4 Yes	-72.4 Yes	-72.6 Yes	-69.5 No
-62dBm	-59.0 No	-62.6 Yes	-62.6 Yes	-62.4 Yes	-59.3 No

Table 2: Test results @5MHz BW

Notes:

1. “Yes” means contention was detected –BST and CPE stops transmitting at the Fc frequency.
“No” means contention was not detected - BST and CPE keeps transmitting at Fc frequency.
2. The test setup contains Runcom’s CPE, which is not certified by FCC, yet.
3. The BST under test FCC ID is: XYMPICO4A351WDC.
4. Details of equipments:
 - 4.1. CW Signal Generator: Agilent P/N: E4438C S/N: MY42082979
 - 4.2. Directional Coupler: M/A-COM P/N: 2025-6006-10

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