Link Performance Analysis of DASH7 Protocol

Anechoic Chamber Measurements:

The Anechoic Chamber (AC) link quality experiments are performed at SMRIMMS* with Tx-Rx separation of 2-14m. PER in anechoic chamber at 0dBm and 12.6dBm measurements are zero due to no human interference and isolated chamber.

RSSI metric in anechoic chamber is typical as it regularly decreases with increase in distance with average difference of 7-10dBm in RSSI for two power levels.

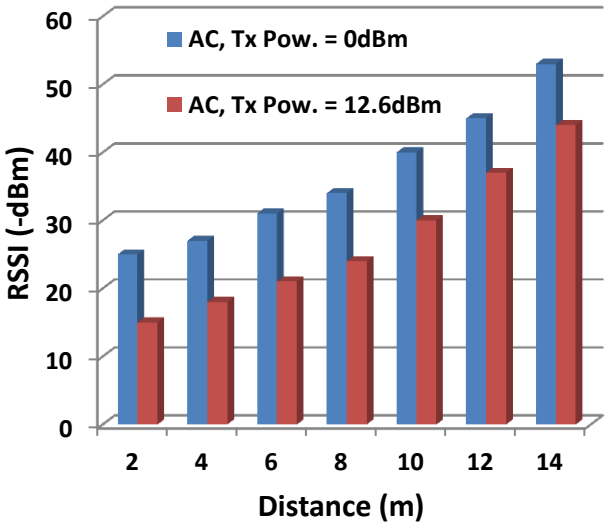

Fig. 1. RSSI in Anechoic Chamber (AC) at different power levels

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The LQI remains in the range of 47 to 51 for anechoic chamber environment which is good enough as compared to other link measurement environments.

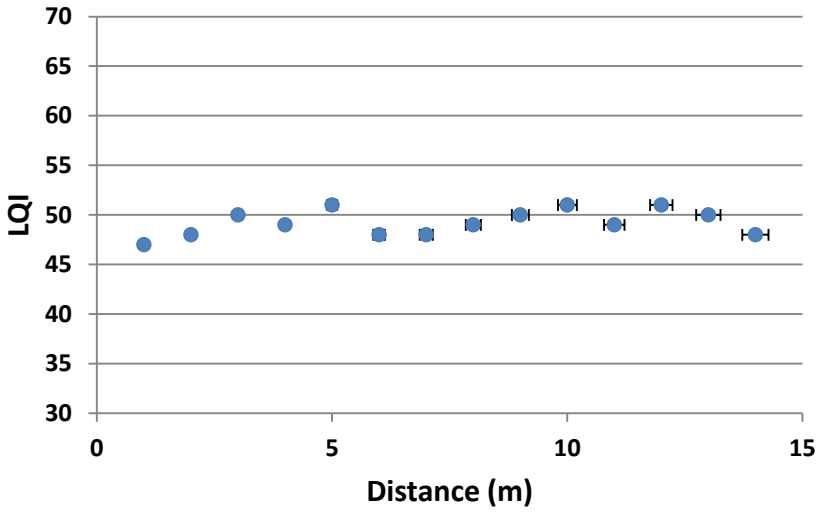

Fig. 2. LQI in Anechoic Chamber (AC) at different power levels

The link asymmetry is calculated by comparing RSSI difference between node A to node transmission, and node B to node A transmission. 40% packets are transmitted with 0dBm difference in RSSI whereas maximum difference in RSSI is recorded as 4dBm for hardly 6% packets.

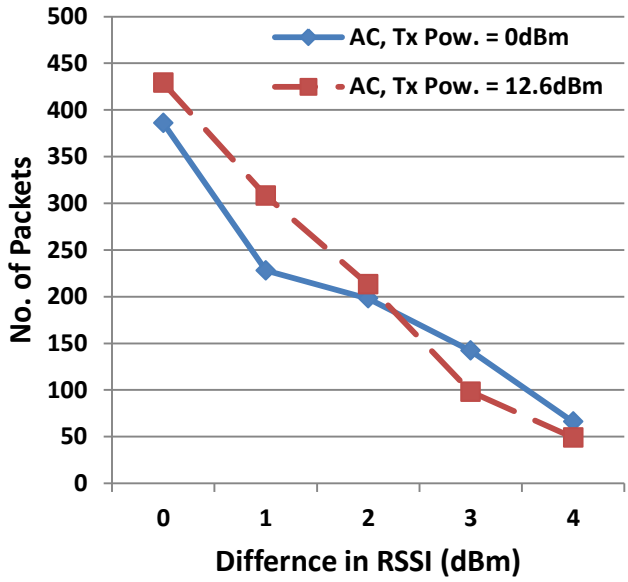

Fig. 3. Link Asymmetry in Anechoic Chamber (AC) at different power levels