

**RF Test Report**

Version 1.0

**Espressif**

Espressif Systems IOT Team

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# **Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision Version** | **Date** | **Changes** | **Owner** |
|  |  |  |  |

# Test Information

|  |  |
| --- | --- |
| Module Name: |  |
| PCB Version: |  |
| Sample number: |  |
| Test Engineer: |  |
| Test Date: |  |
| Test Place: |  |
| Test Equipment: |  |
| Test Bin |  |
| Cable loss/dB: |  |
| Backoff(4=1dB): |  |
| Other Description: |  |
| Note: | |

# Test Item Summary

## Trammiter (Tx) Performance

|  |  |  |
| --- | --- | --- |
| Table 2 | | |
| No. | Test Items | Pass/Fail |
| 1 | Maximum Tx Performance and EVM |  |
| 2 | Tx Spectrum Mask Margin |  |
| 3 | Tx Spectrum Flatness(11g/n only) |  |
| 4 | Tx Power-On and Power-Down Ramp (11b only) |  |
|  | | |

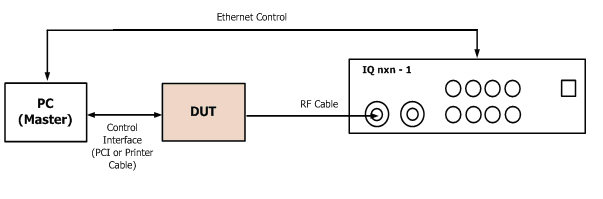
## Receiver (Rx) Performance

|  |  |  |
| --- | --- | --- |
| Table 3 | | |
| No. | Test Items | Pass/Fail |
| 1 | [Rx P](#PER_DynamicRange)[ac](#PER_DynamicRange)[ket Error Rate vs.](#PER_DynamicRange) [Dy](#PER_DynamicRange)[namic Range](#PER_DynamicRange) |  |
| 2 | [Rx Max](#RxMaxInput_Channel)[imum Input](#RxMaxInput_Channel) [Level v](#RxMaxInput_Channel)[s. Operation Channel](#RxMaxInput_Channel) |  |
| 3 | [Rx Sensitivity vs. Op](#RxSensitivity)[e](#RxSensitivity)[ration Channel](#RxSensitivity) |  |
| 4 | [Adjacent Channel Rejection](#AdjacentChannelRejection) | x |
|  | | |

# Transmiter (Tx) Performance

## Maximum Transmit Power and EVM

### Test Setup



**Figure 1: Wi-Fi Tx Performance Environment Setup**

Notes:

1. Configure the instrument setup as Figure 1 shows.
2. Select Tx Rate/Channel/BW as specified in the tables below.
3. Run the test script and record the test results.

### 11b Test Results

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Table 4 | | | | | | | | | | | | | | | | |
| **Mode: 11b** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **11 Mbps** | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | > 17 |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | <-10 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | ±25 |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Lo. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < 2 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Power&EVM |  | | | | | | | |  | | | | | | |  |

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| Table 5 | | | | | | | | | | | | | | | | |
| **Mode: 11b** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **1 Mbps** | |
| Pass/Fail |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | >17 |
| EVM(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | <-10 |
| Freq. Err(kHz) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | ±25 |
| Lo. Leakage(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | < 2 |
| IQ\_amp(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| Power&EVM |  | | | | | | |  | | | | | | | |  |

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| Table 6 | | | | | | | | | | | | | | | |
| **Mode: 11b** | | **Bandwidth: 20 MHz** | | | | | | | | | **Data Rate:** | | | **2 Mbps** | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | >17 |
| EVM(dB) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <-10 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ±25 |
| Lo. Leakage(dB) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | < 2 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Power&EVM |  | | | | | | |  | | | | | | |  |

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| Table 7 | | | | | | | | | | | | | | | | |
| **Mode: 11b** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **5.5 Mbps** | |
| Pass/Fail |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | >17 |
| EVM(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | <-10 |
| Freq. Err(kHz) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | ±25 |
| Lo. Leakage(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | < 2 |
| IQ\_amp(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |
| Power&EVM |  | | | | | | |  | | | | | | | |  |

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| Table 8 | | | | | | | | | | | | | | | | | |
| **Mode: 11g** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **54 Mbps** | | |
| Pass/Fail |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | Crt. |
| Channel |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |  |
| Output Power(dBm) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | > 12 |
| EVM(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | < -25 |
| Freq. Err(kHz) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | ± 25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |  |
| Mask |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |  |
| Power&EVM |  | | | | | | |  | | | | | | | |  | | |

### 11g Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Table 9 | | | | | | | | | | | | | | | | | |
| **Mode: 11g** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **6 Mbps** | | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | Crt. |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | >17 |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | ± 25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Power&EVM |  | | | | | | | |  | | | | | | |  | |

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| Table 10 | | | | | | | | | | | | | | | | | |
| **Mode: 11g** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **9 Mbps** | | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | Crt. |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | >17 |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | ± 25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Power&EVM |  | | | | | | | |  | | | | | | |  | |

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| Table 11 | | | | | | | | | | | | | | | | | |
| **Mode: 11g** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **12 Mbps** | | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | Crt. |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | >17 |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | ± 25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Power&EVM |  | | | | | | | |  | | | | | | |  | |

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| Table 12 | | | | | | | | | | | | | | | | | |
| **Mode: 11g** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **18 Mbps** | | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | Crt. |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | >17 |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | ± 25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | |  |
| Power&EVM |  | | | | | | | |  | | | | | | |  | |

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| Table 13 | | | | | | | | | | | | | | | | |
| **Mode: 11g** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **24 Mbps** | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | ± 25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Power&EVM |  | | | | | | | |  | | | | | | |  |

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| Table 14 | | | | | | | | | | | | | | | | | |
| **Mode: 11g** | | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **36 Mbps** | |
| Pass/Fail |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. |
| Channel |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Output Power(dBm) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 |
| EVM(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 |
| Freq. Err(kHz) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | ± 25 |
| Carr. Leakage(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 |
| IQ\_amp(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Mask |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Power&EVM | |  | | | | | | | |  | | | | | | |  |

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| Table 15 | | | | | | | | | | | | | | | | |
| **Mode: 11g** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **48 Mbps** | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | ± 25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Power&EVM |  | | | | | | | |  | | | | | | |  |

### 11n-20 Test Result

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| Table 16 | | | | | | | | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 20 MHz** | | | | | | | | | Table 40 | | | Table 40 | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | >12 |
| EVM(dB) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | < -27 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ±25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Power&EVM |  | | | | | | |  | | | | | | |  |

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| Table 17 | | | | | | | | | | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **MCS0** | | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. | |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 | |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 | |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | ±25 | |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 | |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Power&EVM |  | | | | | | | |  | | | | | | | |  |

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| Table 18 | | | | | | | | | | | | | | | | | | |
| **Mode: 11n-HT** | | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **MCS1** | | |
| Pass/Fail |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. | |
| Channel |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Output Power(dBm) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 | |
| EVM(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 | |
| Freq. Err(kHz) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Clk.Err(ppm) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | ±25 | |
| Carr. Leakage(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 | |
| IQ\_amp(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| IQ\_phase(deg) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Mask |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Power&EVM | |  | | | | | | | |  | | | | | | | |  |

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| Table 19 | | | | | | | | | | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **MCS2** | | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. | |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 | |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 | |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | ±25 | |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 | |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Power&EVM |  | | | | | | | |  | | | | | | | |  |

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| Table 20 | | | | | | | | | | | | | | | | | | |
| **Mode: 11n-HT** | | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **MCS3** | | |
| Pass/Fail |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. | |
| Channel |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Output Power(dBm) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 | |
| EVM(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 | |
| Freq. Err(kHz) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Clk.Err(ppm) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | ±25 | |
| Carr. Leakage(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 | |
| IQ\_amp(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| IQ\_phase(deg) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Mask |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Power&EVM | |  | | | | | | | |  | | | | | | | |  |

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| Table 21 | | | | | | | | | | | | | | | | | | |
| **Mode: 11n-HT** | | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **MCS4** | | |
| Pass/Fail | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. | |
| Channel | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Output Power(dBm) | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 | |
| EVM(dB) | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 | |
| Freq. Err(kHz) | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Clk.Err(ppm) | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | ±25 | |
| Carr. Leakage(dB) | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 | |
| IQ\_amp(dB) | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| IQ\_phase(deg) | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Mask | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Power&EVM |  | | | | | | | | |  | | | | | | | |  |

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| Table 22 | | | | | | | | | | | | | | | | | | |
| **Mode: 11n-HT** | | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **MCS5** | | |
| Pass/Fail |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. | |
| Channel |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Output Power(dBm) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 | |
| EVM(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 | |
| Freq. Err(kHz) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Clk.Err(ppm) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | ±25 | |
| Carr. Leakage(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 | |
| IQ\_amp(dB) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| IQ\_phase(deg) |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Mask |  | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Power&EVM | |  | | | | | | | |  | | | | | | | |  |

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| Table 23 | | | | | | | | | | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 20 MHz** | | | | | | | | | | **Data Rate:** | | | **MCS6** | | |
| Pass/Fail |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | Crt. | |
| Channel |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Output Power(dBm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | >17 | |
| EVM(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -5 | |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Clk.Err(ppm) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | ±25 | |
| Carr. Leakage(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  | < -15 | |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Mask |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | |
| Power&EVM |  | | | | | | | |  | | | | | | | |  |

### 11n-40 Test Result

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| Table 24 | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 40 MHz** | | | | **Data Rate:** | | **MCS7** |
| Pass/Fail |  |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  | > 12 |
| EVM(dB) |  |  |  |  |  |  |  | < -30 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  | ±25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  |
| Power&EVM |  | | | |  | | | |

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| Table 25 | | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 40 MHz** | | | | | **Data Rate:** | | **MCS0** |
| Pass/Fail |  |  |  |  | |  |  |  | Crt. |
| Channel |  |  |  |  | |  |  |  |  |
| Output Power(dBm) |  |  |  |  | |  |  |  | > 17 |
| EVM(dB) |  |  |  |  | |  |  |  | < -5 |
| Freq. Err(kHz) |  |  |  |  | |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  | |  |  |  | ±25 |
| Carr. Leakage(dB) |  |  |  |  | |  |  |  | < -15 |
| IQ\_amp(dB) |  |  |  |  | |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  | |  |  |  |  |
| Mask |  |  |  |  | |  |  |  |  |
| Power&EVM |  | | | |  | | | | |

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| Table 26 | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 40 MHz** | | | | **Data Rate:** | | **MCS1** |
| Pass/Fail |  |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  | > 17 |
| EVM(dB) |  |  |  |  |  |  |  | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  | ±25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  |
| Power&EVM |  | | | |  | | | |

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| Table 27 | | | | | | | | | | |
| **Mode: 11n-HT** | | | **Bandwidth: 40 MHz** | | | | | **Data Rate:** | | **MCS2** |
| Pass/Fail | |  |  |  |  | |  |  |  | Crt. |
| Channel | |  |  |  |  | |  |  |  |  |
| Output Power(dBm) | |  |  |  |  | |  |  |  | > 17 |
| EVM(dB) | |  |  |  |  | |  |  |  | < -5 |
| Freq. Err(kHz) | |  |  |  |  | |  |  |  |  |
| Clk.Err(ppm) | |  |  |  |  | |  |  |  | ±25 |
| Carr. Leakage(dB) | |  |  |  |  | |  |  |  | < -15 |
| IQ\_amp(dB) | |  |  |  |  | |  |  |  |  |
| IQ\_phase(deg) | |  |  |  |  | |  |  |  |  |
| Mask | |  |  |  |  | |  |  |  |  |
| Power&EVM |  | | | | |  | | | | |

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| Table 28 | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 40 MHz** | | | | **Data Rate:** | | **MCS3** |
| Pass/Fail |  |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  | > 17 |
| EVM(dB) |  |  |  |  |  |  |  | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  | ±25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  |
| Power&EVM |  | | | |  | | | |

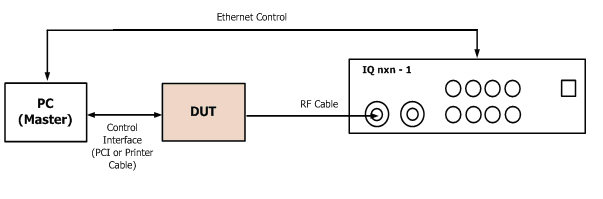
|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 29 | | | | | | | | | | |
| **Mode: 11n-HT** | | | **Bandwidth: 40 MHz** | | | | | **Data Rate:** | | **MCS4** |
| Pass/Fail | |  |  |  |  | |  |  |  | Crt. |
| Channel | |  |  |  |  | |  |  |  |  |
| Output Power(dBm) | |  |  |  |  | |  |  |  | > 17 |
| EVM(dB) | |  |  |  |  | |  |  |  | < -5 |
| Freq. Err(kHz) | |  |  |  |  | |  |  |  |  |
| Clk.Err(ppm) | |  |  |  |  | |  |  |  | ±25 |
| Carr. Leakage(dB) | |  |  |  |  | |  |  |  | < -15 |
| IQ\_amp(dB) | |  |  |  |  | |  |  |  |  |
| IQ\_phase(deg) | |  |  |  |  | |  |  |  |  |
| Mask | |  |  |  |  | |  |  |  |  |
| Power&EVM |  | | | | |  | | | | |

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| Table 30 | | | | | | | | |
| **Mode: 11n-HT** | | **Bandwidth: 40 MHz** | | | | **Data Rate:** | | **MCS5** |
| Pass/Fail |  |  |  |  |  |  |  | Crt. |
| Channel |  |  |  |  |  |  |  |  |
| Output Power(dBm) |  |  |  |  |  |  |  | > 17 |
| EVM(dB) |  |  |  |  |  |  |  | < -5 |
| Freq. Err(kHz) |  |  |  |  |  |  |  |  |
| Clk.Err(ppm) |  |  |  |  |  |  |  | ±25 |
| Carr. Leakage(dB) |  |  |  |  |  |  |  | < -15 |
| IQ\_amp(dB) |  |  |  |  |  |  |  |  |
| IQ\_phase(deg) |  |  |  |  |  |  |  |  |
| Mask |  |  |  |  |  |  |  |  |
| Power&EVM |  | | | |  | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 31 | | | | | | | | | | |
| **Mode: 11n-HT** | | | **Bandwidth: 40 MHz** | | | | | **Data Rate:** | | **MCS6** |
| Pass/Fail | |  |  |  |  |  | |  |  | Crt. |
| Channel | |  |  |  |  |  | |  |  |  |
| Output Power(dBm) | |  |  |  |  |  | |  |  | > 17 |
| EVM(dB) | |  |  |  |  |  | |  |  | < -5 |
| Freq. Err(kHz) | |  |  |  |  |  | |  |  |  |
| Clk.Err(ppm) | |  |  |  |  |  | |  |  | ±25 |
| Carr. Leakage(dB) | |  |  |  |  |  | |  |  | < -15 |
| IQ\_amp(dB) | |  |  |  |  |  | |  |  |  |
| IQ\_phase(deg) | |  |  |  |  |  | |  |  |  |
| Mask | |  |  |  |  |  | |  |  |  |
| Power&EVM |  | | | | | |  | | | |

## Transmit Spectrum Mask Margin

### Test Setup



### 11b Test Result

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 32 | | | | | | | | | | |
| Mode: 11b | | Bandwidth: 20 MHz | | | | Data Rate: 1 Mbps | | | | |
| Channel | 1 | | | 6 | | | 11 | | 13 | |
| Test item | Freq | | Margin | Freq | Margin | | Freq | Margin | Freq | Margin |
| Pass/Fail |  | |  |  |  | |  |  |  |  |
| Lower 2 |  | |  |  |  | |  |  |  |  |
| Lower 1 |  | |  |  |  | |  |  |  |  |
| Upper 1 |  | |  |  |  | |  |  |  |  |
| Upper 2 |  | |  |  |  | |  |  |  |  |
| Note: Tx Power > 15 dBm (Table 33 of python) | | | | | | | | | | |

### 11g Test Result

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 33 | | | | | | | | | | |
| Mode: 11g | | Bandwidth: 20 MHz | | | | Data Rate: 6 Mbps | | | | |
| Channel | 1 | | | 6 | | | 11 | | 13 | |
| Test item | Freq | | Margin | Freq | Margin | | Freq | Margin | Freq | Margin |
| Pass/Fail |  | |  |  |  | |  |  |  |  |
| Lower 4 |  | |  |  |  | |  |  |  |  |
| Lower 3 |  | |  |  |  | |  |  |  |  |
| Lower 2 |  | |  |  |  | |  |  |  |  |
| Lower 1 |  | |  |  |  | |  |  |  |  |
| Upper 1 |  | |  |  |  | |  |  |  |  |
| Upper 2 |  | |  |  |  | |  |  |  |  |
| Upper 3 |  | |  |  |  | |  |  |  |  |
| Upper 4 |  | |  |  |  | |  |  |  |  |
| Note: Tx Power > 15 dBm (Table 34 of python) | | | | | | | | | | |

### 11n-20 Test Result

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 34 | | | | | | | | | | |
| Mode: 11n | | Bandwidth: 20 MHz | | | | Data Rate: MCS0 | | | | |
| Channel | 1 | | | 6 | | | 11 | | 13 | |
| Test item | Freq | | Margin | Freq | Margin | | Freq | Margin | Freq | Margin |
| Pass/Fail |  | |  |  |  | |  |  |  |  |
| Lower 4 |  | |  |  |  | |  |  |  |  |
| Lower 3 |  | |  |  |  | |  |  |  |  |
| Lower 2 |  | |  |  |  | |  |  |  |  |
| Lower 1 |  | |  |  |  | |  |  |  |  |
| Upper 1 |  | |  |  |  | |  |  |  |  |
| Upper 2 |  | |  |  |  | |  |  |  |  |
| Upper 3 |  | |  |  |  | |  |  |  |  |
| Upper 4 |  | |  |  |  | |  |  |  |  |
| Note: Tx Power > 15 dBm (Table 35 of python) | | | | | | | | | | |

### 11n-40 Test Result

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 35 | | | | | | | | | | |
| Mode: 11n | | Bandwidth: 40 MHz | | | | Data Rate: MCS0 | | | | |
| Channel | 3 | | | 5 | | | 7 | | 9 | |
| Test item | Freq | | Margin | Freq | Margin | | Freq | Margin | Freq | Margin |
| Pass/Fail |  | |  |  |  | |  |  |  |  |
| Lower 4 |  | |  |  |  | |  |  |  |  |
| Lower 3 |  | |  |  |  | |  |  |  |  |
| Lower 2 |  | |  |  |  | |  |  |  |  |
| Lower 1 |  | |  |  |  | |  |  |  |  |
| Upper 1 |  | |  |  |  | |  |  |  |  |
| Upper 2 |  | |  |  |  | |  |  |  |  |
| Upper 3 |  | |  |  |  | |  |  |  |  |
| Upper 4 |  | |  |  |  | |  |  |  |  |
| Note: Tx Power > 15 dBm (Table 36 of python) | | | | | | | | | | |

## Transmit Spectrum Flatness

### **Test Setup**

Same as [Maximum Transmit Power](#TxPowerChannel)  and EVM

### Test Result

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 36 | | | | | | |
| Mode: 11g | | Bandwidth: 20 MHz | | Data Rate: 54 Mbps | | |
| Channel |  | |  | |  |  |
| Pass/Fail |  | |  | |  |  |
| Note: Tx Power > 13 dBm (Table 37of python) | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 37 | | | | | | |
| Mode: 11n-HT | | Bandwidth: 20 MHz | | Data Rate: MCS7 | | |
| Channel |  | |  | |  |  |
| Pass/Fail |  | |  | |  |  |
| Note: Tx Power > 13 dBm (Table 43 of python) | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 38 | | | | | | |
| Mode: 11n-HT | | Bandwidth: 40 MHz | | Data Rate: MCS7 | | |
| Channel |  | |  | |  |  |
| Pass/Fail |  | |  | |  |  |
| Note: Tx Power > 13 dBm (Table 44 of python) | | | | | | |

## Transmit Power-On and Power-Down Ramp

### **Test Setup**

Same as [Maximum Transmit Powe](#TxPowerChannel)[r Profile vs. Operation Channel](#TxPowerChannel)

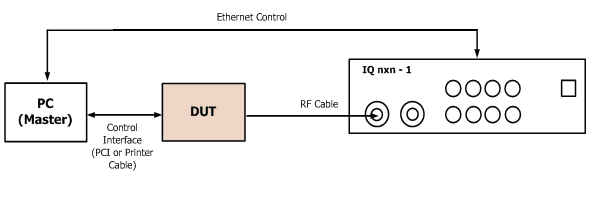
### Test Result

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Table 39 | | | | | | | |
| Mode: 11b | | Bandwidth: 20 MHz | | | Data Rate: 1 Mbps | | |
| Pass/Fail |  | |  |  | |  | Crt. |
| Channel |  | |  |  | |  |  |
| Ramp Up(μs) |  | |  |  | |  | <= 2 |
| Ramp Down(μs) |  | |  |  | |  | <= 2 |
| Note: Tx Power > 17 dBm (Table 45 of python) | | | | | | | |

# Receiver (Rx) Performance

## Received Packet Error Rate vs. Dynamic Range

### **Test Setup**



**Figure 2: Wi-Fi Rx Performance Environment Setup**

Notes :

1. Configure the instrument setup as Figure 2 above shows.
2. Select Test Channel/BW as specified in the tables below.
3. Run the test script and record the test results.

### 11b Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 40 | | | | | | | | | | | | | | |
| Mode: 11b | | | | Bandwidth: 20 MHz | | | | | Data Rate: 11M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 41 | | | | | | | | | | | | | | |
| Mode: 11b | | | | Bandwidth: 20 MHz | | | | | Data Rate: 2M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 42 | | | | | | | | | | | | | | |
| Mode: 11b | | | | Bandwidth: 20 MHz | | | | | Data Rate: 5.5M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 43 | | | | | | | | | | | | | | |
| Mode: 11b | | | | Bandwidth: 20 MHz | | | | | Data Rate: 1M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

### 11g Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 44 | | | | | | | | | | | | | | |
| Mode: 11g | | | | Bandwidth: 20 MHz | | | | | Data Rate: 6M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 45 | | | | | | | | | | | | | | |
| Mode: 11g | | | | Bandwidth: 20 MHz | | | | | Data Rate: 9M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 46 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: 12M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 47 | | | | | | | | | | | | | | |
| Mode: 11g | | | | Bandwidth: 20 MHz | | | | | Data Rate: 18M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 48 | | | | | | | | | | | | | | |
| Mode: 11g | | | | Bandwidth: 20 MHz | | | | | Data Rate: 24M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 49 | | | | | | | | | | | | | | |
| Mode: 11g | | | | Bandwidth: 20 MHz | | | | | Data Rate: 36M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 50 | | | | | | | | | | | | | | |
| Mode: 11g | | | | Bandwidth: 20 MHz | | | | | Data Rate: 48M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 51 | | | | | | | | | | | | | | |
| Mode: 11g | | | | Bandwidth: 20 MHz | | | | | Data Rate: 54M | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

### 11n-20 Test Result

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| Table 52 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: MCS0 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 53 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: MCS1 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 54 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: MCS2 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 55 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: MCS3 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 56 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: MCS4 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 57 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: MCS5 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 58 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: MCS6 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 59 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 20 MHz | | | | | Data Rate: MCS7 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

### 11n-40 Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 60 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 40 MHz | | | | | Data Rate: MCS0 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| Table 61 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 40 MHz | | | | | Data Rate: MCS1 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 62 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 40 MHz | | | | | Data Rate: MCS2 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 63 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 40 MHz | | | | | Data Rate: MCS3 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 64 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 40 MHz | | | | | Data Rate: MCS4 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 65 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 40 MHz | | | | | Data Rate: MCS5 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 66 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 40 MHz | | | | | Data Rate: MCS6 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 67 | | | | | | | | | | | | | | |
| Mode: 11n | | | | Bandwidth: 40 MHz | | | | | Data Rate: MCS7 | | | | | |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Channel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Maxlevel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rx\_Sens |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DR by Channel |  | | | | | | | | | | | | | |

## Received Maximum Input Level vs. Operation Channel

### **Test Setup**

Same as [Receive Packet Error Rate vs. Dynamic Range](#PER_DynamicRange)

### 11b Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 68 | | | | | | | | | | | | | | |
| Mode: 11b | | | |  | | | | | Bandwidth: 20 MHz | | | | | |
| Channel | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5.5M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Note: Criterion: >= -5 dBm (Table 50 of python) | | | | | | | | | | | | | | |

### 11g Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 69 | | | | | | | | | | | | | | |
| Mode: 11g | | | |  | | | | | Bandwidth: 20 MHz | | | | | |
| Channel | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 54M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 48M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 36M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Note: Criterion: >= -5 dBm (Table 51 of python) | | | | | | | | | | | | | | |

### 11n-20 Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 70 | | | | | | | | | | | | | | |
| Mode: 11n-HT | | | |  | | | | | Bandwidth: 20 MHz | | | | | |
| Channel | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Note: Criterion: >= -5 dBm (Table 52 of python) | | | | | | | | | | | | | | |

### 11n-40 Test Result

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Table 71 | | | | | | | |
| Mode: 11n-HT | |  | | | Bandwidth: 40 MHz | | |
| Channel | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Pass/Fail |  |  |  |  |  |  |  |
| MCS7 |  |  |  |  |  |  |  |
| MCS6 |  |  |  |  |  |  |  |
| MCS5 |  |  |  |  |  |  |  |
| MCS4 |  |  |  |  |  |  |  |
| MCS3 |  |  |  |  |  |  |  |
| MCS2 |  |  |  |  |  |  |  |
| MCS1 |  |  |  |  |  |  |  |
| MCS0 |  |  |  |  |  |  |  |
| Note: Criterion: >= -5 dBm (Table 53 of python) | | | | | | | |

## Received Sensitivity vs. Operation Channel

### **Test Setup**

Same as [Receive Packet Error Rate vs. Dynamic Range](#PER_DynamicRange)

### 11b Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 72 | | | | | | | | | | | | | | | |
| Mode: 11b | | | |  | | | | | | Bandwidth: 20 MHz | | | | | |
| Channel | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Crt. |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -85 |
| 5.5M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -88 |
| 2M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -91 |
| 1M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -94 |

### 11g Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 73 | | | | | | | | | | | | | | | |
| Mode: 11g | | | |  | | | | | | Bandwidth: 20 MHz | | | | | |
| Channel | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Crt. |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 54M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -71 |
| 48M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -72 |
| 36M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -76 |
| 24M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -80 |
| 18M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -83 |
| 12M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -85 |
| 9M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -87 |
| 6M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -88 |

### 11n-20 Test Result

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 74 | | | | | | | | | | | | | | | |
| Mode: HT-11n | | | |  | | | | | | Bandwidth: 20 MHz | | | | | |
| Channel | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Crt. |
| Pass/Fail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCS7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -70 |
| MCS6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -71 |
| MCS5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -72 |
| MCS4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -76 |
| MCS3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -80 |
| MCS2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -83 |
| MCS1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -85 |
| MCS0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ≤ -88 |

### 11n-40 Test Result

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 75 | | | | | | | | |
| Mode: HT-11n | | | |  | | Bandwidth: 40 MHz | | |
| Channel | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Crt. |
| Pass/Fail |  |  |  |  |  |  |  |  |
| MCS7 |  |  |  |  |  |  |  | ≤ -67 |
| MCS6 |  |  |  |  |  |  |  | ≤ -68 |
| MCS5 |  |  |  |  |  |  |  | ≤ -69 |
| MCS4 |  |  |  |  |  |  |  | ≤ -73 |
| MCS3 |  |  |  |  |  |  |  | ≤ -77 |
| MCS2 |  |  |  |  |  |  |  | ≤ -80 |
| MCS1 |  |  |  |  |  |  |  | ≤ -82 |
| MCS0 |  |  |  |  |  |  |  | ≤ -85 |

# Conclusions



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