

NI Measurement Suite for Mobile WiMAX Specifications

Version 1.0

This document lists specifications for the NI Measurement Suite for Mobile WiMAX.

These specifications are representative and cannot be guaranteed for different frame configurations. In addition, these specifications cannot be guaranteed on all units shipped from the factory.

Specifications subject to change without notice. For the most recent toolkit specifications, visit ni.com/manuals.

The data sheet for the NI Measurement Suite for Mobile WiMAX contains an overview of the product, including information about the various measurements and configurations the product supports. Refer to ni.com for the data sheet.

Generation

Frequency range

NI PXIe-5673 10 MHz to 6.6 GHz

ISM band Supported by NI PXIe-5673

Absolute amplitude accuracy Refer to the NI PXIe-5673 specifications.

Amplitude resolution Refer to the NI PXIe-5673 specifications.

Recommended operating average signal power -6 dBm to -30 dBm

Downlink

The generation specifications for downlink were derived using the following configuration:

- FFT length: 1,024
- Cyclic prefix: 1/8
- Nominal bandwidth: 10 MHz
- Duplex mode: DL only (FDD)
- Preamble index: 0
- Frame duration: 0.005 seconds
- Number of zones: 1
- Zone number of symbols: 40
- Number of bursts: 1
- Burst modulation and coding scheme: 64-QAM CC 1/2
- Symbol offset: 2
- Subchannel offset: 0
- Number of symbols: 38
- Number of subchannels: 30
- Fragmentation enabled: False
- Payload length: 10,260 bytes
- Payload type: PN Sequence
- PN order: 31
- DL-MAP enabled: True
- DL-MAP assigned slots: 26
- Maximum expected PAPR: 8 dB
- Number of averages: 10

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	RMS EVM (in dB)
-10	2.5	< -48
-20	2.5	< -47
-30	2.5	< -45
-10	3.5	< -45
-20	3.5	< -44
-30	3.5	< -43
-10	5.8	< -45
-20	5.8	< -44
-30	5.8	< -43

Uplink

The generation specifications for uplink were derived using the following configuration:

- FFT length: 1,024
- Cyclic prefix: 1/8
- Nominal bandwidth: 10 MHz
- Duplex mode: UL only (FDD)
- Preamble index: 0
- Frame duration: 0.005 seconds
- Number of zones: 1
- Zone type: PUSC
- Zone number of symbols: 39
- Number of bursts: 1
- Burst modulation and coding scheme: 64-QAM CC 1/2
- Burst number of slots: 455
- Fragmentation enabled: False
- Payload length: 8,190 bytes
- Payload type: PN Sequence
- PN order: 31
- Maximum expected PAPR: 12 dB
- Number of averages: 10

Residual RMS EVM with NI PXIe-5673

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	RMS EVM (in dB)
-10	2.5	< -48
-20	2.5	< -47
-30	2.5	< -45
-10	3.5	< -46
-20	3.5	< -45
-30	3.5	< -43
-10	5.8	< -46
-20	5.8	< -45
-30	5.8	< -43

Analysis

Frequency range

NI PXIe-566310 MHz to 6.6 GHz

ISM bandSupported by NI PXIe-5663

Maximum IF bandwidth

NI PXIe-566350 MHz

Frequency measurement accuracyRefer to the NI PXIe-5663 specifications.

Recommended average power

measurement range0 dBm to -30 dBm

Power measurement accuracyRefer to the NI PXIe-5663 specifications.

Downlink

The analysis specifications for downlink were derived using the following configuration:

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- Cyclic prefix: 1/8
- Nominal bandwidth: 10 MHz
- Duplex mode: DL only (FDD)
- Preamble index: 0
- Frame duration: 0.005 seconds
- Number of zones: 1
- Zone number of symbols: 40
- Number of bursts: 1
- Burst modulation and coding scheme: 64-QAM CC 1/2
- Symbol offset: 2
- Subchannel offset: 0
- Number of symbols: 38
- Number of subchannels: 30
- Fragmentation enabled: False
- Payload length: 10,260 bytes
- Payload type: PN Sequence
- PN order: 31
- DL-MAP enabled: True
- DL-MAP assigned slots: 26
- Maximum expected PAPR: 8 dB
- Number of averages: 100

Residual RMS EVM with NI PXIe-5663

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	RMS EVM (in dB)
-10	2.5	< -49
-20	2.5	< -46
-30	2.5	< -45
-10	3.5	< -45
-20	3.5	< -43
-30	3.5	< -43
-10	5.8	< -43
-20	5.8	< -42
-30	5.8	< -41

RMS EVM standard deviation with NI PXIe-5663

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	RMS EVM Standard Deviation (in dB)
-10	2.5	< 0.160
-20	2.5	< 0.143
-30	2.5	< 0.078
-10	3.5	< 0.295
-20	3.5	< 0.167
-30	3.5	< 0.162
-10	5.8	< 0.253
-20	5.8	< 0.239
-30	5.8	< 0.148

Transmit power standard deviation with NI PXIe-5663

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	Transmit Power Standard Deviation (in dB)
-10	2.5	< 0.012
-20	2.5	< 0.028
-30	2.5	< 0.017
-10	3.5	< 0.024
-20	3.5	< 0.020
-30	3.5	< 0.022
-10	5.8	< 0.010
-20	5.8	< 0.006
-30	5.8	< 0.006

Maximum adjacent subcarrier power difference with NI PXIe-5663

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	Maximum adjacent subcarrier power difference (in dB)
-10	2.5	< 0.033
-20	2.5	< 0.044
-30	2.5	< 0.055
-10	3.5	< 0.046
-20	3.5	< 0.059
-30	3.5	< 0.062
-10	5.8	< 0.059
-20	5.8	< 0.057
-30	5.8	< 0.076

Uplink

The analysis specifications for uplink were derived using the following configuration:

- FFT length: 1,024
- Cyclic prefix: 1/8
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- Preamble index: 0
- Frame duration: 0.005 seconds
- Number of zones: 1
- Zone type: PUSC
- Zone number of symbols: 39
- Number of bursts: 1
- Burst modulation and coding scheme: 64-QAM CC 1/2
- Burst number of slots: 455
- Fragmentation enabled: False
- Payload length: 8,190 bytes
- Payload type: PN Sequence
- PN order: 31
- Maximum expected PAPR: 12 dB
- Number of averages: 100

Residual RMS EVM with NI PXIe-5663

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	RMS EVM (in dB)
-10	2.5	< -48
-20	2.5	< -49
-30	2.5	< -46
-10	3.5	< -45
-20	3.5	< -45
-30	3.5	< -43
-10	5.8	< -43
-20	5.8	< -43
-30	5.8	< -42

RMS EVM standard deviation with NI PXIe-5663

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	RMS EVM Standard Deviation (in dB)
-10	2.5	< 0.212
-20	2.5	< 0.208
-30	2.5	< 0.141
-10	3.5	< 0.324
-20	3.5	< 0.279
-30	3.5	< 0.242
-10	5.8	< 0.332
-20	5.8	< 0.327
-30	5.8	< 0.267

Transmit power standard deviation with NI PXIe-5663

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	Transmit Power Standard Deviation (in dB)
-10	2.5	< 0.029
-20	2.5	< 0.018
-30	2.5	< 0.033
-10	3.5	< 0.047
-20	3.5	< 0.047
-30	3.5	< 0.045
-10	5.8	< 0.022
-20	5.8	< 0.011
-30	5.8	< 0.020

Maximum adjacent subcarrier power difference with NI PXIe-5663

Average Burst Power (in dBm)	Carrier Frequency (in GHz)	Maximum adjacent subcarrier power difference (in dB)
-10	2.5	< 0.028
-20	2.5	< 0.032
-30	2.5	< 0.049
-10	3.5	< 0.040
-20	3.5	< 0.047
-30	3.5	< 0.080
-10	5.8	< 0.053
-20	5.8	< 0.052
-30	5.8	< 0.060

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