NI WCDMA/HSPA+ Toolkit Specifications

Version 1.0

This document lists specifications for the NI WCDMA/HSPA+ Toolkit.

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

The data sheet for the NI WCMDA/HSPA+ Toolkit 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-5673/5673E ..... 85 MHz to 6.6 GHz

Absolute amplitude accuracy ..... Refer to the *NI PXIe-5673 Specifications* or *NI PXIe-5673E Specifications*.

Amplitude resolution..... Refer to the *NI PXIe-5673 Specifications* or *NI PXIe-5673E Specifications*.

NATIONAL INSTRUMENTS

Downlink

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

- Carrier frequency: 1 GHz, 1.5 GHz, 2.5 GHz
- Power level: –10 dBm to –50 dBm
- Duplex mode: DL Only (FDD)
- Signal configuration: TM6 (8 HSPDSCH/30 DPCH)
- Auto headroom enabled: True
- DL scrambling code type: Standard
- DL primary scrambling code: 0
- DL scrambling code offset: 0
- Payload data type: PN Sequence
- Payload PN order: 15

Residual RMS EVM

Residual RMS EVM with the NI PXIe-5673/5673E

Typical .....< 0.5%

Maximum.....< 1%

ACLR Dynamic Range

Adjacent channel leakage power ratio (ACLR) is the ratio of the RRC filtered mean power centered on the adjacent channel frequency to the assigned channel frequency.

ACLR signal configuration .....TM1 (64 DPCH)

ACLR Dynamic Range with the NI PXIe-5673

Offset Frequency (MHz)	Signal Average Power (dBm)	ACLR Dynamic Range (dB) (typical)
±5	–12	< –69
±10	–6	< –66

Uplink

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

- Carrier frequency: 1 GHz, 1.5 GHz, 2.5 GHz
- Power level: –10 dBm to –50 dBm
- Duplex mode: UL Only (FDD)
- Signal configuration: 1 DPCCH + 1 DPDCH
- Auto headroom enabled: True
- UL number of channels: 2
- UL frame type: Non-PRACH
- UL scrambling code type: Long
- DPCCH slot format: 0 (SF=256)
- DPDCH slot format: 0 (SF=256)
- DPCCH relative power: –3 dB
- DPDCH relative power: –3 dB
- DPDCH branch: I
- DPDCH spreading code: 2
- DPDCH payload data type: PN Sequence
- DPDCH payload PN order: 15

Residual RMS EVM

Residual RMS EVM with the NI PXIe-5673/5673E

Typical ..... < 0.4%

Maximum ..... < 0.5%

ACLR Dynamic Range

Adjacent channel leakage power ratio (ACLR) is the ratio of the RRC filtered mean power centered on the adjacent channel frequency to the assigned channel frequency.

ACLR Dynamic Range with the NI PXIe-5673E

Offset Frequency (MHz)	Signal Average Power (dBm)	ACLR Dynamic Range (dB) (typical)
±5	–11	< –72
±10	–13	< –68

Analysis

Frequency range
NI PXIe-5663/5663E.....10 MHz to 6.6 GHz

ISM band .....Supported by NI PXIe-5663/5663E

Maximum IF bandwidth
NI PXIe-5663/5663E.....50 MHz

Frequency measurement accuracy.....Refer to the *NI PXIe-5663 Specifications* or *NI PXIe-5663E Specifications*.

Power measurement accuracy.....Refer to the *NI PXIe-5663 Specifications* or *NI PXIe-5663E Specifications*.

Downlink

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

- Carrier frequency: 1 GHz, 1.5 GHz, 2.5 GHz
- Power level: –10 dBm to –30 dBm
- Duplex mode: DL Only (FDD)
- Signal configuration: TM6 (8 HSPDSCH/30 DPCH)
- Auto headroom enabled: True
- DL scrambling code type: Standard
- DL primary scrambling code: 0
- DL scrambling code offset: 0
- Payload data type: PN Sequence
- Payload PN order: 15

Residual RMS EVM

Residual RMS EVM with the NI PXIe-5663/5663E

Typical .....< 0.5%

Maximum.....< 1%

ACLR Dynamic Range

Adjacent channel leakage power ratio (ACLR) is the ratio of the RRC filtered mean power centered on the adjacent channel frequency to the assigned channel frequency.

ACLR signal configuration..... TM1 (64 DPCH)

ACLR Dynamic Range with the NI PXIe-5663E

Offset Frequency (MHz)	Signal Average Power (dBm)	RFSA Reference Level (dBm)	Noise Compensation	ACLR Dynamic Range (dB) (typical)
±5	–6	–4	off	< –60
±10	0	0	off	< –64

Uplink

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

- Carrier frequency: 1 GHz, 1.5 GHz, 2.5 GHz
- Power level: –10 dBm to –30 dBm
- Duplex mode: UL Only (FDD)
- Signal configuration: 1 DPCCH + 1 DPDCH
- Auto headroom enabled: True
- UL number of channels: 2
- UL frame type: Non-PRACH
- UL scrambling code type: Long
- DPCCH slot format: 0 (SF=256)
- DPDCH slot format: 0 (SF=256)
- DPCCH relative power: –3 dB
- DPDCH relative power: –3 dB
- DPDCH branch: I
- DPDCH spreading code: 2
- DPDCH payload data type: PN Sequence
- DPDCH payload PN order: 15

Residual RMS EVM

Residual RMS EVM with the NI PXIe-5663/5663E

Typical .....< 0.4%

Maximum.....< 0.5%

ACLR Dynamic Range

Adjacent channel leakage power ratio (ACLR) is the ratio of the RRC filtered mean power centered on the adjacent channel frequency to the assigned channel frequency.

ACLR Dynamic Range with the NI PXIe-5663E

Offset Frequency (MHz)	Signal Average Power (dBm)	RFSA Reference Level (dBm)	Noise Compensation	ACLR Dynamic Range (dB) (typical)
±5	–9	–15	off	< –63
±10	1	–4	off	< –67