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**PXIe-5663E**

# NI FM-RDS Toolkit Specifications

## Version 1.0

This document lists specifications for the NI FM-RDS Toolkit.

Maximum specifications are derived under the following conditions:

- Switched off for at least 2 hours before switching on
- 30 minutes warm-up time
- Synchronize the analyzer clock to the generator clock
- Calibration cycle maintained
- Chassis fan speed set to High
- Slot blockers on all unused slots
- NI-RFSA version 2.4 or later used
- NI-RFSA instrument driver self-calibration performed after instrument temperature is stable
- NI 5601 module revision G or later

*Maximum specifications* describe the warranted, traceable product performance over ambient temperature ranges of 0 °C to 55 °C, unless otherwise noted.

*Typical values* describe useful product performance beyond specifications that are not covered by warranty and do not include guard bands for measurement uncertainty or drift. Typical values may not be verified on all units shipped from the factory. Unless otherwise noted, typical values cover the expected performance of units over ambient temperature ranges of 23 °C ±5 °C with a 90% confidence level, based on measurements taken during development or production.

All the specifications listed in this document indicate maximum specifications.

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](http://ni.com/manuals).

# Generation

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Frequency range (NI PXIe-5673E).....	10 MHz to 6.6 GHz
Absolute amplitude accuracy.....	Refer to the <i>NI PXIe-5673E Specifications</i>
Amplitude resolution .....	Refer to the <i>NI PXIe-5673E Specifications</i>

The generation specifications for the NI FM-RDS Toolkit were derived using the following configuration:

- Power level: 0 to -60 dBm
- Carrier frequency: 88 MHz to 108 MHz
- RDS group type: 0B and 2A
- RDS oversampling factor: 336
- Bit rate: 1187.5 bps
- Modulation: BPSK
- Baseband filter:  $BT = 1$
- Message frequency: 1 kHz
- Channel deviation: 75 kHz
- Stereo mode: L = R

Specifications for the FM-RDS mono signal using the above configuration:

Modulated frequency accuracy.....	0.1%
Channel deviation accuracy.....	0.10%
Total harmonic distortion.....	0.0001%
SINAD.....	86 dB

Specifications for the FM-RDS stereo signal using the above configuration:

Modulated frequency accuracy.....	0.1%
Channel deviation accuracy.....	0.10%
Total harmonic distortion.....	0.002%
SINAD.....	55 dB
RMS EVM.....	0.2

# Analysis

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Hardware specifications ..... Refer to the *NI PXIe-5663E Specifications*

The analysis specifications for the NI FM-RDS Toolkit were derived using the following configuration:

- Power level: 0 to -30 dBm
- Carrier frequency: 88 MHz to 108 MHz
- RDS group type: 0B and 2A
- RDS oversampling factor: 336
- Bit rate: 1187.5 bps
- Modulation: BPSK
- Baseband filter: BT = 1
- Message frequency: 1 kHz
- Channel deviation: 75 kHz
- Stereo mode: L = R

Specifications for the FM-RDS mono signal using the above configuration:

Modulated frequency accuracy.....	0.1%
Channel deviation accuracy.....	0.10%
Total harmonic distortion.....	0.0001%
SINAD.....	86 dB

Specifications for the FM-RDS stereo signal using the above configuration:

Modulated frequency accuracy.....	0.1%
Channel deviation accuracy.....	0.10%
Total harmonic distortion.....	0.002%
SINAD.....	55 dB
RMS EVM.....	0.2

## Amplitude and Frequency Measurement Characteristics

Refer to the *NI PXIe-5663E Specifications*.

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