Key Features

- Front Panel OLED Display
- RF to 20GHz, IF to 4GHz
- Minimum Phase Noise
- Standalone Operation
- USB Control & Power
- Ultra Compact
- Extremely Affordable
- Audio & Visual Feedback

DS Instruments

MX6000 Integrated Mixer Family

Wideband Mixers with Integrated Programmable Local Oscillators

Eliminate the need for an expensive external signal source when up and down converting!

The MX6000 family of integrated mixers combines a wideband RF mixer with a high performance programmable signal source to act as the local oscillator. This saves the user on setup time, equipment space, total cost, and system complexity for many microwave applications.

This three-device family covers all the most common communications bands up to 20GHz and provide and extremely wideband IF coverage making applications like down converting easier.

Remote Operation

Industry standard SCPI commands allow the MX6000 Family devices to be controlled by any PC with a USB interface.

The USB port is configured as a standard virtual COM port so that no additional custom drivers or setup is required.

MX6000 Integrated Mixer Family

Device Specifications

Band 1
MX6000L

- Local Oscillator: **25 – 6000 MHz**
- RF input range: **10 – 6000 MHz**
- IF output range: 10MHz to 600 MHz
- High RF input P1dB > +12 dBm
- Low LO leakage:< -30 dB typical
- LO phase noise at 6GHz < 73 dBc
- LO Reference Frequency: +-2.5 ppM (10MHz)
- Return loss > 10 dB
- Typical noise figure: 9.75 dB
- Very low conversion loss (Active core mixer)
- Max input power: **+16dBm**
- Modes: Downconverter ONLY

Band 1 - R2
MX6000B (New!)

- Local Oscillator: **25 – 6000 MHz**
- RF range: **10 – 6000 MHz**
- IF range: **5 - 1000 MHz**
- Internal RF Bands: **2** (LF-1.8GHz, 1.8-6GHz)
- LO-RF isolation band 1: 36 dB typical
- LO-IF isolation band 1: 36 dB typical
- LO-RF isolation band 2: 30 dB typical
- LO-IF isolation band 2: 20 dB typical
- RF P1dB : +1 dBm
- LO phase noise at 6GHz < 73 dBc
- LO Reference Frequency: +-2.5 ppM (10MHz)
- Return loss: 10 dB typical
- Low conversion loss: (6-8 dB Typ.)
- Max input power: **+10dBm**
- Modes: Up / Down Converting

Band 2
MX12000

- Local Oscillator Range: **6GHz – 13.6GHz**
- RF Range: **4GHz – 12GHz**
- IF Range: 5MHz to 1800GHz
- RF input P1dB > +1 dBm
- Low LO leakage:< -30 dB typical
- LO phase noise at **12GHz:** < 86 dBc @ 10KHz
- Return loss > 10 dB
- Low conversion loss: < 10dB
- Modes: Up / Down Converting
- Max input power: +15dBm
- LO Reference frequency: 100MHz

MX6000 Integrated Mixer Family

Device Specifications

Band 3

MX20000

(MX6800KU)

- Local Oscillator Range: **12GHz – 24GHz**
- RF Range: **11 – 20 GHz+**
- IF Range: 10MHz to 6 GHz
- High RF input P1dB > +11 dBm
- Max input power: +20dBm
- Low LO leakage:< -35 dB typical
- LO phase noise at 18GHz: **< 80 dBc**
- Internal LO Reference Frequency
- Typical Return loss > 10 dB
- Typical Conversion Loss: 10-12dB
- Modes: Up / Down Converting

MX6000 Integrated Mixer Family

Common Device Features

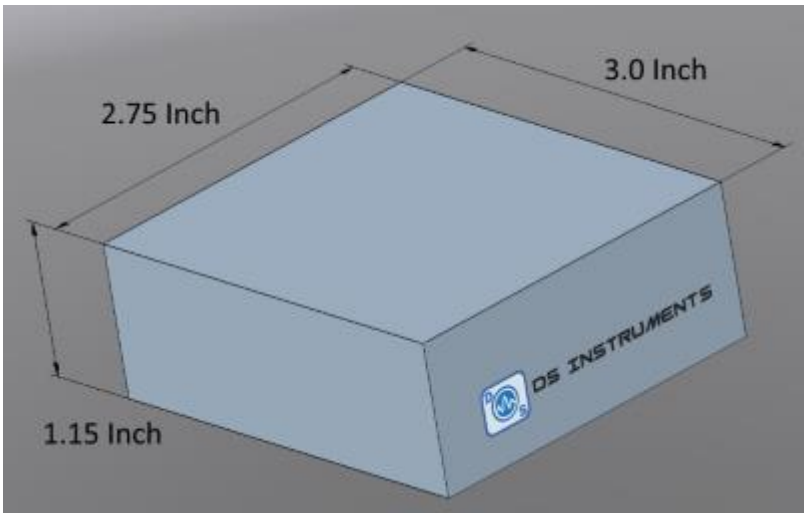
- Premium Microwave-Rated Gold SMA Connectors
- Standard Micro-USB Power Input & Virtual COM Port Interface
- Crisp & Bright OLED Front User Display
- Front Control Buttons with Audio Feedback
- Remote automated programmable
- Compact Aluminum Enclosure
- Internal Reference Frequency
- Extreme space and cost savings

Typical Device Applications

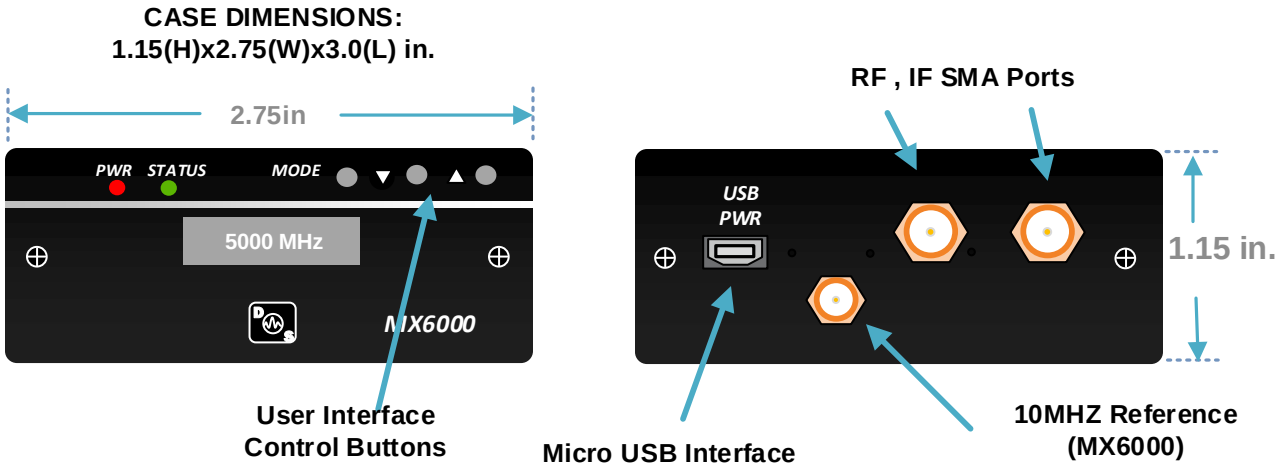
- General RF lab testing applications
- Receiver development
- Communications applications
- Satellite uplink and downlinks
- Radar systems
- Defense applications
- Wideband transponders
- Military end-use
- Test & measurement
- Cellular base station test
- Block conversion

MX6000 Integrated Mixer Family

Physical Features

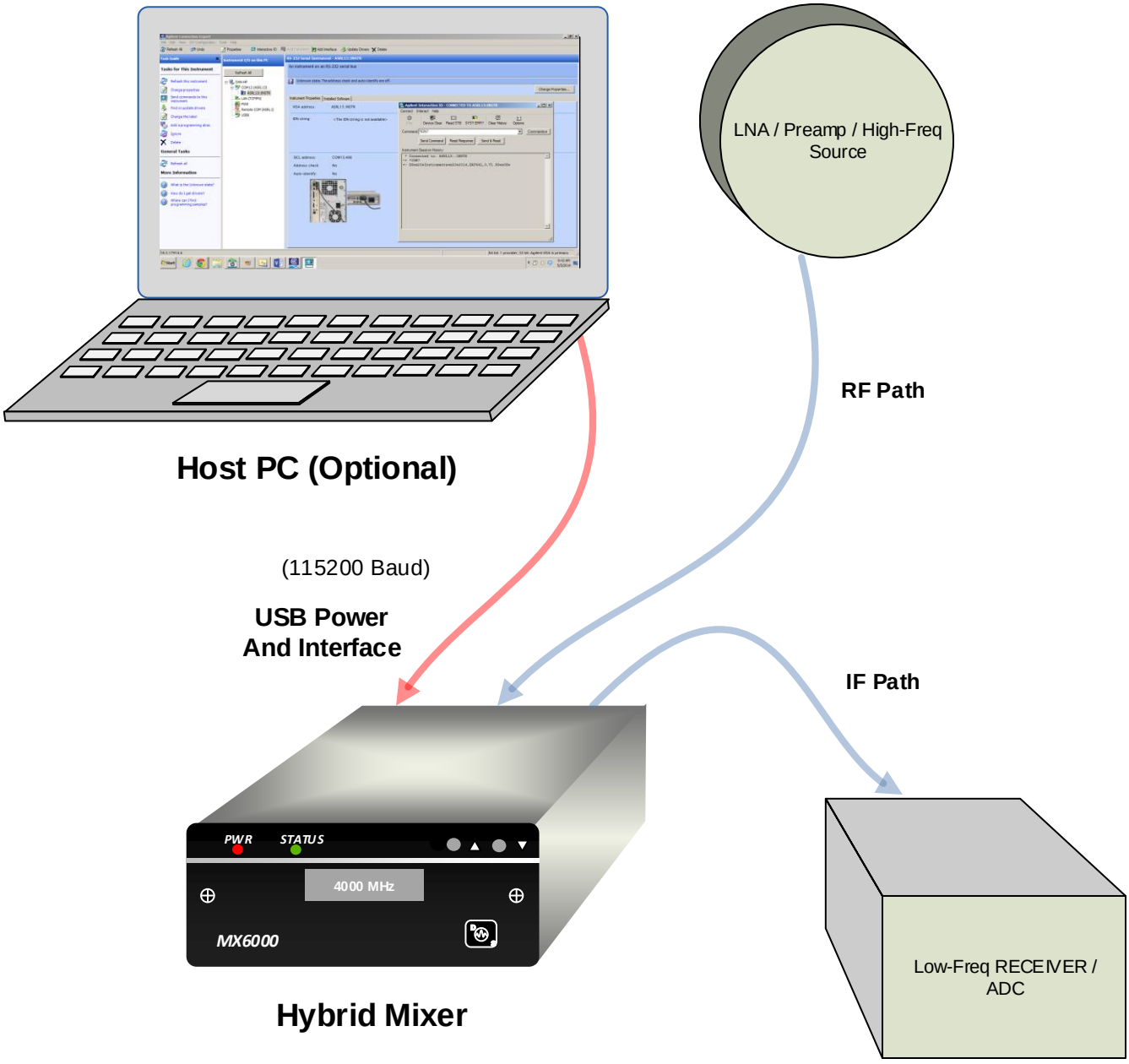


Common Front and Rear Panel Features



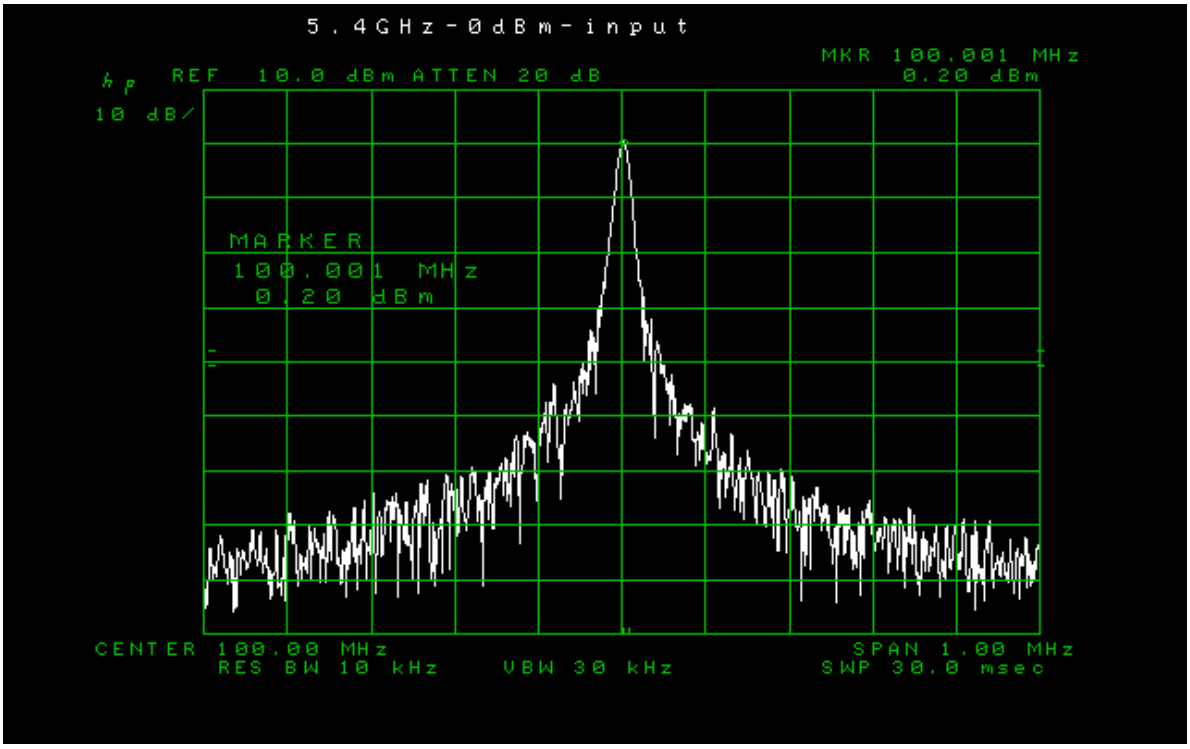
MX6000 Integrated Mixer Family

Typical User Connections

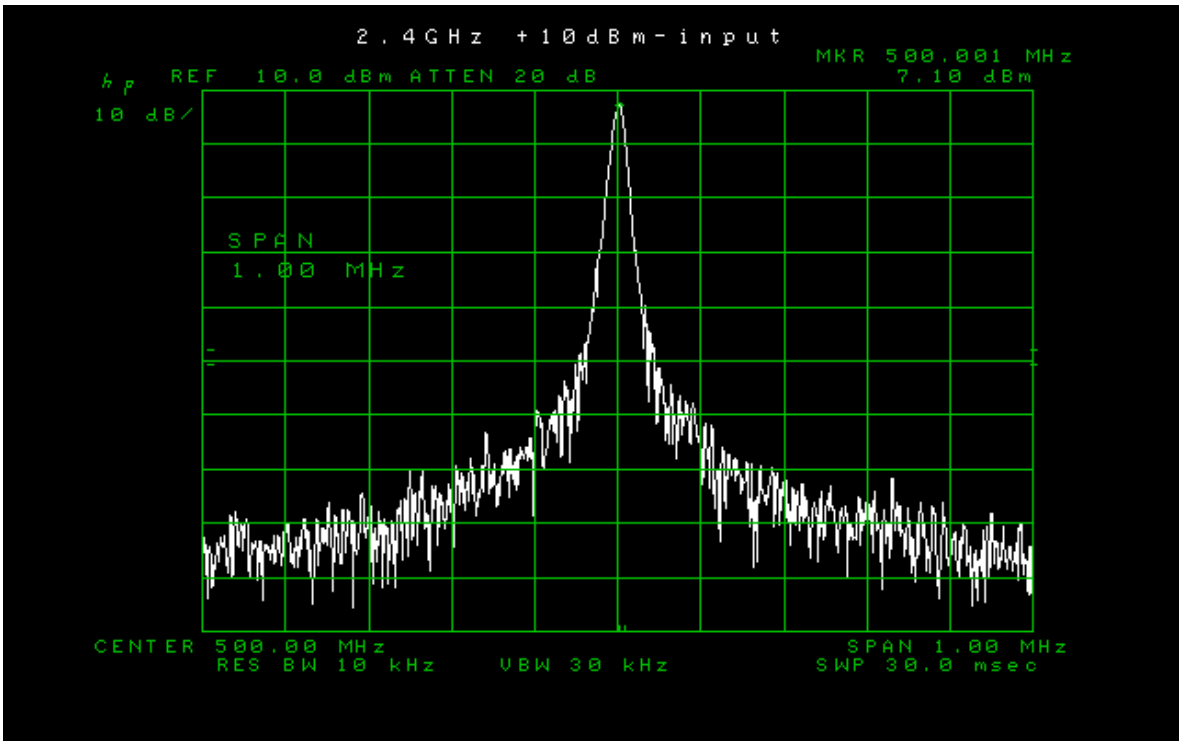


MX6000L – Band 1

Typical Performance Data



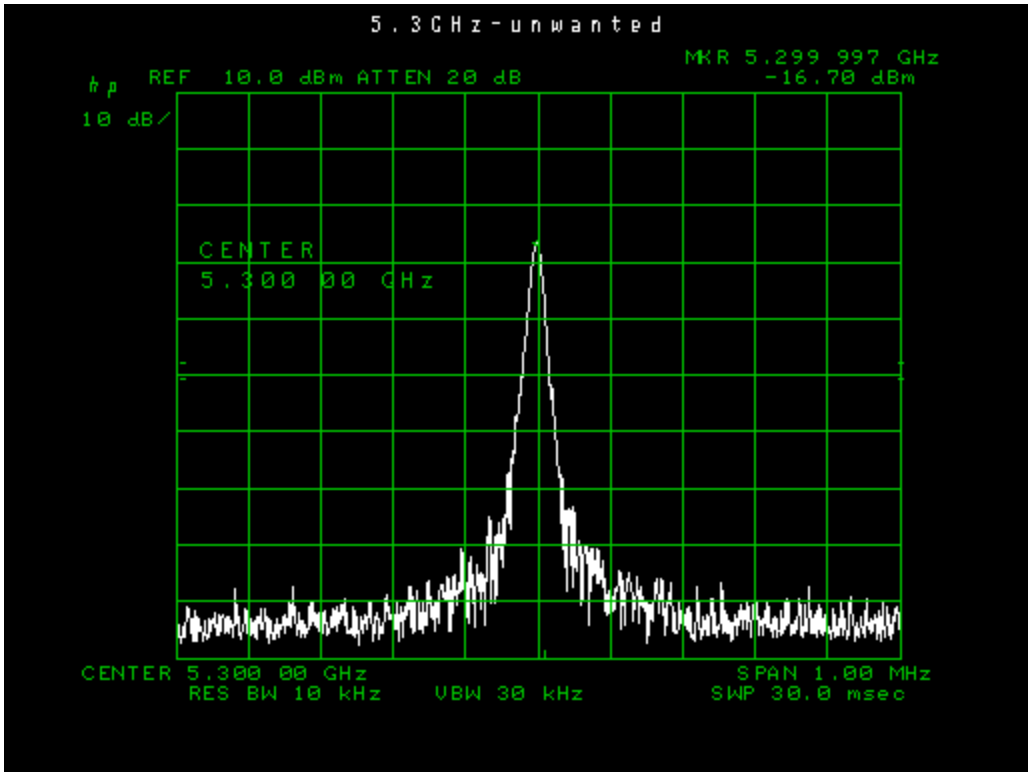
MX6000L. Input signal 5.4GHz @ +0dBm, LO set to 5.3GHz, IF out = 100MHz.



MX6000L. Input signal 2.4GHz @ +10dBm, LO set to 2.9GHz, IF out = 500MHz.

MX6000L – Band 1

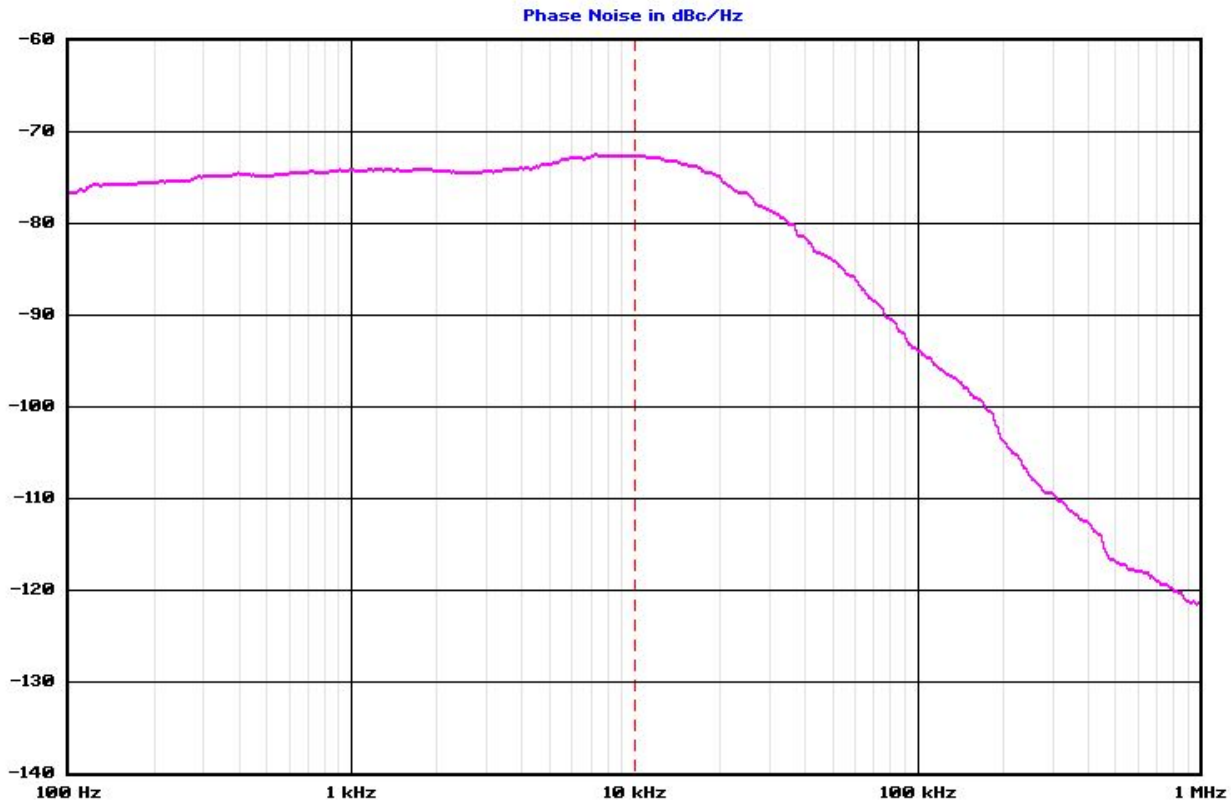
Typical Performance Data (Continued)



Input signal 2.4GHz @ +10dBm

LO set to 2.9GHz

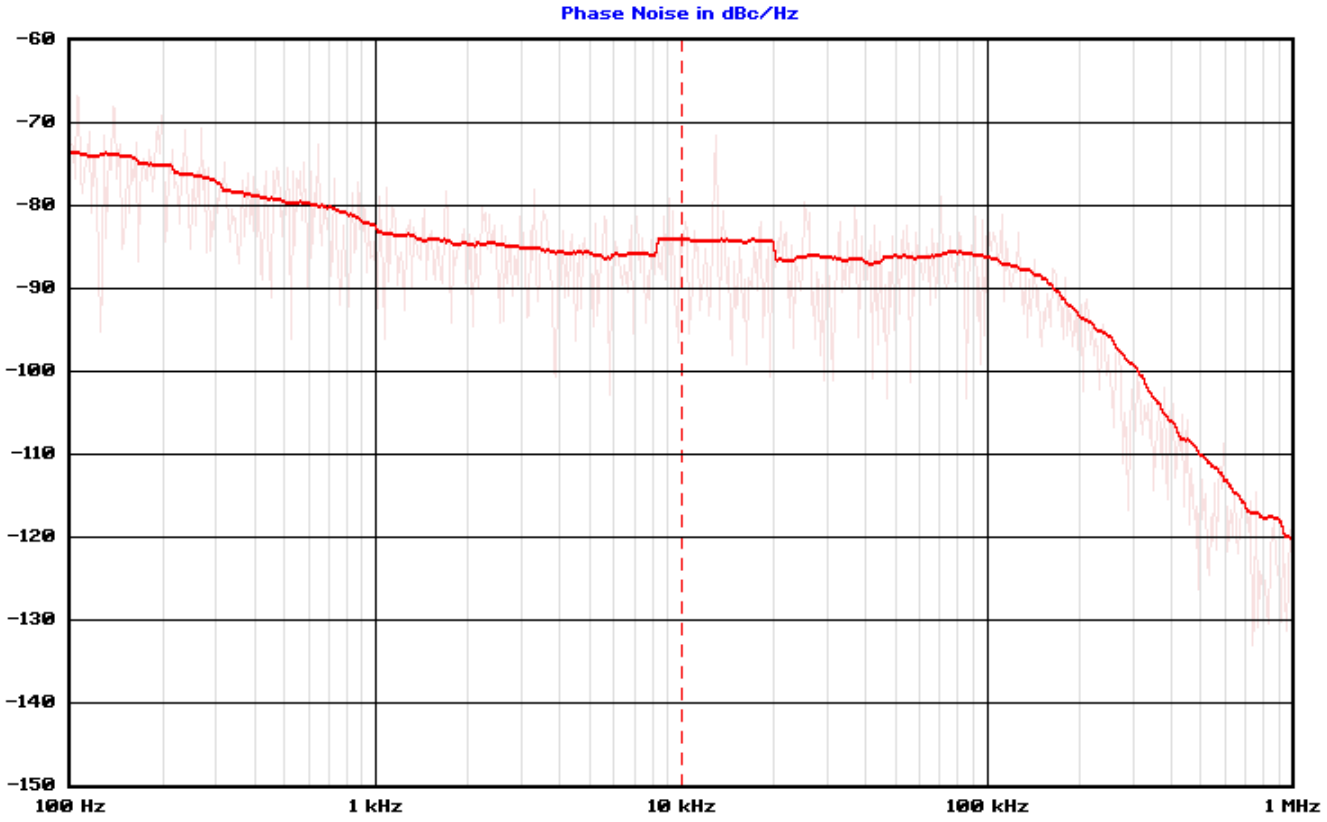
Unwanted mixer product out = 5.3GHz.



Trace	Carrier Hz	Carrier dBm	dBc/Hz at 10000 Hz	RF Atten dB	VBW/RBW	Sweep
SG6000R7-INT	6 000 000 000	8.00	-72.5	10	1.00	70s

MX20000 – Band 3

Typical Performance Data



Trace	Carrier Hz	Carrier dBm	dBc/Hz at 10000 Hz	RF Atten dB	VBW/RBW	Sweep
SG6800HF-int	13 600 000 000	8.60	-84.0	10	1.00	70s

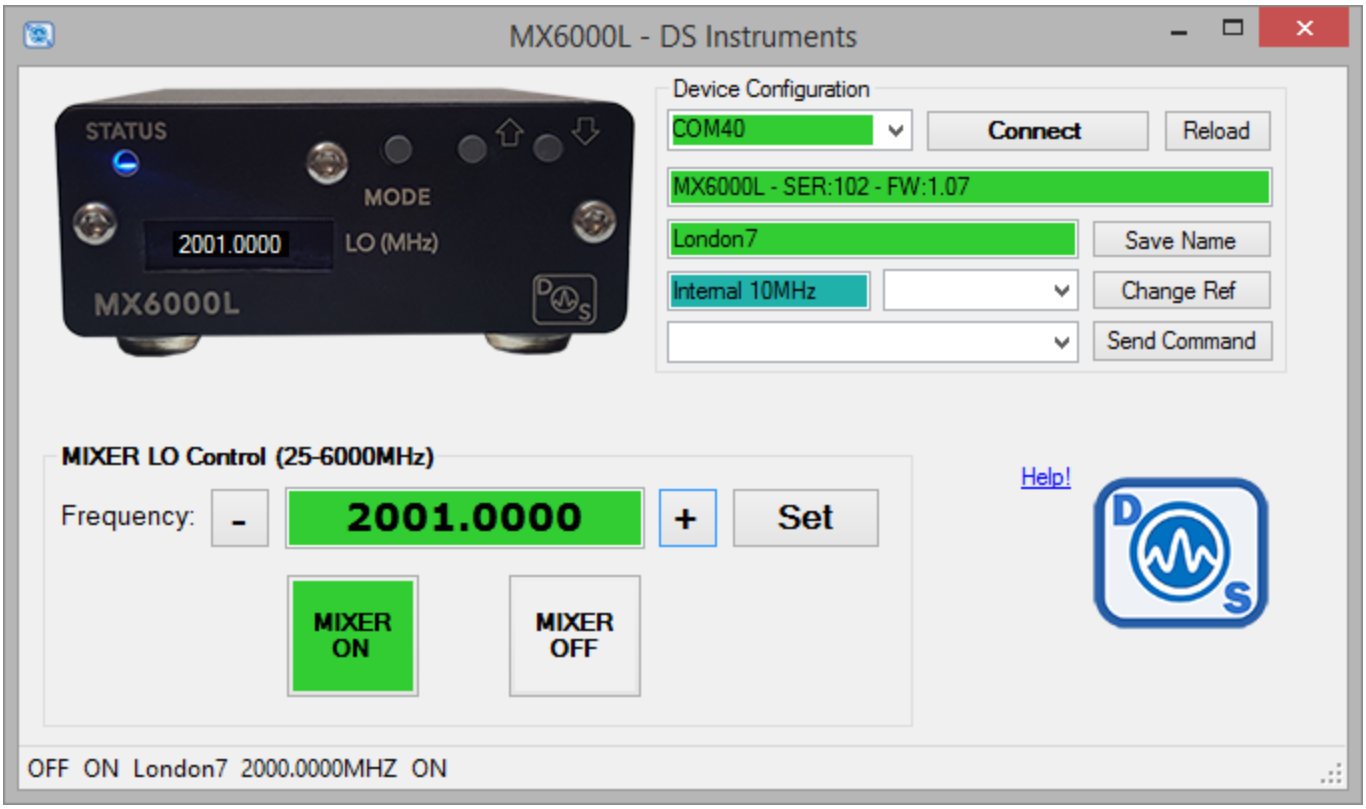
MX6000 Integrated Mixer Family

USB COM Port SCPI Commands

FREQ:CW xxxxMHz	- Set the LO Frequency
FREQ:CW?	- Return LO Frequency
*IDN?	- Return standard identification string
*RST	- Reset device

(115200 Baud)

Windows GUI (Optional)



MX6000 Integrated Mixer Family

Ordering Information

MX6000L – (6GHz) – Mixer with Integrated LO (Active Downconverter)–	$599.00
MX6000B – (6GHz) – Mixer with intergrated LO --	$599.00
MX12000 – (12GHz X-Band) - Mixer with Integrated LO –	$899.00
MX20000 (MX6800KU) – (20GHz Ku-Band) - Mixer with Integrated LO –	$1299.00

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