



# USB Frequency Synthesizer Module, Phase Locked Loop (PLL), 10 GHz to 20 GHz Output, SMA

## Synthesizers Technical Data Sheet

PE11S3903

### Features

- Wideband Output Frequency
- 10 GHz to 20 GHz
- Integer and Fractional operating modes
- +18 dBm max output power
- 30 dB Attenuation adjustable in 1 dB steps
- USB 2.0 Interface
- Female SMA output
- USBTMC VISA Compliant
- User Selectable internal reference or externally applied reference
- Small compact package size
- LED indicators
- Downloadable User Manual
- Accessory cables included

### Applications

- Signal Generators
- Test Equipment
- RF System Integration
- Communication Systems
- EW Systems
- X-Band
- Ku-Band
- K-Band Systems
- Radar Systems
- Frequency Conversion
- SIGNIT

### Description

The PE11S3903 is a Frequency Synthesizer Module that covers a wide frequency band from 10 GHz to 20 GHz with exceptional spurious rejection and phase noise performance. Maximum output power +18 dBm across the entire band and Attenuation range up to 30 dB is adjustable in 1 dB steps. This high quality signal source has several outstanding features including a USB 2.0 interface that is powered and command controlled directly by a host PC and a Female SMA output connector, and is VISA compliant which enables seamless cross platform use. The synthesizer can be GUI controlled via Windows®, Macintosh®, or Linux® platforms, or with SCPI compliant VISA commands (downloadable user manual), or with other system design software such as LabVIEW®. The compact size makes it ideal for bench top test and measurement use or for radar and communication systems. Frequency resolution of the PE11S3903 is available in integer and fractional operating modes and the User can select between an internal reference or externally applied reference. The module supports integrated phase locked loop (PLL) circuitry that the User can select between an internal reference (capable of phase locking) or externally applied reference. The RF Synthesizer Module comes complete with a USB 2.0 A extension and an SMA male to MMCX plug cable.

### Electrical Specifications (TA= 25°C, Id1 = 500 mA)

Mode	Integer/Fractional
Reference	Internal (External Optional)
Option(s)	Phase Lock Indicator
Control Interface	USB

Description	Minimum	Typical	Maximum	Units
Frequency Range	10		20	GHz
Output Power	-19		+18	dBm
Step Size (Integer Mode)		200		MHz
Step Size (Fractional Mode)		1		MHz
Phase Locked Speed		60		µs
Phase Noise @100kHz Offset		-80		dBc/Hz
2nd Harmonic		-15		dBc

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [USB Frequency Synthesizer Module, Phase Locked Loop \(PLL\), 10 GHz to 20 GHz Output, SMA PE11S3903](#)





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3rd Harmonic		-40		dBc
4th Harmonic		-60		dBc
Reference Frequency	10	50	100	MHz
Reference Power (CW)	+0		+15	dBm
Internal Reference Frequency		50		MHz
Internal Reference Accuracy		0.5		ppm
Operating DC Current 1		500		mA

### Performance by Frequency

Description	F1	F2	F3	Units
Frequency	10	15	20	GHz
Phase Noise @ 100 kHz Offset (With Internal Reference)	-81	-80	-82	dBc/Hz
2nd Harmonics	-15	-30	-45	dBc
3rd Harmonics	-40			dBc
4th Harmonics	-60			dBc
Output Power Range	-13 to +18	-14 to +16	-19 to +11	dBm

#### Electrical Specification Notes:

Step size specified under default conditions (a 50 MHz reference input with a reference divider of 1).

### Mechanical Specifications

#### Size

Length	4.1 in [104.14 mm]
Width	0.9 in [22.86 mm]
Height	0.645 in [16.38 mm]
Weight	0.27 lbs [122.47 g]

#### Configuration

Package Type	Connectorized
Reference Connector	MMCX Female
Output Connector	SMA Female
Control Connector	USB Type A - Male
Reference Divider Out Connector	MMCX Female

#### Mechanical Specification Notes:

The USB Type A - Male connector is used for both Power and Control.

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### Environmental Specifications

#### Temperature

Operating Range

0 to +55 deg C

Storage Range

-50 to +100 deg C

### Compliance Certifications (visit [www.Pasternack.com](http://www.Pasternack.com) for current document)

RoHS Compliant

### Plotted and Other Data

Notes:

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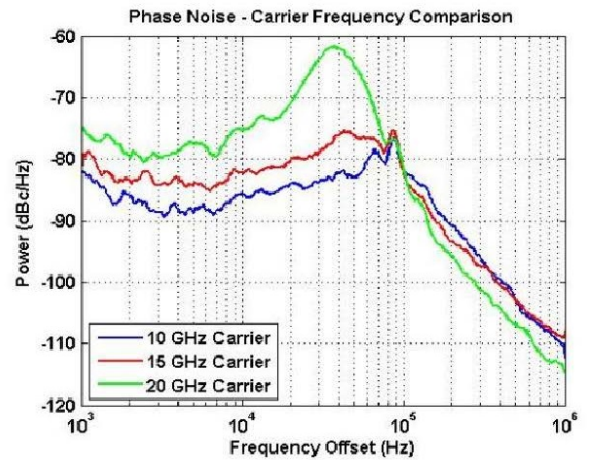
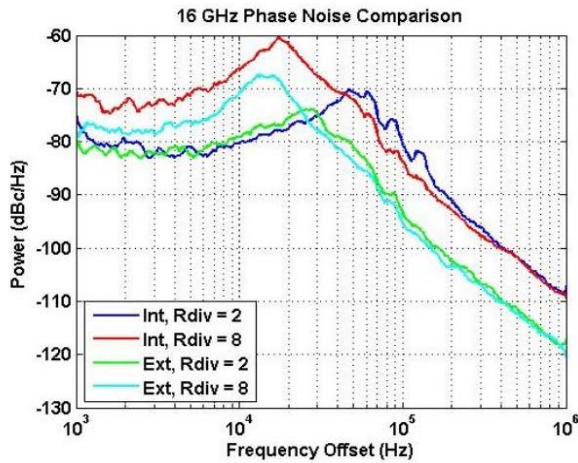
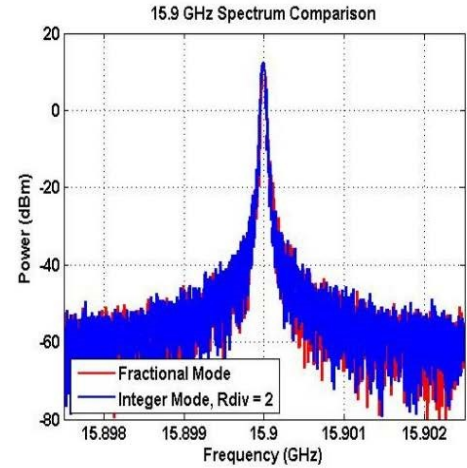
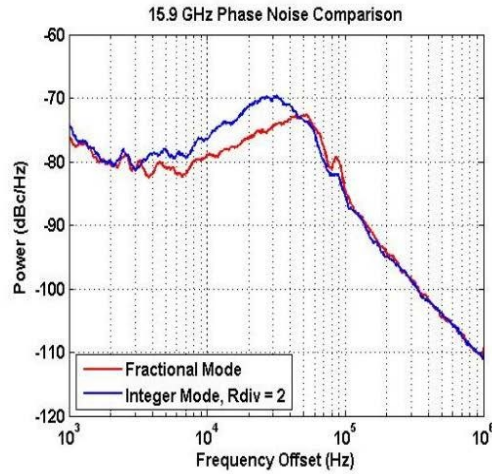


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Typical Performance Data



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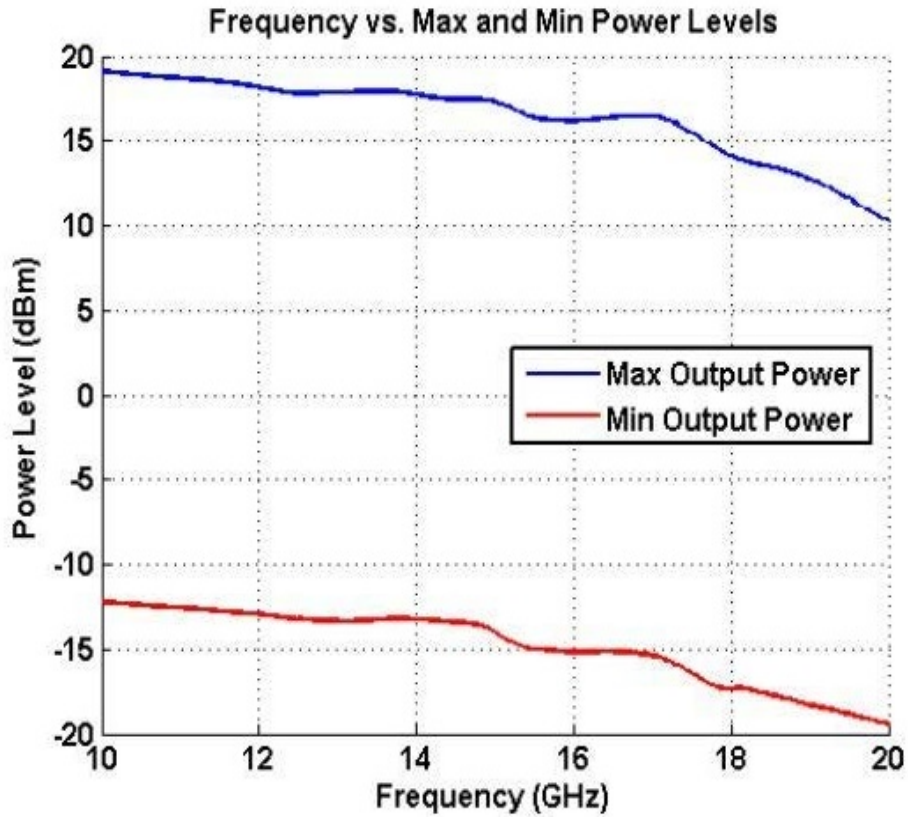




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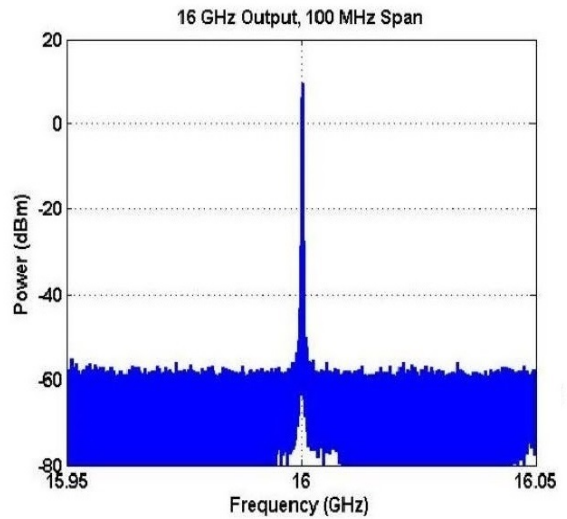
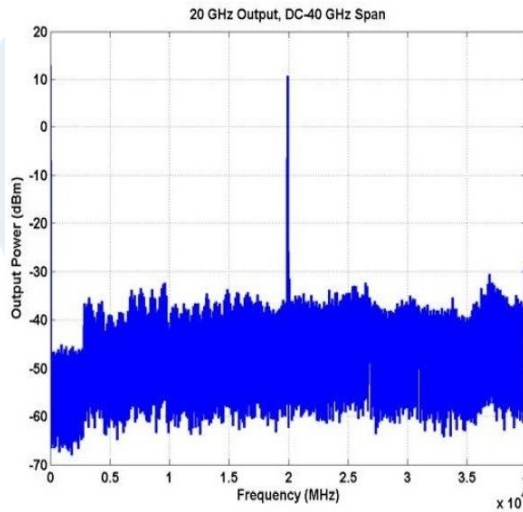
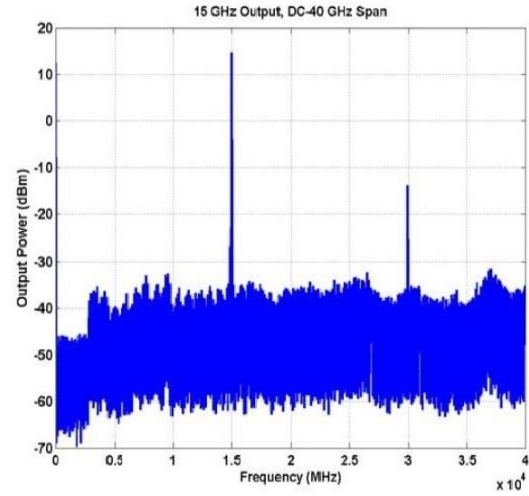
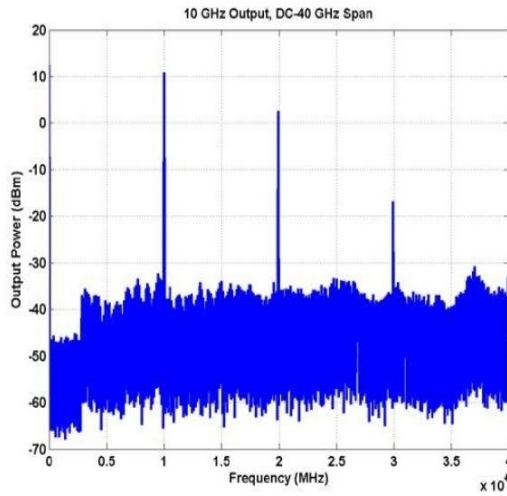




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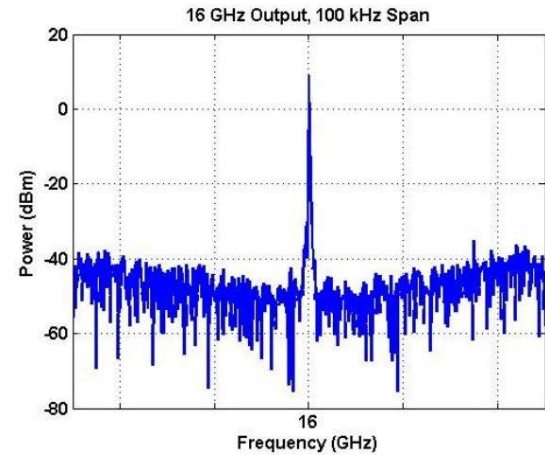
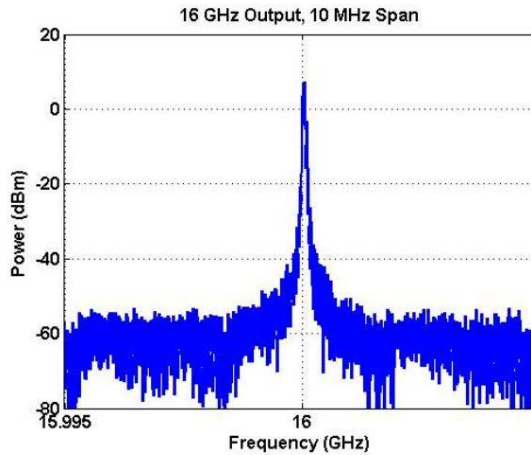




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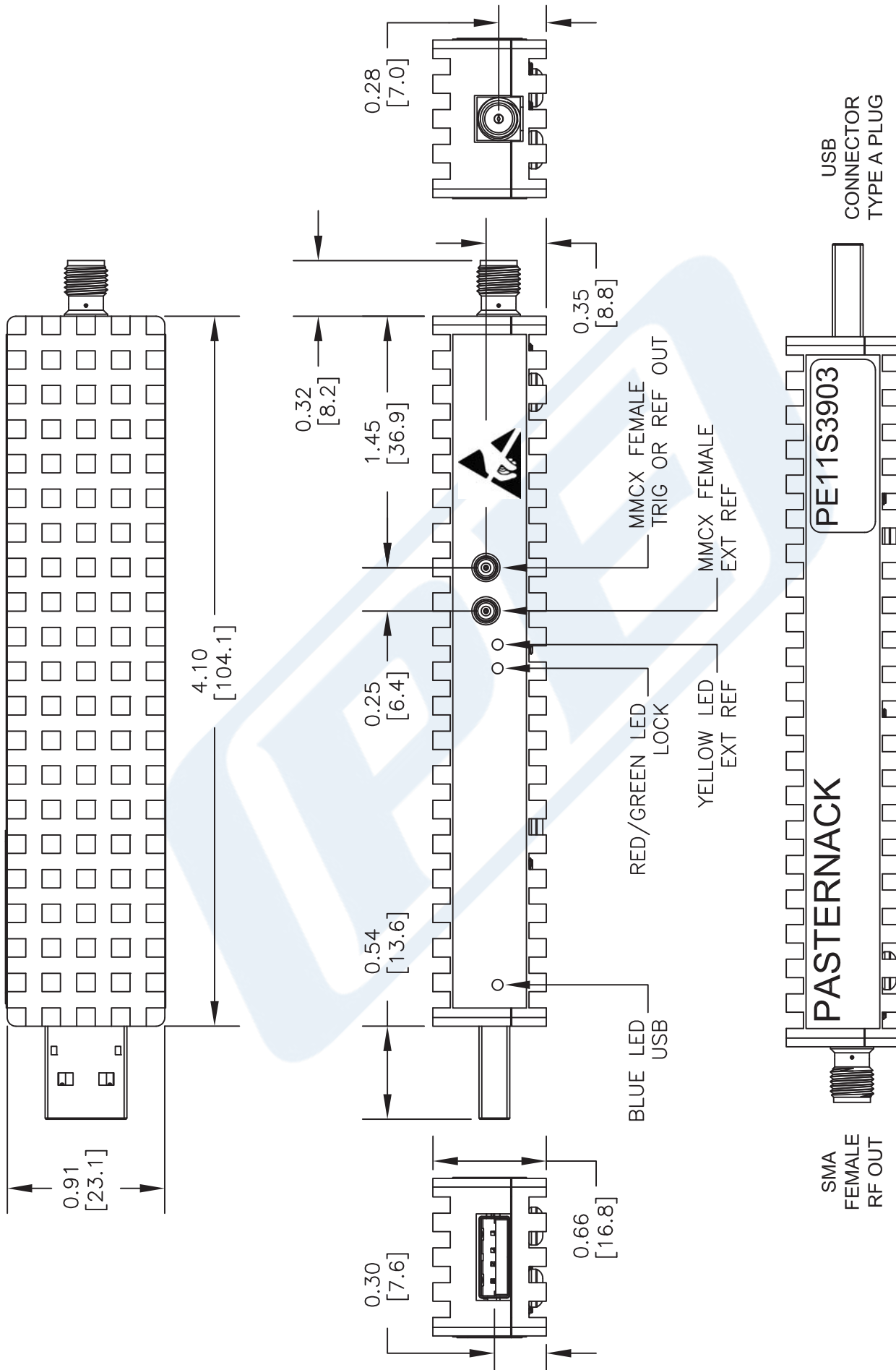
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# PE11S3903 CAD Drawing

USB Frequency Synthesizer Module, Phase Locked Loop (PLL), 10 GHz to 20 GHz Output, SMA



DWG TITLE

**PE11S3903**

NOTES:  
 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.  
 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.  
 3. DIMENSIONS ARE IN INCHES [mm].

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FSCM NO. 53919

CAD FILE 021516

SCALE N/A

SIZE A

2233