



USB Frequency Synthesizer Module, Phase Locked Loop (PLL), 21 GHz to 24 GHz Output, SMA

Synthesizers Technical Data Sheet

PE11S3904

Features

- 21 GHz to 24 GHz Output Frequency
- Integer and Fractional operating modes
- +17 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
- K-Band Systems
- Radar Systems
- Frequency Conversion
- SIGNIT

Description

The PE11S3904 is a Frequency Synthesizer Module that covers a frequency band from 21 GHz to 24 GHz with exceptional spurious rejection and phase noise performance. Maximum output power +17 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 PE11S3904 is available in integer and fractional operating modes and the User can select between an internal reference (capable of phase locking) 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 = 470 mA)

Mode
Reference
Option(s)
Control Interface

Integer/Fractional
Internal (External Optional)
Phase Lock Indicator
USB

Description	Minimum	Typical	Maximum	Units
Frequency Range	21		24	GHz
Output Power	-17		+17	dBm
Step Size (Integer Mode)		400		MHz
Step Size (Fractional Mode)		1		MHz
Phase Locked Speed			1	ms
Phase Noise @100kHz Offset		-88		dBc/Hz
Reference Frequency	10	20	100	MHz

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 \(PLL\), 21 GHz to 24 GHz Output, SMA PE11S3904](#)



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Reference Power (CW)	+0	+15	dBm
Internal Reference Frequency	50		MHz
Internal Reference Accuracy	0.5		ppm
Operating DC Current 1	470		mA

Performance by Frequency

Description	F1	F2	F3	Units
Frequency	21	22.5	24	GHz
Phase Noise @ 100 kHz Offset (With Internal Reference)	-88	-88	-89	dBc/Hz
(1/2)Fo Harmonic	-26	-22	-16	dBc
(3/2)Fo Harmonic	-34	-34	-44	dBc
Output Power Range	-11 to +17	-13 to +15	-17 to +14	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.

Environmental Specifications

Temperature

Operating Range	0 to +55 deg C
Storage Range	-50 to +100 deg C

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Compliance Certifications (visit www.Pasternack.com for current document)

RoHS Compliant

Plotted and Other Data

Notes:

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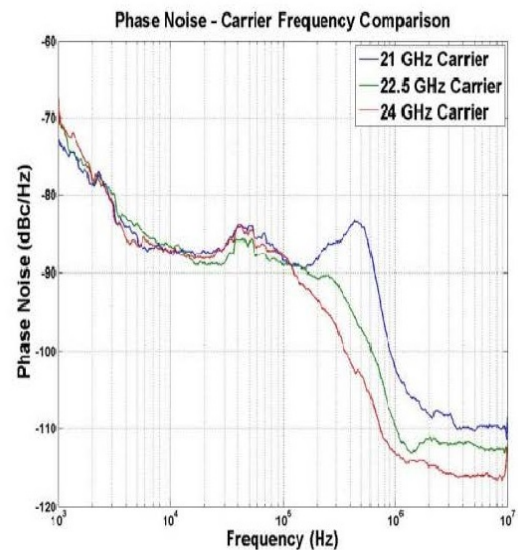
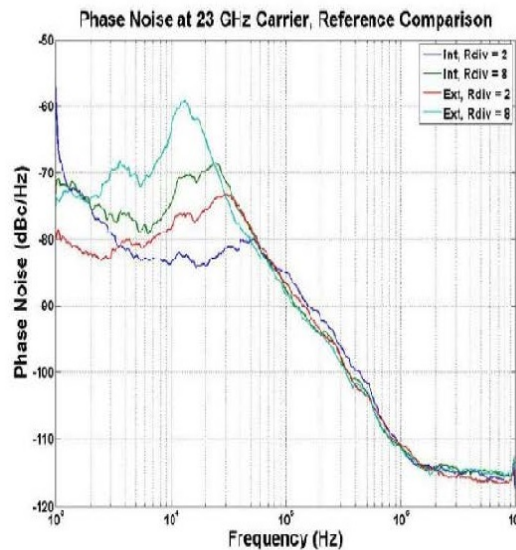
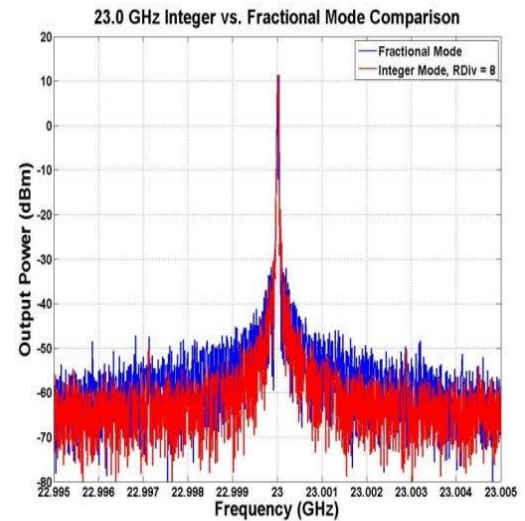
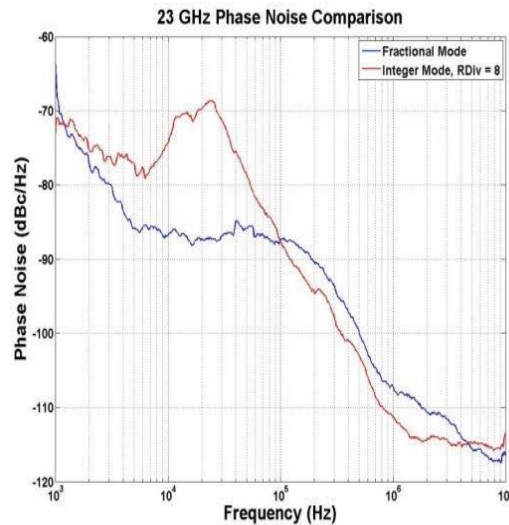


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Typical Performance Data



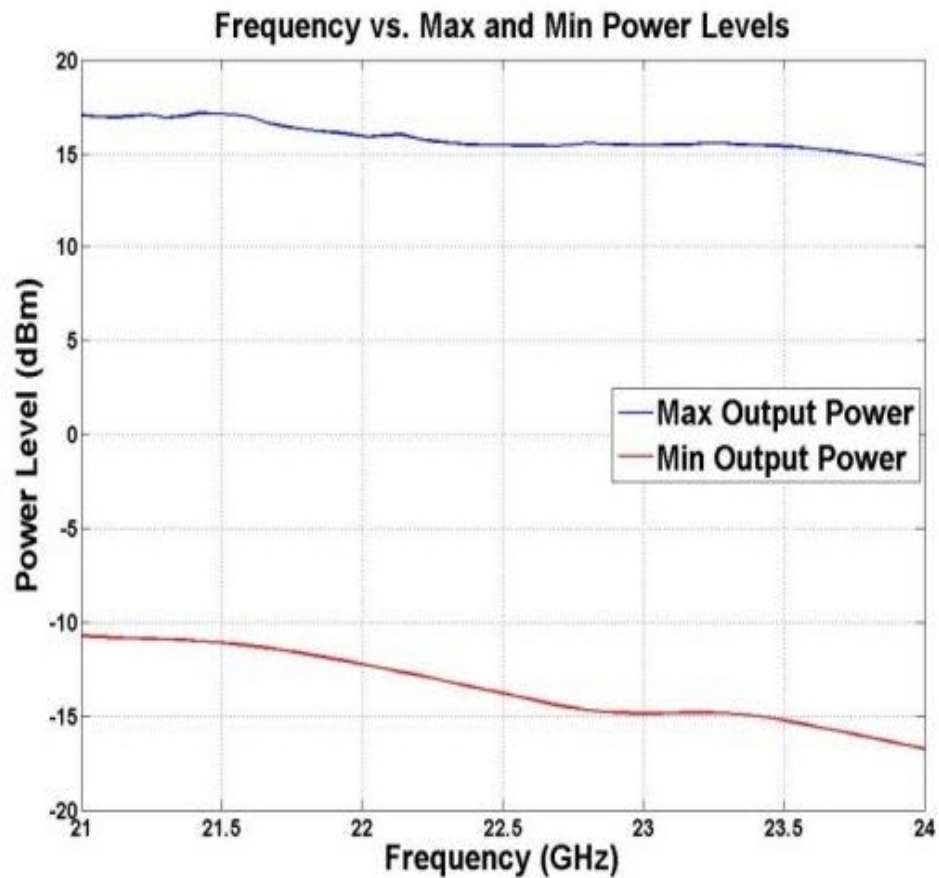
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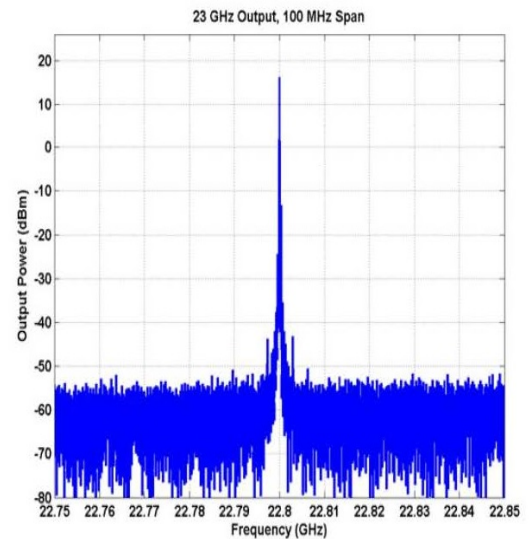
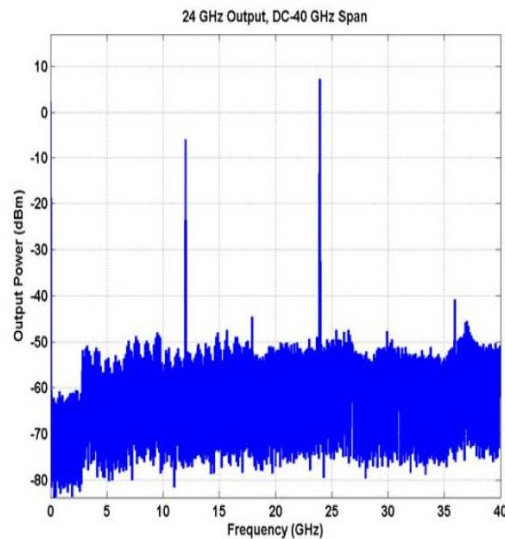
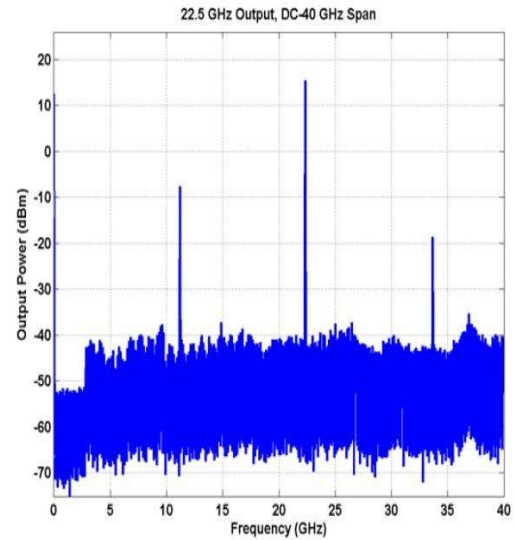
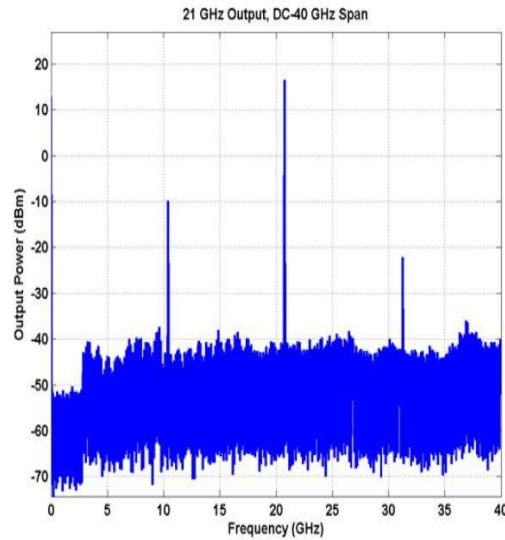
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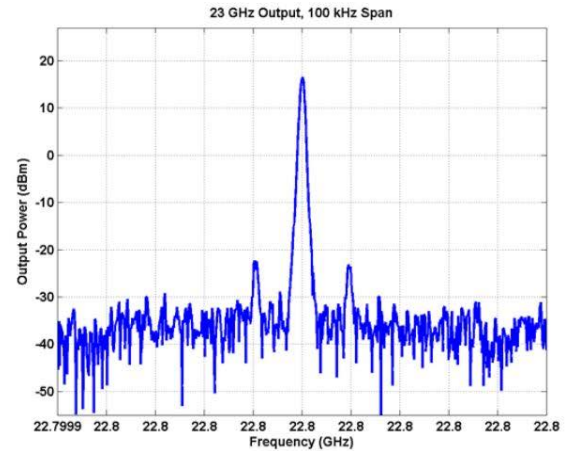
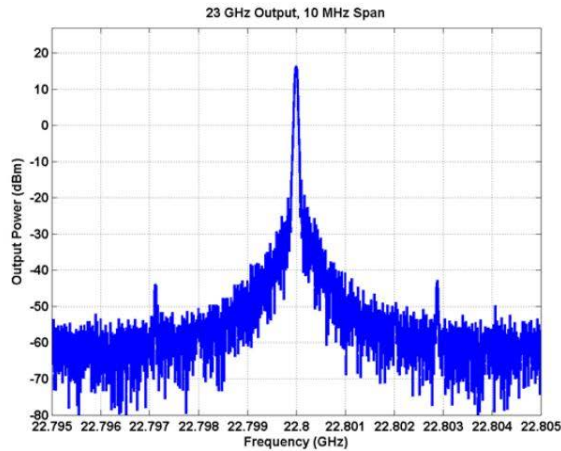
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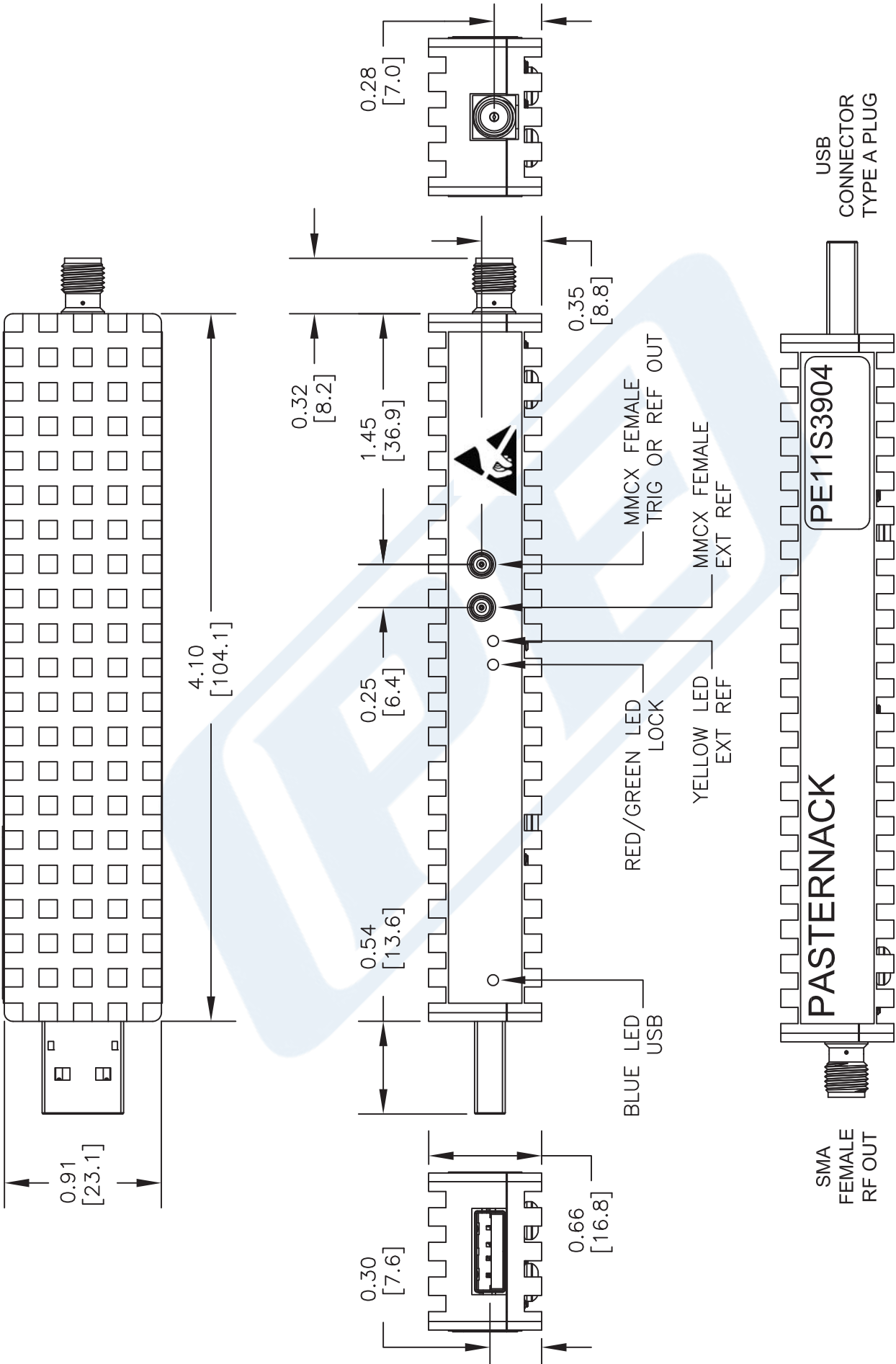
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PE11S3904 CAD Drawing

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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].

DWG TITLE
PE11S3904

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FSCM NO. 53919

CAD FILE 021516

SCALE N/A

SIZE A

2233