SMS-LX-90100

X-BAND RADAR EXCITER

STANDARD FEATURES

- 1 - 20 GHz Output Frequency
- Up to 500 MHz Modulation Bandwidth
- Up to 8 Mbit Waveform Memory
- Transmit / De-Chirp Outputs
- Fast 1.0 µS Switching Speed
- Produces LFM, Polyphase & Arbitrary Modulation
- Low Phase Noise:
  -85 dBc/Hz @ 100 Hz offset
- Compact Size: 6.5” x 7.5” x 1.25”

APPLICATIONS

- EW / ELINT
- Radar Systems
- Arbitrary/Linear FM Chirp
- In-Phase/Quadrature Modulation
- Instrumentation or Embedded Application

DESCRIPTION

Spinnaker Microwave’s SMS-LX-90100 RF Exciter is capable of generating Arbitrary Waveform Signals at X-band with up to 390 MHz of modulation bandwidth. Two 14 bit multi-giga sample DAC's compose an IF signal from user programmable FPGA memory. The IF signal is then up-converted to X-band by integrated Low Noise PLO's and filtered for spectral purity. All signals generated are coherent with a highly stable and accurate 120 MHz internal OCXO. By utilizing multiple mixing stages and Spinnaker Microwave’s proprietary up-then-down topology, the SMS-LX Exciter can effectively meet the most difficult phase noise, spurious, and switching speed requirements while maintaining a minimal package size and high degree of resolution. This module provides an extremely cost/space effective solution to generating complex arbitrary waveforms or linear FM chirp signals for test instrumentation, radar, or embedded applications. It is designed and tested to be used in a rugged Military-Airborne environment.

Spinnaker Microwave, Inc.
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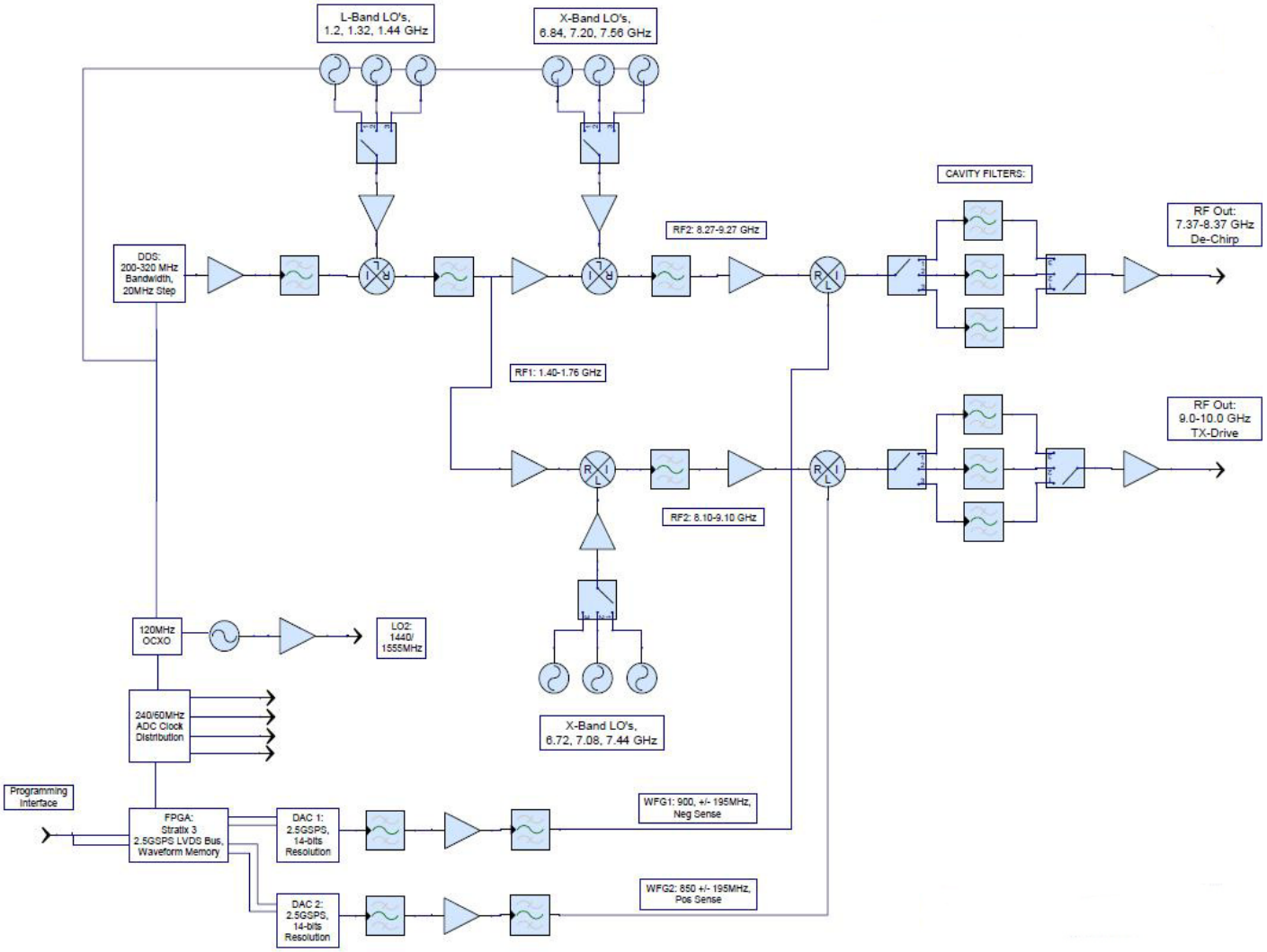
RF Block Diagram:



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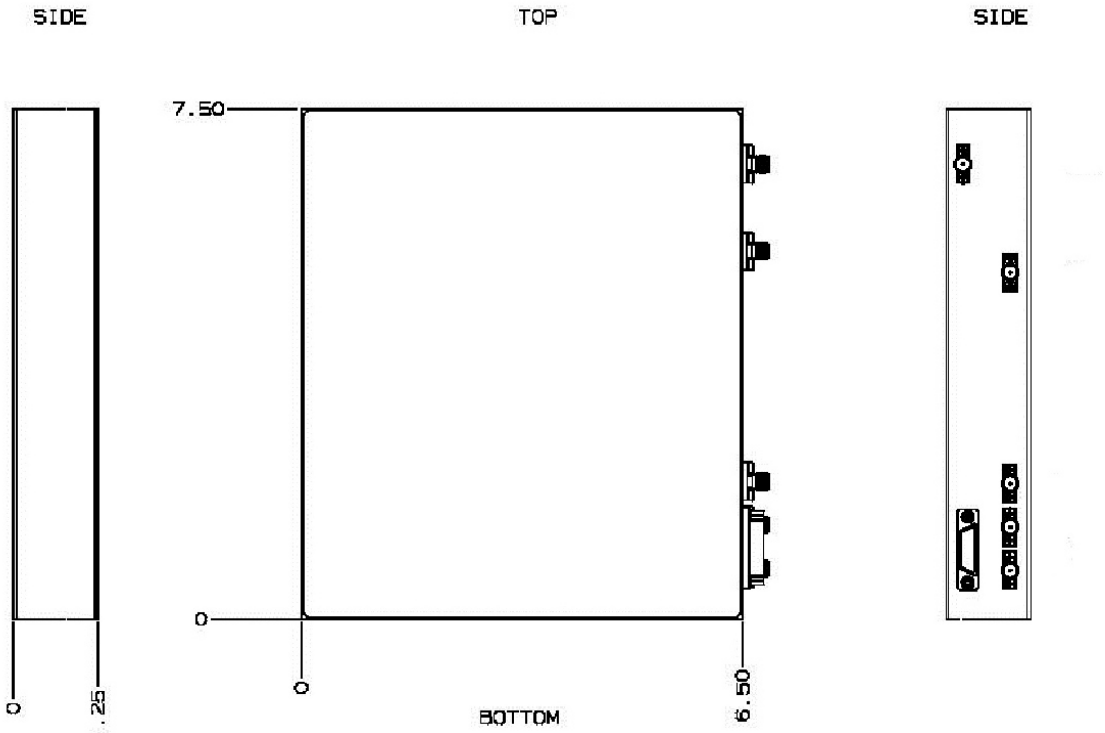
Mechanical Outline:



ELECTRICAL PERFORMANCE SPECIFICATIONS

PARAMETER	SPECIFICATION
Transmit Drive	
Frequency	9.0-10.0 GHz
Phase Noise	< = -85 dBc/Hz @ 100 Hz offset
Power	+20 dBm +/- 2 dB (over temperature and BW)
Frequency Switching Time	< 1 µS
Spurious Level	< = -55 dBc
Harmonic Level	< = -70 dBc

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ELECTRICAL PERFORMANCE CONTINUED

LO1	
Frequency	7370-8370 MHz
Level	0 dBm +/- 2dB (over temperature and BW)
Phase Noise	< = -85 dBc/Hz @ 100 Hz offset
Spurious Level	< = -55 dBc
Harmonic Level	< = -70 dBc
LO2	
Frequency	1440 MHz or 1555 MHz
Level	0 dBm +/- 2dB (over temperature and BW)
Phase Noise	< = -100 dBc/Hz @ 100 Hz offset
Spurious Level	< = -55 dBc
Harmonic Level	< = -70 dBc
INTERNAL BYTE	
Frequency	9.0-10.0 GHz
Level Control	7 Bit Digital Attenuator with 1 dB steps
MASTER OSCILLATOR	
Frequency	120 MHz
Level	+10 dBm +/- 0.5dB
Phase Noise (Static)	< = -135 dBc/Hz @ 100 Hz offset
Stability	< = 1 ppm
Harmonic Level	< = -60 dBc

ISO 9001 REGISTERED FIRM

Certificate # A2498US

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