NWO5557-17

5.55 – 5.57GHz Source
Frequency Synthesizer
v 1.1

GENERAL DESCRIPTION

The NWO5557-17 is one of a family of high performance, triple output C- band synthesizers that can operate across the frequency band 5.55GHz to 5.57GHz. The phase noise performance of the unit results in a source coherence of -60dBc over the integration bandwidth from 10Hz to 1MHz. A DDS based synthesizer core is used which enables frequency switching speeds down to 200ns and frequency tuning resolution below 1Hz whilst maintaining a spurious level of below -60dBc. The generic sources contain an internal high performance crystal oscillator to ensure frequency stability over temperature of ±1ppm and g-sensitivity below 0.5ppb/g. The unit can be configured to provide a 10MHz reference output for use as a system clock or as a synchronization signal for test equipment.

Nanowave Technologies HMIC subassemblies are used throughout the design to ensure high reliability and compliance to environmental specification.

Figure 1- C-Band Source

FEATURES

- Exceptionally low phase noise
- Flexible frequency ordering across C-band
- MIL-PRF-38534 construction

APPLICATIONS

- Coastal Surveillance Radar
- Ground Station Radar
- Naval applications

ELECTRICAL PARAMETERS

Parameter	Unit	Min	Typ	Max	Remarks
Frequency range	GHz	5.55		5.57	Unit available for frequencies across C- band in 200MHz bands for standard product.
Frequency stability over temperature	ppm			±1	
Frequency ageing	ppm/year			+1	
High power port J3	dBm	+17			
Low power ports J1 & J2	dBm	+13			
Frequency switching time	ns	200			
Carrier Offset	Phase Noise				
10Hz	dBc/Hz			-65	

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Parameter	Unit	Min	Typ	Max	Remarks
100Hz	dBc/Hz			-90	
1KHz	dBc/Hz			-105	
10KHz	dBc/Hz			-115	
100KHz	dBc/Hz			-118	
1MHz	dBc/Hz			-130	
Coherence	dBc			-60	10Hz to 1MHz
Harmonics	dBc			-25	
Subharmonics	dBc			-60	
Spurious max	dBc			-60	
Frequency control (J4)	RS232 UART				
Frequency step	Hz	<1		Enables system setting of frequency.	
Lock detect signal	TTL high indicates lock			Enables system check of unit lock status.	
Thumbwheel switch control					
Frequency step	MHz	1		4 bit thumbwheel switch enables operator visual inspection and setting of frequency	
External lock detect light				Enables operator visual check of unit lock status.	
Reference output (J5)					10MHz reference option
Reference frequency	MHz			10	10MHz from internal reference
Reference power level	dBm	0			
Reference stabilization time	min			5	
Input supply	V			15	
Input current	A			1.5	
DC power dissipation	W			22.5	
Frequency stability over temperature	ppm			±1	
Frequency ageing	ppm/year			+1	

MECHANICAL AND ENVIRONMENTAL PARAMETERS

Parameter	Unit	Min	Typ.	Max	Remarks
Operating Temperature Range	°C	0		+70	Extended temperature on request
Non-operating Temperature Range	°C	0		+85	
Ingress Protection	IP		60		
Size (length, width, height)	Inches	7.5 x 2.5 x 4.1			
Weight	kg		1.7		
RF Output Connectors			SMA-F		
Digital/Power			DB9-M		
Marking	Manufacturer name, model, serial number, date code				

Notes: Specifications subject to change without notice.

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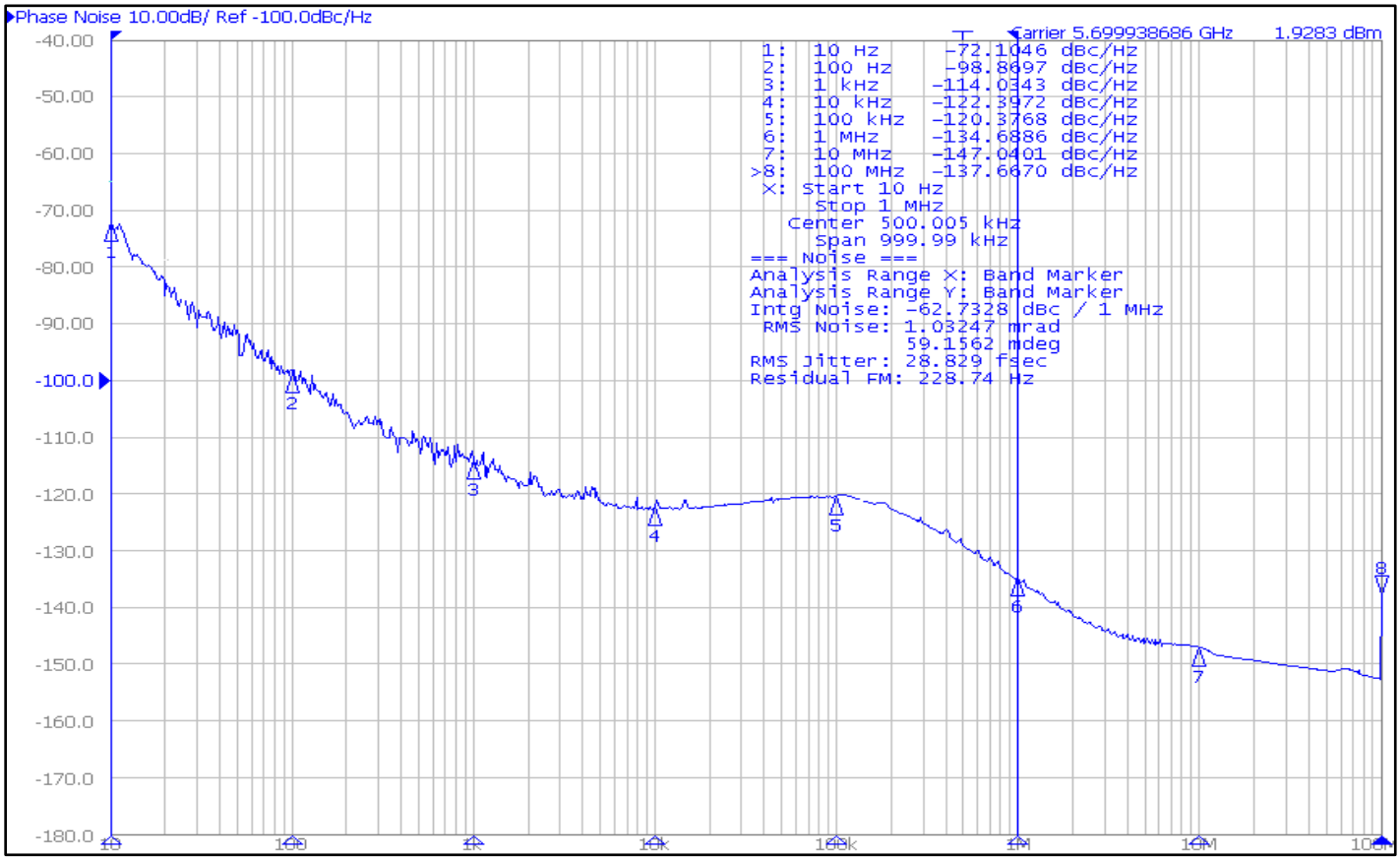

Fig 2: Typical Phase noise Performance

COMMUNICATION AND CONTROL INTERFACE

The STALO can be monitored and controlled via a Graphical User Interface (GUI). The communication is conducted using an RS-232 interface allowing frequency to be set from a host computer. The unit's lock status and internal temperature can also be monitored.

The STALO also supports stand-alone operation, where in the absence of a computer, frequency can be set using the thumb wheel switch, while lock status can be observed as a TTL signal on the unit's external connector.

Parameters monitored/controlled via RS-232:

- Frequency
- Temperature
- Lock Status

Functions monitored/controlled in stand-alone operation:

- Frequency (via thumb wheel switch)
- Lock Status (TTL)

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OUTLINE DRAWING

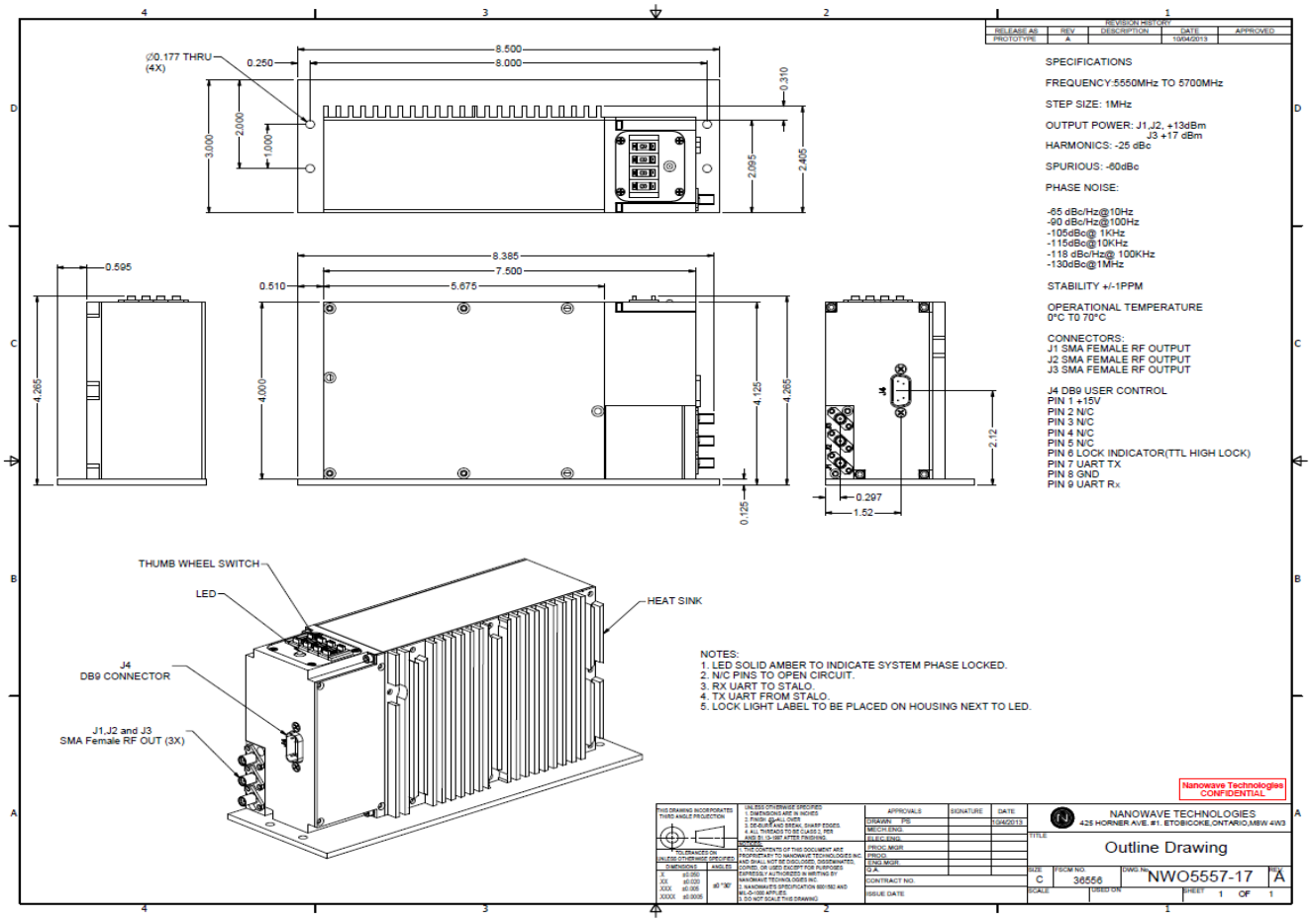

Fig 3: Outline Drawing of 5.55GHz – 5.57GHz RADAR Frequency Synthesizer

Table 1: List of Connectors

J1	RF O/P +13dBm
J2	RF O/P +13dBm
J3	RF O/P +17dBm
J4	10MHz REF Out
J5	Digital Control and Power

Notes:
The outline of this source unit is customizable. Arbitrary shapes are possible to accommodate form-fit functionality.

Additional features:

- Marking: The unit is marked with manufacturer part no., date code, and Serial Number.
- All plating and painting is RoHS compliant

For further information please contact NANOWAVE Technologies Inc. at *sales@nanowavetech.com* , or call at (+1) 416-252-5602

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