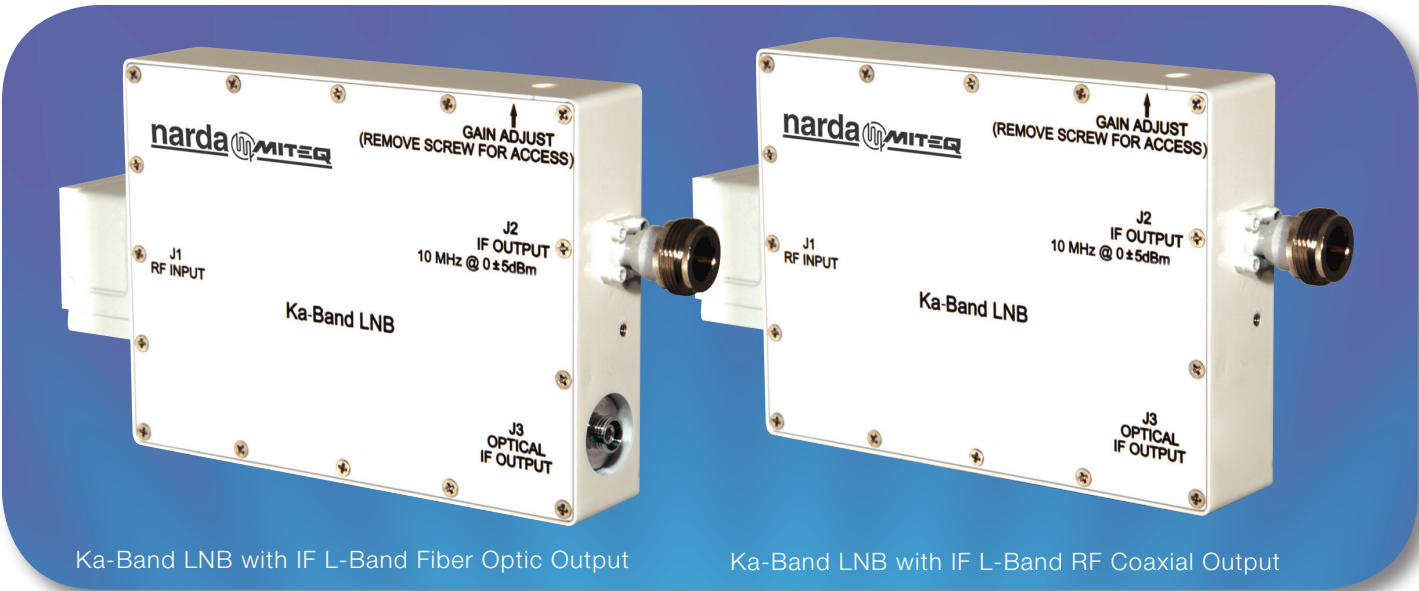


# HIGH-PERFORMANCE Ka-BAND LOW-NOISE BLOCK DOWNCONVERTER

**narda**  **MITEQ**

## FIBER-OPTIC OPTION



### FEATURES

- Low-noise temperature (including input isolator): 110 K typical, 120 K maximum
- Excellent input VSWR:  $\leq 1.3:1$
- Waveguide input (WR42)
- High RF output power: +20 dBm at P1dB
- Superior immunity from Tx signals
- Designed to meet MIL-STD-188-164B requirements

### OPTIONS

- L-Band fiber-optic interface with FC/APC connector and a matched fiber-optic receiver
- Paint colors: FED-STD-595B green hybrid matte or desert tan
- 15 dB gain adjustment
- See datasheet D-385 for reduced size LNB without fiber-optic option

Compact, high-performance series of Narda-MITEQ's Ka-Band low-noise blockdownconverters (LNB) is designed to be used in outdoor antenna-mounted applications. An option is available to provide a fiber-optic interface at the L-Band output which includes both the internal fiber-optic transmitter and the matched, remote fiber-optic receiver. The unit is designed to meet military service requirements and can be qualified to the appropriate standards. With the fiber-optic option, the LNB can be located up to 10,000 feet from the fiber-optic receiver and baseband equipment.

INPUT FREQUENCY (GHz)	OUTPUT FREQUENCY (GHz)	LO FREQUENCY (GHz)	GAIN * (dB)	MODEL NUMBER
18.3 to 18.8	0.95 to 1.45	17.35	58 to 62	DB-183188-60/120
19.7 to 20.7	1.0 to 2.0	18.7	58 to 62	DB-197207-60/120
19.7 to 20.7	0.95 to 1.95	18.75	58 to 62	DB-197207-60/120-1
20.2 to 21.2	1.0 to 2.0	19.2	58 to 62	DB-202212-60/120
20.2 to 21.2	0.95 to 1.95	19.25	58 to 62	DB-202212-60/120-1

\*Note: Option 5 provides manual gain adjustment over 15 dB range: 43 dB to 47 dB minimum to 58 dB to 62 dB maximum.

# HIGH-PERFORMANCE K<sub>a</sub> -BAND LOW-NOISE BLOCK DOWNCONVERTER

SPECIFICATIONS	BLOCK CONVERTERS
Type	Non-inverting
Frequency input	Refer to model number table on page one
Frequency output	Refer to model number table on page one
Gain (23 °C) maximum	58 dB to 62 dB, measured mid-band at 23 °C (See Option 5 for 15 dB manual gain adjustment)
Gain stability	0.5 dB/day constant temperature, ±1.5 dB/-40 °C to +60 °C (RF/IF)
Amplitude response	±0.5 dB/±40 MHz, ±1.0 dB/RF band maximum
Output 1 dB compression point	+20 dBm minimum
Intermodulation distortion (third-order)	With two 0 dBm outputs, 60 dBc minimum
Noise temperature with isolator	100 K typical, 110 K maximum at 23 °C ambient
Group delay	1 ns peak-to-peak maximum/RF band
Spurious	
Signal-related	-65 dBc maximum up to -10 dBm output at maximum gain
Signal-independent	-80 dBm in-band maximum
LO leakage at RF input	-80 dBm maximum
Image rejection	50 dB minimum
NF desensitization from Tx band (30 GHz to 31 GHz)	-10 dBm input, 0.1 dB maximum noise figure increase
Non-damage input level inband	-20 dBm maximum
Return loss (50 ohms)	
Input	18 dB maximum
Output	15 dB maximum

Note: Specifications are subjected to options elected.

## PHASE NOISE SPECIFICATIONS (3 dB LESS THAN MIL-STD-188-164B)

OFFSET	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	10 MHz
Level (dBc/Hz)	45	65	75	85	97	107	115
Required reference level (dBc/Hz)	105	135	148	150	152	152	152

Power and frequency reference on output center conductor.

## GENERAL SPECIFICATIONS

### PRIMARY POWER REQUIREMENTS

Voltage.....10 VDC to 28 VDC (other voltages optional)

Current

    With fiber-optic option .....400 mA typical, 450 mA maximum at 24 VDC

    Without fiber-optic option .....325 mA typical, 350 mA maximum at 24 VDC

Reference

    Frequency .....10 MHz

    Level range.....0 ±5 dBm

### PHYSICAL

Weight.....1.2 lb. [0.5 kg]

Connectors

    RF input .....WR-42 cover flange (O-ring optional)

    IF/reference/DC power .....N female

    Fiber-optic .....FC/APC (option only)

## GENERAL SPECIFICATIONS (CONTINUED)

### ENVIRONMENTAL

#### Operating

Ambient temperature.....	-40°C to +60°C
Atmospheric pressure .....	Up to 10,000 feet
Relative humidity.....	100% with condensation
Input waveguide pressure .....	1.0 psi maximum

#### Nonoperating

Ambient temperature.....	-50°C to +70°C
Atmospheric pressure .....	Up to 40,000 feet

## OPTIONS

Missing option numbers are not applicable for this product.

1. Phase perturbation testing: MIL-STD-188-164B, paragraph 5.5 requirements under shock, vibration and temperature.

3. Fiber-optic L-Band output: supplied with Narda-MITEQ indoor fiber-optic receiver

A. One-third rack receiver: Model ORM-9502150-1

B. Card cage receiver: Model OCCR-9502150-1

See datasheet D-306 for additional information and accessories.

Note: Noise figure with fiber-optic option will increase 0.25 dB nominal.

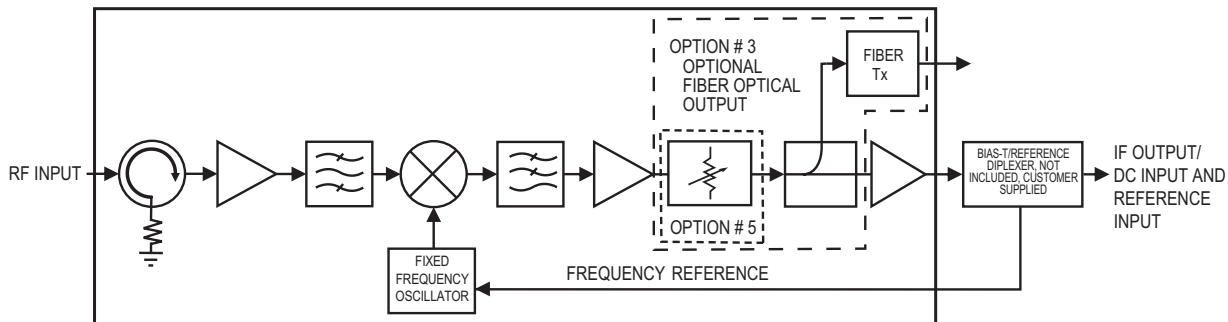
4. Paint color (per FED-STD-595B) Note: Standard color is white.

A. Green PMS 383: Color 34094

B. Desert tan: Color 33303

5. Optional IF gain adjustment. Gain variable by 15 dB nominal with manual adjustment.

## REPRESENTATIVE BLOCK DIAGRAM



## OPTIONAL FIBER-OPTIC RECEIVERS (OPTION 3, REFER TO DATASHEET D-306)



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