

## 1/3 RACK-MOUNTED



Unit shown with Option 17, display-remote control

Unit shown without Option 17, display-remote control

### FEATURES

- 30 dB level control
- Local oscillator monitor port
- Output signal monitor port
- Low phase noise
- Low intermodulation distortion
- Summary alarm
- CE certification

### OPTIONS

- Higher frequency stability
- RS-422/RS-485 and 10/100 Base-T Ethernet
- Automatic 5/10 MHz internal/external reference selection
- Gain transmit to L-Band
- 30 dB additional level control
- LO level alarm

This equipment is designed for applications where frequency translation is needed with a minimum of amplitude and group delay distortion.

U.S. Patent #7,510,090



# TEST TRANSLATORS

## RF TRANSMIT-BAND TO RF RECEIVE-BAND

INPUT FREQUENCY (GHz)	OUTPUT FREQUENCY (GHz)	LO FREQUENCY (GHz)	MODEL NUMBER
5.85 to 6.425	3.625 to 4.2	2.225	DNS-6.1/3.9TR
5.85 to 6.65	3.4 to 4.2	2.45	DNS-6.25/3.8TR
6.725 to 7.025	4.5 to 4.8	2.225	DNS-6.8/4.6TR
7.9 to 8.4	7.25 to 7.75	0.65	DNS-8.15/7.5TR
7.9 to 8.4	7.175 to 7.675	0.725	DNS-8.15/7.4TR
12.75 to 13.25	10.7 to 11.2	2.05	DNS-13/11.2TR
13.75 to 14.5	10.7 to 11.45	3.05	DNS-14/11TR
13.75 to 14.5	11.45 to 12.2	2.3	DNS-14/11.8TR
13.75 to 14.5	12 to 12.75	1.75	DNS-14/12.3TR
13.75 to 14.5	10.95 to 11.7	2.8	DNS-14/11.3TR
13.75 to 14.5	11.7 to 12.45	2.05	DNS-14/12TR
17.3 to 18.1	11.7 to 12.5	5.6	DNS-17.7/12.1TR

## Ka-BAND

INPUT FREQUENCY (GHz)	OUTPUT FREQUENCY (GHz)	LO FREQUENCY (GHz)	MODEL NUMBER
29.5 to 30	19.2 to 19.7	10.3	DNS-29.75/19.45TR
29.5 to 30	19.7 to 20.2	9.8	DNS-29.75/19.95TR
29 to 30	19.2 to 20.2	9.8	DNS-29.5/19.7TR
30 to 31	20.2 to 21.2	9.8	DNS-30.5/20.7TR

## RF TRANSMIT-BAND TO L-BAND

INPUT FREQUENCY (GHz)	OUTPUT FREQUENCY (GHz)	LO FREQUENCY (GHz)	MODEL NUMBER
5.85 to 6.65	0.95 to 1.75	4.9	DN1-6.25TR
5.925 to 6.425	0.95 to 1.45	7.375	DN1-6.175TR-INV
7.9 to 8.4	0.95 to 1.45	6.95	DN1-8.15TR
12.75 to 13.25	0.95 to 1.45	11.8	DN1-13TR
14 to 14.5	0.95 to 1.45	13.05	DN1-14.25TR
13.75 to 14.5	0.95 to 1.7	12.80	DN1-14.125TR
14.5 to 14.8	0.95 to 1.25	13.55	DN1-14.65TR
17.3 to 18.1	0.95 to 1.75	16.35	DN1-17.7TR

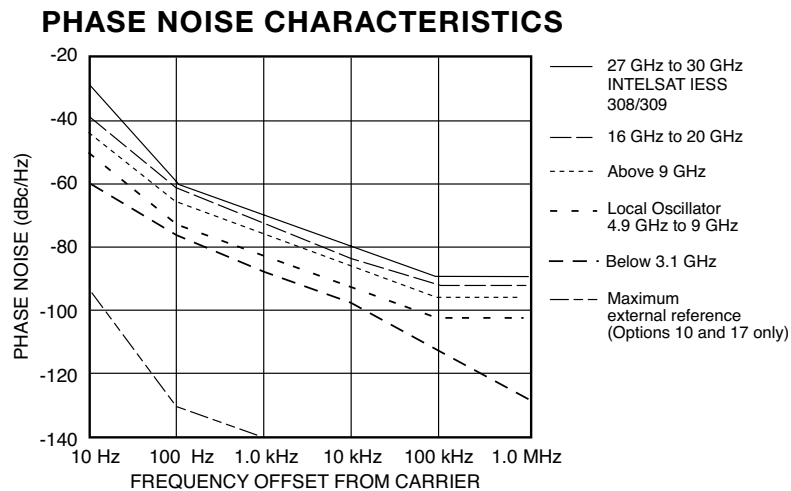
## Ka-BAND

INPUT FREQUENCY (GHz)	OUTPUT FREQUENCY (GHz)	LO FREQUENCY (GHz)	MODEL NUMBER
28.35 to 28.6	0.95 to 1.2	27.4	DN1-28.475TR
29.25 to 29.5	0.95 to 1.2	28.3	DN1-29.375TR
29.25 to 30	0.95 to 1.7	28.3	DN1-29.75TR
30 to 31	0.95 to 1.95	29.05	DN1-30.5TR
30 to 31	1 to 2	29	DN1-30.5-1TR

SPECIFICATIONS	IF-BAND	L-BAND
Input characteristics		
Frequency	Refer to model number table on previous page	Refer to model number table on previous page
Impedance	50 ohms	50 ohms
Return loss	18 dB minimum	18 dB minimum
Non-damage level	+10 dBm maximum	+10 dBm maximum
Output characteristics		
Frequency	Refer to model number table on previous page	Refer to model number table on previous page
Impedance	50 ohms	50 ohms
Return loss	18 dB minimum	18 dB minimum
Output signal monitor	N/A	-20 dBc nominal
Transfer characteristics		
Conversion loss	25 dB maximum	15 dB maximum (20 dB gain optional)
Level control	30 dB continuously adjustable (rear panel), 30 dB/0.2 dB step (Option 17)	
Conversion loss stability	±0.25 dB/day at 23 °C	±0.25 dB/day at 23 °C
Amplitude response	±0.25 dB/40 MHz, ±1 dB/output frequency band	±0.25 dB/40 MHz, ±1 dB/output frequency band
Intermodulation	-50 dBc minimum at -5 dBm input	-50 dBc minimum at -5 dBm input
Frequency stability	±3 x 10 <sup>-6</sup> /day (0 °C to 50 °C)	±3 x 10 <sup>-6</sup> /day (0 °C to 50 °C)
Input/output isolation	60 dB minimum	60 dB minimum
Mute function	60 dB minimum	60 dB minimum

Note: All specifications at maximum gain unless otherwise noted.

## MAXIMUM PHASE NOISE SPECIFICATIONS



# TEST TRANSLATORS

## OPTIONS

Missing option number are not applicable for this product.

1. Gain on transmit to L-Band units
  - Gain ..... 20 ±3 dB
  - Power output (1 dB compression)..... +18 dBm minimum
  - Gain slope..... 0.03 dB/MHz maximum
  - Gain stability..... ±0.25 dB/day maximum at constant temperature
  - Intermodulation distortion (third-order).. With two inband signals at 0 dBm output, third-order intermodulation products are less than 60 dBc minimum and 50 dBc minimum (Ka-Band units).
  - Noise figure ..... 18 dB maximum (20 dB for Ka-Band)
7. 30 dB additional level control
8. LO level alarm
9. Input filter
10. Higher frequency stability reference/automatic reference configuration
  - External 5 or 10 MHz at +4 ±3 dBm. If external reference is below +1 dBm nominal, the converter will automatically lock to the internal reference. Reference oscillator acts as an analog phase lock with a 0.1 Hz nominal loop bandwidth. Typical loop suppression of the external reference is as follows: -28 dB at 1 Hz offset, 65 dB at 10 Hz offset, and 100 dB at 100 Hz offset. Internal oscillator is available with the following stabilities:
  - A.  $\pm 5 \times 10^{-8}$ , 0 °C to 50 °C,  
5 x 10<sup>-9</sup>/day typical (fixed temperature after 24 hours on time)
  - C.  $\pm 5 \times 10^{-9}$ , 0 °C to 50 °C,  
1 x 10<sup>-9</sup>/day typical (fixed temperature after 24 hours on time)
  - Note: Translator may require 7 days to 10 days to reach stability after long storage periods.
17. Remote control/display..... 10/100 Base-T Ethernet interface providing:
  - HTTP-based web server
  - SNMP 1.0 configuration
  - Alarm reporting via SNMP Trap
  - Telnet access
  - Password protection and selectable RS-485/RS-422
  - Gain control is 30 dB in 0.2 dB steps
  - Alarm, reference and mute status on front panel

Notes: Display is only provided with remote control Option 17.

For literature describing local control (front panel) and remote control (bus control), refer to L3 Narda-MITEQ Technical Note 25T066.

## ACCESSORIES

1/3 rack-mount frame

Model number .....OL-TR3-20

Weight.....1.5 lb. [0.68 kg] nominal

Dimensions .....19" [482.6 mm] x 1.75" [44.5 mm] x 20" [508.0 mm]

## GENERAL SPECIFICATIONS

### PRIMARY POWER REQUIREMENTS

Voltage.....100 VAC to 240 VAC (-10%, +6%)

Frequency.....47 Hz to 63 Hz

Consumption .....12 W typical

### PHYSICAL

Weight .....4.5 lb. [2.04 kg] nominal

Dimensions .....5.70" [144.8 mm] x 1.48" [37.6 mm] x 18" [457.2 mm]  
(excluding connectors)

### Connectors

RF Band.....SMA female (below 18 GHz),  
SMA female compatible above 18 GHz

Output monitor .....SMA female

LO monitor.....SMA female

Status interface .....DE-9S

Redundancy interface .....DE-9P

Remote interface (Option 17).....RJ-45 female for Ethernet, RS-422/RS-485 available  
on status connector

Primary power input .....IEC-320

External reference .....SMA female (Option 10 only)

### ENVIRONMENTAL

#### Operating

Temperature .....0 °C to 50 °C

Relative humidity.....Up to 95% at 30 °C

Atmospheric pressure .....Up to 10,000 feet

#### Nonoperating

Temperature .....-50 °C to +70 °C

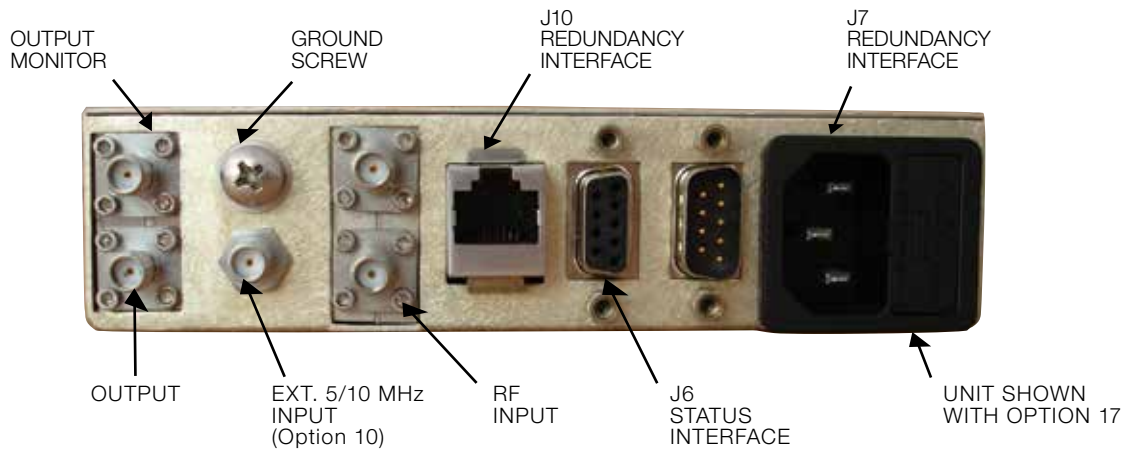
Relative humidity.....Up to 95% at 45 °C

Atmospheric pressure .....Up to 40,000 feet

Shock and vibration .....Normal handling by commercial carriers

# TEST TRANSLATORS

## TYPICAL REAR-PANEL VIEW



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