

# X-Band Test Loop Translator Module

## X-Band to X-Band

TLT-D-X3X3-1007-S5S5 is a X band input to X band output Test Loop Translator designed to be housed in the 1U GENUS chassis, with 60dB of variable attenuation. The 1U chassis has the capacity for up to 16 hot-swap RF modules (dependant upon module type fitted). Contact ETL for module types available.

### TLT Module



#### TLT Module

Compact form factor allowing multiple modules to be housed in the Genus chassis. Each module occupies 8 slots in the chassis.

**Hot Swap & replaceable**  
RF TLT modules

#### Frequency Conversion

Input Frequency: 7.9 - 8.4GHz  
Output Frequency: 7.25 - 7.75GHz

#### Variable Attenuation

60dB of available attenuation

### Chassis Options

**Local control & monitoring**  
via HMI high resolution touchscreen

**Resilience**  
from dual redundant hot-swap power supplies & field replaceable CPU & HMI

**Compact indoor & outdoor**  
chassis options, which can be part populated

**Secure protocols**  
with SNMPv3 and HTTPS

**Flexible Module Configurations**  
choose from a mixture of TLT modules with different operating frequencies.

**Remote control & monitoring**  
via RJ45 Ethernet port with SNMP & web browser interface

**Field replaceable Internal 10MHz reference source**  
and external reference inject port with auto detection



Indoor Chassis



Outdoor Unit



| GENERAL SPECIFICATIONS         |                                 |  |  |
|--------------------------------|---------------------------------|--|--|
| Operating Frequency Range      | Input                           | 7.9 GHz - 8.4 GHz  |  |
|                                | Output                          | 7.25 GHz - 7.75 GHz  |  |
| Instantaneous Bandwidth        |                                 | 500 MHz  |  |
| LO Frequency Control Range     |                                 | N/A (Fixed Frequency)  |  |
| LO Step Size                   |                                 | N/A (Fixed Frequency)  |  |
| Internal Reference Stability   |                                 | ±0.05 ppm over 0 to 50°C   |  |
| External Reference             |                                 | Input Freq. 10 MHz. Auto detection (External reference optional) |  |
| Maximum Input Power Level      |                                 | 0 dBm (Operational)  |  |
| Absolute max Input Power Level |                                 | +15 dBm (For no damage)  |  |
| External Reference Input Level |                                 | +3 dBm +/-3 dB   |  |
| Conversion Gain                |                                 | 0 ± 3.0 dB (At 0 dB attenuation setting)                         |  |
| Flatness                       | Full Band                       | ±2.0 dB  |  |
|                                | Any 40 MHz                      | ±0.5 dB  |  |
| RF Ports                       |                                 | 50 ohms SMA Input/Output   |  |
| Attenuation Control Range      |                                 | 0 to 60 dB   |  |
| Attenuation Control Steps      |                                 | 0.25 dB ±0.20 Over full operating band                           |  |
| Input Return Loss              |                                 | 14 dB typ. 10 dB min.  |  |
| Output Return Loss             |                                 | 14 dB typ. 10 dB min.  |  |
| Noise Figure                   |                                 | 36 dB typical (at maximum gain)                                  |  |
| In-band Spurious               | Non-carrier related             | < -60 dBm  | At 0 dB input, min attenuation. Non-harmonic                   |
|                                | Carrier related (> 1MHz Offset) | < -30 dBc  |  |
| Out-band Spurious              | Non-carrier related             | < -65 dBm  | At 0 dB input, min attenuation. Non-harmonic                   |
|                                | Carrier related (Offset)        | < -30 dBc  |  |
| Harmonics                      |                                 | -30 dBc max  | At 0 dBm input, min attenuation.                               |
| LO Breakthrough                |                                 | < -60 dBm max.   |  |
| Mute function                  |                                 | 80 dB  |  |
| Spectral Inversion             |                                 | Non-inverting  |  |
| Number of modules per chassis  |                                 | 1 Max  | Module 8 slots wide; 16 slots per chassis (1 reserved for fan) |
| MTBF                           |                                 | >80,000 hrs MTBF of each TLT Module                              |  |



| PHASE NOISE |                         |
|-------------|-------------------------|
| 100 Hz      | -70 dBc / Hz (typical)  |
| 1 KHz       | -80 dBc / Hz (typical)  |
| 10 KHz      | -80 dBc / Hz (typical)  |
| 100 KHz     | -85 dBc / Hz (typical)  |
| 1 MHz       | -100 dBc / Hz (typical) |

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.

Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

Note 3: All specs are for 50 Ohm connectors unless detailed otherwise.