Loop Test and Noise Injection – Combined System

- Ku Band, Ka Band and Q Band Models
- Provides Loop Back Translation Tx to L-Band
- And Variable L-Band Noise Injection
- Local & Remote, Ethernet Control
- Versatile and Comprehensive Test System
- Tests RF Chain and Receiver/Modem in One

The AtlanTecRF LNI series of Noise Injection Loop Test Translator Systems provide the satellite communications engineer with a complete and versatile set up for off-satellite loop back testing of the transmit (TX) signal to L-band combined with the ability to inject white symmetrical gaussian noise for simultaneous receiver and modem testing.

The loop test (LTT) function is controllable in terms of input attenuation over a 60dB range in 0.5dB steps and local oscillator (LO) frequency in 25MHz steps while the white noise level is variable by up to 60dB in 0.25dB steps with an additional mute facility.

<table>
<thead>
<tr>
<th>LO Frequency (GHz)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>12.0</td>
<td>27.0</td>
<td>43.0</td>
</tr>
<tr>
<td>Attenuation Range</td>
<td>60dB min.</td>
<td></td>
</tr>
<tr>
<td>Attenuation Steps</td>
<td>0.5dB</td>
<td></td>
</tr>
<tr>
<td>Impedance</td>
<td>50 ohms</td>
<td></td>
</tr>
<tr>
<td>Input VSWR</td>
<td>1.8:1 typ.</td>
<td></td>
</tr>
<tr>
<td>Output VSWR</td>
<td>1.8:1 typ.</td>
<td></td>
</tr>
<tr>
<td>Signal Related Spurious</td>
<td>-25dBc typ.</td>
<td></td>
</tr>
<tr>
<td>LO Related Spurious &amp; Harmonics</td>
<td>-30dBm typ.</td>
<td></td>
</tr>
<tr>
<td>Non Signal or LO Related Spurious</td>
<td>-60dBc min.</td>
<td></td>
</tr>
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</table>

The LTT has a typical 0dB conversion loss at zero input attenuation selected while the base noise level generated is nominally -84dBm/Hz and is injected via a variable attenuator and 20dB directional coupler into the LTT’s L-band output. The noise level can be muted completely for LTT only operation and is also switchable to an external output for noise only operation. Filtering is included to prevent noise appearing at the Tx input port or mixing with the synthesised LO output.

Control of both LTT and noise injection is effected by either front panel controls or remotely via ethernet with an easy-to-use GUI. Frequency stability of the LO is derived from either the internal OCXO or from a system 10MHz reference.

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### General Specifications

#### LTT Section
- **LO Frequency Steps**: 25MHz
- **LO Reference**: 10MHz Int/Ext
- **Internal Ref. Stability**: +/-0.05ppm over 0+50C
- **Internal Ref. Ageing**: +/-0.1ppm/year
- **Maximum Input Level**: 0dBm
- **Conversion Loss**: 0dB nom.
- **Conversion Loss Flatness**: +/-0.5dB/40MHz
- **Attenuation Range**: 60dB min.
- **Attenuation Steps**: 0.5dB
- **Impedance**: 50 ohms
- **Input VSWR**: 1.8:1 typ.
- **Output VSWR**: 1.8:1 typ.
- **Signal Related Spurious**: -25dBc typ.
- **LO Related Spurious & Harmonics**: -30dBm typ.
- **Non Signal or LO Related Spurious**: -60dBc min.
- **Attenuation & LO Frequency Control**: Front Panel Up/Down Buttons & LCD Readout Remote via Ethernet with GUI

#### Noise Generator Section
- **Noise Frequency Range**: 10-2600MHz
- **Total Noise Power**: +10dBm nom.
- **Base Noise Density**: -84dBm/Hz
- **Noise Flatness**: +/-1.5dB typ.
- **Noise Attenuation Range**: 60dB min.
- **Attenuation Steps**: 0.25dB
- **Noise Coupling Factor**: 20dB nom.
- **Noise Level Control**: Noise Mute Function - Local & Ethernet

#### Combined System
- **Tx Input Connector**: Ku – SMA Female
- **Ka – 2.92mm Female
- **Q – 2.4mm Female
- **L-Band Output Connector**: SMA Female
- **Ext. Ref. Input Connector**: BNC Female
- **Noise Output Connector**: SMA Female
- **Ethernet Connector**: RJ45x2
- **Input Power**: 80-240V, 50/60Hz
- **Input Power Connector**: IEC with Fuse
- **Size**: 19” x 2U x 13.5” (343mm) incl. connectors & protrusions

We reserve the right to change standard product specifications without notice but will be pleased to consider control drawings for quotation.

### General Specifications

<table>
<thead>
<tr>
<th>Model No</th>
<th>Input Frequency Range (GHz)</th>
<th>Output Frequency Range (GHz)</th>
<th>LO Frequency (GHz)</th>
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<tbody>
<tr>
<td>LNI-1180-1305-Ku</td>
<td>12.75-14.5</td>
<td>0.8-2.6</td>
<td>11.8-13.05</td>
</tr>
<tr>
<td>LNI-2500-2700-Ka</td>
<td>27.5-31.5</td>
<td>0.8-2.6</td>
<td>25.0-27.0</td>
</tr>
<tr>
<td>LNI-4250-4400-Q</td>
<td>43.5-45.5</td>
<td>0.8-2.6</td>
<td>42.5-44.0</td>
</tr>
</tbody>
</table>