

## **CT714b LANforge-Attenuator with 4 Attenuator Channels: 50 MHz** **- 8 GHz**

The CT714b RF Attenuator is used to attenuate (decrease) the RF signal between wireless devices. This attenuator brings all of the SMA connectors out the same side. This can make cabling easier in certain configurations. Multiple attenuators can be stacked on a solid metal base for testbeds needing many attenuators. A summary of the technical specifications is below:

|                    |                    |
|--------------------|--------------------|
| Max RF Power:      | +28 dBm            |
| Impedance:         | 50 $\Omega$        |
| Frequency Range:   | 50 MHz – 8.0 GHz   |
| Attenuation Range: | 0 – 95 dB          |
| Attenuation Steps: | 0.25 dB increments |

The CT714b may be controlled through software access over the USB-Serial port or Ethernet. The included LANforge software suite supports automated scripting as well as manual configuration of the attenuator modules.

The CT714b should be used with an RF enclosure to prevent the devices connected to the attenuator from bypassing the RF attenuator using over-the-air RF leakage.

The CT714b has no moving parts and will fit into a small travel bag or briefcase for easy portability.

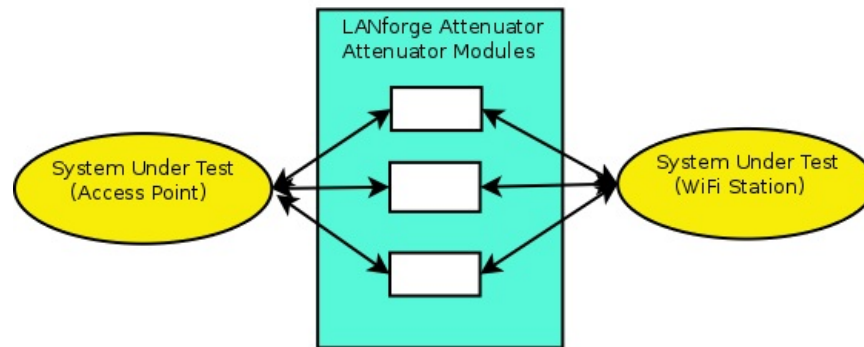
The CT714b includes a USB Cable for both management and power supply. If powering many attenuators, a powered USB hub should be used. PoE Ethernet is also supported.



NOTE: This product may have a different hardware configuration than the system pictured above.  
Refer to your official quote for details.

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### **Example Network Diagram**



The LANforge attenuator sits between two RF systems, often a WiFi AP on one side and WiFi Station on the other. The attenuator and WiFi stations are connected by shielded SMA-Male cables. Adjust the attenuation as desired either with the LANforge GUI or direct access over serial.

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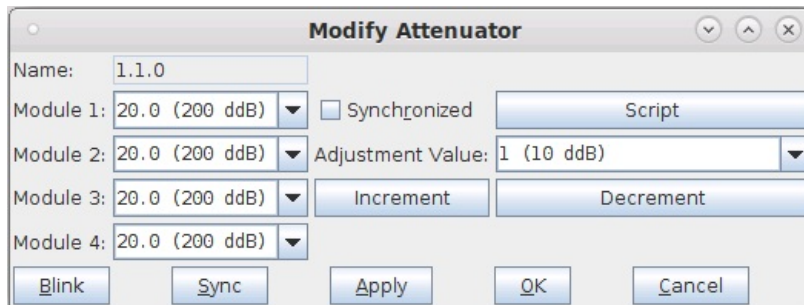
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## Quick Start Guide

1. Connect the CT714b to a Linux system running LANforge with the included USB cable. The USB cable allows control of the CT714b. The USB cable also provides power so no other power cable is required. PoE Ethernet connectivity may also be used.
2. Connect the attenuator pairs: One side to one system and the other side to another system or antennas.
3. Open a LANforge GUI and connect to the Linux system with the CT714b.
4. If using USB, the attenuator should be automatically discovered. If using Ethernet, then click the Discover button. In the Attenuator tab, you should see the CT714b device appear. Modify it to set attenuation values manually and/or configure a script to change attenuations automatically.
5. One useful feature for the CT714b is the Rate vs Range test in Chamber View. The second screenshot below shows the possible options this feature gives. For more information, please see [Testing Rate vs Range throughput for a WiFi Device](#).

## LANforge-Attenuator Related Images

### LANforge Attenuator Configuration Screen



The screenshot shows a 'Modify Attenuator' dialog box with the following fields and controls:

- Name:** A text field containing '1.1.0'.
- Module 1:** A dropdown menu showing '20.0 (200 ddB)'.
- Module 2:** A dropdown menu showing '20.0 (200 ddB)'.
- Module 3:** A dropdown menu showing '20.0 (200 ddB)'.
- Module 4:** A dropdown menu showing '20.0 (200 ddB)'.
- Synchronized:** An unchecked checkbox.
- Adjustment Value:** A dropdown menu showing '1 (10 ddB)'.
- Buttons:** 'Script', 'Increment', 'Decrement', 'Blink', 'Sync', 'Apply', 'OK', and 'Cancel'.

### LANforge Attenuator Rate vs Range Test

**Rate vs Range Test**

**Settings** | Advanced Configuration | Report Configuration

Selected DUT: netgear-r7800 | Duration: 15 sec (15 s)

Downstream Port: 1.1.21 sta0 | Upstream Port: <Custom>

Path Loss: 10 | Rate: 85%

| Channels  | Mode       | Packet Size |
|-----------|------------|-------------|
| AUTO      | Auto       | 78          |
| No-Change | 802.11a    | 142         |
| 1         | 802.11b    | 256         |
| 2         | 802.11g    | 512         |
| 3         | 802.11abg  | 1024        |
| 4         | 802.11abgn | MTU         |
| 5         | 802.11bgn  | 4000        |
| 6         | 802.11bg   | 9000        |

| Spatial Streams | Security | Bandwidth |
|-----------------|----------|-----------|
| AUTO            | AUTO     | AUTO      |
| 1               | Open     | 20        |
| 2               | WEP      | 40        |
| 3               | WPA      | 80        |
| 4               | WPA2     | 160       |
|                 | WPA3     |           |

Traffic Type: UDP | TCP

Direction: DUT Transmit | DUT Receive

Attenuator: 1.1.0 | 0..+50..950

**Start** | ☐ Another Iteration | ☐ Pause | **Cancel**

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## Software Features

1. Using Rate vs Range, an AP can be tested how well it can transmit packets at different signal levels for transit and receive.
2. Emulate mesh node distance.
3. Test device roaming between APs.
4. Test how well the AP can receive packets with different MCS at different RF Signal levels.

## Hardware Specification

1. RF Attenuator with 0.05 Ghz to 8 Ghz.
2. USB-Serial console (115200 8 N 1) for scripting and automated control. PoE Ethernet also supported.
3. Weight: 3 lbs or 1.36 kg.
4. Dimensions: 11.7 x 3.5 x 1 inches Metric: 296 x 89 x 24 mm.
5. Operating Temperature: 0 ~ 60°C.
6. Operating Humidity: 10 ~ 90%.

7. Certification: RoHS.

|                            |                    |            |            |                                       |
|----------------------------|--------------------|------------|------------|---------------------------------------|
| Max RF Power:              | +23 dBm            |            |            |                                       |
| Impedance:                 | 50 $\Omega$        |            |            |                                       |
| Frequency Range:           | 50 MHz – 8.0 GHz   |            |            |                                       |
| Attenuation Range:         | 0 – 95 dB          |            |            |                                       |
| Attenuation Steps:         | 0.25 dB increments |            |            |                                       |
| Insertion Loss (dB):       | Frequency          | Typical    |            | Max                                   |
|                            | 50 Mhz             | 4.2        |            | 4.5                                   |
|                            | 2400 Mhz           | 6.1        |            | 6.5                                   |
|                            | 6000 Mhz           | 8.5        |            | 10.0                                  |
|                            | 8000 Mhz           | 10.1       |            | 12.5                                  |
| Attenuation Accuracy (dB): | Frequency          | Conditions | Typical    | Max                                   |
|                            | 50 - 2000 Mhz      | 0.25 - 20  | $\pm 0.25$ | $\pm(5.5\% \text{ of Atten.} + 0.25)$ |
|                            |                    | 20.25 - 60 | $\pm 0.50$ | $\pm(2.0\% \text{ of Atten.} + 0.90)$ |
|                            |                    | 60.25 - 90 | $\pm 0.75$ | $\pm(3.5\% \text{ of Atten.} + 0.70)$ |
|                            | 2000 - 4000 Mhz    | 0.25 - 20  | $\pm 0.20$ | $\pm(5.5\% \text{ of Atten.} + 0.25)$ |
|                            |                    | 20.25 - 60 | $\pm 0.30$ | $\pm(2.0\% \text{ of Atten.} + 0.70)$ |
|                            |                    | 60.25 - 90 | $\pm 0.40$ | $\pm(3.0\% \text{ of Atten.} + 0.90)$ |
|                            | 4000 - 8000 Mhz    | 0.25 - 20  | $\pm 0.15$ | $\pm(6.5\% \text{ of Atten.} + 0.15)$ |
|                            |                    | 20.25 - 60 | $\pm 0.35$ | $\pm(3.5\% \text{ of Atten.} + 0.45)$ |
|                            |                    | 60.25 - 90 | $\pm 0.65$ | $\pm(3.5\% \text{ of Atten.} + 0.90)$ |

List Price: \$5,995    List Price with 1 Year support (17%): \$7,014

Additional Products

For a more complete WiFi testing setup, you may wish to consider the [CT711 RF Noise generator](#), [CT712 RADAR Simulator](#), [CT523](#) and [CT525](#) series WiFi traffic generators.