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Candela TECHNOLOGIES *Network Testing and Emulation Solutions*

CT714 LANforge-Attenuator with 4 Attenuator Channels: .005 GHz - 6 GHz

The CT714 RF Attenuator is used to attenuate (decrease) the RF signal between wireless devices. A summary of the technical specifications is below:

Max RF Power:	+28 dBm
Impedance:	50 Ω
Frequency Range:	0.005 GHz – 6.0 GHz
Attenuation Range:	0 – 95 dB
Attenuation Steps:	0.5 dB increments

The CT714 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 CT714 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 CT714 has no moving parts and will fit into a small travel bag or briefcase for easy portability.

The CT714 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.
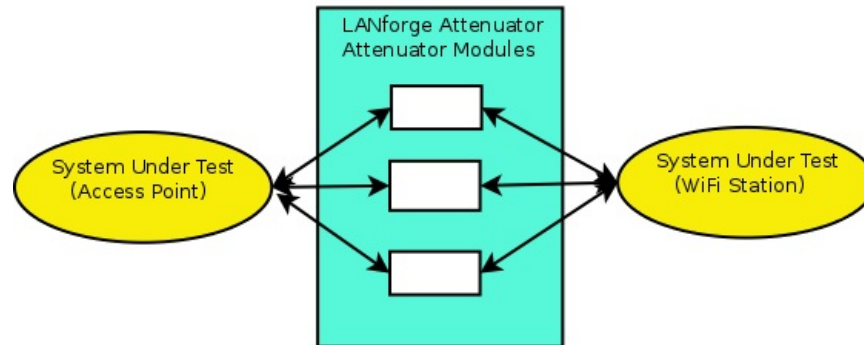

NOTE: This product may have a different hardware configuration than the system pictured above.
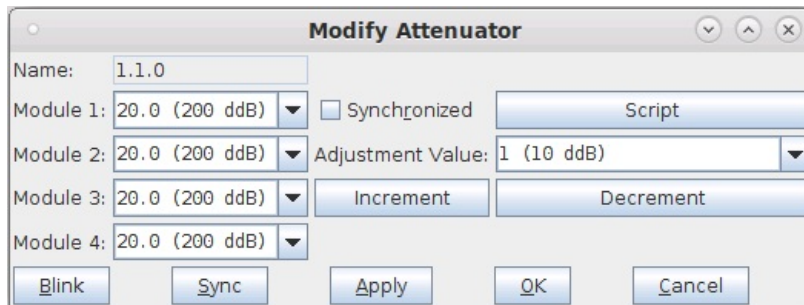
Example Network Diagram

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.
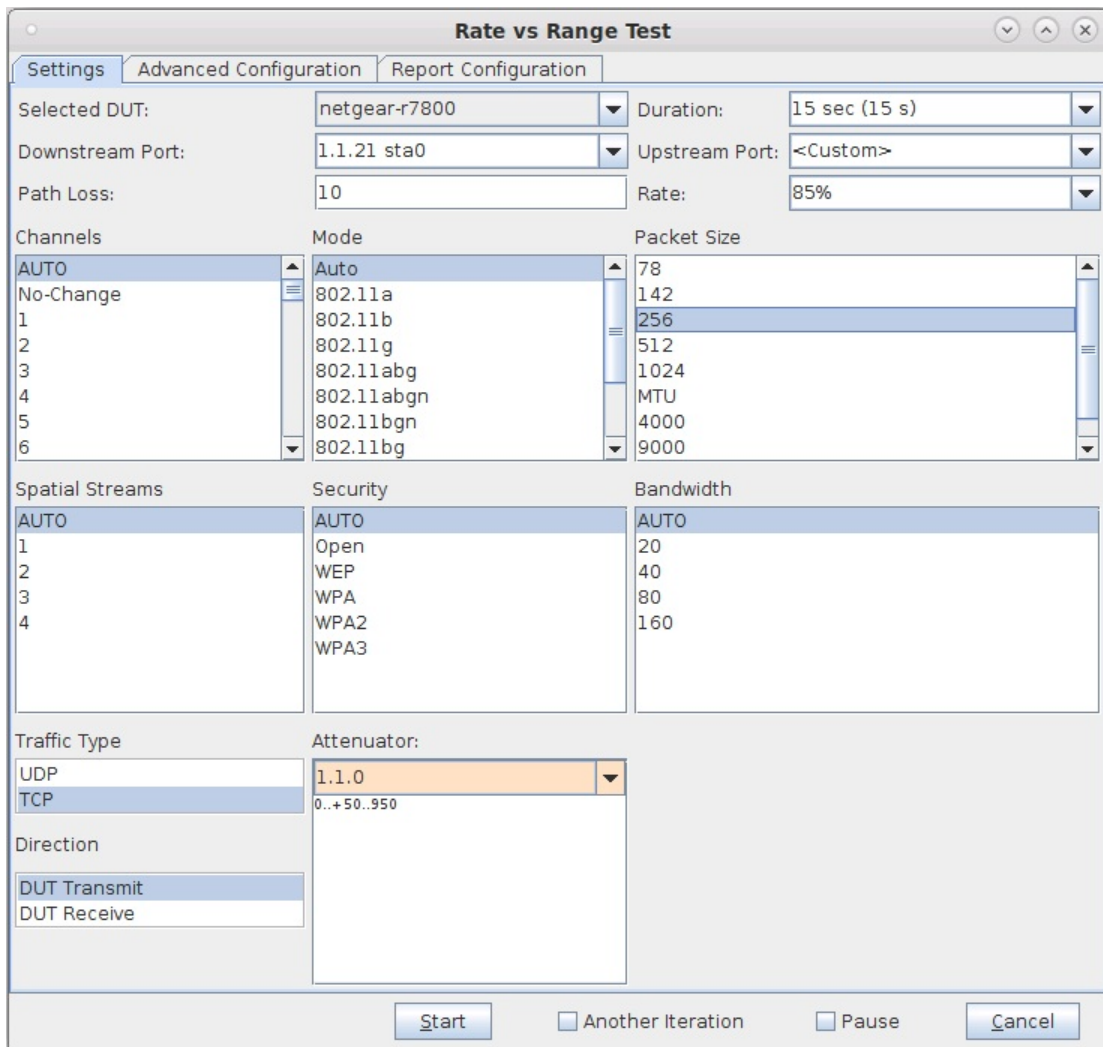
Quick Start Guide

1. Connect the CT714 to a Linux system running LANforge with the included USB cable. The USB cable allows control of the CT714. 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 CT714.

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 CT714 device appear. Modify it to set attenuation values manually and/or configure a script to change attenuations automatically.

5. One useful feature for the CT714 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

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
AUTO
No-Change
1
2
3
4
5
6

Mode
Auto
802.11a
802.11b
802.11g
802.11abg
802.11abgn
802.11bgn
802.11bg

Packet Size
78
142
256
512
1024
MTU
4000
9000

Spatial Streams
AUTO
1
2
3
4

Security
AUTO
Open
WEP
WPA
WPA2
WPA3

Bandwidth
AUTO
20
40
80
160

Traffic Type
UDP
TCP

Attenuator:
1.1.0
0..+50..950

Direction
DUT Transmit
DUT Receive

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 0.005 Ghz to 6 Ghz.

2. USB-Serial console (115200 8 N 1) for scripting and automated control.

3. Weight: 1.6 lbs or .714 kg.

4. Dimensions: 7 x 3.5 x 1 inches   Metric: 180 x 90 x 25 mm.

5. Operating Temperature: 0 ~ 60°C.

6. Operating Humidity: 10 ~ 90%.

7. Certification: RoHS.

Max RF Power:	+23 dBm		
Impedance:	50 Ω		
Frequency Range:	0.3 GHz – 6.0 GHz		
Attenuation Range:	0 – 95.5 dB		
Attenuation Steps:	0.5 dB increments		

	Frequency	**Typical**	**Max**
Insertion Loss (dB):	**5 Mhz**	4.2	5.0
	2400 Mhz	6.3	6.5
	6000 Mhz	10.9	13.0

	Frequency	**Conditions**	**Typical**	**Max**
Attenuation Accuracy (dB):	**5 - 2000 Mhz**	0.25 - 20	±0.25	±(5.5% of Atten. + 0.25)
		20.25 - 60	±0.50	±(2.0% of Atten. + 0.90)
		60.25 - 90	±0.75	±(3.5% of Atten. + 0.70)
	2000 - 4000 Mhz	0.25 - 20	±0.20	±(5.5% of Atten. + 0.25)
		20.25 - 60	±0.30	±(2.0% of Atten. + 0.70)
		60.25 - 90	±0.40	±(3.0% of Atten. + 0.90)
	4000 - 6000 Mhz	0.25 - 20	±0.15	±(6.5% of Atten. + 0.15)
		20.25 - 60	±0.35	±(3.5% of Atten. + 0.45)
		60.25 - 90	±0.65	±(3.5% of Atten. + 0.90)

List Price: $4,995   List Price with 1 Year support (17%): $5,844

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.

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