LTU™ Rocket

DATASHEET

5 GHz PtMP LTU™ BaseStation Radio

600+ Mbps Point-to-MultiPoint Performance

Up to 125 Client Connections per AP

Up to 2+ Mpps Performance

LTU™ Rocket

Overview

Ubiquiti introduces the LTU Rocket®, the first Point-to-Multi-Point (PtMP) BaseStation radio in our LTU™ product family. Operating in the 5 GHz frequency band, the LTU Rocket is a spectrally efficient, noise-resilient PtMP AP specifically designed for wireless ISPs (WISPs).

Primary features of the LTU Rocket include:

- 600+ Mbps PtMP performance[1]
- Up to 125 client connections per AP
- 2+ Million pps
- Proprietary RF filtering

[1] *1+ Gbps with future firmware upgrade.*

Superior Performance

LTU is a new, proprietary technology with custom silicon and radio design that break through the limitations of 802.11 Wi-Fi technology. This enables LTU to deliver far superior performance over previous airMAX products that are based on 802.11 Wi-Fi.

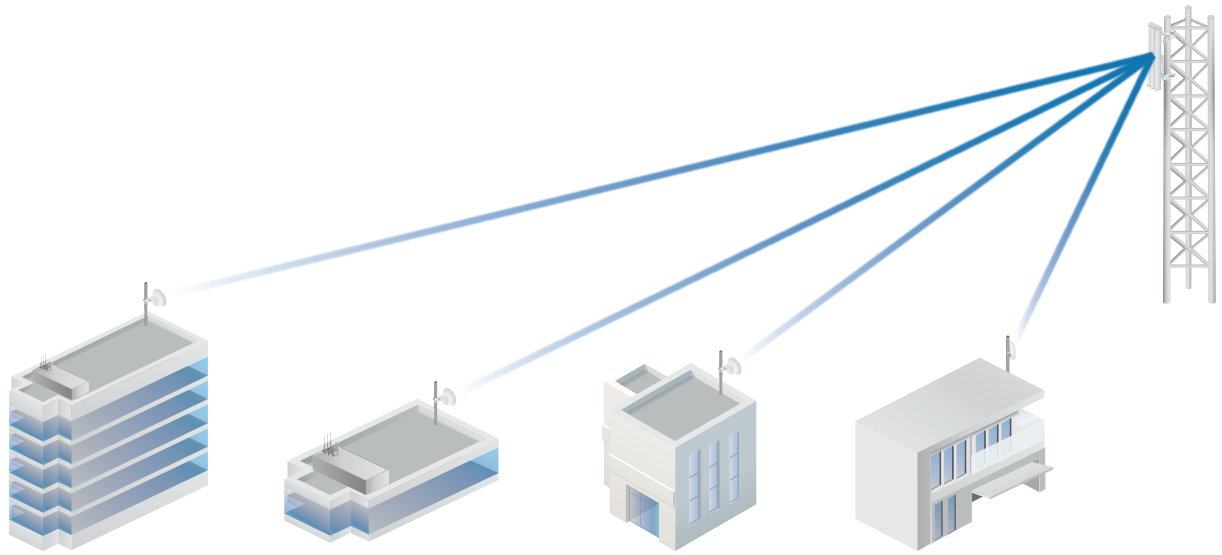
The LTU Rocket is designed for WISPs from the ground floor up. Its core communications processing engine enables low latency, long-range capability, DFS flexibility, higher constellations, better power output, and improved receive sensitivity.

Seamless Compatibility

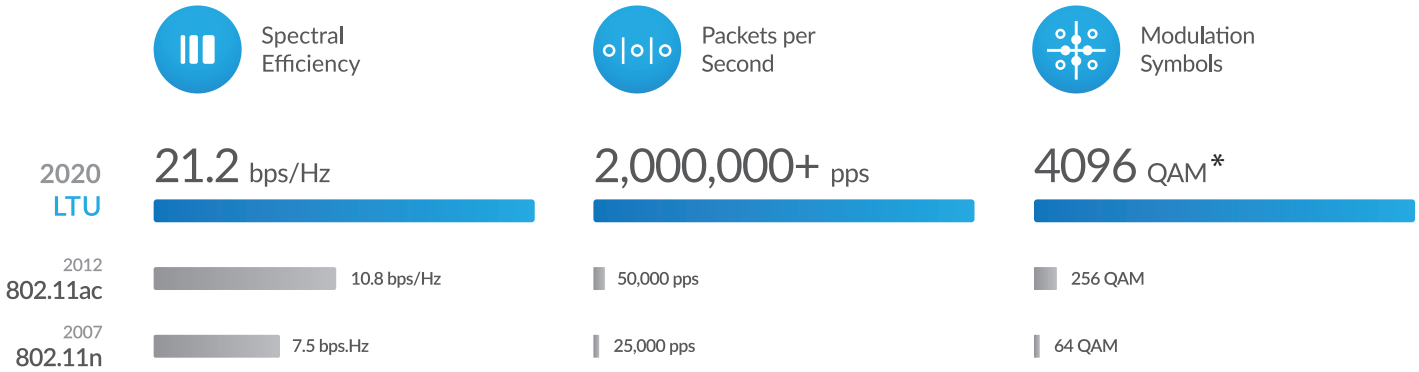
The LTU Rocket is designed to be paired with a variety of Ubiquiti antennas to suit the needs of each installation. The radio includes a mounting bracket that allows it to be used with a 5 GHz airMAX® Sector antenna or airMAX Omni antenna for a complete 5 GHz PtMP BaseStation. You can even pair three LTU Rocket radios with the airPrism® 5 GHz 3x30° HD Sector Antenna for co-location deployments.

The LTU Rocket also works with any CPE device in the LTU family, such as the LTU-Pro.

Deployment Example



The LTU Rocket paired with a sector antenna provides high-capacity links to multiple LTU CPEs



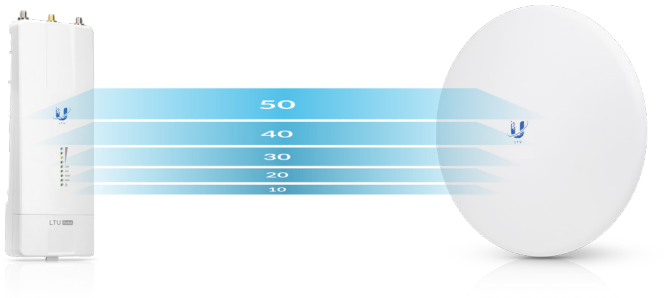
** Available with future firmware upgrade.*

Comparison of LTU Performance vs. 802.11ac and 802.11n

Channel Width Flexibility

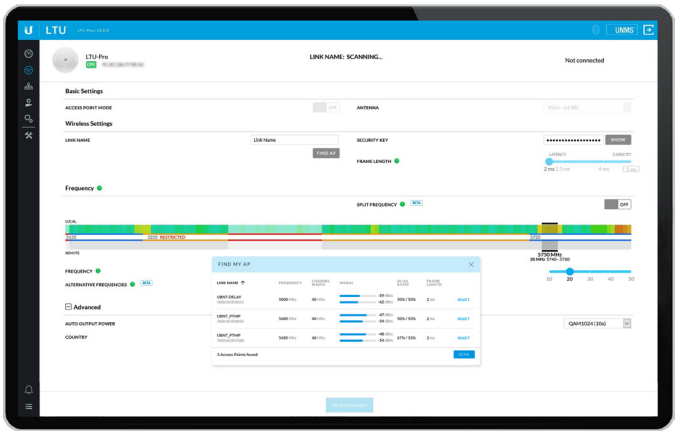
Channel width flexibility allows independent TX and RX channel frequency configurations anywhere within the radio band to avoid local interference. Channel width options include:

- 10 MHz
- 20 MHz
- 30 MHz
- 40 MHz
- 50 MHz
- Up to 100 MHz*



Auto Power Adjustments

By default, the Auto Output Power* option allows the LTU Rocket to set the output power (EIRP) to the appropriate level.



Frequency Split

The LTU Rocket can use different frequencies for TX and RX to avoid interference.

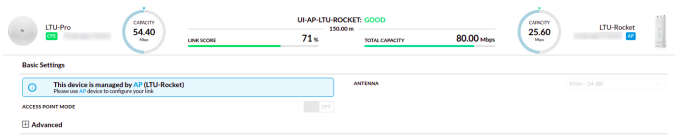
Signal Control

The LTU Rocket's target TX output power controls each station's TX output power. A PtMP network can manage signal levels to enhance network stability and achieve optimal wireless performance with the highest possible modulation.

Convenient Configuration

To manage the LTU Rocket, you have two options: the LTU Configuration Interface and Ubiquiti Network Management System (UNMS™). Either option lets you manually configure the LTU Rocket.

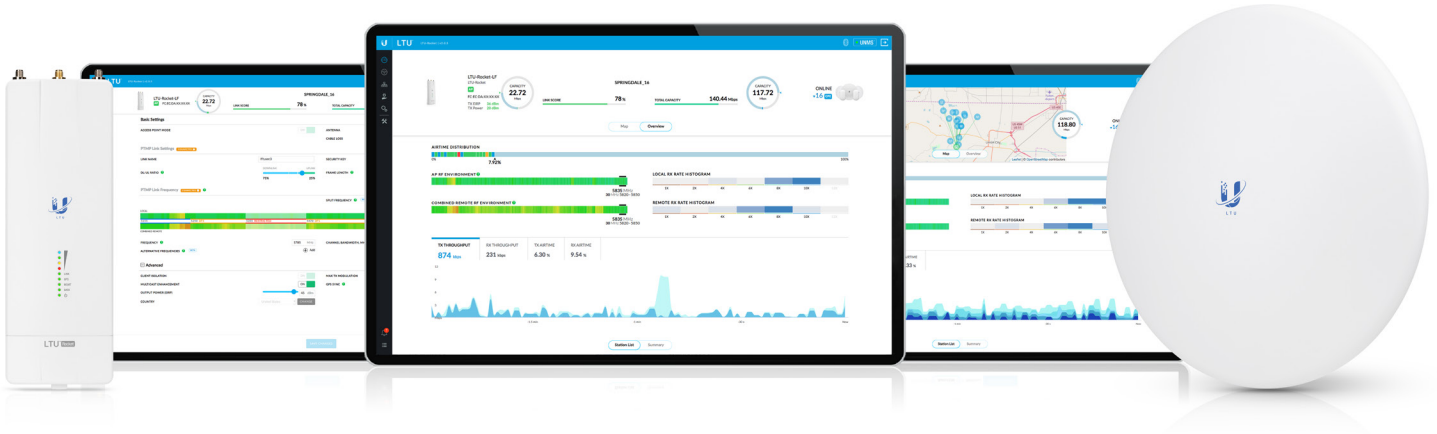
The LTU Rocket can also be used to automatically configure the stations. On each station, use the Find My AP feature to scan for APs using the same channel bandwidth, select the appropriate LTU Rocket, and then use it to configure the station.



Integrated GPS

Built-in GPS improves synchronization and allows map and Fresnel views on the Dashboard.

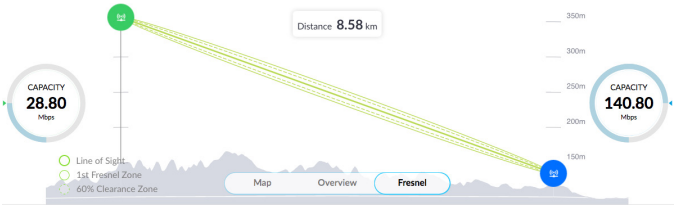
* *Available with future firmware upgrade*



LTU Configuration Interface

PtMP Dashboard

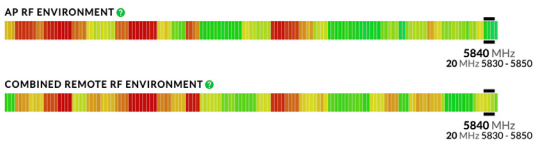
The Dashboard offers map and Fresnel views* so you can visualize the network. The map view shows your PtMP links overlaid on a geographic map, while the Fresnel view shows the link calculated for your selected CPE, including line of sight, first Fresnel zone, and 60% clearance zone.



New graphs provide instant status updates and help you to detect connectivity issues and their effects on PtMP performance:

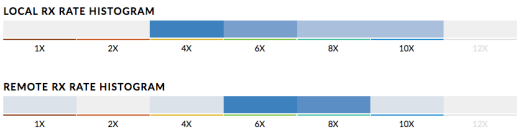
- The airtime distribution bar graph displays in real time how much airtime each CPE is using. Click any point to view the airtime and link score for a specific CPE.

- The AP RF environment bar graph shows ambient RF noise levels across the frequency spectrum.
- The combined remote RF environment bar graph also shows ambient RF noise levels but for the combined environment of all of the remote CPEs.



* *Available for models equipped with GPS.*

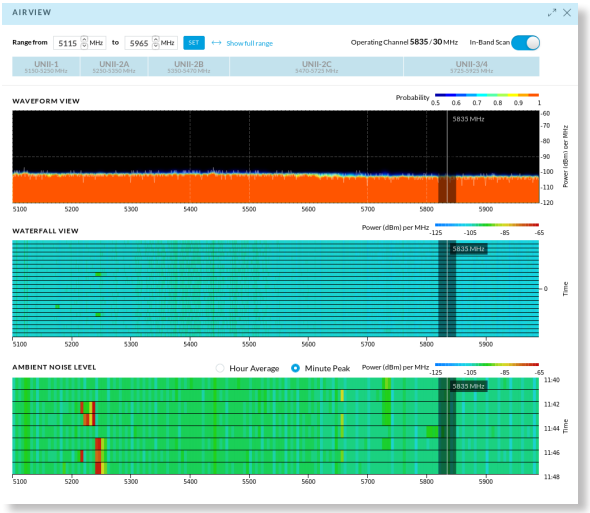
- The local and remote RX rate histograms show the receive modulation rates of the various CPEs.



Real-Time Spectral Analysis

airView® spectral analysis runs on a dedicated and independent receiver, which has excellent EVM (Error Vector Magnitude) performance.

The receiver can also perform other tasks, such as a search for channel occupancy, DFS detection, and automatic channel/frequency assignment. Calibration (signal level measurement accuracy) and resolution bandwidth options are enhanced. Spectral zoom (user-defined scan limits) is also available.



Deployment Flexibility

The LTU Rocket can be used with existing airMAX 5 GHz sector antennas offering gain of 16 to 22 dBi, as well as airMAX 5 GHz omni antennas offering gain of 10 to 13 dBi.

The radio's built-in mounting bracket allows it to fit into the radio mount of these antennas – no special tools are needed for installation.

Compatible airMAX Antennas

For best performance, antennas should be selected to allow for a conducted TX power of 20 dBm or below.

	AMO-5G10	AMO-5G13	AM-5G16-120	AM-5G17-90	AM-M-V5G-Ti
Type	Omnidirectional	Omnidirectional	120° Sector	90° Sector	60°/90°/120° Sector
Gain	10 dBi	13 dBi	16 dBi	17 dBi	17 dBi

	AM-5G19-120	AM-5G20-90	AM-V5G-Ti	AM-5AC21-60	AM-5AC22-45	AP-5AC-90-HD
Type	120° Sector	90° Sector	60°/90°/120° Sector	60° Sector	45° Sector	3 x 30° Sector
Gain	19 dBi	20 dBi	21 dBi	21 dBi	22 dBi	22 dBi

LTU-Rocket	
Dimensions	244 x 82 x 48 mm (9.61 x 3.23 x 1.89")
Weight	0.468 kg (16.5 oz)
Enclosure	Diecast Aluminum and Polycarbonate
RF Connectors	(2) RP-SMA Weatherproof (CH0, CH1) (1) SMA Weatherproof (GPS)
GPS Antenna	External Magnetic Base
Power Supply	24V, 1A Gigabit PoE Adapter (Included)
Power Method	Proprietary 4-Pair Passive PoE Pins 1, 2; 4, 5+ and Pins 3, 6; 7, 8-
Max. Power Consumption	25W
Voltage Range	+18 to +54VDC[1]
Networking Interface	(1) 10/100/1000 Ethernet Port
Mounting	Integrated Pole Mount (Included) Rocket Mount Compatible GPS Pole Mount (Included)
Operating Temperature	-40 to 55° C (-40 to 131° F)
Weatherproofing	IP67[2]
Certifications	FCC Part 15.407 CE EN 302502 v1.2.1, EN 301 893 v1.7.1

System	
Maximum Throughput	675.84 Mbps[3,4]
Maximum Range	100+ km[3]
Packets per Second	2+ Million
Encryption	WPA2-PSK (AES)
Forward Error Correction	LDPC
Uplink/Downlink Ratio	25/75, 33/67, 50/50
OS	airOS LTU
Wireless Modes	AP

[1] *Full range depends on Ethernet cable length.*

[2] *After installation of IP67 upgrade kit (included).*

[3] *Values may vary depending on the environmental conditions.*

[4] *1+ Gbps with future firmware upgrade.*

Radio	
Max. Conducted TX Power	29 dBm (Dependent on Regulatory Region)
Frequency Accuracy	< 2 ppm
Channel Bandwidth	10/20/30/40/50 MHz Selectable Programmable Uplink and Downlink Duty Cycles

Operating Frequency (MHz)	
Worldwide	4800 - 6200*
US/CA	
U-NII-1	5150 - 5250
U-NII-2A	5250 - 5350
U-NII-2C	5470 - 5725
U-NII-3	5725 - 5850

* Depends on regulatory region.

Bluetooth LE Management Radio (MHz)	
Worldwide	2400 - 2483.5

Receive Sensitivity						
Modulation Rate	Modulation	Sensitivity (dBm)				
		10 MHz	20 MHz	30 MHz	40 MHz	50 MHz
10x	1024QAM	-66	-63	-61	-59	-57
8x	256QAM	-72	-69	-67	-65	-63
6x	64QAM	-78	-75	-73	-71	-69
4x	16QAM MIMO	-84	-81	-79	-77	-75
2x	QPSK MIMO	-88	-85	-83	-82	-81
1x	½ Rate QPSK xRT™	-90	-87	-85	-84	-83

Maximum Performance						
		TDD Throughput (Mbps)				
MCS		10 MHz	20 MHz	30 MHz	40 MHz	50 MHz
QPSK SISO	Upload	5.00	10.68	16.76	22.84	28.28
	Download	5.12	11.52	17.60	23.68	29.12
	Aggregate	**10.12**	**22.20**	**34.36**	**46.52**	**57.40**
QPSK MIMO	Upload	10.00	21.36	33.52	45.68	56.56
	Download	10.24	23.04	35.20	47.36	58.24
	Aggregate	**20.24**	**44.40**	**68.72**	**93.04**	**114.80**
16 QAM MIMO	Upload	20.00	42.72	67.04	91.36	113.12
	Download	20.48	46.08	70.40	94.72	116.48
	Aggregate	**40.48**	**88.80**	**137.44**	**186.08**	**229.60**
64 QAM MIMO	Upload	30.00	64.08	100.56	137.04	169.68
	Download	30.72	69.12	105.60	142.08	174.72
	Aggregate	**60.72**	**133.20**	**206.16**	**279.12**	**344.40**
256 QAM MIMO	Upload	40.00	85.44	134.08	182.72	226.24
	Download	40.96	92.16	140.80	189.44	232.96
	Aggregate	**80.96**	**177.60**	**274.88**	**372.16**	**459.20**
1024 QAM MIMO	Upload	50.00	106.80	167.60	228.40	282.80
	Download	51.20	115.20	176.00	236.80	291.20
	Aggregate	**101.20**	**222.00**	**343.60**	**465.20**	**574.00**

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