DATASHEET

PIVOTAL 5G ECHO

39 GHz Repeater with Holographic Beam Forming® Technology

Gbps+ Real Throughput Through Glass, Up to 1 km Range

Ultra-Low Latency

Powered Through Glass

PIVOTAL COMMWARE®

Overview

Pivotal Commware introduces the world's first and only on-glass beamforming repeater, Echo 5G™, designed to counteract signal loss at millimeter wave frequencies. The Echo 5G enables outdoor-to-indoor signal transitions so users can ubiquitously enjoy the immersive 5G experiences that only mmWave capacity can deliver.

Breakthrough in Electromagnetic Physics

The Echo 5G uses Pivotal's patented Holographic Beam Forming® (HBF) to counteract window penetration and reflection loss so consumers and enterprises can enjoy Gigabit speeds beyond the reach of cable and DSL. HBF offers the lowest available size, weight and power consumption beamformer profile and is an essential element in the 5G Ecosystem.

Transforming Business from the Inside

Only mmWave 5G provides the Gigabit-per-second and ultra-low latency connectivity to deliver virtual/augmented reality and immersive experiences to enterprises. Pivotal brings this capability inside using its uniquely lightweight and low-power Echo 5G that attaches directly to glass and powers through it from the inside. The Echo 5G installs in minutes and closes the business case for carriers offering end-to-end solutions that will transform the way people work.

Key Features

The Echo 5G offers the following features:

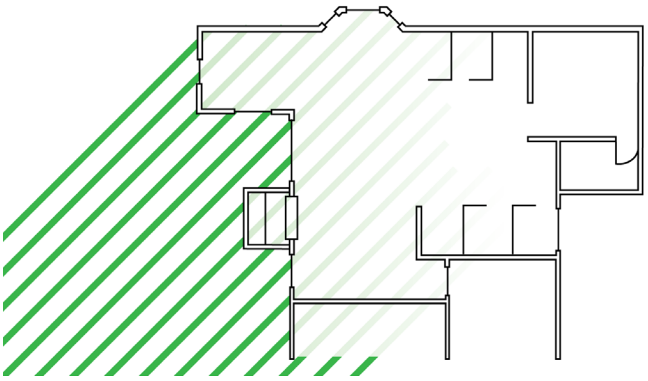
- On-the-window RF repeater
- Overcomes standard and Low-E glass penetration loss by boosting the signal up to 30 dB
- Overcomes reflection loss by scanning to near horizon in azimuth
- Narrow and steerable beam towards gNB, wide static beam towards indoor CPE/UE
- Outdoor Unit (ODU) with HBF antenna and RF Front End functions, wirelessly powered through the window (< 20 Watts)
- Indoor Unit (IDU) with wireless power module and AC adapter interface
- Self-commissioning with auto acquisition and auto ranging functions
- Enables Gbps service indoors at distances up to 1 kilometer from the base station and 100+ ft into the interior of the building
- Compatible with 5G NR non-standalone (NSA) EN-DC and standalone (SA)
- Small form factor, 7” x 7” x 1.5”, less than 2 lbs.
- Cloud based remote OA&M and optimization functions via IoT
- 5 nanosecond latency

Immersive Meetings

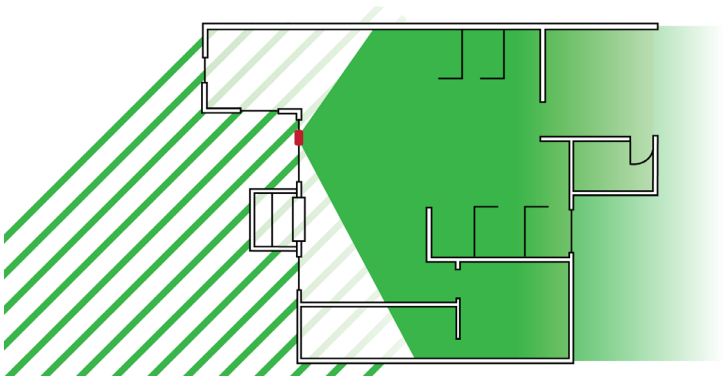
Extending the Reach of 5G mmWave Into the Enterprise

The Echo 5G delivers on the promise of 5G and edge computing to enterprise customers by opening a portal between indoors and outdoors for low-latency, high throughput mmWave signals.

mmWave Signals

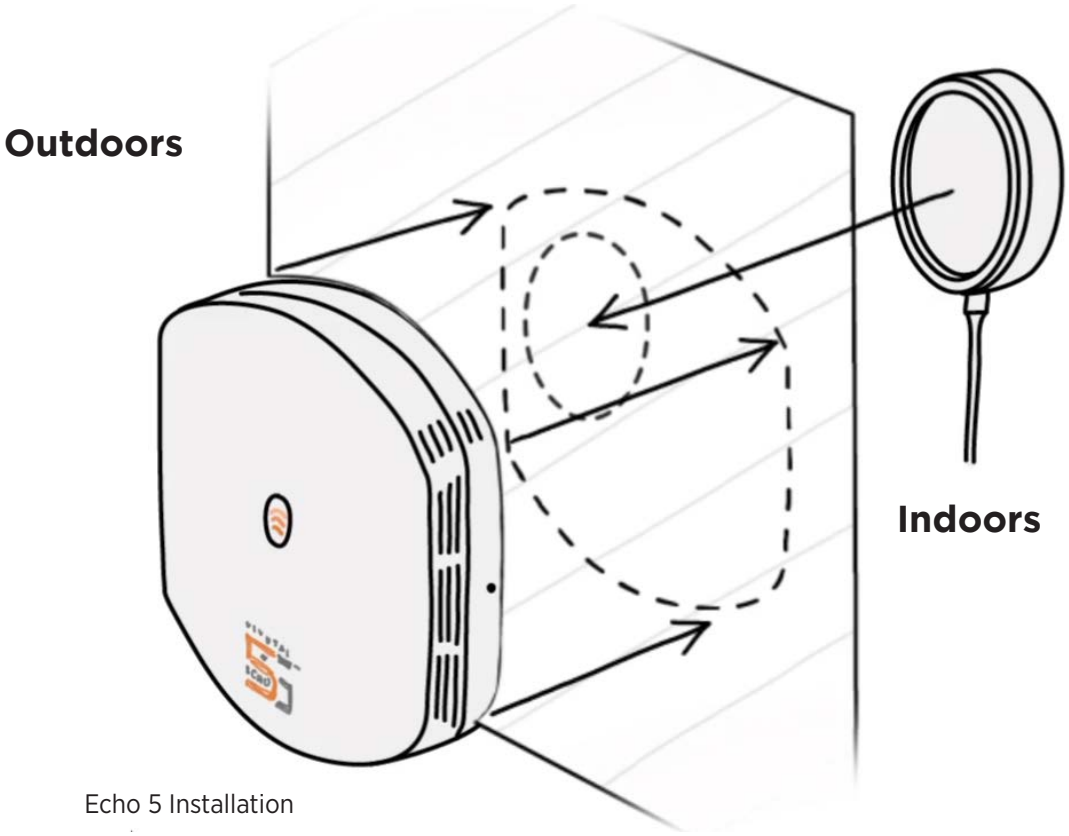


Without Echo 5G



With Echo 5G

Echo 5G Installation



Echo 5 Installation

5G mmWave Experiences Using Echo

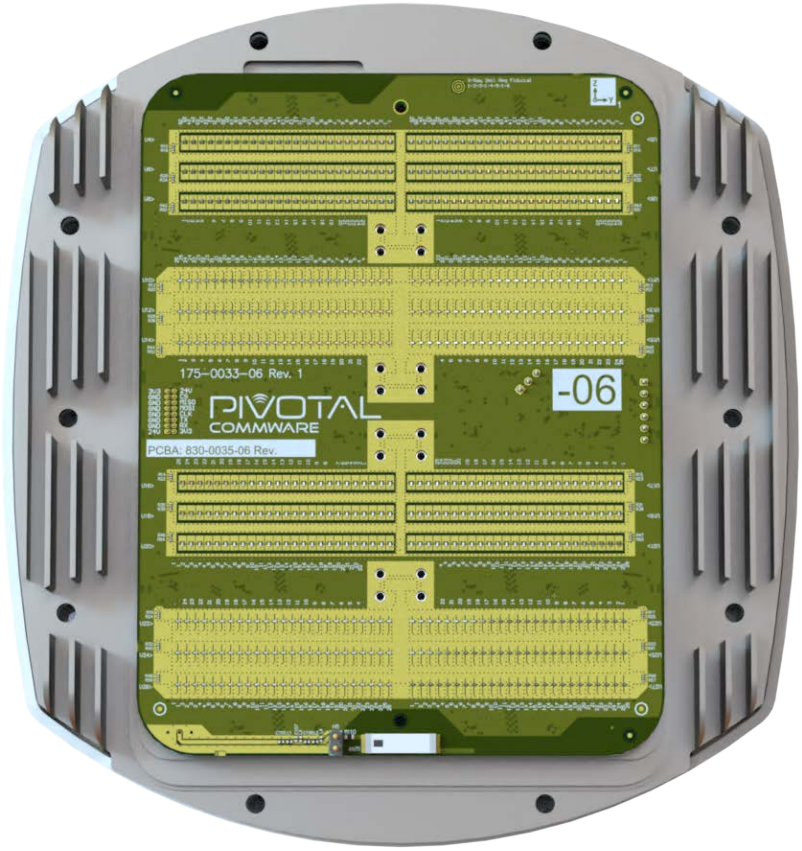
Augmented, virtual, mixed and extended reality technologies require extremely high bandwidth and extremely low latency. The combination of mmWave 5G and Echo 5G will allow businesses to increase productivity and innovation while pursuing new revenue opportunities.

Immersive Learning

eSports and Gaming

Parameter	Specification
Dimensions	7″ x 7″ x 1.5″ for RF ODU, and 3.7″ circle, 1.1″ depth for IDU
Weight RF ODU	2.0 lbs.
Weight IDU	0.4 lbs.
Power Method	AC adapter for IDU and wireless power magnetically induced for ODU
Max. Power Consumption	30 Watts (from outlet)
Mounting	Adhesive, VHB
Operating Temperature	-30 to 45° C
IP Rating	IP54 for ODU; IP32 for IDU
Configuration Management Interface	Bluetooth® and LTE CAT M1
Donor Range (to gNB)	Up to 3000 ft
Indoor Range (to CPE/UE)	100+ ft
Support Glass Type	Low-E and Standard
Certifications	FCC, UL
Commissioning	Automated scan with setup via web-interface
Frequency of operation	37.6GHz – 40GHz
Max EIRP - DL	30 dBm
Max EIRP - UL	30 dBm
Gain tunable range - DL	15 dB
Gain tunable range - UL	15 dB
HBF antenna gain (donor side)	16 dB
HBF scan loss	6 dB at 76°
HBF az scan envelope	+/-76°
HBF el scan envelope	+/-30°
Static antenna gain (service side)	6 dB
HPBW towards gNB - azimuth	5°
HPBW towards gNB - elevation	20°
HPBW towards CPE/UE - azimuth	120°
HPBW towards CPE/UE - elevation	120°
Max electronic gain - DL	55 dB
Max electronic gain - UL	55 dB
Min noise figure - DL	5 dB
Min noise figure - UL	5 dB
In-band ripple (per 100 MHz channel)	2 dB

PIVOTAL
ECHO
5G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WARNING: This is not a CONSUMER device. This device may not be sold at retail. You MUST have a FCC LICENSE or express consent of an FCC Licensee (or express consent of your service provider) to operate this device. Antennas must be installed at least 20 cm (8 inches) from any person. Unauthorized use may result in signficant forfeiture penalties, including penalties in excess of $100,000 for each continuing violation.

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www.pivotalcommware.com