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# 60 GHz Development Systems

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# 60 GHz Made Easy

## Benefits of Operating at 60 GHz

- High Bandwidth
- Single Carrier and OFDM Modulated Signals
- 57 to 66 GHz Unlicensed ISM Spectrum
- Narrow-Beam Highly-Secure Signal Transmission
- Interference-Free, Due to Oxygen Absorption

## Common 60 GHz Applications

- WiGig/WiFi IEEE 802.11ad and 802.11aj Development
- WPAN 802.15.3C Development
- Telecommunications Cellular Backhaul
- Point-to-Point High Speed Networks
- HD Video Transmission of Large Uncompressed Files
- Wireless Gigabit Ethernet Data Communications
- New Development and Experimentation Tool
- ATE Equipment for 60 GHz Manufacturing Test
- Aircraft and Weather Radar
- Radiometry
- Remote Sensing

60GHz



# 60 GHz Systems and Modules

## 60 GHz Modules

Transmit and receive at ultra high speed and bandwidth within the globally unlicensed ISM millimeter wave spectrum of 57 to 66 GHz. Pasternack 60 GHz waveguide modules combine ease-of-use and immediate delivery for a practical application to a wide range of configurations and budgets.

### Key features include:

- SiGe BiCMOS semiconductor technology
- Compact benchtop design
- WR-15 UG-385/U flange

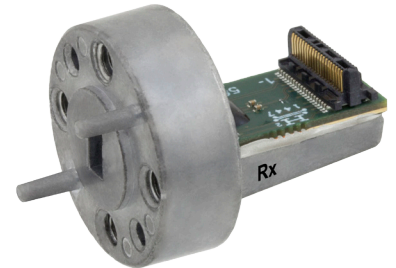
### 60 GHz Transmitter Waveguide Module (PEM010)

- I/Q analog baseband low loss interface
- Up to 1.8 GHz modulation bandwidth
- Integrated frequency synthesizer and power amplifier
- Provides up to +12 dBm typical output P1dB



### 60 GHz Receiver Waveguide Module (PEM002-MIM)

- Rx module downconverts from 60 GHz to analog baseband I and Q signal outputs
- Superheterodyne receiver chip, including LNA, image reject filter, RF to IF downconverter, IF Filter, I/Q downconverter, and frequency synthesizer
- Brings source of 60 GHz energy directly to the waveguide aperture for significantly reduced losses at the system level



## 60 GHz Development Systems

Pasternack 60 GHz Transmitter and Receiver Development Systems allow fast, efficient prototype and design of new high-bandwidth products and solutions in the emerging unlicensed millimeter wave ISM band.

### Development Kit (PEM009-KIT) include:

- Rx module downconverts from 60 GHz to analog baseband I and Q signal outputs
- Superheterodyne receiver chip, including LNA, image reject filter, RF to IF downconverter, IF Filter, I/Q downconverter, and frequency synthesizer
- Brings source of 60 GHz energy directly to the waveguide aperture for significantly reduced losses at the system level



## 60 GHz Transmitter Development System (PEM009-KIT Transmit)

- Tx waveguide module and Tx control processor PWB
- Integrated reference oscillator with external reference option
- Tripod and mounting bracket
- USB cable and AC-DC power adapter
- Phase matched coaxial cables
- Downloadable GUI software and user manual



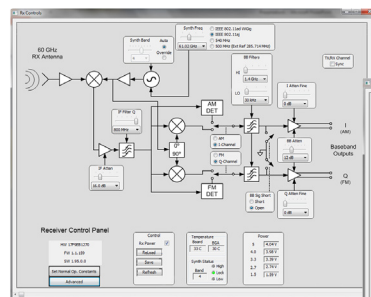
Pasternack 60 GHz Transmitter and Receiver Development Systems allow fast, efficient prototype and design of new high-bandwidth products and solutions in the emerging unlicensed millimeter wave ISM band.

## Simulate signal transmission from the lab environment

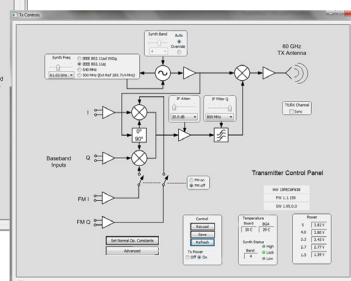


## User-friendly GUI

Receiver  
GUI Window



Transmitter  
GUI Window



## Quick and easy to set up





## 60 GHz Gain Horn Antennas

Extend transmission range up to 500 meters with Pasternack's selection of 60 GHz Gain Horn Antennas.

### PE9881-20

- WR-15 Waveguide Horn Antenna
- Operating from 50 GHz to 75 GHz
- Nominal Gain: 20 dBi
- UG-385/U Square Cover Flange
- Calculated Link Distance: 3 Meters



### PE9881-24

- WR-15 Waveguide Horn Antenna
- Operating from 50 GHz to 75 GHz
- Nominal Gain: 24 dBi
- UG-385/U Round Cover Flange
- Calculated Link Distance: 10 Meters



### PE9881-34

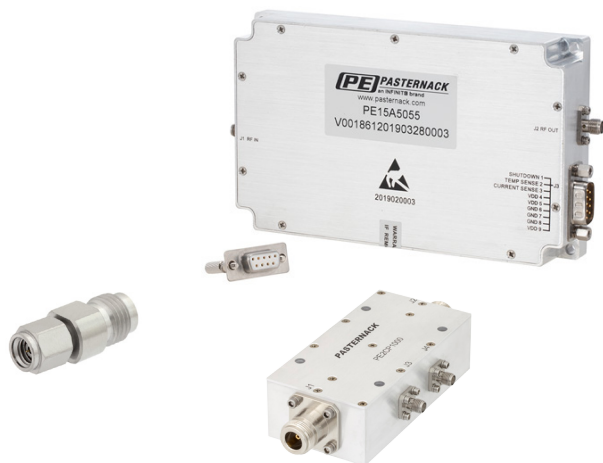
- WR-15 Waveguide Horn Antenna
- Operating from 56 GHz to 66 GHz
- Nominal Gain: 34 dBi
- UG-385/U Square Cover Flange
- Calculated Link Distance: 100 Meters



### PE9881-42

- WR-15 Waveguide Horn Antenna
- Operating from 50 GHz to 75 GHz
- Nominal Gain: 42 dBi
- UG-385/U Square Cover Flange
- Calculated Link Distance: 500 Meters





## Your immediate source for RF parts and RF smarts

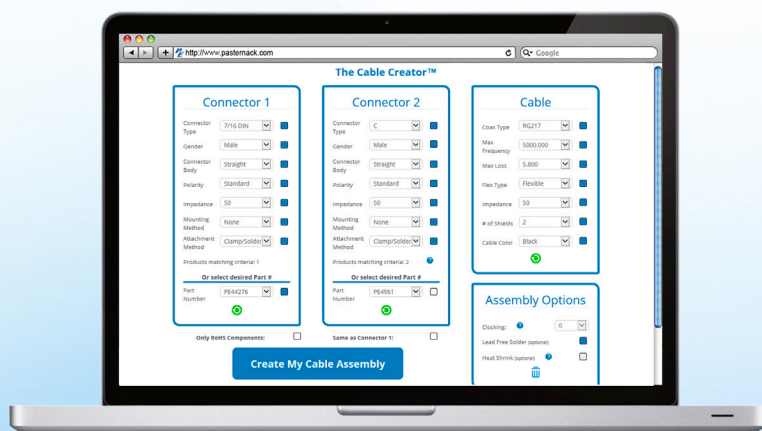
Since 1972, Pasternack has been satisfying the requirements of engineers around the world by offering the largest in-stock, ready-to-ship selection of RF, microwave, and mmWave components, assemblies and devices, including over 40,000 popular and hard-to-find items across 107 categories of interconnect, passives, actives, antennas, and test and measurement. In addition, our 99.4% in-stock availability allows us to ship your products the same day they're ordered, with no minimum order size requirements.

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# With over 45 years of RF expertise, it's more than parts that sets us apart

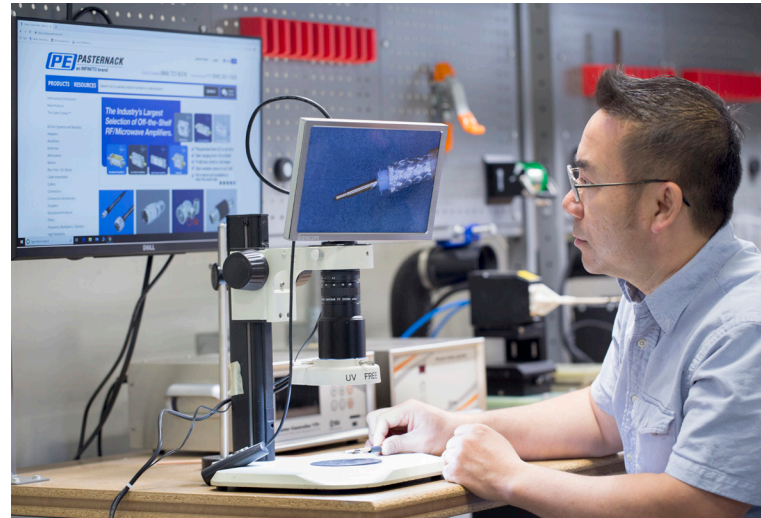
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- 123 coaxial cable types, including Twinax
- Choose your desired length (metric or standard)
- Includes high-reliability and low PIM assembly types



Value-added services for custom assemblies include...

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- Special labeling
- Test plots provided for an additional fee
- Custom connector clocking of right angle connectors
- Serialized test data available for high performance test cables



Full-service testing including...

- RF testing to 65 GHz
- PIM testing up to -117 dBm (-160 dBc)
- Phase Matching +/- 2 degrees per GHz
- Hi Pot testing to 5,000 volts DC and 6,000 volts AC



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