### Outdoor Solution

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Long Range</th>
<th>Ultra Long Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.4 GHz</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EOC-3220</td>
<td>EOC-3610-S-EXT</td>
</tr>
<tr>
<td></td>
<td>• 26dBm+9dBi built-in antenna</td>
<td>• Output power up to 28dBm</td>
</tr>
<tr>
<td></td>
<td>• 802.11x Authenticator</td>
<td>• SMA (Fr) Connector</td>
</tr>
<tr>
<td></td>
<td>EOC-3220 EXT</td>
<td>• VLAN Pass Thru</td>
</tr>
<tr>
<td></td>
<td>• Output power up to 26dBm</td>
<td>• Multiple SSID</td>
</tr>
<tr>
<td></td>
<td>• SMA (Fr) Connector</td>
<td>• 802.11x Authenticator</td>
</tr>
<tr>
<td></td>
<td>• 802.11x Authenticator</td>
<td></td>
</tr>
<tr>
<td><strong>5 GHz</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EOC-3220 PLUS</td>
<td>EOC-8610S-EXT</td>
</tr>
<tr>
<td></td>
<td>• 26dBm+16dBi built-in antenna</td>
<td>• Output power up 28dBm in 802.11 b/g, 22dBm in 802.11a mode</td>
</tr>
<tr>
<td></td>
<td>• 802.11x Authenticator</td>
<td>• SMA (Fr) Connector (Both 2.4GHz/5GHz)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EOC-8610S-PLUS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output power up to 28dBm in 802.11 b/g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Built-in 16dbi (for 5GHz) (EIRP 44dBM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SMA (Fr) Connector (for 2.4GHz)</td>
</tr>
</tbody>
</table>

**Compact Size**
Why EnGenius?

6 times greater coverage

D (distance) = f (Power, Sensitivity, Antenna Gain, Cable Loss)
**Robust Mechanical Design**

IP61/62
Draining in vertical/ in 15° dip angle

IP63/64
Spraying/ Splashing

IP64
Jetting

IP66
Strong Jetting

IP67
Temporary Immersion (30 mins)

IP68
Continuous Immersion (24 hours)

IP69
Temporary Immersion (30 mins)

IP70
Continuous Immersion (24 hours)
Easy to be Installed

- **Well Protected installation**

  - **Surge Arrestor** *(built at antenna port)*
    - Protect your Device
  
  - **Power surge**
    - Protect your Internal Networks
  
  - **Internal Networks**

- **Surge Arrestor** *(built at Ethernet port)*
  - Protect your Internal Networks

*for selected models*
- **Sustain higher wind velocity**
- **Easy Install to SAVE your installation cost**

\[ F_w = 0.5 \times C_w \times D \times A \times V^2 \]

- \( F_w \) = Resistance
- \( A \) = Square Measure

**Normal 16dBi**

- 30 cm × 30 cm
- 2000g

**EnGenius 16dBi**

- 20 cm × 20 cm
- 1000g
Power Over Ethernet (PoE, 802.3af compatible)

- Cut down cost on wiring
- Supports 100m Cat5 Ethernet cable for your deployment
- Supports 802.3af PSE or attached PoE injector
- Low maintenance
Output Power Controllable
- Easy to fit in with different regulation
- Adjust higher power when the environment needed

IP/ MAC Transparent
- Manage all your client behind the Client Bridge
- Refuse non-authenticated client

Private MIB
- Flexibility in designing and adding valuable information
EOC-3610S-EXT/ ECB-3610S

- SMA (RF) Connector (For EOC-3610S-EXT)
- Output Power Up to 28dBm or 600mW
- High Receive Sensitivity up to -95dBm
- VLAN Pass Thru
- Multiple SSID (4 SSIDs)
- 802.1x Authenticator

Ideal for Wireless Hot Spots Application, Segregate Public & Private Users

- PUBLIC USERS
  - VLAN 01
    - SSID 01
  - VLAN 03
    - SSID 03

- GROUP 1 USERS
  - VLAN 04
    - SSID 04

- GROUP 2 USERS
  - VLAN 02
    - SSID 02

- GROUP 3 USERS
  - VLAN 02 (reuse)
    - SSID 02

EOC-3610S-EXT
Wireless Outdoor 5GHz Client Bridge

8610S Outdoor Series

- Integrate (16dBi@5GHz)Antenna
- EIRP@802.11a: 44dBm (EOC-8610S-Plus)
- SMA (Fr)*1 for 11a (EOC-8610S-EXT)
- Support 802.3af
- SNMP (V1)
- 802.1x supplicant

EOC-8610S-EXT
EOC-8610S-PLUS

Up to 24 km
## Indoor Solution

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Long Range</th>
<th>Ultra Long Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4 GHz</td>
<td><strong>ESR-1220</strong></td>
<td><strong>ECB-3220</strong></td>
<td><strong>ECB-3610S</strong></td>
</tr>
<tr>
<td></td>
<td>• Built-in 4 10/100Mbps port</td>
<td>• 26dBm Output power</td>
<td>• Output power up to 28dBm</td>
</tr>
<tr>
<td></td>
<td>• 802.1x authenticator</td>
<td>• TNC (Fr) Connector</td>
<td>• VLAN Pass Thru</td>
</tr>
<tr>
<td></td>
<td>• Denial of Service (DOS) Protection</td>
<td>• 7+1 Mode feature</td>
<td>• Multiple SSID</td>
</tr>
<tr>
<td>5 GHz</td>
<td><strong>ESR-9710</strong></td>
<td></td>
<td><strong>ECB-8610S</strong></td>
</tr>
<tr>
<td></td>
<td>• Built-in 4 Gigabit port</td>
<td></td>
<td>• 28dBm Output power in 802.11b/g, 22dBm in 802.11a</td>
</tr>
<tr>
<td></td>
<td>• 802.1x authenticator</td>
<td></td>
<td>• TNC (Fr)*1</td>
</tr>
<tr>
<td></td>
<td>• Qos</td>
<td></td>
<td>• 802.1x supplicant</td>
</tr>
<tr>
<td></td>
<td>• Wireless Protection Setup (WPS)</td>
<td></td>
<td>• DFS/TPC support</td>
</tr>
<tr>
<td>11n</td>
<td><strong>ESR-9710</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Draft 2.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
High Performance

3 times greater range

\[ D \ (distance) = f \ (\text{Power}, \ \text{Sensitivity}, \ \text{Antenna Gain}, \ \text{Cable Loss}) \]

- 400m: 17dBm/17dBm
- 800m: 26dBm/17dBm
- 1200m: 26dBm
Cost Effective Solution

3 times greater range

Stability

Avoid dead-spot

RF on/off

Dead-spot
<table>
<thead>
<tr>
<th></th>
<th>802.11a</th>
<th></th>
<th>802.11g</th>
<th></th>
<th>802.11b</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power</td>
<td>Sensitivity</td>
<td>Power</td>
<td>Sensitivity</td>
<td>Power</td>
<td>Sensitivity</td>
</tr>
<tr>
<td>EnGenius</td>
<td>6Mbps 54Mbps</td>
<td>-90dBm -74dBm</td>
<td>6Mbps 54Mbps</td>
<td>-92dBm -76dBm</td>
<td>1Mbps 11Mbps</td>
<td>-96dBm -92dBm</td>
</tr>
<tr>
<td>Other brands</td>
<td>15-17dBm 12-14dBm</td>
<td>-90dBm -74dBm</td>
<td>17-20dBm 15-17dBm</td>
<td>-89dBm -73dBm</td>
<td>17-20dBm 17-20dBm</td>
<td>-92dBm -89dBm</td>
</tr>
</tbody>
</table>
Why Hi-Performance?

» x4 Extended Range and x3 throughput

Data Throughput

Hi-Performance Family
Long distance (>= 400 m)

Commodity - Reference Design
Local area network (<= 100 m)
EnGenius
Business Class High Power Wireless

Wireless Client Bridge

High Power 11g Wireless AP/Bridge
Router/Client Bridge/WDS

ECB-3220

4 Levels Output Power Controllable

![Diagram showing 4 levels of output power controllability: Extreme, Super, Ultra High, High]
Why 5GHz?

Wireless AP/Bridge/Client
Bridge/WDS
**ECB-8610S**

Benefit 1
Multipath interference occurs when reflected signals cancel each other out. 802.11a uses a slower symbol rate to minimize multipath interference.

- Up to 28dBm @ 2.4GHz
- Up to 22dBm @ 5GHz
Wireless AP/Bridge/Client
Bridge/WDS
**ECB-8610S**

**Benefit - 2**

**Interference issues**

Because there are only three channels available for 802.11b, there will be more potential interference when setting up more than three access points. Access points on 802.11a have eight channels (with the potential to go up to 16 channels), which reduces the chance for Co-channel Interference.
### EnGenius Wireless Client Adapter

#### Standard

<table>
<thead>
<tr>
<th>2.4 GHz</th>
<th>5 GHz</th>
<th>11n (2nd Ver)</th>
</tr>
</thead>
</table>
| **EUB-3701**
  - Ralink 802.11b/g
  - Power Consumption ≤ 250mA
  - WMM, 802.1x Client | **EUB-8301**
  - Power Consumption ≤ 400mA
  - WMM, 802.1x Client | **EUB-9701**
  - Data rate up to 300Mbps
  - Support WMM (QoS)
  - Low power consumption |

#### Long Range

| **EUB-362 EXT**
  - Output power 23dBm
  - External SMA (Fr) connector
  - WMM, 802.1x Client, SuperG | **EUB-362EU2**
  - Output power 23dBm
  - Super G Mode (108Mbps)
  - WMM, 802.1x Client | **EUB-862EXT2**
  - Output power 23dBm @11b/g,
  - 20dBm @11a
  - Super G & Turbo A (108Mbps)
  - 801.11e (QoS)
  - Two exchangeable antenna |

#### Ultra Long Range

| **EPI-3601S**
  - Output power up to 27dBm
  - Super G Mode (108Mbps)
  - WMM, 802.1x Client | | **EUB-9701EXT2**
  - Data rate up to 300Mbps
  - Detacheable antenna
  - Support WMM (QoS) |
EnGenius
Business Class High Power Wireless

High Throughput 11n Wireless Adapter

Word No 1

EUB-9701 EXT2
Detachable Antenna
Draft 2.0 11n USB 2.0

• High speed up to 300Mbps data rate.
• IEEE 802.11n Draft 2.0 standards.
• Capable of handling heavy data payloads such as MPEG video streaming, on-line gaming, etc.
• Support Wireless Multimedia Enhancements
• Quality of Service (QoS)
• Detachable Antenna design that enable flexible deployment.

SENNAO
Option to use Antennas

Using different antennas, wireless coverage can be designed according to the environment.
Why 11n Technology?

• Support applications which are throughput sensitivity
  – Online gaming and video streaming
  – Intensive bandwidth usage within the LAN network

• Release restriction of current Wi-Fi home networks
  – Extend range and coverage
  – Diminish dead-spot indoor

• Compatible with 802.11a/b/g
  – 11n works well with existing 802.11a/b/g standard. Compatibility issue will not be a problem.
Intensive Bandwidth Usage

- Modem
- 300 mbps
- File Server
- IP TV
- Notebook User
- Gaming Console
- Modem
- 300 mbps
- File Server
- IP TV
- Notebook User
- Gaming Console