OpenCellular

OpenCellular (OC) is an ecosystem of rural-optimized network solutions based on open-sourced software and publicly available schematics, layouts and CAD files. OC addresses access, power, site manageability and backhaul sub-systems enabling innovative deployment models of affordable cellular networks (2G/LTE) in low population density rural areas.

Why OpenCellular?

- High total cost of ownership (TCO) for network infrastructure, combined with lower returns in areas with low population density, can deter MNOs and operators from expanding cellular coverage to rural regions where 1.5 billion of world’s population is living today.
- Infrastructure operators and MNOs can use OC to deliver sustainable and cost-effective wireless services (voice and data) to un-connected and under-connected people in rural areas.

With OpenCellular

- Smaller OEMs for the first time will be able to share equally with larger traditional mobile and network vendors and operators in developing solutions.
- Publicly available HW design and features allow OEMs to develop new versions that can address different markets.
- Allow multiple local entities to build OC and provide support and maintenance services to deployment partners thus greatly reducing equipment import and labor costs.
The developments

Wireless access platform

- Small scale, low cost technology
- Opportunity to provide connectivity to hard to reach areas of the world
- Open software system for remote monitoring
- Low power consumption

Use cases

Scalable modular solution for hard to reach rural areas

- Ultra rural /Omni
- Small rural /Omni-Sector
- Medium rural /Sector

Opportunity to provide connectivity to hard to reach areas with sparse populations that don't normally support usual infrastructure costs.

With OpenCellular, continued

- Encourage multiple technology partners to work together to iterate on the existing OC design and contribute new designs back to the community.

Benefits

- OC's open-source, publicly available files
- A healthy and collaborative partner ecosystem
- Efficient use of components significantly reduces power consumption
- Optimized for rural deployments

Technical Specification

LTE Specifications

<table>
<thead>
<tr>
<th>Radio</th>
<th>System</th>
<th>Product Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Watts output power (coverage ranges around 1km)</td>
<td>&lt;55 Watts power consumption</td>
<td>Backhaul: Ethernet, WLAN</td>
</tr>
<tr>
<td>2X2 MIMO</td>
<td>IP65 outdoor ratedx</td>
<td>Time Synchronization: GPS, 1588v2</td>
</tr>
<tr>
<td>1800 MHz (Band 3 LTE FDD)</td>
<td>Support network in box, network services etc.</td>
<td></td>
</tr>
<tr>
<td>LTE Release 9 compliance</td>
<td>10 MHz - 20 MHz</td>
<td></td>
</tr>
<tr>
<td>64-128 LTE RCC connected users</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GSM Specifications

<table>
<thead>
<tr>
<th>Radio</th>
<th>System</th>
<th>Product Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 dbm output power (coverage range around 1km)</td>
<td>&lt;4 Watts power consumption</td>
<td>Backhaul over IP, Gb</td>
</tr>
<tr>
<td>Bands: 850 - 900 - 1800 MHz</td>
<td>IP65 outdoor rated</td>
<td>Input voltage: 24 VDC nominal</td>
</tr>
<tr>
<td>14 concurrent calls (8.2 erlangs)</td>
<td>Cooling passive</td>
<td>Dimensions: 220 X 280 X 93mm</td>
</tr>
<tr>
<td>Speech Format: AMR, HR, FR, EFR</td>
<td>Storage temperature: -40 C / +70 C</td>
<td>Weight 6 kg</td>
</tr>
</tbody>
</table>

Copyright © 2020 Telecom Infra Project, Inc. All rights reserved. The Telecom Infra Project logo is a trademark of Telecom Infra Project, Inc. in the United States or other countries, and is registered in one or more countries. THIS DOCUMENT IS PROVIDED “AS IS” AND WITHOUT ANY WARRANTY OF ANY KIND.