

## MICROLINK: OUTDOOR SMALL CELL ENB

ML 2510  
CBRS LTE Outdoor eNodeB

### OVERVIEW

ML 2510 is an advanced two-carrier outdoor eNodeB (eNB) compliant with 3GPP LTE TDD technology. This 8x5W eNB operates in either Carrier Aggregation (CA) mode or Dual Carrier (DC) mode. In CA mode, Nova846 supports 2CC (2 Component Carriers) DL/UL CA. 2CC DL/UL CA doubles DL/UL peak throughput compared to a single carrier by aggregating two separate spectrum resources into a virtual contiguous spectrum resource. In DC mode, each carrier is treated as an independent cell, supporting 2x512 users with each cell supporting 5, 10, 15, or 20 MHz bandwidth.



### FEATURES

- Standard LTE TDD Bands 41/48
- GUI-based local and remote Web management
- Excellent Non-Line-of-Sight (NLOS) coverage
- Suitable for private and public deployments
- Any IPbased backhaul can be used, including public transmission protected by IPsec
- Peak rate: Up to DL 580 Mbps and UL 70 Mbps with 4x4 MIMO CA mode
- Supports 512 RRC connected users per cell, 2x512 RRC connected users in DC mode
- Supports up to 2x4T4R cells or 3x2T2R cells\*
- Supports downlink of 256 QAM
- Integrated small cell form factor for quick and easy installation
- Embedded EPC solution
- Supports Transparent Bridge Mode
- Supports Citizens Broadband Radio Service (CBRS)
- Plug-and-play with Self-Organizing Network (SON) capabilities
- Interoperable with standard LTE Evolved Packet Core (EPC)
- Highly secured with equipment certification against potential intrusion risk
- Supports TR-069 network management interface protocol
- Lower power consumption, which reduces OPEX



## SPECIFICATIONS

<p>Technology</p>	<ul style="list-style-type: none"> <li>• <b>Standard:</b> LTE TDD RAN (3GPP Release 15 compliant)</li> <li>• <b>TDD UL/DL Configuration:</b> 1, 2, 6 (with Special Subframe Configuration 7)</li> <li>• <b>Frequency Band:</b> B41 (2496 MHz–2690 MHz), B48 (3550 MHz–3700 MHz)</li> <li>• <b>Channel Bandwidth:</b> SC: 5/10/15/20 MHz CA: 40 MHz as maximum aggregated bandwidth</li> <li>• <b>Multiplexing:</b> 4x4 MIMO (DL)</li>   <li>• <b>Security:</b> Radio: SNOW 3G/AES-128 Backhaul: IPsec (X.509 AES-128, AES-256, SHA-128, SHA-256)</li> </ul>
<p>Interface</p>	<ul style="list-style-type: none"> <li>• <b>Ethernet Interface:</b> 1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)</li> <li>• <b>Power Supply:</b> -40 VDC to -57 VDC, nominal -48 VDC AC adaptor (multi-national standards)</li>   <li>• <b>Protocols Used:</b> IPv4/IPv6 (Dual Stack), UDP, TCP, ICMP, NTP, SSH, IPsec, TR-069, HTTP/HTTPS, 1588v2, DHCP</li> <li>• <b>Network Management:</b> IPv4/IPv6, HTTP/HTTPS, TR-069, SSH, Embedded EPC</li> <li>• <b>VLAN/VxLAN:</b> 802.IQ/VxLAN</li> <li>• <b>LED Indicators:</b> 5 x status LED RUN/ACT/ALM/ETH0/ETH1</li> </ul>
<p>Features</p>	<ul style="list-style-type: none"> <li>• <b>Voice:</b> VoLTE, Circuit Switched Fallback (CSFB)</li> <li>• <b>SON (Self-Organizing Network):</b> Automatic setup Automatic Neighbor Relation (ANR) PCI confliction detection</li> <li>• <b>EPC:</b> HaloB (Embedded EPC)</li> <li>• <b>Traffic Offload:</b> Local breakout</li> <li>• <b>Layer 2 Support:</b> Transparent Bridge Mode</li> <li>• <b>Maintenance:</b> Local/Remote Web maintenance Online status management Performance statistics Fault management</li> </ul>



	Local/Remote software upgrade Logging Connectivity diagnosis
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Physical	<ul style="list-style-type: none"> <li>● <b>Surge Suppression:</b> Yes</li> <li>● <b>Power Interface Lightning Protection:</b> Differential mode: ±10 KA Common mode: ±20 KA</li> <li>● <b>MTBF:</b> ≥ 150000 hours</li> <li>● <b>MTTR:</b> ≤ 1 hour</li> <li>● <b>Ingress Protection:</b> Rating IP66</li> <li>● <b>Temperature:</b> Operating Temperature: -40°F to 131°F / -40°C to 55°C Storage Temperature: -49°F to 158°F / -45°C to 70°C</li> <li>● <b>Humidity:</b> 2% to 95% RH</li> <li>● <b>Atmospheric Pressure:</b> 70 kPa to 106 kPa</li> <li>● <b>Power Consumption:</b> Typical 240 W, maximum 300 W</li> <li>● <b>Weight:</b> With pre-installed bracket: 27.8 lb/12.6 kg Without bracket: 26.5 lb/12 kg</li> <li>● <b>Dimensions (HxWxD):</b> 17.0 x 11.0 x 4.6 inches 432 x 280 x 118 millimeters</li> <li>● <b>Installation:</b> Pole or wall mount</li> </ul>
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## PERFORMANCE

	2x20 MHz	DL (Mbps) 256 QAM	DL (Mbps) 64 QAM	UL (Mbps) 64 QAM
Peak Data Rate (DC)	<b>UL/DL Config 1</b>			
	DL 2x2 MIMO DL	2x105	2x80	2x28
	4x4 MIMO	2x210	2x160	2x28
	<b>UL/DL Config 2</b>			
	DL 2x2 MIMO DL	2x145	2x110	2x14
	4x4 MIMO	2x290	2x220	2x14
	<b>UL/DL Config 6</b>			
	DL 2x2 MIMO DL	2x85	2x65	2x35
	4x4 MIMO	2x174	2x132	2x35
	<b>2x10 MHz</b>	<b>DL (Mbps) 256 QAM</b>	<b>DL (Mbps) 64 QAM</b>	<b>UL (Mbps) 64 QAM</b>
	<b>UL/DL Config 1</b>	2x51	2x38	2x14



	DL 2x2 MIMO DL 4x4 MIMO	2x103	2x77	2x14
	<b>UL/DL Config 2</b> DL 2x2 MIMO DL 4x4 MIMO	2x70 2x141	2x52 2x106	2x7 2x7
	<b>UL/DL Config 6</b> DL 2x2 MIMO DL 4x4 MIMO	2x42 2x84	2x31 2x63	2x17 2x17

Peak Data Rate (CA)	<b>2x20 MHz</b>	<b>DL (Mbps) 256 QAM</b>	<b>DL (Mbps) 64 QAM</b>	<b>UL (Mbps) 64 QAM</b>
	<b>UL/DL Config 1</b> DL 2x2 MIMO DL 4x4 MIMO	210 420	160 320	56 56
	<b>UL/DL Config 2</b> DL 2x2 MIMO DL 4x4 MIMO	290 580	220 440	28 28
	<b>UL/DL Config 6</b> DL 2x2 MIMO DL 4x4 MIMO	170 348	130 264	70 70
	<b>2x10 MHz</b>	<b>DL (Mbps) 256 QAM</b>	<b>DL (Mbps) 64 QAM</b>	<b>UL (Mbps) 64 QAM</b>
	<b>UL/DL Config 1</b> DL 2x2 MIMO DL 4x4 MIMO	102 206	76 154	28 28
	<b>UL/DL Config 2</b> DL 2x2 MIMO DL 4x4 MIMO	140 202	104 212	14 14
	<b>UL/DL Config 6</b> DL 2x2 MIMO DL 4x4 MIMO	84 168	62 126	34 34
	<b>20 MHz + 10 MHz</b>	<b>DL (Mbps) 256 QAM</b>	<b>DL (Mbps) 64 QAM</b>	<b>UL (Mbps) 64 QAM</b>
	<b>UL/DL Config 1</b> DL 2x2 MIMO DL 4x4 MIMO	156 313	118 237	42 42
	<b>UL/DL Config 2</b> DL 2x2 MIMO DL 4x4 MIMO	215 431	162 326	21 21
	<b>UL/DL Config 6</b> DL 2x2 MIMO DL 4x4 MIMO	127 258	96 195	52 52

User Capacity	Up to 512 RRC connected users per cell SC/CA: 512 RRC connected users DC: 512+512 RRC connected users
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Maximum Deployment Range	60 kilometers
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Latency	30 milliseconds
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Receive Sensitivity	-102 dBm (per channel)
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Modulation	MCS0 (QPSK) to MCS27 (256 QAM) DL: QPSK, 16 QAM, 64 QAM, 256 QAM UL: QPSK, 16 QAM, 64 QAM
Transmit Power Range	0 to 37 dBm per channel (combined +46 dBm, configurable) (1 dB interval)
Quality of Service	Nine-level priority indicated by QoS Class Identifiers (QCI)
ARQ/HARQ	Supported
Synchronization	GPS

For details, please contact [sales@nybsys.com](mailto:sales@nybsys.com)