Cel-Fi QUATRA 2000 is a scalable in-building cellular solution that is both a cost-efficient and easy-to-deploy solution, delivering high-quality signal in venues up to 200,000 square feet (20,000 square meters). It is a hybrid solution that combines the best of active DAS and Smart Booster technologies. The Cel-Fi QUATRA 2000 operates by capturing the signal from the outside macro networks, boosting them, and relaying their signals indoor from the coverage units.

**Benefits:**
- **Lowest Solution Costs per ft²**
- **Scalable Coverage for 200,000 ft² (20,000 m²), and Beyond**
- **Easiest-to-Deploy**
- **Remote Monitoring and Management via Cel-Fi WAVE Platform**

<table>
<thead>
<tr>
<th>System Features</th>
<th>Wireless Features</th>
<th>Mobile Network and Network Protection Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise-class, carrier-grade, small footprint active DAS</td>
<td>Supports up to two bands simultaneously from two operators</td>
<td>Dual-carrier combinations available: AT&amp;T and Verizon; Sprint (FDD) and T-Mobile</td>
<td>Easiest to deploy Active DAS Hybrid</td>
</tr>
<tr>
<td>RF inputs for external off-air donor antenna (A11-V14-100)</td>
<td>3G/4G/LTE support (CDMA / WCDMA / HSPA+ / LTE)</td>
<td>Integration, handover, and handoff with the macro network</td>
<td>Distribute and boost cellular coverage indoors</td>
</tr>
<tr>
<td>Network Unit (NU) (Head End) attaches to Coverage Unit (CU) (Remote Unit) via Cat 5e cable</td>
<td>Supports FDD</td>
<td>Supports multiple channels with bandwidths of 3.84/5/10/15/20 MHz per channel</td>
<td>3G and 4G support, Voice and Data, network safe</td>
</tr>
<tr>
<td>A single NU and up to four (4) CUs may be attached (hub and spoke architecture) in a Cel-Fi QUATRA 2000 system</td>
<td>Up to 100dB system gain per band (in Off-Air mode)</td>
<td>Works with any user equipment (UE) for the configured networks (no whitelist/blacklist)</td>
<td>Coverage footprint provided via Power over Ethernet (PoE); no requirement for additional power source at CU (RU)</td>
</tr>
<tr>
<td>Multiple Cel-Fi QUATRA 2000 systems may be deployed to increase coverage footprint</td>
<td>Peaceful coexistence with adjacent Wi-Fi (2.4 GHz &amp; 5 GHz), femtocells, and cellular devices</td>
<td>Up to 75 MHz system relay bandwidth</td>
<td></td>
</tr>
</tbody>
</table>
### Donor Signal
- Simplest Installation: NU (Head End) and CU (RU) connect with Cat 5e-rated (or better) cable
- Scalable architecture allows multiple Cel-Fi QUATRA systems to be deployed in the same environment for larger footprint
- LED cues provide visual feedback for ease of setup and status
- Works with any subscriber device from the configured carrier
- System management locally or from the cloud through the Cel-Fi WAVE platform
- Wall and ceiling mounting options

### Wireless Benefits
- Clear and reliable cellular connections within coverage area up to 50,000 ft² (5000 m²) per system, and beyond
- Highest gain (100dB) provides best coverage footprint on location
- Advanced Echo-Cancellation allows Cel-Fi QUATRA 2000 to transmit more power without feedback interference
- Subscriber devices require less transmit power for improved battery life
- Linearity eliminates IMD desense issues
- Dynamic gain control ensures maximum gain—best coverage—at all times in ever changing RF environments, without user intervention
- Nexity purpose-built, high-performance, six core ASIC processor, provides best performance at lowest cost

### Mobile Network Benefits
- Flexibly deploy in LTE, VoLTE, LTE-Advanced, CDMA and WCDMA networks, with multiple cellular bands, simultaneously
- Automatically adjusts channel bandwidths from 3.84 MHz to 20 MHz
- Sufficient relay bandwidth (75 MHz) to support SISO in multiple bands
- Off-load the macro network, or use to improve macro capacity and building propagation/penetration
- Cel-Fi QUATRA 2000 system improves users’ cellular experience while remaining invisible to networks and UEs: no gateways or third-party software needed
- UE control is transparent and remains centralized in the network core (no gateways or third-party software)

### Variants
<table>
<thead>
<tr>
<th>Model Number</th>
<th>Bands Supported</th>
<th>Carrier Configurations Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q34-4/5/12/13/25</td>
<td>4, 5, 12, 13, 25</td>
<td>AT&amp;T &amp; Verizon</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T-Mobile &amp; Sprint</td>
</tr>
</tbody>
</table>

### QUATRA Range Extender (QRE)
- The Cel-Fi QUATRA Range Extender is a Power over Ethernet (PoE) device that allows Cel-Fi QUATRA 2000 Network Unit (NU) to Coverage Unit (CU) interconnect cable lengths up to 650 ft (200 m). Plug and Play installation.
- Power over Ethernet (PoE)
- Extends NU to CU cable to 650 ft (200 m)
- Supports Cel-Fi QUATRA 2000 proprietary protocols
- Intuitive LED interface
- Note: Will not support other (non Cel-Fi QUATRA 2000) PoE devices

### Indoor Omni Antenna
- The Wideband Indoor Dome Server Antenna receives and transmits signal in a 360° pattern
- Compatible with the 698 – 2700 MHz frequency ranges that include 3G and 4G signals
- Omni-Directional
- SMA Male connector

### Wideband Omni Donor
- The Wideband Omni-Directional MIMO Antenna is perfect for use as an outdoor cellular donor signal source
- 698 – 2700 MHz
- N-type Female (x2)

### Power (Network Unit only)
- 54 VDC @ 2.22 Amp via external supply (51.3 to 56.7 VDC tolerance)
- External supply: 100 to 240 VAC, 47 – 63 Hz
- Power consumption less than 120W max
- Network Unit provides power to Coverage Units over Cat 5e (PoE)

### Environmental
- Operating temperature: 0° to 40°C
- Storage temperature: -25° to 60°C
- Convection Cooling
- Relative humidity: 0% to 95%, noncondensing
- RoHS II 2011/65/EU
- ip20

### Installation
- Mounting hardware included
- NU may be wall mounted
- CUs may be wall or ceiling mounted
- 1 NU supports 1 to 4 CUs
- iBwave VEX files available
Radio Performance

(check product version for specific band support)

<table>
<thead>
<tr>
<th>Band</th>
<th>Downlink</th>
<th>Uplink</th>
<th>Boost</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2110-2155 MHz</td>
<td>1710-1755 MHz</td>
<td>Up to 20 MHz contiguous boost</td>
</tr>
<tr>
<td>5</td>
<td>869-894 MHz</td>
<td>824-849 MHz</td>
<td>Up to 15 MHz contiguous boost</td>
</tr>
<tr>
<td>12</td>
<td>729-746 MHz</td>
<td>699-716 MHz</td>
<td>Up to 10 MHz contiguous boost</td>
</tr>
<tr>
<td>13</td>
<td>746-756 MHz</td>
<td>777-787 MHz</td>
<td>Up to 10 MHz contiguous boost</td>
</tr>
<tr>
<td>25</td>
<td>1930-1995 MHz</td>
<td>1850-1915 MHz</td>
<td>Up to 20 MHz contiguous boost</td>
</tr>
</tbody>
</table>

Total boost all-channel bandwidth 75 MHz
DL Maximum NU in-band donor level -40dBm
DL Maximum NU survival donor level 30dBm
UL Maximum CU donor level -20dBm
Maximum UL power 24dBm EIRP bands 4, 25
Maximum UL power 20dBm EIRP bands 5, 12, 13,
Maximum DL power 10dBm per 5 MHz EIRP all bands
LTE 5/10/15/20 MHz and WCDMA 3.84/5MHz bandwidths

Physical Specifications

<table>
<thead>
<tr>
<th>Network Unit</th>
<th>Coverage Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>250x188x55mm</td>
<td>188x188x50mm</td>
</tr>
<tr>
<td>1.2 kg (40.8 oz.)</td>
<td>0.83 kg (29.2 oz.)</td>
</tr>
</tbody>
</table>

Connections

4x CU RJ45 Proprietary Gigabit link
100m max CU cable length Cat 5e
200m max CU cable length with Cel-FiQUATRA Range Extender (Cat 5e or Cat 6)
Poe IEEE 802.3at
RJ45 LAN management port (10/100 Fast Ethernet)
RJ45 LAN management output port (10/100 Fast Ethernet)
2x External RF Input (QMA Female 50 ohm)

Compliance

(check individual product version for specific regional compliance)

3GPP TS 25.143 Rel.10
3GPP TS 36.143 Rel.10
FCC Part 15, 20, 22, 24, 27
ISED Canada
UL 62368-1/CSA C27.2
Bluetooth BQB

Note: Certifications are regional; not all products need or have the same certifications. Please check the specific model number to determine exactly which certifications it has.

Patents & Design

Cel-Fi QUATRA 2000 products are covered by Nextivity, Inc., patents and patents pending. Designed by Nextivity, Inc. in San Diego, California, USA. Please refer to cel-fi.com for details.

Specifications subject to change without notice.

System Management

(Cel-Fi WAVE cloud portal)

Cel-Fi WAVE Remote Management:
• Status (List and Msp)
• Commissioning
• Diagnostics
• Software Updates
• Settings
• Reporting
• Alarms & Notifications

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