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

### System Features
- Enterprise-class, carrier-grade, small footprint active DAS
- RF inputs for external off-air donor antenna (A11-V14-100)
- Network Unit (NU) (Head End) attaches to Coverage Unit (CU) (Remote Unit) via Cat 5e cable
- A single NU and up to four (4) CUs may be attached (hub and spoke architecture) in a Cel-Fi QUATRA 2000 system
- Multiple Cel-Fi QUATRA 2000 systems may be deployed to increase coverage footprint
- Up to 325 ft (100 m) range from NU to CU
- Cel-Fi QUATRA Range Extender (QRE) (optional) may be used to increase NU-to-CU distance to 650 ft (200 m)
- Remote Management through Nexitivity’s Cel-Fi WAVE cloud platform
- Glanceable LED User Interface (UI)
- Mounting hardware included

### Wireless Features
- Supports up to two bands simultaneously from two operators
- 3G/4G/LTE support (CDMA / WCDMA / HSPA+ / LTE)
- Supports FDD
- Up to 100dB system gain per band (in Off-Air mode)
- Peaceful coexistence with adjacent Wi-Fi (2.4 GHz & 5 GHz), femtocells, and cellular devices
- Advanced digital echo-cancellation (>30dB) and channel select filtering algorithms
- Active management of the cellular link between the Base Station and user devices
- Automatic Gain Control (AGC) based on fast real-time echo-cancellation
- Linear RF front end
- Adaptive signal equalization
- Uses Nexitivity’s 3rd-generation “ARES” chipset

### Mobile Network and Network Protection Features
- Dual-carrier combinations available: AT&T and Verizon; Sprint (FDD) and T-Mobile
- Integration, handover, and handoff with the macro network
- Supports multiple channels with bandwidths of 3.84/5/10/15/20 MHz per channel
- Works with any user equipment (UE) for the configured networks (no whitelist/blacklist)
- Up to 75 MHz system relay bandwidth
- Support for 3GPP Release 10 features
- Provider-specific operation: Cel-Fi QUATRA 2000 distributes and boosts service only for the Operator PLMNID for which the device is authorized and configured
- Secure and ciphered provisioning
- System intelligence accurately establishes proper safe uplink power in real time
- Uplink Muting Mode automatically shuts down uplink cellular transmissions when no active user equipment is detected

### Benefits
- Easiest to deploy Active DAS Hybrid
- Distribute and boost cellular coverage indoors
- 3G and 4G support, Voice and Data, network safe
- Coverage footprint provided via Power over Ethernet (PoE); no requirement for additional power source at CU (RU)
### 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 provides 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
- Nextivity 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 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
- 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 BW, HSPA or LTE SISO</td>
</tr>
<tr>
<td>5</td>
<td>869-894 MHz</td>
<td>824-849 MHz</td>
<td>Up to 15 MHz contiguous boost BW, HSPA or LTE SISO</td>
</tr>
<tr>
<td>12</td>
<td>729-746 MHz</td>
<td>699-716 MHz</td>
<td>Up to 10 MHz contiguous boost BW, LTE SISO</td>
</tr>
<tr>
<td>13</td>
<td>746-756 MHz</td>
<td>777-787 MHz</td>
<td>Up to 10 MHz contiguous boost BW, LTE SISO</td>
</tr>
<tr>
<td>25</td>
<td>1930-1995 MHz</td>
<td>1850-1915 MHz</td>
<td>Up to 20 MHz contiguous boost BW, HSPA or LTE SISO</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
Specific power settings may be influenced and/or modified for regulatory compliance. Check specific model for power values.

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-Fi QUATRA 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

- 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

(Check product version for specific regional compliance)

- Cel-Fi WAVE cloud portal

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

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