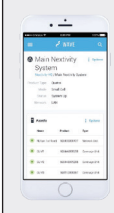# CEL-FI™
DUO+ | 3G / 4G / LTE

Smart Signal Booster™

Cel-Fi DUO+ is designed to dramatically improve voice and data indoor coverage in up to three (3) bands for 3G / 4G / LTE.

Benefits:

- **5 Min Setup: Plug & Play**
- **Best Signal by 1000x**
- **Coverage and Capacity for Up to 15,000 ft² (1,400 m²) per System (Scalable)**
- **Wireless Solution—No External Antennas or Wiring**
- **Remote Monitoring and Management via Cel-Fi WAVE Platform**

Cel-Fi WAVE is a smartphone app that will help you get the best performance from your Cel-Fi DUO+.

Download on the App Store   GET IT ON Google play

System Features	Plug and play, simple installation—no external cables, antennas, wires, or drills needed
	Clean and compact industrial design
	Intuitive LED User Interface (UI)
	System senses three (3) bands and relays any two
	Integrated antennas
	Auto-configured & Self-Contained
	Unlocked: Cell phones do not need to be registered with Cel-Fi to benefit
	Peaceful coexistence with adjacent Cel-Fi systems
	Patented 2-unit, 3-hop system
	Remote software update capability
	Support for the Cel-Fi WAVE mobile & desktop applications
	End-to-end cellular communication encryption without additional risk of vulnerability
	Mounting brackets included with every unit
Wireless Features	Supports 3G / 4G / LTE (FDD)
	Up to 100dB of system gain in each band, simultaneously
	Bluetooth Low-Energy (BT LE) communications with mobile handsets
	Max EIRP for Multiple carriers: 10dBm downlink and 22dBm uplink, per band
	Wirelessly (5GHz U-NII) linked Network and Coverage Units
	Peaceful coexistence with adjacent Wi-Fi (24 GHz & 5 GHz), femtocell, and cellular devices
	Software-based optimization of integrated antenna coverage pattern which maximizes system gain and provides improved coverage and signal quality
	Automatic Gain Control (AGC) based on fast real-time echo-cancellation
	Advanced digital echo-cancellation (>30dB) and channel select filtering algorithms
	Cel-Fi manages the power levels between the cell tower and user devices
	Extremely linear RF front end
	Adaptive signal equalization
	Includes Nextivity's 3rd-generation six-core ARES chipset
Mobile Network and Network Protection Features	Up to three (3) cellular bands supported; relays two (2) simultaneously
	Will work with any 3G or 4G carrier deploying 3G or 4G in Bands 2, 12, or 4
	Cel-Fi DUO+ simultaneously supports multiple channels with bandwidths anywhere from 5 to 20 MHz per radio with a total system relay bandwidth of 35 MHz
	Support for 3GPP Rel 10 features
	Seamless integration with the Macro networks
	Cel-Fi boosts service only for the Operator PLMNIDs the device is authorized and configured for
	Remote Access from the cloud to the Cel-Fi device (optional)
	Secure and ciphered provisioning
	Software-managed system intelligence prevents uplink system gain from exceeding path loss, eliminating unnecessary rise in base station noise level
	Uplink Muting Mode automatically shuts down uplink cellular transmissions when no active user equipment is detected
	System Registration options available
	Location Lock, which ensures the device is only being used in the location it was deployed (optional)

System Benefits	Indoor cellular coverage!
	Anyone can install the device. No special tools or knowledge required. No external antennas needed. Simply plug-in to power.
	Attractive design can be displayed, or easily placed into the background
	No setup or ongoing maintenance needed, nor reliance upon internet, GPS, or handsets to be registered with the system
	No additional equipment or professional installation required for full performance
	The three-hop two unit wireless system eliminates the requirements and installation restrictions associated with cabled connections
	Users can be assured communications are secure, through the encrypted wireless link
	The included mounts allow for the system to be wall-mounted for maximum spatial flexibility
	Registration, Software Updates, and Engineering application support, with the Cel-Fi WAVE mobile app
	Any subscriber device on boosted network will benefit from improved coverage
	Multiple systems can be deployed without concern for mutual interference
	User Interface (UI) display allows quick and easy set-up by end- user. Provides instant visual feedback, with each unit displaying system information.
	Architecture allows user to place the Coverage Unit where it's needed and the Network Unit where it gets the best donor signal
	Simplified remote maintenance of devices in the field, with Cel-Fi WAVE cloud access

Wireless Benefits	Clear and reliable voice connections within coverage area—up to 15,000 ft^2 (1,400 m^2)
	Bluetooth enables the system to communicate with smart phones and the Cel-Fi WAVE mobile app, improving the user experience and adding capability to the product
	Cel-Fi remains fully functional, even when there are other RF emitters present
	Ensures maximum gain—best coverage—at all times in ever changing RF environments, without user intervention
	Subscriber devices enjoy improvements in battery life
	Linearity virtually eliminates all IMD desense issues
	The highest performance, fully-certified, signal booster possible in its power class
	Maximizes signal-to-noise (SNR) ratio—provides better data rates without negatively impacting macro cells
	Real-time adapting capability ensures the best possible user experience, in actual user environments, which are constantly changing, and have a variety of Wi-Fi types and cellular signals present

Mobile Network Benefits	Supports most network configurations of LTE for maximum interoperability
	Seamless call handoff between Cel-Fi systems or the macro
	Easily supports multiple band and frequency configurations on a cellular network with one device
	Reduce returns, customer care calls, and provide the best product experience to users
	Unlike wideband amplifiers, ensure the equipment capex benefits only your network—third-party macro cells are completely unaffected by Cel-Fi DUO+
	Network operators can be assured Cel-Fi devices are being used as intended, with registration and location lock options
	Completely network safe, doesn't degrade macro capacity
	Registration options allow control over device deployment and may be used to prevent unintended use
	Ultimate control of the installed devices resides with the network operator

Variants

Model Number	Bands Supported
D32-2/13/66	2, 4, 12

Radio Performance
(check product version for specific band support)

D32-2/13/66	Band 2	Band 12	Band 4
Frequency DL	1930-1990 MHz	729-746 MHz	2110-2155 MHz
Frequency UL	1850-1910 MHz	699-716 MHz	1710-1755 MHz
Duplex Distance	80 MHz	30 MHz	400 MHz
Maximum Relay BW	20 MHz	10 MHz	20 MHz
	35 MHz Combined		
UL TX Power Max EIRP	22dBm	20dBm	22dBm
DL TX Power Max EIRP	10dBm per 5 MHz	10dBm per 5 MHz	10dBm per 5 MHz

Environmental	Operating temperature: 0° to 40°C
	Storage temperature: -25° to 60°C
	Relative humidity: 5% to 95%, noncondensing
	RoHS II 2011/65/EU
	WEEE (2002/96/EC)
	ErP 2009/125/EC

Power	12 VDC via external supply (two included)
	External supply: 100 to 240 VAC, 47 – 63Hz
	Power consumption less than 15W per unit

Physical Specifications

	Network Unit	Coverage Unit
	158.5x146x59mm	158.5x146x59mm
	560g	390g

Compliance
(check individual product version for specific regional compliance)

FCC Parts: 15, 20, 22, 24, 27

EN 301 489 -1, 17, 23

EN 301 893

EN 301 908-1, 11, 15

EN 300-328

EN 62311

UL 62368-1

CSA C22.2#62368-1

IEC/EN 62368-1

3GPP TS 25.143 Rel.10

3GPP TS 36.143 Rel.10

EN 50566/62209-2/62479 (SAR)

Bluetooth SIG

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

This product is 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.

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