



# CFW-2291 CFW-2292

## AurusPRO

Release 16 High Gain  
Outdoor CPE

### Product Summary

- + Versatile slimline outdoor 5G/LTE CPE designed for professional installations (Consumer, Enterprise & IoT Markets)
- + Supports a wide range of 3GPP Frequency Bands from 600MHz up to 4.2GHz, it is suitable for deployment in the majority of regions globally
- + Includes an integrated 4x4 MIMO High-Gain Directional Antenna
- + Powered via standards compliant Power Over Ethernet (802.3af), it is compatible with third party standards compliant PoE Sources and Consumer/Enterprise Gateways, PoE Injector included as standard
- + Integrated Power Over Ethernet K.21 compliant lightning surge protection in the CPE, K.21 compliant Power Over Ethernet injector available as an option, provides protection without the expensive installation of electrical ground cabling
- + Remotely manageable (FM, CM, PM, SM) via BBF TR-069, SSH and HTTP/S
- + Robust IP67 design for longevity supporting a wide operating temperature range and harsh environments
- + Additional Installation Tools and Smartphone Applications available to provide efficient installation processes





# CFW-2291 & CFW-2292 Outdoor CPE

## Technical Specifications

### Model Number

- + CFW-2291 (Global, excluding North America)
- + CFW-2292 (North America)

### 3GPP Release

- + Release 16

### Technologies Supported

- + LTE, 5G NSA (EN-DC), 5G SA
- + 3GPP CN Options 1, 3x, 2
- + NSA Mode: PDCP UL & DL

### Frequency Bands – CFW-2291

#### NR

- + n1, n3, n5, n7, n8, n20, n28, n38, n40, n41, n75, n76, n77, n78

#### LTE

- + B1, B3, B5, B7, B8, B20, B28, B32, B38, B40, B41, B42, B43
- + Dynamic Spectrum Sharing Support on FDD bands

### Frequency Bands – CFW-2292

#### NR

- + n2, n5, n7, n12, n13, n14, n25, n26, n29, n30, n38, n41, n48, n66, n70, n71, n77, n78

#### LTE

- + B2, B4, B5, B7, B12, B13, B14, B17, B25, B26, B29, B30, B38, B41, B42, B43, B48, B66, B71
- + Dynamic Spectrum Sharing Support on FDD bands

### Device Category

#### LTE

- + Uplink: 2CA Single TX, 256QAM
- + Downlink: 5CA MIMO 4x4, 256QAM

#### NR

- + Uplink: MIMO 2x2 Single Carrier Up to 100MHz, 256QAM
- + Downlink: MIMO 4x4 Dual Carrier Up to 120MHz, 256QAM

### 5G Subcarrier Spacing (SCS)

- + 15kHz FDD Bands only
- + 30kHz TDD Bands only

### Antenna Characteristics

#### Antenna Type

- + Dual-Polarized 4x4 MIMO Directional

#### Frequency Coverage

- + 600 – 4200MHz

#### Antenna Gain

- + 617 – 960 MHz – 2x2 (Up to 4dBi)
- + 1432 – 1517 MHz – 4x4 (Up to 7dBi)
- + 1700 – 2500 MHz – 4x4 (Up to 12.5dBi)

- + 2500 – 2700 MHz – 4x4 (Up to 13.5dBi)
- + 3300 – 4200 MHz – 4x4 (Up to 15.5dBi)

See the ANTENNA PERFORMANCE section for more details.

### CBRS Support (CFW-2292 Only)

- + CBRS End User Device (EUD)
- + Max 23dBm/10MHz EIRP

### Conducted RF Output Power

(Pre-Antenna)

#### LTE

- + 23dBm single TX UL
- + 26dBm single TX UL (B41, B42, B43 Only)

#### NR

- + NSA:
  - + 23dBm single TX UL
- + SA:
  - + 29dBm single TX UL (n41, n77, n78)
  - + 26dBm single TX UL (n38)
  - + 23dBm single TX UL all other bands
  - + 2x26dBm MIMO 2x2 UL (n41, n77, n78)
  - + 2x23dBm MIMO 2x2 UL (n38, n40)

### Interfaces

- + 1 x 2.5Gbit Base-T Ethernet RJ45 port
- + BLE (Bluetooth Low Energy) for connection to installation app

### GPS

- + Embedded GPS/GLONASS/Galileo/Beidou

### SIM Card Reader

- + Supports 2FF and 4FF SIM cards

### Operating System

- + Based on Embedded Linux

### Temperature

- + CFW-2291: -30°C to +55°C
- + CFW-2292: -40°C to +55°C

### Enclosure

- + IP67 rated
- + Wind speeds up to Tornado EF1 (110mph / 177kph)

### Safety

- + Surge and lightning protection (K.21 compliant) Ethernet Port on the CPE
- + K.21 compliant PoE Injector available as an option

### Dimensions & Weight

#### Dimensions

- + 444 mm x 257 mm x 139.3 mm (excludes mounting bracket)

### Weight

- + 1655g (excluding mounting bracket)
- + 1973g (including mounting bracket)

### Mounting Options

- + Elevation adjustable mount Adjustable +/- 24°
- + Suitable for 25-60 mm circular poles

### Power

#### Supply

- + Power over Ethernet per IEEE 802.3af Mode A and B

#### Consumption

- + Peak operating power: 9.3W

### Cellular WAN Networking

- + Up to 6 APN Configurations
- + Up to 8 Bearers & Traffic Classes
- + 4G/5G PCI Lock
- + Automatic/Manual cellular band selection
- + Automatic/Manual operator selection

### Device Management

- + HTTP/S Web-based User Interface (Local & Remote Support)
- + TR-069/TR-143/TR-181 Support for CM, PM, FM, SM
- + Firmware upgrade remotely Over-The-Air (TR-069)
- + Installation Support via Smartphone App
- + Diagnostics & Metrics
- + Secure Shell (SSH)
- + Remote syslog
- + Ping diagnostic tool
- + NTP Client
- + Geo Fence support
- + Service Assurance Diagnostic
- + Field Test screen

### LAN Network & Routing

- + IPv4, IPv6, IPv4v6
- + IP Passthrough / Handover
- + VLAN support
- + Static routing
- + DHCP server
- + Port forwarding
- + IP / MAC / Port filtering
- + Firewall
- + VPN Passthrough
- + Policy Based Routing



# CFW-2291 & CFW-2292 Outdoor CPE

## Included Accessories

### Power Over Ethernet Injector

An 802.3af compliant 15.4W Power over Ethernet Injector is included for providing data and power connectivity from indoors to the outdoor CPE.

- + 100-240VAC Universal Input/Full Range
- + Low power devices receive only the power they need
- + Plug and play installation



## Technical Specifications

### Ethernet Ports

- + 1 x 10/100/1000/2500 Base-T Residential Gateway Port
- + 1 x 10/100/1000/2500 Base-T PoE PSE

### AC Input Power

- + AC Powered: 100-240VAC / 50-60Hz
- + 1 x Three pin plug (IEC C6) socket

### PoE Standard

- + 802.3af 56Vdc 15.4W
- + Pin-out 3/6(+), 1/2(-)

### LED Indicator

- + 1 x LED indicator for power, data and PoE faults

### Operating Environment

- + Operating temperature range: -20°C - +50°C
- + Relative humidity: 10% - 90%

### MTBF

- + 100K Hours

### Weight

- + 123g

### Dimensions

- + 114.8 mm (L) x 53 mm (W) x 35 mm (H)

### Safety Certifications

- + UL, CL, CB, CE





# CFW-2291 & CFW-2292 Outdoor CPE

## Antenna Performance

### 3GPP Low Bands (Sub6GHz) - 1T2R

Directional		Antenna 5		Antenna 6		
Frequency (MHz)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)
617	1.7	139.2	169.49	1.86	125.04	183.35
650	0.19	167.94	214.64	0.64	109.28	92.04
698	1.36	62.3	86.44	2.02	66.27	52.25
740	1.48	100.35	89.54	0.69	162.68	38.54
780	0.65	151.76	90.89	0.63	58.61	51.93
800	1.48	214.76	89.51	2.39	65.28	49.57
840	0.36	144.96	87.94	2.01	74.02	42.11
920	1.9	160.15	57.58	4.01	120.95	62.09
960	3.77	166.68	63.33	3.34	148.86	78.29

### 3GPP Low Bands (Sub6GHz) - 0T4R

Directional		Antenna 1		Antenna 2		
Frequency (MHz)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)
1427	3.26	50.24	60.53	1.12	58.81	62.82
1450	4.42	50.72	55.16	3.02	55.81	52.28
1496	6.57	50.43	57.67	5.32	52.98	50.74

### 3GPP Low Bands (Sub6GHz) - 0T4R

Directional		Antenna 3		Antenna 4		
Frequency (MHz)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)
1427	4.1	52.88	58.17	1.88	54.02	58.88
1450	5.46	52.32	61.24	3.07	54.81	60.44
1496	6.95	50.98	54.14	5.67	54.27	55.46

### 3GPP Mid Bands (Sub6GHz) - 2T4R

Directional		Antenna 1		Antenna 2		
Frequency (MHz)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)
1710	9.75	43.79	46.99	9.5	50.78	49.61
1880	11.32	41.62	46.29	11.27	43.43	46.73
2025	11.25	39.61	41.01	10.19	41.15	43.35
2170	11.87	36.56	37.39	11.1	37.47	38.42
2300	12.16	34.41	34.67	12.23	34.94	36.32
2400	11.89	32.87	35.36	12.14	33.8	36.26
2500	12.29	30.88	34.61	12.06	33.49	35.48
2600	12.55	30.41	32.4	12.59	31.27	32.26
2700	13.42	29.52	30.94	13.83	30.07	30.52



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## Antenna Performance Cont.

### 3GPP Mid Bands (Sub6GHz) - 2T4R

Directional		Antenna 3		Antenna 4		
Frequency (MHz)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)
1710	9.76	46.58	49.9	9.54	45.53	49.63
1880	11.32	42.49	43.22	11.17	42.43	46.5
2025	10.96	40.61	40.43	10.15	39.53	44.36
2170	11.76	37.79	37.71	11.08	36.7	38.72
2300	11.75	37.21	35.82	12.16	33.24	37.5
2400	12.58	33.21	33.01	12.07	33.54	35.38
2500	12.16	32.22	33.68	12.12	32.03	33.41
2600	12.61	30.88	31.18	12.6	30.65	32.17
2700	13.34	29.54	29.73	13.62	29.2	30.07

### 3GPP High Bands (Sub6GHz) - 2T4R

Directional		Antenna 1		Antenna 2		
Frequency (MHz)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)
3300	14.56	24.96	25.37	14.63	24.96	25.49
3400	14.42	24.5	24.29	14.42	24	24.6
3500	14.09	23.8	23.75	14.29	23.41	24.88
3600	14.36	23.01	23.11	13.96	22.41	24.39
3700	14.37	22.05	22.56	14.17	21.18	24.77
3800	14.22	21.25	21.4	14.62	20.62	22.15
3900	14.54	20.65	21.26	14.56	20.27	21.02
4000	14.91	19.24	19.72	14.83	20.02	19.71
4100	14.87	19.19	19.46	14.67	17.73	20.13
4200	14.22	18.68	19.78	13.53	19.17	20.02

### 3GPP High Bands (Sub6GHz) - 2T4R

Directional		Antenna 3		Antenna 4		
Frequency (MHz)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)
3300	14.36	24.59	25.34	14.43	25.13	25.35
3400	14.46	23.52	24.89	14.3	24.26	25.01
3500	14.12	22.8	24.33	14.2	23.63	24.16
3600	14.27	22.21	23.71	14.02	22.91	23.75
3700	14.52	21.11	23.04	14.63	22.12	22.85
3800	14.38	20.38	22.07	14.4	20.85	22.46
3900	14.79	19.79	21.6	14.55	20.06	21.84
4000	14.2	20.07	20.97	14.53	19.34	21.33
4100	14.72	19.38	18	14.75	19.05	20.41
4200	14.18	19.13	19.72	13.58	18.52	20.08

### GPS

Directional		Antenna 7	
Frequency (MHz)	Gain (dBi)	H Beamwidth (°)	V Beamwidth (°)
1175	4.25	46.98	52.7
1176	4.27	48.11	52.52
1177	4.3	49.19	52.11
1574	5.22	51.72	49.37
1575	5.31	51.71	49.39
1576	5.41	51.55	49.37

### Uplink Antenna

Frequency Range (MHz)	Uplink Antenna	Uplink Antenna (MIMO only)
617 - 960	Antenna 5	N/A
1450 - 1500	N/A	N/A
1700 - 2700	Antenna 1	Antenna 3
3300 - 4200	Antenna 2	Antenna 4



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## Optional Accessories

The following accessories can assist in the installation and alignment of the Outdoor CPE



### CTL-2000 Smart Install Tool

The **CTL-2000** integrates a Wi-Fi 802.11b/g/n access point operating on the 2.4GHz band, to connect to a smartphone enabling the installer to get detailed signal readings. The smartphone app provides a clear diagnostic and troubleshooting for an interactive and reliable configuration of the Outdoor Unit, finding the best location at the premises.

The **CTL-2000** connects directly to the Outdoor Unit via Ethernet.

Delivering power over Ethernet thanks to its removeable rechargeable battery, the Smart Installation Tool offers the needed portability for an efficient site survey.

### AuroraPRO Smartphone Installation Application

This advanced business process support application for Google devices is designed to aid professional installation.

It provides guidance and measurements during site survey to meet predefined service goals.

It supports the installer through to final installation including post installation service measurements and creates automated final installation reports which can be used to provide remote support and maintenance over the device's life span.

Specifications are subject to change without notice. Images shown may vary slightly from the actual product.  
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