

CriticalPoint™ UHF 450MHz Public Safety Fiber DAS



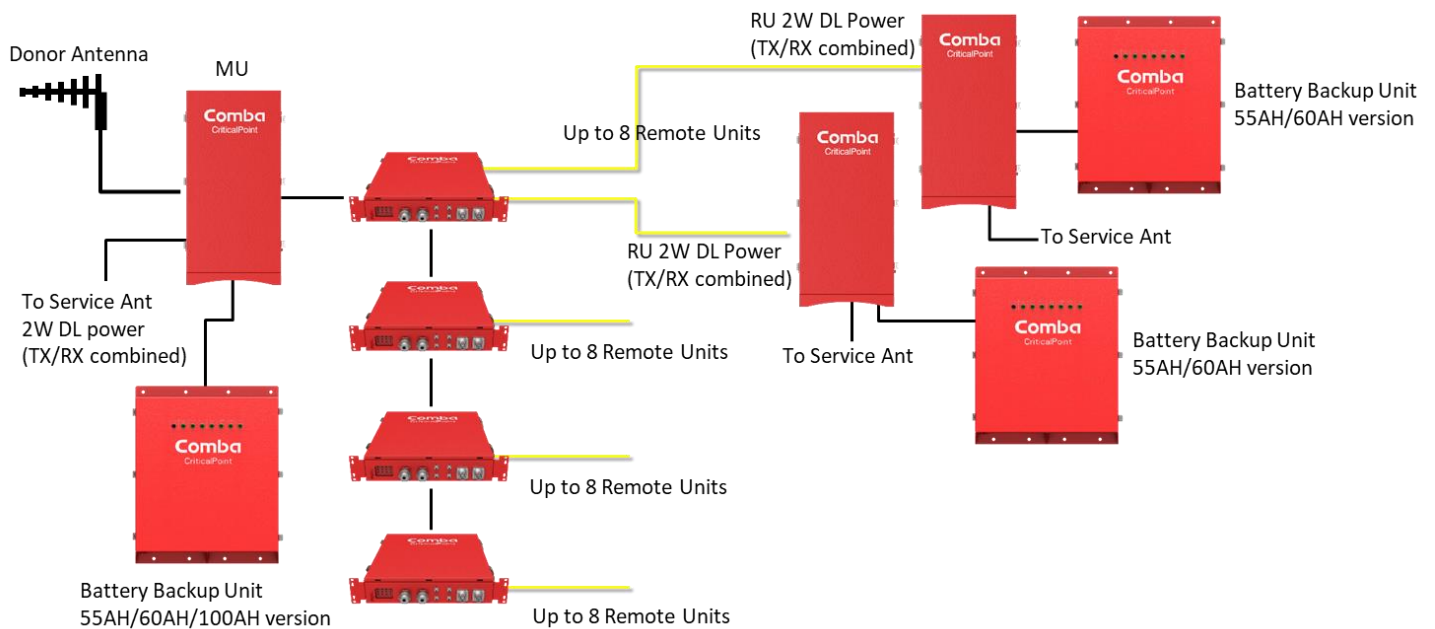
Public Safety DAS Version 2 Fiber Platform UL Standards Certified

Features

- Supports P25 P1/P2, digital and conventional analog communications simultaneously
- Simplex and internal Duplexing supported
- Up to 32 narrow band filters (Class A)
- Up to 4 wide band filters (Class B)
- Supports up to 32 Remote Units when cascading Fiber Optical Units
- Channelized Auto Level Control (ALC) supported (Class A)
- Channelized uplink squelch supported (Class A)
- Built-in mandatory isolation test to prevent oscillation
- Auto shutdown with alarm upon oscillation detection
- Web based GUI for intelligent configuration, SNMP supported
- NFPA 1221 / IFC compliant dry contact alarms
- UL50E Type 4 / NEMA 4 enclosure on MU/RU/FOU
- **FCC Class A: TBD, Class B: TBD**
- **UL2524 / UL62368-1: TBD**



Functional Block Diagram



Specifications

Fiber Optical Unit			
Frequency Band	Uplink	MHz	450-512MHz
	Downlink		450-512MHz
Optical Wavelength	Uplink	nm	1310
	Downlink		1550
Optical Connector Type			SC-APC
Optical Fiber type			Single Mode, WDM (single strand of fiber per Remote Units)
VSWR			≤ 1.5
Number of Remote Units supported per unit			4 or 8

Electrical - System		
Frequency Range	MHz	450 - 512
Total Output Power, Uplink (MU Only)	dBm	27 (Typical TX/RX duplexed), 30 (TX/RX separate)
Total Output Power, Downlink (MU and RU)	dBm	33 (Typical TX/RX duplexed), 36 (TX/RX separate)
RF Passbands (RF windows)		Up to 3 *See Note below
Maximum System Gain	dB	95
Gain Adjustment Range (1dB step)	dB	MU: 0-30, RU: 0-30
Pass Band Ripple, p-p	dB	≤3
Uplink Noise Figure	dB	≤7
Intermodulation	dBm	≤ -13
Spurious	dBm	FCC Compliance
Maximum RF Input Level without Damage	dBm	0
Maximum RF Input Level without Overdrive		-30
Input VSWR		≤ 1.5
Impedance	Ω	50

*Note:

A set of contiguous downlink/uplink channel pairs count as one passband (one window)

Consult with a Comba technical representative for passband and window configurations before ordering

Digital Filters - Class A			
Number of Filters			32
Filter Bandwidth / Out-of-Band Suppression / System Group Delay	Bandwidth: 6.25KHz		≥ 60dBc @ filter center + 60KHz, 67us
	Bandwidth: 12.5KHz		≥ 60dBc @ filter center + 65KHz, 38us
	Bandwidth: 25KHz		≥ 50dBc @ filter center + 75KHz, 29us
	Bandwidth: 75KHz		≥ 60dBc @ filter center + 200KHz, 17us
Digital Filters - Class B			
Number of Filters			4
Filter Bandwidth			200KHz – 5MHz
System Group Delay		μsec	8.5
Out-of-Band Suppression			≥ 45dBc @ filter edge + 0.6MHz ≥ 60dBc @ filter edge + 1MHz

Mechanical - MU		
Dimensions, H x W x D	in(mm)	37.4x15.4x12.4 (950×390×315)
Weight (without bracket)	lb(kg)	77 (35) without filter, 140 (63.5) with filter
Power Supply	VDC	-40 to -58
	VAC	100-240/47-63Hz
Power Consumption	W	85
RF Connectors		N-Female
Operating Temperature	°F(°C)	-27 to +140 (-33 to +60)
Operating Humidity		≤ 95%
Environmental Class		UL50E Type 4 / NEMA 4

Note: Typical specifications at room temperature

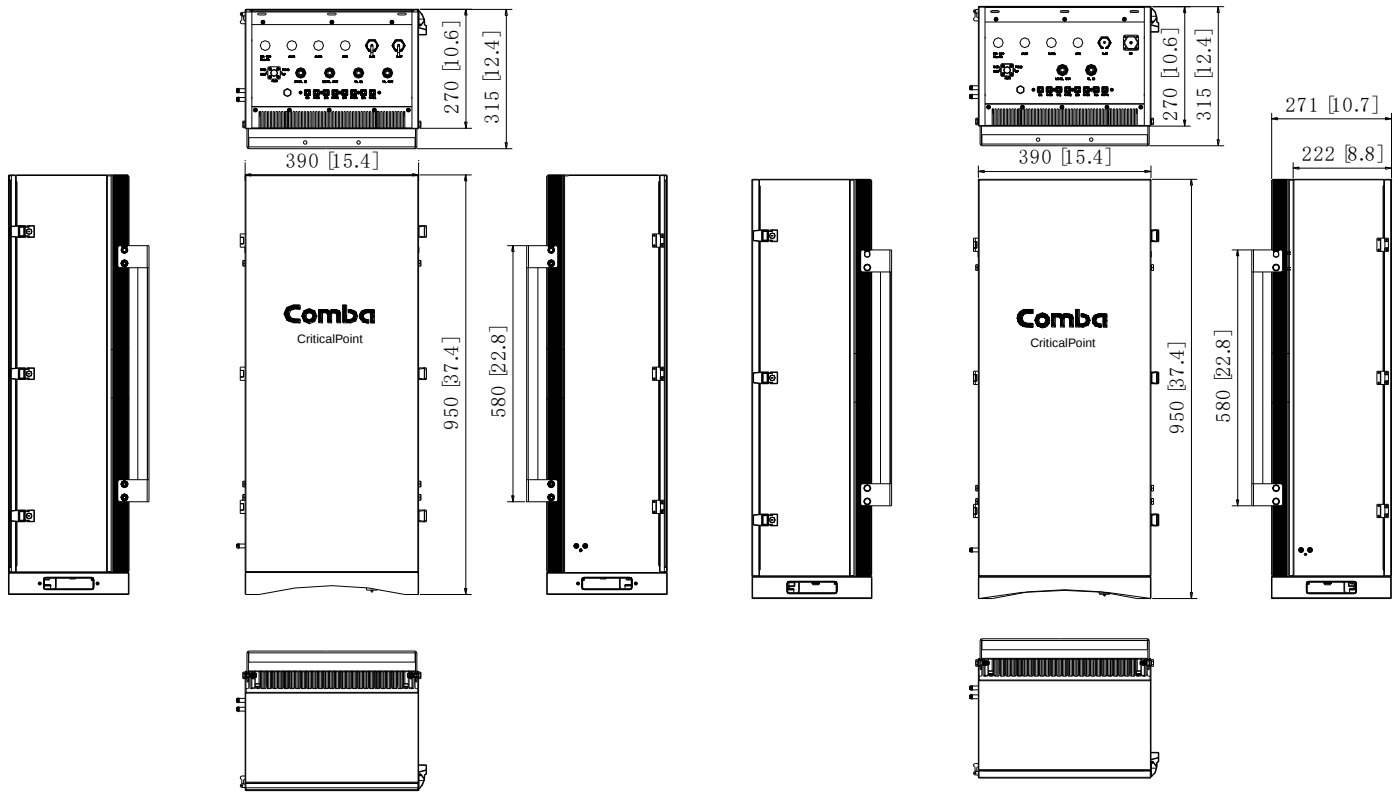
Mechanical - RU		
Dimensions, H x W x D	in(mm)	37.4x15.4x12.4 (950×390×315)
Weight (without bracket)	lb(kg)	77 (35) without filter, 140 (63.5) with filter
Power Supply	VDC	-40 to -58
	VAC	100-240/47-63Hz
Power Consumption	W	85
RF Connectors		N-Female
Operating Temperature	°F(°C)	-27 to +140 (-33 to +60)
Operating Humidity		≤ 95%
Environmental Class		UL50E Type 4 / NEMA 4

Note: Typical specifications at room temperature

Mechanical - FOU			
Dimensions, H x W x D		in(mm)	18.5 x 15.8 x 3.4 (470 x 400 x 87)
Weight (without bracket)	4 Port	lb(kg)	25.4 (11.5)
	8 Port	lb(kg)	27.6 (12.5)
Power Consumption (approx.)	4 Port	W	15
	8 Port	W	20
Power Supply		VDC	+28 (From Master Unit)
Enclosure Cooling			Convection
Operating Temperature		°F (°C)	-40 to +131 (-40 to +55)
Operating Humidity			≤ 95%
Enclosure Class			UL50E Type 4 / NEMA 4

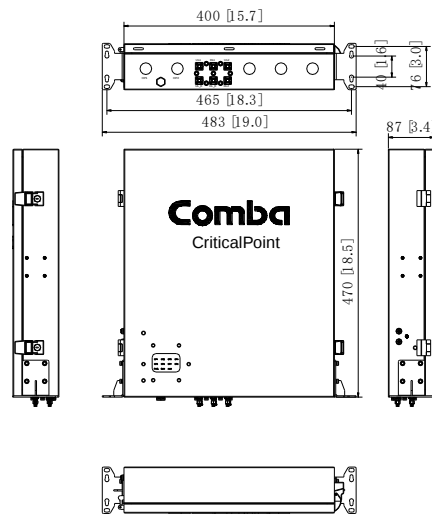
Note: Typical specifications at room temperature

Outline Drawing



Master Unit

Remote Unit



Fiber Optical Unit

Part Numbers - Class A DC Version

RX45V2F-A3648SPUL	PS UHF DAS MU/BDA, Class A, DC-48V, 36/30dBm DL/UL Power, 95dB Gain, Simplex DT/MT, No Filter, UL 2524 Standard Certified
RX45V2F-A3648SAUL	PS UHF DAS MU/BDA, Class A, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type SA, UL 2524 Standard Certified
RX45V2F-A36481AUL	PS UHF DAS MU/BDA, Class A, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1A, UL 2524 Standard Certified
RX45V2F-A36481BUL	PS UHF DAS MU/BDA, Class A, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1B, UL 2524 Standard Certified
RX45V2F-A36481XUL	PS UHF DAS MU/BDA, Class A, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1X, UL 2524 Standard Certified
RX45V2F-A36482AUL	PS UHF DAS MU/BDA, Class A, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2A, UL 2524 Standard Certified
RX45V2F-A36482BUL	PS UHF DAS MU/BDA, Class A, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2B, UL 2524 Standard Certified
RX45V2F-A36482XUL	PS UHF DAS MU/BDA, Class A, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2X, UL 2524 Standard Certified
RX45V2F-A36483AUL	PS UHF DAS MU/BDA, Class A, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 3A, UL 2524 Standard Certified
CPFOUV2F-E04UL	Critical Point Fiber Optical Unit V2F, 4 port, UL 2524 Standard Certified
CPFOUV2F-E08UL	Critical Point Fiber Optical Unit V2F, 8 port, UL 2524 Standard Certified
RH45V2F-A3648SPUL	PS UHF DAS RU, Class A, DC-48V, 36dBm DL Power, 95dB Gain, Simplex DT/MT, No Filter, UL 2524 Standard Certified
RH45V2F-A3648SAUL	PS UHF DAS RU, Class A, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type SA, UL 2524 Standard Certified
RH45V2F-A36481AUL	PS UHF DAS RU, Class A, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1A, UL 2524 Standard Certified
RH45V2F-A36481BUL	PS UHF DAS RU, Class A, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1B, UL 2524 Standard Certified
RH45V2F-A36481XUL	PS UHF DAS RU, Class A, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1X, UL 2524 Standard Certified
RH45V2F-A36482AUL	PS UHF DAS RU, Class A, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2A, UL 2524 Standard Certified
RH45V2F-A36482BUL	PS UHF DAS RU, Class A, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2B, UL 2524 Standard Certified
RH45V2F-A36482XUL	PS UHF DAS RU, Class A, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2X, UL 2524 Standard Certified
RH45V2F-A36483AUL	PS UHF DAS RU, Class A, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 3A, UL 2524 Standard Certified

Part Numbers - Class B DC Version

RX45V2F-B3648SPUL	PS UHF DAS MU/BDA, Class B, DC-48V, 36/30dBm DL/UL Power, 95dB Gain, Simplex DT/MT, No Filter, UL 2524 Standard Certified
RX45V2F-B3648SAUL	PS UHF DAS MU/BDA, Class B, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type SA, UL 2524 Standard Certified
RX45V2F-B36481AUL	PS UHF DAS MU/BDA, Class B, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1A, UL 2524 Standard Certified
RX45V2F-B36481BUL	PS UHF DAS MU/BDA, Class B, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1B, UL 2524 Standard Certified
RX45V2F-B36481XUL	PS UHF DAS MU/BDA, Class B, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1X, UL 2524 Standard Certified
RX45V2F-B36482AUL	PS UHF DAS MU/BDA, Class B, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2A, UL 2524 Standard Certified
RX45V2F-B36482BUL	PS UHF DAS MU/BDA, Class B, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2B, UL 2524 Standard Certified
RX45V2F-B36482XUL	PS UHF DAS MU/BDA, Class B, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2X, UL 2524 Standard Certified
RX45V2F-B36483AUL	PS UHF DAS MU/BDA, Class B, DC-48V, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 3A, UL 2524 Standard Certified
CPFOUV2F-E04UL	Critical Point Fiber Optical Unit V2F, 4 port, UL 2524 Standard Certified
CPFOUV2F-E08UL	Critical Point Fiber Optical Unit V2F, 8 port, UL 2524 Standard Certified
RH45V2F-B3648SPUL	PS UHF DAS RU, Class B, DC-48V, 36dBm DL Power, 95dB Gain, Simplex DT/MT, No Filter, UL 2524 Standard Certified
RH45V2F-B3648SAUL	PS UHF DAS RU, Class B, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type SA, UL 2524 Standard Certified
RH45V2F-B36481AUL	PS UHF DAS RU, Class B, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1A, UL 2524 Standard Certified
RH45V2F-B36481BUL	PS UHF DAS RU, Class B, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1B, UL 2524 Standard Certified
RH45V2F-B36481XUL	PS UHF DAS RU, Class B, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1X, UL 2524 Standard Certified
RH45V2F-B36482AUL	PS UHF DAS RU, Class B, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2A, UL 2524 Standard Certified
RH45V2F-B36482BUL	PS UHF DAS RU, Class B, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2B, UL 2524 Standard Certified
RH45V2F-B36482XUL	PS UHF DAS RU, Class B, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2X, UL 2524 Standard Certified
RH45V2F-B36483AUL	PS UHF DAS RU, Class B, DC-48V, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 3A, UL 2524 Standard Certified

Part Numbers - Class A AC Version (TBD)

RX45V2F-A36ACSPUL	PS UHF DAS MU/BDA, Class A, AC, 36/30dBm DL/UL Power, 95dB Gain, Simplex DT/MT, No Filter, UL 62368 Standard Certified
RX45V2F-A36ACSAUL	PS UHF DAS MU/BDA, Class A, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type SA, UL 62368 Standard Certified
RX45V2F-A36AC1AUL	PS UHF DAS MU/BDA, Class A, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1A, UL 62368 Standard Certified
RX45V2F-A36AC1BUL	PS UHF DAS MU/BDA, Class A, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1B, UL 62368 Standard Certified
RX45V2F-A36AC1XUL	PS UHF DAS MU/BDA, Class A, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1X, UL 62368 Standard Certified
RX45V2F-A36AC2AUL	PS UHF DAS MU/BDA, Class A, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2A, UL 62368 Standard Certified
RX45V2F-A36AC2BUL	PS UHF DAS MU/BDA, Class A, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2B, UL 62368 Standard Certified
RX45V2F-A36AC2XUL	PS UHF DAS MU/BDA, Class A, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2X, UL 62368 Standard Certified
RX45V2F-A36AC3AUL	PS UHF DAS MU/BDA, Class A, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 3A, UL 62368 Standard Certified
CPFOUV2F-E04UL	Critical Point Fiber Optical Unit V2F, 4 port, UL 2524 Standard Certified
CPFOUV2F-E08UL	Critical Point Fiber Optical Unit V2F, 8 port, UL 2524 Standard Certified
RH45V2F-A36ACSPUL	PS UHF DAS RU, Class A, AC, 36dBm DL Power, 95dB Gain, Simplex DT/MT, No Filter, UL 62368 Standard Certified
RH45V2F-A36ACSAUL	PS UHF DAS RU, Class A, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type SA, UL 62368 Standard Certified
RH45V2F-A36AC1AUL	PS UHF DAS RU, Class A, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1A, UL 62368 Standard Certified
RH45V2F-A36AC1BUL	PS UHF DAS RU, Class A, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1B, UL 62368 Standard Certified
RH45V2F-A36AC1XUL	PS UHF DAS RU, Class A, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1X, UL 62368 Standard Certified
RH45V2F-A36AC2AUL	PS UHF DAS RU, Class A, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2A, UL 62368 Standard Certified
RH45V2F-A36AC2BUL	PS UHF DAS RU, Class A, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2B, UL 62368 Standard Certified
RH45V2F-A36AC2XUL	PS UHF DAS RU, Class A, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2X, UL 62368 Standard Certified
RH45V2F-A36AC3AUL	PS UHF DAS RU, Class A, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 3A, UL 62368 Standard Certified

Part Numbers - Class B AC Version (TBD)

RX45V2F-B36ACSPUL	PS UHF DAS MU/BDA, Class B, AC, 36/30dBm DL/UL Power, 95dB Gain, Simplex DT/MT, No Filter, UL 62368 Standard Certified
RX45V2F-B36ACSAUL	PS UHF DAS MU/BDA, Class B, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type SA, UL 62368 Standard Certified
RX45V2F-B36AC1AUL	PS UHF DAS MU/BDA, Class B, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1A, UL 62368 Standard Certified
RX45V2F-B36AC1BUL	PS UHF DAS MU/BDA, Class B, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1B, UL 62368 Standard Certified
RX45V2F-B36AC1XUL	PS UHF DAS MU/BDA, Class B, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 1X, UL 62368 Standard Certified
RX45V2F-B36AC2AUL	PS UHF DAS MU/BDA, Class B, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2A, UL 62368 Standard Certified
RX45V2F-B36AC2BUL	PS UHF DAS MU/BDA, Class B, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2B, UL 62368 Standard Certified
RX45V2F-B36AC2XUL	PS UHF DAS MU/BDA, Class B, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 2X, UL 62368 Standard Certified
RX45V2F-B36AC3AUL	PS UHF DAS MU/BDA, Class B, AC, 33/27dBm DL/UL Power, 95dB Gain, Simplex DT/MT, Filter Type 3A, UL 62368 Standard Certified
CPFOUV2F-E04UL	Critical Point Fiber Optical Unit V2F, 4 port, UL 2524 Standard Certified
CPFOUV2F-E08UL	Critical Point Fiber Optical Unit V2F, 8 port, UL 2524 Standard Certified
RH45V2F-B36ACSPUL	PS UHF DAS RU, Class B, AC, 36dBm DL Power, 95dB Gain, Simplex DT/MT, No Filter, UL 2524 Standard Certified
RH45V2F-B36ACSAUL	PS UHF DAS RU, Class B, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type SA, UL 62368 Standard Certified
RH45V2F-B36AC1AUL	PS UHF DAS RU, Class B, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1A, UL 62368 Standard Certified
RH45V2F-B36AC1BUL	PS UHF DAS RU, Class B, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1B, UL 62368 Standard Certified
RH45V2F-B36AC1XUL	PS UHF DAS RU, Class B, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 1X, UL 62368 Standard Certified
RH45V2F-B36AC2AUL	PS UHF DAS RU, Class B, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2A, UL 62368 Standard Certified
RH45V2F-B36AC2BUL	PS UHF DAS RU, Class B, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2B, UL 62368 Standard Certified
RH45V2F-B36AC2XUL	PS UHF DAS RU, Class B, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 2X, UL 62368 Standard Certified
RH45V2F-B36AC3AUL	PS UHF DAS RU, Class B, AC, 33dBm DL Power, 95dB Gain, Simplex DT/MT, Filter Type 3A, UL 62368 Standard Certified

Filter Types

Filter Type	Number of Windows	Filter Passband	Filter Guardband	Window to Window Guardband
SA	N/A	Optional filter: single passband covers entire downlink and uplink frequencies	N/A	N/A
1A	1	< 2.0MHz in 450-470MHz < 1.0MHz in 470-512MHz	≥ 3.0 MHz in 450-470 MHz or ≥ 2.0 MHz in 470-512 MHz	N/A
1B	1	< 2.5MHz in 450-470MHz < 1.5MHz in 470-512MHz	≥ 2.5 MHz in 450-470 MHz or ≥ 1.5 MHz in 470-512 MHz	N/A
1X	1	1 Window Customized Bandwidth, Confirm with Comba		
2A	2	Each window meets: < 2.0MHz in 450-470MHz or < 1.0MHz in 470-512MHz	Each window meets: ≥ 3.0 MHz in 450-470 MHz or ≥ 2.0 MHz in 470-512 MHz	> 3.0 MHz in 450-470 MHz or > 2.0 MHz in 470-512 MHz
2B	2	Each window meets: < 2.5MHz in 450-470MHz or < 1.5MHz in 470-512MHz	Each window meets: ≥ 2.5 MHz in 450-470 MHz or ≥ 1.5 MHz in 470-512 MHz	> 2.5 MHz in 450-470 MHz or > 1.5 MHz in 470-512 MHz
2X	2	2 Window Customized Bandwidth, Confirm with Comba		
3A	3	3 Window Customized Bandwidth, Confirm with Comba		