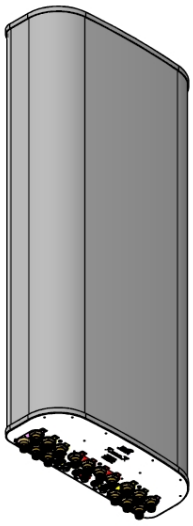
MX12FHG445-01 PRELIMINARY

NWAV™ X-Pol 12-Port Antenna

X-Pol 12-Port 4 ft, 45° Fast Roll Off High Gain (FHG), with Smart Bias Ts, 698-2690 MHz:

4 ports 698-894 MHz, 8 ports 1695-2690 MHz

- Industry-leading high efficiency 45-degree macro panel antenna with optimized 4T4R MIMO performance for low and mid band extended coverage
- 12-Port antenna offering the same functionality as 2 Hex Port antennas in a single unit
- Fast Roll Off (FRO™) Azimuth beam patterns improves intra-inter-cell SINR
- Optimized form factor for reduced wind loading
- Fully integrated (iRETs) with independent RET control for low band and mid band
- Excellent passive intermodulation (PIM) performance reduces harmful interference.
- Integrated Smart Bias-Ts reduce leasing costs

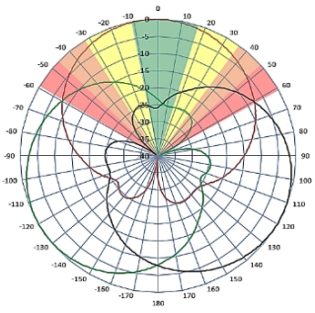


nwav™

Fast Roll-Off antennas increase data throughput without compromising coverage

The horizontal beam produced by Fast Roll-Off (FRO) technology increases the Signal to Interference & Noise Ratio (SINR) by eliminating overlap between sectors .

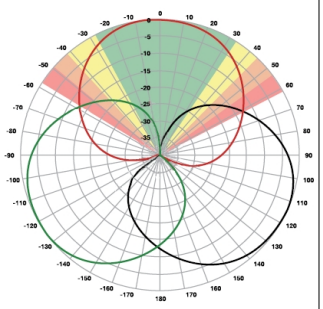
Non-FRO antenna



Large traditional antenna pattern overlap creates harmful interference.

JMA's FRO antenna pattern minimizes overlap, thereby minimizing interference.

JMA FRO antenna



LTE throughput	SINR	Speed (bps/Hz)	Speed increase	CQI
Excellent	>18	>4.5	333+%	8-10
Good	15-18	3.3-4.5	277%	6-7
Fair	10-15	2-3.3	160%	4-6
Poor	<10	<2	0%	1-3

The LTE radio automatically selects the best throughput based on measured SINR.

Electrical specification (minimum/maximum)	Ports 1, 2, 3, 4		Ports 5, 6, 7, 8, 9, 10, 11, 12				
Frequency bands, MHz	698-806	806-894	1695-1880	1850-1990	1920-2180	2300-2360	2496-2690
Polarization	± 45°		± 45°				
Maximum gain over all tilts, dBi	13.4	14.0	16.8	17.0	17.6	17.8	17.4
Average gain over all tilts, dBi	13.2 ± 0.2	13.6 ± 0.4	16.6 ± 0.2	16.8 ± 0.2	17.4 ± 0.2	17.6 ± 0.2	17.2 ± 0.2
Horizontal beamwidth (HBW), degrees[1]	46	43	40	40	36	31	29
Front-to-back ratio, co-polar power @180°± 30°, dB	>25.0	>25.0	>25.0	>25.0	>25.0	>25.0	>25.0
X-Pol discrimination (CPR) at boresight, dB	>20.0	>18.0	>19	>18	>18	>18	>18
Vertical beamwidth (VBW), degrees[1]	31.0	27.0	12.0	11.4	11.0	10.0	9.0
Electrical downtilt (EDT) range, degrees	2-16		0-9				
First upper side lobe (USLS) suppression, dB[1]	≤-18.0	≤-18.0	≤-18.0	≤-18.0	≤-18.0	≤-18.0	≤-18.0
Cross-polar isolation, port-to-port, dB[1]	25	25	25	25	25	25	25
Max VSWR / return loss, dB	1.5:1 / -14.0		1.5:1 / -14.0				
Max passive intermodulation (PIM), 2x20W carrier, dBc	-153		-153				

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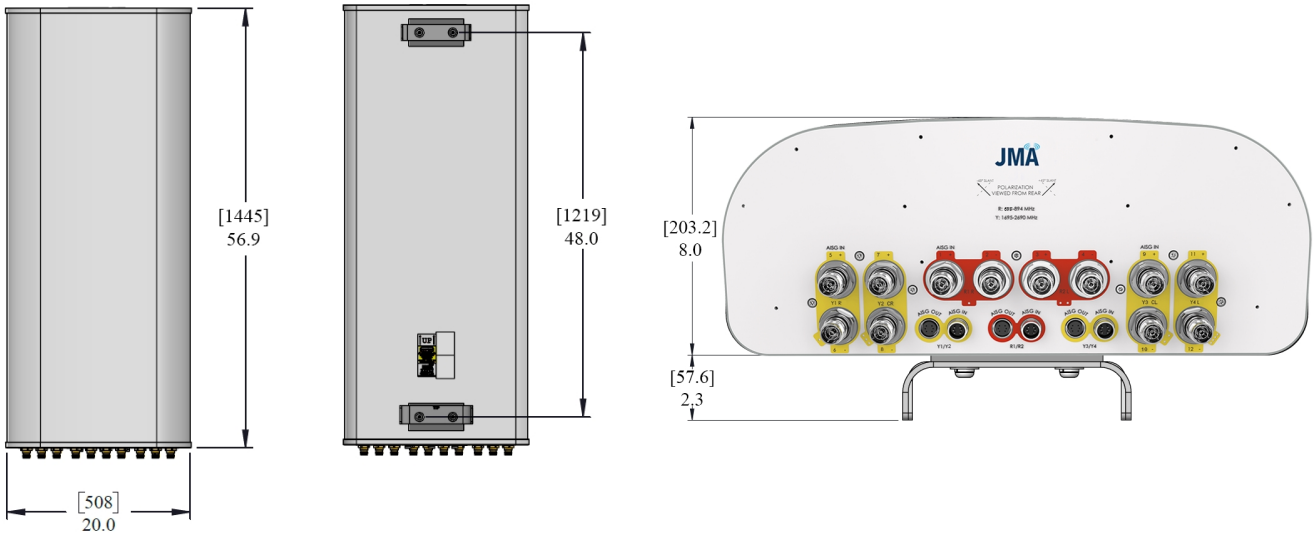
NWAV™ X-Pol 12-Port Antenna

Electrical specification (minimum/maximum)	Ports 1, 2, 3, 4	Ports 5, 6, 7, 8, 9, 10, 11, 12
Max input power per any port, watts	300	250
Total composite power all ports, watts	1500	

[1] Typical value over frequency and tilt

Mechanical specifications	
Dimensions height/width/depth, inches (mm)	56.9/ 20.0/ 8.0 (1445.3/ 508.0/ 203.2)
Shipping dimensions length/width/height, inches (mm)	61.9/ 26/ 15 (1572/ 600/ 381)
No. of RF input ports, connector type, and location	12 x 4.3-10 female, bottom
RF connector torque	96 lbf·in (10.85 N·m or 8 lbf·ft)
Net antenna weight, lb (kg)	52.5 (23.8)
Shipping weight, lb (kg)	84.5 (38.3)
Antenna mounting and downtilt kit included with antenna	91900318
Net weight of the mounting and downtilt kit, lb (kg)	18 (8.2)
Range of mechanical up/down tilt	-2° to 12°
Rated wind survival speed, mph (km/h)	150 (241)
Frontal and lateral wind loading @ 150 km/h, lbf (N)	102.1 (454.2), 47.3 (210.4)
EPA frontal and lateral, ft^2, (m^2)	4.6 (0.43), 2.1 (0.20)

Front view **Back view** **Bottom view**



Ordering information	
Antenna model	**Description**
MX12FHG445-01	4F X- Pol 12 PORT FRO 45º 2-16º/ 0-9º RET, 4.3-10 & SBT
Optional accessories	
AISG cables	M/F cables for AISG connections
PCU-1000 RET controller	Stand-alone controller for RET control and configurations
91900314-02	Dual Mount Bracket (see 91900314 bracket document for details)

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Remote electrical tilt (RET 1000) information	
RET location	Integrated into antenna
RET interface connector type	8-pin AISG connector per IEC 60130-9 or RF port bias-t
RET connector torque	Min 0.5 N·m to max 1.0 N·m (hand pressure & finger tight)
RET interface connector quantity	3 pairs of AISG male/female connectors and 3 RF port Bias Ts
RET interface connector location	Bottom of the antenna
Total no. of internal RETs 698-894 MHz	1
Total no. of internal RETs 1695-2690 MHz	2
RET input operating voltage, vdc	10-30
RET max power consumption, idle state, W	≤ 2.0
RET max power consumption, normal operating conditions, W	≤ 13.0
RET communication protocol	AISG 2.0 / 3GPP

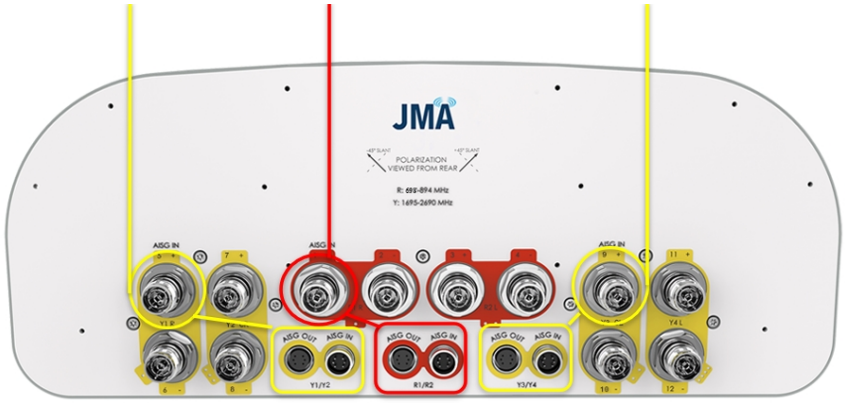
RET and RF connector topology

Each RET device can be controlled either via the designated external AISG connector or RF smart bias-t port as shown below:

Band	RF port
1695-2690	5-8

Band	RF port
698-894	1-4

Band	RF port
1695-2690	9-12



Array topology

6 sets of radiating arrays

R1: 698-894 MHz
R2: 698-894 MHz
Y1: 1695-2690 MHz
Y2: 1695-2690 MHz
Y3: 1695-2690 MHz
Y4: 1695-2690 MHz

Band	RF port
1695-2690	5-12
698-894	1-4

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