# JMA

MX16FRO845-Bxx

NWAV™ X-Pol 16-Port Antenna

X-Pol 16-Port 8 ft, 45° Fast Roll-Off, with Smart Bias Ts, 698-3980 MHz:

4 ports 698-894 MHz, 8 ports 1695-2690 MHz, and 4 ports 3400-3980 MHz

- 16-Port antenna offering the same functionality as 2 Hex Port antennas and CBRS in a single unit

- Full low-band arrays for maximum gain

- Fully integrated (iRETs) with independent RET control for low band and mid band

- Optimized CBRS radiation patterns for improved RSRP and maximum EIRP

- FET configured with internal RET for CBRS and ease of future network optimization

- Excellent passive intermodulation (PIM) performance reduces harmful interference.

- Suitable for 3G, 4G, and 5G interface technologies

- Integrated Smart Bias-Ts reduce leasing costs and improved reliability

- Optimized form factor for reduced wind loading
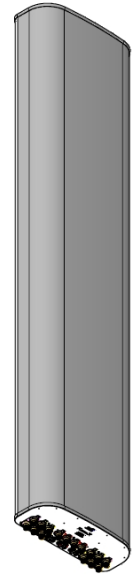
Fast Roll-Off antennas increase data throughput without compromising coverage

The horizontal beam produced by Fast Roll-Off (FRO) technology increases the Signal to Interference & Noise Ratio (SINR) by eliminating overlap between sectors .
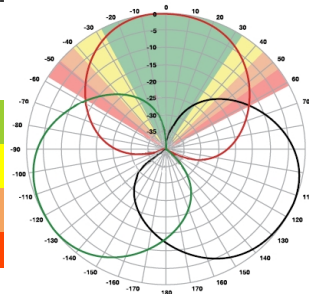
Non-FRO antenna
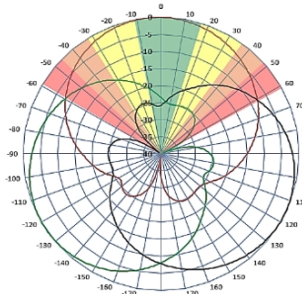
Large traditional antenna pattern overlap creates harmful interference.

JMA's FRO antenna pattern minimizes overlap, thereby minimizing inter-ference.

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.

nWAV™

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°				
Average gain over all tilts, dBi	15.7	16.3	18.0	18.7	19.5	20.4	19.2
Horizontal beamwidth (HBW), degrees[1]	48	45	44	42	36	32	30
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	>25.0	>25.0	>18	>18	>18	>18	>18
Vertical beamwidth (VBW), degrees[1]	9	8	7.7	7.5	7.1	6.6	6.0
Electrical downtilt (EDT) range, degrees	2-12		2-12				
First upper side lobe (USLS) suppression, dB[1]	≤-15.0	≤-15.0	≤-16.0	≤-16.0	≤-16.0	≤-16.0	≤-16.0
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				
Max input power per any port, watts	300		250				
Total composite power all ports, watts	1500						

[1] Typical value over frequency and tilt

* For ports 13-16, the electrical downtilt is FET configured with internal RET, where the required electrical downtilt is defined at the time of order per the ordering information below.

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| Electrical specification (minimum/maximum)	Ports 13, 14, 15, 16		
Frequency bands, MHz	3400-3550	3550-3700	3700-3980
Polarization	± 45°		
Average gain over all tilts, dBi	14.4	14.5	14.6
Horizontal beamwidth (HBW), degrees	37	36	36
Front-to-back ratio, co-polar power @180°± 30°, dB	>25	>25	>25
Vertical beamwidth (VBW), degrees[1]	18.0	18.0	17.0
Electrical downtilt (EDT) range, degrees	2-12 orderable in 1 deg increments		
First upper side lobe (USLS) suppression, dB[1]	≤-15	≤-15	≤-15
Cross-polar isolation, port-to-port, dB[1]	25	25	25
Max VSWR / return loss, dB	1.5:1 / -14.0		
Max input power per any port, watts	150		
Total composite power all ports (1-10), watts	1500		

Ordering information	
Antenna model	**Description**
MX16FRO845-Bxx (xx represents the FET in one degree increments for 3.4-3.98 GHz)	8F X- Pol 16 PORT FRO 45º 2-12º/ 2-12º/2-12º, 4.3-10 & SBT
	xx=02 thru 12 for each 1 degree tilt 3.4-3.98 GHz Examples: MX16FRO865-B02 – 2deg, MX16FRO865-B09 – 9deg, MX16FRO865-B12-12deg
Optional accessories	
AISG cables	M/F cables for AISG connections
PCU-1000 RET controller	Stand-alone controller for RET control and configurations
91900314-03	Dual Mount Bracket (see 91900314 bracket document for details)

Mechanical specifications

Dimensions height/width/depth, inches (mm)	96/ 20/ 8(2440/ 510/ 203)
Shipping dimensions length/width/height, inches (mm)	100.6/ 23.8/ 14.5(2555/ 605/ 368)
No. of RF input ports, connector type, and location	16 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)	90 (40.8)
Shipping weight, lb (kg)	137 (62.1)
Antenna mounting and downtilt kit included with antenna	91900318, 91900319 (middle bracket)
Net weight of the mounting and downtilt kit, lb (kg)	26 (11.82)
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)	172.3 (766.4), 79.8 (355.0)
EPA frontal and lateral, ft^2, (m^2)	7.7 (0.72), 3.6 (0.33)

Front view	Back view	Bottom view
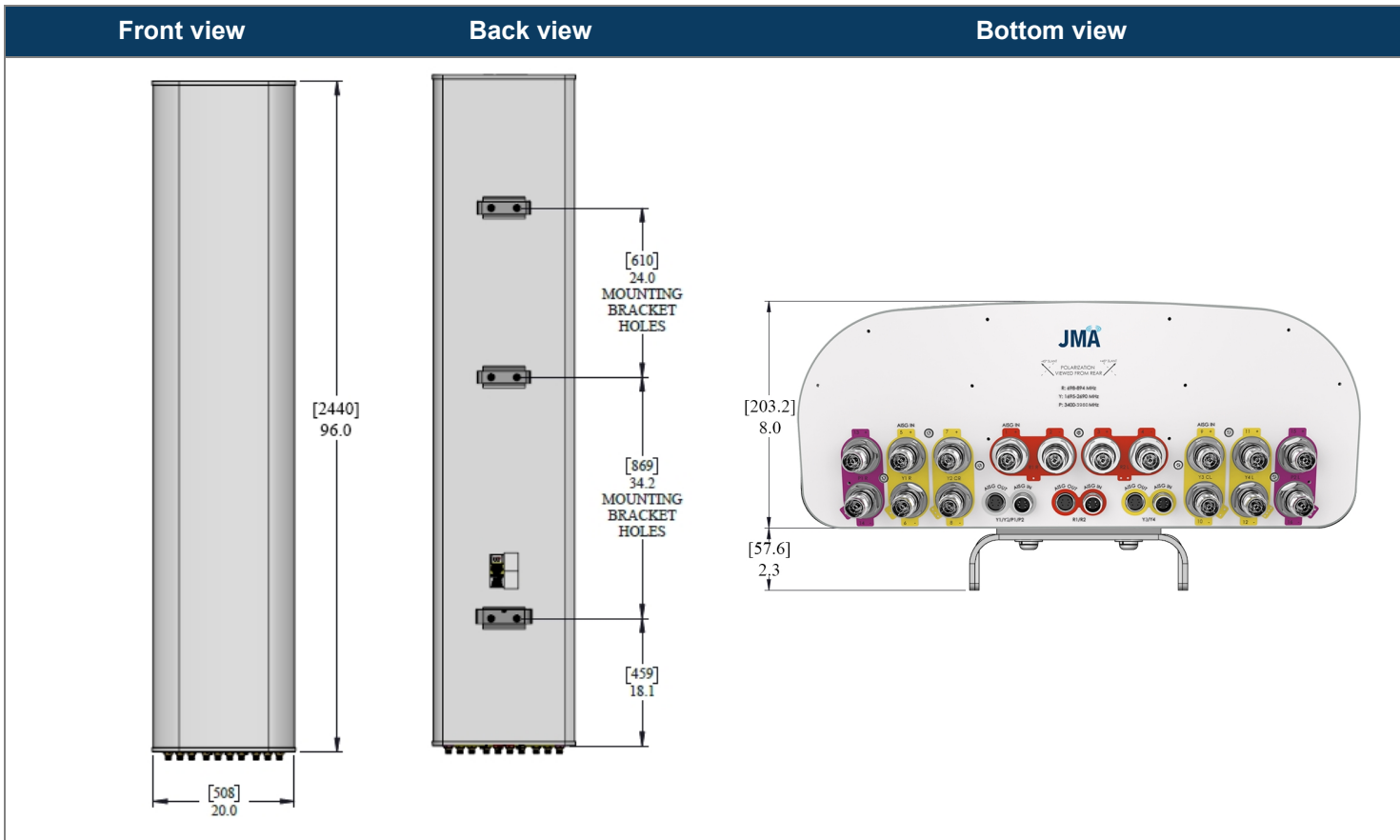
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Remote electrical tilt (RET 1000) information

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
Total no. of internal RETs 3400-3980 MHz	1
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
3400-3980	13-16

Band	RF port
698-894	1-4

Band	RF port
1695-2690	9-12
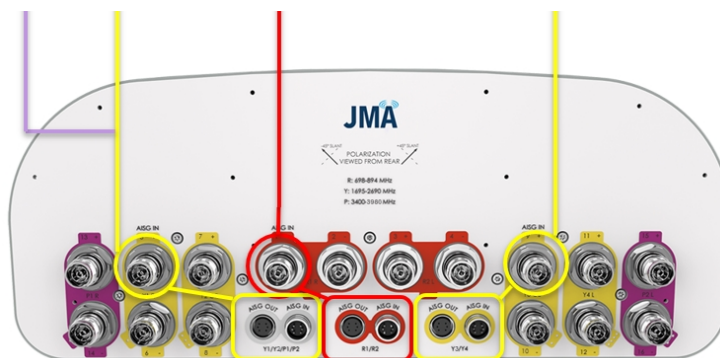
Note: The RET Device for 3400-3980 MHz is connected via the 1695-2690 Port 5 Bias T port or 1695-2690/3400-3980 MHz AISG ports.

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
P1: 3400-3980 MHz
P2: 3400-3980 MHz

Band	RF port
698-894	1-4
1695-2690	5-12
3400-3980	13-16