

Rosenberger



BASE STATION ANTENNAS



Rosenberger HQ, Bavaria, Germany

INTRODUCTION

Rosenberger Hochfrequenztechnik GmbH&Co. was founded in Germany in 1958 and ranks among the leading manufacturers of high-speed interconnect solutions worldwide. To serve the continuous growth and demand of the global market, Rosenberger Asia Pacific Electronic Co., Ltd. was established in China in 1997. With its long tradition of excellence and providing creative solutions, Rosenberger Asia Pacific has excelled and earned an outstanding reputation in the Asia Pacific region.

Rosenberger Asia Pacific provides products and solutions for Telecommunication, Automotive Electronics, Information Technology, Test & Measurement, Aviation, and Medical & Industries.

A sales network covering the entire Asia Pacific region generates an annual turnover close to 350 million USD. Reliability and competitiveness are the cornerstones of this sustainable growth, resulting in long term partnerships with most of the leading companies in their respective industries.



Rosenberger Asia Pacific:

- A: Beijing – Headquarters, R&D, and Production
- B: Kunshan, Jiangsu – R&D and Production
- C: Pudong, Shanghai – R&D and Production
- D: India – R&D and Production
- E: Dongguan – R&D and Production

Rosenberger Asia Pacific maintains 6 modern manufacturing and R&D base locations in Beijing, Kunshan, Shanghai, and Dongguan in China; and New Delhi & Goa in India, the largest of its kind in the Asia Pacific Region. Rosenberger Asia Pacific is an ISO 9001 quality system, ISO 14001 environmental system, and ISO/TS16949 automotive industry system certified company. Equipped with advanced machining, electronic plating, assembly and testing centers and staffed by a large group of more than 200 R&D engineers, Rosenberger Asia Pacific has developed first class production assembly lines and exercises stringent product and quality control.

Presently, Rosenberger Asia Pacific maintains a far reaching network of R&D, Production, Sales and Service which extends to the whole Asia Pacific and Middle East area. For over 50 years Rosenberger has established its brand all over the world. In the future, Rosenberger Asia Pacific will continue to provide excellent product solutions and services for its customers in the entire region.



MISSION STATEMENT

- Design, manufacture and deploy total solutions for telecommunication networks worldwide
- Create value for our customers through innovative products, customized services and cost effective solutions
- Maintain the highest quality standards, state-of-the-art manufacturing facilities and employ reliable supply chain management to achieve and exceed customer expectations
- Be socially responsible to our community and environment
- Be committed to employee's personnel development

CORE VALUE

- Value Innovation
- Customer Focus
- Sustainable Growth
- Social Responsibility



PRODUCT PORTFOLIOS

Telecommunication System Solutions

Base Station Antenna Feeder Systems
Wireless Coverage Optimization Solutions
Microwave Backhaul Solutions
RF In-cabinet Solutions
Passive Intermodulation Measurement Systems
FTTA/FTTH Optical Fiber Solutions
OSP Fiber Optic Outdoor Plant Solutions
In-building Optical Network Connectivity Solutions
Low Frequency Cables and Components
Network Optimization Services

IT/Data Communication

Premise Network Cabling Products
Data Center/Cloud Computing Solutions
Intelligent Infrastructure Management System

Testing and Measurement

Test Cables
Precision Connectors
Calibrations
Accessories and Tools

Automotive

FAKRA Connectors and Cable Assemblies
HSD® System

Medical & Industries

Non-Magnetic RF Connectors
Non-Magnetic RF Cable Assemblies
Data/RF/Power/DC Hybrid Connectors and Assemblies
Customized Data/Power Connectivity System
Fiber Optic Connectivity Products

CONTENT

ROSENBERGER S-WAVE® ANTENNA TECHNOLOGY	06
PART NUMBER GUIDE	07
ANTENNA INDEX	08
XPOL LOW BAND ANTENNAS 694-960MHz	10
XPOL HIGH BAND ANTENNAS 1710-2690MHz	16
XXPOL DUAL BAND ANTENNAS 698-960/1710-2690MHz	20
XXXPOL TRI-BAND ANTENNAS 698-960/1710-2690/1710-2690MHz	29
MULTI-BAND ANTENNAS	35
INDOOR ANTENNAS	43
REMOTE ELECTRICAL TILT	48
INSTALLATION KITS	56
ROSENBERGER SERVICE	60

ROSENBERGER S-WAVE® ANTENNA TECHNOLOGY

Rosenberger's S-Wave® antenna products cover several frequency bands: GSM, DCS, PCS, AWS, UMTS, WiMAX, and LTE. They are designed to meet the toughest applications and operating requirements covering single band, broadband and multi-band. Every antenna series is based on the experience and solid theoretical knowledge of our international R&D team. Through extensive testing, simulation and optimization, the S-Wave® antenna guarantees excellent mechanical and electrical performance. Rosenberger is committed to supplying the highest quality and most cost-effective antenna solutions.

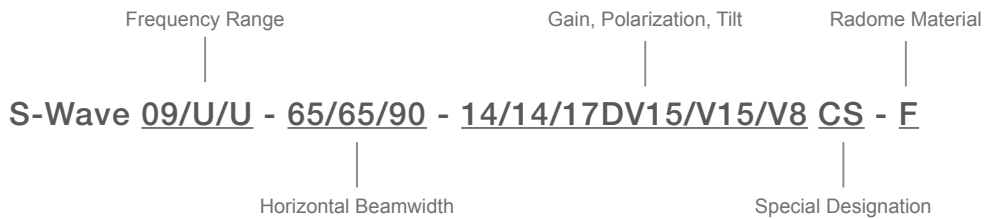
Design Philosophy

Rosenberger adopts many state-of-the-art CAD simulation tools including ANSYS HFSS, AutoCAD, SolidWorks. These mechanical and electrical design tools allow Rosenberger's design team to analyze and optimize the design and integration of antenna radiation/circuits for every application.



BASE STATION ANTENNAS

PART NUMBER GUIDE



Frequency Group

Electrical Specifications	Frequency band (MHz)
08	806-896
09	870-960
0609	698-960
0709	790-960
0809	806-960
18	1710-1880
19	1850-1990
21	1920-2170
U	1710-2170
EW	1710-2690

Horizontal Beamwidth

Symbol	Horizontal 3dB Beamwidth (°)
65	65°
90	90°
OD	360°

Polarization

Blank = Vertical polarization

D = +/-45° polarization

Radome material

Blank = UPVC

F = Fiberglass

Special Designation

Special Designation	Meaning
C	With built-in combiner
B1, B2, B3....	Customized version

Electrical tilt

Blank = Fixed 0° electrical tilt

Tx = Fixed electrical tilt, x=tilt angle

Vx = Adjustable electrical tilt, start angle=0° and x=end angle

Vs/x = Adjustable electrical tilt, start angle=s and x=end angle

Examples

Quad antenna:

S-Wave 0709/0709/U/U-65-15/15/17/17DV15/V15/V8/V8-F

ANTENNA INDEX

Xpol Low Band Antennas

Type	Frequency (MHz)	Horizontal Beamwidth	Gain	Tilt	Page
S-Wave 0609-65-15DV15-F	698-960	65°	15dBi	0-15°	11
S-Wave 0609-65-18DV10-F	694-960	65°	18dBi	0-10°	12
S-Wave 0709-33-20DV10-F-B1	790-960	33°	20dBi	0-10°	13
S-Wave 0709-65-18DV10-F	790-960	65°	18dBi	0-10°	14
S-Wave 0809-65-15DV15-F	806-960	65°	15dBi	0-15°	15

Xpol High Band Antennas

Type	Frequency (MHz)	Horizontal Beamwidth	Gain	Tilt	Page
S-Wave U-65-18DV10-B3	1710-2170	65°	18dBi	0-10°	17
S-Wave U-65-21DV6	1710-2170	65°	21dBi	0-6°	18
S-Wave EW-65-18DV2/12	1710-2690	65°	18dBi	2-12°	19

XXPol Dual Band Antennas

Type	Frequency (MHz)	Horizontal Beamwidth	Gain	Tilt	Page
S-Wave 0609-65-15DV2/14C-F	2x(698-960)	65°	15/15dBi	2-14°	21
S-Wave 0609-65-18DV10C-F	2x(698-960)	65°	18/18dBi	0-10°	22
S-Wave 0709/0709-65-18DV8-F	2x(790-960)	65°	18/18dBi	0-8°	23
S-Wave 0809/U-65-15/18DV15V10-B3	806-960/1710-2170	65°	15/18dBi	0-15°/0-10°	24
S-Wave 0809/U-65-17/18DV8-B3	806-960/1710-2170	65°	17/18dBi	0-8°	25
S-Wave 0809/EW-65-17/18DV8-F	806-960/1710-2690	65°	17/18dBi	0-8°	26
S-Wave U/U-65-18DV10-B10	2x(1710-2170)	65°	18/18dBi	0-10°	27
S-Wave EW/EW-65-18DV2/12	2x(1710-2690)	65°	18/18dBi	2-12°	28

XXXPol Tri-Band Antennas

Type	Frequency (MHz)	Horizontal Beamwidth	Gain	Tilt	Page
S-Wave 0809/U/U-65-18DV8-B3	806-960/2x(1710-2170)	65°	18/18/18dBi	0-8°	30
S-Wave U/U/U-65-18DV8-F	3x(1710-2170)	65°	18/18/18dBi	0-8°	31
S-Wave EW/EW/EW-65-18DV2/12-F	3x(1710-2690)	65°	18/18/18dBi	2-12°	32
S-Wave 0709/EW/EW-65-17/18/18DV10-F-B2	790-960/2x(1710-2690)	65°	17/18/18dBi	0-10°	33
BA-G7W8W8X65V-00	694-960/2x(1710-2690)	65°	17/18/18dBi	0-10°	34

Multi-Band Antennas

Type	Frequency (MHz)	Horizontal Beamwidth	Gain	Tilt	Page
BA-G7W8W8W8X65V-00	694-960/3x(1710-2690)	65°	17/18/18/18/18dBi	0-10°	36
BA-G7W8W8W8W8X65V-00	694-960/4x(1710-2690)	65°	17/18/18/18/18/18dBi	0-10°	37
BA-G7G7W8W8X65V-00	2x(694-960)/2x(1710-2690)	65°	17/17/18/18dBi	0-10°	38
BA-G7G7W8W8W8X65V-00	2x(694-960)/3x(1710-2690)	65°	17/17/18/18/18dBi	0-10°	39
BA-G6U8U8R8R8X65V-20	694-960/4x(1695-2200)/ 4x(2300-2690)	65°	16/18/18dBi	2-12°	40
S-Wave 18/18/23/23-65-18DV10C-F	2x(1710-1880)/ 2x(2300-2400)	65°	18/18/18/18dBi	0-10°	41
S-Wave 67/89/18/23-65-15/15/17/17DV2/ 14V10C-F	698-806/824-960/ 2x(1710-1880)/ 2x(2300-2400)	65°	15/15/17/17dBi	2-14°/0-10°	42

Indoor Antennas

Type	Frequency (MHz)	Horizontal Beamwidth	Gain	Tilt	Page
S-Wave 8FW-OD-3-B1	698-960 & 1710-2700	360°	3dBi	0°	44
S-Wave 8FW-90-8-B1	698-960 & 1710-2700	90°	8dBi	0°	45
S-Wave 8FW/8FW-OD-6-B4	2x(694-960 & 1695-2690)	360°	6/6dBi	0°	46
S-Wave 8FW/8FW-65-8D-B4	2x(694-960 & 1695-2690)	65°	8/8dBi	0°	47

Remote Electrical Tilt

48

Installation Kits

56

XPOL LOW BAND ANTENNAS 694-960MHZ



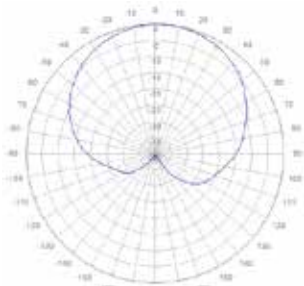
BASE STATION ANTENNAS

XPol Low Band Antenna 698-960 65° 15dBi VET 0°-15°

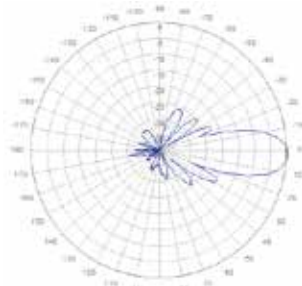
Part Number S-Wave 0609-65-15DV15-F

Electrical Specifications

Frequency Range	698-862MHz	824-960MHz
Polarization	±45°	±45°
Gain	14.5dBi	15.0dBi
Horizontal 3dB Beamwidth	65°±6°	65°±6°
Vertical 3dB Beamwidth	15.5°	14.0°
Electrical Down Tilt	0°-15°	0°-15°
First Upper Sidelobe Suppression	15dB	15dB
Front-to-back Ratio (180°±30°)	27dB	27dB
Cross-Polar Ratio 0°	18dB	18dB
Isolation	25dB	
VSWR	< 1.5	
IMD3@2X43dBm Carrier	< -150dBc	
Power Handling	500W	
Connector Type	2 x 7-16 DIN(F)	
Dimension	1450 x 320 x 140mm	
Weight	15kg	
Radome Material	Fiberglass	

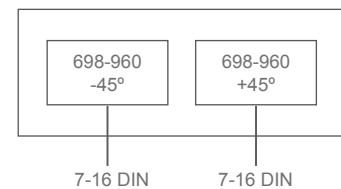


Horizontal Pattern



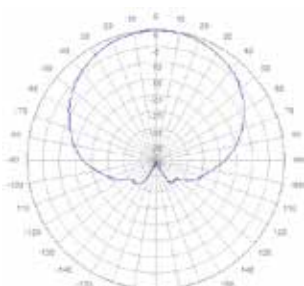
Vertical Pattern

698-824MHz

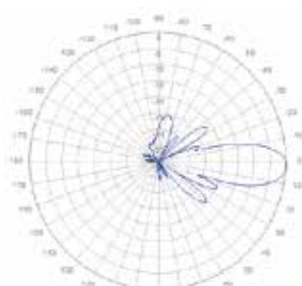


7-16 DIN

7-16 DIN



Horizontal Pattern

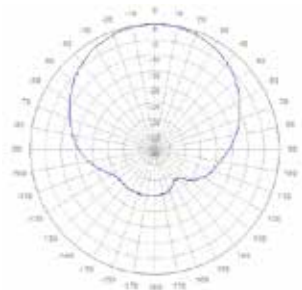


Vertical Pattern

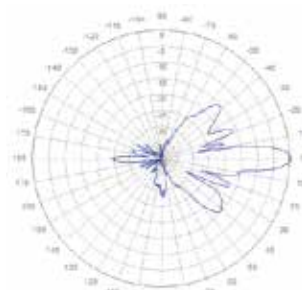
824-960MHz

XPol Low Band Antenna 694-960 65° 18dBi VET 0°-10°

Part Number	S-Wave 0609-65-18DV10-F	
Electrical Specifications		
Frequency Range	694-862MHz	876-960MHz
Polarization	±45°	±45°
Gain	17.0dBi	17.5dBi
Horizontal 3dB Beamwidth	69°	65°
Vertical 3dB Beamwidth	8.5°	7.2°
Electrical Down Tilt	0°-10°	0°-10°
First Upper Sidelobe Suppression	18 (Typical)	18 (Typical)
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB
Cross-Polar Ratio 0 °	17dB	17dB
Isolation	28dB	
VSWR	< 1.5	
IMD3@2X43dBm Carrier	< -150dBc	
Power Handling	500W	
Connector Type	2 x 7-16 DIN(F)	
Dimension	2680 x 295 x 145mm	
Weight	25kg	
Radome Material	Fiberglass	

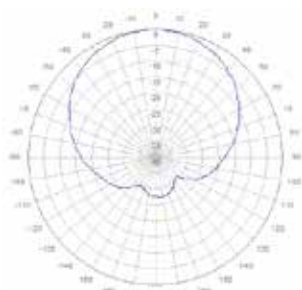


Horizontal Pattern

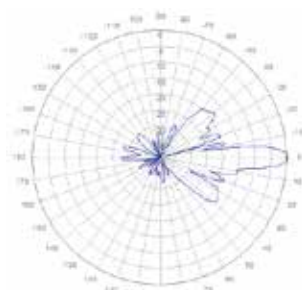


Vertical Pattern

694-862MHz

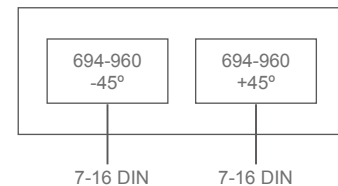


Horizontal Pattern



Vertical Pattern

876-960MHz

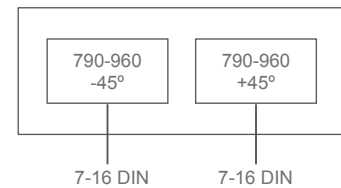
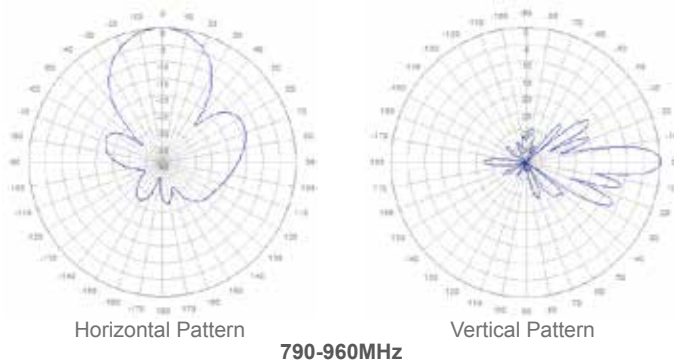


7-16 DIN

7-16 DIN

XPol Low Band Antenna 790-960 33° 20dBi VET 0°-10°

Part Number	S-Wave 0709-33-20DV10-F-B1		
Electrical Specifications			
Frequency Range	790-862MHz	824-894MHz	880-960MHz
Polarization	±45°	±45°	±45°
Gain	19.5dBi	19.8dBi	20.0dBi
Horizontal 3dB Beamwidth	35°	34°	33°
Vertical 3dB Beamwidth	8°	7.5°	6.5°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	17dB	17dB	17dB
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	17dB	17dB	17dB
Isolation		30dB	
VSWR		≤ 1.5	
IMD3@2X43dBm Carrier		< -150dBc	
Power Handling		500W	
Connector Type		2 x 7-16 DIN(F)	
Dimension		2450x565x145mm	
Weight		40kg	
Radome Material		Fiberglass	

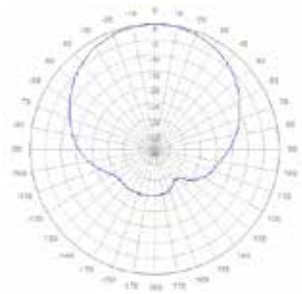


XPol Low Band Antenna 790-960 65 ° 18dBi VET 0° - 10°

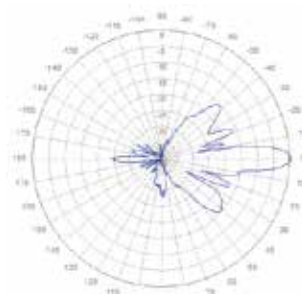
Part Number S-Wave 0709-65-18DV10-F

Electrical Specifications

Frequency Range	790-862MHz	824-894MHz	880-960MHz
Polarization	±45°	±45°	±45°
Gain	17.5dBi	17.8dBi	18.0dBi
Horizontal 3dB Beamwidth	67°	65°	63°
Vertical 3dB Beamwidth	8°	7.5°	6.5°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	16.0@0°	16.0@0°	16.0@0°
	15.0@5°	15.0@5°	15.0@5°
	15.0@10°T	15.0@10°T	15.0@10°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	18dB	18dB	18dB
Isolation		30dB	
VSWR		≤ 1.5	
IMD3@2X43dBm Carrier		< -150dBc	
Power Handling		300W	
Connector Type		2 x 7-16 DIN(F)	
Dimension		2510 x 295 x 145mm	
Weight		25kg	
Radome Material		Fiberglass	

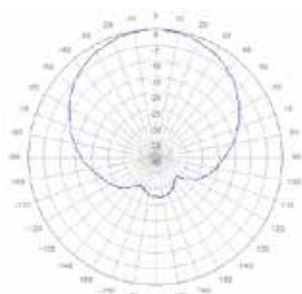


Horizontal Pattern

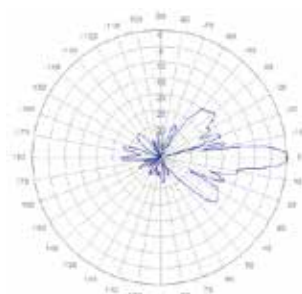


Vertical Pattern

790-862MHz

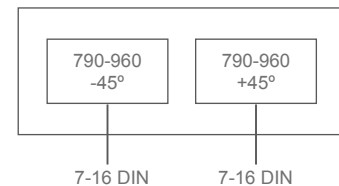


Horizontal Pattern



Vertical Pattern

870-960MHz



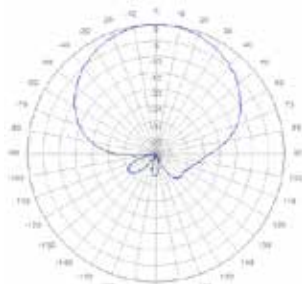
7-16 DIN

7-16 DIN

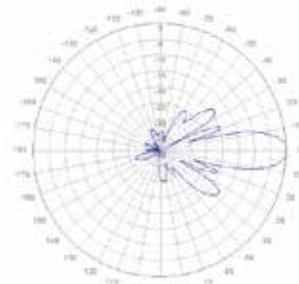
XPol Low Band Antenna 806-960 65° 15dBi VET 0°-15°

Part Number S-Wave 0809-65-15DV15-F

Electrical Specifications		
Frequency Range	806-896MHz	870-960MHz
Polarization	±45°	±45°
Gain	15dBi	15dBi
Horizontal 3dB Beamwidth	65°	65°
Vertical 3dB Beamwidth	14°	14°
Electrical Down Tilt	0°-15°	0°-15°
First Upper Sidelobe Suppression	> 16dB (Typical 18dB)	> 16dB (Typical 18dB)
Front-to-back Ratio (180°±30°)	25dB	25dB
Cross-Polar Ratio 0°	15dB	15dB
Isolation	30dB	
VSWR	< 1.5	
IMD3@2X43dBm Carrier	< -150dBc	
Power Handling	500W	
Connector Type	2 x 7-16 DIN(F)	
Dimension	1340 x 295 x 115mm	
Weight	11kg	
Radome Material	Fiberglass	

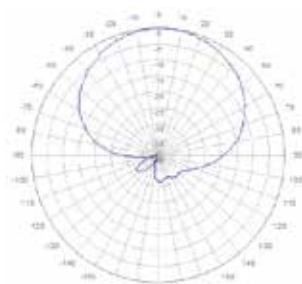
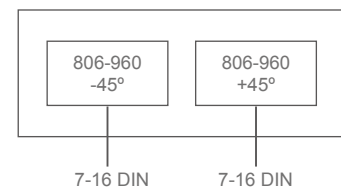


Horizontal Pattern

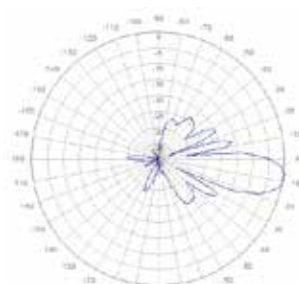


Vertical Pattern

806-896MHz



Horizontal Pattern



Vertical Pattern

870-960MHz

XPOL HIGH BAND ANTENNAS 1710-2690MHZ

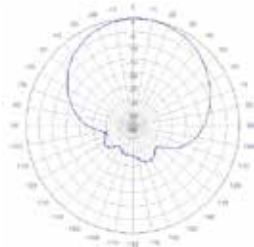


BASE STATION ANTENNAS

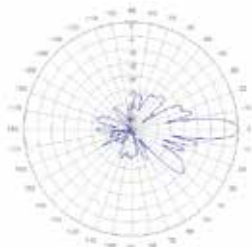
XPol High Band Antenna 1710-2170 65° 18dBi VET 0°-10°

Part Number S-Wave U-65-18DV10-B3

Electrical Specifications			
Frequency Range	1710-1880MHz	1850-1990MHz	1920-2170MHz
Polarization	±45°	±45°	±45°
Gain	17.3dBi	17.5dBi	17.8dBi
Horizontal 3dB Beamwidth	67°	66°	64°
Vertical 3dB Beamwidth	7.3°	6.7°	6.3°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	> 16.0dB	> 16.0dB	> 16.0dB
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0° ±60°	15dB 10dB	15dB 10dB	15dB 10dB
VSWR		≤ 1.4 : 1	
IMD3@2X43dBm Carrier		< -150dBc	
Power Handling		300W	
Connector Type		2 x 7-16 DIN(F)	
Dimension		1350x162x95mm	
Weight		7kg	
Radome Material		UPVC	

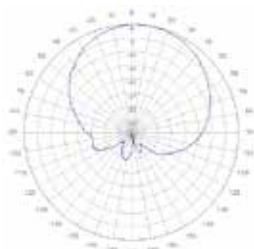


Horizontal Pattern

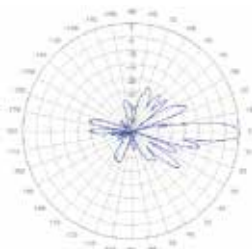


Vertical Pattern

1710-1880MHz

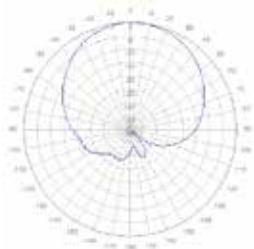


Horizontal Pattern

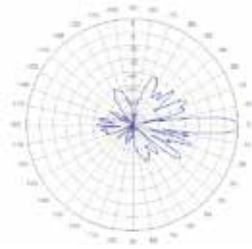


Vertical Pattern

1850-1990MHz

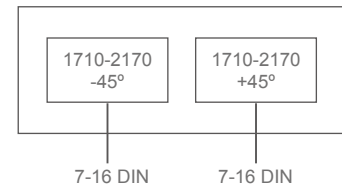


Horizontal Pattern



Vertical Pattern

1920-2170MHz

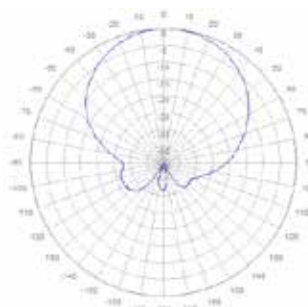


7-16 DIN

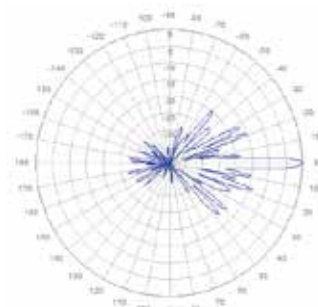
7-16 DIN

XPol High Band Antenna 1710-2170 65° 21dBi VET 0° - 6°

Part Number	S-Wave U-65-21DV6		
Electrical Specifications			
Frequency Range	1710-1880MHz	1850-1990MHz	1920-2170MHz
Polarization	±45°	±45°	±45°
Gain	20.0dBi	20.2dBi	20.4dBi
Horizontal 3dB Beamwidth	67°	64°	61°
Vertical 3dB Beamwidth	4.3°	4.0°	3.8°
Electrical Down Tilt	0°-6°	0°-6°	0°-6°
First Upper Sidelobe Suppression	> 17.0dB	> 17.0dB	> 17.0dB
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0° ±60°	15dB 10dB	15dB 10dB	15dB 10dB
VSWR	≤ 1.5 : 1		
IMD3@2X43dBm Carrier	< -150dBc		
Power Handling	300W		
Connector Type	2 x 7-16 DIN(F)		
Dimension	2220x162x95mm		
Weight	11kg		
Radome Material	UPVC		

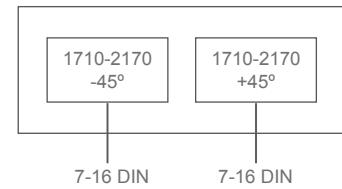


Horizontal Pattern



Vertical Pattern

1710-2170MHz



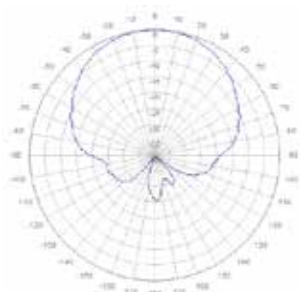
7-16 DIN

7-16 DIN

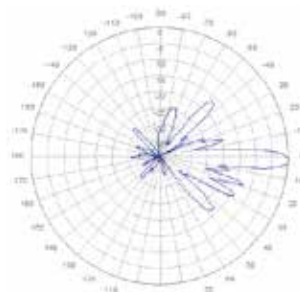
XPol High Band Antenna 1710-2690 65° 18dBi VET2°-12°

Part Number S-Wave EW-65-18DV2/12

Electrical Specifications				
Frequency Range	1710-1990MHz	1920-2200MHz	2200-2490MHz	2490-2690MHz
Polarization	±45°	±45°	±45°	±45°
Gain	17.4dBi	17.5dBi	17.7dBi	18.0dBi
Horizontal 3dB Beamwidth	68°	64°	61°	60°
Vertical 3dB Beamwidth	7.0°	6.4°	5.5°	5.0°
Electrical Down Tilt	2°-12°	2°-12°	2°-12°	2°-12°
First Upper Sidelobe Suppression	15dB	15dB	15dB	15dB
Front-to-back Ratio (180°±30°)	25dB	25dB	25dB	25dB
Cross-Polar Ratio 0°	15dB	15dB	15dB	15dB
Isolation	26dB			
VSWR	< 1.5			
IMD3@2X43dBm Carrier	< -150dBc			
Power Handling	250W			
Connector Type	2 x 7-16 DIN(F)			
Dimension	1410 x 180 x 115mm			
Weight	7.5kg			
Radome Material	ASA			

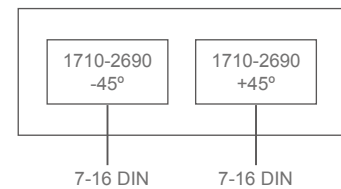


Horizontal Pattern



Vertical Pattern

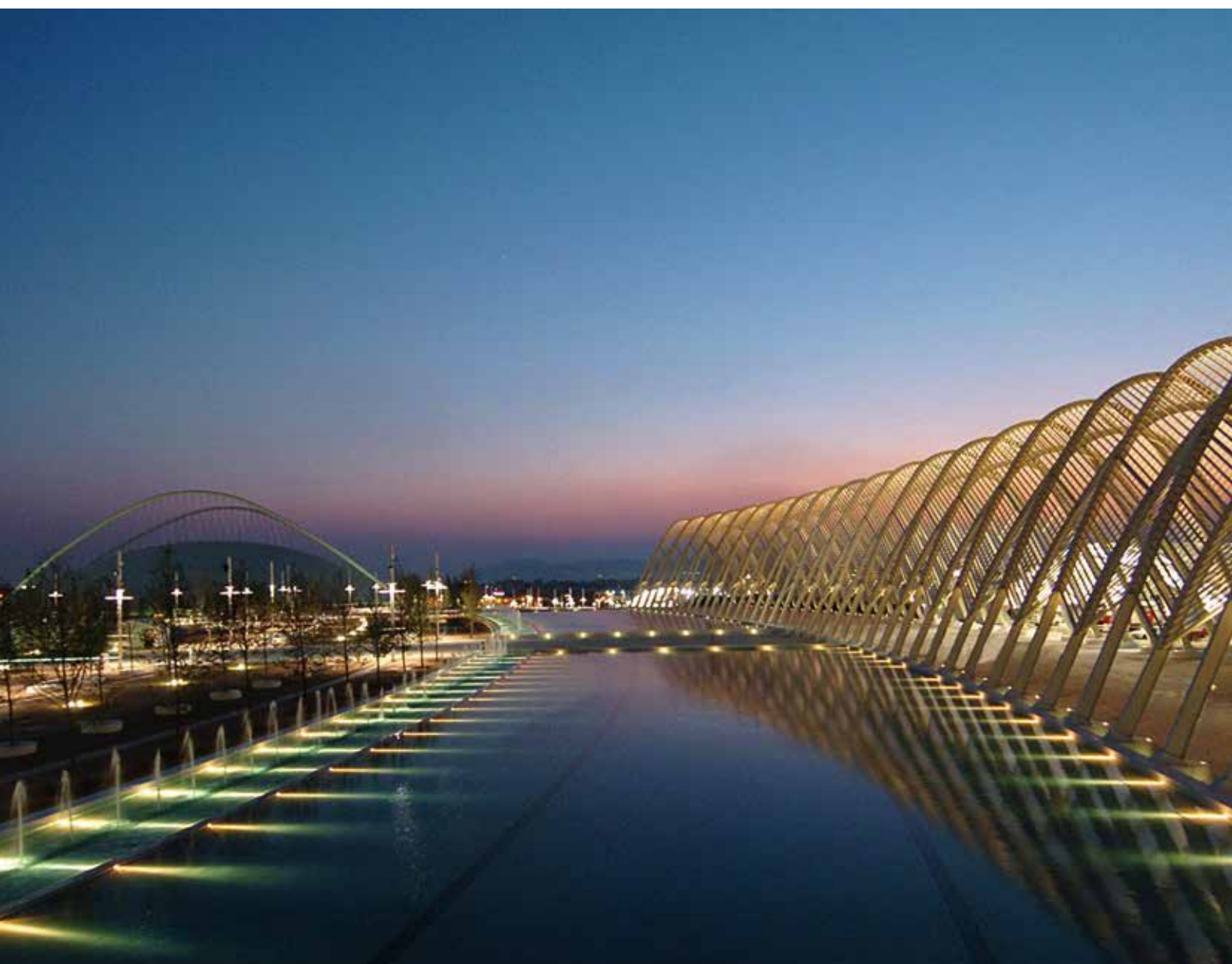
1710-2690MHz



7-16 DIN

7-16 DIN

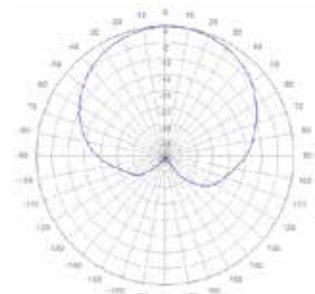
XXPOL DUAL BAND ANTENNAS 698-960/1710-2690MHZ



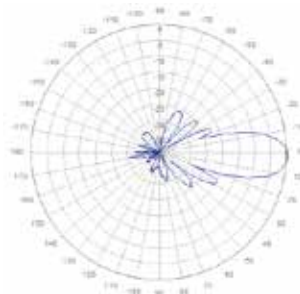
BASE STATION ANTENNAS

XXPol 4-Port Dual Band Antenna 698-960 65° 15dBi VET 2°-14° Integrated Duplexer

Part Number	S-Wave 0609-65-15DV2/14C-F	
Electrical Specifications		
Frequency Range	698-806MHz	824-960MHz
Polarization	±45°	±45°
Gain	14.5±0.5dBi	15.0±0.5dBi
Horizontal 3dB Beamwidth	65°±5°	65°±5°
Vertical 3dB Beamwidth	14.5±1°	13.0±1°
Electrical Down Tilt	2°-14°	2°-14°
First Upper Sidelobe Suppression	15dB	15dB
Front-to-back Ratio (180°±30°)	30dB	30dB
Cross-Polar Ratio 0°	20dB	20dB
Isolation	> 25dB	
VSWR	< 1.5	
IMD3@2X43dBm Carrier	< -150dBc	
Power Handling	500W	
Connector Type	4 x 7-16 DIN(F)	
Dimension	1570 x 320 x 140mm	
Weight	20kg	
Radome Material	Fiberglass	

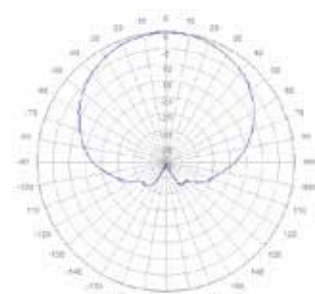


Horizontal Pattern

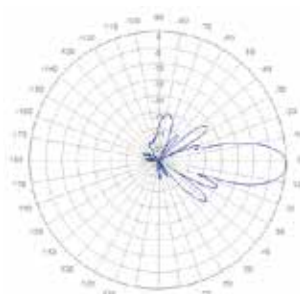


Vertical Pattern

698-806MHz

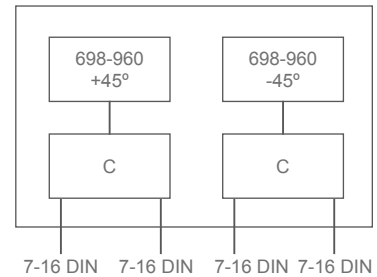


Horizontal Pattern



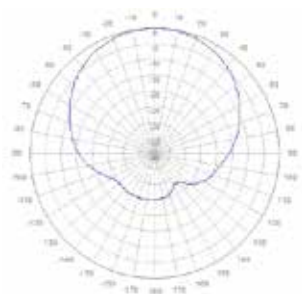
Vertical Pattern

824-960MHz

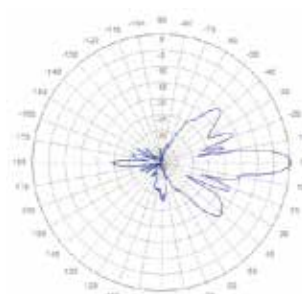


XXPol 4-Port Dual Band Antenna 698-960 65° 18dBi VET 0°-10° Integrated Duplexer

Part Number	S-Wave 0609-65-18DV10C-F	
Electrical Specifications		
Frequency Range	698-806MHz	824-960MHz
Polarization	±45°	±45°
Gain	17±0.5dBi	17.5±0.5dBi
Horizontal 3dB Beamwidth	65±5°	65±5°
Vertical 3dB Beamwidth	8.5±1.0°	7.5±1.0°
Electrical Down Tilt	0°-10°	0°-10°
First Upper Sidelobe Suppression	15dB	15dB
Front-to-back Ratio (180°±30°)	30dB	30dB
Cross-Polar Ratio 0°	20dB	20dB
Isolation	> 25dB	
VSWR	< 1.5	
IMD3@2X43dBm Carrier	< -150dBc	
Power Handling	500W	
Connector Type	4 x 7-16 DIN(F)	
Dimension	2500 x 320 x 140mm	
Weight	27.5kg	
Radome Material	Fiberglass	

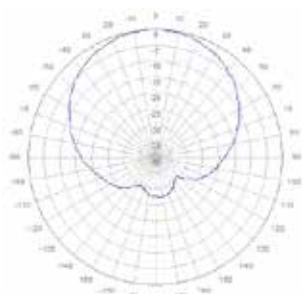


Horizontal Pattern

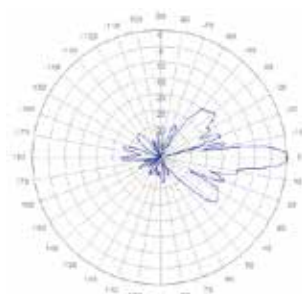


Vertical Pattern

698-806MHz

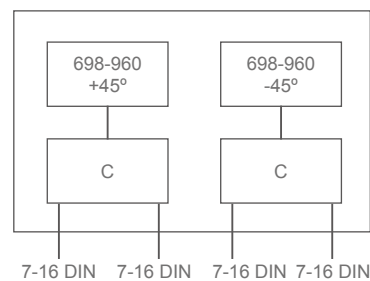


Horizontal Pattern



Vertical Pattern

824-960MHz

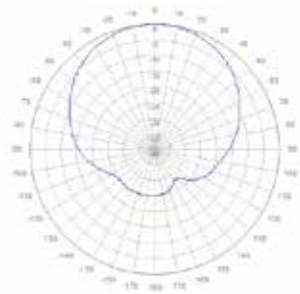


7-16 DIN 7-16 DIN 7-16 DIN 7-16 DIN

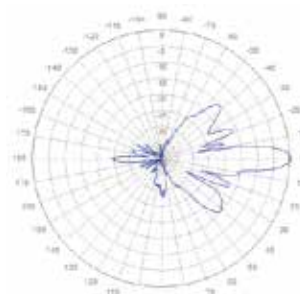
XXPol 4-Port Dual Band Antenna 2x(790-960) 65° 18dBi VET 0°-8°

Part Number S-Wave 0709/0709-65-18DV8-F

Electrical Specifications			
Frequency Range	790-862MHz	824-894MHz	880-960MHz
Polarization	±45°	±45°	±45°
Gain	17.5dBi	17.8dBi	18.0dBi
Horizontal 3dB Beamwidth	67°	65°	63°
Vertical 3dB Beamwidth	7.7°	7.5°	7.1°
Electrical Down Tilt	0°-8°	0°-8°	0°-8°
First Upper Sidelobe Suppression	16.0@0°	16.0@0°	16.0@0°
	15.0@4°	15.0@4°	15.0@4°
	15.0@8°T	15.0@8°T	15.0@8°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	18dB	18dB	18dB
Isolation		30dB	
VSWR		≤ 1.5	
IMD3@2X43dBm Carrier		< -150dBc	
Power Handling		400W	
Connector Type		4 x 7/16 DIN(F)	
Dimension		2580 x 565 x 145mm	
Weight		38kg	
Radome Material		Fiberglass	

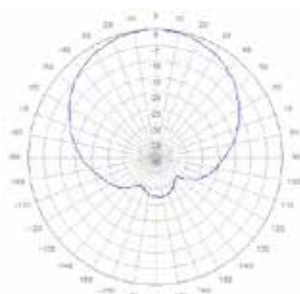


Horizontal Pattern

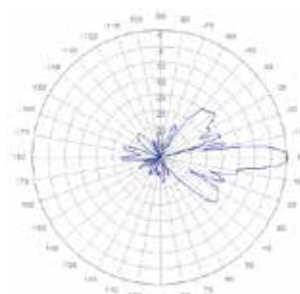


Vertical Pattern

790-862MHz

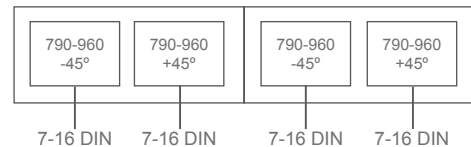


Horizontal Pattern



Vertical Pattern

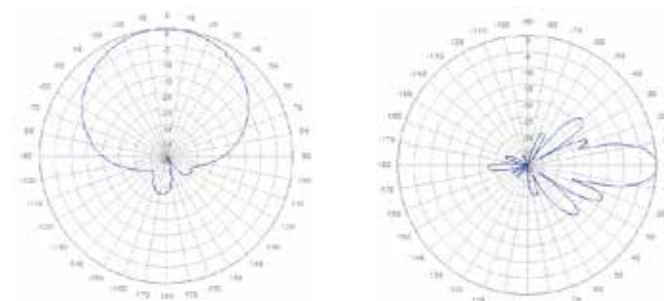
870-960MHz



XXPol 4-Port Dual Band Antenna

806-960/1710-2170 65° 15/18dBi VET 0°-15°/0°-10°

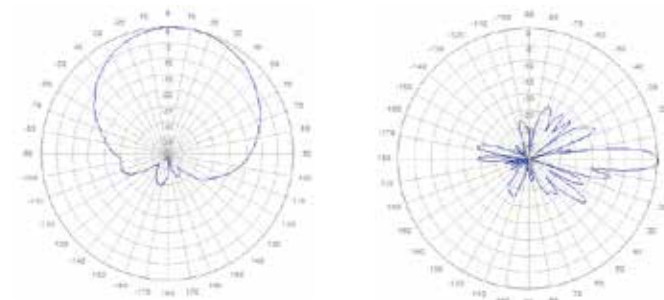
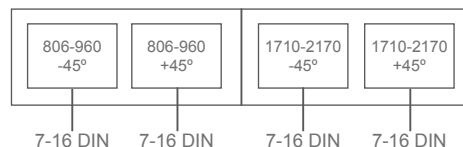
Part Number	S-Wave 0809/U-65-15/18DV15V10-B3				
Electrical Specifications					
Frequency Range	806-896MHz	880-960MHz	1710-1880MHz	1850-1990MHz	1920-2170MHz
Polarization	±45°	±45°	±45°	±45°	±45°
Gain	14.5dBi	14.9dBi	17.6dBi	17.8dBi	18.0dBi
Horizontal 3dB Beamwidth	66°	64°	66°	64°	63°
Vertical 3dB Beamwidth	14.2°	13.6°	6.8°	6.6°	6.2°
Electrical Down Tilt	0°-15°	0°-15°	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	16.0dB@0°	16.0dB@0°	16.0dB@0°	16.0dB@0°	16.0dB@0°
	15.0dB@7°	15.0dB@7°	15.0dB@7°	15.0dB@7°	15.0dB@7°
	14.0dB@15°T	14.0dB@15°T	14.0dB@15°T	14.0dB@15°T	14.0dB@15°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	15dB	15dB	15dB	15dB	15dB
Isolation	30dB				
VSWR	≤ 1.5				
IMD3@2X43dBm Carrier	< -150dBc				
Power Handling	400W/200W				
Connector Type	4 x 7/16 DIN(F)				
Dimension	1580 x 295 x 145mm				
Weight	16kg				
Radome Material	UPVC				



Horizontal Pattern

806-960MHz

Vertical Pattern



Horizontal Pattern

1710-2170MHz

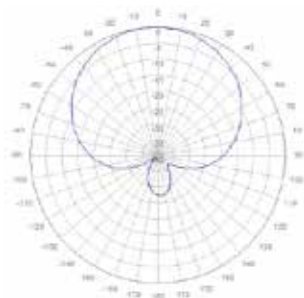
Vertical Pattern

XXPol 4-Port Dual Band Antenna

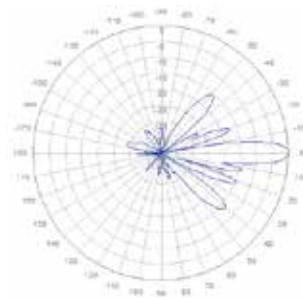
806-960/1710-2170 65° 17/18dBi VET 0°-8°



Part Number	S-Wave 0809/U-65-17/18DV8-B3				
Electrical Specifications					
Frequency Range	806-896MHz	880-960MHz	1710-1880MHz	1850-1990MHz	1920-2170MHz
Polarization	±45°	±45°	±45°	±45°	±45°
Gain	16.5dBi	17.0dBi	17.6dBi	17.8dBi	18.0dBi
Horizontal 3dB Beamwidth	66°	64°	66°	64°	63°
Vertical 3dB Beamwidth	8.0°	7.5°	6.8°	6.6°	6.2°
Electrical Down Tilt	0°-8°	0°-8°	0°-8°	0°-8°	0°-8°
First Upper Sidelobe Suppression	15.0dB@0°	15.0dB@0°	15.0dB@0°	15.0dB@0°	15.0dB@0°
	15.0dB@4°	15.0dB@4°	15.0dB@4°	15.0dB@4°	15.0dB@4°
	14.0dB@8°T	14.0dB@8°T	14.0dB@8°T	14.0dB@8°T	14.0dB@8°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	15dB	15dB	15dB	15dB	15dB
Isolation	30dB				
VSWR	≤ 1.5				
IMD3@2X43dBm Carrier	< -150dBc				
Power Handling	400W/200W				
Connector Type	4 x 7/16 DIN(F)				
Dimension	2580 x 295 x 145mm				
Weight	23kg				
Radome Material	UPVC				

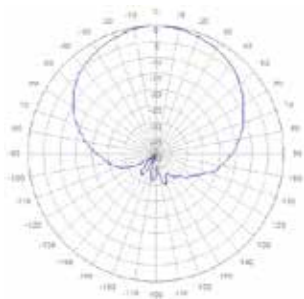
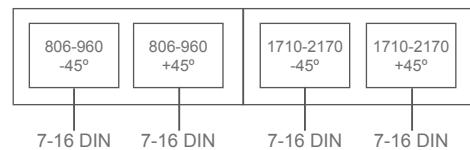


Horizontal Pattern

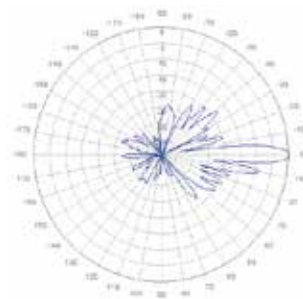


Vertical Pattern

806-960MHz



Horizontal Pattern



Vertical Pattern

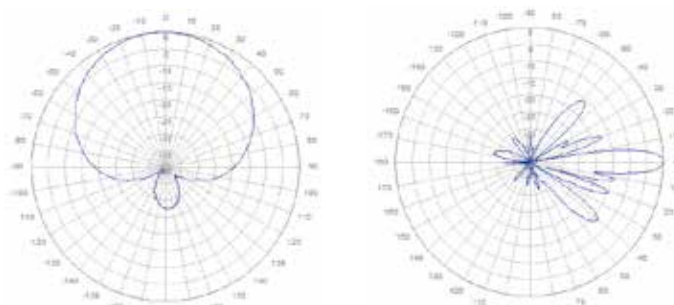
1710-2170MHz

XXPol 4-Port Dual Band Antenna

806-960/1710-2690 65° 17/18dBi VET 0°-8°



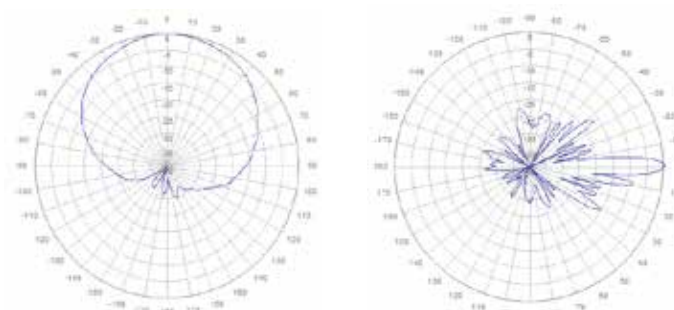
Part Number	S-Wave 0809/EW-65-17/18DV8-F				
Electrical Specifications					
Frequency Range	806-896MHz	880-960MHz	1710-1920MHz	1920-2170MHz	2170-2690MHz
Polarization	±45°	±45°	±45°	±45°	±45°
Gain	16.7dBi	17.2dBi	17.5dBi	18.0dBi	17.5dBi
Horizontal 3dB Beamwidth	68°	65°	65°	63°	61°
Vertical 3dB Beamwidth	8.0°	7.5°	5.2°	4.7°	4.2°
Electrical Down Tilt	0°-8°	0°-8°	0°-8°	0°-8°	0°-8°
First Upper Sidelobe Suppression	16.0dB@0°	16.0dB@0°	16.0dB@0°	16.0dB@0°	16.0dB@0°
	15.0dB@4°	15.0dB@4°	15.0dB@4°	15.0dB@4°	15.0dB@4°
	14.0dB@8°T	14.0dB@8°T	14.0dB@8°T	14.0dB@8°T	14.0dB@8°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	15dB	15dB	15dB	15dB	15dB
Isolation	25dB				
VSWR	≤ 1.5				
IMD3@2X43dBm Carrier	< -150dBc				
Power Handling	400W/200W				
Connector Type	4 x 7/16 DIN(F)				
Dimension	2715 x 350 x 150mm				
Weight	26kg				
Radome Material	Fiberglass				



Horizontal Pattern

806-960MHz

Vertical Pattern



Horizontal Pattern

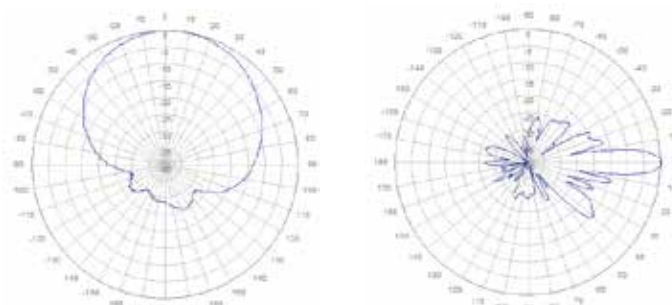
1710-2690MHz

Vertical Pattern

XXPol 4-Port Dual Band Antenna

1710-2170/1710-2170 65° 18dBi VET 0°-10°

Part Number	S-Wave U/U-65-18DV10-B10		
Electrical Specifications			
Frequency Range	1710-1880MHz	1850-1990MHz	1920-2170MHz
Polarization	±45°	±45°	±45°
Gain	17.2dBi	17.5dBi	17.8dBi
Horizontal 3dB Beamwidth	68°	68°	64°
Vertical 3dB Beamwidth	7.3°	6.7°	6.3°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	> 16.0dB	> 16.0dB	> 16.0dB
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0° ±60°	15dB 10dB	15dB 10dB	15dB 10dB
VSWR	≤ 1.5 : 1		
IMD3@2X43dBm Carrier	< -150dBc		
Power Handling	300W		
Connector Type	4 x 7-16 DIN(F)		
Dimension	1350x320x110mm		
Weight	16kg		
Radome Material	UPVC		



Horizontal Pattern

1710-2170MHz

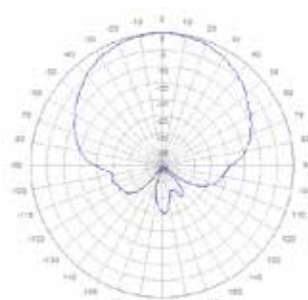
Vertical Pattern



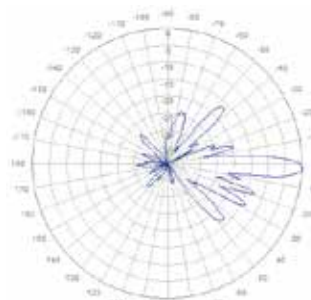
XXPol 4-Port Dual Band Antenna 1710-2690/1710-2690 65° 18dBi VET 2°-12°

Part Number S-Wave EW/EW-65-18DV2/12

Electrical Specifications				
Frequency Range	1710-1990MHz	1920-2200MHz	2200-2490MHz	2490-2690MHz
Polarization	±45°	±45°	±45°	±45°
Gain	17.5dBi	17.6dBi	17.8dBi	18.0dBi
Horizontal 3dB Beamwidth	68°	64°	61°	60°
Vertical 3dB Beamwidth	7.0°	6.4°	5.5°	5.0°
Electrical Down Tilt	2°-12°	2°-12°	2°-12°	2°-12°
First Upper Sidelobe Suppression	> 15.0dB	> 15.0dB	> 15.0dB	> 15.0dB
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	15dB	15dB	15dB	15dB
Isolation	26dB			
VSWR	≤ 1.5			
IMD3@2X43dBm Carrier	< -150dBc			
Power Handling	250W			
Connector Type	4 x 7/16 DIN (F)			
Dimension	1410 x 295 x 115mm			
Weight	14.5kg			
Radome Material	UPVC			

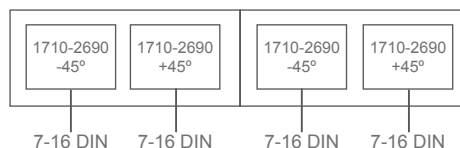


Horizontal Pattern



Vertical Pattern

1710-2690MHz



7-16 DIN 7-16 DIN 7-16 DIN 7-16 DIN

XXXPOL TRI-BAND ANTENNAS 698-960/1710-2690/1710-2690MHZ

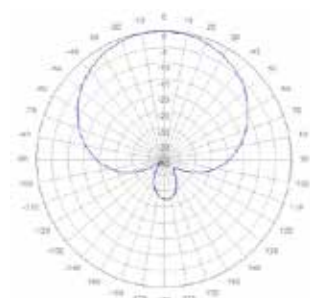


BASE STATION ANTENNAS

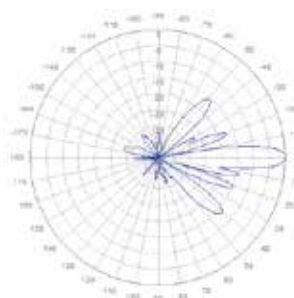
XXXPol 6-Port Tri-Band Antenna

824-960/2x(1710-2690) 65° 18/18/18dBi VET 0°-8°

Part Number	S-Wave 0809/U/U-65-18DV8-B3			
Electrical Specifications				
Frequency Range	824-896MHz	880-960MHz	1710-1880MHz	1920-2170MHz
Polarization	±45°	±45°	±45°	±45°
Gain	17.0dBi	17.5dBi	17.8dBi	18.0dBi
Horizontal 3dB Beamwidth	67°	65°	63°	60°
Vertical 3dB Beamwidth	7.5°	7°	7°	6.5°
Electrical Down Tilt	2°-12°	2°-12°	2°-12°	2°-12°
First Upper Sidelobe Suppression	16.0dB@0°	16.0dB@0°	16.0dB@0°	16.0dB@0°
	15.0dB@4°	15.0dB@4°	15.0dB@4°	15.0dB@4°
	14.0dB@8°T	14.0dB@8°T	14.0dB@8°T	14.0dB@8°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	15dB	15dB	15dB	15dB
Isolation	26dB			
VSWR	≤ 1.5			
IMD3@2X43dBm Carrier	< -150dBc			
Power Handling	400W/200W			
Connector Type	6 x 7/16 DIN (F)			
Dimension	2580 x 295 x 145mm			
Weight	28kg			
Radome Material	UPVC			

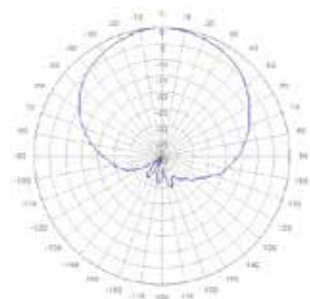


Horizontal Pattern

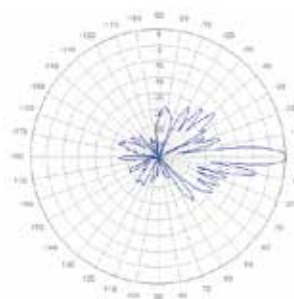


Vertical Pattern

806-960MHz

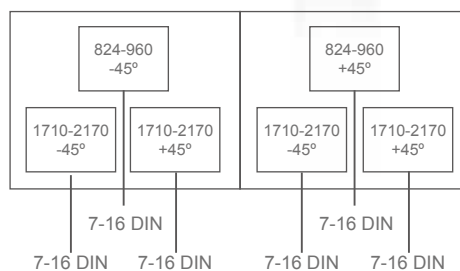


Horizontal Pattern



Vertical Pattern

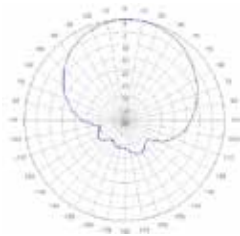
1710-2170MHz



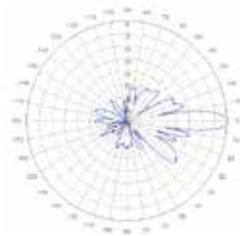
XXXPol 6-Port Tri-Band Antenna 3x(1710-2170) 65° 18dBi VET 0°-8°

Part Number S-Wave U/U/U-65-18DV8-F

Electrical Specifications			
Frequency Range	1710-1880MHz	1850-1990MHz	1920-2170MHz
Polarization	±45°	±45°	±45°
Gain	17.5dBi	17.7dBi	17.9dBi
Horizontal 3dB Beamwidth	63±5°	63±5°	62±5°
Vertical 3dB Beamwidth	7.0°	6.5°	5.7°
Electrical Down Tilt	0°-8°	0°-8°	0°-8°
First Upper Sidelobe Suppression	17.0dB@0°	17.0dB@0°	17.0dB@0°
	17.0dB@4°	17.0dB@4°	17.0dB@4°
	15.0dB@8°T	15.0dB@8°T	15.0dB@8°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	20dB	20dB	20dB
Isolation		30dB	
VSWR		≤ 1.5	
IMD3@2X43dBm Carrier		< -150dBc	
Power Handling		250W	
Connector Type		6 x 7/16 DIN (F)	
Dimension		1400 x 480 x 115mm	
Weight		22kg	
Radome Material		Fiberglass	

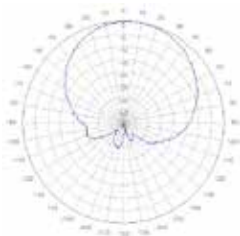
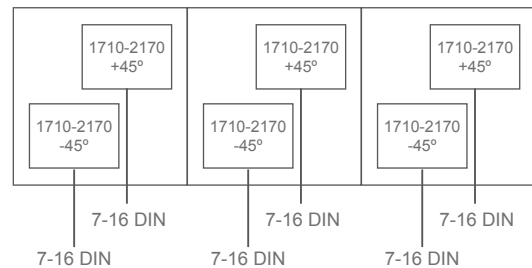


Horizontal Pattern

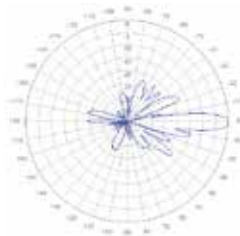


Vertical Pattern

1710-1880MHz

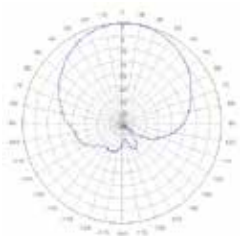


Horizontal Pattern

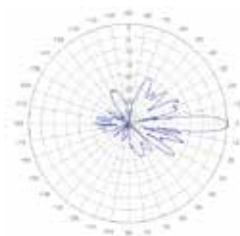


Vertical Pattern

1850-1990MHz



Horizontal Pattern



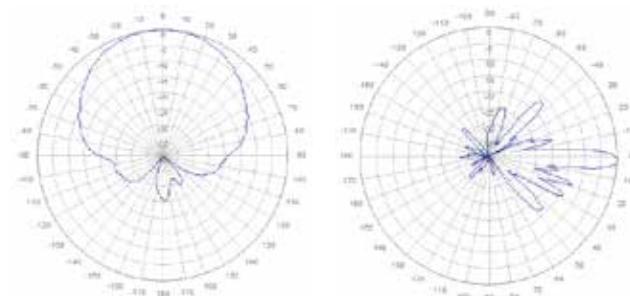
Vertical Pattern

1920-2170MHz

XXXPol 6-Port Dual Band Antenna

3x(1710-2690) 65° 18dBi VET 2°-12°

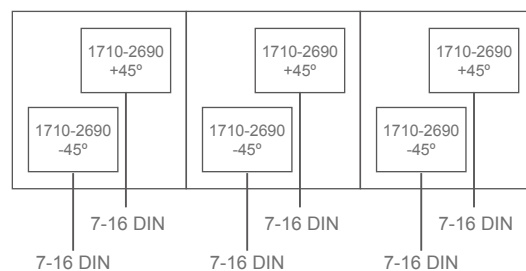
Part Number	S-Wave EW/EW/EW-65-18DV2/12			
Electrical Specifications				
Frequency Range	1710-1990MHz	1920-2200MHz	2200-2490MHz	2490-2690MHz
Polarization	±45°	±45°	±45°	±45°
Gain	17.6dBi	17.8dBi	18.4dBi	18.4dBi
Horizontal 3dB Beamwidth	68°	64°	61°	60°
Vertical 3dB Beamwidth	7.0°	6.4°	5.5°	5.0°
Electrical Down Tilt	0°-8°	0°-8°	0°-8°	0°-8°
First Upper Sidelobe Suppression	> 15.0dB	> 15.0dB	> 15.0dB	> 15.0dB
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	15dB	15dB	15dB	15dB
Isolation	26dB			
VSWR	≤ 1.5			
IMD3@2X43dBm Carrier	< -150dBc			
Power Handling	250W			
Connector Type	6 x 7/16 DIN (F)			
Dimension	1410 x 480 x 115mm			
Weight	20kg			
Radome Material	Fiberglass			



Horizontal Pattern

Vertical Pattern

1710-2690MHz

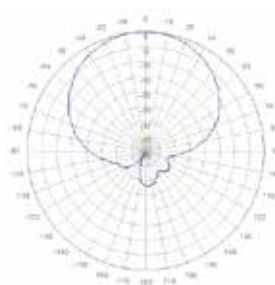


XXXPol 6-Port Tri-Band Antenna

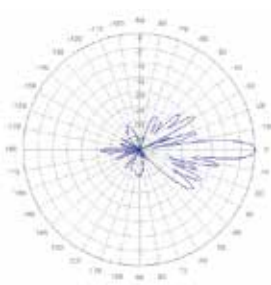
790-960/2x(1710-2690) 65° 17/18/18dBi VET 0°-10°



Part Number	S-Wave 0709/EW/EW-65-17/18/18DV10-F-B2					
Electrical Specifications						
Frequency Range	790-896MHz	880-960MHz	1710-1880MHz	1900-2200MHz	2300-2400MHz	2500-2690MHz
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Gain	16.2dBi	16.6dBi	17.0dBi	17.5dBi	17.3dBi	17.5dBi
Horizontal 3dB Beamwidth	67°	63°	66°	65°	68°	60°
Vertical 3dB Beamwidth	8.0°	7.5°	7.0°	6.5°	5.5°	5.0°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°
	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°
	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	17dB	17dB	17dB	17dB	17dB	17dB
Isolation	26dB					
VSWR	≤ 1.5					
IMD3@2X43dBm Carrier	< -150dBc					
Power Handling	400W/200W					
Connector Type	6 x 7/16 DIN (F)					
Dimension	2700 x 350 x 145mm					
Weight	38kg					
Radome Material	Fiberglass					

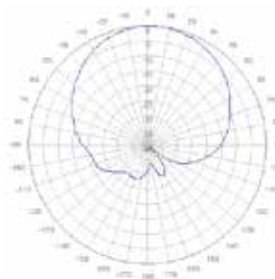
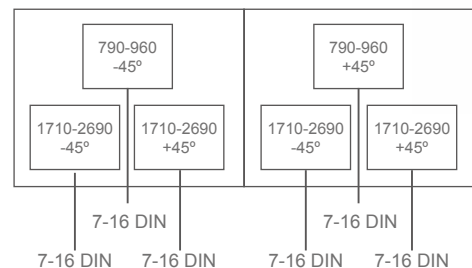


Horizontal Pattern

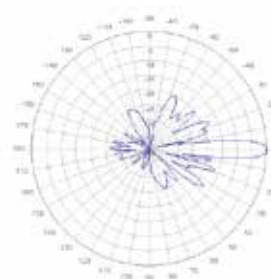


Vertical Pattern

790-960MHz



Horizontal Pattern



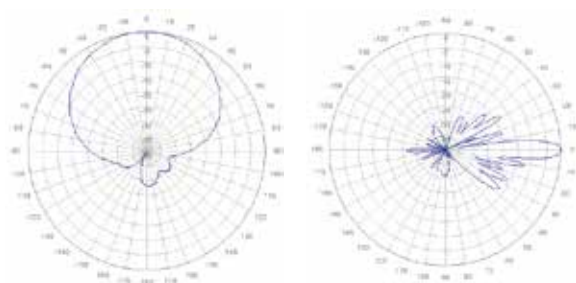
Vertical Pattern

1710-2690MHz

XXXPol 6-Port Tri-Band Antenna

694-960/2x(1710-2690) 65° 17/18/18dBi VET 0°-10° with Integrated RET

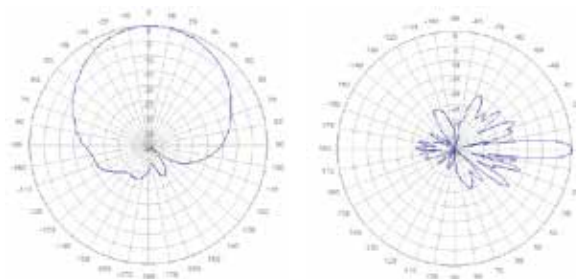
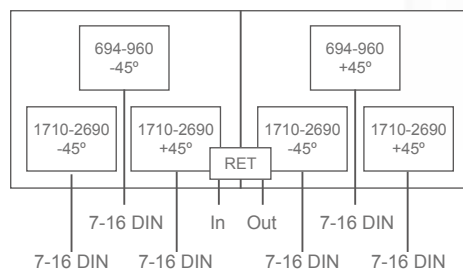
Part Number	BA-G7W8W8X65V-00					
Electrical Specifications						
Frequency Range	694-862MHz	876-960MHz	1710-1880MHz	1900-2200MHz	2300-2400MHz	2500-2690MHz
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Gain, LB	16.6dBi	17dBi	-	-	-	-
Gain, HB1/HB2	-	-	17.0dBi	17.3dBi	17.5dBi	17.7dBi
Horizontal 3dB Beamwidth	67°	63°	66°	65°	68°	60°
Vertical 3dB Beamwidth	8.0°	7.5°	7.0°	6.5°	5.5°	5.0°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	17dB	17dB	17dB	17dB	17dB	17dB
Isolation				28dB		
VSWR				≤ 1.5		
IMD3@2X43dBm Carrier				< -150dBc		
Power Handling				400W/200W		
Connector Type				6 x 7/16 DIN (F)		
Dimension				2690 x 396 x 190mm		
Weight				31kg		
Radome Material				Fiberglass		



Horizontal Pattern

Vertical Pattern

694-960MHz

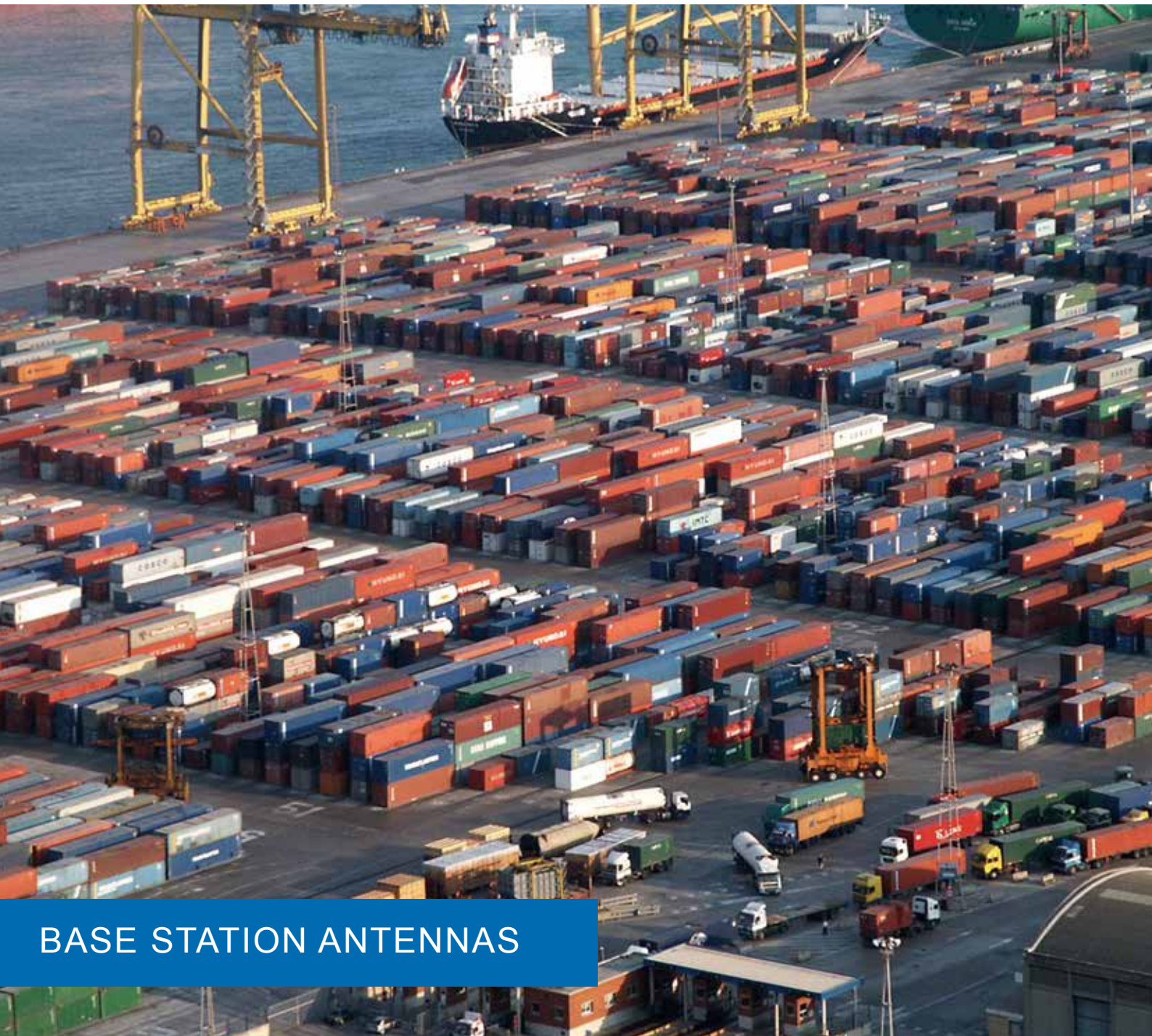


Horizontal Pattern

Vertical Pattern

1710-2690MHz

MULTI-BAND ANTENNAS



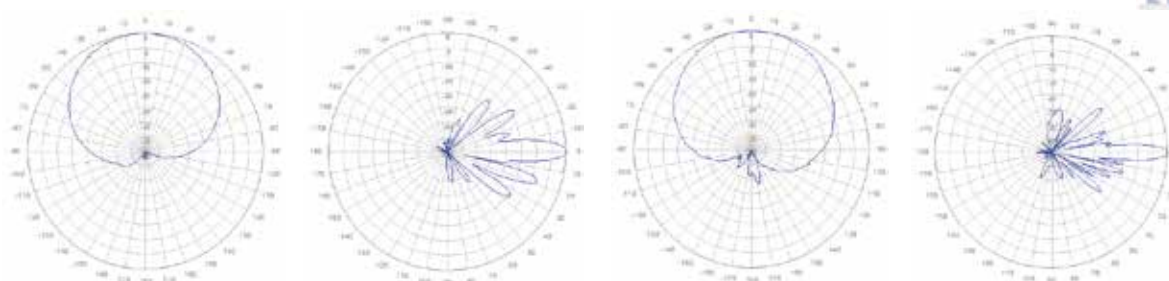
BASE STATION ANTENNAS

XXXXPol 8-Port Quad-Band Antenna

694-960/3x(1710-2690) 65° 17/18/18/18dBi VET 0°-10° with Integrated RET

Part Number BA-G7W8W8W8X65V-00

Electrical Specifications						
Frequency Range	694-862MHz	876-960MHz	1710-1880MHz	1900-2200MHz	2300-2400MHz	2500-2690MHz
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Gain, LB	16.6dBi	17.3dBi	-	-	-	-
Gain, HB1/HB2	-	-	17.0dBi	17.3dBi	17.5dBi	17.7dBi
Gain, HB3	-	-	16.6dBi	16.9dBi	17.1dBi	17.3dBi
Horizontal 3dB Beamwidth	67°	63°	66°	65°	68°	60°
Vertical 3dB Beamwidth	8.0°	7.5°	7.0°	6.5°	5.5°	5.0°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	17dB	17dB	17dB	17dB	17dB	17dB
Isolation				28dB		
VSWR				≤ 1.5		
IMD3@2X43dBm Carrier				< -150dBc		
Power Handling				400W/200W		
Connector Type				8 x 7/16 DIN (F)		
Dimension				2690 x 369 x 190mm		
Weight				33kg		
Radome Material				Fiberglass		



Horizontal Pattern

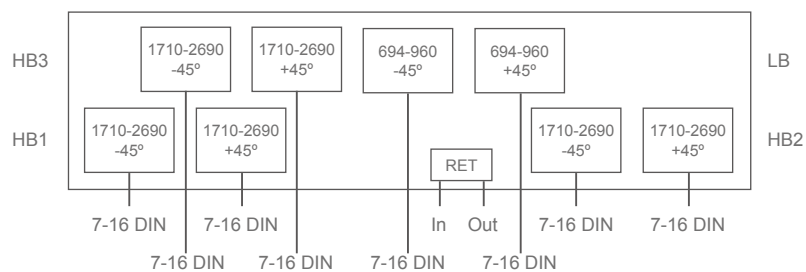
Vertical Pattern

Horizontal Pattern

Vertical Pattern

694-960MHz

1710-2690MHz

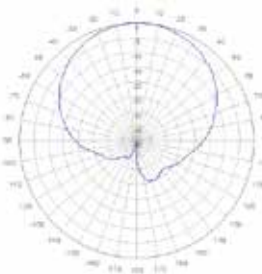


XXXXXPol 10-Port Penta-Band Antenna

694-960/4x(1710-2690) 65° 17/18/18/18dBi VET 0°-10° with Integrated RET

Part Number BA-G7W8W8W8W8X65V-00

Electrical Specifications						
Frequency Range	694-862MHz	876-960MHz	1710-1880MHz	1900-2200MHz	2300-2400MHz	2500-2690MHz
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Gain, LB	16.6dBi	17.3dBi	-	-	-	-
Gain, HB1/HB2	-	-	17.0dBi	17.3dBi	17.5dBi	17.7dBi
Gain, HB3	-	-	16.6dBi	16.9dBi	17.1dBi	17.3dBi
Horizontal 3dB Beamwidth	67°	63°	66°	65°	68°	60°
Vertical 3dB Beamwidth	8.0°	7.5°	7.0°	6.5°	5.5°	5.0°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)	18 (Typical)
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	17dB	17dB	17dB	17dB	17dB	17dB
Isolation				28dB		
VSWR				≤ 1.5		
IMD3@2X43dBm Carrier				< -150dBc		
Power Handling				400W/200W		
Connector Type				10 x 7/16 DIN (F)		
Dimension				2690 x 396 x 190mm		
Weight				35kg		
Radome Material				Fiberglass		

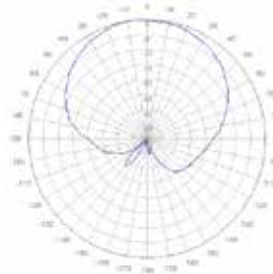


Horizontal Pattern

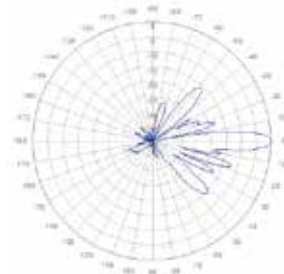


Vertical Pattern

694-960MHz

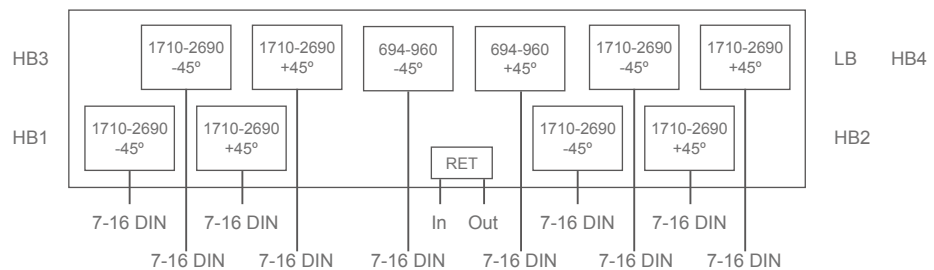


Horizontal Pattern



Vertical Pattern

1710-2690MHz



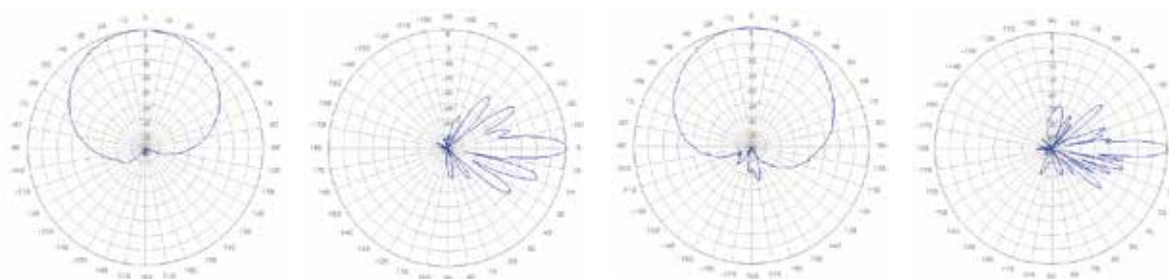
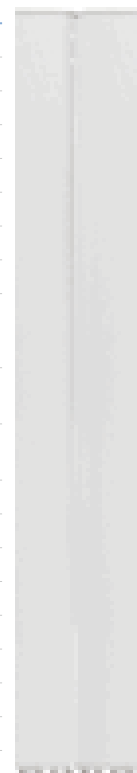
XXXXPol 8-Port Quad-Band Antenna

2x(694-960)/2x(1710-2690) 65° 17/17/18/18dBi VET 0°-10° with Integrated RET

Part Number BA-G7G7W8W8X65V-00

Electrical Specifications

Frequency Range	694-896MHz	880-960MHz	1710-1880MHz	1900-2200MHz	2300-2400MHz	2500-2690MHz
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Gain, LB1/LB2	16.6dBi	17.3dBi	-	-	-	-
Gain, HB1/HB2	-	-	17.0dBi	17.3dBi	17.5dBi	17.7dBi
Horizontal 3dB Beamwidth	67°	63°	66°	65°	68°	60°
Vertical 3dB Beamwidth	8.0°	7.5°	7.0°	6.5°	5.5°	5.0°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°
	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°
	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	17dB	17dB	17dB	17dB	17dB	17dB
	60° 8dB	8dB	8dB	8dB	8dB	8dB
Port Isolation				26dB		
Band Isolation				30dB		
VSWR				≤ 1.5:1		
3 rd Order PIM				-150dBc @ 2 x 20W		
Impedance				50Ω		
Power Handling				400W/200W		
Connector Type				8 x 7/16 (F)		
Dimension				2700 x 650 x 145mm		
Weight				67kg		
Radome Material				Fiberglass		



Horizontal Pattern

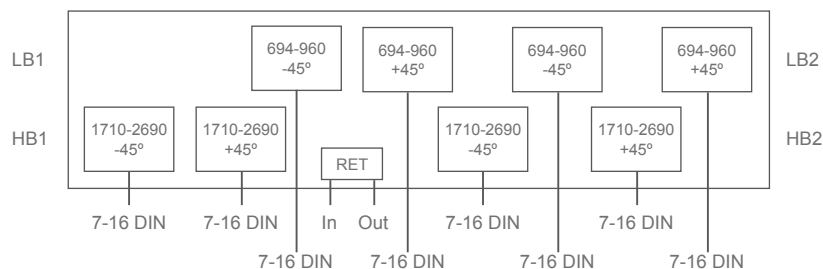
Vertical Pattern

Horizontal Pattern

Vertical Pattern

694-960MHz

1710-2690MHz

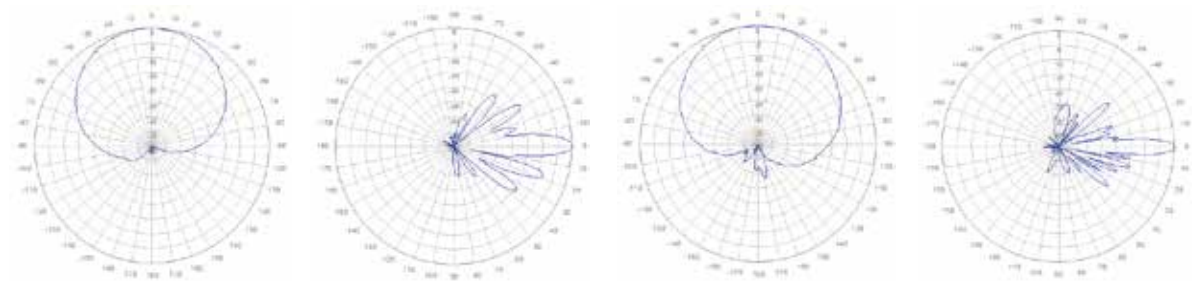
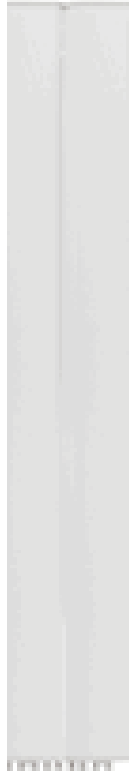


XXXXXPol 10-Port Penta-Band Antenna

2x(694-960)/3x(1710-2690) 65° 17/17/18/18/18dBi VET 0°-10° with Integrated RET

Part Number BA-G7G7W8W8X65V-00

Electrical Specifications						
Frequency Range	694-896MHz	880-960MHz	1710-1880MHz	1900-2200MHz	2300-2400MHz	2500-2690MHz
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Gain, LB1/LB2	16.6dBi	17.3dBi	-	-	-	-
Gain, HB1/HB2	-	-	17.0dBi	17.3dBi	17.5dBi	17.7dBi
Gain, HB3	-	-	16.6dBi	16.9dBi	17.1dBi	17.3dBi
Horizontal 3dB Beamwidth	67°	63°	66°	65°	68°	60°
Vertical 3dB Beamwidth	8.0°	7.5°	7.0°	6.5°	5.5°	5.0°
Electrical Down Tilt	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°	0°-10°
First Upper Sidelobe Suppression	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°	17.0dB@0°
	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°	16.0dB@5°
	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T	15.0dB@10°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio	0°	17dB	17dB	17dB	17dB	17dB
	60°	8dB	8dB	8dB	8dB	8dB
Port Isolation				26dB		
Band Isolation				30dB		
VSWR				≤ 1.5:1		
3 rd Order PIM				-150dBc @ 2 x 20W		
Impedance				50Ω		
Power Handling				400W/200W		
Connector Type				10 x 7/16 (F)		
Dimension				2700 x 650 x 145mm		
Weight				70kg		
Radome Material				Fiberglass		



Horizontal Pattern

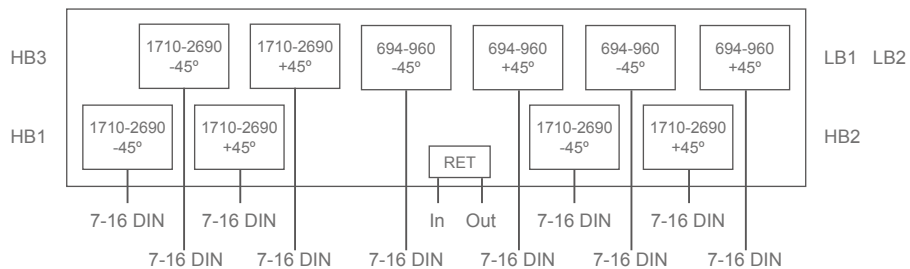
Vertical Pattern

Horizontal Pattern

Vertical Pattern

694-960MHz

1710-2690MHz



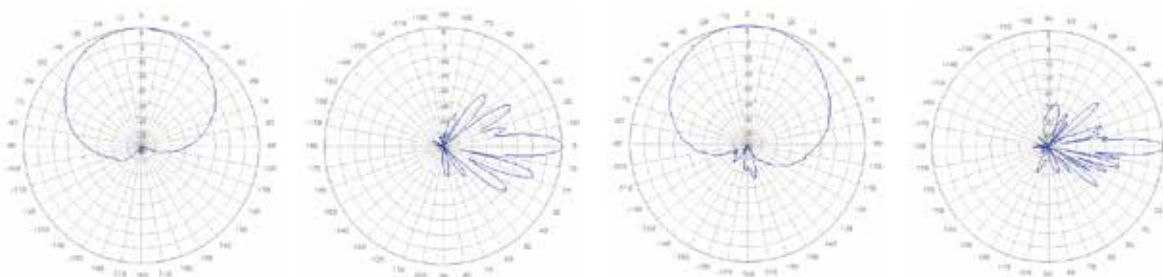
XXXXXPol 10-Port Penta-Band Antenna

694-960/2x(1695-2200)/2x(2300-2690) 65° 16/18/18dBi VET 2°-12° with Integrated RET

Part Number BA-G6U8U8R8R8X65V-20

Electrical Specifications

Frequency Range	694-791MHz	791-880MHz	880-960MHz	1695-1920MHz	1920-2200MHz	2300-2500MHz	2500-2690MHz
Polarization	±45°	±45°	±45°	±45°	±45°	±45°	±45°
Gain, LB	14.8dBi	15.1dBi	15.8dBi	-	-	-	-
Gain, HB1/HB2	-	-	-	17.0dBi	17.5dBi	-	-
Gain, HB3	-	-	-	-	-	17.5dBi	18dBi
Horizontal 3dB Beamwidth	70°±5°	67°±5°	65°±5°	67°±5°	65°±5°	62°±5°	57°±5°
Vertical 3dB Beamwidth	11.5°	10.5°	9.5°	5.5°	5°	4.5°	4°
Electrical Down Tilt	2°-12°	2°-12°	2°-12°	2°-12°	2°-12°	2°-12°	2°-12°
First Upper Sidelobe Suppression	17.0dB@2° 16.0dB@7° 15.0dB@12°T	17.0dB@2° 16.0dB@7° 15.0dB@12°T	17.0dB@2° 16.0dB@7° 15.0dB@12°T	17.0dB@2° 16.0dB@7° 15.0dB@12°T	17.0dB@2° 16.0dB@7° 15.0dB@12°T	17.0dB@2° 16.0dB@7° 15.0dB@12°T	17.0dB@2° 16.0dB@7° 15.0dB@12°T
Front-to-back Ratio (180°±30°)	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB	> 25dB
Cross-Polar Ratio 0°	15dB	15dB	15dB	15dB	15dB	15dB	15dB
Isolation				30dB			
VSWR				≤ 1.5			
IMD3@2X43dBm Carrier				< -150dBc			
Power Handling				400W/200W			
Connector Type				10 x 4.3-10 (F)			
Dimension				2000 x 380 x 150mm			
Weight				32kg			
Radome Material				ASA+pc			



Horizontal Pattern

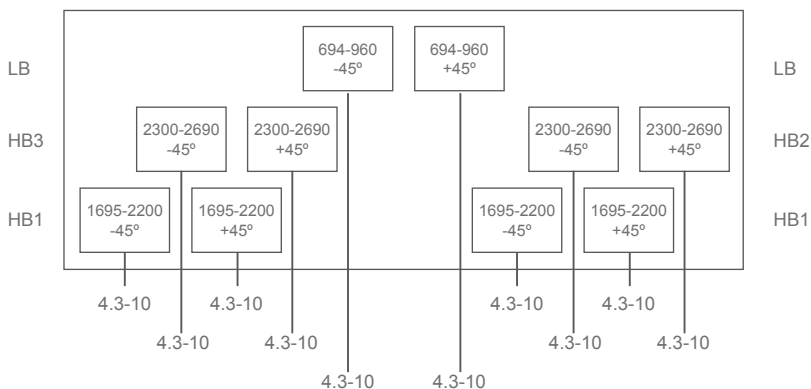
Vertical Pattern

Horizontal Pattern

Vertical Pattern

694-960MHz

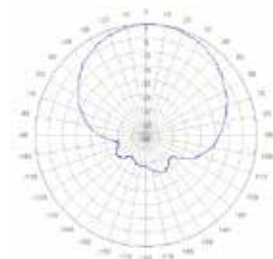
1695-2690MHz



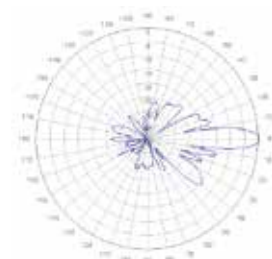
XXXXPol 8-Port Quad-Band Antenna

2x(1710-1880)/2x(2300-2400) 65° 17/17dBi VET 0°-10° with Integrated Duplexer

Part Number	S-Wave 18/18/23/23-65-18DV10C-F	
Electrical Specifications		
Frequency Range	1710-1880MHz	2300-2400MHz
Polarization	±45°	±45°
Gain	16.6dBi±0.4dB	16.4dBi±0.4dB
Horizontal 3dB Beamwidth	67°	63°
Vertical 3dB Beamwidth	7.5°±0.6°	7.2°±0.4°
Electrical Down Tilt	0°-10°	0°-10°
First Upper Sidelobe Suppression	15dB	15dB
Front-to-back Ratio (180°±30°)	> 30dB(Co-pol)	> 30dB(Co-pol)
Cross-Polar Ratio 0°	18dB	18dB
Isolation	25dB	
VSWR	< 1.5	
IMD3@2X43dBm Carrier	< -150dBc	
Power Handling	250W/250W	
Connector Type	8 x 7/16 DIN (F)	
Dimension	1350 x 320 x 140mm	
Weight	17kg	
Radome Material	Fiberglass	

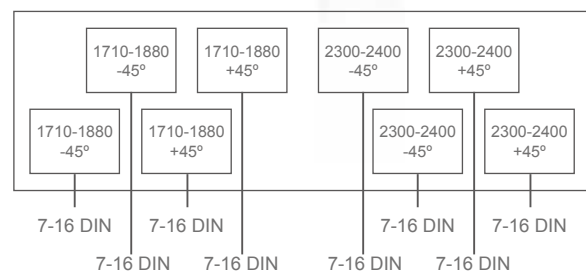


Horizontal Pattern



Vertical Pattern

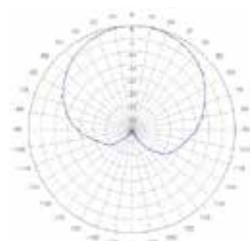
1710-1880&2300-2400MHz



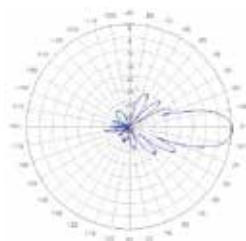
XXXXPol 12-Port Quad-Band Antenna

698-960/2x(1710-1880)/2x(2300-2400) 65° 15/17dBi VET 0°-10° with Integrated Duplexer

Part Number	S-Wave 67/89/18/23-65-15/15/17/17DV2/14V10C-F			
Electrical Specifications				
Frequency Range	698-806MHz	824-960MHz	1710-1880MHz	2300-2400MHz
Polarization	±45°	±45°	±45°	±45°
Gain	14.0±0.5dBi	14.5±0.5dBi	2 x 16.5±0.5dBi	2 x 16.3±0.5dBi
Horizontal 3dB Beamwidth	65°±5°	65°±5°	65°±5°	65°±5°
Vertical 3dB Beamwidth	15°±1°	14°±1°	7.5°±0.5°	7.0°±0.5°
Electrical Down Tilt	2°-14°	2°-14°	0°-10°	0°-10°
First Upper Sidelobe Suppression	> 15.0dB	> 15.0dB	> 15.0dB	> 15.0dB
Front-to-back Ratio (180°±30°)	> 27dB	> 27dB	> 27dB	> 27dB
Cross-Polar Ratio 0°	18dB	18dB	18dB	18dB
Isolation	25dB			
VSWR	≤ 1.5			
IMD3@2X43dBm Carrier	< -150dBc			
Power Handling	500W/250W			
Connector Type	12 x 7/16 DIN (F)			
Dimension	1650 x 396 x 190mm			
Weight	34kg			
Radome Material	Fiberglass			



Horizontal Pattern

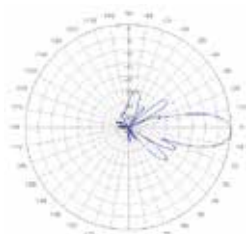


Vertical Pattern

698-806MHz

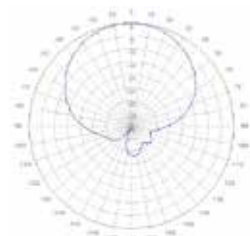


Horizontal Pattern

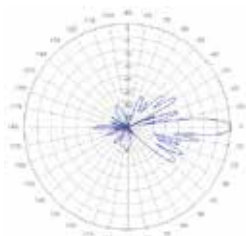


Vertical Pattern

824-960MHz

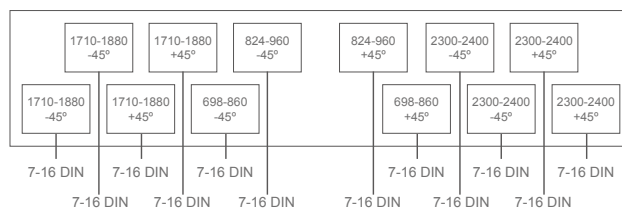


Horizontal Pattern

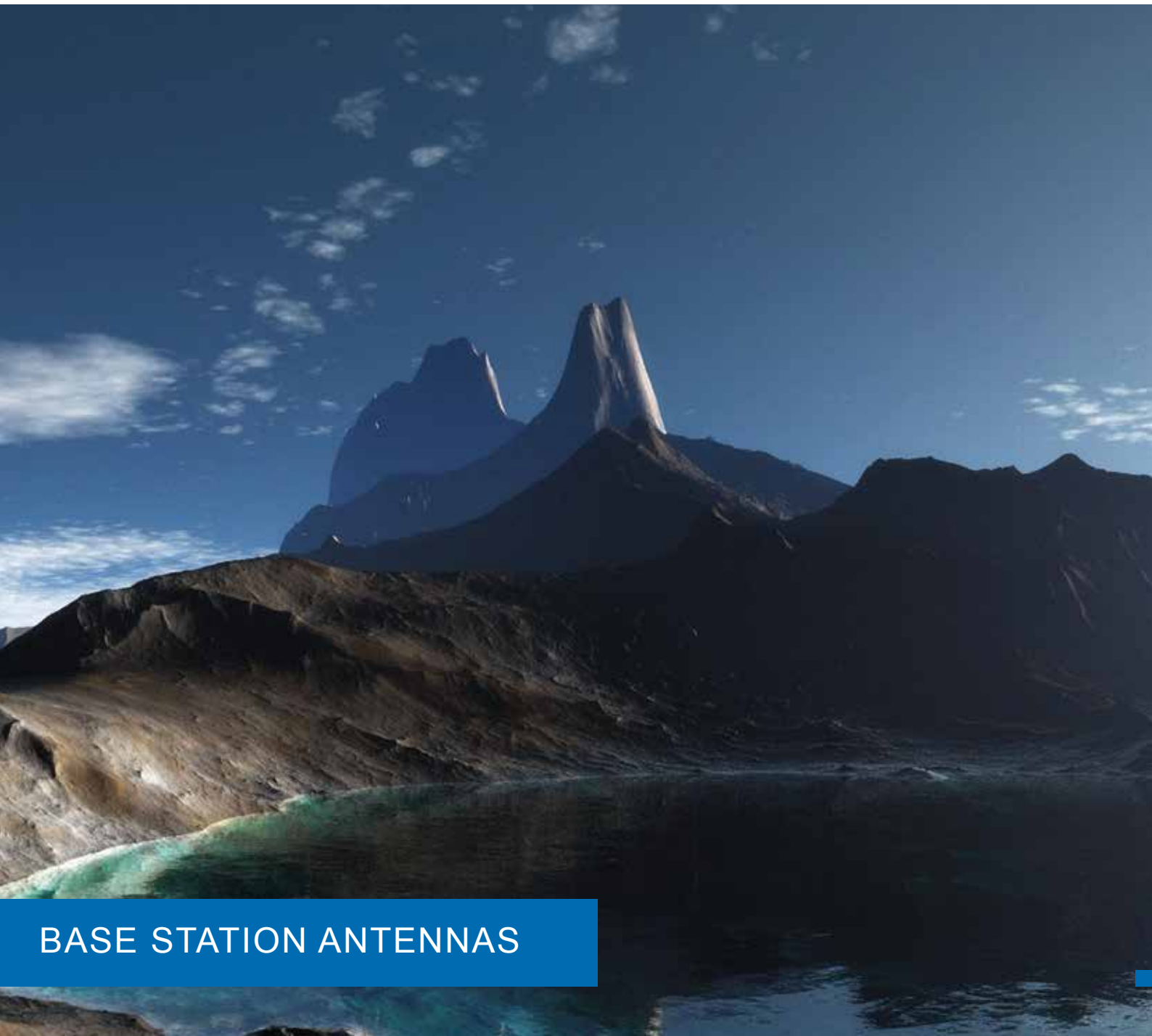


Vertical Pattern

1710-1880&2300-2400MHz



INDOOR ANTENNAS

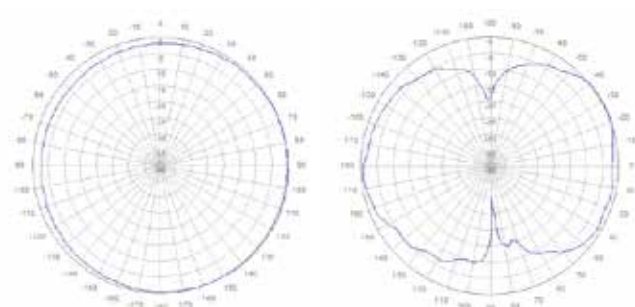


BASE STATION ANTENNAS

VPol Ultra-Wideband Indoor OMNI Antenna

698-960 & 1710-2700 3dBi

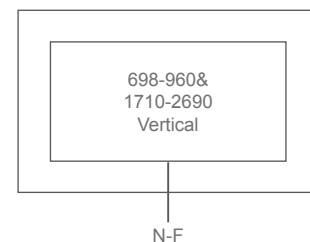
Part Number	S-Wave 8FW-OD-3-B1	
Electrical Specifications		
Frequency Range	698-960MHz	1710-2700MHz
Polarization	V	V
Gain	2dBi	5dBi
Horizontal 3dB Beamwidth	360°	360°
Vertical 3dB Beamwidth	80°	80°
VSWR	≤ 2.0	≤ 1.5
3rd Order PIM		-150dBc@2x33dBm
Power Handling	100W	
Connector Type	N (F)	
Dimension	Φ190 x 90mm	
Weight	0.29kg	
Radome Material	ABS	



Horizontal Pattern

Vertical Pattern

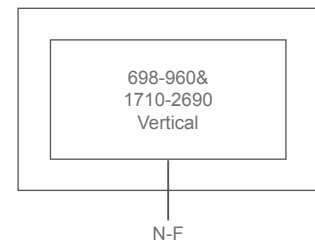
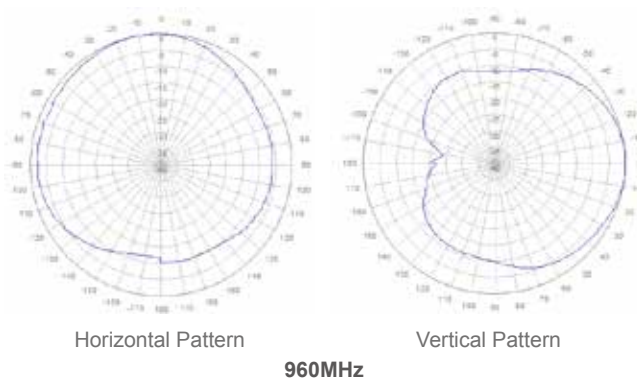
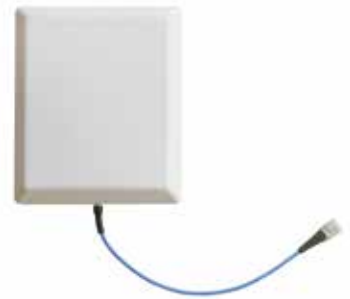
698-960MHz



VPol Ultra-Wideband Indoor Wall Panel Antenna Wall Mounting 698-960 & 1710-2700 8dBi

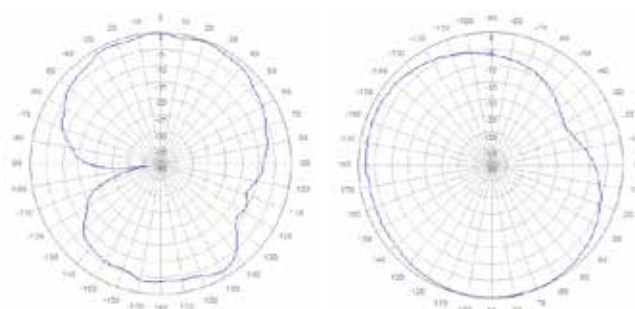
Part Number S-Wave 8FW-90-8-B1

Electrical Specifications					
Frequency Range	698-800MHz	800-960MHz	1710-2200MHz	2200-2500MHz	2500-2700MHz
Polarization	V	V	V	V	V
Gain	5dBi	8dBi	6dBi	6dBi	5dBi
Horizontal 3dB Beamwidth	115°(Typical)	95° (Typical)	75°(Typical)	115°(Typical)	115° (Typical)
VSWR	< 1.8		< 1.6		
3rd Order PIM	-150dBc@2x33dBm				
Power Handling	50W				
Connector Type	N (F)				
Dimension	210 x 180 x 44mm				
Weight	0.675kg				
Radome Material	ABS				



HVPol Ultra-Wideband Indoor MIMO OMNI Antenna 698-960 & 1710-2700 6dBi

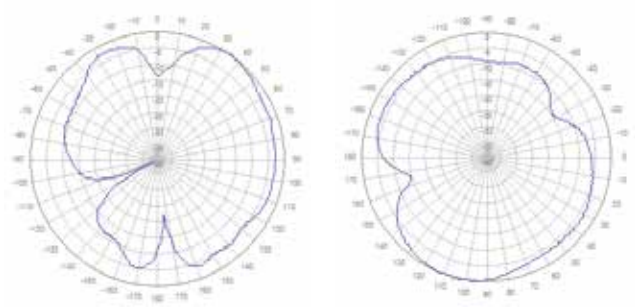
Part Number	S-Wave 8FW/8FW-OD-6-B4	
Electrical Specifications		
Frequency Range	2 x 698-960MHz	2 x 1695-2690MHz
Polarization	Linear H/V	Linear H/V
Gain	5.0+0.5dBi	5.5+0.5dBi
Horizontal 3dB Beamwidth	360°	360°
VSWR	≤ 1.8	≤ 1.5
3rd Order PIM	-150dBc@2x43dBm	
Power Handling	50W	
Connector Type	2 x N (F)	
Dimension	Φ208 x 50mm	
Weight	0.5kg	
Radome Material	ABS	



Horizontal Pattern

Vertical Pattern

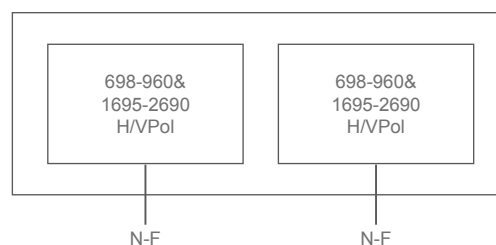
698-960MHz



Horizontal Pattern

Vertical Pattern

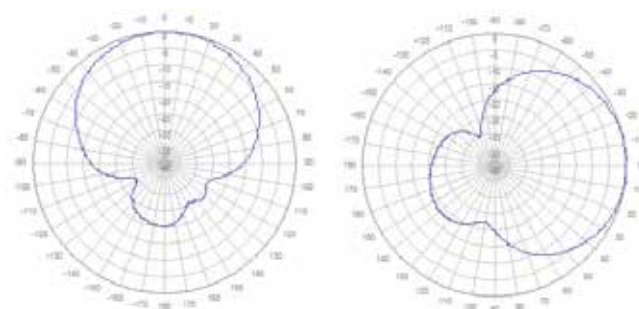
1695-2690MHz



XPol Ultra-Wideband Indoor MIMO Wall Panel Antenna

698-960 & 1695-2690 8dBi

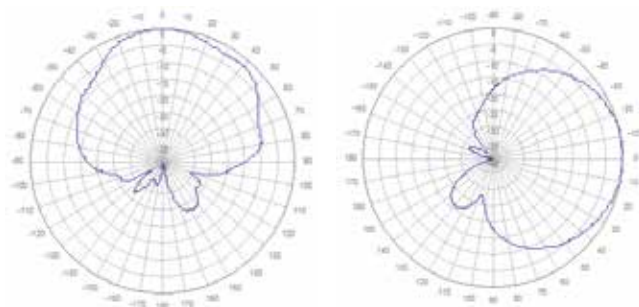
Part Number	S-Wave 8FW/8FW-65-8D-B4					
Electrical Specifications						
Frequency Range	698-864MHz	870-960MHz	1695-1880MHz	1920-2170MHz	2200-2500MHz	2490-2690MHz
Polarization	$\pm 45^\circ$	$\pm 45^\circ$	$\pm 45^\circ$	$\pm 45^\circ$	$\pm 45^\circ$	$\pm 45^\circ$
Gain	6.5dBi	7dBi	7.5dBi	8dBi	8dBi	8.5dBi
Horizontal 3dB Beamwidth	78°-55°		65°-50°			
Vertical 3dB Beamwidth	65°-45°		65°-42°			
VSWR	≤ 2.0		≤ 1.5			
3rd Order PIM	-150dBc@2x43dBm					
Power Handling	100/50W					
Connector Type	2 x N (F)					
Dimension	310 x 280 x 73mm					
Weight	0.8kg					
Radome Material	ABS					



Horizontal Pattern

Vertical Pattern

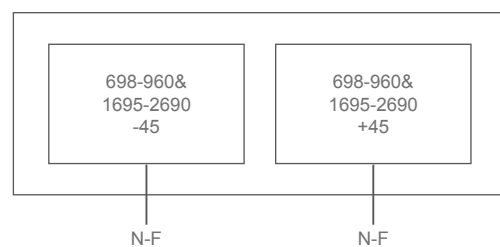
698-960MHz



Horizontal Pattern

Vertical Pattern

1695-2690MHz



N-F

N-F

REMOTE ELECTRICAL TILT (RET)



BASE STATION ANTENNAS

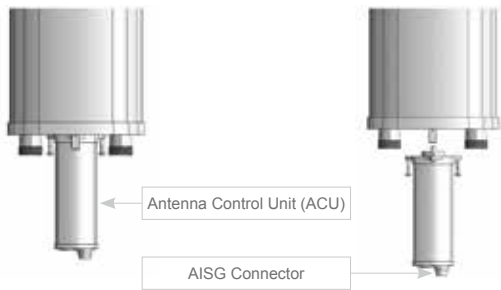
RET Product List

- Variable Electrical Tilt Antenna (VET Antenna)
- Antenna Control Unit (ACU)
- AISG Control Cable Assembly (CCA)
- Protocol Convert Adaptor (PCA)
- Portable Control Unit (PCU)
- Smart Bias-Tee (SBT)

RET System

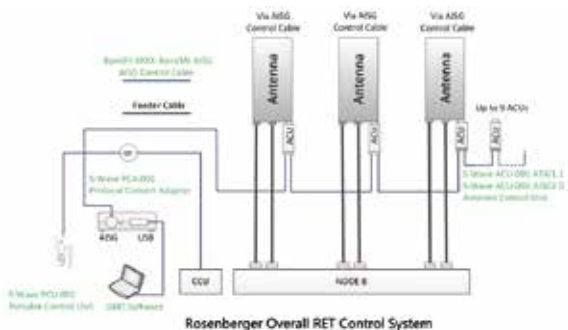
1. Connection of VET Antenna and ACU

The Variable Electrical Tilt (VET) antenna can be adjusted when it is connected to the Antenna Control Unit (ACU). When the VET antenna is not connected to the ACU, its electrical down-tilt angle can be adjusted manually.

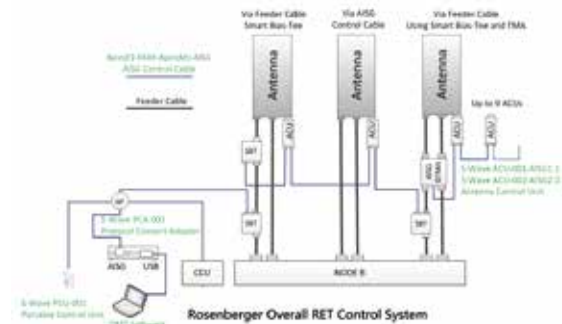


2. RET System

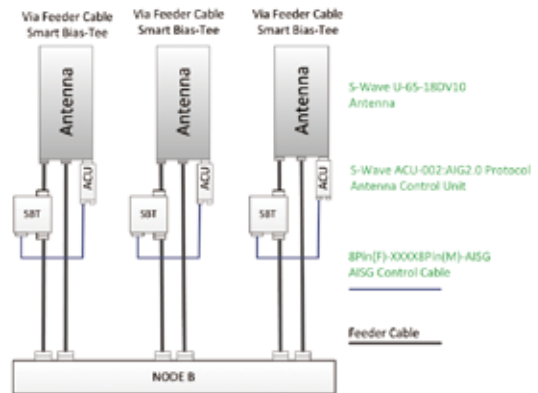
1) Each Central Control Unit (CCU), Portable Control Unit (PCU) or Operation & Maintenance Terminal (OMT) is connected to the ACU using an AISG compliant Control Cable Assembly (CCA). The ACU can then be commanded to adjust the electric tilt of the VET antenna. The CCU sends commands and data to the ACU via the computer's RS232, Ethernet or Wireless MODEM ports.



2) The following method does not need to use a long run AISG compliant CCA. The CCU, PCU or OMT uses a Smart Bias Tee (SBT) to modulate the data onto the RF feeder cable. On the tower, a second SBT is used to demodulate the data from the RF feeder cable, and is connected to the ACU through an AISG cable. The ACU then adjusts the electric tilt of the VET antenna.

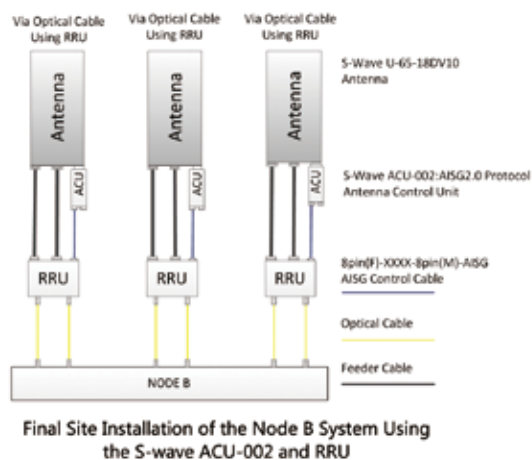


3) The AISG protocol is processed with the Base Station onto the RF feeder cable to tower. On the tower a SBT is used to demodulate the data, and is connected to the ACU through an AISG cable. The ACU then adjusts the electric tilt of the VET antenna.



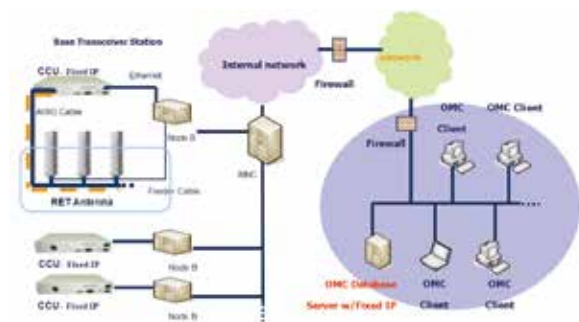
Final Site Installation of the Node B System Using the S-wave ACU-002 and SBT

4) The AISG protocol is processed in a Remote Radio Unit (RRU). The RRU is connected to the ACU through an AISG cable. The ACU then adjusts the electric tilt of the VET antenna.



3. Operation and Maintenance Center (OMC) System

OMC software from Rosenberger enables operators to remotely control and monitor AISG devices distributed throughout their network. Engineers use OMC software to communicate via Ethernet with Center Control Units (CCU's) at each cell site to send and receive commands to RET, RAS, TMA and any other installed AISG devices. The system has a user-friendly alarm interface to manage error messages and network connectivity problems as well as provide a centralized database for site configuration data.



Remote Site Control

- Change the electrical tilt or azimuth bearing of installed RET/RAS antennas.
- Remotely calibrate or re-configure installed devices.

Batch Scheduling

- Quickly reconfigure a large number of sites for seasonal changes or event optimization.
- Schedule site polling to update control database.

Remote Site Monitoring

- Monitor and report device alarms.
- Monitor and report network connectivity issues.

Alarm Management

- User-friendly interface to receive and interpret error messages.
- Ability to assign severity levels to each defined error code.
- Alarm filtering by area, time or severity level.

Site History

- Alarm history
- Site change history

Site Configuration

- Site name, location, GPS coordinates.
- Store and maintain list of installed equipment.
- Store site access procedures/protocols.
- Maintain internal and external contact information.

Site Management

- Add new sites or remove existing sites.
- Maintain and communicate site status.
- Assign logical grouping by Region, Area, City, etc.

User Management

- Add/Delete users to the system.
- Assign and manage access privileges.
- Assign and manage user passwords.

Reporting

- Query database and filter results to quickly review desired data.
- Produce formatted reports to show site information, tilt changes, etc.
- Export data to EXCEL for additional processing.

Antenna Control Unit (ACU)

Main Features

The Antenna Control Unit (ACU) is used with Rosenberger base station antennas with adjustable electrical down-tilt and appropriate mechanical interfaces.

- Compliant to AISG 1.1 and 3GPP/AISG 2.0
- Compact size
- AISG Daisy Chain
- Suitable for operation under outdoor conditions

Type No	S-Wave ACU-002	S-Wave ACU-003
Electrical Specifications		
Protocols	Compliant to AISG 1.1 and 3GPP/AISG 2.0	
Logical Interface	AISG 1.1	3GPP/AISG 2.0
Input Voltage Range	10 ... 30V (pin 1, pin 6)	
Power Consumption	< 2W (stand by); < 15W (motor activated)	
Connectors	2 x 8 pin connector according to IEC 60130-9 AISG Daisy Chain in: male AISG Daisy Chain out: female	
Hardware Interfaces	RS 485A/B (pin 5, pin 3); power supply (pin 1, pin 6); DC return (pin 7); according to AISG	
Adjustment Time (Full Range)	120 sec (typically, depending on antenna type)	
Adjustment Cycles	> 50,000	
Environmental Specifications		
Operating Temperature Range	-40°C to +60°C	
Storage Temperature Range	-40°C to +85°C	
Protection Class	IP65(with antenna)	
Mechanical Specifications		
Input	2 x 8 pin connector according to IEC 60130-9	
Connector Position	Bottom	
Color	RAL 7035, light grey	
Dimension	161 x 72 x 58mm	
Weight	350g	
Housing Material	Profile: Aluminum; Cover: Zinc die cast	



AISG Control Cable Assembly (CCA)

Main Features

- AISG RET control cables, ranging from 1m to 100m
- Feeds data and power to RET system components
- AISG and RoHS compliant

Type No	L99-C130-XXXX
Electrical Specifications	
Protocol	3GPP/AISG 2.0/AISG 1.1
Voltage, Maximum	300V
Environmental Specifications	
Operating Temperature Range	-40°C to +70 °C (-40°F to +158 °F)
Protection Class	IP 67
Mechanical Specifications	
AISG Connector A	8pin DIN Female
AISG Connector B	8pin DIN Male
Braid Coverage	85%
Data Conductor Type	0.32mm ² (24 AWG) twisted pair
Data Conductors, Quantity	2
Power Conductor Type	0.75mm ² (20 AWG) stranded
Power Conductors, Quantity	3
Total Conductors, Quantity	5
Shield Material	Aluminum
Jacket Material	Fire retardant PU
Color	Black
Diameter Over Jacket	8.000mm
Length	1.0m to 100m



Portable Control Unit (PCU)

Main Features

- AISG1.1 and 3GPP/AISG2 capable
- Portable and lightweight
- Rechargeable LI-ION battery
- No external power source required
- Backlight LCD display
- Pushbutton control

Type No	S-Wave PCU-ANT-001
Electrical Specifications	
Power	Rechargeable battery—14.4V Li 2Ah
Power Supply To PCU	DC24V, 2.7A
Output Voltage to Antenna	AISG female Pin 1: 12V \pm 1V AISG female Pin 6: DC 24V \pm 1V, Battery 15V \pm 1V
Maximum Output Current	2A
Output Protection	Over-current and low-voltage protection
Interface to Antenna	AISG1.1/3GPP AISG2.0 RS485 (AISG female pins 3 and 5)@9600 baud Power supply (AISG female pin 6/pin 1)
Tilt Reading Resolution	0.1° steps
AISG Output	8 pin female DIN 60130-9
Power	2-pole socket, 5.7mm/2.0mm
Display	Monochrome graphic LCD
Environmental Specifications	
Operating Temperature Range	0°C to +45°C
Storage Temperature Range	-20°C to +65 °C
Mechanical Specifications (Portable Controller Unit)	
Dimension	211.5 x 92 x 34.5mm
Weight	550g
Housing Material	ABS



Protocol Convert Adaptor (PCA)

Main Features

The PCA is an integral part of the Rosenberger remote antenna control system.

The device links a PC to the AISG antenna system and is used in coordination with Rosenberger's OMT-ALD software to control ALD

- Compliant with AISG 1.1 and 2.0 standards
- Compact size
- AISG Daisy Chain
- Simple connection to any USB port of the PC – driver provided
- Portable for RET antenna setup and optimization
- Pushbutton control

Type No	S-Wave PCA-001
Electrical Specifications	
Protocol	AISG 1.1 AISG 2.0
Input Voltage Range	12V pin 1, 24V pin 6
Output Current at Voltage	2.7 A@24V
Hardware Interfaces	RS 485A/B(pin 5, pin 3); power supply(pin 1, pin 6); DC return(pin 7)
Electrical Safety Standard	IEC 60950 1
Power Supply	DC Jack
Environmental Specifications	
Operating Temperature Range	0°C to +40°C
Relative Humidity	Up to 95%, noncondensing
Mechanical Specifications	
Connector	1×8 pin connector according to IEC 60130-9 conforms to AISG RF-connector SMA
Color	RAL 7035,lightgrey
Dimension	151 x 52.4 x 49mm
weight	290g
Housing material	Profile: Aluminum; Cover: Zinc diecast
Includes	
<ul style="list-style-type: none"> • Protocol Convert Adapter • External power supply (24VDC/65W) • AC power cable • USB cable • CD-ROM (with PCA software, drivers, and manual) • Installation guide • Carrying case 	



Smart Bias-Tee (SBT)

Main Features

- Conversion between OOK and RS485 standard signal
- Low PIM rejection performance
- Low insertion loss and high output power handling capability
- Feeding DC to supply cable
- Built-in lightning protection
- Simple installation

Type No **SBT-6F-D-01** 800-2170MHz Smart Bias Tee

Electrical Specifications	
Frequency	806 to 960MHz and 1710 to 2170MHz
Return Loss/VSWR	< -20dB/< 1.22
Impedance	50Ω
Insertion Loss	< 0.2dB
PIM	< -160dBc(3rd order, with 2*20W)
Power Handling	55dBm(Average RMS)
Power Supply	9-30V
Current Consumption	≤ 50mA
Current Handling	≤ 1.3A
Modem Communication	3GPP TS 25.461
Environmental Specifications	
Operating Temperature Range	-40°C to +60°C
Storage Temperature Range	-40°C to +85°C
Relative Humidity	5% - 95%
Barometric Pressure	55 KPa -106KPa
Storage Temperature Range	Indoor or Outdoor (IP66)
Mechanical Specifications	
Connectors Type	Port1 DIN 7-16 male, Port2 7-16 female, Port DC/ACU 8-pin male
MTBF	> 500,000 hrs
Ingress Protection	IP66
Packing	1



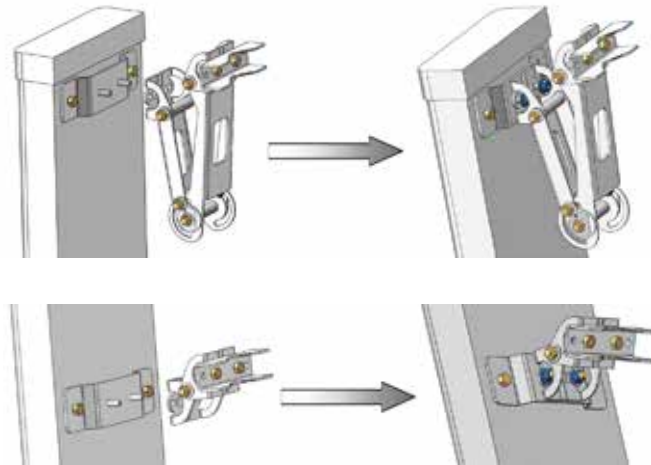
INSTALLATION KITS



BASE STATION ANTENNAS

Installation Instruction

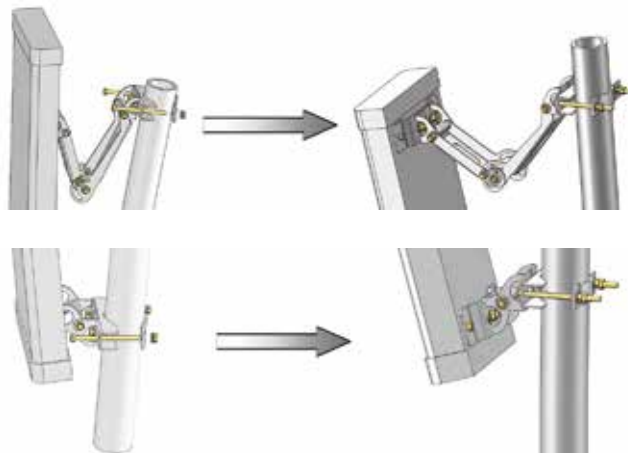
1. Assemble the mounting bracket kit enclosed in the antenna package per the instructions, and verify that each bolt, washer and nut are tightened securely. Attach the mounting bracket to the back of the antenna as the following examples.



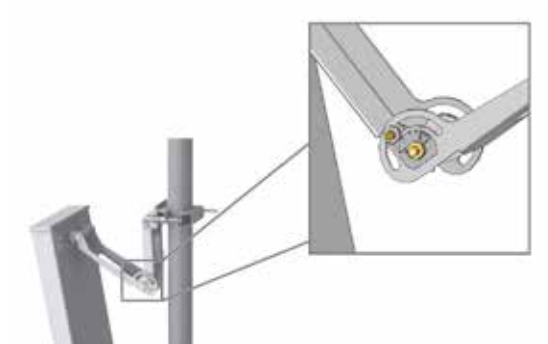
2. Connect the jumpers to 7/16 DIN connectors of the antenna. Completely wrap the connectors with weather proof glue and tape as needed.



3. Hoist the antenna with jumpers to the installation location. Attach the antenna to the mast. Please note that the nuts should not be tightened until step 4 is completed.



4. Adjust the azimuth and mechanical down-tilt angle as required and restrain the jumpers connected to the antenna as appropriate.



For Variable Electrical Tilt antennas without a Remote Control Unit, manually adjust the electrical down tilt angle as required.



5. Tighten each nut to the specific torque

Nut	Proposed Torque
M6	8Nm
M8	20Nm
M10	50Nm
M12	90Nm

Safety Warning

- THE INSTALLATION OF THIS PRODUCT NEAR ANY POWER LINES IS DANGEROUS. Select your installation site carefully, the distance from power lines should be at least twice the height of the antenna and mast combined.
- DO NOT use a metal ladder.
- DO NOT work on a wet or windy day.
- DO dress properly (shoes with rubber soles and heels, rubber gloves, long sleeve shirt or jacket).
- When the system is operational, avoid standing directly in front of the antenna. Strong RF fields are present when the transmitter is on.

Installation Kits

Mounting bracket P/N	S-Wave 67-1	S-Wave 67-2	S-Wave 67-3	S-Wave 67-5	S-Wave 70-1
Weight (kg)	4.6	9.4	1.9	5.2	2.4
Antenna Series	CDMA800 & GSM900 65° Antennas	CDMA800& GSM900M 33° High gain Antennas; Multi-band VET High gain Antennas	CDMA800 & GSM900 & GSM1800 Low gain Antennas	TD Antennas	GSM1800 & UMTS
Suitable Mast Diameter	φ50-φ110mm	φ50-φ110mm	φ50-φ110mm	φ50-φ110mm	φ50-φ110mm
Material	Q235/SS304	Q235/SS304	Q235/SS304	Q235/SS304	Q235/SS304
Fix point	2	3	1	2	2
Installation Tool	Wrench [13, 14, 16]	Wrench [13, 14, 16]	Wrench [13, 14, 16]	Wrench [13, 14, 16]	Wrench [13, 14, 16]

ROSENBERGER SERVICE

Rosenberger offers professional services that improve network design, reliability, scalability and efficiency.

Our service core competences include:

- Network optimization
- Technical consultation
- Customized product design
- Installation & commissioning
- Onsite training & supervision
- System troubleshooting
- After-sales services

In addition, we also offer professional training, technical support and workshops for distributors and agents. We are committed to offering exceptional services for our customers.

Rosenberger is much more than just a supplier – Rosenberger is a valued development partner and we will strive to meet new challenges in order to scale to new heights.



BASE STATION ANTENNAS

Rosenberger Asia Pacific Electronic Co., Ltd.

No.3, Anxiang Street, Block B, Tianzhu Airport Industrial Zone,
Beijing, China 101300

Tel : (+86 10) 80481995

Fax : (+86 10) 80497052

Email: sales@RosenbergerAP.com

Rosenberger Technology (Kunshan) Co., Ltd.

No. 6, Shen'an Road, Dianshanhu, Kunshan,
Jiangsu, China, 215346

Tel : (+86 512) 86896789

Fax : (+86 512) 86890666

Rosenberger Asia Pacific Electronic Co., Ltd. Shanghai Division

B7, No. 509, Renqing Road, East Zone of Zhangjiang High-Tech Park,
Shanghai, China 201201

Tel : (+86 21) 58995997

Fax : (+86 21) 58995594

Rosenberger Asia Pacific Electronic Co., Ltd. Dongguan Division

No.1, 1st Road of Shanglian, Jiaoshe Village, Dongkeng Town,
Dongguan, Guangdong Province, China 523443

Tel : (+86 769) 82802098

Fax : (+86 769) 82802099

Rosenberger All rights reserved. 1st Edition, 2016

Please visit our website: www.RosenbergerAP.com

