



## Antennas for ALT band

Model	Short description	Band, MHz	Gain, dBi
F1 ALT	Vertical, collinear, fiberglass, 1.2 m	300-346	2,15
A5 ALT	Vertical, collinear, fiberglass, 1.6 m	292-305/334-349	4,5
A4 ALT (L)	Vertical, collinear, fiberglass, 4.2 m	297-310	8
A4 ALT (H)	Vertical, collinear, fiberglass, 4.2 m	335-346	9
D1 ALT	Single folded dipole	300-360	2,15-5,15
D2 ALT	Two dipoles and power divider	300-360	5,15-8,15
D4 ALT	Four dipoles and power divider	300-360	8,15-11,15
D8 ALT	Eight dipoles and power dividers	300-360	11,15-14,15
DS2 ALT	System of 2 dipoles	300-350	3,15
DS4 ALT	Two systems of 2 dipoles and power divider	300-350	6,15
DS8 ALT	Four systems of 2 dipoles and power divider	300-350	9,15
Y3 ALT	3-element yagi with folded dipole as feed element	300-350	7,65
Y3 ALT (M)	3-element yagi with folded dipole as feed element	290-350	6
Y5 ALT	5-element yagi with folded dipole as feed element	300-346	10,15
Y5 ALT(M)	5-element yagi with folded dipole as feed element	295-350	8,5
RAV-2AR-90	Lowprofil, sector in horizontal plane 90°, ABS	300-315	10
RAV-2AT-90	Lowprofil, sector in horizontal plane 90°, ABS	336-346	10



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## 300-346 MHz Vertical antenna F1 ALT



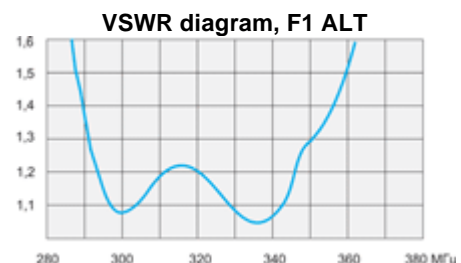
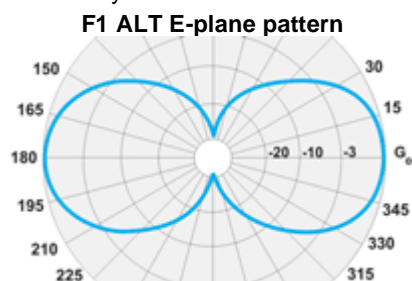
### Electrical specifications

Model	F1 ALT
Operating frequency band, MHz	300-346
VSWR, not more than	1.5
Gain, dBi	2.15
Sector in vertical plane, -3dB	70°
Impedance, Ohm	50
Max. power input, W	200
Lightning protection	yes
Adjustable	no need

### Mechanical specifications

Model	F1 ALT
Weight, no more, kg	2
Height/Length, mm	1200
Mast diametr, mm	50-110
Radome	fiberglass
Rated wind velocity, m/s	40
Wind loading area, m <sup>2</sup>	0.084
Load of side wind 40 m/s, H	100
Temperature range, °C	from -50 to +50
Connector	N-female

The comprehensive development of the range of 300 MHz has demanded the elaboration of antenna for fully-duplex operation. Antenna F1 ALT is a collinear construction with one wide-band irradiator and cutting barrels disposed in coaxial manner what allows creating an ideally circular radiation pattern at relatively high gain and broad bandwidth of the frequencies of operation. The antenna has a rigid fiberglass weather-proof radome and is replenished with reliable steel buckles CP-110. F1 ALT can be used in very hard weather conditions. This antenna is of interest for completing the communication systems of gas-and-oil-producing industry, in telemetric systems and in the river fleet equipment.





## 292-305/334-349 MHz Vertical antenna A5 ALT



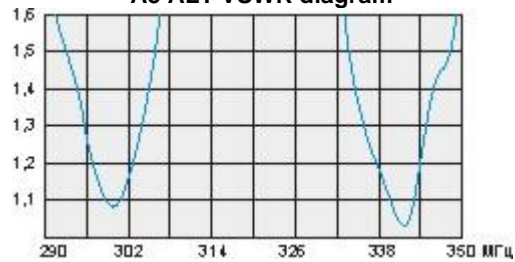
### Electrical specifications

Model	A5 ALT
Operating frequency band, MHz	292-305/334-349
Gain, dBi	4.5
VSWR, not more than	1.5
Polarization	vertical
Max. power input, W	200
H-plane beamwidth	360°
E-plane beamwidth	51°
Impedance, Ohm	50

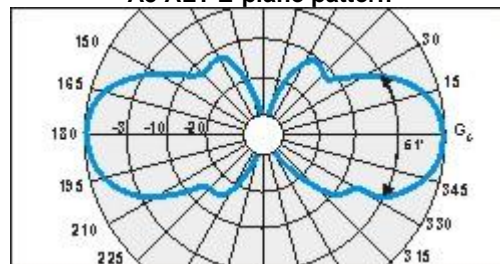
### Mechanical specifications

Model	A5 ALT
Dimensions (LxWxH), mm	1640x35x35
Weight, kg	0.85
Rated wind velocity, m/s	40
Radiator	brass
Radome	white fiberglass
Mounting	On a mast 35-70 mm
Connector	N-female

A5 ALT VSWR diagram

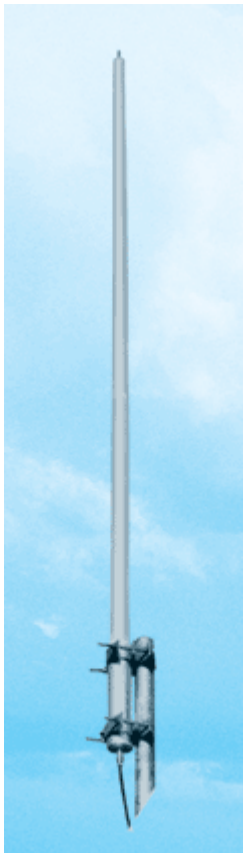


A5 ALT E-plane pattern





## 300-346 MHz Vertical antennas A4 ALT



### Electrical specifications

Model	A4 ALT (L)	A4 ALT (H)
Operating frequency band, MHz	297-310	335-346
VSWR, not more than		1.5
Gain, dBi	8	9
Sector in vertical plane, -3dB	24°	20°
Impedance, Ohm		50
Max. power input, W		200
Lightning protection		yes
Adjustable		no need

### Mechanical specifications

Model	A4 ALT (L)	A4 ALT (H)
Weight, kg		not more 5
Height/Length, mm		4120
Mast diametr, mm		50-110
Radome		fiberglass
Rated wind velocity, m/s		40
Wind loading area, m <sup>2</sup>		0.246
Load of side wind 40 m/s, H		180
Temperature range, °C		from -50 to +50
Connector		N-female, (7/16 DIN-optional)

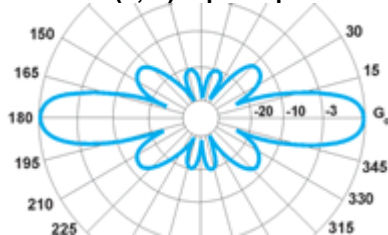
Antenna A4 ALT represents collinear construction with four active components, providing perfect circular pattern at high gain (9 dB) and wide operating frequency band.

Radioparent weather-proof radome is made on the basis of fiberglass material. Radome has polished fiberglass coating, which protects from ultraviolet radiation and icing.

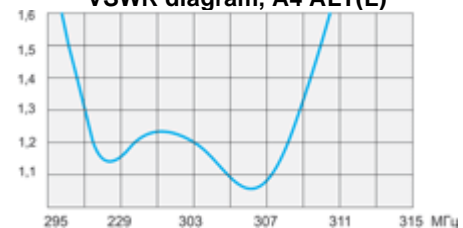
Antenna has DC grounding and has no need in additional tuning.

There were designed two antennas for use as transmitting and receiving antennas in MPT 1327 communication systems: A4 ALT (L), with 305 MHz center and A4 ALT(H) with 340 MHz center.

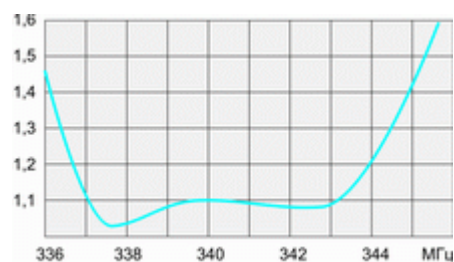
**A4 ALT(L, H) E-plane pattern**



**VSWR diagram, A4 ALT(L)**



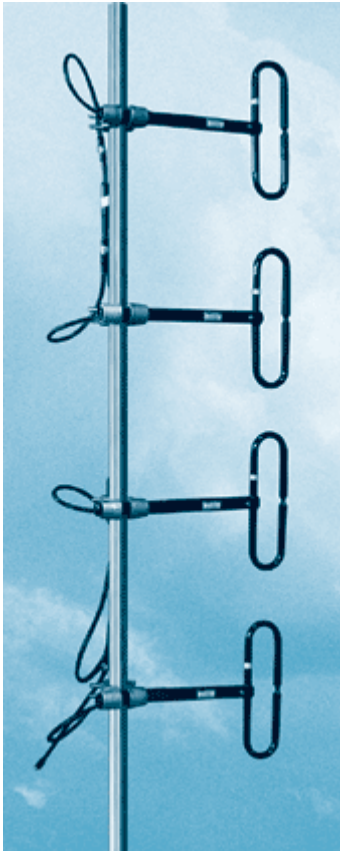
**VSWR diagram, A4 ALT(H)**





## 300-360 MHz Dipole antennas D1 ALT, D2 ALT, D4 ALT, D8 ALT

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### Electrical specifications

Model	D1 ALT	D2 ALT	D4 ALT	D8 ALT
Operating frequency band, MHz	300-360			
VSWR, not more than	1.5			
Gain OMNI, dBi	2.15	5.15	8.15	11.15
OFFSET, dBi	5.15	8.15	11.15	14.15
Sector in vertical plane, -3dB	70°	37°	18°	9°
Impedance, Ohm	50			
Max. power input, W	400			

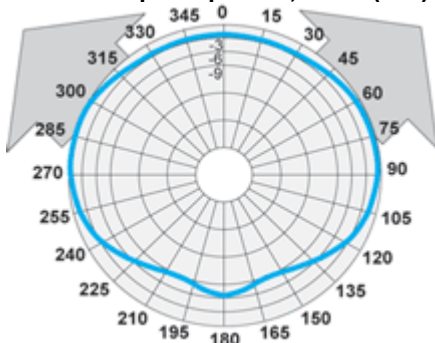
### Mechanical specifications

Model	D1 ALT	D2 ALT	D4 ALT	D8 ALT
Weight, kg	1.7	3.8	8	16.5
Height/Length, M	0.4	1	2.2	4.6
Construction material	Aluminium alloy			
Mast diametr, mm	38-65			
Rated wind velocity, m/s	45			
Wind loading area, m <sup>2</sup>	0.032	0.065	0.13	0.26
Load of side wind 45 m/s, H	37	75	150	300
Rated wind velocity with 0.5" icing, m/s	28			
Temperature range, °C	from -50 to +50			
Connector	N-female			

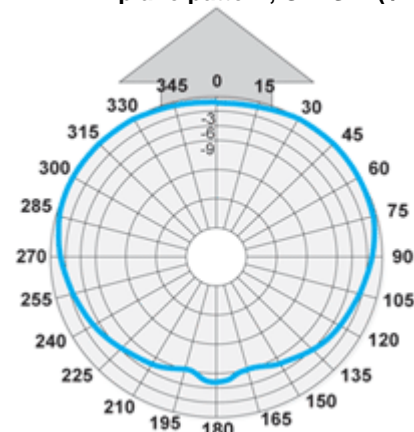
Antenna D1 ALT represents folded Pistolcors dipole. It can be used in Altay and Volemfrom systems, river craft radio communication and for telemetry. Collapsible construction enables easy antenna mounting and dismounting. Emitting unit directional pattern can be slightly corrected by changing distance from it to mast. All-welded dipole design eliminates possibility of intermodulation. Antenna has reliable polymeric coating, which protects from hostile environment and icing. All-metal structure provides reliable lightning protection.

D2 ALT, D4 ALT and D8 ALT antennas are built along parallel addition of two, four and eight collinear arranged active folded dipole powers principle.

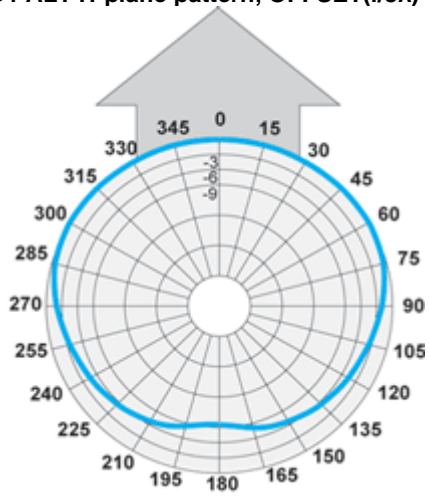
**D1 ALT H-plane pattern, OMNI (I/2λ)**



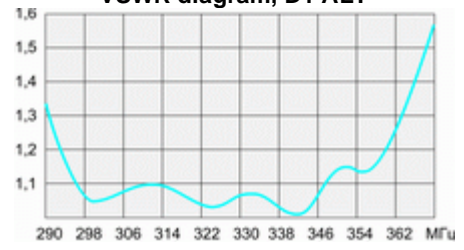
**D1 ALT H-plane pattern, OFFSET(I/4λ)**



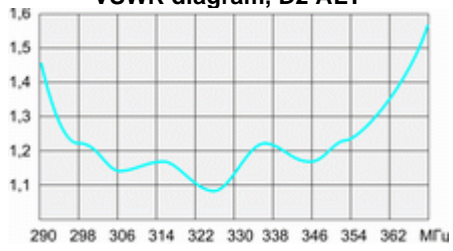
**D1 ALT H-plane pattern, OFFSET(1/8λ)**



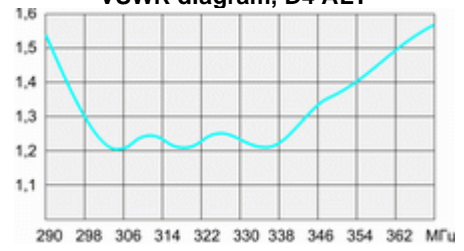
**VSWR diagram, D1 ALT**



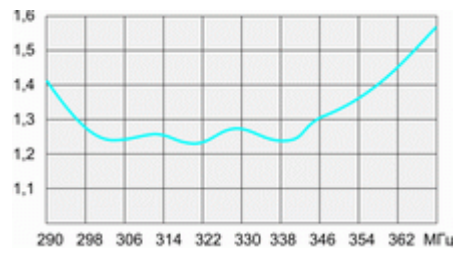
**VSWR diagram, D2 ALT**



**VSWR diagram, D4 ALT**



**VSWR diagram, D8 ALT**





## 300-350 MHz Dipole antennas DS2 ALT, DS4 ALT, DS8 ALT

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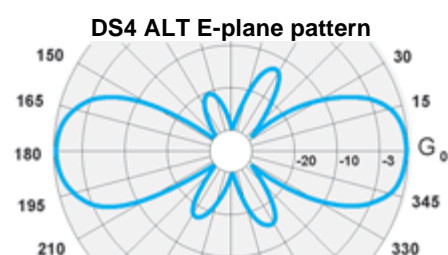
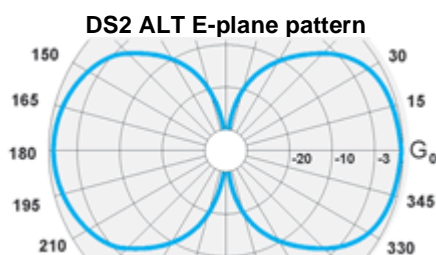
### Electrical specifications

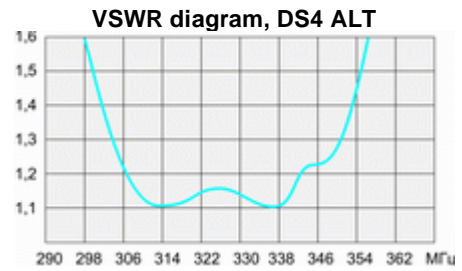
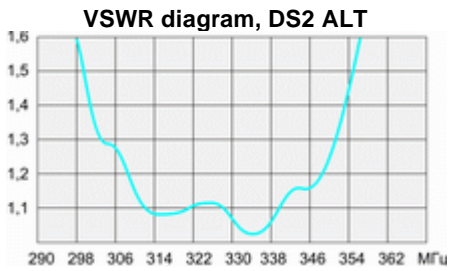
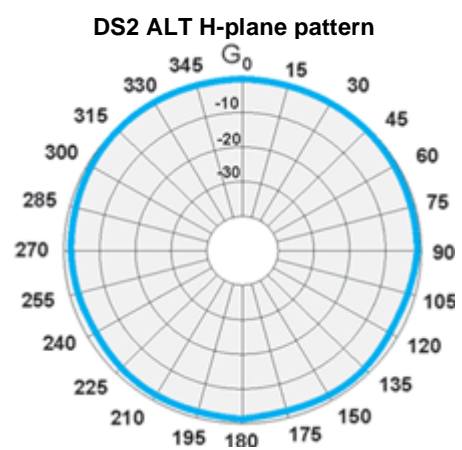
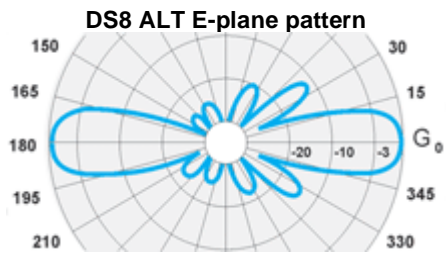
Model	DS2 ALT	DS4 ALT	DS8 ALT
Operating frequency band, MHz		300-350	
VSWR, not more than		1.5	
Gain OFFSET, dBi	3.15	6.15	9.15
Sector in vertical plane, -3dB	86°	43°	18°
Impedance, Ohm		50	
Max. power input, W		400	

### Mechanical specifications

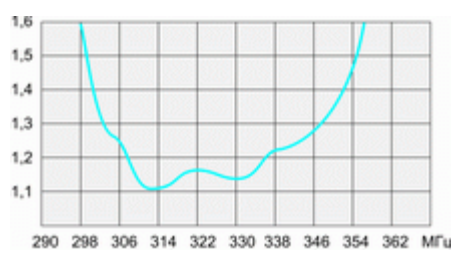
Model	DS2 ALT	DS4 ALT	DS8 ALT
Weight, kg	1.4	3.2	6.72
Height/Length, M	0.4	1	2.2
Construction material		Aluminium alloy	
Mast diameter, mm		25-55	
Rated wind velocity, m/s		45	
Wind loading area, m <sup>2</sup>	0.02	0.04	0.08
Load of side wind 45 m/s, H	23	47	95
Rated wind velocity with 0.5" icing, m/s		28	
Temperature range, °C		from -50 to +50	
Connector		N-female	

Dipole antenna DS2 ALT was designed specifically to operate through duplex filter on one feeder in receiving (300-310 MHz) and one in transmitting (336-346 MHz) frequency section, preserving circular pattern. DS4 ALT and DS8 ALT antennas represent array antenna with increased gain, built using two or four DS2 ALT dipole pairs combined by adders. Such combination of several antennas DS2 ALT on one mast raises gain factor on receiving and transmitting section simultaneously. These antennas are essential for multichannel trunking systems, when TX-TX decoupling is need at the expense of vertical diversion.





VSWR diagram, DS8 ALT



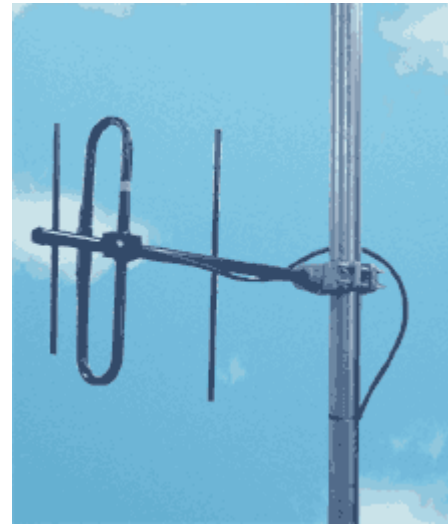


## 300-350 MHz Directional antennas Y3 ALT, Y3 ALT M

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Y3 ALT



Y3 ALT(M)

### Electrical specifications

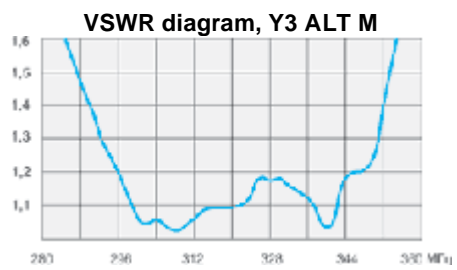
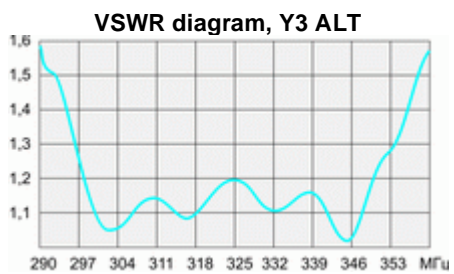
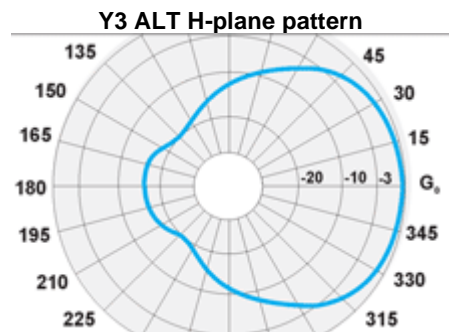
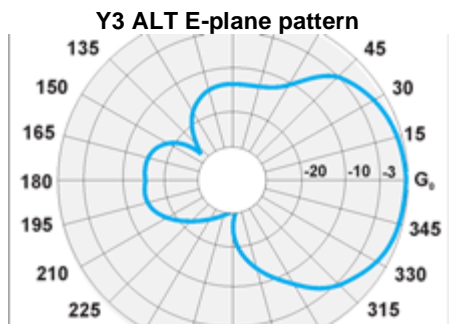
Model	Y3 ALT	Y3 ALT M
Operating frequency band, MHz	300-350	290-350
VSWR, not more than		1.5
Gain, dBi	7.65	6
Sector, -3dB		
in vertical plane	88°	70°
in horizontal plane	106°	140°
Polarization		vertical
Impedance, Ohm		50
Max. power input, W		200

### Mechanical specifications

Model	Y3 ALT	Y3 ALT M
Weight, kg	0.85	1.3
Size, mm	620x520x30	800x500x130
Construction material		Aluminium alloy
Mast diameter, mm	25-55	38-65
Rated wind velocity, m/s		45
Wind loading area, m <sup>2</sup>	0.04	0.039
Load of side wind 45 m/s, H		48
Rated wind velocity with 0.5" icing, m/s		28
Temperature range, °C		-50 to +50
Connector		N-female

Rushing for antenna Y5 ALT has led us to development of new, more technologically advanced and inexpensive three-component Yagi antenna Y3 ALT construction. Among other advantages of this antenna possibility of operation at greatly separated frequencies (36 MHz), high gain, all-welded construction, providing mechanical strength, reliable polymeric coating, protecting from hostile environment and icing can be considered. All these make antenna Y3 ALT very popular for telemetry and radiotelephony systems 300-350 MHz frequency range.

We have developed a new model of three-element wave channel with loop vibrator and symmetrical feeding system - Y3 ALT M. The antenna is implemented in more strong variant if compared with Y3 ALT. The mechanical strength of this new antenna is ensured by the welded construction and cast silumin legs that allow fixing antenna on the mast of diameter 38-65 mm. The demountable vibrator improves the protection against the weather impact. It is recommended to use this antenna in systems of MPT 1327, telemetry and the river fleet communications.





## 300-346 MHz Directional antennas Y5 ALT, Y5 ALT M

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Y5 ALT



Y5 ALT(M)

### Electrical specifications

Model	Y5 ALT	Y5 ALT M
Operating frequency band, MHz	300-346	295-350
VSWR, not more than		1.5
Gain, dBi	10.15	8.5
Sector, -3dB in vertical plane	45°	60°
in horizontal plane	65°	75°
Polarization		vertical
Impedance, Ohm		50
Max. power input, W		200

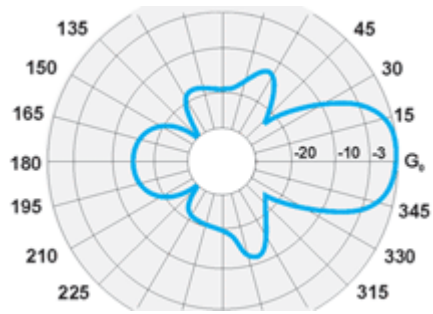
### Mechanical specifications

Model	Y5 ALT	Y5 ALT M
Weight, kg	1.25	1.5
Size, mm	990x480x30	1220x500x130
Construction material		Aluminium alloy
Mast diameter, mm	25-55	38-65
Rated wind velocity, m/s		45
Wind loading area, m <sup>2</sup>	0.06	0.0536
Load of side wind 45 m/s, H		65
Rated wind velocity with 0.5" icing, m/s		28
Temperature range, °C		from -50 to +50
Connector		N-female

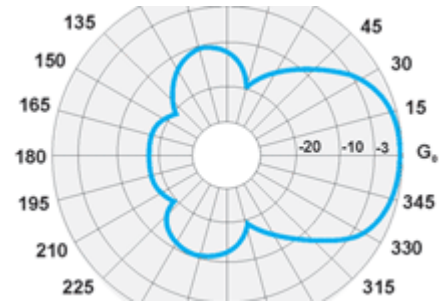
Advantages of antenna Y5 ALT: operation at greatly separated frequencies (36 MHz), high gain, possibility of gain increase due to build up of array antennas, all-welded construction, providing mechanical strength, reliable polymeric coating, protecting from hostile environment and icing, enable to use it as base station antenna in communication systems.

Our new design development is a five-element wave channel with loop vibrator and symmetrical feeding system Y5 ALT M. The antenna is implemented in more strong variant if compared with Y5 ALT. The mechanical strength of this new antenna is ensured by the welded construction and cast silumin legs that allow fixing antenna on the mast of diameter 38-65 mm. The demountable vibrator improves the protection against the weather impact.

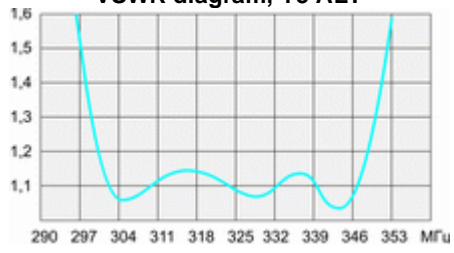
Y5 ALT E-plane pattern



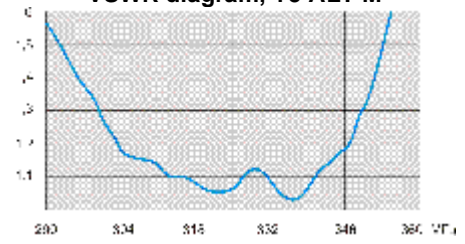
Y5 ALT H-plane pattern



VSWR diagram, Y5 ALT



VSWR diagram, Y5 ALT M





## 300-315/336-346 MHz Panel antennas RAV-2AR-90, RAV-2AT-90

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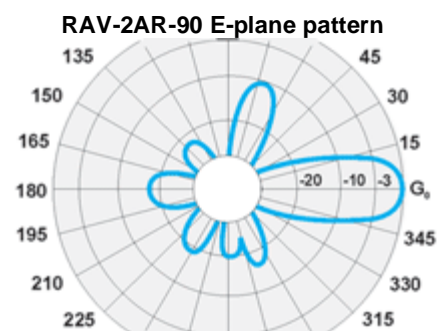
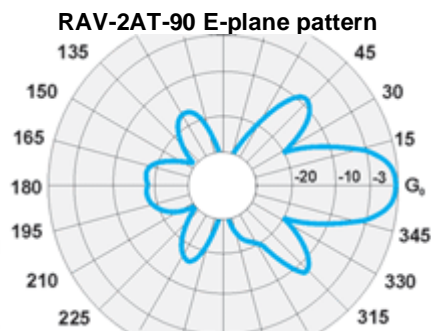
### Electrical specifications

Model	RAV-2AR-90	RAV-2AT-90
Operating frequency band, MHz	300-315	336-346
VSWR, not more than		1.5
Gain, dBi		10
Sector in vertical plane, -3dB, +/- 1°	28°	24°
Sector in horizontal plane, -3dB, +/- 5°		90°
Impedance, Ohm		50
Max. power input, W		400
Lightning protection		yes

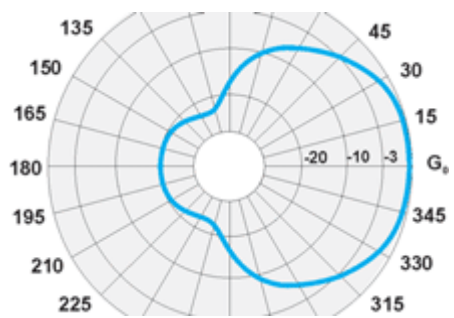
### Mechanical specifications

Model	RAV-2AR-90	RAV-2AT-90
Weight not more than, kg	9.5	8
Radiating unit construction material		aluminum
Radome material		Fiberglass
Radome color		white
Standard mounting		to a 45-60 mm dia. tube
Optional mounting		wall mount or frame side mount
Rated wind velocity, m/s		40
Wind loading area, m <sup>2</sup>		0.76
Temperature range, °C		from -50 to +50
Connector		7/16 DIN (N-female optional)
Size, mm		1900x400x80

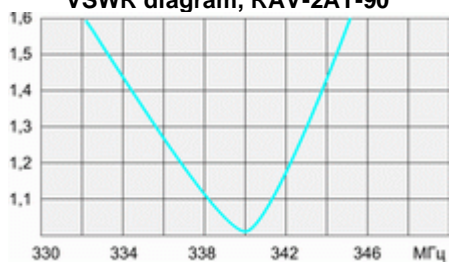
Considered antenna provides guaranteed 90-degrees half-power radiation sector and possesses high gain due to concentration of energy in horizontal and vertical plane. Patches, implemented in this array antenna, allowed us to create low-profile panel antenna with high gain factor, and forward/backward ratio. Antenna is protected by fiberglass radome with ultraviolet radiation resistant polyurethane coating. Recommended for applications like MPT1327 trunking systems and data transmission systems of corresponding frequency range.



RAV-2AT(AR)-90 H-plane pattern



VSWR diagram, RAV-2AT-90



VSWR diagram, RAV-2AR-90

