



## Dipole antennas

107497, Moscow Chernicinsky pr-d 7/1  
 Tel.: (495) 775-43-19, 462-44-14  
 Tel./fax: 462-44-14  
 E-mail: radial@radial.ru  
 www.radial.ru

Model	Short description	Band, MHz	Gain, dBi	Price, EUR
DP1 LB(L)	Single folded dipole, adjusted	33-40	5.15	198
DP1 LB(H)	Single folded dipole, adjusted	40-50	5.15	198
DP2 LB(L)	Two dipoles and power divider, adjusted	33-40	8.15	405
DP2 LB(H)	Two dipoles and power divider, adjusted	40-50	8.15	405
D4 FM(L)	Four dipoles and power divider, max. 500 W	88-100	8.15-11.15	900
D4 FM(H)	Four dipoles and power divider, max. 500 W	100-108	8.15-11.15	900
D4 FM(L)-2	Four dipoles and power divider, max. 2000 W	88-100	8.15-11.15	1515
D4 FM(H)-2	Four dipoles and power divider, max. 2000 W	100-108	8.15-11.15	1515
D6 FM(L)-2	Six dipoles and power divider, max. 2000 W	88-100	9,65-12.65	
D6 FM(H)-2	Six dipoles and power divider, max. 2000 W	100-108	9,65-12.65	
RAD-4FM	Sector antenna 120 <sup>0</sup> , 4-element, 500W	88-108	12.95	1920
RAD-4FM-2	Sector antenna 120 <sup>0</sup> , 4-element, 2000W	88-108	12.95	1920
DS8-FM (L)	Four systems of 2 dipoles and power divider, 500W	90-101	9.15	1428
DS8-FM(H)	Four systems of 2 dipoles and power divider, 500W	100-110	9.15	1428
DS8-FM(L)-2	Four systems of 2 dipoles and power divider, 2000W	90-101	9.15	2044
DS8-FM(H)-2	Four systems of 2 dipoles and power divider, 2000W	100-110	9.15	2044
D1 AVIA	Single folded dipole	118-136	2.15-5.15	169
D2 AVIA	Two dipoles and power divider	118-136	5.15-8.15	
D4 AVIA	Four dipoles and power divider	118-136	8.15-11.15	
D8 AVIA	Eight dipoles and power dividers	118-136	11.15-14.15	
D1 VHF	Single folded dipole	136-174	2.15-5.15	113
D2 VHF	Two dipoles and power divider	136-174	5.15-8.15	226
D4 VHF	Four dipoles and power divider	136-174	8.15-11.15	452
D8 VHF	Eight dipoles and power dividers	136-174	11.15-14.15	932
D2 VHF I	Two dipoles inegrated with power divider	136-174	5.15-8.15	210
D4 VHF I	Four dipoles inegrated with power divider	136-174	8.15-11.15	417
DS2 VHF(M)	System of 2 dipoles	140-163	3.15	184
DS2 VHF(H)	System of 2 dipoles	153-177	3.15	184
DS4 VHF(M)	Two systems of 2 dipoles and power divider	143-163	6.15	414
DS4 VHF(H)	Two systems of 2 dipoles and power divider	155-177	6.15	414
DS8 VHF(M)	Four systems of 2 dipoles and power divider	143-163	9.15	838
DS8 VHF(H)	Four systems of 2 dipoles and power divider	155-177	9.15	838
DP1 VHF	Single folded dipole	149-174	5.15	75
DP2 VHF	Two dipoles and power divider	150-174	8.15	198
DP4 VHF	Four dipoles and power divider	150-174	11.15	414
DH1 VHF	One half-wave continuous dipole with gamma-transformer, adjusted	136-174	5.15	33
DH2 VHF	Two half-wave continuous dipole with gamma-transformer, adjusted	136-174	8.15	113
DH4 VHF	Four half-wave continuous dipole with gamma-transformer, adjusted	136-174	11.15	226
D1 ALT	Single folded dipole	300-360	2.15-5.15	108
D2 ALT	Two dipoles and power divider	300-360	5.15-8.15	216
D4 ALT	Four dipoles and power divider	300-360	8.15-11.15	433
D8 ALT	Eight dipoles and power dividers	300-360	11.15-14.15	904
DS2 ALT	System of 2 dipoles	300-350	3.15	184
DS4 ALT	Two systems of 2 dipoles and power divider	300-350	6.15	414
DS8 ALT	Four dipoles and power divider	300-350	9.15	838
D1 UHF	Single folded dipole	400-490	2.15-5.15	108
D2 UHF	Two dipoles and power divider	400-490	5.15-8.15	216
D4 UHF	Four dipoles and power divider	400-490	8.15-11.15	433
D8 UHF	Eight dipoles and power dividers	400-490	11.15-14.15	904
D2 UHF I	Two dipoles integrated with power divider	400-490	5.15-8.15	208
D4 UHF I	Four dipoles integrated with power divider	400-490	8.15-11.15	424

DP1 UHF	Single folded dipole	400-490	5.15	66
DP2 UHF	Two dipoles and power divider	400-490	8.15	179
DP4 UHF	Four dipoles and power divider	400-490	11.15	376
DM4 UHF(L)	Four dipoles on mast	400-460	11.15	348
DM4 UHF(H)	Four dipoles on mast	440-490	11.15	348
T2-FD	HF antenna	4-30	-3...+3	210
W3DZZ+3	HF antenna	80-40-20m	-	144
Windom	HF antenna	80-40-20-17-12-10 m	-	108



## 30-50 MHz Dipole antennas DP1 LB, DP2 LB

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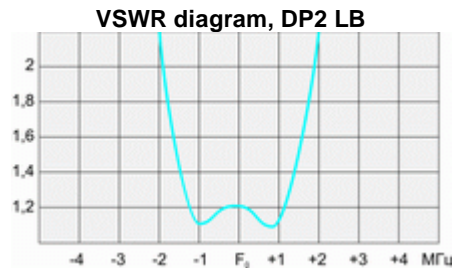
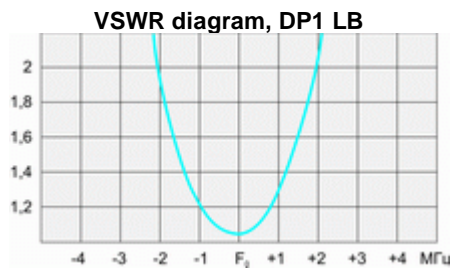
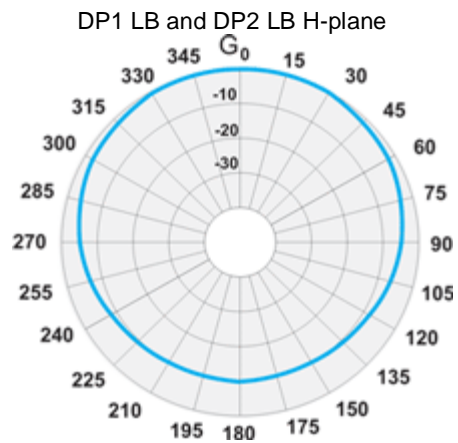
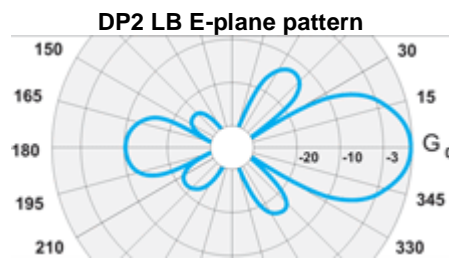
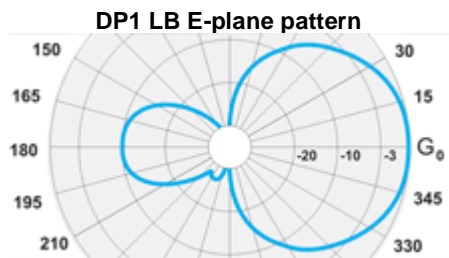
### Electrical specifications

Model	DP1 LB(L)	DP1 LB(H)	DP2 LB(L)	DP2 LB(H)
Operating frequency band, MHz	33-40	40-50	33-40	40-50
Frequency bandwidth, MHz			4	
VSWR, not more than			1.5	
Gain, dBi	5.15	5.15	8.15	8.15
Sector in vertical plane, -3dB	70°	70°	35°	35°
Impedance, Ohm			50	
Max. power input, W	500	500	800	800
Adjustable			needed	

### Mechanical specifications

Model	DP1 LB(L)	DP1 LB(H)	DP2 LB(L)	DP2 LB(H)
Weight, kg	6	6	13	13
Height/Length, M	2.7-4.5	2.7-4.5	8.2-10.8	8.2-10.8
Construction material			Aluminium alloy	
Mast diameter, mm			38-65	
Rated wind velocity, m/s			42	
Wind loading area, m <sup>2</sup>	0,16	0.16	0.33	0.33
Load of side wind 45 m/s, H	187	187	374	374
Rated wind velocity with 0.5" icing, m/s			28	
Temperature range, °C			from -50 to +50	
Connector			N-female	

Antenna DP1 LB is highly effective as a component for trunking and common repeaters with significant (up to 4 MHz) TX/RX separation. It is very handy for adjustment and installation due to its design. In spite of its dimensions antenna has high mechanical strength, provided by additional mounting brackets. You can refuse removing transmitter for a long distance from mast as an advantage of antenna power supply system. Antenna DP2 LB is two-level collinear antenna with high gain factor. Only girder masts suit for its installation. Dipoles, mounted on opposites sides of the antenna, provide possibility to produce practically circular directional pattern (with some loss of the gain). Antenna has wide operating bandwidth, as single-dipole antenna does. Equipped with TK-52LB adders.





**88-108 MHz**  
**Dipole antennas D4 FM(L), D4**  
**FM(H),**  
**D4 FM(L)-2, D4 FM(H)-2**

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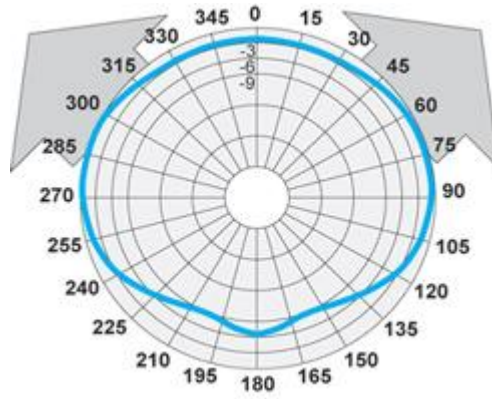
Electrical specifications

Model	D4 FM(L)	D4 FM(H)	D4 FM(L)-2	D4 FM(H)-2
Operating frequency band, MHz	88-100	100-108	88-100	100-108
VSWR, not more than	1.5	1.5	1.5	1.5
Gain OMNI, dBi	8.15	8.15	8.15	8.15
OFFSET, dBi	11.15	11.15	11.15	11.15
Sector in vertical plane , -3dB	18°	18°	18°	18°
Impedance, Ohm	50	50	50	50
Max. power input, W	500	500	2000	2000

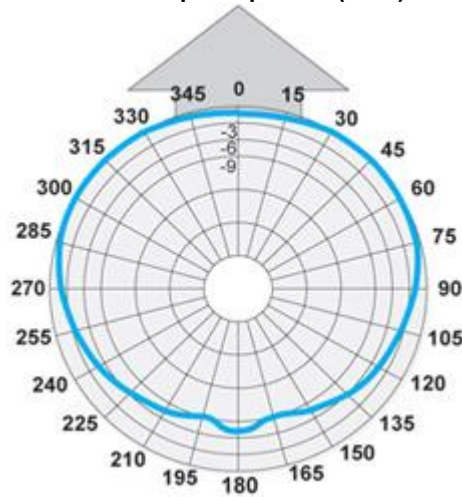
Mechanical specifications

Model	D4 FM(L)	D4 FM(H)	D4 FM(L)-2	D4 FM(H)-2
Weight, kg	18.5	18	20.5	20
Height/Length, M	8.25	8.25	8.25	8.25
Construction material	Aluminium alloy			
Mast diametr, mm	38-65			
Rated wind velocity, m/s	42	42	42	42
Wind loading area, m <sup>2</sup>	0.41	0.4	0.41	0.4
Load of side wind 45 m/s, H	465	465	465	465
Rated wind velocity with 0.5" icing, m/s	28	28	28	28
Temperature range, °C	from -50 to +50			
Connector	N-female	N-female	7/16 DIN	7/16 DIN

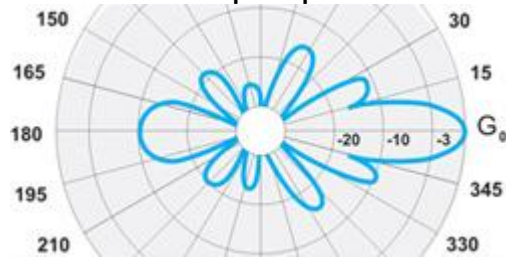
D4 FM H-plane pattern (1/2 λ)



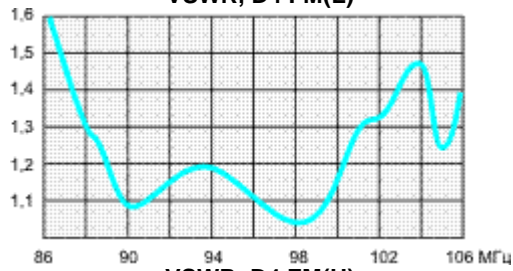
D4 FM H-plane pattern (1/4 λ)



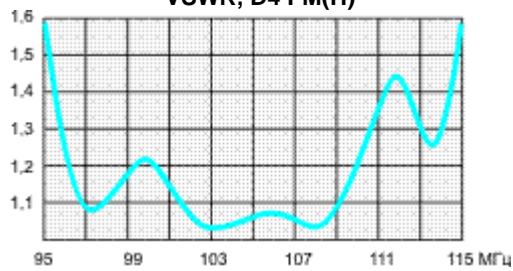
D4 FM E-plane pattern.



VSWR, D4 FM(L)



VSWR, D4 FM(H)





## 88-108 MHz Dipole antennas D6 FM(L)-2, D6 FM(H)-2

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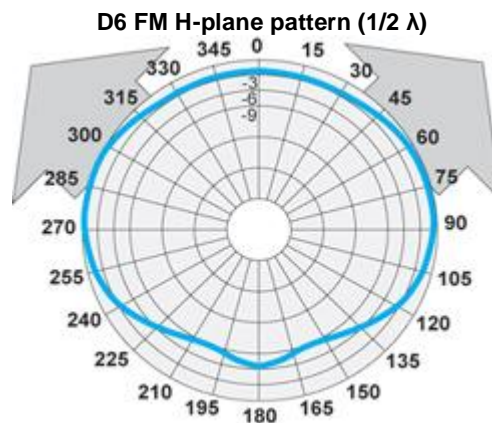


### Electrical specifications

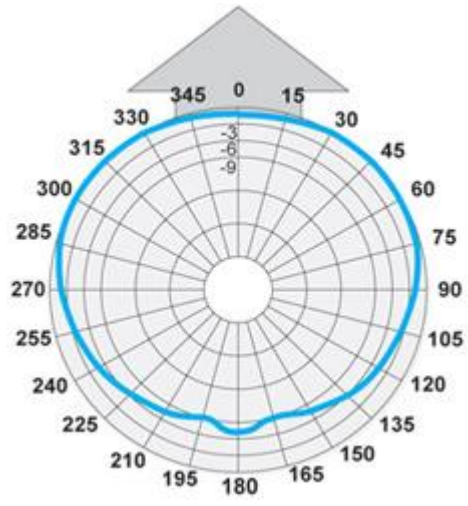
Model	D6 FM(L)-2	D6 FM(H)-2
Operating frequency band, MHz	88-100	100-108
VSWR, not more than	1.5	1.5
Gain OMNI, dBi	9.65	9.65
OFFSET, dBi	12.65	12.65
Sector in vertical plane, -3dB	14°	14°
Impedance, Ohm	50	50
Max. power input, W	2000	2000

### Mechanical specifications

Model	D6 FM(L)-2	D6 FM(H)-2
Weight, kg	31	30
Height/Length, M	12.5	12.5
Construction material		Aluminium alloy
Mast diametr, mm		38-65
Rated wind velocity, m/s		45
Wind loading area, m <sup>2</sup>	0.62	0,6
Load of side wind 45 m/s, H	675	675
Rated wind velocity with 0.5" icing, m/s		28
Temperature range, °C		from -50 to +50
Connector	7/16 DIN	7/16 DIN



**D6 FM H-plane pattern (1/4 λ)**



2009



## 88-108 MHz Sector antennas RAD-4FM, RAD-4FM-2

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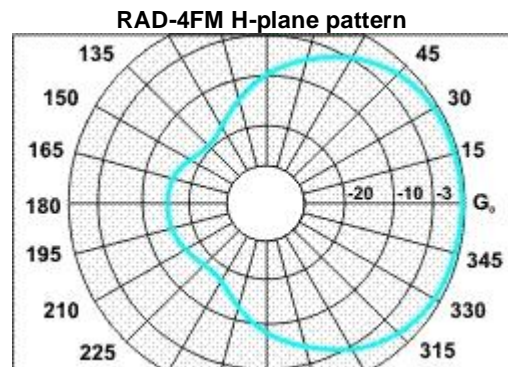
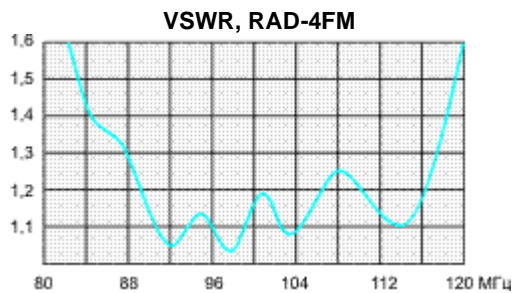


### Electrical specifications

Model	RAD-4FM	RAD-4FM-2
Operating Frequency band, MHz	88-108	88-108
VSWR, not more than	1.5	1.5
Gain, dBi	12.95	12.95
Sector in H-plane, -3dB	120 <sup>0</sup>	120 <sup>0</sup>
Sector in E-plane, -3dB	18°	18°
Impedance, Ohm	50	50
Max. Power input, W	500	2000

### Mechanical specifications

Model	RAD-4FM	RAD-4FM-2
Weight, kg	1,7	3,8
Height/Length, M	0,4	1
Construction material		Aluminium alloy
Mast diametr, mm		38-65
Rated wind velocity, m/s	45	45
Rated wind velocity with 0.5" icing, m/s	28	28
Temperature range, °C		from -50 to +50
Connector	N-female	7/16 DIN





# 90-110 MHz Dipole antennas DS8-FM(L), DS8-FM(H) DS8-FM(L)-2, DS8-FM(H)-2

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### Electrical specifications

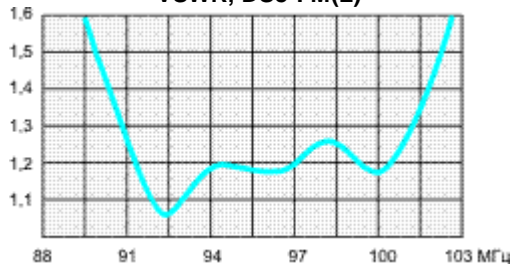
Model	DS8-FM(L)	DS8-FM(H)	DS8-FM(L)-2	DS8-FM(H)-2
Operating frequency band, MHz	90-101	100-110	90-101	100-110
VSWR, not more than	1.5	1.5	1.5	1,5
Gain, dBi	9.15	9.15	9.15	9.15
Sector in H-plane , -3dB	360°	360°	360°	360°
Sector in E-plane , -3dB	20°	20°	20°	20°
Impedance, Ohm	50	50	50	50
Max. power input, W	500	500	2000	2000

### Mechanical specifications

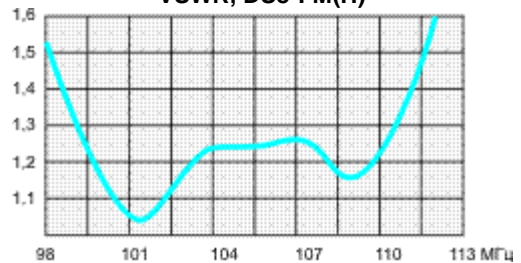
Model	DS8-FM(L)	DS8-FM(H)	DS8-FM(L)-2	DS8-FM(H)-2
Weight, kg	20	19.5	22.5	22
Height/Length, M	8.4	8.4	8.4	8.4
Construction material	Aluminium alloy			
Mast diametr, mm	50-60	50-60	50-60	50-60
Rated wind velocity, m/s	55	55	55	55
Wind loading area, m <sup>2</sup>	0.3	0.3	0.3	0.3
Load of side wind 45 m/s, H	250	250	250	250
Rated wind velocity with 0.5" icing, m/s	28	28	28	28
Temperature range, °C	from -50 to +50			
Connector	N-female	N-female	7/16 DIN	7/16 DIN



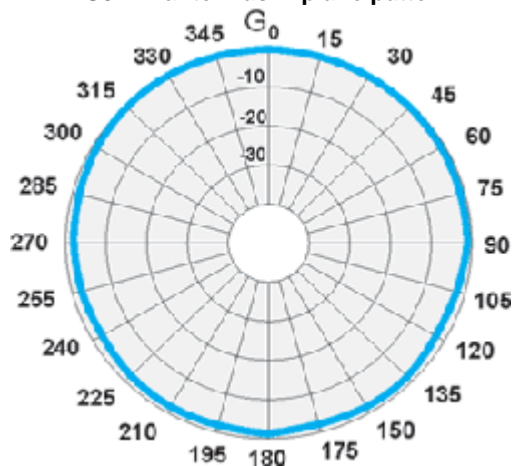
VSWR, DS8-FM(L)



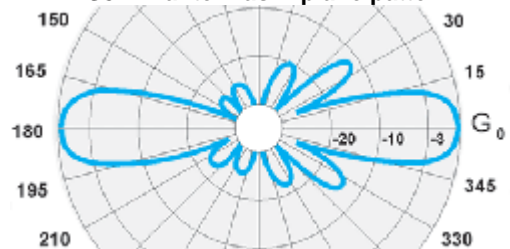
VSWR, DS8-FM(H)



DS8-FM antennas H-plane pattern



DS8-FM antennas E-plane pattern





# 118-136 MHz Dipole antennas D1 AVIA, D2 AVIA, D4 AVIA, D8 AVIA

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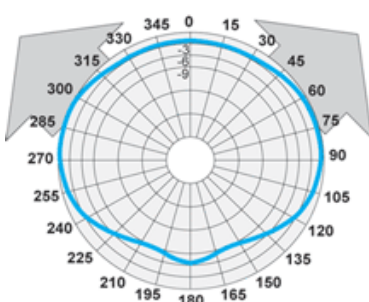
Electrical specifications

Model	D1 AVIA	D2 AVIA	D4 AVIA	D8 AVIA
Operating frequency band, MHz			118-136	
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	100	200	400	400

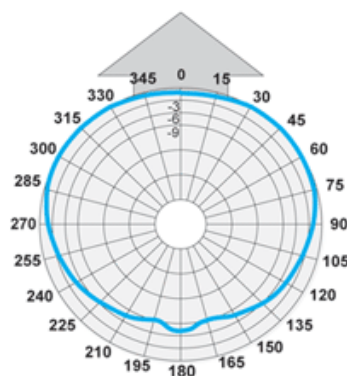
Mechanical specifications

Model	D1 VHF	D2 VHF	D4 VHF	D8 VHF
Weight, kg	3.8	8.2	16.6	33.2
Height/Length, M	1.1	2.5	5.3	14.5
Construction material			Aluminium alloy	
Mast diameter, mm			38-65	
Rated wind velocity, m/s			45	
Wind loading area, m <sup>2</sup>	0.16	0.28	0.55	1.23
Load of side wind 45 m/s, H	98	199	400	803
Rated wind velocity with 0.5" icing, m/s			28	
Temperature range, °C			from -50 to +50	
Connector			N-female	

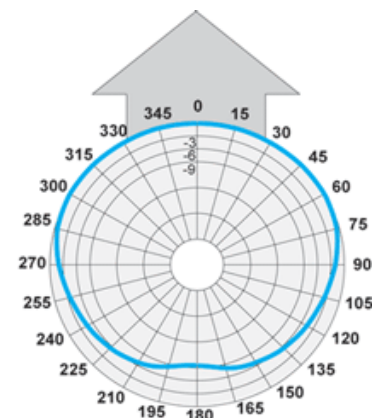
D1 AVIA in H-plane, OMNI (1/2λ)



D1 AVIA in H-plane, OFFSET (1/4λ)



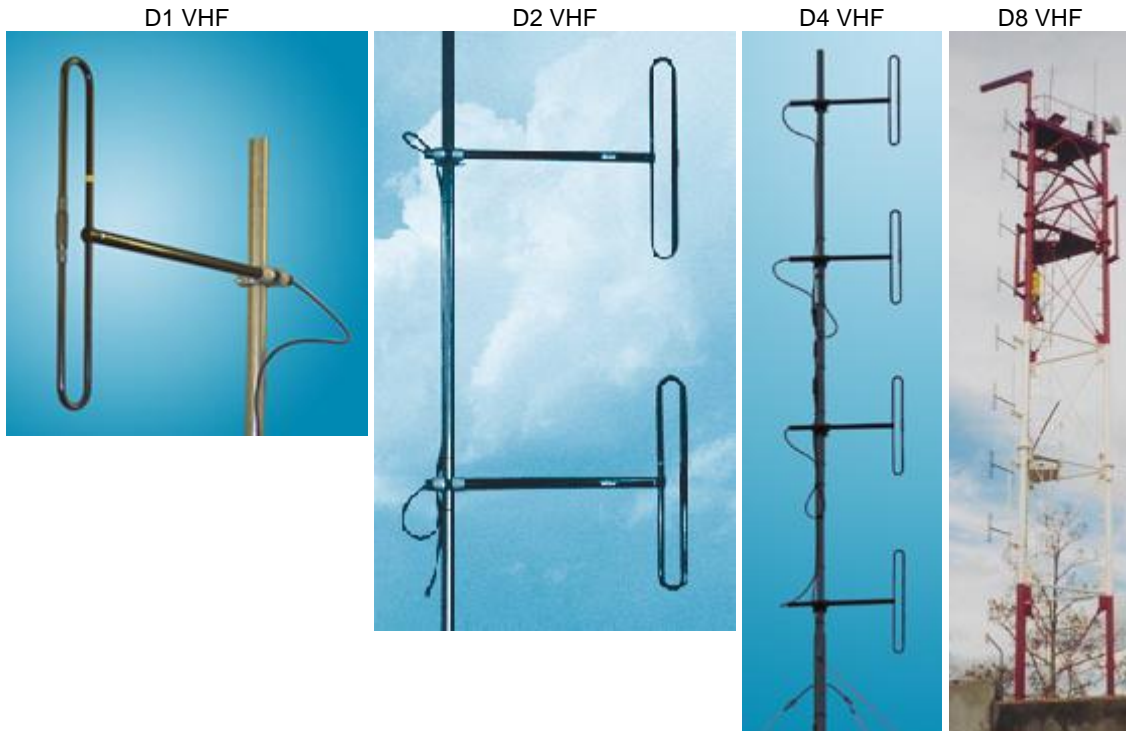
D1 AVIA in H-plane, OFFSET (1/8λ)





## 136-174 MHz Dipole antennas D1 VHF, D2 VHF, D4 VHF, D8 VHF

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### Electrical specifications

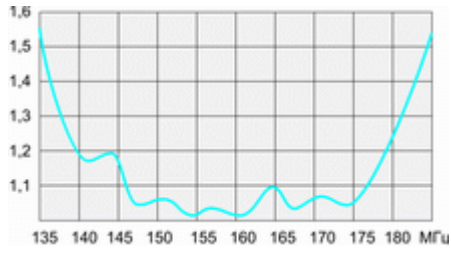
Model	D1 VHF	D2 VHF	D4 VHF	D8 VHF
Operating frequency band, MHz			136-174	
VSWR, not more than			1.5	
Gain OMNI, dBi	2.15	5.15	8.15	11.15
OFFSET, dBi	5.15	8.15	11.15	14.15
Sector in vertical plane, -3dB	70°	37°	18°	9°
Impedance, Ohm			50	
Max. power input, W	400	400	400	400 (800 optional)

### Mechanical specifications

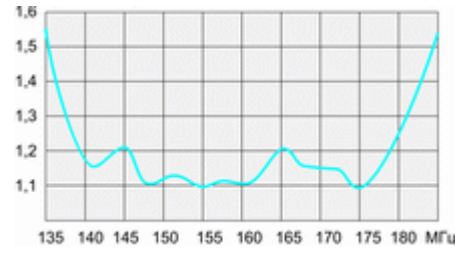
Model	D1 VHF	D2 VHF	D4 VHF	D8 VHF
Weight, kg	2.3	5.2	10.4	21.5
Height/Length, M	0.85	2.1	5	9.5
Construction material			Aluminium alloy	
Mast diameter, mm			38-65	
Rated wind velocity, m/s			45	
Wind loading area, m <sup>2</sup>	0.07	0.14	0.29	0.6
Load of side wind 45 m/s, H	80	165	335	675
Rated wind velocity with 0.5" icing, m/s			28	
Temperature range, °C			from -50 to +50	
Connector			N-female	

Antenna D1 VHF represents folded Pistolcors dipole. Its main advantages are wide band and relatively low susceptibility to technical born interference. Collapsible construction allows easy antenna mounting and dismounting, and welded dipole eliminates intermodulation. Emitting unit directional pattern can be slightly corrected by changing distance from it to mast. Antenna has reliable polymeric coating, which protects from hostile environment and icing. All-metal construction provides reliable lightning protection.

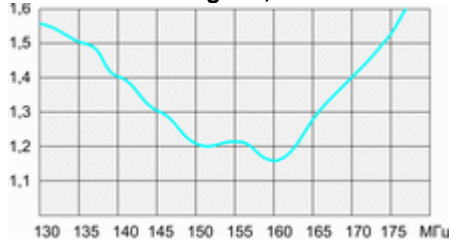
VSWR diagram, D1 VHF



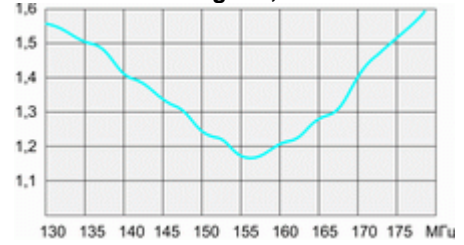
VSWR diagram, D2 VHF



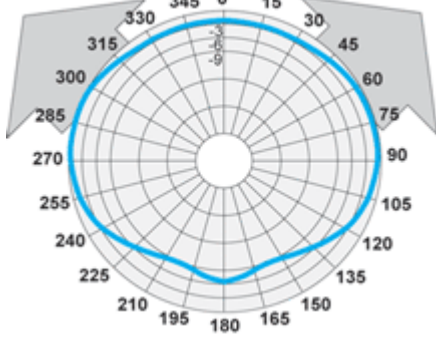
VSWR diagram, D4 VHF



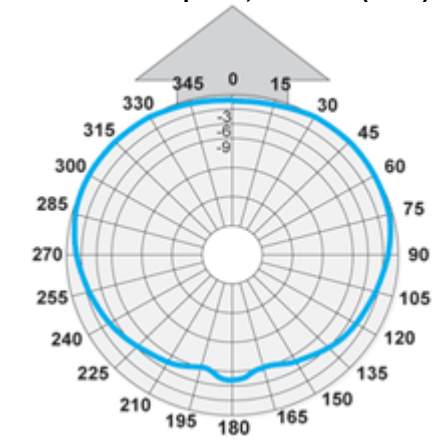
VSWR diagram, D8 VHF



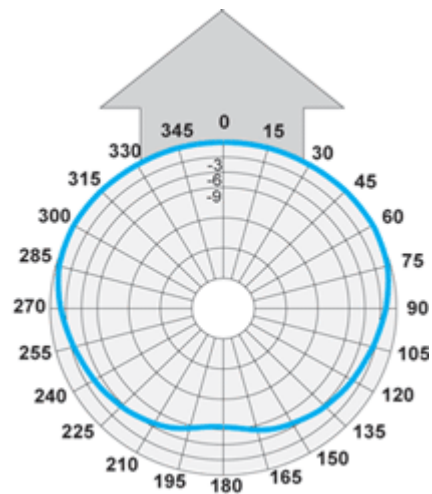
D1 VHF in H-plane, OMNI (1/2  $\lambda$ )



D1 VHF in H-plane, OFFSET (1/4  $\lambda$ )



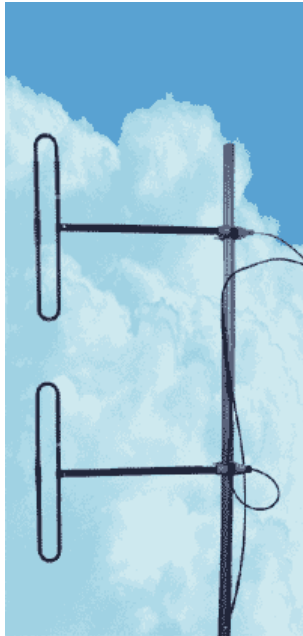
D1 VHF in H-plane, OFFSET (1/8  $\lambda$ )





# 136-174 MHz Dipole antennas D2 VHF I, D4 VHF I

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## Electrical specifications

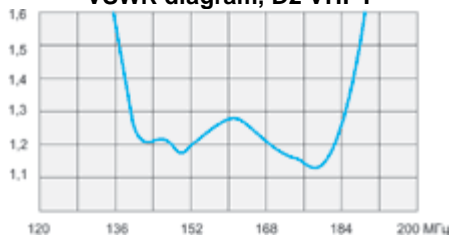
Model	D2 VHF I	D4 VHF I
Operating frequency band, MHz	136-174	
VSWR, not more than	1.5	
Gain OMNI, dBi	5.15	8.15
OFFSET, dBi	8.15	11.15
Sector in vertical plane, -3dB	35°	15-20°
Impedance, Ohm	50	
Max. power input, W	400	400

## Mechanical specifications

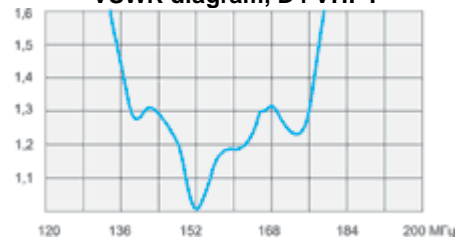
Model	D2 VHF I	D4 VHF I
Weight, kg	5.2	10.4
Height/Length, M	2.1	5
Construction material	Aluminium alloy	
Mast diametr, mm	40-65	
Rated wind velocity, m/s	45	
Wind loading area, m <sup>2</sup>	0.14	0.29
Load of side wind 45 m/s, H	165	335
Rated wind velocity with 0.5" icing, m/s	28	
Temperature range, °C	from -50 to +50	
Connector	N-female	

Antenna arrays of series "I" (letter "I" - from "integrated"), namely, D2 VHF I and D4 VHF I consist of two and four dipoles D1 VHF, correspondingly, fixed on a mast and connected by all-soldered cable integrators without connectors. In addition to all the advantages of antennas of "D" series (broad bandwidth, low sensitivity to the noise of industrial origin, the possibility to slightly change the radiation pattern of the antenna array, the steady polymeric coating) an enhanced reliability of the antenna is provided due to all-soldered wiring.

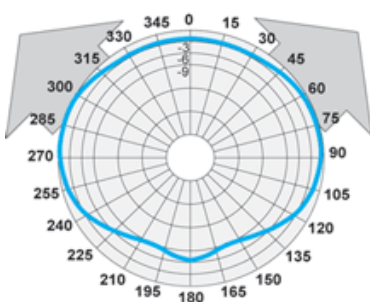
VSWR diagram, D2 VHF I



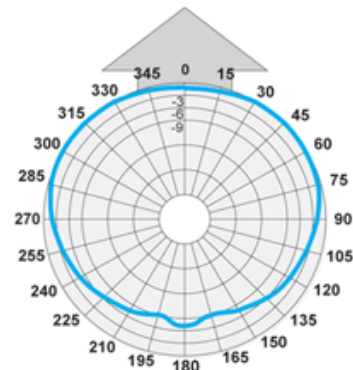
VSWR diagram, D4 VHF I



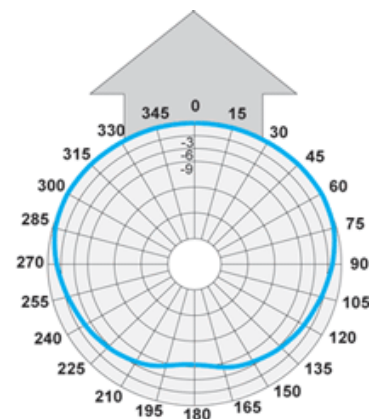
D1 VHF in H-plane, OMNI (1/2λ)



D1 VHF in H-plane, OFFSET (1/4λ)



D1 VHF in H-plane, OFFSET (1/8λ)





## 140-177 MHz Dipole antennas DS2 VHF, DS4 VHF, DS8 VHF

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Tel.: (495) 775-43-19, 462-44-14  
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### Electrical specifications

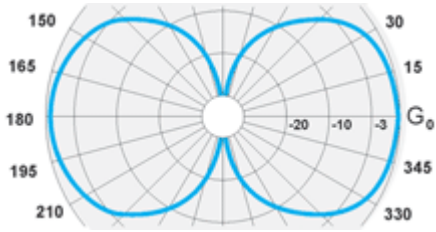
Model	DS2 VHF		DS4 VHF		DS8 VHF	
	(M)	(H)	(M)	(H)	(M)	(H)
Operating frequency band, MHz	140-163	153-177	143-163	155-177	143-163	155-177
VSWR, not more than				1.5		
Gain, dBi		3.15		6.15		9.15
Sector in vertical plane, -3dB		86°		43°		18°
Impedance, Ohm				50		
Max. power input, W				500		

### Mechanical specifications

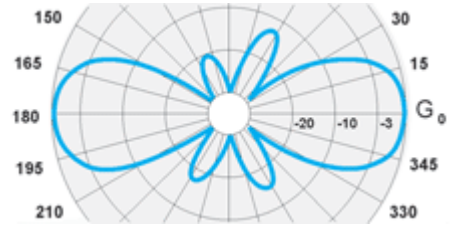
Model	DS2 VHF	DS4 VHF	DS8 VHF
Weight, kg	2.4	5.2	10.7
Height/Length, M	0.87	2.1	4.5
Construction material		Aluminium alloy	
Mast diameter, mm		50-60	
Rated wind velocity, m/s		55	
Wind loading area, m <sup>2</sup>	0.05	0.1	0.2
Load of side wind 45 m/s, H	58	116	232
Rated wind velocity with 0.5" icing, m/s		28	
Temperature range, °C		from -50 to +50	
Connector		N-female	

Dipole pair DS2 VHF was designed according to special technical specifications, including strict requirements on operating frequency bandwidth, circular pattern, low VSWR, high power conduction, maximum lightning protection and corrosion stability. This construction is the main component for high VSWR antenna array building. DS4 VHF and DS8 VHF antennas represent array antenna with heightened gain assembled using two or four DS2 VHF antenna pairs connected by adders. These antennas are very easy to transport due to their collapsible construction, in spite of large overall dimension in assembly.

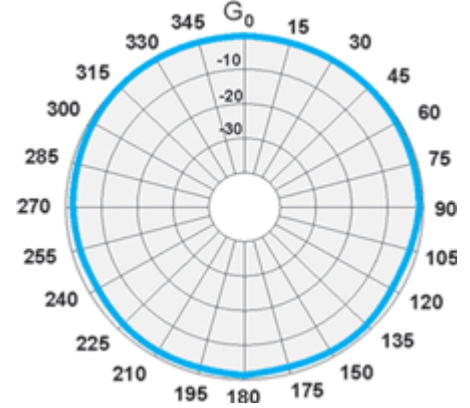
DS2 VHF E-plane pattern



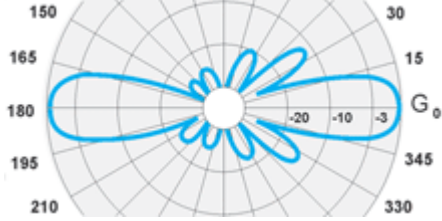
DS4 VHF E-plane pattern



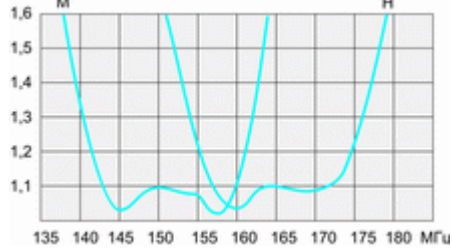
DS2 VHF H-plane pattern



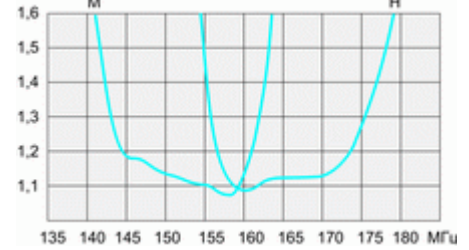
DS8 VHF E-plane pattern



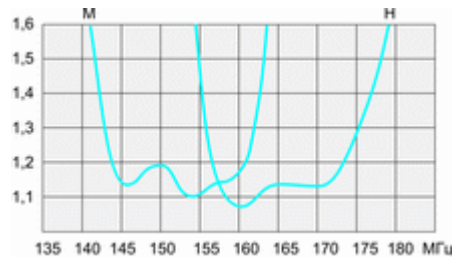
VSWR diagram DS2 VHF(M, H)



VSWR diagram DS4 VHF(M, H)



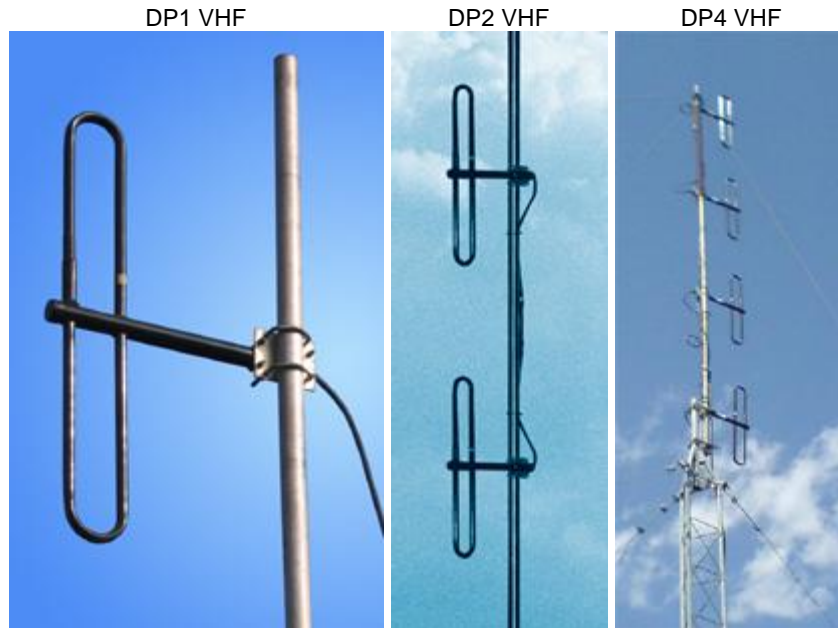
VSWR diagram DS8 VHF(M, H)





## 150-174 MHz Dipole antennas DP1 VHF, DP2 VHF, DP4 VHF

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### Electrical specifications

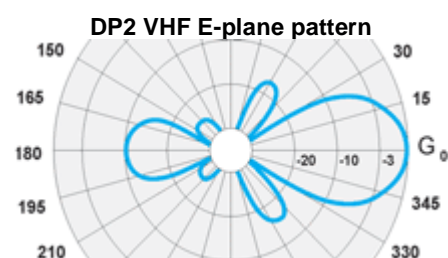
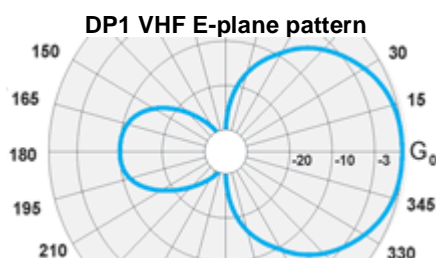
Model	DP1 VHF	DP2 VHF	DP4 VHF
Operating frequency band, MHz	149-174		150-174
VSWR, not more than		1.5	
Gain OFFSET, dBi	5.15	8.15	11.15
Sector in vertical plane , -3dB	75°	37°	18°
Impedance, Ohm		50	
Max. power input, W	400	400	400

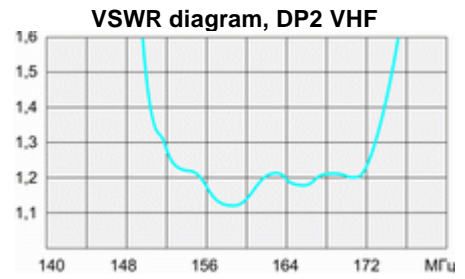
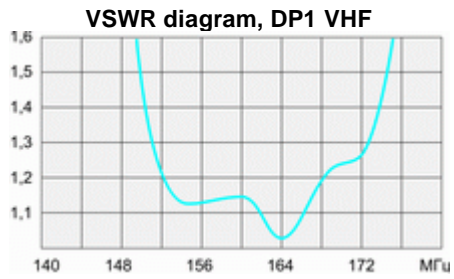
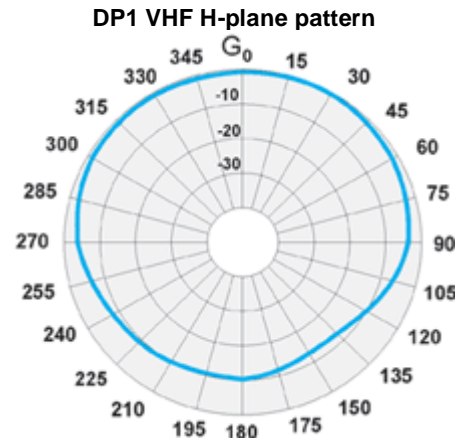
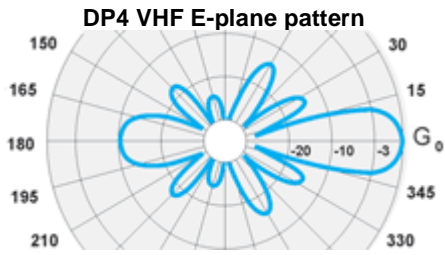
### Mechanical specifications

Model	DP1 VHF	DP2 VHF	DP4 VHF
Weight, kg	1.2	2.8	6
Height/Length, M	0.8	2	4.4
Construction material		Aluminium alloy	
Mast diameter, mm		25-55	
Rated wind velocity, m/s		45	
Wind loading area, m <sup>2</sup>	0.045	0.09	0.18
Load of side wind 45 m/s, H	51	102	205
Rated wind velocity with 0.5" icing, m/s		28	
Temperature range, °C		from -50 to +50	
Connector		N-female	

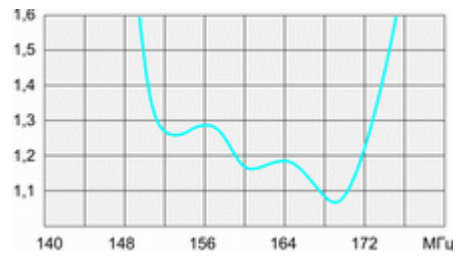
Antenna DP1 VHF represents all-welded nonseparable folded Pistolcors dipole. Antenna is designed exclusively for lateral mount on 25-55 mm diameter masts at  $1/8 \lambda$  distance from mast. Antenna has reliable polymeric coating, which protects from hostile environment. Antenna is recommended to use in maritime climatic zone and locations with increased acidity.

DP2 VHF and DP4 VHF antennas represent collinear dipole system, with antenna DP1 VHF as the main structural component. These antennas are shipped together with adders TK-52V and TK-54V.





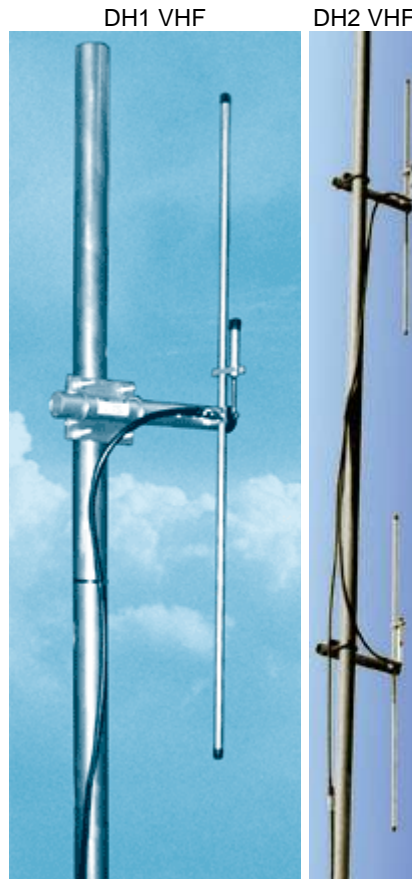
**VSWR diagram, DP4 VHF**





## 136-174 MHz Dipole antennas DH1 VHF, DH2 VHF, DH4 VHF

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### Electrical specifications

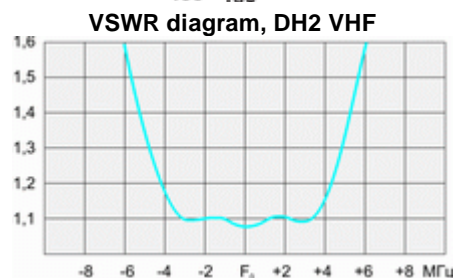
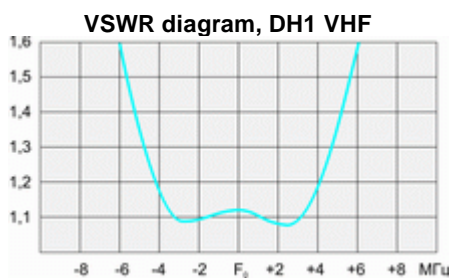
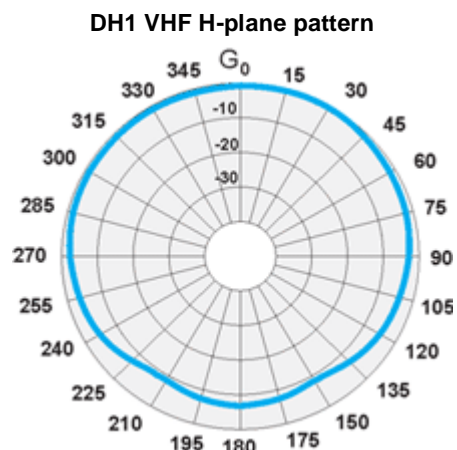
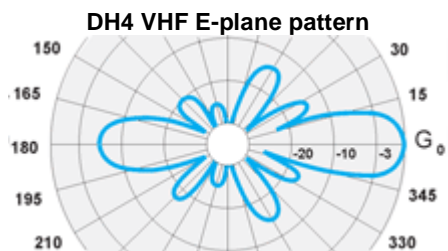
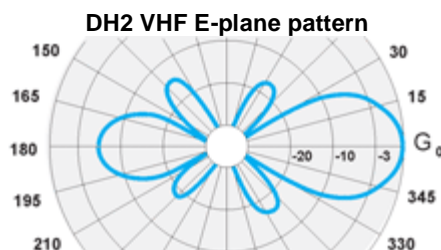
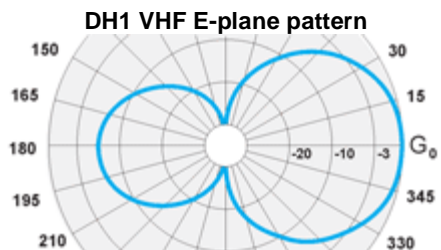
Model	DH1 VHF	DH2 VHF	DH4 VHF
Operating frequency band, MHz		136-174	
VSWR, not more than		1.5	
Gain OFFSET, dBi	5.15	8.15	11.15
Sector , -3dB:			
in vertical plane	75°	37°	18°
in horizontal plane		132°	
Impedance, Ohm		50	
Max. power input, W		100	

### Mechanical specifications

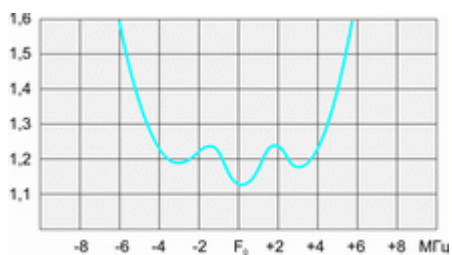
Model	DH1 VHF	DH2 VHF	DH4 VHF
Weight, kg	0.75	2	4.1
Height/Length, M	0.82-1.05	2.2	4.6
Construction material		Aluminium alloy, D16T	
Mast diameter, mm		25-55	
Rated wind velocity, m/s		45	
Wind loading area, m <sup>2</sup>	0.022	0.045	0.09
Load of side wind 45 m/s, H	25	51	102
Rated wind velocity with 0.5" icing, m/s		28	
Temperature range, °C		from -50 to +50	
Connector		SO-239	

Antenna DH1 VHF is half-wave continuous dipole with shunt power supply (gamma-transformer). It is designed for lateral mounting and array antenna constructing. Antenna has collapsible construction and grounded totally. Tuning is conducted by setting vibrator length according to that specified in supplied diagram. Gamma-transformer usage provides perfect antenna tuning. Steel zinc-coated mounting device provides reliable mounting.

Antenna DH2 VHF and DH4 VHF is two and four-component array antenna, with DH1 VHF as main structural component. These antennas can be used for circular pattern generation as panel antennas for lateral mount on radiopaque towers. Supplied with adders TK-72V and TK-74V.



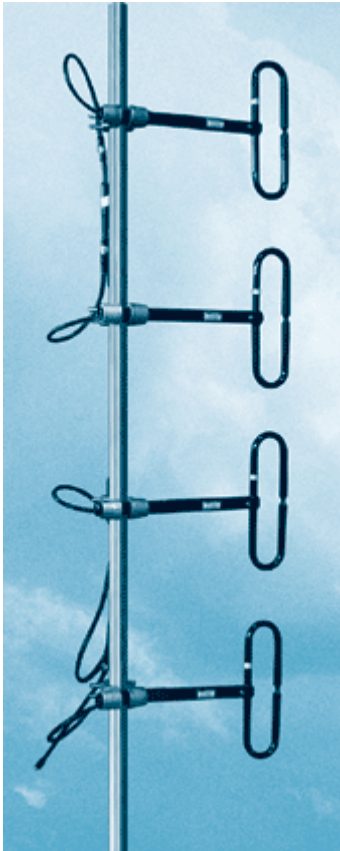
**VSWR diagram, DH4 VHF**





## 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			

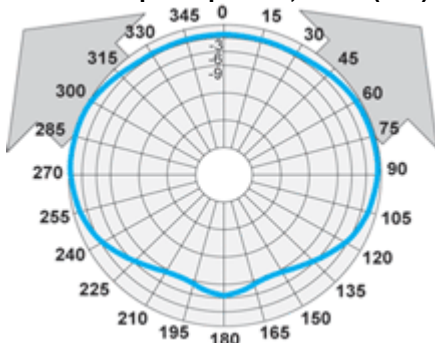
### Mechanical specifications

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			

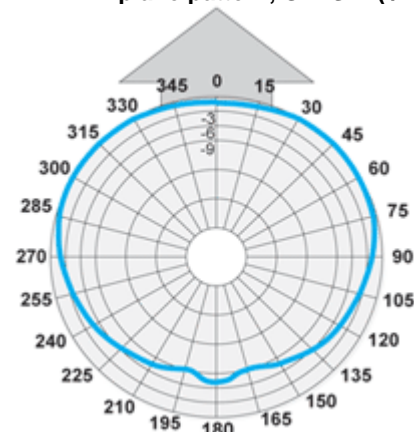
Antenna D1 ALT represents folded Pistolcors dipole. It can be used in Altay and Volemfrom systems, river craft radio communication and for telemetry. Collapsible construction enables easy antenna mounting and dismounting. Emitting unit directional pattern can be slightly corrected by changing distance 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.

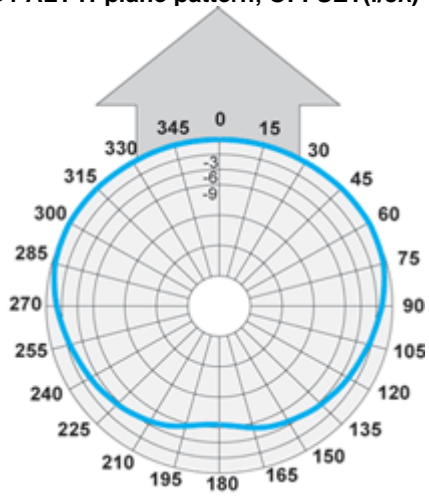
**D1 ALT H-plane pattern, OMNI (I/2λ)**



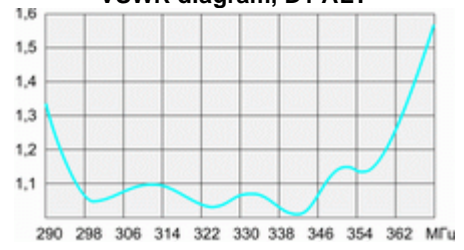
**D1 ALT H-plane pattern, OFFSET(I/4λ)**



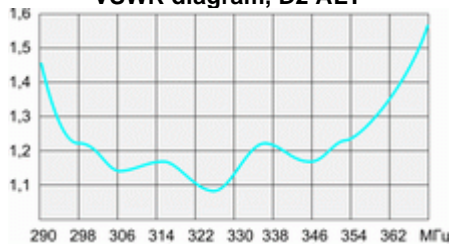
**D1 ALT H-plane pattern, OFFSET(1/8λ)**



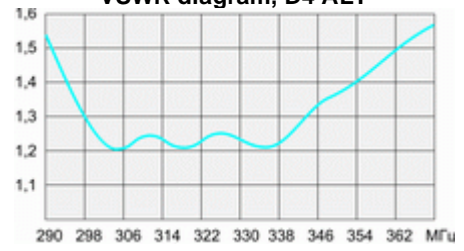
**VSWR diagram, D1 ALT**



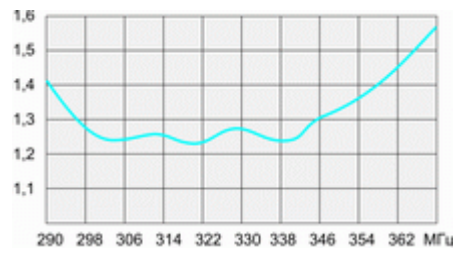
**VSWR diagram, D2 ALT**



**VSWR diagram, D4 ALT**



**VSWR diagram, D8 ALT**





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

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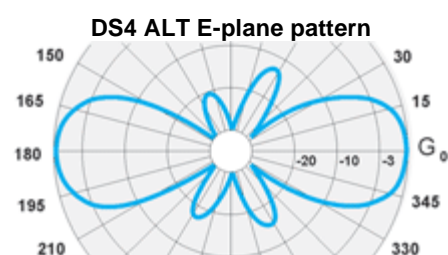
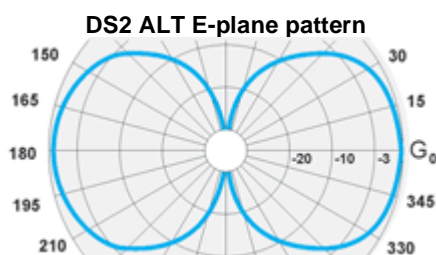
### Electrical specifications

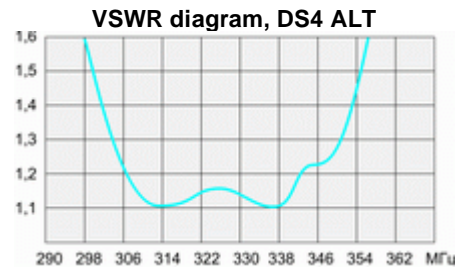
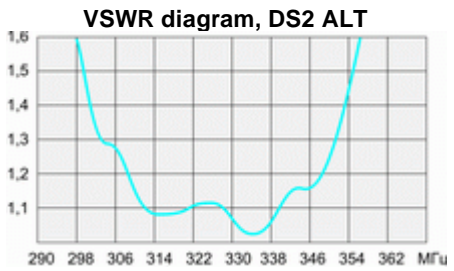
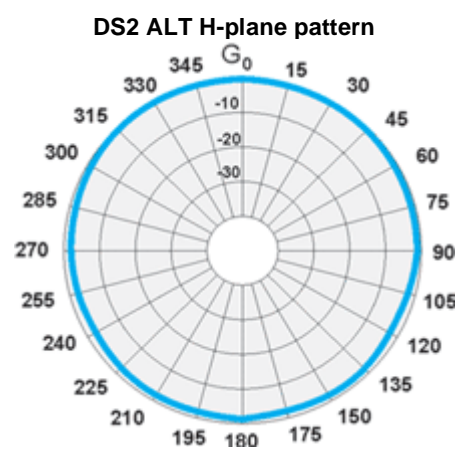
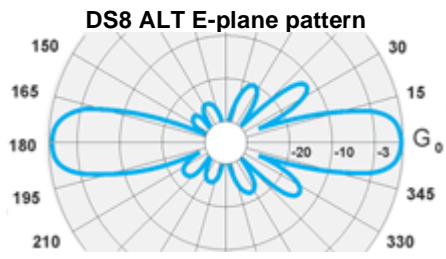
Model	DS2 ALT	DS4 ALT	DS8 ALT
Operating frequency band, MHz		300-350	
VSWR, not more than		1.5	
Gain OFFSET, dBi	3.15	6.15	9.15
Sector in vertical plane, -3dB	86°	43°	18°
Impedance, Ohm		50	
Max. power input, W		400	

### Mechanical specifications

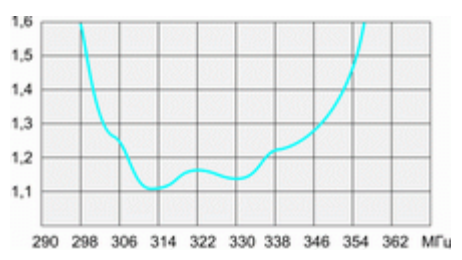
Model	DS2 ALT	DS4 ALT	DS8 ALT
Weight, kg	1.4	3.2	6.72
Height/Length, M	0.4	1	2.2
Construction material		Aluminium alloy	
Mast diameter, mm		25-55	
Rated wind velocity, m/s		45	
Wind loading area, m <sup>2</sup>	0.02	0.04	0.08
Load of side wind 45 m/s, H	23	47	95
Rated wind velocity with 0.5" icing, m/s		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 needed at the expense of vertical diversion.





VSWR diagram, DS8 ALT





## 400-490 MHz Dipole antennas D1 UHF, D2 UHF, D4 UHF, D8 UHF

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D1 UHF



D2 UHF



D4 UHF



D8 UHF



### Electrical specifications

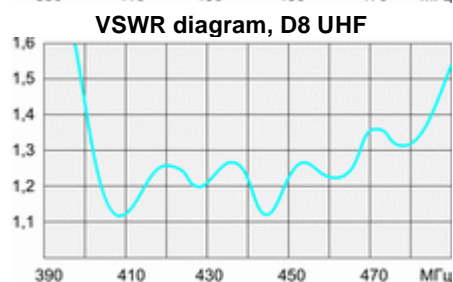
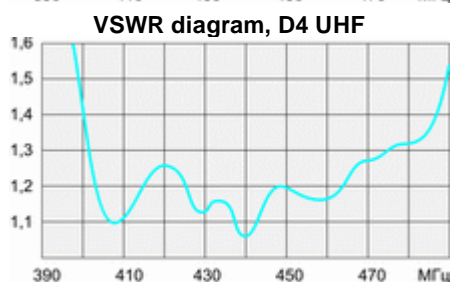
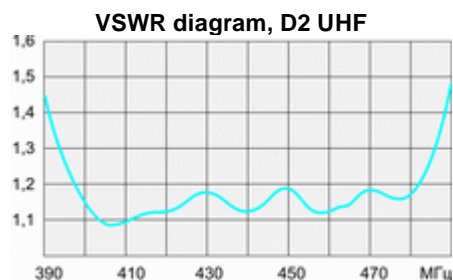
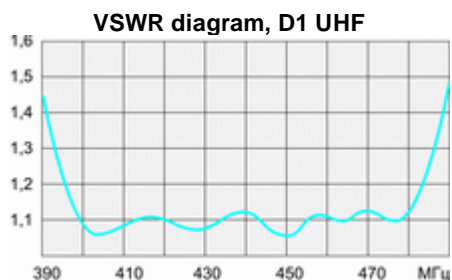
Model	D1 UHF	D2 UHF	D4 UHF	D8 UHF
Operating frequency band, MHz			400-490	
VSWR, not more than			1.5	
Gain OMNI, dBi	2.15	5.15	8.15	11.15
OFFSET, dBi	5.15	8.15	11.15	14.15
Sector in vertical plane , -3dB	70°	37°	18°	9°
Impedance, Ohm			50	
Max. power input, W			400	

### Mechanical specifications

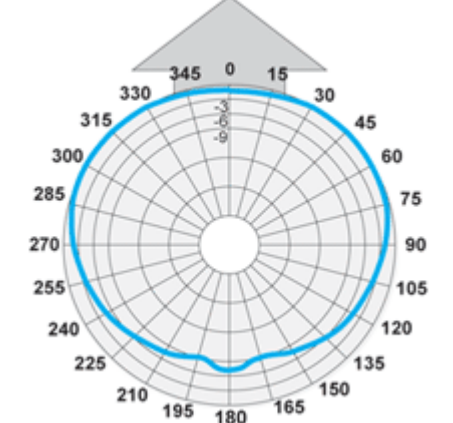
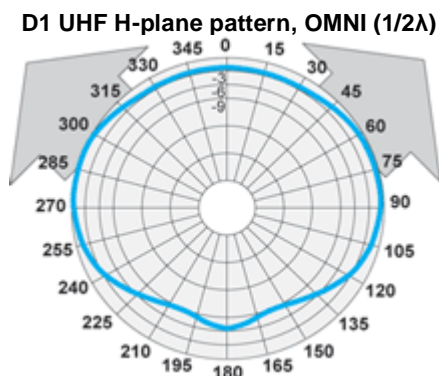
Model	D1 UHF	D2 UHF	D4 UHF	D8 UHF
Weight, kg	1.6	3.5	7.3	14.8
Height/Length, M	0.3	0.8	1.7	3.5
Construction material			Aluminium alloy	
Mast diameter, mm			38-65	
Rated wind velocity, m/s			55	
Wind loading area, m <sup>2</sup>	0.028	0.056	0.112	0.225
Load of side wind 45 m/s, H	32	64	128	256
Rated wind velocity with 0.5" icing, m/s			28	
Temperature range, °C			from -50 to +50	
Connector			N-female	

Antenna D1 UHF represents folded Pistolcors dipole. Its primaries: wide operating band and nearly circular pattern. Welded

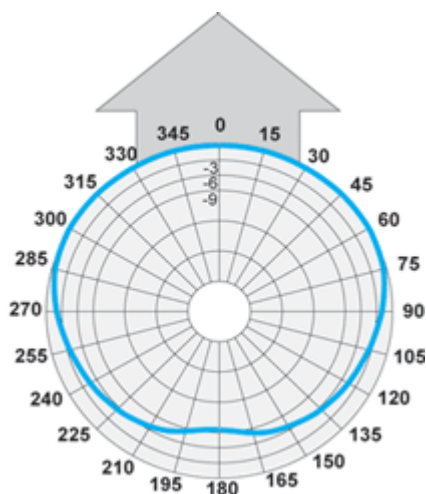
construction of dipole eliminates possibility of intermodulation. Emitting unit directional pattern can be slightly corrected by changing distance from it to mast. Collapsible construction provides easy antenna mounting and dismounting. Antenna has reliable polymeric coating, which protects from hostile environment and icing. D2, D4, and D8 antennas are built along parallel addition of two, four and eight collinear arranged active folded dipole powers principle.



**D1 UHF H-plane pattern, OFFSET(1/4λ)**



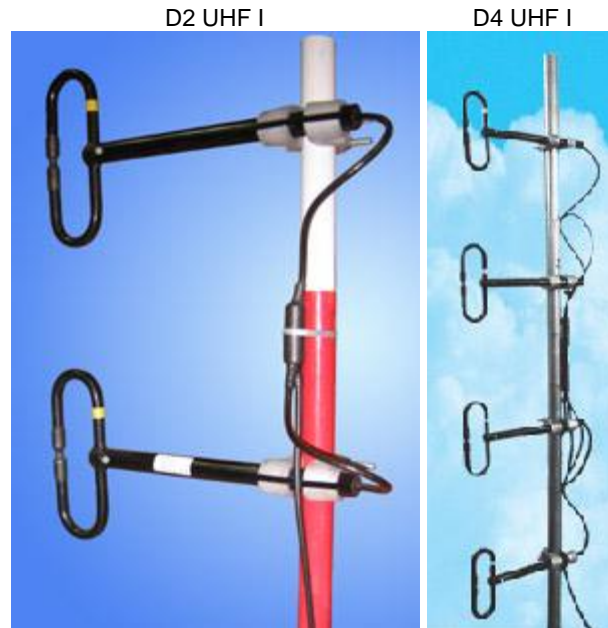
**D1 UHF H-plane pattern, OFFSET (1/8λ)**





## 400-540 MHz Dipole antennas D2 UHF I, D4 UHF I, D4 UHF(H)I

107497, Moscow Chernicinsky pr-d 7/1  
Tel.: (495) 775-43-19, 462-44-14  
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E-mail: radial@radial.ru  
www.radial.ru



### Electrical specifications

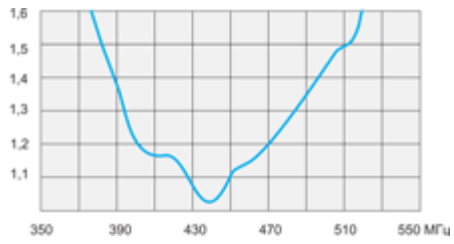
Model	D2 UHF I	D4 UHF I	D4 UHF(H)I
Operating frequency band, MHz	400-490	400-490	450-540
VSWR, not more than	1.5	1,5	1.5
Gain OMNI, dBi	5.15	8.15	8.15
OFFSET, dBi	8.15	11.15	11.15
Sector in vertical plane -3 dB	37°	18°	18°
Impedance, Ohm	50	50	50
Max. power input, W	200	200	200

### Mechanical specifications

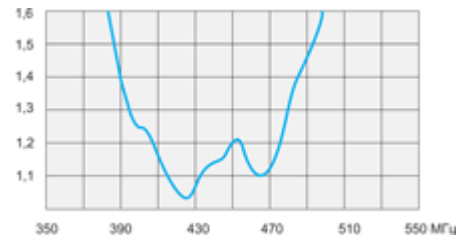
Model	D2 UHF I	D4 UHF I	D4 UHF(H)I
Weight, kg	3.5	7	7
Construction material	Aluminium alloy		
Mast diameter, mm	38-65		
Rated wind velocity, m/s	55		
Wind loading area, m <sup>2</sup>	0.056	0.112	0.112
Load of side wind, 45 m/s	64	128	128
Rated wind velocity with 0.5" icing, m/s	28		
Temperature range, °C	from -50 to +50		
Connector	N-female		

Antenna arrays of series "I" (letter "I" - from "integrated"), namely, D2 UHF I and D4 UHF I consist of two and four dipoles D1 UHF, correspondingly, fixed on a mast and connected by all-soldered cable integrators without connectors. These antennas possess all the advantages of antennas of "D" series: broad operating bandwidth, practically circular radiation pattern, low sensitivity to the noise of industrial origin, the possibility to slightly change the radiation pattern of antenna array in H-plane, the steady polymeric coating. New antennas D2 UHF I and D4 UHF I are remarkable for their enhanced reliability due to all-soldered wiring. For operating at the frequencies 450-540 MHz we have developed a model D4 UHF(H) I. These antennas are provided with the detailed SWR graphs for various RP.

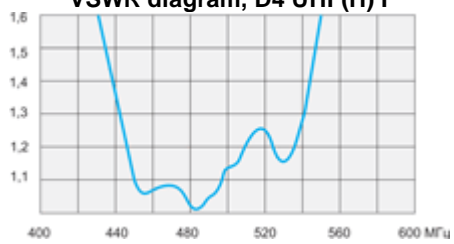
VSWR diagram, D2 UHF I



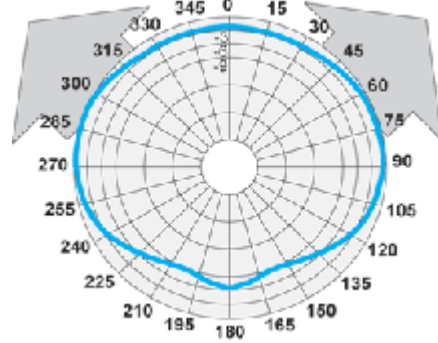
VSWR diagram, D4 UHF I



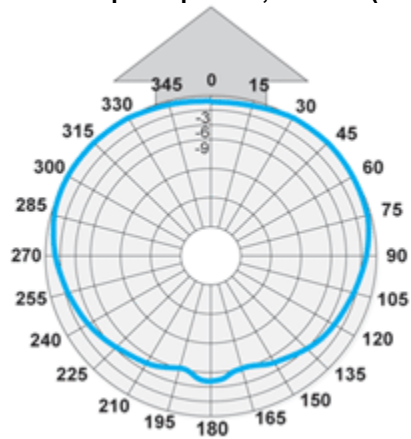
VSWR diagram, D4 UHF(H) I



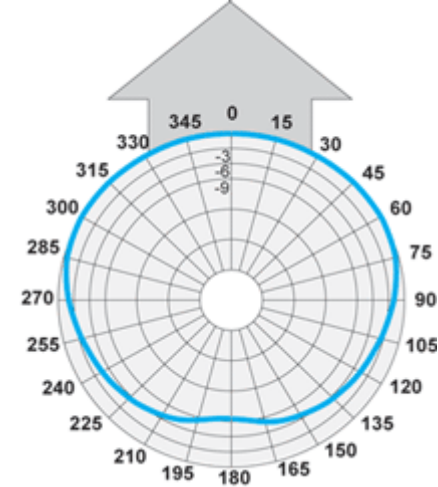
D1 UHF H-plane pattern, OMNI (1/2λ)



D1 UHF H-plane pattern, OFFSET(1/4λ)



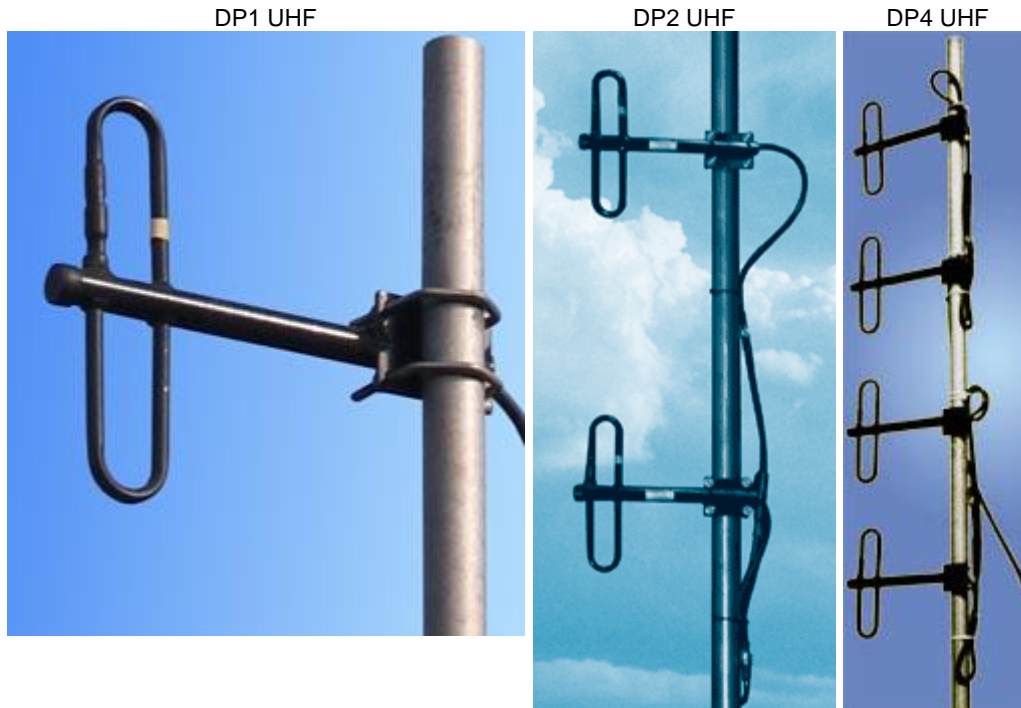
D1 UHF H-plane pattern, OFFSET (1/8λ)





## 400-490 MHz Dipole antennas DP1 UHF, DP2 UHF, DP4 UHF

107497, Moscow Chernicinsky pr-d 7/1  
Tel.: (495) 775-43-19, 462-44-14  
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### Electrical specifications

Model	DP1 UHF	DP2 UHF	DP4 UHF
Operating frequency band, MHz		400-490	
VSWR, not more than		1.5	
Gain OFFSET, dBi	5.15	8.15	11.15
Sector in vertical plane , -3dB	75°	37°	18°
Impedance, Ohm		50	
Max. power input, W	400	400	400

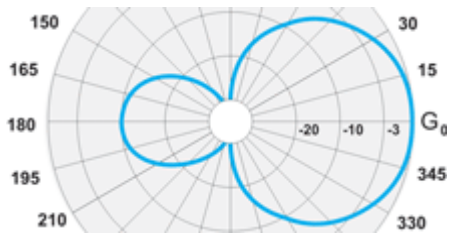
### Mechanical specifications

Model	DP1 UHF	DP2 UHF	DP4 UHF
Weight, kg	0.6	1.5	3.25
Height/Length, M	0.28	0.8	1.7
Construction material		Aluminium alloy	
Mast diametr, mm		25-55	
Rated wind velocity, m/s		55	
Wind loading area, m <sup>2</sup>	0.023	0.046	0.092
Load of side wind 45 m/s, H	26	52	104
Rated wind velocity with 0.5" icing, m/s		28	
Temperature range, °C		from -50 to +50	
Connector		N-female	

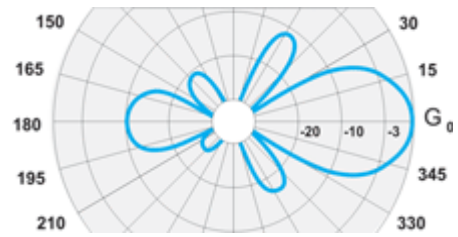
Antenna DP1 UHF represents all-welded nonseparable folded Pistolcors dipole. Antenna is designed exclusively for lateral mount on 25-55 mm diameter masts within  $1/4 \lambda$  distance from mast. Antenna has reliable polymeric coating, which protects from hostile environment. Antenna is used for array antenna manufacturing.

DP2 and DP4 UHF antenna represents collinear dipole system, with antenna DP1 UHF as the main structural component. These panel type array antennas are designed for mounting on radiopaque wide section towers, like television towers or chimney-stalks, to form different (mainly circular) patterns. Shipped together with adders TK-52U and TK-54U.

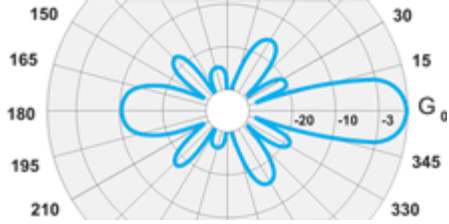
DP1 UHF E-plane pattern



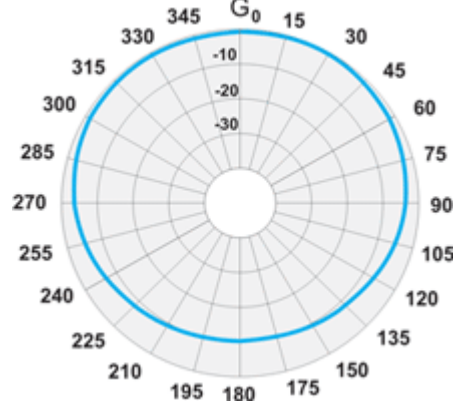
DP2 UHF E-plane pattern



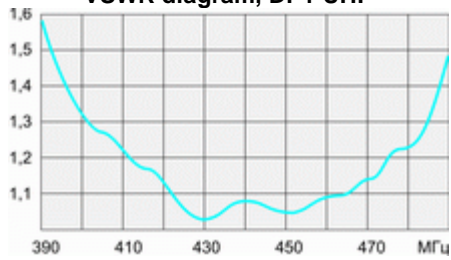
DP4 UHF E-plane pattern



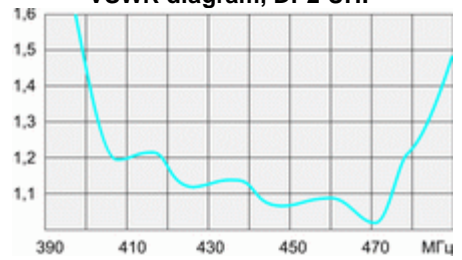
DP1 UHF H-plane pattern



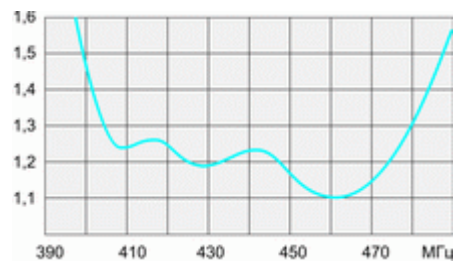
VSWR diagram, DP1 UHF



VSWR diagram, DP2 UHF



VSWR diagram, DP4 UHF





## 400-490 MHz Dipole antennas DM4 UHF(L), DM4 UHF(H)

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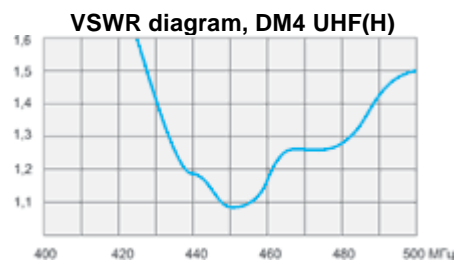
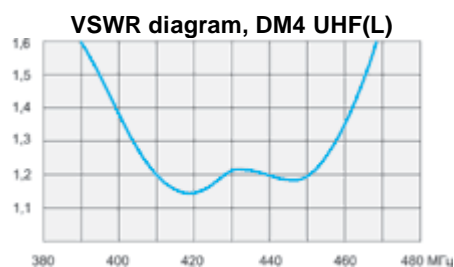
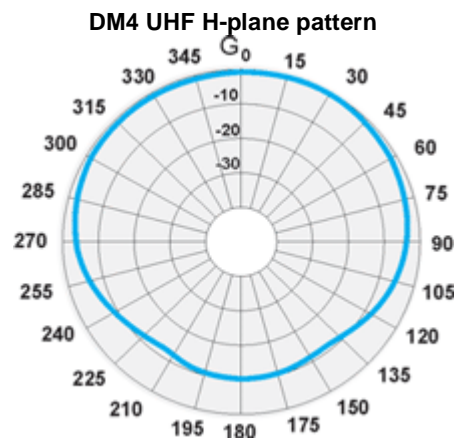
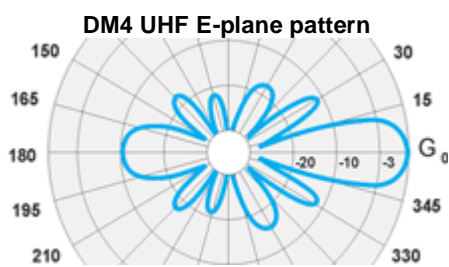
### Electrical specifications

Model	DM4 UHF(L)	DM4 UHF(H)
Operating frequency band, MHz	400-460	440-490
VSWR, not more than		1.5
Gain OFFSET, dBi	11.15	11.15
Sector in vertical plane, °		18°
Impedance, Ohm		50
Max. power input, W		400

### Mechanical specifications

Model	DM4 UHF(L)	DM4 UHF(H)
Weight, kg		6
Height, M		2.4
Construction material		Aluminium alloy
Mast diameter, mm		50-110
Rated wind velocity, m/s		55
Wind loading area, m <sup>2</sup>		0.092
Load of side wind 45 m/s, H		104
Rated wind velocity with 0.5" icing, m/s		40
Temperature range, °C		from -50 to +60
Connector		N-female

In the conditions of increased demand for dipole four-element antennas DP4 UHF their modernization has been conducted with the aim to decrease the prime cost and to enhance the electrical reliability. As a result there were worked out the four-element all-welded antenna arrays - DM4-UHF(L) and DM4-UHF(H) which cover the range of 400-500 MHz. These antennas possess all the features of the panel antennas - high gain, broad operating bandwidth and elliptical shape of the radiation pattern. Nonseparable adder unit improves the reliability of antenna and facilitates its mounting. The construction of two such antennas placed on the opposite edges of the mast suggests the best solution at creating quasi-circular antenna system (the annular phased antenna array). A set of clamps CP-110 for mounting antenna to the mast is included into the antenna equipment and allows antenna's reliable fixing at the telecommunication towers





## 4-30 MHz HF antenna T2-FD

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Tel.: (495) 775-43-19, 462-44-14  
Tel./fax: 462-44-14  
E-mail: radial@radial.ru  
www.radial.ru



### Electrical specifications

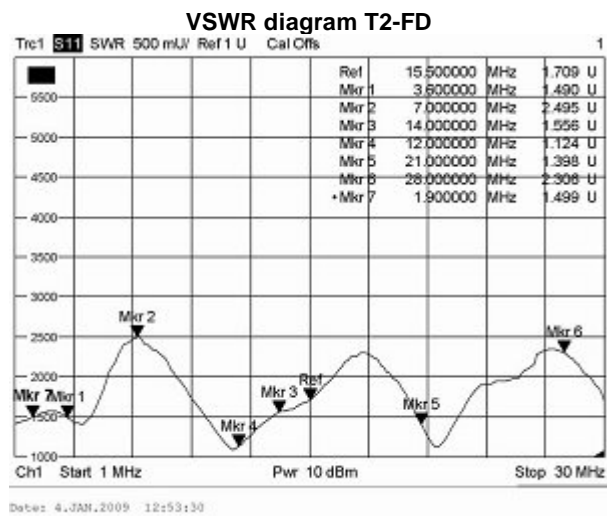
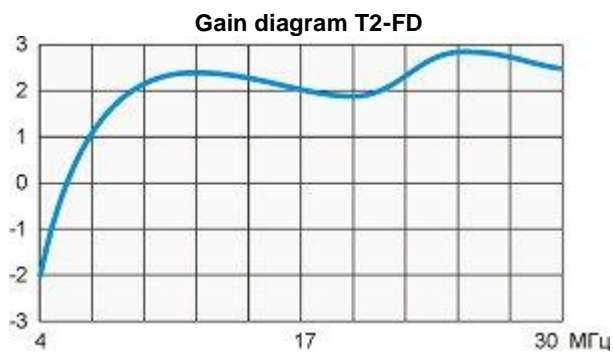
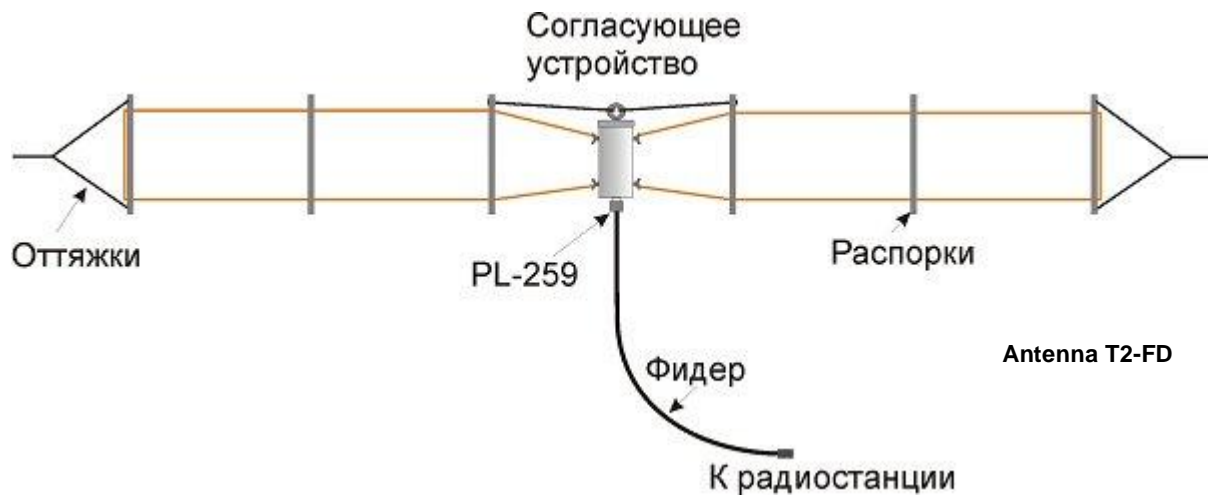
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Model	T2-FD
Operating frequency band, MHz	4-30
VSWR, not more than	2.5
Gain OMNI, dBi	from -3 to +3
Polarization	Horizontal
Impedance, Ohm	50
Max. power input, W	200

### Mechanical specifications

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Model	T2-FD
Length, M	28
Construction material	Copper
Connector	SO-239





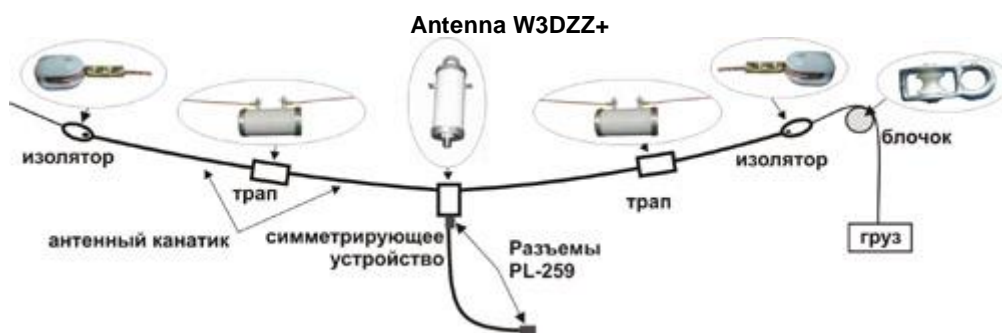
## 80-40-20 m HF antenna W3DZZ+3

107497, Moscow Chernicinsky pr-d 7/1  
Tel.: (495) 775-43-19, 462-44-14  
Tel./fax: 462-44-14  
E-mail: radial@radial.ru  
www.radial.ru



Electrical specifications

Model	W3DZZ+3
Operating frequency band, MHz	3,67-3,9 MHz - 80m 7,0-7,2 MHz - 40m 14,0-14,35 MHz - 20m
Impedance, Ohm	50
Connector	SO-239
Max. power input, W	200 (SSB, CW)
Length, M	32

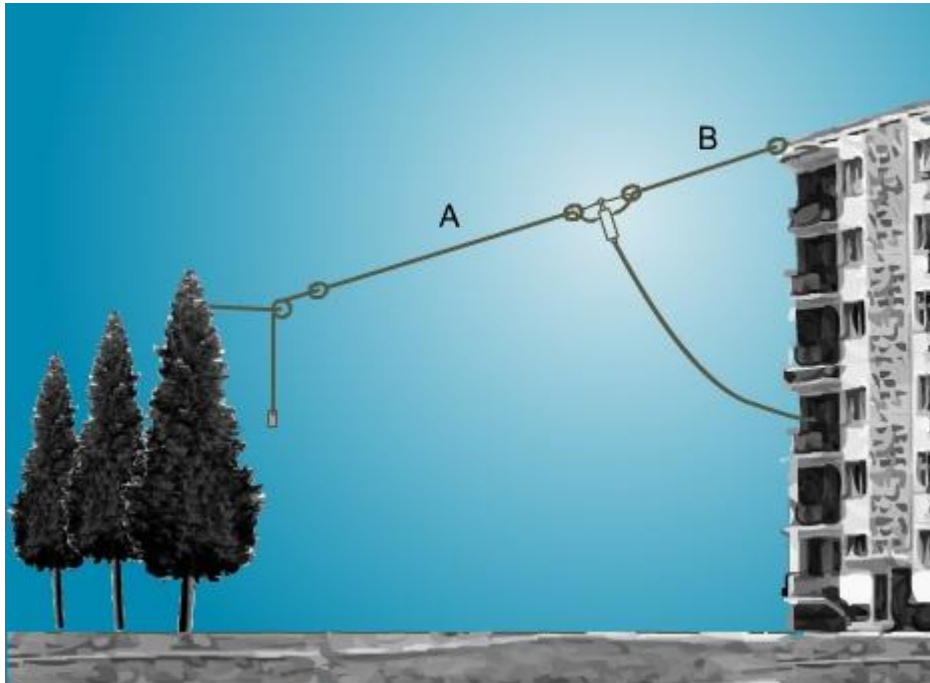


2009



# 80-40-20-17-12-10 m HF antenna "Windom"

107497, Moscow Chernicinsky pr-d 7/1  
Tel.: (495) 775-43-19, 462-44-14  
Tel./fax: 462-44-14  
E-mail: radial@radial.ru  
www.radial.ru



Electrical specifications

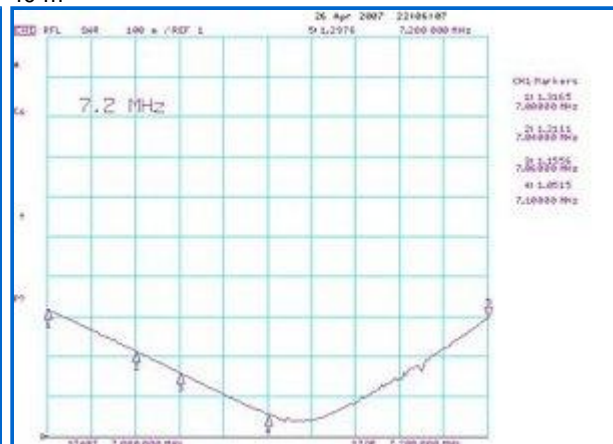
Model	W3DZZ+3
Operating frequency band, MHz	3.5-3.8 MHz 7.0-7.2 MHz 14.0-14.35 MHz 18.06-18.31 MHz 24.9-25.14 MHz 28-29,5 MHz
80 m, VSWR not more 1.6	
40 m, VSWR not more 1.5	
20 m, VSWR not more 1.7	
17 m, VSWR not more 1.7	
12 m, VSWR not more 1.5	
10 m, VSWR not more 2	
Impedance, Ohm	50
Connector	SO-239
Max. power input, W	1000 (SSB, CW)
Length, M	42
Polarization	horizontal

## VSWR diagram "Windom":

80 m



40 m



20 m

17 m



12 m

10 m

