

Antenna system design with D II/06

TYPES

- 1 bay, 4 sides
- 2 bays, 4 sides
- 4 bays, 4 sides
- 6 bays, 4 sides
- 8 bays, 4 sides
- 10 bays, 4 sides
- 12 bays, 4 sides

- 1 bay, 3 sides
- 2 bays, 3 sides
- 4 bays, 3 sides
- 6 bays, 3 sides
- 8 bays, 3 sides
- 10 bays, 3 sides
- 12 bays, 3 sides

- 1 bay, 2 sides
- 2 bays, 2 sides
- 4 bays, 2 sides
- 6 bays, 2 sides
- 8 bays, 2 sides

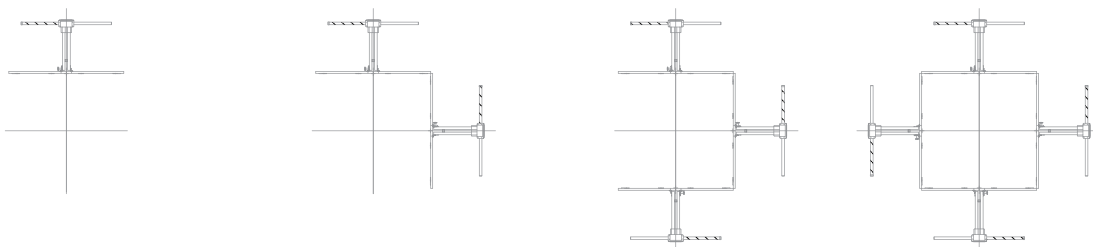
- 1 bay, 1 side
- 2 bays, 1 side
- 4 bays, 1 side
- 6 bays, 1 side
- 8 bays, 1 side



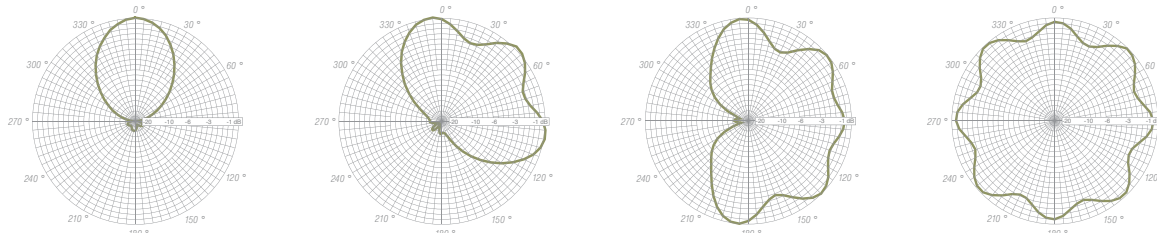
ELTI turn key solution...

Elti offer typical antenna systems on a turnkey basis with antenna panel DII/06. Especially suitable for mounting on square masts for different radiation patterns (omni-directional, directional, custom designed). Feeding of antennas is made with coaxial power dividers and connecting cables all produced by Elti.

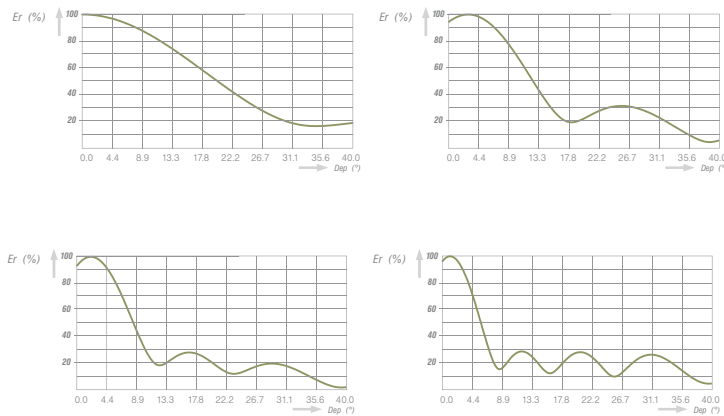
Antenna systems can be divided into 2 halves; as well pressurization with dry air is available on request.



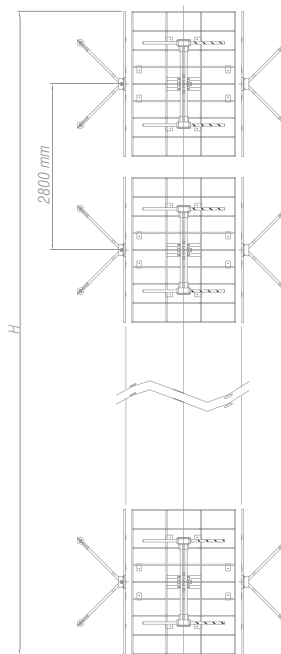
Horizontal diagram



Vertical diagram



Preferred tower dimensions



specifications

		Omni 1 bay	Omni 2 bays	Omni 4 bays	Omni 6 bays	Omni 8 bays
Design	Bays	1	2	4	6	8
	Directions	4	4	4	4	4
Antenna type		D II/06				
Number of antennas		4	8	16	24	32
Frequency range (MHz)		87,5 – 108				
Maximum input power (kW) ¹		16	32	64	96	128
Gain at 98MHz (dBd) ²		1,9	4,9	7,9	9,6	10,9
V.S.W.R. – no offset ³		≤ 1,2	≤ 1,2	≤ 1,2	≤ 1,2	≤ 1,2
With horizontal offset ⁴		≤ 1,1	≤ 1,1	≤ 1,1	≤ 1,1	≤ 1,1
Wind load - at 160 km/h (kN)		4,6	9,3	18,6	27,9	37,2
Weight (kg)		170	370	720	1.200	1.550
Input connector ¹		EIA 7/8" EIA 1 5/8" EIA 3 1/8"	EIA 7/8" EIA 1 5/8" EIA 3 1/8"	EIA 1 5/8" EIA 3 1/8" EIA 4 1/2"	EIA 3 1/8" EIA 4 1/2" EIA 6 1/8"	EIA 3 1/8" EIA 4 1/2" EIA 6 1/8"
Pressurization with dry air ⁵		No	No	No / Yes	No / Yes	No / Yes
Split system ⁶		No	No / Yes	No / Yes	No / Yes	No / Yes
Antenna system height H (m)		2,45	5,25	10,85	16,45	22,05

Presented information is valid for omni-directional antenna systems. Non-directional and custom designs of antenna systems are available on request. Null filling and beam tilt upon request.

Notes:

¹ Maximum power and input connector is designed according to customer's requirements.

² Referred to $\lambda/2$ dipole. Attenuation of the internal cabling and the decrease of gain in case of null fill in the vertical radiation pattern are not considered. Cable attenuation: 0,2 – 0,5 dB; null fill: 0,3 – 1,0 dB

³ broadband

⁴ in working channels

⁵ pressurization with dry air is available on request

⁶ see details in the chapter patch panels



Approximate coverage calculation with analogue transmitter power at the input:

250 W	Radiated power (kW)	0,4	0,8	1,5	2,3	3,1
	Coverage (km)	15	17	19	22	24
500 W	Radiated power (kW)	0,8	1,5	3,1	4,6	6,2
	Coverage (km)	17	19	23	24	26
1.000 W	Radiated power (kW)	1,5	3,1	6,2	9,3	12,4
	Coverage (km)	19	23	26	29	30
2.000 W	Radiated power (kW)	3,1	6,2	12,4	19	25
	Coverage (km)	23	26	30	33	35
3.000 W	Radiated power (kW)	4,6	9,3	19	28	37
	Coverage (km)	24	29	33	36	38
5.000 W	Radiated power (kW)	7,7	15,5	31	46	92
	Coverage (km)	27	32	37	40	46
10.000 W	Radiated power (kW)	15,5	31	61	92	123
	Coverage (km)	32	36	42	45	48

Calculation for radiated power does not include losses in the feeder cable and combiner's losses.

Coverage is an estimation on the following circumstances: Approximate coverage at antenna height of 50 m calculated according to ITU-R P.1546-1 with 54 dB μ V/m field strength.

Antenna system design with D II/06-L

TYPES

- 1 bay, 3 sides
- 2 bays, 3 sides
- 4 bays, 3 sides
- 6 bays, 3 sides
- 8 bays, 3 sides
- 10 bays, 3 sides
- 12 bays, 3 sides

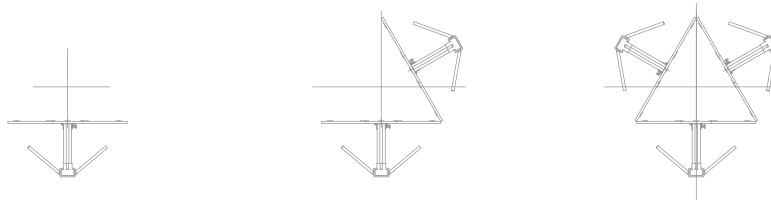
- 1 bay, 2 sides
- 2 bays, 2 sides
- 4 bays, 2 sides
- 6 bays, 2 sides
- 8 bays, 2 sides
- 10 bays, 2 sides
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- 1 bay, 1 side
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- 4 bays, 1 side
- 6 bays, 1 side
- 8 bays, 1 side

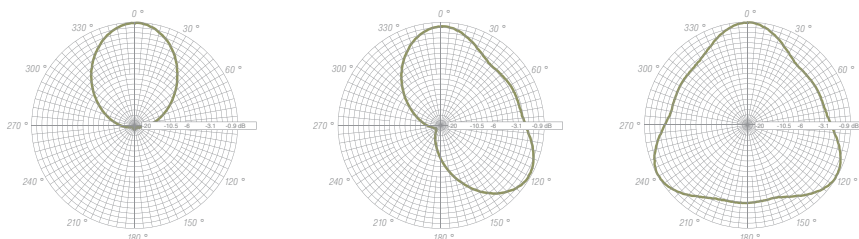
ELTI turn key solution...

Elti offer typical antenna systems on a turnkey basis with antenna panel DII/06-L. Especially suitable for mounting on triangular masts for different radiation patterns (for horizontal polarization, omni-directional, directional, custom designed). Feeding of antennas is made with coaxial power dividers and connecting cables all produced by Elti.

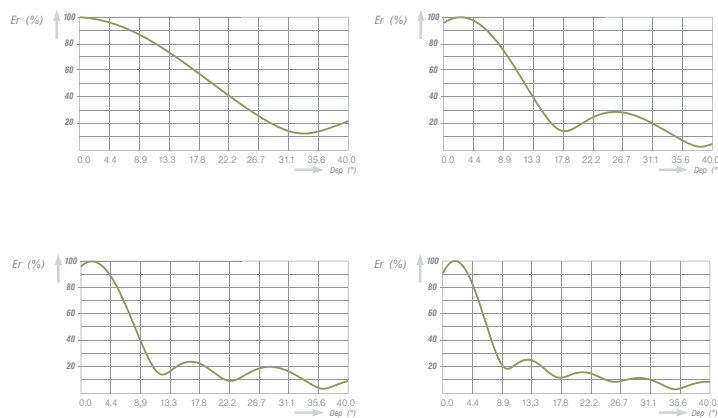
Antenna systems can be divided into 2 halves; as well pressurization with dry air is available on request.



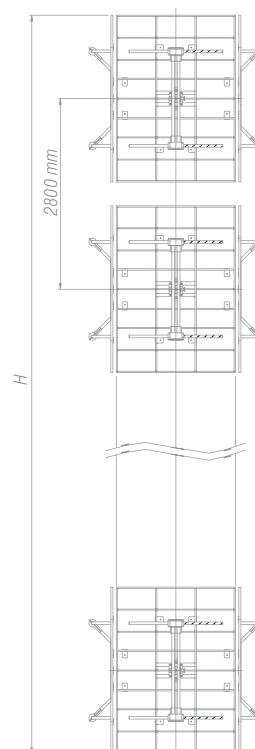
Horizontal diagram



Vertical diagram



Preferred tower dimensions



specifications

		Omni 1 bay	Omni 2 bays	Omni 4 bays	Omni 6 bays	Omni 8 bays
Design	Bays	1	2	4	6	8
	Directions	3	3	3	3	3
Antenna type		D II/06 - L horizontal polarization				
Number of antennas		3	6	12	18	24
Frequency range (MHz)		87,5 – 108				
Maximum input power (kW) ¹		12	24	48	60	96
Gain at 98MHz (dBd) ²		2,0	5,0	8,0	9,8	11,0
V.S.W.R. – no offset ³		≤ 1,20	≤ 1,20	≤ 1,20	≤ 1,20	≤ 1,20
With horizontal offset ⁴		≤ 1,10	≤ 1,10	≤ 1,10	≤ 1,10	≤ 1,10
Wind load - at 160 km/h (kN)		3,8	7,8	15,6	23,4	31,2
Weight (kg)		130	300	570	980	1.250
Input connector ¹		EIA 7/8" EIA 1 5/8" EIA 3 1/8"	EIA 7/8" EIA 1 5/8" EIA 3 1/8"	EIA 1 5/8" EIA 3 1/8" EIA 4 1/2"	EIA 3 1/8" EIA 4 1/2" EIA 6 1/8"	EIA 3 1/8" EIA 4 1/2" EIA 6 1/8"
Pressurization with dry air ⁵		No	No	No / Yes	No / Yes	No / Yes
Split system ⁶		No	No / Yes	No / Yes	No / Yes	No / Yes
Antenna system height H (m)		2,45	5,25	10,85	16,45	22,05

Presented information is valid for omni-directional antenna systems. Non-directional and custom designs of antenna systems are available on request. Null filling and beam tilt upon request.

Notes:

¹ Maximum power and input connector is designed according to customer's requirements.

² Referred to $\lambda/2$ dipole. Attenuation of the internal cabling and the decrease of gain in case of null fill in the vertical radiation pattern are not considered. Cable attenuation: 0,2 – 0,5 dB; null fill: 0,3 – 1,0 dB

³ broadband

⁴ in working channels

⁵ pressurization with dry air is available on request

⁶ see details in the chapter patch panels



Approximate coverage calculation with analogue transmitter power at the input:

250 W	Radiated power (kW)	0,4	0,8	1,6	2,4	3,2
	Coverage (km)	14	17	20	22	23
500 W	Radiated power (kW)	0,8	1,6	3,2	4,7	6,3
	Coverage (km)	17	20	23	25	26
1.000 W	Radiated power (kW)	1,6	3,2	6,3	9,5	13
	Coverage (km)	20	23	26	29	31
2.000 W	Radiated power (kW)	3,2	6,3	13	19	25
	Coverage (km)	23	26	31	33	35
3.000 W	Radiated power (kW)	4,7	9,5	19	28	38
	Coverage (km)	25	29	33	36	38
5.000 W	Radiated power (kW)	8	16	32	47	63
	Coverage (km)	28	32	37	40	42
10.000 W	Radiated power (kW)	16	32	63	95	126
	Coverage (km)	32	37	42	46	49

Calculation for radiated power does not include losses in the feeder cable and combiner's losses.

Coverage is an estimation on the following circumstances: Approximate coverage at antenna height of 50 m calculated according to ITU-R P.1546-1 with 54 dB μ V/m field strength.

Antenna system design with FMA II/08-CP

TYPES

- 1 bay, 4 sides
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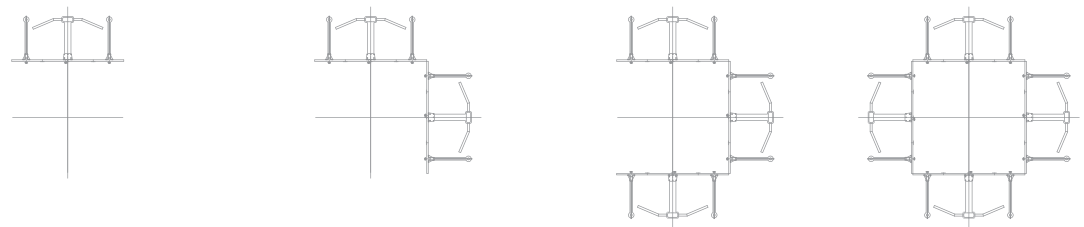
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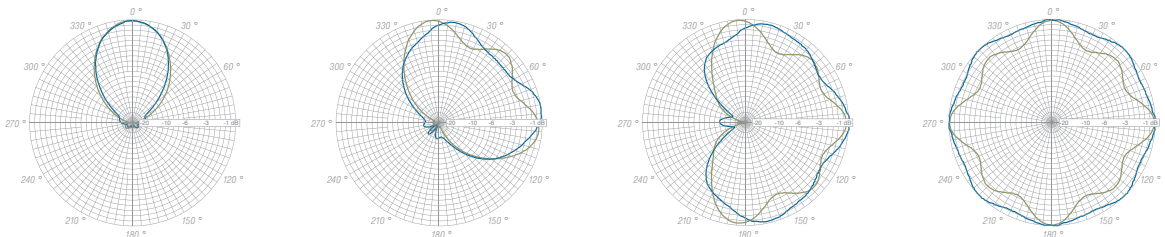
ELTI turn key solution...

Elti offer typical antenna systems on a turnkey basis with antenna panel FMA II/08-CP. Especially suitable for mounting on square masts for different radiation patterns (omni-directional, directional, custom designed). Feeding of antennas is made with coaxial power dividers and connecting cables all produced by Elti.

Antenna systems can be divided into 2 halves; as well pressurization with dry air is available on request.

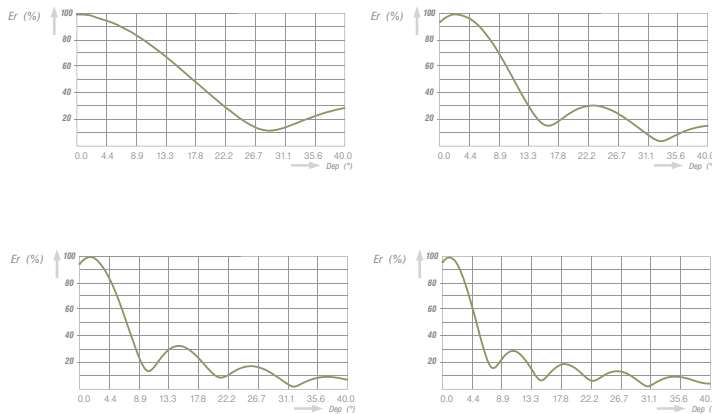


Horizontal diagram

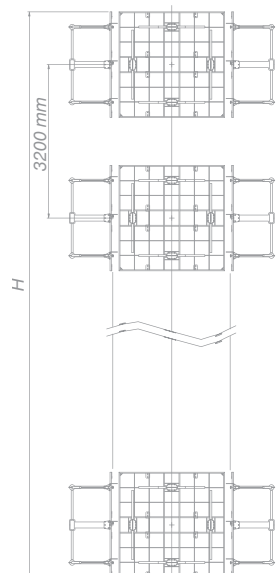


horizontal dipoles ———
vertical dipoles ———

Vertical diagram



Preferred tower dimensions



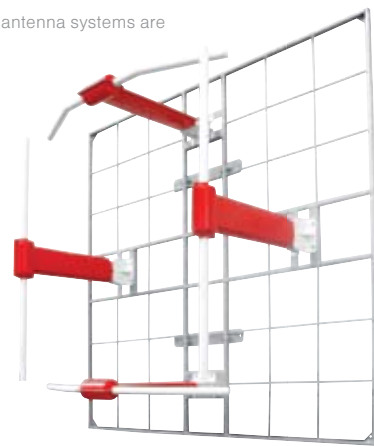
specifications

		Omni 1 bay	Omni 2 bays	Omni 4 bays	Omni 6 bays	Omni 8 bays
Design	Bays	1	2	4	6	8
	Directions	4	4	4	4	4
Antenna type		FMA II/08-CP circular or elliptical polarization				
Number of antennas		4	8	16	24	32
Frequency range (MHz)		87,5 – 108				
Maximum input power (kW) ¹		32	32	128	128	128
Gain at 98MHz (dBd) ²		-0,86	2,15	5,16	6,92	8,17
V.S.W.R. – no offset ³		≤ 1,15	≤ 1,15	≤ 1,15	≤ 1,15	≤ 1,15
With horizontal offset ⁴		≤ 1,10	≤ 1,10	≤ 1,10	≤ 1,10	≤ 1,10
Wind load - at 160 km/h (kN)		5,9	11,8	23,6	35,4	47,2
Weight (kg)		310	660	1.300	2.100	2.700
Input connector ¹		EIA 7/8" EIA 1 5/8" EIA 3 1/8"	EIA 7/8" EIA 1 5/8" EIA 3 1/8"	EIA 3 1/8" EIA 4 1/2" EIA 6 1/8"	EIA 3 1/8" EIA 4 1/2" EIA 6 1/8"	EIA 3 1/8" EIA 4 1/2" EIA 6 1/8"
Pressurization with dry air ⁵		No	No	No / Yes	No / Yes	No / Yes
Split system ⁶		No	No / Yes	No / Yes	No / Yes	No / Yes
Antenna system height H (m)		2,2	5,4	11,8	18,2	24,6

Presented information is valid for omni-directional antenna systems. Non-directional and custom designs of antenna systems are available on request. Null filling and beam tilt upon request.

Notes:

- ¹ Maximum power and input connector is designed according to customer's requirements.
² Referred to $\lambda/2$ dipole. Attenuation of the internal cabling and the decrease of gain in case of null fill in the vertical radiation pattern are not considered. Cable attenuation: 0,2 – 0,5 dB; null fill: 0,3 – 1,0 dB
³ broadband
⁴ in working channels
⁵ pressurization with dry air is available on request
⁶ see details in the chapter patch panels



FMA II/8-CP

Approximate coverage calculation with analogue transmitter power at the input:

250 W	Radiated power (kW)	0,2	0,4	0,8	1,2	1,6
	Coverage (km)	12	14	17	18,5	20
500 W	Radiated power (kW)	0,4	0,8	1,6	2,4	3,2
	Coverage (km)	14	17	20	21,5	23
1.000 W	Radiated power (kW)	0,8	1,6	3,2	4,9	6,6
	Coverage (km)	17	20	23	25	27
2.000 W	Radiated power (kW)	1,6	3,2	6,6	9,8	13,1
	Coverage (km)	20	23	27	29	31
3.000 W	Radiated power (kW)	2,4	4,9	9,8	14,7	19,6
	Coverage (km)	21,5	25	29	31,5	33,4
5.000 W	Radiated power (kW)	4,1	8,2	16,4	24,6	32,8
	Coverage (km)	24	28	32	35	37
10.000 W	Radiated power (kW)	8,2	16,4	32,8	49,2	65,6
	Coverage (km)	28	32	37	40	43

Calculation for radiated power does not include losses in the feeder cable and combiner's losses.

Coverage is an estimation on the following circumstances: Approximate coverage at antenna height of 50 m calculated according to ITU-R P.1546-1 with 54 dB μ V/m field strength.