Maximum wind loads

Load area (m^2):		0.19	0.37	*0.56	0.74	0.93	1.11	Load weight (kg)
Family	Model	Wind speed estimate (km/h)						
Without guying								
NL NG	5-20	153	119	98	85	77	69	32
NL NG	6-27	124	95	79	68	61	55	18
NL NG	7-34	101	80	68	60	53	48	18
NL NG	8-30	114	93	80	72	66	61	45
HL NG	6-25	161	161	138	121	108	98	68
HL NG	7-30	161	145	126	111	100	92	68
HL NG	7-42	161	140	121	116	109	105	68
HL NG	8.5-48	137	119	111	105	97	93	91
HL NG	8.5-52	130	114	101	92	84	76	79
HL NG	9.5-56	116	103	97	92	87	82	91
HL WG	10-60	106	97	88	82	77	72	91
UH NG	10-38	161	161	161	161	161	161	454
UH NG	12-48	161	161	161	161	146	135	454
UH NG	13.6-45	161	161	161	161	161	151	544
UH NG	14-67	151	130	116	105	97	90	363
UH WG	9-50	161	145	126	114	106	98	204
UH WG	10.3-60	137	117	106	97	92	85	204
UH WG	10.8-76	98	90	82	77	72	69	91
With guying								
HL WG	7-30	161	161	161	161	161	161	68
HL WG	7-42	161	161	161	161	161	161	68
*HL WG	10-60	161	161	161	161	161	156	91
HL WG	14.5-80	161	161	161	161	153	143	102
HL WG	17-100	161	161	159	148	140	134	91
HL WG	20-134	161	156	146	138	130	126	68
UH WG	9-50	161	161	161	161	161	161	204
UH WG	10.3-60	161	161	161	161	161	161	204
UH WG	10.8-76	161	161	161	161	161	161	91
UH WG	15.7-100	161	161	161	161	161	161	204
UH WG	22.5-164	124	124	124	124	122	122	45

Attention:
Calculations are based on specific conditions (see below), and only represent estimates. Any modification on these specific conditions will alter the values. Use the values only as a reference.

* Example:
A 10-60 mast (Heavy Duty, Locking, Guyed), with 3 antennas adding to a total wind exposure area of 0,56m^2 can withstand a maximum wind load of 161 km/h.

Notes:
NL NG – Normal Load, No Guying
HL NG – Heavy Load, No Guying
HL WG – Heavy Load, With Guying
UH NG – Ultra Heavy Load, No Guying
UH WG – Ultra Heavy Load, With Guying

Assumed conditions for calculations:

- On most of the cases, the maximum tube stress is 20.0ksi (138Mpa) (Considering the limit from the 6061-T6 de 276MPa and a security factor of 2,0).
- For non guyed masts, considering a squall factor of 1,10 and for guyed 0,85.
- Considering load drag coefficient of 1,55.
- Coefficient of tube drag calculated based on wind speed, height and diameter of the tube.
- Considering circular loads, centered at the top of the mast.
- Wind limits considering the mast already extended. Do not operate the mast in these wind conditions.
- Only mechanical resistance is considered, but not the limits for displacement or mast rotation.
- Wind load calculations are based on the ANSI/TIA-222-G standards.
- The analysis of the masts without guying assumes that the tubes are the first component of the system to reach the resistance limit.
- At least one guying level is fixed in the top in the smaller section of the mast for all the guyed masts.
- Guying with 3/16" steel considered for masts with heavy loads.
- Guying with 1/4" steel considered for guyed masts of ultra heavy loads.
- 17-4PH stainless steel pins and plates considered for guyed masts of ultra heavy loads.
- Bases and guying anchoring are considered rigid.
- Spacing between the masts diameters are considered zero.

Guying levels:

Mast	Levels
7-30	1
7-42	1
10-60	2
14.5-80	3

Mast	Levels
17-100	3
20-134	4
9-50	1
10.3-60	1

Mast	Levels
10.8-76	2
15.7-100	3
22.5=164	6