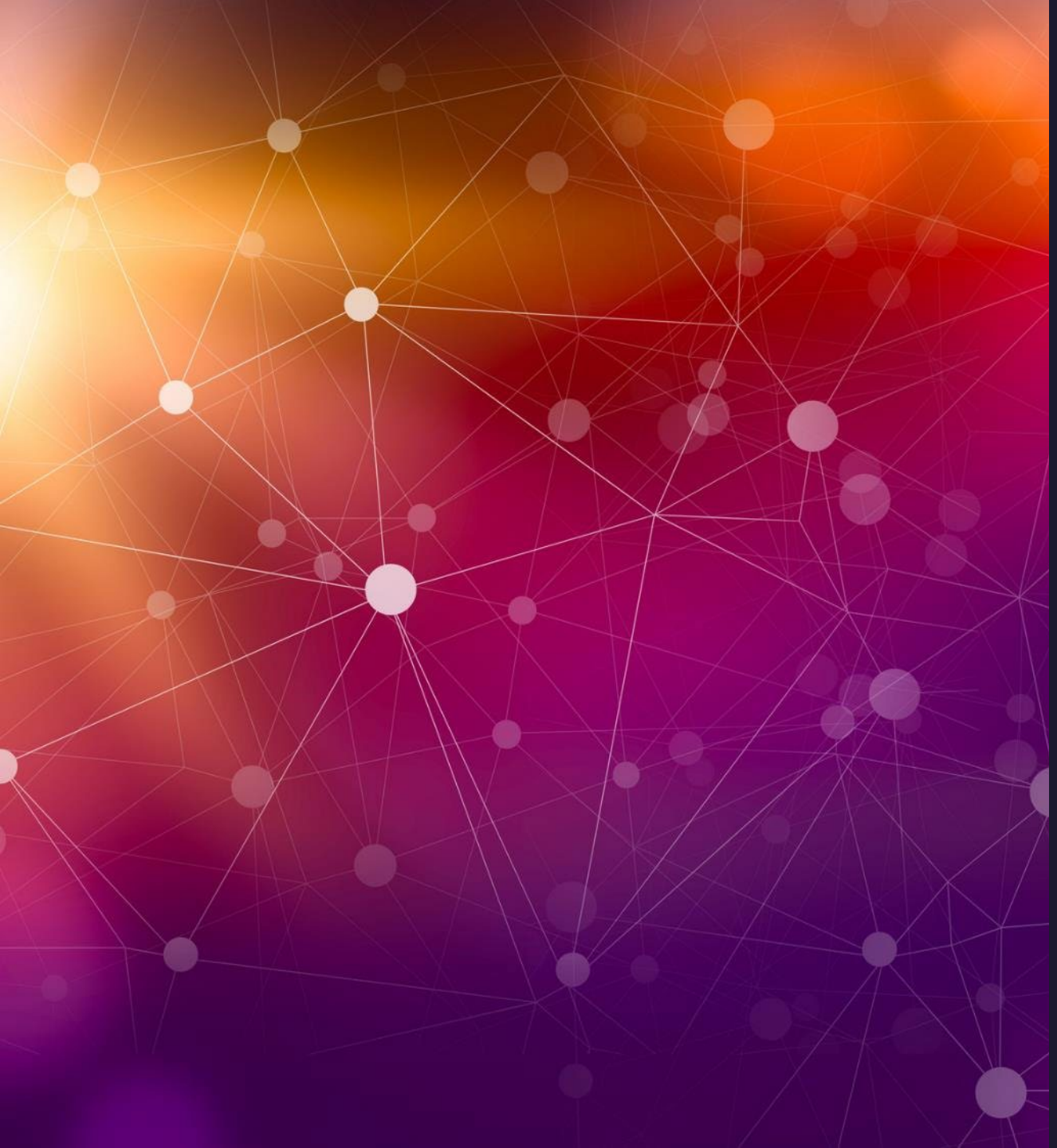


POTA Antennas

This is a temporary set up, priorities differ from permanent locations

Considerations

Ease of Deployment

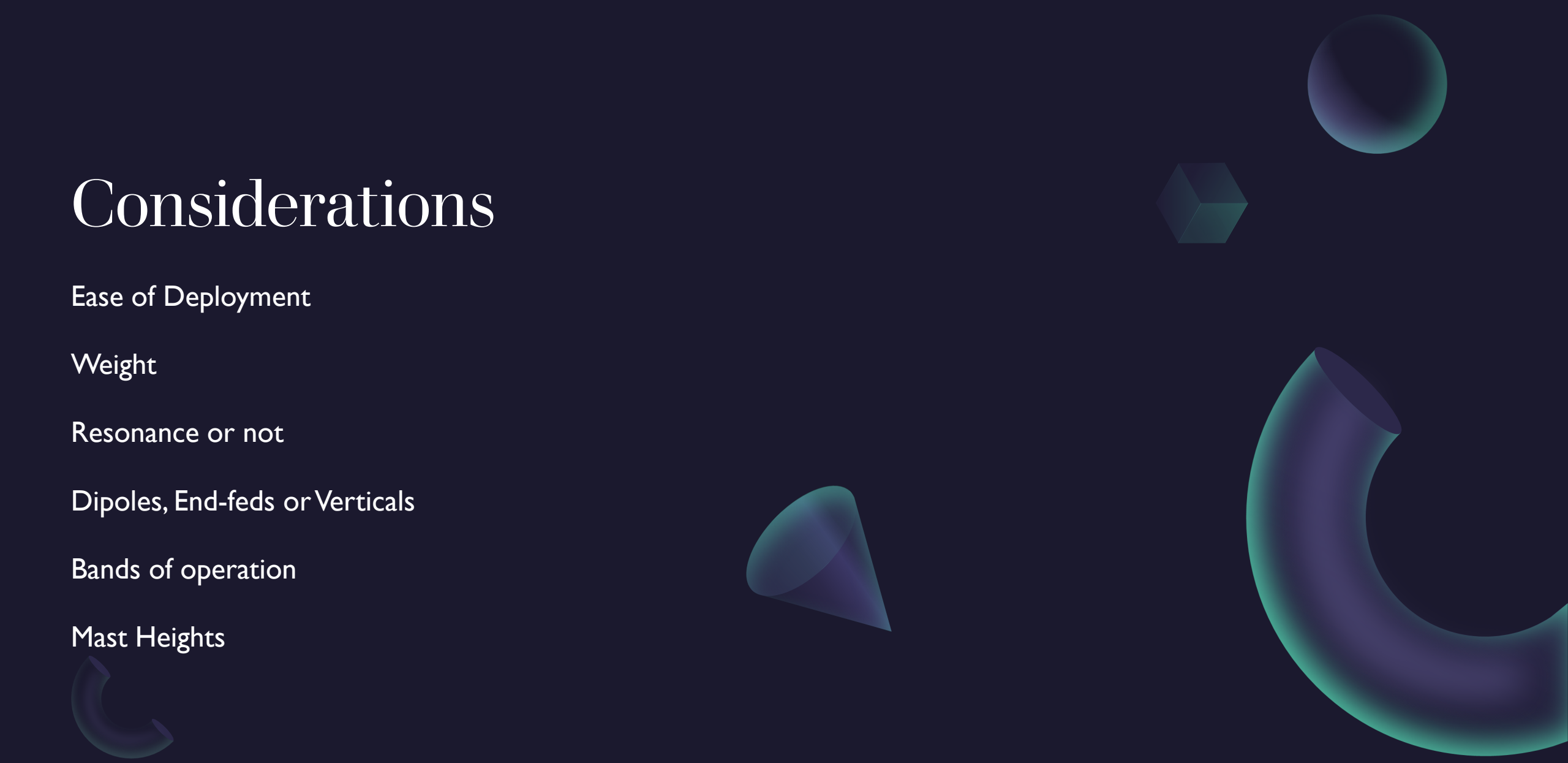
Weight

Resonance or not

Dipoles, End-feds or Verticals

Bands of operation

Mast Heights



Ease of Deployment

- Perhaps even more important than the type or efficiency of the antenna is how easy it is to set up
- Stations that take a long time to tweak and get on the air will not be on the air very often
- Operating from a vehicle can be ideal in poor weather or on a multi-park rove but it will limit the number of parks you can operate in
- Packing too much will slow down your set up
- Packing too little may result in your forgetting something or your inability to improvise a temporary fix
- Follow a regular pattern of set up and take-down to minimize mistakes or leaving stuff behind

Weight ... Height

Operating in vehicle

- Can handle heavy equipment but still must be able to easily move it and set it up
- Too tall will require guys which reduce ease and location choices

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Operating in vehicle

- Can handle heavy equipment but still must be able to easily move it and set it up
- Too tall will require guys which reduce ease and location choices

Walking some distance

- Fit in backpack or for mid-distance a cart
- Organize a standard set of components so it is less likely you will forget something
- Lighter equipment is better than ‘ideal’ equipment
- Trade-off between power/efficiency and weight, pick your poison

Resonance or not?

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Know your goal, to activate a park, 10 contacts

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The lower your power the more important having a resonant antenna becomes

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Dipoles can be resonant but limited to a single band, some have pluggable taps to provide more but they require redeployment each change, traps can be a big power loss and awkward weight locations

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OCF, great for multiple bands, requires a tuner, not as efficient as a resonant dipole

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Tall verticals, fairly quick set up, requires counterpoise which can be a trip hazard in a public space, strongly effected by local terrain

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OCF, great for multiple bands, requires a tuner, not as efficient as a resonant dipole

End-fed, comes in single and multiband, less efficient than dipole, easier to deploy

Short Verticals, fast and easy to deploy, quite inefficient, can be vehicle attached

Tall verticals, fairly quick set up, requires counterpoise which can be a trip hazard in a public space, strongly effected by local terrain

Yagi, good for higher bands, on HF can be troublesome to set up

Magnetic loops, can be easy to deploy but tend to be finicky in use.

Moxons, loops – generally hard to deploy in a park

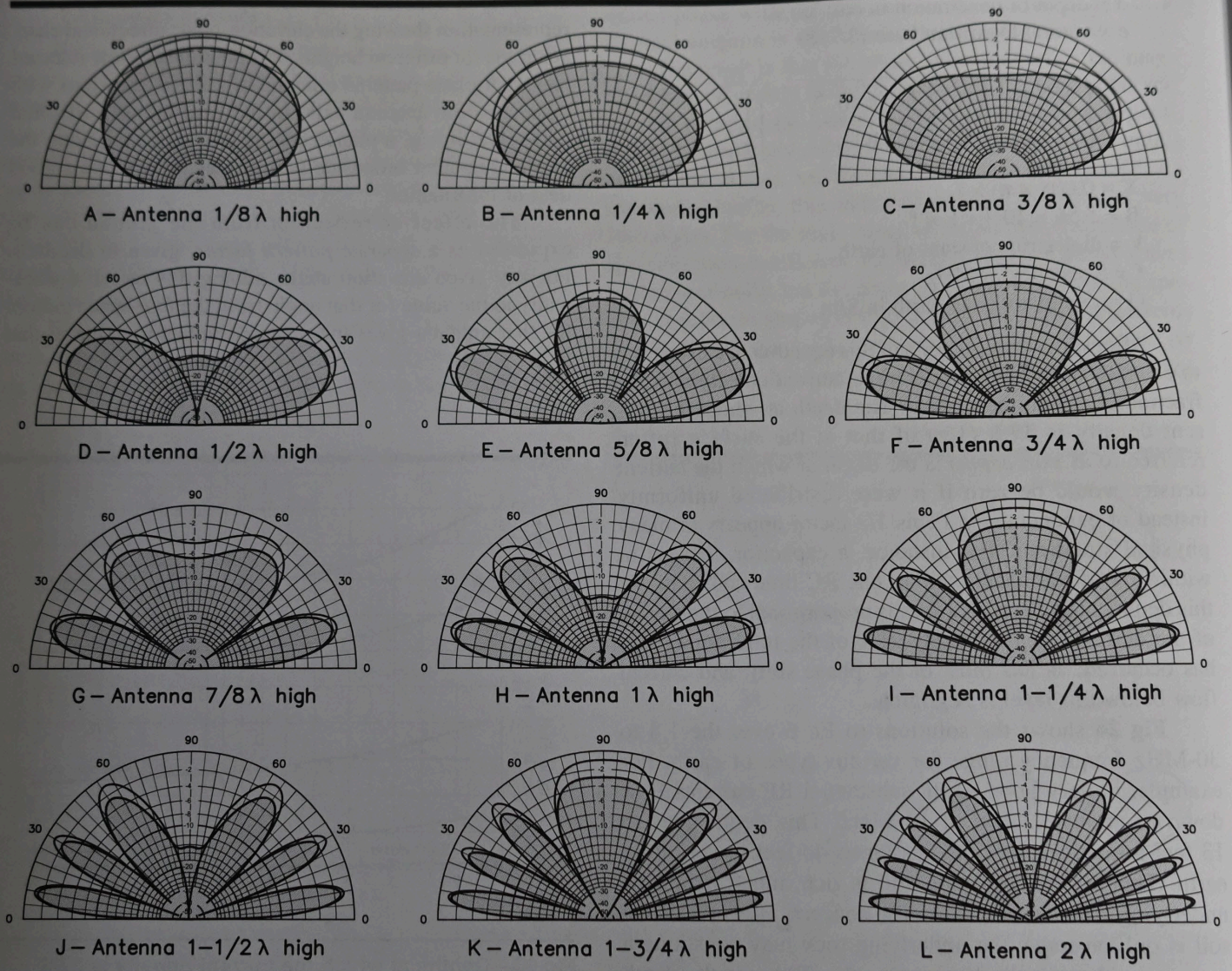

Fig 25—Reflection factors for horizontal dipole antennas at various heights above flat ground. The solid-line curves are the perfect-earth patterns (broadside to the antenna wire); the shaded curves represent the effects of average earth (k = 13, G = 0.005 S/m) at 14 MHz. Add 7 dB to values shown for absolute gain in dBd referenced to dipole in free space, or 9.15 dB for gain in dBi. For example, peak gain over perfect earth at $^{5}/_{8}$ λ height is 7 dBd (or 9.15 dBi) at 25° elevation.

Efficiency of Vertical Monopoles

This topic of the efficiency of vertical monopole systems will be covered in detail in Chapter 3, The Effects of Ground, but it is worth noting at this point that the efficiency of a real vertical antenna over real earth often suffers dramatically compared with that of a λ/2 antenna. Without a fairly elaborate grounding system, the efficiency is not likely to exceed 50%, and it may be much less, particularly at monopole heights below λ/4.

Table 1
Optimum Ground-System Configurations

	Configuration Designation					
	A	*B*	*C*	*D*	*E*	*F*
Number of radials	16	24	36	60	90	120
Length of each radial in wavelengths	0.1	0.125	0.15	0.2	0.25	0.4
Spacing of radials in degrees	22.5	15	10	6	4	3
Total length of radial wire installed, in wavelengths	1.6	3	5.4	12	22.5	48
Power loss in dB at low angles with a quarter-wave radiating element	3	2	1.5	1	0.5	0*
Feed-point impedance in ohms with a quarter-wave radiating element	52	46	43	40	37	35

Note: Configuration designations are indicated only for text reference.
*Reference: The loss of this configuration is negligible compared to a perfectly conducting ground.


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ICOM


DANGER
KEEP OFF


VIDEO
SURVEILLANCE

Out to a park with you