



## Specifications HP-RCA Systems

Antenna System Parameter	HP-RCA 2/2	HP-RCA 4/4
Array antenna type HP-RCA	6 – 12 MHz as per WARC'92; 13 – 26 MHz as per WARC'92	
Antenna polarization	horizontal	
Typical antenna gain	14 – 19 dBi	19 – 23 dBi
Configurability	Optional: 4/4; 4/2; 2/4; 2/2	
Front-to-back ratio of antenna pattern	> 20 dBi	
Antenna input impedance	50 Ohms (unbalanced); Optional: 300 Ohms (balanced)	
Power handling capability	up to 500 kW plus 120% AM	
Antenna VSWR	≤ 1.5 for WARC'92 bands	
All dipoles	fully DC grounded	
Supporting structure and reflector screen	fully DC grounded	
Antenna rotation	Unlimited; max. rotation (which never takes more than 180°) in less than 3 minutes	
Optimized coverage area	Near – Medium Coverage	Far – Distant Coverage
Antenna width	approx. 50 m	approx. 80 m
Antenna height	approx. 50 m	approx. 80 m
Antenna weight	approx. 80 tons	approx. 200 tons
Survival wind speed	240 km/h	200 km/h
Corrosion protection	hot dip galvanized steel	
Day time aviation obstruction marking	optional: red/orange and white paint	
Night time aviation obstruction lighting	optional as per ICAO Recommendations	

### Antenna Support Structure

Steel quality of supporting elements	hot dip galvanized steel
Central (vertical) support beam	tubular steel, with climbing ladder; optional: safety rail
Horizontal support beam	tubular steel, with walk on facilities; optional: safety rail
Inclined dipole support beams	tubular steel, with walk on facilities; optional: safety rail
Dipoles	tubular steel
Reflector support beams (needles)	tubular steel, with walk on facilities; optional: safety rail
Antenna feed lines	copper wire/copper tubes/low loss insulators
Reflector screen	supporting wires: copperweld; other wires: copper ropes
Bolts and nuts	for major support elements: high tensile. others: hot dip galvanized

## Contact

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## HP-RCA

Rotatable Shortwave Antenna Systems







# HP-RCA

Leading antenna technology designed to meet high demands on flexibility, reliability and cost-efficient operation

One of the master pieces in the history of antenna design is the Ampegon rotatable shortwave antenna system. Introduced in the 1980's, the high performance rotatable curtain array revolutionized the industry and is still the most versatile, powerful and efficient system of its kind. This unique antenna system provides broadcasters with the shortest lead time to start off flexible worldwide national and international coverage.

Based on a rigid dipole array and a tubular shaft, the HP-RCA system is a back-to-back arrangement of a low band and a high band curtain antenna equipped with a reflector screen. The system covers all shortwave broadcast bands from 6–26 MHz and rotates at the touch of a finger-tip. Even though the rotation is unlimited, under operational conditions the antenna does not need to rotate more than a maximum of 180° in one direction. This can be accomplished in less than 3 minutes.

### The New HP-RCA 4/4

With an overall weight of approximately 200 tons, the legendary HP-RCA 4/4 needs a ground surface with a radius of less than 40 m to operate to any azimuth.

**Efficiency:**  
Responding to the growing demand on increased efficiency and quicker payback, Ampegon has now re-designed the classical HP-RCA 4/4 antenna, optimizing the system for far distant coverage. Combining the advantages of the Ampegon rigid rotatable antenna design with those of the balanced RF feed line, the newest model HP-RCA 4/4 antenna features increased bandwidth, greater reliability, enhanced ease of assembly, improved efficiency and significant economic advantages. By optimizing the configurability for far distant coverage, the complex switching and tuning system in the tubular shaft was replaced with an evolutionary balanced feed system. This not only reduces considerably the cost of the antenna, but also eliminates the need of additional balun and transformation lines. The coaxial line passing through the pivot bearings has been upgraded by a twisting balanced feeder. In combination with a switch, this feeder allows unlimited rotation of the antenna in any direction.

**Configurability:**  
As a high end option the configurable HP-RCA 4/4 offers ultimate flexibility not only in azimuthal direction but also in shaping the radiation characteristic to match the desired coverage area. Patterns according to AHR 2/2, AHR 2/4 and AHR 4/4 array configurations can be chosen for the complete frequency range of this antenna system.

### HP-RCA 2/2

In 2006, Ampegon introduced the HP-RCA 2/2 shortwave antenna system designed for near and medium range coverage in analog AM or digital DRM modes. The HP-RCA 2/2 helps broadcasters with limited space and budget to make important power savings while increasing considerably their coverage flexibility. The Ampegon HP-RCA 2/2 is a highly interesting alternative system solution for broadband fixed curtain antenna configurations.

The HP-RCA 2/2 services similar coverage areas as the classical LPD (log periodic dipole antenna) with up to 45% higher efficiency of the radiated power into a defined target area. The footprint of this powerful and highly flexible system is surprisingly small. With dimensions of 51 m x 51 m (W x H), the foundation surface needs less than 12 m x 12 m. The needed ground surface for the unlimited operation of the antenna has a radius of approximately 25 m.

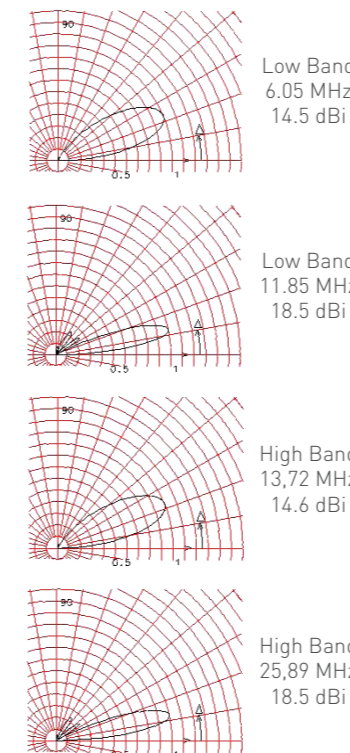
## Key Features

- Rotates to cover a 360° coverage angle for complete flexibility with a single antenna structure
- Covers all shortwave broadcast bands (6–26 MHz) with only one antenna
- High antenna gain
  - HP-RCA 2/2: 14 dBi – 19 dBi
  - HP-RCA 4/4: 19 dBi – 23 dBi
- High front-to-back ratio
- Perfect DC grounding
- Sturdy rigid dipole design for safe operation under extreme environmental conditions
- System maintainability (no guy wire system, easy access to main parts, minimized number of insulators)
- Small footprint enables reduced space requirements
- Special design allows quick installation and minimum foundation
- Full DRM compatibility to meet future developments and needs
- Flexibility in coverage range by array configuration RCA 4/4

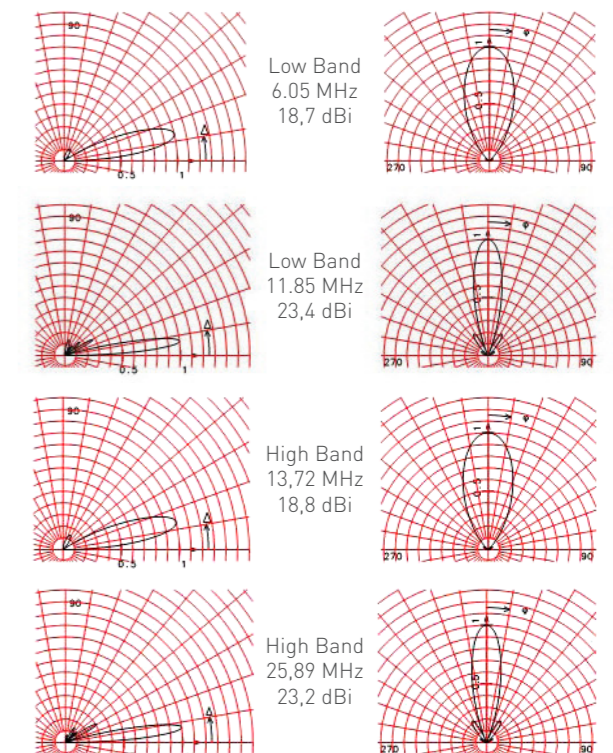


## Typical Antenna Radiation Patterns (low and high bands)

### HP-RCA 2/2



### HP-RCA 4/4



HP-RCA 4/4 shortwave antenna system