

Antenna Systems

Broadband UHF Hybrid Antenna, 470 - 860 MHz

BAND IV-V

10
year
GUARANTEE

PRODUCT FEATURES

- Extreme wideband performance
- Full isolation between different panels and tiers
- Prevents antenna radiation reflections
- Excellent quality for TV and digital signals
- Same length of all element cables
- Phase rotation (not sensitive to icing)
- Full signal quality also in minimas
- Customising possibilities

PRODUCT PROFILE

The UHF Hybrid system is a complete antenna solution containing cables, splitters, loads and antenna panels. The system contains antenna panels on four faces and the desired number of tiers. Hybrid splitters give the system extreme wideband isolated performance. The antenna is divided into two halves that can be operated separately or combined into a single antenna. The panels are mounted on stainless steel plates that can be tailor-made to suit your tower requirements.

Exir Broadcasting is responsible for more than 40 high-power, high-gain, multi-channel systems in operation for over 10 years.

HYBRID ANTENNA SYSTEM

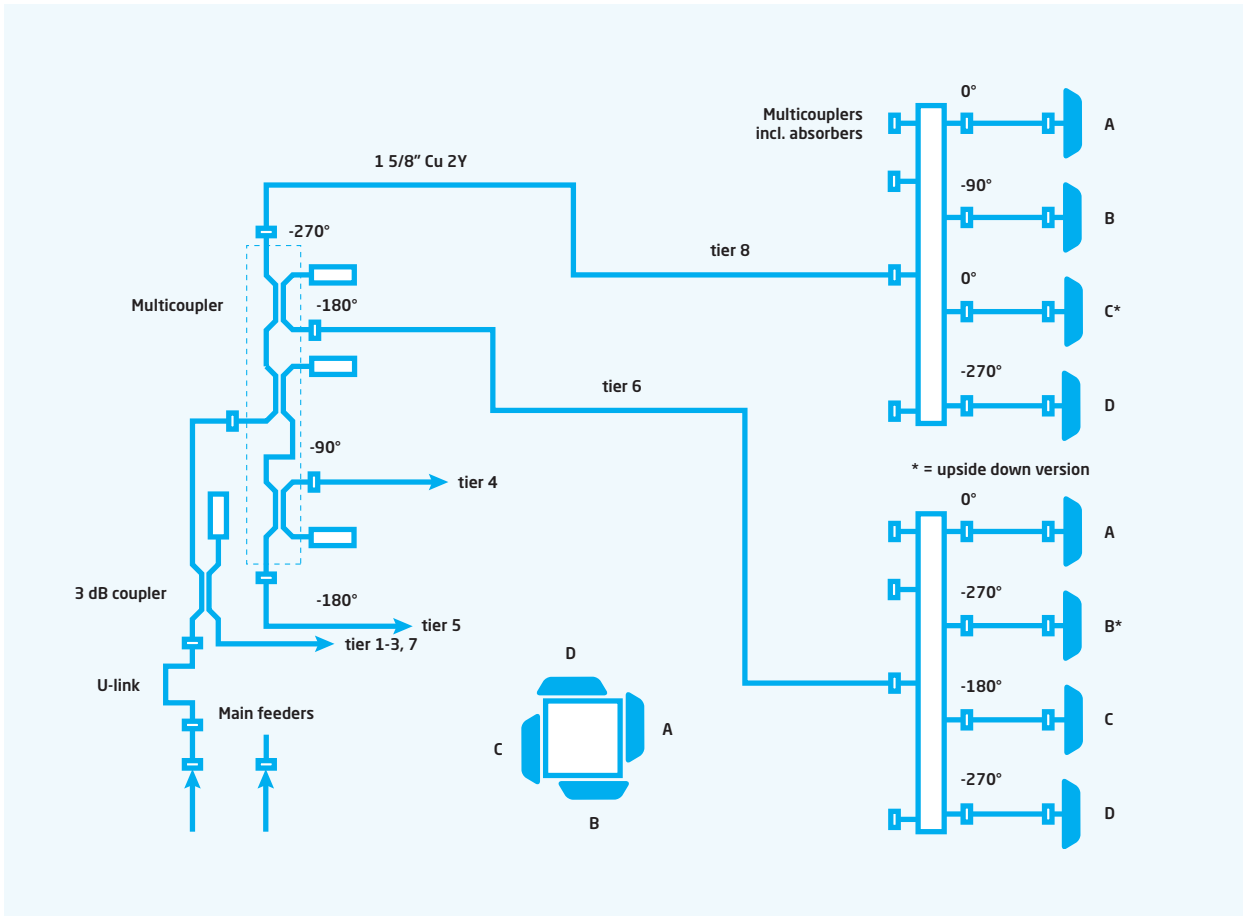
The unique hybrid system designed by Exir Broadcasting is based on a splitter system using the 3 dB-coupler principle. Each quarter wave coupler provides equal power division (-3 dB down compared to input) as well as a 90 degree phase shift throughout the band. The last four hybrid splitters (multi-couplers) in the chain consist of 3 x 3 dB-couplers. These multicouplers are widebanded and are used as main splitters/tier splitters in the antenna system. Each tier is fed with equal power, but in 'phase quadrature' i.e. 0, 90, 180 and 270 degrees. The 270 degrees is achieved by using an upside down version of UHF panel. See system schematic above.

The antenna panel design incorporates an 80 mm horizontal offset. As there is a 90 degree phase difference in each output, and all antenna cables are of equal length, the offset creates a self-compensating structure. If the radome is iced, the reflected power will end up in the reject load and the impedance will be constant across the entire UHF band. In addition, reflections caused by icing are prevented from being re-radiated from other panels. The same principle can be applied throughout the system and can even be used at ground level in the combiner chain.



GENERAL SYSTEM SPECIFICATIONS

FREQUENCY RANGE	470 - 860 MHz (band IV-V)
IMPEDANCE	50 Ohm
VSWR (at operating frequency)	<1.05
POLARISATION	Horizontal
VERTICAL RADIATION PATTERN	Customised, Null fill and beam tilt
PRESSURISATION	
Max	0.5 bar
Normal	0.1 bar
CONNECTIONS	4 1/2" flange or as required



4-TIER WITH 16 PANELS	
TYPICAL DATA	ANT4-SYST-A005
MAX INPUT POWER	2 X 5 kW rms
PEAK GAIN	9.5 dBd
COMBINED TIER HEIGHT	~4.5 m
SYSTEM COMPONENTS	16 antenna panels, cables, connectors, multicouplers and 3 dB couplers

8-TIER WITH 32 PANELS	
TYPICAL DATA	ANT4-SYST-A003
MAX INPUT POWER	2 x 10.5 kW rms
PEAK GAIN	12.5 dBd
COMBINED TIER HEIGHT	~9.0 m
SYSTEM COMPONENTS	32 antenna panels, cables, connectors, splitters with multicouplers and 3 dB couplers

16-TIER WITH 64 PANELS	
TYPICAL DATA	ANT4-SYST-A001
MAX INPUT POWER	2 x 21 kW rms
PEAK GAIN	15.5 dBd
COMBINED TIER HEIGHT	~18.0 m
SYSTEM COMPONENTS	64 antenna panels, cables, connectors, splitters with multicouplers and 3 dB couplers