Allgon Antenn AB

Allgon Antenn AB since its formation in 1950 has enjoyed steady growth until as of today it is the largest manufacturing enterprise in its field in Scandinavia with particular emphasis on the development and production of transmitting and receiving antennas as described in this brochure.

In addition, the Company engages in the development of related problem oriented products, made possible by its advanced capabilities in this area and by the experience gained from the successful completion of numerous projects commissioned by, among other, various national defence authorities and large communications and electronics complexes. These activities have been instrumental in forming the nucleus of accumulated practical knowledge from which the Company's standard products have evolved and they will continue to play an indispensable role in the adaptation of the latter to constantly changing conditions and requirements.

Allgon antennas are now in service in diverse parts of the globe due to increasing recognition of their superior quality, and in face of stiff, international competition. The production staff feel naturally proud of this accomplishment which in turn is a spur to new ideas.

Products and services

Allgon Antenn AB conducts extensive R&D in the field of antennas for customers in the public as well as the private sector of the economy. Progress reports and consultations at the various stages of a development program ensure maximum adherence to the wishes and requirements of the principal.

The Company's standard antennas mainly fall into three groups:

A: Antennas for mobile and stationary installations type $\lambda/4$ full scale, $\lambda/4$ shortened, $5/8 \cdot \lambda$, $\lambda/4 + \lambda/2$ cophasal, $\lambda/4 + \lambda/2 + \lambda/2$ cophasal etc within primarily 27–1000 MHz.

B: More complex antennas type logarithmic periodic for power inputs up to 50 kW and within 5–1000 MHz, helical antennas within 100–1000 MHz, yagi antennas within 20—2000 MHz, different types of slot antennas, active antennas, RFD = reflexion free antennas, dipole-/slot arrays with uniform, binomial or Dolph-Tchebyscheff amplitude distribution etc.

C: Very advanced antennas type logarithmic periodic for power inputs up to 500 kW + 100 % AM and within 4–40 MHz.

New types of antennas for our own production program are continually being developed in our laboratory which is also keeping a constant watch for possibilities of improvement of items already in existence.

Contents

This brochure presents the ALLGON antenna program on the basis of function and use.

Citizens band 27–29 MHz

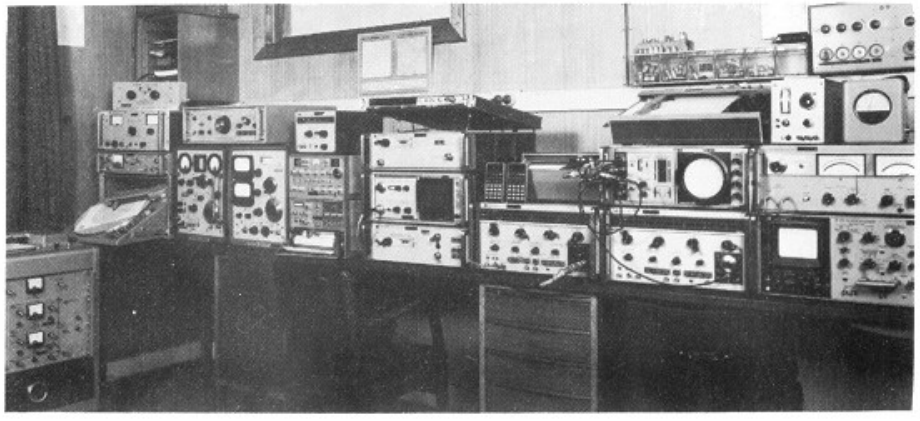
Products with index **CB** will operate within the Citizens' band. In the frequency chart this band is marked in a vertical darkened area. You will find all Allgon CB antennas here.

Symbols

BW = bandwidth. Shown in % for narrow banded antennas.
B = broadband antenna. The antenna covers the whole band stated.
CB = the antenna will operate on Citizens' band 27—29 MHz.

Research and development

Allgon has placed heavy emphasis on the use of adequate measuring sites and up-to-date instruments permitting accurate measurements within about 10 kHz–48 GHz such as:
Radiation, antenna gain, impedance and VSWR, TDR (time domain reflection).



A mobile measuring bus is utilized for field measurements of radiation, antenna gain, impedance, VSWR and TDR.

The Company also is in a position to offer computer calculations of yagi antennas, rhombicantennas and dipole fields – with or without ground influence. Calculations of wave propagation forshort wave connections via the ionosphere is an additional service available.

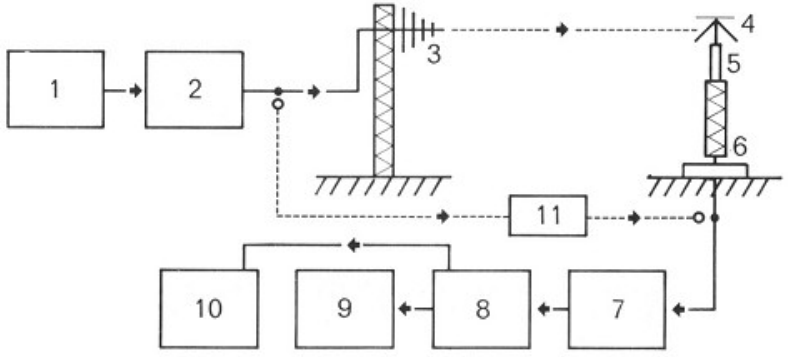
Measuring of radiation and antenna gain.

The Company laboratory has at its disposition sites for measuring antenna radiation diagrams and gains. In this operation the antenna is attached to a plastic mast some 15 meters above ground. The mast is mounted on a turntable by way of a framework mast. The test antenna is connected to a Scientific Atlanta receiver, dynamic 60 dB. The transmitting antenna is placed in the remote zone at a distance of

$$R > 2 \cdot \frac{L^2}{\lambda}$$

R = measuring distance (meters) ($R > \lambda$, $R > L$)
λ = wave length (meters)
L = maximum physical measure of antenna (meters)

For plane polarized waves a vertically horizontally polarized log-periodic transmitting antenna is used; for circularly polarized waves, a helical antenna. Under constant output from the transmitting antenna the test antenna is then turned 360° and the radiation diagram is drawn in rectangular or polar co-ordinates. When measuring antenna gain the test antenna is momentarily replaced by a reference antenna of known gain (usually a reference dipole). See fig. 1.



1. signal generator: HP 608E, HP 612A, HP 3200B, HP 8693A, HP 8698B, HP 8699B 0,4–8000 MHz
2. power amplifier: HP 230B, 10–500 MHz
3. transmitting antenna: log-periodic vertically or horizontally polarized, helical circularly polarized
4. test antenna to be checked
5. plastic mast
6. 360° turnable, including Servo Scientific Attanta
7. low frequency converter: Scientific Atlanta model 17020 B, 20–940 MHz
8. receiver: Scientific Atlanta model 710, 940 MHz–40 GHz, dynamic range dynamic 60 dB
9. plotter polar co-ordinates: Scientific Atlanta model 1530
10. plotter rectangular co-ordinates: Scientific Atlanta model 1410
11. attenuator: Rohde & Schwarz, 0–2000 MHz, 110 dB

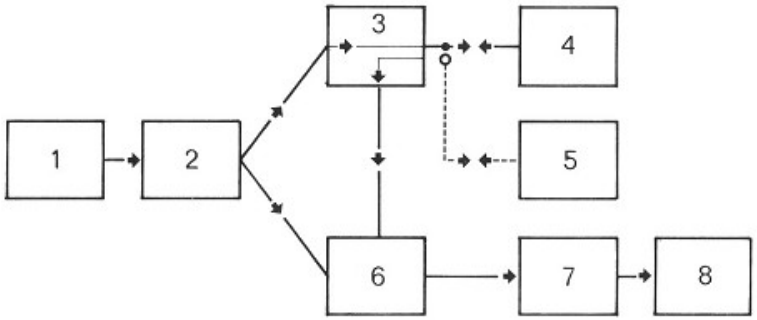
Measuring impedance and VSWR

Measurements are performed with Hewlett-Packard Network Analyzer 8407A and 8410A. The result is obtained on 8414A Polar Display or 8412A Phase-Magnitude Display, both of which are of cathode radiation type. The result also may be transcribed on paper using a XY-writer. Polar Display gives the result directly in the form of a Smith-diagram.

Using the above instruments reflection measurements are easily carried out to determine reflection coefficient, complex impedance/admittance and standing wave ratio (VSWR).

By connecting up the transmission measuring equipment, infromation may be obtained as to gain/attenuation and input of passive as well as active networks.

Measurements are also performed in fields other than that of antennas, e.g. cables, contact gear, attenuators, filters, and amplifiers.



1. Sweep Generator: HP 8690 B, HP 8699 B, 0,4–4000 MHz
2. Power Splitter: HP 11951 A
3. Directional Bridge: HP 8721 A
4. Object of measurement: e.g. testing antenna to be checked
5. Calibration: 0, 50, or 100 ohm
6. Network Analyzer: HP 8407 A, HP 8410 A
7. Display: Polar Display 8414 A, Phase-Magnitude Display 8412 A
8. XY-writer

TDR (time domain reflection)

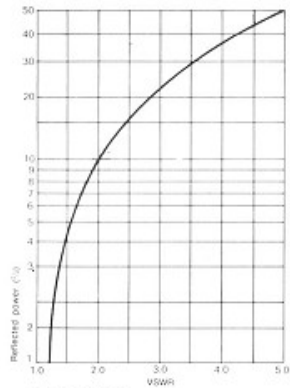
Hewlett-Packard Time Domain Reflectometer 1415 A is exceedingly helpful in checking the quality of coaxial cables and in detecting transmission line discontinuities generally.

Along with antennas, ALLGON annually delivers several hundred kilometers of coaxial cables. The many different makes of such cables on the market today necessitate a thorough check of their quality, to which end we use this Time Domain Reflectometer for top results.

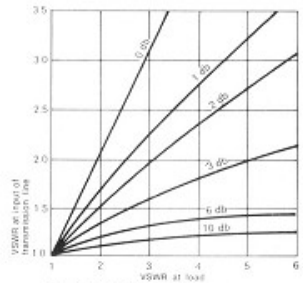
When performing a TDR-measurement a number of voltage steps of very short rise time (150 ps) are sent through the transmission cable. By means of sampling technique the autgoing and reflected voltage jumps are shown on an oscilloscope permitting direct reading of the attenuation and impedance (and thus the quality) of the cable.

Other measuring equipment

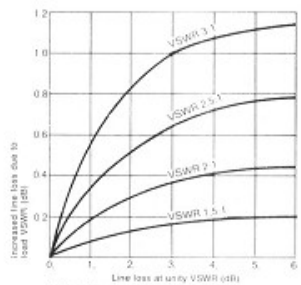
Allgon Antenn AB has at its disposal a great number of other measuring instruments. For example vector voltmeters, frequency converters, mixers, oscillators, directional couplers, frequency counters up to 12 GHz, Rohde & Schwar's Diagraphs, power meters, Q-meters etc.



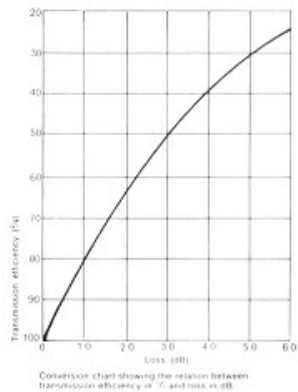
Reflected power as function of VSWR



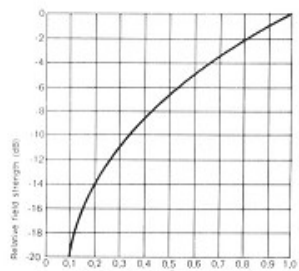
Reduction of VSWR at input of transmission line as function of line attenuation



Additional transmission line loss in dB as function of VSWR at load



Conversion chart showing the relation between transmission efficiency in % and loss in dB



Conversion chart between relative field strength in dB and in linear voltage scale

Coaxial cable	Outer diam. (mm)	Dielectric	Frequency (MHz) 30	80	160	450	900
RG 174	2.6	polyetylen	1.6	2.6	3.6	6.0	8.7
RG 188	2.8	teflon	1.4	2.3	3.2	5.6	8.0
RG 58C	5.0	polyetylen	0.9	1.5	2.0	3.5	5.0
RG 141	4.9	teflon	0.7	1.2	1.6	2.8	4.0
RG 8/RG 213	10.3	polyetylen	0.4	0.6	0.9	1.7	2.2
RG 225	10.9	teflon	0.4	0.6	0.8	1.5	2.2
RG 17/RG 218	22.1	polyetylen	0.2	0.3	0.5	0.8	1.2

Attenuation in dB/10 meter for some common coaxial cables as function of frequency. Small variations can occur between different manufacturers

Coaxial cable	Outer diam. (mm)	Dielectric	Frequency (MHz) 30	80	160	450	900
RG 174	2.6	polyetylen	160	90	70	40	25
RG 188	2.8	teflon	550	350	250	140	100
RG 58C	5.0	polyetylen	450	260	190	110	75
RG 141	4.9	teflon	1800	1000	750	420	300
RG 8/RG 213	10.3	polyetylen	1700	1000	700	400	270
RG 225	10.9	teflon	4800	2900	2000	1200	800
RG 17/RG 218	22.1	polyetylen	6000	3500	2400	1600	800

Maximum permissible power (watt) for some common coaxial cables at function of frequency. Small variations can occur between different manufacturers

Mobile antenna bases

The special requirements for a properly functioning mobile antenna base are very stringent. Its most important qualities are great mechanical stability, low sensitivity to changes of temperature, good ground contact even after a long period of service, simplicity of installation, and imperviousness to water and moisture. These specifications are met in ALLGON's Mobile Antenna Bases which have gained particular foothold in northern Europe with its rather unfavorable climatic conditions.

ALLGON RF - 128

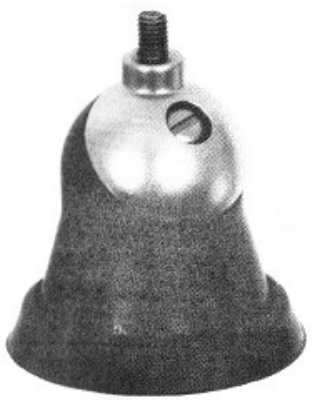
CB

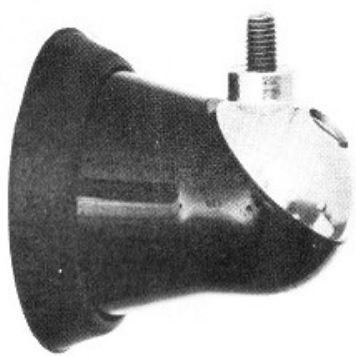
In cooperation with major manufacturers of radio communication equipment we have improved the electrical and mechanical properties of this base for great reliability. Because of its electrical qualities it can be employed for operations involving frequencies up to 500 MHz. It is available as standard for use on sheet metal of 4 mm thickness or less but may be mounted on heavier plate if required.

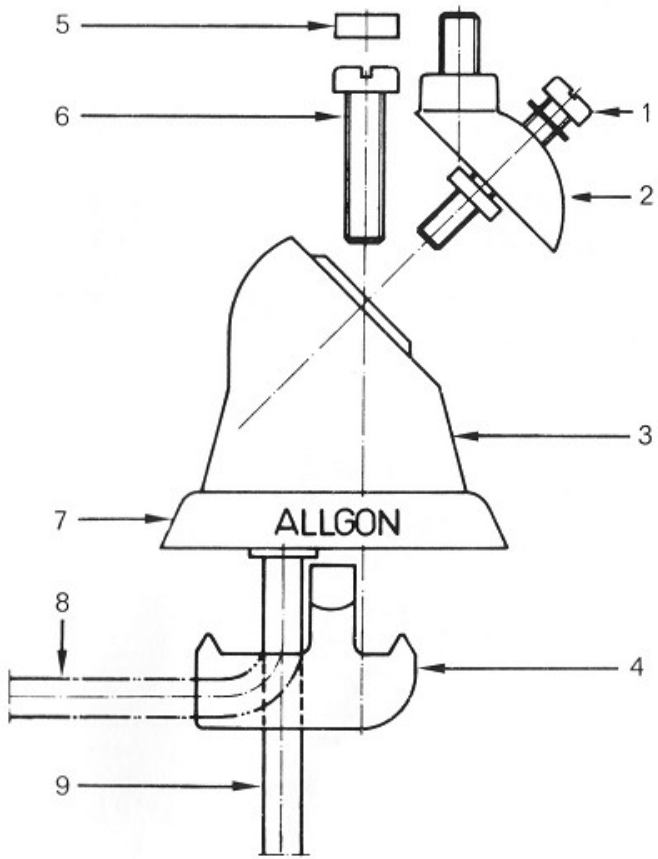
RF 128 is installed from without through a hole of 19–23 mm diameter. It is equipped with a 5 meter coaxial cable RG-58 with threaded miniature coaxial terminal and a straight or angular cable entry to the antenna base. It is also available without the cable. The radiator can always be installed in a vertical position regardless of slant of contact surface.

1. Screw for joint
2. Complete joint
3. Base
4. Grounding washer
5. Covering washer
6. Fitting screw
7. Packing

8–9. Cable, complete







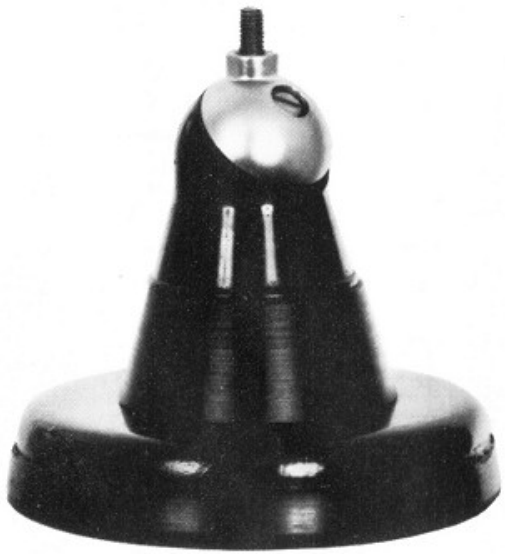
ALLGON RF 130 MAGNETIC MOUNT c

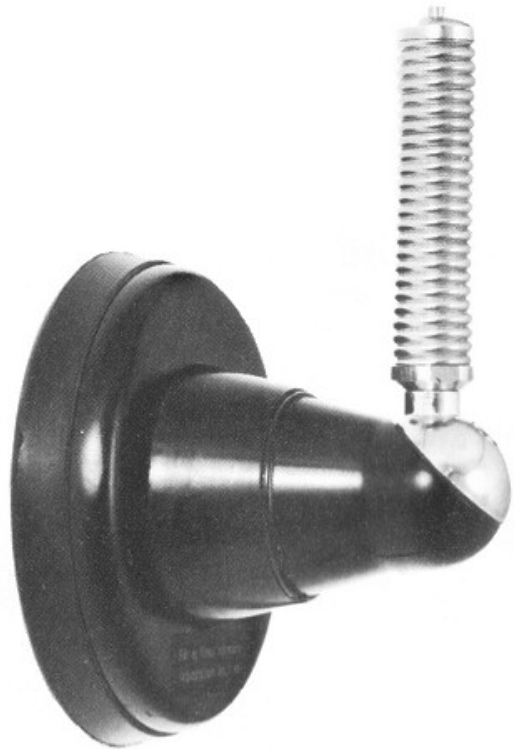
RF 130 fulfils the requirements of strong adhesivity and offers minimum wind resistance due to its low profile.

Some of the components are identical with those of RF 128, thus facilitating interchange of spare parts of different bases. The cable may be exchanged, as in RF 128, and its terminal is placed inside the base well protected from moisture and dirt. The ball joint having been removed the base is dismounted by merely removing a screw.

RF 130 is used for frequencies up to 500 MHz. It is perfect for temporary mounting of antennas on vehicles as it will remain firmly in place.

Occasionally it is combined with a portable set the telescopic antenna of which usually is cumbersome in a vehicle.





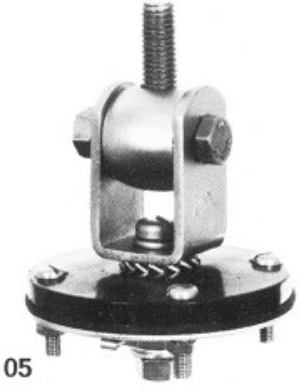
ALLGON RF 103 CB

An impedance correct base, moisture proof, with coaxial terminal type UHF. Made for mounting on auto fenders along with radiator type RA 308.

RF 103

ALLGON RF 105 CB

Heavy base for radiators of maximum length. Suitable for mounting on vehicles travelling routes of unlimited overhead clearance, and on water borne craft with developed ground plane. Matching radiators: RA 308, and RA 302.



RF 105

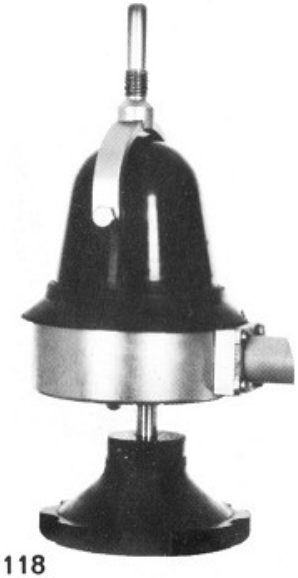
ALLGON RF 108 CB

Same as RF 105 but in addition equipped with a spring to minimize the effect of heavy blows to the radiator.

RF 108

ALLGON RF 118 CB

A tiltable base for top mounting and operated from within the vehicle by means of an overhead rubber knob. The base will give if radiator is subjected to external force. The base is adjustable to correspond to the expected external impact.



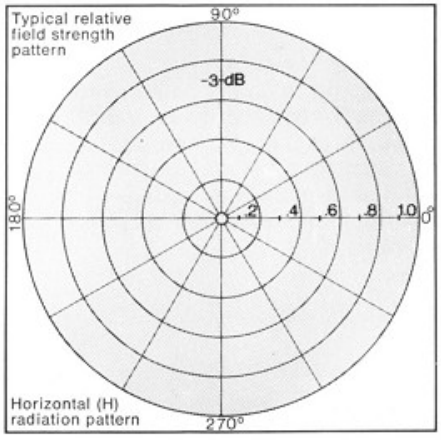
RF 118

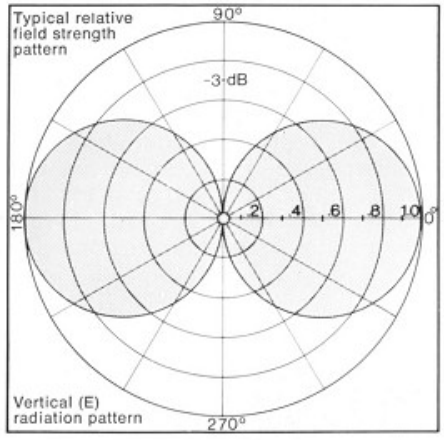
Allgon antenna radiators

Positioning mobile antennas often turns out to be a compromise between the wishes of the car owner and preference of the expertise. Most advantageous location from the professional point of view is as a rule on top (if metal) of the car as this gives maximum range and full omnidirectional coverage. Second choice is fender mounting. Due to the many variations in shape and form of the vehicles no precise recommendations can be offered. When fender mounted the antenna should be placed as high as feasible for minimum obstruction by the car body.

An unsymmetrically placed antenna will yield a more or less deformed radiation diagram in the horizontal plane. Fender mounting usually produces directional effect in the direction of a line running from the antenna through the remotest point of the car body. For lower frequencies (VHF range 27–300) maximum radiation takes place backwards over the rear fender if the antenna is mounted on the front fender. For frequencies in the upper range of the VHF and UHF the reverse usually is the rule.

The directional effect is not always very marked but can be utilized when the vehicle is at the range limit at which point even a marginal increase of signal level counts. If radio connection cannot be established from a certain spot, moving the vehicle just a short distance may remedy the situation. Most suitable locations are those of a sufficient altitude to offer unobstructed view to the horizon; along rivers, lake or sea shores. It is easier to establish long distance connections along the shore than over land alone.





ALLGON RA 302 CB

A non-shortened quarter wave $\lambda/4$ glass fiber radiator for 27–174 MHz. (Required frequency to be stated when ordering.) Matching radiator bases: RF 105, RF 108, and RF 103. At frequencies over 68 MHz adjustable base RF 118 may also be used.

ALLGON RA 307 CB

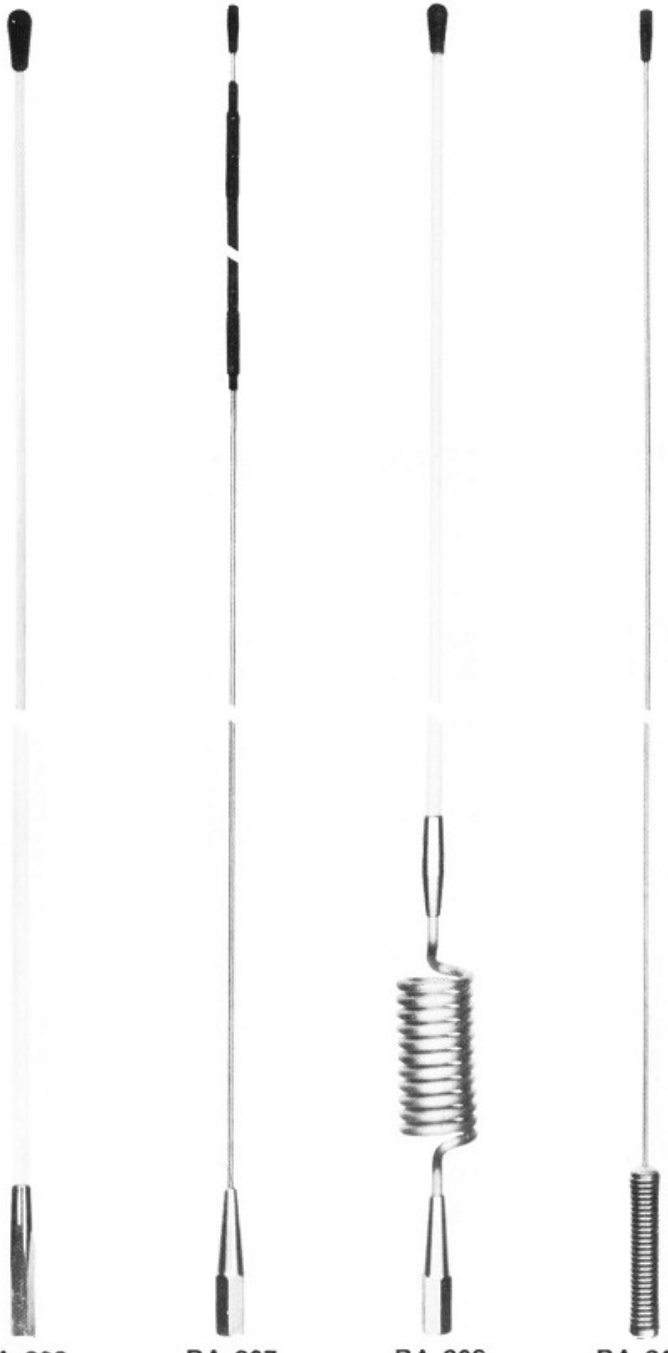
A shortened quarter wave $\lambda/4$ radiator for 27–80 MHz made of stainless steel and equipped with tunable top coil. Same as RA 313 but for absence of bottom spring. Matching radiator bases: RF 103, RF 105, RF 108, and RF 118.

ALLGON RA 308 CB

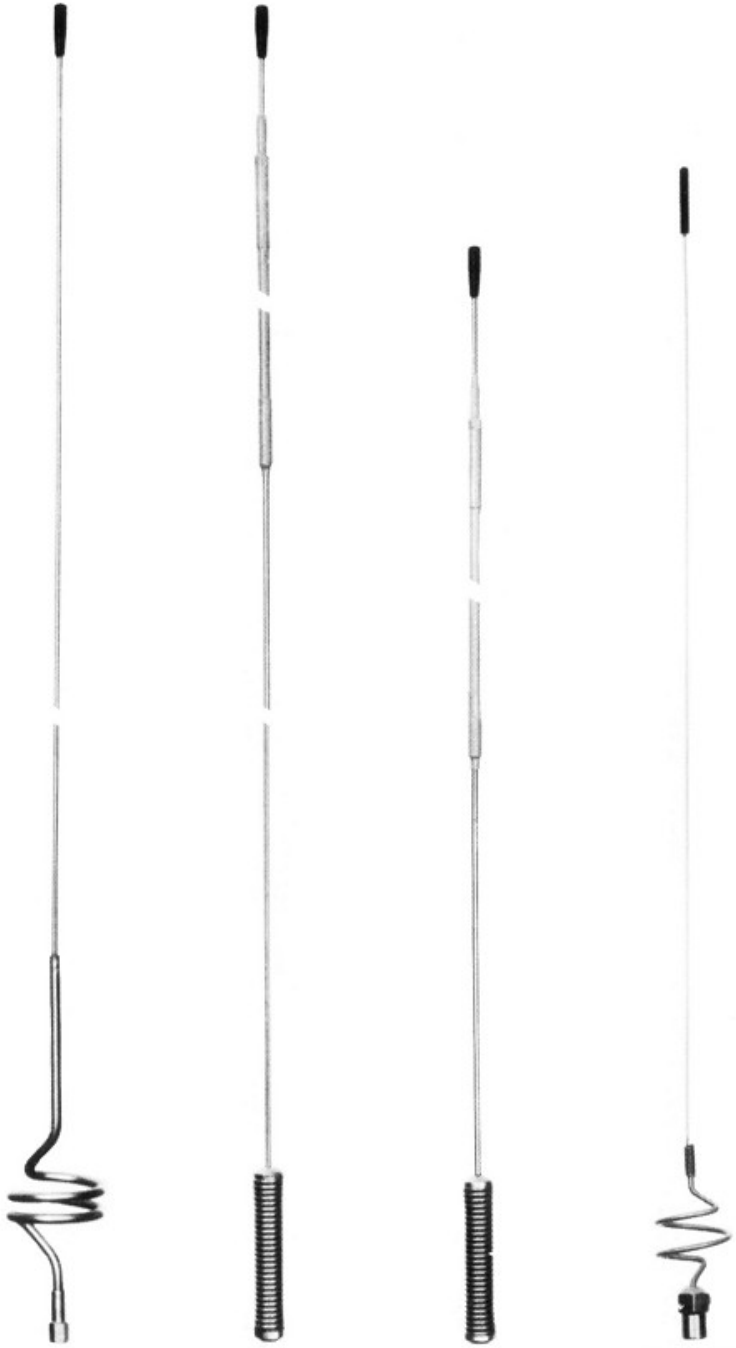
A shortened quarter wave $\lambda/4$ glass fiber radiator for 27–40 MHz with a sturdy bottom coil that also serves as a spring. Matching radiator bases: RF 103, RF 105.

ALLGON RA 310

A non-shortened quarter wave $\lambda/4$ radiator for 67–174 MHz. Required frequency is obtained by cutting as directed in an accompanying cutting chart. Made of stainless steel and equipped with a strong bottom spring. Matches base RF 128.



RA 302 RA 307 RA 308 RA 310



RA 311 RA 312 RA 313 RA 328

ALLGON RA 311

This is an unshortened 5/8-wave radiator for 144–174 MHz. Required frequency is obtained by cutting according to an accompanying cutting chart. Depending on size of ground plane RA 311 has up to + 3 dB gain over ordinary quarter wave radiators. Also, its radiation center is located higher up in comparison with quarter wave radiators which improves the omnidirectional qualities in the event of unsymmetrical positioning on the vehicle. The rod is made of stainless steel and the coil of chromium plated brass. Matches base RF 128.

ALLGON RA 312 CB

A shortened quarter wave $\lambda/4$ antenna for 27–41 MHz with trimmable top coil. Required frequency to be stated when ordering. The radiator is 1200 mm long, is made of stainless steel and equipped with a strong bottom spring at the base for absorption of accidental blows with attendant damage to the top coil (e.g. at garage entrances). Fine-trimming is easily performed by means of the threaded, lockable top part whose sensitive part is protected by a shrunk-on collar. Recommended for top or fender mounting. Matches base RF 128.

ALLGON RA 313 CB

A shortened quarter wave $\lambda/4$ radiator for 27–80 MHz (required frequency to be stated on purchase order). Design same as RA 312 except for length which is 600 mm. Particularly suitable for trucks and other heavy duty vehicles. RA 313 also has gained favor with sailboat owners (see heading BOAT ANTENNAS). Matching bases are RF 128 & RF 130.

ALLGON RA 328

A 5/8 wave radiator for 400–470 MHz, with a thin and pliable top rod attached to a stainless steel coil. Specially developed for use on vehicles frequently manouvering in spaces of low overhead clearance and nonetheless required to carry top mounted radiators. Required frequency is obtained by cutting as directed by an accompanying cutting diagram. RA 328 has + 3 dB gain over ordinary quarter wave radiators. Also, its radiation center is located higher up in comparison with quarter wave radiators which improves the omnidirectional qualities in the event of unsymmetrical positioning on the vehicle. Matches base RF 128.

ALLGON RA 329-1 CB

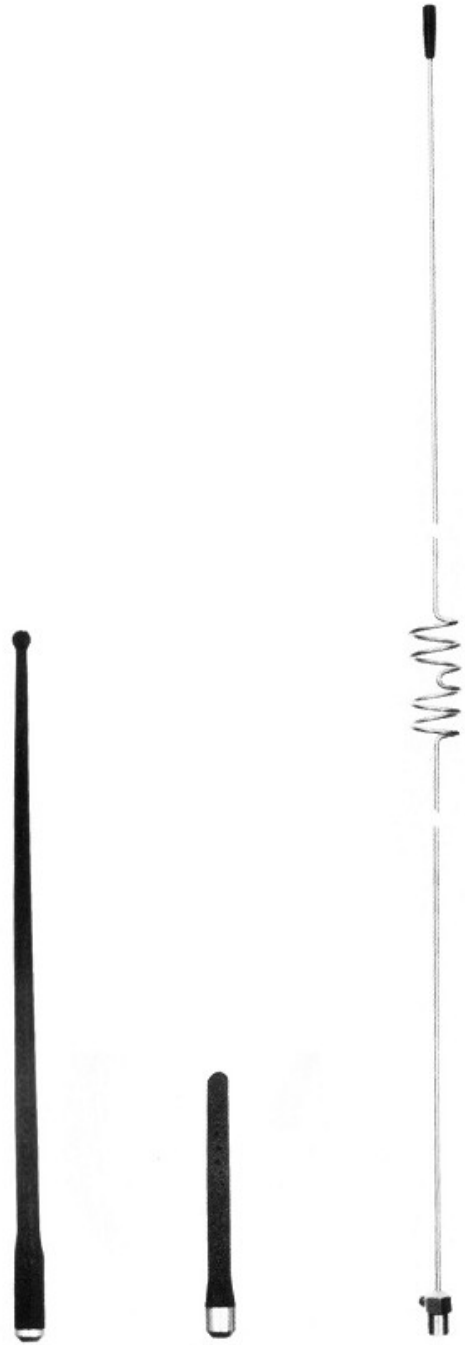
A rugged, "can-take-a-beating" shortened quarter wave $\lambda/4$ radiator for 27–200 MHz. It is made of conductive rubber, and its extension coil has been placed in a protective cover at the bottom of the radiator. RA 329-1 has been designed to meet the need for an antenna of great mechanical advantages in preference to maximum range. Particularly suited for building sites, railroad stations, factory areas, &c where conventional antennas rarely fill the bill. The frequency may easily be altered by exchange of coil. Length about 400 mm. Matches bases RF 128 and RF 130.

ALLGON RA 329-2

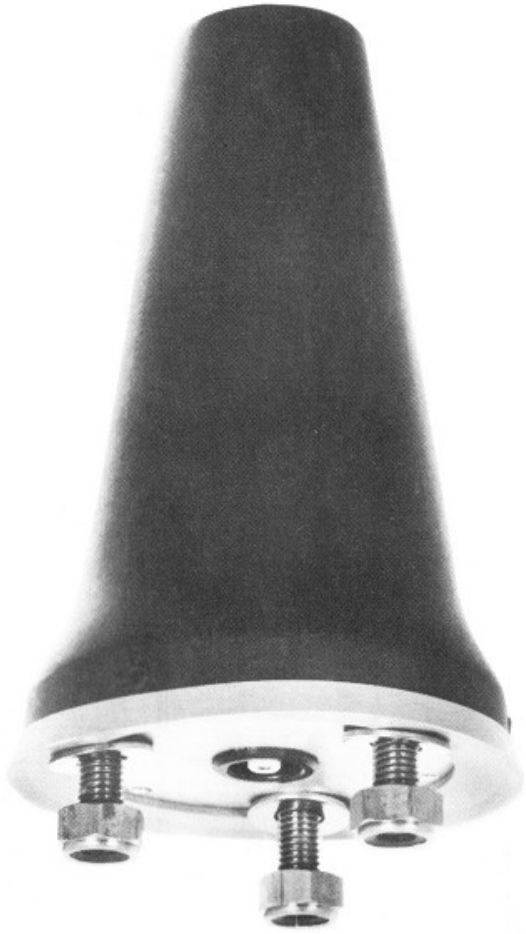
Same antenna as RA 329-1 but has no bottom coil and is designed for frequencies in the range of 201–470 MHz (desired frequency to be stated on purchase order). RA 329 & RA 329-2 offer a number of advantages not found to the same degree in other radiators on the market, such as: Low wind noise, no need of removal in an automatic car wash, mechanically shorter than standard types, pliable, corrosion proof, free of optical reflexes.

ALLGON RA 333

A colinear, stainless steel radiator for 400–470 MHz. Double coil permits phase shifting for an increase in antenna gain of + 3 up to + 4 dB over the ordinary quarter wave radiator. Required frequency to be stated on purchase order.



RA 329-1 RA 329-2 RA 333



ALLGON FA 452

An omnidirectional vehicle antenna in a protective hood of glass fiber reinforced plastic. Operates on two separate frequency bands simultaneously. On the lower frequency band the antenna works as a quarter wave antenna, while on the higher band it functions as a half wave antenna of a specific gain. Made for installation on a conductive surface to which it is secured by means of three heavy bolts. The terminal is centrally located on the underneath side.

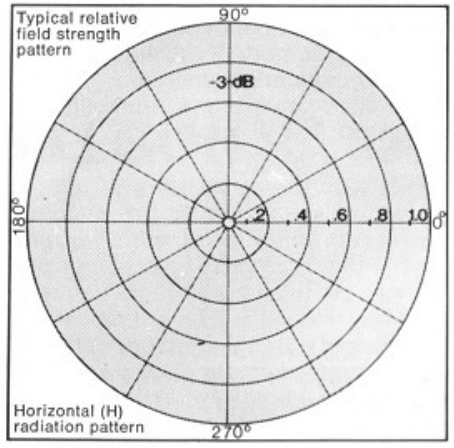
ALLGON FA 453

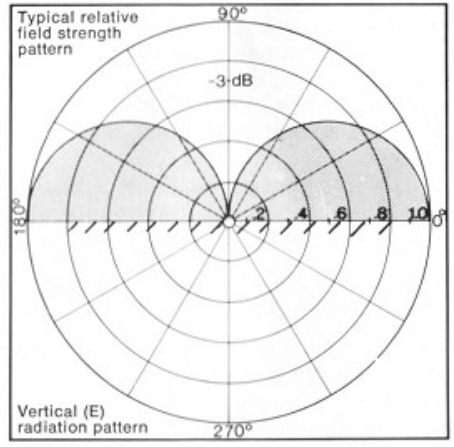
Similar to FA 452 but designed for use in the lower frequency field of 410–470 MHz only, and of somewhat simpler construction.

DATA – FA 452 and FA 453

Frequency	
FA 452	410–470 and 850–950
FA 453	410–470
Maximum Power	250 W
Impedance	50 ohm
VSWR	–1.6:1
Type of terminal	
FA 452	N
FA 453	UHF
Radiation	Omnidirectional
Polarization	Vertical alt. horizontal
Gain in free space	
FA 452	+2 – +4 dBi
FA 453	+2 dBi

Weight	
FA 452	.7 kg
FA 453	.4 kg
Height	170 mm

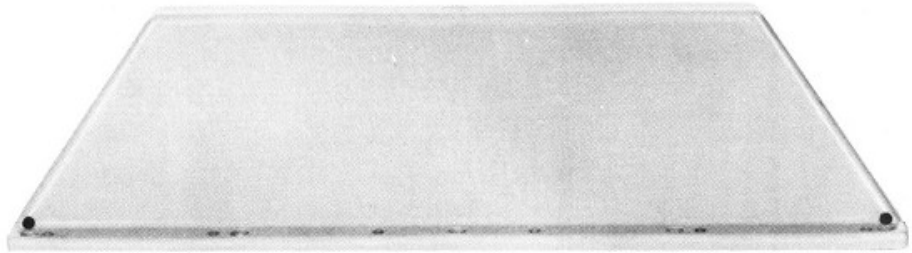




ALLGON SL 403

SL 403 is an omnidirectional slot antenna mainly for use on vehicles operating under very difficult environmental conditions. It is quite short, and mechanically very robust. The antenna cover is made of rugged polypropene plastic affording complete protection to the actual antenna structure, and it is well drained to prevent moisture forming by condensation or otherwise. The surface of the antenna structure is epoxy treated and is effectively grounded for protection against static electricity and lightning. SL 403 is intended for installation on surfaces conductive to electricity on the order of metals. It is also available for duplex operation.

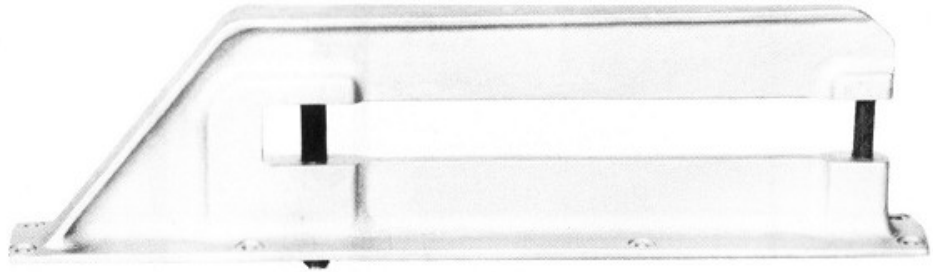
The robust construction of the antenna renders it suitable for installation on railroad and subway cars.



SL 403

ALLGON SL 401

This antenna and SL 403 are electrically identical except that SL 401 is designed for one frequency range only (simplex). It is made of aluminum alloy, and its feeder and tuning circuits are well encapsulated.

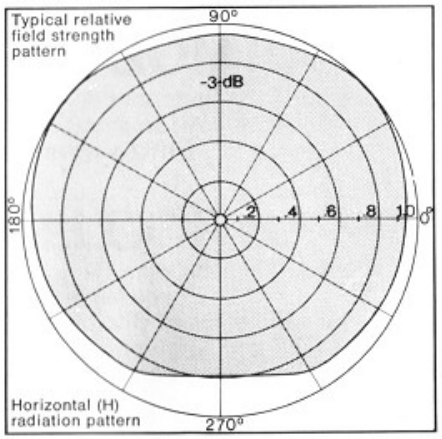


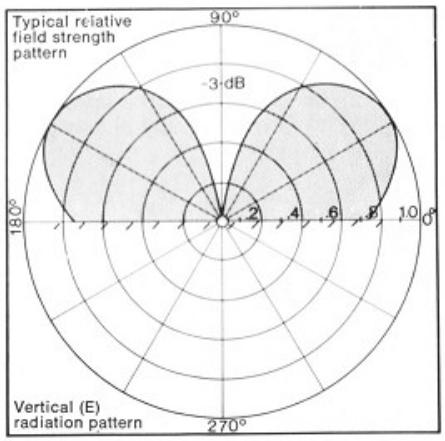
SL 401

DATA — SL 401 and SL 403

Frequency	
SL 401	158–170 MHz narrow banded
SL 403	158–160 and 166–168, simultaneously narrow banded
Maximum Power	
SL 401	500 W
SL 403	100 W
Impedance	50 ohm

VSWR	≦2:1 for BW = 5%
Type of terminal	Optional
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	2.4 kg
Length	540 mm
Height	140 mm

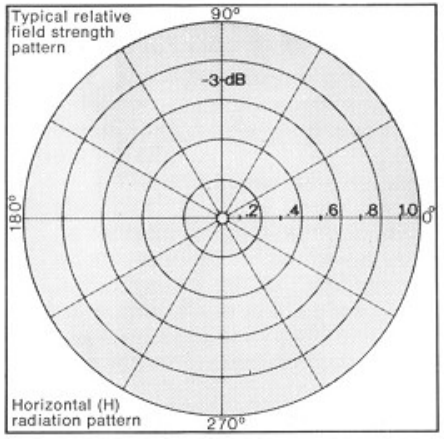


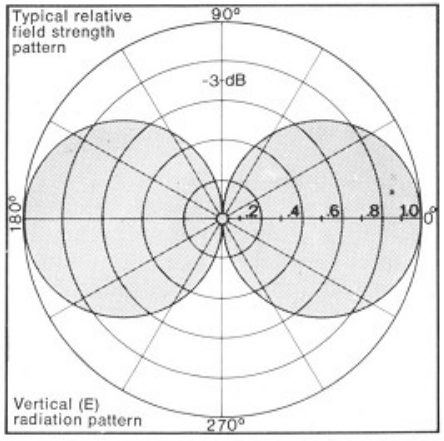


Portable antennas

Many of the portable radio stations available in the market carry a telescopic antenna as standard equipment. This type antennas are often difficult to operate and, sooner or later, break down. As an alternative, ALLGON portable antennas are recommended for installation on such sets, an operation that is quickly and easily carried out.

In addition, portable antennas reduce chances of accidents to the operator of the station as well as to people in his immediate vicinity. Numerous instances of cooperation between ALLGON and station manufacturers have brought about optimum adaptation of the portable antennas to transmitter and receiver of the radio station. The user is thereby guaranteed maximum range.





ALLGON RA 326 CB

RA 326 is a radiator made of conductive rubber, equipped with bottom coil for 27 or 29 MHz. It is fitted on top of a retracted telescope antenna by means of a cap for diameters of 10, 11, and 14 mm. In other respects same as RA 329. Desired frequency and type of set to be stated on purchase order.

ALLGON RA 327 CB

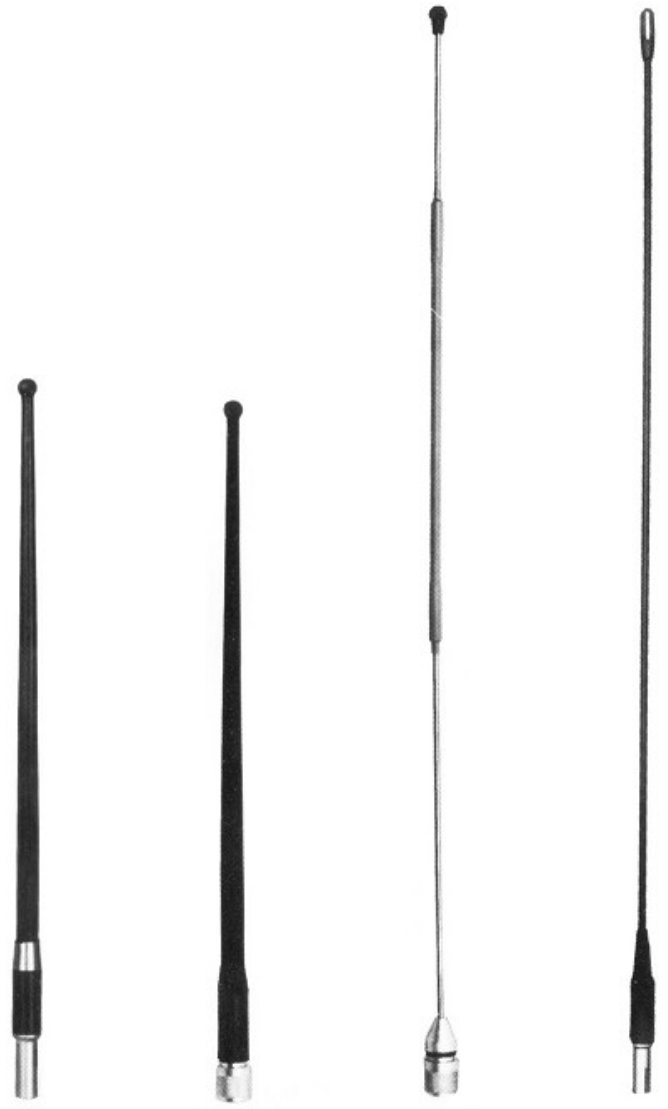
Same as RA 329 except for UHF-terminal. N-, C-. BNC-, or TNC-terminal obtainable on special order. Desired frequency and type of set to be stated on purchase order.

ALLGON RA 336 CB

A shortened quarter wave $\lambda/4$ stainless steel antenna for 27–80 MHz. Same as RA 312 but has no bottom spring and is equipped with terminal type UHF.

ALLGON RA 349 "Hi-Flex" CB

A timely novelty! RA 349 is a pliable antenna with a copper braid core encased in soft, flexible, and very durable plastic. It has been engineered primarily to make obsolete the socalled blade antennas made of pressed sheet iron. RA 349 can be provided with the same combinations of coils, caps and terminals as RA 326, RA 327, and RA 336.



RA 326 RA 327 RA 336 RA 349

Marine antennas

Conditions on board a sail boat make it advisable to place the antenna at the top of the mast. Radiation of an antenna mounted on deck is never quite free of interference caused by mast, stays, and outline of rigging.

Those of our antennas most commonly used for mast mounting are the shortened ground plane antenna ALLGON GP 443 M, structurally a complete electrical unit requiring no or minimal adjustment after installation, and the shortened quarter wave radiator – also known as truck antenna – ALLGON KA 2813 (RF 128 + RA 313). While the latter is less expensive its installation is more complicated.

Positioning of the antenna in a motor boat usually poses no problems as the shortened antenna, type ALLGON MA 450, with built-in ground plane has been specially designed for wooden or plastic motor boats. However, alternatives also are available to the motor boat owner, such as placing a socalled truck antenna KA 2813 on an aft pulpit to good advantage, or he my install his own ground plane immediately below deck, placing in its center a KA 2813 or, for still better results, an unshortened glass fiber radiator ALLGON RA 302 using matching base RF 105 or RF 108.

ALLGON MA 450

CB

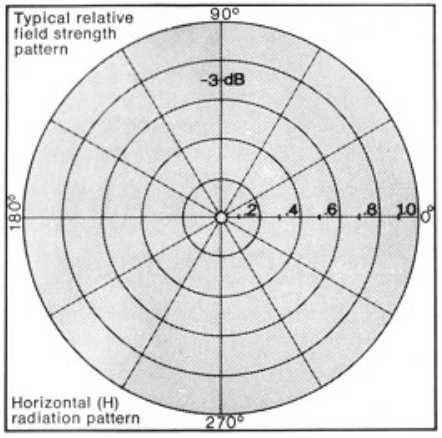
A marine antenna with shortened radiator, independent of ground plane, and specially engineered for wooden and plastic boats. Its elegant design and good electrical properties have made it a favorite in boating circles.

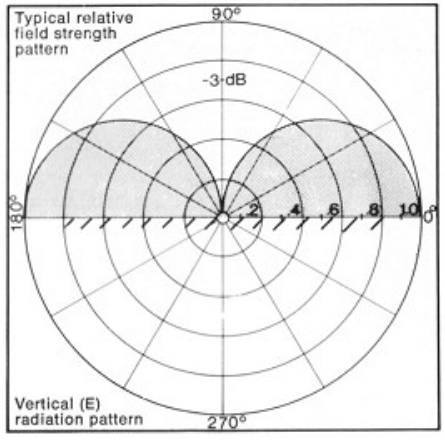
The antenna base can be mounted on the deck, on the roof of the cabin, or on the side. When side mounted, MA 450 extends a mere 75 mm. The radiator permits tilting in any direction and may also be unscrewed. The antenna is fully corrosion proof. The radiator is made of stainless steel.

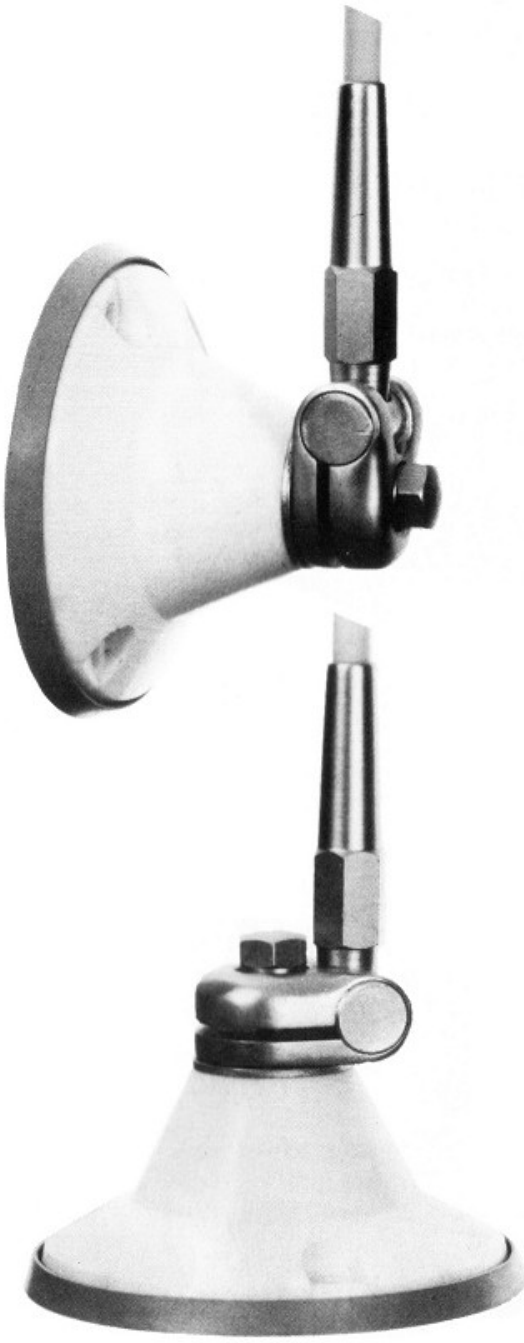
One end of the 3.65 meter long coaxial cable is permanently fastened to and embedded in the base to prevent contamination of the antenna be sea water or salty air. The terminal at the other end of the cable is solder-free, hence well protected, yet readily accessible for inspection.

DATA

Frequency	27 or 29 MHz-bands (narrow banded)
Maximum Power	150 W
Impedance	50 ohm
VSWR	$\leqq$2:1 ofr BW=3%
Type of terminal	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+ 2 dBi
Weight	.7 kg
Height	2500 mm







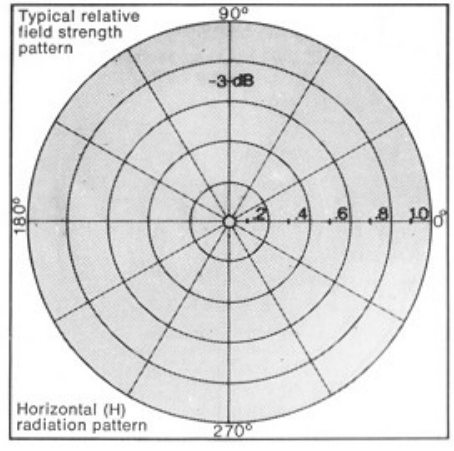
ALLGON MA 456 and MA 457 *Patent*

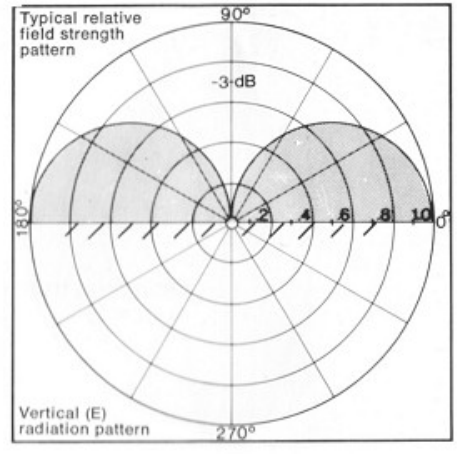
A vehicle and base antenna of revolutionary type, patent applied for by ALLGON. It is a vertically polarized omnidirectional antenna with a built-in ground plane. MA 456 has extremely low electrical coupling to the feeder cable and is, therefore, able to maintain its excellent radiation properties even when mounted on a high mast. MA 456 has been specially designed for use on vehicles with bodies made of glass fiber or other electrically non-conductive material that does not serve as a ground plane, such as plastic boats, snow scooters, buses. Consequently, it is also serviceable on motor cycles whoses ground plane often is rather deficient. It can of course also be mounted on metal supports. The antenna can be equipped with a sturdy bottom spring. The joint permits mounting at any angle so that a vertical position of the radiator is at all times obtainable.

MA 456 can be equipped with a shortened radiator.

DATA MA 456 and MA 457

Frequency	
MA 456	68–90 MHz (narrow banded) (narrow banded)
MA 457	145–175 MHz
Maximum Power	100 W
Impedance	50 ohm
VSWR	
MA 456	≦2:1 for BW = 10%
MA 457	≦2:1 for BW6%
Type of terminal	Optional
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	.6 kg





ALLGON MA 430

A half wave mobile antenna built according to the principle for the coaxial dipole. The cover is made of glass fiber reinforced plastic and affords good protection against salt and moisture. MA 430 has built-in ground plane and will work wherever set up.

Its uses are as ship's antenna and base antenna.

DATA

Frequency	145–175 MHz (narrow banded)
Maximum Power	100 W
Impedance	50 ohm
VSWR	$\leqq$2:1 for BW = 2%
Type of terminal	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	.3 kg
Length	1460 mm
Width/circum-ference	25 mm
Base	Fits Ø 25 mm tube

ALLGON KA 2813 CB

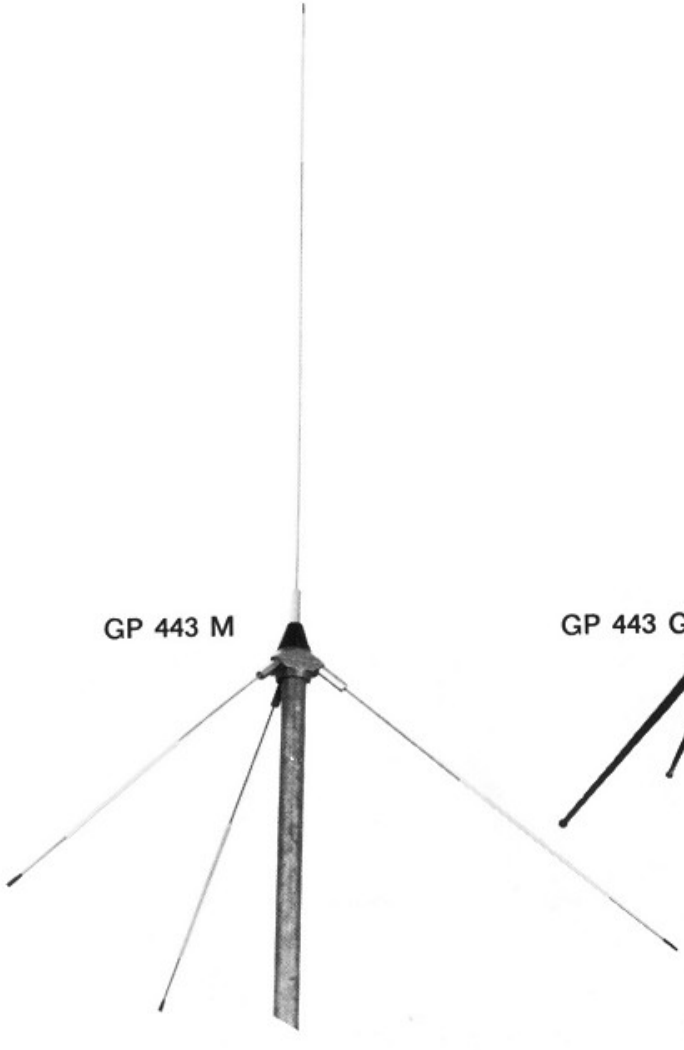
Is a shortened quarter wave $\lambda/4$ radiator for 27–80 MHz, also along with RF 128 (KA 2813) being increasingly employed as a boat antenna, in particular on sailboats and motor-sailing vessels. The antenna can be mounted on top of a mast or on some angular contraption of suitable shape. Masts with stays act as ground planes and must be galvanically connected to the screen (outer conductor) of the coaxial cable at the antenna by way of the grounding device on the antenna base.

At installation, availability of a standing wave-meter is essential for optimum tuning by adjusting the trimmable top part of the radiator.

When ordering, required length of coaxial cable has to be specified.

MA 430

KA 2813



ALLGON GP 443 GR

CB

A ground plane antenna with an unshortened quarter wave $\lambda/4$ direct current glass fiber radiator, length 2200 mm. The ground plane is shortened by means of three 400 mm rods made of conductive rubber with built-in extension coils. Because of the elasticity and negligible length of the rubber rods there are many places on board where the antenna may be installed without becoming a safety hazard. For mounting, a short tube of 38 mm diameter is recommended, the tube in turn to be attached to deck, cabin roof, or mast.

Sturdily built the antenna will bear up under severe weather conditions.

ALLGON GP 443 M

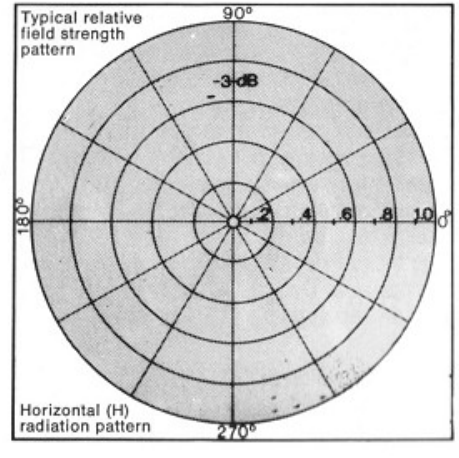
CB

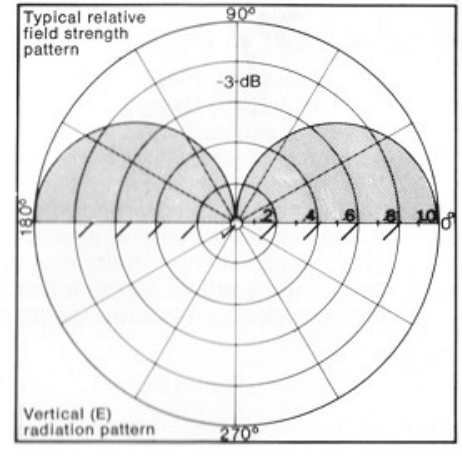
A quarter wave $\lambda/4$ ground plane antenna especially suitable for mast top mounting. Radiator and ground plane are shortened by means of top coils. The radiator is D.C. grounded and tunable. All rods are made of stainless steel and easy to put in place. Antenna length is 1000 mm.

DATA on GP 443 GR and GP 443 M

Frequency	
GP 443 GR	27–470 MHz
GP 443 M	27–90 MHz
Maximum Power	250 W
Impedance	50 ohm
VSWR	
GP 443 GR	$\leqq$2:1 for BW = 20%
GP 443 M	$\leqq$2:1 for BW = 1.2%
Type of terminal	UHF
Radiation	Omnidirectional
Polarization	Vertical

Gain in free space	+2 dBi
Weight	.8 kg
Height	2,250 mm at 27 MHz
Suitable bracket	ALLGON MF 290





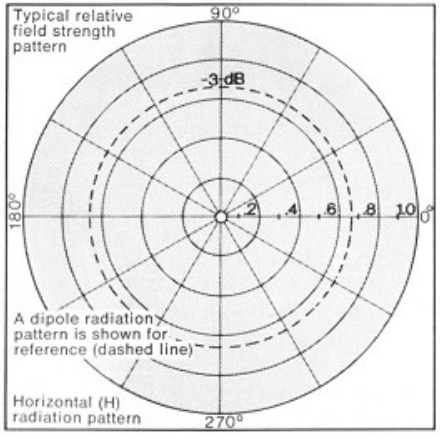
ALLGON GP 447

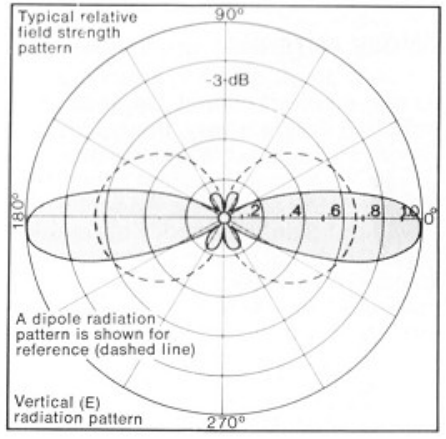
GP 447 is a colinear stacked antenna with ground plane made for mobile use and for use as a base antenna. The antenna has 3–4 dB gain over quarter wave $\lambda/4$ antennas. The cover encloses two radiator components working in unison to effect the gain. Between the radiator components is located a phase shifting coil of a high Q value. The ground plane rods are made of stainless steel 4 mm in diameter.

GP 447 is well suited for mobile telephones on water borne craft, to mention one of its uses. The antenna fits masts of Ø 25 mm outside measure but can also be hooked up with Allgon MF 290.

DATA

Frequency	400–470 MHz (narrow banded)
Maximum Power	250 W
Impedance	50 ohm
Type of terminal	$\leq$2:1 for BW = 9%
VSWR	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	5–6 dBi
Weight	.2 kg
Length	800 mm for
Suitable bracket	406 MHz
	ALLGON MF 290





Omnidirectional base antennas

ALLGON base antennas are primarily meant for stationary installation but can be used as mobile antennas (e.g. on craft). Positioning of this type antennas should be as high as possible for greater range since the gain in height reduces the ground wave attenuation to the corresponding station. Optimum positioning is always at the top of a mast as this allows unimpeded omnidirectional radiation. Location on side of a mast yields a diagram that is no longer omnidirectional. At higher frequencies, i.e. in the 27, 80, and 160 MHz bands, omnidirectional effect is obtainable by placing a number of dipole antennas symmetrically around the mast. This requires the use of a connecting transformer. Great importance should be attached to the mechanical engineering of a base antenna as it should be resistant to the effects of wind, ice, snow, and the sun, and to sudden changes of temperature. Connecting points are sensitive and should be well protected. A good quality antenna will usually save the owner expenses for mast tilting &c.

GROUND PLANE ANTENNAS (pp 26–30)

The ground plane antenna is the most common type base antenna and has a comparatively narrow frequency range. Typical band width is 5–19 % for VSWR $\leqq$ 2:1. Ground plane and radiator can be either full length or shortened. Normally this type antennas are equipped with a built-in choking coil to carry off static electricity. The choking coil protects feeder cable and transmitter/receiver in case of short circuit.

DISK CONE ANTENNAS (pp 31–33)

Disk cones are broad banded. Generally speaking, a standing wave ratio of less than 2:1 is attainable over a frequency range of 5 to 1, and less than 1.5:1 over a frequency range of 4 to 1.

Feeding impedance is approximately 50 ohm.

The radiation diagram over major portion of its frequency range, resembles that of a half wave dipole, but at frequencies exceeding 3 times minimum (= the cut-off frequency) the radiation lobe begins to rise to about 30° over the horizontal plane. For low frequencies, less than 100 MHz, the cone usually is equipped with glass fiber or metal rods, while for higher frequencies the cone is made in one piece of sheet metal or netting.

DIPOLE ANTENNAS (pp 34–35)

A dipole antenna located on the side of a mast is to be considered as non-omnidirectional. Degrees of deviation from the fully omnidirectional radiation diagram vary, the type of mast being the main determinant. To get an acceptable ground plane diagram a number of dipoles have to be placed around the mast taking the type of the latter in consideration. In view of the above it is evident that omnidirectional antenna systems, with or without gain, are readily assembled of ALLGON dipole antennas types OD 410, FT 413, FM 414, and DM 701. This method may entail lobe splitting in the 450 MHz-range due to interference by the mast at this comparatively short wave length. A suggested solution would then be to arrange a half dozen dipoles with reflectors around the mast.

ALLGON GP 404 A

CB

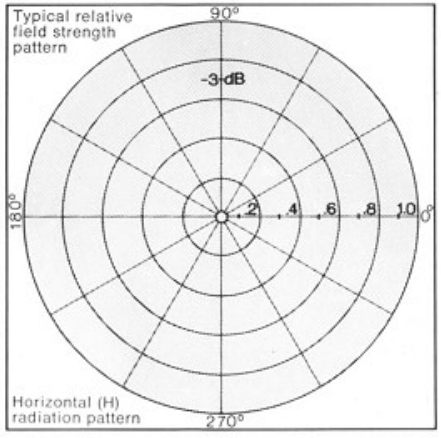
An omnidirectional base antenna with highly efficient D.C. grounding. D.C. grounding is achieved by designing the antenna radiator in the shape of a half dipole folded over, one end of which is directly connected with the ground plane.

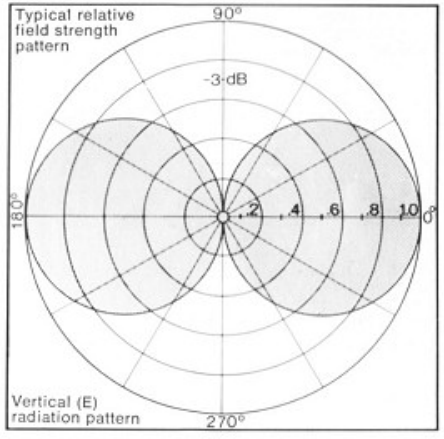
The ground plane elements are equipped with built-in vibration dampers. The elements are easily mounted at installation.

GP 404 A is made of corrosion proof aluminum alloy. The terminal is located in a well protected spot under the antenna allowing the coaxial cable to be placed inside the tubular mast. Ground plane rib for GP 404 G are made in glass fiber. The antenna is meant to be kept in readiness for operating at the lowest frequency. Tuning to desired frequency is then performed according to cutting chart. However, GP 404 A usually is delivered pretuned to the frequency desired.

DATA 404 A and 404 G

Frequency	27–250 MHz (narrow banded)
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 6%
Type of terminal	UHF, N, C
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	3.2 kg for the 68 MHz band
Length	2300 mm for 68 MHz
Height	1375 mm for 68 MHz
Suitable bracket	ALLGON MF 282





ALLGON GP 438

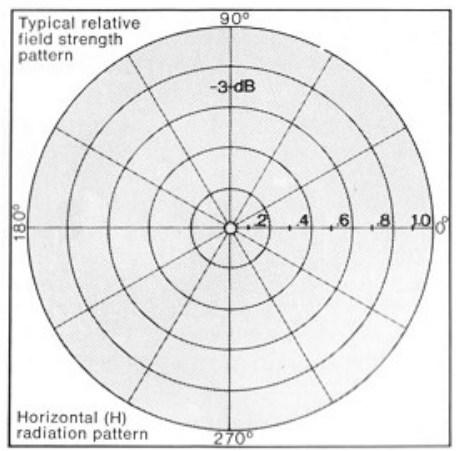
Broadband base station antenna, designed to operate during extremely severe environmental conditions. GP 438 has a low VSWR and a well maintained omnidirectional radiation diagram throughout the entire frequency range. The antenna can be supplied for either 65–90 MHz or 100–160 MHz. GP 438 is DC grounded and has four angled ground planes. The ground plane elements can easily be dismantled while in transit.

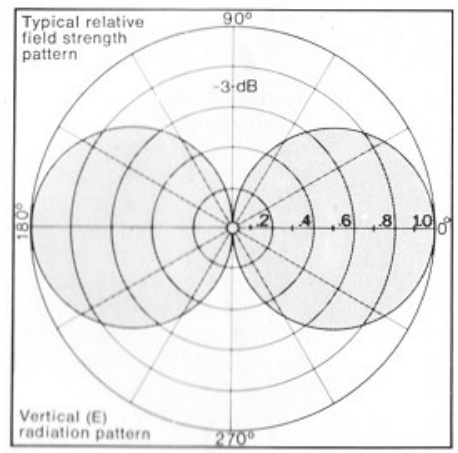
Allgon GP 438 has become an integrated part of the standard equipment on several countries' naval vessels because of its reliability and excellent electrical characteristics.

DATA

Frequency	65–90 alt 105–158 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦2:1 (≦2,5:1, 100—160 MHz)
Connector	N, C
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	4,1 kg for 105–158 MHz version
Height excluding ground plane elements	730 mm for 105–158 MHz version
Width	700 mm for 105–158 MHz version

Bracket for max, 60 mm mast diameter	Included in delivery





ALLGON GP 443 A **CB**

A ground plane antenna with quarter wave $\lambda/4$ unshortened radiator and ground plane. Electrically and mechanically it is of top class and utilizes the full power of the transmitter. The antenna elements are made of corrosion proof aluminum. GP 443 A has been designed for mounting directly on a 38 mm mast. The antenna connector fits cable connector PL 259 or its equivalents. A standard meter, on checking the antenna connector, will record short circuit because of the built-in D.C. grounding of the antenna hood.

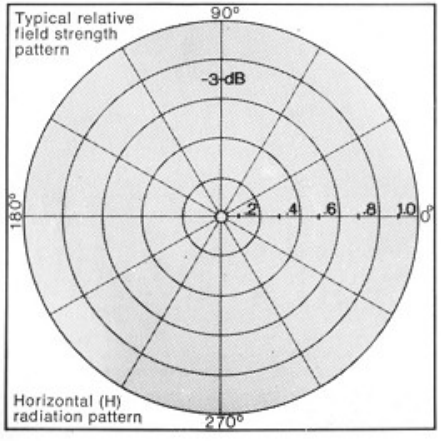
ALLGON GP 443 G **CB**

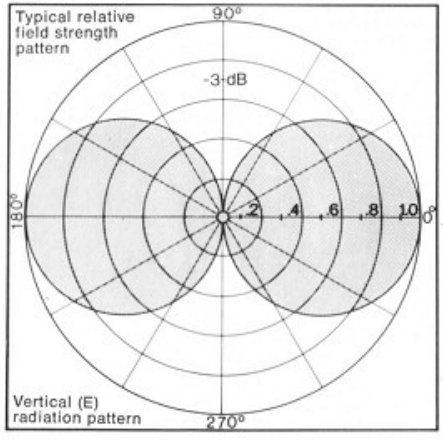
Same type antenna as the above, but with glass fiber elements. GP 443 G is especially suited for use in regions subject to strong winds and icing.

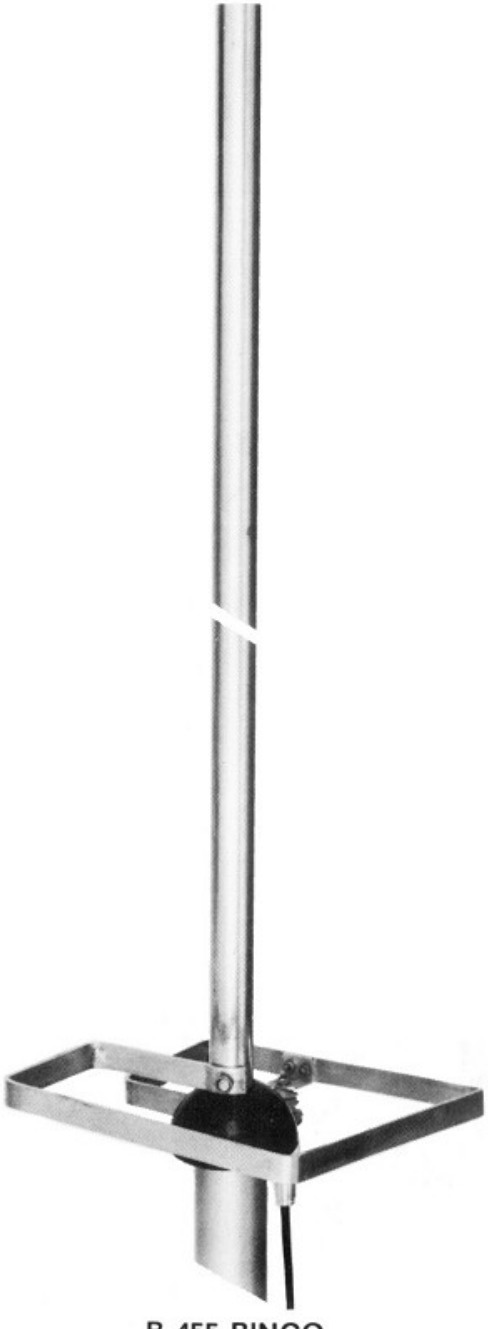
DATA

Frequency	27–240 MHz (narrow banded)
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 20%
Type of terminal	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi

Weight	1.4 kg (A)	1.2 kg (G)	for 274 MHz
Height	2570 mm (A)	2415 mm (G)	for 274 MHz
Suitable bracket	ALLGON MF 290		







B 455 BINGO

CA 458

ALLGON CA 458

An omnidirectional coaxial dipole with outer tube made of glass fiber reinforced plastic. The fastening device is cast in aluminum alloy with clamps made of stainless steel. The antenna is suitable for use in the marine mobile field and as a base antenna in locations where projecting ground plane rods are undesirable.

ALLGON B 455 BINGO

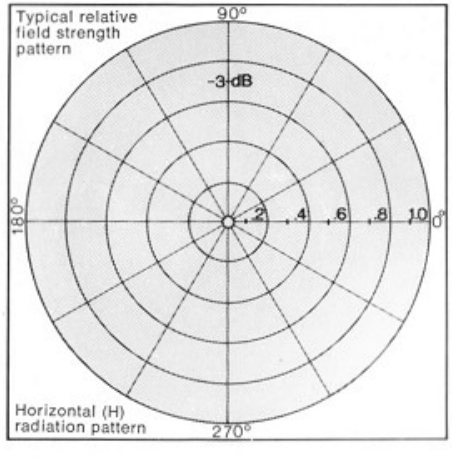
CB

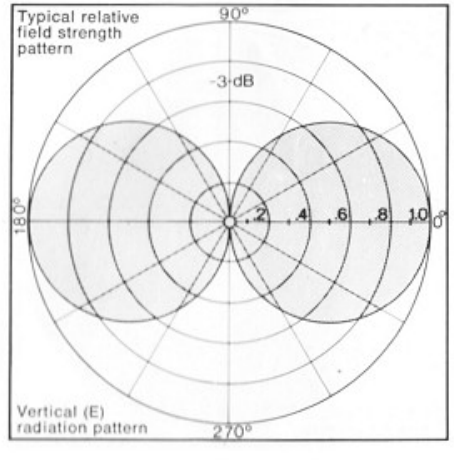
BINGO is an omnidirectional no-ground plane 1/2 wave base antenna with gain. It is carefully tuned at the factory before delivery for maximum efficiency. The square tuning unit provides good D.C. grounding. BINGO has been thoroughly tested under severe snow and icing conditions, performing flawlessly. The telescopic antenna radiator is made of aluminum.

BINGO is delivered pretuned for 27 MHz, but includes accessories for 29 MHz.

DATA — CA 458 and B 455 BINGO

Frequency	
CA 458	100–175 MHz (narrow banded)
B 455 Bingo	27–30 MHz
Maximum Power	
CA 458	150 W
B 455 Bingo	1000 W
VSWR	
CA 458	≦2:1 for BW = 8%
B 455 Bingo	≦2:1 for BW = 4%
Type of terminal	
CA 458	Optional
B 455 Bingo	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	
CA 458	+2 dBi
B 455 Bingo	+2 to +5 dBi
Weight (Bingo)	2.1 kilo
Height (Bingo)	5600 mm
Base (Bingo)	Fits Ø 38 mm rubes
Weight (CA 458)	2.1 kg
Height (CA 458)	1800 mm
Suitable bracket (CA 458)	ALLGON MF 282





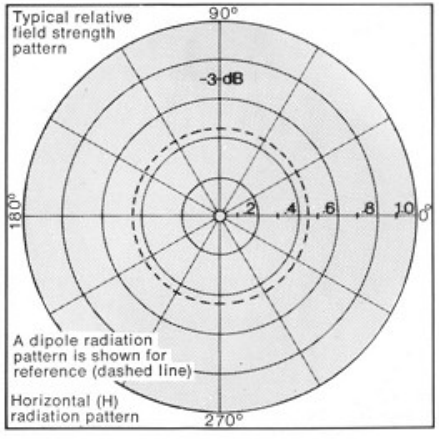
ALLGON CL 448

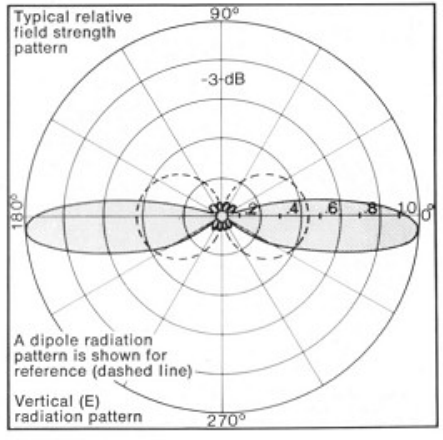
A vertically polarized antenna like GP 447, but equipped with a greater number of co-ordinated radiation elements. Thus the antenna provides greater gain than GP 447. The phasing coils between the radiating elements are carefully adjusted by ALLGON for maximum antenna gain in the horizontal plane and minimum side lobes. Because of the great length of the radiators the radiating elements are enclosed in a stabilizing glass fiber tube. There are four ground plane rods at the lower end of the antenna. It is very important that the antenna be placed **on top** of a mast as side mounting on a metal mast will cause the radiation diagram to be unsymmetric. Besides, in the event of the antenna being located at a great distance from the mast (measured in wave lengths), the radiation diagram will even record a lot of minima.

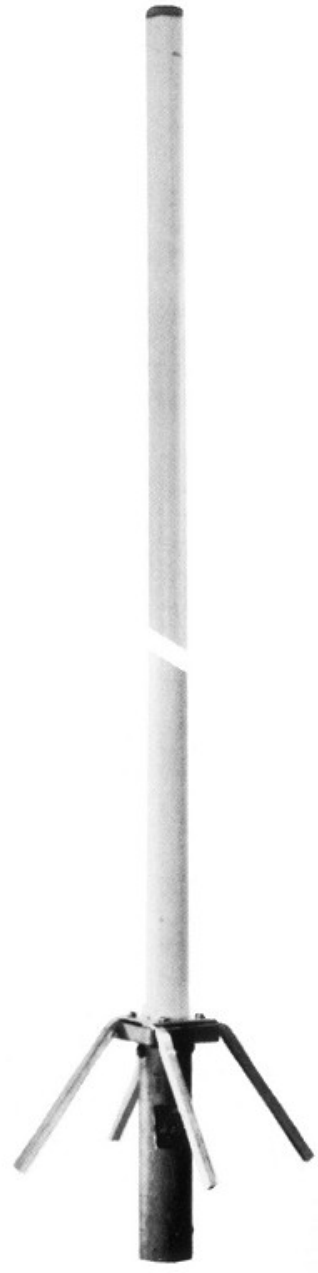
The antenna is very simple to install. Metal parts are made of corrosion proof aluminum and stainless steel. The terminal is located in a well protected spot under the antenna permitting the feeder cable to be placed inside the tubular mast. The antenna is pretuned on delivery for one of two middle frequencies, the desired one to be stated on the purchase order.

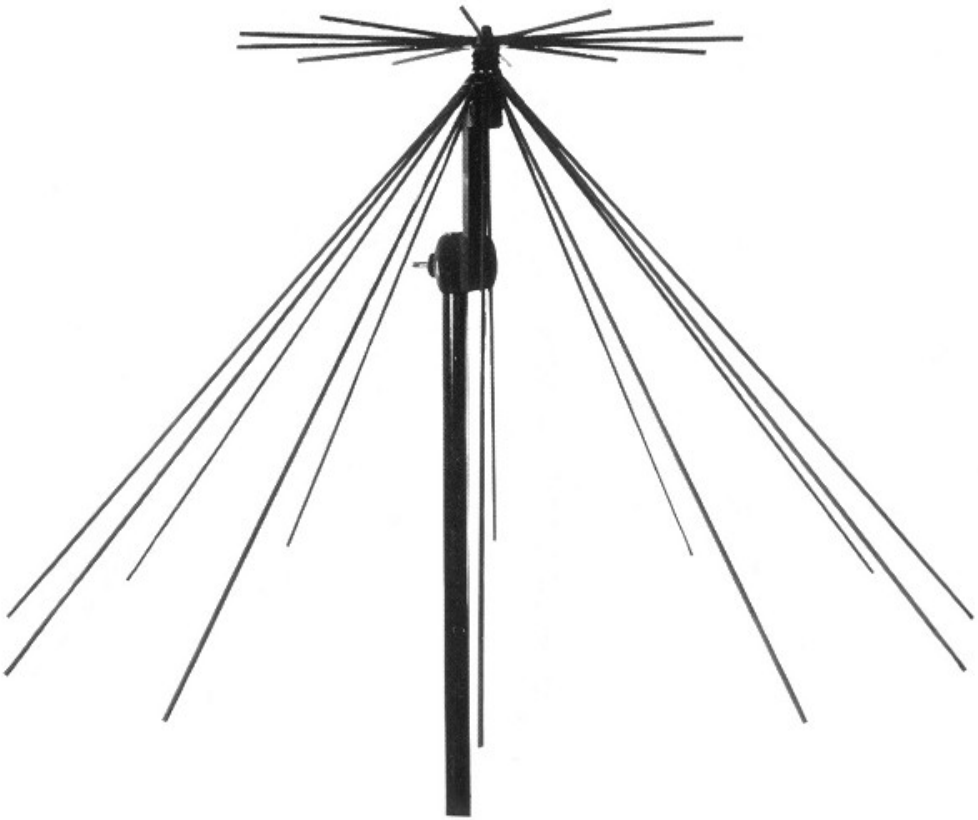
DATA

Frequency	405–435 alt. 435–470 MHz
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 11%
Type of terminal	N
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	9 dBi
Weight	2.2 kg
Height	2300 mm
Suitable bracket	ALLGON MF 282







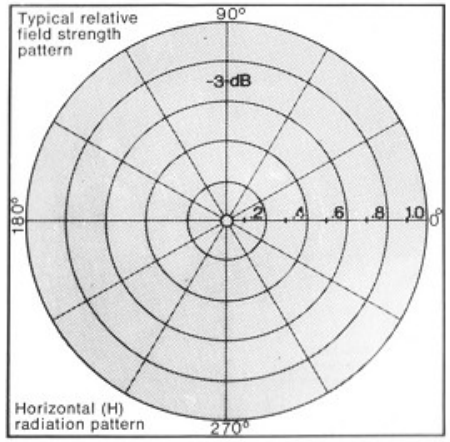


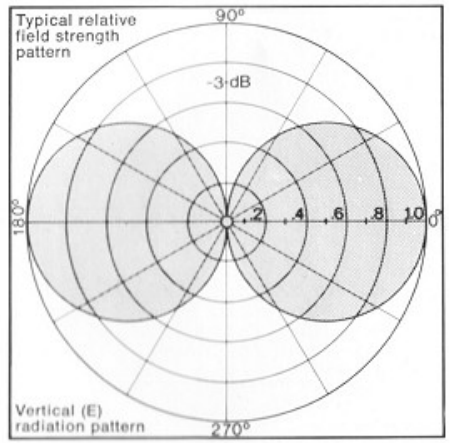
ALLGON SK 433

SK 433 is a disk cone antenna, disk and cone of which are made of light metal rods (also available with disk and cone of glass fiber rods). SK 433 is very sturdily constructed and is, therefore, especially suited for military uses with attendant heavy demands on equipment. It is available with Helicoil accessories for all elements of the disk and the cone alike, a considerable advantage when mounting and dismounting of the antenna is repeatedly required. Standard type SK 433, however, does not include Helicoil accessories.

DATA

Frequency	32–78 MHz B
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦2:1
Type of terminal	UHF, N, C
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	8.5 kg
Width/circum-ference	4000 mm
Height	3020 mm
Base	Max. 60 mm Ø





ALLGON SK 408

SK 408 is a VHF disk cone antenna, same type as SK 433 – that is, disk and cone constructed of either light metal or glass fiber rods – but it is made for a higher frequency band. Will be furnished with Helicoil accessories on request.

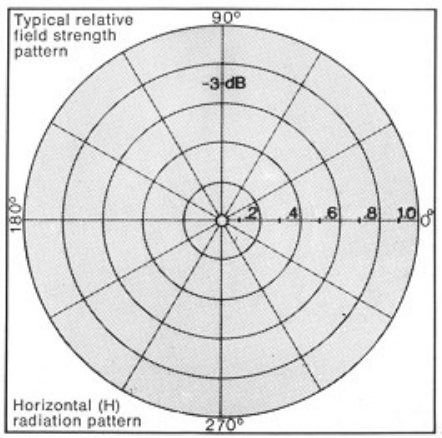
ALLGON SK 441

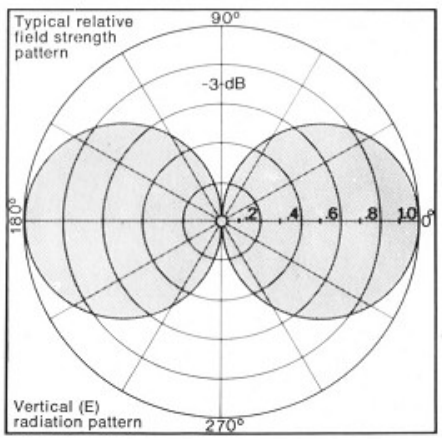
This is a UHF disk cone antenna, same type as SK 433 and SK 408, disk and cone made of light metal or glass fiber rods. Will be furnished with Helicoil accessories on request.

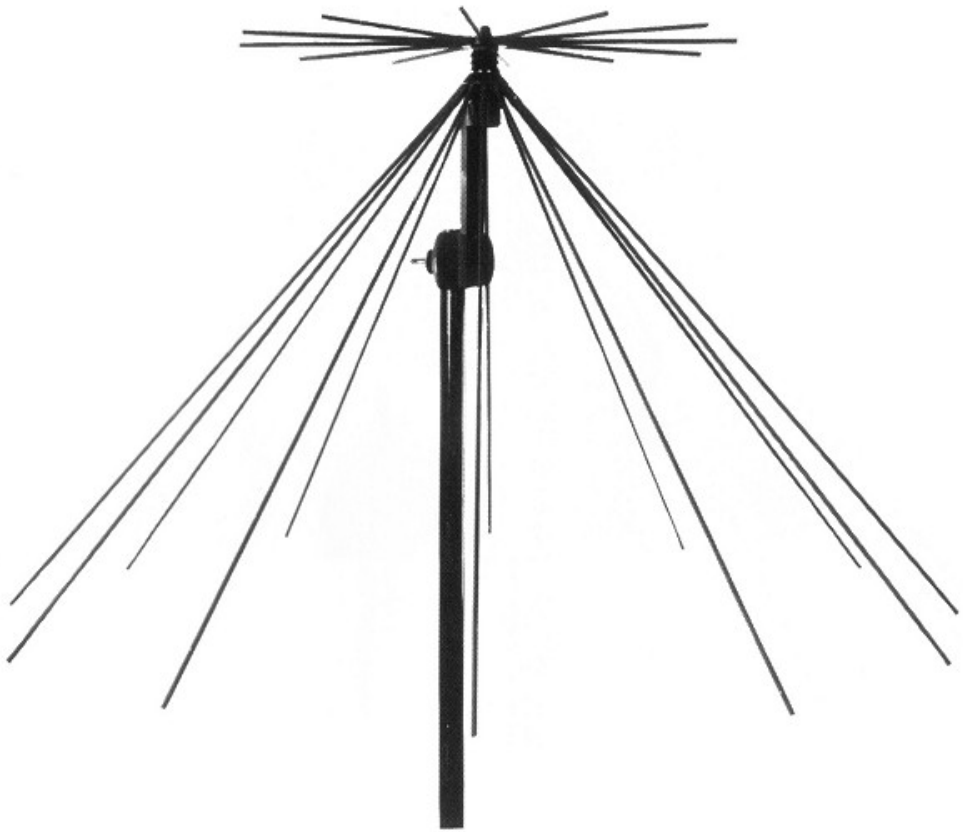
DATA – SK 408 and SK 441

Frequency	
SK 408	100–160 MHz B
SK 441	225–400 MHz B
Maximum Power	500 W
Impedance	50 ohm
VSWR	
SK 408	≦1.6:1
SK 441	≦2:1
Type of terminal	
SK 408	VHF, N, C
SK 441	Optional
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi

Weight	1.7 kilo
Width/circum-ference	1240 mm
Height	720 mm
Base	Max. 56 mm Ø





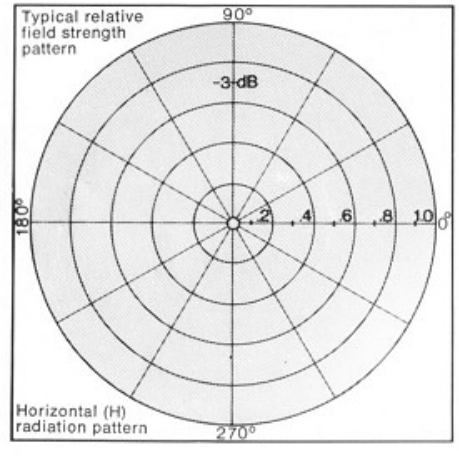


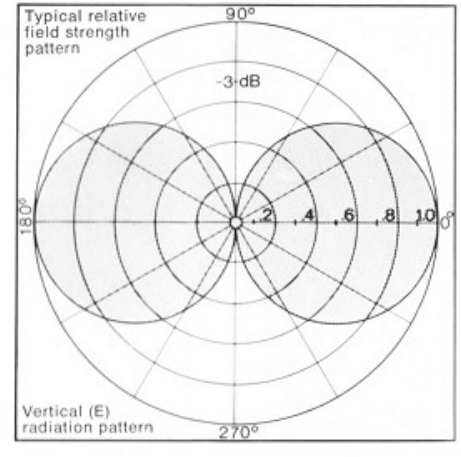
ALLGON SK 418

SK 418 is a robust disk cone antenna for the UHF-band. The disk is made of corrosion proof aluminum alloy as is the one-piece cone. Mechanically, SK 418 has been engineered to meet very heavy demands on strength. SK 418 as standard is delivered unpainted. However, when required for military purposes it may be obtained painted with IR-proof camouflage paint.

DATA

Frequency	400–1000 MHz B
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	7/16 Female
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	4.5 kg
Width/circum-ference	470 mm
Height	270 mm
Base	Max. 56 mm Ø





ALLGON OD 410 CB

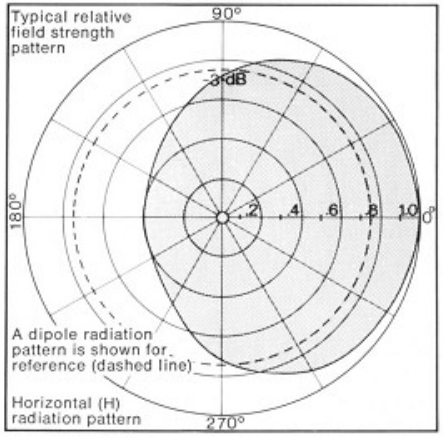
A half wave open dipole antenna with glass fiber elements. Delivery includes supporting arm of galvanized steel. The antenna is attached to mast of max. 56 mm diameter by means of an adjustable fastening device. A vertically mounted dipole in front of a metal mast has a certain directional effect and an antenna gain of about 2 dB.

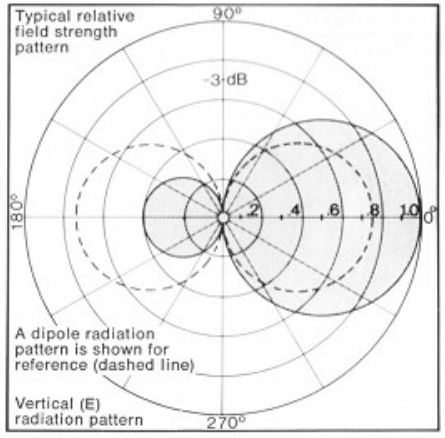
ALLGON OD 410×2 CB

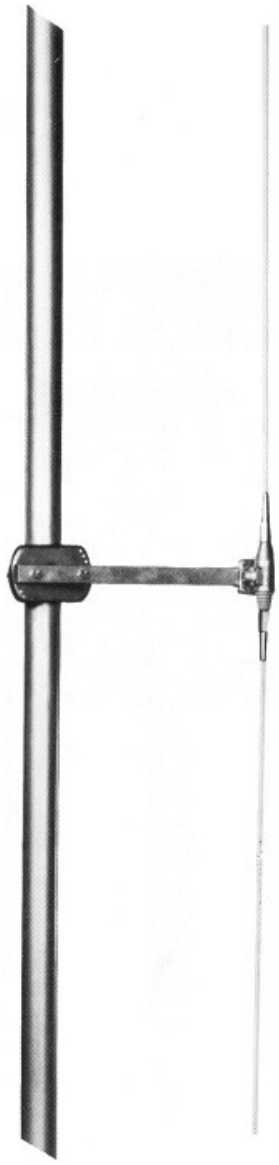
An antenna system made up of two OD 410 s connected by way of a transformer, type ALLGON KT 871. This system gives a maximum gain of + 5 dB in a forward direction. Raising or lowering the lobe up to ±45° may be effected when required.

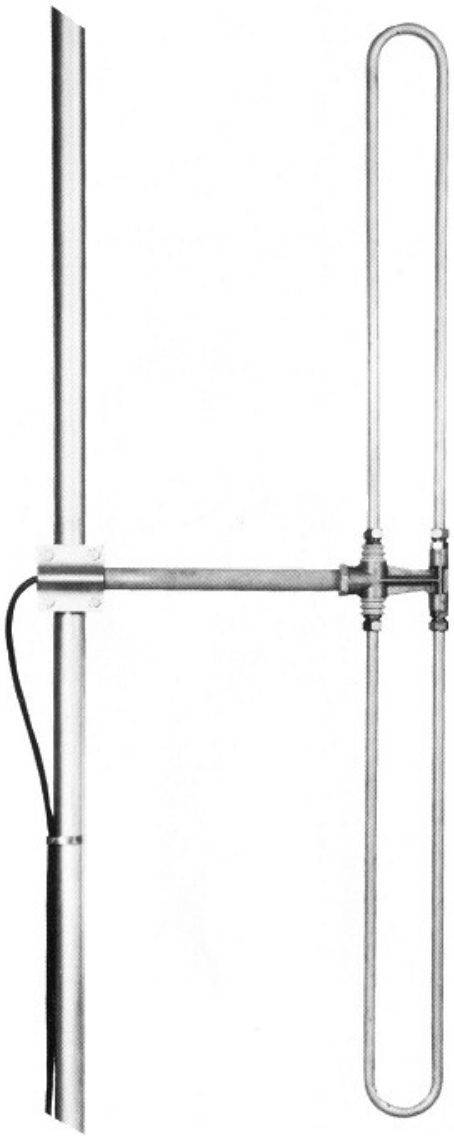
DATA — OD 410 and 410×2

Frequency	27–470 MHz (narrow banded)
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 10%
Radiation	Omnidirectional
Type of terminal	N, C or UHF
Polarization	Vertical
Gain in free space	+4 dBi max.
Weight (each)	2.6 kg for 27 MHz
Width/circum-ference	485 mm for 27 MHz
Base	Max. 56 mm Ø









ALLGON FT 413

CB

FT 413 is a folded half wave dipole antenna of very rugged design made for frequencies within the 27–90 MHz band. The feeder cable may be connected directly to the antenna dipole head or by way of a cable inside the antenna boom. In either case the connection is established via a balun-transformer built into the antenna. The dipole head is made of aluminum, and the feeding points are encased in accordance with the "jet-melt" method for complete moisture protection.

ALLGON FM 414

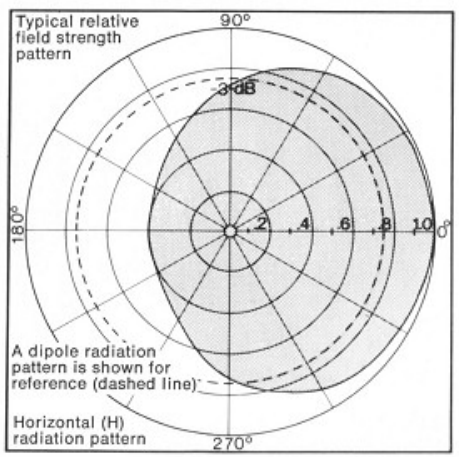
This antenna has been designed on the same pattern as FT 413 but is lighter.

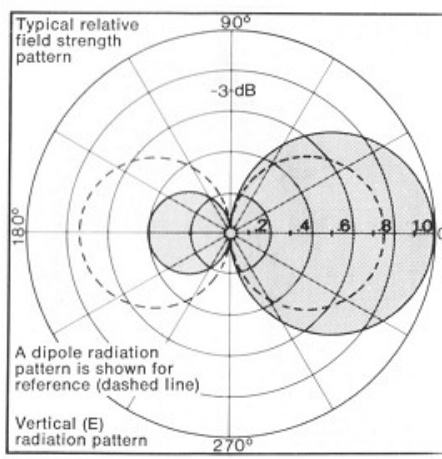
Both types can be stacked (see Dipole antennas, p 29) for higher gain. When this is desired the purchase order should include a listing of required stacking transformers and connecting cables.

DATA FT 413 and FM 414

Frequency	
FT 413	27–90 MHz (narrow banded)
FM 414	30–175 MHz
Maximum Power	200 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 18%
Type of terminal	N, C, UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+4 dBi max.

Weight	
FT 413	7.5 kg incl. base
FM 414	6.6 kg incl. base
Width/circumference FM 414	1335 mm for
Suitable bracket	ALLGON MF 60×60
	ALLGON MF 60×12(





ALLGON 440×2

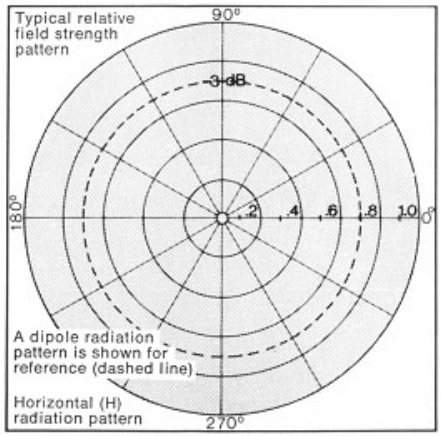
A vertically polarized omnidirectional base antenna designed for easy stacking (see Dipole antennas, p. 34). The mast is placed inside the antenna. 440 is dimensioned for high transmitting effect and is very broad banded. Standing wave ratio is extremely low. The antenna is D.C. grounded. 440 is designed for either lobe lifting or lobe lowering, whichever the buyer specifies.

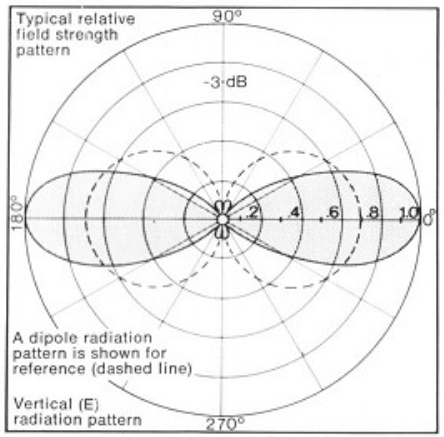
For stacking of ALLGON 440 the antenna system is provided with printed circuit transformers, all encased, and fully operational for the high power requirements involved. For protection against ice a stacked antenna system – at the buyer's request – will be equipped with radom made of glass fiber reinforced plastic. The radom in turn may be equipped with obstruction light.

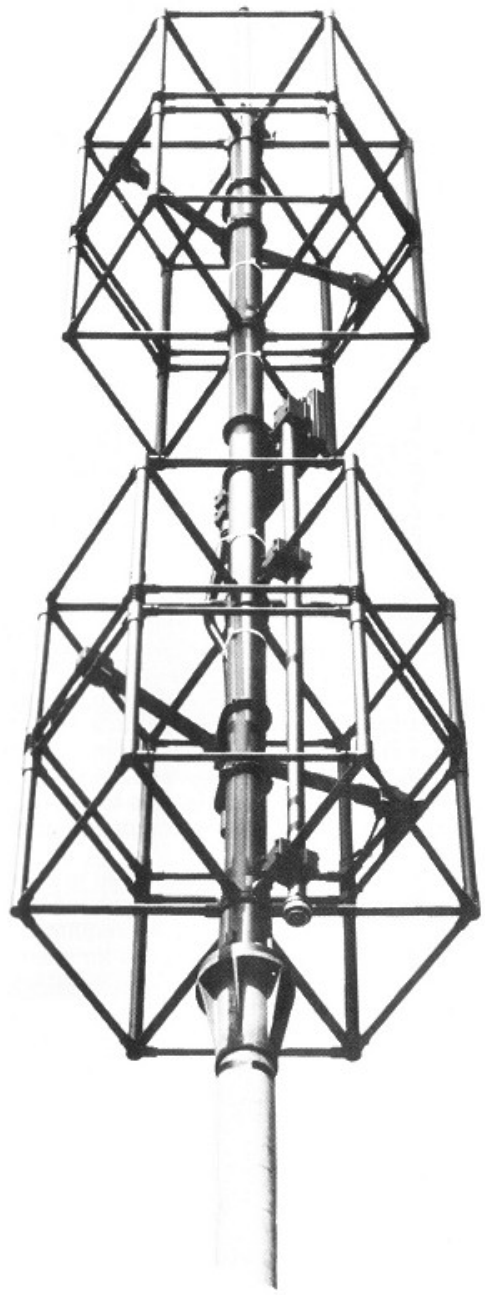
Antenna 400 has proven its great durability under exhaustive testing, mechanically and electrically. The stacked version of 440 as delivered provides for a stacking distance of .75 in the center of the band.

DATA

Frequency	100–160 MHz
Maximum Power	10 kW
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	Spinner 13/30
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+6 dBi
Weight	36 kg
Length	3125 mm







Dipolearrays

Increase of antenna gain is effectively accomplished by introduction of reflectors. These offer a well defined reflecting surface. Suppression of back lobe to exceed 20 dB can easily be achieved. The dipole array is particularly useful in connection with mountings on the side of a trellis mast. The well defined reflection of the array offsets the impairing influence on the dipole antenna of this type mast that would otherwise show up as a number of minima in the radiation diagram. In the absence of an alternative to side mounting on a trellis mast, while an omnidirectional antenna system still is the object, it is suggested that a number of dipole arrays, including matching transformer, be placed symmetrically around the mast. If in addition high gain in the horizontal plane is desired, stacking may be resorted to. Dipole arrays are most suitable for stacking because of the low electrical interference between the component dipole arrays of the system.

ALLGON's dipole arrays also may be employed to considerable advantage in establishing link connections within frequency bands VHF and UHF. Due to their rugged design the antennas only require a minimum of maintenance and are, therefore, also recommended for use in radio link stations difficult of access.

Helical antennas

These antennas function as end-fed directional antennas generating circularly polarized wave. With properly chosen coil diameter and spiral pitch in relation to frequency range being used the helical antenna will attain the highest gain possible for any antenna of comparative size.
It maintains its high gain and eminent impedance properties over a frequency range of close to an entire octave. Gain in this type antenna is determined by the number of turns of the spiral.

The helical antenna is supplied with reflectors made of sheet metal or netting.

Attenuation between two helical antennas on the same mast is very high, at least 40 dB. When using several channels simultaneously good attenuation is obtained by utilizing different polarizations.

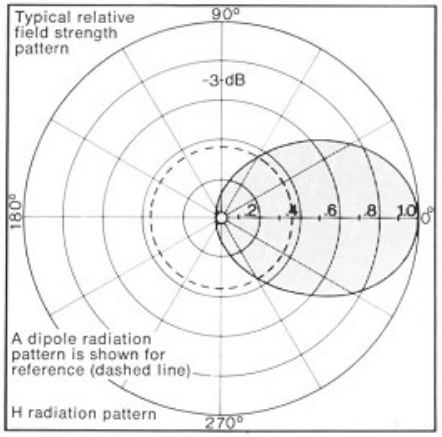
(Socalled "Helical Antennas" marketed for small, portable radio sets should not be confused with those described above.)

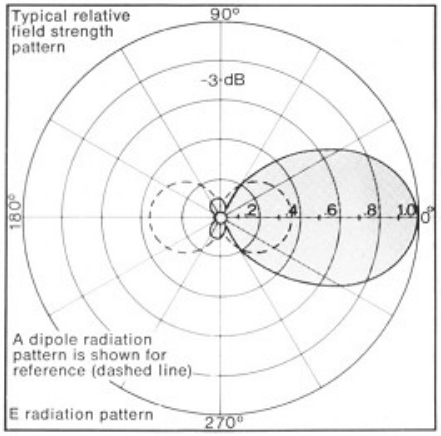
ALLGON DM 701

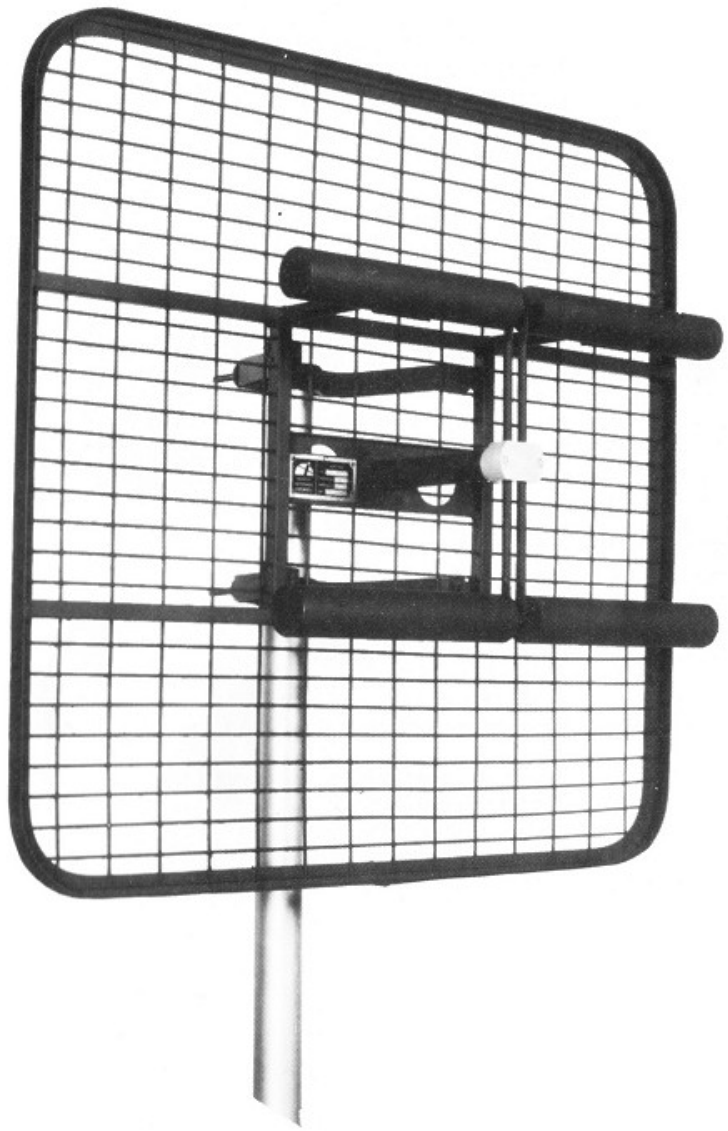
DM 701 was designed for link communication in the UHF range so as to meet exceptional requirements for excellent electrical properties. Because of its mechanically sturdy structure DM 701 also is suitable for installation in areas of high winds, snow and ice. The antenna requiring next to no maintenance it is recommended for installations in very remote spots. Finally, DM 701 may be used as a mobile antenna on account of its small dimensions and low weight.

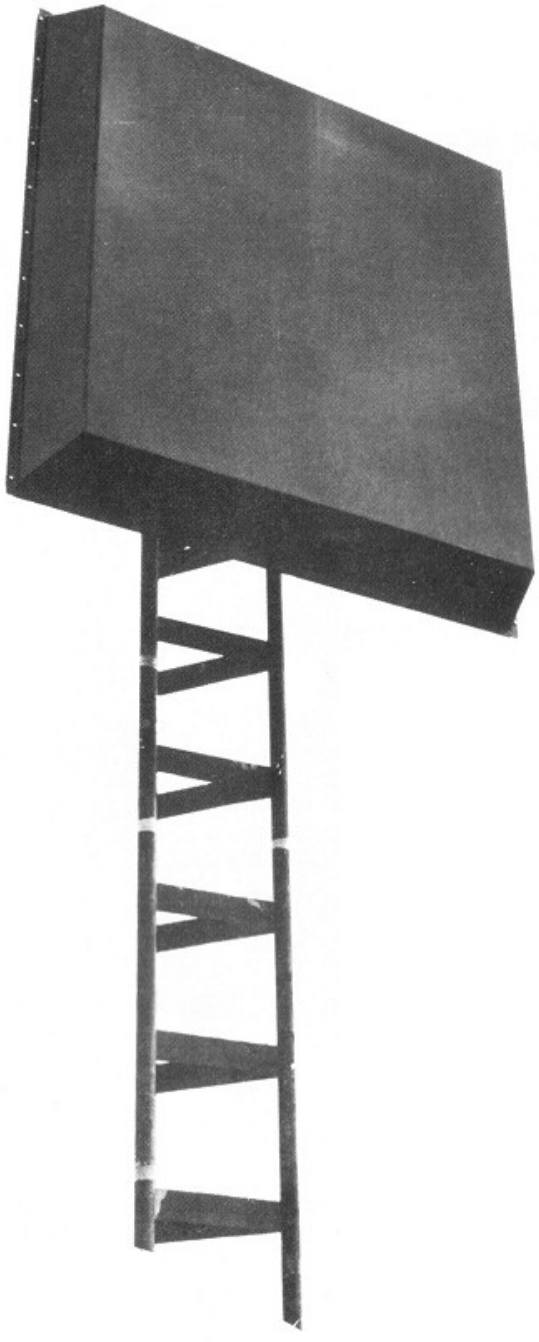
DATA

Frequency	325–475 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	7/16 infemale or N
Radiation	Directional
Polarization	Vertical alt. horizontal
Gain in free space	11 dBi
Front-to-back ratio	Typical 20 dB
Weight	8 kilo
Width/circum-ference	750×750×400 mm
Base	Ø 51–76 mm









ALLGON DM 728

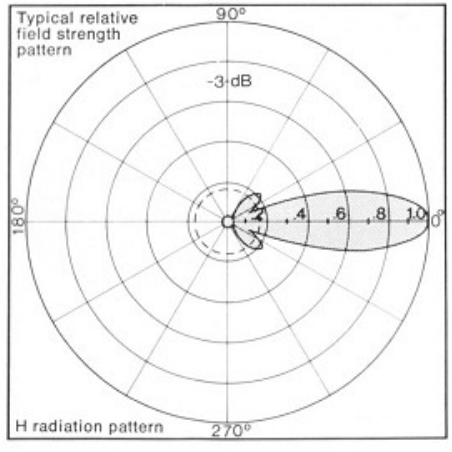
A dipole array of eight dipoles under a glass fiber reinforced plastic hood. The antenna is D.C. grounded, its impedance unaffected by icing. DM 728 can be installed for horizontal and vertical polarization.

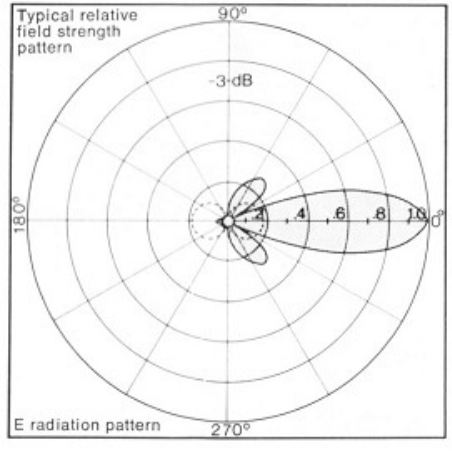
The reflector is made of aluminum and all steel components are hot galvanized or stainless. The antenna is well suited as a radio link antenna on account of its high gain and very high back lobe- and side lobe-suppression.

DM 728 is an ALLGON product engineered to meet purely military requirements for great dependability electrically and great mechanical strength.

DATA

Frequency	300–440 MHz B
Maximum Power	200 W
Impedance	50 ohm
VSWR	$\leqq$1.6:1
Type of terminal	Optional
Radiation	Directional
Polarization	Vertical alt. horizontal
Gain in free space	+18 dBi
Front-to-back ratio	Typical > 20 dB
Dimensions	1700×1700×460 mm
Weight	76 kg





ALLGON HX 720

ALLGON HX 720 is an open helical antenna of exceptionally strong construction. The antenna may be used singly or as the basic element in a stacked helical antenna system.

The spiral, made of light metal, is built around a glass fiber supporting tube. The spiral rests on insulators of electrically very high quality. The antenna reflector is ordinarily made of light metal.

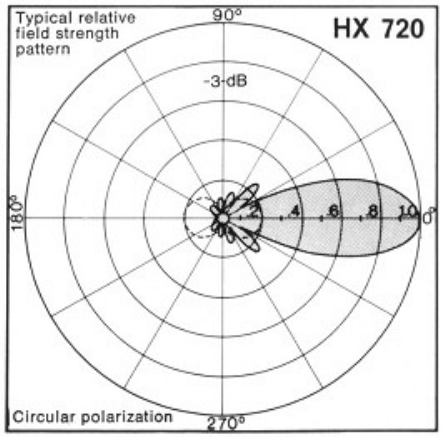
ALLGON HX 735

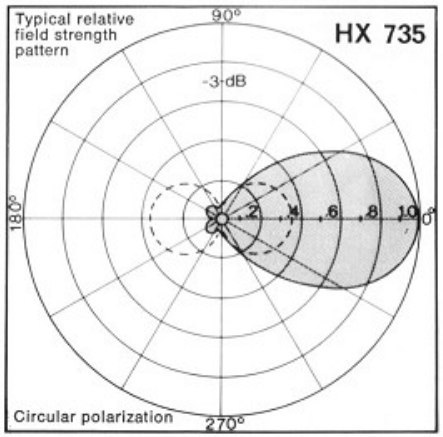
A helical antenna whose antenna element is enclosed in the glass fiber reinforced plastic wall of the hood. The reflector is made of aluminum. HX 735 is an especially sturdy helical antenna whose spiral unit because of its encapsulation is fully protected against deformation. The feeder transformer is a printed circuit type located under the hood and, therefore, well protected.

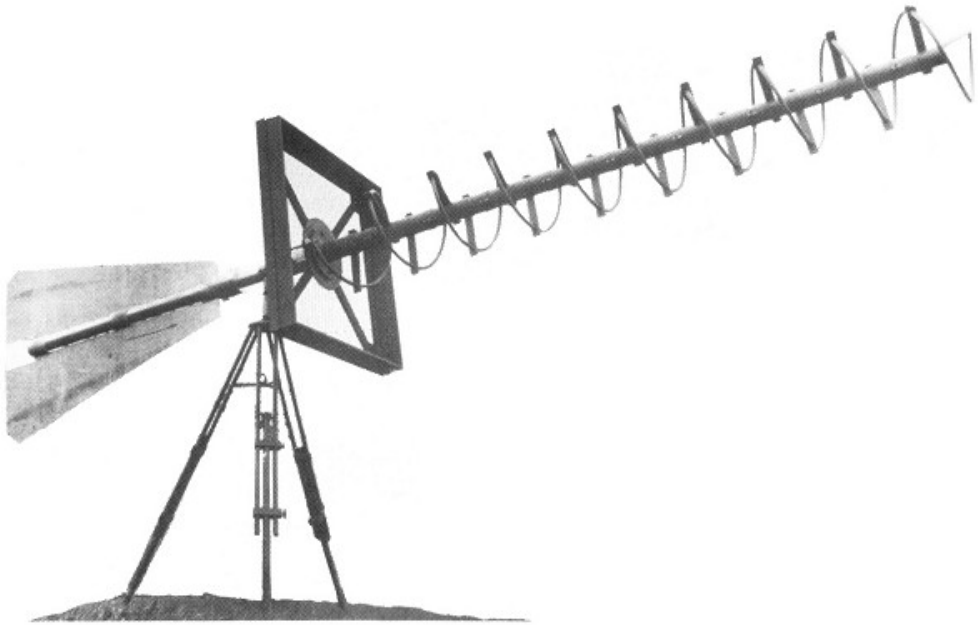
The antenna is available for clockwise or counter-clockwise circular polarization.

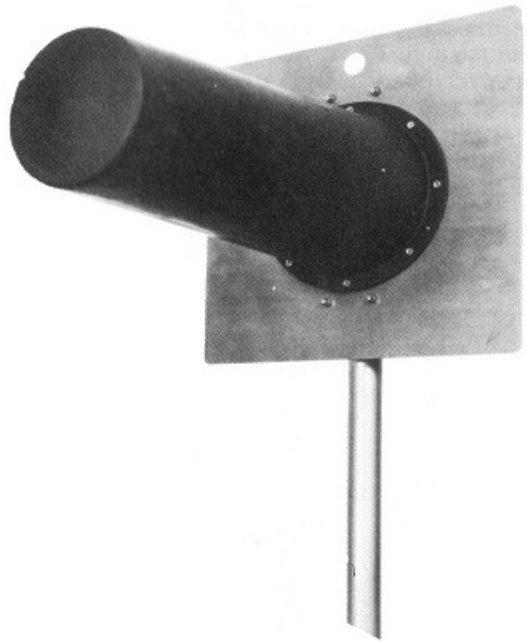
DATA — HX 720 and HX 735

Frequency	
HX 720	190–290 MHz B
HX 735	360–460 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	Optional
Radiation	Directional
Polarization	Circular
Gain in free space	
HX 720	Typical +16 dBi
HX 735	Typical +11 dBi
Front-to-back ratio	Typical > 20 dB
Weight	
HX 720	
HX 735	5.5 kg
Length	690 mm (735)
Base	Max. Ø 60 mm (735)









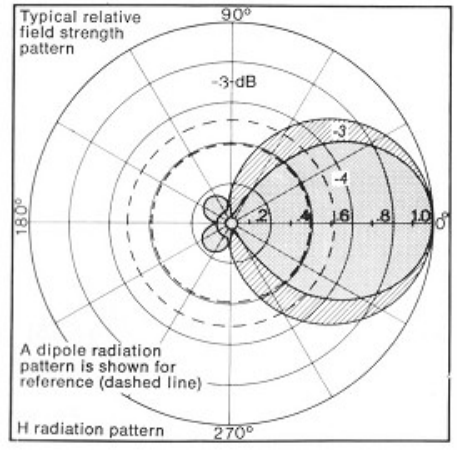
Yagi antennas

The chief mechanical problem posed by this type antennas is that of vibration. A yagi antenna with no or insufficient vibration damping starts vibrating at a low speed of wind with attendant malfunctioning. Great efforts have, therefore, been expended at developing devices for counteracting vibration caused disturbances to the extent possible, and all ALLGON yagi antennas have accordingly been equipped with built-in vibration dampers.

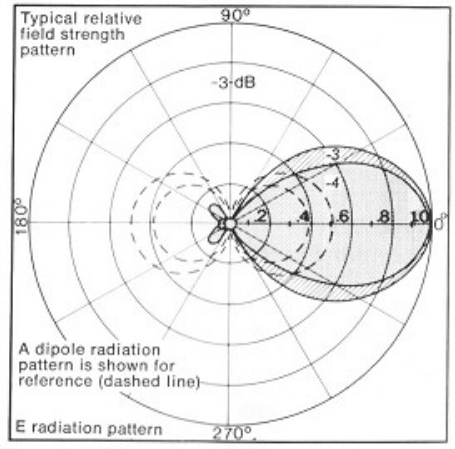
For increased gain, or when a special lobe form is desired, two or more yagi antennas may be stacked vertically or horizontally, or they may be arranged around the mast.

Protective cable cover, encapsulated transformers, booms for different arrangements, bracing sets, and clamps are availables as extra gear.

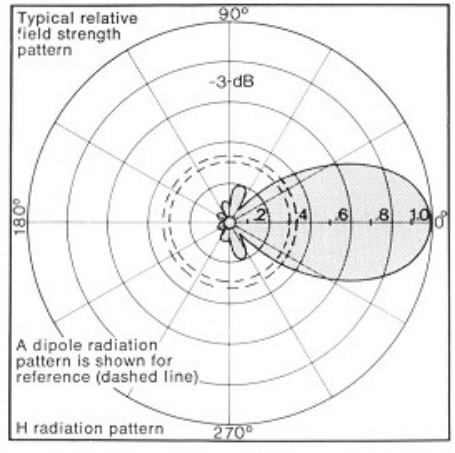
Yagi 703, 704 and 705 — 3 and 4



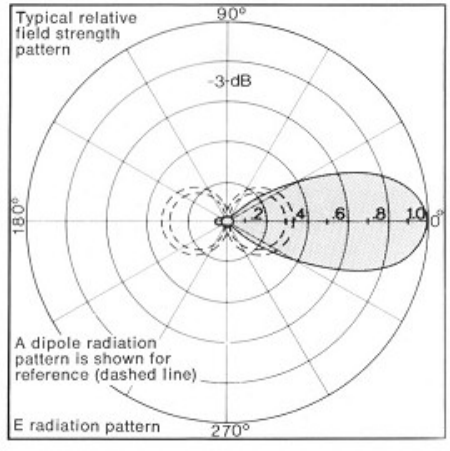
Yagi 703, 704 and 705 — 3 and 4



Yagi 703 and 704 — 6 and 8



Yagi 703 and 704 — 6 and 8



ALLGON YM 703-series

This is the intermediate version of ous standard line. Connection with the feeder cable is established either as on the YL 704 series or by way of a cable running inside the antenna boom and 2 meters beyond. The latter cable ends with a terminal type UHF, N, C, or 7/16.

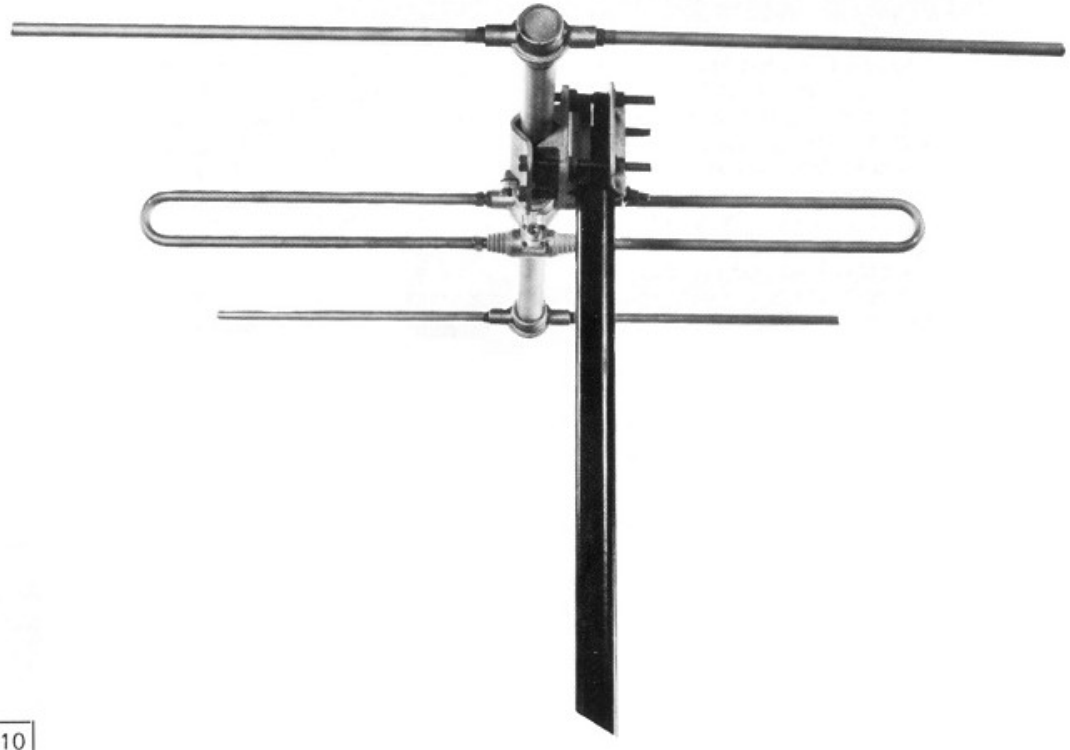
The antenna is made of aluminum alloy. However, an antenna boom made of hot galvanized steel tubing is available to meet requirements for greater mechanical strength.

YM 703 may be supplemented with transformers ALLGON ST 286 or ST 287 for stacking if higher gain is required.

Code

Y M 703 - 3
L 704 - 4
T 705 - 6
- 8
- 10

- Number of elements
- Product number
- Version
  - M = medium
  - L = light
  - T = heavy
- Yagi



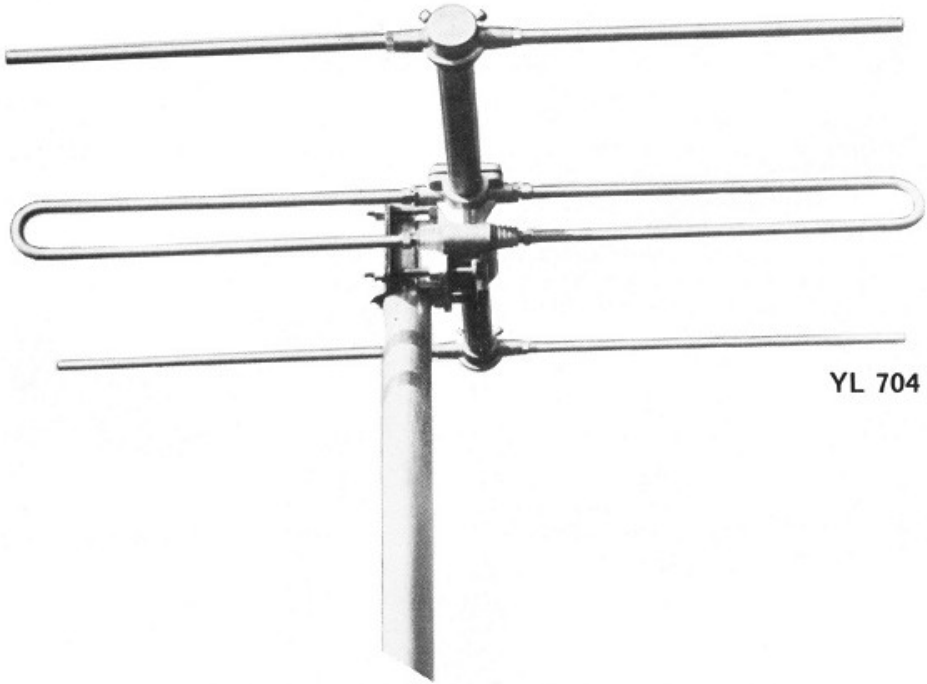
Available versions and frequency ranges					
Available frequency ranges (MHz) for particular number of elements					
Type	3	4	6	8	10
M 703	40—170	40—170	67—150	120—150	
L 704	100—300	100—300	120—300	150—300	150—300
T 705	30—85	35—85			

Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.5:1 BW up on request
Type of terinal	Optional
Radiation	Directional
Polarization	Vertical/horizontal

Gain in free space

Number of elements:	2	3	4	6	8	10
Gain dBi:	+5,5	+8	+10	+12	+13	+14

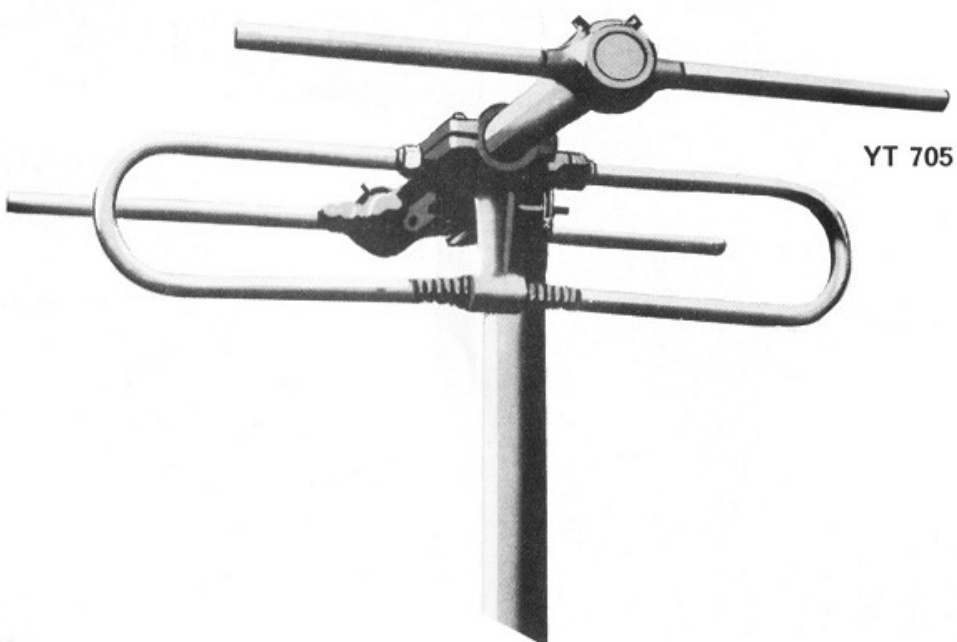
Front-to-back ratio Typical 20 dB



YL 704

ALLGON YL 704-series

This is the lightest version of our standard line of yagi antennas. is made of light metal alloy. The antenna elements are easily assembled and disassembled. The folded dipole is fed by way of a balun-transformer enclosed in the antenna boom. Terminal points of the transformer are well protected against moisture and dirt. All antenna elements are equipped with built-in vibration dampers. The feeder cable is connected to a female terminal, type UHF, N, or C, on the antenna head. For higher gain the antenna may be stacked, feeding taking place via stacking transformer.



YT 705

ALLGON YT 705-series

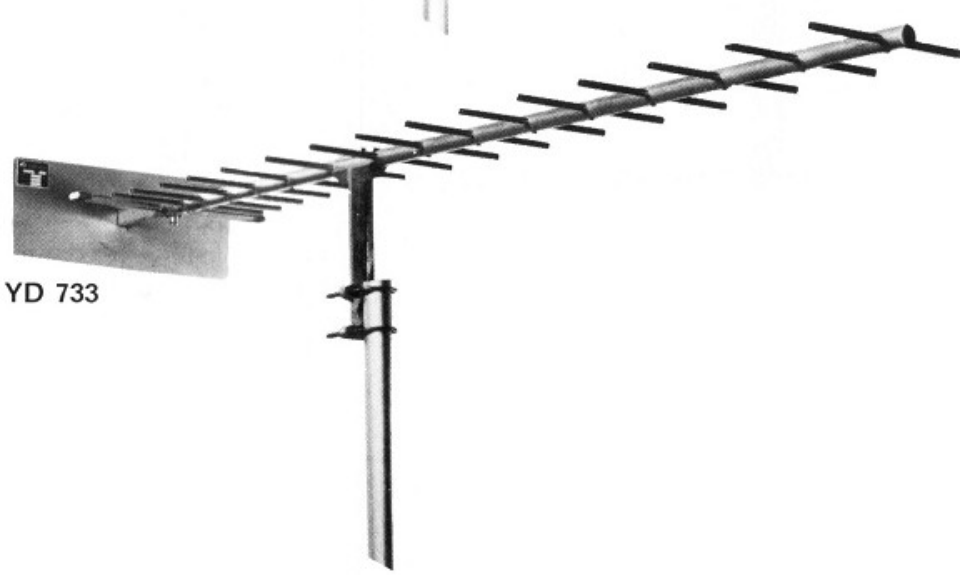
The heaviest and mechanically strongest of our standard yagi line. This version in no other respect differs materially from YM 703.

YT 705 is only available with antenna boom of hot galvanized steel tubing.

ALLGON YD 725 and YD 733

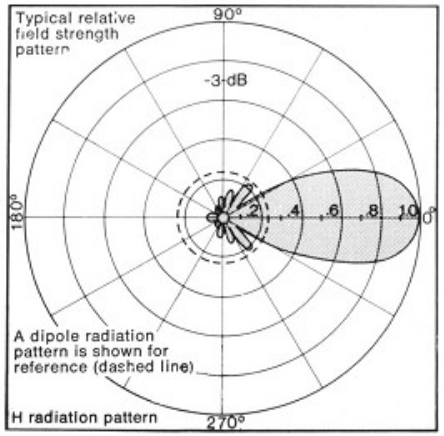
A corrosion proof aluminum alloy yagi antenna for the UHF range made up of reflector, boom, feeder unit, and elements. The antenna has extremely high gain and is well suited for RA-link connection. YD 725 (military version) is treated with UV and IR-proof protective paint. YD 725 is delivered for field service with a two-part boom and a container for two antennas with gear. Included in the gear is an adjustable mast base permitting mounting for vertical as well as horizontal polarization.

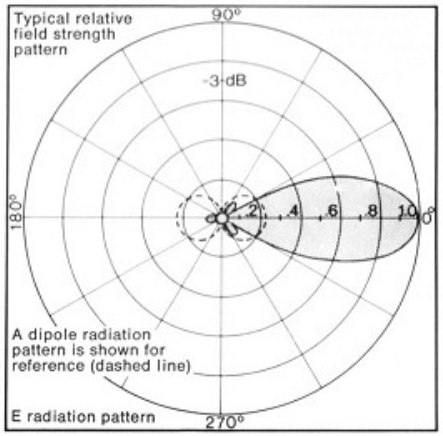
YD 725



YD 733

Frequency	340–410 alt. 390–470 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.5:1
Type of terminal	N, C
Radiation	Directional
Polarization	Horizontal alt. vertical
Gain in free space	Typical 15 dBi
Front-to-back ratio	Typical 20 dBi
Weight	4.5 kg incl. base
Length	2070 mm
Base	Max. Ø 60 mm





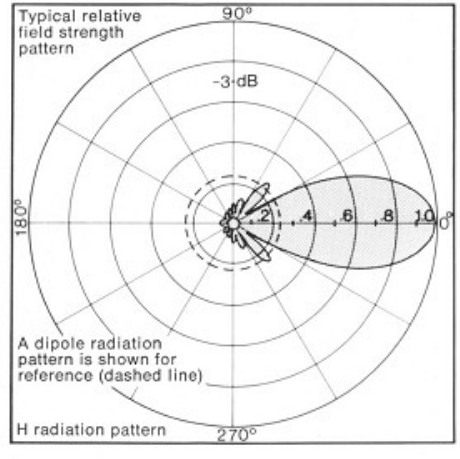
ALLGON YD 726

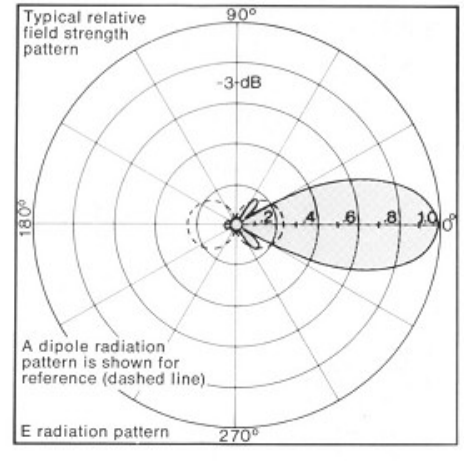
A yagi antenna with hood of glass fiber reinforced plastic. A printed circuit type feeder element has been chosen for YD 726. The antenna elements are made of aluminum, and the antenna structure is carried inside of, and supporter by, the hood. The reflector, also serving as a fastening device, is cast in aluminum alloy. Among suitable uses may be mentioned radio link connections.

YD 726 can be mounted for vertical as well as horizontal polarization. The antenna can be used as basic element in an antenna system consisting af a number of stacked YD 726s. The impedance adapter unit will then have to be ordered as an extra.

DATA

Frequency	810–930 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	$\leqq$1.5:1
Type of terminal	N
Radiation	Directional
Polarization	Horizontal alt. vertical
Gain in free space	Typical 15 dBi
Front-to-back ratio	Typical > 20 dBi
Weight	4.8 kg
Length	1180 mm
Base	Max. Ø 60 mm





ALLGON YD 744

YD 744 is an example of yagi antennas within the frequency range 1000–2500 MHz. It is constructed in the same way as YD 726 with feeding elements made in printed circuit tecknique.

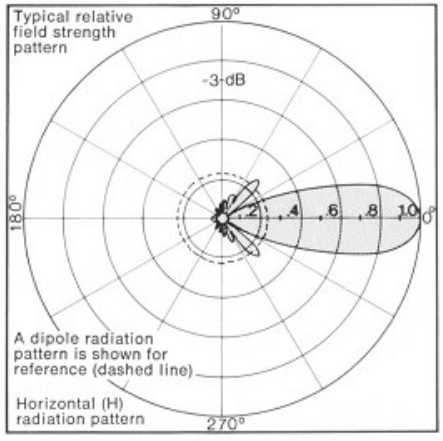
The entire antenna is covered with a reinforced glasfibre radom.

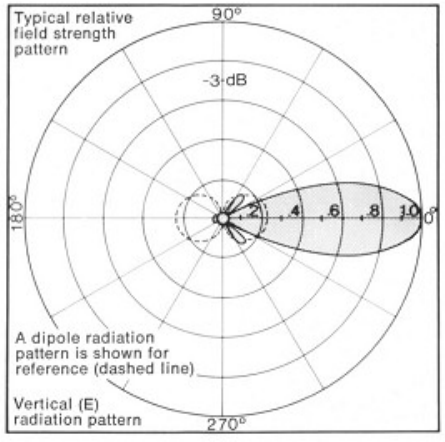
The antenna has in standard version very high gain but it can also easily be stacked for increased gain. Such stacked yagiantenna systems are competitive with small horn and parabolic antennas, with respect to gain.

YD 744 is suitable for radio link communication and radar systems on the L-band.

DATA

Frequency	1300–1600 MHz
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.5:1
Connector	N
Radiation	Directional
Polarization	Horizontal or vertical
Gain in free space	+ 17 dBi
Front-to-back ratio	Typical ≦ –20 dB
Weight	4.8 kg
Length	1180 mm
Bracket	Max. Ø 60 mm





Portable short wave/field antennas

ALLGON ANTENN AB has given special attention to problems arising when the wave length of the antenna requires the latter to assume physical dimensions difficult to handle without dispensing with portability.

ALLGON's portable short wave antennas are of low weight and can easily be carried by one man. The aim has been to design the antennas so as to also enable unqualified personnel to set them up.

All types are delivered complete with gear and can, therefore, be directly connected to a transmitter.

ALLGON RFD 707

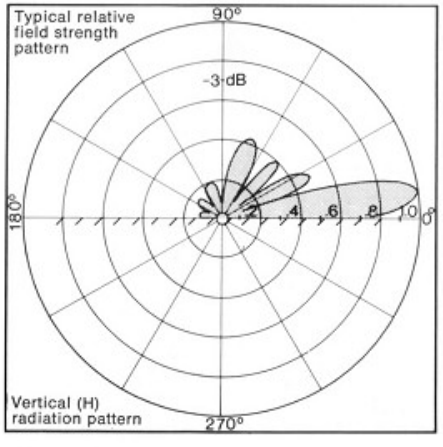
RFD 707 is a broad banded .non-reflective) directional antenna of low weight rendering it especially suitable for field use.

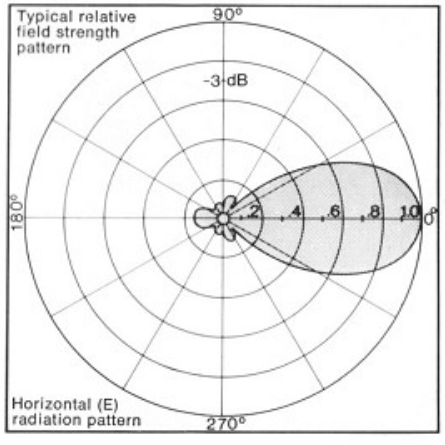
The antenna is easily carried by one man and can be set up for service in a few minutes. By merely moving the lower end of the antenna sideways, direction of radiation is quickly changed. The antenna is made up of a radiator wire 18 meter long, matching unit, and a top rod serving as a counterweight. The radiator consists of a number of sections separated by reactances from which the non-reflective qualities of the antenna are derived. In contrast to ordinary antennas the wave obtained along the radiator wire will be a progressive instead of standing wave.

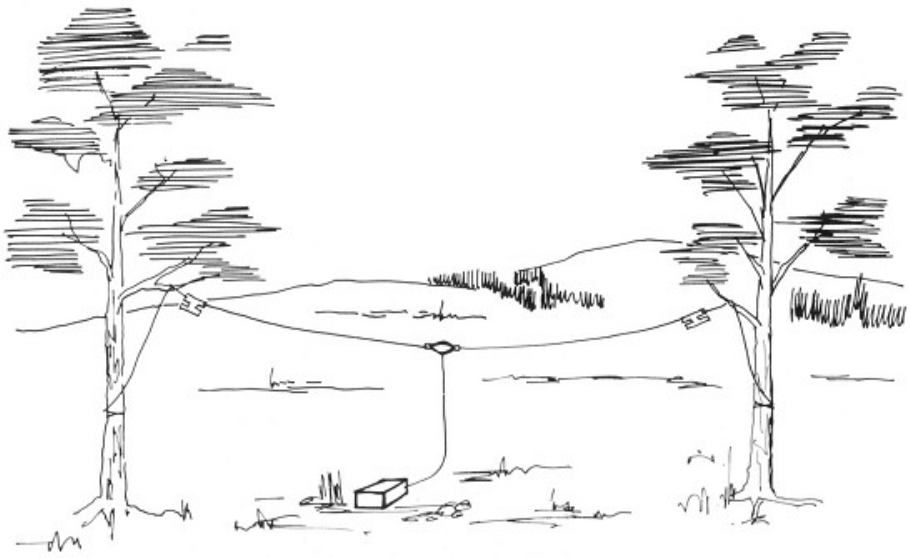
RFD 707 may be mounted on mast, tree, &c.

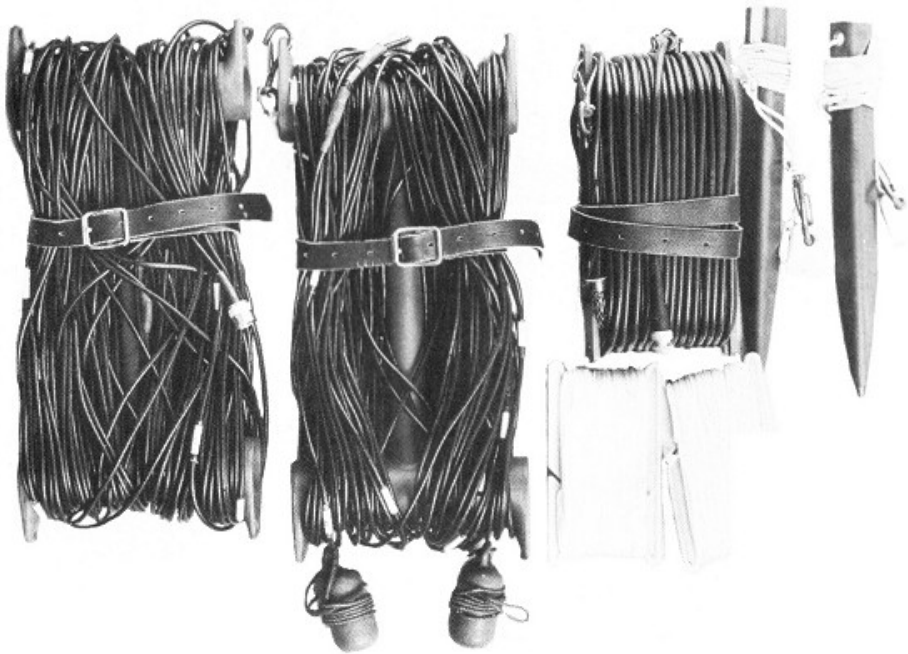
DATA

Frequency	30–80 MHz B
Maximum Power	100 W, 200 W, 1 kW
Impedance	50 ohm
VSWR	≦1.8:1
Type of terminal	BNC
Radiation	Directional
Polarization	Vertical
Gain in free space	+ 10 dB rel. quarter wave antenna
Front-to-back ratio	Typical > 15 dB
Weight	2 kg (wire, transformer and top rod)









ALLGON DD 738

A DIPOLE-DELTA antenna built chiefly for communications via the ionosphere. DD 738 can be set up as a dipole antenna or as a delta antenna.

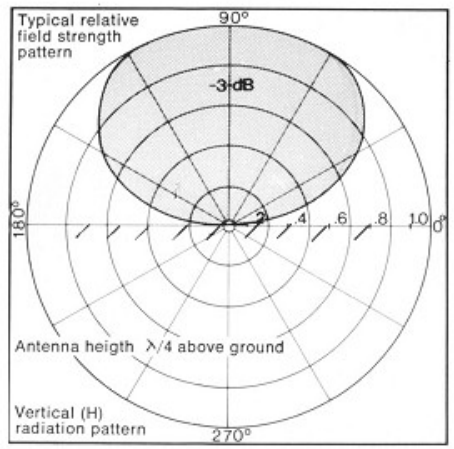
As a DIPOLE antenna, DD 738 can be tuned for desired frequency within the very broad frequency range 2–30 MHz. The accompanying hoisting cords permit raising or lowering the antenna to a point above ground most advantageous for the desired transmission distance. For instance, 1/4 of a wave length above ground for communications up to 250 km, and 1/2 wave length for communications 250–1000 km.

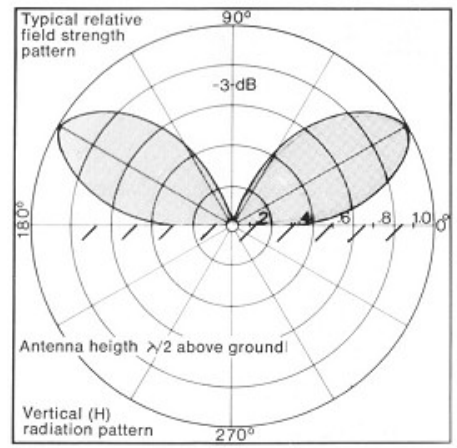
As a DELTA antenna, DD 738 yields optimum results between 2 and 15 MHz. The antenna is broad banded requiring no tuning, and is suitable for ionosphere communications over distances up to 250 km. Antenna DD 738 is made up of antenna cord with reel, moisture protected broad banded matching transformer, and feeder cable with reels. Hoisting cords for both uses are included. Antenna DD 738 is delivered appropriately packeted for field service.

DATA — Dipole and Delta

Frequency	
Dipole	2–30 MHz (narrow banded)
Delta	2–30 MHz B
Maximum Power	25 W
Impedance	50 ohm
VSWR	
Dipole	≦3:1 BW = 10%
Delta	≦3:1
Type of terminal	BNC
Radiation	Directional
Polarization	
Dipole	Horizontal
Delta	Vertical

Gain in free space	
Dipole	+ 2 dBi
Delta	Depends on frequency chosen
Weight	2.5 kg





ALLGON LD 459 SCOOBYDO Patent CB

This antenna is mainly intended for vertically polarized ground wave communications in the CB range. It can be carried in your pocket and is made up of a 5 meter antenna wire, matching transformer, and coaxial cable for connection to radio transmitter.

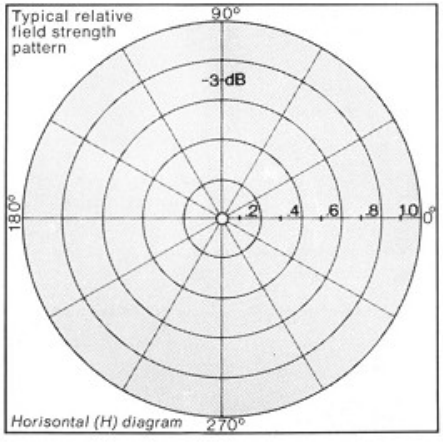
"Scoobydo" was designed as a supplement to portable radio sets with factory mounted telescopic antennas as is imparts + 12 dB over such telescopic antennas "Scoobydo" is a next to indispensable safeguard for operators in areas of great distances between the CB stations, such as hunting preserves, mountain regions, at sea, or on islands lacking base stations.

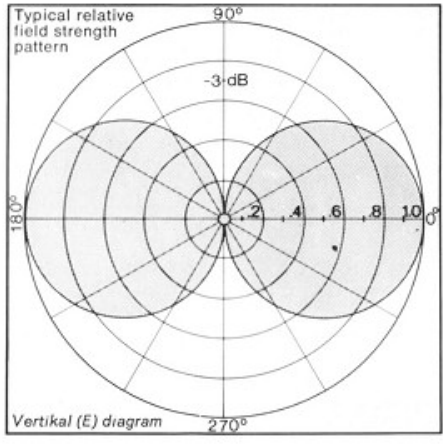
An increase in range of 4–10 times is possible by use of the "Scoobydo" antenna at both stations, verified among others by the Swedish Defence Establishment. The matching unit of the antenna is styled as a printed circuit.

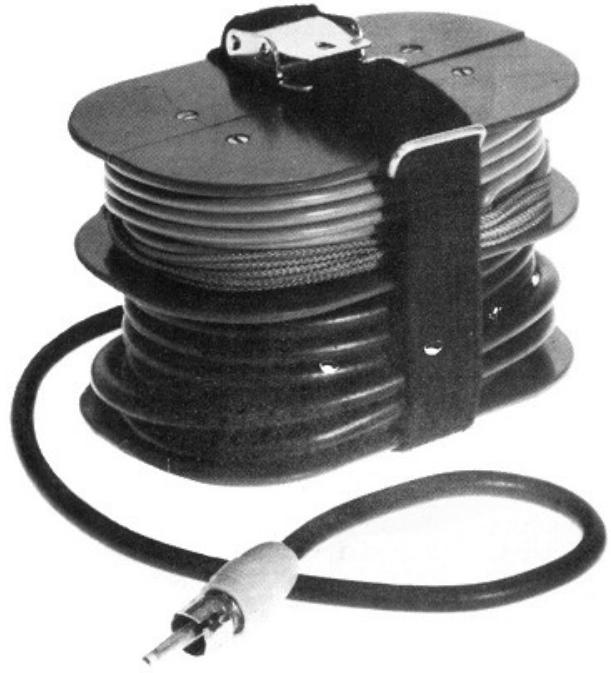
Patent has been applied for.

DATA

Frequency	26.5–28 MHz B
Maximum Power	50 W
Impedance	50 ohm
VSWR	$\leq$2:1
Type of terminal	PL 259, phonoplug
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+ 10 dB to + 18 dB over standard telescopic antenna
Weight	280 g
Length	5 meters







Logarithmically periodic antennas for HF

ALLGON ANTENN AB has a well developed line of log-periodic short wave antennas. The Company's expertise in this field is amply documented world wide.

Antennas in this group are very broad banded covering 4—40 MHz. The most powerful type is used for 500 kW carrier + 100 % amplitude modulation with VSWR $\leqq$ 1.4:1 over the entire frequency range.

All of these antennas are available with rotation in azimuth. ALLGON's rotating joints permit rotation without end positions.

The antennas are intended for ionospheric communications. To achieve optimum radiation lobe of the antenna in the vertical plane, taking the desired transmission distance in consideration, the antenna is placed at the appropriate height above ground. If maintenance of the vertical diagram over the entire frequency range is desired, the antenna is placed at a given angle, vertex pointing downward.

Height of mast and inclination of antenna structure are computer calculated by ALLGON.

In the event a variable vertical diagram is desired the antennas are equipped with an elevation device permitting tilting mechanically between -35° and $+25^\circ$.

Owing to the broad-bandedness of the antenna the frequency schedule of the radio station may be altered at any time without disturbing the antenna set-up at all.

The log-periodic antennas have a typical gain of 15 dBi, including ground reflection.

ALLGON LP 601—620

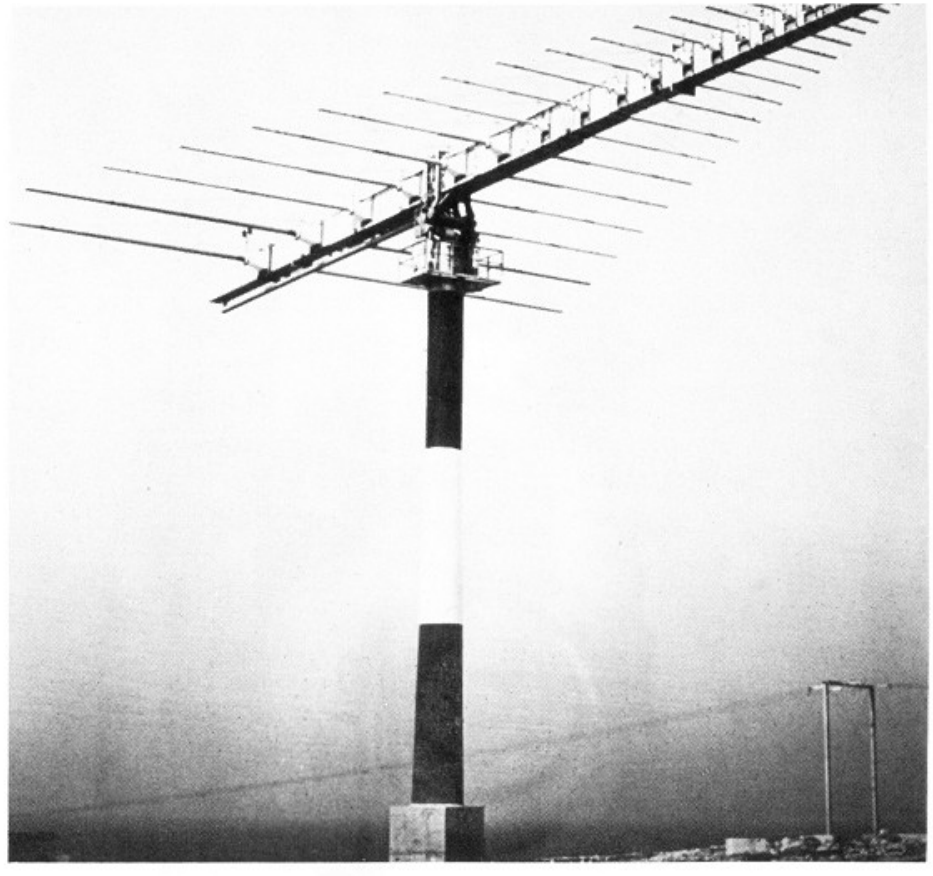
These maneuverable log-periodic antennas are intended for broadcasting and communications over medium and long distances in the HF range. They are designed for use in connection with transmitters for effects up to 500 kW carrier + 100 % AM modulation over frequency range 4—40 MHz.

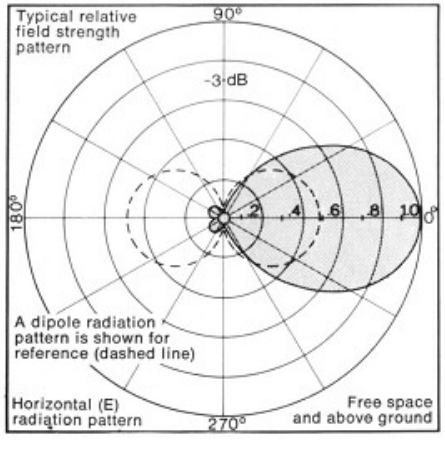
These antennas were developed with a view to swift and secure installation. All vital parts are pre-mounted at the factory. A complete instruction manual is supplied on delivery.

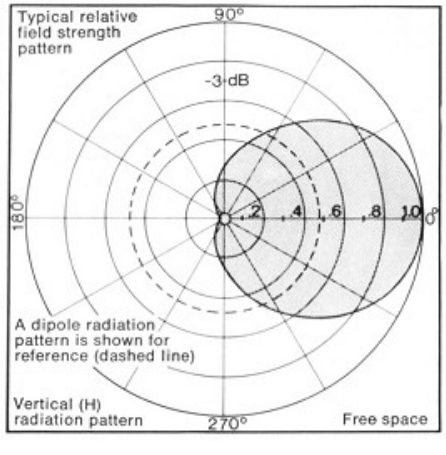
The antenna boom is tiltable permitting lobe forming to achieve optimum communication. The encased feeder system renders the antenna completely independent of climatic conditions.

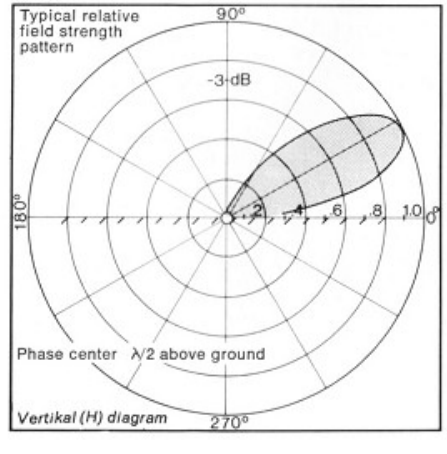
We furnish on request, data sheets and other documentation on antennas in this group.

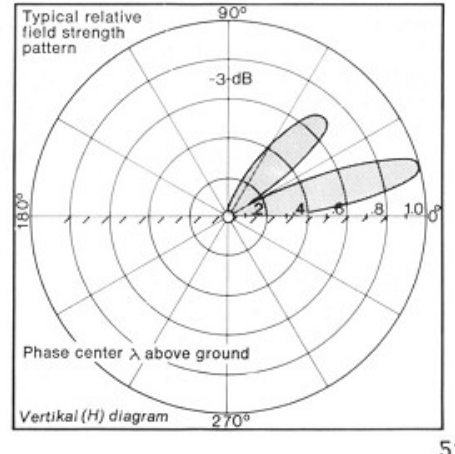
DATA Antennas		601	603	604	608	615	616	619	620
Frequency range	MHz	5.9—30	4—30	6—40	13—30	8—26	6—26	10—26	5.9—26
Maximum power	kW	500	30	30	2	10	10	2	100
Impedance	ohm	50	50	50	50	50	50	50	50
VSWR		<1.4:1	<1.7:1	<1.7:1	<2:1	<2:1	<2:1	<2:1	<1.7
Radiation		direct.	direct.	direct.	direct.	direct.	direct.	direct.	direct.
Polarization		horizont.	horizont.	horizont.	horizont.	horizont.	horizont.	horizont.	horizont.
Gain in free space	dBi	8	8	8	8	8	8	8	8
Gain over good ground	dBi	14	14	14	14	14	14	14	14
Length of boom		39.6	37.4	23.8	11	14.3	19.7	11	23.1
Longest dipole	m	26.1	37.5	25.4	11.6	19.1	25.5	16	26.1
Number of dipoles		18	20	20	12	14	17	12	17
Weight	kilo	9300	5000	1300	100	205	340	120	3900

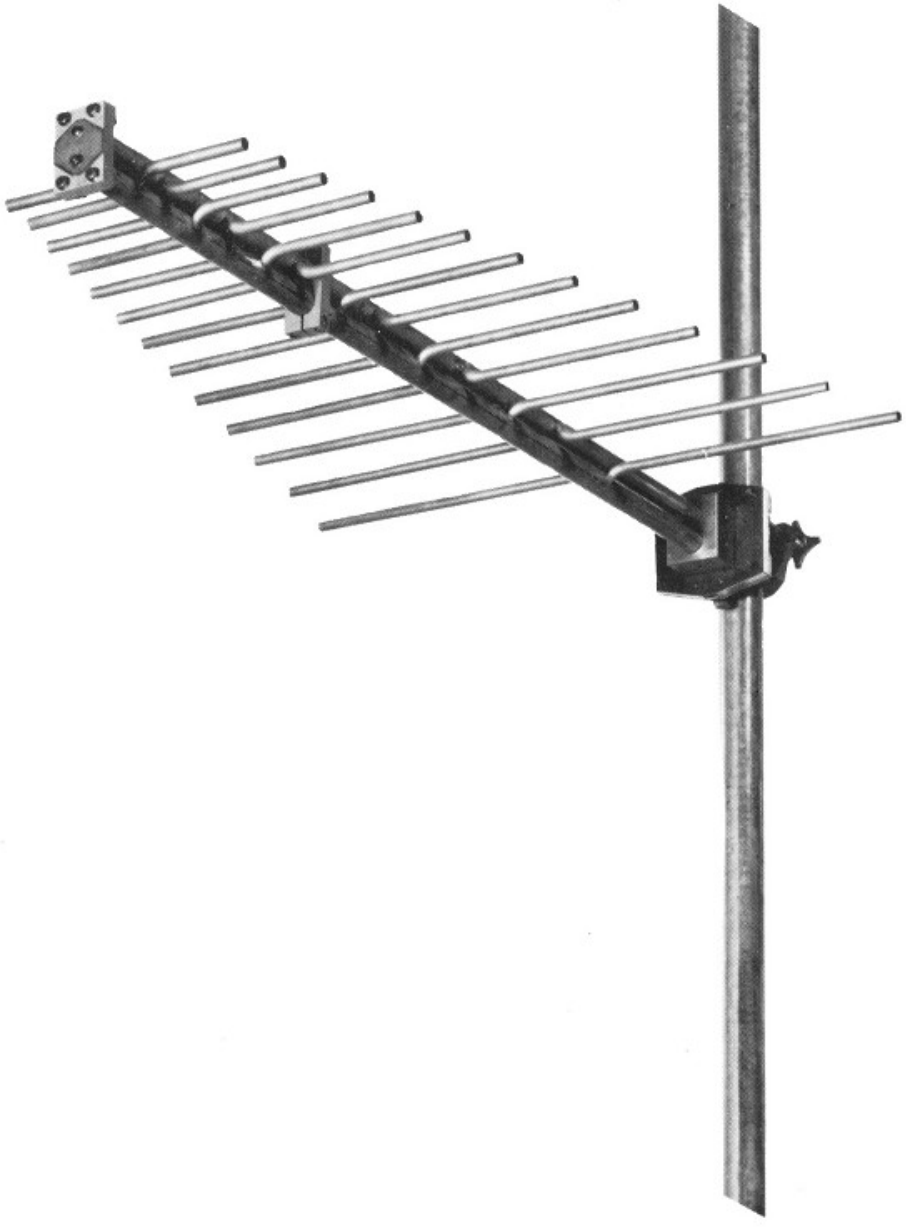












ALLGON LP 614 and LP 614×2

LP 614 is a 13-element log-periodic directional antenna. Its rugged structure renders it suitable for stationary as well as mobile use. When intended for mobile use the antenna may be equipped with protective cover of glass fiber reinforced plastic.

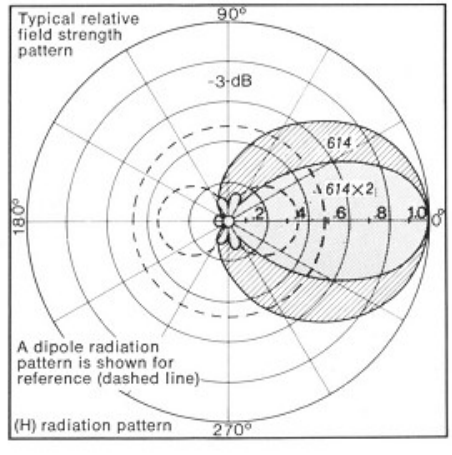
The antenna is made of aluminum alloy and consists of a number of half wave dipoles mounted on a balanced transmission line also serving as antenna boom. Feeding takes place in the front part of the antenna through an unbalanced feeder cable inside one of the balanced boom tubes. The structure works as a frequency-independent or infinite balun transformer. Water, ice, and snow will have little effect on the electrical functions of LP 614 owing to its broad-bandedness.

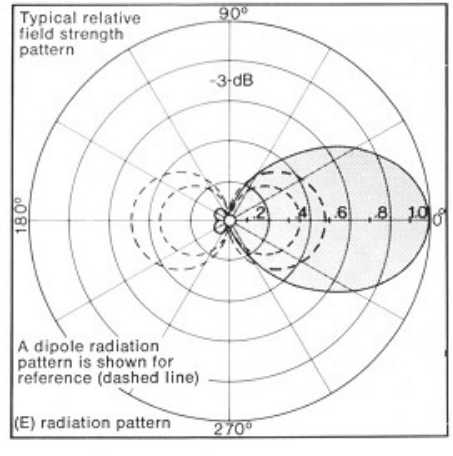
LP 614×2 is mainly intended for stationary installation. The antenna is made up of two stacked LP 614s, but the specially constructed stacking unit permits mobile use as well.

The angle between the two component log-periodic antennas is calculated to maintain ideal radiation diagram and good gain over the entire frequency range of the antenna covering nearly an octave.

DATA LP 614 and LP 614×2

Frequency	
LP 614	220–410 MHz B
LP 614×2	220–410 MHz B
Maximum Power	
LP 614	50 W
LP 614×2	100 W
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	Optional
Radiation	Directional
Polarization	Vertical alt. horizontal
Gain in free space	
LP 614	+ 8 dBi
LP 614×2	+ 11 dBi
Front-to-back ratio	Typical > 20 dB
Weight (singly)	3.6 kg
Length (singly)	1290 mm
Width/circumference	685 mm
Base	Max. Ø 60 mm





ALLGON Argus 868

A completely new type of tuning indicator, mainly intended for mobile antenna radiators, to be used instead of an expensive VSWR meter. ARGUS can easily be fitted to the antenna radiator and allows tuning of the antenna right where it is installed.

ARGUS contains a small panel instrument. The sensitivity can easily be adjusted by means of a knob. ARGUS is broadbanded and is particularly well suited for mobile antennas on the 27 and 29 MHz bands, but can also be used throughout the whole VHF range.

The unit is small and handy, which simplifies its fixing to and removal from the antenna radiator. Thanks to the design of the instrument and the lack of cables. ARGUS will not affect the resonance frequency of the antenna while tuning.

ALLGON filter 869 for 27 MHz

Allgon filter permits the CB antenna to be used simultaneously as a CB antenna and AM/FM radio antenna. The filter attenuates the power from CB transmitter from reaching and damaging the car radio. The transmission loss to the CB antenna is however negligable.

Boat owner can with help of the filter and a CB antenna, for instance Allgon MA 450, get an excellent antenna for long wave, medium wave, short wave and ultra short wave to his AM/FM radio receiver.

The filter is fitted with all necessary cables and connectors.

DATA for CB unit

Frequency range	26.8–27.6 MHz
VSWR	$\leqq$1.5:1
Maximum Power	20 W
Transmission loss CB to antenna	$\leqq$0.25 dB

DATA for AM/FM car radio

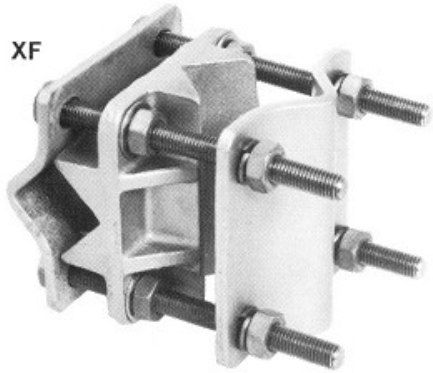
Transmission loss antenna to AM/FM radio 100 kHz–100 MHz	$\leqq$0.25 dB
Attennuation CB to AM/FM receiver	$>$40 dB

Mastbrackets
Rotary joints
Corona device

X-brackets

The following hot-dip galvanized items equipped with stainless steel bolts and washers, are intended to support yagi antennas as well as ground plane antennas and dipoles. X-clamps can also be useful, when arranging systems with horizontal and vertical supports. Clamps are available for antenna and mast dimensions from 30 mm to 216 mm.

XF 271 60×60 cm
XF 272 60×120 mm
XF 273 60×120/216 mm
XF 274 120×120/216 mm



Adjustable brackets

ALLGON MF 282

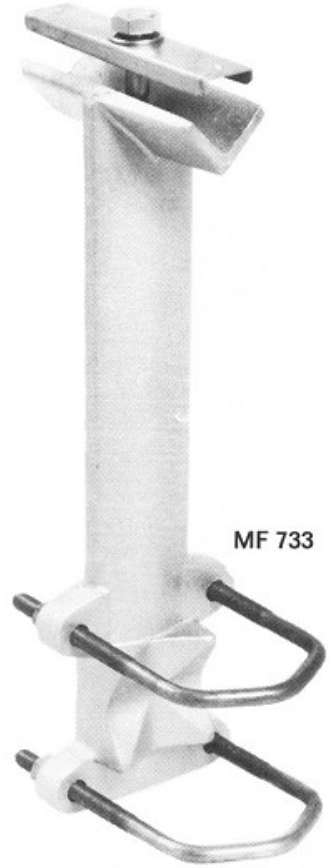
MF 282 is casted in light metal alloy and is equipped with stainless steel accessories. MF 282 fits antenna types GP 404 A and GP 404 G. Maximum mast diameter 60 mm. Feeding cable may pass inside as well as outside of the mastpipe.

ALLGON MF 290

Smaller than MF 282. MF 290 is available in two versions: for GP 443 and GP 447 alternatively.

ALLGON MF 733

Bracket for yagi antenna YD 733. The bracket consists of a very strong 300 mm long supporting arm of light metal alloy casting with a cross bracket, making it possible to mount the antenna either for vertical or horizontal polarization. The mounting can be made on side of the mast, on a extended arm on side of the mast or on the top tube.



ALLGON Rotary joints

As a corollary to the manufacture of large, log-periodic antennas ALLGON ANTENN AB has designed a series of rotary joints for various powers. Because of their gas and moisture proof construction, and due to the great care exercised in the choice of material and surface treatment they require no maintenace. A maximum internal overpressure of 5 atmosphere gauge is allowed for.

Type	Maximum power at kW	MHz	Impedance	VSWR	Connector
828	30	40	50	1.03	Spinner 21/48
829	30	40	50	1.03	EIA 15/8"
830	30	40	50	1.03	EIA 15/8"
831	30	40	60	1.03	Spinner 21/48 Spinner 18/48
834	100	40	60	1.03	4 1/2" Allgon
835	250	30	50	1.03	8" Allgon
836	500	30	50	1.03	10" Allgon

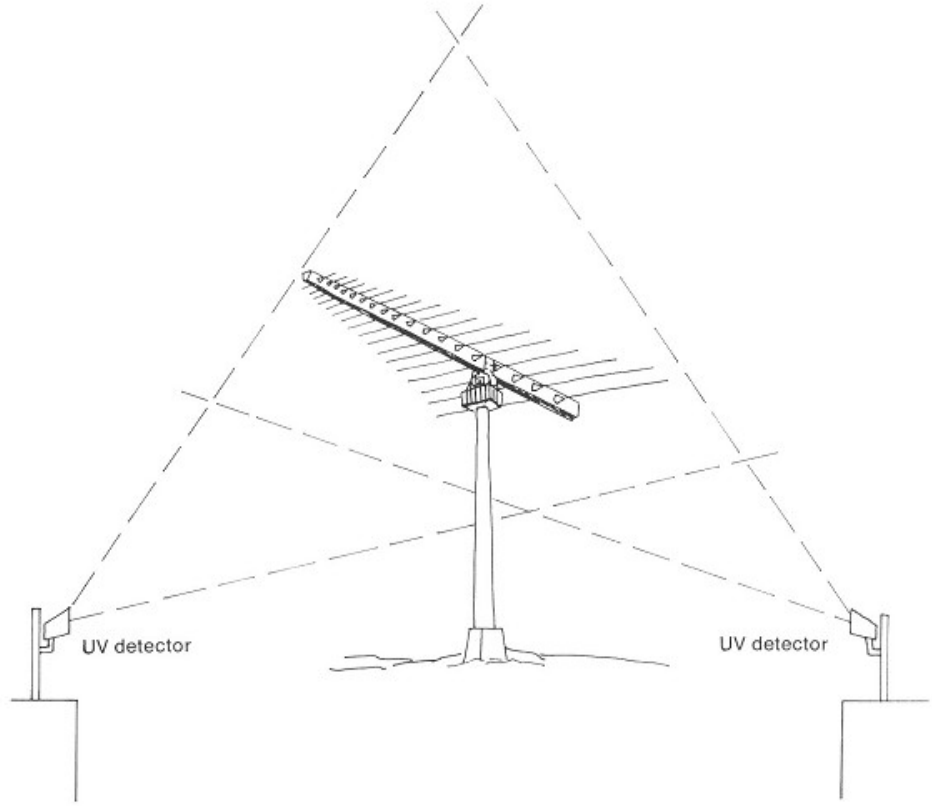
ALLGON Corona Detection and flash-over detection system

At transmitter powers of and above 100 kW electrical discharges in form of corona and flash-over can appear in the output stage of the transmitter, in the feeding system and in the antennas. Allgon's corona and flash-over detecting system is intended to discover beginning corona and flash-over and protecting valuable equipment from serious damage.

The system consists of UV-detectors connected to a control unit. The detectors are placed where risk for corona and flush-over exists. At an impulse from the detectors the control unit gives a signal to, for example, an automatic power reduction unit in the transmitter.

The UV-detectors react very rapidly as soon as the slightest corona or flash-over is visible, but are insensitive to sunlight.

Due to the fast reaction of the corona system serious damage in the transmitter and the antenna system can be avoided.



Example of corona and flash-over detector system

CROSS INDEX

Chartexplanation

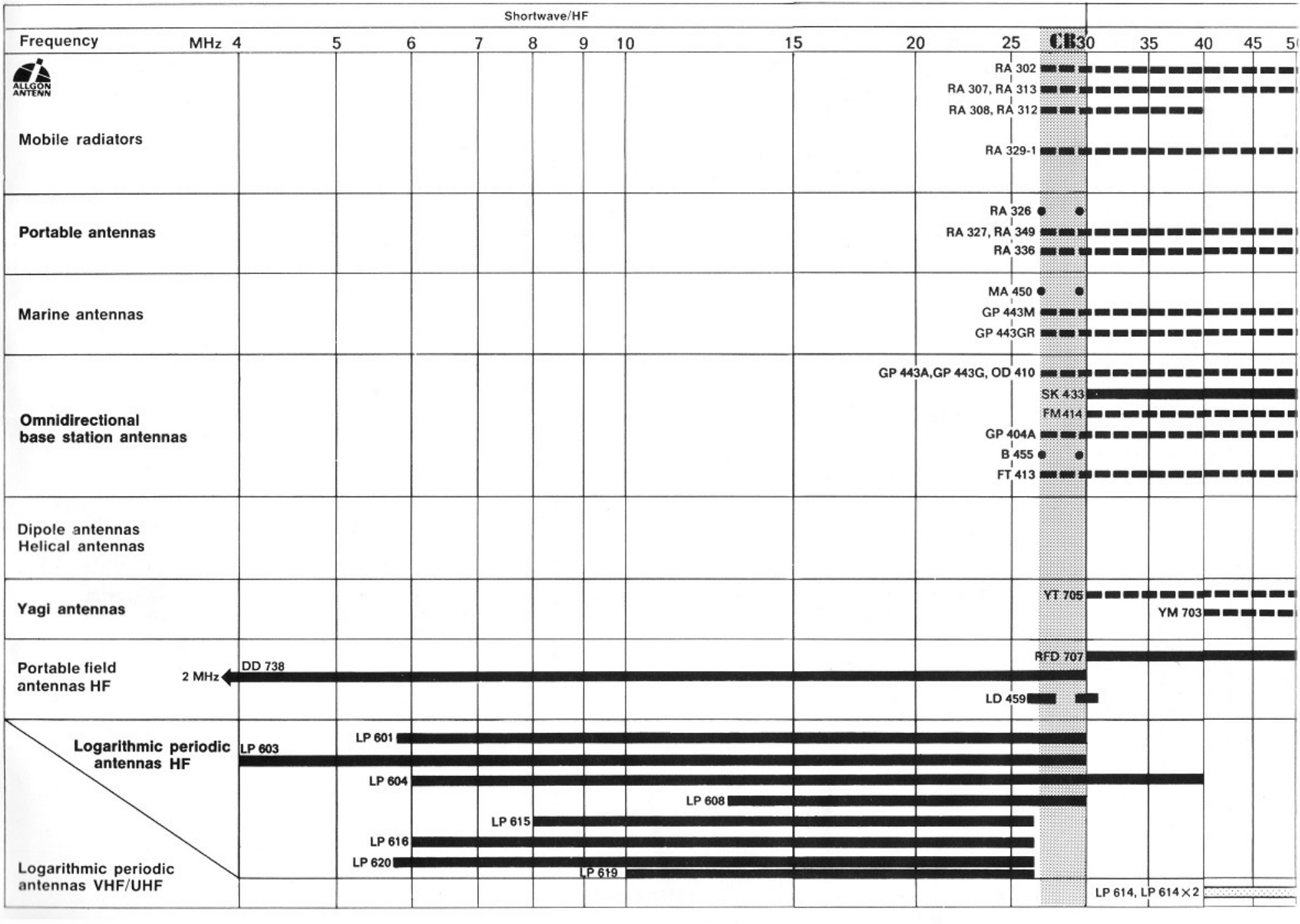
▬▬ means broadband (B) antenna covering the whole stated frequency range.

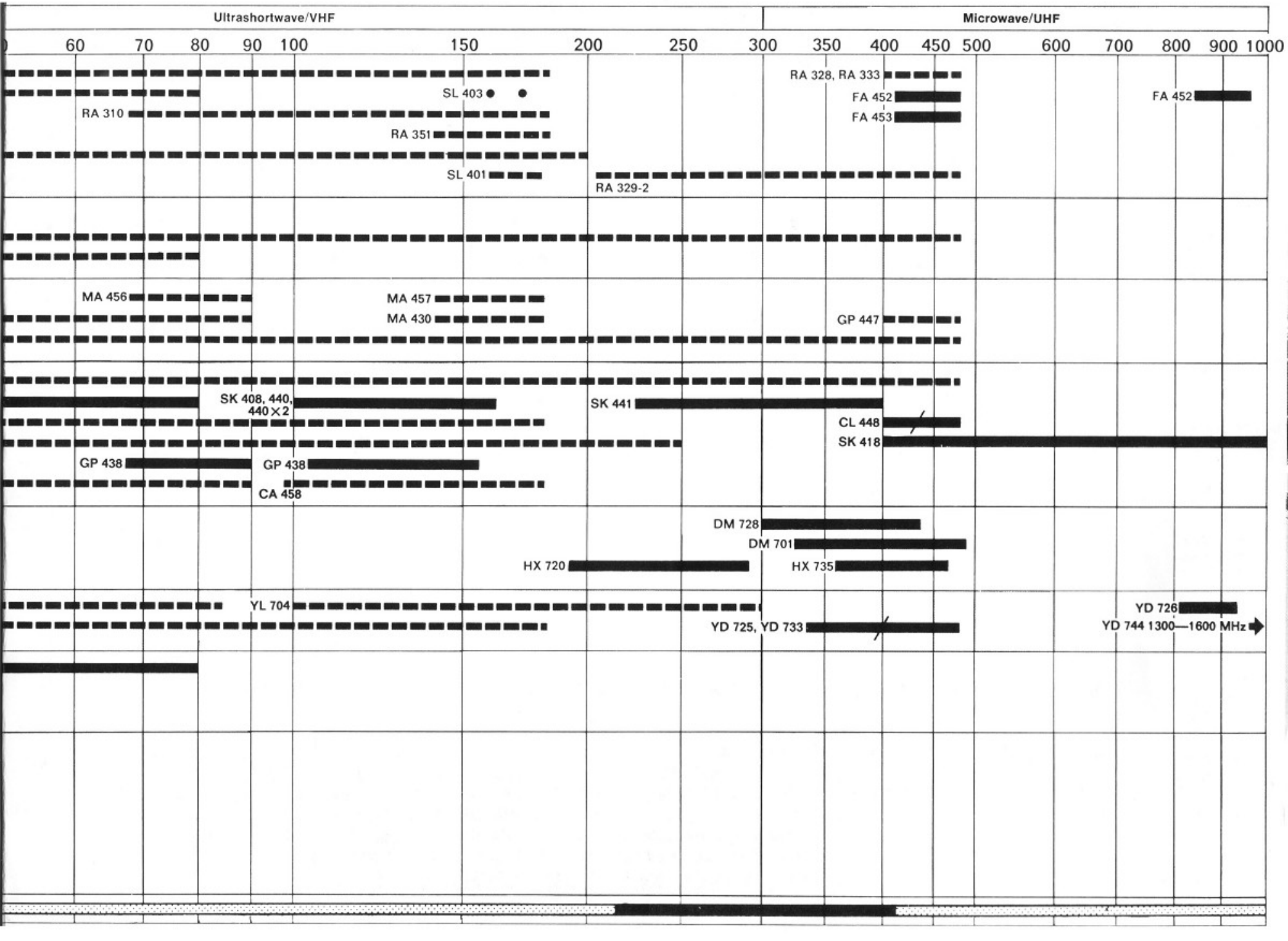
▬ ▬ ▬ means narrow band antenna, that simply can be tuned to desired frequency within stated frequency range.

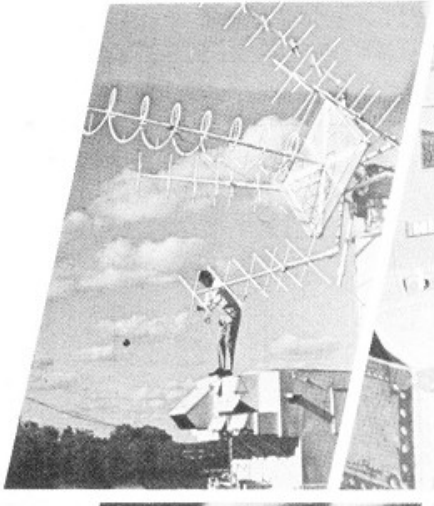
● means narrow band antenna on stated frequency.

▭ antenna LP 614 can be chosen for desired frequency range within 200—1000 MHz (standard version 220—410 MHz).

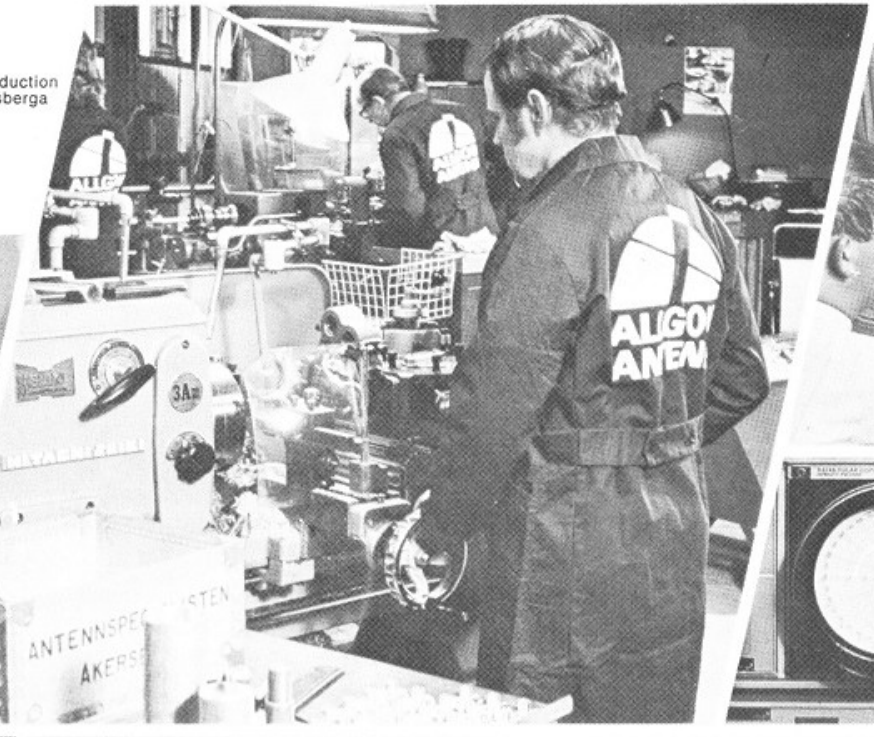
layout and original Tommy Holmberg Reklamproduktion
printing Tryckab, Halmstad and Zäta Tryckerierna, Linköping

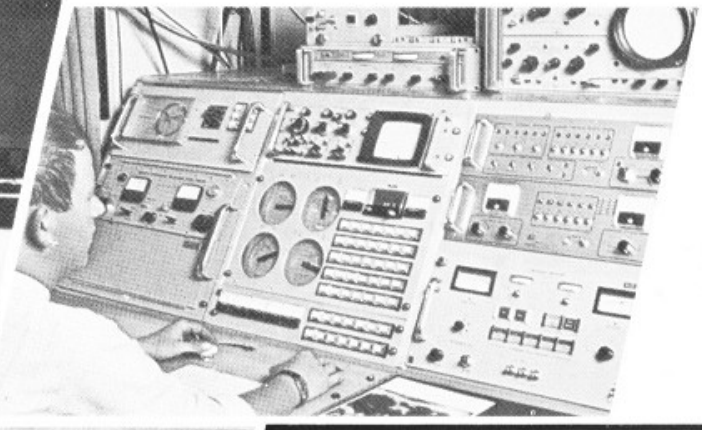

Shortwave/HF
Frequency
MHz 4 5 6 7 8 9 10 15 20 25 CB 30 35 40 45 5
ALLGON ANTENN
Mobile radiators
RA 302
RA 307, RA 313
RA 308, RA 312
RA 329-1
Portable antennas
RA 326
RA 327, RA 349
RA 336
Marine antennas
MA 450
GP 443M
GP 443GR
Omnidirectional base station antennas
GP 443A,GP 443G, OD 410
SK 433
FM 414
GP 404A
B 455
FT 413
Dipole antennas
Helical antennas
Yagi antennas
YT 705
YM 703
Portable field antennas HF
2 MHz
DD 738
RFD 707
LD 459
Logarithmic periodic antennas HF
LP 603
LP 601
LP 604
LP 608
LP 615
LP 616
LP 620
LP 619
Logarithmic periodic antennas VHF/UHF
LP 614, LP 614×2

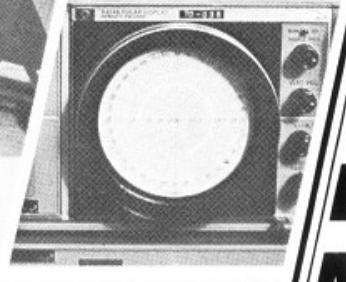

Ultrashortwave/VHF
Microwave/UHF
60
70
80
90
100
150
200
250
300
350
400
450
500
600
700
800
900
1000
SL 403
RA 310
RA 351
SL 401
RA 329-2
RA 328, RA 333
FA 452
FA 453
FA 452
MA 456
MA 457
MA 430
GP 447
SK 408, 440, 440×2
SK 441
CL 448
SK 418
GP 438
GP 438
CA 458
DM 728
DM 701
HX 720
HX 735
YL 704
YD 726
YD 725, YD 733
YD 744 1300—1600 MHz



Interior from the production unit in Åkersberga

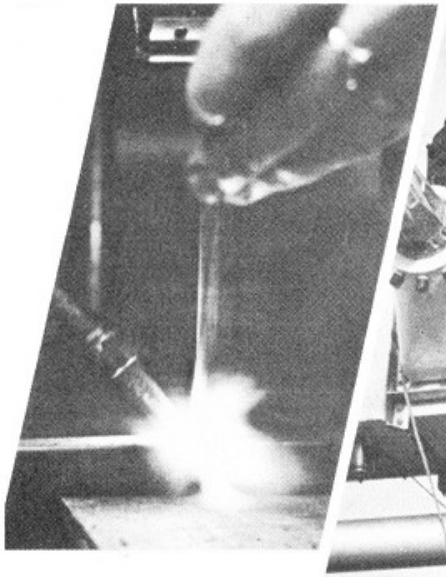


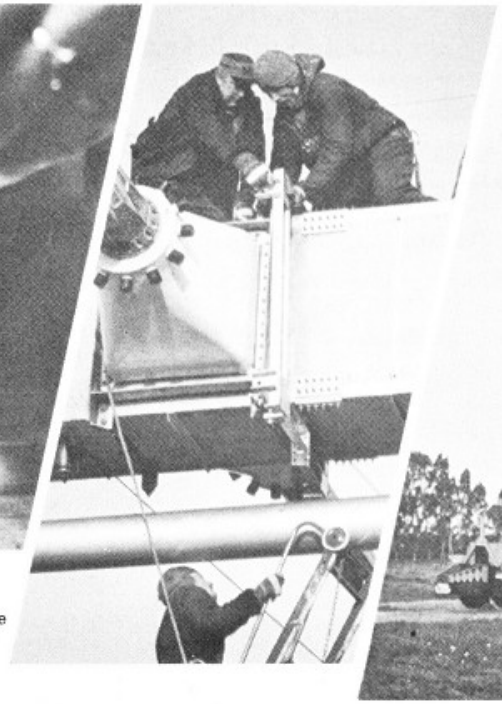




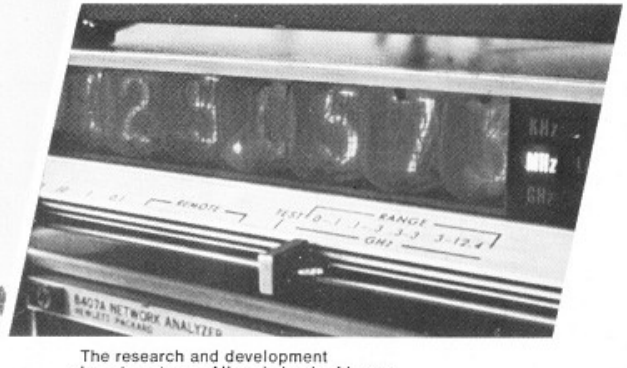
Research Development Manufacture

Allgon Antenn AB is the leading company in its field in Scandinavia. We are equipped with the most modern instrumentation on the market and the product research and development is made in two directions: continuous development of new antennas for our own antenna program and development of special antennas in close co-operation with particular customer



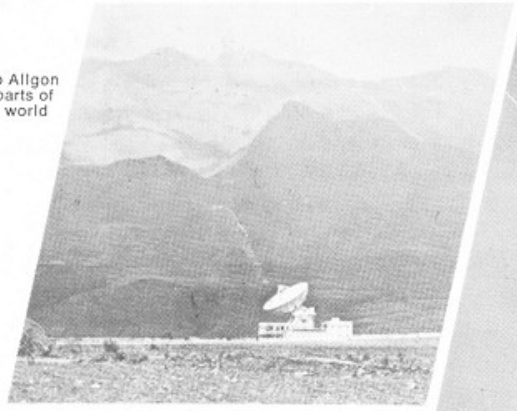


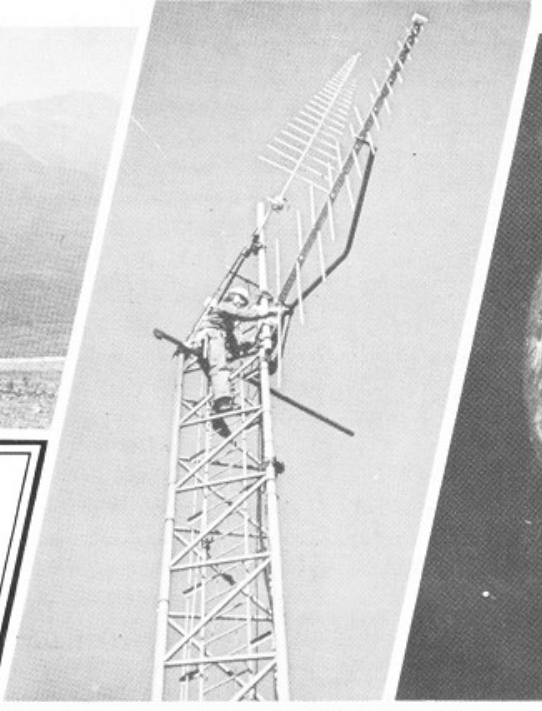
Mounting and installation of the 500 kW short wave antenna LP 601



The research and development departments are Allgon's bank of knowledge in antennas and electronics

Commissions to Allgon come from many parts of the world





Satellite picture of the earth transmitted via micro wave to ground station (Hasselblad/Kodak)

ALLGON ANTENN AB

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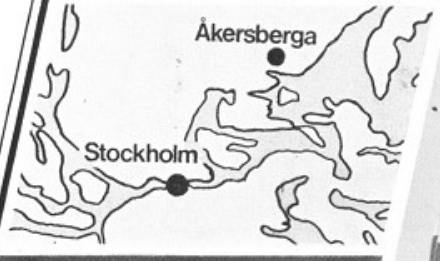
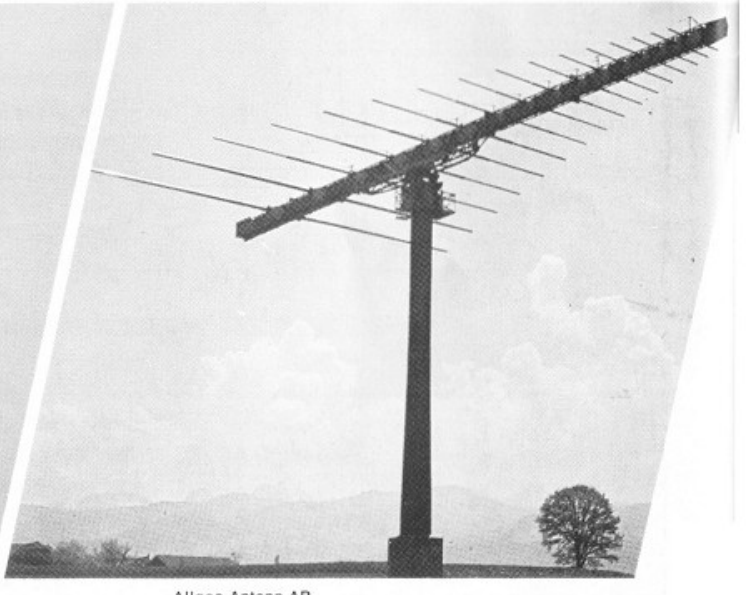
S-184 00 Åkersberga, Sweden
Phone: 0764-601 20
Telex: 10967 allgon S
Cable: allgonaerials stockholm



Mobile radio communication via Allgon KA 3033 magnetic antenna



Allgon Antenn AB supplies antennas for different needs of communication

Allgon Antenn AB

Allgon Antenn AB since its formation in 1950 has enjoyed steady growth until as of today it is the largest manufacturing enterprise in its field in Scandinavia with particular emphasis on the development and production of transmitting and receiving antennas as described in this brochure.

In addition, the Company engages in the development of related problem oriented products, made possible by its advanced capabilities in this area and by the experience gained from the successful completion of numerous projects commissioned by, among other, various national defence authorities and large communications and electronics complexes. These activities have been instrumental in forming the nucleus of accumulated practical knowledge from which the Company's standard products have evolved and they will continue to play an indispensable role in the adaptation of the latter to constantly changing conditions and requirements.

Allgon antennas are now in service in diverse parts of the globe due to increasing recognition of their superior quality, and in face of stiff, international competition. The production staff feel naturally proud of this accomplishment which in turn is a spur to new ideas.

Products and services

Allgon Antenn AB conducts extensive R&D in the field of antennas for customers in the public as well as the private sector of the economy. Progress reports and consultations at the various stages of a development program ensure maximum adherence to the wishes and requirements of the principal.

The Company's standard antennas mainly fall into three groups:

A: Antennas for mobile and stationary installations type $\lambda/4$ full scale, $\lambda/4$ shortened, $5/8 \cdot \lambda$, $\lambda/4 + \lambda/2$ cophasal, $\lambda/4 + \lambda/2 + \lambda/2$ cophasal etc within primarily 27–1000 MHz.

B: More complex antennas type logarithmic periodic for power inputs up to 50 kW and within 5–1000 MHz, helical antennas within 100–1000 MHz, yagi antennas within 20—2000 MHz, different types of slot antennas, active antennas, RFD = reflexion free antennas, dipole-/slot arrays with uniform, binomial or Dolph-Tchebyscheff amplitude distribution etc.

C: Very advanced antennas type logarithmic periodic for power inputs up to 500 kW + 100 % AM and within 4–40 MHz.

New types of antennas for our own production program are continually being developed in our laboratory which is also keeping a constant watch for possibilities of improvement of items already in existence.

Contents

This brochure presents the ALLGON antenna program on the basis of function and use.

Citizens band 27–29 MHz

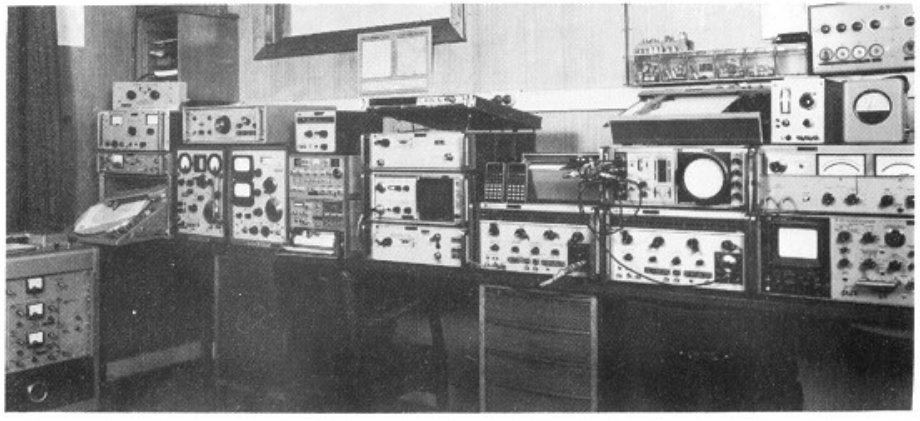
Products with index **CB** will operate within the Citizens' band. In the frequency chart this band is marked in a vertical darkened area. You will find all Allgon CB antennas here.

Symbols

BW = bandwidth. Shown in % for narrow banded antennas.
B = broadband antenna. The antenna covers the whole band stated.
CB = the antenna will operate on Citizens' band 27—29 MHz.

Research and development

Allgon has placed heavy emphasis on the use of adequate measuring sites and up-to-date instruments permitting accurate measurements within about 10 kHz–48 GHz such as:
Radiation, antenna gain, impedance and VSWR, TDR (time domain reflection).



A mobile measuring bus is utilized for field measurements of radiation, antenna gain, impedance, VSWR and TDR.

The Company also is in a position to offer computer calculations of yagi antennas, rhombicantennas and dipole fields – with or without ground influence. Calculations of wave propagation forshort wave connections via the ionosphere is an additional service available.

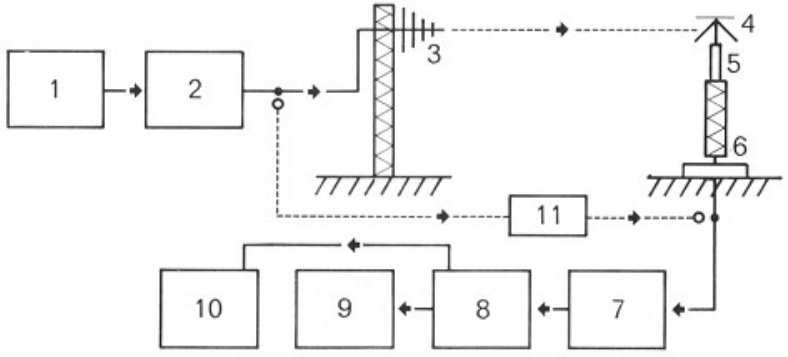
Measuring of radiation and antenna gain.

The Company laboratory has at its disposition sites for measuring antenna radiation diagrams and gains. In this operation the antenna is attached to a plastic mast some 15 meters above ground. The mast is mounted on a turntable by way of a framework mast. The test antenna is connected to a Scientific Atlanta receiver, dynamic 60 dB. The transmitting antenna is placed in the remote zone at a distance of

$$R > 2 \cdot \frac{L^2}{\lambda}$$

R = measuring distance (meters) ($R > \lambda$, $R > L$)
λ = wave length (meters)
L = maximum physical measure of antenna (meters)

For plane polarized waves a vertically horizontally polarized log-periodic transmitting antenna is used; for circularly polarized waves, a helical antenna. Under constant output from the transmitting antenna the test antenna is then turned 360° and the radiation diagram is drawn in rectangular or polar co-ordinates. When measuring antenna gain the test antenna is momentarily replaced by a reference antenna of known gain (usually a reference dipole). See fig. 1.



1. signal generator: HP 608E, HP 612A, HP 3200B, HP 8693A, HP 8698B, HP 8699B 0,4–8000 MHz
2. power amplifier: HP 230B, 10–500 MHz
3. transmitting antenna: log-periodic vertically or horizontally polarized, helical circularly polarized
4. test antenna to be checked
5. plastic mast
6. 360° turnable, including Servo Scientific Attanta
7. low frequency converter: Scientific Atlanta model 17020 B, 20–940 MHz
8. receiver: Scientific Atlanta model 710, 940 MHz–40 GHz, dynamic range dynamic 60 dB
9. plotter polar co-ordinates: Scientific Atlanta model 1530
10. plotter rectangular co-ordinates: Scientific Atlanta model 1410
11. attenuator: Rohde & Schwarz, 0–2000 MHz, 110 dB

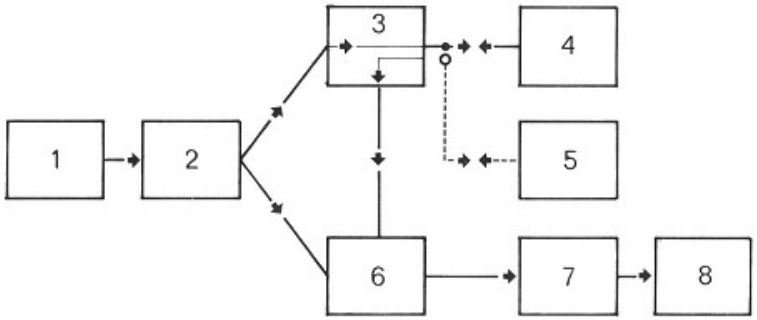
Measuring impedance and VSWR

Measurements are performed with Hewlett-Packard Network Analyzer 8407A and 8410A. The result is obtained on 8414A Polar Display or 8412A Phase-Magnitude Display, both of which are of cathode radiation type. The result also may be transcribed on paper using a XY-writer. Polar Display gives the result directly in the form of a Smith-diagram.

Using the above instruments reflection measurements are easily carried out to determine reflection coefficient, complex impedance/admittance and standing wave ratio (VSWR).

By connecting up the transmission measuring equipment, infromation may be obtained as to gain/attenuation and input of passive as well as active networks.

Measurements are also performed in fields other than that of antennas, e.g. cables, contact gear, attenuators, filters, and amplifiers.



1. Sweep Generator: HP 8690 B, HP 8699 B, 0,4–4000 MHz
2. Power Splitter: HP 11951 A
3. Directional Bridge: HP 8721 A
4. Object of measurement: e.g. testing antenna to be checked
5. Calibration: 0, 50, or 100 ohm
6. Network Analyzer: HP 8407 A, HP 8410 A
7. Display: Polar Display 8414 A, Phase-Magnitude Display 8412 A
8. XY-writer

TDR (time domain reflection)

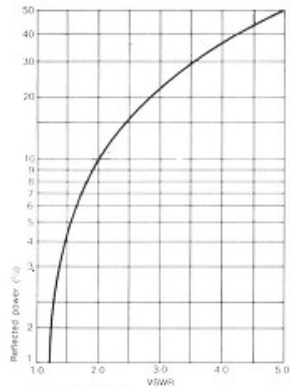
Hewlett-Packard Time Domain Reflectometer 1415 A is exceedingly helpful in checking the quality of coaxial cables and in detecting transmission line discontinuities generally.

Along with antennas, ALLGON annually delivers several hundred kilometers of coaxial cables. The many different makes of such cables on the market today necessitate a thorough check of their quality, to which end we use this Time Domain Reflectometer for top results.

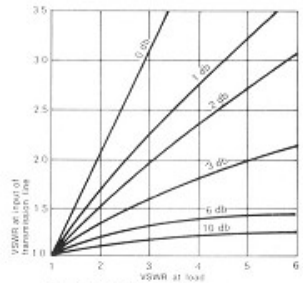
When performing a TDR-measurement a number of voltage steps of very short rise time (150 ps) are sent through the transmission cable. By means of sampling technique the autgoing and reflected voltage jumps are shown on an oscilloscope permitting direct reading of the attenuation and impedance (and thus the quality) of the cable.

Other measuring equipment

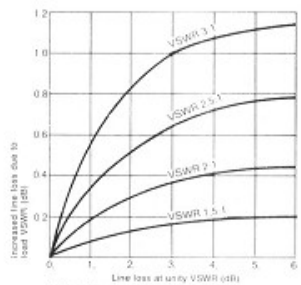
Allgon Antenn AB has at its disposal a great number of other measuring instruments. For example vector voltmeters, frequency converters, mixers, oscillators, directional couplers, frequency counters up to 12 GHz, Rohde & Schwar's Diagraphs, power meters, Q-meters etc.



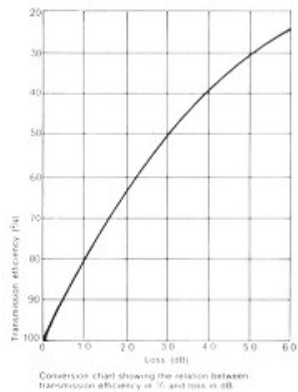
Reflected power as function of VSWR



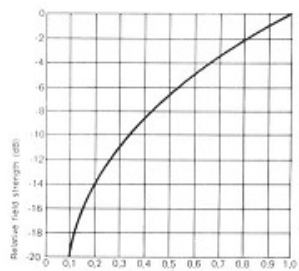
Reduction of VSWR at input of transmission line as function of line attenuation



Additional transmission line loss in dB as function of VSWR at load



Conversion chart showing the relation between transmission efficiency in % and loss in dB



Conversion chart between relative field strength in dB and in linear voltage scale

Coaxial cable	Outer diam. (mm)	Dielectric	Frequency (MHz) 30	80	160	450	900
RG 174	2.6	polyetylen	1.6	2.6	3.6	6.0	8.7
RG 188	2.8	teflon	1.4	2.3	3.2	5.6	8.0
RG 58C	5.0	polyetylen	0.9	1.5	2.0	3.5	5.0
RG 141	4.9	teflon	0.7	1.2	1.6	2.8	4.0
RG 8/RG 213	10.3	polyetylen	0.4	0.6	0.9	1.7	2.2
RG 225	10.9	teflon	0.4	0.6	0.8	1.5	2.2
RG 17/RG 218	22.1	polyetylen	0.2	0.3	0.5	0.8	1.2

Attenuation in dB/10 meter for some common coaxial cables as function of frequency. Small variations can occur between different manufacturers

Coaxial cable	Outer diam. (mm)	Dielectric	Frequency (MHz) 30	80	160	450	900
RG 174	2.6	polyetylen	160	90	70	40	25
RG 188	2.8	teflon	550	350	250	140	100
RG 58C	5.0	polyetylen	450	260	190	110	75
RG 141	4.9	teflon	1800	1000	750	420	300
RG 8/RG 213	10.3	polyetylen	1700	1000	700	400	270
RG 225	10.9	teflon	4800	2900	2000	1200	800
RG 17/RG 218	22.1	polyetylen	6000	3500	2400	1600	800

Maximum permissible power (watt) for some common coaxial cables at function of frequency. Small variations can occur between different manufacturers

Mobile antenna bases

The special requirements for a properly functioning mobile antenna base are very stringent. Its most important qualities are great mechanical stability, low sensitivity to changes of temperature, good ground contact even after a long period of service, simplicity of installation, and imperviousness to water and moisture. These specifications are met in ALLGON's Mobile Antenna Bases which have gained particular foothold in northern Europe with its rather unfavorable climatic conditions.

ALLGON RF - 128

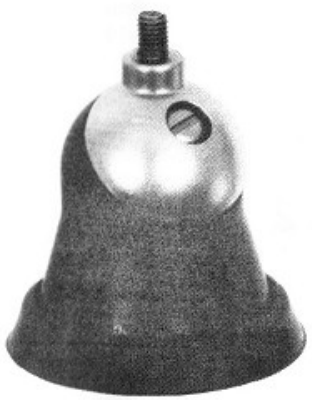
CB

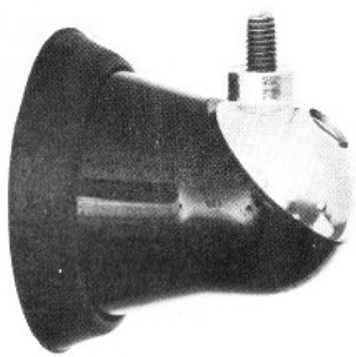
In cooperation with major manufacturers of radio communication equipment we have improved the electrical and mechanical properties of this base for great reliability. Because of its electrical qualities it can be employed for operations involving frequencies up to 500 MHz. It is available as standard for use on sheet metal of 4 mm thickness or less but may be mounted on heavier plate if required.

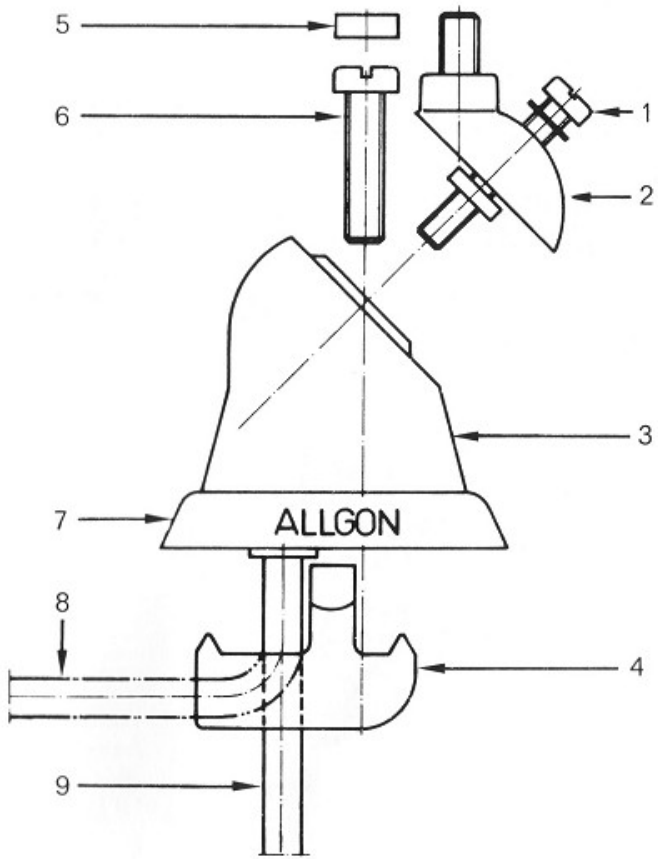
RF 128 is installed from without through a hole of 19–23 mm diameter. It is equipped with a 5 meter coaxial cable RG-58 with threaded miniature coaxial terminal and a straight or angular cable entry to the antenna base. It is also available without the cable. The radiator can always be installed in a vertical position regardless of slant of contact surface.

1. Screw for joint
2. Complete joint
3. Base
4. Grounding washer
5. Covering washer
6. Fitting screw
7. Packing

8–9. Cable, complete







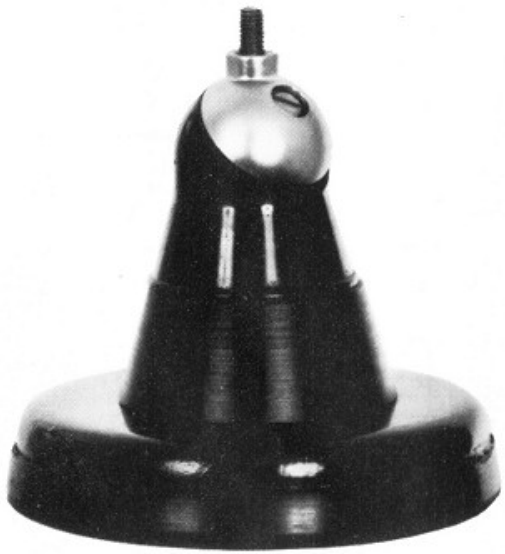
ALLGON RF 130 MAGNETIC MOUNT c

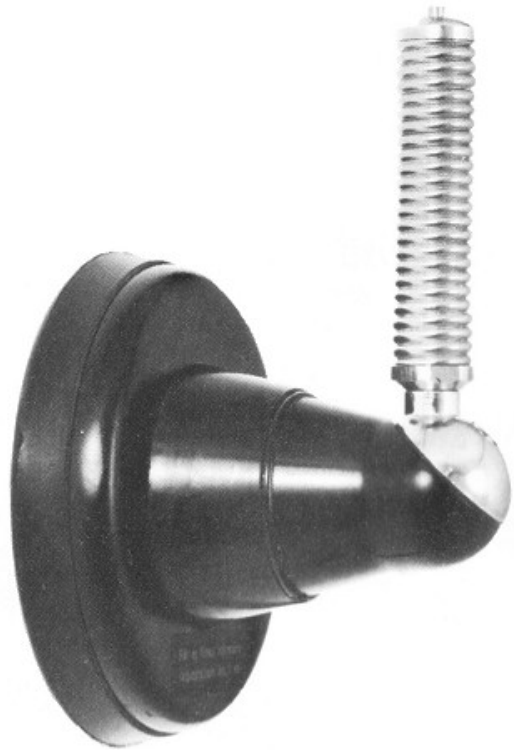
RF 130 fulfils the requirements of strong adhesivity and offers minimum wind resistance due to its low profile.

Some of the components are identical with those of RF 128, thus facilitating interchange of spare parts of different bases. The cable may be exchanged, as in RF 128, and its terminal is placed inside the base well protected from moisture and dirt. The ball joint having been removed the base is dismounted by merely removing a screw.

RF 130 is used for frequencies up to 500 MHz. It is perfect for temporary mounting of antennas on vehicles as it will remain firmly in place.

Occasionally it is combined with a portable set the telescopic antenna of which usually is cumbersome in a vehicle.





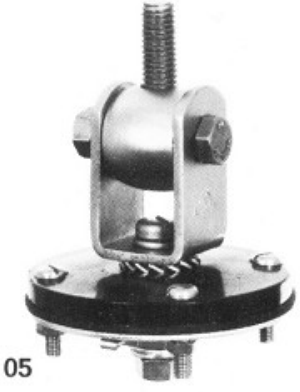
ALLGON RF 103 CB

An impedance correct base, moisture proof, with coaxial terminal type UHF. Made for mounting on auto fenders along with radiator type RA 308.

RF 103

ALLGON RF 105 CB

Heavy base for radiators of maximum length. Suitable for mounting on vehicles travelling routes of unlimited overhead clearance, and on water borne craft with developed ground plane. Matching radiators: RA 308, and RA 302.



RF 105

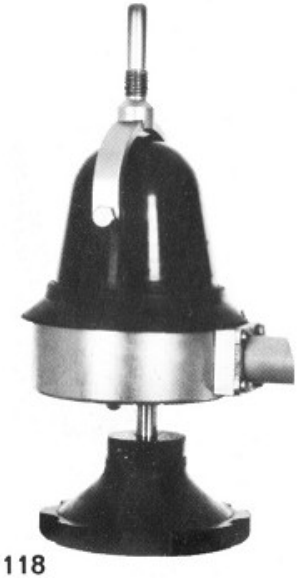
ALLGON RF 108 CB

Same as RF 105 but in addition equipped with a spring to minimize the effect of heavy blows to the radiator.

RF 108

ALLGON RF 118 CB

A tiltable base for top mounting and operated from within the vehicle by means of an overhead rubber knob. The base will give if radiator is subjected to external force. The base is adjustable to correspond to the expected external impact.



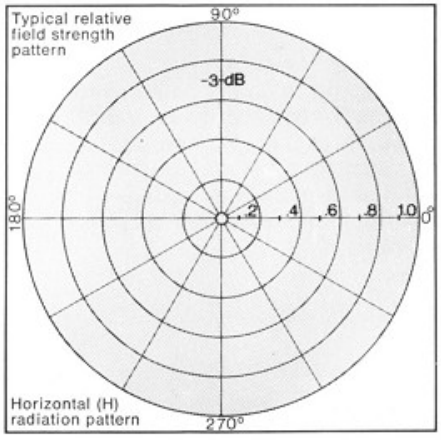
RF 118

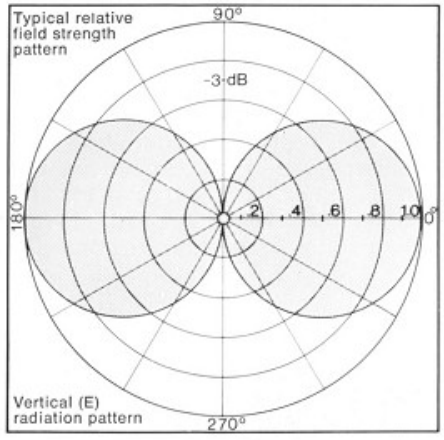
Allgon antenna radiators

Positioning mobile antennas often turns out to be a compromise between the wishes of the car owner and preference of the expertise. Most advantageous location from the professional point of view is as a rule on top (if metal) of the car as this gives maximum range and full omnidirectional coverage. Second choice is fender mounting. Due to the many variations in shape and form of the vehicles no precise recommendations can be offered. When fender mounted the antenna should be placed as high as feasible for minimum obstruction by the car body.

An unsymmetrically placed antenna will yield a more or less deformed radiation diagram in the horizontal plane. Fender mounting usually produces directional effect in the direction of a line running from the antenna through the remotest point of the car body. For lower frequencies (VHF range 27–300) maximum radiation takes place backwards over the rear fender if the antenna is mounted on the front fender. For frequencies in the upper range of the VHF and UHF the reverse usually is the rule.

The directional effect is not always very marked but can be utilized when the vehicle is at the range limit at which point even a marginal increase of signal level counts. If radio connection cannot be established from a certain spot, moving the vehicle just a short distance may remedy the situation. Most suitable locations are those of a sufficient altitude to offer unobstructed view to the horizon; along rivers, lake or sea shores. It is easier to establish long distance connections along the shore than over land alone.





ALLGON RA 302 CB

A non-shortened quarter wave $\lambda/4$ glass fiber radiator for 27–174 MHz. (Required frequency to be stated when ordering.) Matching radiator bases: RF 105, RF 108, and RF 103. At frequencies over 68 MHz adjustable base RF 118 may also be used.

ALLGON RA 307 CB

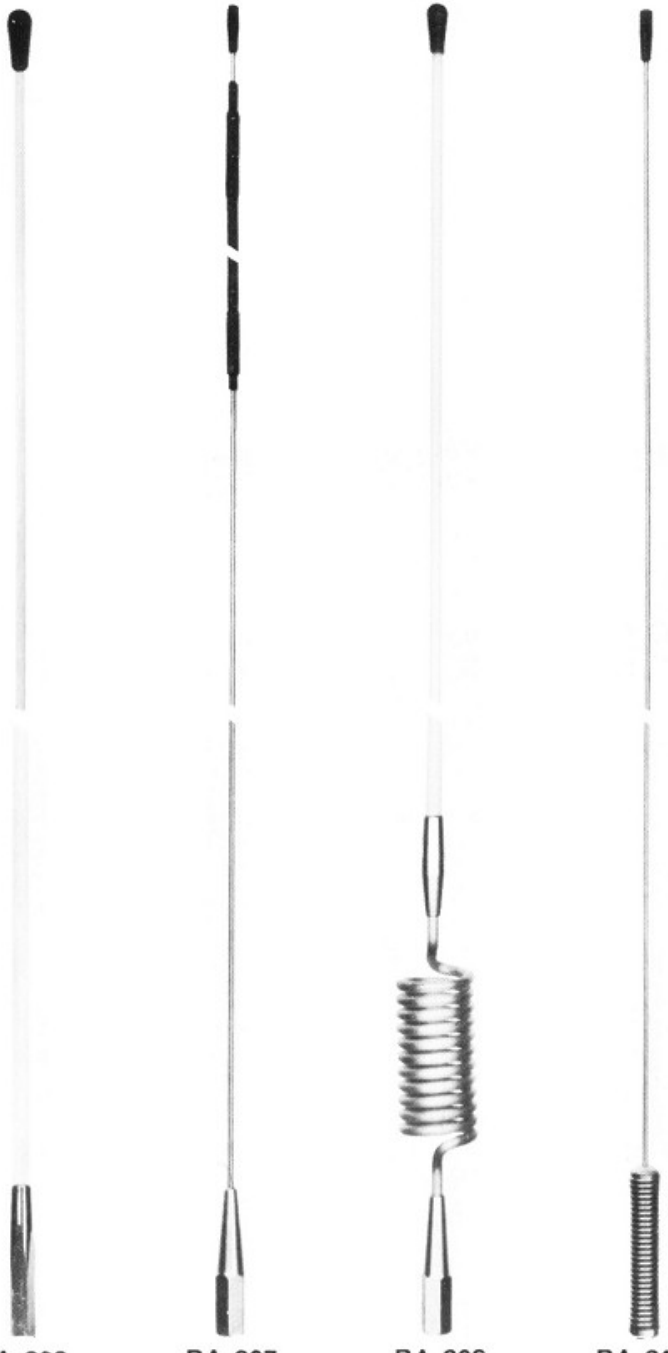
A shortened quarter wave $\lambda/4$ radiator for 27–80 MHz made of stainless steel and equipped with tunable top coil. Same as RA 313 but for absence of bottom spring. Matching radiator bases: RF 103, RF 105, RF 108, and RF 118.

ALLGON RA 308 CB

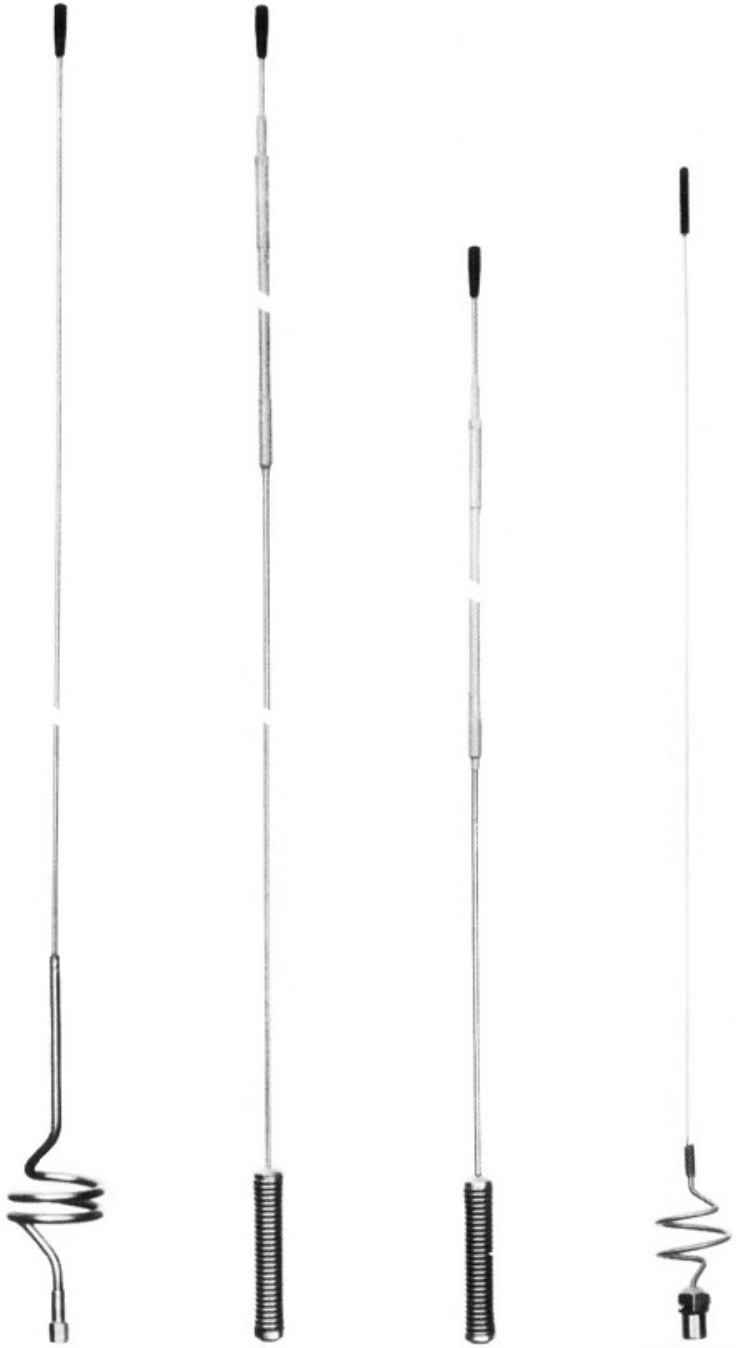
A shortened quarter wave $\lambda/4$ glass fiber radiator for 27–40 MHz with a sturdy bottom coil that also serves as a spring. Matching radiator bases: RF 103, RF 105.

ALLGON RA 310

A non-shortened quarter wave $\lambda/4$ radiator for 67–174 MHz. Required frequency is obtained by cutting as directed in an accompanying cutting chart. Made of stainless steel and equipped with a strong bottom spring. Matches base RF 128.



RA 302 RA 307 RA 308 RA 310



RA 311 RA 312 RA 313 RA 328

ALLGON RA 311

This is an unshortened 5/8-wave radiator for 144–174 MHz. Required frequency is obtained by cutting according to an accompanying cutting chart. Depending on size of ground plane RA 311 has up to + 3 dB gain over ordinary quarter wave radiators. Also, its radiation center is located higher up in comparison with quarter wave radiators which improves the omnidirectional qualities in the event of unsymmetrical positioning on the vehicle. The rod is made of stainless steel and the coil of chromium plated brass. Matches base RF 128.

ALLGON RA 312 CB

A shortened quarter wave $\lambda/4$ antenna for 27–41 MHz with trimmable top coil. Required frequency to be stated when ordering. The radiator is 1200 mm long, is made of stainless steel and equipped with a strong bottom spring at the base for absorption of accidental blows with attendant damage to the top coil (e.g. at garage entrances). Fine-trimming is easily performed by means of the threaded, lockable top part whose sensitive part is protected by a shrunk-on collar. Recommended for top or fender mounting. Matches base RF 128.

ALLGON RA 313 CB

A shortened quarter wave $\lambda/4$ radiator for 27–80 MHz (required frequency to be stated on purchase order). Design same as RA 312 except for length which is 600 mm. Particularly suitable for trucks and other heavy duty vehicles. RA 313 also has gained favor with sailboat owners (see heading BOAT ANTENNAS). Matching bases are RF 128 & RF 130.

ALLGON RA 328

A 5/8 wave radiator for 400–470 MHz, with a thin and pliable top rod attached to a stainless steel coil. Specially developed for use on vehicles frequently manouvering in spaces of low overhead clearance and nonetheless required to carry top mounted radiators. Required frequency is obtained by cutting as directed by an accompanying cutting diagram. RA 328 has + 3 dB gain over ordinary quarter wave radiators. Also, its radiation center is located higher up in comparison with quarter wave radiators which improves the omnidirectional qualities in the event of unsymmetrical positioning on the vehicle. Matches base RF 128.

ALLGON RA 329-1 CB

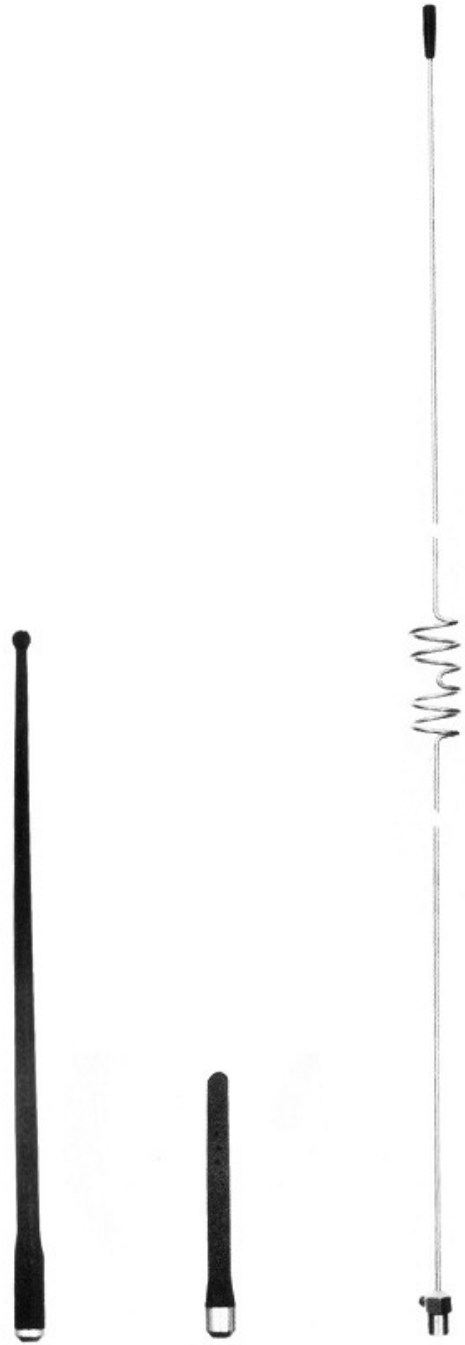
A rugged, "can-take-a-beating" shortened quarter wave $\lambda/4$ radiator for 27–200 MHz. It is made of conductive rubber, and its extension coil has been placed in a protective cover at the bottom of the radiator. RA 329-1 has been designed to meet the need for an antenna of great mechanical advantages in preference to maximum range. Particularly suited for building sites, railroad stations, factory areas, &c where conventional antennas rarely fill the bill. The frequency may easily be altered by exchange of coil. Length about 400 mm. Matches bases RF 128 and RF 130.

ALLGON RA 329-2

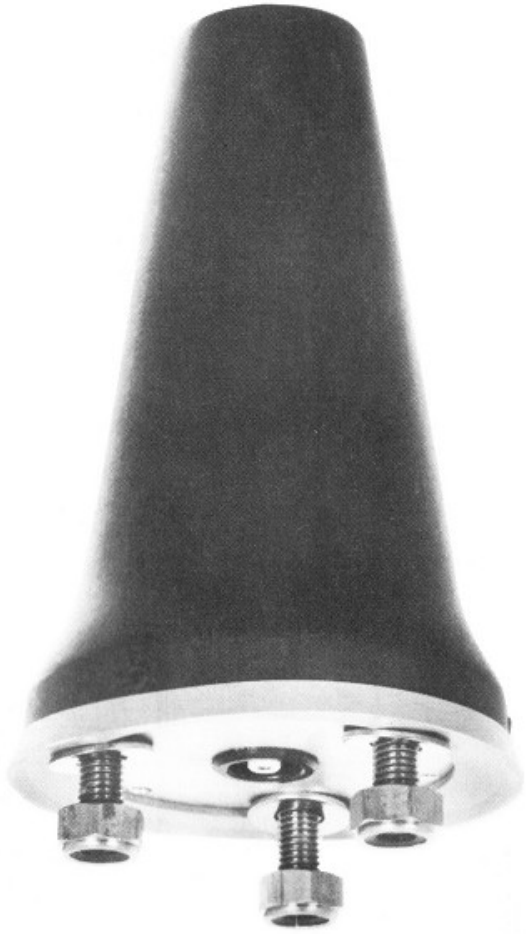
Same antenna as RA 329-1 but has no bottom coil and is designed for frequencies in the range of 201–470 MHz (desired frequency to be stated on purchase order). RA 329 & RA 329-2 offer a number of advantages not found to the same degree in other radiators on the market, such as: Low wind noise, no need of removal in an automatic car wash, mechanically shorter than standard types, pliable, corrosion proof, free of optical reflexes.

ALLGON RA 333

A colinear, stainless steel radiator for 400–470 MHz. Double coil permits phase shifting for an increase in antenna gain of + 3 up to + 4 dB over the ordinary quarter wave radiator. Required frequency to be stated on purchase order.



RA 329-1 RA 329-2 RA 333



ALLGON FA 452

An omnidirectional vehicle antenna in a protective hood of glass fiber reinforced plastic. Operates on two separate frequency bands simultaneously. On the lower frequency band the antenna works as a quarter wave antenna, while on the higher band it functions as a half wave antenna of a specific gain. Made for installation on a conductive surface to which it is secured by means of three heavy bolts. The terminal is centrally located on the underneath side.

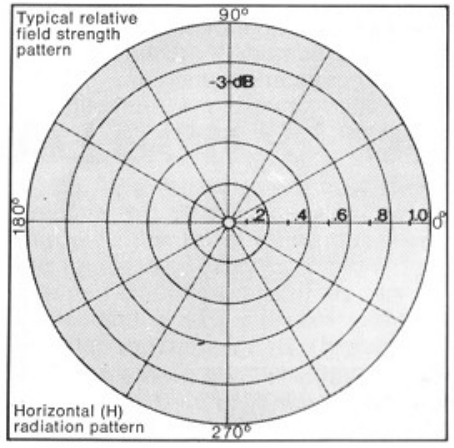
ALLGON FA 453

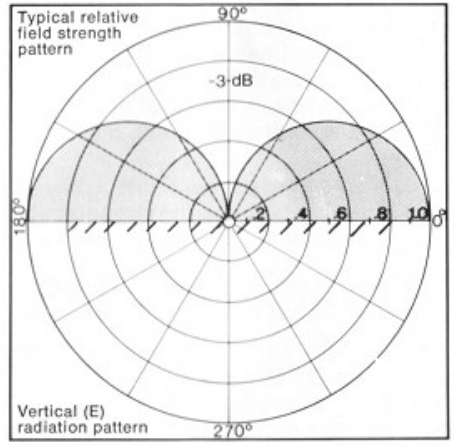
Similar to FA 452 but designed for use in the lower frequency field of 410–470 MHz only, and of somewhat simpler construction.

DATA – FA 452 and FA 453

Frequency	
FA 452	410–470 and 850–950
FA 453	410–470
Maximum Power	250 W
Impedance	50 ohm
VSWR	–1.6:1
Type of terminal	
FA 452	N
FA 453	UHF
Radiation	Omnidirectional
Polarization	Vertical alt. horizontal
Gain in free space	
FA 452	+2 – +4 dBi
FA 453	+2 dBi

Weight	
FA 452	.7 kg
FA 453	.4 kg
Height	170 mm

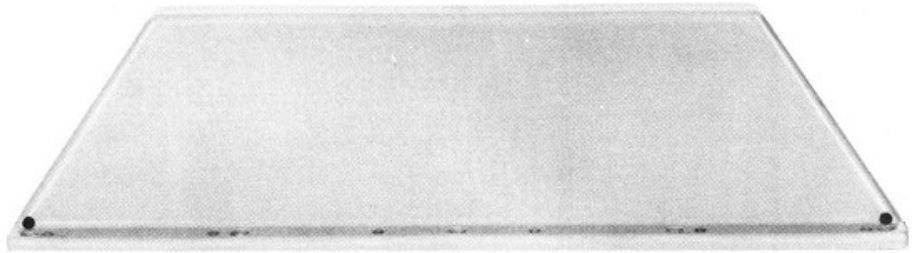




ALLGON SL 403

SL 403 is an omnidirectional slot antenna mainly for use on vehicles operating under very difficult environmental conditions. It is quite short, and mechanically very robust. The antenna cover is made of rugged polypropene plastic affording complete protection to the actual antenna structure, and it is well drained to prevent moisture forming by condensation or otherwise. The surface of the antenna structure is epoxy treated and is effectively grounded for protection against static electricity and lightning. SL 403 is intended for installation on surfaces conductive to electricity on the order of metals. It is also available for duplex operation.

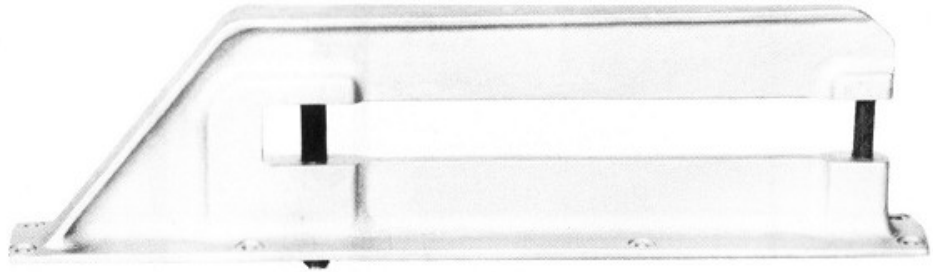
The robust construction of the antenna renders it suitable for installation on railroad and subway cars.



SL 403

ALLGON SL 401

This antenna and SL 403 are electrically identical except that SL 401 is designed for one frequency range only (simplex). It is made of aluminum alloy, and its feeder and tuning circuits are well encapsulated.

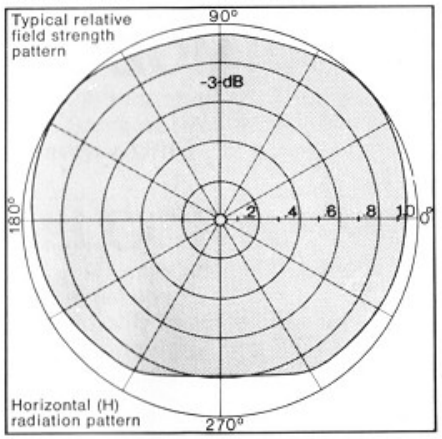


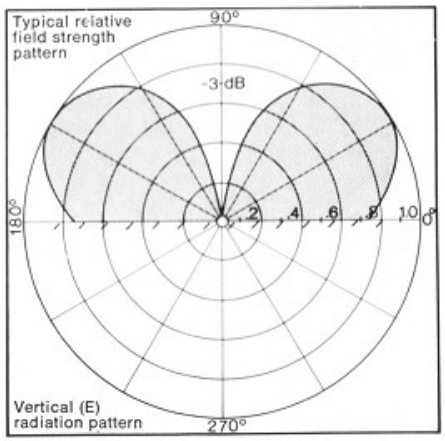
SL 401

DATA — SL 401 and SL 403

Frequency	
SL 401	158–170 MHz narrow banded
SL 403	158–160 and 166–168, simultaneously narrow banded
Maximum Power	
SL 401	500 W
SL 403	100 W
Impedance	50 ohm

VSWR	≦2:1 for BW = 5%
Type of terminal	Optional
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	2.4 kg
Length	540 mm
Height	140 mm

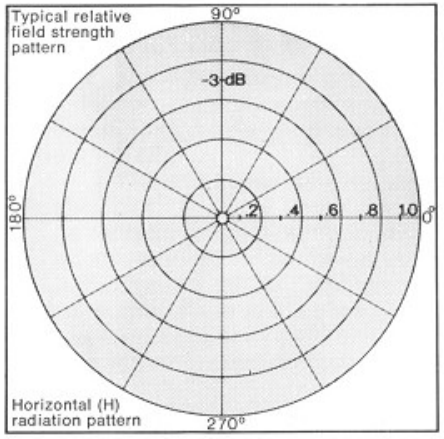


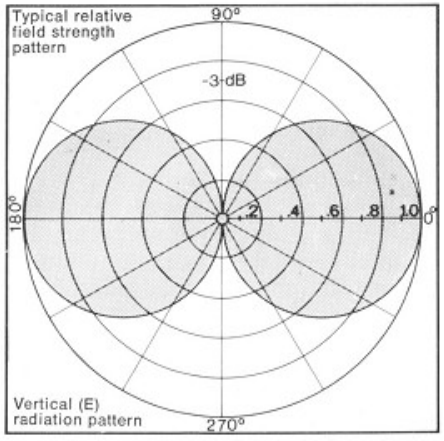


Portable antennas

Many of the portable radio stations available in the market carry a telescopic antenna as standard equipment. This type antennas are often difficult to operate and, sooner or later, break down. As an alternative, ALLGON portable antennas are recommended for installation on such sets, an operation that is quickly and easily carried out.

In addition, portable antennas reduce chances of accidents to the operator of the station as well as to people in his immediate vicinity. Numerous instances of cooperation between ALLGON and station manufacturers have brought about optimum adaptation of the portable antennas to transmitter and receiver of the radio station. The user is thereby guaranteed maximum range.





ALLGON RA 326 CB

RA 326 is a radiator made of conductive rubber, equipped with bottom coil for 27 or 29 MHz. It is fitted on top of a retracted telescope antenna by means of a cap for diameters of 10, 11, and 14 mm. In other respects same as RA 329. Desired frequency and type of set to be stated on purchase order.

ALLGON RA 327 CB

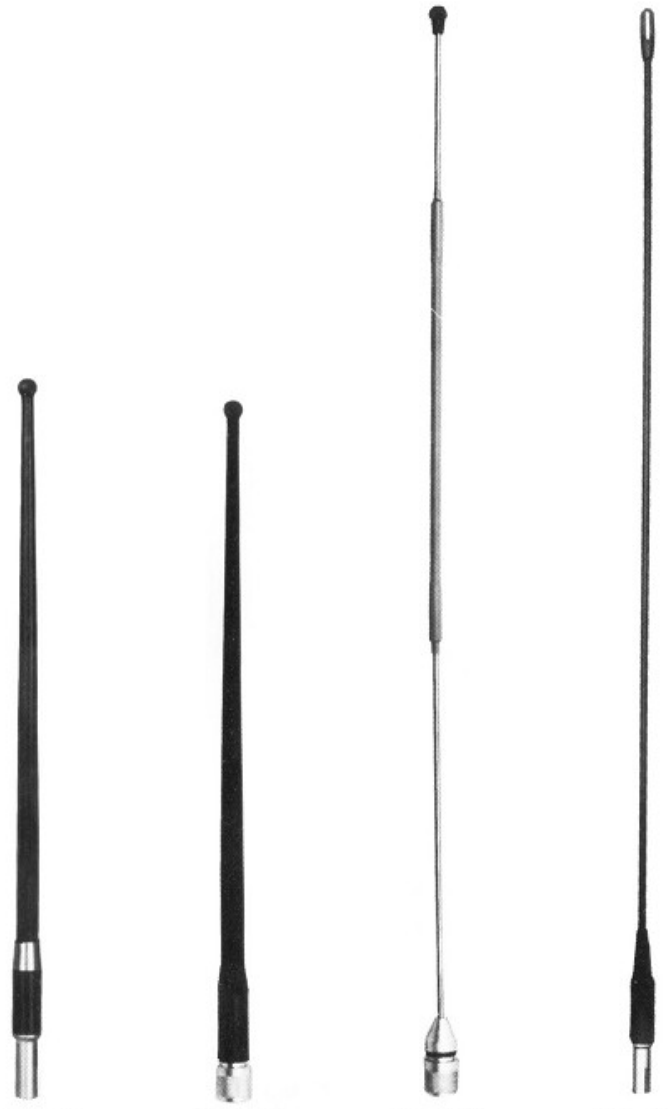
Same as RA 329 except for UHF-terminal. N-, C-. BNC-, or TNC-terminal obtainable on special order. Desired frequency and type of set to be stated on purchase order.

ALLGON RA 336 CB

A shortened quarter wave $\lambda/4$ stainless steel antenna for 27–80 MHz. Same as RA 312 but has no bottom spring and is equipped with terminal type UHF.

ALLGON RA 349 "Hi-Flex" CB

A timely novelty! RA 349 is a pliable antenna with a copper braid core encased in soft, flexible, and very durable plastic. It has been engineered primarily to make obsolete the socalled blade antennas made of pressed sheet iron. RA 349 can be provided with the same combinations of coils, caps and terminals as RA 326, RA 327, and RA 336.



RA 326 RA 327 RA 336 RA 349

Marine antennas

Conditions on board a sail boat make it advisable to place the antenna at the top of the mast. Radiation of an antenna mounted on deck is never quite free of interference caused by mast, stays, and outline of rigging.

Those of our antennas most commonly used for mast mounting are the shortened ground plane antenna ALLGON GP 443 M, structurally a complete electrical unit requiring no or minimal adjustment after installation, and the shortened quarter wave radiator – also known as truck antenna – ALLGON KA 2813 (RF 128 + RA 313). While the latter is less expensive its installation is more complicated.

Positioning of the antenna in a motor boat usually poses no problems as the shortened antenna, type ALLGON MA 450, with built-in ground plane has been specially designed for wooden or plastic motor boats. However, alternatives also are available to the motor boat owner, such as placing a socalled truck antenna KA 2813 on an aft pulpit to good advantage, or he my install his own ground plane immediately below deck, placing in its center a KA 2813 or, for still better results, an unshortened glass fiber radiator ALLGON RA 302 using matching base RF 105 or RF 108.

ALLGON MA 450

CB

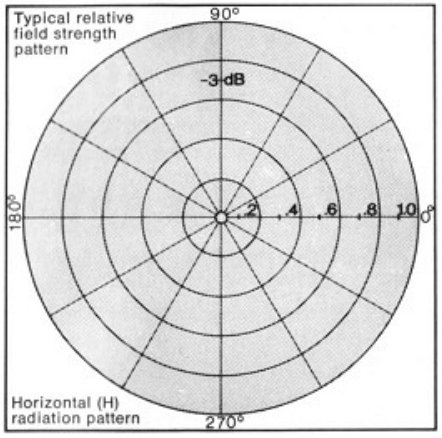
A marine antenna with shortened radiator, independent of ground plane, and specially engineered for wooden and plastic boats. Its elegant design and good electrical properties have made it a favorite in boating circles.

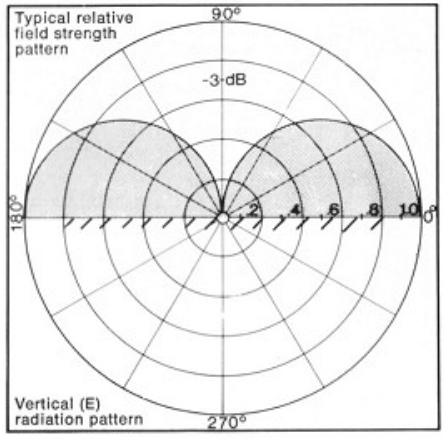
The antenna base can be mounted on the deck, on the roof of the cabin, or on the side. When side mounted, MA 450 extends a mere 75 mm. The radiator permits tilting in any direction and may also be unscrewed. The antenna is fully corrosion proof. The radiator is made of stainless steel.

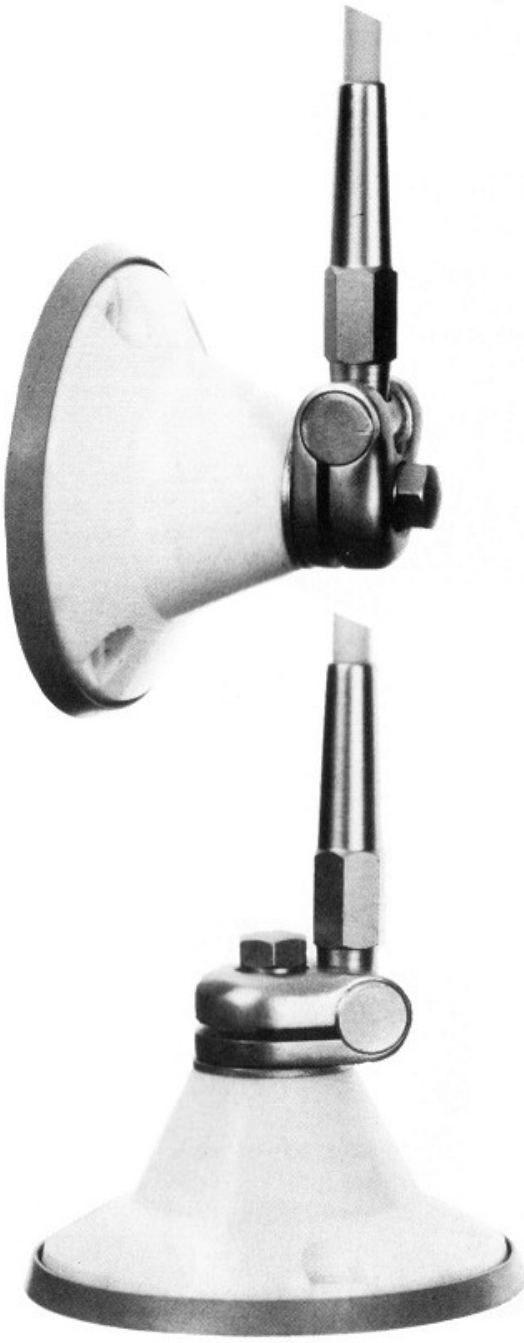
One end of the 3.65 meter long coaxial cable is permanently fastened to and embedded in the base to prevent contamination of the antenna be sea water or salty air. The terminal at the other end of the cable is solder-free, hence well protected, yet readily accessible for inspection.

DATA

Frequency	27 or 29 MHz-bands (narrow banded)
Maximum Power	150 W
Impedance	50 ohm
VSWR	$\leqq$2:1 ofr BW=3%
Type of terminal	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+ 2 dBi
Weight	.7 kg
Height	2500 mm







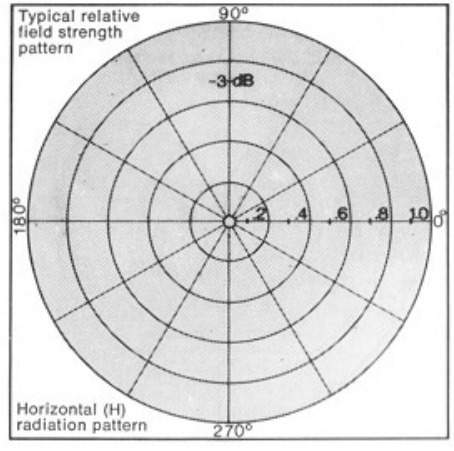
ALLGON MA 456 and MA 457 *Patent*

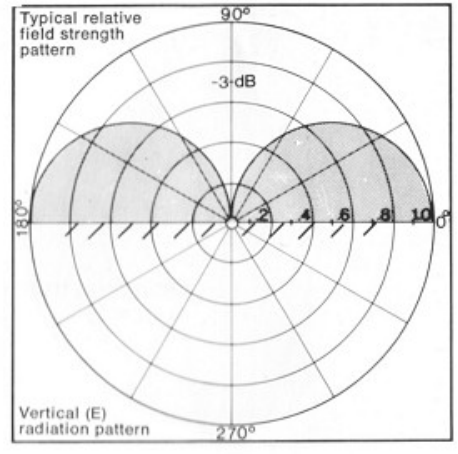
A vehicle and base antenna of revolutionary type, patent applied for by ALLGON. It is a vertically polarized omnidirectional antenna with a built-in ground plane. MA 456 has extremely low electrical coupling to the feeder cable and is, therefore, able to maintain its excellent radiation properties even when mounted on a high mast. MA 456 has been specially designed for use on vehicles with bodies made of glass fiber or other electrically non-conductive material that does not serve as a ground plane, such as plastic boats, snow scooters, buses. Consequently, it is also serviceable on motor cycles whoses ground plane often is rather deficient. It can of course also be mounted on metal supports. The antenna can be equipped with a sturdy bottom spring. The joint permits mounting at any angle so that a vertical position of the radiator is at all times obtainable.

MA 456 can be equipped with a shortened radiator.

DATA MA 456 and MA 457

Frequency	
MA 456	68–90 MHz (narrow banded) (narrow banded)
MA 457	145–175 MHz
Maximum Power	100 W
Impedance	50 ohm
VSWR	
MA 456	≦2:1 for BW = 10%
MA 457	≦2:1 for BW6%
Type of terminal	Optional
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	.6 kg





ALLGON MA 430

A half wave mobile antenna built according to the principle for the coaxial dipole. The cover is made of glass fiber reinforced plastic and affords good protection against salt and moisture. MA 430 has built-in ground plane and will work wherever set up.

Its uses are as ship's antenna and base antenna.

DATA

Frequency	145–175 MHz (narrow banded)
Maximum Power	100 W
Impedance	50 ohm
VSWR	$\leqq$2:1 for BW = 2%
Type of terminal	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	.3 kg
Length	1460 mm
Width/circum-ference	25 mm
Base	Fits Ø 25 mm tube

ALLGON KA 2813 CB

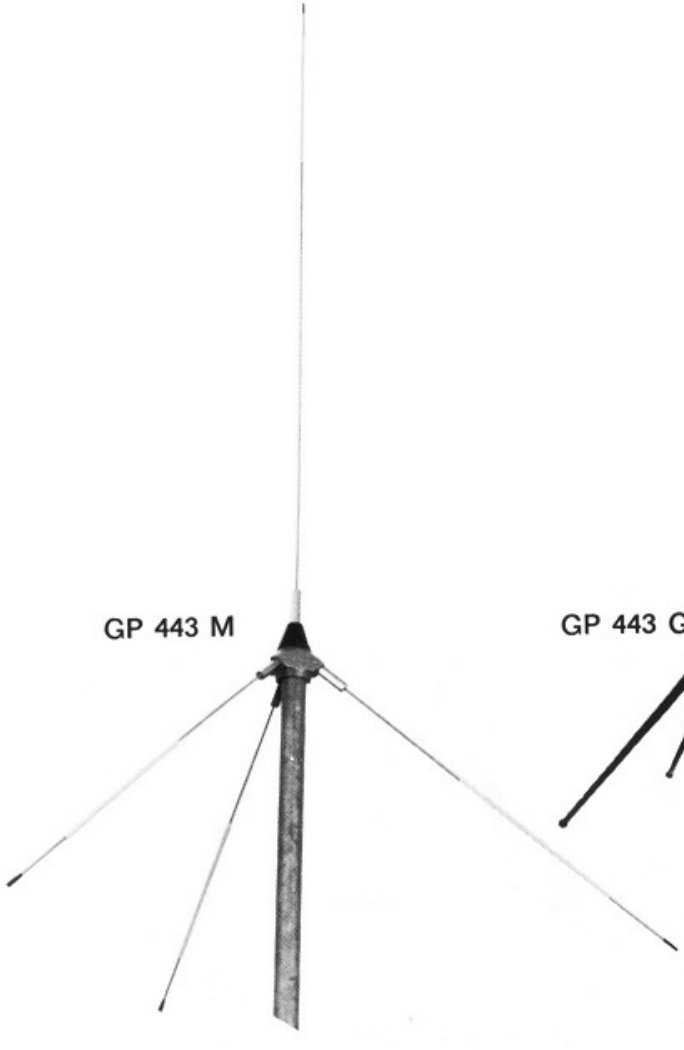
Is a shortened quarter wave $\lambda/4$ radiator for 27–80 MHz, also along with RF 128 (KA 2813) being increasingly employed as a boat antenna, in particular on sailboats and motor-sailing vessels. The antenna can be mounted on top of a mast or on some angular contraption of suitable shape. Masts with stays act as ground planes and must be galvanically connected to the screen (outer conductor) of the coaxial cable at the antenna by way of the grounding device on the antenna base.

At installation, availability of a standing wave-meter is essential for optimum tuning by adjusting the trimmable top part of the radiator.

When ordering, required length of coaxial cable has to be specified.

MA 430

KA 2813



ALLGON GP 443 GR

CB

A ground plane antenna with an unshortened quarter wave $\lambda/4$ direct current glass fiber radiator, length 2200 mm. The ground plane is shortened by means of three 400 mm rods made of conductive rubber with built-in extension coils. Because of the elasticity and negligible length of the rubber rods there are many places on board where the antenna may be installed without becoming a safety hazard. For mounting, a short tube of 38 mm diameter is recommended, the tube in turn to be attached to deck, cabin roof, or mast.

Sturdily built the antenna will bear up under severe weather conditions.

ALLGON GP 443 M

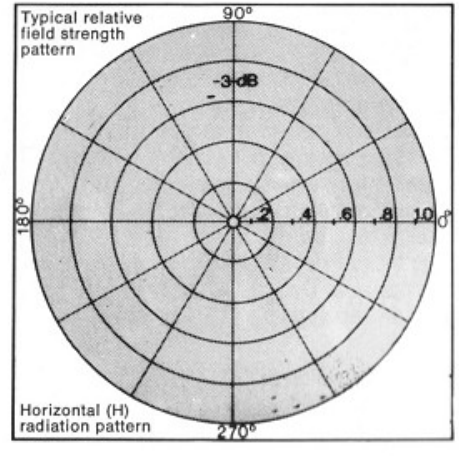
CB

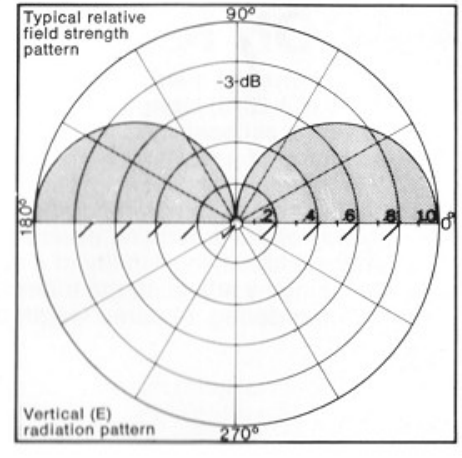
A quarter wave $\lambda/4$ ground plane antenna especially suitable for mast top mounting. Radiator and ground plane are shortened by means of top coils. The radiator is D.C. grounded and tunable. All rods are made of stainless steel and easy to put in place. Antenna length is 1000 mm.

DATA on GP 443 GR and GP 443 M

Frequency	
GP 443 GR	27–470 MHz
GP 443 M	27–90 MHz
Maximum Power	250 W
Impedance	50 ohm
VSWR	
GP 443 GR	$\leqq$2:1 for BW = 20%
GP 443 M	$\leqq$2:1 for BW = 1.2%
Type of terminal	UHF
Radiation	Omnidirectional
Polarization	Vertical

Gain in free space	+2 dBi
Weight	.8 kg
Height	2,250 mm at 27 MHz
Suitable bracket	ALLGON MF 290





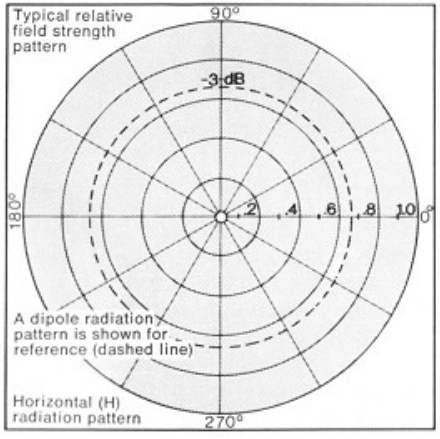
ALLGON GP 447

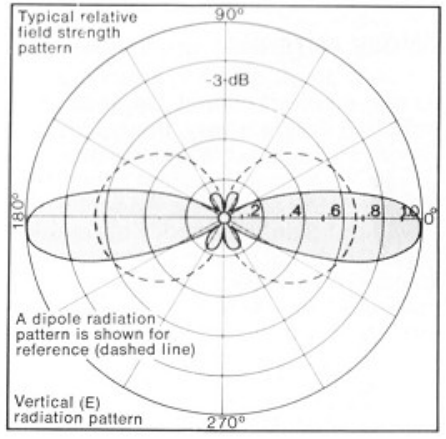
GP 447 is a colinear stacked antenna with ground plane made for mobile use and for use as a base antenna. The antenna has 3–4 dB gain over quarter wave $\lambda/4$ antennas. The cover encloses two radiator components working in unison to effect the gain. Between the radiator components is located a phase shifting coil of a high Q value. The ground plane rods are made of stainless steel 4 mm in diameter.

GP 447 is well suited for mobile telephones on water borne craft, to mention one of its uses. The antenna fits masts of Ø 25 mm outside measure but can also be hooked up with Allgon MF 290.

DATA

Frequency	400–470 MHz (narrow banded)
Maximum Power	250 W
Impedance	50 ohm
Type of terminal	$\leq$2:1 for BW = 9%
VSWR	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	5–6 dBi
Weight	.2 kg
Length	800 mm for
Suitable bracket	406 MHz
	ALLGON MF 290





Omnidirectional base antennas

ALLGON base antennas are primarily meant for stationary installation but can be used as mobile antennas (e.g. on craft). Positioning of this type antennas should be as high as possible for greater range since the gain in height reduces the ground wave attenuation to the corresponding station. Optimum positioning is always at the top of a mast as this allows unimpeded omnidirectional radiation. Location on side of a mast yields a diagram that is no longer omnidirectional. At higher frequencies, i.e. in the 27, 80, and 160 MHz bands, omnidirectional effect is obtainable by placing a number of dipole antennas symmetrically around the mast. This requires the use of a connecting transformer. Great importance should be attached to the mechanical engineering of a base antenna as it should be resistant to the effects of wind, ice, snow, and the sun, and to sudden changes of temperature. Connecting points are sensitive and should be well protected. A good quality antenna will usually save the owner expenses for mast tilting &c.

GROUND PLANE ANTENNAS (pp 26–30)

The ground plane antenna is the most common type base antenna and has a comparatively narrow frequency range. Typical band width is 5–19 % for VSWR $\leqq$ 2:1. Ground plane and radiator can be either full length or shortened. Normally this type antennas are equipped with a built-in choking coil to carry off static electricity. The choking coil protects feeder cable and transmitter/receiver in case of short circuit.

DISK CONE ANTENNAS (pp 31–33)

Disk cones are broad banded. Generally speaking, a standing wave ratio of less than 2:1 is attainable over a frequency range of 5 to 1, and less than 1.5:1 over a frequency range of 4 to 1.

Feeding impedance is approximately 50 ohm.

The radiation diagram over major portion of its frequency range, resembles that of a half wave dipole, but at frequencies exceeding 3 times minimum (= the cut-off frequency) the radiation lobe begins to rise to about 30° over the horizontal plane. For low frequencies, less than 100 MHz, the cone usually is equipped with glass fiber or metal rods, while for higher frequencies the cone is made in one piece of sheet metal or netting.

DIPOLE ANTENNAS (pp 34–35)

A dipole antenna located on the side of a mast is to be considered as non-omnidirectional. Degrees of deviation from the fully omnidirectional radiation diagram vary, the type of mast being the main determinant. To get an acceptable ground plane diagram a number of dipoles have to be placed around the mast taking the type of the latter in consideration. In view of the above it is evident that omnidirectional antenna systems, with or without gain, are readily assembled of ALLGON dipole antennas types OD 410, FT 413, FM 414, and DM 701. This method may entail lobe splitting in the 450 MHz-range due to interference by the mast at this comparatively short wave length. A suggested solution would then be to arrange a half dozen dipoles with reflectors around the mast.

ALLGON GP 404 A

CB

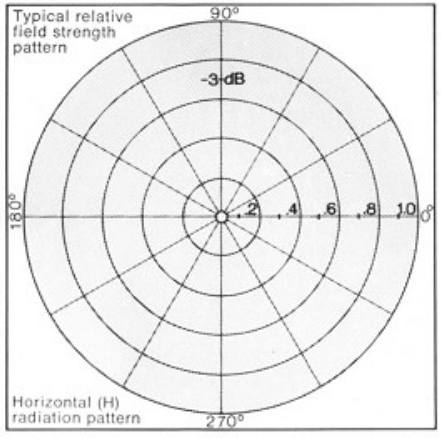
An omnidirectional base antenna with highly efficient D.C. grounding. D.C. grounding is achieved by designing the antenna radiator in the shape of a half dipole folded over, one end of which is directly connected with the ground plane.

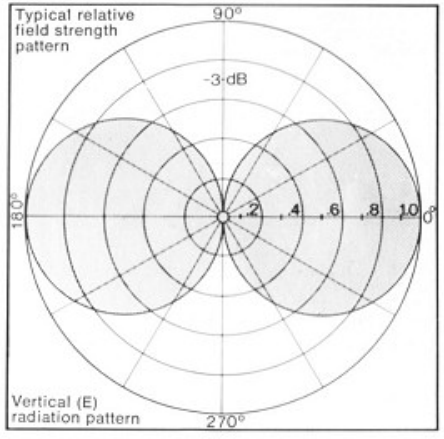
The ground plane elements are equipped with built-in vibration dampers. The elements are easily mounted at installation.

GP 404 A is made of corrosion proof aluminum alloy. The terminal is located in a well protected spot under the antenna allowing the coaxial cable to be placed inside the tubular mast. Ground plane rib for GP 404 G are made in glass fiber. The antenna is meant to be kept in readiness for operating at the lowest frequency. Tuning to desired frequency is then performed according to cutting chart. However, GP 404 A usually is delivered pretuned to the frequency desired.

DATA 404 A and 404 G

Frequency	27–250 MHz (narrow banded)
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 6%
Type of terminal	UHF, N, C
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	3.2 kg for the 68 MHz band
Length	2300 mm for 68 MHz
Height	1375 mm for 68 MHz
Suitable bracket	ALLGON MF 282





ALLGON GP 438

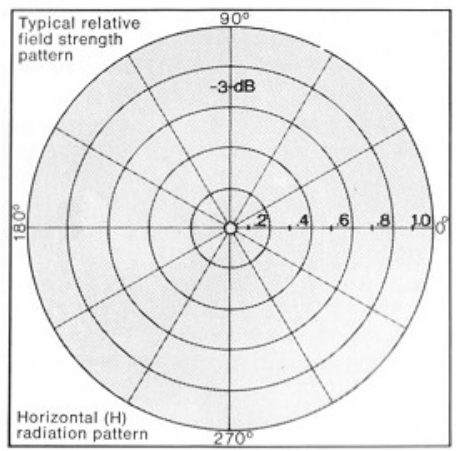
Broadband base station antenna, designed to operate during extremely severe environmental conditions. GP 438 has a low VSWR and a well maintained omnidirectional radiation diagram throughout the entire frequency range. The antenna can be supplied for either 65–90 MHz or 100–160 MHz. GP 438 is DC grounded and has four angled ground planes. The ground plane elements can easily be dismantled while in transit.

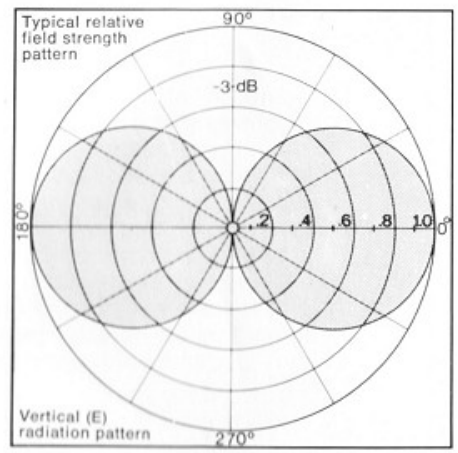
Allgon GP 438 has become an integrated part of the standard equipment on several countries' naval vessels because of its reliability and excellent electrical characteristics.

DATA

Frequency	65–90 alt 105–158 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦2:1 (≦2,5:1, 100—160 MHz)
Connector	N, C
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	4,1 kg for 105–158 MHz version
Height excluding ground plane elements	730 mm for 105–158 MHz version
Width	700 mm for 105–158 MHz version

Bracket for max, 60 mm mast diameter	Included in delivery





ALLGON GP 443 A **CB**

A ground plane antenna with quarter wave $\lambda/4$ unshortened radiator and ground plane. Electrically and mechanically it is of top class and utilizes the full power of the transmitter. The antenna elements are made of corrosion proof aluminum. GP 443 A has been designed for mounting directly on a 38 mm mast. The antenna connector fits cable connector PL 259 or its equivalents. A standard meter, on checking the antenna connector, will record short circuit because of the built-in D.C. grounding of the antenna hood.

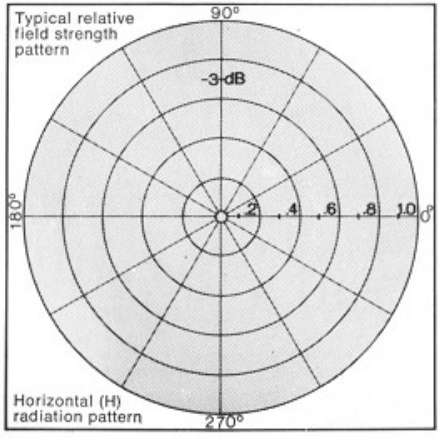
ALLGON GP 443 G **CB**

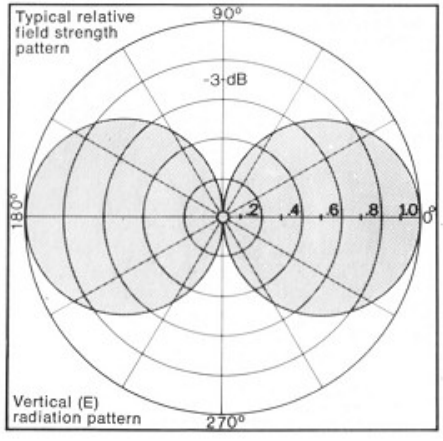
Same type antenna as the above, but with glass fiber elements. GP 443 G is especially suited for use in regions subject to strong winds and icing.

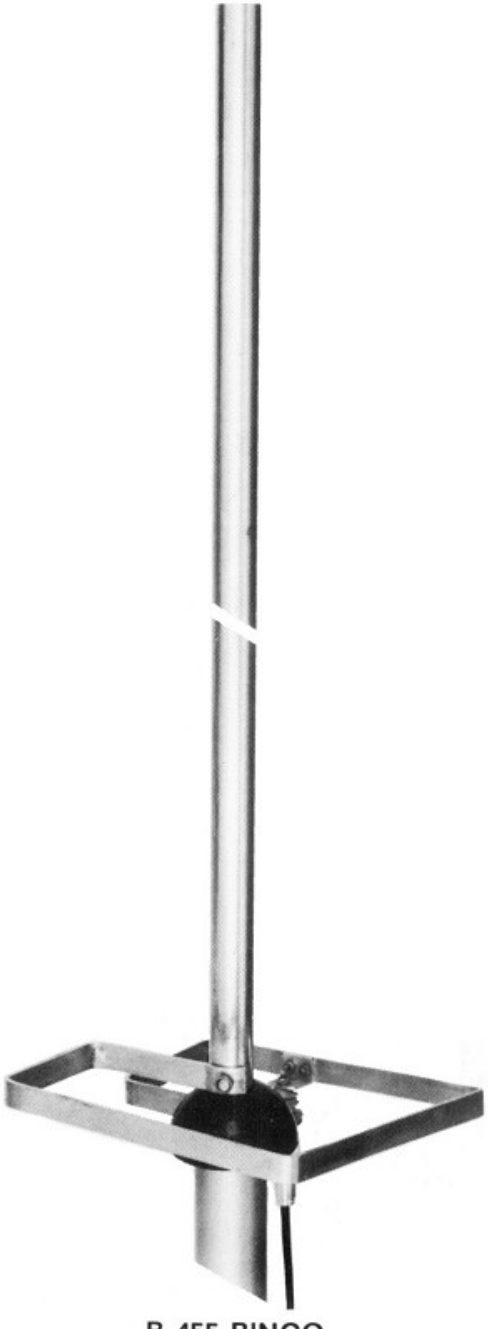
DATA

Frequency	27–240 MHz (narrow banded)
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 20%
Type of terminal	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi

Weight	1.4 kg (A)	1.2 kg (G)	for 274 MHz
Height	2570 mm (A)	2415 mm (G)	for 274 MHz
Suitable bracket	ALLGON MF 290		







B 455 BINGO

CA 458

ALLGON CA 458

An omnidirectional coaxial dipole with outer tube made of glass fiber reinforced plastic. The fastening device is cast in aluminum alloy with clamps made of stainless steel. The antenna is suitable for use in the marine mobile field and as a base antenna in locations where projecting ground plane rods are undesirable.

ALLGON B 455 BINGO

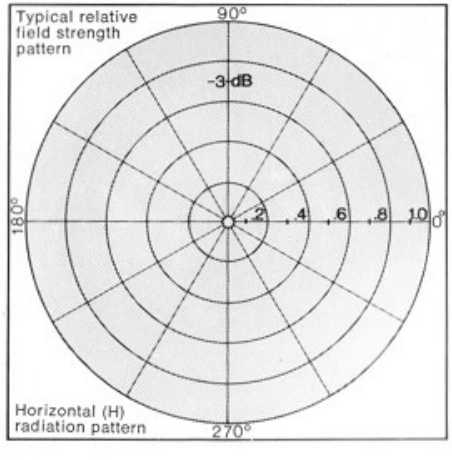
CB

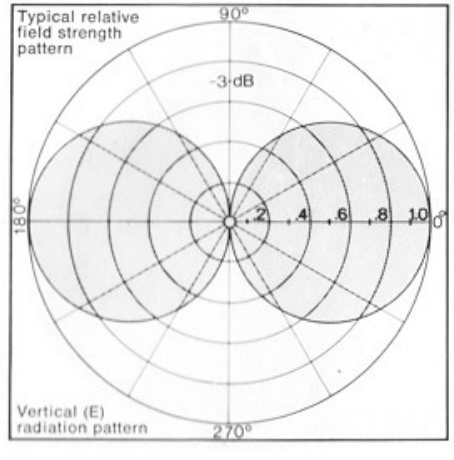
BINGO is an omnidirectional no-ground plane 1/2 wave base antenna with gain. It is carefully tuned at the factory before delivery for maximum efficiency. The square tuning unit provides good D.C. grounding. BINGO has been thoroughly tested under severe snow and icing conditions, performing flawlessly. The telescopic antenna radiator is made of aluminum.

BINGO is delivered pretuned for 27 MHz, but includes accessories for 29 MHz.

DATA — CA 458 and B 455 BINGO

Frequency	
CA 458	100–175 MHz (narrow banded)
B 455 Bingo	27–30 MHz
Maximum Power	
CA 458	150 W
B 455 Bingo	1000 W
VSWR	
CA 458	≦2:1 for BW = 8%
B 455 Bingo	≦2:1 for BW = 4%
Type of terminal	
CA 458	Optional
B 455 Bingo	UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	
CA 458	+2 dBi
B 455 Bingo	+2 to +5 dBi
Weight (Bingo)	2.1 kilo
Height (Bingo)	5600 mm
Base (Bingo)	Fits Ø 38 mm rubes
Weight (CA 458)	2.1 kg
Height (CA 458)	1800 mm
Suitable bracket (CA 458)	ALLGON MF 282





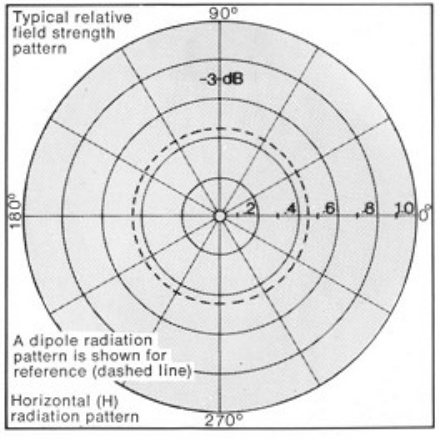
ALLGON CL 448

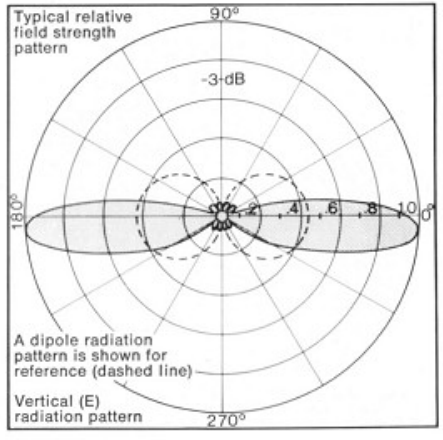
A vertically polarized antenna like GP 447, but equipped with a greater number of co-ordinated radiation elements. Thus the antenna provides greater gain than GP 447. The phasing coils between the radiating elements are carefully adjusted by ALLGON for maximum antenna gain in the horizontal plane and minimum side lobes. Because of the great length of the radiators the radiating elements are enclosed in a stabilizing glass fiber tube. There are four ground plane rods at the lower end of the antenna. It is very important that the antenna be placed **on top** of a mast as side mounting on a metal mast will cause the radiation diagram to be unsymmetric. Besides, in the event of the antenna being located at a great distance from the mast (measured in wave lengths), the radiation diagram will even record a lot of minima.

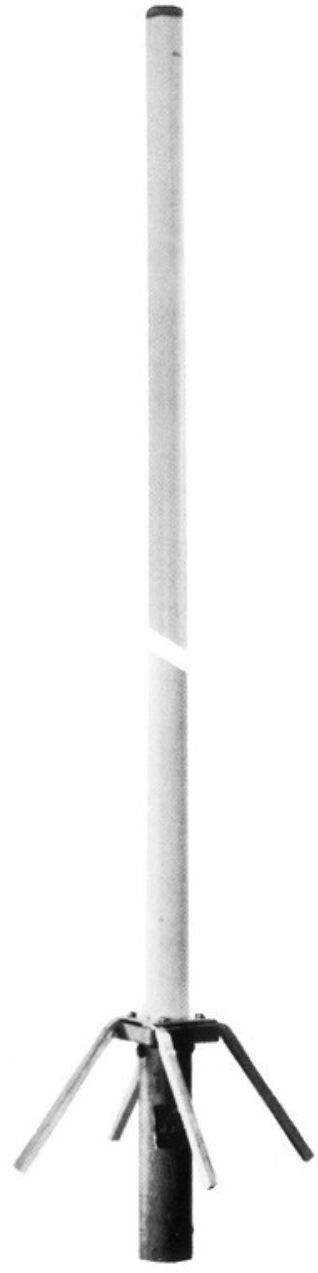
The antenna is very simple to install. Metal parts are made of corrosion proof aluminum and stainless steel. The terminal is located in a well protected spot under the antenna permitting the feeder cable to be placed inside the tubular mast. The antenna is pretuned on delivery for one of two middle frequencies, the desired one to be stated on the purchase order.

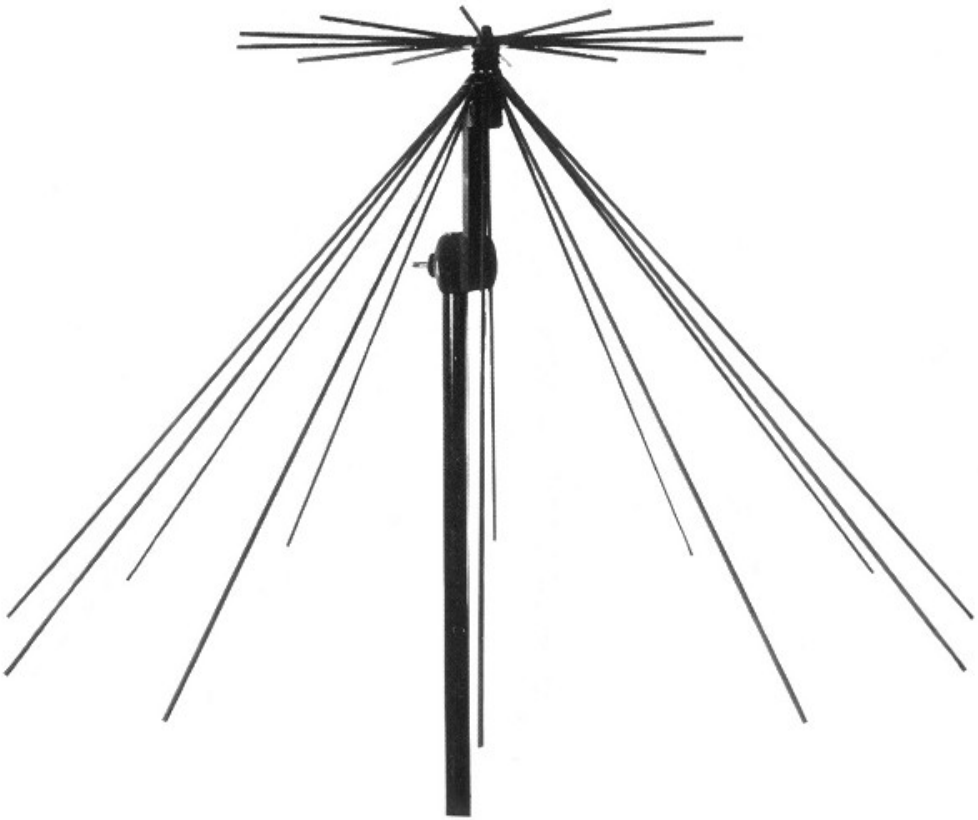
DATA

Frequency	405–435 alt. 435–470 MHz
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 11%
Type of terminal	N
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	9 dBi
Weight	2.2 kg
Height	2300 mm
Suitable bracket	ALLGON MF 282







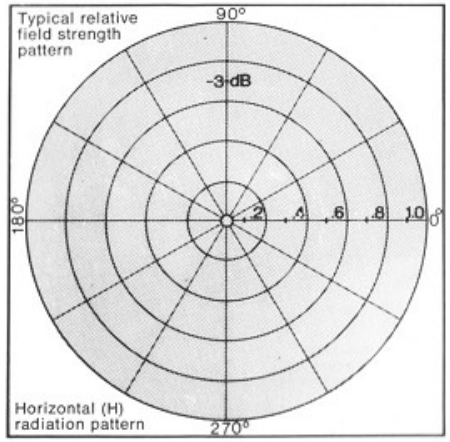


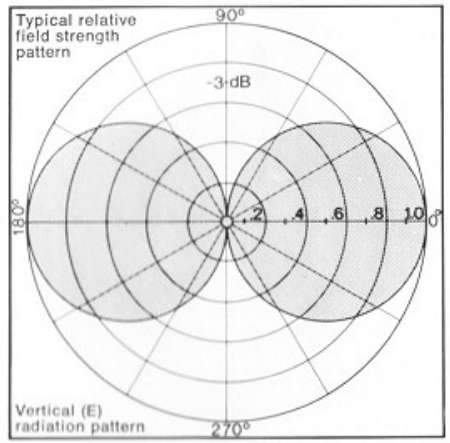
ALLGON SK 433

SK 433 is a disk cone antenna, disk and cone of which are made of light metal rods (also available with disk and cone of glass fiber rods). SK 433 is very sturdily constructed and is, therefore, especially suited for military uses with attendant heavy demands on equipment. It is available with Helicoil accessories for all elements of the disk and the cone alike, a considerable advantage when mounting and dismounting of the antenna is repeatedly required. Standard type SK 433, however, does not include Helicoil accessories.

DATA

Frequency	32–78 MHz B
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦2:1
Type of terminal	UHF, N, C
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	8.5 kg
Width/circum-ference	4000 mm
Height	3020 mm
Base	Max. 60 mm Ø





ALLGON SK 408

SK 408 is a VHF disk cone antenna, same type as SK 433 – that is, disk and cone constructed of either light metal or glass fiber rods – but it is made for a higher frequency band. Will be furnished with Helicoil accessories on request.

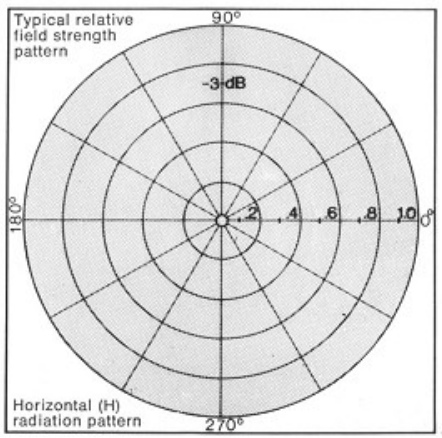
ALLGON SK 441

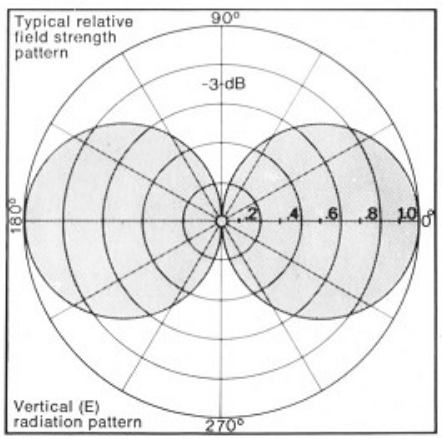
This is a UHF disk cone antenna, same type as SK 433 and SK 408, disk and cone made of light metal or glass fiber rods. Will be furnished with Helicoil accessories on request.

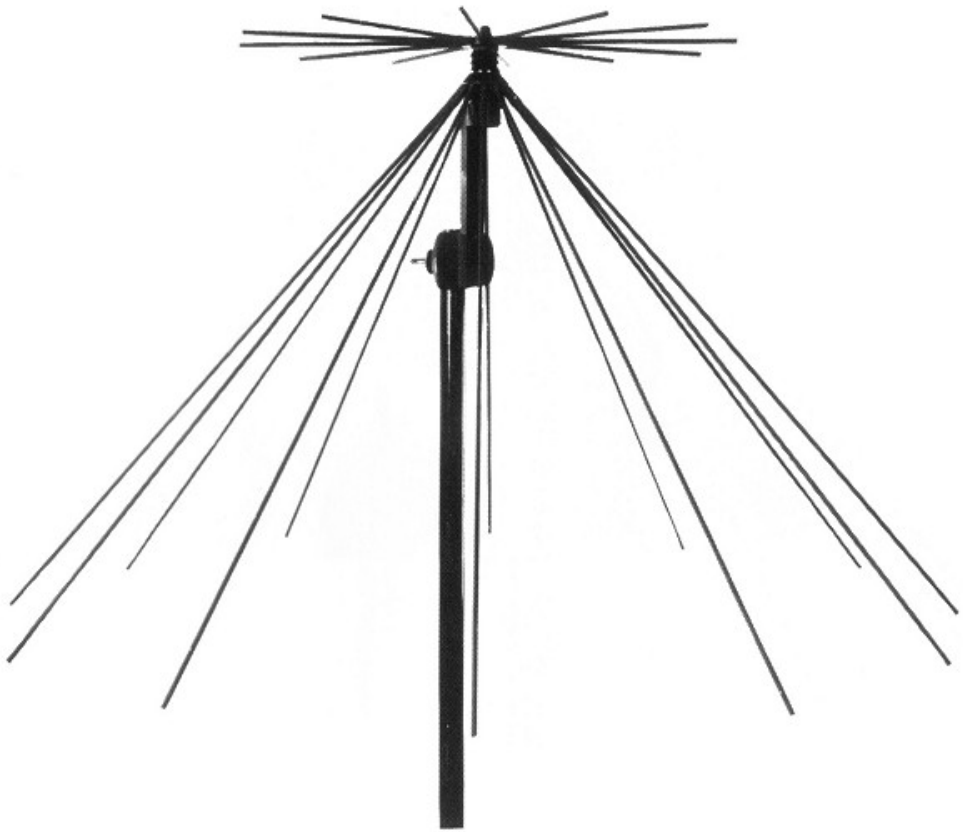
DATA – SK 408 and SK 441

Frequency	
SK 408	100–160 MHz B
SK 441	225–400 MHz B
Maximum Power	500 W
Impedance	50 ohm
VSWR	
SK 408	≦1.6:1
SK 441	≦2:1
Type of terminal	
SK 408	VHF, N, C
SK 441	Optional
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi

Weight	1.7 kilo
Width/circum-ference	1240 mm
Height	720 mm
Base	Max. 56 mm Ø





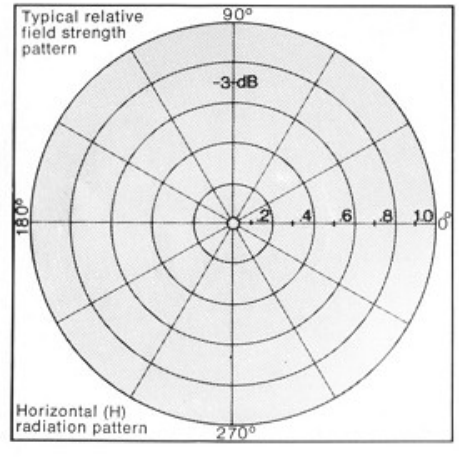


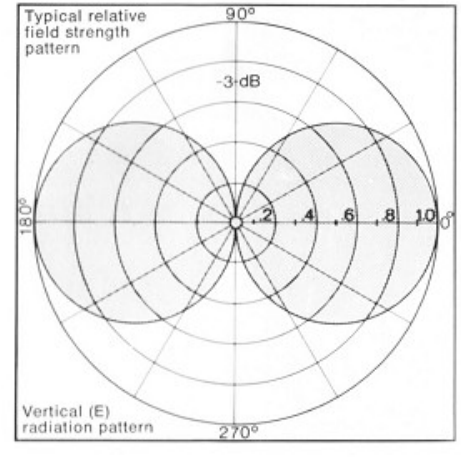
ALLGON SK 418

SK 418 is a robust disk cone antenna for the UHF-band. The disk is made of corrosion proof aluminum alloy as is the one-piece cone. Mechanically, SK 418 has been engineered to meet very heavy demands on strength. SK 418 as standard is delivered unpainted. However, when required for military purposes it may be obtained painted with IR-proof camouflage paint.

DATA

Frequency	400–1000 MHz B
Maximum Power	500 W
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	7/16 Female
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+2 dBi
Weight	4.5 kg
Width/circum-ference	470 mm
Height	270 mm
Base	Max. 56 mm Ø





ALLGON OD 410 CB

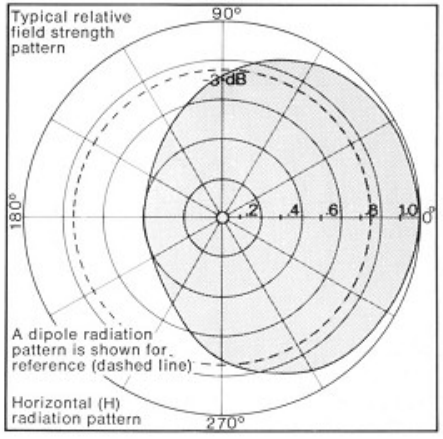
A half wave open dipole antenna with glass fiber elements. Delivery includes supporting arm of galvanized steel. The antenna is attached to mast of max. 56 mm diameter by means of an adjustable fastening device. A vertically mounted dipole in front of a metal mast has a certain directional effect and an antenna gain of about 2 dB.

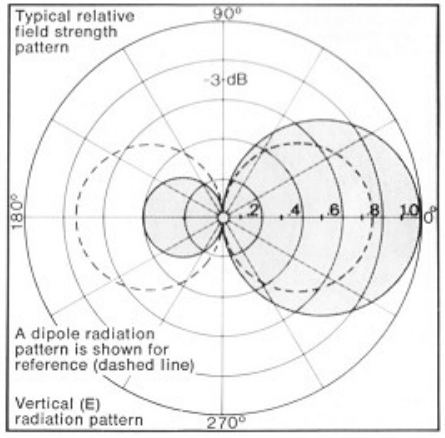
ALLGON OD 410×2 CB

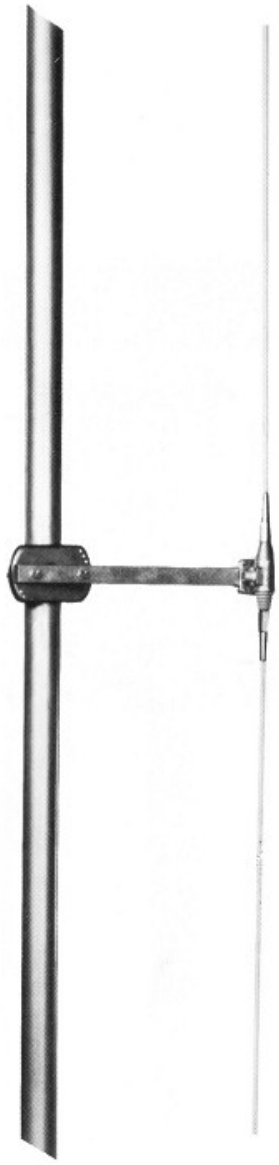
An antenna system made up of two OD 410 s connected by way of a transformer, type ALLGON KT 871. This system gives a maximum gain of + 5 dB in a forward direction. Raising or lowering the lobe up to ±45° may be effected when required.

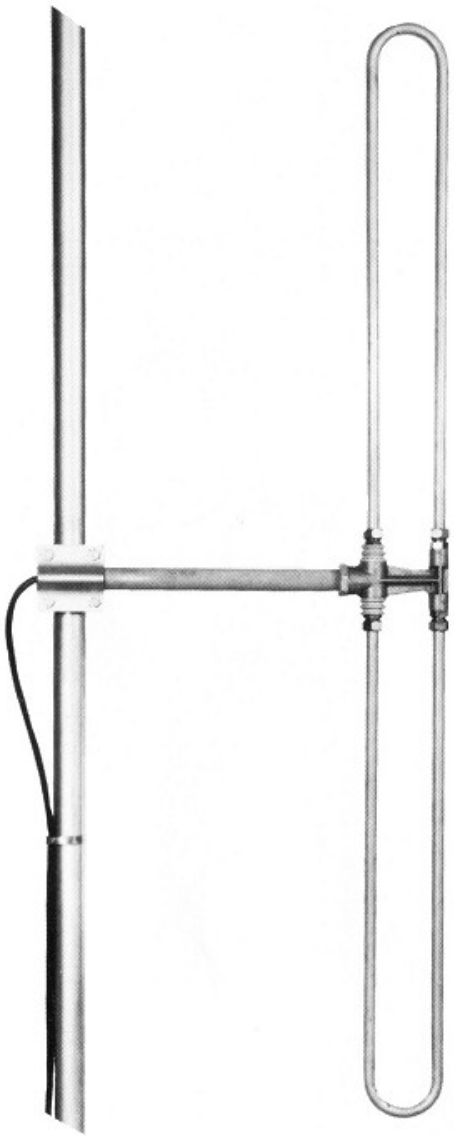
DATA — OD 410 and 410×2

Frequency	27–470 MHz (narrow banded)
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 10%
Radiation	Omnidirectional
Type of terminal	N, C or UHF
Polarization	Vertical
Gain in free space	+4 dBi max.
Weight (each)	2.6 kg for 27 MHz
Width/circum-ference	485 mm for 27 MHz
Base	Max. 56 mm Ø









ALLGON FT 413

CB

FT 413 is a folded half wave dipole antenna of very rugged design made for frequencies within the 27–90 MHz band. The feeder cable may be connected directly to the antenna dipole head or by way of a cable inside the antenna boom. In either case the connection is established via a balun-transformer built into the antenna. The dipole head is made of aluminum, and the feeding points are encased in accordance with the "jet-melt" method for complete moisture protection.

ALLGON FM 414

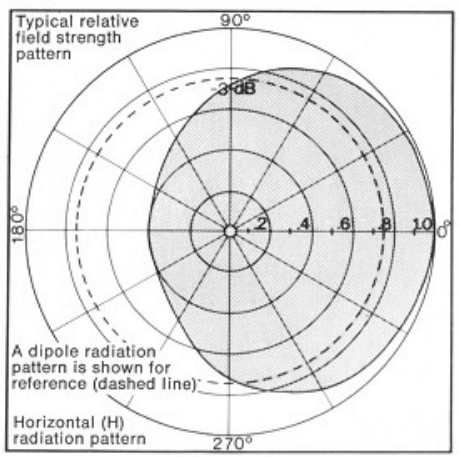
This antenna has been designed on the same pattern as FT 413 but is lighter.

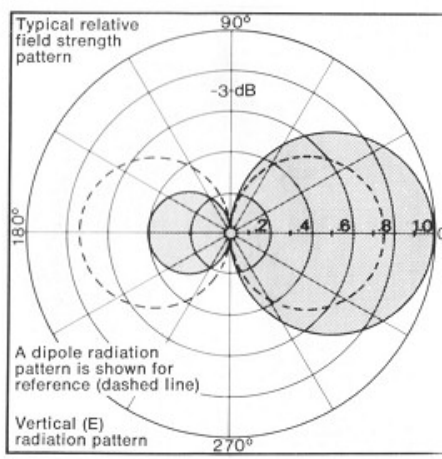
Both types can be stacked (see Dipole antennas, p 29) for higher gain. When this is desired the purchase order should include a listing of required stacking transformers and connecting cables.

DATA FT 413 and FM 414

Frequency	
FT 413	27–90 MHz (narrow banded)
FM 414	30–175 MHz
Maximum Power	200 W
Impedance	50 ohm
VSWR	≦2:1 for BW = 18%
Type of terminal	N, C, UHF
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+4 dBi max.

Weight	
FT 413	7.5 kg incl. base
FM 414	6.6 kg incl. base
Width/circumference FM 414	1335 mm for
Suitable bracket	ALLGON MF 60×60
	ALLGON MF 60×12(





ALLGON 440×2

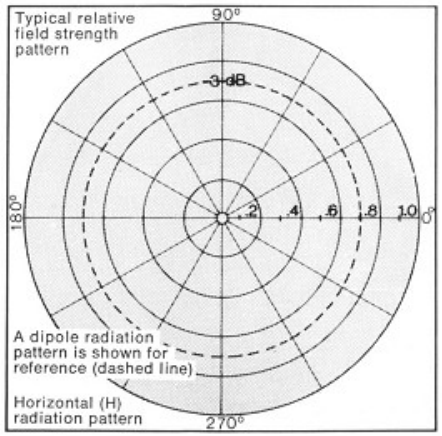
A vertically polarized omnidirectional base antenna designed for easy stacking (see Dipole antennas, p. 34). The mast is placed inside the antenna. 440 is dimensioned for high transmitting effect and is very broad banded. Standing wave ratio is extremely low. The antenna is D.C. grounded. 440 is designed for either lobe lifting or lobe lowering, whichever the buyer specifies.

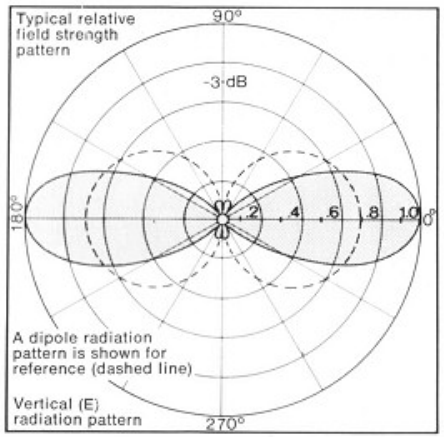
For stacking of ALLGON 440 the antenna system is provided with printed circuit transformers, all encased, and fully operational for the high power requirements involved. For protection against ice a stacked antenna system – at the buyer's request – will be equipped with radom made of glass fiber reinforced plastic. The radom in turn may be equipped with obstruction light.

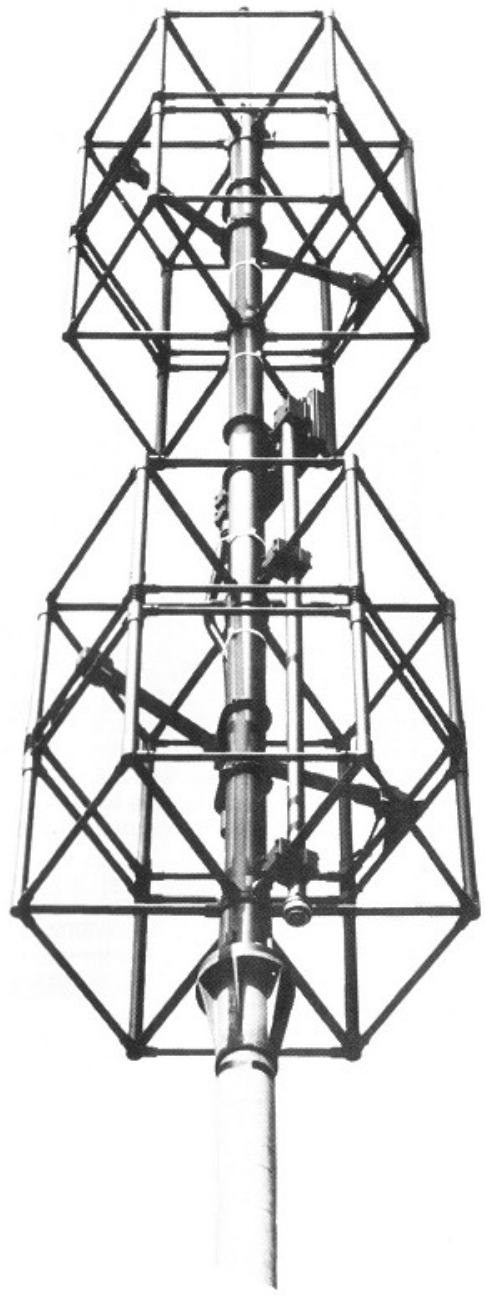
Antenna 400 has proven its great durability under exhaustive testing, mechanically and electrically. The stacked version of 440 as delivered provides for a stacking distance of .75 in the center of the band.

DATA

Frequency	100–160 MHz
Maximum Power	10 kW
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	Spinner 13/30
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+6 dBi
Weight	36 kg
Length	3125 mm







Dipolearrays

Increase of antenna gain is effectively accomplished by introduction of reflectors. These offer a well defined reflecting surface. Suppression of back lobe to exceed 20 dB can easily be achieved. The dipole array is particularly useful in connection with mountings on the side of a trellis mast. The well defined reflection of the array offsets the impairing influence on the dipole antenna of this type mast that would otherwise show up as a number of minima in the radiation diagram. In the absence of an alternative to side mounting on a trellis mast, while an omnidirectional antenna system still is the object, it is suggested that a number of dipole arrays, including matching transformer, be placed symmetrically around the mast. If in addition high gain in the horizontal plane is desired, stacking may be resorted to. Dipole arrays are most suitable for stacking because of the low electrical interference between the component dipole arrays of the system.

ALLGON's dipole arrays also may be employed to considerable advantage in establishing link connections within frequency bands VHF and UHF. Due to their rugged design the antennas only require a minimum of maintenance and are, therefore, also recommended for use in radio link stations difficult of access.

Helical antennas

These antennas function as end-fed directional antennas generating circularly polarized wave. With properly chosen coil diameter and spiral pitch in relation to frequency range being used the helical antenna will attain the highest gain possible for any antenna of comparative size.
It maintains its high gain and eminent impedance properties over a frequency range of close to an entire octave. Gain in this type antenna is determined by the number of turns of the spiral.

The helical antenna is supplied with reflectors made of sheet metal or netting.

Attenuation between two helical antennas on the same mast is very high, at least 40 dB. When using several channels simultaneously good attenuation is obtained by utilizing different polarizations.

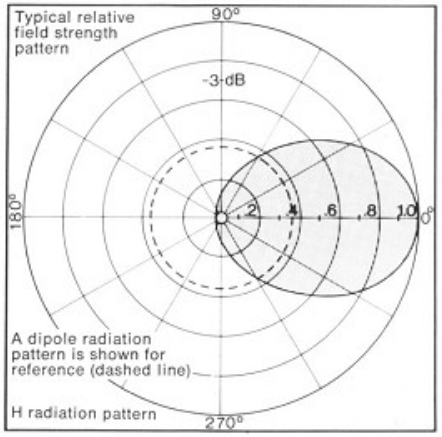
(Socalled "Helical Antennas" marketed for small, portable radio sets should not be confused with those described above.)

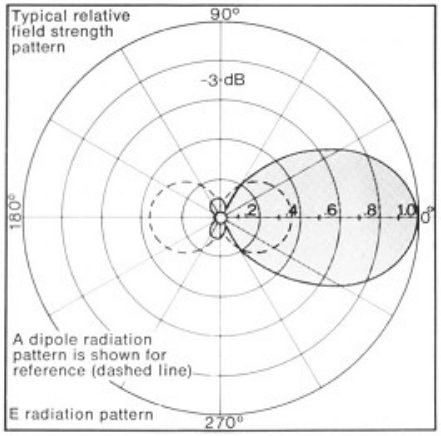
ALLGON DM 701

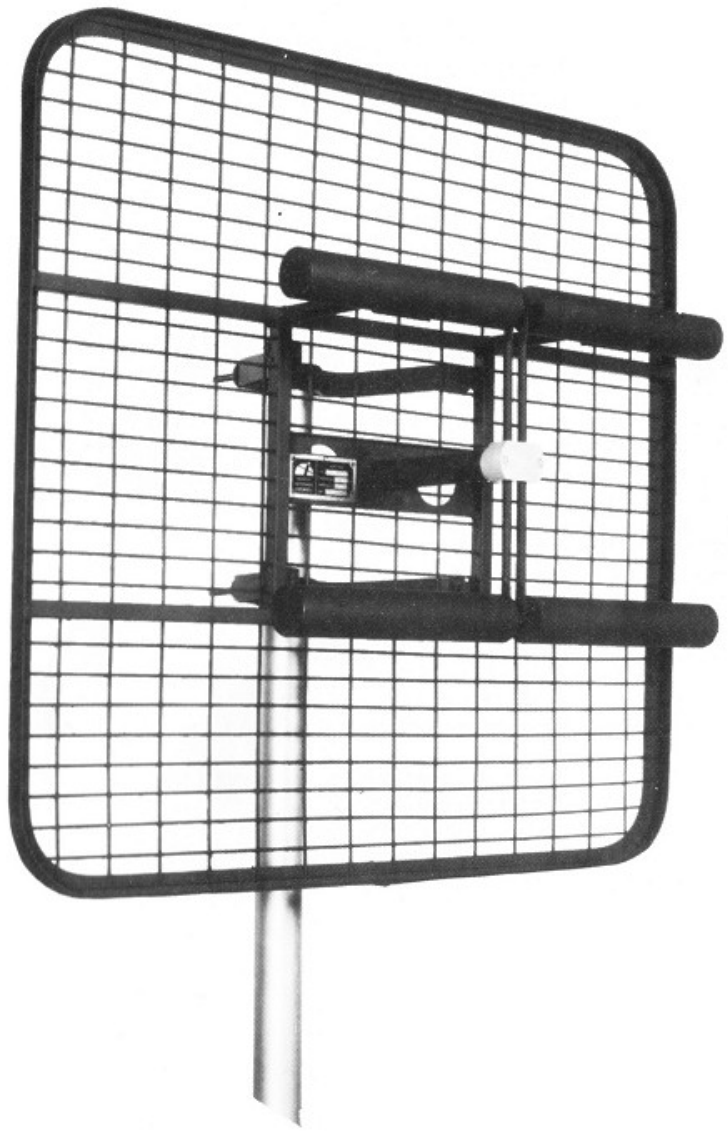
DM 701 was designed for link communication in the UHF range so as to meet exceptional requirements for excellent electrical properties. Because of its mechanically sturdy structure DM 701 also is suitable for installation in areas of high winds, snow and ice. The antenna requiring next to no maintenance it is recommended for installations in very remote spots. Finally, DM 701 may be used as a mobile antenna on account of its small dimensions and low weight.

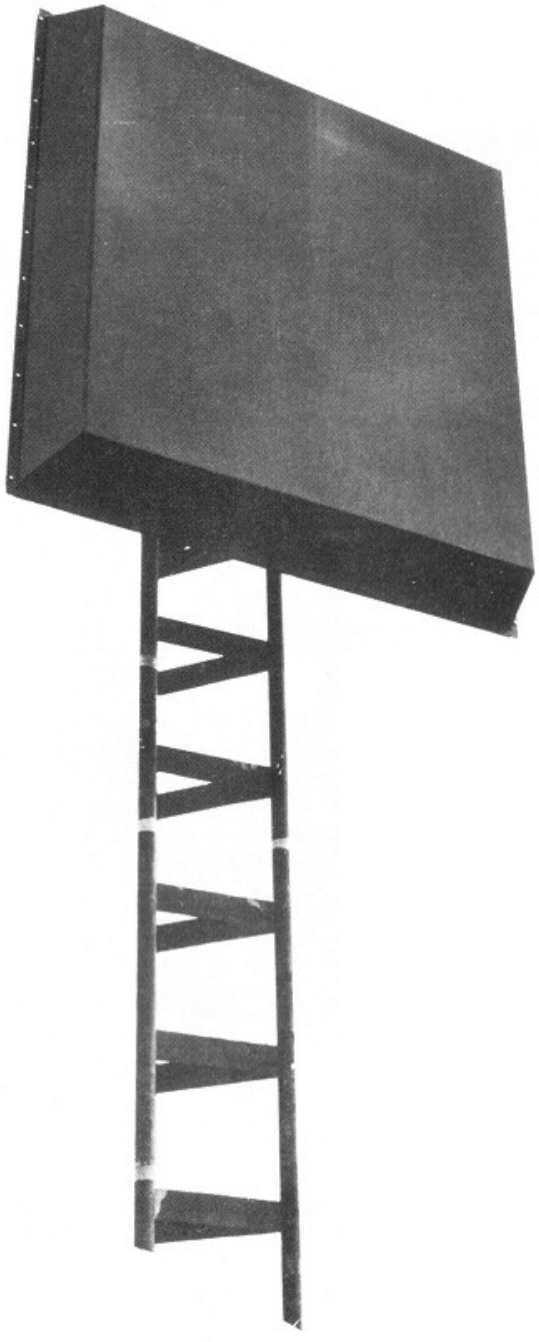
DATA

Frequency	325–475 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	7/16 infemale or N
Radiation	Directional
Polarization	Vertical alt. horizontal
Gain in free space	11 dBi
Front-to-back ratio	Typical 20 dB
Weight	8 kilo
Width/circum-ference	750×750×400 mm
Base	Ø 51–76 mm









ALLGON DM 728

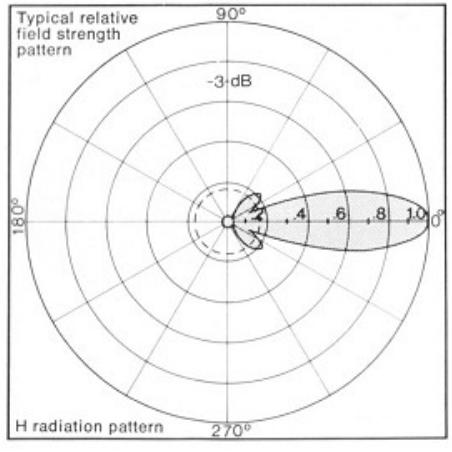
A dipole array of eight dipoles under a glass fiber reinforced plastic hood. The antenna is D.C. grounded, its impedance unaffected by icing. DM 728 can be installed for horizontal and vertical polarization.

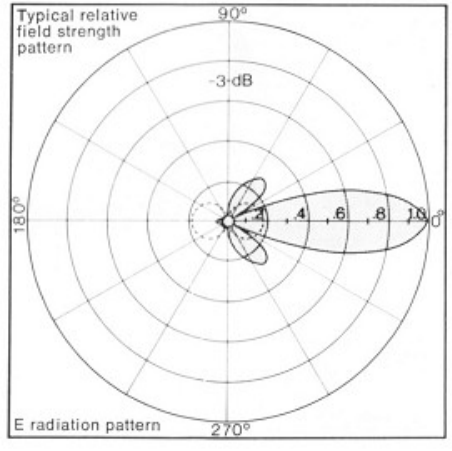
The reflector is made of aluminum and all steel components are hot galvanized or stainless. The antenna is well suited as a radio link antenna on account of its high gain and very high back lobe- and side lobe-suppression.

DM 728 is an ALLGON product engineered to meet purely military requirements for great dependability electrically and great mechanical strength.

DATA

Frequency	300–440 MHz B
Maximum Power	200 W
Impedance	50 ohm
VSWR	$\leqq$1.6:1
Type of terminal	Optional
Radiation	Directional
Polarization	Vertical alt. horizontal
Gain in free space	+18 dBi
Front-to-back ratio	Typical > 20 dB
Dimensions	1700×1700×460 mm
Weight	76 kg





ALLGON HX 720

ALLGON HX 720 is an open helical antenna of exceptionally strong construction. The antenna may be used singly or as the basic element in a stacked helical antenna system.

The spiral, made of light metal, is built around a glass fiber supporting tube. The spiral rests on insulators of electrically very high quality. The antenna reflector is ordinarily made of light metal.

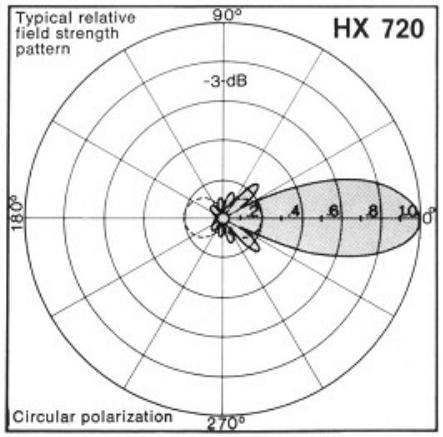
ALLGON HX 735

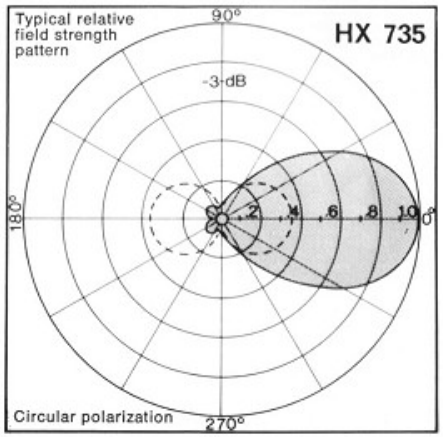
A helical antenna whose antenna element is enclosed in the glass fiber reinforced plastic wall of the hood. The reflector is made of aluminum. HX 735 is an especially sturdy helical antenna whose spiral unit because of its encapsulation is fully protected against deformation. The feeder transformer is a printed circuit type located under the hood and, therefore, well protected.

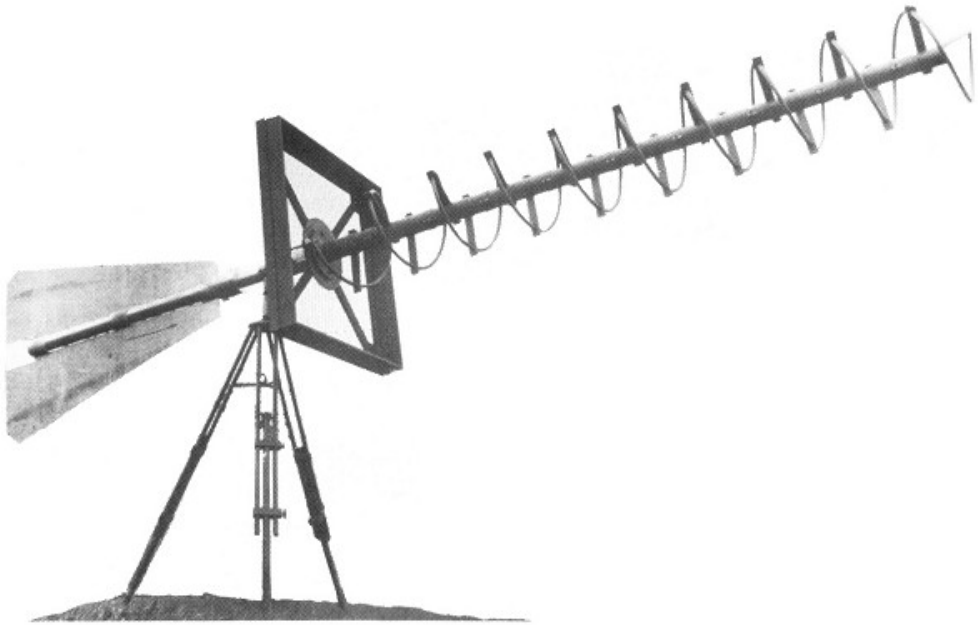
The antenna is available for clockwise or counter-clockwise circular polarization.

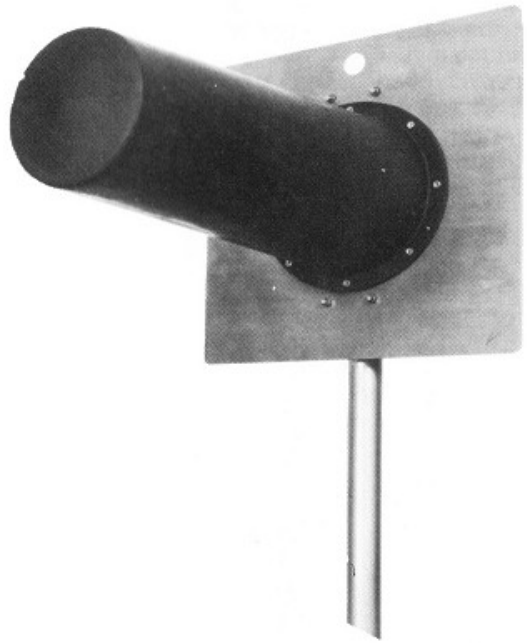
DATA — HX 720 and HX 735

Frequency	
HX 720	190–290 MHz B
HX 735	360–460 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	Optional
Radiation	Directional
Polarization	Circular
Gain in free space	
HX 720	Typical +16 dBi
HX 735	Typical +11 dBi
Front-to-back ratio	Typical > 20 dB
Weight	
HX 720	
HX 735	5.5 kg
Length	690 mm (735)
Base	Max. Ø 60 mm (735)









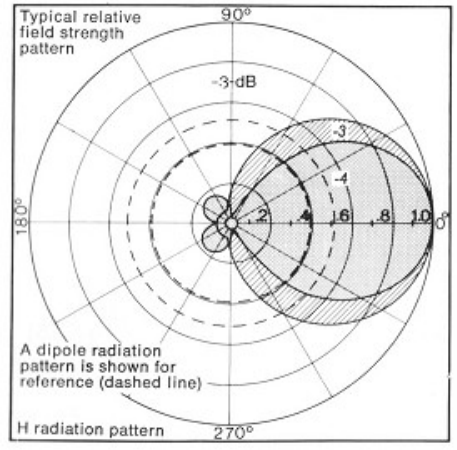
Yagi antennas

The chief mechanical problem posed by this type antennas is that of vibration. A yagi antenna with no or insufficient vibration damping starts vibrating at a low speed of wind with attendant malfunctioning. Great efforts have, therefore, been expended at developing devices for counteracting vibration caused disturbances to the extent possible, and all ALLGON yagi antennas have accordingly been equipped with built-in vibration dampers.

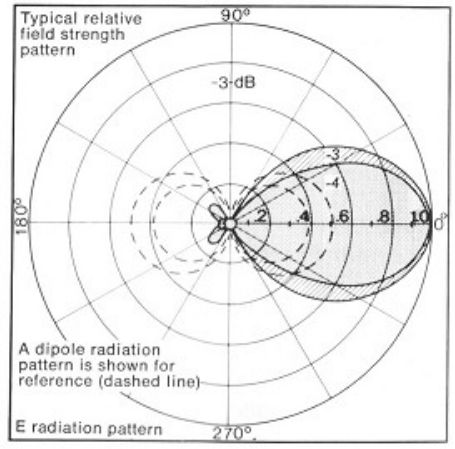
For increased gain, or when a special lobe form is desired, two or more yagi antennas may be stacked vertically or horizontally, or they may be arranged around the mast.

Protective cable cover, encapsulated transformers, booms for different arrangements, bracing sets, and clamps are availables as extra gear.

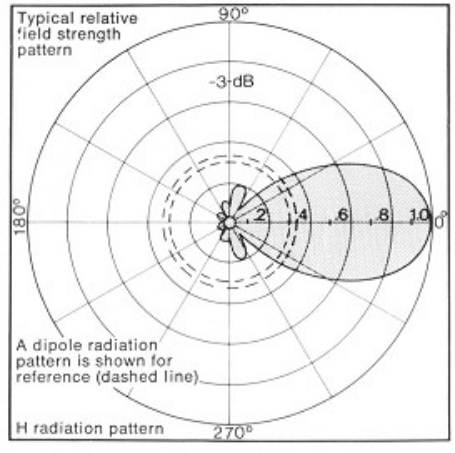
Yagi 703, 704 and 705 — 3 and 4



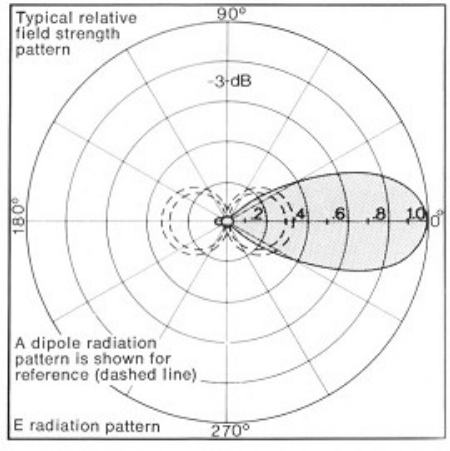
Yagi 703, 704 and 705 — 3 and 4



Yagi 703 and 704 — 6 and 8



Yagi 703 and 704 — 6 and 8



ALLGON YM 703-series

This is the intermediate version of ous standard line. Connection with the feeder cable is established either as on the YL 704 series or by way of a cable running inside the antenna boom and 2 meters beyond. The latter cable ends with a terminal type UHF, N, C, or 7/16.

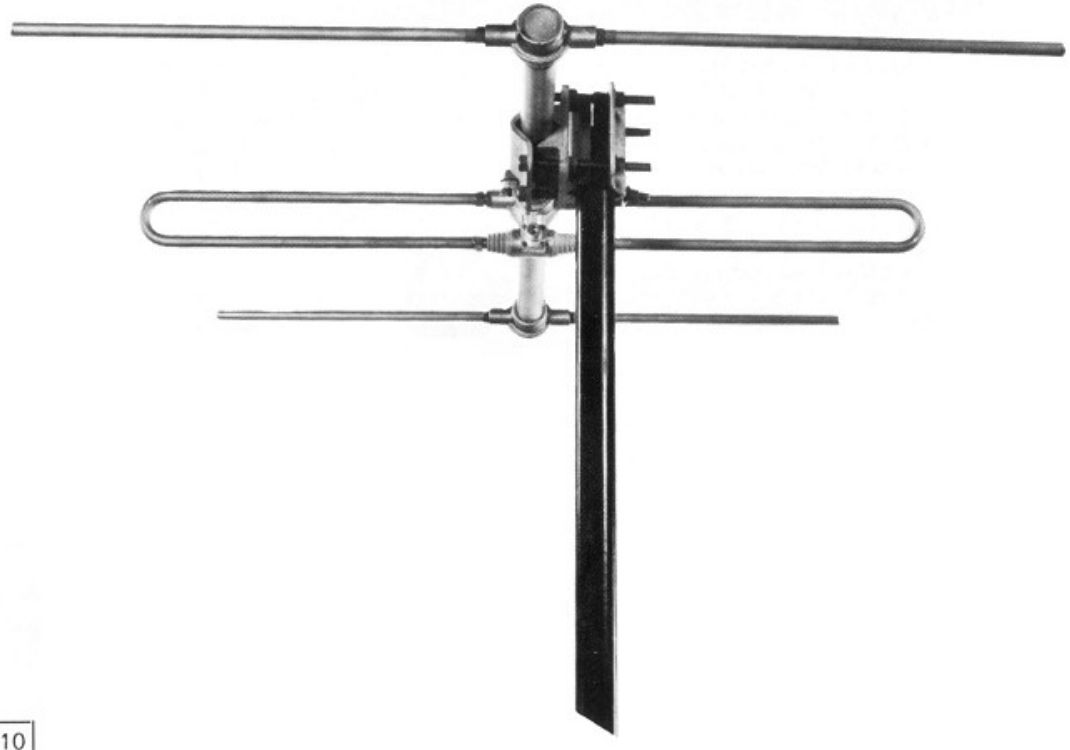
The antenna is made of aluminum alloy. However, an antenna boom made of hot galvanized steel tubing is available to meet requirements for greater mechanical strength.

YM 703 may be supplemented with transformers ALLGON ST 286 or ST 287 for stacking if higher gain is required.

Code

Y M 703 - 3
L 704 - 4
T 705 - 6
- 8
- 10

- Number of elements
- Product number
- Version
  - M = medium
  - L = light
  - T = heavy
- Yagi



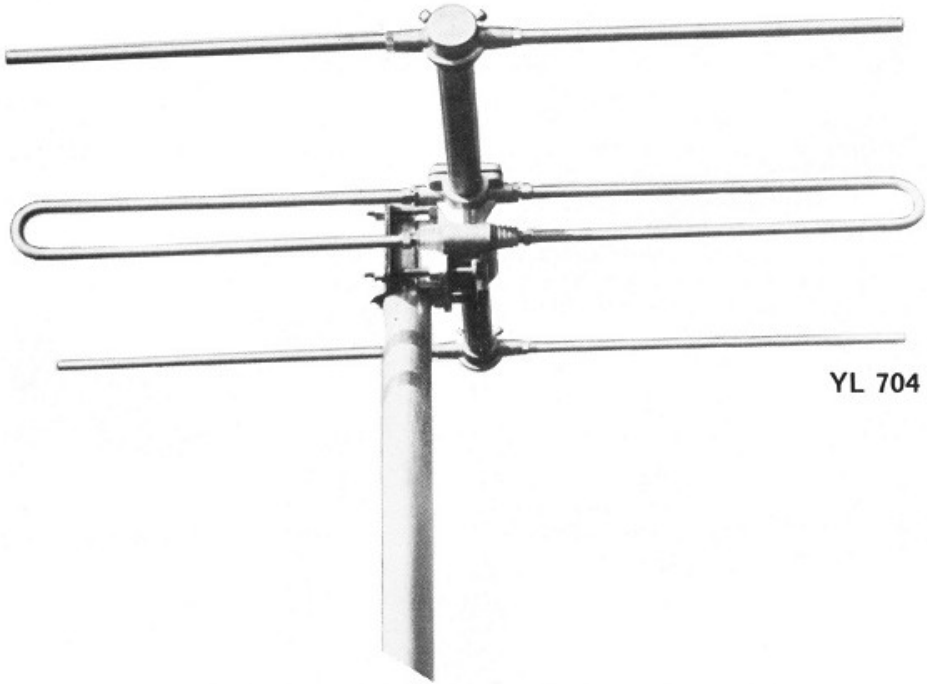
Available versions and frequency ranges					
Available frequency ranges (MHz) for particular number of elements					
Type	3	4	6	8	10
M 703	40—170	40—170	67—150	120—150	
L 704	100—300	100—300	120—300	150—300	150—300
T 705	30—85	35—85			

Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.5:1 BW up on request
Type of terinal	Optional
Radiation	Directional
Polarization	Vertical/horizontal

Gain in free space

Number of elements:	2	3	4	6	8	10
Gain dBi:	+5,5	+8	+10	+12	+13	+14

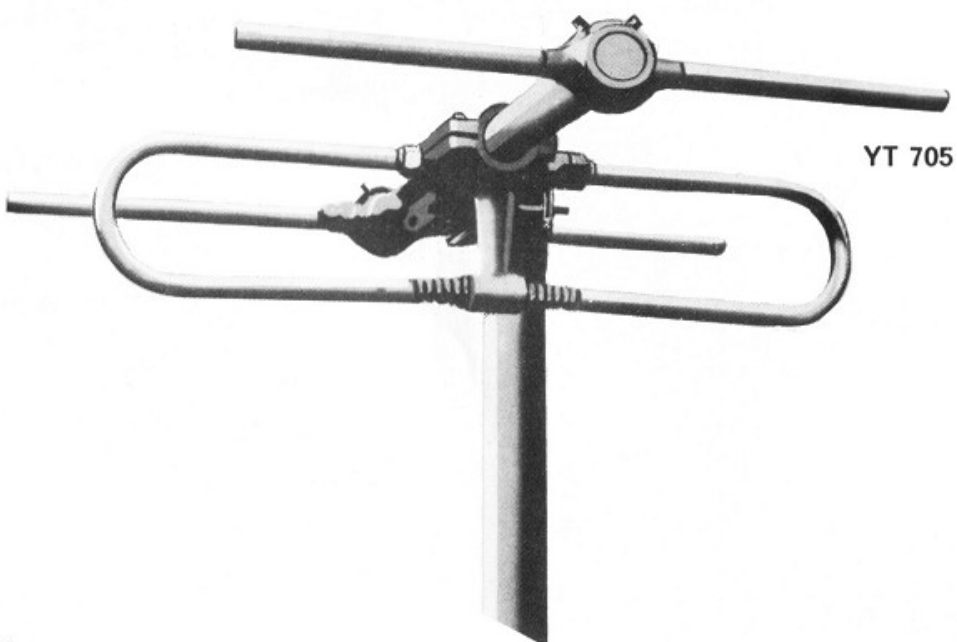
Front-to-back ratio Typical 20 dB



YL 704

ALLGON YL 704-series

This is the lightest version of our standard line of yagi antennas. is made of light metal alloy. The antenna elements are easily assembled and disassembled. The folded dipole is fed by way of a balun-transformer enclosed in the antenna boom. Terminal points of the transformer are well protected against moisture and dirt. All antenna elements are equipped with built-in vibration dampers. The feeder cable is connected to a female terminal, type UHF, N, or C, on the antenna head. For higher gain the antenna may be stacked, feeding taking place via stacking transformer.



YT 705

ALLGON YT 705-series

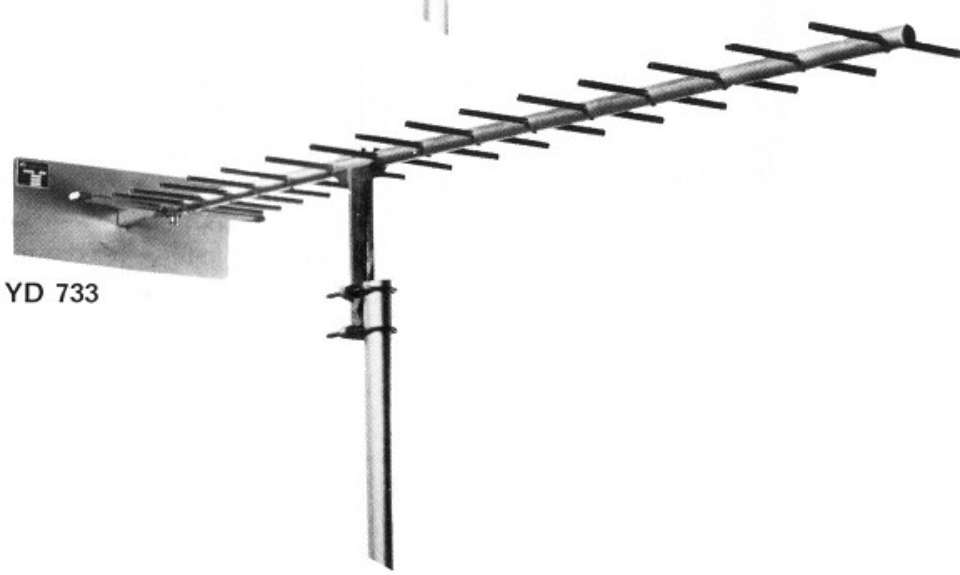
The heaviest and mechanically strongest of our standard yagi line. This version in no other respect differs materially from YM 703.

YT 705 is only available with antenna boom of hot galvanized steel tubing.

ALLGON YD 725 and YD 733

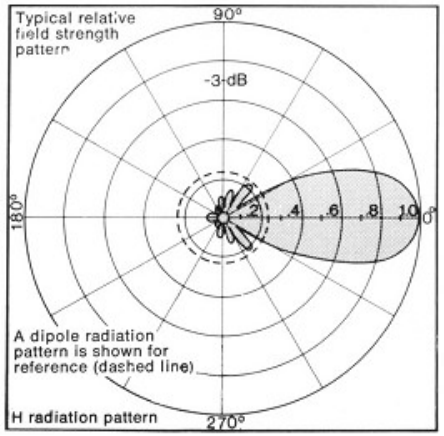
A corrosion proof aluminum alloy yagi antenna for the UHF range made up of reflector, boom, feeder unit, and elements. The antenna has extremely high gain and is well suited for RA-link connection. YD 725 (military version) is treated with UV and IR-proof protective paint. YD 725 is delivered for field service with a two-part boom and a container for two antennas with gear. Included in the gear is an adjustable mast base permitting mounting for vertical as well as horizontal polarization.

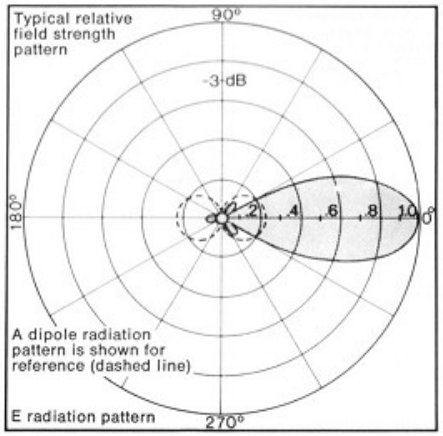
YD 725



YD 733

Frequency	340–410 alt. 390–470 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.5:1
Type of terminal	N, C
Radiation	Directional
Polarization	Horizontal alt. vertical
Gain in free space	Typical 15 dBi
Front-to-back ratio	Typical 20 dBi
Weight	4.5 kg incl. base
Length	2070 mm
Base	Max. Ø 60 mm





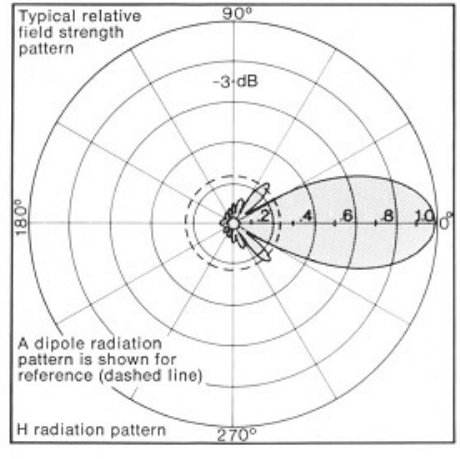
ALLGON YD 726

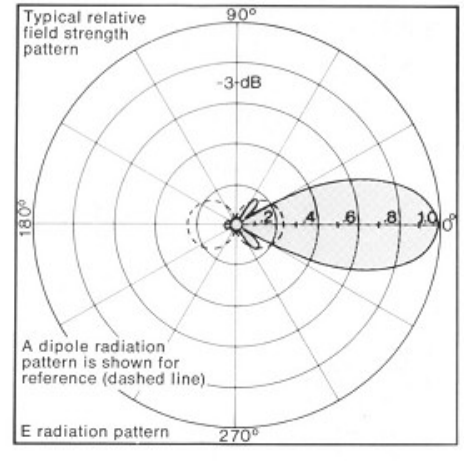
A yagi antenna with hood of glass fiber reinforced plastic. A printed circuit type feeder element has been chosen for YD 726. The antenna elements are made of aluminum, and the antenna structure is carried inside of, and supporter by, the hood. The reflector, also serving as a fastening device, is cast in aluminum alloy. Among suitable uses may be mentioned radio link connections.

YD 726 can be mounted for vertical as well as horizontal polarization. The antenna can be used as basic element in an antenna system consisting af a number of stacked YD 726s. The impedance adapter unit will then have to be ordered as an extra.

DATA

Frequency	810–930 MHz B
Maximum Power	250 W
Impedance	50 ohm
VSWR	$\leqq$1.5:1
Type of terminal	N
Radiation	Directional
Polarization	Horizontal alt. vertical
Gain in free space	Typical 15 dBi
Front-to-back ratio	Typical > 20 dBi
Weight	4.8 kg
Length	1180 mm
Base	Max. Ø 60 mm





ALLGON YD 744

YD 744 is an example of yagi antennas within the frequency range 1000–2500 MHz. It is constructed in the same way as YD 726 with feeding elements made in printed circuit tecknique.

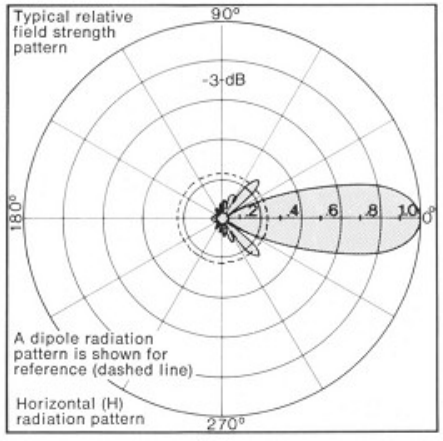
The entire antenna is covered with a reinforced glasfibre radom.

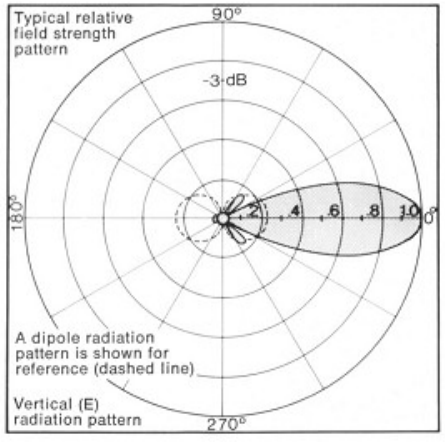
The antenna has in standard version very high gain but it can also easily be stacked for increased gain. Such stacked yagiantenna systems are competitive with small horn and parabolic antennas, with respect to gain.

YD 744 is suitable for radio link communication and radar systems on the L-band.

DATA

Frequency	1300–1600 MHz
Maximum Power	250 W
Impedance	50 ohm
VSWR	≦1.5:1
Connector	N
Radiation	Directional
Polarization	Horizontal or vertical
Gain in free space	+ 17 dBi
Front-to-back ratio	Typical ≦ –20 dB
Weight	4.8 kg
Length	1180 mm
Bracket	Max. Ø 60 mm





Portable short wave/field antennas

ALLGON ANTENN AB has given special attention to problems arising when the wave length of the antenna requires the latter to assume physical dimensions difficult to handle without dispensing with portability.

ALLGON's portable short wave antennas are of low weight and can easily be carried by one man. The aim has been to design the antennas so as to also enable unqualified personnel to set them up.

All types are delivered complete with gear and can, therefore, be directly connected to a transmitter.

ALLGON RFD 707

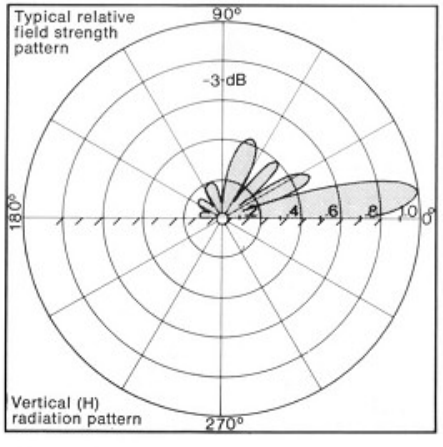
RFD 707 is a broad banded .non-reflective) directional antenna of low weight rendering it especially suitable for field use.

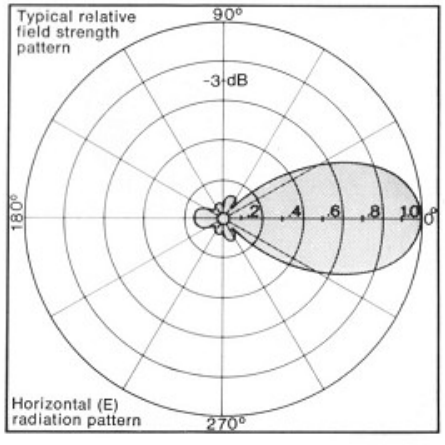
The antenna is easily carried by one man and can be set up for service in a few minutes. By merely moving the lower end of the antenna sideways, direction of radiation is quickly changed. The antenna is made up of a radiator wire 18 meter long, matching unit, and a top rod serving as a counterweight. The radiator consists of a number of sections separated by reactances from which the non-reflective qualities of the antenna are derived. In contrast to ordinary antennas the wave obtained along the radiator wire will be a progressive instead of standing wave.

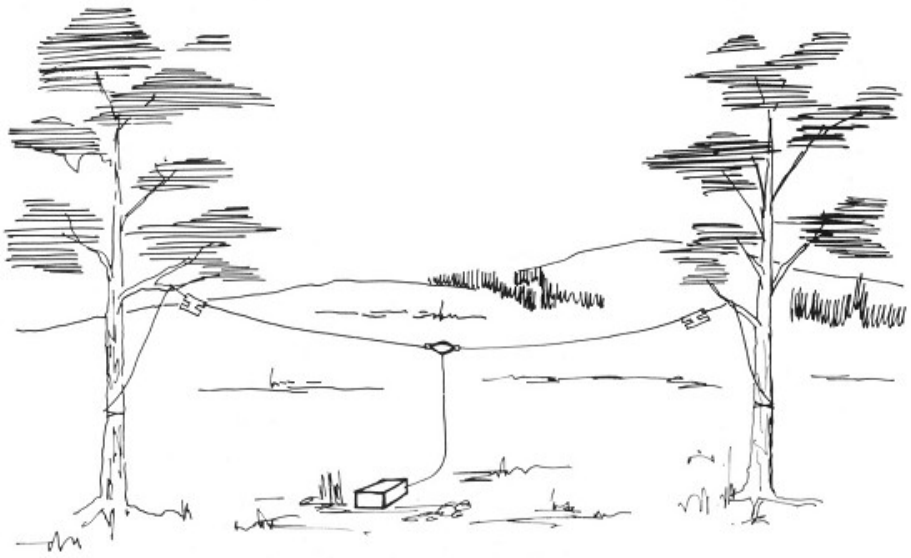
RFD 707 may be mounted on mast, tree, &c.

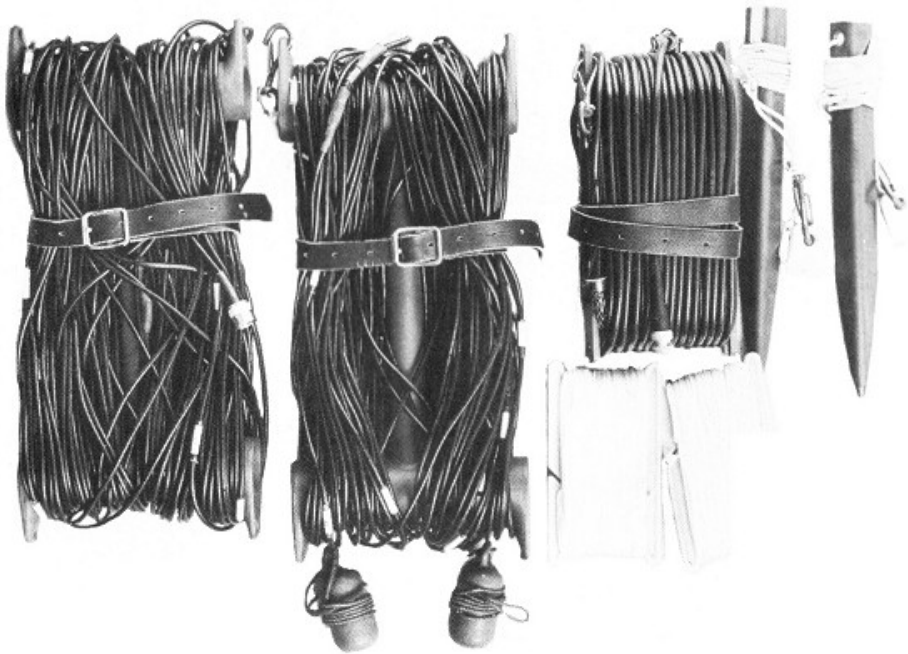
DATA

Frequency	30–80 MHz B
Maximum Power	100 W, 200 W, 1 kW
Impedance	50 ohm
VSWR	≦1.8:1
Type of terminal	BNC
Radiation	Directional
Polarization	Vertical
Gain in free space	+ 10 dB rel. quarter wave antenna
Front-to-back ratio	Typical > 15 dB
Weight	2 kg (wire, transformer and top rod)









ALLGON DD 738

A DIPOLE-DELTA antenna built chiefly for communications via the ionosphere. DD 738 can be set up as a dipole antenna or as a delta antenna.

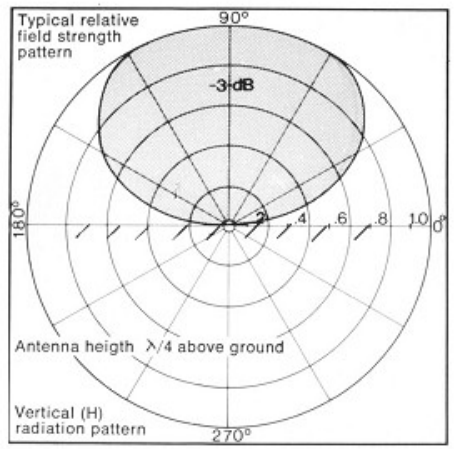
As a DIPOLE antenna, DD 738 can be tuned for desired frequency within the very broad frequency range 2–30 MHz. The accompanying hoisting cords permit raising or lowering the antenna to a point above ground most advantageous for the desired transmission distance. For instance, 1/4 of a wave length above ground for communications up to 250 km, and 1/2 wave length for communications 250–1000 km.

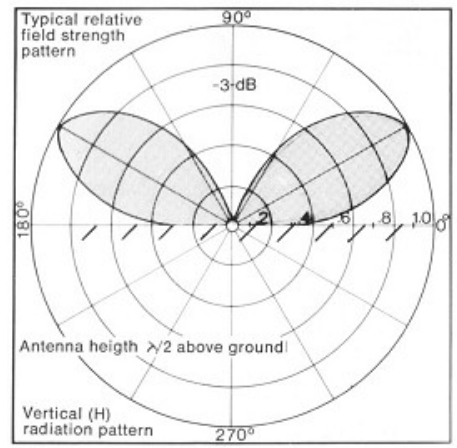
As a DELTA antenna, DD 738 yields optimum results between 2 and 15 MHz. The antenna is broad banded requiring no tuning, and is suitable for ionosphere communications over distances up to 250 km. Antenna DD 738 is made up of antenna cord with reel, moisture protected broad banded matching transformer, and feeder cable with reels. Hoisting cords for both uses are included. Antenna DD 738 is delivered appropriately packeted for field service.

DATA — Dipole and Delta

Frequency	
Dipole	2–30 MHz (narrow banded)
Delta	2–30 MHz B
Maximum Power	25 W
Impedance	50 ohm
VSWR	
Dipole	≦3:1 BW = 10%
Delta	≦3:1
Type of terminal	BNC
Radiation	Directional
Polarization	
Dipole	Horizontal
Delta	Vertical

Gain in free space	
Dipole	+ 2 dBi
Delta	Depends on frequency chosen
Weight	2.5 kg





ALLGON LD 459 SCOOBYDO Patent CB

This antenna is mainly intended for vertically polarized ground wave communications in the CB range. It can be carried in your pocket and is made up of a 5 meter antenna wire, matching transformer, and coaxial cable for connection to radio transmitter.

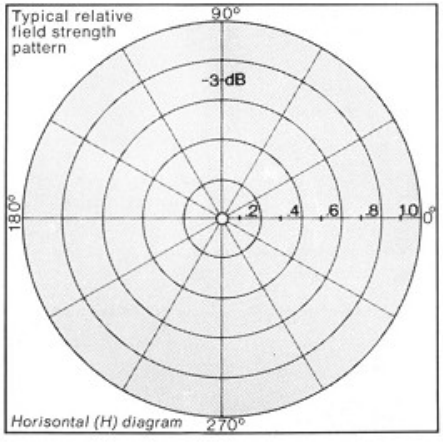
"Scoobydo" was designed as a supplement to portable radio sets with factory mounted telescopic antennas as is imparts + 12 dB over such telescopic antennas "Scoobydo" is a next to indispensable safeguard for operators in areas of great distances between the CB stations, such as hunting preserves, mountain regions, at sea, or on islands lacking base stations.

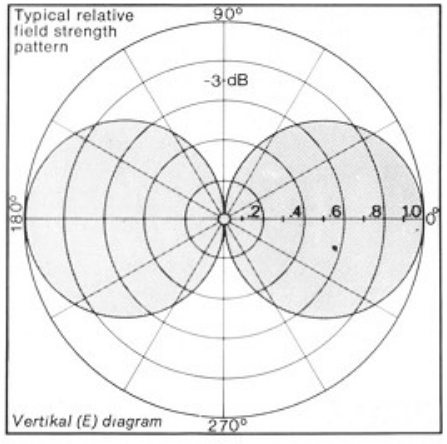
An increase in range of 4–10 times is possible by use of the "Scoobydo" antenna at both stations, verified among others by the Swedish Defence Establishment. The matching unit of the antenna is styled as a printed circuit.

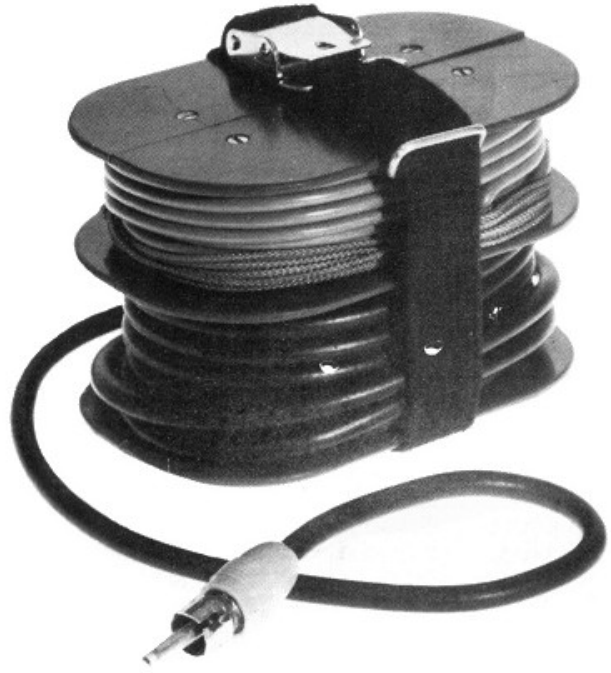
Patent has been applied for.

DATA

Frequency	26.5–28 MHz B
Maximum Power	50 W
Impedance	50 ohm
VSWR	$\leq$2:1
Type of terminal	PL 259, phonoplug
Radiation	Omnidirectional
Polarization	Vertical
Gain in free space	+ 10 dB to + 18 dB over standard telescopic antenna
Weight	280 g
Length	5 meters







Logarithmically periodic antennas for HF

ALLGON ANTENN AB has a well developed line of log-periodic short wave antennas. The Company's expertise in this field is amply documented world wide.

Antennas in this group are very broad banded covering 4—40 MHz. The most powerful type is used for 500 kW carrier + 100 % amplitude modulation with VSWR $\leqq$ 1.4:1 over the entire frequency range.

All of these antennas are available with rotation in azimuth. ALLGON's rotating joints permit rotation without end positions.

The antennas are intended for ionospheric communications. To achieve optimum radiation lobe of the antenna in the vertical plane, taking the desired transmission distance in consideration, the antenna is placed at the appropriate height above ground. If maintenance of the vertical diagram over the entire frequency range is desired, the antenna is placed at a given angle, vertex pointing downward.

Height of mast and inclination of antenna structure are computer calculated by ALLGON.

In the event a variable vertical diagram is desired the antennas are equipped with an elevation device permitting tilting mechanically between -35° and $+25^\circ$.

Owing to the broad-bandedness of the antenna the frequency schedule of the radio station may be altered at any time without disturbing the antenna set-up at all.

The log-periodic antennas have a typical gain of 15 dBi, including ground reflection.

ALLGON LP 601—620

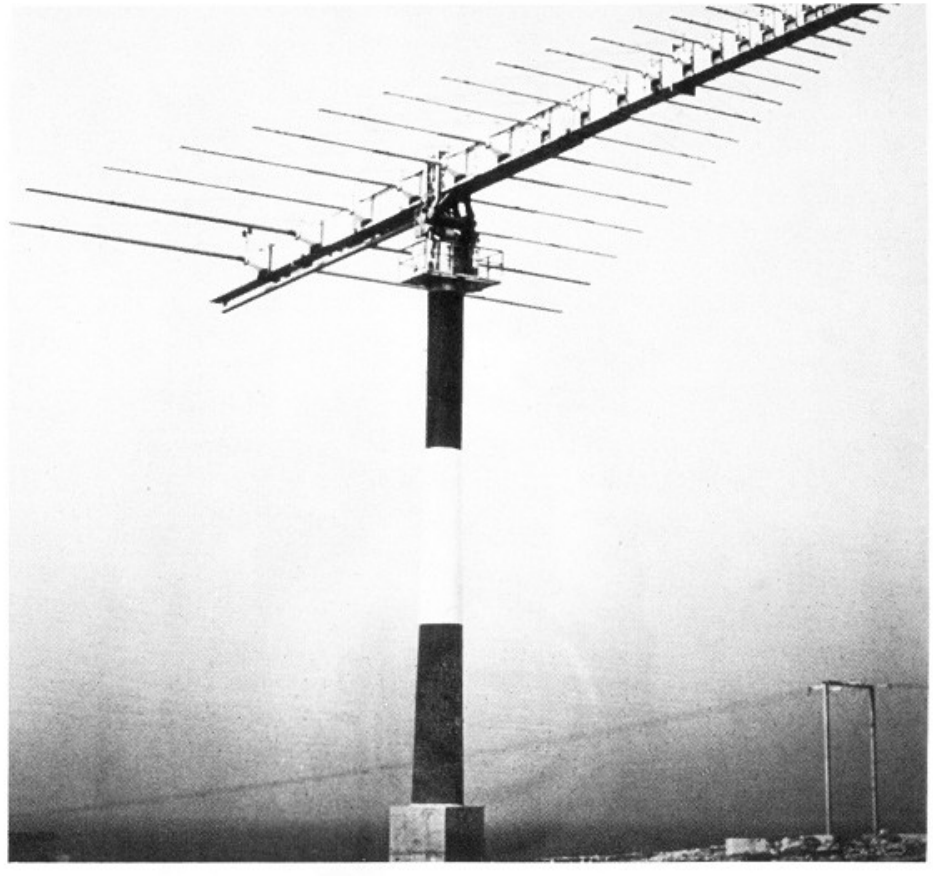
These maneuverable log-periodic antennas are intended for broadcasting and communications over medium and long distances in the HF range. They are designed for use in connection with transmitters for effects up to 500 kW carrier + 100 % AM modulation over frequency range 4—40 MHz.

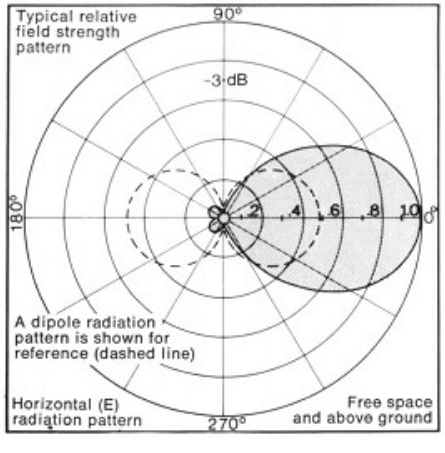
These antennas were developed with a view to swift and secure installation. All vital parts are pre-mounted at the factory. A complete instruction manual is supplied on delivery.

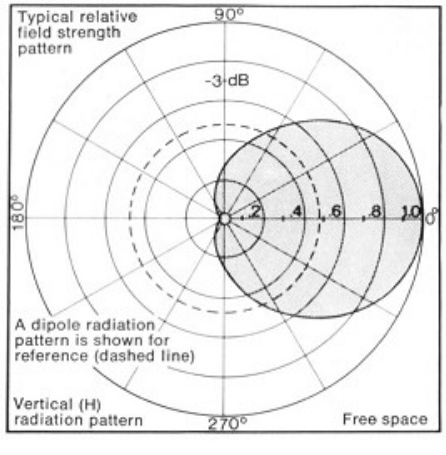
The antenna boom is tiltable permitting lobe forming to achieve optimum communication. The encased feeder system renders the antenna completely independent of climatic conditions.

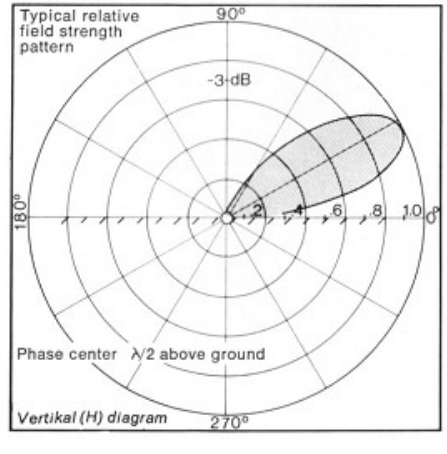
We furnish on request, data sheets and other documentation on antennas in this group.

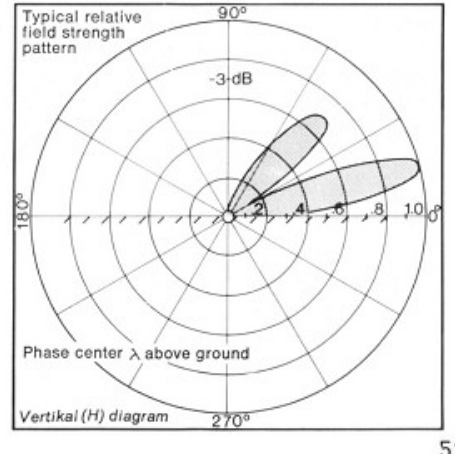
DATA Antennas		601	603	604	608	615	616	619	620
Frequency range	MHz	5.9—30	4—30	6—40	13—30	8—26	6—26	10—26	5.9—26
Maximum power	kW	500	30	30	2	10	10	2	100
Impedance	ohm	50	50	50	50	50	50	50	50
VSWR		<1.4:1	<1.7:1	<1.7:1	<2:1	<2:1	<2:1	<2:1	<1.7
Radiation		direct.	direct.	direct.	direct.	direct.	direct.	direct.	direct.
Polarization		horizont.	horizont.	horizont.	horizont.	horizont.	horizont.	horizont.	horizont.
Gain in free space	dBi	8	8	8	8	8	8	8	8
Gain over good ground	dBi	14	14	14	14	14	14	14	14
Length of boom		39.6	37.4	23.8	11	14.3	19.7	11	23.1
Longest dipole	m	26.1	37.5	25.4	11.6	19.1	25.5	16	26.1
Number of dipoles		18	20	20	12	14	17	12	17
Weight	kilo	9300	5000	1300	100	205	340	120	3900

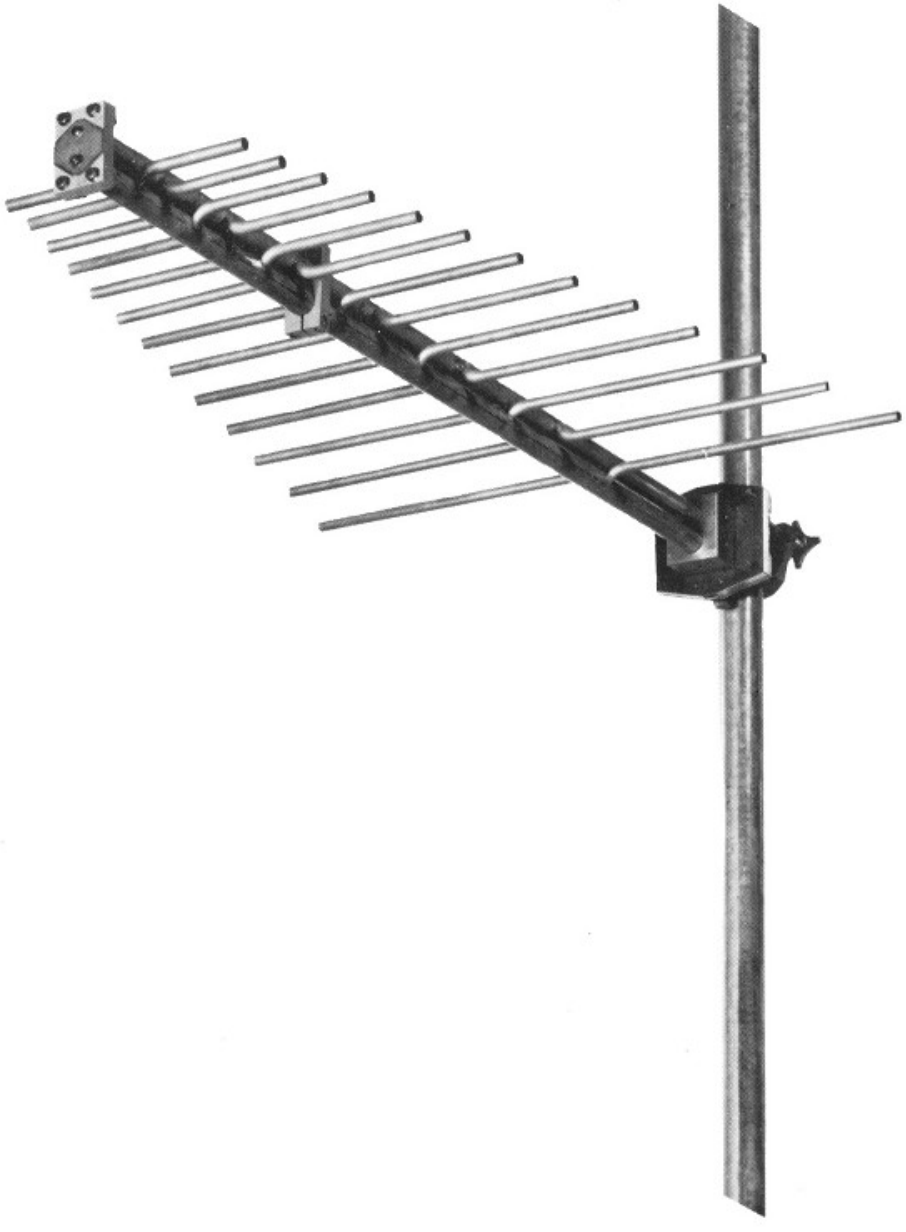












ALLGON LP 614 and LP 614×2

LP 614 is a 13-element log-periodic directional antenna. Its rugged structure renders it suitable for stationary as well as mobile use. When intended for mobile use the antenna may be equipped with protective cover of glass fiber reinforced plastic.

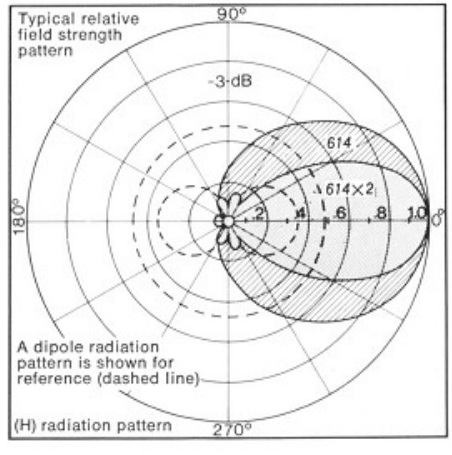
The antenna is made of aluminum alloy and consists of a number of half wave dipoles mounted on a balanced transmission line also serving as antenna boom. Feeding takes place in the front part of the antenna through an unbalanced feeder cable inside one of the balanced boom tubes. The structure works as a frequency-independent or infinite balun transformer. Water, ice, and snow will have little effect on the electrical functions of LP 614 owing to its broad-bandedness.

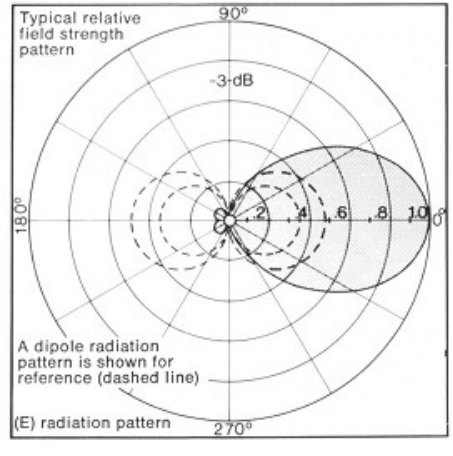
LP 614×2 is mainly intended for stationary installation. The antenna is made up of two stacked LP 614s, but the specially constructed stacking unit permits mobile use as well.

The angle between the two component log-periodic antennas is calculated to maintain ideal radiation diagram and good gain over the entire frequency range of the antenna covering nearly an octave.

DATA LP 614 and LP 614×2

Frequency	
LP 614	220–410 MHz B
LP 614×2	220–410 MHz B
Maximum Power	
LP 614	50 W
LP 614×2	100 W
Impedance	50 ohm
VSWR	≦1.6:1
Type of terminal	Optional
Radiation	Directional
Polarization	Vertical alt. horizontal
Gain in free space	
LP 614	+ 8 dBi
LP 614×2	+ 11 dBi
Front-to-back ratio	Typical > 20 dB
Weight (singly)	3.6 kg
Length (singly)	1290 mm
Width/circumference	685 mm
Base	Max. Ø 60 mm





ALLGON Argus 868

A completely new type of tuning indicator, mainly intended for mobile antenna radiators, to be used instead of an expensive VSWR meter. ARGUS can easily be fitted to the antenna radiator and allows tuning of the antenna right where it is installed.

ARGUS contains a small panel instrument. The sensitivity can easily be adjusted by means of a knob. ARGUS is broadbanded and is particularly well suited for mobile antennas on the 27 and 29 MHz bands, but can also be used throughout the whole VHF range.

The unit is small and handy, which simplifies its fixing to and removal from the antenna radiator. Thanks to the design of the instrument and the lack of cables. ARGUS will not affect the resonance frequency of the antenna while tuning.

ALLGON filter 869 for 27 MHz

Allgon filter permits the CB antenna to be used simultaneously as a CB antenna and AM/FM radio antenna. The filter attenuates the power from CB transmitter from reaching and damaging the car radio. The transmission loss to the CB antenna is however negligable.

Boat owner can with help of the filter and a CB antenna, for instance Allgon MA 450, get an excellent antenna for long wave, medium wave, short wave and ultra short wave to his AM/FM radio receiver.

The filter is fitted with all necessary cables and connectors.

DATA for CB unit

Frequency range	26.8–27.6 MHz
VSWR	$\leqq$1.5:1
Maximum Power	20 W
Transmission loss CB to antenna	$\leqq$0.25 dB

DATA for AM/FM car radio

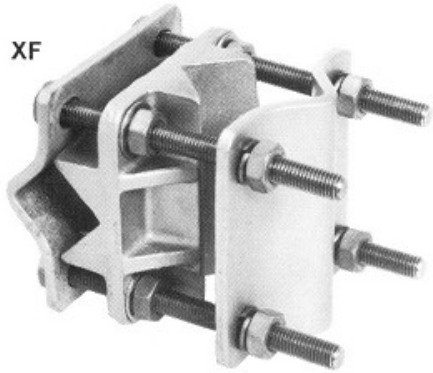
Transmission loss antenna to AM/FM radio 100 kHz–100 MHz	$\leqq$0.25 dB
Attennuation CB to AM/FM receiver	$>$40 dB

Mastbrackets
Rotary joints
Corona device

X-brackets

The following hot-dip galvanized items equipped with stainless steel bolts and washers, are intended to support yagi antennas as well as ground plane antennas and dipoles. X-clamps can also be useful, when arranging systems with horizontal and vertical supports. Clamps are available for antenna and mast dimensions from 30 mm to 216 mm.

XF 271 60×60 cm
XF 272 60×120 mm
XF 273 60×120/216 mm
XF 274 120×120/216 mm



Adjustable brackets

ALLGON MF 282

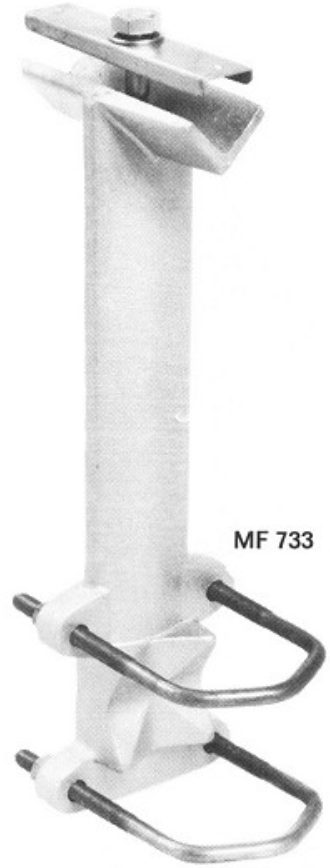
MF 282 is casted in light metal alloy and is equipped with stainless steel accessories. MF 282 fits antenna types GP 404 A and GP 404 G. Maximum mast diameter 60 mm. Feeding cable may pass inside as well as outside of the mastpipe.

ALLGON MF 290

Smaller than MF 282. MF 290 is available in two versions: for GP 443 and GP 447 alternatively.

ALLGON MF 733

Bracket for yagi antenna YD 733. The bracket consists of a very strong 300 mm long supporting arm of light metal alloy casting with a cross bracket, making it possible to mount the antenna either for vertical or horizontal polarization. The mounting can be made on side of the mast, on a extended arm on side of the mast or on the top tube.



ALLGON Rotary joints

As a corollary to the manufacture of large, log-periodic antennas ALLGON ANTENN AB has designed a series of rotary joints for various powers. Because of their gas and moisture proof construction, and due to the great care exercised in the choice of material and surface treatment they require no maintenace. A maximum internal overpressure of 5 atmosphere gauge is allowed for.

Type	Maximum power at kW	MHz	Impedance	VSWR	Connector
828	30	40	50	1.03	Spinner 21/48
829	30	40	50	1.03	EIA 15/8"
830	30	40	50	1.03	EIA 15/8"
831	30	40	60	1.03	Spinner 21/48 Spinner 18/48
834	100	40	60	1.03	4 1/2" Allgon
835	250	30	50	1.03	8" Allgon
836	500	30	50	1.03	10" Allgon

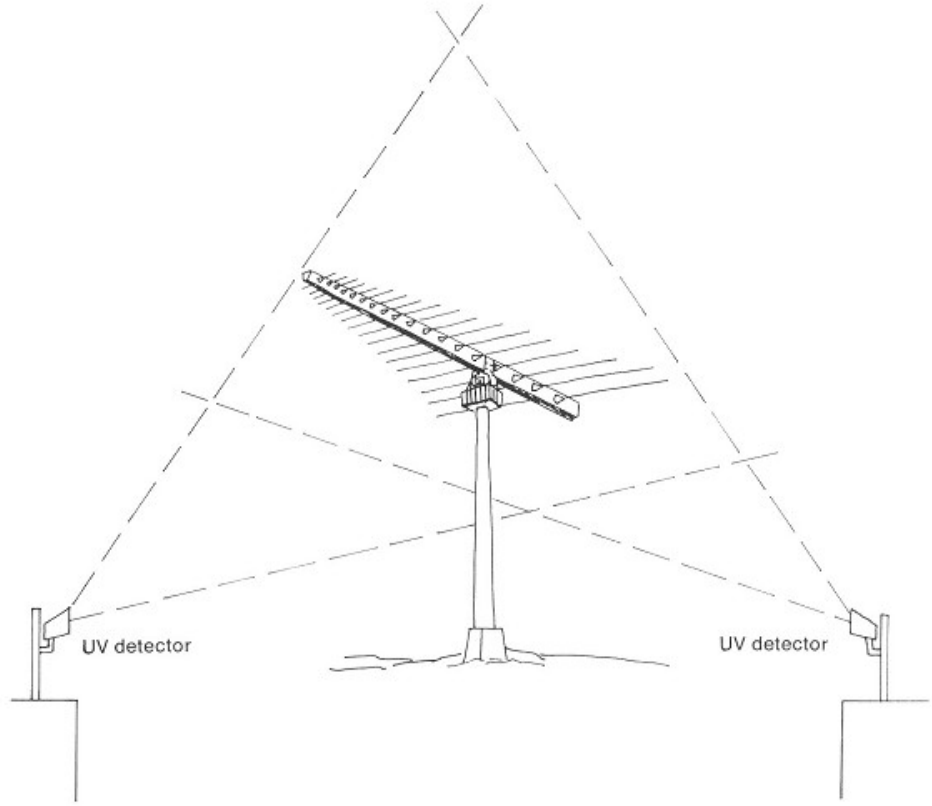
ALLGON Corona Detection and flash-over detection system

At transmitter powers of and above 100 kW electrical discharges in form of corona and flash-over can appear in the output stage of the transmitter, in the feeding system and in the antennas. Allgon's corona and flash-over detecting system is intended to discover beginning corona and flash-over and protecting valuable equipment from serious damage.

The system consists of UV-detectors connected to a control unit. The detectors are placed where risk for corona and flush-over exists. At an impulse from the detectors the control unit gives a signal to, for example, an automatic power reduction unit in the transmitter.

The UV-detectors react very rapidly as soon as the slightest corona or flash-over is visible, but are insensitive to sunlight.

Due to the fast reaction of the corona system serious damage in the transmitter and the antenna system can be avoided.



Example of corona and flash-over detector system

CROSS INDEX

Chartexplanation

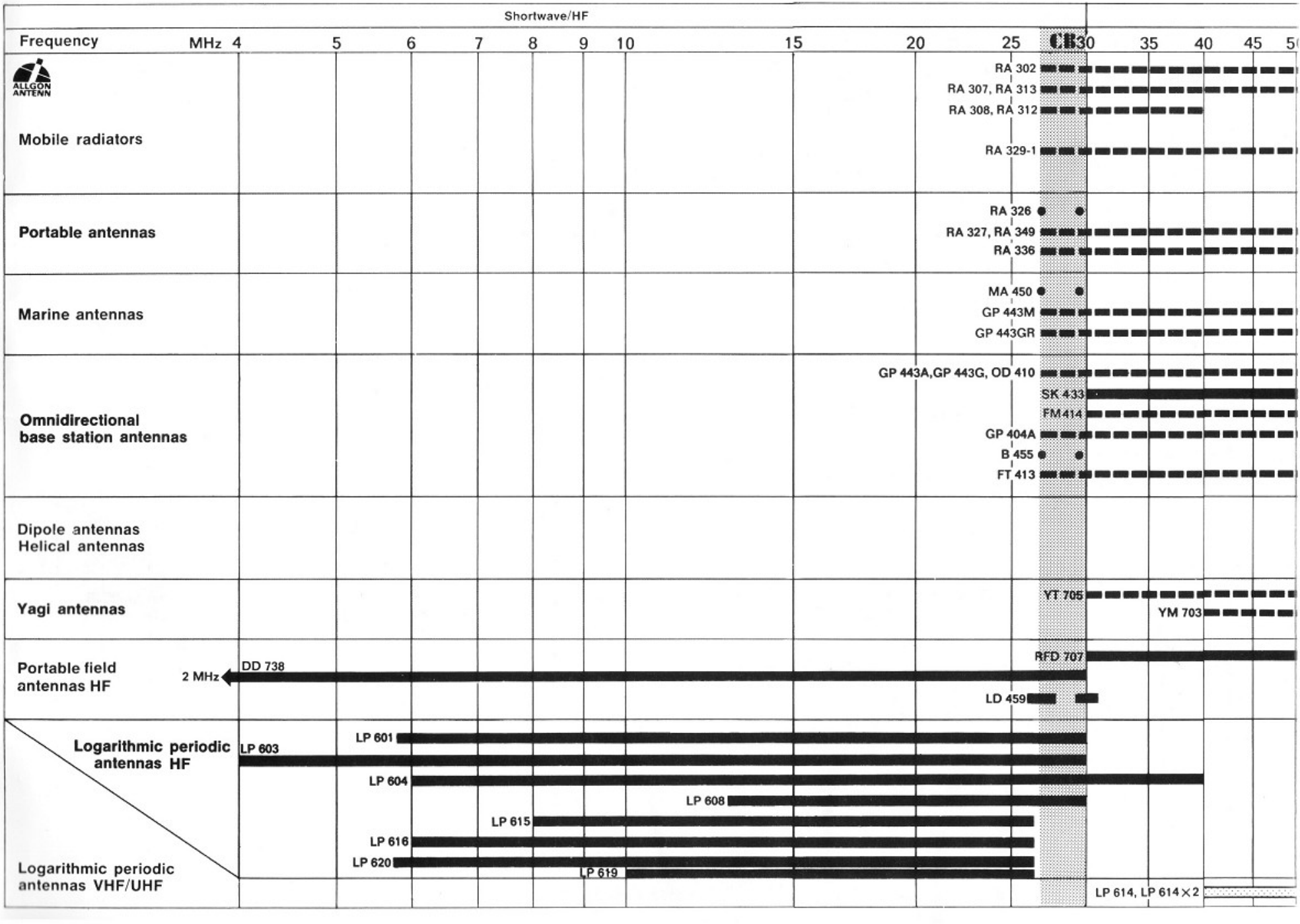
▬▬ means broadband (B) antenna covering the whole stated frequency range.

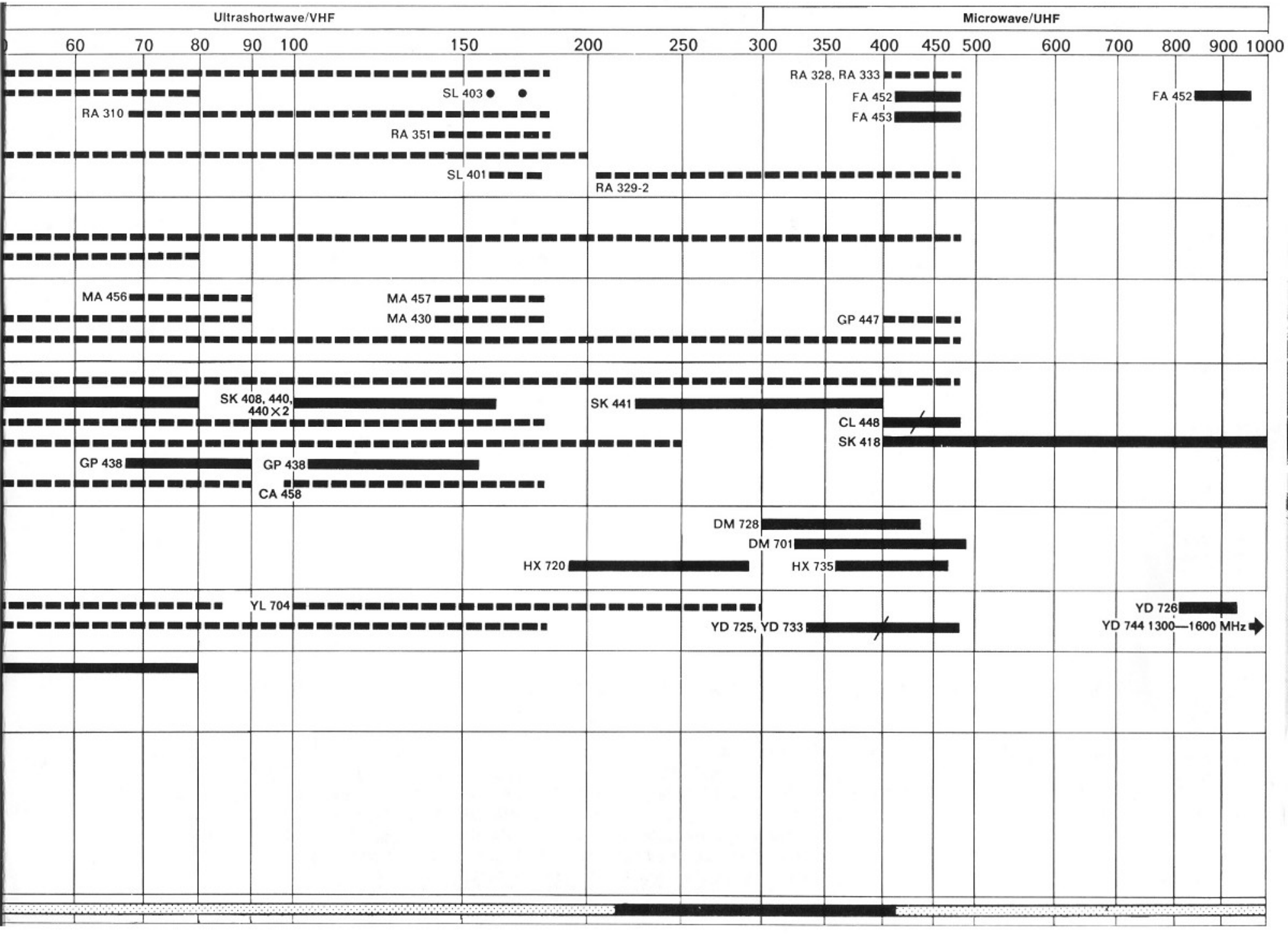
▬ ▬ ▬ means narrow band antenna, that simply can be tuned to desired frequency within stated frequency range.

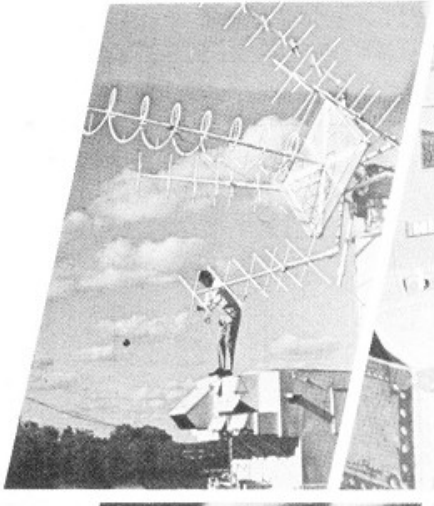
● means narrow band antenna on stated frequency.

▭ antenna LP 614 can be chosen for desired frequency range within 200—1000 MHz (standard version 220—410 MHz).

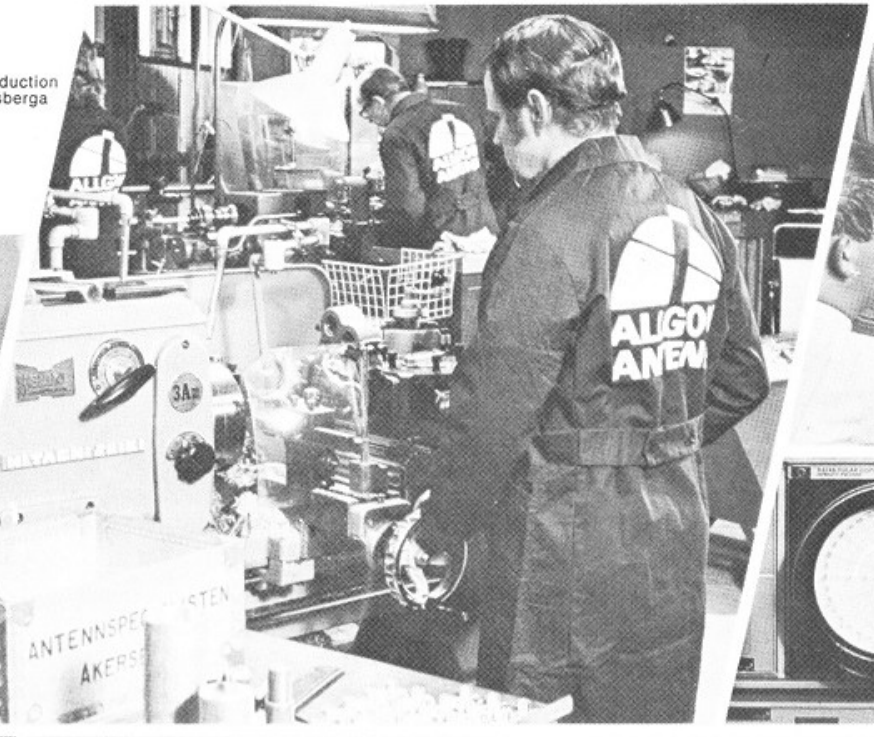
layout and original Tommy Holmberg Reklamproduktion
printing Tryckab, Halmstad and Zäta Tryckerierna, Linköping

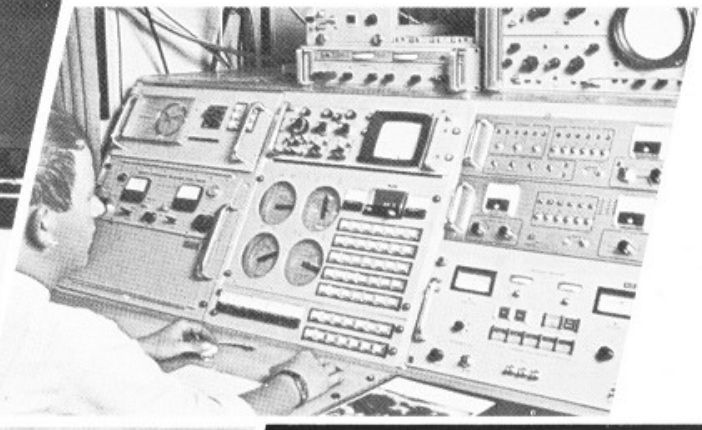

Shortwave/HF
Frequency
MHz 4 5 6 7 8 9 10 15 20 25 CB 30 35 40 45 5
ALLGON ANTENN
Mobile radiators
RA 302
RA 307, RA 313
RA 308, RA 312
RA 329-1
Portable antennas
RA 326
RA 327, RA 349
RA 336
Marine antennas
MA 450
GP 443M
GP 443GR
Omnidirectional base station antennas
GP 443A,GP 443G, OD 410
SK 433
FM 414
GP 404A
B 455
FT 413
Dipole antennas
Helical antennas
Yagi antennas
YT 705
YM 703
Portable field antennas HF
2 MHz
DD 738
RFD 707
LD 459
Logarithmic periodic antennas HF
LP 603
LP 601
LP 604
LP 608
LP 615
LP 616
LP 620
LP 619
Logarithmic periodic antennas VHF/UHF
LP 614, LP 614×2

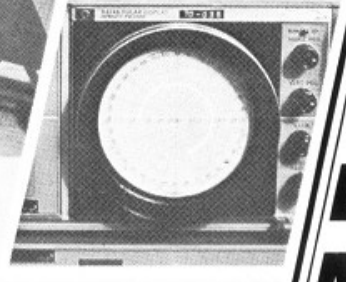

Ultrashortwave/VHF
Microwave/UHF
60
70
80
90
100
150
200
250
300
350
400
450
500
600
700
800
900
1000
SL 403
RA 310
RA 351
SL 401
RA 329-2
RA 328, RA 333
FA 452
FA 453
FA 452
MA 456
MA 457
MA 430
GP 447
SK 408, 440, 440×2
SK 441
CL 448
SK 418
GP 438
GP 438
CA 458
DM 728
DM 701
HX 720
HX 735
YL 704
YD 726
YD 725, YD 733
YD 744 1300—1600 MHz



Interior from the production unit in Åkersberga

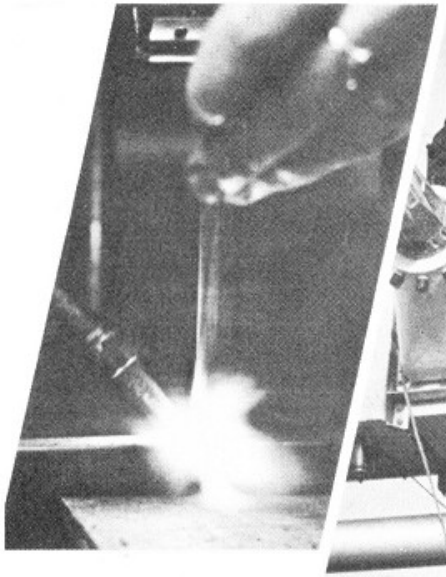


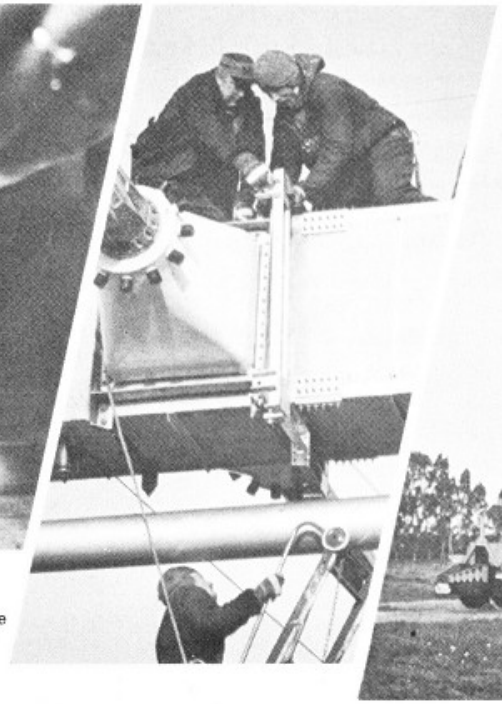




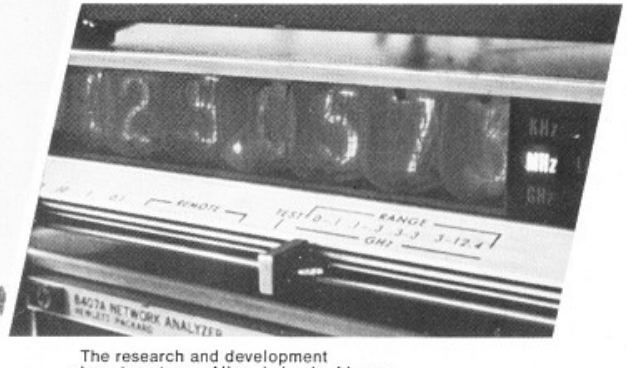
Research Development Manufacture

Allgon Antenn AB is the leading company in its field in Scandinavia. We are equipped with the most modern instrumentation on the market and the product research and development is made in two directions: continuous development of new antennas for our own antenna program and development of special antennas in close co-operation with particular customer



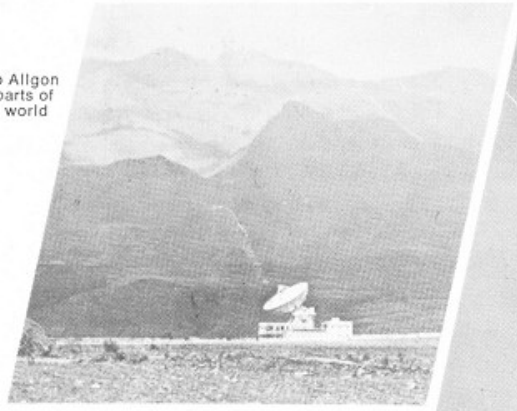


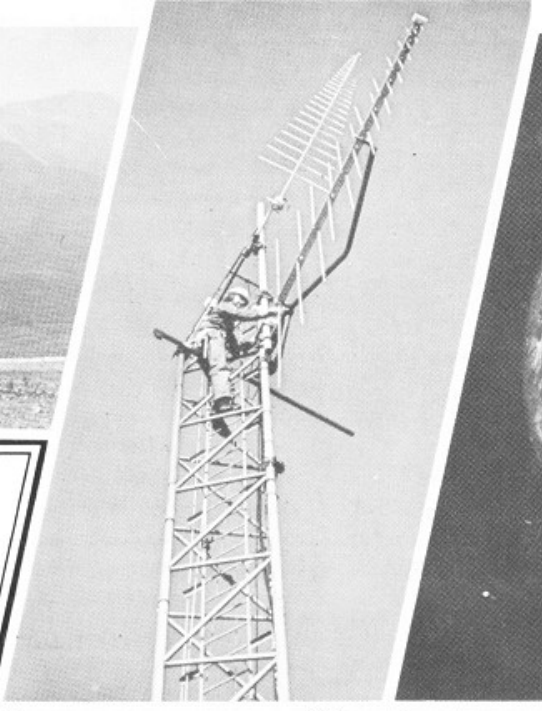
Mounting and installation of the 500 kW short wave antenna LP 601



The research and development departments are Allgon's bank of knowledge in antennas and electronics

Commissions to Allgon come from many parts of the world

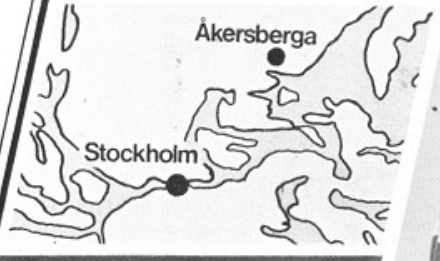




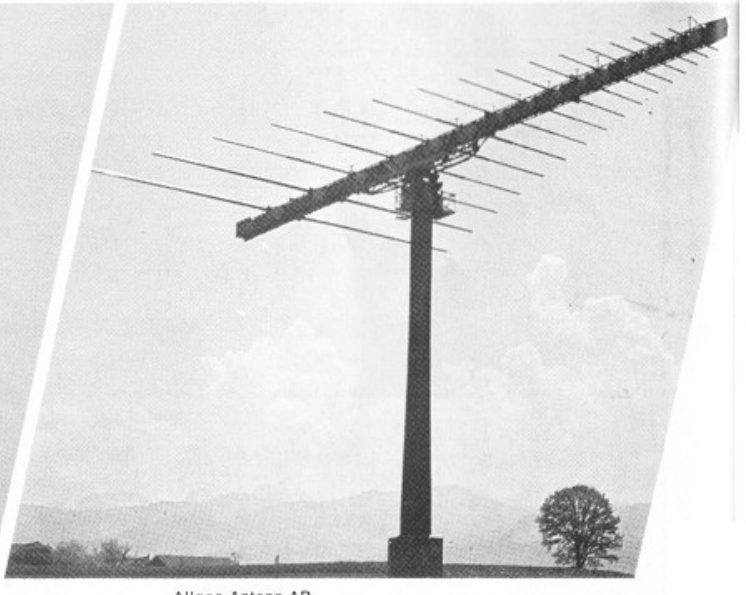
Satellite picture of the earth transmitted via micro wave to ground station (Hasselblad/Kodak)

ALLGON ANTENN AB

Mail: ALLGON ANTENN AB,
S-184 00 Åkersberga, Sweden
Phone: 0764-601 20
Telex: 10967 allgon S
Cable: allgonaerials stockholm



Mobile radio communication via Allgon KA 3033 magnetic antenna



Allgon Antenn AB supplies antennas for different needs of communication