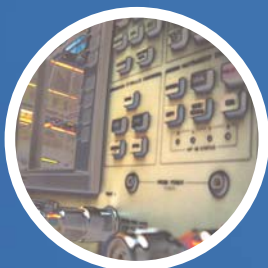


Skymasts

...sending the right signals worldwide



cellular enhancement systems

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Indoor Cellular Enhancement Systems



A General Overview

Skymasts cellular enhancement systems offer their customer a fully flexible solution to offices and buildings with little or no cellular coverage. Utilising a simple but well designed repeater system, reliable cellular communications can be effected into areas ranging from a single office to large office buildings and public centres. This system is ideal for small to medium sized businesses in rural areas, shopping centres, conference centres, hotels and underground rooms.

Skymasts offer a professional survey and installation service to ensure that you get the best performance from your repeater equipment.

- ✔ Provides cellular coverage for any indoor location
- ✔ Ideal for conference centres, office buildings and shopping centres
- ✔ Excellent for small - medium sized businesses in rural locations
- ✔ Low cost - low maintenance solution
- ✔ Professional survey & installation service
- ✔ Flexible system - adjustable and adaptable for changing requirements
- ✔ Available for Vodafone, O2, Orange and T-Mobile Networks

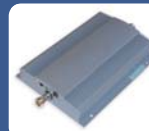
indoor cellular booster kit



7161 Series
Lightweight high gain directional donor antenna - used to communicate with the cellular operator's broadcasting site.



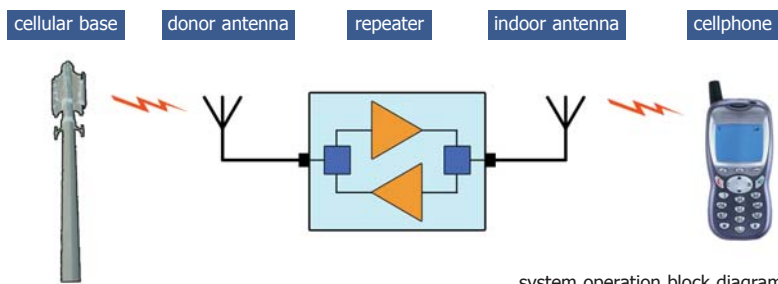
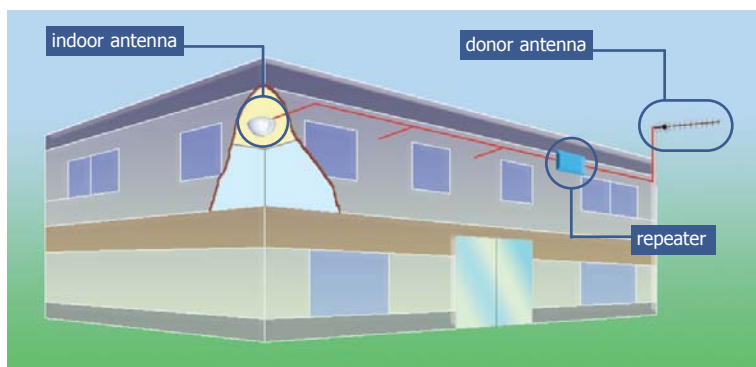
7336 Series
Multiband indoor antenna - a discreet, attractive indoor antenna used to increase coverage within the building.



TG Series
A cost effective and reliable cellular signal repeater - amplifies the mobile signal received by the indoor and outdoor antennas. Fully adjustable to ensure optimum operation in any situation.

how the system works..

At the heart of the system is the TG cellular **repeater**. This contains two RF (Radio Frequency) amplifiers - one magnifies the signal received by the **donor antenna** (a high gain aerial pointing to the cellular operator's base site), and sends it to the **indoor antenna**; the other magnifies the signal from the indoor antenna (sent from your phone) so that it can reach the base site.



The **donor antenna** is highly directional, which means it will concentrate its transmission and reception in the direction of the cellular base site avoiding unwanted interference. The **indoor antenna** is omnidirectional, which means it radiates equally in all directions - ideal for in building coverage.

TG Series

Gain Adjustable Repeaters for GSM900, DCS1800, CDMA



The TG series of repeaters are a cost effective and reliable solution for in building cellular coverage enhancement. These stylish, compact repeaters are easy to install and feature adjustable gain for both uplink and downlink. Up to 10 internal antennas may be powered from one device. The TG series are available for GSM900, DCS1800, iDEN and CDMA networks.

electrical and mechanical specifications

	TG-900	TG1800		TG806	TG824
		A	B		
Frequency range					
Uplink	890-915MHz	1710-1755MHz	1750-1785MHz	806-821MHz	824-849MHz
Downlink	935-960MHz	1805-1850MHz	1845-1880MHz	851-866MHz	869-894MHz
Bandwidth	25MHz	45MHz	35MHz	15MHz	25MHz
Gain			>60dB		
Gain adjustment			0-20dB		
Guard band rejection			>70dB		
Gain flatness			±2.5dB		
Output power	28dBm	25dBm	25dBm	28dBm	28dBm
Spurious			-36dBm		
Return loss			>10dB		
Noise Figure			<8dB		
Temperature			+5C - +50C		
Weight			2.5Kg		
I/O port			'N' Female		
Impedance			50 Ohms		
Dimensions (LxWxD)			210 x 140 x 40mm		
Material			Aluminium alloy		
Standard Accessories	Switching adaptor (Input 110-240VAC Output DC12V 2A), adjustment tool				

associated products



7161 Series

GSM / PCN lightweight yagi antenna

The 7161 Yagis are a lightweight low cost solution for signal enhancement within 900MHz and 1800MHz Cellular bands. The 7161 antenna range are widely used for network signal enhancement and rural telephony applications. The antenna is supplied with a ten metre downlead, mounting bracket to suit up to 60mm tube and mounting instructions. The antennas are fully weatherproof and well suited to either domestic or commercial applications.

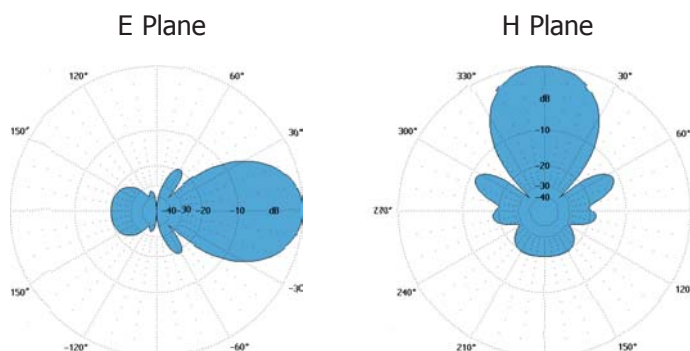
electrical and mechanical specifications

Frequency range	7161.3 790-960 MHz 7161.4 1710-1880MHz
Input Impedance	50 Ohms
Return Loss	<2.0:1
Front to Back Ratio	18 dB
Maximum Input Power	50 Watts
Polarisation	Vertical & Horizontal
Forward Gain	10 dBd.
3 dB Beamwidth	E Plane 43° H Plane 50°
Connection	10m Length of Low Loss Cable (RG58 Equivalent) with FME Female
Elements	5/16" x 1/8" Aluminium
Balun	Printed Circuit FR4 (Lacquered)
Support Boom	15mm ² x 1mm wall Aluminium box tube
Fasteners	1/8" Aluminium Rivets
Lightning protection	Direct Grounded
Corrosion Protection	Alochrome 12000
Mounting Brackets	1763/SLCL (supplied)
Typical Weight	GSM 300g PCN 250g (not including cable)
Typical Length	GSM 0.8 m PCN 0.46 m



Free Space Radiation Patterns

(ASCII Files available upon request)



7161 Series

High Gain GSM / PCN lightweight yagi antenna

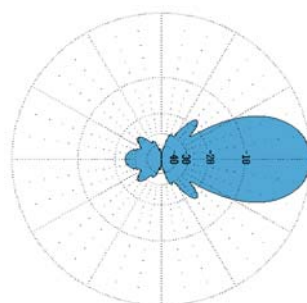
The 7161 Yagis are a lightweight low cost solution for signal enhancement within 900MHz and 1800MHz Cellular bands. The 7161 antenna range are widely used for network signal enhancement and rural telephony applications. The antenna is supplied with a ten metre downlead, mounting bracket to suit up to 60mm tube and mounting instructions. The antennas are fully weatherproof and well suited to either domestic or commercial applications.

electrical and mechanical specifications

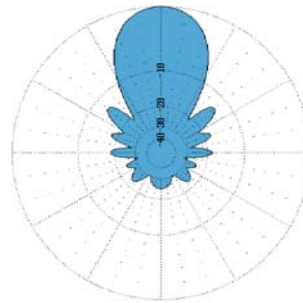
Frequency range	7161.31 790-960 MHz
	7161.41 1710-1880MHz
Input Impedance	50 Ohms
Return Loss	<2.0:1
Front to Back Ratio	20 dB
Maximum Input Power	50 Watts
Polarisation	Vertical & Horizontal
Forward Gain	12 dBd.
3 dB Beamwidth	E Plane 34° H Plane 40°
Connection	10m Length of Low Loss Cable (RG58 Equivalent) with FME Female
Elements	5/16" x 1/8" Aluminium
Balun	Printed Circuit FR4 (Lacquered)
Support Boom	15mm ² x 1mm wall Aluminium box tube
Fasteners	1/8" Aluminium Rivets
Lightning protection	Direct Grounded
Corrosion Protection	Alochrome 12000
Mounting Brackets	1763/SLCL (supplied)
Typical Weight	GSM 345g PCN 310g (not including cable)
Typical Length	GSM 1.1 m PCN 0.69 m



E Plane



H Plane



Free Space Radiation Patterns

(ASCII Files available upon request)

Multiband Indoor Antenna

The 7336 is a compact, stylish and efficient indoor antenna designed for use in cellular repeater systems. It's ingenious radiator design allows for incredibly broadband operation making the antenna suitable for use within any cellular network. It's design makes for a discreet installation in any modern office complex, and the antenna is simple to install with the minimum of fuss.

electrical and mechanical specifications

<i>Frequency range</i>	806 - 960 MHz, 1420 - 2400MHz
<i>Input Impedance</i>	50 Ohms
<i>VSWR</i>	<2.0:1
<i>H Plane Ripple</i>	<7 dB
<i>Maximum Input Power</i>	40 Watts
<i>Polarisation</i>	Vertical
<i>Forward Gain</i>	0 dBd.
<i>IM3 (2 x Tx @ 43dBm)</i>	<107 dB
<i>Connection.</i>	'N' Type socket
<i>Radiator</i>	Brass, silver plated
<i>Typical Size (mm)</i>	65 x 185
<i>Typical Weight</i>	<200g

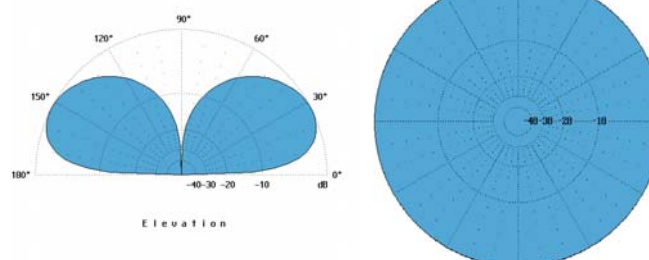


E Plane

H Plane

Free Space Radiation Patterns

(ASCII Files available upon request)



Ground Plane Antenna

The 447 Series are quarter wave and 3dB radiators complete with ground planes. The radiators are manufactured from plastic coated stainless steel rod, and the ground planes pvc coated stainless steel rope. At UHF, the radiators are adjustable on site to produce best performance. The 447 has an integral mounting bracket to suit fitting directly on a 1" diameter pole, and mast brackets are also available to suit up to 60mm. diameter masts.

electrical and mechanical specifications

Frequency range	447.01.05.00 380-470 MHz 447.02.05.00 380-470 MHz 447.06.05.00 870-960 MHz
Input Impedance	50 Ohms
Bandwidth	± 5% of Centre Frequency
VSWR	<2:1
Maximum Input Power	50 Ohms
Polarisation	Vertical
Forward Gain	447.01 / 06.05.00 3 dBd 447.02.05.00 0 dBd
3 dB Beamwidth	447.01/06.05.00 40° typical 447.02.05.00 80° typical
Connection	'N' type socket.
Elements	Radiator – Stainless Steel Rod coated black Ground Planes – PVC Covered Stainless Steel Rope
Fasteners	Stainless Steel Grade A2-70
Mounting Brackets	Aluminium Alloy with Alocrome 1200 finish to suit 1" dia. pole
Typical Weight	UHF 185g GSM 140g
Typical Length	UHF 620mm GSM 335mm
Optional Mounting Bracketry	290.01 Mast Adaptor

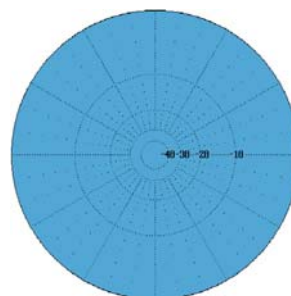
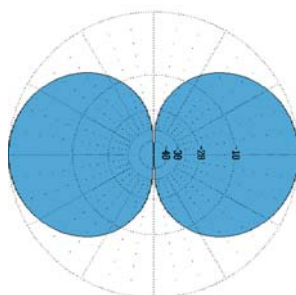


E Plane

H Plane

Free Space Radiation Patterns

(ASCII Files available upon request)



790 - 2400MHz Broadband Shrouded Log Periodic Antenna

The 734 series of antennas have been designed with high quality fixed link applications in mind. They are characterised by outstanding electrical and mechanical performance. The high quality PTFE printed circuit feed and element train offers outstanding reliability and allows for extremely wide band operation. The robust design of the 734 which includes drainage and ventilation capabilities make these antennas ideally suited for use in all environments and weather conditions. A tough corrosion proof integral aluminium cast clamp allows for accurate horizontal or vertical mounting with a lifting eye to ease site installation. The antenna is protected by a radome made of high quality fire retardant polyurethane to offer excellent weather protection and compliance for in – building or tunnel applications.

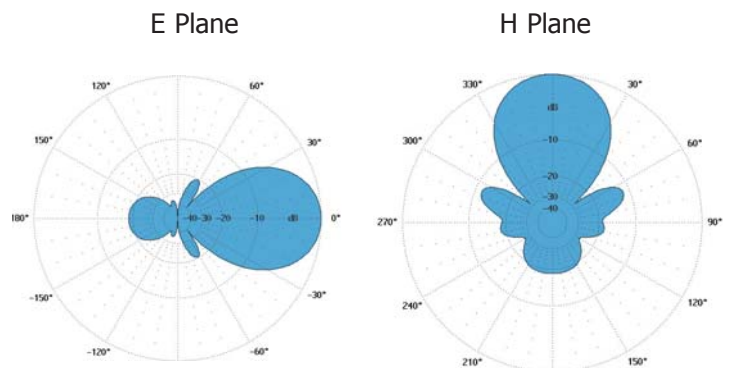
electrical and mechanical specifications

<i>Frequency range</i>	790 - 2400MHz
<i>Input Impedance</i>	50 Ohms
<i>VSWR</i>	>2.5:1
<i>Front to Back Ratio</i>	30 dB
<i>Maximum Input Power</i>	250 Watts
<i>Polarisation</i>	Vertical & Horizontal
<i>Forward Gain</i>	12dBi
<i>3 dB Beamwidth</i>	E Plane 45° H Plane 51°
<i>Connection</i>	734.02.05.** N socket 734.02.33.** 7/16 socket
<i>Radiator</i>	ptfe Printed Circuit
<i>Radiator Feed</i>	UT141 Semi Rigid Cable
<i>Antenna Base</i>	Sandcast Aluminium Alloy Grade LM25
<i>Radome</i>	Fire retardant Polyurethane Moulding
<i>Fasteners</i>	Stainless Steel Grade A2-70
<i>Lightning protection</i>	Direct Grounded
<i>Mounting Brackets</i>	Hot Dip Galvanised Steel
	734.02.**.00 38 - 60mm. dia.
	734.02.**.12 38 - 120mm. dia.
<i>Typical Weight</i>	6 kg (inc. clamp)
<i>Typical Length</i>	1.3 m
<i>Typical Wind loading @ 45m/s</i>	202 N



Free Space Radiation Patterns

(ASCII Files available upon request)



900MHz - 2.4GHz shrouded yagi

The 744 series of antennas have been designed with high quality fixed link applications in mind. They are characterised by outstanding electrical and mechanical performance. The high quality PTFE printed circuit feed and element train offers outstanding reliability and allows for extremely wide band operation. The robust design of the 744 which includes drainage and ventilation capabilities make these antennas ideally suited for use in all environments and weather conditions. A tough corrosion proof integral aluminium cast clamp allows for accurate horizontal or vertical mounting with a lifting eye to ease site installation. The antenna is protected by a radome made of high quality fire retardant polyurethane to offer excellent weather protection and compliance for in – building or tunnel applications. Available for GSM, PCN, PCS and microwave fixed link applications.

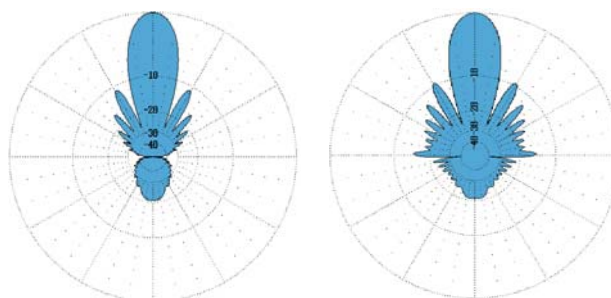
electrical and mechanical specifications

<i>Frequency range</i>	744.01 790 - 960 MHz
	744.05 1000 - 1100 MHz
	744.02 1300 - 1560 MHz (<i>MPT1717 Class 2 fig. 3</i>)
	744.03 1700 - 1900 MHz
	744.06 1900 - 2170 MHz
	744.07 2385 - 2500 MHz
<i>Input Impedance</i>	50 Ohms
<i>Return Loss</i>	> 15 dB
<i>Front to Back Ratio</i>	20 dB
<i>Maximum Input Power</i>	250 Watts
<i>Polarisation</i>	Vertical & Horizontal
<i>Forward Gain</i>	744.01/05 15 dBi. 744.02/03/06/07 17 dBi
<i>3 dB Beamwidth</i>	E Plane 01 37° 02/03 23° H Plane 01 39° 02/03 26°
<i>Connection</i>	744.0*.05.** N socket 744.0*.33.** 7/16 socket
<i>Radiator</i>	ptfe Printed Circuit
<i>Elements.</i>	Aluminium Alloy
<i>Radiator Feed</i>	RG400 Coaxial Cable
<i>Antenna Base</i>	Sandcast Aluminium Alloy Grade LM25
<i>Radome</i>	Fire retardant Polyurethane Moulding
<i>Fasteners</i>	Stainless Steel Grade A2-70
<i>Lightning protection</i>	Direct Grounded
<i>Mounting Brackets</i>	Hot Dip Galvanised Steel
	744.0*.**.00 38 - 60mm. dia.
	744.0*.**.12 38 - 120mm. dia.
<i>Typical Weight</i>	6 kg (inc. clamp)
<i>Typical Length</i>	1.3 m
<i>Typical Wind loading @ 45m/s</i>	202 N



E Plane

H Plane



Free Space Radiation Patterns

(ASCII Files available upon request)

726 series

900MHz - 2.4GHz shrouded yagi

The 726 SHF yagi is based on the successful 744 range, offering a directive solution for long range SHF fixed links. The "aircraft wing" geometry of the radome minimises wind area. The use of a PTFE printed circuit feed allows wide band operation, and increases antenna power handling capability. The antenna radome is manufactured from fire retardant material. The radome protects the antenna from severe weather conditions, reduces precipitation noise, and deters the formation of ice.

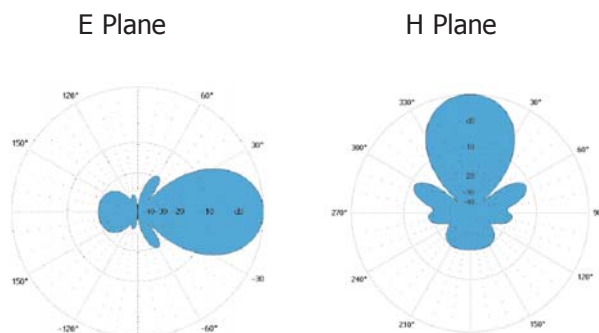
electrical and mechanical specifications

Frequency range	726.01 870-960 MHz 726.02 1200-1600 MHz 726.03 1700-1900 MHz 726.07 2300-2500 MHz
Input Impedance	50 Ohms
Return Loss	>14 dB
Front to Back Ratio	20 dB
Maximum Input Power	250 Watts
Polarisation	Vertical & Horizontal
Forward Gain	726.01 11dBi 726.02/03 13 dBi 726.07 15dBi
Typical 3 dB Beamwidth	E Plane 41° H Plane 47°
Connection	726.0*.05.** N socket 726.0*.33.** 7/16 socket
Radiator	ptfe Printed Circuit
Elements	Aluminium Alloy
Radiator Feed	Semi Rigid Coaxial Cable
Antenna Base	Sandcast Aluminium Alloy Grade LM25
Radome	Fire retardant Polyurethane Moulding
Fasteners	Stainless Steel Grade A2-70
Lightning protection	Direct Grounded
Mounting Brackets	Hot Dip Galvanised Steel
Typical Weight	726.0*.**.00 38-60mm. dia. 726.0*.**.12 38-120mm. dia.
Typical Length	5 kg (inc. clamp) 0.7 m
Typical Wind loading @ 45m/s	132 N



Free Space Radiation Patterns

(ASCII Files available upon request)



SHF Corner Reflector Antenna

The 755 antenna consists of a collinear dipole array within a reflector screen forming a 'corner'. Two versions are available, one giving 45° sector coverage, one giving 22° sector coverage. This is achieved by using 90° & 45° corner reflectors respectively. The antennæ are designed for use in harsh environments with the dipole housed in a fire retardant polyurethane radome. The two reflector plates are of mesh construction to minimise wind loading. The antenna has been certified to comply with ETS 300 019 Class 4.1 (Environmental conditions).

electrical and mechanical specifications

Frequency range	755.01/04 890 - 960 MHz	
	755.02/05 1710 - 1880 MHz	
	755.03/06 1300-1560 MHz	
Input Impedance	50 Ohms	
VSWR	<1.5:1	
Front to Back Ratio	35 dB	
Maximum Input Power	100 Watts	
Polarisation	Vertical and Horizontal	
Forward Gain	755.01/02/03 17 dBi	
	755.04/05/06 14 dBi	
3 dB Beamwidth	E Plane 25°	
	H Plane 755.01/02/03 22°	755.04/05/06 45°
Connection	755.**.05.** N Socket	
	755.**.33.** 7/16 Socket	
Dipole	Aluminium Alloy Grade 6063T6	
Reflector	Perforated Aluminium Alloy Sheet	
Fasteners	Stainless Steel Grade A2-70	
Radome	Fire retardant Polyurethane Moulding	
Lightning Protection	Direct Grounded	
Mounting Brackets	Hot Dip Galvanised Steel	
	755.**.**.00 38 to 60mm dia.	
	755.**.**.12 38 to 120mm dia.	
Height	515 mm.	
Width	755.01/04 820 mm	755.02/05 500 mm
	755.03/06 650mm	
Weight	5 kg	
Typical Wind Loading @ 45m/s	214 N	



E Plane

H Plane



Free Space Radiation Patterns

(ASCII Files available upon request)