



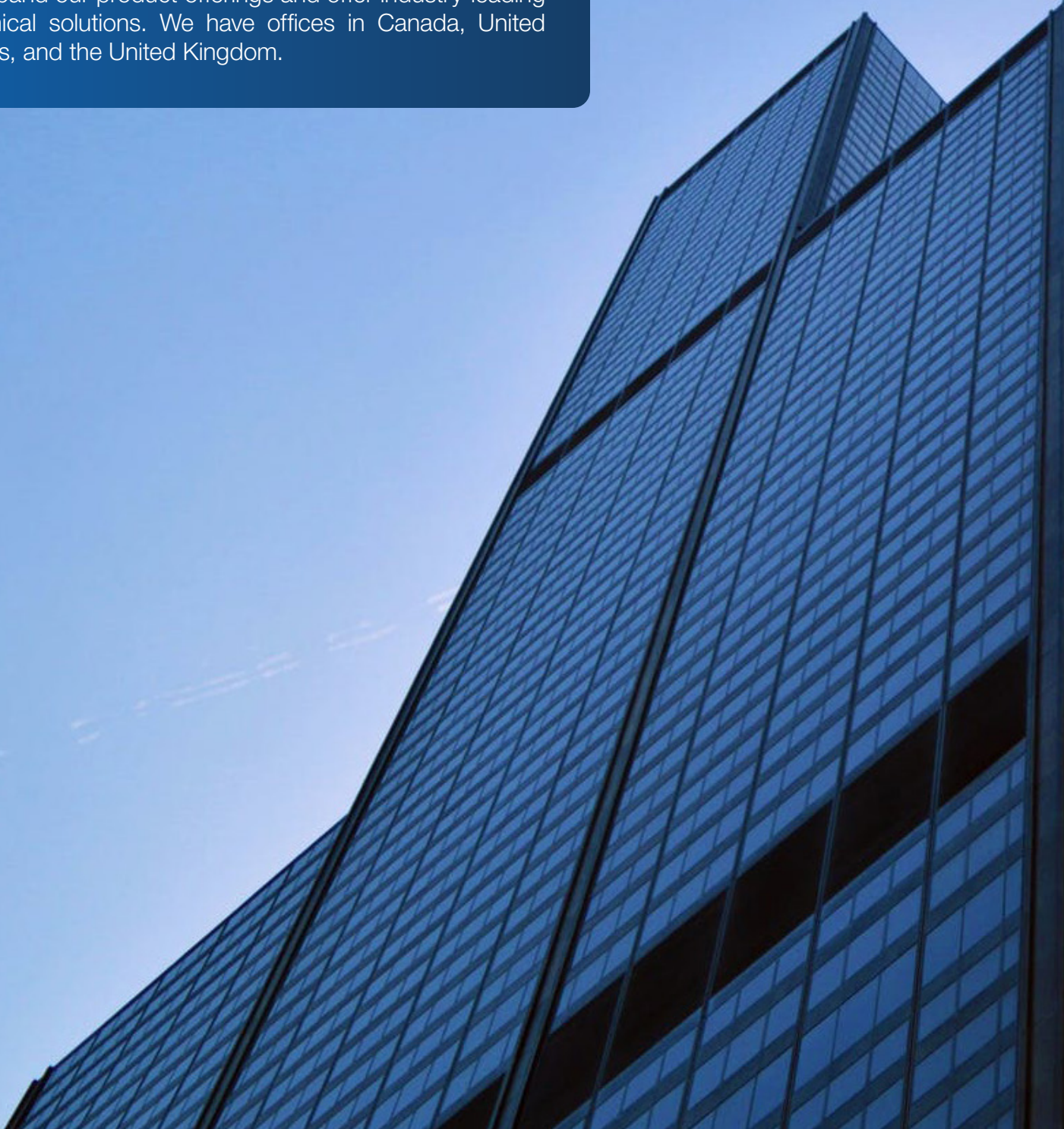
Distributed Antenna Solutions

Single/Multi-band antennas
& RF Conditioning solutions

SINCLAIR
A DIVISION OF NORSAT INTERNATIONAL INC.

ABOUT SINCLAIR

Sinclair Technologies, a division of Norsat International, is a leading designer and manufacturer of antenna and RF signal conditioning products, systems, and coverage solutions. Sinclair products are used extensively in public safety and private industry communication networks, such as emergency services (police, fire, ambulance and military), transportation, natural resources, and utilities. We have over 60 years industry-leading expertise in all aspects of antenna and RF signal conditioning design and manufacturing. With a strong focus on R&D, we continue to expand our product offerings and offer industry-leading technical solutions. We have offices in Canada, United States, and the United Kingdom.



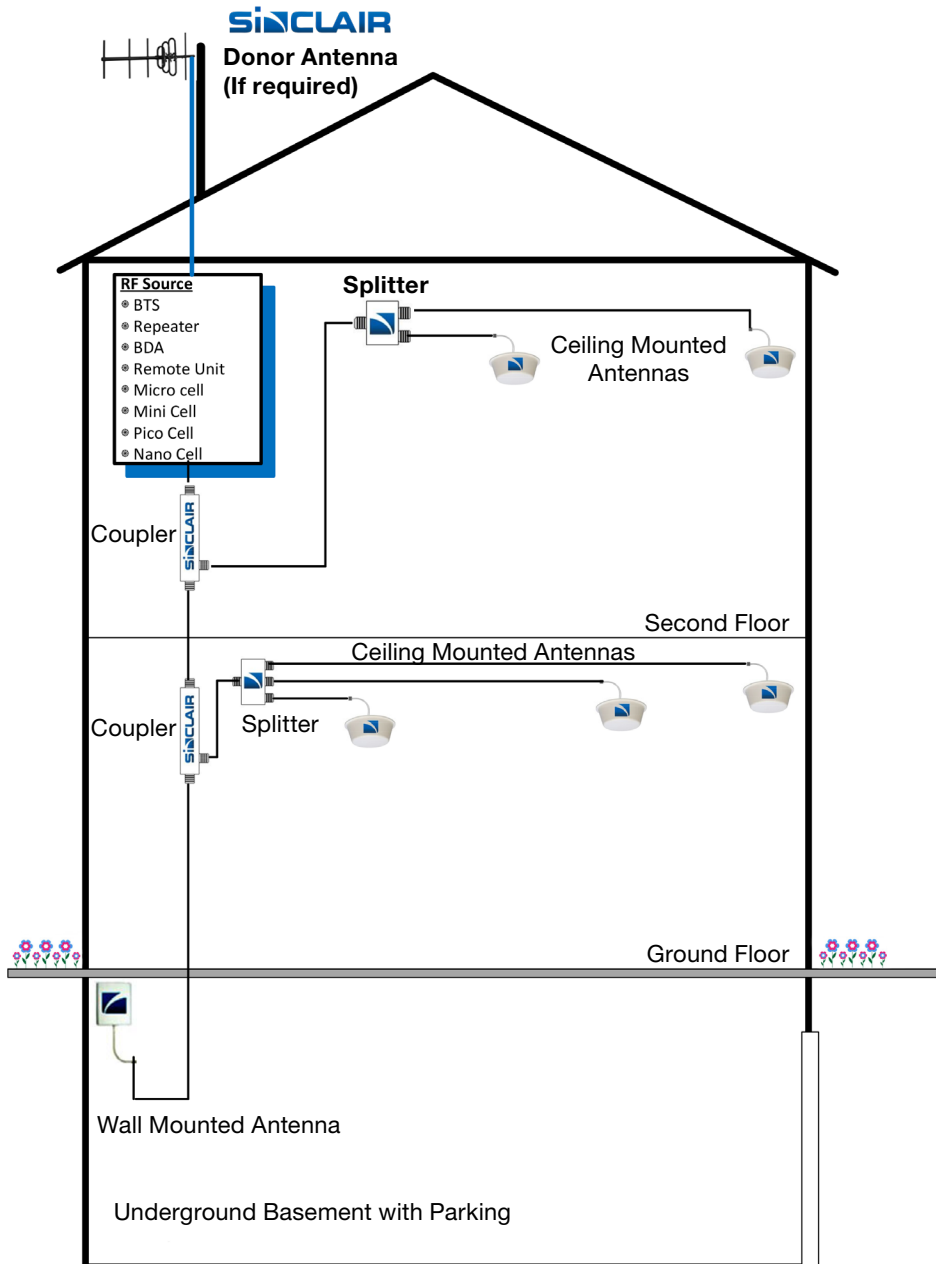


CONTENTS

04	Introducing DAS Architecture
05	Sinclair DAS Solution
07	High End Server Antennas
08	Yagi Donor Antennas
09	Corner Reflector Donor Antennas
10	Parabolic Reflector Donor Antennas
11	Directional Couplers
12	Power Splitters
13	YA System Solution

DISTRIBUTED ANTENNA SYSTEM

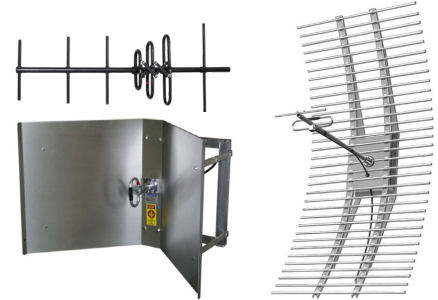
DAS (Distributed Antenna System) consists of a network of antennas that are spaced separately and connected to a common source that can provide wireless and radio coverage within buildings. Uninterrupted in-building coverage is critical for daily business and personal communications, as well as in emergency response. Sinclair's products and the expertise of our teams can meet the needs of advanced in-building communication systems. Partner with Sinclair Technologies to install efficient in-building DAS systems, where confined spaces require radio coverage for single or multiple services.



Server Antennas



Donor Antennas



Passive Components





SINCLAIR DAS SOLUTION

Sinclair's DAS Solution is an industry-leading communication system with reliable and durable design features that cater to in-building communication needs and specifications, as well as suitable for mission critical operations and public safety applications.

1. Complies with the stringent in-building regulations.
2. Antennas can be used for all DAS systems, including active DAS, passive DAS, or hybrid DAS. Components can be used for passive or hybrid DAS.
3. The well thought out wideband architecture of Sinclair solution, including both components and antennas, offers customers the flexibility to interconnect multiple systems or operators to one single indoor system. More over, the SI400 antenna covers the LTE/5G/CBRS/DSRC/WiFi band, so it's future proof.
4. Partner of the iBwave Component Database.



MISSION CRITICAL GRADE

Sinclair's in-building antennas are rugged, public safety grade and compliant with the most stringent in-building fire regulations. The radome is constructed using a high-grade polycarbonate material.



OUTSTANDING COVERAGE

Sinclair's DAS solution offers the best in class coverage in the industry with optimized gain and efficiency on the antennas and low loss control on the couplers and splitters. It features a PIM rating of less than -153 dBc, so that the system works in unison to keep the noise at the lowest level for maximum reception and clear voice in the trunking system.



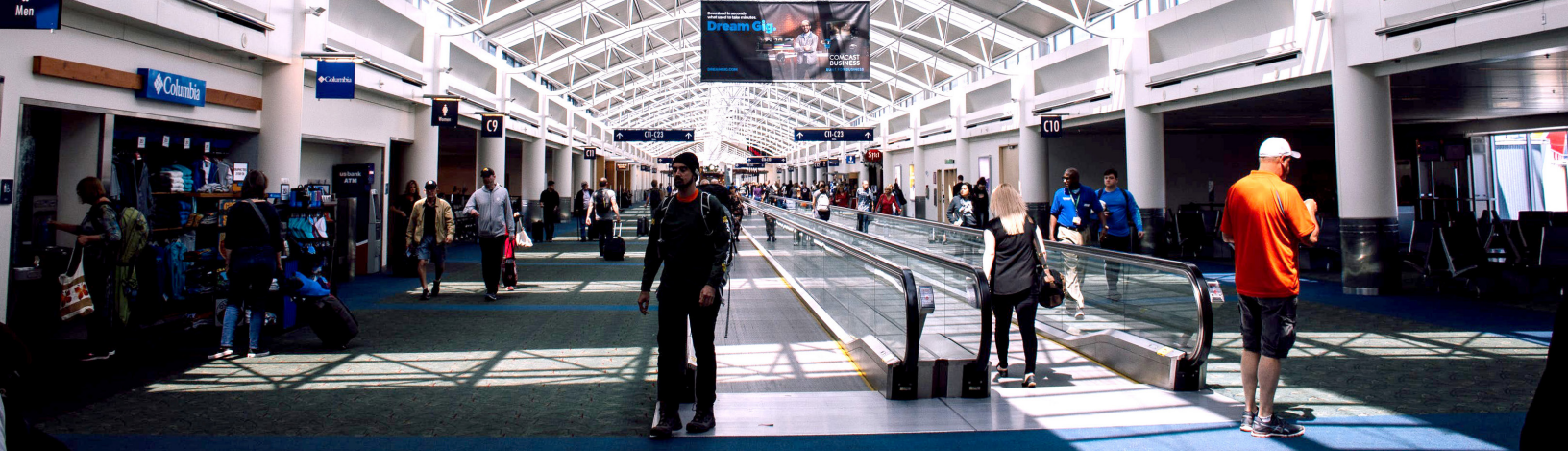
COMPLETE SOLUTION FOR PUBLIC SAFETY APPLICATIONS

Sinclair's DAS solution features a broad-band architecture specifically designed to address all public safety bands, offers a low PIM rating and delivers high performance optimal for public safety applications.



REGULATION COMPLIANCE

Sinclair's DAS Solution is compliant with stringent in-building fire regulations, including standards set forth by the National Fire Protection Association (NFPA). It can provide first responders contiguous communication even during the most emergent situations.



Sinclair's in-building antennas are designed for optimum coverage, simple installation and minimal visual impact. They feature multi-band designs that support a broad range of frequencies and provide coverage in dense spaces and large venues such as sprawling airports, high-rise buildings, parking garages, stadiums, shopping malls, warehouses, and more. Browse through our range of public-safety grade, rugged donor antennas, server antennas, couplers, splitters, filters, and custom offerings.

	VHF	UHF	VHF & UHF	698-960 MHz	VHF, UHF & 700/800/900 MHz	698-2700 MHz	694-6000 MHz
DONOR ANTENNAS	SY203, SY206, SY250, SY2062, SV227, SV228	SY303, SY307, SY350, SY3072, SY3074, SV302, SV3022, SV360		SY406, SY407, SY415, SY450, SY459, SY4062, SV402, SV460			
SERVER ANTENNAS		SI300-O			SI240F-O	LI410-O LI410-D	SI400-O
DIRECTIONAL COUPLERS					DDC240 Series		
POWER SPLITTERS					DPSL240 Series		
CROSS BAND COUPLERS			FX2300		FX2400 FX3400		
	VHF	UHF	746-806 MHz	806-869 MHz	896-940 MHz	VHF, UHF, & 700/800/900 MHz	
DUPLEXERS	Q2330E Q2440E	Q3330E Q3440E	Q4220E-746/806	P40901R1CL-T-1 Q4220E-1 P4460E-1	P4460E-3 Q4220E-2		
PRESELECTORS	FP20401 FP20402N FP20601 PH2040E	FP30401 FP30602 FP30802 PH3040E	FP40615CL FP40415CL FP40718CL PH4040E-12 PH4040E-6				
CUSTOM COMBINER & FILTERING	YA2	YA3					YA0

HIGH END SERVER ANTENNAS



Sinclair's high-performance in-building antennas are low profile and ground plane independent, featuring an inconspicuous design that blends into any environment. Their high efficiency, low-PIM rating, and wideband characteristics ensure optimal performance. These antennas also feature plenum-rated Low-Smoke Zero-Halogen (LSZH) cables and a fire retardant radome rated at UL94-V0, which comply with the most stringent in-building fire regulations.

	SI240F-O	SI300-O	SI400-O
Electrical Specifications			
Frequency Range	132-960 MHz (*1)	380 to 430 MHz; 400 to 470 MHz; 450 to 512 MHz	694 to 6000 MHz
Bandwidth	Multi-band	50 to 70 MHz	5306 MHz
Connector	4.3-10(f) and N(f)	4.3-10(f) and N(f)	4.3-10(f) and N(f)
Gain (nominal)	-3 to +3 dBi	Unity (2.1 dBi)	Unity (2.1 dBi)
VSWR (Typ.)	2:1	1.5:1	1.8:1
Impedance	50 Ω	50 Ω	50 Ω
Pattern	-	Omni-directional	Omni-directional
Average Input Power (max.)	6 W	50 W	50 W
Passive Intermod.	≤ -150 dBc	≤ -153 dBc	≤ -153 dBc
Width	15.4 in (391 mm)	-	-
Depth	16.7 in (424 mm)	-	-
Diameter	-	8.9 in (226 mm)	8.9 in (226 mm)
Height	0.08 in (2 mm)	3.15 in (80 mm)	3.15 in (80 mm)
Cable Length (nominal)	20 in (50cm)	12 in (30 cm)	12 in (30 cm) (*2)
Radome Material	Fiberglass	Polycarbonate	Polycarbonate (*3)
Weight	1lbs (0.45kg)	1 lbs (0.45 kg)	1 lbs (0.45 kg)
Mounting Hardware (Included)	Supplied	Mounting Nut	Mounting Nut
Mounting Configurations	Thru-hole ceiling tile mount	Thru-hole ceiling tile mount	Thru-hole ceiling tile mount
Ingress protection	-	IP66	IP66
Temperature Range	-40° to +140°F (-40° to +60°C)	-40° to +140°F (-40° to +60°C)	-40° to +140°F (-40° to +60°C)

Notes:

*1 Covers 132-174, 350-520, and 698 to 960 MHz

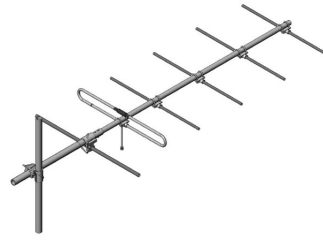
*2 "Plenum rated", applicable to all models

*3 "UL94-V0, LSZH", applicable to all models

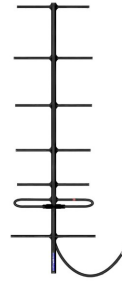


Proud Partner of the iBwave Component Database and Ranplan Wireless

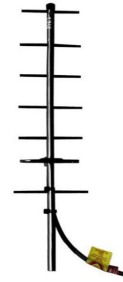
YAGI DONOR ANTENNAS



SY206



SY307

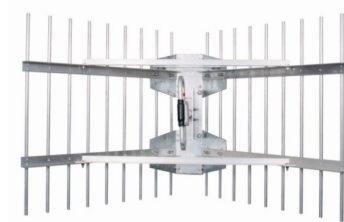
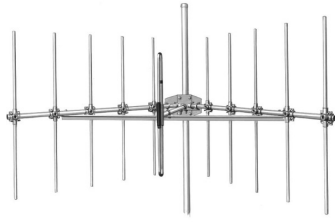


SY406

Electrical Specifications			
Frequency Range	137 to 174 MHz	340 to 512 MHz	728 to 985 MHz
Bandwidth	6 to 7 MHz	20 to 30 MHz	64 MHz (Typ)
Connector	N-Male / N-Female	N-Male / N-Female	N-Male / N-Female
Gain (nominal)	9.5 dBd (11.6 dBi)	10 dBd (12.1 dBi)	10 dBd (12.1 dBi)
Input VSWR (max)	1.5:1	1.5:1	1.5:1
Polarization	Vertical or Horizontal	Vertical or Horizontal	Vertical or Horizontal
Impedance	50 Ω	50 Ω	50 Ω
Pattern	Directional	Directional	Directional
Horizontal Beamwidth (typ)	56°	45° to 55°	52°
Vertical Beamwidth (typ)	46°	40° to 41°	45°
Average Input Power (max)	200 W	250 W	125/400 W
Front-to-back Ratio (typ)	17 dB	20 dB	20 dB
Lightning Protection	DC ground	DC ground	DC ground
Width	42 in (1067 mm)	14.3 to 17.2 in (363 to 437 mm)	7.08 in (180 mm)
Depth	6.1 in (155 mm)	3 in (76 mm)	2.63 in (67 mm)
Length/ Height	113.38 in (2880 mm)	44 to 50.6 in (1118 to 1285 mm)	24 in (610 mm)
Radiating Element Material	Aluminum	Aluminum	Aluminum
Reflector Material	Aluminum	Aluminum	Aluminum
Weight	12.5 lbs (5.68 kg)	3.2 to 3.5 lbs (1.45 to 1.59 kg)	1.06 lbs (0.48 kg)
Mounting Hardware (Included)	Clamp008 / Clamp001	Clamp115	Clamp115
Temperature range	-40° to +140°F (-40° to +60°C)	-40° to +140°F (-40° to +60°C)	-40° to +140°F (-40° to +60°C)



CORNER REFLECTOR DONOR ANTENNAS



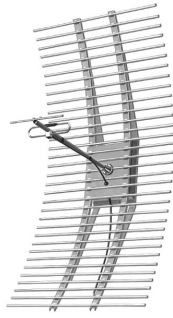
SV227

SV302

SV402

Electrical Specifications			
Frequency Range	130-150, 148-174 MHz	406-470, 450-512 MHz	800-900, 896-960 MHz
Bandwidth	20 to 26 MHz	62 to 64 MHz	94 to 100 MHz
Connector	N-Male	N-Male	N-Male
Gain (nominal)	7 dBd	9.5 dBd	10 dBd
Input VSWR (max)	1.5:1	1.5:1	1.5:1
Polarization	Vertical or Horizontal	Vertical	Vertical or Horizontal
Impedance	50 Ω	50 Ω	50 Ω
Pattern	Directional	Directional	Directional
Horizontal Beamwidth (typ)	67°	45 to 38°	30°
Vertical Beamwidth (typ)	75°	60°	52°
Average Input Power (max)	250 W	125 W	100 W
Front-to-back Ratio (typ)	30 dB	20 dB	30 dB
Lightning Protection	DC ground	DC ground	DC ground
Width	69.3 to 75 in	50 in	48 in
Depth	49 to 60 in	23 in	18 in
Length/ Height	48 to 55.3 in	30 in	24 in
Weight	28.3 to 32.5 lbs	30 lbs	23 lbs
Mounting Hardware (Included)	Clamp004	Clamp004	
Temperature range	-40° to 60°C	-40° to 60°C	-40° to 60°C

PARABOLIC REFLECTOR DONOR ANTENNAS



SV360



SV460

Electrical Specifications		
Frequency Range	335 to 455 MHz	806-890, 890-965 MHz
Bandwidth	14 to 38 MHz	75 to 84 MHz
Connector	N-male or N-female	N-Male
Gain (nominal)	15 dBd	15 dBd
Input VSWR (max)	1.5:1 or 2.0:1	1.5:1
Polarization	Vertical or Horizontal	Vertical or Horizontal
Impedance	50 Ω	50 Ω
Pattern	Directional	Directional
Horizontal Beamwidth (typ)	32°	16°
Vertical Beamwidth (typ)	18°	30°
Average Input Power (max)	250 W	75 W
Front-to-back Ratio (typ)	25 dB	25 dB
Lightning Protection	DC ground	DC ground
Width	41 to 91 in	25 in
Depth	25 to 37 in	18.3 in
Length/ Height	45.8 to 88 in	56 in
Weight	33 to 43 lbs	20 lbs
Mounting Hardware (Included)	Clamp004	Clamp004
Temperature range	-40° to 60°C	-40° to 60°C

DIRECTIONAL COUPLERS



- Rugged construction for public safety DAS application
- Wide band that covers all public safety bands (VHF, UHF, and 700/800/900 MHz)
- Industry leading ≤ -153 dBc PIM rating
- Outstanding electrical performance for optimal reception and clear voice

	DDC240-06-L4F/LNF	DDC240-10-L4F/LNF	DDC240-15-L4F/LNF	DDC240-20-L4F/LNF	DDC240-25-L4F/LNF	DDC240-30-L4F/LNF
Electrical Specifications						
Frequency Range	138 to 960 MHz					
Coupling	6 dB	10 dB	15 dB	20 dB	25 dB	30 dB
Coupling Tolerance	± 1.5 dB	± 1.7 dB	± 1.7 dB	± 1.7 dB	± 2 dB	± 2 dB
Insertion Loss	≤ 1.8 dB	≤ 1.2 dB	≤ 0.5 dB	≤ 0.4 dB	≤ 0.4 dB	≤ 0.3 dB
Directivity	≥ 18 dB	≥ 18 dB	≥ 18 dB	≥ 18 dB	≥ 18 dB	≥ 15 dB
VSWR (all ports)	≤ 1.25					
PIM	≤ -153 dBc					
Average Power	50 W					
Peak Power	200 W					
Impedance	50 Ω					
Connector	4.3-10 female or N-female					
Operating Temperature Range	-35° to $+70^{\circ}$ C					
Operating Humidity Range	5% to 95%					
Application	Indoor					
Ingress protection	IP65					
RoHS	Yes					
Color	Red					



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POWER SPLITTERS



- Rugged construction for public safety DAS application
- Wide band that covers all public safety bands (VHF, UHF, and 700/800/900 MHz)
- Outstanding electrical performance for optimal reception and clear voice

2 way splitter
DPSSL240-2-SNF

3 way splitter
DPSSL240-3-SNF

4 way splitter
DPSSL240-4-SNF

Electrical Specifications

Frequency Range	138 to 960 MHz		
Connector	N-female		
VSWR	≤ 1.3		
Isolation	≥ 18 dB	≥ 18 dB	≥ 17 dB
Insertion Loss	≤ 3.7 dB	≤ 6.0 dB	≤ 7 dB
Power Rating *1	50 W Average 200 W Peak		
Impedance	50 Ω		
Operating Temperature Range	-35° to +65°C		
Operating Humidity Range	5 to 95%		
Application	Indoor		
RoHS	Yes		
Color	Red		
Dimensions *2	6.2 in x 4.8 in x 0.94 in (158 mm x 122 mm x 24 mm)		
Weight	1.8 lbs (0.82 kg)	1.9 lbs (0.86 kg)	2.0 lbs (0.9 kg)

All product images shown are for illustration purposes only and may not be an exact representation of the product.

Notes:

* 1 One watt max input power per port when used as a combiner

2: Connectors not included



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YA SYSTEM SOLUTION

System Solutions that Deliver Results

With tower space at a premium and frequency congestion on the increase, many communications projects have turned into complex systems that demand high levels of isolation and interference protection. To offer total solutions to our customers, Sinclair Technologies provides Systems Engineering Services from our offices in Canada, the U.S. and the U.K.

Sinclair's Systems Engineers are skilled at providing custom-designed antenna and RF filter systems that meet unique customer requirements. If your system requires several transmitters and/or receivers to be connected to a single antenna, we will design a combining system to meet this need. If you have a frequency interference problem, we can design a practical and cost-effective solution to reduce or eliminate the interference. Whatever your antenna system needs are, from the simple to the complex, Sinclair can provide the equipment and the expertise to make it work.

Our Systems Engineers choose components from an extensive array of rugged and reliable products from Sinclair and from a wide range of 3rd party component manufacturers, ensuring that your system is designed for maximum efficiency at minimum cost. Customers have a choice of rack mount or wall mount systems depending on-site requirements.

Each system design is unique to the specifications provided by the customer and is cataloged under a unique system number. Customers can re-order the same system or modify the system if requirements change. The same high performance specs are repeatable and all systems shipped include Sinclair's full warranty.



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