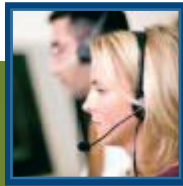


SM siae microelettronica



MICROWAVE
RADIO

**IP ETHERNET FULL OUTDOOR Series
ALplus IDU (PDH/ETH)
Trunk Link Series**



lte 4ADVANCED



80 GHz 2.5 Gbps E-BAND FULL OUTDOOR



ALFOplus80

MAIN FEATURES

- Up to 2.5 Gbps throughput
- Channel bandwidth from 250 to 1.000 MHz
- 4/16/64 QAM Modulation schemes
- Hitless Adaptive Coding and Modulation
- Strong FEC profiles for maximum link availability
- Power Over Ethernet
- Gigabit Ethernet or STM-1 interfaces
- InBand and OutBand Management
- Layer1,2,3,4 Header Compression (up to + 200% throughput increase)
- Synchronous Ethernet
- AES Encryption
- "Fiber Mode" operation for 2x Gigabit Ethernet transparent wire speed connections
- Packet Fragmentation to minimize latency
- Optimized latency and PDV transport

Frequency	80 GHz (71-76 GHz / 81-86 GHz)			
Supported Configurations	(1+0), (1+1), (2+0)			
Modulation Schemes	4/16/64 QAM with Hitless Adaptive Code and Modulation			
Supported Ethernet Throughput	From 250 Mbps to 2.5 Gbps			
Traffic Interfaces	GE electrical /optical STM-1 + E1			
Output Power at Point C'	Channel Spacing			
		250 MHz	500 MHz	1000 MHz
	4 QAM	+18	+18	+18
	16 QAM	+15	+15	-
	64 QAM	+13	+13	-
Receiver Sensitivity at BER 10 ⁻⁶ at point C (1+0 conf., RF Filter losses included)	Channel Spacing			
		250 MHz	500 MHz	1000 MHz
	4 QAM	-72	-69	-63
	16 QAM	-61	-58	-
	64 QAM	-55	-52	-
Frequency Stability	± 5 ppm			
ATPC	20 dB range implemented in 1 dB steps			
RTPC	Up to 20 dB in 1 dB step, software programmable			
ODU Connector	RJ45 or SFP Optical Plug-in			
Management Interfaces	In-band or out-band management			
Mechanical Dimensions ODU (W x H x D)	290 x 302,5 x 67,6 (mm) 11,4 x 11,9 x 2,6 (in)			
Power Supply	PoE or separated power feeding			
Power Consumption (per terminal)	≤ 32W in 1+0 configuration ≤ 65W in 1+1 configuration			
Environmental Performace	IP65 -35° C to +55° C			
Ethernet Characteristics	MAC address switching, ageing and learning VLAN / VLAN stacking (IEE 802.1ad-QinQ) Ethernet QoS (IEEE 802.1p) Flow Control (IEEE 802.3x) RMON Statistics (RFC 2819) LLF (Link Loss Forwarding) ETH OAM (IEEE 802.1ag / 802.3ah / ITU-T Y.1731) G.8261/8262/8264 SyncE Selective QinQ based on VLAN and 802.1p priority			
Compliant with	ETSI EN 302 217			

LAYER 2 MAIN FUNCTIONALITIES

- MEF Carrier Ethernet Services
- 8x queues with flexible scheduler (Strict WFQ and mixed)
- WRED support for congestion avoidance
- Colour-Aware Classification
- Per VLAN flexible ingress Policer (CIR & EIR definition)
- Flexible QoS definition based on VLAN, IPv4, IPv6, MPLS exp bits
- Support for G.8032 based rings
- VLAN management and rewrite
- Jumbo Frames up to 10Kbytes
- Programmable queues length



AGS-H Indoor Unit

In addition to Full Outdoor configuration, Split Mount application is provided connecting ALFOplus80 with AGS-H indoor unit (AGS-Hybrid).

This architecture provides additional High Capacity Native TDM traffic transport up to 2xSTM-1 + 16xE1, which are natively transported through this Single NE System. Moreover, additional interfaces (4xGE) and all reliability schemes (1+1 HSB, G.8032 Ring Protection) specific of traditional Split Mount systems are also available.

Interconnection between ALFOplus80 and AGS-H can be selected both, electrical or optical; in case of electrical connectivity, AGS-H can power supply ALFOplus80 with POE directly through LAN data cable.



HIGH CAPACITY IP ETHERNET FULL OUTDOOR Series



ALFOplus 7 - 38 GHz

Supported Configurations	(1+0), (1+1), 2x(1+0)						
Modulation Schemes	4/16/32/64/128/256/512/1024 QAM (with ACM)						
Supported Ethernet Throughput	50 Mbps to 1 Gbps						
Traffic Interfaces	2xGE electrical or optical						
Output Power at Point C'	7/8 GHz	13 GHz	15 GHz	17 GHz UNLICENSED*	18 GHz	23 GHz	38GHz
4 QAM strong	+29	+28	+28	+22	+23	+23	+19
4 QAM	+29	+28	+28	+22	+23	+23	+19
16 QAM strong	+26	+25	+25	+20	+21	+21	+17
16 QAM	+26	+25	+25	+20	+21	+21	+17
32 QAM	+25	+24	+24	+18	+19	+19	+15
64 QAM	+25	+24	+24	+18	+19	+19	+15
128 QAM	+25	+24	+24	+18	+19	+19	+15
256 QAM	+25	+24	+24	+18	+19	+19	+15
512 QAM	+25	+24	+24	+18	+19	+19	+15
1024 QAM	+24	+23	+23	+17	+18	+18	+14
Receiver Sensitivity at BER 10 ⁻⁶ at point C (1+0 conf., 28/30 MHz RF Filter losses included)	7/8 GHz	13 GHz	15 GHz	17 GHz UNLICENSED*	18 GHz	23 GHz	38GHz
4 QAM strong	-90,5	-90	-90	-88,5	-89,5	-89,5	-87,5
4 QAM	-87,5	-87	-87	-87,5	-86,5	-86,5	-84,5
16 QAM strong	-83	-82,5	-82,5	-81	-82	-82	-80
16 QAM	-80	-79,5	-79,5	-78	-79	-79	-77
32 QAM	-78,5	-78	-78	-76,5	-77,5	-77,5	-75,5
64 QAM	-75,5	-75	-75	-73,5	-74,5	-74,5	-72,5
128 QAM	-72,5	-72	-72	-70,5	-71,5	-71,5	-69,5
256 QAM	-69,5	-69	-69	-67,5	-68,5	-68,5	-66,5
512 QAM	-66,5	-66	-66	-65,5	-66,5	-66,5	-63,5
1024 QAM	-63,5	-63	-63	-61,5	-62,5	-62,5	-60,5
Frequency Stability	± 5 ppm						
ATPC	20 dB range implemented in 1 dB steps						
RTPC	Up to 20 dB in 1 dB step, software programmable						
Service Channels	VoIP						
ODU Connector	RJ45 or SFP Optical Plug-in						
Management Interfaces	In band management, RJ45						
Mechanical Dimensions ODU (W x H x D)	254 x 254 x 154 (mm)			10 x 10 x 6 (in)			
Power Supply	35 ÷ 60 VDC floating						
Power Consumption (per terminal)	≤ 35W in 1+0 configuration ≤ 70W in 1+1 configuration						
Environmental Performance	IP65						
ODU Weather Proofing Class	-35° C to +55 ° C						
ODU Operational Temperature (standard range)							
Ethernet Characteristics	MAC address switching, ageing and learning VLAN / VLAN STACKING (IEE 802.1ad with QinQ) Ethernet QoS (IEEE 802.1p) Flow Control (IEEE 802.3x) RMON Statistics LLF (Link Loss Forwarding) LAG (Link Aggregation IEEE 802.3ad) ETH OAM (IEEE 802.1ag / ITU-T Y.1731) RSTP (Rapid Spanning Tree Protocol)						
Compliant with	ETSI, FCC						

* Unlicensed Frequency. Output Power values compliant with SRD ERC REC 70-03 using appropriated antenna, enhanced RTPC and Constant Avg Mode

ALFOplus is a Full Outdoor, Full IP Next Generation Microwave Radio.

It is a zero footprint solution, fully integrable with 3G, 4G and LTE nodes, and ideal for a fast and flexible evolution towards full IP networks with the highest radio capacity and performance.

With its advanced Ethernet features and complete synchronisation management (SyncE and 1588v2), ALFOplus is a state of the art IP radio, providing the foundation for a leading edge network.

MAIN FEATURES

- 1 Gbits throughput per radio channel
- 7,14, 28, 56 MHz channel BW support
- 4 QAM to 1024 QAM modulations
- Adaptive Code and Modulation
- POE+ or dedicated power supply port
- 2 GE ports optical or electrical
- In-band management
- Layer 1/2/3/4 Header Compressor
- 1588 v2 support

LAYER 2 MAIN FUNCTIONALITIES

- Carrier Ethernet services (EVP- LINE/LAN/TREE)
- 8 queues with flexible scheduler (Strict, WFQ, mixed)
- Per queue WRED congestion avoidance
- Flow Based Ingress Policer (CIR & EIR definition)
- Flexible QoS definition based on VLAN, IPv4, IPv6, MPLS exp bits
- Extensive VLAN management
- Link aggregation
- Support for ERP
- Jumbo Frames up to 10Kbytes

ALplus IDU (PDH/ETH) - IDU and ODU SYSTEM OVERVIEW



ASN (AS Universal) ODU



AS (AS Advanced) ODU

AS/ASN ODU Characteristics

The ODU has been designed with the target of being at the same time compact, light and easy to install/maintain and characterized by high performances.

AS ODU is available in two different versions:

- **Universal AS ODU** supports all modulation schemes (4/8/16/32/64/128/256QAM) and all capacities from 8 Mbit/s to 400 Mbit/s. AS ODU doesn't require any hardware change if configured for frequency reuse (independence from XPIC functionality), moreover It is compatible with ALL IDU models. This model provides up to 20 dB ATPC.
- **Advanced AS ODU**: includes all the characteristics and features of the AS Universal ODU. In installations where more than 15/30 m of waveguide is used, it is the recommended solution for modulations higher than 32QAM and 56/28 MHz channel usage. In addition RF loop is available. This model can also provide up to 40 dB ATPC.

IDU-ODU compatibility

	AS/ASN ODU PDH/SDH/Ethernet Applications
ALC IDU (PDH/ETH) 	✓
ALplus IDU (PDH/ETH) 	✓
ALS IDU (SDH/ETH) 	✓
AL/ALCplus2/ALCplus2e IDU 	✓

ALplus IDU (PDH/ETH)

ALplus IDU (PDH/ETH) - IDU characteristics



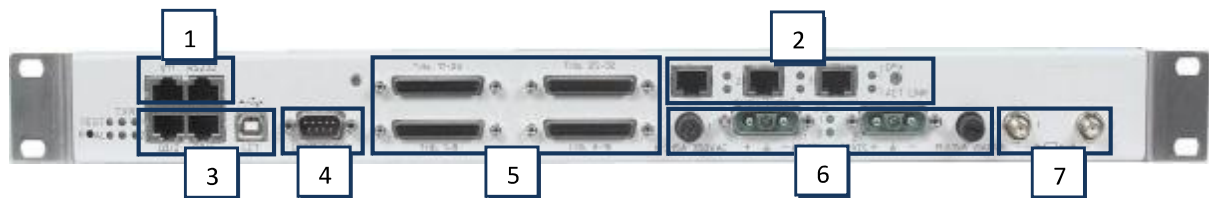
This solution can manage capacity up to 106 Mbit/s with 4/16/32 QAM modulation scheme and equipped up to 53x E1+FE tributary interface. Nodal configuration and cross connection are also available.

All IDUs are frequency independent.

IDUs have been designed with two different approaches, single board Compact IDU (1RU) and modular structure IDU (1RU and 2RU for Nodal Version).

The single board compact IDUs are provided with adjustable brackets on both sides. It allows an easy IDU positioning into a rack in three different 30 mm steps as shown in the picture below. This simplifies the IDU installation in street cabinet applications.

ALCplus IDU- 1RU Compact version



- | | |
|-----------------------------------|---|
| 1. Service channels | 5. nx E1 payload on SCSI connectors (75/120 ohm depending on cabling) |
| 2. ETH payload 10/100 RJ45 FE | 6. Power supply |
| 3. TMN-access (ETH, USB-B, RS232) | 7. ODU cable interface |
| 4. Alarm IN/OUT | |

IDU options

- 3xEthernet + 32xE1, providing three 10/100 BASE-T Ethernet/Fast Ethernet interfaces with RJ45 connectors and thirty-two E1s G.703 75/120 Ohm interfaces with SCSI connectors.

Protection Schemes

- 1+0
- 1+0 expandable to 1+1
- 1+1 hot stand-by, frequency and/or space diversity

Throughput

Modulation can be SW configured for any modulation scheme in the range from 4 to 32QAM.

Channel Spacing	Hierarchical Structure		Non-Hierarchical Structure		
	4QAM	16QAM	4QAM	16QAM	32QAM
3.5 MHz	2xE1/4 Mbit/s	4xE1/8 Mbit/s	-	5xE1/10 Mbit/s	-
7.0 MHz	4xE1/8 Mbit/s	8xE1/16 Mbit/s	5xE1/10 Mbit/s	10xE1/10 Mbit/s	-
14 MHz	8xE1/16 Mbit/s	16xE1/34 Mbit/s	10xE1/20 Mbit/s	21xE1/42 Mbit/s	-
28 MHz	16xE1/34 Mbit/s	32xE1/64 Mbit/s	21xE1/42 Mbit/s	42xE1/84 Mbit/s	53xE1/106 Mbit/s

TL Trunk Link Series

All Indoor Microwave Radio for
Point-to-Point Applications
IP SDH / N+1



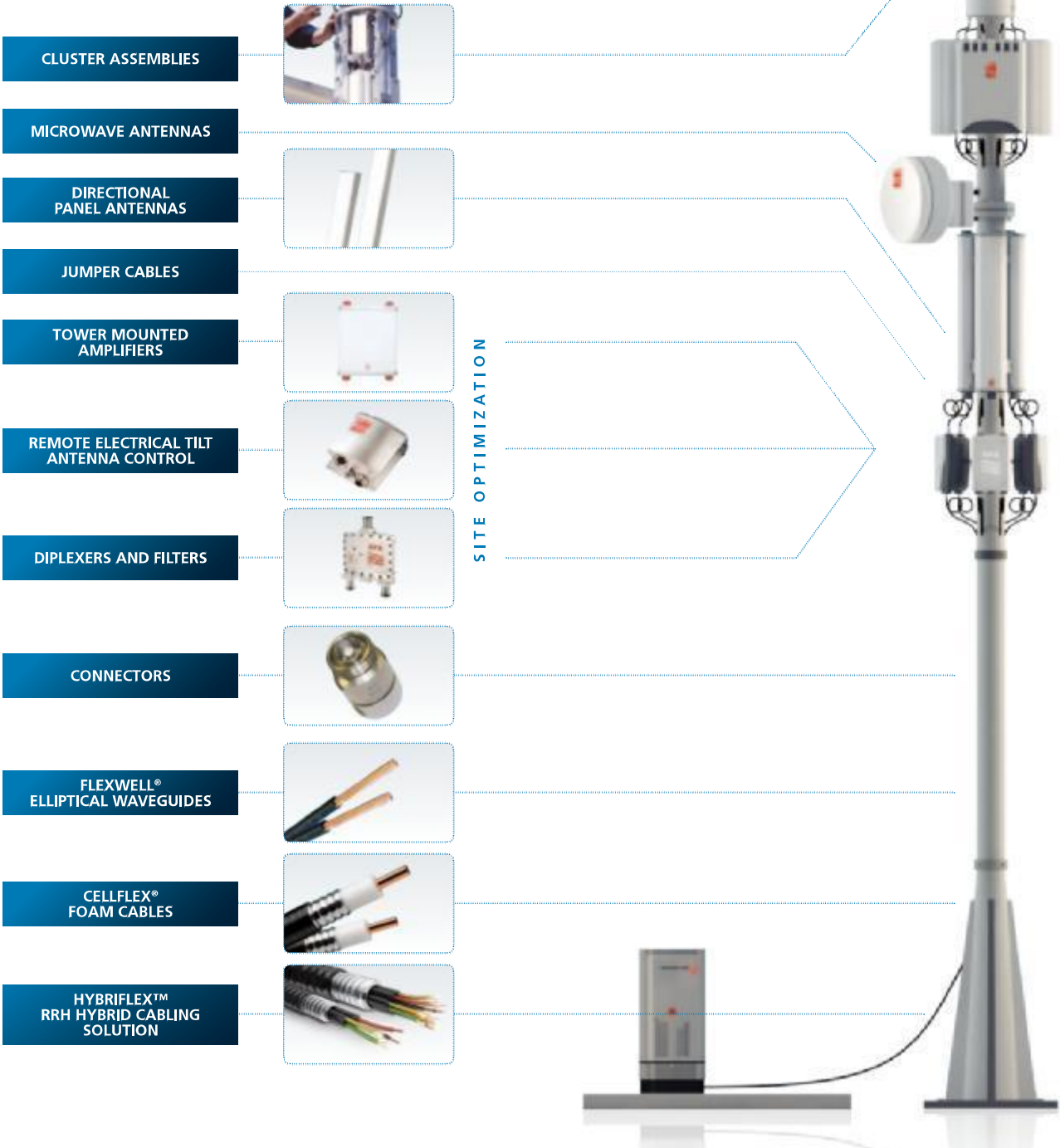
Applications

The ALS Series has been conceived and designed to cover a wide range of applications, such as:

- 2G / 3G / LTE Cellular Network Infrastructure
- Gbits Ethernet or NxSTM1 connections
- Back-up transmission medium to Fibre Optic links
- Private data Networks (WANs, LANs, etc.)
- Utility Networks (Railways, Pipelines, etc.)
- Last Mile Fibre Extension
- Leased Lines Replacement
- High Capacity SDH/IP Radio Ring Deployment up to 16xSTM-1 / 2 Gbits
- High Capacity Broadband Access Networks



RFS Wireless Cellular Sites:



The solution at a glance

APXV9R20B-C

Optimizer® Cellular Dual Polarized Dual Band Antenna, 790-2200, 65deg, 15.8-19dBi, 2.0m, VET, 0-10deg



Product Description

This antenna is an ideal choice for dual band site upgrade for high traffic areas. It is applicable for multiple bands such as Digital Dividend, CDMA, GSM, DCS, PCS, UMTS and DVD-SH.



Features/Benefits

- Easy swap out of GSM or CDMA panel for dual band panel
- Variable electrical downtilt – provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.
- High Suppression of all Upper Sidelobes (Typically <-20dB)
- Independent control of electrical downtilt for CDMA-900 and 1800/1900MHz bands
- Optional remote tilt – can be retrofitted
- Low profile for low visual impact
- Quick and easy to adjust
- High front-to-back ratio

Technical Specifications

Electrical Specifications

Frequency Range, MHz	790-894	870-960	1710-1880	1850-1990	1900-2200
Horizontal Beamwidth, deg	67	65	62	61	60
Vertical Beamwidth, deg	10	9.0	5.3	5.0	4.7
Electrical Downtilt, deg	0-10				
Gain, dBi (dBd)	15.8 (13.7)	16.2 (14.1)	18.2 (16.1)	18.5 (16.4)	19 (16.9)
1st Upper Sidelobe Suppression, dB	> 18 Typical				
Upper Sidelobe Suppression, dB	> 16				
Front-To-Back Ratio, dB	>25	>24	>25	>27	28
Polarization	Dual pol +/-45°				
VSWR	< 1.5:1				
Isolation between Ports, dB	25-28	>30	>30	>30	>30
3rd Order IMP @ 2 x 43 dBm, dBc	>150				
Impedance, Ohms	50				
Maximum Power Input, W	500	500	300	300	300
Lightning Protection	Direct Ground				
Connector Type	(4) 7-16 DIN Female				

Mechanical Specifications

Dimensions - HxWxD, mm (in)	2183 x 300 x 161 (85.9 x 11.81 x 6.3)
Weight w/o Mtg Hardware, kg (lb)	29.0 (63.9)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	160 (100)
Max Wind Loading Area, m ² (ft ²)	0.66 (7.1)
Front Thrust @ Rated Wind, N (lbf)	936 (210)
Wind Load - Side @ Rated Wind, N (lbf)	280 (63)
Wind Load - Rear @ Rated Wind, N (lbf)	812 (183)
Radome Material	PVC
Radome Color	Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum and Galvanized Steel
Shipping Weight, kg (lb)	36.0 (79.4)
Packing Dimensions, HxWxD, mm (in)	2345 x 398 x 330 (92.3 x 15.7 x 13.0)

Ordering Information

Mounting Hardware	APM40-2
Mounting Pipe Diameter, mm (in)	60-120 (2.36-4.72)
Mounting Hardware Weight, kg (lb)	3.4 (7.5)

APXV86-906516-C

Optimizer® Vertically Polarized Antenna, 790-960, 65deg, 17.5dBi, 2.6m, VET, 0-10deg



Product Description

An ideal antenna for LTE800, CDMA and GSM900 networks where high gain is required.

Features/Benefits

- One single vertical polarized antenna
- Quick and easy to adjust
- Variable electrical downtilt – provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.
- Upgradable to remote electrical tilt
- Optimized suppression lobes (Typically >20dB) allows strong mechanical tilt
- Broad frequency range including LTE800



Technical Specifications

Electrical Specifications

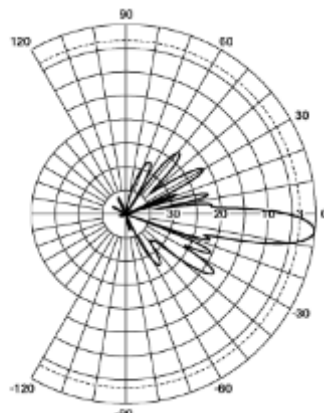
	790-862	806-894	880-960
Frequency Range, MHz	790-862	806-894	880-960
Horizontal Beamwidth, deg	73	69	65
Vertical Beamwidth, deg	8.5	8	7.3
Electrical Downtilt Range, deg		0-10	
Gain, dBi (dBd)	16.6 (14.5)	16.8 (14.7)	17.5 (15.4)
1st Upper Sidelobe Suppression, dB		> 18	
Upper Sidelobe Suppression, dB		> 18	
Front-To-Back Ratio, dB		> 26	
Polarization		Vertical	
VSWR		<1.5:1 (T2 to T10: <1.3 Typ)	
3rd Order IMP @ 2 x 43 dBm, dBc		< -150	
Impedance, Ohms		50	
Maximum Power Input, W		500	
Lightning Protection		Direct Ground	
Connector Type/Location		(1) 7-16 Long Neck Female/Bottom	

Mechanical Specifications

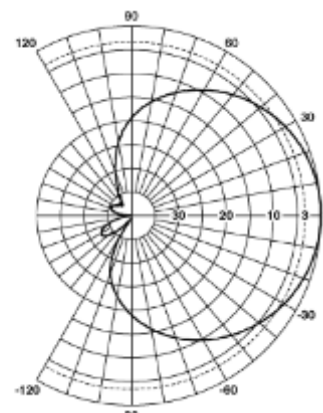
Dimensions - HxWxD, mm (in)	2600 x 328 x 128 (102.3 x 12.91 x 5.03)
Weight w/o Mtg Hardware, kg (lb)	17 (37.5)
Survival/Rated Wind Speed, km/h (mph)	200 (125) / 160 (100)
Wind Load @ Rated Wind, Front, N (lbf)	1150 (258)
Wind Load @ Rated Wind, Max., N (lbf)	1150 (258)
Wind Load @ Rated Wind, Side, N (lbf)	440 (98.8)
Wind Load @ Rated Wind, Rear, N (lbf)	747 (168)
Operation temperature, °C (°F)	-40 to +60 (-40 to +140)
Radome Material/Color	ASA/Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum
Radiating Element Material	Brass
Reflector Material	Aluminum
Shipping Weight, kg (lb)	34 (74.8)
Packing Dimensions, HxWxD, mm (in)	2700 x 370 x 245 (106.3 x 14.6 x 9.6)

Ordering Information

Mounting Hardware	APM40-2
Mounting Pipe Diameter, mm (in)	60-120 (2.36-4.72)
Mounting Hardware Weight, kg (lb)	3.4 (7.5)



Vertical Pattern



Horizontal Pattern

APXVERR20X-C

RF X-TREME™ Cross Polarized Triple Band Antenna, 790-2170MHz, 65deg, 16/17.7/18.2dBi, 2.0m, VET, 2-12deg



Product Description

The new RF X-TREME base station antenna design provides the highest gain combined with the best vertical pattern control of any triple band antenna of its size in the industry. It is an ideal choice for site upgrades and new deployments where three frequency bands, or MIMO/4 RX diversity, is used to add capacity and increase coverage. Only 300mm wide and 2.0 meters high, it maintains the size of a dual band antenna, while adding a third antenna path with no compromise in RF performance. Reflecting RFS' on-going commitment for 3G and 4G technologies, it can be used for multiple bands such as LTE800, CDMA850, GSM900, PCS1900 and UMTS2100. This multi-band antenna features superior pattern symmetry and a phase shifter for each radiating dipole providing exceptional patterns at all tilt settings. It is also available with an optional, internal and field replaceable AISG 2.0 antenna control unit (ACU) for remote electrical tilt (RET) compatibility.

Features/Benefits

- Triple band antenna with 6 ports - 2x 790-960 MHz and 4x 1710-2170 MHz
- Very high gain, ideal for 3G and LTE 1800 deployment – improves coverage
- Internal and field-replaceable RET solutions – easy and flexible installation system
- One phase shifter per radiating element – improves radiating patterns
- High suppression of upper sidelobes – reduces cell interference
- Superior X-Pol Discrimination – improves Rx diversity
- Enhanced tilt range from 2 to 12 degrees – ideal for applications in dense areas
- Designed with low windload – minimizes tower loading

Technical Specifications

Electrical Specifications

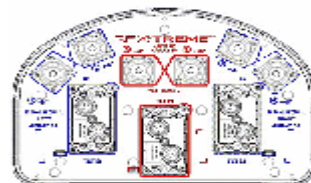
Frequency Range, MHz	790-862	806-894	880-960	1710-1880	1850-1990	1920-2170
Horizontal Beamwidth, deg	69	68	68	67	66	65
Vertical Beamwidth, deg	11.2	10.7	10	6.1	5.7	5.4
Electrical Downtilt Range, deg	2-12					
Gain, dBi (dBd)	15.5 (13.4)	15.7 (13.6)	16.0 (13.9)	17.7 (15.6)	18.2 (16.1)	18.2 (16.1)
1st Upper Sidelobe Suppression, dB	18					
Front-To-Back Ratio, dB	25					
Polarization	Dual pol +/-45°					
VSWR	< 1.5:1					
Isolation between Ports, dB	30					
3rd Order IMP @ 2 x 43 dBm, dBc	>150					
Cross Polar Discrimination (XPD) 0°, dB	Typ. 20					
Cross Polar Discrimination (XPD) ± 60°, dB	Typ. 10					
Impedance, Ohms	50					
Maximum Power Input, W	300					
Lightning Protection	Direct Ground					
Connector Type/Location	(6) 7-16 Long Neck Female/Bottom					

Mechanical Specifications

Dimensions - HxWxD, mm (in)	2020 x 303 x 203 (79.5 x 11.9 x 8.0)
Weight w/o Mtg Hardware, kg (lb)	28 (61.7)
Survival/Rated Wind Speed, km/h (mph)	240 (150) / 150 (93.2)
Applied Wind Load Standard	DIN 1055-4
Wind Load @ Rated Wind, Front, N (lbf)	303 (68.1)
Wind Load @ Rated Wind, Max., N (lbf)	608 (136.7)
Wind Load @ Rated Wind, Side, N (lbf)	268 (60.2)
Wind Load @ Rated Wind, Rear, N (lbf)	375 (84.3)
Operation temperature, °C (°F)	-40 to +60 (-40 to +140)
Radome Material/Color	ASA/Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum and Galvanized Steel
Shipping Weight, kg (lb)	37 (81.6)
Packing Dimensions, HxWxD, mm (in)	2196 x 398 x 385 (86.5 x 15.7 x 15.2)



Antenna Array



Antenna End Plate



Antenna Drawing

I-ATO1-800/2700

Indoor Omnidirectional Antenna 800-2700 MHz



Product Description

This omnidirectional antenna is specifically designed for broadband in-building distribution of GSM/CDMA/PCS/3G and WLAN (WiFi) services. The antenna is constructed from lightweight materials suitable for ceiling mounting. The off-white radome blends easily into most building aesthetics.

Features/Benefits

- Very broadband
- Aesthetically designed, compact and light weight
- Low return loss
- N female connector with pigtail

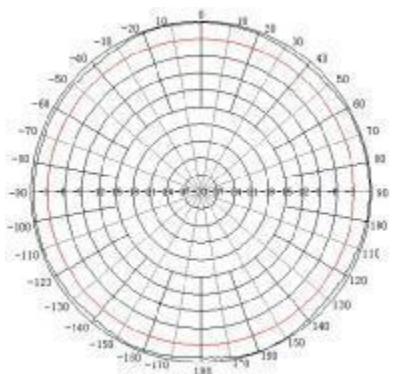
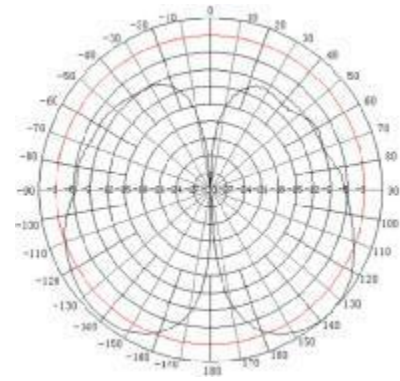
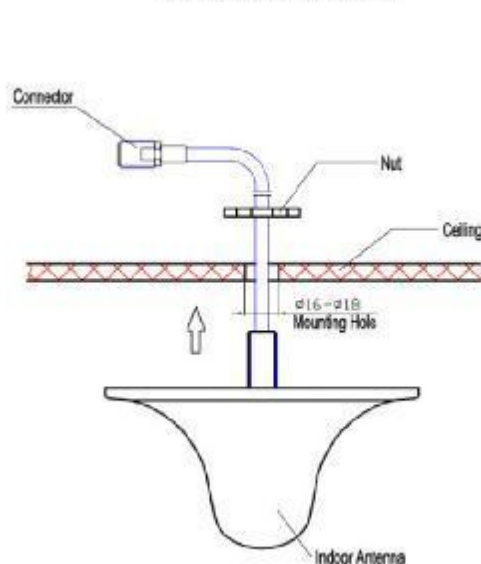


Indoor Omnidirectional Antenna

Technical Specifications

Product Type	Indoor Omnidirectional Antenna
Application	Indoor
Frequency Range, MHz	800-960/1710-2500/2500-2700
Number of Input Ports	1
Connectors	N
Input Connector Type	N female
Impedance, Ohm	50
VSWR (50 Ohm)	=1.5 / =1.5 / =1.7
Total Input Power, W	100, max.
Gain, dBi (dBd)	2.5/3.0/3.5 (0.4/0.9/1.4)
Polarization	Vertical
Horizontal Beamwidth, deg	360
Vertical Beamwidth, deg	55
Connector Cable, mm (in)	185 (7.28)
Radiating Element Material	Brass
Radome Material	ABS
Radome Color	White
Mounting Hardware included	Ceiling mount, fixed with nut
Height (Less Connectors), mm (in)	94 (3.70)
Width (Less Connectors), mm (in)	Ø 165.5 (6.52)
Weight, kg (lb)	0.2 (0.44)
Environmental Class	Indoor

Installation Sketch



LCF78-50JFNL-P8

7/8" CELLFLEX Lite Low-Loss Foam-Dielectric Coaxial Cable



Product Description

CELLFLEX® Lite 7/8" low loss flexible cable

Application: Main feed line, Riser-rated In-Building

Features/Benefits

- **It represents a light-weight transmission line solution**
The light weight of CELLFLEX® Lite coaxial cable results in reduced work-force and lifting gear.
- **It is easy to transport, handle and install**
CELLFLEX® Lite coaxial cables enable savings in shipping cost.
- **It exhibits a cost-efficient alternative to copper transmission line**
CELLFLEX® Lite coaxial cable helps to reduce CAPEX spending.
- **It offers a user-friendly compatibility with RFS's existing range of accessories**
CELLFLEX® Lite coaxial cable requires less inventory additions, thus reduced OPEX.
- **It enables trouble-free installation and operation**
CELLFLEX® Lite coaxial cable avoids downtime and reduces OPEX.
- **The attenuation is comparable to the industry standard in traditional cable**
CELLFLEX® Lite coaxial cable maintains uncompromised coverage.
- **Specially developed connectors exhibit low and stable intermodulation performance**
CELLFLEX® Lite coaxial cable exceeds present PIM standards ensuring no dropped calls.
- **It is available with UV-resistant polyethylene or flame-retardant jackets**
CELLFLEX® Lite coaxial cable can be used outside and in indoor applications where restrictions apply.
- **It exceeds industry standard for return loss performance**
CELLFLEX® Lite coaxial cable means zero risk in network planning.

7/8" CELLFLEX® Lite Low-Loss Foam Dielectric Coaxial Cable

Frequency [MHz]	Attenuation		Power [kW]
	[dB/100m]	[dB/100ft]	
0.5	0.0871	0.0266	85.0
1.0	0.123	0.0376	85.0
1.5	0.151	0.0461	70.2
2.0	0.175	0.0532	60.6
10	0.392	0.119	27.0
20	0.556	0.170	19.1
30	0.683	0.208	15.5
50	0.885	0.270	12.0
88	1.18	0.360	8.98
100	1.26	0.384	8.41
108	1.31	0.400	8.09
150	1.55	0.473	6.84
174	1.67	0.510	6.35
200	1.80	0.549	5.89
300	2.22	0.677	4.77
400	2.58	0.786	4.11
450	2.74	0.837	3.87
500	2.90	0.884	3.66
512	2.94	0.895	3.61
600	3.19	0.973	3.32
700	3.46	1.06	3.06
750	3.59	1.10	2.95
800	3.72	1.13	2.85
824	3.78	1.15	2.80
894	3.95	1.20	2.68
900	3.96	1.21	2.68
925	4.02	1.22	2.64
960	4.10	1.25	2.59
1000	4.19	1.28	2.53
1250	4.72	1.44	2.25
1400	5.02	1.53	2.11
1500	5.21	1.59	2.03
1700	5.58	1.70	1.90
1800	5.76	1.76	1.84
2000	6.10	1.86	1.74
2100	6.27	1.91	1.69
2200	6.43	1.96	1.65
2400	6.75	2.06	1.57
2500	6.90	2.10	1.54
2600	7.05	2.15	1.50
2700	7.20	2.20	1.47
3000	7.64	2.33	1.39
3500	8.33	2.54	1.27
4000	8.98	2.74	1.18
4900	10.1	3.07	1.05
5000	10.2	3.11	1.04

Attenuation at 20°C (68°F) cable temperature
Mean power rating at 40°C (104°F) ambient temperature

Technical Features

Structure

Inner conductor:	Copper Tube	[mm (in)]	9.32 (0.37)
Dielectric:	Foam Polyethylene	[mm (in)]	22.4 (0.88)
Outer conductor:	Corrugated Aluminium	[mm (in)]	25.2 (0.99)
Jacket:	Polyethylene, PE, Metalhydroxite Filling	[mm (in)]	27.8 (1.09)

Mechanical Properties

Weight, approximately	[kg/m (lb/ft)]	0.41 (0.28)
Minimum bending radius, single bending	[mm (in)]	120 (5)
Minimum bending radius, repeated bending	[mm (in)]	250 (10)
Bending moment	[Nm (lb-ft)]	13.0 (9.6)
Max. tensile force	[N (lb)]	1440 (324)
Recommended / maximum clamp spacing	[m (ft)]	0.8 / 1.0 (2.75 / 3.25)

Electrical Properties

Characteristic impedance	[Ω]	50 +/- 1
Relative propagation velocity	[%]	90
Capacitance	[pF/m (pF/ft)]	75.0 (22.9)
Inductance	[μH/m (μH/ft)]	0.1875 (0.057)
Max. operating frequency	[GHz]	5
Jacket spark test RMS	[V]	8000
Peak power rating	[kW]	85
RF Peak voltage rating	[V]	2920
DC-resistance inner conductor	[Ω/km (Ω/1000ft)]	1.54 (0.47)
DC-resistance outer conductor	[Ω/km (Ω/1000ft)]	1.42 (0.43)

Recommended Temperature Range

Storage temperature	[°C (°F)]	-70 to +85 (-94 to +185)
Installation temperature	[°C (°F)]	-25 to +60 (-13 to +140)
Operation temperature	[°C (°F)]	-50 to +85 (-58 to +185)

LCF78-50JL

7/8" CELLFLEX Lite[®] Low-Loss Foam- Dielectric Coaxial Cable



Product Description

ALL NEW! LITE CABLE FROM RFS!

Please contact our sales department for availability.

CELLFLEX[®] Lite 7/8" low loss flexible cable

Application: Main feed line



7/8" CELLFLEX[®] Lite Low-Loss Foam Dielectric Coaxial Cable

Features/Benefits

- **It represents a light-weight transmission line solution**
The light weight of CELLFLEX[®] Lite coaxial cable results in reduced work-force and lifting gear.
- **It is easy to transport, handle and install**
CELLFLEX[®] Lite coaxial cables enable savings in shipping cost.
- **It exhibits a cost-efficient alternative to copper transmission line**
CELLFLEX[®] Lite coaxial cable helps to reduce CAPEX spending.
- **It offers a user-friendly compatibility with RFS's existing range of accessories**
CELLFLEX[®] Lite coaxial cable requires less inventory additions, thus reduced OPEX.
- **It enables trouble-free installation and operation**
CELLFLEX[®] Lite coaxial cable avoids downtime and reduces OPEX.
- **The attenuation is comparable to the industry standard in traditional cable**
CELLFLEX[®] Lite coaxial cable maintains uncompromised coverage.
- **Specially developed connectors exhibit low and stable intermodulation performance**
CELLFLEX[®] Lite coaxial cable exceeds present PIM standards ensuring no dropped calls.
- **It is available with UV-resistant polyethylene or flame-retardant jackets**
CELLFLEX[®] Lite coaxial cable can be used outside and in indoor applications where restrictions apply.
- **It exceeds industry standard for return loss performance**
CELLFLEX[®] Lite coaxial cable means zero risk in network planning.

Technical Features

Structure

Inner conductor:	Copper Tube	[mm (in)]	9.3 (0.37)
Dielectric:		[mm (in)]	21.5 (0.85)
Outer conductor:	Corrugated Aluminium	[mm (in)]	25.2 (0.99)
Jacket:	Polyethylene, PE	[mm (in)]	27.8 (1.09)

Mechanical Properties

Weight, approximately	[kg/m (lb/ft)]	0.36 (0.24)
Minimum bending radius, single bending	[mm (in)]	120 (5)
Minimum bending radius, repeated bending	[mm (in)]	250 (10)
Bending moment	[Nm (lb-ft)]	13.0 (9.6)
Max. tensile force	[N (lb)]	1440 (324)
Recommended / maximum clamp spacing	[m (ft)]	0.8 / 1.0 (2.75 / 3.25)

Electrical Properties

Characteristic impedance	[Ω]	50 +/- 1
Relative propagation velocity	[%]	90
Capacitance	[pF/m (pF/ft)]	75.0 (22.9)
Inductance	[μH/m (μH/ft)]	0.1875 (0.057)
Max. operating frequency	[GHz]	5
Jacket spark test RMS	[V]	8000
Peak power rating	[kW]	85
RF Peak voltage rating	[V]	2920
DC-resistance inner conductor	[Ω/km (Ω/1000ft)]	1.54 (0.469)
DC-resistance outer conductor	[Ω/km (Ω/1000ft)]	1.42 (0.43)

Recommended Temperature Range

Storage temperature	[°C (°F)]	-70 to +85 (-94 to +185)
Installation temperature	[°C (°F)]	-40 to +60 (-40 to +140)
Operation temperature	[°C (°F)]	-50 to +85 (-58 to +185)

Other Characteristics

Fire Performance:	Halogene Free
VSWR Performance:	Standard [dB (VSWR)] 18 (1.288:1)
Other Options:	Phase stabilized and phase matched cables and assemblies are available upon request.

Frequency [MHz]	Attenuation		Power [kW]
	[dB/100m]	[dB/100ft]	
0.5	0.087	0.0266	85.0
1.0	0.123	0.0376	85.0
1.5	0.151	0.0461	70.1
2.0	0.175	0.0532	60.7
10	0.392	0.119	27.0
20	0.556	0.170	19.1
30	0.683	0.208	15.5
50	0.885	0.270	12.0
88	1.18	0.360	8.98
100	1.26	0.384	8.41
108	1.31	0.400	8.08
150	1.55	0.473	6.83
174	1.68	0.511	6.33
200	1.80	0.549	5.89
300	2.22	0.677	4.77
400	2.58	0.787	4.11
450	2.75	0.837	3.86
500	2.90	0.885	3.65
512	2.94	0.896	3.61
600	3.19	0.974	3.32
700	3.47	1.06	3.06
800	3.72	1.13	2.85
824	3.78	1.15	2.80
894	3.95	1.20	2.68
900	3.96	1.21	2.67
925	4.02	1.23	2.64
960	4.10	1.25	2.58
1000	4.19	1.28	2.53
1250	4.73	1.44	2.24
1500	5.22	1.59	2.03
1700	5.59	1.70	1.90
1800	5.76	1.76	1.84
2000	6.11	1.86	1.74
2100	6.27	1.91	1.69
2200	6.44	1.96	1.65
2400	6.75	2.06	1.57
3000	7.65	2.33	1.39
3500	8.34	2.54	1.27
4000	8.99	2.74	1.18
4900	10.10	3.08	1.05
5000	10.21	3.11	1.04

Attenuation at 20°C (68°F) cable temperature
Mean power rating at 40°C (104°F) ambient temperature

LCF12-50JFN

1/2" CELLFLEX® Low-Loss Foam-Dielectric Coaxial Cable



Product Description

CELLFLEX® 1/2" low loss flexible cable; flame retardant/ halogen free jacket

Application: OEM jumpers, Main feed transitions to equipment, GPS lines, Riser-rated In-Building



1/2" CELLFLEX® Low-Loss Foam Dielectric Coaxial Cable

Features/Benefits

• Low Attenuation

The low attenuation of CELLFLEX® coaxial cable results in highly efficient signal transfer in your RF system.

• Complete Shielding

The solid outer conductor of CELLFLEX® coaxial cable creates a continuous RF/EMI shield that minimizes system interference.

• Low VSWR

Special low VSWR versions of CELLFLEX® coaxial cables contribute to low system noise.

• Outstanding Intermodulation Performance

CELLFLEX® coaxial cable's solid inner and outer conductors virtually eliminate intermods. Intermodulation performance is also confirmed with state-of-the-art equipment at the RFS factory.

• High Power Rating

Due to their low attenuation, outstanding heat transfer properties and temperature stabilized dielectric materials, CELLFLEX® cable provides safe long term operating life at high transmit power levels.

• Wide Range of Application

Typical areas of application are: feedlines for broadcast and terrestrial microwave antennas, wireless cellular, PCS and ESMR base stations, cabling of antenna arrays, and radio equipment interconnects.

Technical Features

Structure

Inner conductor:	Copper-Clad Aluminum Wire	[mm (in)]	4.8 (0.19)
Dielectric:	Foam Polyethylene	[mm (in)]	11.3 (0.44)
Outer conductor:	Annularly Corrugated Copper	[mm (in)]	13.8 (0.54)
Jacket:	Polyethylene, PE, Metalhydroxite Filling	[mm (in)]	15.8 (0.62)

Mechanical Properties

Weight, approximately	[kg/m (lb/ft)]	0.22 (0.15)
Minimum bending radius, single bending	[mm (in)]	70 (3)
Minimum bending radius, repeated bending	[mm (in)]	125 (5)
Bending moment	[Nm (lb-ft)]	6.5 (4.79)
Max. tensile force	[N (lb)]	1100 (247)
Recommended / maximum clamp spacing	[m (ft)]	0.6 / 1.0 (2.0 / 3.25)

Electrical Properties

Characteristic impedance	[Ω]	50 +/- 1
Relative propagation velocity	[%]	88
Capacitance	[pF/m (pF/ft)]	76.0 (23.2)
Inductance	[μH/m (μH/ft)]	0.190 (0.058)
Max. operating frequency	[GHz]	8.8
Jacket spark test RMS	[V]	8000
Peak power rating	[kW]	38
RF Peak voltage rating	[V]	1950
DC-resistance inner conductor	[Ω/km (Ω/1000ft)]	1.57 (0.48)
DC-resistance outer conductor	[Ω/km (Ω/1000ft)]	2.30 (0.70)

Recommended Temperature Range

Storage temperature	[°C (°F)]	-70 to +85 (-94 to +185)
Installation temperature	[°C (°F)]	-25 to +60 (-13 to +140)
Operation temperature	[°C (°F)]	-50 to +85 (-58 to +185)

Frequency [MHz]	Attenuation		Power [kW]
	[dB/100m]	[dB/100ft]	
0.5	0.149	0.0454	38.0
1.0	0.211	0.0643	38.0
1.5	0.258	0.0788	32.9
2.0	0.298	0.0910	28.5
10	0.671	0.204	12.7
20	0.951	0.290	8.93
30	1.17	0.356	7.26
50	1.51	0.462	5.63
88	2.02	0.616	4.21
100	2.16	0.658	3.93
108	2.24	0.684	3.79
150	2.66	0.810	3.19
174	2.87	0.875	2.96
200	3.08	0.940	2.76
300	3.81	1.16	2.23
400	4.43	1.35	1.92
450	4.71	1.44	1.80
500	4.98	1.52	1.71
512	5.04	1.54	1.69
600	5.48	1.67	1.55
700	5.95	1.81	1.43
750	6.17	1.88	1.38
800	6.39	1.95	1.33
824	6.49	1.98	1.31
894	6.78	2.07	1.25
900	6.80	2.07	1.25
925	6.90	2.10	1.23
960	7.04	2.15	1.21
1000	7.20	2.19	1.18
1250	8.12	2.48	1.05
1400	8.64	2.63	0.983
1500	8.97	2.73	0.947
1700	9.61	2.93	0.884
1800	9.91	3.02	0.857
2000	10.5	3.20	0.809
2100	10.8	3.29	0.787
2200	11.1	3.38	0.765
2400	11.6	3.54	0.732
2500	11.9	3.62	0.714
2600	12.2	3.70	0.696
2700	12.4	3.78	0.685
3000	13.2	4.01	0.644
3500	14.4	4.38	0.590
4000	15.5	4.72	0.548
5000	17.6	5.37	0.483
6000	19.6	5.97	0.433
7000	21.4	6.54	0.397
8000	23.2	7.07	0.366
8800	24.6	7.49	0.345

Attenuation at 20°C (68°F) cable temperature
Mean power rating at 40°C (104°F) ambient temperature

7M7MS12-0500FFP

CELLFLEX® Factory-Fit Jumper Assembly, 7-16 DIN Male/7- 16 DIN Male



Product Description

Radio Frequency Systems' CELLFLEX® Factory-Fit Jumpers feature specially designed connectors which are soldered-on in a strictly controlled industrial process to ensure industry leading performance for today's high-performance wireless systems. The connector design and manufacturing process has been optimized to produce premium VSWR and IM levels. Injection molded boots provide reliable and repeatable additional sealing level and strain relief. Our facilities produce and stock all popular lengths as required by the industry, and can deliver custom lengths with premium VSWR and IM levels on request.



Picture shows 7M7MS12-0100FFP for illustration purpose

Features/Benefits

- **Stable premium VSWR, outstanding and consistent intermodulation performance**
Improved network performance, reduces the number of dropped calls and avoids revenue loss
- **Waterproof to IP 68**
No downtime risk, secures revenue.
- **Jumper label is serialized**
Ensure traceability.
- Available with standard "J" or flame retardant "JFN" jacket types
Usable in all applications.
- **Compliant to RoHS (EU) and CRoHS (China)**
Usable on a global basis.

Technical Specifications

Cable Type	1/2" Superflexible Foam
Jumper Type	Factory-Fit (Premium)
Connector A	7-16 DIN Male
Center Contact Connector A	Brass, silver plated
Outer Contact Connector A	Trimetal plated
Coupling Nut Connector A	Hexagon nut, Nickel plated
Connector B	7-16 DIN Male
Center Contact Connector B	Brass, silver plated
Outer Contact Connector B	Trimetal plated
Coupling Nut Connector B	Hexagon nut, Nickel plated
Dielectric	PTFE
Gasket	Silicone rubber
Sealing class	IP68
Jacket	Black Polyethylene, Halogen-free acc. IEC 60754-1 and -2
Minimum Bend Radius, mm (in)	32 (1.25)
VSWR (Return Loss, dB), typical	1.065 (30) @ 410 - 470 MHz 1.065 (30) @ 698 - 1000 MHz 1.065 (30) @ 1710 - 1990 MHz 1.065 (30) @ 2000 - 2200 MHz 1.083 (28) @ 2200 - 2700 MHz
Intermodulation, 3rd Order, dBc	-159 (typical)
Installation Temperature, °C(°F)	-40 to 60 (-40 to 140)
Operation Temperature, °C(°F)	-50 to 85 (-58 to 185)
Storage Temperature, °C(°F)	-70 to 85 (-94 to 185)

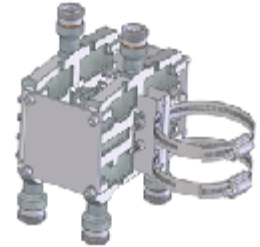
KIT-FD9R6004/1C-DL

ShareLite Wideband Diplexer Kit – In-line 698-960 MHz/1710-2200 MHz, full DC pass



Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed. These dual diplexer kits include mounting hardware.



Features/Benefits

- LTE ready design
- Extremely Low Insertion Loss
- High level of Rejection between bands – Protection against interferences
- Extremely High Power Handling Capability
- Integrated DC block/bypass versions available
- Very compact & small size design – Easy installation and reduced tower load
- In-line long-neck connectors for easy connection & waterproofing
- Exceptional reliability & environmental protection (IP 67)
- Equipped with 1 * Breathable Vent – Prevent any humidity inside the product
- Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)
- Grounding already provided through the mounting bracket

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Configuration	ShareLite Kit consisting of (2) in-line long neck connector diplexers (Full DC Pass), (1) mounting hardware SEM2-1A, & (1) assembly kit SEM2-3 disassembled
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Return Loss All Ports Min/Typ, dB	19/23
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss, Path 1, dB	0.07 typ.
Insertion Loss, Path 2, dB	0.13 typ.
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 57/70@1710-2200MHz
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	Yes
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	2.9 (6.4)
Shipping Weight, kg (lb)	3.6 (7.9) for 1 * Dual unit in 1 * box, 11 (24.2) for 3 * Dual units = 3 * Boxes in 1 * overwrap
Dimensions, H x W x D, mm (in)	147 x 164 x 118 (5.8 x 6.5 x 4.6)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 1 * Dual unit in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 3 * Dual units = 3 * Boxes in 1 * overwrap
Housing	Aluminum



716M-NF

Coaxial Adapter 7-16 male - N female

Product Description

Coaxial Adapter, 7-16 Male/N Female



Features/Benefits

The blind cover close the connector interface dust and waterproof.
Very well suitable to protect the connector interface during installation or maintenance.

Technical Specifications

Product Line	Coaxial Cable Components
Product Type	Coaxial Adapter
Coaxial Cable Type	Foam Dielectric, Ultraflexible Foam Dielectric , Radiating Cable
Configuration	Coaxial Adapter
Frequency Range - MHz	DC - 2000
Minimum Return Loss (max. VSWR), dB (VSWR)	28 (1.083:1)
Insertion Loss, dB (Max)	0.02
3rd Order IM Product @ 2x20 Watts, dBc	<= -165
Connector A	7-16 DIN Male
Center Contact Connector A	Brass, silver plated
Outer Contact Connector A	Brass, silver plated
Connector B	N Female
Center Contact Connector B	Spring Bronze, silver plated
Outer Contact Connector B	Brass, silver plated
Body	copper alloy, nickel plated
Dielectric	PTFE
Gasket	Silicone rubber
Package Quantity	1

NM-SCF12-C01

N Male Connector for 1/2" Coaxial SuperFlexible Cable, OMNI FIT™ standard performance



Product Description

OMNI FIT™ high performance connectors are designed for use with both CELLFLEX® (copper) and CELLFLEX® Lite (aluminum) cables. They are designed specifically to provide the highest quality connector-cable interface while simplifying and speeding up connector attachment. All RFS connectors are fully tested for mechanical and electrical compliance to industry specifications.



OMNI FIT™ Standard Connectors

Features/Benefits

- **Cost effective two-piece design for safe and easy installation**
- **Compatible with copper and aluminium cable types i.e. one connector for both outer conductor materials eliminates the risk of faulty connector installation and helps to keep inventory down**
- **Robust mechanical design for low and consistent intermodulation performance i.e. keeps the mobile network performance up, reduces the number of dropped calls and avoids revenue losses**
- **Standard electrical performance for consistent and repeatable VSWR i.e. ensure network system performance**
- **Waterproof to IP 68 i.e. no downtime risk, secures revenue**
- **RoHS (EU) compliant i.e. can be used on a global basis**

Technical Specifications

Transmission Line Type	Coaxial Cable
Cable Size	1/2"
Cable Type	Foam Dielectric Superflexible
Mating Interface	N
Connector Type	OMNI FIT™ Standard
Sealing Method	O-ring
Gender	Male
Plating Outer/Inner	Trimetal/Silver
Length, mm (in)	53.3 (2.1)
Outer Diameter, mm (in)	21.0 (0.83)
Weight, kg (lb)	0.064 (0.142)
Inner Contact Attachment	Basket
Outer Contact Attachment	Rigidity impaction
3rd Order IM Product @ 2x20 Watts, dBc	<-155
Maximum Frequency, GHz	3.8
VSWR (Return Loss) for DC < f ≤ 1.0GHz	1.10 (26.4 dB)
VSWR (Return Loss) for 1.0 < f ≤ 2.2GHz	1.10 (26.4 dB)
VSWR (Return Loss) for 2.2 < f ≤ 3.8GHz	1.15 (23 dB)
Wrench size front, mm (in)	18 (7/10)
Wrench size rear, mm (in)	18 (7/10)
Waterproof Level	IP68

716F-LCF78-C02

7-16 DIN Female Connector for 7/8" Coaxial Cable, OMNI FIT™ standard, O-ring sealing



Product Description

OMNI FIT™ high performance connectors are designed for use with both CELLFLEX® (copper) and CELLFLEX® Lite (aluminum) cables. They are designed specifically to provide the highest quality connector-cable interface while simplifying and speeding up connector attachment. All RFS connectors are fully tested for mechanical and electrical compliance to industry specifications. The 7-16 connector is the most rugged RF connection meeting all requirements even under the most severe environmental conditions.



OMNI FIT™ Standard Connectors

Features/Benefits

- **Cost effective two-piece design for safe and easy installation**
- **Compatible with copper and aluminium cable types i.e. one connector for both outer conductor materials eliminates the risk of faulty connector installation and helps to keep inventory down**
- **Robust mechanical design for low and consistent intermodulation performance i.e. keeps the mobile network performance up, reduces the number of dropped calls and avoids revenue losses**
- **Superior electrical performance for consistent and repeatable VSWR i.e. ensure network system performance**
- **Waterproof to IP 68 i.e. no downtime risk, secures revenue**
- **RoHS (EU) and CRoHS (China) compliant i.e. can be used on a global basis**

Technical Specifications

Transmission Line Type	Coaxial Cable
Cable Size	7/8"
Cable Type	Foam Dielectric, Ultraflexible, Radiating
Model Series	UCF78-50A-Series, LCF78-50A-Series, UCF78-50L-Series, LCF78-50L-Series, RCF78-50A-Series
Connector Interface	7-16 DIN
Nominal Impedance, ohms	50
Connector Type	OMNI FIT™ Standard
Sealing Method	O-ring
Gender	Female
Plating Outer/Inner	Trimetal/Silver
Length, mm (in)	51.7 (2.0)
Outer Diameter, mm (in)	35.5 (1.4)
Weight, kg (lb)	0.15 (0.33)
Inner Contact Attachment	Spring Finger
Outer Contact Attachment	Spring O-Ring
3rd Order IM Product @ 2x20 Watts, dBc	-159 typical
Maximum Frequency, GHz	3.7
VSWR (Return Loss, dB) for $0 < f \leq 1.0$ GHz	1.03 (36.6)
VSWR (Return Loss, dB) for $1.0 < f \leq 2.7$ GHz	1.04 (34.1)
VSWR (Return Loss, dB) for $2.7 < f \leq 3.7$ GHz	1.08 (28.3)
Wrench size front, mm (in)	32 (1-1/4)
Wrench size rear, mm (in)	32 (1-1/4)
Waterproof Level	IP68

TRIM-SET-L78-C02



Combination preparation tool (Universal Trimming Tool), CELLFLEX® Cable 7/8" for connector families OMNI FIT C02, B32

Product Description

This special trimming tool improves the cable preparation prior to connector attachment. No further tools are required to prepare the cable for the connector attachment. This is due to the unique design of the trimming tool, which combines all necessary functions in one tool. It can be used for all CELLFLEX® LCF78-50 cables in combination with the OMNI FIT Standard connector families C02 and B32

The Universal Trimming Tools Series offers the additional advantage to be convertible to different connector series and cable sizes (1/4", 3/8", 1/2" and 7/8") only by changing the insert. Different inserts are available as optional items, for references see below or contact your RFS sales contact.



TRIM-SET-L78-XXX shown

Features/Benefits

- **Universal Trimming Tool concept**
One basic tool can be used for cables sizes 1/4", 3/8", 1/2" and 7/8" only by changing the insert
- **Precision cable preparation tool**
Always exact and repeatable trimming dimensions.
- **Intuitive use of tool**
Easy and precise preparation of cables for connector installation.
- **Long-lasting cutting blades**
Easy to clean, smooth dielectric surface improves IM performance.

Technical Specifications

Product Line	Coaxial Cable Accessories
Product Type	Tool
Transmission Line Type	LCF78, UCF78
Coaxial Cable Type	Foam Dielectric, Ultraflexible Foam Dielectric
Cable Size	7/8"
Type of Tool	Combination Cable Preparation Tool
Configuration	Universal Trimming Tool
Spare Part / Useful Accessories	Spare blades : TRIM-B30
Color	Red
Material	Fiberglass reinforced Polycarbonate
Package Quantity	1
Weight per piece, kg (lb)	0.19 (0.42)

Notes

Other available inserts to convert the tool for use with other connector series or cable sizes:

- **TRIM-J14-D01** for connectors D01 on cable LCF14-50
- **TRIM-IS14-D01** for connectors D01 on cable SCF14-50
- **TRIM-IS38-D01** for connectors 070 and D01 on cable SCF38-50
- **TRIM-IL12-D01** for connectors 060, 070, B32 and D01 on cable LCF12-50
- **TRIM-IL12-C02** for connectors C02 on cable LCF12-50
- **TRIM-IS12-D01** for connectors 070 and D01 on cable SCF12-50
- **TRIM-IS12-C02** for connectors C02 on cable SCF12-50
- **TRIM-IL78-D01** for connectors 062, 072 and D01 on cable LCF78-50

PDC3E-698/2700

3 Way Power Divider, Reactive



Product Description

This series are reactive Power Splitters, designed to evenly split high power cellular signals with minimal reflections or loss. They are specified to cover 698 - 2700 MHz. Their reactive design employs no resistors eliminating their contribution to PIM and the potential of their damage. The design allows simple attachment to wall using the supplied bracket and clip. The wide frequency ranges of these models allow use with multiband antennas and leaky cable systems. With few solder joints and an air dielectric, the loss is minimal and reliability enhanced.

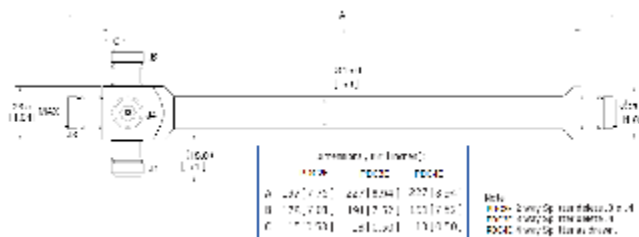
3 Way Power Divider, Reactive

Features/Benefits

- Wide Band 698-2700 MHz
- 300W Average Power
- Minimal RF Insertion Loss
- High Reliability, IP65
- Low Specified PIM
- RoHS compliant
- Low Cost Design
- N female connectors

Technical Specifications

Product Type	Power Divider, Reactive
Application	Outdoor
Frequency Range, MHz	698-2700
Number of Input Ports	1
Number of Output Ports	3
Connectors	N
Input Connector Type	N-female
Output Connector Type	N-female
Impedance, Ohm	50
Insertion Loss, dB	< 0.1
VSWR (50 Ohm)	< 1.25, input
Intermodulation (IM3)	-150 dBc with 2 x 43 dBm tones
Split Loss, dB	4.8 ±0.25
Input Power (Splitter mode), W	300, avg.
Max. RF Peak Power, kW	3
DC-Path	all ports
Temperature Range, °C (°F)	-35 to +85 (-31 to 185)
Height (Less Connectors), mm (in)	26.5 (1.04)
Width (Less Connectors), mm (in)	26.5 (1.04)
Length (Less Connectors), mm (in)	191 (7.52)
Mounts in 19" (483mm) EIA Rack	No
Weight, kg (lb)	0.27 (0.60)
Environmental Class	IP 65



GKFORM20-78

Pre-formed grounding kit, 500mm (20") for CELLFLEX® 7/8" Cable



Product Description

The pre-formed tin-plated copper strap facilitates a proper attachment to the coaxial cable, ensuring that the performance of the coax is not being compromised. This kit has been verified by independent labs to withstand the damaging effects of lightning current in excess of 100kA 10/350µs. The 16mm², 7 strand copper wire provides the most practical and effective low inductance transfer of lightning induced current from your coax to your system ground. Also included is the required mastic and electrical tape for weatherproofing. Installation of ground kits is recommended as a minimum at the top and bottom of each vertical run, at regular intervals in long vertical runs and just prior to building entry. As international and national regulations apply for potential qualification please make sure to comply with them.



Features/Benefits

- **Compatible with both copper and aluminium cable types**
One Grounding Kit for both outer conductor materials eliminates the risk of faulty Grounding Kit installation and helps to keep inventory down.
- **This kit has been verified by independent labs to withstand the damaging effects of lightning current in excess of 100kA 10/350µs according to EN 50164.**
The copper wire provides the most practical and effective low inductance transfer of lightning induced current to ground.
- **No influence on the electrical transmission characteristics of the coaxial cable**
- **Compliant to RoHS (EU 2002/95/EC) and CRoHS (China SJ/T11363-2006) i.e. usable on a global basis**

Technical Specifications

Product Line	Coaxial Cable Accessories
Product Type	Grounding Kit
Type of Grounding Kit	Pre-Formed Copper Strap
Transmission Line Type	LCF78, UCF78
Coaxial Cable Type	Foam Dielectric, Superflexible Foam Dielectric, Ultraflexible Foam Dielectric
Cable Size	7/8"
Lug Attachment Method	Factory Attached
Lug Style Size	2-hole Ø 10.2mm (3/8") crimp-on, tin-plated
Grounding Wire Length, m (in)	0.5 (20)
Grounding Wire Size	16mm ² (7 strand)
Grounding Wire Color	Black
Grounding Body Color	Black
Sealing Class	IP68
Package Quantity	1
Weight per piece, kg (lb)	0.3 (0.66)