Antenna, Filter &
Combiner Solutions

# Aviation

Product line for Mission and
Business Critical networks

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connect with confidence

# The challenges of **Airport & Aviation communication**

A modern safe airport is faced with many challenges to offer a wide range of wireless communication needs. **Airside**, Air traffic control (ATC) must be securely handled as well as live up to international standards. Also, communication for caters, mechanics and luggage handling as well as **perimeter security** is a necessity for smooth and safe airport operation.

**Terminal communication** includes all communication within the terminal between airline employees, the passenger flow process, and communication between security and first responders.

No matter where applied, the wireless communication within Airport & Aviation must be extremely reliable to secure the **safety** of all personnel and passengers as well as to enable seamless airport **operations**.

# ADS-B: the new standard within **Air Traffic Control**


Automatic Dependent Surveillance-Broadcast (ADS-B), is already rolling out globally, mandated by many Civil /Federal aviation authorities. The ADS-B system secures superior information about aircraft position and speed for precise and safe tracking & control of air traffic

ADS-B system designers need to think differently about how their ground-to-air base station antennas work because not only does the network need to cover the horizon but also directly above, in the sky. Just where some antennas have nulls in their patterns!

# Best in class **ADS-B antennas**

ADS-B antennas are omni-directional collinear antennas, and Amphenol Procom manufactures these with 6dBd gain to the professional high standards you expect.

The 4240.06-1050-NF for ADS-B ground stations is a market leading antenna with special features such as heavy duty and Null Fill characteristics. By focusing the energy of the antenna upwards this fills a gap, null, in the radiation pattern to ensure that there is coverage directly above the antenna where ordinary omni antennas would have an area of no coverage. True 360° coverage!

# Antennas for **ground-to-air communications**

Amphenol Procom is a leading manufacture of antennas for ATC in the civilian bands of 118-137MHz and 225 to 400MHz for military ATC bands.

Our product line features Discone, Collinear, Yagi and stacked Yagi's, all for ground-to-air applications. These omnidirectional and directional antennas provide consist, reliable performance in the harshest of environments.

Below as selection of our wide portfolio of ATC antennas – view the complete range on our website.

| Centre Fed Dipole and Yagi Antennas | | Frequency (MHz) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | | 112 | 117 | 118 | 121 | 122 | 128 | 134 | 135 | 136 | 137 |
| 7050118 | Centre Fed Dipole 0dBd | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | |
| 7029120 | 4 Element Yagi 7dBd | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | | |
| 7029128 | 4 Element Yagi 7dBd | | | | ✔ | ✔ | ✔ | ✔ | ✔ | | |
| S.4Y-127-4 | 4 stack 4 element Yagi array 12.5dBd | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| S.3Y-127-4 | 4 stack 3 element Yagi array 11dBd | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| S.4Y-127-6 | 6 stack 4 element Yagi array 15.3dBd | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| S.6Y-127-6 | 6 stack 6 element Yagi array 16.3dBd | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |

| ADS-B Colinear (with Null Fill NF) | | Frequency (MHz) | |
|---|---|---|---|
| Model | | 1020 | 1100 |
| 4240.06-1050 | Heavy Duty Std Omni 6dBd | ✔ | ✔ |
| 4240.06-1060-NF | Heavy Duty Null Fill 6dBd | ✔ | ✔ |

| Discone Antennas | | Frequency (MHz) | | | | |
|---|---|---|---|---|---|---|
| Model | | 100 | 225 | 400 | 470 | 500 |
| 7177010 | Omnidirectional 0dBd | ✔ | ✔ | ✔ | ✔ | ✔ |
| 7277010 | Omnidirectional 0dBd | | ✔ | ✔ | | |
| 7437010 | Omnidirectional 0dBd | ✔ | ✔ | ✔ | ✔ | ✔ |

| UHF Colinear | | Frequency (MHz) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | | 100 | 108 | 117 | 118 | 124 | 128 | 130 | 134 | 137 | 156 | 174 | 175 | 225 | 240 | 400 | 450 |
| 470.01.05.00 | Wideband Dipole 2 port 0dBd | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | | |
| 470.02.05.00 | Wideband Dipole 2 port 0dBd | | | | | | | | | | | | | ✔ | ✔ | ✔ | |
| 438.02.05.00 | Heavy Duty Wideband Dipole 0dBd | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | | | | |
| 470.01.05.02 | Wideband Dipole 0dBd | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | | |
| 470.02.05.02 | Wideband Dipole 0dBd | | | | | | | | | | | | | ✔ | ✔ | ✔ | |
| 470.05.05.00 | Wideband Dipole 0dBd | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | |
| 470.31.05.00 | Wideband Colinear 3dBd | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | | |
| 470.32.05.00 | Wideband Colinear 3dBd | | | | | | | | | | | | | ✔ | ✔ | ✔ | |
| 7500118 | Std. Dipole 0dBd | | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | | | | | |
| 7530100 | Medium Duty Colinear 3dBd | | | | ✔ | ✔ | | | | | | | | | | | |
| 7530110 | Medium Duty Colinear 3dBd | | | | | ✔ | ✔ | ✔ | | | | | | | | | |
| 7530120 | Medium Duty Colinear 3dBd | | | | | | ✔ | ✔ | ✔ | | | | | | | | |
| CXL 174-240C | Wideband Dipole 0dBd | | | | | | | | | | | ✔ | ✔ | ✔ | ✔ | | |
| CXL 175-400C | Wideband Dipole 0dBd | | | | | | | | | | | | ✔ | ✔ | ✔ | ✔ | |
| CXL 225-450C | Wideband Dipole 0dBd | | | | | | | | | | | | | ✔ | ✔ | ✔ | ✔ |

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# Combiner & Filter
## solutions for air-band

With the complexity of designing a reliable ATC network, comes the need for filtering signals and combining multiple frequencies from several transmitters. Amphenol Procom has an extensive product line within Filters and Combiners for the air-band application. These are highly reliable solutions, rigidly tested and proving their high performance across hundreds of airports globally.

### RECEIVER MULTICOUPLERS
For use where a number of receivers have to share the same antenna. 16 models available with 1 input and choice of 4, 8, 12 or 16 outputs.

### CAVITY COMBINERS
Combining several transmitters into one antenna. 10 models available covering from 2 to 8 channels. Squared versions available early 2019.

### HYBRID COUPLERS
Can be used as a splitter, combiner or injection of a signal into a signal path. Excellent high power versions with low insertion loss are available.

### BAND-PASS FILTERS
Can be used as transmit filter to prevent out-of-band and harmonics radiation or as a pre-selector to protect a receiver against interferences. 4 models available for air-band application.

# Istanbul
## New Airport

Expected to be the worlds largest within 10 years, is equipped with Amphenol Procom products throughout its wireless communication network.

The ATC equipment supplied by Amphenol Procom includes 100's of CXL omni antennas, combiner equipment for the 64 CH Kenwood system, hybrid combiners, receiver Multicouplers and band pass filters.

Other networks at the airport use hybrid combiners and high-gain UHF 4220.06 base station antennas. And for indoor coverage for ground services, security and public safety Amphenol Procom has supplied UHF panel antennas, couplers, tapper, splitters as well as indoor DAS antennas.

In total more than 4.500 mobile radios will be connected via Amphenol Procom equipment.

# Mobile Radio & Public Safety Networks
## for Airport applications

Successful Mobile Radio and Public Safety networks are at the heart of the airport ensuring all the different user groups can operate safely and effectively. Modern airports are like small cities, but really condensed, London Heathrow has 80,000 staff, employed by multi-tenants, many will use mobile radio as a crucial tool to carry out their duties.

Mobile radio users include hospitality and duty free in terminal building, to custom officers and security staff that could be anywhere. Also, first responders need a robust service to ensure safety, security and rapid response in case of an emergency.

Amphenol Procom offers a market leading portfolio in base station antennas for mobile radio and public safety networks. We are able to address any need – from low PIM in multicarrier systems, to down tilt where condensed environments coverage is needed.

Below a selected few of our UHF collinear, panel and omni dipole antennas are shown – please visit our website to view our full UHF portfolio, which also includes Combiners and Filters.

| UHF Colinear | | Frequency (MHz) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Model** | | **350** | **370** | **380** | **406** | **410** | **420** | **430** | **440** | **450** | **460** | **470** | **490** | **510** | **520** |
| 4220.03-405-Txx | Heavy Duty 3dBd Low PIM various fixed down tilt options | | | ✔ | ✔ | ✔ | ✔ | ✔ | | | | | | | |
| 4220.03-445-Txx | | | | | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | |
| 4220.06-405-Txx | Heavy Duty 6dBd Low PIM various fixed down tilt options | | | ✔ | ✔ | ✔ | ✔ | ✔ | | | | | | | |
| 4220.06-445-Txx | | | | | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | |
| 4220.09-405-Txx | Heavy Duty 9dBd Low PIM various fixed down tilt options | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | | |
| 4220.09-445-Txx | | | | | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| CXL 70-3LW/s | Medium Duty 3dBd 0 degree fixed down tilt | | | ✔ | ✔ | ✔ | | | | | | | | | |
| CXL 70-3LW/f | | | | | ✔ | ✔ | ✔ | ✔ | | | | | | | |
| CXL 70-3LW/l | | | | | | | ✔ | ✔ | ✔ | ✔ | | | | | |
| CXL 70-3LW/h | | | | | | | | | ✔ | ✔ | ✔ | ✔ | | | |
| CXL 70-5C/ls | Medium Duty 5dBd 0 degree fixed down tilt | ✔ | ✔ | | | | | | | | | | | | |
| CXL 70-5C/s | | | | ✔ | ✔ | ✔ | | | | | | | | | |
| CXL 70-5C/l | | | | | | | ✔ | ✔ | ✔ | ✔ | | | | | |
| CXL 70-5C/h | | | | | | | | | ✔ | ✔ | ✔ | ✔ | | | |
| CXL 70-5C/hh | | | | | | | | | | | | ✔ | ✔ | | |
| CXL 70-5C/vh | | | | | | | | | | | | | ✔ | ✔ | ✔ |

| UHF Panel | | Frequency (MHz) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Model** | | **350** | **370** | **380** | **406** | **410** | **420** | **430** | **440** | **450** | **460** | **470** | **490** | **510** | **520** |
| 760.12.08.00 | V-POL 120° Panel antenna 8dBi and 12dBi low PIM | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| 760.65.12.00 | V-POL 65° Panel antenna 12dBi and 15dBi low PIM | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| 760.90.10.00 | V-POL 90° panel antenna 8dBi low PIM | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| 766.12.08.00 | V-POL 120° panel antenna 8dBi and 11dBi low PIM | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| 766.65.12.00 | XPOL 65° panel antenna 12dBi and 15 dBi low PIM | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| 766.90.13.00 | XPOL panel antenna 90°, 13 dBi, fixed tilt 0° 4°, 8°, 10° and 15° | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| 766.90.13.00 | XPOL panel antenna 90°, 13 dBi, fixed tilt 0° 4°, 8°, 10° and 15° | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |

| UHF Omni Dipole | | Frequency (MHz) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Model** | | **350** | **370** | **380** | **406** | **410** | **420** | **430** | **440** | **450** | **460** | **470** | **490** | **510** | **520** |
| CXL 380-470C | 0 dBd vertically polarized omnidirectional base station antenna | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| CXL 70-1LW/l | 0 dBd, vertically polarized, omnidirectional base station | | | ✔ | ✔ | ✔ | ✔ | ✔ | | | | | | | |
| CXL 70-1LW/h | | | | | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | |
| CXL 70-1LW/hs | | | | | | | | | | | ✔ | ✔ | ✔ | ✔ | |



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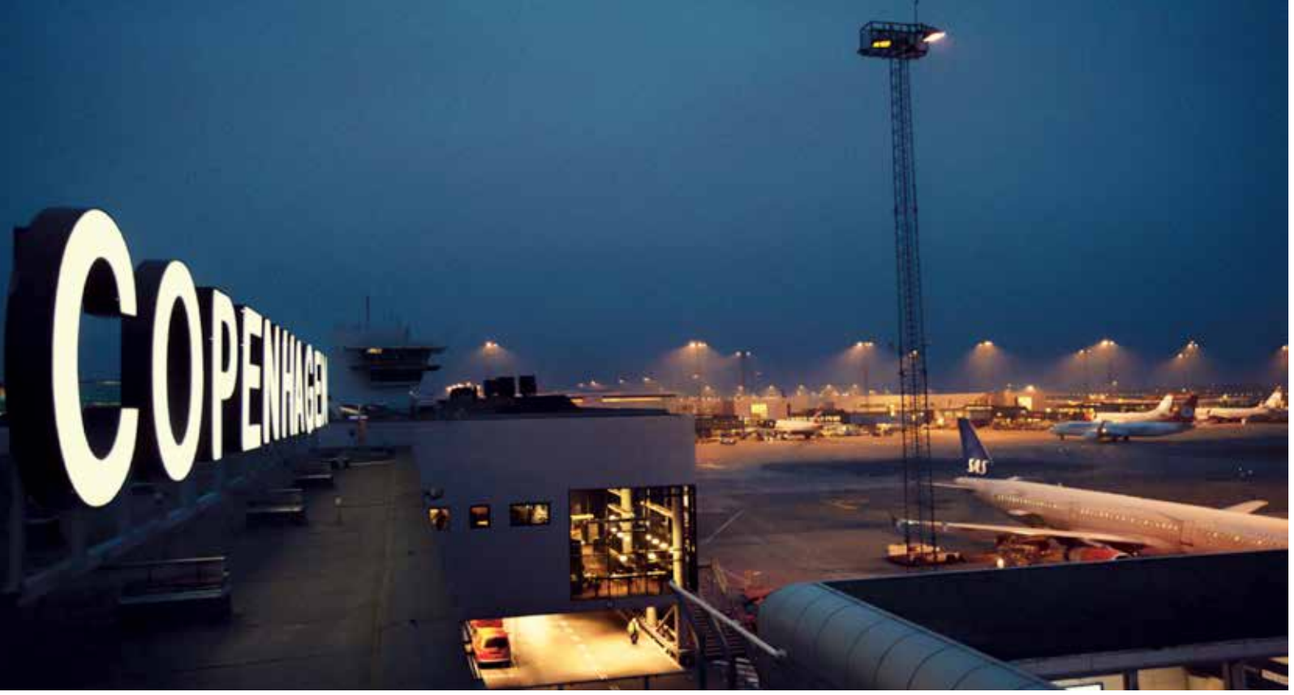


Amphenol Procom supplies Business and Mission critical products to Copenhagen Airport

# Mobile Radio & Public Safety Networks **– for Vehicles**

Mobile antennas for vehicles are heavily used in Airports – typical applications are ground handling trucks; fire brigade vehicles; security vehicles; etc. At Amphenol Procom we offer more than 200 different mobile antennas to service any need. Below we showcase our new multi purpose shark fin antenna.

ProFin is shark fin antenna for UHF, GNSS, GPS, 2G/3G/4G and dual WiFi 2.4 + 5.8 GHz. There is also an option for in-built UHF antenna. For location based services it includes GNSS antenna for GPS L1, Glonass, Beidou and Galileo giving a full hemispherical coverage for the GNSS and GPS. Built-in high gain, low noise amplifier. Table below shows different versions and options.

| Type | Product no. | Description | 2G/3G/4G 698 - 960 1710-2700 MHz | WIFI 2300-2500 5000-6000 MHz | GNSS | GPS L1 | In-build antenna | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 380 - 410 MHz | 410 - 450 MHz | 430 - 470 MHz |
| ProFin G1 | 132000230 | 4G, WIFI, GNSS | ✔ | ✔ | ✔ | | | | |
| ProFin G2 | 132000231 | 4G, WIFI, GNSS, GPS | | | | ✔ | | | |
| ProFin G-395 | 132000232 | 4G, WIFI, GNSS, UHF 380-410 MHz | ✔ | ✔ | ✔ | | ✔ | | |
| ProFin G1-430 | 132000233 | 4G, WIFI, GNSS, UHF 410-450 MHz | ✔ | ✔ | ✔ | | | ✔ | |
| ProFin G1-450 | 132000234 | 4G, WIFI, GNSS, UHF 430-470 MHz | ✔ | ✔ | ✔ | | | | ✔ |
| ProFin G2-395 | 132000236 | 4G, WIFI, GNSS, GPS, UHF 380-410 MHz | ✔ | ✔ | ✔ | ✔ | ✔ | | |
| ProFin G2-430 | 132000237 | 4G, WIFI, GNSS, GPS, UHF 410-450 MHz | ✔ | ✔ | ✔ | ✔ | | ✔ | |
| ProFin G2-450 | 132000238 | 4G, WIFI, GNSS, GPS, UHF 430-470 MHz | ✔ | ✔ | ✔ | ✔ | | | ✔ |

In addition to this class leading product, we have a wide range of single and dual band product for VHF, UHF, LTE, GPS and WiFi. There are various mounting options for metallic and non-metallic surface – please visit our website to learn more.

# Distributed **Antenna Systems**

Modern airport buildings use state of the art materials. The materials used, glass for instances, is treated to reflect heat and UV as a consequence block RF too. Insulation in walls and even suspended ceilings need to be considered during the network coverage planning stage. Inside the terminal building a DAS network has many user groups. Public safety is paramount for first responders and security. The airline's employees, need to communicate from inside, to outside. Additionally, there are passengers who connect to Wi-Fi or LTE hot spots.

Amphenol Procom focus is on best in class high performing products, low PIM wideband UHF, LTE and 5G, coupled with innovation to make the antenna as discrete and unobtrusive as possible there is a comprehensive offering for all the networks demands.

With over 100 different antenna products and 120 passive devices the below are just a few of our market leading products.

| DAS Antennas UHF & UHF/LTE | | Frequency (MHz) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | | 320 | 380 | 395 | 400 | 406 | 410 | 420 | 430 | 450 | 470 | 2700 | 6000 |
| 5047000 | Indoor Panel 4.5dBi | ✔ | ✔ | ✔ | ✔ | | | | | | | | |
| 5047420 | Indoor Panel 4.5dBi | | | | ✔ | ✔ | ✔ | ✔ | ✔ | | | | |
| 752.05.05.00 | Wideband Indoor Panel 4dBi | ✔ | ✔ | | | | | | | | | | |
| 752.01.05.00 | Wideband Indoor Panel 4dBi | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | |
| 802.00.05.00 | Indoor Wideband Omni 1dBi | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | |
| 802.01.05.00 | Indoor Wideband Omni 2dBi | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | | | |
| 5211388 | Indoor Wideband Omni 2dBi | | ✔ | ✔ | | | | | | | | | |
| 5211406 | Indoor Wideband Omni 2dBi | | | | | ✔ | ✔ | ✔ | | | | | |
| 5211421 | Indoor Wideband Omni 2dBi | | | | | | ✔ | ✔ | ✔ | | | | |
| 5211460 | Indoor Wideband Omni 2dBi | | | | | | | | | ✔ | ✔ | | |
| 5052460 | Supewide Band indoor Omni UHF/LTE/WiFi | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 5086100A | UHF/LTE Wideband Omni Antenna | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | |
| UWB-1-380-6000 | Supewide Band indoor Omni UHF/LTE/WiFi | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |

| DAS Passive Devices UHF & UHF/LTE | | Frequency (MHz) | | | | | |
|---|---|---|---|---|---|---|---|
| Model | | 150 | 300 | 350 | 380 | 1000 | 2700 |
| PRO-TAP 150-2700-... | Tapper 4.8, 6 & 8dB coupling | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| PRO-HPS... 380-2700-.. | High Power Splitter 2, 3 & 4 way | | | | ✔ | ✔ | ✔ |
| PRO-DIR 300-1000 | Directional Coupler with 3,6 & 10dB coupling | | ✔ | ✔ | ✔ | ✔ | |

| Channel Selective Repeater UHF | | Frequency (MHz) | | | |
|---|---|---|---|---|---|
| Model | | 380-385 | 390-395 | 410-415 | 420-425 |
| CSR-DMT-380 | UHF/LMR/DMR/TETRA Repeater | ✔ | ✔ | | |
| CSR-DMT-410 | UHF/LMR/DMR/TETRA Repeater | | | ✔ | ✔ |

See our dedicated DAS brochure or our website for more details




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# About Amphenol Procom

At Amphenol Procom, we are committed to providing solutions that can be trusted no matter how extreme the environment, or how complex the complete networks solution might be. Our mission is simply to: *"deliver the world's most trusted and flexible solutions for professional wireless communication where connectivity and dependability are critical"*

Your network relies on the quality of its components; if one goes down, it can take the rest with it. That's why our products are built for quality and tested to the extreme - so that performance is not compromised under any circumstances. Amphenol Procom consists of the former Procom, Jaybeam and Skymast brands, that with manufacturing in Denmark and the UK serve a wide range of market segments such as Public Safety, Aviation, Telecom, Hazardous Environments, IOT, Transportation and Industry.

We have more than 7.000 products in our portfolio, mainly covering base station antennas, portable & mobile antennas, combiners, filters and DAS solutions.

Amphenol Procom is a division of the Amphenol Corporation, a $8 billion-dollar organization that is one of the largest manufacturers of interconnect products in the world. The company designs, manufactures and markets electrical, electronic and fiber optic connectors, coaxial and flat-ribbon cable, and interconnect systems.

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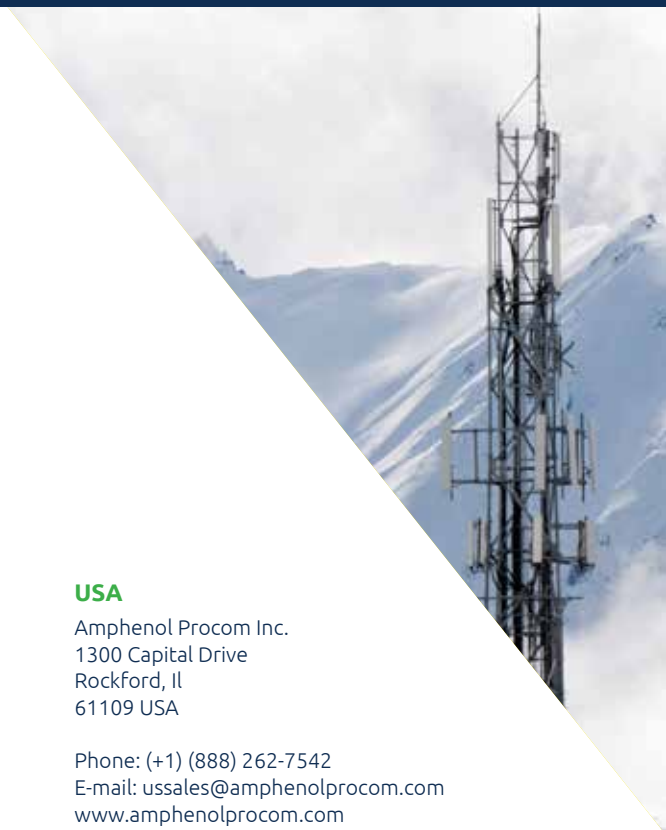

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