

MOTOROLA WIRELESS NETWORK SOLUTIONS
**CONNECTED.
WHERE YOU NEED IT.
WHEN IT COUNTS.**



WIRELESS AGILITY

THE SPEED AND CONFIDENCE TO ADAPT



BUILD AGILITY FOR BETTER RESPONSE

Success depends on your organization's ability to respond more quickly and accurately to your customers' needs. With Wireless Agility™, you can meet and exceed their expectations. Our broad portfolio of wireless solutions provides trusted connectivity right where you need it and right when it counts. Now you can ensure your workforce has the mobile voice, video and data applications that empower them to do more for customers and citizens.

GOVERNMENT

Better information leads to better outcomes. Serve and protect your community better, manage assets more easily and save cost at the same time with a new wireless network solution.

ENTERPRISE

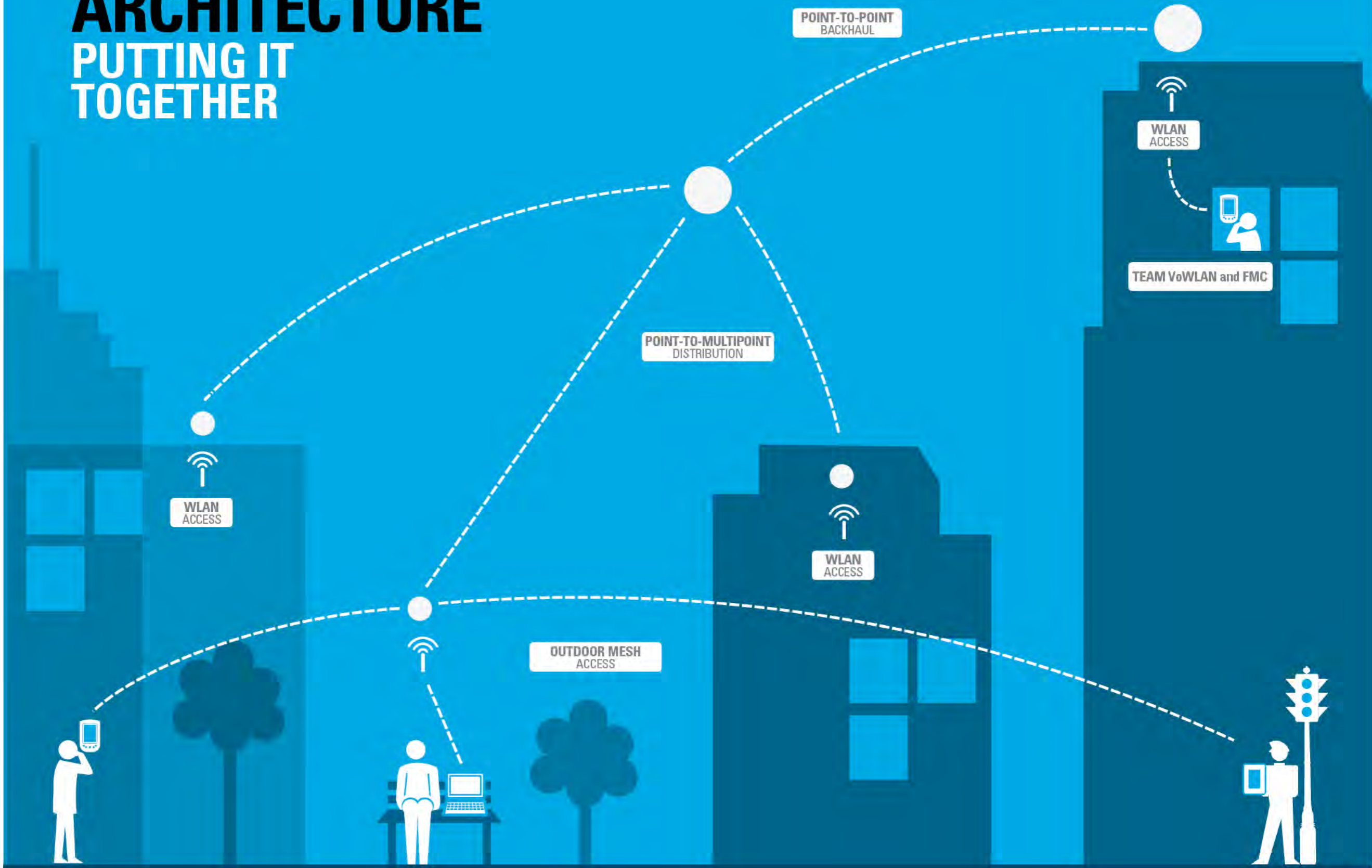
Growth and prosperity depend on your ability to quickly adapt and respond to the rising expectations of your customers. Offer dynamic new services and empower workers to be more responsive to customers through access to real-time information wherever they are.

SERVICE PROVIDERS

Boost loyalty and net subscriber additions by offering new levels of connectivity as well as enabling innovative wireless, data-enabled services for consumers and enterprise customers. Wireless IP networks complement wide area network infrastructure by making operations more agile and offloading heavy data traffic in high-density areas.

NETWORK ARCHITECTURE

PUTTING IT TOGETHER



OUR BROAD PORTFOLIO

Experience trusted and secure connectivity, easier network management and cost savings with this end-to-end wireless portfolio. We've designed these wireless solutions to work together to deliver you unparalleled agility.

OUTDOOR NETWORK DESIGN AND MANAGEMENT

Experience simplified and streamlined planning, deployment and management of your outdoor wireless networks with powerful outdoor RF modeling engines and innovative real-time, map-based visualization technology.

POINT-TO-POINT

Deploy T1/E1 replacements or backups, building-to-building connectivity, WiMAX/LTE backhaul, video surveillance and links to NLoS areas with our industry-leading wireless Ethernet bridges. Our PTP radios operate in unlicensed and licensed spectrum and deliver highly reliable connections across challenging environments.

POINT-TO-MULTIPOINT

Build a private network for data, voice and video applications. Connect islands of WiFi coverage back to the core network. Operate as an Internet service provider for business and residential connectivity. Point-to-multipoint solutions provide industry-leading interference tolerance, high reliability, GPS-synchronized transmit & receive cycles, and easier and faster installations.

MESH WIDE AREA NETWORKS

Enable the mobile applications you need to access information, improve traffic control, read meters and enhance security through video surveillance with our self-forming/self-healing outdoor mesh networks. Build better public safety, municipal services and enterprise operations with these outdoor WiFi access solutions.

WLAN DESIGN AND MANAGEMENT

Advanced indoor RF modeling enables better coverage planning for VoIP and data applications. Our AirDefense Solutions make multi-vendor management and troubleshooting easier while delivering industry-leading network security.

WLAN

Get higher capacity, better network resilience and a better user experience with WiNG 5 distributed intelligence that performs QoS, security and mobility services at the edge. And with our broad portfolio and flexible network deployment options, you get the network you need with less hardware to buy.

TOTAL ENTERPRISE ACCESS AND MOBILITY (TEAM) SOLUTIONS

Empower your workers with the communication services they need – where they need them. Our integrated voice technology links users with VoWLAN phones, mobile computers, two-way radios and 3rd party smartphones so everyone is connected to each other and has access to the information they need to take action.

THE SMARTER, MORE EFFICIENT WAY TO DESIGN, MANAGE AND SECURE YOUR NETWORK

Motorola knows wireless, and we believe the right software makes wireless solutions deliver their full potential. With our One Point Wireless approach, we build smart integrated wireless network design and management tools for indoor and outdoor deployments. Working together, they create a smoother flow from design to operation to security and deliver solid, secure network performance that you can trust.

INDOOR WLAN

LANPlanner

Powerful WLAN predictive design and survey tool that includes 802.11n throughput predictions and application specific design tools for superior support of VoWLAN, Video and or Locationing SiteScanner Fully featured site survey tool used as a standalone or together with LANPlanner

AirDefense Infrastructure Management

Centralized management and control for any WLAN, consisting of the following modules:

WLAN Management Central multi-vendor console enhances visibility and control

Centralized Management Console Single aggregate dashboard view for large networks and thousands of network devices.

AirDefense Network Assurance

Unique vendor-agnostic tools for WLAN performance monitoring and remote troubleshooting. Modules:

Advanced Troubleshooting End-to-end client connectivity testing

Spectrum Analysis Classify interference sources with installed sensors

LiveRF Real-time heatmaps of network coverage

Advanced Forensics Detailed real-time and historical views of wireless activity

AP Test Proactively test network using access points

AirDefense Security and Compliance

Advanced analytics and auto threat mitigation. Modules:

Wireless Intrusion Prevention Industry leading threat library, real-time detection and auto mitigation

Wireless Vulnerability Assessment Patented security testing using installed sensors

Advanced Forensics Track threat activity with detailed historical data

Mobile Workforce Protection Policy enforcement and protection at the edge

Legacy Encryption Protection Patented protection for legacy wireless encryption

OUTDOOR WIRELESS

PTP LINKPlanner

Free tool to determine optimal PTP equipment to use based on RF predictions that consider terrain height, antenna height, equipment and antenna used and other obstructions above the terrain. Rich integration with Google Earth helps visualize a multi-link network in the target environment.

Wireless Manager

See your entire multi-vendor outdoor network (PTP, PMP and Mesh) in one live Google map view. Real-time status and metrics for links are shown with easy to see color coding and customizable alarms let you know right away if a problem is developing.

For more information on Indoor and Outdoor Design, Management and Security Tools , specifications and capabilities, visit » motorola.com/wms or motorola.com/onepoint

TOTAL ENTERPRISE ACCESS AND MOBILITY (TEAM) SOLUTIONS

TEAM SERVICES	TEAM EXPRESS	TEAM RADIO LINK SOLUTION	TEAM BADGE EWB 100
DESCRIPTION			
<p>Provides mobile access over the enterprise WLAN to voice and data services, such as PBX telephone, e-mail, calendar, contacts, SMS (within the WLAN), Mobile Internet and business apps. Extends these services to cellular networks and 3rd party smartphones (like iPhone and Android) with TEAM FMC Services.</p>	<p>This is a PTT over WLAN client for multiple, disparate devices, including Motorola voice-capable mobile computers.</p>	<p>Enables PTT talkgroup communications between two-way radio systems and TEAM Express devices.</p>	<p>Provides PTT over WLAN via a small wearable badge device. Utilizes the TEAM Express voice client, enabling interoperability with other TEAM Express enabled devices.</p>
COMPONENTS			
<p>It comprises the following components:</p> <p>Infrastructure: TEAM Application Appliance with Wireless Services Manager (WSM), PTT, text, and FMC services, and Network Services Manager (NSM) provisioning software.</p> <p>Devices: Windows Mobile® 6.5 VoWLAN smartphones - EWP 2100 and EWP 3100</p>	<p>The TEAM Express 1.0 software voice client is downloadable to a broad range of Motorola voice-capable mobile computing devices.</p>	<p>Its components include: the RLS appliance, a Radio Interface Unit (RIU), and Donor two-way radios.</p>	<p>This is a tiny, 1.6 oz TEAM badge interoperable with other TEAM VoWLAN, TEAM Express or RLS-connected devices.</p>
KEY CAPABILITIES			
<p>Comprehensive voice and data in a single device that provides toll quality voice, enterprise-grade PTT and is scalable from a handful of users up to 4,500 per Wireless Services Manager. It is also interoperable with TEAM Express devices and two-way radios (via TEAM RLS). Give your entire work team on-the-spot access to the people and information they need - inside or outside the enterprise.</p>	<p>Enables PTT connectivity for up to 32 talk groups leveraging existing WLAN infrastructure. It is interoperable between disparate devices equipped with the TEAM Express client. One-to-many PTT over WLAN with private response capability.</p>	<p>Enables interoperability between devices and it leverages existing investments so users can use the best device to meet their need.</p>	<p>It is interoperable with other TEAM devices. Its affordable price point opens the door to mobile voice communications for all workers. It also enables one-to-many PTT over WLAN with private response capability.</p>

For more information on TEAM, specifications and capabilities, visit » motorolasolutions.com/team

WIRELESS LAN

WiNG 5 Wireless LAN solutions offer all the best of 11n — and then some. Our distributed architecture extends QoS, security and mobility services to the APs so you get better direct forwarding and network resilience. It's the less complicated, less expensive way to experience more capacity, more agility and more satisfied users.

WIRELESS CONTROLLERS

- Hot spot / guest access capable
- Layer 2-7 stateful firewall, AAA/DHCP server, role and location based access control, WIPS, VPN, FIPS 140-2, CC EAL-4
- Integrated Locationing and RFID
- With Motorola devices: Pre-emptive roaming, Fast balancing, Power save polling (PSP), Virtual AP Location based Access Control

RFS 4000

802.11n Branch Office Controller for up to 500 users and 36 a/b/g/n access points, 5 POE Ports, Optional integrated 802.11a/b/g/n dual radio access point, 3G backhaul, integrated WIPS and integrated locationing

RFS 6000

WLAN Controller that admits up to 4,000 users and 256 a/b/g/n access points, 8 POE Ports, 3G backhaul, active failover and load balancing

RFS 7000

WLAN Controller that admits up to 16,000 users and 1024 a/b/g/n access points, active failover and load balancing

NX9000

Integrated Services Controller that can easily grow a wireless network across multiple geographic locations, comprises 10,000 a/b/g/n access points, provides visibility and policy management from a centralized location in the NOC or private cloud.

ACCESS POINTS

DEPENDENT ACCESS POINTS

AP 650 802.11 a/b/g/n

MC 802 a/b/g Wall Plate

AP 621 802.11 a/b/g/n

- SMART RF*
- Optimized QoS for Voice and Video*
- 802.11i, WPA2, 802.3af PoE*.
- Use as WIPS security and troubleshooting sensor*
- 2.4/5.0 sensing from a single radio*

INDEPENDENT ACCESS POINTS

AP 7131 802.11a/b/g/n

AP 7181 802.11a/b/g/n (outdoor)

AP 7161 802.11a/b/g/n (outdoor)

AP 5181 802a/b/g (outdoor)

AP 6521 802.11a/b/g/n

AP 6532 802.11a/b/g/n

AP 6511 a/b/g/n Wall Plate

- Dependent and independent operation
- Mesh connectivity, High availability, Up to 127 devices supported
- Security: Layer 2-7 stateful firewall, AAA/DHCP server, Role and location based access control, WIPS, VPN. IPS 140-2, CC EAL-4
- Rogue AP detection
- Can act as a virtual controller

For more information on Wireless LAN, specifications and capabilities, visit » motorola.com/wlan

* Applies to both Thin and Adaptive Access Points

POINT-TO-POINT

PTP 100	PTP 200/230	PTP 250	PTP 300/500	PTP 600	PTP 800
RADIO FREQUENCIES					
2.4, 5.2, 5.4, 5.8 GHz	PTP 200 - 4.9 GHz; PTP 230 - 5.4, 5.8 GHz	5.4, 5.8 GHz	5.4, 5.8 GHz	2.5, 4.5, 4.8, 4.9, 5.4, 5.8, 5.9 GHz	6 to 38 GHz
THROUGHPUT					
2, 4, 7, and 14 Mbps	PTP 200 - 21 Mbps; PTP 230 - 50 Mbps	220 Mbps	PTP 300 - 25 or 50 in LOS; PTP 500 - 105	300 Mbps	368 Mbps (full duplex)
LATENCY (ONE WAY)					
< 3.5 ms Ethernet	3-5 ms	2 ms	1.7 ms T1/E1 modulation dependent	1.7 ms T1/E1 modulation dependent	< 115 us
MAX RANGE LOS					
Up to 35 miles/56 km with reflector	5 mi/8 km (Integrated), 18 mi/29 km (w/LENS), 80 mi/128 km (w/Dish)	20 MHz Channel - 34 miles/54 km, 40 MHz Channel - 17 miles/27 km	155 miles/255 km	124 miles /200 km	Depends on link budget
MAX RANGE NLOS					
No	No	Yes	6 miles/10 km	5 miles/8 km	No
CHANNEL WIDTH					
20 MHz	10/20 MHz	20/40 MHz	5/10/15 MHz	Selectable 5/10/15/20/30 MHz (frequency dependent)	7-56 MHz variable
SYSTEM GAIN					
Up to 125 dB using integrated antenna	126 dB (Integrated), 138 dB (LENS), 156 dB (Dish)	Up to 158 dB using 23 dBi integrated antenna	Up to 167 dB using 23 dBi integrated antenna	Up to 167 dB using 23 dBi integrated antenna	Up to 120 dB without antenna
DFS					
Yes	Yes	Yes	i-DFS	i-DFS	No
OFDM					
No	Yes	Yes	i-OFDM	i-OFDM	No
MIMO					
No	No	Yes	Yes	Yes	No
SECURITY					
56-bit DES standard, AES Optional	56-bit DES standard, 128-bit AES Optional	48-bit	128/256 bit AES, optional	128/256-bit AES, optional FIPS 140-2, optional	128/256 bit AES, optional FIPS 140-2, optional

LOS (Line of Sight)

NLOS (Non Line of Sight)

For more information on Point-to-Point, specifications and capabilities, visit » motorola.com/ptp

POINT-TO-MULTIPOINT

PMP AP 105	PMP 120	PMP 120 900 MHz	PMP 130	PMP 320*	PMP 400	PMP 430 10 MHz Ch. 20 MHz Ch.
RADIO FREQUENCIES						
900 MHz, 2.4, 5.2, 5.4 and 5.8 GHz	2.4, 5.1, 5.2, 5.4, 5.7, 5.9 GHz	900 GHz	2.4, 5.1, 5.2, 5.4, 5.8, 5.9 GHz	3.3, 3.5, 3.6 GHz	4.9 GHz	5.4, 5.8 GHz
THROUGHPUT						
4.8 Mbps @ 900 MHz 14 Mbps @ 2.4 & 5 GHz	7 Mbps	4 Mbps	14 Mbps	23 Mbps (up to 40 Mbps with MIMOB)	20 Mbps	Up to 50 Mbps
LATENCY (ROUND TRIP)						
5-7 ms	5-7 ms	12-15 ms	30-40 ms	25 ms	5-7 ms	5-7 ms
SYSTEM GAIN (dB)						
900 MHz 138 2.4 GHz 125 5 GHz 123	2.4 GHz: 125, 5 GHz: 123	138	2.4 GHz: 125, 5 GHz: 123	149	4.9 GHz: 141	5.4 GHz: 133, 5.8 GHz: 134 5.4 GHz: 133, 5.8 GHz: 131
SYSTEM GAIN with passive LENS (dB)						
NA	5 GHz: 133	NA	5 GHz: 133	NA	NA	5.4 GHz: 148, 5.8 GHz: 140 5.4 GHz: 148, 5.8 GHz: 137
SYSTEM GAIN with passive Reflector (dB)						
NA	2.4 GHz: 138, 5 GHz: 141	NA	2.4 GHz: 138, 5 GHz: 141	NA	NA	5.4 GHz: 133, 5.8 GHz: 149 5.8 GHz: 130, 5.8 GHz: 146
CHANNEL WIDTH (MHz)						
8 MHz @ 900 MHz 20 MHz @ 2.4 & 5 GHz	20 MHz	8 MHz	20 MHz	5, 7, 10 MHz	10 MHz	10, 20 MHz
SECURITY						
56-bit DES, Optional 128-bit AES FIPS 197 Certified	56-bit DES, Optional 128-bit AES FIPS 197 Certified	56-bit DES, Optional 128-bit AES FIPS 197 Certified	56-bit DES, Optional 128-bit AES FIPS 197 Certified	128-bit AES FIPS 197 Certified	56-bit DES, Optional 128-bit AES FIPS 197 Certified	56-bit DES, Optional 128-bit AES FIPS 197 Certified
OFDM						
No	No	No	No	Yes	Yes	Yes
MAXIMUM SUBSCRIBERS Per Access Point						
200	200	200	200	200	200	200
ACCESS POINT Sector						
60°	60°	60°	60°	90°	90°	90°

For more information on Point-to-Multipoint, specifications and capabilities, visit » motorola.com/pmp

* Interoperable with WiMAX CPE

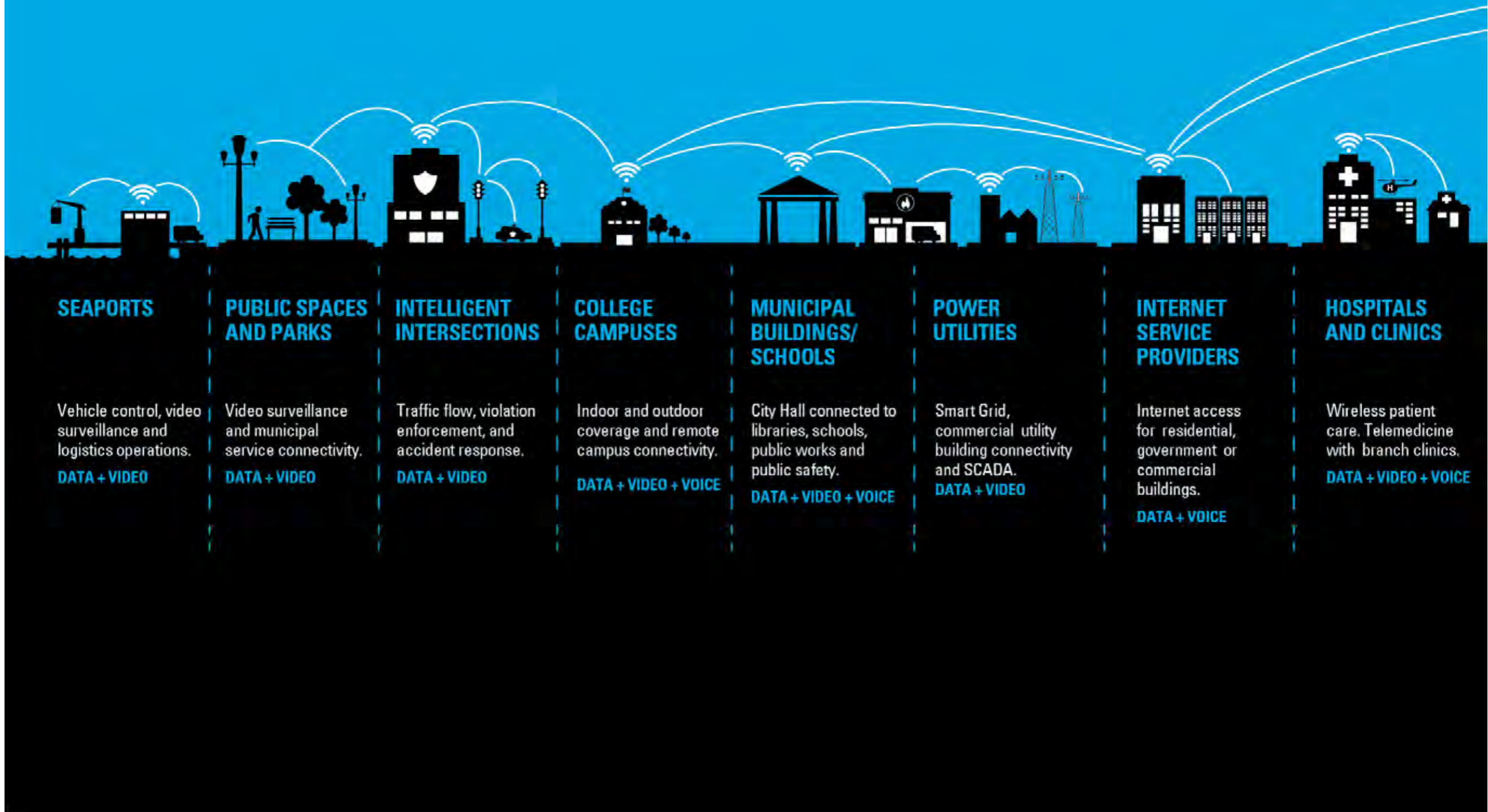
MESH WIDE AREA NETWORKS

4300 SERIES	6300 SERIES	AP 7161	AP 7181	7300 SERIES
RADIO FREQUENCIES				
2.4 GHz, (802.11b/g), 4.9, 5.4, 5.8 GHz (802.11a)	2.4 GHz 2nd ISM Band	802.11 b/g/n: 2.4-2.483 GHz 802.11 a/n: 4.940-4.990 GHz, 5.25-5.35 GHz, and 5.470-5.825 GHz	802.11 b/g/n – 2.4 GHz and 802.11 a/n – 5.4, 5.8 G	2.4 GHz or 4.9 GHz
CHANNEL WIDTH				
10 MHz and 20 MHz	20MHz	20 MHz and 40 MHz	20 MHz and 40 MHz	20MHz
MOBILITY				
Up to 70 mph/110kmh	200+mph/320 kmh	150 mph/240 kmh	Up to 70 mph/110kmh*	U200+mph /320 kmh
THROUGHPUT (Burst Data Rate)				
54 Mbps	6 Mbps	300 Mbps	300 Mbps	6 Mbps (MEA), 54 Mbps (802.11 b/g)
ROUTING PROTOCOL				
MeshConnex patented Layer 2 hybrid proactive/reactive routing with Layer 1 situational-awareness	MeshConnex patented Layer 2 hybrid proactive/reactive routing with Layer 1 situational-awareness	Layer 3 Routing, 802.1 q/p, DynDNS, DHCP server/client, BOOTP Client, PPPoE and LLDP	MeshConnex patented Layer 2 hybrid proactive/reactive routing with Layer 1 situational-awareness	MeshConnex patented Layer 2 hybrid proactive/reactive routing with Layer 1 situational-awareness
QUALITY OF SERVICE				
802.11 e	802.1 p	Service On board IDS, and secure guest hotspot access WMM, WMM-UAPSD, 802.1p, Diffserv and TOS	802.1p/q with 8 queues per VLAN 802.11e WiFi Multimedia Extensions	802.11e, MEA-802.1p
CLIENT ENCRYPTION SUPPORT				
For 802.11b/g: WEP, AES, TKIP, WPA and WPA2 (802.11i)	WEP, AES, WPA (TKIP) and WPA2 (802.11i)	WPA2, WPA	Open, WEP, AES-CCM, TKIP	For 802.11b/g: WEP, AES, TKIP, WPA2 (802.11i)
INTRA-MESH ENCRYPTION				
Secure Mesh / AES	Secure Mesh / AES	Secure Mesh / AES	Secure Mesh / AES	Secure Mesh / AES
AUTHENTICATION				
802.1x (infrastructure/ client) MAC Authentication	RADIUS, 802.1x, EAPTTLS or EAP-PEAP	WPA, WPA2, 802.11i, RADIUS, 802.1X (includes EAPTLS,EAP-TTLS) 802.1X (infrastructure/client) and MAC address hardware authentication	WPA, WPA2-PSK, WEP, 802.11i, RADIUS, 802.1X (includes EAPTLS,EAP-TTLS) 802.1X (infrastructure/client) and MAC address hardware authentication	MEA-Hardware device authentication & EAP/802.1x mutual 802.11 b/g-RADIUS 802.1x with EAP/TTLS or EPP/PEA
PRODUCT OPTIONS				
Access Point Vehicle Mounted Modem	Access Point, Mesh Wireless Router Wireless Serial Modem, Wireless Modem Card, Vehicle Mounted Modem	Access Point	Access Point	Access Point, Mesh Wireless Router Wireless Serial Modem, Wireless Modem Card, Vehicle Mounted Modem
TEMPERATURE				
-30 to 60 °C (-22 to 140 °F)	-22 to 140°F (-30 to 60°C)	-40 to +70 °C	Operating: -40 to 131°F (-40 to+55°C) and Storage: -40 to 185°F (-40 to+85°C)	-31 to 131°F (-35 to 55°C)

For more information on Mesh Wide Area Networks, specifications and capabilities, visit » motorola.com/mesh

* Compatible with VMM 4300

EXTENDING YOUR REACH OUTDOORS...





MANUFACTURING

Process control, warehouse management, tech support and video surveillance.
DATA + VIDEO + VOICE

COMMERCIAL BUILDING-TO-BUILDING

Business connectivity between headquarters and branch offices or stores.
DATA + VOICE

PEDESTRIAN AREAS WIFI

Public WiFi, muni services and video surveillance.
DATA + VIDEO

RETAIL

Customer service, store operations, video surveillance.
DATA + VIDEO + VOICE

STADIUM / EVENTS

Sporting event security and support for stadium staff and police.
DATA + VIDEO + VOICE

BUSES/ METRO RAILS

Security, locationing and WiFi access.
DATA + VIDEO + VOICE

AIRPORTS

Video surveillance and security. Public WLAN access. Baggage handling and operations.
DATA + VIDEO

...AND INDOORS.



WATER UTILITIES

Video surveillance for water supply security, SCADA.

DATA + VIDEO

HARD-TO-REACH AREAS

Connectivity in non-line-of-sight, over water, over desert or forest, across rough terrain.

DATA + VIDEO + VOICE

TWO-WAY RADIOS

Connect to TEAM smartphones and mobile computing devices via TEAM RLS.

VOICE

OFFICE LAPTOPS

Reliable connectivity gives users freedom to work wherever they need to.

DATA + VIDEO

VIDEO CONFERENCING

Video conferencing with prioritized video QoS and reliable WLAN coverage.

DATA + VIDEO + VOICE

MOBILE COMPUTING DEVICES

With enterprise-grade smartphones and two-way radios get reliable voice, video and data via TEAM VoWLAN and TEAM EXPRESS voice client solutions.

DATA + VIDEO + VOICE

VOICE SERVICES

The TEAM VoWLAN solution enables instant voice and data communications through enterprise-grade smartphones and other devices, inside and outside the enterprise

VOICE + DATA

MOTOROLA WIRELESS NETWORK SOLUTIONS

Motorola delivers seamless connectivity that puts real-time information in the hands of users, giving customers the agility they need to grow their business or better protect and serve the public. Working seamlessly together with its world-class devices, Motorola's unrivaled wireless network solutions include indoor WLAN, outdoor wireless mesh, point-to-multipoint, point-to-point networks and voice over WLAN solutions. Combined with powerful software for wireless network design, security, management and troubleshooting, Motorola's solutions deliver trusted networking and anywhere access to organizations across the globe.



Distributed in Canada by
Omega Communications
888-860-8016
wireless@omegacom.ca
<http://omegacom.ca>

MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners. © 2011 Motorola Solutions, Inc. All rights reserved.

GC-22-111 B

