

## LTE Advanced Carrier Aggregation 450Mbps CAT9 Gateway w/802.11ac

The BulletPlusAC-CAT9 is a industrial strength cellular solution using LTE Advanced Carrier Aggregation technology for critical data applications. The BulletPlusAC-CAT9 provides fast CAT9 3CA LTE connections with up to 450 Mbps for today's data intensive applications. The BulletPlusAC-CAT9 features 4x Gigabit LAN Ports, 2x Independent Gigabit WAN Ports, Dual SIM w/Failover, 802.11ac WIFI, RS232/485 Serial Data Port, 2x Programmable I/O and Standalone GPS.

*CAT9 - 450 Mbps LTE*

*Carrier Aggregation*

*Dual Independent WAN*

*6 Gigabit Ethernet Ports*

*802.11bgna/ac WIFI*

*Dual Serial Ports*



## Features

- Ultra Fast CAT9 LTE Operation
- Up to 450 Mbps Downlink / 50 Mbps Uplink Over Air
- Dual SIM Card Support w/Failover & Load Balancing
- Support for 802.11bgna/ac devices (Up to 1.3 Gbps)
- Firewall with ACL Security, DMZ & Port Forwarding
- 2x Programmable Analog/Digital Inputs or 2 Digital Outputs
- IPSec, GRE / VPN Tunneling
- RS232/485 Serial Data Port / RS232 Console/Data Port
- 6 - 10/100/1000 Ethernet (PoE), (6LAN/2WAN)
- IPv6 & IPv4 Support
- Standalone GPS (TCP/UDP/SMTP)
- Wide Operating Temperature (-40°C to +85°C)
- Data Usage Alerts (Email, SMS)
- User interface via SSH or HTTP/HTTPS web browser
- Microhard NMS Support



# BulletPlusAC-CAT9 Specifications

<b>Cellular Supported Bands</b>	LTE FDD Bands: 1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 17, 18, 19, 20, 21, 26, 28, 29, 30, 66 LTE TDD Bands: 38, 39, 40, 41 HSPA+ Bands: 1, 2, 4, 5, 8  <b>LTE 2DL carrier aggregation combinations</b> North America 1+3, 5, 8, 18, 19, 20, 21, 26; 2+2: 2+4, 5, 12, 13, 17, 29, 30, 66; 3+3: 3+5, 7, 8, 19, 20, 28; 4+4: 4+5, 12, 13, 17, 29, 30; 5+7, 30, 66; 7+7: 7+20, 28; 12+30; 13+66; 29+30; 40+40; 41+41  <b>LTE 3DL carrier aggregation combinations</b> North America 2+2+5, 2+2+13, 3+3+7, 3+7+7, 3+3+20, 4+4+5, 4+4+13, 5+66+66, 13+66+66, 66+66+2, 66+66+66, 1+3+7, 1+3+19, 1+3+20, 1+19+21, 2+4+5, 2+4+13, 2+5+30, 2+12+30, 2+29+30, 3+7+20, 3+7+28, 4+5+30, 4+12+30, 4+29+30, 5+66+2, 13+66+2																																																																					
<b>Cellular Data Features*</b>	LTE FDD: 450 Mbps DL, 50 Mbps Up LTE TDD: 347 Mbps DL, 30Mbps UL HSPA+: DL/UL 42/5.76 Mbps  <small>*Module Standalone Laboratory Performance</small>																																																																					
<b>WiFi Features</b>	802.11b/g/n (2.4GHz), 802.11a/n/ac (5.8 GHz)																																																																					
<b>WiFi Performance (3X3 MIMO)</b>	<table border="1"> <thead> <tr> <th>Rate</th> <th>Mode</th> <th>Tx(dBm)*</th> <th>Rx(dBm)</th> </tr> </thead> <tbody> <tr><td>6 Mbps</td><td>a</td><td>26</td><td>-94 ± 2</td></tr> <tr><td>54 Mbps</td><td>a</td><td>26</td><td>-80 ± 2</td></tr> <tr><td>1 Mbps</td><td>b</td><td>26</td><td>-95 ± 2</td></tr> <tr><td>11 Mbps</td><td>b</td><td>26</td><td>-90 ± 2</td></tr> <tr><td>6 Mbps</td><td>g</td><td>26</td><td>-94 ± 2</td></tr> <tr><td>54 Mbps</td><td>g</td><td>26</td><td>-80 ± 2</td></tr> <tr><td>MCS0</td><td>n (HT20)</td><td>26</td><td>-94 ± 2</td></tr> <tr><td>MCS7</td><td>n (HT20)</td><td>26</td><td>-76 ± 2</td></tr> <tr><td>MCS0</td><td>n (HT40)</td><td>26</td><td>-92 ± 2</td></tr> <tr><td>MCS7</td><td>n (HT40)</td><td>26</td><td>-73 ± 2</td></tr> <tr><td>MCS0</td><td>ac (VHT20)</td><td>26</td><td>-93 ± 2</td></tr> <tr><td>MCS8</td><td>ac (VHT20)</td><td>26</td><td>-71 ± 2</td></tr> <tr><td>MCS0</td><td>ac (VHT40)</td><td>26</td><td>-90 ± 2</td></tr> <tr><td>MCS9</td><td>ac (VHT40)</td><td>26</td><td>-67 ± 2</td></tr> <tr><td>MCS0</td><td>ac (VHT80)</td><td>26</td><td>-88 ± 2</td></tr> <tr><td>MCS9</td><td>ac (VHT80)</td><td>26</td><td>-66 ± 2</td></tr> </tbody> </table>	Rate	Mode	Tx(dBm)*	Rx(dBm)	6 Mbps	a	26	-94 ± 2	54 Mbps	a	26	-80 ± 2	1 Mbps	b	26	-95 ± 2	11 Mbps	b	26	-90 ± 2	6 Mbps	g	26	-94 ± 2	54 Mbps	g	26	-80 ± 2	MCS0	n (HT20)	26	-94 ± 2	MCS7	n (HT20)	26	-76 ± 2	MCS0	n (HT40)	26	-92 ± 2	MCS7	n (HT40)	26	-73 ± 2	MCS0	ac (VHT20)	26	-93 ± 2	MCS8	ac (VHT20)	26	-71 ± 2	MCS0	ac (VHT40)	26	-90 ± 2	MCS9	ac (VHT40)	26	-67 ± 2	MCS0	ac (VHT80)	26	-88 ± 2	MCS9	ac (VHT80)	26	-66 ± 2	<small>*Total Tx power in dBm for 3 chains</small>
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<b>Serial Interface</b>	RS232/485 Serial Data Port RS232 Serial Console/Data Port																																																																					
<b>Serial Baud Rate</b>	300bps to 921kbps																																																																					
<b>Serial Port Service</b>	Extensive Serial Port Support: TCP Server/Client / UDP Server/Client / Modbus / SMTP																																																																					
<b>Ethernet</b>	4x LAN 10/100/1000, Auto - MDI/X IEEE 802.3 2x WAN 10/100/1000, Auto - MDI/X IEEE 802.3																																																																					
<b>I/O</b>	2x Programmable Analog/Digital Inputs or 2x Digital Outputs																																																																					
<b>USB</b>	Type A USB 2.0																																																																					
<b>GPS</b>	TCP/UDP/Email Reporting, GpsGate, TAIP																																																																					
	GNSS Systems GPS Protocols Acquisition Sensitivity Tracking Sensitivity Accuracy Standalone time to first fix Total number of SVs	GLONASS, BeiDou & Galileo NMEA 0183 V3.0 -145 dBm (Cold-start) -160 dBm (Open Sky/Active-patch Antenna) <2m CEP-50 (Open sky, 1 Hz tracking) 1s/29s/32s (hot/warm/cold) ~55 SVs																																																																				
<b>SMS</b>	SMS to/from Ethernet via Telnet SMS Alerts SMS Remote Control																																																																					
<b>Carrier Connection</b>	ICMP Keep Alive, Traffic Watchdog, DDNS, Failover																																																																					
<b>Network Protocols</b>	IPv4, IPv6, TCP, UDP, TCP/IP, ARP, ICMP, DHCP, HTTP, SNMP, FTP, DNS, Serial over IP, Modbus Slave (TCP/Serial), Load Balancer																																																																					
<b>Security</b>	VPN, IPsec with IKE/ISAKMP; Multiple tunnel support (16); 3DES and up to 256-bit AES Encryption, VPN Tunneling L2TP, GRE, Open VPN, HTTPS, RADIUS																																																																					
<b>Firewall</b>	NAT, NAT-T VPN Tunneling, Port Forwarding, VPN/GRE pass-through; Access Control Lists, DMZ																																																																					
<b>Management</b>	Telnet, WebUI, SNMP V1/2/3, Wireless Upgrade (HTTP/FTP), AT Command Interface (Serial/Telnet), Microhard NMS Support, Data Usage Alerts, SSH																																																																					
<b>Diagnostics</b>	RSSI, Ec/No, Voltage, Temperature, Remote diagnostics, UDP Event Reporting, SMS Alerts, Netflow																																																																					
<b>Input Voltage</b>	7 - 30VDC Passive PoE on WAN (optional) Reverse polarity protection																																																																					
<b>Connectors:</b>	Antenna Data USB SIM	2x SMA Female (Cell, Diversity/GPS) 3x RPSMA Female (WiFi) 6x RJ-45 (Ethernet) 4 PIN Interlock (Vin, I/O) 2x DB9 RS232 Type A Dual Nano (4FF) SIM (Failover)																																																																				
<b>Environmental</b>	Operating Temperature Humidity	-40°C to +85°C 5-95%, non-condensing																																																																				
<b>Weight</b>	Approx. 350 grams																																																																					
<b>Dimensions</b>	Approx. 5.05" x 3.0" x 1.2" (128mm x 76mm x 30mm)																																																																					
<b>Approvals</b>	FCC / IC PTCRB UL HazLoc (C1D2) Carrier Specific Approvals																																																																					
<b>Order Options</b>																																																																						
	<b>Model</b>	BulletPlusAC-CAT9																																																																				

## Contact Information

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