

Overview

Models

HP hs3110 HSPA+ Mobile Module New!	E5M76AA
HP hs2350 HSPA+ Mobile Broadband	H4X00AA
HP un2430 EV-DO/HSPA W8 Mini Card	H6F23AA
HP lt4112 LTE/HSPA+ Qualcomm® Gobi™ 4G Module New!	E5M74AA
HP lt2522 LTE/EV DO Verizon WWAN (US only)	H4J87AA
HP hs2340 HSPA+ Mobile Broadband Module	QC431AA
HP un2420 EV-DO/HSPA Mobile Broadband Module	WD301AA
HP lt4111 LTE/EV-DO/HSPA+ Qualcomm® Gobi™ 4G WWAN New!	E5M75AA

Introduction

HP Mobile Broadband Modules for select HP Business Notebooks use integrated WWAN technology that allows connection to, and permits roaming on, wireless networks in many countries worldwide. (Separately purchased carrier service required.)

With an HP Mobile Broadband-enabled notebook and wireless carrier service, you can check e-mail, browse the Internet, and connect to corporate networks from anywhere within the coverage area, whether you are stationary or on the go. Enjoy the freedom of connecting in more places, the speed of broadband, the coverage of 3G or 4G networks, and the security, reliability, and ease of use of HP Business Notebooks today!

Key Benefits

- Integrated 3G or 4G WWAN technology from Qualcomm or Ericsson enables high-speed Internet access with a single wireless solution.
- Gobi technology from Qualcomm (H6F23AA/QC430AA/WD301AA) allows you to connect in more places** at Broadband speeds with no need to find a Wi-Fi hotspot, and provides access to both CDMA2000® EV-DO and UMTS/HSPA wireless networks.
- The Ericsson mobile broadband module (QC431AA) allows you to connect at 4G speeds so you can get your work done faster than with a 3G connection.
- All cards allow international roaming in many countries** through support for multiple UMTS/HSPA frequency bands and four GPRS/EDGE bands (varies by card, see table on next page) commonly used worldwide.
- Integrated GPS can help you accurately identify your location around the world and permit personal navigation to guide you where you need to go.***
- Integrate into the notebook.
- Connect easily with preloaded software.
- Enhance security by avoiding connections at hotels, airports, and hotspots with built-in support for VPN applications

* WWAN technology requires separately purchased wireless data service contracts. Check with local service provider for coverage and availability in your area. Limited to mobile network operator coverage areas.

** Broadband connection requires wireless data service contract, network support and is not available in all areas. Contact service provider to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors.

*** GPS access requires an unobstructed path to multiple satellites. Performance may be affected if/when used inside of buildings, bridges or heavily-congested metropolitan areas. Requires separately-purchased GPS navigation software available from multiple GPS applications.

Overview

Compatibility

Broadband card

HP hs3110 HSPA+ Mobile Broadband Module

Compatible notebook platform

HP ZBook 17, ZBook 15, ZBook 14
HP ProBook 440 G0, 450 G0
HP ProBook 430 G1, 440 G1, 450 G1
HP ProBook 640 G1, 645 G1, 650 G1, 655 G1
HP EliteBook 850 G1, 840 G1, 820 G1

Factory-configurable options for additional select HP notebooks. Please see the QuickSpecs for your notebook for additional compatibility information.

NOTE: Works with Windows 7 and Windows 8 only

HP hs2350 HSPA+ Mobile Broadband

HP EliteBook 2170p, 2570p, 8470p and 8570p Notebook PCs
HP EliteBook 8470w, 8570w and 8770w Mobile Workstations
HP ProBook 6470b, 6475b, and 6570b Notebook PCs
HP ProBook 4340s, 4440s and 4540s Notebook PCs
HP EliteBook Revolve G1 and HP EliteBook Folio 9470m

(dependent on your carrier in your region)

Factory-configurable options for additional select HP notebooks. Please see the QuickSpecs for your notebook for additional compatibility information.

NOTE: Works with Windows XP, Windows Vista, and Windows 7, Windows 8 only.

HP un2430 EV-DO/HSPA W8 Mini Card

HP EliteBook 2170p, 2560p, 2570p, 2760p, 8460p, 8470p, 8560p, and 8570p Notebook PCs
HP EliteBook 8460w, 8470w, 8560w, 8570w, 8760w, and 8770w Mobile Workstations
HP ProBook 6470b, 6475b, and 6570b Notebook PCs
HP ProBook 4340s, 4440s, and 4540s Notebook PCs
HP ProBook 5330m Notebook PC

HP EliteBook Revolve G1 and HP EliteBook Folio 9470m

(dependent on your carrier in your region)

Factory-configurable options for additional select HP notebooks. Please see the QuickSpecs for your notebook for additional compatibility information.

NOTE: Works with Windows XP, Windows Vista, and Windows 7, Windows 8 only.

QC430AA works with Windows XP, Windows Vista and Windows 7

HP lt4112 LTE/HSPA+ Qualcomm® Gobi™ 4G Module

ZBook 17, ZBook 15, ZBook 14

HP EliteBook 850 G1, 840 G1, 820 G1

Factory-configurable options for additional select HP notebooks. Please see the QuickSpecs for your notebook for additional compatibility information.

NOTE: Works with Windows 7 and Windows 8 only

HP lt2522 LTE/EV DO Verizon WWAN

HP Elitebook 2170p, 2570p, 8470p, and 8570p Notebook PCs
HP Elitebook 8470w and 8570w Mobile Workstations
HP EliteBook Folio 9470m

NOTE: Works with Windows 7 only.

HP hs2340 HSPA+ Mobile Broadband Module

HP EliteBook 2560p, 2760p, 8460p, and 8560p Notebook PCs
HP EliteBook 8460w, 8560w, and 8760w Mobile Workstations
HP ProBook 5330m Notebook PC

(dependent on your carrier in your region)

Factory-configurable options for additional select HP notebooks. Please see the QuickSpecs for your notebook for additional compatibility information.

NOTE: Works with Windows XP, Windows Vista, and Windows 7 only.

Overview

HP un2420 EV-DO/HSPA
Mobile Broadband Module

HP EliteBook 8440p and 8540p Notebook PCs
HP EliteBook 8440w and 8540w Mobile Workstations
HP ProBook 5310m Notebook PC

Factory-configurable options for additional select HP notebooks. Please see the QuickSpecs for your notebook for additional compatibility information.

NOTE: Works with Windows XP, Windows Vista, and Windows 7 only.

HP lt4111 LTE/EV-DO/HSPA+
Qualcomm® Gobi™ 4G WWAN

ZBook 17, ZBook 15, ZBook 14
HP EliteBook 850 G1, 840 G1, 820 G1, 810 G2

Factory-configurable options for additional select HP notebooks. Please see the QuickSpecs for your notebook for additional compatibility information.

NOTE: Works with Windows 7 and Windows 8 only

NOTE: Not all models are available in all regions.

Service and Support

Each HP Mobile Broadband Module has a one-year limited warranty or the warranty remaining for the HP product in which it is installed. Technical support is available seven days a week, 24 hours a day, as well as in online support forums. Certain restrictions and exclusions apply.

Technical Specifications

HP hs3110 HSPA+ Mobile Broadband Module

Technology/Operating bands	Modes: WCDMA/HSDPA/HSUPA/HSPA+/AWS/GSM/EDGE/GPRS Penta-band WCDMA/HSDPA/HSUPA/HSPA+/AWS: 850/900/1900/2100/AWS MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz
Wireless protocol standards	GSM/GPRS/EDGE: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 7 Advanced Receiver Type 3i
GPS	GPS Standalone, A-GPS: L1 (Internet- and Network assisted)
Wireless parametric standards	Complies with 3GPP specifications
Maximum data rates	GPRS/EDGE: Multi-slot Class 33, Class B WCDMA PS: UL (384 kbps) / DL (384 kbps) UL/DL HSPA: UL (5.76 Mbps)/ DL (7.2 Mbps) UL/DL HSPA+: UL (5.76 Mbps)/ DL (21Mbps)
Maximum output power	WCDMA/HSPA/HSPA+ 2100/1900/900/850/AWS MHz: +24dBm (Power Class 3) GPRS 1900/1800 MHz: +30dBm (Power Class 1) GPRS 900/850 MHz: +33dBm (Power Class 4) EDGE 1900/1800 MHz: +26dBm (Power Class E2) EDGE 900/850 MHz: +27dBm (Power Class E2)
Maximum power consumption	2500mA (peak); 600mA (average)
Power consumption, sleep mode	3.6 mA
Power management	USB selective suspend, Connected Standby Integrated notebook wireless button
Antenna type	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
Form Factor	M.2 Socket 2, USB 2.0 interface high speed
Weight	<6 g
Dimensions (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (42 x 30 x 2.3 mm)
SIM card supply voltage	1.8 V/3.0 V UICC (SIM/UICC/USIM)
Voltage, Operating	3.135V~4.4V (3.3 V recommended)
Temperature, operating	14° to 131° F (-10° to 55° C) (Normal operation) -4° to 158° F (-20° to 70° C) (Extended operation)
Temperature, storage	-40° to 185° F (-40° to 85° C)
Humidity	5% to 95%
Configuration utilities	HP Connection Manager
LED activity	LED Off - Radio Off; Solid LED On - Radio On

HP hs2350 HSPA+ Mobile Broadband

Technology/Operating bands	GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900MHz (UTRA FDD Band II), 900MHz (UTRA FDD Band VIII), 800MHz (UTRA FDD Band VI), 850MHz (UTRA FDD Band V)
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Technical Specifications

Wireless protocol standards	GSM/GPRS/EDGE: Class C, Multi-slot class 10 operation, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 7 Advanced Receiver Type 3i
Wireless parametric standards	Complies with 3GPP specifications
Maximum data rates	UMTS (HSPA) – 21 Mbps (Download), 5.76Mbps (Upload)
GPS	Standalone, A-GPS (Internet- and Network assisted)
GPS bands	1575.42 MHz (± 1.023 MHz)
Maximum output power	GSM/EDGE GSM850 & GSM900 bands GPRS: +33 dBm ± 2 dBm (class 4) EGPRS: +27 dBm ± 3 dBm (class E2) DCS1800 & PCS1900 bands GPRS: +30 dBm ± 2 dBm (class 1) EGPRS: +26 dBm +4 / -3 dBm (class E2) UMTS UTRA FDD Bands +24 dBm +1 / -3 dBm (class 3)
Maximum power consumption	2500mA (peak); 1000mA (average)
Power consumption, sleep mode	5 mA
Power management	USB selective suspend; Integrated notebook wireless button
Antenna type	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
Form Factor	PCI-Express MiniCard, USB 2.0 interface
Weight	<10 g
Dimensions (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
Voltage, Operating	3.0v – 3.6V (3.3v +/-9%)
Temperature, operating (from TIA/EIA/IS-98-D)	4° to 131° F (–20° to 55° C) (full RF performance) 4° to 149° F (–20° to 65° C) (reduced RF performance)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	–22° to 185° F (–30° to 85° C)
Humidity, non-operating	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
Configuration utilities	HP Connection Manager
LED activity	LED Off – Radio Off; Solid LED On – Radio On

Technical Specifications

HP un2430 EV-DO/HSPA W8 Mini Card

Technology/Operating bands	GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900MHz (UTRA FDD Band II), 900MHz (UTRA FDD Band VIII), 850MHz (UTRA FDD Band V) 1xEVDO/1xRTT with receive diversity: 850MHz (Band Class0-Cell), 1900MHz (Band Class1-PCS)
Wireless protocol standards	GSM/GPRS/EDGE: Class B, Multi-slot operation, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 6 CDMA: 1xEVDO Release 0 and Release A, IS-95A, IS-95B, IS-2000
Wireless parametric standards	Meets or exceeds TIA/EIA IS-98-D
Maximum data rates	UMTS (HSPA) - 14.4 Mbps (Download), 5.76 Mbps (Upload) CDMA (EVDO Release A) - 3.1 Mbps (Download), 1.8 Mbps (Upload)
GPS	Standalone GPS enabled
GPS bands	L1 - 1575.42 MHz
Maximum output power	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+/-1) CDMA: 24dBm (+/-1)
Maximum power consumption	2500mA (peak); 1000mA (average)
Power consumption, sleep mode	5 mA
Power management	USB selective suspend; Integrated notebook wireless button
Antenna type	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
Form Factor	PCI-Express MiniCard, USB 2.0 interface
Weight	11.5 g
Dimensions (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
Voltage, Operating	3.3v +/- 10%
Temperature, operating (from TIA/EIA/IS-98-D)	-22° to 140° F (-30° to 60° C) (full RF)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
Humidity, non-operating	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
Configuration utilities	HP Connection Manager
LED activity	LED Off – Radio Off; Solid LED On – Radio On

HP lt4112 LTE/HSPA+ Qualcomm® Gobi™ 4G Module

Technology/Operating bands	LTE FDD all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II), 1800 MHz (Band III), 850 MHz (Band V), 2600 MHz (Band VII), 900 MHz (Band VIII), 800 MHz (Band XX, DD800) WCDMA/HSDPA/HSUPA/HSPA+ all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II), 800 MHz (Band V), 900 MHz (Band VIII) GSM/GPRS/EDGE: 1900 MHz (Band II), 1800 MHz (Band III), 850 MHz (Band V), 900 MHz (Band VIII)
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Technical Specifications

Wireless protocol standards	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification
Wireless parametric standards	Complies with 3GPP specifications Release 8 for LTE
Maximum data rates	LTE (Category 3): 100 Mbps (Download), 50Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
GPS	Standalone
GPS bands	1575.42 MHz (\pm 1.023 MHz), GLONASS 1596-1607MHz
Maximum output power	LTE: +23 dBm (+/- 2 dBm) WCDMA: +23.5 dBm (+/- 1 dBm) GPRS Band II, III: +29.5 dBm (+/- 1 dBm) GPRS Band V, VIII: +32.5 dBm (+/- 1 dBm) EGPRS Band II, III: +26.5 dBM (+/-1.5 dBm) EGPRS Band V, VIII: +27.5 dBM (+/-1.5 dBm)
Maximum power consumption	LTE: 1,200 mA (peak); <900 mA (average) WCDMA: 1,100 mA (peak); <800 mA (average) EGPRS: 2,800 mA (peak); <700 mA (average)
Power consumption, sleep mode	3 mA
Power management	USB selective suspend, Integrated notebook wireless button
Antenna type	Dual high efficiency multi-band antennae with spatial diversity
Form Factor	M.2, USB 2.0 interface
Weight	6 g
Dimensions (Length x Width x Thickness)	42 mm x 30 mm x 2.3 mm
Voltage, Operating	3.135 V to 4.4 V (3.3 V +1.1V/-0.165V)
Temperature, operating (from TIA/EIA/IS-98-D)	14° to 131° F (-10° to 55° C)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
Humidity, non-operating	95% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
LED activity	LED Off - Radio Off; Solid LED On - Radio On

HP It2522 LTE/EV DO Verizon WWAN

Technology/Operating bands	CDMA/1xRTT/EvDO: 800 MHz (Cell), 1900 MHz (PCS) GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900Mhz (UTRA FDD Band II), 900Mhz(UTRA FDD Band VIII), 850 MHz (UTRA FDD Band V) LTE: 700 MHz (Verizon, Band XIII)
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Technical Specifications

Wireless protocol standards	GSM/GPRS/EDGE: Class B, Multi-slot class 10 operation, coding schemes CS1 - CS4 and MSC1 - MSC9. CDMA: 1xEVDO Release 0 and Release A, IS-95A, IS-95B, IS-856, IS-2000 UMTS/WCDMA: Release 99 and Release 7 LTE: Power Class III as per 3GPP TS 36.101
Wireless parametric standards	Complies with 3GPP specifications Release 8 for LTE
Maximum data rates	EvDO (Revision A) – 3.1 Mbps (Download), 1.8 Mbps (Upload) WCDMA (DC-HSPA+) – 42Mbps (Download) LTE (Category 3) –100 Mbps (Download), 50Mbps (Upload)
GPS	Standalone, Assisted, XTRA
GPS bands	1575.42 MHz (± 1.023 MHz)
Maximum output power	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+0.7/-2.3) LTE: +23 dBm (+2.7 dBm/-1.7 dBm) 1xRTT/EvDO: +24 dBm (+0.5 dBm/-1.5 dBm)
Maximum power consumption	2700mA (peak)
Power consumption, sleep mode	10 mA
Power management	USB selective suspend; Integrated notebook wireless button
Antenna type	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
Form Factor	PCI-Express MiniCard, USB 2.0 interface
Weight	< 10 g
Dimensions (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
Voltage, Operating	3.3v +/- 9%
Temperature, operating (from TIA/EIA/IS-98-D)	-4° to 149° F (-20° to 65° C)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
Humidity, non-operating	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
Configuration utilities	HP Connection Manager
LED activity	LED Off - Radio Off; Solid LED On - Radio On

HP hs2340 HSPA+ Mobile Broadband Module

HP un2420 EV-DO/HSPA Mobile Broadband Module

Technology/Operating bands	GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900MHz (UTRA FDD Band II), 900MHz(UTRA FDD Band VIII), 850 MHz (UTRA FDD Band V)	GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900MHz (UTRA FDD Band II), 900MHz (UTRA FDD Band VIII), 850MHz (UTRA FDD Band V) 1xEVDO/1xRTT with receive diversity: 850MHz (Band Class0-Cell), 1900MHz (Band Class1-PCS)
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Technical Specifications

Wireless protocol standards	GSM/GPRS/EDGE: Class B, Multi-slot class 10 operation, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 7 Advanced Receiver Type 3i	GSM/GPRS/EDGE: Class B, Multi-slot operation, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 6 CDMA: 1xEVDO Release 0 and Release A, IS-95A, IS-95B, IS-2000
Wireless parametric standards	Complies with 3GPP specifications	Meets or exceeds TIA/EIA IS-98-D
Maximum data rates	UMTS (HSPA) - 21 Mbps (Download), 5.76Mbps (Upload)	UMTS (HSPA) - 7.2 Mbps (Download), 5.76 Mbps (Upload) CDMA (EVDO Release A) - 3.1 Mbps (Download), 1.8 Mbps (Upload)
GPS	Standalone, A-GPS (Internet- and Network assisted)	Standalone GPS enabled
GPS bands	1575.42 MHz (± 1.023 MHz)	L1 - 1575.42 MHz
Maximum output power	GSM/EDGE GSM850 & GSM900 bands GPRS: +33 dBm ± 2 dBm (class 4) EGPRS: +27 dBm ± 3 dBm (class E2) DCS1800 & PCS1900 bands GPRS: +30 dBm ± 2 dBm (class 1) EGPRS: +26 dBm +4 / -3 dBm (class E2) UMTS UTRA FDD Bands +24 dBm +4 / -3 dBm (class 3)	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+/-1) CDMA: 24dBm (+/-1)
Maximum power consumption	2000mA (peak); 600mA (average)	2500mA (peak); 1000mA (average)
Power consumption, sleep mode		5 mA
Power management	USB selective suspend; Integrated notebook wireless button	
Antenna type	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure	
Form factor	PCI-Express MiniCard, USB 2.0 interface	
Weight	< 12 g	11.5 g
Dimensions (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)	
Voltage, operating	3.3v +/- 9%	3.3v +/- 10%
Temperature, operating (from TIA/EIA/IS-98-D)	14° to 149° F (-10° to 65° C) (full RF performance) 14° to 167° F (-10° to 75° C) (reduced RF performance)	-22° to 140° F (-30° to 60° C) (full RF performance) -22° to 167° F (-30° to 75° C) (reduced RF performance)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	-22° to 185° F (-30° to 85° C)	-40° to 185° F (-40° to 85° C)
Humidity, non-operating	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)	
Configuration utilities	HP Connection Manager	
LED activity	LED Off - Radio Off; Solid LED On - Radio On	

HP It4111 LTE/EV-DO/HSPA+ Qualcomm® Gobi™ 4G WWAN



Technical Specifications

Technology/Operating bands	LTE FDD all bands with diversity: 1900 MHz (Band II) , 1700/2100MHz (Band IV (AWS), 850 MHz (Band V), 700MHz (Band XIII), 700MHz (Band XVII), 1900MHz G Block (Band XXV) WCDMA/HSDPA/HSUPA/HSPA+: all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II) , AWS 1700/2100MHz (Band IV), 850 MHz (Band V), 800 MHz (Band VIII) GSM/GPRS/EDGE: 1900 MHz, 1800 MHz , 850 MHz , 900 MHz CDMA: Cellular 800MHz (BC0), PCS 1900MHz (BC1)
Wireless protocol standards	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification EVDO Release 0 and Release A
Wireless parametric standards	Complies with 3GPP specifications Release 8 for LTE
Maximum data rates	LTE (Category 3): 100 Mbps (Download), 50Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
GPS	Standalone GPS, A-GPS, GPS XTRA
GPS bands	1575.42 MHz (\pm 1.023 MHz), GLONASS 1596-1607MHz
Maximum output power	LTE: +23 dBm (+/- 1 dBm) WCDMA: +23 dBm (+/- 1 dBm) GSM850/900, GMSK: +32dBm (+/- 1dBm) GSM850/900, 8PSK: +27dBm (+/- 1dBm) DCS1800 / PCS 1900, GMSK: +29dBm (+/- 1dBm) DCS1800 / PCS 1900, 8PSK: +26dBm (+/- 1dBm) CDMA: +24dBm (+/- 1dBm)
Maximum power consumption	LTE: 1,200 mA (peak); <900 mA (average) WCDMA: 1,100 mA (peak); <800 mA (average) EGPRS: 2,500 mA (peak); <700 mA (average)
Power consumption, sleep mode	2 mA
Power management	USB selective suspend, Integrated notebook wireless button
Antenna type	Dual high efficiency multi-band antennae with spatial diversity
Form Factor	M.2, 3042-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	42 mm x 30 mm x 2.3 mm
Voltage, Operating	3.135 V to 4.4 V (3.3 V +1.1V/-0.165V)
Temperature, operating (from TIA/EIA/IS-98-D)	-13° to 140° F (-25° to 60° C)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
Humidity, non-operating	95% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
LED activity	LED Off - Radio Off; Solid LED On - Radio On

Technical Specifications

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