

### Overview

#### Introduction

Wireless Wide Area Network (WWAN) is an optional feature sold separately or as an add-on feature on select HP notebooks, Ultrabooks and tablets

HP Mobile Broadband modules provide integrated WWAN technology such as LTE\*\*, DC-HSPA+, HSPA+, HSDPA, HSUPA, WCDMA, GSM, GPRS, EDGE, CDMA, and GNSS connectivity over several radio frequency bands. (Select modules also supports 2G / 3G roaming). HP Mobile Broadband modules use this integrated WWAN technology to connect to wireless networks operated by mobile network operators in many countries worldwide. (Separately purchased mobile operator service required.)

\*\* 4G LTE not available on all products or in all countries.

A WWAN connection requires wireless data service contract, network operator support, and is not available in all areas. Contact a service provider (e.g. Mobile Network Operator) to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors.

Selected HP Mobile Broadband Wireless notebooks support Wireless WAN (WWAN) as an after-market option if ordered as a Wireless WAN (WWAN) ready configuration option. This provides customers the opportunity of adding Wireless WAN (WWAN) as an after-market option providing cost-efficient solution of adding WWAN post purchase.

By offering customers this WWAN ready configuration option; HP can offer customers and integrated wireless wide area network (WWAN) option by way of after-market option kit.

If the notebook is ordered with a WWAN Ready Configuration the HP production process allows for the customers to order a notebook without a HP Broadband module but receive a system that has:

- WWAN antennae built into assembly
- Supports aftermarket WWAN option (user accessible / upgradeable)
- Subscriber identity module (SIM) user-accessible

Select HP Mobile Broadband Wireless notebooks support Wireless Wide Area Network (WWAN) only if ordered from the factory (Select systems are not WWAN upgradeable post purchase)

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#### Models

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

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### Overview

#### Key Benefits

- 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 your mobile operators 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 that are Mobile Broadband enabled today!
- Your HP WWAN Notebook comes preinstalled with HP Connection that enables the user to use this this generic connection manager with any SIM card from any mobile operator to set up this WWAN connection.
- Convenience of having mobile wireless connectivity already set up as soon as you get your notebook, less obtrusive than a USB 3G or 4G notebook stick.
- Enhance security by avoiding connections at hotels, airports, and hotspots with built-in support for VPN applications
- Integrated 3G and / or 4G WWAN technology from Intel, Ericsson or Qualcomm enables high-speed Internet access via HP Mobile Broadband modules.
- HP Mobile Broadband Modules allow international roaming in many countries\*\* through support for multiple LTE /UMTS/HSPA /CDMA frequency bands and five GPRS/EDGE bands commonly used worldwide. (support varies by card, see table below)
- Integrated GPS can help you accurately identify your location around the world and permit personal navigation to guide you where you need to go.\*\*\*

\*\* Broadband connection requires a separately purchased wireless data service contract, mobile network service and support 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. 4G LTE not available on all products or in all countries.

\*\*\* 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 third party GPS application vendor.

#### Compatibility

##### Broadband card

HP hs2340 HSPA+ Mobile Broadband Module

##### Compatible notebook platform

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.

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 un2420 EV-DQ/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.

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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. <b>NOTE:</b> Works with Windows XP, Windows Vista, and Windows 7, Windows 8 only. QC430AA works with Windows XP, Windows Vista and Windows 7
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 <b>NOTE:</b> Works with Windows 7 only.
HP hs3110 HSPA+ Mobile Broadband Module	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. <b>NOTE:</b> Works with Windows 7 and Windows 8 only
HP lt4111 LTE/EV-DO/HSPA+ 4G WWAN	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. <b>NOTE:</b> Works with Windows 7 and Windows 8 only
HP lt4112 LTE/HSPA+ Qualcomm® Gobi™ 4G Module	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. <b>NOTE:</b> Works with Windows 7 and Windows 8 only

**NOTE:** Not all models are available in all regions.

### Overview

#### HP Mobile Broadband Modules and After Market Operator Compatibility

Product Part Number	Product Description	Operator Compatibility					Operating System Support	
		Verizon	Sprint	AT&T	T-Mobile	Generic GSM (SIM)	W7 support	W8.X support
QC431AA	HP hs2340 HSPA+ Mobile Broadband Module			X	X	X	X	
H4X00AA	HP hs2350 HSPA+ Mobile Broadband			X	X	X	X	X
WD301AA	HP un2420 EV-DO/HSPA Mobile Broadband Module	X		X	X	X	X	
H6F23AA	HP un2430 EV-DO/HSPA Win 8 Mini Card (Gobi 3000) (3G)	X	X	X	X	X	X	X*
H4J87AA	HP lt2522 LTE/EV-DO Verizon WWAN (US Only)	X			X	X	X	X**
E5M76AA	HP hs3110 HSPA+ Mobile Module			X	X	X	X	X
E5M75AA	HP lt4111 LTE/EV-DO/HSPA+ Gobi 4G Module	X	X	X	X	X	X	X***
E5M74AA	HP lt4112 LTE/HSPA+ Gobi 4G Module (EMEA/APJ)					X	X	X

\* W8 Support only on AT&T and T-Mobile, no W8 support on Verizon or Sprint

\*\* Supported only as an upgrade with Windows 7 drivers; not with Windows 8 factory image

\*\*\* Win8 Support only, no Win8.1 support

### 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 hs2340 HSPA+ Mobile Broadband Module

<b>Technology/Operating bands</b>	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)
<b>Wireless protocol standards</b>	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
<b>Wireless parametric standards</b>	Complies with 3GPP specifications
<b>Maximum data rates</b>	UMTS (HSPA) - 21 Mbps (Download ), 5.76Mbps (Upload)
<b>GPS</b>	Standalone, A-GPS (Internet- and Network assisted)
<b>GPS bands</b>	1575.42 MHz (± 1.023 MHz)
<b>Maximum output power</b>	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)
<b>Maximum power consumption</b>	2000mA (peak); 600mA (average)
<b>Power consumption, sleep mode</b>	5 mA
<b>Power management</b>	USB selective suspend; Integrated notebook wireless button
<b>Antenna type</b>	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
<b>Form factor</b>	PCI-Express MiniCard, USB 2.0 interface
<b>Weight</b>	< 12 g
<b>Dimensions (Length x Width x Thickness)</b>	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
<b>Voltage, operating</b>	3.3v +/- 9%
<b>Temperature, operating (from TIA/EIA/IS-98-D)</b>	14° to 149° F (-10° to 65° C) (full RF performance) 14° to 167° F (-10° to 75° C) (reduced RF performance)
<b>Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)</b>	-22° to 185° F (-30° to 85° C)
<b>Humidity, non-operating</b>	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>Configuration utilities</b>	HP Connection Manager
<b>LED activity</b>	LED Off - Radio Off; Solid LED On - Radio On

\*Mobile Broadband is an optional feature. 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

### Technical Specifications

#### HP hs2350 HSPA+ Mobile Broadband \*

<b>Technology/Operating bands</b>	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)
<b>Wireless protocol standards</b>	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
<b>Wireless parametric standards</b>	Complies with 3GPP specifications
<b>Maximum data rates</b>	UMTS (HSPA) - 21 Mbps (Download ), 5.76Mbps (Upload)
<b>GPS</b>	Standalone, A-GPS (Internet- and Network assisted)
<b>GPS bands</b>	1575.42 MHz (± 1.023 MHz)
<b>Maximum output power</b>	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)
<b>Maximum power consumption</b>	2500mA (peak); 1000mA (average)
<b>Power consumption, sleep mode</b>	5 mA
<b>Power management</b>	USB selective suspend; Integrated notebook wireless button
<b>Antenna type</b>	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express MiniCard, USB 2.0 interface
<b>Weight</b>	<10 g
<b>Dimensions</b> (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
<b>Voltage, Operating</b>	3.0v - 3.6V (3.3v +/-9%)
<b>Temperature, operating</b> (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)
<b>Temperature, non-operating, 96 hours</b> (from MIL-STD 202 Method 108)	-22° to 185° F (-30° to 85° C)
<b>Humidity, non-operating</b>	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>Configuration utilities</b>	HP Connection Manager
<b>LED activity</b>	LED Off - Radio Off; Solid LED On - Radio On

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### Technical Specifications

#### HP un2420 EV-DO/HSPA Mobile Broadband Module\*

<b>Technology/Operating bands</b>	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)
<b>Wireless protocol standards</b>	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
<b>Wireless parametric standards</b>	Meets or exceeds TIA/EIA IS-98-D
<b>Maximum data rates</b>	UMTS (HSPA) - 7.2 Mbps (Download ), 5.76 Mbps (Upload) CDMA (EVDO Release A) - 3.1 Mbps (Download), 1.8 Mbps (Upload)
<b>GPS</b>	Standalone GPS enabled
<b>GPS bands</b>	L1 - 1575.42 MHz
<b>Maximum output power</b>	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+/-1) CDMA: 24dBm (+/-1)
<b>Maximum power consumption</b>	2500mA (peak); 1000mA (average)
<b>Power consumption, sleep mode</b>	5 mA
<b>Power management</b>	USB selective suspend; Integrated notebook wireless button
<b>Antenna type</b>	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express MiniCard, USB 2.0 interface
<b>Weight</b>	< 12 g
<b>Dimensions</b> (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
<b>Voltage, Operating</b>	3.3v +/- 9%
<b>Temperature, operating</b> (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)
<b>Temperature, non-operating, 96 hours</b> (from MIL-STD 202 Method 108)	-22° to 185° F (-30° to 85° C)
<b>Humidity, non-operating</b>	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>Configuration utilities</b>	HP Connection Manager
<b>LED activity</b>	LED Off - Radio Off; Solid LED On - Radio On

\* Mobile Broadband is an optional feature. 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

#### HP un2430 EV-DO/HSPA W8 Mini Card\*

### Technical Specifications

<b>Technology/Operating bands</b>	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)
<b>Wireless protocol standards</b>	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
<b>Wireless parametric standards</b>	Meets or exceeds TIA/EIA IS-98-D
<b>Maximum data rates</b>	UMTS (HSPA) - 14.4 Mbps (Download), 5.76 Mbps (Upload) CDMA (EVDO Release A) - 3.1 Mbps (Download), 1.8 Mbps (Upload)
<b>GPS</b>	Standalone GPS enabled
<b>GPS bands</b>	L1 - 1575.42 MHz
<b>Maximum output power</b>	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+/-1) CDMA: 24dBm (+/-1)
<b>Maximum power consumption</b>	2500mA (peak); 1000mA (average)
<b>Power consumption, sleep mode</b>	5 mA
<b>Power management</b>	USB selective suspend; Integrated notebook wireless button
<b>Antenna type</b>	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express MiniCard, USB 2.0 interface
<b>Weight</b>	11.5 g
<b>Dimensions</b> (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
<b>Voltage, Operating</b>	3.3v +/- 10%
<b>Temperature, operating</b> (from TIA/EIA/IS-98-D)	-22° to 140° F (-30° to 60° C) (full RF)
<b>Temperature, non-operating, 96 hours</b> (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
<b>Humidity, non-operating</b>	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>Configuration utilities</b>	HP Connection Manager
<b>LED activity</b>	LED Off - Radio Off; Solid LED On - Radio On

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#### HP It2522 LTE/EV DO Verizon WWAN\*

<b>Technology/Operating bands</b>	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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<b>Wireless protocol standards</b>	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
<b>Wireless parametric standards</b>	Complies with 3GPP specifications Release 8 for LTE
<b>Maximum data rates</b>	EvDO (Revision A) - 3.1 Mbps (Download), 1.8 Mbps (Upload) WCDMA (DC-HSPA+) - 42Mbps (Download) LTE (Category 3) -100 Mbps (Download), 50Mbps (Upload)
<b>GPS</b>	Standalone, Assisted, XTRA
<b>GPS bands</b>	1575.42 MHz (± 1.023 MHz)
<b>Maximum output power</b>	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)
<b>Maximum power consumption</b>	2700mA (peak)
<b>Power consumption, sleep mode</b>	10 mA
<b>Power management</b>	USB selective suspend; Integrated notebook wireless button
<b>Antenna type</b>	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express MiniCard, USB 2.0 interface
<b>Weight</b>	< 10 g
<b>Dimensions</b> (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm)
<b>Voltage, Operating</b>	3.3v +/- 9%
<b>Temperature, operating</b> (from TIA/EIA/IS-98-D)	-4° to 149° F (-20° to 65° C)
<b>Temperature, non-operating, 96 hours</b> (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
<b>Humidity, non-operating</b>	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>Configuration utilities</b>	HP Connection Manager
<b>LED activity</b>	LED Off - Radio Off; Solid LED On - Radio On

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#### HP hs3110HSPA+ Mobile Broadband Module\*

<b>Technology/Operating bands</b>	HSPA+: 2100 (Band 1)/1900 (Band 2)/1700 (Band 4)/850 (Band 5)/900 (Band 8) MHz E-GPRS: 1900 (Band 2)/1800 (Band 3)/850 MHz (Band 5)/900 (Band 8) MHz
<b>Wireless protocol standards</b>	E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 7
<b>GPS</b>	Standalone, A-GPS
<b>GPS bands</b>	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
<b>Maximum data rates</b>	HSPA+: UL 5.76 Mbps / DL 21.6 Mbps HSPA: UL 5.76 Mbps / DL 7.2 Mbps WCDMA PS: UL 384 kbps / DL 384 kbps WCDMA CS: UL 64 kbps / DL 64 kbps E-GPRS: UL 236.8 kbps/DL 296 kbps GPRS: UL 85.6 kbps / DL 107 kbps
<b>Maximum output power</b>	HSPA+ MHz: 24 dBm E-GPRS 1800/1900: 26 dBm E-GPRS 850/900: 27 dBm GPRS 1800/1900: 30 dBm GPRS 850/900: 33 dBm
<b>Maximum power consumption</b>	2500 mA (peak); 600 mA (average)
<b>Form Factor</b>	M.2, 3042-S3 Key B
<b>Weight</b>	6 g
<b>Dimensions</b> (Length x Width x Thickness)	1.65 x 1.18 x 0.09 in (42 x 30 x 2.3 mm)

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#### HP lt4111 LTE/EV-DO/HSPA+ 4G WWAN

<b>Technology/Operating bands</b>	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)
<b>Wireless protocol standards</b>	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification EVDO Release 0 and Release A
<b>Wireless parametric standards</b>	Complies with 3GPP specifications Release 8 for LTE
<b>Maximum data rates</b>	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)
<b>GPS</b>	Standalone GPS, A-GPS, GPS XTRA

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<b>GPS bands</b>	1575.42 MHz ( $\pm$ 1.023 MHz), GLONASS 1596-1607MHz
<b>Maximum output power</b>	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)
<b>Maximum power consumption</b>	LTE: 1,200 mA (peak); <900 mA (average) WCDMA: 1,100 mA (peak); <800 mA (average) EGPRS: 2,500 mA (peak); <700 mA (average)
<b>Power consumption, sleep mode</b>	2 mA
<b>Power management</b>	USB selective suspend, Integrated notebook wireless button
<b>Antenna type</b>	Dual high efficiency multi-band antennae with spatial diversity
<b>Form Factor</b>	M.2, 3042-S3 Key B
<b>Weight</b>	6 g
<b>Dimensions</b> (Length x Width x Thickness)	42 mm x 30 mm x 2.3 mm
<b>Voltage, Operating</b>	3.135 V to 4.4 V (3.3 V +1.1V/-0.165V)
<b>Temperature, operating</b> (from TIA/EIA/IS-98-D)	-13° to 140° F (-25° to 60° C)
<b>Temperature, non-operating, 96 hours</b> (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
<b>Humidity, non-operating</b>	95% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
<b>LED activity</b>	LED Off - Radio Off; Solid LED On - Radio On

#### HP It4112 LTE/HSPA+ Qualcomm® Gobi™ 4G Module\*

<b>Technology/Operating bands</b>	LTE: 2100 (Band 1)/1900 (Band 2)/1800 (Band 3)/850 (Band 5), 2600 (Band 7), 900 (Band 8), 800 MHz (Band 20, DD800) MHz HSPA+: 2100 (Band 1)/1900 (Band 2)/850 (Band 5)/900 (Band 8) MHz E-GPRS: 1900 (Band 2)/1800 (Band 3)/850 (Band 5)/900 (Band 8) MHz
<b>Wireless protocol standards</b>	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9
<b>GPS</b>	Standalone
<b>GPS bands</b>	1575.42 MHz $\pm$ 1.023 MHz, GLONASS 1596-1607MHz
<b>Maximum data rates</b>	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)

### Technical Specifications

<b>Maximum output power</b>	LTE: 23 dBm HSPA+: 23.5 dBm E-GPRS 1900/1800: 26.5 dBm E-GPRS 900/850: 27.5 dBm GPRS 1900/1800: 29.5 dBm GPRS 900/850: 32.5 dBm
<b>Maximum power consumption</b>	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,800 mA (peak); 700 mA (average)
<b>Form Factor</b>	M.2, 3042-S3 Key B
<b>Weight</b>	6 g
<b>Dimensions</b> (Length x Width x Thickness)	1.65 x 1.18 x 0.09 in (42 x 30 x 2.3 mm)

\* Mobile Broadband is an optional feature. 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. 4G LTE not available on all products or in all countries.

#### HP It4211 LTE/EV-DO/HSPA+ 4G WWAN\*

<b>Technology/Operating bands</b>	LTE: 1900 (Band 2)/1700 (Band 4)/850 (Band 5)/700 (Band 13), 700 (Band 17), 1900 (Band 25) MHz HSPA+: 2100 (Band 1)/1900 (Band 2)/1700 (Band 4)/850 (Band 5), 800 (Band 8) MHz E-GPRS: 1900 (Band 2)/1800 (Band 3)/850 (Band 5)/900 (Band 8) MHz EV-DO: 800 (BC0)/1900 (BC1) MHz
<b>Wireless protocol standards</b>	3GPP Release 9 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9 EVDO Release 0 and Release A
<b>GPS</b>	Standalone
<b>GPS bands</b>	1575.42 MHz, GLONASS 1602 MHz
<b>Maximum data rates</b>	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) WCDMA PS: 384 kbs (Download), 384 kbs (Upload) WCDMA CS: 64 kbs (Download), 64 kbs (Upload) E-GPRS: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload) EV-DO Rev.B: 14.7 Mbps (Download), 5.4 Mbps (Upload) EV-DO Rev.A: 3.1 Mbps (Download), 1.8 Mbps (Upload)
<b>Maximum output power</b>	LTE: +23 dBm (+1/- 2 dBm) HSPA+: +24 dBm (+1/- 2 dBm) E-GPRS Band 1800/1900: +25 dBm (+/-1 dBm) E-GPRS Band 850/900: +26 dBm (+/-1 dBm) GPRS 1800/1900 : +30 dBm (+1/-2 dBm) GPRS 850/900: +32 dBm (+/- 1 dBm) EV-DO: +24 dBm (+/-1 dBm)

### Technical Specifications

**Maximum power consumption** LTE: 1,200 mA (peak); <900 mA (average)  
HSPA+: 1,100 mA (peak); <800 mA (average)  
E-GPRS: 2,800 mA (peak); <500 mA (average)  
EV-DO: 1000 mA (peak); <700 mA (average)

**Form Factor** M.2, 3042-S3 Key B

**Weight** 6 g

**Dimensions** 1.65 x 1.18 x 0.09 in (42 x 30 x 2.3 mm)  
(Length x Width x Thickness)

\* Mobile Broadband is an optional feature. 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. 4G LTE not available on all products or in all countries.

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