

5G Device Ecosystem

Prepared by GSA based on data from the GSA Analyser for
Mobile Broadband Devices (GAMBoD)

May 2019

Key facts

Since the start of 2019 the number of 5G devices has grown rapidly; starting with a few announcements, and then gathering pace as operators in various parts of the world brought their first commercial 5G services to market. As more services go live during 2019, we can expect the device ecosystem to continue to grow quickly. GSA will be tracking and reporting regularly on 5G device launch announcements. Its GAMBoD database will contain key details about device form factors, features, and support for spectrum bands. Summary statistics are released in this regular monthly publication.

By the end of May, GSA had identified:

- nine announced form factors (phones, hotspots, indoor CPE, outdoor CPE, laptops, modules, snap-on dongles/adapters, IoT routers, and USB terminals).
- thirty-three vendors that have announced available or forthcoming 5G devices.
- sixty-four announced devices, up from 50 in May and 33 in March (excluding regional variants, re-badged devices, phones that can be upgraded using a separate adapter, and prototypes not expected to be commercialised)
 - seventeen phones (plus regional variants)
 - six hotspots (plus regional variants)
 - nineteen CPE devices (indoor and outdoor, including two Verizon-spec compliant devices)
 - sixteen modules
 - two snap-on dongles/adapters
 - two IoT routers
 - one laptop
 - one USB terminal.
- 5G chipsets from five vendors – Huawei, Intel, Mediatek, Qualcomm and Samsung – although Intel has announced its withdrawal from the 5G modem market.

Not all devices are available immediately and specification details remain limited for some devices.

14 new 5G devices added to the GSA GAMBoD database in the last month

64 announced 5G devices in total, excluding regional variants and prototypes not expected to be commercialised

Details

Table 1 lists devices we have identified so far.

Table 1: 5G devices

Vendor	Device name	Form factor	Chipset	5G spectrum support	Availability/ expected availability	Details
Askey	Askey 5G CPE	Indoor CPE	Qualcomm Snapdragon X50 modem	Sub-6 GHz and mmWave	No data	LTE and 5G NR, Rel; 15 NSA; Bands n77, n78, n79, n257, n260 and n261
Askey	5G Fixed Wireless	Indoor and outdoor CPE	No data	Sub-6 GHz and mmWave	No data	LTE and 5G NR
China Mobile	Forerunner One 5G Smart Hub	Hotspot	Qualcomm Snapdragon X50 modem	Sub-6 GHz	H1 2019	Including 2.6 GHz
D-Link	DWR-2010	Indoor CPE	Qualcomm Snapdragon X55 modem	Sub-6GHz and mmWave	2H 2019	LTE and 5G NR; 3GPP Rel 15 NSA
Doogee	5G Docker for the Doogee S90	Snap-on dongle	Mediatek Helio M70	mmWave	3Q 2019	28 GHz; 5G NR Rel 15; 3.5 Gbps DL
Fibocom	FG100	Module	To be confirmed	Sub-6 GHz	Commercial availability 2020	M.2 module; 3G, 4G and 5G, 5G NR FDD and TDD, NSA and SA; sub-6 GHz supported internally, mmWave with external antenna module; up to 6 Gbps DL on mmWave and 4 Gbps on sub-6 GHz
HTC	5G Hub (US bands)	Hotspot	Qualcomm Snapdragon 855 platform with X50 5G modem	Sub-6 GHz	Q2 2019	LTE and 5G NR; 5G Band n41; up to 2.63 Gbps DL and 287 Mbps UL
HTC	5G Hub (Europe and Asia)	Hotspot	Qualcomm Snapdragon 855 platform with X50 5G modem	Sub-6 GHz	Commercially available	LTE and 5G NR; 5G Band n78; up to 2.63 Gbps DL and 287 Mbps UL
Huawei	5G CPE 2.0 (mmWave)	Indoor and outdoor CPE	Balong 5000	mmWave	Commercially available	28 GHz (n257); up to 4 Gbps DL rate; LTE+5G Dual Connectivity; 5G NSA and SA

Huawei	5G CPE 2.0 (Sub-6 GHz)	Indoor and outdoor CPE	Balong 5000	Sub-6 GHz	Commercially available	700 MHz/2.6/3.5/3.7/4.5/4.9 GHz; up to 3.5 Gbps DL rate; LTE+5G Dual Connectivity; 5G NSA and SA
Huawei	5G CPE Win	Outdoor and window CPE	Balong 5000	Sub-6 GHz	Commercially available	Up to 4 Gbps speed at sub-6 GHz 200 MHz; wall, pole, windowsill instalment options
Huawei	5G Mobile WiFi	Hotspot	Balong 5000	No data	September 2019	4G/5G; theoretical up to 4.8 Gbps DL
Huawei	5G CPE Pro	Indoor CPE	Balong 5000	Sub-6 Ghz and mmWave	June 2019	4G and 5G; up to 3.2 Gbps DL test rates, up to 1 Gbps DL shown at MWC; 3.4-3.8 GHz and 26-28 GHz; Being rebadged in some networks, e.g. Vodafone 5G Gigacube and EE 5GEE Home Router
Huawei	Mate X	Phone	Balong 5000	Sub-6 GHz	July 2019	Foldable; theoretical DL speeds of 4.6 GHz; Supports LTE and 5G, SA and NSA
Huawei	Mate 20x 5G	Phone	Balong 5000	No data	June 2019	No more details
Huawei	MH5000	Module	Balong 5000	No data	2H 2019	Designed for connected cars
Inseego	R1000 Home Router/MiFi IQ 5G Fixed Wireless	Indoor CPE (Verizon 5G spec)	No data	mmWave	October 2018	On Verizon; includes VoLTE
Inseego	MiFi IQ 5G Mobile Hotspot	Hotspot	Qualcomm Snapdragon 855 platform with X50 modem	Sub-6 GHz and mmWave	No data	For North America, Asia-Pacific and Europe
Inseego	Skyus 300	Ruggedised IoT router	No data	No data	5G NR options within 2019	No data
Inseego	Skyus 500	Compact ruggedised IoT router	No data	No data	5G NR options within 2019	No data
Jaton Tec	5G CPE	Outdoor CPE	No data	Sub-6 GHz	Precommercial.	4G/5G dual connectivity, 2 Gbps DL; Bands n40, n41, n77, n78, n79

Lenovo	Project Limitless	Laptop	Qualcomm Snapdragon 8cx chipset and X55 modem	Sub-6GHz	Prototype shown in May 2019. Commercial version due early 2020	No additional information
Lenovo	Z6 Pro (China 5G variant)	Phone	Qualcomm Snapdragon 855 platform with X50 modem	No data	June 2019	No additional information
LG	V50 ThinQ	Phone	Qualcomm Snapdragon 855 platform with X50 modem	No data	Available from May 2019 Switzerland and USA	2G, 3G, LTE-A and 5G NR; 1.7 Gbps DL
LG	V50 ThinQ Dual Screen	Phone	Qualcomm Snapdragon 855 platform with X50 modem	No data	Available from May 2019	3G, LTE-A and 5G NR
Motorola	5G Moto Mod	Snap-on dongle	Snapdragon X50 5G NR, Qualcomm SM8150	mmWave	Available on Verizon	LTE and 5G NR; 5G bands n261 and n260; up to 4.5 Gbps DL (tethered to laptop), up to 2.4 Gbps attached to Moto z3 and Moto z4 phones
Netcomm	5G Fixed Wireless Indoor Desk Mount	Indoor CPE	No data	Sub-6 GHz and mmWave	No data	Self-install product; Full indoor 5G gateway
NetComm	5G Fixed Wireless Indoor Wall Mount	Indoor CPE	No data	Sub-6 GHz and mmWave	No data	Self-install product; with indoor WiFi modem
NetComm	5G Fixed Wireless Outdoor Wall Mount	Outdoor CPE	No data	Sub-6 GHz and mmWave	No data	Self-install product
NetComm	5G Fixed Wireless Outdoor Mid-Gain CPE	Outdoor CPE	No data	Sub-6 GHz and mmWave	No data	Technician-install product
NetComm	5G Fixed Wireless Outdoor Roof Mount	Outdoor CPE	No data	Sub-6 GHz and mmWave	No data	Technician-install product
Netgear	Nighthawk M5 Fusion MR5000 (aka Nighthawk 5G Mobile Hotspot)	Hotspot	Snapdragon X50 modem	mmWave	Available on AT&T	LTE and 5G; Band n260 (39GHz); up to 5 Gbps

Nokia	Fastmile 5G Gateway	CPE with indoor/outdoor receiver options	No data	Sub-6GHz	Available	LTE and 5G; sub-6 GHz 5G NR; up to 1 Gbps DL
Nubia	Mini 5G	Phone	Qualcomm Snapdragon 850 platform with X50 modem	No data	Available for pre-order in China	No additional data
OnePlus	OnePlus 7Pro 5G	Phone	Qualcomm Snapdragon 855 platform with X50 5G modem	Sub-6 GHz	Available from May 2019	No additional data
Oppo	Find X 5G	Prototype phone	Snapdragon 855 platform with X50 5G modem	No data	Commercialisation plans uncertain	Prototype shown at MWC
Oppo	Reno 5G	Phone	Snapdragon 855 platform	Sub-6 GHz	Available from May 2019	LTE and 5G, dual-mode connectivity; Band n78; 1.8 Gbps DL demonstrated
Quectel	AG550Q	Module	No data		Precommercial. No data on expected availability	5G NR plus C-V2X automotive module
Quectel	5G RG500Q	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz only	Commercial samples in 2019	LGA module; LTE and 5G; sub-6 GHz 5G NR module for IoT; 3GPP Rel 15; SA and NSA modes
Quectel	RG510Q	Module	Qualcomm Snapdragon X55 modem	Sub-6GHz and mmWave	Commercial samples in 2019	LGA module; 5G NR module for IoT; 3GPP Rel 15; SA and NSA modes
Quectel	RM500Q	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz only	Commercial samples in 2019	M.2 module; 5G NR module for IoT; 3GPP Rel 15; SA and NSA modes
Quectel	RM510Q	Module	Qualcomm Snapdragon X55 modem	Sub-6GHz and mmWave	Commercial samples in 2019	M.2 module; 5G NR module for IoT; 3GPP Rel 15; SA and NSA modes
Royole	Flexpai	Phone	Qualcomm Snapdragon X55 modem	No data	5G version announced, but not yet available	In the future will be upgradeable to support 5G (via software update)
Samsung	SFG-D0100	Indoor CPE (Verizon 5G spec)	No data	mmWave	Available	5G (Verizon 5GTF) 27.5–28.35 GHz

Samsung	Galaxy Fold 5G	Phone	No data	No data	Original release date April 2019. Delayed, possibly to June 2019	No more details
Samsung	Galaxy Note 10	Phone	No data	No data	2019	No more details
Samsung	Galaxy S10 5G (North America)	Phone	Snapdragon 855 platform with X50 5G modem	Sub-6 GHz and mmWave	Available for pre-order on Verizon, shipping to customers in May 2019. Other carriers from 'summer' 2019	2G, 3G, 4G and 5G NSA; multiple versions according to operator and market; up to 2 Gbps DL and 150 Mbps UL; sub-6 GHz, 28 GHz and 39 GHz frequencies
Samsung	Galaxy S10 5G (Europe and Asia)	Phone	Samsung Exynos 5100	Sub-6 GHz and mmWave	April 2019 (South Korea) May 2019 (Australia) July 2019 (Switzerland) Summer 2019	Up to 2 Gbps DL and 150 Mbps UL; sub-6 GHz, 28 GHz and 39 GHz frequencies
Sierra Wireless	AirPrime module	Module	Qualcomm Snapdragon X55 modem	Sub-6GHz and mmWave	No data	M.2 module; LTE and 5G; Conforms with 3GPP Rel 15
SIMCom Wireless	SIM8200G-M2	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz	Precommercial. No data on expected availability.	M.2 Module; 4 Gbps DL, 2.5 Gbps UL
SIMCom Wireless	SIM8200G	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz	Precommercial. No data on expected availability.	LGA module; 4 Gbps DL, 2.5 Gbps UL
SIMCom Wireless	SIM8300	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz and mmWave	Precommercial. No data on expected availability.	LGA module
SIMCom Wireless	SIM8300-M2	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz and mmWave	Precommercial. No data on expected availability.	M.2 Module
Sony	Xperia 5G (exact name to be confirmed)	Phone	Qualcomm Snapdragon 855 platform with X50 modem	mmWave	No data	Prototype shown at MWC

TCL	Alcatel 7 5G	Phone	Snapdragon 855 platform with X50 modem	No data	Late 2019, early 2020	
TCL	Alcatel 5G USB data terminal	USB terminal	MediaTek Helio M70	Sub-6 GHz	Expected to ship Q2 2019	LTE and 5G; 4.4 Gbps DL and 2 Gbps UL for PC users; N41 and n78
Telit	FM980	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz	Available for sampling from early Q2 2019	One supports 5G and LTE sub-6 GHz in TDD and FDD modes and one also supports mmWave bands (matching US deployments)
Telit	FM980M	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz and mmWave	Available for sampling from early Q2 2019	No more details
U-Blox	SARA-N3	Module	No data	Sub-6 GHz	5G version announced, but not yet available	IoT module; In the future it will be upgradeable to 5G with OTA firmware update
Vivo	Apex 2019	Prototype phone	Qualcomm Snapdragon 855 platform	No data	Commercialisation plans uncertain	No more details
Vivo	NEX S 5G	Phone	Qualcomm Snapdragon 855 platform and X50 modem	No data	Mid 2019	2G, 3G, 4G and 5G
Wingtech	WM518	Module	Qualcomm Snapdragon X55 modem	Sub-6 GHz	Precommercial	M.2 Module; 3G, 4G and 5G; 2 Gbps DL, 190 Mbps UL
WNC	5G NR MHS	Hotspot	Qualcomm Snapdragon X50 modem	Sub-6 GHz and mmWave	No data	No more details
WNC	5G NR Outdoor CPE	Outdoor CPE	Qualcomm Snapdragon X50 modem	No data	No data	No more details

Xiaomi	Mi Mix 3 5G	Phone	Qualcomm Snapdragon 855 platform with X50 5G modem	Sub-6 Ghz	May 2019	2G, 3G, 4G and 5G; 5G band n78; up to 2 Gbps DL
ZTE	Axon 10 Pro 5G	Phone	Qualcomm Snapdragon 855 platform with X50 5G modem	Sub-6 Ghz	Available. Launched May 2019.	2G, 3G, 4G and 5G; 5G bands n41, n78
ZTE	5G Indoor CPE (model name to be confirmed)	Indoor CPE	No data	No data	June 2019	Announced by China Unicom and Du; Up to 2 Gbps DL
Zyxel	5G Outdoor CPE	Outdoor CPE	Quectel module with Qualcomm Snapdragon X55 modem	Sub-6 GHz	Sampling August 2019	No additional data

One other potential, but – as far as GSA has been able to determine – not officially announced, 5G device is the Netgear Nighthawk M2 5G Hotspot: reported by secondary sources as planned for Telstra’s network. In addition, Honor has said it is working on an as-yet-unnamed phone due for release in 2H 2019, and earlier versions of the Huawei indoor CPE containing the Balong 5G01 chipset are, according to the vendor, still being used in selected pre-commercial trials.

GSA would welcome information or news about any new 5G devices. Please send any details to research@gsacom.com.

About GSA

GSA (the Global mobile Suppliers Association) is a not-for-profit industry organisation representing companies across the worldwide mobile ecosystem engaged in the supply of infrastructure, semiconductors, test equipment, devices, applications and mobile support services.

GSA actively promotes the 3GPP technology road-map – 3G, 4G, 5G – and is a single source of information resource for industry reports and market intelligence. GSA Members drive the GSA agenda and define the communications and development strategy for the Association.

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NOTE: Errors and omission excepted