



5G Cables & Components

5G



Products In-Stock and Available for Same-Day Shipping!

The Future is 5G

What Will You Do with Wireless Now?

Each generation of network communications has brought enhanced consumer mobile experiences. The advent of 2G gave us text messaging; 3G, smart phone web-browsing; 4G, high-speed data and video streaming. 5G, in turn, promises to provide faster consumer wireless connection speeds with lower latency and the capacity to meet growing worldwide mobile traffic demands. By one estimate, mobile traffic globally is forecasted to grow by 27% annually between 2019 and 2025, with 5G networks carrying nearly half of the traffic by 2025.¹

The 5G network, however, is about something much more than consumer mobile devices. The greatly increased network capacity, speed, efficiency, and high-motion mobility of 5G is expected to revolutionize the way we communicate and to usher in new opportunities for sharing information in ways previously only dreamed of, for businesses and consumers alike. Wireless operators, technology innovators, and a wide range of businesses are looking for ways to monetize the diverse market opportunities presented by 5G – a landscape still being built and comprised of diverse spectrum bands, enabling technologies, and end-user applications. The question today is not *“what will wireless technology do now?”*, but rather *“what will you now do with wireless?”*

Three predominant use cases for 5G wireless communications are emerging:

The Internet of Things (IoT)/Massive Machine Communications (MMC):

Envision a future of fully-automated, robot-enabled factories; connected cars; wearable intelligence; smart, energy-efficient homes with fixed wireless access.

Mission Critical /Ultra-Reliable Low-Latency Communications (URLLC):

Imagine the possibilities for autonomous semi-truck deliveries; remote operating rooms; intelligent power grids; or AR/VR with unstopable high-bandwidth, low latency connections.

Enhanced Mobile Broadband (eMBB):

Expect much faster mobile web access and upload/download speeds, up to 10x.

1. Ericsson Mobility Report (November 2019)

The Importance of Key Network Capabilities to 5G Use Cases

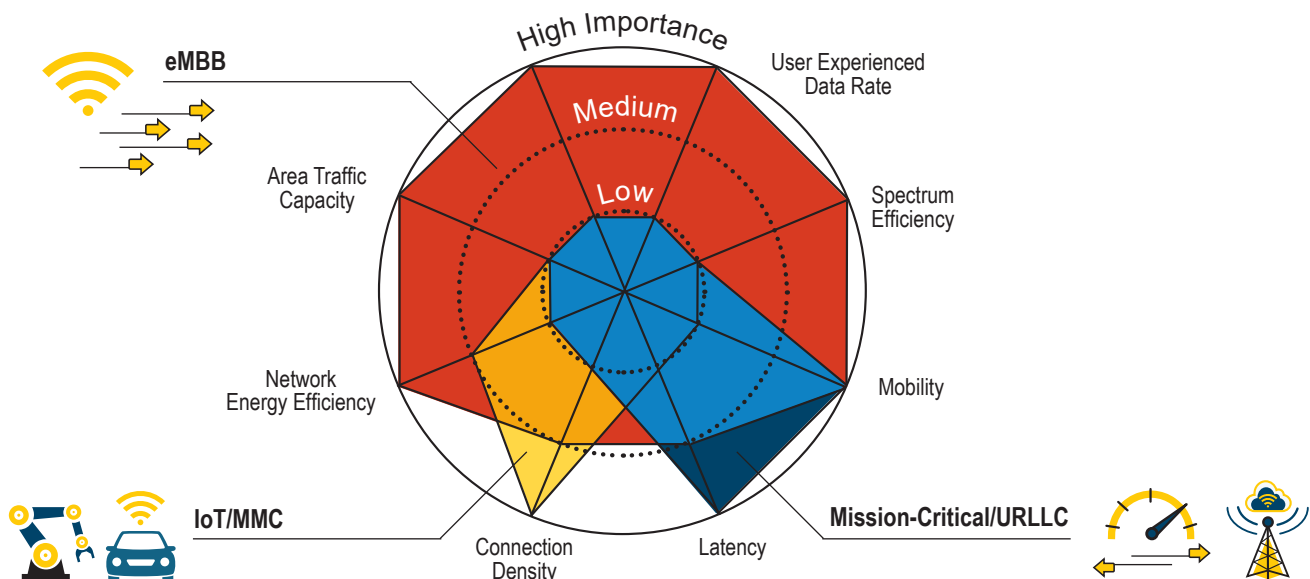


Image Source: M.2083 : IMT Vision - “Framework and overall objectives of the future development of IMT for 2020 and beyond” at <https://www.itu.int/rec/R-REC-M.2083-0-201509-P/en>

5G RF Components from Fairview Microwave

Supplying the Next Gen of Innovation and Infrastructure

Fairview Microwave introduces you to its complete line of in-stock 5G RF components and cable assemblies. We know that having the right parts when you need them to build, test, and deploy your 5G solution can make the difference between project success and failure.









Visit us online at fairviewmicrowave.com to place your order and have it shipped to you today!

Interconnects







Adapters

Reliable, high-performance adapters for your 5G project are in-stock at Fairview Microwave and available to ship same day.

- Connector series: 4.3-10, 7/16 DIN, 4.1/9.5 Mini DIN, MMBX, QMA, N, TNC, SMA, SMP, 3.5 mm, 2.92 mm, 2.4 mm, 1.85 mm, Mini SMP
- Adapter types: male, male right-angle, female, female bulkhead and flange mount, female right-angle, male snap-on, male quick disconnect (QD)
- Many options available to meet your requirements for frequency, power, PIM, durability, environment, and size

Adapters	Design	Genders	Body Style	Mount Method	Max. Frequency (GHz)	5G Sub-6 GHz	5G Millimeter-wave	PIM (dBc)
4.3-10 	Low PIM	Male, Female	Right Angle, Straight	-	6	•	-	-166 to -160
7/16 DIN 	Low PIM, Standard	Male, Female	Right Angle, Straight, Tee	Bulkhead, 4 Hole Flange	8	•	-	-170 to -160
4.1/9.5 Mini DIN 	Low PIM, Standard	Male, Female	Straight	Bulkhead	6	•	-	-160
MMBX 	Standard	Plug, Jack	Straight	-	12.4	•	-	-
QMA 	Standard	Male, Female	Straight, Right Angle	-	6	•	-	-
Type-N 	Low PIM, Precision, Standard	Male, Female	Cross, Radius Right Angle, Right Angle, Straight, Tee	Bulkhead, 4 Hole Flange	18	•	-	-168 to -155
TNC 	Low PIM, Precision, Standard	Male, Female	Right Angle, Straight, Tee	Bulkhead, 2 Hole Flange, 4 Hole Flange	18	•	-	-150
SMA 	Low PIM, Precision, Ruggedized, Standard	Male, Female	45 Degree Right, Radius Right Angle, Right Angle, Straight, Tee	2 Hole Flange, 4 Hole Flange, Bulkhead	27	•	-	-170 to -160

Adapters Continued





Adapters	Design	Genders	Body Style	Mount Method	Max. Frequency (GHz)	5G Sub-6 GHz	5G Millimeter-wave	PIM (dBc)
SMP 	Precision, Standard	Male, Female	Straight	2 Hole Flange, 4 Hole Flange, Bulkhead	40	•	•	-
3.5 mm 	Precision, Ruggedized, Standard	Male, Female	Right Angle, Straight	4 Hole Flange, Bulkhead	34.5	•	•	-
2.92 mm 	Precision, Ruggedized, Standard	Male, Female	Radius Right Angle, Right Angle, Straight	4 Hole Flange, Bulkhead	40	•	•	-
2.4 mm 	Precision, Ruggedized, Standard	Male, Female	Right Angle, Straight	4 Hole Flange, Bulkhead	50	•	•	-
1.85 mm 	Standard	Male, Female	Right Angle, Straight	4 Hole Flange, Bulkhead	67	•	•	-
Mini SMP 	Precision, Standard	Male, Female	Straight	Threaded	65	•	•	-

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of adapters. Visit fairviewmicrowave.com to learn more.









Connectors

Find the exact connector series and type you need from Fairview Microwave's broad selection of connectors for 5G applications that are available to ship same day.

- A variety of options for size, frequency, signal power, PIM, durability, and space limitations
- Optimized for premium VSWR and PIM levels
- Connector series include: 4.3-10, 7/16 DIN, NEX10, 4.1/9.5 Mini DIN, MMBX, QMA, N, QN, TNC, SMA, SMP, 3.5 mm, 2.92 mm, 2.4 mm, 1.85 mm
- Types include: male, male right-angle, female, female bulkhead and flange mount, female right-angle, male snap-on, male quick disconnect (QD)

Connectors	Design	Genders	Body Style	Termination Type	Max. Frequency (GHz)	5G Sub-6 GHz	5G Millimeter-wave	PIM (dBc)
4.3-10 	Low PIM, Standard	Male, Female	Right Angle, Straight	-	6	•	-	-170 to -160
7/16 DIN 	Low PIM, Standard	Male, Female	Right Angle, Straight	Coax, Terminal	7.5	•	-	-170 to -155
NEX10 	Low PIM	Male	Straight	Coax	6	•	-	-160
4.1/9.5 Mini DIN 	Low PIM	Male, Female	Right Angle, Straight	Coax	6	•	-	-160

Connectors Continued





Connectors	Design	Genders	Body Style	Termination Type	Max. Frequency (GHz)	5G Sub-6 GHz	5G Millimeter-wave	PIM (dBc)
MMBX 	Standard	Jack, Plug	Right Angle, Straight	Coax, PCB	12.4	•	-	-
QMA 	Standard	Male, Female	Right Angle, Straight	Coax	18	•	-	-150
Type-N 	Low PIM, Precision, Standard	Male, Female	Right Angle, Straight	Coax, Field Replaceable Contact, PCB, Terminal	18	•	-	-165 to -150
QN 	Standard	Male	Right Angle, Straight	Coax	6	•	-	-
TNC 	Precision, Standard	Male, Female	Right Angle, Straight	Coax, PCB, Terminal	18	•	-	-
SMA 	Low PIM, Precision, Standard	Male, Female	Right Angle, Straight	Coax, Field Replaceable Contact, PCB, Terminal	27	•	-	-160 to -155
SMP 	Standard	Male, Female	Right Angle, Straight	Coax, PCB, Shroud, Terminal	50	•	•	-
3.5mm 	Standard	Male	Straight	Coax	34	-	•	-
2.92mm 	Precision, Standard	Male, Female	Straight	Coax, PCB	45	-	•	-
2.4mm 	Standard, Precision	Male, Female	Straight	Coax, PCB, Terminal	50	-	•	-
1.85mm 	Precision, Standard	Male, Female	Straight	Coax, PCB	70	-	•	-

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of connectors. Visit fairviewmicrowave.com to learn more.

Cable Assemblies

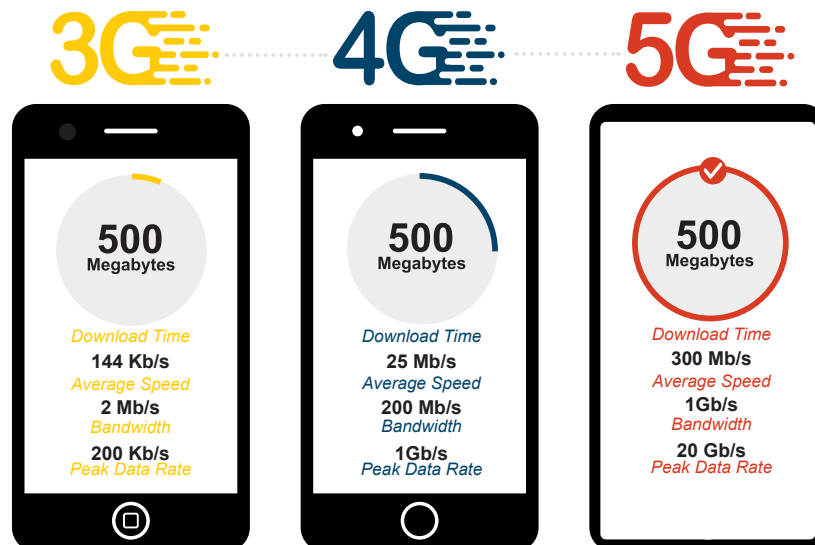
Whether your 5G project calls for low PIM, low loss, high-frequency or rugged reliability, Fairview Microwave will build the exact cable assemblies you require, in the lengths you need, and ship them to you today!

- Max. operating frequencies as high as 110 GHz, depending on cable selection
- Low PIM and low loss cable options
- Cable connector series: 4.3-10, 7/16 DIN, NEX10, 2.92 mm, 2.92 mm NMD, 2.4 mm, 1.85 mm, 1.0 mm, 3.5 mm, 3.5 mm NMD, SMA, QMA, Type-N, TNC, 4.1/9.5 Mini DIN
- Low VSWR and insertion loss
- Superior flex phase stability
- Standard and custom lengths available

Cable Assemblies	Cable Type	Velocity of Propagation (%)	Connector Series	Connector Gender	Body Style	Max. Frequency (GHz)	PIM (dBc)
Low PIM RF Cable Assemblies – Low-Band/Mid-Band 	0.141 Formable Low PIM, 0.141 Low PIM, 0.250 Formable Low PIM, 0.250 Low PIM, SPF-250, SPF-375, SPF-500, SPO-250, SPO-375, SPO-500, SPP-250-LLPL, SPP-375-LLPL, SPP-500-LLPL	76-83	4.1/9.5 Mini DIN, 4.3-10, 7/16 DIN, Type-N, NEX10, QMA, SMA	Male, Female	Right Angle, Straight	6	-160 to -145
Millimeter-wave RF Cable Assemblies – High-Band 	FM-103FLEX, FM-106LL, FM-110TC, FM-151TC, FM-160FLEX, FM-195TC	70-78	1.0 mm, 1.85 mm, 2.4 mm, 2.92 mm, 3.5 mm, Type-N, SMA	Male, Female	Right Angle, Straight	110	-
Test & Measurement RF Cable Assemblies 	VNA-R	70	2.4 mm, 2.92 mm, 2.92 mm NMD, 3.5 mm, 3.5 mm NMD, Type-N, SMA	Male, Female	Straight	40	-
Low Loss RF Cable Assemblies 	LL142, LL335i	80-83	Type-N, SMA, TNC	Male, Female	Right Angle, Straight	18	-

Please note: This 5G Cable Assemblies list represents only a portion of Fairview Microwave's entire category offering of cable assemblies. Visit fairviewmicrowave.com to learn more.

Next Generation Speed and Bandwidth








Source: <https://www.visualcapitalist.com/the-future-of-5g-comparing-3-generations-of-wireless-technology/>

Surge Protectors

High capacity, low let-through energy surge protectors in the connector types and frequency ranges for 5G applications that are available to ship same day.

- DC Pass and DC Block models
- 4.3-10, 7/16 DIN and N Type connectors
- Low PIM models
- Low energy let-through

Surge Protector Technology	Connector Type	Gender	DC Handling	Min. RF Frequency	Max RF Frequency	PIM Rating	RF Input Power
Surge Filter, Gas Discharge Tube 	4.3-10 Surge Protector	Female to female, male to male, female to male	DC Block	698 MHz	2.7 GHz	-173 dBc Typ.	500 W
Quarter Wave Stub 	4.3-10 Surge Protector Extended Range	Female to Male	DC Block	555 MHz	4.2 GHz	-160 dBc Typ.	200 W
Surge Filter, Gas Discharge Tube 	7/16 DIN	Female to female, female to male	DC Block	698 MHz	2.7 GHz	-173 dBc Typ.	1,000 W
Quarter Wave Stub 	7/16 DIN F/M, Extended Range	Female to Male	DC Block	555 MHz	4.5 GHz	-160 dBc Typ.	200 W
Hybrid SASD, MOV, GDT, Surge Filter 	N Type Surge Protector	Female to Male	DC Pass	400 MHz, 1.8 GHz, 2 GHz, 698 MHz	1.2 GHz, 6 GHz, 2.7 GHz		300 W, 10 W, 500 W
Gas Discharge Tube 	DC N Type Surge Protector	Female to female, Female to male,	DC Pass, DC Block	DC	2.4 GHz, 3 GHz, 7GHz		40 W, 50 W, 90 W












RF Actives





Amplifiers

A wide range of high-performance amplifiers, including bench-top, broadband, gain block, power, input protected low noise, limiting, and low noise amplifiers for your 5G project are in-stock at Fairview Microwave and available to ship same day.

- Hundreds of models ideal for sub-6 GHz and millimeter-wave frequency bands
- Noise figures as low as 0.7 dB
- Saturated output power as high as 200 W
- GaN and GaAs PHEMT semiconductor technology available
- Ideal for 5G applications, including telecom, P2P radio links, and test environments

Amplifiers	Min. Frequency (GHz)	Max. Frequency (GHz)	Gain (dB)	NF (dB)	Output Power Range P1dB (dBm)	Output Power Range Psat (dBm)	IP3 (dBm)	Connector Type
Bi-Directional Amplifiers 	0.03	2.7	20-36	2-2.5	-	37-43	-	SMA
Bench-Top Amplifiers 	20	40	30	5	10	-	-	2.92 mm
Sub-6 GHz Broadband Amplifiers 	0.00001	6	12.5-46	4-7	10-35	-	25.5-45	SMA
Millimeter-wave Broadband Amplifiers 	0.03	40	12-60	3-11	8-22	-	22	2.4 mm, 2.92 mm
Gain Block Amplifiers 	0.01	6	14.5-26	4.5	14-15	-	26	SMA
GaN Power Amplifiers 	0.03	6	43-60	7-10	-	40-53	52	SMA, Type-N
Input Protected Low Noise Amplifiers 	3.1	3.5	35	0.85	13	-	20	SMA
Limiting Amplifiers 	1	18	40-80	2.5-5	-	15-19	-	SMA
Sub-6 GHz Low Noise Amplifiers 	0.000009	18	9-61.5	0.7-6.5	7-21.5	-	22-41	SMA, 2.92 mm

Amplifiers Continued






Amplifiers	Min. Frequency (GHz)	Max. Frequency (GHz)	Gain (dB)	NF (dB)	Output Power Range P1dB (dBm)	Output Power Range Psat (dBm)	IP3 (dBm)	Connector Type
Millimeter-wave Low Noise Amplifiers 	26.5	40	43	2	12	-	20	2.92 mm
Sub-6 GHz Power Amplifiers 	0.0005	6	8-50	-	27-43	28-53	37-60	SMA, N
Millimeter-wave Power Amplifiers 	18	40	35	4.5-9	19-25	-	28	SMA, 2.92
USB Amplifiers 	0.05	40	12	4.5-5.5	10	-	-	SMA, 2.92

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of amplifiers. Visit fairviewmicrowave.com to learn more.





Switches

A wide selection high-quality RF switches for your 5G application, including electromechanical relay, high isolation, and PIN diode switches, are in-stock at Fairview Microwave and available to ship today.

- Broadband operating frequencies, DC to 67 GHz
- Nearly 200 models available, offering coaxial, waveguide, and SMT packaged configurations
- Insertion loss as low as 0.012 dB
- Isolation as high as 105 dB
- A variety of popular actuators and feature combinations available
- Rugged reliability; electromechanical switches rated up to 10 million lifecycles
- Ideal for 5G applications, including wireless communications and laboratory prototype & test

Switches	Switch Type	Min. Frequency (GHz)	Max. Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)
Sub-6 GHz Electromechanical Relay Switches 	A/B Coaxial, SPDT, SP4T, SP6T	DC	6	0.2-0.75	40-70
Millimeter-wave Electromechanical Relay Switches 	SPDT, SP4T, SP6T, Transfer	DC	50	0.3-1.1	50
High Isolation Switches 	SPDT, SP4T	DC	20	1-6	35-90
High Isolation USB Switches 	SPDT	0.5	40	6	60
Sub-6 GHz PIN Diode Switches 	SPST, SPDT, SP3T, SP4T, Transfer	0.005	6	0.4-2.5	55-80

Switches Continued





Switches	Switch Type	Min. Frequency (GHz)	Max. Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)
Millimeter-wave PIN Diode Switches 	SPST, SPDT, SP3T, SP4T, SP8T	0.05	67	5-9	20-60
Surface Mount Electromechanical Relay Switches 	SPDT	DC	8	0.3-0.8	30-40
Sub-6 GHz Waveguide Electromechanical Relay Switches 	SPDT	5.85	18	0.012-0.08	85-105
Millimeter-wave Waveguide Electromechanical Relay Switches 	SPDT	18	40	0.012-0.013	90

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of switches. Visit fairviewmicrowave.com to learn more.

Mixers and Multipliers

The finest quality mixers and multipliers for reliable signal conversion are in-stock at Fairview Microwave and available to ship today.

- Coaxial packaged:
 - Covering frequency bands from DC to 46 GHz
 - Double-balanced, triple-balanced and IQ design options
 - LO drive levels from 10 to 19 dBm
- Waveguide Converter Mixers:
 - Covering millimeter-wave bands up to 110 GHz
 - Available in both up and down converter models, with DC to 18 GHz IF frequency bands
- Field-replaceable coaxial connectors, active LO drives, and integrated waveguide port features available
- Ideal for 5G communication systems and test instrumentation




Mixers and Multipliers	Design	Max. RF Frequency (GHz)	Max. IF Frequency (GHz)	Conversion Loss, Typical (dB)	RF to LO Isolation, Typical (dB)
Sub-6 GHz Mixers 	Double Balanced	6	3.5	6.8-9.8	28-60
Millimeter-wave Mixers 	Double Balanced, IQ	43	18	9-11	35-42
Waveguide Converter Mixers 	Down Converter, Up Converter	75	18	6-8	20
Multipliers 	2x	46	-	10-11	Fundamental Isolation 20-30

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of mixers and multipliers. Visit fairviewmicrowave.com to learn more.

Limiters and Detectors

High-performance broadband coaxial packaged RF limiters for your 5G project are in-stock at Fairview Microwave and available to ship same day.

- Comprehensive portfolio of limiter and detector designs available for operation in sub-6 GHz or millimeter-wave frequency bands
- Compact cylindrical or drop-mountable package outlines available with SMA or 2.92 mm RF connectors
- Ideal for proof-of-concept and prototyping in precision test and measurement, instrumentation, and subsystem assemblies



Mixers and Multipliers	Min. Frequency (GHz)	Max. Frequency (GHz)	Max. Leakage Power (dBm)	Max. Input Power (Watts)	Peak Power (Watts)
PIN-Schottky and PIN-PIN Limiters 	0.5	4	19	1	100-200
Sub-6 GHz Detectors 	0.01	6	-	0.01-0.2	-
Millimeter-wave Detectors 	16	40	-	0.05	-

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of limiters and detectors. Visit fairviewmicrowave.com to learn more.

Programmable Attenuators

High-quality programmable signal attenuators for your 5G project are in-stock at Fairview Microwave and ready to ship.

- Sub-6 GHz and millimeter-wave operating frequency bands
- Attenuation levels from 0 to 127 dB
- Low insertion loss ranging from 1.5 dB to 8.3 dB
- VSWR as low as 1.25:1
- Rugged coaxial packaging and RoHS compliant
- Full temperature range operation



Programmable Attenuators	Control Type	Min. Attenuation Level (dB)	Max. Attenuation Level (dB)	Max. Frequency (GHz)
Sub-6 GHz Programmable Attenuators 	USB Controlled, TTL Controlled, Relay Controlled	0	127	6
Millimeter-wave Programmable Attenuators 	USB Controlled, TTL Controlled	0	30	40

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of programmable attenuators. Visit fairviewmicrowave.com to learn more.

Noise Sources

A wide selection of noise sources for performance testing your 5G application, including octave band and broadband, amplified, precision-calibrated instrumentation-grade, and noise sources with integral isolators, are available from Fairview Microwave and ready to ship today

- Comprehensive portfolio supporting sub-6 GHz and millimeter-wave frequency bands
- Output ENR levels from 7 dB to 35 dB
- Amplified models with output power levels from -14 dBm to +10 dBm
- Rugged metal packaging
- A variety of DC and output RF connector options
- Most models meet MIL-STD-202F environmental test conditions




Noise Sources	Design	Min. Frequency (GHz)	Max. Frequency (GHz)	Noise Output ENR (dB)
Sub-6 GHz Noise Sources 	Module	0.00001	6	30
Millimeter-wave Noise Sources 	Module	0.1	60	7-10

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of noise sources. Visit [fairviewmicrowave.com](https://www.fairviewmicrowave.com) to learn more.



Oscillators

High-performance oscillators for your 5G application, including voltage controlled (VCO), reference, phase locked, phase locked crystal, and temperature compensated crystal oscillators, are available from Fairview Microwave and ready to ship.

- Operating in select bands from 10 MHz to 43 GHz
- Surface mount and coaxial packaged versions available
- Featuring integrated buffering, modulated input ports, hermetic sealing, and USB GUI and serial command control functions, depending on model
- Full temperature range operation
- Some models are MIL-SPEC compliant with environmental test conditions for hermeticity and temperature cycle
- Ideal for 5G applications requiring phase locked loops, frequency synthesizers, and function generators

Oscillators	Frequency Range (GHz)	Phase Noise Range @10 kHz Offset (dBc/Hz)	Voltage Tuning Range (Volts)	Package Style
Phase Locked Oscillators 	0.5-6	-110 to -90	-	Connectorized SMA, Surface Mount
Phase Locked Crystal Oscillators 	0.01-0.1	-155 to -150	-	Connectorized SMA, Surface Mount
Reference Oscillators 	0.01-0.1	-155 to -145	-	Connectorized SMA, Surface Mount

Oscillators Continued

Oscillators	Frequency Range (GHz)	Phase Noise Range @10 kHz Offset (dBc/Hz)	Voltage Tuning Range (Volts)	Package Style
Voltage Controlled Oscillators 	0.01-43.2	-120 to -72	3-20	Connectorized SMA, Connectorized 2.4 mm, Surface Mount
Temperature Compensated Crystal Oscillators 	0.01-0.02	-145	-	Connectorized SMA



Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of oscillators. Visit fairviewmicrowave.com to learn more.

RF Passives

Power Dividers

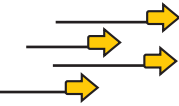
2-way and 4-way input power dividers for your immediate 5G project needs are in-stock at Fairview Microwave and available to ship same day.

- Max. input power of 30 W for wideband operating frequency ranges up to 6 GHz
- Max. input power of 20 W for operating frequency ranges in the millimeter-wave bands
- Operating temperature range from -45 to 85 degree C
- Low insertion loss and VSWR as low as 1.3:1


Power Dividers	Max. Frequency (GHz)	VSWR	Input Power (Watts)	Isolation (dB)	Configuration
Sub-6 GHz Power Dividers 	6	as low as 1.3:1	30	20-21	2-Way Connectorized SMA, 4-Way Connectorized Type-N
Millimeter-wave Power Dividers 	40	as low as 1.3:1	20	18-20	2-Way Connectorized 2.92 mm, 4-Way Connectorized 2.92 mm

This 5G Components list represents only a portion of Fairview Microwave's entire category offering of power dividers. Visit fairviewmicrowave.com to learn more.


5G Core Advantages




High Speed



Extremely Low Latency



Greater Network Capacity




IoT Connectivity

Source: <https://www.visualcapitalist.com/the-future-of-5g-comparing-3-generations-of-wireless-technology/>

Phase Shifters & Trimmers

High-grade RF phase shifters for 5G signal conversion are in-stock at Fairview Microwave and available to ship same day.

- Select frequency bands up to 40 GHz
- Adjustable up to 60 deg./GHz
- Full temperature range operation
- Manual and programmable options available
- Ideal for 5G communication systems and test instrumentation applications



Phase Shifters & Trimmers	Min. Frequency (GHz)	Max. Frequency (GHz)	Insertion Loss (GHz)	Adjustable Phase (Deg/GHz)	Connector Type
Phase Shifters and Trimmers 	DC	18	0.6-2.5	3.5-60	SMA, 7/16 DIN

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of trimmers. Visit fairviewmicrowave.com to learn more.

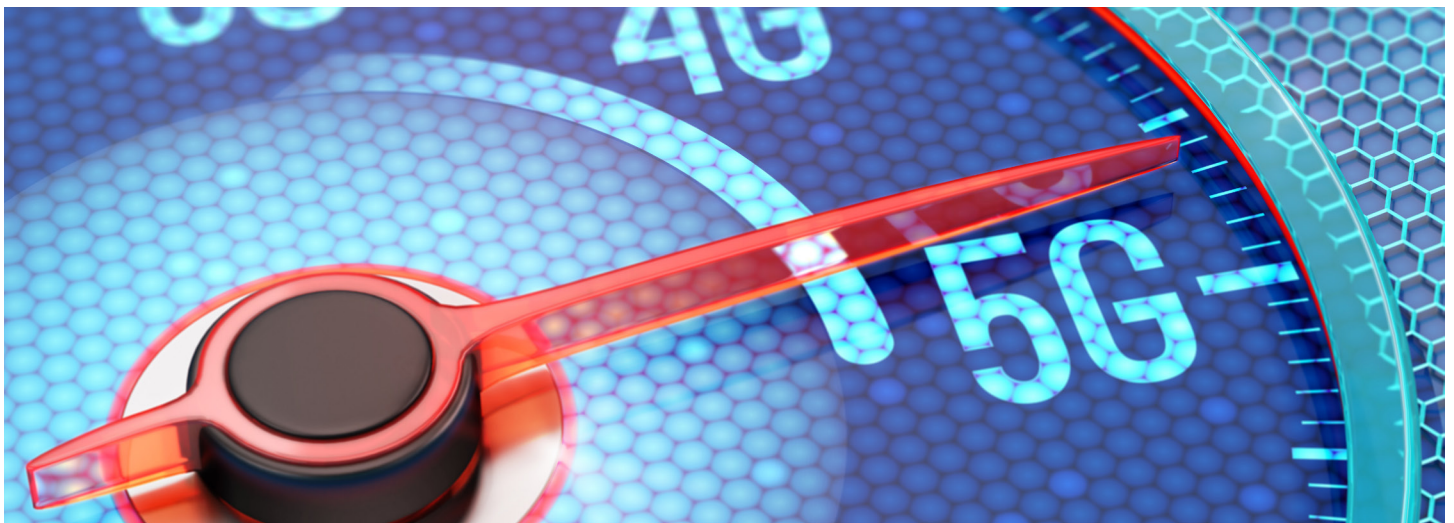
Fixed Attenuators

Reliable fixed attenuator options for your 5G application are in-stock at Fairview Microwave and ready to ship today.

- Wide range of attenuation levels
- Rated up to 2 W
- Max. operating frequencies up to 6 GHz and millimeter-wave bands
- Rugged stainless steel packaging
- SMA and 2.92 mm connector series

Fixed Attenuators	Max. Frequency (GHz)	Attenuation (dB)	VSWR	Max. Input Power (Watts)	Connector Design
Sub-6 GHz Fixed Attenuators 	18	0-30	as low as 1.35:1	2	SMA
Millimeter-wave Fixed Attenuators 	40	1-30	as low as 1.4:1	1	2.92 mm



Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of fixed attenuators. Visit fairviewmicrowave.com to learn more.



Terminations

High-performance RF terminations with rugged designs are in-stock at Fairview Microwave and ready to ship today for your 5G application needs.

- Rated up to 2 W
- Max. operating frequency of 6 GHz, 18 GHz, or 40 GHz
- VSWR as low as 1.15:1
- Rugged stainless steel construction
- Connector series: SMA, Mini SMP, N-Type, 4.3-10, and 2.92 mm



Terminations	Max. Frequency (GHz)	VSWR	Max. Input Power (Watts)	Connector Design
Sub-6 GHz Terminations 	6	as low as 1.15:1	2	N, SMA, 4.3-10
Millimeter-wave Terminations 	40	as low as 1.2:1	1	2.92 mm, Mini SMP

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of terminations. Visit fairviewmicrowave.com to learn more.

Filters

RF bandpass filters for 5G frequency bands are in-stock at Fairview Microwave and ready to ship today.

- Covering sub-6 GHz and millimeter-wave band frequencies
- 9 and 11 section options
- SMA connector package design
- Low insertion loss and excellent VSWR


Filters	Bandpass Min. Frequency (Ghz)	Bandpass Max. Frequency (Ghz)	Sections	Impedance (Ohm)	Max. Insertion Loss (dB)	VSWR	Connectors
Sub-6 GHz Bandpass Filters 	2	4	11	50	2	1.7	SMA
Millimeter-wave Bandpass Filters 	27.5	31	9	50	2.5	1.5	SMA

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of filters. Visit fairviewmicrowave.com to learn more.

Directional Couplers

High-quality directional couplers for your 5G project are in-stock at Fairview Microwave and available to ship same day.

- Broad range of coupling levels available
- Max. input power levels of 30 W
- Millimeter-wave operating frequency range
- Low insertion loss and max. VSWR levels as low as 1.4:1
- Operating temperature range from -45 to 85 degree C
- SMA and 2.92 connector series






Phase Shifters & Trimmers	Min. Frequency (GHz)	Max. Frequency (GHz)	Coupling Value (dB)	Input Power (Watts)	VSWR
Directional Couplers 	1	40	6-30	10-30	As low as 1.4:1

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of directional couplers. Visit [fairviewmicrowave.com](https://www.fairviewmicrowave.com) to learn more.

Waveguides

High-precision waveguide components to ensure low loss for your 5G dev and test environment are in-stock at Fairview Microwave and available to ship same day.

- Millimeter-wave band operating frequencies
- Waveguide components include: couplers, waveguide-to-coax adapters, straights, bends, twists, and more
- Variety of waveguide sizes available
- Flange options include: UG square/round cover, CMR, or CPR



Waveguides	Waveguide Size	Flange Type	Connector Design	Coupling Level (dB)
Waveguide Couplers 	WR-22, WR-28	Square Cover, Round Cover	-	10-20
Waveguide to Coax Adapters 	WR-22, WR-28	Square Cover, Round Cover	2.4 mm, 2.92 mm	-
Waveguide Straights 	WR-22, WR-28	Square Cover, Round Cover	-	-
Waveguide Bends 	WR-22, WR-28	Square Cover, Round Cover	-	-
Waveguide Twists 	WR-22, WR-28	Square Cover, Round Cover	-	-

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of waveguides. Visit [fairviewmicrowave.com](https://www.fairviewmicrowave.com) to learn more.

DC Blocks

High-performance DC blocks to protect your bias sensitive RF components for 5G applications are in-stock at Fairview Microwave and available to ship same day.

- Millimeter-wave band max. operating frequencies
- Inner or outer conductor configuration options available
- 2.92 mm, 2.4 mm, SMA, Type-N, BNC, TNC, and 7/16 DIN connector series



DC Blocks	Min. Frequency (GHz)	Max. Frequency (GHz)	Max. Voltage	Connector Configuration	Design
Sub-6 GHz DC Blocks 	0.01	18	200	Type-N, BNC, SMA, TNC, 7/16 DIN	Inner or Outer – Inner/Outer
Millimeter-wave DC Blocks 	0.000007	50	200	2.92 mm, 2.4 mm, SMA	Inner – Inner/Outer

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of DC blocks. Visit [fairviewmicrowave.com](https://www.fairviewmicrowave.com) to learn more.

Bias Tees

High-reliability bias tees for dependable 5G application performance are in-stock and ready to ship from Fairview Microwave.

- Max. operating frequencies in the sub-6 GHz and millimeter-wave frequency bands
- Max. DC voltage rating of 72 V with current rating of 2.5 A
- SMA, Type-N, and 2.92 mm connector series

Bias Tees	Min. Frequency (GHz)	Max. Frequency (GHz)	Max. Current (mA)	Max. Voltage (Volts)	RF Port Connector	DC Port Connector
Sub-6 GHz Bias Tees 	0.01	6	1000	72	Type-N, SMA	Type-N, Pin, Solder Pin
Millimeter-wave Bias Tees 	0.00003	40	1000	50	2.92 mm, SMA	Pin, Solder Pin

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of bias tees. Visit [fairviewmicrowave.com](https://www.fairviewmicrowave.com) to learn more.





Antennas

Waveguide Antennas

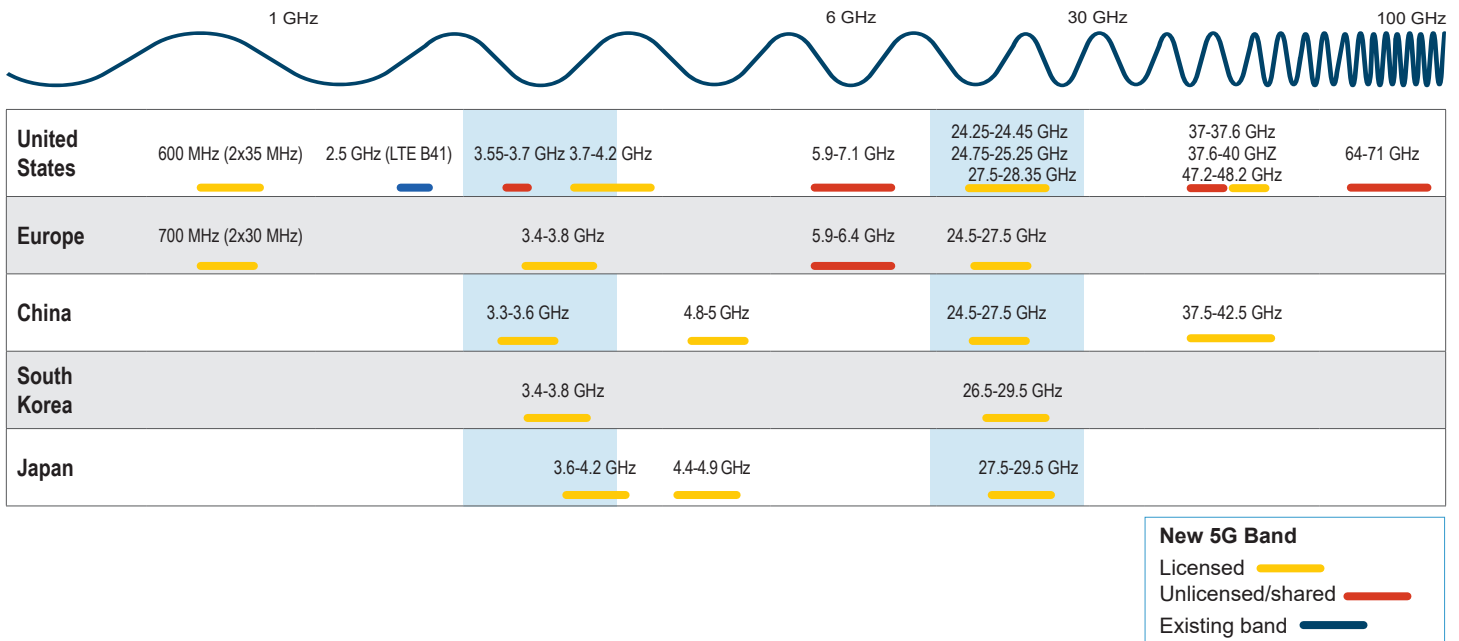
A broad selection of high-frequency, high-performance waveguide antennas for your next 5G project are in-stock at Fairview Microwave and available to ship today.

- Sub-6 GHz and millimeter-wave operating frequencies
- A selection of standard gain horn and specialty waveguide antennas are available
- Mount directly to waveguides or can be combined with waveguide-to-coax adapters for coaxial connections

Waveguide Antennas	Nominal Gain (dBi)	Min. Frequency (GHz)	Max. Frequency (GHz)	Waveguide Size	Input Connector
Sub-6 GHz Waveguide Antennas 	10-20	1.7	2.6	WR-430	Type-N, SMA, 7/16 DIN
Millimeter-wave Waveguide Antennas 	10-20	22	40	WR-28, WR-34	-

Please note: This 5G Components list represents only a portion of Fairview Microwave's entire category offering of waveguide antennas Visit fairviewmicrowave.com to learn more.

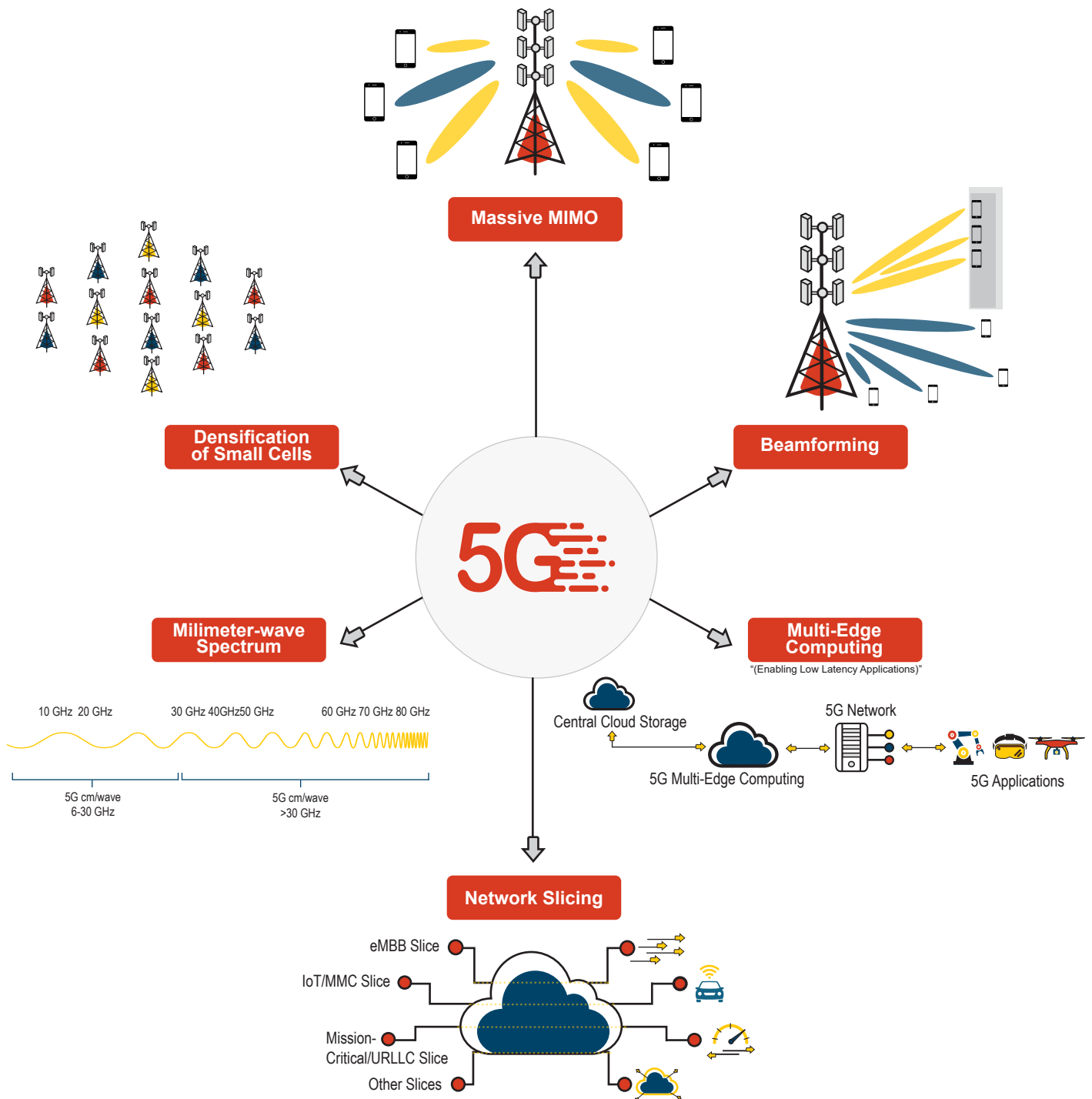
International 5G Frequency Spectrum



Slightly different frequency bands are being allocated to 5G in the United States, Europe, China, South Korea, and Japan.

Source: everythingrf.com

5G Enabling Technologies



Key technologies enabling the 5G network include the millimeter-wave spectrum band, densification of small cells, massive MIMO, beamforming, multi-edge computing, and network slicing.



About Infinite Electronics

Infinite Electronics has a global portfolio of leading in-stock connectivity solution brands. Infinite's brands help propel the world's innovators forward by working urgently to provide products, solutions and real-time support for their customers. Backed by Warburg Pincus, Infinite's brands serve customers across a wide range of industries with a broad inventory selection, same-day shipping and 24/7 customer service. Learn more at infiniteelectronics.com

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