

NTI - NATIONAL TELECOMMUNICATION INSTITUTE

MOBILE COMMUNICATION NETWORKS
LEVEL 1

Comparison of Telecom Generations

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Comparison of Telecom Generations (1G to 5G)

Element	1G	2G	3G	4G	5G
Technology Name	AMPS	GSM	UMTS	LTE	New Radio (NR)
Access Techniques	FDMA	TDMA, CDMA	WCDMA, CDMA2000	OFDMA	OFDMA, NOMA
Carrier Frequencies	800–900 MHz	900–1800 MHz	1.8–2.1 GHz	2–8 GHz	24–52 GHz (mmWave), Sub-6 GHz
Bandwidth	30 kHz	200 kHz	5 MHz	Up to 20 MHz	Up to 400 MHz
Duplexing	FDD	FDD	FDD, TDD	FDD, TDD	TDD, FDD
Data Rate	2.4 Kbps	Up to 64 Kbps	Up to 2 Mbps	Up to 1 Gbps	Up to 10 Gbps

References

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3. "From 1G to 5G, What Next?" Available at: https://www.iaeng.org/IJCS/issues_v45/issue_3/IJCS_45_3_06.pdf
4. "What are the differences between 2G, 3G, 4G LTE, and 5G networks?" Available at: <https://rantcell.com/compare-of-2g-3g-4g-5g.html>