

Metamaterial based devices: Most popular and Globally researched!

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Word of caution: Multiple resources have been used to prepare this document. So, probability of information incompleteness or/and incorrectness.

S. No.	Metamaterial based devices	Important terms, evaluation parameters	Applications
1	Metamaterial Antennas	Directivity, Gain, Aperture Efficiency, Steering Range	Beam Steering, mmWave, smartphones, IoT sensors, wearables, Low Profile, Frequency Selectivity
2	Metamaterial Reflectors	Reflection Efficiency, Gain, Bandwidth, Reflection angle	Beam enhancement, Beam Orientation, Network coverage, RFID
3	Metamaterial Lenses	Focusing Efficiency, Beamwidth Control	Focusing Signals, Point-to-Point Links
4	Metamaterial Radomes	Transmission Loss, Material Transparency	Radars, Military and security applications, Reliable wireless links
5	Metamaterial Filters	Selectivity	Spectrum Management, Spectrum allocations, Multiplexing/Demultiplexing
6	Metamaterial Absorbers	Absorption Bandwidth	EMI reductions, Radar systems, military and security applications
7	Metamaterial Phase Shifters	Phase Range	Beamforming, Interference avoidance, MIMO
8	Metamaterial Beamformers	Gain, Interference avoidance, Directivity	Massive MIMO, Wireless Power Transfer with high efficiency
9	Metamaterial Isolators	Isolation	Isolators in RF system
10	Metamaterial Polarizers	Co- and Cross polarization, Axial ratio, Bandwidth	Polarization control
11	Metamaterial Resonators	Q-factor, Frequency Tunability	Filter, Sensors
12	Metamaterial Couplers	Coupling Efficiency, Isolation	Power distribution based application, power divider, mixer
13	Metamaterial Waveguides	Propagation modes & losses, Resonance frequency	Signal transfer
14	Metamaterial Transmission Lines	Insertion Loss, Effective Dielectric Constant	Power transmission, Impedance matching, Feeding
15	Metamaterial Delay Lines	Dispersion	Phased array systems

Word of respect: To all the involved researchers and Institutes globally!