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Applic-ation	Power and mode of transmission	Frequency band	How it is used and regulated
Satellite commun-ication	High power signals over very long distances; concentrated by dish antennae	1 to 40GHz (microwaves)	Satellite transponders recieve incoming upload signals, amplify them and retransmit them as a downward signal on a different frequency band
Mobile phones	High power networked system, range several km	800MHz to 2.6 GHz (UHF radio to microwave border-line)	5 or 10 MHz bands allocated to different operators. 2G, 3G and 4G cellular networks offering increasing speeds for data. Higher frequencies have greater data capacity but travel less distance through air and penetrate into buildings less well
Bluetooth	Low power device to device links, range up to about 10m	2.4 to 2.4835 GHz - the industrial scientific, epically (ISM) unlicensed band - borderline between UHF radio and microwave freque-ncies	Early Bluetooth devices interfered with Wi-Fi devices because both would use the same channel for an extended period of time. Modern Bluetooth uses frequency - hopping - i.e. broadcasting in short bursts on a number of different frequency channels across the band. This reduces the amount of data lost, and in most cases both Bluetooth and Wi-Fican maintain service
Wi-Fi	Medium power networked system, range ~ 10 to 100m	**same as Bluetooth**	**same as bluetooth**

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Infrared	Low power device to device links, range only a few meters	IR wavelengths 870nm or 930 to 950 nm (frequency about 320 THz)	Used for remote controls and for data transfer between computers, phones, etc. the longer wavelength band is better because it does not suffer from 'sunlight blinding'. Atmospheric moisture blocks that range in sunlight

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