The Electromagnetic Spectrum

Below is a description of standard Radio Frequency "Bands", as well as the applications that use them.

Band	Frequency				
Extremely Low Frequency (ELF)	0		to	3	KHz
Very Low Frequency (VLF)	3	KHz	to	30	KHz
Radio Navigation & maritime/aeronautical mobile	9	KHz	to	540	KHz
Low Frequency (LF)	30	KHz	to	300	KHz
Medium Frequency (MF)	300	KHz	to	3000	KHz
AM Radio Broadcast	540	KHz	to	1630	KHz
Travelers Information Service	1610	KHz			
High Frequency (HF)	3	MHz	to	30	MHz
Shortwave Broadcast Radio	5.95	MHz	to	26.1	MHz
Very High Frequency (VHF)	30	MHz	to	300	MHz
Low Band: TV Band 1 - Channels 2-6	54	MHz	to	88	MHz
Mid Band: FM Radio Broadcast	88	MHz	to	174	MHz
High Band: TV Band 2 - Channels 7-13	174	MHz	to	216	MHz
Super Band (mobile/fixed radio & TV)	216	MHz	to	600	MHz
Ultra-High Frequency (UHF)	300	MHz	to	3000	MHz
Channels 14-70	470	MHz	to	806	MHz
L-band:	500	MHz	to	1500	MHz
Canada DARS	1452	MHz	to	1492	MHz
Personal Communications Services (PCS)	1850	MHz	to	1990	MHz
Unlicensed PCS Devices	1910	MHz	to	1930	MHz

S-band for DARS	2310	MHz	to	2360	MHz
microwave TV	2500	MHz	to	2700	MHz
Superhigh Frequencies (SHF)	3	GHz	to	30.0	GHz
C-band & big-dish 6-10'	3600	MHz	to	7025	MHz
X-band:	7.25	GHz	to	8.4	GHz
Ku-band & small-dish 1-4'	10.7	GHz	to	14.5	GHz
Ka-band	17.3	GHz	to	31.0	GHz
Extremely High Frequencies (EHF) (Millimeter Wave Signals)	30.0	GHz	to	300	GHz
Additional Fixed Satellite	38.6	GHz	to	275	GHz
Infrared Radiation	300	GHz	to	810	THz
Visible Light	810	THz	to	1620	THz
Ultraviolet Radiation	1.62	PHz	to	30	PHz
X-Rays	30	PHz	to	30	EHz
Gamma Rays	30	EHz	to	3000	EHz

This chart derived from ADEC and FCC charts

The point here is basically, **all** of the "usable" electromagnetic spectrum has been **allocated** to some application—and **new** applications are being developed all the time!

Thus, as radio engineers, we must **assume** that there is—or at least could be—a significant signal at **any** and **all** possible frequencies.

This is the **challenge** of a radio engineer. Effectively, there are thousands of people all **whispering** very softly—all at the **same time**. The radio engineers job is to amplify **one** of these voices, while **suppressing** all the others, so that single voice can be clearly **understood**!