

# Radio Frequency Band Designations

## IEEE Standard Radar Band Nomenclature

DESIGNATION	FREQUENCY	WAVELENGTH
HF	3 - 30 MHz	100 m - 10 m
VHF	30 - 300 MHz	10 m - 1 m
UHF	300 - 1000 MHz	100 cm - 30 cm
L Band	1 - 2 GHz	30 cm - 15 cm
S Band	2 - 4 GHz	15 cm - 7.5 cm
C Band	4- 8 GHz	7.5 cm - 3.75 cm
X Band	8 - 12 GHz	3.75 cm - 2.50 cm
Ku Band	12 - 18 GHz	2.50 cm 1.67 cm
K Band	18 - 27 GHz	1.67 - 1.11 cm
Ka Band	27 - 40 GHz	1.11 cm - 0.75 cm
V Band	40 - 75 GHz	7.5 mm - 4.0 mm
W Band	75 - 110 GHz	4.0 mm - 2.7 mm
mm Band	110 - 300 GHz	2.7 mm - 1.0 mm

## International Telecommunications Union (ITU) Radar Band Nomenclature

BAND DESIGNATION	FREQUENCY
VHF	138 - 144 MHz 216 - 225 MHz
UHF	420 - 450 MHz 890 - 942 MHz
L	1.215 - 1.400 GHz
S	2.3 - 2.5 GHz 2.7 - 3.7 GHz
C	5.250 - 5.925 GHz
X	8.500 - 10.680 GHz
Ku	13.4 - 14.0 GHz 15.7 - 17.7 GHz
K	24.05 - 24.25 GHz 24.65 - 24.75 GHz
Ka	33.4 - 36.0 GHz
V	59.0 -64.0 GHz
W	76.0 - 81.0 GHz 92.0 - 100.0 GHz
mm	126.0 - 142.0 GHz 144.0 - 149.0 GHz 231.0 - 235.0 GHz 238 - 248.0 GHz

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## Military Radar Band Designations

BAND	FREQUENCY	WAVELENGTH
HF	3 - 30 MHz	100 m - 10 m
VHF	30 - 300 MHz	10 m - 1 m
UHF	300 - 1000 MHz	100 cm - 30 cm
L	1 - 2 GHz	30 cm - 15 cm
S	2 - 4 GHz	15 cm - 7.5 cm
C	4 - 8 GHz	7.5 cm - 3.75 cm
X	8 - 12 GHz	3.75 cm - 2.50 cm
Ku	12 - 18 GHz	2.50 cm - 1.67 cm
K	18 - 27 GHz	1.67 cm - 1.11 cm
Ka	27 - 40 GHz	1.11 cm - 0.75 cm
mm	40 - 300 GHz	7.5 cm - 1.0 cm

## ITU Frequency Band Nomenclature

ITU BAND	DESIGNATION	FREQUENCY	WAVELENGTH
1	ELF	3 - 30 Hz	100,000 Km - 10,000 Km
2	SLF	30 - 300 Hz	10000 Km - 1000 Km
3	ULF	300 - 3000 Hz	1000 Km - 100 Km
4	VLF	3 - 30 KHz	100 Km - 10 Km
5	LF	30 - 300 KHz	10 Km - 1 Km
6	MF	300 - 3000 KHz	1 Km - 100 m
7	HF	3 - 30 MHz	100 m - 10 m
8	VHF	30 - 300 MHz	10 m - 1 m
9	UHF	300 - 3000 MHz	1 m - 10 cm
10	SHF	3 - 30 GHz	10 cm - 1 cm
11	EHF	30 - 300 GHz	1 cm - 1 mm

## Radio Frequency Band Designations

FREQUENCY BAND DESIGNATION	TYPICAL FREQUENCY RANGE
VHF Band	100 to 300 MHz
UHF Band	300 to 1000 MHz
Terrestrial Trunked Radio (TETRA)	300 to 1000 MHz
CDMA 450	420 to 495 MHz
700 MHz Public Safety Band	764 to 869 MHz
800 Mhz Cellular	824 to 849 MHz; 869 to 894 MHz
GSM 850 / CDMA 850	824 to 849 MHz; 869 to 894 MHz
GSM 900	890 to 915 MHz; 935 to 960 MHz
L- Band	1.000 to 2.000 GHz
Global Positioning System (GPS)	L1: 1575.42 Mhz; L2: 1227.60 MHz
GSM 1800	1710 to 1785 MHz; 1805 to 1880 MHz
GSM 1900 / WCDMA 1900	1850 to 1910 MHz; 1930 to 1990 MHz
PCS 1900	1850 to 1910 MHz; 1930 to 1990 MHz
UMTS	1710 to 1755 MHz; 2110 to 2155 MHz
WCDMA- 3G	1920 to 1980 MHz; 2110 to 2170 MHz
Advanced Wireless Services (AWS)	1710 to 1755 MHz; 2110 to 2155 MHz
Radio Frequency Identification (RFID)	860 to 960 MHz; 2.4 to 2.5 GHz
IEEE802.11 b/g	2.4 to 2.5 GHz
Industrial, Scientific and Medical (ISM)	2.4 to 2.5 GHz
WiFi	2.4 to 2.5 GHz
WiMAX	2.3 Ghz; 2.5 Ghz; 3.5 Ghz; 5.8 GHz
S- Band	2.000 to 4.000 GHz
4.9 GHz Public Safety	4.940 to 4.990 GHz
C- Band	4.000 to 8.000 GHz
X- Band	8.000 to 12.400 GHz
Ku- Band	12.400 to 18.000 GHz