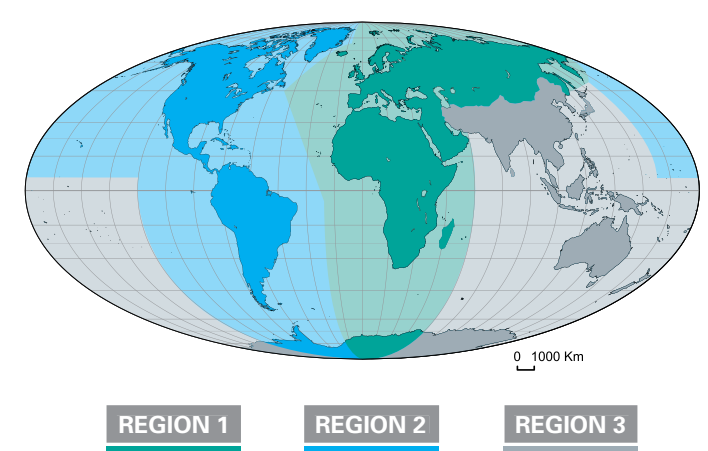
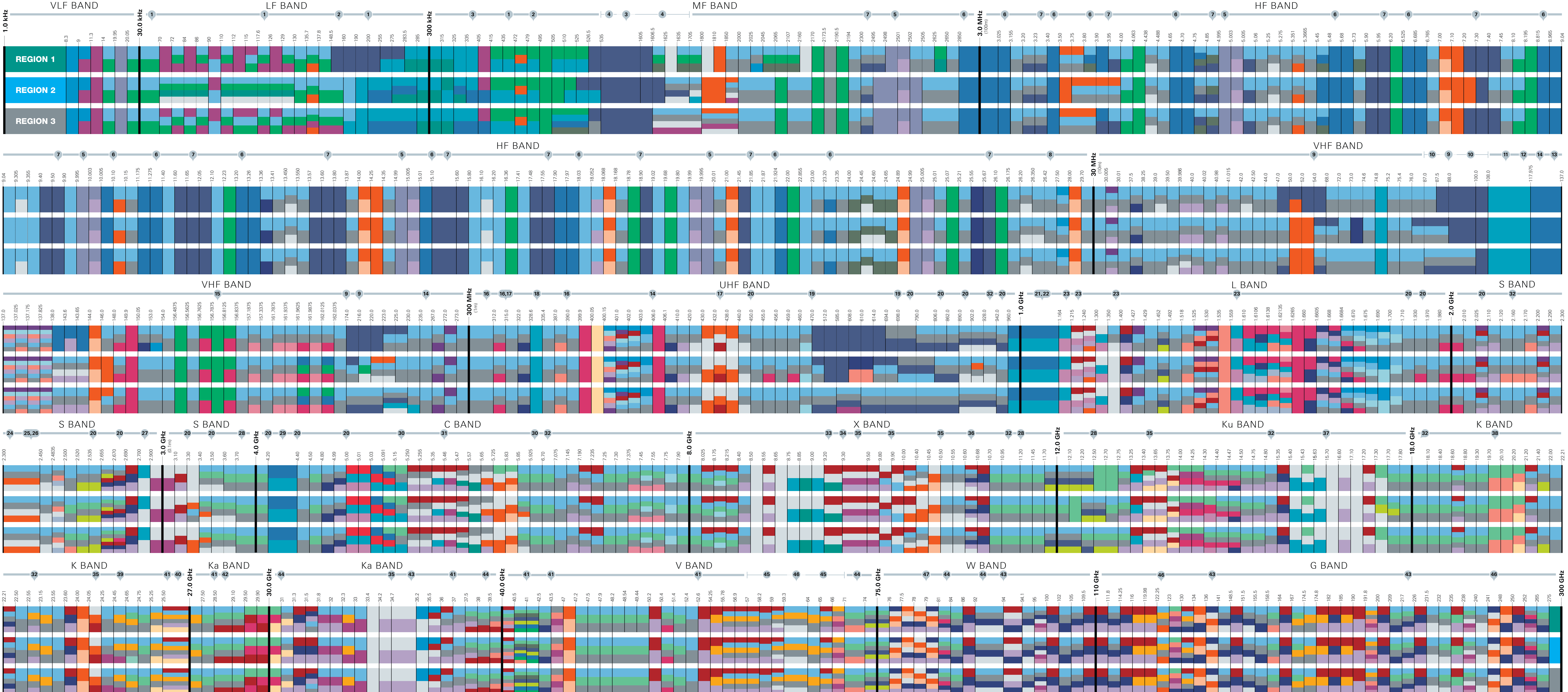


# WORLDWIDE SPECTRUM ALLOCATIONS Courtesy of Rohde & Schwarz

1 kHz



- Aeronautical Mobile
- Aeronautical Mobile Satellite
- Aeronautical Radionavigation
- Amateur
- Amateur Satellite
- Broadcasting
- Broadcasting Satellite
- Earth Exploration Satellite
- Fixed
- Fixed Satellite
- Inter-Satellite
- Land Mobile
- Maritime Mobile
- Maritime Mobile Satellite
- Maritime Radionavigation
- Meteorological Aids
- Space Exploration Satellite
- Mobile
- Mobile Satellite (Earth-to-Space)
- Mobile Satellite (Space-to-Earth)
- Radio Astronomy
- Radiodetermination Satellite
- Radiolocation
- Radiolocation Satellite
- Radionavigation
- Radionavigation Satellite
- Space Operation
- Space Research
- Standard Frequency & Time Signal
- Standard Frequency & Time Signal Satellite

### Selected Points of Interest:

- 1** Sonar (Commercial)
- 2** Power Line Communications (FCC)
- 3** ADF Non-Directional Beacons (NDB)
- 4** AM Radio Broadcast
- 5** WWV Time Standard Signals
- 7** Major World Air Route Areas (MWARA)
- 9** Citizen Band Radios (CB)
- 10** FM Radio Broadcast
- 11** Instrument Landing System (ILS - LOC)
- 12** VHF Omni-Directional Range (VOR)
- 13** Civil Aircraft Communications Radio
- 14** Emergency Position-Indicating Radio Beacon (EPIRB)
- 15** International Maritime Channels
- 16** Garage Door Openers
- 17** Automobile Remote Keyless Entry (RKE)
- 18** Aircraft Landing Glide Slope (GS)
- 19** UHF Television (TV)
- 20** Mobile Phone Bands (LTE and 5G NR FR1)
- 21** Distance Measurement Equipment (DME)
- 22** Aircraft ATC Radar Transponders (Mode S)
- 23** Global Navigation Satellite Systems (L5, L2, L3, L1)
- 24** Broadcast Satellite Radio Services
- 25** Wireless Local Area Networks (802.11 b,g,n,a,x)
- 26** Bluetooth Personal Area Networks (PAN)
- 27** ATC Surveillance Radar
- 28** Satellite Television Broadcast
- 29** Aircraft Radar Altimeters
- 30** Wireless Local Area Networks (802.11 a, n, ac, ax, p)
- 31** Weather Radar - Large Aircraft
- 32** Point-to-Point Telecom Infrastructure
- 33** Weather Radar - Small Aircraft
- 34** Maritime Radar
- 35** Police Radar Speed Measurement
- 36** Radar Motion Detectors (Doors & Alarms)
- 37** Deep Space Research
- 38** Fixed Satellite Service Space-to-Earth All Regions
- 39** Inter-Satellite Radiolocation
- 40** Inter-Satellite Frequency & Time Standard Reference
- 41** Mobile Phone Bands (5G NR FR2)
- 42** Fixed Satellite Service Earth-to-Space All Regions
- 43** Atmospheric Attenuation Windows
- 44** mmWave Point-to-Point Data Links
- 45** Wireless Local Area Networks (802.11 ad, aj, ay)
- 46** Millimeter Wave ISM Bands
- 47** eAIT - enhanced AIT - Body Scanners

Spectrum Bands			
Band Name	Abbreviation	ITU Band	Frequency
Tremendously low frequency	TLF		< 3 Hz
Extremely low frequency	ELF		3 to 30 Hz
Super low frequency	SLF		30 to 300 Hz
Ultra low frequency	ULF	3	300 to 3000 Hz
Very low frequency	VLF	4	3 to 30 kHz
Low frequency	LF	5	30 to 300 kHz
Medium frequency	MF	6	300 to 3000 kHz
High frequency	HF	7	3 to 30 MHz
Very high frequency	VHF	8	30 to 300 MHz
Ultra high frequency	UHF	9	300 to 3000 MHz
Super high frequency	SHF	10	3 to 30 GHz
Extremely high frequency	EHF	11	30 to 300 GHz

IEEE Bands	
Band	Frequency Range
HF band	3 to 30 MHz
VHF band	30 to 300 MHz
UHF band	300 to 1000 MHz
L band	1 to 2 GHz
S band	2 to 4 GHz
C band	4 to 8 GHz
X band	8 to 12 GHz
K <sub>u</sub> band	12 to 18 GHz
K band	18 to 27 GHz
K <sub>a</sub> band	27 to 40 GHz
V band	40 to 75 GHz
W band	75 to 110 GHz
G band	110 to 300 GHz

"Selected Points of Interest" are based on popular allocation applications, and may not be exhaustive or applicable for all nations. This chart represents a single point in time of the International Telecommunications Union (ITU) worldwide special allocations summarized after the World Radio Congress (WRC-19) and published in 2020. As such, it does not completely reflect all aspects such as footnotes and recent changes. Users should always consult their national regulatory body for current allocations. This chart does not differentiate between Co-PRIMARY and Secondary allocations. Allocations are listed from top to bottom in the order they appear in the Radio Regulations Annex, Edition of 2020. Horizontal scale has been exaggerated on some very narrow bands for readability.

Legend: ■ PRIMARY, ■ Co-PRIMARY or Secondary

Source: Radio Regulation Annex, Edition of 2020, published by International Telecommunications Union, Geneva, Switzerland 2020. <https://www.itu.int/wrc/2019/>

Shaded areas are common radar bands