



Rules and Regulations



Organizations and Authorities

- International Telecommunication Union – ITU
 - ITU is a specialized agency within the United Nations
 - 193 states and some 900 companies, universities and organizations are members of the ITU (2021)
- European Conference of Postal and Telecommunications Administrations – CEPT
 - 48 member states (2021)
- Swedish Post and Telecom Authority – PTS
 - Supervisory authority for amateur radio in Sweden



Amateur Radio - Definitions

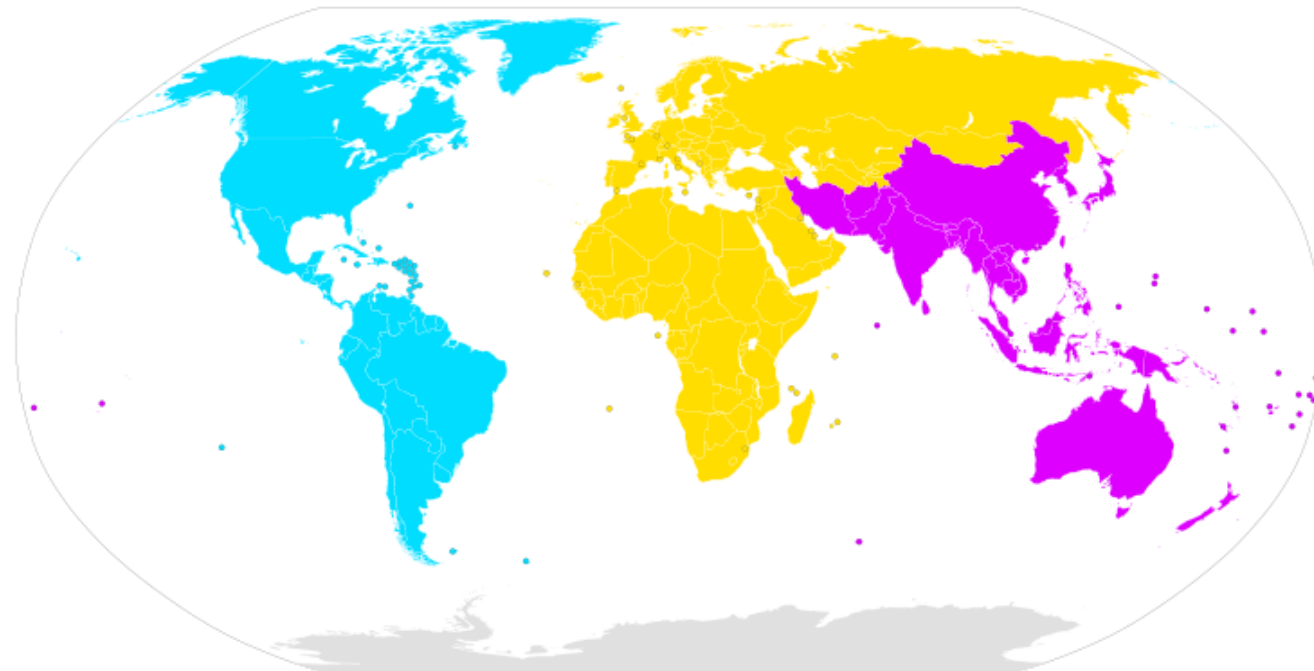
- According to the Swedish Post and Telecom Authority:
 - **Amateur radio:** *Non-professional* radio communication for *practice, communication and technical investigations*, carried out for personal radio-technical interest and *without pecuniary interest*
- According to the International Telecommunication Union:
 - **Amateur service:** A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest
 - **Amateur-satellite service:** A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service



International and national regulations

- International law
 - E.g. [ITU Radio Regulations ITU-RR](#)
 - Governs cross-border issues between nations
- EU legislation
 - E.g. [Radio Equipment Directive](#), [Decision on Short-Range Devices](#)
 - Regulations, Directives and Decisions are binding for EU member states
 - Recommendations and Opinions are non-binding for EU member states
 - EU legislation cannot be directly invoked by private individuals in national courts
- CEPT Recommendations
 - E.g. [T/R 61-01](#), [T/R 61-02](#)
- National law decided by Parliament
 - E.g. [Electronic Communications Act \(2003:389\)](#) (Swedish only)
- National regulations issued by Government
 - E.g. [Regulation on Electronic Communications \(2003:396\)](#) (Swedish only)
- Regulations issued by appointed agencies
 - E.g. [PTS Regulations on Exemption from License Requirements for Use of Certain Radio Transmitters \(PTSFS 2022:19\)](#)

International Telecommunication Union



From [Wikimedia Commons](#)

-  Region 1
-  Region 2
-  Region 3



International Telecommunication Union

- Defines radio communication services, such as
 - Amateur radio
 - Land mobile radio
 - Broadcast
- Assigns call sign series to member states, such as
 - SA-SM, 7S, 8S
- Decides on formation of call signs, such as
 - NPX
 - WABC
 - SK6SSA
- International frequency allocations, such as
 - 121.5 MHz: global aeronautical emergency frequency
 - 87.5 – 108 MHz: broadcast, Region 1
- Prohibits encryption of amateur transmissions between countries
 - Exception: Encryption of control signals to amateur satellites is allowed



European Conference of Postal and Telecommunications Administrations (CEPT)

- CEPT Recommendation [T/R 61-01](#)
 - Governs the use of amateur radio during *temporary visits* abroad
 - No requirement to apply for permit or pay license fees in the visited country
 - First introduced in 1985
- CEPT Recommendation [T/R 61-02](#)
 - Defines the common syllabus for the *Harmonised Amateur Radio Examination Certificate - HAREC*
 - Governs how amateurs *relocating* between participating countries can be granted a license without having to pass any test for a new certificate
 - First introduced in 1990



Swedish Regulations

- [*Electronic Communications Act \(2003:389\)*](#) (Swedish only)
 - *Lag om elektronisk kommunikation*
 - States that the regulator can delegate examination, issuing of certificates and call sign assignment for amateur radio
 - States that certain use of radio transmitters can be exempt from license requirements
 - States that exempt users are still regarded as licensees (and thus subject to license conditions and limitations)
 - Defines the legal concept of harmful interference
 - States penalties for violations of license conditions
 - Mandates non-disclosure for certain radio messages
- [*Regulation on Electronic Communications \(2003:396\)*](#) (Swedish only)
 - *Förordning om elektronisk kommunikation*
 - Designates PTS as the supervisory authority
 - States that possession of jammers is illegal



Swedish Regulations

- [PTS Regulations on Exemption from License Requirements for Use of Certain Radio Transmitters \(PTSFS 2022:19\)](#) (Swedish only)
 - *Post- och telestyrelsens föreskrifter om undantag från tillståndsplikt för användning av vissa radiosändare*
 - States that radio amateurs in Sweden are, under certain conditions, exempt from license requirements
 - States that users of amateur transmitting equipment must hold a valid amateur radio certificate
 - States frequencies and power levels for amateur radio use in Sweden
 - A license may be granted for higher power levels
 - Conditions and limitations stated in this Regulation are regarded as license conditions for amateur radio



Swedish Regulations

- [Radio Equipment Act \(2016:392\)](#)
 - *Radioutrustningslag*
 - States exemptions from type acceptance for amateur radio equipment
 - Radio kits for assembly and use by radio amateurs
 - Radio equipment modified by and for the use of radio amateurs
 - Equipment constructed by individual radio amateurs for experimental and scientific purposes related to amateur radio



Swedish Regulations

- ITU Radio Regulations and CEPT Recommendations regulate the mutual rights and obligations between states
 - A frequency allocation in the Radio Regulations does not automatically authorise the right for any individual to use a certain frequency in Sweden
- Swedish law (LEK) and Swedish regulations (PTSFS) take precedence and determine what applies in Sweden

Summary

- The principal law regulating amateur radio in Sweden is the *Electronic Communications Act* (LEK)
- *The Swedish Post and Telecom Authority* (PTS) is the supervisory authority which allocates frequencies and decides power limits for amateur radio in Sweden
- Frequency bands and power limits are found in the *Regulations on Exemption from License Requirements for Use of Certain Radio Transmitters*
- Possession of *jammers* and *causing deliberate interference* are *illegal*
- You are prohibited from disclosing the content of certain radio messages
- The ITU is divided into *three regions*
 - Region 1: Europe, Middle East, Africa and the former Soviet republics
 - Region 2: Americas
 - Region 3: Asia and Oceania
- Amateur radio is characterized by
 - Non-professional / Non-commercial
 - Practice / Self training
 - Technical investigations
 - No pecuniary interest
- CEPT Recommendation T/R 61-01 facilitates travel and temporary visits abroad
- CEPT Recommendation T/R 61-02 (HAREC) facilitates relocation between countries



Phonetic Alphabet



	<i>ICAO (NATO)</i>	<i>Swedish</i>
A	<i>Alpha</i>	<i>Adam</i>
B	<i>Bravo</i>	<i>Bertil</i>
C	<i>Charlie</i>	<i>Cesar</i>
D	<i>Delta</i>	<i>David</i>
E	<i>Echo</i>	<i>Erik</i>
F	<i>Foxtrot</i>	<i>Filip</i>
G	<i>Golf</i>	<i>Gustav</i>
H	<i>Hotel</i>	<i>Helge</i>
I	<i>India</i>	<i>Ivar</i>
J	<i>Julieta</i>	<i>Johan</i>
K	<i>Kilo</i>	<i>Kalle</i>
L	<i>Lima</i>	<i>Ludvig</i>
M	<i>Mike</i>	<i>Martin</i>



	<i>ICAO (NATO)</i>	<i>Swedish</i>
N	<i>November</i>	<i>Niklas</i>
O	<i>Oscar</i>	<i>Olof</i>
P	<i>Papa</i>	<i>Petter</i>
Q	<i>Quebec</i>	<i>Qvintus</i>
R	<i>Romeo</i>	<i>Rudolf</i>
S	<i>Sierra</i>	<i>Sigurd</i>
T	<i>Tango</i>	<i>Tore</i>
U	<i>Uniform</i>	<i>Urban</i>
V	<i>Victor</i>	<i>Viktor</i>
W	<i>Whiskey</i>	<i>Wilhelm</i>
X	<i>X-ray</i>	<i>Xerxes</i>
Y	<i>Yankee</i>	<i>Yngve</i>
Z	<i>Zulu</i>	<i>Zäta</i>





	<i>ICAO (NATO)</i>	<i>Swedish</i>
Å	-	<i>Åke</i>
Ä	-	<i>Ärlig</i>
Ö	-	<i>Östen</i>
Ø *)	<i>Zero</i>	<i>Nolla</i>
1	<i>One</i>	<i>Ett</i>
2	<i>Two</i>	<i>Tvåa</i>
3	<i>Three</i>	<i>Trea</i>
4	<i>Four</i>	<i>Fyra</i>
5	<i>Five</i>	<i>Femma</i>
6	<i>Six</i>	<i>Sexa</i>
7	<i>Seven</i>	<i>Sju</i>
8	<i>Eight</i>	<i>Åtta</i>
9	<i>Nine</i>	<i>Nia</i>

*) Note that the number zero is often written as a slashed zero "Ø" in order to avoid confusion with the capital letter "O".



Q Codes



Code	Statement	Code	Question
QRK	The readability of your signals is ...	QRK?	What is the readability of my signals?
QRM	I am being interfered with ...	QRM?	Are you being interfered with?
QRN	I am troubled by static	QRN?	Are you troubled by static?
QRO	Increase transmitter power	QRO?	Shall I increase transmitter power?
QRP	Decrease transmitter power	QRP?	Shall I decrease transmitter power?
QRT	Stop sending	QRT?	Shall I stop sending?
QRV	I am ready	QRV?	Are you ready?
QRZ	You are being called by ...	QRZ?	Who is calling me?
QSB	Your signals are fading	QSB?	Are my signals fading?
QSL	I am acknowledging receipt	QSL?	Can you acknowledge receipt?
QSO	I can communicate ... direct	QSO?	Can you communicate with ... direct?
QRX	I will call you again at ... hours on ... kHz (or MHz)	QRX?	When will you call again?
QSY	Change transmission to another frequency	QSY?	Shall I change to transmission on another frequency?
QTH	My position is ... latitude, ... longitude (or according to any other indication)	QTH?	What is your position in latitude and longitude? (or according to any other indication)



Prosigns

(procedural abbreviations)



<i>Prosign</i>	<i>Meaning</i>
BK	Signal used to interrupt a transmission in progress (“break”)
CQ	General call to all stations (“seek you”)
CW	Continuous wave (Morse code)
DE	From, used to separate the call sign of the station called from that of the calling station
K	Invitation to transmit (“key”)
MSG	Message
PSE	Please
RST	Readability, signal-strength, tone-report
R	Received
RX	Receiver
TX	Transmitter
UR	Your



RST Signal Reporting



Signal Reports – Voice R and S Reports

- *R – Readability* on a scale from 1 (poor) to 5 (excellent)
 1. Unreadable
 2. Barely readable, occasional words distinguishable
 3. Readable with considerable difficulty
 4. Readable with practically no difficulty
 5. Perfectly readable
- *S – Signal Strength* on a scale from 1 (weak) to 9 (strong)

S9	-73 dBm
S8	-79 dBm
S7	-85 dBm
S6	-91 dBm
S5	-97 dBm
S4	-103 dBm
S3	-109 dBm
S2	-115 dBm
S1	-121 dBm
- In reality most amateur receivers' S-meters display much "happier" values.



Signal Reports – Morse Code T Reports

- *T – Tone*, ranging from 1 to 9
 1. Fifty cycle a.c or less, very rough and broad
 2. Very rough a.c., very harsh and broad
 3. Rough a.c. tone, rectified but not filtered
 4. Rough note, some trace of filtering
 5. Filtered rectified a.c. but strongly ripple-modulated
 6. Filtered tone, definite trace of ripple modulation
 7. Near pure tone, trace of ripple modulation
 8. Near perfect tone, slight trace of modulation
 9. Perfect tone, no trace of ripple or modulation of any kind
- In reality anything but a 9 is highly unusual



Band Plans

PTS Band Plan

Band	Band Limits [kHz]	Maximum Power
2200 m	135.7 – 137.8	1 W ERP
630 m	472 – 479	1 W EIRP
160 m	1810 – 1850	200 W / 1 kW PEP *)
	1 850 – 1900	10 W PEP
	1 900 – 1 950	100 W PEP
	1 950 – 2 000	10 W PEP
80 m	3 500 – 3 800	200 W / 1 kW PEP *)
60 m	5 351.5 – 5 366.5	15 W EIRP
40 m	7 000 – 7 200	200 W / 1 kW PEP *)
30 m	10 100 – 10 150	150 W PEP
20 m	14 000 – 14 350	200 W / 1 kW PEP *)
17 m	18 068 – 18 168	200 W / 1 kW PEP *)
15 m	21 000 – 21 450	200 W / 1 kW PEP *)
12 m	24 890 – 24 990	200 W / 1 kW PEP *)
10 m	28 000 – 29 700	200 W / 1 kW PEP *)

*) 200 W PEP exempt from licensing requirements, 1 kW PEP with PTS license.



PTS Band Plan

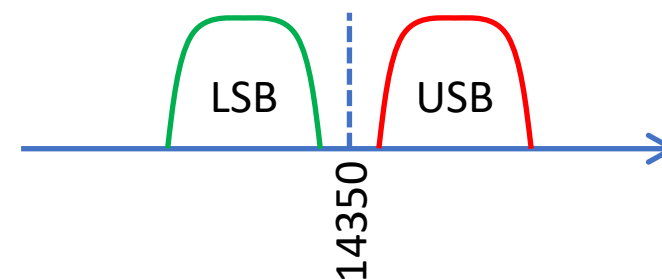


Band	Band Limits [MHz]	Maximum Power
6 m	50 – 52	200 W PEP
2 m	144 – 146	200 W / 1 kW PEP *)
70 cm	432 – 438	200 W / 1 kW PEP *)
23 cm	1 240 – 1 300	200 W / 1 kW PEP *)
13 cm	2 400 – 2 450	100 mW PEP
	Band Limits [GHz]	Maximum Power
	5.65 – 5.85	200 W / 1 kW PEP *)
	10 – 10.5	200 W / 1 kW PEP *)
	24 – 24.25	200 W / 1 kW PEP *)
	47 – 47.2	200 W / 1 kW PEP *)
	75.5 – 81	200 W / 1 kW PEP *)
	122.25 – 123	200 W / 1 kW PEP *)
	134 – 141	200 W / 1 kW PEP *)
	241 – 250	200 W / 1 kW PEP *)

*) 200 W PEP exempt from licensing requirements, 1 kW PEP with PTS license.

PTS Band Plan

- Observe power limits
 - Pay special attention to frequency bands / segments with lower power limits
- Ensure that no part of your transmissions spills over into adjacent bands
 - Most transceivers display the *carrier* frequency, or for SSB the frequency of the *suppressed carrier*



Modes of Communication



Mode		ITU Emissions Class	Format	Bandwidth	Notes
Voice	SSB	J3E	Single sideband with suppressed carrier.	3 kHz	USB (Upper Sideband) \geq 10 MHz LSB (Lower Sideband) $<$ 10 MHz *)
	AM	A3E		6 kHz	
	FM	F3E		12 kHz	
Digital	CW	A1A	"OOK" Morse code	100 Hz	
	RTTY	F1B	2-FSK, 45.45 Bd	260 Hz	
	FT8		8-FSK, 6.3 Bd	50 Hz	Mainly used on HF
	APRS	F1D	2-FSK, 1200 Bd	1.5 kHz	Primarily on 144.8 MHz
Image	SSTV	F3F	Slow-scan TV	3 kHz	

*) Other services than the amateur service normally use USB also below 10 MHz



IARU Band Plan

- For the purpose of reducing interference, amateurs have agreed to allocate *different segments* in each frequency band to *different modes* of communication.
- As a general rule of thumb, the *lower frequencies* in each band are *reserved for CW* (Morse code) operation, whereas the *higher frequencies* are open to *both CW and voice* modes.
- Even though not mandated by law, it is considered very bad practice not to follow the band plans.

IARU Band Plan – Example



	FREQUENCY SEGMENT (kHz)	MAX. BANDWIDTH (Hz)	PREFERRED MODE AND USAGE	
3,5 MHz	3500 - 3510	200	CW	Priority for inter-continental operation
	3510 - 3560	200	CW	CW contest preferred 3555 kHz - CW QRS Centre of Activity
	3560 - 3570	200	CW	3560 kHz - CW QRP Centre of Activity
	3570 - 3580	200	Narrow band modes	Digimodes
	3580 - 3590	500	Narrow band modes	Digimodes
	3590 - 3600	500	Narrow band modes	Digimodes, automatically controlled data stations (unattended)
	3600 - 3620	2700	All modes (1)	Digimodes, automatically controlled data stations (unattended)
	3600 - 3650	2700	All modes (1)	SSB contest preferred 3630 kHz - Digital Voice Centre of Activity
	3650 - 3700	2700	All modes	3690 kHz - SSB QRP Centre of Activity
	3700 - 3775	2700	All modes	SSB contest preferred 3735 kHz - Image Centre of Activity 3760 kHz - R1 Emergency Centre of Activity
3775 - 3800	2700	All modes	SSB contest preferred - Priority for inter-continental operation	



Disaster Communication

- Sometimes amateur radio is used for communication after natural disasters, “when all else fails”
- In the IARU band plans there are frequencies designated as *Emergency Centre of Activity* for this purpose
- This type of traffic should not be confused with “MAYDAY” distress calls
- You cannot expect these frequencies to be monitored by anyone
- Keep these frequencies clear if there is ongoing emergency traffic
- There are no designated frequencies for distress calls within the amateur bands, and there are no standardized distress calls, besides “MAYDAY”.

ITU Frequency Allocations – Examples



Allocation to services		
Region 1	Region 2	Region 3
1 800-1 810 RADIOLOCATION 5.93	1 800-1 850 AMATEUR	1 800-2 000 AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Rad...
1 810-1 850 AMATEUR 5.98 5.99 5.100		
1 850-2 000 FIXED MOBILE except aeronautical mobile 5.92 5.96 5.103	1 850-2 000 AMATEUR FIXED MOBILE except aeronautical mobile RADIOLOCATION RADIONAVIGATION 5.102	5.97

Allocation to services		
Region 1	Region 2	Region 3
7 000-7 100 AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A		
7 100-7 200 AMATEUR 5.141A 5.141B		
7 200-7 300 BROADCASTING	7 200-7 300 AMATEUR 5.142	7 200-7 300 BROADCASTING
7 300-7 400 BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D		
7 400-7 450 BROADCASTING 5.143B 5.143C	7 400-7 450 FIXED MOBILE except aeronautical mobile (R)	7 400-7 450 BROADCASTING 5.143A 5.143C



Call Signs



Amateur Call Signs

SM2XYZ

A prefix consisting of one or two alphanumeric characters, where at least one is a letter [A – Z]

A single digit [0 – 9]

A suffix consisting of between one and four alphanumeric characters [A – Z, 0 – 9], where the last character must not be a digit

Amateur Call Signs - Examples

RØMIR 

SM2XYZ 

C21VB 

W1AW 

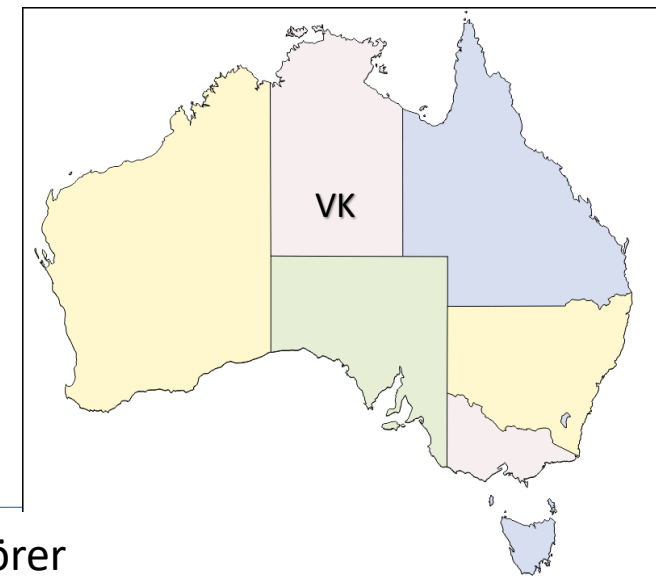
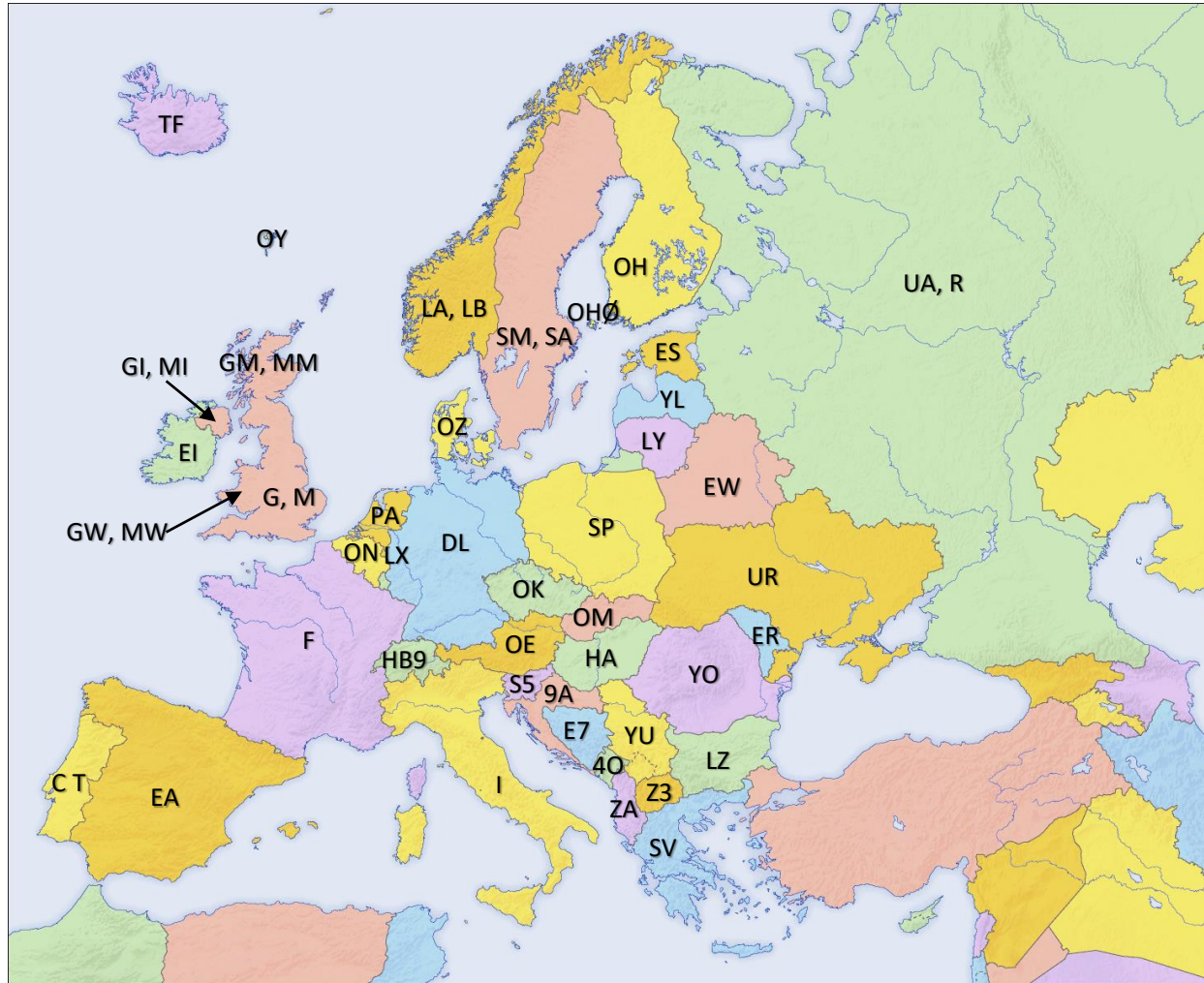
3B9VB 

P51BH 

E77DX 



Common Call Sign Prefixes



Swedish Amateur Call Signs and Call Areas



- SM, SA – Private Individuals
- SK – Radio Clubs
- SL – Military Radio Clubs

- 7S – 8S
- SA – SM

- Call Areas [0 – 7]





Call Sign Extensions

- Mobile operations: SM2XYZ/M
- Maritime mobile operations: SM2XYZ/MM
- Aeronautical mobile operations: SM2XYZ/AM
- Portable operations: SM2XYZ/P
- Temporary operations from different call area: SM2XYZ/1
- Temporary operations abroad: LA/SM2XYZ, LA/SM2XYZ/M



Power Limits

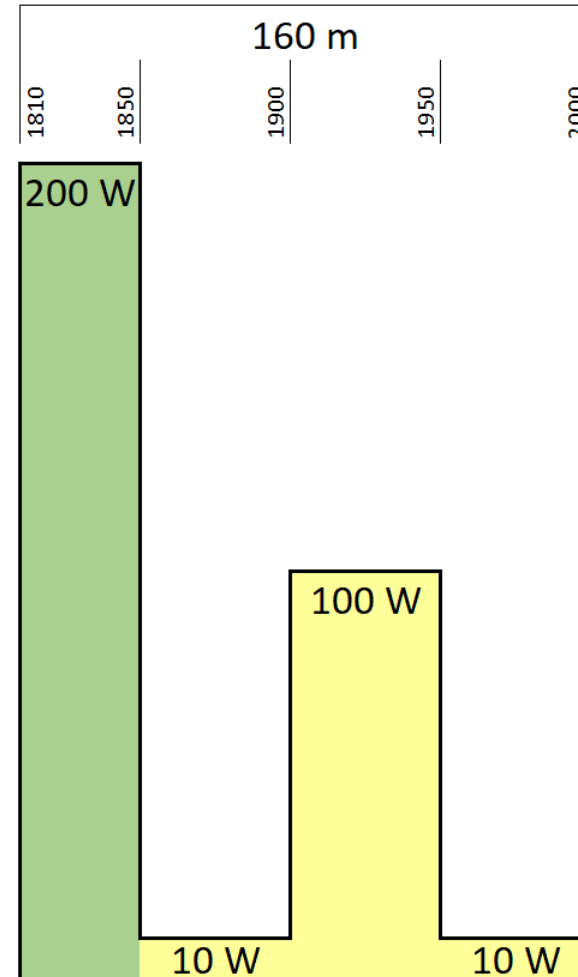


- Most commercially available HF transceivers cover the amateur bands from 160 meters through 6 meters.
- Some transceivers also include 2 meters and 70 centimeters.
- In most of these frequency bands a maximum power of 200 W PEP is permitted, with the option of 1000 W PEP with a high power license from PTS.
- There are a few exceptions, listed on the next slides.



Exceptions from the 200 W rule (1/2)

- Different power levels apply to different segments of the 160 meter band.
- A high power license for 1000 W may be granted only for the 1810 – 1850 kHz segment.





Exceptions from the 200 W rule (2/2)

- In the 60 meter band (5351.5 – 5366.5 kHz): 15 W EIRP.
- In the 30 meter band (10 100 – 10 150 kHz): 150 W PEP.
- In the 6 meter band (50 – 52 MHz): 200 W PEP.
- PTS will not issue high power licenses in any of the above bands.

(Though you can always try and apply for a high power license, maybe in some special cases there can be an exception from the exception.)

Summary

- The following bands have lower power limits
 - 160 m / 1.8 MHz (partly)
 - 60 m / 5 MHz
 - 30 m / 10 MHz
 - 6 m / 50 MHz
- Note that there are restrictions also in some other bands^{*)} which are not covered here, as they are not commonly available in commercial equipment.

^{*)} 2200 m, 630 m, 13 cm bands





Operating Procedures



The Radio Amateur's Code

- The Radio Amateur is
- CONSIDERATE...He/[She] never knowingly operates in such a way as to lessen the pleasure of others.
- LOYAL...He/[She] offers loyalty, encouragement and support to other amateurs, local clubs, the IARU Radio Society in his/[her] country, through which Amateur Radio in his/[her] country is represented nationally and internationally.
- PROGRESSIVE...He/[She] keeps his/[her] station up to date. It is well-built and efficient. His/[Her] operating practice is above reproach.
- FRIENDLY...He/[She] operates slowly and patiently when requested; offers friendly advice and counsel to beginners; kind assistance, cooperation and consideration for the interests of others. These are the marks of the amateur spirit.
- BALANCED...Radio is a hobby, never interfering with duties owed to family, job, school or community.
- PATRIOTIC...His/[Her] station and skills are always ready for service to country and community.

- adapted from the original Amateur's Code, written by Paul M. Segal, W9EEA, in 1928



Calling CQ

- CQ ("Seek You") is the common way to initiate a random contact
- Observing the band plan, find an available frequency
- Ask if the frequency is in use: *"Is this frequency in use, please?"*
- If all is clear, go ahead and make your call, spelling your call sign in the phonetic alphabet:
 - *"CQ CQ CQ, this is SKØWE SKØWE SKØWE, over"*
 - Don't make your call too long
 - Don't make your call too brief
- Listen and repeat until someone replies



Responding to someone else's CQ

- Tuning across the band you pick up someone calling CQ:
 - *"CQ CQ CQ, this is W1AW W1AW W1AW, over"*
- Reply by repeating the caller's callsign, followed by your own:
 - *"Whiskey One Alpha Whiskey, this is Sierra Kilo Zero Whiskey Echo, over"*
- Call signs are always given in this order
 - First the other station's, then your own.
 - Never the other way around!
- In Morse code, teletype et cetera, call signs are separated by *"DE"* (French for "from")
 - *"W1AW DE SKØWE"*

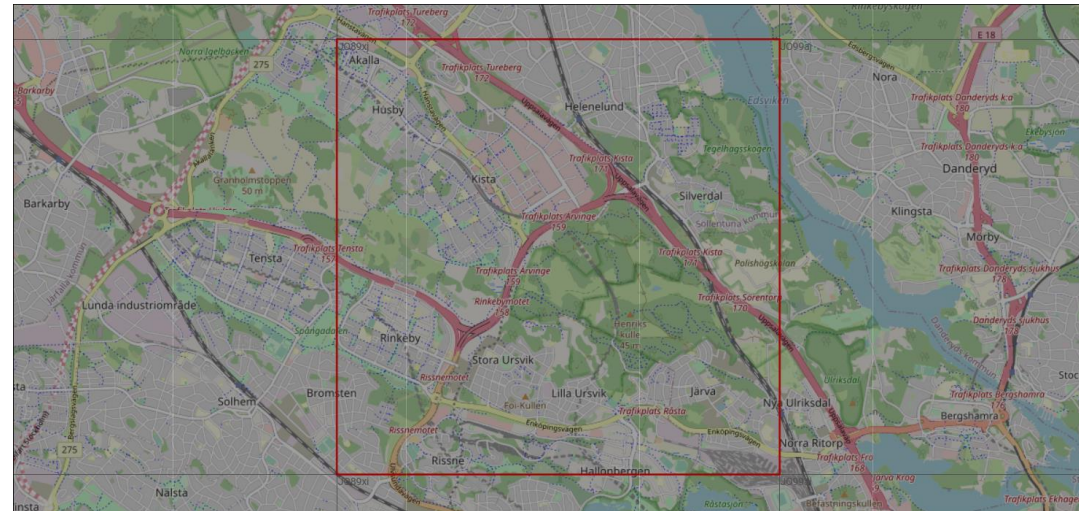


Selective CQ

- Sometimes the caller is looking for a certain type of contact
 - “*CQ DX*” – The caller is looking for a long distance (intercontinental) contact
 - “*CQ Contest*” – The caller is participating in a competition
- There are an endless number of special activities, diplomas et cetera
 - *WWFF – World Wide Flora Fauna*, 14 244 kHz
 - *SMFF – Swedish Flora Fauna*, 3 744 kHz
 - *Swedish Lakes*, 3 744 kHz
 - *IOTA – Islands on the Air*, 14 260 kHz
 - *RDA – Russian Districts Award*, 14 180 kHz

Grid Locator

- Instead of stating your location as "Stockholm" (or wherever you are located), sometimes the location is given using the [Maidenhead Grid Locator](#).
- E.g. the Maidenhead Grid Locator for Kista is *JO89xj*
- Using the Grid Locator facilitates calculation of distances and antenna beam directions.





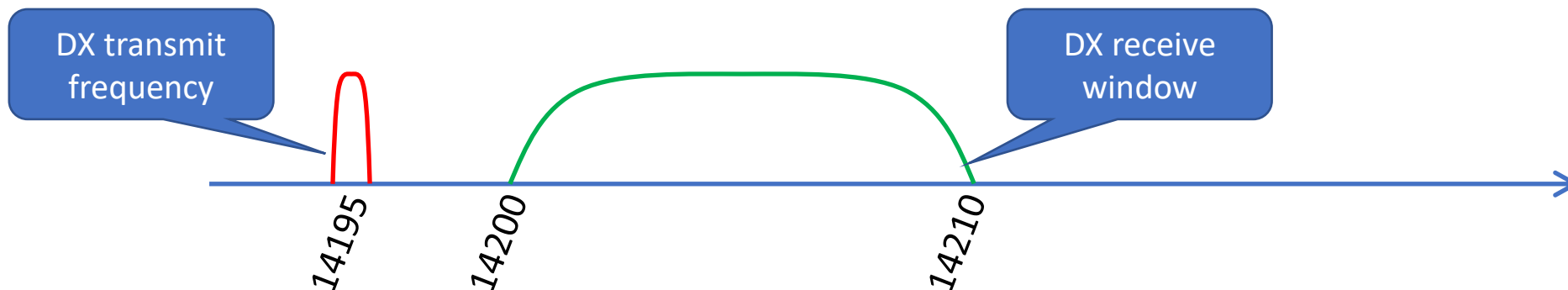
Standard QSO

- In a standard contact you would normally state your name, your location and an RS(T) signal report. You may also give a brief description of what kind of equipment you're using.
- Have a look at the [QSO between Jim W6LG in northern California and Don VE9XX in eastern Canada](#)



DX Operation

- As seen in the [video of Raisa OH73ELK](#), sometimes you can get overwhelmed by a pileup of responses when you call CQ. This is common if you operate from an exotic place.
- A common random access method is for the "exotic" (DX) station to work split, i.e. separate transmit and receive frequencies.
- The DX station may announce "listening 5 to 10 up"





The DX Code of Conduct

1. I will listen, and listen, and then listen again before calling.
2. I will only call, if I can copy the DX station properly.
3. I will not trust the DX cluster and will be sure of the DX station's call sign before calling.
4. I will not interfere with the DX station nor anyone calling and will never tune up on the DX frequency or in the QSY slot.
5. I will wait for the DX station to end a contact before I call.
6. I will always send my full call sign.
7. I will call and then listen for a reasonable interval. I will not call continuously.
8. I will not transmit when the DX operator calls another call sign, not mine.
9. I will not transmit when the DX operator queries a call sign not like mine.
10. I will not transmit when the DX station requests geographic areas other than mine.
11. When the DX operator calls me, I will not repeat my call sign unless I think he has copied it incorrectly.
12. I will be thankful if and when I do make a contact.
13. I will respect my fellow hams and conduct myself so as to earn their respect.



Repeater Operation

- FM and DV repeaters are common in the 2 meter and 70 centimeter bands. See separate [video from the Cornish Radio Amateur Club](#) for details on repeater operation.
- A comprehensive list of Swedish repeaters is found here: <https://www.ssa.se/vushf/repeatrar-fyrar/>

KARTA		CTCSS		NYHETER		LÄGG TILL		.CSV		</>		repeaters.se Progressive Web App		29		50		70		145		430		1296		Antal: 3	
Distrikt	Type	Mode	Call	City	Output	Access	Status																				
FM	Repeater	FM	SKØCT/R	Kista	434.6625	77.0	QRV																				
434.6625	Repeater	FM	SA7BJF/R	Södra Vi	434.6625	79.7	QRV																				
Fyrar	Repeater	FM / C4FM	SA5OHR	Norrköping	434.6625	82.5	QRV																				
QRV (in service)																											

Log Book



Date	Time UTC	Frequency	Mode	Power	Call	RST		Name	QTH	Notes	QSL	
						S	R				S	R
2022-03-19	09.15	3704	SSB	200	SK1HQ	59	59	Jens	Gnisvärd	SSA HQ-net	X	
2022-03-21	10.05	14009	CW	800	P5AEN	558	439	Alfred	Pyongyang		X	X

- Keeping a log book is no longer mandated, but is still regarded as good practice
- There are plenty of paperless logging software alternatives
- [ARRL Logbook of The World](#)

QSL Cards – The Final Courtesy

