HF MANAGER'S HANDBOOK

IARU REGION 1

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1. Introduction

ACKNOWLEDGEMENTS

This is the 9th edition of the HF Manager's Handbook and contains changes agreed during the 2008 IARU Region 1 Conference in Cavtat, 2011 IARU Region 1 Conference in Sun City, 2014 IARU Region 1 Conference in Varna, IARU Region 1 Interim Meeting Vienna 2016 and IARU Region 1 Conference in Landshut 2017.

In this edition the structure of the chapters has been revised to make content more accessible to interested readers. The HF Manager's Handbook is primarily intended as a guide for HF Managers, and should also be of help to any societies wishing to set up their own HF Committee. Therefore some historical items are contained in this book for the benefit of new HF Committee representatives, who may not always know about matters that have gone in the past. A number of chapters have also been transferred across to the main Region 1 website at iaru-r1.org.

The accuracy of this book to a great extent depends on YOU - the user of the book. If you find anything that is wrong, or if you find that something should be added or changed, please tell us. Any ideas for expansions or corrections will be appreciated.

Former versions of this handbook contained other information like IARU Region 1 Constitution and Bye-Laws, list of Member Societies, list of Executive Committee members, list of HF Managers and about Electromagnetic Compatibility (EMC), which can be found now at iaru-r1.org.

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Thanks to

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INTRODUCTION

1.1 THE IARU REGION 1 HF COMMITTEE

At the IARU Region 1 Conference in Noordwijkerhout (1989) a completely re-written IARU Region 1 Constitution and Bye-Laws was adopted. As a consequence the HF Working Group was transformed into a so-called Specialized Permanent Body, the IARU Region 1 HF Committee.

The following articles in the IARU Region 1 Constitution and Bye-Laws relate to the permanent HF Committee:

In the Constitution:

A.1.4.7 Definition of specialized bodies

A.5 Nomination, period of office etc. of specialized bodies.

N.B. Article A.4.11 allows the IARU Region 1 Executive Committee to invite the chairman of the permanent HF and VHF/UHF/SHF Committees to their meetings, as has been the custom since 1975.

In the Bye-Laws:

B.1.14 Steering Committee at General Conferences: Membership Chairman Permanent Committees.

B.1.17/ B.1.17.3 Function of Permanent HF Committee

B.3.10-29 Procedures for set-up and work of Permanent Specialized Bodies

Delegates to the IARU Region 1 HF Committee should be national HF Managers and/or members of their national HF Committee or equivalent body.

1.2 TERMS OF REFERENCE FOR THE PERMANENT HF COMMITTEE

The permanent HF Committee (C4) deals with matters relating to frequencies below 30 MHz

Objectives

1. To co-ordinate the activities of amateurs in Region 1 with respect to frequency allocations below 30 MHz

2. To ensure that adequate use is made of existing allocations and to consider possible new allocations

3. To co-ordinate and promote scientific investigations by member societies of IARU Region 1 on all frequencies below 30 MHz

4. To recommend IARU Region 1 band plans aimed at promoting greater effectiveness for communications

5. To encourage special projects on the frequency allocations below 30 MHz aimed at advancing amateur radio communication techniques

6. To assist in the protection of the amateur allocations below 30 MHz from possible loss by stimulating activity and demonstrating the effective use by amateurs

7. To plan and conduct IARU Region 1 HF contests on these bands

8. To advise on interference problems relating to frequencies below 30 MHz

9. To maintain communication with Member Societies through:

- an Internet reflector discussion group

- the Region 1 Website

1.3 SPECIALIZED BODIES

The terms of reference of the Permanent HF Committee are approved. (Noordwijkerhout 1987 - 1.5.2.4)

It is recommended that the HF CONTEST SUB-GROUP is abolished. (Davos 2005 - DV05_C4_Rec_05 and DV05_C4_Rec_06)

2. HF Conference Recommendations

2.1 HF OPERATIONS

In this Chapter you will find all valid Conference Recommendations concerning HF operations. Some of these Recommendations may also be repeated in other relevant Chapters.

2.1.1 QSO-DEFINITION

It is recommended that the following definition of a QSO be added to the HF Manager's Handbook.

A definition for a valid QSO is:

A valid contact is one where both operators during the contact have

1. mutually identified each other
2. received a report, and
3. received a confirmation of the successful identification and the reception of the report.

It is emphasized that the responsibility always lies with the operator for the integrity of the contact.
(Sun City SC11_C4_Rec12)

2.1.2 OPERATING STANDARDS AND PROCEDURES

General approval was expressed for the phonetic alphabet appearing in Appendix 16 of the Geneva Regulations 1959. (Malmø 1963 - 1.16.3.1)

A booklet on the precise use of the Amateur Code will be prepared for as wide a distribution as possible. The RSGB, assisted by MRASZ, agreed to produce such a booklet. (Brighton 1984 - 1.16.3.2 (1.12.10.1))

It is recommended that the Locator System as described in BM/112 shall be adopted as the official IARU Region 1 Locator System as from 1 January 1985. (Cefalu 1984 - 1.16.3.3 (2.8.1.1))

It is recommended that the document related to "Net operation and Amateur Ethics" shall be adopted. (Noordwijkerhout 1987 - 1.16.3.4 (1.12.10.2)

It is recommended that there should be no change to the existing RST reporting system. (Noordwijkerhout 1987 - 1.16.3.5 (2.5.5.1))

It is recommended that that RSQ reporting be used for digital modes below 30 MHz. (Davos 2005 – DV05_C4_Rec_10)

HF CONFERENCE RECOMMENDATIONS

It is recommended that that the MOS reporting scale be used as a supplement to the RST reporting scale for digitised speech on frequencies below 30 MHz and should be included in the HF Managers Handbook. (Davos 2005 – DV05_C4_Rec_18)

It is recommended for stations working "split frequency" to keep the window as narrow as necessary and to announce the window together with their call sign. (San Marino 2002 - REC/02/SM/C4.5)

It is recommended that that each Member Society should publish a translation of the below mentioned documents in their national amateur radio magazine at least once every second year:

- Torremolinos Document C3.24, A Campaign for Better Behaviour

- Torremolinos Document C3.50, Packet Radio Relaying Messages of inappropriate Content

- Cefalu Document SI/72, Lists and Nets - a code of Practice

- Cefalu Document SI/73, Guidelines for Calling DX

- The Radio Amateurs Code

- And/or other relevant material.

Each member society should take steps in order to assure that there are given enough sufficient education in the theme "Operating Ethics" at all courses leading to an amateur radio license by using the above mentioned documents and/or other relevant material. (De Haan 1993 - C4.4)

It is recommended that when the ITU Zones are used for Amateur Radio purposes, the definition of the border-lines shall be included in the HF Managers Handbook. (Lillehammer 1999 - REC/99/LH/C4.2)

It is recommended that IARU Region 1 urges its Member Societies to motivate their members to adhere to Amateur Radio ethics, and to take action against stations practising deliberate and malicious interference on the Amateur Radio Bands. (Lillehammer 1999 - REC/99/LH/C4.7)

It is recommended that that IARU Region 1 urges its member societies to motivate all its members to operate their radios according to the Non-Interference Basis (NIB) principle, in order to reduce deliberate and malicious interference. (Cavtat 2008 – CT08_C4_Rec_17)

It is recommended that

a) That Region 1 endorse IARU Resolution 08-01 (See Chapter 7.1.1)

b) That the ON4UN/ON4WW booklet on ethics & operating practice should be published on member society websites, and published in paper form in local languages wherever possible, and that maximum publicity should be given, via member societies, to these publications. (Cavtat 2008 - CT08_C3_Rec_44)

2.1.3 DX CALLING PROCEDURE

It is recommended that the following guidelines be observed when calling DX:

1. Do not tune up on the DX station's frequency.
2. Listen carefully for the DX station's callsign, his listening frequency and operating technique before calling. The DX station may send his callsign infrequently to control the pileup, so be patient and do not send "?" or "what is your call?"
3. Send your own callsign a few times only, and then do not transmit again until after the DX is heard. Repeated calling introduces large gaps between QSO's and may cause the DX operator to QSY or QRT.
4. If the DX is calling a specific station or area only make a call if you fall within the group he is listening for. Good DX operators do not answer those who call out of turn.
5. Use ITU phonetics on SSB. On CW send not faster than the speed of the DX station.
6. If the DX station is working split, call on the specified frequency to minimise QRM to other band users.
7. Once contact is established pass only as much information as is passed to you, and when it is known that other stations have called and are waiting for a contact do not request a QSY or for the DX station to listen for a friend or a list.

2.1.4 HF OPERATIONS AND EXPERIMENTS

It is recommended that all members Societies should continue to promote more experimentation and scientific involvement as well as research. (Noordwijkerhout 1987 - 1.8.16.1)

It is recommended that Member Societies of Region 1 should encourage the experimentation and organise contest sessions devoted to meteor scatter on stipulated frequencies of the 28 MHz band. (Noordwijkerhout 1987 - 1.8.16.3)

It is recommended that transmission modes which are inefficient in their use of spectrum or which have potential to cause serious interference problems to normal HF operations should be strongly discouraged on bands below 30 MHz. Experimental transmissions (i.e. those not associated with normal HF transmission modes) should be notified to other national societies. The mechanism for notification by Region 1 Member Societies being a notice in the Region 1 News from the HF Manager/Secretary of the Member Society concerned. (De Haan 1993 - C4.3)

It is recommended that IARU Member Societies should encourage the development of improved openly specified modulation techniques, including corresponding modem hardware, which can be combined and integrated into channel-sharing digital sharing protocols. (Davos 2005 – DV05_C4_Rec_11)

2.1.5 EMERGENCY OPERATIONS

It is recommended that emergency networks should be formed in those countries where they do not exist and by those who wish to do so. (Brighton 1981 - 1.9.1.3)

A common form of operator training for message handling is required. (Brighton 1981 - 1.9.1.5)

It is proposed that the following frequencies be used as centres of activity for emergency traffic.

Global Centre of Activity per band:

15m	21360 kHz
17m	18160 kHz
20m	14300 kHz

Region 1 Centre of Activity per band:

40m	7110 kHz
80m	3760 kHz

and further recommend that these frequencies be simply termed "Emergency Centres of Activity". (Davos 2005 – DV05_C4_Rec_03)

2.1.6 HF REPEATERS

It is recommended that the guidelines for co-ordination of 29 MHz repeaters outlined in DOC/96/TVI/C4.12 should be adopted where applicable. (REC/96/TVI/C4.8)

Following the introduction of 4 additional FM Repeater channels a 10m FM Repeater co-ordinator has been appointed (ON4PC).

It is recommended that Member Societies should encourage the operators of 10m FM repeaters to add the requirement for users to transmit a sub-tone (CTCSS) on the input frequency and for operators to transmit such a sub-tone also on the output frequency. The required tone shall be announced by the repeater itself so users may switch to the appropriate sub-tone. (Davos 2005 – DV05_C4_Rec_09)

2.1.7 HF BEACONS / INTERNATIONAL BEACON PROJECT (IBP)

Beacon – a station in the Amateur Service or Amateur Satellite Service that autonomously transmits in a defined format, which may include repetitive data or information, for the study of propagation, determination of frequency or bearing or for any other experimental purposes including construction. (Cavtat 2008 - CT08_C4_Rec_07)

It is recommended that the IBP frequencies as preferred operating frequencies shall be 18.109-18.111, 24.929-24.931 and 28.199-28.201 MHz. (De Haan 1993 - Rec. C4.6)

It is recommended that the document "Beacon Policy at 28 and 50 MHz" (DOC/90/TS/C4.24) be renamed "BEACON OPERATION AT HF AND 50 MHz". (REC/96/TVI/C4.9)

It is recommended that the document (DOC/96/TVI/C4.6) "IARU Region 1 HF Beacons - a Guide to Good Practice", be used as guidelines for the beacon operations of HF Beacons. (REC/96/TVI/C4.10)

It is recommended that HF Beacons may be established on the 1.8, 3.5 and 7 MHz band in the regions of Africa south of the Equator. (REC/99/LH/C4.1)

It is recommended that IARU Region 1 General Conference 1999 approves the recommendations of the AC ad hoc Beacon Committee as outlined in DOC/99/LH/C4.14. (REC/99/LH/C4.3)

It is recommended:

- to start developing a Region 1 Frequency Sharing Beacon Network on one or more of the assigned frequencies

- that this network should be constructed such as to also be able to work on 40,86 and the 50 MHz and 70 MHz band

- that smaller Societies who want to take part in the development and who do not have the financial abilities needed, should be sponsored by « bigger » Societies with better financial abilities. (REC/99/LH/C4.5)

It is recommended that each Member Society be reminded of the IARU Region 1 policy for beacons below 14 MHz and again makes this policy clearly known in its country. (LA17_C4_REC_08)

2.1.8 DATAMODES

It is recommended that a speed of 45.45 bauds be retained, however that speeds of 50, 75 and 100 bauds should be encouraged. (Cefalu 1984 - 2.3.1.8)

It is recommended that each Society, where such requirements still exist, should press their respective licensing Authorities to remove the requirement for "Dual Identifying" when using the International Standard CCITT No 2 Code. (Cefalu 1984 - 2.3.1.9)

It is recommended that when making use of ASCII, the minimum specification for the signalling format should be 1 start bit, 7 data bits, 1 parity bit, 1 stop bit. The parity should be as follows; if generated - even parity if NOT generated - parity bit set to space. (Cefalu 1984 - 2.3.1.10)

It is recommended that all IARU Member Societies shall adopt CCIR 476-1 in both modes A and B and Region 1 is asked to liaise with Regions 2 and 3 so that AMTOR may become a truly international standard. (Cefalu 1984 - 2.3.2.2)

It is recommended that the maximum speed for packet radio should be not more than 300 baud on HF. The recommended frequency shift is 200 Hz. (Noordwijkerhout 1987 - 2.3.3.1)

It is recommended that the protocol used for packet radio on HF should be AX.25. (Noordwijkerhout 1987 - 2.3.3.2)

The AC Resolution 91-2 containing Guidelines for Packet Radio Operators and Guidelines for Packet Radio BBS Operators was ratified. (De Haan 1993 C3)

2.1.9 SATELLITE OPERATIONS

The IARU Administrative Council (AC)

recognizing the important contributions made by amateur radio societies in the following areas:

- demonstration to the professional community that radio amateurs contribute to the development of state-of-the-art technology and techniques,
- provisions of new challenging operational opportunities and training ground for radio amateurs to acquire new skills,
- providing opportunities for training in an exciting technological field by direct participation, in schools, universities and professional organisations, and
- stimulating the interest of young people in a worthwhile activity, and encouraging the pursuit of a technological career to provide the next generation of industrial and research engineers.

Wishing

- to stimulate the growth of the Amateur Satellite Service in an orderly manner;

and

strongly supporting the following goals:

- the encouragement of a wide dynamic range of activities stimulating training through increasing intellectual challenge,
- the stimulation of young people in schools and universities to develop an interest in amateur radio through participation in amateur satellite activities,
- where allowed, the provision of emergency services, especially to parts of the world that are less technologically developed, and
- the adoption of a 'code of practice' that ensures the use of amateur frequency allocations by satellites in accordance with the spirit and ethics of amateur radio.

RESOLVES

1. Member Societies shall make Administration more aware of the value and achievements of the Amateur Satellite Service.

2. Satellite operating within amateur frequency allocations shall carry payloads and experiments that are relevant to, of interest to and freely available for participation by radio amateurs world-wide.

3. Operational frequencies of amateur satellites shall be in accordance with all applicable IARU band plans.

4. The use of higher frequency bands by amateur satellites shall be encouraged. (AC Resolution 89-3)

See also chapter 5.8

2.1.10 29 MHZ FM OPERATIONS

The 1987 IARU Region 1 Conference accepted a frequency plan for use in connection with 29 MHz FM Operations, as an information paper to be included in the HF Managers Handbook.

At the 2011 Conference the HF Committee agreed to increase the number of FM Repeater channels to eight. Simplex channels have been moved, one channel was designated for a Simplex FM Repeater.

Freq. (kHz)	Use
29000 – 29100	All modes
29100 – 29200	FM Simplex – 10 kHz channels
29200 – 29300	All modes, digimodes, automatically controlled data stations (unattended)
29300 – 29510	Satellite- uplink and -downlink
29510	Segment edge - not to be used. Secure a safe buffer zone.
29520 – 29590	All modes, FM Repeater input, RH1 - RH8
29600	FM Calling channel
29610	All modes, FM Simplex Repeater (parrot, input + output)
29620 – 29690	All modes, FM Repeater output, RH1 - RH8
29700	Band Edge - Not for use.

Note:

Member societies should advise operators not to transmit on frequencies between 29.3 MHz and 29.51 MHz for terrestrial communication to avoid interference to amateur satellite downlinks.

This range may be used for transmission only for a satellite uplink.

DO NOT INTERFERE!

Preferred NBFM operating frequencies on each 10 kHz from 29.110 to 29.290 MHz inclusive should be used.

A deviation of ±2.5 kHz being used with 2.5 kHz as maximum modulation frequency.

It is recommended that Member Societies should encourage the operators of 10m FM repeaters to add the requirement for users to transmit a sub-tone (CTCSS) on the input frequency and for operators to transmit such a sub-tone also on the output frequency. The required tone shall be announced by the repeater itself so users may switch to the appropriate sub-tone. (Davos 2005 – DV05_C4_Rec_09)

List of 10m FM Repeaters: An actual list of 10m FM Repeaters can be found at http://www.iaru-r1.org/index.php?option=com_content&view=article&id=864&Itemid=243

2.1.11 29 MHZ NBFM PACKET RADIO EXPERIMENTS

1. In the IARU Region 1 HF Band Plan, the segment 29.200 to 29.300 MHz is assigned to those who are experimenting with Narrow Band Frequency Modulated (NBFM) packet radio transmissions.

2. In order to make it easier "to find" each other, the following working frequencies should be chosen:

   Each 10 kHz from 29.210 to 29.290 MHz

3. A deviation of +/- 2.5 kHz is recommended with maximum modulation frequency 2.5 kHz.

2.1.12 METEOR SCATTER AND MODE PACKET ON 28 MHZ BAND

by Marino Miceli, I4SN

A document on this topic was introduced at the 1987 Region 1 Conference and the Recommendation 9/HF encouraged the members to go ahead on the experimentation's.

Another document on this matter was discussed at Torremolinos and Committee C4 endorsed its contents, recommending that a description of the system in use by the Italian amateurs should be published in the Region 1 News.

Theory of the system

Ionisation densities insufficient for 144 MHz reflections are very good when frequencies are lowered several times.

In the case of the 28 MHz band, meteors having a diameter as small as 0.5 mm produce an ionised trail having the capability to sustain a communication for several hundreds of milliseconds and a 96 byte packet may be integrally reflected.

The average of meteorites burning in the upper atmosphere is calculated to be 50,000 per second, but the majority have a small size. The ones whose diameter exceeds 0.1 mm, produce ionised cylinders of very low density and on 144 MHz these produce a very short echo called a "ping".

Such very short ping, after the peak sometimes useful for VHF, exhibits a "trail" whose ionisation decreases slowly. The density is not sufficient for 144 MHz but results in a useful echo on 28 MHz.

In the worst case at the speed of 1200 bit/sec, a string of 48 byte has a good probability to be received at a distance of 2000 km (or less). So a ping nearly useless on 144 MHz may support a sufficient quantity of information; in fact a packet of 48 bit contains: Preamble. flags, 27 characters and closing check-sum.

With 27 characters you may send enough intelligence as for example:

CQ MS DE I2KFX JN 45 PO MONZA

A group of Italian experimenters headed by I2KFX states that on 28 MHz, 11 useful bursts and 25 pings averaging in 30 minutes. So the "waiting time" i.e. the time during which there is no possibility to forward a message, does not exceed two minutes.

The sum of the short periods when connection is possible, permits - in 30 minutes - the transmission of 36 packets.

In fact, as stated before, the 28 MHz packet traffic does not need to be supported by spectacular major showers; each corpuscle having the size of a grain of sand creates a trail which expands to over 60 cm diameter, whose length is 15 km at least.

Ionisation density is in this case low, but sufficient for 28 MHz refraction.

In the case of bursts you may have instead, 20 seconds of loud signal, with a few more seconds of weak one.

Though the occurrence of bursts and pings is casual, the period of possible connection is nearly continuous.

The protocol recommended

In Italy a timing of 15 seconds proved to be satisfactory; a station sends the same packet during the period: 1st - 15th seconds and 31st - 45th seconds while the other listens, but transmits from 16th - 30th and 46th - 60th.

The first couple of windows are named "odd" and others are "even". The protocol is simplified like the "converse mode" so; only frames UI: un-numbered information is sent, and the message is included in this "UI frame".

During the 15 seconds period, this frame repeats at the speed of 1200 bit/sec and a 48 byte packet has at least one probability over 46 to meet a "useful trail".

The software ad hoc for "meteor scatter packet" has been developed by I2KFX. When the diskette containing this programme is inserted in the station computer, the system is ready for operation.

System operation

The video screen appears divided into three fields:

1. The upper part is the "reception window". Every digital signal entering the RCVR during the 15-second of reception opening, is written there.
2. In the centre field you see the message you edited - which is ready for transmission.

I2KFX program provides all necessary sequences; it co-operate with TNC to prepare the packet and when the 15-seconds assigned to the reception are expired, activates the XMTR.

In the 15-seconds emission, the frame is repeated integrally; if it consists of 96 byte, repetitions are 23.

The lowest part of the screen is devoted to control functions. The key "F2" selects the transmission window (odd or even). The key "F3" determines the 15 or 30 seconds timing: Usually on 28 MHz band the shorter time; on 144 MHz the longer.

All operations are performed by the "I2KFX program" when your station is arranged as in Figure 1, which is the block diagram of a simple packet radio amateur station.

2.1.13 REMOTE CONTROLLED OPERATION ON HF

It is recommended that member societies bring to their members attention that the T/R 61-01 agreement only applies to people using their own call sign, with the appropriate country prefix, when the operator is actually visiting that country, not for remote operation. (Recommendation Sun City SC11_C4_REC_07)

Remote controlled operation is defined to mean operation where a licensed operator controls an amateur radio station from a remote control terminal.

Where a station is operated remotely, the following conditions shall apply:

Remote operation must be permitted, or not objected to, by the Regulatory Authority of the country where the station is located.

The call sign to be used should be the call sign issued by the Regulatory Authority of the country in which the station is located. This applies irrespective of the location of the operator.

It should be noted that Recommendation SC11_C4_07 states that member societies bring to their members attention that the T/R 61-01 agreement only applies to people using their own call sign, with the appropriate country prefix, when the operator is actually visiting that country, not for remote operation.

Any further requirements regarding the participation of remotely controlled stations in contests or award programs are a matter for the various contest or award program organisers. (Recommendation Varna VA14_C4_REC_04)

2.1.14 USE OF AMATEUR BANDS

It is recommended that all members Societies will send the necessary information to their national Administration so that the latter may take steps to end the illegal use of the 28 MHz band by CB stations thus ending the violation of the Radio Regulations. (Brighton 1981 - 1.8.4.3)

It is recommended that IARU Region 1 decides to request IARU, based on IARU Monitoring System data from all regions, to apply increased pressure on the nations and military powers and alliances operating HF Over-The-Horizon (OTH) radars, in order to encourage them to program their OTH radars in such a way that infringements of the exclusive amateur radio bands are avoided as much as possible. (Davos 2005 – DV05_C4_Rec_04)

Contests should be restricted to 160, 80, 40, 20, 15 and 10m. That is 60, 30, 17 and 12 m should not be used for contests. (Vienna 2016 – VIE16_C4_REC_06 / LA17_C4_REC_06)

2.1.15 FIELD DAYS AND SPECIAL ACTIVITY DAYS

It is recommended that the HF Phone Field Day in September should no longer be an IARU Region 1 event, though individual Societies may organise national events on the first weekend in September if they wish, using the "Guidelines for HF Field Day Organisers" as a basis. (Noordwijkerhout 1987 - 1.13.1.9)

It is recommended that the Phone Field Day shall take place from 1300 UTC on the first Saturday in September to the following Sunday at 1300 UTC. (Tel Aviv 1996 - REC/96/TVI/C4.15)

It is recommended that the international listing for the HF CW Field Day be discontinued for the time being. (Tel Aviv 1996 - REC/96/TVI/C4.7)

It is recommended that IARU Region1 Member Societies exchange the electronic log data. The rules should contain a statement saying that Field Day participants agree automatically to the log exchange upon log submission. (San Marino 2002 - REC/02/SM/C4.8)

It is recommended that 17 June will be proclaimed as a yearly HF QRP Day. Region 1 will take steps needed to get this day proclaimed as a yearly international QRP Day, with the goal that all amateurs world wide use low power on that day every year. (Cefalu 1984 - 1.13.2.1)

2.1.16 CONTEST RULES AND REGULATIONS

It is recommended that the band change stipulation for the single operator categories in IARU Region 1 HF contests should be eliminated, and should be mentioned in the HF Managers' Handbook. (San Marino 2002 - REC/02/SM/C4.6)

It is recommended that all Member Societies shall include information about contest free segments in their contest rules. (Tel Aviv 1996 - REC/96/TVI/C4.14)

It is recommended that paper VIE07_C4_05 'Guidelines for HF Contests' be added to the HF Manager's Handbook but with the SWL category in clause 7 amended to delete all after "A single person using only one receiver" and paragraph 11 on page 5 deleted. (Cavtat 2008 – CT08_C4_Rec_03)

It is recommended that within the chapter 'Guidelines for HF Contests' of the IARU Region 1 HF Manager's Handbook, a distinct recommendation to incorporate contest free segments in the rules of contests organized by national societies and its' subdivisions shall be given and made well known. (Cavtat 2008 – CT08_C4_Rec_15)

It is recommended that Region 1 Member Societies check and put into effect rules that relate to frequency usage for the HF contests that they organize, and that the Region 1 Executive considers encouraging other IARU Regions to adopt a similar approach. (Cavtat 2008 – CT08_C4_Rec_16)

It is recommended that contest organizers be encouraged to replace signal strength reports in contests with some other less predictable exchange, so as to enhance the skill requirements of contest operators. (Cavtat 2008 - CT08_C3_Rec_27)

The Committee recommends that an additional category for "Youngsters and Newcomers" be introduced in contests wherever possible. Details are left to the various contest organizers. (Cavtat 2008 - CT08_C3_Rec_28)

It is recommended to preserve the integrity of the amateur service, contest organisers are encouraged to enforce rules that ensure all transmissions remain completely within the allocated amateur service bands. (LA17_C4_REC_09)

2.1.17 AWARDS, CERTIFICATES, CUPS AND MEDALS

Subscribing Member Societies shall restrict the number of certificates issued or sponsored by their organisation. Only these certificates may be called "Official Certificates". (Opatija 1966 - Rec. 1.14.3.3)

It is agreed that the decision taken by the Opatija Conference 1966 (1.14.3.3) shall be re-affirmed and brought to the notice of all Member Societies for suitable action. (Brussels 1969 - Rec. 1.14.3.4)

It is agreed that credit for awards and diplomas will be accepted for contacts made on the 10 MHz band. (Brighton 1981 - Rec. 1.14.4.2)

Within Region 1 the official Award Manager of the Member Societies should be entitled to check QSL cards on behalf of the organising Member Society, as long as the organising Society agrees. Where written proof of contact is not required when award application is being made, a simple list of claimed contacts, showing full log details, should be accepted. In case of doubt or dispute, more positive evidence of contact having taken place, may be required by the sponsor from the applicant. (Noordwijkerhout 1987 - Rec. 1.14.4.3)

It was recommended that IARU Region 1 would establish an award for humanitarian purposes, as requested in Doc. TS/90/C3.18 and TS/90/C3.31. The criteria would be considered by the originators of these documents, who would also consider the current criteria for the "Roy Stevens Memorial Award". Acceptance of the terms of reference contained in the Revision of Doc. C3.18 and C3.31 is recommended to be adopted as an information document for future conferences. (Torremolinos 1990 - Rec. 1.14.1.2)

It was agreed that IARU should recommend to its Member Societies that each organisation should use its official address when applying for national amateur radio diplomas. (Torremolinos 1990 - Rec. 1.14.4.4)

2.1.18 HF, LF AND MF BAND PLANNING

It is recommended:

1. that it is essential that Member Societies actively promote the IARU band plans within their country in order to encourage all amateurs to honour them.

2. that all Member Societies draw their member's attention to these band plans at least once a year, in their publications.

3. that the Amateur Service makes full use of the spectrum allocated to the source. (Tel Aviv 1996 - REC/96/TVI/C3....)

It is recommended that the following proposed principles for new IARU Region 1 HF bandplans be accepted, and that the principles be included in the IARU Region 1 HF Manager's Handbook.

- CW operation is accepted across all bands, except within beacon segments.
- Telephony (including AM) is limited to certain telephone segments.
- Digital data modes are limited to certain digital segments.
- Digitised speech is considered a digital data mode regarding bandplanning matters.
- The current IARU Region 1 bandplan is well known and receives a high degree of respect within Region 1; hence major changes to the bandplan are not necessary for the time being.

(Davos 2005 – DV05_C4_Rec_13)

It is recommended that the bandplan created by the Bandplan Working Group be approved. (Davos 2005 – DV05_C4_Rec_14)

It is recommended that the new HF bandplan (as discussed and passed in the HF Committee) is approved and recommended for use from 1st January 2006. (Davos 2005 – DV05_C4_Rec_17)

It is recommended by the IARU Region 1 ARDF Working Group to include in the 3.5 MHz bandplan the new line "3,510-3,600 kHz – unmanned ARDF beacons". (Davos 2005 – DV05_C4_Rec_12)

It is recommended that that in view of the fact that non-amateur stations tend to use apparently empty spaces in the shared bands, all Societies are urged to encourage their members fully to occupy these bands. (Stresa 1956 - 1.8.3.1)

It is recommended that:

1. footnotes to Region 1 HF Band Plans should be avoided.

2. any controversies in connection with the Region 1 HF Band Plans should be regulated by remarks to the band plan and should be agreed by the majority. (Tel Aviv 1996 - REC/96/TVI/C4.5)

It is recommended that that REC/99/LH/C4.6 and REC/02/SM/C4.12 be deleted, and the current entry in the Region 1 Band Plan for the 136kHz band be amended to:

FREQUENCY (kHz)	MAX BANDWIDTH (Hz)	PREFERRED MODE AND USAGE
135.7 – 137.8	200	CW, QRSS and narrow band digital modes
RR 5.67A Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. 5.67. (WRC-07) (Cavtat 2008)		

(Cavtat 2008 – CT08_C4_Rec_14)

HF CONFERENCE RECOMMENDATIONS

It is recommended that that the frequencies 3.555 kHz, 14.055 kHz, 21.055 kHz and 28.055 kHz should be defined as CW QRS centres of activity, where radio amateurs who want to develop their CW could meet one another. This should be stated as a guideline in the HF Managers' Handbook. In the same spirit the frequencies 3.560 kHz, 7.030 kHz, 14.060 kHz, 18.086 kHz, 21.060 kHz, 24.906 kHz and 28.060 kHz should be defined as QRP centres of activity, where amateurs who want to perform low power contacts could meet one another. This should be stated as a guideline in the HF Managers' Handbook. (San Marino 2002 - REC/02/SM/C4.9)

It is recommended that that 18130 kHz is adopted as a QRP SSB Centre of Activity by IARU Region 1. (Cavtat 2008 – CT08_C4_Rec_08)

It is recommended that that 24950 kHz is adopted as a QRP SSB Centre of Activity by IARU Region 1. (Cavtat 2008 – CT08_C4_Rec_09)

It is recommended that 3630 kHz, 7070 kHz, 14180 kHz, 21180 kHz and 28330 kHz are adopted as digitised speech Centres of Activity by IARU Region 1, in order to harmonise these with Region 2. (Cavtat 2008 – CT08_C4_Rec_10)

It is recommended that 18150 kHz and 24960 kHz are adopted as digitised speech Centres of Activities by IARU Region 1, and that IARU Region 1 proposes that these frequencies be adopted by Regions 2 and 3 in the interests of harmonisation. (Cavtat 2008 – CT08_C4_Rec_11)

Cavtat 2008 – CT08_C4_Rec 13 – Recommendation Incorporated into the Region 1 Bandplan.

It is recommended that the plan on the proposed usage of the 472 – 479 kHz band (630m) be accepted:

472 – 479 kHz CW only – maximum bandwidth 200 Hz
475 – 479 kHz CW + digimodes
(VA_C4_Rec_02)

It is recommended that the following proposed usage plan for the WRC-15 5 MHz allocation be implemented in Region 1 with a view to harmonising across all regions:

5351.5 – 5354.0 kHz	200 Hz	CW / narrow band modes
5354.0 – 5366.0 kHz	2700 Hz	All modes, USB recommended for voice operation
5366.0 – 5366.5 kHz	20 Hz	Weak signal narrow band modes

It is recommended that frequencies within the WRC-15 allocation only be used if there are no other frequencies available at 5 MHz under domestic (ITU-R article 4.4) permissions. Local nets and long rag chew QSOs should avoid the WRC-15 5 MHz allocation if possible. Emergency communications traffic and exercises may use the 5 MHz band. (LA17_C4_REC_02)

It is recommended that the IARU Region 1 band plan for 30 m be revised as follows:

FREQUENCY SEGMENT (kHz)	MAX BANDWIDTH (Hz)	PREFERRED MODE AND USAGE	
10100 - 10130	200	CW	10116 kHz - CW QRP Centre of Activity
10130 - 10150	500	Narrow band modes	Digimodes

Note that CW is permitted over the whole band.

It should be noted there is an IARU recommendation that there should be no beacons below 14 MHz (DK0WCY excepted) and current beacons in the 30m band are operating against this recommendation. (LA17_C4_REC_03)

It is recommended that the IARU Region 1 band plan for 80 m be revised as follows:

FREQUENCY SEGMENT (kHz)	MAX BANDWIDTH (Hz)	PREFERRED MODE AND USAGE	
3500 - 3510	200	CW	Priority for intercontinental 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	All Narrow Band Modes	Digimodes
3580 - 3590	500	All Narrow Band Modes	Digimodes
3590 - 3600	500	All Narrow Band Modes	Digimodes, automatically controlled data stations (unattended)

(LA17_C4_REC_04)

Sideband Usage: Below 10 MHz lower sideband (LSB) is recommended and above 10 MHz use upper sideband (USB). The exception to this is on the 5 MHz band where USB is recommended. (LA17_C4_REC_01)

It is recommended that Region 1 works with Region 2 and Region 3 with the goal of achieving greater harmonization of the band plans between all regions. (LA17_C4_REC_07)

2.1.19 IARU MONITORING SYSTEM

IARU Region 1 requests the Administrative Council of IARU to make use of the provisions of RR1876 in an attempt to have long standing non-amateur transmissions removed from the exclusive parts of the amateur bands. (Torremolinos 1990 - 1.5.4.14)

It is recommended that Member Societies in Region 1 who are not participating in the work of the Monitoring System, should establish or reactivate their National Monitoring System and make some definite contribution to the defence of the amateur bands or appoint a Monitoring System Liaison Officer, who will support the actions of the Region 1 Monitoring System. (De Haan 1993 - Rec. C3.B)

It is recommended that the monthly MS Report be circulated to all member societies for information and so enable them to take such supporting action with their administration as may from time to time be required. (De Haan 1993 - Rec. C3.C.1)

It is recommended that all Member Societies should bring to the attention of their members the prevailing situation on the bands by publishing in their journals extracts from statistics and news items contained in the Monthly MS Report. (De Haan 1993 - Rec. C3.C.2)

It is recommended to accept document 93/DHB/C3.43 from the EC and to endorse the decision of the EC as outlined in their document and minuted in paragraph 12.8 of the EC Meeting, Budapest, May 1992. (De Haan 1993 - Rec. C3.D)

It is recommended that the present organisation of the IARU-MS remains unchanged until such time that the objectives mentioned in the terms of reference have been achieved. (Tel Aviv 1996)

It is recommended that a modest increase of the IARU-MS Co-ordinator's budget is approved in order to facilitate Recommendation A. (Tel Aviv 1996)

a) the EC of IARU Region 1 and the AC continue investigating with the ITU, CEPT and other similar international organisations to achieve participation in the monitoring of harmful interference and
b) endorsement of this recommendation be sought from IARU Regions 2 and 3. (Tel Aviv 1996)

It is recommended that the Administrative Council of the IARU gives publicity to the magnitude of the problem of non-authorized transmissions in the amateur bands, at IARU stands at international or national telecommunication conferences. (Tel Aviv 1996)

2.1.20 SPECTRUM MANAGEMENT

It is recommended:

That the Conference agrees:

a) More effort should be made to find and support volunteers who can address the general trend of liberalization in spectrum management through:

    1. Technically competent input and advice on HF radio propagation to professional groups who are sometimes only versed in short-range EMC matters;

    2. Setting up of a scientifically valid long-term assessment of the noise floor on Amateur Bands below 30 MHz with the intent to raise complaints over general loss of spectrum effectiveness for the Amateur Service,

and

b) that the HF Committee suggests to the other spectrum committees that a similar proposal and recommendation be considered for their spectrum areas. (Cavtat 2008 – CT08_C4_Rec_05)

2.1.21 METHOD OF MEASUREMENTS

The information contained in document BM/134 be used as standard for manufacturers of amateur radio equipment and for those building their own equipment. (Brighton 1981 - 2.7.1.2)

2.1.22 MORSE CODE SPEEDS

It is recommended that for the determination of Morse Code speeds, as known from commercial practise, the 50 bit key word "PARIS" (which includes one 7 bit word space) shall be used as basis for calculations. (Brighton 1981 - Rec. 1.12.7.1)

2.2 QSL CARDS

It is recommended that QSL cards exchanged through the bureaux of Member Societies shall:

(i) have a minimum size of 8 cm by 13.5 cm and a maximum size of 10.5 cm by 15 cm;

(ii) have the call sign of the recipient clearly shown on the reverse side;

(iii) should not weigh more than 4 grams per card.

(Scheveningen 1972 - Rec. 1.15.2.1)

QSL cards exchanged through the QSL Bureaux of Member Societies should preferably have a size of 9 cm x 14 cm. (Cefalu 1984 - Rec. 1.15.2.3)

It is recommended to provide a lower margin on the information side or the back of at least 15 mm and the addressee's call sign written into this information stripe. This margin must be kept free from any other printing. (Noordwijkerhout 1987 - Rec. 1.15.2.4)

2.3 OPERATIONAL ETHICS

It is recommended that the document related to "Net operation and Amateur Ethics" shall be adopted. (Noordwijkerhout 1987 - 1.16.3.4 (1.12.10.2))

It is recommended that the Document C3.25 (Code of Practice for QSL Managers - see Chapter 5.29) should be published in the HF Managers Handbook and in "Region 1 News". (Torremolinos 1990 - Rec. 1.15.3.1)

The AC Resolution 91-2 containing Guidelines for Packet Radio Operators and Guidelines for Packet Radio BBS Operators was ratified. (De Haan 1993 - Rec. C3)

HF CONFERENCE RECOMMENDATIONS

It is recommended that:

1. all Member Societies shall take steps in order to stop all illegal traffic carried by amateur radio packet network (BBS), as well as on all other modes.

2. all Member Societies shall instruct all packet radio system operators (sysops) about their responsibilities and their duty to remove all illegal messages from the net.

3. if Member Societies are unable to stop such traffic by themselves, they should seek necessary help from their telecommunications authorities in order to put a stop to such traffic.

4. all Member Societies encourage their members to investigate the possibility of implementing a safe system of authentication in order to deny access for illegal stations or stations with false or "borrowed" call signs. (REC/96/TVI/C3....)

It is recommended that

1. Radio amateurs may access digital networks by any means, including dial-up modems on gateways, the Internet or other electronic means.

   However, amateur radio sysops of digital gateways shall ensure that non-amateurs cannot under any circumstances gain access to amateur radio networks either deliberately or accidentally.

2. Sysop shall take all and any necessary steps to ensure that the material (messages) conform with the rules for amateur radio traffic set out in the Radio Regulations and in the national regulations in the country concerned.

3. If material is transferred from a public telephone based network, or a public data network (e.g. the Internet), the person bringing the material into the amateur network shall do so under her/his own call sign as sender. It should also be mentioned that the material originates from e.g. the Internet.

4. References are made to IARU AC Resolution 91-2 (Rev. 95). (REC/96/TVI/C3...)

It is recommended that IARU Region 1 urges its Member Societies to motivate their members to adhere to Amateur Radio ethics, and to take action against stations practising deliberated and malicious interference on the Amateur Radio Bands. (Lillehammer REC/99/LH/C4.7)

It is recommended that IARU Region 1 urges its member societies to motivate all its members to operate their radios according to the Non-Interference Basis (NIB) principle, in order to reduce deliberate and malicious interference. (Cavtat 2008 – CT08_C4_Rec_17)

It is recommended for stations working "split frequency" to keep the window as narrow as necessary and to announce the window together with their call sign. (REC/02/SM/C4.5)

It is recommended -

a) That Region 1 endorse IARU Resolution 08-01 (See Chapter 7.1.1)

b) That the ON4UN/ON4WW booklet on ethics & operating practice should be published on member society websites, and published in paper form in local languages wherever possible, and that maximum publicity should be given, via member societies, to these publications. (Cavtat 2008 - CT08_C3_Rec_44)

It is recommended that IARU Region 1 endorses the "DX Code of Conduct" and urges its member societies to publicise and recommend it to their members. (Sun City SC11_C4_06)

(download "DX Code of Conduct" from http://dx-code.org/)

It is recommended that IARU Region 1 endorses the "DX Code of Conduct for DXpeditions" and urges its member societies to publicise and recommend it to their members. (Varna VA14_C4_03)

(download "DX Code of Conduct for DXpeditions" from http://www.dx-code.org/DXpednew.html)

3. IARU Region 1 HF Band Plan

A recommendation for all radio amateurs how to use the bands, as revised at the Interim Meeting Vienna 2016, effective 01 June 2016, and retified at the General Conference Landshut 2017

FREQUENCY (kHz)	MAX. BANDWIDTH (Hz)	PREFERRED MODE AND USAGE	
2200m Band:			
135.7 – 137.8	200	CW, QRSS and narrow band digital modes	
630m Band:			
472 – 475 **	200	CW	See NOTES
475 – 479 **	(#)	CW, digimodes	See NOTES

(**) If a frequency is to be selected, particular attention must be paid to still existing Non Directional Beacons (NDB) of the radionavigaton service! (#) max. bandwidth not specified, 500 Hz suggested.

160m Band:

1810 - 1838	200	CW	1836 kHz – QRP Centre of Activity
1838 - 1840	500	Narrow band modes	
1840 - 1843	2700	All modes – digimodes (*)	
1843 - 2000	2700	All modes (*)	

Radio Amateurs in countries that have a **SSB allocation ONLY** below 1840 kHz, may continue to use it, but the National Societies in those countries are requested to take all necessary steps with their licence administrations to adjust the phone allocations in accordance with the Region 1 Bandplan. (Davos 2005)

IARU REGION 1 HF BAND PLAN

80m Band:

3500 - 3510	200	CW, priority for intercontinental operation	
3510 - 3560	200	CW, contest preferred	3555 kHz – QRS Centre of Activity
3560 - 3570	200	CW	3560 kHz – 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 - digimodes, automatically controlled data station (unattended), (*)	
3600 - 3650	2700	All modes, 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 – Reg.1 Emergency Centre of Activity
3775 - 3800	2700	All modes, SSB contest preferred, priority for intercontinental operation	

It is recommended by the IARU Region 1 ARDF Working Group to include in the 3.5 MHz bandplan the new line "3,510 - 3,600 kHz – unmanned ARDF beacons". (Davos 2005 – DV05_C4_Rec_12)

60m Band:

5351.5 – 5354.0	200	CW, Narrow band modes – digimodes	See NOTES
5354.0 – 5366.0	2700	All modes, USB recommended for voice operation (##)	See NOTES
5366.0 – 5366.5	20 (!)	Weak signal narrow band modes	See NOTES

It is strongly recommended that frequencies within the WRC-15 allocation only be used if there are no other frequencies available at 5 MHz under domestic (ITU-R article 4.4) permissions.

Local nets and long rag chew QSOs should not use the WRC-15 allocation at 5 MHz but should instead make use of the 3.5 MHz, 5 MHz domestic, or 7 MHz bands where there is more spectrum available.

IARU REGION 1 HF BAND PLAN

40m Band:

7000 - 7040	200	CW	7030 kHz – QRP Centre of Activity
7040 - 7047	500	Narrow band modes – digimodes	
7047 - 7050	500	Narrow band modes – digimodes, automatically controlled data stations (unattended)	
7050 - 7053	2700	All modes – digimodes, automatically controlled data stations (unattended) (*)	
7053 - 7060	2700	All modes – digimodes	
7060 - 7100	2700	All modes, SSB contest preferred	
			7070 kHz – Digital Voice Centre of Activity
			7090 kHz – SSB QRP Centre of Activity
7100 - 7130	2700	All modes	7110 kHz – Reg.1 Emergency Centre of Activity
7130 - 7175	2700	All modes, SSB contest preferred	7165 kHz – Image Centre of Activity
7175 - 7200	2700	All modes, SSB contest preferred, priority for intercontinental operation	

30m Band:

10100 - 10130	200	CW	10116 kHz – QRP Centre of Activity
10130 - 10150	500	Narrow band modes – digimodes	

SSB may be used during emergencies involving the immediate safety of life and property and only by stations actually involved in the handling of emergency traffic.

The band segment 10120 kHz to 10140 kHz may be used for SSB transmissions in the area of Africa south of the equator during local daylight hours. News bulletins on any mode should not be transmitted on the 10 MHz band.

IARU REGION 1 HF BAND PLAN

20m Band:

14000 - 14060	200	CW, contest preferred	14055 kHz – QRS Centre of Activity
14060 - 14070	200	CW	14060 kHz – QRP Centre of Activity
14070 - 14089	500	Narrow band modes – digimodes	
14089 - 14099	500	Narrow band modes - digimodes automatically controlled data stations (unattended)	
14099 - 14101		IBP, exclusively for beacons	
14101 - 14112	2700	All modes – digimodes, automatically controlled data stations (unattended)	
14112 - 14125	2700	All modes	
14125 - 14300	2700	All modes, SSB contest preferred	
			14130 kHz – Digital Voice Centre of Activity
			14195 kHz ± 5 kHz - Priority for Dxpeditions
			14230 kHz – Image Centre of Activity
			14285 kHz – SSB QRP Centre of Activity
14300 - 14350	2700	All modes	14300 kHz – Global Emergency centre of activity

17m Band:

18068 - 18095	200	CW	18086 kHz – QRP Centre of Activity
18095 - 18105	500	Narrow band modes – digimodes	
18105 - 18109	500	Narrow band modes – digimodes, automatically controlled data stations (unattended)	
18109 - 18111		IBP, exclusively for beacons	
18111 - 18120	2700	All modes – digimodes, automatically controlled data stations (unattended)	
18120 - 18168	2700	All modes	18130 kHz – SSB QRP Centre of Activity
			18150 kHz – Digital Voice Centre of Activity
			18160 kHz – Global Emergency Centre of Activity

IARU REGION 1 HF BAND PLAN

15m Band:

21000 - 21070	200	CW	21055 kHz – QRS Centre of Activity 21060 kHz – QRP Centre of Activity
21070 - 21090	500	Narrow band modes, digimodes	
21090 - 21110	500	Narrow band modes, digimodes, automatically controlled data stations (unattended)	
21110 - 21120	2700	All modes (excluding SSB), digimodes, automatically controlled data stations (unattended)	
21120 - 21149	500	Narrow band modes	
21149 - 21151		IBP, exclusively for beacons	
21151 - 21450	2700	All modes	21180 kHz – Digital Voice Centre of Activity 21285 kHz – SSB QRP Centre of Activity 21340 kHz – Image Centre of Activity 21360 kHz – Global Emergency Centre of Activity

12m Band:

24890 - 24915	200	CW	24906 kHz – QRP centre of activity
24915 - 24925	500	Narrow band modes – digimodes	
24925 - 24929	500	Narrow band modes – digimodes, automatically controlled data stations (unattended)	
24929 - 24931		IBP, exclusively for beacons	
24931 - 24940	2700	All modes – digimodes, automatically controlled data stations (unattended)	
24940 - 24990	2700	All modes	24950 kHz – SSB QRP Centre of Activity 24960 kHz – Digital Voice Centre of Activity

IARU REGION 1 HF BAND PLAN

10m Band:

28000 - 28070	200	CW	28055 kHz – QRS Centre of Activity 28060 kHz – QRP Centre of Activity
28070 - 28120	500	Narrow band modes – digimodes	
28120 - 28150	500	Narrow band modes – digimodes, automatically controlled data stations (unattended)	
28150 - 28190	500	Narrow band modes	
28190 - 28199		IBP, regional time shared beacons	
28199 - 28201		IBP, worldwide time shared beacons	
28201 - 28225		IBP, continuous duty beacons	
28225 - 28300	2700	All modes – beacons	
28300 - 28320	2700	All modes – digimodes, automatically controlled data stations (unattended)	
28320 - 29000	2700	All modes	28330 kHz – Digital Voice Centre of Activity 28360 kHz – SSB QRP Centre of Activity 28680 kHz – Image Centre of Activity
29000 - 29100	6000	All modes	
29100 - 29200	6000	All modes – FM simplex – 10 kHz channels	
29200 - 29300	6000	All modes – digimodes, automatically controlled data stations (unattended)	
29300 - 29510	6000	Satellite Links	
29510 - 29520		Guard channel	
29520 - 29590	6000	All modes – FM repeater input (RH1 – RH8)	
29600	6000	All modes – FM calling channel	
29610	6000	All modes – FM simplex repeater (parrot - input and output)	
29620 - 29700	6000	All modes – FM repeater outputs (RH1 – RH8)	

IARU REGION 1 HF BAND PLAN

DEFINITIONS

All modes	CW, SSB and those modes listed as Centres of Activity, plus AM (Consideration should be given to adjacent channel users).
Image modes	Any analogue or digital image modes within the appropriate bandwidth, for example SSTV and FAX.
Narrow band modes	All modes using up to 500 Hz bandwidth, including CW, RTTY, PSK etc.
Digimodes	Any digital mode used within the appropriate bandwidth, for example RTTY, PSK, MT63 etc.

NOTES

The frequencies in the band plan are understood as "transmitted frequencies" (not those of the suppressed carrier!)

To prevent any out of band transmission the maximum dial setting for USB Voice mode should be 3 kHz below upper band edge on bands 20m to 10m.

(*)	Lowest dial setting for LSB Voice mode: 1843, 3603 and 7053 kHz
(##)	Highest dial setting for USB Voice mode on the 60m band: 5363 kHz

CW QSOs are accepted across all bands, except within beacon segments. (DV05_C4_REC_13)

Amplitude modulation (AM) may be used in the telephony sub-bands providing consideration is given to adjacent channel users. (NRRL Davos 05).

Sideband Usage	Below 10MHz lower sideband (LSB) is recommended, and above 10 MHz use upper sideband (USB). The exception to this is on the 5 MHz band where USB is recommended. (LA17_C4_REC_01)
630m band	Details shown in the band plan above should be understood as "proposed usage". (VA14_C4_REC_02)
80m band	It is recommended by the IARU Region 1 ARDF Working Group to include in the 3.5 MHz bandplan the new line "3,510 - 3,600 kHz – unmanned ARDF beacons". (Davos 2005 – DV05_C4_Rec_12)
60m band	Details shown in the band plan above should be understood as "proposed usage". (LA17_C4_REC_02)
Contests	Where no DX traffic is involved, the contest segments should not include 3500-3510 kHz or 3775-3800 kHz. Non-contesting radio amateurs are recommended to use the contest-free HF bands (30, 17 and 12m) during the largest international contests. (DV05_C4_REC_07)

Contests should be restricted to 160, 80, 40, 20, 15 and 10m. That is 60, 30, 17, and 12m bands shall not be used for contests. (LA17_C4_REC_06)

Unmanned transmitting stations

The term "automatically controlled data stations" includes Store and Forward stations. IARU member societies are requested to limit this activity on the HF bands.

It is recommended that any unmanned transmitting stations on HF shall only be activated under operator control except for beacons agreed with the IARU Region 1 beacon coordinator, or specially licensed experimental stations.

Member Societies are reminded of the recommendation in the IARU Region 1 HF Band Plan 'that any unmanned transmitting stations on HF shall only be activated under operator control, except for beacons agreed with the IARU Region 1 Beacon Coordinator'.

Unmanned transmitting stations, and operation involving unmanned transmitting stations, must adhere to the frequency and bandwidth limits of the band plan.

The operator connecting to an automatically controlled unmanned transmitting station is responsible for not causing interference. This is particularly important in the 30 meter band where the amateur service only has secondary status.

Amateur radio operators may transmit messages via unmanned transmitting stations during coordinated emergency, and disaster preparedness exercises, limited to the duration of such exercises, using a bandwidth not exceeding 2 700 Hz.

Such communication should be announced regularly on the frequency, and radio amateurs not participating in the communication should cooperate by not transmitting on the frequency. (VA14_C4_REC_06).

Beacons

For information about IARU Region 1 beacon policy see the IARU Region 1 HF Manager's Handbook.

Remote controlled operation on HF

Remote controlled operation is defined to mean operation where a licensed operator controls an amateur radio station from a remote control terminal.

Where a station is operated remotely, the following conditions shall apply: Remote operation must be permitted, or not objected to, by the Regulatory Authority of the country where the station is located.

1. The call sign to be used should be the call sign issued by the Regulatory Authority of the country in which the station is located. This applies irrespective of the location of the operator.

2. It should be noted that the CEPT T/R 61-01agreement only applies to people using their own call sign, with the appropriate country prefix, when the operator is actually visiting that country, not for remote operation.

3. Any further requirements regarding the participation of remotely controlled stations in contests or award programs are a matter for the various contest or award program organisers.
(SC11_C4_REC_07, VA14_C4_REC_04)

HISTORY

2005 Davos	Introduction of band plan by bandwidth.	Effective 1 January 2006
	Introduction of a segment for unmanned ARDF beacons from 3,510 kHz to 3,600 kHz.	
2008 Cavtat	Several modifications.	Effective 29 March 2009
	CW segment extended from 7000 - 7035 kHz to 7000 -7040 kHz.	
	Narrow band modes, digimodes segment moved and extended from 7035 - 7038 kHz to 7040 -7047 kHz.	
	Narrow band modes, digimodes, segment for automatically controlled stations (unattended) moved and extended from 7038 - 7040 kHz to 7047-7050 kHz.	
	All modes, digimodes, segment for automatically controlled stations (unattended) moved from 7040-7043 kHz to 7050-7053kHz.	
	Introduction of SSB preferred contest segments 7060 -7100 kHz and 7130 - 7200 kHz.	
	Introduction of Digital Voice Activity Centres.	
2011 Sun City	Several modifications.	Effective 17 August 2011
	CW contest preferred segment 7000-7025 kHz withdrawn.	
	Segment 29100 - 29200 kHz changed from max. bandwidth of 2700 Hz to max. 6000 Hz.	
	Introduction of new segment 29100 - 29200 kHz for FM simplex operation (10 kHz channels).	
	Removal of FM simplex channels 29520 - 29550 kHz and 29610 - 29650 kHz.	

	Number of FM Repeater channels increased to eight, former FM simplex channels became new repeater input, respectively repeater output channels. FM repeater channels renumbered, RH1 = 29520 / 29620 kHz, RH8 = 29590 / 29690 kHz. Introduction of FM Simplex Repeater 29610 kHz (parrot, input + output)	
2014 Varna	Several modifications. Segment 29000 - 29100 kHz: Change from max. bandwidth of 2700 Hz to max. 6000 Hz. Satellite segment 29300 - 29510 kHz: Removal of downlink restriction	Effective 26 September 2014
2016 Vienna	Several modifications *. (* to be ratified by General Conference 2017) Introduction of narrow bandwidth segment with max. bandwidth of 200 Hz from 3570 kHz to 3580 kHz. Narrow bandwidth mode segment with max. bandwidth of 500 Hz extended by 10 kHz now from 10130 kHz to 10150 kHz.	Effective 01 June 2016
2017 Landshut	Several modifications, ratified by General Conference 2017	Effective 01 June 2016

4. Technical Standards

4.1 VALID CONFERENCE RECOMMENDATIONS

4.1.1 RTTY, AMTOR & PACKET RADIO

It is recommended that:

- A speed of 45.45 baud be retained, however that speeds of 50, 75 and 100 baudsshould be encouraged.(Cefalu 1984 - 2.3.1.8)

- Each Society, where such requirements still exist, should press their respectivelicensing Authorities to remove the requirement for "Dual Identifying" when using theInternational Standard CCIT No 2 Code.(Cefalu 1984 - 2.3.1.9)

- When making use of ASCII, the minimum specification for the signalling format shouldbe 1 start bit, 7 data bits, 1 parity bit, 1 stop bit. The parity should be as follows:

  - if generated - even parity

  - if NOT generated - parity bit set to space.(Cefalu 1984 - 2.3.1.10)

All IARU Member Societies shall adopt CCIR 476-1 in both modes A and B and Region1 is asked to liaise with Regions 2 and 3 so that AMTOR may become a trulyinternational standard.(Cefalu 1984 - 2.3.2.2)

It is recommended that the maximum speed for packet radio should be not more than300 baud on HF. The recommended frequency shift is 200 Hz.(Noordwijkerhout 1987 - 2.3.3.1)

It is recommended that the protocol used for packet radio on HF should be AX.25(Noordwijkerhout 1987 - 2.3.3.2)

4.1.2 FACSIMILE STANDARDS

Recommendation:

For preferred characteristic values for facsimile transmissions in the amateur radioservice.

(a) The video (picture modulation) signal is generated at the audio frequency level,similar as in the SSTV technique; the edge frequencies for "black" and "white"are 1500 Hz and 2300 Hz respectively; the frequencies corresponding to thehalf-tones are positioned in between the two frequencies. The audio frequencybandwidth is 3000 Hz max.

(b) The rotation speed of the picture drum is switchable between 60, 90, 120, 150,180 and 240 rpm with 60, 120, 180 and 240 rpm being the preferred values.

(c) The index of co-operation shall be provisionally 288 in accordance with CCITTregulations; minor deviations from this value are permissible.

(d) Phasing-in signals and end-of-picture signals will be chosen at a later stagetaking into account practical considerations as regards the state-of-the-art.

(e) All amateur radio frequency allocations should be open for this new mode. Alsooperation via repeater stations and amateur satellites should be allowed. Thecalling frequency on 2 m is to be 144.700 MHz.

(f) For the transmissions on the HF bands, the class of emission should be A4J, i.e.frequency shift keying by the basic signal of an audio frequency sub-carrier,which modulates the main carrier in amplitude by single sideband withsuppressed carrier, or F4, i.e. direct frequency modulation (shift-keying) of themain carrier by the modulating signal.

In addition, on frequencies above 144.500 MHz F4/FM, i.e. frequency modulation of theRF carrier by a frequency modulated sub-carrier should be permitted.

4.1.3 S-METER STANDARDS

In order to make a uniform reporting system on the amateur bands possible, taking intoaccount the widespread use of the 'subjective' S-system, taking into account the large deviations between the characteristics of S-meters on current amateur equipment, the IARU Region 1 recommends the use of the "S"-system for signal strength reporting on the amateur bands, based on the following standards:

(a) One S-point corresponds to a level difference of 6dB.

(b) On the bands below 30 MHz a meter deviation of S-9 correspond to an available power of a CW signal generator connected to the receiver input terminals, of -73dBm.

(c) On the bands above 30 MHz this power shall be -93dBm.

Comments:

1. Signal reporting on the amateur bands at the moment is based on the well-known "subjective" RST system. Although the system is very useful, the availability of modern, sometimes professionally made, receiving equipment, makes the use of a less subjective system for the measurement of the strength of the received signal possible. The system to be chosen, however, must not deviate too much from the "subjective" system.

2. The first, and most important, standard to be recommended will be the definition of a "S"-point. A value of 6dB seems very practical. It corresponds to an already widespread "unofficial" standard and gives the least problems for non-mathematically oriented amateurs.

3. Once having agreed upon the value of one S-point, a second, less important, but very useful recommendation would be the definition of a reference level. Taking into account the practical situation it will not be possible to define one reference level for all amateur bands. On the HF bands a level of -73dBm (50 μV over 50 Ohm) does not deviate too much from current practice. On the higher bands,

however, where thermal noise is in many cases the limiting factor, a lower level must be chosen and -93dBm (5 µV over 50 Ohm) seems appropriate.

4. Although the standards given above are based on continuous signals, in real traffic non-continuous signals (i.e. A3j) will be encountered. It, therefore, is necessary to define in more detail the measurement system.

5. We hope that the current recommendation will be followed by all equipment manufacturers, so that in a not too distant future one will know how to interpret the strength report of the other station.

Societies should advise as much as possible their members about equipment manufacturers adhering to this recommendation and shall try to avoid publication of receiver design which do not in principle use the recommended standards. Simple means for calibration of at least the 6dB level ratio should be published.

TABLE

S	HF bands dBm (V over 50 ohm)	Bands above 30 MHz dB (V over 50 ohm)
9 + 40 dB	-33 (5millivolt)	-53 (0.5 millivolt)
9 + 30 dB	-43 (1.6 millivolt)	- 63 (0.16 millivolt)
9 + 20 dB	-53 (500 microvolt)	-73 (50 microvolt)
9 + 10 dB	-63 (160 microvolt)	-83 (16 microvolt)
9	-73 (50 microvolt)	-93 (5 microvolt)
8	-79 (25 microvolt)	-99 (2.5 microvolt)
7	-85 (12.6 microvolt)	-105 (1.26 microvolt)
6	-91 (6.3 microvolt)	-111 (0.63 microvolt)
5	-97 (3.2 microvolt)	-117 (0.32 microvolt)
4	-103 (1.6 microvolt)	-123 (0.16 microvolt)
3	-109 (0.8 microvolt)	-129 (0.08 microvolt)
2	-115 (0.4 microvolt)	-135 (0.04 microvolt)
1	-121 (0.21 microvolt)	-141 (0.02 microvolt)

4.2 STANDARD FREQUENCY STATIONS

ARGENTINA

Call sign LOL

Standard Frequencies 5,000, 10,000, 15,000 kHz simultaneous (1100-1200, 1400-1500, 1700-1800, 2000-2100, 2300-2400 UTC)

Time interval signals 3 min of 1 kHz and 440 kHz modulation (A2) alternately, commencing all the minutes which are multiples of 5 except the 55th minute, this being reserved for a precision time signal which consists of a 5ms pulse every second for 3min (except the 59th second) at 1 kHz.

Announcements In between the 3 min tone periods. For the first minute a DUT1 code is sent. For the second minute the station callsign in morse code is sent followed by the origin of the transmission, ie Observatorio Naval Buenos Aires".

Location Buenos Aires (34:37S 58:21W)

Transmitter 2 kW

AUSTRALIA

Call sign VNG (Closed 2002)

CANADA

Call sign CHU

Standard Frequencies 3,330, 7,850, 14,670 kHz simultaneous (H24).

Time interval signals Seconds pulses are 300 cycles of the 1 kHz tone (H2A); the beginning of each pulse of each minute is 0.5 seconds long. The sequence and form of the pulses are also modified as follows:

1. The 19th pulse of each minute is omitted

2. The 1st to 9th pulses are omitted from the first minute of each hour.

3. The 1st to 15th pulses of each minute may be split so as to indicate the difference DUT1 between UT1 and UTC in magnitude to the nearest 0.1 second and in sign.

4. The 31st to 39th pulses of each minute are shortened to 10 cycles of 1 kHz and each is followed by a frequency shift code which can be employed to synchronise remote clocks to UTC (NRC)

Announcements	The 51st to 59th pulses of each minute are omitted. During this time station identification and time are announced in French and English (H3E).
Location	Ottawa (45:18N 75:45W)
Transmitter	3 kW on 3,330 and 14,670 kHz. 10 kW on 7,335 kHz

CHINA

Call sign	BPM
Standard frequencies	2,500 kHz (0730-1100 UTC) 5,000 kHz and 10,000 kHz (H24) 15,000 kHz (0100-0900 UTC)
Announcements	Callsign in morse and voice (Chinese) at H+29 and H+59
Location	Lingtong. Pucheng County (approx 35:00N 109:30E)

Call sign	BSF
Standard frequencies	5,000 kHz and 15,000 kHz (H24 except at H+35 to H+40)
Announcements	Callsign in morse and voice (Chinese) at H+09, H+19, H+29, H+49 and H+59
Location	Chung-Li (24:57N 121:09E)

FRANCE

Call sign	FFH (Closed)

GERMANY

Callsign	DCF77
Standard Frequency	77.5 kHz (H24)
Time interval signals	The carrier is amplitude-modulated with second marks. At the beginning of each second (with the exception of the 59th second of each minute), the carrier amplitude is reduced to 25% for the

duration of either 0.1 or0.2 seconds. The start of the carrier reduction marks the precise beginning of the second. The minute is marked by the absence of the previous second mark.

Location	Mainflingen (50.01N 09:00E)
Transmitter	50 kW ERP
Antenna	150m high vertical omni with capacity hat.

ITALY

Call sign	IAM (Closed 1998)
Call sign	IBF (Closed 1990)

JAPAN

Callsign	JJY (now on 40 kHz and 60 kHz only)

UNITED KINGDOM

Call sign	MSF
Standard frequency	60 kHz (H24)
Location	Rugby (52:11N 01:11W) until 31 st March 2007
	Anthorn (54:55N 03:15W) from 1 st April 2007
Transmitter	15 kW e.m.r.p.

USA

Call signs	WWV and WWVH
Standard frequency	2,500, 5,000, 10,000, 15,000, 20,000 kHz. (H24)

Time interval signals	100 Hz subcarrier, BCD code, one bit per second. The pulses begin 30 ms after the start of a second. A 170 ms pulse represents a "0" bit, a 470 ms pulse represents a "1". During the first second of a minute, no pulse is transmitted. A position identifier lasting 770 ms is transmitted every 10 s.
Announcements	Announcement in minutes 00 and 30 (WWV), minutes 29and 59 (WWVH)
Locations	WWV Fort Collins, CO (40:41N 105:02W) and WWVH Kekaha-Kauai, Hawaii.
Transmitters	2.5 kW on 2,500 kHz, (WWVH 5 kW) 10 kW on 5,000/10,000 and 15,000 kHz 2.5 kW on 20,000 kHz

Call sign	WWVB
Standard frequency	60 kHz (H24)
Time interval signals	
Location	Fort Collins, CO (40:41N 105:02W).
Transmitter	50kW radiated power

4.3 THE LOCATOR SYSTEM

1. History

The scoring in official IARU Region I VHF/UHF/SHF contests as well as in most sub-regional contests is based upon the distance in kilometres between two stations making a complete QSO. To facilitate the measurement of this distance, at a meeting of the VHF Working Group in the Hague in October 1959 a code system was adopted forgiving the location of a station. This was the QRA-Locator system, devised in Germany, originally based on a two-stage sub-division of geographical longitudes and latitudes starting from the Greenwich meridian and from 40 degrees North.

At the Region I Conference in Malmo (1963) the system was refined by introducing a third sub-division, and in its final form the QRA-Locators consisted of a five-character code, viz. two capital letters, a two digit number and a lower-case letter, for exampleCM72j.

Many Region I societies developed maps based on this system, either of their own country or of larger parts of Western Europe.

At a meeting of the Region I VHF Working Group in Brussels (1965) Dr. H. R. Lauber, HB9RG, VHF Manager of USKA, showed the first prints of the Region I QRA-Locator map, issued on four sheets and made through his good offices at the request of the VHF Working Group.

At the Region I Conference in Opatija (1966) this map was adopted as the official Region I QRA-Locator map, while at the Region I Conference in Scheveningen the system was re-baptised with the more appropriate name QTH-Locator. In the meantime it had become very popular and was used not only during contests but also for general amateur work on the VHF/UHF/SHF bands. For instance, collecting "square" (the first two letters of the QTH-Locator indicating a square of 2 degrees longitude wide and 1degree latitude high) became one of the most widely practised sports.

When amateurs outside Region 1, especially in North America (Region II), became interested in using a form of QTH-Locator during their contacts, contests etc. and started investigating the system devised in Region I, they found this Locator system repeated itself several times around the globe. Hence they considered this ambiguous system not very suitable for exchanging QTH information, for instance during EME contacts.

Furthermore, the QTH-Locator system was not very consistent in the set-up of sub-divisions, particularly with regard to the fifth character (letter). A more consistent system, if introduced, would be of use to the many amateurs who employed computers- from PC's to programmable packet calculators - to calculate distances and determine antenna directions form QTH- Locators.

For reasons like the ones outlined above, at a meeting of the IARU Region I VHF Working Group in Amsterdam (1976) SM5AGM, VHF manager of SSA , proposed to start discussions on a better Locator system that could replace the existing one and would be usable world-wide.

As there would not be much sense in changing to a world-wide applicable Locator system in Region I if the other Regions would not adopt it, at the Region I Conference in Miskolc-Tapolca (1978) it was agreed that Region 1 would consult the other two Regions on this matter. This consultation resulted in an exchange of system proposals between the Regions, and at a certain moment more than 20 different systems and variations on systems, generated in the various Regions, were under consideration!

At the VHF Working Group meeting in Maidenhead (1980) it was felt that the time had come to make a choice, and it was agreed that the best choice would be the system devised by John Morris, G4ANB, but with a modification concerning the starting point of the grid of the first sub-division. This system was widely published in amateur magazines of member societies in Region I as well as in the other Regions.

Thanks to the efforts of Folke Rosvall, SM5AGM - aided, amongst others, by ZL2AMJ (Region III) and W2X (Region II) - agreement between the Regions could be reached and all Regions have now accepted the so-called Maidenhead Locator which henceforth will simply be known as the Locator.

Region II adopted the Locator in 1982, Region III in 1983. at the IARU Region I Conference in Cefalu (1984) Region I adopted the Locator system, and the introduction date was set at January 1, 1986. As from this date all official Region I contests are run using the new Locator system.

2. Description of the Locator system

The Locator system is a grid system, allowing to give the location of a station by a code consisting of six characters, viz. two capital letters, a two-digit number and, again, two capital letters. For example: J031DG.

The system is set up as follows. The globe is divided in 18 x 18 = 324 fields, each 20 degrees longitude wide and 10 degrees latitude high (for an overview see the map in Appendix 1). Each of these fields is divided in 10 x 10 = 100 squares, each 2 degrees longitude wide and 1 degree latitude high. Finally, each of the squares is divided in 24 x 24 = 576 sub- squares each 5 minutes longitude wide and 2,5 minutes latitude wide. The coding/numbering is, as shown in Appendix 2, always from west to east and from south to north, and the origin of the system its at 180 degrees west, 90 degrees south.

As fare as "squares" are concerned, the system is compatible with the old QTH-Locator system, both having squares of 2 degrees longitude, 1 degree latitude. The only difference, of course, is in the coding; for instance, square CM in the QTH-Locator system will in the Locator system be square J022. Consequently, for the collectors of "square" continuity is assured.

5. General Notes / Additional Documents

5.1 RESOLUTION 08-1 CONCERNING OPERATING STANDARDS

The IARU Administrative Council, Konstanz, June 2008,

Noting that the Amateur Radio Services are services which rely on self-regulation for effective use of their spectrum allocation, and further

noting that poor operating behavior adversely affects the enjoyment of all radio amateurs and does not enhance the reputation of the Amateur Radio Services,

resolves that all radio amateurs be encouraged to operate to the highest levels of proficiency, with proper consideration for others using the amateur radio bands;

that the necessary effort be made by member-societies to teach newcomers and others correct operating behavior; and therefore

endorses and recommends the principles set out in the booklet "Ethics and Operating Procedures for the Radio Amateur" [1] by John Devoldere, ON4UN and Marc Demeuleneere, ON4WW, and

encourages each IARU Region to consider this booklet, with a view to adopting it, including any Regional variations that might be felt appropriate.

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[1] The booklet is published from a web document, and is freely downloadable from many amateur radio websites, including the IARU.

5.2 LISTS AND NETS – A CODE OF PRACTICE

The twin phenomena of lists and nets have risen spontaneously in response to a vastly increased world-wide ham population and an ever increasing interest in DX awards. In many cases they provide the only means of working a particular DX station, particularly on the HF bands. It should be noted that frequently lists are taken at the instigation of a DX station.

There is a feeling however in some quarters that QSO's made by this means are somehow less valid or fair than those made under more normal circumstances. It is true that sometimes there are abuses, but it is also true that lists and nets are here to stay.

Attempts to discriminate against them in terms of awards, would prove fruitless, as "policing" would be unenforceable and administration impossible.

It is therefore highly desirable that general recognition is given to a set of operating standards, which would ensure the validity, and acceptability of QSO's made by these means.

The following suggestions would go some way to minimising current criticisms. It should be noted that these are NOT advisory notes on procedures, but suggestions in relation to operating standards and ethics.

1. The list operator (LO), when taking the list, should endeavour to ensure a fair and even representation from all those countries calling to participate.

2. It is not desirable to take a list for use at some future date. In the case of poor propagation however, a running list may be held over and continued when possible.

3. It is desirable to establish with the DX station beforehand how much time he has available, or how any stations can be worked in the time available.

4. A valid QSO requires some minimum of two-way exchange of information. As stations are usually addressed by call sign this information has already been imparted to the DX station, nevertheless the LO should seek to avoid passing the whole call sign if possible.

Convention has established that the exchange need only be a correctly received RS report by both parties. It is therefore the responsibility of the LO at all times to ensure that this is accomplished fairly, accurately and without assistance. Whilst repeats are in order, if necessary, verification of partly received reports is not. Should a relay or a guess be suspected by the LO, the transmitting station should be instructed to make a second attempt with a changed report. The LO should not flinch from giving "negative QSO", when not satisfied with the exchange.

5. It is acceptable practice for the LO to nominate another station to monitor and assist with the procedure in difficult circumstances due to interference or linking for example.

6. If conditions fail the LO should terminate the operation rather than allow a "free for all" under the guise of the list.

7. It is very important that the LO gives information out at regular intervals, relating to new lists, QSL managers, length of current list etc. This will be of great assistance for waiting stations not on the list, and minimise breaking and interference.

5.3 IBP – TERMS OF REFERENCE FOR THE IARU REGION 1 IBP CO-ORDINATOR

1. The IARU Beacon Project (IBP) is established to carry out the policy for HF beacon operations laid down by the IARU Administrative Council (AC).

2. The IARU Region 1 IBP Co-ordinator shall be appointed at each triennial General Conference and shall act according to the procedures described in the Region 1 Bye-Laws.

3. The Region 1 Co-ordinator will deal with all aspects, relevant to the Region 1 geographical area, of policy and planning statements issued by the IBP International Co-ordinator (IC), appointed by the AC. In this work he will take account of decisions and recommendations arrived at by a General Conference and the Executive Committee (EC).

4. The Region 1 Co-ordinator will issue detailed information to Region 1 Member Societies to guide and assist them to meet the requirements of the Beacon Project as issued by the IC in respect of geographical coverage, frequency management, timing of transmissions and technical specifications. He will draw the attention of the IC to difficulties as they may arise and will inform the IC from time to time of general progress in the implementation of the regional plan. He will submit an annual report to the EC and immediately prior to a General Conference he will also submit a report to the General Conference covering the preceding three year period for the general information of Member Societies.

5. The IARU Region 1 IBP Co-ordinator shall attend Region 1 General Conferences. If deemed necessary by the Chairman of the HF-Committee, and in consultation with the EC, he may attend meetings of the HF-Committee.

6. The IBP Co-ordinator's expenses will be reimbursed according to articles B.3.25 and B.3.28 of the Region 1 Bye-Laws.

5.4 INTERNATIONAL BEACON PROJECT – AC RESOLUTION 86-1 (REV. 1990)

The IARU Administrative Council,

recognising the popularity of the IARU Beacon Project on 28 MHz, as well as the time and energy that has been dedicated to the endeavour,

recognizing that it is desirable to improve, enhance and technically update the 28 MHz beacon system, especially in view of the success of the 14.1 MHz program sponsored by the Northern California DX Foundation,

recognising that the IARU band plans of frequency allocated to the Amateur Service should exemplify the most efficient use of the frequency spectrum,

resolves that the 28 MHz beacon system be revised according to the following guidelines:

1. The segment 28.190 to 28.200 MHz will be assigned as time sharing frequencies for the IARU Beacon Project, effective immediately.

2. A world-wide network similar to the 14.1 MHz program of the NCDXF will operate on 28.200 MHz.

3. Regional networks, each encompassing approximately a continent, should be established on integral kilohertz between 28.190 and 28.199 MHz.

4. IARU member-societies are encouraged to sponsor the operation of beacons in this network.

5. Existing beacons operated by an IARU society will have preference in this new scheme.

6. The IARU Beacon Project Co-ordinator will submit to the International Secretariat the technical parameters for the beacons as well as the specifications for the regional networks, information that will be sent to all member-societies. He will be responsible for frequency management, for time allocations and will strive for global coverage.

7. The Administrative Council will insure that this new scheme of 28 MHz beacons as well as any other beacon systems in other bands will be adequately publicised and that the data collected from the operation of the beacons will be distributed regularly to all member-societies.

8. The segment 28.200-28.225 MHz will be reserved for use by continuous-duty beacons, to be approved by the IARU Beacon Project Co-ordinator on a case-by-case basis after a satisfactory showing of special need.

9. Beacons operating outside of the new system for time sharing of frequencies 28.190-28.200 MHz and continuous-duty beacons at 28.200-28.225 MHz will cease to be protected from interference by IARU band plans on 1 January 1993.

5.5 IARU REGION 1 HF BEACONS – A GUIDE TO GOOD PRACTICE

(DOC/96/TVI/C4.6)

Beacon transmissions have long been used as guides to the presence of HF openings and have contributed significantly to our knowledge of propagation. However, the number of HF beacons is steadily increasing and the amount of spectrum available is under pressure. It is more important than ever that beacon operators are aware of the technical parameters required, the reasons for them and the procedure to be followed to obtain an agreed frequency. This is particularly important in respect of bands with narrow beacon allocations.

It is not the intention of this document to prescribe the exact purpose of any beacon, its power level or the number of beacons in any country. It is also not intended to be applied rigorously to experimental or special-purpose beacons. It should, however, apply to the vast majority of HF beacons for propagation monitoring.

1. COORDINATION PROCEDURE

The beacon proposal should be agreed within the national society (with consultation with neighbouring societies where appropriate) and a provisional frequency chosen. The proposed frequency should be submitted to the IARU regional HF beacon coordinator to check for potential interference problems.

2. TRANSMISSION MODE

In the interests of spectrum economy, the preferred transmission mode at HF is A1a CW. If F1a is used, the shift should not exceed 250 Hz, with MARK on the nominal frequency and SPACE on the lower. Care must be taken to ensure that the transmission has the lowest possible levels of spurious signals, key clicks and phase noise.

3. FREQUENCY ACCURACY AND SPACING

All beacons should operate within the IARU-designated sub-bands. Additionally, solo beacons should avoid frequencies assigned by the IARU to frequency-sharing networks. Frequencies are currently assigned on an exact kHz (e.g. 28.205.0) or a half kHz (e.g. 28.205.5). (However, if beacon numbers continue to grow, 100 Hz spacing may be introduced). Beacons should normally be capable of operating within +/- 25 Hz of their nominal frequency.

4. MESSAGE

As beacons are often heard at very low signal levels, often among spurious signals, it is important that their message be simple, unambiguous and repeated frequently. It is also necessary to have a short period of carrier for frequency checking and strength measurement purposes, and to make it easy to distinguish the mark frequency where FSK is used.

The message should therefore consist of 5-10 seconds of carrier followed by the callsign and (if required) the grid locator at 10-12 words per minute. Nothing more. No gaps in transmission.

5. POWER

To avoid inefficient use of spectrum and presenting an unduly pessimistic impression of propagation conditions, a minimum power of 10 watts e.r.p. is recommended at HF. Other than this, there are no recommendations as to power or antennas other than suitability for purpose and the need to minimise interference.

6. OPERATION

Operation should be 24-hour continuous. (This does not preclude beacons that switch to different frequencies or beam headings on a regular basis.)

Beacon operators must try to ensure that the operational parameters of their beacons remains as stable as possible and that non-operational time is kept to a minimum.

7. STATUS

It is important that the operational parameters and status of all beacons be widely known. This information should be sent to the Region 1 HF Beacon Coordinator via the local beacon coordinator or spectrum manager at least once a year or whenever the operational parameters are changed.

Martin Harrison, G3USF

Region 1 HF Beacon Coordinator

February 1996

5.6 PACKET RADIO OPERATIONS ON HF

(REC/96/TVI/C3....)

1. It is recommended that all Member Societies shall take steps in order to stop all illegal traffic carried by amateur radio packet radio network (BBS), as well as on all other modes.

2. It is recommended that all Member Societies shall instruct all packet radio system operators (sysops) about their responsibilities and their duty to remove all illegal messages from the net.

3. It is recommended that if Member Societies are unable to stop such traffic by themselves, they should seek necessary help from their telecommunications authorities in order to put a stop to such traffic.

4. It is recommended that all Member Societies encourage their members to investigate the possibility of implementing a safe system of authentication in order to deny access for illegal stations or stations with false or "borrowed" callsigns.

(REC/96/TVI/C3.....)

It is recommended that

1. radio amateurs may access digital networks by any means, including dial-up modems on gateways, the Internet or other electronic means.

   However, amateur radio sysops of digital gateways shall ensure that non-amateurs cannot under any circumstances gain access to amateur radio networks either deliberately or accidentally.
2. SysOps shall take all and any necessary steps to ensure that the material (messages) conforms with the rules for amateur radio traffic set out in the Radio Regulations and in the national regulations in the country concerned.

3. if material (message) is transferred from a public telephone based network, or a public data network (e.g. the Internet), the person bringing the material (message) into the amateur network shall do so under her/his own call sign as sender. It should also be mentioned that the material (message) originates from e.g. the Internet.

References are made to IARU AC Resolution 91-2 (Rev. 95).

5.7 GUIDELINES TO CENTRES OF ACTIVITY

CW QRS Centres of Activity

The frequencies 3.555, 14.055, 21.055 and 28.055 should be defined as CW QRS centres of activity, where radio amateurs who want to develop their CW could meet one another.

QRP Centres of Activity

In the same spirit the frequencies 3.560, 7.030, 14.060, 18.096, 21.060, 24.906 and 28.060 should be defined as QRP centres of activity, where amateurs who want to perform low power contacts could meet one another.

It is recommended that that 18130 kHz is adopted as a QRP SSB Centre of Activity by IARU Region 1. (Cavtat 2008 – CT08_C4_Rec_08)

It is recommended that that 24950 kHz is adopted as a QRP SSB Centre of Activity by IARU Region 1. (Cavtat 2008 – CT08_C4_Rec_09)

GENERAL NOTES / ADDITIONAL DOCUMENTS

Digitised Speech Centres of Activity

It is recommended that 3630 kHz, 7070 kHz, 14180 kHz, 21180 kHz and 28330 kHz are adopted as digitised speech Centres of Activity by IARU Region 1, in order to harmonise these with Region 2. (Cavtat 2008 – CT08_C4_Rec_10)

It is recommended that 18150 kHz and 24960 kHz are adopted as digitised speech Centres of Activities by IARU Region 1, and that IARU Region 1 proposes that these frequencies be adopted by Regions 2 and 3 in the interests of harmonisation. (Cavtat 2008 – CT08_C4_Rec_11)

Emergency Centres of Activity

It is proposed that the following frequencies be used as centres of activity for emergency traffic –

Global Centre of Activity per band:

15m	21360 kHz
17m	18160 kHz
20m	14300 kHz

Region 1 Centre of Activity per band:

40m	7110 kHz
80m	3760 kHz

and further recommend that these frequencies be simply termed "Emergency Centres of Activity". (Davos 2005 – DV05_C4_Rec_03)

5.8 SATELLITE OPERATIONS AC RESOLUTION 89-3

The IARU Administrative Council (AC)

recognizing the important contributions made by amateur radio societies in the following areas:

- demonstration to the professional community that radio amateurs contribute to the development of state-of-the-art technology and techniques,
- provisions of new challenging operational opportunities and training ground for radio amateurs to acquire new skills,
- providing opportunities for training in an exciting technological field by direct participation, in schools, universities and professional organisations, and
- stimulating the interest of young people in a worthwhile activity, and encouraging the pursuit of a technological career to provide the next generation of industrial and research engineers.

Wishing

- to stimulate the growth of the Amateur Satellite Service in an orderly manner;

and

strongly supporting the following goals:

- the encouragement of a wide dynamic range of activities stimulating training through increasing intellectual challenge,
- the stimulation of young people in schools and universities to develop an interest in amateur radio through participation in amateur satellite activities,
- where allowed, the provision of emergency services, especially to parts of the world that are less technologically developed, and
- the adoption of a 'code of practice' that ensures the use of amateur frequency allocations by satellites in accordance with the spirit and ethics of amateur radio.

RESOLVES

1. Member Societies shall make Administration more aware of the value and achievements of the Amateur Satellite Service.

2. Satellite operating within amateur frequency allocations shall carry payloads and experiments that are relevant to, of interest to and freely available for participation by radio amateurs world-wide.

3. Operational frequencies of amateur satellites shall be in accordance with all applicable IARU band plans.

4. The use of higher frequency bands by amateur satellites shall be encouraged. (See also chapter 2.1.9)

5.9 ITU RADIO REGULATIONS RESOLUTION NO. 642 - RELATING TO THE BRINGING INTO USE OF EARTH STATIONS IN THE AMATEUR-SATELLITE SERVICE

The World Administrative Radio Conference, Geneva, 1979

recognising

that the procedures of Articles 11 and 13 are applicable to the amateur-satellite service;

recognising further

a) that the characteristics of earth stations in the amateur- satellite service vary widely;

b) that space stations in the amateur-satellite service are intended for multiple access by amateur earth stations in all countries;

c) that co-ordination among stations in the amateur and amateur-satellite services is accomplished without the need for formal procedures;

d) that the burden of terminating any harmful interference is placed upon the administration authorising a space station in the amateur-satellite service pursuant to the provisions of No. 2741 of the Radio Regulations;

notes

that certain information specified in Appendices 3 and 4 cannot reasonably be provided for earth stations in the amateur-satellite service;

resolves

1. that when an administration (or one acting on behalf of a group of named administrations) intends to establish a satellite system in the amateur-satellite service and wishes to publish information with respect to earth stations in that system it may:

1.1

communicate to the IFRB all or part of the information listed in Appendix 3; the IFRB shall publish such information in a special section of its weekly circular requesting comments to be communicated within a period of four months after the date of publication;

1.2

notify under Nos. 1488 to 1491 all or part of the information listed in Appendix 3; the IFRB shall record it in a special list;

2. that this information shall include at least the characteristics of a typical amateur earth station in the amateur-satellite service having the facility to transmit signals to the space station to initiate, modify, or terminate the functions of the space station.

5.10 COORDINATION OF 29 MHZ FM REPEATERS

DOC/96/TVI/C4.12 Rev. 2, modified 2011

INTRODUCTION

With the increase in the number of 29 MHz FM Repeater channels the Sun City Conference 2011 proposed a coordination process to reduce mutual interference.

GUIDELINES FOR COORDINATION

The distance between two repeaters using the same frequency pair should be at least 250 km.

If the distance of a repeater-location to the boarder of a neighbouring country is less than 250 km, the HF Committee or the neighbouring national society must be consulted for co-ordination.

It is recommended that Member Societies should encourage the operators of 10 metre FM repeaters to add the requirement for users to transmit a sub-tone (CTCSS) on the input frequency and for operators to transmit such a sub-tone also on the output frequency. The required tone shall be announced by the repeater itself so users may switch to the appropriate sub-tone. (Davos 2005 – DV05_C4_Rec_09)

If radio link is used between the repeater's RX and TX, it is advisable to use a sub-tone system (CTCSS).

The holder of a 29 MHz repeater license is free to switch off the repeater when it is misused or if the repeater in normal conditions causes interference with another one.

5.11 GENERAL RULES FOR REPEATER OPERATION

Repeaters are primarily intended to facilitate mobile operation. Mobile traffic shall always have priority.

If you can hear each other on the repeater input frequency, QSY to a simplex frequency.

Never occupy a repeater if simplex traffic is possible because that prevents others from using it.

Use the minimum amount of power necessary to maintain contact.

Monitor the repeater in order to become familiar with any peculiarities in its operation.

There is no need for long calls. Just simply indicate that you are on the repeater.

Identify legally. You must identify at least every 10 minutes during a contact and at the end of it.

Pause between transmissions to allow hams to break in and gain access to the repeater too.

Be thoughtful and keep the transmissions as short as possible. Be aware that your transmissions are monitored by many listeners. Don't give the amateur radio hobby a bad reputation!

5.12 GUIDELINES FOR HF CONTESTS

Contents

1. FOREWORD

The purpose of these Guidelines is to assist Contest Organisers, Contest Managers, Contest Committees and Contesters with a guide to define some elements of contesting and to establish some common understandings or "ethics" and to assure equality in dealing with HF Contest work.

2. CONTEST COMMITTEE

Each Region 1 member society is recommended to appoint a contest committee or an equivalent body containing at least three experienced persons.

This group should be given the authority and responsibility to take decisions in any dispute or irregularities in connection with the contest. It is good practice that this group's decisions are regarded as final and indisputable, as indicated by the contest rules.

3. CLASSIFICATION OF CONTESTS

To assist those countries where amateur radio is a recognised sport, contests are classified into three categories:

1. INTERNATIONAL CONTESTS.

These are contests where entrants come from more than one country.

2. REGIONAL CONTESTS.

These are contests where entrants come from a few countries within close proximity.

3. NATIONAL CONTESTS.

These are contests where majority of entrants come from one country.

Rules for Regional or National contests should not penalise entrants from working stations outside of their own country.

4. PREPARATION FOR CONTEST

This is a matter for the contest organiser, but generally on-site-work (e.g. mounting stations and antennas etc.) of technical and/or logistic nature is generally before the contest start. In certain contests (e.g. Field Days) restrictions may be laid down.

It is a matter for the contest organiser to decide in defining the rules, but generally contest traffic and any activity in connection with this, only takes place within the contest period and from the contest site using Amateur Radio frequencies and Internet links.

5. CONTEST RULES

IARU Region 1 wants to encourage creativity and innovation in terms of its approach to contesting and as such wants to limit the restrictive nature of its guidelines concerning contesting. Thus, the organising committee is free to decide the rules within the general or any specific guidelines laid out in this chapter and relevant Conference Recommendations.

The contest shall preferably be fixed to a certain weekend, or day within a week, every year in order that other member societies can harmonise their contest activity as much as is possible.

The contest committees should ensure that their contest rules are published in good time, ideally 4 months before the contest, using the web and reflectors and if required magazines.

GENERAL NOTES / ADDITIONAL DOCUMENTS

As a guideline contest organisers may wish to consider the following issues when deciding the rules for their contest:

1. Name of contest
2. Contest period(s)
3. Sections (competition classes)
4. Frequencies
5. Contest call and exchange
6. Scoring (QSO points)
7. Multipliers
8. Final score
9. Special conditions
10. Log instructions
11. Internet linking between stations
12. Use of Internet for spotting
13. Rules on skeds (both prior to and during the contest)
14. Declaration
15. Log format and means of submission
16. Publication of logs
17. Closing date for log
18. Awards
19. Dispute

Depending upon the nature of the contest, organisers need to consider whether or not it is necessary to warn competitors against, and set penalties for issues such as "log padding [1] " and "uniques [2]".

6. DURATION OF CONTESTS

To assist contest organisers the following definitions are generally applied:

- International contests or other contests with an average of more than 1000 participants may continue for the whole weekend, 48 hrs. For single operators, rest periods may be prescribed.
- Regional / Continental oriented contests or other contests with an average of between 500 and 1000 participants should not last more than max 36 hrs.

- National contests or other contests with less than 500 participants should not last more than max. 24 hrs.
- The time period should be chosen to fall within the weekend around the world (i.e. 1200 UTC Saturday - 1200 UTC Sunday)

National/local contests may use other time periods.

7. COMPETITION CLASSES

The organising society is free to decide which classes are to be included in the contest rules. It should be left to SWL clubs to organise SWL events in parallel with existing contests.

Generally, the following definitions are used:

- SO - Single Operator. A SO station is a station manned by one individual operator transmitting not more than one signal on one running frequency at any time. (Sun City - SC11_C4_03)
- SOSB - Single Operator Single Band. A SOSB station is a SO station operated on one single amateur band.
- SOMB - Single Operator Multi Band. A SOMB station is a SO station operating on any of the bands specified in the contest rules.
- MO - Multi Operator. A MO station is a station manned by more than one operator. Operation is permitted on all bands specified in the contest rules.
- MOST - Multi Operator Single Transmitter. A MOST station is a multi-operator station transmitting not more than one signal on not more than one running frequency on a band at any time. (Sun City - SC11_C4_01)
- MOMT - Multi Operator Multi Transmitter. A MOMT station is a MO station transmitting not more than one signal per band at any time.
- QRP - Power limited to 5 watt output.
- QRPP - Power limited to 1 watt or less output.
- SWL - Short Wave Listener. A single person using only one receiver.

8. FREQUENCIES

The frequency planning for all contests should comply with the IARU Region 1 Band Plan (using contest preferred segments where possible), and depending upon the likely level of activity use as little spectrum as possible, thus observing the co-existence with non-contesting radio amateurs. It is important that contests organisers make every endeavour to ensure that some spectrum is available on each band for non-contest activity for the modes normally used in the sub-band in question.

In general multi-mode contests are not preferred, as they tend to occupy too much of the available band allocations.

Organisers of contests should, for the same reason, avoid scheduling a major SSB contest concurrently with a major CW or datamode contest.

Contests should be restricted to 160, 80, 40, 20, 15 and 10m. That is 60, 30, 17 and 12 m should not be used for contests. (Vienna 2016 – VIE16_C4_REC_06 / LA17_C4_REC_06)

The HF Committee encourages member societies to publish contest operating segments clearly in the rules of the contest and that those segments are considered with due respect to the IARU Band Plans. (Sun City - SC11_C4_02)

It is recommended that within the chapter 'Guidelines for HF Contests' of the IARU Region 1 HF Manager's Handbook, a distinct recommendation to incorporate contest free segments in the rules of contests organized by national societies and its' subdivisions shallbe given and made well known. (Cavtat 2008 – CT08_C4_Rec_15)

It is recommended that Region 1 Member Societies check and put into effect rules that relate to frequency usage for the HF contests that they organize, and that the Region 1 Executive considers encouraging other IARU Regions to adopt a similar approach. (Cavtat 2008 – CT08_C4_Rec_16)

9. CONTEST PREFERRED BAND SEGMENTS

Contest preferred band segments have been established on some bands. Always consult the IARU Region 1 Band Plan for actual contest preferred band segments. Currently the following Contest Preferred Band Segments are:

3.5 MHz CW	3510	–	3560 kHz			
14 MHz CW	14000	–	14060 kHz			
3.5 MHz SSB	3600	–	3650 kHz	&	3700	– 3800 kHz
7 MHz SSB	7060	–	7100 kHz	&	7130	– 7200 kHz
14 MHz SSB	14125	–	14300 kHz			

10. LOG FORMAT & ADJUDICATION

Much progress has been made in recent years in the electronic submission of contest logs and their subsequent computerised adjudication.

Whilst for some contests paper logs, submitted as in the past, may still be appropriate the general guideline for IARU Region 1 is that all contest organisers should aim to move their contesters to 100% electronic log submission. Whilst the Cabrillo format for contest log submission is currently the norm, contest organisers are encouraged to improve the adjudication process by a general move towards an XML based submission format. National Society representatives on the HF Managers Committee are encouraged to collaboratively develop such an innovation.

Without wanting to make the guidelines too detailed, contest organisers are encouraged to share new ideas both in terms of the process and openness of the adjudication procedure and the availability of adjudication reports "UBN" in CQ nomenclature). Contest organisers should seek advice from their national society's representative on the IARU Region 1 HF Committee where sharing and discussion of checking algorithms, contest software, etc., between different contest organising groups is encouraged and coordinated.

11. Publication of Logs

In relation to the ARRL's rules covering DXCC Accreditation Criteria there could be difficulties in terms of stations claiming credits for QSOs that are made with a station that subsequently submits its log to the Internet, where sufficient detail about the QSO (time, date, band, mode and callsign). IARU Region 1 is keen to provide incentives for Amateur operation and thus encourages contest stations not to publish in full their contest logs as this could subsequently make contacts with their station ineligible for awards such as DXCC.

———

[1] Log padding: where the same station contacts the contest station repeatedly using different callsigns.

[2] Uniques: used here to mean a station callsign that appears in the log submitted by only one of the stations submitting logs to the contest adjudicator.

5.13 ITU RADIO REGULATIONS ARTICLE 1 (EXTRACTS) – TERMS AND DEFINITIONS

Section I – General terms

1.2 *administration:* Any governmental department or service responsible for

discharging the obligations undertaken in the Constitution of the International

Telecommunication Union, in the Convention of the International Telecommunication

Union and in the Administrative Regulations (CS 1002).

1.3 *telecommunication:* Any transmission, *emission* or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, *radio*, optical or other electromagnetic systems (CS).

1.4 *radio:* A general term applied to the use of *radio waves.*

1.5 *radio waves* or *hertzian waves:* Electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.

1.6 *radiocommunication: Telecommunication* by means of *radio waves* (CS) (CV).

1.14 *Coordinated Universal Time (UTC):* Time scale, based on the second (SI), as defined in Recommendation ITU R TF.460-6. (WRC-03)

For most practical purposes associated with the Radio Regulations, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT.

Section III – Radio services

1.19 *radiocommunication service:* A service as defined in this Section involving the transmission, *emission* and/or reception of *radio waves* for specific *telecommunication* purposes.

In these Regulations, unless otherwise stated, any radiocommunication service relates to *terrestrial radiocommunication*.

1.56 *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.

1.57 *amateur-satellite service:* A *radiocommunication service* using *space stations* on earth *satellites* for the same purposes as those of the *amateur service*.

Section IV – Radio stations and systems

1.61 *station:* One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a *radiocommunication service*, or the *radio astronomy service*.

1.96 amateur station: A station in the amateur service.

1.109A *adaptive system:* A radiocommunication system which varies its radio characteristics according to channel quality.

Section V – Operational terms

1.121 *frequency-shift telegraphy: Telegraphy* by frequency modulation in which the telegraph signal shifts the frequency of the carrier between predetermined values.

1.122 *facsimile:* A form of *telegraphy* for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form.

1.123 *telephony:* A form of *telecommunication* primarily intended for the exchange of information in the form of speech (CS 1017).

1.125 *simplex operation:* Operating method in which transmission is made possible alternately in each direction of a *telecommunication* channel, for example, by means of manual control [2].

1.126 *duplex operation:* Operating method in which transmission is possible simultaneously in both directions of a *telecommunication* channel [2].

1.127 *semi-duplex operation:* A method which is *simplex operation* at one end of the circuit and *duplex operation* at the other [2].

[2] 1.125.1, 1.126.1 and 1.127.1 In general, *duplex operation* and *semi-duplex operation* require two frequencies in *radiocommunication*; *simplex operation* may use either one or two.

Section VI – Characteristics of emissions and radio equipment

1.137 *radiation:* The outward flow of energy from any source in the form of *radio waves*.

1.138 *emission: Radiation* produced, or the production of *radiation*, by a radio transmitting *station*.

For example, the energy radiated by the local oscillator of a radio receiver would not be an emission but a *radiation*.

1.139 *class of emission:* The set of characteristics of an *emission*, designated by standard symbols, e.g. type of modulation of the main carrier, modulating signal, type of information to be transmitted, and also, if appropriate, any additional signal characteristics.

1.140 *single-sideband emission:* An amplitude modulated *emission* with one sideband only.

1.141 *full carrier single-sideband emission:* A *single-sideband emission* without reduction of the carrier.

1.142 *reduced carrier single-sideband emission:* A *single-sideband emission* in which the degree of carrier suppression enables the carrier to be reconstituted and to be used for demodulation.

1.143 *suppressed carrier single-sideband emission:* A *single-sideband emission* in which the carrier is virtually suppressed and not intended to be used for demodulation.

1.144 *out-of-band emission*: Emission* on a frequency or frequencies immediately outside the *necessary bandwidth* which results from the modulation process, but excluding *spurious emissions*.

1.145 *spurious emission*: Emission* on a frequency or frequencies which are outside the *necessary bandwidth* and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic *emissions*, parasitic *emissions*, intermodulation products and frequency conversion products, but exclude *out-of-band emissions*.

1.146 unwanted emissions*: Consist of spurious emissions and out-of-band emissions.

1.146A *out-of-band domain* (of an emission)*:* The frequency range, immediately outside the necessary bandwidth but excluding the *spurious domain*, in which *out-of- band emissions* generally predominate. *Out-of-band emissions*, defined based on their source, occur in the out-of-band domain and, to a lesser extent, in the *spurious domain*. *Spurious emissions* likewise may occur in the out-of-band domain as well as in the *spurious domain*. (WRC-03)

1.146B *spurious domain* (of an emission): The frequency range beyond the *out-of -band domain* in which *spurious emissions* generally predominate. (WRC-03)

1.147 *assigned frequency band:* The frequency band within which the *emission* of a *station* is authorized; the width of the band equals the *necessary bandwidth* plus twice the absolute value of the *frequency tolerance*. Where *space stations* are concerned, the assigned frequency band includes twice the maximum Doppler shift that may occur in relation to any point of the Earth's surface.

1.148 *assigned frequency:* The centre of the frequency band assigned to a *station.*

1.149 *characteristic frequency:* A frequency which can be easily identified and measured in a given *emission.*

A carrier frequency may, for example, be designated as the characteristic frequency.

1.150 *reference frequency:* A frequency having a fixed and specified position with respect to the *assigned frequency*. The displacement of this frequency with respect to the *assigned frequency* has the same absolute value and sign that the displacement of the *characteristic frequency* has with respect to the centre of the frequency band occupied by the *emission*.

1.151 *frequency tolerance:* The maximum permissible departure by the centre frequency of the frequency band occupied by an *emission* from the *assigned frequency* or, by the *characteristic frequency* of an *emission* from the *reference frequency*. The frequency tolerance is expressed in parts in 106 or in hertz.

1.152 *necessary bandwidth:* For a given *class of emission*, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions.

1.153 *occupied bandwidth:* The width of a frequency band such that, below the lower and above the upper frequency limits, the *mean powers* emitted are each equal to a specified percentage 1/2 of the total *mean power* of a given *emission*.

Unless otherwise specified in an ITU-R Recommendation for the appropriate *class of emission*, the value of 1/2 should be taken as 0.5%.

1.154 *right-hand* (clockwise) *polarized wave:* An elliptically- or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction.

1.155 *left-hand* (anticlockwise) *polarized wave:* An elliptically- or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a left-hand or anticlockwise direction.

1.156 *power:* Whenever the power of a radio transmitter, etc. is referred to it shall be expressed in one of the following forms, according to the class of *emission*, using the arbitrary symbols indicated:

– *peak envelope power* (*P*X or *p*X);

– *mean power* (*P*Y or *p*Y);

– *carrier power* (*P*Z or *p*Z).

For different *classes of emission*, the relationships between *peak envelope power*, *mean power* and *carrier power*, under the conditions of normal operation and of no modulation, are contained in ITU-R Recommendations which may be used as a guide.

For use in formulae, the symbol *p* denotes power expressed in watts and the symbol *P* denotes power expressed in decibels relative to a reference level.

1.157 *peak envelope power* (of a radio transmitter)*:* The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions.

1.158 *mean power* (of a radio transmitter)*:* The average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

1.159 *carrier power* (of a radio transmitter)*:* The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle taken under the condition of no modulation.

1.160 *gain of an antenna:* The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power flux-density at the same distance. When not specified otherwise, the gain refers to the direction of maximum *radiation*. The gain may be considered for a specified polarization.

Depending on the choice of the reference antenna a distinction is made between:

a) absolute or isotropic gain (*Gi*), when the reference antenna is an isotropic antenna isolated in space;

b) gain relative to a half-wave dipole (*Gd*), when the reference antenna is a halfwave dipole isolated in space whose equatorial plane contains the given direction;

c) gain relative to a short vertical antenna (*Gv*), when the reference antenna is a linear conductor, much shorter than one quarter of the wavelength, normal to the surface of a perfectly conducting plane which contains the given direction.

1.161 *equivalent isotropically radiated power (e.i.r.p.):* The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna *(absolute or isotropic gain)*.

1.162 *effective radiated power (e.r.p.)* (in a given direction)*:* The product of the power supplied to the antenna and its *gain relative to a half-wave dipole* in a given direction.

1.163 *effective monopole radiated power (e.m.r.p.)* (in a given direction)*:* The product of the power supplied to the antenna and its *gain relative to a short vertical antenna* in a given direction.

1.164 *tropospheric scatter:* The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the physical properties of the troposphere.

1.165 *ionospheric scatter:* The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the ionization of the ionosphere.

5.14 ITU RADIO REGULATIONS ARTICLE 2 (EXTRACTS)

Nomenclature

Section I. Frequency and Wavelength Bands

2.1 The radio spectrum shall be divided into nine frequency bands, which shall be designated by progressive whole numbers in accordance with the following table. As the unit of frequency is the hertz (Hz), frequency shall be expressed:

- in kilohertz (kHz), up to and including 3 000 kHz;
- in megahertz (MHz), above 3 MHz, up to and including 3 000 MHz;
- in gigahertz (GHz), above 3 GHz, up to and including 3 000 GHz.

However, where adherence to these provisions would introduce serious difficulties, for example in connection with the notification and registration of frequencies, the list of frequencies and related matters, reasonable departures may be made.

Band Number	Symbols	Frequency Range (lower limit exclusive, upper limit inclusive)	Corresponding Metric subdivision	Metric Abbreviations for the Bands
4	VLF	3 to 30 kHz	Myriametric waves	B.Mam
5	LF	30 to 300 kHz	Kilometric waves	B.km
6	MF	300 to 3000 kHz	Hectometric waves	B.hm
7	HF	3 to 30 MHz	Decametric waves	B.dam
8	VHF	30 to 300 MHz	Metric waves	B.m
9	UHF	300 to 3000 MHz	Decimetric waves	B.dm
10	SHF	3 to 30 GHz	Centimetric waves	B.cm
11	EHF	30 to 300 GHz	Millimetric waves	B.mm
12		300 to 3000 GHz	Decimillimetric waves	

Section II. Dates and Times

2.2 In communications between administrations and the ITU, no names, symbols or abbreviations should be used for the various frequency bands other than those specified in No. 2.1.

2.3 Any date used in relation to radio communication shall be according to the Gregorian Calendar.

2.4 If in a date the month is not indicated either in full or in an abbreviated form, it shall be expressed in an all-numeric form with the fixed sequence of figures, two of each representing the day, month and year.

2.5 Whenever a date is used in connection with Co-ordinated Universal Time (UTC), this date shall be that of the prime meridian at the appropriate time, the prime meridian corresponding to zero degrees geographical longitude.

2.6 Whenever a specific time is used in international radio communication activities, UTC shall be applied, unless otherwise indicated, and it shall be presented as a four-digit-group (0000-2359). The abbreviation UTC shall be used in all languages.

Section III. Designation of Emissions

2.7 Emissions shall be designated according to their necessary bandwidth and their classification in accordance with the method described in appendix S1.

5.15 EXTRACT OF ITU RADIO REGULATIONS - APPENDIX 1

Section II. Classification

§3 The class of emission is a set of characteristics conforming to §4 below.

§4 Emissions shall be classified and symbolised according to their basic characteristics as given in Sub-Section IIA and any optional additional characteristics as provided for in Sub-Section IIB.

§5 The basic characteristics (see Sub-Section IIA) are:

(1) first symbol - type of modulation of the main carrier;

(2) second symbol - nature of signal(s) modulating the main carrier;

(3) third symbol - type of information to be transmitted.

Modulation used only for short periods and for incidental purposes (such as, in many cases, for identification or calling) may be ignored provided that the necessary bandwidth as indicated is not thereby increased.

Sub-Section IIA. Basic Characteristics

§6 (1) First symbol - type of modulation of the main carrier

(1.1) Emission of an unmodulated carrier N

(1.2) Emission in which the main carrier is amplitude-modulated (including cases where sub-carriers are angle-modulated)

(1.2.1) Double-sideband A

(1.2.2) Single-sideband, full carrier H

(1.2.3) Single-sideband, reduced or variable level carrier R

(1.2.4) Single-sideband, suppressed carrier J

(1.2.5) Independent sidebands B

(1.2.6) Vestigial sideband C

(1.3) Emission in which the main carrier is angle-modulated

(1.3.1) Frequency modulation F

(1.3.2) Phase modulation G

(1.4)Emission in which the main carrier is amplitude- and angle-modulated either simultaneously or in a pre-established sequence D

(1.5) Emission of pulses

(2. Emissions where the main carrier is directly modulated by a signal which has been coded into quantized form (e.g. pulse code modulation) should be designated under (1.2) or (1.3))

(1.5.1) Sequence of unmodulated pulses P

(1.5.2) A sequence of pulses

(1.5.2.1) modulated in amplitude K

(1.5.2.2) modulated in width/duration L

(1.5.2.3) modulated in position/phase M

(1.5.2.4) in which the carrier is angle-modulated during the angle-period of the pulse Q

(1.5.2.5) which is a combination of the foregoing or is provided by other means V

(1.6) Cases not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a pre-established sequence, in a combination of two or more of the following modes: amplitude, angle, pulse W

(1.7) Cases not otherwise covered X

§6 (2) Second symbol - nature of signal(s) modulating the main carrier

(2.1) No modulating signal 0

(2.2) A single channel containing quantized or digital information without the use of a modulating sub-carrier (3. This excludes time-division multiplex) 1

(2.3) A single channel containing quantized or digital information with the use of a modulating sub-carrier (3. This excludes time-division multiplex) 2

(2.4) A single channel containing analogue information 3

(2.5)Two or more channels containing quantized or digital information 7

(2.6) Two or more channels containing analogue information 8

(2.7) Composite system with one or more channels containing quantized or digital information, together with one or more channels containing analogue information 9

(2.8) Cases not otherwise covered X

§6 (3) Third symbol - type of information to be transmitted

(4. In this context the word "information" does not include information of a constant, unvarying nature such as is provided by standard frequency emissions, continuous wave and pulse radars, etc.)

(3.1) No information transmitted	N
(3.2) Telegraphy - for aural reception	A
(3.3) Telegraphy - for automatic reception	B
(3.4) Facsimile	C
(3.5) Data transmission, telemetry, telecommand	D
(3.6) Telephony (including sound broadcasting)	E
(3.7) Television (video)	F
(3.8) Combination of the above	W
(3.9) Cases not otherwise covered	X

Sub-Section IIB. Optional Characteristics
for the Classification of Emissions.

§7 Two optional characteristics should be added for a more complete description of an emission. These are (see also Recommendation 62):

Fourth symbol - Details of signal(s)

Fifth symbol - Nature of multiplexing

Where the fourth or fifth symbol is used it shall be as indicated below.

Where the fourth or fifth symbol is not used this should be indicated by a dash where each symbol would otherwise appear.

§7 (1) Fourth symbol - Details of signal(s)

(1.1) Two-condition code with elements of differing numbers and/or durations	A
(1.2) Two-condition code with elements of the same number and duration without error-correction	B
(1.3) Two-condition code with elements of the same number and duration with error-correction	C
(1.4) Four-condition code in which each condition represents a signal element (of one or more bits)	D

(1.5) Multi-condition code in which each condition represents a signal element (of one or more bits) E

(1.6) Multi-condition code in which each condition or combination of conditions represents a character F

(1.7) Sound of broadcasting quality (monophonic) G

(1.8) Sound of broadcasting quality (stereophonic or quadraphonic) H

(1.9) Sound of commercial quality (excluding categories given in sub-paragraphs

1.10 and 1.11) J

(1.10) Sound of commercial quality with the use of frequency inversion or band-splitting K

(1.11) Sound of commercial quality with separate frequency-modulated signals to control the level of demodulated signal L

(1.12) Monochrome M

(1.13) Colour N

(1.14) Combination of the above W

(1.15) Cases not otherwise covered X

§7 (2) Fifth symbol - Nature of multiplexing

(2.1) None N

(2.2) Code-division multiplex C

(5. This includes bandwidth expansion techniques)

(2.3) Frequency-division multiplex F

(2.4) Time-division multiplex T

(2.5) Combination of frequency-division and time-division multiplex W

(2.6) Other types of multiplexing X

5.16 ITU RADIO REGULATIONS - ARTICLE 5 (EXTRACTS) – FREQUENCY ALLOCATIONS

5.1 In all documents of the Union where the terms Allocation, Allotment and Assignment are to be used, they shall have the meaning given them in Nos 1.16 to 1.18.

5.2 For the allocation of frequencies the world has been divided into three Regions as shown on the following map and described in Nos 5.3 to 5.9.

Section II. Categories of Services and Allocations

5.23 Primary and Secondary Services

5.24 (1) Where, in a box of the Table in Section IV of this Article, a band is indicated as allocated to more than one service, either on a world-wide or Regional basis, such services are listed in the following order:

5.25 a) services the names of which are printed in "capitals" (example: FIXED); these are called "primary" services;

5.26 b) services the names of which are printed in "normal characters" (example: Mobile); these are called "secondary" services (see Nos. 5.28 to 5.31).

5.27 (2) Additional remarks shall be printed in normal characters (example: MOBILE except aeronautical mobile).

5.28 (3) Stations of a secondary service:

5.29 (a) shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date;

5.30 (b) cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date;

5.31 (c) can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

5.32 (4) Where a band is indicated in a footnote of the Table as allocated to a service "on a secondary basis" in an area smaller than a Region, or in a particular country, this is a secondary service (see Nos. 5.28 to 5.31).

5.33 (5) Where a band is indicated in a footnote of the Table as allocated to a service "on a primary basis", in an area smaller than a Region, or in a particular country, this is a primary service only in that area or country.

5.42 Miscellaneous Provisions:

5.43 (1) Where it is indicated in these Regulations that a service may operate in a specific frequency band subject to not causing harmful interference, this means also that this service cannot claim protection from harmful interference caused by other services to which the band is allocated under Chapter SII of these Regulations.

5.17 ITU RADIO REGULATIONS - ARTICLE 25

Amateur services

Section I – Amateur service

25.1 § 1 Radiocommunication between amateur stations of different countries shall be permitted unless the administration of one of the countries concerned has notified that it objects to such radiocommunications. (WRC-03)

25.2 § 2 1) Transmissions between amateur stations of different countries shall be limited to communications incidental to the purposes of the amateur service, as defined in No. 1.56 and to remarks of a personal character. (WRC-03)

25.2A 1A) Transmissions between amateur stations of different countries shall not be encoded for the purpose of obscuring their meaning, except for control signals exchanged between earth command stations and space stations in the amateur-satellite service. (WRC-03)

25.3 2) Amateur stations may be used for transmitting international communications on behalf of third parties only in case of emergencies or disaster relief. An administration may determine the applicability of this provision to amateur stations under its jurisdiction. (WRC 03)

25.4 (SUP - WRC 03)

25.5 § 3 1) Administrations shall determine whether or not a person seeking a licence to operate an amateur station shall demonstrate the ability to send and receive texts in Morse code signals. (WRC-03)

25.6 2) Administrations shall verify the operational and technical qualifications of any person wishing to operate an amateur station. Guidance for standards of competence may be found in the most recent version of Recommendation. ITU R M.1544. (WRC-03)

25.7 § 4 The maximum power of amateur stations shall be fixed by the administrations concerned. (WRC-03)

25.8 § 5 1) All pertinent Articles and provisions of the Constitution, the Convention and of these Regulations shall apply to amateur stations. (WRC-03)

25.9 2) During the course of their transmissions, amateur stations shall transmit their call sign at short intervals.

25.9A § 5A Administrations are encouraged to take the necessary steps to allow amateur stations to prepare for and meet communication needs in support of disaster relief. (WRC-03)

25.9B § 5B An administration may determine whether or not to permit a person who has been granted a licence to operate an amateur station by another administration to operate an amateur station while that person is temporarily in its territory, subject to such conditions or restrictions it may impose. (WRC-03)

Section II – Amateur-satellite service

25.10 § 6 The provisions of Section I of this Article shall apply equally, as appropriate, to the amateur-satellite service.

25.11 § 7 Administrations authorizing space stations in the amateur-satellite service shall ensure that sufficient earth command stations are established before launch to ensure that any harmful interference caused by emissions from a station in the amateur-satellite service can be terminated immediately (see No. 22.1). (WRC-03

5.18 ITU RADIO REGULATIONS - APPENDIX 14

Miscellaneous Abbreviations and Signals to Be Used in Radiotelegraphy Communications Except in the Maritime Mobile Service (See Article 52)

Section I. Q Code

Introduction

1. The series of groups QRA to QUZ, listed in this Appendix, are for use by all services.

2. The QAA to QNZ series are reserved for the aeronautical service and the QOA to QQZ series are reserved for the maritime services. These series are not listed in these Regulations.

3. Certain Q code abbreviations may be given an affirmative or negative sense by sending YES or NO respectively, immediately following the abbreviation.

4. The meanings assigned to Q code abbreviations may be amplified or completed by the addition of appropriate other groups, call signs, place names, figures, numbers, etc. It is optional to fill in the blanks shown in parentheses. Any data which are filled in where blanks appear shall be sent in the same order as shown in the next of the following tables.

5. Q code abbreviations are given the form of a question when following by a question mark. When an abbreviation is used as a question and is followed by additional or complementary information, the question mark should follow this information.

6. Q code abbreviations with numbered alternative signification's shall be followed by the appropriate figure to indicate the exact meaning intended. This figure shall be sent immediately following the abbreviation.
Abbreviations Available for All Services

Only abbreviations related to Amateur Radio Service are included.

Q: Question. A: Answer or Advice.

QRA Q: What is the name of your station?

A: The name of my station is ...

QRG Q: What is my exact frequency (or that of ..)?

A: Your exact frequency (or that of...) is ...kHz (or MHz)

QRH Q: Does my frequency vary?

A: Your frequency varies.

QRI Q: How is the tone of my transmission?

A: The tone of your transmission is ...

1. good
2. variable
3. bad.

QRK Q: What is the intelligibility of my signals (or those of ...)?

A: The intelligibility of your signals (or those of ...) is ...

1. bad
2. poor
3. fair

4. good

5. excellent.

QRL Q: Are you busy?

A: I am busy (or I am busy with ...). Please do not interfere.

QRM Q: Are you being interfered with?

A: I am being interfered with

1. nil

2. slightly

3. moderately

4. severely

5. extremely

QRN Q: Are you troubled by static?

A: I am troubled by static

1. nil

2. slightly

3. moderately

4. severely

5. extremely.

QRO Q: Shall I increase transmitter power?

A: Increase transmitter power.

QRP Q: Shall I decrease transmitter power?

A: Decrease transmitter power.

QRQ Q: Shall I send faster?

A: Send faster (... words per minute).

QRR Q: Are you ready for automatic operations?

A: I am ready for automatic operation. Send at ... words per minute.

QRS Q: Shall I send more slowly?

A: Send more slowly (... words per minute).

QRT	Q: Shall I stop sending?
	A: Stop sending.
QRU	Q: Have you anything for me?
	A: I have nothing for you.
QRV	Q: Are you ready?
	A: I am ready.
QRW	Q: Shall I inform ... that you are calling him on ... kHz (or MHz)?
	A: Please inform ... that I am calling him on ... kHz (or MHz).
QRX	Q: When will you call me again?
	A: I will call you again at ... hours (on ... kHz (or MHz)).
QRZ	Q: Who is calling me?
	A: You are being called by ... (on ... kHz (or MHz)).
QSA	Q: What is the strength of my signals (or those of ...)?
	A: The strength of your signals (or those of...) is ...
	1. scarcely perceptible
	2. weak
	3. fairly good
	4. good
	5. very good.
QSB	Q: Are my signals fading?
	A: Your signals are fading.
QSD	Q: Is my keying defective?
	A: Your keying is defective.
QSK	Q: Can you hear me between your signals and if so can I break in on your transmissions?
	A: I can hear you between my signals; break in on my transmission.
QSL	Q: Can you acknowledge receipt?
	A: I acknowledge receipt.

QSO	Q: Can you communicate with ... direct (or by relay)?
	A: I can communicate with ... direct (or by relay through ...).
QSP	Q: Will you relay to ...?
	A: I will relay to ....
QSS	Q: What working frequency will you use?
	A: I will use the working frequency ... kHz
QSV	Q: Shall I send a series of Vs on this frequency (or .... kHz (or MHz))?
	A: Send a series of Vs on this frequency (or ... kHz (or MHz)).
QSX	Q: Will you listen to ... (call sign(s)) on ... kHz (or MHz)?
	A: I am listening to ... (call sign(s)) on ... kHz (or MHz).
QSY	Q: Shall I change to transmission on another frequency?
	A: Change to transmission on another frequency (or on ... kHz (or MHz)).
QSZ	Q: Shall I send each word or group more than once?
	A: Send each word or group twice (or ... times).
QTA	Q: Shall I cancel ...?
	A: Cancel ...
QTC	Q: How many messages have you for me?
	A: I have ... messages for you (or for ...).
QTH	Q: What is your location?
	A: My location is ...
QTR	Q: What is the correct time?
	A: The correct time is ... hours.

Section II. Miscellaneous Abbreviations and Signals

Abbreviation or Signal Definition

AA	All after ... (used after a question mark to request a repetition).
AB	All before ... (used after a question mark to request a repetition).
ADS	Address (used after a question mark to request a repetition).
AR	End of transmission (.-.-. to be sent as one signal).
AS	Waiting period (.-... to be sent as one signal).
BK	Signal used to interrupt a transmission in progress.
BN	All between ... and ... (used after a question mark to request a repetition).
CFM	Confirm (or I confirm).
CL	I am closing my station.
CQ	General call to all stations (see Article 52).
CS	Call sign (used to request a call sign).
DDD	Used to identify the transmission of the distress message by a station not itself in distress (see No. 3164).
DE	"From ..." (used to precede the call sign of the calling station).
DF	Your bearing at ... hours was ... degrees, in the doubtful sector of this station, with a possible error of ... degrees.
E	East (cardinal point).
ER	Here ...
ETA	Estimated time of arrival.
K	Invitation to transmit.
KMH	Kilometres per hour.
KTS	Nautical miles per hour (knots).
MIN	Minute (or Minutes).
MPH	Statute miles per hour.
N	North (cardinal point).

NIL	I have nothing to send to you.
NO	No (negative).
NW	Now.
OK	We agree (or It is correct).
PBL	Preamble (used after a question mark to request a repetition).
R	Received.
REF	Reference to ... (or Refer to ...).
S	South (cardinal point).
SIG	Signature (used after a question mark to request a repetition).
SOS	Distress Signal (...---... to be sent as one signal).
TFC	Traffic.
TTT	This group when sent three times constitutes the safety signal (see No. 3221).
TU	Thank you.
TXT	Text (used after a question mark to request a repetition).
VA	End of work (...-.- to be sent as one signal).
W	West (cardinal point).
WA	Word after ... (used after a question mark to request a repetition).
WB	Word before ... (used after a question mark to request a repetition).
XXX	This group when sent three times constitutes the urgency signal (see No. 3196).
YES	Yes (affirmative).

5.19 ITU RADIO REGULATIONS – TABLE OF COUNTRY PREFIX ALLOCATIONS

Table of International Call Sign Series (Appendix 42 to the RR)

https://www.itu.int/en/ITU-R/terrestrial/fmd/Pages/call_sign_series.aspx?lng=E

5.20 DEFINITION OF "ITU ZONES"

According to the name of the conference, the zones are also called CIRAF zones (Conferencia Internacional de Radiodifusión por Altas Frecuencias).

https://www.itu.int/net/ITU-R/terrestrial/broadcast/hf/refdata/maps/index.html

5.21 IARU AWARDS

Worked All Continent Award (WAC):

This award is issued by IARU International Secretariat for confirmed two-way contacts with all six continents:

Africa, Asia, Europe, North America, Oceania and South America.

Applicants must be a member of their national IARU Member Societies - if such organisation exists - and must send their application via their national Award Manager.

Your national Award Manager can give full updated details on rules and endorsements and/or other required information.

IARU Region 1 Award

This award is issued by Radio Society of Great Britain (RSGB) to radio amateurs and SWL's for confirmed two-way contacts with or reception of stations in countries whose national organisation is a member of the IARU Region 1.

There are three classes:

Class one: Contact with/heard all members (At the time of writing 91 members)

Class two: Contact with/heard 60 countries

Class three: Contact with/heard 40 countries

For updated rules and/or other details, please contact your national Award Manager.

5.22 RULES FOR THE IARU REGION 1 HUMANITARIAN AWARD

1. The Award to be awarded to any IARU Region 1 Member Society for its distinguished service for the community during disasters, emergencies and humanitarian actions, either in the past (since the foundation of Region 1) or in the future.

2. The Award to be a plaque or shield with the appropriate engraving.

3. All nominations must be made through the National Member Society and must be received by the IARU Region 1 Secretary before the commencement of an Opening Plenary of a Region 1 Conference.

4. The winning Society to be decided by a panel of five, which will be drawn by ballot at the Opening Plenary of a Region 1 Conference.

   The panel will receive the nominations and should a Society who is a member of the panel, be nominated, this member will withdraw from the panel and another society will be drawn.

5. All five members of the panel will have one vote and a simple majority only is necessary.

   The panel shall appoint a Chairman who will announce the result at the Final Plenary of a Region 1 Conference.

6. If more than one nominee is proposed, the panel can name two Societies to receive the Award at any one Region 1 Conference, if they feel both Societies deserve to be awarded.

   The panel may also reject the nominations, if it considers that the nominated Societies do not adequately qualify.

7. The Award to be presented to the winning Society at the Region 1 Conference, or, if circumstances so require, at any other IARU meeting, by an IARU officer.

8. Engraving and plaque or shield details as well as printing of an accompanying certificate to be undertaken by the Region 1 Secretariat.

5.23 TERMS OF REFERENCE FOR THE IARU REGION 1 MONITORING SYSTEM CO-ORDINATOR

1. The IARU Monitoring System (IARU-MS) is established to carry out the policy for monitoring laid down by the IARU Administrative Council (AC).

2. The IARU Region 1 Monitoring System shall act decisively, within the limits of the Executive Committee's guidelines, in defence of the amateur bands and use its best endeavour for the removal of those stations not authorised to operate in those bands.

3. The IARU Region 1 IARU-MS Co-ordinator shall be appointed at each triennial General Conference and shall act in accordance with the procedures described in the Region 1 Bye-Laws.

4. The IARU Region 1 IARU-MS Co-ordinator shall:

   a. use his best endeavour in defence of the amateur bands against non-authorised users,

   b. co-ordinate and support the efforts of the Region 1 Member Societies in protesting the use of amateur frequencies by non-amateur users,

   c. compile regional data and progress reports and forward them to the IARU-MS International Co-ordinator,

   d. distribute to Region 1 Member Societies information received from the International Co-ordinator,

   e. assist National Co-ordinators in effectively carrying out their functions within the IARU-MS,

   f. acknowledge all reports and inquiries received from National Co-ordinators and periodically summarise to a National Society the status of its reports,

   g. keep National Co-ordinators adequately informed of current developments.

   h. He may receive and process reports from individuals in those countries where there is no IARU Members Society.

5. The IARU Region 1 IARU-MS Co-ordinator will report annually to the EC and to a General Conference. He shall attend Region 1 General Conferences.

6. The IARU Region 1 IARU-MS Co-ordinator's expenses will be reimbursed according to articles B.3.25 and B.3.28 of the Region 1 Bye-Laws.

5.24 IARU MONITORING SYSTEM – IARU AC RESOLUTION 91-1

Concerning the improper use of the amateur bands.

The IARU Administrative Council

Considering

a) the increasing number of reports received from the amateur community regarding improper use of the amateur bands,

b) that in accordance with the IARU Constitution, it is the obligation of the IARU and its Member Societies to defend the interests of the Amateur Services,

c) that the best way to deal with cases of improper use of the amateur bands is by an active involvement of Member Societies with their Administrations, and

d) that the ITU, having no enforcement authority, is unable to address such matters directly,

Resolves:

1. that Member Societies shall aggressively pursue the processing by their own Administrations of documented complaints of improper use of the amateur bands;

2. that documented cases of improper use of the amateur bands that cannot be solved by the Member Societies with its Administration shall be forwarded by the Member Society to its regional organisation; and

3. that any cases of improper use of amateur bands processed through an IARU regional organisation shall be handled by the following procedure:

a) The cases shall be referred to the regional IARU MS co-ordinator in the region where the transmitting station is located.

b) As soon as possible after receiving a case, the regional IARU MS co-ordinator will verify the report and ensure that all pertinent information is included.

c) Upon verification, the IARU MS co-ordinator will ask the regional secretary to report the incident to the appropriate Member Society in the region.

d) The Member Society will promptly submit the report to its Administration

e) The Member Society must advise the regional secretary within 30 days after receiving the report:

1) the date the report was presented to its Administration;

2) to whom it was presented; and

3) any formal or informal response of its Administration.

And further resolves:

1. that the IARU MS regional co-ordinators are encouraged to keep a log by country in their region of cases of improper use of the amateur bands and to issue a summary report to the regional secretary once a year;

2. that regional conferences are encouraged to include in their conference agendas a review of cases of improper use of the amateur bands;

3. that Member Societies are encouraged to seek, in their countries, restrictions on sale of amateur radio transmitting equipment to persons who do not hold amateur licenses; and

4. that if a Member Society is unable or unwilling to present a report of improper use of the amateur bands to its own Administration, the Member Society may request that the regional organisation present the report directly to its Administration.

5.25 THE OBJECTIVES OF THE IARU MONITORING SYSTEM

See http://iarums-r1.org/iarums/corner.pdf

5.26 THE FORMATION OF A NATIONAL MONITORING SYSTEM

See http://iarums-r1.org/iarums/corner.pdf

5.27 THE RADIO AMATEUR'S CODE

The radio amateur is:

CONSIDERATE .....

never knowingly uses the air in a manner such as to lessen the enjoyment of others.

LOYAL .....

offers loyalty, encouragement and support to fellow amateurs, local club and national society through which amateur radio is represented to government, the International Amateur Radio Union and the International Telecommunication Union.

PROGRESSIVE .....

with knowledge abreast of science, a well built and efficient station and operation above reproach.

FRIENDLY .....

slow and patient sending when requested; friendly advice and counsel to the beginner; kindly assistance, co-operation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED .....

radio is a hobby never interfering with duties owed to home, job, school or community.

PATRIOTIC .....

station and skill always ready for service to community and country.

(Modified from the work of Paul M Segal reproduced in the ARRL Radio Amateur's Handbook)

5.28 NET OPERATION AND AMATEUR ETHICS

The HF WG view with some concern the lack of Amateur ethics prevalent in many of the present day net operations and therefore recommend that all Region 1 National Societies make clear to their members:

(1) No net or single operator has the exclusive right to a specific frequency unless carrying emergency traffic, as defined in the "HF Emergency Operation Procedure".

(2) In the event that a QSO is in progress on a so-called net frequency the net must either wait until the QSO is terminated or alternatively establish the net elsewhere.

(3) The net controller is responsible for ensuring that the net is conducted in an orderly manner with courtesy and consideration and does not disturb other traffic.

(4) On no account other than when carrying emergency traffic, as defined in the "HF Emergency Operating Procedure", may a net hold a frequency when there is no traffic to be passed.

(5) All National Societies are again requested to direct their efforts to a return on the bands to the Amateur Radio Operator's Code.

5.29 CODE OF PRACTICE FOR QSL MANAGEMENT

1. Any DX station appointing a QSL Manager must ensure that satisfactory arrangements are in place for receiving and responding to incoming bureau as well as direct cards. Adequate publicity must be given to such arrangements.

2. QSL Managers must respond to incoming SWL cards.

3. Any DX station appointing a QSL Manager must accept responsibility for that Manager's performance.

4. QSL Managers must respond "direct" and within a reasonable period of time if sufficient funds/IRCs/stamps to cover the exact cost of return postage and a return envelope are enclosed with the request. Airmail must be used if sufficient funds/IRCs/stamps are enclosed.

5. QSL Managers must not insist on separate envelopes/applications for different QSOs or different stations. They must establish internal procedures to handle such multiple requests.

6. Recognising that mistakes of time and/or date are frequently made, QSL Managers must make a reasonably diligent search for QSOs that cannot immediately be found in the log.

7. In particular: It is unacceptable to demand a specific number of IRCs or "green stamps" (US$ bills) if a smaller number would cover the costs mentioned in Point 4.

   It is unacceptable to return cards via the bureau if they were received direct with sufficient funds/IRCs/stamps as defined in Point 4.

8. There should be no time limit for applying for QSL cards. Old logbooks should be passed to responsible DX clubs when the manager no longer wishes to retain them.

9. It is encouraged that DXpeditions should respond to bureau QSLs in addition to direct requests. When this is difficult to arrange then the DXpedition organisers are recommended to appoint a QSL Manager in a country where this would be possible. Voluntary support for DXpeditions should be encouraged. (Cavtat 2008 - CT08_C3_Rec_25)

6. Change Records

SUPPRESSED

De Haan 1993 - C4.5 – Suppressed by Article 25 at WRC-03

Noordwijkerhout 1987 – Rec1.8.4.4 – RES 641 Suppressed at WRC-03

It is recommended that Member Societies consider approaching their Administrations for experimental access to frequencies near to 500 kHz, with a view to supporting the IARU task by familiarizing their Administrations on the issues surrounding WRC-11 Agenda Item 1.23. (Cavtat 2008 – CT08_C4_Rec_02) Suppressed SC11_C4_13

It is recommended that a narrow allocation, even on a shared basis, is sought in the vicinity of 5 MHz, with the ultimate goal to have an allocation of 100 kHz in the 5 MHz band. (Davos 2005 – DV05_C3_Rec_20) Suppressed VIE16_C4_REC_05

It is recommended that a working group be formed to investigate the possibility of a frequency allocation of approximately 10 kHz between 470 – 490 kHz to investigate propagation and the use of new communication technologies. A Progress report should be circulated to the Secretaries of Region 2 and Region 3 for information. (San Marino 2002 - REC/02/SM/C4.11) Suppressed SC11_C4_13

It is recommended that the IARU Region 1 Permanent HF Committee (C4) takes note of the progress made by the LF Working Group and of the individual approaches made by some Member Societies to their regulator for amateur access around 500 kHz. The Working Group requests continued support for its activities, which are sharing current issues concerning amateur access at 500 kHz and coordination of individual approaches to the regulators. (Davos 2005 – DV05_C4_Rec_01) Suppressed SC11_C4_13

It is recommended that the 500 kHz Working Group, enhanced with representation from Regions 2 and 3, be re-tasked with work that related to supporting paper CT08_C4_05 and related technical studies required in the preparatory work for WRC-11 Agenda Item 1.23. (Cavtat 2008 – CT08_C4_Rec_01) Suppressed SC11_C4_13

Cefalu 1984 – 1.9.1.7 – Suppressed by Region 1 EC – March 2009

Noordwijkerhout 1987 Recommendation 1.12.10.3 - Superseded by recommendation CT08-C4_Rec_03

CHANGE RECORDS

REC/96/TVI/C4.13 - Superseded by recommendations DV05_C4_Rec_05 and 06

REC/99/LH/C4.8 – Superseded by recommendations DV05_C4_Rec_05 and 06

REC/99/LH/C4.9 - Superseded by recommendation CT08-C4_Rec_03

REC/99/LH/C4.10 - Superseded by recommendations DV05_C4_Rec_05 and 06

Davos 2005 – DV05_C4_Rec_15 – Superseded by recommendation CT08_C4_Rec_13.

Tel Aviv 1996 - REC/96/TVI/C3.... – superseded by recommendation CT08_C4_Rec_14

Lillehammer 1999 - REC/99/LH/C4.6 – Superseded by recommendation CT08_C4_Rec_14

San Marino 2002 - REC/02/SM/C4.12 – Superseded by recommendation CT08_C4_Rec_14

DELETED

IARU Region 1 General Conference 1999 recommends that the activity of the 29 MHz Repeater Co-ordinator be terminated. (REC/99/LH/C4.4)

The Permanent ARDF Working Group Rules for Championships in Amateur Radio Direction Finding: The Rules may be found at: http://www.ardf-r1.org/ardf_rules.html

7. Impressum

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If you find anything that is wrong, or if you find that something should be added or changed, please tell us. Any ideas for expansions or corrections will be appreciated. Please write to:

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