

Legal rules and regulations in the amateur radio computer networks

Miroslav "Misko" Skoric, YT7MPB
Email: skoric@ptt.yu
Packet: YT7MPB@YT7MPB.#NS.YUG.EU

Abstract: *This paper analyzes some elements in domestic and international regulatory principles that govern the use of the amateur radio service, as an embryo of the official educational, professional and scientific activities in the ICT areas. After the global and local situation being carefully analyzed, the paper suggests some rules and regulation improvements, according to the actual state of the modern wireless and computing technologies.*

Keywords: amateur radio, digital radio, packet radio, rules and regulations, law, CEPT, licensing system.

INTRODUCTION

Recently we got the new telecommunication law in Serbia. The paragraph 65 (The Amateur radio permissions), suggests in its last part that the new governmental "Agency for telecommunications" (a part of the Ministry for telecommunications and traffic in the near future) will consider and adopt some more detailed rules - related to the amateur radio permissions (a.k.a. licenses). The problem is that nobody knows how they are going to make it, because some earlier drafts of the law have rather suggested that the agency would make some "bylaws", which have been supposed to contain all important details governing the amateur radio. In fact, the new law does not have that "bylaws" even mentioned.

The "22nd Annual ARRL and TAPR Digital Communications Conference" might be the right place to discuss over the international regulatory principles that govern the amateur (digital) radio in developed societies, in order to suggest the same or similar solutions to be implemented locally, in particular in developing countries. The reason for that may be rather not so widely implemented use of the amateur radio digital modes in this country. One of the most popular modes here is "packet-radio"¹. So, foreign help is always appreciated.

I do not consider myself as qualified enough to discuss the popularity of the cell telephony and the Internet services in the USA or in other western countries, but here in Serbia and Montenegro (former FR Yugoslavia) we have significantly increasing interest for those ways of communications. On the other hand, since early nineties we have lowering interest in Morse operations. In addition, the no-code amateurs and modes do not

have general support from the national amateur radio unions. The main problem is that here we all have to be the members of the union if we want to be the legal part of the ham community². Actually, people who govern the ham radio unions seem not to be likely to accept the rapidly changing global science and technology. In opposite, the amateur newcomers rather pass no-code examination tests in order to join the hobby. Such trends seem to be against the common belief in the union boards that "only a telegraphy amateur is good and valuable amateur" so those who do not want to learn telegraphy should be fined somehow³. The "problem" the union sees is in the FM

² Citation: "... here we are not satisfied because there is an increasing number of the amateur radio operators of the class E (no-code ticket, M.S.) and the decreasing number of those in classes A, B and C (all of which are Morse ones, M.S.) ... that is shown in the following table ..." /The Report of activities in the Amateur radio union of Serbia for the period of time September 1993 – May 1995, No. 02-33-3/10.05.1995./ So, in that Report there is a table describing that during 1993 there were 405 candidates for various ham radio tickets in Serbia and 199 of them (49%) were not interested in learning Morse and taking the appropriate CW test. During the next year, 1994, there were 410 candidates and 245 of them (59%) passed the no-code examination. The rest of candidates, who were the minority in percentages, chose to take one of the remaining five (!) telegraphy classes' tests: A, B, C, D and F.

³ Somewhere in 1996, I attended as the secretary to the meeting of the Board of directors in the Amateur radio union in Vojvodina province (YU7 area). After considering the trends in the hobby, the board made a decision that the candidates for E ticket (no-code) have to pay 3 times more examination fees than those who wanted to take Morse test! And not only that: the attitude of the Board of the Amateur radio union of Serbia (YU1, YU7 and YU8 areas) was also very "interesting". Their draft of the "Proposal to the rulebook of the amateur radio stations and the requirements for their usage" (2001. year), suggested in the paragraph 43 that during the announced process of so called "harmonization" with the common rules of the European postal union association (CEPT), the existing domestic no-code E class should become a "national" status and as being a "national" one - it should not become a part of the CEPT

¹ [2], [3].

radio-telephony on VHF/UHF bands, which does not request candidates to learn the Morse code and some other themes requested from higher ham categories (complicated radio circuits, making home-brew transmitters etc).

It makes sense to consider that amateur radio union system has an obsolete and outdated policy that has to be changed. On the other hand, all of those "no-Morse" amateurs are very "welcomed" to become and stay the union's members forever (when it comes to pay their membership fees – the money that, in return, rather goes to the activities other than digital ones).⁴

The fact is that most telegraphy amateurs, who have legal right to use HF communications, seem not to be interested enough in maintaining existing and establishing new ham digital infrastructure in the country (HF forwarding links, HF nodes etc), because their primary interest is telegraphy contesting. That forces the local packet activities to the pat-position, because those who have legal rights in ham digital areas - seem not to be interested in, and those who may have interest in the ICT space – do not have right because they are not likely to pass Morse test (and as the result, they are not allowed to enter frequencies below 30 MHz and in particular VHF/UHF packet radio.

Besides that, according to the rules in Serbia, an amateur radio permission (say the license, although that is not the same as the license in the other countries), may be issued to persons who are the members of the national amateur radio union(s)⁵. Such

licensing system! That means the existing no-coders in Serbia would not be allowed to travel all around the Europe with their VHF handy radios, for example. So discriminative rules can be hardly commented! In the same time, the union's governors know very well how much membership money coming from the no-coders (let's repeat that candidates for no-code ticket should pay 3 times more than the others). And not only that. If such a "Proposal" got adopted by the national regulatory bodies that would mean that the European CEPT recommendations would have not been implemented in Serbia, because CEPT papers make it clear that so called "CEPT examination level B" does not require Morse test, [11]. In fact, we can see here how the governing people in the amateur radio union of Serbia want to expel no-code amateurs from the international amateur community.

⁴ The footnote 2 makes it clear that the major percentages of the amateur newcomers are non-telegraphy licensees. For example, according to the Annual Report of the Amateur radio union of Vojvodina for 1996, more than 68% of new amateurs who have passed the examination test were those of the no-code license. In spite of that, the union's board does not want to give some more ham privileges to the no-coders (at least to run VHF/UHF packet radio) and the majority of the membership fees go to the activities like to sponsor CW contest teams or like.

⁵ Here we have the amateur union at the provincial level in Vojvodina province (YU7 area). That union is the part of the union

a rule does not exist in developed western countries that my country wants to belong to in the future. In opposite, here you have a short list of developed countries from the West (including some of the East-Europe ones) who do not force their citizens to join a national amateur union, as a legal rule that must be satisfied before an individual becomes allowed to use the amateur radio transmitter: Sweden⁶, USA⁷, Canada⁸, Finland⁹, Great Britain¹⁰, Spain¹¹, Norway¹², Germany¹³, South Africa¹⁴, Australia¹⁵ and Japan¹⁶) and even the countries from the past eastern block. Hungary¹⁷ as well as Romania¹⁸ and Bulgaria – they all

at the level of Serbia; the latter is the part of the federal one. The membership tax is being paid to the YU7 office and they donate a part of that money to the republic union; the latter pay some money to the federal union's budget and that body pays the IARU membership. When it comes to re-new the ham permissions, amateurs who live in Vojvodina have to pay the fees to the YU7 union. The paperwork is also performed there. The next step is to transfer the forms to the Serbia union, along with the administrative taxes for the republic's budget. The Serbia union transfers the papers to the Ministry. The whole procedure takes several months and very often more than a year or so. Besides that, there is always some arguing between the provincial and republic unions, related to the membership money.

⁶ The messages from: Eric Lund <eric@dineral.se>, Date: Wed, 21 Feb 2001 16:40:12 +0100, Stig Boberg <stibob@foi.se>, Date: Mon, 26 Feb 2001 08:10:55 +0100, Leif Carlsson <leifopia@mail.bip.net>, Date: Sun, 18 Feb 2001 21:41:47 +0100.

⁷ The message from Carl R. Stevenson <wa6vse@fast.net>, Date: Thu, 22 Feb 2001 20:48:33 -0500.

⁸ The messages from: Paul J. Piercey <p.piercey@roadrunner.nf.net>, Date: Fri, 23 Feb 2001 12:08:19 -0000, Dean Denter <ddenter@nortelnetworks.com>, Date: Mon, 26 Feb 2001 17:14:22 -0500, Ken Pulfer <ve3pu@rac.ca>, Date: Tue, 27 Feb 2001 08:16:01 -0500.

⁹ The messages from: Pentti Haka <Pentti@PenttiHaka.com>, Date: Fri, 23 Feb 2001 12:05:06 +0200, Paul Keinanen <keinanen@sci.fi>, Date: Fri, 23 Feb 2001 18:14:35 +0200, Tapio Sokura oh2kku@iki.fi, Date: Sat, 24 Feb 2001 01:57:50 +0200.

¹⁰ The message from Andrew Sellers <g8tjz@lancaster.ac.uk>, Date: Fri, 23 Feb 2001 18:12:19 -0000.

¹¹ The message from Simon J Mudd <sjmudd@pobox.com>, Date: Fri, 23 Feb 2001 19:15:06 +0100.

¹² The message from Magne Mahre <magne@samfundet.no>, Date: Sun, 25 Feb 2001 00:16:55 +0100.

¹³ The message from Peter Guelzow <Peter.Guelzow@arcormail.de>, Date: Sun, 25 Feb 2001 12:59:33 +0100.

¹⁴ The message from Graeme James <grem@pixie.co.za>, Date: Sat, 24 Feb 2001 09:04:30 +0200.

¹⁵ The message from Craig Small <spookin@nw.com.au>, Date: Tue, 13 Mar 2001 01:02:04 +0800.

¹⁶ The message from Tonouchi Kiwao <jm1omq@fsinet.or.jp>, Date: Mon, 2 Apr 2001 06:05:53 +0900.

¹⁷ The message from Arato Andras <arato@sunserv.kfki.hu>, Date: Mon, 26 Feb 2001 14:47:37 +0100.

¹⁸ Detailed information related to those issues was presented at the XXVII Conference of the Amateur radio union of Serbia that was held February 8th 1997 in Belgrade. The material was given to the Board of directors in the Union along with the request to be

removed the obligatory membership in their national unions (email messages you may find in footnotes below – that still come from the foreign radio amateurs, are available on request).

The other issues we face to are other obligations:

1. To have all amateur radios officially checked in order to “make sure that radios comply with the national technical standards”;
2. To register any particular amateur radio station¹⁹.

I suppose such a rules are what have been left from the past decades of the social and political system we lived in where any kind of communication must have been carefully checked and controlled (in particular with foreign correspondents) – the fact is that such technical obstacles for radio amateurs do not exist elsewhere. In the foreign countries the person may get

considered. There is still no answer to that! Besides that, the author, who was the secretary in the YU7 union these days, has sent the whole material (48 pages, including the whole correspondence with the foreign hams), to the addresses of the Federal Ministry for telecommunications and the Ministry of telecommunications of Serbia (SRV No. 5-3/97 from 16.05.1997.). There were no reactions too!

¹⁹ According to the paragraph 71 of the new Telecommunication law, the technical check of the equipment will continue to exist. That means, after the successfully passed amateur radio examination, the newcomer may apply for the ordinary permission to “operate an amateur radio station”. Such paper gives a person the ability to operate a club’s equipment or a friends’ station, using the club’s or friends’ call sign. But, if a person wants to get his/her own radio, another paper must be obtained: a permission to “supply the radio station”. The procedure for that paper goes via the ham union and the Ministry for telecommunications. That paper also gives the person the legal right to import a radio station from abroad (of course, including all appropriate taxes, import fees etc). Well, having a station purchased either in a shop or from outside the country, its owner has to go to a special service workshop in order to officially check the station in order to get a receipt that “prove that a station comply with the national standards” or so. Having that receipt, the owner goes to the ham union once again in order to apply for the 3rd permission: the permission to “work with that station”. In fact, that means to just write down a date to start transmitting into the same permission to supply the station (!). The irony of the “technical check” is that all those special service workshops have pretty old and outdated service instruments - almost incapable to check the modern Japanese and other radio equipment. So, after all the paperwork being performed, the user is finally allowed to start running his/her station. Case the amateur wants to have the 2nd, the 3rd or other radio(s), the whole procedure must be repeated again and again. Any particular permission voids in five years, so any one ticket has to be renewed after that period of time. And do not forget one detail: whenever a ham enters the union in order to get or renew his/her permissions, the union’s officials first check if the annual union’s fee has been paid. Case it is not (either for the last year or for previous 5 years, all membership fees must be paid retroactively).

as many stations as he/she wants and no station(s) has to be registered.

FOREIGN EXPERIENCES

If we analyze the professional and technical level of the foreign radio amateurs, it is for sure that their knowledge in the ICT areas is much better than it is in Serbia, in particular if we think of the ham digital modes like: HF packet, amtor, pactor, g-tor and others that are almost unknown for the majority of hams in this land; the quantity and the quality of the amateur packet radio repeater services are also much better abroad etc. It is sad to realize that the national packet backbone was in much better condition ten years ago. The significant percentage of the packet “radio” messages are forwarded via land-line links, in general, and via the Internet in particular.

In a developing society like this, the amateur radio voluntary “science” may have the great importance for the further improvements in the ICT areas, regardless they belong to the ham area or not. That’s why the global amateur radio hobby should become more available to all persons who might be interested in and, in particular, to young newcomers. I mean that domestic and international regulatory principles that govern the ham radio should be adapted to the new technologies and the actual state of the modern society. The governmental agencies expect from the amateur unions to suggest important law improvements, related to the amateur radio activities. Unfortunately, here in Serbia there are no serious efforts coming from the ham union officials, because they seem to be satisfied with the *status quo*. For example, when you have a mandatory membership in the regional and/or national amateur radio union, which means the governing people in these unions are not likely to change their monopoly position and the privilege to collect the membership money. On the other hand, individual initiatives for rule improvements are very rare, because here in Serbia there is a common belief that only the governors of the union(s) are “capable to think and be qualified to suggest regulatory changes and make other initiatives”.

A ham radio union may not be the only entity in the land representing the amateur interests, so to continue claiming that the obligatory membership status is a “national must” is nonsense. Individual amateurs should also be encouraged to ask for institutional changes and regulatory improvements, regardless they are union members or not. In opposite, according to the information I get from the foreign radio amateurs, in other countries it is supported and even stimulated the individual initiative when it comes to the relationship

between a person, the amateur, and the governmental agencies for communication business.

"A healthy Amateur Radio Service is a National Asset"²⁰

HOW TO IMPROVE THE RULES?

It is for sure that amateur radio hobby needs several institutional and functional improvements. Changes are needed on both domestic and international level.

Experiences and examples shown in this paper make it clear that domestic amateur community is not capable to change by its own²¹.

1. The first step to be done is to revoke the outdated and obsolete requirement of the mandatory membership in the national amateur radio union, as a legal requirement for an individual to become a "ham" in Serbia.

2. The next issue is to harmonize actual legal status of domestic radio amateurs with the laws in the European Union. For example, the no-code category, locally called the E-class, should be harmonized with the European "CEPT class 2" (fig. 1 and 2). That means, our no-coders should be also allowed to travel to the EU and running their VHF/UHF radios, packet radio communications etc. When we talk about the ham radio digital world and its further implementation and development, it is a must to get as much knowledge and information related to modern "digipeating" practice and experience, new modems and radios, new packet and other digital software etc. The fact is that the majority of packet radio amateurs in Serbia are those of the no-code ticket. Case that category doesn't belong to the CEPT system domestic digital amateur world will get lost!

And not only that: most of the newcomers are those who are or who will be the students in computer sciences, or radio and other electronic studies. The young students and scientists are what I consider as the future of the ham digital radio, so their status of domestic no-code category should also be widened to

²⁰ The message from Kenneth Stringham <aelx@yahoo.com>, Date: Sat, 19 Apr 2003 08:08:35 -0700

²¹ Somewhere during summer 2001 there was an amateur radio meeting at the University of Novi Sad (www.ns.ac.yu), dedicated to the ham radio rules and regulations. When I informed the participants about the regulatory details in other countries and about my appeals to the foreign ham friends to contact our authorities in order to send them their local experiences, the ham union's bureaucrats accused me for "calling the foreign factors to involve into our internal domestic matters" !?

the European standards (most of them don't want to waste time learning Morse in order to run their computers on HF). The technology keeps changing and the ham community has to be smart enough to recognize what are the right ways to the ham digital future.

3. Let us go further: All the paperwork related to ham radio permissions should be only handled by the "national FCC" (i.e. Ministry for telecommunications). There is no reason to continue with the outdated practice and ask hams to renew their papers via the union. On the other hand, domestic ham radio union(s) should be what the amateur unions are abroad: the voluntary services on behalf of the common amateur interests. The procedure should be liberalized: only one paper – the amateur radio *license* – should be implemented and no particular "radio licenses" should exist anymore. When it comes to purchase the new radio, there should be no additional paperwork. Of course, no additional registration of any particular radio station should be done in the future.

Some of you may ask me: Why do you want us living in the USA to think about your local regulatory problems? Well, the answer may be the following: Should you help us to approach the modern regulatory standards that are going free the local ham digital activities, there will be more chances for my region to maintain various new ham digital services that you would also enjoy to use one day. We like **you** visiting **us** the same way we like to visit **your** packet nodes and other digital resources.

4. Having in mind positive foreign rules, the importers of the ham radio equipment should be obliged to obey all custom permissions and technical standards for certifications with the EU principles.

5. There's no reason to continue with requirements for hams to take every particular radio for the official check.

6. According to my questionnaire to the foreign hams, it seems that local fees for ham activities vary. In fact, there are countries where licenses void in ten years and renewing them is almost free. Somewhere else, there is an annual tax for using the frequency spectrum and the tickets void in 5 years. I think the best way should be to implement the annual tax system and to renew the papers every ten years for free.

That way, there will be fewer jobs for the government but more money for its budget and I am sure they would like both. ☺

7. There is an interesting renewing system in Finland that I heard of recently. The national regulatory agency called FICORA sends a "reminder form" to the amateur, asking him/her to sign the form and return it back accompanied with the annual payment. That's all. Your legal status is renewed as soon the form is signed and sent back to FICORA. That system might be additionally updated using the web pages of the national FCC and/or their email system.

8. One of the questions I often like to pose when I participate to the various ICT conferences is: Do we think of the future of the ham radio digital activities? Or, let's remember the times some ten or twenty years ago, when we didn't know about the Internet or the sending all these SMS and email messages via the cell telephony. IMO, one of the main tasks is to face with the facts and ask ourselves what should be done now.

I am sure that there wouldn't be so many users in the Internet communications, neither the users (in particular the very young ones) of the modern SMS and similar mailing systems, in case there possibly existed some special strong trainings and examinations for their users. I mean, case we implemented some "cell-radio-telephony" tests for those kids wanting to use the cell telephones, there would be less users around. The same goes for the number of the prospective Internet communicators, should we required them to explain all those complicated TCP/IP principles, analog radio-modem and DSP technologies etc.

You know, I talked to some people trying to motivate them to enter the ham radio world. The best situation for doing that was/is on the university and while attending to the various national ICT conferences [3]. At the first sight, they seem to be interested in, especially when I explain that ham radio digital activities don't bother with costly ISP fees as well as with the land-line or mobile telephony bills etc. Soon after, they got nearly shocked when discover they have to learn the manual Morse telegraphy and pass the appropriate tests before they get allowed to simply use their computer keyboards on HF bands. Their answer is – no way! And not only that: although the most of them are capable to make enough money to buy a modern computerized Japanese HF transceiver, they still are required to learn how to build radio circuits from scratch or like. No way - either! But imagine: most of them are students of computers, mathematics...

Should we lose them?

So that's why, the usage of HF radio amateur bands (or HF bands in general) shouldn't be restricted only to Morse candidates. Ok, I know that is expected the

mandatory Morse code test for HF bands to be revoked in the near future. Regardless of that, I consider that a "transitional" form of the ham radio licensing system may also be implemented:

A new type of amateur license might be implemented: the AMATEUR DIGITAL LICENCE (ADL). Holders of the ADL ticket should be allowed to use any kind of amateur digital modes, but only digital ones. In addition, the ADL candidates might be required to use only those radios manufactured for digital transmissions (or to be adapted not to work with the voice microphones and/or telegraphy keys). Knowing very well what today ham equipment manufacturers are capable to produce, I am sure they could easily offer new HF radios, restricted to DATA sub-bands and otherwise dedicated for DIGITAL-only operations. The modern microprocessor controlled radios can be easily modified in the factory to conform with the ADL ticket. I am sure the manufacturers of the major brands would like to see the new markets for their shares.

What the candidates should learn before they apply for the ADL license? Well, it seems to be reasonable to suggest the following:

- computer and radio hardware,
- operating systems and ham digital software,
- configuration of radio modems and other equipment (antennas, ground etc),
- RFI issues,
- regulatory set of questions (band plans etc),
- foreign language (in written test).

In addition, the best students in the areas mentioned above, might be stimulated to join amateur radio world. They should not take those exams, where they have the best school marks.

The suggestion for the new ADL ticket should be forwarded to the international regulatory bodies, like ITU [9], WARC [10] and CEPT [11] for consideration.

9. The radio amateurs should also be involved into the educational and scientific activities at the local and international university levels. For example, there are cathedras for electronics, radios, computing etc at many universities in the Balkans area and they may be connected with the amateur radio digital communications (VHF/UHF packet radio at least). There are lots of hams around, some of them already involved in the student or teaching areas.

So, after the national and nearest neighboring universities got "connected" via the packet radio or some other kind of ham digital links, there is an open road for connecting the universities world wide. I would

name it as the **AMUNET** (the Amateur University Network). The European Union already has plans to financially support some educational and research projects, in particular dedicated to developing countries in the South-East Europe. It is even better if more than one country decide to apply for "join" projects, sponsored by the EU Directorate for education and science. Such way, the chances for sponsorship are even better. Why should we, the digital amateurs, miss such an offer?

CONCLUSION

The "22nd Annual ARRL and TAPR Digital Communications Conference" gives the great deal of opportunities to bring some 'fresh blood' into the old rules and regulations, related to this fine hobby. It is a call for all of you, participants, to help this useful amateur activity to become modern and up-to-date skill all around the world. Send your suggestions and local bylaws to our government²². Including Serbia into wider associations, as a possible result of this call, might considerably contribute to the further development of this part of world.

The other important task that I would like to see considered at the Conference is the future of the ham digital activities, generally speaking. I recall the "old times" when we, the amateurs, have privileges to contact each other, all around the world – without barriers and crossing the national borders. We were the rare ones who did it at relatively low cost (except the initial costs for the radio equipment). But, many of us still think that the *communication* itself is in the background, and the radio technique is in foreground. I doubt if that is the right attitude. I also remember a professor at my faculty, talking about the famous glass factory who believed that the glass bottles were the only thing they could produce. When the times of plastic bottles, bags and boxes appeared, the factory lost many of their customers and market. But, if they eventually considered themselves as the manufacturers of enclosures for liquids (regardless being made of glass, plastic or whatever) they would survive.

That's why I hope that the amateur radio community may start thinking of itself as the community to *communicate with the radios*, rather than to be the community to make home-brew radios (or so). I know such a view may be disliked by some hams but your mileage may vary. You know, I am the master grade

²² Republic of Serbia - Ministry of Science, Technology and Development (www.nauka.ac.yu); Republic of Serbia - Ministry of Telecommunications (zakoni@msaotel.sr.gov.yu).

student in computing. I got my first x286 twelve years ago and I still use it (as the simple DOS client for connecting to my Linux server equipped with the packet radio BBS). I got my first VHF handy talkie more than twelve years ago. Soon after I tried some local voice repeater operations, I definitely switched to packet radio. I have been *sysoping* local nodes and packet BBS's since than.

Now I would like to install some HF forwarding systems and *Pacsat* store & forward facilities, but I am not allowed to do so because I do not have time and interest to learn Morse (and other things that I really do not need to run HF packet BBS). Somewhere in 1995 I got a temporary permission from the local ham union, to make some HF forwarding experiments for a while. I did it without problems even though I was no-code ham. That's how I proved that a person may be fully capable to set up a HF forwarding station and the old radio with a dipole antenna in order to exchange radio mail.

I am sure some of the outdated rules should be revoked. Without regulatory changes we can't clearly see the percentages of "communicators" all around the globe who join various land-line links rather than the amateur radio ones. In order to help the ham digital activities to live longer and prosper, we should do our best to liberalize the rules and regulations both here and there.

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- [9] ITU – International Telecommunications Union, www.itu.int/ITU-R/publications/rr/index.asp

[10] World Radiocommunication Conference (WRC-03)

Geneva, Switzerland, 9 June to 4 July 2003

<http://www.itu.int/ITU-R/conferences/wrc/wrc-03/index.asp>

[11] ERO – European Radiocommunications Office,
*CEPT RADIO AMATEUR LICENCE, Recommendation T/R
61-01 (Nice 1985, revised in Paris 1992 and by
correspondence August 1992)*

<http://www.ero.dk/documentation/docs/docfiles.asp?docid=1802>

*HARMONISED AMATEUR RADIO EXAMINATION
CERTIFICATES, Recommendation T/R 61-02 (Chester
1990, revised in Nicosia 1994 and The Hague 2001)*

<http://www.ero.dk/documentation/docs/docfiles.asp?docid=1803>

[12] FICORA – Finnish Communications Regulatory
Authority, *Regulations GOVERNING AMATEUR RADIO
STATIONS AND THEIR USE*

<http://www.ficora.fi/englanti/document/FICORA06F2001M.pdf>

Class 1

This class permits utilisation of all frequency bands allocated to the Amateur Service and Amateur Satellite Service and authorised in the country where the amateur station is to be operated. It will be open only to those amateurs who have proved their competence with Morse code to their own Administration.

Class 2

This class permits utilisation of all frequency bands allocated to the Amateur Service and Amateur Satellite Service above 30 MHz and authorised in the country where the amateur station is to be operated.

Fig. 1. "CEPT class 2" allows to work above 30 MHz without Morse test, [11]

T/R 61-02 E

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ii) *Sending and receiving Morse code signals*

a) CEPT examination level A

The examinee is required to demonstrate his ability to send and transcribe in Morse code, plain texts, number groups, punctuation and other signs:

- at a speed not less than 5 words per minute
- for a duration of at least 3 minutes
- with a maximum of 4 errors in reception
- with a maximum of 1 uncorrected and 4 corrected errors in transmission
- using a non-automatic Morse key

CEPT examination level A

A licence based on CEPT examination level A allows the use of all frequency bands allocated to the radio amateur service and authorised in the country where the amateur station is to be operated.

CEPT examination level B

A licence based on CEPT examination level B, not including the requirements for sending and receiving Morse code signals, allows the use of amateur stations in the frequency bands above 30 MHz which have been allocated to the amateur radio service and authorised in the country where the amateur station is to be operated.

Fig. 2. "CEPT Examination level B" allows to work above 30 MHz without Morse test, [11]