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North American Broadcasters Association (NABA)

BROADCAST SPECTRUM SHARING AND PROTECTION

1 Introduction

The North American Broadcasters Association (NABA, www.nabanet.com) is an association of broadcasters in Canada, Mexico, and the United States. NABA is, thus, in a position to present the technical viewpoints of the most authoritative association of professional North American Broadcasters in television and sound programme production, post-production, and distribution for terrestrial, satellite, and cable broadcasting.

NABA is a Sector Member of ITU-R and a long-time participant in ITU-R Study Groups, Working Parties, Task Groups, Rapporteur groups, etc. NABA numbers among its members Chairmen, Vice-Chairmen and members of the above groups. NABA also participates widely in the ITU work on radio, television and multimedia services and has a strong interest in ITU-R studies on spectrum management and engineering and, in particular, the technical aspects of spectrum sharing and interference management.

This Contribution is intended to clarify NABA views on the current situation of the broadcasting spectrum in the ITU context. The situation is presently largely determined by a variety of factors, such as:

- a) transition from analogue to digital broadcasting emissions,
- b) convergence of radiocommunication services,
- c) need to find suitable spectrum for a number of radio frequency emissions of devices without a corresponding allocation in the Radio Regulations.

In this context NABA considers it of vital importance to ensure adequate protection to broadcasting services (as well as to any other service recognized in the Radio Regulations), by proposing some actions as indicated in this document.

2 The role of the broadcasting service

It is commonly accepted that broadcasting is the most economical and widespread telecommunication service accessible by the majority of the World's population.

Current estimates, as regularly carried out by the ITU, show that on a global basis broadcasting receivers are by far more numerous than any other telecommunication equipment, despite the fast growth of cellular telephony, (see ITU-D Yearbook of Statistics). This is also largely due in most cases to the social content of the broadcasting service and its accessibility even in areas with scarce infrastructures as encountered in developing countries. In recognition of this particular aspect, broadcasting services have also been indicated in the ITU context as a preferred media to ensure communications in cases of disaster prevention, mitigation and relief (see Resolutions 644 (WRC-07), 646 (WRC-03), 647 (WRC-07), 53 (RA-07) and 55 (RA-07)).

As a consequence, the ITU should endeavor to ensure adequate protection to the broadcasting services in order to safeguard the interests of communities worldwide.

3 Regulation of the broadcasting service in the ITU

Allocation of spectrum to the broadcasting services has always been a crucial task of the ITU. In the past it has resulted in the largest number of specific ITU Regional and World Administrative Radio Conferences, and it still has considerable impact on the agenda of current WRC's. In all cases, worldwide agreement on such allocations has been the result of laborious and time consuming work and compromises, leading to a delicate balance that allows for an orderly development of the services taking into account the different types of broadcasting operators in the various countries (international broadcasters, public national broadcasters, private nationwide or local broadcasters, etc.). As a consequence, huge investments relying on these ITU agreements have been planned and implemented by interested countries. Finally, in many cases, international frequency plans based on extensive studies carried out by the relevant ITU broadcasting Study Groups have been agreed to this purpose, and have often been included in the Radio Regulations.

The ITU Spectrum work leading to new and improved Recommendations to accommodate new services while protecting both new and existing services needs to continue on a high priority basis, and the Radio Regulations need to be observed by all member Administrations.

4 The present situation

It is a general view that the transition from analogue to digital broadcasting services, may in the long run, result in more available spectrum due to digital compression techniques allowing broadcasting more digital programs in the bandwidth of a single conventional analogue channel. However, any hasty conclusion that unused broadcasting spectrum could immediately be made available should not lead to oversimplification. Actually digital signals do not generally allow for the so-called "graceful degradation" typical of analogue signals, and, thus, they may be more seriously affected by interferences and consequently need, inter alia, suitable guard-bands (i.e. suitable additional spectrum) to provide quality and uninterrupted services. Moreover, to ensure a smooth and economical digital transition in the time frame that each country may wish to select, it is likely that not all of the available spectrum will be useable for a non-negligible period before it can safely be re-allocated and used.

The present convergence of services is also having some impact. Whilst there is not yet a unanimous view on the subject, many administrations feel that at a future convenient time, there should be a revision of the definition of the services as presently included in the Radio Regulations. Such a measure might also lead to broadcasting spectrum re-allocations possibly modifying to a certain extent the current situation placing more severe restrictions on service interference criteria.

The last and maybe most serious factor considered here, is the increasing number of devices having radio frequency emissions in the broadcasting frequency bands without a corresponding allocation in the Radio Regulations. Examples are emissions from PLT, UWB, SRD, etc.

It should be noted that in some cases (such as PLT), the effect of these emissions might seriously jeopardize, as demonstrated by extensive measurements, the broadcasting service below 80 MHz often resulting in a complete service disruption. This would indeed prejudicially damage in particular small private broadcasters operating a single affected transmitter at MW, emergency and distress communications addressed on LW, MW and SW to the nation-wide population, etc.

In other cases (such as UWB and SRD), the effect of these emissions may seriously affect those broadcasters, which have already made huge investments to introduce digital services, carefully planned and agreed at international level, to ensure satisfactory reception in the absence of any additional and unforeseen source of interference as it may result from the operation of the above mentioned devices. It should also be noted that at least in some countries, the introduction of digital broadcasting services in the VHF/UHF Bands and the achievement of given quality targets, has been the consequence of decisions involving not only the broadcasters but also the relevant Administration. As a consequence, adequate protection of such investments made by broadcasters in response to such decisions should be expected at both the national and international level.

Despite the opinion expressed by some parties that such a situation should be controlled at national level only, without involving the ITU, the present and increasing trade globalization (e.g. e-commerce, etc.) may lead to a situation where the above-mentioned devices might be introduced in a country without any effective national or international control. Therefore, the problem assumes an international connotation directly involving the ITU according to its Constitution.

5 The broadcasters' position

The broadcasters worldwide are well aware of the need to share spectrum and certainly do not object to such a principle. The only condition they are stressing is the establishment of adequate protection criteria allowing the continuation of the service with the current quality standard. This attitude should be seen as an effort to preserve the "broadcasting spectrum quality" in order to meet the service requirements often set up by the relevant Administration.

6 Results of ITU-R studies

The broadcasters have timely activated studies addressed to suitably protect their service at the ITU-R Study Group level. These efforts have resulted in:

- a) Recommendation ITU-R SM.1757 and Report ITU-R SM.2050 restricting interference caused by emissions from ultra-wideband devices to terrestrial broadcasting services;
- b) Draft New Recommendation ITU-R BS.[Doc. 6/229(Rev.1)] "Protection requirements for broadcasting systems operating in the LF, MF, HF and VHF bands below 80 MHz against the impact of power line telecommunication (PLT) Systems" sent to RA-07, which decided to send it back to Study Group 6;
- c) Recommendations ITU-R BS.1786 and ITU-R BT.1786 "Criterion to assess the impact of interference to the terrestrial broadcasting services (BS)".
- d) Report ITU-R BS.2104 "FM modulator interference to broadcasting services".

It should be stressed that the basic criterion in the documents listed in a), b) and c) above is that the total interference to systems operating in the broadcasting service, from the afore-mentioned sources of interference, should at no time exceed one per cent of the total receiving system noise power.

Regretfully, the broadcasters have to recognize that despite their efforts to achieve acceptable compromises based on sound technical criteria, on sharing the spectrum internationally allocated by the ITU to their services, a widespread attitude of some administrations and operators is to directly proceed to allow an uncontrolled use of such spectrum by any emerging application.

7 The broadcasters' proposed action plan

The broadcasters are indeed aware that some of the above mentioned issues are recognized as WRC Agenda items (e.g. in the case of SRDs, WRC-11 Agenda item 1.22 (Resolution 953) addresses the interference issues), whilst in other cases (see for instance the PLT case) the follow up of the studies is lagging without timely decisions that could alleviate the interference to broadcasting services, caused by a worldwide dissemination of uncontrolled and unregulated interfering devices, which is under implementation.

For all the above reasons, NABA, as an authoritative community of broadcasters operating within the ITU, is of the opinion that:

- a) It should be clearly re-stated that in the ITU-R context it is commonly accepted that the establishment of protection criteria is in the responsibility of the affected service,
- b) It should be in the mandate of Study Group 6 to carry out as a matter of urgency, objective studies, measurements, and tests, the results of which should lead to the establishment of Recommendations defining the impact of interference to the terrestrial broadcasting service by radio frequency emissions of devices without a corresponding allocation in the Radio Regulations, thereby defining the appropriate protection criteria,
- c) These urgent studies and tests should be carried out independently of those related to WRC agenda issues, whose conclusions, from the regulatory point of view, will in any case prevail without being necessarily in conformity with the results of the Study Group studies (as has been the case in many past ITU events, see GE-75, RIO-81, HFBC-84 and -87 final acts, etc.),
- d) Present Question ITU-R 32/6 should be suitably revised to reflect the urgency of these studies.

Therefore, the above mentioned points are brought to the attention of Study Groups 1 and 6 as regards the activities that should be carried out in the framework of the current Study Period, to the CPM with a view that due consideration be given to the possibility to reflect them in its Report to the WRC, and to the RAG in its capacity of the control body to assess and coordinate the Study Group actions in the interval between two consecutive Radiocommunication Assemblies

Finally, the broadcasters wish also to express the view that the ITU community should pay the utmost consideration to defend the right of all its Members as deriving from its Regulations and International and Regional Frequency Plans. At the same time the ITU-R should encourage sound technical studies allowing for a clear vision of the problems and their solutions, whilst then leaving the final decision on any relevant issue to the WRC. Failure to do so may inevitably undermine the credibility of the ITU and its role in the telecommunication domain.