Radiocommunication Study Groups

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North American Broadcasters Association (NABA)

FURTHER WORK ON THE PDNR "POWER LINE HIGH DATA RATE TELECOMMUNICATION SYSTEMS"

POWER LINE HIGH DATA RATE TELECOMMUNICATION SYSTEMS

The North American Broadcasters Association (NABA, *www.nabanet.com*) is an association of broadcasters in Canada, Mexico, and the United States, and the NABA Technical Committee is its standing technical body. 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 spectrum management studies including spectrum engineering techniques, spectrum management fundamentals, spectrum monitoring, and inter-service sharing, interference and compatibility.

NABA notes the increasing number of devices, including PLT, having radio frequency emissions in the broadcasting frequency bands without a corresponding allocation in the Radio Regulations. The effect of these emissions might seriously jeopardize, as demonstrated also by extensive measurements, the broadcasting service below 80 MHz often resulting in a complete service disruption. This would prejudicially damage, in particular, small private broadcasters operating a single affected transmitter at MF as well as emergency and distress communications addressed on LF, MF, HF and VHF to the nation-wide population.

The effect of these emissions may seriously affect those broadcasters, which have already made huge investments to introduce digital services, carefully planned and agreed to at the 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 Band 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 trade globalization (e.g. e-commerce, etc.) has led to a situation where the PLT devices might be introduced in a country without any effective control. Therefore, the problem assumes an international connotation directly involving the ITU according to its Constitution.

In this context, NABA takes note of Annex 1 of the Working Party 1A Chairman's Report (Document 1A/135) for the February/March 2009 meeting. Attachment 1 of Annex 1 contains a "Working document toward a preliminary draft new Recommendation". NABA applauds the efforts of WP 1A to establish a Recommendation that encourages limits on emissions from PLT systems in order to ensure the protection of radiocommunication services.

It is the goal of NABA to seek a protection criterion that is acceptable to all concerned for those frequency bands utilized by the broadcasting service. To this end, NABA proposes improvements to the text of the PDNR and an Annex which provides specific values for the maximum allowable interference field-strength densities at the broadcast receiving system. In broadcasting, the minimum field-strength is often based upon the noise floor of the receiving system. However, at frequencies below 80 MHz, the limiting factor of the broadcast receiving system is the environmental noise. The minimum receivable field-strengths can be found in Recommendation ITU-R P.372-9. Since emissions from a PLT system do not have an allocation in the Radio Regulations, the maximum allowable increase in the minimum field-strength should be one percent or 0.05 dB. The proposed Annex is based upon these values for those frequencies allocated to the broadcasting service.

NABA further notes that Annex 1 of Document 1A/135 contains attachments (Attachments 2, 3, 4, 5, and 6) from various administrations describing their national rules and regulations relative to PLT. NABA agrees that it is within the rights of any administration to establish national rules and regulations. It is appropriate for these rules to be included as guidance within the working document toward a preliminary draft new Report found in Annex 2 of Document 1A/135. NABA respectfully requests that these attachments to be moved to the Report.

Annex

~~WORKING DOCUMENT TOWARD A~~ [PRELIMINARY]
DRAFT NEW RECOMMENDATION ITU-R SM.[PLT REC]

Power line high data rate telecommunication systems

(Question ITU-R 221/1)

The ITU Radiocommunication Assembly,

considering

a) that there is increasing demand for and use of broadband connection to the Internet throughout the world;

b) that power line telecommunication systems may provide one means of connection by the introduction of RF signals onto the electrical power supply network;

c) that electrical infrastructure wiring is not designed or installed for transmission of signals at radio frequencies;

~~c~~d) that although these systems have no frequency allocation in the Radio Regulations as they are not a radiocommunication service, some RF energy ~~may~~ will radiate from these systems which are connected to the transmission lines or the building wiring;

e) that those telecommunication systems radiate and occupy a broad bandwidth that may affect the use of the LF, MF, HF and VHF bands below 80 MHz;

~~d~~f) that such systems may cause interference to the radiocommunication services which provide a range of both public and government services;

g~~e~~) that protection of radiocommunication services from radiated disturbances from telecommunication networks is specifically called for in RR No. **15.12**;

h~~f~~) that some radiocommunication services have established criteria to assess the impact of interference from unintentional RF emitters that produce emissions in the frequency bands allocated to those services, ~~[~~such as criteria in Recommendations ITU-R BT.1786 and ITU-R BS.1786 from the broadcasting service~~]~~,

noting

a) that detailed studies relevant to the impact of devices using PLT technology on radiocommunication services are documented in Report ITU-R SM.[XXX], “Impact of power line telecommunication systems on radiocommunication systems operating in the LF, MF, HF and VHF bands below 80 MHz”;

b) that these limits, measures and procedures may not provide interference protection in all cases,

recommends

1 that administrations be encouraged to implement limits, measures and procedures (e.g., by incorporating mitigation and avoidance techniques in power line telecommunication systems) to ensure that radiocommunication services are suitably protected from interference generated by those systems~~power line telecommunication systems incorporate mitigation and avoidance techniques for protecting radiocommunication services~~;

2 that in adopting such limits, measures and procedures, administrations should take into account the established protection criteria of radiocommunication services included in the Annex to this Recommendation ~~[to be developed];~~.

~~**3** that in adopting limits, measures and procedures, administrations should take into account as guidance the limits, measures and procedures which are described in the Annex to this Recommendation [to be developed].~~

Annex to the Annex

The emission from PLT systems in the bands below 80 MHz allocated to the broadcasting service should not exceed the following levels:

Maximum allowable interference field-strength densities at the broadcast receiving system

Broadcast frequency band	Maximum interference field-strength density dB(μV/m/MHz)			
	City	Residential	Rural	Quiet rural
148.5-283.5 kHz	27.7	23.4	18.1	5.2
525-1 705 kHz	23.5	19.2	13.9	0.5
2 300-2 498 kHz	18.5	14.2	8.9	–5.0
3 200-3 400 kHz	17.4	13.1	7.8	–6.2
3 900-4 000 kHz	16.7	12.4	7.1	–7.0
4 750-4 995 kHz	16.1	11.8	6.5	–7.7
5 005-5 060 kHz	15.9	11.6	6.3	–7.9
5 900-6 200 kHz	15.4	11.1	5.8	–8.5
7 200-7 450 kHz	14.7	10.4	5.1	–9.3
9 400-9 900 kHz	13.8	9.5	4.2	–10.3
11 600-12 100 kHz	13.1	8.8	3.5	–11.1
13 570-13 870 kHz	12.6	8.3	3.0	–11.6
15 100-15 800 kHz	12.2	7.9	2.6	–12.0
17 480-17 900 kHz	11.7	7.4	2.1	–12.6

Broadcast frequency band	Maximum interference field-strength density dB(μV/m/MHz)			
	City	Residential	Rural	Quiet rural
18 900-19 200 kHz	11.5	7.2	1.9	–12.9
21 450-21 850 kHz	11.0	6.7	1.4	–13.4
25 670-26 100 kHz	10.4	6.1	0.8	–14.0
47-72 MHz	8.4	4.1	-1.2	–16.3
76-80 MHz	6.8	2.5	-2.8	–18.1

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