QUESTION ITU-R 243/1

Impact of unintentional[[1]](#footnote-1)1 radio frequency energy generated by electrical or electronic apparatus to the radiocommunication services

(2022)

The ITU Radiocommunication Assembly,

considering

*a)* that electrical and electronic technology development is an on-going process that opens new ways for creation, design and composition of devices and their systems;

*b)* that electrical or electronic apparatus and their systems might be designed or installed in such a way that radiation could not be minimized;

*c)* that such technologies tend to increase, spread and become pervasive and ubiquitous, especially on residential areas where the use of the radiocommunication services is intensive and also in development;

*d)* that radiation from such apparatus and systems, including those not devoted to perform radiocommunication, may cause interference to radiocommunication services, particularly at LF, MF, HF, VHF and UHF;

*e)* that effects due to apparatus and systems involving Wireless Power Transmission, Power Line Telecommunications and Power Grid Management Systems are being dealt with under specific Study Group 1 Questions;

*f)* that the incidence of radio noise sets a practical limit to the performance and the utility of the terrestrial, space and radio astronomy services;

*g)* that, according to Nos. **15.12[[2]](#footnote-2)\*** and **15.13[[3]](#footnote-3)\*\*** of the Radio Regulations (RR), administrations shall take all practicable and necessary steps to ensure these apparatuses or installations do not cause harmful interference to radiocommunication services;

*h)* that radiation from broadcasting satellite TV (BS-TV) receiving systems at their intermediate frequency have been identified as the source of harmful interference to sensors operating in the Earth exploration-satellite service (passive) in the frequency band 1 400-1 427 MHz and to systems operating in the mobile service in the frequency range 850-2 100 MHz;

*i)* that EMC publications from IEC/CISPR are stated to cover all types of products, systems and installations through basic, generic and product standards, and that work is done in collaboration with ITU under Resolution ITU-R 9-6,

decides that the following Questions, for the issues not covered by other Study Group 1 Questions, should be studied

1How the development and proliferation of electrical or electronic apparatus and their systems are affecting the man-made noise levels in the radio spectrum?

2 How will the development and proliferation of electrical or electronic apparatus and their systems affect the way in which their electromagnetic disturbances and the resulting interference are measured, taking into account the real operating environment with their typical proximity to radiocommunication equipment and systems?

3 What technical characteristics and limits should apply to electrical or electronic apparatus and their systems so as to avoid harmful interference to radiocommunication services and not increase the noise floor?

4 What regulatory provisions are needed to provide effective protection for radiocommunication services against harmful interference from such apparatus and their systems to keep the noise floor as low as possible?

5 What regulatory provisions are needed to provide effective protection for radiocommunication services against harmful interference caused by radiation arising from multiple items of electronic equipment connected together by cabling that conducts RF energy between equipment?

further decides

1 that the results of the above studies should be included in one or more Recommendation(s) and/or Report(s);

2 that the above studies should be completed by 2027;

3 that cooperation with the International Special Committee on Radio Interference (CISPR) and ITU-T should be sought.

Category: (S3)

1. 1 Radiation from a device that generates radio frequency energy during the course of its operation although the device is not intentionally designed to generate or emit radio frequency energy; or from a device that intentionally generates radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction. [↑](#footnote-ref-1)
2. \* RR No. **15.12** (Edition 2020): Administrations shall take all practicable and necessary steps to ensure that the operation of electrical apparatus or installations of any kind, including power and telecommunication distribution networks, but excluding equipment used for industrial, scientific and medical applications, does not cause harmful interference to a radiocommunication service and, in particular, to a radionavigation or any other safety service operating in accordance with the provisions of these Regulations. [↑](#footnote-ref-2)
3. \*\* RR No. **15.13** (Edition 2020): Administrations shall take all practicable and necessary steps to ensure that radiation from equipment used for industrial, scientific and medical applications is minimal and that, outside the bands designated for use by this equipment, radiation from such equipment is at a level that does not cause harmful interference to a radiocommunication service and, in particular, to a radionavigation or any other safety service operating in accordance with the provisions of these Regulations. [↑](#footnote-ref-3)