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| APTlogogreen3 | ASIA-PACIFIC TELECOMMUNITY |  |
| **The 23rd Meeting of the APT Wireless Group (AWG-23)**  |  |
| 9 – 13 April 2018, Da Nang City, Socialist Republic of Viet Nam | 12 April 2018 |

Source: AWG-23-/OUT-09

Working Group on Technology Aspects

**Recirculation of**

**questionnaire on Non-beam Wireless power transmission in**

**Non-ISM BAnd**

The attached Questionnaire was originally prepared by AWG-22. It was circulated by the APT Secretariat and AWG-23, with thanks, received replies from 13 APT Members.

In the discussion in AWG-23, it was found that one word, ‘unify’, in the following item 11 of the questionnaire might have been misunderstood and have caused confusion:

11 Do you think it is necessary to unify the Non- ISM frequency band for Non-beam WPT for mobile device among countries?

The meeting confirmed that the intention of the word was ‘harmonize’ rather than ‘unify.’

In addition, more replies from APT Members were sought so as not to cause interference from WPT to radiocommunication services in APT Member countries.

Therefore, the AWG-23 decided to recirculate the attached Questionnaire with a new deadline for responses to be AWG-24.

Furthermore it is highly recommended for APT Members to provide AWG with the technical parameters and protection criteria of a specific radio communication system, if it requires more stringent protection limit than the limits given in the CISPR 11 and CISPR 32.

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| APTlogogreen3Attachment | ASIA-PACIFIC TELECOMMUNITY |
| **The 22nd Meeting of the APT Wireless Group (AWG-22)**  |  |
| 25 – 29 September 2017, Busan, Republic of Korea | 29 September 2017 |

Source Document: AWG-22/OUT-12

**questionnaire on Non-beam Wireless power transmission in**

**Non-ISM BAnd**

**Section 1: Elementary Part**

1. **Introduction:**

Wireless Power Transmission, also called WPT in an abbreviation form, is a technology making it possible electrical energy from a power source to an electrical load is transmitted without an interconnection. Wireless transmission is useful especially where connecting devices with wires are inconvenient or dangerous.

Non-beam WPT is near field or non-radiative techniques, in which power is transferred by magnetic fields using inductive coupling between coils of wire, or by electric fields using capacitive coupling between metal electrodes. Several techniques are used for non-beam WPT, such as Inductive coupling, Resonant inductive coupling, Capacitive coupling, Resonant capacitive coupling, Magnetodynamic coupling. Non-beam WPT’s applications include charging handheld devices like phones and [electric toothbrushes](https://en.wikipedia.org/wiki/Electric_toothbrush), [RFID](https://en.wikipedia.org/wiki/RFID) tags etc…

APT is now drafting a Recommendation on frequency ranges for Non-Beam WPT technologies for mobile device. Currently ISM band 6765kHz – 6795kHz (see RR No. 5138) is listed in the draft recommendation table. However, APT is still investigating Non-ISM frequency ranges as there’s demanding, for example, 100 – 300kHz from the industries.

Market situation

The number of devices enabled with wireless charging will exceed 300 million units a year for the first time in 2017, according to the latest IHS Market forecast. Driven by shipments in mobile phones, laptops and wearables, this represents a 75 percent increase over 2016 levels as more consumers experience wireless charging for the first time and new applications adopt the technology. Meanwhile, consumer survey results show that consumer demand for wireless charging is growing each year, as the volume of enabled devices continues to rise.

Portable and mobile devices

Portable and mobile devices form by far the largest volume of WPT devices currently being used. An IHS consumer survey indicates that 35% of consumers in the USA use wireless power charging for their mobile devices (primarily smartphones). The Wireless Power Consortium website indicates that about 150 million WPT transmitters for smartphone charging are in use as of mid-2017.

This information is excerpted from ITU report ITU-R SM.2303-1 from working party 1A.

Your response will be reviewed to incorporate into TG-WPT deliverables such as APT Survey Report to share among the APT countries.

1. **Objective of the Questionnaire:**

This survey is to collect information of regulation for the bands 100 – 300kHz in Asia Pacific region and the incumbent system to be protected from Non-Beam WPT Mobile devices. Based on the results of the survey, an APT report on regulation status of the bands in Asia Pacific region will be developed for APT Members’ information in Task Group on WPT. This Questionnaire is designed for administration to provide the information concerning Non-Beam WPT for mobile devices.

1. **Responsible Group:**

Task Group on Wireless Power Transmission (TG WPT)

1. **Rapporteur of the Questionnaire:**

Mr. Chan-Hyung Chung, backbum@rapa.or.kr (Chairman of TG WPT)

1. **Meeting at which the Questionnaire was approved:**

AWG-22 Document: AWG-22/OUT-12

1. **Target Responder:**

APT Members

1. **Deadline for Responses:**

AWG-23 AWG-24

**Section 2: Questionnaire Part**

**Questions:**

1. What are the existing regulations in your country for frequency band 100 - 300kHz and the applications?

100 – 148.5kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

148.5 – 205kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

205 – 300kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Is there any WPT mobile device operating in 100 - 300kHz deployed in your country?

100 – 148.5kHz, [ ] Yes [ ] No

148.5 – 205kHz, [ ] Yes [ ] No

205 – 300kHz, [ ] Yes [ ] No

1. Does your country regulate Non-Beam WPT mobile device operating in 100 - 300kHz now?

100 – 148.5kHz, [ ] Yes [ ] No

148.5 – 205kHz, [ ] Yes [ ] No

205 – 300kHz, [ ] Yes [ ] No

1. What is the regulation or standard for non-beam WPT in 100 - 300kHz for mobile devices in your country?

100 – 148.5kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

148.5 – 205kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

205 – 300kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Can your country allow mobile devices to use 100 - 300kHz for Non-Beam WPT when they comply with your existing regulation or standard?

100 – 148.5kHz, [ ] Yes [ ] No

148.5 – 205kHz, [ ] Yes [ ] No

205 – 300kHz, [ ] Yes [ ] No

1. Which frequency is not allowed for Non-Beam WPT in frequency range of 100 - 300kHz when it complies with existing regulations?

100 – 148.5kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

148.5 – 205kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

205 – 300kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Can Non-Beam WPT for mobile devices in 100 - 300kHz be approved by meeting the existing regulation?

100 – 148.5kHz, [ ] Yes [ ] No

148.5 – 205kHz, [ ] Yes [ ] No

205 – 300kHz, [ ] Yes [ ] No

1. What is the guideline (emission level and etc) for 100 - 300kHz to meet even there’s no regulation or standard to protect the incumbent system?

100 – 148.5kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

148.5 – 205kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

205 – 300kHz, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Are there any areas of investigation that you think are necessary to the allocation of Non-beam WPT for mobile device operating in 100 - 300kHzin your country?

100 – 148.5kHz

[ ]  Train Radio

[ ]  Amateur Radio

[ ]  Marine Radio

[ ]  Aviation Radio

[ ]  Broadcasting system

[ ]  Others, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

148.5 - 205kHz

[ ]  Train Radio

[ ]  Amateur Radio

[ ]  Marine Radio

[ ]  Aviation Radio

[ ]  Broadcasting system

[ ]  Others, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

205 - 300kHz

[ ]  Train Radio

[ ]  Amateur Radio

[ ]  Marine Radio

[ ]  Aviation Radio

[ ]  Broadcasting system

[ ]  Others, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Who is the contact person to discuss the standard and regulation for WPT frequency plan in your country?
2. Do you think it is necessary to unify the Non- ISM frequency band for Non-beam WPT for mobile device among countries?

[ ]  Strong agree,

[ ]  Agree,

[ ]  Neutral,

[ ]  Do not agree,

[ ]  Strong do not agree.

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