

WPTのビジネス等の現状と期待

篠原真毅

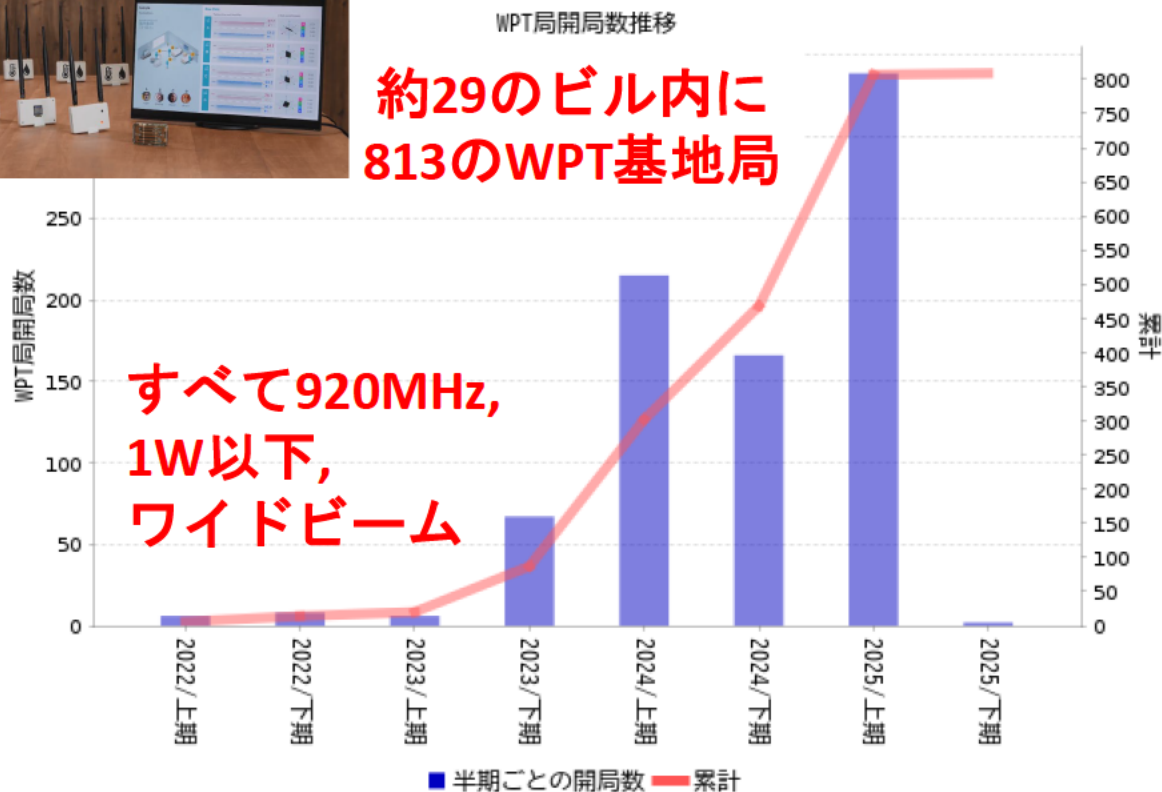
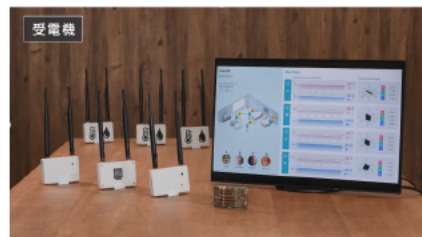
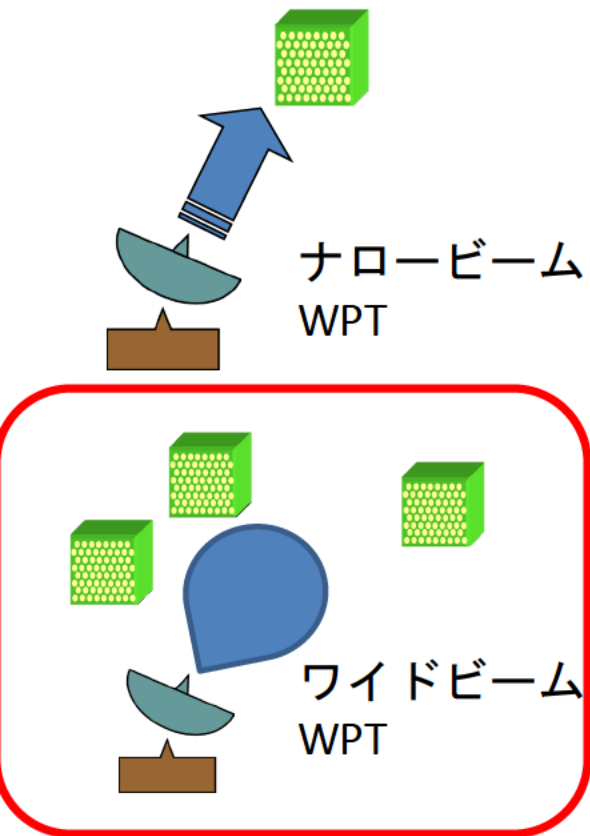
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2022年5月省令改正に基づいたWPT基地局数の推移(2026/4)



WPT局開局前一覧

案件番号	周波数帯	周波数チャネル (MHz)	運用場所	空中線電力 (W)	その他	掲載日	運用調整受付終了日 (10営業日後の17時)
3250001	5.7GHz帯	5752.0	栃木県鹿沼市さつき町	32	WPT管理環境	2025/10/28	2025/11/12
1250006	920MHz帯	918.0, 919.2	愛知県愛知県名古屋市熱田区六野	1	WPT一般環境	2025/10/28	2025/11/12
1250005	920MHz帯	918.0	東京都千代田区丸の内	1	WPT一般環境	2025/05/02	2025/05/19
1250003	920MHz帯	918.0	東京都渋谷区渋谷	1	WPT一般環境	2025/04/04	2025/04/18
1240015	920MHz帯	918.0	東京都港区新橋	1	WPT一般環境	2024/12/27	2025/01/10

産業用WPTをさらに拡大するためには

- 代替技術の存在

- 電線、電池、太陽電池など

- メリットとデメリット:

無意識的な電力供給 vs. 低電力・低効率

- 低電力・低効率

- 実用的な電力・効率への要求

- 効果的な社会受容

- 既存通信機への干渉の抑制

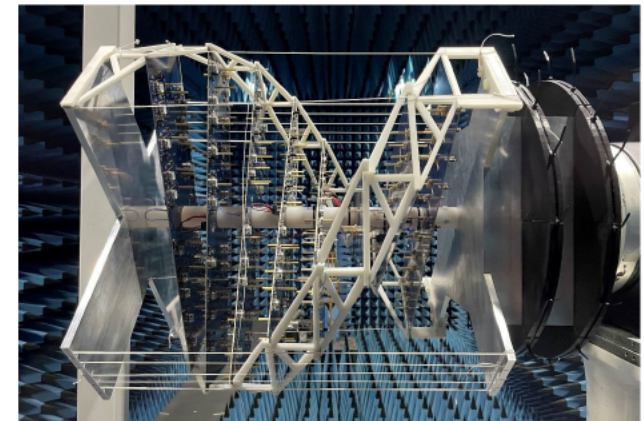
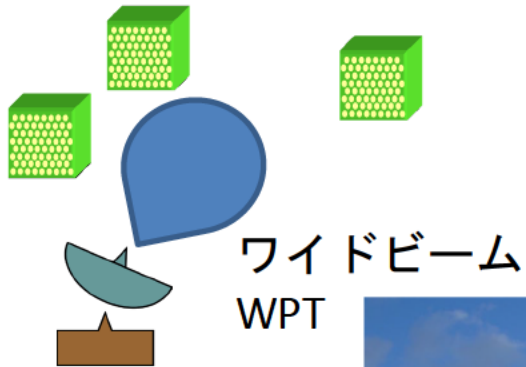
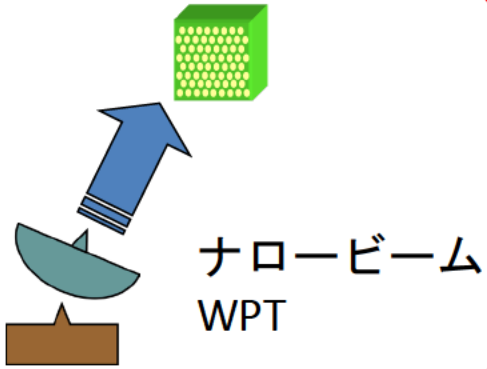
- 人体の安全性の問題



解法:

- 1) 低いビーム効率のまま、高い電波-電気変換効率(ワイドビームWPT)
- 2) 高い周波数での高いビーム効率(ナロービームWPT) → まずは5.7GHz帯

ビジネスとしてのナロービームWPT (海外)



Chair : **Naoki Shinohara** (Kyoto Univ.,Japan), Vice Chair : Sanjay Gupta (AirFuel, US)
Secretary/Treasurer : Yuji Tanaka (Panasonic Holdings Corporation, Japan)



Unassigned

Type of Project: New IEEE Standard
Project Request Type: Initiation / New
PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft

1.1 Project Number: Unassigned
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Project Title: Standard for Radiative Wireless Power Transfer

3.1 Working Group: (Requested) Standard for Radiative Wireless Power Transfer(MTT/SC/RWPTWG)

3.1.1 Contact Information for Working Group Chair:

None

3.1.2 Contact Information for Working Group Vice Chair:

None

3.2 Society and Committee: IEEE Microwave Theory and Techniques Society/Standards Committee(MTT/SC)

3.2.1 Contact Information for Standards Committee Chair:

Name: Naoki Shinohara

Email Address: shinohara@ieee.org

3.2.2 Contact Information for Standards Committee Vice Chair:

Name: Andrej Rumiantsev

Email Address: andrej@rumiantsev.de

3.2.3 Contact Information for Standards Representative:

None

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot: Sep 2028

4.3 Projected Completion Date for Submittal to RevCom: Sep 2029

5.1 Approximate number of people expected to be actively involved in the development of this project: 20

5.2 Scope of proposed standard: The scope of this standard is to provide a technical standard for radiative wireless power transfer between a transmitter and a receiver.

5.3 Is the completion of this standard contingent upon the completion of another standard? No

5.4 Purpose: This document will not include a purpose clause.

5.5 Need for the Project: Since around 2010, research and development (R&D) in the field of Wireless Power Transfer (WPT), particularly radiative wireless power transfer via radio waves, has seen significant growth. The International Telecommunication Union (ITU-R) published a report and recommendation document on radiative WPT in 2016 and again in 2022. However, radio regulations vary by country, leading to a diverse range of commercial radiative WPT systems worldwide.

To enhance the development and business of WPT, it would be beneficial to organize efforts into a standardized format. To fully expand WPT technology, we need a unified and standardized WPT system, as well as an alignment of current terminology in the field.

5.6 Stakeholders for the Standard: Industry, Consumer companies, Enterprise, Sensor Manufacturers, RFID Manufacturers, Power Companies, and Academia

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?

No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project?

No

7.1 Are there other standards or projects with a similar scope? Yes

Members

Aeterlink, AeroCharge, ATR, Beijing Xiaomi Technology, PetroChina Shenzhen New Energy Research Institute, Broadband Wireless Forum (BWF), EMROD, GuRu Wireless, Korea Radio Promotion Association, Murata Manufacturing, NXP Semiconductors, Reach Power, Space Solar, SoftBank, SUNI, True Wireless, WARP Solution, KinetixBeam LLC, Universitat Siegen, The University of Auckland, Advanced Science, Technology & Management Research Institute of KYOTO, Sichuan University, Xidian University, Universidade de Aveiro, Hong Kong University of Science and Technology (20 companies and 8 academia as voting member + 18 observers)