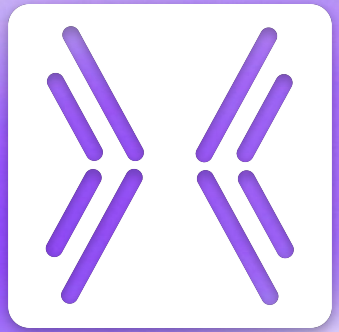
AWL-Electricity

All WireLess Electricity



Last Updated 2026-02-01

ABOUT US

Deeptech To Product

AWL-E demonstrated its capacity to provide solutions from conception to certification & cost-reduction.

The Agile Station: first wireless motorized chair charger, supported by Toyota Mobility, featured at Paris Olympics

PROBLEM

Wires and Batteries

PHYSICAL AI SHOULD NOT BE LIMITED BY BATTERIES

The Infrastructure Layer of The Future

Consumer

- **AR Glasses** 2B units

-**Health Trackers**

Factory

- **Humanoids** 1B units

-**FA Sensors**

Mobility

- **Drones** 2B units

-**Self-driving Sensors**

THE PROBLEMS

The Wireless Solution Before AWL-E

Current Tech : Resonant Induction

- 🔥 Heat in metal
- 📏 Very short range
- 🎯 Needs perfect alignment

Results

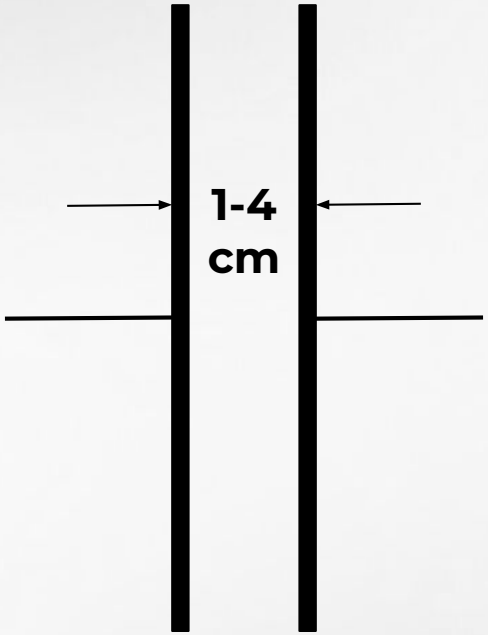
- 🚗 No car chargers
- 📱 0 cm phone range
- 🤖 Complex robot docks

19,2 kW

25 watt

PROBLEM

Current Tech: Resonant Induction



It is not enough

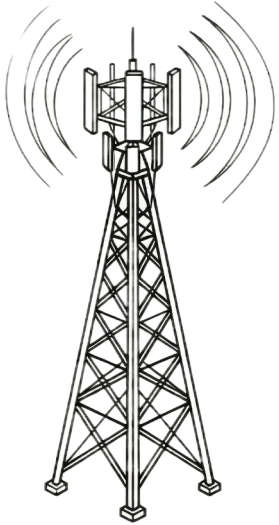
PROBLEM

Wireless Power Today

LONG RANGE / LOW POWER

RF

15m / 50mW

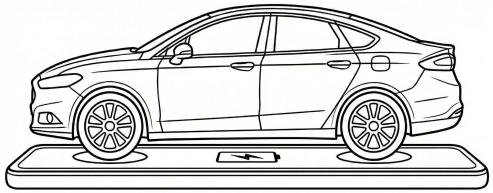


???

SHORT RANGE / HIGH POWER

Induction

4cm / 4.5kW



RANGE (Increasing)

POWER (Increasing)

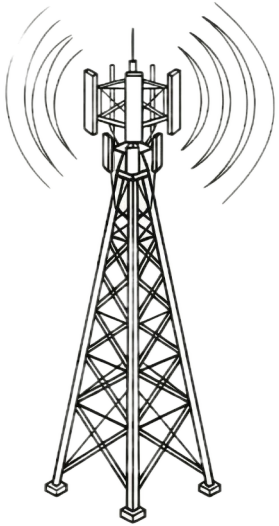
SOLUTION

The Power You Need. The Range That Matters.

LONG RANGE / LOW POWER

RF

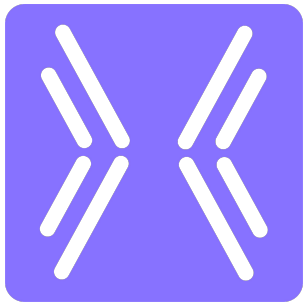
15m / 50mW



OPTIMAL RANGE / SCALABLE POWER

Resonant Capacitive Coupling

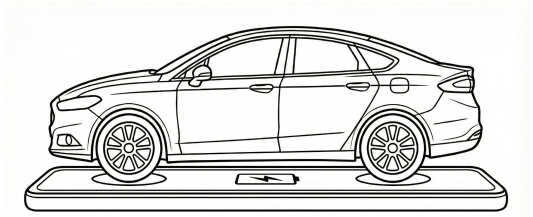
1m+ / 1W-1.2kW



SHORT RANGE / HIGH POWER

Induction

4cm / 4.5kW



RANGE (Increasing)

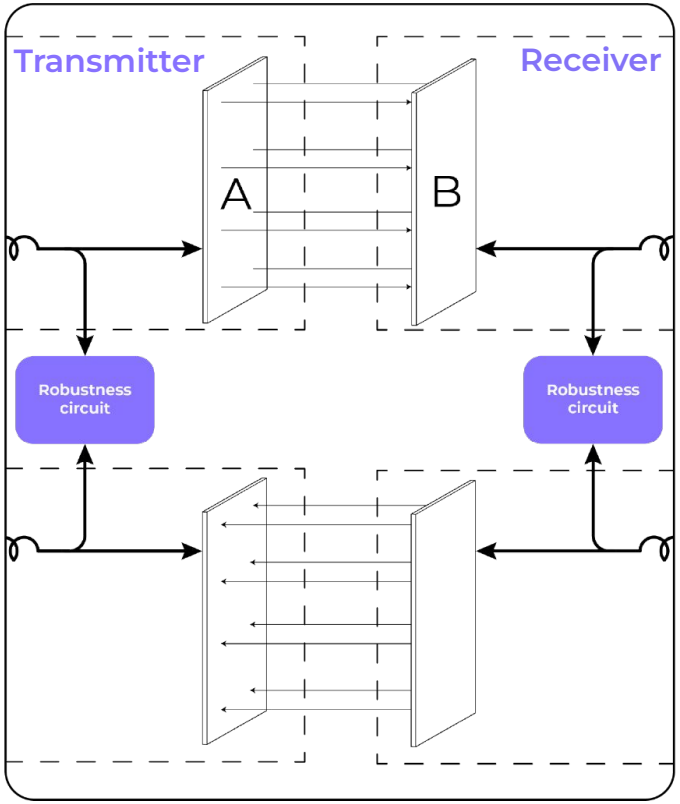
POWER (Increasing)

THE SOLUTION

AWL-E's Resonant Capacitive Coupling

SAFETY

- Safe for humans
- Safe for equipment
- No interference
- Globally certifiable



TECH BENEFITS

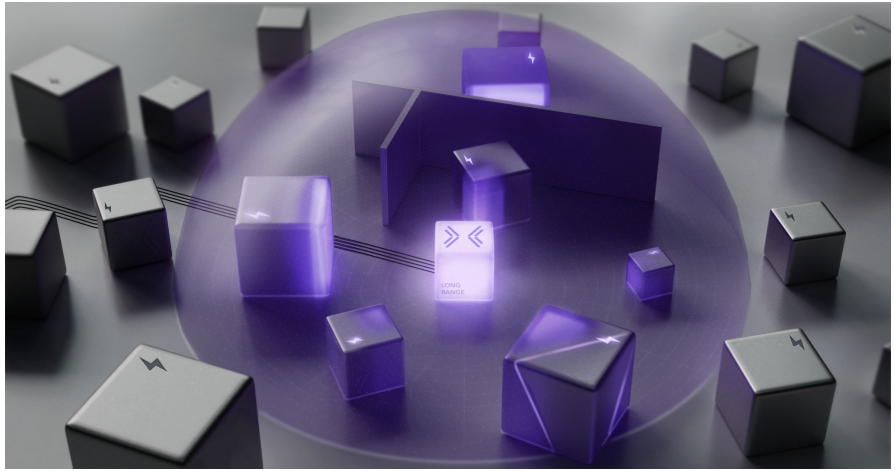
- 1 : N devices
- Longer range
- No heat
- No alignment

ONE TECHNOLOGY, TWO SYSTEMS

Accessible Wireless Power, Quick to Integrate

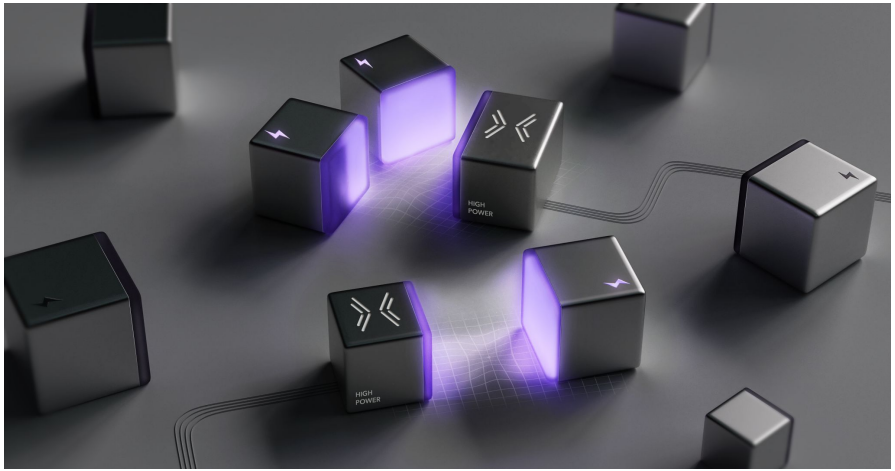
Long Range

- 1 : N configuration
- Alignment independent (range : 0-1.5 m +)
- Transfer through material (power :0.1-75 w)



High Power

- 1 : 1 configuration
- Tolerance to misalignment (range :0-30 cm)
- Dynamic charging (power : 50 Watts to 1.2kw)

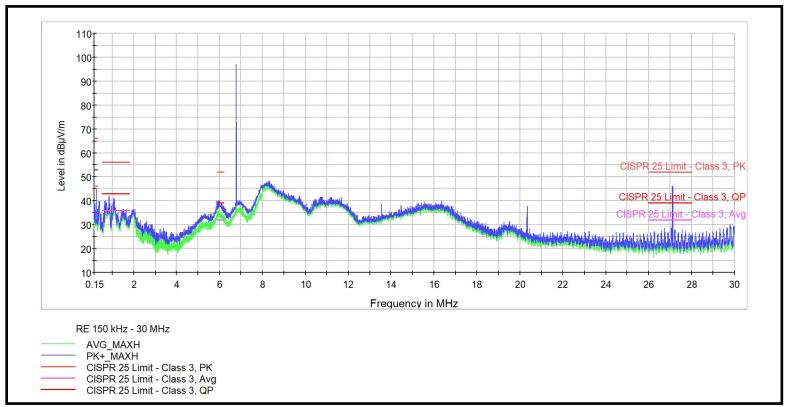


SAFETY ANALYSIS OF CAPACITIVE WPT

For Humans and Equipments

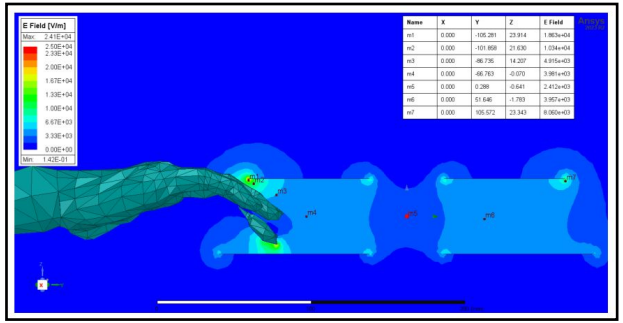
Electromagnetic Compliance:

- Consumer Electronics
  - FCC part 18 Certified
- Industrial
  - CISPR 11 ready to certify
- Automotive
  - CISPR 25 near certifiable



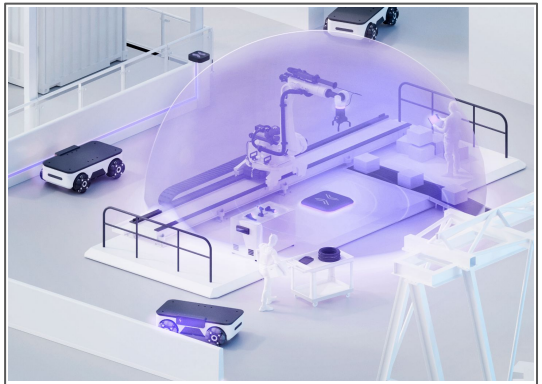
Safety Compliance:

- E-Field limits (Nerve Stimulation)
  - 83 v/m at 6.78MHz
  - N/A at 13.56 MHz
- Specific Absorption Rate (Body Temp)
  - 0.4 mm spacer at 100W
- Absorbed Power Density (Skin Temp)
  - N/A at 6.78MHz and 13.56MHz



HIGH-IMPACT INDUSTRIES

Power where cables can’t reach, and batteries can’t last.



Industrial Automation

- **Robotic Arms**
- **AMRs**
- **Industrial Sensors & Equipment**

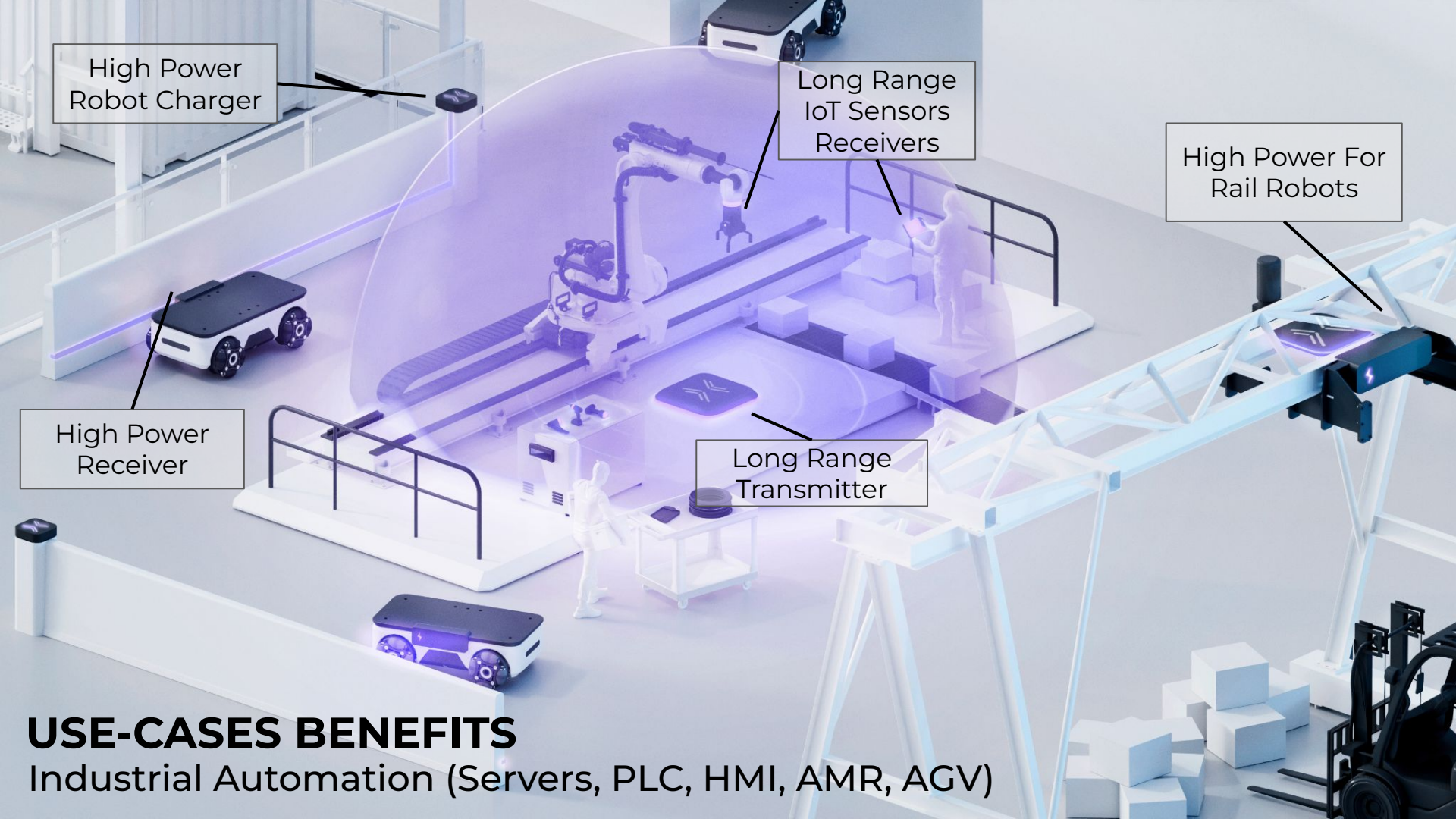
Consumer Electronics

- **Peripherals**
- **Laptops**
- **Entertainment**

Automotive

- **Tire Sensors**
- **HMIs**

We’ve already launched projects with global leaders across key industries in Japan, Korea, and North America.



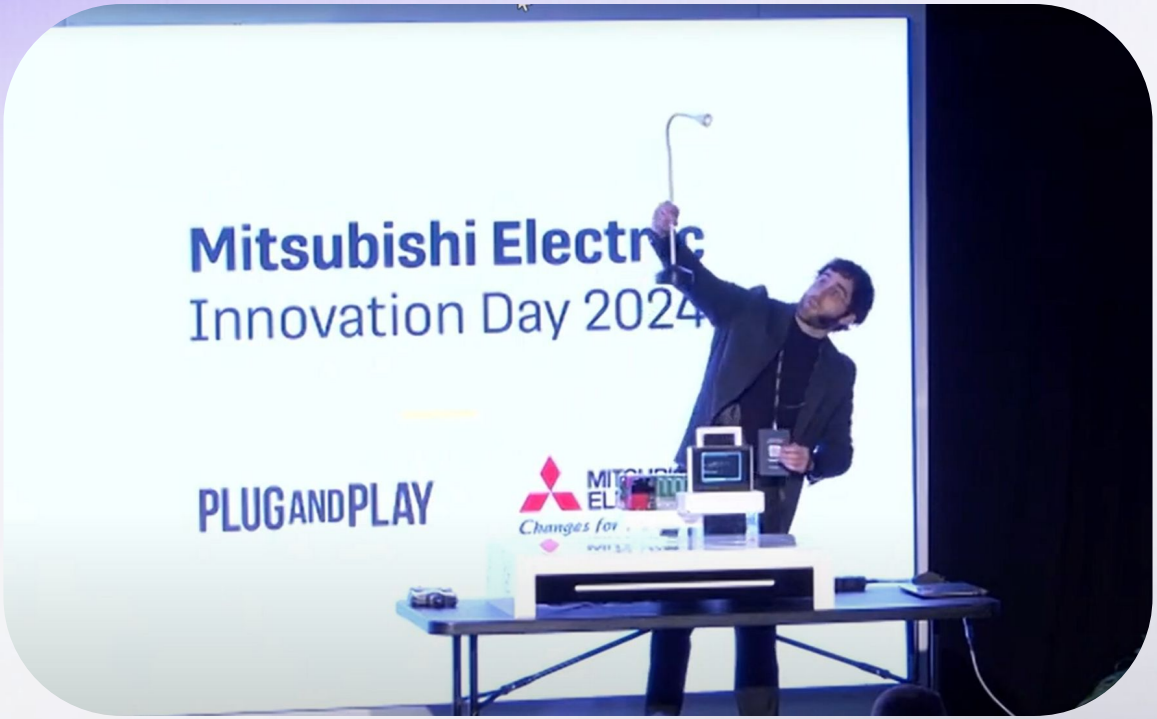
USE-CASES BENEFITS

Industrial Automation (Servers, PLC, HMI, AMR, AGV)

TRACTION

Validated by Industry Giants

MITSUBISHI ELECTRIC



VALIDATION

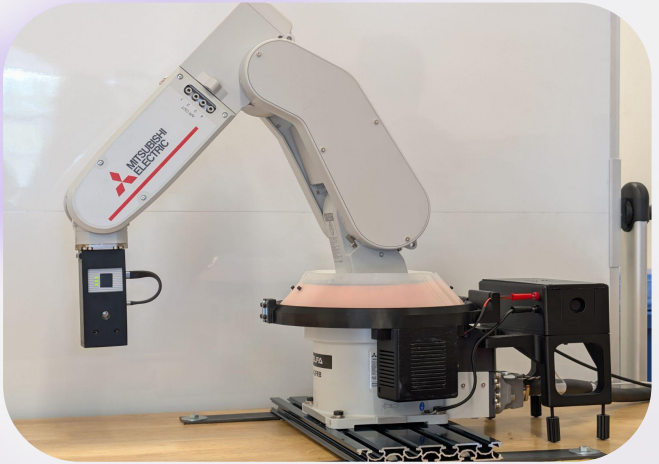
Systems Built For Mitsubishi Electric

PoC for Mitsubishi Automotive:

Dynamic Charging for Robots

PoC for Mitsubishi Automation:

Wireless Automation Equipment



USE CASES BENEFITS

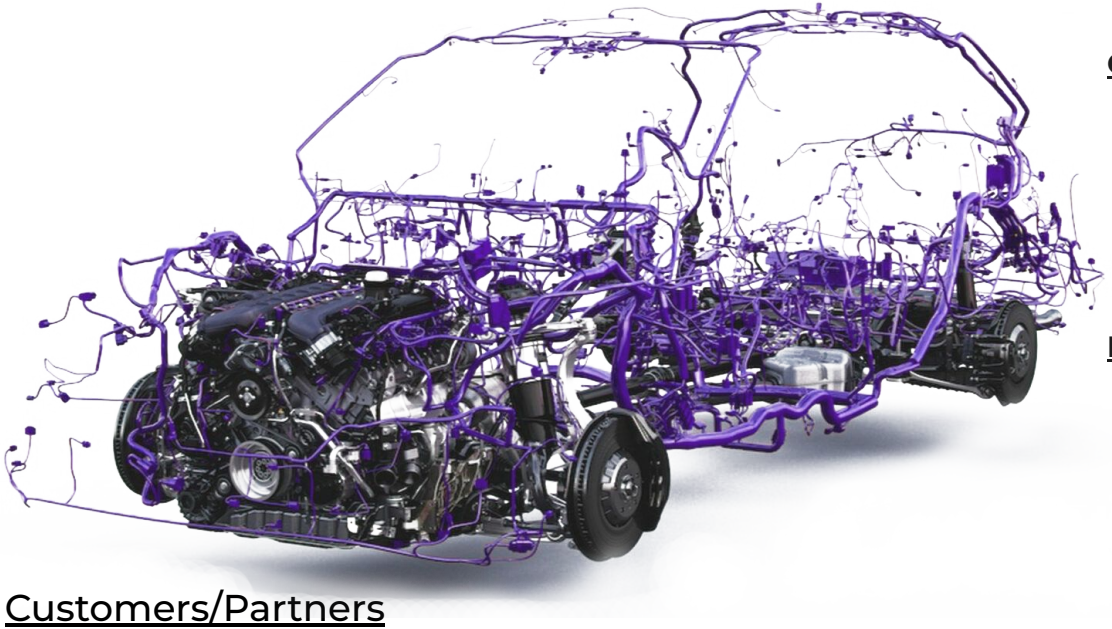
Consumer Electronics (Phone, laptop, Smartwatch, smartwatch)

Increase revenue

- Enables wireless ecosystems with hidden transmitter and 1:N charging
- Improved wearables UX by enabling charging during usage
- Eliminates the need for dedicated charging time
- Enables new designs

USE-CASES BENEFITS

Automotive (Cable Harness Reduction, Modular Parts, New Dynamics)



Cost/Time to market reduction

- Wireless sensors/cameras reduce maintenance and wiring complexity
- Easier maintenance of exterior parts with embedded electronics

Increase revenue

- Improve modularity designs of car interiors
- Enables new designs with innovative moving parts

Customers/Partners

Infineon

MITSUBISHI ELECTRIC

FORVIA faurecia

BUSINESS MODEL

From Dream to Reality

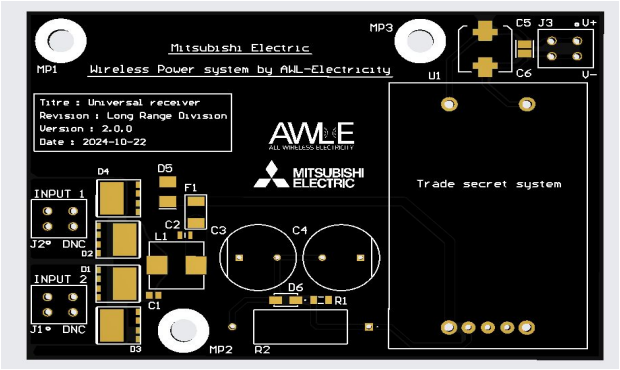
Custom Solution, Exclusive Advantage

A new power solution for a market leaders with vision

Exemple :

Wireless Power Receiver

For MELCO PLC & HMI



Exclusive - Your design stays yours

Strategic - Early users lead

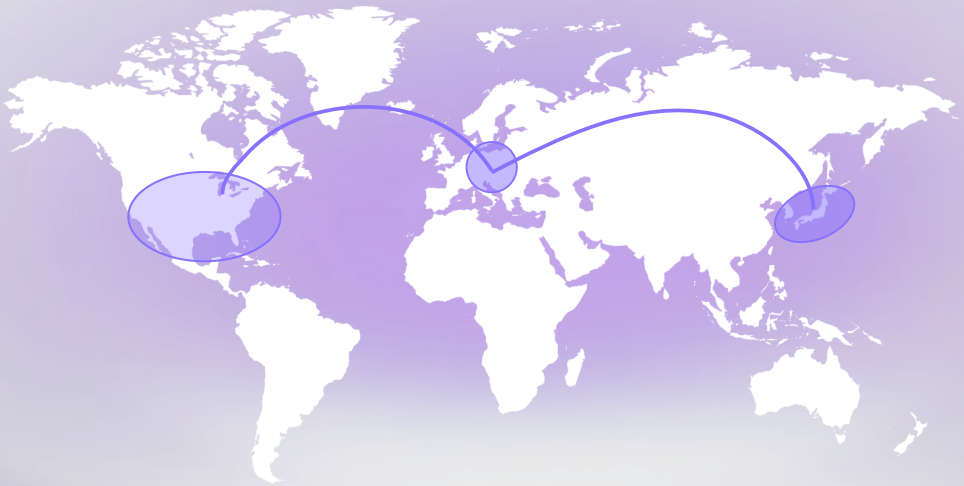
Confidential - IP fully protected

Collaborative - Built to your specs

Defining - You set the standard

AWL-E innovation meets Leader's precision.
One vision, two time zones, zero wires.

SUPPORTING LEADERS ON 3 CONTINENTS



- Automotive
- Factory Automation
- Consumer Electronics

THE TEAM

Finishing What Tesla Started.

Emmanuel Glen, CEO & CTO

The visionary

20 years obsession with Nikola Tesla

Infineon and AWL-Electricity partner to improve wireless power with gallium nitride (GaN) power semiconductors

Market News • Oct 10, 2024

Munich, Germany – 10 October 2024 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY), a world semiconductor leader in power systems and IoT, today announced a partnership with Canada-based AWL-Electricity Inc., a pioneer in MHz resonant capacitive coupling power transfer technology. Infineon

THANK YOU

Contact us For a Technological Demonstration

- **1 Transmitter for multiple devices**
- **1 Meter range**
- **High global efficiency (85%+)**
- **40 watts of powering / battery charging**
- **Works through objects, walls & metals**
- **360° misalignment tolerance**

Cédric Hamel-Bruneau
Co-Founder & Head of Partnerships

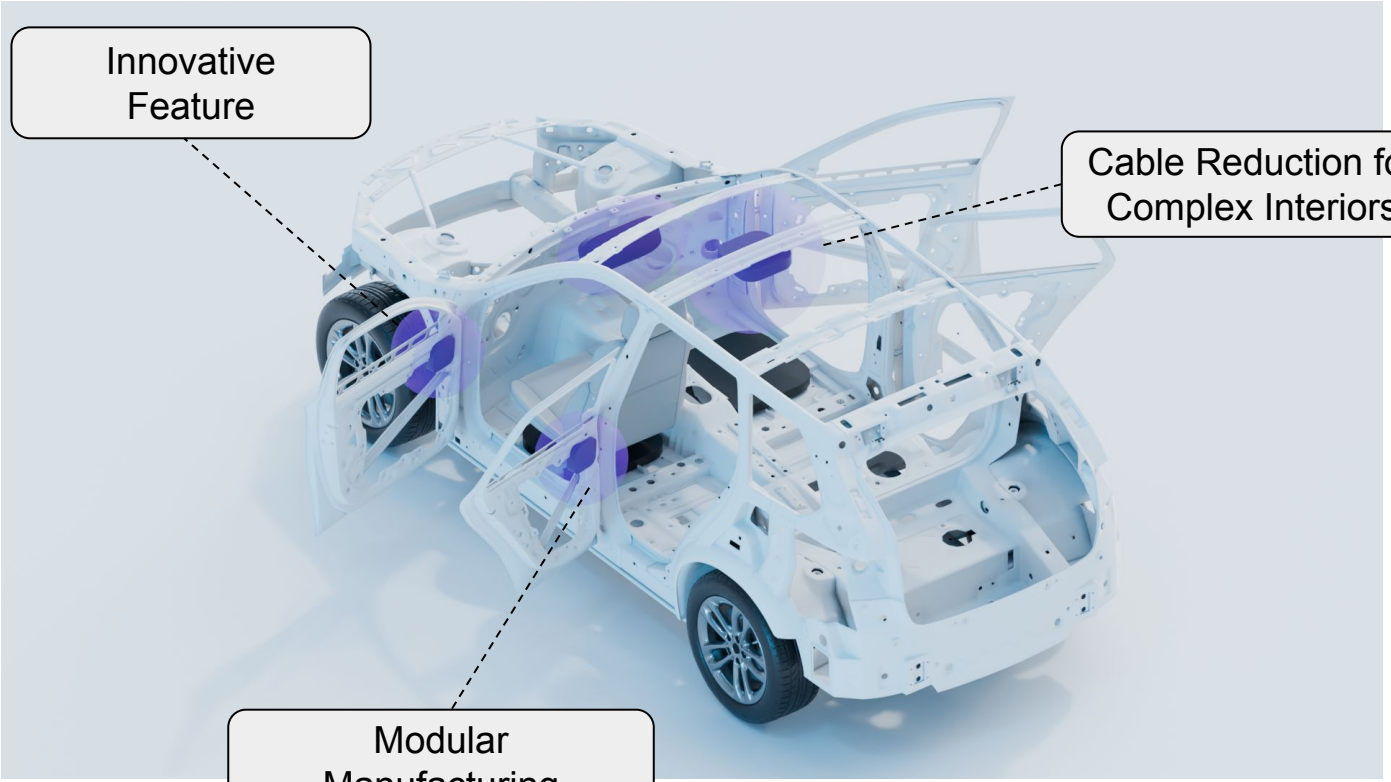
AWL-Electricity

A Wireless Electricity Technology

THANK YOU

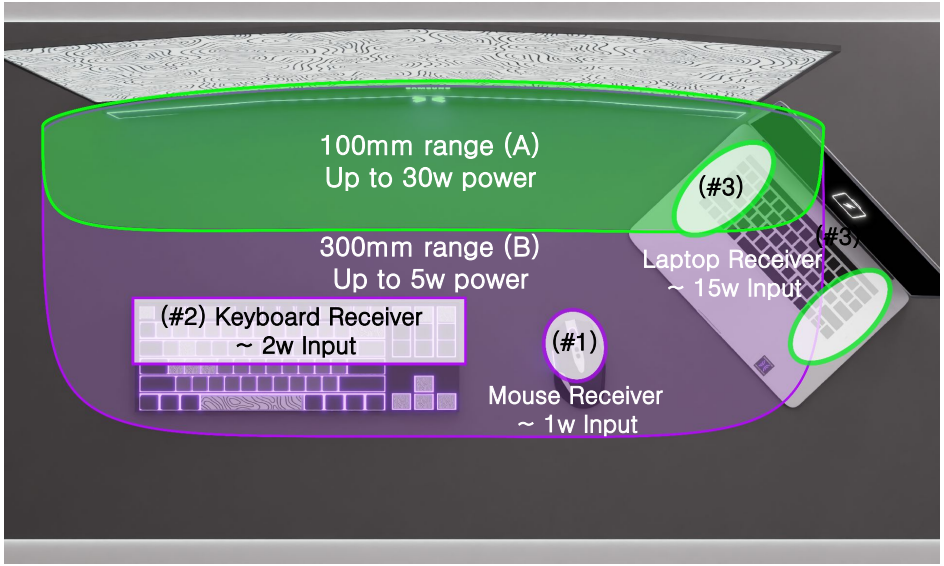
ANNEXE

USE-CASES BENEFITS



CONCEPT WIREFREE PC ECOSYSTEM

Fully Wireless Personal Devices Use Case



INFINEON'S DEMO LINK

- **TX Integrated in the Monitor with 300 mm charging area**
- **RX Integrated in Personal computer and with small add-on on phone**

BENEFITS OF AWL-E'S CAPACITIVE COUPLING
For Wireless Power Transfer

Capacitive WPT Benefits :

- Long Range (up to 7M at 6.78 Mhz)
- No Line of Sight and Safe for humans
- Transfer Through Materials
- Low-Cost Antenna

Efficiency Analysis (IPT vs CPT)

- 0cm : (98**/75) vs 94%
- 5cm : 90% vs 90%
- 9cm : 77% vs 85%
- 50cm : 10-30% vs up to 82% (+2 devices)

*Compared at perfect alignment

Samsung Source (S2MIW06) : link
Market Source : link
Cutting Edge Resonnant Induc Harvard: link

Radio-frequency power transfer:
Line of Sight required and is limited to 1 watt of power transfer by FDA.

Inductive power transfer:
Cannot go through metals, generate heat and has limited range due to the shape of magnetic fields.

Capacitive Coupling:
Above 4KW, capacitive coupling will require more TX in parallel than inductive charging..

VIDEO LINKS

Full Presentation of AWL-Electricity and the technology for industrial automation at the Mitsubishi Electric Innovation Day:
https://youtu.be/JZTn5LRE6yQ

Infineon website AWL-E Long Range Consumer Electronic Demo:
https://assets.infineon.com/is/content/infineon/2024-09-pam-partner-testimonials-awl-1920x1080-v03-1

Mitsubishi AMR Charging Station:
https://youtu.be/8cwlKdADHLo

Infineon Technologies Press Release of Partnership with AWL-electricity:
https://www.infineon.com/cms/en/about-infineon/press/market-news/2024/INFPSS202410-005.html

Agile Station, AWL-Electricity Product, is at the France Olympic:
https://thiis.co.uk/awl-e-powers-up-for-the-paris-games-to-promote-wireless-charging-solutions-for-mobility-aids/
https://attoday.co.uk/paralympic-games-to-benefit-from-wireless-charging-stations-for-powered-mobility-aids/

WIRELESS POWER

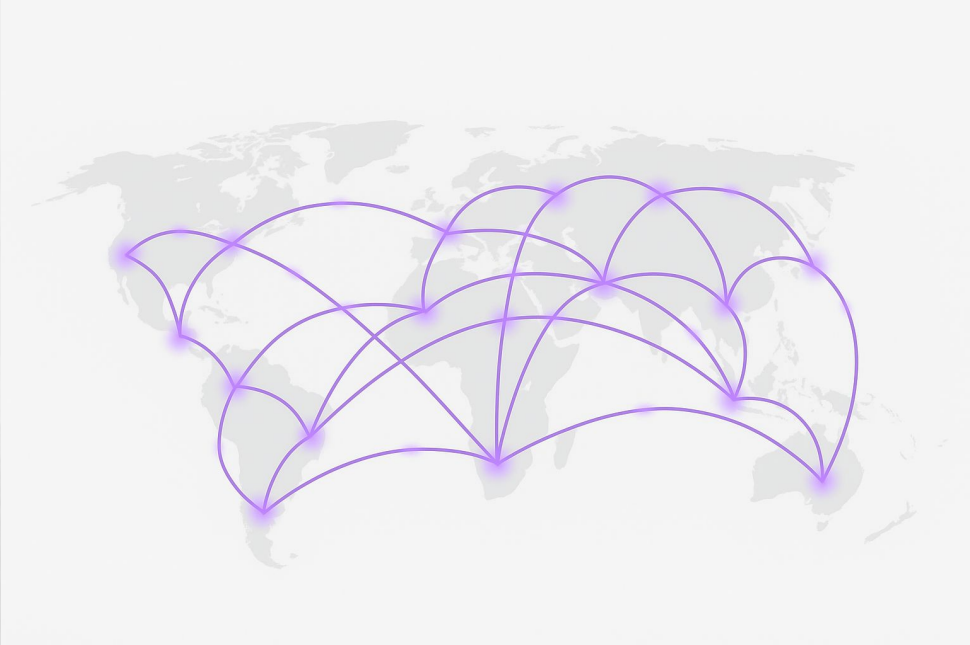
Infrastructure Layer of Electrification

Current Trillion $ industries:

- Energy, Real Estate, HealthCare, Retails
- Telecom $1.7–2T
- Automotive $4.5T
- Consumer Electronics $1.2–1.5T
- Factory Automation $16T

And soon...

- Wireless Power (currently $14B) Sources
- Current Leader : Witricity



USE-CASES BENEFITS

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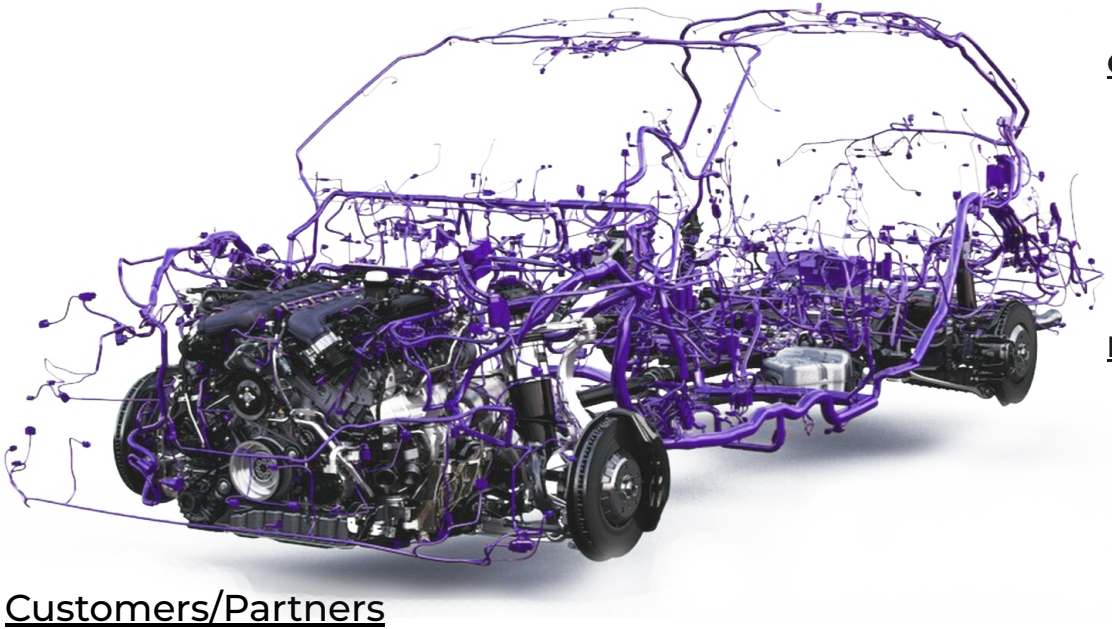

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Customers/Partners

FORVIA faurecia

Infineon

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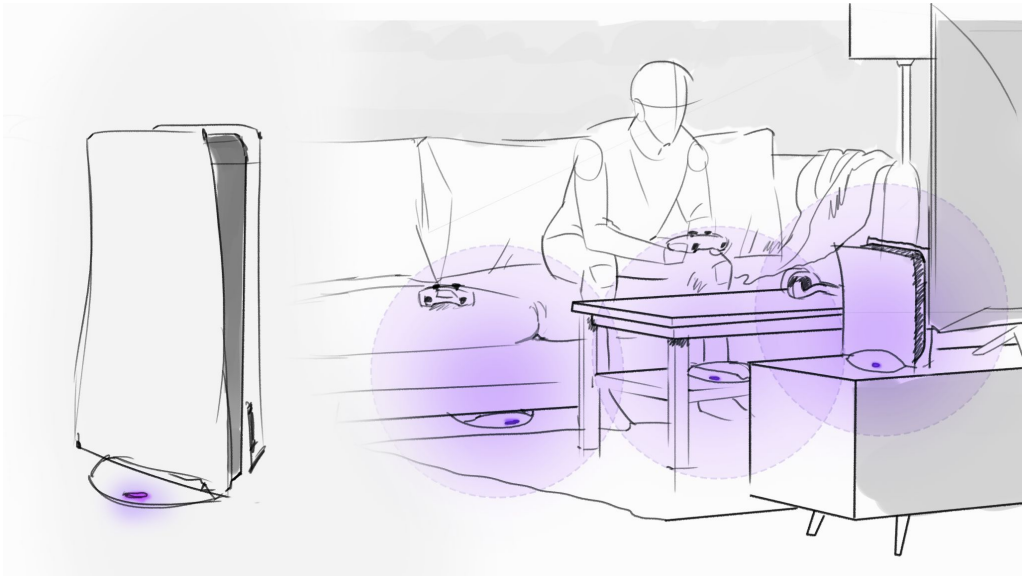


DEVELOPING A CONCRETE SOLUTION TAILORED TO THE CONSUMER ELECTRONICS INDUSTRY

COMPANY CORE TECHNOLOGY

Competitive Capacitive Coupling Companies

CaPow
PERPETUAL POWER

https://capow.energy/about/

- Capacitive coupling resonating at 3MHz
- Single product focus: Mobile robot charger
- Range ~ 10cm \ Power ~ 500w
- 3MHz cannot be certified for consumer electronics. Industrial use cases only.

Solace

https://www.solace.ca/

- Capacitive coupling: Short range, uncommercialised, stopped development 2 years ago
- Active focus: Inductive wireless power and Li-fi data transfer

EGGTRONIC

https://www.eggtronic.com/

- Capacitive coupling: few prototypes, uncommercialised. No recent developments
- Main business: Power inverters
- Commercialized wireless power solution: mainly Qi chargers

Cornell University

https://afridi.ece.cornell.edu/

- Capacitive coupling resonating at 6.78MHz & 13.56MHz
- Single use case focus: EV charging
- Range ~ 20cm \ Power ~ 8Kw \ Efficiency ~ 90%
- Academic research, no commercial activities

COMPANY CORE TECHNOLOGY

Competitive Technologies

	RADIO FREQUENCY	RESONANT INDUCTION	LF RESONANT CAPACITIVE COUPLING	HF RESONANT CAPACITIVE COUPLING
RANGE	✓	Range limited by the coil's diameter	Limited by the size of the emitter	✓
POWER	Limited for health concerns	✓	Limited by frequency and the size of the emitter	✓
ROBUSTNESS	✓	✓	✓	✓
EFFICIENCY	✓	✓	✓	✓
SAFETY	Burn organic matter even at low power	Damaging heat generation	✓	✓
EXAMPLES	energous	WiTricity	Solace	AWL Électricité

For the past 15 years, companies have been investing heavily in developing new iterations of the same two technologies, attempting to overcome their intrinsic flaws:

Induction:

- Generates heat and can damage batteries
- Short transfer range
- Sensitive to misalignment
- Can't transfer through devices & metals

Radio Frequency:

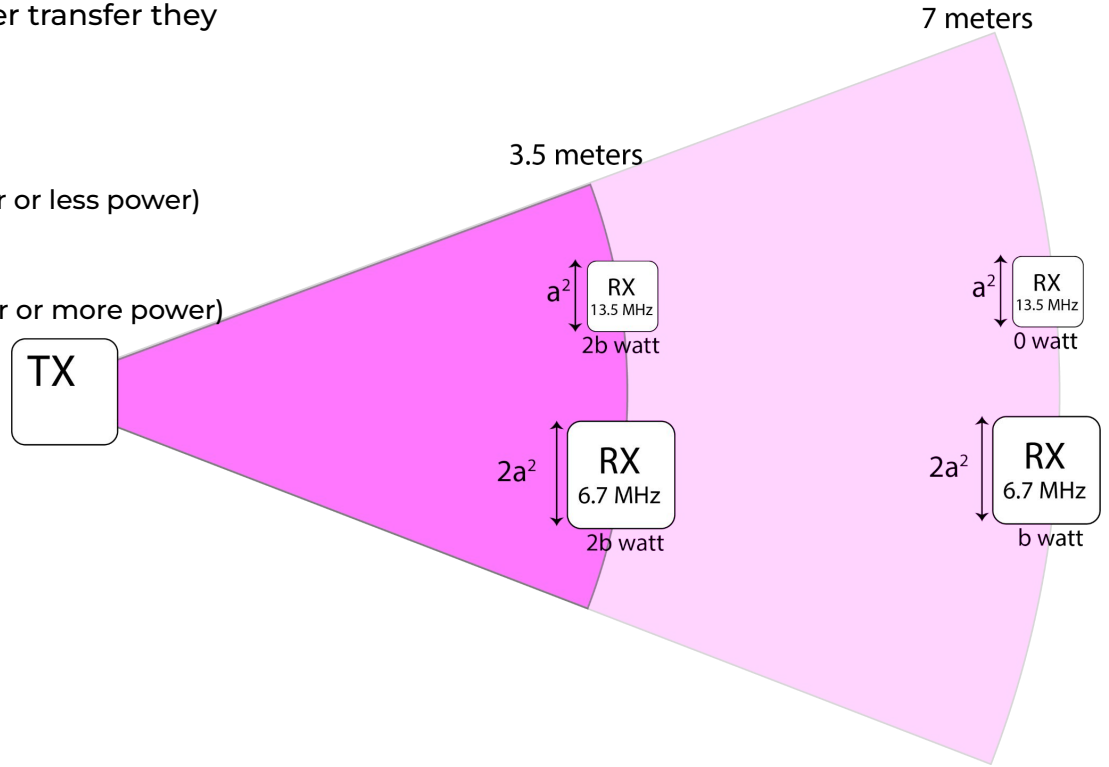
- Burn organic matter during power transfer
- Require line of sight
- Low power transfer to stay safe

EFFECT OF CHOSEN FREQUENCY

What Frequency Should be Used For Specific Use cases?

AWL-E made extensive research with advanced simulations on optimal transfer ranges according to frequency. While both frequency are ISM band and certifiable for power transfer they offer different benefits :

- At 6.78MHz
  - 7 meters max range
  - Limited power density (bigger receiver or less power)
- At 13.56MHz
  - 3.5 meters max range
  - Higher power density (Smaller receiver or more power)
  - Easier US & European certification




Customers/Partners
FORVIA faurecia
infineon
MITSUBISHI ELECTRIC
Cable Reduction for Complex Interiors
Innovative Feature
Modular Manufacturing