

Electric Field Type Energy Harvesting Module

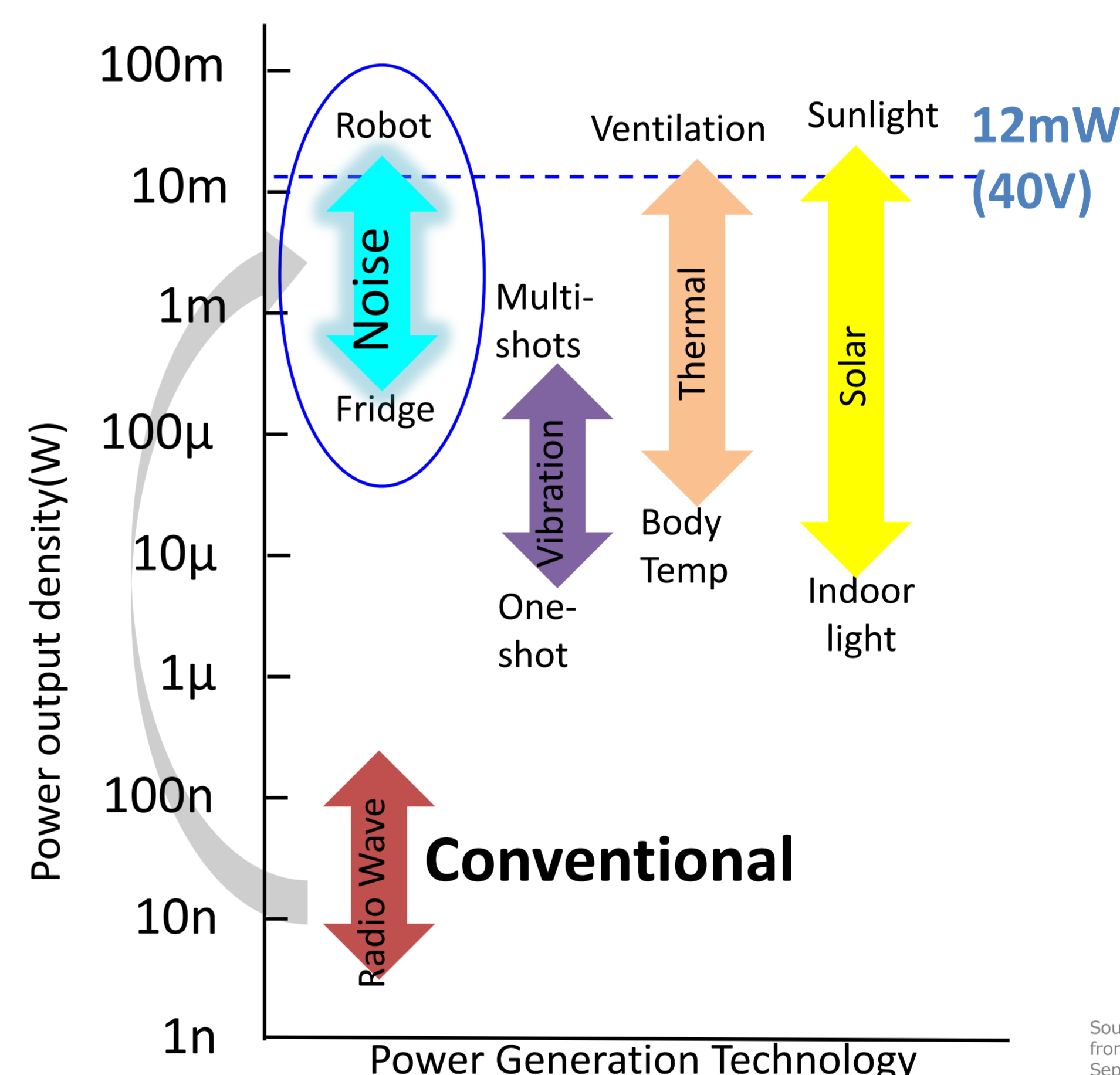
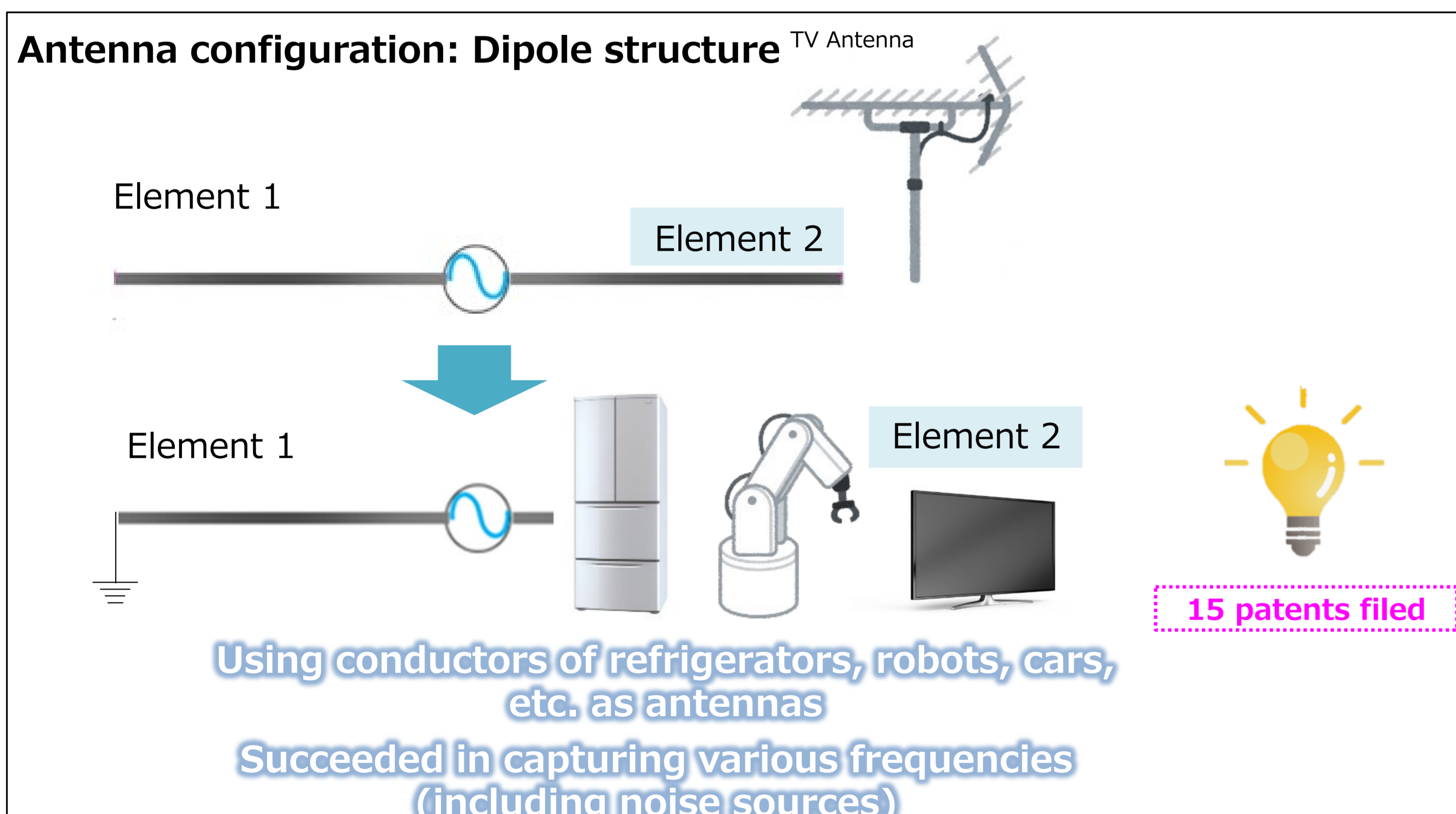


Energy harvesting module that efficiently generates electricity from electromagnetic noise energy
 - Contributing to solving power supply issues by popularizing and upgrading IoT devices -

Technical Background

Large conductor (Examples: refrigerators, robots, TVs, etc.) of dipole structure antenna
 Succeeded in constructing a huge antenna by making one element!

- ✓ Capable of consistently generating more power than conventional radio wave power generation
- ✓ No need for a dedicated antenna to match the frequency
- ✓ Simple configuration makes it compact and inexpensive



Features

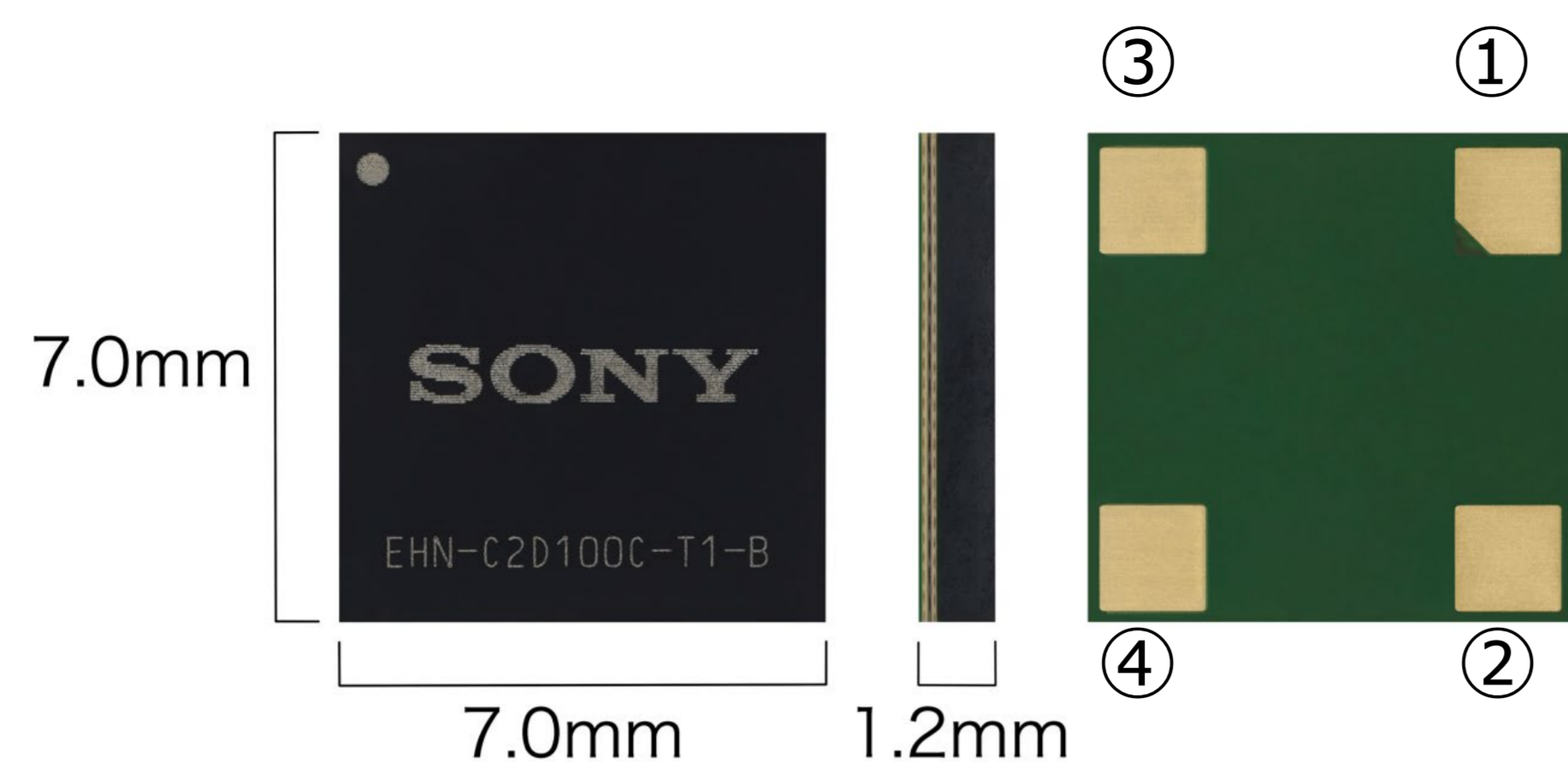
Development of a small energy-harvesting module that generates power from electromagnetic wave noise (first in the industry)

Main features are simple compact structure, large power generation, and easy installation

<p>Power generation by Noises</p>	<p>Small (7mm x 7mm)</p>	<p>Darkroom use possible Dust-resistant</p>	<p>Safety</p>	<p>Semi-permanent harvesting</p>	<p>Patent filed (15 applications completed) As of November 1st, 2024</p>
<p>High Power generation (tens of μW-mW)</p>	<p>Easy installation and built-in devices</p>	<p>Multiple Use Increase power</p>	<p>Inexpensive</p>	<p>Use as a sensor</p>	<p>Contribution to SDGs</p>

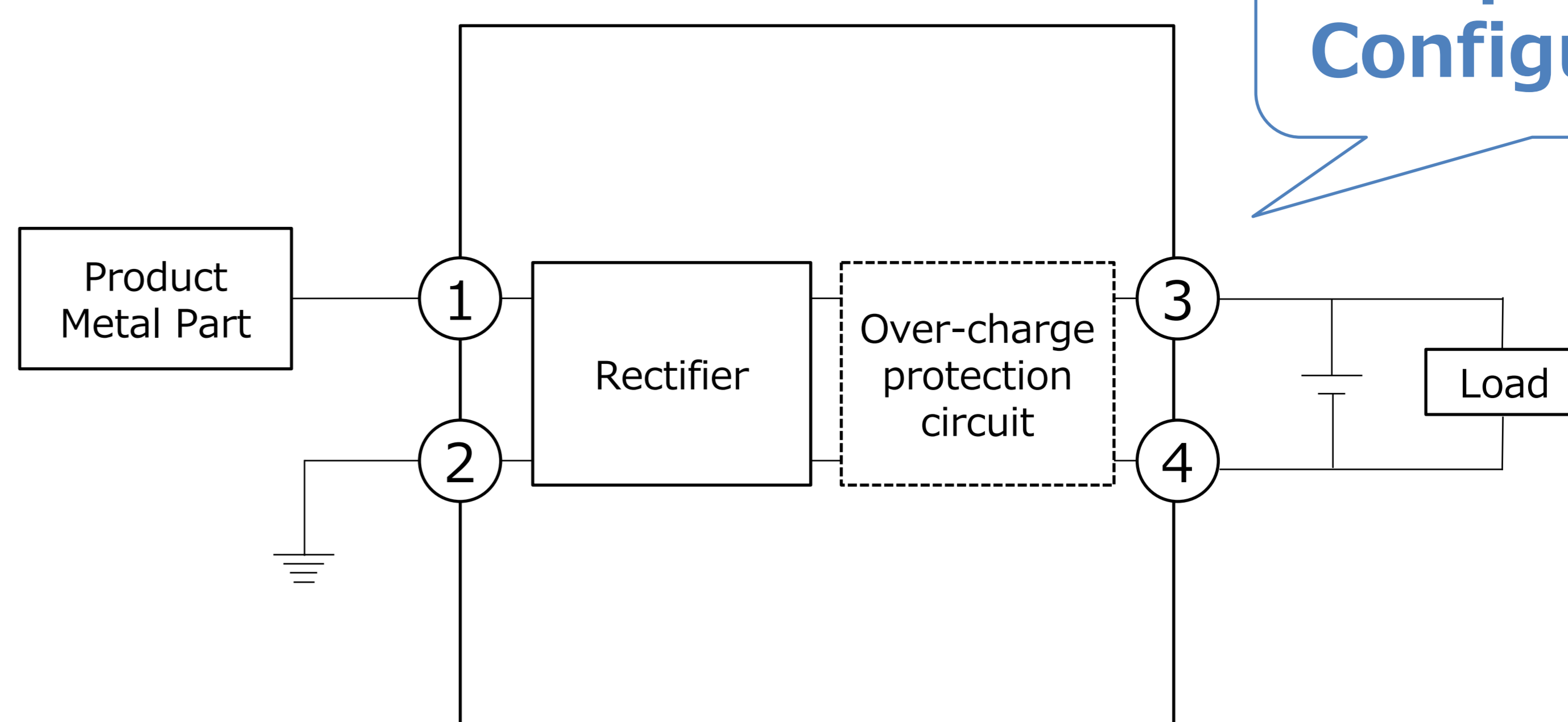
Specifications

Pin Description



Pin Number	Pin Name	Function
①	ANT1	Connect to metal
②	ANT2	Connect to Earth
③	Output +	Hot
④	Output -	Ground

Circuit Configuration



Simple Circuit Configuration!

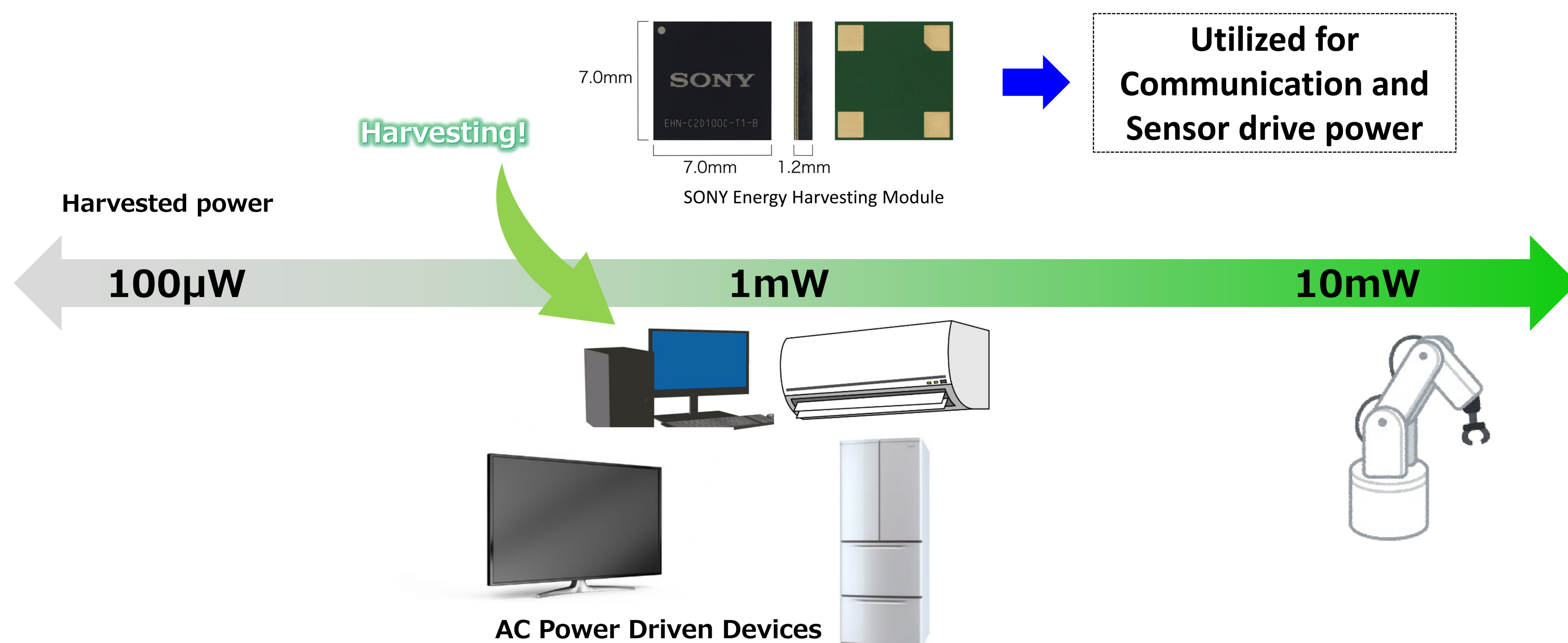
Rating

Parameter	Symbol	Rating	Remarks
Input Voltage	V _{in}	AC3V(MAX)	Voltage between (1)Device and (2)Earth(Module+10kΩ Connection)
Input Current	I _{in}	5mA(MAX)	Current between (1)Device and (2)Earth(Module+10kΩ Connection)
Output Voltage	V _{out}	2.7V(MAX)	③ -(4) load connected(Battery, Capacitor)
Output Current	I _{out}	5mA(MAX)	③ -(4) load connected(Battery, Capacitor)

Schedule

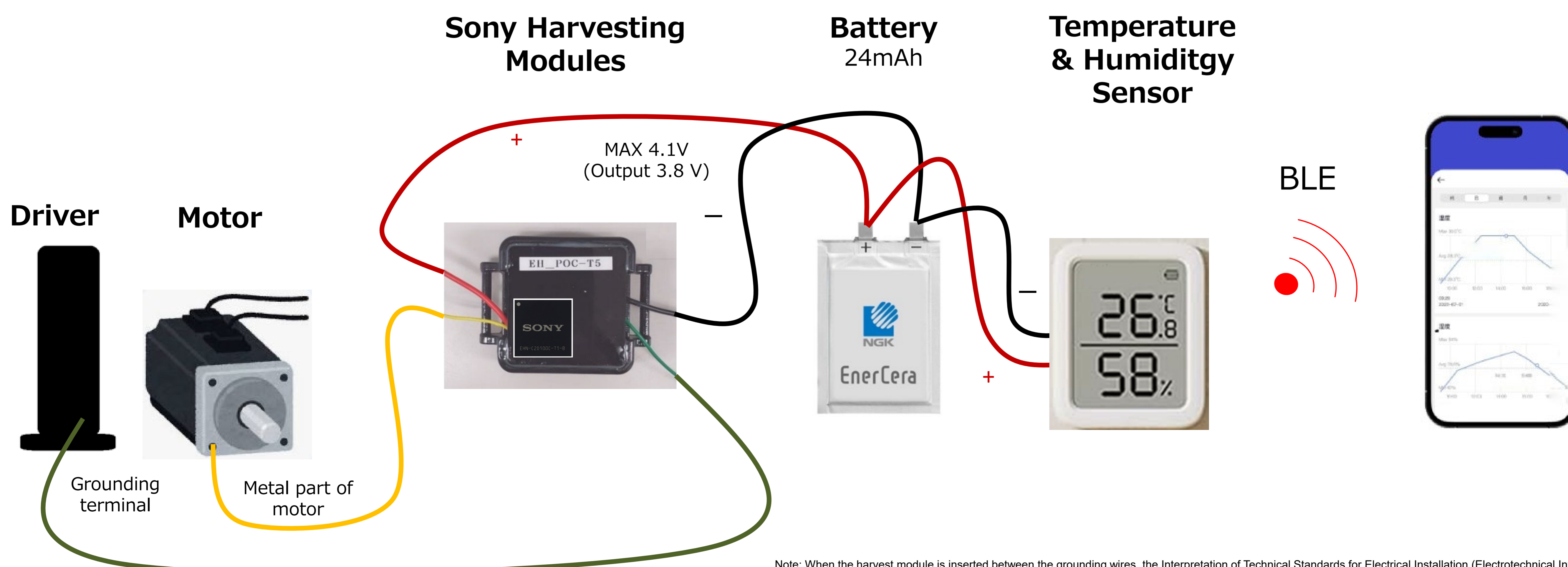
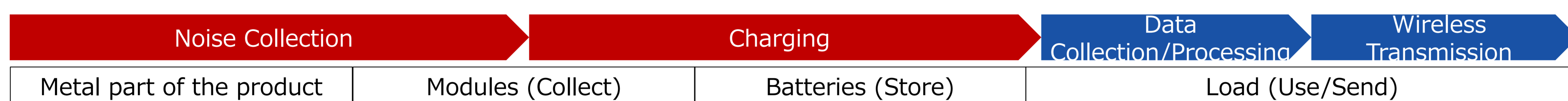
ES Sample Available

Harvesting Power



Metal Part	Voltage	Current	Power	Measuring Resistance	Charging Time
Refrigerator	15.2V	0.15mA	2.3mW	100kΩ	Approx. 4 hours
Air Conditioner	16.2V	0.16mA	2.6mW	100kΩ	Approx. 3.5 hours
Industrial Robot	19.0V	1.73mA	36.1mW	10kΩ	Approx. 15 minutes

Application Example



Note: When the harvest module is inserted between the grounding wires, the Interpretation of Technical Standards for Electrical Installation (Electrotechnical Interpretation) Section 17 of the "Interpretation of Technical Standards for Electrical Equipment" is provided. The amount of harvest depends on the harvesting environment, the mounting method, etc.

Contact Information

Sony Semiconductor Solutions Corporation
Device Sales & Marketing Division

It is available to rent an evaluation board or a sample of this technology. Please contact us at sss-alsi-tupd-harvest@sony.com.