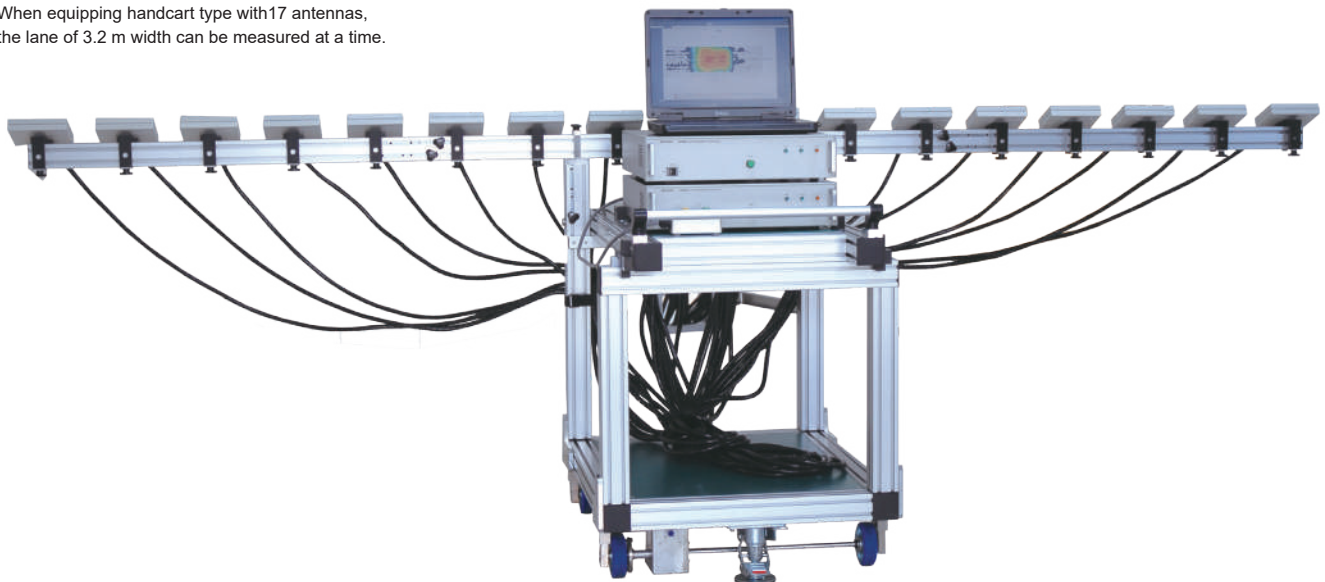


With this system, after measuring the electric field strength distribution of the ETC/ITS spot with operation wave or CW in a short time, the electric field strength graph and the map diagram are created.

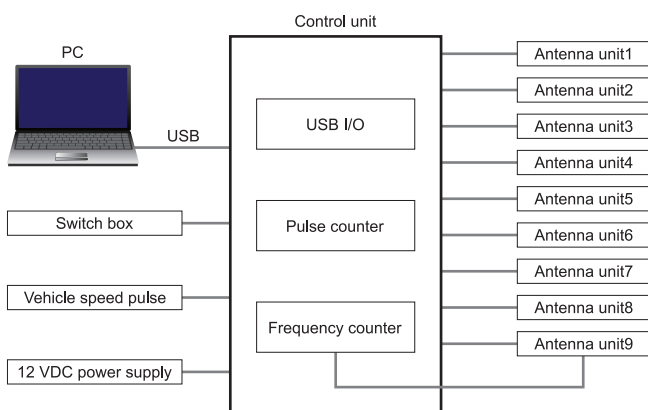
- It is possible to measure by handcart or by in-vehicle, and the price of ETC measurement system (9 antennas) is inexpensive.
- Optionally, the electric field strength measurement function of the ITS spot can be added.
- When measuring the plural roadside units on the main line, the measurement is automatically performed even while driving according to the positions of the measurement section and measurement conditions registered in advance if the automatic measurement mode is used.

### System overview

When equipping handcart type with 17 antennas, the lane of 3.2 m width can be measured at a time.



### System configuration



### Specification

#### [Antenna]

The standard type consists of 9 antennas and the lane of 3.2m width can be measured at two times. <Antenna interval 20cm> The number of antennas can be increased up to 17 units. In addition, using a single antenna, the transmission frequency and power of the roadside unit outputting CW can be measured. Outside dimensions: 138(W)×30(D)×101(H)mm (excluding projections) Frequency accuracy: ±20ppm

#### [Handcart]

Since the speed sensor is equipped, the measurement distance is automatically calculated. When 17 units of antennas are attached, the lane of 3.2 m width can be measured at one time. The ground height of antenna can be set to 1m or 2m. Outside dimensions: 700(W)×1000(D)×350(H)mm (when folding) Outside dimensions: 700(W)×1000(D)×900(H)mm (when assembled)

#### [Control unit]

The start switch and the switch to adjust position of roadside unit to zero point are equipped. When measuring by in-vehicle, the distance is calculated by taking in the vehicle speed pulse of the car. Power supply of 12 VDC is required. Outside dimensions: 430(W)×450(D)×101(H)mm (excluding projections)

#### [PC software]

It controls the control unit and immediately displays the measured electric field strength as a graph or map diagram. The automatic measurement mode can be used to measure the electric field strength of the plural roadside units on the main line. This means the labor saving because it's possible to measure without operating at each point while traveling by registering the spots "kilo-post" of multiple measurement sections and the measurement conditions beforehand.

## Electric field strength measurement method

### [Measurement by handcart]

Measure the electric field strength distribution of the roadside unit installed on the ETC gate of the highway accurately and in short time with the CW or the operation wave.



### [Measurement by in-vehicle]

The electric field strength distribution of the roadside unit installed on ETC gate, main line or ITS spot on the highway can be easily measured with the operation wave while traveling by normal speed (100 km / h or less).

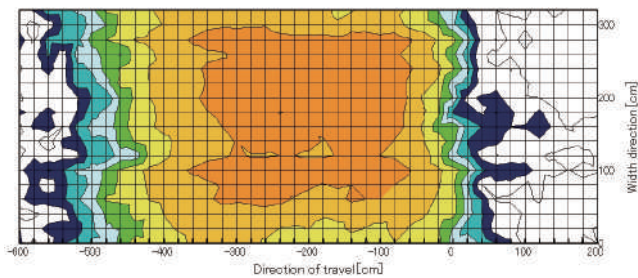
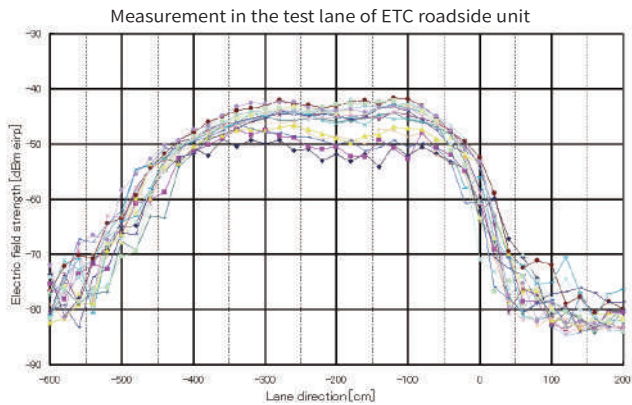


## Electric field strength measurement example

The software of ME 9200 operating on PC controls the control unit and performs the measurement, and further collects, analyzes and displays the data automatically.

### Example 1 [ Electric field strength measurement by handcart ]

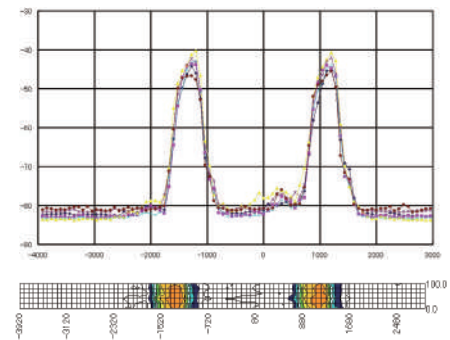
- The measurement can be performed in detail at ETC tollgate.



### Example 2 [ Electric field strength measurement by in-vehicle ]

- The measurement can be easily performed at ETC tollgate.
- The measurement can be performed while traveling by less than 100 km / h at ETC notice antenna or ETC free flow where it's difficult to stop.

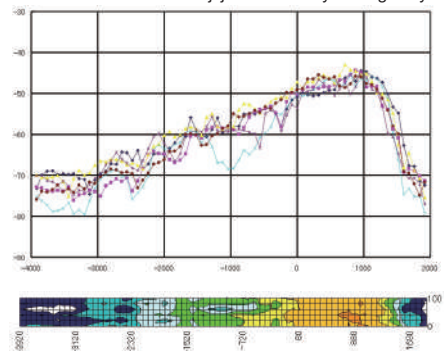
Measurement at the entrance of Otsuki tollgate on Cyuou highway



### Example 3 [ Electric field strength measurement at ITS spot by in-vehicle ]

- The measurement can be easily performed while traveling by normal speed on a highway.
- The measurement can be performed by slowing down or stopping at ITS spot in a highway service area.

Measurement at Hachioji junction on Cyuou highway



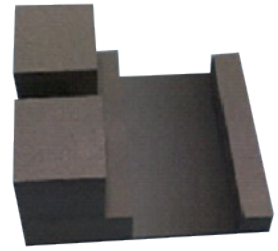
## Option



AC/DC converter



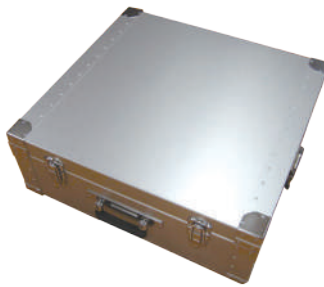
Waterproofing of antenna unit



Antenna stand



Trunk for antenna unit



Trunk for control unit



Antenna bar on car

## Description

Products	Description
AC/DC converter	This is used when operating on a 100 VAC power supply instead of a DC power supply.
Antenna stand (set of 9)	The stand for placing the antenna unit on the dashboard during in-vehicle measurement.
Trunk for antenna unit	The trunk holds nine antenna units and a switch box. It is convenient for storage and transportation.
Trunk for control unit	The trunk for storing the control unit and cables. It is convenient for storage and transportation.
Notebook PC for control	Included 15.6" LCD, Windows 10 Home, Excel 2019, software installation for ME 9200
Simultaneous 2-wave measurement function	This function measures two specified frequencies at the same time in a single run.
Improved measurement accuracy of transmit frequency	Increases the measurement accuracy of the transmit frequency from $\pm 20$ ppm to $\pm 0.5$ ppm.
Waterproofing of antenna unit	This is a waterproofing process for installing the antenna unit outside the car.
Trunk for antenna unit (waterproofed)	This trunk holds nine antenna units (waterproofed) and a switch box. It is convenient for storage and transportation.
Antenna bar on car	Special order is available.

※When the ME9200-S3 (17ch) option is selected, two sets each of AC/DC converter, trunk for antenna unit, and trunk for control unit are required.  
 ※CW : Continuous Wave