



**Yokogawa performed Field Wireless System site tests compliant with ISA 100.11a, a standard with superior capabilities**

### Key Features of the Field Wireless System

- Long Range Communication
- Stable in Pipe Jungle
- Robustness in Wi-Fi Co-existence

### Test Report

**Reliable Wireless Test Report No.0010**

**Country:** Japan    **Category of location :** Downstream (With obstacles)

**Purpose:**

Confirm the communication capability in the wide field area concerning communication range.

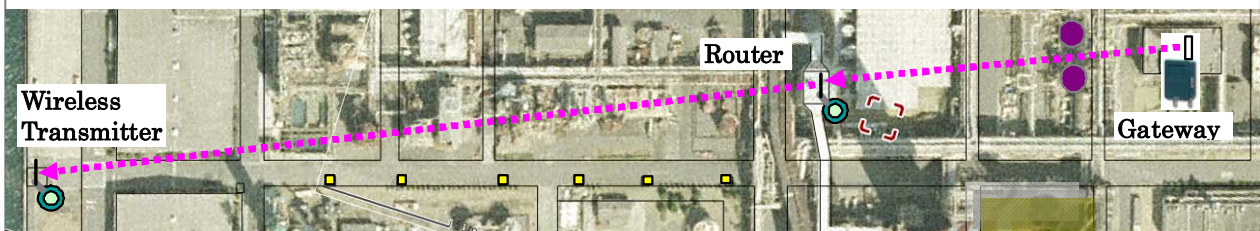
**Test Environment:**

- The measuring point was at the edge of the plant area beside the seashore. The distance between the wireless transmitter and the gateway was approximately 600m. The wireless transmitter and the gateway could not see each other.
- There were two tool towers, one was a heat exchanger, on the wireless route. Some obstacles existed between the router and the wireless transmitter.
- The customer's requirement of data update rate was 10 seconds or more.

**Results**

- In the case of **the ISA100.11a wireless system** the wireless devices could communicate with the gateway via only one router, because the communication range of the ISA100.11a wireless system is wide.
- **Our previous wireless system** needed routers (repeaters) at two places between the router and the wireless transmitter.

### Field image



### Reliable Wireless Test Report No.0011

Country: Japan Category of location : Downstream (Dense Obstacles)

#### Purpose:

Confirm the communication capability in harsh areas surrounded by metal objects.

#### Test Environment:

- The plant was indoor, the area of the floor of the building was 110x60m and the height was 25m.
- The building had five floors and the floors were covered by metal grating plates.
- All wireless equipments were installed in the dense obstacles area.
- Tests were executed in the following conditions:  
Wireless equipments were installed on the same floor, putting obstacles between equipments.  
Wireless equipments were installed on different floors, putting the floor covered by grating plates between them.

#### Results:

- **The ISA100.11a wireless system** could communicate successfully and almost all communication paths showed low PER (packet error rate) under 1%, because the receiver function is superior to realize almost 0% of PER.
- The stable communication path was established not only in the condition that both wireless equipments were installed on the same floor, but also in the condition that they were installed on different floors such as the fourth floor and the first floor.



### Reliable Wireless Test Report No.0012

Country: Japan Category of location : Downstream (Dense Obstacles)

#### Purpose:

Confirm the communication capability in harsh areas surrounded by metal objects.

#### Test Environment:

- The plant had ten tanks in 60x25m area. The heights of the tanks were 20m.
- Passageways (covered by the grating plate), piping racks, and cable racks were laid beside the tanks.
- Wireless transmitters were installed at three different heights on the tanks.
- All wireless equipments were installed in the dense obstacles area.

#### Results

- **The ISA100.11a wireless system** could communicate successfully and almost all communication paths showed low PER (packet error rate) under 1% via the router, because the receiver function is superior to realize almost 0% of PER.
- The wireless transmitters which were installed in the middle and highest portion also could communicate directly with the gateway with low PER, even though many obstacles such as passageways, piping and cable racks existed.
- The wireless transmitters which were installed in the lowest portion (60cm from the ground) could communicate with the gateway with low PER via the router.

