



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.0004

Country: Japan Category of location : Upstream (Open Air)

Purpose:

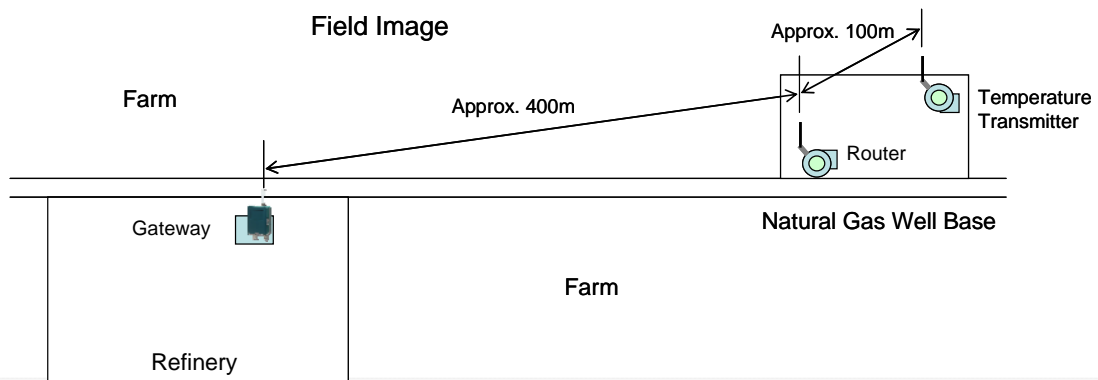
Confirm the communication capability in the wide field area.

Test Environment:

- The distance between natural gas well base and refinery was approx. 400m.
- The well heads were surrounded by grating plates and plaster boards and roofs were covered by steel plates.
- The wireless transmitter was installed in the opposite side of the well head against the repeater. Therefore, the well head might interfere to the communication between the wireless transmitter and the repeater.
- The antennas of the gateway and the router could see each other. However, the antennas of the router and the temperature transmitter couldn't see each other.

Results

- **The ISA100.11a wireless system** could communicate successfully putting only one router between them, because the communication range of the ISA100.11a wireless system is wider than our previous wireless system.
- The PER's (packet error rate) of all communication paths of the ISA100.11a wireless system were very low (Nearly equal 0%).
- **Our previous wireless system** was estimated to need to deploy three routers (repeaters) between the gateway and the wireless transmitter located at the both ends of the area.



Reliable Wireless Test Report No.0005

Country: Japan Category of location : Upstream (With Obstacles)

Purpose:

Confirm the communication capability in an area of dense metal objects.

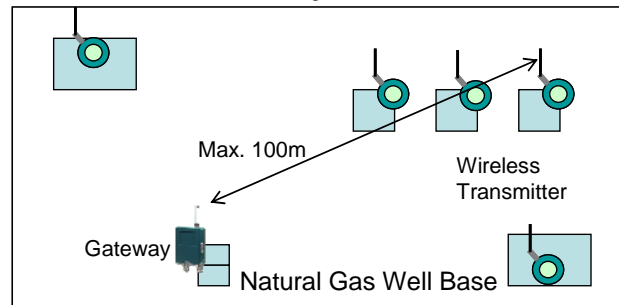
Test Environment:

- The maximum distance between gateway and wireless transmitters were 100m.
- The well head was surrounded by grating plates and plaster boards and the roof was covered by steel plate.
- The wireless transmitter was installed in the opposite side of the well head against the repeater. Therefore, the well head might interfere to the communication between the wireless transmitter and the repeater.
- The antennas of router and temperature transmitters couldn't see each other.
- The well heads (three points) and heating facilities (two points) were the area of dense metal objects.

Results

- **The ISA100.11a wireless system** could communicate successfully with the gateway directly, because the communication range of the ISA100.11a wireless system is wider than our previous wireless system.
- The PER's (packet error rate) of all communication paths of the ISA100.11a wireless system were very low (Nearly equal 0%).
- The process data publication at every second was performed stably.

Field Image



Reliable Wireless Test Report No.0006

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

Purpose:

Confirm the communication capability in harsh environments for wireless.

Test Environment:

- The distance between the wireless transmitter and the gateway was approx. 80m.
- The wireless equipments were installed in the trench with cross section of 2.5mx2.5m.
- Many high tension power cables were lying on both side of wall supported by metal brackets. Actual width where the line of sight was secured was approx. 1.5m.
- The customer's requirement of data update interval was 60 seconds.

Results

- **The ISA100.11a wireless system** could communicate successfully using one router between them, although the multi-pass phasing which was caused by strong reflection from wall and metal objects existed.
- The PER's (packet error rate) of all communication paths of the ISA100.11a wireless system were low (Nearly equal 0%).

Field Image

