Test Report

Vol.2

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

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The clear path to operational excellence

SEE CLEARLY | KNOW IN ADVANCE | ACT WITH AGILITY

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.0001
Country: Japan   Category of location : Downstream   (Open Air)
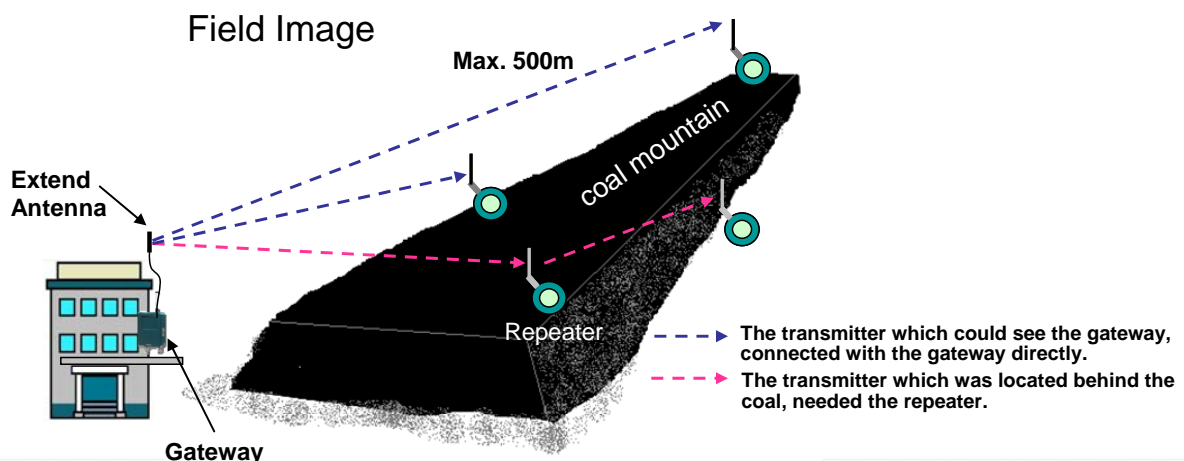**Purpose:**
   Confirm the communication capability in the wide field area.
Test Environment:
- The area was 600x400m storage yard of coal.
- The coal piled up mountain-high was an obstacle of wireless and was not fixed for a long time.
- The loader/un-loader (big mechanical machine) was operating among mountains of coal.
- The customer's requirement of data update interval was 10 seconds or more.
Results
- **Our previous wireless system** needed to deploy three routers (repeaters) between the gateway and the wireless transmitter, which were located at both ends of the area.
- **The ISA100.11a wireless system** could communicate successfully using only one router between them, because the communication range of the ISA100.11a wireless system is wider than our former system.
- The PER's (packet error rate) of all communication paths of the ISA100.11a wireless system were very low (Nearly equal 0%).

Field Image

Max. 500m

Extend Antenna

coal mountain

Repeater

Gateway

- - - ▶ The transmitter which could see the gateway, connected with the gateway directly.

- - - ▶ The transmitter which was located behind the coal, needed the repeater.

Reliable Wireless Test Report No.0002
Country: Japan   Category of location : Downstream (Dense Obstacles)
Purpose:
   Confirm the communication capability in the harsh area surrounded by metal objects.
Test Environment:
- 50m square piping jungle environment (field) in the plant.
- Deployed 7 wireless transmitters in the area.

Results
- **ISA100.11a wireless system** could communicate successfully and all communication paths showed low PER (packet error rate) under 1%.
- **Our previous wireless system** could communicate in the same area. However, the PER was estimated ten times worse than the ISA100.11a wireless system.

Reliable Wireless Test Report No.0003
Country: Japan   Category of location : Downstream (Open air)
Purpose:
   Confirm the communication capability in the wide field area concerning communication range.
Test Environment:
- The distance was approximately 300m beside the sluice gate at seashore.
- The most of communication path was on the sea without any obstacles.
- The customer's requirement of data update interval was 10 seconds or more.

Results
- In the case of **the ISA100.11a wireless system** the wireless devices could communicate directly with gateway, because the communication range of the ISA100.11a wireless system is wide**.**
- The PER's (packet error rate) of all communication paths were very low (Nearly equal 0%).
- **Our previous wireless system** was estimated to need to deploy two or more routers (repeaters) along the seashore to establish the communication.

Field Image

Gate Way

Approx. 300m

Temperature Transmitter (YTA)

Sea

Temperature Sensor

Buoy

YOKOGAWA ◆