

Update of 920MHz band Radio Environment in the Tokyo Area

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Abstract

- **At the January Meeting, we showed the results of several minutes of 900 MHz Band measurements in the Tokyo area.**
- **This time, we extracted 60-second and 10-second data from that measurement .**
 - The spectrum at WF in a short time and the occupancy rate by frequency are shown.

Measurement Equipment

Broadband Omnidirectional Antenna

Keysight Technologies N6850A	
Frequency range	300 MHz ~ 6 GHz
Gain	0 dBi
Type	Omnidirectional, Passive
Size	419 mm high, 156 mm wide
Weight	1.15 kg

RF Sensor

Keysight Technologies N6841A	
Frequency range	20 MHz ~ 6 GHz,
Sweep speed	> 4 GHz/sec with 10 kHz RBW
Maximum Analysis Bandwidth	20 MHz
Size	292 mm × 54 mm × 246 mm
Weight	3.5 kg



Measurement Setup

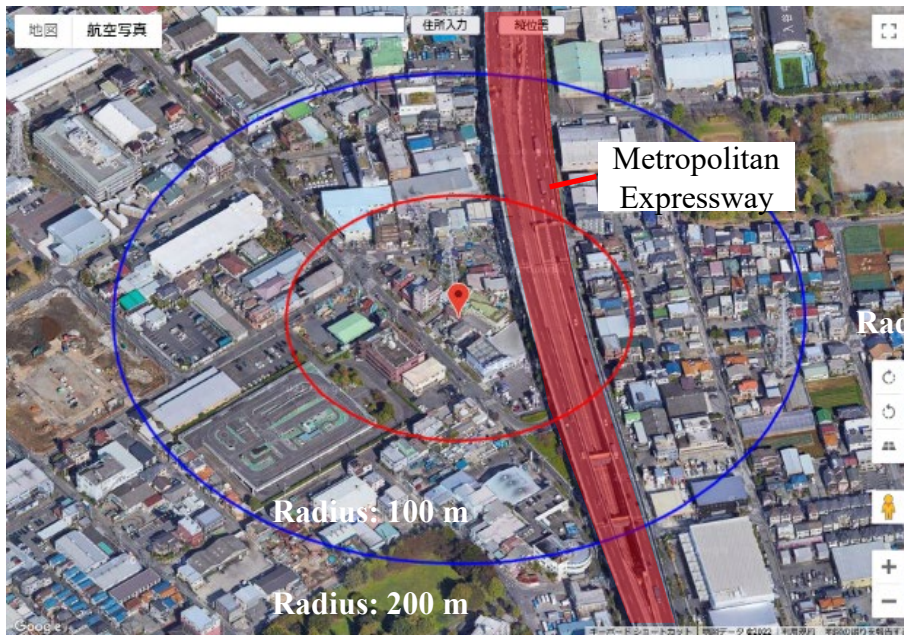
- **Measurements were taken at different altitudes: 1 m, 15 m, and 30 m above the ground.**
- **Approximately 7 measurements per second were taken continuously for more than 20 minutes.**
 - Frequency: 915-935 MHz
 - RBW: 20.5 kHz



15/30 m

Measurement Location 1

- **Adachi Ward**
 - Mixed commercial and residential area



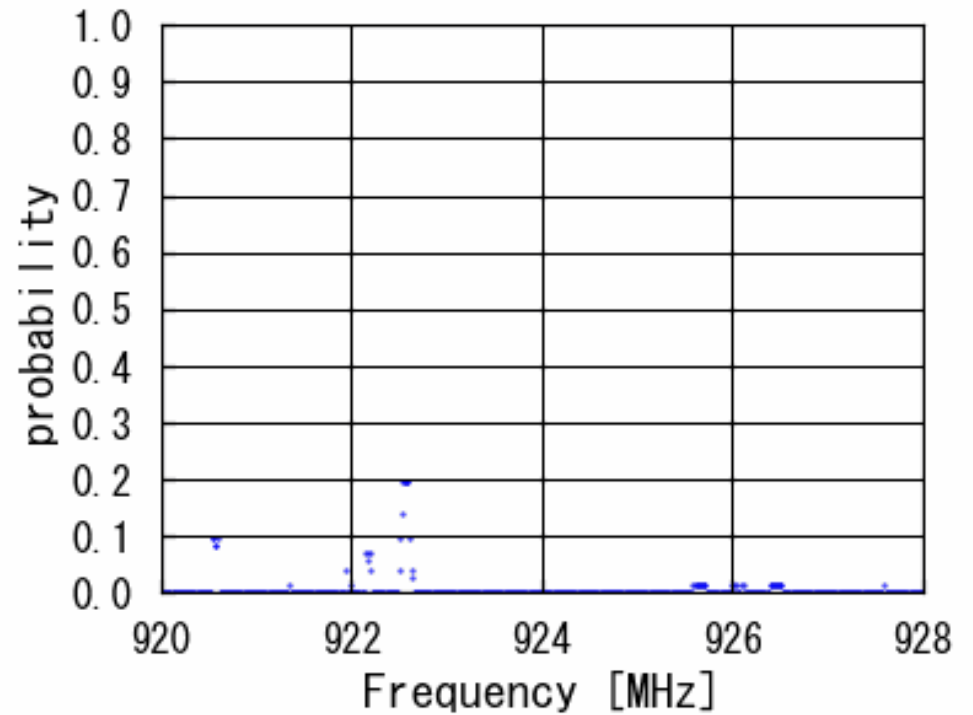
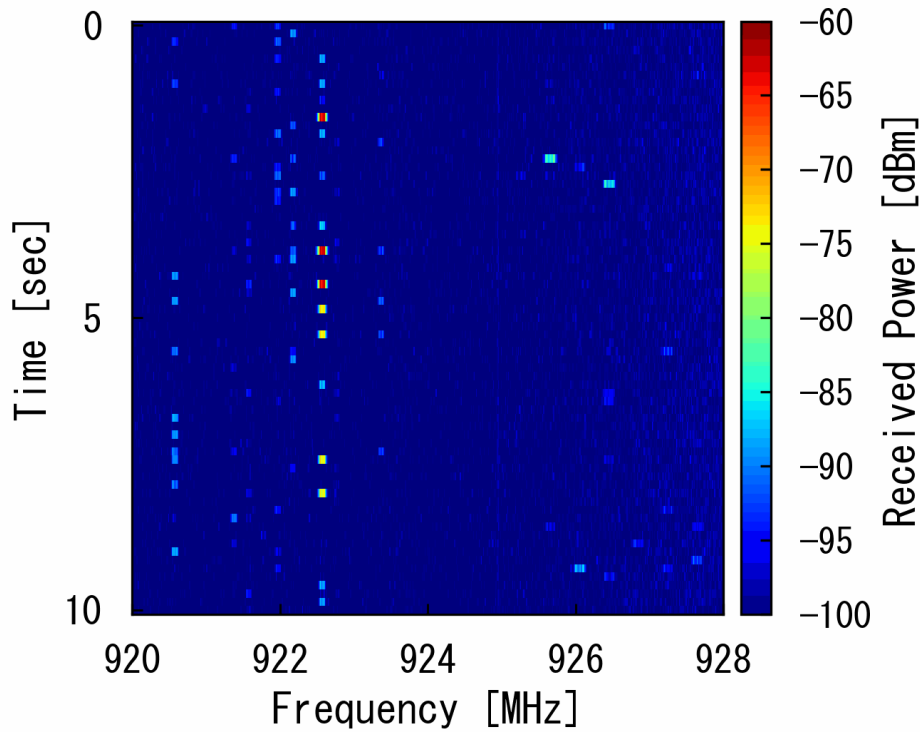
Adachi Ward, Tokyo



View from 30 m High

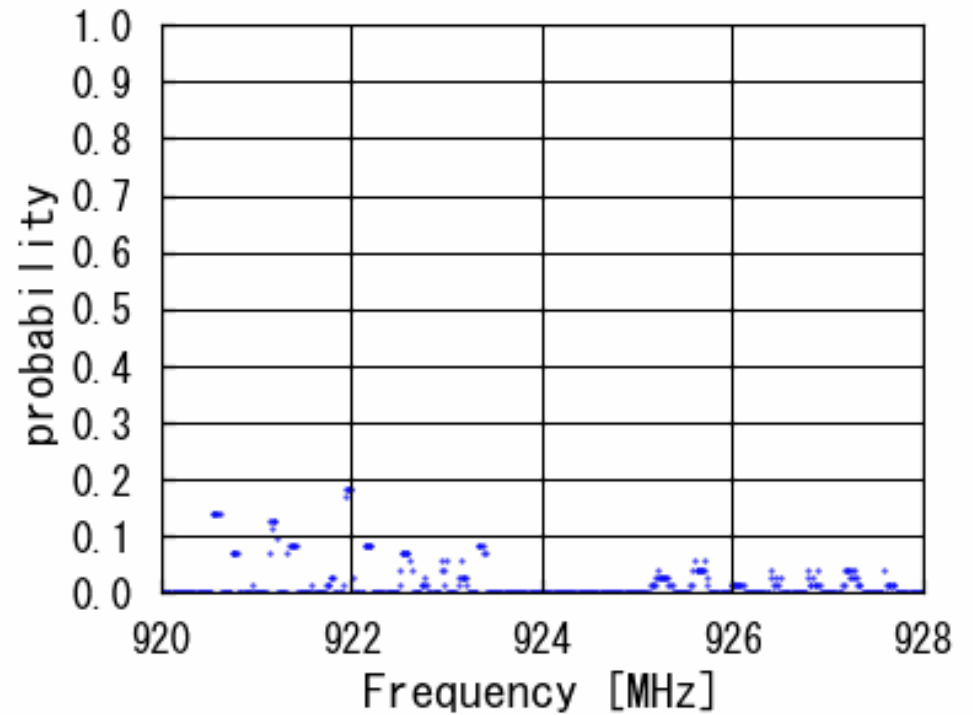
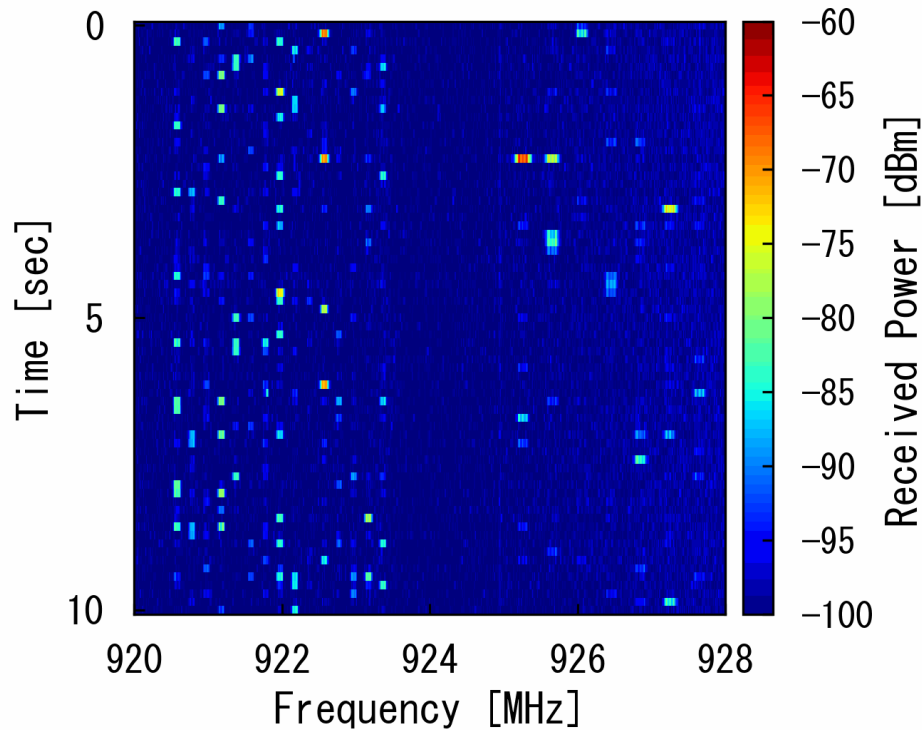
10sec Shot at 1 m High

2021-03-18 14:20:00 to 2021-03-18 14:20:10



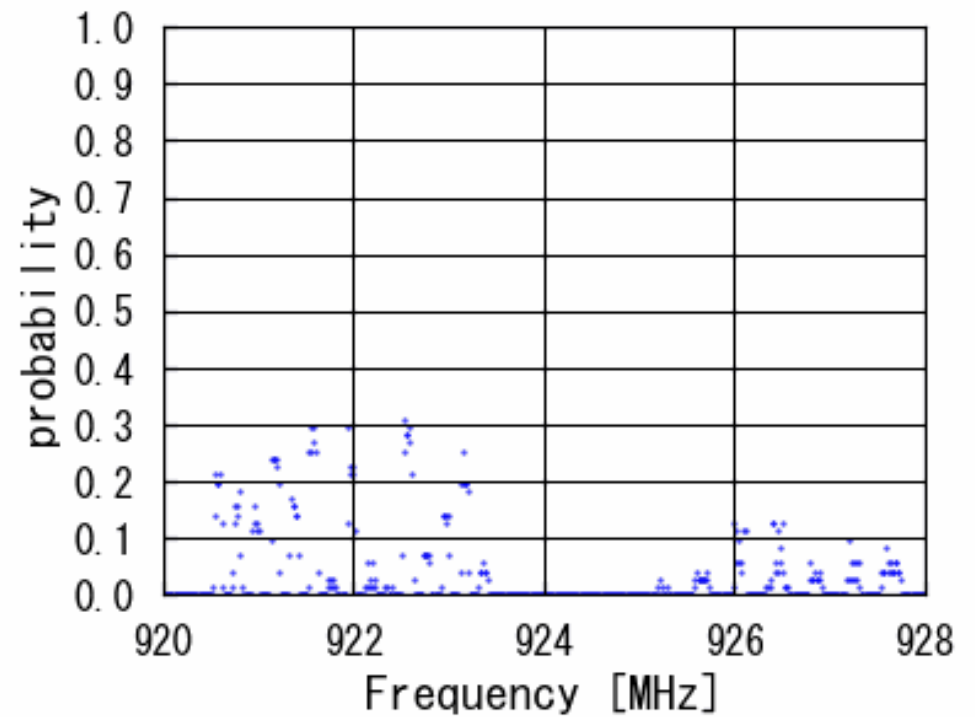
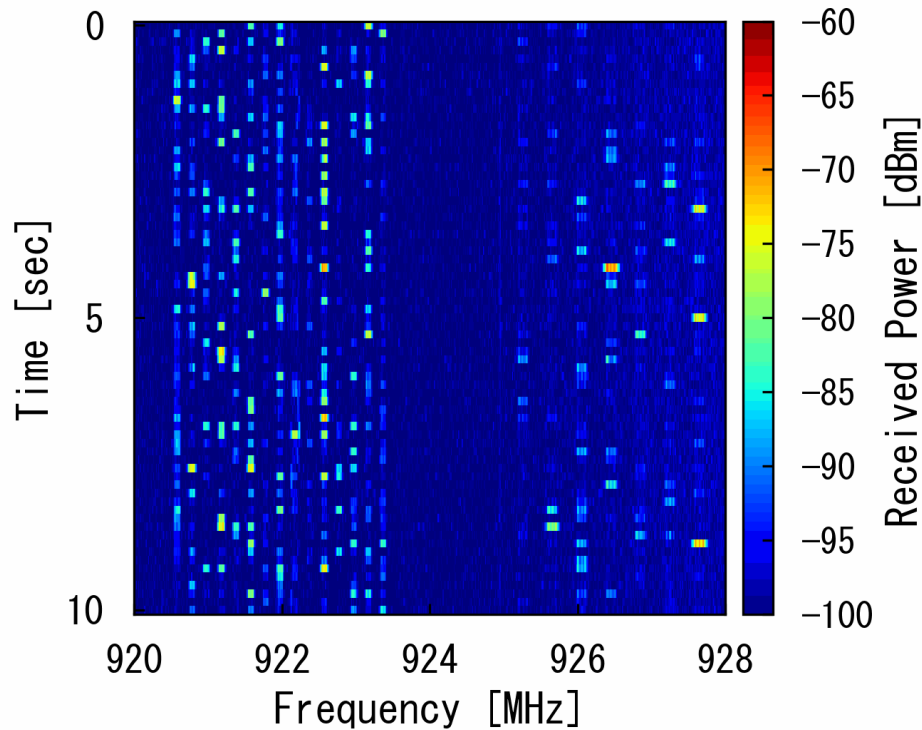
10sec Shot at 15 m High

2021-03-18 12:10:00 to 2021-03-18 12:10:10



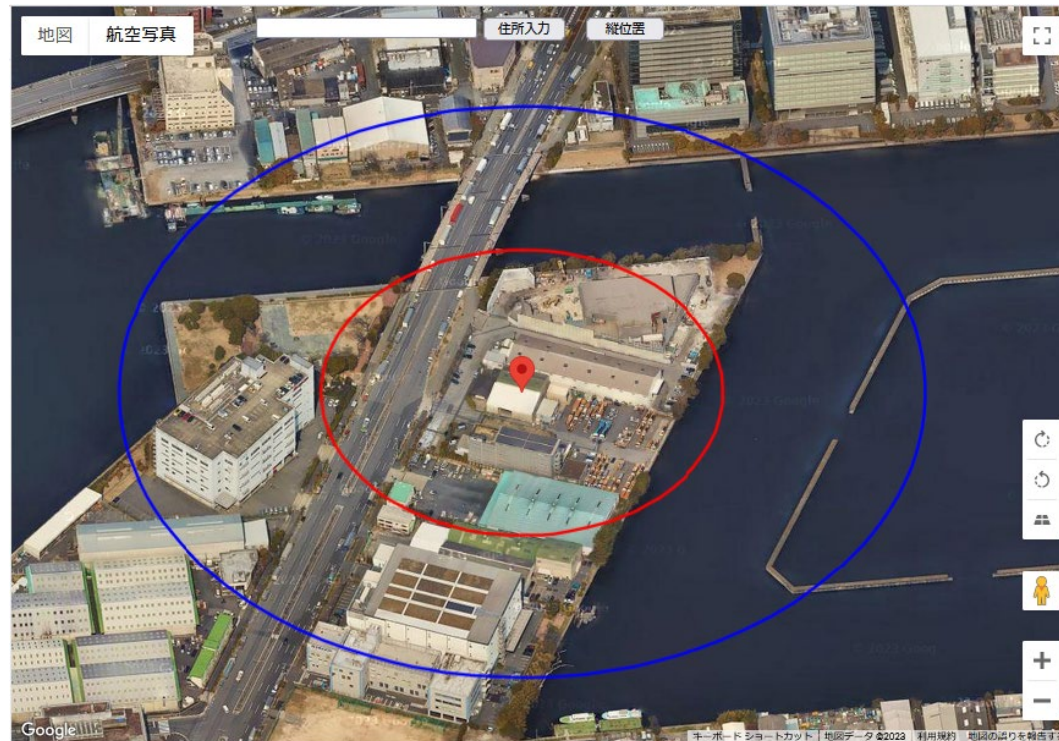
10sec Shot at 30 m High

2021-03-18 10:55:00 to 2021-03-18 10:55:10



Measurement Location 2

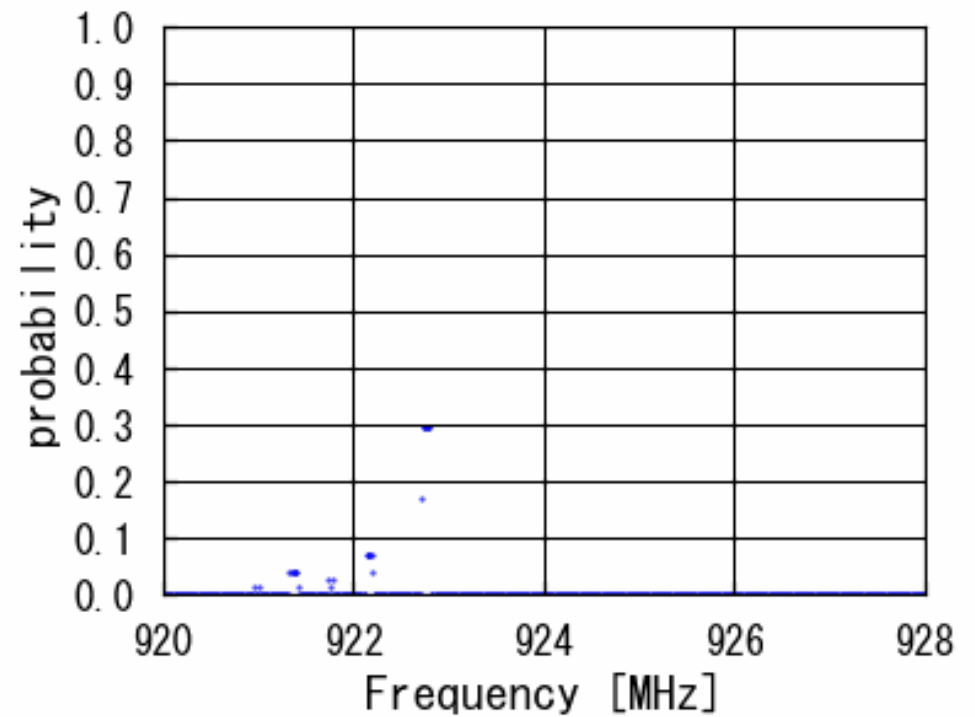
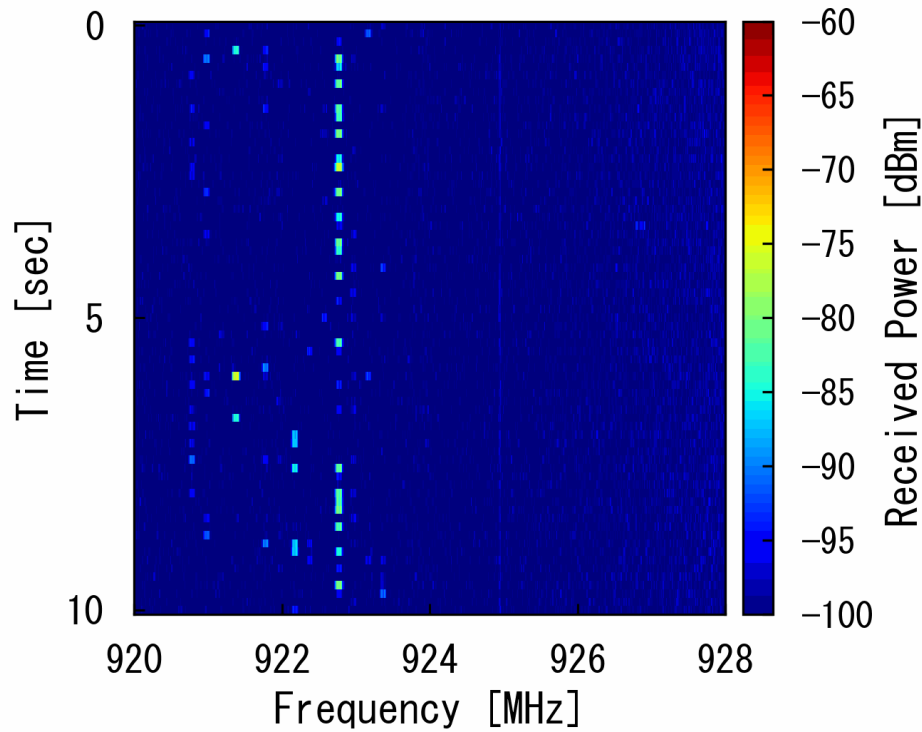
- **Koto Ward**
 - Artificial island in the warehouse district in the Bay Area.



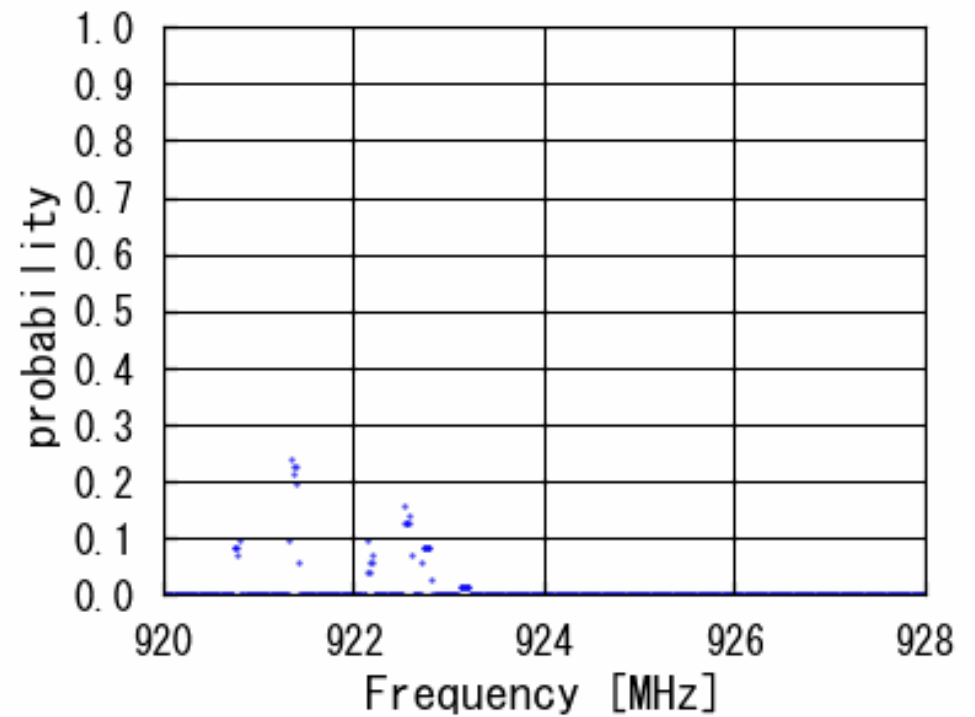
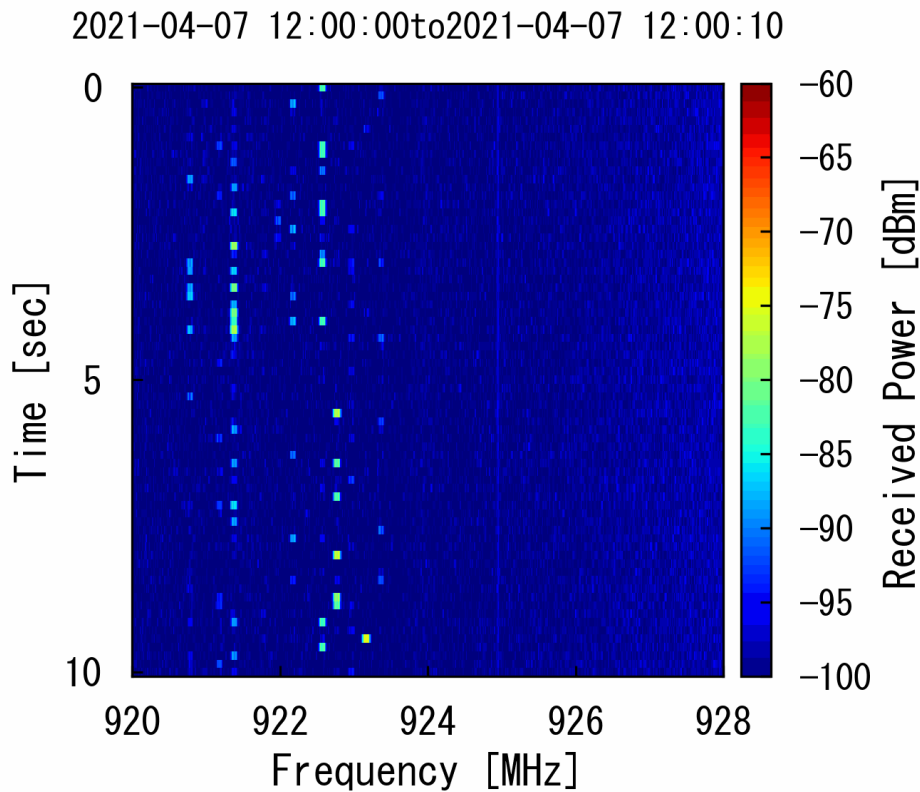
Koto Ward, Tokyo

10sec Shot at 1 m High

2021-04-07 13:30:00 to 2021-04-07 13:30:10

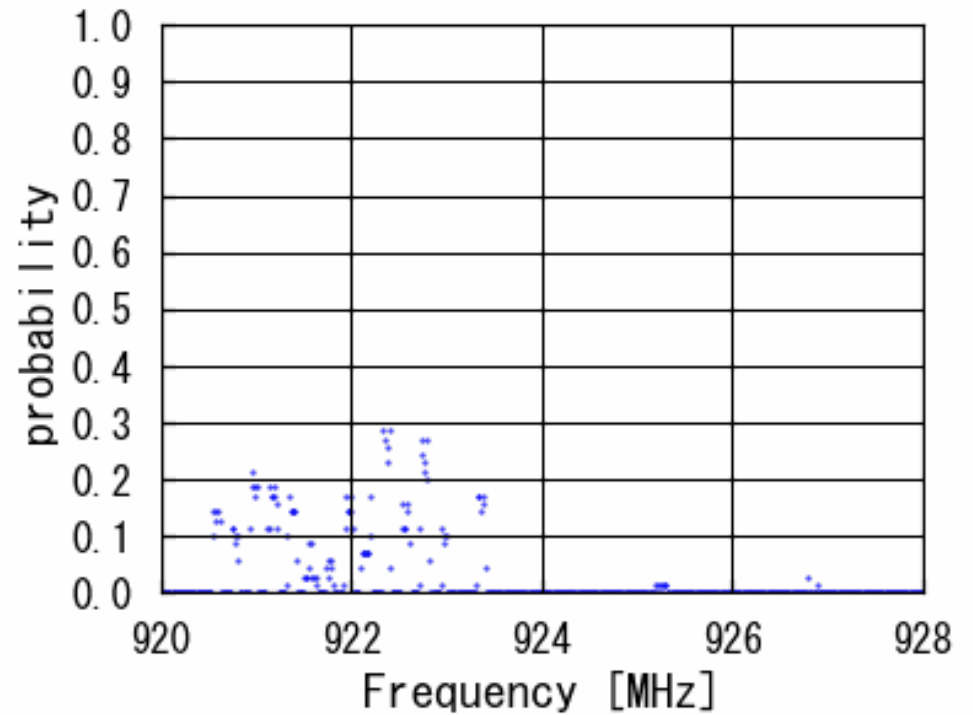
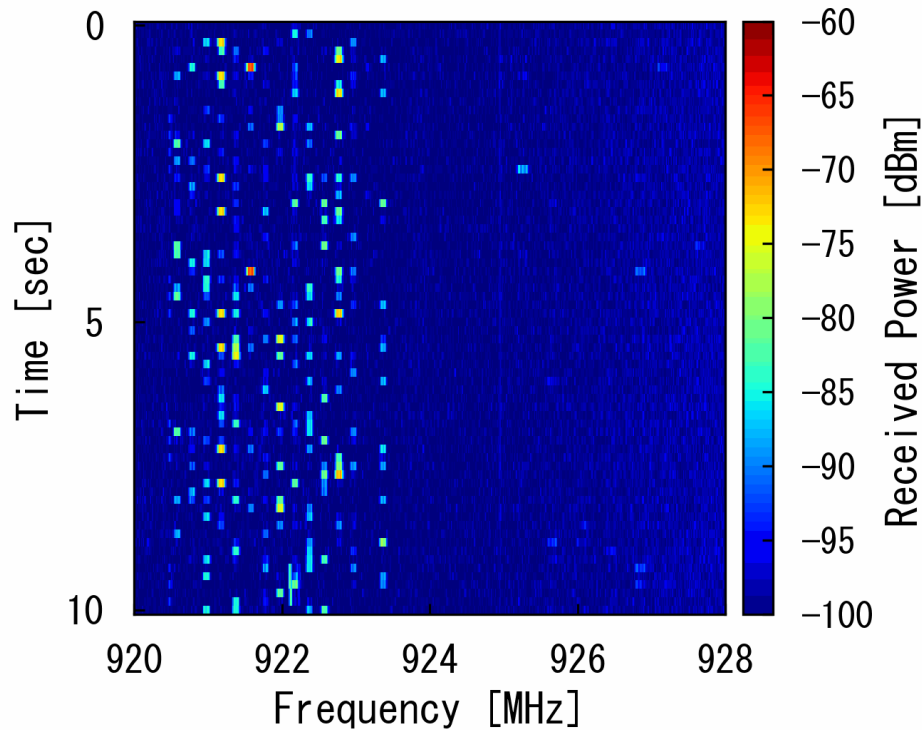


10sec Shot at 15 m High



10sec Shot at 30 m High

2021-04-07 10:55:00to2021-04-07 10:55:10



Summary

- **This time, 10 seconds shot of spectrum utilization and occupancy rate are shown.**
- **In a mixed residential and commercial environment, the 920 MHz band is congested, with some CH's having a 40% time rate of received power above -90 dBm.**
- **We plan to proceed with measurement and evaluation in the Hokkaido area in the future.**