

FIELD DEMONSTRATION TEST OF RECEIVING QZSS EARLY WARNING SERVICE WITH A WEARABLE TERMINAL AND THE POPULARIZATION OF THE TERMINAL

MASASHI SUENAGA
CEO, MASA CORPORATION

INTRODUCTION

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1. QZSS EWS

- There are several emergencies early warning services (EWS) in Japan, mainly for fixed terminals and smartphones.
- QZSS EWS is a new system for terminals that work with QZSS L1S.
- The application field of QZSS L1S has been developing.
- We have been applying QZSS L1S on our wearable golf GPS range finder products from the first day the service started as I knew it was very valuable for golfers.
- Now, all of our GPS range finder products are QZSS L1S compatible.
- Naturally, we intended to make our products be able to receive the QZSS EWS via L1S when it became available.



GREENON GPS Caddie PREMIUM II



GREENON PREMIUM II
featured on NHK TV news

2. WEARABLE TERMINALS FOR QZSS EWS

- We were granted the demonstration tests of QZSS EWS with wearable terminal from JSF.
- We applied the function to receive QZSS EWS not on a special test purpose terminal but on a commercial wearable product.
- Once the field test is verified, it is easily applicable on commercial products.
- The terminal used for the test is GREENON GPS Caddie A1-II.
- QZSS EWS broadcast is an emergency message with emergency level/category and concerned area code.
- The terminal displays the message and sound an alarm when the terminal is in the concerned area.



GREENON
GPS Caddie A1-II



Terminal receives a QZSS EWS broadcast emergency message with emergency level/category and concerned area code.



Screen 1

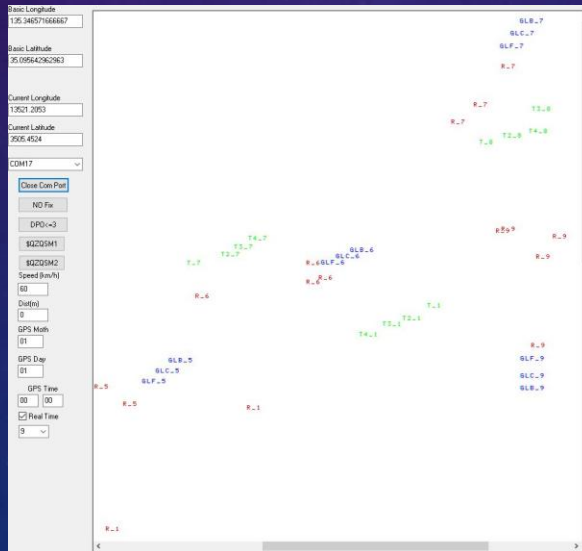
Screen 2

Alarm

Terminal sounds alarm and displays message and when it is in the concerned area.

3. FIELD TESTS

- The functions were thoroughly tested on a desk using a specially developed simulator.
- The field tests were performed after successful indoor verification.
- [Demo video \(hyperlink\)](#)



Images of the simulator

4. POPULARIZATION OF THE TERMINAL FOR EWS

- EWS is a very important and useful function but it requires QZSS L1S compatible receivers.
- Popularization of the compatible terminals is the key.
- QZSS L1S compatible terminals are popular and in use, with more than 300,000 already in Japan. Today, they are mostly GPS range finders for golfers.
- Ranging accuracy is very important for golfers. GPS accuracy by wearable terminal have been not good enough for golfers even it was supplemented by SBAS.
- QZSS L1S drastically improved it. QZSS is a unique system from Japan and while some are concerned it may become another example of the "Galapagos Syndrome," I say QZSS L1S brought paradise for golfers in Japan as 1m accuracy is achieved with small watch terminals.
- Now, EWS is receivable by those terminals just by updating the SW of the terminal.
- This movement would expand to other outdoor activities together with QZSS L1S popularization.
- The advantages of our watch type QZSS L1S receiver with 1m accuracy are also gradually being applied to many business areas. We are working to realize them.

THANK YOU!