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**ELECTRIC MAGNETIC WAVE DIRECT EMISSION  
OBSERVATION SYSTEM AT ADJACENT DUAL  
FREQUENCY IN MULTI-BAND**

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# Abstract

We report about development of Observation System for Electric Magnetic Wave Direct Emission at adjacent dual frequency in multi-band and examples of anomalies which may be precursor of earthquake.

System Block Diagram is shown in Fig.-1. It is reported that Electric Magnetic Wave (call as EM here in after) Direct Emission is observed at various frequency band from ELF to SHF, therefore, it should be significant to measure direct EM emission at various frequency for earthquake prediction.

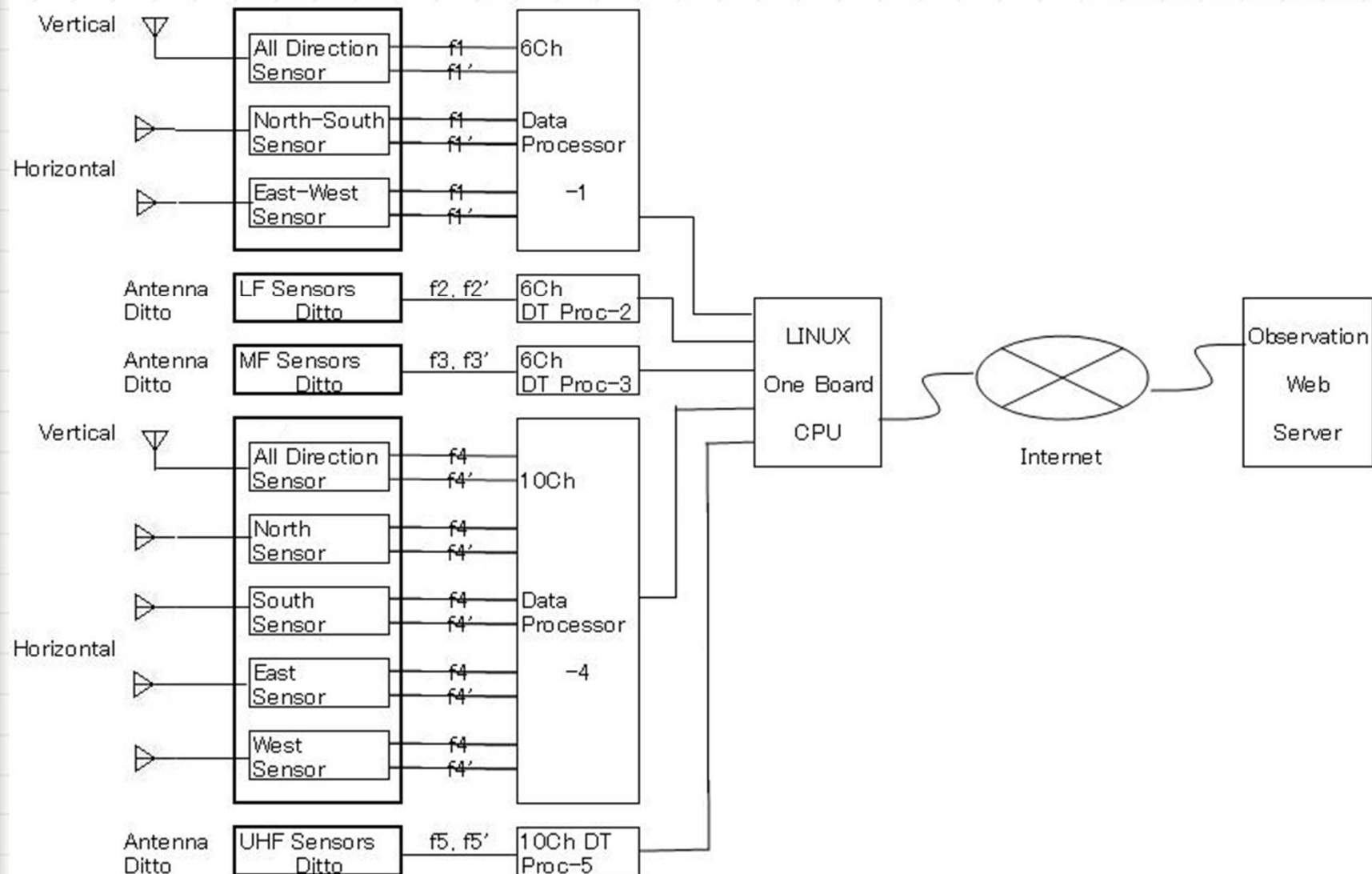


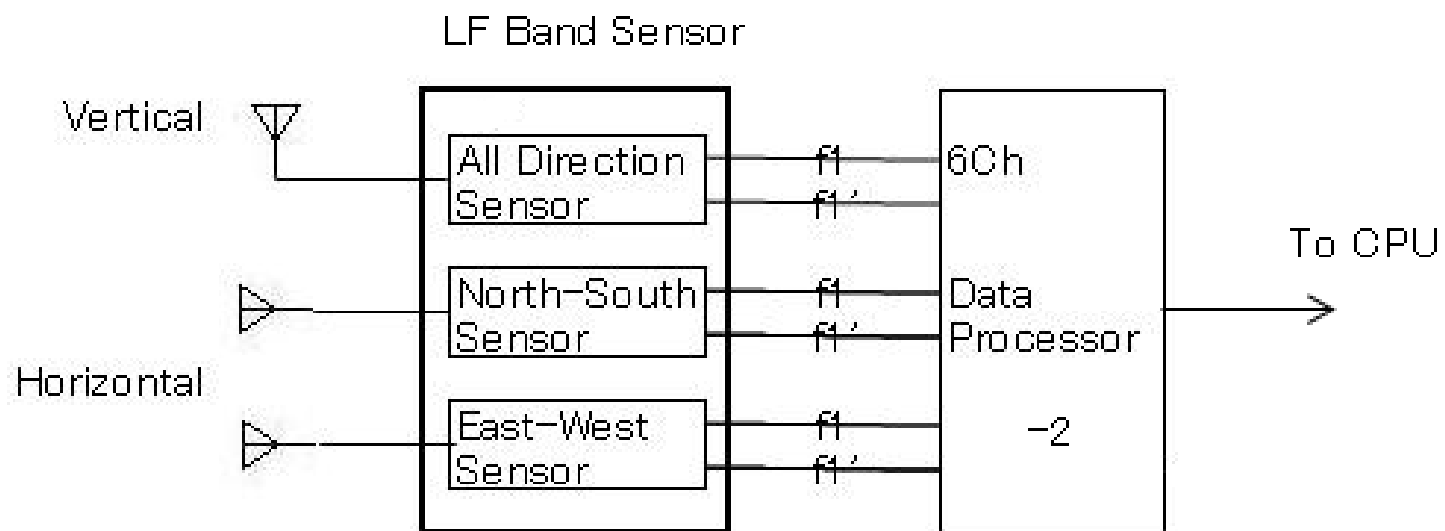
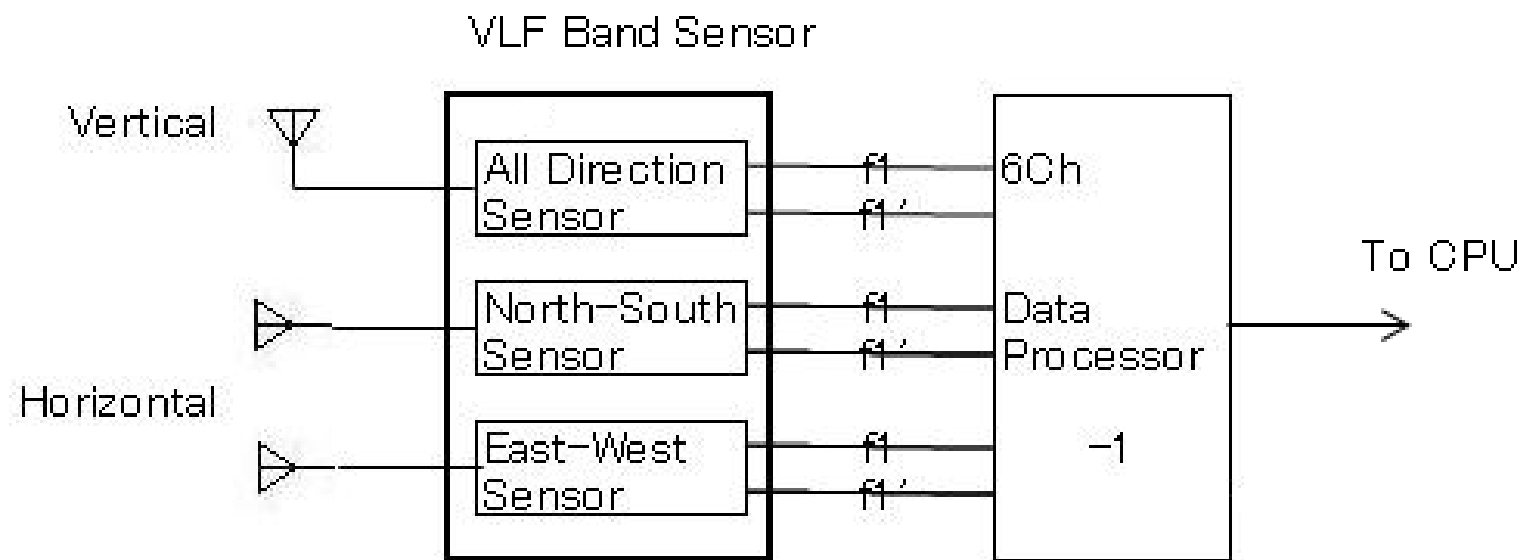
We decided to measure adjacent 2 frequencies simultaneously at each band to define seismic or not. Actual frequency at VLF band are 17kHz and 27kHz, LF band are 120kHz and 140kHz, MF band are 505kHz and 525kHz, VHF band are approx. 76MHz and UHF band are approx. 400MHz. Lower frequency than ULF and higher than SHF is future plan. Measured frequencies are selected vacant or short distance communication.

VHF and UHF band are measured for no directivity with vertical antenna and 4 directions for North, East, South and West with multi-element Yagi antenna, VLF, LF and MF band are measured for no directivity and 2 directions for North-South and East-West.

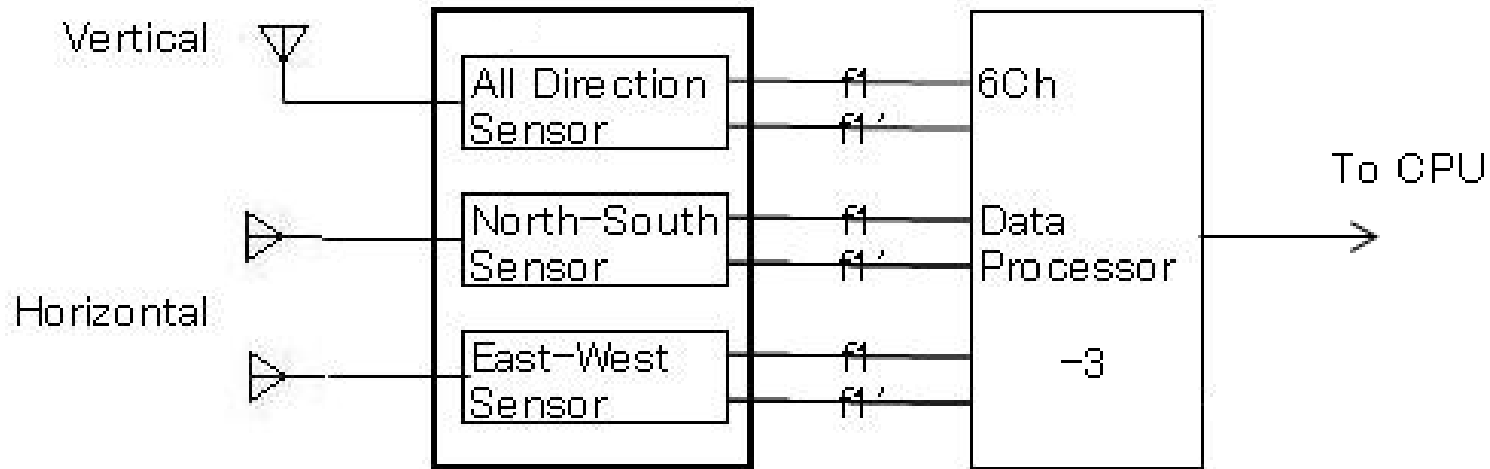
Data Processor is capable to input 10 Channel analog data and digitize in 1kHz sampling rate and outputs maximum, minimum and average value in 1 every minute in CSV format to CPU. Maximum value may be useful to measure impulsive signal. CPU outputs to Observation Web Server to produce daily, weekly and monthly graphs.

# System Block Diagram

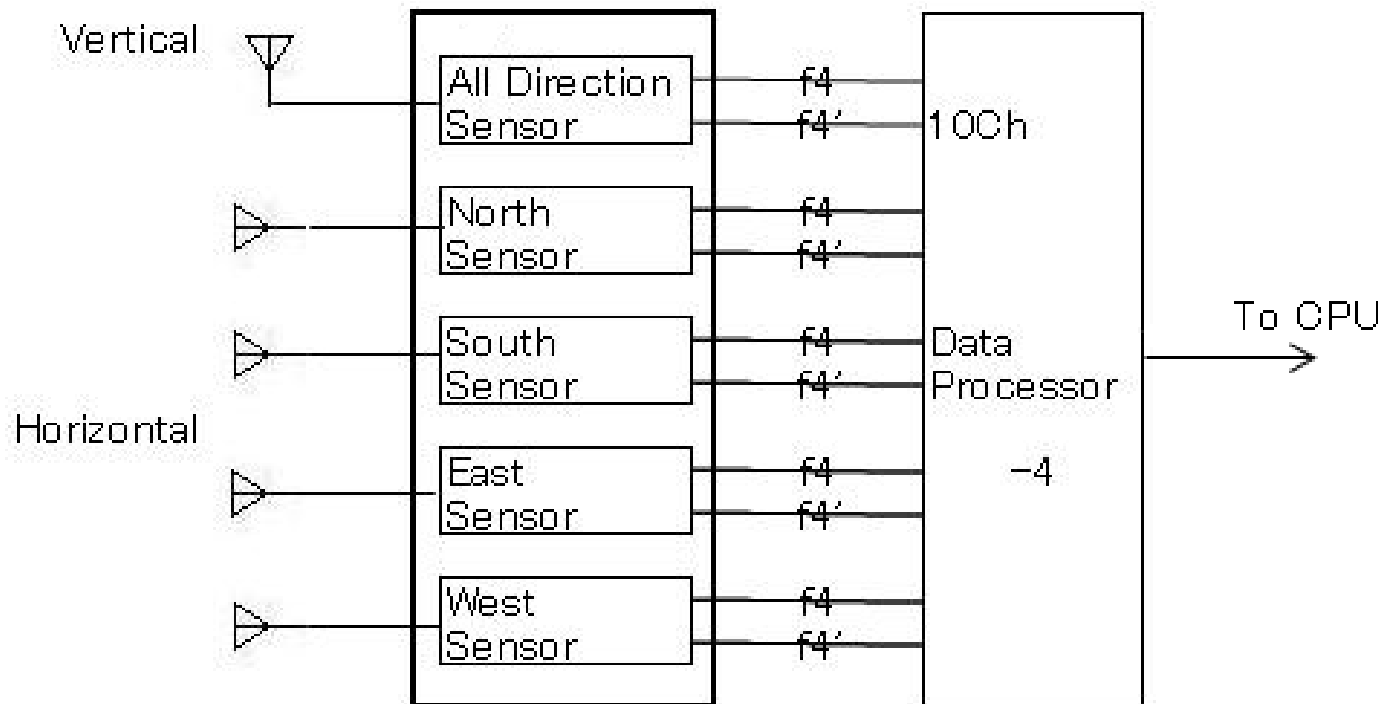




### MF Band Sensor



### VHF Band Sensor





### UHF Band Sensor

