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NOISE LABORATORY

Space-Magnetic Field Visualization System

EPS-02EMF system



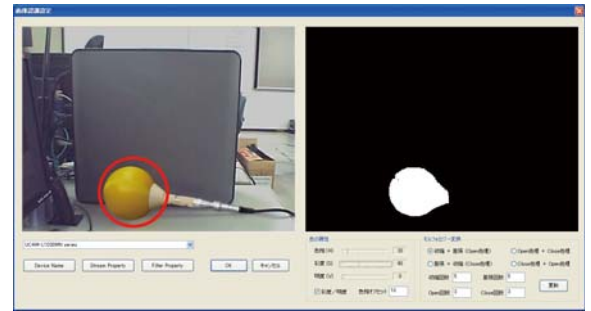
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Space-Magnetic Field Visualization System EPS-02EMF system

The system detects position of the magnetic field sensor on the basis of the image on the camera first of all and then, recognizes strength of the signal that is measured by the sensor upon frequency analysis of the signal almost simultaneously. Finally, visualization of the strength dispersion in composition with the real image of the measured object can be realized on screen of PC.

In terms of magnetic field in low frequency, International Commission on Non-Ionizing Radiation Protection (ICNIRP) published "FOR LIMITING EXPOSURE TO TIME-VARYING ELECTRIC AND MAGNETIC FIELDS (1HZ - 100 KHZ). Also, International Electrotechnical Commission (IEC) and Japanese Industrial Standard (JIS) have provided the measurement criteria.

Especially in fields of advancing home appliances which efficient power invertors are built in, power generation equipments like photovoltaic applications, railroad vehicles, charging stands which are expanding rapidly accompanied with spread of electric vehicle (EV) and plug-in hybrid vehicle (PHV) and wireless power supply, this system can surely contribute to drastic reduction of manpower on the countermeasures.

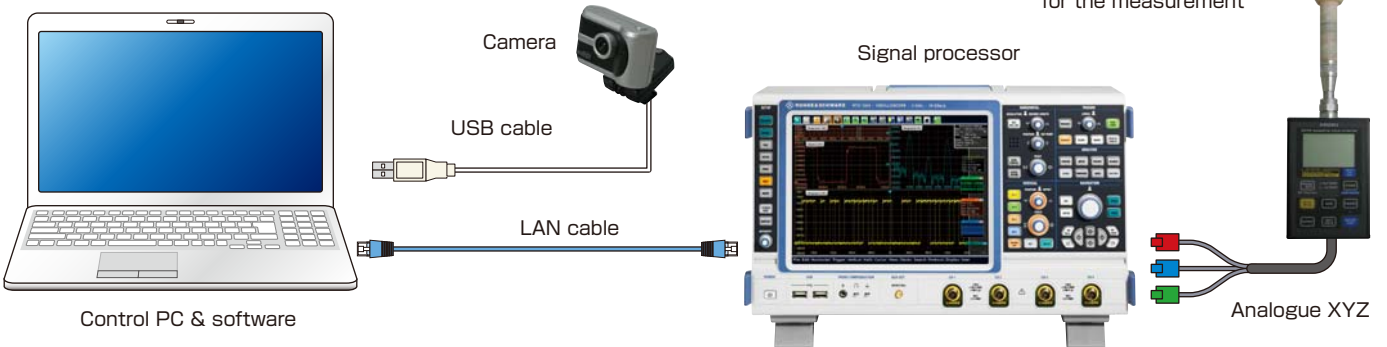


Recognition image on screen with the sensor

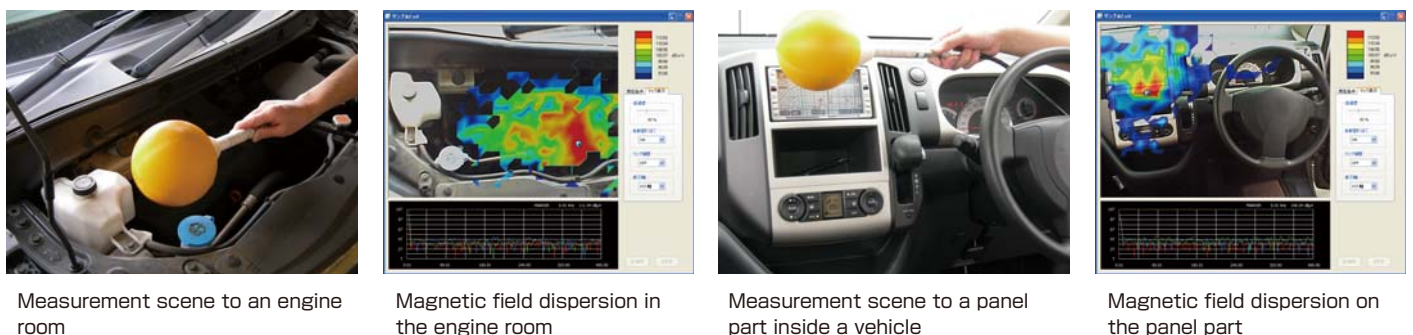
- Measurements specified in ICNIRP2010, IEC 62233 and JIS TS C 0044 conductible.
- High responsiveness following to the image realized regardless of figures or colors on the sensor part
- Composite image of the actual image taken by the camera and the measured dispersion strength visualized
- Taking the measurement conditions and environment inside a vehicle into the account, 5m extension cable is attached to the 3 axes magnetic field sensor.
- High speed signal processing from the magnetic field sensor realized owing to high speed FFT available the oscilloscope in the frequency analysis.

EPS-02EMF System Configuration

- Magnetic field sensor for the measurement (FT3470-91 by HIOKI Corporation)
- Signal processor (R&S®RTO 1004-NSL by Rohde & Schwarz Japan)
- Control software (with PC and camera)



Measurement Scene Example with EPS-02EMF



EPS-02EMF Basic Specifications

Sensor Model NO. FT3470-91 by HIOKI Corporation

| | | |
|-----------------------------|---|---|
| Measurement frequency | 10Hz~400kHz | |
| Sensor | Loop coil Cross-sectional area 100cm ² | |
| Measurement axis | X , Y , Z | |
| Rated magnetic flux density | 2mT | |
| Measurement mode | Magnetic flux density | 10Hz~400kHz, 10Hz~2kHz, 2kHz~400kHz |
| | Exposure level | General Public / Occupational |
| Measurement range | Magnetic flux density | 2μT/20μT/200μT/2mT ※Rated magnetic flux density:2mT |
| | Exposure level | 20%/200%/2000% |
| Measurement unit | Magnetic flux density T / Exposure level % | |
| Display renewal rate | Approx. 250ms | |
| Interface | USB 1.1 | |

Signal processor R&S®RTO1004-NSL by ROHDE & SCHWARZ JAPAN

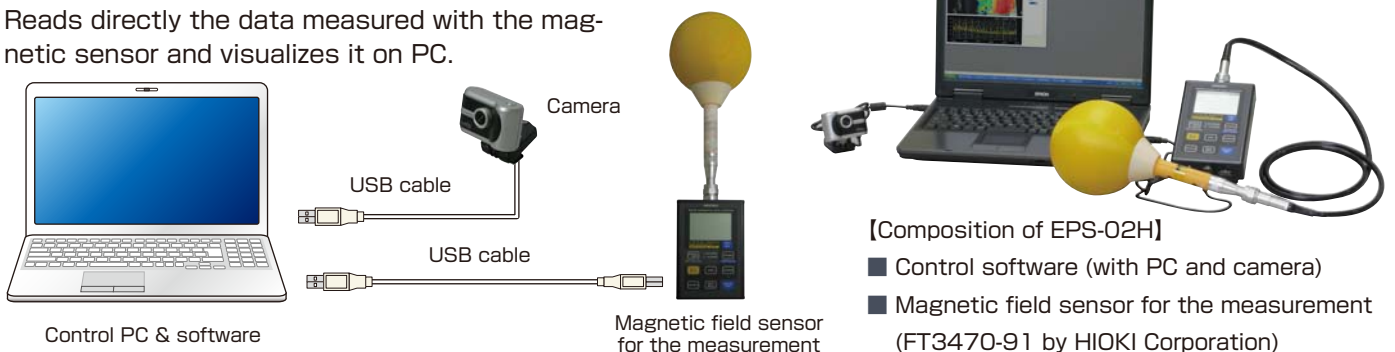
| | | |
|----------------|------------------------------|-----------------------------------|
| Oscilloscope | Bandwidth | 600MHz |
| | Sampling rate | 10G samples/s |
| | ENOB | > 7 |
| | Rise time | 583 ps |
| | Input sensitivity | 1mV~ in Base unit |
| | Channel-to-channel isolation | > 60dB |
| | RMS noise floor at 50 Ω | ≤280μV at f.s. 200mV |
| | Trigger jitter | <1 ps (RMS) |
| | Waveform acquisition rate | >1,000,000 waveforms/s |
| | At operation in FFT | Noise floor |
| Updating speed | | Max. ≥1,200 waveforms/s (typical) |

Control software, PC, camera

| | |
|-------------------------|--|
| Image division size | Screen : 640 X 480 dot Division size : 10~120 dot |
| Measurement mode | Magnetic flux density / Exposure level |
| Measurement data | Normal / Max Hold |
| Image display on camera | Still image / Animation |
| Strength level setting | Auto / Manual |
| Arbitrary function | Storage / Reading / Print-out / Export / Comment input |
| Corresponding OS | Windows XP / Vista / 7 |
| Others | USB cable attached |

Affordable Version : EPS-02H (Example)

Reads directly the data measured with the magnetic sensor and visualizes it on PC.

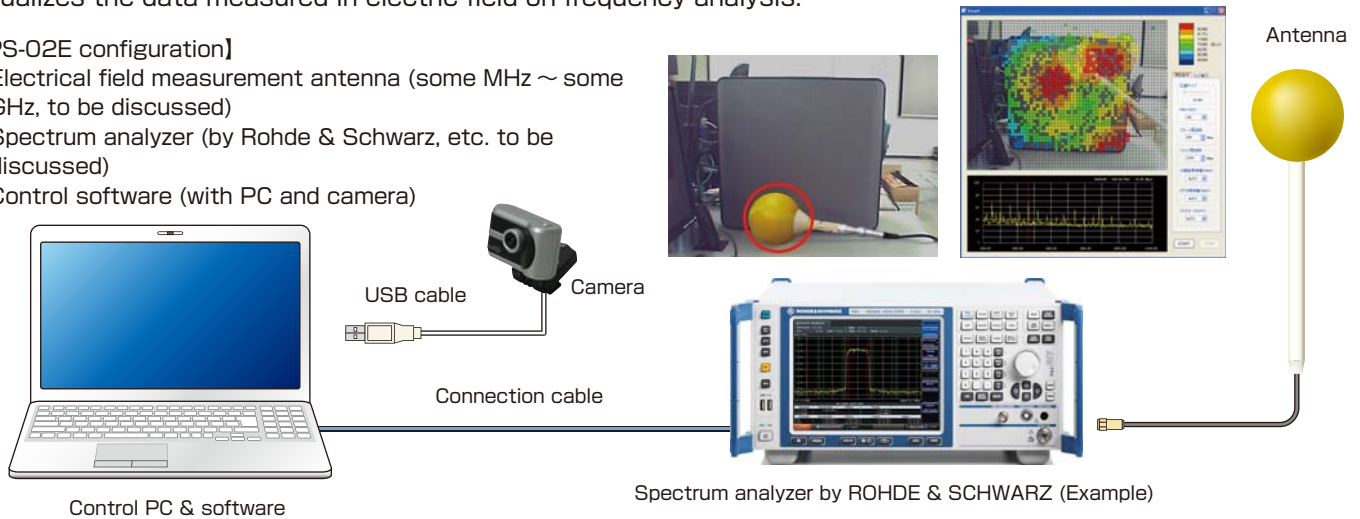


Electric Field Measurement EPS-02E (Example)

Visualizes the data measured in electric field on frequency analysis.

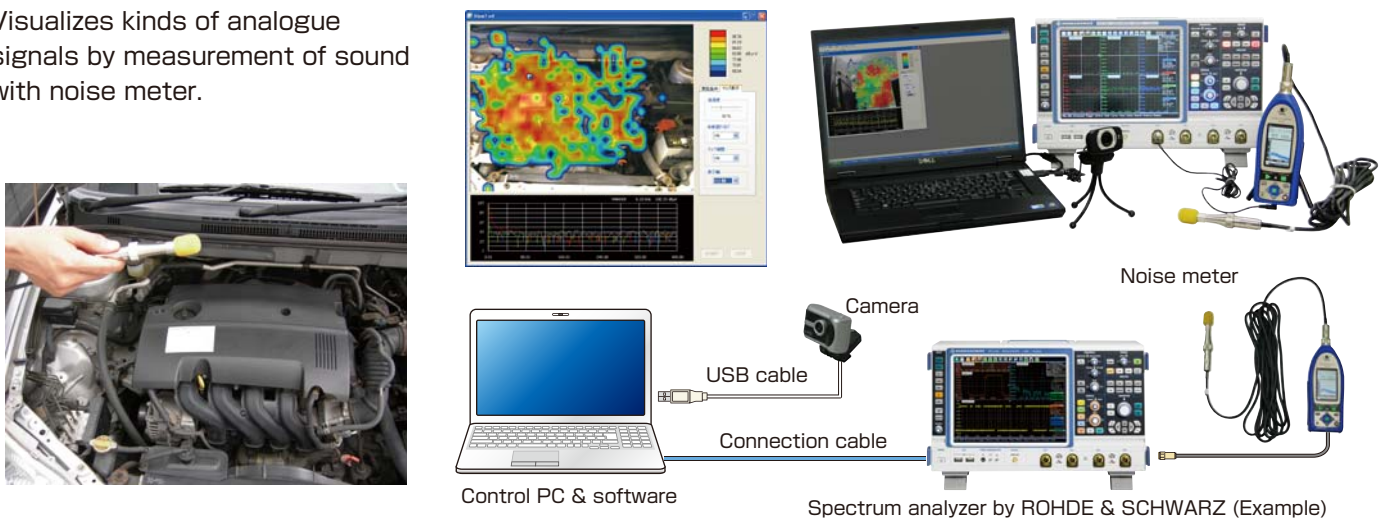
[EPS-02E configuration]

- Electrical field measurement antenna (some MHz ~ some GHz, to be discussed)
- Spectrum analyzer (by Rohde & Schwarz, etc. to be discussed)
- Control software (with PC and camera)



Application Example - Sound -

Visualizes kinds of analogue signals by measurement of sound with noise meter.



* Designs, appearances and specifications on the products are subject change without notice.

Authorized Representative