

Comparative measurements near an Antenna Park with more than 70 radio, TV and mobile communications antennas have been implemented. Measurements with SMS-K were in agreement with other broadband probes where a maximum difference not more than 4.5% was found.

3. Conclusion

An electromagnetic radiation broadband monitoring system has been presented. The dipole sensor, the electronic circuits and the tests of the system have been described. The system, called SMS-K, has acceptable isotropy, linearity and capability to monitor 24 hours a day. The electric field was found to show a similar accuracy with other commercially available systems.

The low cost and high reliability will allow a massive production and establishment of a broad network of measurement points resulting to continuous control of electromagnetic radiation and direct information flow to the public.

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5. References

1. PMM 8057, "Systems for Distributed Monitoring of Environmental Electromagnetic Fields", PMM s.r.l., Italy, 2006.
2. EE 4070, "Electromagnetic Field Monitoring System", EIT s.r.l., Italy, 2003.
3. HI-4000 Series, "RF- Microwave Hazard Measurement", Holaday, U.K., 1997.
4. HI-2200, "EMF Safety Measurement Systems - RF Radiation Survey and Monitoring Systems", ETS – Lindgren, USA, 2007.
5. NBM-550, "Broadband Meters", Narda, California, USA, 2007.
6. INSITE box, "EMF Measurement Systems", Antennessa, Brest, France, 2007.
7. M. Kanda, "Standard Probes for Electromagnetic Field Measurements", IEEE Transactions on Antennas and Propagation, Vol. 41, No. 10, October 1993, pp. 1349 – 1364.
8. M. Kanda, "An Isotropic Electric-Field Probe with Tapered Resistive Dipoles for Broad-Band Use, 100 kHz to 18 GHz", IEEE Transactions on Microwave Theory and Techniques, Vol. 35, No. 2, February 1987, pp. 124 – 130.
9. International Electrotechnical Commission (IEC), "Guide to the Expression of Uncertainty in Measurement", Geneva, Switzerland, 1995.
10. Sensirion SHT11 Humidity & Temperature Sensor Datasheet v2.04, May 2005, <http://www.sensirion.com>.
11. Skyworks SMS7630-079LF Surface Mount Mixer and Detector Schottky Diode Datasheet, 6/03A, <http://www.skyworksinc.com>.