TOTAL RADIATION SOLUTIONS

SERVICES BROCHURE

☎ +61 8 9381 7199 🖷 +61 8 9381 7166

email: info@t-r-s.com .au
www.t-r-s.com.au

✉ PO BOX 680, Claremont, 6910, Western Australia

COMPANY INFORMATION

Total Radiation Solutions (TRS) is a Western Australian company with a national focus, established to cater to the requirements of clients looking for professional, independent consultancy in all areas of radiation safety.

To this end, we offer services and training to assist your company in the care and well being of staff and the community in their association with both ionising and non-ionising radiation.

Our staff are highly trained and uncompromising in their standards of excellence and quality.

Our consultants have many years of experience in consultancy and training and will provide services tailored to your requirements.

Please peruse our list of services and take a little time to assess your requirements in relation to radiation safety. Our aim is to provide excellent service and care to our most valued asset - ***YOU.***

SERVICES

- **TRAINING**
- **CONSULTANCY**
- **SITE AUDITS**
- **PUBLIC MEETINGS**
- **RADIO COMMUNICATIONS SITE SAFETY/COMPLIANCE DOCUMENTS**
- **MEASUREMENTS**
- **RF EME MODELLING**

TRAINING

TRS delivers an industry accredited (ACRBR) one day basic **RF EME Awareness Training Course**. This course is available either online or in the face to face format and can be held at your venue or a suitable training facility. All participants are examined and upon successful completion are issued a certificate. See page 8 for more detail.

TRS can also offer a four day **RF EME Measurement Officer Training Course** held at either your venue or a suitable training facility. All participants are examined and upon successful completion are issued a certificate. See page 9 for more detail.

CONSULTANCY

Professional advice offered to clients on all aspects of ionising and non-ionising radiation.

SITE AUDITS

TRS can undertake full site audits of facilities in relation to equipment, OH&S requirements and compliance to standards.

PUBLIC MEETINGS

Lectures, demonstrations and Q&A sessions can be held for the general public and community groups to allay any concerns or for general education.

RADIO COMMUNICATIONS SITE SAFETY/COMPLIANCE DOCUMENTS

TRS can produce the documentation required for site safety/compliance, thus ensuring the safety for personnel accessing the site. Radio Communications Site Safety Documents (RCSMBs or EMEG's) encompass compliance to operating procedures; identification of equipment on site, site occupants' contact details, equipment specifications; drawings of the structure, the emission patterns or plots, site access controls and details of required signage. These documents can be produced with updates to relevant databases.

EME MEASUREMENTS

TRS holds National Association of Testing Authorities (NATA) accreditation - NATA laboratory - Accreditation No. 15096 complying to ISO/IEC 17025 Standard.

EME Measurement

Measurement of electromagnetic radiofrequency fields (RF) in accordance with Australian/New Zealand AS/NZS 2772.2 Radiofrequency fields Part 2: Principles and methods of measurement and computation– 3 kHz to 300 GHz.

1. Broadband measurements of E-fields in the range of 300 kHz to 50 GHz;
2. Broadband measurements of H-fields in the range 300 kHz to 1 GHz.
3. Frequency selective measurements (Narrowband) of E-fields in the range 27 MHz to 6 GHz.
4. Frequency selective measurements (Narrowband) of H-fields in the range 100 kHz to 200 MHz.

RF EME surveys can be completed to;

1. Identify any areas where access by RF workers or members of the general public may need to be restricted.
2. Determine RF EME levels in the general environment.
3. Determine the presence of interference signals.

These RF surveys are completed by a qualified RF Measurement Officer and are performed according to the principles laid out in the Australian Standard AS/NZS 2772.2: Radiofrequency fields Part 2: Principles and methods of measurement and computation– 3 kHz to 300 GHz.

EME MODELLING

TRS holds National Association of Testing Authorities (NATA) accreditation – Type A Inspection Body - Accreditation No. 15096 complying to AS/NZS ISO/IEC 17020 Standard.

Radiocommunications Systems Performance – Evaluation

ARPANSA Radiation Protection Series No. S-1 (RPS S-1) Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz

AS/NZS 2772.2 Radiofrequency fields Part 2: Principles and Methods of Measurement and Computation – 3 kHz to 300 GHz.

Modelling of electric and magnetic fields and equivalent power density from antennas and transmitters in the range:

1. 110 MHz to 90 GHz,
2. 50 MHz - 110 MHz for monopole (whip) antennas and single dipole antennas in selected configurations.

The levels from RF EME transmitting equipment can be assessed and analysed theoretically. These calculations are completed using specialised software that has been developed in accordance with the principles of AS/NZS 2772.2. These predictions are specified by the Communications Alliance Ltd Industry – C546:2020 Mobile Phone Base Station Deployment Code and are an integral part of Development Applications (DA) prepared for various councils and production of the required compliance documentation.

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RF EME AWARENESS TRAINING COURSE

This course can be delivered online or face to face.

RF EME Awareness Course Outline

1. Electromagnetic Fields
2. Biological Effects
3. Exposure Limits
4. Antenna Types
5. Personal Alarms
6. EME Protection and Safety
7. Radio Communications Site Management Book

Course Objectives

This course will ensure that workers who are potentially exposed to RF EME receive appropriate training and instruction in safe work practices and procedures and the controls in place to manage any potential RF hazard.

This course aims to meet the requirement that RF workers must be trained in safe work practices and supervised when appropriate.
Occupationally exposed persons must be provided with suitable training taking into account the nature of the work being carried out, the nature of the risk associated with the work and the control measures and safe work practices that have been implemented. They must be trained in the controls implemented to manage the potential RF hazard, including isolation, engineering and administrative controls, personal RF alarms and PPE as appropriate. This requirement is part of the ARPANSA Radiation Protection Series No. S-1 (RPS S-1) Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz.

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RF EME MEASUREMENT OFFICER TRAINING COURSE

RF EME Measurement Officer Course Outline

1. Understand the regulators and regulations applicable to RF EME
2. Know the history associated with EMR protection
3. Understand the main biological effects of RF EME
4. Be able to apply the ARPANSA RPS S-1 standard
5. Be able to apply AS2772.2 for measurements
6. Undertake RF EME measurements safely
7. Production of suitable measurement reports

Course Objectives

This course is designed for persons who, in the course of and intrinsic to the nature of their work, are expected to undertake measurements of Radio Frequency Electromagnetic Energy (RF EME) fields.

This course is aimed at ensuring that participants will have a comprehensive understanding of the principles applying to the practical measurement of complex RF EME fields. They will gain a deeper understanding of the applicable techniques, as detailed in AS/NZS2772.2 and will be able to apply those techniques and their limitations, whilst undertaking RF EME measurements. The issues of safety during the measurement process and accounting for the various uncertainties inherent in the RF EME measurement process are also included as is the preparation of suitable report formats.