TOTAL RADIATION SOLUTIONS

CAPABILITY STATEMENT

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NATA
WORLD RECOGNISED
ACCREDITATION

ACRBR
Australian Centre for RF Bioeffects Research
An NHMRC Centre of Research Excellence

COMPANY INFORMATION

Total Radiation Solutions (TRS) is a West 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. *TRS* has offices in Perth, Tweed Heads and Melbourne, that enables the provision of full service coverage for all metropolitan and regional areas throughout Australia. To this end, *TRS* offers 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 are uncompromising in their standards of excellence and quality.

Phill Knipe

Phill received a BSc degree in physics and chemistry in 1990, his MPhil in physics in 2002 and a PhD in physics in 2013 from Murdoch University, Australia. Since 1996 he has worked as a consultant physicist in the areas of ionising and non-ionising radiation protection in Australia and internationally. In 2002 he set up Total Radiation Solutions which holds ISO 17025 and ISO 17020 accreditations. He has published in peer reviewed journals in the measurement of electromagnetic fields. He is currently a member of Standards Australia Committee TE7 (EMF safety) and has been on the International Electrotechnical Commission (IEC) group responsible for the development and maintenance of the IEC measurement and modelling of radio waves standard (62232) since 2007. He is an affiliate researcher at the Australian Centre for Electromagnetic Bioeffects Research (ACEBR). He is a committee member of the Australasian Radiation Protection Society (ARPS) executive and a joint member of the Bioelectromagnetics Society (BEMS) and European Bioelectromagnetics Association (EBEA).

Jorg Jeske

Jorg commenced his technical career in 1971 and qualified to become a Technical Officer in the field of telecommunications. Since 1985 he has been involved in the operation and maintenance of radio & television broadcasting services for which he holds a BOCP. His involvement in the broadcasting area over the years has seen him progress through a range of positions from technical operations, supervision and management roles to ultimately being recognised as a subject matter expert in the field of RF EME. He is a qualified trainer specialising in the field of RF EME training and is also an approved signatory for measurement and modelling of RF EME, as well as being an honorary NATA technical assessor.

His major academic achievements are detailed below:

* Graduate Certificate in Project Management
* Bachelor of Business Degree (Operations Management & Human Resource Management)
* Post Certificate in Public Administration
* Certificate IV in Training and Assessment
* Broadcasting Operator's Certificate of Proficiency
* Electronics and Communications Certificate

James Ward

James Ward graduated with a Bachelor in Communications Engineering in 1999. He has been with Total Radiation Solutions since 2002 starting initially as a senior RF EME Drafter before completing training to become a RF EME Consultant. James is an approved signatory for measurement and modelling of RF EME and manages the drafting team nationally.

MEASUREMENTS

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

Assessment of Emissions and Immunity - Non-ionising Radiation Strength and Hazard Assessment

Measurement of electromagnetic fields in accordance with Australian/New Zealand AS/NZS 2772.2 for compliance with ARPANSA Radiation Protection Standard (RPS 3);

1. Broadband measurements of E-fields in the range of 300kHz to 45.5 GHz (excluding radar and similar pulsed sources),
2. Broadband measurements of H-fields in the range 300 kHz to 300 MHz,
3. Frequency selective measurements (Narrowband) of E-fields in the range 27 MHz to 6 GHz.

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.

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

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

Radiocommunications License Conditions (Apparatus Licence) Determination 2015;

Radiocommunications Licence Conditions (Temporary Community Broadcasting Licence) Determination 2015;

ACMA Guidelines on the assessment of installations against electromagnetic radiation (EMR) exposure limits, Part 2 – Predictions;

ARPANSA Radiation protection Standard No. 3 Maximum Exposure Levels to Radiofrequency Fields 3 kHz to 300GHz;

Industry Code C546:2018 Mobile Phone Base Station Deployment;

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

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

110 MHz to 60 GHz,
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 Australian Communications Industry Forum (ACIF) Industry Code – C546:2018 Mobile Phone Base Station Deployment and are an integral part of Development Applications (DA) prepared for various councils and production of the required compliance documentation.

EME GUIDES / RADIO COMMUNICATIONS SITE MANAGEMENT BOOKS

TRS can produce documentation required for site compliance, ensuring the safety for personnel accessing the site. The EME Guide/RCSMB will encompass compliance to operating procedures; identification of equipment on site; site occupants and their contact details; equipment specifications; drawings of the structure or rooftop, the emission patterns or plots, site access controls and details of required signage. EME Guides/RCSMBs can be produced with updates to relevant databases.

SITE AUDITS

A full audit of a site can be carried out with full attention to equipment, RF EME Occupational Health and Safety 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.

TRAINING

TRS offers an industry accredited (ACRBR) **RF EME Awareness Training Course.** This course can be delivered online to provide a fast and flexible training solution or face-to-face at your venue or a suitable training facility. All participants are examined and upon successful completion are issued a certificate.

TRS can also offer an industry accredited (ACRBR) 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.

CONSULTANCY

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

TRS KEY EMPLOYEES

Employee	Current Business Role
Phill Knipe	Principal Quality Manger Approved Signatory - Modelling Approved Signatory - Measurements Site Field Measurements
Jorg Jeske	RF EME Consultant Training Manager Approved Signatory - Modelling Approved Signatory - Measurements Site Field Measurements
James Ward	RF EME Manager Approved Signatory - Modelling Approved Signatory - Measurements Site Field Measurements
Bobby Dhanjal	RF EME Designer Site Data Collation Manager Document Drafting Manager
Narelle Taylor	Operations Manager