



RF Awareness Course Syllabus

Table of Contents

1	Purpose	3
2	Guidelines / Handbook	3
2.1	Minimum requirements - the following topics should be included:	3
2.2	Method of delivery	5
2.3	Course Duration	5
2.4	Delegate performance assessment.....	5
2.5	Certification.....	5
2.6	Validity and refresher training.....	5

1 Purpose

This document details the requirements of the course syllabus that Arqiva will accept for contractors accessing sites where RF awareness training is required.

2 Guidelines / Handbook

2.1 Minimum requirements - the following topics should be included:

- Electric and magnetic fields
- Time varying fields
- Frequency and wavelength, polarisation, speed of light relationship, power density
- Electromagnetic spectrum, RF and Microwave bands
- Ionising vs non-ionising radiation
- Human body - direct and indirect effects
- Factors affecting absorption, including body orientation and size
- Effect of frequency on absorption, penetration depth
- Non-thermal effects at lower frequencies
- Roles of ICNIRP, EU, UKHSA, HSE
- EMF Directive, CEMFAW Regulations
- Exposure Limit Values and Action Levels
- EU Council Recommendation for public exposure, basic restrictions and reference levels
- Risk assessment, and *workers at particular risk*
- RF suits (that they exist, not detail of use)
- Protection against contact current effects on MF and LF sites
- Personal monitors – features, limitations, how to select an appropriate model and use correctly, risk assessment
- Demonstration of at least one type of monitor used on Arqiva sites
- How to switch on and test
- How to wear and use
- How to recognise common problems
- Reasons for false alarms, minimum measurement distance
- Intentional and unintentional emitters
- RF system and antenna types, and typical power outputs
- Low Frequency and Medium Frequency antennas and precautions
- Warning signage
- Provision of site-specific information
- Reduced power or shutdown of systems

- Company RF safety policy, action in the event of an alarm or overexposure

A training provider might want to organise the above items into a modular structure. For example, the format suggested below is based on a course design which has been proposed for adoption by the Mast and Tower Safety Group (MATS). Other formats are possible.

1. Introduction and housekeeping
2. What is RF?
3. Biological effects of exposure to RF
4. International guidelines and UK legislation
5. Personal protective equipment and personal monitors
6. Typical hazards and controls
7. Course assessment or test

Details of modules (items 2 – 6 above)

What is RF?

- Electric and magnetic fields
- Time varying fields
- Frequency and wavelength, polarisation, speed of light relationship, power density
- Electromagnetic spectrum, RF and Microwave bands
- Ionising vs non-ionising radiation

Biological effects of exposure to RF

- Human body - direct and indirect effects
- Factors affecting absorption, including body orientation and size
- Effect of frequency on absorption, penetration depth
- Non-thermal effects at lower frequencies

International guidelines and UK legislation

- Roles of ICNIRP, EU, UKHSA, HSE
- EMF Directive, CEMFAW Regulations
- Exposure Limit Values and Action Levels
- EU Council Recommendation for public exposure, basic restrictions, and reference levels
- Risk assessment, and *workers at particular risk*

Personal protective equipment and personal monitors

- RF suits (that they exist, not detail of use)
- Protection against contact current effects on MF and LF sites

- Personal monitors – features, limitations, how to select an appropriate model and use correctly, risk assessment
- Demonstration of at least one type of monitor used on Arqiva sites
- How to switch on and test
- How to wear and use
- How to recognise common problems
- Reasons for false alarms, minimum measurement distance

Typical hazards and controls

- Intentional and unintentional emitters
- RF system and antenna types, and typical power outputs
- Low Frequency and Medium Frequency antennas and precautions
- Warning signage
- Provision of site-specific information
- Reduced power or shutdown of systems
- Company RF safety policy, action in the event of an alarm or overexposure

2.2 Method of delivery

Training providers can offer face-to-face classroom environment, remote live presentation or online automated e-learning, or a combination of those methods. Contractors buying the training are free to choose any method(s), though they are required, as part of the Arqiva accreditation process, to satisfy Arqiva that they are successfully integrating their chosen option into an overall occupational health and safety management process.

2.3 Course Duration

To adequately cover the items listed above, for delegates new to the subject we would expect the training session to last at least four hours or half a day. For refresher training a shorter duration might be appropriate.

2.4 Delegate performance assessment

Learning outcomes of delegates should be assessed by means of a written or multiple-choice test covering all parts of the syllabus. Suggested pass mark 80%.

Training providers should have a procedure for dealing with delegates not passing the assessment.

2.5 Certification

For each delegate passing the assessment the training provider should issue a certificate to the delegate's organisation.

2.6 Validity and refresher training

The training should be refreshed every 3 years.