Syllabus version 1.5 change log

Differences between ver 1.4 and 1.5

(*Not including minor typos and formatting*)

New EMF items in syllabus version 1.5

Note some items were in version 1.4 (and earlier), these are shown in blue text.

Foundation

1G2	Recall the • purpose of basic EMF restrictions; • equipment to which the EMF restrictions apply; • transmit power level at which the EMF restrictions apply; • persons to which the EMF restrictions apply. • need to keep a written record of assessments carried out. *Note:* *1. See also 8D1.* *2. The record includes a justification of why no further action is required if that is the case (e.g., power levels are below the threshold).*
4C4	Recall that antenna gain can also be expressed relative to a theoretical antenna that radiates equally in all directions and this is shown as EIRP, Effective Isotropic Radiated Power. Recall that 10W EIRP is equivalent to 6.1W ERP.
8D1	Recall that the main health effect of exposure to electromagnetic radiation is heating of body tissue and that the eyes are particularly susceptible to damage.

Intermediate

1G2	Recall the • average and peak transmit power level at which the EMF restrictions apply. • when there is a need to reassess EMF compliance.
4C4	Recall that an isotropic radiator is a theoretical antenna that radiates equally in all directions. Recall the Effective Isotropic Radiated Power (EIRP) is based on an isotropic antenna reference rather than a dipole and is expressed in dBi. Recall that a half-wave dipole has a gain, in its optimum direction, of 2.15dBi
8D1	Recall that at 50W transmit power, especially with higher gain antennas, the EMF compliance distance can be several metres. Recall that, when mobile, pedestrians might be inside the EMF compliance distance. Recall that in such situations, especially when stationary, transmission must cease. *For example: 50W continuous FM into a 4 element Yagi gives an EMF compliance distance of around 7m.* *When mobile with 50W into a modest roof-mount antenna (3dBi) the EMF compliance distance is around 3m.*

Full

1G2	Understand relevant information in Schedule 3 to the licence. • Origin of the EMF restrictions (ICNIRP); • Meaning of the term 'general public'; • Areas in which the general public need to be protected from EMF in breach of the limits. • Records of EMF assessment; • Procedure for carrying out an EMF assessment; • Emergency situations.
5A3	Recall that an e-m wave comprises E and H fields in phase, at right angles and at right-angles to the direction of travel and the power flux density (watts / Metre squared) is given by the product of E and H. Recall that in circular polarisation, the polarisation of the wave rotates as it propagates, with either a right-handed (clockwise from behind) or left handed polarisation. Recall that this is often used for satellite communication where the orientation of the satellite is indeterminate. Recall that the transmit and receive antennas should have the same polarisation.
8D1	Recall that the International Commission for Non Ionising Radiation Protection (ICNIRP) produces guidance for exposure to Radio Frequency fields. Understand it is not advisable to exceed the recommended safe exposure levels and that this is particularly applicable at locations open to the public.

Other changes

1G1	Old 1G1 (LF, MF & HF) and 1G2 (VHF, UHF and SHF/EHF) combined into new 1G1. Schedules explicitly identified.
2H5 Full	Apply formula for R_D and damping resistors removed.
2I4 Int	Calculation of collector resistor and understand how signal current is amplified and effect on collector voltage removed.
6C1 Int	Direct pickup text clarified.
10	All practical assessments removed.