

# SIMPLIFYING SMALL CELL INSTALLATION

## HARMONIZED PRINCIPLES FOR RF COMPLIANCE



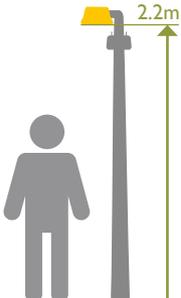
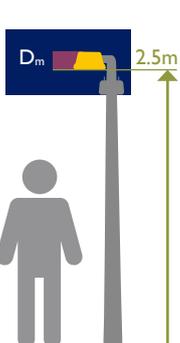
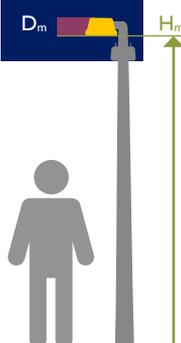
Simplifying small cell installations, by the construction of scalable and repeatable processes, is a key requirement that will lead to small cells being a fraction of the cost when compared with deploying macro sites. A contributory factor towards this goal, is the way radiofrequency (RF) compliance is undertaken. This compliance is a key requirement to ensuring the necessary distances from the radio transmitters contained within the small cell.

Currently, different types of rules are used in different nations and states which makes it challenging for the telecoms industry to develop a low-cost repeatable deployment process. For example, in some regions, rules are based on high power macro sites which are considered overly complex and hence expensive for low power small cells.

In this infographic, SCF and GSMA recommend adoption of a harmonized

set of installation rules for RF compliance and hence endorse the use across the globe of the installation classes defined in IEC 62232 Ed.2.0.

This IEC document defines the necessary installation requirements based on the equivalent isotropic radiated power (EIRP) of all equipment at the site and are outlined below.

<b>SIMPLIFIED INSTALLATION RULES</b>		Check pre-existing RF sources			
<b>From IEC 62232 Ed.2.0</b>					
Installation must be done according to instructions from the manufacturer or entity putting into service					
Installation class	E0	E2	E10	E100	E+
Total EIRP	N/A	$\leq 2\text{ W}$	$\leq 10\text{ W}$	$\leq 100\text{ W}$	No limit
Minimum height above walkway	None	None	2.2 m	2.5 m	$H_m$ (calculation)
Exclusion zone	None, touch compliant	Provided in manufacturer's instructions Small $D_m$ not shown on the picture		Provided in manufacturer's instructions $D_m$ in main lobe direction	
Check pre-existing RF sources	N/A	N/A	N/A	$5D_m$ in main lobe direction $D_m$ in other directions	

The lowest power devices can be installed with the minimum of design constraints. Touch compliant equipment such as residential small cells can be sited anywhere, much like wireless access points. For higher power sites, manufacturers' guidelines, minimum height requirements ( $H_m$ ) and exclusion zones ( $D_m$ ) must be considered. These site design parameters should be provided in the product's technical documentation.

SCF and the GSMA recommend adoption of the installation classes specified by the IEC 62232 Ed.2.0 standard that are applicable to exposure limits based on international guidelines (ICNIRP). Adoption of these harmonized and simplified rules by regulators and policy makers will reduce administrative overheads for both planning authorities and mobile operators. Regions using the IEC installation classes will benefit from expedited small cell deployment and the social and economic benefits of enhanced mobile broadband for all.