

# A Light Regulation Regime for SAWAPs

## Stakeholder Workshop

Brussels 22 November 2018

**SMART 2018/0017: Light deployment regime for SMALL AREA WIRELESS ACCESS POINTS**

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# Summary of Discussion Group 3

## Group 3 Participants :

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# Workshop on a Light Deployment Regime for Small Cells across the EU

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## Summary of Discussion Group 3

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# Definition

- Needs to be
  - Useful, credible, simple, sellable, explicit
- Size
  - E.g. <0.5m per side – low profile
- Weight
  - Affects installation (e.g. < 10 kg)
- Height – max height for applicability of light touch
- Power
  - Means different things
  - Regulatory limits v/m on the street out of scope
  - Conducted power vs EIRP
  - Use existing power classes from 3GPP as a starting point

# 3GPP base station classes for LTE TS 36.104

Table 6.2-1: Base Station rated output power

BS class	$P_{\text{rated,c}}$
Wide Area BS	- (note)
Medium Range BS	$\leq + 38$ dBm
Local Area BS	$\leq + 24$ dBm
Home BS	$\leq + 20$ dBm (for one transmit antenna port) $\leq + 17$ dBm (for two transmit antenna ports) $\leq + 14$ dBm (for four transmit antenna ports) $< + 11$ dBm (for eight transmit antenna ports)
NOTE: There is no upper limit for the rated output power of the Wide Area Base Station.	

# 3GPP LTE Active Antenna System (AAS) BS TS

37 842

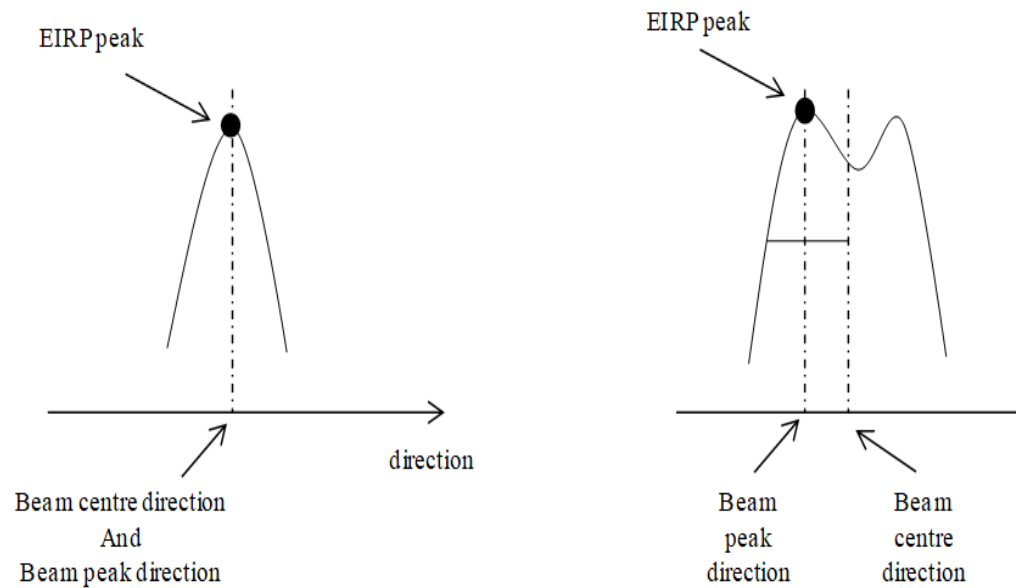


Figure 7.2.2-1: Example of beam direction pair

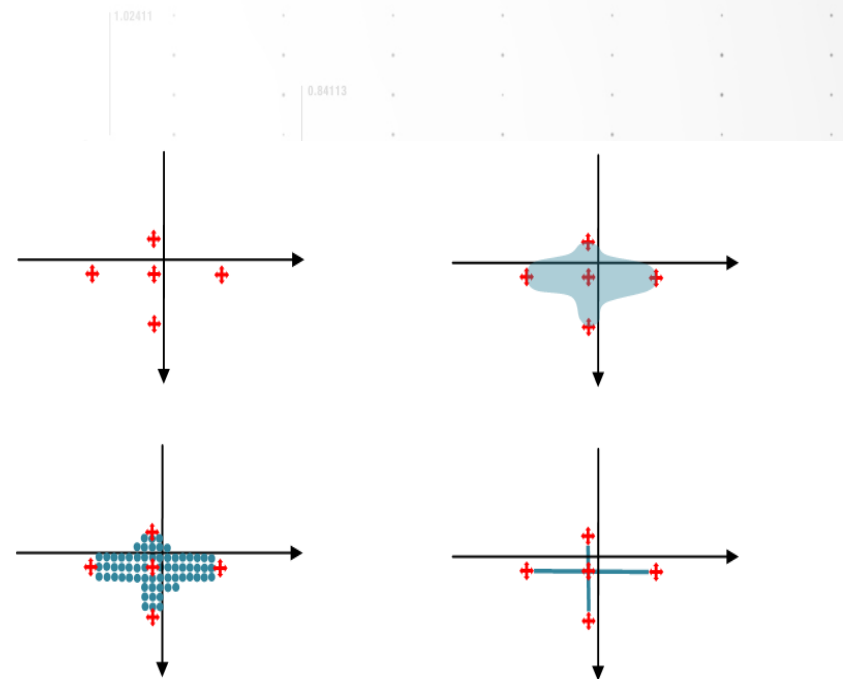


Figure 7.2.4-1: Examples of AAS BS beam declarations depicted in a directions diagram

# Aesthetics

- Minimize regulation
- Allow for local discretion
- Smaller is better
- Integration (smart tile)
- Is it too difficult to specify?
- What about the wireless backhaul?



# Notification

- Lowest power class would not need notification
- Indoor vs. outdoor
- Licensed vs. unlicensed
- If it meets aesthetic and safety guidelines
  - Installer/operator notifies national authority of deployment



# Safety

- How to show conformance in the field to a particular v/m limit
- Who is responsible? (Site must comply)
  - 10 operators on a microcell mast from PMR to mmWave links
- How is it done now?
  - Start with conducted power, add antenna directivity, compute field strength for exclusion zone
  - EMF measurements are required
- Define max EIRP limit
- Cumulative effects
  - Carrier aggregation
  - Multiple BS

# Safety

- Bodies looking into how to measure EMF in the field
  - CENELEC CLCTC 106x
  - ECC PT1
  - ITU-R WP-5D
- Active antenna / MIMO challenges
  - Actual EIRP based on dynamic closed loop signalling with actual UE
  - Many ways to configure resources between users
  - No obvious way to measure indicative EIRP based on typical loading (re-sue test modes?)
  - Spectrum analyser may see very different signal than UE
  - Beamforming can significantly increase exclusion zone distance

## Other

- Possible implementation based on Spanish self-declaration of conformity to local rules

