

Motivation on introduction a new Power Class for FR2

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Introduction a new FR2 Power Class

- Motivation

- > New FR2 use cases are observed in the market where a FR2 UE has limited form factor and less RF capability, but needs to support higher data rate for services such as real-time ultra high definition video, live streaming and XR virtual interaction in some hotspot scenarios. Examples of such UEs are XR devices and wearable devices serving as a data hub for others.
- > It is challenging for those devices to be equipped with multiple panels and a large number of antenna elements on FR2 bands. Those FR2 devices would work well in the hotspot scenarios, e.g., stadium or exhibition center, because in such scenarios, the FR2 network deployment is well-designed and the coverage can be guaranteed.
- > The PC7 RF architecture can reduce beam management burden and save power to achieve better user experience in real life, and thus it could be assumed for the targeted use cases. The low complexity would be beneficial to shorten the time to market of such FR2 devices and increase the numbers of FR2 devices, and thus help to speed up FR2 network deployment.
- > However, existing RF requirements for PC7 cannot be applied for the above FR2 devices:
 - ❑ The RF architecture of such kind of devices can be similar to FR2 power class 7 (PC7), which is viewed as RedCap UE and limited to 100MHz bandwidth. But those devices require bandwidth larger than 100MHz to meet the data rate demand of the target services. Thus the existing FR2 PC7 RF requirements cannot be applied to those devices.
 - ❑ Moreover, regional regulation mandates the support of 200MHz channel bandwidth for a single carrier and 2x200MHz downlink CA for FR2. So in those regions the PC7 requirements cannot be applied to those devices.

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- Objectives

- > Introduce a new power class for FR2, based on the architecture assumed for FR2 power class 7
 - ❑ Take n258 as example band
 - ❑ Apply the RF transmitter power requirements for power class 7 to this new power class
 - ❑ Specify new RF requirements for 200MHz channel bandwidth for minimum output power, Reference sensitivity and EIS spherical coverage
 - ❑ Specify new RF requirements for CA and UL MIMO