WHAT IS CLAIMED IS:

1. A user equipment (UE) comprising:

at least one processor; and

at least one memory storing instructions thereon that, when executed by the at least one processor, cause the UE to perform at least:

indicating, from the UE, to a network device, support for a per-band maximum UE transmission power for a radio band combination (BC) including two or more uplink carriers; and

operating with a maximum UE transmission power (PCMAX) over the two or more uplink carriers, wherein an upper limit for PCMAX (PCMAX_H) and a lower limit for PCMAX (PCMAX_L) are determined using a summation of a per-band power class for respective bands of radio bands in the radio BC.

2. The UE of claim 1, wherein uplink carrier aggregation (CA) is supported by the UE.

3. The UE of claim 2, wherein the radio BC supports two or more uplink CA.

4. The UE of claim 1, wherein the instructions stored on the at least one memory, when executed by the at least one processor, further cause the UE to perform:

indicating, from the UE, to the network device, the per-band PC for the band in the radio BC.

5. The UE of claim 1, wherein the indicating of the support for the maximum power based on a per-band indicates that the UE is capable of operating at full power in each uplink band.

6. The UE of claim 1, wherein if a radio band includes two or more uplink carriers, the combined power is limited to the PC for the associated radio band.

7. A network device comprising:

at least one processor; and

at least one memory storing instructions thereon that, when executed by the at least one processor, cause the network device to perform at least:

receiving, from a user equipment (UE), an indication of a UE capability to support a per-band maximum power for a radio band combination (BC) including two or more uplink carriers used by the UE;

determining whether the UE supports per-band maximum power for the radio BC based on the indication of the UE capability; and

in response to determining the UE supports per-band maximum power for the radio BC, determining a total UE transmission power (PCMAX) over the two or more uplink carriers, wherein an upper limit for PCMAX (PCMAX_H) and a lower limit for PCMAX (PCMAX_L) are determined using a summation of the per-band power class for respective bands of the radio bands in the radio BC.

8. The network device of claim 7, wherein indication of a UE capability to support a per-band maximum power indicates uplink carrier aggregation (CA) is supported by the UE.

9. The network device of claim 8, wherein the radio BC supports two or more uplink CA.

10. The network device of claim 7, wherein indication of a UE capability to support a per-band maximum power indicates that the UE is capable of operating at full power in each uplink band.

11. The network device of claim 7, wherein the instructions stored on the at least one memory, when executed by the at least one processor, further cause the apparatus to perform:

receiving, from the UE, a per-band power class (PC) for the band in the radio BC.

12. The network device of claim 7, wherein the instructions stored on the at least one memory, when executed by the at least one processor, further cause the apparatus to perform:

calculating a maximum allowed UE transmission power for the band based on a maximum power class associated with a corresponding band for the radio BC; and

applying, in uplink power control, the maximum UE transmission power for the band without considering the per-BC power class for the radio BC.

13. The network device of claim 7, wherein

the indication of the UE capability to support the per-band maximum power for the radio BC used by the UE is included in a UE power capability report, and

if the UE power capability report does not include the indication of the UE capability to support the per-band maximum power for the radio BC used by the UE, the uplink power control is based on a default power control.

14. The network device of claim 7, wherein if a radio band includes two or more uplink carriers, the combined power is limited to the PC for the associated radio band.

15. The network device of claim 7, wherein the instructions stored on the at least one memory, when executed by the at least one processor, further cause the apparatus to perform:

relaxing a lower boundary of a total configured maximum output power as a delta value equal to the sum of a maximum power of the band in the radio BC minus a maximum of one of the respective NR band or an intra band NR CA UE Power Classes within a corresponding band configuration.

16. The network device of claim 7, wherein the instructions stored on the at least one memory, when executed by the at least one processor, further cause the apparatus to perform:

relaxing a lower boundary of a total configured maximum output power by replacing the UL power class for the UL CA with the maximum of one of the respective NR band or an intra band NR CA UE Power Classes for the UL CA.

17. The network device of claim 7, wherein the instructions stored on the at least one memory, when executed by the at least one processor, further cause the apparatus to perform:

relaxing a lower boundary of a total configured maximum output power for UL inter-band CA by replacing UL power class for the UL CA instead of the sum in the formula to determine the lower boundary formula with the UL power class for the UL CA.

18. A non-transitory computer-readable storage medium comprising instructions stored thereon that, when executed by at least one processor, are configured to cause a computing system to:

receive, at a network device from a user equipment (UE), an indication of a UE capability to support a per-band maximum power for a radio band combination (BC) including two or more uplink carriers used by the UE;

determine whether the UE supports per-band maximum power for the radio BC based on the indication of the UE capability; and

in response to determining the UE supports per-band maximum power for the radio BC, determining a total UE transmission power (PCMAX) over the two or more uplink carriers, wherein an upper limit for PCMAX (PCMAX_H) and a lower limit for PCMAX (PCMAX_L) are determined using a summation of per-band power class for respective bands of the radio bands in the radio BC.

19. The non-transitory computer-readable storage medium of claim 18, wherein indication of a UE capability to support a per-band maximum power indicates uplink carrier aggregation (CA) is supported by the UE.

20. The non-transitory computer-readable storage medium of claim 18, wherein

the indication of the UE capability to support the per-band maximum power for the radio BC used by the UE is included in a UE power capability report, and

if the UE power capability report does not include the indication of the UE capability to support the per-band maximum power for the radio BC used by the UE, the uplink power control is based on a default power control.