



Part 96

Common Mistakes in Applications

Note: The views expressed in this presentation are those of the author and may not necessarily represent the views of the Federal Communications Commission

April 2023

TCB Workshop



EIRP LIMIT

Category B CBSD

- 47 dBm / 10 MHz
- ~ 50 Watts / 10 MHz

| OBW | dBm / 10 MHz | Watts / 10 MHz |
|-----|--------------|----------------|
| 10 | 47.00 | 50.12 |
| 20 | 50.01 | 100.24 |
| 30 | 51.77 | 150.36 |
| 40 | 53.02 | 200.47 |



Filing Mistakes

- PSD was not in EIRP
 - Reference KDB 940660 D01, Note 9: “Maximum PSD values are radiated. Measurement can be done conducted and add antenna gain back in”.

| Device | Maximum PSD – Radiated (dBm/MHz) |
|------------|----------------------------------|
| Cat A CBSD | 20 |
| Cat B CBSD | 37 |



Filing Mistakes

- Incorrectly summing of cross polarized ports in test report
 - When conducted measurements of two transmit chains are used for EIRP Refence [KDB 662911 D02](#)
 - If the transmitter output signals are completely uncorrelated, then each of the two EIRPs must individually be below the limit
 - If one of the transmitter outputs is a 90-degree phase-shifted replica of the other and the phase centers of the two antennas are co-located, then each of the two EIRPs must individually be below the limit
 - If the transmitter output signals are correlated and the conditions above do not apply, then the sum of the EIRPs from the polarizations must be below the limit.



Filing Mistakes

- Incorrect MIMO operating mode was used when calculating EIRP compliance.
 - DUT supported 2 modes of operation
 - 16 Beam (32 Ports)
 - 8 Beam (16 Ports)
 - Conducted measurements of 8 beam / 16 ports mode resulted in **higher** values than 16 beam / 32 ports mode
 - Test report then **incorrectly** used 32 ports mode instead of 16 ports mode when adjusting emission levels measure on individual outputs by $10 \log(NANT)$ to find total conducted power per [KDB 789033 D02](#)



Filing Mistakes

- Incorrectly listing of emission designator on the grant for carrier aggregation channels.
 - Issue was 20+20 MHz CA did not have a 40 MHz 731-line entry
 - The total power calculated on 20+20 MHz CA was listed as a 20 MHz line entry putting it over the limit
 - Reference April 2016 TCB Workshop presentation: [Review of Selected General Review and Approval Items](#) for Form 731 CA line entries
 - SAS admins rely on this information being correct as they use it when authorizing CBSDs