

## RFI Test Report – Lighting Device

**Manufacturer:** Cree

**Model:** 100W eq A21 Dimmable LED bulb

Model number: TA21-16050MDFH25-12DE26-1-11

Description: 17.5 W (100W equivalent) medium base bulb, soft white

Purchased from: Home Depot Price: \$9.60

Test equipment: Isolation transformer, 50 uH LISN, HP 8560A with 20 dB preamp, Tek TDS320A. Note: Spectrum spikes around 100 MHz are FM band leakage.

Tested by: Gary Johnson, NA6O Date: Mar 18, 2019

### Summary

Recommend for amateur radio stations: NO

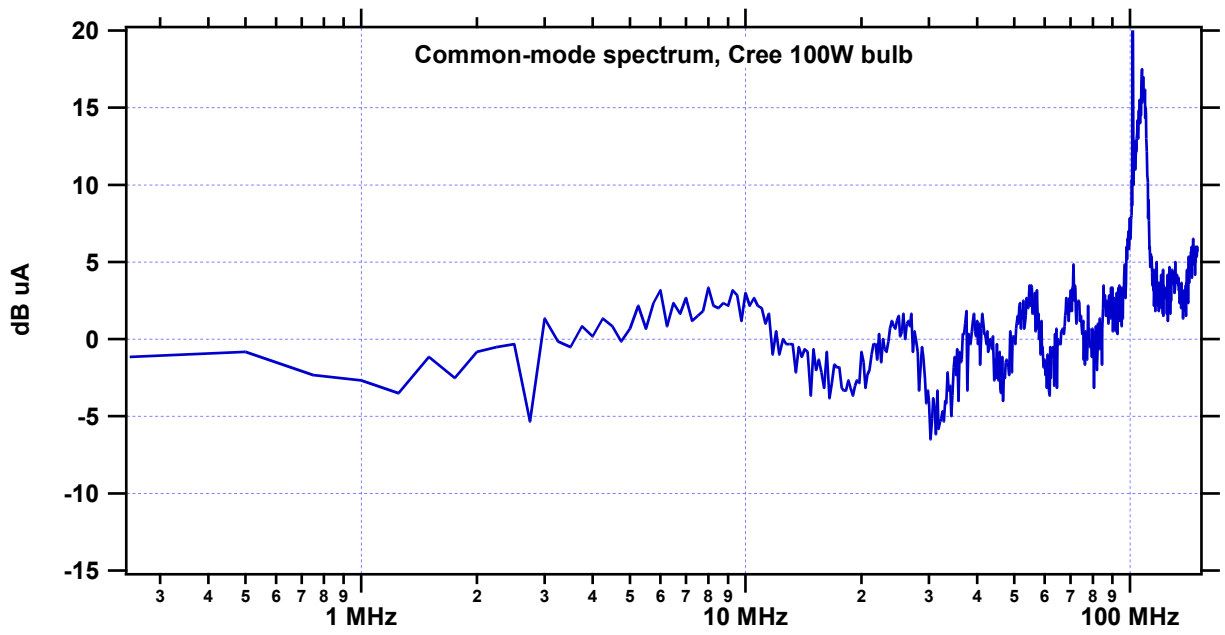
FCC Part 15 conducted emissions: Compliant

FCC Part 15 labeling: Compliant, listed on package only.

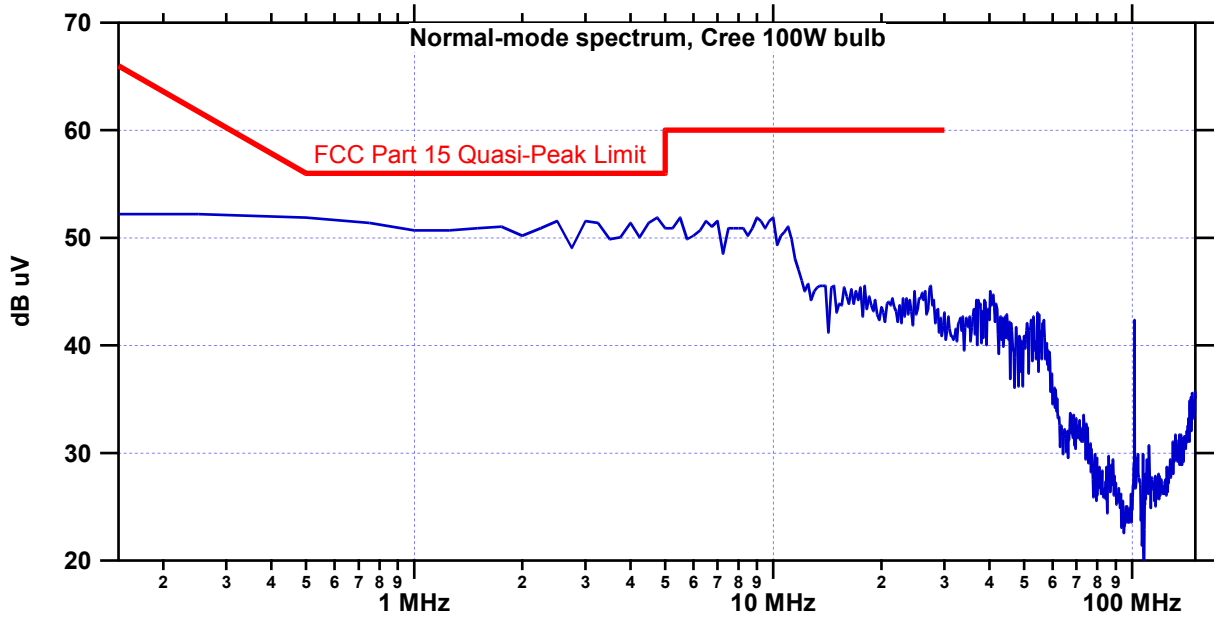
### Observations:

Switching frequency 57 kHz. Just under FCC Part 15 limits below 11 MHz. Normal-mode noise is full of fast glitches, is asymmetrical, and is not complementary between the two phases, leading to common-mode current. RFI was easily heard with my portable radio around 10 MHz. This bulb would not be my first choice for use at amateur radio stations with otherwise low noise levels.





**Normal-mode Spectrum**



### Normal-mode Waveform

Peak-detect mode. Bursts are 57 kHz sinewaves with some distortion. Note asymmetry. This is caused by fast spikes on the switching waveform, about 10 ns wide FWHM. Also, the bursts toggle between high and low amplitudes on each half of the 60 Hz waveform. The combination of these odd characteristics are likely to cause RFI.

