

TEST DESCRIPTION

Through this authorization, Space Exploration Holdings seeks to test user terminals in fixed and ESIM configurations at transmit duty cycles up to the Commission's occupational/controlled exposure limits. The testing will involve up to 200 total user terminals, including a combination of fixed devices and ESIMs (which may include a combination of earth stations on vehicles, vessels, and aircraft). This testing will allow SpaceX to characterize the performance of these user terminals under a wide range of conditions and to measure the RF density of emissions from these user terminals at a range of duty cycles.

Background

The Commission has previously authorized SpaceX to conduct testing of ESIMs in a variety of configurations, but not at the occupational duty cycle set forth in this application.¹ With respect to fixed user terminals, the Commission has granted SpaceX blanket licenses to operate its terminals,² subject to duty-cycle limits that are lower than the testing contemplated in this application. SpaceX seeks temporary authority to test its user terminals at duty cycle limits that are higher than set forth in its current authorizations (but still within the Commission's radiation hazard limits) to explore ways of providing enhanced service to end-users in a variety of contexts.

Interference Protection

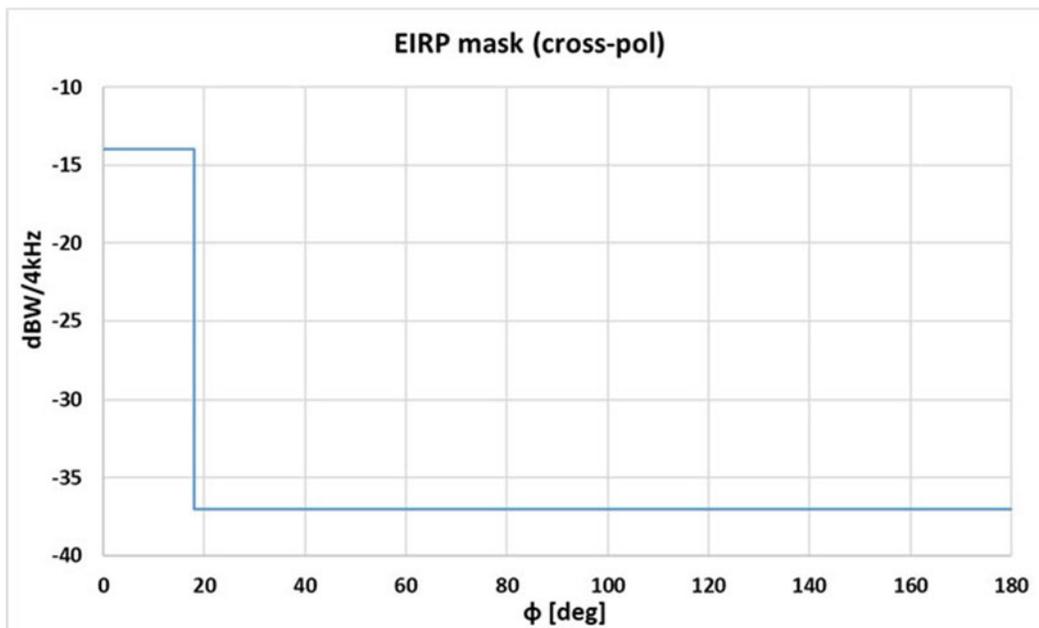
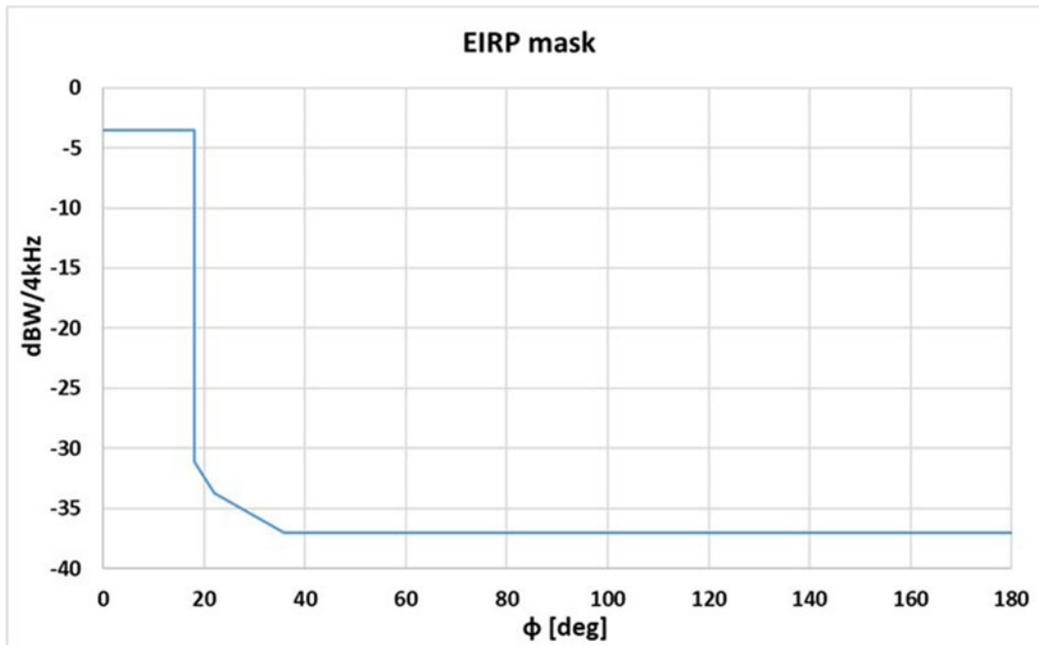
The proposed operations will protect other systems from interference generally by complying with the same limits that apply to other authorized SpaceX user terminals and to the SpaceX earth station network as a whole. These measures are further described in a separate attachment.

¹ See, e.g., Space Exploration Holdings, LLC, Experimental Special Temporary Authorization, ELS File No. 0190-EX-CN-2022 (granted May 26, 2022) (call sign WM2XNK).

² SpaceX Services, Inc., Radio Station Authorization, IBFS File No. SES-LIC-20190211-00151 (issued Mar. 13, 2020); SpaceX Services, Inc., Radio Station Authorization, IBFS File No. SES-LIC-20220125-00081 (issued May 16, 2022).

Antenna Performance

The user terminals all will comply with the EIRP mask depicted below.



RF Safety

The operations described in this application would occur only under controlled conditions and would not involve members of the public. Thus, under the FCC's current RF-exposure guidance, these SpaceX user terminals may operate at a duty cycle of up to 78%—the appropriate limit for occupational exposure under current OET guidance.³ The details of this radiation hazard analysis are included as a separate attachment to this application.

³ See Federal Communications Commission Office of Engineering and Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields* (1997).