

**Explanatory Statement: Description of Ground Truth Emitter System**

The ground truth emitter system consists of four (4) temporary transmitting ground stations located at fixed survey points at the Burnet Municipal Airport, which is also known as Kate Craddock Field, a public-use airport located one nautical mile (1.85 km) southwest of the central business district of Burnet, a city in Burnet County, Texas.

The test dates are initially scheduled for February 15-18, 2022, but in order to allow for schedule changes due to weather and/or ongoing public health issues or a need to repeat portions of the testing program, we request permission for the use of system during the period extending from February 15, 2022 to March 31, 2022.

Each transmitter will be comprised of a Texas Instruments LMX2820EVM synthesizer board with Stanford Research Systems PRS-10 frequency standard and a Pasternack PE9856B/SF-10 10dBi horn. The purpose of these emitters is to provide a ground truth locating system for SAR testing purposes under a government contract HQ08452090004 with the Defense Innovation Unit. Each system will be physically located within 1 meter of the ground surface.

The emitters will be positioned on the Burnett Municipal airport premise and be emitting continuous wave radiation with  $EIRP < 10dBi + 7dBm = +17dBm = -13dBW$  for the duration of the SAR in-flight testing periods. The horns will be pointed at a  $45^\circ$  angle towards the sky in a westward direction. Each is a standard horn with approximate a  $\pm 30$ -degree 3dB emission pattern. The emitter's operating frequency will be offset from each other by 10MHz and will include 9.21 GHz, 9.22 GHz, 9.23 GHz, 9.24 GHz. The emission will occur only during the contract's scheduled flight tests under the modified authority for current Call Sign WL2XGM (pending application under ELS File No. 0289-EX-CM-2021).