Mitigation Plan, Lynx B20A Mobile Air to Ground Radar System

File No. 1615-EX-ST-2021
Band 15.2 – 16.2 GHz
Power 300W
Signal Linear FM Chirp

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TABLE OF CONTENTS

1 PURPOSE

This General Atomics Aeronautical Systems, Inc., (GA-ASI) document provides a mitigation plan for the inclusion of a lower frequency for a signal emission designator that applies to the Southern California area.

2 SCOPE

This document is intended as a reference for the FCC to understand the use case that requires the modification to the existing frequency authorization for the Lynx Airborne Air to Ground Radar System designed and built by GA-ASI.

3 MITIGATION PLAN

The primary purpose of the request to add a lower section of bandwidth to 0396-EX-CN-2020, callsign WL2XAN, which covers radiation of an FM Chirp down to 15.2 GHz. This will enable functionality of the Lynx radar system to increase its range resolution to detect both moving and stationary ground objects. Additionally, we would like to demonstrate this capability to our customers in a confined area within the Southern California region at a very specific timeframe. The customer request would be a for a 3-4 hours at a time at a predetermined date planned at minimum 14 days in advance, and within the specific reduced area (shown below) as the primary location that the beam would be pointed for that exact period of time. We would also provide a "buzzer" phone number with this request so that operation could be ceased in real-time if an interference with other emitters were caused to minimize any impact to other entities.

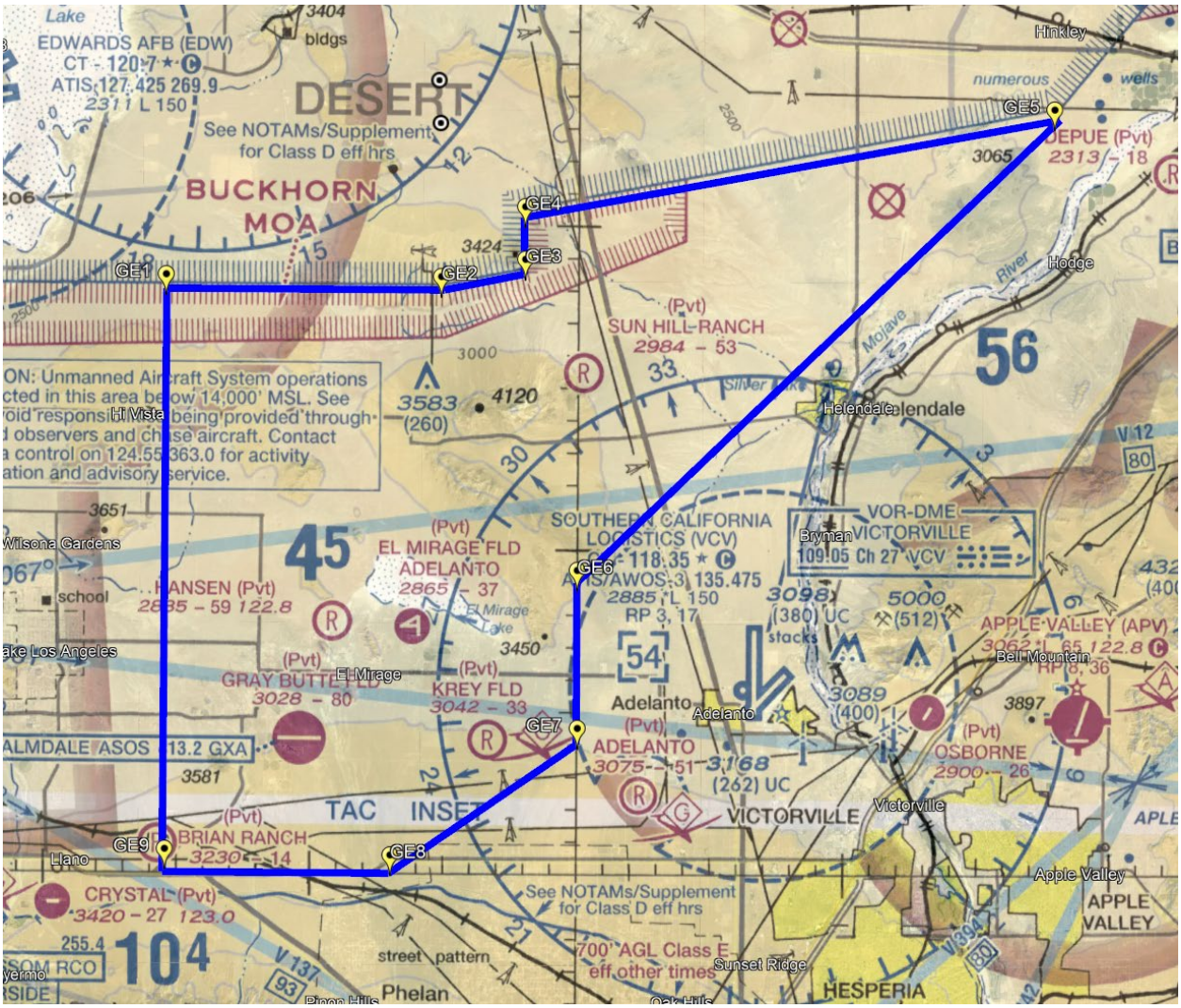

Figure 1, Detail Mitigation Area of Operation: 15.2-16.2GHz beamwidth will be aimed from aircraft flying less than 12,500kft MSL at a 300W EIRP to a point on the ground ***only in the confines of this polygon****.*

Polygon Point No	Latitude	Longitude
GE1	34.796516°	-117.758707°
GE2	34.796096°	-117.586050°
GE3	34.805230°	-117.533393°
GE4	34.832293°	-117.533598°
GE5	34.883319°	-117.201475°
GE6	34.645492°	-117.499899°

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Polygon Point No	Latitude	Longitude
GE7	34.564272°	-117.499324°
GE8	34.498610°	-117.615939°
GE9	34.501083°	-117.757018°

Figure 1 shows that the lower end of the frequency spectrum will only be used at very reduced area compared to 0396-EX-CN-2020, callsign WL2XAN, (shown in Figure 3). It will also only be used to a maximum altitude of 12,500 ft MSL, and the beam will only be aimed at the ground within the confines of GE1-9, as shown above. This will very purposely avoid aiming at any airfield which may have a ground to air radar for air traffic control within the Southern California area. This should also be a relatively uninhabited site, compared to the area shown in Figure 3.

Figure 2 shows a visual image of the Lynx gimbaled antenna which provides us the capability while airborne to aim the beam directly at a specific point on the ground to purposefully deconflict with other emmiters/receivers in the Ku spectrum as required. When using the lower portion of the band requested, the area radiated will remain the Blue box in Figure 1.

Figure 2, Lynx Airborne SAR/GMTI Radar, Gimbaled Dish Antenna

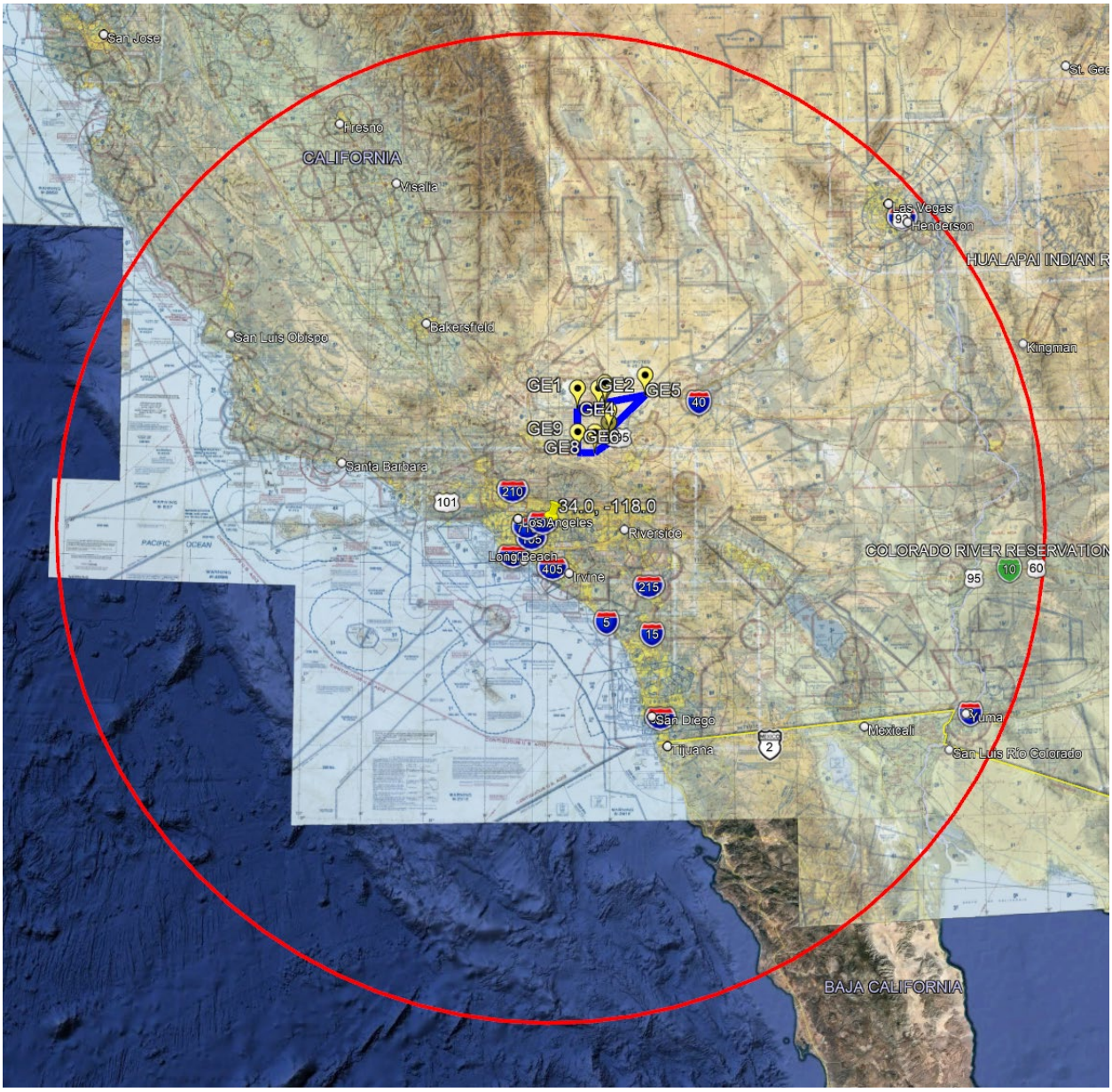

Figure 3, Area showing the overall area of operations for 34 N 118W at 375km radius, and the relatively small region where 15.2GHz - 16.2 GHz is required for this authorization.

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