

Experimental Request Summary

ISR Group LLC is requesting to reestablish a previously existing Experimental grant for frequencies at the ISR Group Range Complex in Hardin County, TN. The Experimental Request will be for the Unmanned Aircraft Systems (UAS) listed in Figure 1 below to conduct flight operations support and various aeronautical research projects and activities:

Flight Operations Support: MTSU, in collaboration with ISR Group, is developing a UAS program with the goal of establishing a concentration in UAS for an Aerospace Bachelor of Science degree. In order to establish UAS Flight Labs or “hands on” syllabus requirements, actual flight operations are required for faculty certifications and student training, as well as internships in UAS operations, maintenance, management & air traffic control procedures on various unmanned systems.

Aeronautical Research: MTSU is an active voting member on the ASTM International F38 committee. The primary objective of the F38 committee is to assist the FAA with the development of industry consensus standards to support specifically the integration of Small Unmanned Aircraft systems (sUAS) into the U.S. National Airspace System (NAS). UAS flight operations & collected data will aid MTSU in gathering and providing the committee with accurate information and system data. Additionally, MTSU holds leadership responsibilities on the ASTM F38.03 subcommittee which is assisting to develop new specifications for sUAS crew training.

System Engineering (SE) 2020 Next Generation Air Traffic Management: UAS flight operations & collected data will also assist with SE 2020 initiatives in defining Next Generation Air Traffic Management system requirements. As an ITT Industries SE 2020 team member, MTSU in partnership with ISR Group LLC will provide critical flight profile data that will contribute toward additional procedures and protocols to enhance safer operations of various UAS types in the NAS. As the ISR Range Complex is located in the NAS versus Restricted Airspace, coupled with the sparse population, it is an ideal location for these studies. Much like the focus on future sUAS pilot training for ATSM F38, flight operations under current protocols will assist in enhancing future manned and unmanned aircraft integration efforts.

UAS Platform	Requested Freq.	Federal Freq.	Non-Fed Freq.
ScanEagle	1350 -1390 MHz	1350 – 1390 MHz Only for Military services	
	2410 – 2490	2417 – 2450 MHz Only for M.S.	2410 – 2417 2450 - 2490
Aerosonde Mk 4.7	310 – 390 MHz	322-328.9 335.6 – 390	310 – 322 329 - 335
	1350 – 1390 MHz	1350 – 1390 MHz Only for Military services	
	4400 -4940 MHz		4800 – 4940 Need a clearance letter from Radio Observatory
	902 – 928 MHz	-----	902 - 928
	1755 – 1850 MHz	1755 – 1850 MHz	-----
Viking 400	1710 – 1850 MHz		1710 – 1850
	2200 – 2400 MHz	2200 - 2290	2290 - 2400
Raven	1625 – 1725 MHz	1625 – 1626.5 1660.5 – 1668.4 1700 - 1710	1627 - 1660 1660 -1660.5 radio astronomy 1669 - 1700 1711 - 1725
	1755 – 1850 MHz	1755 – 1850 MHz	-----
Dragon Eye	394.45 – 395.1 MHz	394.45 – 395.1 MHz	-----
	1765 – 1840 MHz	1765 – 1840 MHz	-----

Figure 1. Listing of UAS to be operated on ISR Group Range Complex properties in support of MTSU research initiatives.