



**Federal Aviation
Administration**

Office of Commercial Space Transportation

Financial Responsibility Requirements as Determined by the Maximum Probable Loss (MPL) Process

As of

November 25, 2016

ACTIVE LAUNCH LICENSES

Vehicle Company	Year	Launch Site	U.S. Government Property (\$M)	Third Party (\$M)
Antares 230 Orbital ATK	2016	WFF	Pre-flight: \$5	Pre-flight: \$9
			Flight: \$44	Flight: \$90
Atlas V 401 Lockheed Martin	2007	CCAFS	Pre-flight: \$7	Pre-flight: \$6
			Flight: \$21	Flight: \$45
Atlas V 411 Lockheed Martin	2006	CCAFS	Pre-flight: \$7	Pre-flight: \$3
			Flight: \$100	Flight: 112.5
Atlas V 421 Lockheed Martin	2006	CCAFS	Pre-flight: \$7	Pre-flight: \$3
			Flight: \$100	Flight: \$193.5
Atlas V 431 & 531 Lockheed Martin	2006	CCAFS	Pre-flight: \$7	Pre-flight: \$3
			Flight: \$100	Flight: \$261
Atlas V 521 Lockheed Martin	2006	CCAFS	Pre-flight: \$7	Pre-flight: \$3
			Flight: \$100	Flight: \$193.5
Atlas V 401 Lockheed Martin	2011	VAFB	Pre-flight: \$	Pre-flight: \$3
			Flight: \$100	Flight: \$193.5
Falcon 9 (ISS Resupply) Space Exploration Technologies	2016	CCAFS	Pre-flight: \$13	Pre-flight: 12
			Flight: \$100	Flight: \$45
Falcon 9 (GEO Missions) Space Exploration Technologies	2016	CCAFS	Pre-flight: \$13	Pre-flight: \$12
			Flight: \$100	Flight: \$30
Falcon 9 Space Exploration Technologies	2013	VAFB	Pre-flight: \$1	Pre-flight: \$9
			Flight: \$17	Flight: \$90
Minotaur Orbital ATK	2013	WFF	Pre-Flight: \$1	Pre-Flight: \$9
			Flight: \$40	Flight: \$22
Pegasus Orbital ATK	1997	CCAFS	Pre-Flight: \$1	Pre-Flight: \$10
			Flight: \$1	Flight: \$37.5

Pegasus Orbital ATK	1997	WFF	Pre-flight: \$1 Flight: \$1	Pre-flight: \$10 Flight: \$43.5
Pegasus Orbital ATK	2010	VAFB	Pre-flight: \$8.6 Flight: \$16	Pre-flight: \$10 Flight: \$37
SpaceShipTwo/WhiteKnightTwo Virgin Galactic	2016	Mojave	Pre-flight: \$0 Flight: \$0	Pre-flight: \$3 Flight: \$45
Pegasus Orbital ATK	2008	KMR	Pre-flight: NA Flight: \$1	Pre-flight: NA Flight: \$57
Zenith – 3SL Energia Logistics (Sea Launch)	2016	Pacific Ocean	Pre-flight: NA Flight: \$Zero	Pre-flight: NA Flight: \$10

REENTRY LICENSE

Dragon (Reentry Vehicle) Space Exploration Technologies	2011	Pacific Reentry	Pre-flight: N/ Flight: N/	Pre-flight: N/A Flight: \$33
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ACTIVE PERMITS

Vehicle Company	Year	Launch Site	U.S. Government Property (\$M)	Third Party (\$M)
New Shepard Blue Origin	2016	Texas	Pre-flight: \$	Pre-flight: \$0
		Mojave	Flight: \$	Flight: \$6
DragonFly Space Exploration Tech.	2015	McGregor Texas	Pre-flight: \$	Pre-flight: \$0
			Flight: \$	Flight: \$3

INACTIVE PERMITS

Vehicle Company	Year	Launch Site	U.S. Government Property (\$M)	Third Party (\$M)
SpaceShipTwo	2013	Mojave	Pre-flight: \$0	Pre-flight: \$0
Scaled Composites			Flight: \$0	Flight: \$9
Grasshopper	2012	McGregor Texas	Pre-flight: \$0	Pre-flight: \$0
Space Exploration Tech.			Flight: \$0	Flight: \$3

INACTIVE OR EXPIRED LICENSES

Orbital Launches--Launch Operator

Vehicle Company	Year	Launch Site	U.S. Government Property (\$M)	Third Party (\$M)
Antares 130 Orbital Sciences Corp	2013	WFF	Pre-flight: \$1	Pre-flight: \$9
			Flight: \$44	Flight: \$34
Atlas I Lockheed Martin	1989	CCAFS	Pre-flight: \$60	Pre-flight: \$30
			Flight: \$75	Flight: \$164
Atlas II/IA Lockheed Martin	2000	CCAFS	Pre-flight: \$44	Pre-flight: \$45
			Flight: \$53	Flight: \$113
Atlas IIAS Lockheed Martin	2000	CCAFS	Pre-flight: \$55	Pre-flight: \$45
			Flight: \$78	Flight: \$135
Atlas IIIA & IIIB Lockheed Martin	2000	CCAFS	Pre-flight: \$44	Pre-flight: \$30
			Flight: \$53	Flight: \$149
Delta II Boeing Launch Services	2006	CCAFS	Pre-flight: \$51	Pre-flight: \$24
			Flight: \$85	Flight: \$76.5
Delta II Boeing Launch Services	2005	VAFB	Pre-flight: \$68.6	Pre-flight: \$10
			Flight: \$79.6	Flight: \$48.8
Delta IV Heavy Boeing Launch Services	2013	CCAFS	Pre-flight: \$25	Pre-flight: \$6
			Flight: \$50	Flight: \$56
Delta IV M or M+ Boeing Launch Services	2006	CCAFS	Pre-flight: \$21.5	Pre-flight: \$3
			Flight: \$43	Flight: \$261
Athena-1			Pre-flight: \$10	Pre-flight: \$10

Lockheed Martin	1998	VAFB	Flight: \$27	Flight: \$40
Athena-2			Pre-flight: \$20	Pre-flight: \$10
Lockheed Martin	1998	VAFB	Flight: \$10	Flight: \$109

INACTIVE OR EXPIRED LICENSES

Orbital Launches--Launch Specific

Vehicle Company	Year	Launch Site	U.S. Government Property (\$M)	Third Party (\$M)
Conestoga EER Systems	1994	WFF	\$73.5	\$13
Conestoga EER Systems	1995	WFF	\$88	\$13
Delta 7920-10 McDonnell Douglas	1993	VAFB	\$48.8	\$41
Athena-1 Lockheed Martin	1996	VAFB	\$27	\$117
Athena-1 Lockheed Martin	1997	SFA	\$32	\$21
Athena-2 Lockheed Martin	1997	SFA	\$81.2	\$36
Pegasus Orbital Sciences	1992	CCAFS	\$15	\$15
Pegasus XL Orbital Sciences	1997	Spain	\$Zero	\$48
Scout LTV	1990	WFF	\$21.6	\$10
Scout LTV	1990	VAFB	\$1.6	\$10
Titan Lockheed Martin	1989	CCAFS	\$80	\$215
Falcon 1 Space Exploration Technologies	2005	Pacific RTS	Pre-flight: \$1	Pre-flight: \$6
			Flight: \$ 1	Flight: \$9
STIG B Armadillo Aerospace	2012	Spaceport America	Pre-flight: \$0	Pre-flight: \$3
			Flight: \$0	Flight: \$3.3
Falcon 1 Space Exploration Technologies	2005	Pacific RTS	Pre-flight: \$1	Pre-flight: \$6
			Flight: \$ 1	Flight: \$9

INACTIVE or EXPIRED LICENSES

Sub-Orbital Launches--Launch Specific

Vehicle Company	Year	Launch Site	U.S. Government Property (\$M)	Third Party (\$M)
Black Brant IX Conatec	1988	WSMR	\$1	\$10
Prospector Orbital Sciences	1990	CCAFS	\$1	\$12.5
SMLV AMROC	1989	VAFB	\$1	\$12
Starfire SSI	1989	WSMR	\$1	\$10
Starfire EER Systems	1992	WSMR	\$2.5	\$10
Starfire Black Brant Class EER Systems	1994	WSMR	\$3	\$10
Talos Castor I Orbital Sciences	1991	KTF	\$0.3	\$10
SASSY Flea Society for Amateur Scientists	2000	VAFB	\$Zero	\$3
SpaceShipOne	2004	Mojave	Pre-flight: \$Zero	Pre-flight: \$Zero
Scaled Composites	Flight: \$Zero		Flight: \$3.1	
Tachyon Interorbital Systems	2000	Western Range	\$Zero	\$0.250
Terrier Orion	2001	WTR	Pre-flight: \$Zero	Pre-flight: \$Zero
Astrotech	Flight: \$0.140		Flight: \$4.5	

INACTIVE OR EXPIRED LICENSE

Sub-Orbital Launches--Launch Operator

Vehicle Company	Year	Launch Site	U.S. Government Property (\$M)	Third Party (\$M)
Aries	1991	WSMR	Pre-flight: \$1	Pre-flight: \$10
Orbital Sciences			Flight: \$1	Flight: \$10
STIG B	2012	Spaceport America	Pre-flight: \$0	Pre-flight: \$3
Armadillo Aerospace			Flight: \$0	Flight: \$3.3

NOTES

For all tables, the date shown in the Year column is the date of the MPL study. The dollar values shown for U.S. Government property and Third-party losses are as assigned in the applicable license orders. Those values are periodically and routinely reassessed. During such a reassessment, if the MPL values are confirmed to remain valid, the report's date is not changed. If the values are revised and new license orders issued, the date of the report will also be revised. Older MPL values were derived using less sophisticated methodologies. Hence, it is not valid to assume that MPL values for similar launches today will mirror those values.

Past practice for launch specific licenses was to not distinguish between pre-flight and flight phases for the purposes of establishing financial responsibility requirements based on the MPL. Thus, assigned dollar values for U.S. Government and Third-party losses were the higher of the values determined for each phase – pre-flight and flight. This will no longer be the case for future launch specific licenses in that MPL values will be assigned for both phases of the two loss categories.

ACRONYMS

AMROC	American Rocket Corporation
CCAFS	Cape Canaveral Air Force Station, Florida
KMR	Kwajalein Missile Range, Pacific Ocean
RTS	Formerly, Kwajalein Missile Range, Pacific Ocean
KTF	Kauai Test Facility, Hawaii
LTV	Ling Temco Vought
SFA	Spaceport Florida
SMLV	Single Module Launch Vehicle
SSI	Space Services, Incorporated
VAFB	Vandenberg Air Force Base, California
WFF	Wallops Flight Facility, Virginia
WSMR	White Sands Missile Range, New Mexico
WTR	Woomera Test Range, Australia