

Engineering Req	Linked Customer Req	Specification	Unit of Measure	Threshold	Objective	Measured Value	Performed By	Test
E1	CR11	Mean Time Between Failures	Hours	> 400	> 600			The vehicle must operate at least 400 hours before any mechanical or electrical failures.
E2	CR2	Quick Change Payloads	Minutes	< 10	< 5			Swapping payloads must take less than 10 minutes.
E3	CR3	Safety Standards	N/A	MIL-STD-883-E	Threshold			The vehicle must comply with MIL-STD-883-E safety standards and IP-54 Environmental standards.
E4	CR3	Environmental Standards	N/A	> IP-54	> IP-68			The vehicle must comply with MIL-STD-883-E safety standards and IP-54 Environmental standards.
E5	CR1	Base Platform Weight	Lbs	< 125	< 75			The base platform weight without a payload attached must be less than 125 pounds.
E6	CR9	Data Transfer Rate over Mesh	Mb/s	> 2	> 3			The minimum data rate across the mesh network shall be greater than 2 megabits per second (Mb/s) at the minimum.
E7	CR1	Vehicle Speed	M/s	>2.2	>6.8			The minimum speed of the vehicle shall be greater than 2.2 meters per second (m/s) on a flat plane, without a payload attached.
E8	CR2	Max Payload Weight	Lbs	>50	>100			The vehicle must be able to carry a payload of at least 50 pounds.
E9	CR8	Maintain Current Size Envelope	inches	30 x 22	Threshold			The vehicles footprint must be less than 30 x 22 inches.
E10	CR9	Video Feed Resolution	Pixels	> 320 x 240	> 1080 x 720			Video resolution must be greater than 320 x 240 pixels and the frame rate must be greater than 25 frames/sec.
E11	CR9	Frame Rate	Frames/sec	> 25	> 30			Video resolution must be greater than 320 x 240 pixels and the frame rate must be greater than 25 frames/sec.
E12	CR4	Flat ground incline	Degrees	> 40	> 45			The vehicle shall be capable of traversing up a flat (no stairs, rubble, etc.) incline of at least 40 degrees.
E13	CR4	Stair Incline	Degrees	> 38	> 42			The vehicle shall be capable of traversing stairs with a incline of at least 38 degrees.
E14	CR4	Step Obstacle Size	Inches	> 6hx8w	> 8hx6w			The vehicle shall overcome obstacles of at least 6 inches high and 8 inches wide.
E15	CR4	Ground pressure exerted by vehicle	PSI	< 4	< 1.5			The ground force exerted by the vehicle shall not exceed 4 pounds per square inch (PSI).
E16	CR6	Mechanical Shock test	g	> 3	> 4			Mechanical components must withstand a maximum of 3 g's of shock in any direction.
E17	CR1	Platform Runtime with Payload	Hours	> 3	> 4			The vehicles battery must supply power to achieve a minimum of 3 hours of operating time.
E18	CR5	Communication Range	Meters	> 200	> 400			Communication range shall be at least 200 meters.
E19	CR7	Computation Benchmarking - FFT 8192K	milli sec	< 500	< 120			The Intel Atom processor shall complete a Prime 95 benchmark test in less than 500 ms.
E20	CR10	Communication Packet Loss	%	< 10	0			Packet loss must be less than 10 percent of the total amount of packets sent.