

	<b><u>Customer Requirement</u></b>	<b><u>Engineering Requirement</u></b>	<b><u>Video Link</u></b>
1	The system must operate a long time.	The system must log and transmit data for at least 12 hours on a single charge.	<a href="https://www.youtube.com/watch?v=tkDF9gEU2gM">https://www.youtube.com/watch?v=tkDF9gEU2gM</a>
2	The system must be accurate.	The system must log GPS data with at least a 10 meter accuracy and 2 analog voltages from 0.2 - 4.5V within 5% or 0.1V of real values, whichever is larger.	<a href="https://youtu.be/nMwKtgHTGS0">https://youtu.be/nMwKtgHTGS0</a>
3	The system needs to be robust.	The system will function to all other requirements while: Being submerged to 1 cm of depth for one second, operating at -10°C, operating above 85°C, and after being dropped on concrete from 3 feet at least 5 times.	<a href="https://www.youtube.com/watch?v=rk-2Pc-Hki8&amp;t=4s">https://www.youtube.com/watch?v=rk-2Pc-Hki8&amp;t=4s</a>
4	The system must transmit data.	The system must transmit its measurements at least 0.5 miles with at least 95% of the packets being received by the the alpha system over an hour.	<a href="https://www.youtube.com/watch?v=7LX2uhGYKJg">https://www.youtube.com/watch?v=7LX2uhGYKJg</a>
5	The system must present data.	The system must display data in Matlab, with a professional looking overlay of a satellite map image.	<a href="https://www.youtube.com/watch?v=-FKc55mf-XE&amp;t=7s">https://www.youtube.com/watch?v=-FKc55mf-XE&amp;t=7s</a>
6	The system must be lightweight.	The beta side of the system must be light enough to be wearable by a dog. Hence, the beta system can weigh up to 7 pounds or 12% of the dog's body weight, whichever is less.	<a href="https://www.youtube.com/watch?v=5BAzrrR3Tn0">https://www.youtube.com/watch?v=5BAzrrR3Tn0</a>
7	The user can remotely trigger a bell sound on the beta-transceiver.	The system has two way communication. A button press by the user on the alpha side must trigger a buzzer on the beta side of the system.	<a href="https://www.youtube.com/watch?v=OC4kbGjPUW8">https://www.youtube.com/watch?v=OC4kbGjPUW8</a>