Before the
Federal Communications Commission
Washington DC 20554

In the Matter of	)	
	)	ET Docket No. 10-23
Amendment of Part 15 of the Commission's	)	
Rules To Establish Regulations for Tank Level	)	
Probing Radars in the Frequency Band	)	
77-81 GHz	)	
	)	
and	)	
	)	
Amendment of Part 15 of the Commission's	)	
Rules To Establish Regulations for Level Probing	)	
Radars and Tank Level Probing Radars in the	)	
Frequency Bands 5.925-7.250 GHz,	)	
24.05-29.00 GHz and 75-85 GHz	)	

Comments of Sutron Corporation

The following comments are being prepared by Sutron Corporation for review and consideration in modifications to the proposed rules regarding the amending the 47 C.F.R. Part 15. Sutron manufactures and sells a low power radar based level probing radars (LPR) designed for outdoor and typically remote installations for the sole purpose of measuring water levels of rivers, lakes or other bodies of water. Sutron utilizes 6 GHz technology for its radar devices.

The following items we submit for consideration.

1) ANTENNA MAXIMUM BEAMWIDTH REQUIREMENT- INCREASE BEAMWIDTH

Under the proposed section 15.256, section (h)(1) Antenna Beamwidth, a maximum half-power beamwidth of 12 degrees has been proposed for the transmit antenna.

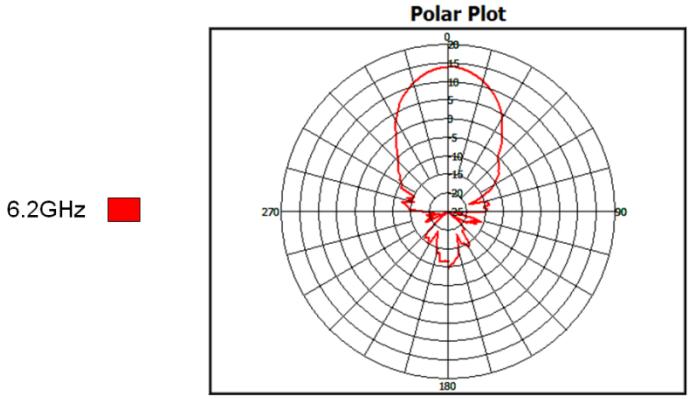
Sutron requests that the maximum half-power beamwidth of the transmit antenna be increased to permit a maximum of 35 degrees, limited to applications where the device is installed over open water. Sutron believes that this change is necessitated and justified by the following:

a) The physical size associated with a 6 GHz antenna possessing a narrow 12 degree beamwidth will become physically too large so that mounting of the product will become cumbersome to handle and mount and applications where a small size will be required will not be able to use this device. This proposed narrow beamwidth antenna will have major dimensions of

approximately 10 in x 12 for the aperture opening and a length of approximately 28 inches. At the higher frequencies of 26 or 77 GHz this narrow beamwidth requirement is not too burdensome, however for 6 GHz it will be significant. The physical structure necessitated to mount such a large antenna/radar device in an open outdoor environment will be greatly increased in size and cost in order to support and stabilize the antenna in windy conditions or under heavy snow loading. Also the added weight of a compliant antenna will limit structures on which the antenna can be mounted. And in the rare cases where antennas must be mounted in populated areas, smaller antennas are less objectionable esthetically. A wider 35 degree beamwidth antenna is significantly smaller and is in the 6 inch range for length.

b) Paragraph 5 of Section 1 in the introduction of this FNPRM states that the narrow beamwidth antenna is useful for inside tanks to avoid agitators, filling pipes or other machinery where many of these radars are intended to be used but the Sutron radars are intended for outdoor applications where in general these obstructions do not exist. Sutron has experience with the wider beamwidth antenna and feels that the surface averaging formed on each wave response is beneficial in determining precise water level readings and feels the quality of our data is very good. While other radars in the higher frequency bands make use of narrow beamwidth horns, we don't believe that this is necessarily the best practice for all applications and we feel that the wide beamwidth horns should not be disallowed from the marketplace for applications over open water.

c) Sutron realizes that there are concerns for horizontal emissions and the potential for interference with other sensitive systems. Sutron believes that the impact of horizontal emissions will be negligible by expanding the antenna beamwidth from 12 to 35 degrees maximum. For example the antenna shown here represents the wider beamwidth antenna:



The horizontal gain (reduction) with respect to the main bore of the antenna is about 28.9 dB based on the chart obtained from an actual antenna test. With the current specified average emission of -41.3 dBm/MHz this yields a horizontal emission of -41.3 – 28.9 or -70.2 dBm/MHz. With the new proposed average EIRP of -33 dBm, the horizontal emission will be -33 - 28.9 = -61.9 dBm. This is still notably lower than the -55 dBm/MHz specified in column 4 of the chart provided in section 24 (radiated emission limits) indicating the insitu average reflected emissions.

2) OPERATIONAL FREQUENCY BAND – INCREASE BANDWIDTH (lower frequency limit)

The current proposed RF Bandwidth in the 6 GHz range in the FNPRM is 5.925 GHz to 7.250 GHz as stated in the proposed Section 15.256 (f)(3). This creates an RF bandwidth of 1.325 GHz. Sutron proposes to increase the bandwidth slightly to 5.650 GHz to 7.25 GHz creating a useable bandwidth of 1.60 GHz.

Sutron feels, as explained in the waiver submitted to the FCC on 3 January 2011, that the increased bandwidth will permit a narrower time domain pulse which aids in the increased overall precision of the radar performance. The performance of the radar with the narrower bandwidth does not currently fully meet the requirements of the customer and this is what is driving Sutron to request the additional bandwidth. Sutron also notes that the requested additional bandwidth does not include any restricted bands specified under Sec. 15.209, and the horizontal emissions are so low as not to constitute a threat to spectrum incumbents. This modification to the proposed bandwidth will assist our product in achieving the performance goals necessary to compete successfully and will prevent RF emissions from falling into sensitive frequency bands.

Respectfully submitted,

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May 30, 2012.

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