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Attn: Customers Requesting SAE Calibration per SAE ARP958, Rev D

The following is an opinion of Mike Howard relating to this current standard.

1. This document references 2 methods for obtaining the antenna gain factor from which the antenna factor is derived.
 - a. Method 1 is based on 2 completely identical antennas with measurement geometry of 1 meter separation and a 3 meter transmits & receives height. In this situation, if the antennas are not completely identical (both electrically and mechanically) substantial errors will be included in the final antenna gain figure. This method does not allow for nulls that will occur at certain frequencies with this geometry since no height scanning is done to eliminate potentially sharp responses in the antenna characteristics for this geometry.
 - b. Method 2 is based on a 3 antenna method based on ANSI C63.5 with a measurement geometry of a 3 meter separation with a transmit height of 1 meter. SAE states this gives a good far field antenna factor (see Appendix C). ANSI C63.5 states that with a 10 meter separation with a 2 meter transmit height (Horizontal polarization) will give a near-free-space antenna factor. These 2 documents conflict with each other.
2. The methods describe in item 1 above will give different antenna factors and also with those taken at a 10 meter, 2 meter transmit height for a near free space antenna factor.
3. It is the customer's choice as to which method they wish to select. My recommendation is to use the 3 antenna method as stated in Appendix C of SAE ARP958 and use these factors at your 1 meter measurement distance. To have a true far field antenna factor, then I would recommend using the measurements done at a 10 meter separation with a 2 meter transmit height.
4. Method 1 is highly inaccurate for calibration of antennas unless they are a perfectly identical (electrically and mechanically).
5. We can provide both methods for the customer, but we must charge for each since each is a separate setup in terms of calibration setups.

My personal recommendation is to stay the course with the methods describe under ANSI C63.5 for calibration of antennas used at a 1 meter separation for automotive.

Please contact myself directly, if you have any further questions.

Respectfully

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Pres/CEO

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