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National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
C63®	8.3.2.2	1	Technical	<p>In response to the explanation published by ANSI C63, dated February 17, 2011, of clause 8.3.2.2 of C63.4-2009 about the interpretation of “keeping the source of emission in the cone of radiation” it is unclear how the actual tilting activity is to be performed. The explanation states that the source of emission is to be kept within the 3 dB beam width of the antenna. This is rather ambiguous and without further details will lead to reproducibility problems of the test process.</p> <p>The current test process involves a preliminary measurement to determine the sources of emission at a closer distance and then, during the final measurement, involves the antenna to be set up at the reference distance to perform the actual measurement. This may work for small devices with closely spaced radiating elements. The approach will not work with larger EUTs since the radiating elements will combine to form one emission response (in a phased array fashion), which is based on the distance from the EUT. How is the proper bore-sighting to be performed in this case – particularly if the radiating elements are spaced such they are not captured within the 3 dB beam width at the same time? What</p>	none	<p>There are three questions in this request:</p> <p>1) <i>How is the proper bore-sighting to be performed in this case – particularly if the radiating elements are spaced such they are not captured within the 3 dB beam width at the same time?</i></p> <p>See C63.4-2009, section 8.2.4; ”Because some EUTs may have a size larger than the beamwidth of the antenna at the specified measurement distance, and because the source of emissions is generally limited to relatively small-angle cones of radiation, the antenna beamwidth shall be known so that when emissions from large EUTs are measured, the area of coverage of the EUT can be determined. Moving the measurement antenna over the surfaces of the four sides of the EUT or another method of scanning of the EUT is required when the EUT is larger than the beamwidth of the measuring antenna.” The flashlight analogy presented in the aforementioned explanation (see below for analogy) applies here too. For full testing, the light shall illuminate over all of the EUT.</p> <p>2) <i>What purpose does the preliminary measurement have if the radiating elements combine, based on the measurement distance (which may require a different tilting angle</i></p>

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				<p>purpose does the preliminary measurement have if the radiating elements combine, based on the measurement distance (which may require a different tilting angle at each distance)? What are the precise steps in the measurement process to be taken to properly tilt the antenna in a repeatable fashion?</p> <p>It is to be noted that a simple reference to future revision of ANSI C63.4-2009 to address this matter is unacceptable since users of ANSI C63.4-2009 do have to apply the antenna tilting right now and tilting is required during the measurement process.</p>		<p><i>at each distance)?</i></p> <p>The preliminary (exploratory) measurement provides information on the emission characteristics of the EUT prior to the final measurement. It is also used to determine the configuration of the EUT for maximum emissions.</p> <p><i>3) What are the precise steps in the measurement process to be taken to properly tilt the antenna in a repeatable fashion?</i></p> <p>The exact steps will depend on the EUT and the specific equipment being used for the test. In some cases it will be more reliable to move the EUT and in others to tilt the antenna so that the main beam of the receiving antenna is aimed (bore sighted) to stay within the “cone of radiation” emanating from the source of emissions under measurement. This continues to be required as the receiving antenna is raised between 1 and 4 meters in elevation above the ground plane. This process maximizes the received signal which is the basic premise of all testing in C63.4.</p>

Taken from the Feb 17, 2011 request:

http://www.c63.org/explanations_interpretations_request.htm

“In order to explain the dilemma, I will use an analogy. Let’s presume that you would like to do a radiated emission test in a semi-anechoic room with the lighting system shut off and you attach a directive flashlight to the antenna having the exact light beam width of the horn antenna at the highest frequency of measurement.

When you scan the antenna and flashlight assembly from 1 to 4 meters as required, does keeping the EUT in the “cone of radiation” mean that the EUT will always be in the light? This would mean that the antenna and flashlight would aim down to the EUT if the beam width is too narrow to cover the EUT when the antenna moves to 4 meters.”

This analogy is consistent with the text.