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| Submission Date | Originator Name, Company |
|-----------------|-----------------------------------|
| March 7, 2018 | Nate Potts, Keysight Technologies |

| Standard | Clause/ Sub clause | Paragraph Figure/ Table | Type (General/ Technical/ Editorial) | Comment / Inquiry | Subcommittee Response <i>(to be filled in by Subcommittee Chair)</i> |
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| ANSI C63.4-2014 | Annex N | 1 st Note and N.1 Condition B 2) | Technical | <p>First question: NOTE of Annex N states that next publication of C63.5 will take precedence over C63.4 Annex N. Further stating references in Annex N “should then be replaced with references to the more recent requirements” in C63.5-2017. Strictly speaking Annex N is about symmetry tests for bilogs. Clause 4.4.3 of ANSI C63.5 is also about symmetry tests for bicons and bilogs. Both documents have very different geometries and process of determining the balance of the antennas but do have the same +/-1dB criteria.</p> <p>The questions are: Annex N is a normative annex but notes are considered informative. If so what is the purpose of this note? What does this note mean? Does this mean the proceeding Annex N is to be replaced by ANSI C63.5-2017 clause 4.4.3 for antenna symmetry?</p> <p>Second question: ANSI C63.4 Annex N.1 condition B states: <i>The hybrid antenna shall have measured antenna symmetry of ± 1 dB or less at all frequencies from 30 MHz to its highest frequency of operation (i.e., to 1 GHz or possibly higher). The measurement procedure shall be in accordance with the antenna symmetry subclause of ANSI C63.5, with (the center of phase) antenna height being fixed at 1.00 m (± 0.01 m) above the reference ground plane.</i> Again, does the bold letter sentence (not a note this time) indicate that C63.5-2017 clause 4.4.3 replaces Condition B?</p> <p>ANSI C63.5-2017 Clause 4.4.3 states <i>symmetry shall be performed 30-300MHz for bicons and bilogs/hybrids, it also allows for a receive tower height scan but with AUC on the Transmit tower position.</i> This is a very different process than described in Annex N, does clause 4.4.3 replace Condition B of Annex N?</p> | <p>Note that the latest version of C63 standards that are normatively referenced within another C63 standard and are not dated go into effect upon publication of that latest version.</p> <p>In additional according to Clause 1.1 of C63.4:2014, notes in this document are informative and are not part of the requirements.</p> <p>Answer to first question:</p> <p>When C63.4:2014 was being written, there were some discussions between C63.4 working group and C63.5 working group that initially resulted in C63.5 working group agreeing that Annex N from C63.4 would be duplicated in C63.5 and then dropped from C63.4. During the drafting of C63.5 it was subsequently determined that Annex N of C63.4 is not an antenna calibration procedure but rather a procedure to qualify the use of a certain antenna type, the hybrid, in alternative test sites for compliance measurements. Based on this realization, the C63.5 working group decided not to include Annex N from C63.4 in the 2017 edition. After the publication of C63.5:2017 without the inclusion of Annex N from C63.4:2014, the only requirements for hybrids used in alternative test sites continues to be those stated in Annex N of C63.4:2014.</p> <p>At this time, hybrid antennas shall meet the requirements of C63.4 Annex N. No other calibration requirements for antennas beyond the antenna factor, VSWR and Symmetry (as per Annex N) need be obtained in order to demonstrate that a hybrid antenna has been fully and properly calibrated.</p> |

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| | | | | <p>However, the last sentence of ANSI C63.4 Annex N.1 states: <i>Notwithstanding the above, the test site-specific hybrid antenna qualification procedures and acceptance criteria specified in this annex apply only over the restricted nominal frequency range from 30 MHz to 200 MHz.</i></p> <p>The questions are: (Given the last 3 sections stated above under “second question) what is the end freq for bilog tested to Annex N Condition B if the highest freq of operation is 6GHz? 200MHz? 300MHz? 1GHz? 6GHz?</p> <p>Secondly if a bilog/hybrid is to be calibrated to Annex N AND C63.5-2017 are two completely different symmetry tests needed? Are there to be two separate symmetry tests performed or only one? Which one?</p> <p>It is my opinion that C63.4 Annex N Condition B should be replaced by C63.5-2017 Clause 4.4.3. If an antenna does not meet 4.4.3 then condition A should be performed or vice versa. One of those conditions must be met, or in other words Condition B should be clause 4.4.3. Not sure what to do with the 2.5:1 VSWR spec in condition B</p> | <p>Answer to second question(s): At this time the requirements of C63.4:2014 Annex N are to be followed . Since C63.4:2014 uses undated references to C63.5, symmetry is to be measured using only the procedures described in ANSI C63.5:2017 Clause 4.4.3. In addition procedures in Annex N, Condition B, shall be met over the usable frequency range of the antenna but may be limited to 1000MHz if the antenna is not used above 1000MHz for testing. If the antenna can be used above 1000MHz and the lab exercises this option then the symmetry shall be met up to the highest frequency used for measurement.</p> <p>It should be noted that the last sentence of N.1 which states “<i>Notwithstanding the above, the test site-specific hybrid antenna qualification procedures and acceptance criteria specified in this annex apply only over the restricted nominal frequency range from 30 MHz to 200 MHz.</i>” applies to the procedures of Condition A, not Condition B.</p> <p>At this time the requirements of C63.4 Annex N need to be met for hybrid antennas which would mean that either the site specific comparison to a standard biconical antenna are made or the calibration including VSWR and symmetry as defined in Annex N of C63.4 need to be met.</p> |