Guidance Regarding Antenna Information for Unlicensed Devices
Circa August, 2022

In August, 2022, the FCC released urgent information (via the TCB council – see page 5) that asked for all Part 15 filings to include more information regarding the antennas of devices being certified. When antenna gain information must be known for certain types of applications (i.e. involving requirements where gain must be known, or used for certain tests such as DFS, CBP tests), information on how the gain is derived must be provided. For filings where gain is not fully necessary (such as only field strength readings are needed and there are not any gain requirements such as Part 15.249 or 15.231 as an example), information could be limited to construction of the antenna by providing such information as sufficient photographs and dimensional information that shows the build.

The main antenna gain information must be made public. Certain proprietary information may be stripped from the public gain information document and included in an additional operational document for the antenna.

Given many noted concerns, questions, and problems the FCC further released information in October TCBC training to clarify the various positions:

All applications should include *at least one of the following*:

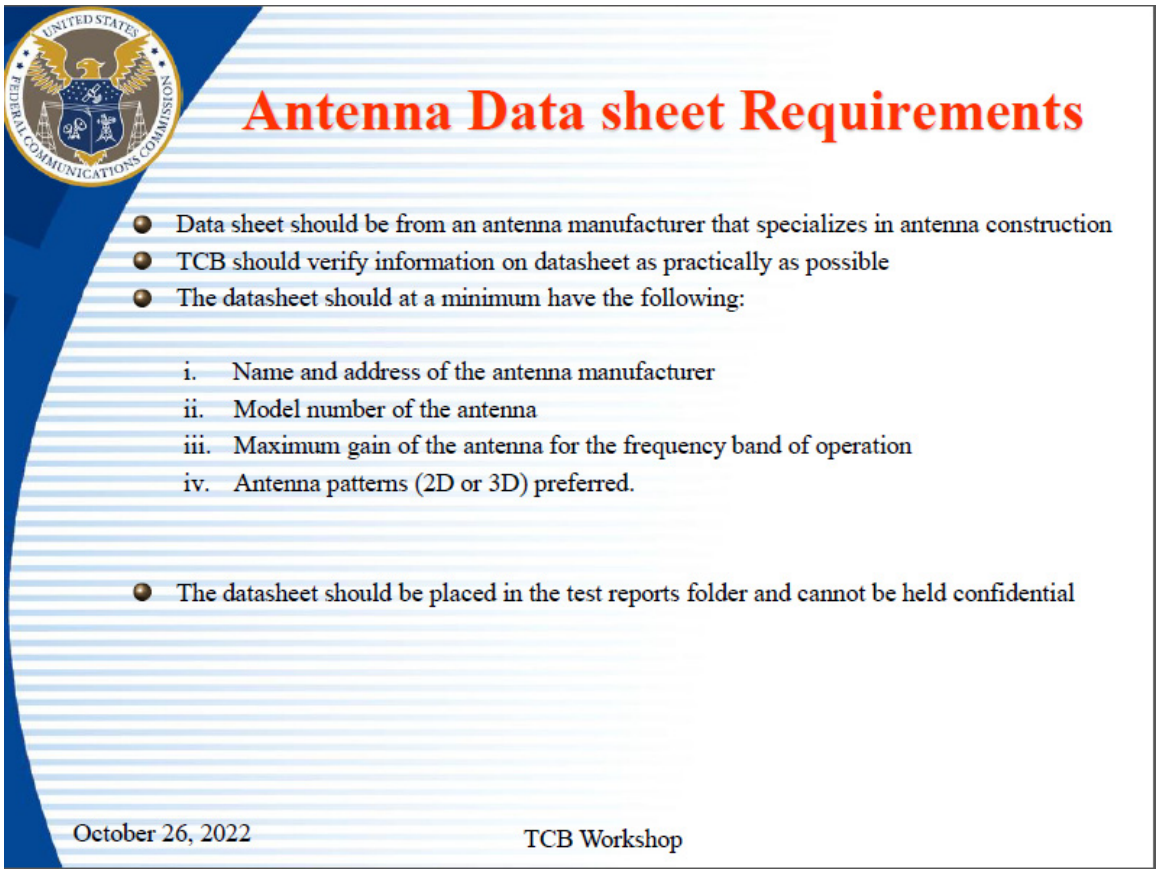
i. Justification statement stating that all measurements were performed radiated and therefore additional antenna gain documentation is not required. Other documents such as clear pictures showing the build of the antenna and related dimensions are typically required.
ii. Antenna manufacturer data sheet(s) – see page 3 for further details.
iii. Antenna reference design specifications.
iv. AUT Report – see page 4 for further details.

NOTE 1: See General Requirements on page 2 that should be considered.
NOTE 2: In the near future, it is expected that antenna gain will also be necessary to support RF exposure compliance in nearly all cases.

General Required Information to Consider for Part 15 Applications

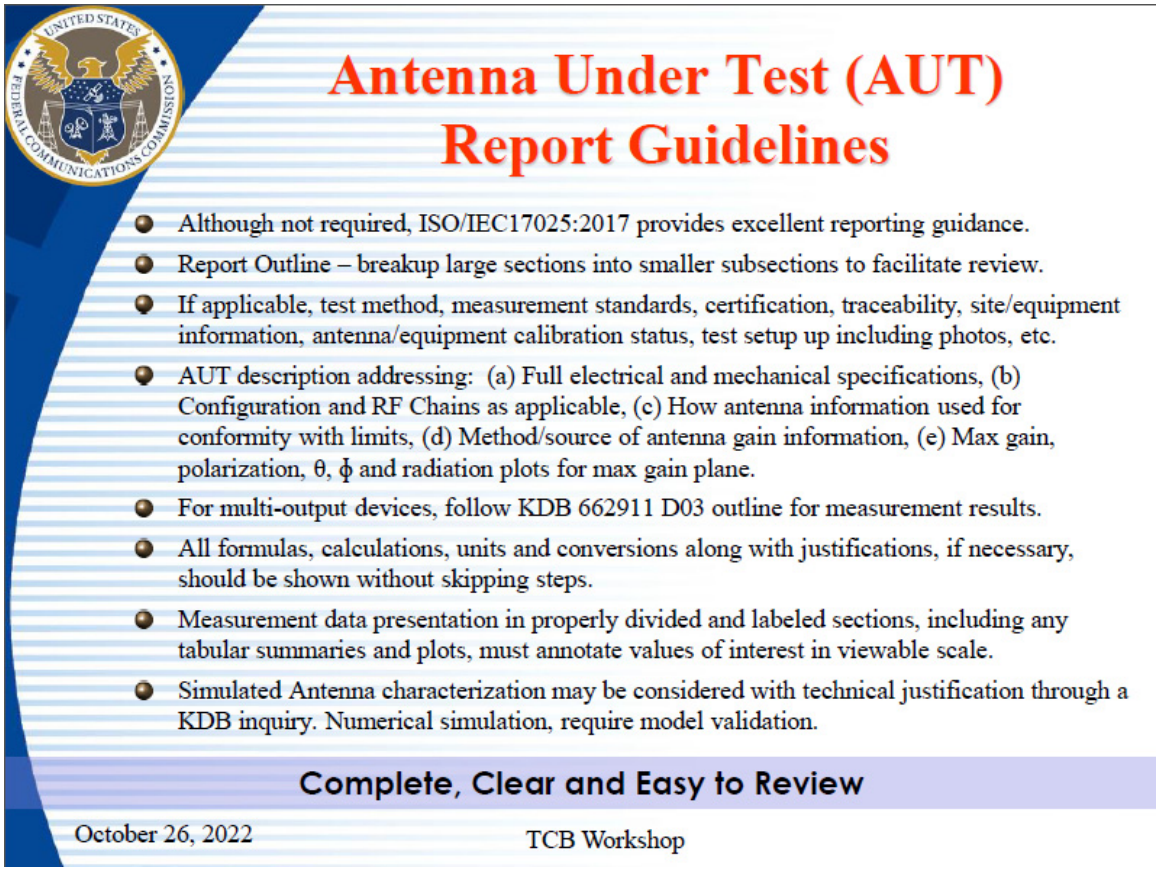
a) These requirements apply to all Part 15 Certifications granted after August 25, 2022.
b) Per KDB 353028 D01, All part 15 filings must list antennas to be approved.
c) Future C2PC filings may require antenna information if relevant.
d) Internal photos should clearly show and annotate the antenna(s) and ports as applicable.
e) Antenna information necessary to show compliance with FCC requirements is not held confidential.
f) If antenna gain information is NOT required, a justification statement is still required that states: "Only radiated measurements are used to show compliance with the FCC limits for fundamental and spurious emissions."
g) Using antenna manufacturer data sheets/measurements are acceptable, but support information may be requested.
h) If a grantee is performing their own antenna characterizations, they must submit an antenna test report (AUT).
i) When gain information is required, proprietary antennas (when datasheet is not available) must have an antenna test report (AUT) to include detailed antenna gain description, performance specifications, table of calibrated equipment, tests dates, names of test personnel, names of commercial test software being used, test setup photos, and description of how measurements are made.
j) When using an antenna built from a reference design, such as those provided in engineering application notes (such as Inverted F, meander, patch, spiral, etc.) the application for certification should include that section of the original engineering application notes along with close up detailed pictures of the final circuit board for comparison.
k) Certain proprietary information and photos not required to show conformance with FCC limit requirements can be held in the confidential exhibit(s) with appropriate justification (KDB 726920 must be followed). This may require separating certain exhibits into a confidential and non-confidential set of exhibits.
l) Certain MIMO situations that are subject to KDB 388624, item DRGAIN and/or KDB 662911 D03 require the TCB to initiate FCC PAG requirements.
m) When there are EIRP levels above the horizon that are restricted, gain plots and configuration should be provided.

Antenna Data Sheet Requirements



Note: Off–the-shelf antenna manufacturer datasheet are acceptable if antenna configuration does not alter parameters.

Antenna Under Test (AUT) Report Guidelines



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URGENT - FCC Area of Concern-Antenna Gain Information

The following urgent information has been provided by the FCC:

Any applications granted without the proper antenna information will be dismissed after 5 business days of this email. The TCBs can request to have the application put in an audit status to update the antenna information.

This email is to bring to your attention that while the FCC has been advising test labs and TCBs to make sure part 15 applications includes antenna gain information, in terms of data sheets and/or test reports. This information is evident by recent audits confirming this information was omitted.

We are still finding reports that state, "antenna gain information is declared by the manufacturer", with no other supporting information. As we have re-iterated during the last TCB workshop, this statement will not suffice. All part 15 applications will need to show how the antenna gain was derived either from a manufacturer data sheet or a measurement. Where the gain of the antenna is inherently accounted for as a result of the measurement, example such as a field strength measurement on a part 15.249 or 15.231 device. As a result, the gain does not necessarily need to be verified. However, enough information regarding the construction of the antenna shall be provided. Such information maybe photographs, length of wire antenna etc.

The antenna gain information shall be made public. Any proprietary information such as construction maybe stripped from the gain information report and held confidential. The main antenna information we require is the maximum gain of the antenna for the band of operation. This information must be provided as a data sheet or a measurement report.

V/R

Ronald E. Williams
Division Chief, OET-Laboratory
Federal Communications Commission

Contact Info:
TCB Council Inc.
7522 Cherry Tree Dr., Fulton, MD 20759
443-622-3300
admin@tcbcouncil.org