

QUESTION 6: STATEMENT OF RESEARCH PROJECT

A. A description of the nature of the research project being conducted.

We wish to conduct further research to determine the theoretical performance limits and limitations of the recently approved TVBDs. In particular, Virginia Tech is interested in determining what modulation schemes prove to be most effective in rejecting narrowband interference from devices such as wireless microphones, which also operate in the television bands under Part 15 and Part 74. Furthermore, we are interested in determining what kinds of adverse effects TVBDs will have on BAS devices such as wireless microphones, and what steps can be taken to mitigate such interference. We believe that this research is timely and essential to the development of TVBDs. This will extend upon the work conducted under STA WE9XKX, and permit us to perform longer-range tests as well.

B. A showing that the communications facilities requested are necessary for the research project involved.

It is necessary to perform testing for prototype TVBDs in the television spectrum, as propagation characteristics and existing background noise levels must be as close to real-world conditions as possible. In addition, the availability of commercial wireless microphones and other BAS devices is important to test for the potential for interference.

C. A showing that existing communications facilities are inadequate.

Under the approved rules, TVBDs must consult a database prior to operation to ensure that they will not cause interference to TV broadcast reception under Part 73 and to BAS devices under Part 74. However, we propose to begin these tests as soon as is practical so that the test results can be used to shape the development of TVBDs. Hence, it is necessary to begin operations prior to the availability of a TVBD database.

In lieu of consulting a database to determine what frequencies are clear, we will coordinate with the SBE to ensure that our tests do not interfere with licensed users of the TV Bands, such as broadcasters. This is particularly important as we move into the sports season with major media outlets using the TV spectrum to support broadcast operations in Blacksburg. We have a good working relationship with our local SBE coordinator, so we do not anticipate any problems and expect to be able to work around broadcast operations.

We will also perform a spectrum scan prior to all operations to verify that the spectrum is indeed clear.

Signed,

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