

## Does Coax Cable Matter for Wireless Mics?

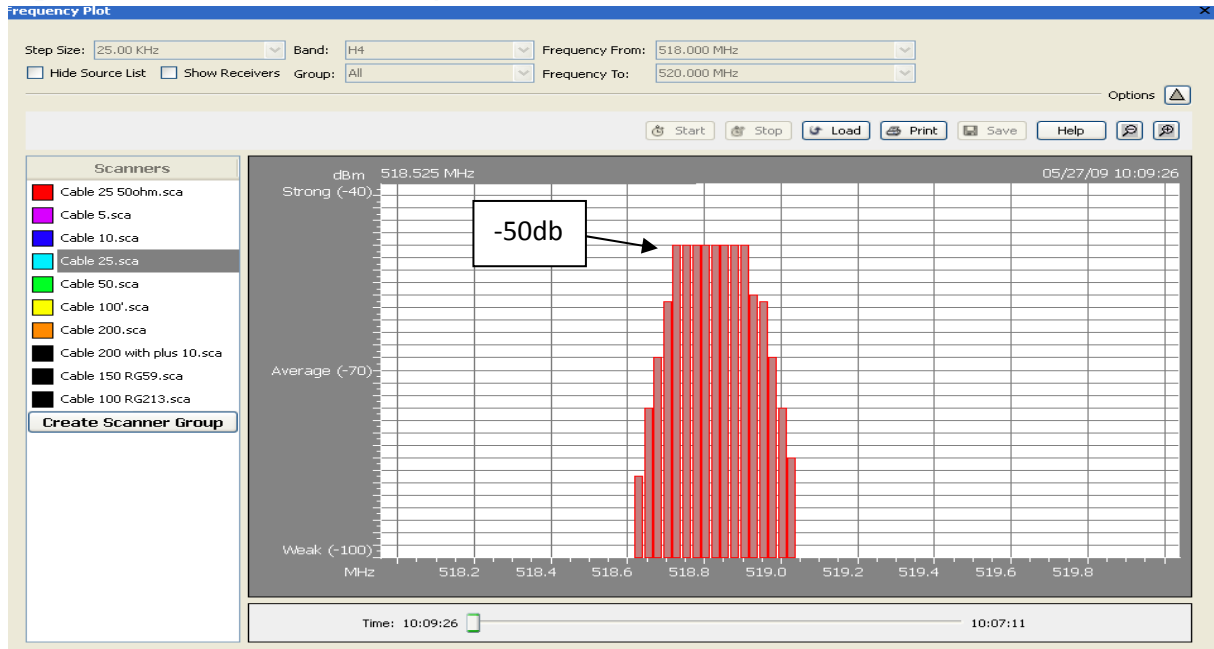
Having just got Shure's newest wireless in the shop, UHF-R, with the computer software for scanning frequencies, I was curious as to Shure's recommendation for 50ohm cable as antenna cable. I had read Jim Brown's article on "Which Coax for Wireless Mics?" [www.audiosystemsgroup.com](http://www.audiosystemsgroup.com), and found it interesting. I wanted to see the results myself, as well as the fact that we have a video department that has a ton of RG-6 that they use for running video, all with BNC and I wanted to know if we got in a pinch with the wireless, what a 75ohm video cable would do to my wireless mics.

The test setup used the Shure Wireless Workbench focused on one specific channel. I setup the handheld at 10mw transmit power, 100' on a stand in a standard vocal mic position, about a 45degree angle to the ground. I was using a log periodic wide band antenna from Shure set in the 3db gain position and aimed at the mic. I varied the length of cables and type and saved each result. Here are my results.

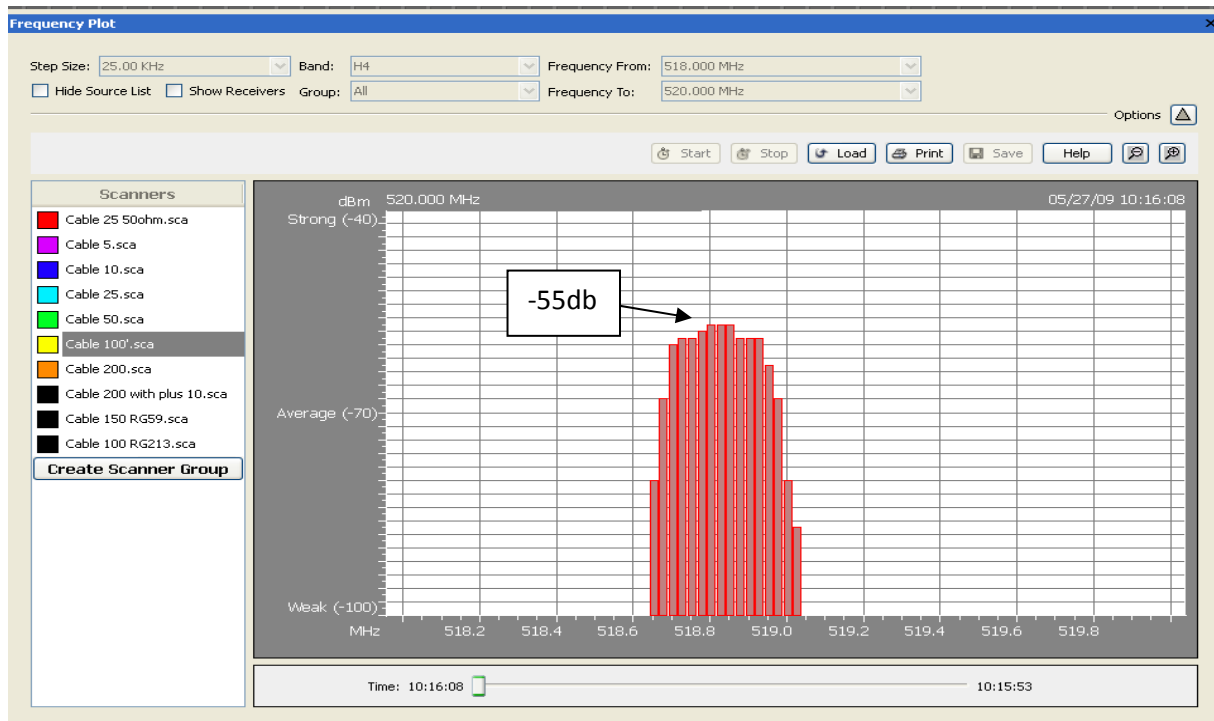
### Base Line test: 50ohm RG58 Cable 25' Length



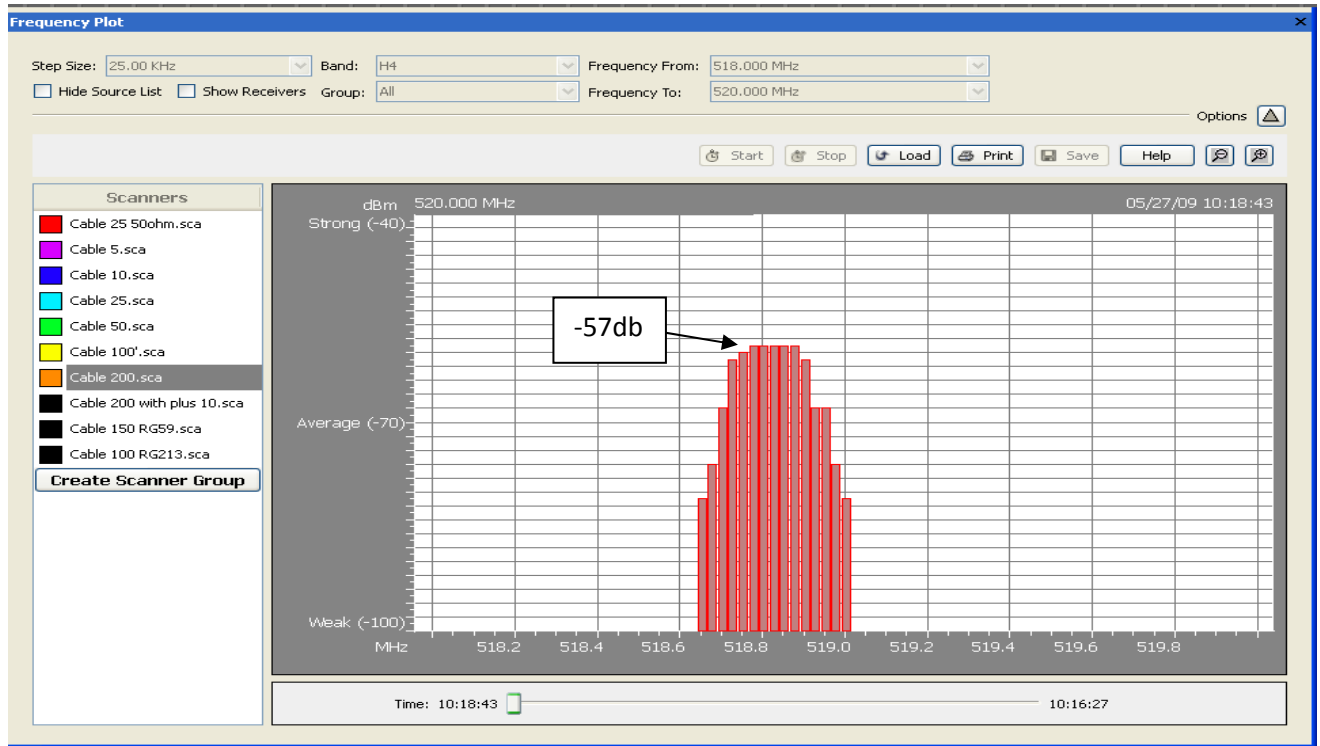
## Equivalent 25' 75 ohm RG6/u Canare



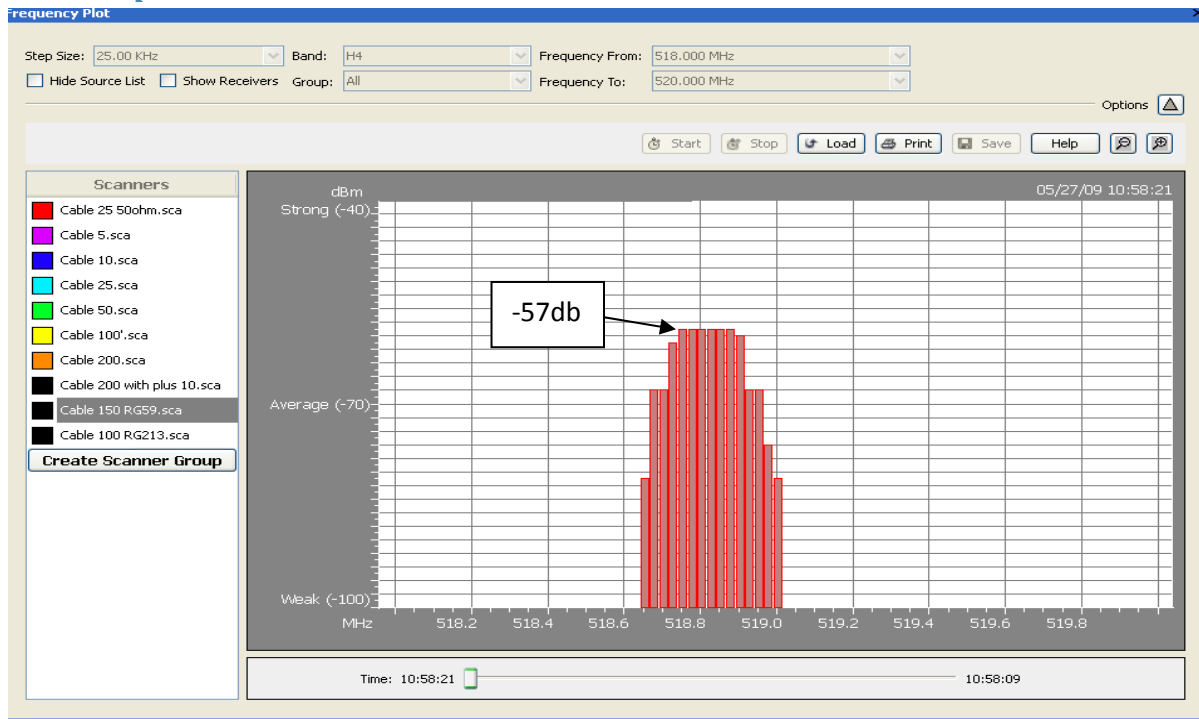
## 50' 75 Ohm RG6/u Canare



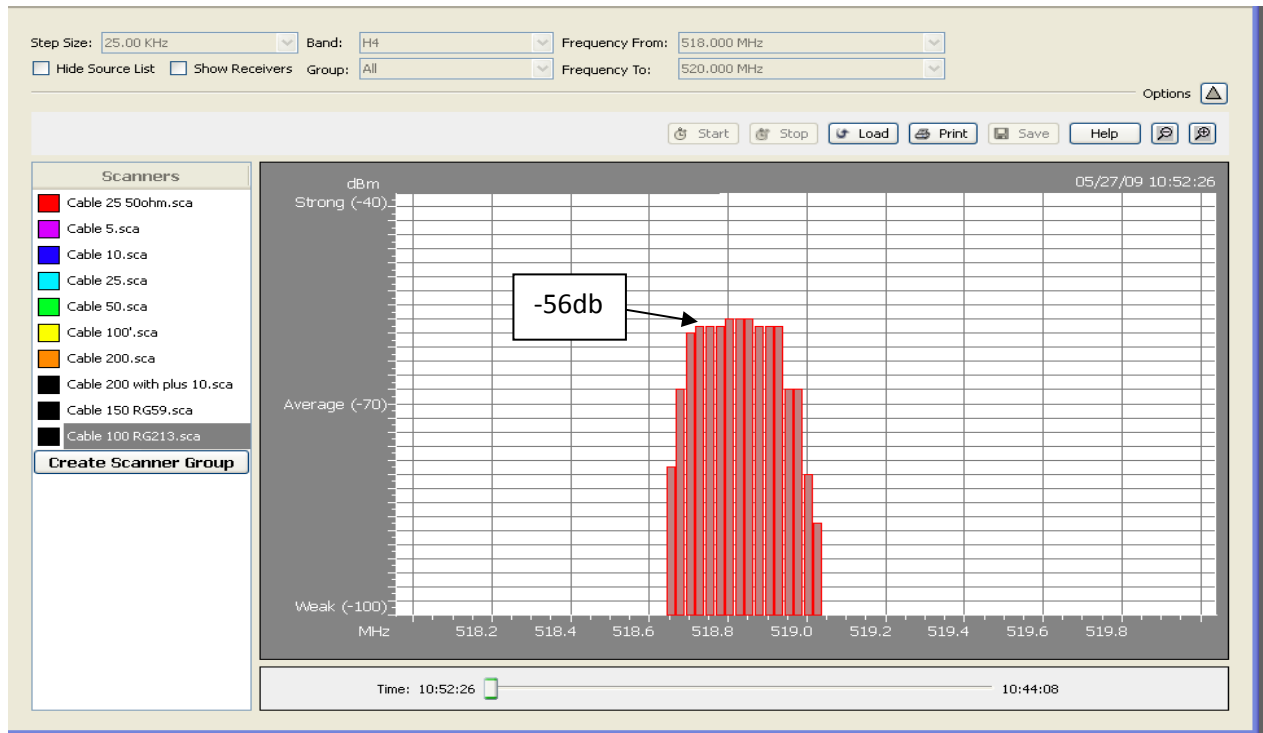
## 200' 75 ohm RG6/u Canare



## 150' 75 ohm RG59 Home Depot Cheap Stuff, with F-Type Termination with F to BNC Adaptors



## 100' RG213 Cable



## Summary

I was very surprised at the results, 7db loss and that was with the worse cable I could find and at 150'. I was shocked at the RG213 results, as this is very expensive cable, but in fact confirmed Jim Brown's observations from his article. Even with a -7db loss, with the Shure wideband antenna, there is a 10db switch, and once you engage it, you are back up to -50dbm

Cable	Price
Canare RG/6 L-5CFB	\$437/1000
RG213/u	\$800/1000
Home Depot RG6/u	\$98/1000

This is far from scientific, but to me proves that either 50 ohm or 75 ohm will work interchangeably without harm to the system. In fact, the junk RG59 seems to perform just fine and I would have no problem using it on a regular basis. Again this is just for a Shure wireless UHF-R system, I would suspect that other system would respond the same way, but have not tested them.

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