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> DE AAA5MI NR 269  
> R 220158Z SEP 2009  
> FM BOCK/AAA5MI MI  
> TO ALL MI MARS  
> BT  
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> SUBJECT: REGION FIVE ANTENNA TECH NOTE  
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> 1. EXTENSIVE TESTING OF THE USE OF A SO-CALLED LONG WIRE  
> ANTENNA THAT WILL, WITH AN ANTENNA TUNER OR COUPLER COVER ALL OF THE  
> REGION FIVE MARS FREQUENCIES HAS RESULTED IN A DESIGN THAT  
> HAS PROVEN TO BE EFFECTIVE BOTH AT HOME AND IN THE FIELD.  
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> 2. THE DESIGN IS BASED ON THE ASSUMPTION THAT THE CURRENT  
> LOOP SHOULD BE CLOSE TO THE TUNER OR COUPLER TO AVOID  
> VOLTAGE NODES THAT ARE HARD TO TUNE.  
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> 3. TWO WIRES AND A COUNTERPOISE WERE FOUND TO BE EFFECTIVE.  
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> 4. THE RADIATING ELEMENTS ARE CONNECTED TOGETHER AT THE  
> WIRE ANTENNA OUTPUT OF THE COUPLER OR TUNER.  
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> 5. THE COUNTERPOISE ELEMENTS ARE CONNECTED TO THE CHASSIS  
> OR GROUND CONNECTION OF THE TUNER OR COUPLER.  
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> 6. NO FEED LINE SHOULD BE USED. THE TOTAL LENGTH TO THE TUNER  
> SHOULD BE THE LENGTHS NOTED BELOW. IF LIGHT NYLON ROPE OR  
> TWINE IS USED FOR THE END TIES, NO INSULATORS SHOULD BE  
> NEEDED. KNOTS OF BOTH THE WIRE AND THE NYLON TWINE WILL  
> WORK FINE.  
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> 7. THE WIRE LENGTHS ARE 91 FEET AND 49 FEET FOR BOTH  
> THE ANTENNA AND THE COUNTERPOISE. THAT IS FOUR WIRES.  
> SPREAD THE WIRES AS MUCH AS YOU CAN. THE MINIMUM IS ABOUT  
> A FOOT. EVEN RIGHT ANGLES WORK FINE.  
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> 8. THE WIRES NEED NOT BE IN A STRAIGHT LINE AND CAN BE  
> BENT AS NEEDED.  
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> 9. WHILE IT IS CERTAINLY PREFERABLE THAT THE COUNTERPOISE  
> BE UNDER THE ANTENNA WIRES, GOOD RESULTS CAN BE HAD EVEN  
> IF THIS IS NOT POSSIBLE. DIRECTLY UNDER THE ANTENNA GIVES  
> BETTER NVIS RESULTS. IF NOT DIRECTLY UNDER THE ANTENNA AT  
> LEAST YOU ARE PROVIDING A GOOD RF GROUND FOR THE TUNER  
> OR COUPLER TO WORK AGAINST WHICH IS VERY IMPORTANT.  
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> 10. THE INTERNAL ANTENNA TUNER IN YOUR RADIO SHOULD NOT BE USED.  
> IT IS TOO LIGHT AND DOES NOT HAVE THE TUNING RANGE NEEDED.  
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> 11. INSULATED WIRE WILL ALLOW THIS DESIGN TO BE RUN THROUGH TREES.  
> INSULATED WIRE SHOULD BE USED FOR THE COUNTERPOISE AS WELL.  
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> 12. DO NOT EXPECT THIS ANTENNA TO TUNE WELL ON THE NORMAL AMATEUR  
> FREQUENCIES UNLESS YOU HAVE A VERY GOOD TUNER RATED FOR AT LEAST  
> FOUR TIMES THE OUTPUT POWER YOU ARE RUNNING. OTHERWISE THERE WILL BE COIL  
> ARCING AND CAPACITOR ARCING AS YOU WILL BE RUNNING VOLTAGE LOOPS  
> AT THE COUPLER OR TUNER. THIS IS ONE OF THE MAJOR REASONS WHY  
> TUNERS OR COUPLERS OFTEN FAIL TO DO THEIR JOB WITH SINGLE WIRE  
> SOLUTIONS.  
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> 13. THIS DESIGN HAS BEEN SHOWN TO BE EFFECTIVE WITH BOTH MANUAL AND  
> AUTOMATIC TUNERS.

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> 14. IT IS NOT NECESSARY TO GET A HEIGHT OVER THIRTY FEET. LOWER IS  
> ACCEPTABLE BUT THE GROUND LOSSES WILL START TO BUILD UP FAST.

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> 15. FOR THOSE WITH THE REAL ESTATE, THE WIRE LENGTHS CAN BE  
> 28 METERS, 46 METERS AND 15 METERS FOR BOTH THE ANTENNA AND  
> COUNTERPOISES. BETTER PERFORMANCE AND EASIER TUNING CAN BE EXPECTED  
> WITH THIS THREE WIRE SOLUTION. THIS TOO HAS BEEN TESTED AT  
> TWELVE FEET ABOVE THE GROUND.

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