

2017 Project Feedback

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May 30, 2017

1 Introduction

In the first place, a reminder (1st lecture) that this course is an Honours-level course. This implies that the project component, in particular, is “self-study”, ie must be work done by the student outside of the course content.

This allows us to convince the Overall External Examiners at the end of the year that you can do *Independent Work* (ECSA Outcome 10).

The Technical Report was emphasised at the beginning, because this is your last “Dry Run” before the real Technical Reports for the Design/Project where any deficiency will result in a FAIL. And yes, I still have Technical Reports without an Abstract, with Shocking and missing References, and Cruddy Conclusions!! Not to mention UNITS: Km is a Kelvin-metre, Mhz MHZ are completely unknown. Just get it RIGHT, it is EASY!!!

2 Assessment

All would have had access to the assessment tool that we use. The tool should have given you an idea of the depth required. I deviated from the tool, in that it states that I need to Justify why one of the 4 outcomes was not Acceptable: I commented from the Top Down: ie my comments are items that make the report not “Complete”. Most of my comments are in Red Ink in your report :-), and most are Formative, not Punitive! Final Lab Project write-up is coming: Take Note of my comments!!

The outcomes, as interpreted for this project are:

2.1 Background

- Understand Purpose of project.
- Contextualise WHY. What is the justification for the design?
- What Problem are you solving?
- Gain/VSWR Requirements, and WHY?
- Usual solution to the problem—Literature Survey.

2.2 Quality of Engineering Output

- Choice of Antenna. Functionality of design. Elegance.
- Quality of Antenna produced (Constructional details). Quality of evidence shown in Photograph.
- Choice of matching/filtering.
- Methodologies: 4NEC2/FEKO Simulations that made sense. (Pattern and VSWR) Optimizations. Plots of investigated trends. Lack of silly single-point graphs.

2.3 Critical Analysis and Evaluation

- Testing methods make sense? (Distance does not).
- Comparison between simulation and measurement (Including radiation pattern analysis)
- Quantification of testing
- Quantification of Costs.
- Measured radpat & HPBW.
- Tie back HPBW to Estimated Gain.

2.4 Technical Communication

- Crisp, to the point.
- Appropriate length, Structure, Flow of argument.
- Remember: the 5-page limit includes EVERYTHING that is going to be published. No publisher “allows” appendices, or puts all the pics into an appendix, which doesn’t get published!!
- UNITS!!!! Just get them right.
- Graphical material quality (No Web Stuff). Maths Quality. Quality of Photo of antenna.
- Citations and References (in full)
- Abstract + Conclusion = Full Report!
- Blue Book Correctness.

3 General Comments:

- Use Times-Roman, *NOT* Arial/Helvetica/Sans-Serif. The Serif’s are Required by the eye to assist the reading process. I get tired after just one page of Sans-Serif. That’s why the Times is the oldest newspaper!!!
- Antennae belong to insects.
- Interrogate numbers. ALL NUMBERS. A 5-element Yagi: why 5, why not 4? WHY?

160dB/m loss: not even a vacuum has that loss.

0.052916m with a bloody side-cutter? Why do you think that Technicians think that Engineers are idiots?
- Handing in late is really not useful.
- S.I. Units please: we divide by three. Use mm or m, definitely NEVER cm: This is an American aberration that says that we must use a unit closer to the inch. cm is deprecated under S.I.
- **SAVE THE TREES!!!!** Why abstract on one page? Why so much dead space in the report. Configure your Wordprocessor to realise that we use A4 paper, and not American Letter paper!!!!
- Single point graphs, even after I said NO to them after lab feedback? What does it show?
- Sudden fixation with Return Loss. Its VSWR in Log form!!!! WHY do both???? No extra information is added!!!
- Aspect ratio’s!!! Even Macroloth Turd can be forced to keep a polar plot or a Smith Chart round!
- Don’t read the “Brief description of outcome” column on the assessment form, **and THEN turn it into section bloody headings!!!!** So we have “Success Criteria” and “Constraints”. For goodness sakes! (And while you’re at it, it is not Constrains).
- VSWR is a **RATIO** 1.36:1, not 1.36. This was evident when I got a 0.97! (1.031:1, actually) AND: If you are under 2:1, YOU ARE MATCHED. STOP :-) Do not further match your matched system.
- Seriously rubbish, but SERIOUSLY rubbish “Journals”. International Journal of Engineering Science Invention... Go and look it up. DO NOT do this....
- dB versus dBi versus dBm. Absolute, relative, referenced to dipole. . . A lot of you seriously cannot deal with logs....

- Why the fixation with F/B ratio? For most applications, it is not at all important. Likewise SNR: that has NOTHING to do with the antenna!
- Do not use screengrabs. Present data in a properly formatted table.
- UHF connector <http://www.amphenolrf.com/frequency-range-chart/> 100MHz max!!! Misnomer of note!
- Reference Software packages used. These are not general packages, but rather specific stuff!!!
- Varying costs of a reverse polarity SMA connector....

4 Conclusion

Although we mostly got the Yagi-Uda for WiFi, we did get some adventurous folk this year: well done!

Most folk engaged with the project, although it was clear that some left things too late. I also had end-fed dipoles in a Yagi. Interesting. Hopeless, but Interesting.

Apologies for the length of time taken to mark (3 weeks), but my plate was not empty...