**Final Report**

**<Project Name>**

**Project Manager: <name>**

**<Team Members' Names, listed alphabetically>**

**Texas State University**

**Ingram School of Engineering**

**SPONSOR Company Name**

**Street Address**

**City, State Zip Code**

**Date**



Remove this box and put an approved Sponsor logo in this space ONLY if your Sponsor approves doing so.

If they do not, center the UNM logo.

**Test Plan Revision History**:

# Overview

## Executive Summary

*This section should present a clear, concise summary of your project.* ***[3/4 page limit]***

* *who sponsored it,*
* *size of team & mix of major/track,*
* *what your project was intended to do,*
* *how closely you achieved your goals,*
* *in general (concise!) what worked well and what didn't, and briefly summarize which features met design specifications and which did not. Write this section so that if a VP is only going to read one section about whether or not your project worked - this would be the one.*

*NEW PARAGRAPH:Describe the purpose & value of your project. Why did you do it? Who benefitted? How is it of value to your Sponsor/TXST/society/you, etc?*

## Abstract

*Write a concise abstract for your project.* ***[1/4 page limit]***

*THESE SECTIONS ABOVE MUST FIT ON THIS PAGE!!*

From page 2 forward, this document shall have:

* 1” margins all around
* Right-justified or not is your choice
* Times New Roman 12 point (EXCEPT section headers) for text
* 1.15 spacing
* 0 points before, 0 points after
* Use block separation for paragraphs - NOT indentation

Delete this text box once you have understood and obeyed its commands.

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# List of Figures

# List of Tables

# Problem Description

*The problem description section should tell the reader the topic your project is addressing and your specific deliverable(s).*

**BE REALLY CLEAR ABOUT WHAT YOU DESIGNED/BUILT.**

*Include a system-level diagram that will orient a reader to your design approach. The system level diagram should be very general. It should, at a glance, make clear what your project does, how it fits together, etc. It shall be Figure 1. Your work shall be highlighted in yellow as shown. Here's a couple examples:* (THEY ARE NOT CORRECT!!)

Wave Generator

Wave Sampler

Wave Solver

Display

Database from User

**Fig. 1.** System level diagram of Ionospheric Wave Project. Blocks highlighted in yellow were designed and coded for this project.

**HINT: Use block diagrams from previous presentations!**

# Progress Towards A Solution

## Design Decisions

*Discuss your design decisions for each block at the most general level: What alternative approaches to the design are possible, which was chosen, and why is it desirable? Include at least one figure to illustrate this*

## Design Approach

*Design approach: how did you approach & do the design? What software tools did you use? Include at least one figure to illustrate this.*

## Project Approach

*How did you approach & organize the project? What steps did you take to complete it?*

## Engineering Standards

*Each project incorporated relevant engineering standards from organizations such as ANSI, UL, IEEE, ASTM and so on. List each set of standards used in your design. For each standard state HOW and WHY it was relevant and how incorporated.*

*Feel free to do this in tabular form if you desire such as:*

|  |  |  |  |
| --- | --- | --- | --- |
| **Standard** | **Title** | **Application** | **Relevance** |
| UL44 | Standard for rubber-insulated cables & wires | Two, 2m RG59 cables from power supply to amplifier unit | Safety |
| GR-499-CORE | Transport Systems Generic Requirements | Optical fibers transmitting data from sensor unit to processor | Data Integrity |
|  |  |  |  |

## Progress Towards Goals

*Clearly indicate your progress toward achieving your proposed deliverables. If there was any change in your deliverables from those originally proposed, explain the reasons and provide justifications.*

## Verification

*How exactly did you verify/confirm you met your technical goals? Describe the test bed you constructed or used, and how many samples you tested (if applicable).*

## Characterization Results

*Show a* ***concise*** *table listing each Test Case, its corresponding specification(s), the results of the test, and whether or not it was compliant with the specification.*

## Deficiencies

*For each deficiency, address the effect on system performance and design. Include any estimates of time and effort required for correction of each deficiency and any recommendations regarding the urgency of each correction, and the recommended solution or approach to correcting deficiencies.*

*Summarize in a table.*

## Iterations and Redefinitions

*Reproduce your project definition from the SOW. Now, contrast this with what you had as your project definition at the time of writing this report by answering the following IN DETAIL.*

*Describe each relevant/major iteration or redefinition. How or why did they occur? What were the circumstances? Roughly when did it occur? What was the impact? What did you learn from it?*

# Constraints

## Budgetary

*How did limited funds/supplies constrain your design?*

## Design Feasibility

*You're not Intel so how did this constrain your design? How did equipment and software limitations constrain your design?*

## Manufacturability

*What constrains the ability of your design to be manufactured? What constraints did you consider?*

## Maintainability

*This is mostly for software, but hardware systems may require maintenance.*

## Environmental

*What environmental considerations did you have? Think about this in broad terms!*

## Health and Safety

*What health and safety concerns did you consider as constraints?*

## Social

*Speak to constraints due to intended users/audience, etc.*

# Budgets

*The budget section should include a comparison of your proposed budget and the actual dollars spent to date. Create a table with side-by-side columns to convey this information.*

*Include a brief statement or paragraph summarizing your budgetary performance. Ignore items that differed by only a few dollars.*

# Work Schedule

*The schedule section must make clear to the readers which tasks were completed and which were not. Wherever possible make it clear which team member(s) were responsible for each* ***major*** *task. Discuss any timeline changes since the proposal was submitted. Use Gantt charting techniques (or side by side table if it’s preferable) to show the current status of the tasks in relation to the proposed schedule. However you do this it has to be readable!!! It will be a Figure or Table.*

# Personnel Interactions

## Teamwork

*The teamwork section must clearly and concisely state the responsibilities of*

*each team member and his/her contribution to the senior design project. This is an expansion of Section 8. You can convey this information in a method of your choice, i.e. text, table, etc.*

## Mentorship

*What role did your Technical Mentor (Sponsor) and Faculty Advisor play? How much time did you spend with them and how frequently? How much did they assist you? What did they do? (point you towards resources, chalkboard lectures, help solve problems when stuck, etc) Be specific and give examples whenever possible.*

You're tiptoeing on political turf here so be very careful how you word this. If you got very little mentorship from your Sponsor/Tech Mentor then perhaps they did a great job defining the project, pointing you in the right direction, asking pointed questions, etc.

# Ethics

*You must discuss the ethics associated with your project. Treat this like your Ethics Paper - write an analytical (NOT persuasive or opinion) essay. Use moral & ethical theories & principles as appropriate as you did in your Ethics Paper. Include elements of IEEE & NSPE codes of ethics as you did in your Ethics Paper.*

# Summary & Conclusions

*Describe the overall capabilities and deficiencies of the system. (This is the more technical and detailed version, which you will summarize for the Executive Summary.) Provide a statement, based on the results of the system or module test, concerning the adequacy of the system or module to meet project requirements. How close did you come to your objectives?*

# Discussion

## Academic Preparation

*Were your TXST EE courses useful preparation for your project? How much, and if yes, how? If not, why not? If not, what resources were used?*

## Lessons Learned

*What did you learn about the engineering process? Teamwork? Management?*

## Soft Skills

*What soft skills did you develop, improve or learn that you did not have before taking Senior Design? What elements of the course, or activities or assignments facilitated this learning?*

## Schedule Deviations

*What caused any deviation? What could you have done to better stay on track? What elements were under your control? Out of your control?*

## Staffing

*Was your project adequately/correctly staffed? Why or why not? Enough members? Right major/tracks?*

## Final Observations

*If you had this project to do over again, what would you have done differently?*

# Acknowledgments

*Briefly acknowledge the individuals who helped you technically, organizationally, etc.*

*At a minimum you must acknowledge your Sponsor and your Faculty Advisor. Be generous!*

# References

*List relevant references. This section provides a bibliography of key project references and deliverables. This should not be a long section, but should show that you referenced and followed applicable guidelines.*