TAPR History

From Idea to Manufacturing: Uncovering the steps for success

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NJIT
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A Little History About TAPR

• Began in 1981
• Non-Profit 501.3c educational organization

http://www.tapr.org

• Accidental Incubator
• Products the “enable” the amateur experimenter
TAPR is a community that provides leadership and resources to radio amateurs for the purpose of advancing the radio art.
Philosophy

• Promote the “Technical Side of the Hobby”
  • Advance the radio art

• Provide hardware and software that which does not exist
  • Until it becomes mainstream (maturity)
Funding

• Collect dues

• Profits from sales of products
  • Books
  • Kits
  • Projects
Manufacturing for Success
Design for Manufacture (DFM)
Regulations

- **United States**
  - Federal Communications Commission
  - 47 CFR Part 15
  - Unintentional Radiators – Subpart B
  - Intentional Radiation – Subpart C

- **Europe**
  - Radio Equipment Directory (RED)
  - CE Marking

Special Temporary Authority (STA)
Open Source Licenses

• Various Open Source Software Licenses
• Open Hardware is hard

TAPR Created the Open Hardware License (OHL)
• John Ackermann, N8UR

https://www.tappr.org/OHL
Idea

• Initial Idea
• Discussion
• Peer Review
• Experimentation
• Proof of Concept
• Formalization of assumptions and functionality
• Final peer review
• Iterate!

Output:
- Specification

Idea – write the user manual
Design

• Product Specification
• Hardware Design
  • Peer Review
• PCB design (layout and routing
  • Review
• Prototype
• Design Validation
• Iterate!

Idea – write the user manual

Output:
- Schematic
- Bill of Materials
- Gerber Files
- Test Procedure
Manufacturing

- Cost out BOM
- Parts Availability
- Set Sales Price
- Schedule
- Procurement
- Assemble and Inspection
- Perform Test Procedure
- Final Inspection
- Packaging and Ship

Output:
- Product
Working with HamSCI
Radio Regulations

• World-wide cadre of radio communicators
  United States FCC
  47 CFR §97.1  Basis and purpose.
  • Trained radio operators
  • Advancing the radio art

International Telecommunications Union
Radio Regulations
http://life.itu.int/radioclub/ars.htm
It’s a Service

• Amateur Radio Service
• Amateur Satellite Service

• It is:
  • voluntary noncommercial communication service

• §97.113 Prohibited transmissions.
  • Cannot be paid for operation (see exceptions)
  • pecuniary interest
Advancing The Radio Art

• Science Experiments
  • Willing group who would like to participate
  • “What’s in it for them?”

• Challenges
  • Only in populations centers
  • Not all countries regulate the same
    • Some require clubs that are monitored
  • Keep it affordable
What Can TAPR Do For You?

http://www.tapr.org