



TAPR History

From Idea to Manufacturing: Uncovering the steps for success

Steven Bible, N7HPR
President, TAPR

HamSCI Workshop

NJIT

February 24, 2018



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
-



Mission Statement

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

Special Temporary Authority (STA)

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



Open Source Licenses

- Various Open Source Software Licenses
- Open Hardware is *hard*

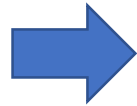
TAPR Created the Open Hardware License (OHL)

- John Ackermann, N8UR

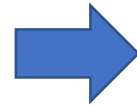
<https://www.tapr.org/OHL>



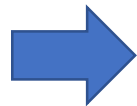
Process



Concept



Design



Manufacturing



Product



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>
