

SpaceWire Handbook  
Barry M Cook, SpW WG16



**SpaceWire Handbook**

**Barry M Cook  
4Links Limited**

**SpaceWire WG16  
21-23 March 2011**

SpaceWire Handbook, Barry M Cook, 4Links Limited, SpaceWire WG16 1

**Content**



- **Status**
- **Source of Handbook Content**
- **Proposed content**

SpaceWire Handbook, Barry M Cook, 4Links Limited, SpaceWire WG16 2

## Status



- **Handbook activity is now an ESA funded project**
- **KO March 2011, duration <2 years**
- **Editors – 4Links**
- **Content – to be agreed / reviewed by SpW WG**
- **Publication**
  - **Web**
  - **Official ECSS Handbook**

SpaceWire Handbook, Barry M Cook, 4Links Limited, SpaceWire WG16 3

## Source of HB Content



- **New material**
- **Edited existing material**
  - **e.g. published papers**
- **Contributors**
  - **All contributors will be acknowledged**
  - **Contributors will need to give permission for the material to be used in the handbook / published on the web**
- **Community involvement**
  - **Providing material**
  - **Suggesting authors**
  - **Suggesting existing papers**

SpaceWire Handbook, Barry M Cook, 4Links Limited, SpaceWire WG16 4

## Proposed Content - 1



Note: This content is PROPOSED – it is for discussion.

Please suggest new items to be added  
and/or items to be deleted.

- **Foreword**
- **Introduction**
  - Purpose
  - Scope
  - Document Structure
- **Terms, definitions and abbreviated terms**
- **References**

SpaceWire Handbook, Barry M Cook, 4Links Limited, SpaceWire WG16 5

## Proposed Content - 2



- **ECSS-E-ST-50-12C and related standards**
  - **History and background**
    - (Shorter version of that in v2.2)
  - **Context and Concepts**
    - (How a network functions with packet routing and time broadcast – short and concise. Notes on notation differences from space norms.)
  - **SpaceWire Protocols**
    - **E-ST-50-51C**
      - (Purpose of the standard)
    - **E-ST-50-52C**
      - (Purpose of the standard)
    - **E-ST-50-53C**
      - (Purpose of the standard)

SpaceWire Handbook, Barry M Cook, 4Links Limited, SpaceWire WG16 6

## Proposed Content - 3



- **Specific Topics**

- **Best practice for SpaceWire implementations**
  - **PCB layout**
    - (EIA/TIA644 & high speed PCB layout material is available from many places)
  - **Codec implementation**
    - (From various IP-core user manuals ?)
  - **Node implementation**
    - (Required / optional features)
- **Verification and Validation**
  - **Tools / tests**
    - (Guide to minimum set of tests and how to perform them – from standard + experience)
- **SpaceWire network architectures and FDIR**
- **SpaceWire backplanes**
- **Other ...**

SpaceWire Handbook, Barry M Cook, 4Links Limited, SpaceWire WG16 7

## Proposed Content - 4



- **Supporting components**

- **Flight components**
  - (ESA developed components [and others?])
- **Industry**
  - (ESA database of suppliers – also NASA, JAXA, ROSCOSMOS?)

- **Contributors**

- (List of contributors)

- **Annex A ...**

- (If required)

SpaceWire Handbook, Barry M Cook, 4Links Limited, SpaceWire WG16 8