

IEEE 802.11y Status Report

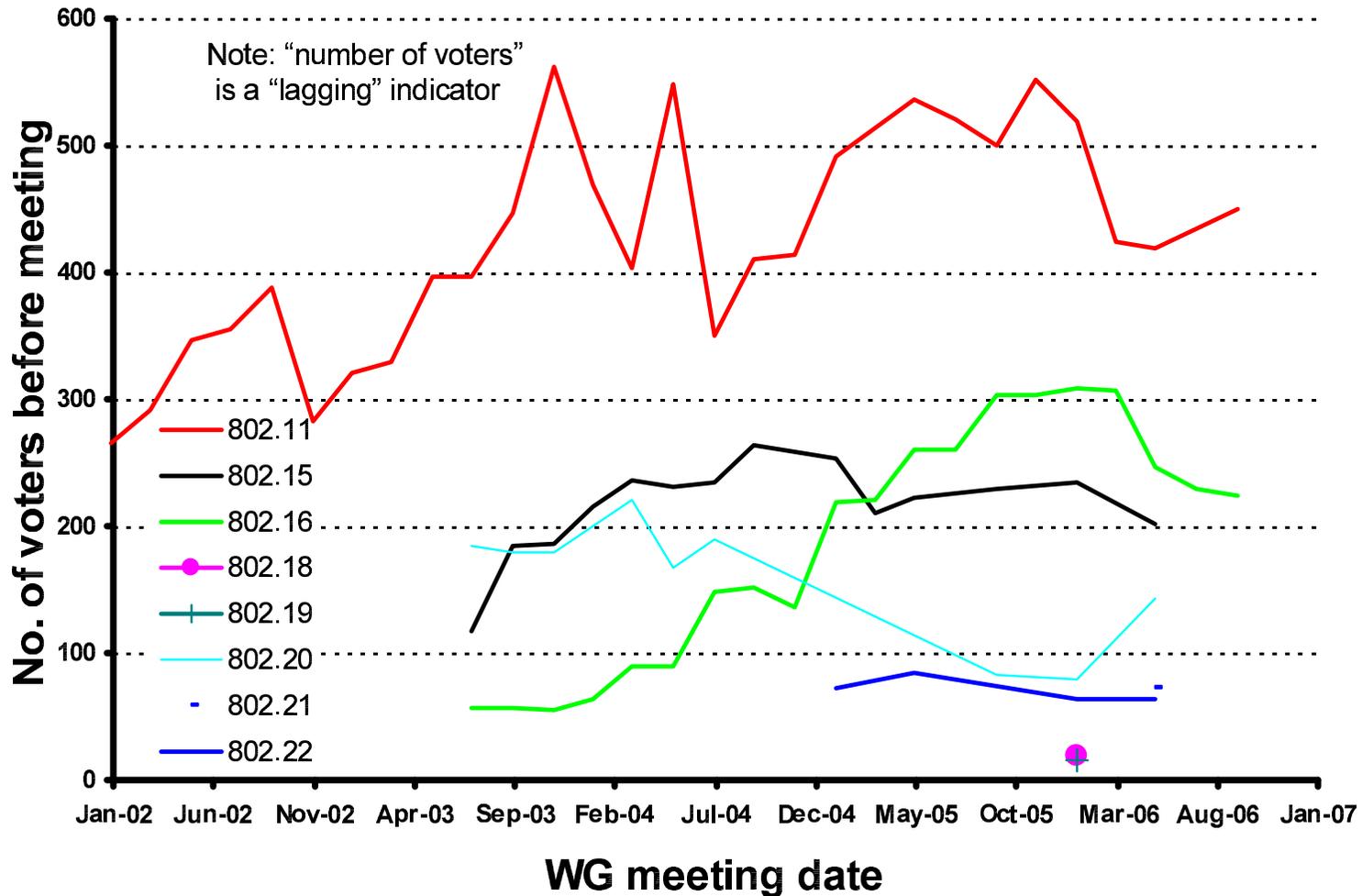
(802.11y = Regulatory Classes 12, 13, 14)

Post San Diego (July 2006) IEEE meeting report

14 August 2006

**Peter Ecclesine
(as IEEE Individual Contributor)**

802.11 is still the largest group, and membership is now starting to climb again





TGj summary

TGj goal – enhance 802.11a PHY and 802.11 MAC for operation at 4.9 GHz & 5 GHz in Japan

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Group

- 4.9 GHz – 5GHz Operation in Japan

Objective

- Enhance 802.11a PHY and 802.11 MAC to allow operation in 4.9 GHz and 5 GHz bands in Japan, additional non-PAR goals:
 - World SKU radio
 - Outdoor OFDM
 - 10 MHz channel spacing

Current status

- 802.11j was published on 29 Oct 04, and is available for free download at 'Get802'

<http://standards.ieee.org/getieee802/802.11.html>

Officers

- Sheung Li (Atheros) – Chair
- Peter Ecclesine (Cisco) – Editor

Major Cisco contributors

- Peter Ecclesine
- Andrew Myles

Latest news

- 802.11j will probably be ISO standardised as part of 802.11ma



TGy summary

TGy goal – develop a CBP operating under FCC rules at 3.65GHz

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Group

- Contention based protocol TG

Objective

- Develop a PAR & 5 criteria for CBP operating under FCC rules at 3.65GHz

Current status

- Became TGy after IEEE NesCom meeting on 17 Mar 06

Likely completion

- Official estimate is Jun 09, but Dec 07 is likely if we reduce the scope. 802.11j took less than 2 years for 40 pages, and set the framework for adding regulatory domains
- http://grouper.ieee.org/groups/802/11/Reports/802.11_Timelines.htm

Officers

- Peter Ecclesine (Cisco) – Chair

Contributors

- Peter Ecclesine (Cisco)
- Eldad Perahia (Intel)
- Jim Petranovich (Conexant)
- Steve Shellhammer (Qualcomm), chair of 802.19 Coexistence Tech Advisory Group
- Jason Trachewsky (Broadcom)

TGy status – a new SG was proposed & approved for operation in 3650-3700 MHz in response to an FCC R&O

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FCC has published a R&O for operation of contention based systems 3650-3700 MHz

- Details are available from the FCC
 - http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-257309A1.pdf
 - http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-56A1.pdf
- The FCC has developed a light licensing scheme for 3650-3700 MHz
 - Users use “contention-based” protocols to minimize interference
 - Base stations are lightly licensed and may not operate in certain areas (mainly on US coast)
 - Base stations will be allowed to operate with a peak power of 25W/25MHz
 - Mobile stations must receive an enabling signal from a base station before transmitting to avoid interfering with FSS & government stations
 - Mobile stations will be allowed to operate with a peak power of 1W/25MHz

Peter Ecclesine drove a proposal to start an 802.11 Study Group (11-05/0223) through ExCom in Mar '05

- It makes sense for 802.11 to expand to this new band because it already has much of what is required by the FCC R&O
- ExCom agreed to the creation of an 802.11 SG on condition close liaison was kept with 802.16 and other groups

TGy status – the PAR & 5 criteria were approved by IEEE NesCom in Mar 06

- The PAR and 5 criteria are complete and were approved in Garden Grove in Sept 05
 - Draft PAR (11-05/565r3)
 - Draft 5 criteria (11-05/351r4)
- They were also approved by ExCom in Nov 05 in Vancouver
- Some grammatical modifications were made to the PAR and 5 criteria as a result of feedback from IEEE
 - [PAR](#)
 - [5 Criteria](#) (11-05/351r5)
- This PAR and 5 Criteria was approved by NesCom on 17 Mar 06

TGy status – TGy has agreed unanimously on its purpose, principles & mechanism for moving forward

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Purpose

- TGy should create an amendment whose implementation in solutions is likely to receive FCC approval for operation in 3650-3700 MHz under the 47 CFR 90 subpart z rules

Principles

- If the FCC changes the rules, TGy should change the amendment accordingly.
- The amendment should not duplicate functionality that is being standardized in other TGs that are likely to complete before 802.11y.
 - e.g. parts of 802.11k and 801.11w
- There is no need for backwards compatibility with 2.45 GHz ISM operation
- The amendment should exclude some optional MAC and PHY behaviour
 - e.g. PCF, FH, DSSS, and ERP

Mechanism

- Use the OFDM PHY with 5, 10 and 20 MHz channel widths, and extend DFS to operate with other primary band users, to specify the basis for a system that the FCC can approve for operation in the US 3650-3700 MHz band
- The industry will need to address several issues as part of this process, including:
 - the characteristics of the “enabling signal” that indicate operation is allowed in a particular geography
 - any time limit within which a mobile may transmit before it must again receive the enabling signal.
 - how mobiles/portables should function
 - the required emissions masks at band edges for fixed and mobiles



TGy plans – continue reviewing draft text

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Plans before the Sept 06 interim meeting in Melbourne

- Hold bi-weekly teleconferences beginning 15 August
 - Discuss use cases, CCA story
 - Discuss Mobile/Portable Enabling Signal (29 Aug)

Plans at the Sept 06 interim meeting in Melbourne

- Decide about Mobile/Portable (11-06/864r3)
- Review draft text for
 - Clause 7, 10, 11, 17
 - Annex I & J (11-06/855r4)
- Start WG informal draft review



802.11 Beacon frames

There are ten beacon frames per second from Base and Fixed Stations

Each beacon frame can contain a Country Information Element (802.11 7.3.2.9)

Three octet Country ID (per ISO 3166-1, 1997 version)

(U)(S)()

The Country Information Element can have 'regulatory triplets'

Regulatory Extension, Regulatory Class, Coverage Class

(201), (12, 13, 14), (Coverage Class *3 μ sec AirPropagationTime)

and 'subband triplets'

First channel, number of channels, max. Tx Power Level

(132, 134, 136, 138), (4), (1)

Beacon frames can have other Information Elements, like a Mobile Service Enablement element



802.11 Annex J Regulatory classes

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TGy voted (Y 22/ N 1/ A 6) to add three Regulatory Classes to US Table J.1 per IEEE 802.11-06/0855r3:

Class 12 20 MHz channel widths, TPC, DFS, 4 ms Carrier Sense, CCA/ED

Class 13 10 MHz channel widths, TPC, DFS, 4 ms Carrier Sense, CCA/ED

Class 14 5 MHz channel widths, TPC, DFS, 4 ms Carrier Sense, CCA/ED

Discuss 11-06/855r3 Annex I and J changes

Discuss 11-06/1024r2 looking forward



Conclusions

Band plan, TPC, DFS, 4 ms Carrier Sense voted in July '06

Energy Detect (11-06/955) discussed, Unregistered Dependent Enablement (11-06/864) discussed, draft text was looked at

Will take decisions on Energy Detect and Mobile operation in September, '06

If TGy chooses not to standardize Mobile operation, the text will be less than 20 pages (11-06/955)

URLs

<http://www.ieee802.org/11>

<ftp://ftp.802wirelessworld.com/11/06>