IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ARC SC Meeting Minutes January 2020 | | | | |
| Date: 2020-01-15 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Joseph LEVY | InterDigital Communication, Inc. | 2 Huntington Quadrangle  4th floor, South Wing Melville, NY 11747 | +1.631.622.4139 | [joseph.levy@interdigital.com](mailto:joseph.levy@interdigital.com) |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This document contains the minutes of the IEEE 802.11 ARC SC meeting sessions held on 13 January 2020 at 16:00 PST, 14 January 2020 at 13:30 PST, and 15 January 8:00 PST at the Hotel Irvine, Irvine, California, USA.

Note: Highlighted text are action items. C- proceeds comments, R- proceeds responses to comments

**Contents:**

[Monday 13 January 2020, PM2 3](#_Toc30105914)

[Tuesday 14 January 2020 PM1 5](#_Toc30105915)

[Wednesday 15 January 2020 AM1 7](#_Toc30105916)

[Thursday 16 January 2020 PM2 10](#_Toc30105917)

# Monday 13 January 2020, PM2

**Administration:**

**Chair: Mark Hamilton, Ruckus/CommScope**

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting called to order in ARC meeting room by Chair 16:03,**

Agenda slide deck: [11-19/2123r1](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-01-0arc-arc-sc-agenda-jan-2020.pptx) proposed agenda copied here for reference (will be r2 out of the meeting):

**Administration:**

The Chair reviewed the Administrative information in the agenda document, [11-19/2123r1](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-01-0arc-arc-sc-agenda-jan-2020.pptx)

**Call for Patents:**

The Chair reviewed the Patent policy and called for potentially essential patents – there was no response to the call.

**Participation:**

The chair reviewed the participation policy

**Approval of the Agenda:**

**Monday, January 13, PM2**

* **Administrative: Minutes**
* **IETF/802 coordination**
  + <https://datatracker.ietf.org/doc/draft-ietf-6lo-ap-nd/>
* **Monitor/update TGbd’s activities in support of IEEE 1609**
* **Update on Nendica’s/TGbe’s discussion on 802.11 in a Deterministic Network/Time-Sensitive Networking (Roger Marks)**
* **Clarifying EPD/LPD**
  + **Monitor/update on 802.1 discussions (Roger Marks)**
* **“What is an ESS?”:** [11-18/1051r8](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-08-0arc-what-is-an-ess.pptx)
  + **Change 802.11 to use 802.1Q and 802.1AC terms (not 802.2/LLC)?**
* **“What is a STA?” (See:** [11-19/0106r0](https://mentor.ieee.org/802.11/dcn/19/11-19-0106-00-000m-sta-and-ap.docx)**)**
  + **Also, off-channel TDLS architecture**
* **Annex G (purpose and value?, work to update or work to deprecate?)**
  + **See slides 17-20 of this deck**

**Tuesday, January 14, PM1**

* **Monitor/discuss architecture concepts in TGbc and TGbe**
* **IEEE 1588 mapping to IEEE 802.11/802.1ASrev and use of 802.11’s FTM**
* **MLME-RESET, versus MLME-JOIN and MLME-START (and MLME-SCAN and MLME-STOP)**

**Wednesday, January 15, AM1**

* + **Future sessions / SC activities**
  + **Above items continued, as needed**
  + **AP/DS/Portal architecture and 802 and GLK concepts -** [11-17/0136r2](https://mentor.ieee.org/802.11/dcn/17/11-17-0136-02-0arc-bridging-architecture-considerations.docx)**,** [11-16/1512r0](https://mentor.ieee.org/802.11/dcn/16/11-16-1512-00-0arc-glk-802-1q-bridge.pptx)**,** [11-16/0720r0](https://mentor.ieee.org/802.11/dcn/16/11-16-0720-00-0arc-stacked-architecture-discussion.pptx)**,** [11-15/0454r0](https://mentor.ieee.org/802.11/dcn/15/11-15-0454-00-0arc-some-more-ds-architecture-concepts.pptx)**,** [11-14/1213r1](https://mentor.ieee.org/802.11/dcn/14/11-14-1213-01-0arc-ap-arch-concepts-and-distribution-system-access.pptx) **(slides 9-11)**

The Chair reviewed the agenda and called for comments or amendments to the agenda - there was no response to the call.

Agenda discussion:

The proposed agenda was approved by unanimous consent.

**November 2019 face-to-face minutes:** [11-19/2062r0](https://mentor.ieee.org/802.11/dcn/19/11-19-2062-00-0arc-arc-sc-meeting-minutes-november-2019.docx)

Approved by unanimous consent.

**IETF/802 coordination**

<https://datatracker.ietf.org/doc/draft-ietf-6lo-ap-nd/>

“Address Protected Neighbor Discovery for Low-power and Lossy Networks” -

“This document updates the 6LoWPAN Neighbor Discovery (ND) protocol

defined in RFC 6775 and RFC 8505. The new extension is called

Address Protected Neighbor Discovery (AP-ND) and it protects the

owner of an address against address theft and impersonation attacks

in a low-power and lossy network (LLN). Nodes supporting this

extension compute a cryptographic identifier (Crypto-ID) and use it

with one or more of their Registered Addresses. The Crypto-ID

identifies the owner of the Registered Address and can be used to

provide proof of ownership of the Registered Addresses. Once an

address is registered with the Crypto-ID and a proof-of-ownership is

provided, only the owner of that address can modify the registration

information, thereby enforcing Source Address Validation.”

This doesn’t seem to be related to 802.11 – it seems to be related to 802.15.4 – suggestion to check with Patrick Kinney (802.15) – Chair will follow up.

IETF Liaison - Peter Yee – not present – the Chair will confirm that there is nothing of concern for ARC from IETF.

**Monitor/update TGbd’s activities in support of IEEE 1609**

Chair is unaware of any TGbd activity of interest.

**Update on Nendica’s/TGbe’s discussion on 802.11 in a Deterministic Network/Time-Sensitive Networking (Roger Marks)**

I haven’t talked to TGbe – what I will report today – this topic was raised as an information item. I’m trying to push this as a work item in Nendica, in a report. Looking for defining some problems to be addressed in future standardization. The focus in on coordinating flows.

This relates to 802.11aa – which provided admission control and exchange messages to choose the correct or preferred channel for priority channels. The target environment was apartment buildings and the work was done to provide a way to do coordination.

TSN model is not really a complete one for 802.11 – as it nails up a channel so you can control latency. But, the bursty nature of 802.11 is different (like that in DOCSIS).

Questions on how this could work when high priority flows are coming from different sources.

The issue is how does this get done in other networks and how should be done in 802.11.

This discussion will be had in Nendica Wednesday PM1.

**Clarifying EPD/LPD**

**Monitor/update on 802.1 discussions (Roger Marks)**

Roger – not any more advanced than last meeting. 802.1 has an agreement as to how EPD and LPD are used - .1ac and .1aq is where 802.11 got its information, there are some small changes that may be necessary.

There is one issue – the MAC service has an EPD/LPD flag – which says this packet is EPD or LPD over the link – which is setup as either an EPD or LPD link – all packets sent over the link will be the same.

Roger may bring a proposal – probably Wednesday morning.

**“What is an ESS?”:** [11-18/1051r8](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-08-0arc-what-is-an-ess.pptx)

**Change 802.11 to use 802.1Q and 802.1AC terms (not 802.2/LLC)?**

[11-18/1051r8](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-08-0arc-what-is-an-ess.pptx) – will be r9 after this discussion.

Reviewed: Slides 3-11 and the types A-G. The summary is on slide 12.

Proposed way forward (Jan 2020) – slide 13 - target of proposed changes to be pushed in to Rev-md.

Proposal to put this information in table form which includes the key elements so that the differences are clear for the various types.

Comments on slide 16, 17 – these need to be answered clearly and the specification text needs to be corrected.

Slide 18 addresses D & F – proposed recommendation: Note these distinctions in subclause 4.3, also: Same SSID and/or same security access are not sufficient to imply same 802.1Q Bridged network

**Recessed – 18:00 PST**

# Tuesday 14 January 2020 PM1

**Chair: Mark Hamilton, Ruckus/CommScope**

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting call to order in ARC meeting room by Chair 13:30 PST**

**Administration:**

The Chair reviewed the Administrative information in the agenda document, [11-19/2123r1](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-01-0arc-arc-sc-agenda-jan-2020.pptx)

**Call for Patents:**

The Chair reviewed the Patent policy and called for potentially essential patents – there was no response to the call.

**Participation:**

The chair reviewed the participation policy

**Approval of the Agenda:**

The Chair reviewed the agenda and called for comments or amendments to the agenda.

**Agenda discussion:**

Agenda slide deck: [11-19/2123r2](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-02-0arc-arc-sc-agenda-jan-2020.pptx), proposed agenda copied here and modified as below:

**Tuesday, January 14, PM1**

* **Monitor/discuss architecture concepts in TGbc and TGbe**
* **IEEE 1588 mapping to IEEE 802.11/802.1ASrev and use of 802.11’s FTM**
* **MLME-RESET, versus MLME-JOIN and MLME-START (and MLME-SCAN and MLME-STOP)**
* **“What is an ESS?”: 11-18/1051r9**
* **Change 802.11 to use 802.1Q and 802.1AC terms (not 802.2/LLC)?**
* **“What is a STA?” (See:** [11-19/0106r1](https://mentor.ieee.org/802.11/dcn/19/11-19-0106-01-000m-sta-and-ap.docx)**)**
* **Also, off-channel TDLS architecture**
* **Annex G (purpose and value?, work to update or work to deprecate?)**
* **See slides 17-20 of this deck**

**Wednesday, January 15, AM1**

* **Future sessions / SC activities**
* **Clarifying EPD/LPD**
* **Above items continued, as needed**
* **AP/DS/Portal architecture and 802 and GLK concepts - 11-17/0136r2, 11-16/1512r0, 11-16/0720r0, 11-15/0454r0, 11-14/1213r1 (slides 9-11)**

The agenda was approved by unanimous consent.

**Monitor/discuss architecture concepts in TGbc and TGbe**

There seems to be a need for ARC input to TGbe for “Multi-AP”, but no input or contributions are available for this meeting – will look for inputs in March.

**IEEE 1588 mapping to IEEE 802.11/802.1ASrev and use of 802.11’s FTM**

No comments or contributions.

**MLME-RESET, versus MLME-JOIN and MLME-START (and MLME-SCAN and MLME-STOP)**

Nothing new here – no contributions or comments.

**“What is an ESS?”:** [11-18/1051r9](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-09-0arc-what-is-an-ess.pptx)

**Change 802.11 to use 802.1Q and 802.1AC terms (not 802.2/LLC)?**

Discussing slide 5 (Type A), through slide 11 (Type G) – the Chair reviewed the status and current thinking on what the types are.

C - for the HESS for type B – is it only authentication domains, or is it HESSs that contain different DSs.

C - All of these types is a logical 802 Access network – which comprises a distribution network.

Long discussion on HESSID – but will wait for all experts to be present in the meeting to complete the discussion.

See slide 13 for the proposed way forward (copied here for reference)

**Type A:** Compare our key concepts to 802.11’s “ESS” and propose any changes we think will clarify/correct/complete the definition and description.

**Type B:** Compare our key concepts to 802.11’s “HESS” and propose any changes we think will clarify/correct/complete the definition and description.   
Note, we may extend into coordinating the concept with outside groups (WFA) that have similar concepts/use our facilities.

**Type C:** Drop it as beyond 802.11’s scope, other than the HESS concept.

**Type D:** Discuss in clause 4, as an 802.1 concept, beyond 802.11 facilities

**Type E:** Confirm is covered and correct in 802.11’s “Mobility domain”

**Type F:** Not really a useful concept, but make distinction from Type D in clause 4 discussion.

**Type G:** Not a type of “<x>ESS”, so not in scope at this point.

Moving on to slide 15, 16, 17 – wordsmithed and corrected. (see [11-18/1051r10](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-10-0arc-what-is-an-ess.pptx))

**Recessed – 15:33 PST**

# Wednesday 15 January 2020 AM1

**Chair: Mark Hamilton, Ruckus/CommScope**

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting call to order in ARC meeting room by Chair 08:04 PST**

**Administration:**

The Chair reviewed the Administrative information in the agenda document, [11-19/2123r3](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-03-0arc-arc-sc-agenda-jan-2020.pptx)

**Call for Patents:**

The Chair reviewed the Patent policy and called for potentially essential patents – there was no response to the call.

**Participation:**

The chair reviewed the participation policy

**Approval of the Agenda:**

The Chair reviewed the agenda and called for comments or amendments to the agenda - there was no response to the call.

Agenda discussion:

Agenda slide deck: [11-19/2123r3](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-03-0arc-arc-sc-agenda-jan-2020.pptx), proposed agenda copied here for reference:

* + **Future sessions / SC activities**
  + **Clarifying EPD/LPD**
  + **“What is an ESS?”:** [11-18/1051r12](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-12-0arc-what-is-an-ess.pptx)
  + **AP/DS/Portal architecture and 802 and GLK concepts -** [11-17/0136r2](https://mentor.ieee.org/802.11/dcn/17/11-17-0136-02-0arc-bridging-architecture-considerations.docx)**,** [11-16/1512r0](https://mentor.ieee.org/802.11/dcn/16/11-16-1512-00-0arc-glk-802-1q-bridge.pptx)**,** [11-16/0720r0](https://mentor.ieee.org/802.11/dcn/16/11-16-0720-00-0arc-stacked-architecture-discussion.pptx)**,** [11-15/0454r0](https://mentor.ieee.org/802.11/dcn/15/11-15-0454-00-0arc-some-more-ds-architecture-concepts.pptx)**,** [11-14/1213r1](https://mentor.ieee.org/802.11/dcn/14/11-14-1213-01-0arc-ap-arch-concepts-and-distribution-system-access.pptx) **(slides 9-11)**

The Chair reviewed the agenda and called for comments or amendments to the agenda – there was discussion yielding:

A concern was raised that ARC was not going to discuss Annex G –

Result was the Chair will ask for an additional time slot Thursday PM2.

The agenda was approved by unanimous consent.

**Clarifying EPD/LPD –** [11-20/0174r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0174-00-0arc-epd-and-lpd-terminology-misalignment-in-ieee-std-802-1-and-802-11.pptx)

Roger Marks – present 11-20/0174r0:

Long discussion on how 802.11 handles frames – regarding EPD vs. LPD and how they are at the MSAP – the problem is terminology – so how we align the terminology is critical – at this time Roger doesn’t have a clear recommendation. Hopefully there is a way to adjust the language to fix this.

Two possible ways forward:

1. Change IEEE Std 802.11 to refer to “Type/Length encoding” instead of “EPD encoding”
2. Clarify in IEEE Std 802.11 that “EPD encoding” includes EPD and LDP

There is a PAR to do maintenance to 802 – which may enable some small changes to clarify things in 802 for consistency.

Chair – We should fix as much as possible in 802.11md.

Way forward – choose an approach and attempt to draft the changes and see if it works starting with 1) “TLE” type/length encoding. Roger will coordinate this activity (Mark (Arc Chair) and Joseph (Arc Vice Chair) will support)– target md ad hoc 18-20th Feb.

**“What is an ESS?”:** [11-18/1051r12](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-12-0arc-what-is-an-ess.pptx)

Discussing type “B” – “HESS”

* **What does type B do/have? :**
  + **~~Access to the~~ Same set of authentication credentials to access the same services (including SSPN) ~~domain (RADIUS)~~ ~~– same database (the same authentication server)~~**
    - Identified by ~~(the WFA’s)~~ HESSID
  + Not necessarily same subnet, etc.
  + ~~Access to the same SSPN (802.11u)??~~  ***~~-- Need to settle this~~***
  + ~~Example: National/Worldwide chain of stores~~
  + No assumption that there is a single SSID ***~~-- Do we agree this?~~***
  + ~~Discovery/Selection: SSPN information (“Roaming Consortium”, “Visited network”, “NAI Realm”, etc.)~~
  + ~~Connection credentials:~~

Need to wordsmith “services” so it is clear that “services” refers to “application services” and not “802.11 MAC services”.

**REVmd definition:**

* + “A collection of basic service sets (BSSs), which may or may not be within the same extended service set (ESS), in which every subscription service provider network (SSPN) or other external network reachable at one BSS is reachable at all of them.”
  + New text: “homogeneous elan services scope (HeSS): A collection of basic service sets (BSSs) that provide access to a set of [non-802.11] services using the same authentication credentials.   
    Note: HESS is an orthogonal concept to extended service set (ESS). A HESS may or may not include all APs within an ESS, or may or may not span APs within multiple ESSs.   
    Will wordsmith on Thursday.

**REVmd discussion (11.23.2):**

* + In an infrastructure BSS, the Interworking element contains signaling for Homogeneous ESSs. The HESSID is a 6-octet MAC address that identifies the homogeneous ESS. The HESSID value shall be identical to one of the BSSIDs in the homogeneous ESS. Thus, it is a globally unique identifier that, in conjunction with the SSID, may be used to provide network identification for an SSPN.
  + New text: “In an infrastructure BSS, the Interworking element contains signaling for HeSSs. The HESSID is a 6-octet MAC address that identifies the HeSS. The HESSID value shall be identical to one of the BSSIDs in the HeSS. Thus, it is a globally unique identifier that may be used to provide network identification for a set of non-802.11 services accessible using a given set of authentications credentials.

Other things to do:

Add some clause 4 discussion for HeSS and review “same hotspot” case.

Can there be more than more than one HESSID in a beacon?

**Recessed – 10:05 PST**

# Thursday 16 January 2020 PM2

**Chair: Mark Hamilton, Ruckus/CommScope**

**Vice Chair: Joseph Levy, InterDigital**

**Secretary: Joseph Levy, InterDigital**

**Meeting call to order in ARC meeting room by Chair 16:04 PST**

**Administration:**

The Chair reviewed the Administrative information in the agenda document, [11-19/2123r4](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-04-0arc-arc-sc-agenda-jan-2020.pptx)

**Call for Patents:**

The Chair reviewed the Patent policy and called for potentially essential patents – there was no response to the call.

**Participation:**

The chair reviewed the participation policy

**Approval of the Agenda:**

The Chair reviewed the agenda and called for comments or amendments to the agenda - there was no response to the call.

Agenda discussion:

Agenda slide deck: [11-19/2123r5](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-05-0arc-arc-sc-agenda-jan-2020.pptx), proposed agenda copied here for reference:

* **“What is an ESS?”:** [11-18/1051r12](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-12-0arc-what-is-an-ess.pptx)
  + Liaison to REVmd: [11-20/0177r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0177-00-0arc-liaison-to-revmd-on-ess.docx)
* **Future sessions / SC activities**

The Chair reviewed the agenda and called for comments or amendments to the agenda - there was no response to the call.

The agenda was approved by unanimous consent.

**“What is an ESS?”:**

(Starting with [11-18/1051r12](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-12-0arc-what-is-an-ess.pptx) ending with [11-18/1051r13](https://mentor.ieee.org/802.11/dcn/18/11-18-1051-13-0arc-what-is-an-ess.pptx))

Continued wordsmithing the text related to the HESSID/HeSS on slide 21

Then moved back to slide 20 to work the definition. Decided to just define HeSS as neither an acronym or an abbreviation. HeSS is simply a label for the collections of BSS that are identified by an HESSID.

Also added a slide 21 to correct the Acronym list so that HESSID is a HeSS set identifier. Which moves the old slide 21 to slide 22.

The final recommendations to 802.11 TGmd are:

All references are to REVmd D3.0.

**Modify the definition of ESS (in clause 3):**

* From:

“A set of one or more interconnected basic service sets (BSSs) that appears as a single BSS to the logical link control (LLC) layer at any station (STA) associated with one of those BSSs.”

* To:

“A set of one or more basic service sets (BSSs) that are interconnected by a single distribution system (DS); an ESS appears as a single IEEE Std 802™ access domain to the logical link control (LLC) sublayer.”

**Modify text in 4.3.5.1 (the “Overview” subclause of the “DS concepts” subclause):**

* From:

“The DS enables mobile device support by providing the logical services necessary to handle address to destination mapping and seamless integration of multiple BSSs.

An access point (AP) is any entity that has STA functionality and a distribution system access function (DSAF), which enables access to the DS, via the WM for associated STAs.”

* To:

“The DS enables mobile device support by providing the logical services necessary to handle address to destination mapping and seamless integration of multiple BSSs.

An access point (AP) is any entity that has STA functionality and a distribution system access function (DSAF), which enables access to the DS, via the WM for associated STAs. To invoke this access, a non-AP STA joins a BSS and associates to the AP operating that BSS. This causes the AP to notify the DS of the non-AP STA’s location within the network. The non-AP STA moves to another BSS operated by an AP connected to the same DS in another location by reassociating to this new AP. The new AP updates the DS with the non-AP STA’s new location at the completion of the reassociation.

The STA’s location information is internal to the DS, thus STA mobility is transparent to upper layers. See 4.3.5.2 (Extended service set (ESS): the large coverage network).”

**Modify text in 4.3.5.2 (“Extended service set (ESS): the large coverage network”):**

* From:

“The DS and infrastructure BSSs allow IEEE Std 802.11 to create a wireless network of arbitrary size and complexity. IEEE Std 802.11 refers to this type of network as the ESS. An ESS is the union of the infrastructure BSSs with the same SSID connected by a DS. The ESS does not include the DS.

The key concept is that the ESS appears the same to an LLC layer as an IBSS. STAs within an ESS can communicate and mobile STAs might move from one BSS to another (within the same ESS) transparently to LLC.”

* To:

“The DS and infrastructure BSSs allow IEEE Std 802.11 to create a wireless network of arbitrary size and complexity. IEEE Std 802.11 refers to this type of network as the ESS. An ESS is the union of the infrastructure BSSs with the same SSID connected by a single DS. All BSSs in an ESS have the same SSID. The ESS does not include the DS.

The key concept is that the ESS appears to be a single IEEE STD 802™ access domain to the LLC sublayer the same to an LLC layer as an IBSS. STAs within an ESS can communicate and mobile STAs might move from one BSS to another (within the same ESS) transparently to the LLC sublayer.

For completeness of understanding, it is important to note that if multiple BSSs are configured with the same SSID, but the APs are not interconnected by a common DS, there is no guarantee of seamless mobility for STAs between those BSSs. However, such a deployment may have a common LLC sublayer interconnection, in which case, communication with location transparency to the LLC sublayer (a single access domain) is generally still possible, but such communication could be disrupted at times when a mobile STA moves between BSSs.”

**Replace the definition of “homogeneous extended service set (ESS)” (in clause 3):**

**Change from:**

* + “homogeneous extended service set (ESS): A collection of basic service sets (BSSs), which may or may not be within the same extended service set (ESS), in which every subscription service provider network (SSPN) or other external network reachable at one BSS is reachable at all of them”

**To:**

* + “HeSS: A collection of basic service sets (BSSs) that provide access to a set of higher-layer services using a given set of authentication credentials
  + NOTE1—HeSS is an orthogonal concept to extended service set (ESS). Membership of a given BSS in an HeSS is independent of any ESS membership.
  + NOTE2— “HeSS” is not an abbreviation for anything.

**And update the abbreviation:**

**Change from:**

* **HESSID (#1352) homogeneous extended service set identifier**

**To:**

* **HESSID HeSS identifier**

**Make consistent/appropriate changes throughout, for any occurrence of “homogeneous ESS” (change to HeSS), etc.**

**In the HESS discussion text (in 11.23.2):**

**Replace:**

* + In an infrastructure BSS, the Interworking element contains signaling for Homogeneous ESSs. The HESSID is a 6-octet MAC address that identifies the homogeneous ESS. The HESSID value shall be identical to one of the BSSIDs in the homogeneous ESS. Thus, it is a globally unique identifier that, in conjunction with the SSID, may be used to provide network identification for an SSPN.

**With:**

* + In an infrastructure BSS, the Interworking element contains signaling for HeSSs. The HESSID is a 6-octet MAC address that identifies the HeSS. The HESSID value shall be identical to one of the BSSIDs in the HeSS. The HESSID is a globally unique identifier that identifies a set of higher-layer services and the authentication credentials required to access them.

**Further updates/changes are needed in subclauses 4.3.20 and 4.5.9. Those require more time with help from Interworking/Passpoint experts, and can (will have to be) considered later.**

The Chair presented [11-20/177r1](https://mentor.ieee.org/802.11/dcn/20/11-20-0177-01-0arc-liaison-to-revmd-on-ess.docx) “Liaison to REVmd on ESS”

Some minor discussion and corrections were made.

**Motion:** Send [11-20/177r1](https://mentor.ieee.org/802.11/dcn/20/11-20-0177-01-0arc-liaison-to-revmd-on-ess.docx) “Liaison to REVmd on ESS” to IEEE 802.11 TGmd.

Moved: Joseph Levy

Second: Guido Hiertz

Y/N/O – 6/0/0

Teleconferences:

No need for any teleconferences to discuss what is an ESS.

No need for any teleconferences to discuss Annex G.

Meeting planning update:  
No teleconference and 3 meeting slots.

**Adjourned – 17:59 PST.**

Note: final agenda slide deck is: [11-19/2123r5](https://mentor.ieee.org/802.11/dcn/19/11-19-2123-05-0arc-arc-sc-agenda-jan-2020.pptx) and closing report is: [11-20/0212r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0212-00-0arc-arc-closing-report-january-2020.pptx)