IEEE P802.11
Wireless LANs

|  |
| --- |
| Normative text for scanning related MLMEs |
| Date:2012-09-10 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Jarkko Kneckt, Mika Kasslin, Gabor Bajko | Nokia Corporation | Otaniementie 19, 02150 Espoo Finland | +358504821550 | Jarkko.Kneckt@Nokia.com |
| Ping Fang**,** Yunsong Yang, Phillip Barber | Huawei Technologies Co. Ltd.  | Bldg. 7, Vision Software Park, Road Gaoxin South 9, Nanshan District, Shenze, Guangdong, China, 518057  | +86755 36839346 | Ping.Fang@Huawei.com |
| Givon Park, Kiseon Ryu | LG Electronics | LG R&D Complex 533, Hogye-1dong, Dongan-Gu, Anyang, Kyungki, 431-749, Korea | +82-31-450-1879 | Giwon.Park@lge.com |
| Lei Wang | InterDigital Communications | 781 Third Ave., King of Prussia, PA 19406 | 1 858 205 7286 | leiw@billeigean.com |

Abstract

The submission provides normative text for active scanning process and to MLME related functionality. The MLME related functionality enables reportingof the new discovered BSSs without additional delays. Also the scanning process may be stopped through MLME primitive.

The submission is related to 11-12-151r12 requirements 6.1.2 and 6.2.1.

**6.3.3.2 MLME-SCAN.request**

**6.3.3.2.2 Semantics of the service primitive**

*Instructions to Editor: Change the clause as shown with track changes:*

The primitive parameters are as follows:

MLME-SCAN.request(

 BSSType,

 BSSID,

 SSID,

 ScanType,

 ProbeDelay,

 ChannelList,

 MinChannelTime,

 MaxChannelTime,

 RequestInformation,

 SSID List,

 ChannelUsage,

 AccessNetworkType,

 HESSID,

 MeshID,

 ReportingOption,

 VendorSpecificInfo

)

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** |
| ReportingOption | Enumeration | IMMEDIATE,CHANNEL\_SPECIFIC,AT\_END | Indicates the result reporting mode |

**6.3.3.3 MLME-SCAN.confirm**

**6.3.3.3.2 Semantics of the service primitive**

*Instructions to Editor: Modify the explanation of the ResultCode parameter of the MLME-SCAN.confirm primitive as follows:*

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** |
| ResultCode | Enumeration | SUCCESS,INTERMEDIATE\_SCAN\_RESULT,NOT\_SUPPORTED | Indicates the result of the MLME- SCAN.confirm primitive. |

**6.3.3.3.3 When generated**

*Instructions to Editor: Change 6.3.3.3.3 as shown below:*

This primitive is generated by the MLME as a result of an MLME-SCAN.request primitive or an MLME-SCAN-STOP.request following an MLME-SCAN.request to ascertain the operating environment of the STA.The primitive is invoked to report on found BSS as indicated in ReportingOption MLME-parameter of the MLME-SCAN.request primitive.

**6.3.3.3.4 Effect of receipt**

*Instructions to Editor: Change 6.3.3.3.4 as shown below:*

As indicated by the ResultCode,the SME is notified of the intermediate or final results of the scan procedure.

**6.3.3.ai1 MLME-SCAN-STOP.request**

*Instructions to Editor: Add a new clause 6.3.3.ai1and subclausesas shown below:*

**6.3.3.ai1.1 Function**

This primitive terminates any ongoing scan.

**6.3.3.ai1.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SCAN-STOP.request (

 VendorSpecificInfo

 )

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** |
| VendorSpecificInfo | A set of elements | As defined in 8.4.2.28 | Zero or more elements. |

**6.3.3.ai1.3 when generated**

This primitive is generated by the SME as for a STA to stop any ongoing scan process.

**6.3.3.ai1.4 Effect of receipt**

This request terminates any ongoing scan procedures. The passive scanning is stopped immediately after the primitive is received; and active scanning is stopped after the max channel time of the currently scanned channel has elapsed. The confirmation of the scan termination is provided through MLME-SCAN.confirm primitive.

**10.1.4.2 Passive scanning**

*Instructions to Editor: Append the following text to the as the last paragraph of the clause.*

If the ScanType parameter indicates a passive scan, the STA shall listen to each channel scanned for no longer than a maximum duration defined by the MaxChannelTime parameter.

If the MLME receives an MLME-SCAN-STOP.request primitive, the STA shall immediately stop the ongoing passive scanning process at the scanned channel, and shall not initiate scanning at any new channel. The MLME shall issue an MLME-SCAN.confirm primitive with the BSSDescriptionSet containing the gathered information since the previous issue of MLME-SCAN.comfirm primitive, or if the primitive has not been issued since the beginning of the scan, having the ResultCode set to SCAN\_SUCCESS.

**10.1.4.3.2 Active scanning procedure of the scanning STA**

*Instructions to Editor: Move the subclause of 10.1.4.3.2 of 802.11-2012 to the new subclause 10.1.4.3.5.This change is shown in submission 12-1019 or in 10-1053.*

*Move the subclause 10.1.4.3.3 of 802.11-2012 to the new subclause 10.1.4.3.2; and make the changes as marked below.*

Upon receipt of the MLME-SCAN.request primitive with ScanType indicating an active scan, a STA shall use the following procedure:

For each channel to be scanned:

a) Wait until the ProbeDelay time has expired or a PHYRxStart.indication primitive has been received.

b) Perform the Basic Access procedure as defined in 9.3.4.2.

c) Send a probe request to the broadcast destination address, with the SSID and BSSID from the MLME-SCAN.request primitive. When the SSID List is present in the MLME-SCAN.request primitive, send one or more Probe Request frames, each with an SSID indicated in the SSID List and the BSSID from the MLME-SCAN.request primitive.

d) Set a ProbeTimer to 0 and start the ProbeTimer.

e) If PHY-CCA.indication (busy) primitive has not been detected before the ProbeTimer reaches MinChannelTime, then set NAV to 0 and scan the next channel, else~~the MLME shall issue MLME-SCAN.received primitive with the BSSDescriptionSet containing information of the AP when Probe Response or Beacon frame is received from the AP for the first time.~~ process the received probe responses or Beacon, and when ReportingOption is set to IMMEDIATE and new AP or new information of the AP is detected, issue MLME-SCAN.confirm primitive with the ResultCode equal to INTERMEDIATE\_SCAN\_RESULT and the BSSDescriptionSet containing information of the AP.

f)set NAV to 0 and scan the next channel. If the Reportingoption is set to ChannelSpecific an MLME-SCAN Confirm primitive is issued with all information of all APs that were discovered from the scanned channel.

See Figures10-ai1 and 10-3.



**Figure 10-ai8—Example of active scanning process when Probe Request frame is addressed to individual address.**



**Figure 10-3—Example of active scanning process when Probe Request frame is addressed to broadcast address.**

When all channels in the ChannelList have been scanned, the MLME shall issue an MLME-SCAN.confirm primitive with Resultcode set to SCAN\_SUCCESSand the BSSDescriptionSet containing all of the information gathered during the scan.

If the MLME receives an MLME-SCAN-STOP.request primitive, the STA shall complete the ongoing active scanning process at the scanned channel, and shall not initiate scanning at any new channel. The MLME shall issue an MLME-SCAN.confirm primitive with the ResultCode set to SCAN\_SUCCESS and BSSDescriptionSet containing all of the information gathered during the scan.