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Title	Comments on MS Network Entry in the MR System with the Distributed Security	
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Re:	IEEE 802.16j-07/043: "IEEE 802.16 Working Group Working Group Letter Ballot #28"	
Abstract	This contribution proposes MS ranging and automatic adjustments in transparent and non-transparent	
Purpose	Text proposal for 802.16j Draft Document.	
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Comments on MS Network Entry in the MR System with the Distributed Security

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Introduction

We propose this contribution to resolve the comments #667 (C80216j-07/498r2). Unlike centralized security scheme, a non-transparent RS (NT-RS) with distributed security and non-centralized control needs to accommodate messages exchanging between MR-BS and ASN-GW during MS network entry procedures. The MR-BS, which is no longer holding the AK on behalf of the RS, cannot proxy RS interactions with the ASN-GW without relaying ASN-GW messages to the NT-RS (AR-RS) that stores AK locally. The following figure illustrates messages exchanging among all entities and shows that we need new MAC messages between MR-BS and the RS in order to allow a MS complete its network entry procedures.

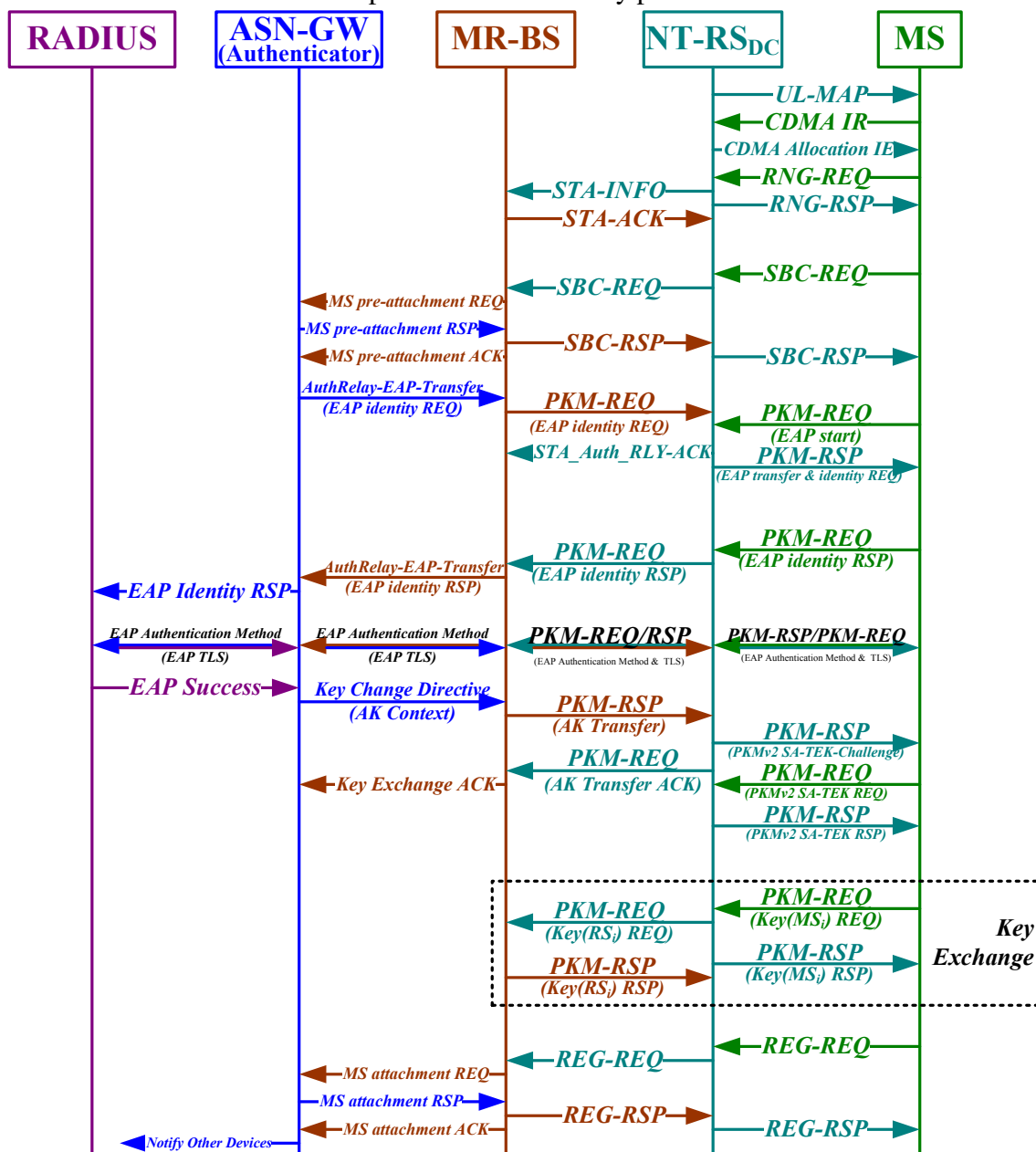


Figure 1 MS network entry with distributed security and non-centralized control

In order to facilitate the incorporation of this proposal into IEEE 802.16j standard, specific changes to the draft standard P802.16j/D1 are listed below.

Specification Changes

6.3.9.7 Negotiate basic capabilities

[Insert new subclause 6.3.9.7.1]

6.3.9.7.1 MR-BS and RS behavior during negotiate basic capabilities

When an SS performs basic capabilities negotiation in systems with transparent RSs, MR-BSs and transparent RSs shall perform the following tasks:

- A RS shall receive a SBC-REQ from MS and relay it to the MR-BS.
- The MR-BS shall send a SBC-RSP to a MS directly if the RS is in uplink-only mode. Otherwise, the MR-BS shall send a SBC-RSP to the RS and the RS shall relay it to the MS.

When an SS performs basic capabilities negotiation in systems using non-transparent RSs with unique BSIDs and centralized scheduling, MR-BSs and non-transparent RSs shall perform the following tasks:

- A RS shall receive a SBC-REQ from MS and relay it to the MR-BS.
- MR-BS shall send a SBC-RSP to the RS and the RS shall relay it to the MS.

When an SS performs basic capabilities negotiation in systems using non-transparent RSs with unique BSIDs and distributed scheduling, MR-BSs and non-transparent RSs shall perform the following tasks:

- When a RS receives an SBC-REQ with SS basic CID, the RS shall send SBC-RSP to the SS directly if the SS does not support authorization policy, whereas the RS shall request them from the MR-BS if the SS supports authorization policy.

If the RS is not in local CID allocation mode, it shall forward the SBC-REQ with SS basic CID to the MR-BS after removing the TLVs it manages. The MR-BS shall determine the SS capabilities in the remained TLVs and send them in a SBC-RSP to the RS on the SS basic CID. The RS shall then fill in the TLVs it manages and forward the SBC-RSP to the SS.

If the RS is in local CID allocation mode, the RS shall forward the SBC-REQ with RS basic CID to the MR-BS after removing the TLVs it manages and filling in the SS basic CID TLV. The MR-BS shall response a SBC-RSP containing the SS basic CID TLV to the RS on RS basic CID. The RS shall then remove SS basic CID TLV and fill in the TLVs it manages and forward the SBC-RSP on SS basic CID.

When an RS performs basic capabilities negotiation, MR-BSs and RSs shall follow the steps indicated by the type of system in previous sections of this subclause.

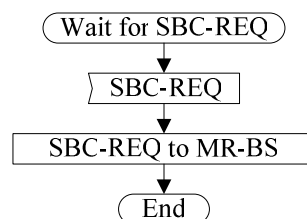


Figure 88a— Handling SBC-REQ at a transparent RS under uplink-only mode

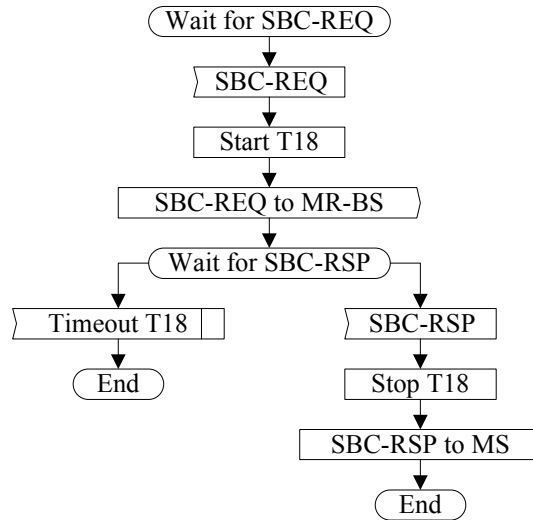


Figure 88b— Handling SBC-REQ at a RS except uplink-only mode and local CID allocation mode

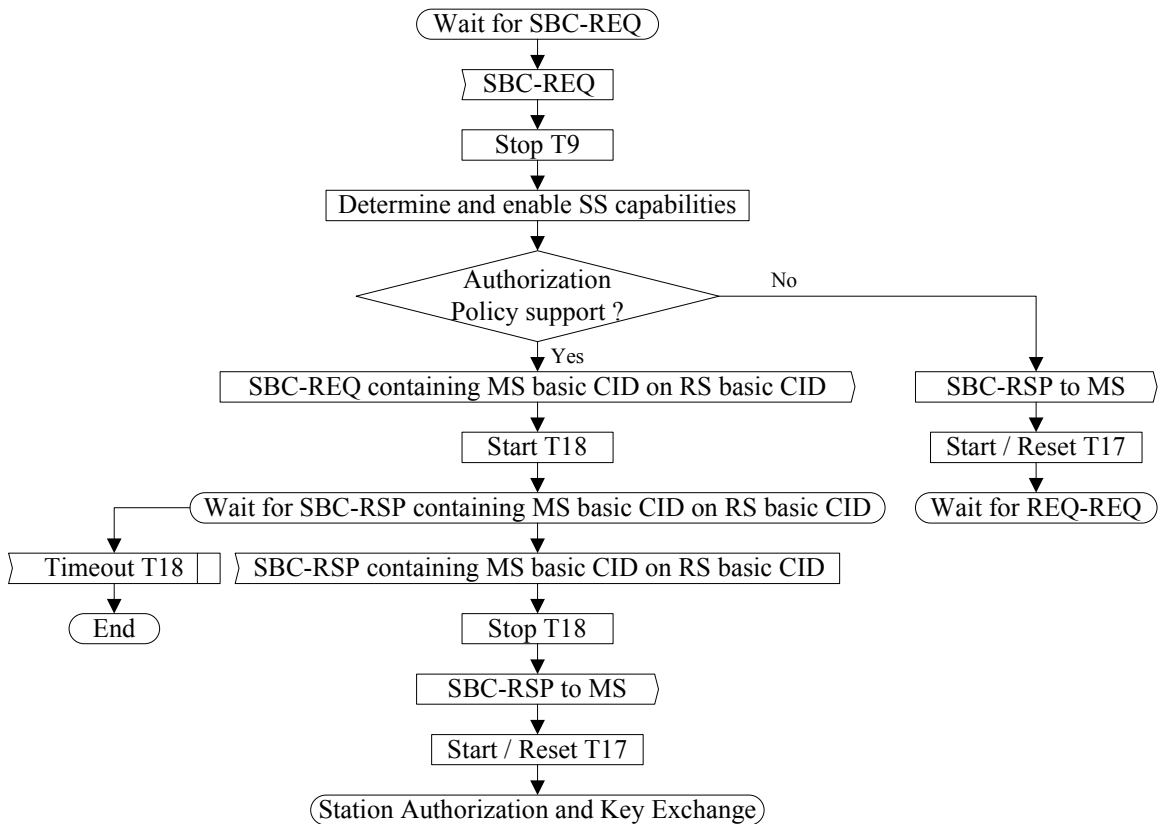


Figure 88c— Handling SBC-REQ first reception at a non-transparent RS with a unique BSID under local CID allocation mode

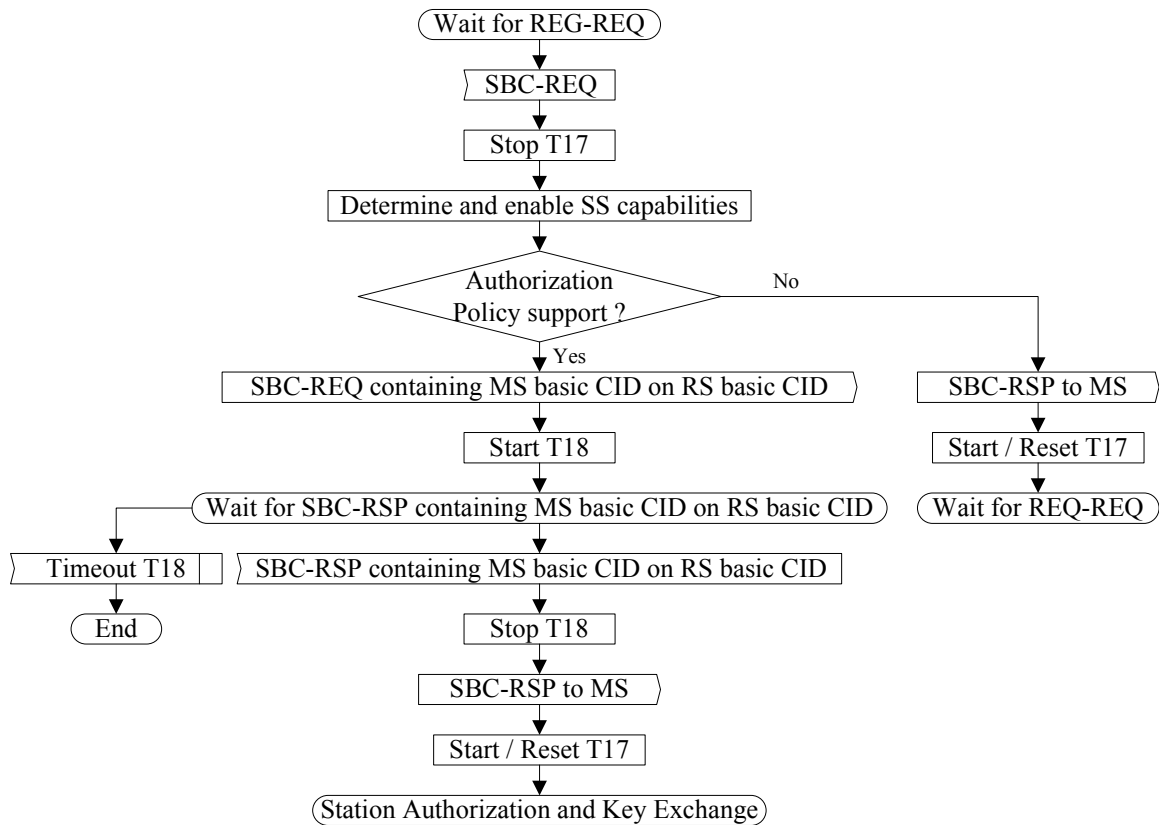


Figure 88d— Handling SBC-REQ retransmission at a non-transparent RS with a unique BSID under local CID allocation mode

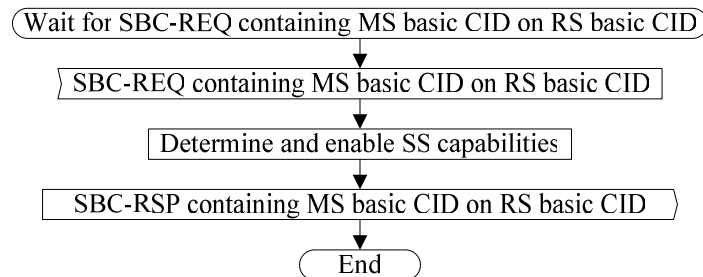


Figure 88e— Handling SBC-REQ containing MS basic CID at a MR-BS

6.3.9.8 SS authorization and key exchange

[Insert the following texts at end of subclause 6.3.9.8]

6.3.9.9.1 MR-BS and RS behavior during authorization and key exchange

When an SS performs registration in systems using RSs with centralized security, MR-BSs and RSs shall perform perform authorization and key exchange as described in 7.1.6.

When an SS performs registration in systems using RSs with distributed security, MR-BSs and RSs shall perform perform authorization and key exchange as described in 7.1.7.

6.3.9.9 Registration

[Insert new subclause 6.3.9.7.1]

6.3.9.9.2 MR-BS and RS behavior during registration

When an SS performs registration in systems with transparent RSs, MR-BSs and transparent RSs shall perform the following tasks:

- A RS shall receive a REG-REQ from MS and relay it to the MR-BS.
- The MR-BS shall send a REG-RSP to a MS directly if the RS is in uplink-only mode. Otherwise, the MR-BS shall send a REG-RSP to the RS and the RS shall relay it to the MS.

When an SS performs registration in systems using non-transparent RSs with unique BSIDs and centralized security, MR-BSs and non-transparent RSs shall perform the following tasks:

- A RS shall receive a REG-REQ from MS and relay it to the MR-BS.
- MR-BS shall send a REG-RSP to the RS and the RS shall relay it to the MS.

When an SS performs registration in systems using non-transparent RSs with unique BSIDs and distributed security, MR-BSs and non-transparent RSs shall perform the following tasks:

- When a RS receives an REG-REQ with the SS primary management CID, it shall either send REG-RSP to the SS directly or request them from the MR-BS.
- If the MS does not support authorization policy, the RS shall send REG-RSP to the MS directly.
- If the MS support authorization policy, the RS shall forward the REG-REQ with RS basic CID to the MR-BS after removing the TLVs it manages and filling in the SS basic CID TLV. The MR-BS shall response a REG-RSP containing the SS basic CID TLV with RS basic CID to the RS. The RS shall then remove SS basic CID TLV and fill in the TLVs it manages and forward the REG-RSP on SS primary management CID.

When an RS performs registration, MR-BSs and RSs shall follow the steps indicated by the type of system in previous sections of this subclause.

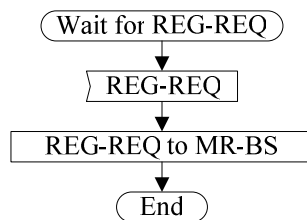


Figure 94a— Handling REG-REQ at a transparent RS under uplink-only mode

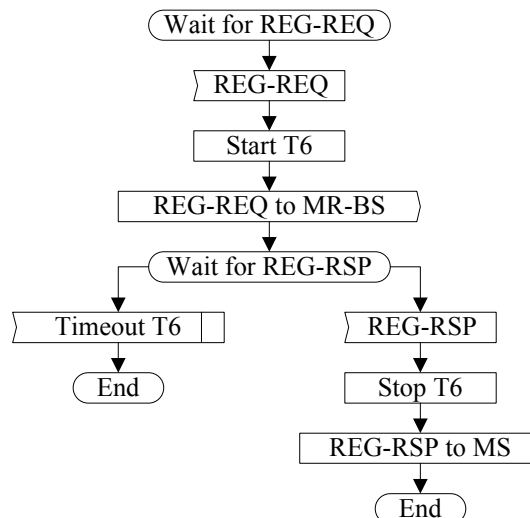


Figure 94b— Handling REG-REQ at a RS except uplink-only mode and local CID allocation mode

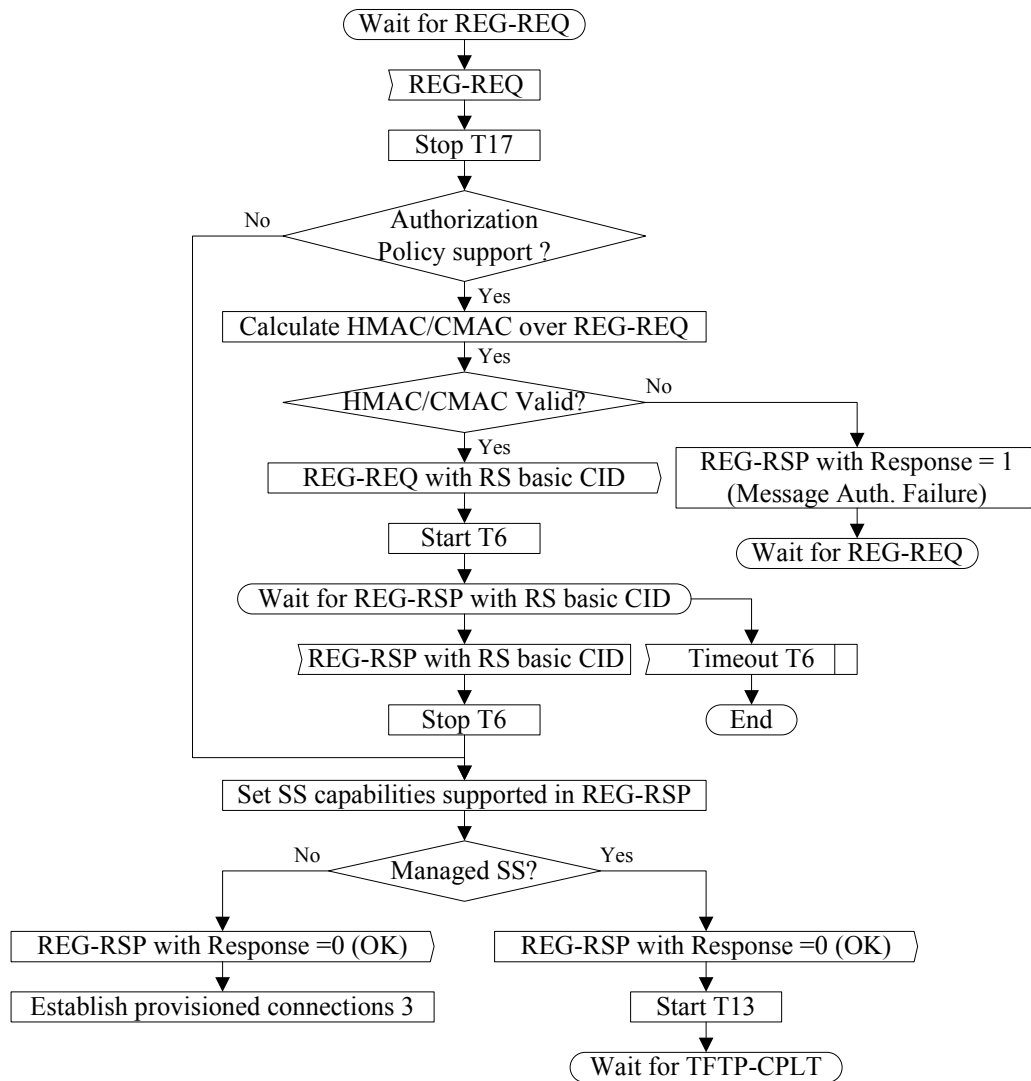


Figure 94c— Handle REG-REQ first reception at a AR-RS