

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b> < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >	
Title	<b>SS - Initial Ranging</b>	
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Re:	Letter Ballot #3	
Abstract	Replacement for Figures 80,81	
Purpose	Correct Figures 80,81.	
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# New Figures 80,81

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## BS

The BS assigns in the UL-MAP an Initial Maintenance region every 2 seconds maximum. *The PHY characteristics are possibly the most robust.*

The BS receives the message and performs timing, power, and frequency measurements to prepare the RNG-RSP.

### Step 1

The BS sends the RNG-RSP with :

- \* CID=Temporary CID
  - \* Uplink Channel ID
  - \* Timing Adjust Information
  - \* Power Adjust >>
  - \* Frequency >> >>
  - \* Ranging Status (=continue)
  - \* Basic CID
  - \* Primary Management CID
  - \* Secondary Management CID
  - \* SS MAC Address
- and optional parameters :
- \* Downlink Frequency ID Override(Ranging Status=abort)
  - \* Uplink Channel ID Override (Ranging Status=abort)
  - \* Granted Downlink Burst type

*The PHY mode which will be used from BS will be the requested from SS (field "Requested downlink burst type" of RNG-REQ message).*

The BS receives the RNG-REQ message and recognizes which SS sent it from the Basic CID. Simultaneously it performs timing, power and frequency measurements for the specific SS. If not all OK go to Step 2.

If all OK the BS sends a RNG-RSP with Ranging Status=success(not continue)

## SS

The SS has prepared the RNG-REQ message and searches for Initial Maintenance region. (max wait time=10seconds)

The SS sends the RNG-REQ message with parameters :

- \* CID=Initialization CID=0000
- \* Downlink Channel ID
- \* Pending Till Complete=0
- \* Requested downlink burst type
- \* SS MAC Address
- \* Ranging Anomalies

*The PHY mode used is based on the Initial Maintenance region.*

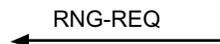
The SS searches for RNG-RSP messages assigning to him. (max wait time=200 ms). In order to find that a RNG-RSP refers to him it uses the SS MAC Address field of the RNG-RSP message. When it finds the RNG-RSP it stores the <Basic, Primary, Secondary CID> for subsequent messages. Also it performs all the timing, frequency and power adjustments requested by the RNG-RSP. Now the SS waits for Individual Station Maintenance region which is assigned to the <Basic CID> stored with the reception of the previous RNG-RSP.

### Step 3

The SS when finds the Individual Station Maintenance region assigned to the <Basic CID> it sends RNG-REQ with :

- \* CID = Basic CID
- \* Downlink Channel ID
- \* Pending Till Complete=0, when it has finished all the adjustments requested by the RNG-RSP
- \* SS MAC Address
- \* Ranging Anomalies

The SS receives the RNG-RSP(success) and finishes the Initial Ranging operation.



**BS**

## Step 2

At this case the BS sends RNG-RSP  
as in Step 1 with Ranging  
Status=continue

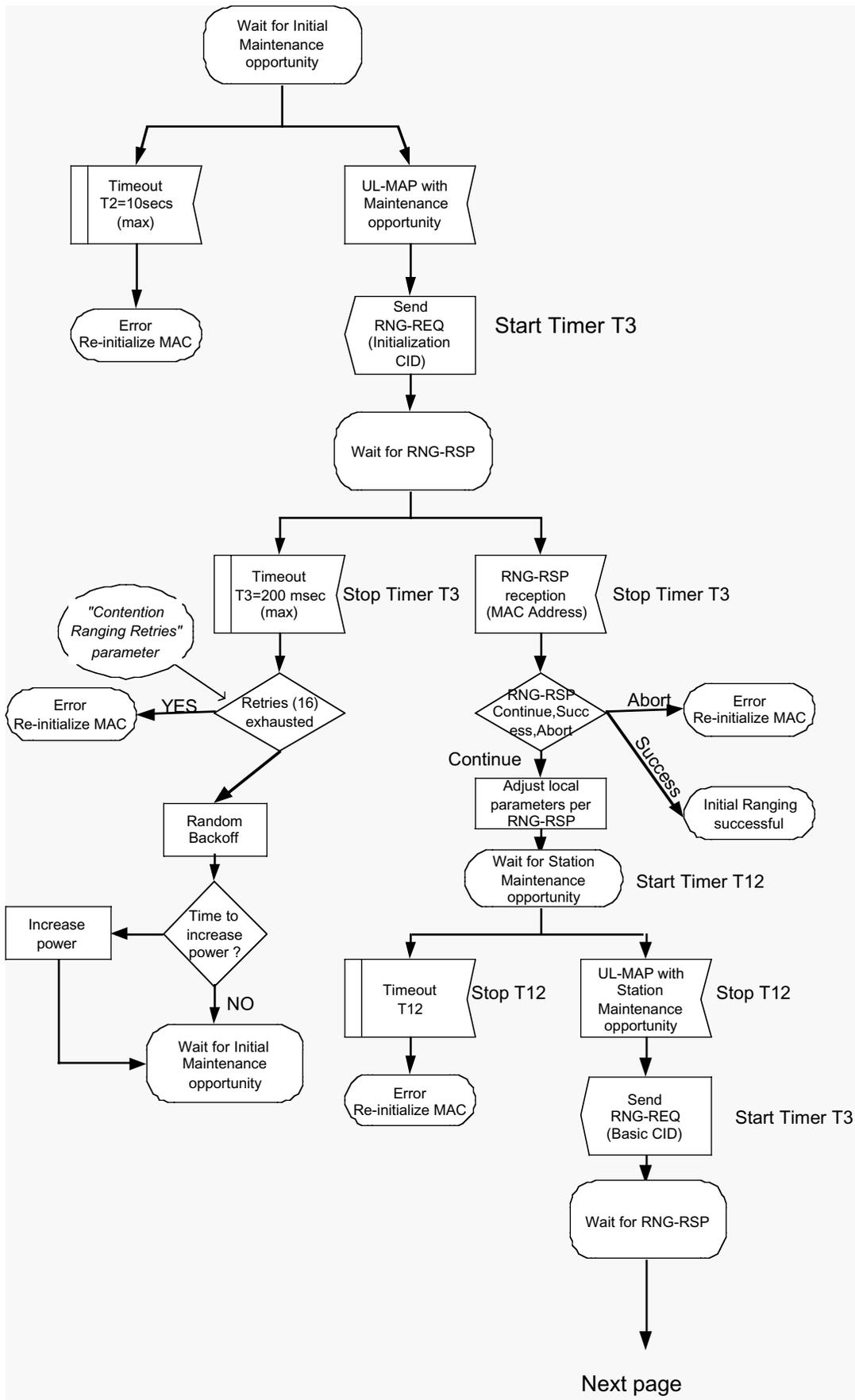
RNG-RSP (continue) →

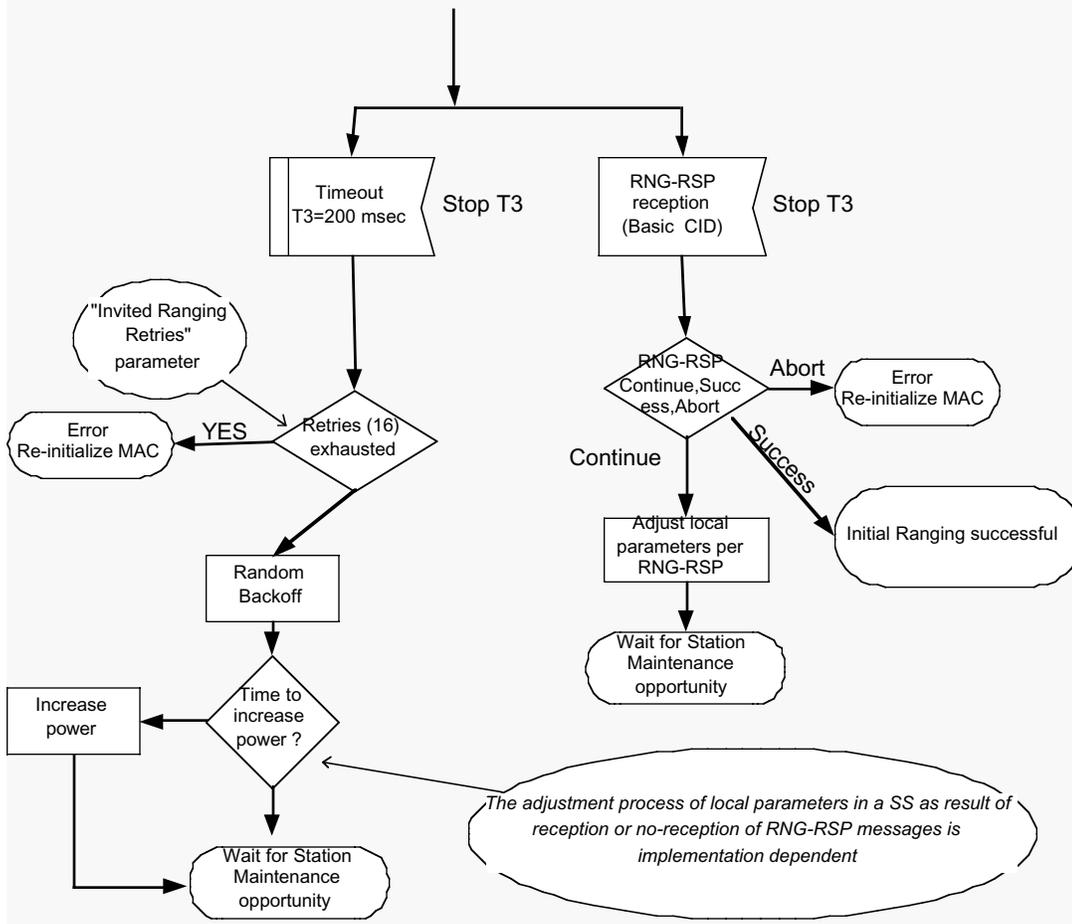
**SS**

The SS at this step searches for  
RNG-RSP based to <Basic CID>  
and not based to SS MAC  
Address. When it receives the  
RNG-RSP and sees that  
<Ranging Status=continue>  
understands that it shall perform  
the adjustments commanded by  
the RNG-RSP message.  
After it waits for Individual Station  
Maintenance region assigned to  
<Basic CID>  
When it finds it go to Step 3.

The above figure would be a replacement for Figure 80 as it gives a lot of details about the Initial Ranging mechanism of a SS.

Following the proposed replacement for Figure 81 :





The above SDL diagram describes with detail the SS Initial Ranging process. Also introduces a new Timer the T12 Timer. This Timer 12 must be inserted in the Table 67 with the name “T12” and Time Reference “Wait for unicast ranging opportunity during Initial Ranging”.

Also the above SDL diagram shows the time at which the various timers are created and destroyed during the Initial Ranging process.