2.2 Normative Outline

The normative outline for the RM version assertion is:

```
<wsrmp:RMAssertion [wsp:Optional="true"]? ... >
  <wsrmp:InactivityTimeout Milliseconds="xs:unsignedLong" ... /> ?
  <wsrmp:BaseRetransmission IntervalMilliseconds="xs:unsignedLong"...>?
  <wsrmp:ExponentialBackoff ... /> ?
  <wsrmp:AcknowledgementInterval Milliseconds="xs:unsignedLong" ... /> ?
  <wsrmp:MaxMessageNumber Number="xs:unsignedLong" ... /> ?
  ...
</wsrm:RMAssertion>
```

The following describes additional, normative constraints on the outline listed above:

/wsrmp:RMAssertion
: A policy assertion that specifies that WS-ReliableMessaging [WS-RM] protocol MUST be used for a Sequence.

/wsrmp:RMAssertion/@wsp:Optional="true"
: Per WS-Policy [WS-Policy], this is compact notation for two policy alternatives, one with and one without the assertion. The intuition is that the behavior indicated by the assertion is optional, or in this case, that WS-ReliableMessaging MAY be used.

/wsrmp:RMAssertion/wsrm:InactivityTimeout
: A parameter that specifies a period of inactivity for a Sequence. If omitted, there is no implied value.

/wsrmp:RMAssertion/wsrm:InactivityTimeout/@Milliseconds
: The inactivity timeout duration, specified in milliseconds.

/wsrmp:RMAssertion/wsrm:BaseRetransmissionInterval
: A parameter that specifies how long the RM Source will wait after transmitting a message and before retransmitting the message. If omitted, there is no implied value.

/wsrmp:RMAssertion/wsrm:BaseRetransmissionInterval/@Milliseconds
: The base retransmission interval, specified in milliseconds.

/wsrmp:RMAssertion/wsrm:ExponentialBackoff
: A parameter that specifies that the retransmission interval will be adjusted usinga the exponential backoff algorithm [Tanenbaum]. If omitted, there is no implied value.

/wsrmp:RMAssertion/wsrm:AcknowledgementInterval
: A parameter that specifies the duration after which the RM Destination will transmit an acknowledgement. If omitted, there is no implied value.

/wsrmp:RMAssertion/wsrm:AcknowledgementInterval/@Milliseconds
: The acknowledgement interval, specified in milliseconds.

/wsrmp:RMAssertion/wsrm:MaxMessageNumber
: A parameter that specifies the maximum message number that the RM Destination will accept. If omitted, the default value of the maximum unsigned long will be assumed.

/wsrmp:RMAssertion/wsrm:MaxMessageNumber/@Number
: The maximum message number.

When this assertion is included in a policy it MUST carry the wsp:Usage attribute with a value of 'Informational'. This indicates that the assertion is informational, that is, it is not applied to the policy subject but requesters of the service are informed that the policy is in effect.

2.4 Assertion Example

Table 2 lists an example use of the RM policy assertion.

Table 2: Example policy with RM policy assertion

```
(01)<wsdl:definitions
(02)    targetNamespace="example.com"
(03)    xmlns:tns="example.com"
(04)    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
(05)    xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
(06)    xmlns:wsrmp="http://docs.oasis-open.org/wsrmp/200510/"
(07)    xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
wssecurity-utility-1.0.xsd" >
(08)
(09) <wsp:UsingPolicy wsdl:required="true" />
(10)
(11) <wsp:Policy wsu:Id="MyPolicy" >
(12)   <wsrmp:RMAssertion wsp:Usage='Informational'>
(13)     <wsrmp:InactivityTimeout Milliseconds="600000" />
(14)     <wsrmp:BaseRetransmissionInterval Milliseconds="3000" />
(15)     <wsrmp:ExponentialBackoff />
(16)     <wsrmp:AcknowledgementInterval Milliseconds="200" />
(17)   </wsrmp:RMAssertion>
(18)  <!-- omitted assertions -->
(19) </wsp:Policy>
(20)
(21) <!-- omitted elements -->
(22)
(23) <wsdl:binding name="MyBinding" type="tns:MyPortType" >
(24)    <wsp:PolicyReference URI="#MyPolicy" />
(25)    <!-- omitted elements -->
(26) </wsdl:binding>
(27)
(28)</wsdl:definitions>
(29)
```

Line (09) in Table 2 indicates that WS-Policy [WS-Policy] is in use as a required extension.

Lines (11-19) are a policy expression that includes a RM policy assertion (Lines 12-17) to indicate that WS-ReliableMessaging [WS-RM] must used.

Line (13) indicates the endpoint will consider the Sequence terminated if there is no activity after ten minutes. Line (14) indicates the RM Source will retransmit unacknowledged messages after three seconds, and Line (15) indicates that exponential backoff algorithm will be used for timing of successive retransmissions should the message continue to go unacknowledged. Line (16) indicates the RM Destination may buffer acknowledgements for up to two-tenths of a second.

Lines (23-26) are a WSDL [WSDL 1.1] binding. Line (24) indicates that the policy in Lines (11-19) applies to this binding, specifically indicating that WS-ReliableMessaging must be used over all the messages in the binding.