**3GPP TSG- Meeting # *447***

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network | **x** |

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|  |
| ***Title:***  | Adding information elements to adhoc group call |
|  |  |
| ***Source to WG:*** | Kontron Transportation France, Nokia, UIC |
| ***Source to TSG:*** | SA6 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | **C** |  | ***Release:*** |  |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | Some information flows of ad hoc group call do not contain all information elements required by FRMCS. In FRMCS the criteria contain for example the type of ad hoc group call and the area in which the call is happening. This Information is essential for railway operation and was also available in the legacy system. This CR adds them to provide the same functionality as available in the legacy system. |
|  |  |
| ***Summary of change:*** | Adding criteria to information flows originating from the MCVideo server where necessary. Adding text to procedures to further clarify handling of criteria. |
|  |  |
| ***Consequences if not approved:*** | Essential information for FRMCS is missing |
|  |  |
| ***Clauses affected:*** | 7.19.2.4, 7.19.2.5, 7.19.2.10, 7.19.2.21, 7.19.3.1.3, 7.19.3.1.6, 7.19.3.2.1, 7.19.3.2.7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **x** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* First Change \* \* \* \*

#### 7.19.2.4 Ad hoc group call request (MCVideo server – MCVideo client)

Table 7.19.2.4-1 describes the information flow ad hoc group call request from the MCVideo server to the MCVideo client.

Table 7.19.2.4-1: Ad hoc group call request information elements

|  |  |  |
| --- | --- | --- |
| Information Element | Status | Description |
| MCVideo ID | M | The MCVideo ID of the calling party |
| MCVideo ID | M | The identity of the MCVideo user towards which the request is sent |
| Functional alias | O | The functional alias of the calling party |
| MCVideo ad hoc group ID | M | The MCVideo group ID to be associated with the ad hoc group call |
| SDP offer | M | Media parameters of MCVideo server |
| Broadcast indicator(NOTE) | O | Indicates that the ad hoc group call request is for a broadcast ad hoc group call |
| Imminent peril indicator (NOTE) | O | Indicates that the ad hoc group call request is an MCVideo imminent peril call |
| Emergency Indicator (NOTE) | O | Indicates that the ad hoc group call request is an MCVideo emergency call |
| Preconfigured ad hoc group identity | O  | Group identity whose configuration is to be applied for this ad hoc group call. |
| Call resulting criteria for determining the participants | O | Carries the details of criteria or meaningful label identifying the criteria or the combination of both that the MCVideo server used for determining the participants e.g., it can be a location based criteria to invite participants in a particular area |
| NOTE: If used, only one of these information elements is present. |

\* \* \* Next Change \* \* \* \*

#### 7.19.2.5 Ad hoc group call response (MCVideo server – MCVideo client)

Table 7.19.2.5-1 describes the information flow ad hoc group call response from the MCVideo server to the MCVideo client.

Table 7.19.2.5-1: Ad hoc group call response information elements

|  |  |  |
| --- | --- | --- |
| Information Element | Status | Description |
| MCVideo ID | M | The MCVideo ID of the calling party |
| Functional alias | O | The functional alias of the calling party |
| MCVideo group ID | M | The MCVideo group ID to be associated with the ad hoc group call |
| SDP answer | O | Media parameters selected and present if the Result is success. |
| Result | M | Result of the group call request (success or failure) |
| Call resulting criteria for determining the participants | O | Carries the details of criteria or meaningful label identifying the criteria or the combination of both that the MCVideo server used for determining the participants e.g., it can be a location based criteria to invite participants in a particular area |

\* \* \* Next Change \* \* \* \*

#### 7.19.2.10 Ad hoc group call notify (MCVideo server – MCVideo client)

Table 7.19.2.10-1 describes the information flow ad hoc group call notify from MCVideo server to MCVideo client.

Table 7.19.2.10-1: Ad hoc group call notify

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MCVideo ID | M | The MCVideo ID of the calling party or the MCVideo ID of the authorized users who are configured to receive this notification. |
| Functional alias | O | The functional alias of the calling party |
| MCVideo ad hoc group ID | M | The MCVideo group ID associated with the ad hoc group call |
| MCVideo ID list | O | The list of the invited MCVideo users who did not acknowledge the ad hoc group call request within a configured time or the list of the invited MCVideo users who acknowledged the ad hoc group call request and joined or the list of the MCVideo users who joined or left the ongoing MCVideo ad hoc group call. |
| Call resulting criteria for determining the participants | O | Carries the details of criteria or meaningful label identifying the criteria or the combination of both that the MCVideo server used for determining the participants e.g., it can be a location based criteria to invite participants in a particular area |

\* \* \* Next Change \* \* \* \*

7.19.2.21 Modify ad hoc group call criteria response (MCVideo server – MCVideo client)

Table 7.19.2.21-1 describes the information flow Modify ad hoc group call criteria response from the MCVideo server to the MCVideo client.

Table 7.19.2.21-1: Modify Ad hoc group call criteria response information elements

|  |  |  |
| --- | --- | --- |
| Information Element | Status | Description |
| MCVideo ID | M | The MCVideo ID of the requesting MCVideo user who is authorized to modify the ad hoc group criteria |
| Functional alias | O | The functional alias of the requesting MCVideo user who is authorized to modify the ad hoc group criteria |
| MCVideo ad hoc group ID | M | The MCVideo group ID of ad hoc group call whose participants list needs to be modified |
| Result | M | Result of the modify ad hoc group call participants request (success or failure) |
| Call resulting criteria for determining the participants | O | Carries the details of criteria or meaningful label identifying the criteria or the combination of both that the MCVideo server used for determining the participants e.g., it can be a location based criteria to invite participants in a particular area |

\* \* \* Next Change \* \* \* \*

##### 7.19.3.1.3 Ad hoc group call setup with MCVideo server determining the participants lists

Figure 7.19.3.1.3-1 below illustrates the ad hoc group call setup procedure initiated by the MCVideo user and MCVideo client 1 wherein the list of participants is determined by the MCVideo server based on the citeria received from the MCVideo client.

Pre-conditions:

1. The MCVideo user at MCVideo client 1 is authorized to initate ad hoc group call.

2. The MCVideo user at MCVideo client 1 wants to invite MCVideo users who are satisying certain criteria for the ad hoc group call.



Figure 7.19.3.1.3-1: Ad hoc group call participants determined by MCVideo server

1. User at MCVideo client 1 would like to initiate an ad hoc group call in-order to invite the participants satisfying specific criteria. The MCVideo client 1 initiates the ad hoc group call by sending the ad hoc group call request containing the details of the criteria to be applied by the MCVideo server for determining the participants list. If end-to-end encryption is supported, the Encryption supported information element shall be set to true and pre-configured MCVideo group whose configuration is to be applied is included. An SDP offer containing the MCVideo client media parameters is included. If there is a transmission request to transmit, then the ad hoc group call request contains an indication of an implicit transmit media request. If the MCVideo user of MCVideo client 1 has selected a functional alias, then the ad hoc group call request contains that functional alias. If the ad hoc group call request contains an implicit transmit media request it may also include location information.

If the MCVideo user at MCVideo client 1 initiates an MCVideo emergency ad hoc group call or the MCVideo emergency state is already set for the MCVideo client 1 (due to a previously triggered MCVideo emergency alert):

i. the MCVideo ad hoc group call request shall contain an emergency indicator;

ii. if the MCVideo emergency state is not set already, MCVideo client 1 sets its MCVideo emergency state. The MCVideo emergency state of MCVideo client 1 is retained until explicitly cancelled by the user of MCVideo client 1.

2. The MCVideo server accepts the ad hoc group call request if the ad hoc group call is supported and authorized. Otherwise reject the ad hoc group call request and do not continue with the rest of the steps.

 If functional alias is present, the MCVideo server checks whether the provided functional alias is allowed to be used and has been activated for the user.

 If location information was included in the ad hoc group call request, the MCVideo server checks the privacy policy of the MCVideo user to decide if the location information of MCVideo client 1 can be provided to other users on the call (refer to Annex A.3 "Authorisation to provide location information to other MCVideo users on a call when talking").

 If an emergency indicator is present in the received MCVideo ad hoc group call request, the MCVideo ad hoc group is considered to be in the in-progress emergency state until this ad hoc group call is terminated; and

 If an imminent peril indicator is present in the received MCVideo ad hoc group call request, the MCVideo ad hoc group is considered to be in the in-progress imminent peril state until this ad hoc group call is terminated.

If the information received in the request in step 1 does not contain an ad hoc group ID from an ad hoc group emergency alert, the MCVideo server forms the ad hoc group by using received information, and determines the preconfigured group to be used for the configuration of the ad hoc group. The MCVideo server assigns a MCVideo group ID for the newly formed ad hoc group. Further, the ad hoc group participants are included to ad hoc group once determined as specified in the step 4.

3. The MCVideo server shall send the ad hoc group call request return message to MCVideo client 1 containing the below:

 i. The MCVideo ad hoc group ID, either generated by the MCVideo server, if not included in the ad hoc group call request of step 1, or if the provided MCVideo ad hoc group ID is not accepted by the MCVideo server, or provided by the MCVideo client 1 if the ad hoc group ID is from an ad hoc group emergency alert;

 ii. The group ID of the pre-configured group to be used for the ad hoc group communication (only included when the ad hoc group data session is authorized); and

 iii. Result of whether the ad hoc group call is authorized or not

 If the ad hoc group call request is not authorized, MCVideo server and client 1 shall not proceed with the rest of the steps.

4. The MCVideo server determines the list of participants to be invited for the ad hoc group call based on the information present in the information element Criteria for determining the participants. This information element could carry either criteria or indicator identifying pre-defined criteria or a combination of both. Depending on the criteria provided and based on local policy, the MCPTT server may modify the content of the criteria received in step 1 to determine the list of participants.

NOTE: The content of the Criteria information element, the details of the pre-defined criteria, and the way how the MCVideo server determines the list of participants are left to implementation.

5. The MCVideo server sends the ad hoc group call requests towards the MCVideo clients 2 and 3. While sending the ad hoc group call requests, the MCVideo server shall remove the information elements that are not required to be conveyed to the target MCVideo clients. This request carries the pre-configured group ID whose configuration is to be applied for this ad hoc group call if end-to-end encryption is requested. The MCVideo server considers the ad hoc group call participants as implicitly affiliated to the ad hoc group.

6. The receiving MCVideo clients are notified about the incoming ad hoc group call.

7. The receiving MCVideo clients accept the ad hoc group call requests and send ad hoc group call responses to the MCVideo server. The response may also contain a functional alias of the responding MCVideo user, which is verified (valid and activated for the user) by the MCVideo server.

8. The MCVideo server sends the ad hoc group call response to MCVideo client 1 through the signalling path to inform about successful call establishment. The ad hoc group call response contains the call resulting criteria used by the MCVideo server to determine the list of participants to be invited.

9. The MCVideo server may notify the initiating MCVideo user of all MCVideo users who acknowledged the ad hoc group call request and joined the ad hoc group call. This notification may be sent to the initiating MCVideo user by the MCVideo server more than once during the call when MCVideo users join or leave the MCVideo ad hoc group call. If the authorized users (not shown in figure) are configured to receive the participants information of ad hoc group call, the MCVideo server provides ad hoc group call notify about all MCVideo users who acknowledged the ad hoc group call request and joined the ad hoc group call, and when MCVideo users join or leave the MCVideo ad hoc group call. All ad hoc group call notify messages contain the call resulting criteria used by the MCVideo server to determine the list of participants to be invited.

10. MCVideo client 1, MCVideo client 2 and MCVideo client 3 establish media plane and transmission control resources.

\* \* \* Next Change \* \* \* \*

7.19.3.1.6 Modification of ad hoc group call criteria by an authorized user

Figure 7.19.3.1.6-1 below illustrates the modification of ad hoc group call criteria procedure by an authorized user.

Pre-conditions:

1. The MCVideo user at the MCVideo client 1 is authorized to modify the criteria.

2. Both the MCVideo server and the MCVideo client 1 are aware of the criteria related to the ongoing ad hoc group call.



Figure 7.19.3.1.6-1: Modification of ad hoc group call criteria by the authorized user

1. The MCVideo user at the MCVideo client 1 is authorized and requests to modify the criteria for determining the list of participants. The MCVideo client 1 sends the modify ad hoc group call criteria request to the MCVideo server which contains an updated criteria to determine the list of participants.

2. The MCVideo server verifies whether the MCVideo client 1 is authorized to modify the criteria which determines the list of participants during on-going ad hoc group video call. The MCVideo server determines the list of ad hoc group call participants based on the criteria provided and identifies that MCVideo client 3 is to be removed from and MCVideo client 2 is to be added to the group. Depending on the criteria provided and based on local policy, the MCVideo server may modify the content of the criteria received in step 1 to determine the list of participants.

3. The MCVideo server sends modify ad hoc group call criteria response containing the call resulting criteria used by the MCVideo server to determine the list of participants to be invited to the MCVideo client 1.

4. The MCVideo server sends the ad hoc group call leave request to the MCVideo client 3 in order to remove it from the on-going ad hoc group call.

5. The MCVideo client 3 notifies the user of the ad hoc group call leave request.

6. The MCVideo client 3 sends the ad hoc group call leave response to the MCVideo server.

7. The MCVideo server sends the ad hoc group call request towards MCVideo client 2.

NOTE 1: Steps 7 to 9 can occur at any time following step 3.

8. The receiving MCVideo client 2 notifies the user about the incoming ad hoc group call.

9. The MCVideo client 2 accepts the ad hoc group call request and send ad hoc group call responses to the MCVideo server. The response may also contain a functional alias of the responding MCVideo user, which is verified (valid and activated for the user) by the MCVideo server. The MCVideo server considers the MCVideo user as implicitly affiliated to the ad hoc group.

10. The MCVideo server may notify the initiating MCVideo user of all the users who are added to the on-going ad hoc group call. This notification may be sent to the initiating MCVideo user by the MCVideo server more than once during the call when MCVideo users join or leave the ad hoc group call. All ad hoc group call notify messages contain the call resulting criteria used by the MCVideo server to determine the list of participants to be invited.

11. The MCVideo server may notify the participants about the change in the participants list of on-going ad hoc group call. All ad hoc group call notify messages contain the call resulting criteria used by the MCVideo server to determine the list of participants to be invited.

The MCVideo server continuously checks whether other MCVideo clients meet or if participating MCVideo clients no longer meet the criteria for the ad hoc group emergency call.

NOTE 2: If the ad hoc group call is associated with an ad hoc group emergency alert and the change of criteria caused the modification of ad hoc group call participant list then the ongoing ad hoc group emergency alert is modified accordingly.

\* \* \* Next Change \* \* \* \*

##### 7.19.3.2.1 Ad hoc group call setup – Participants list determined by the MCVideo server

Figure 7.19.3.2.1-1 below illustrates the ad hoc group call setup procedure initiated by an authorized user wherein the list of participants is determined by the MCVideo server based on the criteria received from the MCVideo client and determined MCVideo users are from multiple MCVideo systems.

Pre-conditions:

1. The security aspects of sharing the user information between primary and partner MC systems shall be governed as per the service provider agreement between them. In this case, it is considered that the partner MC system share their users' information to the primary MC system.

2. The authorized MCVideo user/dispatcher belongs to the primary MC system.

3. The MCVideo server 1 of the primary MC system is where the authorized MCVideo user/dispatcher creates the ad hoc group.

4. Some users of the ad hoc group belong to MCVideo server 2 of the partner MC systems.

5. The pre-configured group identity and pre-configured group configuration to be used for an ad hoc group have been preconfigured in MCVideo client and other participants of ad hoc group have also received the relevant security related information to allow them to communicate in an ad hoc group communication.



Figure 7.19.3.2.1-1: Ad hoc group call setup involving multiple MCVideo systems

1-3. Same as described in subclause 7.19.3.1.3.

4. The MCVideo server 1 determines the list of participants from the primary MC system and determines the partner MC system to be involved in the ad hoc group call based on the information present in the information element Criteria for determining the participants. This information element carries the criteria, indicator identifying pre-defined criteria, or a combination of both.

NOTE 1: The content of the Criteria information element, the details of the pre-defined criteria, and the way how the MCVideo server determines the list of participants are left to implementation.

5. If the MCVideo server 1 needs to involve the partner system based on the agreement and based on the criteria for determining the participants list, it sends the ad hoc group call get userlist request to the MCVideo server 2. Depending on the criteria provided and based on local policy, the MCPTT server may modify the content of the criteria received in step 1 to determine the list of participants. This request carries the call resulting criteria to be used by the partner MC system and is equal or derived from the criteria received in the step 1.

6. MCVideo server 2 evaluates the criteria and determines the participants satisfying the criteria (i.e. MCVideo client 3 and MCVideo client 4) and sends the response containing the list of MCVideo users satisfying the criteria. The partner MCVideo server may apply local policies if any while determining the participants satisfying the criteria.

7. The MCVideo server 1 compiles the list of participants to be invited for the ad hoc group call including the participants from both primary and partner MC system.

8a-8b. The MCVideo server 1 sends the ad hoc group call request towards the MCVideo client 3 and MCVideo client 4. While sending the ad hoc group call request, the MCVideo server shall remove the information elements that are not required to be conveyed to the target MCVideo clients. This request carries the pre-configured group ID whose configuration is to be applied for this ad hoc group call if end-to-end encryption is requested. The MCVideo server 1 considers the ad hoc group call participants as implicitly affiliated to the ad hoc group.

9. The MCVideo server 1 sends the ad hoc group call requests towards the MCVideo client 2. While sending the ad hoc group call request, the MCVideo server shall remove the information elements that are not required to be conveyed to the target MCVideo clients. This request carries the pre-configured group ID whose configuration is to be applied for this ad hoc group call if end-to-end encryption is requested. The MCVideo server 1 considers the ad hoc group call participants as implicitly affiliated to the ad hoc group.

10a-10c. The receiving MCVideo clients are notified about the incoming ad hoc group call.

11. The MCVideo client 2 accept the ad hoc group call request and send ad hoc group call response to the MCVideo server 1.

12. The MCVideo client 3 accepts the ad hoc group call request, and sends ad hoc group call response to the MCVideo server 1.

13. The MCVideo client 4 accepts the ad hoc group call request, and sends ad hoc group call response to the MCVideo server 1.

14. The MCVideo server 1 sends the ad hoc group call response to MCVideo client 1 through the signalling path to inform about successful call establishment. The ad hoc group call response contains the criteria used by the MCVideo server to determine the list of participants to be invited.

15. The MCVideo server 1 may notify the initiating MCVideo user of all MCVideo users who acknowledged the ad hoc group call request and joined the ad hoc group call. The MCVideo server 1 more than once during the call may send this notification to the initiating MCVideo user whenever an MCVideo user joins or leaves the MCVideo ad hoc group call. If the authorized users (not shown in figure) are configured to receive the participants information of ad hoc group call, the MCVideo server provides ad hoc group call notify about all MCVideo users who acknowledged the ad hoc group call request and joined the ad hoc group call, and when MCVideo users join or leave the MCVideo ad hoc group call. All ad hoc group call notify messages contain the call resulting criteria used by the MCVideo server to determine the list of participants to be invited

16. The MCVideo client 1, MCVideo client 2, MCVideo client 3 and MCVideo client 4 establish media plane and transmission control resources.

NOTE 2: The ad hoc group call request and response exchanged between MCVideo server 1 of primary MC system and MCVideo client 3/MCVideo client 4 will always traversal through the MCVideo server 2.

\* \* \* Next Change \* \* \* \*

##### 7.19.3.2.7 Modification of ad hoc group call criteria by an authorized user

Figure 7.19.3.2.7-1 illustrates the modification of ad hoc group call criteria procedure by the initiator of the ad hoc group call between multiple MC systems.

Preconditions:

- The MCVideo user at the MCVideo client 1 is authorized to modify the criteria.

- The MCVideo server A and MCVideo server B are aware of the criteria related to the ongoing ad hoc group call.

- MC system A and MC system B are interconnected.



Figure 7.19.3.2.7-1: Modifying the criteria for determining the participants during an ongoing ad hoc group call between multiple MC systems

1. An ad hoc group call has been established based on criteria sent by an authorized MCVideo client upon initiating the ad hoc group call.

2. The MCVideo user at the MCVideo client 1 is authorized and wishes to modify the criteria for determining the list of ad hoc group call participants.

3a. MCVideo client 1 sends a modify ad hoc group call criteria request to MCVideo server A.

3b. MCVideo server A determines that the modify ad hoc group call criteria request received in step 3a has impact on users in MCVideo server B. Depending on the criteria provided and based on local policy, the MCVideo server may modify the content of the criteria received in step 3a to determine the list of participants.

3c. MCVideo server A sends a modify ad hoc group call criteria request to MCVideo server B containing the call resulting criteria to be used by MCVideo server B.

NOTE 1: If MCVideo server A identifies that the criteria require to add participants from another MC system then MCVideo server A sends an ad hoc group call request to the MCVideo server in that MC system.

4a/b. The MCVideo server A receives the ad hoc group call criteria modify response and forwards the response to MCVideo client 1 in MC system A.

5. MCVideo server B detects that MCVideo client 3 meets the criteria for the ongoing ad hoc group call initiated at MC system A.

5a. MCVideo server B sends an ad hoc group call add user notification message towards MCVideo server A.

5b. MCVideo server A sends an ad hoc group call request towards MCVideo client 3.

5c. The MCVideo user 3 is notified of entering an ongoing ad hoc group call.

5d. MCVideo client 3 sends an ad hoc group call response towards MCVideo server A.

5e. MCVideo server B sends an ad hoc group call remove user notification message towards MCVideo server A.

5f. MCVideo server A sends an ad hoc group call leave request towards MCVideo client 4.

5g. The MCVideo user 4 is notified of leaving an ongoing ad hoc group call.

5h. MCVideo client 4 sends an ad hoc group call leave response towards MCVideo server A.

6. The MCVideo server A may notify the authorised MCVideo user of all the users who are added to the on-going ad hoc group call. This notification may be sent to the authorised MCVideo user by the MCVideo server A more than once during the call when MCVideo users join or leave the ad hoc group call. All ad hoc group call notify messages contain the call resulting criteria used by the MCVideo server to determine the list of participants to be invited.

7. The MCVideo server Aadds MCVideo client 3 to the ad hoc group call and removes MCVideo client 4 from the ad hoc group call.

The MCVideo servers continuously check whether other MCVideo clients meet or if participating MCVideo clients no longer meet the criteria for the ad hoc group call.

NOTE 2: If the ad hoc group call is associated with an ad hoc group emergency alert and the change of criteria caused the modification of the ad hoc group call participant list then the ongoing ad hoc group emergency alert is modified accordingly.

\* \* \* Next Change \* \* \* \*