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ECM EMM In CA System Or Conditonal Access System

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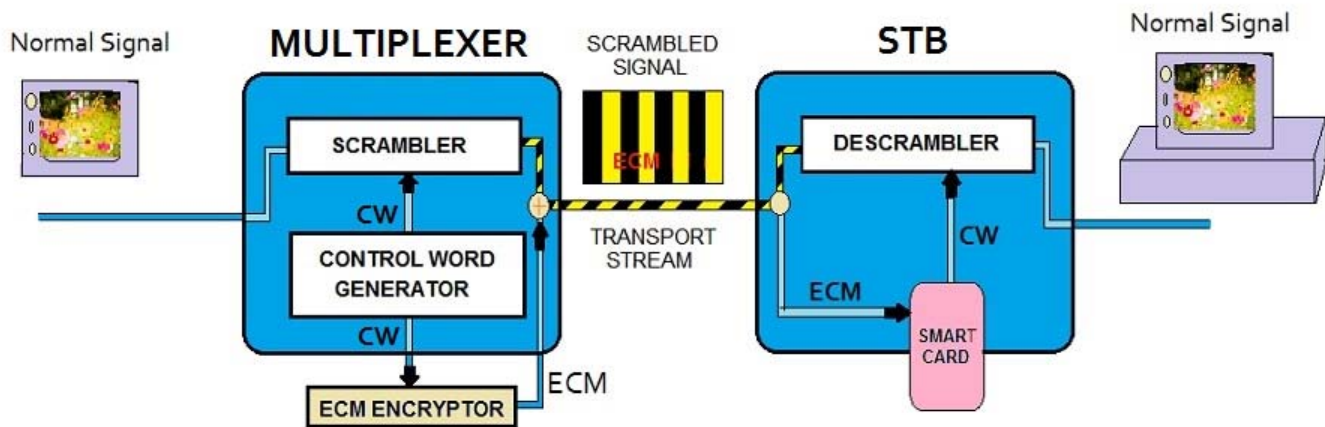
ECM EMM Introduction

ECM stands for **Entitled Control Message** while EMM stands for **Entitled Management Message**. **ECM EMM** are the two most important part of CA System or Conditional Access System. ECM and EMM are send with the Transport Stream to the subscriber end.

ECM EMM denotes weather the subscriber is authorize to view or access the

services or not. Smart card reads these ECM EMM at the subscriber end in the STB.

ECM – Entitled Control Message

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For a CA system it is hard task to send properly Control Word to the STB. Some of CA system use the smart card while some other CA system use software

component in the STB.

As we can see in the figure above a normal signal goes into the multiplexer. Then this signal goes into the scrambler. A control word is generated from the control word generator. This control word is send to the scrambler and then it is encrypted.

Current and the next control word send to the ECM Encryptor. ECM Encryptor encrypt the ECM after receiving the control word. Now this encrypted ECM is send with the transport stream.

Now this transport stream goes into the STB. The normal signal would directly goes into the descrambler. While the ECM goes into the smart card. Then the smart card would read the ECM and then decrypt it and then it will send the Control Word to the STB then stb receive this control word and then descrambler descramble the signal and gives normal signal which would be provided to the subscriber. The ECM also returns to multiplexer which we sent with the transport stream.

Thus we send the control word inside the ECM and then we encrypt the ECM.

The ECMs are repeated in every 100 ms. We repeat the ECM so fastly because it helps the STB to descramble the channel in less time.
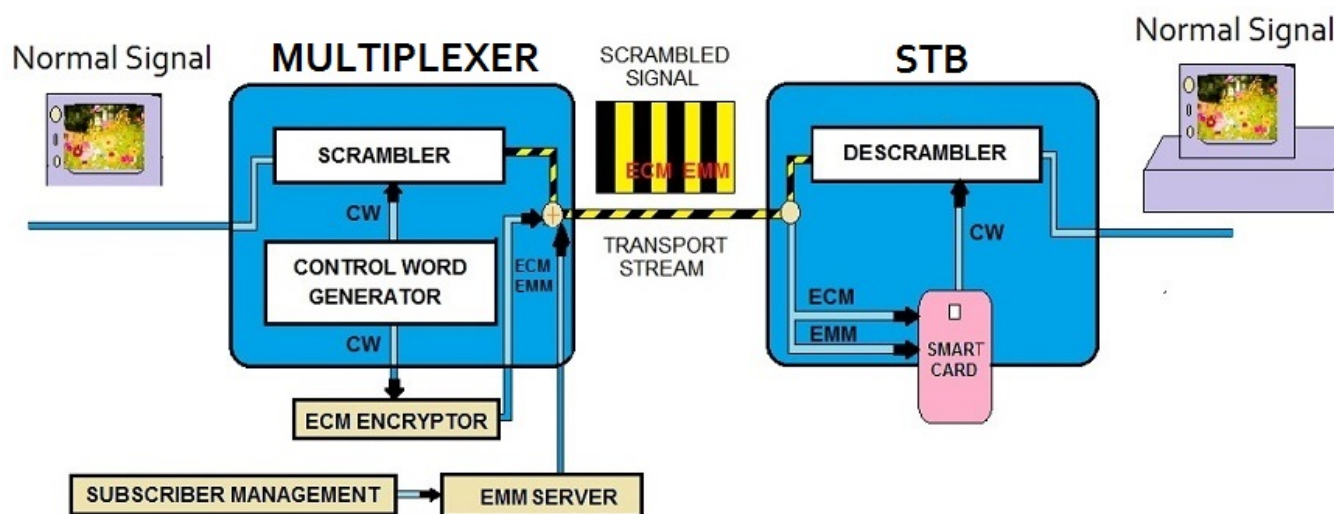
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As we can see above in the figure the normal signal goes into the multiplexer and then this signal goes into the scrambler.

The scrambler receive the control word from the control word generator and scramble it then ECM and EMM are imported with the transport stream.

Whenever we update the SMS or Subscriber Management System to give the access to a particular subscriber. Then a EMM is generated by the CAS and this

generated EMM is send to the multiplexer to import the emm in the transport stream. At the receiving end the EMM and ECM goes into the smart card and scrambled signal goes into the descrambler. Now smart card decrypt the ECM and EMM authorize the subscriber to access the particular service. Then a control word send to the descrambler.

Now descrambler after receiving the control word descramble the service and gives the access to that particular subscriber.

Thus EMM sends the entitlements to the stb. Which authorize the user to access the particular service. This service can be Video On Demand or the package of channels for the specific period of time. So EMM is used to give access and activate the package to subscriber.

This EMM message can be send for to access the service for a particular subscriber , group of subscribers and for all the subscribers.

Conclusion

EMM ECM are two essential part of the CA system. ECM is encrypted and contains the control word to give access to subscriber for a particular program or service. While EMM contains the information of subscribers package which need to activate and Video On Demand.

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Comments

naveen joshi   **says:**

November 8, 2016 at 4:10 pm (https://www.headendinfo.com/ecm-emm-ca-system/#comment-291)

Hii

Very knowledgeable article thanks .

can you plz tell little bit more about scrabling.

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Ashok KUmar (http://gravatar.com/ashokait123)   **says:**

February 21, 2017 at 5:09 am (https://www.headendinfo.com/ecm-emm-ca-system/#comment-415)

Dear,

Thank's for sharing the data

↩ **Reply**

Chaitanya   **says:**

May 17, 2017 at 11:42 am (https://www.headendinfo.com/ecm-emm-ca-system/#comment-458)

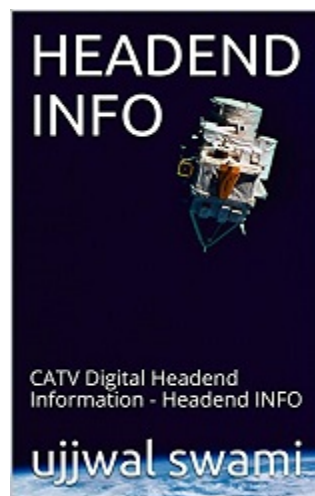Thanks for sharing this info…

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