

Pedro Castillo Pineda & Asociados
ABOGADOS

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SUPERINDUSTRIA Y COMERCIO
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Trámite: 002 PATENTES 0 1 REGISTRO/ 329 COMPLETEN
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
División de Nuevas Creaciones
E S D

Ref. EXPEDIENTE N° 02-064854
Solicitud de Patente a nombre de
HUGHES ELECTRONICS CORPORATION

En el asunto de la referencia me permito presentar los siguiente documentos

1-La copia certificada de la solicitud estadounidense No 60/308 160 del 26 de Julio de 2001, de la cual se reclama prioridad

2-La copia certificada de la solicitud estadounidense No 10/007 909 del 7 de noviembre del 2001, de la cual también se reclama prioridad Observo que su texto corresponde al texto en español que obra en el expediente

3-copia certificada y legalizada por Apostilla del documento de cesión general estadounidense

Como el expediente queda así completo , pido se ordene su trámite

Atentamente,


JERÓNIMO CASTILLO BONILLA
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C C. 79.462.057 Bogotá

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Julio 08, 2002

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NUMERO DE SOLICITUD 60/308.160
FECHA DE PRESENTACION Julio 26, 2001

Por la Autoridad del
COMISIONADO PARA PATENTES Y MARCAS

W. MONTGOMERY
Oficial Certificador

PA 864886



THE UNITED STATES OF AMERICA

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July 08, 2002

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APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A
FILING DATE UNDER 35 USC 111**

APPLICATION NUMBER. 60/308,160

FILING DATE July 26, 2001

**By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS**



W Montgomery
W MONTGOMERY
Certifying Officer

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.63(c).

Sheet of

INVENTOR(S)					
Last Name	First Name	Middle Initial	Residence (City and either State or Foreign Country)		
SOLOFF	STEVEN	M	5715 NW 47 LANE, TAMARC FLORIDA 33318		
☐ Additional inventors are named on the separately numbered sheets attached hereto.					
TITLE OF THE INVENTION (280 characters max)					
ON THE REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO A DSS BITSTREAM IN THE PRESENCE OF MULTIPLE SERVICE CHANNELS					
CORRESPONDENCE ADDRESS					
Direct all correspondence to.					
☒ Customer Number 20991			Place Customer Number Bar Code Label here		
OR					
☒ Firm or Individual Name		HUGHES ELECTRONICS CORPORATION, CORPORATE PATENTS AND LICENSING			
Address		PO BOX 958			
Address		200 NORTH SEPULVEDA BLVD., ES/001/A108			
City		EL SEGUNDO	State	CA	ZIP 90245
Country		UNITED STATES	Telephone	(310) 862-9916	Fax (310) 416-1216
ENCLOSED APPLICATION PARTS (Check all that apply.)					
☒ Specification - Number of Sheets 7 ☐ CD(s), Number					
☐ Drawing(s) - Number of Sheets ☐ Other - Specify					
☐ Application Data Sheet (See 37 CFR 1.78)					
METHOD OF PAYMENT OF FILING FEES (This form is being filed in triplicate)					
☐ Applicant claims small entity status (See 37 CFR 1.27).					FILING FEE AMOUNT
☐ A check or money order is enclosed to cover the filing fee					
☒ The Commissioner is hereby authorized to charge the filing fee and credit any overpayments to Deposit Account Number 60-0383					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
☒ No ☐ Yes, the name of the U.S. Government agency and the government contract number are:					

Respectfully submitted,

Signature: 

Date: July 28, 2001

Printed Name: Michael W. Soloff, Reg. No. 30,213

Attorney Docket No. PD-201180

Telephone: 310-862-9916

Customer No: 20991

Certification under 37 CFR 1.10 (if applicable)

EF740871087US

EXPRESS MAIL Mailing No.

July 28, 2001

Date of Deposit (m/d/yyyy)

I hereby certify that this application is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

Vickie Chapp

(Type or printed name of person mailing application)



(Signature of person mailing application)

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**ON THE REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO A DSS
BITSTREAM IN THE PRESENCE OF MULTIPLE SERVICE CHANNELS**

50308150-072601
T09270-09180309

**Inventor
Steven M Soloff**

HUGHES PROPRIETARY

**ON THE REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO A DSS
BITSTREAM IN THE PRESENCE OF MULTIPLE SERVICE CHANNELS**

SUMMARY OF INVENTION

Current headend platforms for interactive applications cannot insert auxiliary data packets into bitstreams that contains more than one service channel. The proposed algorithm provides this ability, and additionally, the ability is provided in real time.

iTV headend platforms will be able to process bitstreams that contain more than one service channel. In the current state of the art, such bitstreams must be decomposed before being sent to the headend platform.

ABSTRACT

This paper examines an algorithm to be used by a broadcast system to insert auxiliary data packets into a DSS bitstream that may contain multiple service channels. Specifically, the algorithm addresses the ability of the broadcast system to insert such packets in a real-time manner.

INTRODUCTION

In the past year, DIRECTV™ Latin America (DLA) has deployed an interactive television platform based on the OpenTV (OTV) operating system. An integral part of this platform is the broadcast subsystem, which is responsible for streaming OTV applications to a DSS uplink system (USPS). The most basic functionality of this subsystem is to send a prepacketized (in DSS format) OTV mux file to the USPS. However, the DLA conditional access segment imposes another requirement on the broadcast subsystem, namely, to send auxiliary data packet placeholders at the appropriate rate along with the OTV data. These empty packets will eventually carry control words to the subscriber's set-top box (STB), which allow (or in certain cases disallow) them to execute the OTV application.

DLA currently has two broadcast subsystems in operation (developed by Telefónica and NDS, respectively). The OpenStreamer system (developed by OpenTV) will be deployed in the near future. All of these systems have the capability to insert auxiliary data packets in the streams they transmit automatically either through an integrated component (in the case of OpenStreamer) or via an external utility (in the case of the other two platforms). However, they all lack the ability to work with mux files that contain more than one non-zero SCID¹.

This paper presents an algorithm that could be adopted by all of these platforms which would allow them to be able to process mux files that contain many non-zero SCIDs.

¹ These systems can function properly when a mux file, in addition to the non-zero application SCID, contains SCID 0, since this service channel cannot carry auxiliary data packets.

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Additionally, the algorithm is sufficiently efficient that the insertion may be done in real time. In the sections following, the algorithm is discussed in detail. An implementation of the algorithm is applied to several test cases and the results are discussed.

DESCRIPTION OF THE ALGORITHM

The aforementioned broadcast subsystem implementations all have no issue with mux files that contain a single service channel, because, in this case, all the information required to insert auxiliary data packets (AUX packets) is known *a priori*. Why this is so can be seen in the following discussion. The quantities required to perform AUX packet insertion are the bitrate of the service channel and the number of AUX packets to insert per second. Thus, because the bitrate of a mux file with a single service channel must necessarily equal the bitrate of the mux file itself, none of the required parameters are unknown.

However, in the presence of multiple service channels, the previous equality no longer holds. It could be argued that the broadcast subsystem could be reconfigured to accept not only the bitrate of the entire mux file, but also the bitrates of the individual service channels. This approach has two drawbacks. First, it is up to a human operator to ensure that not only the individual bitrates are correct, but that they also correctly add up to the aggregate. Second, this approach does not lend itself to automation, and in a fast-paced broadcast environment, this is a necessity.

The algorithm presented here computes the bitrate of each individual service channel given the same information the existing broadcast systems already possess. It is based on a statistical approach that computes the mean bitrate of a service channel in real time. It is asserted that for sufficiently large times, the mean bitrate must necessarily converge to a steady-state value. Thus, after some initial transients at startup, the proper bitrate of each service channel will have been computed, and the correct number of AUX packets will be inserted.

The table below defines the quantities used in the pseudo code for the algorithm.

- P = total number of packets encountered in bitstream
- P_s = total number of packets encountered for SCID s
- b = aggregate bitrate for bitstream as specified by user (b/s)
- b_s = bitrate for SCID s (b/s)
- A_s = AUX packet insertion rate for SCID s as specified by user (pkt/s)
- ΔP_s = AUX packet spacing for SCID s

The pseudo code for the algorithm follows.

```
while bitstream is playing
  read next packet
   $P = P + 1$ 
   $s = \text{extract SCID value from packet}$ 
   $P_s = P_s + 1$ 
```

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 $b_s = b * (P_s / P)$ 
 $\Delta P_s = b_s / (8 * 130 * A_s)^{\dagger}$ 
if  $P_s \bmod \Delta P_s = 0$  then
    insert an AUX packet on SCID  $s$ 
end if
end while

```

The values b_s and ΔP_s are the mean quantities that change with each iteration (i.e. with time)

APPLICATION OF THE ALGORITHM

The above algorithm was implemented and applied to several sample mux files. The demo application reads a single mux file from disk and continuously processes it in much the same manner as a broadcast system would process an incoming bitstream. For the purposes of this paper, the application was implemented in C++ and executed on a workstation utilizing an Intel Pentium III 550 MHz processor, 128 MB RAM, and running Windows 2000. Figure 1 is a screenshot of the application representing a snapshot in time.

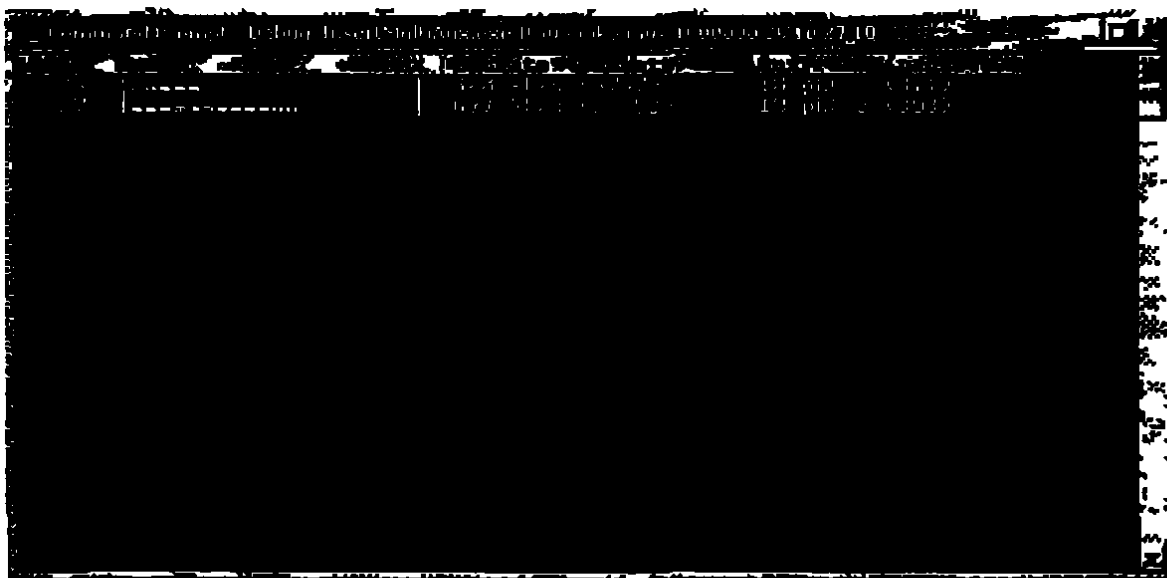


Figure 1 Screenshot of the demo application.

The first case considered was simply an application that contained one non-zero SCID (SCID 21) and SCID 0. The mux file contained 1924 packets on SCID 0 and 5504 packets on SCID 21. The aggregate bitrate was set to be 1 Mbps², and an AUX insertion rate of 10 pkt/s was requested for SCID 21. Figure 2 is a plot of the bitrate for each SCID versus time. Here, time has been normalized by the duration of the mux file (carousel), T^* .

[†] The factor $8 * 130$ is the number of bits in a DSS packet ($8 \text{ b/B} * 130 \text{ B/pkt}$).

² In this context and hereafter, 1 Mbps = 1,000,000 bps. Additionally the definition 1 kbps = 1,000 bps will be used from now on.

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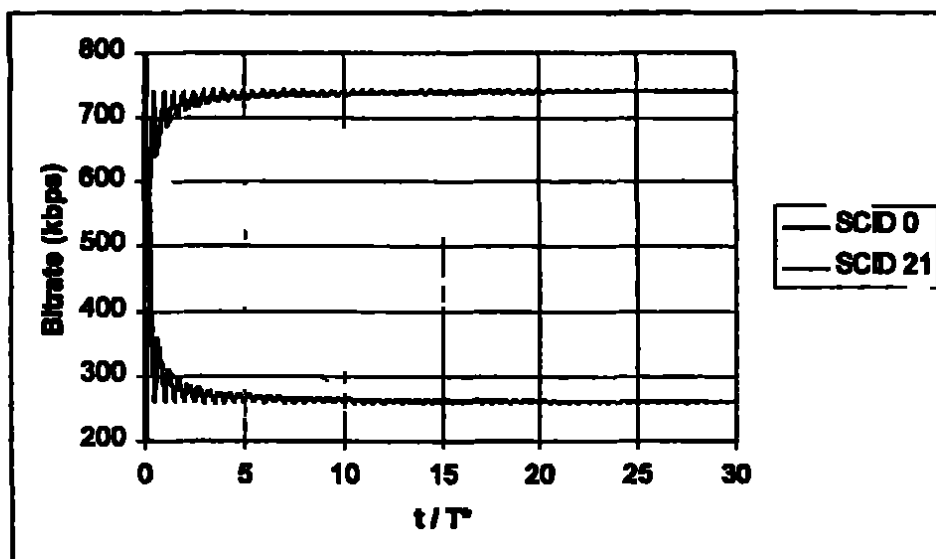


Figure 2. SCID bitrate for case 1.

As seen in the figure, the bitrate for both SCIDs reaches a steady-state value after 20 carousels (one could argue it reaches this state after 10 carousels, but for the purposes of this discussion, 20 will be used). Note that the noise in each figure is due to discretization error and is small enough to be ignored for this discussion.

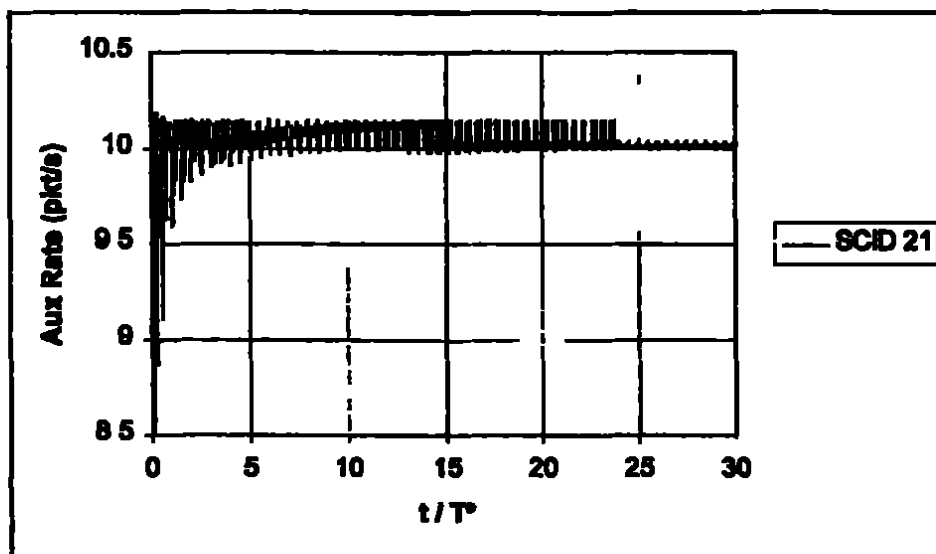


Figure 3. AUX packet rate for case 1

Figure 3 is a plot of AUX packet insertion rate for SCID 21 versus normalized time. Note that floating-point values were used for illustration only, the true value would of course be integral. In this case, at least 24 carousels are required to obtain a true steady-state value. However, due to integer truncation, 5 carousels are sufficient for 10

AUX packets to be inserted per second, with very few traversals into 9 pkt/s (acceptable behavior for the DLA platform)

The second case considered was an application that contained two SCIDs (SCIDs 26 and 27). The mux file contained 1573 packets on SCID 26 and 3664 packets on SCID 27. The aggregate bitrate was set to be 1 Mbps, and an AUX insertion rate of 10 pkt/s was requested for both SCIDs. Figure 4 is a plot of the bitrate for each SCID versus time.

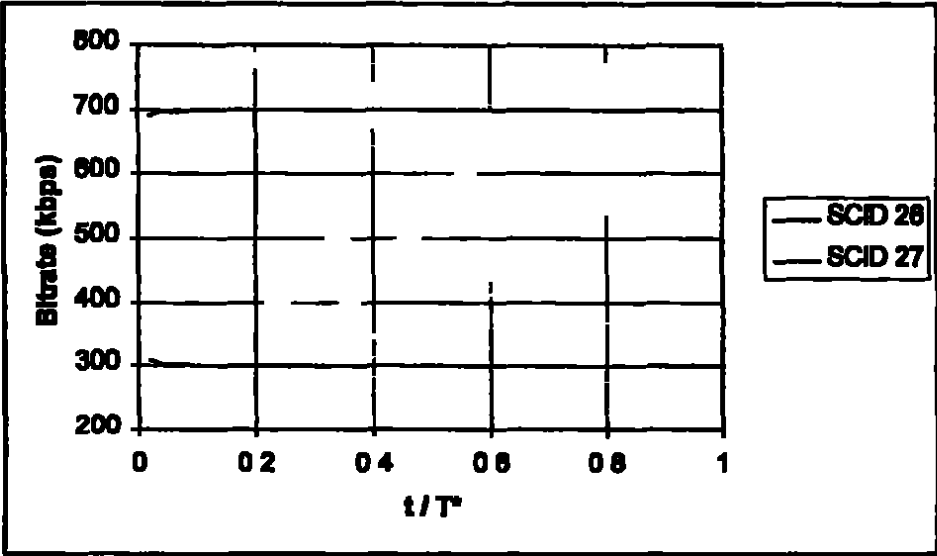


Figure 4. SCID bitrate for case 2.

As seen in the figure, the bitrate for both SCIDs reaches a steady state almost immediately. It is unclear why this particular file exhibited such a short transient. However, it could simply be due to the fact that there were no SCIDs in the file for which AUX packets were not inserted.

Figure 5 is a plot of AUX packet insertion rate for both SCIDs versus normalized time. Again, only one carousel is required to obtain a true steady-state value. Even though the steady-state values reached in the floating-point space is not exactly 10, integer truncation assures the actual number of AUX packets inserted per second is indeed 10.

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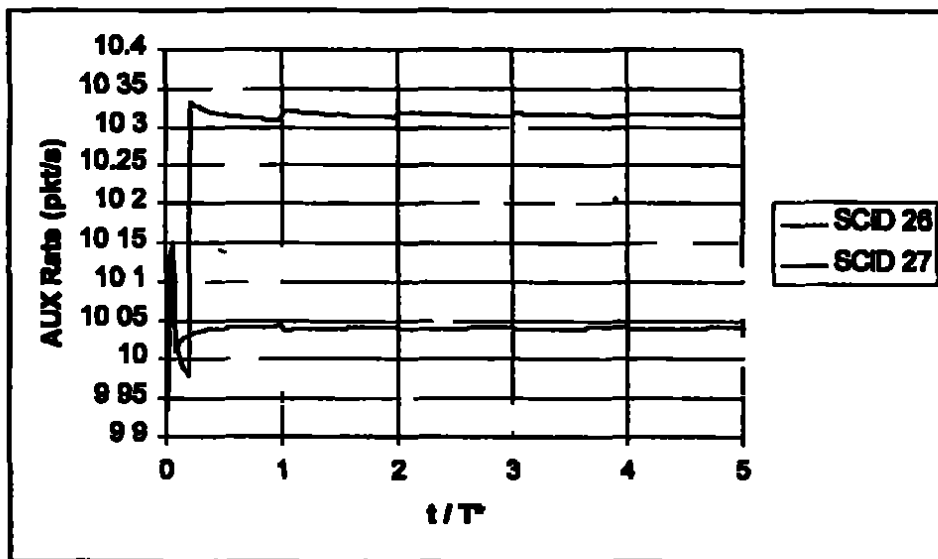


Figure 5. AUX packet rate for case 2.

CONCLUSION

An algorithm for the real-time insertion of AUX packets into a DSS bitstream that contains more than one service channel has been described. The algorithm was implemented and applied to two test cases, in which it was shown to produce acceptable results. Although these tests illustrate the proof of concept, it is recommended that the algorithm be implemented on a production-quality broadcast platform to truly test its performance in a stressful real-time environment.

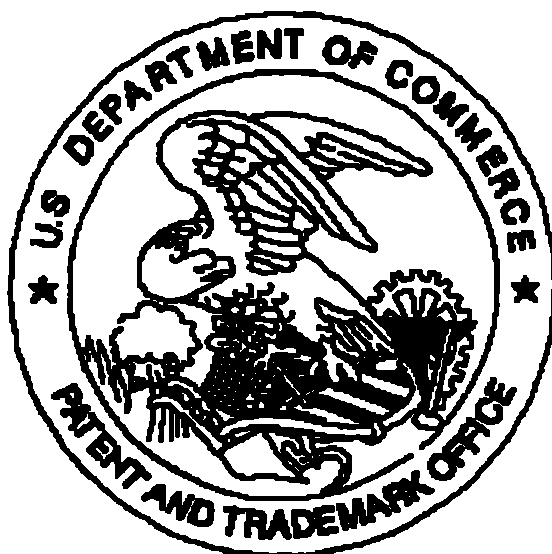
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Application papers not suitable for publication

SN 60308160 Mail Date 07/26/01

- ☐ Non-English Specification
- ☒ Specification contains drawing(s) on page(s) _____ or table(s) _____
- ☐ Landscape orientation of text ☐ Specification ☐ Claims ☐ Abstract
- ☐ Handwritten ☐ Specification ☐ Claims ☐ Abstract
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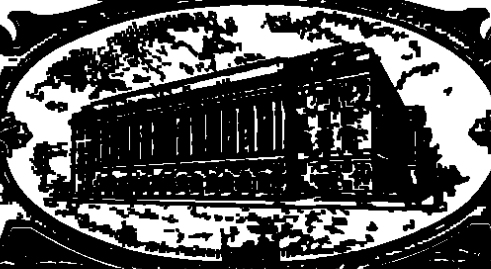
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NUMERO DE SOLICITUD 10/007.909
FECHA DE PRESENTACION Noviembre 07, 2001

Por la Autoridad del
COMISIONADO PARA PATENTES Y MARCAS

W. MONTGOMERY
Oficial Certificador

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APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A
FILING DATE UNDER 35 USC 111**

APPLICATION NUMBER 10/007,909

FILING DATE *November 07, 2001*



**By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS**

W. Montgomery
W MONTGOMERY
Certifying Officer

12-10-01

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CUSTOMER NO.. 020891

PATENT
Docket No. PD-201180A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
APPLICATION TRANSMITTAL LETTER FOR
NONPROVISIONAL PATENT APPLICATION
 Under 37 C.F.R. 1.53(b)

Certification under 37 CFR 1.10 (if applicable)

EF740870807US

November 7, 2001

EXPRESS MAIL mailing number

Date of Deposit

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Vickie Chupp

(Type or printed name of person mailing application)

(Signature of person mailing application)

Commissioner for Patents
 Washington, D.C. 20231

Sir

Transmitted herewith for filing is the patent application, including 4 sheet(s) of formal drawings of inventor(s):
 STEVEN M. SOLOFF

for 000790
 METHOD FOR REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO A DSS BITSTREAM IN THE
 PRESENCE OF ONE OR MORE SERVICE CHANNELS
 The filing fee for this application is calculated below

	CLAIMS AS FILED				
	NUMBER FILED		NUMBER EXTRA	RATE	
Basic Fee					\$740.00
Total Claims	9	-20=	0 x	\$ 18.00	\$ -0-
Independent Claims	3	-3=	0 x	\$ 84.00	\$ -0-
Multiple Dependent Claims			+	\$280.00	\$
TOTAL FILING FEE					\$740.00

Please charge Deposit Account No. 50-0383 of Hughes Electronics Corporation, El Segundo, California, in the amount of \$740.00. The Commissioner is hereby authorized to charge any additional fees, which may be required or credit any overpayment, to that account. This form is submitted in triplicate.

The Commissioner is further hereby authorized to charge to said above Deposit Account No. 50-0383 pursuant to 37 CFR 1.25(b), any fees whatsoever which may properly become due or payable, as set forth in 37 CFR 1.16 to 1.17 inclusive, for the entire pendency of this application without specific additional authorization.

Applicant hereby claims the benefit under 35 U.S.C. 119(e) of the following United States provisional application 60/308,180, filed July 28, 2001, entitled ON THE REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO A DSS BITSTREAM IN THE PRESENCE OF MULTIPLE SERVICE CHANNELS - still pending

Please associate this application with the Hughes Electronics Corporation Customer Number 020891

HUGHES ELECTRONICS CORPORATION

CUSTOMER NUMBER 020891
 HUGHES ELECTRONICS CORPORATION
 Patent Docket Administration
 Bldg 001 M/S A109
 PO Box 998
 El Segundo, CA 90245-0998
 Telephone: (310) 682-8818
 Date: November 7, 2001


 MICHAEL W. SALES, Registration No. 30 213
 X Attorney or Agent of Record
 Assignee of complete interest
 Filed under 37 CFR 1.34(a)

00-806 (7/96)

PD-201160A

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METHOD FOR REAL-TIME INSERTION OF AUXILIARY DATA PACKETS
INTO A DSS BITSTREAM IN THE PRESENCE OF ONE OR MORE SERVICE
CHANNELS

Inventor
STEVEN M. SOLOFF

**METHOD FOR REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO
A DSS BITSTREAM IN THE PRESENCE OF ONE OR MORE SERVICE CHANNELS**

5 This application claims the priority and benefit of the U S Provisional Application
Serial Number 60/308,160 filed on July 26, 2001, for " ON THE REAL-TIME INSERTION
OF AUXILIARY DATA PACKETS INTO A DSS BITSTREAM IN THE PRESENCE OF
MULTIPLE SERVICE CHANNELS" Inventor Steven M. Soloff, the entire contents of
which are incorporated herein by this reference

10

BACKGROUND OF THE INVENTION

1 **Field of the Invention**

15 The invention generally relates to satellite television network broadcasts and more
specifically to a method and system of inserting auxiliary data packets into a single or multi-
channel DSS bitstream in a real-time manner

2 **Description of the Prior Art**

20 In traditional television broadcast systems, it is often desirable to restrict the number of
accessible television channels to only those subscribers who actually pay for the particular
channels. The same restrictions apply to interactive satellite television broadcasts. If, for
example, a subscriber does not have access to HBO, or CNN, it is desirable to insure that the
user cannot access these channels and to inform the user that although he or she does not
presently have access to these service channels, they can order the channels by following
25 ordering instructions. These security measures and the ordering information are presented to the
user via traditional satellite broadcasts.

 The security measures and additional service channel information are broadcast in the

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form of security or auxiliary data packets and must be inserted into the traditional satellite uplink broadcasts via what is know in the art as head-end platforms. The goal is to prevent the user from viewing channels that he or she has not paid to see and to allow the user to order the channels if he or she so desires. The user should be presented with a television screen full of content, without "dead time" (i.e. a blank screen), whether it be actual programming content, or advertisements or instructions prompting the user to subscribe to additional service channels.

The data packets are placed in auxiliary data packet placeholders, which are inserted at the appropriate rate into an application stream to be included in a traditional satellite uplink subsystem. However, the insertion of these security data packets or data packet placeholders at the appropriate rate is not an easy task. The computer operator must insert enough data packets in order to insure that the user is not viewing a blank television screen. The operator is also limited by bandwidth constraints since the data packets are identical and multiple insertions are merely a waste of valuable bandwidth. The rate of insertion of these data packets is therefore critical. If the insertion rate is too slow and not enough data packets are present in the satellite broadcast, then the end user, when he or she tunes to that specific channel, may be looking at a blank screen, devoid of any information since it is the information contained in the data packets that the user sees first. If too many data packets are inserted, it is a waste of the bandwidth of the transmission because each data packet contains essentially the identical information.

Presently, systems exist that have the capability to insert security or auxiliary data packets or data packet placeholders into a stream of data comprised of one service channel that will be part of the uplink system of a traditional satellite broadcast. In a stream comprised of a single service channel, this is not difficult since the operator need only be aware of the bit rate for the service channel and the number of auxiliary packets to insert per second, to derive the insertion rate. Because the bit rate of a multiplexed data file having a single service channel must necessarily equal the bit rate of the multiplexed file itself, the parameters are known and the real time insertion of data packets can be performed.

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However, the bit rate of the data stream is rarely a constant. This rate may often change as will the number of service channels within the bitstream. Therefore, a service operator cannot set the data packet insertion rate and expect this rate to apply for all data streams.

Problems also arise when software programmers attempt to insert these data packets into a multiplexed data file comprised of more than one service channel. In this scenario, the aggregate bit rate of the entire data stream is known, but the bit rate of each individual service channel is unknown. The service operator cannot rely on his knowledge of the aggregate bit rate for the entire data stream, since each service channel bitstream within the total datastream has its own bit rate.

In the prior art, the only way the operator would be able to discern the number of packets that would correspond to each service channel if he were to be provided with this additional information. For example, if the operator knew that 10% of all data packets would go into service channel 1 and 25% would go into service channel 2, then the data packet allocation could be performed. But this would require the operator to be aware of this additional information. The goal is to achieve the result of proper data packet or data packet placeholder insertion without the need for any additional information. Therefore, the prior art methods cannot apply to multiple channel data streams.

It could be argued that the broadcast subsystem could be reconfigured to accept not only the bit rate for the entire multiplexed file, but also the bit rates of the individual service channels. This approach has a number of drawbacks. In particular, it leaves it up to a human operator to ensure that not only the individual bit rates are correct, but that they also correctly add up to the aggregate. The chance for human error is great and increases based upon the number of service channels, each having its own unique bit rate, within the entire data stream. This approach does not lend itself to automation, and in the fast-paced world of satellite broadcasts, automation is critical.

Accordingly, what is needed in the art is a system and method designed to automatically

insert auxiliary head-end data packet placeholders in single or multiple channel data stream regardless of the number of service channels comprising the data stream, for the later insertion of data packets in conventional satellite television broadcasts.

It is, therefore, to the effective resolution of the aforementioned problems and shortcomings of the prior art that the present invention is directed

SUMMARY OF THE INVENTION

The present invention is a method for inserting data packets or data packet placeholders in a real-time manner, within a single or multiple channel bitstream in a satellite television uplink subsystem

Generally, the invention is a method for real time insertion of auxiliary data packets into a single or multiple service channel satellite television broadcast comprising the steps of reading a data bitstream having a data bitstream aggregate bit rate, counting data packets present within the data bitstream, determining which channel the data packets are associated with and identifying the channel as an operative channel bitstream, counting the data packets associated with the operative channel bitstream, determining a channel bit rate for the operative channel bitstream, determining a duration of time that must elapse before the data packet is inserted in the channel bitstream, and inserting said data packet within said operative channel bitstream after said duration of time has elapsed

In the preferred embodiment of the invention, a unique set of computer readable instructions is provided, which are stored in a storage medium to provide the necessary steps of detecting a data bitstream and while the bitstream is being detected, the computer instructions iteratively perform the following steps. detecting a data bitstream having a data bitstream aggregate bit rate, the data bitstream comprising one or more data packets, establishing a bitstream data packet counter for storing values representing a number of the

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data packets encountered in the data bitstream, while said bitstream is being detected, iteratively performing the steps of encountering the data packet within the data bitstream, incrementing the bitstream data packet counter; determining which channel bitstream the detected data packet is associated with and identifying said channel as an operative channel bitstream, if not already established, establishing an operative channel data packet counter for the operative channel bitstream for storing values representing the number of data packets encountered in the operative channel bitstream, incrementing the operative channel data packet counter; determining a channel bit rate for the operative channel bitstream, determining a data packet spacing value for the operative channel bitstream, and if the value of the operative channel data packet counter is a multiple of the data packet spacing value for the operative channel bitstream then inserting the data packet within the operative channel bitstream.

Determining a channel bit rate for the operative channel bitstream preferably comprises the steps of obtaining the ratio between the value representing the number of data packets encountered in the data bitstream and the value representing the number of data packets encountered in the operative channel bitstream, and multiplying the ratio by the data bitstream aggregate bit rate

It is to be understood that both the foregoing general description and the following detailed description are explanatory and are not restrictive of the invention as claimed. The accompanying drawings, which are incorporated in and constitute part of the specification, illustrate the preferred embodiment of the present invention and together with the general description, serve to explain principles of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates a flow diagram showing the steps performed by the present

invention.

Figure 2 illustrates test results using the present invention showing a plot of the bit rate for an individual service channel versus time.

Figure 3 illustrates test results using the present invention showing a plot of the auxiliary data packet insertion rate for an individual service channel versus time.

Figure 4 illustrates test results using the present invention showing a plot of the bit rates for two individual service channels versus time.

Figure 5 illustrates test results using the present invention showing a plot of the auxiliary data packet insertion rate for two individual service channels versus time.

Figure 6 is a computer screen showing the analysis of two independent service channels using the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is a method which performs a series of steps designed to automatically insert auxiliary data packet placeholders in a single or multi-channel data stream as part of a satellite broadcast uplink subsystem. No additional parameters are needed, other than the aggregate datastream bit rate and the data packet insertion rate, each specified by the operator.

Referring to Figure 1, a flowchart is shown which illustrates the steps performed by the present invention. For clarification, the term "data packet" or "packet" may also refer to a data packet placeholder. It is within the scope of the invention to provide a method for inserting placeholders that will eventually hold the actual auxiliary data packets. The actual data packets may be inserted "upstream" at any later time in the satellite broadcast uplink subsystem.

The pseudo code required to perform the iterative steps illustrated in Figure 1 are as follows:

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```

while bitstream is playing
  read next packet
  P = P + 1
  s = extract SCID value from packet
  Ps = Ps + 1
  bs = b * (Ps/P)
  ΔPs = bs / (8 * 130 * As)
  if Ps mod ΔPs = 0 then
    Insert an auxiliary data packet on SCID s
  end if
end while

```

where

```

SCIDs = a specific service channel (s) within the entire data bitstream
P = total number of data packets encountered in data bitstream
Ps = total number of data packets encountered for SCID s
b = aggregate bit rate for data bitstream (known by operator, in bits/second)
bs = bit rate for SCIDs (bits/second)
As = data packet insertion rate for SCIDs (known by operator, in packets/second)
ΔPs = data packet spacing for SCIDs

```

Referring now to Figure 1, the first step of the process is to detect a data bitstream, step 20, and to count each data packet within a given data stream. Computer software instructions detect the presence of a data packet within the data stream, via step 30. Upon detection of the data packet, a counter is established, step 40, and advanced, step 50, thereby incrementing the counter and storing a current value representing the number of data packets encountered in said data bitstream. The line of code accomplishing this step is $P = P + 1$.

Once a packet has been detected, it must then be determined which service channel the data packet belongs to. This is accomplished via step 60, by determining the identity, s , of the detected packet. Each data packet contains, usually in its header, the identity of the SCID (service channel) to which it belongs. Because the packets are serialized, i.e. they each are presented in the data bitstream one at a time, each packet is read and its channel identified. The variable s represents the SCID or channel corresponding to the detected data packet. This channel is identified as the operative channel. A separate counter is established, step 70 and

incremented, via step 80. This keeps track of the number of packets for each operative channel.

This is accomplished via step according to line 3 of the pseudocode above, $P_s = P_s + 1$

Because the aggregate bit rate for the entire data bitstream is known to the user, as well as the ratio of individual packets for a given channel to the number of overall packets for the entire bitstream, it becomes a straightforward calculation to obtain the bit rate for each individual channel. This is accomplished at step 90, where the bit rate for channel s is determined. Determining the bit rate for service channel s is accomplished by multiplying the aggregate bit rate for the entire datastream b_s (a known quantity) by the ratio of data packets for channel s and total data packets for the entire bitstream, P_s/P . The equation for this is shown in the pseudocode above, $b_s = b * (P_s/P)$

The next step in the process is to determine the spacing between packet insertions, for the individual channel, s , i.e. how many data bits must go by before a data packet is to be inserted into the bitstream. This is calculated from several known parameters, namely the bit rate of channel s (calculated above), the data packet insertion rate, as specified by the user (for example, 10 packets/second) and the number of bits in a typical packet. For example, there may be 130 Bytes per data packet. At 8 bits per Byte, there would be 1,040 bits per data packet. From this data, the packet spacing for a given channel s can be determined, via step 100, according to $\Delta P_s = b_s / (8 * 130 * A_s)$.

Once it has been determined how many data bits must go by before a data packet is to be inserted into the bitstream, it is a simple calculation to determine exactly when the data packet insertion must occur. The pseudocode,

```

if  $P_s \bmod \Delta P_s = 0$  then
    insert an auxiliary data packet on SCID  $s$ 
end if

```

determines if the current value of the operative channel's data packet counter (P_s) is a multiple of the data packet spacing value for the operative channel bitstream (ΔP_s). The step, $P_s \bmod$

$\Delta P_i = 0$, is a modulo division instruction. If the result of the modulo division instructions results in a "0" remainder, then there is an insertion of the data packet within the operative channel bitstream (s), via step 110

It must then be determined if any more data packets are in the bitstream, via step 120

- 5 If more data packets are detected in the data bitstream, the iterative process is repeated, beginning with the detecting of data packets within the stream, step 30 through the determination if there are any additional packets in the data bitstream, step 120. The entire process is repeated until no more data packets have been detected. It is evident from the inventive process that the bit rate of each service channel b_i and the spacing between each data packet insertion ΔP_i are mean quantities that change over time with each iteration.

Referring to Figure 2, a computer screen is shown illustrating the testing of a data bitstream having two separate channels, identified as SCID 26 and SCID 27, utilizing the present invention. In the test screen of Figure 2, each service channel is identified, as well as its corresponding bit rate (number of packets for each SCID) and auxiliary packet insertion rate

The application illustrated in Figure 2 was performed on a computer with an Intel Pentium III 550 MHz processor, having 128 MB of RAM and running Windows 2000. The application was implemented in C++. It is within the scope of the present invention to implement the method and algorithm in any compatible computer language together with compatible hardware.

- 20 Figure 2 shows a snapshot in time of the incorporation of the present invention in a multiple channel data stream. The test demonstration application illustrated here reads a single mux file, containing two service channel streams, from a data storage medium, such as a disk, and continuously processes it in much the same manner as a broadcast system would process an incoming data bitstream.

- 25 Figure 3, shows a test case using the present invention where an application contained one non-zero SCID (SCID 21) and SCID 0. The mux file contained 1924 packets on SCID 0

and 5504 packets on SCID 21. The aggregate bit rate was set to 1 Mbps and an auxiliary insertion rate of 10 packets/second was chosen for SCID 21. Figure 3 represents a plot of the bit rate for each channel (SCID) versus time. Time has been normalized by the duration of the mux file, called a carousel, and represented by T^* . The bit rate for SCID 0 appears to be approximately 725 kbps per second while the bit rate for SCID appears to be approximately 275 kbps per second. The bit rate for each SCID reaches a steady-state value between approximately 10 and 20 carousels, or 0.5 to 1 second, a relatively short time period.

Figure 4 plots the auxiliary data packet insertion rate of SCID 21 versus normalized time, using the algorithm of the present invention. Floating-point values were used for illustrative purposes. In Figure 4, it can be seen that approximately 24 carousels were required to obtain a true steady-state value. However, due to integer truncation, five (5) carousels were sufficient for ten (10) data packets to be inserted per second, with virtually no traversal into the 9-packet per second range.

Figure 5 illustrates a second test case for an application containing two SCIDs, SCID 26 and SCID 27, utilizing the present invention. The mux file contained 1573 packets on SCID 26 and 3664 packets on SCID 27. The aggregate bit rate was set as 1 Mbps and an auxiliary packet insertion rate was set at 10 packets per second for each SCID. Figure 5 represents a plot of the bit rate for each SCID versus time.

As seen in Figure 5, the bit rate for each SCID reaches a steady state almost immediately. There is virtually no deviation in bit rate after 0.02 carousels, certainly after 1 carousel, with SCID 26 at approximately 700 kbps and SCID 27 at 300 kbps.

Figure 6 is a plot of the auxiliary data packet insertion rate for each SCID versus normalized time. Again, only one carousel is required to obtain a true steady-state value.

The method of the present invention allows the automated and real-time insertion of data packet placeholders or the data packets themselves in the head-end portion of a satellite television broadcast uplink subsystem. The pseudocode indicated above is not the only method

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of performing the steps outlined in the claims, and comparable variations would also provide the same results. The implementation of the algorithm of the present invention provides an actual function, i.e. the automated insertion of data packets into a data bitstream, regardless of the number of individual service channels and without prior knowledge of the service channel bit rates.

The instant invention has been shown and described herein in what is considered to be the most practical and preferred embodiment. It is recognized, however, that departures may be made therefrom within the scope of the invention and that obvious modifications will occur to a person skilled in the art.

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CLAIMS

What Is Claimed Is

1 A method for real time insertion of auxiliary data packets into a single or multiple service channel broadcast comprising the steps of

5 reading a data bitstream having a data bitstream aggregate bit rate,
counting data packets present within said data bitstream,
determining which channel said data packets are associated with and identifying said channel as an operative channel bitstream,
counting said data packets associated with said operative channel bitstream,
determining a channel bit rate for said operative channel bitstream,
determining a duration of time that must elapse by before said data packet is inserted in said channel bitstream, and
inserting said data packet within said operative channel bitstream after said duration of time has elapsed

2 A method for real time insertion of auxiliary data packets into a single or multiple service channel satellite television broadcast comprising the steps of

detecting a data bitstream having a data bitstream aggregate bit rate, said data bitstream comprising one or more data packets,

20 establishing a bitstream data packet counter for storing values representing a number of said data packets encountered in said data bitstream,

while said bitstream is being detected, iteratively performing the following steps (a)-(h)

(a) encountering said data packet within said data bitstream,
25 (b) incrementing said bitstream data packet counter; (c)
determining which channel bitstream the detected data packet is associated with and

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identifying said channel as an operative channel bitstream,

(d) if not already established, establishing an operative channel data packet counter for said operative channel bitstream for storing values representing a number of said data packets encountered in said operative channel bitstream,

5 (e) incrementing said operative channel data packet counter;

(f) determining a channel bit rate for said operative channel bitstream,

(g) determining a data packet spacing value for said operative channel bitstream, and

(h) if the value of said operative channel data packet counter is a multiple of said data packet spacing value for said operative channel bitstream then inserting said data packet within said operative channel bitstream.

3 The method of claim 2 wherein said step of determining a channel bit rate for said operative channel bitstream comprises the steps of obtaining the ratio between said value representing the number of said data packets encountered in said data bitstream and said value representing the number of said data packets encountered in said operative channel bitstream, and multiplying said ratio by said data bitstream aggregate bit rate.

4 The method of claim 1 wherein said data bitstream is comprised of video and/or audio television signals.

5 The method of claim 1 wherein said data packets are data packet placeholders which receive actual data packets at a later time.

6 A computer program stored in a computer readable medium, embodying instructions to perform real time insertion of auxiliary data packets into a single or multiple

service channel satellite television broadcast, the instructions comprising the steps of

detecting a data bitstream having a data bitstream aggregate bit rate, said data bitstream comprising one or more data packets,

establishing a bitstream data packet counter for storing values representing a number

5 of said data packets encountered in said data bitstream,

while said bitstream is being detected, iteratively performing the following steps (a)-

(h)

(a) encountering said data packet within said data bitstream,

(b) incrementing said bitstream data packet counter;

(c)

10 determining which channel bitstream the detected data packet is associated with and identifying said channel as an operative channel bitstream;

(d) if not already established, establishing an operative channel data packet counter for said operative channel bitstream for storing values representing a number of said data packets encountered in said operative channel bitstream,

(e) incrementing said operative channel data packet counter;

(f) determining a channel bit rate for said operative channel bitstream,

(g) determining a data packet spacing value for said operative channel bitstream, and

15 (h) if the value of said operative channel data packet counter is a multiple of said data packet spacing value for said operative channel bitstream then inserting said data packet within said operative channel bitstream.

7 The computer program of claim 6 wherein said step of determining a channel bit rate for said operative channel bitstream comprises the steps of obtaining the ratio between
25 said value representing the number of said data packets encountered in said data bitstream and said value representing the number of said data packets encountered in said operative

channel bitstream, and multiplying said ratio by said data bitstream aggregate bit rate

8 The computer program of claim 6 wherein said data bitstream is comprised of video and/or audio television signals.

5

9 The computer program of claim 6 wherein said data packets are data packet placeholders which receive actual data packets at a later time.

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ABSTRACT OF THE DISCLOSURE

An apparatus and method that allows for the automatic, real-time insertion of auxiliary data packets into a single or multi-channel bitstream in a satellite television broadcast system. Computer readable instructions stored in a storage medium provides iterative steps necessary to detect the presence of a data packet within the data bitstream, establish a bitstream data packet counter for storing values representing the number of the data packets encountered in the data bitstream, set the bitstream data packet counter to an initial value, increment the bitstream data packet counter, determine which channel bitstream the detected data packet is associated with and identify the channel as an operative channel bitstream, establish an operative channel data packet counter for the operative channel bitstream for storing values representing the number of the data packets encountered in the operative channel bitstream, set the operative channel data packet counter to an initial value, increment the operative channel data packet counter, determine a channel bit rate for the operative channel bitstream, determine a data packet spacing value for the operative channel bitstream, and if the value of the operative channel data packet counter is a multiple of the data packet spacing value for the operative channel bitstream then insert the data packet within the operative channel bitstream.

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COMBINED DECLARATION FOR PATENT APPLICATION
AND POWER OF ATTORNEY

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- ☒ Original
- ☐ Continuation
- ☐ Division
- ☐ Continuation-in-part
- ☐ Supplemental

As a below named inventor I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original first and sole inventor (if only one name is listed below) or an original first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **METHOD FOR REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO A DSS BITSTREAM IN THE PRESENCE OF ONE OR MORE SERVICE CHANNELS** the specification of which

(check one) ☒ is attached hereto and which claims benefit of U.S. provisional patent application with Serial No. 60/308,160 (PD-201160) filed on July 26, 2001

☐ was filed on _____ as Application Serial No _____

I hereby state that I have reviewed and understand the contents of the above identified specification including the claims, as amended by an amendment referred to above

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37 Code of Federal Regulations, §1 56

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed
☐ Yes ☐ No

Number	Country	Day/Month/Year Filed
--------	---------	----------------------

I hereby claim the benefit under Title 35, United States Code, §120 §119(e) or of any United States application(s) listed below and insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112 I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1 56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

60/308,160
Application Serial No.

July 26, 2001
Filing Date

Pending
Status
(patented, pending, abandoned)

I hereby claim priority benefits under Title 35, United States Code §119(e) of any provisional application(s) for patents listed below

60/308,160
Application Serial No.

July 26, 2001
Filing Date

Pending
Status
(patented, pending, abandoned)

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I hereby appoint the following attorneys, or agent and attorneys, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith

Vijayalakshmi D Duraiswamy,
Michael W Sales,

Registration No. 31,505
Registration No 30,213.

Address all telephone calls to Michael W Sales, (310) 662-9916

Address all correspondence to Customer Number 020991 (Hughes Electronics Corporation, Patent Docket Administration, Bldg 001, M/S A109, PO Box 956, El Segundo, California 90245-0956)

I hereby declare that all statement made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such false statements may jeopardize the validity of the application or any patent issued thereon

10007909-110701

FULL NAME OF SOLE OR JOINT INVENTOR STEVEN M SOLOFF	INVENTOR'S SIGNATURE <i>St S</i>	DATE 10/11/2001
RESIDENCE (CITY AND STATE) 6715 NW 47 LANE, TAMARAC, FLORIDA 33319		CITIZENSHIP U.S.A.
POST OFFICE ADDRESS 5715 NW 47 LANE, TAMARAC, FLORIDA 33319		
FULL NAME OF SOLE OR JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE)		CITIZENSHIP U.S.A.
POST OFFICE ADDRESS		
FULL NAME OF SOLE OR JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
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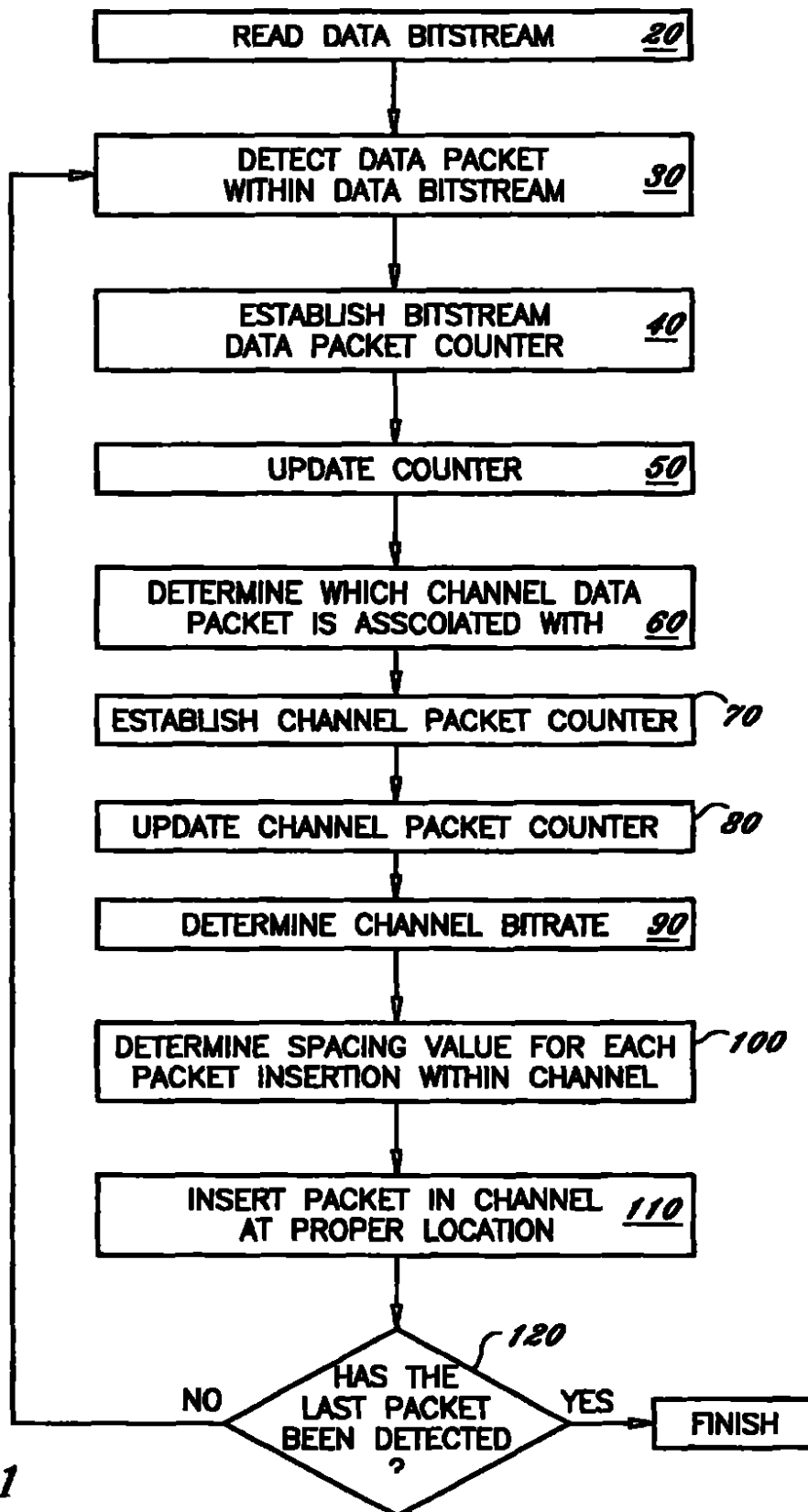


Fig. 1

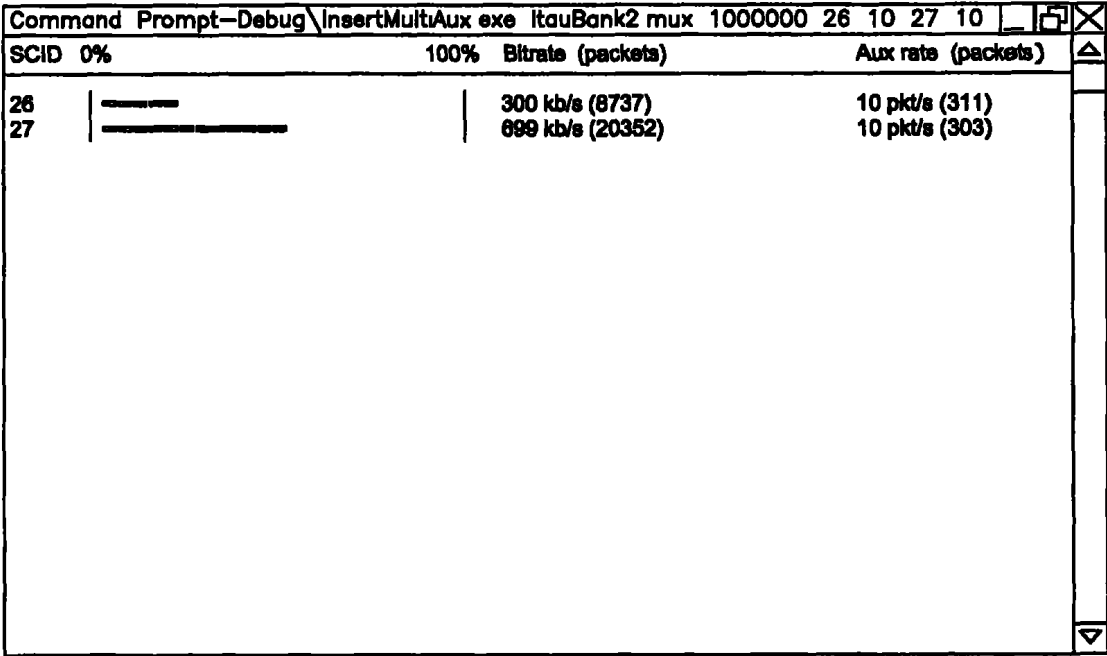


Fig. 2

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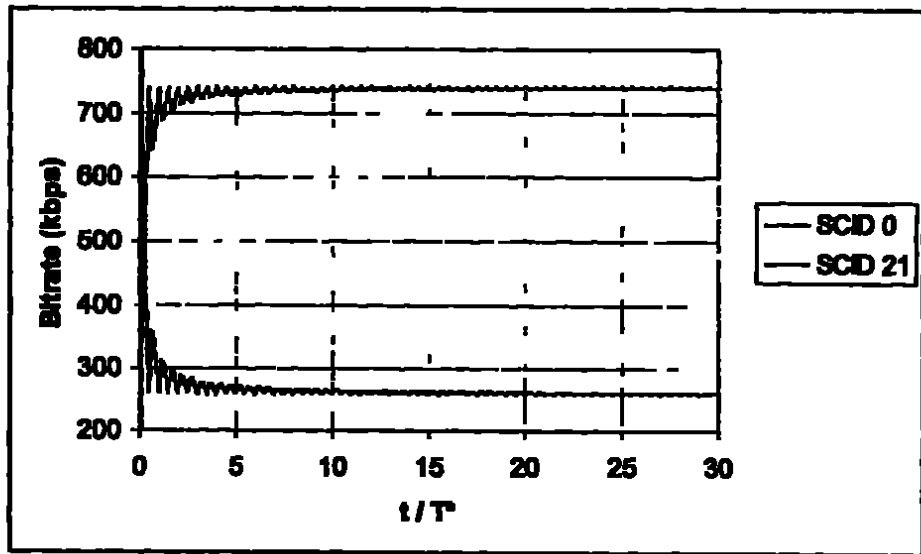


Fig 3

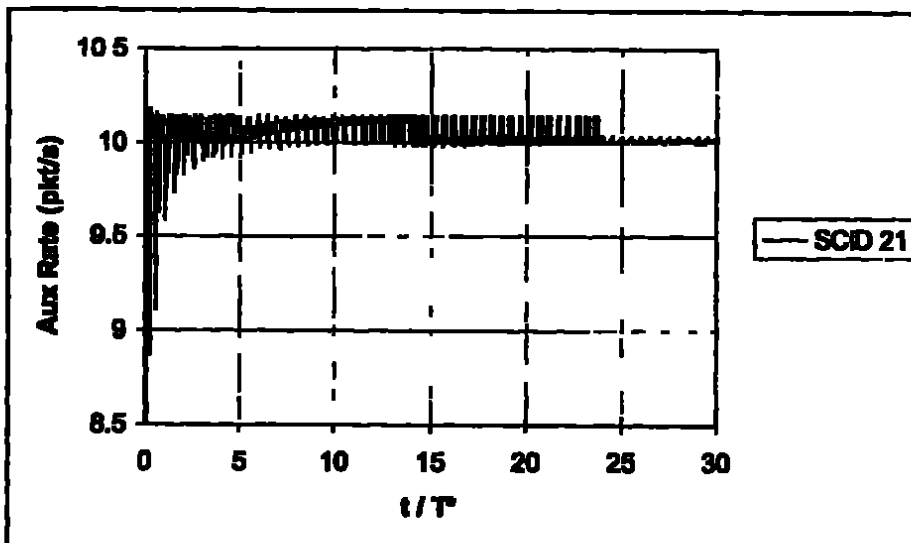


Fig 4

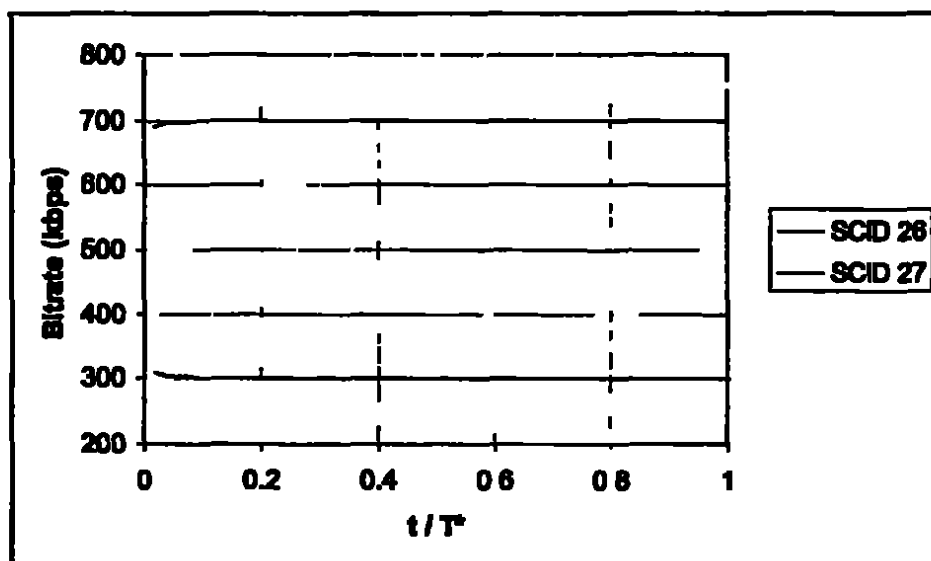


Fig 5

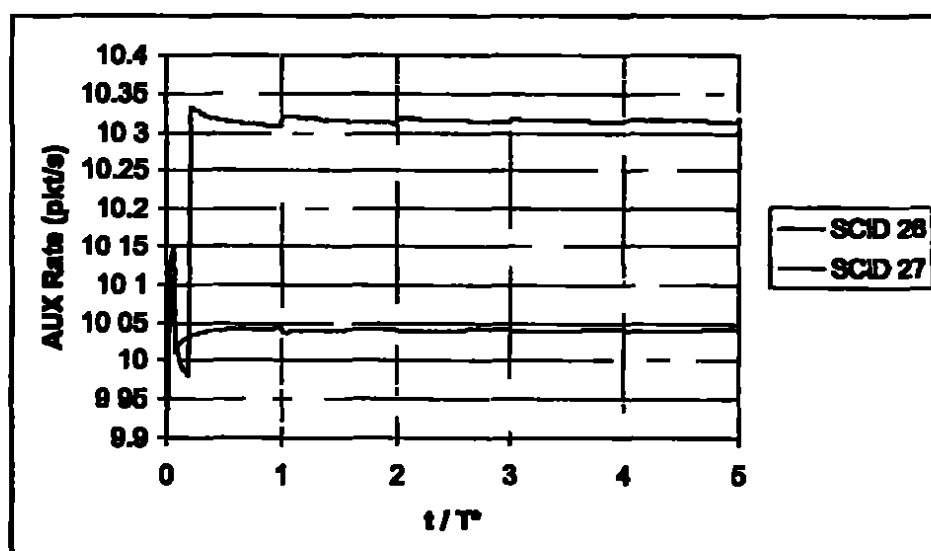


Fig 6

APOSTILLE

(Convention de La Haye du 5 octobre 1961)

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11/7/01		PD-201160A		To the Honorable Commissioner of Patents and Trademarks: Please attach the original documents or copy thereof				
1 Name of conveying party(ies) STEVEN M. SOLOFF Additional Name(s) of conveying party(ies) attached? yes ☐ no ☒			2 Name and address of receiving party(ies) Name: HUGHES ELECTRONICS CORPORATION Internal Address: Bldg. 001 M/S A109 PO Box 956 200 N Sepulveda Blvd El Segundo, CA 90245-0956					
3 Nature of Conveyance ☒ Assignment ☐ Merger ☐ Security Agreement ☐ Change of Name ☐ Other Execution Date: <u>October 11, 2001</u>			Street Address: 200 N Sepulveda Blvd P O Box 956 El Segundo, California 90245 Additional name(s) & address(es) attached? ☐ yes ☒ no					
4 Application number(s) or patent number(s): PD-201160A If this document is being filed together with a new application the execution date of the application is: October 11 2001 <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> A Patent Application No (s) </td> <td style="width: 50%; vertical-align: top;"> B Patent No (s) <u>60/007969</u> </td> </tr> </table> Additional numbers attached? ☐ yes ☒ no						A Patent Application No (s)	B Patent No (s) <u>60/007969</u>	
A Patent Application No (s)	B Patent No (s) <u>60/007969</u>							
5 Name and address of party to whom correspondence concerning document should be mailed Name: HUGHES ELECTRONICS CORPORATION Internal Address: Bldg. 001 M/S A109 PO Box 956 200 N Sepulveda Blvd. El Segundo CA 90245-0956			6 Total number of applications and patents involved [1] 7 Total fee (37 CFR 3.41) <u>\$40.00</u> ☐ Enclosed ☒ Authorized to be charged to deposit account 8. Deposit account number <u>50-0383</u> (Attached duplicate copy of this page if paying by deposit account)					
DO NOT USE THIS SPACE								
9 Statement and signature To the best of my knowledge and belief the foregoing information is true and correct and any attached copy is a true copy of the original document <table style="width: 100%;"> <tr> <td style="width: 40%;"> MICHAEL W. SALES Name of Person Signing REG NO 30,213 </td> <td style="width: 30%; text-align: center;">  Signature </td> <td style="width: 30%; text-align: right;"> November <u>7</u>, 2001 Date </td> </tr> </table> Total number of pages including cover sheet, attachments, and documents. [3]						MICHAEL W. SALES Name of Person Signing REG NO 30,213	 Signature	November <u>7</u> , 2001 Date
MICHAEL W. SALES Name of Person Signing REG NO 30,213	 Signature	November <u>7</u> , 2001 Date						

OMB No 0861-0027 (exp 6/31/2002)

PATENT
REEL 012363 FRAME 0367

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HUGHES

ASSIGNMENT

Page 1 of 2
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WHEREAS I as below named sole inventor (if only one name is listed below) or joint inventor (if plural names are listed below) of the city and state as stated below next to my name have invented a(n) **METHOD FOR REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO A DSS BITSTREAM IN THE PRESENCE OF ONE OR MORE SERVICE CHANNELS** for which application for Letters Patent of the United States has been executed by me on this day or (if the following is completed) filed on _____ as Serial No _____, and which application claims benefit of U.S. provisional application with Serial No 60/308,160 (PD-201160) filed on July 28, 2001, entitled **ON THE REAL-TIME INSERTION OF AUXILIARY DATA PACKETS INTO A DSS BITSTREAM IN THE PRESENCE OF MULTIPLE SERVICE CHANNELS**

WHEREAS **HUGHES ELECTRONICS CORPORATION** (hereinafter referred to as **HUGHES**) a Delaware Corporation having its principal place of business in El Segundo California is desirous of acquiring the entire and exclusive right, title and interest in to and under said invention said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world

NOW THEREFORE in consideration of the obligations voluntarily assumed by me and set forth in an invention agreement between me and my employer effective the date as stated below next to my name and other good and valuable consideration receipt of which is hereby acknowledged I do hereby sell assign and transfer to **HUGHES** its successors assigns or other legal representatives the entire and exclusive right, title and interest in and to said invention invented by me to said application and any and all applications which are continuations, continuations-in-part, divisions or substitutes of said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world on any of said applications and to any and all reexaminations reissues renewals or extensions of said Letters Patent in the United States and throughout the world for the full term or terms for which said Letters patent may be granted in the United States and throughout the world authorize and request The Commissioner of Patents and Trademarks of the United States and all foreign countries to issue all such Letters Patent to said **HUGHES** its successors, assigns or other legal representatives, covenant that no assignment, sale agreement, transfer or encumbrance has been or will be made or entered into which would conflict with this assignment sale and transfer and agree to communicate to **HUGHES** its successors assigns or other legal representatives upon request and at no cost or expense to me any facts known by me respecting said invention do all lawful acts, including the execution and delivery of all papers and proper oaths and giving of testimony that is deemed necessary or desirable by **HUGHES** its successors assigns or other legal representatives with regard to said invention for protecting obtaining maintaining and enforcing any and all of said Letters Patent in the United States and throughout the world for said invention and for perfecting affirming recording and maintaining the title of **HUGHES** its successors, assigns or other legal representatives and generally cooperate to the fullest extent in all matters pertaining to said invention and any and all of said Letters Patent and the title thereto in **HUGHES**, its successors, assigns or other legal representatives.

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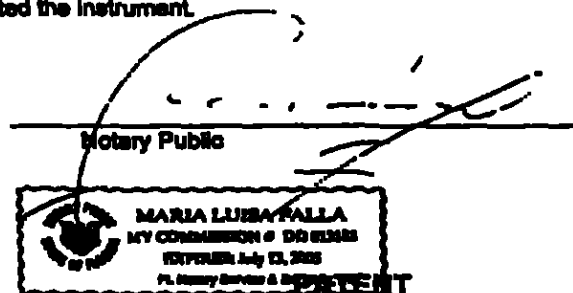
IN WITNESS WHEREOF I have executed this instrument.

FULL NAME OF SOLE OR JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
STEVEN M SOLOFF	St S	10/11/201
RESIDENCE (CITY AND STATE)		INVENTION AGREEMENT DATE
5715 NW 47 LANE, TAMARAC, FLORDIA 33319		JUNE 7, 1999
FULL NAME OF SOLE OR JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE)	INVENTION AGREEMENT DATE	
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RESIDENCE (CITY AND STATE)	INVENTION AGREEMENT DATE	

STATE OF FLORIDA)
COUNTY OF BROWARD) SS
On THIS 11TH DAY OF October, 2001 before me MARIA LUISA FALLA —
a Notary Public in and for said State, personally appeared
STEVEN M. SOLOFF

☒ personally known to me or ☐ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal



REEL 012363 FRAME 0359

APOSTILLA

(Convención de la Haya del 5 de Octubre de 1961)

1 País Estados Unidos de America

Este documento público

2 Ha sido firmado por M Tarver

3 Actuando en su capacidad de Oficial Certificador

4 Coloca el sello/estampilla de Oficina de Patentes y Marcas

CERTIFICADO

5 En Washintong, D C

6 El dieciocho de Julio, 2002

7 Por Oficial Asistente de Autenticación, Departamento de Estado de Estados Unidos

8 No 02020879 2

9 Sello/estampilla 10 Firma

Sello

Sonya N Johnson

LOS ESTADOS UNIDOS DE AMERICA
A TODOS A QUIENES ESTE DOCUMENTO PUEDA IMPORTAR
DEPARTAMENTO DE COMERCIO DE ESTADOS UNIDOS

Oficina de Patentes y Marcas de los Estados Unidos

Julio 08,2002

LO SIGUIENTE ES PARA CERTIFICAR QUE LO ANEXADO ES UNA COPIA
VERDADERA DE LOS ARCHIVOS DE ESTA OFICINA DE UN DOCUMENTO
INSCRITO EN
NOVIEMBRE 7,2001

Por la Autoridad del
COMISION DE PATENTES Y MARCAS
M TARVER
Oficial Certificador

1° EXAMEN DE FORMA, PATENTE DE INVENCION

Radicación N° **02-64854**

~~Folio 84~~

Concepto Técnico N° **683**

Clasificación Internacional de Patentes

H04L 12/00, H04N 7/81

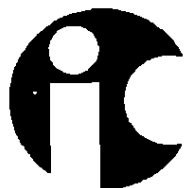
Practicado el examen de acuerdo a lo establecido en el Art 38 de la Decisión 486, se determinó que esta solicitud de **Patente**

- SI ☒ NO ☐ Contiene un resumen de la invención (Art 26-e)
- SI ☒ NO ☐ Contiene el título o nombre de la invención (Art 27-d)
- SI ☒ NO ☐ Contiene la descripción de la invención (Art 26-b)
- SI ☒ NO ☐ NO ES APLICABLE ☐ Contiene los dibujos necesarios para comprender la invención (Art 26-d)
- SI ☒ NO ☐ Contiene una o más reivindicaciones (Art 26-c)
- SI ☐ NO ☐ NO ES APLICABLE ☒ Han sido desarrollados los productos a partir de recursos genéticos o de sus productos derivados de los que cualquiera de los Países Miembros es país de origen (Art 26-h)
- SI ☐ NO ☐ NO ES APLICABLE ☒ Los productos y o procedimientos han sido obtenidos o desarrollados a partir a partir de los conocimientos tradicionales de las comunidades indígenas, afro americanas, o locales de los Países Miembros, de acuerdo a lo establecido en la Decisión 391 y sus modificaciones y reglamentaciones vigentes (Art 26-i)
- SI ☐ NO ☒ La invención se refiere a un producto relativo a un material biológico (Art 26-j)
- SI ☒ NO ☐ NO ES APLICABLE ☐ La prioridad coincide con la materia reivindicada
- SI ☒ NO ☐ **CUMPLE LOS REQUISITOS TÉCNICOS**

OBSERVACIONES Y OTROS SI ☐ NO ☐ Ver hoja(s) anexa(s)

EXAMINADOR TÉCNICO 202051

Bogotá D C, mayo 2 de 2003



Folio 85

2020
Bogotá DC

Doctor(a)
JERONIMO CASTILLO BONILLA
Apoderado(a)

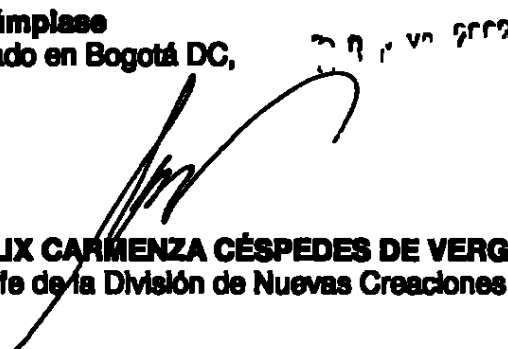
REFERENCIA.	Radicación No	02-84854
	Trámite	002
	Evento	001
	Actuación	416
	Oficio No	697
	Folios	001

Teniendo en cuenta que la solicitud de privilegio de patente que se tramita bajo el expediente indicado en la referencia, reúne los requisitos de forma establecidos en los artículos 26 y 27 de la Decisión 486 de la Comisión de la Comunidad Andina, y en las demás disposiciones vigentes sobre la materia, se envía el extracto de la solicitud a la Oficina de Comunicaciones para efecto de su publicación en la Gaceta de Propiedad Industrial, conforme lo establece el artículo 40 de la misma Decisión

De acuerdo con lo previsto por el artículo 40 de la Decisión 486, en concordancia con el artículo 85 de la misma Decisión, la publicación se hará a partir del día 26 de julio de 2003.

Cúmplase

Dado en Bogotá DC,


ALIX CARRIENZA CÉSPEDES DE VERGEL
Jefe de la División de Nuevas Creaciones

202051