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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63) <input checked="" type="checkbox"/> Declaration Submitted with Initial Filing OR <input type="checkbox"/> Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)	Attorney Docket Number	9226
	First Named Inventor	Gurantz
	COMPLETE IF KNOWN	
	Application Number	10/289,011
	Filing Date	11/06/2002
	Art Unit	2641
	Examiner Name	

As the below named inventor, I hereby declare that:

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

I believe I am the original and first inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Signal Selector and Combiner for Broadband Content Distribution

(Title of the Invention)

the specification of which

☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY)

11/06/2002

as United States Application Number or PCT International

Application Number

10/289,011

and was amended on (MM/DD/YYYY)

(if applicable).

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

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
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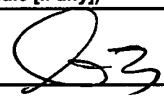
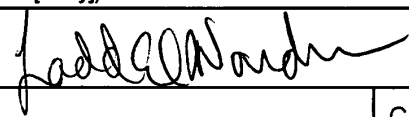
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[Page 1 of 2]

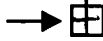
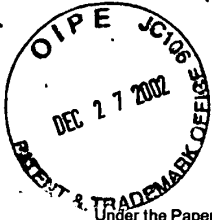
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DECLARATION — Utility or Design Patent Application

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I hereby declare that all statements 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 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.					
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[Page 2 of 2]



PTO/SB/02A (10-00)
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DECLARATION	ADDITIONAL INVENTOR(S) Supplemental Sheet Page <u>1</u> of <u>1</u>
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Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
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Signal Selector and Combiner for Broadband Content Distribution

Inventors: Michael Landry, Itzhak Gurantz, Ladd El Wardani

Docket: 9250

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RELATED APPLICATIONS

This application is a continuation of application serial number 10/289,011 filed 11/6/2002, with a projected issue date of 10/31/2006 as U.S. patent 7,130,576, which claims priority to U.S. provisional patent application No. 60/345,965 filed 11/07/2001 entitled "Signal Selector and Combiner for Broadband Content Distribution"; U.S. provisional patent application No. 60/333,722 filed 11/27/2001 entitled "Signal Selector and Combiner for Broadband Content Distribution"; and U.S. provisional patent application No. 60/358,817 filed 2/22/2002 entitled "Signal Selector and Combiner for Broadband Content Distribution", each of which is incorporated herein by reference.

BACKGROUND

Referring to Fig. 1, a satellite receiver outdoor unit (ODU) 110 typically comprises a dish antenna 150, one or more antenna feed horns 130, one or more low noise amplifier and block down converters (LNB) 140, and an optional multiport cross point switch 160. Dish 150 collects and focuses received signal power onto antenna feed horns 130 which couples the signal to LNBs 140. A single dish 150 may have multiple feed horns 130 wherein each feed receives a signal from a different satellite in orbit. An installation may have more than one dish, feed, and LNB assemblies. The cross point switch 160 allows connection of the outdoor unit 110 to more than one integrated receiver decoder (IRD) 180 located inside the building. IRDs are commonly called set top boxes (STBs) arising from their typical installed location on top of TV sets. The LNB 140 converts the signal transmitted by a satellite in Earth orbit, for example C band, Ku band, or another frequency band, to a lower intermediate frequency (IF) suitable for transmission through coax inside a building. For example, L band IF (950 to 1450 MHZ) with RG-6 or RG-11 coax cable is commonly used. The IRD 180 tunes one transponder channel, demodulates the

Docket: 9250

-1-

IF signal from the LNB down to base band, provides channel selection, conditional access, decodes the digital data to produce a video signal, and generates an RF output to drive a television.

- 5 A satellite outdoor unit may have as many as three or more LNBs each with two receiving polarizations. The received polarization is selected by sending a voltage or other control signal to the LNB. In this configuration there are six possible 500 MHz signals that may be selected by the multiport cross point switch to be routed to each IRD. The 500 MHz signal is typically comprised of 16 transponder signals of 24 MHz bandwidth each with a guard band in between
10 each transponder signal. Other transponder bandwidths are used such as 36 MHz, 54 MHz with a single channel or shared by two TV signals, and 43 MHz.

A problem with the conventional approach to connecting an outdoor unit to IRDs is that multiple cables are required to be run from the outdoor unit: one cable for each room where an IRD is
15 located. When a new IRD is added another cable must be installed. In an application using a media server, a central processor for all video signals, multiple cables are needed to route signals from the ODU to the server.

Figure 4 shows a representative spectrum of the signal output by an LNB. In a conventional
20 satellite ODU this signal is routed through a cross point switch to one of the IRDs. Note that all transponder channels in the signal are from a single LNB and from the same polarization satellite signal. The cross point switch allows any of the cables connected from the ODU to the IRDs to be switched to any of the LNBs. A dedicated cable for each IRD is needed because in general each IRD is not using the same LNB and polarization at the same time. A server requires access
25 to several LNB signals simultaneously, thus requiring several cables.

United States patent 6,134,419, incorporated herein by reference, by Williams assigned to Hughes Electronics, addresses part of the problem. The Williams patent recognizes that the bandwidth of the signal from each of the two polarizations is too broad to be transmitted over
30 standard RG-6 or RG-59 cable, particularly when combined with the cable CATV signal. Williams addresses this problem using a transmodulator, by demodulating and remodulating to a

different modulation scheme the RHCP and LHCP signals using a tuner, decoder, packetizer, cable encoder, and up converter for each of 32 transponder channels. The transmodulator outputs a signal with a higher-level modulation scheme to reduce the bandwidth occupied by the satellite signals. In the example provided, the QPSK signals from the LNBs are transmodulated to 128-QAM, reducing the bandwidth from 1000 MHz to 192 MHz. At the set top box (STB) the 128 QAM signal is demodulated and processed to produce an NTSC analog video signal sent to a television set.

- One problem with the Williams approach is the circuit complexity due to the 32 tuner paths required in the transmodulator. For an increase in the number of satellite signals, this problem becomes more pronounced. Williams discloses modulation using 128-QAM, which requires a higher signal to noise ratio (SNR) than QPSK and is it more susceptible to impairment from multipath present in a cable environment.
- United States patent 5,959,592 incorporated herein by reference, by Petruzzelli addresses combining both the left hand circular polarized (LHCP) and right hand circular polarized (RHCP) signals into one signal that is transmitted from the ODU. In the disclosed band stacking approach, the output of two low noise amplifiers (LNAs), each 500 MHz wide, are frequency translated to different IF frequencies and summed into a signal with a bandwidth of more than 1000 MHz. In one example disclosed, the different IF bands are 950 to 1450 MHz and 1550 to 2050 MHz. The problem with this approach is that the resulting bandwidth is very wide and becomes impractical when the number of LNB signals increases because each LNB output requires 500 MHz of bandwidth on the cable.
- Satellite systems are described generally in G.E. Lewis, "Communication Services via Satellite" Butterworth-Heinemann Ltd. 1992.

SUMMARY OF THE INVENTION

- A channel selecting and combining solution is used in the outdoor unit where one or more transponder channels are selected from each LNB output. The transponder channel or channels

needed from each LNB are selected by a filter. Each selected transponder signal may be translated to a new channel frequency. The selected transponder channels are combined to form a composite signal. All of the selected, translated, and combined transponder channels are transmitted over a single cable to a gateway unit that extracts the channels to distribute to the IRDs. The gateway can frequency translate each transponder channel to its original frequency. Alternatively, the IRDs connect directly from the cable or through a splitter and tune the desired transponder channels. A channel translation mapping table is used to coordinate the channel assignment between the original channels and new channels. In another alternative embodiment, the gateway transmits the video information over a digital data network.

10

LNB outputs can be sampled by a broadband A/D converter and filtered with a digital filter to select a transponder channel. Alternatively, a tuner can select a transponder channel. The selecting process extracts from the wide band LNB output a narrow band transponder channel.

15 Each IRD communicates the channels it needs to receive, directly or indirectly, to the signal selector. This information is used to select the transponder channel to combine in the signal selector output signal, the ODU downlink. New IRD designs can incorporate a signaling channel that uses unoccupied regions of the frequency spectrum of the cable, or a wireless communication link, to communicate the channel information. To provide compatibility with existing IRDs, the channel information can be communicated by an IR or RF auxiliary channel to the gateway or outdoor unit.

25 Many newer homes have coaxial cable installed that runs to a central location. In the present invention a gateway is located at the central location that receives the combined signal from the outdoor unit and distributes the signals to the IRDs. An IRD requests a channel through an IR or RF signal communicated to the gateway. The RF communication can be in the cable connecting the IRD to the gateway or a wired or wireless signal.

30 The present invention requires only one cable wire to be routed from the outdoor unit to inside the building or to a gateway. Additional IRDs can be added without any installation effort

needed on the outdoor unit. In certain configurations the invention eliminates the cross point switch.

The present invention can be used along with other signals transmitted on the distribution cable.

- 5 The combined transponder signal can occupy a predetermined region of the frequency spectrum while another service, such as CATV can occupy a different region. Another example of shared use of the cable is along with a single or band stacked satellite signal. In this example, frequencies such as 950-1450 and 1550-2050 are used by a conventional satellite system, and frequencies outside and between these frequency bands are occupied with a combined
- 10 transponder signal according to the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 Shows a prior art configuration of a satellite TV installation.

- 15 Fig. 2 shows a satellite TV installation according to the present invention.

Fig. 3 shows a block diagram of a selector and combiner according to the present invention.

Fig. 4 Shows a diagram of the frequency spectrum of individual LNB output signals according to the prior art.

- Fig. 5 shows a diagram of the frequency spectrum of individual LNB output signals and the
- 20 frequency spectrum of the composite RF signal comprising selected transponder signals in accordance with the present invention.

Fig. 6 shows an embodiment of the present invention wherein the sampled data is distributed digitally to channel selector filters.

- Fig. 7 shows an embodiment of the present invention wherein the selected channel data is
- 25 distributed digitally to the up converters.

Fig. 8 shows an embodiment of the present invention wherein the each LNB has a dedicated selector and up converter.

Fig. 9 shows an embodiment of the present invention wherein tuners and up converter are used to select and combine transponder channels.

- 30 Fig. 10 shows an embodiment wherein selected channel are processed by an MPEG transport stream demultiplexer and combined as data packets for digital LAN transmission.

- Fig. 11 shows a satellite TV installation according to the present invention providing compatibility with existing installed STBs and new STBs and using a server/gateway.
- Fig. 12 shows details of an outdoor unit providing compatibility with new and existing STBs.
- Fig. 13 shows the frequency spectrum of signals at various points in the signal processing.
- 5 Fig. 14 shows the frequency spectrum of signals in another embodiment of the invention using base band processing.
- Fig. 15 shows the frequency spectrum of signals filtered and combined with excess bandwidth.
- Fig. 16 shows the frequency spectrum of conventional LNB signals combined with selected transponder channels in accordance with the present invention.
- 10 Fig. 17 shows one example of a frequency translator and filter.

DETAILED DESCRIPTION OF THE INVENTION

Referring to Fig. 2, a satellite TV installation according to the present invention is shown. Signal
15 selector 250, part of satellite outdoor unit 210, extracts the needed transponder channels from each of the LNB outputs and combines the channels into one composite signal transmitted on cable 220. Gateway 230 receives the signals and provides distribution to the IRDs located in the building. Controller 255 is responsible for communicating channel map, control, and status information with gateway 230 and IRDs 240. Controller 255 also tunes filters and local
20 oscillators in the signal selector and maintains the channel map specifying the assigned frequency slots for transponder channels. Alternatively, the channel map can be maintained by gateway 230.

Gateway 230 can be a simple power splitter/summer allowing the IRDs to connect directly to the
25 cable. Gateway 230 would be located inside the home in a convenient location that allows connection to the IRDs 240. Gateway 230 is designed to pass signaling from IRDs 240 to ODU 210 that contains the channel selection information.

Each LNB output signal is applied to a signal selector that extracts zero, one, or more
30 transponder channels to be combined into a composite signal.

Refer to Fig. 3. In an embodiment of the present invention, a quadrature down converter is used to produce I and Q analog signals. The down converter is comprised of a local oscillator 382, phase splitter 384 to produce an in-phase and quadrature-phase LO, two mixers 310, and two filters 320. The filters 320 reject the undesired mixing products. The I and Q signals are
5 sampled by high-speed broadband A/D converters 330 to create I and Q digital samples. The samples are N bits wide, where N is selected to limit the degradation to the signal to an acceptable level. The entire 500 MHz band is digitized by this operation. All further digital processing is done using complex operations applied to the I and Q digital samples. The sample rate is 500 MHz or higher.

10

The resolution of the A/D converters is in the range of 4 to 12 bits. To sample and reproduce a QPSK signal 6 to 8 bits would be adequate. More bandwidth efficient modulation such as 8PSK would require more bits of resolution. The selection of resolution is based on considering power consumption, SNR, and cost.

15

A coherent LO generated by carrier tracking is not needed since the sampled data is not decoded in the ODU. An unknown carrier offset is present between the LO and the carrier of the received signal. A small additional carrier offset is introduced by the down conversion process but will be removed in the carrier recovery operation in the IRD. It is desirable that the LO carrier noise be
20 low enough to be tracked out by the carrier loop in the IRD.

Digital filtering 340 is used to select one or more of the transponder output signals. The digital filter may operate by applying a band pass filter transfer function to the broadband signal to isolate a single transponder channel. The filter uses known digital architectures such as finite
25 impulse response (FIR) or infinite impulse response (IIR). The filter is tuned by programming a set of filter coefficients to select a specific pass band. Frequency domain filter can also be employed using FFT or DFT architectures. Other filtering techniques include polyphase filter structure. These filtering techniques are well known in the digital signal processing field.

References covering digital filtering include Thomas J. Cavicchi "Digital Signal Processing"

30 John Wiley & Sons, 2000; Sanjit K. Mitra, "Digital Signal processing, a Computer Based

Approach” McGraw-Hill, 2001; Proakis and Manolakis, “Introduction to Digital Signal Processing”, Macmillan Publishing, 1988; DSP and applications, Analog Devices.

Referring again to Fig. 3, the selected transponder channel is then frequency translated to a new carrier frequency. The selected and frequency translated digital signal is converted to an analog signal using a D/A converter for the I and Q components. One approach is to convert the digitally filtered signal to the analog domain using a D/A converter 350, then using a quadrature modulator with mixers 360, phase splitter 388, LO 386, and summer 380. Alternatively, this can be done by a digital mixing operation where a rotating phasor is multiplied by the data samples to translate their frequency, then converting the frequency shifted digital signal to an analog signal with a D/A.

LO 386 is variable to allow the selected channel to be frequency translated to any of the channels available in the band. Alternatively, the LO can be fixed at different a frequency for each of the channel selectors.

Alternatively, a single transponder channel can be selected by translating the spectrum down in frequency to place the selected channel at base band then applying a low pass filter transfer function to isolate a single channel. The translation can be done by a digital mixing operation wherein the sample data is multiplied by a data sequence representing a carrier frequency. A post-mixing filter rejects the undesired mixing terms.

Fig. 14 shows the frequency spectrum of the signal as it is processed. The original spectrum 1 is frequency translated to locate the selected transponder channel at base band, as shown in spectrum 2. A low pass filter then passes one transponder channel and removes signal information from the other transponder channels, shown in spectrum 3. This signal is then converted to an analog signal, mixed to a new frequency, and summed with other channels in the analog domain.

One summer input is provided for each signal selectors. This is a broadband signal comprising up to 16 or 32 channels. Alternatively, a summer combines the analog I and Q signals from all the signal selectors.

- 5 Two basic approaches to combining are possible. One approach is to combine digitally filtered signals in the digital domain. This can be achieved with all filtered transponder channels to be combined presented at a sample rate equal to the composite output rate. The other approach is to combine the selected signals in the analog domain. This leads to two possible approaches to filtering. One is to implement filters with the same input and output sample rate. The other
- 10 approach is to filter with an output sample rate that differs from the input sample rate.

An example of a digital combining embodiment, a 500 msp/s broadband sampling of the LNB output could be filtered to produce a 500 msp/s output stream representing one or more transponder channels. Each transponder channel may be frequency translated to the desired new

15 carrier frequency, then filtered to produce a single transponder signal that can be combined with other similarly selected transponder channels.

Fig. 13 shows the frequency spectrum of a sample stream as it is processed. The original spectrum 1 is frequency translated to locate the selected transponder channel at the desired

20 frequency, as shown in spectrum 2. A band pass filter then passes one transponder channel and removes signal information from the other transponders channels, shown in spectrum 3. This filtering operation selects one transponder. In this example transponder channel B is selected. The sample stream for the selected channel is added to the sample stream from other filtering sections, represented in spectrum 4, to produce a composite sample stream in spectrum 5. Other

25 selected channels are represented by channels labeled X.

Fig. 17 shows a block diagram of the processing elements to perform these steps. Local oscillator (LO) 1710 feeds mixer 1720 and is then band pass filtered by filter. LO is variable to allow the selected channel to be frequency translated to any of the channels available in the band.

30 Filter 1730 has a programmable pass band frequency, tuned by loading different filter coefficients. Summer 1740 adds the sample stream to other sample streams. Several

transponder channels are selected, each requiring one input to an adder. One embodiment uses a two input adder for each filter channel to implement a pipeline adder. The time delay introduced by a pipeline adder does not present a problem to the system because the receivers are each demodulating one transponder and the relative time delay is not apparent.

5

The frequency translation can occur either before or after the filtering operation. An advantage to translating first followed by filtering is that the filter removes the unwanted mixing terms generated. In either case, a rotating phasor is multiplied by the data samples to translate their frequency.

10

An example of an analog-combining embodiment, the digital filters may have an output sample rate that differs from the input sample rate. This can be inherent in the filtering operation or result from a down sampling done after filtering. Down sampling after the selecting filter is possible because the single channel the bandwidth is narrower than the A/D output and fewer samples are needed to represent the signal.

15

The spectrum is placed at the desired RF frequency by choosing the LO frequency driving the up converters. One example would be 950 to 1450 MHz, a standard IF frequency for DBS systems. This frequency band is compatible with standard set top box (STB) hardware. Other IF frequencies could be used. Using this technique, standard STB hardware can receive the new composite signal and demodulate and decode the video and audio signals. Specific TV channels are located at new transponder frequencies. A mapping table allows the IRD/STB to tune to the correct transponder channel. The bandwidth of the spectrum can be 500 MHz for a 16-transponder system, 1000 MHz for a 32-transponder system, or other bandwidths according to the number of transponder channels present on the cable. If the system uses band stacking, the A/D converter can directly sample the 1000 MHz IF signal, with or without a frequency translation, or the two LNB polarizations can be separated into two 500 MHz signals each digitized with separate A/D converters.

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Alternatively, the IF signal from the LNB can be directly band pass sampled by a single A/D converter. The IF signal can be frequency translated to a different IF frequency before band pass

sampling. Band pass sampling requires a higher speed A/D converter than base band sampling, but only a single A/D.

One pair of A/D converters is provided for each LNB output. Alternatively, the LNB output can
5 be band pass sampled using a single A/D converter. At a given point in time some LNB outputs may not be accessed by a user. If no transponder channel is selected from a particular LNB output, the A/D converters associated with that LNB output may be switched off to reduce power consumption and heat generation, or reallocated to process another LNB output.

10 The A/D digitizes the entire LNB output signal; therefore all transponder channels are available in the sampled data. More than one transponder channel may be selected from the A/D data to be combined in the composite signal. When all A/D are powered up any combination of transponder channels from any LNB output can be combined into the composite signal for distribution to the gateway and STBs.

15 Fig. 5 shows a frequency spectrum of the composite signal. Each of the available channels can be occupied with any transponder channel of any polarization from any LNB. One or more channels are used by each active IRD connected to the system. The number of transponder channels in the composite signal can be from as few as 2 to as many as 32, depending on the
20 number of simultaneous channels needed in the system.

In general, the selecting and combining process will result in transponder channels located at different frequencies than where originally found. A translation table maps original channel locations on the selector input to new channel locations on the selector output. This map created
25 and maintained by a controller located in the ODU or the gateway and is communicated to the IRDs or other devices in the network.

The channel selector performs a frequency selective filtering operation to select the desired transponder frequency. The transition band of this filter is steep, passing the selected
30 transponder channel and rejecting adjacent transponder channels. The transition region available is derived from the guard band between channels. This can be as small a few Mega-Hertz. If the

LNB carrier offset is large, a shift in the spectrum will result in the selecting filter cutting off part of the desired spectrum and passing part of an adjacent channel. For this reason a carrier offset estimate is desirable. Since all transponder channels from a given LNB will have approximately the same offset, it is only necessary to monitor one transponder channel from each LNB to
5 determine the offset for all channels. Any of several know techniques for estimating the carrier offset may be employed. One example is two use two filters each approximately half the transponder bandwidth. By measuring the ratio of power from each filter output, an estimate of the carrier offset can be determined. Once the carrier offset is estimated, the sampled signal can be multiplied by a rotating phasor value to digitally shift the spectrum back to the nominal
10 position. Alternatively, this frequency offset correction can be done in the analog domain, or a combination of digital and analog approaches.

Another approach to addressing the unknown carrier offset in the LNB is to use a wider filter to select transponder channels, wherein the bandwidth of the filter passes the selected transponder
15 and part of the adjacent spectrum. In this way, if the transponder signal is not centered in the filter bandwidth the band edges will not be attenuated by the filter roll off. This excess bandwidth will allow some energy from the neighboring transponder signals. A wider channel separation is needed on the combined signal, for example the selected transponders can be spaced twice the conventional spacing. This approach makes less efficient use of the cable
20 spectrum but simplifies the hardware implementation by reducing the requirement of or eliminating the carrier offset correction. Additionally, a less steep filter roll off is possible.

Fig. 15 shows the signal spectrum as it is processed. Spectrum 1 is a representative original spectrum. Spectrum 2 shows the filter pass band characteristic, which is wider than one
25 transponder channel. Spectrum 3 is the result of filtering one transponder channel. Spectrum 4 is a composite of several transponder channels. A region between the selected channels is unused. The exact shape of the unused spectrum will be dependent on the filter roll-off characteristics, but is not significant. The objective is to pass the selected transponder signal without distortion.

30

The approach of using a filter with excess bandwidth technique is also useful for implementing the invention using an analog approach. A filter with a stop band substantially wider than the transponder channel allow using filters with more gradual transition band, and is therefore simpler to implement. The excess bandwidth can range from less than 5% to 100% wider than
5 the transponder bandwidth.

Fig. 6 shows a variation of the present invention that uses a cross point switch or shared bus 640 to distribute data from the A/Ds to the channel selecting filters. The cross point switch, also called crossbar switch, allows any signal input to be passed to any output. It can take the form of
10 a data selector or multiplexer. Implemented as a shared bus, data sinks receive signals from data source using a time-multiplexed bus. Either a cross point switch or a shared bus can be unidirectional or bi-directional. The cross point principle applies to digital signals and analog signals. LNB outputs are quadrature down converted 620 and sampled by dual A/D converters 630. The parallel data is routed through cross point switch 640 so that any filter has access to
15 any A/D data. Filter/selector 650 selects the desired transponder channel that is then up converted by quadrature modulator 660. All selected channels are combined in summer 670.

Fig. 7 shows a variation where the cross point switch 740 is located after the selecting filter 720. In this configuration the selecting filter 720 may also include a down sampler to reduce the bus
20 traffic bandwidth in the cross point switch 740. Down sampling is possible because after selecting a single desired channel the bandwidth is narrower and fewer samples are needed to represent the signal. One or more selecting filters 720 may be connected to the output of each A/D, each filter 720 selecting one transponder channel.

25 Fig. 8 shows a configuration wherein each LNB has a dedicated selecting filter and up converter. The selecting filter may digitally select multiple channels from the broadband A/D data to drive the up converter and DAC.

Fig. 9 shows another alternative where analog tuners 930 select desired transponder channels that
30 are up converted by up converter 940. All signals are combined by summer 950 to drive the signal cable 970 from the ODU. A multiport switch 920 allows any tuner to connect to any LNB

output. The number of signal selecting paths comprising tuner 930 and up converter 940 is selected based on the maximum number of simultaneous users. A multiple-tuner personal video recorder would use more than one signal. Controller 960 receives channel select information either from the cable or a separate data channel such as infrared (IR) or wireless RF link or other
5 source. Channel select information from the controller 960 programs the tuner 930 and up converter 940 LO. Channel select information can come to the controller over a wireless remote control signal or using signaling sent over the cable.

Up converters 940 can operate at a fixed LO frequency with one up converter 940 being assigned
10 to each user connected on the cable. The various LO frequencies are unique. Alternatively, the down conversion process of each tuner 930 can be set to down convert directly to a predetermined IF frequency which is unique for each selected signal, thereby eliminating a separate up converter. A simplified IRD can be used with this approach wherein the IRD needs only tune to a single selectable IF frequency. The tuning range is narrower than a convention
15 500 MHz tuner and the channel selection is limited to as few as four choices compared to up to 16 or more in a convention IRD tuner.

Fig. 10 shows another alternative where signal selector 1010 selects a transponder channel. MPEG transport stream demultiplexer 1020 extracts a specific video program that is combined
20 by data combiner 1030. Several MPEG streams are multiplexed as needed, and packets are formatted for transmission on a digital network. A digital LAN 1040 connects directly to the ODU. Channel information is communicated to the ODU through the LAN.

Fig. 11 shows another alternative used where new STBs are used with existing STBs. ODU
25 1110 supplies a signal to each of the connected cables according to the type of STB attached to the cable. Existing legacy STBs 1120 are supplied with an IF signal as in a conventional system, and the STBs 1120 will tune to a single transponder channel. New STBs 1140 will be supplied with a composite signal according to the present invention comprising all the transponder channels that are selected; the new STB 1140 will tune and decode the requested channel.
30

A new STB 1140 can be installed in place of an existing STB 1130 by simply connecting the new STB 1140 to the cable in place of the existing STB 1130. More than one new STB 1140 can be installed by using a signal splitter 1150 to provide a signal to multiple STBs. New STBs use a signaling system for selecting transponder channels that passes through the splitter to the ODU. Existing STBs will each have a dedicated connection to the ODU, as provided in the original installation. This is required because existing STBs use voltages or other control means to select LNB outputs that do not support multiple STBs on a single cable.

Also in Fig. 11, server/gateway 1160 receives the composite transponder signal, decodes specific programs, and distributes the program information in packetized MPEG over a digital local area network (LAN) 1170 to STBs 1180. Ethernet or other LAN technology is suitable for this function.

A new STB operating in accordance with the present invention is provided with a means of communication with the signal selector and combiner in the ODU. At power up or at periodic intervals the ODU or the STB initiates communication over the attached cable. This communication can be an in band or out of band signal. The ODU polls the STBs connected to determine if the STB is a conventional STB or new design STB. Because conventional STBs will not respond to the polling request, the absence of response is an indication of a conventional STB. A new STB will respond to the polling request and establish communication with the ODU.

The means of communication on the cable can be a TDMA frame structure with slots assigned to each STB, a frequency division multiplex (FDM) approach with unique frequencies assigned to each STB, or any other known technique for two-way communication by multiple devices over a signal channel. An extension of DiSEqC protocol commonly used for satellite dish control can be used for this communication. DiSEqC uses a gated 22 kHz carrier to communicate binary data and can be adapted for use to transfer data needed. The data rates are low for this communication path. Device configuration, channel mapping, and channel requests are among the types of data communicated between the ODU and STB.

Referring to Fig. 12, signal selector and combiner 1220 taps the signals output from each LNB to provide the transponder selection function. Switch 1220 is under control of the signal selector and combiner 1210. Switch 1220 will be actuated to supply either a conventional signal from multiport switch 1260 or the composite transponder signal from signal selector and combiner
5 1210. Switch 1220 can be a solid-state device or electro-mechanical relay.

Referring to Fig. 16, another application of the present invention is to provide selected transponder signals along with other services transmitted on the same cable wiring. The selected transponder signals can be transmitted in unoccupied regions of the cable, such as above, below,
10 or between broadband satellite signals. The number of transponder channels transmitted can be adapted to the available spectrum. In one example, 950 MHz to 1450 MHz is used by one conventional LNB output signal; 1550 MHz to 2050 MHz is used by another conventional LNB output, leaving 1450 MHz to 1550 MHz available. One or more selected transponder channels from any LNB can be inserted into this region. Suitable guard bands need to be provided to
15 prevent interference, for example 3 transponder channels at 31.25 MHz spacing uses 93.75 MHz. Another example of this application is to combine a standard CATV signal occupying 50 to 750 MHz with selected satellite transponder channels that are combined and transmitted at frequencies above the CATV band.

20 Using the present invention, any number of transponder channels can be selected and combined. Conventional IRD tuners are designed to tune channels anywhere in a 500 MHz or 1000 MHz range, requiring a wide tuning range for the front-end filter and LO. In an application where few channels are needed, the tuner range can be narrower, thus simplifying the design and lower cost. For example, a residential installation may typically have four television sets, some tuning only
25 one channel at a time; others tune two channels in the case of picture in picture (PIP) or personal video recorder (PVR). This application would require 4 to 8 channels be distributed in the house simultaneously. A tuner would be required to tune over a 125 MHz to 250 MHz range.

Several variations in architecture are possible using the present invention. At each stage in the
30 signal path, alternatives are available for implementation. Specific functions can be implemented in the analog domain or digital domain. Dedicated resources can be provided for

each possible connection, or a pool of resources can be used. Dedicated resources insure that the peak demand can be satisfied unconditionally, but leads to unused capacity. Pooling enables a trunking efficiency to be realized and exploits statistical properties of usage to address most requirements.

5

A pool of A/D converters that can accept a signal from any LNB output through an RF crossbar switch. The number of simultaneous LNB signals that can be processed is limited to the number of A/D converters provided. Alternatively, dedicated A/D converters, one connected to each LNB output allows all LNBs to be processed if needed.

10

A pool of filter/selectors connected to a common bus, the pool size dictating the number of simultaneous transponder channels that can be selected. Alternatively, a predetermined number of filters can be attached to each A/D converter.

15 The filters/selectors can be grouped with each LNB or can be a common resource available to process any signal from any LNB. This choice trades off circuit complexity of implementing more filters with circuit complexity of routing LNB outputs through a crossbar switch.

Each of the operations of mixing, filtering, and combining can be done as an analog operation or
20 digital operation.

Partitioning of functions can take a number of forms. The circuitry can be implemented in a monolithic integrated circuit (IC), a hybrid, discrete components, or a combination of technologies.

25

Another application of the present invention is to simplify upgrades to an existing system. A dual tuner STB that enables viewing and recording of two different channels requires two input cables to allow any combination of LNB signals to be received. A single cable input would be limited to viewing and recording two channels from the same LNB output. When the upgrade is
30 performed, the installation of an additional cable is difficult. By selecting and combining the desired channels at the ODU a single cable can be used to transmit all channels. A re-map of

channel locations occurs. A conventional dual tuner STB can be used with this approach by providing a splitter at the input to the STB that supplies the composite signal to both cable inputs. A software upgrade to the STB may be needed to support the channel re-mapping.

- 5 Other implementations for signal processing include: No cross point switch, digitize, digital filter select, frequency translate, RF combine; cross point switch, analog tuner select, frequency translate, RF combine; digitize, digital filter select, digital network combine; digitize, digital filter select, decode, MPEG stream over a network; digitize, digital filter select, decode, MPEG to analog, restack channels, RF combine. One skilled in the art will recognize that many
- 10 variations are possible to implement the present invention of selecting signals and combining onto a signal cable.

- Another property of the present invention is that the process of digitizing, selecting, and combining is modulation independent. Either a digital or analog selecting and combining
- 15 approach can be designed to process any form of phase/amplitude modulation. Although the dominant modulation type in direct broadcast satellite systems is QPSK, alternatively BPSK, 8-PSK or multi-level QAM and PSK signals can be distributed in the same way.

What is claimed is:

1. A signal distribution system for distributing a plurality of video programs from a satellite outdoor unit (ODU) over a digital network comprising:

5

a signal selector that receives broadband LNB signals comprising a plurality of transponder channels, the signal selector is responsive to transponder information transmitted over the digital network, and selects at least one transponder channel from the broadband LNB signal based on the transponder select information;

10

at least one transport stream demultiplexer coupled to the signal selector to extract a specific video program from the transponder channel;

15

a data combiner coupled to the transport stream demultiplexers to combine video programs and produce a multiplexed signal;

wherein the multiplexed signal is formatted for transmission on the digital network and the digital network connects to the ODU.

20

2. The signal distribution system of claim 1 further comprising a plurality of set top boxes (STBs) connected to the digital network wherein all STBs extract channels from the multiplexed signal.

25

3. The signal distribution system of claim 2 wherein the digital network is a local area network (LAN).

30

4. The signal distribution system of claim 3 wherein the LAN is an Ethernet LAN.

5. The signal distribution system of claim 3 wherein the LAN uses data packets.

6. The signal distribution system of claim 1 wherein transponder select information is transmitted over the digital network by a gateway.

7. The signal distribution system of claim 1 wherein transponder select information is transmitted over a wireless link.

8. The signal distribution system of claim 1 further comprising a gateway connected to the digital network that receives the video programs in the multiplexed signal and distributes the video programs over a local area network (LAN) to STBs

10

9. A signal distribution system for distributing a plurality of low noise amplifier and block converter (LNB) output signals from a satellite outdoor unit (ODU) comprising:

a gateway in communication with the ODU and at least one set top box (STB);

15

a signal selector that receives a plurality of broadband LNB signals comprising a plurality of transponder signals, the signal selector is responsive to transponder select information transmitted by the gateway and selects a plurality of transponder signals from at least one broadband LNB signal based on the transponder select information;

20

a frequency translator coupled to the signal selector that is capable of shifting the selected transponder signals to new carrier frequencies to produce RF signals; and

a signal combiner coupled to at least one frequency translator capable of combining at least two RF signals to produce a composite signal;

25

wherein the modulation of the composite signal is the same as the modulation of the broadband LNB signals and wherein the composite signal is transmitted to the gateway and the gateway receives the composite signal, decodes specific programs, and distributes the programs over a digital local area network (LAN) to STBs.

30

10. The signal distribution system of claim 9 wherein a translation table maps original channel locations on the selector input to new channel locations on the selector output.
11. The signal distribution system of claim 10 wherein the translation table is maintained by a
5 controller located in the gateway and the translation table is communicated to devices in the network.
12. The signal distribution system of claim 10 wherein the translation table is maintained by a
10 controller located in the ODU and the translation table is communicated to devices in the network.
13. A signal distribution system for distributing a plurality of transponder channels to new and legacy set top boxes (STBs) comprising:
- 15 a signal selector that receives broadband LNB signals comprising a plurality of transponder channels, the signal selector is responsive to transponder select information transmitted from at least one STB, and selects at least one transponder channel from the broadband LNB signal based on the transponder select information and outputs a composite signal comprising selected transponder channels; and
- 20 a multiport switch that receives a plurality of broadband LNB signals, selects a broadband LNB signal responsive to an LNB select signal from an STB, and outputs the selected LNB signal.
14. The signal distribution system of claim 13 wherein
- 25 the composite signal is output to a first cable;
the selected LNB signal is output to a second cable;
new STBs connect to the first cable to receive the composite signal; and
legacy STBs connect to the second cable to receive the selected LNB signal.

15. The signal distribution system of claim 13 wherein the composite signal and the selected LNB signals are output to a single cable and the composite signal is transmitted in regions of the spectrum unoccupied by the selected LNB signals.
- 5 16. The signal distribution system of claim 15 wherein new STBs receive and decode the composite signal and legacy STBs receive and decode the LNB signals.
17. The signal distribution system of claim 16 further comprising a controller that polls the STBs to determine the presence of new STBs, and if new STBs are present accept transponder
10 select information from the new STBs and remap the selected transponder channels to regions of the spectrum unoccupied by selected LNB signals.
18. The signal distribution system of claim 17 further comprising a controller for maintaining a channel map specifying the assigned frequency slots for transponder channels and for
15 communicating the channel map to the STBs.
19. The signal distribution system of claim 13 further comprising a controller that polls the STBs to determine the presence of new STBs, and if new STBs are present the controller accepts transponder select information from the new STBs and remaps the selected transponder channels
20 to regions of the spectrum unoccupied by broadband LNB signals.

25

ABSTRACT

In a satellite receiving system, program channels are selected from one or more broadband signals and combined with other selected channels and transmitted from a first unit, for example
5 an outdoor unit, to a second unit, for example a gateway, server, or set-top box, using a single cable. Channels can be selected by digitizing the broadband signal then digitally filtering to isolate the desired channels. The outputs of several LNBs can be selected and combined into one signal. Multiple set-top boxes can receive independent signals over a single cable from the outdoor unit.

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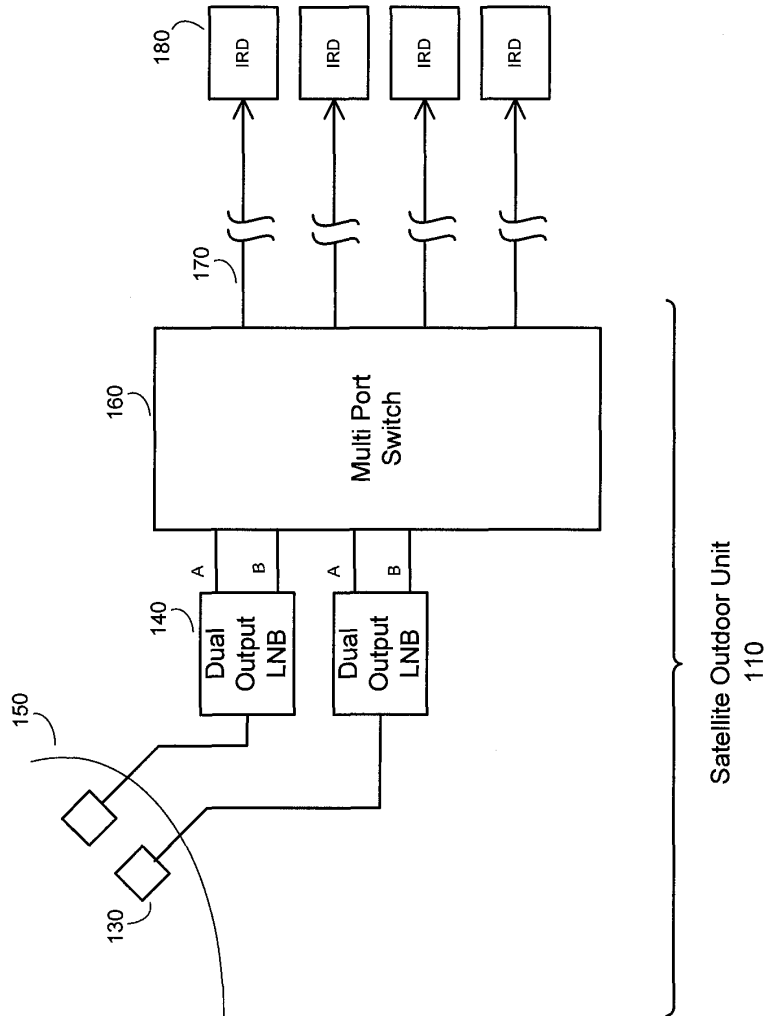


FIG. 1
Prior Art

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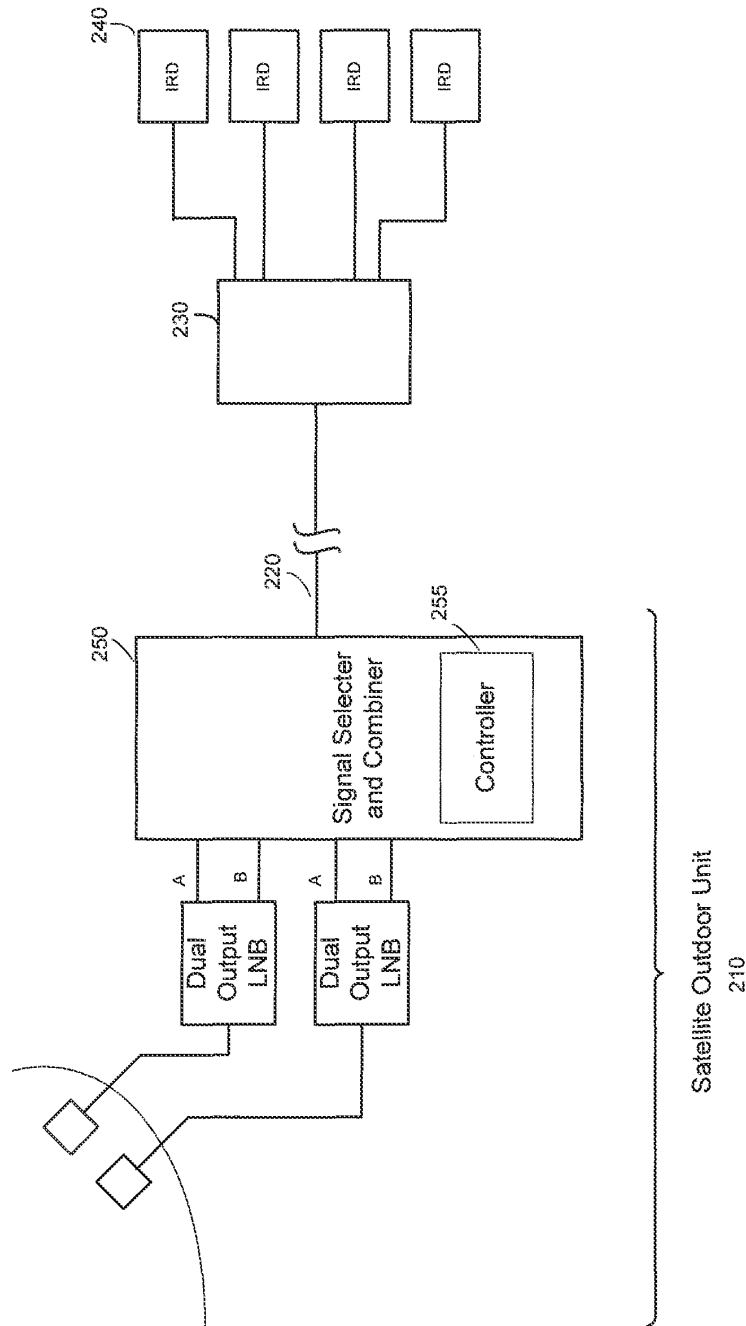


FIG. 2

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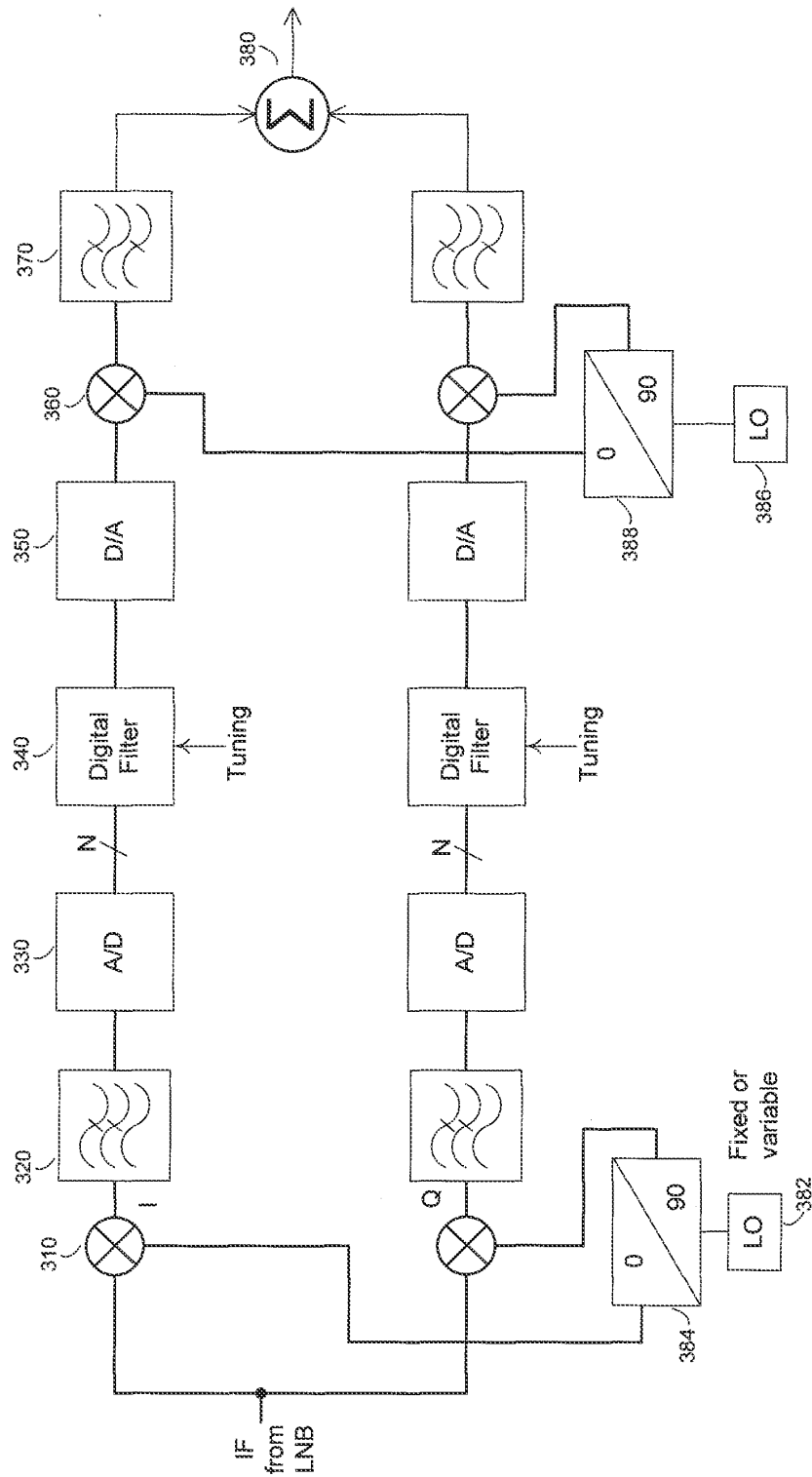


FIG. 3

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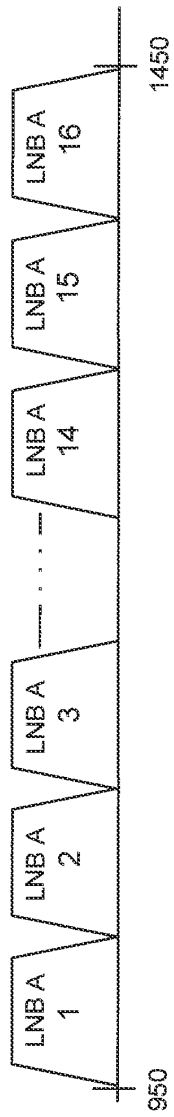


FIG. 4

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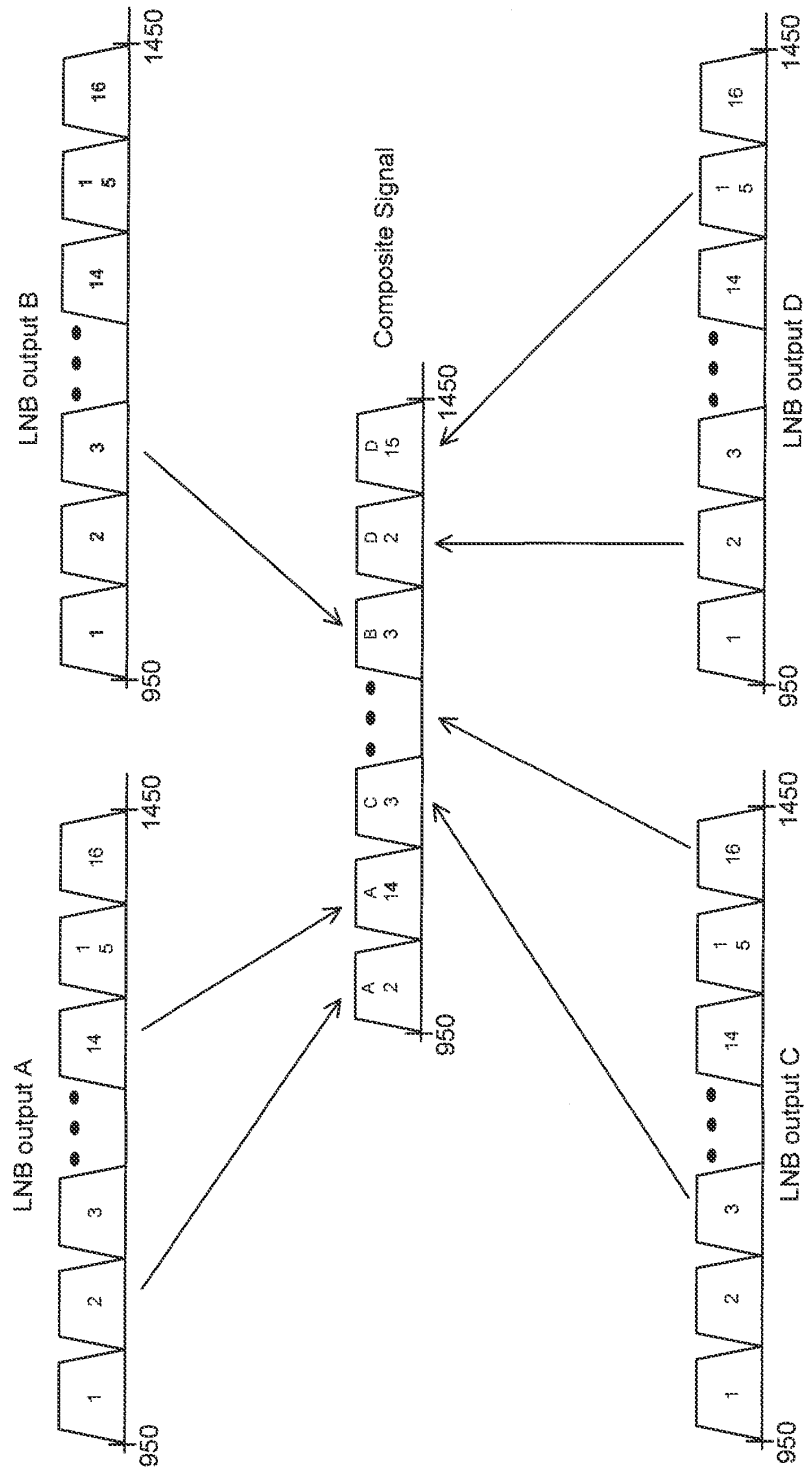
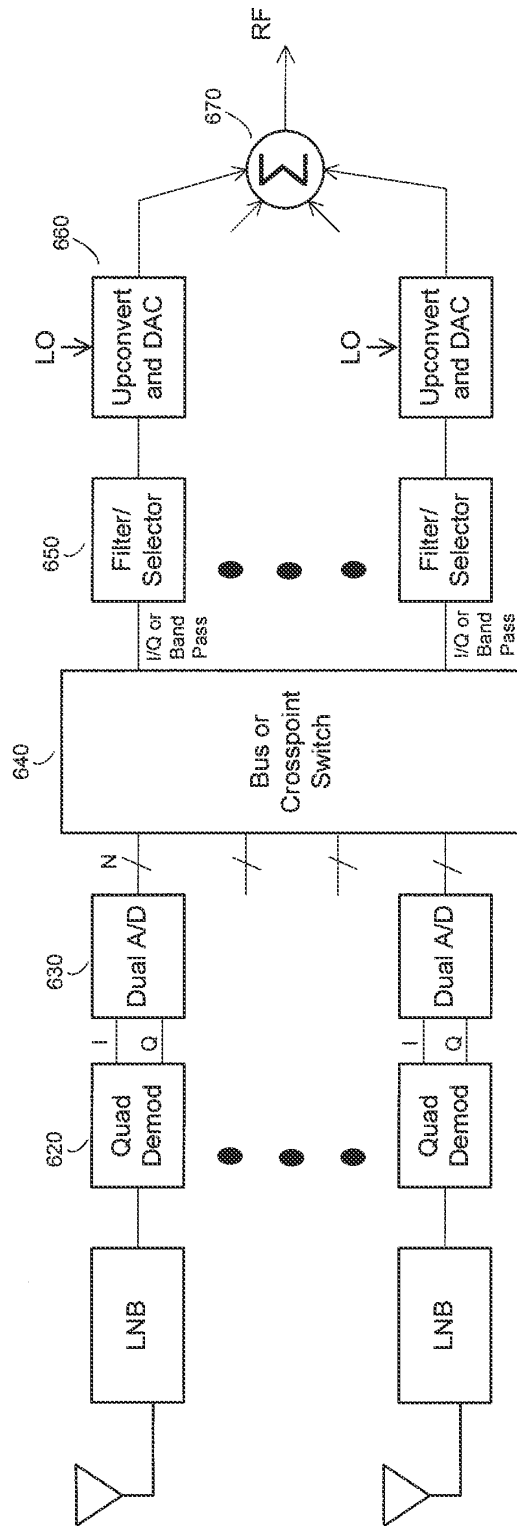


FIG. 5

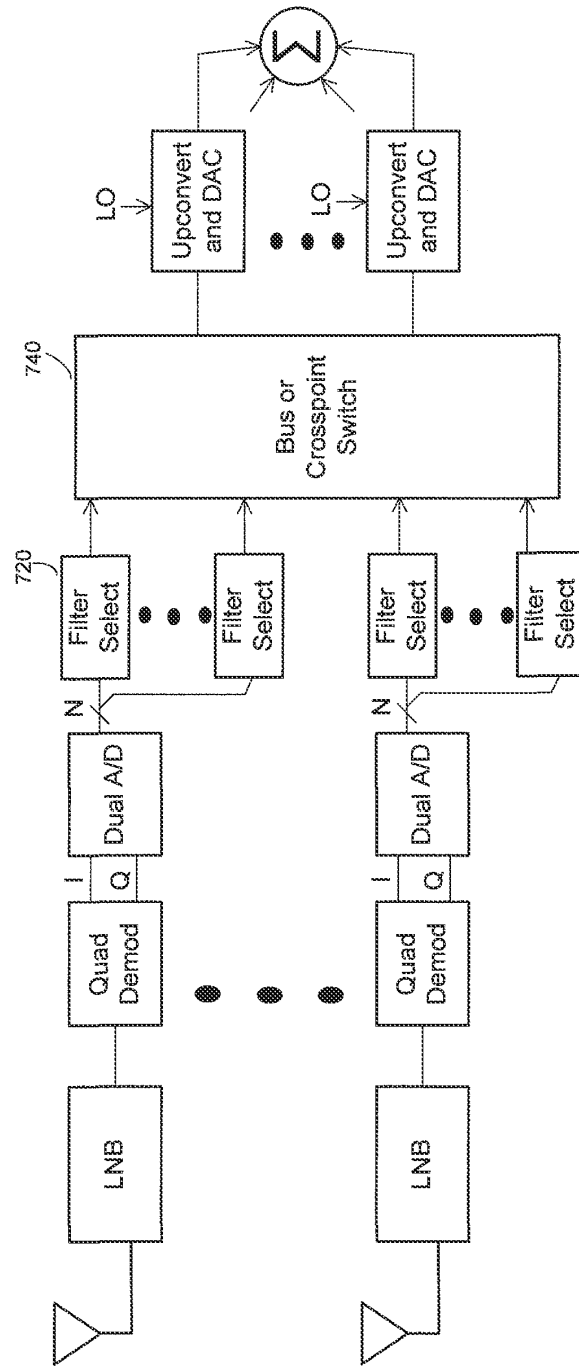
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Digital Routing of Digitized Signals

FIG. 6

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Digital Routing of Digitized Signals

FIG. 7

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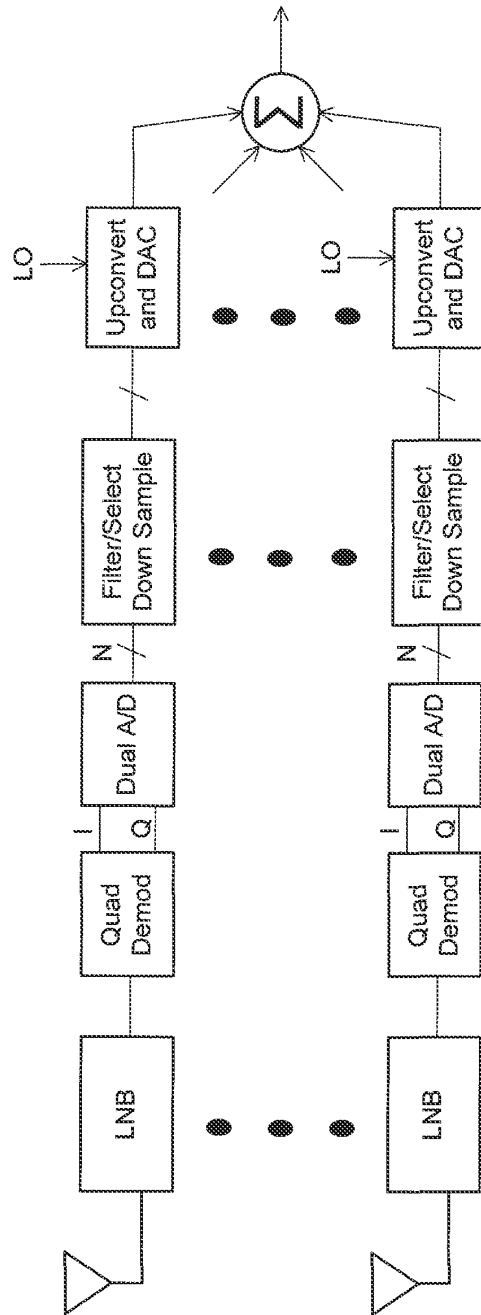


FIG. 8

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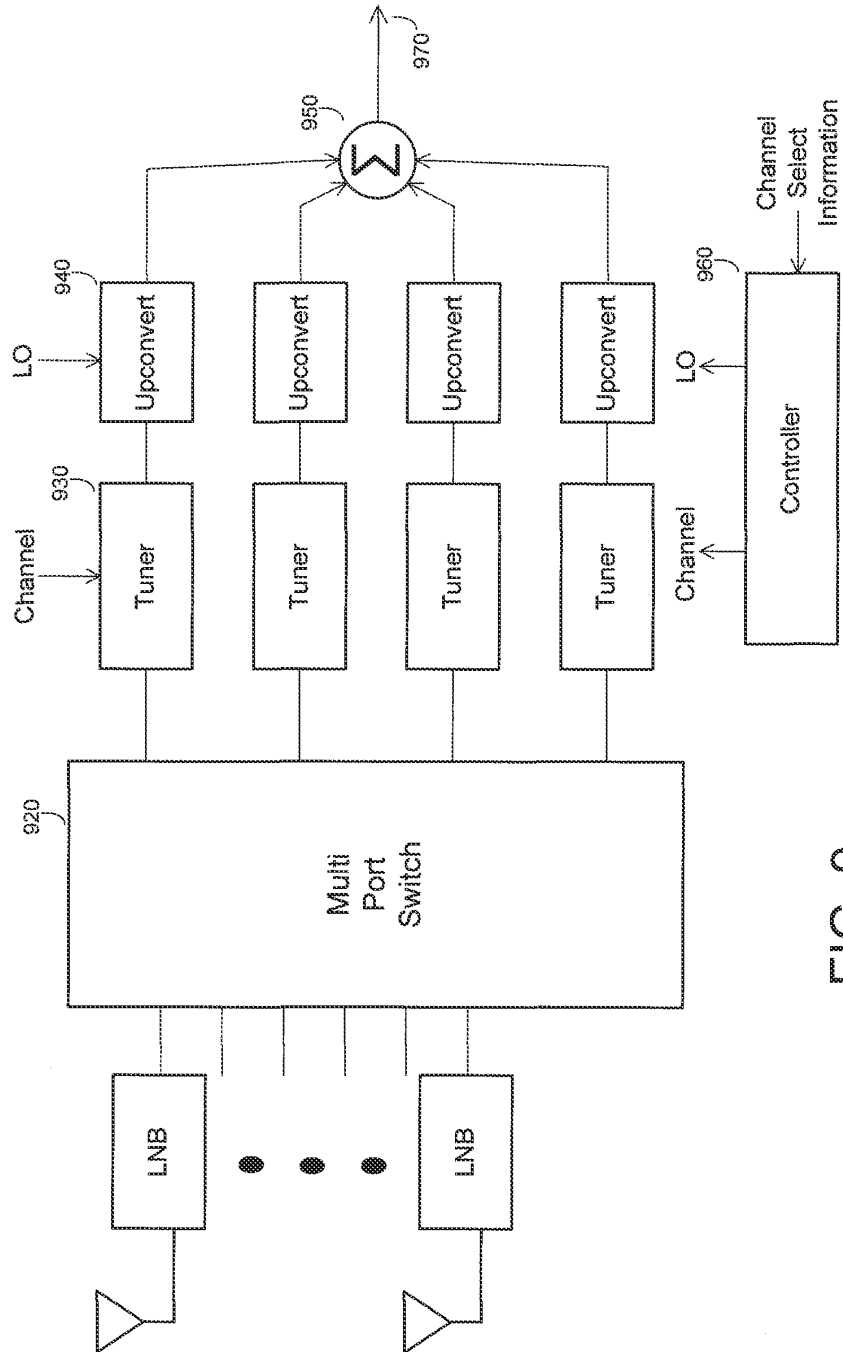


FIG. 9

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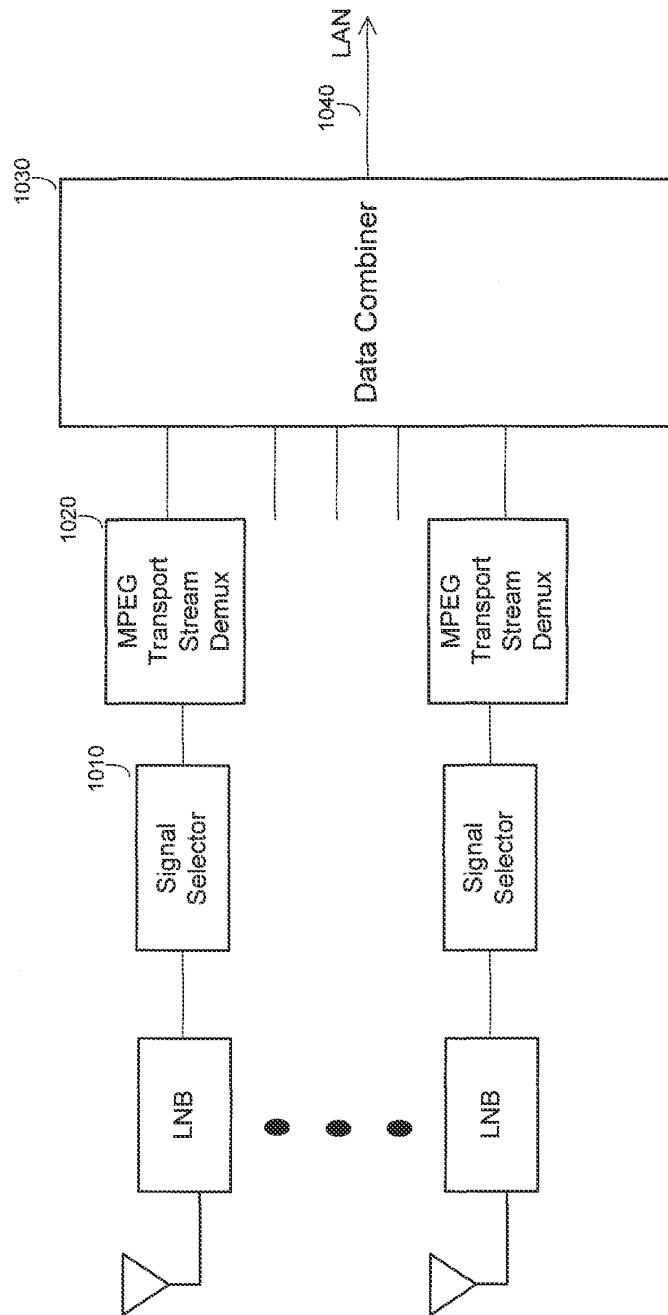


FIG. 10

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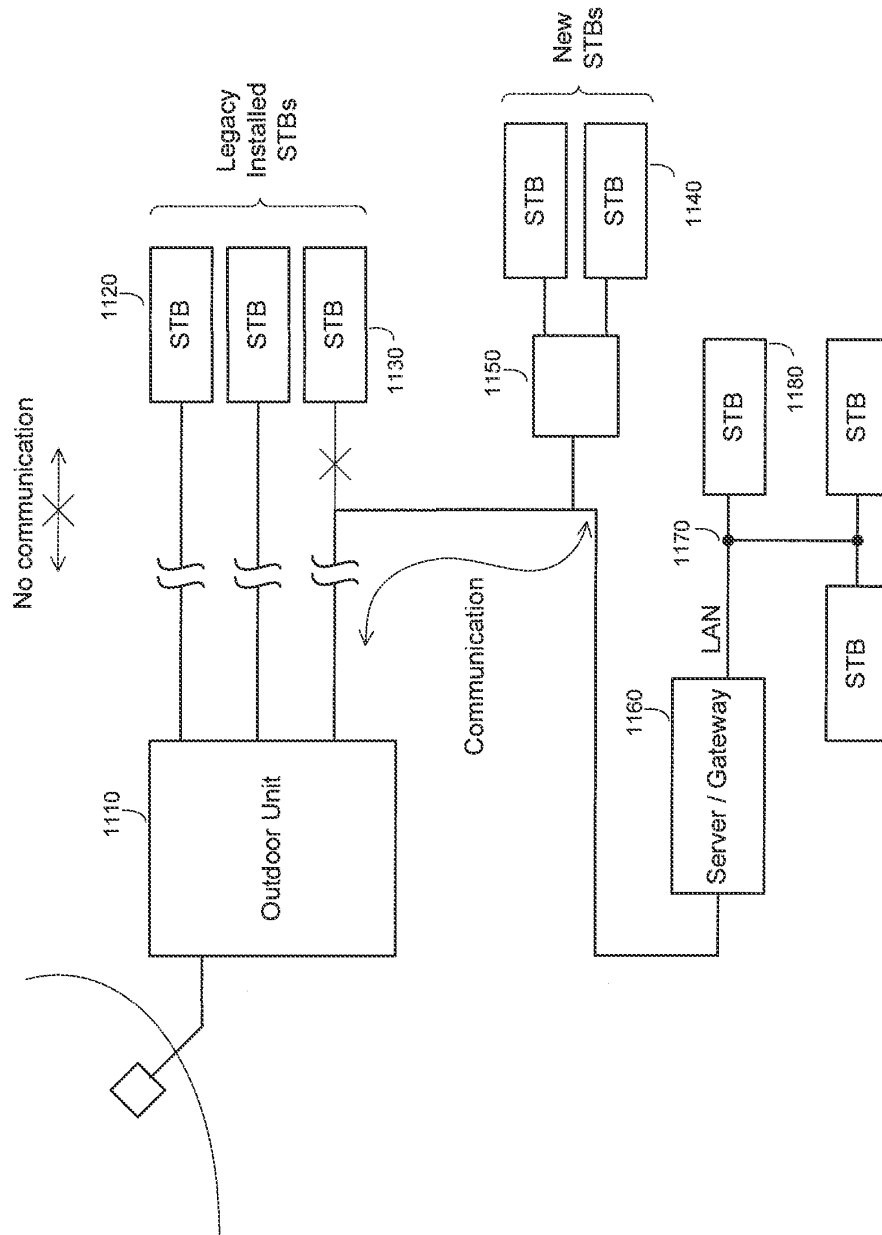


FIG. 11

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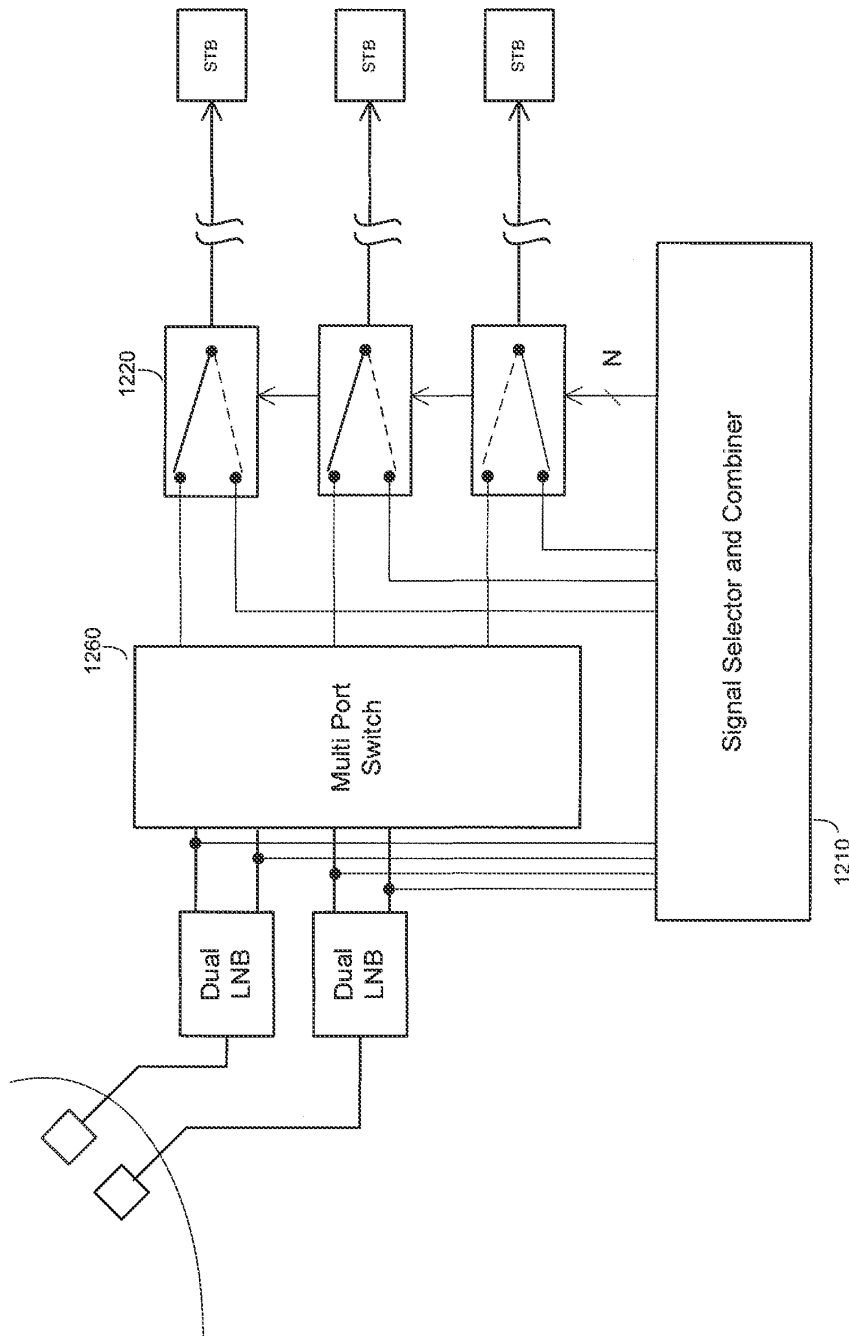


FIG. 12

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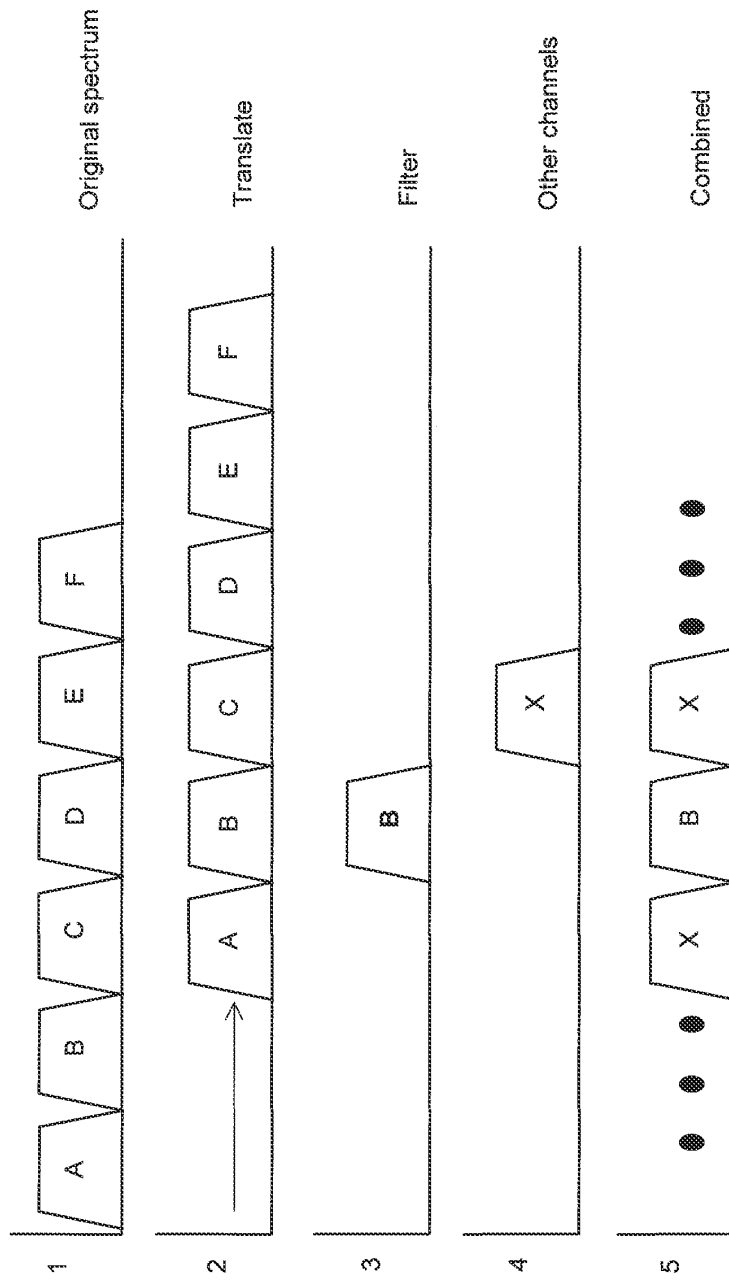
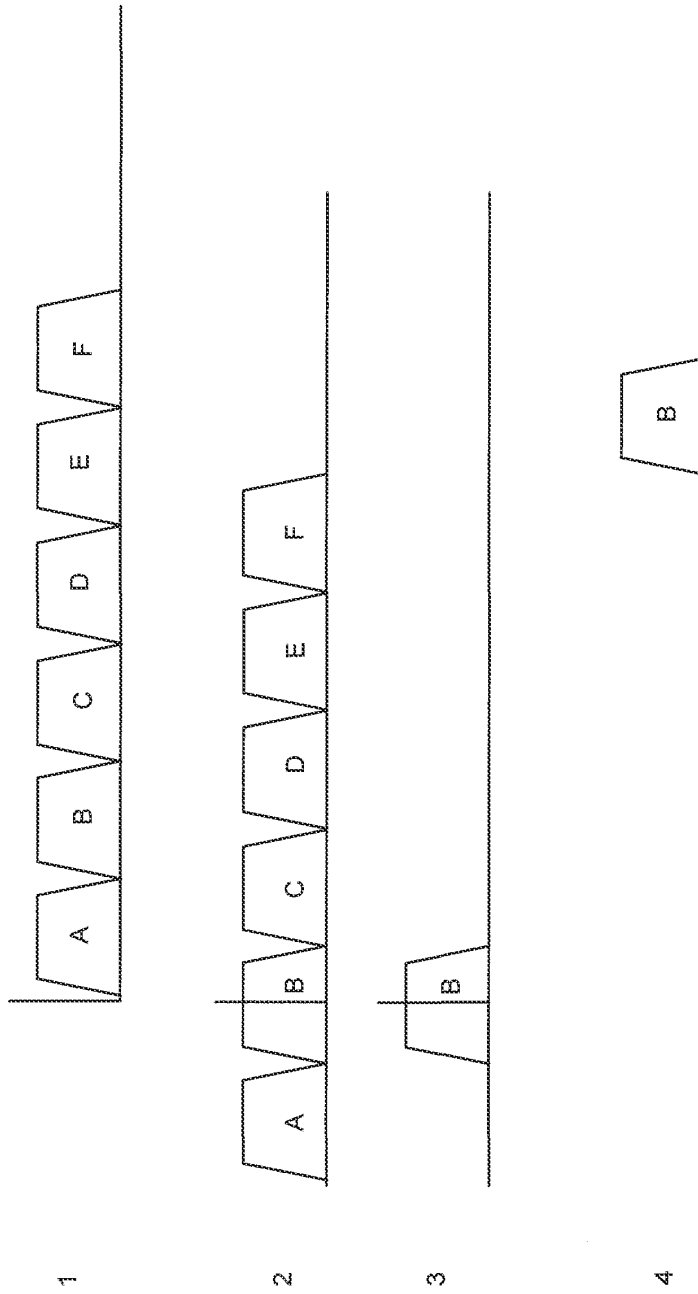


FIG. 13

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Translate to baseband, filter, translate
to channel frequency

FIG. 14

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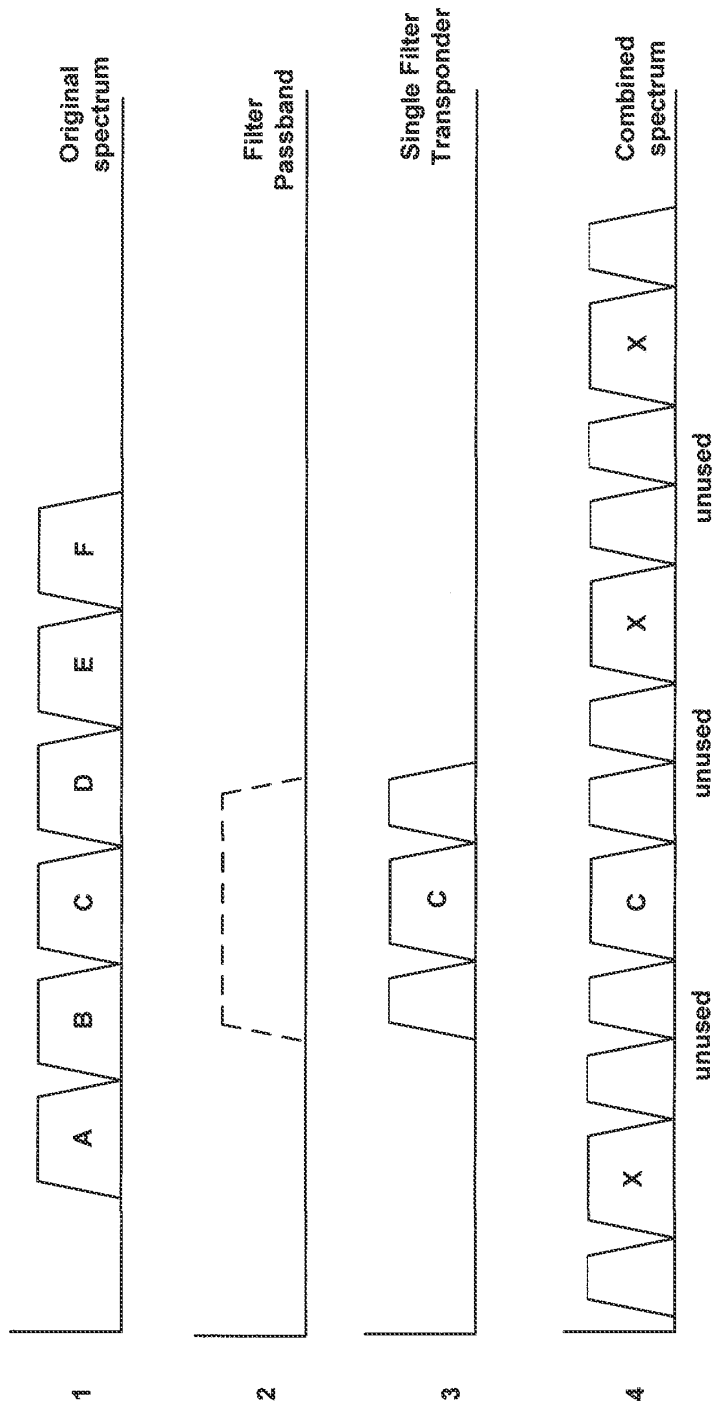


FIG. 15

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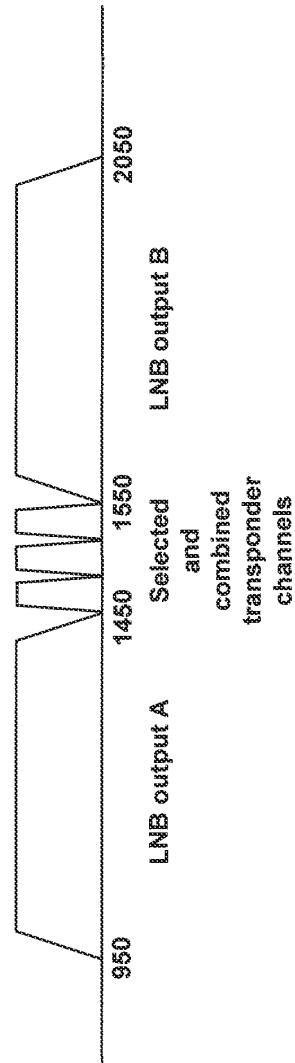
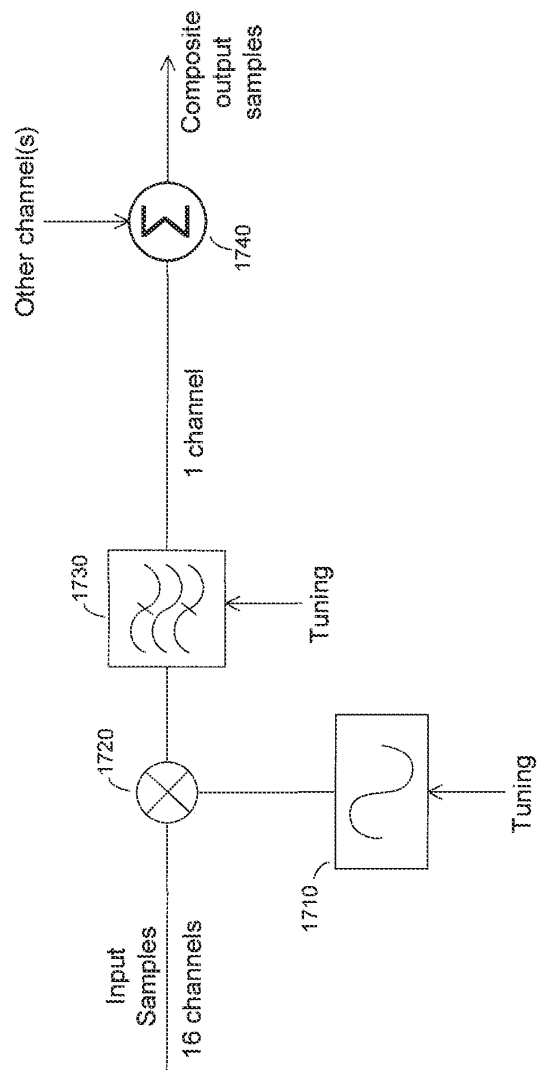


FIG. 16

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Digital Frequency translator
and filter with summer

FIG. 17

UTILITY PATENT APPLICATION TRANSMITTAL <small>(Only for new nonprovisional applications under 37 CFR 1.53(b))</small>		Attorney Docket No. 9250 First Inventor Landry et al. Title Signal Selector and Combiner... Express Mail Label No. Filed through EFS
APPLICATION ELEMENTS <small>See MPEP chapter 600 concerning utility patent application contents.</small> 1. <input type="checkbox"/> Fee Transmittal Form (e.g., PTO/SB/17) <small>(Submit an original and a duplicate for fee processing)</small> 2. <input checked="" type="checkbox"/> Applicant claims small entity status. <small>See 37 CFR 1.27.</small> 3. <input checked="" type="checkbox"/> Specification [Total Pages <u>23</u>] <small>Both the claims and abstract must start on a new page (For information on the preferred arrangement, see MPEP 608.01(a)).</small> 4. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Sheets <u>17</u>] 5. Oath or Declaration [Total Sheets <u>3</u>] a. <input type="checkbox"/> Newly executed (original or copy) b. <input checked="" type="checkbox"/> A copy from a prior application (37 CFR 1.63(d)) <small>(for continuation/divisional with Box 18 completed)</small> i. <input type="checkbox"/> DELETION OF INVENTOR(S) <small>Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).</small> 6. <input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76 7. <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix) <input type="checkbox"/> Landscape Table on CD 8. Nucleotide and/or Amino Acid Sequence Submission <small>(if applicable, items a. - c. are required)</small> a. <input type="checkbox"/> Computer Readable Form (CRF) b. <input type="checkbox"/> Specification Sequence Listing on: i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or ii. <input type="checkbox"/> Paper c. <input type="checkbox"/> Statements verifying identity of above copies		ADDRESS TO: Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450 ACCOMPANYING APPLICATION PARTS 9. <input type="checkbox"/> Assignment Papers (cover sheet & document(s)) <small>Name of Assignee _____</small> 10. <input type="checkbox"/> 37 CFR 3.73(b) Statement <input type="checkbox"/> Power of Attorney <small>(when there is an assignee)</small> 11. <input type="checkbox"/> English Translation Document (if applicable) 12. <input type="checkbox"/> Information Disclosure Statement (PTO/SB/08 or PTO-1449) <input type="checkbox"/> Copies of citations attached 13. <input type="checkbox"/> Preliminary Amendment 14. <input type="checkbox"/> Return Receipt Postcard (MPEP 503) <small>(Should be specifically itemized)</small> 15. <input type="checkbox"/> Certified Copy of Priority Document(s) <small>(if foreign priority is claimed)</small> 16. <input checked="" type="checkbox"/> Nonpublication Request under 35 U.S.C. 122(b)(2)(B)(i). <small>Applicant must attach form PTO/SB/35 or equivalent.</small> 17. <input type="checkbox"/> Other: _____
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19. CORRESPONDENCE ADDRESS		
<input checked="" type="checkbox"/> The address associated with Customer Number: <u>24244</u> OR <input type="checkbox"/> Correspondence address below		
Name _____		
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Country _____	Telephone _____	Email _____
Signature <u>Michael W. Landry</u>		Date <u>10/26/2006</u>
Name (Print/Type) <u>Michael W. Landry</u>		Registration No. (Attorney/Agent) <u>38,216</u>

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
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**NONPUBLICATION REQUEST
UNDER
35 U.S.C. 122(b)(2)(B)(i)**

First Named Inventor

Landry et al.

Title

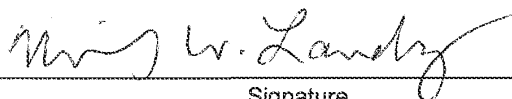
Signal Selector and Combiner for Broadband
Content Distribution

Attorney Docket Number

9250

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).



Signature

10/26/2006

Date

Michael W. Landry

Typed or printed name

38,216

Registration Number, if applicable

858-229-6801

Telephone Number

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing**.

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

This collection of information is required by 37 CFR 1.213(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		Signal Selector and Combiner for Broadband Content Distribution		
First Named Inventor/Applicant Name:		Michael Landry		
Filer:		Michael William Landry		
Attorney Docket Number:		9250		
Filed as Small Entity				
Utility Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	75	75
Utility Search Fee	2111	1	250	250
Utility Examination Fee	2311	1	100	100
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				425

Electronic Acknowledgement Receipt	
EFS ID:	1277294
Application Number:	11553456
International Application Number:	
Confirmation Number:	3792
Title of Invention:	Signal Selector and Combiner for Broadband Content Distribution
First Named Inventor/Applicant Name:	Michael Landry
Customer Number:	24244
Filer:	Michael William Landry
Filer Authorized By:	
Attorney Docket Number:	9250
Receipt Date:	26-OCT-2006
Filing Date:	
Time Stamp:	22:44:25
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	\$425
RAM confirmation Number	893
Deposit Account	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
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1	Oath or Declaration filed	9250-delcarations.pdf	142751	no	3
Warnings:					
Information:					
2		9250-Signal-Combiner-and-Selector-cont.pdf	99625	yes	23
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	18	
	Claims		19	22	
	Abstract		23	23	
Warnings:					
Information:					
3	Drawings	9250-Sig-Selector-Figs-1-17-efile.pdf	177699	no	17
Warnings:					
Information:					
4		9250-transmittal-and-NPR-efile.pdf	136959	yes	2
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal letter		1	1	
	Nonpublication request from applicant.		2	2	
Warnings:					
Information:					
5	Fee Worksheet (PTO-875)	fee-info.pdf	8356	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			565390		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
11/553,456	10/26/2006	2623	425	9250	17	19	3

CONFIRMATION NO. 3792

24244
MICHAEL W LANDRY
5098 SEACHASE STREET
SAN DIEGO, CA92130

FILING RECEIPT

Date Mailed: 11/21/2006

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Itzhak Gurantz, San Diego, CA;
Ladd Ei Wardani, La Jolla, CA;
Michael Landry, San Diego, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 10/289,011 11/06/2002 PAT 7,130,576
which claims benefit of 60/345,965 11/07/2001
and claims benefit of 60/333,722 11/27/2001
and claims benefit of 60/358,817 02/22/2002

Foreign Applications

If Required, Foreign Filing License Granted: 11/21/2006

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is
US11/553,456

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

** SMALL ENTITY **

Title

Preliminary Class

725

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No: 11/553,456 Confirmation No. 3792
Filed: 10/26/2006
Applicant: Gurantz, et al
Title: Signal Selector and Combiner for Broadband Content Distribution
Docket: 9250
GAU: 2623
Date: 3/20/2008

Submittal of Power of Attorney

Filed Online
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

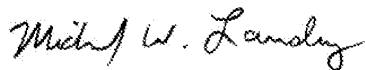
Dear Sir:

Application 10/289,011, entitled "Signal Selector and Combiner for Broadband Content Distribution", is the parent application of the continuation application noted above.

A copy of the Power of Attorney from the parent application is being submitted to properly denote the power of attorney for the divisional application.

Date: 3/20/2008

Respectfully submitted,



Michael W. Landry
Attorney for Applicants
Reg. No. 38,216
5098 Seachase St.
San Diego CA 92130
858-229-6801
mlandry@iprsolutions.com



Please type a plus sign (+) inside this box → ☐

PTO/SB/81 (02-01)


Approved for use through 10/31/2002. OMB 0651-0035

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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POWER OF ATTORNEY OR AUTHORIZATION OF AGENT	Application Number	10/289,011
	Filing Date	11/6/2002
	First Named Inventor	Gurantz
	Title	Signal Selector and Combiner...
	Group Art Unit	2641
	Examiner Name	
	Attorney Docket Number	9226

I hereby appoint:

☒ Practitioners at Customer Number → 

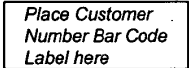
☐ Practitioner(s) named below:

Name	Registration Number
Michael W. Landry	38,216

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Please change the correspondence address for the above-identified application to:

☒ The above-mentioned Customer Number.

☐ Practitioners at Customer Number → 

☐ Firm or Individual Name

Address

Address

City State Zip

Country

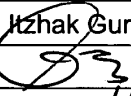
Telephone Fax

I am the:

☐ Applicant/Inventor.

☒ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

SIGNATURE of Applicant or Assignee of Record

Name	Hzhak Gurantz, CEO Entropic Communications Inc.
Signature	
Date	12/19/02

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

Burden Hour Statement: This form is estimated to take 3 minutes to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Electronic Acknowledgement Receipt	
EFS ID:	3031311
Application Number:	11553456
International Application Number:	
Confirmation Number:	3792
Title of Invention:	Signal Selector and Combiner for Broadband Content Distribution
First Named Inventor/Applicant Name:	Itzhak Gurantz
Customer Number:	24244
Filer:	Michael William Landry/Michelle Landry
Filer Authorized By:	Michael William Landry
Attorney Docket Number:	9250
Receipt Date:	20-MAR-2008
Filing Date:	26-OCT-2006
Time Stamp:	17:05:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	9250-request-POA-from-parent.pdf	75526 a8d62b337cc48f9bec8f075166d1a1855cb1e0f4	no	1
Warnings:					
Information:					

2	Power of Attorney	POA-10289011-9226.pdf	54755 1f17b738cec846b6aea45a4769a8a29105b4f4a9	no	1
Warnings:					
Information:					
Total Files Size (in bytes):			130281		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Electronic Acknowledgement Receipt	
EFS ID:	4291490
Application Number:	11553456
International Application Number:	
Confirmation Number:	3792
Title of Invention:	Signal Selector and Combiner for Broadband Content Distribution
First Named Inventor/Applicant Name:	Itzhak Gurantz
Customer Number:	24244
Filer:	Bruce Wayne Greenhaus/Tim Ellis
Filer Authorized By:	Bruce Wayne Greenhaus
Attorney Docket Number:	9250
Receipt Date:	14-NOV-2008
Filing Date:	26-OCT-2006
Time Stamp:	14:42:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		E010004USC3_SB81_SB96_For ms_11-14-08.pdf	951871 bab952e3e152d1ce6cc37310e35f75c81cd 0c290	yes	2

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Power of Attorney	1	1
	Assignee showing of ownership per 37 CFR 3.73(b).	2	2
Warnings:			
Information:			
Total Files Size (in bytes):		951871	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>			

Print Form

PTO/SB/81 (07-08)

Approved for use through 12/31/2008. OMB 0651-0035

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Application Number	11/553,456
	Filing Date	26-Oct-2006
	First Named Inventor	Itzhak Gurantz
	Title	Signal sector and combiner for broadband content distrib
	Art Unit	2623
	Examiner Name	Joshua Taylor
	Attorney Docket Number	9250

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

77330

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name

Address

City

State

Zip

Country

Telephone

Email

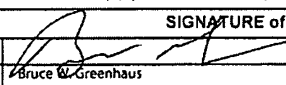
I am the:

☐ Applicant/Inventor.

OR

☒ Assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Assignee of Record

Signature		Date	Nov 14, 2008
Name	Bruce Greenhaus	Telephone	+1 (858) 768-3679
Title and Company	VP, Chief Patent Counsel		

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 2 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Entropic Communications Inc.

Application No./Patent No.: 11/553,456

Filed/Issue Date: 26-Oct-2006

Entitled:

Entropic Communications Inc.

, a Corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest
(The extent (by percentage) of its ownership interest is _____ %)

in the patent application/patent identified above by virtue of either:

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 014140, Frame 0486, or for which a copy therefore is attached.

OR

- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.


Signature

November 14, 2008

Date

Bruce W. Greenhaus

Printed or Typed Name

(858) 768-3679

Telephone Number

VP, Chief Patent Counsel

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/553,456	10/26/2006	Itzhak Gurantz	9250

24244
MICHAEL W LANDRY
5098 SEACHASE STREET
SAN DIEGO, CA 92130

CONFIRMATION NO. 3792
IMPROPER CPOA LETTER



OC000000033237623

Date Mailed: 11/21/2008

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/20/2008. The Power of Attorney in this application is not accepted for the reason(s) listed below:

- The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73(b) has not been received.

/ddinh/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/553,456	10/26/2006	Itzhak Gurantz	9250

77330
ENTROPIC COMMUNICATIONS, INC.
6290 SEQUENCE DRIVE
SAN DIEGO, CA 92121

CONFIRMATION NO. 3792
POA ACCEPTANCE LETTER



OC000000033255912

Date Mailed: 11/28/2008

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/14/2008.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/ddinh/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

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P.O. Box 1450
Alexandria, Virginia 22313-1450
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NOTICE OF ALLOWANCE AND FEE(S) DUE

77330 7590 04/24/2009
ENTROPIC COMMUNICATIONS, INC.
6290 SEQUENCE DRIVE
SAN DIEGO, CA 92121

EXAMINER	
SHARMA, SUJATHA R	
ART UNIT	PAPER NUMBER

2618
DATE MAILED: 04/24/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

11/553,456 10/26/2006 Itzhak Gurantz E010004USC3 3792

TITLE OF INVENTION: SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$0	\$0	\$755	07/24/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
- B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or
- B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
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77330 7590 04/24/2009

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SAN DIEGO, CA 92121

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Certificate of Mailing or Transmission

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(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/553,456 10/26/2006 Itzhak Gurantz E010004USC3 3792

TITLE OF INVENTION: SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional YES \$755 \$0 \$0 \$755 07/24/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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SHARMA, SUJATHA R 2618 455-003010

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
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4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/553,456	10/26/2006	Itzhak Gurantz	E010004USC3	3792
77330	7590	04/24/2009		
ENTROPIC COMMUNICATIONS, INC. 6290 SEQUENCE DRIVE SAN DIEGO, CA 92121			EXAMINER SHARMA, SUJATHA R	
			ART UNIT	PAPER NUMBER
			2618	
DATE MAILED: 04/24/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 485 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 485 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

DETAILED ACTION

Allowable Subject Matter

1. The **claims 1-19 are allowable** over prior art.
2. The following is a statement of reasons for the indication of allowable subject matter:

The present invention in independent claim 1 is directed towards a system for distributing a plurality of video programs from a satellite outdoor unit (ODU) over a digital network comprising:

- a signal selector that receives broadband LNB signals comprising a plurality of transponder channels, the signal selector is responsive to transponder information transmitted over the digital network, and selects at least one transponder channel from the broadband LNB signal based on the transponder select information;
- at least one transport stream demultiplexer coupled to the signal selector to extract a specific video program from the transponder channel;
- a data combiner coupled to the transport stream demultiplexers to combine video programs and produce a multiplexed signal;
- wherein the multiplexed signal is formatted for transmission on the digital network and the digital network connects to the ODU.

Art Unit: 2618

Independent claim 9 is directed towards a system for distributing a plurality of low noise amplifier and block

converter (LNB) output signals from a satellite outdoor unit (ODU) comprising:

- a gateway in communication with the ODU and at least one set top box (STB);
- a signal selector that receives a plurality of broadband LNB signals comprising a plurality of transponder signals, the signal selector is responsive to transponder select information transmitted by the gateway and selects a plurality of transponder signals from at least one broadband LNB signal based on the transponder select information;
- a frequency translator coupled to the signal selector that is capable of shifting the selected transponder signals to new carrier frequencies to produce RF signals;
- a signal combiner coupled to at least one frequency translator capable of combining at least two RF signals to produce a composite signal;
- wherein the modulation of the composite signal is the same as the modulation of the broadband LNB signals and wherein the composite signal is transmitted to the gateway and the gateway receives the composite signal, decodes specific programs, and distributes the programs over a digital local area network (LAN) to STBs.

Independent claim 13 is directed towards a system for distributing a plurality of transponder channels to new and legacy set top boxes (STBs) comprising:

Art Unit: 2618

- a signal selector that receives broadband LNB signals comprising a plurality of transponder channels, the signal selector is responsive to transponder select information transmitted from atleast one STB, and selects at least one transponder channel from the broadband LNB signal based on the transponder select information and outputs a composite signal comprising selected transponder channels;
- a multiport switch that receives a plurality of broadband LNB signals, selects a broadband LNB signal responsive to an LNB select signal from an STB, and outputs the selected LNB signal.

The closest prior art, Shah discloses a system for combining some transponder channels from one LNB output with the transponder channels from another LNB output, overlaying the selected channels of the first LNB into an unused portion of the second LNB output. The combined signal is a fixed combination of transponder channels from the two source LNBs. The combined LNB signals then feeds a multi- switch, which has several inputs and several outputs. The multi-switch selects an entire LNB (or combined LNB) output under control of a signal received from an IRD through one of the several cables connected to one of the several multi-switch outputs. Each IRD can select a different satellite/LNB output (representing a full set of satellite transponder signals). The multi-switch in Shah selects an entire band of transponder channels from one LNB or the combined LNB signal.

However, Shah fails to anticipate or render the above underlined limitations obvious.

Therefore the independent claims 1, 40, 60 and their dependent claims are allowed.

Art Unit: 2618

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee.

Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

Inaguma [US 7,047,555] In-building CATV system, down-converter, up-converter and amplifier

Graef [US 7,197,760] Apparatus for selecting satellite TV Channels using channel selection unit for VHF and UHF channels

MacDonald [US 5,835,128] Wireless redistribution of television signals in a multiple dwelling unit

Ho [US 6,622,307] Multiple-room signal distribution system

Green [US 6,947,702] Satellite broadcast receiving and distribution system

Williams [US 6,493,873] Transmodulator with dynamically selectable channels

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sujatha Sharma whose telephone number is 571-272-7886. The examiner can normally be reached on Mon-Fri 7.30am - 4.00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sujatha Sharma/
Examiner, Art Unit 2618
Sujatha Sharma
April 21, 2009

Notice of References Cited	Application/Control No. 11/553,456	Applicant(s)/Patent Under Reexamination GURANTZ ET AL.	
	Examiner SUJATHA SHARMA	Art Unit 2618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0056100	05-2002	SHIMOMURA et al.	725/39
*	B	US-2003/0217362	11-2003	Summers et al.	725/63
*	C	US-6,493,873	12-2002	Williams, Jim C.	725/78
*	D	US-7,047,555	05-2006	Inaguma et al.	725/149
*	E	US-7,197,760	03-2007	Graef, Guido	725/68
*	F	US-5,835,128	11-1998	Macdonald et al.	725/81
*	G	US-6,622,307	09-2003	Ho, Kesse	725/120
*	H	US-6,947,702	09-2005	Green et al.	455/3.02
*	I	US-6,441,797	08-2002	Shah, Dipak M.	343/840
	J	US-			
	K	US-			
	L	US-			
	M	US-			


FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS


*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i> 	Application/Control No. 11553456	Applicant(s)/Patent Under Reexamination GURANTZ ET AL.
	Examiner SUJATHA SHARMA	Art Unit 2618

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected


<input type="checkbox"/> Claims renumbered in the same order as presented by applicant			<input type="checkbox"/> CPA			<input type="checkbox"/> T.D.			<input type="checkbox"/> R.1.47		
CLAIM			DATE								
Final	Original		04/21/2009								
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2	2	=									
3	3	=									
4	4	=									
5	5	=									
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7	7	=									
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14	14	=									
15	15	=									
16	16	=									
17	17	=									
18	18	=									
19	19	=									

Issue Classification 	Application/Control No. 11553456	Applicant(s)/Patent Under Reexamination GURANTZ ET AL.
	Examiner SUJATHA SHARMA	Art Unit 2618

ORIGINAL						INTERNATIONAL CLASSIFICATION														
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED									
455		3.01				H	0	4	H	1 / 00 ()										
CROSS REFERENCE(S)																				
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																			
455	3.02	3.03	3.04	179.1																
725	71	78																		

<input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17												
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		Total Claims Allowed:	
		19	
(Assistant Examiner)	(Date)	O.G. Print Claim(s)	O.G. Print Figure
/SUJATHA SHARMA/ Examiner.Art Unit 2618	4/21/09	1	12
(Primary Examiner)	(Date)		

Search Notes 	Application/Control No. 11553456	Applicant(s)/Patent Under Reexamination GURANTZ ET AL.
	Examiner SUJATHA SHARMA	Art Unit 2618

SEARCHED			
Class	Subclass	Date	Examiner
455	3.01-3.05,103,137,12.1,20,22,179.1,428,427,189.1,188.1,191.1,190.1	4/21/09	ss
725	63-68,39,114,117,139,74,78,81-83,110,149,111,118,126-128,148,149	4/21/09	ss

SEARCH NOTES		
Search Notes	Date	Examiner
EAST SEARCH	4/21/09	SS

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
455	3.02-3.04,179.1	4/21/09	SS
725	71,78		

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CONFIRMATION NO. 3792

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
11/553,456	10/26/2006	725	2618	E010004USC3		
APPLICANTS Itzhak Gurantz, San Diego, CA; Ladd Ei Wardani, La Jolla, CA; Michael Landry, San Diego, CA; ** CONTINUING DATA ***** This application is a CON of 10/289,011 11/06/2002 PAT 7,130,576 which claims benefit of 60/345,965 11/07/2001 and claims benefit of 60/333,722 11/27/2001 and claims benefit of 60/358,817 02/22/2002 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED *** SMALL ENTITY ** 11/21/2006						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input type="checkbox"/> No Verified and /SUJATHA R SHARMA/ Acknowledged Examiner's Signature		<input checked="" type="checkbox"/> Met after Allowance /SS/ Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 17	TOTAL CLAIMS 19	INDEPENDENT CLAIMS 3
ADDRESS ENTROPIC COMMUNICATIONS, INC. 6290 SEQUENCE DRIVE SAN DIEGO, CA 92121 UNITED STATES						
TITLE Signal Selector and Combiner for Broadband Content Distribution						
FILING FEE RECEIVED 425	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	7203	455/3.01-3.05,103,137,12.1,20,22,179.1,428,427,189.1,188.1,190.1,191.1.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2009/04/21 19:32
L3	6326	725/63-68,39,114,117,139,74,78,81-83,110,149,111,118,126-128,148,149.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2009/04/21 19:33
L4	3422	odu or outdoor adj unit	US-PGPUB; USPAT	OR	ON	2009/04/21 19:43
L5	127	2 AND 4	US-PGPUB; USPAT	OR	ON	2009/04/21 19:43
L6	103	3 AND 4	US-PGPUB; USPAT	OR	ON	2009/04/21 19:44
L7	18	5 AND SELECTOR	US-PGPUB; USPAT	OR	ON	2009/04/21 19:44
L8	17	6 AND SELECTOR	US-PGPUB; USPAT	OR	ON	2009/04/21 19:44
L9	3	7 and demultiplexer	US-PGPUB; USPAT	OR	ON	2009/04/21 19:44
L10	3	8 and demultiplexer	US-PGPUB; USPAT	OR	ON	2009/04/21 19:44
L11	1964	broadcast with signal with distribution	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2009/04/21 19:45
L12	33	4 and 11	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2009/04/21 19:45
L13	13	2 and 12	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2009/04/21 19:45
L14	13	3 and 12	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2009/04/21 19:45

4/21/09 7:46:26 PM

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

77330 7590 04/24/2009

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Tim Ellis	(Depositor's name)
/Tim Ellis/	(Signature)
April 28, 2009	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/553,456	10/26/2006	Itzhak Gurantz	E010004USC3	3792

TITLE OF INVENTION: SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$0	\$0	\$755	07/24/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
SHARMA, SUJATHA R	2618	455-003010

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Michael W. Landry

2 Bruce W. Greenhaus

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Entropic Communications Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

San Diego, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.

☒ Payment by VIA EFS-WEB (Deposit Account)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 504613 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Bruce W. Greenhaus/

Date April 28, 2009

Typed or printed name Bruce W. Greenhaus

Registration No. 37339

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal				
Application Number:		11553456		
Filing Date:		26-Oct-2006		
Title of Invention:		SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION		
First Named Inventor/Applicant Name:		Itzhak Gurantz		
Filer:		Bruce Wayne Greenhaus/Tim Ellis		
Attorney Docket Number:		E010004USC3		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	755	755
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				755

Electronic Acknowledgement Receipt	
EFS ID:	5232934
Application Number:	11553456
International Application Number:	
Confirmation Number:	3792
Title of Invention:	SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION
First Named Inventor/Applicant Name:	Itzhak Gurantz
Customer Number:	77330
Filer:	Bruce Wayne Greenhaus/Tim Ellis
Filer Authorized By:	Bruce Wayne Greenhaus
Attorney Docket Number:	E010004USC3
Receipt Date:	28-APR-2009
Filing Date:	26-OCT-2006
Time Stamp:	14:02:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$755
RAM confirmation Number	207
Deposit Account	504613
Authorized User	
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)</p>	

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	E010004USC3_Issue_Fee_Payment_04-28-2009.pdf	121694 d2c798df8be1c8505269819a6b95f972ecd afcd9	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	29837 b6a8e6e248e11dd44de8b13f3eb2c0e4e9 07570	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			151531		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/553,456	06/02/2009	7542715	E010004USC3	3792

77330 7590 05/13/2009
ENTROPIC COMMUNICATIONS, INC.
6290 SEQUENCE DRIVE
SAN DIEGO, CA 92121

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 485 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Itzhak Gurantz, San Diego, CA;
Ladd Ei Wardani, La Jolla, CA;
Michael Landry, San Diego, CA;

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 11/553,456

Confirmation No.: 3792

In re application of: Itzhak Gurantz et al.

U.S. Patent No.: 7,542,715

Filed: 10/26/2006

Issued: 6/2/2009

Art Unit: 2618

Examiner: Sujatha R. Sharma

Docket No.: E010004USC1

Title: **SIGNAL SLECTOR AND COMBINER
FOR BROADBAND CONTENT DISTRIBUTION**

Certificate of Transmission Under 37 C.F.R. 1.8

I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on the date shown below.

DATE: AUGUST 16, 2012

RUTH DER

Mail Stop M Correspondence
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**NOTIFICATION OF CHANGE IN
SMALL ENTITY STATUS TO LARGE ENTITY STATUS**

Applicant hereby asserts the loss of entitlement to small entity status in the referenced application herein.

The Commissioner is also authorized to charge any fees required by this paper or to credit any excess payment to Deposit Account **04-1679**.

Respectfully submitted,

Dated: August 16, 2012

/James Y.C. Sze/

James Y.C. Sze, Reg. No.: 43,943
Attorney

Duane Morris LLP
750 B Street, Suite 2900
San Diego, CA 92101-4681
Phone: 619.744.2200
Fax: 619.744.2201

Electronic Acknowledgement Receipt	
EFS ID:	13517032
Application Number:	11553456
International Application Number:	
Confirmation Number:	3792
Title of Invention:	SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION
First Named Inventor/Applicant Name:	Itzhak Gurantz
Customer Number:	77330
Filer:	James Y.C. Sze/Ruth Der
Filer Authorized By:	James Y.C. Sze
Attorney Docket Number:	E010004USC1
Receipt Date:	16-AUG-2012
Filing Date:	26-OCT-2006
Time Stamp:	17:28:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	7542715largeentity.pdf	70199 d0dcc686ca97b95efab17a192f29f8949e215cd5	no	1
Warnings:					
Information:					

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
11/553,456	10/26/2006	2618	425	E010004USC1	19	3

CONFIRMATION NO. 3792

CORRECTED FILING RECEIPT

77330
ENTROPIC COMMUNICATIONS, INC.
6290 SEQUENCE DRIVE
SAN DIEGO, CA 92121



OC000000056195721

Date Mailed: 08/30/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Itzhak Gurantz, San Diego, CA;
Ladd Ei Wardani, La Jolla, CA;
Michael Landry, San Diego, CA;

Power of Attorney: The patent practitioners associated with Customer Number 77330

Domestic Priority data as claimed by applicant

This application is a CON of 10/289,011 11/06/2002 PAT 7130576
which claims benefit of 60/345,965 11/07/2001
and claims benefit of 60/333,722 11/27/2001
and claims benefit of 60/358,817 02/22/2002

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

If Required, Foreign Filing License Granted: 11/21/2006

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 11/553,456**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

Title

SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION

Preliminary Class

455

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

page 2 of 3

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage, facilitate, and accelerate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:



Practitioners associated with the Customer Number:

23446

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:



The address associated with Customer Number:

23446

OR

Firm or
Individual Name

Address

City

State

Zip

Country

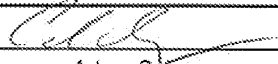
Telephone

Email

Assignee Name and Address:

Entropic Communications, LLC.
2051 Palomar Airport Road, Suite 100
Carlsbad, CA 92011**A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.****SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	6/5/15
Name	Adam Spice	Telephone	
Title	Chief Financial Officer		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. This information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	23023697
Application Number:	11553456
International Application Number:	
Confirmation Number:	3792
Title of Invention:	SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION
First Named Inventor/Applicant Name:	Itzhak Gurantz
Customer Number:	77330
Filer:	Christopher C. Winslade/Deb Wilson
Filer Authorized By:	Christopher C. Winslade
Attorney Docket Number:	E010004USC1
Receipt Date:	25-JUL-2015
Filing Date:	26-OCT-2006
Time Stamp:	15:22:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Assignee showing of ownership per 37 CFR 3.73	29399US04_373b_Statement_sb96.pdf	431435 461397eee7fbba800ecd816c6cfa1635d92a5ac2	no	2
Warnings:					
Information:					

2	Power of Attorney	Entropic_POA_PreAIA.pdf	340881 810794c6d5473b527f97e45769199b81a37aad1b	no	2
Warnings:					
Information:					
Total Files Size (in bytes):				772316	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Itzhak Gurantz, Ladd El Wardani, Michael Landry

Application No./Patent No.: 7,542,715 Filed/Issue Date: 06/02/2009

Titled: SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION

Entropic Communications, LLC, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Itzhak Gurantz, Ladd El Wardani, Michael Landry To: ENTROPIC COMMUNICATIONS, INC.

The document was recorded in the United States Patent and Trademark Office at
Reel 014140, Frame 0486, or for which a copy thereof is attached.

2. From: EXCALIBUR ACQUISITION CORPORATION To: ENTROPIC COMMUNICATIONS, INC.

The document was recorded in the United States Patent and Trademark Office at
Reel 035706, Frame 0267, or for which a copy thereof is attached.

3. From: ENTROPIC COMMUNICATIONS, INC. and EX To: ENTROPIC COMMUNICATIONS, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 035717, Frame 0628, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

- ☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Christopher C. Winslade/

07/25/2015

Signature

Date

Christopher C. Winslade, Reg. No. 36308

Attorney for Applicant

Printed or Typed Name

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/553,456	10/26/2006	Itzhak Gurantz	

23446
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

CONFIRMATION NO. 3792
POA ACCEPTANCE LETTER



OC000000076529641

Date Mailed: 07/28/2015

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/25/2015.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/dtvernon/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/553,456	10/26/2006	Itzhak Gurantz	E010004USC1

CONFIRMATION NO. 3792

POWER OF ATTORNEY NOTICE

77330
ENTROPIC COMMUNICATIONS, INC.
6350 SEQUENCE DRIVE
SAN DIEGO, CA 92121



OC000000076529632

Date Mailed: 07/28/2015

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/25/2015.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/dtvernon/

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

☒

Practitioners associated with Customer Number:

23,446

OR

☐

Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☒

The address associated with Customer Number:

23,446

OR

☐

Firm or individual name

Address

City

State

Zip

Country

Telephone

Email

Assignee name and address: ENTROPIC COMMUNICATIONS, LLC
1345 AVENUE OF THE AMERICAS, 46TH FLOOR
NEW YORK, NY 10105

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature /Andrea L. Gothing/

Date 2021-05-04

Name Andrea L. Gothing

Telephone 415-830-0613

Title Licensing Officer and Authorized Signatory, Entropic Communications, LLC

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	43328397
Application Number:	11553456
International Application Number:	
Confirmation Number:	3792
Title of Invention:	SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION
First Named Inventor/Applicant Name:	Itzhak Gurantz
Customer Number:	23446
Filer:	Ronald H. Spuhler/Deborah Wilson
Filer Authorized By:	Ronald H. Spuhler
Attorney Docket Number:	
Receipt Date:	23-JUL-2021
Filing Date:	26-OCT-2006
Time Stamp:	12:00:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Assignee showing of ownership per 37 CFR 3.73	29399US04_373c_Statement_A IA-96.pdf	124813 30e346daa2675594a866049f1577b98688048006	no	3
Warnings:					

Information:					
2	Power of Attorney	Entropic- POA_General_Assignee_Entrop icCommunications_ALG.pdf	487892 51444e06ae84b241bfc127dc47c5d6c6469 44dd7	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			612705		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: ENTROPIC COMMUNICATIONS, LLC

Application No./Patent No.: 11/553,456

Filed/Issue Date: 2006-10-26

Titled: SIGNAL SELECTOR AND COMBINER FOR BROADBAND CONTENT DISTRIBUTION

ENTROPIC COMMUNICATIONS, LLC, a limited liability company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Itzhak Gurantz, Ladd El Wardani, Michael Landry To: ENTROPIC COMMUNICATIONS, INC.

The document was recorded in the United States Patent and Trademark Office at
Reel 014140, Frame 0486, or for which a copy thereof is attached.

2. From: EXCALIBUR ACQUISITION CORPORATION, ENTROPIC COMMUNICATIONS, INC. To: ENTROPIC COMMUNICATIONS, INC.

The document was recorded in the United States Patent and Trademark Office at
Reel 035706, Frame 0267, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: ENTROPIC COMMUNICATIONS, INC., EXCALIBUR SUBSIDIARY, LLC To: ENTROPIC COMMUNICATIONS, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 035717, Frame 0628, or for which a copy thereof is attached.

4. From: ENTROPIC COMMUNICATIONS, LLC To: MAXLINEAR COMMUNICATIONS LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 055776, Frame 0482, or for which a copy thereof is attached.

5. From: MAXLINEAR COMMUNICATIONS LLC To: ENTROPIC COMMUNICATIONS, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 055899, Frame 0291, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Ronald H. Spuhler/

Signature

Ronald H. Spuhler

Printed or Typed Name

2021-07-23

Date

52245

Title or Registration Number

Privacy Act Statement

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/553,456	10/26/2006	Itzhak Gurantz	

23446
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

CONFIRMATION NO. 3792
POA ACCEPTANCE LETTER



OC000000127368715

Date Mailed: 08/02/2021

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/23/2021.

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/cnguyen/

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
---	---

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:22-cv-75	DATE FILED 3/9/2022	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF ENTROPIC COMMUNICATIONS, LLC		DEFENDANT DIRECTV, LLC, AT&T, INC., AT&T SERVICES, INC., and AT&T COMMUNICATIONS, LLC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 7,130,576	10/31/2006	Entropic Communications, LLC
2 7,542,715	6/2/2009	Entropic Communications, LLC
3 8,792,008	7/29/2014	Entropic Communications, LLC
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY <input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
---	---

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:22-cv-76	DATE FILED 3/9/2022	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF ENTROPIC COMMUNICATIONS, LLC		DEFENDANT DISH NETWORK CORP.; DISH NETWORK LLC; AND DISH NETWORK SERVICE LLC
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 7,130,576	10/31/2006	Entropic Communications, LLC
2 7,542,715	6/2/2009	Entropic Communications, LLC
3 8,792,008	7/29/2014	Entropic Communications, LLC
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY <input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy