

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DISH NETWORK CORPORATION, DISH NETWORK L.L.C., and DISH
NETWORK SERVICE L.L.C.,
Petitioners,

v.

ENTROPIC COMMUNICATIONS, LLC,
Patent Owner.

CASE: IPR2023-00391
U.S. PATENT NO. 7,130,576

PATENT OWNER'S PRELIMINARY RESPONSE

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Exhibit No.	Description
Ex. 2001	Certified File History for Reexamination of U.S. Patent No. 7,130,576
Ex. 2002	Entropic Communications, LLC's Statutory Disclaimer filed June 19, 2023

I. INTRODUCTION

Patent Owner, Entropic Communications, LLC (“Entropic” or “PO”), submits this Patent Owner Preliminary Response pursuant to 37 C.F.R. § 42.107(a) to the *Inter Partes* Review petition (“Petition”) filed by Dish Network Corporation, Dish Network L.L.C., and Dish Network Service L.L.C. (collectively “Petitioners”) for claims 8-23 and 34-42 (the “Remaining Claims”) of U.S. Patent 7,130,576 (the “’576 Patent”).¹ The ’576 Patent has already been through the reexamination process before the Office. The challenge of the Petition repeats the same substance as the reexamination, under the guise of differently-named references. Given this, the Board should exercise its discretion and deny institution under 35 U.S.C. § 325(d).

The ’576 Patent presents an innovative solution to the problem of how to distribute a subset of the signals received by an outdoor unit (“ODU”) over a single cable. Too many signals are available from satellite feeds to fit on a single cable without manipulation. The norm was to simply use the brute force approach of multiple cables. Where the prior art did attempt a single-cable solution, it went a different direction (*e.g.*, in the specification of the ’576 Patent, it discusses a

¹ Entropic has disclaimed claims 8-13, thus narrowing Ground 1 solely to independent claim 14 and its dependent claims 15-23 and 34-42. Ex. 2002.

demodulation and re-modulation approach—which is disclosed in a patent related to a reference asserted in the Petition).

The novel solution claimed by the '576 Patent is to take the various blocks of satellite signals (from “LNBS” at the dish), digitize them, and then in the digital domain (1) *select and extract* a subset of the available signals that will fit, (2) move them around in frequency as necessary to not overlap, and (3) combine them into a single composite signal for a single cable. The subset of signals are selected based on requests from the indoor equipment, which ultimately reflect users' desire for content. Through the process (and as claimed), the modulation of the signals need not be changed, offering substantial advantages.

Turning to the Petition, it presents a single ground. The Board should deny institution for several reasons.

First, and foremost, the Petition presents nothing beyond what the Office has previously considered during not only the initial examination, but also during the reexamination of the '576 Patent. The only combination that the Petition puts forth is that of Williams and Pugel. Williams was already addressed during the initial prosecution of the '576 Patent. Petitioners seem to sense how difficult this argument is, and place their reliance upon a barely-described alternative disclosure of Williams that (1) is contained in *only five sentences* spread over two paragraphs with no figures specific to this alternative disclosure, and (2) is cumulative of the Eutelsat

prior art considered during the reexamination of the '576 Patent. The secondary reference of the Petition, Pugel, is itself cumulative of Kelley, which was again part of the reexamination. Perhaps even more importantly, the Petition combines Williams and Pugel in the same manner as the combination of Eutelsat and Kelley considered—and ultimately found lacking—by the Reexamination Unit. Although the names of the references have changed, their substance and the resulting arguments remain the same. Accordingly, the Board can and should deny institution pursuant to 35 U.S.C. § 325(d).

Next, the Petition fails to provide an adequate motivation to combine Williams' alternative disclosure with Pugel. At this stage, with the benefit of hindsight, the Petition has cobbled together two references that appear to disclose every element of independent claim 14. But the Petition's reconstruction of the claimed invention with the benefit of the target in mind, provides no adequate motivation to combine Williams and Pugel in the mind of a POSITA who lacks the benefit of already knowing the target invention. Williams clearly discloses that its alternative disclosure can handle only *a limited number* of transponder channels; directly in contrast stands Pugel, which is designed to improve the efficiency of systems that handle a large volume of transponder channels. Given the transponder channel-constrained system of Williams' alternative disclosure, a POSITA would not be motivated to incorporate the analog-to-digital converter of Pugel into

Williams' alternative disclosure because it conflicts with the operating principle of Williams' alternative disclosure.

In this regard, it is very notable that the Petition must resort to the barely-described alternative disclosure in Williams rather than the main embodiment, which does contemplate large numbers of transponder channels. The Petition cannot rely on the main embodiment because there is simply no obviousness case if it does. Thus, the Petition asks the POSITA to:

- Pick up Williams, but abandon its (by far) primary embodiment, which can handle large numbers of channels;
- Rely instead on the alternative disclosure which Williams admits is ineffective with large numbers of channels; and then
- Switch gears again to large numbers of channels and seek out some art like Pugel to rearchitect Williams' alternative back into something that would work (though Williams itself did not hit upon this result).

This chain of logic is not obvious; and therefore, the combination of Williams and Pugel would have rendered obvious the claims of the '576 Patent.

Given that the Petition has failed to render obvious independent claim 14, the Petition has failed to render obvious the claims that depend from claim 14. It is axiomatic that, if the prior art does not demonstrate that an independent claim is unpatentable, it cannot be used to demonstrate that any corresponding dependent

claim is also unpatentable. *See Hartness Int’l Inc. v. Simplimatic Eng’g Co.*, 819 F.2d 1100, 1108 (Fed. Cir. 1987).

II. SUMMARY OF THE ’576 PATENT

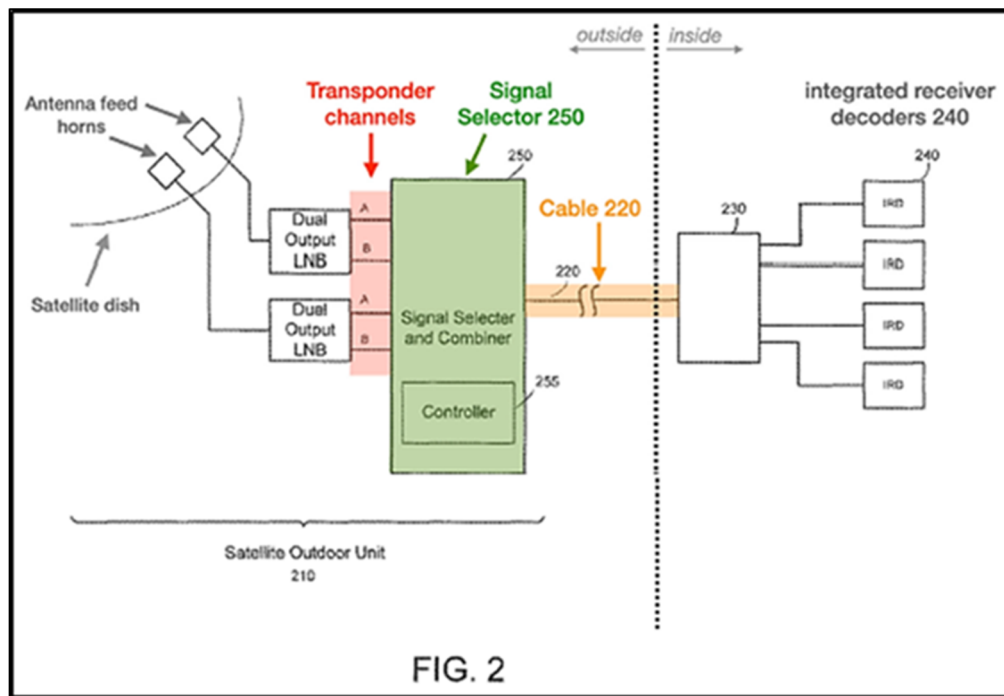
The ’576 Patent, titled “Signal Selector and Combiner for Broadband Content Distribution” relates generally to a satellite receiving system where signals of interest (*e.g.*, video programming) are selected from the satellite broadband signals. Ex. 1001, Abstract. Those signals of interest are then re-combined with other signals of interest to create a composite signal that is output for transmission from an outdoor unit (“ODU”) to an integrated receiver decoder (“IRD”), using a single cable. *Id.*, Abstract. The ’576 Patent explains that “[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 located.” *Id.*, 1:55-62. Multiple cables were needed because the content of the broadband signals received from satellite(s)—consisting of numerous video channels—was too much for a single cable connection to transport. *See id.*, 1:49-62.

The ’576 Patent solved this problem with an innovative system where a subset of the available signals are chosen. *Id.*, 2:54-57. Not every video channel available will be needed by a customer at a given moment. *See id.*, 3:10-11. The ’576 Patent discloses selecting the signals of interest, extracting them from each low noise

amplifier and block converter (“LNB”) output, and moving them around in frequency location (if necessary) to form a new composite signal containing the programming of interest. *Id.*, 2:54-60. Because this composite signal contains less information, it is suitable for transport over a single cable. *Id.*, 2:60-63.

Specifically, the ’576 Patent describes a digital “channel selecting and combining solution” that involves selecting one or more transponder channels from each LNB output. *Id.*, 2:54-56. “The selected transponder channels are combined to form a composite signal,” which is then transmitted over a single cable to the IRDs. *Id.*, 2:59-66.

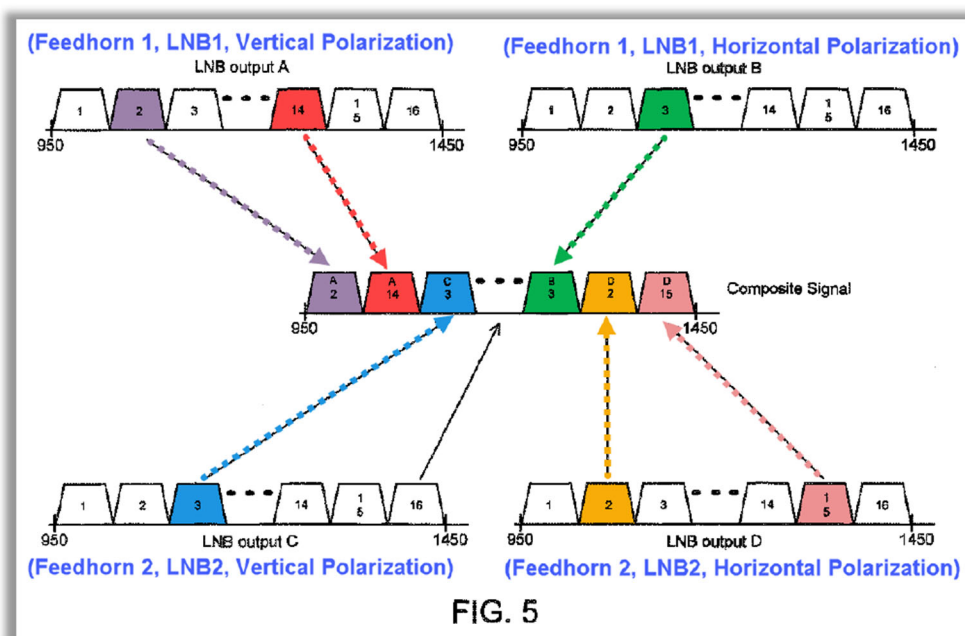
Figure 2 shows an exemplary satellite TV installation according to the present invention. *Id.*, 3:49-50. The received transponder channels are delivered to a Signal Selector (and Combiner) **250**:



Id., Fig. 2.²

In turn, Figure 5 depicts the functionality of the Signal Selector **250**, illustrating the process of selecting transponder channels and moving those transponder channels among frequencies as necessary, and finally combining them to create a “composite signal.” *See id.*, 7:32-43. Petitioners’ expert’s annotation of Fig. 5 is shown below:

² All emphasis and annotations added unless otherwise noted.



Ex. 1002, ¶90. The corners of the annotated figure illustrate four sources from satellite reception equipment (LNBs). *Id.*, ¶91. Certain signals of interest (colored) are selected and extracted from the inputs, and the signals are then shifted in frequency as needed to avoid overlap. *See id.*, ¶89. Finally, they are combined into the composite signal in the center. Ex. 1002, ¶90. This composite signal thus contains the signals of interest (perhaps at new frequencies) and is suitable for transmission over a single cable. Ex. 1001, 2:60–63.

A. Original Prosecution Of '576 Patent

During the original prosecution of the '576 Patent, claim 14 was initially

rejected as anticipated by U.S. Patent No. 6,493,873 (“Williams”).³ Ex. 1006, 70. Claim 14 was then amended to overcome Williams by specifying that “the modulation of the transponder signal is not altered by the steps of selecting, combining, and transmitting,” which distinguished the relied upon and primary embodiment of Williams, as discussed in further detail below. *Id.*, 83, 88.

Next, claim 14 was rejected as anticipated by Shah. *Id.*, 99. Claim 14 was amended to overcome Shah by clarifying the process performed in the ODU, which differed from the process in Shah’s ODU. *Id.*, 99, 111, 116-17. Finally, the Examiner combined Shah and Williams to reject claim 14 as obvious. *Id.*, 127. The Examiner admitted that Shah’s ODU did not perform the process of generating a composite signal to be transmitted over a cable to an IRD, and therefore the Examiner incorporated Williams’ processing into Shah’s ODU. *Id.*, 128-129. Entropic distinguished the asserted combination without amending claim 14, explaining there was no motivation to combine Williams and Shah. *Id.*, 146. The

³ Petitioners refer to Williams as “Williams-873” which is quoted below unchanged. Since no other Williams reference is referred to in this brief, for brevity, we refer to this patent merely as Williams, but these references are the same reference.

Examiner found Entropic's arguments persuasive and allowed the claims, thereby effectively agreeing there was no motivation to modify Shah's ODU with Williams' processing to result in outputting satellite signals over a single cable to the IRD. *Id.*, 146, 154. None of the prior art of record, alone or in combination, taught the claimed processing of the ODU as recited in claim 14.

B. Ex Parte Reexamination Of '576 Patent

During the *ex parte* reexamination of the '576 Patent, claim 14 was initially rejected as anticipated by the Eutelsat Installer Guide reference (Eutelsat), which discloses an ODU that performs processing similar to that of (if not identical to) Williams and outputs a composite signal on a single cable to the IRD. *See* Ex. 2001, 526-529. Entropic amended Claim 14 to overcome Eutelsat, by reciting that "in the ODU, ***digitizing the plurality of satellite broadband signals***, selecting ***and extracting*** a plurality of transponder signals [***extracted***] from the received ***digitized*** satellite broadband signals" and explaining that Eutelsat teaches performing channel selection and combining in the RF and/or IF domains, but does "not teach or suggest broadband digitization of the incoming signal with channel selection from that digitized signal in the digital domain." *Id.*, 548, 557-58. The Reexamination Unit indicated that claim 14 as amended distinguished Eutelsat, noting that the amended claim language "requires that the signals form the ODU to the [IRD] include digitizing the plurality of satellite broadband signals and selecting and extracting the

transponder signals from the received digitized satellite broadband signals.” *Id.*, 591. Thus, *digitizing the plurality of satellite broadband signals in the ODU* distinguished Eutelsat and the other prior art of record in having the ’576 Patent deliberately judged to be not obvious.

The Reexamination Unit also specifically considered the option of incorporating an analog-to-digital converter (ADC) into the ODU to digitize the signals in the ODU. Dependent claim 3 recited “the signal selector comprises an analog to digital converter and a digital filter.” *Id.*, 25. The Reexamination Unit admitted in the rejection that Eutelsat did not disclose claim 3, and relied on Kelley’s “digital receiver with an analog to digital converter ADC **106** that digitizes the RF input signal and provides it to a digital tuner.” *Id.*, 534. The Reexamination Unit therefore *initially* asserted that it would be obvious to drop Kelley’s ADC into the ODU of Eutelsat to digitize the satellite signals in the ODU for digital channel selection as taught by Kelley. In the Notice of Intent to Issue Reexamination Certificate, however, the examiner explains that Kelley is “silent with regard to actually digitizing the satellite broadband LNB signals from an[] ODU to an IRD and selecting and extracting the transponder signals from received digitized satellite broadband signals.” *Id.*, 591. The Reexamination Unit initially asserted that it would be obvious for Eutelsat’s ODU to be modified to include Kelley’s ADC and digital filtering of the satellite signal. However, the Reexamination Unit retracted

this argument, instead determining that it would not have been obvious to modify Eutelsat's ODU in view of Kelley. *Id.*, 591.

III. SUMMARY OF THE PRIOR ART

The references asserted in the Petition—Williams and Pugel—are cumulative of art that was considered during the initial prosecution and reexamination of the '576 Patent. Thus, as described in greater detail below, the Board should deny institution because the Office has considered and rejected Eutelsat, which is analogous to Williams, and Kelley, which is analogous to Pugel. To demonstrate the cumulative nature of Williams and Pugel, the references are discussed with the analogous reference from the reexamination below.

A. Williams is Cumulative of Eutelsat

Both Williams and Eutelsat relate to the distribution of satellite broadband signals received by an ODU. Furthermore, both references include embodiments in which the modulation is altered and embodiments in which the modulation is not altered. *Compare* Ex. 2001, 136-137, *with* Ex. 1003, 4:57-60 (discussing embodiments where the modulation is altered); *also compare* Ex. 2001, 134, *with* Ex. 1003, 15:20-27 (both acknowledging, among others, that these embodiments can handle a limited number of satellite signals when the modulation of the received signal is not altered). As the reexamination relied upon the embodiment of Eutelsat that did not alter modulation, the Petition puts forth cumulative art in the form of

Williams' alternative disclosure, which also does not alter the modulation of the received signal.

1. Summary of Williams

The invention of Williams is a signal distribution system **10** that utilizes transmodulation to reduce the bandwidth of signals within a broadband signal to produce a composite signal for distribution in one or more multiple dwelling units, such as a large apartment complex. Ex. 1003, 1:13-18, 3:50-64.

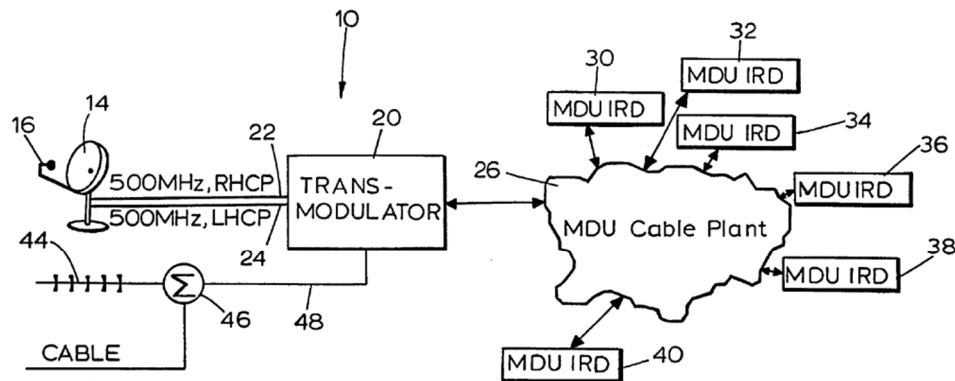


FIG. 1

Id., Fig. 1. That is, by making each modulated symbol carry more bits, Williams plans to reduce the frequency space needed by each incoming signal, so the signals may be accommodated on a single cable. *Id.*, 6:21-27. In context this makes sense—compared to the link from satellite to earth, the coaxial cable running indoors is likely a much better communication path, allowing higher-order modulation. *Id.*

This change in modulation is essential to Williams' primary goal of fitting large numbers of channels onto a single cable. *See, e.g., id.*, 6:12-24, Fig. 2.

Williams recognizes that the signals output from the dish antenna **14** can be combined with terrestrial signals, such as those from a local off-air antenna **44** and/or cable signals. *Id.*, 6:47-54, 7:48-53. However, this combination may span too much bandwidth to be transmitted to the users' IRDs on a single cable. *Id.*, 7:60-66. Williams explains that this is a "major problem" because the IRDs are prevented from decoding and receiving channels they want, stating:

While this problem can be overcome by running two cable lines throughout an MDU or by utilizing a high frequency cable plant capable of approximately 2 GHz or greater bandwidth, these solutions require additional equipment and expense and are not adaptable to most existing cable plants now in use. Furthermore, the signals provided at the 950 MHz to 1450 MHz band can be severely degraded by the cable plant due to the poor high frequency propagation properties of many existing cable plants, especially older cable plants.

Id., 7:60-8:8. Given these constraints, Williams seeks to reduce the entire bandwidth requirement for transmission of signals, including satellite, cable, and terrestrial television signals, to a low enough bandwidth to be transmitted on a single cable to the IRDs. *Id.*, 3:50-64.

To address this problem, Williams discloses changing the modulation of transponder channels received from the satellite dish at the transmodulator **20**, which

reduces bandwidth of the data required to accommodate the users' selections of channels in one or more ways. *Id.*, 3:57-64. More specifically, Williams discloses that transmodulator **20** converts a selected 24 MHz bandwidth QPSK modulated transponder signal, which is included in the broadband signal, down to a 6 MHz bandwidth QAM modulated transponder signal. *Id.*, 7:4-7. This reduction in bandwidth is accomplished through a multistep process that includes decoding the QPSK-modulated transponder signal, digitizing and packetizing the data, and using a cable encoder to remodulate the signal as a QAM signal. *Id.*, 9:49-52, 10:10-16. Then, the transmodulator **20** combines the reduced bandwidth QAM modulated signals by frequency shifting them into one composite signal having an overall reduced bandwidth. *Id.*, 10:34-39, *see also id.*, Fig. 2. In this way, satellite signals that would otherwise have needed to be sent over multiple cables due to having too much bandwidth may all fit on one cable after being transmodulated and cable encoded. *See id.*, 9:49-52, 10:10-16, 10:34-39, Figs. 1-3.

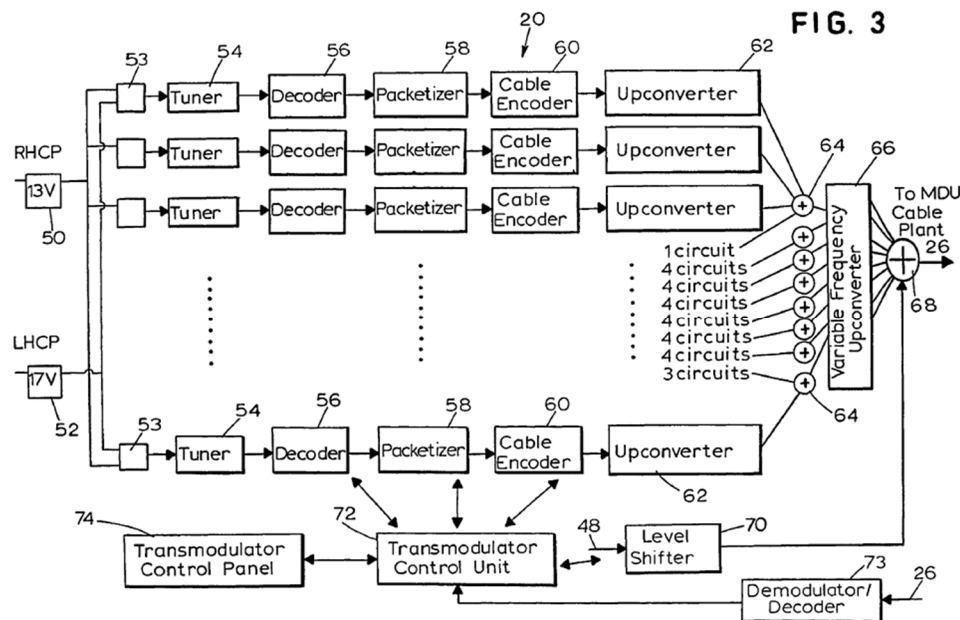
The IRDs then receive the cable encoded QAM signals from the single cable, and each IRD uses a cable decoder **112** to begin further processing of the signal to obtain a selected transponder channel. *Id.*, Fig. 7, 16:24-29. The cable encoded signals are descrambled during decoding. *Id.*, 16:35-36, Figs. 6-7. The decoder **112** may be a standard DVB cable decoder, which for example, includes a 128-QAM demodulator. *Id.*, 16:24-29.

The inventive aspects of Williams are performed in the transmodulator **20** (*i.e.*, performed in Figure 3), which, as illustrated, takes the incoming broadband signals, “transmodulates selected portions of the broadband signal into a transmodulated signal having a bandwidth that is smaller than that of the received broadband signal and transmits this transmodulated signal.” *Id.*, 3:57-61.

The Petition relies on an alleged alternative disclosure in Williams. *See, e.g.*, Petition, 6. Williams describes its primary embodiment in detail, and only briefly mentions an alternative disclosure where the transmodulator **20** works in a completely different manner. In this alternative disclosure, the transmodulator **20** eliminates one or more received transponder signal(s) entirely. *Id.*, 15:15-27. However, Williams specifically notes that this only works for a limited number of signals and becomes less viable as more transponder channels are needed. *Id.*, 15:24-27.

a. Primary Embodiment Of Williams

The primary embodiment of Williams is best explained and illustrated with reference to Figure 3, which is a block diagram of an embodiment of the transmodulator according to the present invention. *Id.*, 5:16-17.



Id., Fig. 3.

Figure 3 shows that the broadband signals (right-hand circular polarization (RHCP) and left-hand circular polarization (LHCP) QPSK-modulated satellite signals) are provided to multiple transmodulator channels (*e.g.*, 32 channels), each including a switch **53**, tuner **54**, satellite decoder **56**, packetizer **58**, cable encoder **60**, and upconverter **62**. *Id.*, 9:7-9, 9:32-35. Then all the signals from the channels are combined with summers **64**, variable frequency upconverter **66**, and summer **68**, and sent across one cable for use by the IRDs. *Id.*, 10:24-39.

The incoming broadband signals received at the transmodulator **20** from the satellite dish **14** include many transponder signals and each of these processing channels can handle one transponder signal. *Id.*, 8:59-62, 9:7-9, 9:35-39. Because Williams' system is for a multi-dwelling unit, there are many processing channels

situated in parallel, necessitating many analog components (*e.g.*, 32 switches **53**, 32 tuners **54**, 32 satellite decoders **56** (and so forth) are included in the system to provide the necessary capacity). *See id.*, 6:21-27, 9:35-39; *see also id.*, Fig. 3 (showing four channels or “circuits”, and ellipses representing 28 additional “circuits” sending transmodulated signals into summers **64**).

The switches **53** provide to the tuners **54** a broadband signal (*e.g.*, a right or left handed polarized 500 MHz signal), where each tuner **54** then tunes or selects a specific transponder signal (*e.g.*, 24 MHz) to process on that tuner’s processing channel. *Id.*, 9:40-47. Each satellite decoder **56** decodes by demodulating signals into a digital bit stream so the transponder signal is digitized. *Id.*, 12:55-13:12. The packetizer **58** processes the packets as illustrated in Figure 5 for cable encoding using cable encoder **60**. *Id.*, 13:55-62.

Williams explains that cable encoder **60** preferably uses 128-QAM, but notes that the signal distribution system **10** may use any other QAM modulation, “such as an 8-QAM, 16-QAM, 32-QAM, 64-QAM or higher order QAM modulator . . . to encode the decoded satellite signal.” *Id.*, 14:38-42. With this new modulation scheme, the cable encoder produces a reduced bandwidth signal (*e.g.*, 6MHz), which is sufficiently robust for transmission over the cable, for each selected transponder signal in each processing channel shown in Figure 3. *See, e.g., id.*, 15:21-27.

The remodulated signal output (*e.g.*, 6 MHz band) from the cable encoder **60** is provided to the upconverter **62** which shifts the frequency of this signal to an intermediate frequency, which is then combined by a summer **64** with other outputs from other upconverters **62**. *Id.*, 10:16-23. The summed signals are then upconverted to a different carrier frequency band by variable frequency upconverter **66**. *Id.*, 10:30-34. Finally, “[a] summer **68** then combines these upconverted transmodulated signals with each other and with any desired frequency-shifted or non-frequency-shifted terrestrial signals (delivered by a level shifter **70**) for propagation over the cable network **26** of FIG. 1.” *Id.*, 10:34-39. User selected satellite signals as well as any other cable or terrestrial signals therefore are combined at a *reduced* bandwidth.

In summary, using the hardware of Figure 3, the transmodulator **20** receives large incoming broadband signals, which are analog signals (*id.*, 1:48-62, 9:7-9), splits into narrow channels for processing in the analog domain by switches and tuners to select each transponder channel (*id.*, 9:31-35), which are then demodulated and digitized into packets. *Id.*, 9:40-52. The transmodulator **20** then cable encodes—by scrambling and QAM modulation—each of these transponder channel signals. *Id.*, 14:2-15. Finally, transmodulator **20** recombines and frequency shifts the outputs of these processing channels for transmission across a single cable to the

IRDs (*id.*, 10:16-39), this output signal having lower bandwidth than the collective incoming broadband signals at the inputs of Figure 3. *Id.*, 6:21-27.

As noted above, the principle of operation of the transmodulator **20** is to *reduce* bandwidth by *changing the modulation* of the received satellite signals to produce a bandwidth reduced composite signal that fits on a standard single cable. *Id.*, 3:57-64. The problem of too little bandwidth being available to transmit all stations exists in a large scale system which requires the use of many transponder signals, such as the multi-dwelling units described in Williams, and thus, the primary embodiment of Williams would be implemented when a substantial number of transponder channels may be required. Additionally, Williams reduces the amount of bandwidth required by the composite signal to avoid common issues with existing cable plants, particularly severe degradation of signals transmitted in the 950-1,450MHz range. *Id.*, 8:4-8. Williams notes that these problems can be addressed by utilizing more cables or by upgrading existing cable plants capable of 2GHz or greater bandwidth, but these solutions require additional equipment and are not adaptable to existing cable plant installations. *Id.*, 7:66-8:4.

b. Alternative Disclosure of Williams

Williams includes an alternative disclosure which is scantily described in five sentences spread over two paragraphs. *Id.*, 7:15-20, 15:15-27. This description is tertiary language that fails to enable or explain how this alternative disclosure would

actually work, and as discussed further below, it appears to have been added as an afterthought.

Williams introduces this alternative idea in the context of explaining that the transmodulator **20** need not use 128-QAM modulation specifically (as noted above, other higher or lower QAM may be used). *Id.*, 7:4-14. Williams states that “in some cases in which *only a few* of the selected signals are being distributed, the transmodulator *may not* need to remodulate the selected signals but may, instead, send these signals over the cable network **26** at the received modulation scheme.” *Id.*, 7:15-20. Note that the assumption of “only a few” input signals is not only contrary to the main premise of Williams, it transports Williams into an entirely different arena of signal processing.

In short, Williams says that if one abandons the constraint of too many input channels that led to the Williams invention, one would also abandon the solution of Williams. There is no point in using the transmodulation technique of Figure 3 as it is not helpful since bandwidth does not require reduction. But this is not a new path which Williams takes up and explores. In fact, this path is the same one that appears in so many prior art satellite distribution systems. There is nothing special—or more to the point, informative for the POSITA—about Williams’ “alternative disclosure.” Indeed it is wrong to even call these five sentences an embodiment—they are an extreme edge case where the entire premise and solution of Williams is abandoned.

Williams, however, apparently did not think this alternative disclosure through much, if at all. Williams indicates that transmodulation would be avoided by shifting selected frequencies (apparently referring to what is known in the art as IF-IF shift). However, there is no actual explanation of how or when the received broadband signals would be determined to use this alternative processing embodiment, when signals would be determined to use this alternative processing, how those signals would on-ramp or transition from Williams' transmodulation processing channel into another channel performing the alternative signal processing, or various other problematic omissions that render this alternative disclosure not readily enabled, as discussed further below.

Williams' explanation of the alternative disclosure also describes how it would not be useful for use in the field of the invention. Williams states "[t]he present invention relates generally to signal distribution systems and, more particularly, to audio/visual/data signal distribution systems that distribute satellite signals typically in conjunction with standard terrestrial and/or cable signals to a plurality of individual receivers within *one or more multiple dwelling units.*" *Id.*, 1:11-18. Particularly, Williams notes that:

Of course, this [alternative disclosure] only reduces the bandwidth used by the signals transmitted over the cable network **26** to the extent that it eliminates some of the received satellite transponder signals. Thus,

the more received satellite transponder signals that are to be sent to the IRDs **30-40**, *i.e.*, the more transmodulator channels there are, the less viable this option becomes.

Id., 15:20-27. Moreover, to the extent this alternative disclosure provides any useable teaching to a POSITA, it would use a completely different principle of operation than Williams' primary embodiment. Specifically, the alternate disclosure would be a transponder channel-constrained system that operates to provide satellite signals to only a few IRDs by shifting the frequency of transponder channels, rather than by changing the modulation, over a standard single cable. *See id.*, 7:15-20, 15:20-27.

2. Summary of Eutelsat

Like Williams, Eutelsat discloses a satellite distribution system including an ODU that provides signals for multi-dwelling units (or "collective reception systems"). Ex. 2001, 120, 124. Eutelsat provides an overview of possible satellite broadband reception and distribution architectures. *Id.*, 120, 124-137. Specifically, Eutelsat describes, in substantial detail, six different architectures or configurations. *Id.* Of the six different architectures, the architecture shown in Fig. 11, relied upon during reexamination, will be the primary focus of this discussion.

Eutelsat's Fig. 11, shown below, includes a satellite antenna, a quad LNB, followed by a channel selection portion and a channel combining portion (*Id.*, 349-

50), both of which perform frequency translation. The output of these two portions is sent, from the ODU over a single cable to satellite receiver(s) or IRD(s). *Id.*, 349-50, Fig. 11.

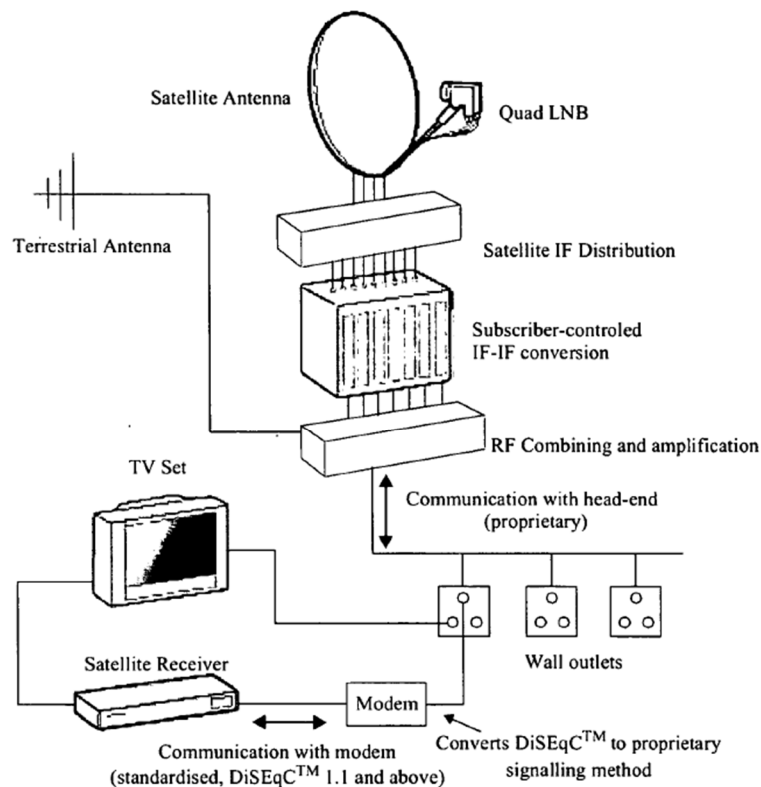


Figure 11 : Architecture of a System with a Remote Controlled Head-End

Id., Fig. 11.

As shown above, the quad LNB provides four cables, one for each of four different broadband signals of differing polarization or frequency received from a satellite(s) as an analog RF signal. *Id.*, Fig. 11. The architecture provided in Figure 11 enables users to remotely control the satellite distribution system to communicate the users' selected satellite transponder signals from the ODU over a single cable to

IRDs through the wall outlets (*e.g.*, in apartments) as shown above. *Id.*, 124, 134-135, Fig. 11. Specifically, Eutelsat's ODU uses subscriber controlled IF-IF conversion, combines the selected signals, and transmits the combined signals (*i.e.*, a composite signal) to receivers (*i.e.* IRDs) over the single cable. *Id.*, 134-135. With IF-IF conversion, an intermediate frequency signal is received from the LNB and, when that channel is selected by a user, that signal is extracted through shifting the signal in frequency without changing modulation of the signal. *Id.* In this way, Eutelsat teaches that analog broadband satellite signals are received by an ODU, users request certain channels within those broadband signals, the signals for those channels are selected, extracted, and distributed to the IRDs across a single cable without altering the modulation of the signals in the ODU, so as to provide a user selectable satellite signal distribution service. *See id.*

Thus, Eutelsat's cited embodiment of Figure 11, which does not change the modulation of the broadband signals in the ODU, is similar to William's alternative disclosure. *Compare* Ex. 2001, 134, *with* Ex. 1003, 15:20-27 (both acknowledging, among others, that these embodiments can handle a limited number of satellite signals). Eutelsat's architecture shown in Figure 13, which transmodulates the satellite broadband signals in the ODU, is similar to Williams' primary embodiment. *Compare* Ex. 2001, 136-137, *with* Ex. 1003, 4:57-60.

B. Pugel is Cumulative of Kelley

Both Pugel and Kelley disclose a high-speed ADC. *Compare* Ex. 1004, [0019], *with* Ex. 1005, 5:45-47. As the reexamination relied upon Kelley for its ADC and the Petition relies on Pugel for its ADC, the Petition puts forth cumulative art in the form of Pugel. Ex. 2001, 534.

1. Summary of Pugel

Pugel discloses a communications system including “a *receiver* capable of simultaneously receiving from each of a plurality of data channels respective portions of a data stream.” Ex. 1004, [0002]. Pugel’s receiver **100** is an indoor receiver which receives a signal “from the ‘outdoor’ portion (*i.e.*, satellite disk [sic] and associated circuitry) of a satellite system.” *Id.*, [0017]. Thus, Pugel discloses an indoor receiver that is not a part of an ODU.

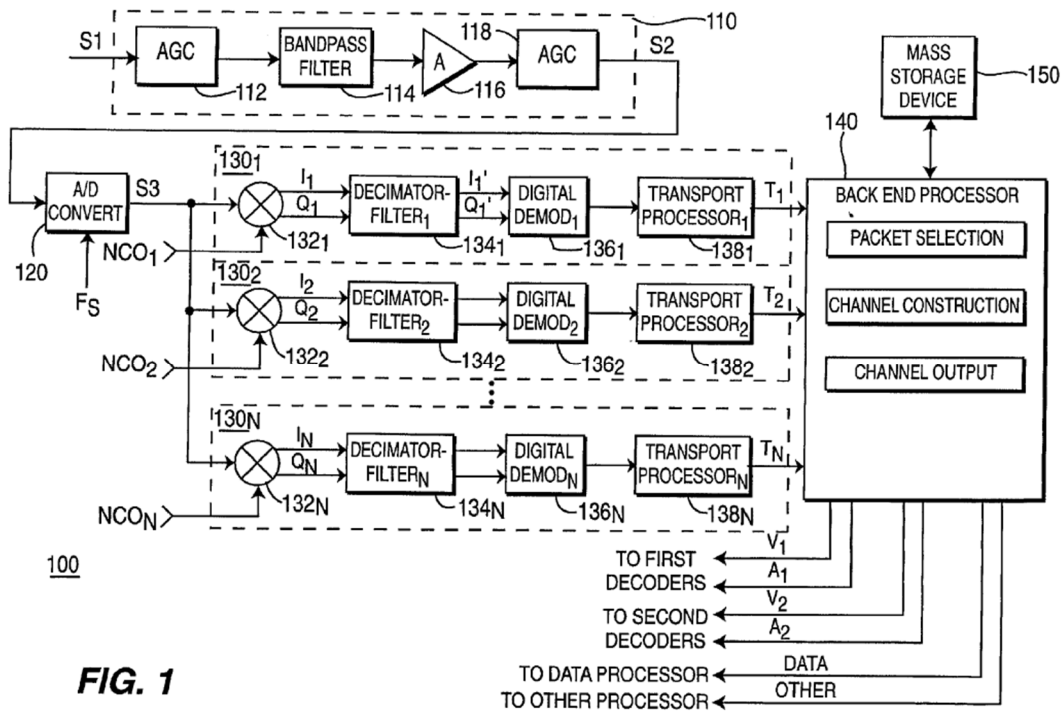
Pugel explains the background that gives rise to the invention of Pugel, stating “[c]ommunications systems having higher data throughput and greater efficiency in the use of available bandwidth are increasingly in demand.” *Id.*, [0003]. Pugel explains the reasons greater efficiency in the use of bandwidth is required, stating:

Where the amount of data to be transmitted is less than the amount of data that a channel is capable of transmitting, the defined channel is underutilized. In this case, the defined channel may transmit NULL packets during those time slices within which there is no data available to be transmitted. Where the data to be transmitted requires more

bandwidth than is available on the channel, an alternate channel having greater available capacity must be selected. Thus, communications channels typically operate at less than a 100% utilization level due to the likelihood that the number of data streams to be transmitted, and the amount of data within each stream, are likely not to match the bandwidth available in the transmission channels.

Id., [0004]. In other words, Pugel realizes that there is frequently a mismatch between available bandwidth capacity and required bandwidth: when too much bandwidth is available, energy of the communication channel is being wasted; whereas, when not enough bandwidth is available, a second transmission channel is required. *Id.*

Figure 1 of Pugel, shown below, illustrates a receiver which, at a high level, includes an analog processing section **110** that processes an analog RF signal, an ADC **120**, parallel channel processors **130** that tune and demodulate the output of the ADC for each transponder channel, and a back end processor **140** that distributes requested signals to users (*e.g.*, to individual IRDs). *Id.*, [0008], [0015-16], [0021-23].



Id., Fig. 1.

The analog processing section **110** receives an analog signal **S1** in the 950-1,450MHz range. *Id.*, [0017], Fig. 1. The analog signal **S1** is processed through several analog components, including a first analog gain control (“AGC”) function block **112**, bandpass filter **114**, amplifier **116**, and a second AGC **118** to produce an output **S2** that is ready to be digitized. *Id.* The ADC **120** then converts the analog signal **S2** to a digital signal **S3** for input into the channel processor **130**. *Id.*, [0018]. Each of the channel processors **130** has a mixer **132**, a decimator/filter **134**, a digital demodulator **136**, and a transport processor **138**. *Id.*, [0021]. The digital signal output from the ADC **120** is input to each mixer **132**, which selects the signal for

each respective channel or transponder signal within the original analog signal to produce in-phase and quadrature components (I & Q). *Id.*, [0018-19], [0022].

Once each channel signal is separated into its own channel processor **130**, it is output from the mixer **132** de-rotated to baseband as I & Q components, which are decimated and filtered to remove undesired channel energy. *Id.*, [0023]. The digital demodulator **136** receives the decimated signal from decimator/filter **134** and provides a demodulated data stream to the transport processor **138**, which in turn provides an output transport stream for processing in the back end processor **140**, ultimately to be distributed to users. *Id.*, [0024], [0026].

2. Summary of Kelley

Kelley is directed to a receiver that performs digital channel selection for multiple simultaneous users. Ex. 1005, 1:12-14. Much like Pugel, Kelley's receiver, via antenna **14**, receives an analog RF signal and digitizes that signal for channel selection or station selection by multiple users. *Id.*, 5:35-37, 7:34-40, Fig. 8. Figure 8 of Kelley, shown below, illustrates a block diagram of the receiver which, at a high level, includes an analog gain processing section that processes the analog RF signal, an ADC to digitize the signal, and digital processing components that separate a composite signal into the selected channels and demodulate each channel for users to simultaneously receive the selected channels. *Id.*, 5:35-56.

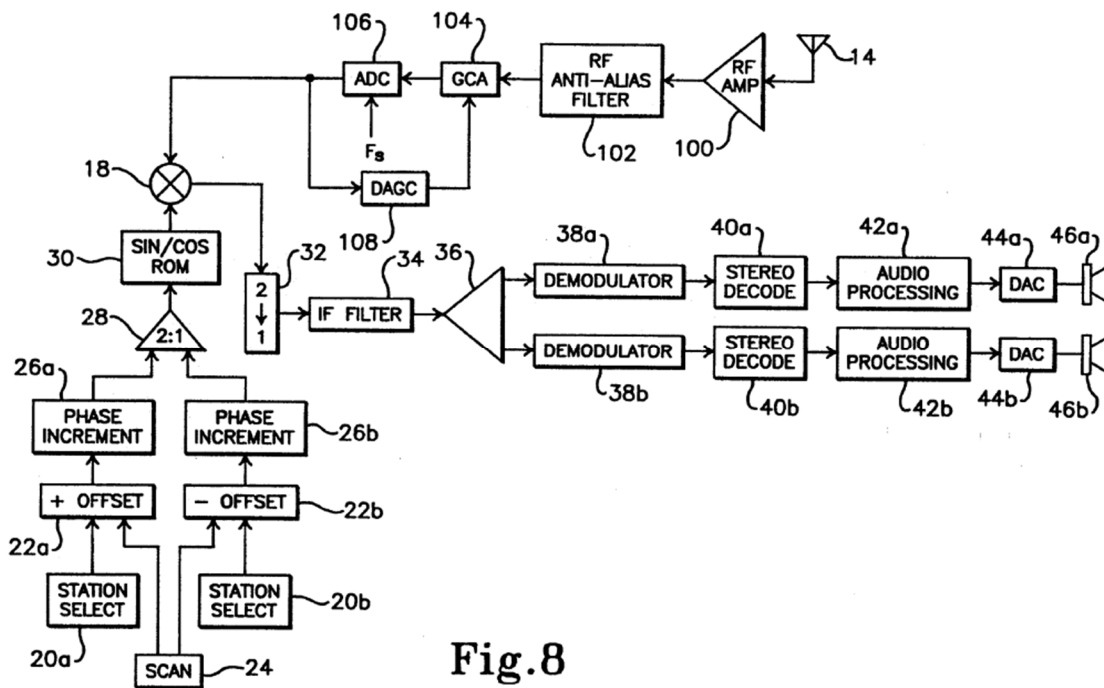


Fig.8

Id., Fig. 8.

As shown above, Kelley includes analog gain processing circuitry (RF amplifier **100**, RF anti-alias filter **102**, gain controlled amplifier (GCA) **104**) that processes the analog signal to be ready for digitation before being provided to the ADC **106**. *Id.*, 5:35-56. Kelley describes ADC **106** is a “high-speed precision analog-to-digital converter.” *Id.*, 5:45-46. This high-speed ADC is necessary because the incoming analog signal from antenna **14** is a broadband signal including many broadcast channels or stations, each having a station sub-band included within the full spectrum of the signal as shown in Figure 1. *Id.*, 3:48-52, Fig. 1.

After the ADC **106**, are Kelley’s complex multiplier **18**, decimator **32**, digital lowpass IF filter **34**, and digital demodulator **38**. *Id.*, 6:31-43, 7:17-19, 7:27-56, Fig.

8. The complex multiplier **18**, which is a mixer, is used, in conjunction with the station selection mechanisms **20a**, **20b**, to create a composite signal with only the selected channels (*e.g.*, F1, F2, and F3 are selected). *Id.*, 5:2-5, 7:17-19, 7:27-31. The decimator **32** reduces the data rate by a factor of the number of selected stations, and the digital lowpass IF filter **34** isolates each desired channel within the composite signal. *Id.*, 7:27-40, Fig. 8. The digital demodulators **38a**, **38b** demodulate the decimated signals, the stereo decoders **40a**, **40b** separate the left and right stereo signals for each separate station, the digital audio processors **42a**, **42b** condition the signals with functions such as tone control or volume control, and the digital-to-analog converters **44a**, **44b** convert the processed digital signals to analog format for output on a speakers **46a**, **46b**. *Id.*, 7:53-66.

Thus, Kelley's receiver is configured to receive an RF analog broadband signal, digitize the analog broadband signal, select a desired channel using a digital mixer, decimator, and filter, demodulate the selected desired channels using a demodulator, and process the demodulated signal for output. This is equivalent to the processing of a channel as shown in Figure 1 of Pugel.

IV. THE BOARD SHOULD DENY INSTITUTION GIVEN THE CUMULATIVE NATURE OF THE ARGUMENTS AND FAILURE TO SHOW A REASONABLE LIKELIHOOD OF SUCCESS

With the benefit of hindsight, the Petition has cobbled together two references that arguably disclose every element of the challenged claims. However, the Petition

presents nothing beyond what the Office has previously considered and rejected. Thus, the Board should reject the Petition's arguments and deny institution.

First, the Petition should be denied pursuant to 35 U.S.C. § 325(d). Williams' alternative disclosure and Pugel are cumulative of art considered between the initial prosecution and the reexamination of the '576 Patent. Specifically, Williams' alternative disclosure corresponds to embodiments of Eutelsat and the disclosure of Pugel corresponds to embodiments of Kelley relied on in the reexamination. The Petition has failed to show any material error when the Office granted the amended claims after reexamination, and therefore, the Board should exercise its discretion and reject the Petition's well-worn arguments.

Second, Ground 1 fails to provide a sufficient motivation to combine the asserted references in the manner asserted by the Petition. The Petition's combination of Williams' alternative disclosure and Pugel conflicts with the principle under which Williams' alternative disclosure operates—that, without transmodulation, Williams' architecture can only handle a limited number of transponder signals in a limited frequency spectrum. Finally, given that Williams' alternative disclosure can only handle a limited number of transponder signals, a POSITA would not be motivated to incorporate Pugel's ADC into the front-end of Williams' architecture—as asserted by the Petition—because a POSITA would

understand that such a combination would not operate within the cable plant utilized in Williams' architecture.

For these reasons, the Petition fails to establish a reasonable likelihood of prevailing on any ground and, therefore, the Board should deny institution.

A. The Board Should Exercise Its Discretion To Decline Institution Of Ground 1 Pursuant To 35 U.S.C. § 325(d)

Section 325(d) states that “[i]n determining whether to institute . . . the Director may take into account whether . . . the same or substantially the same prior art or arguments previously were presented to the Office.” Institution of *inter partes* review is discretionary. *See Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“the PTO is permitted, but never compelled, to institute an IPR proceeding.”). “[U]nder § 325(d), the Board uses the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics, LLC v. Med-El Electromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). To help apply this framework, the Board utilizes the *Becton, Dickinson* factors. *Id.*, 9. These factors are:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioners rely on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioners have pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen, IPR2017-01586, Paper 8 at 17-18 (PTAB Dec. 15, 2017) (precedential).

1. Williams' Alternative Disclosure is Cumulative of Eutelsat and Pugel is Cumulative of Kelley

Beginning with the first prong of *Advanced Bionics*, the entirety of the Petition's arguments as to the first prong is that the combination of Williams and Pugel was never considered during the prosecution or reexamination of the '576

Patent. Petition, 75. By not providing any analysis on whether Williams and Pugel are the same or substantially similar to art considered previously, the Petition tacitly admits that the first prong of *Advanced Bionics* is satisfied.

Moreover, given the Board's precedent, the Petition must concede this point, at least as to Williams' primary embodiment: this Board's "precedent holds that providing a document to the Office in an Information Disclosure Statement is sufficient to satisfy prong one of the *Advanced Bionics* analysis as long as that 'previously presented' art is 'the same or substantially the same' as that presented in the Petition." *Google LLC v. Valtrus Innovations Ltd.*, IPR2022-01197, Paper 18 at 15-16 (PTAB Jun. 13, 2023) (quoting *Advanced Bionics*, Paper 6 at 7-8). Williams not only appears on the face of the patent (Ex. 1001, Cover), but Williams' primary embodiment was clearly considered by the Examiner during the initial prosecution of the '576 Patent. *See supra* Section II.A.

As for Williams' alternative disclosure and Pugel, both of these references are similar and cumulative of references considered during the reexamination of the '576 Patent.

a. The Original Prosecution Considered The Same Prior Art, Williams, As A Primary Reference

The Examiner in the original prosecution cited Williams as allegedly anticipating the originally filed claims, citing Williams' primary embodiment as

illustrated in Figures 1 and 3. Ex. 1006, 70. Entropic responded to the rejection, overcoming the rejection by amending Claim 14 to recite “wherein the modulation of the transponder signal is not altered by the steps of selecting, combining, and transmitting,” and generally arguing that Williams teaches altering modulation (via its transmodulator 20). *Id.*, 83, 85-86, 88.

These arguments are not misleading in any way and were entirely responsive to the rejection presented by the Examiner. These arguments were directed to the primary embodiment of Williams relied upon for the rejection and not directed to Petitioners’ relied upon alternative disclosure teachings that are not aligned with the purpose of Williams and that result in an inoperative system without other modifications (as discussed further below). The arguments highlight that “the extra steps in Williams of decoding and re-encoding in the selector and combiner [are] avoided” in the present invention and that the “transmodulation approach of Williams does not anticipate the simpler and more robust approach of the present invention.” *Id.*, 86.

Moreover, there is nothing to suggest that the Examiner was unaware of the description of Williams’ alternative disclosure, and presumably, the Examiner understood that just because it is *conceivable* to modify a reference’s poorly described and non-enabled alternative disclosure does not mean that it is *obvious* to do so. It appears the Examiner understood these arguments and agreed that

Williams' primary embodiment uses transmodulation, and discounted the non-enabled and inoperative alternative disclosure as tertiary language, for example, since all of the embodiments of Williams still require cable encoding onto a standard cable.

Accordingly, Williams was previously addressed during the original prosecution, used as a primary reference to reject claim 14, and then used as a secondary reference in combination with Shah, and ultimately set aside after an amendment overcame the anticipation rejection. After several rounds of consideration, Williams was found to not render claim 14 obvious. It borders on unreasonable that the Petitioners now assert Williams again as the primary reference, clinging to five sentences of an ill-conceived alternative disclosure for a second bite at the apple with this reference.

b. Williams is Cumulative to Eutelsat, Which Was Considered And Applied By The Examiner During *Ex Parte* Reexamination

Even if the Petition is correct that the Examiner was unaware of Williams' alternative disclosure, the Reexamination Unit considered Williams' alternative disclosure when it cited Eutelsat—which operates in the same manner as Williams' alternative disclosure—for an anticipation rejection during reexamination. Petitioners concede this point as well when they fail to provide any explanation regarding how Eutelsat differs from Williams' alternative disclosure. *See* Petition,

75-77 (offering no comparisons between Eutelsat and Williams' alternative disclosure when addressing § 325(d)). Thus, as described herein, the Petition presents cumulative prior art and duplicative arguments in light of the PTO's consideration of Eutelsat during the reexamination of the '576 Patent.

The cumulative nature of Williams' alternative disclosure becomes readily apparent when compared to Eutelsat. As noted above in Section III.A.2, Eutelsat was used as an anticipation reference of claim 14, as well as the primary reference for obviousness rejections of dependent claims. Regarding claim 14, the rejection cited Eutelsat's Figure 11, shown below, for communicating selected satellite transponder signals from an outdoor unit, through an IF-IF conversion, combining the selected signals, and transmitting the combined signals to IRDs. Ex. 2001, 526-28.

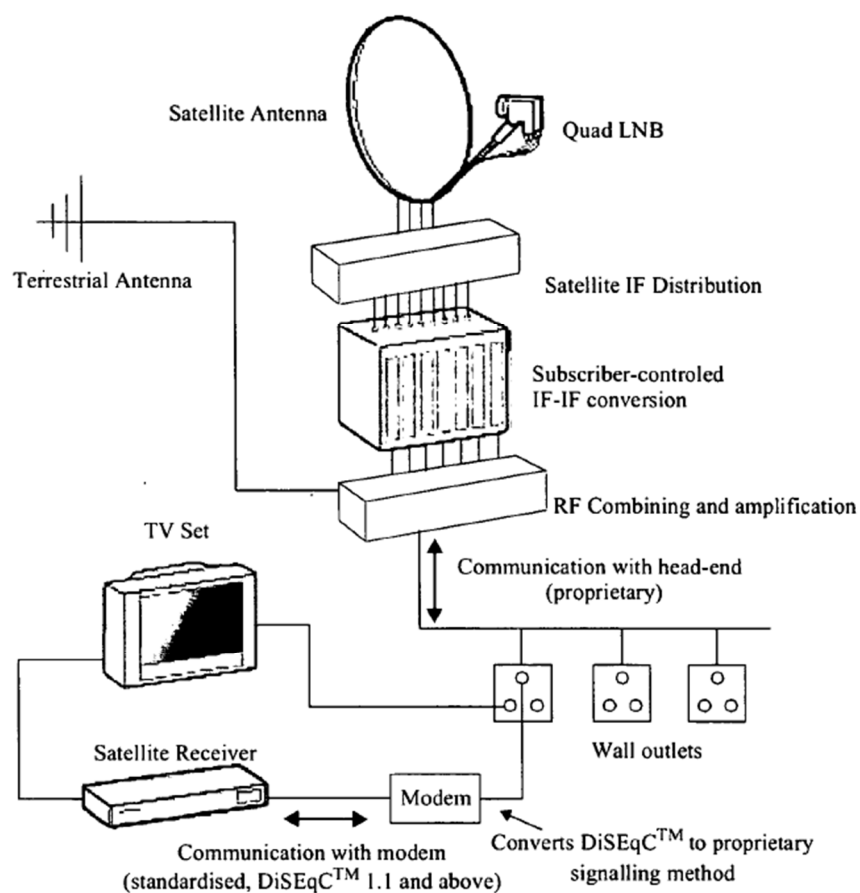


Figure 11 : Architecture of a System with a Remote Controlled Head-End

Id., Fig. 11.

Further, Eutelsat was cited for teaching “the modulation of the transponder signal is not altered by the steps of selecting, combining, and transmitting.” *Id.*, 528-29. Specifically, the Reexamination Examiner explains that Eutelsat teaches satellite signals are selected and distributed to the IRDs, such that “a system that does not alter the modulation is taught.” *Id.*

Petitioners now want the Board to reconsider this very same issue, citing Williams’ alternative disclosure, which is alleged to teach a system that does not

alter modulation. So, not only is Petitioners' currently asserted primary reference, Williams, cumulative of the Eutelsat reference used to reject claim 14 in reexamination, it is the same exact reference as originally used to reject claim 14 in the original prosecution, with a new focus on five sentences of tertiary description of an alternative disclosure, the substance of which was fully disclosed in Eutelsat, and already fully considered in reexamination, if not also considered in the original examination as well.

Specifically, Eutelsat was the basis of the anticipation rejection of claim 14. *Id.*, 526-28. Claim 14 was then amended to overcome Eutelsat. *Id.*, 548, 557-58. The Examiner explicitly distinguished Eutelsat in the Notice of Intent to Issue Reexamination Certificate. *Id.*, 591. Since Eutelsat teaches the same limitations that work in the same way as Williams' alternate disclosure, this argument has already been squarely considered.

Unlike Williams' alternative disclosure, Eutelsat is a fulsome disclosure of nearly 50 pages of explanation on various satellite distribution system architectures for multi-dwelling units (or "collective reception systems") with the purpose of the reference being "to identify the different possible reception system architectures and to discuss the various advantages and disadvantages of each solution," including some options with the same goal as Williams of putting the selected signals onto a single cable for distribution to IRDs. *Id.*, 120, 130, 134. Williams' alternate

disclosure is just five sentences of tertiary language that is inconsistent with the primary embodiment of Williams for the various reasons discussed herein. The Petition now wants the Board to devote its time to reconsidering the same arguments as those already considered by the Reexamination Unit in the context of the hearty and detailed Eutelsat reference, but limited to five sentences of cursory disclosure from Williams.

While Eutelsat's disclosure of the IF-IF shift is cumulative to Williams' alternative disclosure, other disclosures of Eutelsat are generally cumulative of Williams' primary embodiment, since Eutelsat also generally discloses a transmodulation system similar to Williams' transmodulator 20. *See supra* Section III.A.2.

Moreover, Petitioners have not asserted or even attempted to explain any material differences between Williams and Eutelsat. *See* Petition, 75-77 (failing to mention Eutelsat at all, let alone explaining how Williams is not cumulative of Eutelsat). The Petition's arguments that the Board should not decline institution under § 325(d) do not even mention Eutelsat, apparently hoping the Board will not realize that these arguments were previously addressed during reexamination, which is a clear-cut reason to decline institution. The Petition's description of the '576 Patent's reexamination does not even allege that the Reexamination Unit erred in

allowing claim 14 over Eutelsat. Petition, 17-18, 75-77. This is because the Reexamination Unit correctly granted the Reexamination Certificate.

Petitioners do not and cannot argue that some overlooked aspect or alternative disclosure of Eutelsat was not considered, because the arguments addressed all six of Eutelsat's embodiments, none of which taught or suggested digitization of the broadband signals in the ODU. *See* Ex. 2001, 554-58, 591.

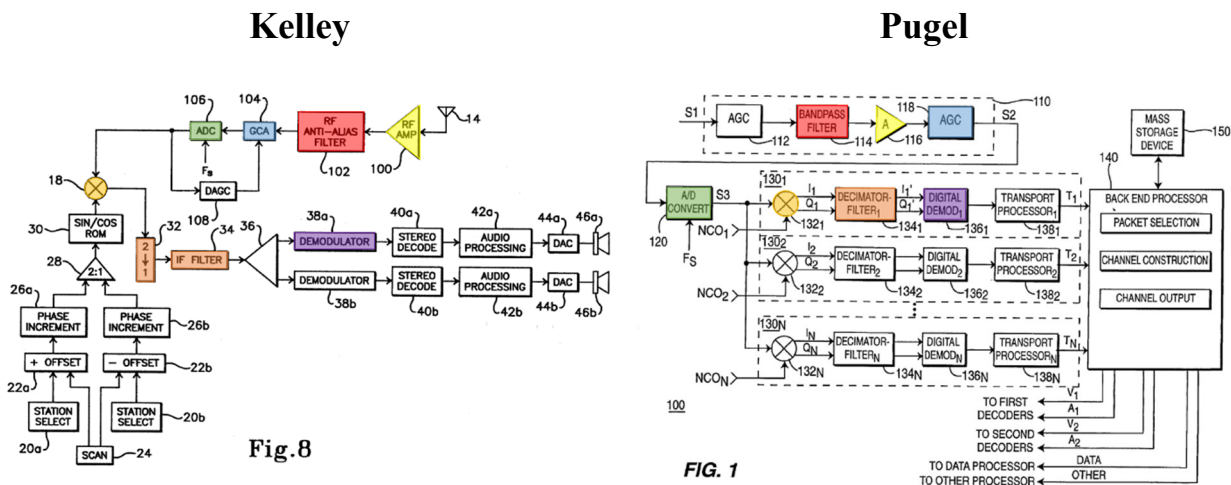
Accordingly, Williams' alternative disclosure is completely cumulative of Eutelsat, with no significant material differences, and Eutelsat was thoroughly evaluated by the Reexamination Unit. The Petition argues essentially the same exact argument regarding Williams that the Reexamination Unit considered with respect to Eutelsat, and the Petition fails to explain how the Reexamination Unit erred in their evaluation of Eutelsat. In other words, the Petition does nothing to warrant reconsidering the same arguments again with Williams, and the Board should decline institution at least in view of the Reexamination Unit's consideration of Eutelsat.

**c. Pugel Is Cumulative To Kelley, Which Was
Considered And Applied By The Examiner During *Ex Parte* Reexamination**

The Petition asserts that the ADC of Pugel would be used to modify Williams' alternative disclosure to render claim 14 obvious. *See* Petition, 27. Pugel is

effectively the same prior art as Kelley, which was already considered during reexamination in combination with Eutelsat.

Dependent claim 3 recites “the signal selector comprises an analog to digital converter and a digital filter.” Ex. 1001, cl. 3. The rejection during reexamination admitted that Eutelsat did not disclose claim 3, and relied on Kelley’s “digital receiver with an analog to digital converter ADC **106** that digitizes the RF input signal and provides it to a digital tuner.” Ex. 2001, 534. This cited disclosure of Kelley is essentially identical to the ADC of Pugel, as illustrated by the annotated figures below:



Compare Ex. 1005, Fig. 8, with Ex. 1004, Fig. 1 (showing amplifier **100/116**, filter **102/114**, AGC **104/118**, ADC **106/120**, mixer **18/132**, decimator and filter **32/34/134**, and demodulator **38/136**).

As shown above, these references are substantially similar with no material differences in relation to the placement of the ADCs within the respective receivers. Kelley, like Pugel, includes analog gain processing circuitry before the ADC **106**. Ex. 1004, [0017]; Ex. 1005, 5:39-47. Next, similar to Pugel's mixer **132**, decimator/filter **134**, and digital demodulator **136**, are Kelley's mixer **18**, decimator **32**, filter **34**, and demodulator **38**. Ex. 1004, Fig. 1, [0021]; Ex. 1005, Fig. 8, 7:27-37, 53-56. Further, Kelley describes ADC **106** as a "high speed precision analog-to-digital converter." Ex. 1005, 5:45-46. This fast sampling ADC **106** of Kelley is substantially similar to Pugel's ADC **120**, which is "a high-speed analog-to-digital converter." Ex. 1004, [0019]; *see also*, Ex. 1002, ¶115. Thus, with respect to the operation of the ADC, Pugel is wholly cumulative of Kelley, and the Reexamination Examiner specifically distinguished the disclosure of Kelley from digitizing a plurality of broadband signals in an ODU. Ex. 2001, 534.

2. The Office Did Not Err When it Rejected the Combination of Eutelsat and Kelley, which is Cumulative of the Combination Of Williams And Pugel Asserted in the Petition

Turning to Prong 2, the Petition has failed to demonstrate that the Office erred in a manner material to the patentability of the challenged claims when it dismissed the combination of Eutelsat and Kelley, which is cumulative of the Petition's combination of Williams and Pugel. According to the Petition, Pugel's ADC would be dropped into Williams' alternative disclosure to substitute analog components for

their digital counterparts to arrive at claim 14. Petition, 27. However, during reexamination, the Reexamination Unit issued an obviousness rejection over Eutelsat and Kelley that is almost the same as the Petition's combination of Williams and Pugel. Ex. 2001, 534. Thus, the Reexamination Unit already considered the combination of Williams and Pugel through its consideration of Eutelsat and Kelley. By issuing the Reexamination Certificate for claims 14 and 3, the Reexamination Unit found these claims not obvious thereby rejecting the combination of Eutelsat and Kelley.

Now, Petitioners imply (but do not explain) that the Reexamination Unit erred when it found that it would not be obvious to pluck the ADC from Kelley (now Pugel) and drop it into Eutelsat (now Williams' alternative disclosure). Thus, the present obviousness arguments that hinge on taking the ADC from Pugel to incorporate into Williams were already considered and rejected.

The Reexamination Unit got it right the first time, and Petitioners are merely hoping to get a second bite at the apple. This is actually really a *third* bite at the apple considering that Williams was also considered in the original prosecution. Ex. 1006, 67.

The Board should reject the Petition under 35 U.S.C. § 325(d). All six of the *Becton, Dickinson* factors are met in favor of denying institution. The Petition relies on art already considered and/or cumulative of art considered during examination

and reexamination and re-presents the same arguments already made in examination and reexamination. This art was carefully considered and the Petition does not indicate any errors in the previous proceedings and provides no additional evidence or facts that warrant reconsideration of the prior art or arguments.

B. Ground 1 Fails To Provide a Sufficient Motivation to Combine Williams and Pugel to Render Obvious Claim 14

Using previously rejected arguments as a blueprint, the Petition has concocted a combination of cumulative references that appears to disclose every element of claim 14. However, the Petition fails to adequately explain why a POSITA would be motivated to combine Williams and Pugel in the manner asserted in the Petition. The Petition fails to offer an adequate motivation to combine for two reasons: (1) the proposed combination impermissibly changes the principle of operation of Williams' alternative disclosure; and (2) Williams teaches away from the operating environment utilized in the system of Pugel. Thus, as described in detail below, the Petition fails to put forth a sufficient motivation to combine. For this reason, institution should be denied.

1. No Teaching or Suggestion To Move Indoor Circuitry To Outdoor Unit

a. The Petition Presents Arguments Already Considered During Reexamination

During reexamination, the Examiner specifically considered and rejected the idea of incorporating Kelley’s ADC for digital processing into the outdoor unit. Ex. 2001, 591 (“Kelly [*sic*] is [] again silent with regard to . . . selecting and extracting the transponder signals from received digitized satellite broadband signals as now required by the amended claims.”). Thus, the Reexamination Unit, after thoughtful consideration of the arguments, understood that it was **conceivable** to modify the teachings of Eutelsat (just like Williams’ alternative disclosure) using Kelley’s ADC (just like Pugel), but determined it was **not obvious** to do so. *Id.*; see also *Adidas AG v. Nike, Inc.*, 963 F.3d 1355, 1359 (Fed. Cir. 2020) (“The obviousness inquiry does not merely ask whether a skilled artisan could combine the references, but instead asks whether ‘they would have been motivated to do so.’”) (quoting *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014)).

Now, fifteen years after the reexamination concluded, the Petition offers the same effective combination and motivation to combine that the Reexamination Unit considered and rejected. Similar to Kelley, Pugel discloses an indoor unit having an ADC for processing signals received from an outdoor unit. Just as previously considered by the Reexamination Unit with respect to Kelley, Pugel is silent on digitizing received satellite broadband signals at an ODU, a fundamentally different device from the indoor unit described in Pugel.

b. **The Petition Provides No Additional Evidence and Only Relies on Impermissible Hindsight Reconstruction**

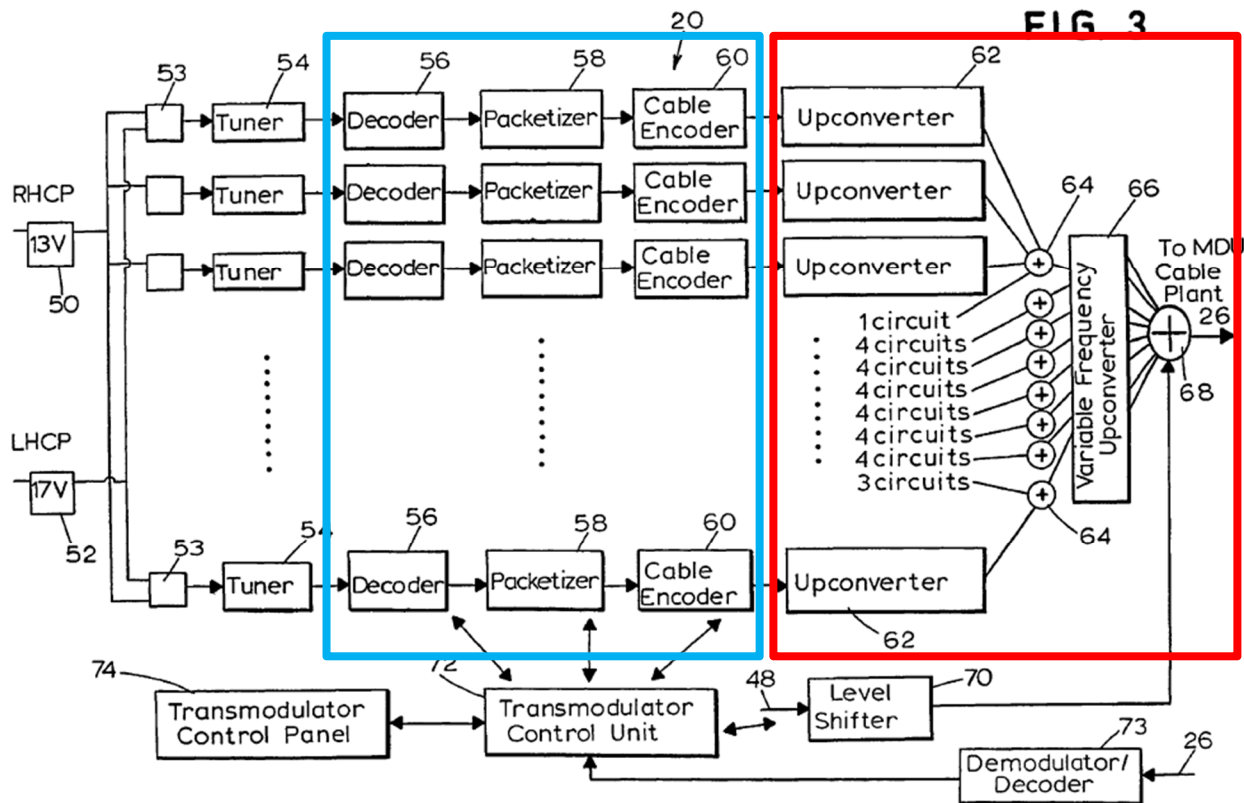
The Petition also brings nothing new to the table in terms of actual evidence from the relevant time period. Although all combinations of references necessarily rely on some measure of hindsight reconstruction, the motivation to combine articulated in the Petition exceeds any appropriate amount of hindsight reconstruction. Rather, the Petition relies solely on an expert's impermissible hindsight-based analysis that modifying an ODU using indoor digitization circuitry is obvious. Petition, 25-29.

The heart of Petitioners' argument is that changing analog components to digital components to facilitate an earlier digitization point is a simple change. Petition, 26-27. However, this notion is far from accurate, and relies on the fact that, in 2023, digital components are ubiquitous. Thus, what might seem like an obvious and simple substitution in 2023, *over two decades later*, was not an obvious modification in 2001. The Reexamination Unit decided this much when it found the combination of Eutelsat and Kelley as more than a simple substitution in 2008, only seven years after the priority date.

The Petition alleges that a POSITA would be motivated to "move the point of digitization" earlier by inserting Pugel's ADC "as early as possible" in Williams' system, before switches **53** and tuners **54**, and use known digital signal processing

equivalents to replace analog components such as switches **53** and tuners **54**. Petition, 26-27. To arrive at this conclusion, Petitioners assert that “the front portion of Williams-873’s system, including the tuning (*i.e.*, channel selection), frequency translating, and signal combining, are not conducted in the digital domain.” Petition, 26 (Ex. 1002-Schonfeld, ¶¶114-17).

As shown below, at a high level, the *front* portion of Williams (*i.e.*, the left side of Figure 3) does not include frequency translating and signal combining. Rather, the frequency translating and signal combining are performed by upconverter **62**, summers **64**, variable frequency upconverter **66**, and summer **68** (in red); these frequency translating and signal combining components are located at the *end* portion (*i.e.*, the right side of Figure 3) of the transmodulator **20** and after the critical transmodulation components, which are the decoder **56**, the packetizer **58**, and the cable encoder **60** (in blue).



Ex. 1003, Fig. 3.

It is telling that the Petitioners' expert got this important fact wrong. How can Petitioners know what components a POSITA would be motivated to add, move, or replace if they don't even know which end of the channel is the front end and which is the rear end, and which components go in either end? What the Petition proposes is not merely a simple substitution of analog components for digital components, but rather a wholesale rearchitecting of Williams that, as described in more detail below, requires further downstream changes to Williams that are not disclosed in either Williams or Pugel. This is true in both the primary embodiment and alternative disclosure disclosed in Williams. This blatant error in the Petitioners' expert's

reasoning clearly highlights the Petition's reliance on impermissible hindsight reasoning and does not rely on the knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made.

Further, in asserting that Pugel's ADC would be dropped into Williams, the Petition implies each broadband signal processing channel would have the following change illustrated below, adding in an ADC **120** of Pugel before Williams' switches **53**.

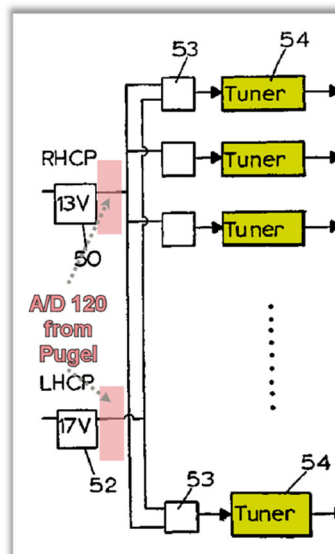


Figure 3 - Moving the Point of Digitization in Williams-873 Transmodulator 20 in View of Pugel 120

Petition, 26.

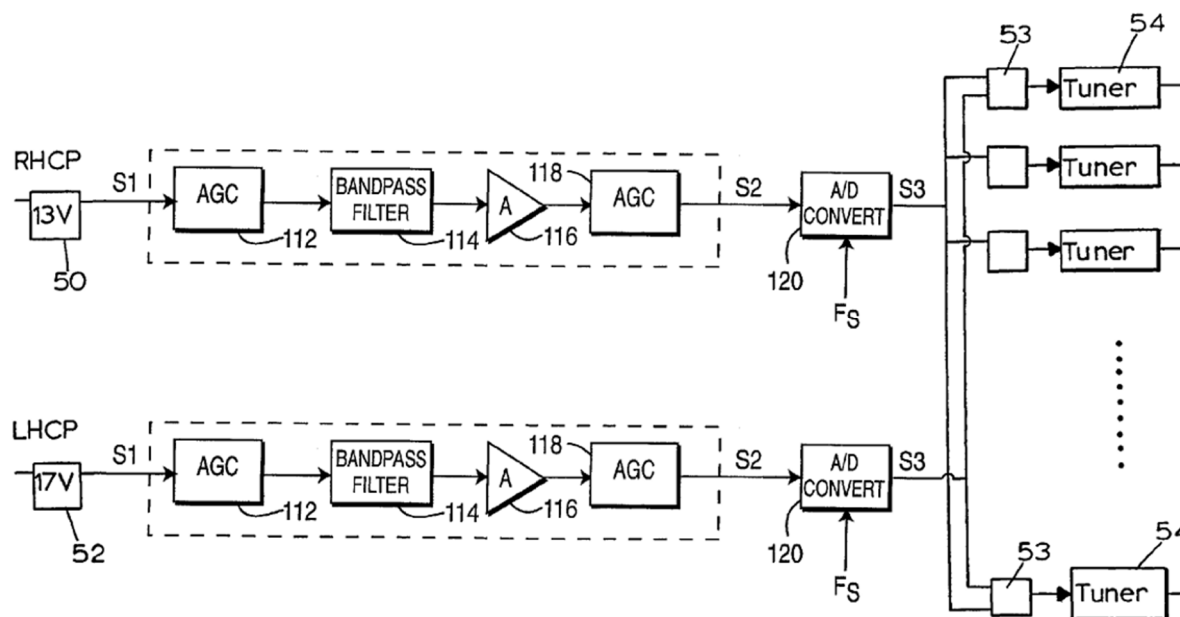
However, the significant effort necessary to ensure the successful integration of Pugel's ADC **120** into the ODU of Williams' alternative disclosure outweighs any alleged benefits that would motivate a POSITA to combine the references. At a minimum, Pugel's ADC **120** requires an analog pre-processing section in order to

process the broadband signal. Ex. 1004, [0017], Fig. 1. This analog pre-processing section **110** includes an analog gain control **112**, a bandpass filter **114**, an amplifier **116**, and a second analog gain control **118** to produce an output **S2** that is ready to be digitized. *Id.*

A POSITA would know that this pre-processing section of Pugel would be required, for Kelley also requires a pre-processing section. Kelley discloses that an analog pre-processing section is required before the ADC **106** is able to process the broadband signal. Ex. 1005, 5:35-6:6, Fig. 8. Specifically, Kelley includes an RF amplifier **100**, an RF anti-aliasing filter **102**, and a gain controlled amplifier **104**, which also used feedback from digital automatic gain control **108**. *Id.*, 5:39-56. Potentially, even more components may be required, for example, if one ADC could not cover the full bandwidth of the broadband signal, multiple sets may be required.

Using Pugel's or Kelley's ADC without pre-processing signals causes problems, since noise normally stripped out by these analog pre-processing components may unacceptably degrade the digital signal output by the ADC. However, adding these necessary analog components rated for full broadband signals runs contrary to the Petition's purported motivation to combine—avoiding “high cost” analog hardware components. Petition, 27-28.

To the extent that Williams' alternative disclosure is modified, adding the ADC placed in front of the switches **53** would actually look something like this:



Ex. 1003, Fig. 3 (modified to include components from Ex. 1004, Fig. 1).

The Petition conveniently ignores this pre-processing section to make its motivation to combine even somewhat plausible. When viewed including *some* of the additional extra components necessary to render this system operational, the depiction begins to underscore the Petition's deceptive "simple substitution" arguments. The Petition minimizes the componentry changes in an effort to imply there would be a motivation to combine Pugel with Williams, even though there is no actual motivation to move indoor circuitry into an ODU, and doing so would be more complex that Petitioners let on.

Thus, on one side of the scale is all the additional effort and cost of components and on the other side is the minimal gains in efficiency Pugel's ADC would offer in the transponder channel-constrained alternative disclosure of

Williams. Thus, arguably a POSITA could integrate Pugel into Williams' alternative disclosure, but the POSITA, particularly at the time of the invention of the '576 Patent, would quickly realize, in light of the minimal, if any, efficiencies gains, that the juice is not worth the squeeze and would lose all motivation to undertake the significant effort to combine the references. *See Adidas*, 963 F.3d at 1359 ("The obviousness inquiry does not merely ask whether a skilled artisan **could** combine the references, but instead asks whether they **would** have been motivated to do so.") (internal quotation marks omitted) (emphasis added).

Thus, the Petition fails to offer any new information for the Board to consider as to why a POSITA would be motivated to move circuitry related to the processing of signals received from an ODU out of the home and into the ODU. Ex. 2001, 554-58, 590-91. Rather, the Petition relies on impermissible hindsight reconstruction and intentionally deceptive descriptions of the proposed combination that are not supported by the references. Like the Reexamination Unit before it with respect to Eutelsat and Kelley, the Board should find that there is no motivation to combine Williams and Pugel. Accordingly, Ground 1 fails for at least this reason and institution should be denied.

2. The Petition Fails to State a Legally Sufficient Motivation to Combine Williams and Pugel

The Petition asserts that a POSITA would have been motivated to combine Williams and Pugel because both are allegedly directed to the same problem: “how to optimally process and distribute received signals in view of user needs at a given point in time.” Petition, 25. However, Williams and Pugel address different problems, neither of which are related to the problem articulated in the Petition. Williams addresses a problem of being constrained to the use of a single cable to deliver content a multi-dwelling unit, and having too many channels to fit on the available bandwidth of the single cable. *See supra* Section III.A.1. In Pugel, the problem is how to digitize and digitally decode data received from an ODU. *See supra* Section III.B.1. Neither of these references are related to processing and distributing signals in view of user needs at a given point in time.

Williams simply needs the requested signals from each tenant in the multi-dwelling unit to fit on the available bandwidth of one cable with adequate reception quality, while avoiding issues with the ability to transmit data in certain frequency ranges. While Williams primarily considers transmodulating these signals to a modulation requiring less bandwidth in order to fit more signals in the fixed amount of bandwidth available, Williams mentions in passing that, when only a few signals are needed, the signals can just be placed on the single cable without

transmodulation. Pugel is unconcerned with the signal processing, transmodulation, or signal selection aspects of the primary or alternative disclosures of Williams. Rather, Pugel simply discloses digitizing and processing transponder signals received from an ODU. Contrary to Petitioners' assertion, the problems addressed by Williams and Pugel are not the same - Williams and Pugel solve vastly different problems in different technical environments and operate with vastly different principles of operation.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417, 82 USPQ2d 1385, 1396 (2007). The Petition fails to articulate any reasoning why, given the vastly different systems disclosed in Williams and Pugel, why a POSITA would have considered the results of the proposed combination to be predictable. This is further underscored by the Petition's mischaracterization of Pugel. One example of this mischaracterization is with respect to any "digital combiners" as described below.

Further, "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at 418, (quoting *In re Kahn*, 441 F.3d 977, 988, (Fed. Cir. 2006)). The Petition merely

provides a conclusory statement devoid of any rational underpinning to support the legal conclusion of obviousness.

As articulated in the Petition, Ground 1 fails to present a legally sufficient motivation to combine Williams and Pugel. Accordingly, Ground 1 fails for at least this reason and institution should be denied.

3. The Proposed Combination of the Primary Embodiment of Williams and Pugel Fails to Teach all Aspects of the Claims

As an initial matter, the Petition is not clear whether it is relying on the primary embodiment or the alternative disclosure of Williams. However, without explicitly admitting that Williams’ primary embodiment (*i.e.*, Figure 3) cannot be used to render obvious claim 14, the Petition effectively concedes this point by having to rely on the lack of transmodulation in order to render obvious claim element 14[d]—“wherein the modulation of the transponder signal is not altered” Petition, 43-46. More specifically, if the ADC of Pugel were inserted in front of the switches **53** of Figure 3 of Williams as suggested in the Petition, and presuming (without evidence) that the decoder **56** and cable encoder **60** operate to change the modulation of the digital signal (which is not disclosed in Williams), the primary embodiment of Williams transmodulates the signal in the digital domain (again, which is not disclosed in Williams). As Williams’ primary embodiment fails to disclose element 14[d] and the Petition does not rely on Pugel to disclose the cited

aspect of claim 14, the Petition concedes that the primary embodiment of Williams or Pugel, either alone or in combination, fails to establish a *prima facie* case of obviousness of claim 14.

4. The Proposed Combination of the Alternative Disclosure of Williams and Pugel is based on Improper Hindsight Reconstruction, and Renders the Alternative Disclosure of Williams Unsatisfactory for its Intended Purpose

As the combination of the primary embodiment of Williams with Pugel fails to disclose all aspects of the claims, the Petition must rely on a combination of the alternative disclosure of Williams and Pugel. For convenience, the alternative disclosure of Williams reads (emphasis added):

Still further, the transmodulator **20** need not remodulate the received transponder signals but may, instead, shift selected ones of these signals to different frequencies for transmission over the cable network **26**. ***In this case, each transmodulator channel would need to include a tuner and a frequency shifter.*** Of course, this configuration only reduces the bandwidth used by the signals transmitted over the cable network **26** to the extent that it eliminates some of the received satellite transponder signals. Thus, the more received satellite transponder signals that are to be sent to the IRDs **30-40**, i.e., the more transmodulator channels there are, the less viable this option becomes.

Ex. 1003, 15:15-27.

That is, the transmodulator **20** of the alternative disclosure of Williams includes switches **53**, tuners **54**, and upconverters **62** as shown in Figure 3. The

following components shown in Figure 3 remain unchanged in the alternative disclosure of Williams:

[E]ach of the summers **64** receives an input from, for example, four of the upconverters **62**, each of which upconverts to a different one of the four carrier IFs. Each of the summers **64** combines the four received transmodulated signals to produce, for example, one of up to eight groups of four, 6 MHz-wide transmodulated signals. The summers **64** of FIG. 3 provide up to eight such groups of four, 6 MHz-wide signals to a variable frequency upconverter **66** which, in turn, upconverts each of the up to eight groups of four, 6 MHz-wide signals to a different carrier frequency band. A summer **68** then combines these upconverted transmodulated signals with each other and with any desired frequency-shifted or non-frequency-shifted terrestrial signals (delivered by a level shifter **70**) for propagation over the cable network **26** of FIG. 1.

Ex. 1003, 10:24-39.

The combination of the alternative disclosure of Williams and Pugel described in the Petition requires inserting an ADC prior to the switches **53**. Petition, 26. Then, the Petition requires replacing switches **53** and tuners **54** with their digital equivalents. *Id.*, 27. The Petition then assumes that a POSITA has a known digital “variable frequency upconverter **66**” which is not disclosed by Williams or Pugel. *Id.*, 28.

a. The Proposed Combination is based on Improper Hindsight Reconstruction

As a threshold matter, the Petition blatantly mischaracterizes the disclosure of Pugel in order to support its proposed combination. The Petition states “[s]econd, and alternatively, a POSITA would have known to replace Williams-873’s summer 68 with a digital combiner—as taught in Pugel—and convert the output of the digital combiner into an analog RF signal for distribution.” Petition, 41 (citing Ex. 1004, [0045]; Ex. 1003, ¶143.). This is false, as Pugel does not disclose a digital combiner.

As described herein, Pugel discloses a receiver that extracts data streams provided in a received signal and provides the data stream to a transport processor for processing. *See* Section III.B.1. Pugel describes that the output transport streams can include audiovisual content, such as movies, and are typically MPEG transport streams. Ex. 1004, [0026-28] (audiovisual content), [0036] (MPEG). Pugel describes that the transport processors can be used to combine audiovisual sub-streams into a complete output transport stream. *Id.*, [0026], [0045]. “The combined transport streams are then processed in a standard manner by video decoders, audio decoders, data processors or other elementary stream processing circuitry.” *Id.*, [0045].

The Petition’s reliance on [0045] of Pugel to disclose a “digital combiner” that operates in the same manner as the summers disclosed in Williams is

nonsensical. The transport processors of Pugel process a signal to extract output transport streams, which is digital data (*i.e.* MPEG data) that is processed using video decoders for display on a television. A POSITA understands that this transport processor is wholly irrelevant to combining signals into a RF signal for transmission over a cable plant as required by Williams, for reasons including that the transport processor does not output analog RF signals and does not combine signals into a composite signal. Rather, this is simply another example of the Petitioner relying on improper hindsight reconstruction to construct a combination of incompatible elements of Williams and Pugel, based solely on the disclosure of the '576 Patent. “It is impermissible, however, simply to engage in a hindsight reconstruction of the claimed invention, using the applicant’s structure as a template and selecting elements from the references to fill the gaps.” *In re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991).

b. The Proposed Combination Renders the Alternative Disclosure of Williams Unsatisfactory for its Intended Purpose

Patent Owner notes that the alternative disclosure of Williams requires the upconverter **62**, which constitutes the frequency shifter described in the alternative disclosure. To the extent that the Petition relies on “variable frequency upconverter **66**” as the frequency shifter of this embodiment, Patent Owner notes that this combination is inoperable as the upconverter **62** receives an analog input from the

tuner **54** as described in Williams. If the tuner **54** is a digital tuner as described in Pugel, as relied on in the Petition, then the tuner **54** outputs a digital signal that cannot be processed by the upconverter **62**. Therefore, if the Petition correctly recites “variable frequency upconverter **66**” as the frequency shifter, the proposed combination fails to establish a *prima facie* case of obviousness for claim 14. Rather, the proposed combination results in an inoperable system that is unsatisfactory for any purpose. “Obviousness may be defeated if the prior art indicates that the invention would not have worked for its intended purpose or otherwise teaches away from the invention.” *Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382 (Fed. Cir. 2017) (citing *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326 (Fed. Cir. 2009)).

The Petition asserts that a POSITA would utilize one of two options for resolving this issue: (1) converting each selected and extracted transponder signal from digital to analog prior to summing; or (2) using a “digital combiner” as disclosed in Pugel. Petition, 41. However, a “[d]etermination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.” *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998).

With respect to Option (1), converting each selected and extracted transponder signal from digital to analog prior to summing fails to teach, suggest, or disclose all

elements of claim 14. Claim 14 recites “selecting and extracting a plurality of transponder signals from the received digitized satellite broadband signals” and “combining extracted selected transponder signals into a composite signal.” That is, claim 14 recites *digitally* combining *digital* signals. Option (1) relies on *analog* summing of signals. As thoroughly considered in the reexamination of the ’576 Patent, analog summing of signals does not teach, suggest, or disclose digitally combining digital signals. Therefore, Option (1) as relied on in the Petition fails to support *prima facie* obviousness of claim 14. The mere fact that the Petition provides Option (1) as evidence of relevant prior art further underscores the extent to which the Petition relies on improper hindsight reconstruction.

Further, the Petition makes no justification for adding multiple digital-to-analog converters to the system of Williams, rather relying on conclusory statements provided by Dr. Schonfeld. Neither Pugel nor Williams contemplates or discloses any element that can be used to cure this deficiency in the combination proposed in the Petition. Rather, the Petition and Dr. Schonfeld are relying on impermissible hindsight reconstruction based solely on conclusory statements of the knowledge of the POSITA. Even if this combination did disclose all elements of claim 14 (and it does not, as described above in Section IV.B.1), a POSITA would not haphazardly convert a portion of the system disclosed in Williams to a digital system and then go even further, adding additional hardware to convert this new digital portion back to

analog to operate in conjunction with the remainder of the Williams system. Rather, Option (1) is again a product of improper hindsight reconstruction. *Gorman*, 933 F.2d at 987. A POSITA would not be motivated to incorporate additional, unnecessary digital to analog converters as a POSITA would not be motivated to make these misguided modifications in the first place.

Option (2) fails as Pugel does not disclose a digital combiner as described in Section IV.B.4.a. Therefore, the Petition fails to provide any motivation for a POSITA to make the proposed combination of Williams and Pugel.

In the event the Petition should read “upconverter **62**” instead of “variable frequency upconverter **66**,” the combination fails. Even assuming that there is a digital equivalent to the upconverter **62** (which is not disclosed by Williams or Pugel), the upconverters **62** disclosed in Williams output an analog IF signal to analog summers **64**. However, the digital version of upconverter **62**, as described in the Petition, would output a digital signal rather than the analog signal required by the summer **64**. The Petition fails to contemplate what was obvious to a POSITA at the time of the invention of the '576 Patent as confirmed in the reexamination of the '576 Patent: the system for digital tuning disclosed in Pugel is not adapted for generating analog outputs that can be combined and upconverted for propagation over a cable network as required in the alternative disclosure of Williams. Neither Pugel nor Williams contemplates or discloses any element that can be used to cure

this deficiency in the combination proposed in the Petition, and the Petition itself fails to articulate any valid reason for a POSITA to resolve this deficiency. In this instance, the proposed modification of the alternative disclosure of Williams with Pugel renders the alternative disclosure of Williams unsatisfactory for its intended purpose of combining the transmodulated signals to produce a combined signal for transmission over a cable plant. Section III.A.1. Rather, the proposed combination results in an inoperable system that is unsatisfactory for any purpose. *Meiresonne*, 849 F.3d at 1382.

To give the Petition all possible benefits of the doubt, let us assume that all components of the alternative disclosure of Williams, including the summers **64**, variable frequency upconverter **66**, and summer **68**, are replaced with their digital equivalents. Again, the proposed combination fails to articulate a *prima facie* case of obviousness of claim 14. In this case, the summer **68** would output a digital signal, which a POSITA understands is not suitable for transmission over the cable plant as required by Williams. Neither Pugel nor Williams contemplates or discloses any element that can be used to cure this deficiency in the combination proposed in the Petition, and the Petition itself fails to articulate any valid motivation for a POSITA to resolve this deficiency. That is, the proposed combination of the alternative disclosure of Williams and Pugel renders the alternative disclosure of Williams unsatisfactory for its intended purpose of transmitting signals over a cable plant to

multiple receiver units in a MDU. Again, the proposed combination results in an inoperable system that is unsatisfactory for its intended purpose. *Meiresonne*, 849 F.3d at 1382.

Therefore, for at least the foregoing reasons, there is no motivation to combine the alternative disclosure of Williams with Pugel as the Petition relies on inoperable combinations and/or combinations based solely on impermissible hindsight reconstruction. As the combination of the primary embodiment of Williams and Pugel fails to support *prima facie* obviousness of claim 14, Ground 1 fails and institution should be denied.

C. The Challenge Under Ground 1 of All Claims Besides Claims 14-23 and 34-42 Should be Dismissed Because Entropic has Disclaimed Claims 8-13

Entropic has filed a statutory disclaimer of Claims 8-13 before the USPTO under 35 U.S.C. § 253(a) on June 19, 2023. *See* Ex. 2002. Therefore, the Ground 1 challenge of Claims 8-13 in the Petition has been rendered moot. *See Samsung Electronics Co., Ltd. v. Elm 3DS Innovations, LLC*, IPR2016-00389, Paper 14 at 14 (PTAB June 30, 2016) (citing 37 C.F.R. § 107(e)). Since Claims 8-13 have been disclaimed, the Board shall not consider the challenge to Claims 8-13 when exercising its discretion to institute the Petition. *See General Electric Company v. United Technologies Corporation*, IPR2017-00491, Paper 9 (PTAB July 6, 2017) (precedential) (denying institution where patentee disclaimed the challenged claims

under 37 C.F.R. §42.107(e)).

Entropic has filed the aforementioned disclaimer exclusively for the purposes of simplifying the issues before the Board. Accordingly, the aforementioned disclaimer shall not constitute a concession of the alleged obviousness of Claims 8-13. *See Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374, 1379, n.4 (Fed. Cir. 2021) (“[d]isclaimed claims are treated as if they never existed...and disclaimer does not legally constitute an admission that the subject of the disclaimer appears in the prior art.”).

V. CONCLUSION

For the reasons set forth above, the IPR should not be instituted.

Dated: June 20, 2023

Respectfully submitted,

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Certification of Word Count Under 37 C.F.R. § 42.24(d)

The undersigned hereby certifies that the foregoing contains 13,393 words according to the word count of the word-processing software used to prepare the foregoing.

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CERTIFICATE OF SERVICE

I hereby certify that on June 20, 2023, a true and correct copy of the foregoing was caused to be served on the following counsel of record for Petitioners by electronic mail at the following addresses:

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