Patents Act 1977	**Opinion Number** **15/19**

OPINION UNDER SECTION 74A

Patent	GB 2526389 B
Proprietor(s)	Cardeasy Limited
Exclusive Licensee	-
Requester	Mathys & Squire LLP
Observer(s)	Carpmaels & Ransford, on behalf of the Proprietor
Date Opinion issued	07 October 2019

The request

1. Mathys & Squire LLP ("the requester") has requested the comptroller to issue an opinion as to whether patent GB 2526389 B ("the patent") is valid. The requester asks for an opinion on whether the claims of the patent are novel and non-obvious over several items of evidence filed with the request:

   > E5, E6, E7 and E9 relating to an internet disclosure in the form of a web page[1] entitled "CardEasy[TM] Keypad payment by phone" of a company called "Syntec";

   > E10 and E11 relating to a brochure entitled "CardEasy[TM] Keypad payment by phone" from Syntec; and

   > E12 which is patent document WO 2009/136163 A2.

2. The requester also asks for an opinion on the sufficiency of the patent in respect of claims 1, 4, 14 and 17.

Observations and observations in reply

3. Observations on the request were filed by Carpmaels & Ransford, on behalf of Cardeasy Limited ("the proprietor"). Subsequently, observations in reply were filed by the requester.

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[1] http://www.syntec.co.uk/pci-dss-solutions/cardeasy/

Preliminary matters

4.   The requester admits that the web page and the patent document were cited by the examiner during the pre-grant examination procedure of the patent. By virtue of section 74A(3)(b), the comptroller will not issue an opinion where a request does no more than merely repeat arguments already considered pre-grant[2]. This raises the question whether the requester is using these disclosures to repeat arguments that have already been sufficiently considered.

5.   Beginning with the web page, the requester acknowledges that the examiner cited the web page in their Combined Search and Examination Report (see E3) to make a novelty objection against all the claims. The cited web page included text and an embedded video. As the report shows, the examiner explained that the web page was "Retrieved 19/12/2014" and was cited on the basis that "The website video is dated Nov 2014." As the requester explains, the proprietor's response (see E4) to that report was to contest the alleged publication date of the *text* of the web page. The proprietor argued that the date attributed to the video by YouTube (RTM) was *not* evidence of the publication date of the text. Accordingly, the proprietor argued that the text of the web page and the embedded video should be treated as *separate* disclosures. The proprietor further argued that the text of the web page should be disregarded because there was no evidence the text was published before the priority date of the invention. While E4 shows the proprietor did not dispute the publication date of the video, they did nonetheless advance arguments as to why the video was not relevant to the novelty or inventive step of the claims. The requester says the examiner evidently accepted the proprietor's arguments because the examiner did not pursue further the objection based on the web page.

6.   E5 and E6 are two separate snapshots of the web page taken from the internet archive *The Wayback Machine*[3] and are relied upon by the requester as evidence of the publication date of the text of the web page. Given that snapshots E5 and E6 of the web page were not available to the examiner, I believe they raise a new question that was not considered by the examiner. I believe it is appropriate for me to consider E5 and E6 in this opinion.

7.   The requester says E7 is a transcript of the video ("video A") that is embedded within web page snapshot E5. I accept the requester's presumption[4] that video A is likely the same as the video cited by the examiner in their Combined Search and Examination Report. Given that the proprietor made arguments to the examiner concerning the novelty and inventive step of the claims in respect of video A, I do not believe, at least on the face of it, that E7 clears the hurdle of raising a new question. However, I note the requester argues that snapshot E5 and transcript E7 may be treated together as a single disclosure. Treating E5 and E7 together as a single disclosure would, in my opinion, raise a new question. Therefore, I believe it is appropriate for me to consider E7 but only in combination with E5. It is not appropriate for me to consider E7 as a stand-alone disclosure because it was, in my opinion, considered sufficiently pre-grant.

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[2] Opinions Manual, section 3.4, paragraphs 1-3.
[3] www.archive.org
[4] See request, paragraphs 21-25, concerning "video A" having unique YouTube identifier 9WqVfQ6rJMc.

8.   E9 is, according to the requester, a transcript of the video ("video B") embedded within web page snapshot E6. I accept, as the requester says, that video B is different to video A. Video B has a different unique identifier[5], and a comparison of transcripts E9 and E7 shows that E9 is slightly longer and has more information in it. Given that the examiner retrieved the web page on 19 December 2014, i.e. at a time after snapshot E5 (having embedded video A) was taken, it seems likely that the examiner did not view video B. In my opinion, video B and transcript E9 raise a new question that was not considered sufficiently pre-grant. It is appropriate for me to consider video B and E9 in this opinion.

9.   The second of the disclosures cited by the examiner is E12, i.e. patent document WO 2009/136163 A2. E12 was cited under category "A" in the examiner's search report (see E2), and no substantive objection was made by the examiner based on E12 (see E3). Given that no substantive objection was made using E12, I am satisfied that the requester raises a new question based on E12. It is appropriate for me to consider E12 in this opinion.

10. I would add that, as the requester notes, the proprietor does not contest the admissibility of E5, E6, E7, E9 or E12.

The patent

11. The patent has the title "System and method for secure transmission of data signals". It was filed on 4 December 2014 with no declaration of priority. Accordingly, the priority date of the present invention is 4 December 2014. The patent was granted on 11 May 2016 and it remains in force.

12. The patent relates to a telephone call processing system that facilitates secure transmission of sensitive information – such as payment information – during a telephone call between a caller and agent so that the agent cannot receive the sensitive information. An embodiment of the system is shown in fig. 3, reproduced below. The system 300 includes a first telephone interface 302 for receiving/sending telephone signals from/to a caller 304 over a public switched telephone network (PSTN) 306. A second telephone interface 308 is for sending/receiving telephone signals to/from an agent 310 within a call centre 312. The two interfaces pass telephone signals between each other to permit telephone signals to be transmitted bidirectionally between the caller 304 and the agent 310. Importantly, the patent explains that the 'telephone signals' include both voice signals *and* data signals. The system also includes a means 324 for detecting and decoding data signals received at the first interface. The data signals may be dual-tone multi-frequency (DTMF) tones and may be generated by a touch-tone keypad at caller 304. A string of consecutive DTMF tones may be generated to represent whole or part of a primary account number (PAN) of a credit or debit card. The system further includes a data interface 314 for sending data signals (e.g. credit or debit card details) to a third party 316 such as a payment processing service, bank, building society or retailer, etc.

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[5] See request, paragraphs 28-32, concerning "video B" having unique YouTube identifier H0YlqtAcjpo.
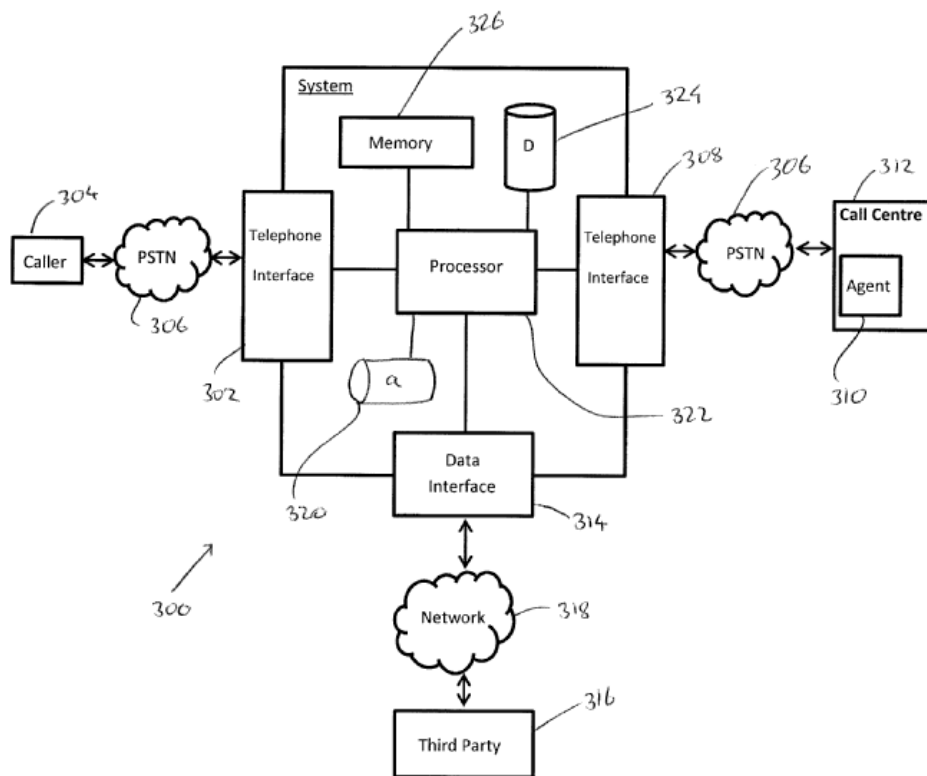
13. The critical feature of the invention is a means 320 for attenuating the telephone signals passed between the first and second telephone interfaces 302, 308. The attenuation means 320 impedes the agent from receiving telephone signals from the caller. Attenuation means 320 may completely block the signals so that the agent is completely prevented from receiving them. Alternatively, the signals may be so attenuated that the agent cannot practically detect them, or so modified (e.g. by superposition) that their information content does not reach its destination.

14. The patent envisages that the system 300 may be used in situations where caller 304 wishes to discuss a purchase with an agent 310 prior to entering their credit or debit card details. Two-way communication is required while the caller and agent discuss the purchase. The invention therefore operates in a first mode (see fig. 4A reproduced below) where the voice and data signals from caller 304 are passed from the first interface 302 to the second interface 308, and then to the agent 310. When the caller wishes to make their purchase, they will be prompted (e.g. by the agent) to enter their credit or debit card details using their touch-tone keypad. However, a problem arises if two-way communication is maintained throughout the period the caller is entering their credit or debit card details. The agent (and any recording equipment utilised by the call centre) will receive the encoded card details (in the form of DTMF signals), exposing the caller to a risk of theft of their card details. Therefore, the invention provides a second mode (fig. 4B below) in which the attenuation means 320 attenuates the voice and data signals from the caller so that either the agent cannot practically detect them, or they are blocked so that the agent does not receive them. The patent explains that the inventors have observed that some callers tend to vocalise digits of sensitive information as they press the associated keys of their touch-tone keypad. The advantage of attenuating both voice signals and data signals is that even if the caller choses to read out the digits whilst

Figure 4A
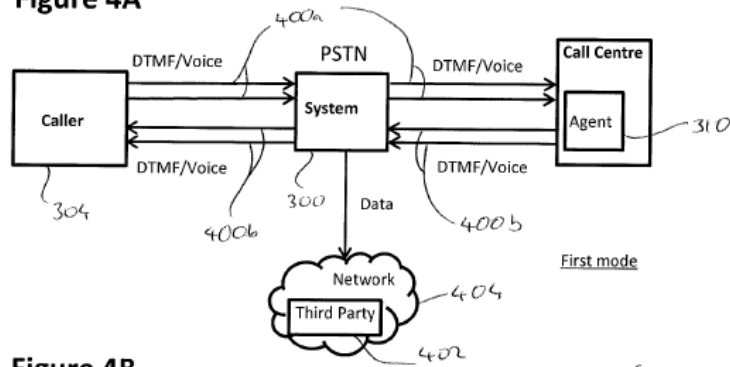
Figure 4B
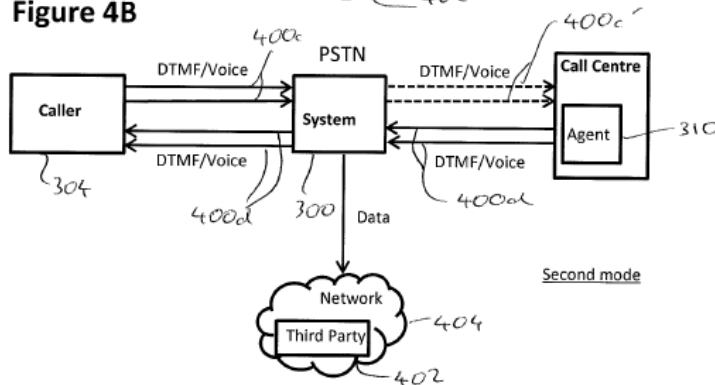
entering them using DTMF tones, the second mode works to prevent the agent from receiving the sensitive information by attenuating both data and audio signals.

The claims

15. The patent has twenty-eight claims, including two independent claims numbered 1 and 14. I shall begin by considering claims 1 and 14. It will only be necessary for me to consider the dependent claims if I find that either claim 1 or claim 14 lacks novelty or an inventive step. Adopting the lettering of features used in the request, claim 1 defines a telephone call system in the following terms:

> *(a) A telephone call processing system for processing telephone calls comprising voice signals and data signals between a caller and an agent, the system comprising:*

> *(b) a first interface for receiving voice signals and data signals from the caller and*

> *(c) a second interface for receiving voice signals and data signals from the agent,*

> *(d) the first and second interfaces configured to selectively pass voice signals and data signals therebetween to enable communication between the caller and agent;*

> *(e) attenuation means configured to selectively attenuate voice and data signals passing from the first interface to the second interface to impede the agent from receiving voice and data signals from the caller;*

> *(f) detection means configured to detect and decode data signals received at the first interface; and*

(g) a processor coupled to the attenuation means and detection means and configured to cause the detection means to begin detecting and decoding a string of discrete data signals from the caller, the string of discrete data signals having a length and conveying sensitive information;

(h) wherein whilst said string of discrete data signals is being received at the first interface, the telephone call processing system is configured to operate exclusively in each of:

(i) a first mode in which voice signals and data signals are permitted to pass from the first interface to the second interface to enable the agent to receive voice and data signals from the caller; and

(j) a second mode in which the processor causes the attenuation means to attenuate voice and data signals passing from the first interface to the second interface to impede the agent from receiving voice and data signals from the caller.

16. Claim 14 of the patent (again using the lettering of the request) defines a corresponding method:

(a) A method of processing telephone calls comprising voice signals and data signals between a caller and an agent, the method comprising:

(b) receiving, at a call processor, voice signals and data signals from the caller, the data signals including a string of discrete data signals having a length and conveying sensitive information;

(c) detecting and decoding the string of data signals received from the caller; and

(d) whilst receiving said string of discrete data signals, operating the call processor exclusively in each of:

(e) a first mode in which the voice signals and data signals received from the caller are passed to the agent; and

(f) a second mode in which the voice signals and data signals received from the caller are attenuated to impede the agent from receiving them.

Claim construction

17. Before proceeding I must construe claims 1 and 14. I must interpret claims 1 and 14 in light of the description and drawings as required by section 125(1) and take account of the Protocol on the Interpretation of Article 69 of the European Patent Convention as required by section 125(3). In doing so, I must give the claims a purposive (or "normal") construction[6] and ask what the person skilled in the art would have understood the patentee to be using the language of the claims to mean.

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[6] In *Generics UK Ltd (t/a Mylan) v Yeda* [2017] EWHC 2629 (Pat), Arnold J confirmed (at 134) the continuing requirement to interpret patent specifications purposively, having considered the earlier judgment of the UK Supreme Court in *Actavis v Eli Lilly* [2017] UKSC 48.

18. Neither party has sought to identify the relevant skilled person, nor their common general knowledge. I consider the skilled person to be a communications network engineer, skilled in implementing and maintaining telephonic communications networks for call centres. They would have knowledge of the network architectures and network communication protocols required for telephonic networks, including those required for handling voice and data signals in call centres for providing services to customers via telephone calls. They would know about the security requirements for call centres, and the architectures and protocols for satisfying these security requirements.

19. I believe the claims are generally straightforward to construe. However, I shall elaborate upon four points of construction that I believe are relevant to the issues before me. These concern the meanings of the words "attenuate", "impede" and "whilst", and the phrase "exclusively in each of" that appear in claims 1 and 14.

20. Firstly, features (e) and (j) of claim 1 specify that the attenuation means is configured to selectively "attenuate" voice and data signals. The description (page 12, lines 12-16) sets out several possibilities for 'attenuating' signals:

> *Preferably, the means 320 for attenuating completely blocks said signals, such that the agent and/or caller is completely prevented from receiving them. Alternatively, the signals are so attenuated that the agent and/or caller cannot practically detect them even if traces of them exist. Alternatively, the signals are so modified (for instance by superposition) that their information content does not reach its destination.*

21. From this I believe the skilled person would understand the term "attenuate" in claim 1 is a general term having its conventional meaning in the art, i.e. to reduce signal strength. Furthermore, the skilled person would understand that attenuating the signals may involve a special case of *completely blocking* the signals, i.e. where the signal strength is reduced to an extent where no trace of the signal can be practically detected.

22. Secondly, features (e) and (g) of claim 1 go on to define that the attenuation means attenuates the signals to "impede" the agent from receiving the voice and data signals. The description (page 5, line 35 – page 6, line 1) sets out explicitly what is meant by 'impeded':

> *By 'impeded' it is meant that the signals are attenuated to such an extent that the agent cannot discern the entirety of the information content of the signals (both voice and data).*

23. I believe this is the meaning the skilled person would give to the word "impede" appearing in claim 1. To "impede" the signals is to attenuate them to the extent that the agent cannot discover the entirety of the information content of the signals.

24. Moreover, from both passages I have referred to above, in the special case where the attenuation means attenuates the signal to the extent that it is *completely blocked*, I believe the skilled person would understand that the word "impede" means to *prevent* the agent from receiving the data signals altogether (so that the agent cannot discern the entirety of the information content of the signals). This special

case is reflected, for example, in the relationship of claim 1 ("attenuate … to impede") with dependent claim 7 ("block … to prevent").

25. It follows that I believe the words "attenuated" and "impede" defined in feature (f) of claim 14 would be interpreted by the skilled person in the same way. (Again, I note that claim 20 defines the special case of claim 14, i.e. "blocking … to prevent").

26. Thirdly, feature (h) of claim 1 specifies that the system is configured to operate "exclusively in each of" a first mode (defined further in feature (i)) and a second mode (defined further in feature (j)). The description (page 13, lines 31-32) teaches explicitly the meaning of the word "exclusively":

> By 'exclusively' it is meant that the system 300 does not operate in any mode other than the first mode or the second mode, and also does not operate in those modes simultaneously.

27. Thus, the skilled person would understand that the words "exclusively in each of" mean that: (i) the system must operate in each of the first and the second modes separately but not simultaneously; and (ii) the possibility that any other mode is used is excluded for the purposes of feature (h).

28. Fourthly, I believe the word "whilst" in feature (h) puts a further qualification on the exclusive operation of the first and second modes. The skilled person would understand it is only *whilst* the string of discrete data signals is being received at the first interface that the system is constrained to operate separately in each of the first and second modes. Thus, the wording of claim 1 when considered as a whole does not completely rule out the possibility of (for example) a third mode being used – this possibility is only excluded *whilst* the string of discrete data signals is being received, as required by feature (h).

29. It follows that I believe the skilled person would interpret the words "whilst … exclusively in each of" in feature (d) of claim 14 in corresponding fashion (although I note that claim 14 defines that the signals are received at a *call processor* as opposed to the *first interface* of claim 1).

The law – novelty and inventive step

30. Sections 1-3 of the act set out the relevant provisions for novelty and inventive step:

> **Patentable inventions**
>
> 1.-(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say -
>   (a) the invention is new;
>   (b) it involves an inventive step;
> …
>
> **Novelty**
>
> 2.-(1) An invention shall be taken to be new if it does not form part of the state

of the art.

(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.
…

Inventive step

3. An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above …

E5, E6, E7 and E9

31. The requester argues that claims 1 and 14 lack novelty or, alternatively, an inventive step, over the Syntec web page, as evidenced by items E5, E6, E7 and E9. Before going on to consider these questions, I must consider the publication dates of these items. Given that they each relate to the disclosure of the web page in one way or another, I must also consider how items E5, E6, E7 and E9 are inter-related.

32. Snapshot E5 has an internet archive date of 19 November 2014[7], while E6 is an earlier snapshot having an archive date of 9 November 2014[8]. I am satisfied, on the balance of probabilities, that snapshots E5 and E6 were made available to the public before the priority date. This is not disputed by the proprietor.

33. As the requester notes, video A[9] embedded within E5 is no longer available online. I confirm that, as a result, I have been unable to view video A. However, I accept as the requester says that an archive snapshot[10] of the YouTube page for video A (albeit a snapshot taken after the priority date) shows that video A was published on "10 Nov 2014". The requester asserts that E7 is a transcript of video A, and the proprietor does not dispute this. I am satisfied on the balance of probabilities that video A, and thus the information within E7, was made available to the public before the priority date. Given that E5 and video A were both disclosed together before the priority date, and that video A is embedded within E5, I accept the requester's argument that E5/E7 may be treated together as a *single* disclosure. This point is not disputed by the proprietor.

34. Meanwhile Video B[11] embedded within E6 is presently available via YouTube[12] and it has a publication date of "9 Jul 2013". I confirm I have viewed video B. The requester says that E9 is a transcript for video B, and the proprietor has given me no reason to doubt this. I am satisfied on the balance of probabilities that video B (and therefore

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[7] https://web.archive.org/web/20141119172241/http://www.syntec.co.uk/pci-dss-solutions/cardeasy/
[8] https://web.archive.org/web/20141109134506/www.syntec.co.uk/pci-dss-solutions/cardeasy
[9] Having YouTube identifier 9WqVfQ6rJMc
[10] https://web.archive.org/web/20150219162144/www.youtube.com/watch?v=9WqVfQ6rJMc
[11] Having YouTube identifier H0YlqtAcjpo
[12] https://www.youtube.com/watch?v=H0YlqtAcjpo

the content of E9) was published before the priority date. Once again, given that E6 and video B where both disclosed before priority date, that video B is embedded within E6 means I accept the requester's argument that E6/video B/E9 can be treated as a *single* disclosure.

35. There are two further points that will, I believe, allow me to simplify my discussion of the web page. Firstly, I agree with requester that the web page text captured in E5 and E6 is essentially identical. Secondly, while I have already noted that transcripts E7 and E9 are not identical, it is my opinion that the substance of their disclosures is practically the same. The net result is that the disclosure of E5/E7 is substantially the same as the disclosure of E6/video B/E9 (with both disclosures being made before the priority date). In my opinion it is not necessary for me to consider both disclosures to give an opinion on the validity of the claims in light of the web page. Given that I have been able to view video B (but not view video A), I believe it is appropriate for me to restrict myself to giving an opinion on the novelty and inventive step of the claims over the disclosure of E6/video B/E9.

36. I have reproduced a screenshot from E6 on the next page. E6 describes Syntec's "CardEasy" payment system. As the proprietor notes, E6 explains how the system works in general terms, and the various sections of E6 extoll the functional features and advantages of the system. Video B is entitled "CardEasy keypad payment by phone: PCI DSS level 1 + recording". It gives a corresponding explanation of the CardEasy system, as can be seen from transcript E9.

Novelty of claim 14

37. Because method claim 14 is less detailed than system claim 1, it is convenient for me to begin by considering it before going on to consider claim 1.

38. Having considered the submissions of both parties, I agree with the requester that the proprietor appears to argue for a single point of novelty of the independent claims over E6/video B/E9, i.e. whether the CardEasy system operates *exclusively* in two modes *whilst* the string of data signals is being received. So far as claim 14 is concerned, this means the proprietor argues that E6/video B/E9 does not disclose features (d)-(f) as I have construed them above, i.e. that there is no disclosure of the system being configured to operate "exclusively in each of" the two modes of features (e) and (f) "whilst" receiving a string of discrete data signals as per feature (d).

39. The proprietor draws particular attention to a passage in the section "How does CardEasy work":

> *The audio from the caller to the agent is cut briefly while the middle six digits of the long card number (PAN) are entered to ensure that there is no way the agent can be exposed to the card number by hearing either the DTMF tones or the caller saying the number*

40. The proprietor's submissions acknowledge that this passage (and E6 more generally) discloses *two* 'modes' of operation (i.e. one in which audio/data signals are transmitted and one in which audio/data signals are cut briefly). However, they say that nowhere in E6 does it disclose (explicitly or implicitly) that *only* two 'modes'

CardEasy™ — Keypad payment by phone

PCI DSS Level 1

PCI DSS compliant card payment by phone and call recording

CardEasy enables you to fully de-scope your call centre environment and call recordings from PCI DSS, reducing the risk and cost associated with managing card payment transactions in your contact centre. Watch our demo to see how CardEasy works.

How does CardEasy work?

- A caller wishes to pay by card over the phone
- The contact centre agent initiates a request for card authorisation
- The caller is prompted to enter their card number via their telephone keypad
- The audio from the caller to the agent is cut briefly while the middle six digits of the long card number (PAN) are entered to ensure that there is no way the agent can be exposed to the card number by hearing either the DTMF tones or the caller saying the number
- The audio from the agent to the caller remains open throughout
- The complete call can be recorded but the sensitive DTMF tones are masked on the recording as well
- The agent is alerted via their screen when payment has been authorised.

What's special about CardEasy?

Some systems for call recording – called 'pause and resume' – cut the call recording at the point at which the agent asks for the card details. Although the card information is not stored on the recording the agent is still able to access it. This means that the contact centre environment and agents are still 'in scope' for PCI DSS regulations and audits and open to the risk of fraud, exacerbated because the critical part of the call is not recorded. Such systems do not therefore offer full PCI DSS de-scoping and can expose your contact centre to ongoing security risks.

CardEasy enables you to fully comply with both aspects of PCI DSS:

- Your agents will not be exposed to callers' card information.
- Card information will not be stored in your call recordings.

Benefits of CardEasy

- Customers simply enter their credit card number and security code mid-call using their phone keypad.

- Your agents, whether in your contact centre, working from home or in an outsourcer, cannot see or hear the card information and it is not stored in the call recording.

- Payment is taken and confirmed in real time and, unlike in 'pause and resume' systems, the entire call can be recorded whilst the agent stays in conversation with the customer throughout.

- Tokenisation, card scheme surcharging and BIN look-up are all supported.

- Works with your existing telephony and offers either hosted or premise-based versions, depending on how your call traffic is managed.

- CardEasy also offers a customer self-service autopay facility so you can take secure payments out of hours or without the need for an agent.

- Partnered with all major payment service providers and can also be integrated with your back office and CRM systems.

- CardEasy reduces cost as well as risk. Because it is a PCI DSS level 1 service it should remove the need for your contact centre and other sites to have expensive and time-consuming PCI audits.

- Set up costs are minimal as no additional hardware is required, and ongoing costs are based on a 'pay per agent' or 'pay per use' basis depending on your business's requirements so can also be kept low.

are permitted. They say the skilled person may perfectly well construct the system of E6 so that it is configured to operate in three or more 'modes', only two of which are suggested by the quoted passage. The proprietor argues this possibility means there cannot be an implicit disclosure of operation of the CardEasy system operating

"exclusively" in two modes according to features (d)-(f) of claim 14.

41.	Like the requester, I am not persuaded by the proprietor's reasoning. I believe the skilled person would understand this passage (and the rest of E6/video B/E9) as an explicit disclosure of a binary system of 'modes' where audio/data signals are either cut or not cut. While I accept there is no explicit disclosure of the words "only" or "exclusively", I must say I agree with the requester that, as a matter of fact, the disclosure of E6 necessarily teaches two (and only two) modes to be implemented by the skilled person. I am unable to identify any mention of a third mode or any disclosure that necessarily requires a third mode. Nor has the proprietor presented any other evidence that shows the use of three modes is known in the art or that the use of three modes was common general knowledge at the priority date. I believe that the skilled person, seeking to work the teachings of E6, would necessarily implement the system with the two modes E6 discloses, i.e. one mode in which the audio/data signals are not cut and another mode in which they are cut, as required by features (e) and (f). Moreover, it is clear from E6 that the two modes are used sequentially and not simultaneously. In addition, the passage to which the proprietor refers teaches the signals are cut "while the middle six digits of the long card number (PAN) are entered" so the requirement of feature (d) that there is exclusive use of the two modes "whilst said string of discrete data signals is being received" is also met. I agree with the requester that E6 discloses features (d)-(f) of claim 14.

42.	I note the proprietor has not made any specific arguments concerning the disclosure of features (a)-(c) of claim 14 by E6/video B/E9. I agree with the requester that these features are taught by E6/video B/E9. For example, it can be seen from the screenshot on the previous page that E6 self-evidently relates to a telephone system for processing telephone calls between a "caller" and a "contact centre agent" where calls may include "audio" and "DTMF tones" (i.e. data signals). This is self-evidently confirmed by the transcript E9 of video B. In my opinion, feature (a) is disclosed.

43.	In E6, the DTMF tones (the data signals) represent (i.e. encode) the "long card number (PAN)" of the caller's payment card. Hence, the DTMF tones must include a string of discrete data signals that has a length and that conveys sensitive information as required by feature (b). It does not seem to me that E6 explicitly discloses the "call processor" also required by feature (b). However, I consider that this is necessarily implied since the skilled person would understand the CardEasy system must be computer-implemented (e.g. both E6 and E9 refer to the system being "cloud-based"). Feature (b) is therefore implicitly disclosed.

44.	Regarding feature (c), it seems to me that E6 and video B do not explicitly disclose "detecting and decoding" the string of DTMF signals. However, I believe this is implied. For instance, the passage to which the proprietor refers teaches that the audio is cut "while the middle six digits of the long card number (PAN) are entered". The skilled person would understand that this could only happen if some means of detecting that the card number is being entered is necessarily provided. Equally, under the section entitled "Benefits of CardEasy", E6 says that "payment is taken and confirmed in real time". I believe the skilled person would understand that this necessitates some means for decoding the inputted DTMF tones in order to extract the payment card information from them. I believe that this is confirmed by the diagram of the CardEasy system appearing at 1:39 of video B (a screenshot of which is reproduced below), noting the diagram shows that "Card data" is transferred to a

"Payment Service Provider". In my opinion, feature (c) is necessarily implied by E6/video B/E9.

45. It follows that, in my opinion, E6/video B/E9 discloses features (a)-(f) of claim 14. In my opinion claim 14 is not new in light of E6/video B/E9.

Novelty of claim 1

46. Turning now to claim 1, it is directed to the features of a system that implements the method of claim 14. Claim 1 includes features that correspond directly to some features of claim 14. In my opinion, features (a), (f), (h), (i) and (j) of claim 1 correspond directly to features (a), (c), (d), (e) and (f) of claim 14 respectively. It follows from my discussion above that features (a), (f), (h), (i) and (j) of claim 1 must be disclosed by E6/video B/E9, so I need not discuss these features further here. However, I must still consider whether features (b)-(e) and (g) of claim 1 are disclosed.

47. Unsurprisingly, the requester says that features (b)-(e) and (g) are disclosed by E6/video B/E9. That these features are disclosed by E6/video B/E9 is not explicitly disputed by the proprietor. I agree with the requester, for the following reasons.

48. Regarding feature (b), I believe the skilled person would understand that E6 necessarily implies the required "first interface" for receiving voice and data signals from the caller" because E6 says the system can receive "audio" and "DTMF tones" from the caller. I believe the first interface of feature (b) is also necessitated by the system diagram in video B, reproduced above – see for example the four grey arrows that emerge from, and point into, the lower grey rectangle positioned near to the words "Telephone Switches". Equally, the same arrows imply a requirement for another interface for exchanging audio and data signals with the agent, i.e. the "second interface" of feature (c). I also agree with the requester that feature (c) is implied by the text of E6 since it says the agent "initiates a request for card authorisation" and the "audio from the agent to the caller remains open throughout".

Feature (d) is disclosed because it is clear from E6 and video B that there is bi-directional communication between the caller. Moreover, it is clear the communication is selective because "audio from the caller to the agent is cut briefly while the middle six digits of the long card number (PAN) are entered". E6's function of cutting the audio/data necessarily implies that the attenuation means of feature (e) is disclosed, noting that cutting (i.e. blocking) is an example of what is meant by "attenuate … to impede" in feature (e) as I have construed it above. The system is implicitly computer-implemented ("the solution is cloud-based") so it must require one or more processors to control the attenuation, detection and decoding functions, as required by feature (g) of claim 1.

49. I agree with the requester that the single disclosure of E6/video B/E9 anticipates features (a)-(j) of claim 1 and that claim 1 lacks novelty.
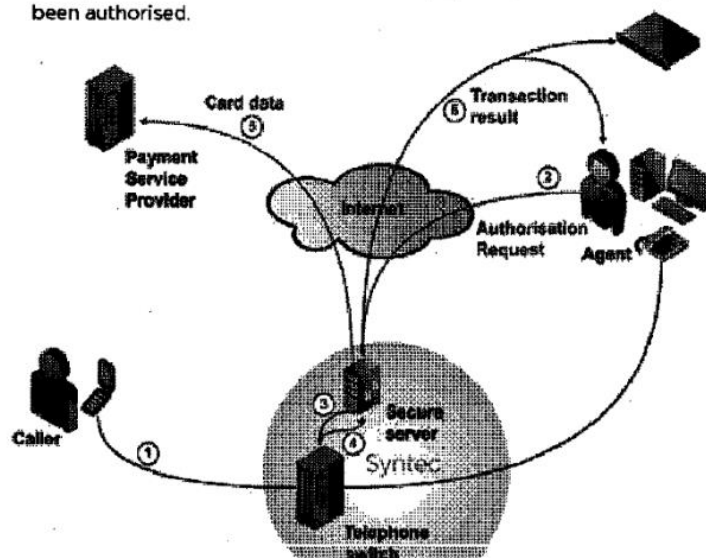
Inventive step

50. Having reached the opinion that claims 1 and 14 lack novelty over the web page as disclosed in E6/video B/E9, it is not strictly necessary for me to give an opinion on inventive step. However, in the belief it may be helpful to both parties, I would add the following.

51. If I am wrong and E6 and video B/E9 cannot be appropriately treated as single novelty-destroying disclosure, then it is my opinion that claims 1 and 14 would necessarily lack an inventive step over the combination of E6 and video B/E9. Because both disclosures relate to Syntec's "CardEasy" system there is no doubt in my mind that the skilled person would come across and consider together the separate disclosures of E6 and video B/E9.

52. If I am wrong and E6 and video B/E9 do not disclose "exclusively" using two modes as required by features (h)-(j) of claim 1 (and features (d)-(f) of claim 14) then I accept the requester's alternative submission that claims 1 and 14 would be trivially non-inventive. It would be obvious for the skilled person to implement the system of E6 and video B/E9 using exclusively the two modes it teaches.

53. Similarly, if I am wrong and features (b)-(g) of claim 1 and features (b) and (c) of claim 14 are not unambiguously implied by E6 and/or video B/E9, then it is my opinion that these features would be obvious. For example, it would be obvious to the skilled person to implement the CardEasy system using one or more computers, showing feature (g) of claim 1 and feature (b) of claim 14 to be obvious. It would be obvious that the string of DTMF tones in E6 would have to be captured and decoded in order to extract the relevant card information, rendering feature (f) of claim 1 and feature (c) of claim 14 obvious. Because both voice and data signals are involved, it would be obvious that appropriate (e.g. computerised) interfaces for the bi-directional reception and transmission of these signals are needed to work E6, rendering features (b)-(d) of claim 1 obvious. Finally, it would be obvious to use any well-known attenuation means (e.g. a switch) to "cut" the signals in E6 and video B, rendering feature (e) of claim 1 obvious.

E10 and E11

54. The brochure E10 ("CardEasy™ Keypad payment by phone") is also concerned with Syntec's CardEasy system. According to the requester, the brochure has the filename "syntec_cardeasy_brochure-2". They say that E11 is a directory listing of a Syntec web site[13] hosting the brochure. E11 shows that file "syntec_cardeasy_brochure-2" was "last modified" on "2014-09-29 17:49" and they say that this indicates the brochure was made available to the public as early as 17:49 on 29 September 2014. The proprietor does not dispute this. I agree that E11 shows, on balance of probabilities, that the brochure E10 was made available to the public before the priority date of the invention. The proprietor admits that, as the requester says, the brochure discloses essentially the same wording as the web page text captured by E6. The requester also notes that the brochure includes a system diagram (reproduced below). In my opinion this system diagram is very similar to the system diagram disclosed in video B (discussed above). Thus, it is my opinion that the disclosure of E10 is very similar to that of E6/video B/E9. Accordingly, it follows that I agree with the requester that claims 1 and 14 are not new over E10 for the reasons I gave above in respect of E6/video B/E9.

How does CardEasy work?

1. A caller wishes to pay by card over the phone.
2. The contact centre agent initiates a request for card authorisation.
3. The caller is prompted to enter their card number via their telephone keypad.
4. Audio from the caller to the agent is cut briefly while the middle six digits of the long card number (PAN) are entered in order to ensure that there is no way the agent can be exposed to the card number by hearing either the DTMF tones or the caller saying the number.
5. The audio from the agent to the caller remains open throughout.
6. The complete call can be recorded but the sensitive DTMF tones are masked on the recording as well.
7. The agent is alerted via their screen when payment has been authorised.

55. Once again, as I have found that claims 1 and 14 lack novelty, it is not strictly necessary for me to give an opinion on the inventive step of claims 1 and 14 over E10. However, I would add that if am wrong on the novelty of claims 1 and 14 then it

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[13] https://www.syntec.co.uk/wp-content/uploads/2014/09/

is my opinion that claims 1 and 14 lack an inventive step over E10 for the same reasons that I gave in paragraph 53 above. I also accept the requester's alternative argument that claims 1 and 14 would be obvious over a combination of E10, E6 and video B/E9. All three disclosures concern the same "CardEasy" system so there is no doubt in my mind that the skilled person would necessarily come across and consider together the disclosures of E10, E6 and video B/E9.

E12

56. The requester asks for an opinion on whether the claims are novel over E12 (patent document WO 2009/136163 A2). E12 was published on 12 November 2009 which is before the priority date of the invention. As the proprietor admits, this document is acknowledged on page 4 of the patent. E12 discloses a telephone system that has some similarities with the system of the patent, as can be seen from figures 3(a), 4 and 5 that I have reproduced below.
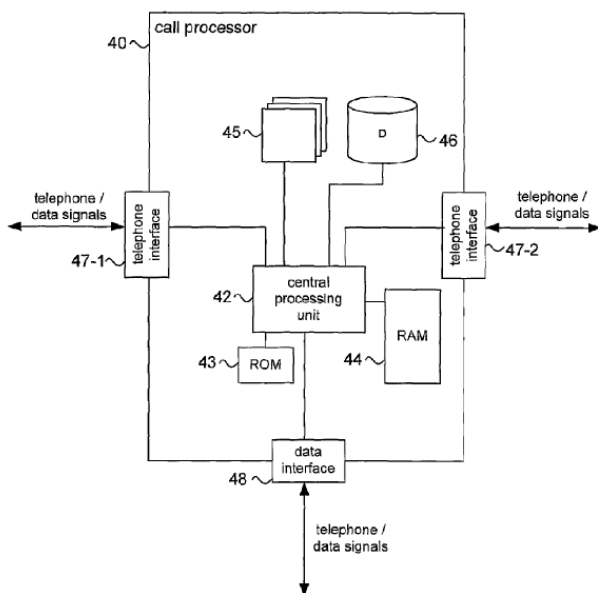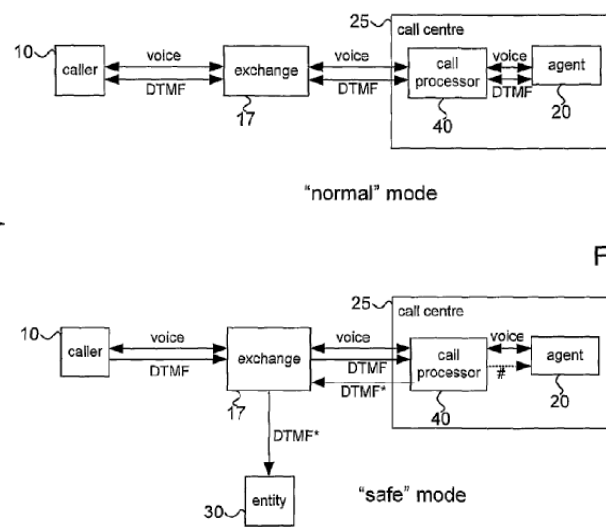

Figure 3(a)

Figure 4

Figure 5

57. Like the patent, E12 also addresses the problem of allowing a caller to perform a payment transaction, facilitated by a call centre, without disclosing sensitive payment information to an agent in the call centre. Figures 3(a), 4 and 5 show a call processor 40 that receives voice signals and data signals (e.g. DTMF tones representing payment card information) from a caller 10 at a first interface 47-1. The call processor can selectively forward the voice and data signals via a second interface 47-2 to an agent 20 using two modes. In a "normal" mode (fig. 4) the call processor forwards both voice and DTMF signals to agent 20. However, in a "safe" mode (fig. 5), E12 explains that:

> Call processor 40 forwards the voice portion of the telephone call between caller 10 and agent 20 as before. However, the DTMF or touch-tone portion of the telephone call is detected and processed by the call processor 40, which forwards a modified form of the DTMF tomes [sic] *(labelled "#") to the*

agent 20 ...[14]

58. The proprietor says that E12 makes repeated reference to the advantage of maintaining two-way voice communication in the "safe" mode. As a result, the proprietor says E12 cannot disclose an attenuation means that impedes the agent from receiving both voice *and* data signals (feature (e) of claim 1) or a processor that operates *exclusively* in two modes (features (i) and (j)) whilst a string of data signals is being received at a first interface (feature (h)). I agree with the proprietor. E12 teaches consistently throughout that the safe mode involves transmission of voice signals and the modification or blocking of DTMF data signals[15]. In my opinion, E12 does not disclose features (e) or (h)-(j) of claim 1. It follows that it is my opinion that features (d)-(f) of claim 14 are not disclosed by E12.

59. In their observations in reply the requester asserts that E12 discloses two embodiments of the "safe" mode, one in which voice signals are transmitted and one in which they are not (the latter clearly destroying the novelty of the claimed invention). Having considered the (lengthy) disclosure of E12, I have not been able to identify such a novelty-destroying embodiment. However, I note that page 31, lines 20-38, of E12 sets out an embodiment where the call processor may be provided with a "voice verification module". This module can verify the voice of the caller, for example by comparing a password or passphrase spoken by the caller, with a password or passphrase previously recorded by the caller. E12 says that in this embodiment,

> *the call processor may be operable to control the voice channel during safe mode to mute the voice channel from the caller to the agent while sensitive data, such as a password, is being spoken.*

60. While I acknowledge that this embodiment does envisage muting the voice channel (thereby attenuating voice signals) I believe the skilled person would understand that this takes place when the caller speaks their password or passphrase and not "whilst" a "string of discrete data signals" (e.g. DTMF tones) is being received as required by features (h) and (d) of claims 1 and 14 respectively. This also means that this embodiment does not operate "exclusively" in two modes (features (i) and (j) of claim 1, and (e) and (f) of claim 14) whilst a string of data signals is being received.

61. The requester argues that the definition of "the second mode" of feature (j) of claim 1 is disclosed by the final part of claim 1 of E12 that recites:

> *… the call processor is adapted to receive voice signals and data signals at the first telephone interface, to block data signals from being transmitted to the second telephone interface and optionally to transmit voice signals to the second telephone interface.*

62. In particular, the requester draws attention to the word "optionally". If I understand the requester correctly, they say this means claim 1 of E12 would be understood as disclosing a mode in which *both* data signals and voice signals are *blocked*. Yet I

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[14] Page 20, lines 3-7.
[15] See Figure 5; page 2, lines 37-45; page 9, lines 2-3; page 20, lines 3-14; page 22, lines 23-27; page 25, lines 18-20; page 29, lines 27-30; and page 32, lines 42-44.

agree with the proprietor that this is not the case. I believe the requester's interpretation is inconsistent with the disclosure of E12 because, as I have already mentioned, E12 teaches repeatedly throughout that the "safe" mode involves *transmission* of voice signals whilst masking or blocking DTMF tones. I also note that the description of E12 does not seem to offer a particular or special meaning for the word "optionally". It seems to me the skilled person would understand that the word "optionally" is used throughout E12 to describe non-essential or optional technical features[16]. This suggests to me that, on balance of probabilities, the skilled person would interpret the word "optionally" appearing in claim 1 of E12 as defining an optional part that is effectively a dependent claim, as the proprietor observes. In any event, it seems to me that, while it is clear *data signals* are blocked, the definition of "optionally" transmitting voice signals cannot be equated with a disclosure of a positive step of blocking both data *and* voice signals as the requester submits. To put it another away, it may be the case that claim 1 of E12 *covers* a hypothetical embodiment where both data and voice signals are blocked, but it does not clearly and unambiguously *disclose* such an embodiment.

63. It is my opinion that claims 1 and 14 are new over E12. It follows that it is also my opinion that dependent claims 2-13 and 15-26 are new over E12.

64. I would add that I agree with the proprietor's observation that the requester makes no reasoned argument as to why claims 1 and 14 would lack an inventive step over E12 in their request. In their subsequent observations, the requester seeks to introduce reasoned arguments to this effect. This makes me wonder whether the introduction of these arguments complies with rule 96(4) that requires that the requester's observations should be "confined strictly to matters in reply". In any case, since the proprietor has not had the opportunity to make observations on the arguments the requester seeks to introduce, I do not think it would be appropriate (or fair) for me to give an opinion on whether claims 1 and 14 lack an inventive step over E12. Similarly, I agree with the proprietor that the requester makes no reasoned argument concerning the combination of E12 with E6, video B and E9 so I do not believe it would be appropriate for me to give an opinion on any such combination.

Dependent claims

65. Having found that claims 1 and 14 lack novelty over E6/video B/E9 and E10, I must now go on to consider the novelty and, if appropriate, the inventive step of the dependent claims over these disclosures. For the sake of brevity, I believe it is appropriate for me to deal with these claims briefly.

66. To begin with, I note that the requester only makes arguments in respect of the novelty of dependent claims 4-6, 8-10, 17-19 and 21-23 using E12. Having reached an opinion that these claims are new over E12, I need not consider them any further. Equally, for the reasons I gave in paragraph 64 above, I do not believe it is appropriate for me to give an opinion on whether these claims are obvious over E12. I shall now go on to consider the remainder of the claims.

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[16] For example: see page 2, line 26 – page 3, line 45; page 5, lines 4-12; page 20, line 18; page 23, lines 28 and 40; page 24, line 4.

Claims 2 and 15

67.   Claim 15 further defines the method of claim 14 as follows:

> *15. The method of claim 14, wherein the step of operating the call processor comprises: a) operating the call processor in the first mode for a first period; b) immediately thereafter switching the call processor from the first mode to the second mode and operating the call processor in the second mode for a second period; and c) immediately thereafter to reverting the call processor from the second mode to the first mode.*

68.   Claim 2 has corresponding limitations for the system of claim 1. I agree with the requester that claims 2 and 15 are implicitly disclosed by E6 ("The audio from the caller to the agent is cut briefly while the middle six digits of the long card number (PAN) are entered"). I agree that claims 2 and 15 are implicitly disclosed by the corresponding disclosure of brochure E10. In my opinion, claims 2 and 15 lack novelty over each of E6/video B/E9 and E10.

Claims 3 and 16

69.   Claim 16 depends upon claim 15:

> *16. The method of claim 15, step of switching the call processor from the first mode to the second mode is triggered upon detection of a first pre-determined number of discrete data signals of the string of discrete data signals.*

70.   Again, claim 3 has corresponding limitations for the system of claim 2. In E6, the requester relies upon the disclosure "the agent initiates the request for card authorisation through their web browser or CRM system". However, I do not agree that this anticipates claims 3 and 16 because it refers to *the agent* initiating the request whereas claims 3 and 16 specify that the switch to the second mode is triggered by detecting a predetermined number of the discrete data signals that, according to claims 1 and 14, convey sensitive information. In my opinion claims 3 and 16 are novel over E6/video B/E9. It follows that claims 3 and 16 are novel over brochure E10 for the same reasons. As to the inventive step of claims 3 and 16, although the requester argues that these claims are obvious over a combination of video B/E9, E10 and E12, they do not, in my opinion, present a reasoned argument to support this. Therefore, I do not believe it is appropriate for me to give an opinion on the inventive step of claims 3 and 16.

Claims 7 & 20

71.   Claim 20 depends upon claim 14:

> *20. The method of any one of claims 14 to 19, wherein the step of attenuating the voice signals and data signals received from the caller comprises blocking said voice and data signals to prevent the agent from receiving them.*

72.   Claim 7 depends from claim 1 in corresponding fashion. I agree with the requester that claims 7 and 20 are anticipated by E6 since it teaches that voice and data

signals are "cut". Claims 7 and 20 are anticipated by brochure E10 for the same reason. In my opinion, claims 7 and 20 lack novelty over each of E6/video B/E9 and E10.

Claims 11-13 and 24-26

73. These claims may be dealt with together. Claims 24-26 further define the method of claim 14 as follows:

> *24. The method of any one of claims 14 to 23, wherein the string of discrete data signals is a plurality of DTMF (dual-tone multi-frequency) audio tones and wherein the method further comprises determining an alphanumeric digit associated with each DTMF audio tone.*

> *25. The method of any one of claims 14 to 24, wherein the alphanumeric digits associated with the plurality of DTMF audio tones of the string of discrete data signals represent the whole or part of a Primary Account Number (PAN) or card security code of a bank card.*

> *26. The method of any one of claims 14 to 25, further comprising the step of communicating the information from the detected and decoded string of discrete data signals to a third party for subsequent processing.*

74. Claims 11-13 respectively put corresponding limitations on claim 1. I agree with the requester that that claims 11, 12, 24 and 25 are anticipated by E6/video B/E9 since they teach that the caller inputs their card number, in the form of DTMF tones, using their telephone keypad. I agree with the requester that claims 13 and 26 are also anticipated because video B (see transcript E9) teaches that "Payment is passed from the merchant to the payment service provider and back via the CardEasy system." I also agree that claims 11-13 and 24-26 are taught by the corresponding disclosures of brochure E10. In my opinion, claims 11-13 and 24-26 lack novelty over E6/video B/E9 and brochure E10.

Claims 27 and 28

75. I note that claims 27 and 28 are so-called 'omnibus' claims that define a system and method, respectively, with reference to the description and drawings. The requester simply asserts that these claims are not new, or are obvious, over E6, video B and E10. However, the requester has not set out any reasoning as to how I should construe these omnibus claims. As a result, I do not believe that I have been given sufficient information to allow me to reach an opinion on the novelty or obviousness of these claims. Accordingly, I do not believe it would be appropriate for me to give an opinion on the novelty or obviousness of claims 27 and 28.

Sufficiency

76. The requester also asks for an opinion on sufficiency. Section 14(3) of the act sets out the function of the specification:

> *The specification of an application shall disclose the invention in a manner*

which is clear enough and complete enough for the invention to be performed by a person skilled in the art.

77. From the requester's submissions there appear to be two grounds on which they say the patent is insufficient.

78. Firstly, the requester says that the specification presents an "inherent contradiction" to the skilled person in its use of the terminology of "attenuating" on one hand and "blocking" on the other. The requester refers to page 5, line 32 – page 6, line 2 (with requester's emphasis):

    By operating in a second mode in which both voice and data signals passing from the first interface to the second interface are attenuated to impede the agent from receiving both voice and data signals from the caller, it is <u>impossible</u> for sensitive information to be stolen by the agent or from the agent's computer or the call centre network. By 'impeded' it is meant that the signals are attenuated to such an extent that the agent <u>cannot discern</u> the entirety of the information content of the signals (both voice and data). Even if the caller chose to read out the digits whilst entering them using DTMF, the agent would be <u>prevented</u> from receiving the sensitive information.

79. The requester says that the skilled person would understand this passage to mean that the agent is "completely unable" to recover the sensitive information due to the *attenuation* of the signals.

80. Meanwhile, the requester refers to a subsequent passage on page 7, lines 17-18 (with requester's emphasis):

    Blocking the signals rather than merely attenuating them <u>removes all risk</u> of the information content of the signals being received by the agent or a third party.

81. The requester says that this passage implies that there must be some risk of sensitive information being recovered when signals are merely *attenuated* rather than being *blocked*, and they say that this directly contradicts the earlier passage that *attenuation* makes this impossible.

82. Like the proprietor, I do not see any contradiction here. In my opinion these passages of the patent teach the skilled person the extent to which *the information content* of the signals can be discerned by *attenuating* or alternatively *blocking* signals. In the earlier passage, I believe the phrase on page 5, lines 35-36, "that the signals are attenuated to such an extent that the agent cannot discern **the entirety** of the information content of the signals" (my emphasis), would be understood by the skilled person as meaning that attenuating signals requires that *some or all of* the information content must not be discernible by the agent. It seems to me this is entirely consistent with the passage on page 7 identified by the requester that *blocking* signals removes all risk of the information content of the signals being recovered. I would add that I believe both passages are also consistent with the remainder of the description of the patent. For example, page 15, line 29 – page 18, line 27, describes numerous embodiments in which the "second mode" is only engaged for a subset of a received string of DTMF tones that encode a string of

sensitive information (such as a PAN of a payment card).

83. At this point it is also convenient for me to note that the requester further argues that claims 4 and 17 lack sufficiency. In my opinion the passage on pages 15-18 to which I have referred discloses numerous embodiments that provide an enabling disclosure of the "first predetermined number of discrete data signals" (as recited in claims 3 & 16) and the "second predetermined number of discrete data signals" (as recited in claims 4 and 17). Accordingly, I disagree with the requester's argument that claims 4 and 17 lack sufficiency.

84. Secondly, the requester appears to argue that the teaching of the patent is not clear enough in respect of the extent to which signals should be attenuated. The requester says the patent makes the idea of attenuation "entirely subjective" so that it is "entirely unclear how much attenuation would be sufficient to mean the agent could not (practically) detect the signals in question, not least because the degree of attenuation would likely vary from agent to agent." In their observations in reply, the requester clarifies that this means the "skilled person seeking to perform the invention as claimed would presumably be faced [with] having to resort to experimentation." They say that "any such experimentation conducted by the skilled person would be non-trivial and constitute an undue burden".

85. I agree with the requester in so far as it seems likely that the skilled person would have to resort to experimentation to determine the amount of attenuation needed in order to ensure an agent could not practically detect the signals in question. However, I respectfully disagree that this would place an undue burden on the skilled person. It seems to me that nothing other than routine experimentation (e.g. concerning signal strength) would be required on the part of the skilled person in order to work the invention, especially since claims 1 and 14 only specify a single agent.

86. In my opinion, the patent discloses the invention in a manner which is clear enough and complete enough for the invention defined in claims 1, 4, 14 and 17 to be performed by the skilled person.

Opinion

87. It is my opinion that claims 1, 2, 7, 11-15, 20 and 24-26 lack novelty over the single disclosure of E6/video B/E9. However, it is also my opinion that claims 3 and 16 are new over E6/video B/E9. I give no opinion on whether claims 3 and 16 have an inventive step over E6/video B/E9.

88. It is my opinion that claims 1, 2, 7, 11-15, 20 and 24-26 lack novelty over E10. However, it is also my opinion that claims 3 and 16 are novel over E10. I give no opinion on whether claims 3 and 16 have an inventive step over E10.

89. It is my opinion that claims 1-26 are novel over E12. I give no opinion as to whether claims 1-26 have an inventive step over E12, and no opinion as to whether claims 1-26 have an inventive step over a combination of E12, E6 and video B/E9.

90. I give no opinion as to the novelty or inventive step of omnibus claims 27 and 28.

91. Finally, it is my opinion that the patent discloses the invention in a manner which is clear enough and complete enough for the invention, as defined in claims 1, 4, 14 and 17, to be performed by the skilled person.

Application for review

92. Under section 74B and rule 98, the proprietor may, within three months of the date of issue of this opinion, apply to the comptroller for a review of the opinion.

Stephen Richardson
Examiner

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NOTE

This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.