Neutral Citation: [2024] UKFTT 00782 (TC)

Case Number: TC09272

FIRST-TIER TRIBUNAL
TAX CHAMBER

Taylor House, London

Appeal reference: TC/2021/18422

CUSTOMS DUTY – underwater composite cable – whether properly classified to Community Code 8544 6090 00 – no – appeal allowed.

Heard on: 25-28 June 2024
Judgment date: 28 August 2024

Before

TRIBUNAL JUDGE MARK BALDWIN
MR MICHAEL BELL

Between

NEXANS NORWAY A.S.

Appellant

and

THE COMMISSIONERS FOR HIS MAJESTY'S REVENUE AND CUSTOMS

Respondents

Representation:

For the Appellant: Frank Mitchell, of counsel, instructed by EY LLP

For the Respondents: Gideon Barth of counsel, instructed by the General Counsel and Solicitor to HM Revenue and Customs

DECISION

INTRODUCTION

1. This case is about the customs duty classification of an underwater composite cable (the "Cable"). The Appellant ("Nexans") says that the Cable is properly classified to Community Code 85 44 70 00 10 or Community Code 85 44 70 00 90 in the UK Tariff (which carry a 0% ad valorem customs duty rate), whereas the Respondents ("HMRC") say that the correct classification is to Community Code 85 44 60 90 00 (which carries a 2% ad valorem customs duty rate).

2. On 21 July 2021, Nexans applied to HMRC for a ruling (an "ATaR") classifying the Cable to Commodity Code 85 44 70 00 10 in the UK Tariff. Nexans' ATaR application was made pursuant to the Notice published by HMRC regarding Advance Tariff Rulings, which has the force of law under Section 24(1) of the Taxation (Cross-border Trade) Act 2018 (the "Notice").

3. On 3 September 2021, HMRC issued its ATaR decision (the "Decision") classifying the Cable to Commodity Code 85 44 60 90 00 in the UK Tariff.

4. Nexans has appealed against the Decision and HMRC's decision (issued on 17 November 2021), upholding the Decision on review.

5. By consent, Nexans' Grounds of Appeal have been amended to allow it to argue for classification to Community Code 85 44 70 00 90 as an alternative case.

6. We will need to analyse the Cable in some detail, but (by way of introduction) it is an undersea cable designed to be used in the Seagreen offshore windfarm project. The Seagreen windfarm became operational in 2023 and comprises 114 turbines. Each of the turbines is connected to each other by means of an "array cable" and the energy produced by all of the turbines is transformed in a single offshore substation platform ("OSP"). The Cable runs from the OSP to the onshore transition joint bay and is referred to as an "export cable". The Cable comprises several physical elements, but, principally for present purposes, three 1,200mm^2 conductors (or "power cores") and a fibre optic element containing 48 single mode fibres. The Cable is designed to perform two functions. The conductor element of the Cable is designed to conduct the electricity which is generated by the turbines (and routed to the OSP) back to the mainland. Also, if the windfarm is not generating electricity, the power cores can carry electricity out to the windfarm to facilitate the operation of equipment and systems while the windfarm is idle. The fibre optic cable performs two functions: data transmission between land and the windfarm to monitor, control and operate the windfarm; secondly, to monitor the Cable's temperature for safety purposes.

7. Put very briefly, Nexans' case is that, due to the independence and importance of the fibre optic element, it is not appropriate to classify the Cable as a mere "electrical conductor for a voltage exceeding 1,000 V".

THE LAW

8. The proper classification for customs duty purposes of goods entering the United Kingdom is determined by the Tariff of the United Kingdom ('the UK Tariff'), which was established pursuant to section 8 of the Taxation (Cross-border Trade) Act 2018 and the Customs Tariff (Establishment) (EU Exit) Regulations 2020. It is based on the Combined Nomenclature ('CN'), laid down in EU Regulation 2658/87.

9. The CN is based on the international Harmonised Commodity and Coding System ("Harmonised System" or "HS") established by the World Customs Organisation ("WCO"). The CN is amended annually and reproduced in the UK Tariff.

10. The CN classifies goods using an eight-digit identification system. The first two digits represent the chapter heading, the next two digits represent headings in the chapter, the fifth and sixth digits represent subheadings (which mirror those used in the WCO's nomenclature) and the final two digits represent the EU's further subdivisions.

11. The UK Tariff is similarly structured by reference to sections, then chapter numbers with chapter titles, then headings and subheadings. The first two numbers of a product code constitute the chapter number, the next two numbers (together with the chapter numbers) constitute the heading and the final four numbers (where applicable) constitute the subheading. The UK Tariff provides a systematic classification of all goods in international trade and, with assistance from the General Interpretive Rules (or "GIRs"), ensures that any product is classified in one place and one place only.

12. The Explanatory Notes to the Harmonised System ("HSENs") published by the WCO are not legally binding but are highly persuasive in determining the proper classification. The same is true of the Explanatory Notes to the CN ("CNENs") which refer to the HSENs.

13. The following are the relevant UK Tariff headings and subheadings:

> **"Chapter 85: Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles.**
>
> 85 44: Insulated (including enamelled or anodised) wire, cable (including coaxial cable) and other insulated electric conductors, whether or not fitted with connectors; optical fibre cables, made up of individually sheathed fibres, whether or not assembled with electric conductors or fitted with connectors.
>
> 85 44 60 Other electric conductors, for a voltage exceeding 1000V.
>
> 85 44 60 10 00 With copper conductors
>
> 85 44 60 90 00 With other conductors.
>
> 85 44 70 Optical fibre cables
>
> 85 44 70 00 10 Single mode optical fibre cables, made up of one or more individually sheathed fibres, with protective casing, whether or not containing electric conductors; excluding cables in which all the optical fibres are individually fitted with operational connectors at one or both extremities and plastic insulated cables for submarine use containing a copper or aluminium conductor in which fibres are contained in metal module(s).
>
> 85 44 70 00 90 Other"

14. Regulation 3 of the Customs Tariff (Establishment) (EU Exit) Regulations 2020 provides that, for the purposes of determining the codes within which goods most appropriately fall, the rules of interpretation contained in the following have effect:

(1) Part Two (Goods Classification Table Rules of Interpretation) of the Tariff of the United Kingdom;

(2) Notes to a section or chapter of the Goods Classification Table.

15. The Goods Classification Table Rules of Interpretation ("GIRs") are set out below (so far as relevant to this appeal):

> "General Interpretive Rules
>
> Rule 1
>
> The titles of Sections, Chapters and sub-Chapters are provided for ease of reference only; for legal purposes, classification shall be determined according to the terms of the headings and any relative Section or Chapter Notes and, provided such headings or Notes do not otherwise require, according to the following provisions.
>
> Rule 2
>
> 2. …
>
> (b) Any reference in a heading to a material or substance shall be taken to include a reference to mixtures or combinations of that material or substance with other materials or substances. Any reference to goods of a given material or substance shall be taken to include a reference to goods consisting wholly or partly of such material or substance. The classification of goods consisting of more than one material or substance shall be according to the principles of Rule 3.
>
> Rule 3
>
> 3. When, by application of Rule 2(b) or for any other reason, goods are prima facie classifiable under two or more headings, classification shall be effected as follows:
>
> (a) The heading which provides the most specific description shall be preferred to headings providing a more general description. However, when two or more headings each refer to part only of the materials or substances contained in mixed or composite goods or to part only of the items in a set put up for retail sale, those headings are to be regarded as equally specific in relation to those goods, even if one of them gives a more complete or precise description of the goods.
>
> (b) Mixtures, composite goods consisting of different materials or made up of different components, and goods put up in sets for retail sale, which cannot be classified by reference to 3(a), shall be classified as if they consisted of the material or component which gives them their essential character, insofar as this criterion is applicable.
>
> (c) When goods cannot be classified by reference to 3(a) or 3(b), they shall be classified under the heading which occurs last in numerical order among those which equally merit consideration
>
> Rule 6
>
> 6. For legal purposes, the classification of goods in the sub-headings of a heading shall be determined according to the terms of those subheadings and any related Subheading Notes and, mutatis mutandis, to the above Rules, on the understanding that only subheadings at the same level are comparable. For the purposes of this Rule the relative Section and Chapter Notes also apply, unless the context otherwise requires (regulation 3(1)(b) of the 2020 Regulations)."

16. There are Explanatory Notes to the GIRs. Two points in the Explanatory Note for GIR 3 are relevant for us:

> "(I) This rule provides three methods of classifying goods which, prima facie, fall under two or more headings, either under the terms of Rule 2(b) or for any other reason. These methods operate in the order in which they are set out in the Rule. Thus Rule 3(b) operates only if Rule 3(a) fails in classification, and if both Rules 3(a) and (b) fail, Rule 3(c) will apply. The order of priority is therefore (a) specific description; (b) essential character; (c) heading which occurs last in numerical order.
>
> …
>
> (VIII) The factor which determines essential character will vary as between different kinds of goods. It may, for example, be determined by the nature of the material or component, its bulk, quantity, weight or value, or by the role of a constituent material in relation to the use of the goods."

17. The notes to Section XVI of the UK Tariff (which are applicable to goods falling within Chapters 84 and 85), include the following:

> "3. Unless the context otherwise requires, composite machines consisting of two or more machines fitted together to form a whole and other machines designed for the purpose of performing two or more complementary or alternative functions are to be classified as if consisting only of that component or as being that machine which performs the principal function.
>
> 4. Where a machine (including a combination of machines) consists of individual components (whether separate or interconnected by piping, by transmission devices, by electric cables or by other devices) intended to contribute together to a clearly defined function covered by one of the headings in Chapter 84 or 85, then the whole falls to be classified in the heading appropriate to that function.
>
> 5. For the purposes of these notes, the expression 'machine' means any machine, machinery, plant, equipment, apparatus or appliance cited in the headings of Chapter 84 or 85."

18. The approach to classification was discussed by the Court of Appeal in *Build-A-Bear Workshop UK Holdings Ltd v HMRC,* [2022] EWCA Civ 825. It is common ground that the correct approach was that endorsed by Whipple LJ (at [15]):

> "15. There is extensive case law from the Court of Justice and domestic courts on the approach to the classification of goods under the CN. The general principles are not in dispute and I gratefully adopt the UT's summary of them:
>
> "16. For present purposes, suffice to say that:
>
> (1) The GIRs provide a set of rules for interpretation of the CN in order to ensure that all products are classified under the correct code and (unlike the HSENs and CNENs) all have "the force of law" (*Vtech* [16]).
>
> (2) It is common ground that, in the interests of legal certainty and ease of verification, the decisive criteria for the tariff classification of goods must be sought in their objective characteristics and properties as defined by the wording of the relevant heading of the CN and of the notes to the sections or chapters of the CN (*Holz Geenen GmbH v Oberfinanzdirektion Munchen* (Case C-309/98) at [14]).
>
> (3) The intended use of the goods may be considered as part of the classification analysis where that use is inherent to the goods

and that inherent character is capable of being assessed by reference to the objective characteristics and properties of the goods (see *Hauptzollant Hamburg-St. Annen v Thyssen Haniel Logistic GmbH* (Case C-459/93) ("*Thyssen Haniel*") at [13]).

(4) Having regard to the objective characteristics and properties of the goods, a combined examination of the wording of the headings and the explanatory notes to the relevant sections and chapters should be undertaken to determine whether a definitive classification can be reached, in accordance with GIR 1 and GIR 6. If not, then in order to resolve the conflict between the competing provisions, recourse must be had to GIRs 2-5 (see the opinion of Advocate General Kokott in *Uroplasty v Inspector van de Belastingdienst* (Case C-514/04) ("*Uroplasty*") at [42].

(5) GIR 3 will apply only when it is apparent that goods are prima facie classifiable under a number of headings (see *Kip Europe SA & Ors and Hewlett Packard International SARL v Administration de douanes* (Cases C-362/07-C363/07) ("*Kip Europe*") at [39] and the wording of GIR 3 itself).

(6) Classification must proceed on a strictly hierarchical basis, taking each level of the CN in turn. The wording of headings and subheadings can be compared only with the wording of headings and subheadings at the same level (see the opinion of Advocate General Kokott, *Uroplasty* [43]).

(7) The HSENs and the CNENs are an important aid to the interpretation of the scope of the various tariff headings but do not themselves have legally binding force. The content of the HSENs and the CNENs must therefore be compatible with the provisions of the CN, and cannot alter the meaning of those provisions (see *Revenue and Customs Commissioners v Honeywell Analytics Limited* [2018] EWCA Civ 579 per Davis LJ ("*Honeywell Analytics*") at [95] and *Invamed* per Patten LJ at [12])."

16. We were taken to a recent decision of the CJEU, Case C-760/19 *JCM Europe (UK) Ltd v Revenue and Customs Commissioners* [2021] 4 WLR 44 where at [32] the Court emphasised the point made at (2) above."

THE EVIDENCE

19. Before discussing the parties' submissions on how the relevant legal principles apply in this case, we will set out the evidence put before us. We heard from two witnesses for Nexans, Dr Bjørn Sanden and Mr Andreas Wangell, who provided witness statements and were cross-examined. Dr Sanden is a very experienced and knowledgeable scientist who has worked in the field of cables for many years. He gave evidence clearly and patiently. We suspect that our summary of his evidence may not always do justice to his exposition of the science behind the Cable. However, we have no hesitation in accepting his evidence and are grateful for the time he spent explaining the structure, operation and functions of the Cable and offshore windfarms.

20. Two other witnesses for Nexans, Mr Peter Kohnstam and Mr Sylvain Cabalery, provided witness statements but were not called for cross-examination and so we accept their unchallenged evidence. HMRC did not call them for cross-examination because its position is that their evidence is not something we can consider in classifying the Cable. We discuss this submission later in our decision.

21. Mr Wangell is the tax manager of Nexans and his evidence focused on various tariff classification rulings Nexans had received in other countries. These rulings did not relate to the Cable and they contained specific features which meant that they were not exactly on point as regards the Cable. Ultimately, we reached a consensus that these rulings were very product specific, some pointing one way and others another, and that all we really learned from them was that classifying cables can be quite a difficult exercise, which is something we had already worked out for ourselves! In the end neither party placed any reliance on these rulings, and for that reason we have not summarised Mr Wangell's evidence or the rulings more generally.

22. Witness statements were put in by witnesses from HMRC. Their evidence went to procedural matters and classification rulings from other countries and so, for the same reasons that we have not summarised Mr Wangell's evidence, we have not summarised their evidence either.

23. We also had a very large hearing bundle (running to over 2,500 pages) containing documents many of which were exhibited and discussed by Dr Sanden.

Dr Bjørn Sanden

24. Dr Sanden is now the Chief Technical Officer (CTO) of Nexans. At the time the Cable was being produced, he was the Technical Director Submarine & Land Systems at Nexans in Oslo. He is an expert on Electrical and Electronic Engineering, specifically in the field of cables. He holds a Ph.D. in Electrical Power Engineering from the Norwegian University of Science and Technology and a BEng in Electrical and Electronic Engineering from the University of Strathclyde. He has been working with cable systems like the Cable since 1992, when he was researching for his PhD on extruded cables, and has over 30 years' experience in this field, having worked in academic, managerial and technical positions involving design, tendering, and project execution of cable-associated projects. As Technical Director he was responsible for engineering and research and development, tender engineering, early engagement, and project execution. Essentially, he led on the full scope of Nexans' projects, except installation, which is handled by a different unit.

25. Dr Sanden explained that the Cable is specifically designed to be used in subsea environments, where the conduction of high voltage electricity and the transmission of data for control, communication, and monitoring purposes are required. The Cable is designed to operate in a particularly harsh environment, to withstand the rigour of the transport and installation process, and to operate successfully and without interruption for the entire lifecycle of energy projects, a period that can span 25 years or more.

26. He explained that cable solutions for each project are customised to client specifications. We looked at the design specification for the Seagreen project (dated 16 November 2022) prepared by Nexans. The introduction reads:

> "This document presents the design of the offshore export cables to be used in the Seagreen Offshore Wind Farm project. Three offshore export cables will run from one Offshore Substation Platform (OSP) to the onshore Transition Joint Bay (TJB) located at Carnoustie. The distance is approximately 63 km. The offshore export cables will be jointed to the onshore export cables at the TJB."

27. The specification was a response to an employer's requirements document prepared by Seagreen. The introduction to this document reads:

> "Electrical power collected at the offshore OSP is to be transmitted onshore using 3 x 220kV export cables. This document defines EMPLOYERS

> minimum technical requirements for design, supply, installation and testing of the subsea export cable system including the cables and accessories."

Although the opening paragraph refers only to the transmission of electric power, the need for a fibre-optic cable was made clear early in the document in the following paragraphs:

> "This scope shall comprise the complete functional technical specification and supply of a 220kV AC subsea export cable system to electrically connect and transmit power from the OSP to the onshore transition joint pit and facilitate data gathering and transmission by inclusion of a fibre optic bundle in each cable circuit.
>
> …
>
> The export cables shall also contain fibre optic cores of sufficient capacity to provide the necessary functionality of the Control & Instrumentation Systems and DTS. Assume 48 core single-mode as a minimum."

28. Dr Sanden explained that the Cable has three cores that are individually screened and, depending on the segment of the project where the Cable is being used (offshore or land), has aluminium or copper conductors (cores) with different resistance values. The Cable has an integrated fibre optic element that contains multiple fibre optic single mode modules (strands) that are protected in a special metal casing and are electrically connected to the cores by means of a semiconductive layer. Together, these components allow for high-speed, high-reliability data transmission and high-voltage electricity conduction.

29. For its main length (the subsea part), the Cable has three aluminium conductors (cores). For the landfall portion of the Cable, the conductors are made of copper. In both cases, the function of the cores is to conduct electric energy from one end of the Cable to the other. The aluminium conductors are composed of strands that are annealed and compressed. The copper conductors have a keystone design with different metal strands organised around a central piece, meaning there is more copper per square millimetre. There is a compound in the spaces between the metal strands (wire interstices) that is a filler designed to prevent longitudinal water penetration in case the conductors are exposed to the environment (for example, if the Cable is damaged by a dropped or dragged anchor).

30. The Cable is meant to operate underwater and is subject to considerable tensions and pressure. The design of the Cable allows for water penetration into the outer interstices. It is therefore very important to keep the conductor element properly insulated. This is achieved by combining several layers of insulation, starting with swellable tape.

31. Outside each conductor, there is a semiconductive conductor screen made of black extruded polyethylene, designed to even-out conduction by ensuring that the metal strands are organised in an even, circular shape. Without this inner wall, the electric field around the conductor could be uneven, because different strands, when not bundled together in a circle, would have variable shapes.

32. The next layer surrounding the conductors is the main insulation lawyer, an extruded layer of XLPE coating. XLPE is a chemical cross-bonding plastic that remains mechanically stable, even at high temperatures. This layer has very low water absorption. The XLPE insulation has an outer layer of black extruded semi-conductive polyethylene bonded to its exterior that acts as an insulation screen. Outside the XLPE insulation there is a layer of swellable tape for further protection from water penetration.

33. Outside the XPLE insulation layer, a lead sheath is applied on each individual insulated core. This acts as a water barrier to prevent water migrating into the insulation. The choice of a metal (lead) sheath is connected to its secondary function, which is emergency

electrical conduction in the case of faults. Finally, an extruded sheath of black semi-conductive polyethylene is applied directly over each lead sheath to act as a mechanical protection.

34. The three polyethylene sheathed cores are laid up together inside the cable system and held in place using extruded polyethylene fillers located in the interstices (spaces) between the cores.

35. The fibre optic element of the Cable is integrated in a semi-conductive compartment located in one of the extruded polyethylene filler elements. The fibre optic element is what allows the Cable to be used for the transmission of data for various purposes including control, communication and monitoring.

36. In the fibre optic element 48 single mode fibres are encased by a welded steel tube, which is watertight and also provides protection for the fibres against external damage. There is also a hydrogen, scavenging compound (Dr Sanden explained that corrosion can generate hydrogen, which can migrate into the core and cause degradation, which is why the compound is used) which also blocks water penetration. The fibre optic element is electrically connected to the power cores via a special semi-conductive layer, or lip, located on the filler in one of the interstices between the cores. This lip ensures there is electrical contact between the fibre optic element and the cores along the whole cable length. This can be used to measure and monitor cable temperature, which should not exceed 90 degrees.

37. Dr Sanden explained that heat is generated as electricity travels through the conductor cores. The rate of ageing of cables (in particular the insulation element of a cable) would double for every 8 degrees above 90 degrees, so it is necessary to control the temperature the insulation is exposed to. There is no harm in the temperature rising above 90 degrees for a short while, but operators need to keep track of and control the temperature.

38. The need to control temperature and the amount of power to be carried determine the size of cables, which are always slightly larger than required for the anticipated load. Dr Sanden described that spare capacity as a small safety gap. However, the cost of power cores is such that full redundancy (having a spare core as a back-up) is rarely an option. The Seagreen employer's requirement stipulated that "There will be no redundancy in the 220 kV export cables." Each power core can carry enough energy to supply around 100,000 homes. Each Cable can carry enough energy to supply around 300,000 homes.

39. As far as the fibre-optic cables are concerned, the Seagreen employer's requirement document stipulated for 48 cores as a minimum with a minimum of eight spare fibres in each cable for future use. Of the 48 cores, 36 are used for communications and control, four for temperature sensing and 8 are spare. The 8 spare cables are in addition to fibres required to provide an appropriate level of redundancy. Dr Sanden said that of the 36 fibre-optic cores used for communications, 12 would be redundant.

40. Dr Sanden explained that, as far as data transmission is concerned, it is not the optical fibre that limits capacity but the equipment at each end. With good quality terminal equipment, the Cable (which uses standardised fibre, the same that would be used in a transmission cable) could supply 1-2 million homes with 1GB per second Broadband. The Cable has a 350-megawatt transmission capacity and could carry enough power to supply 300,000 Scottish homes with energy. Dr Sanden explained that the size and weight of cabling required to carry power to 1m homes is much larger than the size of a fibre optic cable required to provide data for a similar number of homes. He said that this was caused by the fundamental laws of physics.

41. Mr Barth suggested that, given the level of redundancy of fibre optic cores in each Cable, it looked as if there might be enough fibre-optic capacity in one Cable to control the windfarm even though Seagreen had ordered 3 lengths of cable. Dr Sanden said he did not know. He stressed that Nexans builds cables to customers' requirements; it does not design their operating system.

42. Dr Sanden explained that fibre-optic cables do not generate heat or cause temperature issues. Temperature issues (which can be harder to manage on land, as water can assist with temperature management) arise from power cores.

43. Dr Sanden told us that Nexans' addition of the semiconductive lip and the protective metal casing are part of the technology that has allowed Nexans to offer the Cable as an integrated cable system that is not prone to the same type of failures associated with integrated fibre optics that have affected subsea cables historically.

44. Dr Sanden was asked whether, if the fibre optic cable were removed, the lip would still be needed and, assuming not, whether the structure of the Cable would be the same. He replied that he delivered the first export cable to a windfarm in 2001 and has always been asked to include a fibre-optic cable. As a result, he has not spent any time thinking about an export cable without a fibre-optic element. He thought that the fillers might be different (although their function would be the same) but the overall dimensions would be the same, as the cores would need to be the same size to carry the required amount of power and the conductors and cable would still be round in shape.

45. We looked at the American Clean Power Association's document ACP OCRP 5 2022 (Recommended Practice for Design, Deployment and Operation of Submarine Cable in the United States) (the "ACP Document"). This describes the designs of different types of export cables. It refers to the function of export cables as being to "move power from a collector point to the onshore substation" and, buried in a description of the cables that focuses on the power conducting element, it observes that, "The three sheathed power cores are laid up using a planetary type laying up machine, which avoids the imposition of torsion stresses on the sheathed cores. Fiber optic elements can be inserted in the interstices during this process." To Mr Barth this rather suggested fibre-optic cables were something of an optional add-on, but Dr Sanden countered that Nexans has provided cables for 15 offshore windfarm projects, and all have included a fibre-optic cable.

46. The ACP Document went on to discuss the design of optical fibre cables, observing:

> "The typical design of an optical fibre cable is with loose fibres inside a thixotropic gel filled metallic tube covered by a protective jacket. …
>
> When integrated in a three-core cable, the optical fibre cable does not require armoring, though some manufacturers prefer to include this to add mechanical strength to the metallic tube. …
>
> The selection of materials in the optical fibre cable is important as this has been identified as a cause of prior failures in three-core cables."

The document illustrated a fibre-optic cable similar to the one in the Cable as well as a fibre-optic cable produced on a standalone basis. Clearly, a fibre-optic cable supplied on its own is of a very different size to the Cable.

47. We looked at the relative size of the fibre-optic cable as shown in diagrams in the documents exhibited, and calculated in the hearing that the fibre-optic cable represents around 0.3% of the cross-sectional area of the Cable. In terms of weight, Dr Sanden agreed that the fibre-optic cable represents a small fraction of the total weight of the Cable.

48. The Seagreen employer's requirement document refers to the required product as "export cables" as does Nexans' specification document. We looked at a document published in February 2015 by CIGRE (CIGRE is the current name of an organisation set up in 1931 under the name of 'International Conference on Large Electric Systems') "Offshore Generation Cable Connections". This defines an "export cable" as:

> "A cable connecting an offshore substation to the grid (onshore or offshore), to export the renewable energy. In case there is no offshore platform, the cable(s) used for transmission of collected power from the offshore generation park to shore, is (are) also export cable(s)."

49. The ACP Document notes that "Power Export Cables and Export Cable terms are used interchangeably" and that "HVAC submarine cable systems are usually supplied as three-core cables to reduce the installation scope and improve the cable ampacity due to reduced losses in the metallic shield." Mr Barth commented that none of this set any store by the inclusion of fibre-optic cables. Dr Sanden countered that both the employer's requirement and Nexans specification documents require the fibre-optic cable to be integrated into the export cable. His understanding was that "export cable" includes power conduction and fibre optic components.

50. Dr Sanden agreed that the power cores transmit electricity. In answer to Mr Barth's suggestion that, without power cores, a windfarm would be pointless, Dr Sanden said that it is necessary both to control and operate the windfarm and to transmit power.

51. We looked at the CIGRE Guidelines for the Construction of Offshore Substations (TB483), which sets out the complex requirements for substations. Dr Sanden said this shows the high level of complexity that needs to be controlled. In relation to the maintenance of power cores, it comments:

> "Typically cables are maintenance free. However, it is possible to measure temperatures with special fibre optic cables that indicate the conductor temperature of the cable with an accuracy of around 5 degrees K. These DTS-systems may give an indication of overloading risks or failure/problems of the cable. They must be installed together with the original installation. For cables with separate FOC, these systems may have a somewhat worse accuracy."

52. Dealing with export and inter array cables, it notes:

> "The cable ratings should be dimensioned for the voltage, the power requirement at the generating end, plus the load factor. After this information the conductor diameter and material are best selected by the cable manufacturer.
>
> …
>
> Communication is needed due to the offshore application and both array and export three- phase cables have integrated fibre optic cables (FOC). Although integrated FOC have lesser risk of being damaged during installation the number of fibres needed should include enough redundancy back-up."

53. While the design of the fibre optic element is generally replicated across Nexans' subsea HVAC integrated cables, some projects have two fibre optic elements for redundancy (back-up). In the Cable there is space within the two other interstitial spaces for a further fibre optic cable and semi-conductive lip to be introduced if needed.

54. Dr Sanden told us about the challenges of integrating fibre optic and power core elements in a single cable. The presence of fibre optics and power cores within the same

integrated cable system poses challenges in terms of preventing damage to the power cores and/or the fibre optic due to induction. Electrical faults associated with fibre optic components have been a root cause for failures in export cable systems. Inadequate cable design or component selection for the fibre optic element has been identified as one of the triggers for these failures in integrated cable systems. Nexans' competitors recognised the advantages of having an integrated cable, because of its multiple functions and reduced cost and risk. However, they struggled with these challenges and some of their integrated cable systems experienced failures because of problems associated with electrical activity between the fibre optic elements and power cores.

55. An example of the way in which a failure like the one described above occurs can be seen in the Gwynt Y Mor windfarm in Wales, which did not use a Nexans cable. A puncture in the fibre optic element led to erosion and AC induction that split insulation sheaths and eventually led to a temperature build up which melted armour wires, caused arcing between the fibre optic element and power cores, and finally led to a meltdown of the power cores.

56. Dr Sanden explained that Nexans had previously become aware of these technical challenges when designing umbilical cables for the oil and gas industry and had devised a special metal casing and semiconductive sheet, so that any voltage that arose between the different components was drained and grounded, preventing damage arising from electric imbalances. Dr Sanden said that, when you have induction, you must be able to manage it in a controlled environment to avoid damage. The solution that Nexans developed for the Cable was to create a semiconductive lip between the fibre optic element and the outside of the power cores so that, in combination with the fibre's metal casing and the fillers between the fibre optic element and power cores, induction could be successfully managed. The metal casing that Nexans uses for its fibre optic element provides the protection that the fibres need in order to avoid water penetration.

57. The impact of having a properly designed and positioned fibre optic element to mitigate the risks arising from the interaction between fibre optic components and power cores in integrated cable systems is significant. With the right technology, that risk is minimal and Nexans can provide a product that fulfils customer expectations of functionality and reliability. The significance of this can be seen from the fact that customers for the Cable will include specific contractual requirements that address this issue. Dr Sanden showed us passages in the employer's requirement for Seagreen containing requirements such as "Design of fillers shall also consider the presence of fibre optic component and be designed to mitigate any mechanical, electrical or thermal effects on the fibre optics component".

58. Dr Sanden explained that, in the case of subsea export cables used for offshore windfarm projects, most projects rely on bundled (composite) fibre optic and electricity cable systems, as this offers benefits in relation to cost, ease of installation, and reduced risk of damage. Dr Sanden agreed that the considerations around laying the Cable and its survival in the sea are unaffected by the presence of the fibre-optic cable. He said that laying a fibre-optic cable alone would still require a special vessel and the cable would still need to be dug into the seabed. A fibre-optic cable alone would be less robust on account of its smaller size. Lots of factors here all point towards using an integrated solution (like the Cable) wherever possible.

59. A small number of projects use an external fibre optic cable attached to a power cable or an entirely separate fibre optic cable. Whether or not interconnector projects rely on a separate fibre optic cable generally depends to the length of the cable. This is because there are limitations on how far fibre optic signals can travel without needing amplification. After

approximately 300-350 kilometres, amplification is needed, and this requires the use of a device called a "repeater" that analyses and regenerates or boosts the signal. Because there is no space inside a bundled (combined) cable to house the repeaters, long-distance interconnector projects require a separate fibre optic cable. An example of this is the Celtic interconnection project between Ireland and France, which is over 600 kilometres long, and relies on a separate fibre optic cable with repeaters.

60. In the context of offshore windfarms, bilateral data flows are necessary to allow operators to control the windfarm (including matters such as turning on and off a generator, adjusting the turbine's pitch and yaw controls, the speed of the rotors, the tilt of the nacelle, and operating the transformer units in the substation), without which there would be no power to conduct, and for controlling the transmission of that power to the grid and from the grid to the windfarm.

61. We looked at the Seagreen employer's requirements for the SCADA (Supervisory Control and Data Acquisition) system for the OFTO (Offshore Transmission Operator) equipment. This stressed the need for the system to allow remote control with a response time of not more than 1 second. Dr Sanden said windfarms are not allowed to connect to the grid if they cannot be controlled centrally. Without the fibre optic element there is no high-speed high-reliability channel to transmit data to and from offshore windfarms, and therefore, no appropriate control over the windfarm generation and transmission facilities or their ancillary systems.

62. Offshore windfarms are unmanned and rely on being controlled from onshore control centres. Because there are a multitude of parameters that need to be controlled at all times and commands need to be executed in a matter of milliseconds, both the generation and the transmission assets of the windfarms have a permanent need for data signals to communicate between themselves and with operators, obtain and send information, and receive and execute control instructions. The Cable's data transmission function is used to control switchgears, transformers, circuit breakers for the protection system, various intelligent electronic devices (IED), access controls (doors to access facilities including the tower of the turbine), heating and ventilation, backup generators, and other systems.

63. In addition to these control and communication functions, the Cable is also designed to provide a monitoring function, which is used by the operator to regulate the power being transmitted from the windfarm and detect cable failures and to locate any faults accurately to facilitate repairs and reduce costs. When used for monitoring, the Cable's fibre optic element continuously relays data to the operator about the condition of the Cable, primarily temperature readings (known as "Distributed Temperature Sensing" or "DTS"). Operators can use the temperature data, both in real time and in aggregated sets, to plan their use of the Cable in a way that maximises the amounts transmitted and preserves the long-term integrity of the Cable, avoiding damage and extending its operational life. In offshore windfarm projects, the fibre optic element within bundled (composite) cables is never used solely for monitoring purposes. Very occasionally, interconnection projects may use the fibre optics element solely for this purpose.

64. In addition to data transmission for control of the windfarms, the Cable also allows for data transmission for the purpose of creating communication channels – for the windfarm's installations to connect to each other, to the shore, and even to workers and vessels who are in the vicinity of the windfarm. The Cable enables communication by using the fibre optic element as a dedicated and secure broadband connection from the shore to the offshore substation that can then be used to establish wired or wireless (WiFi) local networks by plugging the fibres to switches and routers that become the parent node for wired and

wireless networks to which each turbine, facility, or vessel can connect. Likewise, the Cable's fibre optic element can also be used to provide voice over internet (VoiP) protocol telephony to fixed or mobile terminals connected to the windfarm networks and for enabling different systems like closed circuit television, marine radar and other systems all of which collectively allow for the windfarms to operate safely and according to customer and regulatory specifications. Dr Sanden explained that a windfarm is a big offshore building, and all these functions are needed.

Mr Peter Kohnstam

65. Mr Kohnstam works as Sales Director for Nexans, based in the United States of America. He is a British citizen and an Engineer. He obtained his Bachelors degree in Engineering (BEng) from the University of Liverpool, is a chartered engineer (CEng) and a Member of the Institute of Electrical and Technology Engineers (MIET). He has over 38 years' experience in his field, including experience with offshore wind industry integrated cable systems and subsea interconnectors, high voltage solutions design and project sales, and power grid operation in the United Kingdom, including the implementation of complex SCADA ("Supervisory Control and Data Acquisition") systems.

66. His responsibilities include supporting customers in the offshore wind industry and Nexans' internal teams in the definition and supply of integrated cable solutions, like the Cable, for use in offshore windfarms. Through that work, Mr Kohnstam has acquired knowledge about the preferences and viewpoints of potential users of the Cable and other related products.

67. In the context of offshore windfarms, Mr Kohnstam explained that the most basic need that windfarm operators have is to find a solution for how to get the array of wind turbines located offshore (in remote locations and complex environments) to operate together to generate energy safely and efficiently and then have it transmitted, in an equally safe and efficient manner, to the shore, for connection to the power grid. Because offshore windfarms are unmanned and have multiple pieces of equipment that require continuous monitoring and control, and which different stakeholders like the windfarm operator and the power grid operator need to be in communication with permanently and in real-time, what is needed is not only the ability to transmit power to and from the shore, but also the ability to give instructions to the windfarm, receive data from it, and constantly evaluate performance.

68. The Cable is expressly designed and marketed as an integrated solution to these challenges/needs, because the combination of its fibre optic and power conducting elements enables power transmission to and from the windfarms to the grid, and also the transmission of data signals that allow operators to control generation and transmission, and monitor the Cable so that faults are prevented, the Cable operates for longer, and the windfarm's efficiency can be maximised.

69. Since real-time high-speed communication is required by offshore windfarms, and fibre optic is seen as the industry standard for speed and reliability, particularly in an offshore setting, consumers of export cables like the Cable see the inclusion of fibre optics in export cables as a standard requirement and include this requirement in their purchase orders and contractual tenders. While the objective of having a communication link in addition to power transmission can be achieved by using separate fibre-optic and power transmission-only cables, the market has turned to integrated solutions like the Cable because the product satisfies both power and data transmission needs while being more reliable and cost-efficient. In terms of reliability, the Cable mitigates the risk of failure as against separate cables because it is less prone to being damaged by external elements (in the Cable the

fibre-optic element is protected by the Cable's outer casing, the fillers between the conductor phases and by its own inner casing) and because a single installation reduces the risk of the heavier power cable damaging the lighter and more delicate fibre optic cable. In terms of costs, with an integrated product like the Cable, customers do not need to pay for two separate cable installations (with the associated vessel and cable laying fees) and insurance policies, and do not have to pay two sets of maintenance fees or the more expensive repairs associated with strapped products.

70. Mr Kohnstam said that, whilst it might appear to the layman that wind turbines can operate and transmit power simply by being connected to the power grid, this is not true. To be operated successfully, safely, and efficiently, wind turbines and the rest of the facilities in windfarms must be connected to a communications link that allows for data transmission for control and communication. Without data transmission, the machinery in the turbine, including the generator and the various parts of the turbine that are adjustable, such as the mast and the blades, cannot be operated adequately and in a stable manner because there would be no mechanism to transmit the signals that activate/deactivate and calibrate all of the windfarm's equipment.

71. In the UK context, offshore windfarms that do not have suitable communication links to the grid are not allowed to operate by the regulator, because the dynamic of the UK's synchronous AC system means that the entire network, including wind turbines and windfarms, must be able to supply and receive information permanently and in real time. The Cable's data transmission is crucial, both for the windfarm operator and for the grid operator, because what happens to the windfarm and the Cable can affect the rest of network. Equally, the operation of the windfarm may need to be adjusted depending on events happening elsewhere in the network.

72. The operation of offshore windfarms requires both power transmission and communications links. That is why the Seagreen windfarm scoping document specified that export cables should connect the windfarm to the distribution and transmission network system and for this they would "comprise internal fibre optic communication links for windfarm control purposes".

73. Integrated subsea cable systems like the Cable fulfil the offshore windfarm's need to have a communication link via their fibre optic element, since data is transmitted from the onshore portion of the system to the offshore portion and back through the fibre acting as a dedicated, secure, stable, and low-latency (fast) channel. The data transmission reliability and high-speed needs of contemporary offshore wind projects are extremely demanding. For example, in the Seagreen project, it was contractually required that data was transmitted with very low latency, with a maximum 1 second delay in transmitting digital signals, and with very high reliability, with a maximum tolerance for data errors of less than 1%. Fibre optic is the contemporary standard for high-speed data transmission and is effectively the only means available for the type of data transmission speed requirements sought by windfarms, particularly in offshore settings that are remote and therefore lack pre-existing networks, where environmental conditions are extremely harsh, and where there are other factors at play like undersea pressure and electromagnetic interference from wind turbines.

74. The Cable's fibre optic element provides a dedicated, high-speed channel for light pulses that transmit data, conveying messages from operators to different parts of the integrated power system, and from the different windfarm facilities to operators in remote control centres. The data messages comprise a large variety of commands, from the initial instruction to turn on or off a wind turbine generator, to feedback to control centres on the performance and condition of various parts of the turbines and equipment operating in

substations or facilities like weather masts and marine radars, to instructions for optimising the positioning of the turbine array, signals alerting of cable failures or warning of potential failures due to high temperatures, data to allow for voice over IP communication, and grid-control-issued commands ordering a shut down.

75. The Cable's fibre-enabled data transmission function is bidirectional, so data is constantly being transmitted both from offshore wind turbines to other parts of the interconnected power system and from those other parts, including substations, grid and windfarm operator control centres, to the turbines. This two-way transmission is essential to enable control and monitoring through Supervisory Control and Data Acquisition (SCADA), since control decisions must be based on real-time aggregated data produced by sensors located throughout the windfarm equipment. Accordingly, customers demand integrated cable systems like the Cable that have fibre optics that can satisfy the objective of having transmission of data for the SCADA system and DTS monitoring. SCADA, as enabled by the Cable's fibre optic element, allows for permanent, real-time supervision of the behaviour of all the windfarm's generation and transmission assets and for the operator and grid controller to use this supervisory data to issue and transmit the necessary command statements to ensure that that the windfarm and the grid operate efficiently and safely.

76. The Cable's data transmission functionality should be understood in the context where a windfarm is not connected to the grid in an isolated one-to-one system, but rather as one component of a fully integrated and interdependent system (i.e. Great Britain's National Electricity Transmission System (NETS)). This is so because the power system, including generation, transmission, and distribution, is premised on synchronicity, in other words, the need for all its components to be interconnected in real time, so that, as events happen (for example, surges in demand or failures in a generating asset), the system can react in a matter of milliseconds, preserving the system's integrity and preventing blackouts. Accordingly, the Cable's data transmission is crucial, both for the windfarm operator and for the grid operator, because what happens to the windfarm and the Cable can affect the rest of network. Equally, the operation of the windfarm will be adjusted depending on events happening elsewhere in the network.

77. In addition to these functions, the Cable's integrated fibre optic element can be used to monitor the Cable's status. The windfarm and network operators can use this monitoring function both to detect when there is a breakdown in the connectivity and to locate it. Additionally, monitoring can be used for the operator to adjust the windfarm's operation to prevent failures, extend the working life of the Cable, and to increase the efficiency of the windfarm by maintaining high levels of transmission on a permanent basis and, where possible and for defined periods of time, transmit extra amounts of energy to the grid and help compensate for lower than expected power outputs from other generating assets connected to the power network.

78. Cable monitoring systems rely on dedicated use of some of the Cable's fibre optic to pinpoint defects and failures in power transmission. The importance of detecting these failures is twofold. First, it reduces the time and cost required to repair the Cable and resume generation and transmission. Second, as power flows bi-directionally from the grid, if there is a fault, power from the grid would effectively be wasted, so there is a grid-wide interest in avoiding cable failures and, when they happen, detecting them as soon as possible.

79. In Mr Kohnstam's opinion, the criticality of the data transmission capabilities embedded in the Cable's fibre optic element is best understood when the Cable, the

windfarm and the power system are viewed as an integrated system: you need both power transmission and data connectivity so that the system functions. The windfarm operator and the grid operator use data communications to relay instructions to the windfarm and depend on the feedback from the different components of the system to have accurate data on which to base their decisions. You cannot obtain real time information about the state of the system's components without SCADA and you cannot control the offshore generation and transmission assets without high-speed reliable data links. Therefore, without data transmission, operation of the windfarms to produce power would not be possible. Further, without the data connection to generating assets such as offshore windfarms, the power grid would be inherently unstable and its ability to operate to plan, to react to events such as changes in power demand and supply (for example, arising because of changes in weather patterns) and equipment failure would be severely limited.

Mr Sylvain Cabalery

80. Mr Cabalery is currently Vice President for Sales, Marketing & Tendering of the Subsea & Land Systems Business Group at Nexans and has over eighteen years' professional experience with customers and projects in the subsea space, including offshore wind energy and oil and gas. He holds an MSc in Economics and Corporate Management from the IFP School at the École du Petrole et des Moteurs and a MEng in Engineering and Management from the École des Mines de Saint-Étienne.

81. Mr Cabalery explained that, working in this role, he understands the perspective of customers seeking to buy integrated subsea cable systems like the Cable as part of their projects.

82. From a commercial or market standpoint, the availability of fibre optics as part of the connection between the offshore windfarm and the shore is important for the customer (the windfarm developer) because offshore windfarms, including the turbine generators and offshore substations, are unmanned. There are three ways for customers to obtain fibre optic connection to their windfarm. However, there has been a market push to integrating the fibre optic capabilities with the energy conduction. However, this has not happened without considerable challenges being experienced by the sector. When some of Nexans' competitors started to offer integrated solutions, they were not able to integrate the fibre optic in a way that ensured the fibre was properly protected from the electricity conducting element and vice versa. This meant that there were multiple instances where corrosion and high temperature led to cable failure, resulting in several well publicised warranty claims made in respect of integrated cables. Despite these challenges, windfarm developers remained committed to an integrated product.

83. Nexans was in a good position to answer these challenges because it had already developed a technical solution to the problems being experienced by its competitor's integrated cables, because of its experience developing umbilical cables for the oil and gas sector which had resulted in it integrating power, hydraulic and fibre optic elements into a single cable. Nexans' technical solution meant that the currents and voltage inside the cable system were adequately balanced, thus preventing conduction damage to the fibre optics, or from the fibre optic element to the cores. Additionally, Nexans had developed a solution to protect the fibre optic element where it was protected by a metallic casing.

84. While each cable system will be bespoke, based on factors such as the length of the connection, depth of burial, the material the electricity conductor is made of whether it is made of copper or aluminium), the general approach is always the same in that customers want an integrated cable system that gives them the control, communication and monitoring, and at the same time, the ability to transmit high-voltage electricity. As such,

while Nexans will work with customers to design the optimal cable system to fulfil the customer's specific requests, fibre optics and conductors are always present in the product because they are essential to what the Cable is required to do.

85. Mr Cabalery says that the availability of fibre optics is not seen by customers as a negotiable item but rather as a minimum standard; what can change, depending on the project, is the configuration of the fibre in terms of number of modules, testing parameters, other technical specifications, and sometimes the specific types of technology that the customer wants us to provide for monitoring purposes (which relies on the fibre optic element). His experience of project negotiations is that, if a contractor did not include fibre optic modules in their proposed cable system, their bid would have been rejected outright, as it would not satisfy the client's minimum requirements.

DISCUSSION

86. There is a large measure of agreement between Nexans and HMRC about the law, the approach to be taken here and the relevant tests to be applied. Whilst we discuss all the cases we were referred to by Mr Barth and Mr Mitchell, we have summarised their positions only where they differ. Where there is broad agreement, we have simply summarised the relevant cases and what is to be drawn from them.

GIR1

87. As the GIRs must be applied sequentially, we must first consider the potential application of GIR 1. It is common ground that, leaving aside Notes 3-5 to Section XIV, the Cable comprises an electrical conductor of heading 8544 60 and an optical fibre cable of heading 8544 70 and would, in those circumstances, be incapable of classification under GIR 1.

88. However, Notes 3 – 5 of Section XIV are to be applied at the GIR 1 level. Those notes contain, in effect, a tie breaker clause for "composite machines" in Chapters 84 and 85. This was explained by the FTT in *Alpine Electronics of UK Ltd* v *HMRC*, [2016] UKFTT 437 (TC) ("*Alpine Electronics*"), at paragraph [135] as follows:

> "We accept that as set out in *Kip*, the principal function test set out in note 3 is to be applied essentially at the GIR 1 level. That case concerned the classification of a product housing a large format document laser printer module, a large format digital scanner module and a computer running on windows operating system (connectable to all kinds of network environments). The CJEU said that in the case of such a multifunctional device, GIR 1 must be applied first by reference, where appropriate, to the principal function test. Only where the functions performed by the product are classifiable under multiple headings and are of equivalent importance is it necessary to consider the remaining GIRs. In that case it would be necessary to classify the machine by application of GIR 3(b), according to the module which is identified as determining the essential character, provided such identification is possible. It is only if that is not possible that, in accordance with GIR 3(c), the product is to be classified under the heading which occurs last in numerical order among those which equally merit consideration."

89. Note 3 provides that "composite machines consisting of two or more machines fitted together to form a whole … are to be classified as if consisting only of that component or as being that machine which performs the principal function." The two questions this raises are whether the Cable is a composite machine and, if it is, whether it has a principal function. Note 5 tells us that "the expression 'machine' means any machine, machinery, plant, equipment, apparatus or appliance cited in the headings of Chapter 84 or 85."

Is the Cable a composite machine?

90. At this point HMRC and Nexans part company. HMRC say that the Cable is a composite machine. Nexans say it is not, but also say that nothing turns on this as there is no difference between "principal function" and "essential character" (which is the test to be applied at the level of GIR 3). For reasons which will become apparent, we do not agree with Mr Mitchell that the tests of principal function and essential character are the same. As we analyse the cases which discussed and applied these tests, we will see that there is some overlap between the two tests and a borrowing by one of approaches traditionally associated with the other, but it is clear to us that there are important differences between the two tests.

91. Nexans say that:

(1) As the Cable is entirely passive and has no mechanical or digital parts, it is not a machine, machinery, apparatus or appliance.

(2) The title of Chapter 85 might appear to suggest that the Cable is equipment since that Chapter Heading is entitled "electrical machinery and equipment and parts thereof" but GIR 1 clarifies that "the titles of sections, chapters and sub-chapters are provided for ease of reference only." It does not, therefore, follow that every product in the Chapter must fall within the wording of the Chapter Heading.

(3) The Explanatory Notes do not appear to throw any light on this issue and the references throughout the Tariff are not conclusive as they all imply the existence of a product with mechanical features.

(4) In *Peacock* v *Hauptzollamt Paderborn* (Case C-339/98) AG Jacobs, considering whether a network card was a machine in Note 5(b) to Chapter 84 and said this:

> "66. The Commission has contended, on the basis of Note 5 to Section XVI, that a network card is to be regarded as a machine because it can be classified only in Chapters 84 or 85. At the hearing, the applicant dismissed that argument as specious and contrary to the common sense meaning of the word, and I am inclined to agree.
>
> …
>
> 71. The expression machines incorporating or working in conjunction with an ADP machine should thus in my view be interpreted in Note 5(B) to Chapter 84 in accordance not with Note 5 to Section XVI but with its ordinary meaning. That ordinary meaning includes, I consider, at least the presence of moving, movable, removable or interchangeable parts, in other words, some mechanical feature. On that basis, I am satisfied that it does not cover elements such as network cards."

(5) Insofar as the construction of the CN is concerned, Mr Mitchell says that it is a settled principle that "the meaning and scope of terms for which EU law provides no definition must be determined according to their meaning in everyday language whilst considering the context in which they occur and the purposes of the rules of which they form part" (see C–182/19, *Pfizer Consumer Healthcare Ltd v HMRC* (Case C-182/19) at paragraph 48).

(6) In *HMRC v Flir Systems AB* [2009] EWHC 82 (Ch) Henderson J had to consider the distinction between a thermometer and an instrument to measure heat and (at [28]) he observed:

> "I was shown no authority which supports the proposition that the language of the relevant headings should be interpreted with scientific precision, and it

> was inherently improbable that such an approach should have been intended for a tariff code which had to be applied by businessmen and customs authorities worldwide. The appropriate linguistic register was that of the intelligent businessman, not that of a GCSE physics student…"

(7) Neither the man on the street nor the intelligent businessman would regard a cable as a "machine" and this fact is reinforced when one considers that Note 3 to Section XVI refers to "composite machines consisting of two or more machines fitted together to form a whole and other machines designed for the purpose of performing two or more complementary or alternative functions are to be classified as if consisting only of that component or as being that machine which performs the principal function." Logically, if the Cable is a machine, then the fibre optic cable on its own is a machine as is the electrical conductor. This, he says, would stretch the common understanding of the word 'machine' to the point where it loses all meaning.

92. HMRC's argument that the Cable is a composite machine is as follows:

(1) Note 5 provides that, 'for the purposes of these notes, the expression 'machine' means any machine, machinery, plant, equipment, apparatus or appliance cited in the headings of Chapter 84 or 85'.

(2) It is clear from the language of Note 5, that 'machine' is intended to cover products beyond the simple or common understanding of the word, to include any product within the headings of the chapter (without exception).

(3) The headings are those at the four-digit level.

(4) Heading 85 44 cites insulated wire, cable and other electric conductors, optical fibre cables etc.

(5) The cases cited by Mr Mitchell are irrelevant in circumstances where the meaning of Note 5 is unambiguous. In passing, we agree with Mr Barth that AG Jacobs in *Peacock* seemed to accept that "machine" in Note 5 to Part XVI has a wide meaning and drew a distinction between that and its proper interpretation in Note 5(B) to Chapter 84. His opinion seems to support Mr Barth's position more than Mr Mitchell's.

(6) It follows that, for the purposes of Notes 3 and 4, the Cable is a 'machine'.

93. We agree that, when Note 3 defines "machine", it does so by including plant, equipment and apparatus. On that basis alone, it seems to us that the concept of "machine" in Note 5 is not restricted to something that the person in the street (with or without a physics GCSE) would ordinarily identify as a machine (which we accept would not be the case with the Cable). We drew the parties' attention to the reference to "plant" and pointed out that in the language of the UK tax code "plant" could include cabling. This can be seen from the discussion in paragraph CA21170 of HMRC's Capital Allowances Manual. We readily accept that the interpretation of Note 5 does not revolve around the interpretation of phrases in the UK domestic tax legislation. We made this point simply to demonstrate that the words in the definition of "machine" are quite broad in their meaning.

94. We agree with Mr Barth that the reference to "the headings of Chapter 84 and 85" are to the headings in those chapters and not to the Chapter title. In the harmonised commodity description, a heading is a 4-digit number. On that basis anything which could be called "plant" and which is referred to in a 4-digit heading in Chapter 84 or 85 will be a "machine" for these purposes. That would, in our opinion, include conductor cables and fibre optic cables. On that basis, whilst it may feel odd to refer to a length of cable as a machine, we consider that each of the conductor cores and the fibre optic cables are

machines, and the Cable is a composite machine, for the purposes of Note 3 to Section XVI.

Does the Cable have a principal function?

95. Having concluded that Note 3 is in point, we need to consider whether the Cable has a principal function based on which we can then classify it. But before we do that, we need to explore the material we can consider when seeking to answer that question.

What material can be considered for the purposes of classifying the Cable?

96. As a starting point, as the cases repeatedly tell us, it is settled law that "the decisive criterion for the tariff classification of goods is in general to be found in their objective characteristics and properties as defined in the wording of the relevant heading … and of the section or chapter notes" (*SIA Kurcums Metal v Valsts ieņēmumu dienests* (Case C-558/11) ("*Kurkums*") at [29]). In all cases, therefore, the starting point must be to ask whether the principal function of a product can be discerned from its objective characteristics.

97. Despite that objective focus, use can be considered. The classic explanation of the extent to which use can be taken into account is that "where the classification cannot be made solely on the basis of the objective characteristics and properties of the product concerned, its intended use, in particular its essential intended use, may constitute an objective criterion for classification, provided that it is inherent to that product" (*JCM Europe (UK) Ltd v HMRC* (Case C-760/19) ("*JCM*") at [36]).

98. As the FTT noted in *RMS Communications Ltd v HMRC*, [2010] UKFTT 411 (TC) ("*RMS*") at [62], use and function are not the same. How someone uses a product is not necessarily the same as the individual functions it performs. In *RMS* the evidence was that an iPod Nano was used as an audio device despite having audio and video functions. Although use and function are not the same, an objective determination of how a product would be used (or why it might be acquired) may be a useful indicator of which of a number of functions is its principal function.

99. The important point here is that use must be capable of being determined from the objective characteristics of the product. Subjective evidence (of uses suggested by the producer in marketing material or evidence of how particular users have used the product) has traditionally been disregarded, partly because of concerns over distortion (the risk of producers advertising fanciful uses to support a different classification with no or a lower rate of duty) and partly because of the idea that customs classification should be capable of being applied easily by reference to visible, external characteristics (what one might call a "quayside" test).

100. We see this approach at work in *Farfalla Flemming und Partner v Hauptzollamt München-West* (Case C-228/89), where the ECJ was considering the classification of glass paperweights (flat-based spheres of glass with coloured motifs) imported from the US. Both the glass spheres and the motifs were made entirely by hand by recognized American glassware artists. As a result of that manual production method, each piece was different; however, in each case the artist produced a series of paperweights which were similar to each other as regards size, motif and method of execution. Each piece was signed by the artist. The question was whether the paperweights were 'original sculptures and statuary, in any material' or 'glassware ... for indoor decoration, or similar uses'. The Court held that the latter was the correct classification, observing (at [22]) that:

> "That conclusion is not invalidated by the fact that the paperweights in question are produced by hand in limited editions by well-known artists and

> are collected by collectors and displayed in museums without ever being used as paperweights. Just as any artistic value which an article may have is not a matter for assessment by the customs authorities, the method employed for producing the article and the actual use for which that article is intended cannot be adopted by those authorities as criteria for tariff classification, since they are factors which are not apparent from the external characteristics of the goods and cannot therefore be easily appraised by the customs authorities. For the same reasons, the price of the article in question is not an appropriate criterion for customs classification."

101. In *E.P. Barrus Ltd and another v HMRC*, [2013] UKUT 0449 (TCC), the Upper Tribunal held that the FTT had made an error of law by assessing the correct classification of vehicles not only by reference to the objective characteristics inherent in the products, but also by reference to witness evidence as to the actual use that the vehicles were put to by particular importers and marketing material that suggested possible uses to which they could be put.

102. In *HMRC v Huxley (UK) Limited*, [2017] UKUT 393 (TCC), the Upper Tribunal was concerned with the classification of artificial turf. The taxpayer had declared the turf as subject to duty as "other golf equipment". HMRC considered that the turf should have been declared as subject to duty as "carpets and other textile floor coverings". The Upper Tribunal noted that the FTT had made its findings of fact as to the characteristics of the turf primarily by accepting the evidence of Mr Huxley, a director of the taxpayer, to the effect that the turf was designed specifically for use in the golf industry, having key characteristics which normal artificial turf for use as lawn or landscaping (or other purposes) does not have. The FTT also relied on an examination of samples of the turf and a demonstration by Mr Huxley of its use. In deciding that the FTT had been correct to take Mr Huxley's evidence into account, the Upper Tribunal said:

> "65. Mr Pritchard submits that in this case the FTT erroneously focused on a subjective view of the targeted use for the product rather than its inherent use as demonstrated by its objective characteristics readily apparent to a customs officer at the point of entry.
>
> 66. In our view, the authorities do not support Mr Pritchard's submissions that the FTT erred in this case insofar as it relied upon external evidence as to the main use to which the Non-Fringe Turf Products were put. There is nothing in the authorities referred to above that rules out the importer seeking to adduce evidence to the customs officer as to the main use or use in practice to which the goods in question will be put which may not otherwise be readily apparent from a physical inspection. Mr Pritchard relies upon the fact that the goods in this case will arrive in an uncut roll which will look like any other type of artificial turf. That approach suggests that all the customs officer needs to do is to ascertain that it looks like ordinary artificial turf to be classified accordingly without the importer having the right to explain that the inherent characteristics of this particular artificial turf require a different classification.
>
> 67. That is precisely what happened in *Thyssen Haniel* and *Sysmex*. Mr Pritchard seeks to distinguish those cases on the basis that in those instances the court was admitting expert evidence to ascertain the objective characteristics of the products in order to discount other possible uses, whereas in this case the FTT used external evidence in order to establish the targeted use of the products.
>
> 68. It seems to us that Mr Pritchard has misconstrued the term "target use". In submissions, he equated it to "the use for which a product is designed" but

> it is clear that the ECJ refers to it as the use for which a product is marketed. The design features of a product may well form part of its objective characteristics from which intended use can be ascertained.
>
> 69. We reject Mr Pritchard's submissions. In our view the approach of the FTT, as demonstrated by its findings at [108] of the Decision was to ascertain the intended main use of the products by reference to evidence of their objective characteristics. The FTT looked at the design features of the products and assessed those features objectively, having considered Mr Huxley's evidence. The technical specifications of the products, as found by the FTT at [108] of the Decision, were clearly part of the objective characteristics of the products and, as the FTT found, the products incorporated certain design features which made them particularly suitable for playing golf and which distinguish them from ordinary artificial turf. From that evidence, in our view, the FTT was entitled to conclude objectively that the main intended purpose of the Non-Fringe Turf Products was to play golf. Those design features were such that the inherent nature of the product was that of golf equipment rather than a floor covering. The fact that there are other possible uses for the product, such as a rather higher quality version of artificial turf for use as a lawn is, as the authorities demonstrate, irrelevant."

103. There is a large measure of agreement between Mr Barth and Mr Mitchell over the materials we can consider. Even Mr Barth (who argues for a more restricted approach than Mr Mitchell) accepts that marketing materials can be considered when looking at the objective intended use of an item; indeed, as we will discover, he sees the language of some of the documents we have been looking at as supporting his case. Actual use, however, is irrelevant and external materials are not a legitimate source of reference to the extent they address that issue. In his view we can consider the visible characteristics of the Cable and the materials (Seagreen's employer requirements and Nexans' specifications) produced to go with it, but we cannot consider the evidence (in particular that of Mr Kohnstam and Mr Cabalery – which is why HMRC did not call them for cross-examination) about subjective customer requirements and use. To no one's surprise, Mr Mitchell takes a different view. He submits that evidence such as that proffered by Mr Kohnstam and Mr Cabalery is not only admissible but highly relevant. In that context he points to the decision of the Court of Appeal in *HMRC v Honeywell Analytics Limited*, [2018] EWCA Civ 579 ("*Honeywell*").

104. In *Honeywell* all three members of the Court of Appeal held (agreeing with HMRC) that the UT were wrong to say that, for the purposes of classification, marketing materials and a product's targeted use are always irrelevant. That case concerned the classification of a product called the Gas Alert Micro 5. The product was described as a gas monitoring device carried by people who work in confined spaces. It detected and measured dangerous gases and had an audible, visible and vibration alert mechanism. In deciding how to classify it (as a gas detector or a gas measuring device) the FTT looked at how Honeywell described it in technical literature. From that description, the witness's description of it and from their findings as to the contents of the device and how it worked, they decided that the device had the characteristics and properties of an alerting device. As Sales LJ put the point (at [130]):

> "Therefore it is in my view clear that the FTT in our case was fully entitled to take into account the manuals and other information about the product presented by Honeywell to consumers in the way that the FTT did. Conversely, the Upper Tribunal was wrong to leave these materials out of account when undertaking its own assessment of classification as between heading 8531 and heading 9026. Such material forms part of the objective

> characteristics and properties of the goods in question for the purposes of applying the classification headings in the tariff Regulation. The relevance to tariff clarification of the objective manner in which an item is presented to consumers or users is also confirmed by the judgment of the CJEU in Joined Cases C-288/09 and C289/09 *British Sky Broadcasting Group* [2011] STC 1519, at [77]-[79]. Indeed, given the importance for tariff classification under various headings of the use to which an item is intended to be put, it seems to me that it would be most odd and contrary to principle to leave out of account the way in which consumers are encouraged to use the item in question by materials placed into the public domain and objectively verifiable for the purposes of tariff classification."

105. We do not regard *Honeywell* as making any particularly revolutionary statement. The passage we have just cited refers repeatedly to the need to find objective characteristics of the product and to take account of the "objective manner in which an item is presented to customers" and "objectively verifiable" materials placed in the public domain. It seems to us that all the Court of Appeal is confirming is that we can take into account literature and witness evidence about a product as long as any claims made in that literature or by a witness can be objectively verified (i.e. they are consistent with what the physical or technical characteristics of the product tell us about it).

106. *Honeywell* did not address the relevance of evidence of what customers actually want or why they purchase a product. *BSkyB* tells us that "what consumers would consider to be ancillary or principal" is an important factor to be considered, but the Court deduced that for itself from a consideration of the objective characteristics of the Sky+ box. Effectively, it was asking itself, "From thinking about the Sky+ box, why do we think people would buy it?", rather than trying to find out why people actually bought it. It was only in *RMS* that the FTT considered market research. HMRC's objection there (as here) is that such evidence addresses the issue of the subjective purpose to which the product would be put, which is not a legally relevant consideration. The FTT considered that market research was not irrelevant and took account of the reviews and survey where the vast majority of users indicated audio was the function which predominated. The Tribunal noted that this function or intended use was reflected in the physical characteristics of the Nano, in particular its small screen and small storage capacity viz a viz video.

107. As the FTT noted in *RMS*, such an approach is consistent with the comments of the Advocate General in *Neckermann Versand AG v Hauptzollamt Frankfurt/Main-Ost* (Case C-395/93) where, having decided that to be classified as pyjamas it was enough if a garment was clearly meant to be worn exclusively or mainly in bed, he addressed the question of the same garment having different classifications depending on which Member State it was imported into, as a result of climatic and cultural differences in the Member States meaning that it could be considered suitable for outdoor wear in one country but fit only for wearing in bed in another. He considered that this would be an unacceptable outcome and thought that criteria would have to be found to avoid that result and that some research into consumer practices in different countries would be needed. At [14] he said:

> "In the present case, for example, the suitability of a garment for wearing in bed must be assessed in the light of the habits, not of one Member State, but of the Community as a whole. Obviously it may be difficult in practice for national authorities to make such an assessment, but it is none the less worth stressing that the attempt must be made."

108. In *Sony Computer Entertainment Europe Ltd v Commission of the European Communities* (Case T-243/01) the Court of First Instance was prepared to consider

marketing and similar materials for the purposes of determining the correct classification of a PlayStation. At [112]-[113] it commented:

> "112. It is, moreover, undeniable that, both by the manner in which the PlayStation®2 is imported, sold and presented to the public and by the way it is configured, it is intended to be used mainly for playing video games, even though, as is apparent from the contested regulation, it may also be used for other purposes, such as playing video DVDs and audio CDs, in addition to automatic data processing.
>
> 113. This finding is corroborated by numerous documents, in particular the brochures and other promotional information relating to the PlayStation®2 which the parties have produced in these proceedings. Those documents show clearly that the PlayStation®2 is marketed and sold to consumers mainly as a video game console, even though it may also be put to other uses. In addition, the various answers given by the applicant during the presentation of the PlayStation®2 to the Nomenclature Committee on 27 February 2001 show that consumers perceive the PlayStation®2 mainly as a game console. Also, the description of the product contained in column 1 of the table in the Annex to the contested regulation shows that the PlayStation®2 is packaged for retail sale as a video game console, since it is presented with a controller module [with] several control buttons, which are mainly used for playing video games, as well as connector cables. On the other hand, the other units, such as standard keyboard, mouse and ADP monitor to which it can be connected are sold separately, a point confirmed by the applicant."

109. Although not a case on principal function, in *Thyssen Haniel Logistic GmbH v Hauptzollamt Hamburg-St Annen* (Case C-459/93) the ECJ referred to the expert opinion produced before the national courts to the effect that the use of the amino acid mixtures as a foodstuff was theoretically conceivable but highly improbable from an economic point of view, because the product's high level of microbiological and chemical purity obtained at great expense preclude its use in that area, where recourse may be had to much cheaper options. It therefore held at [17] that the product was "naturally intended for medical use". This decision is interesting because we see the ECJ looking at evidence beyond the characteristics of the product to help with classification and we also see a theoretical (but unlikely on that evidence) use being ignored. So far as the principal function test is concerned, clearly an entirely theoretical use of a product cannot possibly be its principal function. A similar approach (using expert evidence to determine the naturally intended use of a product) can be seen in *Sysmex Europe GmbH v Hauptzollamt Hamburg-Hafen* (Case C–480/13).

110. The conclusions we draw from this discussion (so far as relevant for us) are that:

(1) The decisive criterion for the classification of goods for customs purposes is in general to be found in their objective characteristics and properties. So, it is the principal function which is inherent to the Cable's objective characteristics which is relevant. To adapt the expression used by the Advocate General in *Kamino*, "the technical characteristics of the product constitute the fundamental criterion to be taken into account" in working out whether the Cable has a principal function.

(2) However, there can be more to finding its objective characteristics and properties than just a physical examination of the Cable and an analysis of its technical attributes.

(3) The use for which the Cable is designed, and its design features/technical specifications, may well form part of its objective characteristics.

(4) External evidence (from witnesses or documents such as technical/user manuals) can be presented to explain or demonstrate the significance of particular objective features and, if relevant, to show the main use to which the Cable will be put if that would not otherwise be readily apparent from a physical inspection.

(5) That external evidence can include consumer market research (surveys and reviews) and, subject to being careful about "marketing hype", marketing as that is a good indication of how the Cable will be used.

(6) External evidence of the types mentioned in (4) and (5) is admissible only to the extent that it is verifiable by reference to the technical characteristics of the Cable. In other words, it can explain or interpret those characteristics, but any proposition it leads to must be (realistically, not just remotely) consistent with what can be deduced from the technical characteristics of the Cable.

(7) Purely subjective evidence (e.g. the intentions of a particular user) or value judgments (e.g. the question whether an object has artistic value) are not admissible.

111. The Cable is a bespoke product. It was designed by Nexans in response to Seagreen's employee's requirements document. In one sense, therefore, all the evidence about the Cable beyond its technical specifications is subjective, because it all concerns what Nexans required from any cable solutions proposed in response to Seagreen's employer's requirements. However, both Dr Sanden and Mr Cabalery made it clear that the Cable exhibits the characteristics that would be expected of an undersea cable for an offshore windfarm. As Mr Cabalery explained, Nexans works with its customers to design the optimal cable solutions for their needs, but fibre optics and conductors are always present. Dr Sanden's evidence is to the same effect, that a composite cable solution is what is required for windfarm projects. Our attention was not drawn to any features of the Cable which made it unusual or different from other cabling solutions for similar projects, and we find that those requirements (and therefore the specifications of the Cable) are in line with market norms.

What does principal function mean?

112. In *Alpine Electronics* the FTT observed (at [137]) that:

> "There is no further definition or guidance in the CN itself as to the meaning of the term "function" in this context. The normal dictionary meaning of function when used as a noun is a role or the purpose for which something is designed or exists. On its natural meaning the test requires us to look at what roles the Product is designed to perform."

And (at [140]) the FTT added this on the meaning of "principal":

> "The question then becomes whether any one of the identified functions can be said to be the "principal" function such that the classification should be by reference to that function as set out in note 3. Again looking at the natural meaning of this term, we regard this as requiring that for classification to be by reference to it, the role or purpose in question must be the main one."

We agree with this approach. What we are looking to find is whether either of the two roles the cable performs can be said to be the main role the Cable is designed to perform. We now turn to the decided cases to see what guidance we can derive from them as to how to go about this task.

113. In *BSkyB* the CJEU considered the customs duty classification of a Sky+ Box, which was a satellite television receiver, which received and decoded digital television signals transmitted by Sky. The Sky+ box had a hard disk. Half of the hard disk storage capacity was used by Sky's services for its video on demand service. The other half was for the end

user to record television content received from Sky's satellite television platform. The Sky+ box could not record video content from any other external source. The box could not play video content from external media or record video content onto external media. The end user did not need the Sky+ box's hard disk in order simply to watch television directly. HMRC classified the Sky+ box under subheading 85219000 (Video recording or reproducing apparatus, whether or not incorporating a video tuner: - Other), whereas Sky argued that the product should be classified under subheading 85287113 (Apparatus with a microprocessor-based device incorporating a modem for gaining access to the internet, and having a function of interactive information exchange, capable of receiving television signals ("set-top boxes with communication function")). The CJEU held:

> "72. It must therefore be ascertained which of the two functions of recording and reception of television signals is the principal one and which is ancillary.
>
> …
>
> 74. … [T]he fact that the Sky+ box cannot function using its hard disk alone and that the hard disk is not needed for viewing television programmes, so that the reception of television signals is indispensable in order for the box to function, does not allow any conclusions to be drawn as to the principal function of the apparatus. As the Commission correctly submits, the fact that a function of an apparatus is indispensable does not, by itself, mean that it is the principal function since a function may be indispensable whilst remaining secondary or ancillary.
>
> 75 It appears from the order for reference that the Sky+ box cannot record video content from any other external source including television receivers, cameras or video recorders, it cannot play video content from external media such as DVDs or videotapes, and nor is it capable of recording video content onto such external media. Whilst those elements are not objective characteristics and properties of the box, within the meaning of the case-law cited in paragraph 60 of this judgment, but pertain rather to the interaction between the functions of recording and of receiving television signals, they shed some useful light on the intended use of Sky+ boxes.
>
> 76 It should be recalled that the intended use of a product may constitute an objective criterion for classification if it is inherent to the product, and that inherent character must be capable of being assessed on the basis of the product's objective characteristics and properties (see Case C-309/98 *Holz Geenen* [2000] ECR I-1975, paragraph 15; Case C-201/99 *Deutsche Nichimen* [2001] ECR I-2701, paragraph 20; and Case C-183/06 *RUMA* [2007] ECR I-1559, paragraph 36).
>
> 77 In that regard, as the Commission acknowledged at the hearing, it is necessary to take into account what consumers would consider to be ancillary or principal.
>
> 78 It appears, both from the orders for reference and the observations submitted to the Court, that set-top boxes such as the Sky+ box are sold to television service-providers such as Sky, who make them available to their customers to enable them to access the programmes they offer.
>
> 79 It therefore seems that consumers subscribe to service-providers such as Sky principally in order to be able to access the television programmes offered and that, in order to do so, they must obtain a set-top box such as a Sky+ box. The television programme recording function which is, in addition, available on that model, is merely an additional service that it offers.

> 80 The interaction between the functions of the Sky+ box described in paragraph 75 of this judgment, which makes the recording function dependent on the reception of television signals, shows that consumers who choose that product are seeking, primarily, not a recording function, but rather a function of decoding television signals, although their choice may be influenced by the fact it has a recording function or the number of hours of programming that can be recorded.
>
> 81 It follows from all those considerations that the Sky+ box is principally intended to be used to receive television signals and that function is inherent to that apparatus. It therefore constitutes its principal function and the recording function is only secondary."

114. In *Hauptzollamt Hannover v Amazon EU Sarl* (Case C-58/14) the CJEU confirmed the relevance of what consumers would consider to be ancillary or principal, observing (at [23]-[24]):

> "23. The tariff classification of a product must be made having regard to its principal function. Thus, Note 3 to Section XVI of Part Two of the CN provides that a machine which has a number of functions must be classified according to its principal function.
>
> 24. Similarly, the Court has previously pointed out that, for the purposes of classifying a product, it is necessary to take into account what consumers would consider to be ancillary or principal (see, to that effect, judgment in *British Sky Broadcasting Group*, C-288/09 and C-289/09, EU:C:2011:248, paragraph 77)."

115. In *JCM Europe (UK) Ltd v HMRC* (Case C-760/19) the CJEU was considering a device for sorting and storing bank notes which contained an optical scanner which could test the authenticity of the notes and accept or reject them. It stressed (at [35]) that classification should start with the objective characteristics and properties of goods as defined in the CN headings and subheadings, and went on to say (at [36]):

> "In the second place, where the classification cannot be made solely on the basis of the objective characteristics and properties of the product concerned, its intended use, in particular its essential intended use, may constitute an objective criterion for classification, provided that it is inherent to that product. The inherent character must be capable of being assessed on the basis of its objective characteristics and properties (see, to that effect, judgments of 5 September 2019, *TDK-Lambda Germany*, C-559/18, EU:C:2019:667, paragraph 27, and of 18 June 2020, *Hydro Energo*, C-340/19, EU:C:2020:488, paragraph 35 and the case-law cited)."

116. It picked this thought up again when (at [51]) it observed that, where goods are designed to perform several functions, "their classification must be determined, save as otherwise provided, according to the principal function which characterises the whole in the eyes of the consumer". On the principal function of the device, it commented (at [52]-[53]):

> "As submitted, in essence, by the United Kingdom Government and the Commission in their written observations, the principal function of the goods referred to in Implementing Regulation 2016/1760 cannot be regarded as the control or validation of bank notes. It is true that the control, by the use of an optical detection technique, of the authenticity of bank notes, in accordance with predetermined characteristics, is one of the functions performed by the device in question, specifically by the bank note validator of which it is

composed. The fact remains, however, that that function is not intended as an end in itself.

The validation of bank notes following that control is necessary in order to ensure the processing, distribution and storage of banknotes in the various boxes and the distribution of those notes to serve the purpose of the host device in which that device is integrated, namely payment for the goods or service provided by that device."

117. In *DHL Logistics (Slovakiaa) spol, s.r.o. v Finančné riaditeľstvo Slovenskej republiky* (Case C-810-18) ("*DHL*") the CJEU considered a product which had a dual function, capturing and recording still images and sequences of video. Having made the customary observations that the decisive criterion for the classification of goods for customs purposes is in general to be sought in their objective characteristics and properties as defined in the wording of the relevant heading of the CN and that intended use of a product may constitute an objective criterion for classification if it is inherent in the product, and that inherent character must be capable of being assessed on the basis of the product's objective characteristics and properties, it observed (at [26]) that "Among the factors relevant in that regard, it is necessary to assess the use for which the product is intended by the manufacturer and the methods and place of its use." Looking at the product in question, the CJEU commented (at [29]-[30]):

"It should be pointed out, as the Slovak Government and the Commission have done in their written observations, that, in the light of the technical properties of those goods, it appears that their principal function is to capture and record sequences of video, with the result that they should be classified under CN subheading 8525 80 91 as 'video camera recorders', this being a matter which it is for the referring court to ascertain. 30

It is apparent from the documents before the Court that, first, while the resolution quality of the still images captured and recorded is relatively low, that is to say, 1 600 × 1 200 pixels, or even, for some models, 800 × 600 pixels, the resolution quality of the sequences of video captured and recorded, that is to say, 720 × 576 pixels, and the capture speed, that is to say, 50 frames per second, match the quality of a standard DVD. Secondly, the technical properties of those goods, in particular their shape and their foldable viewfinder, give them the appearance of video camera recorders rather than digital cameras. Thirdly, all the goods at issue were offered for sale as digital video camera recorders having the principal function of capturing and recording sequences of video. Fourthly, it appears that, in the instructions for use, the manufacturer itself presented those goods as digital video camera recorders, targeting persons who make video recordings for the purpose of publishing them on YouTube."

118. *RMS Communications Ltd v HMRC*, [2010] UKFTT 411 (TC) ("*RMS*"), concerned the classification of the 3rd generation iPod Nano. It was accepted that the Nano was capable of sound and video reproduction. Looking at Note 3 to Section XVI the question was whether the Nano's principal function was as an audio player. The Tribunal commented on the relationship between function and use (at [62]) saying:

"HMRC state it is the function of the equipment rather than its use which is relevant and that we must judge this at the time of import, as we do not know how people will use the equipment. However it is clear from the case law we were referred to that the marketing or intended use of the product may be determinative if it is ascertainable from the objective characteristics of the product itself and is not dependent on subjective intention; see *Ikegami* at paragraphs 21 and 23. For the purposes of classification under the

> appropriate heading (and in accordance with the section or chapter notes to the tariff), the intended use of a product may constitute an objective criterion for classification if it is inherent to the product, and that inherent character must be capable of being assessed on the basis of the product's objective characteristics and properties: see *Olicom* at paragraphs 16 to 18."

119. In terms of relevant facts, the Tribunal identified the following:

(1) The video function is, in part, a means of supporting the "CoverFlow" function. This allows the songs to be linked to pictures of the relevant album cover to enable easier scrolling through the user's music library. This aspect is ancillary to the audio function.

(2) The Nano's screen size, general design, and video compatibility make the Nano far less suitable for watching video for any length of time.

(3) For a device which is intended predominantly for audio, the general rule would appear to be, within limits (for example relating to memory size), the smaller the size the better. However, a small size impacts adversely on the video capabilities of a device to the extent that it impacts on the screen size. The Nano's 2 inch screen size makes it unsuitable, realistically, for prolonged use as a video device.

(4) The small size of the Nano allows it to be easily carried, which is ideal for an audio device. However, as a video player, there is no stand or other support which would hold the device at the correct angle so as to be conveniently viewed. Manually holding the Nano is not suitable for prolonged use.

(5) The limited memory is far more detrimental to the video function than it is to the Nano's audio function. In many cases, it can be presumed that the Nano's memory will be sufficient for an entire music collection.

(6) The Nano's memory size compares unfavourably to some other portable devices with video capability.

(7) Whereas it is possible to transfer any CD into "iTunes" and then onto the Nano, it is not possible to do the same with DVDs. This makes it impossible therefore to watch DVDs on the Nano without converting the DVDs to a different format first, which will take time, and using third party software, will come at an additional cost.

120. The Tribunal accepted (at [65]) that one appropriate test is to consider which function would, if removed, most impact on the functional utility of the device. The Tribunal's authority for this was *Turbon International GmbH v Oberfinanzdirektion Koblenz* (Case C-250/05), which considered that test to be useful in determining a product's essential character. The Tribunal thought that applying this test, it is clearly the audio function which is the principal function.

121. In terms of the relevance of intended use, the Tribunal commented (at [68]-[69]):

> "It is clear from *Sony* that we must look at the objectively determined intended use when considering the product's objective characteristics. Indeed, when considering its objective characteristics we don't really see what else could be considered other than its (objectively determined) intended use as the question of its primary function.
>
> It is also clear from the *Sony* case that customer perception is relevant. The way people use and view the Nano is relevant provided it is reflected in the physical characteristics of the device. The consumer's view as contained in the survey and the numerous reviews to which we have been referred in the main (with a few exceptions) state that the screen and storage are too small

> for the product to be used routinely as a video device and the best use of the product is as an audio device. We do not accept that, because the survey was not carried out at point of entry, this would make any difference to the conclusions contained therein."

122. This approach led the Tribunal to conclude (at [71]), "that video is a function but we do not accept HMRC's contention that video and audio are equal functions. This is clear from the reviews and survey to which we have been referred where the vast majority of users indicate audio is the function which predominates and the function or intended use is reflected in the physical characteristics of the Nano, in particular its small screen and small storage capacity viz a viz video." The Tribunal held that the video was a "useful add on" but nothing more and that audio was the principal function of the Nano.

123. *Alpine Electronics* was concerned with the classification of a product built into Honda motor vehicles. The product had the following main features:

(1) A radio navigational receiver (Global Positioning System or GPS).

(2) Two reception apparatuses for radio-broadcasting (radio.) One receiver is dedicated to providing traffic messages and the other provides conventional 40 audio.

(3) A sound reproducing apparatus (CD player).

(4) An image reproducing apparatus (DVD player).

(5) A 6.5 inch touch sensitive colour liquid crystal monitor.

(6) Connectors enabling the reception of video signal from external sources.

The GPS was a comprehensive navigation system (referred to as the "navigation system") that uses the LCD display screen to show maps and other related information as navigational aids. It had 11 language options available, it had voice recognition for 5 languages and included map coverage for 33 countries.

124. It was accepted that the product was multifunctional and so the first question was whether a principal function could be identified. The Tribunal was clear that the principal function and essential character tests were different. At [82] it observed:

> "[T]he approach to be adopted is to determine, by reference to the Product's objective characteristics, whether the Product has a function which is its principal function. This is essentially looking at the role the features of the Product have. It is different from the essential character test which looks how the Product is made up."

125. The Tribunal was also clear (at [84]) that, in determining whether a function is principal or auxiliary it is relevant "to look at what the consumer was primarily seeking from the product as discerned from the objective characteristics of the product (it is not a subjective test)".

126. The Tribunal decided that the navigation function was the primary function of the product. Each part of the product contributed to the navigation system in some way. The DVD function existed primarily to enable the navigation system to be updated on an annual basis. The DVD system was otherwise very limited in that it only operated visually when a vehicle was stationary.

Nexans submissions on principal function

127. Mr Mitchell says that the Cable does not have a principal function. It has two functions, and they are separate and equally valid and important. His case is not that data

transmission is the principal function of the Cable, but rather that both functions are indispensable and of equal importance.

128. The fibre optic cable does not just assist the electrical conductor to perform its conducting function more effectively. It enables the production of electricity in the first place and enables communication with the grid without which the electricity generated could not be transmitted.

129. The fibre optic element is not a 'nice to have' additional function (like the camera in *DHL*). Unlike the optical scanner in *JCM*, it is "an end in itself" since the control and monitoring of the windfarm is a function which is entirely separate to the conduction of any electricity produced. Unlike the various components of the navigation system in *Alpine Electronics*, it is not the case that the fibre optic element merely contributes to the conduction of electricity, rather it enables the production of electricity and the monitoring of and communication with the windfarm.

130. In *British Sky Broadcasting Group plc v HMRC* (Case C-288/09) ("*BSkyB*") the recording function of the Sky+ box was entirely ancillary to the decoding function and only worked in conjunction with the decoding function; it was therefore parasitic on that function. In the present case, the fibre optic cable performs numerous functions that are important, principal functions that are entirely separate to and independent of the electrical cable, as well as one function which could fairly be said to be ancillary (the function of monitoring the electrical cable and allowing faults in that cable to be identified).

131. Unlike the optical scanner in *JCM*, the still camera in *DHL*, or the hard drive for storing recordings in *BSkyB*, if a data cable were not incorporated into the Cable, a separate cable would have to be laid, as a means of communicating with and controlling the windfarm must be established, both from a technical/operational point of view and as regulatory requirement. Thus, the fibre optic element is not a 'nice to have' feature but rather a necessity which enables the performance of an essential, independent, standalone function.

132. It is important to recognise that the function of operating the windfarm in order to generate electricity is a fundamentally different function to the transfer of that electricity onshore. In no sense can the fibre optic element of the Cable be said to be "ancillary" to the function performed by the electrical conductor. There is no single main function, this is the quintessential instance of two entirely independent main functions being performed by two different elements of the one product.

HMRC's submissions on principal function

133. Mr Barth says that the core function of the Cable is to export electricity, generated or harnessed by the offshore windfarm, to the substation (and thereafter to the national grid). That is the Cable's principal function.

134. The cable is called an 'offshore export cable'. This is the name given by Seagreen (the consumer) and within the technical specifications prepared by Nexans. It is also the name adopted in the various technical documents we looked at and their principal focus is on electricity transmission.

135. It is clear that its principal function is to export electricity from the offshore windfarm to the onshore substation. There are numerous aspects of the consumer's requirements, the manuals and design descriptions which indicate the centrality of the electrical conductor element. For example, the first paragraph of Seagreen's requirement document provides:

> [980]: '1.1 Purpose of Document Electrical power collected at the offshore OSP is to be transmitted onshore using 3 x 220kV export cables. This

> document defines EMPLOYERS minimum technical requirements for design, supply, installation and testing of the subsea export cable system including the cables and accessories.'

136. By contrast, the fibre optic element is described as being 'integrated in the power cable'.

137. While the electrical conductor cores perform a single clearly defined function of electrical conduction, the fibre optic cable merely facilitates two ancillary functions: first, data transmission between land and the windfarm to control and operate the windfarm; second, to monitor the cable's temperature for safety purposes. The former (the data transmission function) is to permit the control and operation of the windfarm. The fibre optic cable does not perform the control and operation itself; it simply provides connectivity to facilitate these functions. Further, these elements are predominantly ancillary to the harnessing of wind power, and the safe and efficient transfer of energy to the substation. The second (monitoring) function is clearly secondary to the role played by the electrical conductor cores; the role is to monitor the cable for safety purposes to ensure it can safely conduct electricity.

138. The fibre optic element may be essential to the functioning of the windfarm (whether in turning it on/off or for regulatory requirements or otherwise). However, a function can be indispensable whilst remaining secondary or ancillary and it is the most important function that we are looking for. It does not need to be an 'optional extra' to still be secondary to a principal function. Those 'indispensable' functions enabled by the fibre optic cable still support or are secondary to the principal function of exporting energy.

139. Mr Mitchell suggested that, the fibre optic element alone allows for the production of electricity and the conducting element (with assistance from the fibre optic element) allows for the transfer of that energy. Both the production of electricity and its transfer are primary purposes of the windfarm and the Cable. Mr Barth does not accept that characterisation. He says that, at its highest, the fibre optic cable supports (and is ancillary to) the production of electricity. It is the wind turbines which produce or harness electricity; the fibre optic element of the cable simply supports that function.

140. Applying the 'removal of one function test', without the fibre optic element, the consumer would have no ability to switch the turbines off or on, or to control the positioning of the turbines; it would reduce the efficiency and regulatory compliance. These are crucial but supportive functions. Without the electrical conductor cores, the wind turbines would simply be spinning in the wind; they would serve no purpose at all. The conductor cores are essential to the character of the cables.

141. Further, the fibre optic element has 48 fibres. Although the exact number is unclear, a significant number of the fibres in the fibre optic element are not used for the 'data transmission' function.

142. The purpose of a windfarm is to generate electricity to earn income. The power conductor is fundamental to that; that role in the context of a windfarm tells us that power transmission is the more important function.

Discussion

143. We set out the specifications of the Cable when we discussed Dr Sanden's evidence. It is clear that the Cable performs two quite distinct functions. The power cores conduct electricity from the windfarm back to shore, and on the occasions when the windfarm is not producing any power, from land out to the windfarm. Secondly, the fibre optic cables carry

data to and from the windfarm. The fibre-optic cables also enable the power cores to be monitored.

144. Because these functions are independent of each other, the cases which look at whether one or more functions effectively serve a single dominant one are not of any great assistance to us. It is accepted that the fibre optic cables used for the DTS function perform a secondary function, in that they monitor the power cores and have no independent role outside that, but only a small number of fibres are used for this purpose. So, the approach in *BSkyB* of asking whether one function exists essentially or primarily to serve another will not resolve this issue.

145. Similarly, the approach which we see in *DHL* and *RMS*, of looking to see whether one function performs at a lower relative level than the other, does not assist. Dr Sanden explained that the fibre optics found in the Cable can supply large amounts of data at a high speed. We see from the specifications for the Cable that the power cores are required to be sufficiently large to carry a large amount of power at an acceptable temperature level. The employer requirements and Nexans' specification provide an explanation of the objective features of the Cable, telling us that the fibre optic cable is performing at a high-level, facilitating the almost instantaneous passing of messages between the windfarm and the shore. Dr Sanden said that the fibre optics cable are standarised and the same as that used in data transmission cables. There was no suggestion that the fibre optics' functionality was lower here than it would be if the fibre optic cables were separate. Neither function is a "poor relation" of the other.

146. Pausing there, we have two functions, essentially independent of each other and both performing to a high level. Looking at those objective features of the Cable, we would say that neither function is the principal function. Nothing in the technical specifications or attributes of the Cable or in the documentation which describes it indicates to us that one function is more important than the other.

147. Mr Barth placed some importance on the fact that the Seagreen employer's requirement document starts off by talking about the power cores, and the fact that the Cable is referred to as an export cable, which to his mind suggests that its principal function is to export power from the wind all back to shore. We do not set as much store by that as Mr. Barth does. As Dr Sanden explained, the documents set out the employer's requirements and Nexans' response. Although the Seagreen document starts off by talking about the power cores, it is not long before it starts to talk about the fibre optic cables. We do not consider that the principal function of the Cable can be determined by purely subjective, impressionistic matters such as which function gets talked about first in the Nexans/Seagreen documentation or the generic name given to products such as the Cable.

148. Mr. Barth draws a qualitative distinction between the two functions the Cable performs. He says that the Cable performs a primary function, transmitting electricity from the windfarm to land, whereas the fibre optic cables only transmit data and that is a secondary function, ancillary to the equipment which actually controls the windfarm. Necessary though the fibre optic cables might be, they are much more passive, auxiliary in nature than the power cores. He also points to the fact that a windfarm exists to generate power for sale. Accordingly, in his view, the transmission of power is inherently more important, because it is more closely linked to the core purpose of a windfarm, than the transmission of data by the fibre optic cables.

149. Whilst it is true, at least in one sense, that the fibre optic cables perform a more passive/secondary function than the power cores, we consider that to be a very esoteric distinction. Both the power cores and the fibre optic cable are passive carriers. Except for

the two fibres which monitor the power cores, the fibre optic cables are not secondary to the power cores; they are auxiliary to the equipment which controls the windfarm. It might also be said that, whilst carrying power to shore is more obviously a primary step in the production and monetisation of energy, the power cores are also ancillary to the equipment which generates the energy. As both the power cores and the fibre optic cables are passive carriers and neither is ancillary to the other, we do not consider that the transmission of data by the fibre optic cables is a less important function just because the fibre optic cables do not control the windfarm.

150. If, as *Kurkums* suggests is the case (albeit that it is a decision on essential character), we should evaluate the importance of the two functions in the light of how the Cable is used (to provide a link between the shore and an offshore windfarm), we would hold that both functions are equally important. Whilst it is clearly the case that there is no point operating a windfarm if the power it generates cannot be brought onshore and sold, it is equally the case that there is no point building a windfarm if it cannot be controlled. This is true both from an obvious operational point of view and because the windfarm needs to be fully integrated into the UK electricity transmission system. If this is not the case, then the windfarm will simply not be allowed to operate. We consider that the Cable is performing two equally important functions. The data transmission is needed so that the windfarm will work and be allowed to operate, and the power must be transmitted back to shore because power is the material the windfarm produces, and it needs to be taken to market. We cannot find any objective, rational justification in the power being the product the windfarm exists to generate to justify holding that carrying the power is a more important function of the Cable than transmitting data, without which the power would not have been generated in the first place.

151. Considering which function would, if removed, have most impact on the functional utility of the Cable is not particularly helpful here either. That test is clearly helpful when analysing a product where one function is clearly subservient to another, or one performs much less well than the other. In such a case, taking out the weaker link would not change the principal function as much as taking out the dominant/better function. Here, we have a product with two functions, independent and performing strongly. Removing either of them would have a similar, material effect on the product that was left behind. Removing the fibre optic cables would have much less of an impact on the physical appearance of the product than removing the power cores, as the size, shape and weight of the Cable would be unaffected. That, however, is not the test. The test is whether taking one function away makes more of a difference to the Cable's functional utility than taking the other away.

152. We have discussed at some length the extent to which marketing and similar materials can be considered. We consider that the evidence from Nexans's three witnesses about the requirements of the market is not subjective evidence of the requirements of a particular consumer; it is objective evidence of what the market (that is to say the body of consumers as a whole) generally requires and has done for some time. All Nexans's witnesses made it very clear that a product such as the Cable needs to be produced in a composite form. Dr Sanden said that he had not produced a two-cable solution (that is to say, separate power cables and fibre optic cables) in the offshore windfarm industry for many years and Mr Cabalery's evidence was stark: if anyone offered such a solution in response to the inevitable request for a composite cable, their bid would simply be rejected. Evidence that the market requires a single composite cable solution is unchallenged and we accept it. That evidence is entirely consistent with the objective characteristics of the Cable, that it carries power and data independently and both at the required high-performance level.

153. We do not regard the fact that consumers require a level of redundancy and spare fibre to be at all important. As Dr Sanden said, Nexans produces the cables that people ask for. What matters is that cables of broadly this specification are de rigeur; why that is the case is beside the point. In any event, we can see from the 2015 report that there used to be fewer fibres in a fibre optic cable for a windfarm and Dr Sanden's explanation for that was that more data needs to be carried these days, as windfarms have become more complicated. Given the expected lifespan of windfarm projects and products such as the Cable, it is perhaps not surprising that there needs to be some spare capacity in a fibre optic cable. As Dr Sanden explained, it is not possible to have that same level of spare capacity in a power core.

154. Looking at the objective characteristics of the Cable, there is no rational basis for concluding that one function is more important than the other. Looking at those characteristics in the light of the objective, intended use of the Cable, deduced from its technical characteristics, reinforces that conclusion. On that basis, we would have concluded that the Cable did not have a primary function, without needing to take account of the evidence we received about market requirements. However, the evidence we have of market requirements (universal demand for a single, composite cable solution), which is verified by the objective characteristics we have already identified, reinforces us in our conclusion.

155. The Cable does not have a primary function and cannot be classified at the level of GIR 1.

GIR 3

Does the Cable have an essential character?

156. Having decided that the Cable does not have a principal function, we now turn to GIR 3(b), which requires us to ask whether it has an essential character. Here Explanatory Note (VIII) tells us that:

> "The factor which determines essential character will vary as between different kinds of goods. It may, for example, be determined by the nature of the material or component, its bulk, quantity, weight or value, or by the role of a constituent material in relation to the use of the goods."

157. It is clear from the wording ("It may, for example, …") of Point (VIII) that none of bulk, quantity, weight and value may be of assistance in a particular case. The factor which determines essential character is at large; it will vary from good to good. If authority were needed that the four identified criteria are not appropriate considerations in all cases, we can find it in *Kloosterboer Services BV v Inspecteur van de Belastingdienst/Douane Rotterdam* (Case C-173/08), where we see the CJEU citing the explanatory note but grounding their determination (that a heat sink rather than a fan gave the goods in question their essential character) on the fact that the main function of those goods was to absorb the heat of processors and conduct it away, and the part of the product which did that, and which was specially designed for that purpose, was the heat sink. Adding fans to heat sinks did not fundamentally change their properties; it just improved their effectiveness by increasing their cooling capacity. In addition, unlike the heat sinks, the fans were not designed to operate all the time; they started to turn only when the cooling effected by the heat sink was no longer sufficient to prevent the temperature of the processor from exceeding a certain level.

158. One test which the ECJ/CJEU has used to find the "essential character" of a product is to ask whether the product would retain its characteristic properties if a particular constituent part were removed (this is the so-called "dispensable constituent" test). In

Sportex GmbH & Co. v Oberfinanzdirektion Hamburg (Case C-253/87) it was common ground that a product made of carbon and glass fibre but without epoxy resin would lose the property which characterized it (flexibility), and on that basis the product was classified as artificial resins and plastic materials rather than articles of stone or other mineral substances. At [8] the Court said:

> "In accordance with that general rule of interpretation, it is necessary, in carrying out the tariff classification of a product, to identify, from among the materials of which it is composed, the one which gives it its essential character. This may be done by determining whether the product would retain its characteristic properties if one or other of its constituents were removed from it."

159. In *VauDe Sport GmbH & Co. KG v Oberfinanzdirektion Koblenz* (Case C-288/99) the Court was considering the correct classification of a child carrier (comprising a support frame of aluminium tubing and a child's seat of synthetic material, which was assembled by being sewn together, was padded at the sides and at head level, and fitted out with safety belts, padded shoulder straps and a textile waist band, and which included a pocket for storing small items under the seat) was to be classified under tariff heading 6307, which covers 'other made up articles', or heading 7616, which covers 'other articles of aluminium'. The Court decided that the answer was 6307, explaining its conclusion as follows:

> "25. In this connection, it is settled case-law that, in order to identify, from among the materials of which a product is composed, which is the one that gives it its essential character, it is necessary to determine whether the product would retain its characteristic properties if one or other of its constituents were removed from it (see, to that effect, Case 253/87 *Sportex* [1988] ECR 3351, paragraph 8).
>
> 26. In the case of a child carrier such as that in issue in the main proceedings, it must be observed that the fabric parts sewn together are by themselves sufficient to enable a child to be carried by an adult. An aluminium frame, on the other hand, is in no way necessary for this, but merely enables the child to be carried with the maximum degree of comfort for both adult and child.
>
> 27 Contrary to vauDe Sport's argument, the aluminium support frame cannot therefore be regarded as the material or component that gives the child carrier its characteristic properties.
>
> 28 That being the case, the most important component of a child carrier such as the one at issue in the main proceedings is comprised of the textile parts, and it is these that give the product its essential character for the purposes of general rule 3(b)."

160. Although "dispensable constituent" is a commonly adopted test, and was adopted by HMRC to classify the Cable, other tests have been used. In *HMRC v Epson Telford Ltd*, [2008] EWCA Civ 567, the Court of Appeal was concerned with the classification of Epson ink printer cartridges under GIR 3(b), the question being whether it was the ink, or the remainder of the cartridge, or both, which gave the cartridges their essential character. At [44] Sir John Chadwick (with whom Toulson and Carnwath LJJ agreed) said that he could "see no argument for applying a test other than a purpose-based test as the basis for identifying that component of G2 or G3 cartridges which is to be taken as giving them their essential character for the purpose of classification under [GIR] 3(b)" and, in relation to that basic function test, he said (at [45]):

> "In my view the judge was correct to direct himself (at paragraph [46] of his judgment) that it was important not to be distracted by technical features and refinements of the cartridges from concentration upon their basic function – which was to supply the printer with ink. As he pointed out (at paragraph [68]) the technical advances which differentiate the G2 and G3 cartridges from the G1 cartridges tend to reinforce, rather than to detract from, the central importance of the ink as the key component. It is, I think, significant that, in identifying the principal differences between the G2 and G3 cartridges and the G1 cartridges (in the summary which I have set out earlier in this judgment) Epson relies upon presence of the printed circuit board and chip which contains information as to the level of ink in the cartridge and the other technical differences set out at paragraph 39 of this judgment. These provide for the more effective delivery of ink to the printhead when there is sufficient ink in the cartridge and the protection of the printhead from damage occasioned by dry-firing when there is not sufficient ink in the cartridge. Even taking these differences into account the basic function of the ink cartridge remains: to supply ink to the printhead and so enable the printer to print. The technical advances which have been introduced are ancillary to that basic function."

161. We also see use rearing its head in *Kurkums*. Here Kurkums imported cables (described as composite 'Taifun' cables manufactured in Russia, using a combination of materials, so that their core is polypropylene covered in a wound steel thread of up to 1 mm diameter; around the core are plaited six cables, the centre of which is polypropylene, but they are covered in a wound steel thread of up to 1 mm diameter and six conductors in a polystyle configuration. The cables were insulated with polypropylene material and could be from 10 mm to 30 mm in diameter) used to manufacture fishing equipment, in particular deep-sea nets. The Latvian tax authority took the view, on the basis of GIR 3(b), that the cables came under CN subheading 7312 10 98 (essentially, ropes and cables of iron or steel), since, even though they were made up of different materials (steel and polypropylene), the essential character of the cables (strength and weight) was conferred on them by the steel. The synthetic fabric merely protected the fishing nets from damage, reduced wear and tear, and increased durability. Kurkums took the position that the essential character of the cables was determined by the synthetic material so that they were properly classified to 5607 49 11 (essentially, plaited or braided polyethylene or polypropylene ropes). Subject to verification by the national court, the CJEU decided that GIR 3(b) did not apply to determine classification of these cables because (on the material before it) it appeared that neither of the two materials of which cables were composed gave them their essential character. The intended use of the cables was a key factor in the Court's analysis. At [39] it observed:

> "It does not appear from the documents before the Court that, in the case of cables such as those at issue in the main proceedings, either the polypropylene or the wound steel thread gives those cables their essential character. In particular, it does not appear, subject to verification by the referring court in the light of all the elements of fact placed before it, that those cables would, if one or other of those materials were removed, retain their characteristic properties as cables intended for the manufacture of fishing equipment, more particularly deep-sea nets."

162. In *Belkin Limited v HMRC*, [2022] UKUT 244 (TCC), the Upper Tribunal was addressing the classification of a wireless charging pad and a cable adapter. The Upper Tribunal summarised the essential character test as follows:

> "43. In our view, the theme that emerges from these cases is that the essential character test, as well as being variable (consistent with the HSEN above), is approached in a broad holistic manner which is not constrained by a detailed recitation of the various components and functions of the constituted components, materials or goods making up the product. That is entirely in keeping with the ordinary meaning of the words "essential character" which suggests an evaluation needs to be made which is more than just a listing of each of the individual attributes, of the materials, components or goods in the retail set. Hence the essence of the product was distilled to be "flexibility", "enabling a child to be carried by an adult", "supplying products with ink" in respectively *Sportex*, *Vau de Sport*, and *Turbon."*

The Upper Tribunal contrasted that approach with the FTT's approach, which they described as one "which determined the product's essential character by reference to the parties' agreed description of the functional processes carried out by the product namely". There is clearly much more to essential character than function.

Nexans' submissions on essential character

163. Mr Mitchell submits that there is a close connection between the tests of principal function and essential character. Indeed, at one point in his skeleton, he said that the tests were the same, which is why he was indifferent as to whether the Cable was a composite machine.

164. Function or purpose features in the CJEU's criteria for determining essential character as can be seen from the decision in *Turbon*, which was reflected in the Court of Appeal's observations in *Epson Telford.* To the extent function or purpose is relevant Mr Mitchell relies here on all the submissions he made as to why this criterion does not identify the power cores as carrying out the principal function of the Cable. For exactly the same reasons, it does not provide its "essential character".

165. As far as "dispensable constituent" is concerned, the fibre optic element alone allows for the production of electricity and the conducting element (with assistance from the fibre optic element) allows for the transfer of that energy. Both the production of electricity and its transfer are primary purposes of the windfarm and the Cable.

166. Whether one applies a "purpose" test or a "dispensable constituent" test the answer is the same, namely, that the fibre optic element and the electrical cable both perform primary functions for different purposes which are of equal significance to the proper functioning of the Cable. That (of course) is why customers explicitly demand that export cables with integrated fibre optics, and not simple energy conductors, are installed for their windfarm projects and see this as non-negotiable minimum standard.

167. In *Kurcums* the Court focused upon the use to which the cables were to be put (in the manufacture of fishing nets) in reaching its conclusion as to whether they would retain their characteristic properties if either element were removed, rather than focusing on the weight, bulk or cost of any particular element.

168. As regards the integration of the fibre optic cables, as Dr Sanden explained, integrating the fibre optic element alongside the electrical conductor in a way which avoided the problems caused by induction was the greatest technical challenge of this product. The importance of the fibre optic element should not be denigrated as a consequence of that integration having been achieved. The undeniably small comparative size occupied by the 48 fibre optic strands is simply a consequence of the fundamental laws of physics. The nature of the power cores required for the conduction of electricity

compared to the nature of the fibres required for the transmission of light pulses is always going to result in a fibre optic element or elements which are comparatively small when compared to the size of a conductor. Whilst the explanatory note does provide a basis on which comparative size may be taken into account in certain cases, the explanatory note also makes it clear that it may also be appropriate to have regard to "the nature of the constituent material or components" and "the role of a constituent material in relation to the use of the goods". On both of these criteria the conductors of light and electricity are of equal importance. It would, be wrong to classify products such as this according to the relative size of the conductor and optical fibre elements since this would serve to obscure rather than identify the "essential character" of the composite good at issue.

169. The essential character of this product is the fact that it can perform two entirely separate functions. It facilitates the control and operation of the windfarm and it facilitates the conduction of the electricity thus produced. Neither of those critical functions could be performed if the corresponding element of the product were removed. On this basis, classification under GIR 3(b) is not possible and so the Cable must be classified under GIR 3(c).

HMRC's submissions on essential character.

170. The correct approach is for the Tribunal to consider the constituent elements, their bulk, quantity, weight or value (Explanatory Note VIII to GIR 3(b)), the 'dispensable component test', and then step back and consider holistically the essential character (per *Belkin*).

171. The electrical conductor cores are much larger: looking at the cross section, the cores have a much larger area and the fibre optic element is relatively tiny [821]. The conductor core elements are the basis upon which the Cable structure is designed. They dictate the overall size of the cable, they require an 'insulation system', a 'lead alloy sheath', 'longitudinal water blocking', and a 'polyethylene sheath'. The individual components of the design of the Cable are overwhelmingly for the power cores. The fibre optic element is simply integrated in the spaces ('interstices') between the power cores within a watertight sheath.

172. If one element was removed, would the product retain its essential characteristics? If the fibre optic element were removed, the size, design and structure of the Cable would be unchanged. It would be materially identical, just without the fibre optic element in one of the spaces. If the power cores were removed, the size, design and structure of the Cable would be completely different, and unrecognisable from the product in question.

Discussion

173. Whilst the principal function and essential character tests are, in our opinion, separate tests, one focusing on what a product does and the other on what a product is, it is not surprising that the purpose, or principal function/use, of a product finds its way into the essential character test. This is because the principal function test is relevant here only because, the Cable falls within Chapters 84 or 85. The essential character test, however, applies more broadly across the UK Tariff and it would be surprising if the character of a product were determined without regard to its functionality.

174. We have already decided that the Cable does not have a principal function and our reason for deciding that was that the Cable performs two functions, and those two functions are independent, and neither is performed (relatively or absolutely) to a lower standard than the other. So, to the extent that purpose or use is relevant in determining the essential character of a product, we do not consider that either of the functions or uses of the Cable is

such that it points towards the essential character of the Cable being power transmission using the power cores or data transmission using the fibre optic cables.

175. The explanatory note to GIR 3(b) tells us that we can consider the weight or volume of constituent parts of a product in order to help determine its essential function. Although that is clearly the case, Mr. Mitchell says, and Mr Bath does not disagree with him, that there are no cases where weight or volume on their own have been the determining factor.

176. Here, we have decided that both uses of the Cable are equally important and that is the case even though the fibre optic cables are much smaller and much lighter than the power cores. The reason for this, in Dr Sanden's words, is the essential physics behind the component parts of the Cable. A significant amount of data can be conveyed in a very small fibre optic cable, whereas a much larger cable is needed to deliver power to an equivalent number of homes. In a case such as this, where the functionality and performance of a product has nothing to do with the weight or volume of component parts, and where the fundamental science behind the product makes the weight or volume of component parts an artificial comparator, we do not consider that our decision on the essential character of the Cable should be swayed by the relative weight or volume of the power cores and the fibre optic cables.

177. We have already touched on the dispensable component test in the context of discussing the principal function of the Cable. We do not consider that this is a particularly helpful test here where, looked at objectively, the Cable performs two independent functions of equivalent standing. If either component, the power cores or the fibre optic cables, were removed, that would have a material impact on the functionality and character of the product.

178. The essential character of the Cable in our view is that it performs two independent functions to a high degree. Dr Sanden explained the challenges of integrating a fibre optic cable into a cable containing power cores, and he explained how Nexans had overcome those challenges. That, it seems to us, is the essential character of the Cable, that it successfully performs these two functions despite the difficulties that can be encountered in doing so.

179. We have found *Kurkums* to be a helpful case in this context. That case was concerned with a very different type of cable, but, looking at the function it was designed to perform (making fishing nets), the Court held that neither component represented the essential character of the cables, because their essence lay in the combination if the two. If one of the two materials was removed, the cables would not retain their characteristics as cables intended for the manufacture of fishing equipment. Mutatis mutandis, the same is true here.

180. So, as with the principal function test, looking at the technical specifications and objective characteristics of the Cable, in our judgement neither the fibre optic cables nor the power cores represent the essential character of the Cable. Standing back and distilling the position holistically, the essence of the Cable is that, despite the technical difficulties of doing so, it successfully delivers both power and data transmission functions and is a "single cable" solution to the power and data transmission needs of offshore windfarms. Therefore, both components contribute equally to what the Cable is, and, if either one were removed, the Cable would not retain its essential character.

181. We have reached this conclusion from considering the technical specifications and objective characteristics of the Cable and without considering the evidence from the Nexans witnesses about market requirements. However, as with the principal function test, that evidence reinforces our conclusion. It demonstrates very clearly that the essential character of the Cable, as perceived by a wide body of consumers, is this ability

successfully to perform both functions. We do not consider that, if either component were to be removed, consumers would regard what was left as being anything approaching the Cable we started with; it is not a product they would want. Put simply, in this context the fibre optic cables and the power cores are "better together" and this, rather than either of them on its own, we find, is the essential character of the Cable.

182. Neither the fibre optic cables nor the power cores represent the essential character of the Cable and therefore it cannot be classified at the level of GIR 3(b).

183. Because the Cable cannot be classified at the level of GIR 3(b), it falls to be classified under GIR 3(c). At this level Nexans originally argued for 85 44 70 00 10, but (with HMRC's agreement) amended its Grounds of Appeal to allow it to argue for 85 44 70 00 90 in the alternative. Both produce a 0% customs duty rate. Mr Mitchell explained that sub-heading 84 44 70 00 10 is intended for what he described as a more basic form of fibre-optic cable with repeaters and so the Cable falls to be classified to 84 44 70 00 90 ("other"). He also explained that the way an EU anti-dumping investigation had been approached gave some support to his position. Mr Barth challenged the relevance of anti-dumping investigations to customs classification but did not really explain why he thought 85 44 70 00 10 was the right classification. Against that background, we prefer Mr Mitchell's suggested classification.

DISPOSITION

184. For the reasons set out above we have decided that Nexans' appeal should be allowed, and that the correct classification of the Cable is to 85 44 70 00 90.

RIGHT TO APPLY FOR PERMISSION TO APPEAL

185. This document contains full findings of fact and reasons for the decision. Any party dissatisfied with this decision has a right to apply for permission to appeal against it pursuant to Rule 39 of the Tribunal Procedure (First-tier Tribunal) (Tax Chamber) Rules 2009. The application must be received by this Tribunal not later than 56 days after this decision is sent to that party. The parties are referred to "Guidance to accompany a Decision from the First-tier Tribunal (Tax Chamber)" which accompanies and forms part of this decision notice.

MARK BALDWIN
TRIBUNAL JUDGE

Release date: 28th AUGUST 2024