

2018 FD4 – Infringement and Validity  
FINAL Mark Scheme

**CONSTRUCTION** (page and line numbers are given as examples, except where specified)

**CLAIM 1**

A system for providing electrical power to a road vehicle,	Noting and discussing term “system” (page 5, line 8)	0.5
	‘For’ – suitable for	0.5
	Electrical power to a road vehicle – explain how this limits the claim and what a road vehicle is	0.5
the system comprising at least a pair of gantries and an overhead cable supported by a carrier cable extending from the gantries at an elevated position,	At least a pair of gantries – explain what “at least a pair” means	0.5
	Discuss physical requirements of gantry (page 5, line 13-14)	0.5
	Overhead cable – term of art – cable for carrying electricity (page 3, line 12-13)	0.5
	Supported by a carrier cable by dropper wires (page 3, line 19; page 5, line 15-16)	0.5
	Carrier cable extends <u>between</u> and is supported by the pair of gantries (page 5, line 15-19)	0.5
the gantries each having a support leg for engaging the ground either side of a road and a beam spanning the road between support legs,	Spanning the road - - read as ‘in use’ – construe “either side” accordingly	0.5
	Beam – discuss physical requirement and purpose – page 5, line 13-14	0.5
	To provide a through path for traffic, page 5, line 10-12	0.5
the overhead cable being connected or connectable to a supply of electricity,	Electrical supply not necessarily part of the claimed system	0.5
a first end of the carrier cable being rigidly secured to a first of the gantries	Explain what “a first end” means and decide whether this means a terminal portion of the cable or not.	0.5
	Rigidly secured – support arms allow no relative motion between cable and beam (page 5, line 18 or line 20)	0.5
	Decide and explain whether the connection is direct or indirect	0.5
	<u>a first of the gantries</u> – read as a first of the pair of gantries	0.5
a second end of the carrier cable being secured to the second gantry by a resilient biaser arranged to generate tension in the carrier cable.	Explain what “a second end” means. Explain whether this means a terminal portion or not.	0.5
	<u>the second gantry</u> - read as the second of the pair of gantries	0.5
	resilient biaser – contrast with rigid connection and discussion of springs (page 5, line 8-10)	0.5
	Combination of rigid/biaser generates tension page 5, line 20-22	0.5
<b>Total</b>		10.0

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**CLAIM 2**

A system according to Claim 1	Claimed system has all the features of claim 1, plus the following.	
wherein the cable has a core and a sheath, the core being formed of a first material and the sheath being formed of a second material	Cable – Decide which cable plus reasoning Core is conductive – page 5 line 42 Sheath for protection – page 5 line 43	0.5 0.5 0.5
<b>Total</b>		<b>1.5</b>

**CLAIM 3**

A system according to Claim 1	A system having all the features of claim 1, plus the following;	
wherein the resilient biaser is a spring	Spring – state different types - page 4, line 11-12 Purpose of spring – page 4, line 9-10	0.5 0.5
<b>Total</b>		<b>1</b>

**CLAIM 4**

A system according to Claim 3	A system having all the features of claim 3, plus the following;	
wherein the resilient biaser is secured to the gantries via a flexible connector	Gantries – error and state how interpreted Secured to – discuss indirect connection page 5, line 39-40 Flexible connector – describe what it is and decide its purpose – page 4, line 18-19 Note specification on page 4, line 17-19 appears to be incorrect as is relative motion between cable and gantry which is being accommodated	0.5 0.5 0.5 0.5
and is rigidly secured to a first end of the carrier cable	Rigidly secured – page 4, line 17, Fig 3C <u>A first end</u> – error - see Claim 1, read as <u>the second end</u>	0.5 0.5
<b>Total</b>		<b>3.0</b>

**CLAIM 5**

A cable for carrying electricity, particularly in an overhead power system,	A cable for carrying electricity – decide what limitation is given by the term “cable” Particularly - decide whether this is a limitation and/or optional feature Discuss whether “overhead power system” is limited to e.g. trams	0.5 0.5 0.5
the cable comprising a core and a sheath, the core being formed of a relatively conductive	Relative conductivity of core – state relative to what Elastic material – function page 5, line 45	0.5 0.5

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material and the sheath being formed from an elastic material,		
the core having a cross section which is not circular.	Cross-section is not circular – discuss relative to figures Discuss whether claim is referring to cross-section in the contact zone only, Fig 4A-C and contrast to Fig 1C	1
<b>Total</b>		<b>3.5</b>

Dependencies:		0.5
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**CONSTRUCTION: TOTAL = 19.5 marks**

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**INFRINGEMENT – All points must be consistent with construction**

**CLAIM 1**

	<b><u>Me2 Ltd System</u></b>	
A system for providing electrical power to a road vehicle,	Yes – Whole document	0.5
the system comprising at least a pair of gantries and an overhead cable supported by a carrier cable extending from the gantries at an elevated position,	At each terminus there is a gantry – page 11, line 30-31 OHE and carrier cable shown in drawings	0.5 0.5
the gantries each having a support leg for engaging the ground either side of a road and a beam spanning the road between support legs,	Gantries construction and features – page 11, lines 32-35 Spanning the road – discuss whether implicit, especially at termini	0.5 0.5
the overhead cable being connected or connectable to a supply of electricity,	Yes – Page 11, line 31	0.5
a first end of the carrier cable being rigidly secured to a first of the gantries	Discussion of static connection to rigidly secure – page 11, line 34 Connection to the gantries – direct/indirect (depends on construction)	0.5 0.5
a second end of the carrier cable being secured to the second gantry by a resilient biaser arranged to generate tension in the carrier cable.	A second end of the carrier cable with resilient biaser Discussion of how suspension cable and carrier cable interact with gantry Springs – Figure 3 Tension? - page 11, line 17	0.5 0.5 0.5 0.5
<b>Total</b>		6.0

**CLAIM 2**

A system according to Claim 1		
wherein the cable has a core and a sheath,	Page 11, line 36	0.5
the core being formed of a first material and the sheath being formed of a second material.	No information but what would be the purpose of making out of the same materials?	0.5
<b>Total</b>		1.0

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**CLAIM 3**

A system according to Claim 1		
wherein the resilient biaser is a spring	Yes – spring e.g. Figure 3D connection	0.5
<b>Total</b>		0.5

**CLAIM 4**

A system according to Claim 3		
wherein the resilient biaser is secured to the gantries via a flexible connector	Hinge connector – Figure 3; universal coupling - page 11, line 31-35	0.5
	Decide if this is part of the spring system as shown in Fig on p13	0.5
and is rigidly secured to a first end of the carrier cable	No information – discuss with respect to Figures	0.5
<b>Total</b>		1.5

**CLAIM 5**

A cable for carrying electricity, particularly in an overhead power system,	Yes - Figures	0.5
the cable comprising a core and a sheath,	Yes – page 11, line 36	0.5
the core being formed of a relatively conductive material and the sheath being formed from an elastic material,	Cable must be electrically conductive	0.5
	No information about elastic coating - discuss	0.5
the core having a cross section which is not circular.	Cable is square – page 11, line 36	0.5
<b>Total</b>		2.5

<b>Dependencies</b>	<b>0.5</b>
<b>Conclusions: Including, if appropriate, discussion of Actavis and Contributory Infringement</b>	<b>2</b>

<b>INFRINGE: TOTAL</b>	14.0
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**NOVELTY**

Background to Patent, Doc C, and Doc D fully available as prior art. - **1 mark**

**CLAIM 1 (marks)**

	<b>Background</b>		<b>Doc D</b>	
A system for providing electrical power to a road vehicle,	Is apparatus for trains suitable for road vehicles?	0.5	Is apparatus for trains suitable for road vehicles? Urban train lines.	0.5
the system comprising at least a pair of gantries and an overhead cable supported by a carrier cable extending from the gantries at an elevated position,	Gantries – no – pylons P Overhead cable – O and carrier cable C	0.5 0.5	Gantries – yes -see Figure, page 15, line 16 Overhead cable and carrier cable – page 15, line 16-17 and Figure	0.5 0.5
the gantries each having a support leg for engaging the ground either side of a road and a beam spanning the road between support legs,	(Marks awarded above)		Discuss physical features of gantries	0.5
the overhead cable being connected or connectable to a supply of electricity,	Yes – cable O – transformer T	0.5	Overhead cable	0.5
a first end of the carrier cable being rigidly secured to a first of the gantries	Discuss rigidly secured – and whether implicit (page 5, lines 5-7) Discuss whether secured to gantry	0.5 0.5	No information discuss whether this is implicit	0.5
a second end of the carrier cable being secured to the second gantry by a resilient biaser	No resilient biaser – weights Figure 1D	0.5	Discuss whether the cable is secured to the gantry	0.5 0.5

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arranged to generate tension in the carrier cable.			Discuss whether secured via the spring page 15, lines 37-44	
	Sub-total	3.5	Sub-total	4.0
<b>Conclusion</b>	Claim new		Claim new/old (prefer new)	
<b>Total</b>				<b>7.5</b>

**CLAIM 2 (marks)**

A system according to Claim 1				
wherein the cable has a core and a sheath,	Drawing shows uncoated but page 3, line 30-31	0.5	No information	0.5
the core being formed of a first material and the sheath being formed of a second material.	Copper core, protective coating, page 3, line 30-31	0.5	(Mark awarded above)	
	Sub-total	1	Sub-total	0.5
<b>Conclusion</b>	Claim new		Claim new	
<b>Total</b>				<b>1.5</b>

**CLAIM 3 (marks)**

A system according to Claim 1				
wherein the resilient biaser is a spring	No	0.5	Yes – see Figure	0.5
	Sub-total	0.5	Sub-total	0.5
<b>Conclusion</b>	Claim new		Claim new/old	
<b>Total</b>				<b>1</b>

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**CLAIM 4 (marks)**

A system according to Claim 3				
wherein the resilient biaser is secured to the gantries via a flexible connector	No	0.5	No – welded track	0.5
and is rigidly secured to a first end of the carrier cable	(Mark awarded above)		No information	0.5
	Sub-total	0.5	Sub-total	1
<b>Conclusion</b>	Claim new		Claim new	
<b>Total</b>				<b>1.5</b>

**CLAIM 5 (marks)**

	Background		Doc C	
A cable for carrying electricity, particularly in an overhead power system,	Yes	0.5	Discuss whether 'threads' are the same as cables	0.5
			Overhead power system suitability and whether optional (see construction)	0.5
the cable comprising a core and a sheath,	Core (drawing)	0.5	Conductive core (Figure)	0.5
	Drawing shows uncoated but page 3, line 30	0.5	Polymer coating (Figure)	0.5
the core being formed of a relatively conductive material and the sheath being formed from an elastic material,	Copper core as relatively conductive	0.5	Conductive material (Figure)	0.5
	no mention of elastic material	0.5	Discussion whether polymeric material is elastic	0.5
the core having a cross section which is not circular.	Discuss whether 'circular' cross-section	0.5	Rectangular	0.5
	Discuss cross-section at the contact zone	0.5		
	Sub-total	3.5	Sub-total	3.5



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<b>Conclusion</b>	Claim new		Claim new	
<b>Total</b>				<b>7.0</b>

<b>Dependencies:</b>	<b>0.5</b>
<b>Discussion of suitability of Doc C for Claims 1-4 and Doc D for Claim 5</b>	<b>1</b>
<b>Conclusions:</b>	<b>2</b>
<b>NOVELTY: TOTAL</b>	<b>23</b>

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**INVENTIVE STEP**

Relevant date for assessing the state of the art (page 2, line 12). Impact of disclosure in *Tram Electrification Monthly* for Claim 1 and Claim 5.

Pozzoli/Windsurfer approach:

PSA for Claim 1-4 is a tram/trolley bus engineer interested in in-town electrification.  
CGK for Claims 1-4 – Electrification systems, railways. Background section to patent.

PSA for Claim 5 is an electrical engineer and/or materials scientist.  
CGK for Claim 5 is background of patent, page 3, line 29-32

<b>Relevant date for assessing state of the art and impact of disclosure in Tram Elect. Monthly</b>	<b>2</b>
<b>Proper Pozzoli arguments/set up/CGK/skilled person – assess separately for Claims 1 and 5</b>	<b>4</b>

**Claim 1 (7 marks)**

- Inventive concept - remove need for weights to more effectively (page 4, lines 8-10) and/or safely manage tension (page 5, lines 20-22)
- Identify differences to state of the art. – Starting from background to patent as shown in Figures 1A to 1D **or** Document D
- Differences over prior art - 1A – 1D use of gantry and resilient biaser
  - Doc D – rigid securing, securing to gantry
- Discuss whether the differences are obvious to PSA
- If starting from Figs 1A-1D of background, discuss applicability of Doc D
- Document D suggests pylons and gantries are interchangeable.
- Document D suggests changing pulley to spring,
  - a. Does it consider ‘securing carrier cable to gantry’ by a resilient biaser?
  - b. Does it generate tension in the cable?

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**Claim 2 (1 Mark)**

Patent accepts that coated cables are well known.

**Claim 3 (1 Mark)**

Spring is not an inventive feature, so claim falls to be assessed with Claim 1.

**Claim 4 (3 Marks)**

Inventive concept – relative motion between resilient biaser and cable to accommodate wind loads etc

Document D does not appear to show a different connection at either end of spring.

Is the curved path rigidly securing?

**Claim 5 (6 Marks)**

- Inventive concept – better able to withstand clamping forces in use (page 4, line 27)
- Identify differences to state of the art – Starting from Document C or article in Tram Electrification Monthly
- Differences over Doc C – Cables not threads, elastic coating (specifically rubber)
- Discuss whether the differences are obvious to PSA, given that Doc C mentions
  - a. the use of thicker gauge materials – does this provide incentive to skilled man?
  - b. mentions wash-resistant plastics coatings
- No suggestion of 'elastic' coatings

**Conclusions: 1 mark**

<b>IS: TOTAL</b>	<b>25</b>
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**SUFFICIENCY**

Is Claim 1 enabled across its entire scope?

The Client seems to suggest that fabrication of a constant force coil spring with the requisite properties has been difficult to achieve (page 2, line 16 to 20, client letter).

Discussion of impact

Need to investigate reasons with Client

<b>SUFF: TOTAL</b>	3
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**AMENDMENT**

Claim 1:

Possible amendment of resilient biaser to a helical spring (to deal with sufficiency issue) – page 4, line 11-12 [1 mark]

Marks awarded for any appropriate and meaningful amendment to restore novelty and IS, e.g.:

- a) Resilient biaser housed in a housing – page 4, line 14 (metallic housing) and page 5, line 32 (housing).
- b) Resilient biaser connected to cable by non-rigid connection to allow relative motion between biaser and cable – page 4, line 17-18

Claim 5:

Amendment to restore novelty over background prior art e.g.

- a. Specific shapes shown in figures to include rectangular, page 6, line 9
- b. Contact surface is a flat surface, page 5, line 47

Discussion of impact of amendments on patentability, infringement and coverage of client device.

Minor corrections [0.5 mark]

<b>AMEND: TOTAL</b>	5.5
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**ADVICE**

Brief Summary of Conclusions (no further marks awarded if already stated elsewhere)

- Patent validity and infringement conclusions
- Question mark over sufficiency
- Saving amendments

**Points**

Appropriate reasoned points discussed by the candidate relevant to the scenario and consistent with earlier analysis and conclusions, which may include:

Check Patent Position of Cables n Threads Ltd

Document A in force – no need to check renewals due to date of filing. (No mark for just stating “check renewals”)

Priority date – is it valid?  
- Need to investigate impact, especially over ‘Tram Electrification Monthly’ publication.

Action to amend patent – discussion of s.27 or s75 (s75 preferred)

Threats (s.70) - Explain whether the letter to Me2 is actionable.  
- Explain whether the letter to Local Authority is actionable, and by whom.

Important to do whatever we can to stop them (page 2, line 38-40) – immediate action required (No mark for seeking UK IPO opinion as not applicable for the situation.)

Discuss whether client can sue with application to amend

- Discuss balance of probabilities for injunction
- Discuss whether damages will be an equitable remedy

Licensing would not achieve the client’s objectives.

<b>ADVICE: TOTAL</b>	10
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**GRAND TOTAL**

<b>Construction</b>	<b>19.5</b>
<b>Infringement</b>	<b>14</b>
<b>Novelty</b>	<b>23</b>
<b>Inventive Step</b>	<b>25</b>
<b>Sufficiency</b>	<b>3</b>
<b>Amendment</b>	<b>5.5</b>
<b>Advice</b>	<b>10</b>
<b>Total</b>	<b>100</b>