Confidential Restriction on Publication Claimed in Part

Statement in support of application for merger authorisation

RE: TELSTRA CORPORATION LIMITED AND TPG TELECOM LIMITED ARRANGEMENT FOR THE SHARING OF ACTIVE INFRASTRUCTURE AND SPECTRUM IN REGIONAL AUSTRALIA (APPLICATION)

Statement on behalf of TPG Telecom Limited

Statement of:	**Yago Lopez**
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Occupation:	**General Manager of Technology Strategy and Innovation**
Date:	**8 November 2022**

PUBLIC VERSION

This document contains information confidential to TPG Telecom Limited and its related bodies corporate, which is marked in [redacted]

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A. INTRODUCTION

1. I am the General Manager of Technology Strategy and Innovation of TPG Telecom Limited (**TPG**). I have held that role since March 2022.

2. I am authorised to make this statement on TPG's behalf.

3. I am not authorised, nor do I intend to, waive legal professional privilege on behalf of TPG in relation to any subject referred to in this statement, and nothing in this statement ought to be construed as constituting a waiver of privilege.

4. On 21 February 2022, Telstra Corporation Limited (**Telstra**) and TPG entered into three commercial agreements:

   a. MOCN Service Agreement dated 17 February 2022;

   b. Spectrum Authorisation Agreement – MOCN Area dated 17 February 2022; and

   c. Mobile Site Transition Agreement dated 17 February 2022,

   (together, the **Agreements**) (**Proposed Transaction**).

5. The Proposed Transaction has been referred to internally at TPG as Project Hannibal.

6. Within TPG, we established a Project Hannibal working group which comprised TPG personnel responsible for strategically assessing possible opportunities with Telstra and negotiating the Proposed Transaction, including attending meetings with Telstra. The working group was expanded over time, as required. [redacted] In particular, as part of Project Hannibal, I was responsible for negotiating and advising TPG in relation to the matters relating to spectrum authorisation.

7. I have reviewed the confidential version of the application made by Telstra and TPG for merger authorisation under Part VII of the *Competition and Consumer Act 2010* (Cth) (**CCA**), for TPG's grant to Telstra for use of spectrum (under the Spectrum Authorisation), deemed pursuant to section 68A of the *Radiocommunications Act 1992* (Cth) to be a merger within the meaning of section 50 of the CCA (**Application**).

8. I have also reviewed the Applicants' response to Optus' interested party submission (Tranche 2) (**Applicant Response**), including Confidential Annexure E, which contains a confidential submission made by TPG in relation to its likely counterfactual.

9. Exhibited to me at the time of signing this statement and marked '**Exhibit YL-1**' is a bundle of documents. In this statement I refer to each document by reference to the relevant tab number in that exhibit. All documents in Exhibit YL-1 are confidential to TPG.

10. All capitalised terms in this statement which are not otherwise defined in this statement adopt the same meaning given to them in the Application.

11. The matters set out in this statement are based on my personal knowledge, including as a result of:

    a. my knowledge of TPG's business and operations based on my experience with TPG and Vodafone Hutchison Australia Pty Limited's (**VHA**) business;

    b. my previous roles within Vodafone Group plc (**Vodafone Group**);

    c. my participation in discussions relating to the Proposed Transaction; and

    d. my participation in discussions relating to alternative options to the Proposed Transaction.

B. BACKGROUND

12. I graduated from the University of Oviedo, Spain with a degree in physics known as Licenciado en Fisica (which is an equivalent to a Masters of Physics in Australia).

13. Following my graduation from the University of Oviedo, I joined Vodafone Group and worked in the following roles for a number of years:

    a. from January 2008 to April 2010, as a Specialist, Design and Engineering at Vodafone Spain. In this role I was employed in the radio access network (**RAN**) department at Vodafone Spain and worked on Vodafone Spain's 3G network;

    b. from April 2010 to April 2012, as Team Leader Networks – International Projects Management for Vodafone Group in Germany. In this role I worked on providing training, consultancy, crisis management and troubleshooting services in relation to RAN performance services to the various Vodafone Group businesses and 'partner markets' (e.g, other businesses to which Vodafone Group provides consultancy services) around the world; and

    c. from April 2012 to November 2013, as Manager Network Optimisation & Terminals Engineering for Vodafone Group Ireland. In this role, among other responsibilities, I was responsible for the launch of Vodafone Group's 4G network in Ireland from a RAN perspective.

14. In the period from November 2013 to July 2020, I was employed by VHA, in the following roles:

    a. from November 2013 to March 2017, as Head of Radio Access Networks Engineering;

    b. from March 2017 to August 2018, as Head of Post Paid – Marketing CVM;

    c. from August 2018 to March 2019, as Head of Technology Transformation; and

    d. from March 2019 to July 2020, as Head of Radio Access Network.

15. As Head of Radio Access Networks Engineering from November 2013 to March 2017, I was responsible for the planning, design and implementation of technical solutions relating to RAN equipment. My role included assessing, from a technical perspective, RAN sharing opportunities that were being considered by VHA. I was also part of the spectrum auction team and provided input on the implementation side, including potential use of spectrum, equipment capability demands and limitations to broadcast spectrum.

16. I then spent just over a year on the business side as Head of Post Paid – Marketing CVM, where I was responsible for managing communications with customers, particularly in relation to retention and cross-selling to VHA's existing customer base.

17. In August 2018, I moved into the role of Head of Technology Transformation and was primarily responsible for the preparation of technology transformation plans. Around that time, the former TPG Telecom Limited and VHA agreed a merger. I was in charge of the technology transformation plan for that merger, including assessing the best use of each company's spectrum in the context of the merger and preparing an implementation plan in relation to the spectrum. I was also responsible for considering alternatives to VHA's Huawei RAN equipment following the Australian Government's security guidance of 23 August 2018.

18. In March 2019, I became Head of RAN. In this position, I was responsible for the strategy and technical aspects of RAN infrastructure and deployment, including strategy relating to spectrum use. I was also involved in considering network sharing opportunities. As part of this role, I was a member of the Steering Committee for the eJV between TPG and Optus (which I refer to further below) and frequently interacted with Optus in relation to the eJV.

19. On 13 July 2020, VHA and the former TPG Telecom Limited merged and VHA was renamed TPG Telecom Limited. At that time, I commenced in the position of General Manager of Wireless & Transmission Networks of TPG. In that role, I reported to Mr Kezik who, in turn, reported to Inaki Berroeta (Chief Executive Officer and Managing Director, TPG). Amongst others, Paul Tremlett, Jeff Owen (Head of Wireless Strategy, TPG) and Declan O'Rourke (Head of Radio Engineering) reported to me and continue to report to me in my current role. I was responsible for the strategy, plan, design, build and optimisation of TPG wireless (i.e. 3G, 4G and 5G) and transmission networks. This included network sharing opportunities assessment and responsibility for spectrum strategy. From around December 2020 I was responsible for the spectrum re-stack transaction between TPG and Telstra, including its implementation. Around 2021, I was involved in the technical valuation of the agreement between TPG and Dense Air to acquire spectrum from each other. I was also the general manager responsible for the technical valuation of the purchase of 26GHz spectrum as part of the Australian Communications and Media Authority (**ACMA**) auction that took place in April 2021.

20. In March 2022, I commenced a new role as General Manager of Technology Strategy and Innovation. The key responsibilities of this role are to provide a mid-long term technology strategy blueprint across networks and IT, this includes network sharing opportunities assessment and spectrum strategy. I report to Giovanni Chiarelli (Chief Technology Officer, TPG) who, in turn, reports to Mr Berroeta. As part of this role, I was also the general manager responsible for the technical valuation for the purchase of the 26GHz from Dense Air in July 2022.

21. As a result of my experience described above, I have detailed knowledge of the telecommunications industry, including matters relating to wireless and transmission networks,

RAN equipment, infrastructure sharing (including active sharing) and spectrum valuation, from both a technical and strategy perspective.

C. MOBILE NETWORKS, SPECTRUM, INFRASTRUCTURE SHARING AND POPULATION COVERAGE AREAS

Mobile networks

22. A mobile network has three primary components:

a. a radio access network (**RAN**), which consists of radio base stations (also known as mobile towers or cell sites) with antennas and associated electronics that communicate with mobile devices over designated spectrum. A key element of the RAN is the radio unit (also called remote radio unit, radio amplifier or box), which receives the signal and generates the waves that broadcast spectrum to communicate to the backhaul transmission network.

b. a backhaul transmission network, commonly fibre or microwave, which connects the RAN sites to the core network (described below) and thereby transmits information between the RAN and the core; and

c. a core network which manages voice, SMS and/or data traffic, connects and manages the different parts of the network and connects to other networks, including the internet.

Spectrum

23. Spectrum is the medium by which a mobile device connects to a site and is therefore an essential input in the supply of mobile services. Voice and data communications between mobile devices and RAN cannot occur without the use of appropriate and compatible spectrum. RAN equipment is configured to use specified spectrum frequencies.

24. Spectrum is measured in megahertz (**MHz**) or gigahertz (**GHz**) bands. Generally, spectrum bands are classified into three categories:

a. low-band: which refers to bandwidth less than 1 GHz (e.g., 700, 850 and 900 MHz);

b. mid-band: which refers to bandwidths that are between 1GHz and 6 GHz (e.g., 1800, 2100, 2300 and 3400/3600 GHz). Part of this spectrum is known as C-band spectrum (i.e., spectrum that sits between 3600 GHz and 4200 GHz); and

c. high-band: which refers to bandwidths above 6GHz (e.g., 26 GHz).

25. Mobile network operators (**MNOs**) such as TPG acquire rights to use different frequencies of spectrum for the purpose of providing mobile services to users. Different frequencies have different operating characteristics which serve different purposes. For example:

a. low-band spectrum mainly provides coverage. It transmits information over greater distances and through obstacles such as buildings more easily than higher frequencies. This means it is ideal for providing mobile services in sparsely populated regional or remote areas. It also means that an MNO will need to build fewer sites, as a given base station provides greater coverage over a greater geographical area;

b. while mid-band spectrum can transmit information over shorter distances, it provides significant capacity. This means it is ideal for use in high traffic metropolitan areas. It also means that an MNO will need to build more sites when using this spectrum compared to low-band.

c. high-band has very short coverage range but great capacity and is mainly used for localised high-capacity requirements rather than to provide contiguous coverage in wide area (i.e. whole city or town).

26. Most sites will use a number of different spectrum bands to support 4G and 5G services. The major Australian MNOs can obtain spectrum for 4G and 5G deployments in a number of ways:

a. first, some spectrum bands have been auctioned by the ACMA to facilitate Australia's transition to 5G, including the auction of licences to use 850 MHz and 900 MHz spectrum bands which was held in December 2021;

b. second, as older generations of mobile technology are superseded (for example, 3G which TPG has confirmed it will shut down in December 2023), spectrum used for that generation can be "re-farmed" to new generation technologies (for example, 4G or 5G);

c. third, spectrum can be obtained through commercial agreements with owners of spectrum and apparatus licences (subject to the regulations governing spectrum licence trading); and

d. fourth, a relatively recent technological development, called "dynamic spectrum sharing" (**DSS**), allows more flexibility in allocating spectrum to 4G or 5G depending on the type of application or service customers are using (for example, how bandwidth intensive the service is), the user's location within the cell site, available capacity and total current demand.

Infrastructure sharing

27. It is common for MNOs to share infrastructure as a method of expanding and improving the quality of their networks, while reducing capital and operational costs. This reduction of costs can be particularly beneficial in more sparsely populated regional or remote areas, where individual MNOs may otherwise find it uneconomic to provide network coverage.

28. There are different technical solutions available for infrastructure sharing between MNOs, including:

a. physical or passive infrastructure sharing: this is where MNOs share the non-electrical components of their network such as the physical sites and towers. The joint venture between TPG and Optus (which I describe below) involves passive infrastructure sharing;

b. active infrastructure sharing: this is where MNOs share the electronical components of their networks such as the base station, antennas and cables. These include:

i. Multi-Operator Radio Access Networks (**MORAN**): this involves the sharing of RAN by two MNOs (for example, base stations, associated electronics and antennas). The parties to a MORAN arrangement connect their independent core networks to the shared RAN infrastructure. MNOs retain separate logical networks and maintain their

own dedicated spectrum frequencies, where the unique public land mobile network (**PLMN**) of each MNO is broadcast only in its own dedicated spectrum. PLMN is a globally unique identifier, which consists of a MCC (Mobile Country Code) and MNC (Mobile Network Code).

ii. Multi-Operator Core Networks (**MOCN**): as with a MORAN, this involves shared RAN infrastructure and the parties connect their independent core networks to that shared RAN infrastructure. In addition, a MOCN involves spectrum sharing. The MNOs retain separate logical networks, but in a MOCN each MNO's unique PLMN is broadcast over the shared spectrum frequencies, allowing further synergies in terms of capacity for both operators.

Both MORAN and MOCN architecture require the parties to continue to independently operate their own mobile core networks where the key service differentiation and sensitive functions occur (for example, access control, authentication, voice and data routing and billing).

29. Other forms of network sharing include:

i. domestic roaming: this involves a 'host' MNO (access provider) supplying access to its network to another 'home' MNO (access seeker) at wholesale rates within a specified geographical area. Typically, this arrangement would be entered into by an MNO which has infrastructure in certain areas, but not others, in the same way as international roaming would operate to provide coverage overseas where a home MNO does not operate a network in the host MNO's country. The access seeker must have its own network (ie. be an MNO) to utilise roaming.

ii. Mobile Virtual Network Operator (**MVNO**) arrangements: an MNVO arrangement is similar to domestic roaming, save that it does not require the access seeker to own and operate a network. It is typically entered into between a service provider (who is not an MNO) and an MNO to obtain access to network capacity of the MNO's network at wholesale rates. There are different types of MVNO arrangements (described as 'thick' or 'thin' MVNOs) depending on the amount of infrastructure the MVNO will deploy. Typically:

A. in a 'thin' MVNO model, MVNOs will use their own customer service, marketing and sales operations, however, they will not own any network elements. All technology and operational matters are handled, and the infrastructure is provided, by the MNO.

B. in a 'thick' model, MVNOs may own some of their own network elements and have a greater degree of network implementation with the MNO's network.

When an MVNO arrangement is implemented, the provider does not own its complete mobile network. That is true irrespective of whether it is a 'thick' or 'thin' MVNO. It would be highly unusual for an MNO to operate its own network and use an MVNO arrangement to extend the coverage of its network. I am not aware of any example in the world where an MNO has used an MVNO arrangement to extend its coverage for a specific region.

30. MORAN and MOCN differ significantly from other kinds of infrastructure sharing arrangements. The advantage of MOCN/MORAN arrangements is that they allow sharing MNOs to retain a degree of independence as their respective core networks remain separate, but at the same time save more on infrastructure costs than a passive sharing arrangement where each MNO must still build out their electrical components. Compared with MORAN and MOCN, domestic roaming and MVNO arrangements have more limitations in terms of available functionalities. This is because the service is delivered to the access seeker using the core network of the access provider, and is restricted by the limitations imposed by the access provider in terms of functionality and products available. In addition, roaming does not have the same technical standards roadmap as a MOCN or MORAN, meaning that from a technical perspective, a number of capabilities which are available in a MOCN or MORAN today are not available in a roaming architecture. For example, standalone 5G (that is, the ability to operate 5G independently from a 4G core network) is not available in a roaming arrangement. This is an important feature for TPG, which uses 5G standalone as its default when providing mobile and fixed wireless services.

31. From a commercial or operational perspective, a MOCN can take a variety of forms. The commercial models for a MOCN to which I refer in this statement are:

a. Network as a service (**NaaS**): One MNO owns and operates all of the RAN equipment, and shares that equipment with another MNO, within a geographical area (with both MNOs retaining their independent core networks). The second MNO sharing the first MNO's network would typically decommission its network within the agreed area.

b. Joint Venture: Each MNO owns and operates RAN equipment that is shared by the other MNO within specified geographical areas, and jointly run the shared network.

Population coverage areas

32. In this statement, I refer to various mobile network coverage areas by reference to the percentage of the Australian population that resides in those areas or by reference to metropolitan (**metro**) and regional areas. While there is not a single definition of regional and metro coverage areas, unless stated otherwise:

a. where I refer to metro areas, I am referring to the area where 0 to 80% of the population resides (which I also refer to as the 0-80%); and

b. where I refer to regional areas, I am referring to the area where 80 to 99.5% of the population resides (which I also refer to as the >80% area). The regional areas can be further broken down into regional and rural.

D. PRIOR AGREEMENTS AND DISCUSSIONS BETWEEN TPG AND OPTUS

33. I am aware that TPG and Optus have entered into, [redacted], a variety of network sharing arrangements in the past:

a. in 2004, Vodafone Network Pty Limited, a wholly-owned subsidiary of VHA, and Optus had formed a joint venture relating to the passive sharing of 3G network sites in metro and peri-urban areas covering 0% to 80% of the Australian population (**JV**).

b. in May 2012, VHA and Optus agreed to expand the JV to include additional sites, to share access rights on 4G network sites in metro and peri-urban areas covering 0% to 80% of the population [redacted] These expanded arrangements are referred to by TPG and Optus as the Expanded Joint Venture or **eJV**. The eJV allows for sharing of passive network assets;

c. at around the same time, VHA and Optus entered into a 2G and 3G domestic roaming agreement (**3G Roaming Agreement**) in the area covering 80% to 96% of the Australian population.

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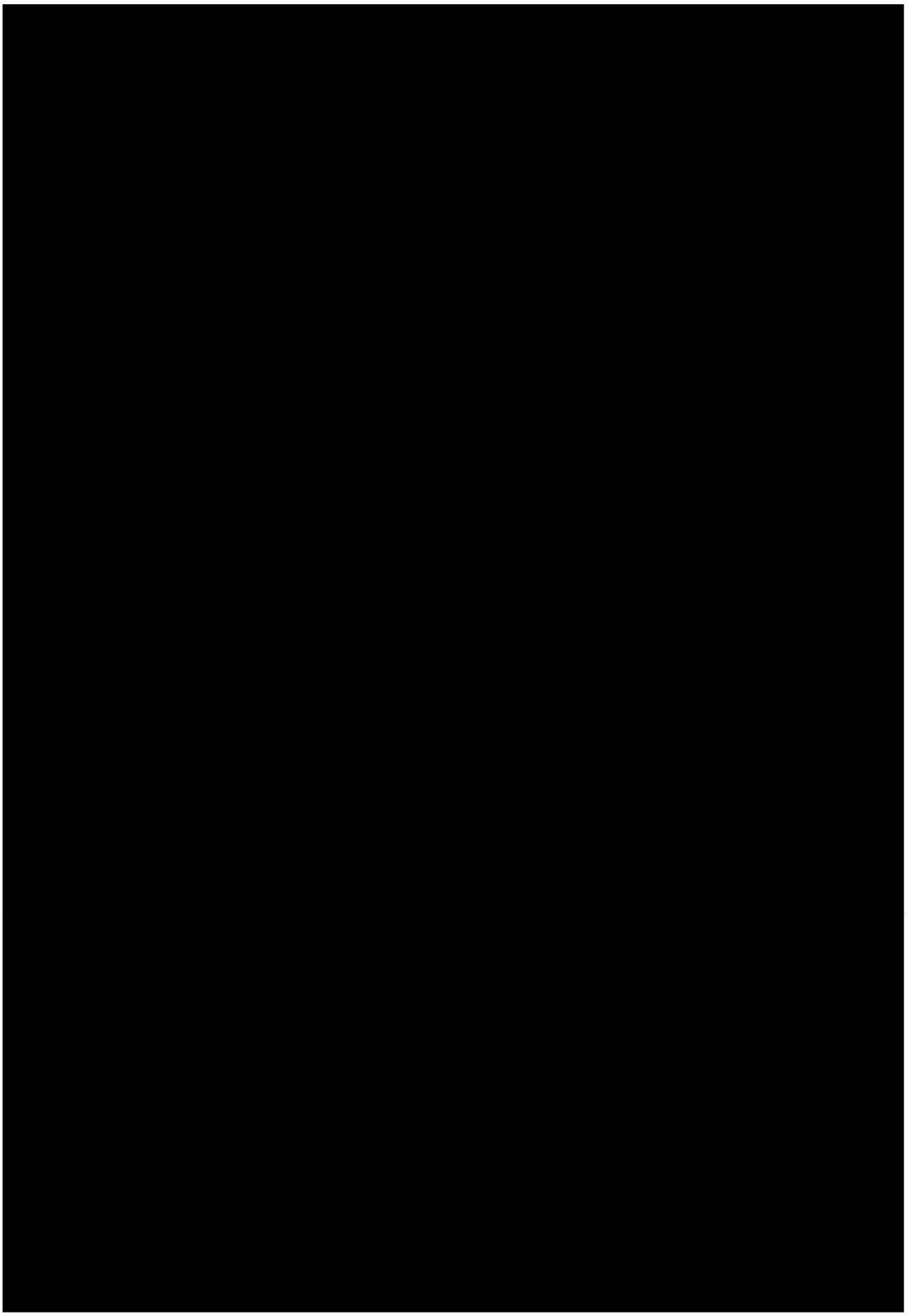
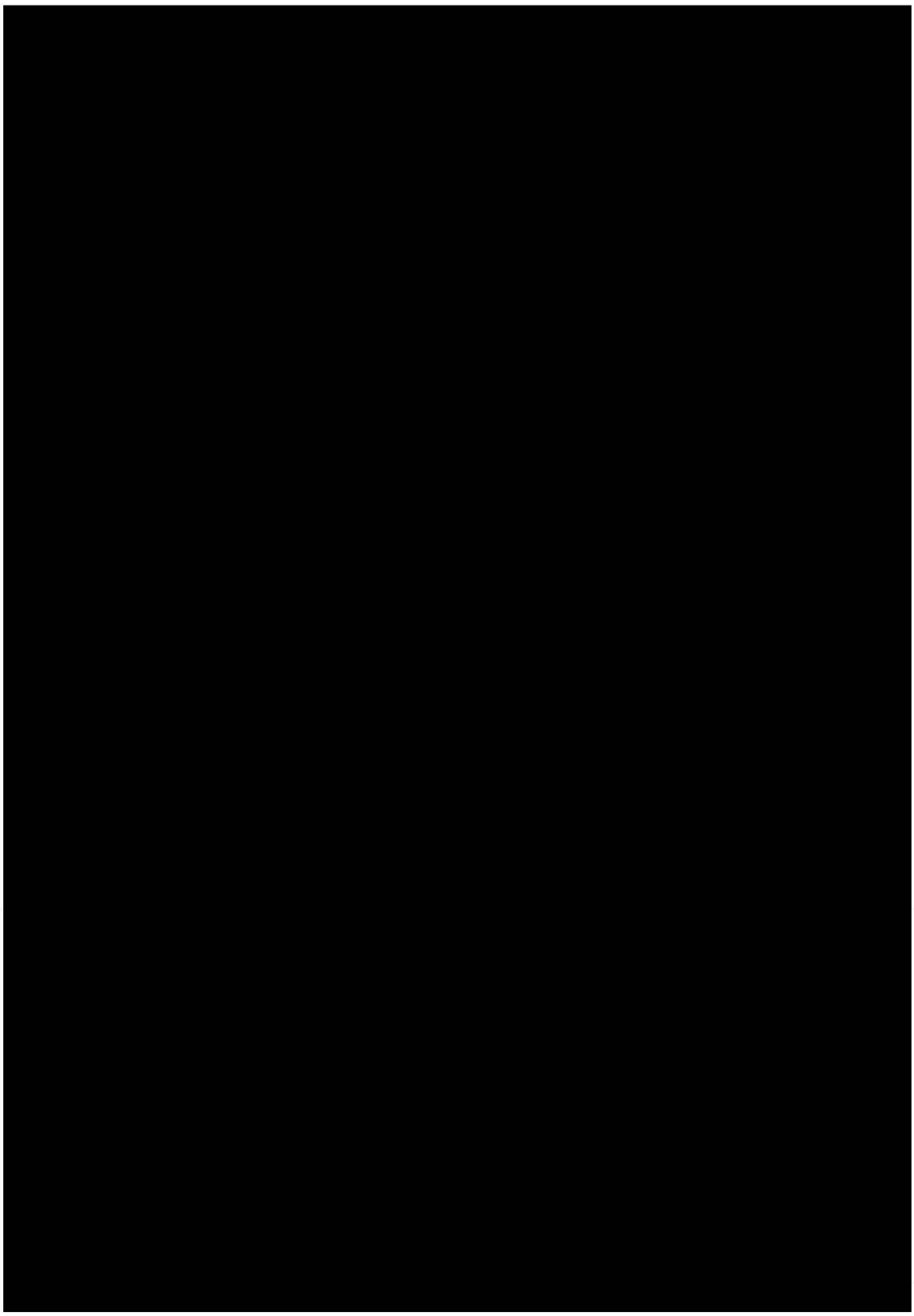
42. 



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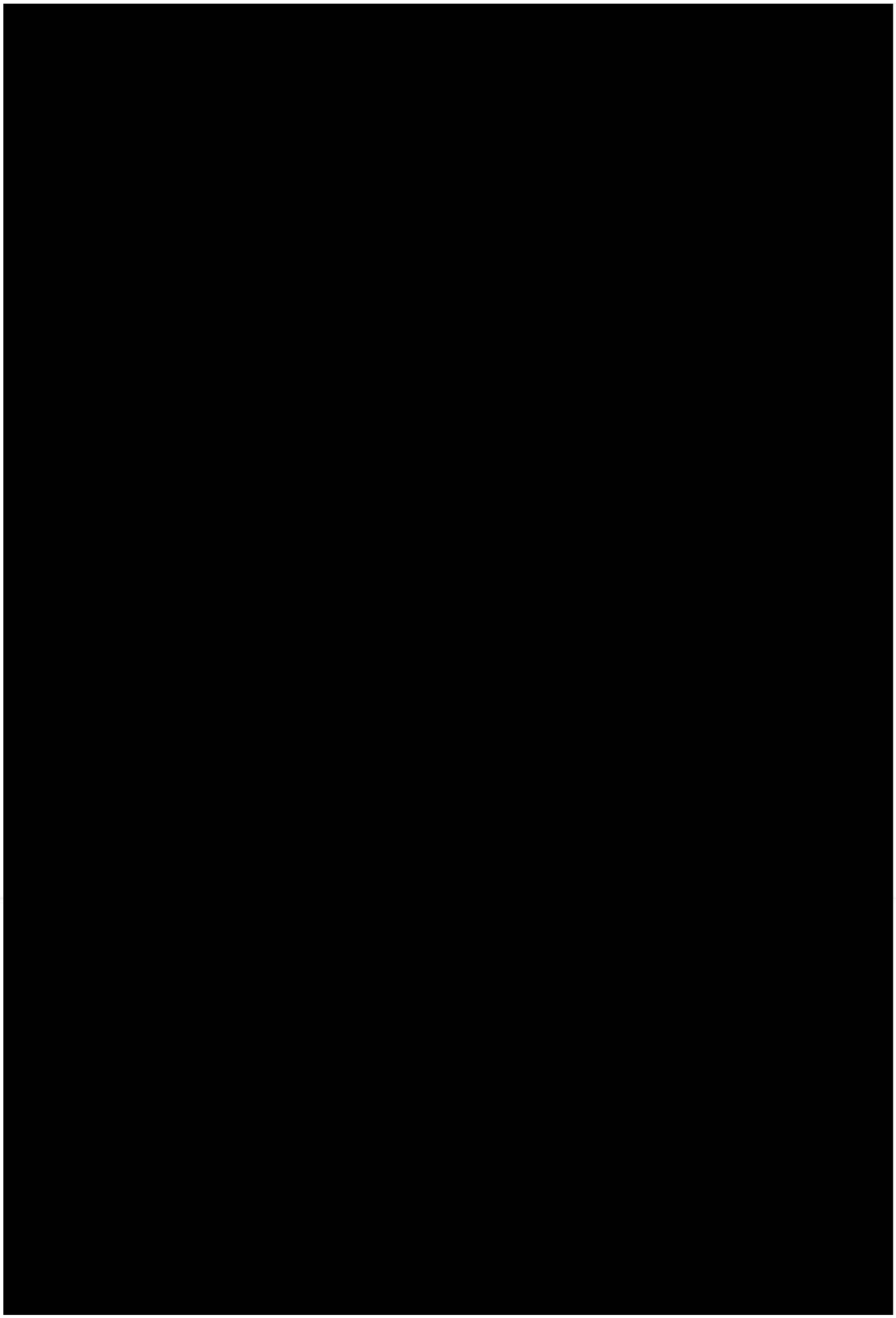

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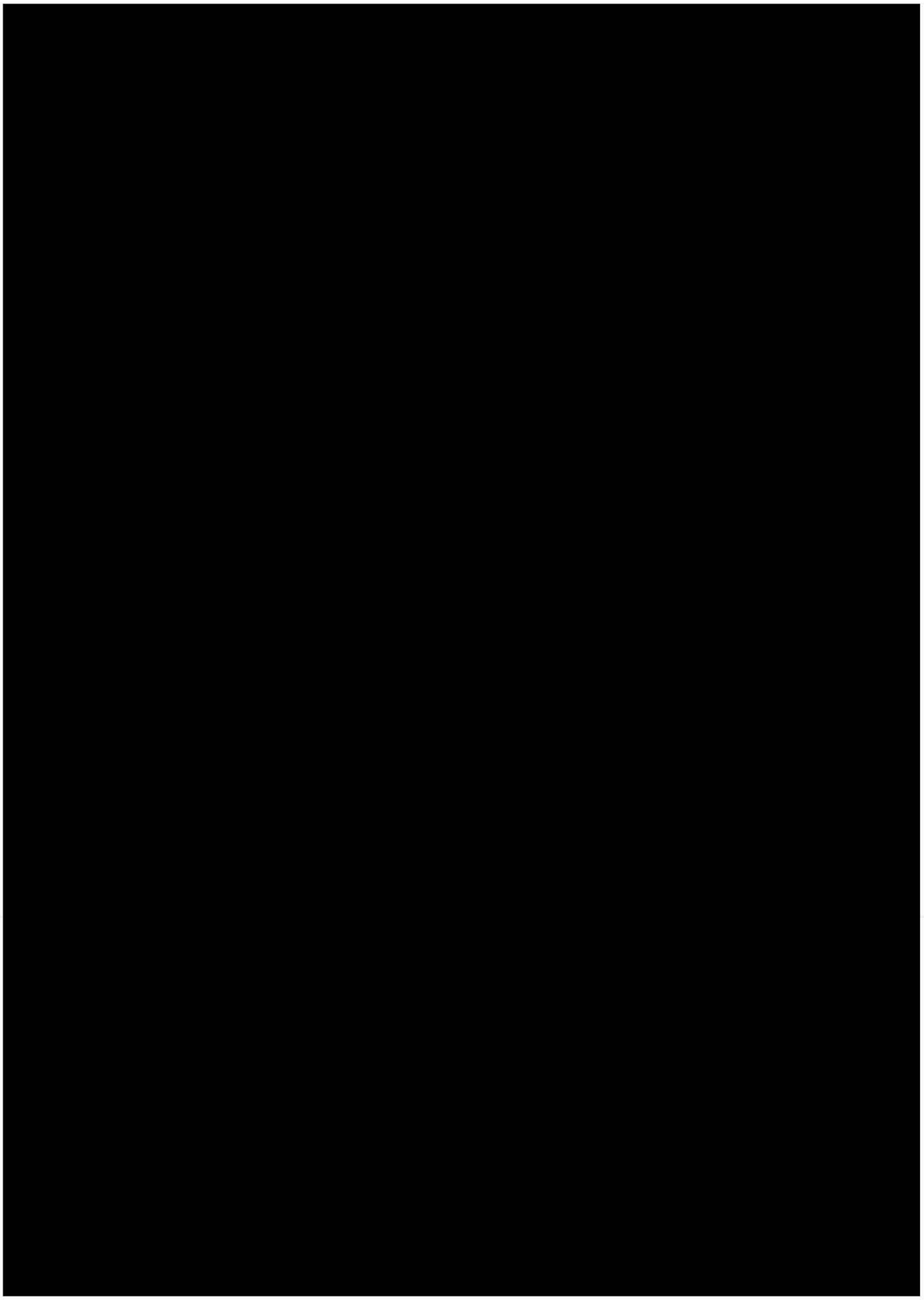

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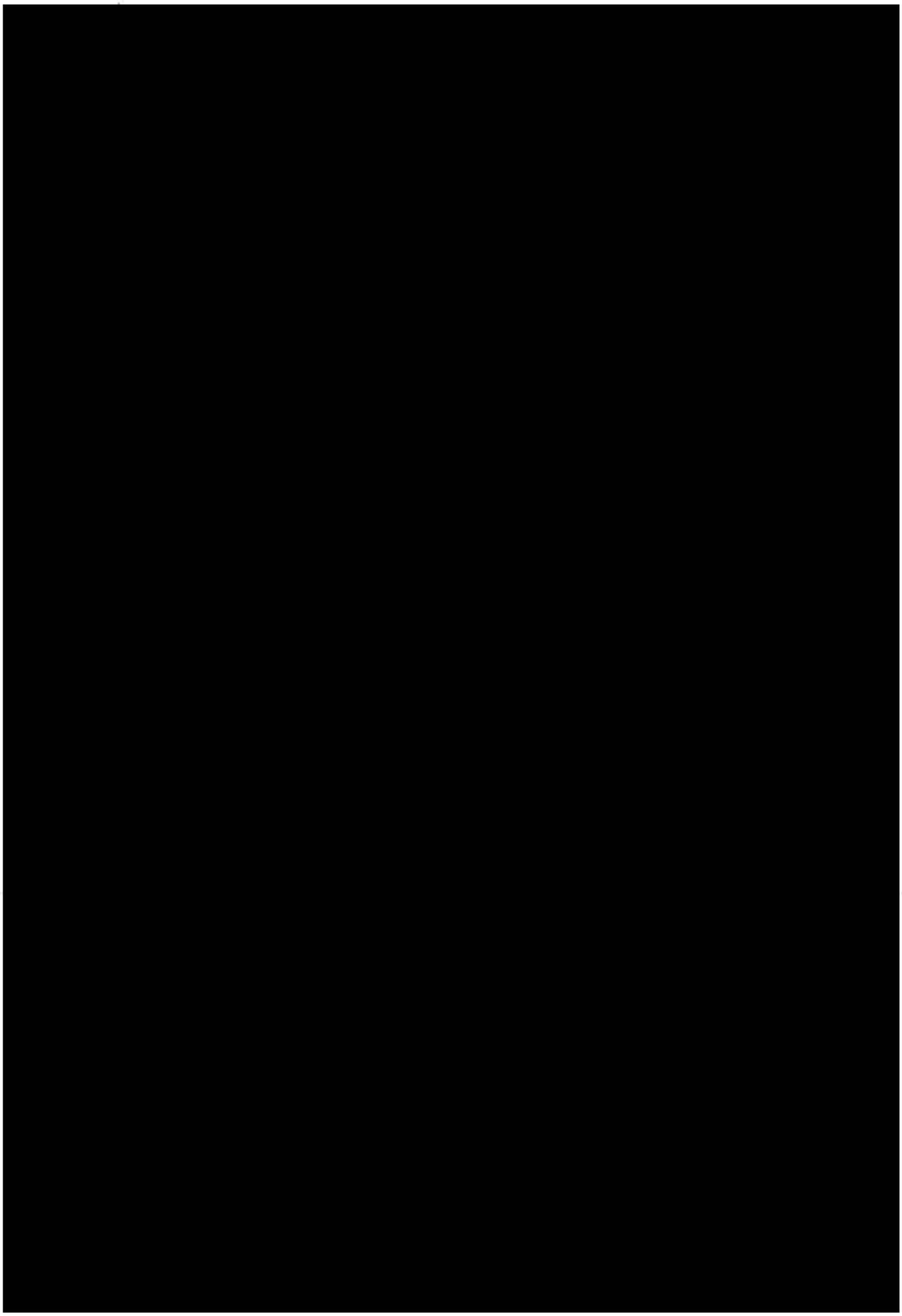

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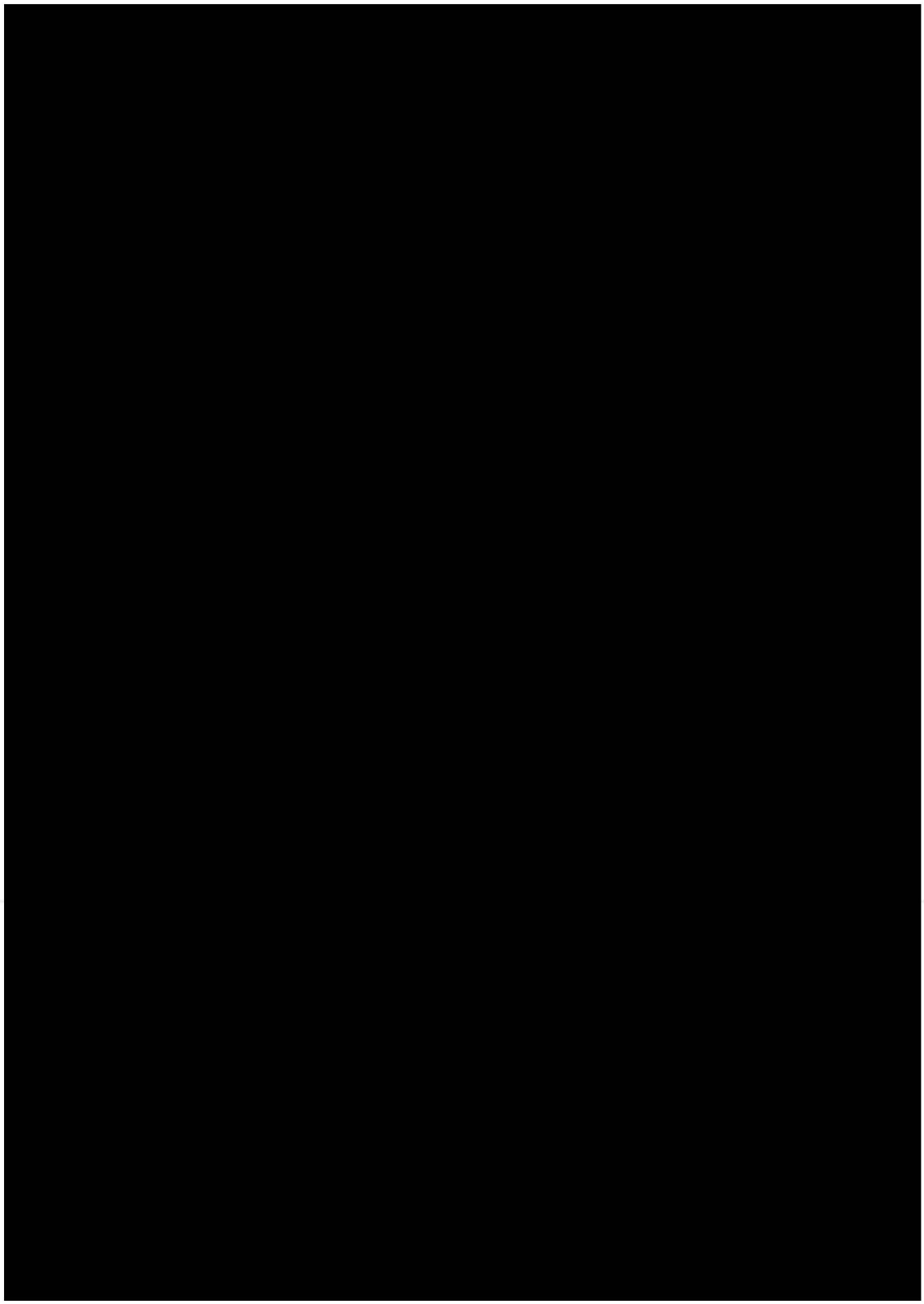
62. By lack of synergies, I mean that:

a. As I say above at paragraph 25, spectrum is measured in MHz or GHz bands (for example 700MHz is a 'spectrum band'). Each band contains different frequencies. The right to use different frequencies within spectrum bands is allocated to carriers at auctions conducted by the ACMA. Where the frequencies allocated to two carriers are next to each other, they are referred to as 'contiguous' and where there is a gap between two carriers' frequencies, their spectrum holding is 'not contiguous'.

b. In the >80% area, TPG holds a licence for frequencies in the following spectrum bands: 700MHz, 850MHz, 900MHz, 1800MHz, 2100MHz and 3.6GHz. [redacted] A second issue is that Optus and TPG's spectrum holdings in that band are not contiguous. [redacted]

63. [redacted]



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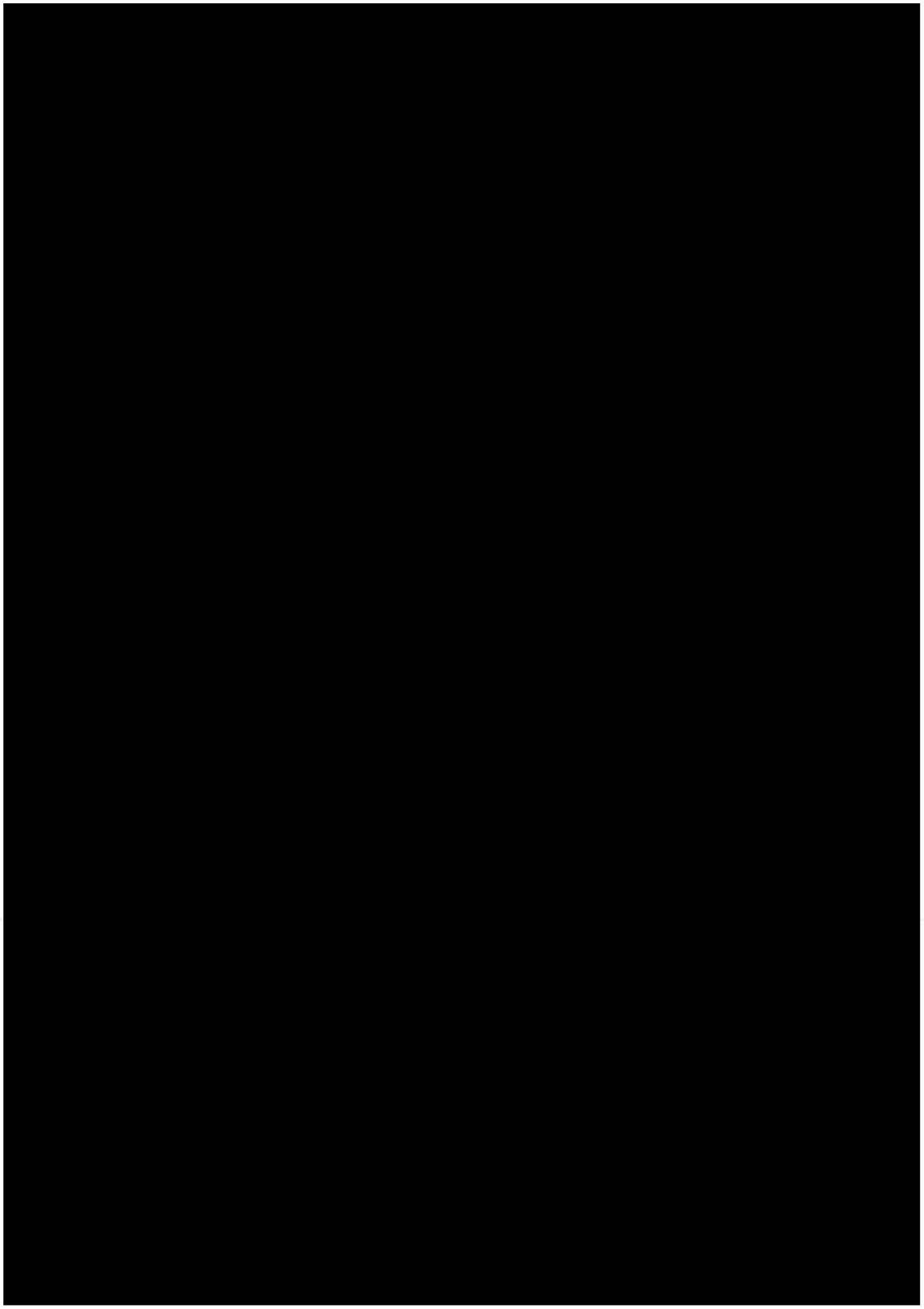

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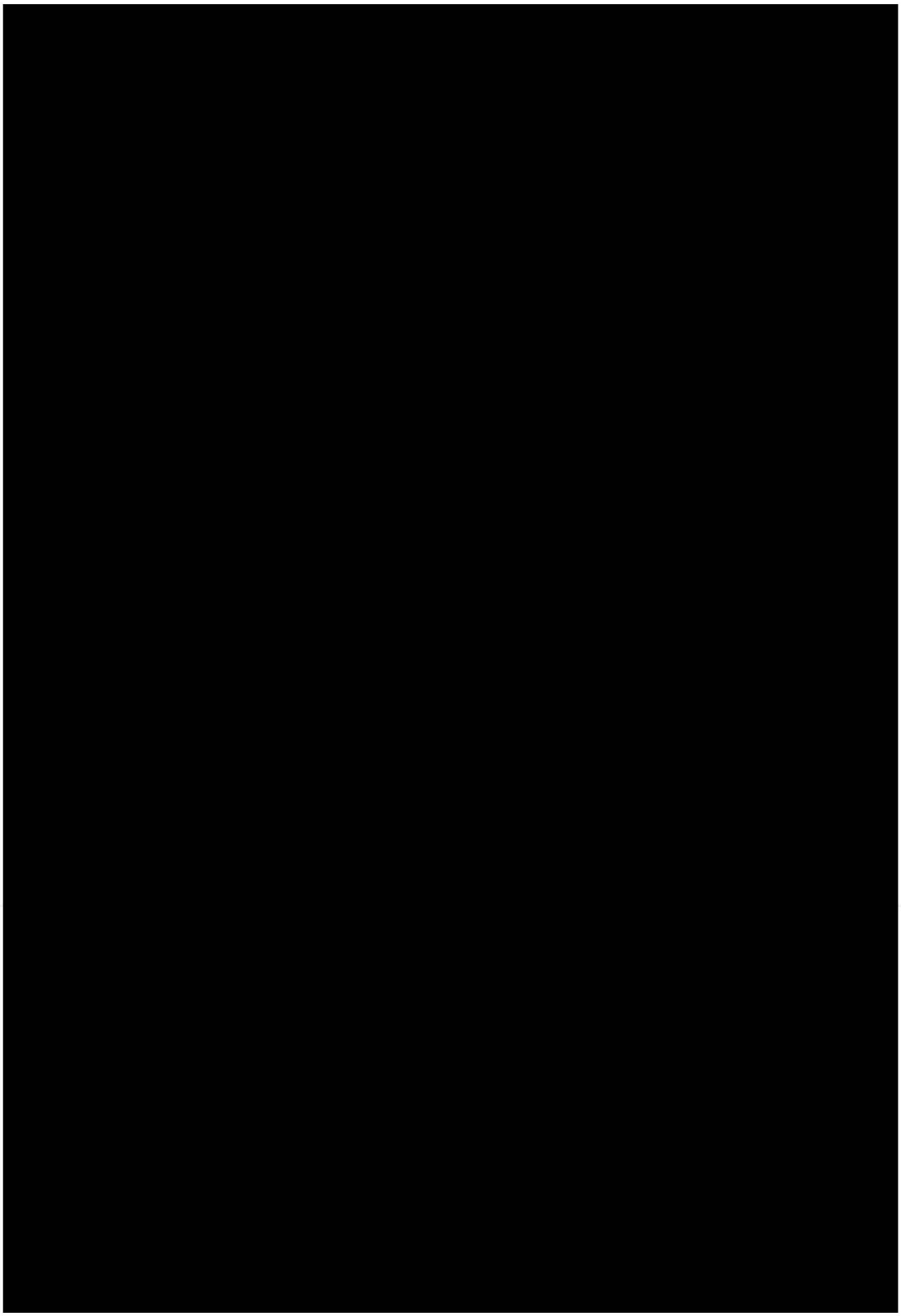
76. 

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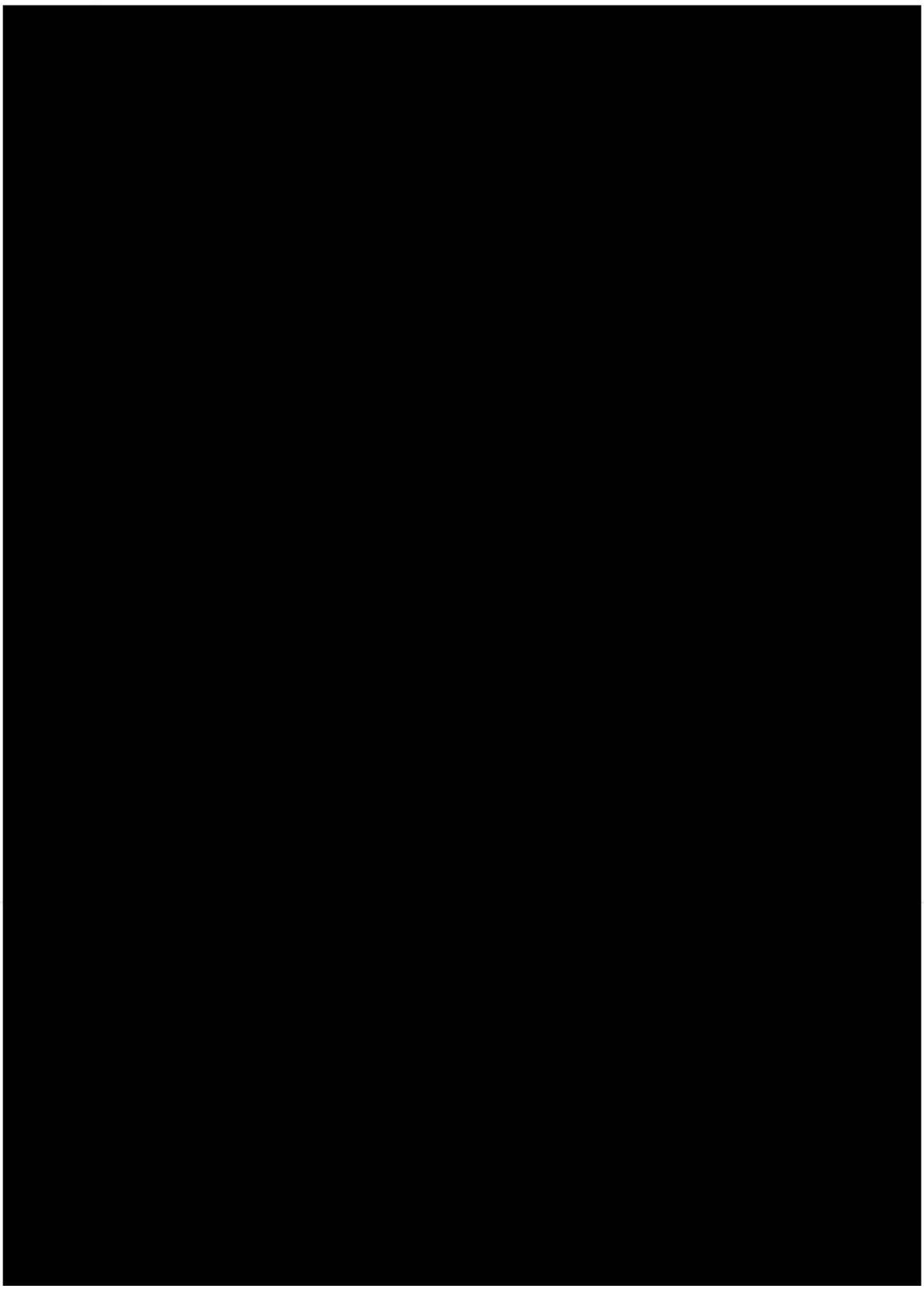

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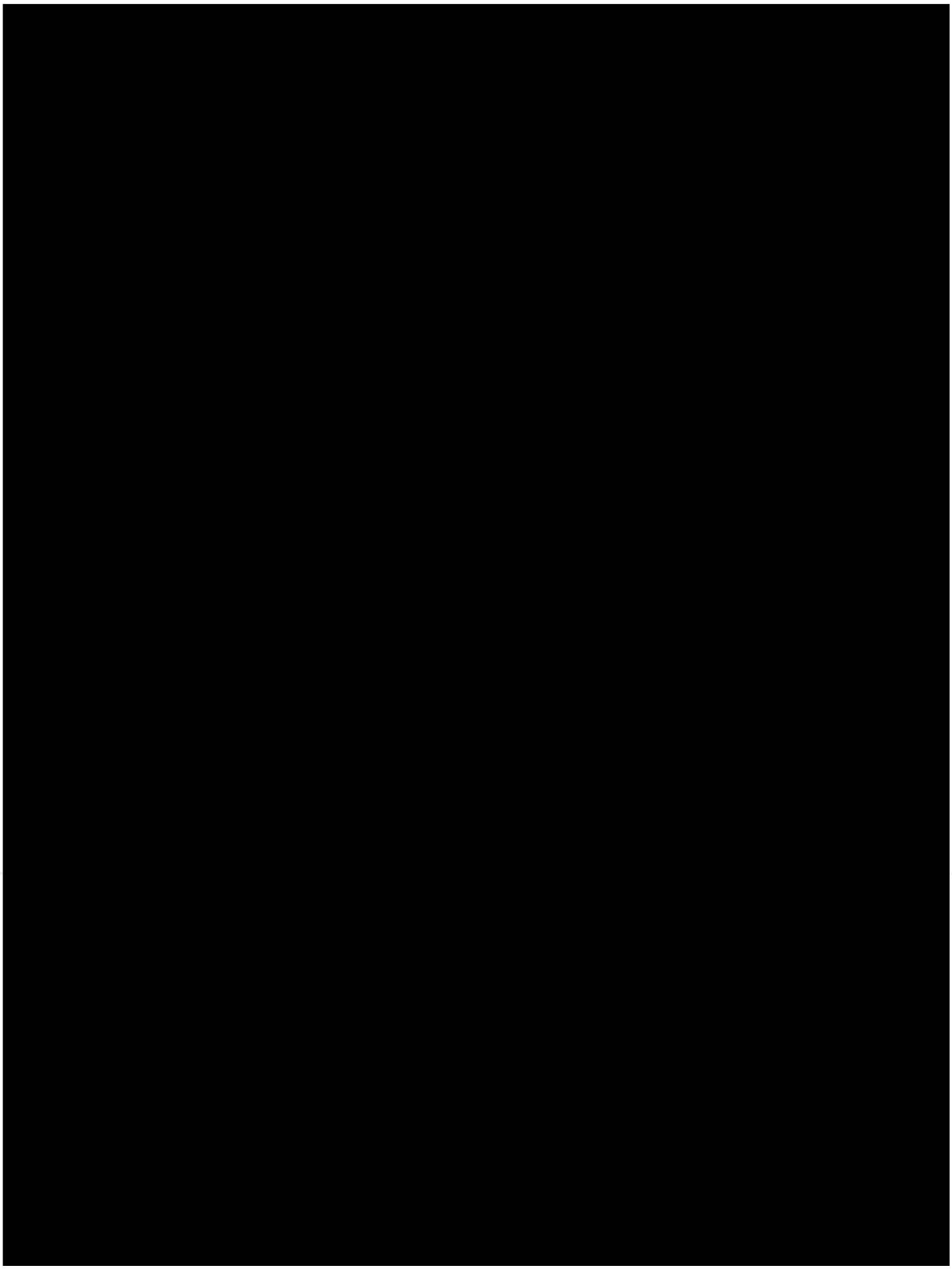

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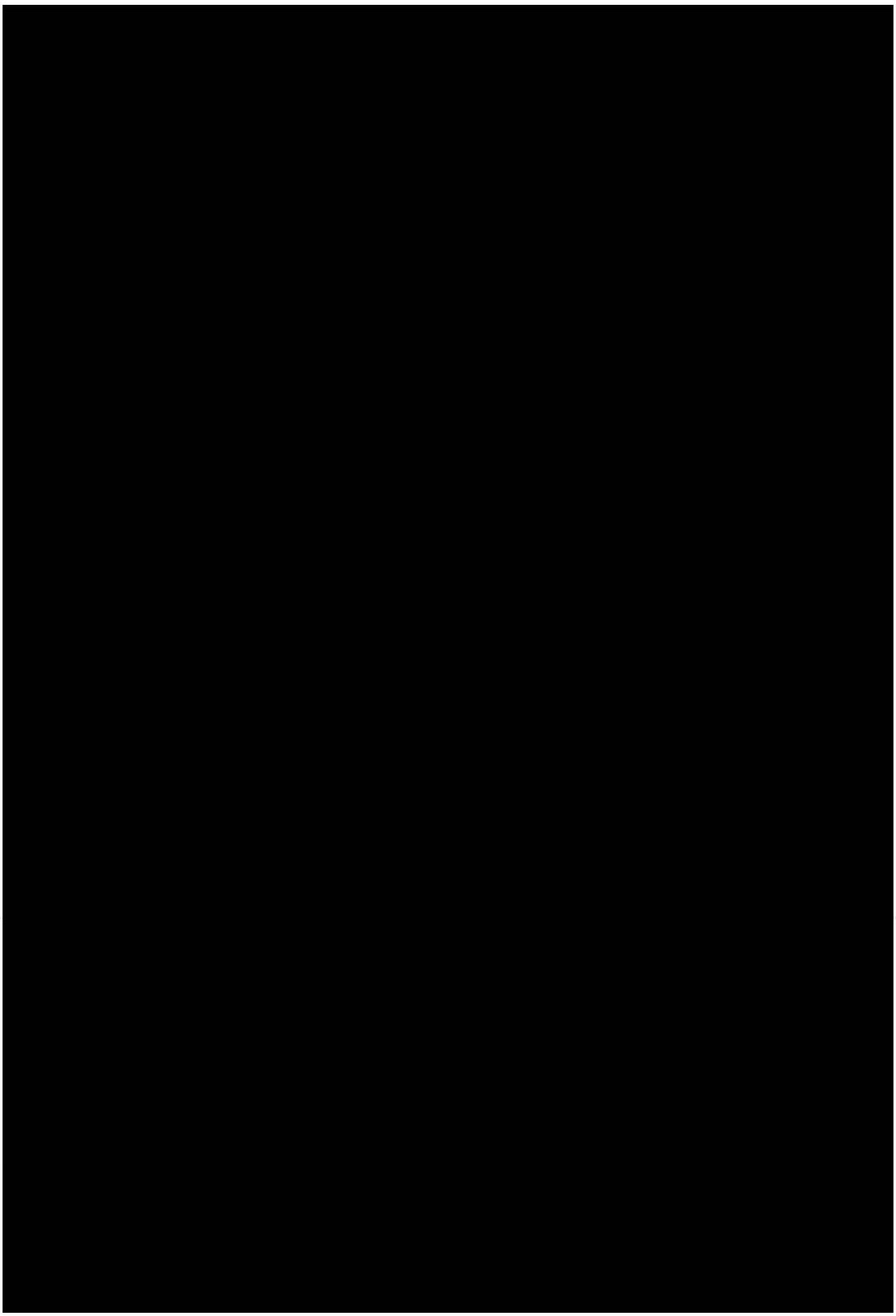

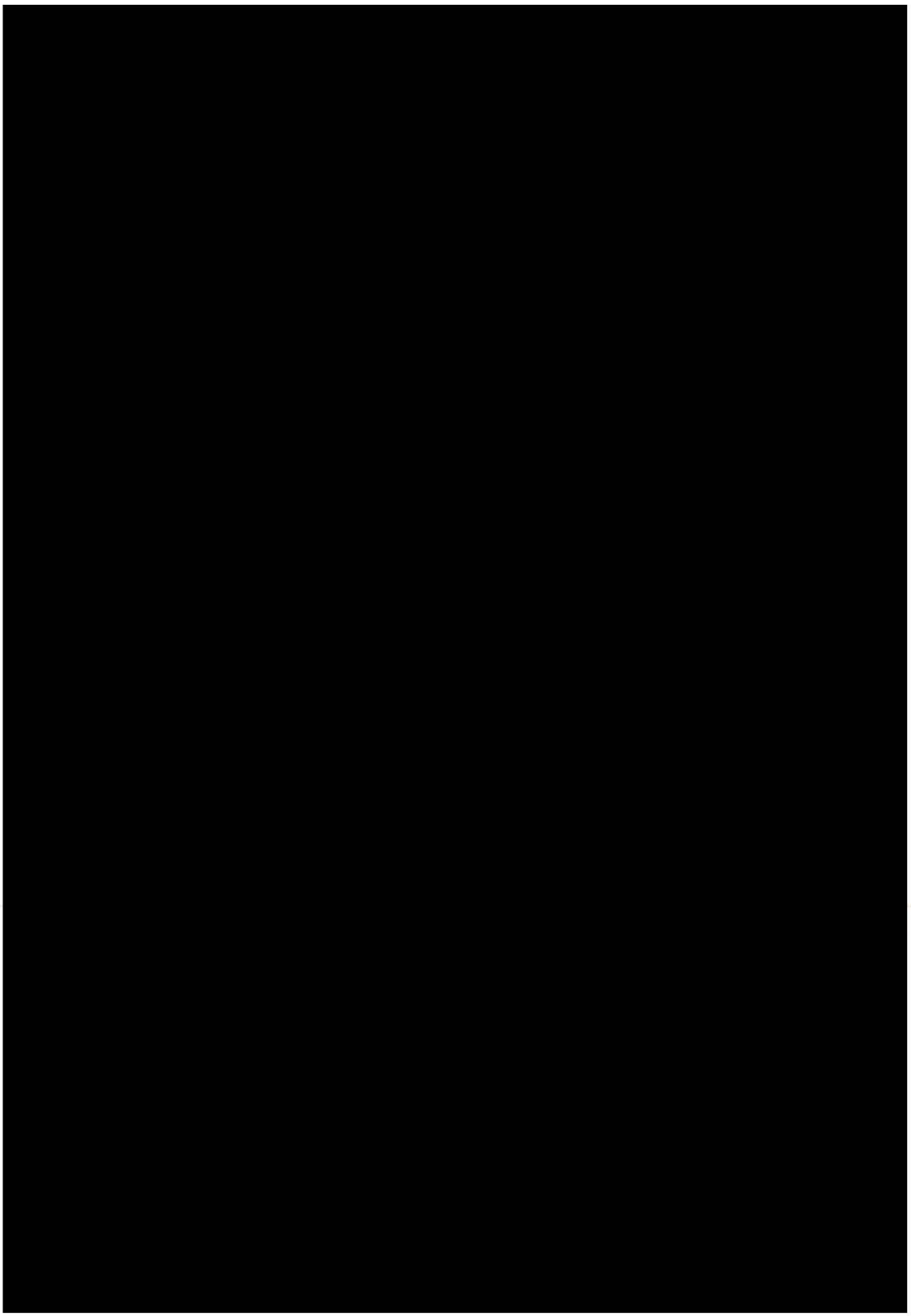

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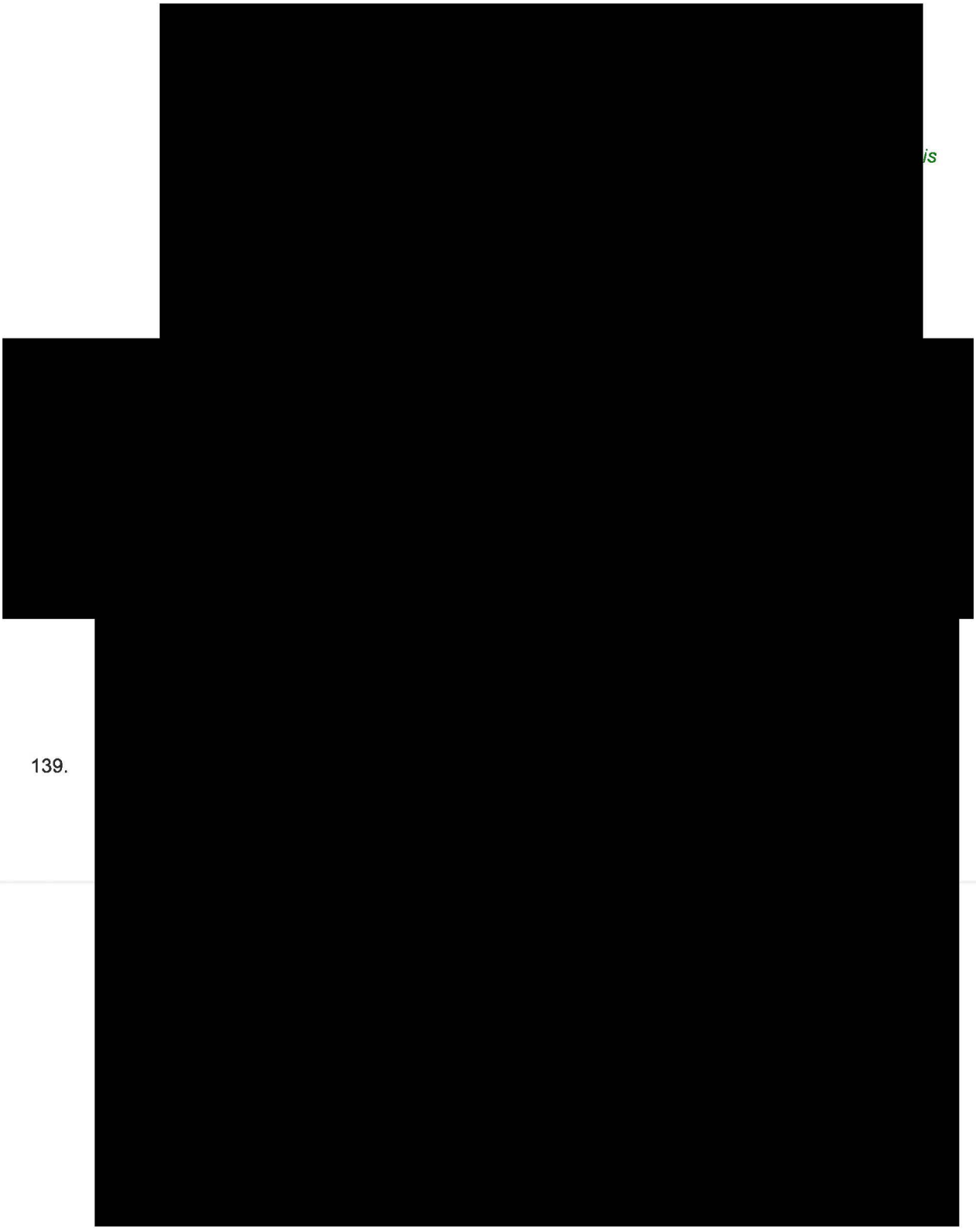

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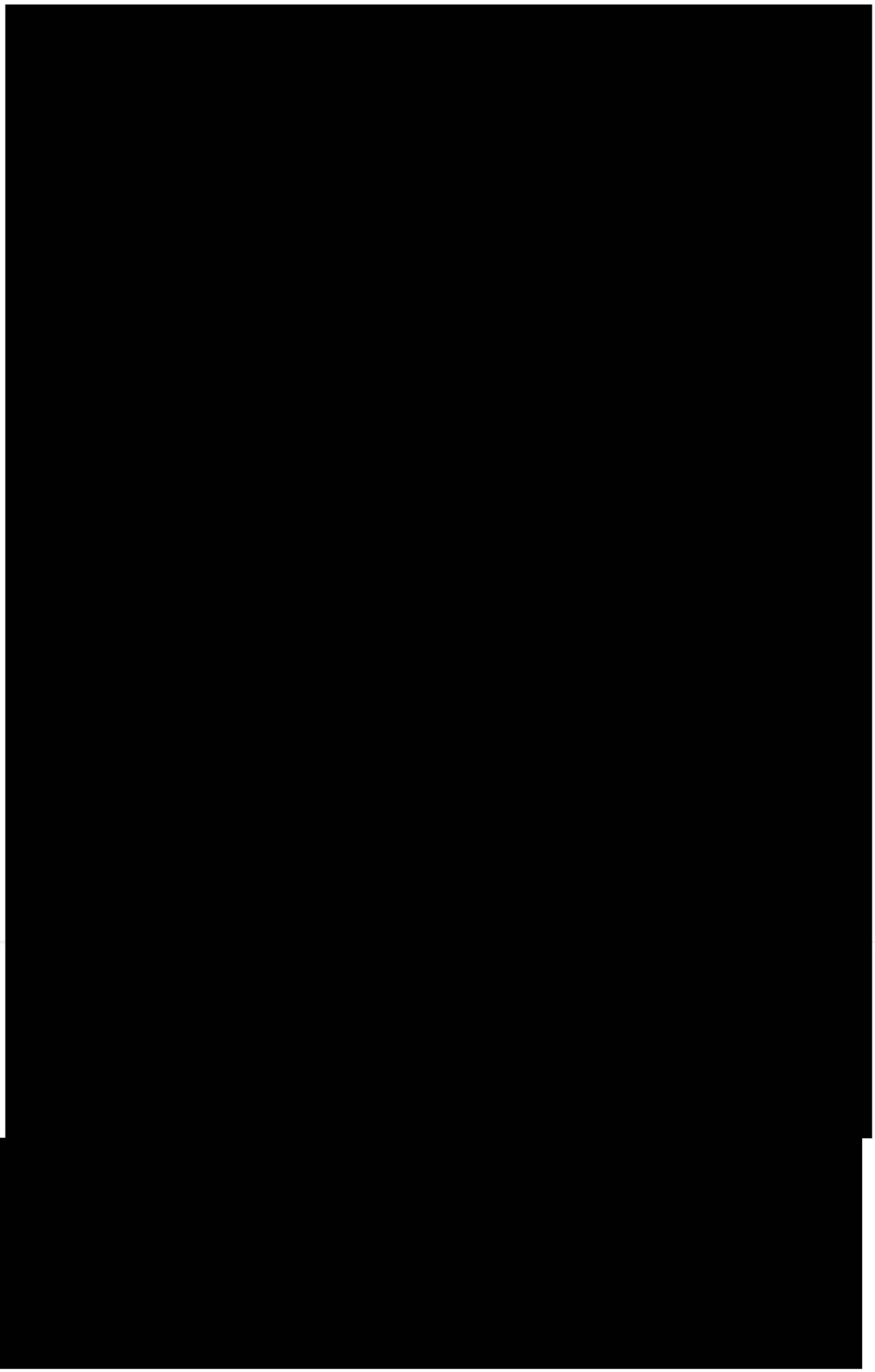

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141. [redacted]

142. [redacted]

143. [redacted]

144. [redacted]

b. [redacted]

145. [redacted]

146. [redacted]

147. [redacted]

148. [redacted]

149. [redacted]

c. [redacted]

d. [redacted]

e. [redacted]

150. [redacted]

151. [redacted]

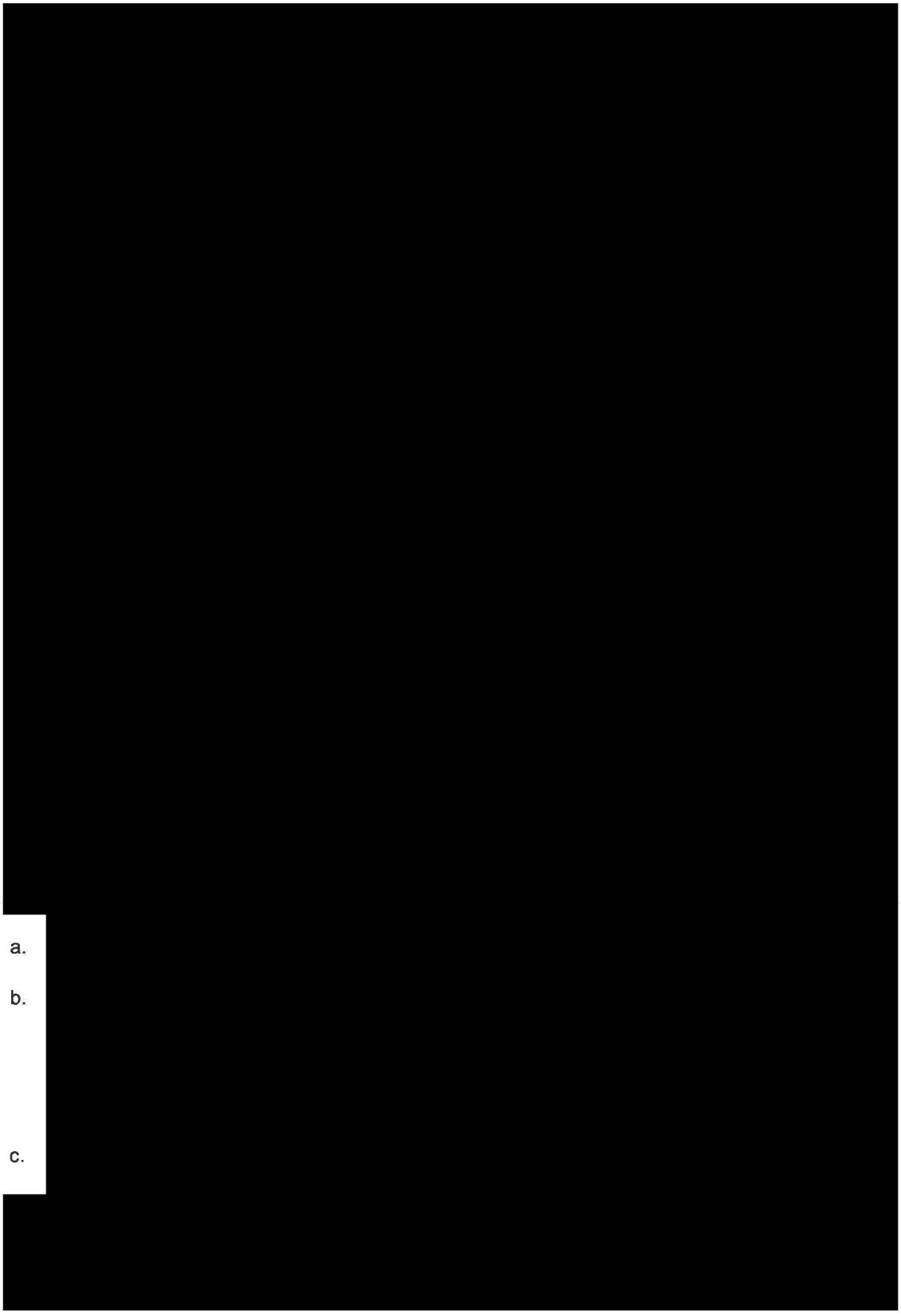
152. [redacted]

a. [redacted]

b. [redacted]

c. [redacted]

153. [redacted]



154.

a.

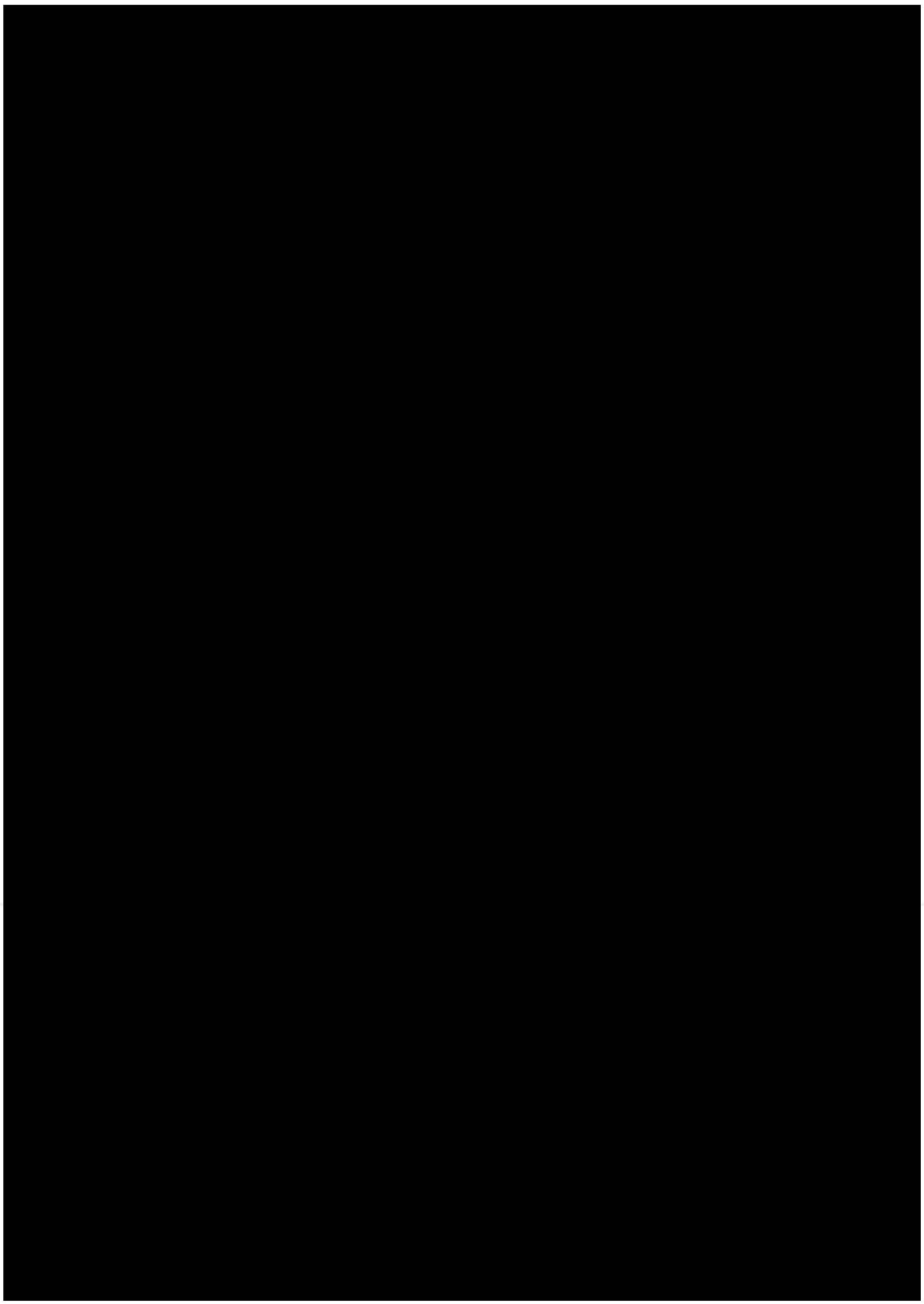
b.

c.

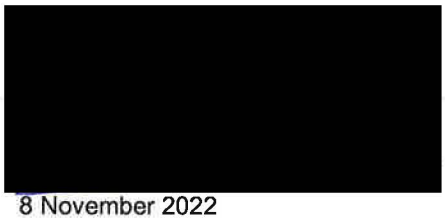
155.

156.

157.



Signed by Yago Lopez



8 November 2022