Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)
	)
Technical Advisory Council Technical Inquiry	) ET Docket No. 17-215
Into Reforming Technical Regulations	)
	)

COMMENTS OF WI-FI ALLIANCE

Wi-Fi Alliance submits these comments in response to the Public Notice issued in the

above-referenced proceeding by the Office of Engineering and Technology, on behalf of the

Technical Advisory Committee ("TAC"), seeking input on opportunities to reform technical

regulations.[1/]   Wi-Fi Alliance applauds the TAC for initiating this important effort and suggests two

specific ways that the Commission can reform the implementation of its technical regulations to

increase efficiency and decrease the regulatory burden on, among others, members of the Wi-Fi

industry.

I.   INTRODUCTION

Wi-Fi Alliance®[2/] is a global, non-profit industry association of 800 leading companies from

dozens of countries devoted to seamless interoperability. With technology development, market

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[1/]   *Office of Engineering and Technology Announces Technological Advisory Council Technical Inquiry Into Reforming Technical Regulations*, Public Notice, ET Docket No. 17-215 (rel. Aug. 30, 2017) ("Inquiry").

[2/]   Wi-Fi®, the Wi-Fi logo, the Wi-Fi CERTIFIED logo, Wi-Fi Protected Access® (WPA), WiGig®, the Wi-Fi Protected Setup logo, Wi-Fi Direct®, Wi-Fi Alliance®, WMM®, Miracast®, and Wi-Fi CERTIFIED Passpoint® , and Passpoint® are registered trademarks of Wi-Fi Alliance. Wi-Fi CERTIFIED™, Wi-Fi Protected Setup™, Wi-Fi Multimedia™, WPA2™, Wi-Fi CERTIFIED Miracast™, Wi-Fi ZONE™, the Wi-Fi ZONE logo, Wi-Fi Aware™, Wi-Fi CERTIFIED HaLow™, Wi-Fi HaLow™, Wi-Fi CERTIFIED WiGig™, Wi-Fi CERTIFIED Vantage™, Wi-Fi Vantage™, Wi-Fi CERTIFIED TimeSync™, Wi-Fi TimeSync™, Wi-Fi CERTIFIED Location™, Wi-Fi CERTIFIED Home Design™, Wi-Fi CERTIFIED Agile Multiband™, Wi-Fi CERTIFIED Optimized Connectivity™, and the Wi-Fi Alliance logo are trademarks of Wi-Fi Alliance.

building, and regulatory programs, Wi-Fi Alliance has enabled widespread adoption of Wi-Fi®

worldwide by certifying thousands of Wi-Fi products each year. Because of the important role Wi-

Fi Alliance and its members play in the equipment ecosystem, it welcomes this opportunity to

suggest ways to get products to market more quickly and efficiently without compromising the

Commission's role in ensuring that products meet applicable technical requirements. As detailed

below, the TAC should focus its efforts on reviewing two areas: the methods by which products

with Dynamic Frequency Selection ("DFS") are approved and the Commission's approval of

products that share fundamental characteristics (sometimes called "product families").

II.   REGULATIONS AND PROCESSES GOVERNING DFS SHOULD BE MODIFIED

Wi-Fi Alliance urges TAC to evaluate the processes by which DFS devices are tested and

approved for marketing and use in the U.S. Under the Commission's rules, devices operating in the

5.250-5.350 GHz and 5.470-5.725 GHz bands (also known as the U-NII-2A, and -2C bands,

respectively) are required to incorporate a mechanism allowing them to detect the presence of

incumbent radar systems in the area and refrain from operations that might interfere with those

systems. If they detect a nearby radar broadcast, they are required to vacate the channel, either

moving to another or ceasing transmission, until they confirm that the radar is no longer operating.

DFS is an important component of the U-NII rules because it permits Wi-Fi to exist in

portions of the 5 GHz band alongside important radar operations. But, as Wi-Fi Alliance informed

the Commission in the proceeding investigating the use of mid-band spectrum for mobile wireless

operations,[3/] current processes governing the approval and use of DFS-enabled equipment has

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[3/]   *Comments of Wi-Fi Alliance*, GN Docket No. 17-183 at 10 (filed Oct. 2, 2017) ("Wi-Fi Alliance Comments").

resulted in depressed interest in those bands, something the Commission itself has recognized.[4/] In

particular, those comments outlined the results of a survey of Wi-Fi Alliance members that

highlighted the challenges for Wi-Fi implementation in spectrum with DFS requirements.

Responses indicated the following, which is graphically presented in **Exhibit A** to these comments:

- Not all applications can be enabled because of DFS limitations. For example, a majority of survey respondents agreed that applications like peer-to-peer and tethering are difficult to deploy in DFS bands, while others pointed to the same issues with applications in mobile platforms. (Exhibit A-1)
- A majority of respondents said that it takes more than 9 weeks to complete regulatory certification, significantly longer than similar processes in China, the European Union, and Japan. (Exhibit A-2)
- Most respondents stated that it would be very useful if tests were limited only to conducted emissions. (Exhibit A-3)
- Changes in how DFS operates would encourage entities to enable DFS channels. (Exhibit A-4)
- A significant majority of respondents said that, if the certification process were streamlined, they would be likely to add DFS master capabilities to future products. (Exhibit A-5)

Based on these survey results, it appears that reform of the rules and processes governing the

approval of DFS-enabled products would encourage greater use of the 5 GHz band without

affecting incumbent protections.

There are several actions the Commission could take to address these issues, including the

following:

- *Permitting re-use of test results of other parties* – While the Commission may permit a party to rely on its own previous test results,[5/] it should permit entities to rely on test results of others when, for example, a manufacturer uses a module of another company that has already been approved. This will reduce the time that entities are required to generate test results.

[4/]   *In the Matter of Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Notice of Inquiry, GN Docket No. 17-183 (rel. Aug. 3, 2017).

[5/]   Federal Communications Commission, Office of Engineering and Technology, Laboratory Division, *Guidance for Referencing Test Data Across Separate Equipment Authorization Applications* at 2 (Dec. 8. 2016).

- *Increasing number of conducted tests in lieu of radiated tests in FCC audit testing* – Today, audits are conducted using radiated testing.[6] However, products may be approved with either radiated *or* conducted testing.[7] Therefore, entities should be permitted to use the same conducted testing. This will eliminate the need to employ potentially duplicative testing.

- *Creating a "Trusted Vendor Program"* – Current processes require samples of DFS devices to be submitted to the Commission for pre-approval testing prior to approval by telecommunications certification bodies ("TCBs").[8] Creating a program whereby certain equipment manufacturers that have been particularly reliable to submit their devices for testing *after* approval would both speed the deployment of these products and incentivize companies to improve their results. Eligibility for this program could be determined by the percentage of devices that passed DFS master certification and have passed their audits on the first attempt in the past.

- *Relaxing/removing aggregate detection thresholds* – Current requirement allows 80% aggregate minimum detection for radar types 1-4 with 60% for any one radar type.[9] Instead, the aggregate minimum should be eliminated or reduced, while retaining minimum requirements for all radar types. This will allow additional flexibility while preserving an appropriate level of protection.

- *Conforming channel availability with European Union Standard* – Current channel availability check time is 60 seconds,[10] which may make channels unnecessarily unavailable. In order to promote international harmonization, the U.S. should consider following the EU approach, which permits reliance on a channel availability check ("CAC") prior to operation.[11]

- *Creating scalable interference detection thresholds* – Current procedures specify absolute detection thresholds.[12] However, the utility of DFS can be enhanced if the DFS is activated only when the power of the transmitter will affect radar operations. So, for example, there should be a different detection threshold for antennas that operate with negative gain or lower power.

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[6]   *See*, Federal Communications Commission, Office of Engineering and Technology, Laboratory Division, *Compliance Measurement Procedures for Unlicensed-National Information Infrastructure Devices Operating in the 5250-5350 MHz and 5470-5725 MHz Bands Incorporating Dynamic Frequency Selection* at 15-18 (Apr. 6, 2016) ("Measurement Procedures").

[7]   *Id.* at 1.

[8]   OET Equipment Authorization Branch, *Dynamic Frequency Selection Test and Compliance Issues*, at 6, Oct. 2007, available at https://transition.fcc.gov/oet/ea/presentations/files/oct07/Oct_07-DFS_Test&Compliance-AL&RT.pdf.

[9]   *Id.* at 10.

[10]   *Id.* at 9.

[11]   *See,* ETSI *Broadband Radio Access Networks; 5 GHz high performance RLAN*, Harmonized European Standard, EN 301 893 v1.8.1, Annex D (DFS Parameters) (Mar. 2015) available at http://www.etsi.org/deliver/etsi_en/301800_301899/301893/01.08.01_60/en_301893v010801p.pdf.

[12]   47 C.F.R. 15.407(h)(2).

- *Relaxing band-edge radar detection limits* – Currently, the radar detection limits are constant throughout the DFS bands.[13/] However, DFS use can be increased by relaxing the detection limits at the band edge, where power is lower, without creating additional interference potential for radar operations.

All of these changes can be implemented without reducing the effectiveness of DFS protections for incumbents. These changes would reducing the time and/or cost of bringing a DFS-compliant device to market, and increase the utilization of the bands in which DFS is required. Wi-Fi Alliance has highlighted the dramatic growth of Wi-Fi and the fact that there has been no associated dedication of additional spectrum to support this growth.[14/] As the Commission evaluates spectrum that can be used for Wi-Fi, it may wish to require DFS or DFS-like capabilities. In order for spectrum in which those capabilities are required to be truly available to meet increasing spectrum demands, the Commission should take the steps outlined above.

III. EQUIPMENT AUTHORIZATIONS SHOULD COVER A FAMILY OF PRODUCTS

The TAC should also consider evaluating reforms to the Commission's processes for approving devices that share fundamental characteristics but are not electrically identical, approving them as a "family." This will streamline approvals, allowing manufacturers to bring products to market more quickly and inexpensively, benefitting consumers. As part of the survey, noted above, that Wi-Fi Alliance conducted regarding use of DFS bands, it asked how useful it would be if respondents could obtain a single certification for an entire product family based on module testing. As shown in Exhibit A-6, an overwhelming majority stated that it would be the highest level of usefulness.

13/ *See, Measurement Procedures.*

14/ *See, e.g.*, *Wi-Fi Alliance Comments* at 3; *Reply Comments of Wi-Fi Alliance*, GN Docket No. 14-177 at 3 (filed Oct. 31, 2016); *Comments of Wi-Fi Alliance*, ET Docket No. 13-49 at 3 (filed Jul. 7, 2016).

While the Commission considered this question in the Docket No. 15-170 proceeding,[15] it did not provide regulatory relief in its First Report and Order in that proceeding.[16] Because of the importance of this issue, and the fact that a complete record was developed as part of the rulemaking proceeding, the TAC should urge the Commission to act. As Wi-Fi Alliance demonstrated in that proceeding,[17] devices that have fundamental functional similarities should not require multiple equipment identifiers, and should be considered variations of the same device, even when they are not electrically identical. The Commission would not be charting a new course in doing so. Industry Canada has already provided guidance for family approvals[18] and the Commission can take the same approach.

Fortunately, the Commission need not initiate a new proceeding to provide the requested relief: it can issue an additional Report and Order in the 15-170 proceeding, or the Office of Engineering and Technology can clarify the new rules through its Knowledge Database process, a procedure which has now been codified in the Commission's Rules.[19]

IV. CONCLUSION

Wi-Fi Alliance welcomes the opportunity to recommend areas where the TAC can propose changes to the Commission's technical rules and procedures. In particular, by adjusting the DFS rules and allowing "family" authorizations, the Commission can dramatically streamline its

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[15] *Amendment of Parts 0, 1, 2, 15 and 18 of the Commission's Rules Regarding Authorization of Radiofrequency Equipment; Request for the Allowance of Optional Electronic Labeling for Wireless Devices*, Notice of Proposed Rulemaking, 30 FCC Rcd 7725, 7740 (2015).

[16] *Amendment of Parts 0, 1, 2, 15 and 18 of the Commission's Rules Regarding Authorization of Radiofrequency Equipment; Request for the Allowance of Optional Electronic Labeling for Wireless Devices*, First Report and Order, ET Docket No. 15-170 (rel. Jul. 14, 2017) ("Equipment Rules Order").

[17] *Comments of Wi-Fi Alliance*, ET Docket No. 15-170 (filed October 9, 2015).
[18] *See RSP-100 – Certification of Radio Apparatus*, Issue 10, Industry Canada, at 6-7 (rel. Nov. 13, 2014), available at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01130.html.

[19] *Equipment Rules Order* at ¶¶ 68-72.

processing of unlicensed equipment and improve spectrum utilization, lower costs to consumers,

and speed products to market, while still retaining its existing, and important, work in ensuring that

all devices marketed in the United States are fully in compliance with the Commission's rules.

Respectfully submitted,

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EXHIBIT A

EXHIBIT A-1

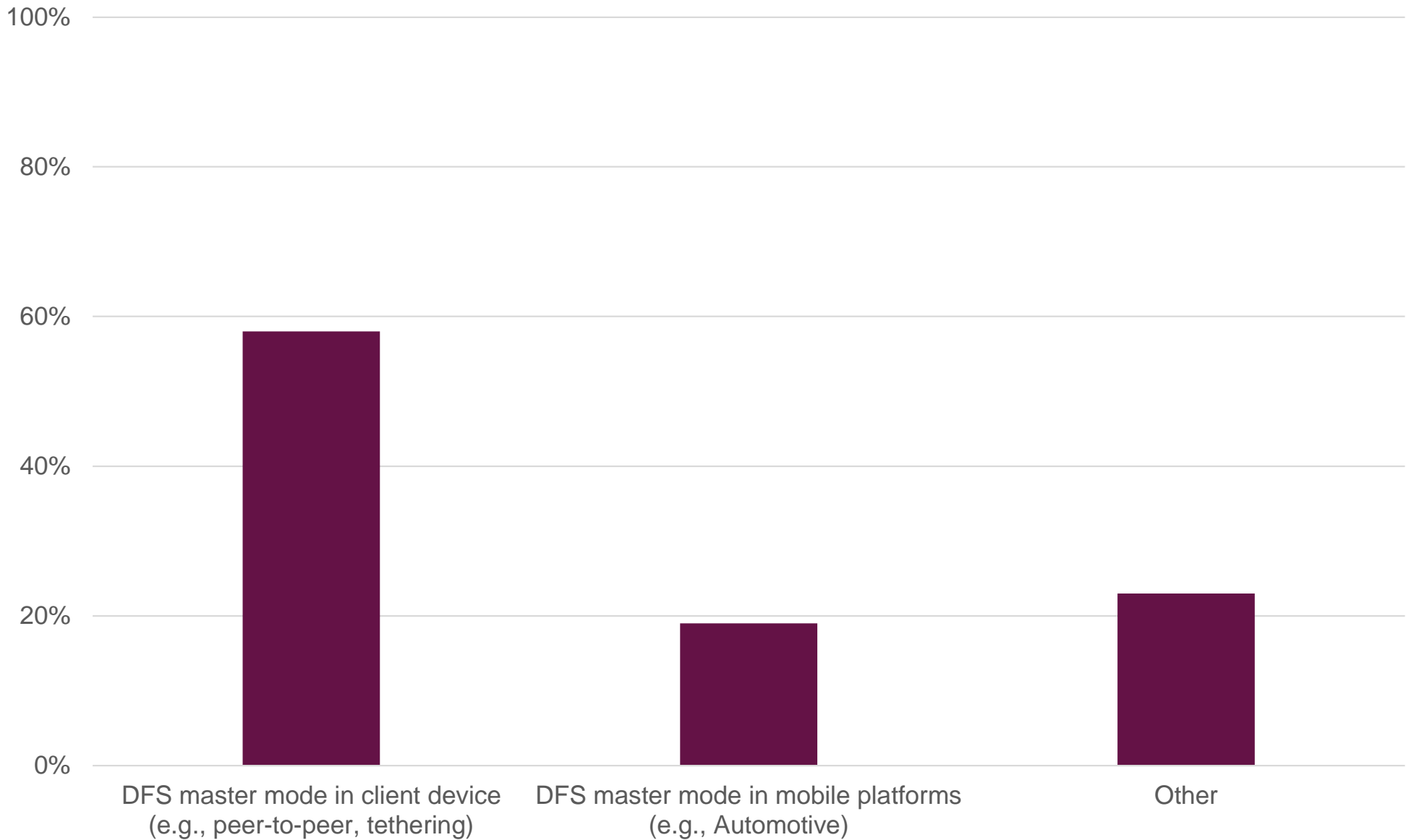If your company has any applications that cannot be enabled because of DFS rules, what are they?

EXHIBIT A-2

What is the average length of time it takes your company to complete DFS certification in the regulatory domains below (in weeks)?
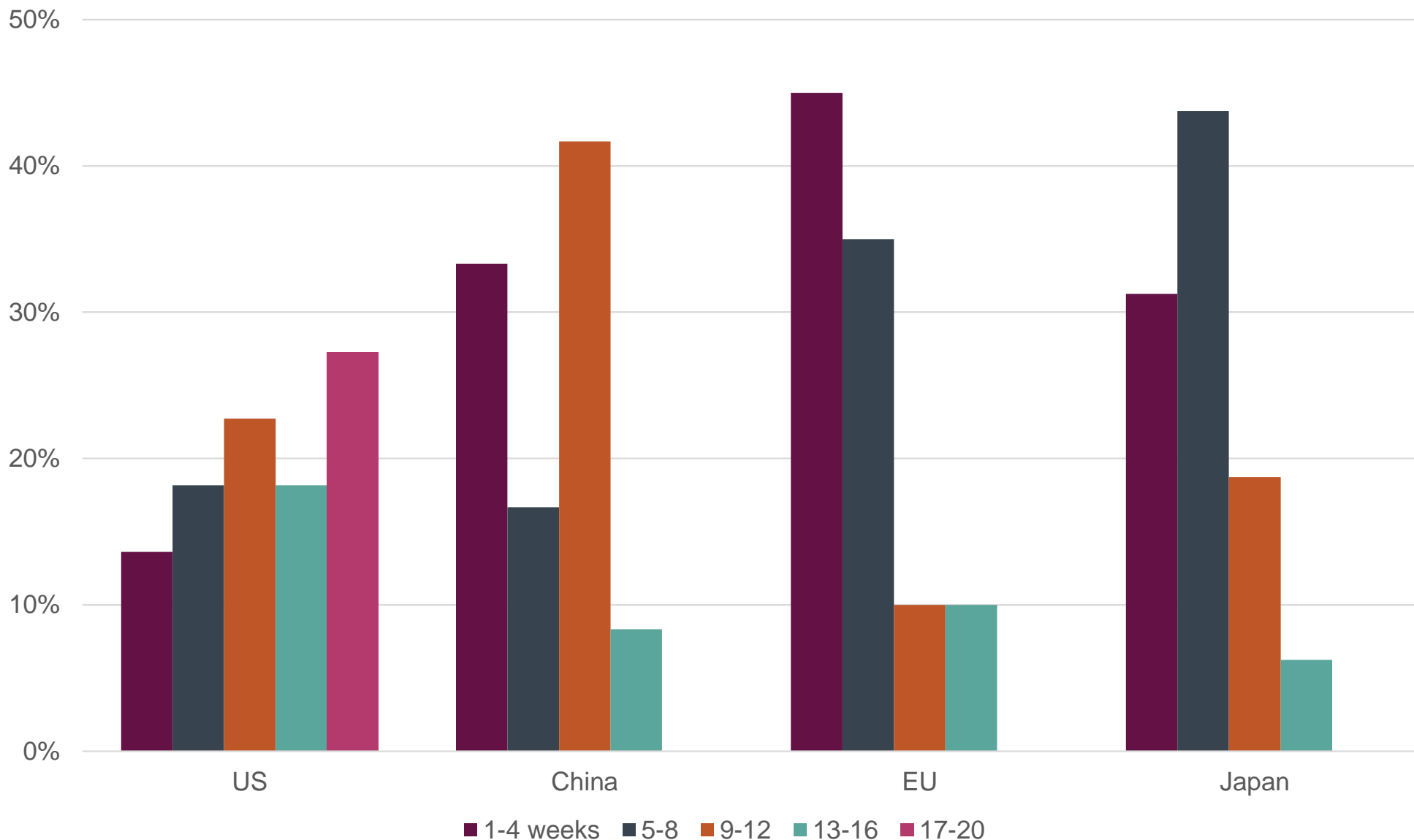

Legend: 1-4 weeks, 5-8, 9-12, 13-16, 17-20

EXHIBIT A-3

In regulatory regimes that require radiated testing, how useful would it be if certain tests were limited to conducted only?

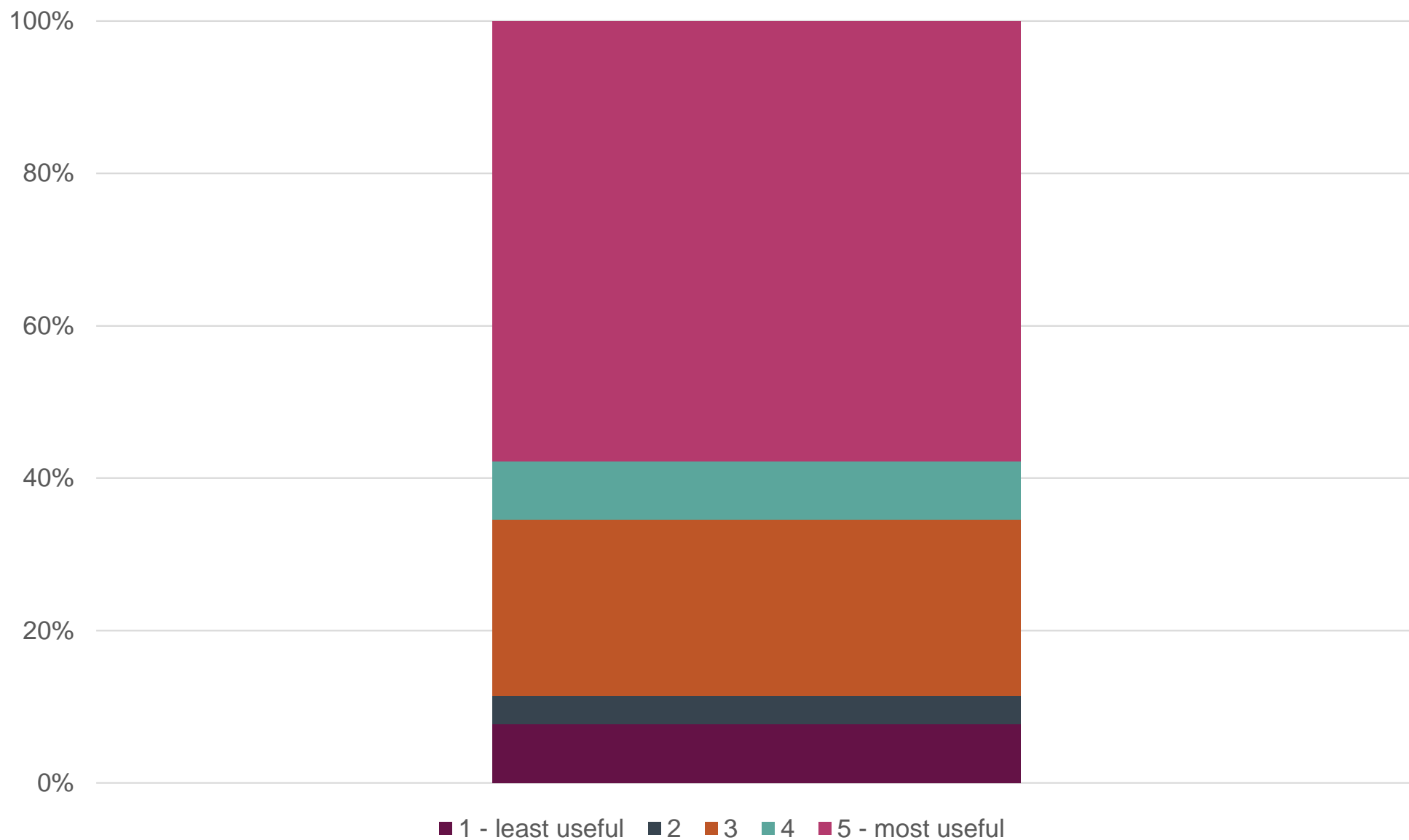Legend: 1 - least useful | 2 | 3 | 4 | 5 - most useful

EXHIBIT A-4

Which potential changes in DFS technical rules would encourage your company to enable DFS channels more frequently in your company's products?
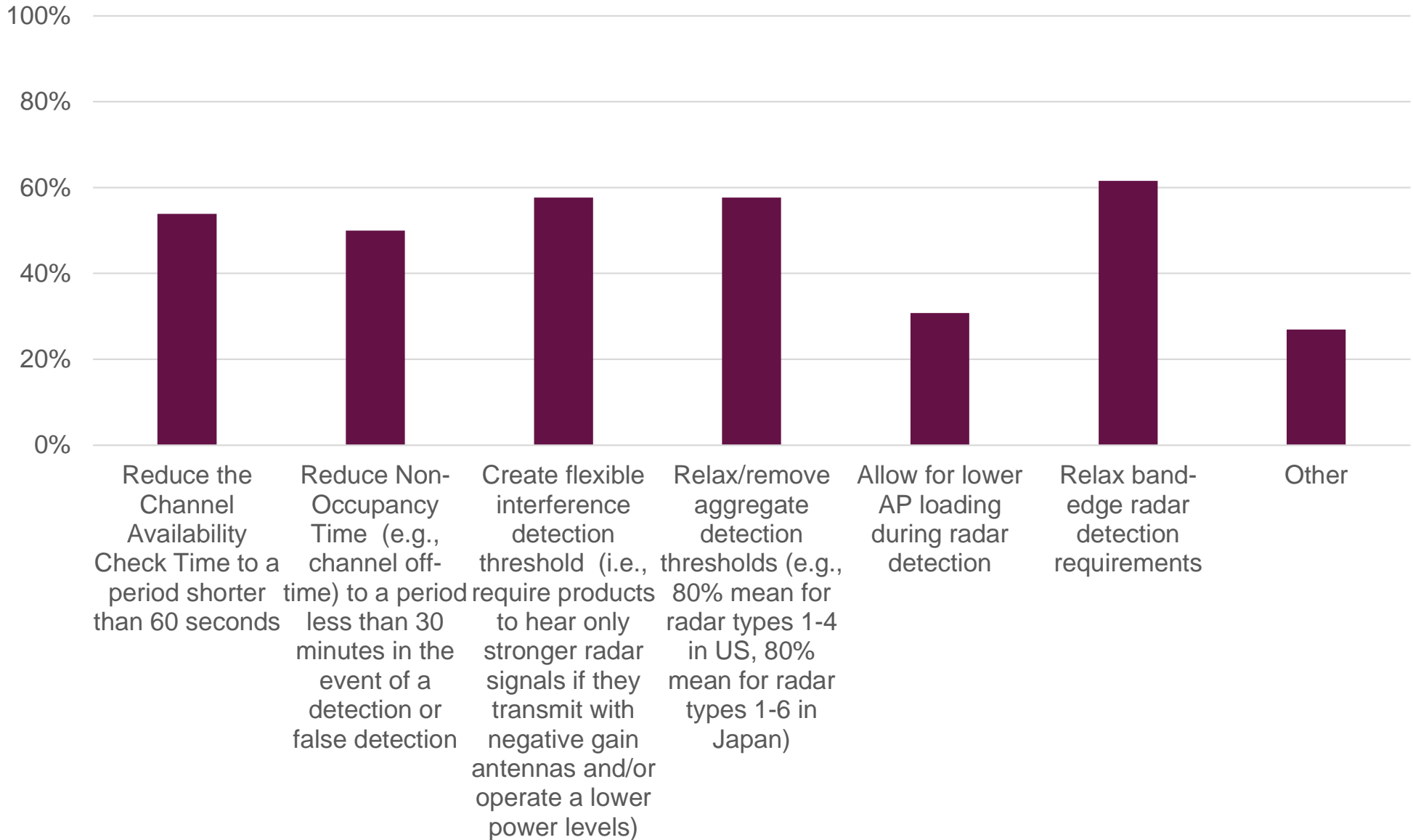
EXHIBIT A-5

If DFS master certification process was significantly streamlined, how likely would it encounter your company to add DFS master capability to future products?

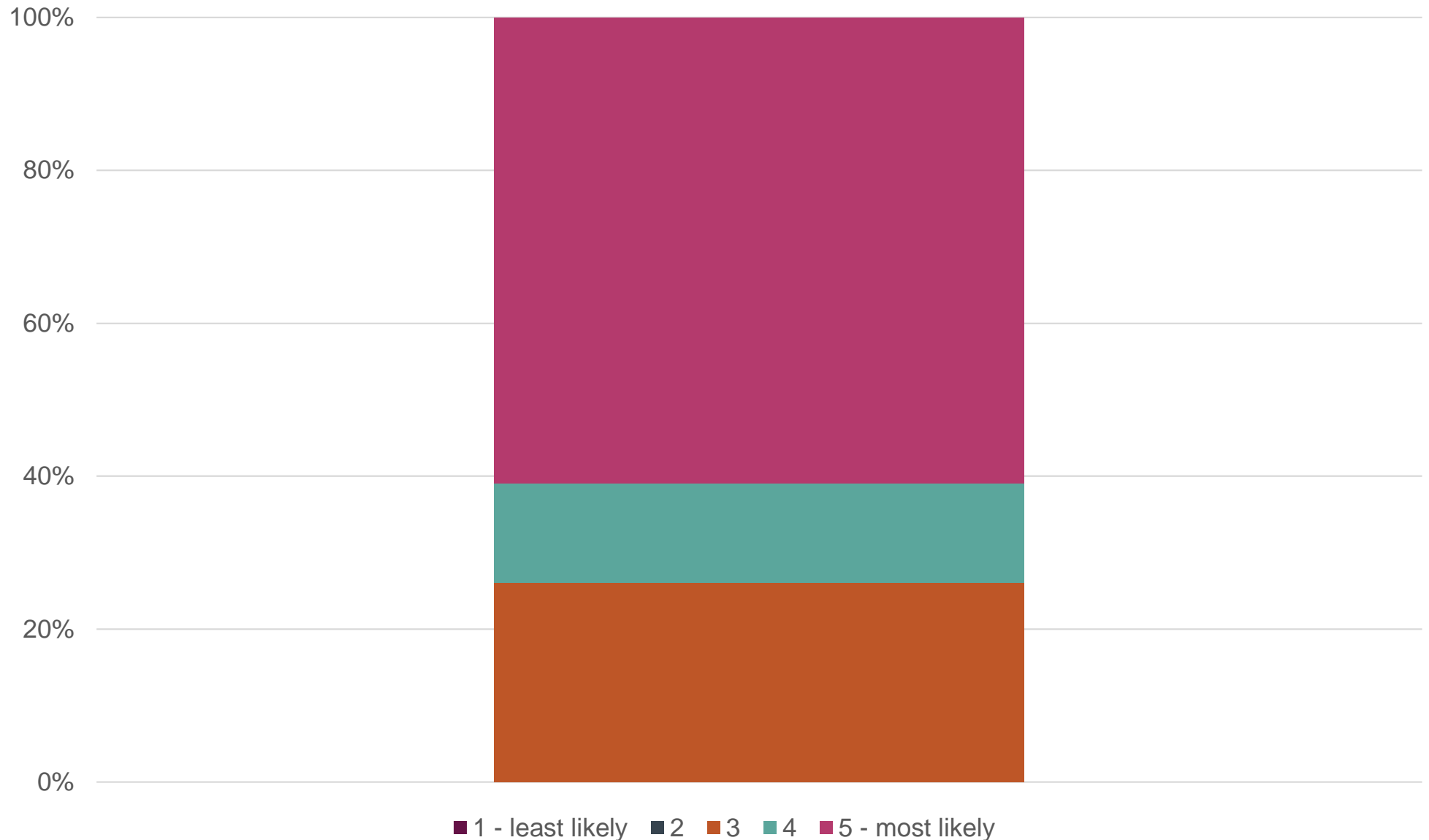Legend: ■ 1 - least likely ■ 2 ■ 3 ■ 4 ■ 5 - most likely

EXHIBIT A-6
How useful would it be if your company could obtain a single certification for an entire product family based on module testing (e.g., module certification)?

Legend: ■ 1 - least useful ■ 2 ■ 3 ■ 4 ■ 5 - most useful