Before the
U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
Gaithersburg, MD, 20899

In the Matter of	)	
	)	
Study on People's Republic of China (PRC)	)	
Policies and Influence in the Development of	)	Docket No. 211026-0219
International Standards for Emerging Technologies	)	
	)	
	)	

COMMENTS OF THE
TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Telecommunications Industry Association ("TIA") appreciates the opportunity to provide input regarding the National Institute of Standards and Technology ("NIST") study on China's participation in the development of international standards for emerging technologies.[1] TIA is an industry association that represents more than four hundred U.S. and global manufacturers and vendors of telecommunications equipment and services. In addition to engaging with government stakeholders in support of member company priorities, TIA is an ANSI-accredited Standards Development Organization (SDO) that has been involved in the development of thousands of standards over its 90-year history.

Currently, more than 1,000 individuals - representing network equipment manufacturers, service providers, government entities, and end users - serve on TIA's Engineering Committees. TIA also maintains a robust community of standards development committees, which include:

[1] Study on People's Republic of China Policies and Influence in the Development of International Standards for Emerging Technologies, National Institute of Standards and Technology (Nov. 4, 21) (available at: https://www.federalregister.gov/documents/2021/11/04/2021-24090/study-on-peoples-republic-of-china-prc-policies-and-influence-in-the-development-of-international).

- TR-60 | ICT Lifecycle Management
- TR-51 I Smart Utility Networks
- TR-45 I Mobile and Point-to-Point Communications Standards
- TR-42 I Telecommunications Cabling Systems
- TR-41 | Performance and Accessibility for Communications Products
- TR-14 | Structural Standards for Communication and Small Wind Turbine Support Structures
- TR-8 | Mobile and Personal Private Radio Standards

While TIA's standards are international in scope, TIA also engages directly in other international standards development organizations around the world, including in the following:

- TIA is a founding partner of OneM2M, a global standards development partnership that develops standards for Machine-to-Machine and IoT technologies. Other partners in OneM2M include standards organizations from Japan, China, Europe, India, and Korea.
- TIA is active in IEC as well as ISO/IEC JTC 1 Committees, including the following committees and subcommittees:
    - TC 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories
    - SC46A: Coaxial cables
    - SC46C: Wires and symmetric cables
    - SC46F: RF and microwave passive components
    - TC76: Optical radiation safety and laser equipment
    - TC86: Fibre optics
    - SC86A: Fibres and cables
    - SC86B: Fibre optic interconnecting devices and passive components
    - SC86C: Fibre optic systems and active devices
    - ISO/IEC JTC 1/SC 25: Interconnection of information technology equipment
    - ISO/IEC JTC1/SC 25WG 1: Home Electronic System
    - ISO/IEC JTC 1/SC 25WG 3: Customer Premises Cabling
    - ISO/IEC JTC 1/SC 25/WG 4: Interconnection of Computer Systems and Attached Equipment
    - ISO/IEC JTC 1/SC 25/WG 5: Taxonomy and Terminology of Intelligent Homes
    - IEC Systems Committee Smart Cities- Electrotechnical aspects of Smart Cities
- In the IEC, TIA holds six Secretariats, and several international leadership positions including: Liaison Representatives, Project Editors, Conveners, Secretaries, Project Leaders.
- TIA is a participating standards organization of the ITU-T Global Standards Collaboration ("GSC") initiative.
- TIA signed a Memorandum of Understanding with TSDSI in 2019 to cooperate on standards projects related to 5G, Smart Buildings, and other telecommunications-related standards projects.

- TIA is the global administrator of the Mobile Equipment Identifier ("MEID") numbering system which provides identifiers for mobile devices and related applications.
- TIA is the parent of QuestForum which manages TL9000 – the leading Quality Management System ("QMS") for the ICT industry. As such, understanding and mitigating risks to the ICT supply chain is central to our mission as an organization.
- TIA's QuestForum has recently created a first draft of SCS 9001, the world's first QMS standard aimed at adding transparency and reducing vulnerabilities in the ICT supply chain.
- TIA was a founding partner for 3GPP2, a consortium of five SDOs in the U.S., Japan, Korea, and China. 3GPP2 developed the CDMA 2000 standards for 3G and TR-45 continues to develop related standards.

TIA's staff is also focused on providing thought leadership on standards related issues before domestic stakeholders. TIA's Standards and IPR Policy Committee engages extensively with U.S. and global government stakeholders on issues related to standards policy, TIA's Director of Global Policy Patrick Lozada is a voting member of ANSI's International Policy Advisory Group and China Task Force, and TIA's CEO Dave Stehlin sits on ANSI's Board of Directors. Given this extensive engagement with the process of developing international standards both in the U.S. and abroad, TIA is well situated to comment on the participation of Chinese entities in the development of standards for next-generation technology.

I. THE UNITED STATES IS THE OVERWHELMING BENEFICIARY OF THE GLOBAL STANDARDS SYSTEM

This RFI asks important questions about the role that China plays in the global standards development system. To answer this question effectively, TIA believes that an analysis should start with a baseline statement of how and why the current model of developing technical standards through private sector engagement in open, transparent, impartial, effective, relevant, and consensus-driven processes benefits the United States. This rules-based system, driven by private sector participation, has helped the U.S. lead the world in the development of advanced technologies, powers the interoperability and connectivity that underpins the functioning of

global telecommunications networks, and facilitates U.S. companies access to global markets by reducing Technical Barriers to Trade ("TBTs"). Openness and the ability of all parties – including Chinese entities – to participate in rules-based standardization processes is foundational to this system and the subsequent decision of entities around the world to use these standards to structure and procure products and services. The United States itself is largely responsible for creating this global framework, and it remains in the U.S. interest to support it. With that point about China's global participation in mind, we would like to address specific topics raised in the RFI.

II. FEEDBACK ON TOPICS RAISED BY NIST IN THE RFI

RFI Topic Number 1: The participation of the People's Republic of China in international standards setting organizations over the previous 10 years, including leadership roles in standards drafting technical committees, and the quality or value of that participation.

Over the last ten years, China's adoption of international standards and its ability to participate in the development of globally relevant standards has increased substantially. In 2011, China's approach to standards was largely state-driven with Technical Committees run by the AQSIQ[2]-affiliated Standardization Administration of China ("SAC"), which drove standards development under the legal umbrella of the People's Republic of China Standardization Law of 1988.[3] Since that time, China has gradually devolved standards development to the private sector and moved away from mandatory *Guo Biao 国标* ("GB") standards towards *Guo Biao Tuijian 国标推荐*. ("GB/T") standards that are not formally required by the government. These changes

[2] The General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) was the ministerial-level department responsible for a range of commercial activities including standardization. AQSIQ was dissolved into the State Administration of Market (SAMR) pursuant to a government re-organization that occurred in 2018.

[3] Zhonghua Renmin Gongheguo Biaozhunhua Fa, 中华人民共和国标准化法 [Standardization Law of the People's Republic of China], National People's Congress of the People's Republic of China (Nov. 4, 2017), http://www.npc.gov.cn/wxzl/gongbao/1988-12/29/content_1481259.htm

were formalized in the revision of the Standardization Law of China that came into effect in 2018, and they have been reiterated in the context of various strategy documents released by China's State of Administration of Market Regulation ("SAMR") since it took over and re-organized SAC in 2018 as part of a larger government restructuring.

In the telecommunication's sector specifically, the evolution of China's approach to wireless connectivity standards has followed a similar trajectory to that of China's approach to standards policy writ large. The Chinese government initially focused on a country-specific, state-driven approach toward wireless standards for use in the market with the development of the WLAN Authentication and Privacy Infrastructure ("WAPI") standard.[4] WAPI was designed to replace global standards for wireless local area network connectivity in the China market, the most widely-used of which was the IEEE 8021.11 standards commonly referred to as WiFi. The Chinese government attempted to mandate the use of WAPI in China on security grounds, but they faced pushback from private sector, the United States government, and other global trading partners.[5] Attempts by China to have WAPI adopted as an international standard were met with global opposition, and the proposal ultimately failed at the International Organization for Standardization.[6]

The Chinese government continued to push for its own telecommunications standards for some time, however their behavior over time increasingly fell more in line with best practices in standards development. The government's preferred standards for 3G and 4G – TD-SCDMA and

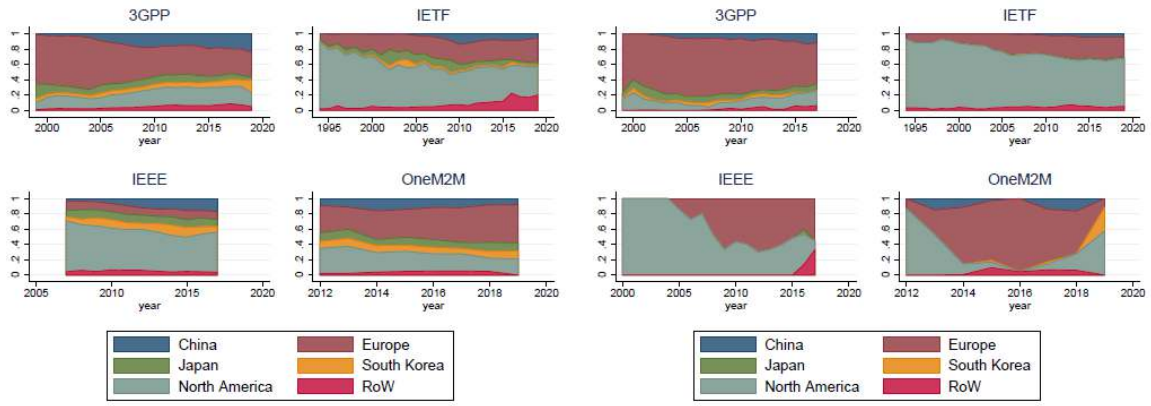
[4] Kennedy, Scott. "The Political Economy of Standards Coalitions: Explaining China's Involvement in High-Tech Standards Wars." *Asia Policy* 2, no. 1 (2006): 41–62.
[5] Zoellick, Robert. *Real Results in U.S. Trade With China*, Office of the United States Trade Representative (Sep. 9, 2004) (available at https://ustr.gov/archive/Document_Library/Fact_Sheets/2004/Real_Results_in_US_Trade_With_China.html).
[6] Buckley, Chris. *China's Homegrown Technology Vs. the Establishment*, New York Times, ((Mar. 14, 2005) (available at https://www.nytimes.com/2005/03/14/business/worldbusiness/chinas-homegrown-technology-vs-the-establishment.html).

TD-LTE respectively – were not mandatory, more open to participation, and consisted of more consultation with the global standards community. China's move toward adoption of global standards has been particularly notable with respect to 5G, where Chinese stakeholders worked extensively with the global standards community in 3GPP to advance a common standard. Common standards for 5G lowers costs for parties across the supply chain, ensures that U.S. can access markets around the world without facing as many TBTs, and expands internet access by decreasing the cost of 5G deployment.

The future for 6G and other ICT standards remains unclear. While China has moved toward greater integration with the global standards system, U.S. government action under the Trump administration has substantially damaged the integrity of the global standards system by extending the application of the Export Administration Regulation ("EAR") to apply to standards development. This subsequently excluded U.S. companies from being able to participate in certain standards development activities where listed entities were also present. It also undermined the basic tenet of open participation that drives the global development and adoption of international standards. As a direct result of this action, the Chinese government and Chinese companies began setting up a series of domestically-focused standards development organizations – such as the Beijing-based Sparklink Alliance[7] – to develop domestic replacements for global standards because of concerns about the potential exclusion of Chinese companies from the global standards system. These efforts are still in the early stages, but if the fundamental contradiction of the U.S. government imposing controls on the ostensibly open and global standards system are not promptly addressed, the system might split into pieces and lead to the proliferation of Chinese standards both in the country and in markets around the world.

[7] Sparklink Alliance homepage available at http://www.sparklink.org.cn/en/.

Pivoting to the question of level of participation, it is clear that China's engagement with the development of global telecommunications standards has increased substantially over the last 10 years, however the trend looks different across different SDOs. In March of 2021, Justus Baron at Northwestern University and Olia Kanevskaia at KU Leuven published an extensive quantitative analysis examining the records from 340,000 meeting records from meetings of four the most prominent SDOs in the ICT sector, namely 3GPP, the OneM2M global partnership project, IETF and the IEEE working group for Wireless Local Area Network Standards (IEEE 802.11). Their analysis of 45,000 standards participants over a period of 20 years found that participation and leadership levels could be visually displayed as follows:



(a) Share of attendance counts

(b) Share of chair counts

[8]

While they lack the most recent data, their research nonetheless states that China is not overrepresented in these forums either in terms of levels of participation or in terms of leadership positions. More broadly, it is unclear the extent to which holding a leadership position in a standards development body operating within rules-based and consensus-driven decision making framework leads to a party dictating particular outcomes. The ability of a convenor or chair of a

[8] Baron, Justus. Whitaker, Olia Kanevsjaua. *Global Competition for Leadership Positions in Standards Development Organizations* (Apr. 6, 2021) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3818143).

particular working group to influence the end outcome is dependent to a degree on the rules, bylaws, and culture of that organization. In general, the area where the telecommunications sector identifies the most significant issues with respect to representation and fair competition is in ITU-T. Decisions in that body are more likely to be driven by nation state politics – including by China, Russia, and others – as opposed to innovation and commercial salience.

With respect to quality, Chinese participation in standards groups has improved over the last decade. A decade ago, many Chinese standards participants were new to standards development organizations and were unfamiliar with rules and processes of how business were conducted. There were also linguistic and technical proficiency gaps that made participation in these forums a challenge. Today, Chinese stakeholders are comparatively more familiar with the rules, technically adept, and culturally competent, but there continue to be significant issues with respect to the overall quality of contributions in telecommunications-related standards bodies. In part because of China's significant non-transparent subsidies for participation in standards development as well as the payment of "bounties" for standards contributions, Chinese stakeholders often participate in forums that may not relate directly to their area of expertise and often put forward low-quality proposals. This slows down the development of standards and wastes the time of standards participants.

RFI Topic Number 2: The effect of the standardization strategy of the people's republic of China, as identified in the "China Standards 2035" plan on international bodies engaged in developing and setting standards for select emerging technologies, such as advanced communication technologies, or cloud computing and cloud services;

The China Standards 2035 plan has not been released. As a result, it is fruitless to speculate what China's strategy as outlined in that plan specifically might be. Instead, NIST's

study should refer to the individual documents stemming from the broader China Standards 2035 study process, documents released by SAC and other government agencies on standards policy, and the individual plans and decisions made by companies and participants. These materials are the best way to understand China's standardization strategy. Relevant government documents here would include:

- 《国家标准化发展纲要》 The Outline of National Standardization Development
- 《2021 年全国标准化工作要点》 2021 Key Points for National Standards Work
- 《2020 年全国标准化工作要点》 2020 Key Points for National Standards Work
- 《2019 年全国标准化工作要点》 2019 Key Points for National Standards Work
- 《国家标准化体系建设发展规划（2016-2020 年）》National Plan for the Development and Construction of the Standardization System (2016-2020)
- 《中华人民共和国标准化法》 China Standardization Law (2017)

The most relevant document to the questions posed by NIST in this Federal Register Notice is the Outline of National Standardization Development released in October of this year. This high-level strategy document, released by the National People's Congress, is an output of the "China Standards 2035" research project. The outline includes nine primary sections with the overall aim being to "construct a standards system for promoting high-quality development, support high-tech innovation, spur high-level opening up to the outside, and lead high-quality development."[9]

In general, the Outline of National Standardization Development indicates likely continued progress toward China's devolution of standards from the government to private companies and groups, more alignment with international standards, stronger intellectual property protection for standards-related patents, and a focus on generating high-quality

[9] Zhonggong Zhongyang Guowuyuan Yinfa Guojia Biaozhunha Fazhan Gangyao, 中共中央 国务院印发《国家标准化发展纲要》，[The Chinese Communist Party Central Committee and the State Council Publish the "National Standardization Development Outline"], State Council, (Oct. 10, 2021) translated by Ben Murphy, available at https://cset.georgetown.edu/wp-content/uploads/t0406_standardization_outline_EN.pdf

standards. There are also some specific goals in the document, such as a commitment to incorporate 85% of all international standards for use in China. The balance of industries mentioned in the document is also diverse and goes well beyond emerging technologies. For example, there is an extensive section on standards for green development as well as for the services sector. This plan indicates a well-balanced mix of priorities, and it indicates a path for China's engagement with international standardization stakeholders that hopefully addresses longstanding concerns by many in the standards community.

RFI Topic Number 3: Whether international standards for select emerging technologies are being designed to promote interests of the People's Republic of China as expressed in the "Made in China 2025" plan to the exclusion of other participants;

Superficial naming similarity aside, analyzing China's plans with respect to standards with Made in China 2025 as a sole reference is not a useful frame of analysis. The Made in China 2025 plan is more than six years old, and it has since been superseded by subsequent industrial policy initiatives, most notably the Strategic and Emerging Industries ("SEI") Plan[10] released in 2020 and the 14th 5-Year-Plan ("14th FYP") [11] released in 2021. These more recent and relevant plans are likely to align with the general focus of Chinese participation in standards development because of general Chinese government support as well as specific language in

[10] Guanyu Kuoda Zhanluexing Xinxing Changye Touzi Peiyu Zhuangda Xin Zengzhang Dian Zengzhang Ji De Zhidao Yijian (关于扩大战略性新兴产业投资 培育壮大新增长点增长极的指导意见) [Guiding Opinions on Expanding Investment in Strategic Emerging Industries and Cultivating Strengthened New Growth Points and Growth Poles], National Development and Reform Commission, (Sept. 8, 2020) , available at: https://cset.georgetown.edu/publication/new-chinese-ambitions-for-strategic-emerging-industries-translated/

[11] Zhonghua Renmin Gongheguo Guomin Jingji He Shehui Fazhan Dishisi Wu Nian Jijua He 2035 Nian Yuan Jing Mubiao Gangyao (中华人民共和国国民经济和社会发展第十四个五年规划和 2035 年远景目标纲要) [Outline of the People's Republic of China 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2035], State Council, (Mar. 12, 2021) translated by Ben Murphy, available at https://cset.georgetown.edu/wp-content/uploads/t0284_14th_Five_Year_Plan_EN.pdf

these plans promoting the creation of "standards innovation bases"[12] for key sectors and more broadly promoting the internationalization of China's domestic standards.[13]

This aside, TIA has raised concerns about specific Chinese standards proposals that raise concerns for industry. In particular, the New IP proposal being advanced by Huawei and other Chinese stakeholders at ITU-T Study Group 13 raises concerns for industry.[14] While industry has concerns about the merits of this and other proposals, TIA is aware of no Chinese policies or practices that exclude U.S. or other global entities from participating or promoting their interest in global forums. The exception to this is that in China, the government does practically restrict foreign entities from participating in some standards development organizations despite commitments to the contrary in the country's 2019 Foreign Investment Law.[15] U.S. policies, however, do limit U.S. entities participation in global standards development. Specifically, the Bureau of Industry and Security's expansion of export controls to include standards development in 2018 restricts U.S. participation in standards development organizations and has limited the ability of U.S. companies to compete with China in global forums.

RFI Topic Number 5: Recommendations on how the United States can take steps to mitigate the influence of the People's Republic of China and bolster United States public and private sector participation in international standards-setting bodies.

TIA welcomes this opportunity to offer recommendations to NIST on bolstering U.S. leadership in international standards development and suggests the following:

[12] SEI plan at Section 3, Article 30.
[13] 14th FYP at Article XII, Section 1.
[14] Comments of TIA, Input on Proposals and Positions for the 2020 World Telecommunications Standardization Assembly, NTIA Docket No. 200504-0126 (June 8, 2020) (available at: https://www.ntia.doc.gov/files/ntia/publications/tia-06082020.pdf).
[15] Foreign Investment Law of the People's Republic of China, Order of the President of the People's Republic of China (Feb. 24, 2021) (available at https://en.ndrc.gov.cn/policies/202105/t20210527_1281403.html).

1. **The Bureau of Industry and Security should immediately modify rules that restrict U.S. participation in international standards development.** To be specific, BIS should release an IFR that clarifies that technology may be released without a license for the purpose of contributing to standards development activities when those activities take place in an organization where participation is open to any interested party.

   In this context, standards development activities should be defined as any activity related to the development and promulgation of standards with the intent that the standards become publicly available, including but not limited to developing, publishing, coordinating, contributing to, revising, amending, reissuing, interpreting, or otherwise maintaining a standard, or developing methods, practices, or tools for conducting conformity assessment, testing, certification, or market promotion on the basis of a standard.

   On a conceptual level, the United States should reaffirm that openness is critical to standardization. The U.S. should continue to champion and role model openness and should not attempt to exclude any country or organization from participating in any standards organization.

2. **The United States government should create transparent, market-relevant incentives programs focused on promoting U.S. participation in international standards development.** This could include a clarification of the R&D tax credit to explicitly include expenses related to standards development such as SDO membership fees, travel to global standards development conferences, and staff time devoted to standards development. It could also include grant programs focused on telecommunications and other emerging technologies. These programs should be transparent and assess relevance and feasibility as part of the process of awarding a grant. Adopting such incentives would be in line with the recommendations National Strategy to Secure 5G Implementation Plan released in early 2021, as well as global programs such as Europe's Stand ICT program and Japan's Beyond 5G Promotion Strategy.

3. **Reaffirm the importance of private sector led standards model.** America's market-driven, private sector-led approach to global standardization is different from the model practiced by many other countries and regions. This difference, however, is a source of strength. U.S. firms are global leaders across a range of ICT fields, and the best way to strengthen this leadership position is to bolster private-sector innovation. While the U.S. government is a vital partner in these efforts in the international community, it should avoid taking a leadership role. Doing so would prioritize bureaucracy over technical merit and market-driven innovation.

4. **Make the United States the preferred place to conduct standards development activities.** This would lower the barriers to entry and costs for companies and persons interested in participating in standards development activities. Mechanisms to do this could be streamlining visa processes to ensure that standards participants can enter

the United States for standards development conferences, advocating for the hosting of standards development activities in the United States, and providing concrete support for standards development activities through the providing of facilities and funds as appropriate for the needs of SDOs.

5. **Encourage China to meet its commitment to equal participation China-based organizations.** As noted previously, Article 15 of China's Foreign Investment Law guarantees that "foreign-funded enterprises can equally participate in setting standards."[16] In reality, firms report that they still face arbitrary restrictions to participation in some Chinese organizations. Equal access could help lower barriers to trade and support U.S. companies with China operations.

6. **Provide appropriate resources and clear authority for NIST to coordinate federal engagement on standards issues.** The National Institute of Standards and Technology (NIST) should play a leading role in coordinating federal agency engagement with the private sector when it comes to standards. In its current capacity, NIST is an important partner for the ICT sector. However, it lacks appropriate staffing and resources, and there are conflicting messages coming out of Congress with respect to which agencies should lead U.S. engagement on standards issues.

7. **Ensure that U.S. companies can retain global standards talent** by reforming and streamlining the process for hiring qualified foreign nationals. Standards development requires a difficult-to-obtain combination of engineering expertise, business and legal knowledge, and international negotiation skills, and the demand for such people exceeds the supply. Expanding high-skilled visa programs would help U.S. companies close this gap. For its part, the Chinese government recognizes the importance of retaining high-end global talent and had its Ministry of Science and Technology has released a "High-End Foreign Experts Recruitment Plan" to bolster the country's expertise in key sectors such as telecommunications.[17]

III. CONCLUSION

TIA appreciates the opportunity to comment on this forthcoming study, and we look forward to seeing the eventual result. To the extent that there are any questions regarding our input or recommendations, we would be happy to share additional input as necessary. Standards

[16] Foreign Investment law at Article 15.

[17] Guanyu Shenbao 2020 NianDu Guojia Waiguo Zhuanjia Xiangmu De Tongzhi (关于申报 2020 年度国家外国专家项目的通知) [Notice on Applying for 2020 National Foreign Expert Projects], Keji Bu (科技部) [Ministry of Sci. & Tech.] (Jan. 10, 2020) translated by Ben Murphy, available at https://cset.georgetown.edu/wpcontent/uploads/t0100_belt_road_young_experts_EN-1.pdf, original Chinese

by their nature require cooperation and dialogue between the private sector and public sector, and we stand ready to work with relevant agencies to the extent it is appropriate and desired in support our shared interest in U.S. leadership in international standards.

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