MINUTES OF MEETING

Committee Title: Information Systems Technical Advisory Committee (ISTAC)

Date: January 29, 2020

Time: 9:00 AM to 11:56 AM (open session)

Location: Room 3884, HCHB

Agenda Item Presentations/Discussions:

PUBLIC/OPEN SESSION (January 29, 2020)

The meeting opened at 9:00 AM. Approximately 34 people were in attendance in the room with another 8 on the teleconference.

Opening and Announcements: Mark Renfeld of Hewlett Packard Enterprise (ISTAC co-chair) continued the meeting with introductions and request for comments from the public. There were no public comments.

Meeting Dates: The next meeting date is April 29-30 2020. Dates through the rest of 2020 were previously sent by the co-chair, Jonathan Wise of Keysight Technologies

Working Group Reports: Key points from the Working Group reports were:

Cat 3A (reported by Mark Renfeld, on behalf of Jonathan Wise): Supporting BIS on Wassenaar Arrangement proposals & responding to questions.

Cat 3B (reported by Jeff Rogers): Supporting BIS on Wassenaar Arrangement proposals & responding to questions.

Cat 4 (reported by Mark Renfeld): Supporting BIS on Wassenaar Arrangement proposals & responding to questions.

Cat 5p1 (reported by David Lindsay): Supporting BIS on Wassenaar Arrangement proposals & responding to questions.

Cat 5p2 (reported by Roz Thomsen): Engaging early steps in the Category 5 Part 2 revision.

Cybertool (reported by Tas Giakoumakis): Supporting BIS on Wassenaar Arrangement proposals & responding to questions.

Old Business/Open Business: Mark Renfeld summarized the changes to old/open business items. There were six changes since the last meeting.
-From July 2014, Mark Renfeld raised an issue of certain inconsistencies between Wassenaar definitions and the corresponding EAR definitions for "circuit element, "chip" and "discrete components". There was previously a decision to split this into two parts: 1) simple issues of alignment to Wassenaar definitions and construction, and 2) handling of the term "chip", which will require more study. We have now decided to postpone this matter and are recategorizing it as dormant.
-From April 2017, Texas Instruments raised the concern that there is indigenous Chinese development of ADC chips that are pin-for-pin compatible with some TI and Analog Devices chips. This has been recategorized as closed due to lack of evidence of foreign availability.
-From April 2017, Gordon Olsen suggested that the 2.5 GSa/s threshold for oscilloscopes in 744.21 is outdated, noting that there are indigenous scopes up to 5 GSa/s manufactured in China. Closely related to this is the possibility to align the 1 GSa/s threshold of 3A992.G to the 2.5 GSa/s threshold of 744.21. The former issue is being recategorized as dormant; the latter issue is being recategorized as closed and re-opened as a new issue (see below).
-From April 2018, the ISTAC cybertools working group has already provided feedback on ideas/suggestions for implementation of 4A5/4D4/4E1c in the EAR, and accordingly this issue is being recategorized as closed.
-From November 2018, Bill Root raised concerns that portions of MT-controlled technology under 4E001 could be released under TSR. The ISTAC believes that the definition of TSR clarifies that this is not the case, and accordingly this issue is being recategorized as closed.
-From November 2019, Jonathan Wise revisited the possibility to align the 1 GSa/s threshold of 3A992.g to the 2.5 GSa/s threshold of 744.21, by splitting 3A992.g into 3A992.g.1 (>1 GSa/s, <=2.5 GSa/s) and 3A992.g.2 (>2.5 GSa/s). In an analogous/related situation, Mark Renfeld raised the possibility to align the APP threshold of 4A994.d to 744.21 by splitting 4A994.d.1 in 4A994.d.1 (>=0.0128 WT, <=5 WT) and 4A994.d.2 (>5 WT).

NIST & Artificial Intelligence Standardization: Elham Tabassi, Chief of Staff (Information Technology Laboratory) of the National Institute of Science & Technology (NIST) provided an overview of NIST's activities in AI standards, responding to Executive Order 13859 (February 11, 2019) "Maintaining American Leadership in Artificial Intelligence" and its mandate to develop a plan for government engagement in developing AI technical standards and related tools. This plan was created in a process with formal Requests for Information, Workshops, and a published draft with commentary opportunity. The resultant plan was submitted in August 2019.

Rather than seeking to create standards for AI, the plan recommends the US government should prioritize involvement in AI standards activities through the following methods

- Bolster AI standards-related knowledge, leadership, and coordination among Federal agencies to maximize effectiveness and efficiency.
- Promote focused research to advance and accelerate broader exploration and understanding of how aspects of trustworthiness can be practically incorporated within standards and standards- related tools
- Support and expand public-private partnerships to develop and use AI standards and related tools to advance reliable, robust, and trustworthy AI

- Strategically engage with international parties to advance AI standards for U.S. economic and national security needs.

References

- Executive Order 13859 "Maintaining American Leadership in Artificial Intelligence" Issued on: February 11, 2019: https://www.whitehouse.gov/presidential-actions/executive-order-maintaining-american-leadership-artificial-intelligence/
- NIST AI repository area: https://www.nist.gov/topics/artificial-intelligence/plan-federal-engagement-developing-ai-technical-standards-and-related

This presentation was informational in nature and no follow-up actions were proposed or required.

Artificial Intelligence Chips: Roszel Thomsen of Thomsen and Burke LLP, discussed the past, present and anticipated future of AI chips and the export control implications.
In the 1990's, Wassenaar instituted two controls related to AI:

- 3A001.a.9, neural network integrated circuits (undefined)
- 4A004.b, neural computers (local definition)

However, items that would meet these descriptions are only now coming into existence. Until now, AI has been primarily innovated by running software on traditional CPU's, GPU's and FPGA's. The recent arrival of AI chips, such as Cerabras CS-1, Esperanto Technologies RISC-V based solution, Google's Tensor Processor Unit and Alibaba's Hanguang 800 propel us into an era of purpose-made AI chips. There is so much engagement that a benchmark for Machine Learning has been created, the MLPerf.

As we consider this future, several questions surface regarding AI chips and export control

- What happens as specialized AI hardware is increasingly used as a service, rather than direct procurement of the equipment?
- Do nations with larger populations have an inherent advantage?
    - More people equals more data!
    - More people means more humans who can label data for training the AI. China's MBH (a Chinese artificial intelligence company) alone has 300,000 people labeling data!
- Is it feasible to control something that is so broadly available?
- If technical parameters for control can be identified, how will that factor with foreign availability and AI-as-a-service?

This presentation was informational in nature and no follow-up actions were proposed or required.

Discussion on Geospatial Analysis Software: Aaron Amundson of BIS led a discussion regarding the January 6, 2020, interim final rule (85FR459) that puts certain kinds of Geospatial Analysis software under the ECCN of 0D521. This was an item that surfaced during a CCATS, triggering the 0Y521 process. The CCATS submitter was informed of the outcome.

Further discussion continued into the rule's clarity and scope of control. The intent was to create a very narrow scope through the four criteria. However, the public has perceived the scope as much broader than the intent.

Aaron and Jose Colon of the State Department indicated a key criterion is the undefined term "geospatial." This was intended to mean "overhead aerial or satellite footage, looking down at the Earth." This clarification greatly narrows the scope of control, and excludes common applications such as facial recognition, medical imagery analysis, and self-driving cars.

Other comments noted that

- The criterion is such that a controlled software must both train the convolutional neural network ("CNN") and carry out the analysis. In some applications, these two functions are separated. The CNN is trained by one software package, then analysis (using the separately-trained network) is conducted by another software package.
- Recent AI innovations may have obviated the "reduce pixel variation by…rotational normalization" requirement.

BIS welcomes additional commentary, preferably as part of the interim final rule's commentary process (comments due by March 6, 2020).

Interim final rule: https://www.federalregister.gov/documents/2020/01/06/2019-27649/addition-of-software-specially-designed-to-automate-the-analysis-of-geospatial-imagery-to-the-export

This presentation was informational in nature and no follow-up actions were proposed or required

The open session was adjourned at 11:56 AM.

Next Meeting Date: The ISTAC is scheduled to meet on Wednesday and Thursday, April 29-30, 2020, at the Department of Commerce in Washington DC.