**MINUTES OF MEETING**

Committee Title: Information Systems Technical Advisory Committee (ISTAC)

Date: November 6-7, 2019

Time: November 6 from 9:05 AM to 12:10 PM (open session)

 November 6 from 1:10 PM to 4:47 PM (closed session)

 November 7 from 9:05 AM to 11:55 AM (closed session)

Location: November 6 in Room 3884, HCHB

 November 7 in Room 3884, HCHB

**Agenda Item Presentations/Discussions:**

**PUBLIC/OPEN SESSION (November 6, 2019)**

The meeting opened at 9:05 AM. Approximately 37 people were in attendance.

Opening and Announcements: Jonathan Wise of Keysight Technologies (and ISTAC 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 tentatively January 29-30, 2020, but this (and future dates) are not yet finalized with BIS. Jonathan Wise will communicate meeting dates to the ISTAC when the dates are finalized.

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

Cat 3A (reported by Jonathan Wise): This group has developed five proposals for the 2020 Wassenaar cycle; details will be presented as a separate agenda item in open session today.

Cat 3B (reported by Jeff Rogers): There has been no activity in this group since the last meeting.

Cat 4 (reported by Mark Renfeld): This group has developed two proposals in Cat 4 for the 2020 Wassenaar cycle and a third proposal for microprocessor technology in Cat 3 entry 3E2); details will be presented as a separate agenda item in open session today This group has been working on an issue raised by Bill Root at the May 2019 meeting, pertaining to the scope of TSR eligibility in ECCN 4E001; details will be presented as a separate agenda item in open session today

Cat 5p1 (reported by David Lindsay): There has been no activity in this group since the last meeting.

Cat 5p2 (reported by Roz Thomsen): There has been no activity in this group since the last meeting.

Cybertool (reported by Tas Giakoumakis): There has been no activity in this group since the last meeting.

Industry Proposals for 2020 Wassenaar Cycle: Jonathan Wise presented an overview of proposals in Categories 3/4/5 that the ISTAC submitted to BIS for possible consideration in the 2020 Wassenaar cycle.

-3A1a7: This proposal seeks an incremental relaxation of the control thresholds for FPGA devices to reflect technology development since the thresholds were last updated in 2014. The proposal seeks to raise the control threshold for 3A1a7a from 700 to 1000 single-ended I/O and the threshold for 3A1a7b from 500 to 1500 GB/s aggregate serial transceiver data rate.

-3A1b3: This proposal seeks to add a Note (or Technical Note) to the 3A1b3 controls on microwave transistors, to clarify what it a transistor that is within scope of 3A1b3 and what should be evaluated against 3A1b2 or 3A1b4. The proposed Note is:

*Note 3 Input-matched and impedance-matched transistors are not discrete transistors, [as][because] they contain other circuit elements. If these other circuit elements are integrated monolithically with the transistor, then the device is evaluated for control by 3.A.1.b.2, otherwise it is evaluated for control by 3.A.1.b.4.*

-3A1e1b: This proposal seeks relaxation to the control threshold for energy density for secondary cells, because new chemistries under development are enabling higher energy densities. Additionally, commercially-available lithium metal cells have energy density of 450 W-h/kg (Hermes family from Solid Energy Systems, [www.solidenergysystems.com](http://www.solidenergysystems.com)). The proposal seeks to raise the threshold 3A1e1b from 350 W-h/kg to at 500 W-h/kg.

-3A2d3 (and 3A2d5): This proposal seeks to relax (widen) the bandwidth for signal generators within the frequency bands used for 802.11ay (wireless LAN, 56-69 GHz) and automotive anti-collision radar (76-81 GHz) from 2.2 GHz to 9 GHz.

-3A2h: This proposal seeks editorial rearrangement and grammatical clarification; no change in scope of control is sought or intended. The editorial rearrangement seeks to move the criteria of 3A2h2a/b2 into the header and to rearrange 3A2h1a/b/c/d/e such that they are independent subparagraphs. The rationale is that currently 3A2h requires a combination of both 3A2h1 and 3A2h2 such that the only valid ECCN is 3A2h (no subparagraph), the result of which is that critical information on bit-resolution is hidden. The goal of the editorial rearrangement to provide for valid subparagraphs for each range of bit resolution. The grammatical clarification is to introduce the term “digitizer” into the header paragraph and thereby more explicitly articulate what this entry seeks to control. Currently the concept of digitization appears not in the 3A2h header but rather within subparagraph 3A2h1.

-3E2 Microprocessor Technology: This proposal seeks to modernize entry 3E2 by making four changes: 1) delete 3E2a which is now archaic; 2) raise (relax) the 3E2b threshold from four (4) to 16 FLOPS/cycle/core; 3) raise (relax) the 3E2c threshold from eight (8) to 64 fixed-point multiply-accumulates per cycle; and 4) Revise Note 2a from 130 nm to 22 nm to reflect technology changes to process node.

-4A3b APP threshold of HPC: This proposal seeks incremental relaxation of the control thresholds for APP, to recognize technology development of computers (Moore’s Law). The last update to these thresholds was in 2017. This proposal seeks to raise the 4A3b threshold (HPDC hardware) from 29 WT to 75 WT.

-Cat 4 Sensitive List and 4D1/4E1: This proposal seeks to remove entries 4D1 and 4E1 from the Sensitive List because they no longer meet the criteria for inclusion in the Sensitive List: There is increasing foreign availability of software and technology comparable to that of WA member states; hardware was already dropped from SL more than a decade ago; and it is illogical that digital computer software and technology should be on the same list with, e.g., scramjet engines (9A11), towed acoustic hydrophone arrays (6A1), and plutonium (1C12). Additionally, this proposal seeks incremental relaxation of the control thresholds for APP, to recognize technology development of computers (Moore’s Law). The last update to these thresholds was in 2017. This proposal seeks to raise the 4D1b1 threshold (software) and 4E1b1 threshold (technology) from 15 WT to 50 WT.

-AI Non-paper: This proposal is a non-paper that seeks to explore the feasibility of controlling specialized AI processors. Considerations include: 1) comparison to 3A1a9 neural network integrated circuits; 2) Active worldwide R&D, including in China; 3) The possibility to use CPU, GPU, FPGA or ASICs as alternatives to specialized AI processors; and 4) AI computing as a service.

Proposals that had been under consideration but that were not submitted to BIS were:

-3A1a11: This entry appears to be intended to capture digital processing ICs, but vague control text in a11b may capture divide-by digital devices. This proposal would seek to clarify that 3A1a11 applies only to devices that process data, not any simple digital device simply because it operates above 1.2 GHz (toggle frequency). This was not submitted to BIS because it was thought to be less relevant and less timely than the proposals that were submitted.

-3A1b2: The frequency point of 37 GHz is used in commercial practice to define the operating range of MMICs in the 3A001.b.2.e paragraph (37-43.5 GHz), but the 37 GHz point is part of the 3A001.b.2.d paragraph. Because the 3A001.b.2.d paragraph has power threshold of -70 dBm, it unintentionally captures devices that are designed and intended to operate in the next higher frequency band. To resolve this, it is proposed to change the 3A001.b.2.d paragraph from its current langue “up to and including 37 GHz” to “up to but not including 37 GHz”. This was not submitted to BIS because it had not gained traction in several past years and there were no new arguments that merited consideration now.

-3A1/3A2 31.8 GHz frequency break: This proposal would have sought to update the 31.8 GHz frequency to 33.4 GHz based on revised frequency allocations. This was not submitted to BIS because the revisions to frequency allocation are still under evaluation (not yet finalized).

-3A1/2A2 output power thresholds: This proposal would have sought to harmonize the output power thresholds in 3A1b4 (solid-state amplifiers), 3A1b7 (mixers/converters), 3A2d2 (signal generators) and 3A2e1 (network analyzers). This was not submitted to BIS because the technical rationale remains uncertain.

-3A2c4 RTBW: This proposal would have sought relaxation and/or additional of another control parameter to entry 3A2c4. This was not submitted to BIS because the underlying technical issues are complex and require further study.

-3A2d Separation of Arbitrary Waveform Generators from Signal Generators: This proposal would have sought to create a new control entry for arbitrary waveform generators, serpate from frequency-domain signal generators. This was not submitted to BIS because the underlying technical issues are complex and require further study.

-3A2 Modular Instruments: This was a notional proposal to investigate the emergence of modular instruments in the 3A2 space where previously there were one-box instruments. The 3A2 controls are written largely as combinations for frequency range and some other parameter: this is appropriate for one-box instruments but is not necessarily appropriate for modular instrument because they intentionally separate functions into separate modules. This was not submitted to BIS because the underlying technical issues are complex and require further study.

-3A225: This proposal is in infancy; it would seek clarification or scope change to 3A225 (Nuclear Supplier’s Group entry) to address the possibility that some frequency changes controlled by 3A225 might be pertinent for testing of electric automobiles. This was not submitted to BIS because the underlying technical issues are complex and require further study.

-3B2: This proposal would add a new subparagraph within 3B2 to control test equipment specially designed for testing items specified by 3A1b12. The rationale is that 3A1b12 itself was created quite recently to recognize an important class of items (T/R modules). Entry 3B2 currently controls test equipment specially designed for testing items specified by 3A1b2 or 3A1b3, and it may be a logical extension to include 3A1b12. This was not submitted to BIS because it is likely that it would be an empty box (i.e., little or no equipment exists that would be captured by this entry).

4E001, License Exception APP, MT controls, and eligibility for TSR: Mark Renfeld, of Hewlett-Packard Enterprise (and ISTAC Co-Chair) discussed an issue that Bill Root raised at the May 2019 ISTAC meeting, namely the appearance that portions of 4E001 that are controlled for MT reasons may be eligible for TSR; this would be unusual and unexpected because TSR is traditionally unavailable for MT controls. Graphically, this is:



-Mark concluded that although there may be the appearance of TSR eligibility for MT, in fact there is no such eligibility: the definition of TSR (EAR part 740.6) clarifies that TSR is available when the item is controlled “for national security reasons only”.

-This led to a corollary question of whether license exception APP might release some MT technology. Again, the definition clarifies that 4D001/4E001 related to 4A003 is released whereas MT related to 4A001.a and 4A101 is not. The relevant portion of the definition is EAR part 740.7(a)(2) (emphasis in italics):

License Exception APP authorizes exports of technology and software *controlled by ECCNs 4D001 and 4E001 specially designed or modified for the “development,” “production,” or “use” of computers, including “electronic assemblies” and specially designed components therefor classified in ECCN 4A00*3 to Computer Tier countries as provided by this section.

-Notwithstanding the conclusion that MT technology is not inadvertently released by TSR or APP, reaching that the conclusion requires careful attention to detail, and editorial revisions or clarifications may be desirable.

CWC Treaty Verification: Bryan Herdliska of BIS’s Treaty Compliance Division, Office of Nonproliferation and Treaty Compliance provided an overview of that Office’s activities in assisting the US chemical industry with the declaration and inspection requirements of the Chemical Weapons Convention (CWC). The CWC banned chemical weapons and production thereof; it was established in 1997 and the US implementing regulations date to 1999. Under the CWC, commercial facilities are subject to declaration requirements (production, processing, consumption and import/export) and inspection requirement that provide assurance that they facilities are not engaged in production of chemical weapons. The Office collects 840 declarations annually and coordinates 18-24 inspections annually. An important role of the Office is to ensure that the company-proprietary information is not exposed during an inspection. Interested readers can find more information at the Office’s website: [www.cwc.gov](http://www.cwc.gov) or on the Organization for the Prohibition of Chemical Weapons website: [www.opcw.org](http://www.opcw.org).

State Dept. Draft Guidance on Exports of Surveillance Technology: Jenny Stein and Lana Salih of the Department of State, Bureau of Democracy, Human Rights and Labor discussed the Draft Guidance, which was posted on for public review and comments for 30 days starring on September 4, 2019. The policy underpinning of the Guidance is that surveillance items have legitimate commercial purposes but can be misused to violate or abuse human rights. Goals of this Guidance are to provide familiarization with human rights terminology and to provide practical, usable and accessible guidance to exports of surveillance technology. The Guidance does not impose or create new export controls; rather, it complements the EAR and ITAR. Feedback and comments from industry have focused predominantly on the definitions and on the scope of products that could be construed as surveillance items/technologies. The Bureau hopes to finalize and publish the Guidance by the end of calendar 2019 or early 2010.

Network Visibility: Fred Strelzoff of Keysight Technologies provided an introduction to and overview of network visibility. Network visibility is of central importance to security and to performance monitoring. Key examples of monitoring for security are: capturing network behavior for incident detection; monitoring network flows for anomalous behavior; the ability to capture and analyze logs from network and security devices; and the ability to establish a baseline of normal network behavior. Key examples of performance monitoring are: monitoring/managing network performance between groups of web, application, and database servers in a data center; and maintaining end-to-end network performance to endpoint devices connecting either via public networks or wide area networks. A visibility solution captures all network traffic by tapping every network link; the traffic flows to Network Packet Broker, which removes duplicate packets and data is filtered and routed to the security and monitoring tools, which receive the most appropriate data streams, tailored specifically for each tool, so that the tools operate efficiently and effectively (for example: tools that operate on certain metadata need not receive the data payload). Jonathan Wise added some comments on export control, noting that Network Packet Brokers are controlled by ECCN 5A002.A, but that many NPBs are cryptographic functionality only in the OAM interface.

The open session was adjourned at 12:10 PM.

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