

MEMORANDUM FOR PM GPS

SUBJECT: GPS Policy Synopsis

1. General:

Since the first GPS policy memo was issued in 1972, over 140 policy memos and Public Law statutes have provided policy and guidance to government agencies, manufacturers and authorized DoD users with regard to the development, acquisition, operation and support of military GPS equipment.

This memorandum presents the evolution of GPS policy in chronological order. As policy has been superseded or updated, that action is noted in the text.

- Paragraph 2 provides key policy statements.
- Paragraph 3 provides specific cites keyed to each point in paragraph 2.
- Appendix 1 provides expanded policy cites, again keyed to each major policy point. Appendix 2 provides 'Current GPS Policy' for general user education.

2. Key Policy Statements:

- 1) Front-line weapons systems should use or plan to use PPS¹ capable GPS by Oct 2007.
- 2) All system managers should procure GPS through GPS JPO² or have ASD/C3I waiver authorizing independent procurement. This long-standing (16 years) policy was revised in 2006 to delete the requirement for centralized procurement through JPO.
- 3) New weapon systems should use or plan to use SAASM-based³ or M-Code⁴ GPS security devices. Weapon systems using legacy⁵ GPS security devices are not required to retrofit solely for the purpose of upgrading to SAASM (near term). M-code appears to be firm future requirement (systems fielded 2012+ including retrofit of existing systems).
- 4) All PPS systems shall be operated in keyed mode⁶ for combat operations.
- 5) All Army weapon systems should engage Army PM GPS in acquisition Milestone Reviews and all DoD weapon system managers must obtain JPO Security review of GPS devices prior to fielding or export.
- 6) Commanders may purchase commercial GPS receivers (O&M funds) for limited non-critical combat applications without ASD/C3I waiver.

3. Policy Cites for Key Policy Statements:

¹ Precise Positioning Service (PPS) is the GPS signal provided to authorized DoD users via cryptology in contrast to the Standard Positioning Service (SPS) GPS signal which is available to all users on an unrestricted basis. A GPS security device using COMSEC cryptology is required to access PPS.

² GPS Joint Program Office (JPO) at Los Angeles AFB. In 2006, the JPO was re-titled the GPS Wing.

³ Selective Availability Anti-spoof Module (SAASM) is current GPS security device technology.

⁴ M-Code is the next-generation GPS security device technology, initial availability projected for 2012.

⁵ Legacy GPS security device refers to Auxiliary Output Chip (AOC) or Precise Positioning Service - Security Module (PPS-SM) technologies which are now superseded by SAASM technology.

⁶ Keyed mode refers to the use of a current cryptographic key obtained through COMSEC channels.

This section expands the chronology of policy documents related to key policy as underlined in paragraph 2 above:

1) Use or Plan to Use PPS capable GPS:

- The ASD/C3I baseline requirement of 30 April 1992 required that all combat operations use PPS-capable GPS User Equipment (UE). (ASD/C3I later became ASD/NII and issued updated policy in 2006 that did not change the 1992 policy requirement that military use PPS-capable GPS; It simply updated the definition of PPS -capable GPS as M-code capable UE or MGUE.)
- The National Defense Authorization Act 1994 established the baseline requirement that “major weapons systems” be equipped with GPS by the year 2000. The compliance date was twice extended and currently reads “30 September 2007”. (Although the NDAA does not specify military GPS, this is irrelevant as the military departments have all issued subsequent or implementing policy that requires PPS-capable meaning SAASM or M-code UE).
- In August 2000, ASD/C3I re-iterated the 1992 policy requiring PPS-capable UE and extended the application to include combat support as well as combat operations. Systems not yet using PPS GPS by Sep 2007 should have a GPS JPO-approved "roadmap" indicating the solution and schedule for implementing PPS GPS.

2) All systems procure GPS through the GPS Wing.

- The ASD/C3I baseline requirement of 30 April 1992 required that all military GPS be procured through the GPS JPO (GPS Wing).
- In July 1992, the Army Acquisition Executive at SARD directed that all Army UE be procured through the Army Project Manager for GPS.
- ASD/C3I policy provides for systems to apply for a waiver from the requirement to procure GPS through the JPO.
- In August 2006, ASD/NII revised GPS UE development and procurement policy to delete (by omission) the previous specific stated requirement that weapon system managers procure common UE through JPO but it retained a requirement that weapon system managers "coordinate" GPS technology through the JPO.

3) *New weapon systems* should use or plan to use SAASM-based GPS/M-Code GPS.

- The CJCSI of Nov 1998 established the baseline requirement for SAASM-based GPS with a compliance date of October 2002.
- SAASM development slipped to the right and in March 2004 an updated CJCSI revised the compliance date to October 2006. Additional guidance clarified several points: The *retrofit* of weapon systems equipped with legacy GPS devices for the sole purpose of upgrading to SAASM is not required; The *maintenance* of systems equipped with legacy GPS devices was excluded from the SAASM mandate. (If a weapon system has an approved roadmap and waiver to use legacy

GPS and then undergoes a *major product improvement or system-level upgrade* that extends the service life beyond the end date listed in the roadmap, it should install SAASM or submit a new roadmap and apply for a new waiver. Since no agency actively enforces the roadmap/waiver requirement, this is problematic).

- The CJCSI was again updated in April 2007 with the same SAASM requirements.
- The ASD/NII Memo of August 2006 established the requirement for weapon system managers to integrate M-code to supersede SAASM but no timeline was identified. The JPO is responsible to fund development of common M-code GPS User Equipment (MGUE) including a contract vehicle for production but weapon system managers must fund procurement. Weapons systems with platform-unique M-code requirements are responsible for RDT&E and production costs.

4) All PPS systems shall be operated in keyed mode for combat operations.

- The ASD/C3I DoD GPS Security Policy of 1999 as replaced and updated by the new edition dated 4 April 2006 directs that PPS capable GPS receivers be used in keyed mode for combat, combat support and CSSP missions.
- The CJCSI 6130.01D dated 13 April 2007 uses similar verbiage to restate that combat, combat support and CSSP missions require keyed PPS-capable GPE UE. NOTE: The revised CJCSI defines a 'sub-set' of these missions as "non-critical" for which it authorized SPS UE as discussed in paragraph 6) below.

5) All Army weapon systems should engage Army PM GPS at Acquisition Milestone decisions and all DoD weapon system managers must obtain JPO Security review of GPS devices prior to fielding or export.

- Army PMs should engage Army PM GPS at Acquisition Milestone decisions per 20 Aug 1993 SARD memo. (The lack of requests for Army PM GPS participation in Milestone decisions makes it obvious that this 14 year old policy letter is either largely unknown or ignored).
- All weapon system managers must obtain JPO security review of GPS devices: Legacy equipment CZE-93-105A; SAASM equipment CZE-94-001 and CZE-93-105A-SAASM.

6) Commanders may purchase commercial GPS receivers (O&M funds) for limited non-critical combat applications without ASD/C3I waiver.

- The CJCSI 6130.01D of 13 April 2007 authorizes the purchase of SPS receivers with O&M funds for "non-critical" applications to enhance situational awareness and logistic material tracking without obtaining an ASD/NII waiver of the requirement to use PPS systems for combat operations.
- Reporting and training requirements are spelled out in Enclosure D to the CJCSI.
- Compliance with the reporting and training requirements may be problematic and PM GPS is not explicitly vested with any enforcement authority.

4. This memo was prepared by Don Mulligan, Army PM GPS -ARINC at (732) 532-6137. Copies of cited policy are available upon request. The USAF GPS Wing maintains a policy library at <https://gps.losangeles.af.mil>. (310) 653-3963.

Appendix

- 1 Detailed Policy References
- 2 Current GPS Policy

Policy synopsis 26 Sep 07 R.doc

APPENDIX ONE to MEMO FOR PM GPS, SUBJECT: GPS Policy Synopsis
Subject: Detailed Policy References

The first paragraph identifies initial government statutes establishing the requirement to use GPS. The second paragraph and beyond detail policy cites in relation to the corresponding paragraph titles of the base document. The yellow highlight is the most current "one-liner" for each element.

a. The requirement to use GPS

(1) Section 152(b) of the National Defense Authorization Act (NDAA) for Fiscal Year 1994 (Public Law 103-160) effective 30 November 1993 stated: "After September 2000, funds may not be obligated to modify or procure any DoD aircraft, ship, armored vehicle or indirect-fire weapon system that is not equipped with a GPS receiver"

(2) Senate Report 103-112, accompanying Senate Bill S.1298 further stated: "The committee's view is that any front-line weapons platform that is not important enough to equip with GPS by the year 2000 is not important enough to modify or procure at all".

(3) Update: The NDAA for FY 1999 (Public Law 105-261) modified the compliance date from 2000 to 2005.

(4) Update: The NDAA for FY 2006 (Public Law 109-247) further modified the compliance date requiring GPS in front line weapons platforms from 2005 to 2007.

b. The requirement to use PPS capable GPS and procure through JPO

(1) Assistant Secretary of Defense, Command Control Communications and Intelligence (ASD/C3I) Memorandum for Service Acquisition Executives, dated April 30th, 1992 stated the following ground rules for development, procurement and employment of GPS User Equipment:

- Except for Congressional exemptions, all DoD GPS UE Shall be developed and produced through the GPS Joint Program Office (JPO).
- Employ PPS UE to support combat operations. ASD/C3I waiver of PPS is required for specific applications that do not involve combat.
- Develop and procure all PPS security devices in coordination with GPS JPO.

(2) Department of the Army, Office of the Assistant Secretary, Army Acquisition Executive memorandum dated 13 Jul 1992 referenced the above ASD/C3I policy memo and further directed that all GPS Army UE and applied technology will be provided through Army Project Manager GPS unless a specific waiver is submitted through SARD-RP to ASD/C3I.

(3) Assistant Secretary of Defense, Command Control Communications and Intelligence (ASD/C3I) Memorandum for all Service Acquisition Executives,

dated August 23, 2000 referenced the ASD(C3I) GPS Security Policy published March 29, 1999 and reiterated the PPS requirement: **DoD Users are required to incorporate GPS PPS UE in systems used for combat, combat support and combat service support missions.**

- (4) Assistant Secretary of Defense, Networks and Information Integration (ASD/NII) Memorandum for Secretary of the Military Departments, dated 7 August 2006, revised GPS UE development and procurement policy: Delete the requirement that common UE be procured through JPO. The JPO retained responsibility to fund RDT&E of common MGUE: Develop to production-ready status form factors for each MGUE domains, currently defined as four: ground, air, maritime and space plus additional products as additional common UE factors are identified. This responsibility includes procurement contracts for common form factors including handheld. Weapons system managers are responsible to fund the procurement of production MGUE. (Even though this revision lifted the requirement for centralized JPO procurement of common UE, consolidated orders on a central contract still argues for the use of a centralized contract). Weapon system managers with platform-unique MGUE requirements are responsible for RDT&E and production costs.

c. The requirement to use keyed GPS receivers

- (1) ASD/C3I DoD GPS Security Policy, dated March 29, 1999 (reprinted February 28, 2002) directs that all systems which incorporate GPS and are used for combat, combat support or combat service support missions must use PPS-capable GPS receivers operating in a keyed PPS mode.
- (2) ASD/NII DoD GPS Security Policy, dated 4 April 2006 re-issued and updated DoD GPS Security Policy, cancelling the March 29, 1999 version. The new policy directs that all Acquisition Programs, regardless of whether platform, system or device, procured by the Services through the Defense Acquisition System (DAS) that incorporate GPS and are used for combat, combat support or combat service support must use GPS receivers operating in keyed PPS mode.
- (3) CJCSI 6130.01D, 2007 Master Positioning, Navigation & Timing Plan, dated 13 April 2007, stated **critical military operations such as weapons delivery coordination, target location, fire support, close air support, extraction, rendezvous etc will only be performed in training, exercise, or combat with keyed PPS-capable GPS User Equipment.**

d. The requirement to use SAASM-based GPS / M-code GPS

- (1) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6140.01, NAVSTAR SAASM Requirements, dated 15 November 1998 required all users of PPS to:
 - Field only SAASM-based GPS User Equipment after 1 October 2002.

- Use GPS black keys no later than 1 October 2002.
- Cease fielding of non-SAASM-based GPS UE by 1 October 2002.

(2) CJCSI 6140.01A, same subject as above, dated 31 March 2004 cancelled CJCSI 6140.01 dated 15 November 1998 and stated the following SAASM policies:

- Extended compliance date from 2002 to 2006: All newly fielded DoD systems using GPS shall use SAASM PPS devices no later than 1 October 2006.
- For acquisitions after 1 October 2006, an approved GPS UE roadmap identifying that program's transition plan may serve as the SAASM compliance document.
- After 1 October 2006, the GPS JPO may no longer support the procurement of legacy equipment unless that system is on the Joint Requirements Oversight Council-approved roadmap or follows specified waiver process.
- After 1 October 2006, modification of a subsystem from non-GPS to GPS equipped or modification of an existing GPS subsystem shall incorporate SAASM. Note: Retrofit solely for the purpose of upgrading to SAASM is not required and routine maintenance of fielded systems is excluded.

(3) ASD/C3I DoD GPS Security Policy, dated March 29, 1999, reprinted February 28, 2002, directs that all DoD users must equip with either SAASM or MUE receivers unless granted a waiver from ASD/C3I, the receiver is identified on a Joint Staff-approved GPS User Equipment roadmap or the receiver entered service prior to 1 October 06.

(4) ASD/NII Memo, GPS UE Development and Procurement Policy, dated 7 August 2006 revised responsibilities for development and procurement of GPS UE: In addition to deleting centralized JPO procurement of common UE as discussed above, it also addressed the new requirement for M-code UE:

Service Acquisition Executives are responsible to:

- Plan for M-code GPS User Equipment (MGUE) solutions to replace SAASM. Implementation date TBD - based on weapon system milestone at date that M-code architecture achieves Initial Operational Capability (IOC). Waiver allowable for weapon systems within 5 years of end-of-service life.
- Fund RDT&E and production of any Service/platform-unique UE solutions.
- Ensure that all program/project/product managers develop and procure host systems compliant with JPO performance, IA and security standards. (*This can be read as a re-statement of the 1993 requirement that weapon system managers "engage" JPO for GPS system integration and security reviews*).
- Ensure any Service/platform-unique UE solutions comply with JPO performance, IA and security standards.
- Fund procurement of production GPS UE.

USAF GPS JPO is responsible to:

- Develop production-ready MGUE form-factors for each of 4 CDD domains including handheld receiver.
- Maintain ICD, Specifications, security requirements for form factors.
- Establish procurement contracts for common UE including handheld UE.

(5) CJCSI 6130.01D, 2007 Master Positioning, Navigation & Timing Plan, dated 13 April 2007, cancelled CJCSI 6140.01 dated 31 March 2004 but incorporated the above stated SAASM requirements of CJCSI 6140.01 effective 1 October 2006 into Enclosure D. It also incorporates other changes e.g. the inclusion of next-generation security devices, known as M code.

e. Army Weapons System Milestone Reviews

- (1) SARD-RP Memo, Management of GPS User Equipment, 20 August 1993, established Army Acquisition Executive policy directing that all GPS Army UE and applied technology will be provided by the JPO through Army Project Manager GPS, that all Army program/project/product managers who plan to use GPS will address GPS in their Integrated Program Summaries and they will engage PM GPS in support of milestone II, III and IV decisions.
- (2) ASD/NII Memo, GPS UE Development and Procurement Policy, dated 7 August 2006 revised responsibilities for development and procurement of GPS UE: Service Acquisition Executives are to ensure that program directors/managers ensure that host systems comply with JPO performance, IA and security standards. (As of Sep 07, there has been no corresponding update of SARD policy to reiterate or rescind the 1993 requirement for engaging PM GPS in support of milestone reviews and design/security reviews).
- (3) Every weapon system using GPS must obtain GPS Wing approval of the configuration prior to operational use or export – reference CZU-03-071.

f. JPO Security Approval Prior to Operational Use or Export

- (1) Every weapon system using GPS must obtain GPS JPO (USAF GPS Wing) security approval prior to operational use by authorized US GPS PPS HAE users and prior to export to authorized foreign countries.
 - For Legacy equipment, see CZE-93-105A.
 - For SAASM equipment, see CZE-94-001 and CZE-93-105A-SAASM.

g. Authorization for Commanders to procure and use SPS GPS equipment.

- (1) CJCSI 6130.01D, 2007 Master Positioning, Navigation & Timing Plan, dated 13 April 2007, incorporated a "new" authorization that allows the use of commercial SPS GPS receivers for "non-critical" applications (enhance situational awareness and logistic material tracking without the requirement for an ASD(NII) waiver). *This document doesn't use the words "combat, combat support and combat*

service support" which are usually invoked when defining the mission 'requirement' for the mandatory use of PPS. Nevertheless, while not explicitly stated, PM GPS reads this to mean that the "non-critical" applications described above are a subset of "combat, combat support and combat service support". Enclosure D to the CJCSI spells out several conditions to the purchase and use of SPS equipment but compliance with these conditions may be problematic and PM GPS is not explicitly vested with any enforcement authority. There are no explicit mechanisms to monitor or control the purchase of SPS receivers outside of action by the purchasing commander to voluntarily submit a report in conjunction with the ill-defined requirement for bi-annual updates to the GPS roadmap at JPO. There is potential concern that field units will not limit their use of SPS GPS to the applications authorized in the CJCSI.

APPENDIX TWO to MEMO FOR PM GPS, SUBJECT: GPS Policy Synopsis
Subject: Current GPS Policy

a. The requirement to Use GPS

- “All front line weapons systems shall use GPS by 2000”
 - National Defense Authorization Act (NDAA) for Fiscal Year 1994 (Public Law 103-160)
- “Same requirement – new compliance date 2007”
 - NDAA for FY 2006 (Public Law 109-247)
- “DoD Users are required to incorporate GPS PPS UE in systems used for combat, combat support and combat service support missions”
 - Assistant Secretary of Defense, Command Control Communications and Intelligence (ASD/C3I) Memorandum for all Service Acquisition Executives, dated August 23, 2000 referenced the earlier ASD(C3I) GPS Security Policy published March 29, 1999 and reiterated the same PPS UE requirement.

b. The requirement to operate GPS receivers in keyed PPS mode

- “DoD Users are required to incorporate GPS PPS UE in systems used for combat, combat support and combat service support missions”
 - Assistant Secretary of Defense, Command Control Communications and Intelligence (ASD/C3I) Memorandum for all Service Acquisition Executives, dated August 23, 2000 referenced the ASD(C3I) GPS Security Policy published March 29, 1999 and reiterated the PPS requirement: ASD/NII DoD GPS Security Policy, dated 4 April 2006 re-issued and updated DoD GPS Security Policy, cancelling the March 29, 1999 version. The new policy directs that all Acquisition Programs, regardless of whether platform, system or device that incorporate GPS and are used for combat, combat support or combat service support must use GPS receivers in keyed PPS mode.
- “Critical military operations such as weapons delivery coordination, target location, fire support, close air support, extraction, rendezvous etc will only be performed in training, exercise, or combat with keyed PPS-capable GPS User Equipment”
 - CJCSI 6130.01D, 2007 Master Positioning, Navigation & Timing Plan, dated 13 April 2007