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To: DDTCResponseTeam@state.gov
publiccomments@bis.doc.gov

From: Bill Root waroot23@gmail.com tel. 301 987 6418

Subject: ITAR Amendments - Category VIII RIN 1400-AC96
EAR Revisions - Control of Aircraft and Related Items RIN 0694-AF36

1. WML Coverage Missing from Proposed VIII and 9x610

The subject ITAR proposed rule requests the public to identify any Wassenaar Munitions List Item 10 coverage not included in proposed ITAR Category VIII or related proposed EAR ECCNs (9x610). Entries in the following Table marked "missing" roughly identify omissions from the proposed two U.S. rules compared with WML coverage, not only in WML 10 but also in other related WML items. The word "roughly" is underlined for the following reasons:

a. Aero gas turbine engine "missing" items are misleading, because of the apparent intent to include such items in future proposed rules for a new Category XIX and related ECCNs.

b. In many respects, proposed USML or CCL substantive terminology differs markedly from WML substantive terminology. For example. The words "combat" in WML 10.a, "assault" and "logistics support" in WML 10.b, and "command and control" in WML 10.c do not appear in proposed Category VIII or ECCN 9A610 and "fighter", "attack", and many other words appear in proposed Category VIII but not in WML 10. Therefore, many substantive comparisons involve subjective interpretations.

c In a few instances, proposed ITAR or EAR nexus terminology differs from WML nexus terminology. For example, VIII.a.5,6 omit nexus words and corresponding WML 10.c uses specially designed or modified. In another example, 9A610.h uses specially designed or modified for parachutes and paragliders while corresponding WML 10.h uses no nexus terminology. Also 9A610.h uses designed or modified for equipment for high altitude parachutists, whereas WML 10.h uses specially designed. VIII.i uses "directly related" whereas WML 22.a uses "required."

d. Wassenaar does not contain a formal definition of "specially designed." (or "specially designed or modified" or "designed or modified") However, there are many records of COCOM discussions referring to a consensus that "specially designed" means "unique," as in the existing MTCR definition. No other interpretation has been found in either U.S. regulations or COCOM or Wassenaar records of discussion. However, 9A610.y.1-25 make it clear that use of "specially designed" in the proposed rules includes much more than components unique to defense articles or 9A610. Under these circumstances, it is unreasonable to assume that a specially designed widget on the WML is the same as a specially designed widget in proposed Category VIII or ECCN 9x10. Conversely, there may be some unique components which are not included in the proposed U.S. lists, e.g., containers or name plates.

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WML Items Related to Proposed Category VIII and ECCNs 9x610

WML Item		Proposed USML	Proposed ECCN
4.b.2.a	equipment for handling bombs:		
	bomb racks	VIII.h.6	
	other	IV.c	
4.b.2.a	equipment for launching missiles	VIII.h.6	
5	fire control systems		
	fire control computers	VIII.h.16	
	other	XII.a	
5.c	fire control countermeasures		
	drive systems and flight control systems specially designed to function after impact of a 7.62 mm or larger projectile	VIII.h.18	
	other	XI.b	
10.a	combat aircraft:		
	bombers	VIII.a.1	
	fighters, fighter-bombers	VIII.a.2	
10.a	components specially designed for combat aircraft	VIII.h	9A610.x
10.b	aircraft, including helicopters and lighter-than-air vehicles for:		
	reconnaissance	VIII.a.7	
	assault:		
	attack helicopters	VIII.a.4	
	fixed wing attack aircraft	VIII.a.2	
	military training		
	jet-powered training for fighter, attack or bomber aircraft	VIII.a.3	
	other		9A610.a
	transporting and airdropping troops and equipment:		
	strategic airlift	VIII.a.9	
	other		9A610.a
	logistics support	missing	
10.b	components specially designed for aircraft:		
	reconnaissance	VIII.h	9A610.x
	assault:		
	attack helicopters	VIII.h	9A610.x
	fixed-wing attack aircraft	VIII.h	9A610.x
	military training		
	jet-powered for fighter, attack, or bomber	VIII.h	9A610.x
	other		9A610.x
	transporting and airdropping troops and equipment	VIII.h	9A610.x

	logistics support:		
	external stores support systems	VIII.h.6	
`	other	missing	
10.c.1	UAVs specially designed or modified for military use	VIII.a.5,6	
10.c.1	components specially designed for UAVs specially designed or modified for military use	VIII.h.2-14, 16-19	9A610.x
10.c.2	launchers for UAVs specially designed or modified for military use:		
	UAV launching systems	VIII.h.6	
	equipment designed or modified for launching of UAVs having range equal to or greater than 300 km		9A610.l
10.c.2	ground support equipment for UAVs specially designed or modified for military use:		
	UAV flight control systems and vehicle management systems with swarming capability or, if weaponized, coordinate targeting	VIII.h.12	
	equipment designed or modified for handling, control or activation of UAVs having range equal to or greater than 300 km		9A610.l
	other	missing	
10.c.3	equipment for command and control related to UAVs specially designed or modified for military use:		
	flight control and vehicle management with swarming capability	VIII.h.12	
	equipment for control		9A610.l,n
	other equipment for command and control	missing	
10.c.3	components specially designed for UAVs specially designed or modified for military use		9A610.x
10.c.3	components specially designed for associated launchers		9A610.x
10.c.3	components specially designed for associated ground support equipment or related command and control equipment:		
	specified in VIII.h or 9A610.l or n		9A610.x
	unspecified	missing	
10.d	aero engines specially designed or modified for military use	missing	
10.d	components specially designed for aero engines specially designed or modified for military use	missing	
10.e	airborne equipment specially designed for use with 10.d aero engines	missing	
10.e	airborne refuelling equipment	VIII.h.11	
10.e	other airborne equipment specially designed for use		

	with 10.b logistics support aircraft		missing
10.e	other airborne equipment specially designed for use with 10.a or 10.b aircraft except logistics support:		
	specified	VIII.h	
	unspecified		missing
10.e	components specially designed for airborne equipment specially designed for use with 10.a or 10.b aircraft:		
	airborne refuelling equipment components	VIII.h.11	
	other components for use with logistic support aircraft	missing	
	other components for use with 10.a or other 10.b aircraft:		
	specified in VIII.h		9A610.x
	unspecified		missing
10.f	pressure refuellers, pressure refuelling equipment, equipment specially designed to facilitate operations in confined areas and ground equipment developed specially for 10.a or 10.b aircraft:		
	ground equipment developed specially but not specially designed		missing
	10.a or 10.b except logistics support		9A610.f
	10.b logistics support aircraft		missing
	10.d aero-engines		missing
10.g	military crash helmets and protective masks, anti-g suits		9A610.g
10.g	components specially designed for military crash helmets and protective masks		9A610.x
10.g	pressurized breathing equipment and partial pressure suits, liquid oxygen converters, and catapults and cartridge actuated devices for emergency escape of personnel, for use in:		
	VIII.a or 9A610.a aircraft		9A610.g
	other aircraft		missing
10.g	liquid oxygen converters used for missiles		missing
10 h	parachutes or paragliders specially designed or modified for military use		9A610.h
10.h.	components specially designed for parachutes or paragliders specially designed or modified for military use		9A610.x
10.h	equipment specially designed for high altitude parachutists: specially designed or modified for military use:		
	designed or modified and specially designed for high altitude parachutists		9A610.h
	designed or modified but not specially designed for high altitude parachutists		missing
10.h	components specially designed for equipment specially		

	designed for high altitude parachutists:			9A910.x
10.i	Automatic piloting systems for parachuted loads, equipment specially designed for military use for controlled opening jumps at any height, including oxygen equipment			9A910.i
10.i	equipment modified for military use for controlled opening jumps at any height		missing	
11.a	electronic equipment specially designed for military use:			
	fire control computers, mission computers, vehicle management coimputers, integrated core processors, stores management systems, armaments control processors, aircraft-weapon interface units and computers	VIII.h.16		
	other	XI.a		
13.c	components specially designed for military specification helmets:			
	helmet mounted cueing systems, helmet mounted displays, display and sight helmets	VIII.h.15		
	other	X.a.6		
17.p	fuel cells specially designed or ‘modified’ for military use:			
	aircraft lithium-ion batteries that provide 28 VDC or 270 VDC	VIII.h.13		
	lead-acid and nickel cadmium batteries			9A610.y.24
	space qualified photovoltaic arrays	XV.e.2		
	other			3A001.e, 3A991.j
18.a	production equipment specially designed or modified for production of WML products			
	production equipment specially designed for production of VIII or 9A610			9B610.a
	modified equipment		missing	
	production of equipment marked “missing” under 10.b-i above		missing	
18.a	production equipment specially designed or modified for production of WML 10.c.1 UAVs			
	production facilities specially designed for UAVs with range 300 km or greater			9B610.c
	UAVs with range less than 300 km		missing	
	modified equipment		missing	
18.b	equipment specially designed for environmental testing of WML products:			
	test equipment specially designed for VIII or 9A610			

	except 9A610.y			9B610
	testing of equipment marked “missing” in 10.b-i above		missing	
21.a	software specially designed or modified for development, production, or use of WML equipment, materials, or software:			
	technical data directly related to VIII.a-h	VIII.i		
	software specially designed for development, production, operation, or maintenance of 9A610.a, f-k, 9B610, a,b, or 9C610.a		9D610.a	
	software modified		missing	
	software for installation, overhaul, or refurbishing		missing	
	software for software		missing	
	software for items marked “missing” above except under10.c.3		missing	
	software specially designed for development, production, operation, installation, maintenance, repair, overhaul or refurbishing of 9A610.l,m,n or 9B610.c			9D610.b,c
	software modified		missing	
	software for software		missing	
	software for items marked “missing” above under 10.c.3		missing	
22.a	technology “required” for development, production, or use of WML items:			
	technical data directly related to VIII	VIII.i		
	technology “required” for development, production, or operation, installation, maintenance, repair, overhaul or refurbishing of 9A610, 9B610, 9C610, or 9D610			9E610
	technology for items marked “missing” above		missing	
22.b.1	technology “required” for the design of, the assembly of components into, and the operation, maintenance and repair of, complete production installations for WML items even if the components of such production installations are not specified.	missing		

2. Objective Descriptions.

The subject ITAR proposed rule also requests the public to suggest objective descriptions warranting retention on the USML.

VIII.a.5 unarmed military UAVs.

Proposed VIII.a.6 already covers armed unmanned UAVs. It is suggested that VIII.a.5 be replaced by "armored unmanned UAVs" and "UAVs equipped with mounts for weapons" and that UAVs be added to 9A610.a

VIII.d launching equipment specially designed for VIII.a

Existing IV.b and IV.d control launching equipment for missiles with no specially designed limitation. Inclusion of "specially designed" for aircraft launching equipment indicates (probably unintentionally) that some such equipment should not be controlled (because of not being specially designed)..

VIII.d. recovery equipment specially designed for VIII.a

General purpose equipment is often useful for recovery. WML does not control recovery equipment. There may be no applicable objective description which would warrant retention of recovery equipment on the USML.

VIII.f and VIII.h ... parts, accessories, attachments, and associated equipment.

There is no perceived need for continued USML control of these terms. The examples given in the 121.8(d) definition of "part" do not rise to the level of significance warranting retention on the USML. The examples given of accessories, attachments, and associated equipment given in the definition of those terms in 121.8(c) are separately controlled in I(f) and XIII(g)

VIII.f Developmental aircraft and specially designed components therefor

It is suggested that this be revised to read "Developmental aircraft and developmental components therefor."

VIII.h,1 Components and equipment specially designed for the following U.S.-origin aircraft: B-1B, B-2, F-15SE, F/A18E/F/G, F-22, F-35 (and variants thereof), F-117, or USG technology demonstrators.

Deletion of "and equipment" is suggested. Equipment related to these aircraft must be either a component or an accessory, attachment, or associated equipment. It is also suggested that only components of these aircraft first manufactured less than x years ago be included on the USML. This would follow the precedent in the proposed rule for F-15SE and F/A18E/F/G. Retention of the more modern components on the USML would treat them as developmental, thus avoiding use of specially designed.

VIII.h.2-6,11,14 ... and components specially designed therefor

It is suggested that this phrase be deleted. Components of components are not now controlled. One wonders if there really are components of such items as gearboxes, tail boom, wing folding systems, tail hooks, bomb racks, or lift fans.

VIII.h.9 Non-surface-based flight control systems and effectors, e.g., thrust vectoring from gas ports other than main engine thrust vector specially designed for aircraft.

It is suggested that this item be revised to "aircraft flight control thrust vectoring from gas ports other than main engine thrust vector." Otherwise this item would overlap with VIII.h.10 radar altimeters and include a host of other airborne aids to aircraft flight control, such as those which must be controlled by Commerce per EAA Section 17(c) or simple items like windshield wipers.

VIII.h.16 Fire control computers, mission computers, vehicle management computers, integrated core processors, stores management systems, armaments control processors, aircraft-weapon interface units and computers (e.g., AGM-88 HARM Aircraft Launcher Interface Computer (ALIG)) specially designed for aircraft

It is suggested that this item be revised to read "aircraft fire control computers and aircraft launcher interface computers." The other portions of this proposal are so broad as not to warrant USML controls.

VIII.h.17 Radomes specially designed for operation in multiple or non-adjacent radar bands or designed to withstand a combined thermal shock greater than ...

It is suggested that "specially designed" be deleted, on the basis that the accompanying technical description may be adequate.

VIII.h.18 Drive systems and flight control systems specially designed to function after impact of a 7.62 mm or larger projectile.

It is suggested that "specially designed" be changed to "rated". This assumes that manufacturers must rate such systems in this way to comply with purchase contract terms.

VIII. Technical data (as defined in 120.10 of this subchapter) and defense services (as defined in 120.9 of this subchapter) directly related to the defense articles enumerated in paragraphs (a) through (h) of this category.

It is suggested that:

technical data be changed to "software" and "technology";
directly related be changed to "required" for "development" or "use";
in the WML definition of "use", "and" be changed to "or"; and
software and technology for production of VIII.a-h be added to 9E610.

3. Unilateral U.S. Controls

Munitions export controls on the USML plus the CCL would be much more effective if cooperating foreign governments were to impose the same controls. The following Table roughly indicates with an asterisk each proposed Category VIII or ECCN 9x610 item not now on the Wassenaar Munitions List. Reasons for qualifying these asterisks with the word roughly are set forth in points b, c, and d in the introduction to part 1 of these comments. Double asterisks indicates not now on the WML but recommended for deletion from U.S. controls rather than addition to WML.

Proposed Category VIII and ECCNs 9x610 Related to WML Items

US Item	U.S.General Description	WML Item	WML General Desciprtion
VIII.a.1	bombers	10.a	combat aircraft
VIII.a.2	fighters, fighter bombers,	10.a	combat aircraft
VIII.a.2	fixed-wing attack aircraft	10.b	aircraft designed or modified for assault
VIII.a.3	jet-powered trainers used to train pilots for fighter, attack, or bomber aircraft	10.b	military training aircraft
VIII.a.4	attack helicopters	10.b	aircraft designed or modified for assault
VIII.a.5	unarmed military unmanned UAVs	10.c	UAVs specially designed or modified for military use
VIII.a.6	armed unmanned UAVs	10.c	UAVs specially designed or modified for military use
VIII.a.7	military intelligence aircraft	*	
VIII.a.7	military surveillance aircraft	*	
VIII.a.7	military reconnaissance aircraft	10.b	aircraft designed or modified for military reconnaissance
VIII.a.8	electronic warfare, airborne warning and control aircraft	*	
VIII.a.9	air refueling aircraft	*	
VIII.a.9	strategic airlift aircraft	10.b	aircraft designed or modified for transporting and airdropping troops or military equipment
VIII.a.10	target drones	*	
VIII.a.11	aircraft equipped with any mission systems controlled under this subchapter	**	
VIII.a.12	aircraft capable of being refueled in flight	*	
VIII.d	launching or recovery equipment specially designed for VIII.a	10.f	ground equipment developed specially for 10.a or 10.b

	specially designed but not developed specially	*	
	launch or recovery but not ground	*	
	specially designed for asterisked VIII.a items	*	
VIII.f	developmental aircraft	*	
VIII.h	aircraft components	10.a, b	components specially designed for 10.a or 10.b
VIII.h	aircraft parts, accessories, attachments and associated equipment	**	
VIII.h.1	components of specified U.S.-origin aircraft:		
	newly manufactured	*	
	not newly manufactured	**	
VIII.h.2	gearboxes	*	
VIII.h.3	tail boom, stabilator, and automatic rotor blade folding systems	*	
VIII.h.4	aircraft wing folding systems	*	
VIII.h.5	tail hooks and arresting gear	*	
VIII.h.6	bomb racks	4.b.2.a	equipment for handling bombs
VIII.h.6	missile launchers	4.b.2.a	equipment for launching missiles
VIII.h.6	missile rails, weapon pylons, pylon-to-launcher adaptors	*	
VIII.h.6	UAV launching systems	10.c.2	UAV launchers
VIII.h.6	external stores support systems	10.b	components specially designed for logistics support aircraft
VIII.h.7	damage/failure adaptive flight control systems	*	
VIII.h.8	threat-adaptive autonomous flight control systems .	*	
VIII.h.9	thrust vectoring from gas ports other than main engine thrust vector	*	
VIII.h.9	other non-surface-based flight control systems and effectors	**	
VIII.h.10	radar altimeters	*	
VIII.h.11	air-to-air refueling systems	10.e	airborne refuelling equipment specially designed for 10.a or 10.b aircraft

VIII.h.12	UAV flight control systems and vehicle management systems with swarming capability	10.c.3	equipment for command and control of UAVs
VIII.h.13	aircraft lithium-ion batteries	17.p	fuel cells specially designed or 'modified' for military use
VIII.h.14	lift fans, clutches, and roll posts for short take-off, vertical landing aircraft *		
VIII.h.15	helmet mounted cueing systems, helmet mounted displays, display and sight helmets	13.c	components specially designed for military specification helmets
VIII.h.16	fire control computers, mission computers, vehicle management computers, integrated core processors, armaments control processors, aircraft-weapon interface units and computers	5 11.a	fire control systems electronic equipment specially designed for military use
VIII.h.17	radomes	*	
VIII.h.18	drive systems and flight control systems specially designed to function after impact of a 7.62 mm or larger projectile	5.c	fire control countermeasure equipment
VIII.h.19	classified items	1-22	
VIII.i	technical data directly related to VIII.a-h	21.a, 22.a	software specially designed or modified and technology required for development, production, or use of WML items
	technical data for asterisked VIII.a-h items	*	
9A610,a	military trainer aircraft	10.b	military training aircraft
9A610.a	military cargo aircraft	10.b	military transporting or airdropping aircraft
9A610.a	military utility fixed-wing aircraft	*	
9A610.a	military helicopters	10.a, b	combat and other "aircraft" specially designed or modified for military use
9A610.a	military observation aircraft	**	
9A610.a	military non-expansive balloons and other lighter than air aircraft	10.b	lighter than air vehicles specially designed or modified for military use
9A610.a	unarmed military aircraft manufactured before 1956 and unmodified since manufacture	**	
9A610.f	pressure refuelers, pressure refueling	10.f	pressure refuellers, pressure

	equipment, equipment specially designed to facilitate operations in confined areas, and ground equipment specially designed for aircraft controlled by either VIII.a or 9A610.a		refuelling equipment, equipment specially designed to facilitate operations in confined areas and ground equipment, developed specially for ML.10.a or ML10.b aircraft
	specially designed but not developed specially	**	
	for asterisked items in VIII.a or 9A610.a above	*	
9A610.g	military crash helmets and protective masks	10.g	military crash helmets and protective masks
9A610.g	pressurized breathing equipment and partial pressure suits for use in VIII.a or 9A610.a aircraft,	10.g	pressurized breathing equipment and partial pressure suits for use in aircraft
9A610.g	anti-g suits	10.g	anti-g suits
9A610.g	liquid oxygen converters specially designed for VIII.a or 9A610.a aircraft	10.g	liquid oxygen converters used for aircraft or missiles
9A610.g	catapults and cartridge actuated devices for emergency escape of personnel from VIII.a or 9A610.a aircraft	10.g	catapult and cartridge actuated devices for emergency escape of personnel from aircraft
9A610.h	canopies, harnesses, platforms, electronic release mechanisms specially designed for use with VIII.a or 9A610.a	*	
9A610.h	parachutes and paragliders specially designed or modified for military use	10.h	parachutes and paragliders specially designed or modified for military use
9A610.h	equipment designed or modified for military high altitude parachutists such as suits, special helmets, breathing systems, and navigation equipment	10.h	equipment specially designed for high altitude parachutists (e.g., suits, special helmets, breathing systems, and navigation equipment)
9A610.i	automatic piloting systems for parachuted loads	10.i	automatic piloting systems for parachuted loads
9A610.i	equipment specially designed for military use for controlled opening jumps at any height, including oxygen equipment	10.i	equipment specially designed or modified for military use for controlled opening jumps at any height, including

			oxygen equipment
9A610.j	ground effect machines	*	
9A610.k	military aircraft instrument flight trainers not specially designed to simulate combat	*	
9A610.l	apparatus and devices designed or modified for the handling, control, activation, or launching of UAVs or drones controlled by VIII.a or 9A610.a capable of a range equal to or greater than 300 km	10.c	UAV launchers and ground support equipment and equipment for command and control specially designed or modified for military use
	designed but not specially designed handling, control, or activation but not ground support or command and control	*	
		*	
9A610.m	radar altimeters designed or modified for use in UAVs or drones controlled by VIII.a or 9A610.a capable of delivering a 500 kg payload to a range of at least 300 km	10.c.3	UAV command and control equipment specially designed or modified for military use
	designed but not specially designed	*	
	not used for command and control	*	
9A610.n	hydraulic, mechanical, electro-optical, or electromechanical flight control systems and attitude control equipment designed or modified for UAVs or drones controlled by VIII.a or 9A610.a capable of delivering at least 500 kilograms payload to a range of at least 300 km	10.c.3	UAV command and control equipment specially designed or modified for military use
	designed but not specially designed	*	
	not used for command and control	*	
9A610.x	parts, accessories, and attachments	**	
	components specially designed for a commodity controlled by 9A610.a-k or VIII	10	components specially designed for 10.a,b,c,d,e.h
	components specially designed for: asterisked items in 9A610.a-k or VIII.above	*	
9A610.y	parts, accessories, and attachments	**	
	specific components	**	
9B610.a	test, inspection equipment	*	
9B610.a	production equipment for the development of commodities	**	

9B610.a	parts, accessories, and attachments	**	
9B610.a	production equipment specially designed for the production of 9A610 (except 9A610.y) or VIII commodities and specially designed components therefor	18.a	production equipment specially designed or modified for production of WML products
	production of 9A610.a, f-n, x or VIII.a, d, f, h marked with asterisks	*	
9B610.b	parts, accessories, and attachments	**	
9B610.b	environmental test facilities designed or modified for certification, qualification, or testing of 9A610 (except 9A610.y) or VIII commodities and components specially designed therefor	18.b	environmental test facilities specially designed for certification, qualification, or testing of WML products and components specially designed therefor
	designed or modified but not specially designed	*	
9B610.c	production facilities specially designed for VIII.a or 9A610.aUAVs capable of a range of 300 km or greater	18.a	production equipment specially designed or modified for production of WML 10.c.1 UAVs
	facilities but not equipment	*	
9B610.y	specific equipment	**	
9C610.a	materials specially designed for 9A610 commodities (except 9A610.y)	*	
9C610.y	specific materials	**	
9D610.a	software specially designed for the development, production, operation or maintenance of commodities controlled by 9A610.a, f-k, x, 9B610.a,b, or 9C610.a	21.a	software specially designed or modified for the development, production, or “use” of WML equipment, materials, or software
	operation or maintenance vs operation and maintenance	*	
	software for asterisked portions of 9A610.a, f-k, x and 9B610.a,b	*	
	software for:9C610.a	*	
9D610.b,c	software specially designed for the development, production, operatation, installation, maintenance, repair, overhauling, or refurbishing of 9A610.l,m.n or 9C610.c	21.a	software specially designed or modified for the development, production, or “use” of WML equipment. materials, or software
	change “and” to “or” in definition of		

	"use"	*	
	software for asterisked portions of 9A610.l,m,n,	*	
	software for:9C610.c	*	
9D610.y	specific software	**	
9E610.a	technology required for the development, production, operation, installation, maintenance, repair, overhaul, or refurbishing of commodities or software controlled by 9A610, 9B610, 9C610, or 9D610	22.a	technology required for the development, production, or 'use' of WML items
	change "and" to "or" in definition of "use"	*	
	technology for 9C610	*	
	technology for asterisked 9A610, 9B610, or 9D610 items	*	
9E610.y	specific technology	**	