

**EPI Final New Codes**

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
<b>Section Q1</b>				
<b>Q13 Powertrain, Chainset, Transmission Systems and their control</b>				
Q13-A24	new	Gearing	Includes mechanical aspects of transmission gearing and gearboxes. See Q64-C for further details of gearing in general.	
<b>Q14 Vehicle Accessories</b>				
Q14-A01	new	Child seats	Includes removable child seats, and child seats and booster cushions that are integral with vehicle seats.	ISOFIX
<b>Q16 Vehicle Servicing, maintenance, cleaning equipment, vehicle design and manufacture</b>				
Q16-D01A	new	Production line assembly equipment		
Q16-D09	new	Vehicle design	See T01 codes for electrical CAD/CAM systems.	
<b>Q17 Vehicle construction, fittings, propulsion arrangements</b>				
Q17-E09	new	Other engine propulsion arrangements		
<b>Q18 Brake Systems; Steering Systems; Control</b>				
Q18-A01P	new	Parking brakes	Includes mechanical details of hand brakes or foot actuated parking brakes. See also Q18-A07 codes for novel details of the parking brake actuating arrangement per se.	
<b>Q19 Vehicle Applications</b>				
Q19-S	new	Soft top/cabriolet vehicles	Includes vehicles that have a softtop roof or a foldable hard roof, e.g. on coupe/convertible cars. See also Q17-A08 for a novel convertible roofs per se. See Q14-C06 for flip-up rollover bars used cabriolet vehicles.	

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<b>Section Q2</b>				
<b>Q21 Railways</b>				
Q21-D10A	new	Traction increasing equipment	Includes dispensing of particulate material such as sand under train wheels on railway track to increase grip. See Q21-F09 also, if sand is dispensed specifically to improve braking.	
Q21-J08	new	Railway safety systems	Includes systems for evacuating passengers from train during emergency, fire fighting equipment, etc.	
Q21-N	new	Noise/Vibration /Harshness reduction arrangements	Includes all aspects of reducing noise, vibration or harshness on-board railway train, and also offboard aspects such as track mounted arrangements for reducing noise from passing train (see also Q21-A15).	
<b>Q22 Hand/Animal Drawn Vehicles</b>				
Q22-C03	new	Accessories for other hand propelled vehicles	Includes seats, handles, foot rests, etc.	
Q22-M	new	Foot propelled vehicles	Includes stand on scooters and skateboard type devices propelled by user's feet. See W04-X codes for electrical aspects of toy skateboards. See Q19-A instead for bicycles.	
Q22-X	new	Other carts/carriages/vehicles		
<b>Q24 Ships; Waterborne vessels; Related Equipment</b>				
Q24-A01X	new	Other hull details	Includes mechanical hull details not covered elsewhere.	
Q24-B02E	new	Ship-board passenger handling arrangements	Includes ship-mounted extendable gang planks or platforms lowerable into the water or onto dry land to aid boarding or alighting of vessel. For shore mounted passenger handling arrangements see Q24-R03 instead.	
Q24-B09X	new	Other safety/emergency equipment/systems	Includes emergency escape equipment such as escape shaft in vessel, e.g. between sunken vessel and rescue vessel.	
Q24-E02X	new	Other propulsion power plant		
Q24-N	new	Noise/Vibration /Harshness reduction arrangements	Includes all ship-board arrangements for reducing noise, vibration or harshness, e.g. use of sound-deadening material.	
Q24-P25	new	Commercial vessels	Includes general non-specific commercial ships. Use other Q25-P codes instead when a more specific commercial vessel is specified.	
Q24-P28	new	Emergency services vessels	Includes coastguard vessels, police boats, fire tenders etc. For lifeboats and lifeboat equipment on-board e.g. ferry, see Q24-B09B (and Q24-P14 for ferry) also.	
<b>Q25 Aircraft; Aviation, Cosmonautics</b>				
Q25-A07	new	Brake systems	Includes mechanical brake system components such as novel brake pad friction materials.	
Q25-A07A	new	Air brakes	Includes deployable air-brake parachutes.	
Q25-A07G	new	Arrestor hooks, e.g. for use on aircraft carrier	Includes arrestor arrangements for stopping military aircraft (see also Q25-P13) onboard aircraft carrier. See Q25-A05G prior to 200701.	
Q25-A07X	new	Other braking systems		

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Q25-C02M	new	Fuel supply arrangements	Includes fuel tanks and associated pipework. For gas turbine engine fuel supply aspects see Q52-C codes. Also includes mechanical aspects associated with in-flight refuelling.	
Q25-C02X	new	Other propulsion power plant		
Q25-N	new	Noise/Vibration /Harshness reduction arrangements	Includes all aircraft-board arrangements for reducing noise, vibration or harshness, including use of sound deadening material.	
Q25-P13	new	Military aircraft	For mechanical military equipment used onboard aircraft, see Q25-M. See W07 and W06-B codes for electrical aspects of military aircraft.	
Q25-P25	new	Commercial aircraft	Includes general non-specific commercial aircraft.	
Q25-S11	new	Load accommodating arrangements	Includes cargo bays and storage compartments, as well as load handling arrangements such as arms used to launch satellites. See W06-B03 and X25-F or X25-A03E codes for electrical aspects of load handling/manipulating equipment.	

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<b>Section Q5</b>				
<b>Q51 Internal Combustion Engines; Reciprocating Engines; Rotary Engines</b>				
Q51-A01G	new	With variable compression ratio		
Q51-A01J	new	Two-stroke		
Q51-A03X	new	Other reciprocating engine components		
Q51-C05	new	Air/gas driven positive displacement engines	Includes IC engines driven by compressed air supply and not involving combustion.	
Q51-F05	new	Oil filters		
Q51-H05F	new	Air filters	Includes disposable paper air intake filters and reusable foam filters.	
Q51-J07	new	Exhaust braking	Includes exhaust brakes and exhaust brake control, e.g. used for slowing diesel engine truck (see also Q19-C02 for trucks and Q51-D03 for diesel engines) when travelling down long hill, to avoid overheating mechanical friction brakes. Also see Q18-A30 for exhaust braking prior to 2007. See X22-A03B5 and/or X22-A09 instead for electrical aspects of vehicle exhaust/engine braking.	
Q51-L	new	Engine heating/warming apparatus/method		
Q51-M	new	Engine manufacture/assembly/disassembly	Includes manufacturing and assembly aspects of engine and engine components, not specifically for transportation applications such as motor vehicle, boat, aircraft - see relevant Q17 (with Q16-D) , Q24 and Q25 codes respectively..	
<b>Q52 Reaction Engines; External combustion; Gas Turbine; Rockets</b>				
Q52-A01A	new	Turbojet engines		
Q52-A01C	new	Turbofan engines		
Q52-A01E	new	Turboprop engines		
Q52-A01S	new	Steam turbines	Includes non-positive displacement steam turbines. See X11 codes for power generation steam turbines, and see Q51-C01 instead for reciprocating piston steam engines.	
Q52-A01X	new	Other turbine engines		
Q52-B01A	new	Pulse detonation engines	Includes pulse wave detonation engines that detonate fuel rather than deflagrate it.	PDE, PWDE, detonation, deflagration-to-detonation transition, DDT, high speed, high altitude, supersonic, hypersonic
Q52-C09	new	Other fuel supply aspects		
Q52-G	new	Engine cooling	Includes overall cooling of gas turbine/external combustion engines. For gas turbine intake charge air cooling see Q52-A03 instead.	
Q52-M	new	Engine manufacture/assembly/disassembly	Includes manufacturing/assembly/disassembly aspects of gas turbine engines. For manufacture of aircraft or ship gas turbine engines also see Q25-C02B and Q24-E02B respectively (and possibly Q25-X05 or Q24-X05 for aircraft and marine vessel manufacture per se).	
<b>Q54 Non-positive displacement fluid engines (i.e. driven by fluid); Miscellaneous motors and machines for producing mechanical power/thrust</b>				

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Q54-A01	new	Impulse turbines	Includes turbines that use nozzles to change water's potential energy into kinetic energy, with resulting high velocity water jet made to impinge upon curved turbine blades which reverse the flow, with the resulting change of momentum or "impulse" causing a drive force on the blades. Mainly used in very high head applications.	Pelton, Turgo, Michell-Banki, crossflow, Ossberger turbine.
Q54-A05	new	Reaction turbines	Includes turbines that are encased or fully submerged and are acted upon by water which changes pressure as it moves through the turbine and gives up its energy. Mainly used in low and medium head applications.	Francis, Kaplan, propeller, bulb, tube, Straflo, Tyson, Water wheel
<b>Q55 Positive displacement fluid machines/pumps/compressors (l.e. for driving fluid)</b>				
Q55-E	new	Scroll compressors	Includes positive displacement scroll compressors using fixed and orbiting spiral scrolls.	

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<b>Section Q6</b>				
<b>Q61 Fastening Elements; Connections</b>				
Q61-R	new	Fastener installation tools	Includes tools used to install or remove fastening elements used in transportation applications such as mechanical compressed air driven rivet guns used in aircraft manufacture (see also Q25-X05). This code can be used in conjunction with other Q61 codes to specify the type of fastening being installed/removed.	
<b>Q68 Other Engineering Elements</b>				
Q68-A01A	new	Portable frames	Includes wheeled frames. For trolley jacks etc. also see Q16-A03.	
Q68-L	new	General lubrication systems	Includes generally applicable lubrication systems. For specific lubrication systems such as IC engine lubrication, vehicle transmission lubrication or vehicle suspension lubrication systems instead see Q51-F, Q13-A20 and Q12-B15 codes respectively.	
Q68-S	new	General safety devices	Includes generally applicable safety devices such as safety guards or screens or other systems e.g. requiring the use of both hands.	
<b>Section S</b>				
<b>S01 Electrical Instruments</b>				
S01-G01D	new	Using external optical/ thermal/ other stimulation	Includes measurement where circuit is stimulated by external energy to induce voltage/current/ resistance change, which is then used for failure detection/ testing operator of circuit. For any subsequent non-contact measurement of voltages/currents, see also S01-D01D.	EBIC, OBIC, OBIRCH, voltage contrast
S01-G02C	new	Display panels	Electrical measurements relating to display panels, e.g. LCD, PDP, FED, and associated circuitry. See also S02-J04A3A for LCD testing.	
<b>S01 Engineering Instrumentation</b>				
S02-J06A7	new	Optical detection	Includes using camera, spectrometer. Prior to 2007, covered by S02-J06A9.	
S02-K04D	new	Haptic indication	Prior to 2007, covered by S02-K04X. See W05-A01A1 for general haptic annunciators and alarms.	tactile feedback, vibrating indicator
<b>S03 Scientific Instrumentation</b>				
S03-F09C	new	General contamination detection	Prior to 2007, covered by S03-F09B.	
S03-E14R	new	Flame/ combustion detector	Includes methods/ apparatus for detection of flames or combustion, e.g. for fire alarm (see also W05), or industrial/domestic combustion equipment (see also X25-X13/ X27-G02). For pyrometric detection, see also S03-A03; for optical detection, e.g. UV, see S03-E04 codes.	
<b>S05 Electrical Medical Equipment</b>				
S05-A10	new	Patient positioning for therapy	Used for cases where the novelty is in the positioning of a patient rather than in the therapeutic device itself.	
S05-D01D2	new	Audiometering		Hearing test

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S05-D01L	new	In-vivo fluid measurement	This code is for in-vivo measurement of bodily fluids other than blood. Includes spinal fluid, stomach acid, urine, sperm etc. For in-vivo blood measurement, see S05-D01G only.	spinal fluid, stomach acid, urine, sperm
S05-G02F	new	Tissue and fluid extraction equipment	Electrical novelty in equipment used to withdraw fluids and tissue, e.g. for testing, therapy.	
S05-V	new	Veterinary	This code is to highlight veterinary application and can be used in conjunction with other S05 codes which highlight novelty. See also X25-N02 codes. Prior to Jan 2007 these were coded in S05-X.	Veterinary
S05-Y05	new	Control, monitoring and communication of internal devices	Includes e.g. magnetic control of ingestible devices, remote monitoring of implanted devices etc. Can be used in conjunction with specific device codes. See also W05-D codes for remote control, communication and monitoring apparatus per se.	
<b>S06 Electrophotography and Photography</b>				
S06-A01A4	new	Treatment of recording members	Includes application of a lubricant to the surface of the drum, etc.	
S06-A10D	new	Transfer of toner to collection or waste container	Covers mechanism for transferring toner to the collection or waste container for later removal and recycling outside the copier. See S06-A10C when the toner is recycled within the copier for immediate re-use. See S06-A17B for details of toner recycling systems.	
S06-A10E	new	Removal of other material, e.g. dust	Removal of material other than toner, e.g. paper dust, etc, from drum, rollers, etc.	
S06-A19D	new	Manufacture and manufacturing apparatus	Covers manufacturing method and apparatus for the manufacture of copier element. See also T04-G11A if for printer.	

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<b>Section T</b>				
<b>T01 Digital Computers</b>				
T01-F02C4	new	Data transfer between applications		
T01-F05F	new	Software version management		
T01-J05A2L	new	Legal and Regulatory	Includes leagal services such as litigation and contracts as well as accountability and compliance with government regulations.	
T01-J05B2C	new	Metadata		
T01-J11C3	new	Parsing markup language documents.		
T01-N01A2L	new	Legal and Regulatory	Includes leagal services such as litigation and contracts as well as accountability and compliance with government regulations.	
T01-N01A4	new	On-line non-profit organization	Includes charities.	
T01-N03B2B	new	Parsing markup language documents.		
<b>T03 Data recording</b>				
T03-A03J3J	new	Heating device	Covers arrangements for hearing carrier-interfacing surface of head to control fly height. Also coded in T03-A05C1. Arrangements for thermo-assisted magnetic recording (where portion of carrier is heated as part of the recording process) are not coded here, being covered in T03-A06M instead.	
T03-A05C3A	new	Dual actuator systems	Covers arrangements for mounting a secondary actuator on main head arm for fine positioning. For details of head adjusting elements per se and positioning methods see T03-A05A1A codes.	
T03-A06M1	new	Thermo-assisted magnetic recording methods		
T03-A06M3	new	Heat source	See V08 for novel details of lasers and U12 for semiconductor lasers.	
T03-A06M5	new	Optical system		
T03-A06V	new	Vertical recording	This code is used for highlighting the relevance of vertical recording methods where neither a novel vertical recording medium or novel recording head is involved. Novel vertical recording media and heads are not routinely coded here, being covered by T03-A01D and T03-A03D respectively.	
T03-A08M	new	Multiple head actuator type drive	Drives with multiple heads mounted in a fixed relationship with respect to each other are not routinely coded here.	
T03-B01C8	new	Labelling layers	Includes optical and thermo sensitive layers for recording human readable information as well as layers suitable for printing e.g. by ink jet (see T04-G02). Layers for recording data are covered in T03-B01B and are not coded here. See T04 for details of printing not carried out by the optical drive.	
T03-B01F1A	new	Multivalued data formats	Includes recording marks containing several pieces of information, e.g. length, width, depth, to store data values with base greater than two.	
T03-B02A8A	new	Head positioning for double-sided disc	All general aspects of multiple head drives are also covered in T03-B10M. Includes dual-head systems and arrangements for single head to move to other side of disc. Search using T03-B02A8 for all records prior to 2007.	
T03-B02A8C	new	Reading multiple formats		

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T03-B02A8E	new	Increasing access speed		
T03-B02A8G	new	Simultaneous reading of multiple tracks		
T03-B05F1	new	Data arrangement within recording layers	Covers two dimensional data layout.	
T03-B05F5	new	Data arrangement between recording layers	Covers arrangement of different data types between different layers, e.g. layer used for interactive data such as Java info in Blu-Ray discs	
T03-B05F9	new	Other data arrangements		
T03-B07	new	Re-recording, duplication	Includes equipment and methods for duplicating optical carriers by recording on writable media. Production of optical carriers by pressing is covered in T03-B01E and is not coded here.	
T03-B10M	new	Multiple head type drive		
T03-L01N	new	Novelty housings, containers, combined with other article	Covers record carrier containers used for additional function. Includes record carrier cases and racks combined with other article, e.g. drinks can. Use in conjunction with other T03-L codes to indicate type of container.	
<b>T04 Computer Peripheral Equipment</b>				
T04-D07F1A	new	Eye detection	Includes iris recognition, for red eye detection see also W04.	
T04-D07F9	new			
T04-F03	new	Haptic feedback for manual input devices	Previous to 2007 see T04-F02B3A	
T04-F06	new	Miscellaneous input devices	Includes buttons and foot pads for input. See also V03 or U21 for details of device.	
T04-G06B	new	Finishing apparatus	In the Part 1 manual the scope notes for this one has been put under T04-G06C and vice versa	
T04-G10G	new	Monitoring of printing	See also T04-G10A/E for internal/external.	
T04-H03C7	new	Interference based MEMS display	See also U12-B03F1 and V06-M06G.	
T04-H06	new	Stereoscopic and 3D displays		
T04-K01C	new	Antenna	See also W02-B codes as well as V04-G06 for PCB details and U13 for integrated circuit details.	
T04-K02C2	new	Constructional details of card reader / writer		
<b>T06 Process and Machine Control</b>				
T06-A05C	new	Using algorithms	Includes adaptive control systems using algorithms to optimise system performance. E.g. includes control	
<b>T07 Traffic Control Systems</b>				
T07-A05D	new	Displaying information to passenger	Includes systems for informing passenger of current position of bus or taxi or its expected arrival time. Includes display of vehicle position on hand-held device, in-bus display or on off-board bus stop display.	
T07-A05S	new	Monitoring position of scheduled vehicle e.g. bus	Includes systems for monitoring position of buses or other vehicles such as delivery vehicles following a set route or travelling between specific destinations, e.g. to allow off-board controller to monitor vehicle progress. See also T07-A05B for display of vehicle position to controller. See also X22-P05A and other appropriate X22 codes for on-board bus details	

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T07-A05U	new	Monitoring position of un-scheduled vehicle e.g. taxi	Includes systems for monitoring position of taxis, e.g. to allow dispatcher to efficiently dispatch taxis to most appropriate pick-up points. See also T07-A05B for display of taxi position to controller, T07-A05C for display of pick-up point to taxi driver, and T07-A05D for informing passenger of current taxi location and expected arrival time. See X22-P05C and other appropriate X22 codes for on-board taxi details.	

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<b>Section U</b>				
<b>U11 Semiconductor Materials and Processes</b>				
U11-A16	new	Immersion lithography fluid	See U11-C04K codes for immersion lithography apparatus and method.	
U11-C04K1	new	Fluid management apparatus	Includes all apparatus associated with handling, processing and delivering fluids for immersion lithography.	
U11-C04K2	new	Fluid management methods	Includes all methods and processes for fluid manipulation, including measurement and monitoring aspects (see also appropriate S02 and S03 codes)	
U11-C06C	new	Masking techniques unrelated to microlithography	Masks and masking techniques for general etching, deposition or treatment, for semiconductor manufacture. Before 200701 see U11-C04D for all masking, along with other relevant codes, e.g. U11-C05D3 for masking techniques applied to interconnection mfr., U11-C07D1 for masks used in etching fine details, U11-C18D and U14-K01A1C for masks used in optical filter mfr. for LCD, etc.	
U11-C13	new	Nano scale structure formation and deposition		
U11-D02E	new	Heating arrangements for semiconductor package	Includes package structures, internal or external to cause or facilitate heating within a semiconductor package	
U11-F01B6	new	X-ray testing for semiconductor processing	Testing using X-rays	
U11-H	new	End of life-cycle product recycling	Includes: old displays, LCDs or any U11 to U14 product recycling that has reached the end of its life-cycle.	
<b>U12 Discrete Devices</b>				
U12-A01A7	new	Light emitting diode displays	For display drivers see also U12-A01A5 codes. For monolithic and unencapsulated LED array displays see also U12-A01A3, and for encapsulated LED array displays see also U12-A01A6.	LED display, OLED display
<b>U14 Memories, Film and Hybrid Circuits</b>				
U14-J03A	new	Circuits and drivers for electroluminescent displays		
U14-J03B	new	Circuits and drivers for other electroluminescent devices		
U14-J05	new	Electroluminescent device structure	For electroluminescent devices other than displays	
U14-J05A	new	Electrode details for electroluminescent devices		
U14-J05B	new	Module/Package details and sealing arrangements of electroluminescent devices		
U14-J05C	new	Optical elements for electroluminescent devices		
U14-J05D	new	Electroluminescent devices		
U14-J05D1	new	Inorganic electroluminescent device		
U14-J05D2	new	Organic electroluminescent device		
U14-K01A1L	new	LCD repair and correction	See also U14-K01A8 for LCD testing aspects.	
U14-K01A2E	new	Coatings for LCD	Covers all protective coatings, includes anti-reflective films coating for LCDs	
<b>U21 Logic circuits, Electronic Switching and coding</b>				
U21-A02A5	new	Switched capacitor DAC	Use other U21-A02 codes where appropriate.	

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U21-A03B5	new	Switched capacitor ADC	Use other U21-A03 codes where appropriate.	
U21-C02A1	new	Inter-family	This code is intended for circuits interfacing between different logic families. Circuits providing an interface between logic circuits of the same type operating from different supply voltages are covered by U21-C02A5.	
U21-C02A5	new	Logic level shifting	This code is intended for circuits providing an interface between logic circuits of the same type operating from different supply voltages. Interfacing between different logic families is covered by U21-C02A1.	
U21-C02D1	new	Differential transmission	This code includes e.g. low voltage differential signalling (LVDS) circuits, from 2007 see also W01-A08D for differential data transmission systems in general.	
<b>U23 Oscillation and Modulation</b>				
U23-D01A2	new	Active loop control	Includes control of loop gain, for which U24-C01 codes are also assigned as appropriate.	
U23-D01F4	new	Phase error reduction	Includes static phase error. Jitter and phase noise are coded in U23-D01F5.	
<b>U24 Amplifiers and Low Power Supplies</b>				
U24-D01A8	new	Multi-phase control	This code is applied in conjunction with other U24-D codes to highlight novel multi-phase control.	
U24-D01K	new	Constructional details		
U24-D10	new	Bidirectional converter	This code is used in conjunction with other codes to indicate a bidirectional novelty.	
U24-D11	new	Multiple input/outputs	This code is used in conjunction with other codes to indicate multiple input/outputs aspects. Caters for, for example, converters that output voltages of different magnitudes.	
U24-D12	new	Intelligent power supply	Includes power supplies characterised by having a microcontroller for providing programmable features. The latter include the ability to adaptively respond to external conditions, adaptive current limit for different phases of the PSU operation, programmable output voltage, supervisory features, fault recovery, status information provision for remote diagnostics, etc. See also relevant T01-J08 codes.	

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<b>Section V</b>				
<b>V04 Printed Circuits and Connectors</b>				
V04-R07P6	new	Insulating layers of multilayer PCB	Includes application of insulating layers in manufacture of multilayer substrates	
V04-R20	new	Overstress indicators	Includes arrangements used to highlight areas of PCB with dangerously high stress levels. See also S02-F codes for mechanical stress and S03-B codes for thermal stress measurements.	
V04-S30	new	Mechanical details	Includes e.g. inserts, hinges, handles, locks	
V04-T03X	new	Other cooling aspects	Includes cooling aspects not covered elsewhere e.g. involving the use of electro-caloric effects, heat sink mounts, etc.	
V04-U04	new	EMI-proofing elements	Includes elements such as gaskets, panels (see V04-U03 too, if the panel is part of a casing), etc.	
<b>V05 Valves, Discharge Tubes and CRTs</b>				
V05-F04M	new	Vibration reduction, control and compensation		
V05-L03C5G	new	Alignment		
<b>V06 Electromechanical Transducers and Small Machines</b>				
V06-M06G3	new	Electro-thermal effect	For non-MEMS type electro-thermal actuator see V06-M06M.	
V06-M06S	new	Electro-active polymer	Includes actuators/motors and generators having, for example, an electro-active polymer for electrical to mechanical, and vice-versa, energy conversion. See V06-M06D codes for piezoelectric actuators or motors. The actuator may have either a liquid or solid electrolyte.	EAP
V06-P	new	Power generation plant	Covers only very low power generation. Medium to large scale power generation is covered in X11,X14 and X15.	
V06-P01	new	MEMS or chip-scale power plant	Includes the implementation of whole power plants on a MEM device or chip. Covers micro-combustion of fuels to drive a micro steam- or gas- or other- turbine, which drives a micro-generator. Individual MEMS generators are in V06-M06G. See also U12-B03F codes.	
V06-P02	new	Small scale power plant	Includes low wattage power plants typically used for powering small electronic equipment.	

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V06-V	new	Electromechanical transducers	<p>This section covers all electromechanical transducers for audio/communication, resonators, sensors, vibrators (mechanical work) and general transducers not covered elsewhere.</p> <p>For records prior to 2007, see V06-A to V06-J codes for audio/communication type transducers and vibrators (mechanical work), V06-K codes for resonators and V06-L codes for sensors and general transducers not covered elsewhere.</p> <p>See V06-M, V06-N and V06-U codes for small motors/actuators construction, manufacture, testing, monitoring, maintenance, control and applications. See U12-B01B for magnetoresistors, U12-B03E for piezoresistors. See also V02-G01B for linear variable displacement transducers or transformers (LVDT)</p>	
V06-V01	new	Transducers characterised by mode, principle, scale or type	<p>These codes are used to highlight a specific transducer aspect such as mode (ultrasonic), principle (electrostriction), scale (micro) and type (moving coil). V06-V01 codes are used in conjunction with other relevant codes such as V06-V02 for details, V06-V03 for manufacture and V06-V04 for applications. For example, a novel electrode of a piezoelectric resonator for a delay line would be coded in V06-V01B, V06-V01E, V06-V02B and V06-V04D2.</p>	
V06-V01A	new	Electromagnetic induction		
V06-V01A1	new	Moving coil		Voice coil, bobbins
V06-V01A2	new	Moving armature, core or magnet		LVDT
V06-V01A3	new	Moving wire or strip		Ribbon
V06-V01B	new	Piezoelectric; electrostrictive		Piezoceramic, quartz, ceramic
V06-V01B1	new	Multilayer		
V06-V01B2	new	Rosen type		
V06-V01C	new	Electrostatic	Includes electrets and other capacitive-effect transducers (see also V01-B02 codes).	Condenser
V06-V01D	new	Magnetostrictive		
V06-V01E	new	Resonators	Includes electromechanical resonators. For networks using resonators, see U25-B codes also.	
V06-V01E1	new	Surface acoustic wave		SAW
V06-V01E2	new	Bulk acoustic wave		BAW
V06-V01E3	new	Magnetostatic acoustic wave		Magnetostatic surface wave, MSSW, magnetostatic forward volume wave, MSFVW, magnetostatic backward volume wave, MSBVW
V06-V01K	new	Microtransducers; nanotransducers		
V06-V01K1	new	Microtransducers		MEMS, micromechanical, microelectromechanical, micromechanism
V06-V01K2	new	Nanotransducers		NEMS, nanomechanical, nanoelectromechanical, nanomechanism
V06-V01L	new	Digital transducers		
V06-V01M	new	Wireless transducers		
V06-V01N	new	Ultrasonic transducers		
V06-V01P	new	Bone conduction transducers		

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
V06-V01Q	new	Smart transducers		Intelligent
V06-V01X	new	Other transducers	Includes electro-optical(audio), combined-principle and infrasonic transducers.	
V06-V02	new	Transducer details, circuits, materials	These codes are used in conjunction with other codes of V06-V section as appropriate. E.g. a novel coil construction of a moving coil type transducer for a loudspeaker in a PA system is coded in V06-V01A1, V06-V02C, V06-V04A1 and V06-V04A5.	
V06-V02A	new	Diaphragms; cones		Membranes, vibration plates
V06-V02B	new	Electrodes; terminals		
V06-V02C	new	Coils; (electro)magnets		
V06-V02D	new	Substrates; layers		
V06-V02E	new	Casings	Includes individual transducer housings.	
V06-V02F	new	Cabinets; mountings; supports	Includes cabinets, and mountings/supports for the transducer(s) within a cabinet.	Enclosure, housing, chambers, holders
V06-V02G	new	Obtaining desired frequency or directional characteristics	Includes structural combinations and spatial arrangements of separate transducers responsive to two or more frequency ranges; enclosures modified by mechanical or acoustic dampers; use of horns; use of several identical transducers.	
V06-V02H	new	Leads, connectors		
V06-V02J	new	Sanitary devices		
V06-V02R	new	Materials		
V06-V02S	new	Circuits	Includes circuits for preventing acoustic reaction or correcting frequency response; cross-over networks for loudspeakers. Does not include volume control circuits. See W04-T also.	
V06-V02X	new	Other transducer details	Includes transducer details not covered elsewhere.	
V06-V03	new	Transducer manufacture, testing, monitoring	These codes are used in conjunction with other V06-V codes as appropriate. E.g. a novel coil manufacture of a moving coil type transducer for a loudspeaker in a PA system is coded in V06-V01A1, V06-V03A3, V06-V04A1 and V06-V04A5.	
V06-V03A	new	Manufacture		
V06-V03A1	new	Diaphragms; cones		
V06-V03A2	new	Electrodes; terminals		
V06-V03A3	new	Coils; (electro)magnets		
V06-V03A4	new	Substrates; layers		
V06-V03A5	new	Casings		
V06-V03A6	new	Cabinets; Mountings; supports		
V06-V03A7	new	Micromachining process, method or apparatus	Includes manufacture of MEMS and NEMS. See also U11-C and U12-B03F codes.	Micromechanical, microelectromechanical, micromechanism, microtransducer, nanomechanical, nanoelectromechanical, nanomechanism, nanotransducer
V06-V03A9	new	Other transducer manufacture	Includes manufacture of transducer details not covered by the above codes.	
V06-V03B	new	Testing; monitoring		

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
V06-V04	new	Transducer applications	These codes are used in conjunction with other V06-V codes as appropriate. For example, a novel coil of a moving coil type transducer for a loudspeaker in a PA system is coded in V06-V01A1, V06-V02C, V06-V04A1 and V06-V04A5. For applications in the communications and audio/video fields, see also W01, W02, W03 and W04 classes. For applications in the instrumentation and medical fields, see also S01, S02, S03 and S05 classes.	
V06-V04A	new	Audio/video equipment		
V06-V04A1	new	Loudspeakers	See also W04-S codes.	
V06-V04A2	new	Microphones	Pick-ups for musical instruments are in V06-V04A3. For microphones used for measurement purposes, see V06-V04G3	
V06-V04A3	new	Pick-ups	Includes pick-ups for gramophones and musical instruments. General audio microphones are in V06-V04A2.	Stylus, cartridges, groove, mechanical recording, needle
V06-V04A4	new	Headphones; earphones	Also includes hands-free kits.	Earphones, earpieces, mouthpieces
V06-V04A5	new	PA systems		
V06-V04B	new	Communication equipment	Also includes hydrophones used for communication, e.g. audio/voice, purposes. For hydrophones used in instrumentation, see V06-V04G1. For sonar systems, see also W02-C07 and V06-A05 codes.	
V06-V04B1	new	Telephone handsets	Telephone transducers, per se, are also coded in W01-C01M, and mounting details in W01-C01A3.	Receivers, transmitters
V06-V04B2	new	Radio communication		
V06-V04C	new	Vibrators (mechanical work)	Includes transducers for performing mechanical work e.g. shock wave generator for lithotripsy. For industrial-scale vibration generators see X25-L codes. See V06-M codes for motors and actuators.	Buzzers
V06-V04D	new	Filters; delay lines		
V06-V04D1	new	Filters		
V06-V04D2	new	Delay lines		
V06-V04E	new	Switching (contactless)		
V06-V04F	new	Transformers		
V06-V04G	new	Instrumentation	Includes sensing, detecting and imaging type transducers. Also includes transducers described as sensors. See also S02 and S03 codes for transducers used for general instrumentation.	
V06-V04G1	new	Sonar	Includes hydrophones for e.g. ranging. For communications use, see V06-V04B.	
V06-V04G2	new	Resonant sensor		
V06-V04G3	new	Measurement microphone	For audio/communication-type microphones, see V06-V04A2.	
V06-V04H	new	Vehicles	Includes land, sea and air vehicles.	
V06-V04J	new	Military	See also W07 codes for military applications of transducers.	
V06-V04K	new	Medical	See also S05 codes for transducers used in medical devices.	
V06-V04L	new	Industrial		
V06-V04X	new	Other transducer applications	Includes applications not covered elsewhere, e.g. igniters.	
<b>V07 Fibre-Optics and Light Control</b>				
V07-F01A1E	new	Dispersion compensation optical fibres		

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
V07-F01A1F	new	Graded Index Fibres	As opposed to step index fibre. Refractive index with quadratic profile. Graded index fibres are always multimode fibres	Graduated index. Graded index. Multimode

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
<b>Section W</b>				
<b>W01 Telephone and Data Transmission Systems</b>				
W01-A05L	new	Data interception and prevention of interception	This code covers the interception of data communications using any medium. Secret and secure data transmissions using either cryptographic encryption or quantum cryptography are covered by W01-A05A and W01-A05E respectively. Interception and prevention of interception of analogue communication system are covered by W02-L07 codes.	
W01-A05L1	new	Data interception		
W01-A05L5	new	Prevention of interception	Includes data concealment	
W01-A06B8E	new	Ad-hoc network	Includes dynamic network where the device are part of the network only for the duration of a communication session or, in close proximity to the rest of the network. Computer aspects of Ad-hoc network are covered by T01-N02A1B.	MANET Mobile Ad-hoc Network
W01-A08D	new	Differential data transmission	This code covers differential data transmission and is assigned with other W01-A08 codes as appropriate. Novel logic circuits intended for use in differential serial bus systems are covered by U21-C02D1.	LVDS
W01-A08E	new	DC offset suppression or adjustment	This code covers the suppression or removal of DC offsets and the clamping of a signal to a desired DC level, primarily in baseband signals. Novel circuits for clamping the level of pulse signals in general to a desired DC level are covered by U22-D01A1A.	
W01-C01B8M	new	Key circuitry and coding	See also U21-A05D codes for key coding aspects, e.g. U21-A05D1 for coding arrangements for handling different language character sets.	
W01-C01G8E	new	Haptic feedback control	This code covers sense of touch feedback control, including force and vibrating feedback. Signal processing aspects of feedback control are covered by W01-C01Q6E.	
W01-C01P8	new	Medical parameter monitoring equipment	This code includes arrangements for monitoring physiological parameters such as vital signs to determine the health status of a person, or in connection with sporting activity (in which case e.g. W04-X01A1 or other W04-X01 code is also assigned), using a built-in phone monitoring device. See also S05 codes, for medical monitoring equipment in general, to highlight specific measurements.	
W01-C01Q5B	new	Sensing other users in the vicinity	This code includes arrangement for sensing/detecting other users in the vicinity. See also W01-C01R and W01-A07H codes for the type of medium being used.	Proximity Mail (RTM)
W01-C01Q6A	new	Graphics and display processing	Previously coded in W01-C01Q6. Includes arrangements for processing graphical and display information that is not part of the display screen hardware. See also T01-C04D for computer display processing. Prior to 2006, all aspects of display/control circuitry were coded in W01-C01B3A.	Acceleration, rendering, GPU

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
W01-C01Q6C	new	Audio signal processing	Includes arrangements for processing audio signals other than for normal speech processing for communication, which is covered by W01-C01C7 codes. In all cases W04-V codes are also assigned for specific processing and coding details.	MIDI, Wave
W01-C01Q6E	new	Haptic and tactile processing	This code covers processing necessary for implementation of haptic functions, e.g. in connection with user interface aspects. Novel transducers and drive circuits for haptic features are covered by W01-C01G8E.	
W01-C01Q6X	new	Other multimedia processing		
W01-C02B7G	new	Centralised storage of user profile	Includes arrangement of storing user profiles in a central place, and downloading the profile to the phone on power-up, connected to network, etc.	
W01-C02B7H	new	Transfer of personalised ringtone	Includes arrangements for sending a personalised ringtone to the called person.	
W01-C02B7L	new	Location based service	Includes arrangement of providing a personalised service, based on the location of the mobile terminal. See also other W01-C02B and W01-C05 codes for the type of service being offered.	
<b>W02 Broadcasting, Radio and Line Transmission Systems</b>				
W02-A02A5	new	Balanced-to-unbalanced converter	See U25-D03 for lumped constant balanced-to-unbalanced converters	
W02-F10A1G	new	Video-based systems with different-view facility	Covers interactive video-based systems including the facility to select a different viewing angle. Multiple camera systems for generating different views of a scene are covered by W04-M01V.	
W02-H01G5	new	Interference avoidance based on selection of operating frequency	This code involves avoidance of interference by changing frequency, e.g. selecting an alternative second local oscillator, clock, or PWM audio amplifier switching frequency depending on the channel selected in a radio receiver. Avoidance of interference based on frequency allocation in radio networks is covered by W02-H01J5.	
W02-J05D	new	Recycling systems	See also S06-A17 for copier, and/or T04-G11B for printer. See also X25-W04 for electrical aspects of recycling system in general.	
<b>W03 TV and Broadcast Radio Receivers</b>				
W03-A02B3	new	Channel switching arrangements		
W03-A11D1	new	Error detection and correction	See W01-A01B codes for general error correction in data transmission systems, which were previously assigned with W03-A11D to indicate this topic.	
W03-A18A5J	new	Detecting emergency broadcast messages	Includes arrangements to change channels or switch on TV received when emergency broadcast messages are detected. See W05-B08 codes for system aspects of emergency broadcasts.	
W03-A18R	new	Audience research aspects	Search in conjunction with W03-A18A6 for monitoring viewing of a particular user. Previously coded in W03-A18A1 for devices separate to subscriber equipment itself, along with W02-F04B for system aspects of audience research.	
W03-A21	new	Video display for non-TV receiver application		

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
W03-B01B3	new	Channel switching arrangements		
W03-G03H	new	Home theatre equipment	Covers home theatre applications. Novel details of audio processing circuitry, surround sound and interfacing are assigned e.g. W03-C, W04-R and W03-G05C codes respectively.	
<b>W04 Audio/ Visual Recording and Systems</b>				
W04-E20G	new	Erasing		
W04-E20K	new	Multiple viewing angle and foveation aspects	Covers general aspects of multiple-viewing angle systems. Multi-view displays are covered in W03-A12A and/or W04-Q01S while encoding systems are covered in W04-P01A2.	
W04-G05E	new	Switching and routing of audio sources		
W04-H05A1	new	User controlled dubbing		
W04-H05A5	new	Automatic dubbing	Includes automated back-up and archival operations.	
W04-M01D2R	new	Controlling use of camera in restricted area	See W01-C01P6C for camera phones.	
W04-M01H5A	new	Pre-light emission/Red eye reduction	Includes use of separate light source for pre-light emission before main flash to prevent red eye. Light source control aspects are covered in W04-M01D5H. See S06-B03A1 for non-digital camera.	
W04-N05G3	new	For digital cinematography		
W04-P01A2	new	Multiple video stream encoding, using foveation zones	Includes compression techniques using redundant data across multiple video streams or viewing angles.	
W04-Q01B2	new	With LED light source		
W04-Q01E7S	new	Scanning arrangements	Includes optomechanical and electro-reflective scanning systems	
W04-Q01E7X	new	Other optical elements		
<b>W05 Alarms, Signalling, Telemetry and Telecontrol</b>				
W05-D02J	new	Sensor or actuator addressing	This code involves addressing for a multiplex or multiaccess scheme and may be used alone or with other W05-D02 codes defining the scheme.	
W05-E05B	new	Back lighting and analogous systems	This code and its subdivisions are discontinued from 2007, the topics of back and edge lighting for displays being now conveyed by new X26 codes, X26-U04A and its subdivisions, which are used in conjunction with other X26-D codes as appropriate. W05-E05B codes remain valid and searchable for records prior to 2007, and covered back and edge lighting of displays, especially LCDs, in which U14-K01A4C is also assigned, but also the lighting of any translucent or transparent information source, such as advertisements, also assigned W05-E03A1. Note that back lighting or similar for computer monitors or telephone displays was not included, being covered by T04-H03D and W01-C01A2A respectively. X26 codes were also assigned as appropriate for light sources and optical components for illumination.	

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
W05-E10	new	Electronic paper	This code is intended as a general reference for 'electronic paper', interpreted as the use of mainly flexible electronic displays to provide a re-writable medium for presenting information in a form resembling normal printed matter, no power supply being required once data is written. Novel technology aspects will continue to be covered in e.g. U14 codes or in W05-E08.	
<b>W06 Aviation, Marine and Radar Systems</b>				
W06-A03A5M	new	GPS Jamming/anti-jamming	Includes arrangements for protecting GPS receiver from deliberate/hostile radio frequency (RF) interference to prevent GPS receiver code and carrier tracking from being effected, resulting in poor navigation performance, e.g. in weapons fire and control systems (see also W07 codes). Also see W06-A03A5R for anti-jamming systems built into the GPS receiver. See W02-L01 codes instead for deliberate jamming/anti-jamming of (non-GPS) communications in general. Non-deliberate/natural interference suppression in a GPS receiver is covered by W06-A03A5R and W02-G03B codes instead.	
W06-A04B5G	new	Goods/cargo	Includes monitoring or identifying of goods or cargo, e.g. during shipment/transportation. See also X25-F11 for tracking of goods in e.g. warehouse. See also T04-K03B for transponder tags/labels, T04-K02 for reading and writing aspects, and T01-N01A2E for Internet based tracking. Also see W02-G05 codes for novel RF aspects of transponder tags/interrogation. Monitoring/identifying of goods/articles during their manufacture is covered by W06-A04B5E and T05-G02B1A instead.	
W06-A05J	new	Synthetic aperture sonar	See also W06-A05H3 for mapping/imaging. Includes improving the spatial resolution of an active sonar array by combining data coherently between pings (acoustic pulses) to synthesize a longer effective array.	
W06-B01C6	new	Electric propulsion	See also X11 codes for high power electric motors per se and X13-F/G codes for high power electric motor control systems.	
W06-B02R	new	Check-in/reservation	Includes on-line seat reservation of booking of flights (see also T01-N01A2 codes), and check-in via e.g. mobile phone. See W06-B02C also for airport based information terminals/displays.	
W06-B15U	new	Unmanned aerial vehicles	Includes UAVs and micro UAVs used for geophysical surveying, military reconnaissance (see also W07-F04), imaging etc.	
<b>W07</b>				

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
W07-E06	new	Munitions	Includes electrical aspects of munitions such as projectiles, bullets, missiles, grenades that can not be coded elsewhere. Also see K03-A codes for physical and mechanical aspects of explosives and ammunition. Includes e.g. arrangements for electronic interrogation and identification of artillery projectiles inside gun before firing.	
W07-X03	new	Battlefield communications	Includes all aspects of communications between troops on the battlefield and between troops and command centre. See also W01/W02 for telephone/radio communications per se.	
W07-X07	new	Soldier aids	Includes robotic exoskeletons to assist infantry in carrying heavy loads, and robotic "mules" (see also X25-F05A codes) controlled by soldier to carry military equipment or weapons.	

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
<b>Section X</b>				
<b>X11 Power Generation and High Power Machines</b>				
X11-C05	new	Rankine cycle plant	Involves the generation of electricity by heat-evaporation of a working fluid that drives a turbine. For water/steam working fluids, see X11-A01 codes. Heat input sources include waste heat, solar (see also X15-A codes), etc.	
<b>X12 Power Distribution/ Components/ Converters</b>				
X12-D03C1	new	Heat protection	Includes measures for improved heat dissipation, shielding or conduction from cables to, for example, operate within rated thermal limits. Also includes flame retardants.	
X12-D03C2	new	Cable markings	Includes printed markings, integral RF tags (see also T04-K and W02-G05 codes), etc. to provide ratings and identification information.	
X12-D07F	new	Cable testing	Includes testing of insulated conductors. Testing of non-insulated conductors is covered by X12-D07E codes. See also S01-G14 for electrical tests on wires and cables. For non-electrical tests, see S02 and S03 classes.	
X12-G02G	new	Superconductor cable connector/fitting	High power superconducting cable connectors only are covered here. For low power superconducting wire connector, see V04-A10	
X12-G04A1A	new	Rigid		
X12-G04A1C	new	Flexible		
X12-G04A1E	new	Fittings	Includes fittings for joining two ducts and ducts and distribution boxes, etc	
X12-G10	new	Cable dispensing reel		<i>Drum</i>
X12-H01E	new	Non-contact power distribution	Low power non-contact power distribution is coded in U24-H02	
X12-H03A3	new	Switching control for equipment connected to mains supply	Includes remotely generated signals to switch domestic equipment, e.g. air conditioner, fridge etc., on and off. For load shedding-related switching see X12-H01A codes. See also W05-D codes..	
X12-J01K	new	Constructional details		
X12-J10	new	Bidirectional converter	This code is used in conjunction with other codes to indicate a bidirectional novelty.	
<b>X13 Switchgear. Protection, Electric Drives</b>				
X13-C01E	new	Distance or impedance	Includes all aspects of distance/impedance relaying. See also S01-D05B for impedance measurements.	
<b>X21 Electric Vehicles</b>				
X21-A01J	new	Fuel cell vehicle	Includes electric vehicles powered using fuel cell technology. Can be used in conjunction with other X21-A01 codes as appropriate, e.g. X21-A01H for fuel cell bus. See X21-A01F for battery driven electric vehicles. Unspecified vehicles using fuel cells are considered to be electrically-propelled vehicles rather than motor vehicles and are thus coded here.	FCV
<b>X22 Automotive Electrics</b>				

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
X22-A20E1	new	Gaseous fuels	Includes engines running on LPG (liquefied petroleum gas), natural gas or hydrogen. (See X21 codes for vehicles using hydrogen in a fuel cell arrangement). See Q51-D07A for mechanical aspects of gaseous fuelled IC engines.	
X22-A20E3	new	Bio fuels; Alcohol	Includes engines running on free fatty acid methyl ester ("bio diesel") or alcohol such as methanol or ethanol. See Q51-D07C for mechanical aspects of bio fuel/alcohol fuelled IC engines.	
X22-A20T	new	Two-stroke	Includes IC engines operating on two-stroke cycle, e.g. used in moped (see also X22-P02).	2-stroke
X22-J03A5	new	Cooling	Includes ventilating and air-conditioning systems used to cool motor vehicle seats. See X22-J03A and X22-J02 codes prior to 2007.	
X22-J99	new	Other vehicle accessories	See Q14 instead for mechanical vehicle accessories. Includes refrigerators and built-in coolers (see also X27-F codes).	
X22-K01	new	Multiplex control system	See W05-D02 also for multiple access and multiplexing control signals transmission, and T01-J07D1B for multiplex control system using microprocessor technology. Used to highlight multiplex control of distributed (electrical) loads via single electric cable/bus and fibre-optic systems.	
X22-K03	new	Intra-vehicle networking	Includes in-car high speed, integrated communications networks for interconnecting various vehicle systems, e.g. using wireless LANs etc. (see also W01 codes). For enabling internal communications between previously standalone vehicle control systems such as engine and braking systems.	CAN bus, LAN, Ethernet, wireless
X22-K05	new	Inter-vehicle communication	Includes systems such as Bluetooth (RTM) ad-hoc networks for allowing communication between different vehicles, e.g. for passing traffic or navigation data between vehicles (see also X22-E06F), for informing vehicle of presence of nearby vehicles e.g. by transmitting GPS position data between vehicles, or for automatic collision avoidance (see also X22-J05 codes) or other safety purposes.	Piconet, wireless
X22-K08	new	Vehicle-offboard interfacing/communication	Includes systems for allowing communication between vehicle and external systems. E.g. for downloading information such as navigation data (see also X22-E06F), local tourist information, shop opening times (see also X22-J12), restaurant menus, music files (see also X22-J13) etc., e.g. using wi-fi hot spot located in service station, or for making hotel reservations or booking tickets (see also T01-N codes). Also includes use of other communications systems/protocols such as Dedicated Short Range Communication (DSRC).	Wireless fidelity
X22-K99	new	Other multiplexing/networking/communications		
X22-P04A	new	Hybrid-electric	Includes series/parallel/mixed hybrid-electric and hybrid-fuel cell vehicles	
X22-P04E	new	Hybrid-mechanical	Includes electrical details of hybrid-flywheel and hybrid-pneumatic vehicles.	

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
X22-X18	new	Vehicle (un)loading arrangements	Includes tail lifts used on lorries (see also X22-P05B), vehicle mounted cranes and other loading/unloading ramps/fixtures. See Q15 codes for mechanical (un)loading aspects.	
X22-X19	new	Disabled people aids	Includes all systems or vehicle adaptations for helping physically challenged persons drive or travel in motor vehicle. Includes wheelchair lifting arrangements and ramps. See also S05-K01. For mechanical aspects see Q15-B13 instead.	
<b>X24 Electric Welding</b>				
X24-A02X	new	Other soldering equipment	Includes spray soldering systems using solder droplets in stream of hot gas to build up solder deposit, e.g. for fixing conductor wires to semiconductor circuit (see also U11 codes).	
<b>X25 Industrial Electric Equipment</b>				
X25-A10	new	Working wood	Includes arrangements for working wood. See other X25-A codes to highlight the action being carried out, e.g. X25-A03A for wood turning. For felling of timber or processing lumber see X25-X01 instead.	Turning
X25-F08	new	Labelling/Tagging	Includes details of the actual attachment of the label or tag to the item, or printing of the label on the item (also see T04-G02 for printing using inkjet technology). See X25-F03A if the labelling/tagging is part of the packing/bottling arrangement, and X25-F11 for goods tracking arrangements. See also T04-K, W06-A04B5 and possibly W02-G05 codes for labelling/tagging using a smart or RFID tag/label. See T03-H02A codes for labelling of record carriers such as CDs or cassettes.	
X25-F09	new	Inventory/Stock management	Includes inventory management and monitoring of materials/articles being removed/replaced from storage area. See T01-J05A2 for non-networked inventory monitoring or T01-N01A2 for network, e.g. Internet, based systems.	Stock control
X25-F11	new	Goods tracking	Includes arrangements for monitoring location of goods containers or individual articles being moved. For use of radio transponders attached to goods, also see T04-K03B for transponder tags/labels and T04-K02 for reading and writing aspects. See also T01-N01A2E for Internet based tracking. Novel RF details of transponder tags/interrogation are also covered by W02-G05 codes and W06-A04B5 codes cover RF transponder identification. See W05-B01A2 codes instead for theft alarms triggered by transponder tags.	
X25-T04D	new	Textile printing	See also T04-G02J if using inkjet printing.	
<b>X26 Lighting</b>				
X26-U04A	new	Displays	Includes light sources and fittings for lighting of displays. For LCDs see also U14-K01A codes, and T04-H03D if for computer monitors.	
X26-U04A1	new	Back-lighting	For records prior to 2007, see also W05-E05B1.	
X26-U04A2	new	Edge-lighting	For records prior to 2007, see also W05-E05B3.	

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
X26-U04B	new	Signs	Includes the lighting of any translucent or transparent information source, such as advertisements (see also W05-E03A1), traffic-related signs (see also T07-B codes, etc.	
<b>X27 Domestic Electrical Appliances</b>				
X27-A02E	new	Walking stick	Includes sticks with integral electrical components. Also see S05-K01 for walking sticks used by physically challenged person.	
X27-B09	new	Other kitchen appliances	Includes food warmer for serving trolley, post-mix beverage dispenser for carbonated drinks, milk frother (see X27-B01 instead if part of cappuccino machine), buffet food container with automatic lid etc.	
X27-D01A1	new	Machine types		
X27-D01A1A	new	Vertical axis washer	Includes vertical axis top loader machines.	
X27-D01A1B	new	Front loading horizontal axis washer	Includes drum type washer.	
X27-D01A1C	new	Top loading horizontal axis washer		
X27-D01A1D	new	Tilt axis washer	Includes fixed and variable tilt axis washers.	
X27-D01A1X	new	Other machine types	Includes twin tub machines.	
X27-D01A3	new	Component parts/constructional details		
X27-D01A3A	new	Providing mechanical energy to clothes	Includes drums, lifters, agitators, pulsators.	
X27-D01A3B	new	Drive arrangements	Includes drive motors, drive belts and transmissions. See also V06-M codes for novel motors/transmissions per se.	Contra rotation
X27-D01A3C	new	Casings	Includes machine housings, doors, seals, feet, wheels, insulation etc.	
X27-D01A3D	new	Dispensing systems	Includes soap powder and fabric conditioner dispenser trays and from 200701 ball type dispensers placed in the washing machine drum.	
X27-D01A3E	new	Liquid management systems	Includes water supply/discharge pipes, valves, pumps, water recirculation and spray systems.	
X27-D01A3F	new	Vibration damping systems	Includes active suspensions and counter weights for reducing machine noise and vibration.	
X27-D01A3X	new	Other component parts	Includes packaging such as boxes and transit bolts.	
X27-D01A5	new	Control systems	Includes all electrical control aspects such as programme timer switches. Also see T06-A05C for use of control	
X27-D01B1	new	Machine types		
X27-D01B1A	new	Built-in or wheeled	Includes front loading traditional type full size or slimline dishwashers.	Free-standing
X27-D01B1B	new	Drawer type	Includes twin drawer.	
X27-D01B1X	new	Other configurations	Includes top loading or portable, small l size 'counter top' dishwashers, and ultrasonic washers incorporated into a sink (see also X27-D07A).	

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
X27-D01B3	new	Component parts/constructional details		
X27-D01B3A	new	Racks		
X27-D01B3B	new	Drive arrangements	Includes pump drive motors, belts, transmissions etc.	
X27-D01B3C	new	Casings	Includes machine housings, doors, seals, tubs, feet, wheels, insulation etc.	
X27-D01B3D	new	Dispensing systems	Includes salt and cleaning powder/tablet dispensers.	
X27-D01B3E	new	Liquid management systems	Includes water supply/discharge/recirculation, valves, water heaters, pumps, pump seals and spray arms.	
X27-D01B3F	new	Drying systems	Includes heater elements (see also X25-B01 for electrical resistance heating per se), heat exchangers, air flow arrangements, vents, condensing arrangements etc.	
X27-D01B3G	new	Soil collection and management	Includes filters, screens, sizers and choppers.	
X27-D01B3X	new	Other component parts		
X27-D01B5	new	Control systems	Includes all electrical control aspects. Also see T06-A05C for use of control algorithms to optimise cleaning cycle according to sensed parameters. For control of mechanical variables such as liquid flow, also see T06-B codes.	
X27-D02A	new	Machine types		
X27-D02A1	new	Electric vented tumble drier		
X27-D02A2	new	Gas vented tumble drier		
X27-D02A3	new	Heat pump tumble drier		
X27-D02A4	new	Condensing tumble drier		
X27-D02A5	new	Microwave tumble drier		
X27-D02A6	new	Non-tumble drier	Includes cabinets, bags, drying rooms and drawers for drying flat or hanging clothes.	
X27-D02A9	new	Other driers		
X27-D02B	new	Component parts/constructional details		
X27-D02B1	new	Providing mechanical energy to clothes	Includes drums and lifters.	Tumble
X27-D02B2	new	Drive arrangements	Includes drive motors, drive belts, gears etc. See also V06-M codes for details of motors/transmissions per se.	Contra rotation
X27-D02B3	new	Heating systems	Includes electrical heaters (see also X25-B codes), combustion aspects (see also X27-G codes) and heat exchangers.	
X27-D02B4	new	Air moving systems	Includes blowers, ducts, vents, valves and air recirculation arrangements.	
X27-D02B5	new	Casings	Includes housings, doors, seals, feet, wheels, insulation etc.	
X27-D02B6	new	Dispensing systems	Includes deodoriser/conditioner (see also X27-D07M) dispensers.	
X27-D02B7	new	Vibration damping systems	Includes damping arrangements to reduce machine noise	
X27-D02B8	new	Lint management systems	Includes mechanical lint/fluff filters.	
X27-D02B9	new	Other component parts		

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
X27-D02C	new	Control systems	Includes all electrical control aspects such as programme/temperature control switches. Also see T06-A05C for use of control algorithms to optimise drying performance according to sensed parameters such as load weight. For sensing of temperature or moisture content, see also S03-B and S03-E02C1 codes respectively.	
X27-D02L	new	Clothes lines	See X27-D06 prior to 2007. Includes motorised arrangements for raising and lowering line or for rotating rotary washing line.	
X27-D02X	new	Other laundry driers	For electrical aspects of mangles, see X27-D09 instead.	
X27-D07A	new	Using vibration	Includes use of ultrasonic vibrator to provide enhanced cleaning action.	
X27-D07E	new	Using steam/vapour	decreasing function. Includes steam generation arrangements and vapour generation from a liquid/solid. Includes use of steam in refresh cycles to deodorise and remove creases from unwashed clothes.	Anti-wrinkle, de-crease, non-iron, refresher
X27-D07F	new	Bubble systems	Includes water aeration arrangements and air bubble generators for improving cleaning.	
X27-D07K	new	Using chemicals	Includes anti-microbial generators, chemical coatings for machine components and spray systems to deliver disinfectant to the clothes.	
X27-D07K1	new	Chemical coatings	Includes drums (see also X27-D01A3A for washing machines) coated with anti-microbial substance e.g. nano-silver (see also D09-A01 and E35-B chemistry codes).	
X27-D07K3	new	Chemistry generation	Includes silver/copper/zinc/ozone/ions generated inside the machine using e.g. electrolysis systems (see also X25-R codes), photocatalysts etc.	Anti-microbial, ionisation, ozoniser
X27-D07K5	new	Dispensing systems	Includes systems for dispensing/spraying e.g. anti-microbial/sterilising chemicals to the clothes.	
X27-D07M	new	Fabric enhancement	Includes electrical aspects of systems for treating clothes with stain resistance or water and insect repellency chemicals. See also X27-D01A3D and X27-D02B6 for fabric conditioner dispensers used in clothes washer and drier respectively.	
X27-D07X	new	Using other media	Includes use of other systems to provide a secondary cleaning/deodorising action.	
X27-F02X	new	Other refrigeration components		
X27-F05	new	Intelligent refrigerator	Includes reader-writer equipment to know the content of the fridge (see also T04-K codes), or screen display on fridge door displaying a list or an image of the fridge content. This code does not include details on refrigeration per se, see X27-F03 for refrigeration control details.	
X27-H09	new	Other domestic pet aspects	Includes heated pet transporting bags/boxes.	

CODE (max. 10 chars incl. spaces)	REASON	TITLE	SCOPE NOTES	KEYWORDS/SEARCH TERMS
X27-X03	new	White goods with built-in secondary function	Includes white goods such as refrigerators and microwaves having additional built-in device providing secondary function, e.g. television, video display, computer for e.g. Internet browsing. This code can be used in conjunction with other X27 codes to highlight the primary function of the device. For example, a refrigerator with a built-in TV display will be also coded in X27-F01 and W03-G03A/W03-A codes.	