

Technology Representativeness	PCF input data	Product					
		Bare PCB	Active components (e.g. analogue and digital semiconductors)	Passive components (e.g. resistors, capacitors, inductors, magnets)	Connectors & Cables	PCBA (only the population of the bare PCB: soldering, mounting, screwing, potting)	
TeR 1	Direct BOM (upstream materials, components and purchased parts including their scraps)	Evaluated for the specific PCB types (FR4, HDI, AlCore) and tied to technical aspects (Layers, surface yield); amount of material specific, amount and technology of raw material can be averaged across one or several PCB types if identical or if differences not significant.			Amount of material evaluated for the specific component listing the exact material used, avoiding broad material categories (e.g. mono-crystalline Silicon carbide rather than Silicon) Amount and technology of raw material can be averaged across one or several component families if identical or if differences are not significant.		Evaluated with specific materials, components and subparts (Exact Direct BOM required).
	Indirect BOM (Consumables and their waste treatment required for the assembly of component but not part of the component)(e.g. chemicals, etching materials, sealing polymers, solvents, cleaning agents), oils, packaging for transport, ...)	Evaluated for specific PCB type, allocation probably via surface & number of layers, or time spent on each individual material-consuming process.	Evaluated for the specific component category (purpose + node type and size + package) and allocated according to metrics such as WaferArea.MaskLayer (Front End) or weight / #pin of this product package (Back End).	Evaluated for the specific component category (purpose + package + size) and allocated according to metrics such as body size and surface size and treatment, geometry of multi materials or other rationals that differentiate consumption per product.	Evaluated for specific types per final product, allocated based on metrics such as size/weight, assembly time or other rationals that differentiate consumption per product		
	Material/component/part Emission factor or PCF	From company's supply chain with TeR=1 per single upstream material/component/part Note : TeR=1 implies that suppliers need to ensure entire cradle to gate is primary data for all materials and processes					
	Process Intensity (energy measurement, direct emissions and their characterisation (F-gas, ..).	For the specific PCB type in the manufacturing plant, allocated according the same metrics as indirect BOM.	kWh Energy, Direct emissions including F-gas measured for the specific component category and allocated according to same metrics as indirect BOM.	Need to follow the same allocation logic and rational as indirect BOM.			
	Energy Emission Factors Transportation (contracted or operated by declarant)	Specific to the manufacturing line of the product. Generic position not electronic specific: Reference CX-Rulebook Chapter 5.2.1					
TeR 2	Direct BOM	Evaluated for specific PCB types or groups of similar PCB types using average BOM within that group (FR4, HDI, AlCore) and tied to same or similar technical aspects (Layers, surface yield); amount of material specific or representative for a group (except variants differ significantly), amount and technology of raw material can be averaged across one or several PCB types if identical or if differences not significant.	Amount of material evaluated for the specific component or a group of similar components listing exact or average materials used (if similar within group or components), avoiding broad material categories (e.g. mono-crystalline Silicon carbide rather than Silicon) Amount and technology of raw material can be averaged across one or several component families if almost identical or if differences are not too diverse.			Exact Direct BOM or BOM of a similar product in case the exact BOM is not yet established	
	Indirect BOM (Consumables and their waste treatment required for the assembly of component but not part of the component)(e.g. chemicals, etching materials, sealing polymers, solvents, cleaning agents), oils, packaging for transport, ...)	Evaluated averaging several similar PCB types (eg. FR4 & HDI) and allocation probably via surface & number of layers, or time spent on groups of material-consuming processes.	Evaluated from broad component category from the company's portfolio (Diodes, MCU, ...) and allocated according to metrics such as WaferArea.MaskLayer (Front End) or weight / #pin of this product package (Back End).	Evaluated for the specific component or similar category (same purpose, same package & same size) and allocated according to metrics such as body size and surface size and treatment, geometry of multi materials or other rationals that differentiate. It can be averaged if various sites produce with same technology.	Evaluated for specific final cable/connector group being similar in size or dimension, assembly time or other rationals that differentiate consumption per product.	Evaluated for final PCBA group being similar in size or complexity,type, assembly time or other rationals that differentiate consumption per product.	
	Material/component/part Emission factor or PCF	From company's supply chain with weighted average TeR<=2 per single upstream material/component/part. Note : TeR=2 implies that suppliers need to ensure entire cradle to gate is primary data for all materials and processes.					
		Special care is recommended on Copper Clad Laminate (CCL) & Prepreg (PP) contribution.			Based on specific location and manufacturing technology; average across similar sites and products with same technology is possible.		
	Process Intensity (energy measurement, direct emissions and their characterisation (F-gas, ..)...	Averaging several close PCB types (eg. FR4 & HDI).	Corporate process intensity (kWh Energy, Direct emissions including F-gas) derived from close component category or from another production line allocated according to same metrics as BOM.	Need to follow the same allocation logic and rational as indirect BOM, e.g. take primary data with measurement of kWh Energy, Direct emissions (petrol, fuel, ..) used during the process derived from close component category or from another production line.			
	Energy Emission Factors Transportation (contracted or operated by declarant)	Specific to the company and to the manufacturing country. Generic position not electronic specific: Reference CX-Rulebook Chapter 5.2.1					
TeR 3		Emission factor or PCF from a database providing evaluation for the specific PCB type (FR4, HDI, FPC...) and layercount of the product.	Emission factor or PCF from a database providing evaluations by component purpose/family & technology, fitted to the specific component evaluated through a recognized scaling rule/tool.			Emission factor or PCF from a database providing evaluations for a component having the same purpose and features, fitted to the specific component evaluated through a recognized scaling rule/tool.	
		OR primary evaluation relying on TeR>2 (e.g. Material EF from another supplier, alternative etching process, approx. BOM).					
TeR 4		Emission factor or PCF from a database providing evaluation not specific to the exact PCB type (FR4, HDI, FPC...) or layercount of the product.	Emission factor or PCF from a database providing evaluation by component family, but not allowing to match the real component's purpose or specificities. (broad categories or no scaling rule applied).			Emission factor or PCF from a database providing evaluation for component of the same category, but not allowing to match the real component's purpose or features. (broad categories or no scaling rule applied).	
		Some primary evaluations may end up with a TeR=4 if their underlying assumptions are not enough technology representative.					
TeR 5		If none of the conditions above is met, then TeR = 5					