

Channel Emissions Framework and Formulae: OOH/DOOH/Transient Extended Version

| Phase | Step & sub-step | | Physical processes involved | Formulae | Expected materiality |
|--------------|----------------------------------|--|--|--|---|
| CREATION | Creative Production | | Development of creative | Import kgCO2e from Production Calculator | - |
| | Physical Production | | Full LCA impact based on material supply chain, transformation, printing, creating finished product | $\sum (i = 1 \text{ to } n) (Xi * EFi)$ i is the format type; Xi is the number of formats produced; EFi is the weighted average emissions factor for format (kg CO2e/format) weighted average EF for format = %recycled material x EF of recycled format + %virgin material x EF of virgin material format | - |
| DISTRIBUTION | Demand: Selection & Targeting | Creative selection | Process to select creative format | none | none |
| | | Placement volume | Number of sites used for campaign | No material emissions from this step; output of this step (Number of sites and format type, number of days live) used in transportation, and operational utilities emissions estimates | none |
| | | Geographic / Audience selection | Location of sites used for campaign | No material emissions from this step. Output of these step (Geographic location of sites) used in transportation emissssions estimates | - |
| | Marketplace: Buying | Direct | Buying process from advertiser to media owner | insert from TV standard | - |
| | | Indirect | Buying process through agency and/or specialist | insert from TV standard | - |
| | | Programmatic | Buying process through SSP/DSP | insert from programmatic standard | - |
| | Installation: Storage & Delivery | Physical - storage | Transportation to storage from production Storage in warehouse | Transport: distance travelled km x EF for vehicle type kg CO2e/km x % of vehicle used for ad products Storage: (annual warehouse emissions kg CO2e/area of warehouse sq m) x area used for storage sq m x #days stored/365 | genericised Source C |
| | | Physical - transportation, installation | Transportation from storage to display locations Installation | Transport: $\sum (i = 1 \text{ to } n) (Di * EFVi)$ i is the vehicle type; Di dis the total distance(km) travelled to all display sites by the vehicle type; EFVi is the emissions factor for the vehicle type kg CO2e/km installation: $\sum (i = 1 \text{ to } n) (Xi * EFli)$ i is the format type; Xi is the number of format i; EFli is the emissions factor for the installation of format i | genericised Source C + installation generic formula |
| | | Transient - transportation, installation | Transportation of mobile platforms to installation facility Installation | Transport: $\sum (i = 1 \text{ to } n) (Di * EFVi)$ i is the vehicle type; Di dis the total distance(km) travelled to installation sites by the vehicle type; EFVi is the emissions factor for the vehicle type kg CO2e/km installation: $\sum (i = 1 \text{ to } n) (Xi * EFli)$ i is the format type; Xi is the number of format i; EFli is the emissions factor for the installation of format i, including the prorated operational emissions (annual emissions of installation facility * hours for installation per format type/total annual facility operational hours) | genericised Source C + installation generic formula |
| | | Digital | Digital transmission to display device | none | none |
| CONSUMPTION | Display: Viewing | Transient (not dedicated to advertising) | Assume the advertising does not create any change to mobile platform deployment for other purposes | none | none |
| | | Dedicated Transient--operations | Energy required to move dedicated ad vehicle | transport: $\sum (i = 1 \text{ to } n) (Di * EFVi)$ i is the vehicle type; Di dis the total distance(km) travelled to installation sites by the vehicle type; EFVi is the emissions factor for the vehicle type kg CO2e/km | - |
| | | Dedicated Transient--Embodied | Embodied emissions from dedicated display vehicle | $\sum (i = 1 \text{ to } n) EEVi * (T/LTi)$ i is the vehide type; EEVi is the total Embodied emissions for the vehicle type kg CO2e; T is hours ad displayed; LTi is hours of total time of depreciation for vehicle type i | - |
| | | Digital--operations | Energy consumed for digital display | kWh used during display time * location based emission factor for grid kg CO2e/kWh | - |
| | | Digital--Embodied | Embodied emissions from display structure | $\sum (i = 1 \text{ to } n) EEDi * (T/LTi)$ i is the display type; EEDi is the total Embodied emissions for the display type kg CO2e; T is hours ad displayed; LTi is hours of total time of depreciation for display type i | - |
| | | Physical--operations | Energy consumed for illumination, mechanical movement | kWh used during display time * location based emission factor for grid kg CO2e/kWh | - |
| | | Physical--Embodied | Embodied emissions from display structure | $\sum (i = 1 \text{ to } n) EEDSi * (T/LTi)$ i is the display type; EEDSi is the total Embodied emissions for the display structure type kg CO2e; T is hours ad displayed; LTi is hours of total time of depreciation for display structure type i | - |
| | Disposal & End of Life | Transient (not dedicated) ad material | Disposal/end of life of material removed from mobile platform | $\sum (i = 1 \text{ to } n) (Mi * EFMi)$ i is the ad material type; Mi is the mass of the ad material kg; EFMi is the weighted average emissions factor for end of life action kg CO2e/km EFMi = % * EFM-recycled + % * ERM-landfill + % * EFM-incineration | - |
| | | Dedicated Transient mobile platform | Disposal/end of life for mobile platforms | $\sum (i = 1 \text{ to } n) DEVi * (T/LTi)$ i is the vehicle type; DEVi is the total end of life emissions for the vehicle type kg CO2e; T is hours ad displayed; LTi is hours of total time of depreciation for vehicle type i | - |
| | | Physical - ad material | Disposal/end of life of material removed from display structures | $\sum (i = 1 \text{ to } n) (Mi * EFMi)$ i is the ad material type; Mi is the mass of the ad material kg; EFMi is the weighted average emissions factor for end of life action kg CO2e/km EFMi = % * EFM-recycled + % * EFM-landfill + % * EFM-incineration | - |
| | | Physical - display structure | Disposal/end of life of display structures | $\sum (i = 1 \text{ to } n) DEDi * (T/LTi)$ i is the display type; DEDi is the total end of life emissions for the display type kg CO2e; T is hours ad displayed; LTi is hours of total time of depreciation for display type i | - |
| | | Digital display structure | Disposal/end of life of display structures | $\sum (i = 1 \text{ to } n) DEDSi * (T/LTi)$ i is the display type; DEDSi is the total end of life emissions for the display structure type kg CO2e; T is hours ad displayed; LTi is hours of total time of depreciation for display structure type i | - |
| ALL | | Corporate overhead emissions allocation | Allocated organisational emissions attributed to the specific campaign across ALL entities in the campaign value chain | $\sum (i = 1 \text{ to } n) CEi * AFi$ i is the value chain entity (ranging from publisher to adtech to agency, covering ALL entities involved with the campaign); CEi is the total annual corporate emissions for entity i in kg CO2e; AFi is the allocation factor for the campaign which may be calculated as a % either of revenue of the campaign/total revenue of the entity or person hours for the campaign/total annual person hours of the entity | - |

Key

- = Not yet applicable or to be investigated further
Σ = The mathematical sign for a sum