

Channel Emissions Framework and Formulae: Cinema

PHASE	Step & sub-step		Physical processes involved		Formula type	Scaling factors	Expected materiality	Formulae V.0.1		Expected data hacks for V1	Comments		
CREATION	Tech Manipulation (Multivariant Creative)	Post-production storage		Additional server storage for multiple volumes of assets for the purpose of distribution.			<ul style="list-style-type: none">Number and size of assetsStorage duration	Low	$\sum_{a=1}^A (asset_size_a \times time_stored_a) \times storage_impact_a$	<p><i>a</i>: creative asset used in campaign <i>A</i>: total number of final assets (masters) used as creatives for the campaign</p> <ul style="list-style-type: none"><i>asset_size_a</i>: total size of ad asset files <i>a</i> (e.g. Digital Cinema Package) [GB]<i>time_stored_a</i>: time asset <i>a</i> is stored [yr]<i>storage_impact_a</i>: carbon impact of storage of asset <i>a</i> depending on storage type (HDD, LTO, Cloud) [kgCO2e/GB/yr]			
		Others technical operations		Server processing for multiple volumes of assets for the purpose of distribution.		Digital service overhead	/	/	/			Placeholder at this stage.	
DISTRIBUTION	Ad Space Selection	Creative Selection & Placement		Planning of creative to go on specific inventory within a marketplace		Corporate overhead	/	/	/			Placeholder – could be included in corporate overhead in a next version	
		Market-place: Buying	Direct	Proportion of advertiser & media owner's corporate emissions for buying process		Corporate overhead	/	/	/				
			Indirect	Proportion of agency/ specialist & media owner's corporate emissions for buying process		Corporate overhead	/	/	/				
			Programmatic / Targeted/ Segmentable/ Addressable	Servers processing and networks transmission through SSP/DSP buying process		Use phase & embodied	/	/	/		Placeholder. Programmatic delivery of cinema, which is a growing market, to be further investigated and clarified in the next GMSF Version Update.		
	Ad Creative Delivery		Digital delivery	Servers processing of ad delivery		Use phase & Embodied	<ul style="list-style-type: none">File sizeNumber of cinemas	Low	$\sum_{a=1}^A \sum_{c=1}^C (asset_size_a \times number_cinemas_{a,c} \times EF_infrastructure_per_data_volume_c)$	<p><i>a</i>: creative asset used in campaign <i>A</i>: total number of assets for the campaign <i>c</i>: country <i>C</i>: total number of countries involved for the campaign</p> <ul style="list-style-type: none"><i>asset_size_a</i>: total size of ad asset files <i>a</i> (e.g. Digital Cinema Package) [GB]<i>number_cinemas_{a,c}</i>: number of cinemas where ad file <i>a</i> was played, in country <i>c</i><i>EF_infrastructure_per_data_volume_c</i>: applicable emission factor for efficiency of servers infrastructure in country <i>c</i> (amortized per GB of data over lifetime of infrastructure), including PUE and carbon intensity of electricity in country <i>c</i> for use phase and embodied emissions of infrastructure [kgCO2e/GB]		Materiality is expected to be low as the delivery happens once in the ad lifetime and is then played locally in the cinemas. The theoretical formulae were kept at this stage for consistency purpose compared to other channels. For very low resultant numbers, this step could therefore either be skipped or have a simple multiplier / correction factor based on data in future guidance.	
				Networks transmission of ad delivery (broadcast)		Use phase & Embodied	<ul style="list-style-type: none">File sizeNumber of cinemas	Low	$\sum_{a=1}^A \sum_{c=1}^C (asset_size_a \times number_cinemas_{a,c} \times EF_network_per_data_volume_c)$	<p><i>a</i>: creative asset used in campaign <i>A</i>: total number of assets for the campaign <i>c</i>: country <i>C</i>: total number of countries involved for the campaign</p> <ul style="list-style-type: none"><i>asset_size_a</i>: total size of ad asset files <i>a</i> (e.g. Digital Cinema Package) [GB]<i>number_cinemas_{a,c}</i>: number of cinemas where ad asset <i>a</i> was delivered by digital way, in country <i>c</i><i>EF_network_per_data_volume_c</i>: applicable emissions factor for carbon efficiency of network, in country <i>c</i> (amortized per GB of data over lifetime of infrastructure), including carbon intensity of electricity in country <i>c</i> for use phase and embodied emissions of infrastructure [kgCO2e/GB]			
		Transformation & Transfer		Physical Delivery	Transportation from post-production to storage in warehouse		Operational emission factors	<ul style="list-style-type: none">Distance travelledWeight carriedVehicle type	Low	$\sum_{p=1}^P \sum_{t=1}^T (total_package_weight_p \times distance_storage_t \times EF_transport_storage_t)$	<p><i>p</i>: physical package (e.g. hard drive) containing ad files <i>P</i>: total number of physical packages involved in the ad campaign <i>t</i>: transportation type <i>T</i>: total number of transportation types involved in transportation to storage processes (e.g. sea, air, road...)</p> <ul style="list-style-type: none"><i>total_medium_weight_p</i>: weight of the entire package (e.g. hard drive) containing ad files to be delivered [kg]<i>distance_storage_t</i>: total distances travelled to storage sites with transportation type <i>t</i> [km]<i>EF_transport_storage_t</i>: emissions factor for the transportation type <i>t</i> used to storage [kgCO2e/t.km]		Materiality is expected to be low as the delivery happens once in the ad lifetime, and physical delivery is trending towards zero in the cinema industry. As storage is likely to be immaterial unless stored in a climate-controlled warehouse or dedicated office space (unlikely), it was chosen to not provide a formula for this step. The theoretical formulae were kept at this stage for consistency purpose compared to other channels. For very low resultant numbers, this step could therefore either be skipped or have a simple multiplier / correction factor based on data in future guidance.
					Storage within the warehouse		Operational emission factors	<ul style="list-style-type: none">Days storedSurface used within storageStorage facility type	Very low	/	/		
				Physical Delivery	Downstream transportations from storage to cinemas		Operational emission factors	<ul style="list-style-type: none">Distance travelledWeight carriedVehicle type	Low	$\sum_{p=1}^P \sum_{t=1}^T (total_package_weight_p \times distance_downstream_t \times EF_transport_downstream_t)$	<p><i>p</i>: physical package (e.g. hard drive) containing ad files <i>P</i>: total number of physical packages involved in the ad campaign <i>t</i>: transportation type <i>T</i>: total number of transportation types involved in downstream transportation to cinemas (e.g. truck type...)</p> <ul style="list-style-type: none"><i>total_medium_weight_p</i>: weight of the entire package (e.g. hard drive) containing ad files to be delivered [kg]<i>distance_downstream_t</i>: total downstream distances travelled to all cinema with transportation type <i>t</i> [km]<i>EF_transport_downstream_t</i>: emissions factor for the transportation type <i>t</i> used downstream [kgCO2e/t.km]		
CONSUMPTION	Cinema projection ¹	Display devices	Emissions of technical devices lifecycle involved in the displaying of the campaign projected		Use phase	<ul style="list-style-type: none">Number of projectionsEnergy of technical devicesCountry grid mix	Low to medium	$\sum_{a=1}^A \sum_{c=1}^C (number_projections_{a,c} \times ad_duration_a \times time_scaling_factor \times power_projection_device_c \times EF_grid_c)$	<p><i>a</i>: creative asset used in campaign <i>A</i>: total number of assets for the campaign <i>c</i>: cinema where the ad was displayed <i>C</i>: total number of cinema involved in the campaign</p> <ul style="list-style-type: none"><i>number_projections_{a,c}</i>: number of times the ad asset <i>a</i> was projected in a cinema <i>c</i><i>ad_duration_a</i>: duration of ad <i>a</i> [s]<i>time_scaling_factor</i>: time conversion factor [h/s]<i>power_projection_device_c</i>: electrical power of the technical devices (e.g. projector, bulb, screen, speakers...) involved in the projection in cinema <i>c</i> [kW]<i>EF_grid_c</i>: emission factor of electricity grid used by cinema <i>c</i> (e.g. country mix in location-based method) [kgCO2e / kWh]		Perimeter of devices considered to be addressed in the channel guidance.		
					Embodied emissions	<ul style="list-style-type: none">Number of projectionsCarbon intensity of technical devices	Low to medium	$\sum_{a=1}^A \sum_{c=1}^C (number_projections_{a,c} \times ad_duration_a \times EF_embodied_projection_device_c)$	<p><i>a</i>: creative asset used in campaign <i>A</i>: total number of assets for the campaign <i>c</i>: cinema where the ad was displayed <i>C</i>: total number of cinema involved in the campaign</p> <ul style="list-style-type: none"><i>number_projections_{a,c}</i>: number of times the ad asset <i>a</i> was projected in a cinema <i>c</i><i>ad_duration_a</i>: duration of ad <i>a</i> [s]<i>EF_embodied_projection_device_c</i>: emission factor related to embodied emissions of the technical devices (e.g. projector, bulb, screen, speakers...) involved in the projection in cinema <i>c</i>, amortized per time used [kgCO2e / s]		Perimeter of devices considered and allocation rule per s for EF to be addressed in the channel guidance.		
ALL	Corporate emissions overhead		Allocated organizational emissions attributed to the specific campaign across ALL entities in the campaign value chain.		Corporate overhead	Campaign revenue	High	/			Placeholder. Every organization in the value chain should be reporting their verified enterprise GHG emissions inventory annually to ensure reasonable data quality at the enterprise level. These enterprise emissions should then be allocated to specific ad campaigns based on either a kg CO2e/\$ or kg CO2e/person hour emissions factor.		

1 GB = 1 GigaByte = 10^9 Bytes

¹ To ensure consistency with other channels, the scope of this workflow step has been limited to the emissions of the technical devices lifecycle involved directly in the displaying of the campaign projected (projector, screen...), a scope that will need to be specified more precisely in all cases in future iterations of guidance. In particular emissions linked to the cinema infrastructure (A/C, lights...) and visitor transportation, are considered as outside the scope. Although the materiality is probably high, it is considered that these are non-advertising specific and tie in with the topic of corporate emissions.