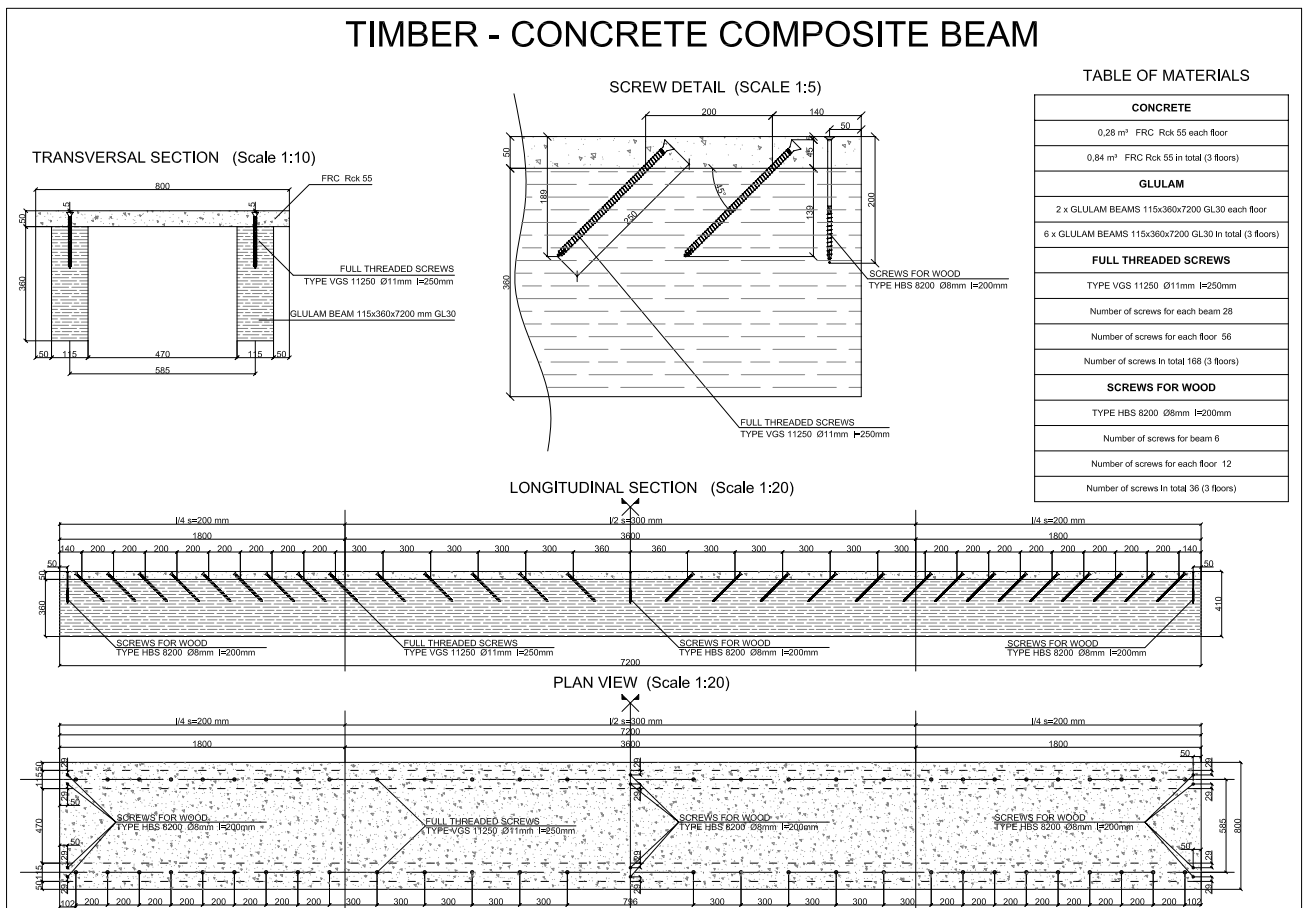


1 kN/m^2



TIMBER - CONCRETE COMPOSITE BEAM



$$f_n = n^2 \cdot \frac{\pi}{2 \cdot l^2} \cdot \sqrt{\frac{g}{A \cdot \gamma}} \cdot \sqrt{EJ_{dyn}}$$

$n =$

$l =$ [mm]

$g =$

$A =$

$\gamma =$ [kN/m³]

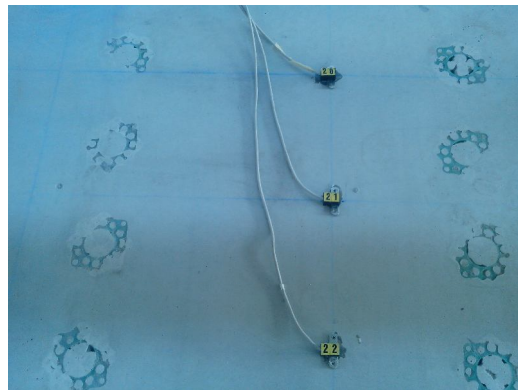
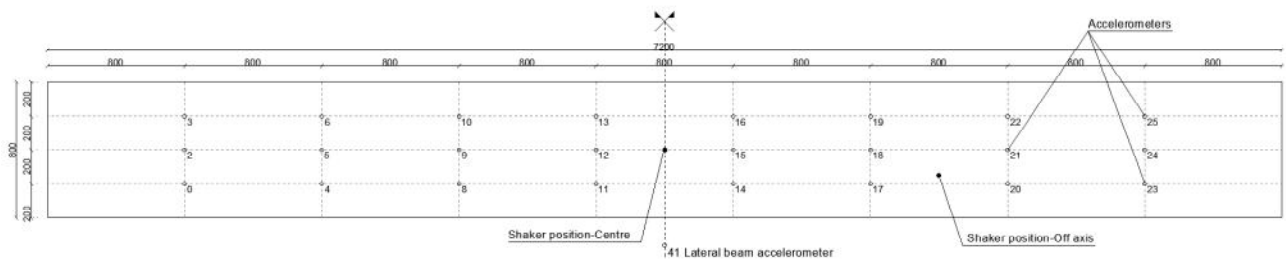
$EJ_{dyn} =$

$n = 1$

$$EJ_{dyn} = f_n^2 \cdot \left(\frac{2}{\pi}\right)^2 \cdot \left(\frac{l}{n}\right)^4 \cdot \frac{A \cdot \gamma}{g} \text{ [Nmm}^2\text{]}$$

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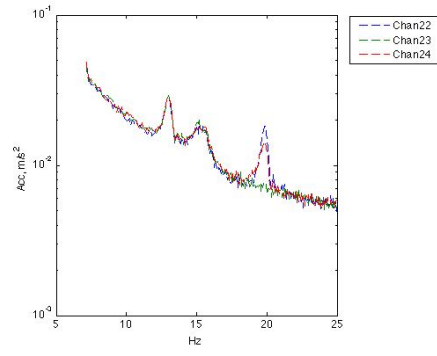
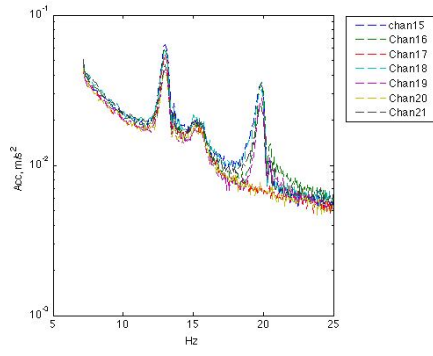
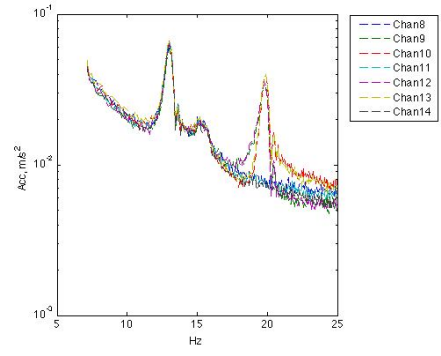
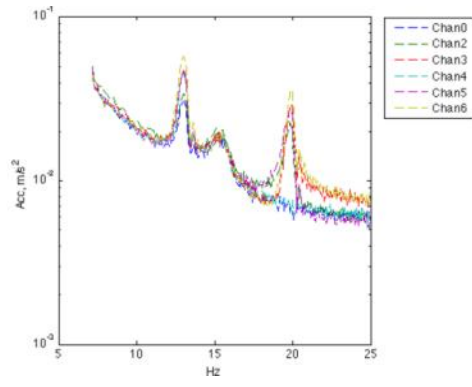


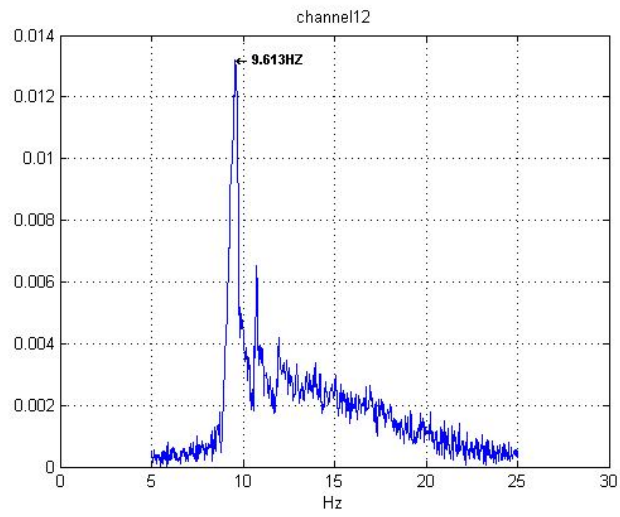


$$f_n^1 = 12,89 \text{ Hz}$$

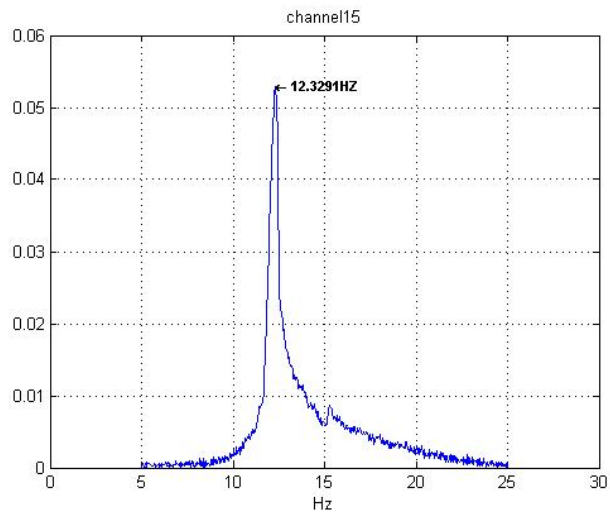
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-
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1 kN/m^2

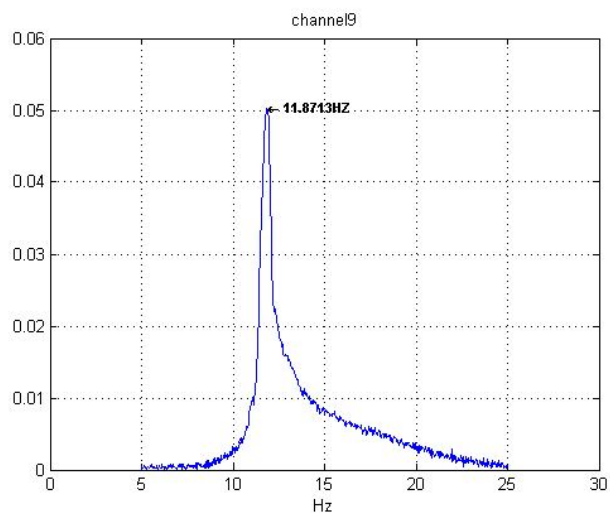




f^1



f^1



f^1

[Hz]	EJ_{dyn} [Nmm ²]	ζ	f^1 [Hz]
	$1,24 \cdot 10^{13}$	0,0286	9,813
	$1,97 \cdot 10^{13}$	0,0260	12,329
	$1,98 \cdot 10^{13}$	0,0296	11,871

8%

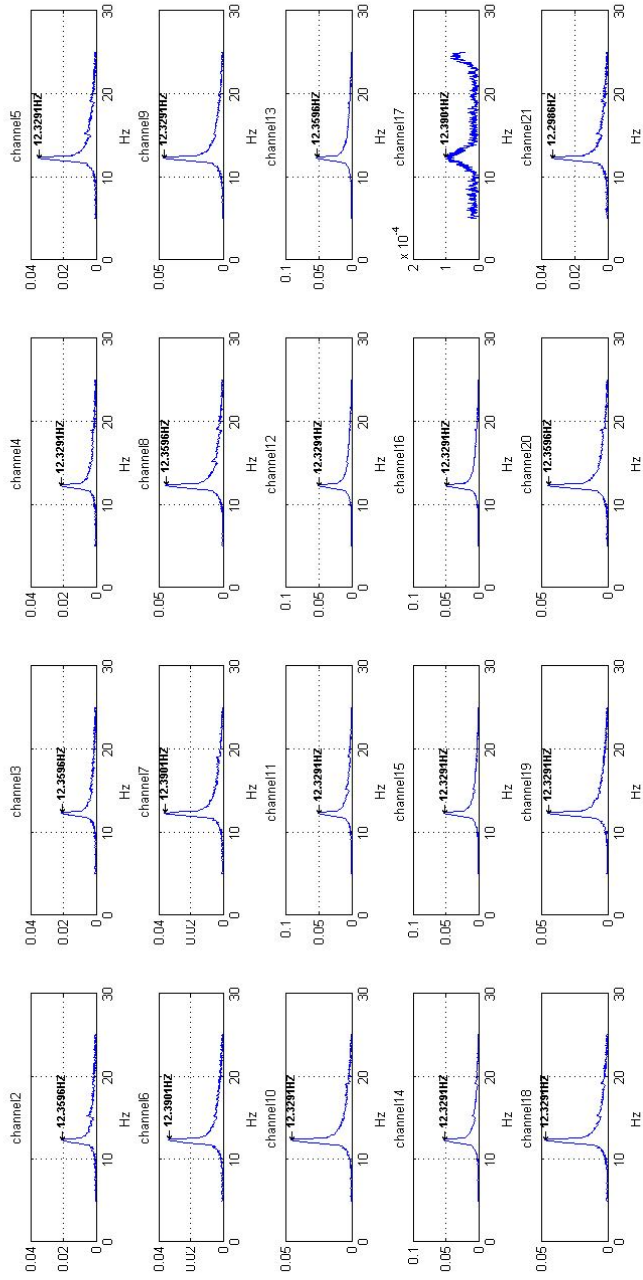
EJ_{dyn}

f [Hz]	EJ_{dyn}				
$\frac{EJ_{dyn}}{[N/mm^2]}$	$2,141 \cdot 10^{13}$	$1,241 \cdot 10^{13}$	$1,969 \cdot 10^{13}$	$1,980 \cdot 10^{13}$	$1,675 \cdot 10^{13}$

EJ_{dyn}

800N

9%



2,7%

1%

8%

EJ_{dyn} $2,14 \cdot 10^{13}$ $1,96 \cdot 10^{13} [N/mm^2]$

