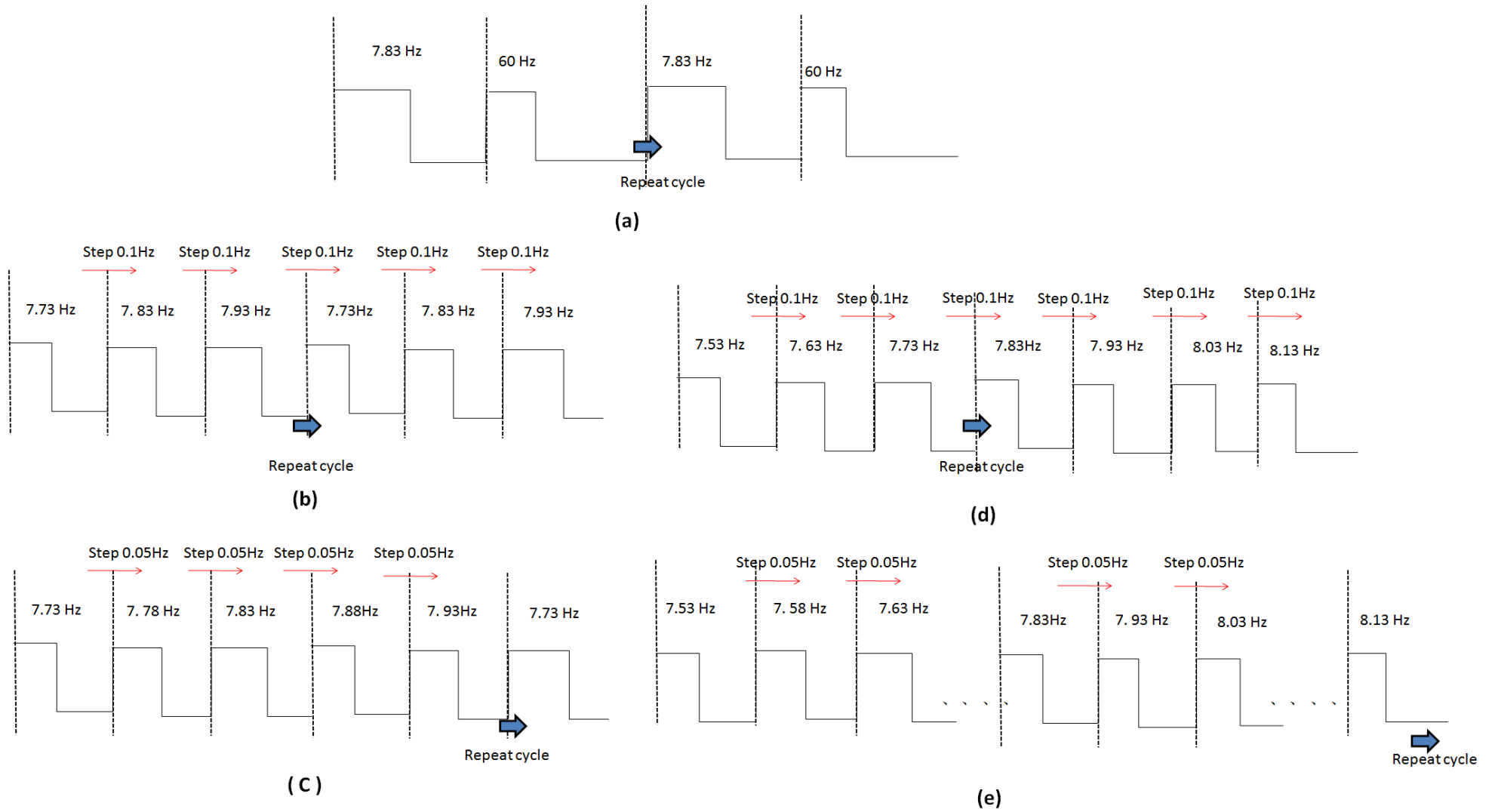
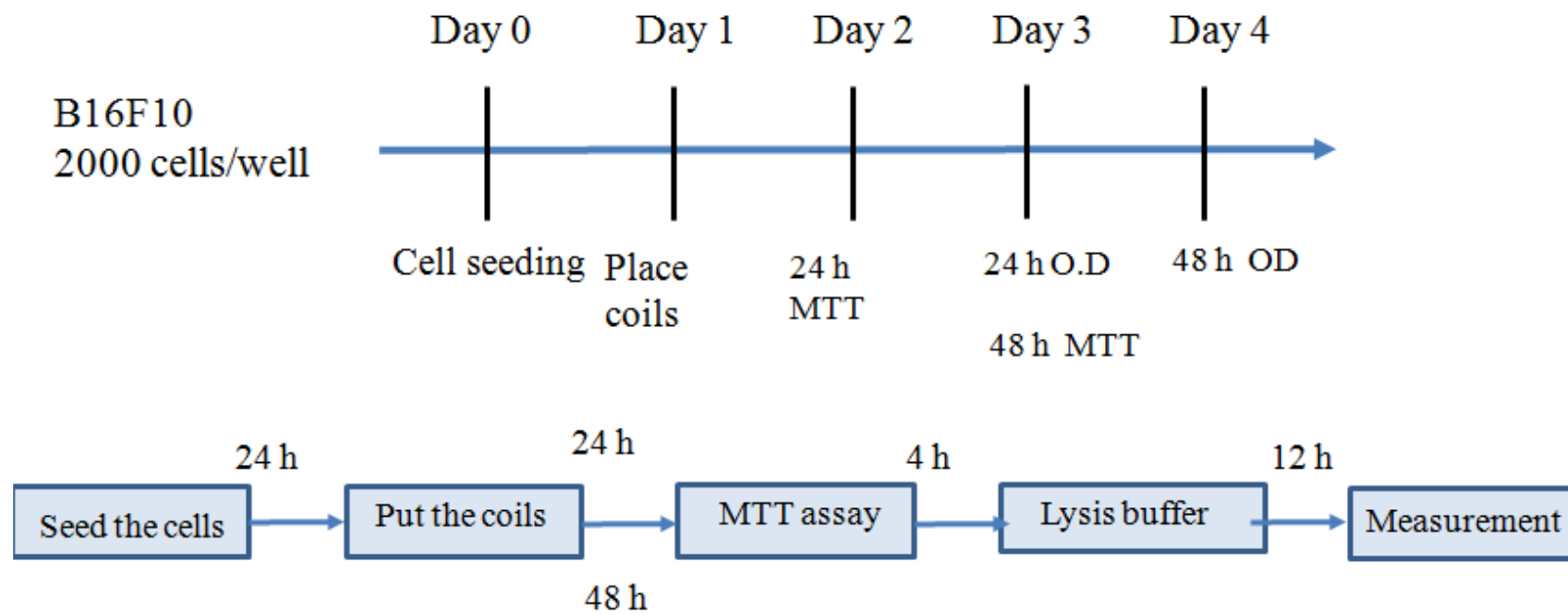
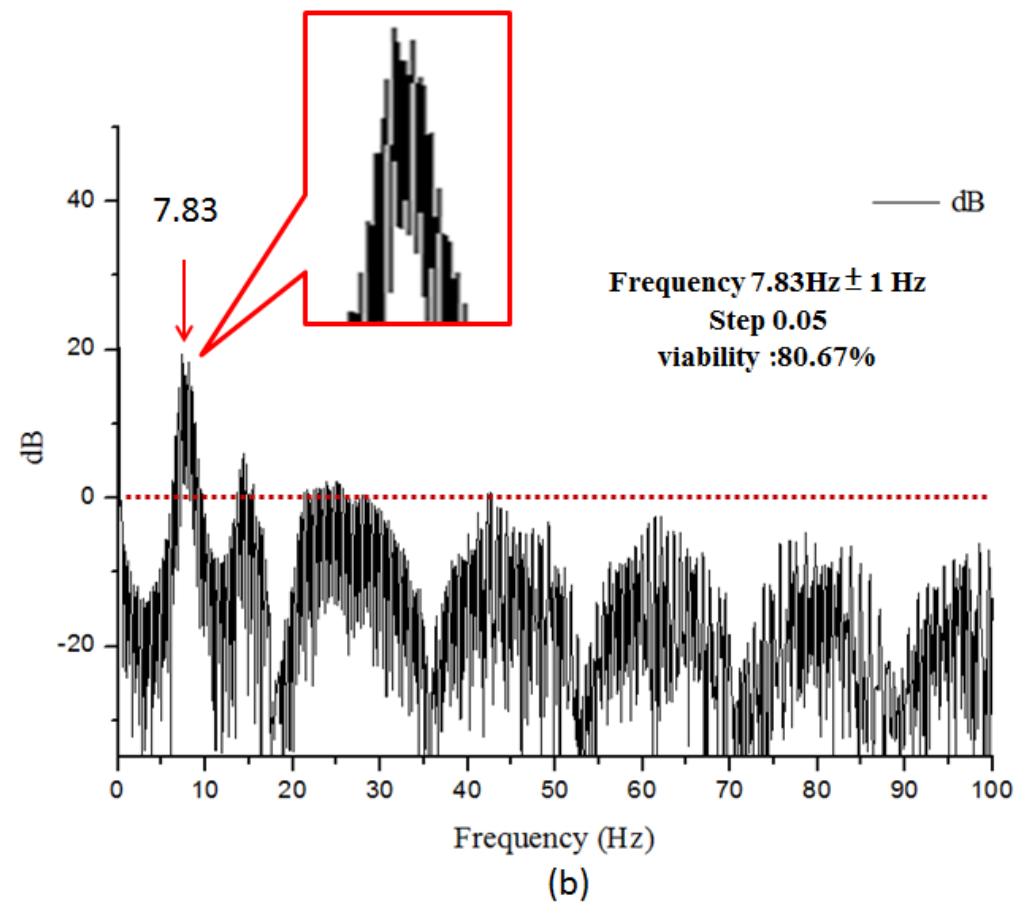
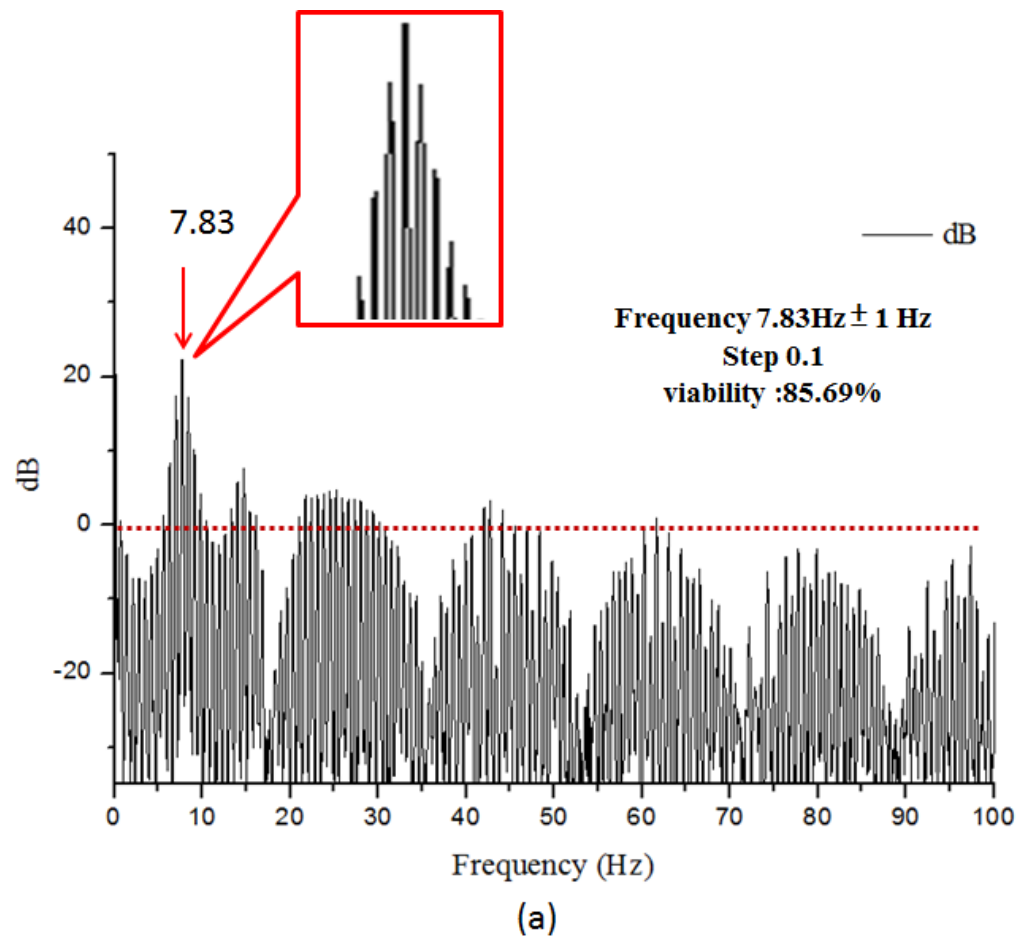




Supplementary Figure 1: Schematic of the square waveform generated by the ELF-EMF device: (a) 7.83 with 60 Hz waveform; (b) 7.83 $\pm$ 0.1 Hz sweep frequency waveform for the 0.1 Hz sweep step; (c) 7.83 $\pm$ 0.1 Hz sweep frequency waveform for the $\pm$ 0.05 Hz sweep step; (d) 7.83 $\pm$ 0.3 Hz sweep frequency waveform for the $\pm$ 0.1 Hz sweep step; (e) 7.83 $\pm$ 0.3 Hz sweep frequency waveform for the $\pm$ 0.05 Hz sweep step.



Supplementary Figure 2: The experiment process of ELF-EMF on B16F10 cells.



Supplementary Figure 3: The FFT analysis spectrogram at sweep frequency $7.83\text{ Hz} \pm 1\text{ Hz}$ (a) Step 0.1 Hz (Cell viability 85.69 %) (b) Step 0.05 Hz (Cell viability 80.67 %).

Supplementary Table 1 Parameters of the EMF frequency experiment

Frequency	Frequency sweep range	Sweep step	Real frequency cycle (Hz)	Cell viability	Inhibition rate
7.83 Hz	-	-	7.83	82.75%	17.25%
7.83 Hz with 60 Hz	-	-	7.83, 60	90.90%	9.10%
7.83 ± 0.1 Hz	7.73–7.93Hz	0.1 Hz	7.73, 7.83, 7.93	75.35%	24.65%
	7.73–7.93Hz	0.05 Hz	7.73, 7.78, 7.83, 7.88, 7.93	73.60%	26.40%
7.83 ± 0.3 Hz	7.53–8.13Hz	0.1 Hz	7.53, 7.58, 7.63, ..., 7.83, 7.93, ..., 8.13	74.54%	25.46%
	7.53–8.13Hz	0.05 Hz	7.53, 7.58, 7.63, ..., 7.83, 7.88, 7.93, ..., 8.13	74.58%	25.42%
7.83 ± 0.5 Hz	7.33–8.33Hz	0.1 Hz	7.33, 7.43, 7.53, ..., 7.83, 7.93, 8.03, ..., 8.33	78.32%	21.68%
	7.33–8.33Hz	0.05 Hz	7.33, 7.38, 7.43, ..., 7.83, 7.88, 7.93, ..., 8.33	77.71%	22.29%
7.83 ± 1 Hz	6.83–8.83Hz	0.1 Hz	6.83, 6.93, 7.03, ..., 7.83, 7.93, 8.03, ..., 8.33	85.69%	14.31%
	6.83–8.83Hz	0.05 Hz	6.83, 6.88, 6.93, ..., 7.83, 7.88, 7.93, ..., 8.33	80.67%	19.33%
7.83 ± 2 Hz	5.83–9.83Hz	0.1 Hz	5.83, 5.93, 6.03, ..., 7.83, 7.93, 8.03, ..., 9.83	86.86%	13.14%
	5.83–9.83Hz	0.05 Hz	5.83, 5.88, 5.93, ..., 7.83, 7.88, 7.93, ..., 9.83	83.77%	16.23%

