



Title	A novel internal target volume definition based on velocity and time of respiratory target motion for external beam radiotherapy
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Table 1

Subject	Overall stage	Location	Volume (cc) ^a	MMA (mm)
P101	IIIB	RUL	31.8	7.5
P103	IIIB	RUL	57.6	5.8
P105	IIIA	LLL	33.3	5.5
P106	IIIA	mediastinum	145.5	5.8
P107	IIIA	LUL	19.2	2.3
P111	IIIA	RLL	81.2	5.6
P113	IIA	LLL	68.2	4.6
P114	IIIA	RLL	162.6	11.3

^a The volume represents the CTV at the 50% phase.

^b Maximum motion amplitude (MMA) represents the maximum three-dimensional movement of CTV with respect to the 50% phase.

Table 2

Cycle (s)	BT (s)	Phase within the gating window									
2	0.5					40	50	60			
	1				30	40	50	60	70		
	2	0	10	20	30	40	50	60	70	80	90
4	0.5						50				
	1					40	50	60			
	2				30	40	50	60	70		
6	0.5						50				
	1						50				
	2					40	50	60			

Table 3

peak-to-peak amplitude (mm)	cycle (s)	phase (%)	maximum velocity (mm/s)
10	2	10-20	19.01
10	4	20-30	8.76
10	6	70-80	6.34
20	2	20-30	28.51
20	4	20-30	15.76
20	6	10-20	10.67

Table 4

patient	phase (%)	cycle 2 s	cycle 4 s	cycle 6 s
		Maximum velocity (mm/s)		
P101	30-40	19.0	9.5	6.3
P103	80-90	12.8	6.4	4.3
P105	70-80	21.1	10.6	7.0
P106	80-90	27.9	13.9	9.3
P107	20-30	8.1	4.0	2.7
P111	10-20	12.5	6.2	4.2
P113	20-30	10.9	5.4	3.6
P114	50-60	22.5	11.2	7.5