## Appendix 1 Evaluation of the CT characteristics



**Figure S1** Distance to costal pleura (peripheral/non-peripheral). (A) Peripheral nodules: The distance to costal pleural was <1/3 from total distance hilum-costal pleura; (B) non-peripheral: the distance to costal pleural was >1/3 from total distance hilum-costal pleura.



Figure S2 Shapes (round/oval, irregular). (A) Round/Oval; (B) irregular.



Figure S3 Margins (smooth, lobulated, spiculated). (A) Smooth; (B) lobulated; (C) spiculated.



**Figure S4** Pleural indentation. (A) There is no pleural indentation; (B) nodules adhering to pleural or pleural indentation with >1 stripe (blue arrows).



**Figure S5** Vascular invasion. (A) There is no vascular invasion; (B) coexistence of irregular vascular dilation or vascular convergence from multiple supplying vessels (blue arrow).



Figure S6 Necrosis. Non-enhanced liquid area after enhancement (blue area).



Figure S7 Satellite nodules. Satellite nodules appear around the tumor (blue arrow).



Figure S8 Postobstructive pneumonia. Ground glass infiltration and atelectasis around tumor.



**Figure S9** Subjective enhancement (uniform/heterogeneous/no). (A) The tumor enhanced difference is large than 15 HU with uniform enhancement; (B) the tumor enhanced difference is large than 15 HU with heterogeneous enhancement; (C) the tumor enhanced difference is less than 15 HU.



**Figure S10** A 42 years old male patient with a solid oval, slightly lobulated tumor  $(15 \times 14 \text{ mm}^2)$  located in the left upper lobe. The mean density of the nodule was 38.8 Hounsfield Units on 5 CT without iodine contrast, and 39.1 Hounsfield Units after contrast (no enhancement). Radiologist's diagnosis: Benign; CART model classification: ST1; Histology: hamartoma.



**Figure S11** A 53 years old female patient with a solid round, smooth tumor (22×21 mm<sup>2</sup>) located in the left lower lobe. The mean density of the nodule was 33.9 Hounsfield Units on CT without iodine contrast, and 94.1 Hounsfield Units after contrast (uniform-enhancement). Radiologist's diagnosis: Benign; CART model classification: ST1; Histology: sclerosing pneumocytoma.



**Figure S12** A 60 years old male patient with a solid irregular, lobulated tumor (23×19 mm<sup>2</sup>) located in the right lower lobe. The mean density of the nodule 12 was 18.6 Hounsfield Units on CT without iodine contrast, and a density of 58.3 Hounsfield Units after contrast (uneven-enhancement). Radiologist's diagnosis: malignant; CART model classification: ST3; Histology: squamous cell carcinoma.



**Figure S13** A 78 years old female patient with a solid round, smooth tumor (60×51 mm<sup>2</sup>) located in the left lower lobe. The mean density of the nodule 16 was 52.3 Hounsfield Units on CT without iodine contrast, with uneven-enhancement 68.5 Hounsfield Units after contrast. Radiologist's diagnosis: probably benign; CART model classification: ST2; Histology: sclerosing.



**Figure S14** A 56 years old female patient with a solid round, smooth tumor (18×16 mm<sup>2</sup>) located in the right lower lobe. The mean density of the nodule 20 was 15.1 Hounsfield Units on CT without iodine contrast, and uneven-enhancement 61.7 Hounsfield Units after contrast. Radiologist's diagnosis: Probably malignancy; CART model classification: ST2; Histology: adenocarcinoma.