

Supplementary Material

Carbene-Anchored/Pendent-Imidazolium Species as Precursors to Di-*N*-Heterocyclic Carbene-Bridged Mixed-Metal Complexes

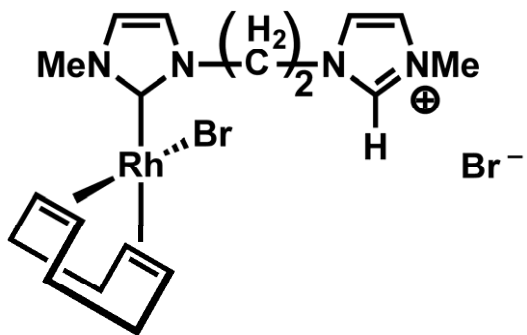
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† X-Ray Crystallography Laboratory

Figure S1-1. ^1H Spectrum of Compound **2c**



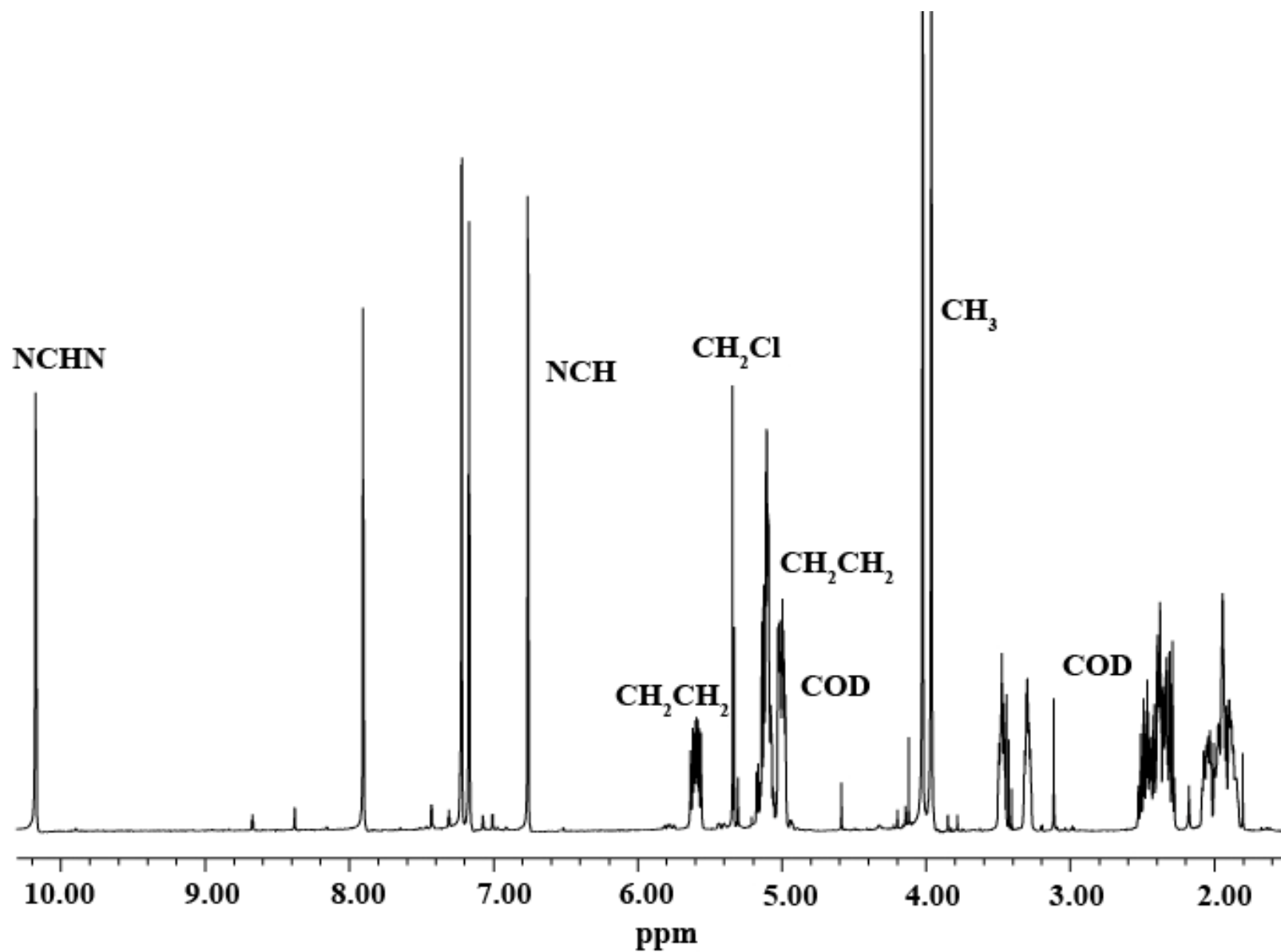
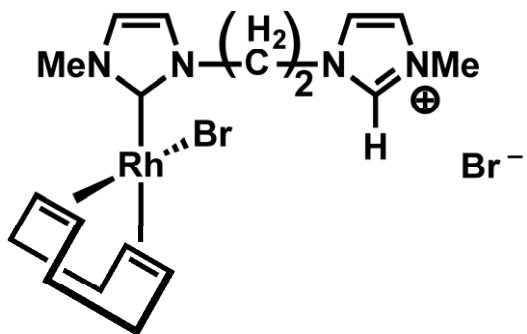
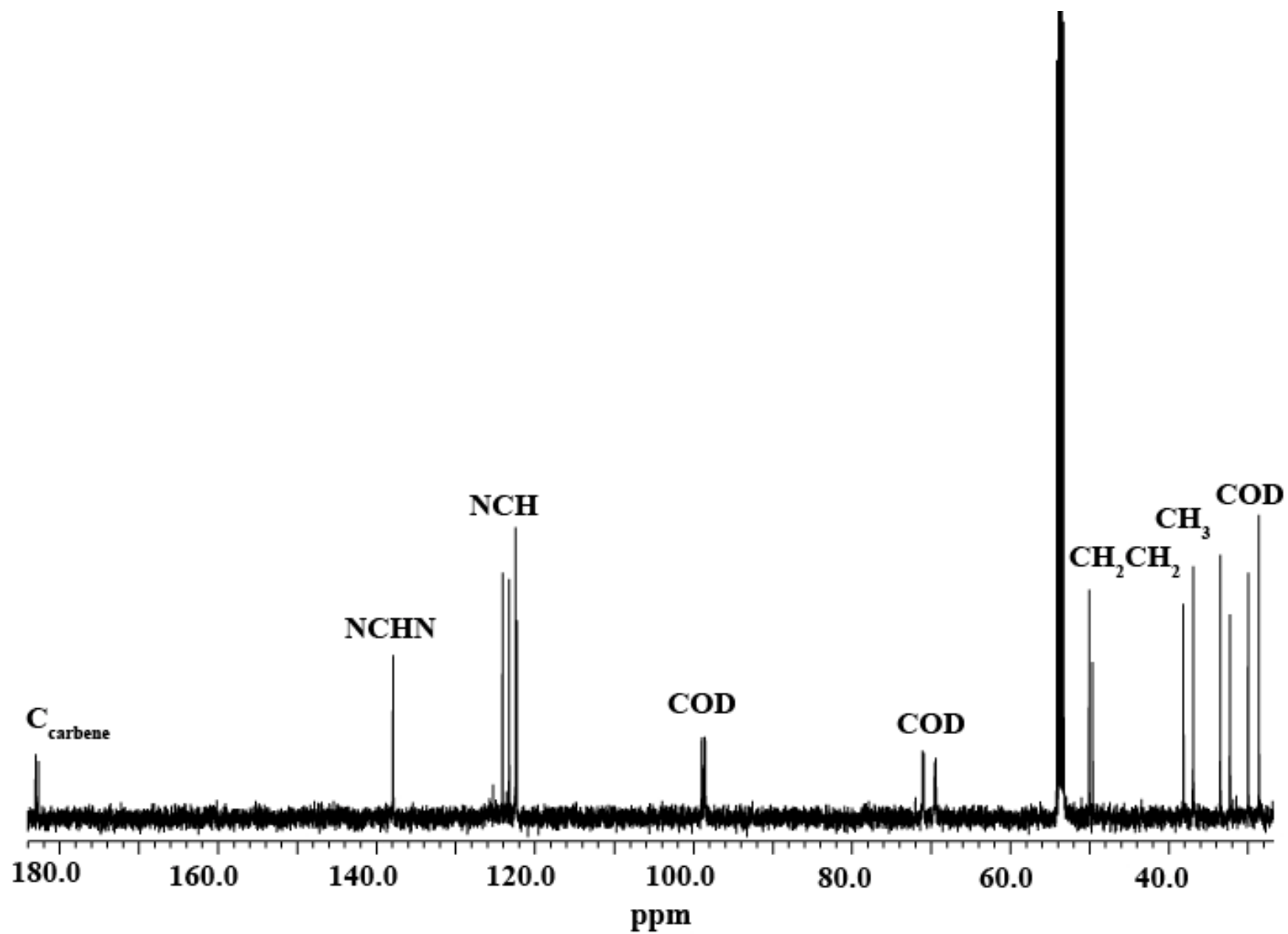


Figure S1-2. $^{13}\text{C}\{^1\text{H}\}$ Spectrum of Compound **2c**

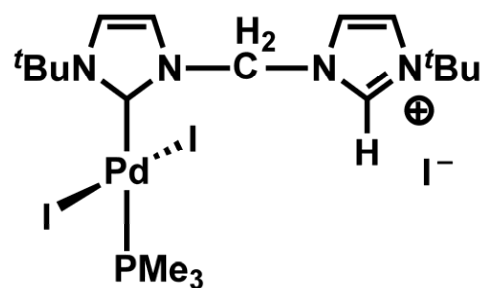


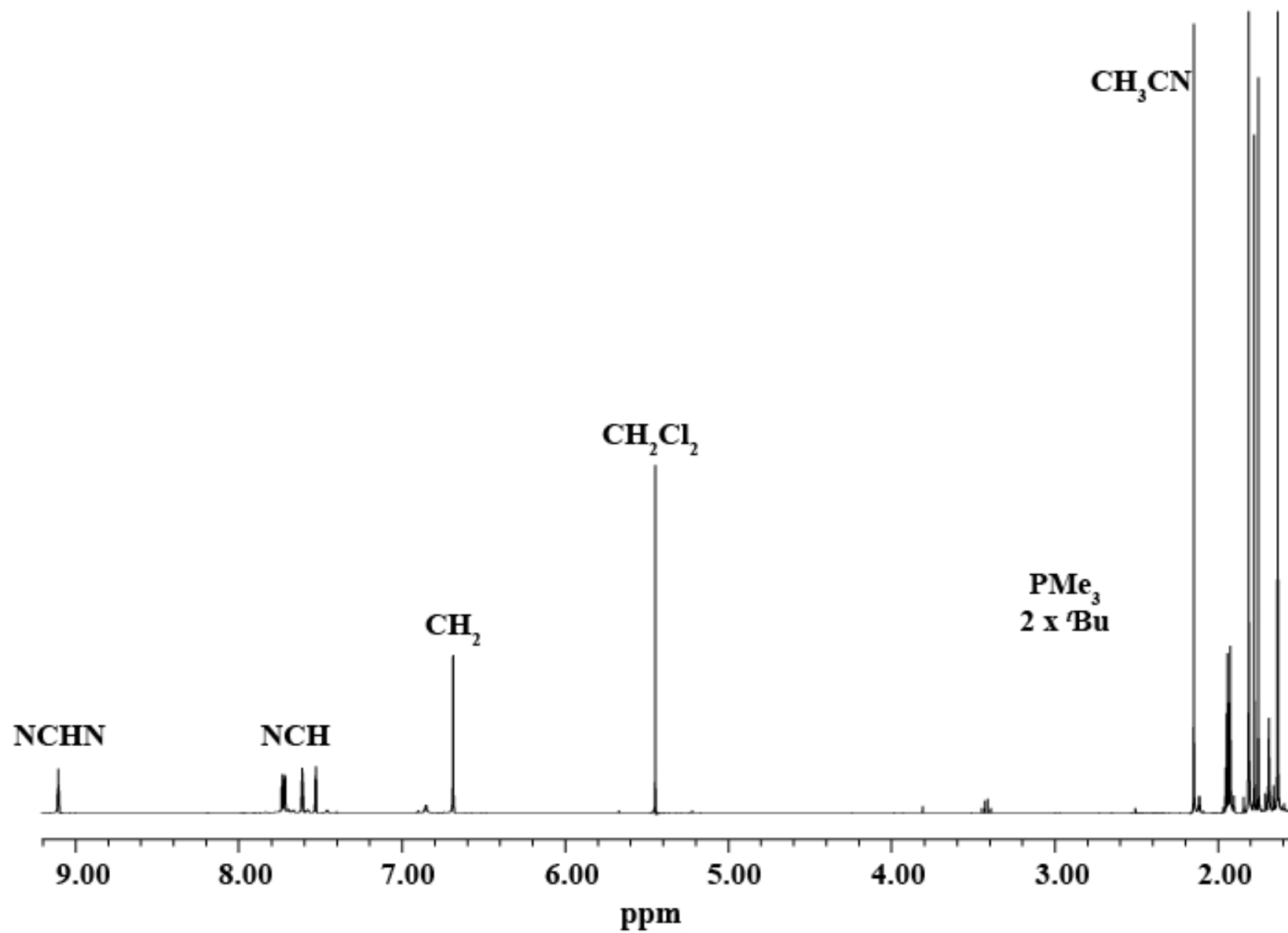


Electronic Supplementary Information for Dalton Transactions

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Figure S2-1. ^1H Spectrum of Compound **8b**





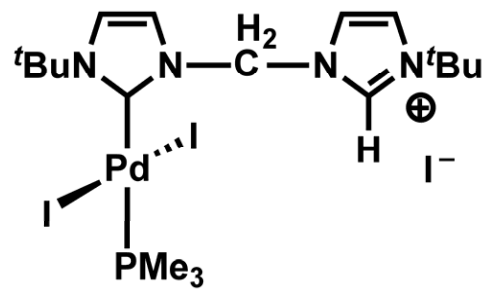
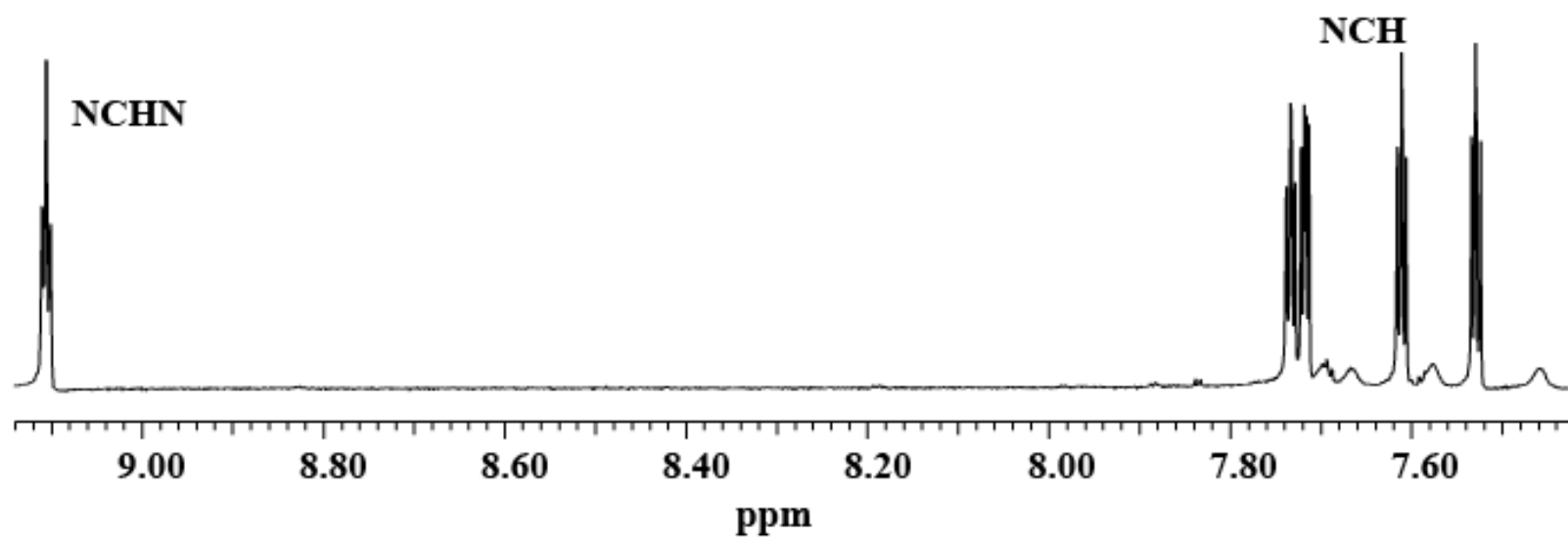


Figure S2-2. ^1H Spectrum Expansion of Compound **8b**



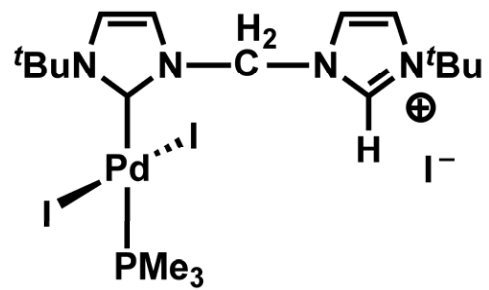
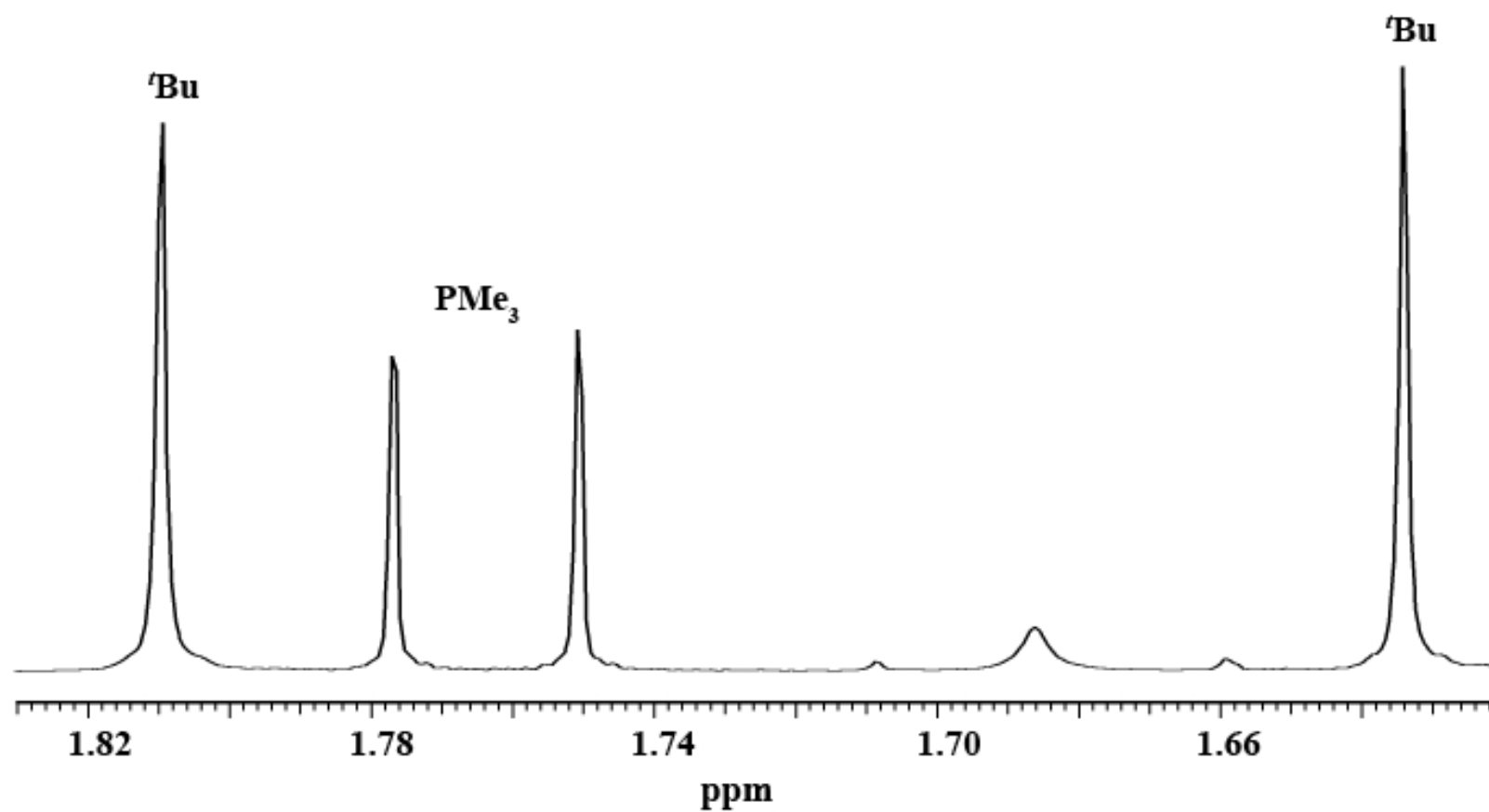


Figure S2-3. ^1H Spectrum Expansion of Compound **8b**



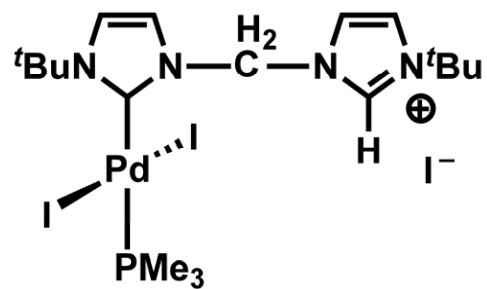
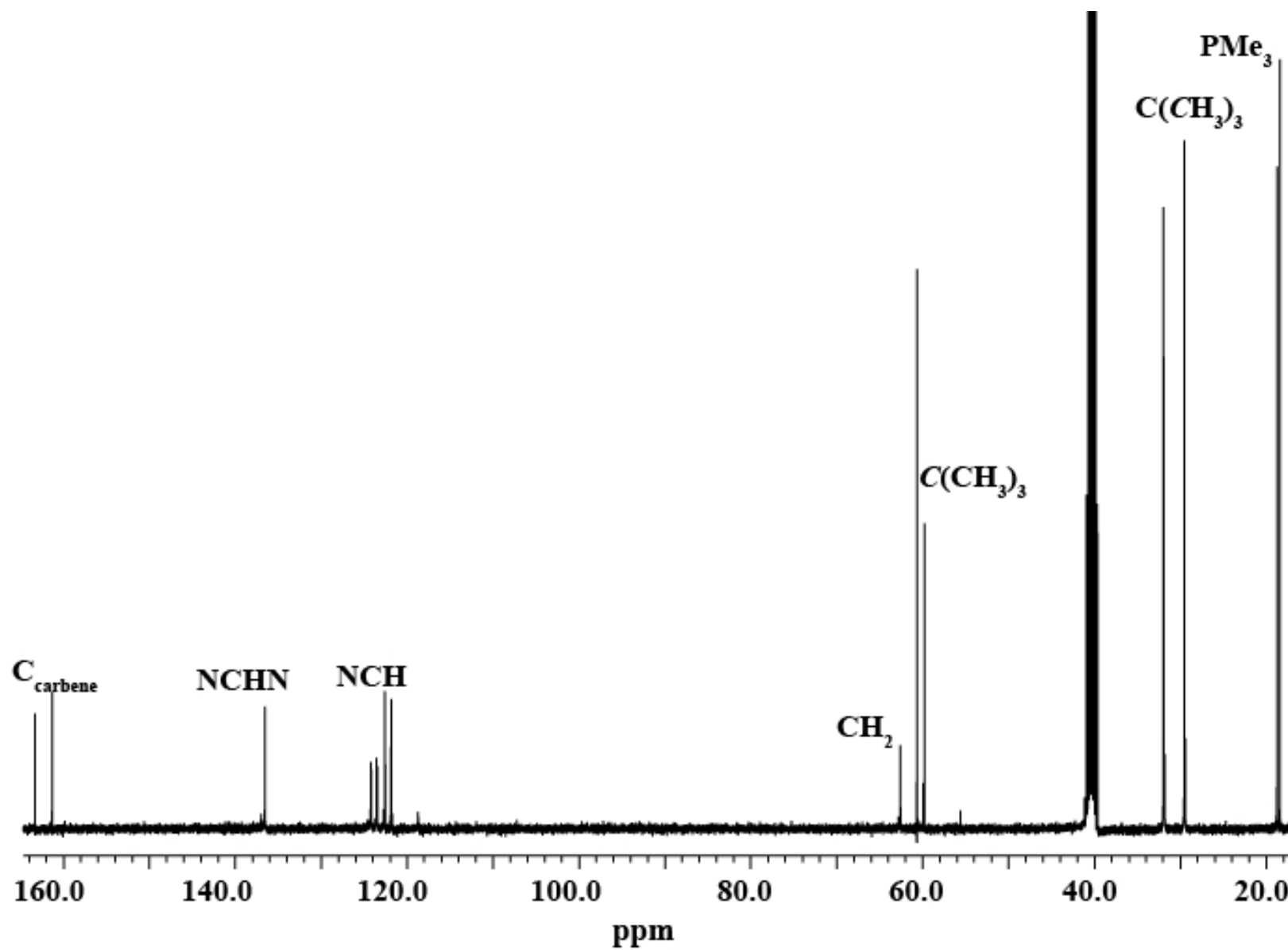


Figure S2-4. $^{13}\text{C}\{^1\text{H}\}$ Spectrum of Compound **8b**



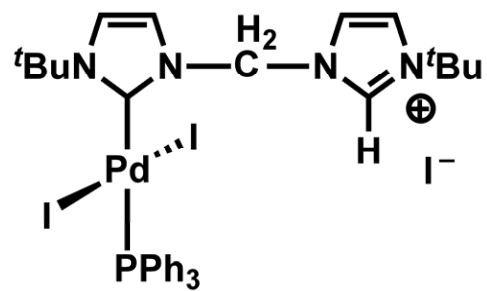


Figure S3-1. ^1H Spectrum of Compound **10b**

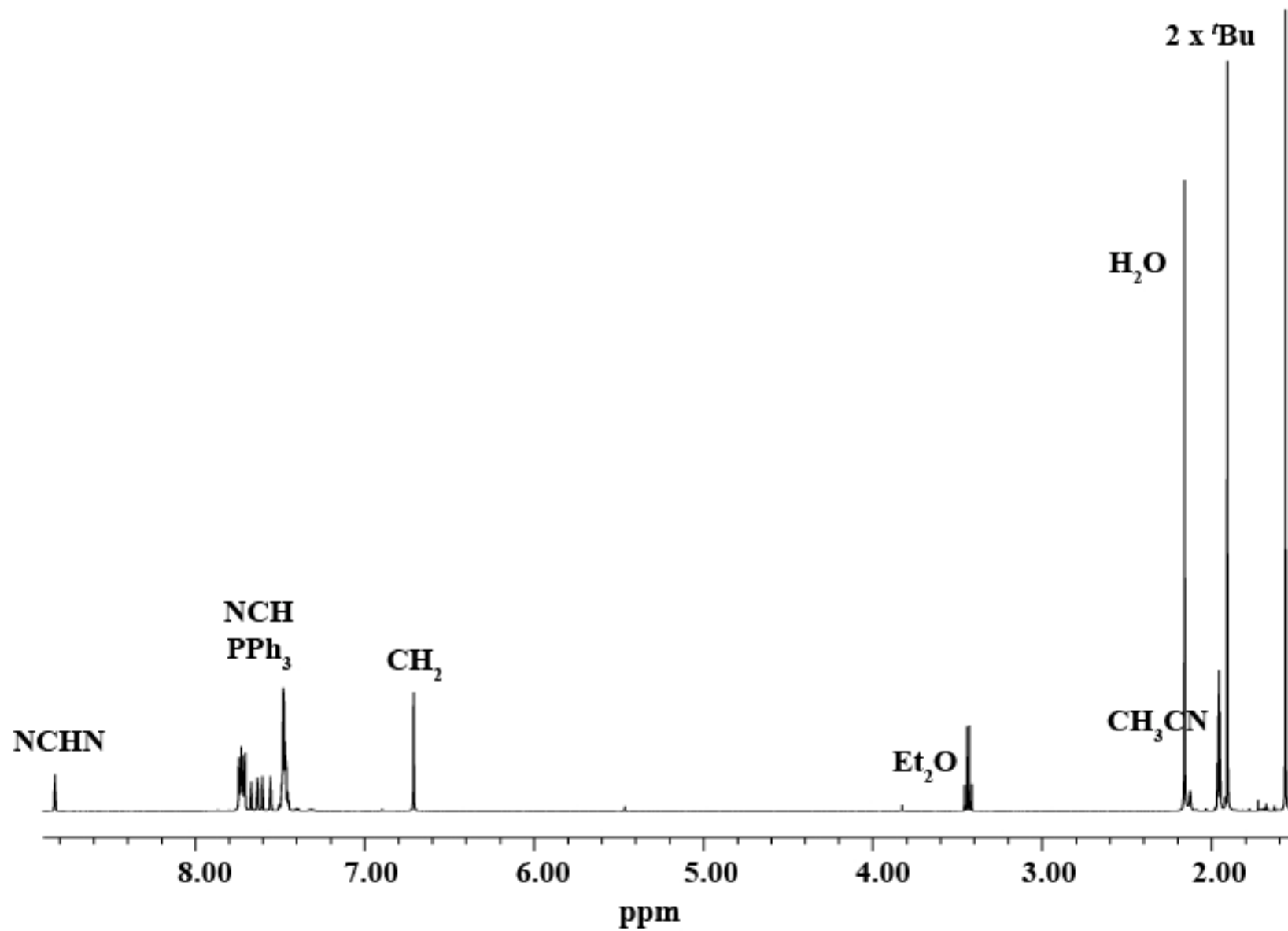
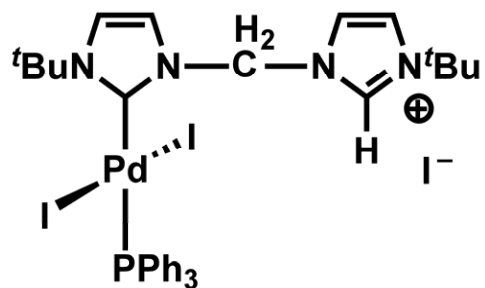
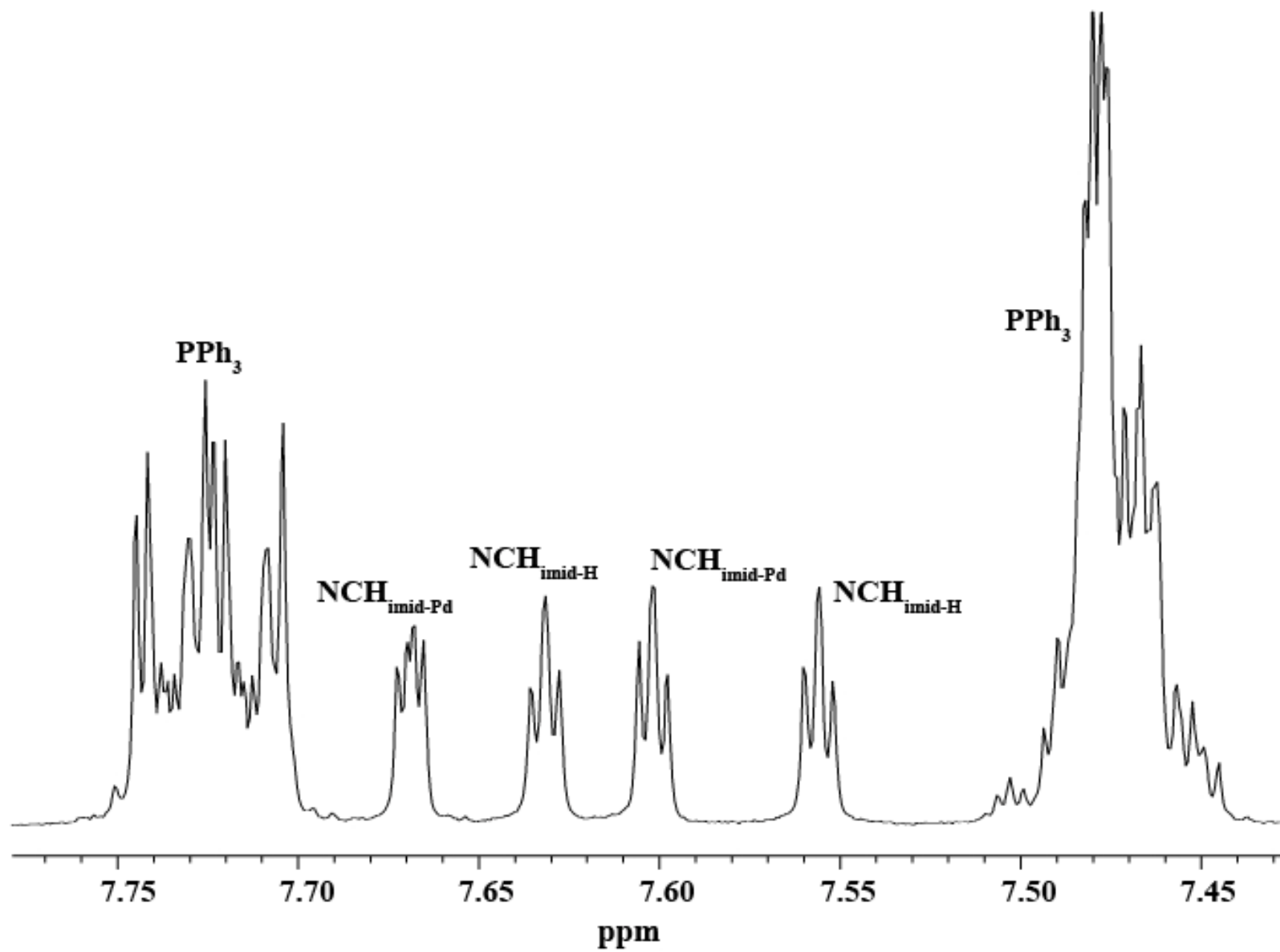


Figure S3-2. ^1H Spectrum Expansion of Compound **10b**





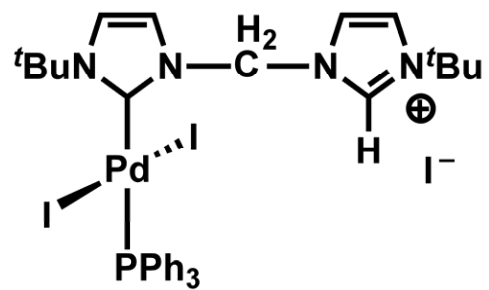


Figure S3-3. $^{13}\text{C}\{^1\text{H}\}$ Spectrum of Compound **10b**

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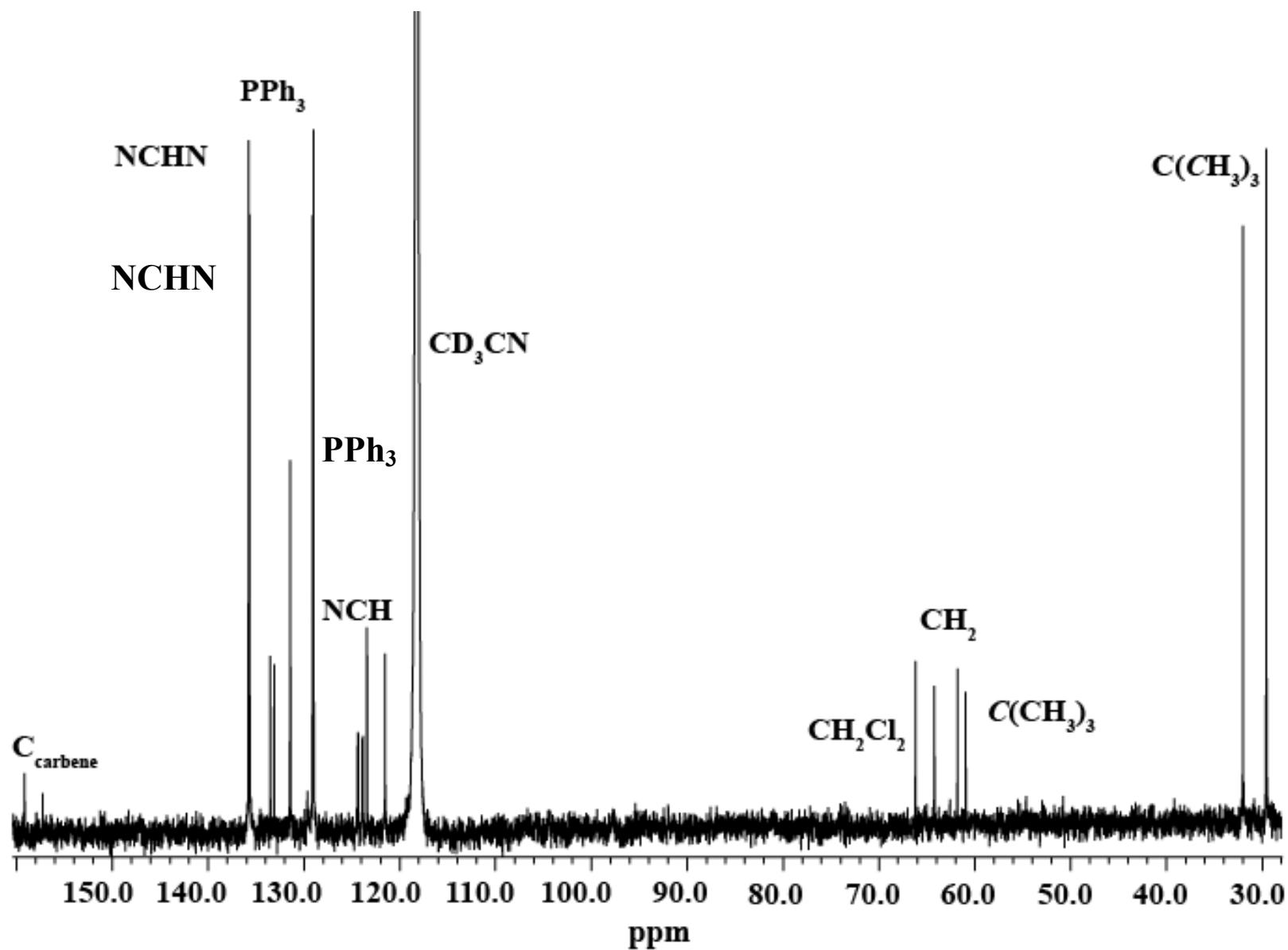


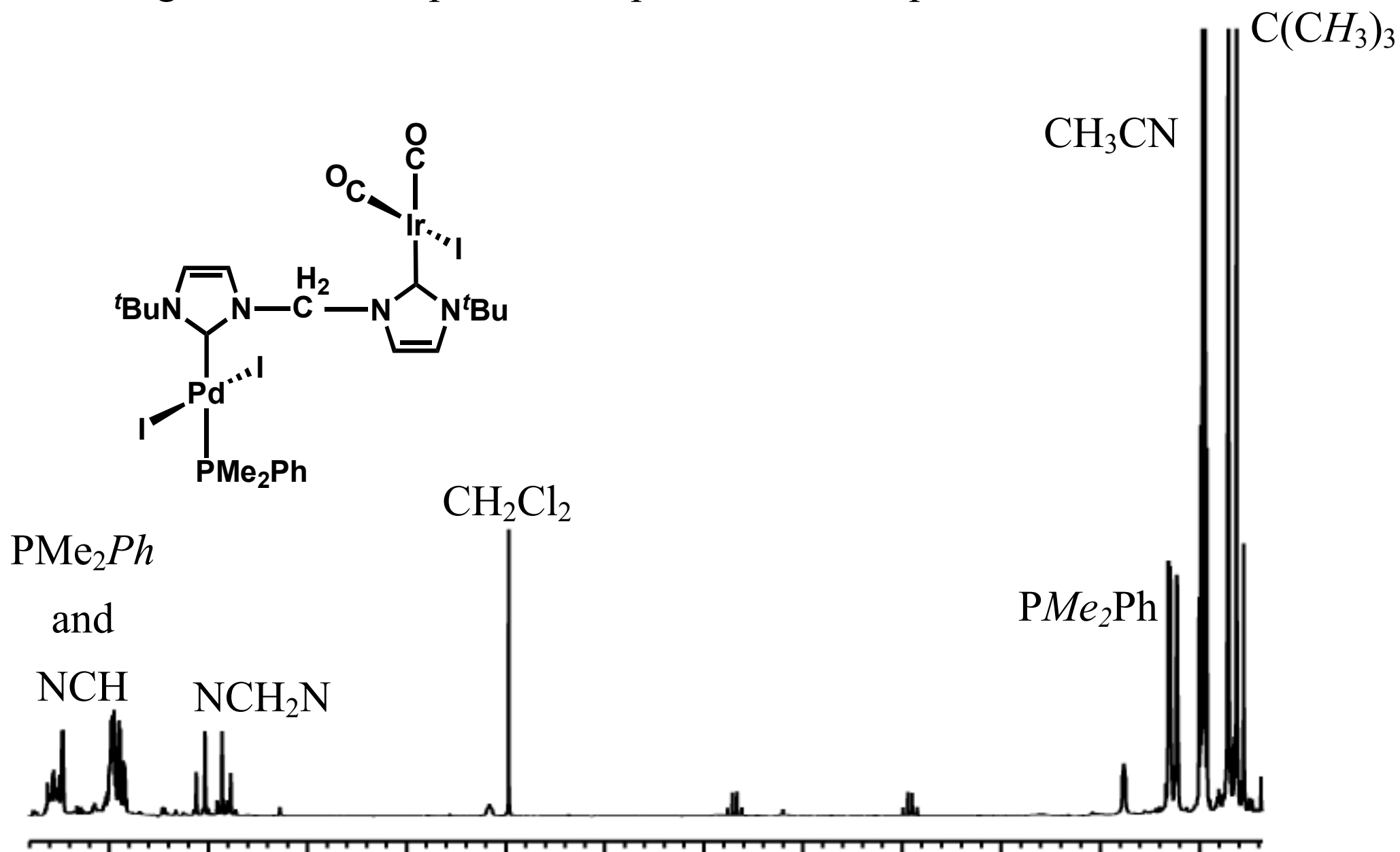
Figure S4-1. ^1H Spectrum Expansion of Compound **23b**

Figure S4-2. $^{13}\text{C}\{^1\text{H}\}$ Spectrum Expansion of Compound **23b**

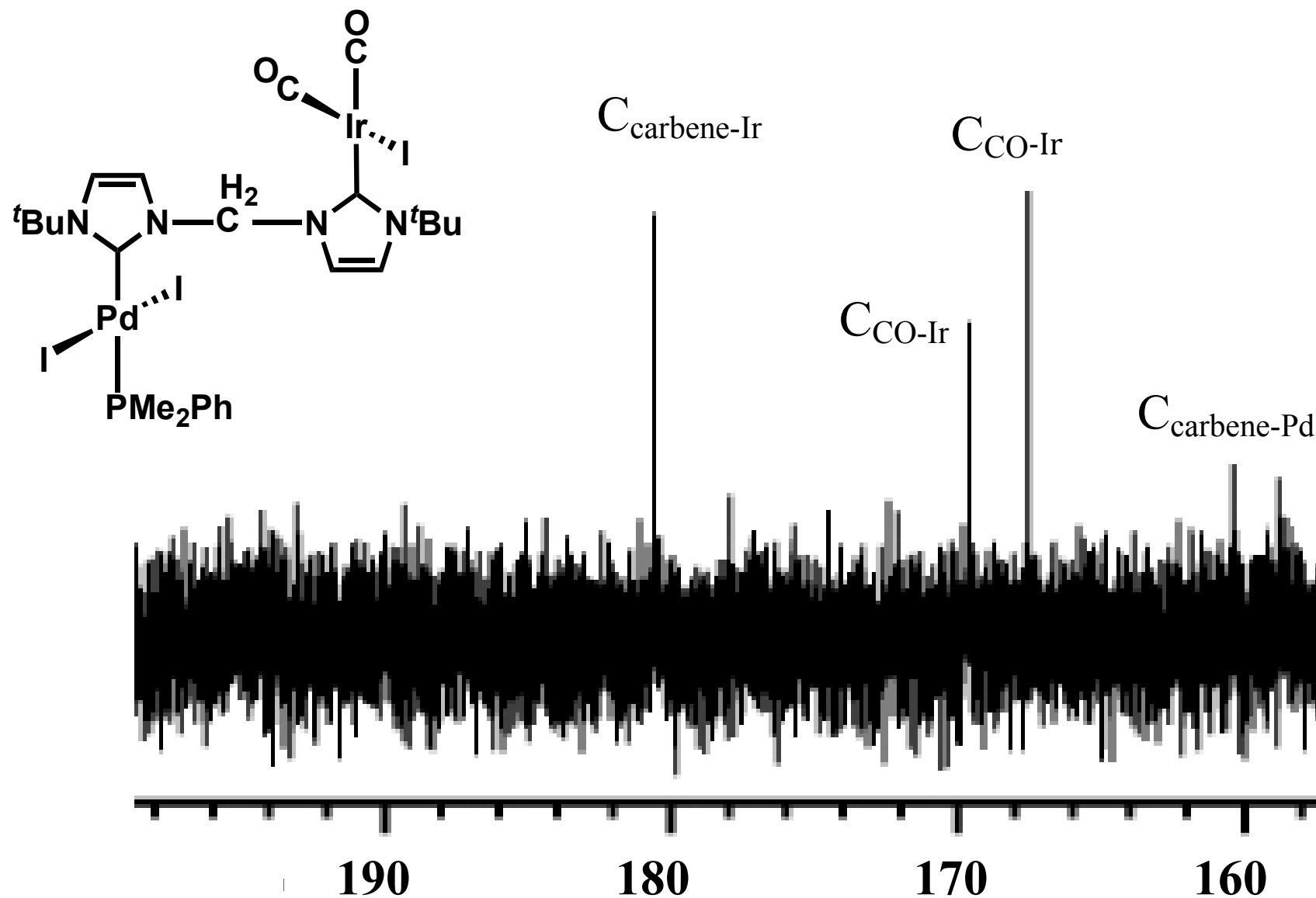
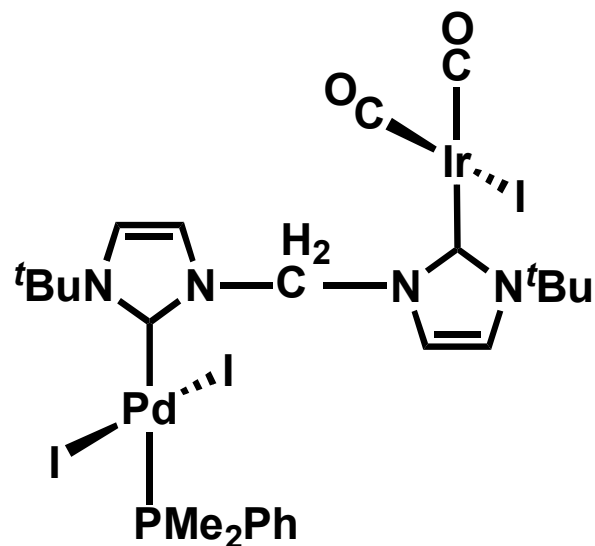
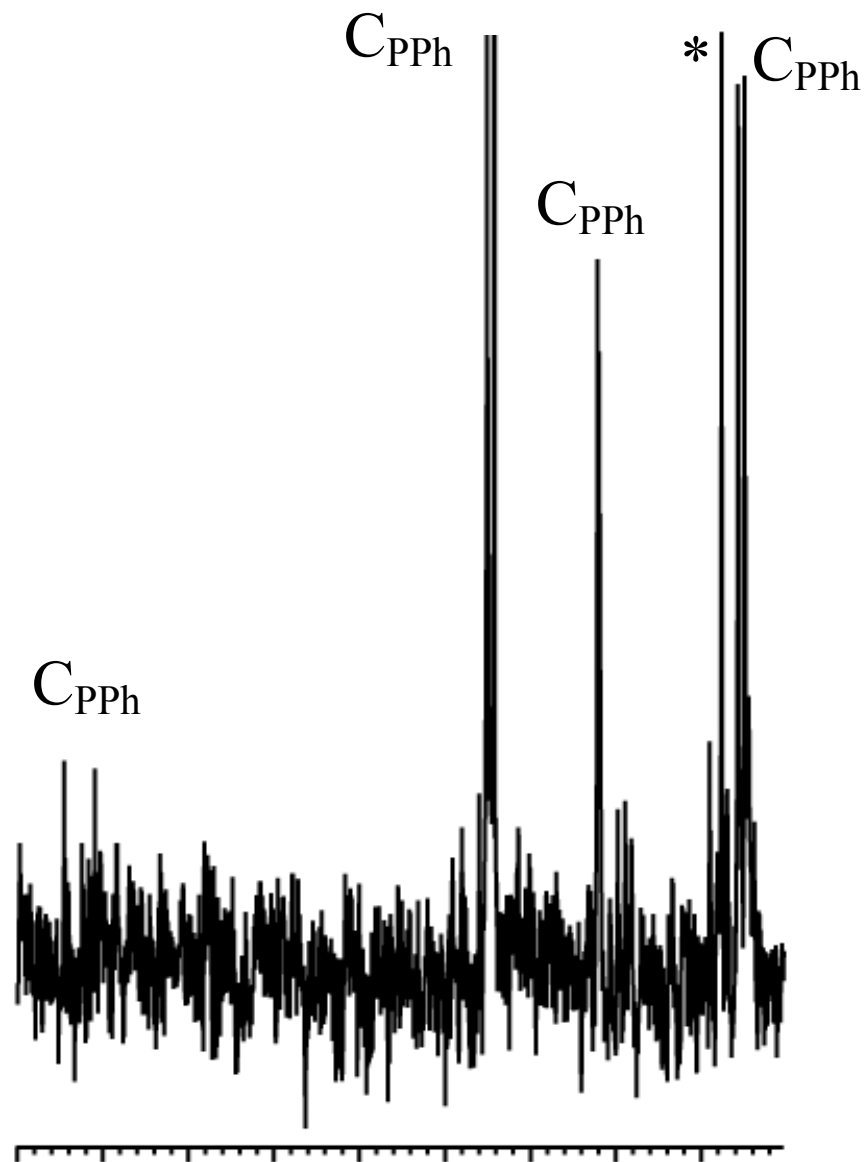


Figure S4-3. $^{13}\text{C}\{^1\text{H}\}$ Spectrum Expansion of Compound **23b**



* impurity



Chemical structure of the catalyst complex and its corresponding ^1H NMR spectrum. The catalyst is a bimetallic complex consisting of a palladium (Pd) center and an iridium (Ir) center. The Pd center is coordinated by a 1-iodo-2-(dimethylphenylphosphino)imidazole ligand and a 1-iodo-2-(2-((2-iodo-2-(dimethylphenylphosphino)imidazol-1-yl)ethyl)-2-oxoimidazol-5-yl)ethan-1-one ligand. The Ir center is coordinated by a 1-iodo-2-oxoimidazole ligand and a 1-iodo-2-(2-((2-iodo-2-(dimethylphenylphosphino)imidazol-1-yl)ethyl)-2-oxoimidazol-5-yl)ethan-1-one ligand. The ^1H NMR spectrum shows peaks corresponding to the imidazole protons of the Pd and Ir complexes, labeled as $\text{NCH}_{\text{imid-Pd}}$ and $\text{NCH}_{\text{imid-Ir}}$.

Figure S4-5. $^{13}\text{C}\{^1\text{H}\}$ Spectrum Expansion of Compound **23b**

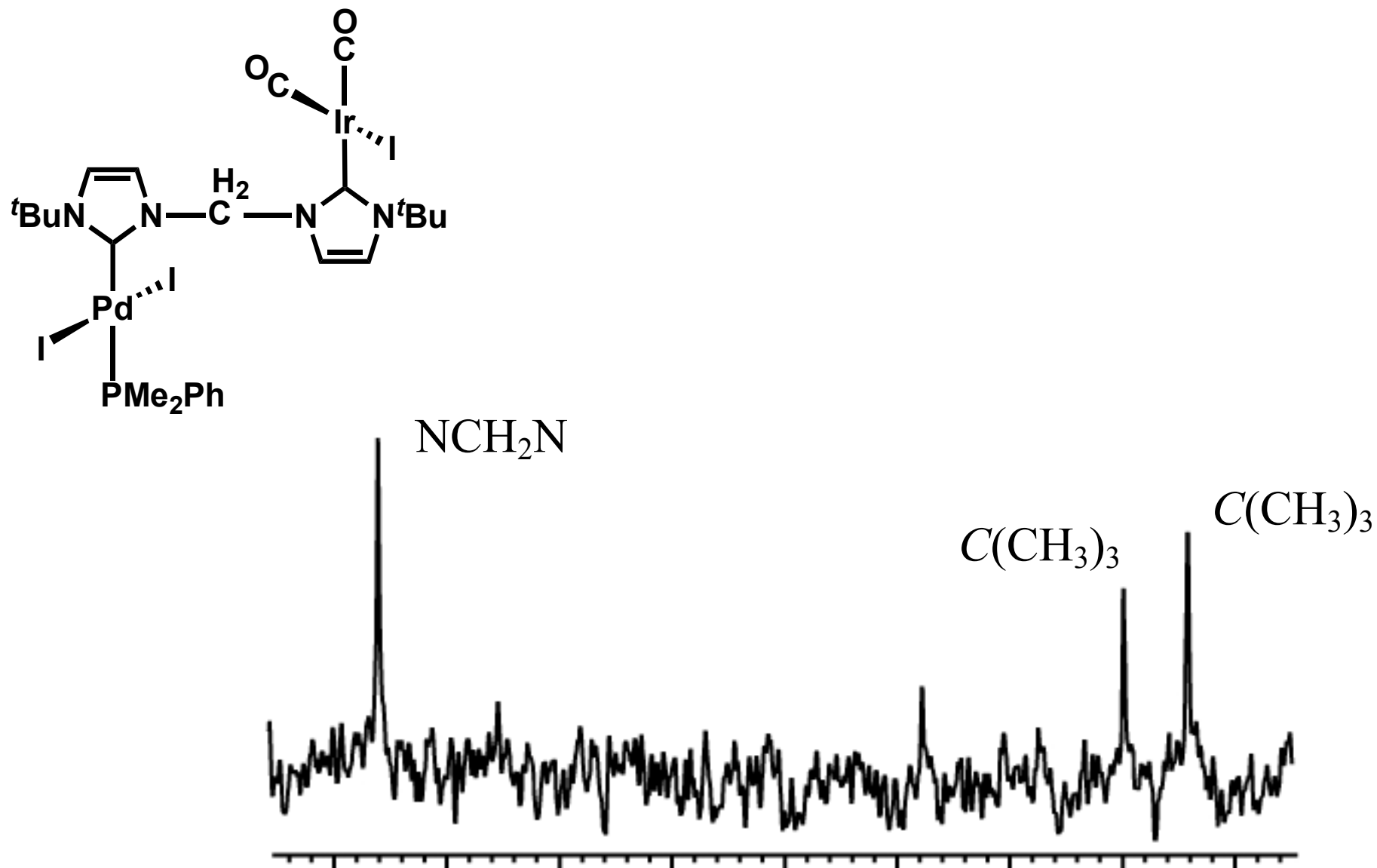
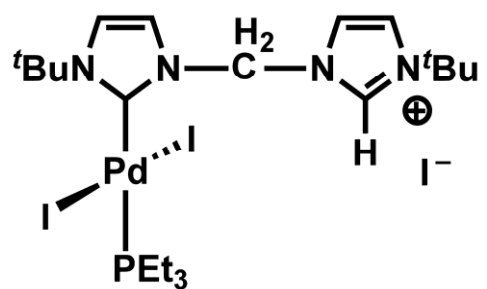


Figure S5. NMR Decoupling Experiments on Compound **9b**



¹H NMR

¹H {³¹P} NMR

¹H {¹H} NMR

