



Supporting Information

for

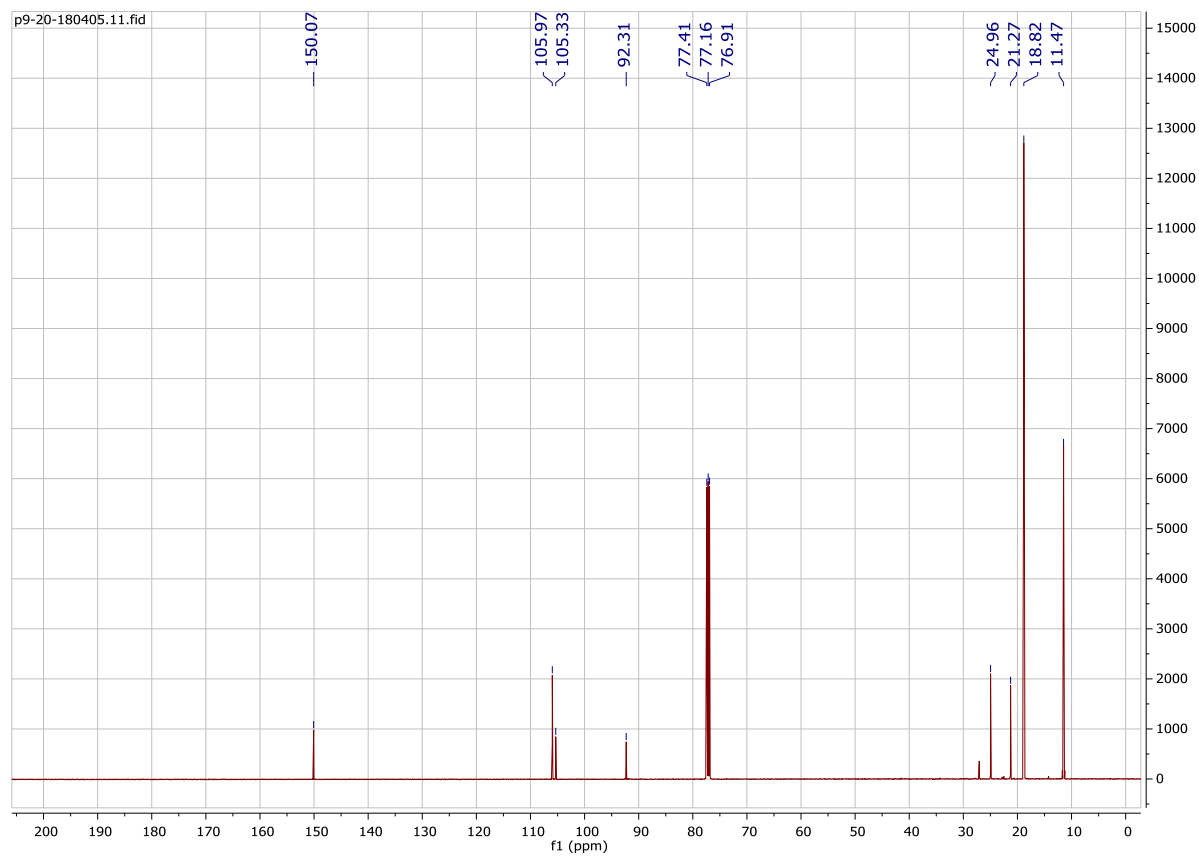
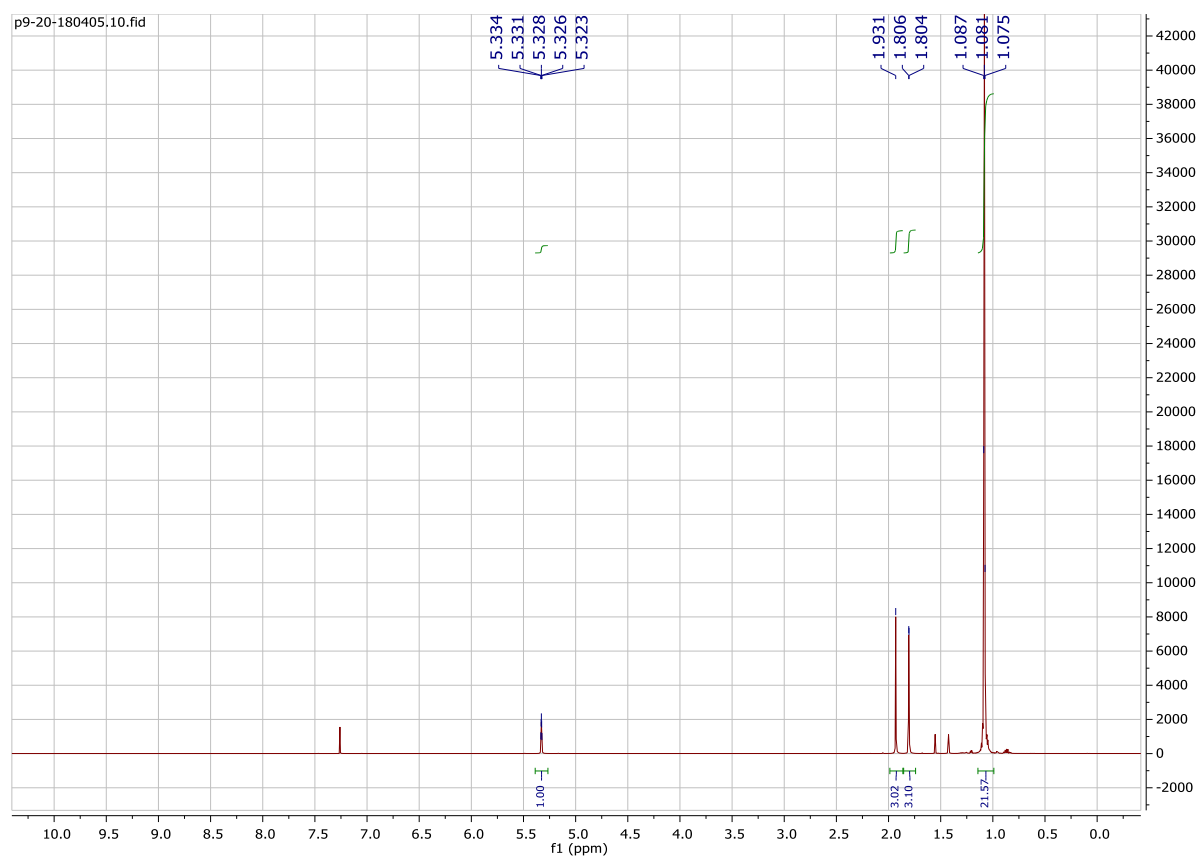
Borylation and rearrangement of alkynyloxiranes: a stereospecific route to substituted α -enynes

Ruben Pomar Fuentespina, José Luis Angel Garcia de la Cruz, Gabriel Durin, Victor Mamane, Jean-Marc Weibel and Patrick Pale

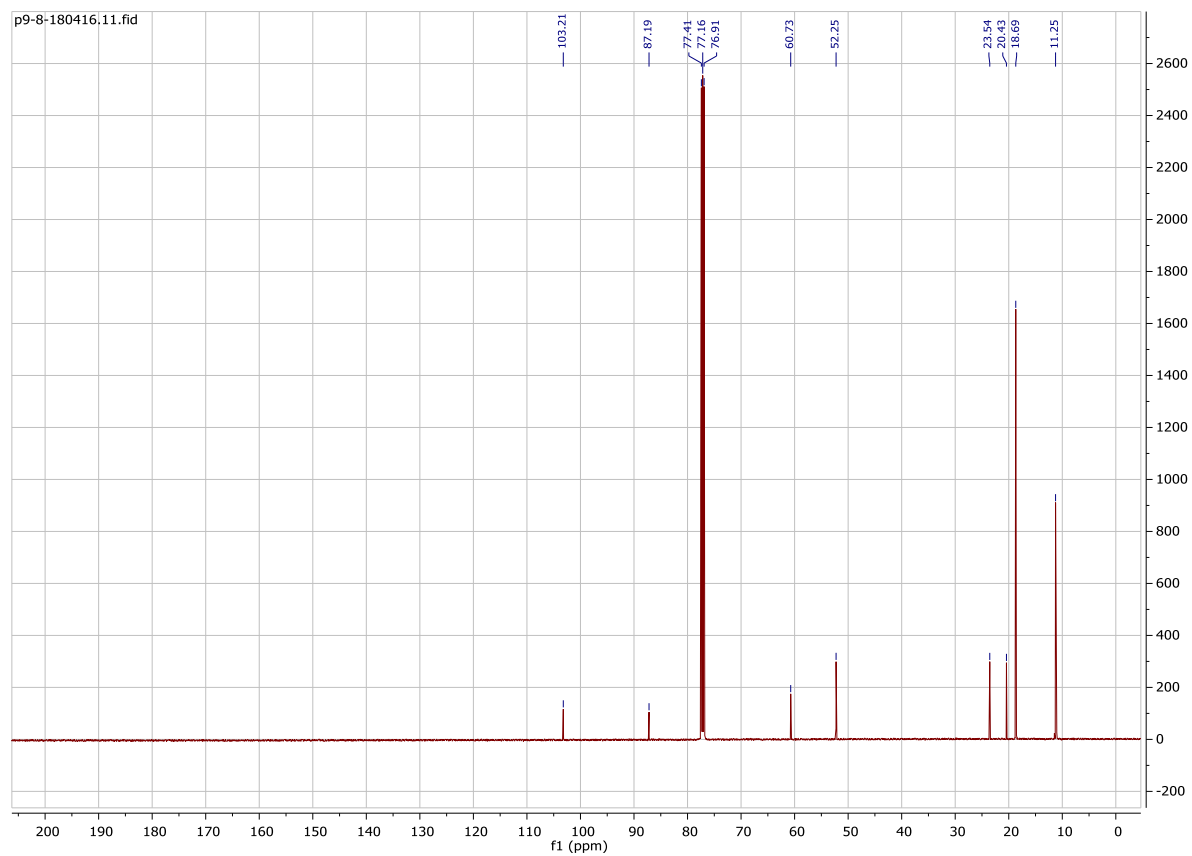
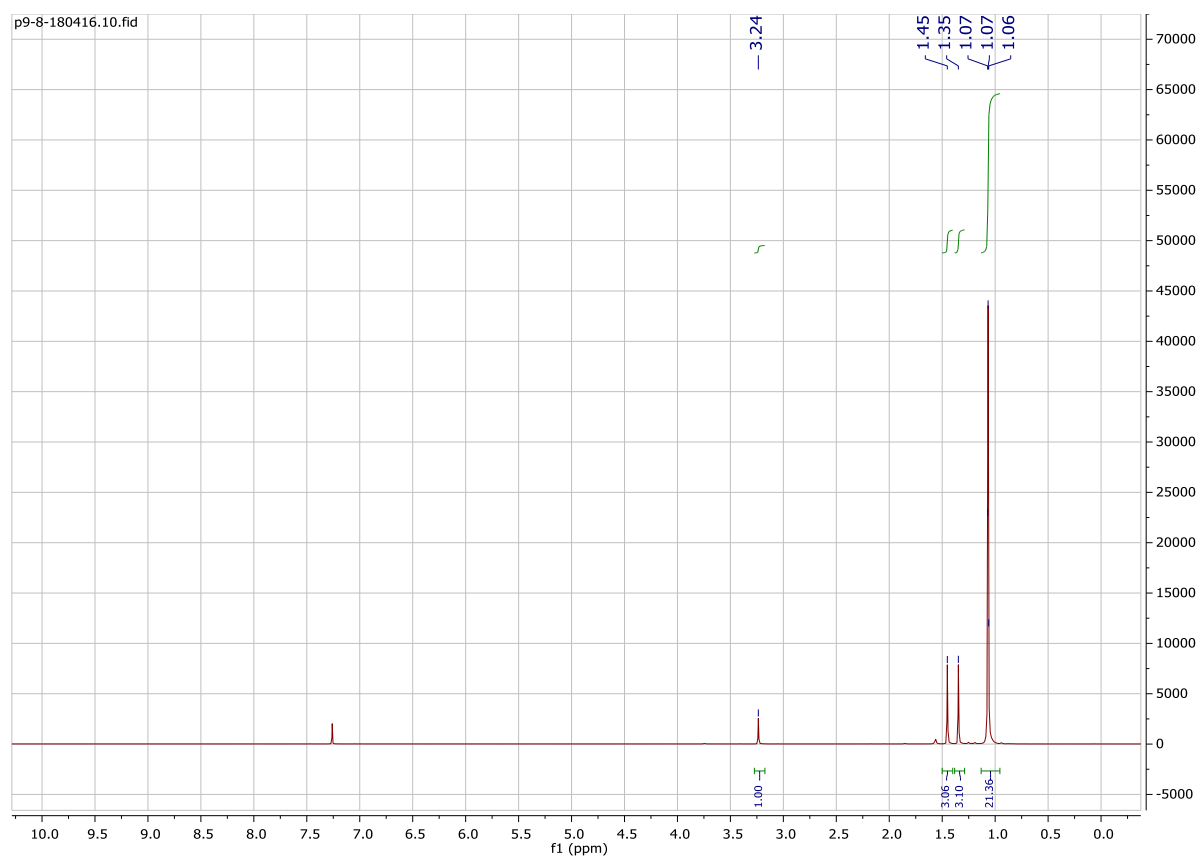
Beilstein J. Org. Chem. **2019**, *15*, 1416–1424. doi:10.3762/bjoc.15.141

Copies of ^1H NMR and ^{13}C NMR spectra of all new compounds

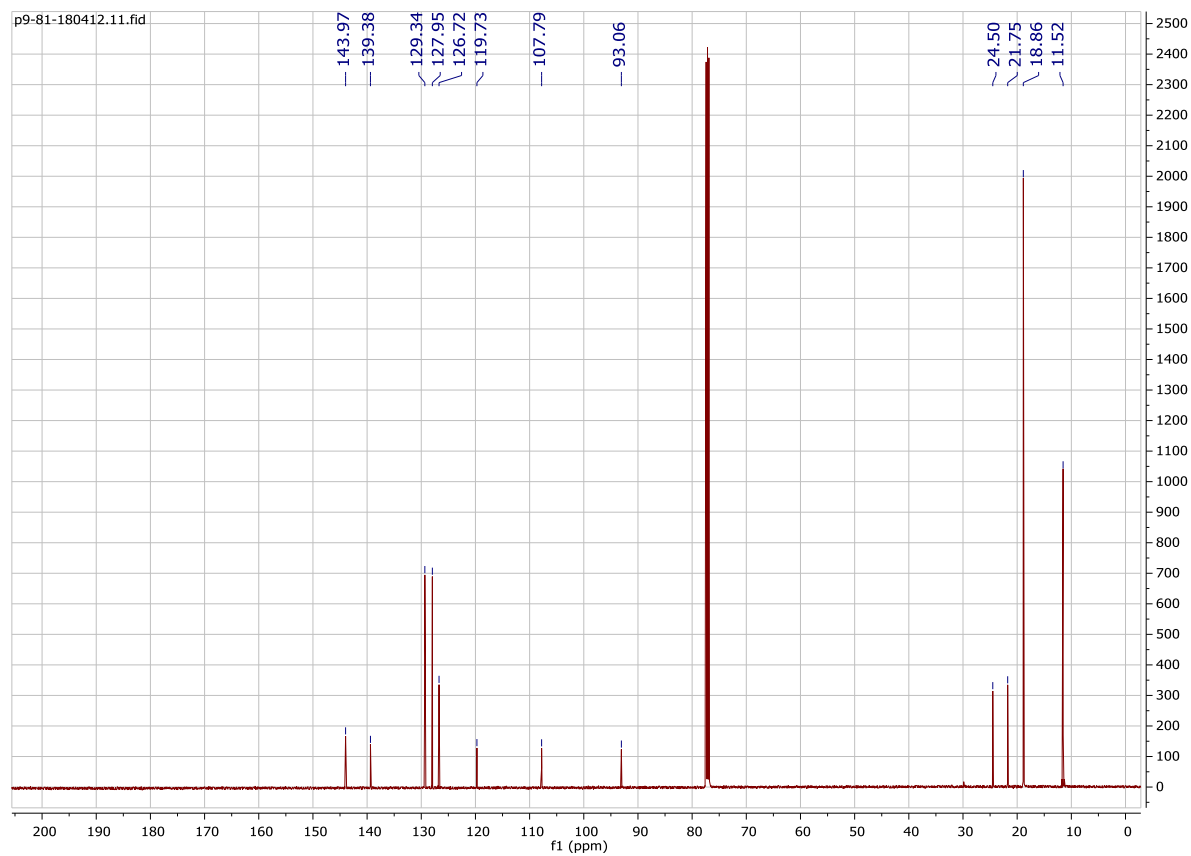
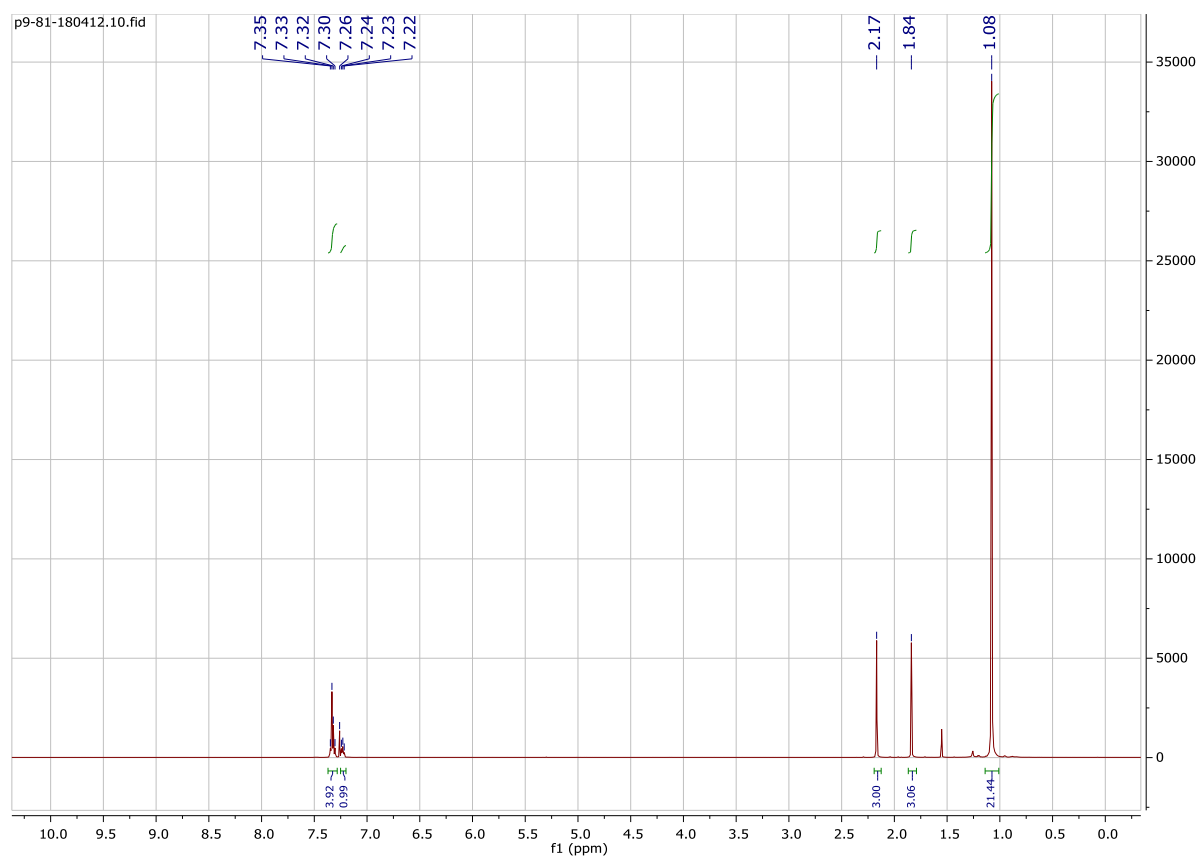
Triisopropyl(4-methylpent-3-en-1-yn-1-yl)silane (A)



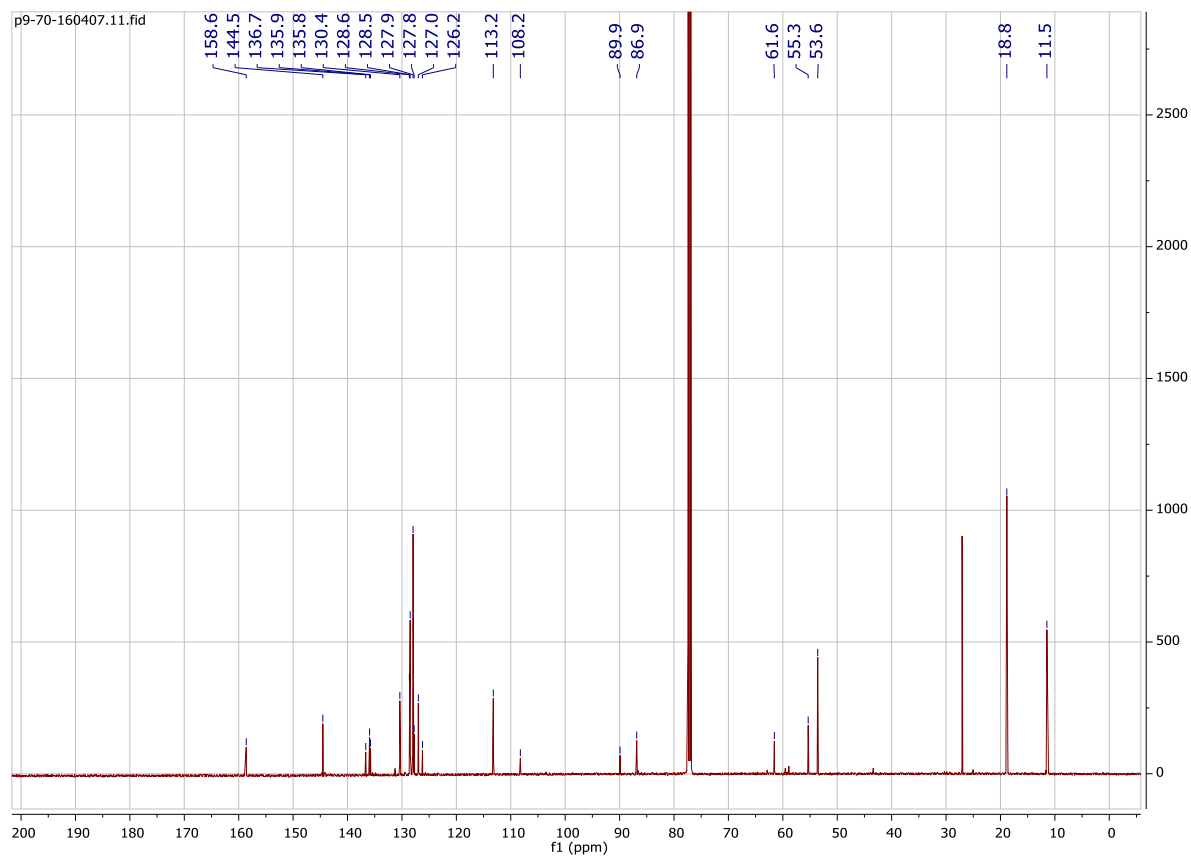
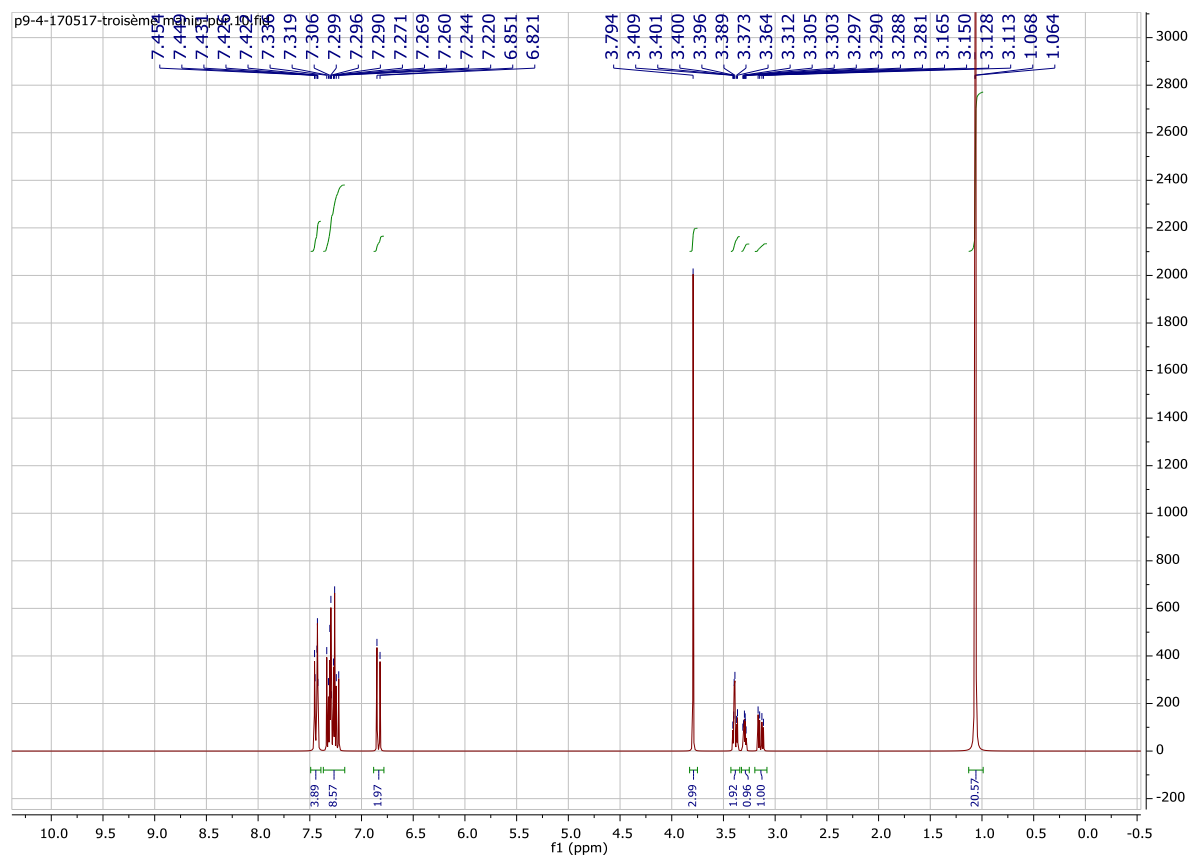
((3,3-Dimethyloxiran-2-yl)ethynyl)triisopropylsilane (1a)



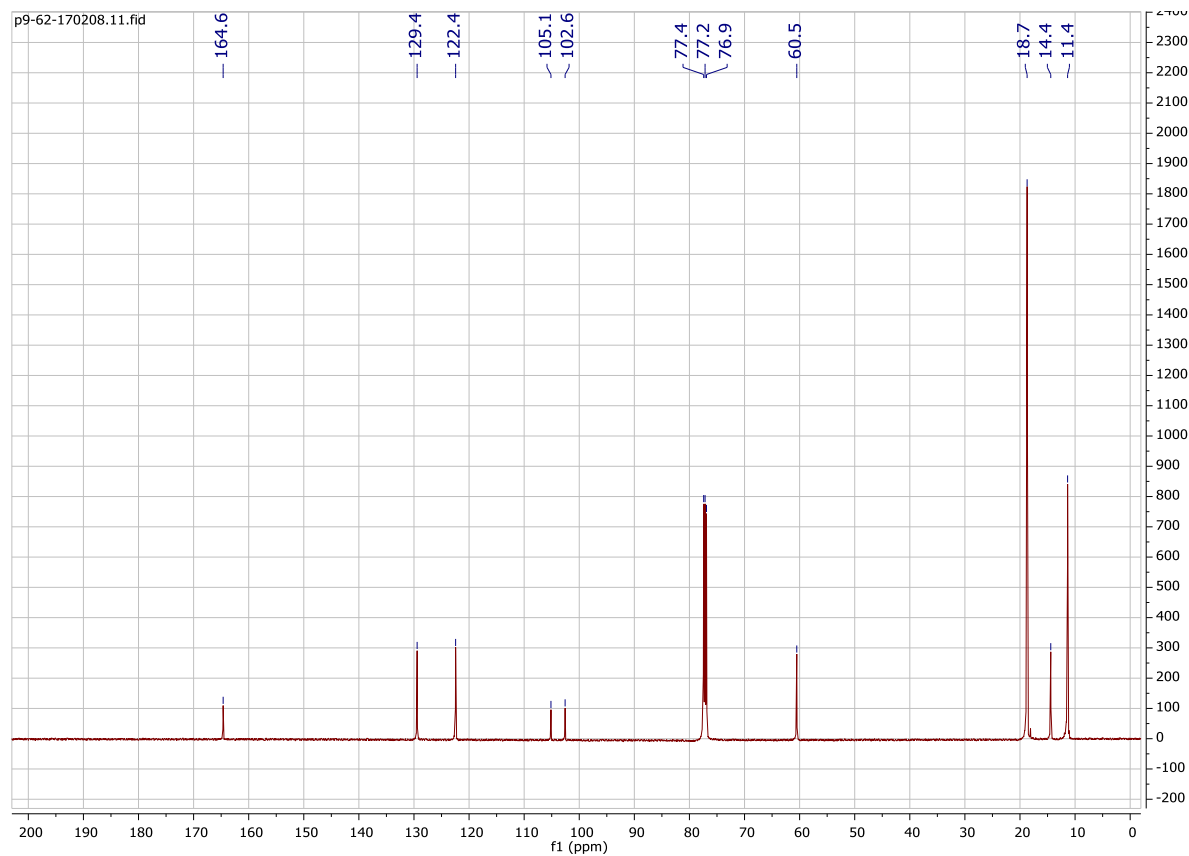
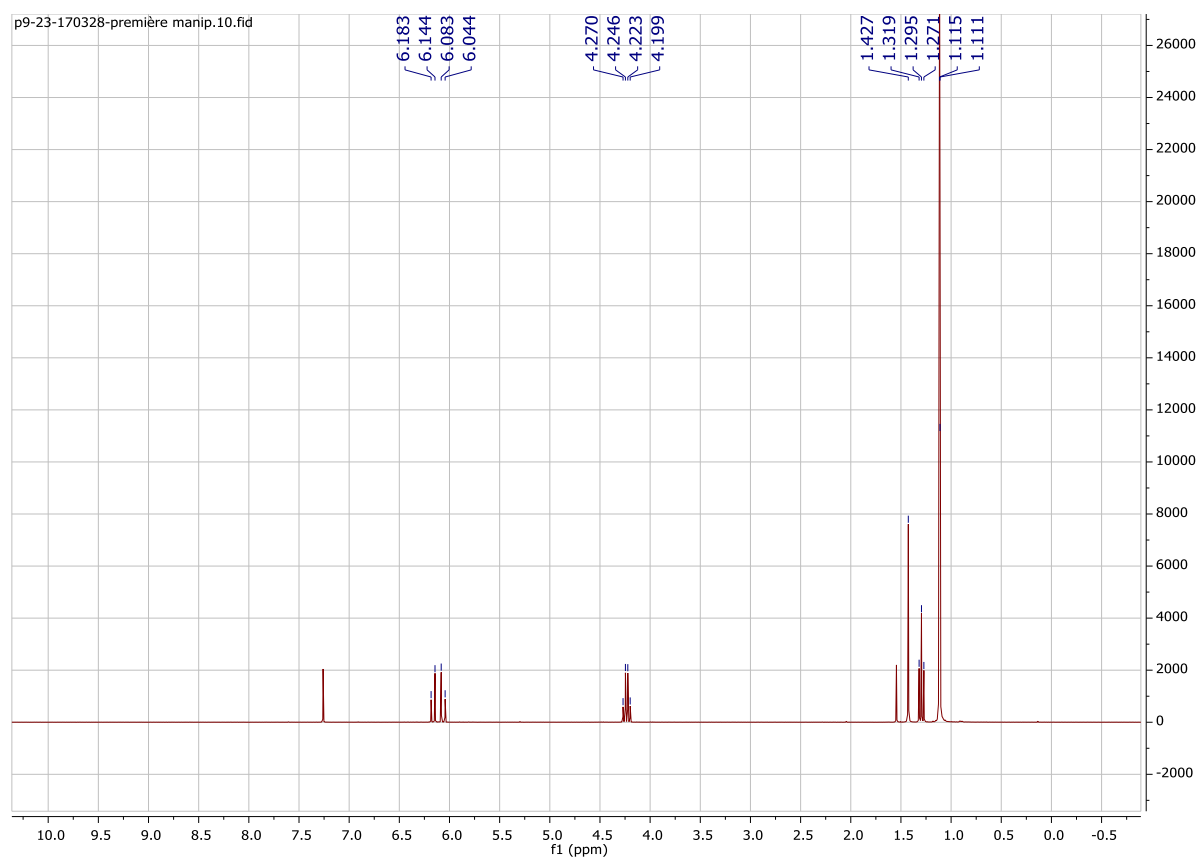
Triisopropyl(4-methyl-3-phenylpent-3-en-1-yn-1-yl)silane (3)



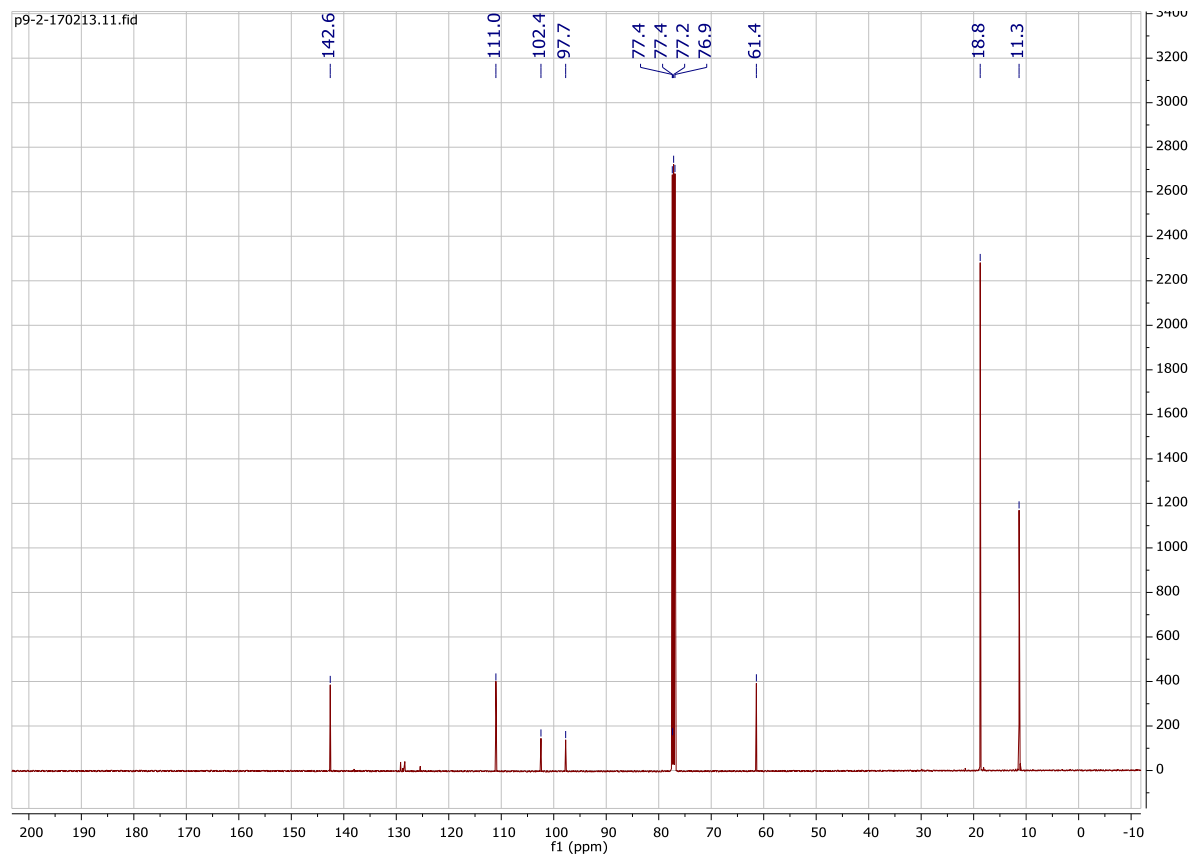
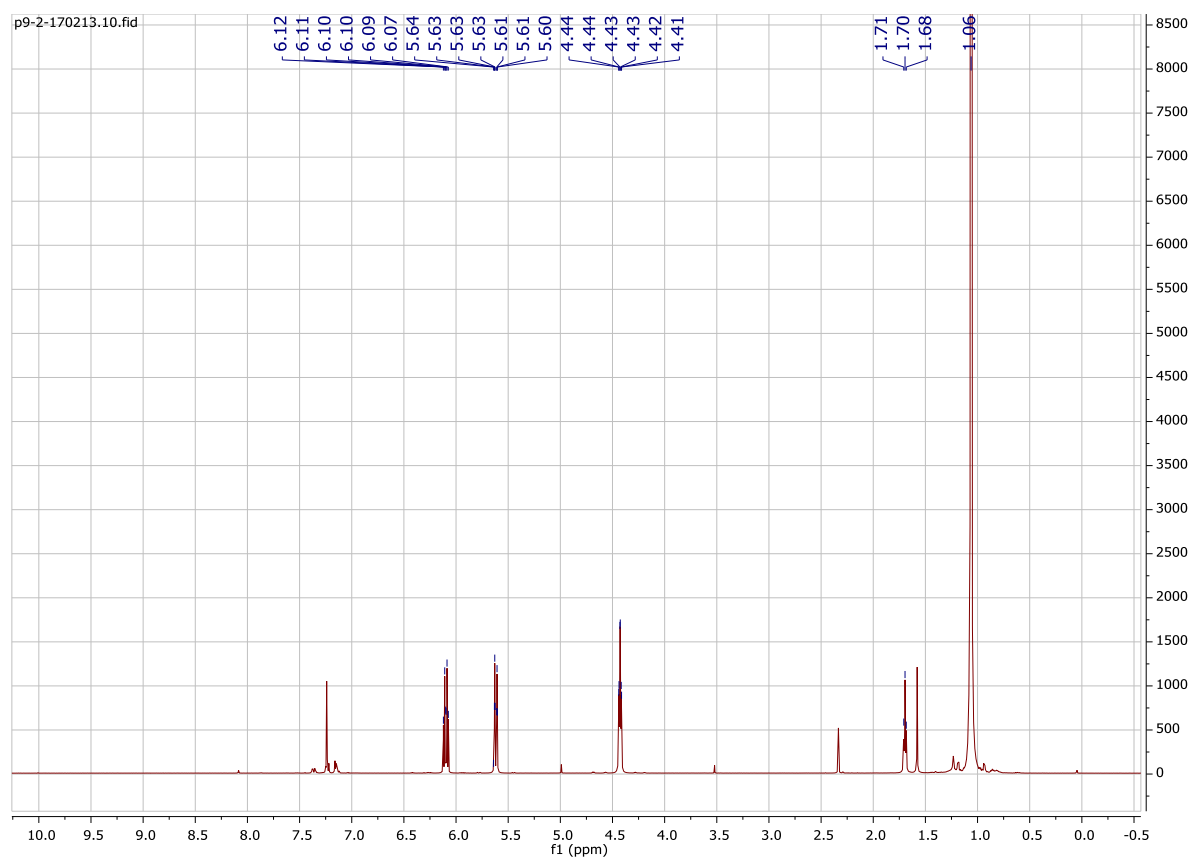
***trans*-Triisopropyl(3-(((4-methoxyphenyl)diphenylmethoxy)methyl)oxiran-2-yl)ethynyl)silane (*trans*-1b)**



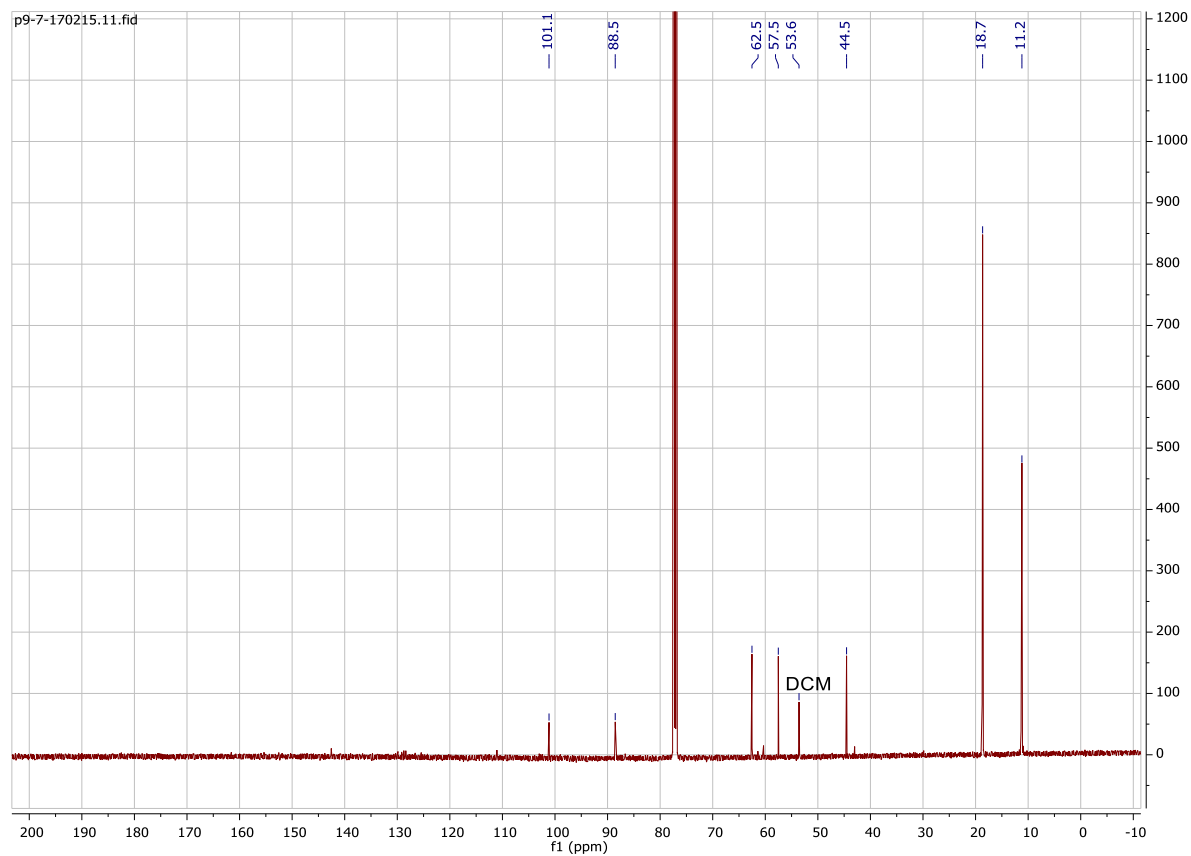
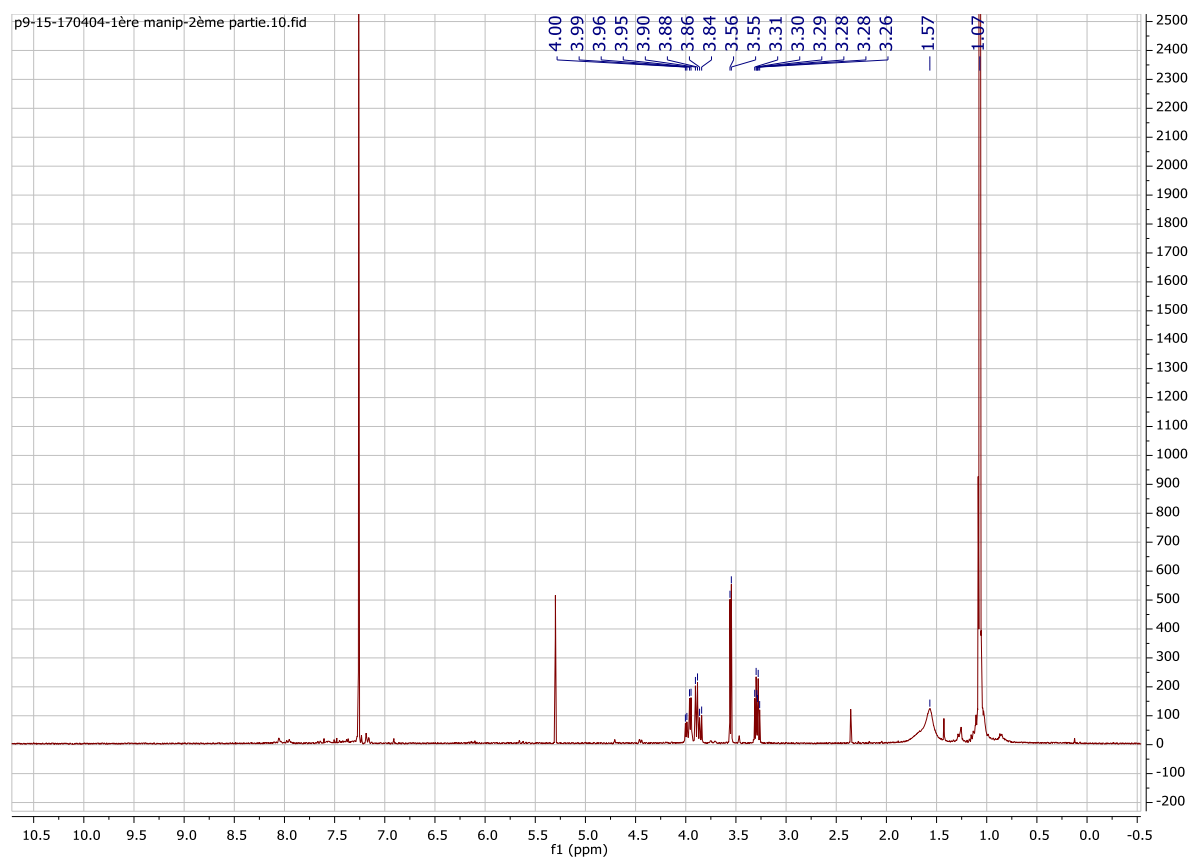
Ethyl (Z)-5-(triisopropylsilyl)pent-2-en-4-ynoate (G)



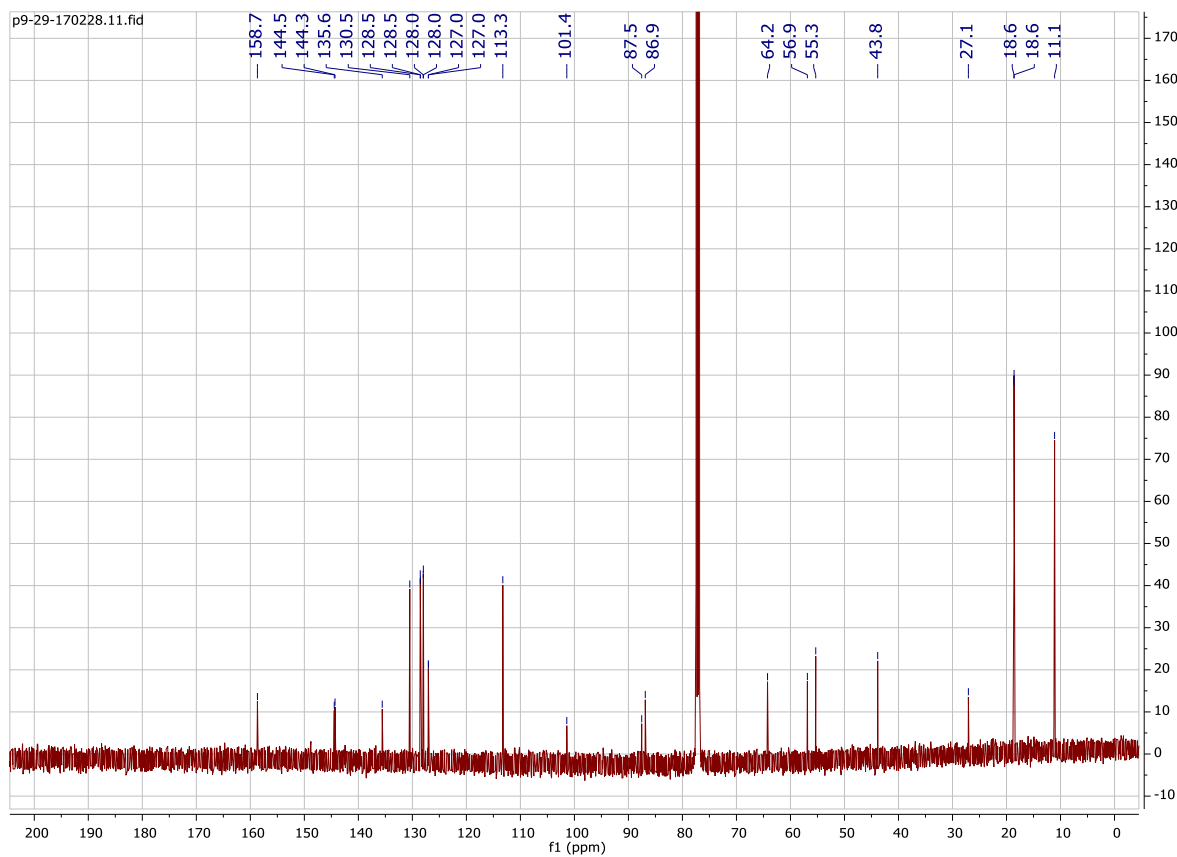
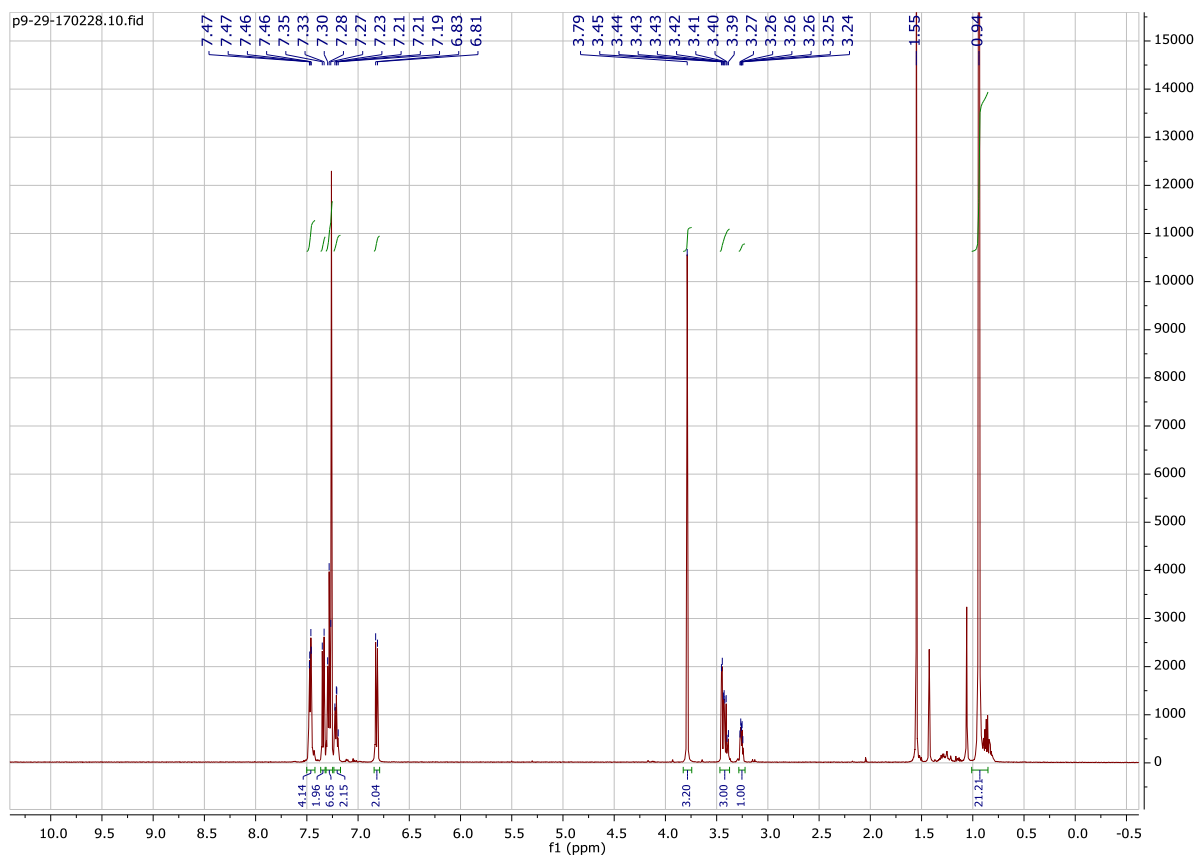
(Z)-5-(Triisopropylsilyl)pent-2-en-4-yn-1-ol (H)



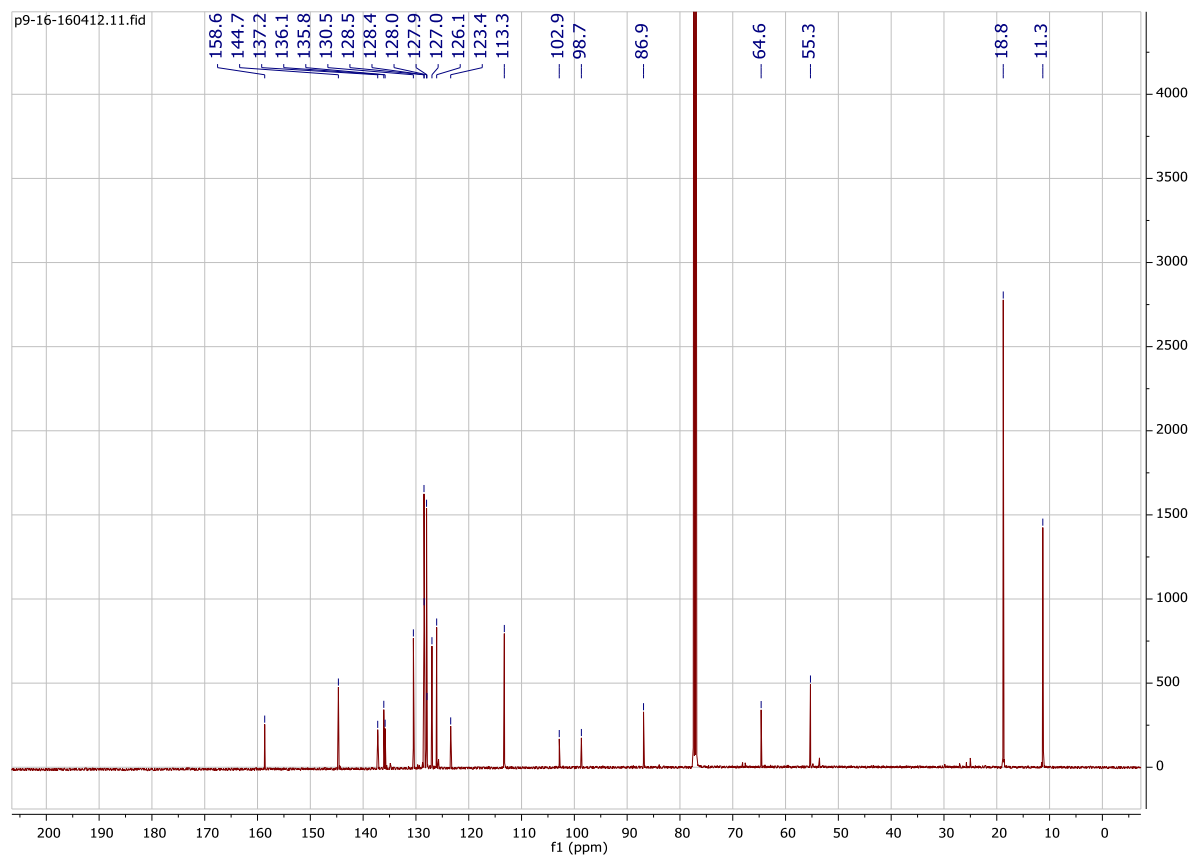
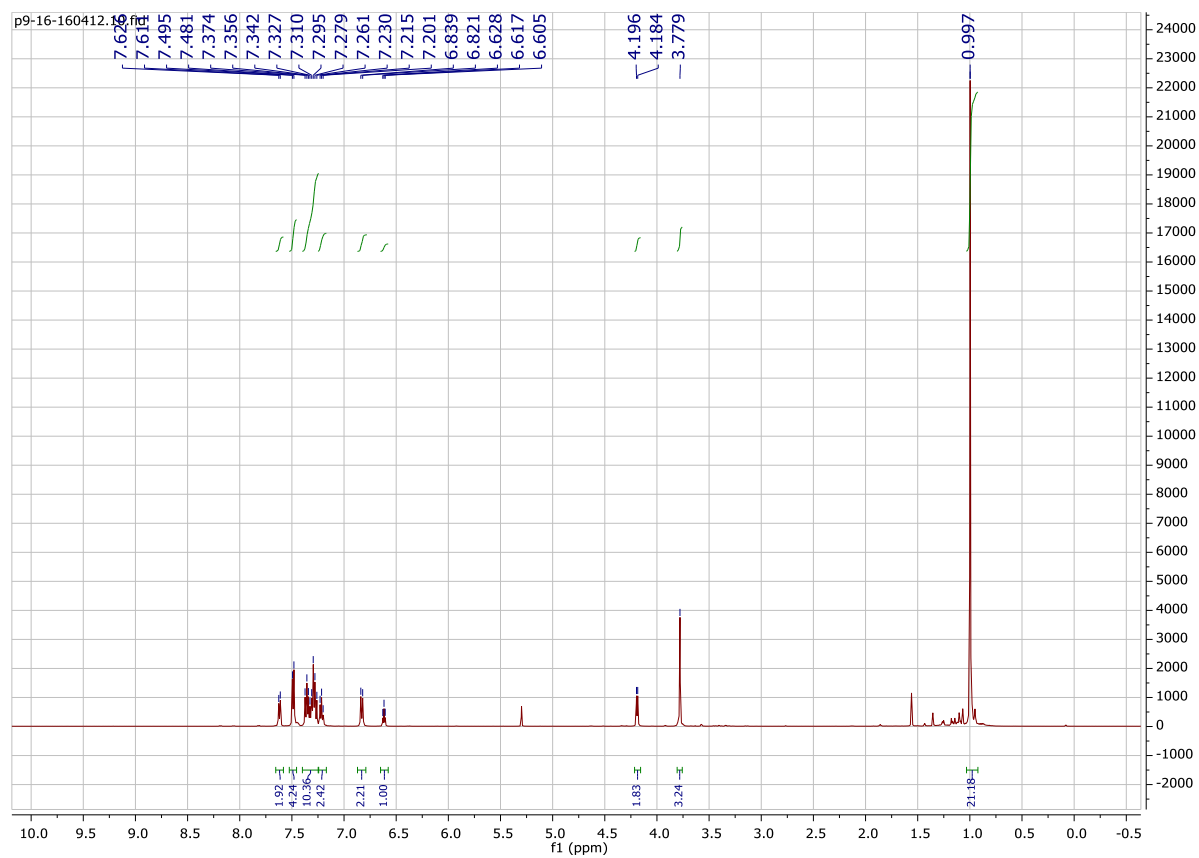
***cis*-(3-((Triisopropylsilyl)ethynyl)oxiran-2-yl)methanol (I)**



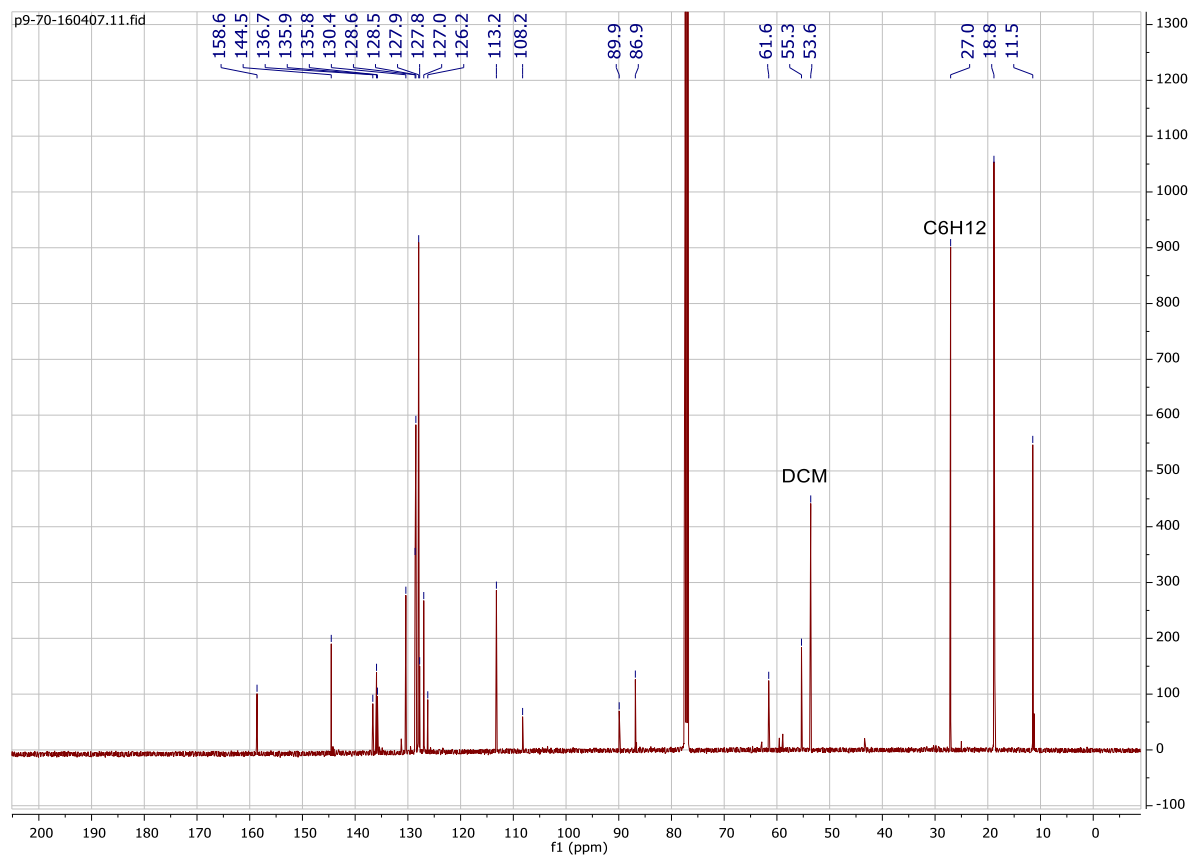
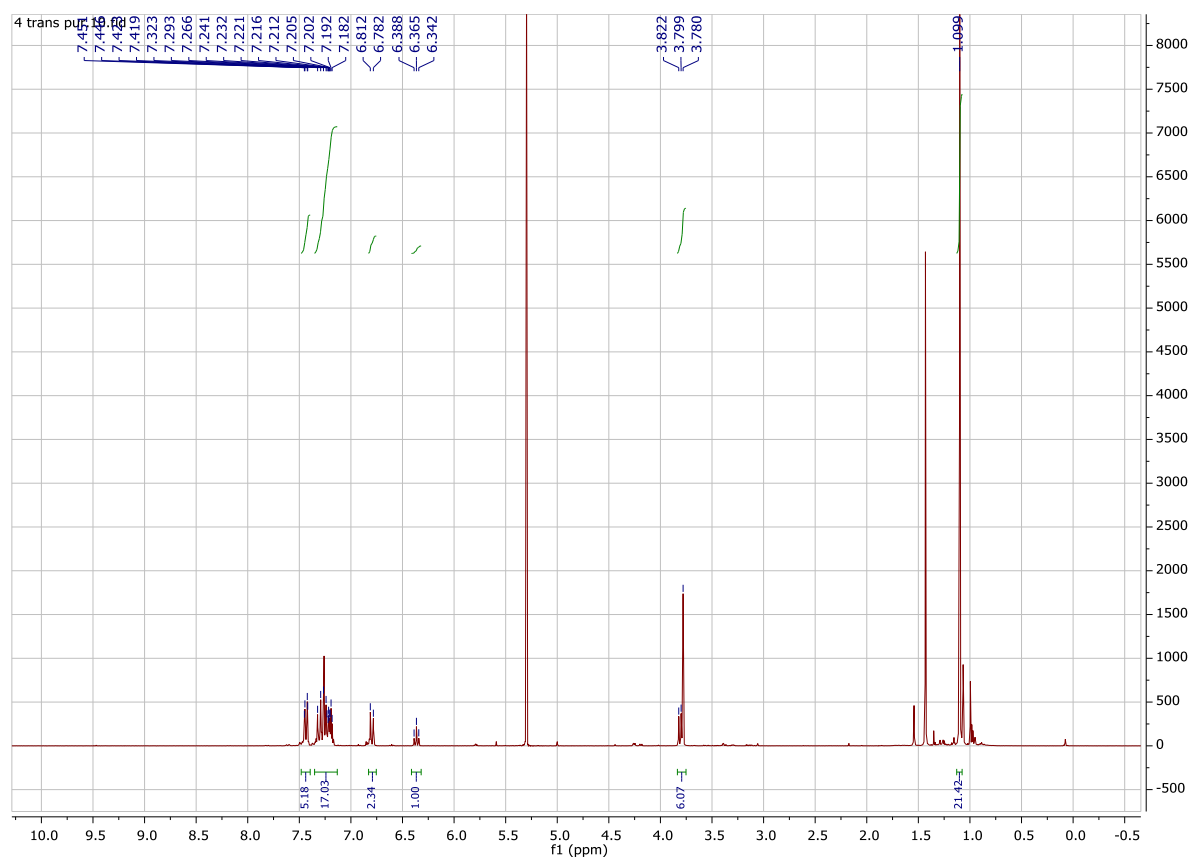
***cis*-Triisopropyl(3-(((4-methoxyphenyl)diphenylmethoxy)methyl)oxiran-2-yl)ethynyl)silane (*cis*-1d)**



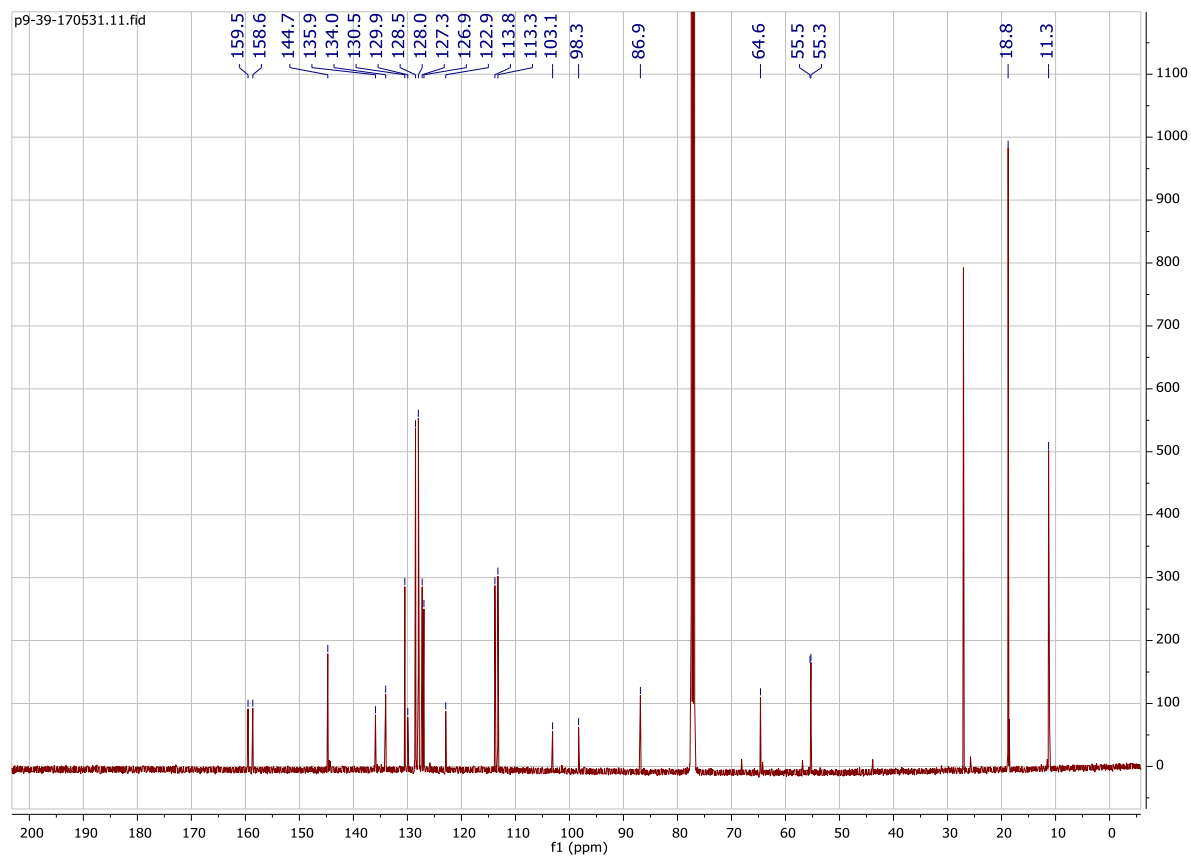
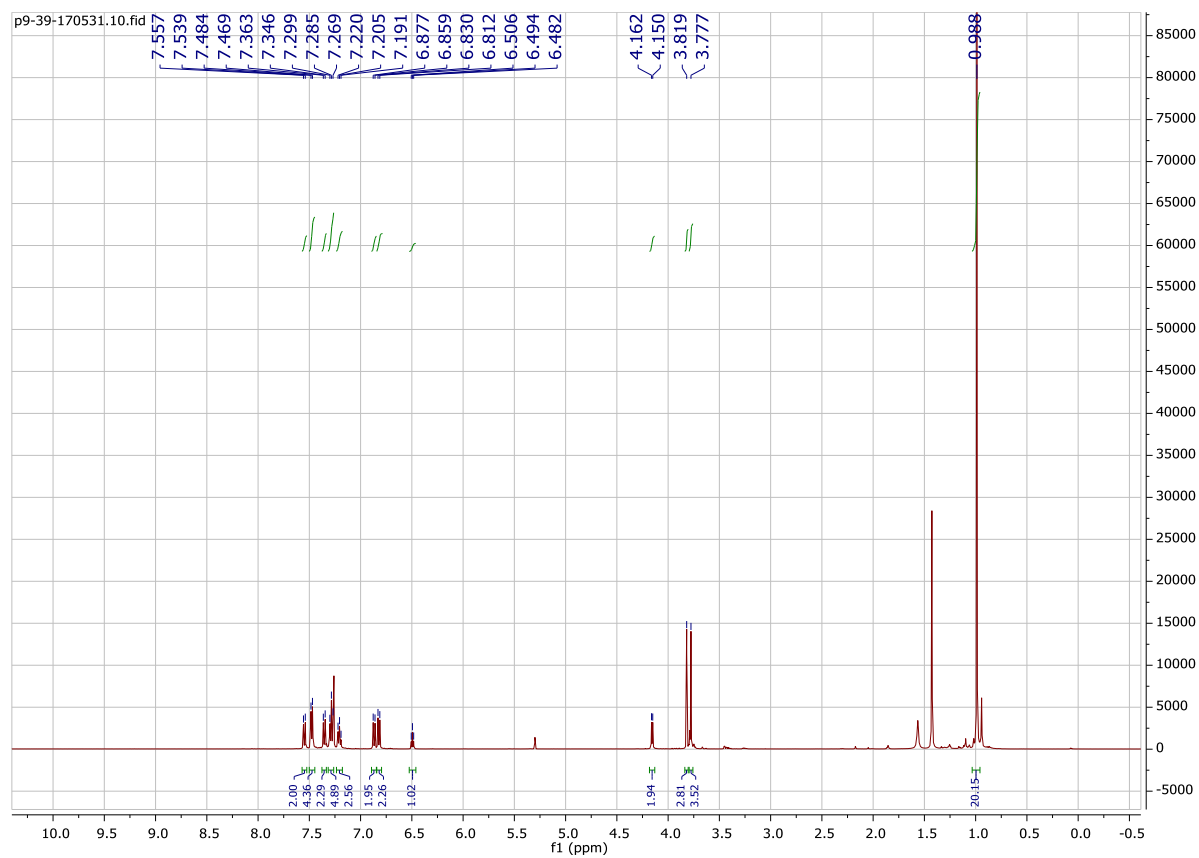
(Z)-Triisopropyl(5-((4-methoxyphenyl)diphenylmethoxy)-3-phenylpent-3-en-1-yn-1-yl)silane ((Z)-4)



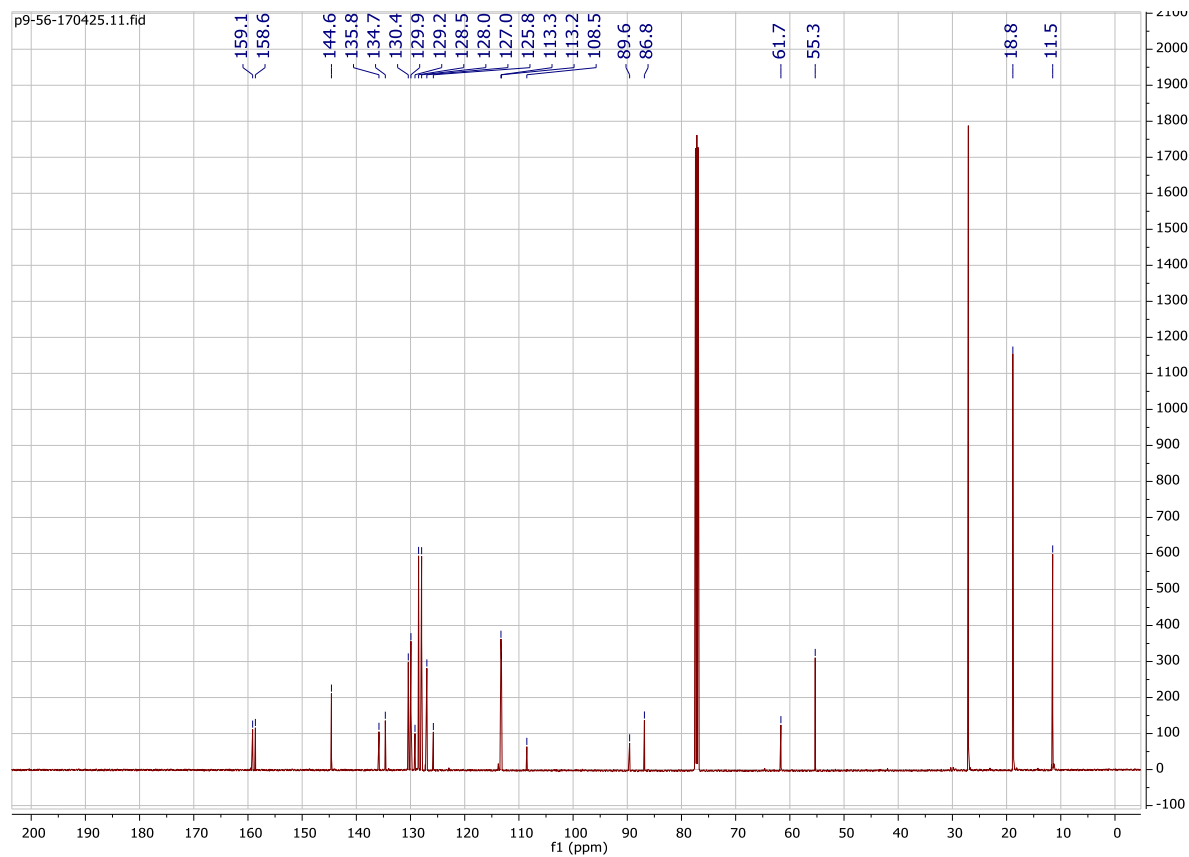
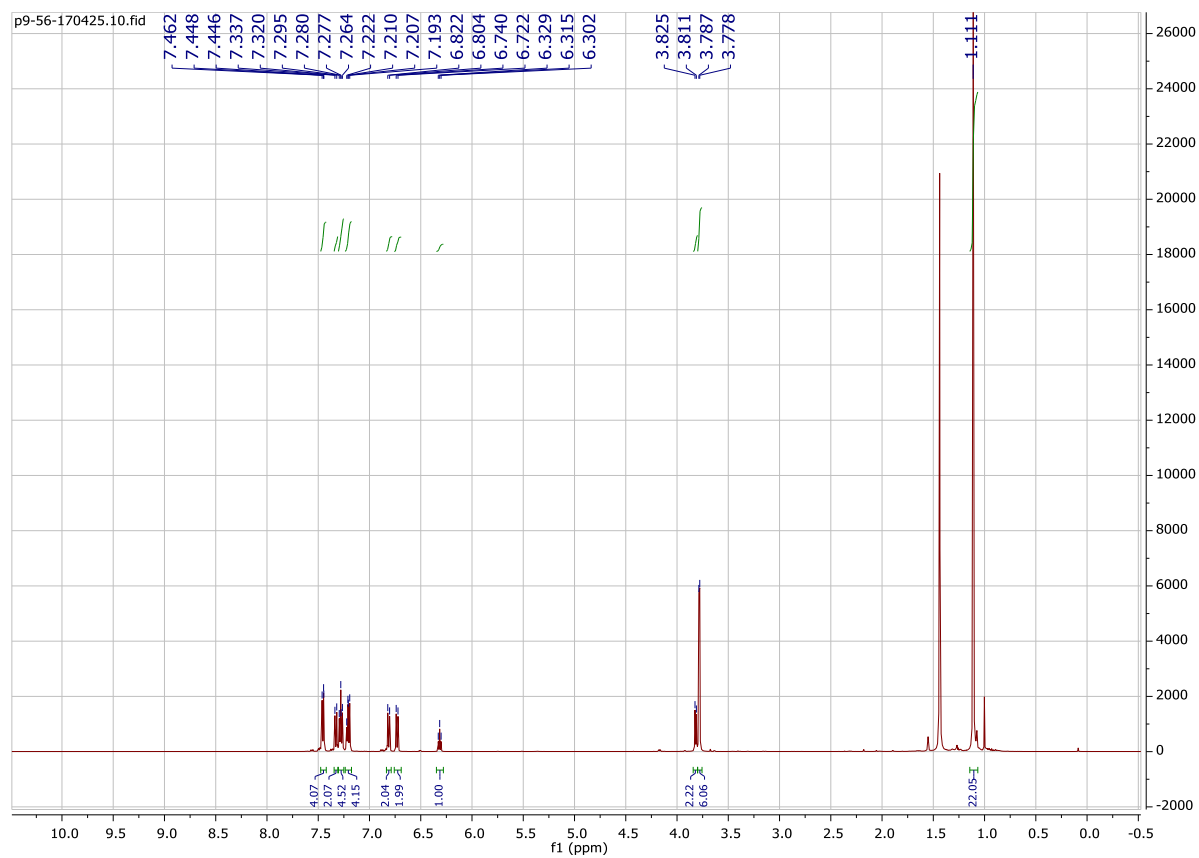
(E)-Triisopropyl(5-((4-methoxyphenyl)diphenylmethoxy)-3-phenylpent-3-en-1-yn-1-yl)silane ((E)-4)



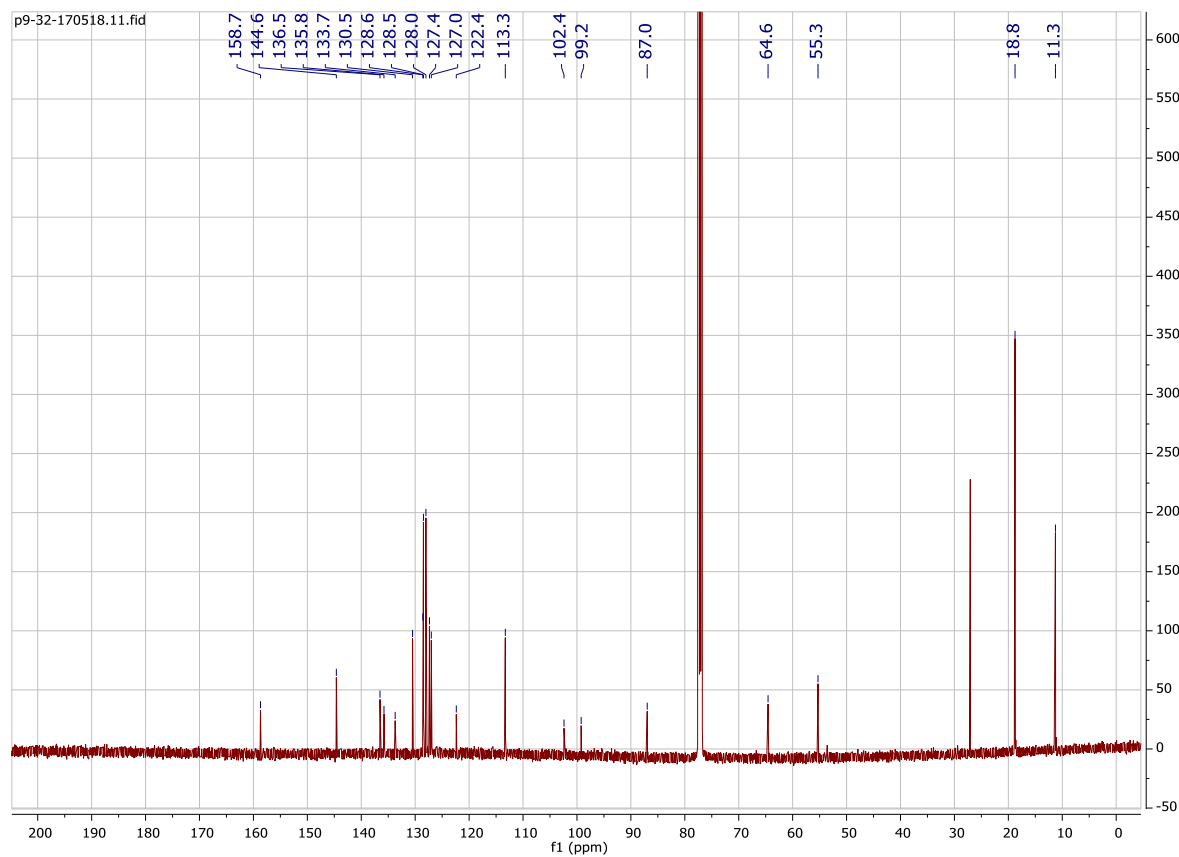
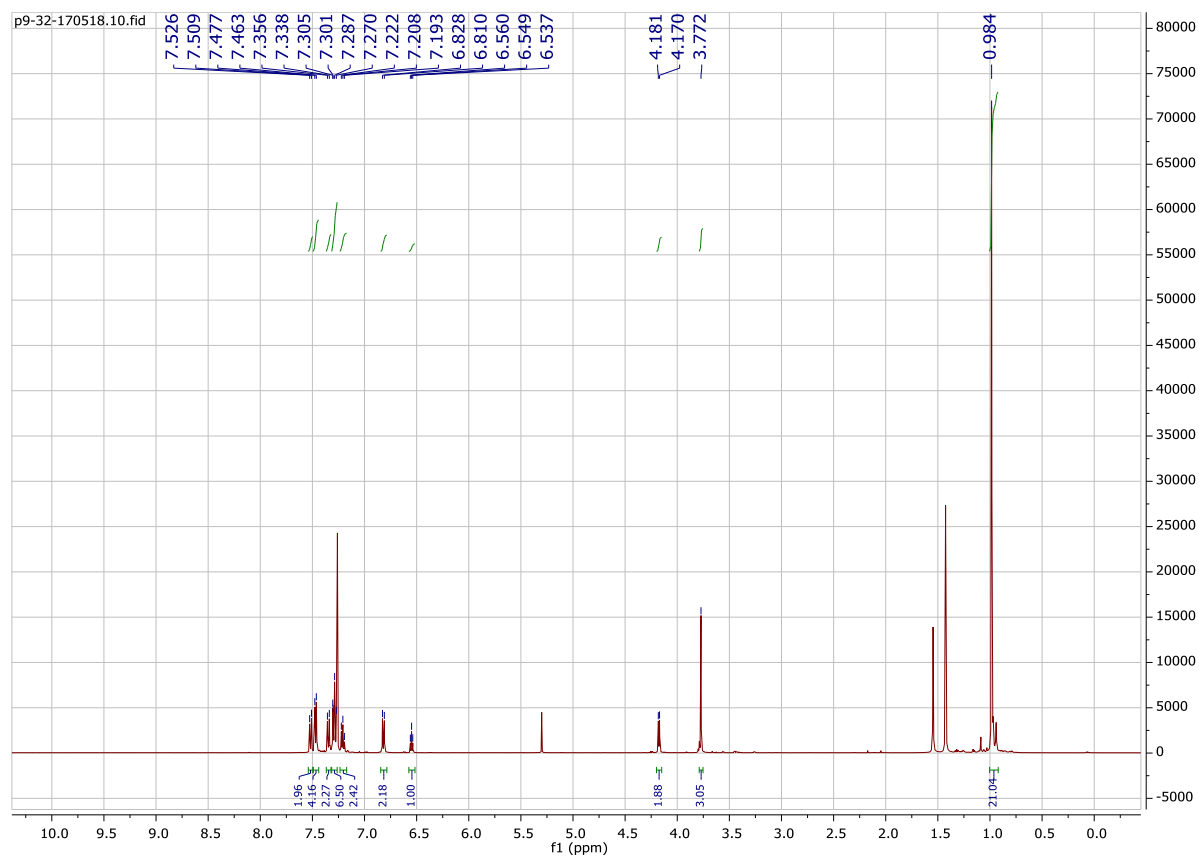
(Z)-Triisopropyl(3-(4-methoxyphenyl)-5-((4-methoxyphenyl)diphenylmethoxy)pent-3-en-1-yn-1-yl)silane ((Z)-5)



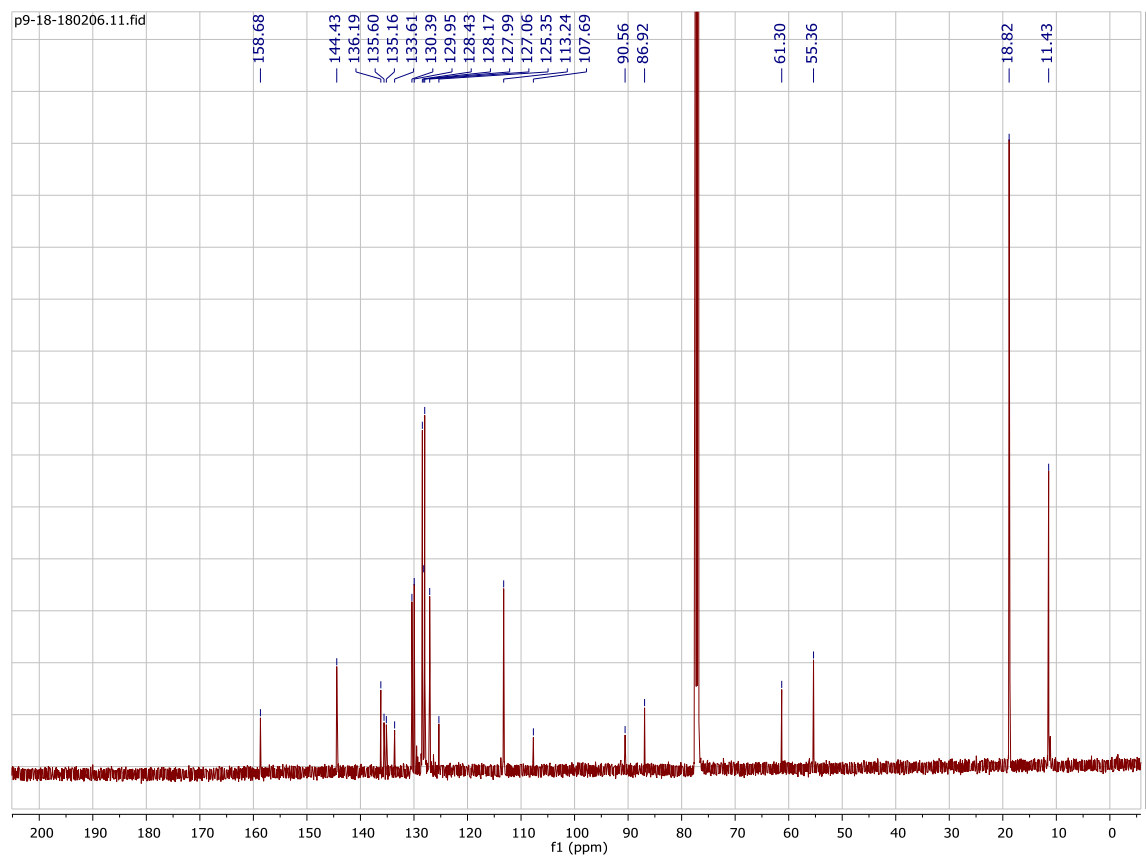
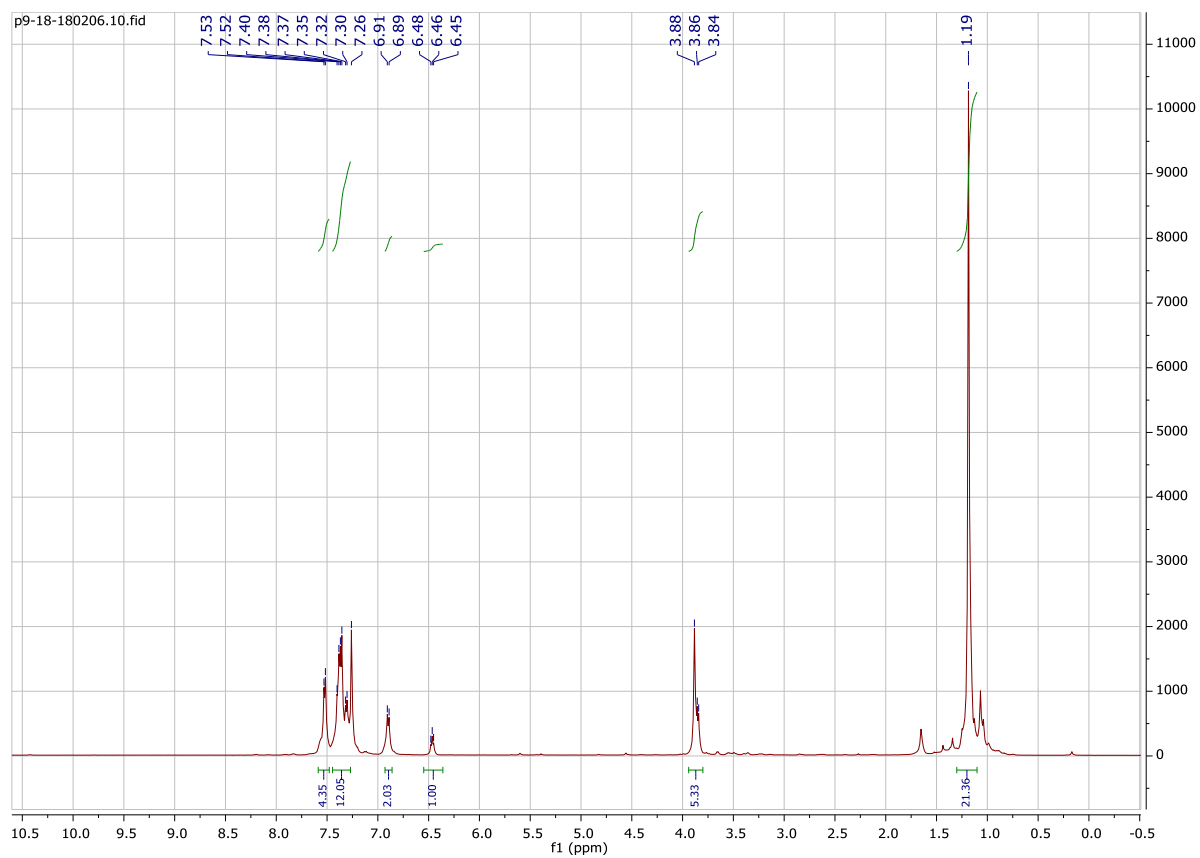
(E)-Triisopropyl(3-(4-methoxyphenyl)-5-((4-methoxyphenyl)diphenylmethoxy)pent-3-en-1-yn-1-yl)silane ((E)-5)



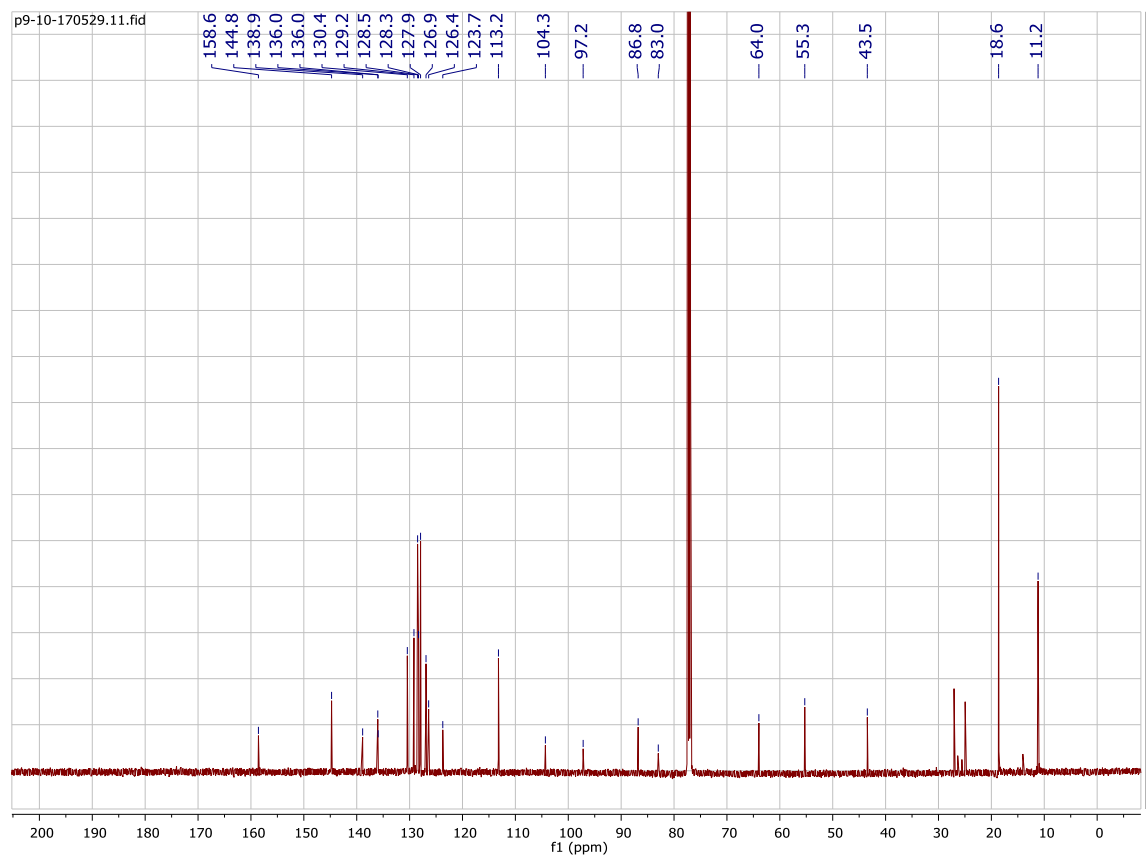
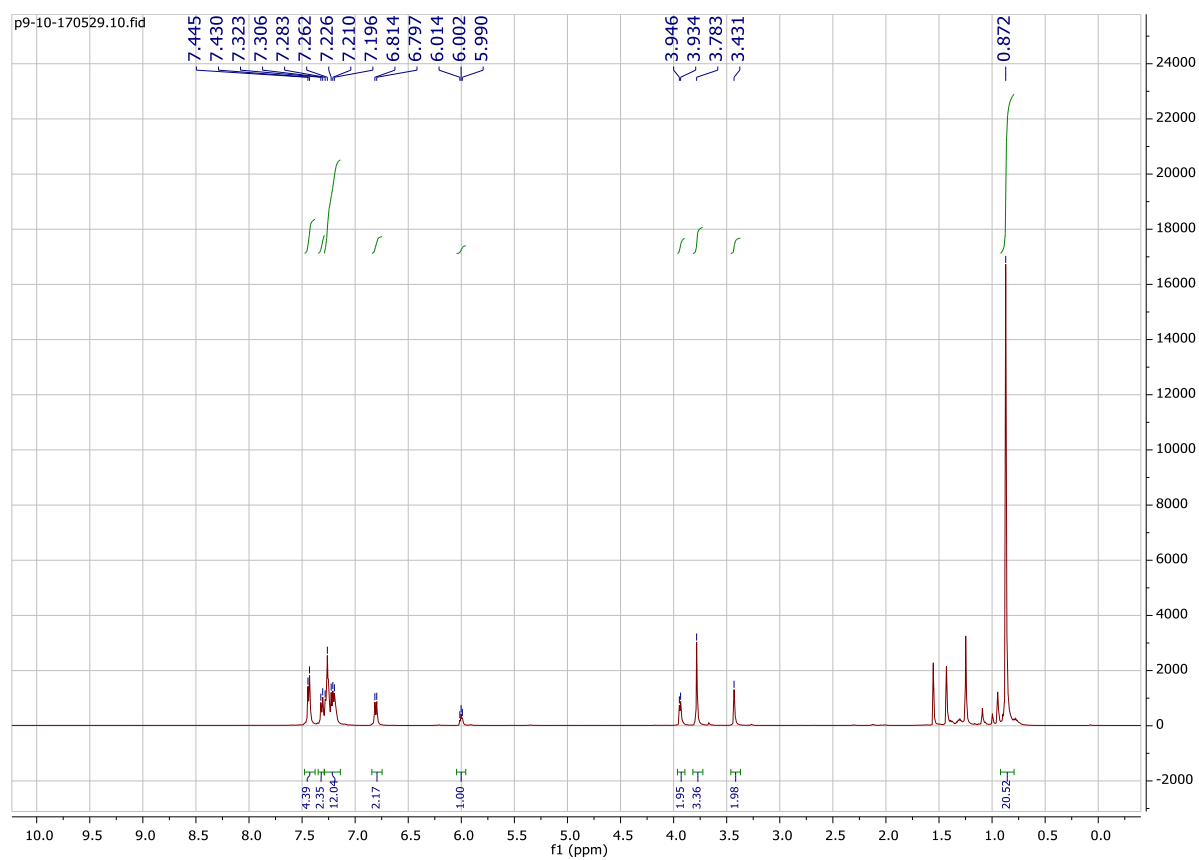
(Z)-(3-(4-Chlorophenyl)-5-((4-methoxyphenyl)diphenylmethoxy)pent-3-en-1-yn-1-yl)triisopropylsilane ((Z)-6)



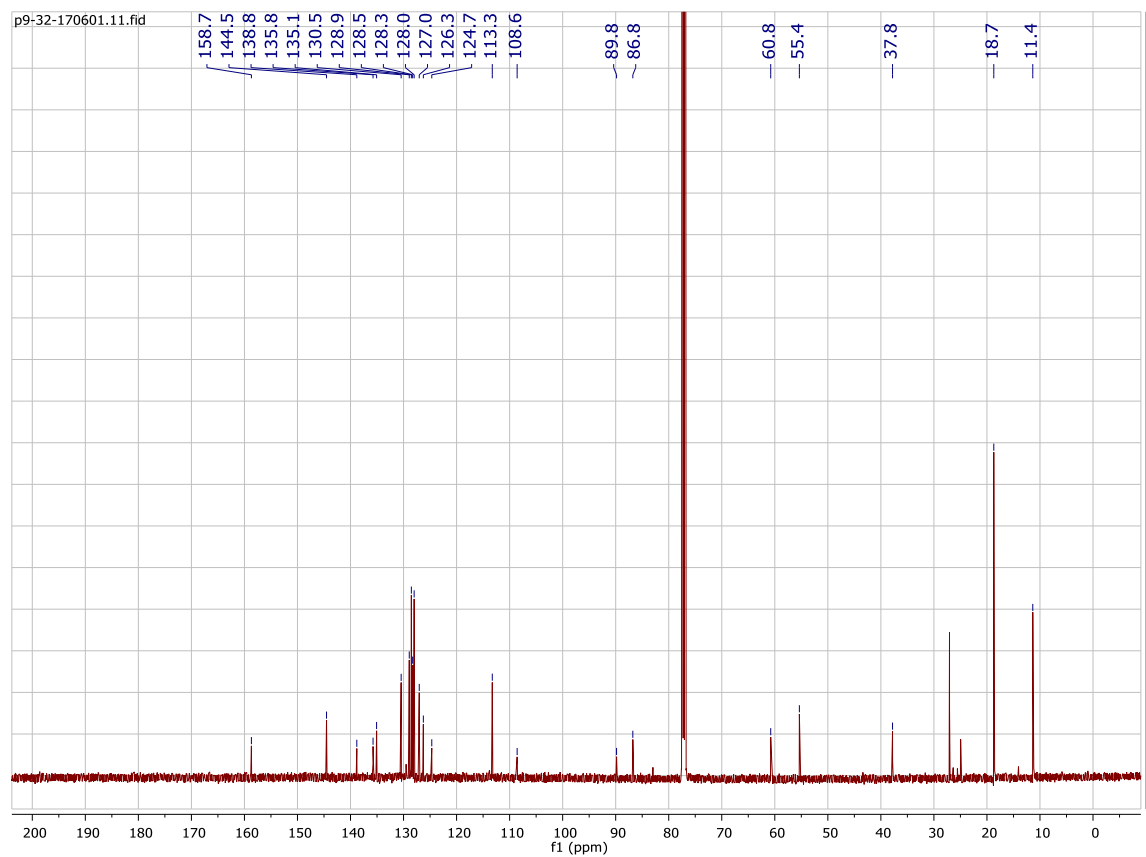
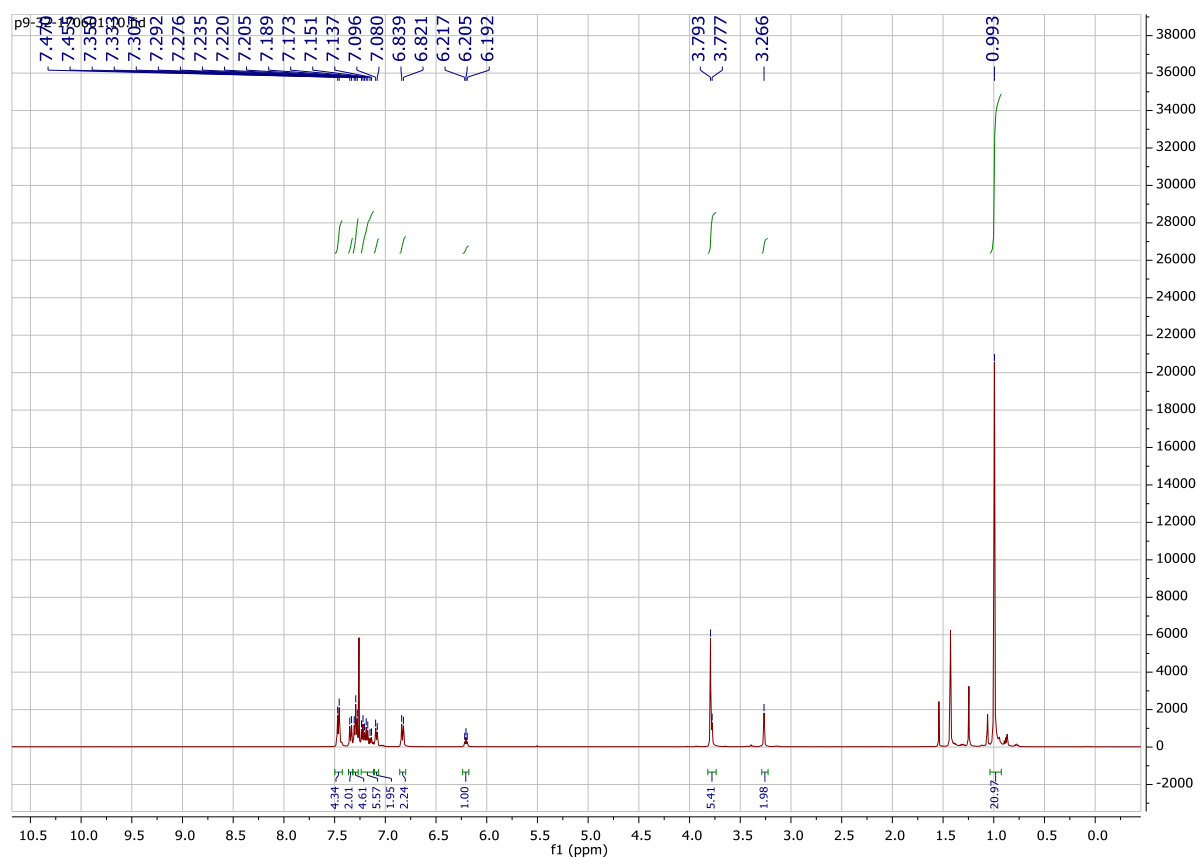
(E)-(3-(4-Chlorophenyl)-5-((4-methoxyphenyl)diphenylmethoxy)pent-3-en-1-yn-1-yl)triisopropylsilane ((E)-6)



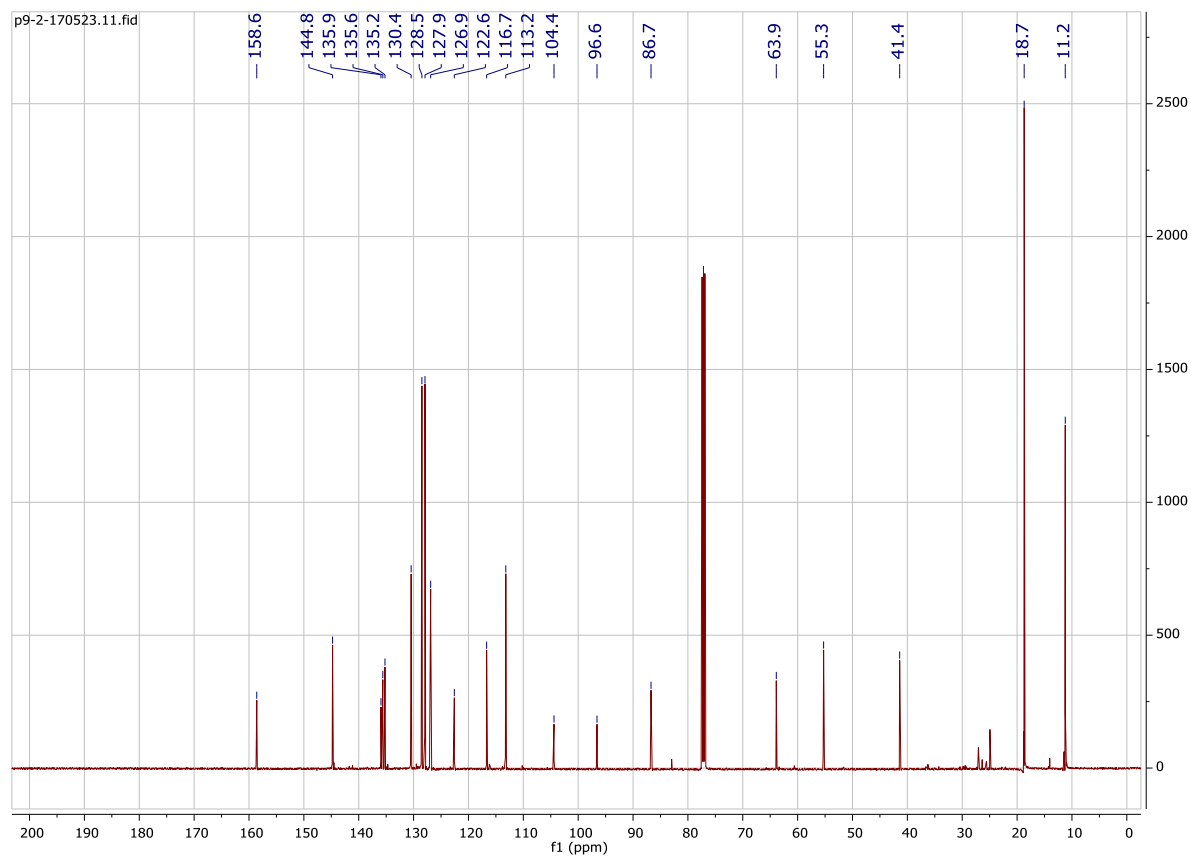
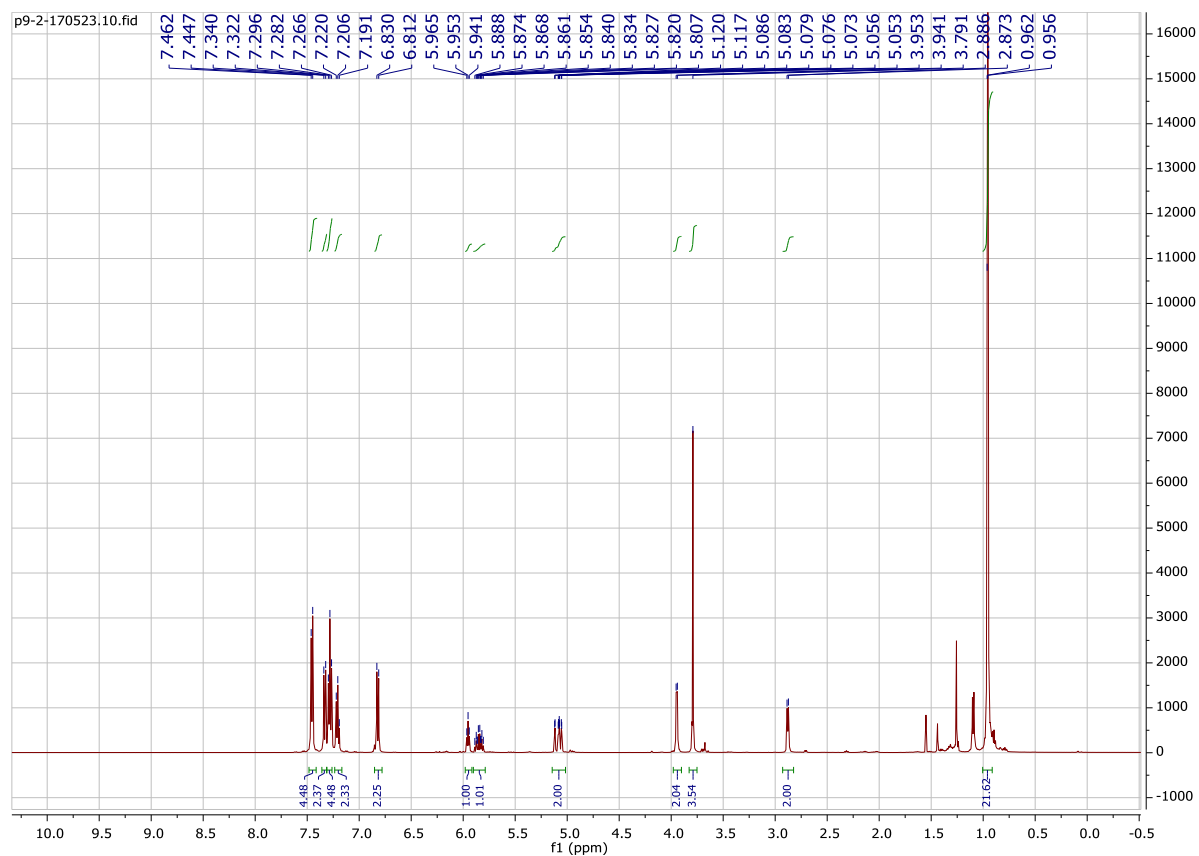
(Z)-(3-Benzyl-5-((4-methoxyphenyl)diphenylmethoxy)pent-3-en-1-yn-1-yl)triisopropylsilane ((Z)-7)



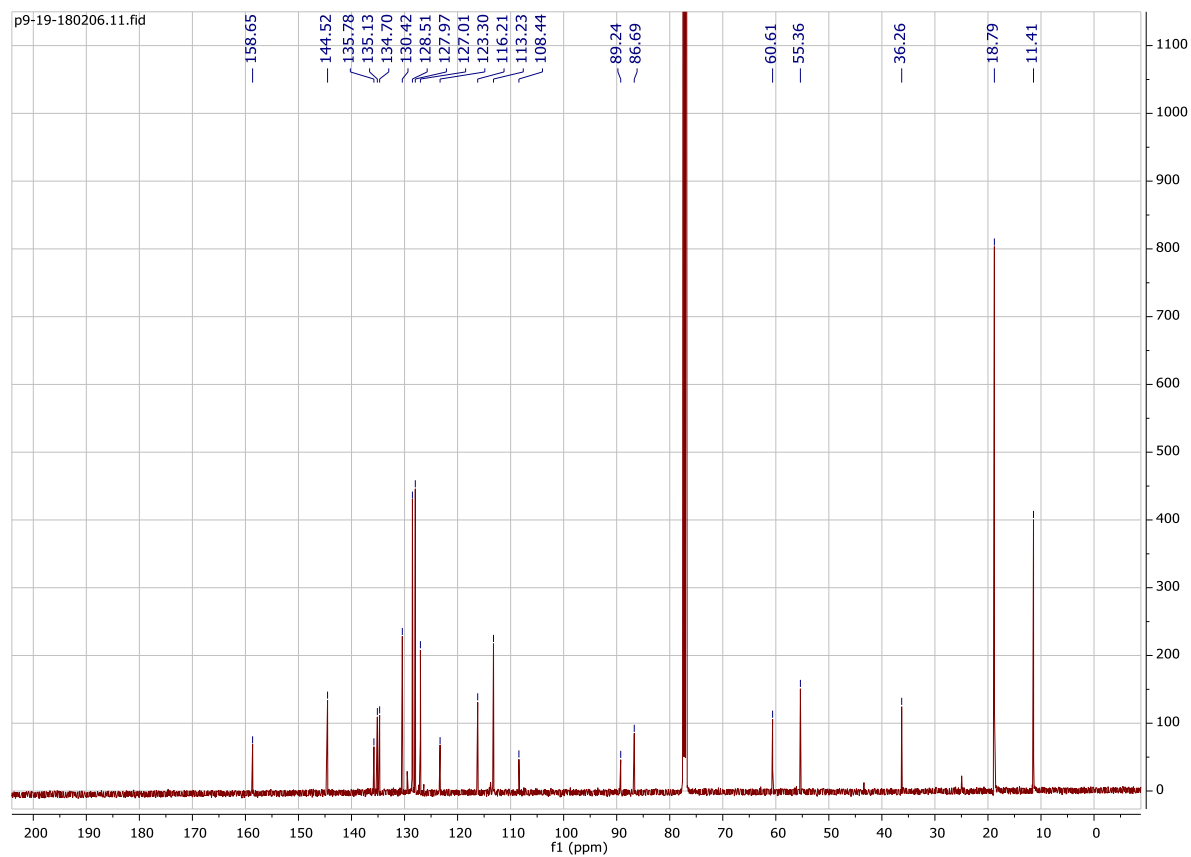
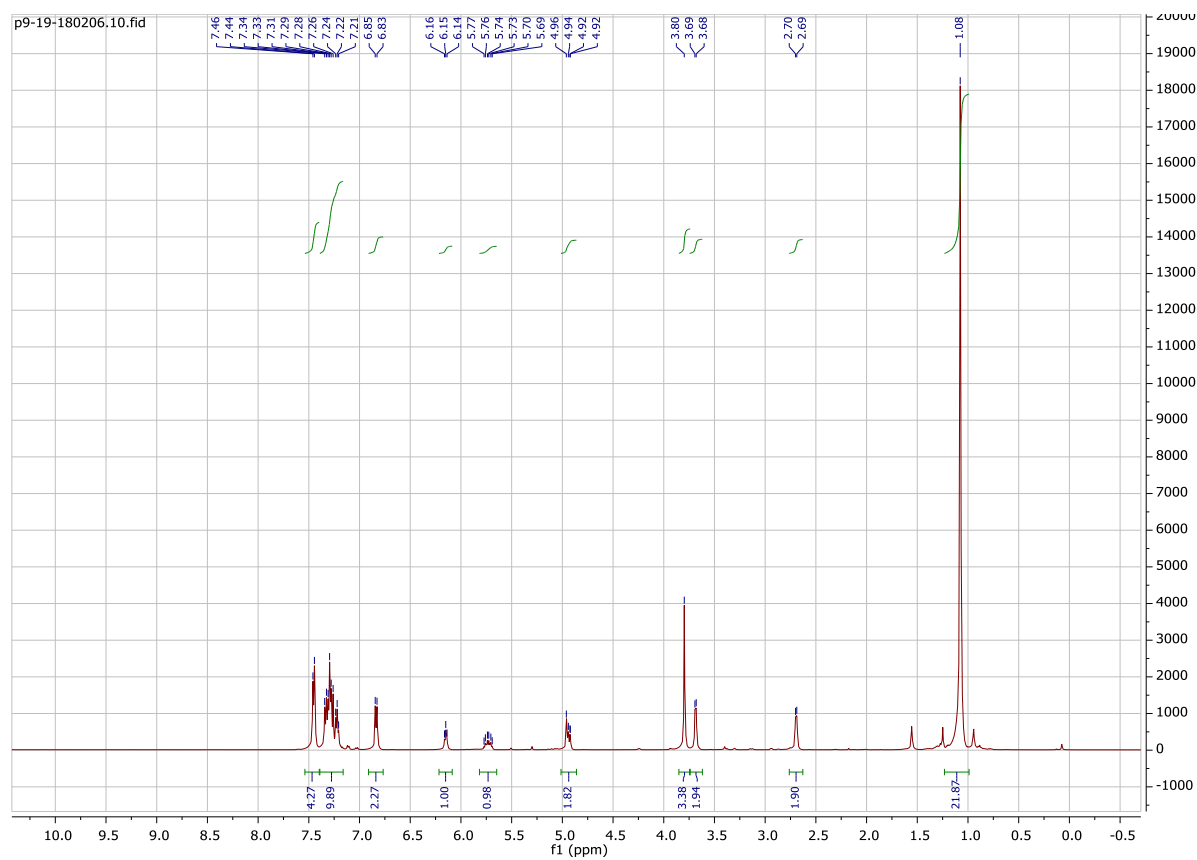
(E)-(3-Benzyl-5-((4-methoxyphenyl)diphenylmethoxy)pent-3-en-1-yn-1-yl)triisopropylsilane ((E)-7)



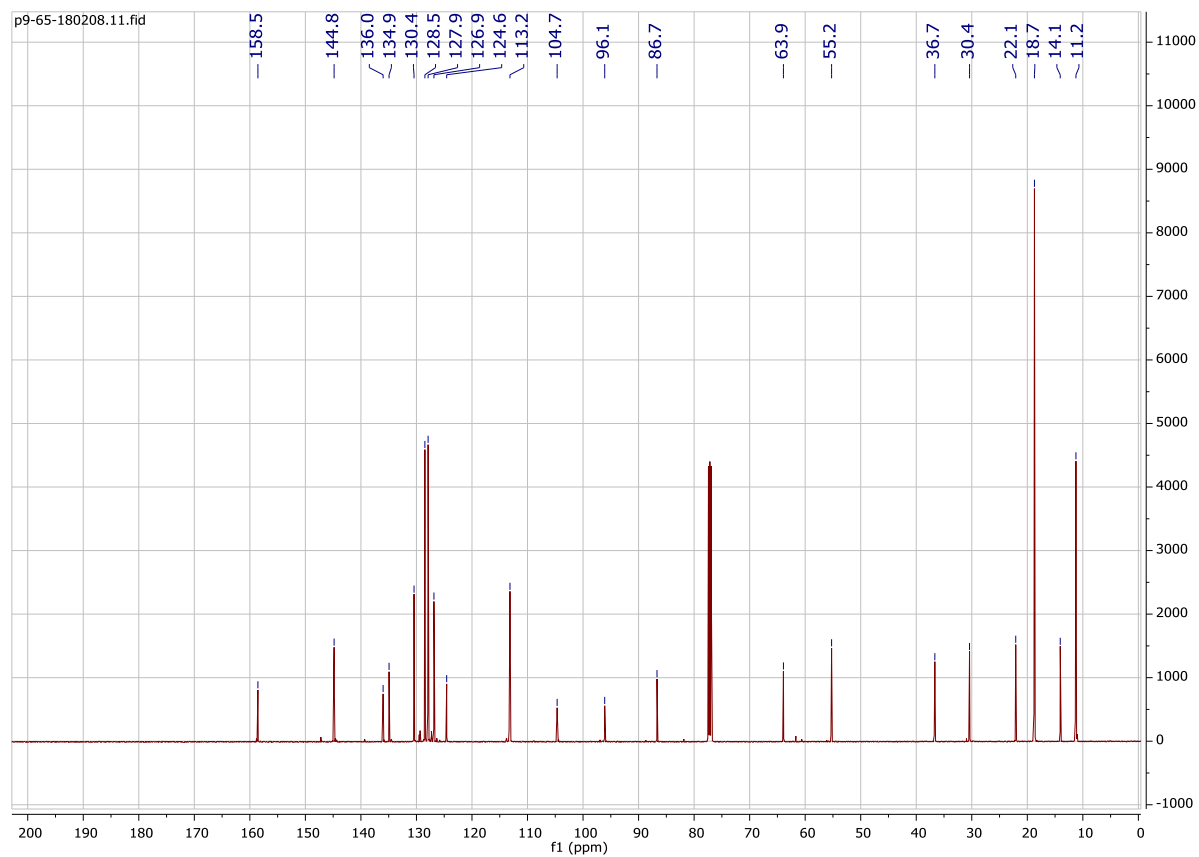
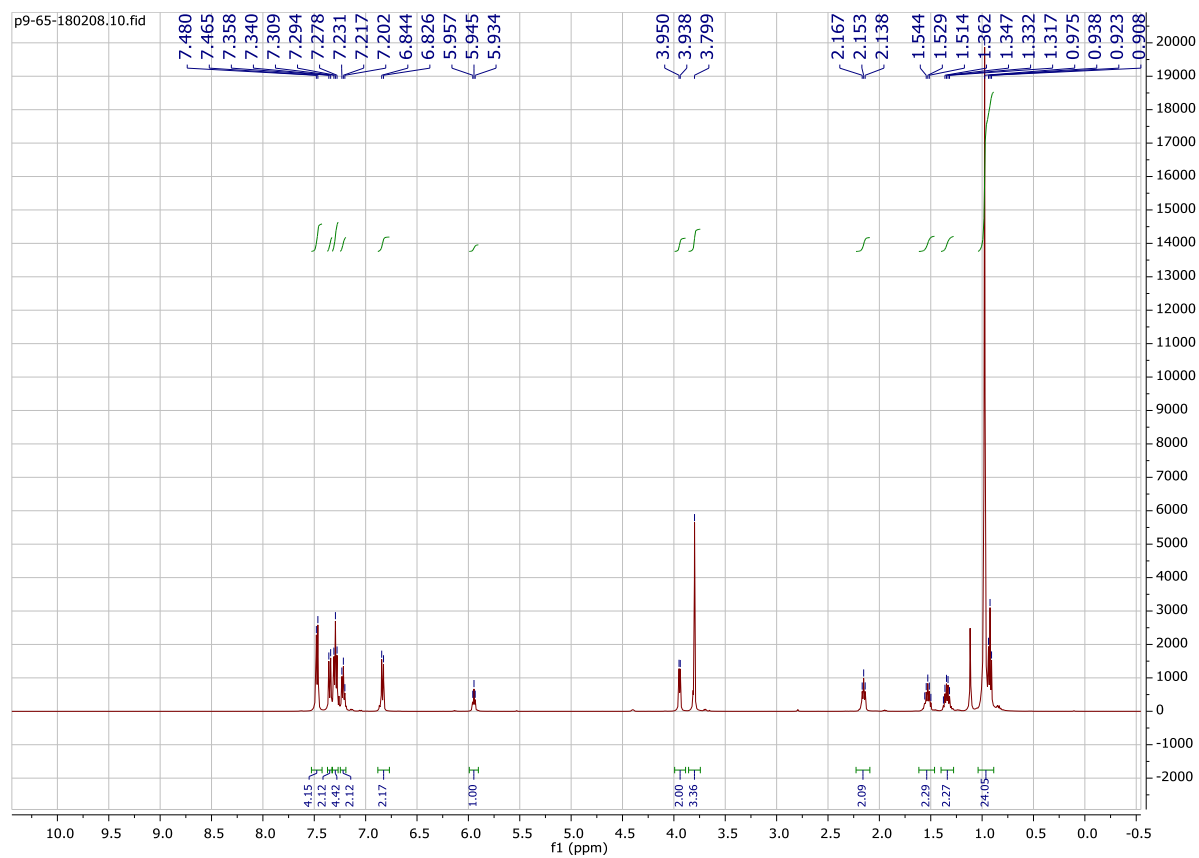
(Z)-Triisopropyl(3-(2-((4-methoxyphenyl)diphenylmethoxy)ethylidene)hex-5-en-1-yn-1-yl)silane ((Z)-8)



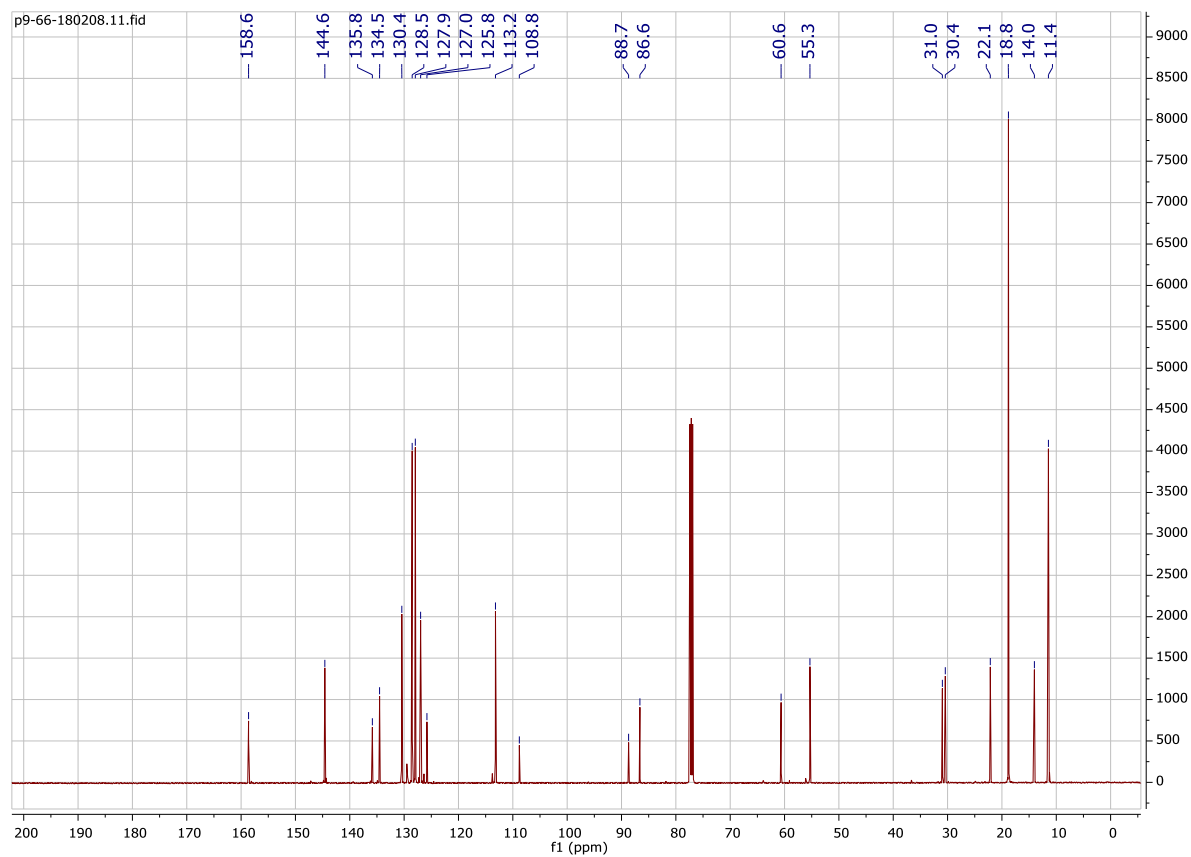
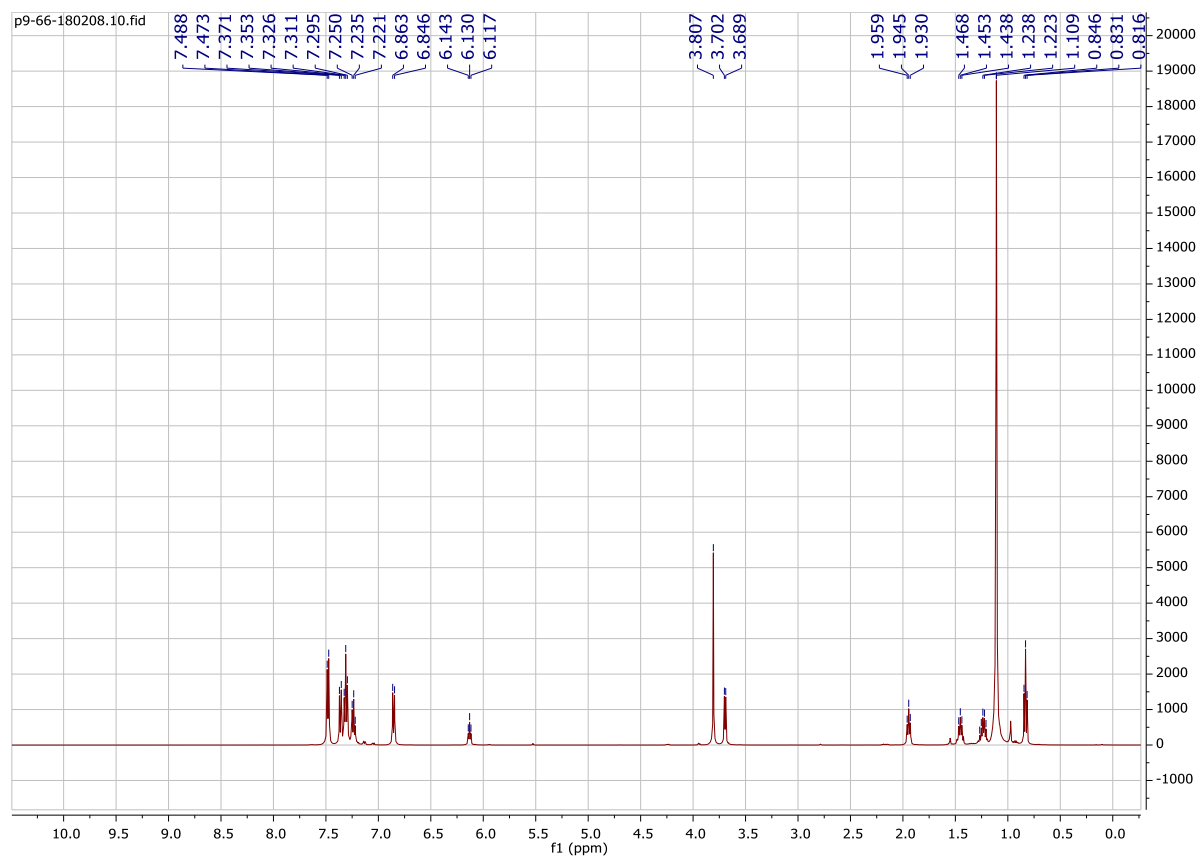
(E)-Triisopropyl(3-(2-((4-methoxyphenyl)diphenylmethoxy)ethylidene)hex-5-en-1-yn-1-yl)silane ((E)-8)



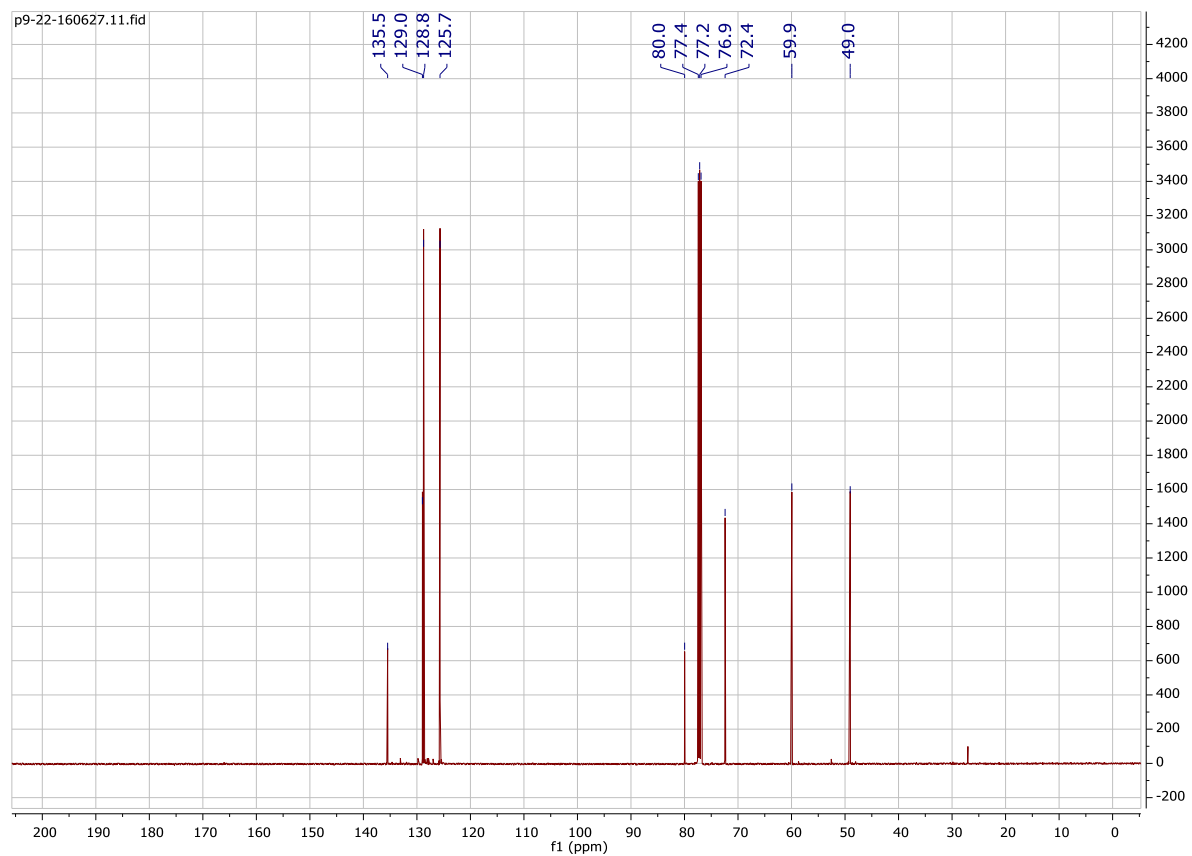
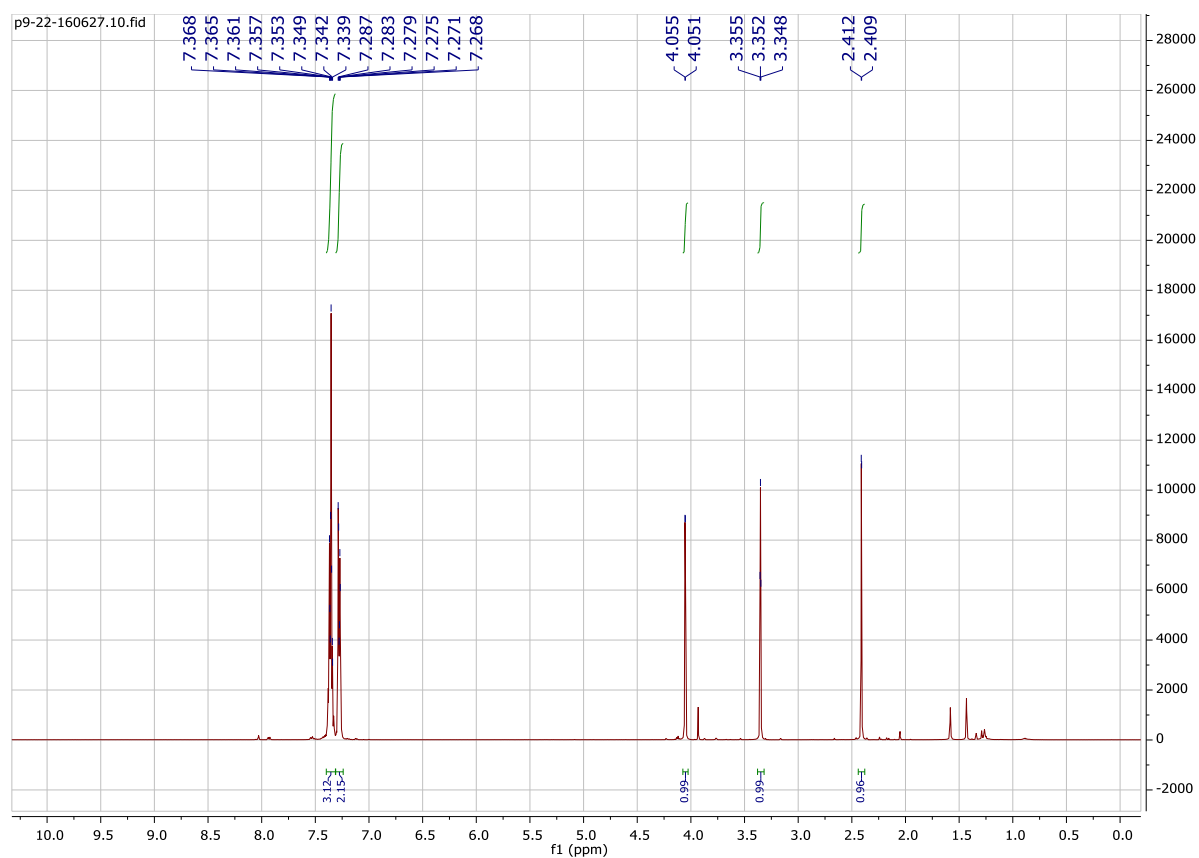
(Z)-Triisopropyl(3-(2-((4-methoxyphenyl)diphenylmethoxy)ethylidene)hept-1-yn-1-yl)silane ((Z)-9)



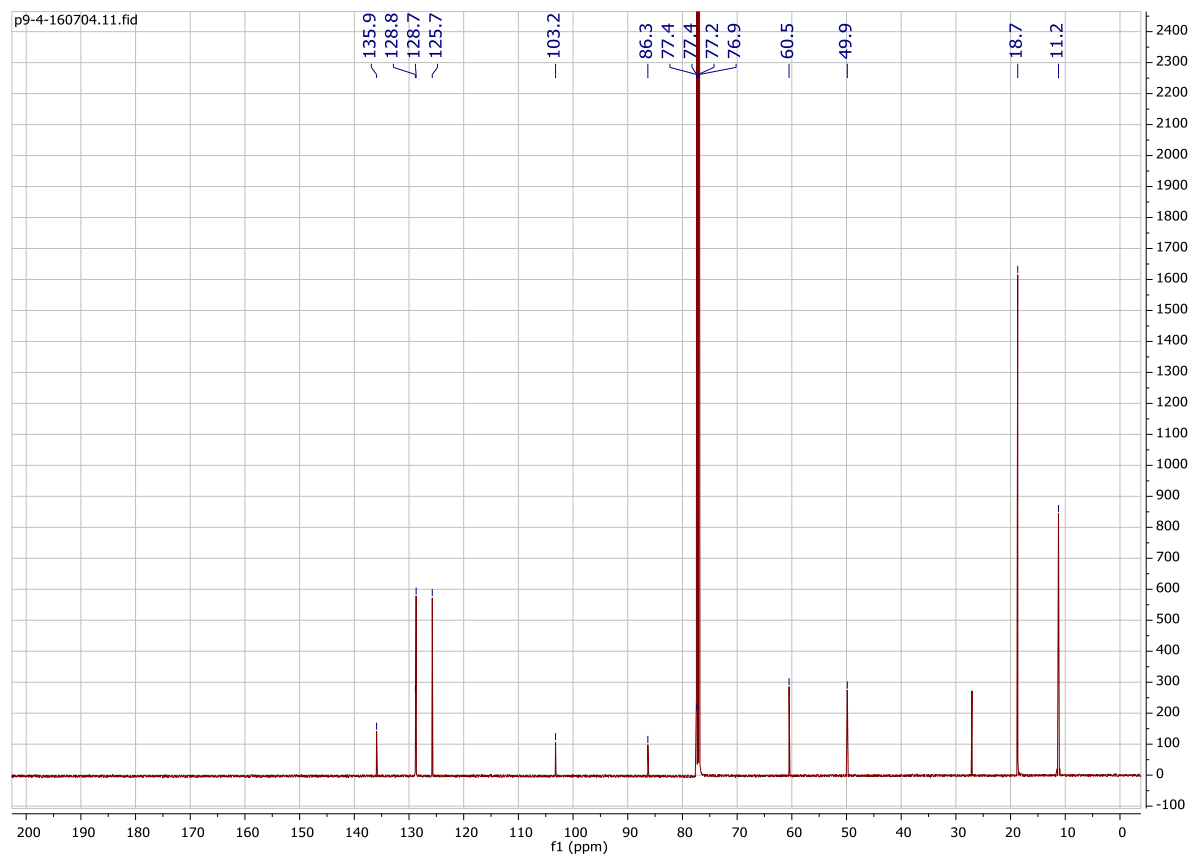
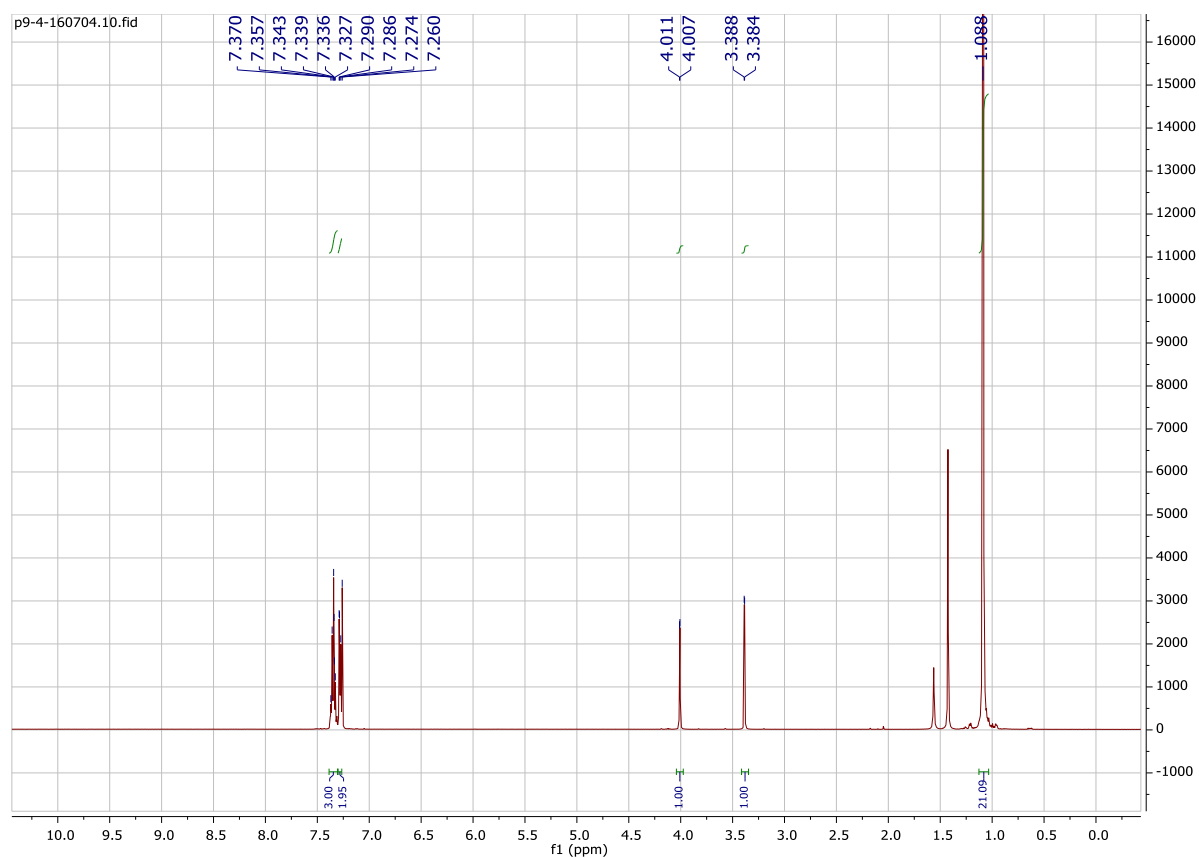
(E)-Triisopropyl(3-(2-((4-methoxyphenyl)diphenylmethoxy)ethylidene)hept-1-yn-1-yl)silane ((E)-9)



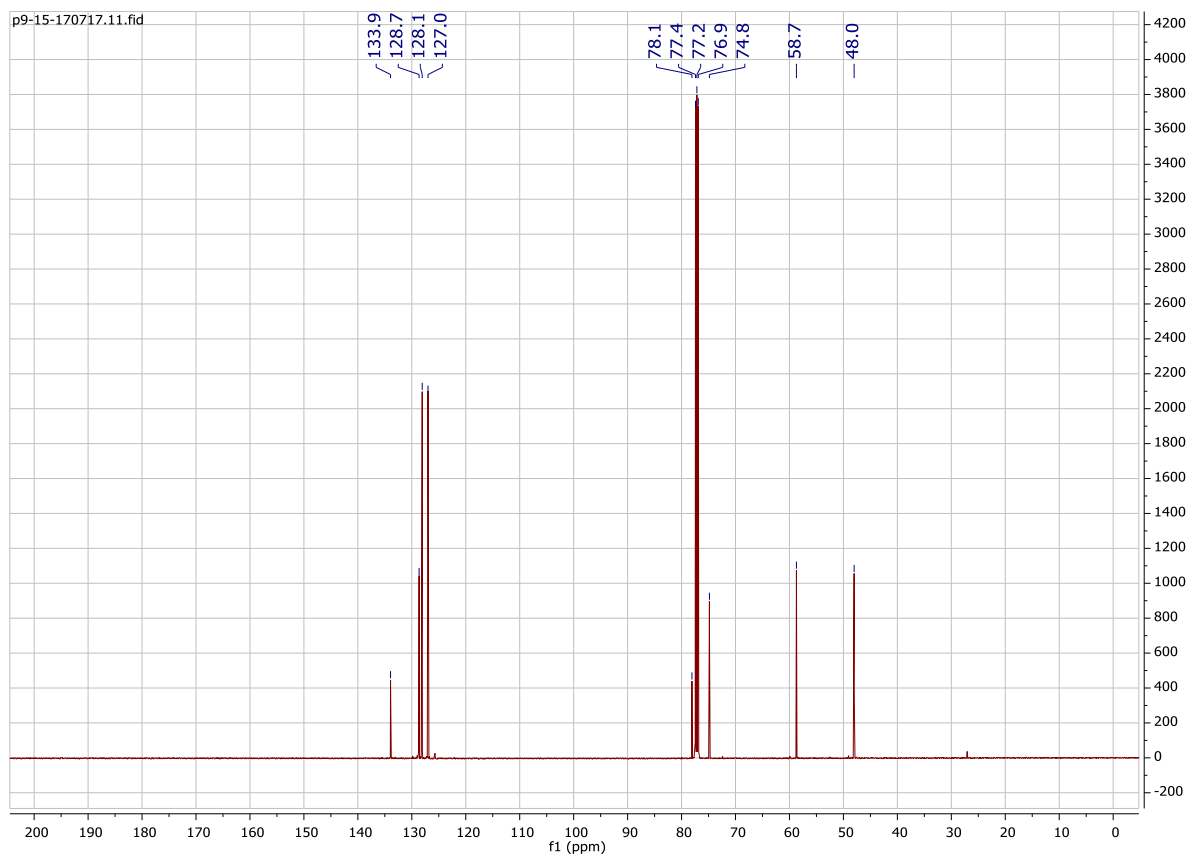
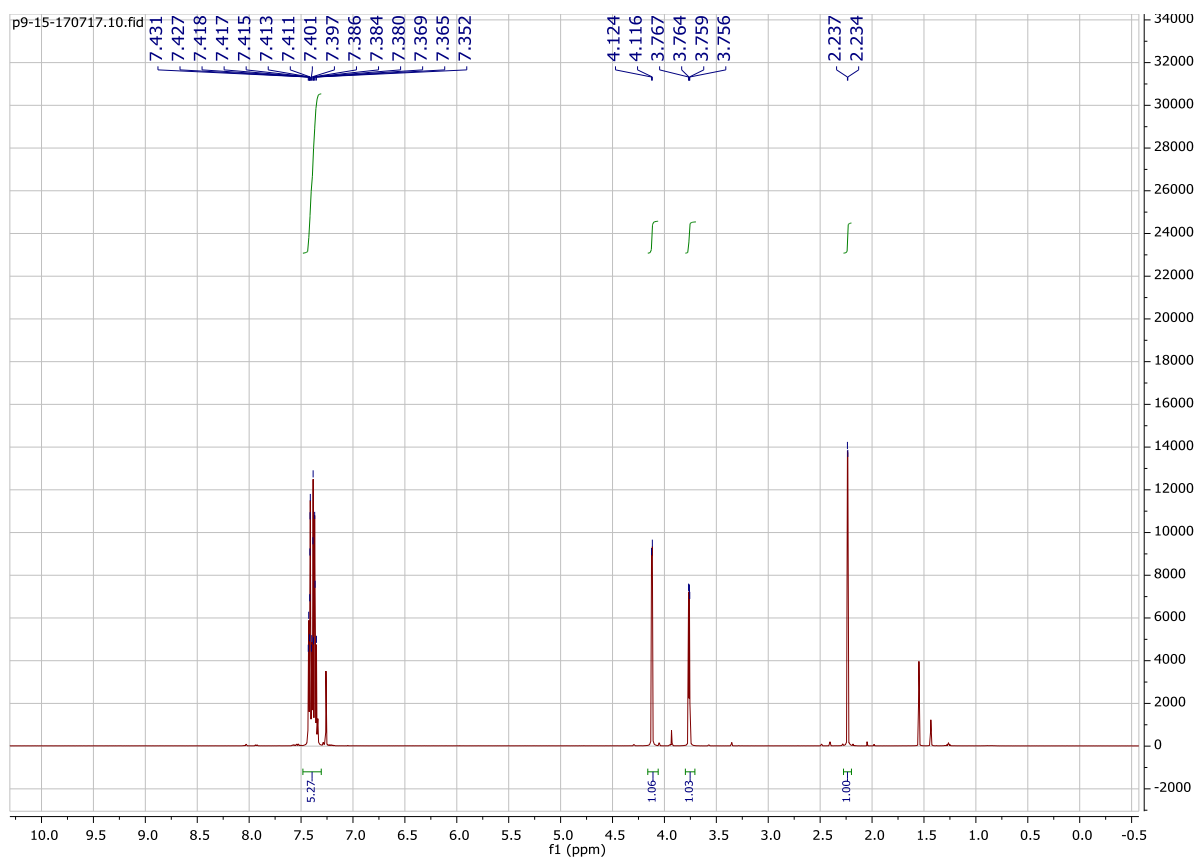
***trans*-2-Ethynyl-3-phenyloxirane (M)**



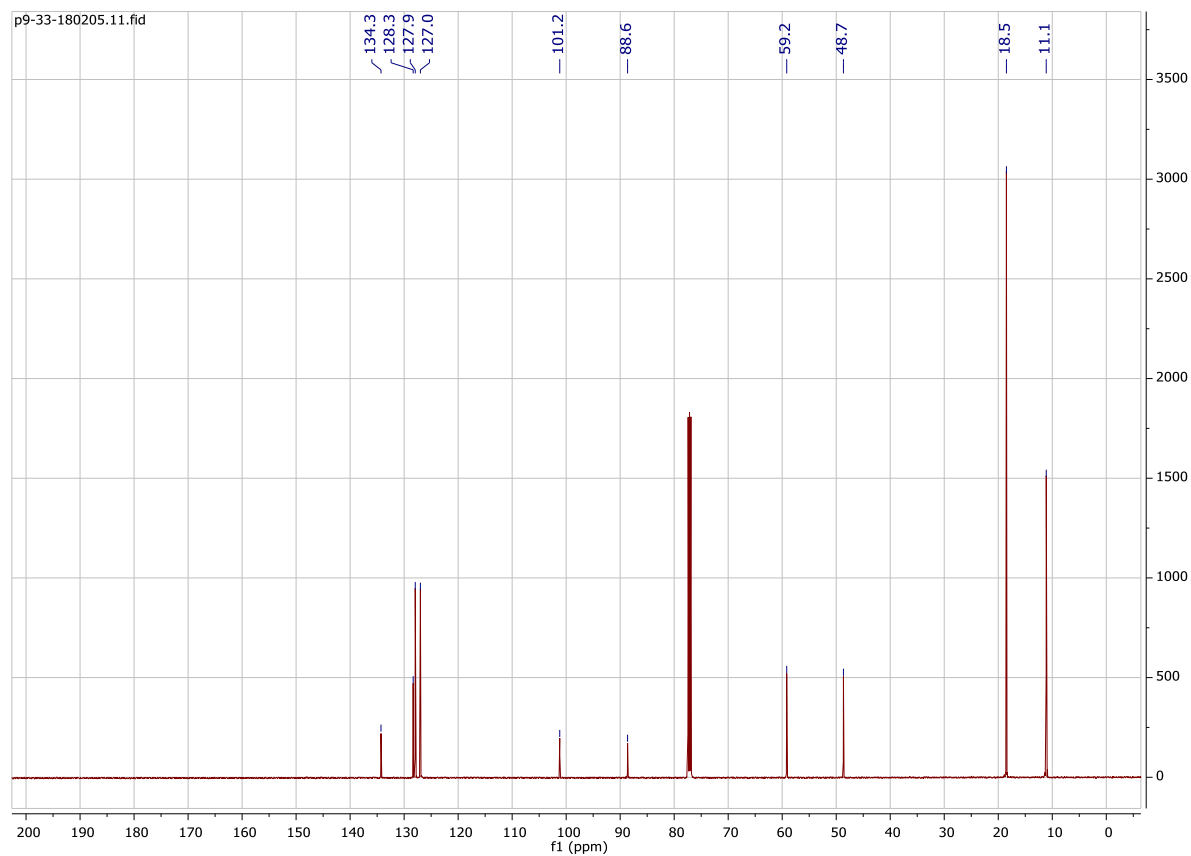
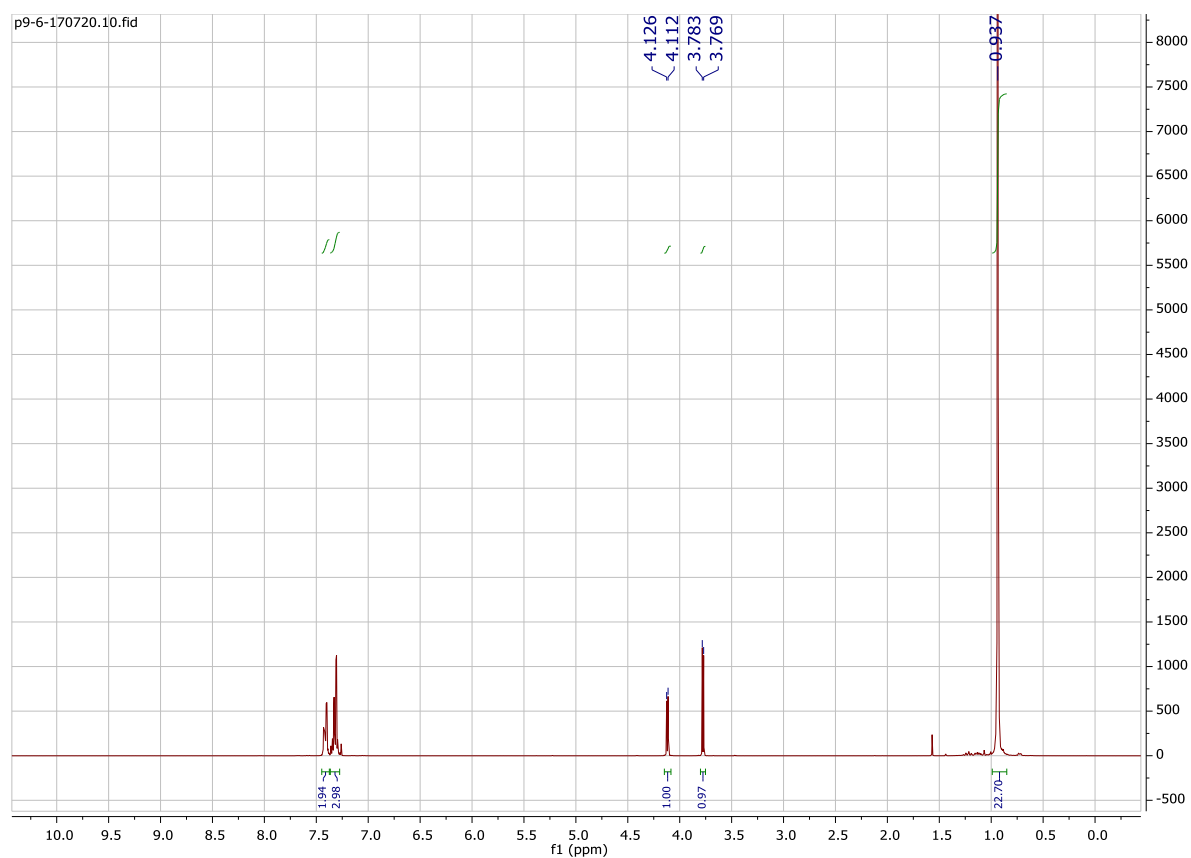
***trans*-Triisopropyl((3-phenyloxiran-2-yl)ethynyl)silane (*trans*-1d)**



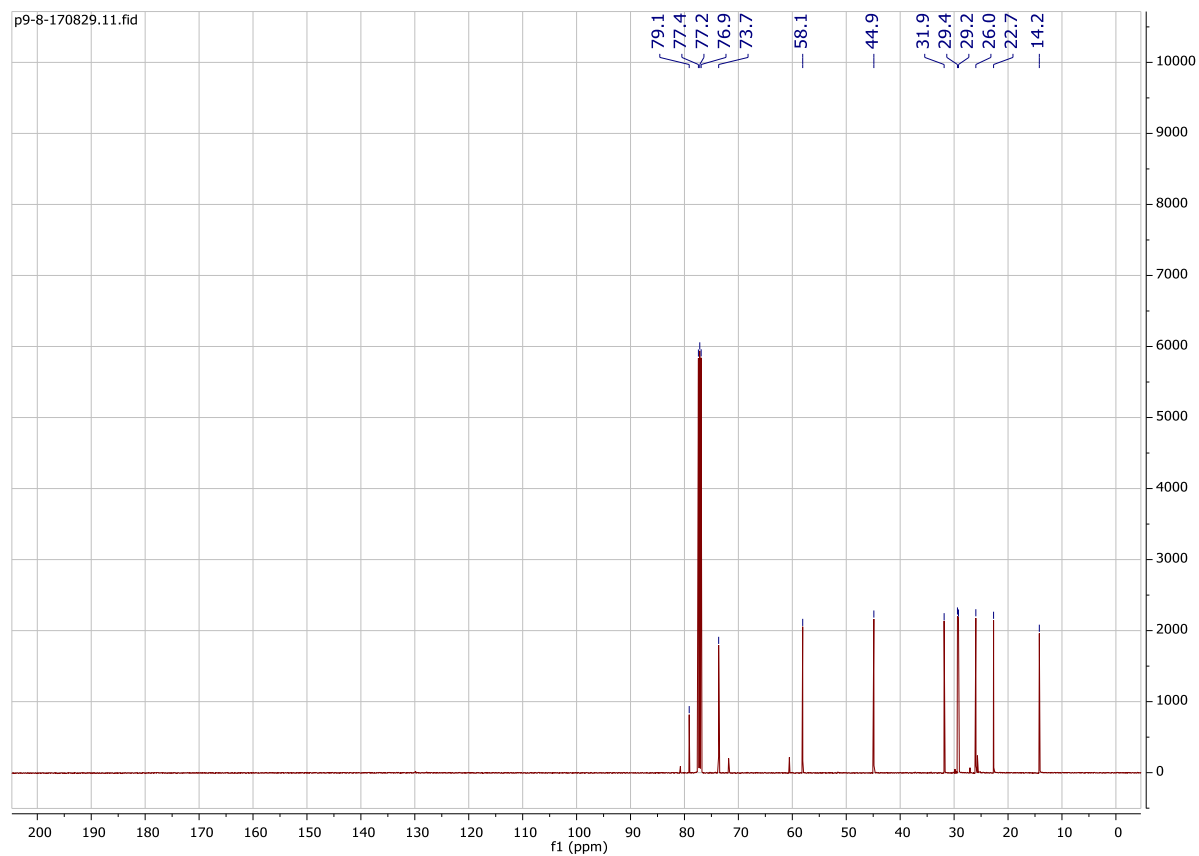
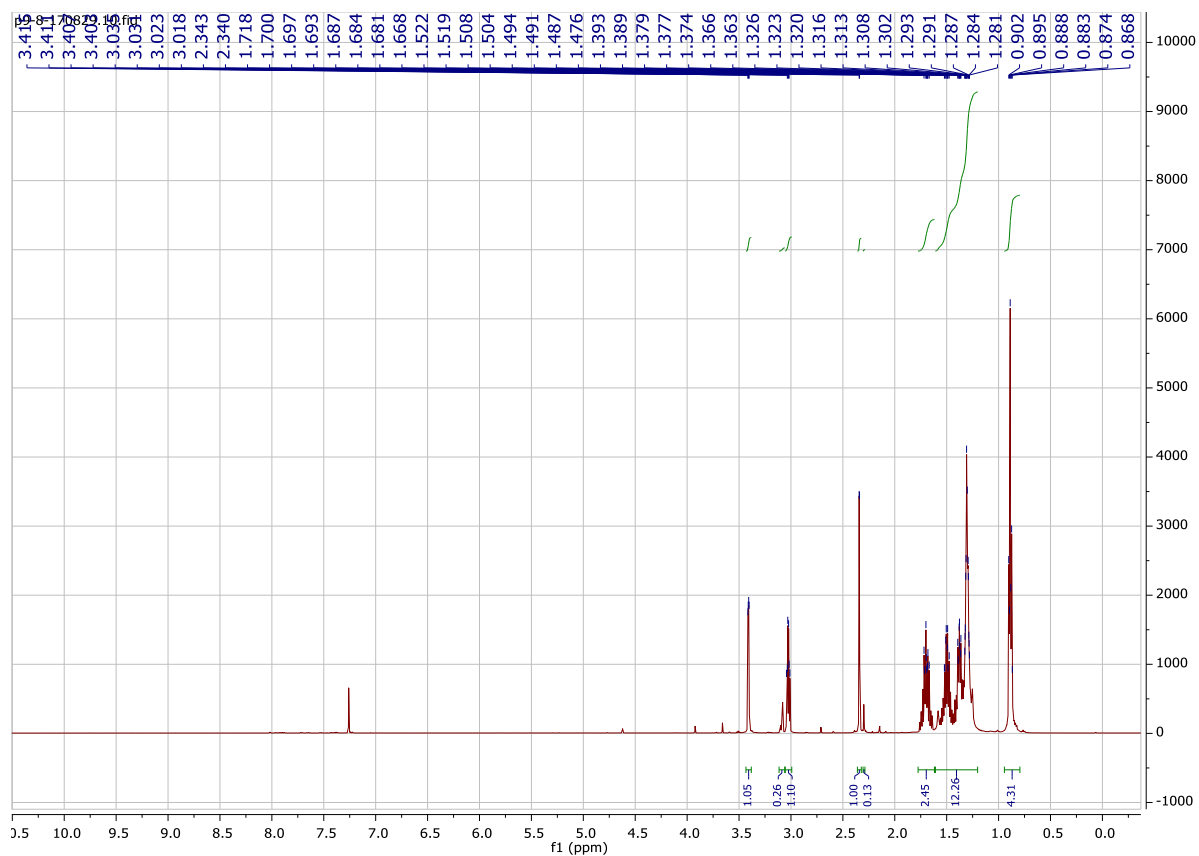
cis-2-Ethynyl-3-phenyloxirane (O)



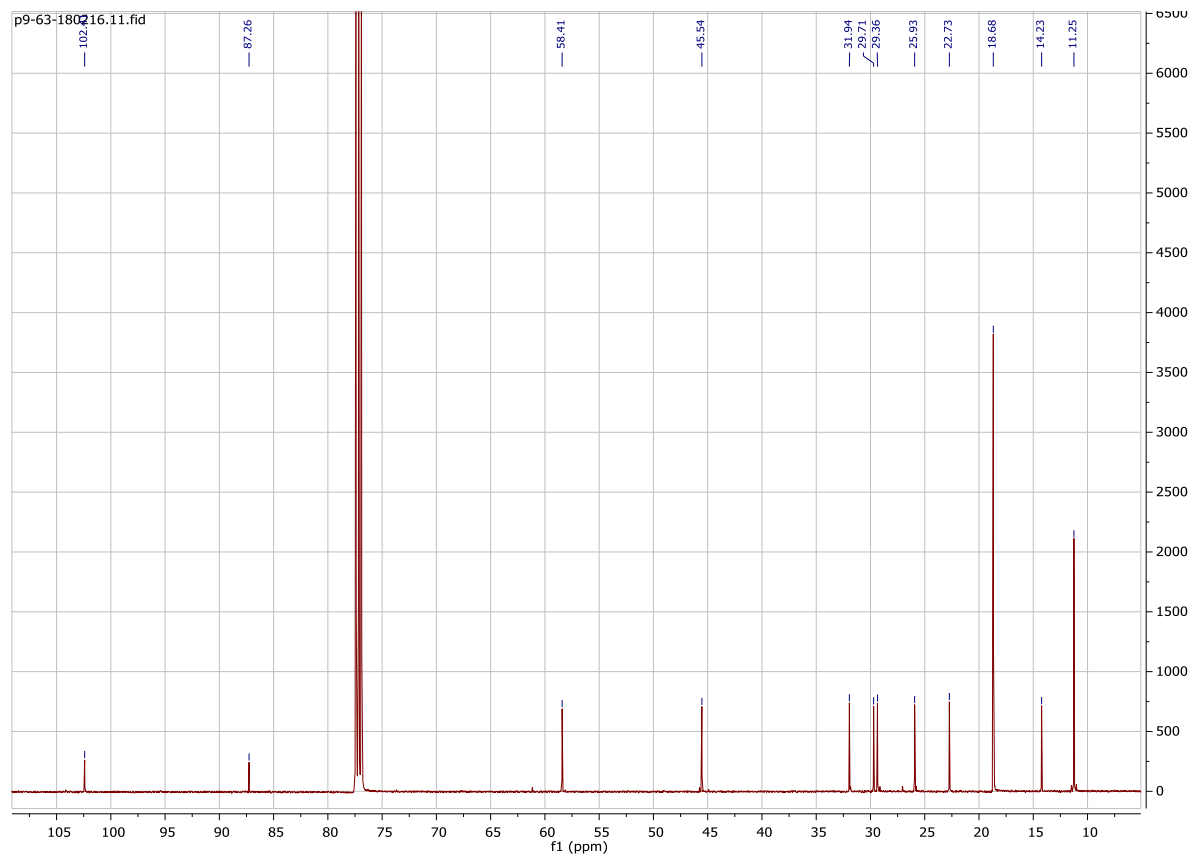
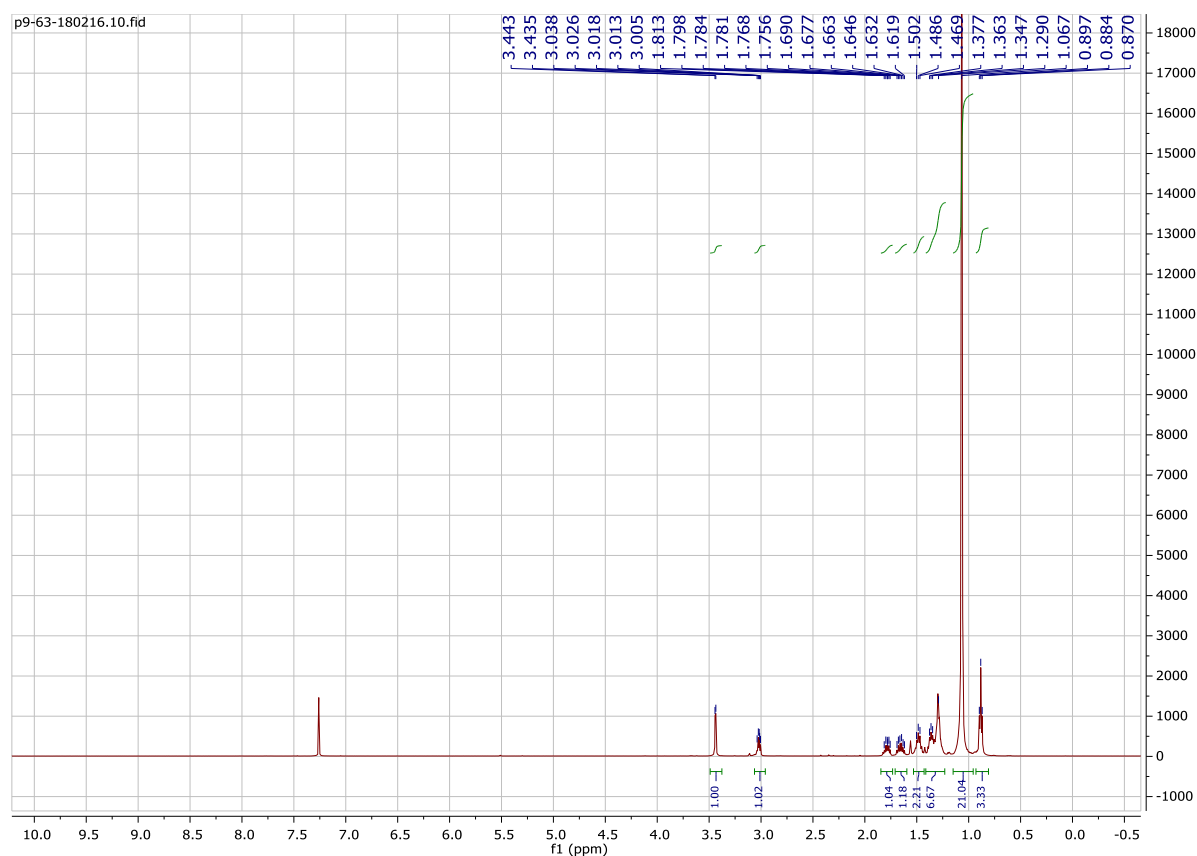
***cis*-Triisopropyl((3-phenyloxiran-2-yl)ethynyl)silane (*cis*-1d)**



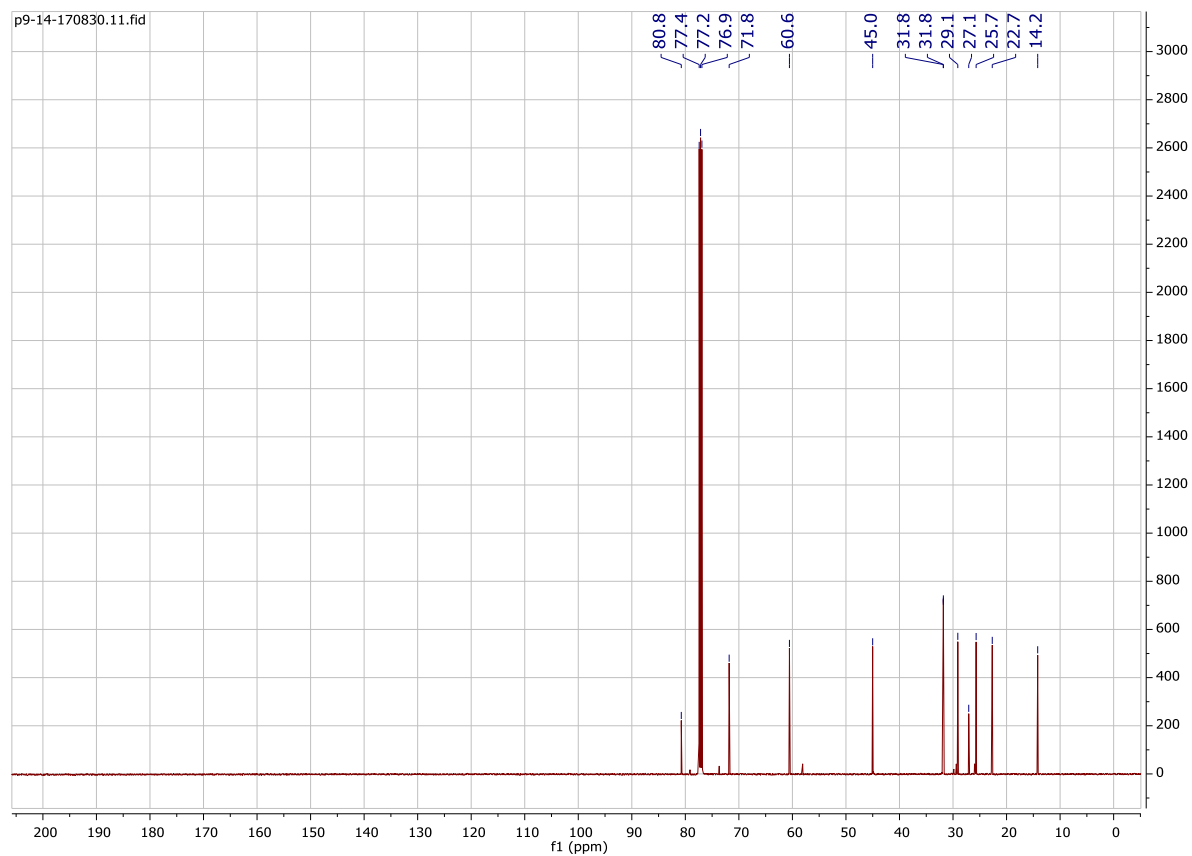
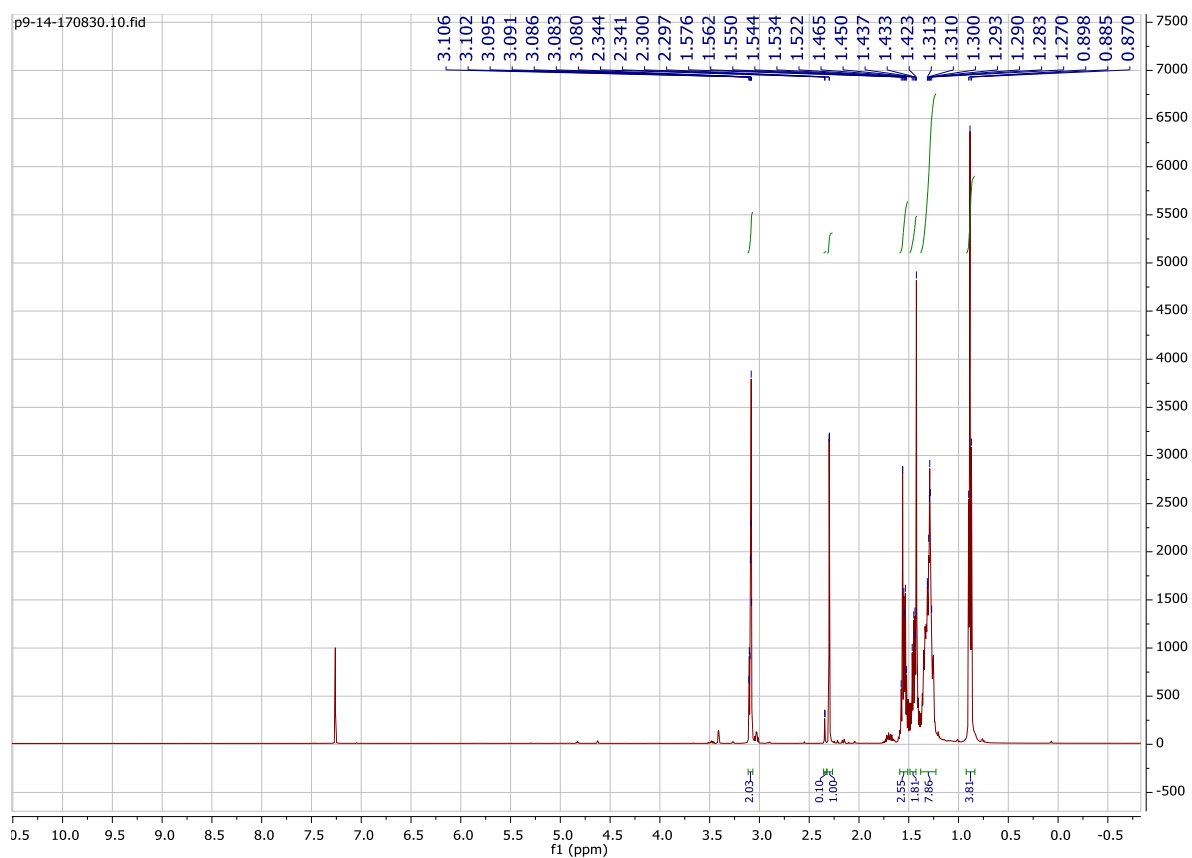
***cis*-2-Ethynyl-3-hexyloxirane (Q)**



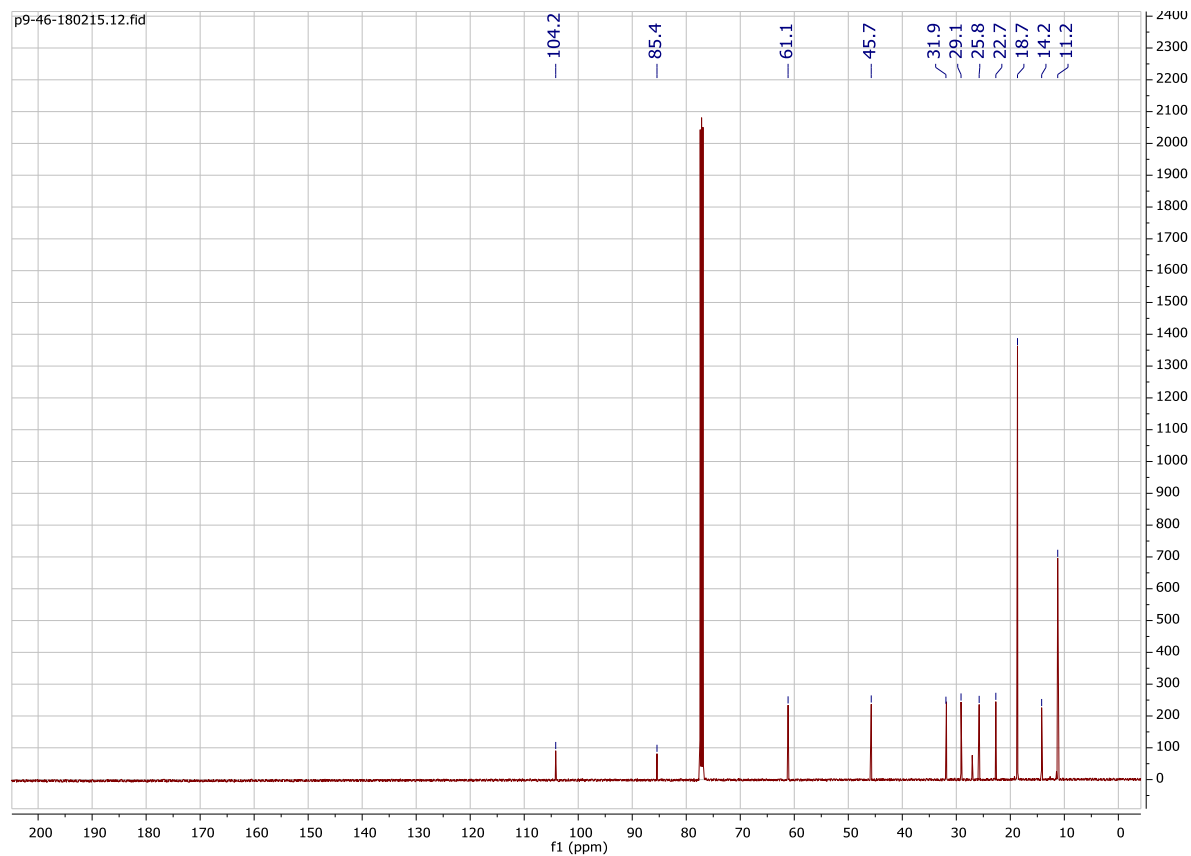
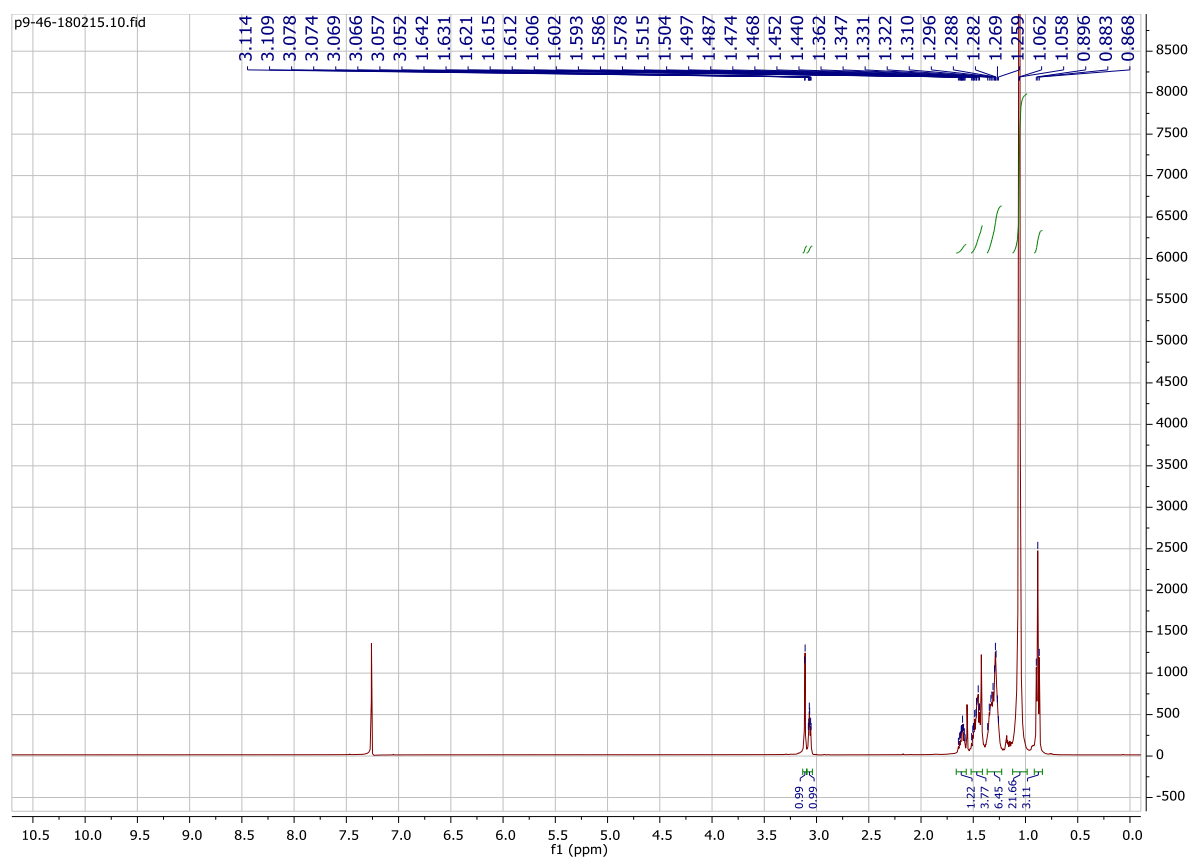
***cis*-Triisopropyl((3-hexyloxiran-2-yl)ethynyl)silane (*cis*-1c)**



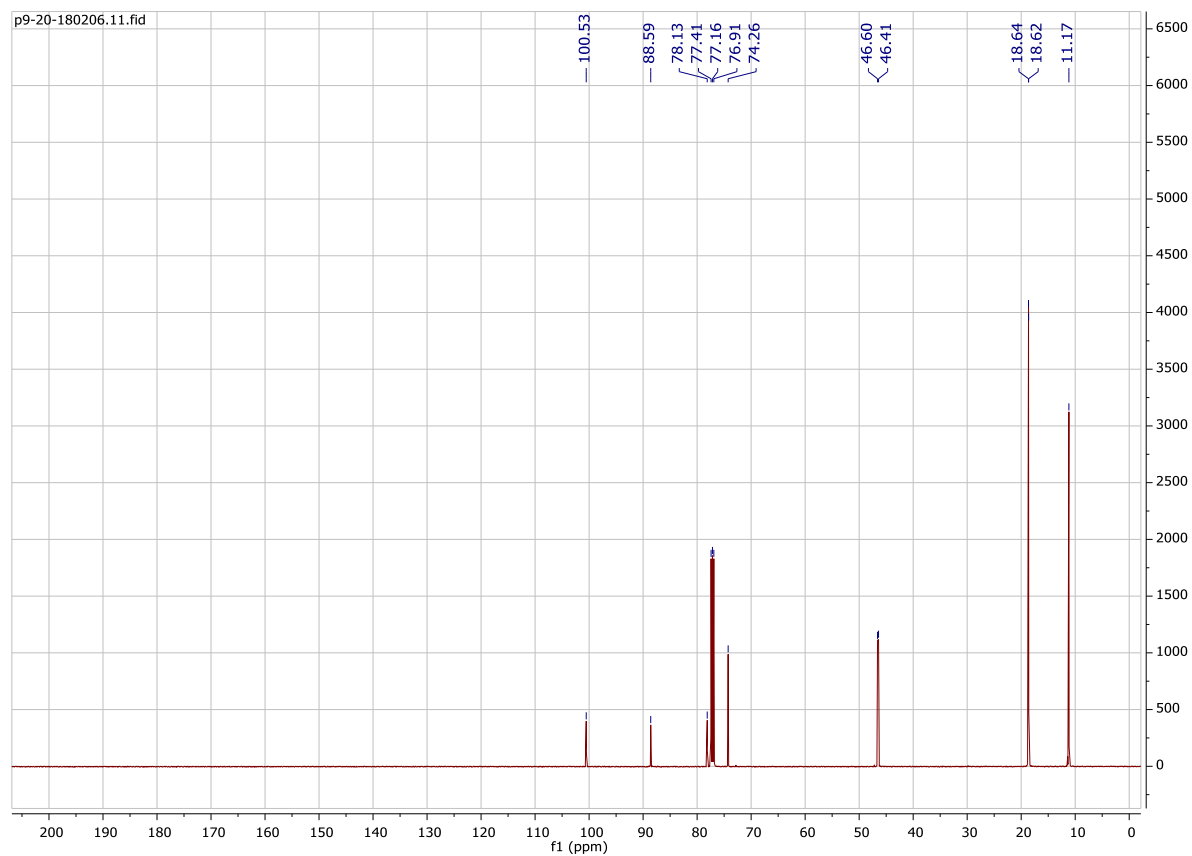
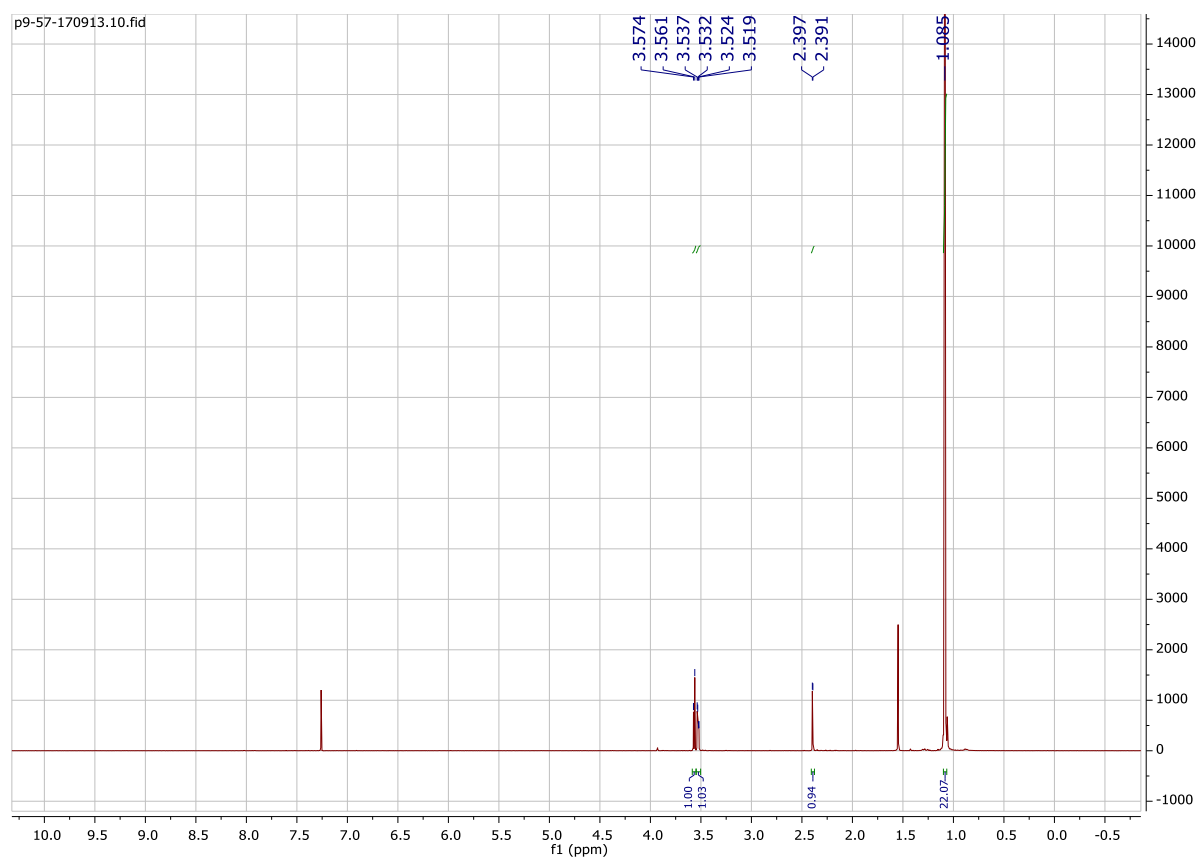
***trans*-2-Ethynyl-3-hexyloxirane (S)**



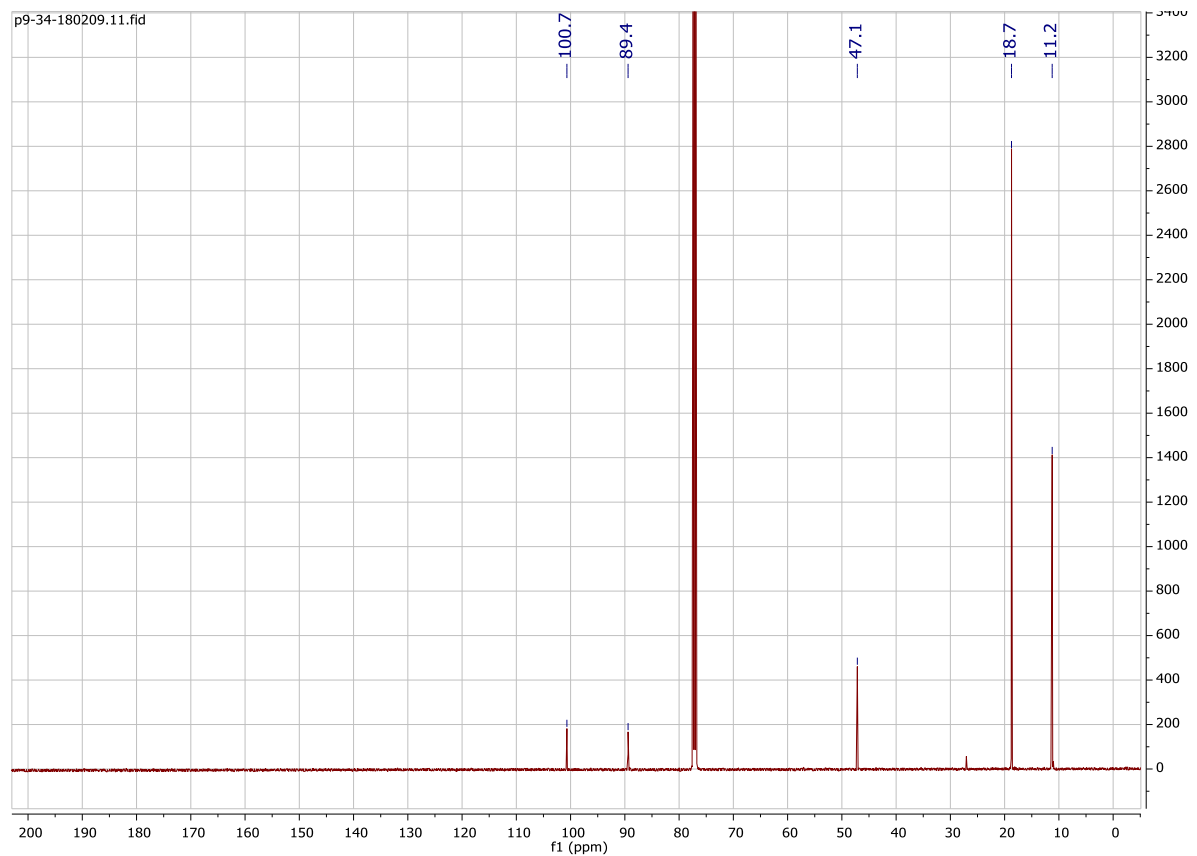
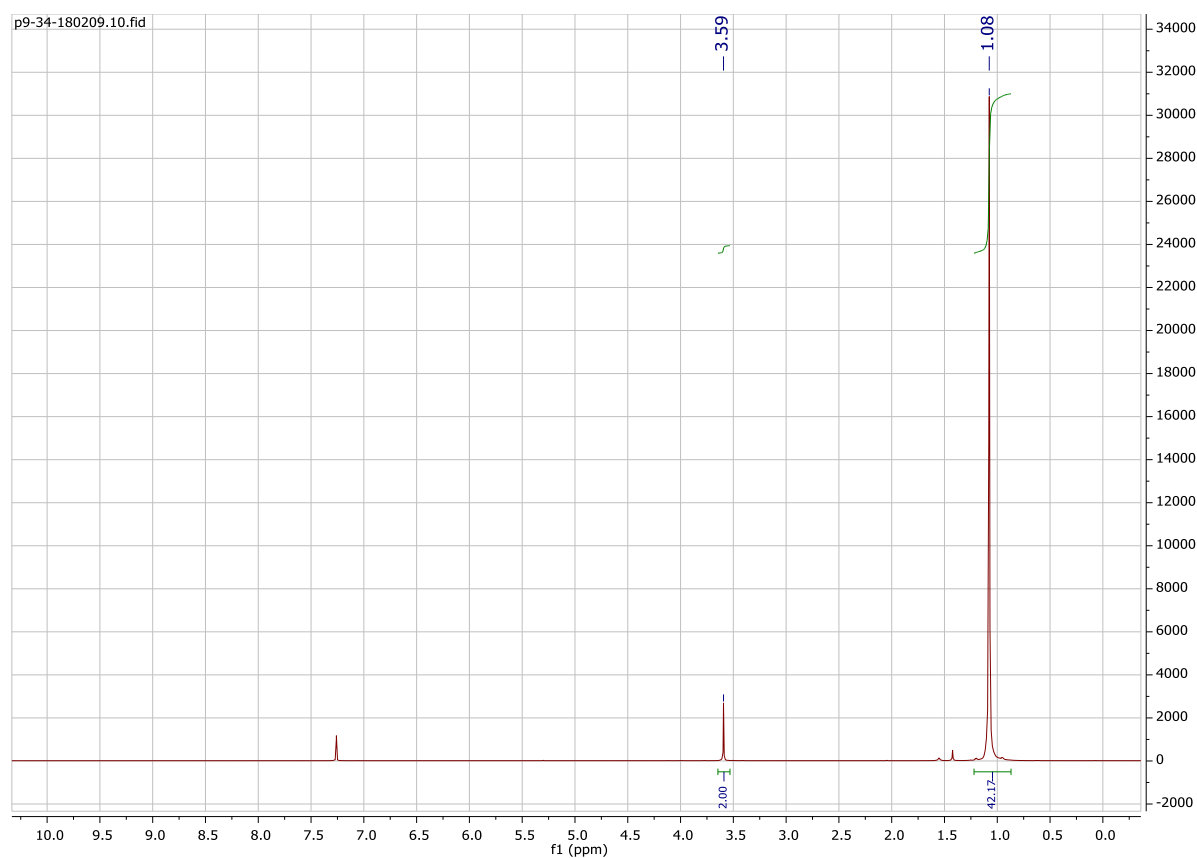
***trans*-Triisopropyl((3-hexyloxiran-2-yl)ethynyl)silane (*trans*-1c)**



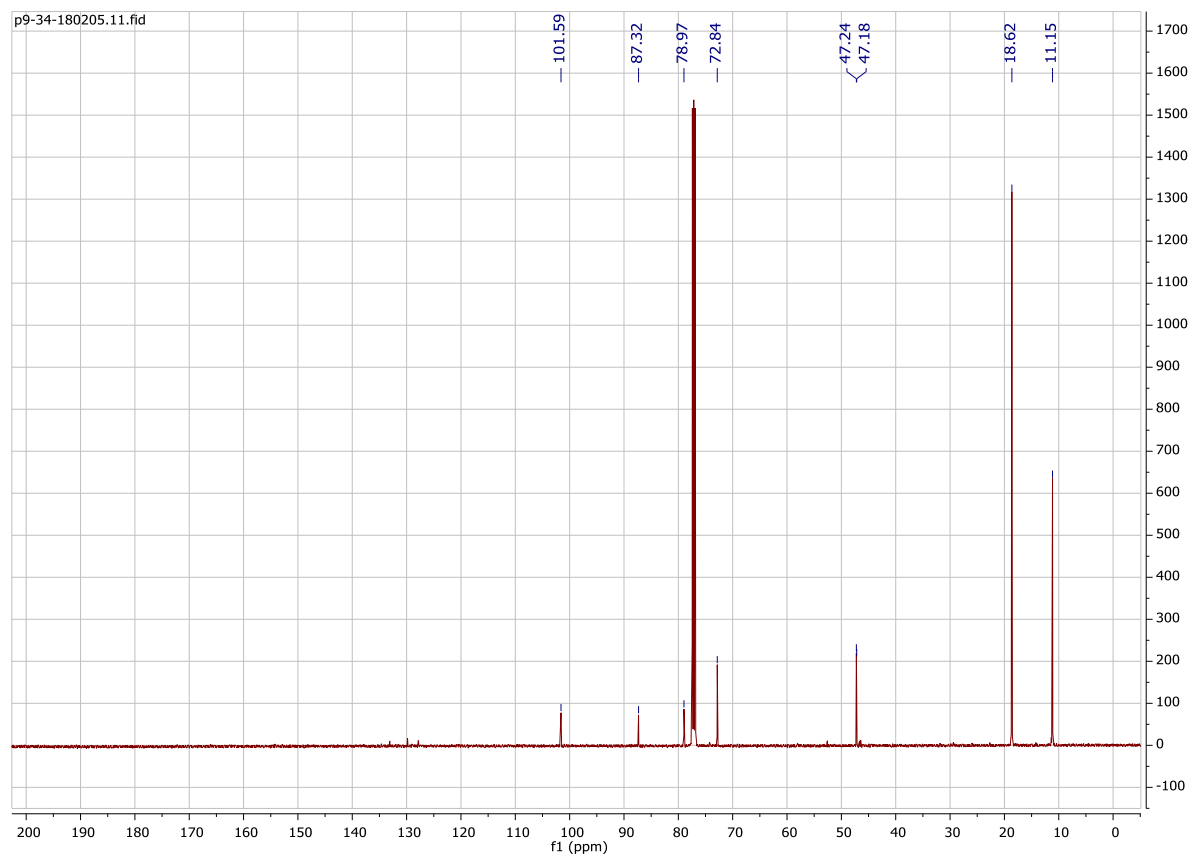
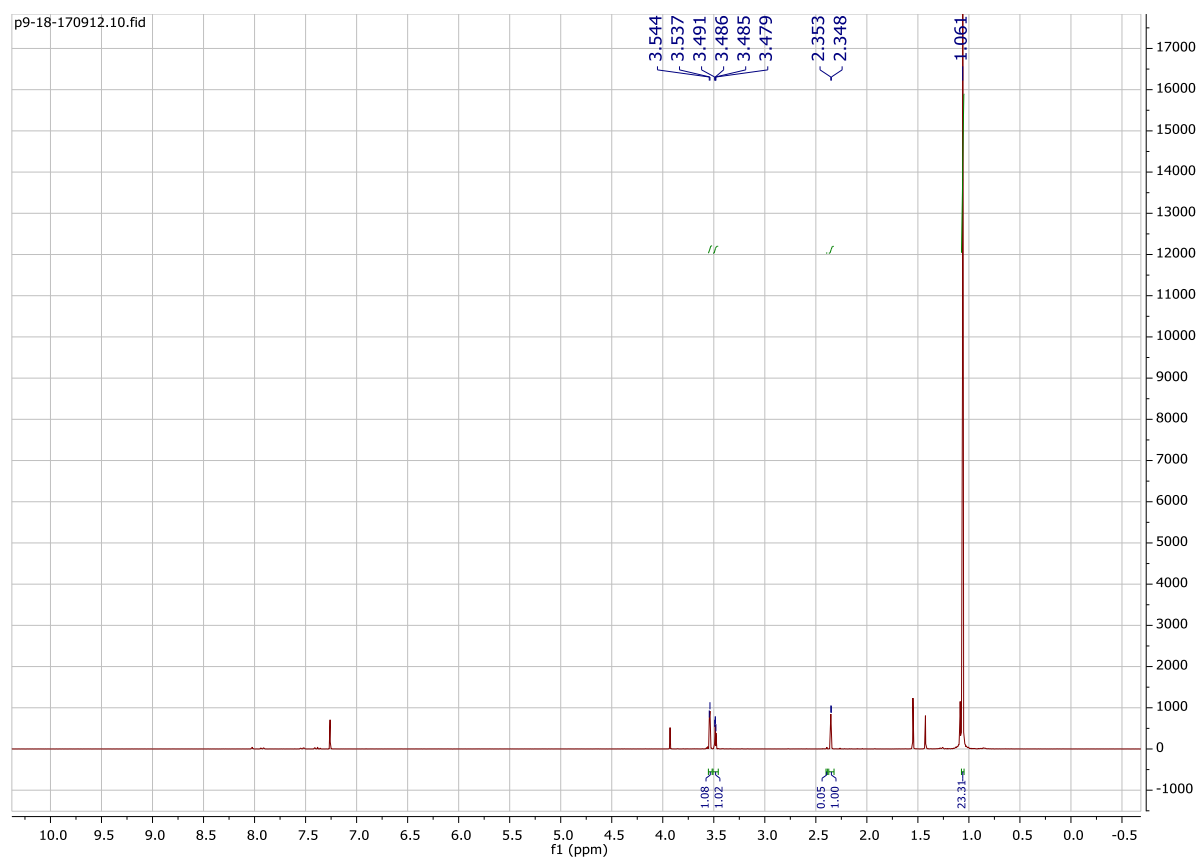
***cis*-((3-Ethynyloxiran-2-yl)ethynyl)triisopropylsilane (T)**



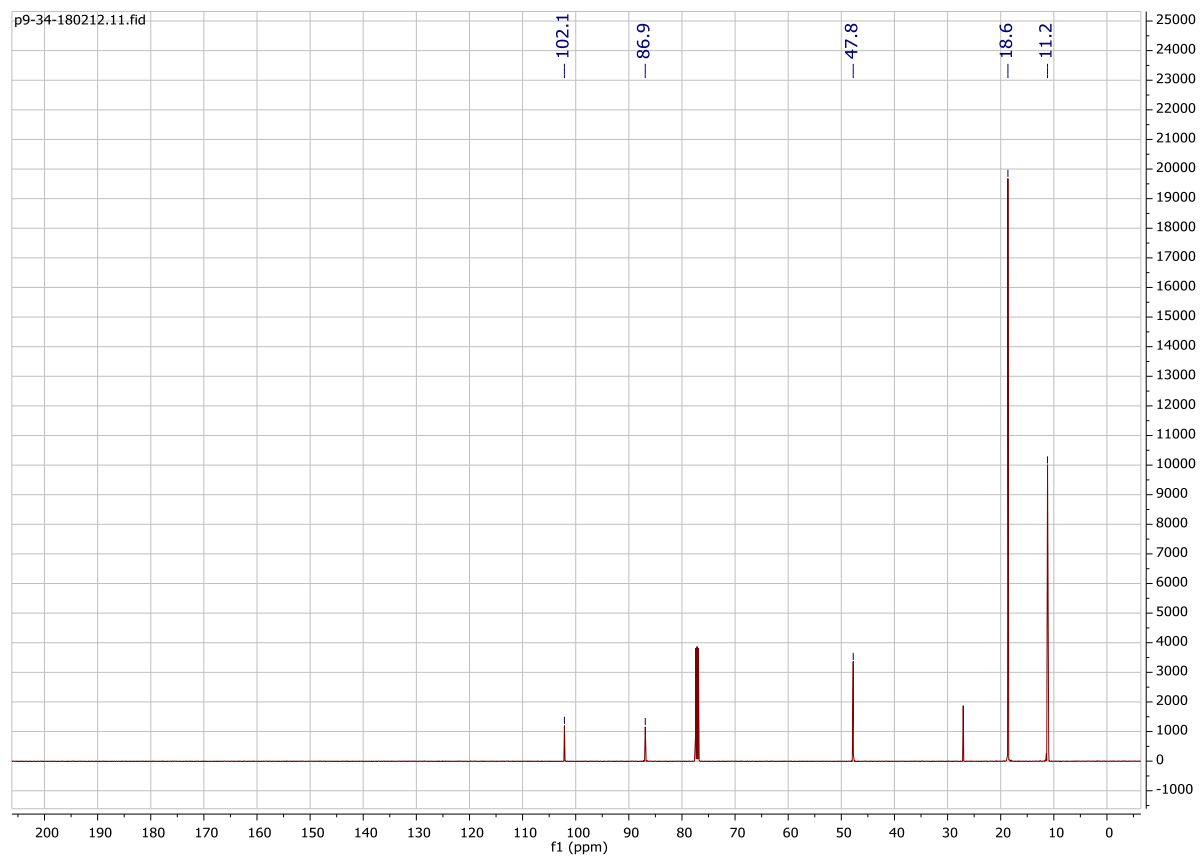
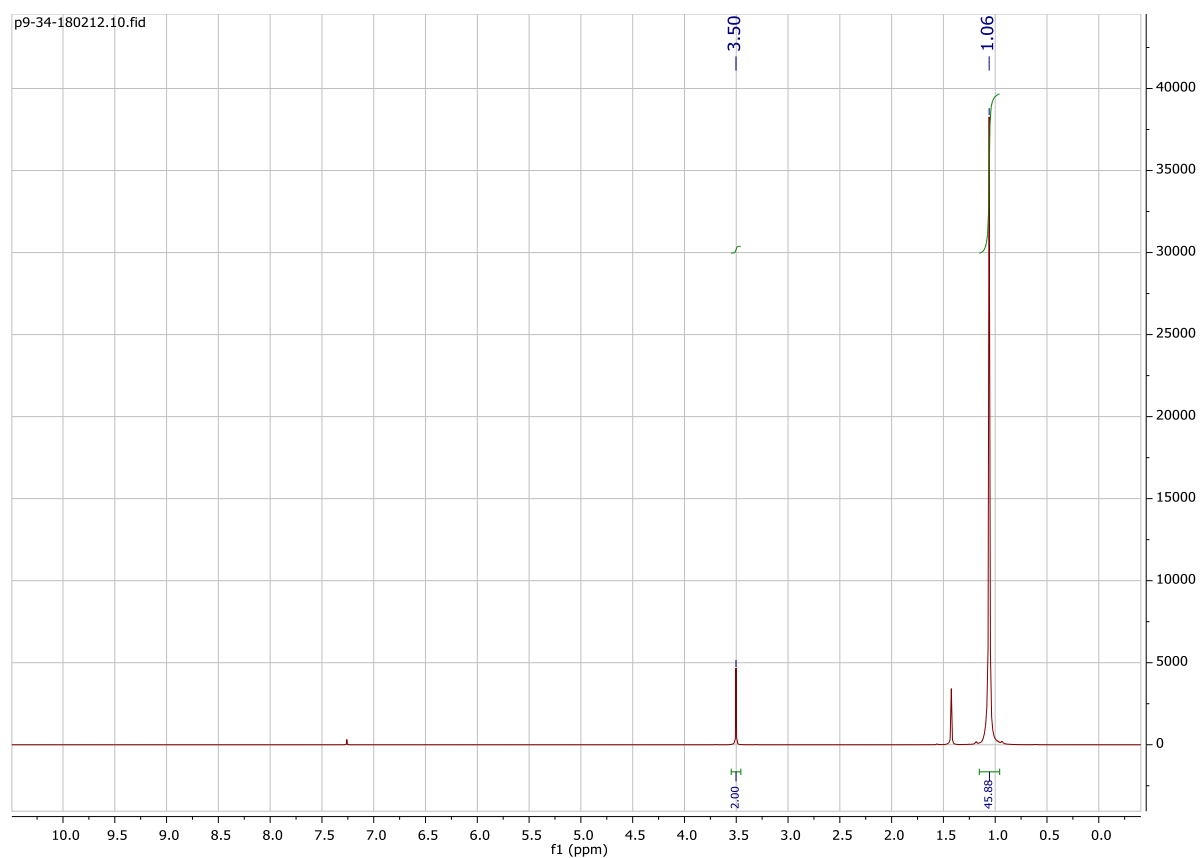
***cis*-2,3-Bis((triisopropylsilyl)ethynyl)oxirane (*cis*-1e)**



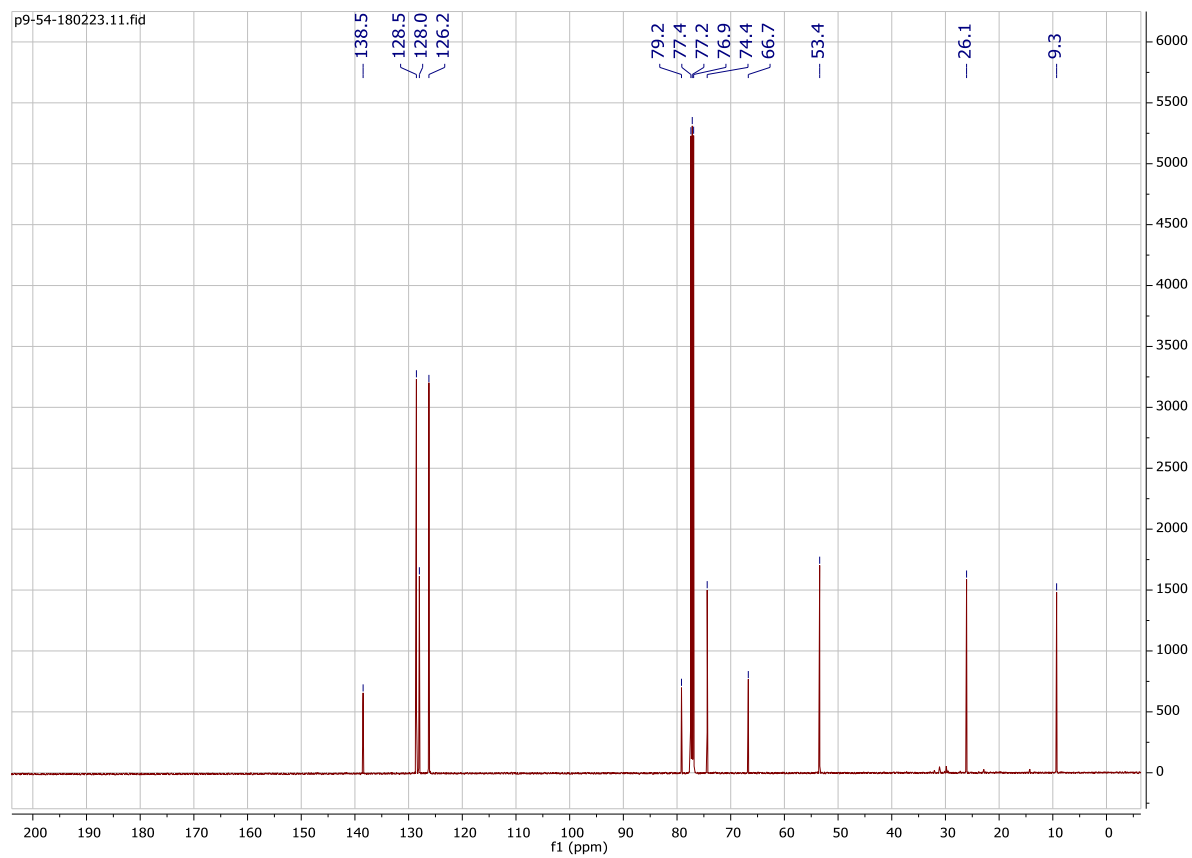
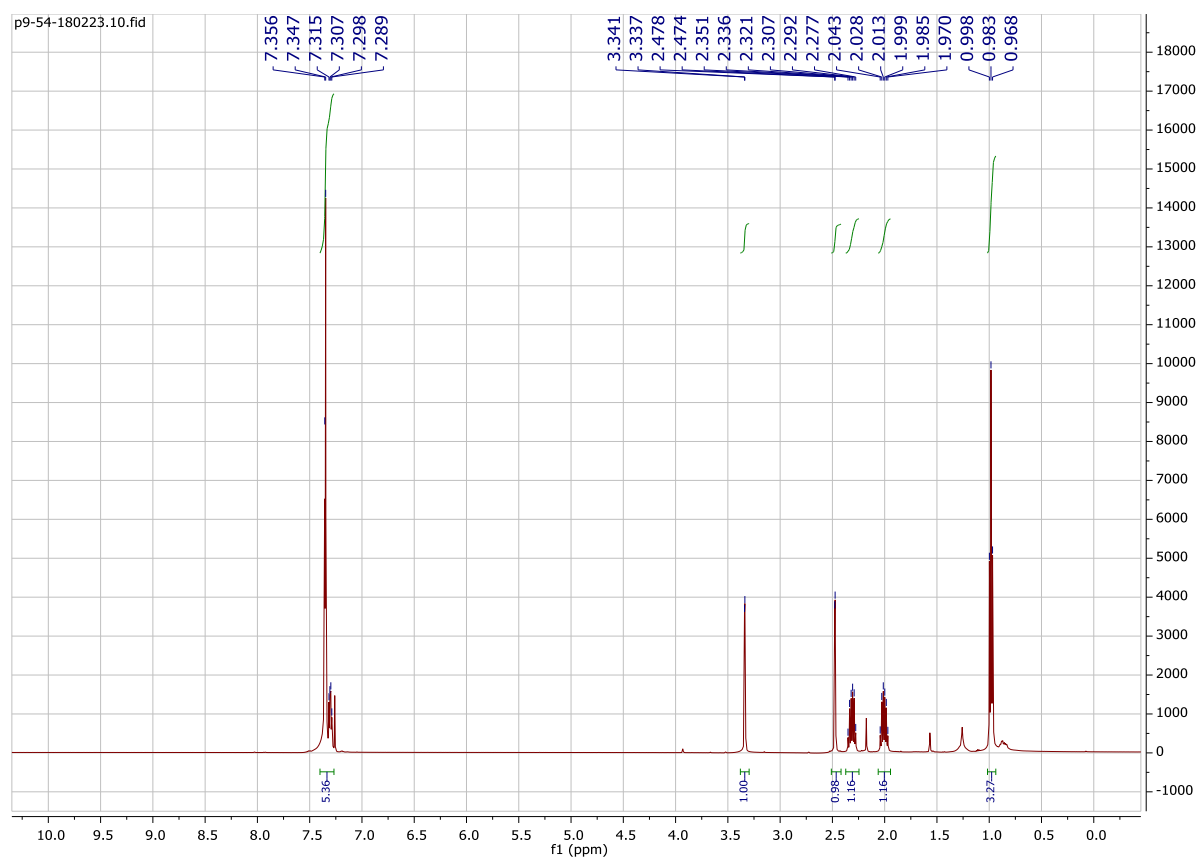
***trans*-((3-Ethynyloxiran-2-yl)ethynyl)triisopropylsilane (U)**



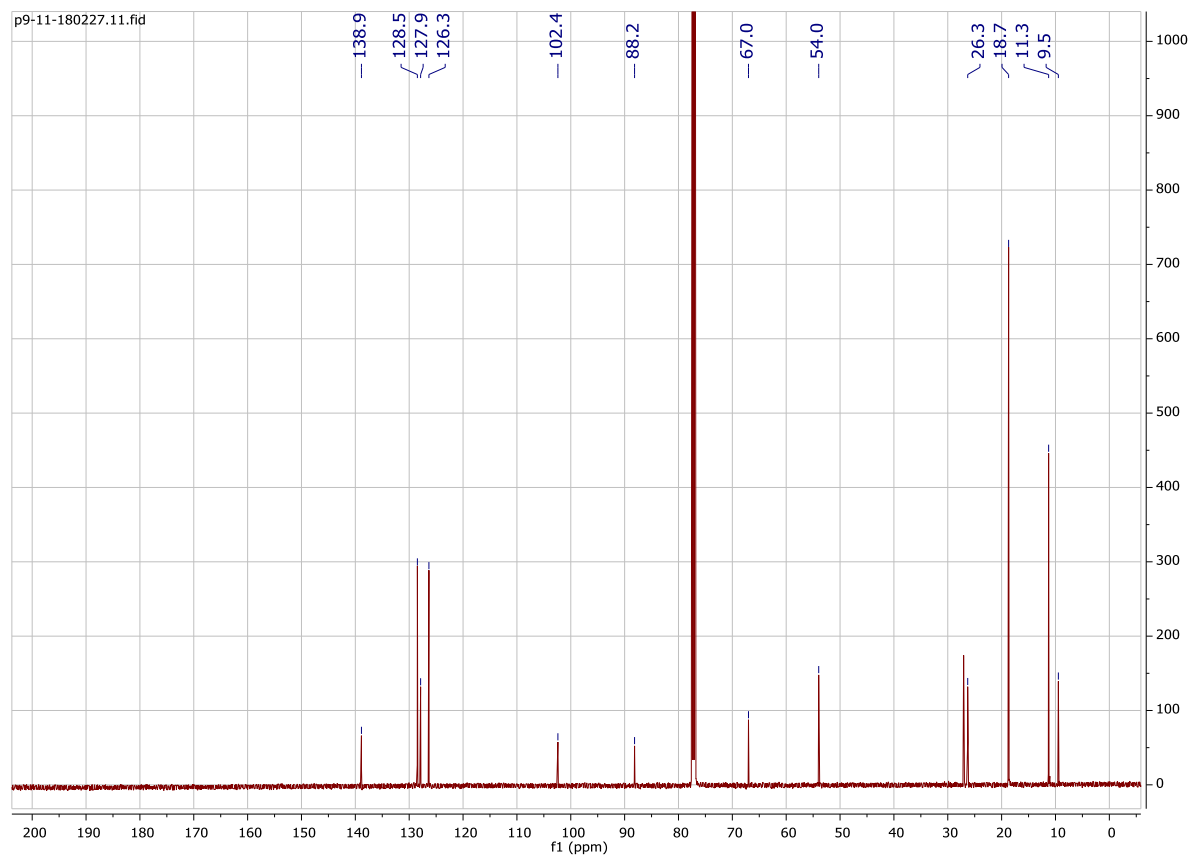
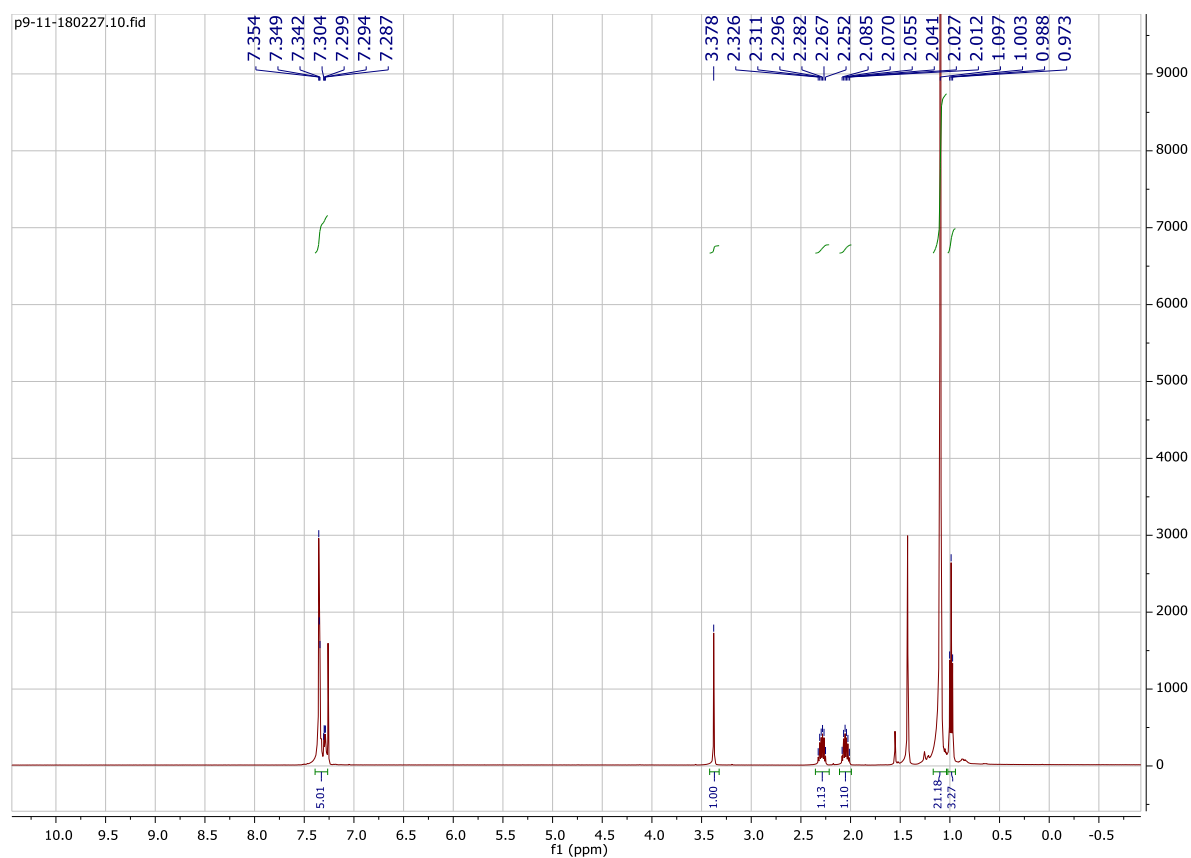
***trans*-2,3-Bis((triisopropylsilyl)ethynyl)oxirane (*trans*-1e)**



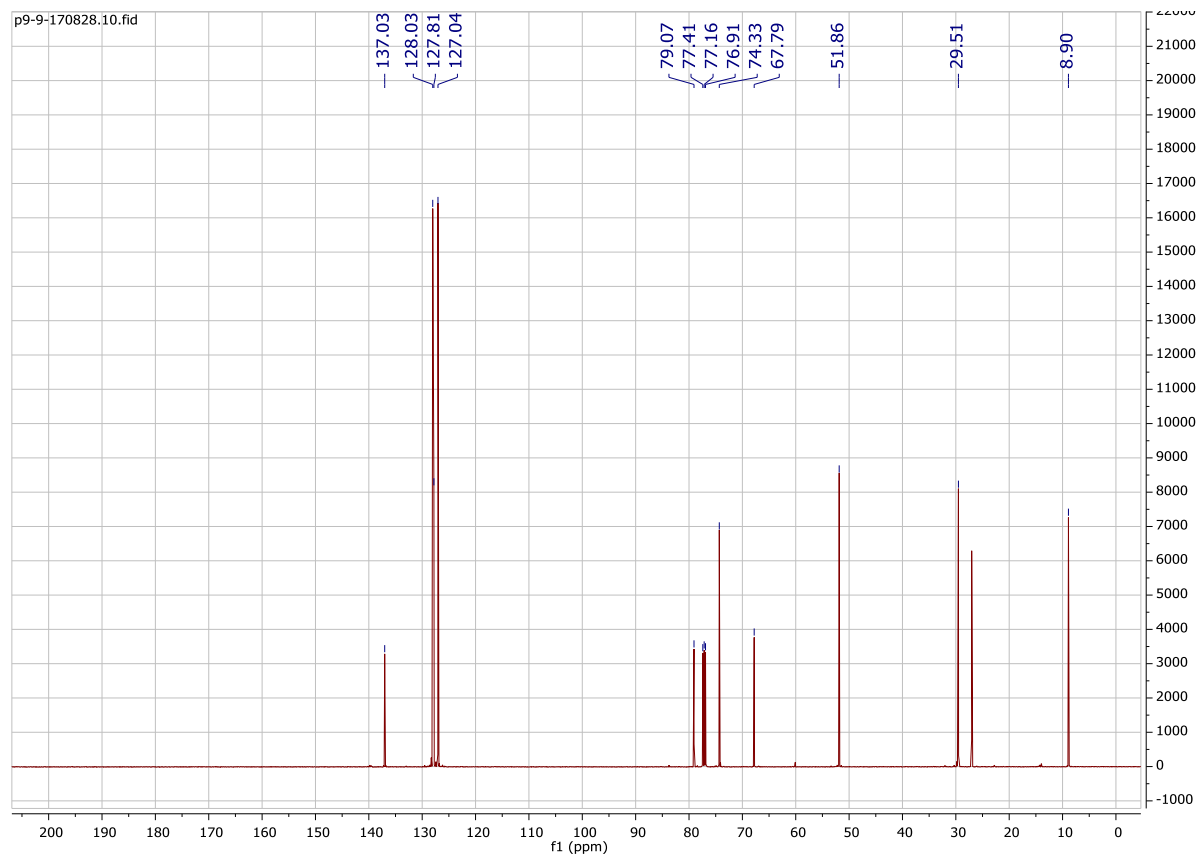
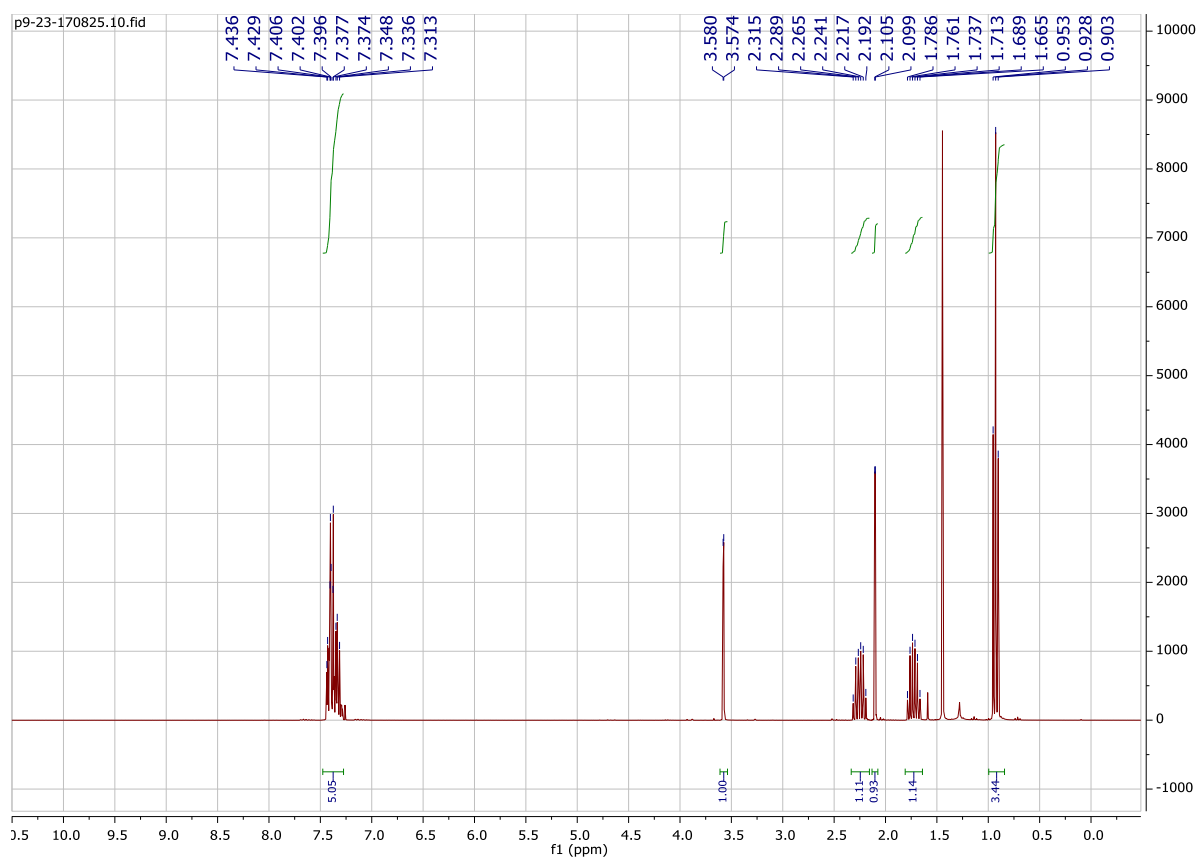
***trans*-2-Ethyl-3-ethynyl-2-phenyloxirane (W)**



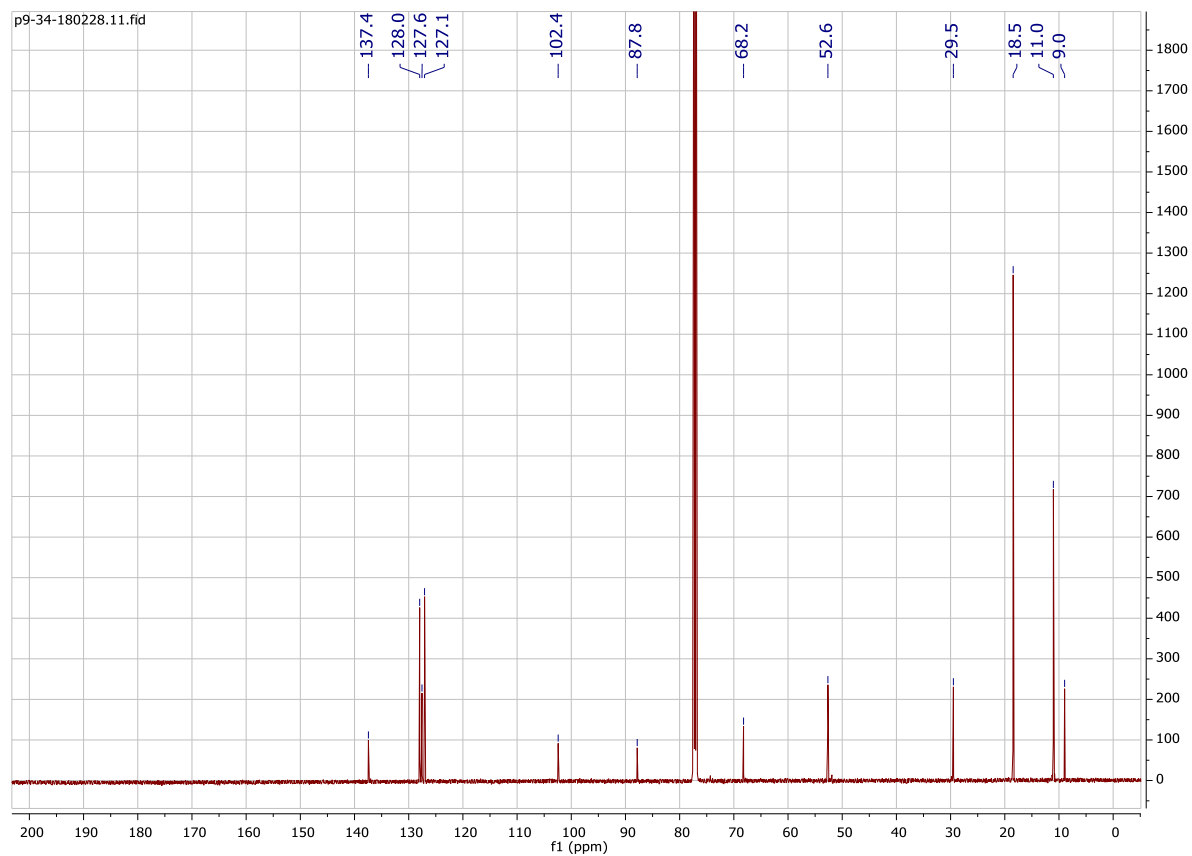
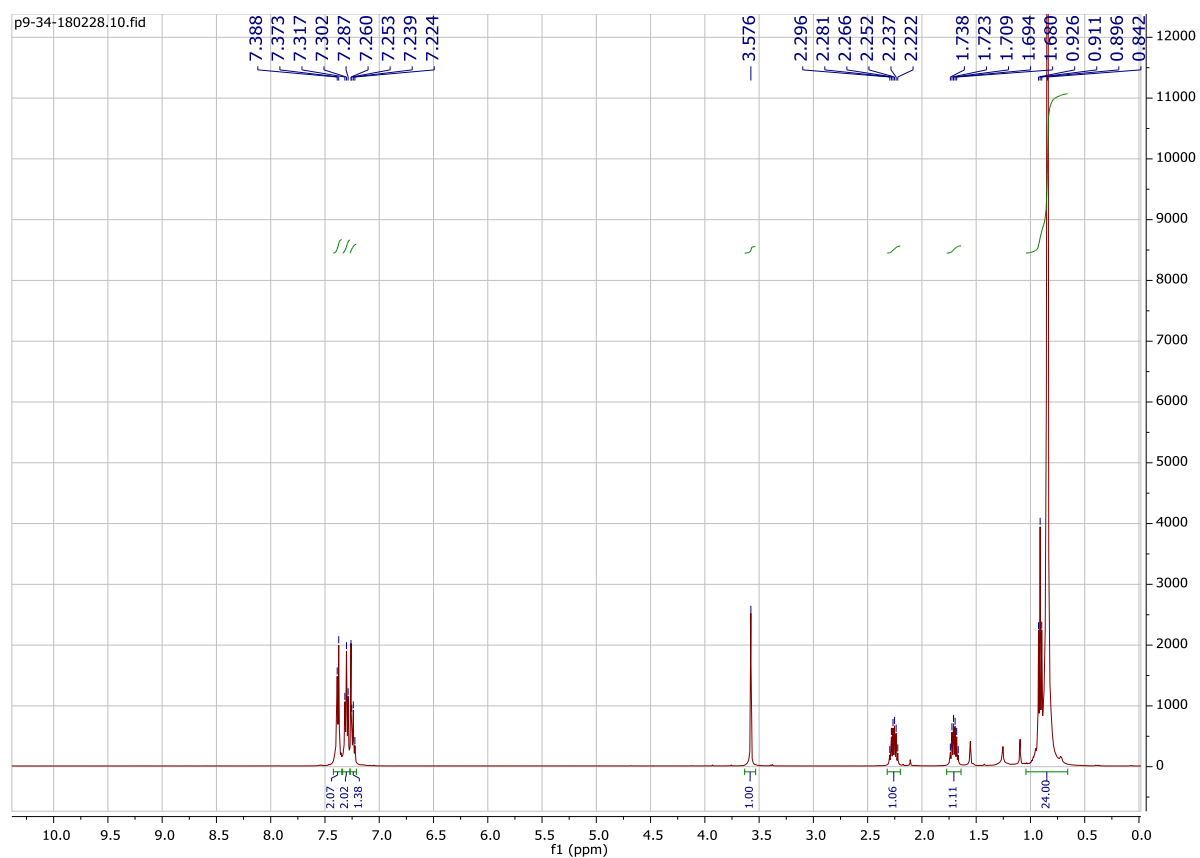
***trans*-((3-Ethyl-3-phenyloxiran-2-yl)ethynyl)triisopropylsilane (*trans*-1f)**



***cis*-2-Ethyl-3-ethynyl-2-phenyloxirane (Y)**

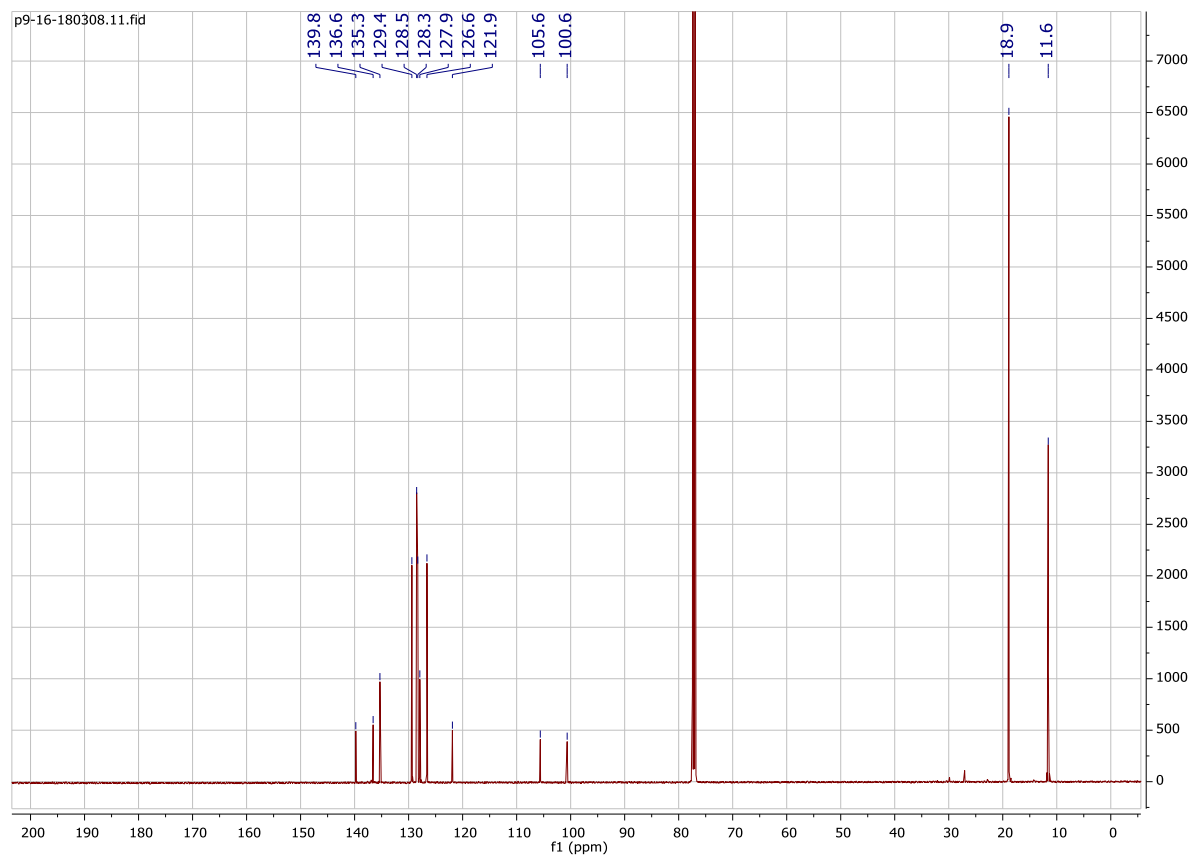


***cis*-((3-Ethyl-3-phenyloxiran-2-yl)ethynyl)triisopropylsilane (*cis*-1f)**

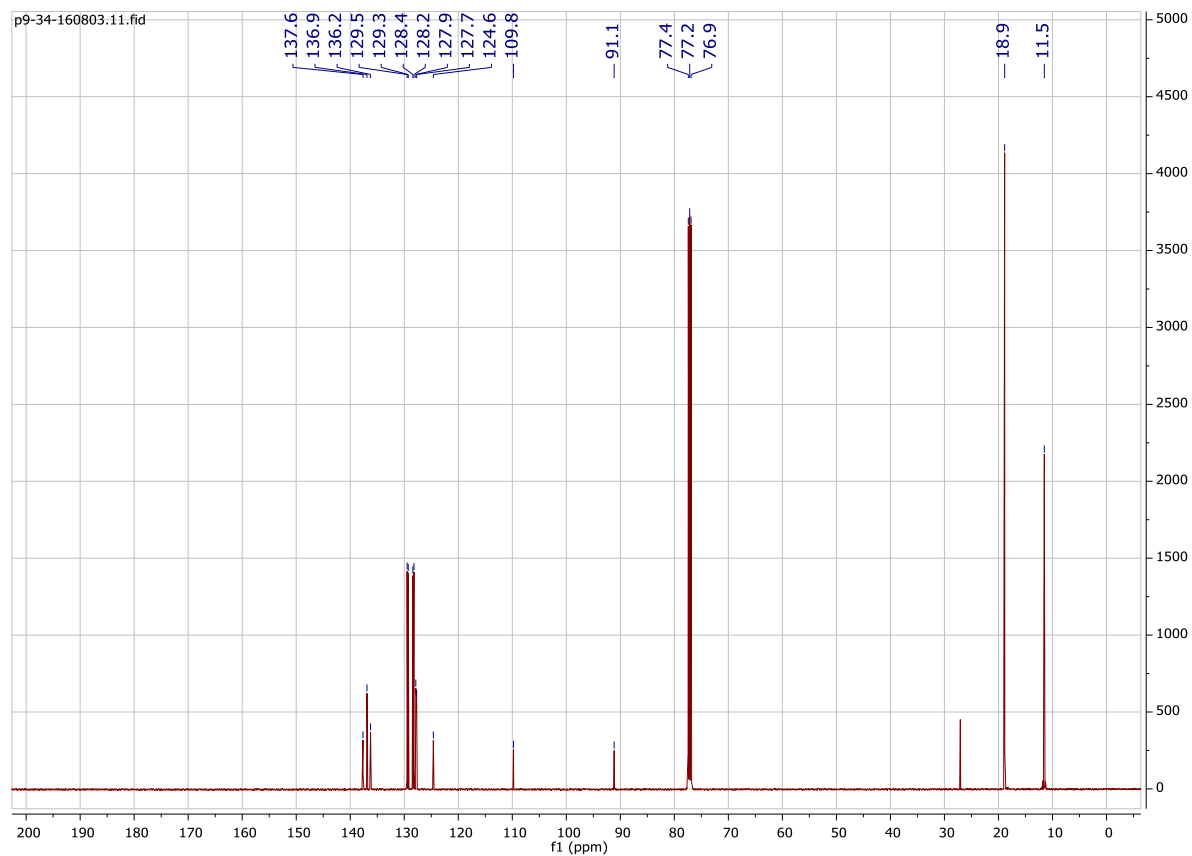
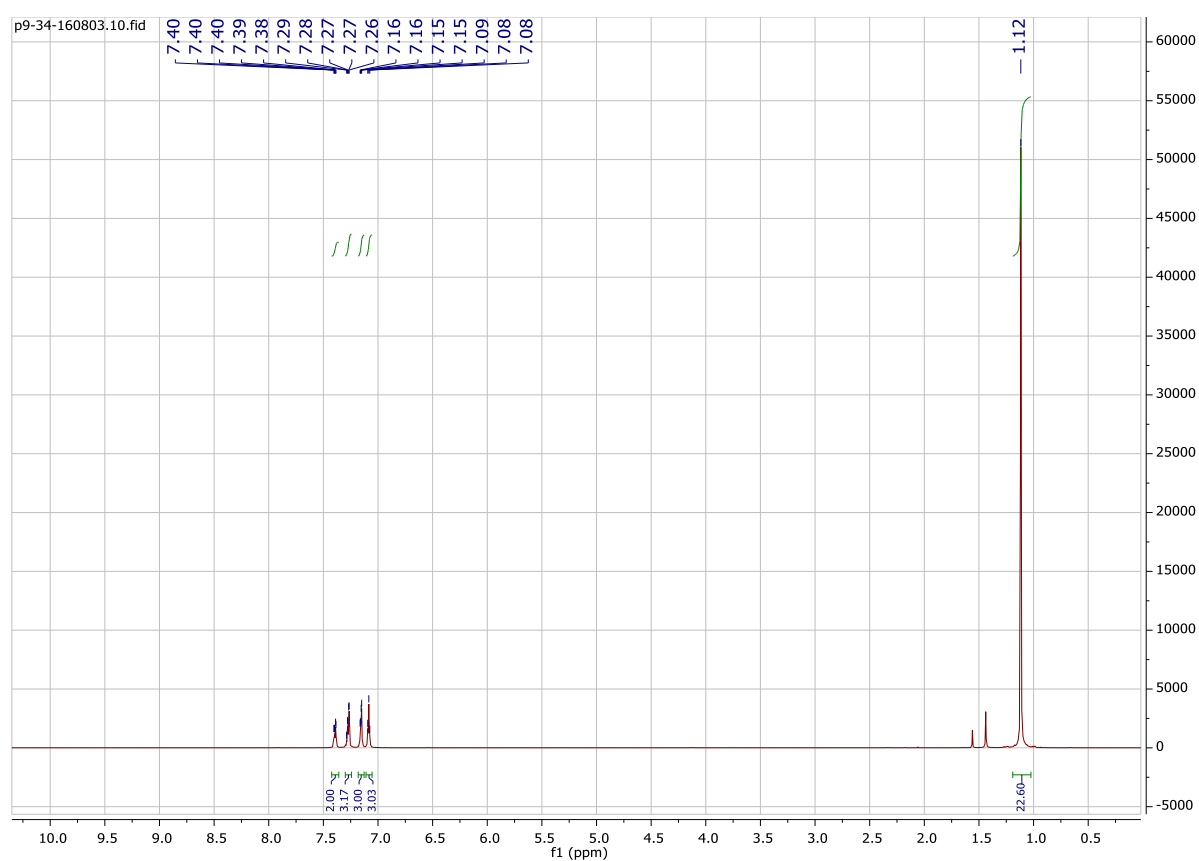


¹H NMR spectrum of compound 10b in CDCl₃. The x-axis represents the chemical shift in ppm, ranging from 0.0 to 10.0. The y-axis represents the intensity, ranging from -1000 to 24000. The spectrum shows several peaks with corresponding integrations and chemical shift values.

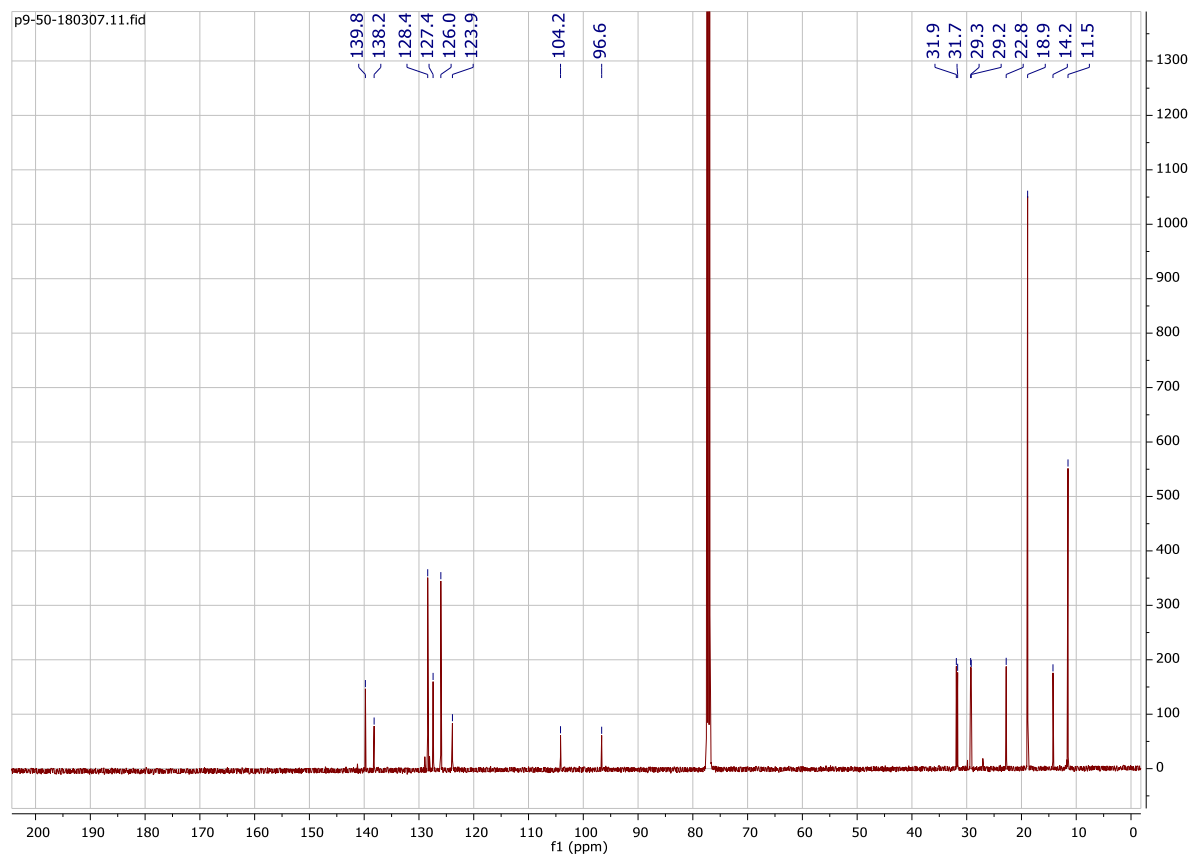
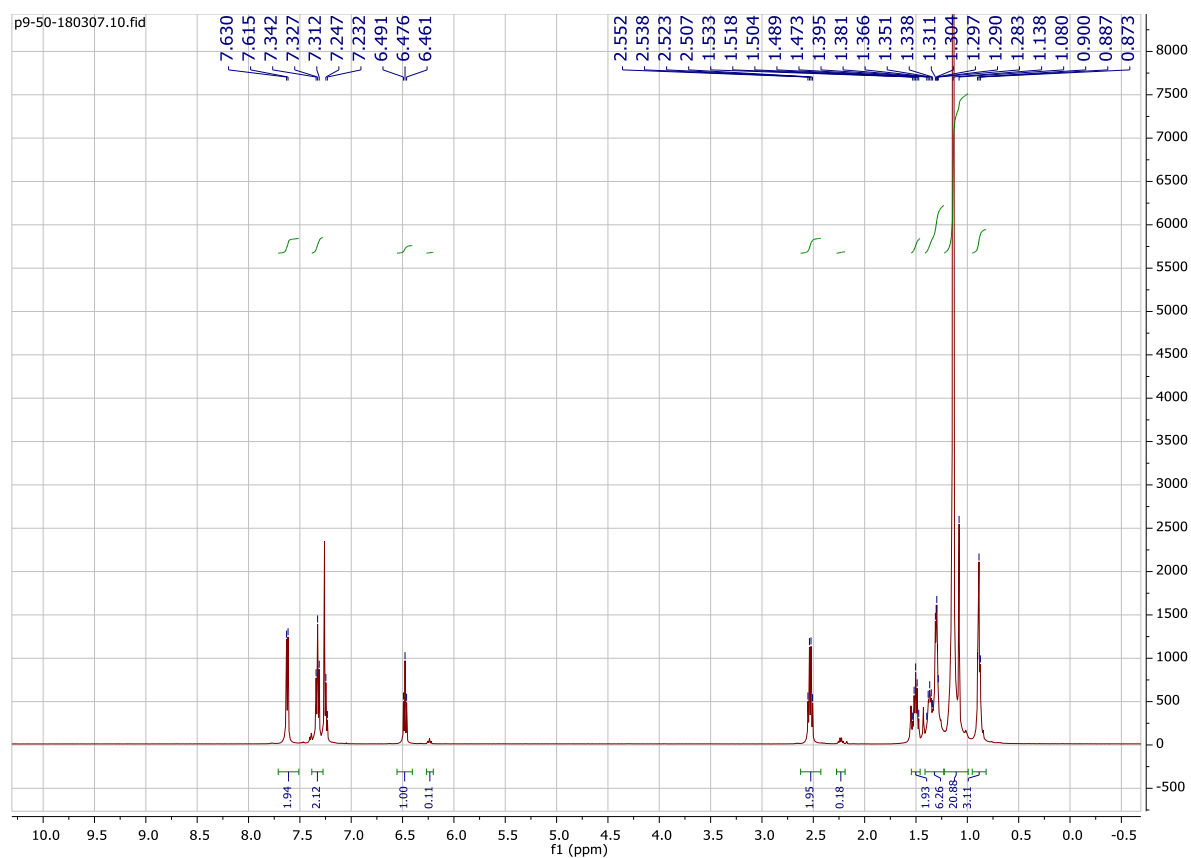
Chemical Shift (ppm)	Integration
7.187, 7.260, 7.308, 7.320, 7.323, 7.326, 7.335, 7.354, 7.357, 7.366, 7.370, 7.381, 7.384, 7.394, 7.397, 7.412, 7.460, 7.777, 8.077, 8.093	6.14
8.077, 8.093	2.00
7.381, 7.384	2.05
1.171, 1.162	21.91
1.171, 1.162	1.00



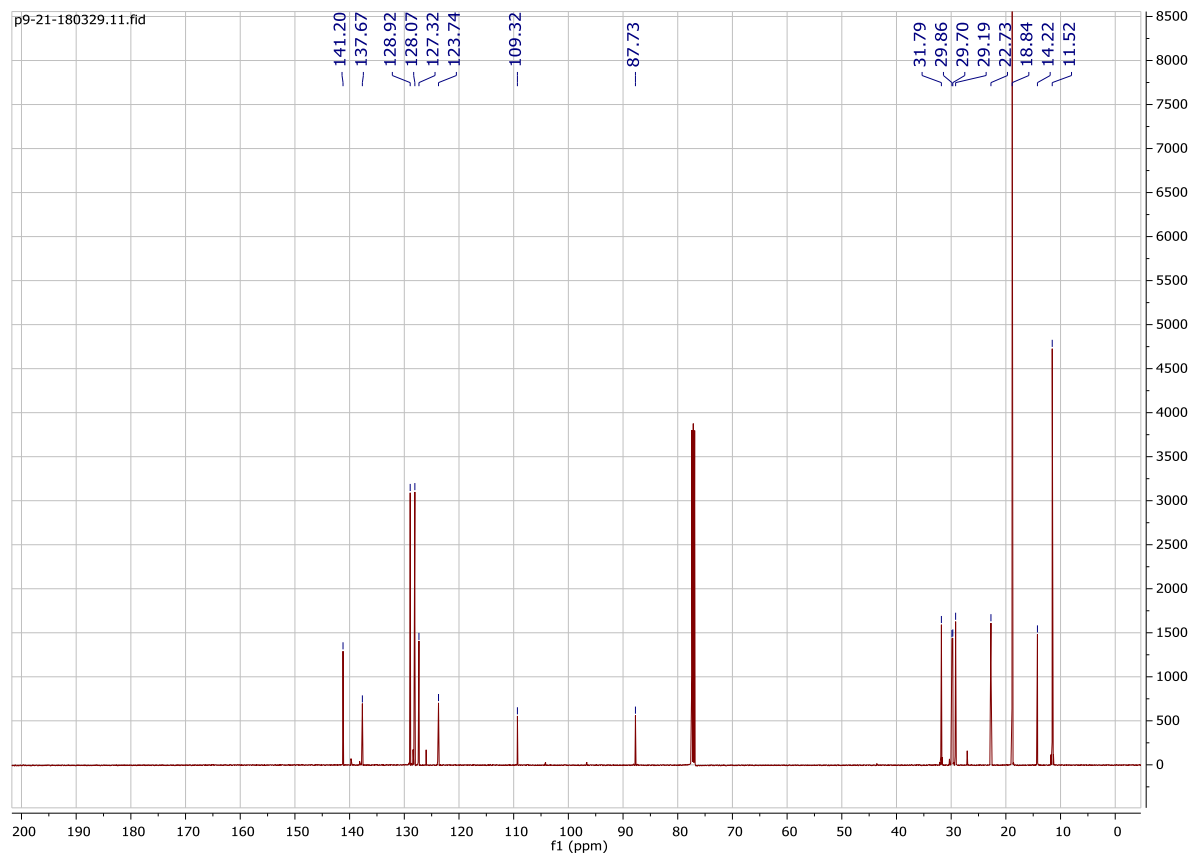
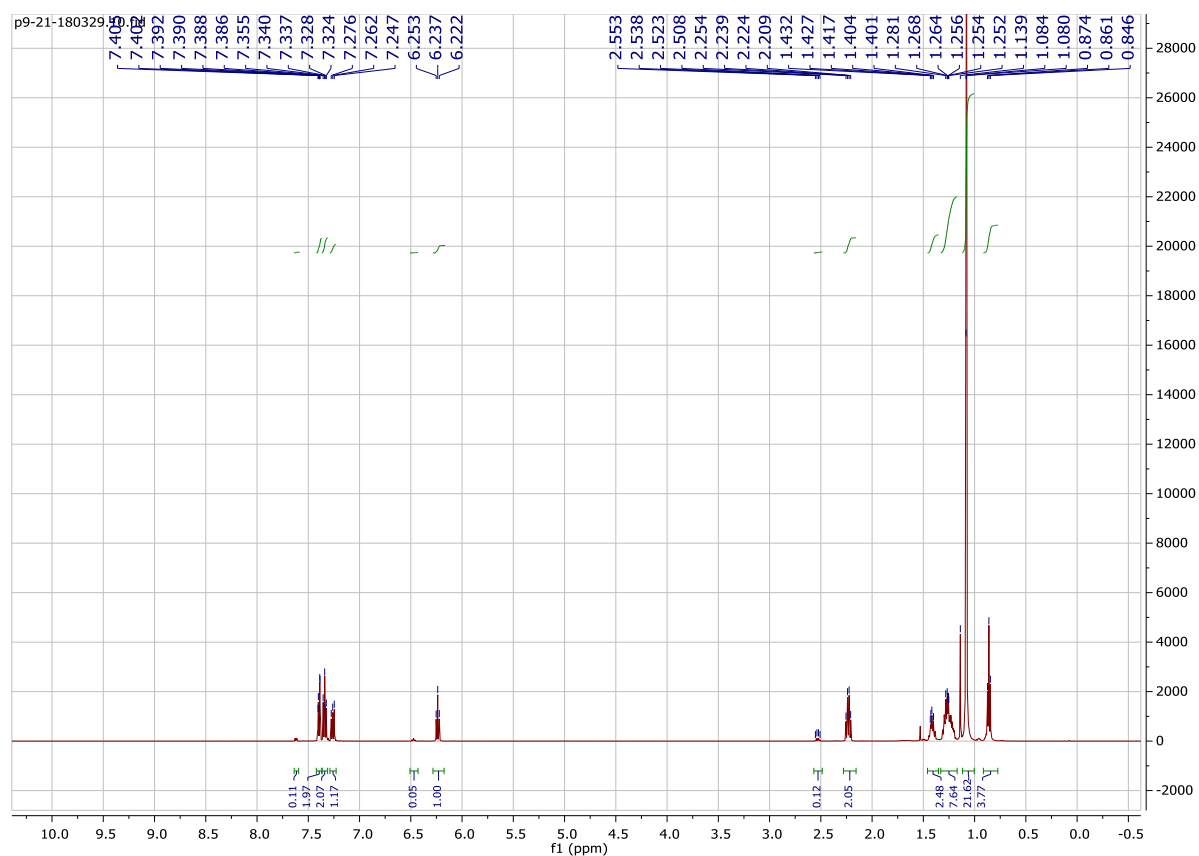
(E)-(3,4-Diphenylbut-3-en-1-yn-1-yl)triisopropylsilane ((E)-11)



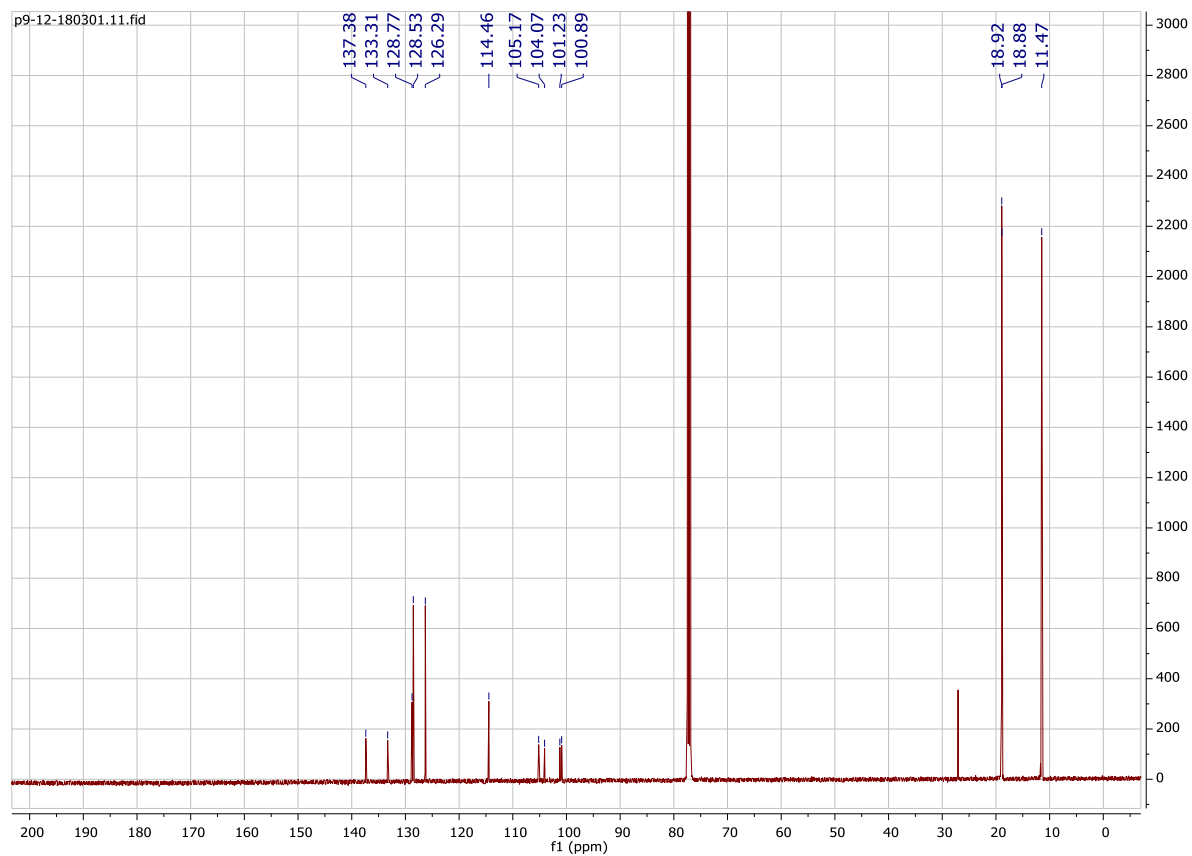
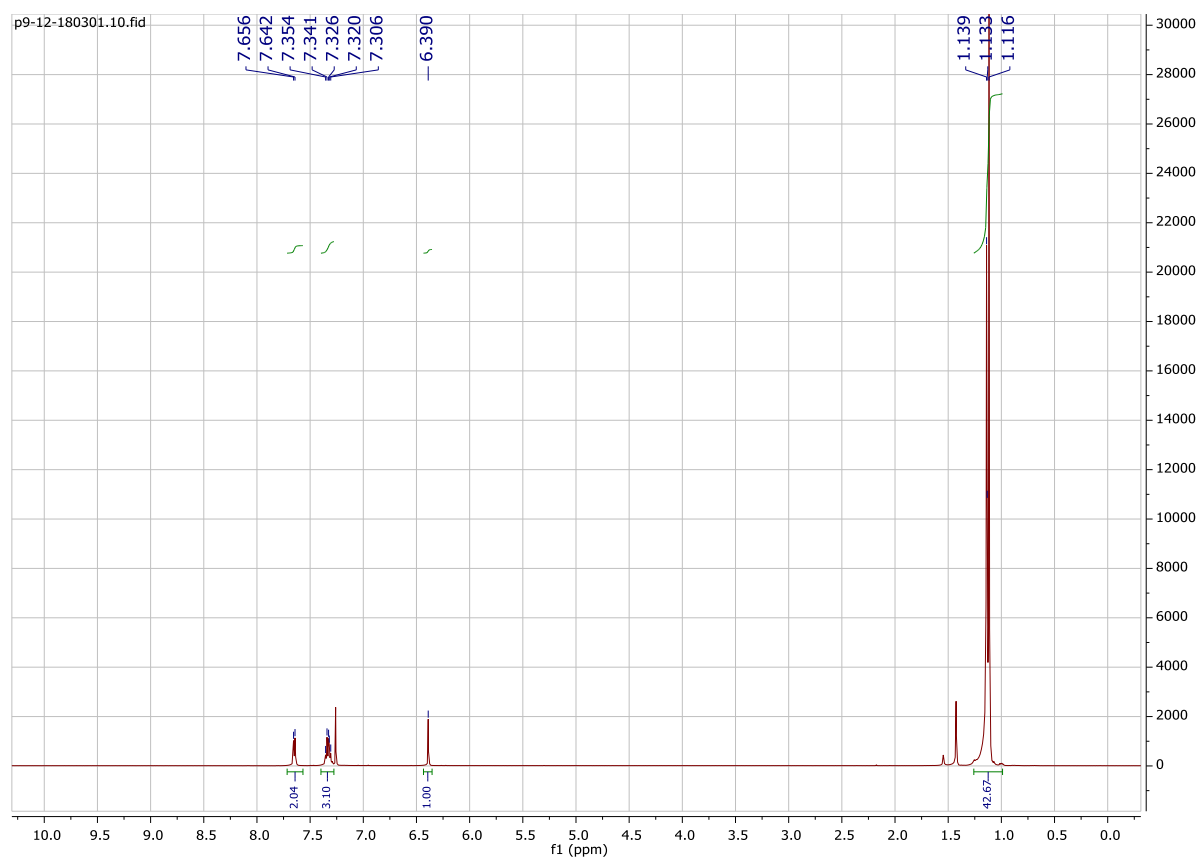
(Z)-Triisopropyl(3-phenyldec-3-en-1-yn-1-yl)silane ((Z)-10)



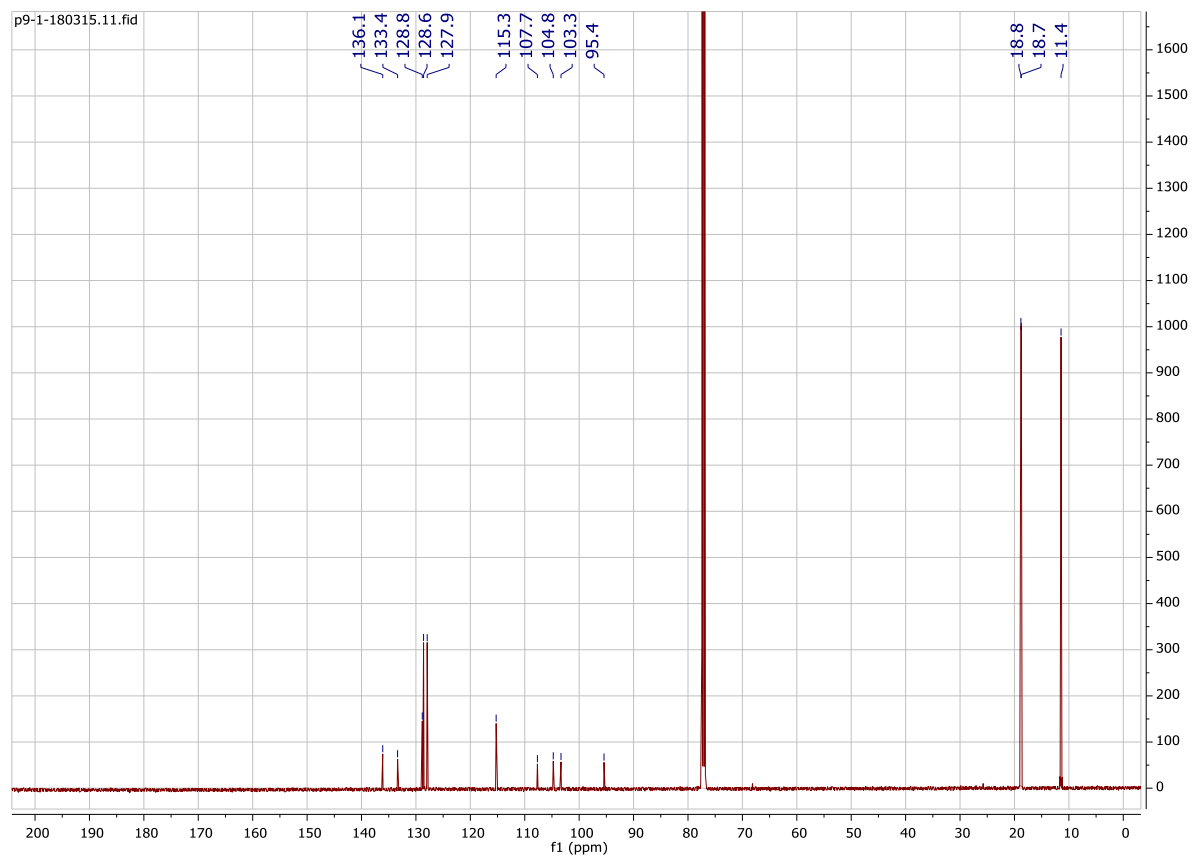
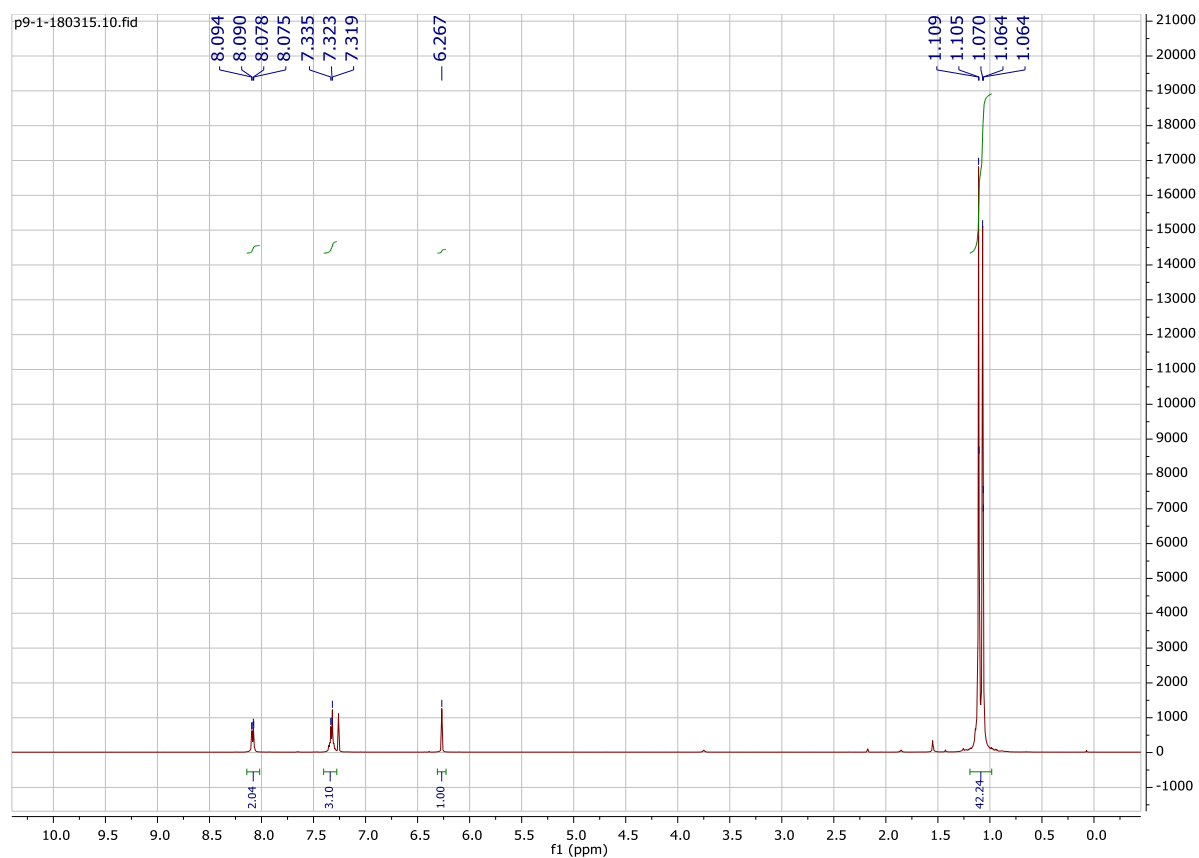
(E)-Triisopropyl(3-phenyldec-3-en-1-yn-1-yl)silane ((E)-10)



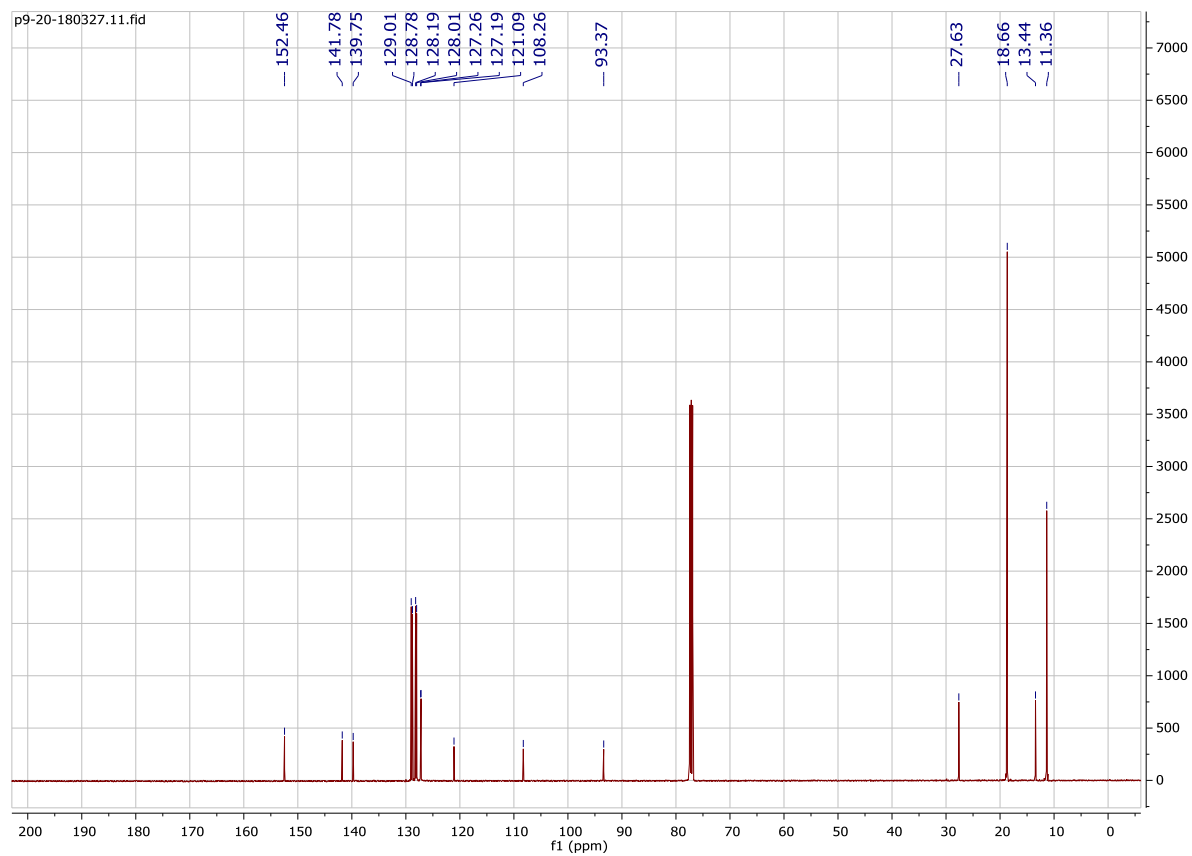
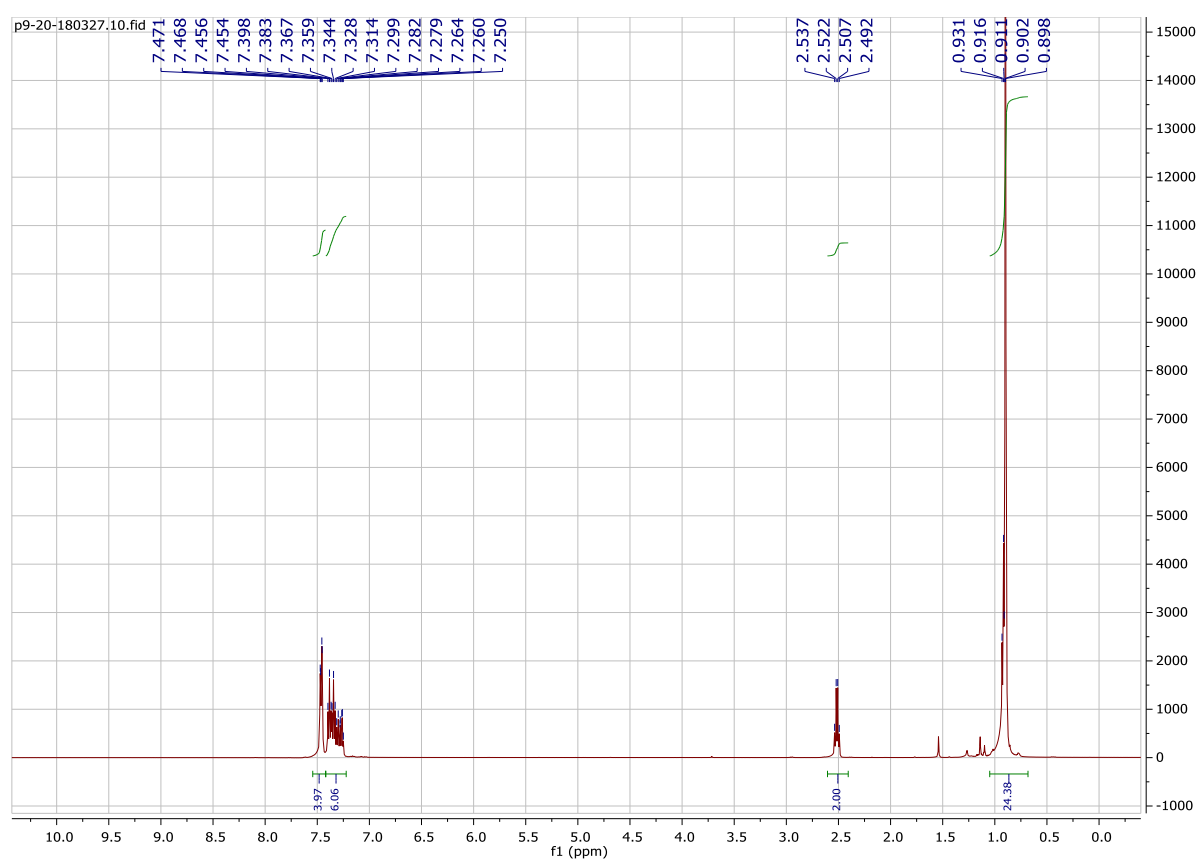
(Z)-(3-Phenylhexa-3-en-1,5-diyne-1,6-diyl)bis(triisopropylsilane) ((Z)-12)



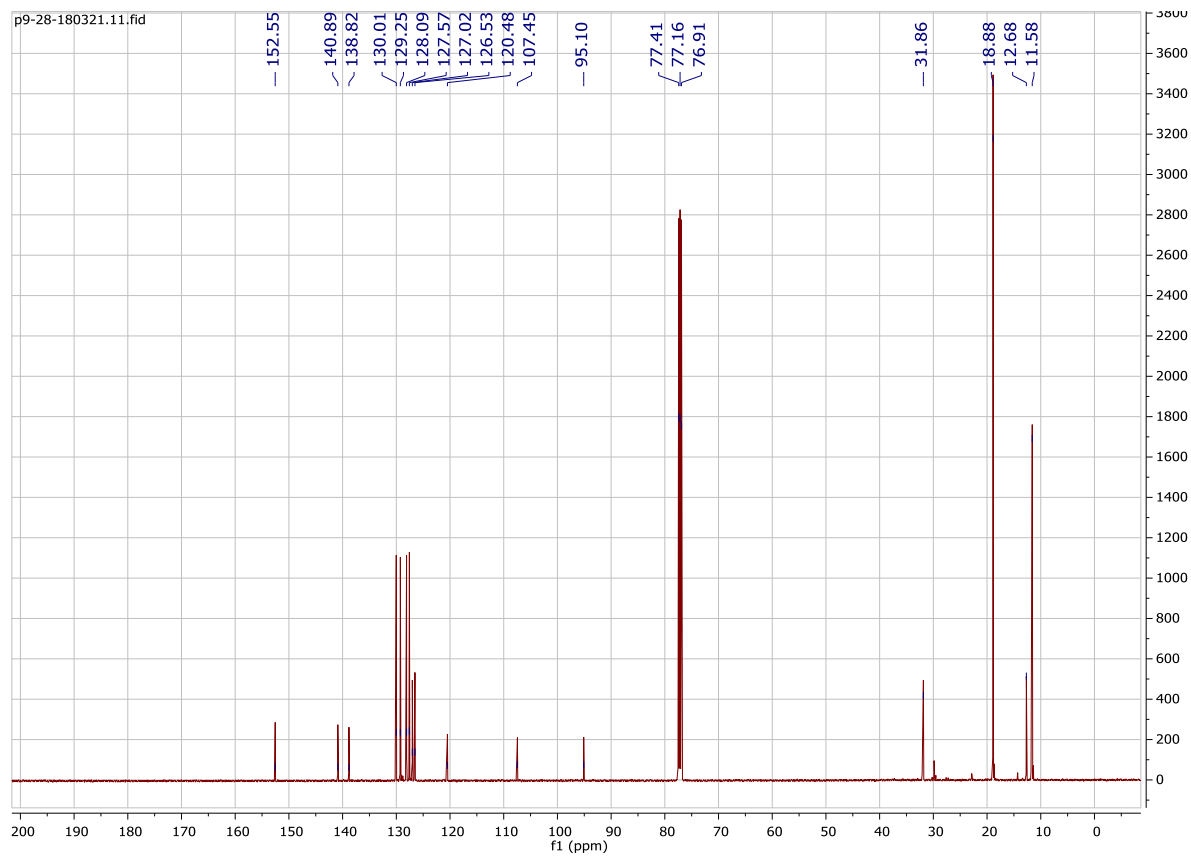
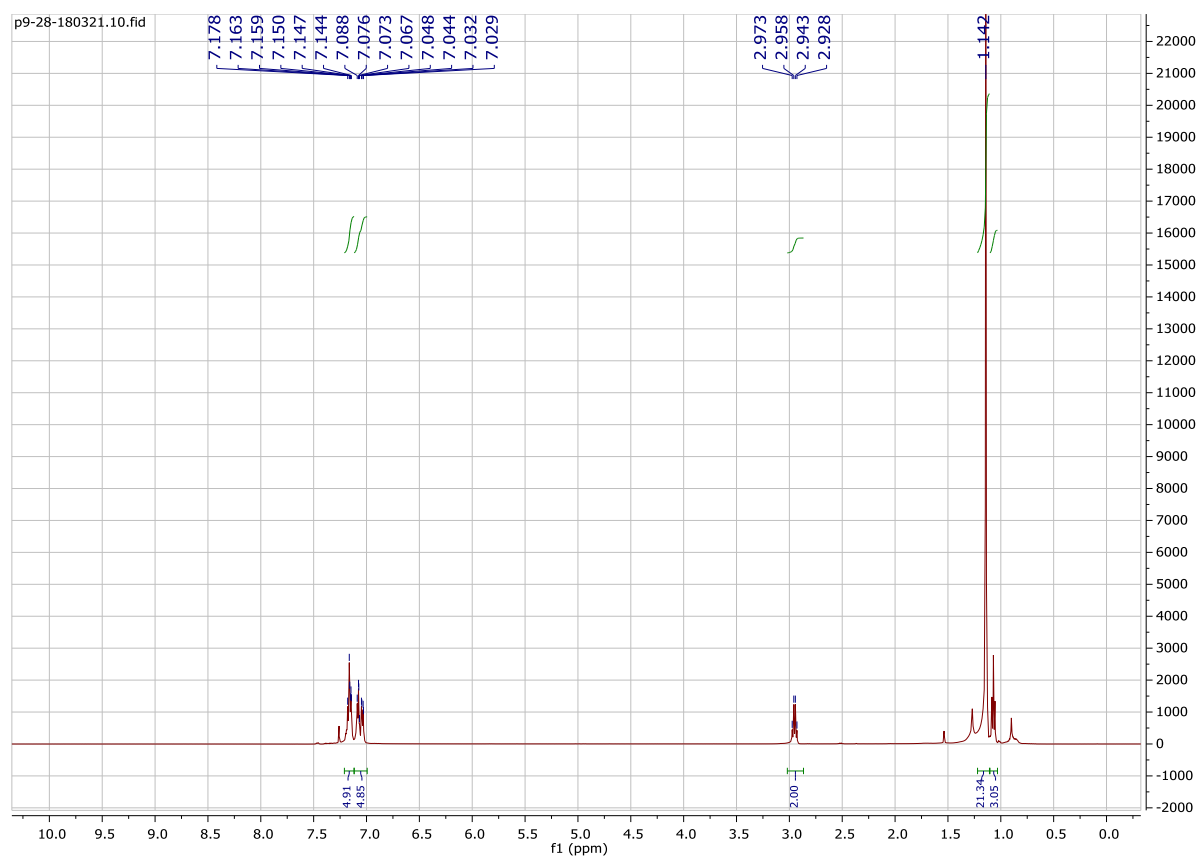
(E)-(3-Phenylhexa-3-en-1,5-diyne-1,6-diyl)bis(triisopropylsilane) ((E)-12)



(Z)-(3,4-Diphenylhex-3-en-1-yn-1-yl)triisopropylsilane ((Z)-13)



(E)-(3,4-Diphenylhex-3-en-1-yn-1-yl)triisopropylsilane ((E)-13)



1-((4-Methoxyphenyl)diphenylmethoxy)-5-(triisopropylsilyl)pent-4-yn-2-one (14).

