

Table 3. Certified Wavelengths for SRM 2517a

Literature values from Ref. 3 adjusted for the pressure shift listed in Table 2 due to the 6.7 kPa (50 Torr) cell pressure. These vacuum wavelengths of the $\nu_1 + \nu_3$ band $^{12}\text{C}_2\text{H}_2$ are certified with the uncertainty indicated in parentheses for the last digits. The uncertainties quoted are the expanded uncertainty using a coverage factor $k = 2$ (i.e., our quoted uncertainty is $\pm 2\sigma$). The lines in bold were accurately characterized by NIST [5] and have the lowest uncertainty.

R Branch	Wavelength (nm)	P Branch	Wavelength (nm)
29	1511.7304(3)	1	1525.7599(6)
28	1512.0884(3)	2	1526.3140(3)
27	1512.45273(12)	3	1526.87435(10)
26	1512.8232(3)	4	1527.44114(10)
25	1513.2000(3)	5	1528.01432(10)
24	1513.5832(3)	6	1528.59390(10)
23	1513.9726(3)	7	1529.1799(3)
22	1514.3683(3)	8	1529.7723(3)
21	1514.7703(3)	9	1530.3711(3)
20	1515.1786(3)	10	1530.97627(10)
19	1515.5932(3)	11	1531.5879(3)
18	1516.0141(3)	12	1532.2060(3)
17	1516.44130(11)	13	1532.83045(10)
16	1516.8747(3)	14	1533.46136(10)
15	1517.3145(3)	15	1534.0987(3)
14	1517.7606(3)	16	1534.7425(3)
13	1518.2131(3)	17	1535.3928(3)
12	1518.6718(3)	18	1536.0495(6)
11	1519.13686(11)	19	1536.7126(3)
10	1519.6083(3)	20	1537.3822(3)
9	1520.0860(3)	21	1538.0583(3)
8	1520.5700(3)	22	1538.7409(3)
7	1521.06040(10)	23	1539.42992(11)
6	1521.5572(3)	24	1540.12544(11)
5	1522.0603(3)	25	1540.82744(11)
4	1522.5697(3)	26	1541.5359(3)
3	1523.0855(3)	27	1542.2508(3)
2	1523.6077(3)		
1	1524.13609(10)		

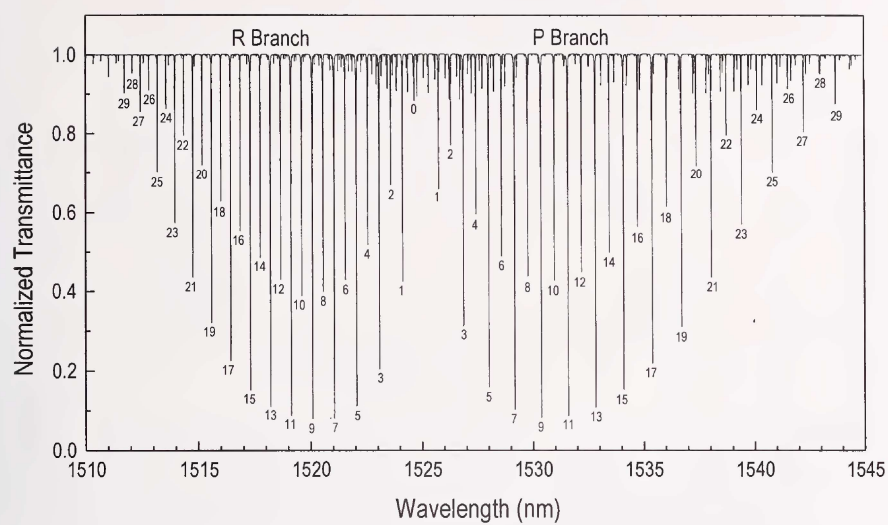


Figure 1. Spectrum of the acetylene $^{12}\text{C}_2\text{H}_2$ $\nu_1 + \nu_3$ band obtained by scanning a tunable diode laser and measuring the laser power transmitted through a 5 cm long absorption cell filled to a pressure of 6.7 kPa (50 Torr).