Download LM.zip from the HITRAN webpage (Supplemental) and unpack

in the code (version 2016) you have to save the quantum numbers and
write them out as a linelist file.

The dependency of the Y Factor on temperature is not calculated.
I assumed, most of the linemixing occurs near the ground, where the temperature
of 296 is a good enough approximation.

in subroutine ReadLines

include

```
      Character*1 TpLine, QuSt2
      Character*50 QuSt
      Character*60 QuStr

      Common/QuantNr/QuStr(nLmx,nBmx)
```

after the read command (line 532)

```
       write(QuStr(nLineR,iBand), '(A50,A1,I3,A1,10x)')
```

in subroutine calcW

```
      Character*60 QuStr
      Common/Quantnr/QuStr(nLmx,nBmx)
      integer*4 iso
```

and after line 1357

```
         if (isot(iBand).eq.10) then
            iso = 0
         else
          iso = isot(iBand)
         end if
         write(101,'(1X,I1,A1,A60,3(f9.3))') 2, Iso,
     &        QuStr(iR,iBand), sum0, 0.0d0,0.0d0
```

comile
gfortran LM_calc_CO2_2017.for
and run
a.out

the LM linelist is in fort.101. This can be copied in the
linelist directory as

002/002_CO2.hit16_LM1ST.par