

Lab measurements of EMIR mixers

D. Maier, June 2014

This report gives a summary of the lab performances of the mixers installed in EMIR.

The mixers have been characterized by measuring noise temperatures and image rejections in the IF band between 4 and 12 GHz with steps of 100 MHz for different LO frequencies. The LO frequencies tested for the different bands were:

Band 1: 93 GHz, 98 GHz, 103 GHz, 108 GHz, 110 GHz, 115 GHz

Band 2: 134 GHz, 138 GHz, 142 GHz, 146 GHz, 150 GHz, 154 GHz, 158 GHz, 162 GHz, 166 GHz, 170 GHz, 174 GHz

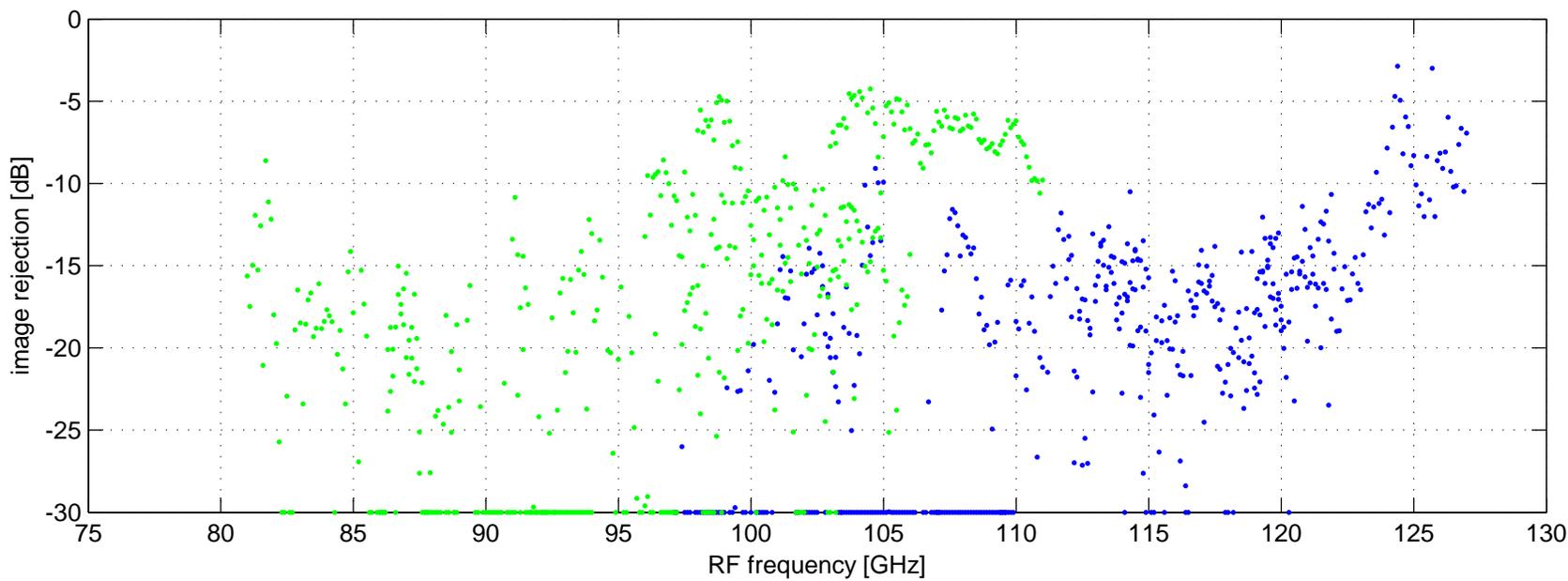
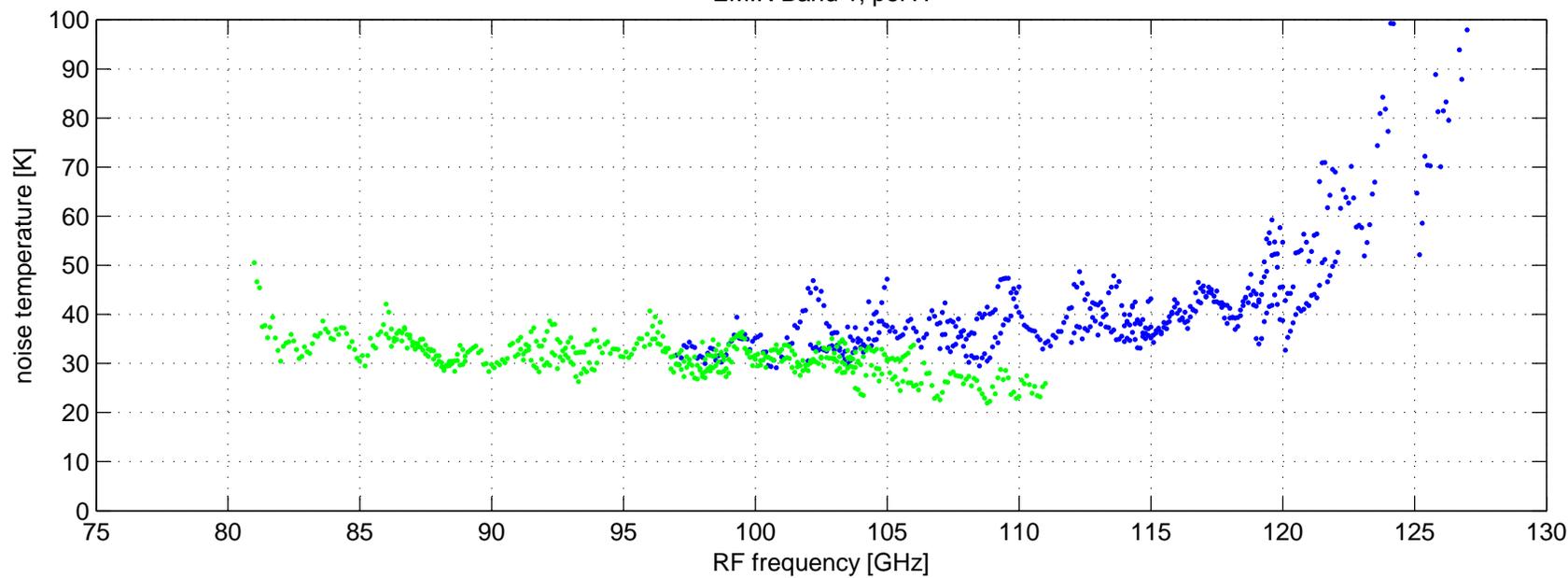
Band 3: 210 GHz, 216 GHz, 222 GHz, 228 GHz, 234 GHz, 240 GHz, 246 GHz, 252 GHz, 258 GHz, 264 GHz, 270 GHz

Band 4: 283 GHz, 287 GHz, 291 GHz, 295 GHz, 299 GHz, 303 GHz, 307 GHz, 311 GHz, 315 GHz, 319 GHz, 323 GHz, 327 GHz, 331 GHz, 335 GHz, 339 GHz, 343 GHz, 347 GHz, 351 GHz, 355 GHz, 359 GHz, 363 GHz, 365 GHz

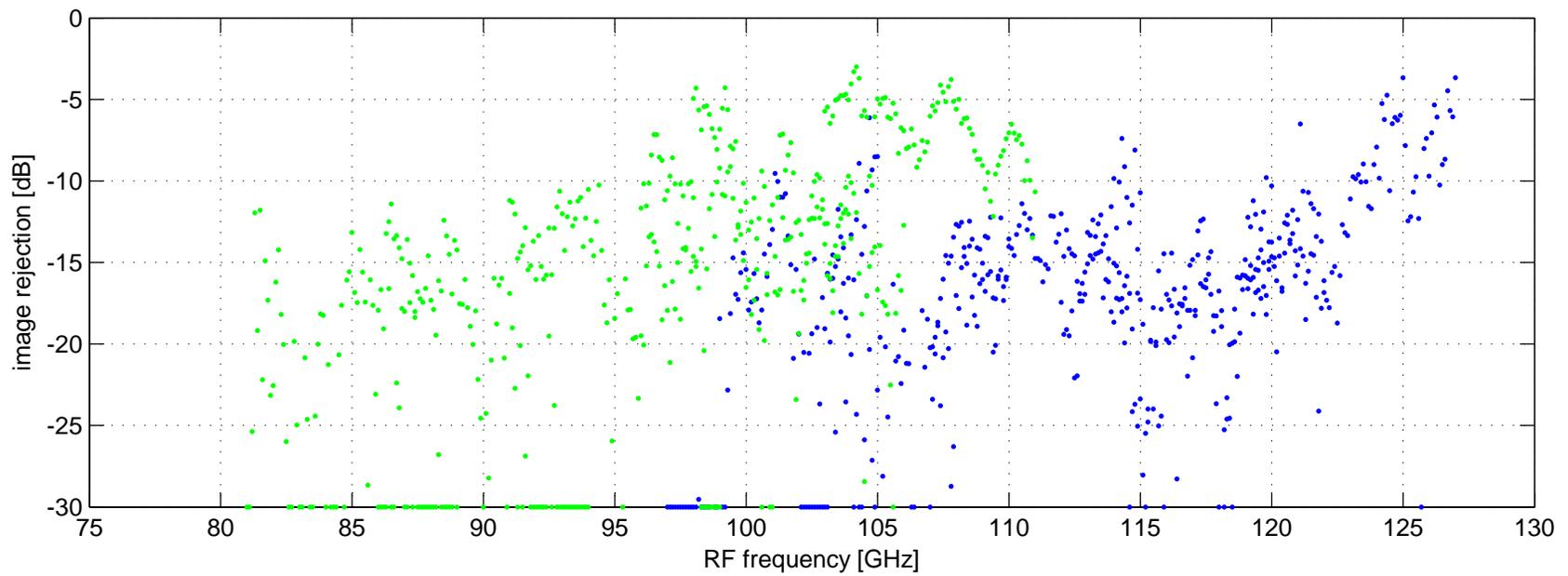
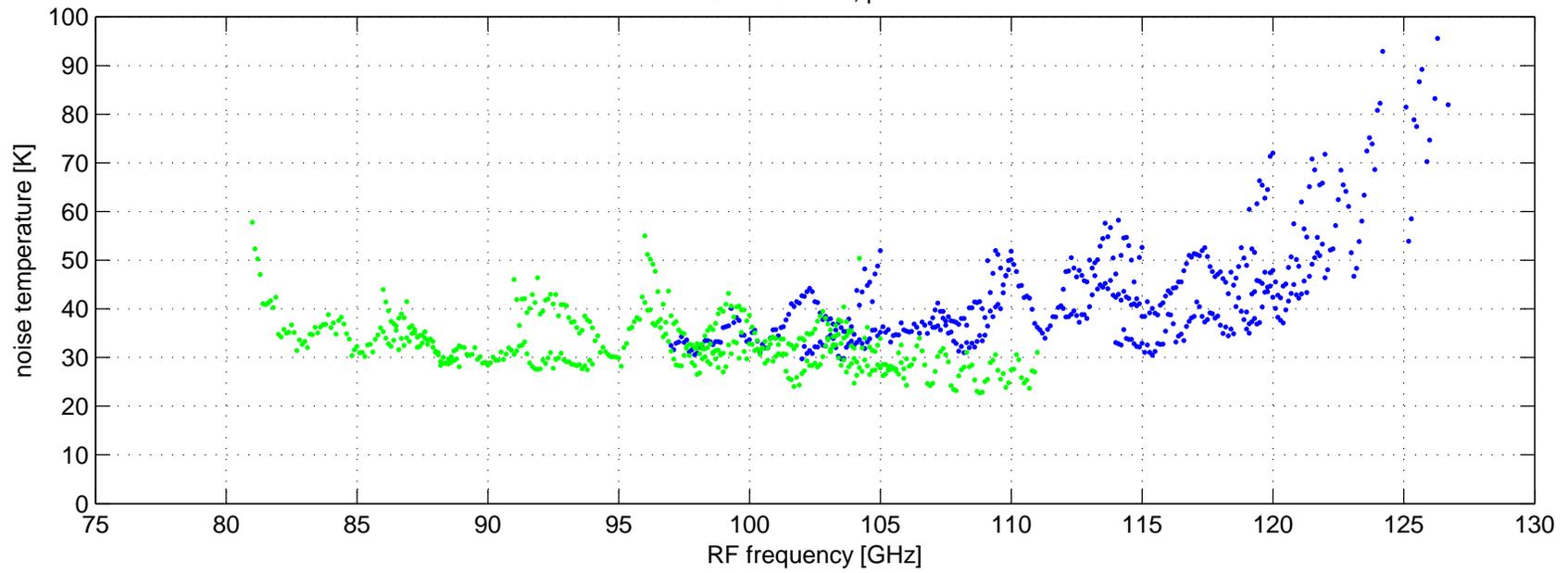
The results are shown in the attached plots where lsb results are shown in green, while usb results are plotted in blue.

Note: Noise temperatures and image rejections depend on the combination of LO frequency and IF frequency, so the results obtained for one specific sky frequency are not the same for different receiver settings.

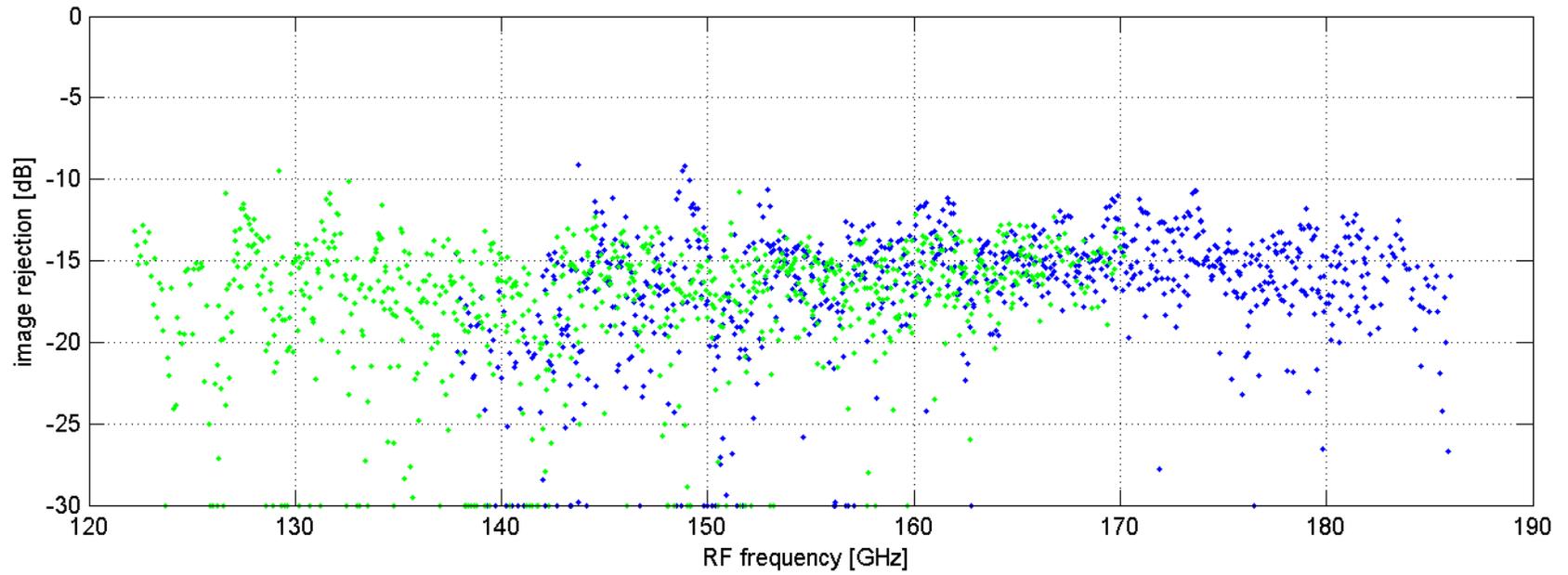
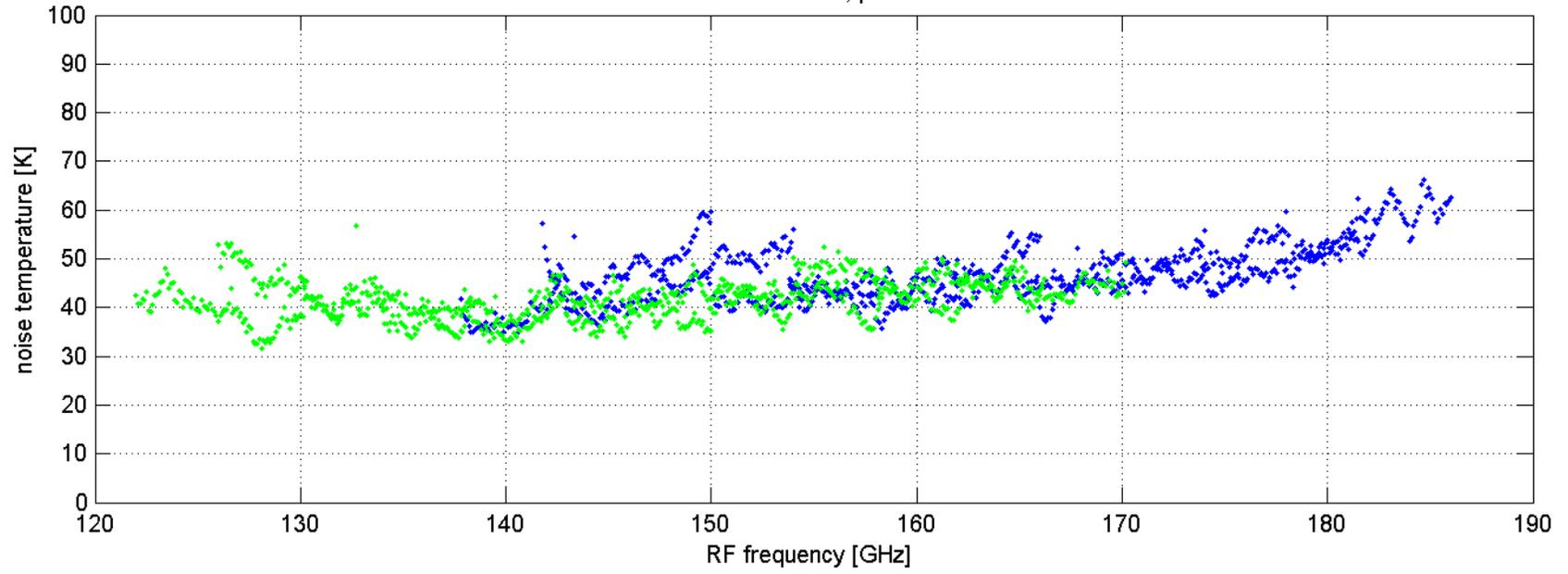
EMIR Band 1, pol H



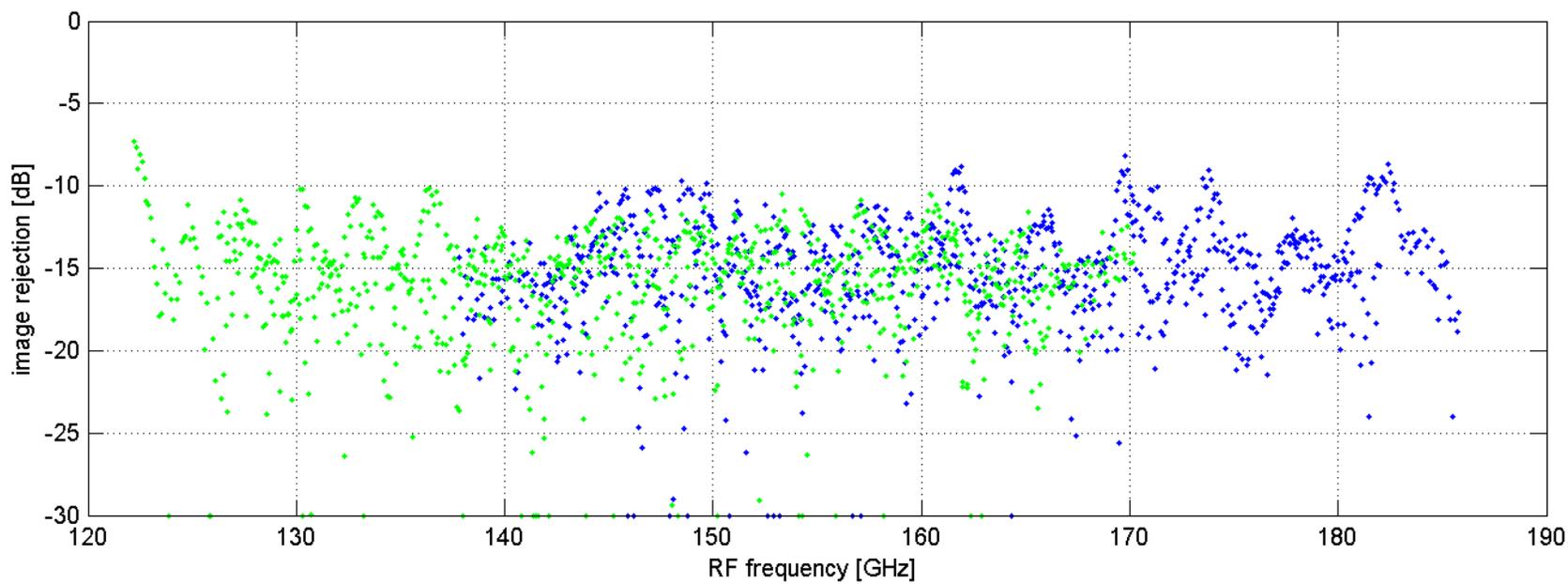
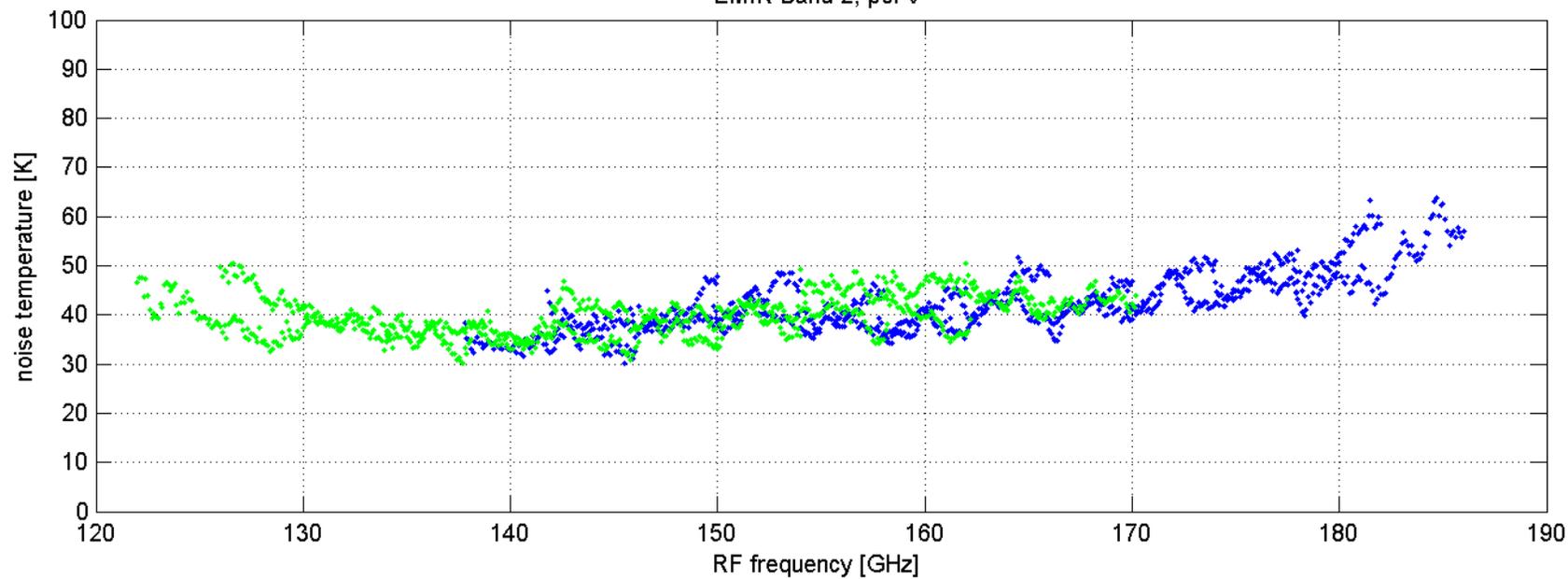
EMIR Band 1, pol V



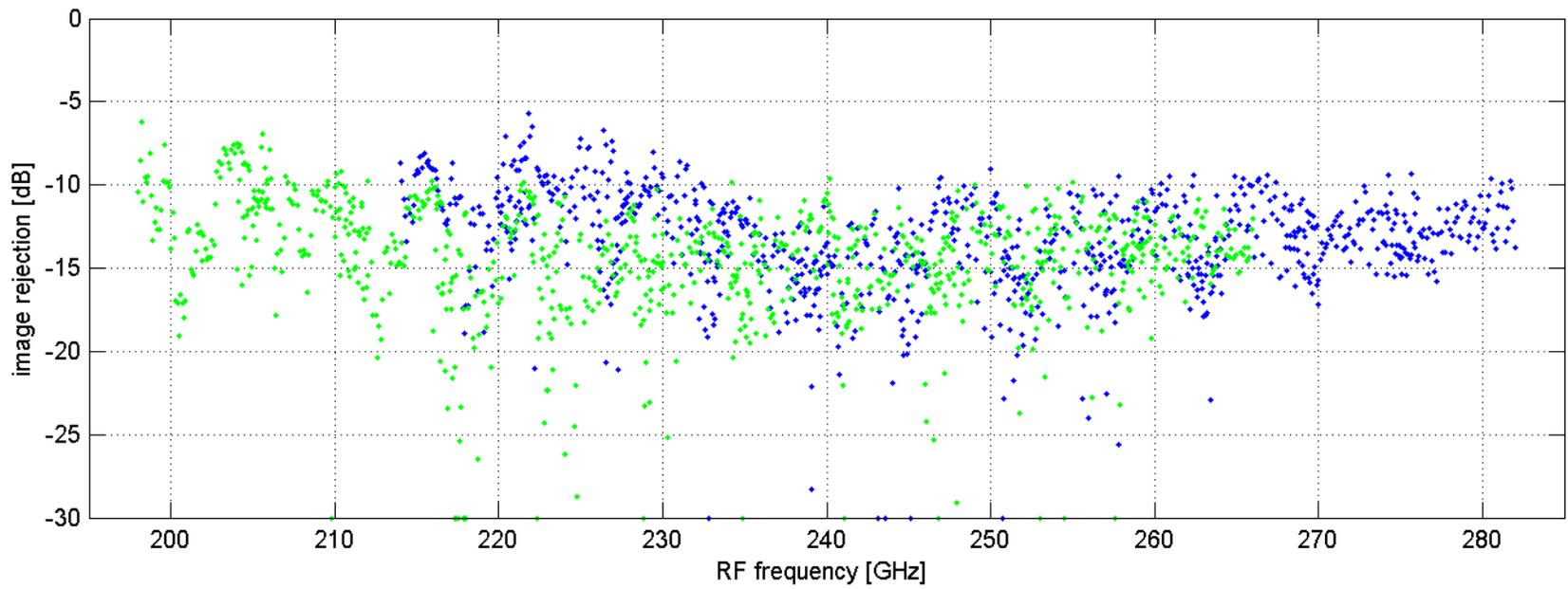
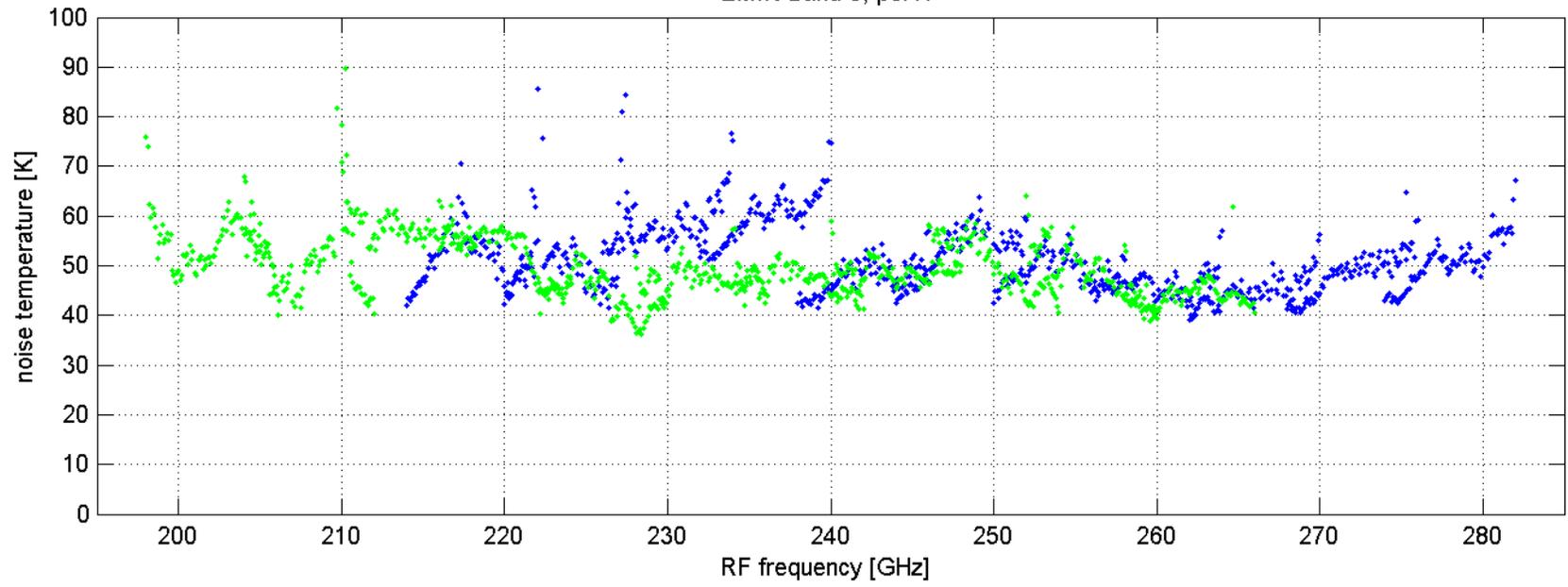
EMIR Band 2, pol H



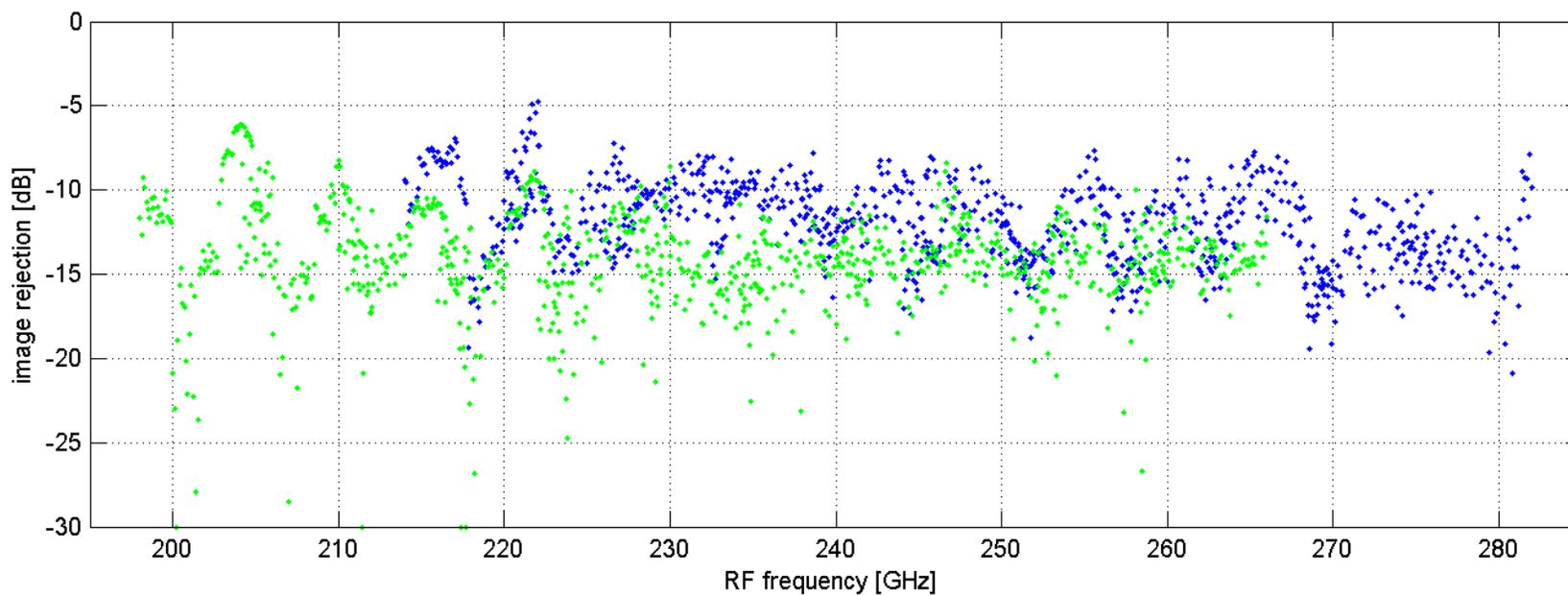
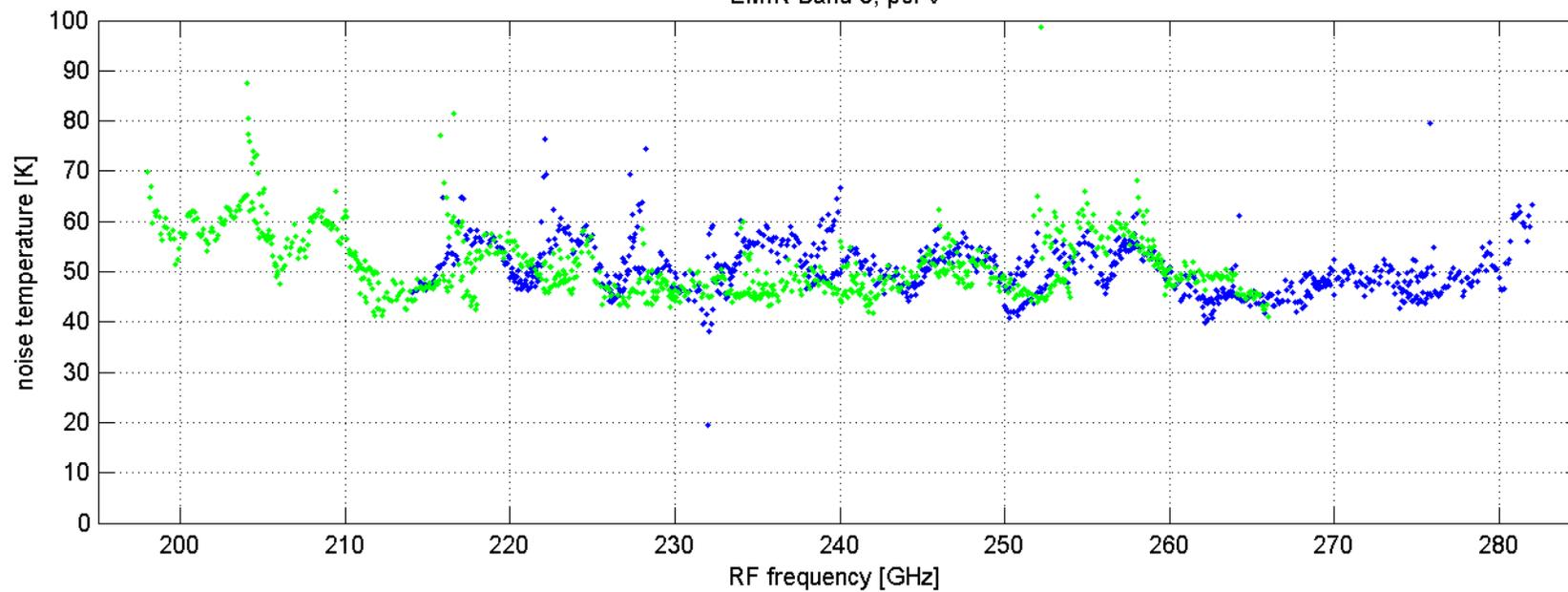
EMIR Band 2, pol V



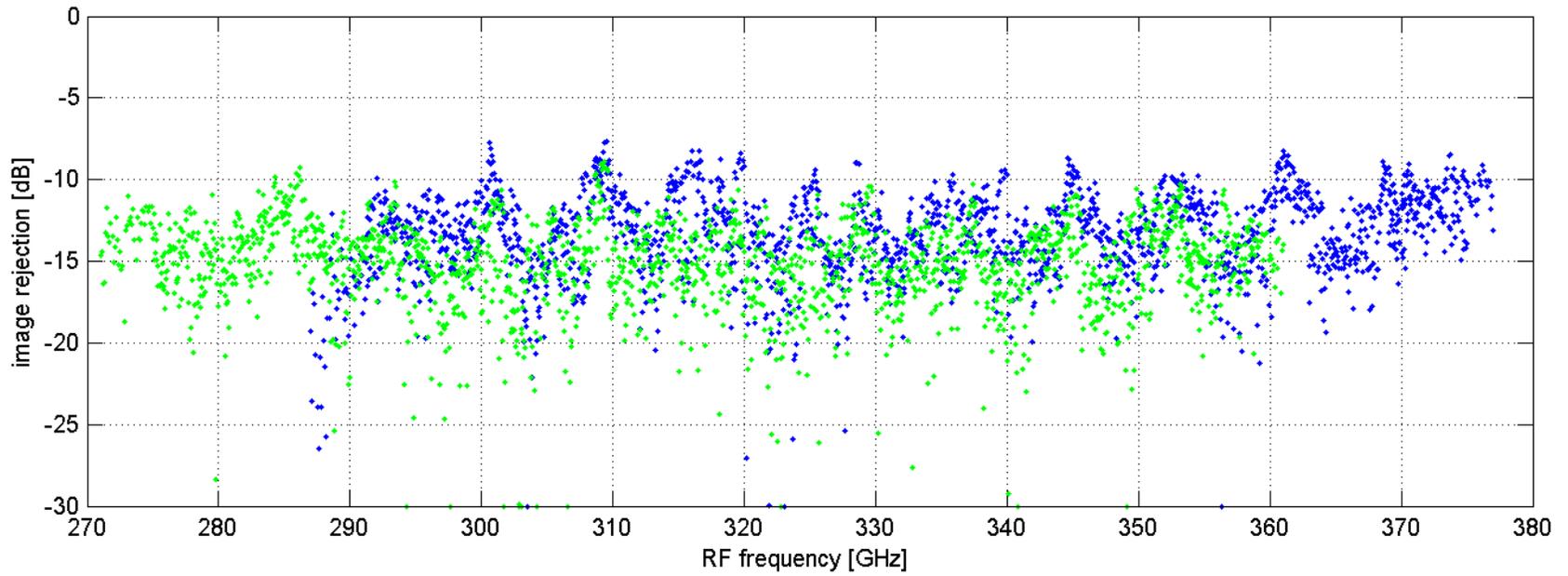
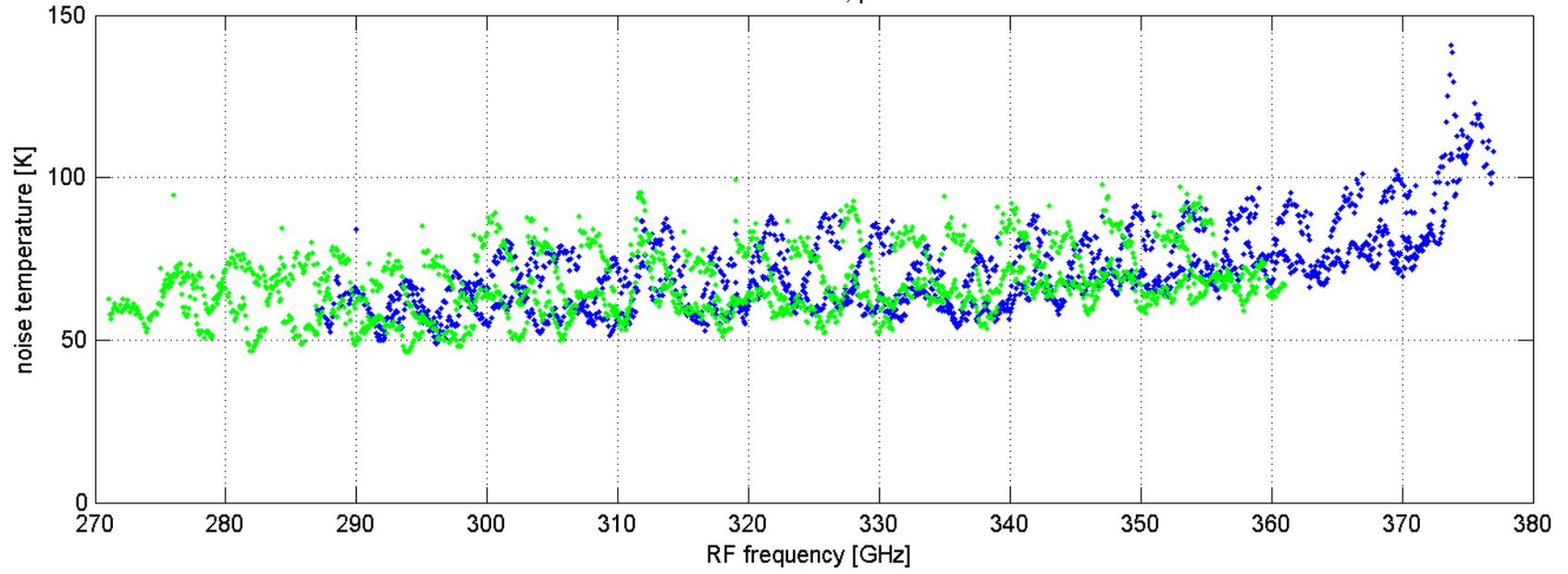
EMIR Band 3, pol H



EMIR Band 3, pol V



EMIR Band 4, pol H



EMIR Band 4, pol V

