

DEVIATION COMMENTED	COMMENT / PROPOSAL	AUTHOR OF THE COMMENT	DATE OF COMMENT	PCM RESPONSE
ETSO.Dev. C190#1	<p>In the 1575.42 MHz +/- 2 MHz, the G/T is -31.6 dB/K. This is a combination of -5.5 dBic for the passive element and 26.1 dB-K for the antenna noise temperature. This temperature roughly translates to 410 K (approx). Of this 410 K not all goes to the antenna subassembly. 100K of this goes to the sky noise temperature. The rest goes to the active subassembly. Hence the active subassembly temperature req here becomes 310 K (and 413K for the 1575.42e6 +/- 8 MHz; for a G/T of -32.6 dB/K).</p> <p>On the 2.4.3.1.2 in DO-301, the NF is stated as not to exceed 4.0 dB. This has been updated in DO-373 to 3.14 (which reflects the 307 K; that's the accurate number, this is discussed in DO-235B as well; scn 2.5.2.1) and is conceivably more stringent. One <i>potential</i> way for an applicant to prove equivalent level of safety/performance is to consider the G/T of the antenna across temperature, temperature variation and altitude. The G/T shall be > -31.6 dB/K for 1575.42 +/- 2 MHz and > -32.6 dB/K for 1575.42 +/- 8 MHz (requirement in scn 2.2.5). However, there are limits to how much the G can be traded off for the T as well. Running some quick numbers, if the active sub-assembly NF is 438.4 K, then the G needs to be better than -4.289 dBic at 5 degrees elevation to meet the G/T of -31.6 dB/K.</p> <p>The assumption for sky noise that was used for the Noise computation is 100 K. Meeting a lower requirement on the active sub-assembly noise figure alone (without an improvement in the passive element gain) leads to an overall lower G/T which impacts the link margin.</p>	Sai K. Kalyanaraman Rockwell Collins	24 th July 2018	EASA recognizes that the proposed Equivalent Level Of Safety is inaccurate and rejects this deviation. A further deviation will be posted on EASA website.