Response to OFCOM from Nokia Siemens Networks on the consultation on the coexistence of new services in the 800 MHz band with digital terrestrial television

Nokia Siemens Networks is pleased to have this opportunity to give (late) comments to the development of 800 MHz licensing conditions. Our main concern is the proposed additional mitigation values as presented in Table 6.3 in certain geographic areas, i.e. in areas, where channel 60 remains in DTT use.

We do acknowledge the importance to protect the DTT users but, at the same time, it would be important to keep the additional restrictions to the mobile networks at the minimum necessary level. Our proposal below would limit the additional mitigation measures to block A only and facilitate standard equipment in other blocks. The main disadvantage of block specific variants is that the expected volumes are so low that the economies of scales do not exist and the product costs will be high. External filters may provide a reasonable solution but they are relatively large and do not fit easily in base station cabinets.

1) The proposed 800 MHz band EIRP limits (Table 6.3)

The proposed spurious emission requirements are tight and challenging for the current technology. In practice, block specific RF filtering is needed. This means that there should be frequency block specific radio units e.g. RF modules or non-block specific radio units and block specific external filters. This will increase R&D, verification and logistics costs since volumes per product variant decrease.

Ofcom's proposal has EIRP level per block of -17/-28/-40 dBm per frequency blocks A/B/C. If we assume that base stations are co-located, contribution of each block to the total spurious emission is 92.2/7.3/0.5 % respectively. This demonstrates that block C spurious emission impact is marginal and a looser requirement could be accepted.

From the product implementation point of view it would be beneficial that the same and preferably the 'standard' product variant could be used for blocks B and C. The guard band between channel 60 and block A is so narrow that a block specific design for block A equipment is needed in any case.

If it could be accepted that block A contributes 90% of the spurious emission, EIRP level requirement could be adjusted to -17/-28/-31 dBm resulting in the spurious emission contribution per block of 89.3/7.1/3.6 % respectively. These values would allow the standard product, if the value is per single antenna (excluding MIMO) for blocks B and C.

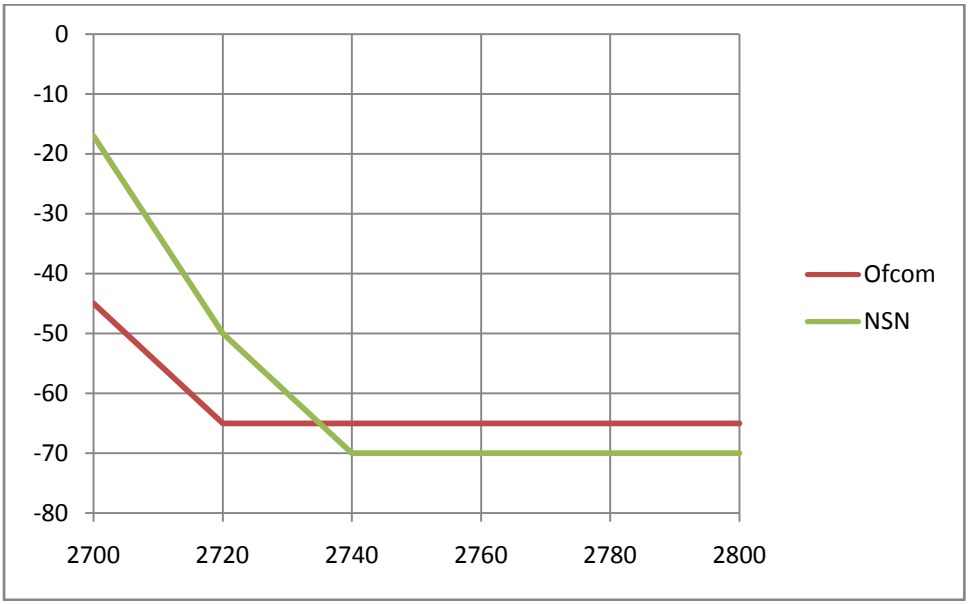
2) Are the proposed values in Table 6.3 with or w/o MIMO

The OFCOM consultation 'on technical license conditions for 800 MHz and 2.6 GHz spectrum and related matters' states in chapter 4.3 that BEM level are per antenna for base stations. Is this valid also for Table 6.3 in 800 MHz co-ex paper?

3) Base station emissions for protection of radar above 2700 MHz (ref. The OFCOM consultation 'on technical license conditions for 800 MHz and 2.6 GHz spectrum and related matters', chapter 5.8 & 6.7)

Radar receiver blocking performance and base station spurious emission should be aligned. If the proposed -45 dBm/MHz EIRP is used as the baseline requirement above 2700 MHz and a lower level e.g. -65 dBm in certain geographical areas, this lower level should be specified at higher frequency e.g. 2720 MHz. It is expected (based on Ofcom Report: Coexistence of S Band radar systems and adjacent future services, Information Update, publication date: 11 December 2009) that radar operating frequency cannot be very close to 2700 MHz, if radar's receiver filter can filter out LTE downlink signal without excessive attenuation or group delay distortion of the radar signal.

NSN suggests that the base station emission *level* baseline could be relaxed as shown in the figure below. E.g. EIRP level of -17 dBm/MHz @ 2700 MHz, -50 dBm/MHz @ 2720 MHz and -70 dBm/MHz @ 2740 MHz. This should provide sufficient protection of radar receivers, when they operate @ 2750 MHz or above and enable uncoordinated deployment in most geographical areas.



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