

SPMF Response to Ofcom Consultation:

Authorisation of terrestrial mobile networks complementary to 2 GHz mobile satellite systems.

The Spectrum for Programme Makers Forum welcomes Ofcom's second consultation on CGC proposals. Our prime concern is the protection of increasingly scarce 2GHz spectrum required for the operation of wireless cameras. The CGC spectrum allocations are adjacent to the popular PMSE band (2200-2300MHz) which is essential to programme making and ENG operations for all UK broadcasters. This spectrum is becoming increasingly congested given the losses from 2500-2690MHz resulting from the 2.6GHz award. The technical licence conditions discussed in the consultation document pose a threat to PMSE operations and we urge Ofcom to address this issue by reducing CGC out of band emissions.

Question 1: Do you agree with our proposals for the detailed terms and conditions of the CGC Licence set out in this document or have any other comments on the issues raised in this document?

We are concerned by the interference levels to PMSE receivers permitted by the proposed technical licence conditions (TLCs). Ofcom acknowledge that the channel from 2200-2210MHz will be lost, but we are concerned that interference may extend further into the band. This would be a severe problem for PMSE users who are already facing the loss of access to much of their traditional spectrum at 2.5GHz - 2.69GHz, with no prospect of any comparable replacement.

Question 2: Do you agree with our proposed approach for including the conditions imposed by Decision No 626/2008/EC in the CGC Licence?

From recent discussions with Ofcom, we understand that it is possible for member states to set local variations to the technical licence conditions in connection with Decision No 626/2008/EC. We therefore propose alternative CGC technical licence conditions based on the decisions taken in connection with the 2.6 GHz spectrum award.

Question 3: Do you believe that the technical parameters used to define transmission rights should be based on spectrum usage rights or spectrum masks?

We favour the use of spectrum masks as this simplifies transmitter compliance testing and allows interference levels to be calculated easily given the transmitter locations. The SUR approach requires a detailed analysis of the network and compliance testing is considerably more complex.

Question 4: Do you agree with our proposed SUR parameters for CGC?

The network parameters for CGC deployments are unknown and hence in-band SUR parameters cannot be reliably calculated. However, the out of band SUR parameters which are needed to protect PMSE reception can be calculated. The following parameters would be appropriate:

Offset from channel C5 edge [MHz]	Out of Band PFD into PMSE at 1.5m [dBW/m²/ MHz]	Out of Band PFD into PMSE at 10m [dBW/m²/ MHz]
+5.0 > $\Delta_F \geq +0.0$ (upper edge)	-118	-116
+10.0 > $\Delta_F \geq +5.0$ (upper edge)	-121	-119
+100.0 > $\Delta_F \geq +10.0$ (upper edge)	-122	-122

The SUR level of up to -88.8dBW/m²/MHz proposed in the consultation result in a loss of PMSE receiver sensitivity of 27dB. Wireless camera antennas are routinely deployed above 1.5m height, and reduced PFD levels are essential to protect such installations. The degradation in receiver sensitivity as a function of Out of Band PFD level, assuming a receiver noise figure of 3dB and an antenna gain of 3dBi is tabulated below.

Out of Band PFD [dBW/m²/ MHz]	PMSE receiver Sensitivity degradation [dB]
-122	0.9
-121	1.1
-120	1.4
-119	1.7
-118	2.0
-117	2.4
-116	2.9
-115	3.4
-114	3.9
-113	4.6
-112	5.2
-111	6.0
-110	6.7
-109	7.5
-108	8.4
-107	9.3
-106	10.1
-105	11.1
-104	12.0
-103	12.9
-102	13.9
-101	14.8
-100	15.8
-99	16.8
-98	17.8
-97	18.8
-96	19.7
-95	20.7
-94	21.7
-93	22.7
-92	23.7
-91	24.7
-90	25.7
-89	26.7

Question 5: Do you agree with the spectrum masks parameters proposed?

The proposed spectrum masks will cause severe interference to the PMSE allocation 2200-2210MHz rendering this channel unusable. The out of band performance of the CGC transmitters for frequencies above 2210MHz is unspecified, risking further damage to other 2.2GHz PMSE allocations. In our discussions with Ofcom regarding the 2.6GHz award, out of band emissions were reduced from +4dBm/MHz (3GPP mask) to -38dBm/MHz. This reduction was necessary to protect PMSE allocations from 2025MHz – 2110MHz. This was discussed with stakeholders and is technically achievable using improved basestation filtering. We recommend a similar reduction in OOB for the CGC award to protect PMSE allocations from 2200-2300MHz.

Question 6: Do you agree with the proposed changes to the other standard technical licence terms and conditions?

Yes.

Question 7: We have assumed that the CGC base station and user terminal characteristics will be similar to those for equivalent 3GPP equipment. Specifically, we have assumed a maximum transmitted power of 31 dBm/5 MHz for CGC handsets, and a maximum transmitted power of 61 dBm/5 MHz for the CGC base stations. Do you agree these are reasonable assumptions?

These assumptions may not be appropriate for CGC services, in which case the derived SUR parameters will be incorrect.

Question 8: We have based our analysis of compatibility between CGC and other radio systems on studies of analogous scenarios conducted for the 2.6 GHz award – do you agree with this assumption?

and

Question 9: Do you have any comments on the assumptions of the deployed network modelled for the SUR parameters?

We are concerned that the lessons learnt in the 2.6GHz award have not been applied to the CGC licence proposals. We advocate a reduction in Out of Band levels and recommend that technical licence conditions similar to those for the 2.6GHz award be applied to the CGC award (i.e. OOB <-38dBm/MHz).