

**Source:** Centillium Communications**Title:** Proposal for Additional Extended Upstream PSDs**Contact:** Les Brown

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### Abstract

This contribution proposes a few additional extended upstream PSDs. The spectrum compatibility calculation is shown in a companion contribution.

#### 1. Introduction

Extended upstream PSDs of EU-TIF32 to EU-TIF64 have already been investigated (SMS-05-09, SMS-05-10 and SMS-06-11) and added to JJ100.01. A similar set of extended upstream PSDs (EU-32 to EU-64) has also been proposed and the spectrum compatibility was presented in SMS-06-13 and is being crosschecked now. This contribution proposes a few additional extended upstream PSDs with wider bandwidth (flat and shaped). The spectrum compatibility of these new extended upstream PSDs is presented in a companion contribution.

#### 2. New Extended Upstream with Flat Inband PSD

In this set of new extended upstream PSDs, the upstream bandwidth is extended beyond 276kHz and the power level is dropped accordingly. EU-96 extends upstream to bin 96, while EU-112 extends upstream to bin 112. The PSDs are flat in band. The PSD levels are decreased to reduce the impact to the downstream. EU-96 and EU-112 PSD masks are defined in Tables 1 and 2, respectively.

**Table 1: EU-96 PSD mask**

Frequency (kHz)	PSD level (dBm/Hz)	Measurement BW
0	-97.5	100 Hz
4	-97.5	100 Hz
4	-92.5	100 Hz
25.875	-45.8	10 kHz
414	-45.8	10 kHz
697.6	-100	10 kHz
5275	-100	10 kHz
12000	-100	10 kHz

**Table 2: EU-112 PSD mask**

Frequency (kHz)	PSD level (dBm/Hz)	Measurement BW
0	-97.5	100 Hz
4	-97.5	100 Hz
4	-92.5	100 Hz
25.875	-50	10 kHz
483	-50	10 kHz
781.62	-100	10 kHz
5275	-100	10 kHz
12000	-100	10 kHz

### 3. New Extended Upstream with Shaped PSD

This set of new extended upstream PSDs is shaped. The upstream bandwidth is still extended to bin 96 (EU-S96) and 112 (EU-S112). However, the PSD is flat only up to 276kHz and drops after that. Tables 3 and 4 show the PSDs of EU-S96 and EU-S112, respectively.

**Table 3: PSD of EU-S96**

Frequency (kHz)	PSD level (dBm/Hz)	Measurement BW
0	-97.5	100 Hz
4	-97.5	100 Hz
4	-92.5	100 Hz
25.875	-38.6	10 kHz
276	-38.6	10 kHz
414	-52.64	10 kHz
651	-99.66	10 kHz
686	-100	10 kHz
5275	-100	10 kHz
12000	-100	10 kHz

**Table 4: PSD of EU-S112**

Frequency (kHz)	PSD level (dBm/Hz)	Measurement BW
0	-97.5	100 Hz
4	-97.5	100 Hz
4	-92.5	100 Hz
25.875	-41.1	10 kHz
276	-41.1	10 kHz
483	-60.48	10 kHz
706.63	-100	10 kHz
5275	-100	10 kHz
12000	-100	10 kHz

### 4. Summary

The contribution proposes a few new extended upstream PSDs with bandwidth higher than 276kHz. The spectrum compatibility calculation results given in a companion contribution show that these new upstream PSDs with regular downstream are spectrally compatible up to 2.5km.