



devices such as CBSD's with comparatively small interference radii, clutter data (building data where available and to some extent vegetation) will also play an important protective role, and the specification of such data and its treatment in any model must also be carefully examined, and the results as implemented thoroughly tested by the various SAS providers to establish uniformity within defined limits.

5. We suggest the use of ITU P.530 and ITU P.452 for wanted (FSS) and unwanted (CBSD) signals respectively. LS has permanent, active members in many ITU study groups and is substantially involved in preparation of new recommendations like ITU P.1812 and new versions of existing recommendations like ITU P.452. Thus we are able not only to understand the details of both ITU P.530 and ITU P.452, but also to present studies which show where Bullington (for example) or Deygout may be more accurate, why the current versions are a mixture of both, and which will give best results for FSS protection.

6. Both ITU P.530 and ITU P.452 are well established and their accuracy is well and generally understood, as they are in constant use *in similar services* over all climate types to be found within the USA and its territories. On the other hand an extrapolation of Okumura-Hata-Davidson (as performed by NTIA in its method of reducing the exclusion zone for coastal radar protection) is risky because the fit of its parameters is based on too small a set of measurement data. This not only results in less accuracy but less industry experience and confidence in evaluating its proposed use. The same is true for extrapolation of any well-established broadcasting model (like Longley Rice) to 3+ GHz in services where low elevations above ground are normal for both transmit and receive—indeed, Ms. Rice introduced an error variable (KWX) into her model for just such contingencies. This is particularly true given the differing modulation between caused and received interference as is the case here.

7. We agree that an Interference Protection Criterion should be based on  $C / (I + N)$ , because, as described in the FNPRM, noise floor alone is too pessimistic: taking signals even a few dB above noise into account will allow dramatically improved access to CBSD's without any reliability degradation to an incumbent FSS. We will examine other Comments in this proceeding and recommend a consensus if possible in Reply.

#### IV. CONCLUSION

8. Choosing the best protection method for CBSD interference into FSS (and all other) protected entities is, as the Commission has suggested, not straightforward, primarily due to the mixed services involved which necessarily “stretch” existing models and industry experience with them. Nevertheless, it is crucial that an *optimal* consensus among SAS proponents be achieved, validated and correctly implemented as this underlies all future attempts at large scale spectrum sharing, which in our view is inescapable both by Congressional mandate and economic necessity. We argue that the work done and validated by the White Space community toward that goal is a requisite starting point, but much work remains to be done, with which we stand ready to participate.

Respectfully submitted this 15<sup>th</sup> of July, 2015 by

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