ferences are always bound to appear. A state which every administration is prepared to define is the permitted maximum level (PML). Despite different relative power levels, depending on the systems, a direct relation can now be indicated between the value of the level to be measured and the PML in dB. If, for instance, a signal of 21 dB below the PML is transmitted as a measurement signal, it must also be received as a signal 21 dB below PML, independently of local relative levels, which may differ according to systems and administrations.

REFERENCES

[1] CCITT Recommendation B.12 "Use of the decibel and neper in telecommunications".

[2] CCIR Recommendation 574-2 under the same title."

$L_m = L_r + L_{mO}$

Therefore, for the level units: a dBm = b dBr + c dBmO.

When indications are given concerning the line signal, the absolute zero power level (load level) (dBmO) is given, at which, at the relative zero point, the absolute power level coincides with the relative power level.

$L_m = L_{mO}$ _

_ $L_r = O$

* The term "load level" is used provisionally and is subject to further consideration.

In order to simplify the specification of the level of a circuit or a system it is most appropriate to specify the absolute power level which coincides with the relative zero power level. Thus this absolute power level and the absolute zero power level (load level) are the same.

2.5Weighted level

Power level of disturbing signals are as a rule expressed in the same units as those defined above. For noise measurements made by a weighting filter,(psophometric measurements), a "p" (for "pondéré" = weighted) is added to the units, e.g.: dbmOp, dBmp.

A "q" indicates a quasi-peak value where the "m" is replaced by a "q" which, for instance, in dBm gives dBq.

2.6Extra indications

Sound-programme transmission level units are indicated by an extra "s" (s for sound), dBrs, dBmOs, dBmOps, dBqOpS.

Extra indications for units should be used whenever they facilitate understanding so as to prevent confusion when differing measurement techniques, weighting filters or meters are used.

3.Various measuring instruments

Absolute power level (in dBm) is obtained if a measurement is made on a terminated line.

Various measuring instruments provide measurements related to a (freely) preselected relative level value. The measurement will then directly express the absolute zero power level (load level).

4.Practical problems

There is a wide range of measuring instruments used at different measurement points, so that dif-

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* It is intended that the text contained in this annex will be further studied and refined as necessary.

Absolute voltage levels, for which terminal impedance is not defined, are more rarely used. As a correction, power level may be calculated for impedances other than 600 ohms, with respect to 1 mW.

The power level thus calculated would be equal to that measured in a correctly terminated system.

2.2 Relative level dBr

The relative power level of a point in a transmission system is the nominal power gain at the reference frequency from a reference point to the point considered. The same consideration is used for the relative voltage level in a transmission system based on voltage levels.

Relative levels can be used to compare two or more points of a network with respect to power (or voltage). One point of a network is usually defined as the reference point at 0 dBr, from which other measurement points are derived.

For sound-programme circuits, the zero relative level is located at the injection point, i.e. usually at the transmission point of a sound-programme circuit.

2.3 Absolute zero power level dBmO (load level*)

In a transmission system based on power levels the absolute power level or load level (L_{mo}) with respect to 1 mW is referred to a point of zero relative level. That means that the absolute power level (L_m) minus the relative power level (L_r) will be

$$L_{mO} = L_m - L_r$$

This level indication is independent of the relative power level at the measurement point considered. For a given signal the load level is nominally the same along a transmission line. For this indication it is necessary to know to what extent the power at the zero relative point is greater or less than the reference power.

2.4 Relation between quantities and units

There is a fixed relation between level quantities and units, namely:

Absolute power level = relative power level +
absolute zero power level (load level)

1.Proposed revisions to Recommendation N.1

DEFINITIONS FOR APPLICATION TO INTERNATIONAL SOUND-PROGRAMME TRANSMISSIONS

Add at the beginning of Recommendation N.1, an additional reference 2) to the title of the Recommendation which refers to the following footnote:

"2. Annex A to this Recommendation gives definitions for units of measurements for sound-programme transmissions".

Add the following new annex to Recommendation N.1:

"ANNEX A*

(to Recommendation N.1)

Level and loss units used for sound-programme and television transmission

1.Use of dB units in N Recommendations

This Recommendation gives the quantities and units for sound-programme transmissions used in N Recommendations and are in accordance with existing Recommendations [1], [2].

2.Units used

2.1Absolute power level: dBm

As a general rule, the dBm unit applies to the absolute power level. The unit is based on the ratio between measured power and the reference power of 1 mW.