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1. ENERGY METER READING with LOW POWER DEVICES.

It is important to have a clear knowledge of what a "Low power device" can do and what it can not do.

Actually the European Authorities had changed the denomination LPD into SRD and therefore "Short Range Devices". You may find informations on www.ero.dk looking at link "documentation" on the recommendation "**REC 70-3**" annex.

The general philosophy is to allow application transmitting free (license free) on some frequency bands but with some relevant limitations:

- the frequencies are not protected by authorities.
- Limitations on radiated power.
- Limitations on duty/cycle of transmission.
- integral antennas (it means that external big antennas are completely forbidden).

The Idea is to permit a wide use of "SRD" units and applications but to necessary the area of deployment and operation must be strictly "short". In this area there would be huge probability the useful signals is stronger than the interfering signals coming from other users.

It is also of paramount importance that:

- The radio receiver must be able to detect useful signal ignoring interfering signals as soon they are at least 10-15 dBm weaker (co-channel detection) and also to attenuate signals in the same band but on a different frequency (selectivity).
 - The communication protocol (software) must be well designed to avoid locking on interfering signals, to detect the "Bits" also in occasion of pulse interferences or RF noise.

2. METER READING SOLUTIONS.

There are 2 main system for radio meter reading.

- The reading will be performed by men with a portable PC (equipped by an SRD TRx) walking or driving through out the districts or buildings areas and where the meters are located. In that case the reading operation is truly possible in a range of 200 m or sometimes it would be necessary more accurate reading closer to the meter just moving towards the meter.
- the reading system is fixed and automatically (without men supervisory) performed by a central control system. In this system forget the distances of 200 m. or more: this, with "SRD", is practically not possible. (May be possible in free-space and without interferences but practically this theoretical situation it is impossible to be produced in real conditions). It is possible with other Radio Transceiver more complex AND MORE EXPENSIVE, with more Tx power (in that case it is necessary a big amount of power supply or batteries) and with external antennas. Those radios operates on frequencies where it is necessary to have a permission (thorough payment of a fee to the local authority) from authorities.

3. A FIXED SYSTEM WITH "LPD"

A possible different solutions to realize a fixed meter reading service is to use a network of repeater stations.

These repeaters collect the datas from the meters automatically under a software control (in example at a well known hour in the night) memorizing the datas and then transferring all such datas to the central office by phone line, GSM or by Radio-transceiver (on a taxable radio channel as described before).

These repeaters are often named "Concentrators" as they collect datas (with an "LPD" TRX) from the meters and then, when all the meters datas are in the memory, the datas are "shipped" out to the central office of concentration

Another Advantage of the "Concentrators" is that they can be located in good position (for example on the roof inside buildings), can be powered by the main and can rely on bigger antennas than what it is possible on meters systems.

Forgetting, for a while, costs of such solutions it is necessary to evaluate one more point: to let the concentrator work properly it will be absolutely necessary to asset and design a full dedicated and well produced communication protocol.

GUIDO MOIRAGHI
Chief engeneering