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Subject	New modulation techniques asks for adaptation of text and bandplans to prevent limitations of developments		
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Introduction

Changing technology and future developments needs more general wordings and adaptable bandplans.

Background

There is much interest in new repeater experiments, especially for DV systems. Mentioning too stringent what frequency is intended for what purpose is disturbing optimum use of the involved band. In the VHF managers handbook several places is too rigid focused on specific modulation methods, discouraging use of developing and implementing new modulation methods.

Current situation

At this moment, the VHF managers handbook text and bandplans mention FM while many more (digital) modes are practiced as experiment. More 'general' wordings should be chosen and the bandplans should be adapted to be flexible for future experiments. In fact, we should consider a container word for all kind of modulations like FM, D-star, DMR, Fusion, Tetra etc. instead of mentioning them every time individual. (like 'Weak signal modes' for CW, SSB, WST etc.).

Bandwidth of several used modus is not equal, also several modes transmit and receive on the same frequency (sometimes even with more stations in parallel). Text and bandplans do limit future progress and should be less stringent to prevent running behind practice.

Proposal/Recommendation

Reach consensus on a term for a container word to be used for the involved modulation techniques like FM, D-STAR, Tetra etc. and use this in the VHF managers handbook. In the Netherlands, we use the term 'Quality Modes' (as a counterpart of Weak signal modes) and propose to use this within IARU R1 C5. The VHF managers handbook should be evaluated on at least the following aspects:

Paragraph 3.1.2: Mentioned is RTTY, FAX. Make this general.

Paragraph 3.1.2: 3.1.2.d: the number of repeaters should not be determined by the expected number of

intended users. A repeater should be the experiment of the keeper. The number of users will maybe follow. Continuing this rule would prevent development of repeaters on bands/modes that do nit have many users. It is also not preferred to have mentioned fixed (home) stations should be abandoned from repeaters. Often the repeater is a kind of 'meeting point'.

Paragraph 4.1: use of channel numbers: with the current developments with several digital voice systems, FM, combined, different bandwidths for these signals, the spacing should not be continued. Areas of usage (without mentioning method) should be encouraged.

Bandplan in the VHF managers handbook to be changed the following way: (for example 2 mtr and 70 cm band, to be extended with the other bandplans).

Change FM/digital voice to 'Quality Modes'.

Make a split in 'simplex modes' and 'duplex modes'. So in fact, a specific bandwidth is in use ('technical neutral') making it more flexible for authorities to provide licences for repeaters.

Example:

144 - 146 MHz (2 meter)			
Bandlimits (MHz)	Max bandwidth	Frequency shift related to transmit frequency	Application
144,79375 - 144,96875	12,5 kHz	-	relaisstations (simplex)
145,56875 - 145,79375	12,5 kHz	600 kHz	relaisstations (duplex)

Page 38 point c and i: with the come of DV the limitation to FM should be removed.

For the other bands same consideration to evaluate and change.

In the 70 cm band the maximum bandwidth of 25 KHz could be considered while the 12,5 KHz raster could be respected.

Paragraph 4.5: Because of technical developments (like Fusion), it is preferred to do not have the FM and DV individually as dedicated mentioned. Also the shift spacing should not be mentioned since some techniques use no spacing at all (simplex). We should not limit the possibilities of usage and developments for the future.

Maximum bandwidth should be reviewed since several techniques use more bandwidth (like ATV, D-ATV and S-ATV) and some DV.

Page 42 footnote g: leave it more open to not limit the technical developments.

Paragraph 8.3 Digital transmission.

DMR, fusion, D-star and many more digital telephony techniques are common these day's. This should be mentioned in a more general way, like 'Quality Modes'.

Paragraph 8.4 is clearly outdated if only FM repeaters are mentioned.

FM repeaters will even in the minority in the near future. 'Repeaters' should be described more 'open', not only FM. Even simplex repeaters are possible. Bandwidth for the used modulation will be less standard. It is recommended to mention in the bandplans the 'frequency area's' that could be used for repeaters, split in simplex and duplex, in a technical neutral way.

This is also applicable for chapter 10: repeaters.

Paragraph 8.8.8 Technical recommendation BASIC FAST SCAN ATV standard

This looks very much only applicable for AM. 'Basic fast scan ATV' does not cover the actual situation. It should also mention 'AM'.

Paragraph 8.8.10 Technical recommendation for Microwave TV.

'Microwave TV' should not be limited tot FM ATV only. Paragraph 8.8.1. should include 'FM'.