

Prepared (also subject responsible if other) EMN/ERH/TA Erwin Spits		No. Uen		
Approved	Checked	Date 10-5-00	Rev PA1	Reference

Additional information for the FCC approval process

Abstract.

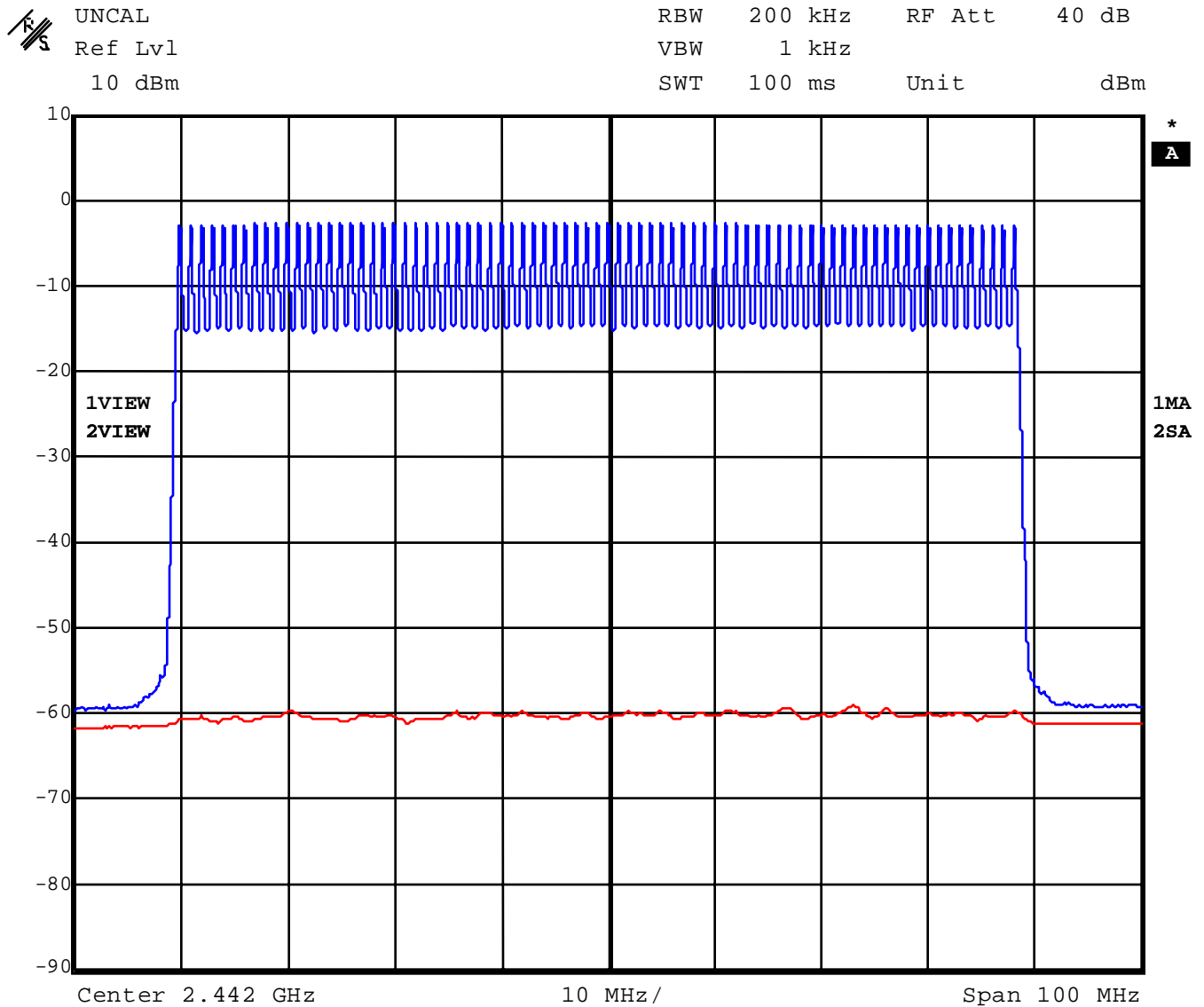
This document contains plots that are needed for approval of the Barney module by the FCC.

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2 Hopping frequencies.

“Capture and submit a plot or plots as necessary having sufficient detail to permit observation that the device is indeed hopping to the required number of individual channels.” 79 channels (fig 2.)

“For a hybrid system the number of channels required to meet the processing gain requirement should be shown.” 32 channels (fig 3.)



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Figure 2. 79 hopping channels

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The Blue line in fig 2 shows a module hopping according the Europ/US hopping sequence. It therefore shows 79 channels.

The spectrum analyser was set in a max hold function.

To show that the system is really hopping, the module was not set to another state, only the spectrum analyser was set into an averaging mode. The result is the red line.

Conclusion can be made that since in max hold the entire band is filled with carriers and in averaging mode (200x) almost no power in band is seen, the system must be hopping.

(This measurement can be reproduced by just making a connection between 2 devices and looking at the spectrum.)

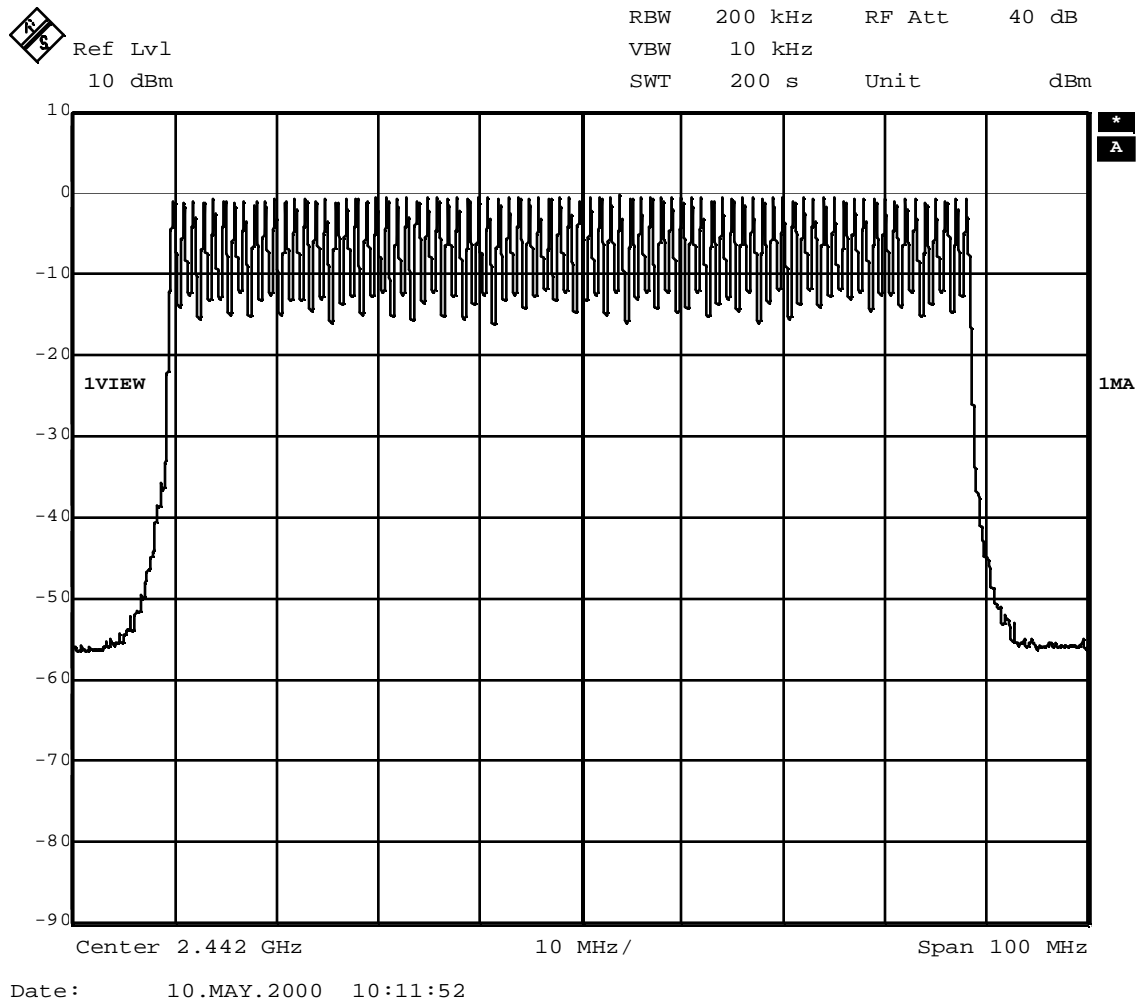


Figure 3 Europe/US channel numbers.

This figure shows the full hopping sequence for Europe and the US. 79 channels can be seen.

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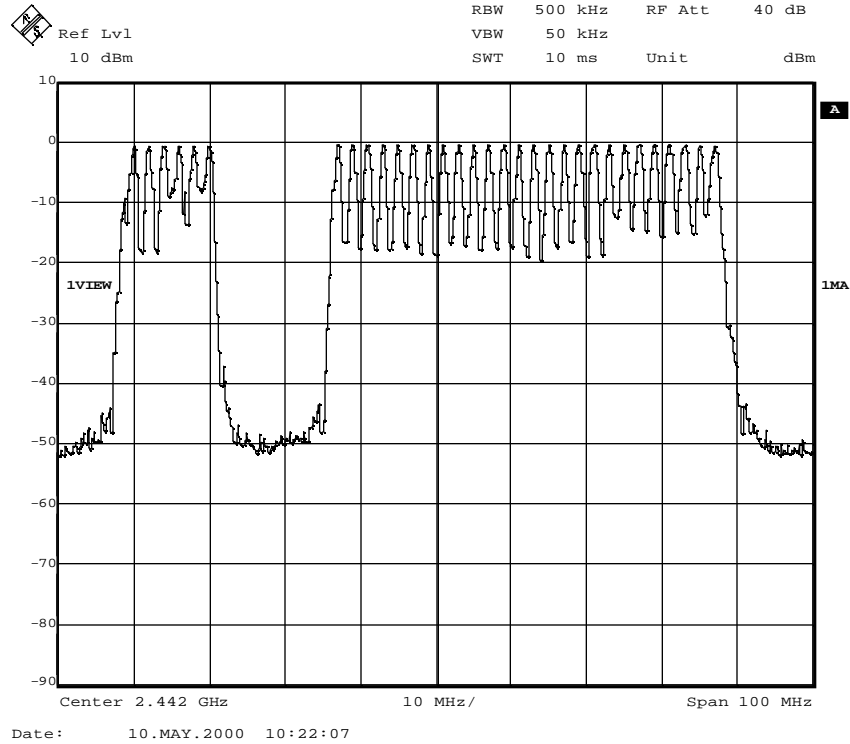


Figure 4 Limited channel numbers inquiry mode 32

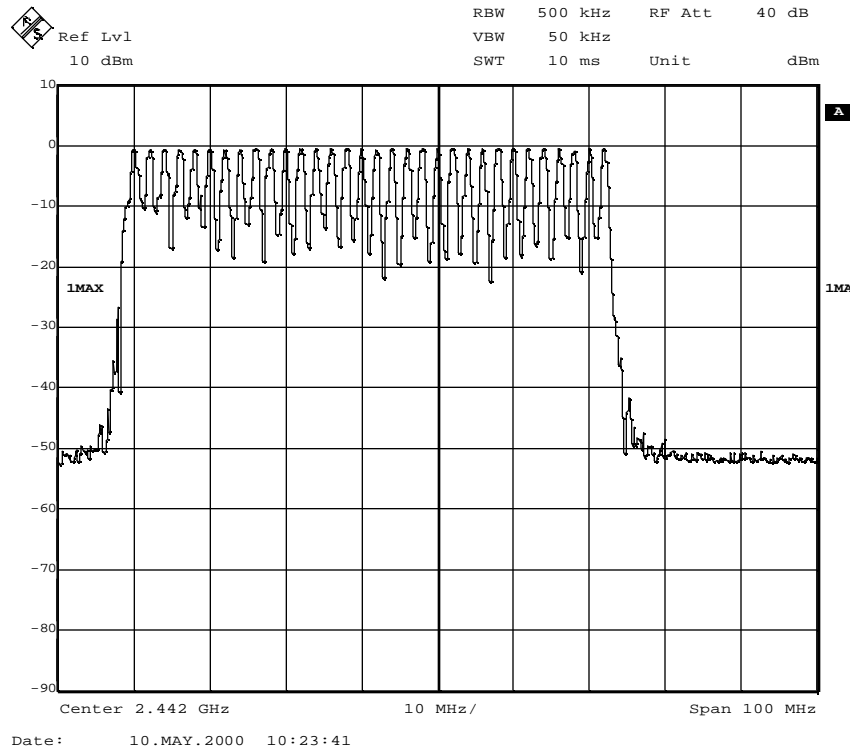


Figure 5 Limited channel numbers page mode 32

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3 Dwell time.

“Submit a plot of the dwell time for a hopping frequency over a 30 sec period.”

The spectrum analyser was first set into zero span, with a sweep time of 30 seconds. This plot shows how often a frequency is used in a 30 second time period.

The second plot shows the packet used. The longest possible in a Bluetooth connection is 2.8 ms. The slots from figure 6 are the same slots as in fig 7

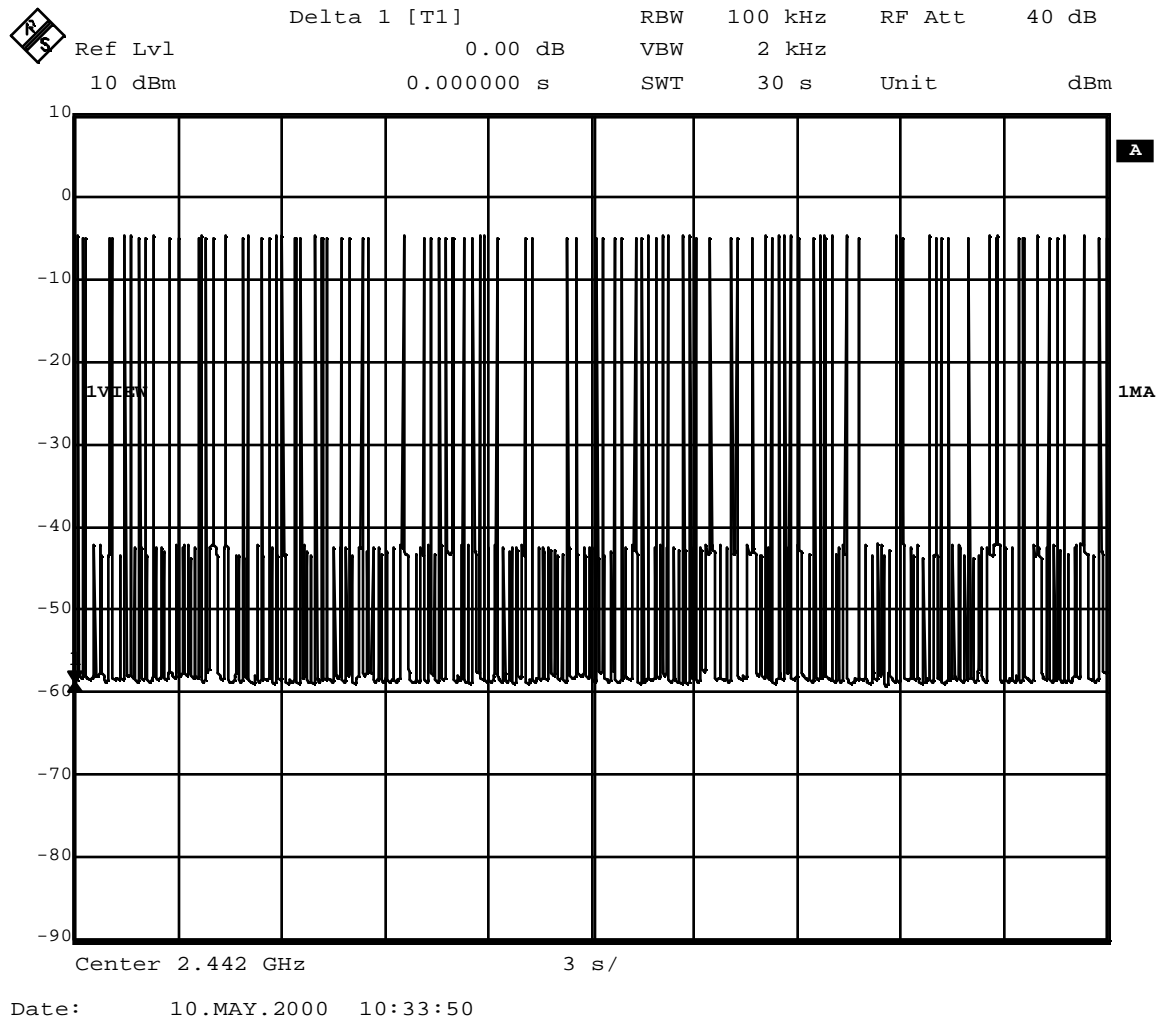


Figure 6 Dwell time of a single hopping frequency.

88 occurrences x 2.8 ms = 246,4 ms (allowed is 400 ms)

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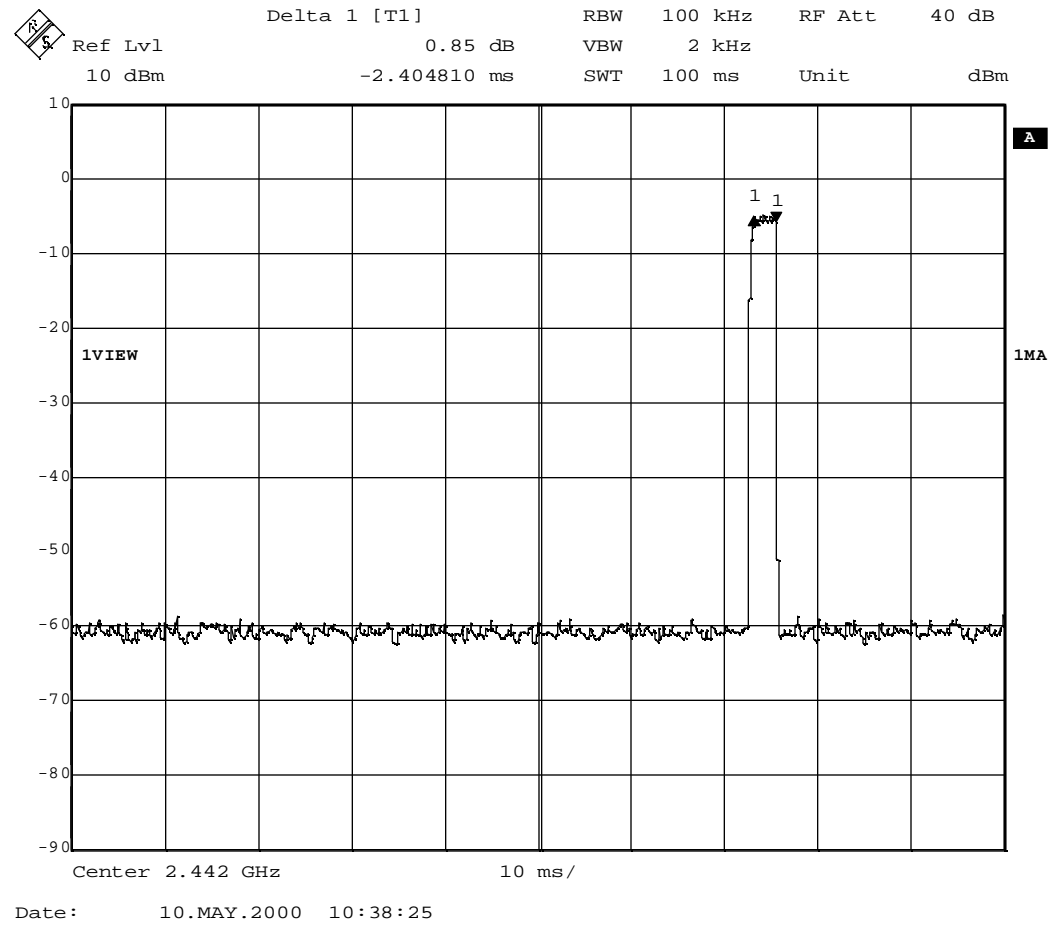


Figure 7 Slot length