Additional Observations on RF Emissions from the SP Ausnet BPL Trial at Mt Beauty – Victoria

Purpose

The purpose of these additional observations was to assist Phil Wait, VK2DKM, in undertaking emission observations using the VK1OD FSM software at the same location(s), as the observations taken on 12th November 2006 by the writer.

Observation Methodology

Refer to the previous report date 12th November 2006.

Observations

Due to time constraints, only one set of detailed observations were taken in the same location as the observations of 12th November.

Upon comparing the two sets of observations at the corner of Nelse and McKay Streets, there would appear to be an overall reduction of signal levels in the order of 10 dB. In addition, there is now a significant reduction or "notch" of radiated emission levels from BPL signals between 23500 kHz and 28500 kHz, thus indicating that the system technology employed has the capacity to vary levels and adjust frequency bands accordingly.

Summary

Based on this additional observation, there remains significant interference to licensed users in the Amateur Service in the spectrum bands 20, 17, 15 and to a lesser extent on 10 meters. In the "real" world situation if a dipole antenna (2.2 dBi) was employed, the observed levels would increase in the order of 5 to 15 dB.

Based on these recent observations the levels recorded on some parts of the HF spectrum would exceed the US FCC part 15 levels, noting however, that this standard has only been adopted by the US regulator.

It is hoped that further adjustments can be made, in cooperation between SP Austnet and the affected radiocommunications users, to achieve a satisfactory outcome.

Peter Young
VK3MV

3rd December 2006

Date/Time: 21st November 2006/ 1400pm

Location: Cnr Nelse Street and McKay Street
(Between two coupling boxes)

Distant: 10 metres

Equipment: Receiver Icom R75
Step Attenuator Kay 437A 0-100 dB 0.5 dB steps
HF Antenna – vertical screwdriver adjustable whip 5 – 30 MHz (<1.5:1 SWR) (Note 1)

Detector Mode/Bandwidth: AM 6kHz
SSB 2.1 kHz

Detected BPL Emissions and Receiver Input Levels

Frequency kHz	Attenuation	PreAmp +10dB	Receiver Input Level dBm	Remarks
4210 - 5110	0	N	-120	S1, Mode AM
5910 - 6760	0	N	-97 to -73	Worst case 6480 kHz ~S9, Mode AM
7460 - 9910	0	N	-120 to - 86	Worst case 9870 kHz ~S7, Mode AM
10200 - 11990	0	N	-100 to -72	Worst case 10410 kHz ~S9, Mode AM, , Pulse Bursts (note 2)
13400 – 13590	0	N	-120 to – 98	Worst case 13590 kHz ~ S5, Mode AM, , Pulse Bursts (note 2)
14640 - 17830	0	N	- 85 to - 73	Worst case 17830 ~ S9, Mode AM, Pulse Bursts (note 2)
17830 - 23500	0	N	-85 to -73	Worst case 17830, best case 23500 kHz ~ S0, Mode AM
23500 – 28500	0	N	-120	~S0, Mode AM
31100 – 34090	0	N	-120 to -112	S0 to S3. Mode AM

Note 1. Adjustable 2 to 2.9 meter centre loaded whip (electrically <¼ wave).

Note 2. The recovered BPL signal had an additional pulse burst on top of the OFDM emission increasing the level by +10dB. The levels recorded above are the peak values.