consideration, the Dressler can only be recommended quite strongly if you have no high power stations within quite a large radius, although in a tropo opening you could have trouble. The *Sentinel* was such a poor performer, judging by the review sample, that I would not consider it. I contacted Mr Crapper of SEM but unfortunately it took nearly a week to receive a phone call as he had been unavailable. He kindly supplied a second sample received just after this article had been submitted to the Editor, we could only briefly test the second sample which gave a gain of 18dB +/−0.5dB across the band, and judging by FM and SSB SINAD tests into the *IC 251E*/Mutek the noise figure at mid band was around 2dB, degrading to 3dB at band edges. Quite clearly it had been far better set up, and the reader will have to draw his own conclusions in the circumstances. The Chris Moulding preamp had such a poor response characteristic, that there might be a chance that another one which you might buy could be equally off tune. The Datong preamp, whilst being extremely good as a wide band model, is for specialist applications, and it should certainly hot up a general coverage receiver, and may also be worthwhile on 2m if you have already chosen it for its amazing merits. The Wood and Douglas *PA3* has in my opinion a rather excessive gain which could degrade the system IM performance too much, so two preamps come out the leaders in overall performance, the Wood and Douglas *PA4,* and the Microwave Modules RF sensed model.

**4. Bandwidth**

| | -3dB bandwidth (MHz) | -10dB bandwidth (MHz) | -20dB bandwidth (MHz) |
|---|---|---|---|
| Dressler *VV200* GaAs | 5.5 | 13.0 | 28.8 |
| Chris Moulding *MPA-2* | 7.1 | 13.9 | 21.4 |
| Mic. Modules *MMA144V* | 24.7 | 38.7 | 82.9 |
| Datong *RFA* | 232 | 360 | 574 |
| SEM *Sentinel Auto* | 42.9 | 57.8 | 111.6 |
| Wood & Douglas *PA3* | 5.6 | 15.2 | 28.9 |
| Wood & Douglas *PA4* | 6.4 | 16.4 | 36.6 |

**5. Third order intercept**

| | RF level at input for: -30dB 3rd order intermod. (dBm) | -60dB 3rd order intermod. (dBm) | Input/output for 0db 3rd order intercept (dBm) |
|---|---|---|---|
| Dressler *VV200* GaAs | −33.7 | −47.2 | −20.0/ −2.0 |
| Chris Moulding *MPA-2* | −20.2 | −38.7 | −1.8/ +10.7 |
| Mic. Modules *MMA144V* | −13.7 | −33.2 | +5.8/ +20.8 |
| Datong *RFA* | −0.2 | −7.7 | +7.0/ +16.1 |
| SEM *Sentinel Auto* | −18.7 | −34.2 | −3.5/ +5.4 |
| Wood & Douglas *PA3* | −22.2 | −39.7 | −4.5/ +19.0 |
| Wood & Douglas *PA4* | −14.7 | −30.2 | +0.5/ +19.0 |

**6. Sensitivity**

| | Sensitivity of Icom *IC251/E*/Mutek front end when used with preamp (RF level in dBm for 12dB SINAD on FM) |
|---|---|
| Dressler *VV200* GaAs | −128.5 |
| Chris Moulding *MPA-2* | −126.4 |
| Mic. Modules *MMA144V* | −128.0 |
| Datong *RFA* | −127.1 |
| Wood & Douglas *PA3* | −127.5 |
| Wood & Douglas *PA4* | −127.6 |
| SEM *Sentinel Auto* | −126.2 |

**7. Price**

| | Price (£ including VAT) |
|---|---|
| Dressler *VV200* GaAs | 75.00 |
| Chris Moulding *MPA-2* | 33.50 |
| Mic. Modules *MMA144V* | 34.90 |
| Datong *RFA* | 33.92 |
| SEM *Sentinel Auto* | 28.00 |
| Wood & Douglas *PA3* | 6.95 (kit)<br>8.10 (board) |
| Wood & Douglas *PA4* | 7.95 (kit)<br>10.95 (board) |

Let's consider the merits of the final two alternatives. Both Wood and Douglas preamps are available in kit form, or as completed circuit boards, at an extremely reasonable price. You'll have to at least make up your own box for them, and the *PA4* receives a very strong recommendation for its outstanding performance, particularly at the price. There is an RF sensed version of the *PA4* which you may need. The *PA4* was within its specification on all points, and will obviously do quite a lot for an average rig.

If you want a complete, ready to go, preamp with RF sensing, then I very strongly recommend the Microwave Modules, which has the second best noise figure, a good but not excessive gain, very good RFIM performance, but a little too wide a bandwidth. It is expensive, though, but good products supplied ready to go, cost more of course, and so I recommend it strongly for normal uses, but it has got too much gain for use in esoteric installations with a low loss cable, and a rig with a reasonable front end noise figure.

The Microwave Modules pre-amp would be suitable for special use in excellent systems if you put a pad of three resistors in the output circuit before the relay of, say, 3 or 4 dB, which will improve the system RFIM performance by around 7dB, which could be useful. Just before going to press, and after discussing all our measurements with Microwave Modules, we received a letter from them informing us that by the time this is in print,the *MMA144V* will have a switchable RF VOX hold time from 0 for FM to 1 second for SSB, the later being variable with a preset pot. I welcome this greatly and it will make their preamp an even better buy. I would like to thank all the manufacturers/dealers who have loaned the equipment for review, and the many who have been most helpful on the telephone.

I would also like to thank Wood & Douglas for generously donating their review samples to RAIBC. 