

Implementing the AMBE-2000/2020™ Vocoder Chip at Data Rate 2350 bps Voice and 50 bps FEC for Compatibility with the AMBE-1000™ Vocoder Chip

This white paper describes the procedure for implementing the AMBE-2000/2020™ in a special mode that is compatible to AMBE-1000™ Vocoder Chip at 2350 bps voice and 50 bps FEC.

This procedure is **ONLY** required when interoperating with the AMBE-1000™ Vocoder Chip at this specific rate (2350 voice + 50 bps FEC). All other rate configurations function as described in the AMBE-2000/2020™ Vocoder Chip Manual.

When implementing this compatible mode on the AMBE-2000/2020™ Vocoder Chip if the data rate is fixed and does not change, it is recommended to set the rate via the Rate_Sel configuration pins (Pins 74, 73, 72, 71, 70) as shown in Table 1. By hardwiring these pins the procedure outlined below can be avoided.

AMBE-2000/2020™ Rate Selection Using Hardwired Rate Info 0-4, compatible w/ AMBE-1000™							
RATE_SEL4 Pin 74	RATE_SEL3 Pin 73	RATE_SEL2 Pin 72	RATE_SEL1 Pin 71	RATE_SEL0 Pin 70	Speech Rate (bps)	FEC Rate (bps)	Total Rate (bps)
0	0	1	0	1	2350	50	2400

Table 1.

Compatible Mode Procedure Step 1.

To enable the AMBE-2000/2020™ to interoperate with the AMBE-1000™ Vocoder Chip at the rate of 2350 bps voice + 50 bps FEC, first send the packet described in Table 2.

First Packet		
Word #	Value	Description
0	0x13ec	Header
1	0x0002	Power Control ID/Control Word 1
2	0x902f	Rate 0
3	0x0000	Rate 1
4	0x0000	Rate 2
5	0x0000	Rate 3
6	0x6930	Rate 4
7	0x0000	Unused
8	0x0000	Unused
9	0x0000	Unused
10	0x0000	DTMF Control
11	0x0000	Control Word 2
12-23		Channel Data for AMBE® voice decoder

Table 2.

Compatible Mode Procedure Step 2.

The next packet should be identical to the packet described in Table 3.

Special Control Packet		
Word #	Value	Description
0	0x13ec	Header
1	0x0700	Special Control packet
2	0x0834	Special control data
3	0x0005	Special control data
4	0x11bf	Special control data
5	0x0005	Special control data
6	0x0000	Must be 0x0000
7	0x0000	Must be 0x0000
8	0x0000	Must be 0x0000
9	0x0000	Must be 0x0000
10	0x0000	Must be 0x0000
11	0x0000	Must be 0x0000
12-23		Channel Data for AMBE® voice decoder

Table 3.

Compatible Mode Procedure Step 3.

After the packets detailed in Table 2 and Table 3 are sent into the AMBE-2000/2020™ Vocoder Chip the RIS bits in Control Word 2 must be set to 0x3 for each subsequent packet. If the rate is changed or the device is reset, the above procedure (steps 1, 2 and 3) must be repeated.

Control Word 2 – (16-bits)															
Bit 15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Decoder Output Volume Control								Unused 0	Unused 0	VAD	Unused 0	SL	EC	RIS	

Table 4.