

Phoneme Characterization

The Bell System Technical Journal, January 1968

Data from the Bell System Technical Journal with classifications (Rabiner, 1968). F values are target formant frequencies and D values are their corresponding target regions. Target regions derived though experimentation.

Phoneme	F1	F2	F3	D1	D2	D3	Nasal	Fricative	Voiced
Vowels									
IY	270	2290	3010	75	75	150	-	-	+
I	390	1990	2550	75	75	110	-	-	+
E	530	1840	2480	75	80	110	-	-	+
AE	660	1720	2410	75	75	110	-	-	+
UH	520	1190	2390	75	75	75	-	-	+
A	730	1090	2440	37	75	115	-	-	+
OW	570	840	2410	75	75	115	-	-	+
U	440	1020	2240	75	75	115	-	-	+
OO	300	870	2240	75	80	90	-	-	+
ER	490	1350	1690	75	80	100	-	-	+
Semi-vowels									
W	300	610	2200	25	40	150	-	-	+
Y	300	2200	3065	25	110	200	-	-	+
Liquids									
L	380	880	2575	25	80	150	-	-	+
R	420	1300	1600	30	80	100	-	-	+
Stops									
B	0	800	1750	50	75	120	-	-	+
D	0	1700	2600	30	50	160	-	-	+
G	0	2350	2000	15	50	100	-	-	+
P	0	800	1750	50	40	80	-	-	-
T	0	1700	2600	30	30	100	-	-	-
K	0	2350	2000	10	30	70	-	-	-

Nasals

M	280	900	2200	17	17	40	+	-	+
N	280	1700	2600	17	17	100	+	-	+
NG	280	2300	2750	17	17	100	+	-	+

Fricatives

F	175	900	2400	30	50	120	-	+	-
TH	200	1400	2200	30	40	100	-	+	-
S	200	1800	2500	30	40	70	-	+	-
SH	175	1800	2000	30	100	150	-	+	-
V	175	1100	2400	30	50	120	-	+	+
THE	200	1600	2200	30	40	100	-	+	+
Z	200	1300	2500	30	40	70	-	+	+
ZH	175	1800	2000	30	100	150	-	+	+