

APPENDIX J

STATISTICALLY VALID SAMPLE

Eligible Telecommunications Carriers (ETCs) subject to the federal default criterion will be required to verify the continued eligibility of a statistically valid sample of their Lifeline customers. The size of a statistically valid sample, however, varies based upon many factors, including the number of Lifeline subscribers (N) and the previously estimated proportion of Lifeline subscribers inappropriately taking Lifeline service (P).

For the first year that ETCs verify subscribers' continued eligibility, all ETCs should assume that the proportion P of subscribers inappropriately taking Lifeline service is .01, if there is no evidence to assume a different proportion. In subsequent years, ETCs should use the results of samples from previous years to determine this estimated proportion. In all instances, the estimated proportion P should never be less than .01 or more than .06.

For ETCs with large numbers of Lifeline subscribers (more than 400,000), a statistically valid sample size must be calculated pursuant to the following formula:¹

$$\text{Sample Size} = 2.706 * P * (1 - P) / .000625.$$

For ETCs with 400,000 Lifeline subscribers or less, the above formula could yield a sample size that is larger than needed to be statistically valid.² To simplify the calculation of a statistically valid sample, a table of sample sizes based on two variables N (number of Lifeline subscribers) and P (previously estimated proportion of Lifeline subscribers inappropriately taking Lifeline service) is provided below. Various numbers of Lifeline subscribers N are listed in the left-most column. Various previously estimated proportions P are listed on the first row. To determine the sample size, find the box that matches your number of Lifeline subscribers N and proportion P.

If the number of Lifeline subscribers is not listed and/or the proportion is not listed, ETCs should use the next higher number for N and/or P that is in the table, *i.e.* always round up to the next higher value for N and/or P. For example, if 3.8 percent of 9,500 Lifeline subscribers inappropriately took Lifeline service, the ETC would use a sample size of 164 (value using 10,000 customers and proportion .04). Because the adjustment for the number of Lifeline subscribers is *de minimus* above 400,000 Lifeline subscribers, ETCs with more than 400,000 Lifeline subscribers must use the above formula to calculate the sample size.

All ETCs must provide the estimated proportion for their samples to the Administrator, *i.e.*, the proportion of sampled subscribers inappropriately taking Lifeline service.

¹ The values 2.706 and .000625 in this formula are mandated by OMB. *See* Office of Management and Budget, Memorandum M-03-13 (May 21, 2003).

² Sample sizes for ETCs with 400,000 Lifeline subscribers or less are calculated pursuant to the following formula: sample size = $N / (1 + \{[N-1]/n\})$. N is the number of Lifeline subscribers and $n = 2.706 * P * (1 - P) / .000625$, where P is the previously estimated proportion of Lifeline subscribers inappropriately taking Lifeline service. ETCs may choose to calculate their sample sizes using these formulas.

Sample Size Table

Previously Estimated Proportion of Subscribers Inappropriately Taking Lifeline Service (P)¹

(N) Number of Lifeline Subscribers	0.01	0.015	0.02	0.025	0.03	0.035	0.04	0.045	0.05	0.055	0.06
400,000	43	64	85	106	126	146	166	186	206	225	244
100,000 ²	43	64	85	105	126	146	166	186	206	225	244
90,000	43	64	85	105	126	146	166	186	205	224	244
70,000	43	64	85	105	126	146	166	186	205	224	243
60,000	43	64	85	105	126	146	166	185	205	224	243
30,000	43	64	85	105	125	146	165	185	204	223	242
20,000	43	64	85	105	125	145	165	184	204	223	241
15,000	43	64	84	105	125	145	164	184	203	222	240
10,000	43	64	84	104	124	144	164	183	202	220	238
9,000	43	64	84	104	124	144	163	182	201	220	238
8,000	43	63	84	104	124	144	163	182	201	219	237
7,000	43	63	84	104	124	143	162	181	200	218	236
6,000	43	63	84	104	123	143	162	180	199	217	235
5,000	43	63	83	103	123	142	161	179	198	215	233
4,000	42	63	83	103	122	141	160	178	196	213	230
3,000	42	63	83	102	121	139	158	175	193	209	226
2,000	42	62	81	100	119	136	154	170	187	202	218

¹ For the first year of verification, ETCs should assume that this percentage is .01, if there is no evidence to assume a different percentage. In subsequent years, ETCs should use the results of samples from previous years to determine this estimated percentage.

² Sample sizes for ETCs with less than 400,000 Lifeline subscribers are calculated pursuant to the following formula: $\text{sample size} = N / (1 + \{[N-1]/n\})$. N is the number of Lifeline subscribers. n is $(2.706 * P * (1 - P)) / .000625$, where P is the estimated percentage of Lifeline subscribers inappropriately taking Lifeline service. ETCs may choose to calculate their sample sizes using these formulas.

Sample Size Table

Previously Estimated Proportion of Subscribers Inappropriately Taking Lifeline Service (P)

(N) Number of Lifeline Subscribers	0.01	0.015	0.02	0.025	0.03	0.04	0.04	0.045	0.05	0.06	0.06
1,500	42	61	80	99	116	133	150	166	181	196	210
1,000	41	60	78	96	112	128	142	157	171	184	196
900	41	60	78	95	111	126	140	154	168	180	192
800	41	59	77	94	109	124	138	151	164	176	187
700	41	59	76	92	107	121	134	147	159	170	181
600	40	58	74	90	104	118	130	142	154	164	174
500	40	57	73	88	101	113	125	136	146	155	164
400	39	55	70	84	96	107	118	127	136	144	152
300	38	53	66	79	89	98	107	115	122	129	135
200	36	49	60	70	78	85	91	97	102	106	110
150	34	45	54	62	69	74	79	83	87	90	93
120	32	42	50	57	62	66	70	73	76	78	81
100	30	39	46	52	56	60	63	65	68	69	71
90	29	38	44	49	53	56	59	61	63	64	66
80	28	36	41	46	49	52	54	56	58	59	60
70	27	34	39	42	45	48	49	51	52	54	55
60	25	31	35	39	41	43	44	46	47	48	48
50	23	28	32	34	36	37	39	40	40	41	42
40	21	25	27	29	31	32	32	33	34	34	34
35	20	23	25	27	28	28	29	30	30	30	31
30	18	21	22	24	24	25	26	26	26	27	27
25	16	18	19	20	21	21	22	22	22	23	23
20	14	15	16	17	17	18	18	18	18	18	19

Sample Size Table

Previously Estimated Proportion of Subscribers Inappropriately Taking Lifeline Service (P)

(N) Number of Lifeline Subscribers	0.01	0.015	0.02	0.025	0.03	0.04	0.04	0.045	0.05	0.06	0.06
17	12	14	14	15	15	15	16	16	16	16	16
15	11	12	13	13	13	14	14	14	14	14	14
13	10	11	11	12	12	12	12	12	12	12	12
11	9	10	10	10	10	10	10	10	10	11	11
10	8	9	9	9	9	9	9	10	10	10	10
9	8	8	8	8	8	9	9	9	9	9	9
8	7	7	7	8	8	8	8	8	8	8	8
7	6	6	7	7	7	7	7	7	7	7	7
6	5	6	6	6	6	6	6	6	6	6	6
5	5	5	5	5	5	5	5	5	5	5	5
4	4	4	4	4	4	4	4	4	4	4	4
3	3	3	3	3	3	3	3	3	3	3	3
2	2	2	2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1	1	1	1