42.6 percent in 1985, more than the 34.8 percent in 2010.

CHARACTERISTICS

Table 2 contains selected demographic characteristics from the "Geographical Mobility: 2005 to 2010, 5-Year Detailed Table Package."[6] Characteristics discussed in this report include age, race and Hispanic origin, marital status, educational attainment, labor force status, household income in 2009, tenure, and poverty status. Proper utilization of characteristics helps to identify differences in migration patterns among various subgroups.

People in their mid to late twenties were the most mobile.

Respondents between the ages of 25 and 29 had the highest 5-year mover rate of any age group, at 65.5 percent. About 48.0 percent of 18 to 24 year olds also moved during this time period. These ages are a common time in the life course when people are transitioning between college, first jobs, and establishing their own households. The two oldest age categories, 65 to 74 years old and 75 years and over, had the lowest mover rates at 15.2 percent and 11.9 percent, respectively. For these older ages, the percentage that moved within the same county was less than ten percent, well below the rate reported by younger age groups.

Mover rates and type of move differ by race.

Respondents who reported being Hispanic or Latino of any race or who reported being Black or African American had the highest mover rates with 43.1 percent and 42.9 percent, respectively.[7,8] The distributions of moves for these two groups tell completely different stories. Moves from a different county were more common among Black or African Americans (12.5 percent) than Hispanics or Latinos (9.1 percent). However, Asians had the highest percentage of movers from abroad, with 9.5 percent followed by Hispanic or Latino with 3.0 percent. These were higher than the rates for Black or African American with 1.7 percent and White, not Hispanic or Latino with 1.0 percent.

Occupants of rental housing units were more mobile than occupants of owned housing units.

The 5-year mover rate suggests people living in renter-occupied housing units were much more mobile than those living in owner-occupied housing units.[9] About two-thirds of renters moved within a 5-year period compared with less than one-quarter of owners. Part of this difference can be attributed to movers within the same county. Approximately 40.7 percent of renters moved within the same county, while 13.2 percent of owners moved within the same county.

People who completed some college coursework or obtained a post-secondary degree had higher levels of mobility from a different state than those who did not pursue education beyond high school.

Among the population 25 years and over, those with a bachelor's degree had the highest mover rate: 35.6 percent. Among professional or graduate degree holders, 8.4 percent moved from another state, 7.7 percent who attained a bachelor's degree moved from a different state, and 5.5 percent of people with some college or an associate's degrees moved from a different state. About 4 percent of high school graduates and 3.1 percent of those who did not graduate from high school completed a state-to-state move.

Separated individuals were the most mobile marital status.

For the population 15 years and over, 51.6 percent of separated respondents moved between 2005 and 2010. Marital events such as separation often require a move and may explain why this group has the highest rates. Never married respondents are another mobile group with a mover rate of 44.2 percent. Never married individuals tend to be younger and

[6] The 2010 detailed tables have been redesigned to decrease repetition present in the 2005 tables. For comparison guidance between the 2005 and 2010 tables, see the "5-Year ASEC Table Package Comparison" at <www.census.gov/hhes/migration/data/cps/usernote2010.html>.

[7] Federal surveys now give respondents the option of reporting more than one race. Therefore, two basic ways of defining a race group are possible. A group such as Asian may be defined as those who reported Asian and no other race (the race-alone or single-race concept) or as those who reported Asian regardless of whether they also reported another race (the race-alone-or-in-combination concept). This report shows data using the first approach (race alone). This report will refer to the White-alone population as White, the Black or African American-alone population as Black or African American, the Asian-alone population as Asian, and the White-alone-non-Hispanic population as White, not Hispanic or Latino. Use of the single-race population does not imply that it is the preferred method of presenting or analyzing data. The Census Bureau uses a variety of approaches. In this report, the term "White, not Hispanic or Latino" refers to people who are not Hispanic and who reported White and no other race. The Census Bureau uses non-Hispanic Whites as the comparison group for other race groups and Hispanics. Because Hispanics may be any race, data in this report for Hispanics overlap with data for racial groups.

[8] The mover rate for Hispanic or Latinos is not statistically different from that of Black or African Americans.

[9] From this point forward, people living in renter-occupied housing units are referred to as "renters" and people living in owner-occupied housing units are "owners."

Table 2.

Five-Year Mover Rates, by Selected Characteristics: 2005–2010

(Numbers in thousands)

Selected characteristics	Total	Movers	Mover rate	Percent			
				Same county	Different county		Movers from abroad
					Same state	Different state	
Total, 5 years and over	**282,846**	**100,152**	**35.4**	**21.6**	**6.7**	**5.6**	**1.5**
Sex							
Male	138,530	49,468	35.7	21.7	6.8	5.7	1.6
Female	144,316	50,684	35.1	21.5	6.7	5.5	1.4
Age							
5 to 9 years	20,785	9,292	44.7	28.9	8.0	6.1	1.7
10 to 17 years	32,820	11,369	34.6	23.1	5.6	4.5	1.5
18 to 24 years	29,313	14,068	48.0	27.9	10.5	7.4	2.2
25 to 29 years	21,453	14,043	65.5	37.5	13.2	11.6	3.2
30 to 44 years	60,079	27,311	45.5	27.6	8.3	7.3	2.3
45 to 64 years	79,782	18,781	23.5	14.6	4.5	3.7	0.8
65 to 74 years	20,956	3,177	15.2	8.5	3.2	3.2	0.3
75 years and over	17,657	2,110	11.9	7.1	2.6	2.0	0.3
Race and Hispanic Origin							
White alone	226,457	76,251	33.7	20.4	6.7	5.6	1.0
Black or African American alone	35,363	15,159	42.9	28.7	7.2	5.3	1.7
Asian alone	12,991	5,282	40.7	19.6	5.6	6.0	9.5
Hispanic or Latino[1]	43,343	18,689	43.1	31.0	5.2	3.9	3.0
Tenure							
In an owner-occupied housing unit	196,656	43,588	22.2	13.2	4.7	3.7	0.6
In a renter-occupied housing unit	86,190	56,564	65.6	40.7	11.3	9.9	3.7
Educational Attainment (aged 25 and over)							
Not a high school graduate	25,711	8,566	33.3	23.6	4.4	3.1	2.2
High school graduate	62,456	18,733	30.0	19.6	5.6	3.9	0.9
Some college or associate's degree	51,920	17,397	33.5	20.2	6.9	5.5	0.9
Bachelor's degree	38,784	13,792	35.6	18.4	7.5	7.7	1.8
Professional or graduate degree	21,056	6,933	32.9	16.0	6.3	8.4	2.2
Marital Status (aged 15 and over)							
Married	124,219	35,823	28.8	16.5	5.6	5.1	1.6
Widowed	14,356	2,599	18.1	11.3	3.4	2.9	0.5
Divorced	23,758	9,523	40.1	26.1	7.7	5.8	0.5
Separated	5,541	2,858	51.6	33.9	9.5	6.8	1.4
Never married	74,294	32,837	44.2	27.0	8.5	6.7	1.9
Household Income (in 2009, aged 15 and over)							
Without income	30,914	11,418	36.9	22.7	5.8	5.0	3.5
Under $10,000	41,920	14,870	35.5	21.2	6.9	5.7	1.7
$10,000 to $29,999	74,270	26,300	35.4	22.0	6.8	5.3	1.3
$30,000 to $49,999	43,553	15,281	35.1	21.2	7.4	5.5	0.9
$50,000 to $74,999	27,421	8,648	31.5	17.8	6.8	6.0	1.0
$75,000 to $99,999	10,822	3,315	30.6	17.4	6.0	6.4	0.8
$100,000 and over	13,268	3,806	28.7	15.4	5.6	6.7	0.9
Employment Status (aged 16 and over)							
Employed (civilian)	137,753	51,241	37.2	22.6	7.3	5.8	1.4
Unemployed	15,764	7,519	47.7	29.3	9.4	7.3	1.7
Armed Forces[2]	937	681	72.7	21.2	8.2	36.4	6.8
Not in labor force	83,641	22,851	27.3	16.0	5.2	4.6	1.5
Poverty Status							
Below 100 percent of poverty	38,673	20,300	52.5	33.8	9.0	6.7	3.0
100 percent to 149 percent of poverty	25,650	10,832	42.2	27.7	7.5	4.8	2.2
150 percent of poverty and above	218,523	69,020	31.6	18.7	6.2	5.5	1.1

[1] Hispanics and Latinos may be of any race.

[2] Includes members of the Armed Forces in the United States living off post or with their families on post, but excludes all other members of the Armed Forces.

Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2010.

therefore, more mobile. Widowed respondents were least likely to have moved (18.1 percent) and tend to be older.

Movement among several household income groups is not statistically different.

The 2010 ASEC asks about the respondent's household income in 2009 instead of 2005. The difference in the total mover rate among several of the lower household income groups is not statistically different. For example, households that earned under $10,000 or less, $10,000 to $29,999, or $30,000 to $49,999 all had mover rates ranging from 35.1 percent to 35.5 percent. Other household income groups reported lower mover rates. Households with income of $75,000 to $99,999 and $100,000 and over had movers rates of 30.6 percent and 28.7 percent, respectively.

Members of the Armed Forces tend to move a lot, especially from a different state and abroad.

Of the population 16 years and over, 37.2 percent of the employed civilian workforce lived at a different residence 5 years ago. People employed by the Armed Forces had the highest mover rate of any employment status, with 72.7 percent.[10] As shown in Table 2, this is a very mobile population, with 36.4 percent moving from a different state and 6.8 percent moving from abroad within a 5-year period. Unemployed respondents were the second most mobile group, with 47.7 percent. About 30 percent of the unemployed moved within the same county, the highest of any employment status.

About one-third of respondents below 100 percent of poverty moved to a different residence within the same county.

People below 100 percent of poverty had the highest mover rate with 52.5 percent. People at or above 150 percent of poverty had a considerably lower mover rate of 31.6 percent. This difference is attributable to lower percentages for all types of moves, especially within the same county (18.7) and to a different county within the same state (6.2 percent).

IN, OUT, AND NET MIGRATION BY REGIONS AND METRO STATUS

One strength of ASEC data is the ability to identify migrations between regions of the United States. The following section focuses on regional migration in order to determine the population change resulting from 5-year migration.

Region

Regional migration approaches population change from more of a larger scale, macro level rather than the micro level same county/different county approach. Regional migration concentrates on the overall redistribution of people as they move throughout the country. Three different types of regional changes are contained in Table 3: inmigrants, outmigrants, and net domestic migration. For this report, inmigrants are people who moved into an area during a 5-year period. Outmigrants are people who moved out of an area over the same period. The term net domestic migration refers to the overall change in an area when both inmigrants and outmigrants are taken into consideration. This number provides the clearest picture of population change in an area, due to migration, by limiting the outside influence of immigration (movement into the country from abroad). To calculate the net domestic migration estimate, subtract the number of outmigrants from the number of inmigrants. A positive result means the region gained population, while a negative result means the region lost population. If the net domestic migration estimate has an asterisk symbol (*) next to it, then the estimate is statistically different from zero.

Data from Table 3 and Figures 3, 4, and 5 display in, out, and net domestic migration estimates by region from 1970 to 2010. The first 5-year estimates from the CPS are from 1975. According to these data, the South reported 4.1 million inmigrants and the West had 2.3 million. The Midwest had the largest number of outmigrants with 2.9 million and the West had the lowest with 1.6 million. The net domestic migration estimates show the Northeast losing more than 1 million people during this time.[11] The South and West both gained population, although the South was the only region with a net gain of 1 million or more people.

The estimates from the 1995 ASEC are an approximate midpoint between 1975 and 2010 data. Keeping with results present in the 1975 data, the South continued to have the largest number of inmigrants with 4.7 million and the Northeast had the least with 1.2 million. However, the variation in outmigration was considerably smaller in 1995 compared with 1975. In 1975, outmigration ranged from 1.6 million to 2.9 million. The 1995 estimates ranged

[10] Only members of the Armed Forces living off post or with their families on post in the United States are included.

[11] Estimates for the Northeast and Midwest are not significantly different.

from 2.5 million to 2.7 million.[12,13] The outmigration for all regions between 1990 and 1995 was not significantly different from one another. Taking the components of inmigration and outmigration into consideration simultaneously, the net domestic migration estimates from 1995 indicate that the Northeast and Midwest lost population during this 5-year period. With 2.0 million, the South was the only region that experienced an increase in population due to migration.

Data from the 2010 ASEC indicate a continuation of historical regional migration trends. The South led inmigration with 3.5 million and the Northeast placed last with 1 million people. Outmigration estimates for the regions were between 1.8 million for the Northeast and 2.4 million for the South.[14] For net domestic migration, only the South had a significant increase in the population due to migration.

[12] The 1995 outmigration estimates of 2.5 million and 2.7 million are not significantly different.

[13] The 1975 estimate of 2.9 million is not significantly different from the 1995 estimate of 2.7 million.

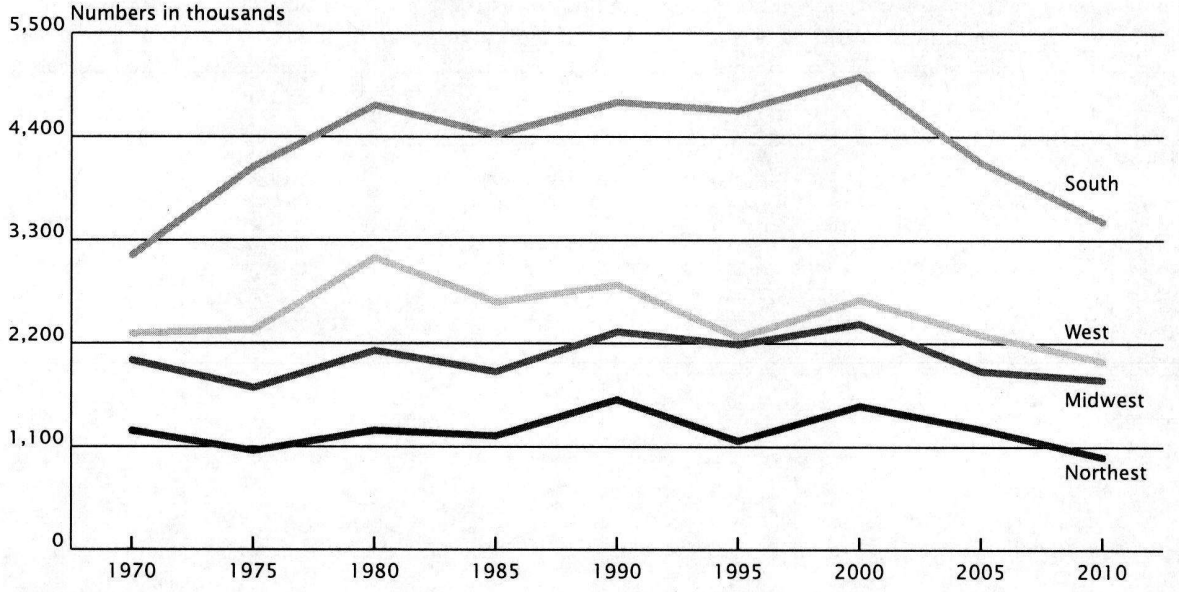
[14] Outmigration estimates for the Northeast and West and the South and Midwest were not significantly different from one another.

Table 3.
Five-Year In, Out, and Net Domestic Migration, by Region: 1970–2010
(Numbers in thousands)

Period	Northeast	Midwest	South	West
2005–2010				
Inmigrants	992	1,818	3,497	2,013
Outmigrants	1,824	2,168	2,386	1,942
Net domestic migration	*–832	*–350	*1,111	71
2000–2005:				
Inmigrants	1,290	1,909	4,124	2,294
Outmigrants	2,313	2,328	2,701	2,273
Net domestic migration	*–1,024	*–420	*1,422	21
1995–2000:				
Inmigrants	1,537	2,410	5,042	2,666
Outmigrants	2,808	2,951	3,243	2,654
Net domestic migration	–1,271	–541	1,800	12
1990–1995				
Inmigrants	1,162	2,190	4,682	2,269
Outmigrants	2,477	2,643	2,653	2,530
Net domestic migration	*–1,316	*–452	*2,029	–261
1985–1990:				
Inmigrants	1,604	2,324	4,769	2,827
Outmigrants	2,720	3,172	3,344	2,289
Net domestic migration	–1,116	–848	1,426	538
1980–1985:				
Inmigrants	1,218	1,902	4,428	2,641
Outmigrants	2,239	3,426	2,631	1,992
Net domestic migration	*–1,021	*–1,524	*1,797	*649
1975–1980:				
Inmigrants	1,275	2,125	4,738	3,114
Outmigrants	3,059	3,505	2,752	1,935
Net domestic migration	–1,785	–1,380	1,986	1,179
1970–1975:				
Inmigrants	1,057	1,731	4,083	2,347
Outmigrants	2,399	2,927	2,254	1,638
Net domestic migration	*–1,342	*–1,196	*1,829	*709
1965–1970:				
Inmigrants	1,273	2,024	3,142	2,309
Outmigrants	1,988	2,661	2,486	1,613
Net domestic migration	–715	–637	657	695

* The net migration flows are significantly different from zero. Only net domestic migration estimates from the CPS were tested for significance.
Sources: U.S. Census Bureau, Census, 1970, 1980, 1990, and 2000; Current Population Survey, Annual Social and Economic Supplement, 1975, 1985, 1995, 2005, and 2010.

Figure 3.
Five-Year Domestic Inmigration, by Region: 1970–2010



Sources: U.S. Census Bureau, Census 1970, 1980, 1990, and 2000; Current Population Survey, Annual Social and Economic Supplement, 1975, 1985, 1995, 2005, and 2010.

Another approach to utilizing regional migration data to its fullest potential is to identify the characteristics of people moving into and out of a region. Table 4 provides these estimates by combining a limited set of selected characteristics from Table 2 and the in, out, and net domestic categorization of Table 3. The key components of this table are the net estimates, because they provide the best understanding of the overall change resulting from regional migration. For instance, we can tell that between 2005 and 2010 the Northeast had a net loss of 233,000 people aged 30 to 44. The South fared better, reporting a net gain of 232,000 people within this age range. In fact, the South was the only region to report a net gain in all age categories from 10 to 74 years old.

A topic of interest to many migration researchers is the movement of the college educated. A well-educated workforce is of interest to every city, state, and region. Table 4 offers a general sense of where the highly educated are moving. From a regional perspective, the South and West were popular destinations among graduate degree holders 25 years and over with net gains of 89,000 and 104,000, respectively.[15] The Northeast had a net loss of 124,000 professional or graduate degree holders. At the opposite end of the education spectrum, the South had the highest net gain of people who were not high school graduates with 106,000.

[15] Net migration estimates for the number of professional or graduate degree holders in the South and West are not significantly different.

The Western region lost a net of 54,000.[16]

DISTANCE MOVED

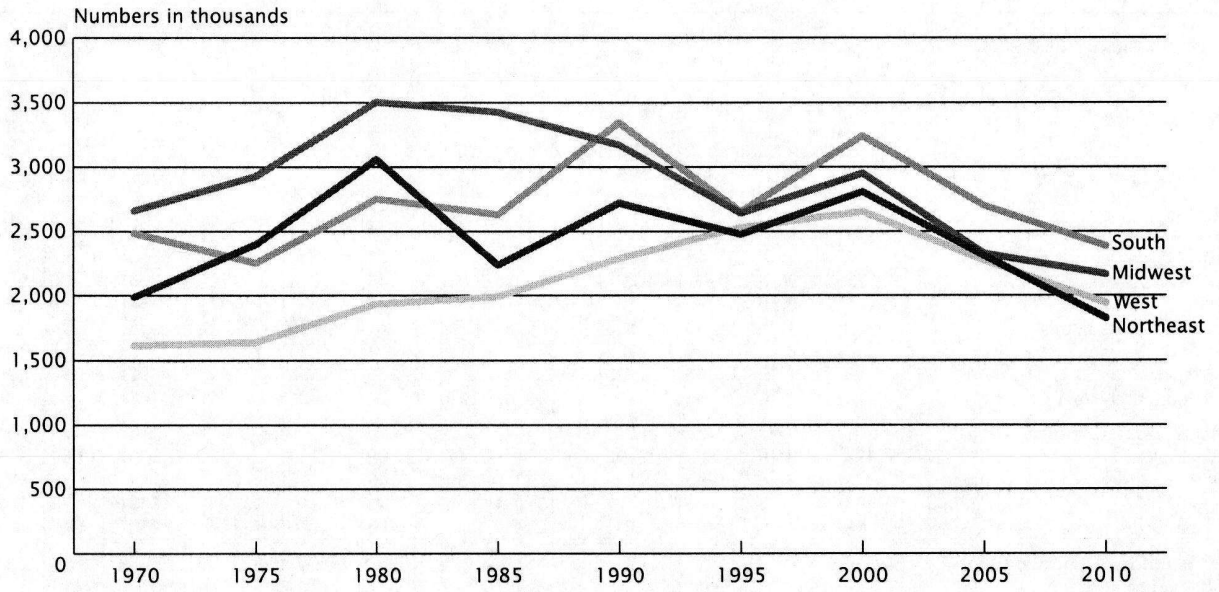
A unique measure calculated using ASEC migration data is the distance a person moved. Distance moved is calculated by measuring the distance between the population center of the origin county and destination county.[17] Because this approach is used, moves within the same county (intracounty) and from abroad are not calculated since their distance moved values would be zero.[18] Only people who moved

[16] The net loss for the West is not significantly different from the net loss of the Northeast.

[17] More details on this process can be found on page 10, footnote 14, of the Current Population Report titled "Geographical Mobility: 2002 to 2003" at <www.census.gov/prod/2004pubs/p20-549.pdf>.

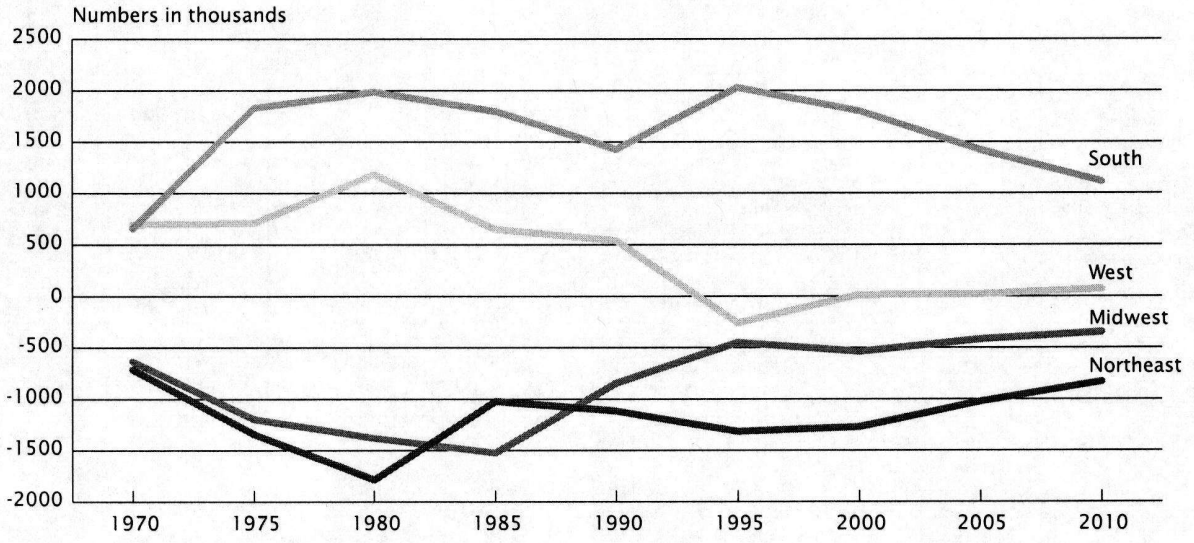
[18] For intracounty movers, distance moved would equal zero because the origin and destination centroids are the same. For movers from abroad, there is no origin centroid for foreign countries.

Figure 4.
Five-Year Domestic Outmigration, by Region: 1970–2010



Sources: U.S. Census Bureau, Census, 1970, 1980, 1990, and 2000; Current Population Survey, Annual Social and Economic Supplement, 1975, 1985, 1995, 2005, and 2010.

Figure 5.
Five-Year Domestic Net Migration, by Region: 1970–2010



Sources: U.S. Census Bureau, Census 1970, 1980, 1990, and 2000; Current Population Survey, Annual Social and Economic Supplement, 1975, 1985, 1995, 2005, and 2010.

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Table 4.

Inmigration, Outmigration, and Net Domestic Migration for Regions, by Selected Characteristics: 2005–2010

(Numbers in thousands)

Characteristics	Northeast			Midwest			South			West		
	In	Out	Net	In	Out	Net	In	Out	Net	In	Out	Net
Total, 5 years and older	992	1,824	*–831	1,818	2,168	*–350	3,497	2,386	*1,111	2,013	1,942	71
Sex												
Male	488	922	*–433	887	1,094	*–207	1,735	1,156	*578	1,047	985	62
Female	504	902	*–398	931	1,074	–143	1,762	1,230	*532	966	958	9
Age												
5 to 9 years	72	126	*–54	183	165	18	269	206	63	148	175	–27
10 to 17 years	73	190	*–116	196	177	19	329	220	*110	149	162	–12
18 to 24 years	171	208	–37	222	306	*–85	433	313	*120	306	305	2
25 to 29 years	161	296	*–136	267	399	*–132	527	340	*187	361	280	80
30 to 44 years	263	496	*–233	520	540	–20	941	709	*232	595	574	21
45 to 64 years	194	335	*–141	329	447	*–118	702	449	*253	330	325	6
65 to 74 years	43	103	*–60	45	95	*–51	209	98	*111	82	83	–1
75 years and over	15	70	*–55	56	38	19	86	51	35	41	39	2
Race and Hispanic Origin												
White alone	835	1,340	–505	1,492	1,709	–217	2,699	1,969	730	1,660	1,667	–8
Black or African American alone	74	320	–247	189	239	–50	540	212	328	114	145	–31
Asian alone	54	114	–60	96	151	–55	169	146	24	163	72	91
Hispanic or Latino[1]	69	160	–91	181	129	52	426	280	146	210	316	–106
Educational Attainment (25 years and over)												
Not a high school graduate	35	76	*–40	87	99	–12	200	94	*106	60	114	*–54
High school graduate	147	262	*–115	345	299	47	585	414	*171	209	311	*–103
Some college or associate's degree	166	292	–126	331	368	–36	629	435	*194	344	376	–32
Bachelor's degree	185	404	*–219	258	489	*–232	667	409	*258	508	316	*192
Professional or graduate degree	143	267	*–124	196	265	*–69	383	294	*89	288	184	*104
Marital Status (15 years and over)												
Married	340	698	*–358	648	934	*–286	1,579	945	*634	813	803	10
Widowed	26	56	*–30	42	59	–16	99	58	*40	54	48	6
Divorced	96	126	*–30	176	143	32	293	244	*49	150	202	*–52
Separated	13	48	*–34	68	44	*24	86	63	23	30	44	–13
Never married	398	636	*–237	579	701	*–122	956	733	*223	710	574	*136
Income in 2009 (16 years and over)												
Without income	85	130	*–45	151	180	–29	324	204	*120	166	212	*–46
Under $10,000	169	251	*–82	285	307	–21	460	371	*89	294	280	14
$10,000 to $29,999	226	442	*–216	499	546	–47	914	649	*266	487	489	–2
$30,000 to $49,999	160	299	*–139	277	341	*–65	579	330	*249	293	338	–45
$50,000 to $74,999	115	200	*–85	128	246	*–118	351	217	*135	227	159	*68
$75,000 and over	109	223	*–114	142	240	*–97	351	241	*110	277	175	*101
Labor Force Status (16 years and over)[2]												
Employed (civilian)	522	962	*–440	880	1,137	*–257	1,741	1,148	*592	1,077	971	*106
Unemployed	67	131	*–64	143	184	*–41	291	174	*118	130	142	–12
Not in labor force	269	443	*–174	439	503	*–65	874	611	*262	458	481	–23

* The net migration flows are significantly different from zero.

[1] Hispanics or Latinos may be of any race.

[2] Excludes members of the Armed Forces in the United States due to limited regional mobility.

Source: U.S. Census Bureau, Current Population Survey, 2010 Annual Social and Economic Supplement.

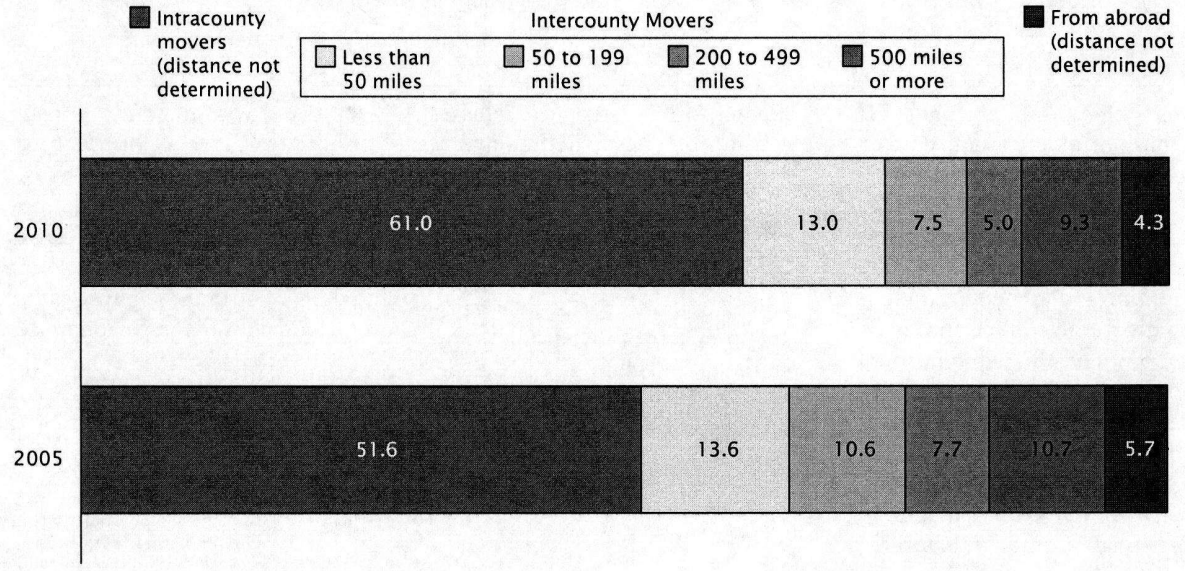
to a different county or different state are included in the distance moved measure. The typical categories are less than 50 miles, 50 to 199 miles, 200 to 499 miles, and 500 miles or more.

Distance moved was first calculated in 2003 for 1-year ASEC migration estimates. In 2005, the same method was applied to calculate 5-year distance moved estimates. The release of the 2010 5-year detailed table package marks the first time two 5-year distance moved estimates are available for comparison. Figure 6 emphasizes movers by displaying a percentage breakdown of type of move with intercounty movers subdivided by their distance moved. According to this figure, intracounty movers account for the majority of moves for 2005 and 2010; however, they comprise more of the distribution in 2010 (61.0 percent) than 2005 (51.6 percent). Movers from abroad decreased from 5.7 percent in 2005 to 4.3 percent in 2010.

The distance moved category of less than 50 miles was the most common distance moved. Among all movers, 13.0 percent made an intercounty move less than 50 miles in 2010. Intercounty moves 500 miles or more were the second most common with 9.3 percent, trailed by 50 to 199 miles and 200 to 499 miles, respectively. In 2005, intercounty moves less than 50 miles also led the distance moved categories, and moves 200 to 499 miles were last. The categories of 50 to 199 miles and 500 miles or more were not significantly different from one another in 2005. Both of these distances moved decreased between 2005 and 2010.

In the detailed table package, distance moved is tabulated by various characteristics to provide an idea of how intercounty movers with selected characteristics differ by their distance moved. Educational attainment is of particular interest because distance moved can be determined across educational attainment categories. As displayed in Figure 7, there is considerable variation in distance moved across education groups. About 70 percent of moves by people who were not high school graduates were within the same county. Among the distance moved categories, less than 50 miles was the highest with 9.5 percent. The longest distance moved category of 500 miles or more had 5.5 percent. For comparison purposes, those with a graduate or professional degree had 48.6 percent of their

Figure 6.
Type of Move and Distance Moved: 2005 and 2010
(in percent)



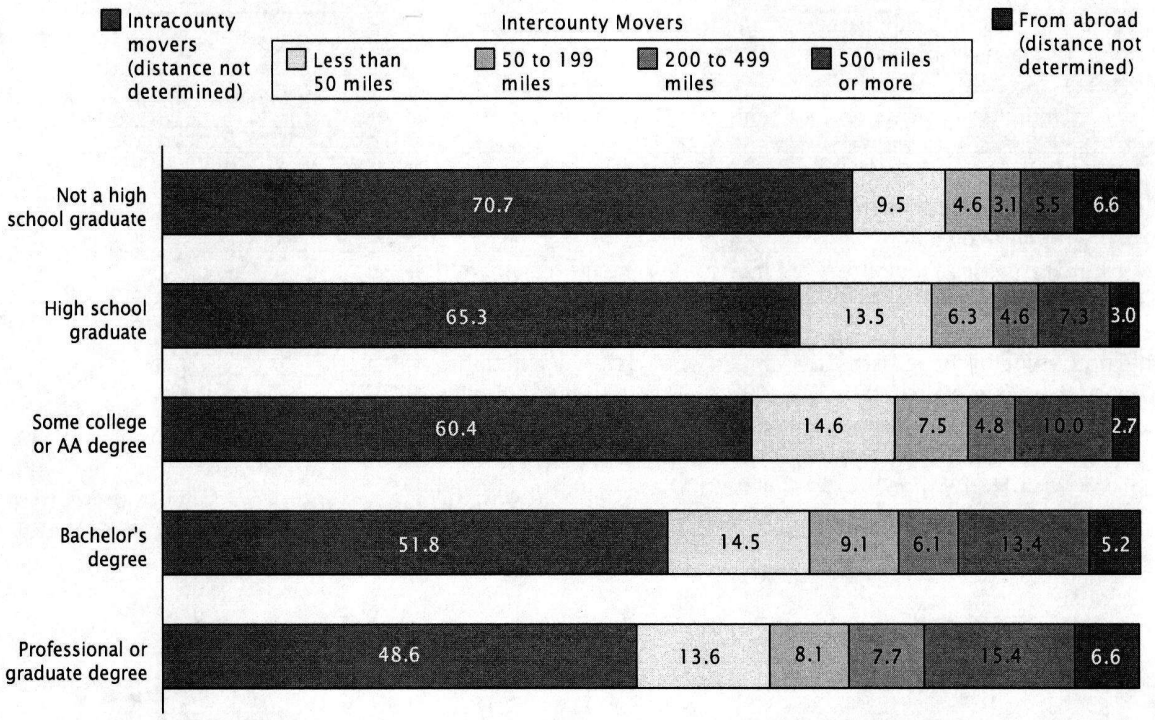
Sources: U.S. Census Bureau, Census 1970, 1980, 1990, and 2000; Current Population Survey, Annual Social and Economic Supplement, 1975, 1985, 1995, 2005, and 2010.

PX2093-011

JA012812
011558

TX 102-012074

Figure 7.
Educational Attainment by Type of Move and Distance Moved: 2010
(In percent. Population 25 years and over)



Sources: U.S. Census Bureau, Census 1970, 1980, 1990 and 2000; Current Population Survey, Annual Social and Economic Supplement, 1975, 1985, 1995, 2005, and 2010.

moves within the same county. The 500 miles or more category was the largest distance moved with 15.4 percent. Less than 50 miles was the second largest with 13.6 percent. These results indicate that among those who moved, there is a much greater likelihood that people who did not graduate high school will move within the same county than someone with a professional or graduate degree. Conversely, intercounty mobility, of any distance, was more common among professional or graduate degree movers than movers without a high school degree. This is especially true for intercounty moves of 500 miles or more, which was 2.8 times greater for movers with a graduate or professional degree than movers who were not high school graduates.

SUMMARY

From 2010 on, the CPS will be the sole provider of 5-year migration statistics collected by the Census Bureau.[19] With the discontinuation of the census long form, 5-year migration data would not have been available for 2010. To remedy this, the CPS decided to add a 5-year migration question to the survey instrument. Future plans include continuing to add a 5-year

[19] The American Community Survey (ACS) currently releases 5-year multiyear estimates for migration. These estimates are based upon data for residence 1 year ago collected over a 60-month period. They are not equivalent to 5-year CPS estimates, which are based upon data for residence 5 years ago collected over a three-month period between the months of February and April. For additional information on ACS multiyear estimates, consult the American Community Survey Multiyear Accuracy of the Data at <www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2010.pdf>.

migration question to years ending in "5" and "0" in order to provide a streak of uninterrupted 5-year migration data dating back to 1970.

Several noteworthy results from the 2010 ASEC were discussed in this report. The number of movers and the mover rate both decreased from their 2005 levels. The 2010 mover rate of 35.4 percent was the lowest CPS estimate since it began collecting 5-year migration data in 1975. A smaller percentage of people moved to a different county (within the same state and to a different state) in 2010 than 2005. Respondents between the ages of 25 and 29 were the most mobile age group between 2005 and 2010. Approximately two-thirds lived at a different residence during this period. The unemployed were a particularly mobile group as well, more so than employed civilians.

SOURCES OF THE DATA

The population universe in the ASEC is the civilian noninstitutionalized population living in the United States. Members of the Armed Forces living off post or with their families on post are included if at least one civilian adult lives in the household. The institutionalized population, which is excluded from the population universe, is composed primarily of the population in correctional institutions and nursing homes (91 percent of the 4.1 million institutionalized people in Census 2000). Most of the data from the ASEC were collected in March (with some data collected in February and April), and the data were controlled to independent population estimates for March 2010. For annual time series from the CPS, data collected in the 2010 ASEC may be compared with data collected in the March supplement to the CPS in prior years.

The population represented (the population universe) in the Decennial Census is the population living in the United States on April 1 of that year. This includes people living in group quarters, noninstitutionalized and institutionalized.

ACCURACY OF THE ESTIMATES

Statistics from surveys are subject to sampling and nonsampling error. All comparisons presented in this report have taken sampling error into account and are significant at the 90-percent confidence level. This means the 90-percent confidence interval for the difference between the estimates being compared does not include zero. Nonsampling errors in surveys may be attributed to a variety of sources, such as how the survey is designed, how respondents interpret questions, how able and willing respondents are to provide correct answers, and how accurately the answers are coded and classified. The Census Bureau employs quality control procedures throughout the production process, including the overall design of surveys, the wording of questions, review of the work of interviewers and coders, and statistical review of reports to minimize these errors.

The CPS weighting procedure uses ratio estimation, whereby sample estimates are adjusted to independent estimates of the national population by age, race, sex, and Hispanic origin. This weighting partially corrects for bias due to undercoverage, but biases may still be present when people who are missed by the survey differ from those interviewed in ways other than age, race, sex, and Hispanic origin. How this weighting procedure affects other variables in the survey is not precisely known. All of these considerations affect comparisons across different surveys or data sources.

For further information on statistical standards and the computation and use of standard errors, go to <www.census.gov/apsd/techdoc/cps/cpsmar10.pdf> or contact the Census Bureau's Demographic Statistical Methods Division via e-mail at <dsmd.source.and.accuracy@census.gov>.

Data from the Decennial Census are based on the sample of households who responded to the long form. In 2000, approximately 1 out of every 6 housing units nationally were included in this sample.[20] As a result, the sample estimates may differ somewhat from 100-percent figures that would have been obtained if all housing units, people within those housing units, and people living in group quarters had been enumerated using the same questionnaires, instructions, enumerators, and so forth. The sample estimates also differ from the values that would have been obtained from different samples of housing units, people within those housing units, and people living in group quarters. The deviation of a sample estimate from the average of all possible samples is called sampling error.

In addition to the variability that arises from the sampling procedures, both sample data and 100-percent data are subject to nonsampling error. Nonsampling error may be introduced during any of the various complex operations used to collect and process census data. Such errors include: not enumerating every household or every person in the population, failing to obtain all required information from the respondents, obtaining

[20] The rates for previous censuses vary.

incorrect or inconsistent information, and recording information incorrectly. In addition, errors can occur during the field review of the enumerator's work, during clerical handling of the census questionnaires, or during the electronic processing of the questionnaires.

Nonsampling error may affect the data in two ways: (1) errors that are introduced randomly will increase the variability of the data and, therefore should be reflected in the standard errors; and (2) errors that tend to be consistent in one direction will bias both sample and 100-percent data in that direction. For example, if respondents consistently tend to underreport their incomes, then the resulting estimates of households or families by income category will tend to be understated for the higher income categories and overstated for the lower income categories. Such biases are not reflect in the standard errors.

FOR MORE INFORMATION

Detailed geographical mobility/migration tables from the 2010 ASEC are available on the Census Bureau's Web site <www.census.gov>. Once on the site, click "Subjects A to Z," select "M," then select "Migration/Geographical Mobility." From the "Geographical Mobility/Migration" page, use the quick links for "CPS Data on Geographical Mobility/Migration." Under the "Geographical Mobility: 2005 to 2010, 5-year" subheading select "Detailed Tables."

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For additional information, contact the U.S. Census Bureau Customer Services Center at 1-800-923-8282 (toll free) or visit <ask.census.gov>.

SUGGESTED CITATION

Ihrke, David K., and Carol S. Faber. 2012. *Geographical Mobility: 2005 to 2010.* Current Population Reports, P20-567. U.S. Census Bureau, Washington, DC.

APPENDIX

Comparison Guidance: Five-Year Migration and One-Year Migration

The 5-year mobility question asks respondents 5 years old and over where they lived 5 years ago. The 1-year question asks respondents 1 year old and over where they lived 1 year ago. Changing the time interval (i.e., reference period) causes 1- and 5-year estimates to become too different and therefore not comparable. One year questions are better suited to capture people who move repeatedly, while 5-year questions offer a better overall picture of long-term changes among the population as a whole. For example, a respondent moves once a year between 2005 and 2010. This person is selected to participate in the 2010 CPS and answers that they lived in a different residence 5 years ago. They are counted as a mover once using a 5-year question. If the same person participated in the 2006 through 2010 CPS using 1-year questions, they would be categorized as a mover 5 times, once for each year. To reiterate, the same person could be theoretically counted as a mover five times using multiple 1-year questions but only once using a 5-year question covering the same period. Figure 1 provides a visual representation of 1- and 5-year mover rates. A common misconception is that multiplying a 1-year estimate by five equals a 5-year estimate. Using 2010 ASEC data as an example, the 1-year mover rate is 12.5 percent. Multiplying the 1-year estimate by five results in 62.5 percent (12.5*5=62.5). The actual 5-year mover rate for 2010 is 35.4 percent. Multiplying the 1-year estimate by five incorrectly assumes that the same percentage of people move within any given year and that the estimates are independent, which is often not the case. Taking the opposite approach of dividing the 5-year estimate by five yields 7.08 percent (35.4/5=7.08). This estimate falls well below any of the 1-year estimates between 2005 and 2010 again, because more people move multiple times in the 5-year period. Because of these differences, 1-year data should be compared only with other annual data.

Looking at Figure 1, both sets of CPS mover rates, 1-year and 5-year, show a decrease when comparing results from 2005 and 2010. This decrease in the mover rate appears to be more dramatic for the 5-year estimates due to limited data points on the graph. One-year estimates are available on a more frequent basis (annually), smoothing out the line.

EXHIBIT 660

EXHIBIT 660

EXPERT REPORT OF JOHN T. TAYLOR

Prepared in the matter of:

UNITED STATES OF AMERICA and the STATES OF CALIFORNIA, ILLINOIS, NORTH CAROLINA, and OHIO v. DISH NETWORK L.L.C.,

Case No.: 3:09-cv-03073 (SEM) (BGC)

Pending in the United States District Court for the Central District of Illinois, Springfield Division

October 14, 2013

Executive Summary

This report examines materials related to records of telemarketing calls purportedly made by Dish Network, L.L.C.("DISH"), and certain third-party entities ("Retailers") alleged to have made telemarketing calls on behalf of DISH.

PossibleNOW, Inc. is engaged by Kelley Drye & Warren LLP ("Kelley Drye") on behalf of DISH to conduct this analysis. I am an employee of PossibleNOW, Inc. PossibleNOW is paid for the work performed based on the various hourly rates of the individuals and systems necessary to complete the work, with hourly fees ranging from approximately $100 to $250 per hour. PossibleNOW also bills for reimbursement of travel and other direct expenses. PossibleNOW's fees are not contingent on the outcome of this litigation.

In my previous Expert Report, prepared in July 2012, my analysis was narrowly focused on the conclusions presented by the government in December 2011. At the time, Plaintiffs' conclusions did not include any analysis of the Retailer files for either entity-specific or National Do Not Call Registry ("NDCNR") raw hits. In this report, I disregard the government's analysis of and conclusions produced in December 2011, and begin conduct an empirical analysis of the entire set of records presented. This analysis consists of (435MM Dish/Ecreek 2007-2010)(25MM Retailer records). The government made some references to analysis of calling data from the 2003-2007 period. PossibleNOW does not currently possess a complete set of this data as we only analyzed certain designated months during the period and then designated quarters. Therefore, our ability to provide empirical results on this data set is limited to what the government provided.

This is purely an analysis of the data identified in this report as to number, type, and characterization of records against criteria defined in the analysis. The term "raw hit" or "potential issue" indicates that the telephone number in the record analyzed was on the identified do not call list longer than 31 days (30 days on entity-specific) at the date and time (not available on all records) of the reported dial. This does not indicate the identification of violation of any list as it is beyond my purview to make such a determination.

Parts of this analysis are hampered by the fact that the government failed to provide requested assumptions and resulting productions that support their analysis. Without access to this information, analysis of the 2003-2007 data and the Retailer data was in some cases impossible to conduct.

Some data presented for analysis in this case was not suitable for analysis. If the "raw data" (original data provided to Plaintiffs) required modification based on an assumption to identify the telephone and date and time of call, we did not analyze that file, as the assumption on which the modification was based was faulty in the beginning. I will identify these files at the appropriate time in response to Plaintiffs' expert reports.

Background and Qualifications:

I am currently the Director, Project Management & Quality Assurance with PossibleNOW, Inc. in Duluth, Georgia. I have worked on direct marketing compliance projects for the past 10 years with PossibleNOW. Prior to entering the private business sector, I served 27+ years in the United States Army with my culminating assignment being Regimental Command Sergeant Major, 2d Cavalry Regiment. Prior to that assignment, I served as the Garrison Command Sergeant Major of Fort Stewart and Hunter Army Air Field, Georgia. This position is analogous to that of a Deputy City Manager of a city of 40,000 people. I participated in developing strategic plans, activities-based costing analysis, and planning and executing funding for military construction projects in excess of five million dollars each. One of my primary duties was to interface with local, state and federal legislators and their staffs. These functions required the production and synthesis of massive amounts of data to support conclusions and gain approval of large projects. I obtained a Bachelors of Science in Liberal Arts from Excelsior College (previously Regents College of New York) in Albany, New York in 2000. I graduated with honors (*summa cum laude*) with a 4.0 GPA. I attended college in many places around the world, including the University of Maryland in Europe, Harrisburg Area Community College, and Pike's Peak Community College. I have minors in Business Administration and History. All of my college work was classroom or testing based. A true and correct copy of my current CV is appended hereto as Attachment A. I have not authored any publications in the last 10 years, nor testified in any other cases since the issuance of my last report, other than this case.

My current duties require daily work with direct marketing compliance and large scale data analysis. I validate the NDNCR on a weekly basis. This is accomplished by comparing a "global" list against the aggregate list of incremental downloads that comprise our comprehensive record of the NDNCR. On a monthly basis, my Quality Assurance group evaluates the data hygiene process on NDNCR. These exercises keep me intimately familiar with the growth and trends of the NDNCR.

As a Project Manager, I have written specifications and managed projects based on direct marketing contact compliance in do not call, do not email, do not fax and do not mail. My primary focus is in the do not call area. I wrote the functional specifications for our initial EBR product in 2005 and the update to that program in 2008. Between 2005 and 2007, I participated in the design and specification of DNCAudit. This application evaluates the status of a call to a telephone number on any given date against all possible do not call suppression lists. Its output provides the "flag" and date for any call that may be an issue. Companies using this application dramatically reduce their issue calls as the issues in their calling practices are identified.

In my role as a data examiner, I have worked on 9 large cases and dozens of smaller analysis projects since December 2004. This work has given me insight into telemarketing data, patterns and practices. In this capacity I have analyzed billions of rows of telemarketing data.

I currently hold professional certifications as a Project Management Professional (PMP) and Project Management Institute – Agile Certified Practitioner (PMI-ACP). Both of these certifications are predicated on methodologies of identifying the scope of a project, developing the plan, executing the plan, evaluating

and publishing the results. These skills coupled with my knowledge of compliance data complement my ability to execute large scale data analysis projects.

The data analyzed in this report consists of the following:

DISH Network and E-Creek dialing data from September 2007—March 2010.
Defender Direct Dialing Data
Five9's Dialing Data
Dish TV Now Dialing Data
JSR Enterprises Dialing Data
E-Management Dialing Data
Campaign Non-Telemarketing Status Spreadsheet.xls
Copy of Preliminary List of campaign keywords or codes - Revised (2).xls
Existing Customer Telemarketing Campaigns.xls
10162012 E. Yoeli Expert Rebuttal Report
20120727 Yoeli Report
INTERNAL_DNC_TELEMARKET_LIST
BP_DNC_TELEMARKET_LIST
RETAILER_DNC_TELEMARKET_LIST
National Do Not Call Registry
Plaintiff's Supplemental Responses to Dish's Third Set of Interrogatories
DISH NETWORK'S SURREPLY IN OPPOSITION TO PLAINTIFFS' CROSS-MOTION TO ENFORCE OPINION 279 AND FOR DISCOVERY SANCTIONS (Declaration by Mr. Montano)
Third Party Vendor List – Calls
Intrastate Calling Worksheet
LEADS OTM HISTORY
Need Campaign Dates
AM Campaigns.pdf
Memorandum: Re: United States et al. v. DISH Network, LLC -- Analysis of DISH's 2007-2010 Call Records December 23, 2011 w/attachments and enclosures

A file titled CDR 00000024, purportedly containing dialing records from an entity called Guardian Communications, was provided. The file was poorly formed, there were multiple rows of missing data, and the delimiters used were not those in standard usage. Based on the fact that analysis of this file would take several major assumptions, any analysis of this file would be conjecture and would call for conclusions beyond the analyst's capability with the information provided.

DISH Network and E-Creek Dialing Records September 2007—March 2010

As previously stated, my initial analysis of data contained in this set of calling records was narrowly confined to the data contained in the government's Conclusions 1, 1a and 2. These conclusions are subsets of this data set. The data I analyzed during this analysis began with the original set of data received in July – August 2010. The data was delivered via FedEx containing 5 disks titled US et al v. DISH Network, LLC, 09 cv 3073 marked Disk 1 of 5 through 5 of 5, and a second delivery of 2 disks titled Supplemental Response of DISH Network To Plaintiff's First Request For Production of Documents E-Creek data Dish—00000001 and 00000002. Both sets of data were sent to me by Kelley Drye.

Disks 1 through 5 contained the following files for a total of 371,161,704 records:

7-Oct	18,688,803
8-Oct	10,932,653
9-Oct	10,703,196
7-Nov	16,776,439
8-Nov	8,551,909
9-Nov	10,211,539
8-Jan	20,361,167
9-Jan	8,452,630
10-Jan	7,624,659
7-Dec	17,672,436
8-Dec	10,239,431
9-Dec	9,998,460
8-Feb	19,885,158
9-Feb	5,755,552
10-Feb	7,043,874
8-Mar	20,676,861
9-Mar	6,866,270
10-Mar	3,425,876
8-Apr	21,566,454
9-Apr	8,116,114
8-May	20,177,101
9-May	8,689,356
8-Jun	15,724,734
9-Jun	9,508,213
8-Jul	12,309,767
9-Jul	8,411,949
8-Aug	10,689,258
9-Aug	8,870,153
7-Sep	13,924,022
8-Sep	10,518,890
9-Sep	8,788,780

After removing duplicates (295,437) and bad records (any record not containing a valid telephone number/calling date pair) (19,391,601), there are 351,474,661 DISH call records for analysis.

Disk 1 & 2 of Supplemental Response of DISH Network To Plaintiff's First Request For Production of Documents E-Creek data

pdialer_legal1_20100622	9,840,184
pdialer_legal2_20100622	12,838,669
pdialer_legal3_20100622	11,266,436

PX0016-004

pdialer_legal4_20100622	1,155,450
pdialer_legal5_20100622	3,586,753
pdialer_legal6_20100622	14,942,818
pdialer_legal7_20100623	31,523,547

After removing duplicates (27,787,722) and bad records (any record not containing a valid telephone number/calling date pair) (191), there are 57,356,944 E-Creek calling records for analysis.

The total number of valid DISH Network and E-Creek September 2007-March 2010 calling records for analysis is 408,831,605.

At this point in the analysis we analyzed the set of 408,831,605 calling records to remove non-telemarketing records from the set. For this analysis we relied on 2 source documents.

Campaign Non-Telemarketing Status Spreadsheet.xls

This spreadsheet was initially provided to the government in .xls format with 3 workbook tabs—Telemarketing, Tentative, and Unknown.
During our analysis reported in July 2012, we worked with DISH to resolve the Tentative and Unknown tabs. We accomplished these revisions and added a fourth tab—Non-Telemarketing, and this product was provided to the government in production with our Expert Report in July 2012.

Copy of Preliminary List of campaign keywords or codes - Revised (2).xls

This spreadsheet appears to be the initial attempt by the government to identify DISH's campaign naming convention. DISH made comments on the spreadsheet and returned it to the government. Many campaigns not identified in the Campaign Non-Telemarketing Spreadsheet.xls are identified by DISH as non-telemarketing campaigns. We used this source to identify AM, AF, DNS, selected EC, selected EP and ONQ calls as non-telemarketing. We used these findings to augment our identification of non-telemarketing calls.

Pattern	Example	Telemarketing? (Y/N)
AF NPOPEN# <LANG>	AF NPOPEN74 (ESP)	No
AF VOL (CHARGE-OFF)	AF VOL (CHARGE-OFF)	No
AM #<LANG>	AM 110107HINDI	No
AM <OFFER>	AM TBS HD	No
AM 37 EXISTING ENG	AM 37 EXISTING ENG	No
AM ADHOC #	AM ADHOC 1218	No
AM ADHOC AUTOPAY	AM ADHOC AUTOPAY	No
AM BOXES	AM BOXES	No
AM CC REFUNDS	AM CC REFUNDS	No
AM CCA	AM CCA	No
AM CCA <DATE>	AM CCA MAY 9TH	No
AM D# CRDSWP <LANG>	AM D2 CRDSWP ESP	No
AM INITIAL DV	AM INITIAL DV	No
AM INITIAL NP	AM INITIAL NP	No

AM PDR# <DATE>	AM PDR 37 (12/11)	No
AM PDR# <LANG>	AM PDR64 (ESP)	No
AM RA	AM RA	No
AM UPS BOXES	AM UPS BOXES	No
AM UPS BOXES #	AM UPS BOXES 25	No
AM_ADHOC_INT_SCRUB	AM_ADHOC_INT_SCRUB	No
AM_NP_ENGLISH_CHURN	AM_NP_ENGLISH_CHURN	No
DNS CALLS	DNS CALLS	No
EC SURVEY #	EC SURVEY 0325	No
EP DNS NLOS	EP DNS NLOS	No
EP MIG INT	EP MIG INT	No
EP MPEG 2 TO 4	EP MPEG 2 TO 4	No
EP NPOPEN# <LANG>	EP NPOPEN45 (DHA)	No
EP SIGNAL PAR	EP SIGNAL PAR	No
ONQ DNS MOVERS	ONQ DNS MOVERS	No
ONQ DNS NCRC	ONQ DNS NCRC	No
ONQ DNS TCSC	ONQ DNS TCSC	No
ONQ ENG OWNED/OP	ONQ ENG OWNED/OP	No
ONQ OWNED/OP SRV	ONQ OWNED/OP SRV	No
ONQ PARTNER ENG	ONQ PARTNER ENG	No
ONQ PIA AUTO ENG	ONQ PIA AUTO ENG	No
ONQ PIA DHA TOO ENG	ONQ PIA DHA TOO ENG	No
ONQ POST CALL <LANG>	ONQ POST CALL SPA	No
ONQ UNRES NP TST	ONQ UNRES NP TST	No
OR MPEG 2 TO 4	OR MPEG 2 TO 4	No
PRECALL LISTS	PRECALL LISTS	No

After all records matching the non-telemarketing campaigns were removed, we analyzed the remaining records against the National Historical Research Database and found 52,190,030 that were on the NDNCR for more than 31 days on the date of dial. We then removed 1,317,872 records from 61 AM campaigns identified by the government's expert witness for more detailed analysis. This left 50,872,178 that were on the NDNCR greater than 31 days.

From these records, we processed the data against Established Business Relationship ("EBR") data - -Activation Date, Last Payment Date provided by DISH. We treated both the Activation Date and the Last Payment Date as Transactions. Therefore, any call that occurred during the period of 558 days (18 months) after either date was considered to have a Transactional EBR for that call. During our analysis we found that DISH had a valid Transactional EBR for 32,228,483 of the remaining call records, reducing the set of potential issue calls to 18,643,695.

Once again using the campaign names [campaign] in the file, DISH was able to identify calls that were inquiry only calling campaigns. Each of the campaigns was identified with the letters LTS (Lead Tracking System) in the campaign name. Through the calling period the method of dating the campaign changed, but the LTS identifier did not. DISH was able to supply the dates of each of the campaigns from their records and we evaluated the calling records against those dates using 92 days (inquiry period -1 day) for processing the inquiry into the dated calling campaign). Through this process we were able to identify 943,240 valid inquiry EBR calls based on campaign name, date and

EBR period analysis. The longest period between inquiry date and last call was 16 days. This reduced the set of potential issue calls to 17,700,455.

From the remaining set, we evaluated the calling records for [final_result_code]. We identified these [final_result_code] dispositions that indicated dialer error or failure to cause the telephone to ring:

**	**System CODE-Invalid**
DBU	**Busy**
DC	**Invalid Number**
DND	**No Dial Tone**
DNR	**No Ring Back**
DRO	**Reorder**
DST	**Special Information Tone (SIT)**
SD	**General Error**

We eliminated 532,261 records with the [final_result_code] listed above as dialer error or failure to cause the telephone to ring. This leaves a remaining set of 17,168,194 potential issue calls.

From the remaining set, we evaluated the calling records for [final_result_code]. We identified these [final_result_code] dispositions that indicated non-telemarketing activity.

BS	**Business Reached**
ML	**Payment Mailed**
PD	**Payment Posted**
PN	**No Payment**

We identified 41,417 records with these dispositions and removed records with those dispositions from the set of potential issue calls. This leaves a remaining set of 17,126,777 potential issue calls.

We completed our disposition analysis by identifying records that had a [final_result_code] indicating no communication made:

NE	**No English**
WN	**Wrong Number**

We identified 76,740 records with these dispositions and removed records with those dispositions form the set of potential issue calls, at the request of counsel. This leaves a remaining set of 17,050,037 potential issue calls.

After identifying and removing all Transactional EBR records, we proceeded to evaluate campaigns that were only dialed to current customers or former customers within 558 days after their last transaction with DISH. Our source document for this analysis is Existing Customer Telemarketing Campaigns.xls. This spreadsheet identifies 1189 campaigns dialed only to current customers or former customers within 558 days of their last transaction with. We identified 13,792,511 records with these [campaign] names and removed records with those [campaign] names from the set of potential issue calls. This leaves a remaining set of 3,257,526 potential issue calls.

Quality Assurance testing found 2,755,876 non-telemarketing campaigns that remained in the final set. These campaigns were not excluded from the set at the beginning of the analysis. These

records were removed leaving a set of 501,650 potential issue calls that were on the NDNCR longer than 31 days at the time of call, or greater than 60 days on the North Carolina state breakout.

NDNCR Raw Hits 2007-2010	OH	NC	IL	CA	Total
	23,853	1375	24,096	53,617	501,650

57,897 of the potential issue calls occurred after 2/9/2009

Entity-Specific Do Not Call List Analysis

DISH's purported entity-specific do not call list is comprised of DISH's own internal do not call list, as well as lists maintained by its retailers.[1] This list consists of INTERNAL_DNC_TELEMARKET_LIST (DISH), BP_DNC_TELEMARKET_LIST, and RETAILER_DNC_TELEMARKET_LIST. The total record count on these lists is 17,762,348. After combining the lists into a single list of distinct records, eliminating bad records (no telephone number or date of add), and removing expired numbers, the record count was 16,445,946. This is a difference of 1,316,402 records. During the analysis, when we break the potential issue calls on the entity-specific do not call list into their separate categories, we use the original lists, and duplicates will exist in the table. When the lists are combined, they are deduplicated. When broken out, many numbers exist on more than one list.

For the 2007-2010 analysis we used the same data set described in DISH Network and E-Creek Dialing Records September 2007-March 2010 above. We removed the duplicates, bad records and non-telemarketing campaigns as described in the same. We found 10,559,040 potential issue calls on the combined entity-specific do not call list.

Once again using the campaign names [campaign] in the file , we were able to identify calls that were inquiry only calling campaigns. Each of the campaigns was identified with the letters LTS (Lead Tracking System) in the campaign name. Through the calling period, the method of dating the campaign changed, but the LTS identifier did not. DISH was able to supply the dates of each of the campaigns from their records and we evaluated the calling records against those dates using 92 days (inquiry period -1 day) for processing the inquiry into the dated calling campaign. Through this process we were able to identify 167,112 valid inquiry EBR calls based on campaign name, date and EBR period analysis. The longest period between inquiry date and last call was 16 days. This left a remaining set of 10,391,928 potential issue calls on the combined entity-specific do not call list.

From the remaining set, we evaluated the calling records for [final_result_code]. We identified these [final_result_code] dispositions that indicated dialer error or failure to cause the telephone to ring:

[1] The government does not appear to distinguish between the two sources of the list in its analysis.

**	System CODE-Invalid
DBU	Busy
DC	Invalid Number
DND	No Dial Tone
DNR	No Ring Back
DRO	Reorder
DST	Special Information Tone (SIT)
SD	General Error

We eliminated 1,565,305 records with the [final_result_code] listed above as dialer error or failure to cause the telephone to ring. This leaves a remaining set of 8,826,623 potential issue calls on the combined entity-specific do not call list.

From the remaining set, we evaluated the calling records for [final_result_code]. We identified these [final_result_code] dispositions that indicated non-telemarketing activity.

BS	Business Reached
ML	Payment Mailed
PD	Payment Posted
PN	No Payment

We identified 47,171 records with these dispositions and removed records with those dispositions from the set of potential issue calls. This leaves a remaining set of 8,779,452 potential issue calls on the combined entity-specific do not call list.

We completed our disposition analysis by identifying records that had a [final_result_code] indicating no communication made:

NE	No English
WN	Wrong Number

We identified 100,177 records with these dispositions and removed records with those dispositions from the set of potential issue calls, at request of counsel. This leaves a remaining set of 8,679,275 potential issue calls on the combined entity-specific do not call list.

Using dialing location indicated by code in the campaign name [campaign] and the list of area codes [phone_number] assigned to the state of the dialing location we were able to identify and eliminate 174,474 intrastate calls from the potential issue file. Our source of area code association to states is in accordance with the area codes as listed on the NDNCR.

We identified and eliminated 8,411,363 records with numbers appearing on the retailer-uploaded portion of the combined entity-specific do not call lists. This leaves a remaining set of 1,007,395 potential issue calls on the entity-specific do not call list.

Entity-specific Raw Hits 2007-2010		Internal	BP
	1,007,395	1,005,282	2,113

DISH Network Dialing Records 2003-2007

This data set is problematic. While the data sources 2003-2007 and 2007-2010 data sets are similar, they are not the same. These calling records do not include campaign names. No EBR analysis has been done on the complete set of records. These calling records may include inbound calling activity. Lastly, the government has once again failed to describe its methodology and provide the details of its analysis similar to what was finally in December 2012 produced on the 2007-2010 data set.

Accurate analysis is impossible without such information and data descriptions. While we have had some interaction with this data set, we do not have a complete set of the 2003-2007 calling records mounted on any form of media.

AM Campaigns

In the government's expert witness testimony, 61 AM (first 2 characters of [campaign] field) are identified as auto messaging campaigns. Upon review of the 61 scripts, I was asked to treat 16 of these auto messaging campaigns as telemarketing campaigns, 7 as undetermined, and 38 as non-telemarketing campaigns. These records were in DISH's 2007-2010 Dialing Records. They were not in the government's "masterdata1216" file which is described by the government's expert witness as the repository of all telemarketing activity found in the 2007-2010 dialing records. All of these records were initially removed from the 2007-2010 dialing records as non-telemarketing campaigns.

Campaign	Count
AM 090507GREEK	11951
AM 090607CHIN	2492
AM 090607FILI	925
AM 090607KORE	841
AM 091107ARAB	5942
AM 091107GREEK	2830
AM 091207CHIN	4152
AM 091407FRENCH	22161
AM 091407GERMAN	1543
AM 100407INDUSM	39181
AM 100407INDUSV	33311
AM 100807INDUS	5299
AM GERMAN KINO FREE	16637
AM ISRAELI FP(01/31)	4819
AM PENNY MAX	50486
AM 100507ZEE	202575

Of the 471,992 records identified in telemarketing campaigns, 194,646 were removed for the disposition DST (Special Information Tone) – dailer error or uncompleted call.

Retailer Data Analysis

In my previous reports, I was not asked to address Retailer calling data analysis. A large part of the data provided for analysis does not meet the criteria for compliance level analysis. As an employee of a compliance company, one of our policies is never change the customer's data to fit the analysis. Each change to the customer's data, whether it be a date, a telephone number, etc., requires an assumption. If that assumption is incorrect, the analysis is invalid. There are several Retailer files that we are unable to evaluate based on data formats, inserted data, and fallacious assumptions.

Guardian

This data came to our attention in the government's expert witness report and is a centerpiece of their retailer analysis. The data is contained in CDR 000000024. Our database analysts were not able to successfully upload this file into a database management system (DBMS). We currently use Microsoft SQL Server 2012 as our DBMS. This is a commonly used database. Due to changing file format within the file, changing and non-standard delimiter usage we have been unable to upload this file for analysis without making wholesale changes to the files. Even after attempting these changes, which violate our general policy of not altering customer data, we were unable to load this file in a format that we can query. This renders analysis of this file useless. In portions of the file that I have reviewed for data integrity, I have noted that Tenaya is listed on every other line, therefore, the query for the call disposition "C" (shown in Yoeli's Table 8B) may also be the disposition for calls other than Tenaya and not attributable to DISH. In summary, it is impossible to evaluate the accuracy of the government's expert witness' opinion on WOW-TV or Tenaya in Table 8a and 8b of his 10/16/2012 report. Finally, this document is not addressed in the Plaintiff's Supplemental Responses to DISH's Third Set of Interrogatories. While the Bates numbers are listed in the text, the spreadsheet provided does not list these source files and they are not in my possession by those descriptions for analysis.

Defender

In the government's production on Defender, the analyst catalogs the data used in the analysis. To do analysis against any DNC list, the analyst must have a telephone number and a call date/time. It is clear that the analyst obtained the telephone number from the [phonenumber] field. The analyst does not identify the field from which the date is obtained. The date is actually the last 6 digits of the [callidkey]. Analysis could not be done on this information because in most Defender source files (1 file per calling month) at some point in the file, the [callidkey] switches from an integer to scientific notation indicating that the file changes formats midway through the file. An example is Defender 00389→DOJ Final→Section5NotesApr2010 the last date with a [callidkey] expressed as an integer is 10/04/24. Yet, the analyst found REG HITS on calls purportedly made on 10/04/30. These irregularities render the analysis suspect. The analyst further indicates that there was Junk Data in the file. In data analysis, garbage in equals garbage out.

phonenumber	The telephone number dialed for this attempt.
reason	A code that generically identifies the completion status of the call. Used to provide standardized reporting across multiple campaigns.
finishcode	A user-defined string that indicates the completion status of a call step.
length	Length of the call in seconds.
callidkey	This internal, site-unique key identifies a call in the system.

Dish TV Now

The source files in N170 show that this is inbound calling activity only. I have written a previous declaration to this fact in this case.

New Edge

The source files in N173 show intrastate calling activity within the state of Michigan. No interstate calling occurred.

New Edge

In the source files for N189 there are only 553 potential issue calls of 19,136 purported issue calls that indicate interstate dialing. The remainder of the calls are all intrastate calls. None of the 553 numbers were potential issues on the entity-specific do not call list.

E-Management

N247 shows 543,760 potential issue calls on the NDNCR. The source files consists of a 10-digit telephone number and date. No campaign information, no dispositions. All calling occurred in 2007. Our evaluation against the entity-specific do not call list is presented below.

Emanagement	FTC361-000006	NDNCR RAW HITS
Internal	22,234	
BP	371	
Retailer	104,956	
Total	**127,561**	
NDNCR RAW HITS		**35,183**

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JSR Enterprises

The chart below shows our analysis of N207 against the entity-specific do not call list.

JSR	FTC361-000016	NDNCR RAW HITS
Internal	1,115,416	
BP	4,785	
Retailer	810,620	
Total	**1,930,821**	
NDNCR RAW HITS		**225,802**

Five9's

We reviewed FTC361-000015 and found the following issues. We removed records from campaigns designated as Charter, [Deleted] and [None]. We then removed records with dispositions of Busy, Business, Dialer Error, Operator Intercept, Inbound, and System Shutdown. The government's initial file count was 172,709. This was reduced to 62,167 through the exclusions described above. The average duration of a Five9 outbound call was 14 seconds.

Five9	FTC361-000015	NDNCR RAW HITS
Internal	21,252	
BP	65	
Retailer	40,850	
Total	**62,167**	
NDNCR RAW HITS		**30,886**

The facts, conclusions, principles, methods and opinions stated herein are made to a reasonable degree of certainty based upon examination of the available information. The principles and methods I have used are reliable, repeatable and generally accepted. To the extent any portion of this report is based on limited information or where further analysis, opinions, or information are provided, the contents of this report are subject to revision and supplementation. The statements herein are true and correct to the best of my information, knowledge, and belief.

John T Taylor _____ **Date** 10/14/2023

PX0016-013

EXHIBIT 661

EXHIBIT 661

EXPERT REBUTTAL REPORT OF JOHN T TAYLOR

Prepared in the matter of:

UNITED STATES OF AMERICA and the STATES OF CALIFORNIA, ILLINOIS, NORTH CAROLINA, and OHIO v. DISH NETWORK L.L.C.,

Case No.: 3:09-cv-03073 (SEM) (BGC)

Pending in the United States District Court for the Central District of Illinois, Springfield Division

November 6, 2013

Executive Summary

This report examines and rebuts certain assumptions, statements, and data analysis related to records of telemarketing calls purportedly made by DISH Network, L.L.C. ("DISH"), and certain third-party entities ("Retailers") alleged to have made telemarketing calls on behalf of DISH. The items described above are provided in the Supplemental Expert Report of Dr. Erez Yoeli dated October 14, 2013 and his revised Expert Report dated October 21, 2013. This report also addresses data that the government provided on September 16, 2013 and revised on September 18, 2013. These items are identified in paragraph 1.

I understand that the consolidated internal do not call list (the "Consolidated Internal List") is comprised of three different sources: (1) the DISH entity-specific list; (2) the entity-specific list populated by vendor call centers that were uploaded to the Consolidated Internal List; and (3) the entity-specific lists maintained by Retailers that were uploaded to the Consolidated Internal List. In this analysis, we treat each entity-specific list as a separate list to show the actual distribution of the potential issues, calling entity and potential list at issue. Dr. Yoeli fails to draw any distinctions in this regard. His consolidation of the lists obscures the fact that many of the calls that he claims are entity-specific list violations occurred long before a consolidated list existed. In other words, Dr. Yoeli's analysis assumes that a Consolidated Internal List existed at the time that each call was made, and that DISH (or a Retailer) had access and the ability to scrub against all numbers on the Consolidated Internal List before all calls were made. The reality is, however, that the Consolidated Internal List did not begin including uploads from Retailers until April 8, 2008, and even then, there was a "ramp up" time of Retailers uploading numbers.

I have observed a similar issue in analyzing data for other clients that use multiple vendors to dial (as distinguished from Retailers). In other instances where calling is done on behalf of vended telemarketers, when a new vendor is engaged to call on behalf of the seller, the new vendor uploads their list with new DNC list customer request dates. Often, the consumer do not call requests were obtained on a date prior to the date that the numbers become part of a consolidated list. Therefore, analysis after the fact, without the complete history of the evolving list is often skewed, as it identifies potential issues that were not potential issues at the time that calls were made. This analysis highlights the distribution of calls against the three separate lists in an effort to provide clarity to entity-specific do not call potential issues.

A further observation in this analysis is that through the entire period, some Retailers were not technologically sophisticated. This is easily observable in viewing the New Edge entity-specific do not call list. This file is submitted in a transcribed format by the government, when the source document is actually a handwritten list. This is further demonstrated in the quality of the data submitted by the "retailers." These are often telephone bills or dialer records (often proprietary and intentionally difficult to analyze) with no identification of the specific intention of the call, the result of the call, or any indication that the call was a telemarketing call or a call made to sell a DISH product or service. Once again, analysis of these calls without the full history of the evolution of those records is futile.

Even in the data submitted by the government's data analysis contractor, there is a file named N287 Junk Data. This is an import error file that tells the analyst that they are dealing with potentially bad data. Why analyze such data in an analysis to identify adherence to strict compliance rules? The potential for error increases exponentially.

Overall, this report seeks to highlight the period and distribution of potential issue calls and avoid the monolithic tables that consolidate all data and deal with it as if it was all the same.

1. New Data Considered During This Analysis

The following new data is considered and incorporated into this expert report:
Data received from the Department of Justice on 9/16/2013 and 9/18/2013

Retailer JSR
FTC305-000169_JSR
FTC305-000170_JSR
FTC305-000171_JSR
FTC305-000172_JSR
FTC305-000173_JSR
FTC305-000174_JSR
FTC305-000175_JSR

Retailer Five9/NSS
FIVE9-DOJ-000001
FIVE9-DOJ-000132
FIVE9-DOJ-000146

National Satellite Systems
NSS00073 - Cold Calling - Confidential - US v Dish
NSS00075 - Cold Calling - Confidential - Us V Dish

Star Satellite/Tenaya
FTC361-00018 Tenaya Entity-specific

2003-2007 Dish Calling Records
Dish Files containing 581,401,271 calling records

Ftc361-000003 2003-2007 Entity-specific

Updated Entity-specific Do Not Call Lists
INTERNAL_DNC_TELEMARKET_LIST_appended
BP_DNC_TELEMARKET_LIST-appended
RETAILER_DNC_TELEMARKET_LIST-appended
RETAILER_DNC_TELEMARKET-List Dates

2. Assumptions for Rebuttal

a) Tools and Data Output Formats

The use of a product identified as SAS that produces and outputs with a .sas7bdat extension is unreadable in other Database Management Systems (DBMS). Until the introduction of this tool into the analysis by Dr. Yoeli, all files were submitted in and were output in a format common to the data industry. While SAS is common to the predictive data analytics industry—economics, retail, and data mining, it is not common to the telemarketing industry. It is difficult to obtain common output formats from varying telemarketers. This case is a perfect example.

DISH, ECreek, JSR, and Five9 provided call records that are recognizable, in a readable format, and valid for a full range of analysis (*e.g.*, header record, self-explanatory header records, common and consistent data field formats). Many others—Defender, Guardian, DishTVNow, require special knowledge and data field identification prior to producing acceptable telemarketing information for analysis. This is shown in my October 14, 2012 expert report, where I provide the government's data analyst's table identifying the fields in the Defender file for analysis. Anyone not intimately familiar with telemarketing data will struggle with this identification as these tables often have many dates, telephone numbers, and other information that is specific to the telemarketing industry. Therefore, introducing a new data output format at this point in the analysis has a dilatory effect on the entire analysis. The bottom line is the two sides are not seeing the data in the same formats prior to making decisions and assumptions on how to analyze the data.

b) State Area Code Identification

While Dr. Yoeli identifies his source of area code information for the geographic identity of telephone numbers as NANPA, I have used the area codes associated with states as designated on the National Do Not Call Registry ("NDNCR"). There are currently 329 area codes distributed to 57 geographic areas on the NDNCR. This may account for some difference in numbers from geographic area to geographic area. In responding to the FTC/DOJ in this report, I thought it most prudent to use their designations.

c) Characterization of Telemarketing Records

One of Dr. Yoeli's assumptions was to treat all calls in data sets other than DISH 2007-2010 as telemarketing calls. I find this to be a broad and unsupported assumption. It would be inconceivable, after the analysis of the DISH 2007-2010 calling records, to think that an equal percentage of non-telemarketing calls and EBR calls would not exist in the DISH 2003-2007 calling records. Other examples of this are easily seen in the disposition code analysis provided in paragraph 3a of this document; analysis of other data sets-- Five9/NSS dialing for multiple vendors, appearances of mixed campaigns in the limited samples of the Guardian files, and uncertainty as to the client that JSR was dialing for. The production of telephone billing statements, handwritten documents, and data not including the purpose and final disposition are also suspect. All of these examples show that while there are telemarketing records in a given file, all of them cannot be attributed to DISH. Therefore, analysis based on this assumption is overly broad and reaching. This makes the inclusion of all potential issue telemarketing data into a single large table an issue. With each file having differing file formats, assumptions and potential data integrity issues, each must be compared to the standards on its own merits instead of in a homogeneous mass.

d) Dynamic Data Sets

While Dr. Yoeli does not incorporate any data that he finds different between the March 2011 and September 2013 data sets, I do. It was clear from the production provided in response to the subpoena served on PossibleNOW, Inc., reference DISH's entity-specific do not call lists, this data is not static.

In the subpoena, the government was provided with insight into how PossibleNOW maintains entity-specific do not call lists within PossibleNOW's DNCSolution. When a record is uploaded to DNCSolution, it is stamped with 2 dates—ListDt and CustDt. The ListDt indicates the first time that the application identified the upload of that telephone number with that customer. The CustDt is an optional date that can be provided to indicate the date that the DNC request on that number was taken. During the life cycle of a telephone number record on the entity-specific do not call list, two more dates can be applied—RefreshDt and DropDt. The RefreshDt indicates every time the application has seen the number uploaded on subsequent uploads after it was initially seen but prior to a DropDt. The DropDt is the date that the number was removed from the entity-specific list based on list hygiene—expiration, change of ownership, area code update. Through the use of these four dates, we are able to track the history of a telephone number on the entity-specific do not call list.

PossibleNOW incorporated the DISH (then Echostar) entity-specific do not call list under management in December 2007 and created the ability to add Retailer-uploaded lists in April 2008. As with the NDNCR, regular data hygiene is performed on these lists. Numbers expire from the list, numbers are disconnected and reassigned, and some numbers undergo area code reassignment. All of these events cause the removal of telephone numbers from the entity-specific do not call lists. Some of this hygiene removes the number from the list as of the date of the event allowing removal. An example of this is, during list hygiene, a number is identified as a reassigned number on the date of the list hygiene. This number became callable as of the date it was reassigned. If the previous history of the telephone record

indicated that it was still a do not call record this status is updated and the actual date the number became callable is accurately determined. Numbers are also added to the entity-specific do not call lists on a weekly basis. This accounts for the number differences that Dr. Yoeli noted between the 2011 data set and the 2013 data set.

Table 1. Establishment of DISH (then Echostar) entity-specific lists in DNCSolution:

CrDt	ModDt	ClientSinceDT	Name
4/7/2008 12:47	4/7/2008 12:47	4/7/2008 12:47	Echostar Satellite 2
4/7/2008 12:49	4/7/2008 12:49	4/7/2008 12:49	Echostar Satellite 3
12/17/2007 16:04	12/17/2007 16:04	12/17/2007 16:04	Echostar Satellite

In view of Dr. Yoeli's observation and at the request of counsel, I made a comparison of INTERNAL_DNC_TELEMARKET_LIST, BP_DNC_TELEMARKET_LIST, RETAILER_DNC_TELEMARKET_LIST (the static lists provided in March 2011) to the data managed in PossibleNOW's DNCSolution where these lists are identified an EchoStar Satellite, EchoStar Satellite 3, and EchoStar Satellite 2, and the three static lists provided for analysis in 2011. The static lists were last updated in March 2010. DNCSolution maintained the history of every number on these lists for every action taken from the date of their import into the application. For the comparison we neither added nor dropped any numbers from the March 2011 lists. We did update the status of these numbers with the MIN Customer Date (the earliest ever provided by the customer for a record on their entity-specific do not call list) and MAX Drop Date (the latest Expiration Date) recorded in DNCSolution.

Our comparison revealed that while most records did not change and track very closely to the static lists, there was a difference in the MAX Drop Date from the application and the Expiration Date from the March 2011 files. Generally, the difference was a matter of days with the DNCSolution MAX Drop Date being earlier than the Expiration Date in the static files. While a small difference, the MAX Drop date does indicate the date that the number was dropped from the list and was no longer a potential issue.

In some cases, there are major differences in the MAX Drop Date and the Expiration Date in the static files. List hygiene accounts for these differences. Echostar, now DISH, had PossibleNOW perform list hygiene on a regular basis. The changes that account for the largest differences between the MAX Drop Date and the Expiration Date are number expiration based on date of add plus the state and federal rules for expiration, and DNCDirector processing. DNCDirector processes telephone numbers on the entity-specific do not call lists against a compiled third-party data set that shows the disconnect and reassign data associated with a telephone number. When the process clearly identifies the change of ownership of a telephone number, that telephone number is dropped from the entity-specific do not call list. PossibleNOW began offering the first version of DNCDirector in 2005. It is accepted in the industry and a version of the application is used for data hygiene on the NDNCR on a monthly basis.

The overall effect of this comparison is a reduction of entity-specific do not call hits due to the updated MAX Drop Dates. While the effect is not great in the earlier calling periods (2003-2007) it does affect the later calling periods for both DISH and Retailers in the later period (2007-2010+) especially for the later Retailer calling by Five9's/NSS and NSS. The data in the entity-specific charts incorporated into this document reflect the changes in potential entity-specific hits using the updated entity-specific do not call lists.

At request of counsel and to provide a more realistic view of what was available to suppress against in DNCSolution on any given date, we ran analysis based on the ListDt of records in DNCSolution instead of CustDt. This limits the analysis to what was available for suppression in the RETAILER filter based on the date it was available, not based on the historical date that was collected by some other retailer previous to their access to the account. We also checked the date that any retailer gained access to use the RETAILER (EchoStar 2) entity-specific filter. In our constrained analysis no retailer potential issue call is indicated prior to the ListDt on the RETAILER entity-specific do not call list or for a specific retailer prior to their access to the entity-specific list.

The differences in the EBR data between the May 2011 data set and the September 2013 data set are based on the availability of critical information requirements originally provided to PossibleNOW., by DISH. When the government returned the telemarketing campaigns to DISH for EBR data, the [customer_value] was expressed in scientific notation. This would commonly indicate that this 16 digit customer identification number was not imported or exported from the DBMS as an integer. When at request of counsel, PossibleNOW undertook a new analysis of the DISH 2007—2010, we were able to link the records back to the original files and provide the [customer_value] in the telemarketing files we produced for counsel. The addition of this data element allowed DISH to better identify and append additional information about its calling records to include [disconnect_date] and [active] data fields. This data was reviewed, applied and then removed from the analysis, and the original May 2011 data set was used to complete the EBR analysis of the DISH 2007-2010 calling records.

One item noted in the September 2013 data set was the appearance of the date 1/1/1970 in the [disconnect_date] field. This is a default date in MS SQL Server (if a field is designated as a date field and cannot be NULL, if a NULL or blank value occurs, the date 1/1/1970 is applied). This would mean that in many of the [disconnect_date] fields no disconnect ever occurred. A similar situation occurred in the May 2011 data set where many records with an [activation_date] had a [last_payment_date] that was prior to the [activitation_date]. In this case the default date was 1/1/2001 (set by designated date range). This situation occurred in Dr. Yoeli's ebrn file from his December 2012 analysis. It was handled improperly then and it is once again being ignored now.

e) New Edge Satellite Entity-specific Do Not Call Registry

After reviewing FTC003-043733 (New Edge Satellite Do Not Call Registry), it is inconceivable that this document is usable in a telemarketing operation to suppress calls. To do so, a copy of the handwritten document would have to be present at each calling station. Prior to each call, the caller would have to manually reference the handwritten document. In addition, the list lacks a date of acceptance of the do not call request, or any reference to receipt of the request, while dialing on behalf of DISH. Because of this, it is not possible to do an accurate analysis of Expiration, change of ownership of the number, or comparison to date of dial in DISH calling records is impossible without this date. In view of these facts, an accurate analysis of DISH calling records against files named "New Edge Satellite.docx" and "new edge dnc list.txt" referenced in Appendix B, Supplemental Expert Report of Dr. Erez Yoeli, October 14, 2013 is irrelevant. In any other file reviewed in this analysis, the lack of either a telephone number or a valid date resulted in the number being discarded as a "bad record."

3. Calling Record Analysis

a) DISH Calling Records (2003—2007)

During past engagements, we only analyzed selected samples of the Dish Calling Records (2003—2007). We now have a complete set of these records loaded and have conducted analysis against both the NDNCR and the DISH entity-specific do not call list. The calling record set provided from counsel contained 581,401,271 calling records. As set forth above, there is no way to tell which of these records related to telemarketing calls and which related to non-telemarketing calls. As such, we could only count records to rebut Dr. Yoeli's analysis, but there is no way to determine which of the counted records relate to telemarketing calls versus non-telemarketing calls.

Earliest call date is October 17, 2003 and the latest call date is August 31, 2007. We de-duped the set, removed the bad records and analyzed it against the National Do Not Call List Historical Database. This analysis uses a 90 day grace period on the NDNCR prior to 1/1/2005 and a 31 day grace period after 1/1/2005. A 30 day grace period is applied during analysis against the DISH entity-specific do not call list. This analysis is limited due to the lack of EBR analysis or the information to conduct a full EBR analysis. The disposition codes seen in this data set indicate calling of different types observed in later DISH calling records. I was told by DISH that the lower case, single character disposition codes in the {result_code} field indicate records related to inbound calling agent dispositioned calls. Calling records with the following [result code] were deleted from the results for the following reasons:

Dialer Errors

DST	159241
DBU	106169
DIC	46792
DNR	25432
DAC	19613
DFM	16578
DIO	3166
DAD	1156

Agent Dials in Response to Inbound Calls

i	169090
b	26516
s	13400
f	12794
l	9162
r	428
e	320
d	205
q	47
a	3
j	1

Non-Telemarketing Result Codes

BD	871
MA	26
PM	7
PD	16885
PN	5041
BS	2506
LM	2150
SV	1337
ML	1194

Table 2a. Analysis of DISH 2003-2007 Calling Records

2003-2007 NDNCR Analysis	IL	OH	NC	CA	Total
2003	182	29	53	183	3,321
2004	10,931	9,892	6,796	25,481	246,438
2005	17,738	13,725	9,558	35,808	390,088
2006	39,459	32,223	25,169	93,584	903,708
2007	73,310	65,984	59,924	172,930	1,677,047
Total	**141,620**	**121,853**	**101,500**	**327,986**	**3,220,602**

Table 2b. DISH 2003-2007 Calling Records Analysis (DISH entity-specific list combined with vendor partner ("BP") entity specific list requests)

2003-2007 Internal Analysis	IL		OH		NC		CA		Total	
	DISH	BP	DISH	BP	DISH	BP	DISH	BP	DISH	BP
2003	135	6	16	0	139	2	102	0	2,777	150
2004	10,706	364	1,480	1	7,137	252	4,969	30	147,507	4,486
2005	15,022	505	2,045	9	9,733	327	7,330	27	215,788	6,537
2006	35,736	905	14,545	173	21,188	529	49,178	317	656,619	13,298
2007	58,032	730	37,464	343	39,529	529	129,476	602	1,258,708	14,150
	119,631	**2,510**	**55,550**	**526**	**77,726**	**1,639**	**191,055**	**976**	**2,281,399**	**38,621**

0 potential issue calls occurred after 2/9/2009.

Table 2c. DISH 2003-2007 Calling Record Analysis (Retailer Entity Specific List – List Inaccessible)

2003-2007 Analysis (Retailer)	IL	OH	NC	CA	Total
2003	801	9	393	43	8,289
2004	22,420	472	13,336	1,787	283,760
2005	29,330	589	16,965	1,345	355,760
2006	58,813	37,758	55,944	100,639	1,277,642
2007	157,764	152,574	182,008	437,420	4,057,575
Total	**269,128**	**191,402**	**268,646**	**541,234**	**5,983,026**

0 potential issue calls occurred after 2/9/2009.

Table 2d. 2003-2007 Calling Record Analysis (Retailer Entity Specific List—List Accessible)

2003-2007 Analysis (Retailer)	IL	OH	NC	CA	Total
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**

b) DISH Calling Records (2007—2010)

I have adjusted our grace period analysis by state to match that of the government's expert witness. We submit the tables below showing the revised counts. The entity-specific list counts reflect the analysis performed using the updated entity-specific do not call lists.

Table 4b reflects the "hits" to the DISH entity specific list, as combined with the entity specific do not call requests collected by DISH's vendor partners. Table 4c reflects the "unconstrained" hits to the Retailer entity-specific list irrespective of whether the numbers contained on a Retailer list were uploaded and available to DISH for scrubbing purposes on the dates and at the times that the calls were made ("List Inaccessible"). Retailers did not begin uploading their respective entity specific do not call lists to a platform to which DISH had access until April 7, 2008. The upload process by participating Retailers was one that occurred over time and resulted in a gradual increase of numbers on the Retailer entity-specific list. As such, and by way of example, Table 4c reflects matches to the Retailer list during the year 2007 despite the fact that DISH did not have access or the ability to scrub against the Retailer entity specific do not call list. Table 4d reflects the "hits" to the DISH Retailer entity-specific lists, taking into account the date on which each number on the Retailer entity specific list was uploaded and became available to DISH for scrubbing purposes ("List Accessible"). In other words, Table 4d reflects the potential issue calls when you scrub against the Retailer entity specific list as it would have existed on the dates that the calls were made.

Table 3a. 2007-2010 Calling Records NDNCR Analysis

2007-2010 NDNCR Raw Hits	CA (90 day)	IL	NC (60 day)	OH	Total
2007	10,443	3,376	2,892	3,207	75,061
2008	19,296	14,572	6,103	16,053	295,839
2009	10,785	5,382	3,594	4,340	118,038
2010	1,495	766	367	253	12,712
Total	**42,019**	**24,096**	**12,956**	**23,853**	**501,650**

Table 3b. 2007-2010 Calling Records Analysis (DISH entity-specific list combined with vendor partner ("BP") entity specific list requests)

2007-2010 Entity-specific DISH	IL		OH		NC		CA		Total	
	DISH	BP	DISH	BP	DISH	BP	DISH	BP	DISH	BP
2007	15,595	39	12,252	24	12,378	7	44,492	55	349,622	642
2008	21,907	59	23,725	10	20,916	11	64,471	40	533,381	690
2009	1,018	0	564	2	527	0	4,230	2	18,724	14
2010	5	0	21	0	21	0	32	0	173	0
	38,525	**98**	**36,562**	**36**	**33,842**	**18**	**109,225**	**97**	**901,900**	**1,346**

18,006 potential issue calls occurred after 2/9/2009

Table 3c. 2007-2010 Calling Record Analysis (Retailer Entity Specific List – List Inaccessible)

2007-2010 Entity-specific Retailer	IL	OH	NC	CA	Total
2007	112,186	92,985	115,224	297,775	2,644,025
2008	160,372	170,041	184,308	574,454	4,269,053
2009	20,457	16,931	17,436	58,178	406,584
2010	65	73	58,178	188	1,501
Total	**293,080**	**280,030**	**375,146**	**930,595**	**7,321,163**

405,381 potential issue calls occurred after 2/9/2009.

Table 3d. **2007-2010 Calling Record Analysis (Retailer Entity Specific List—List Accessible)**

2007-2010 Entity-specific Retailer (Constrained)	IL	OH	NC	CA	Total
2007	0	0	0	0	0
2008	67,066	85,950	74,430	261,635	1,790,453
2009	20,748	17,301	17,877	58,837	419,198
2010	65	79	63	190	1,591
Total	**87,879**	**103,330**	**92,370**	**320,662**	**2,211,242**

c) Auto Messaging Campaigns (DISH 2007—2010)

In analyzing the 61 AM campaigns identified in Dr. Yoeli's Rebuttal Report of, using a conservative approach, I was asked to provide counts of calls for 16 of those campaigns (see Taylor Expert Report

10142013). In Dr. Yoeli's expert report of October 14, 2013, he identifies 15 of these previous 61 campaigns as telemarketing campaigns. We have adjusted our analysis to provide counts for the 15 campaigns identified by Dr. Yoeli. Our findings related to entity-specific potential issues vary from those of Dr. Yoeli based on the use of updated entity-specific do not call lists after list hygiene.

Table 4a. DISH 2007-2010 AM Campaign Entity-Specific Analysis (DISH entity-specific list combined with vendor partner ("BP") entity specific list requests)

AM Entity-specific DISH	IL		OH		NC		CA		Total	
	DISH	BP	DISH	BP	DISH	BP	DISH	BP	DISH	BP
2007	5,009	27	912	7	944	5	13,548	108	60,602	483
2008	912	2	136	0	459	0	1,271	6	7,450	25
Total	**5,921**	**29**	**1,048**	**7**	**1,403**	**5**	**14,819**	**114**	**68,052**	**508**

0 of these potential issue calls occurred after 2/9/2009.

Table 4b. Dish 2007-2010 AM Campaign (Retailer Entity Specific List – List Inaccessible)

AM Entity-specific Retailer	IL	OH	NC	CA	Total
2007	7,231	2,026	1,611	24,889	106,357
2008	1,015	559	1,964	6,701	38,642
Total	**8,246**	**2,585**	**3,575**	**31,590**	**144,999**

0 of these potential issue calls occurred after 2/9/2009.

Table 4c. DISH 2007-2010 AM Campaign (Retailer Entity Specific List—List Accessible)

AM Analysis (Retailer)	IL	OH	NC	CA	Total
2007	0	0	0	0	0
2008	525	289	1699	4800	26169
Total	**525**	**289**	**1699**	**4800**	**26169**

3. Retailers

a) Guardian (CDR2000000024)

This file is represented as the Guardian file in Dr. Yoeli's rebuttal report dated October 16, 2012, Table 8b. Below is a sample of the data from this file. While it looks rather innocuous to someone unfamiliar with databases, this file if fraught with violations of basic data structure. The delimiters that separate data into fields switch from line to line. A DBMS does not accept such variations. If this file were

uploaded into a database, the integrity of the file would be suspect. Another issue that I cannot show in a document is the effect of a NULL terminated record. To a machine, this means that the row does not end and the database has no way of knowing when to look for the next record. If I paste that sample into this document, the data rows are separated by pages, not by lines. I once again note that the attribution of all of the data in this file to Tenaya is problematic based on the campaign name in the first field. Thus, there is no way to accurately analyze this data.

'Ueoeya_Pioenix_490_film'-'3010101034',' !'-'5816515814','1',3015-09-30-21:10;05.311,1,1,'R',-'M07'-'581651',30
'Teneya_Qhoeoiy_581_giml','2101010125'-'! ','4909211559'-'7'-2105-18-31,30;01:14/350-0-0-'S'-,'L17','490921'-21
'Ueoeya_Pioenix_490_film'-'3010101034',' !'-'5818347173','1',3015-09-30-21:10;07.523,1,1,'R',-'M07'-'581834',30
'Teneya_Qhoeoiy_581_giml','2101010125'-'! ','4909694591'-'7'-2105-18-31,30;01:17/335-0-0-'S'-,'L17','490969'-21
'Ueoeya_Pioenix_490_film'-'3010101034',' !'-'5819767110','1',3015-09-30-21:10;09.197,1,1,'R',-'M07'-'581976',30
'Teneya_Qhoeoiy_581_giml','2101010125'-'! ','4907412953'-'1'-2105-18-31,30;01:10/699-0-0-'S'-,'L17','490741'-21
'Ueoeya_Pioenix_490_film'-'3010101034',' !'-'5816781413','2',3015-09-30-21:10;11.131,1,1,'R',-'M07'-'581678',30
'Tenexa^Phodnhx^480^fhll','2000000024&,& ','4807454581&,&7&,2005,08-20,20:03:06.082,0,0,&R&,,'L06','480745&,20
&Tdndy`_Phnenix_480_fill&,&2000000024',' &,&4806543430','6',2004-08,30,20:02:06.102,0,0,'R',,&L07&,&480654',20
'Tenexa^Phodnhx^480^fhll','2000000024&,& ','4808456406&,&D&,2005,08-20,20:03:06.032,08,0,'R',,&L07&,&480854',20
'Tenexa^Phodnhx^480^fhll','2000000024&,& ','4808454585&,&D&,2005,08-20,20:03:06.052,08,0,'R',,&L07&,&480854',20
'Teneya_Qhoeoiy_581_giml','2101010125'-'! ','4909497317'-'3'-2105-18-31,30;03:19/130-0-0-'S'-,'L17','490949'-21
'Ueoeya_Pioenix_490_film'-'3010101034',' !'-'5816523493','D',3015-09-30-21:13;19.351,12-0-'S'-,'L17','490743'-21

b) Five9/NSS

We removed records from campaigns designated as Charter, [Deleted] and [None]. We then removed records with dispositions of Busy, Business, Dialer Error, Operator Intercept, Inbound, and System Shutdown. The NSS account to access and upload to the DISH RETAILER LIST was established on June 20, 2010.

Table 5a. Five9/NSS NDNCR Analysis Results

Five9/NSS NDNCR Analysis	IL	OH	NC	CA	Total
2010	15,221	20,005	11,515	33,937	337,312
2011	2,136	2,873	1,573	3,751	44,499
Total	**17,357**	**22,878**	**13,088**	**37,688**	**381,811**

381,881 potential issue calls occurred after 2/09/2009

Table 5b. Five9/NSS Entity-specific Analysis (DISH entity-specific list combined with vendor partner ("BP") entity specific list requests)

Five9 Entity-specific DISH	IL		OH		NC		CA		Total	
	DISH	BP	DISH	BP	DISH	BP	DISH	BP	DISH	BP
2010	944	4	1,381	0	981	2	1046	0	21,974	64
2011	40	0	85	0	22	0	19	0	907	1
	984	**4**	**1,466**	**0**	**1003**	**20**	**0**	**0**	**22,881**	**65**

22,946 potential issue calls occurred after 2/9/2009

Table 5c. Five9/NSS (Retailer Entity Specific List—List Accessible)

Five9 Entity-specific Retailer	IL	OH	NC	CA	Total
2010	1,682	2,526	2169	3161	41,306
2011	68	107	80	75	1,684
	1,750	**2,633**	**32360**	**32360**	**42,990**

44,340 potential issue calls occurred after 2/9/2009

c) JSR

Analysis of the JSR Raw Files showed 12,853,478 dials between July 2006 and March 2007. The records of the calls contain a large amount of information, but do not contain any information on disposition, campaign, or client that would allow for a further analysis. We have no way of knowing whether the records produced were telemarketing calls, or were made in an attempt to market a DISH product or service versus that of another company. All calls were dialed from Addison, TX. There were 682 intrastate calls that were excluded from the total NDNCR potential issue calls. All 1,981,319 entity-specific potential issue calls occurred prior to 4/7/2008 when the entity-specific list became centrally managed in DNCSolution.

Table 6a. JSR NDNCR Analysis

JSR NDNCR Analysis	IL	OH	NC	CA	Total
2006	369,384	129,004	18,250	473,102	2,349,031
2007	557,336	338,352	4,936	50	3,315,242
Total	**926,720**	**467,356**	**23,186**	**473,152**	**5,664,273**

0 potential issue calls occurred after 2/9/2009

Table 6b. JSR Entity-specific (DISH entity-specific list combined with vendor partner ("BP") entity specific list requests—List Inaccessible)

JSR Entity-specific DISH	IL		OH		NC		CA		Total	
	DISH	BP	DISH	BP	DISH	BP	DISH	BP	DISH	BP
2006	17,674	65	3,426	18	9040	32	36059	159	416,221	2,007
2007	65,099	231	16,945	103	14480	45	7874	12	765,934	2,762
	82,773	**296**	**20,371**	**121**	**23520**	**77**	**43933**	**0**	**1,182,155**	**4,769**

0 potential issue calls occurred after 2/9/2009

Table 6c. JSR(Retailer Entity Specific List—List Inaccessible)

JSR Entity-specific Retailer	IL	OH	NC	CA	Total
2006	7,337	2,106	10,967	34,026	267,439
2007	33,271	18,018	18,628	10,740	526,956
	40,608	**20,124**	**29,595**	**44,766**	**794,395**

Table 6d. JSR (Retailer Entity Specific List—List Accessible)

JSR Entity-specific Retailer	IL	OH	NC	CA	Total
2006	0	0	0	0	0
2007	0	0	0	0	0
	0	**0**	**0**	**0**	**0**

0 potential issue calls occurred after 2/9/2009

d) NSS

The NSS account to access and upload to the DISH RETAILER LIST was established on June 20, 2010.

Table 7a. NSS Entity-specific (DISH entity-specific list combined with vendor partner ("BP") entity specific list requests—List Accessible)

NSS Entity-specific DISH	IL		OH		NC		CA		Total	
	DISH	BP	DISH	BP	DISH	BP	DISH	BP	DISH	BP
2008	7,256	11	7	0	3,112	13	32	0	27,368	71
2009	15,298	24	823	0	10,900	16	13	0	82,736	163
2010	6	0	4	0	4	0	14	0	101	0
	22,560	**35**	**834**	**0**	**14,016**	**29**	**59**	**0**	**110,205**	**234**

0 potential issue calls occurred after June 20, 2010.

Table 7b. NSS (Retailer Entity Specific List—List Accessible)

NSS Entity-Specific Retailer	IL	OH	NC	CA	Total
2008	5,394	15			22,870
2009	12,879	999			88,990
2010	11	26			401
	18,284	**1,040**	**0**	**0**	**112,261**

12 potential issues calls occurred after June 20, 2010.

e) E-Management

Table 8a. Emanagement Entity-specific (DISH entity-specific list combined with vendor partner ("BP") entity specific list requests—List Inaccessible)

Emanagement Entity-specific DISH	IL		OH		NC		CA		Total	
	DISH	BP	DISH	BP	DISH	BP	DISH	BP	DISH	BP
2007	1,021	22	701	0	1,028	1	1,713	1	19,798	233
	1,021	**22**	**701**	**0**	**1,028**	**1**	**1,713**	**1**	**19,798**	**233**

0 potential issue calls occurred after 2/9/2009

Table 8b. Emanagement Entity-specific (Retailer Entity Specific List—List Inaccessible)

Emanagement Entity-specific Retailer	IL	OH	NC	CA	Total
2007	3,042	3,165	6,299	8,543	87,113
	3,042	**3,165**	6,299	8,543	**87,113**

Table 8c. Emanagement Entity-Specific (Retailer Entity Specific List—List Inaccessible)

Emanagement Entity-specific Retailer	IL	OH	NC	CA	Total
2007	0	0	0	0	0
	0	**0**	**0**	**0**	**0**

0 potential issue calls occurred after 2/9/2009

f) Star Satellite/Tenaya Entity-specific Analysis

Table 9a Star Satellite/Tenaya Entity-specific (DISH entity-specific list combined with vendor partner ("BP") entity specific list requests—List Inaccessible)

Star Satellite/ Tenaya Internal Entity-specific DISH	IL		OH		NC		CA		Total	
	DISH	BP	DISH	BP	DISH	BP	DISH	BP	DISH	BP
2005	94,653	665	131,974	628	54,190	439	110,672	1,258	1,305,850	11,065
	94,653	**665**	**131,974**	**628**	**54,190**	**439**	**110,672**	**1,258**	**1,305,850**	**11,065**

0 potential issue calls occurred after 2/0/2009

Table 9b. Star Satellite/Tenaya Entity-specific (Retailer Entity Specific List—List Inaccessible)

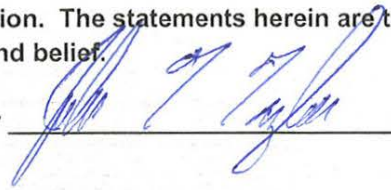
Star Satellite /Tenaya Entity-Specific Retailer	IL	OH	NC	CA	Total
2005	23,740	33,729	21,553	44,446	404,655
	23,740	**33,729**	**21,553**	**44,446**	**404,655**

0 potential issue calls occurred after 2/0/2009

Table 9c. Star Satelitte/Tenya Entity-specific (Retailer Entity Specific List—List Accessible)

Star Satellite /Tenaya Entity-Specific Retailer	IL	OH	NC	CA	Total
2005	0	0	0	0	0
	0	**0**	**0**	**0**	**0**

The facts, conclusions, principles, methods and opinions stated herein are made to a reasonable degree of certainty based upon examination of the available information. The principles and methods I have used are reliable, repeatable and generally accepted. To the extent any portion of this report is based on limited information or where further analysis, opinions, or information are provided, the contents of this report are subject to revision and supplementation. The statements herein are true and correct to the best of my information, knowledge, and belief.

John T Taylor  Date 11/6/2013

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