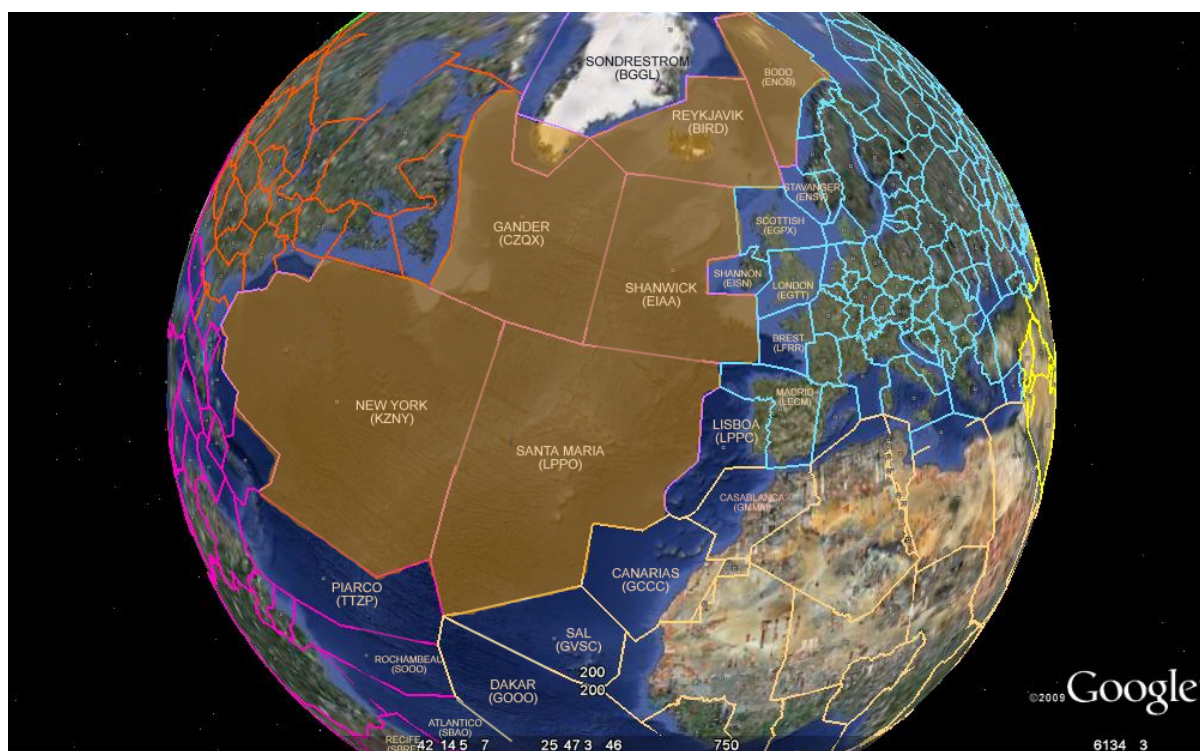


NAT REGION

Aeronautical Radio Stations Network



2019

Data consolidation report

(Presented by Portugal)

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1 INTRODUCTION

This data consolidation is presented in accordance with NATSPG Conclusion 29/13 - HF DATA COLLECTION, points a), b) and c) and reflects the NAT Aeronautical Stations contacts in 2019.

The report is organized to provide both a global overview and individual Stations analysis. It allows an annual comparison of total RT contacts, frequency utilization and NAT Family utilization in both graphic and tabular forms.

2 NAT REGION VOICE TRAFFIC OVERVIEW (BY RADIO STATION AND OVERALL SUM)

2.1 Total of messages and relative variation

	TOTAL OF MESSAGES	Variation. 2018-2019
BODO	62.781	-12,3%%
GANDER	845.044	-4,3%
NEW YORK	314.494	-4,0%
SANTA MARIA	310.317	-5,8%
SHANWICK AND ICELAND	1.181.542	-4,2%
NAT REGION	2.714.178	-4,6%

Table 1 –Total of voice messages and relative variation in comparison with previous year

In reference to the 2018 statistics:

- **All NAT Radio Stations** have **decreased** the number of messages.
- Overall, in the **NAT Region**, there were 2.714.178 voice messages processed in 2019, a **decrease of 4,6%**.

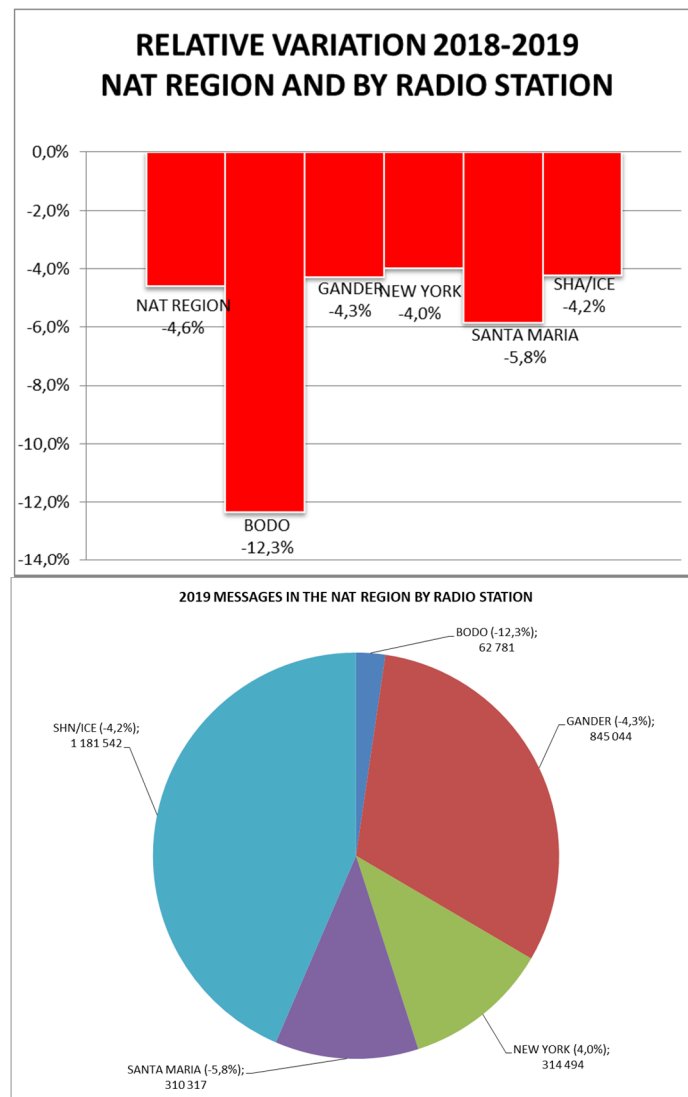


Figure 1 - RELATIVE VARIATION 2018-2019 (NAT REGION AND BY RADIO STATION)

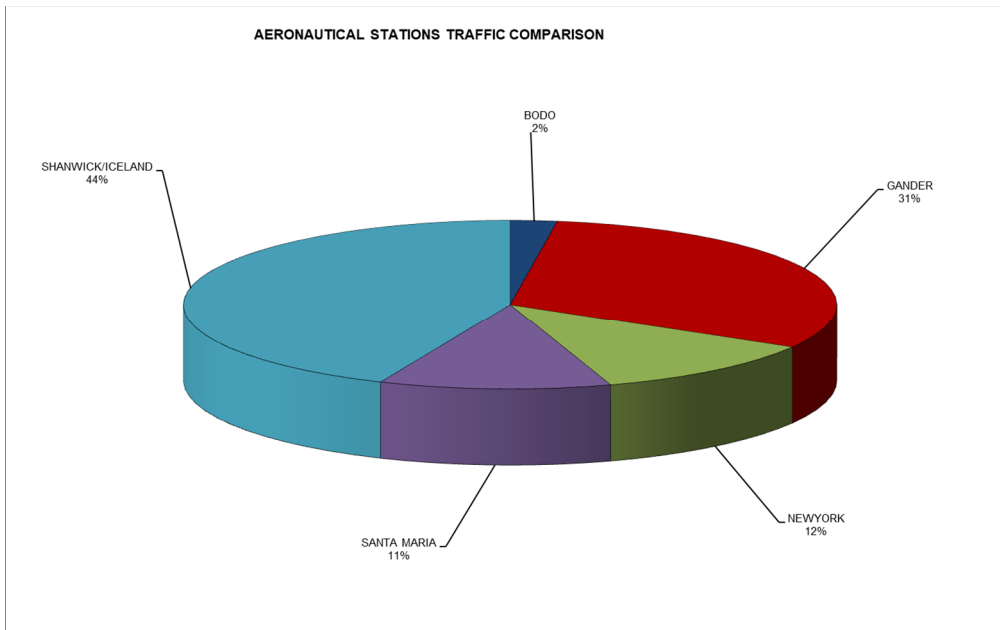


Figure 2 – Aeronautical stations traffic comparison

In 2019, from NAT voice messages total:

- **Shanwick/Iceland** processed **44%**;
- **Gander** processed **31%**;
- **New York** processed **12%**;
- **Santa Maria** processed **11%**; and
- **Bodo** processed **2%**.

2.2 Five year period traffic variation

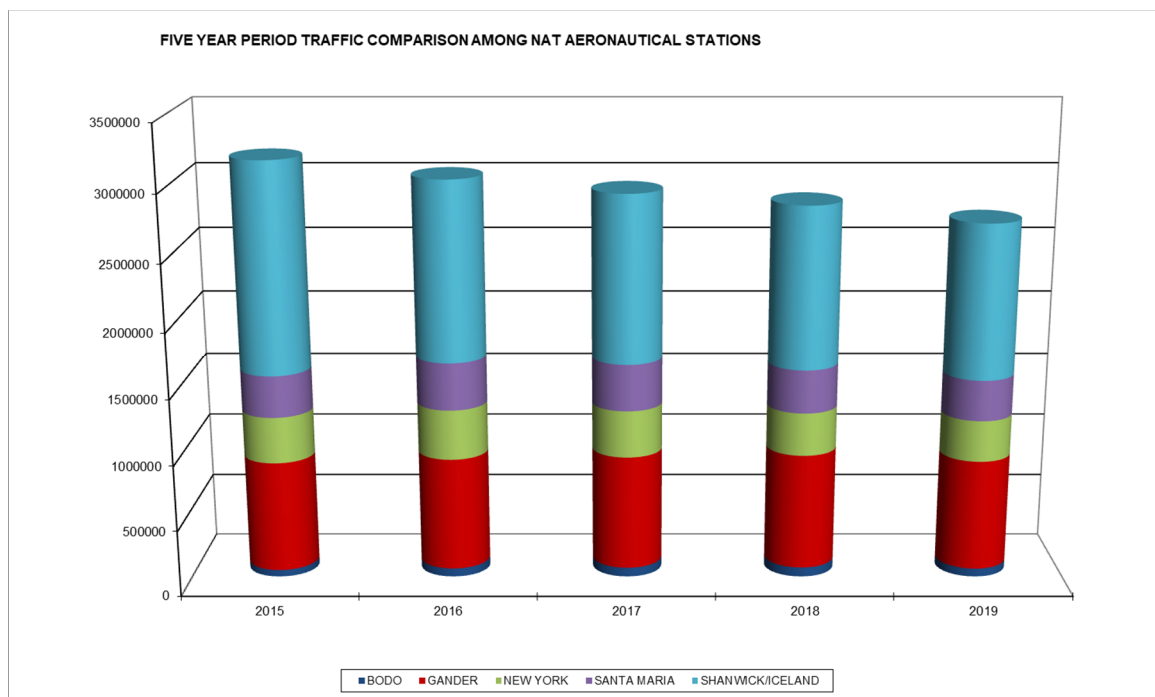


Figure 3 – Traffic comparison among aeronautical stations in the last five years

Past five years analysis:

Bodo has a low messages count, handling **2% to 3% of the NAT messages**. The message count in 2019 is **22,4% higher than in 2015**:

BODO	2015	2016	2017	2018	2019
TOTAL	51278	63744	69463	71622	62781
	2%	2%	2%	3%	2%

Gander has the second highest message count, handling **27% to 31% of the NAT messages**. The message count in 2019 is **0,1% higher than in 2015**:

GANDER	2015	2016	2017	2018	2019
TOTAL	844348	859819	871530	882808	845044
	27%	28%	30%	31%	31%

New York has been handling between **11% to 13% of the NAT messages**. The message count in 2019 is **10,8% lower than in 2015**:

NEWYORK	2015	2016	2017	2018	2019
TOTAL	352434	381038	357716	327512	314494
	11%	13%	12%	12%	12%

Santa Maria has been handling between **10% to 12% of the NAT messages**. The message count in 2019 is about **2,5% lower than in 2015**:

SANTA MARIA	2015	2016	2017	2018	2019
TOTAL	318356	360726	355745	329574	310317
	10%	12%	12%	12%	11%

The joint operations **Shanwick/Iceland** has the highest message count, handling **between 43% and 51%** of the NAT messages. The message count in 2019 is about **26,5% lower than in 2015**:

SHANWICK/ICELAND	2015	2016	2017	2018	2019
TOTAL	1606839	1369000	1276540	1233684	1181542
	51%	45%	44%	43%	44%

5 YEAR VARIATION					
	2015-2016	2016-2017	2017-2018	2018-2019	2015-2019
BODO	24,3%	9,0%	3,1%	-12,3%	22,4%
GANDER	1,8%	1,4%	1,3%	-4,3%	0,1%
NEW YORK	8,1%	-6,1%	-8,4%	-4,0%	-10,8%
SANTA MARIA	13,3%	-1,4%	-7,4%	-5,8%	-2,5%
SHANWICK/ICELAND	-14,8%	-6,8%	-3,4%	-4,2%	-26,5%
NAT REGION	-4,4%	-3,4%	-2,9%	-4,6%	-14,5%

Table 2 – Relative variation of voice messages between 2015 and 2019

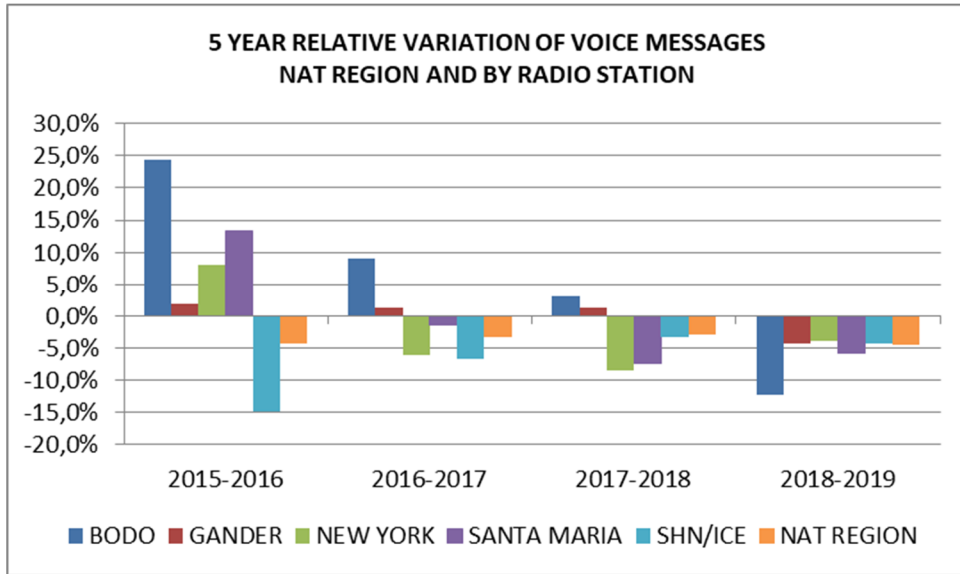


Figure 4 - 5 year relative variation of voice messages (NAT Region and by radio station)

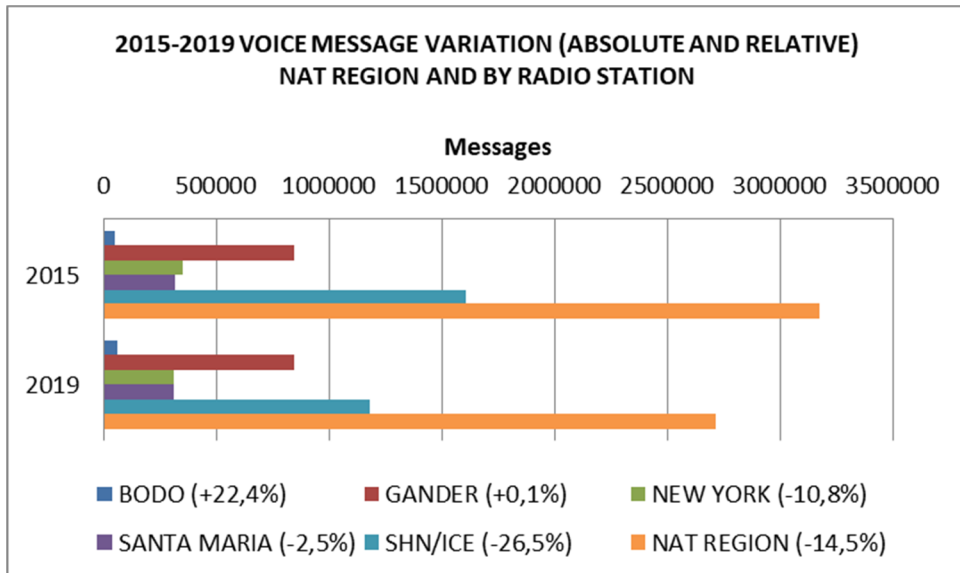


Figure 5 – 2015-2019 voice messages variation (absolute and relative)

2.3 Band/Frequency utilization

2019		NAT REGION		BODO		GANDER		NEW YORK		SANTA MARIA		SHANWICK ICELAND	
2/4 KHz 247202 9%	QA	14603	1%			0	0%	2739	1%	11856	4%	8	0%
	QB	16177	1%			15394	2%					783	0%
	QC	59491	2%			6	0%					59485	5%
	QD	77328	3%	41	0%	55610	7%					21677	2%
	QE	1480	0%					612	0%	868	0%		
	QF	3937	0%			116	0%					3821	0%
	QH	39428	1%						0%	10445	3%	28983	2%
	QI	1	0%									1	0%
	QJ	30808	1%									30808	3%
	QK	3946	0%									3946	0%
QL	3	0%									3	0%	
5/6 KHz 959895 35%	TA	90385	3%			12	0%	49606	16%	21650	7%	19117	2%
	TB	141667	5%			128159	15%					13508	1%
	TC	132374	5%			9	0%					132365	11%
	TD	62824	2%	10	0%	194	0%					62620	5%
	TE	158702	6%					18257	6%	140445	45%		
	TF	31592	1%			2175	0%					29417	2%
	TH	9144	0%							7434	2%	1710	0%
	TI	30723	1%									30723	3%
	TJ	91382	3%									91382	8%
	TK	98652	4%									98652	8%
TL	112450	4%									112450	10%	
8 KHz 564056 21%	VA	86243	3%			3	0%	14275	5%	71919	23%	46	0%
	VB	143206	5%			105279	12%					37927	3%
	VC	34688	1%			14	0%					34674	3%
	VD	122633	5%	54752	87%	25169	3%					42712	4%
	VE	48897	2%					19843	6%	29054	9%		
	VF	128369	5%			128288	15%					81	0%
	VH	7	0%									7	0%
	VI	9	0%									9	0%
	VJ	4	0%									4	0%
	10/13 KHz 267630 10%	YA	39543	1%			1	0%	39538	13%	0	0%	4
XO		34225	1%					34225	11%				
YB		14	0%			14	0%					0	0%
YC		1	0%			1	0%						
XC		15838	1%			15831	2%					7	0%
YD		741	0%	741	1%								
XD		7771	0%	7237	12%	0	0%					534	
YE		3476	0%					3472	1%	4	0%		
XE		55325	2%					54111	17%	1214	0%		
YF		95488	4%			95488	11%						
XH	15208	1%									15208	1%	
XI	0	0%									0	0%	
16/22 KHz 10814 0%	ZA	10684	0%					10681	3%	0	0%	3	0%
	ZE	110	0%					110	0%				
	PE/PT	20	0%					20	0%				
VHF 657266 24%	120,55	13214	0%			13214	2%						
	122,375	149790	6%			149790	18%						
	123,75	15135	1%			15135	2%						
	124,82	9231	0%			9231	1%						
	126,9	6387	0%			6387	1%						
	127,1	4548	0%			4548	1%						
	127,9	50446	2%			15792	2%		5069	2%	29585	3%	
	134,47	6837	0%			6837	1%						
	134,95	1813	0%			1813	0%						
	119,85	12913	0%			12913	2%						
	135,35	36437	1%			36437	4%						
	ATC	188	0%			188	0%						
	129,9	64896	2%					64896	21%				
	132,075	7706	0%						7706	2%			
	124,175	19425	1%									19425	2%
	126,55	47914	2%									47914	4%
	127,85	190732	7%									190732	16%
	129,625	19654	1%									19654	2%
	SATVOICE 0,3%	SP	7315	0,3%			996	0,1%	2109	0,7%	2653	0,9%	1557
	Totals	2714178		62781		845044		314494		310317		1181542	
	Legend:	> 50.000		>25.000 <49.999		>10.000 <24.999		>5.000 <9.000					

Table 3 – Most used HF bands and frequencies

2.3.1 Aeronautical stations individual analysis

2.3.1.1 Bodo

- 87% of messages on the 8 KHz band, on frequency VD
- 13% of messages on the 10/13 KHz band, on frequency XD

2.3.1.2 Gander

- About 68% on HF
 - About 31% on the 8 KHz band, mostly on frequencies VF(15%) and VB(12%)
 - About 15% on the 5/6 KHz band, mostly on frequency TB(15%)
 - About 13% on the 11/13 KHz band, mostly on frequency YF(11%)
 - About 8% on the 2/4 KHz band, mostly on frequency QD(7%)
- About 32% on VHF
 - The most used VHF frequency was 122,375 MHz(18%)
- SATVOICE residual

2.3.1.3 New York

- About 79% on HF
 - About 42% on the 11/13 KHz band, mostly on frequencies XE(17%), YA(13%) and XO(11%)
 - About 22% the 5-6 KHz band, mostly on frequency TA(16%)
 - About 11% on the 8 KHz band, mostly on frequencies VE(6%) and VA(5%)
 - About 3% on the 16/22 KHz band, mostly on ZA
 - About 1% on the 2/4 KHz band, mostly on frequency QA
- About 21% on VHF
- SATVOICE residual

2.3.1.4 Santa Maria

- About 95% on HF
 - About 55% the 5-6 KHz band, mostly on frequency TE(45%)
 - About 33% on the 8 KHz band, mostly on frequencies VA(23%)
 - About 7% on the 2/4 KHz band, mostly on frequencies QA(4%) and QH(3%)
 - Residual on the 11/13 KHz band, on frequency XE
- About 4% on VHF
- SATVOICE residual

2.3.1.5 Shanwick/Iceland

- About 74% on HF
 - About 50% the 5-6 KHz band, mostly on frequencies TC(11%), TL(10%), TJ(8%), TK(8%) and TD(5%)
 - About 13% on the 2/4 KHz band, mostly on frequency QC(5%)
 - About 10% on the 8 KHz band, mostly on frequencies VD(4%), VB(3%) and VC(3%)
 - About 1% on the 11/13 KHz band, mostly on frequency XH(1%)
- About 26% on VHF
 - The most used VHF frequency was 127,850 MHz (16%)
- SATVOICE residual

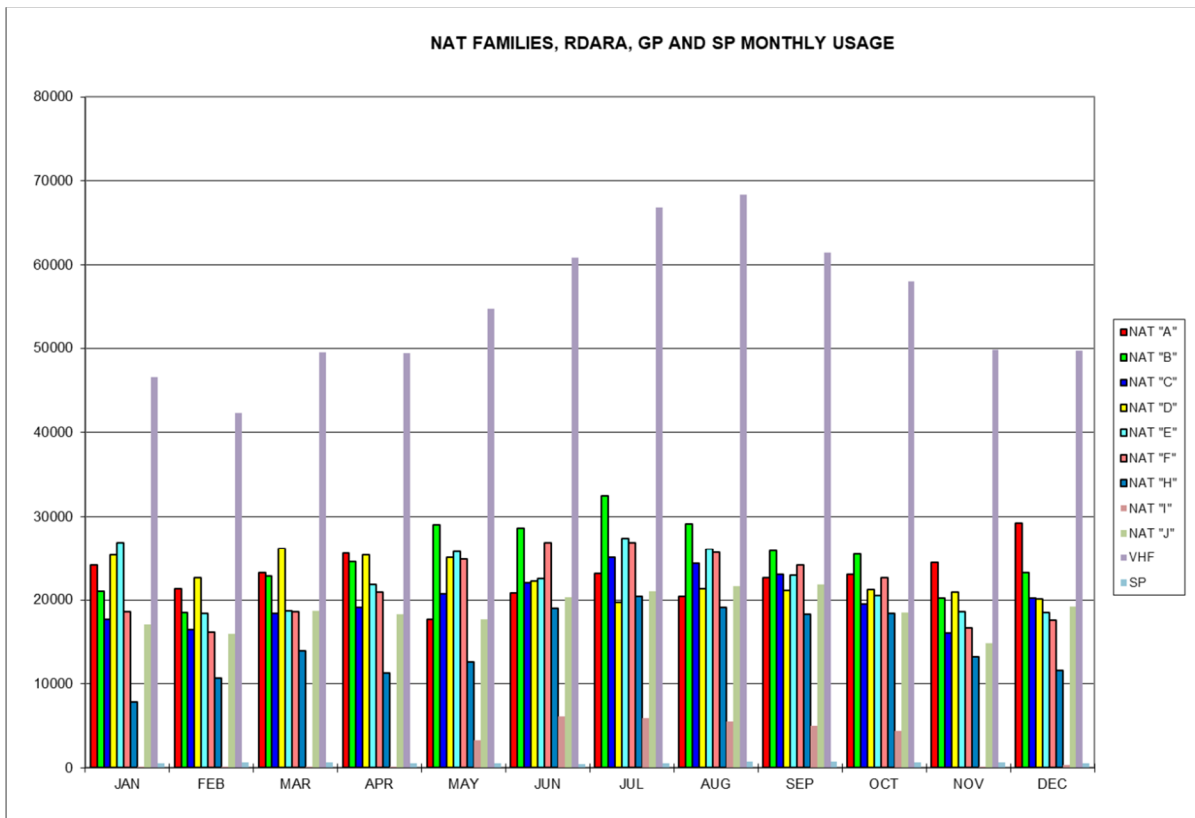


Figure 6 – Monthly variation of RT contacts

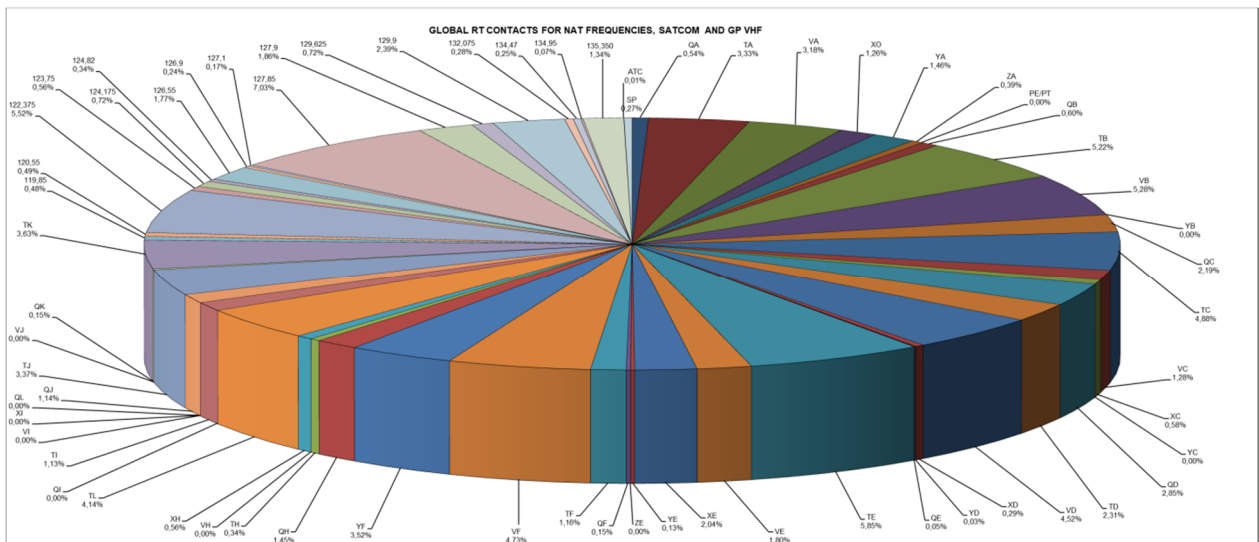


Figure 7 – Frequency usage

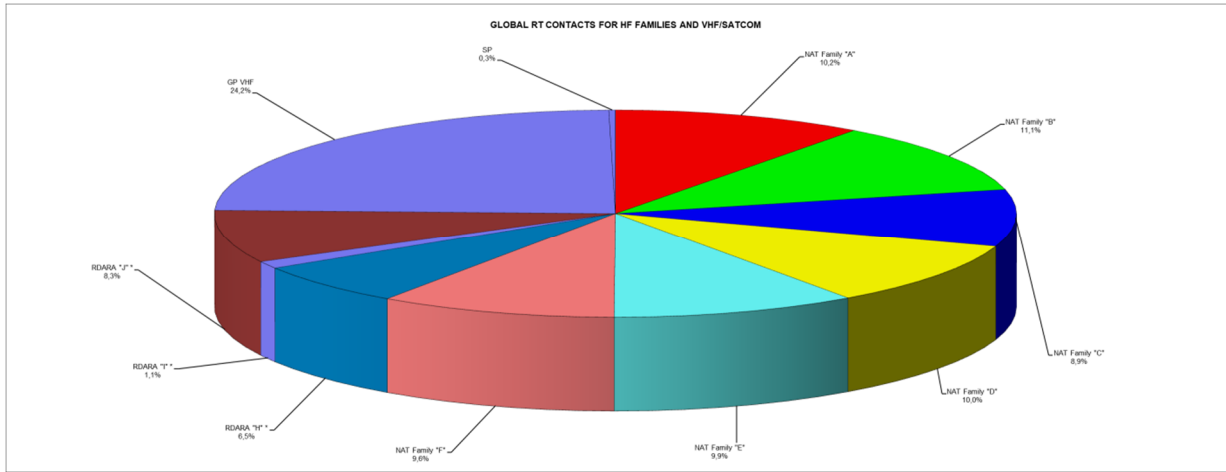


Figure 8 – Aggregate RT contacts by NAT/RDARA family and on VHF/SATVOICE

2.3.2 NAT overall analysis

Overall, in the NAT Region, the most used HF frequencies are of the 5/6 KHz band (35%) and the 8 KHz band (21%).

SATVOICE still has a residual use, representing only 0,3% of total voice messages in the NAT Region. Santa Maria and New York were the stations with the higher relative usage of SATVOICE (respectively 0.9% and 0.7%).

The most used HF frequencies in the NAT Region were TE (5,8%), VB (5,3%), VF (4,7%) and VD (4,5%) while on VHF it was 127.850 MHz (7%) and 122,375 (5,5%).

The most used NAT Family was "B" (11.1%) and the most used RDARA was "J" (8,3%).

VHF has assured almost a quarter of NAT voice communications (24,2%).

3 APPENDIXES

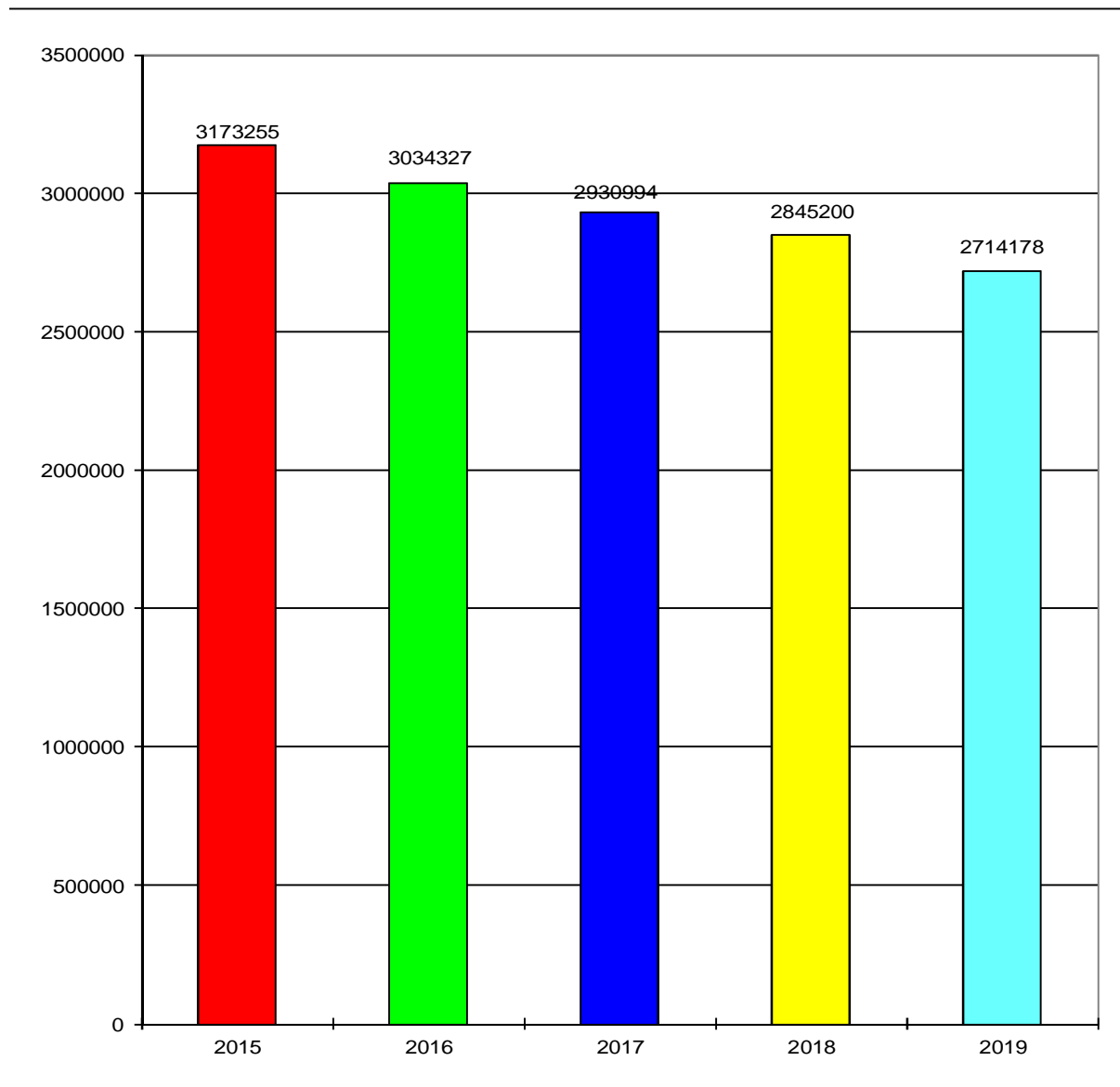
In the appendixes, a detailed analysis of traffic is provided for the NAT aggregate statistics and for each station.

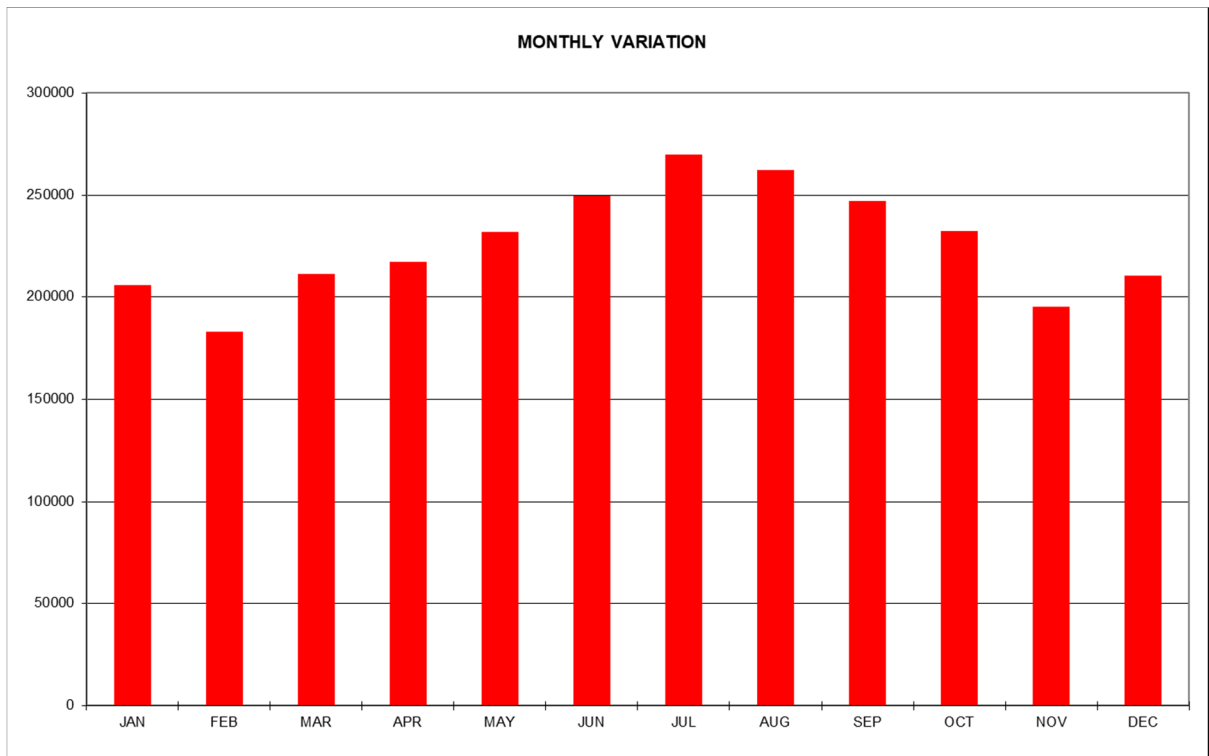
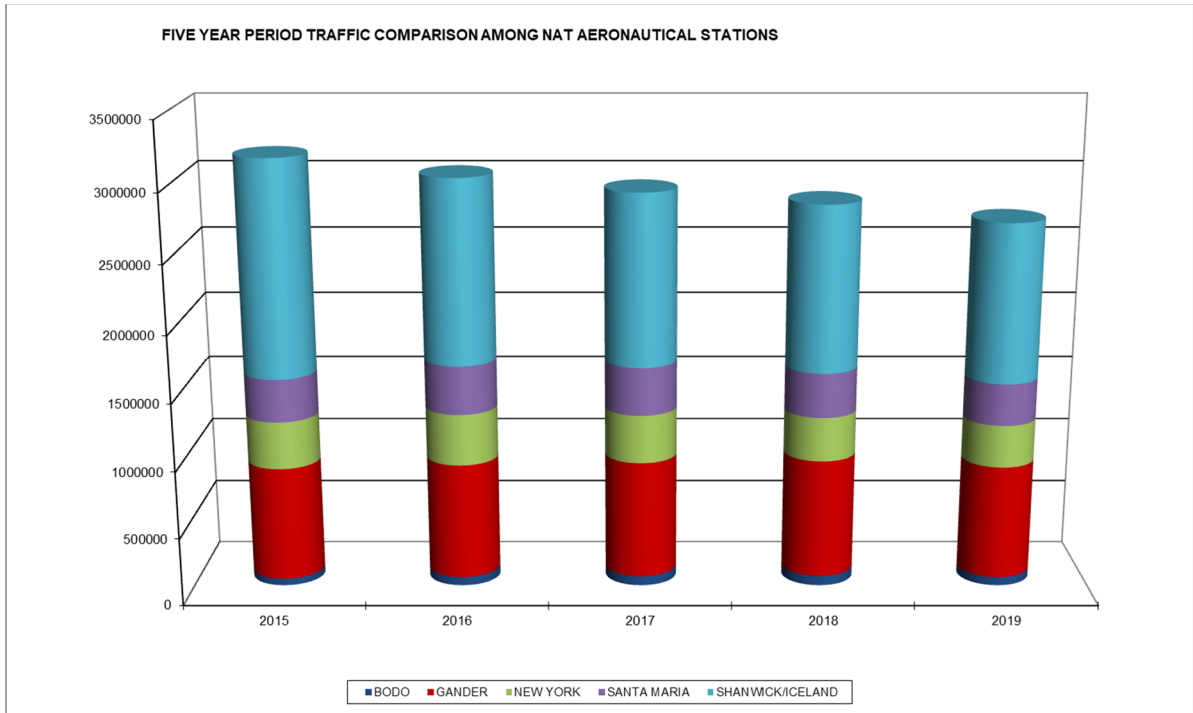
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3.1 Appendix 1 – NAT Region

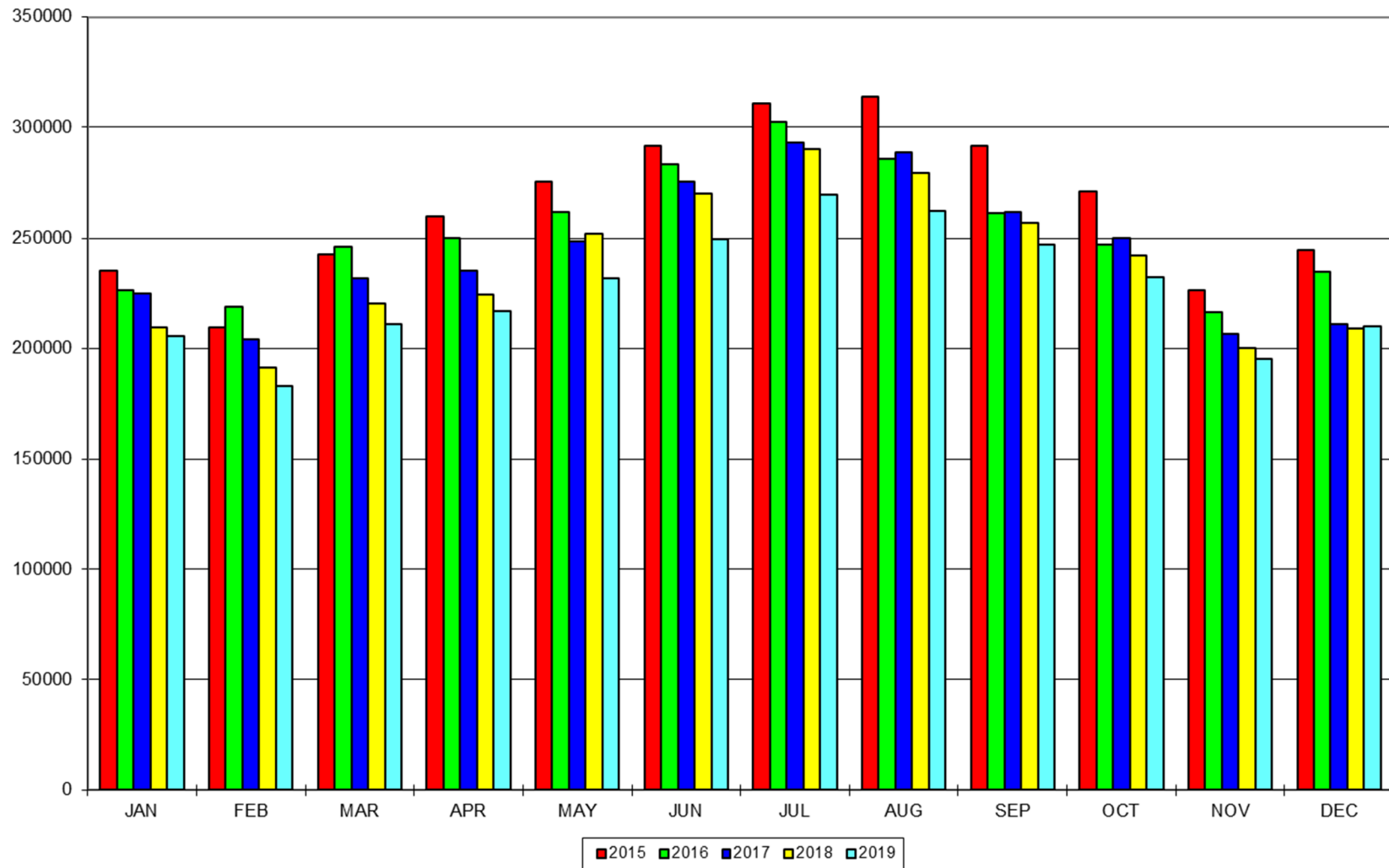
RT TRAFFIC COMPARISON

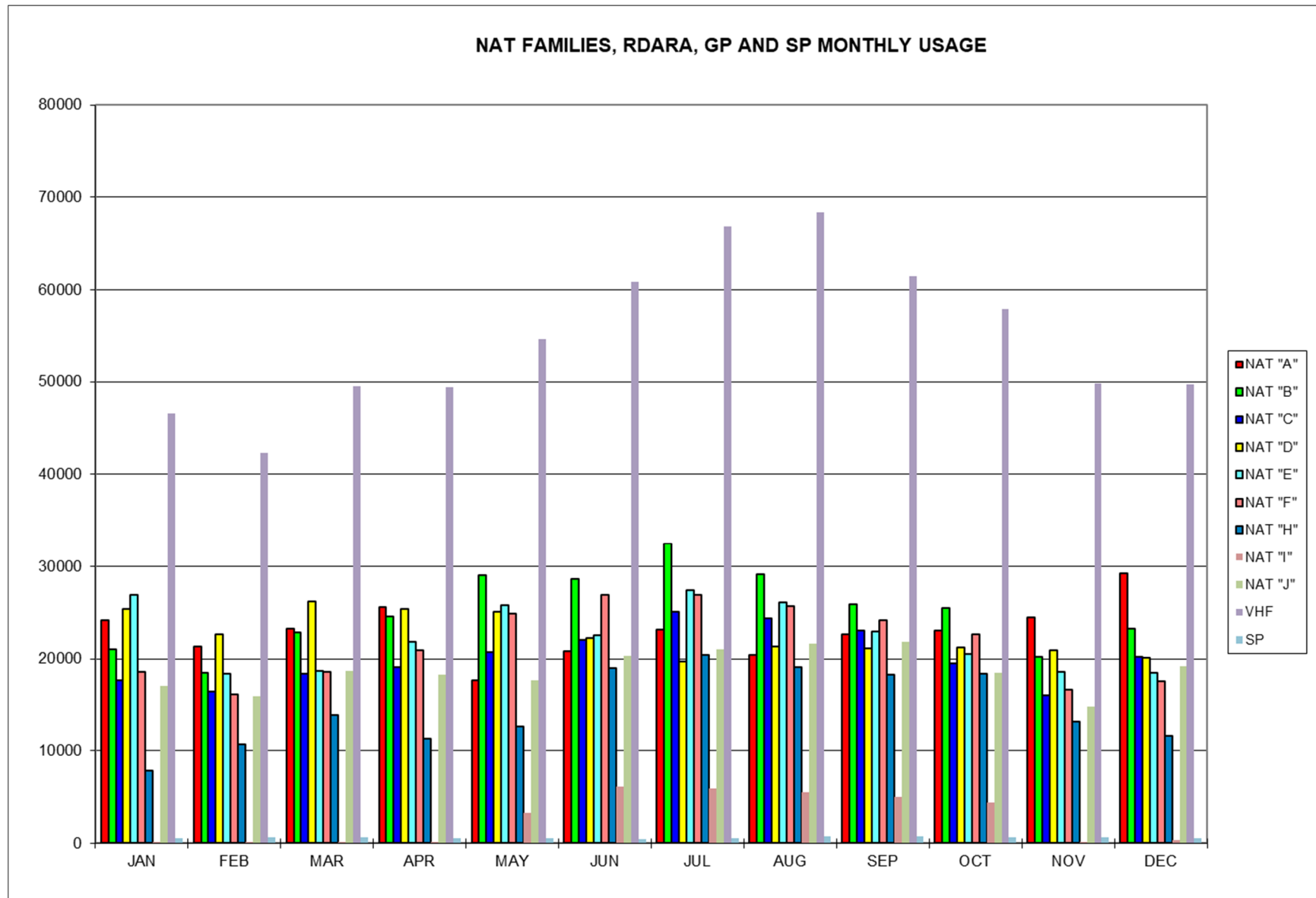
MONTH \ YEAR	2015	2016	2017	2018	2019
JANUARY	235496	226474	224903	209601	205530
FEBRUARY	209264	218746	203849	191532	182892
MARCH	242902	245923	231894	220090	210931
APRIL	259830	250230	235153	224371	216874
MAY	275328	261930	248624	252124	231868
JUNE	291583	283266	275625	270118	249654
JULY	310859	302521	293175	290010	269556
AUGUST	314116	285953	288587	279403	262206
SEPTEMBER	291624	261121	261915	257067	247082
OCTOBER	271162	247194	249845	242057	232350
NOVEMBER	226626	216339	206300	199999	195160
DECEMBER	244465	234630	211124	208828	210075
TOTAL	3173255	3034327	2930994	2845200	2714178

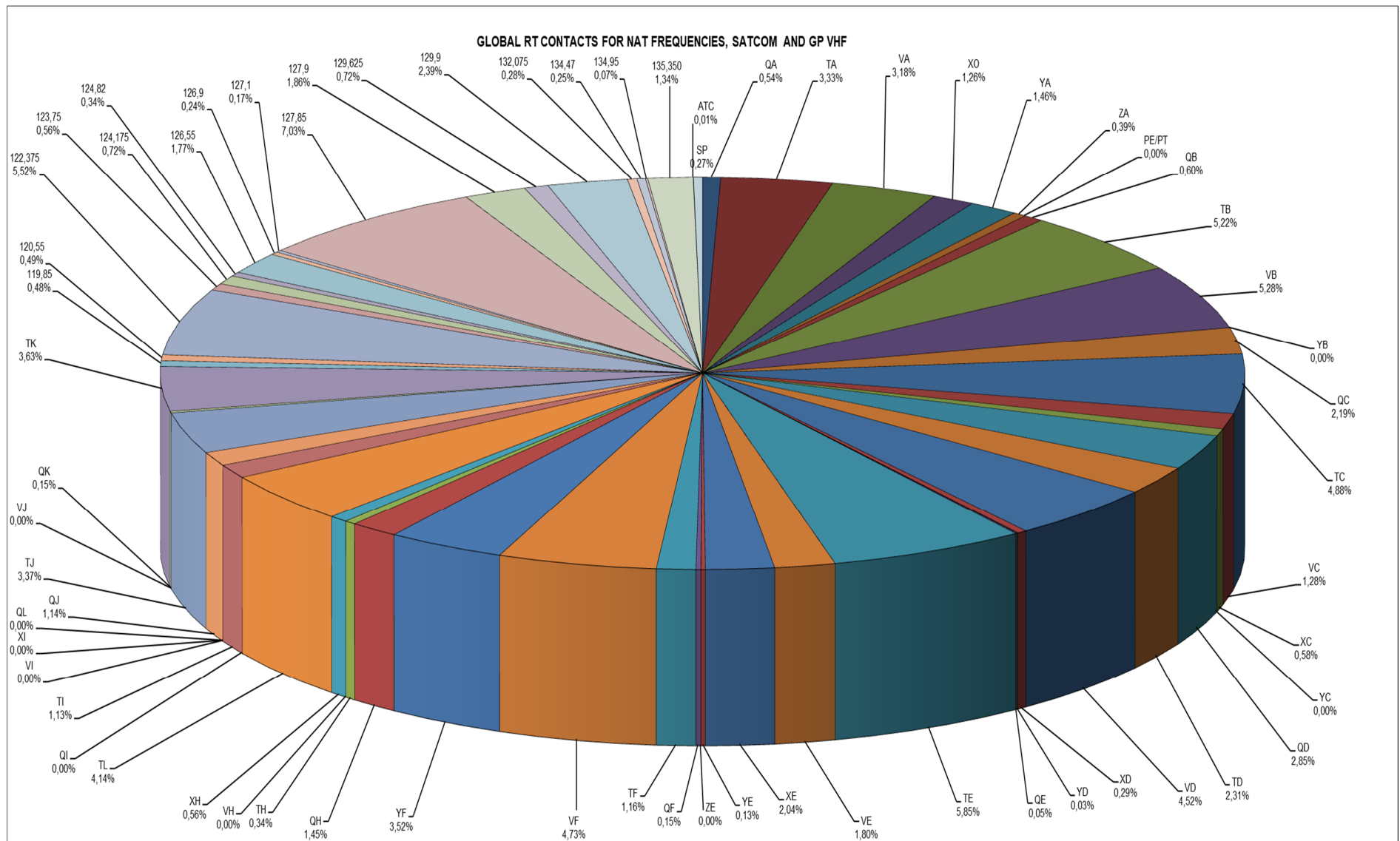


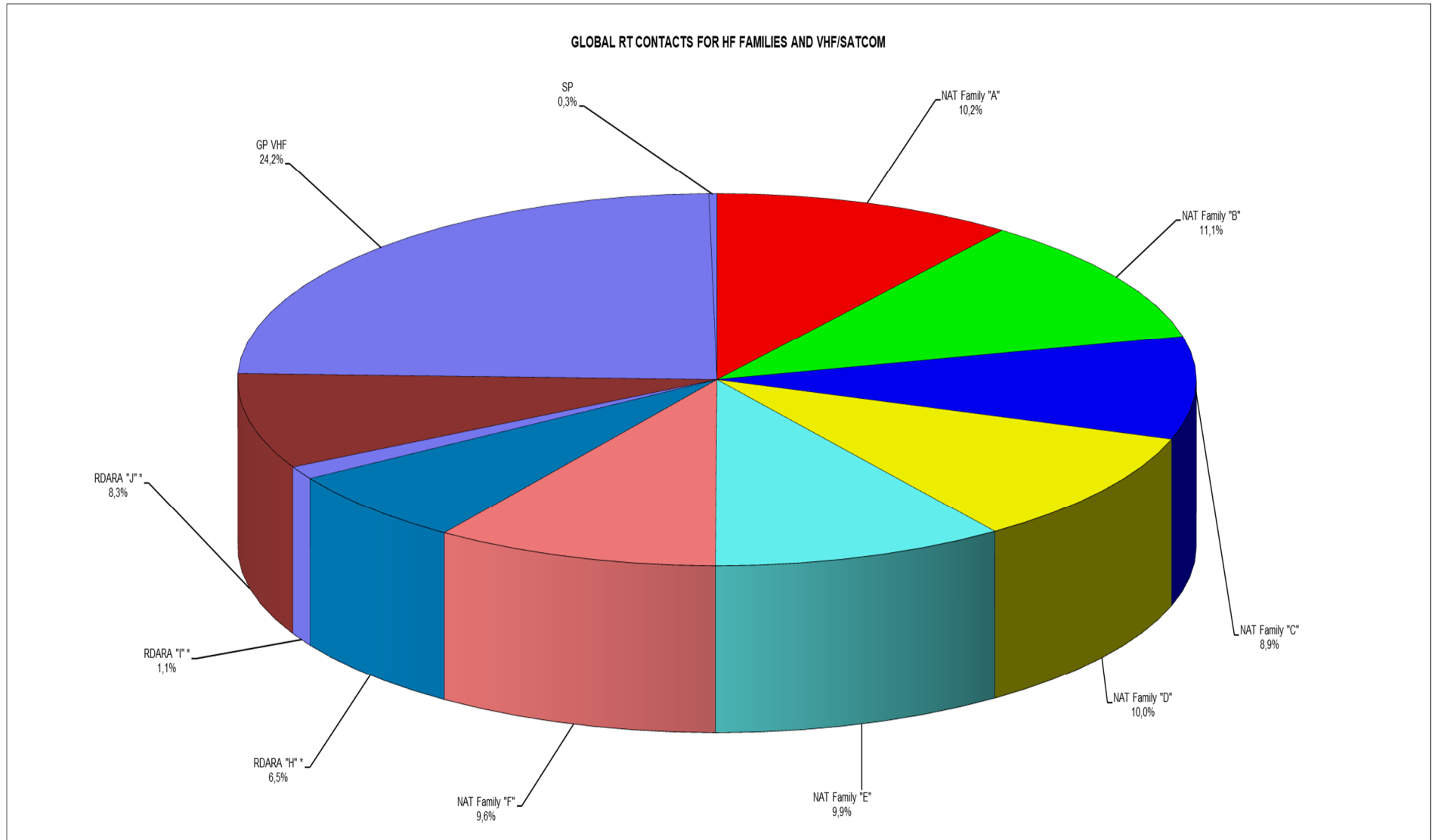


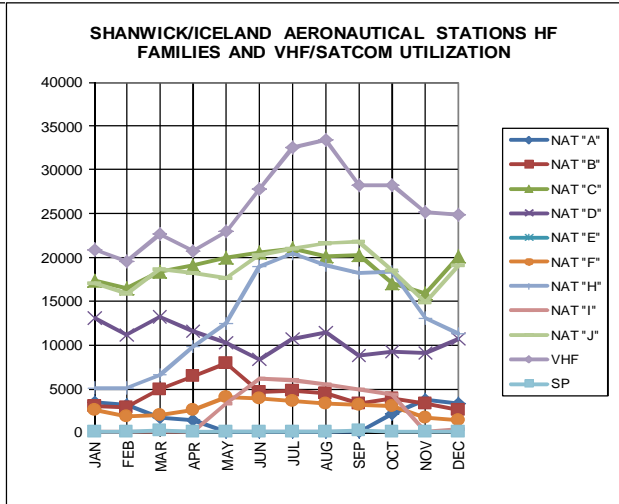
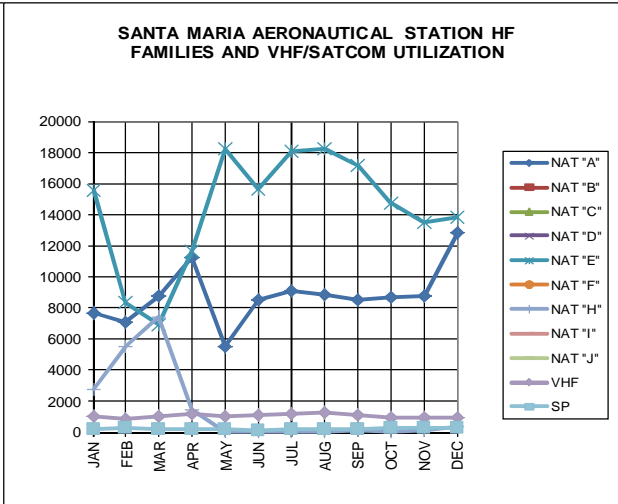
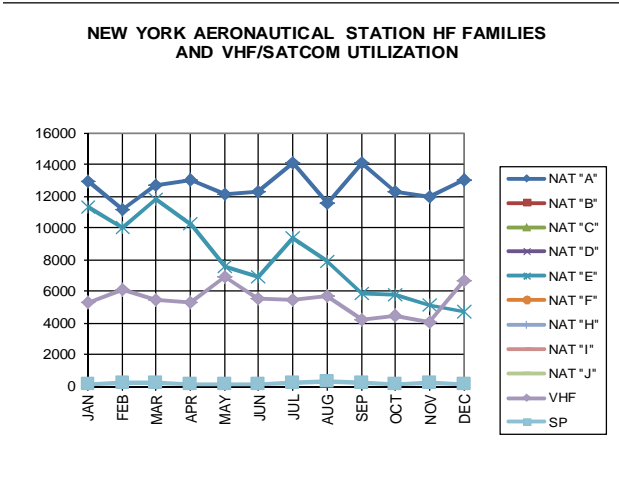
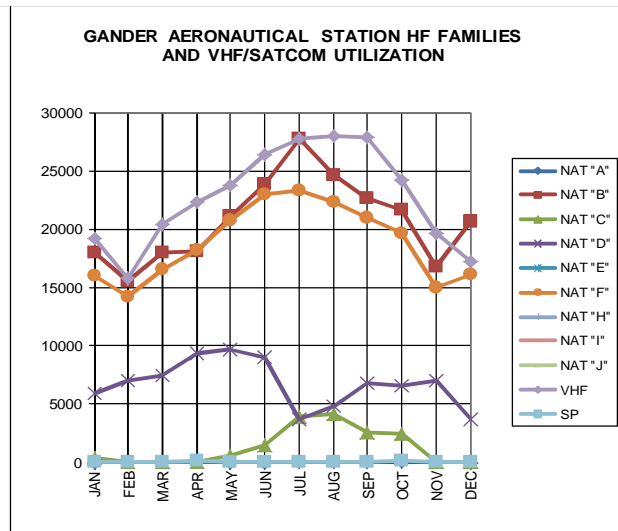
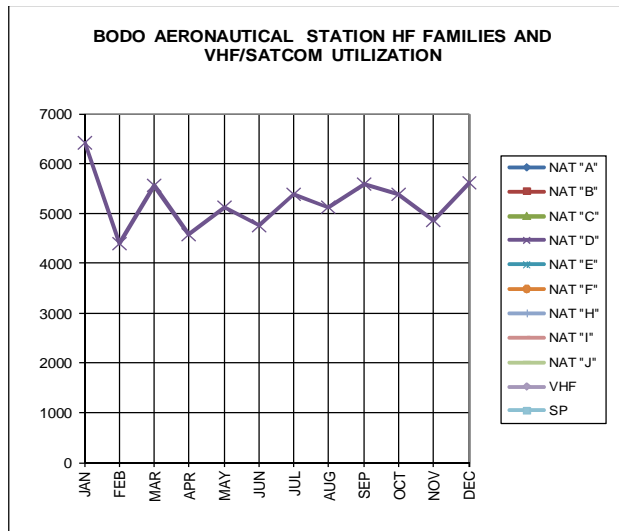
MONTHLY COMPARISON BETWEEN YEARS











NAT Family "A"			NAT Family "B"			NAT Family "C"			NAT Family "D"			NAT Family "E"			NAT Family "F"			RDARA "H" *			RDARA "I" *			RDARA "J" *			GP VHF			SP			
QA	14603	0,54%	QB	16177	0,60%	QC	59491	2,19%	QD	77328	2,85%	QE	1480	0,05%	QF	3937	0,15%	QH	39428	1,45%	QI	1	0,00%	QJ	30808	1,14%	119,850	12913	0,48%	7315	0,27%		
TA	90385	3,33%	TB	141667	5,22%	TC	132374	4,88%	TD	62824	2,31%	TE	158702	5,85%	TF	31592	1,16%	TH	9144	0,34%	TI	30723	1,13%	TJ	91382	3,37%	120,550	13214	0,49%				
VA	86243	3,18%	VB	143206	5,28%	VC	34688	1,28%	VD	122633	4,52%	VE	48897	1,80%	VF	128369	4,73%	VH	7	0,00%	VI	9	0,00%	VJ	4	0,00%	122,375	149790	5,52%				
XO	34225	1,26%	YB	14	0,00%	XC	15838	0,58%	XD	7771	0,29%	XE	55325	2,04%	YF	95488	3,52%	XH	15208	0,56%	XI	0	0,00%	QK	3946	0,15%	123,750	15135	0,56%				
YA	39543	1,46%				YC	1	0,00%	YD	741	0,03%	YE	3476	0,13%				TL	112450	4,14%	QL	3	0,00%	TK	98652	3,63%	124,175	19425	0,72%				
ZA	10684	0,39%										ZE *	110	0,00%										124,820	9231	0,34%							
PE/PT	20	0,00%																						126,550	47914	1,77%							
																								126,900	6387	0,24%							
																								127,100	4548	0,17%							
																								127,850	190732	7,03%							
																								127,900	50446	1,86%							
																								129,625	19654	0,72%							
																								129,900	64896	2,39%							
																								132,075	7706	0,28%							
																								134,470	6837	0,25%							
																								134,950	1813	0,07%							
																								135,350	36437	1,34%							
																								ATC	188	0,01%							
TOTAL	275703	10,2%	TOTAL	301064	11,1%	TOTAL	242392	8,9%	TOTAL	271297	10,0%	TOTAL	267990	9,9%	TOTAL	259386	9,6%	TOTAL	176237	6,5%	TOTAL	30736	1,1%	TOTAL	224792	8,3%	TOTAL	657266	24,2%	7315	0,3%	TOTAL	2714178

* XO/PE/PT only in KZNY

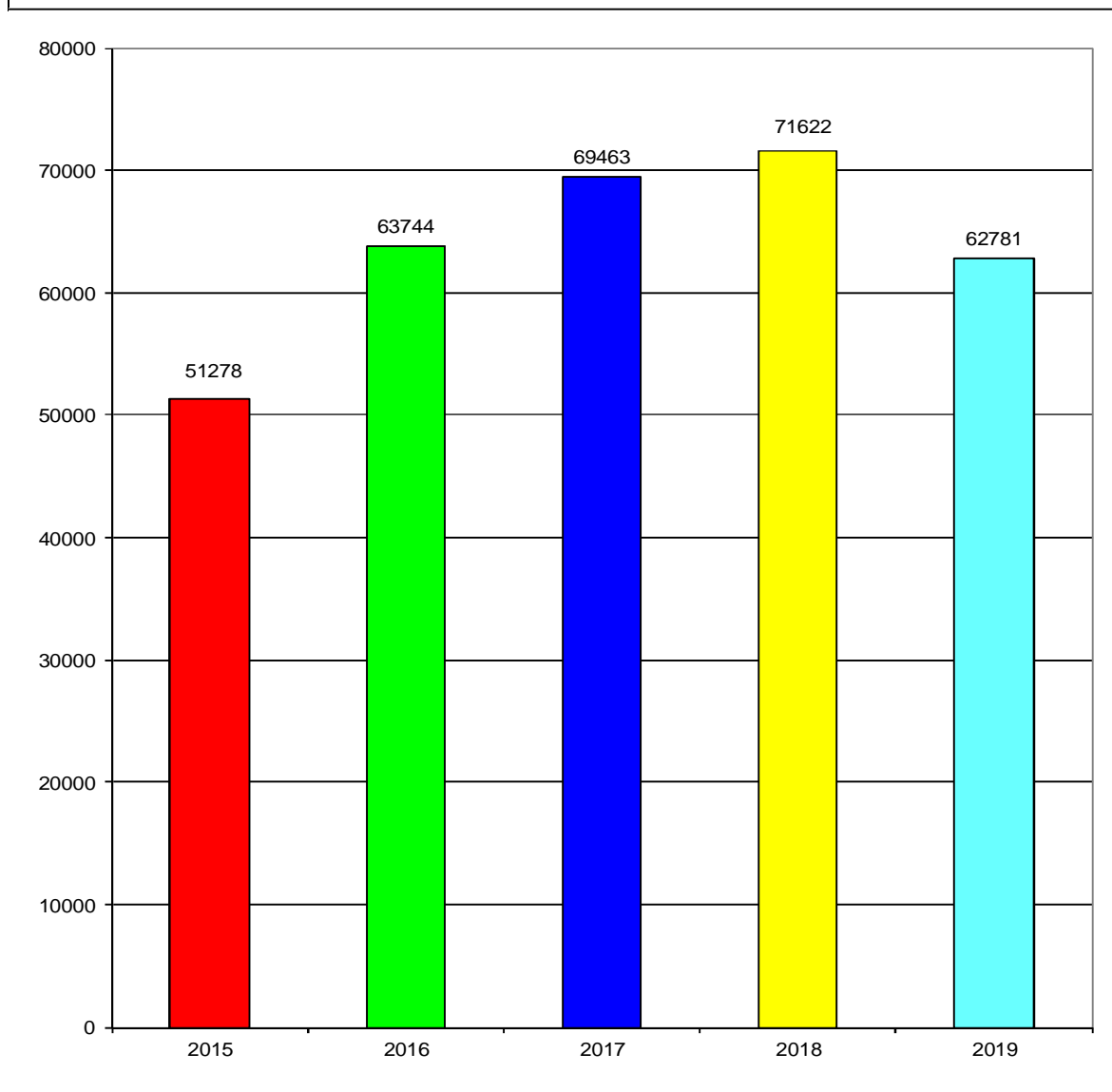
* ZE only in KZNY

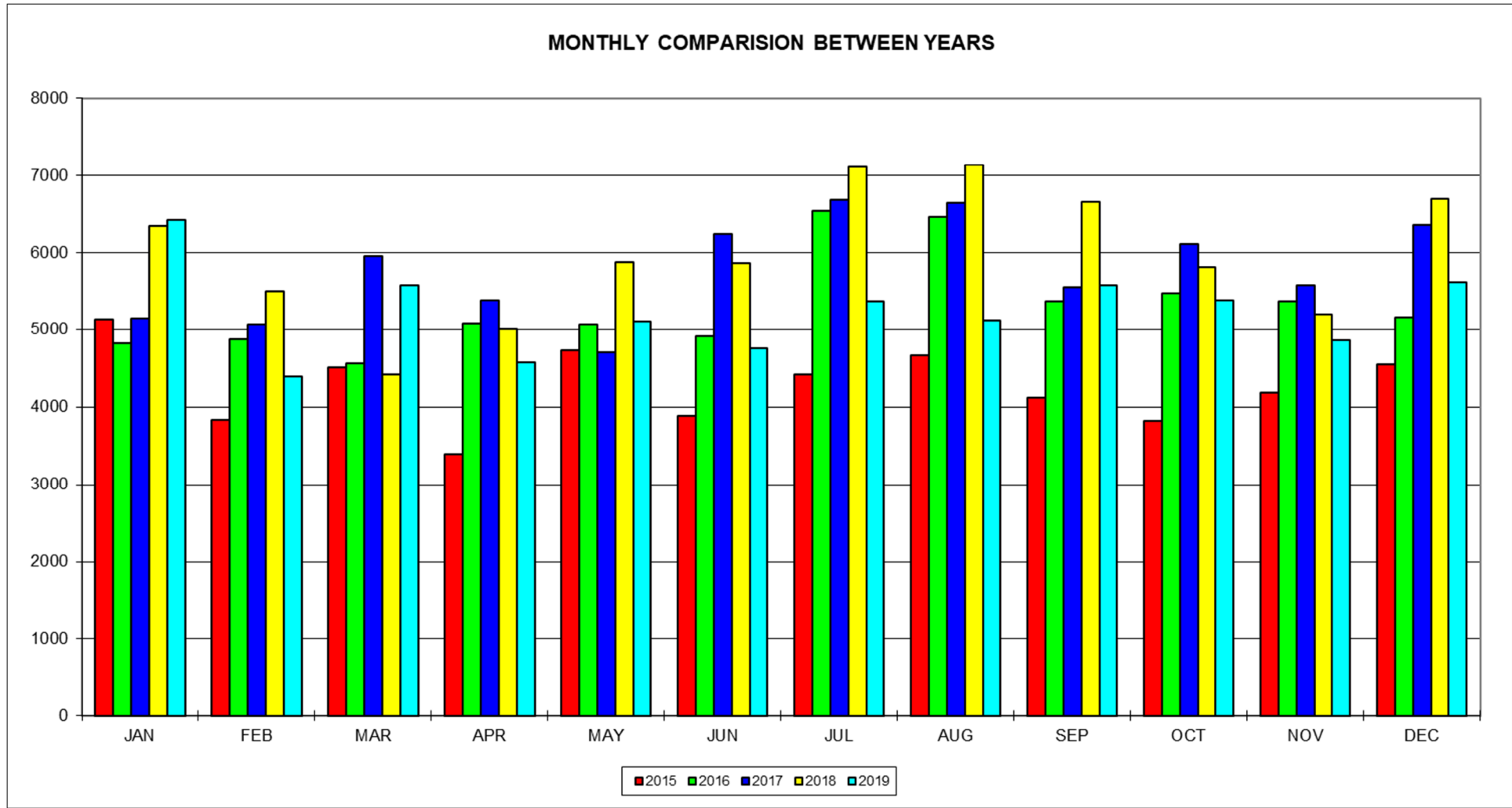
* RDARA H only in EGGXLPP0

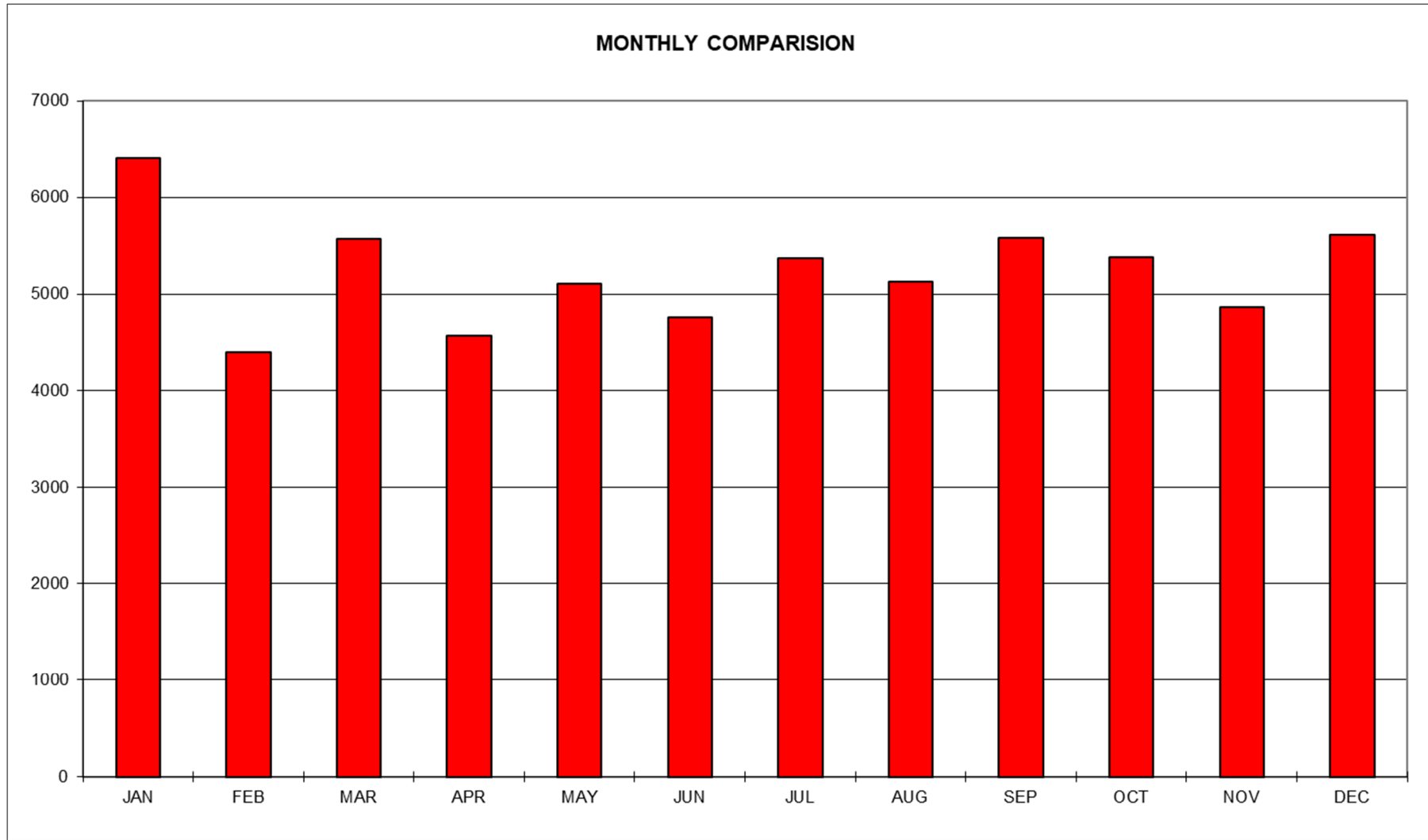
* RDARA I and J only in EGGX

3.2 Appendix 2 – Bodo

MONTH \ YEAR	2015	2016	2017	2018	2019
JANUARY	5134	4833	5152	6351	6417
FEBRUARY	3843	4875	5071	5502	4399
MARCH	4515	4565	5956	4421	5574
APRIL	3393	5081	5392	5009	4571
MAY	4738	5068	4706	5872	5114
JUNE	3884	4923	6245	5860	4763
JULY	4418	6547	6690	7110	5368
AUGUST	4667	6461	6649	7137	5127
SEPTEMBER	4127	5374	5552	6655	5579
OCTOBER	3828	5475	6118	5815	5389
NOVEMBER	4184	5375	5576	5198	4865
DECEMBER	4547	5167	6356	6692	5615
TOTAL	51278	63744	69463	71622	62781







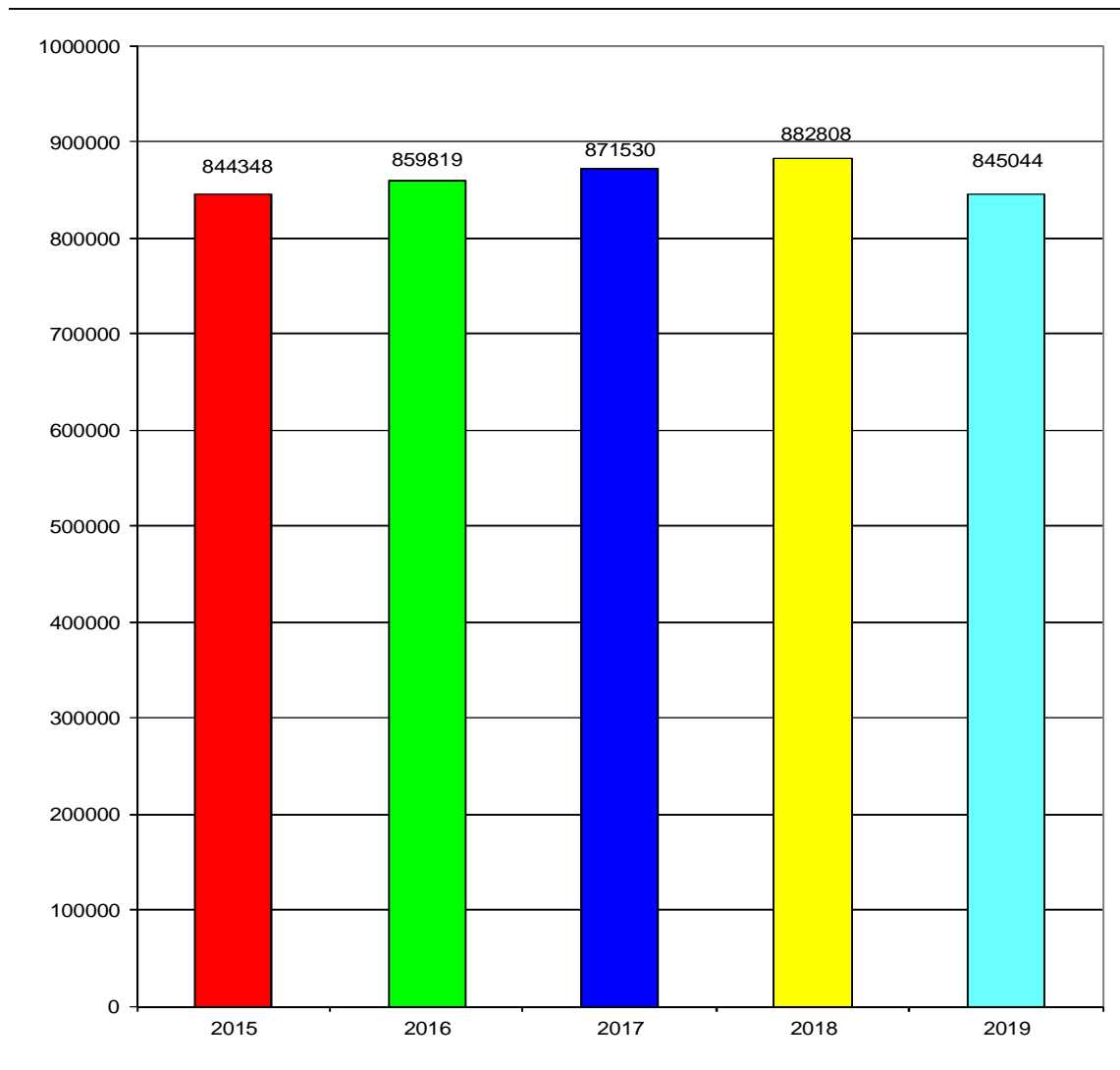
MONTH	FREQ	QD	TD	VD	XD	YD						TOTALS
		2971	4675	8891	11279	13291						
JANUARY	1	10	5746	635	25							6417
FEBRUARY	6	0	3940	441	12							4399
MARCH	0	0	4996	555	23							5574
APRIL	4	0	3853	569	145							4571
MAY	4	0	4229	833	48							5114
JUNE	0	0	4120	510	133							4763
JULY	2	0	4693	607	66							5368
AUGUST	8	0	4479	619	21							5127
SEPTEMBER	0	0	4704	782	93							5579
OCTOBER	9	0	4650	663	67							5389
NOVEMBER	5	0	4285	537	38							4865
DECEMBER	2	0	5057	486	70							5615
SUB-TOTALS	41	10	54752	7237	741							62781
PERCENT %	0,07%	0,02%	87,21%	11,53%	1,18%							100,00%

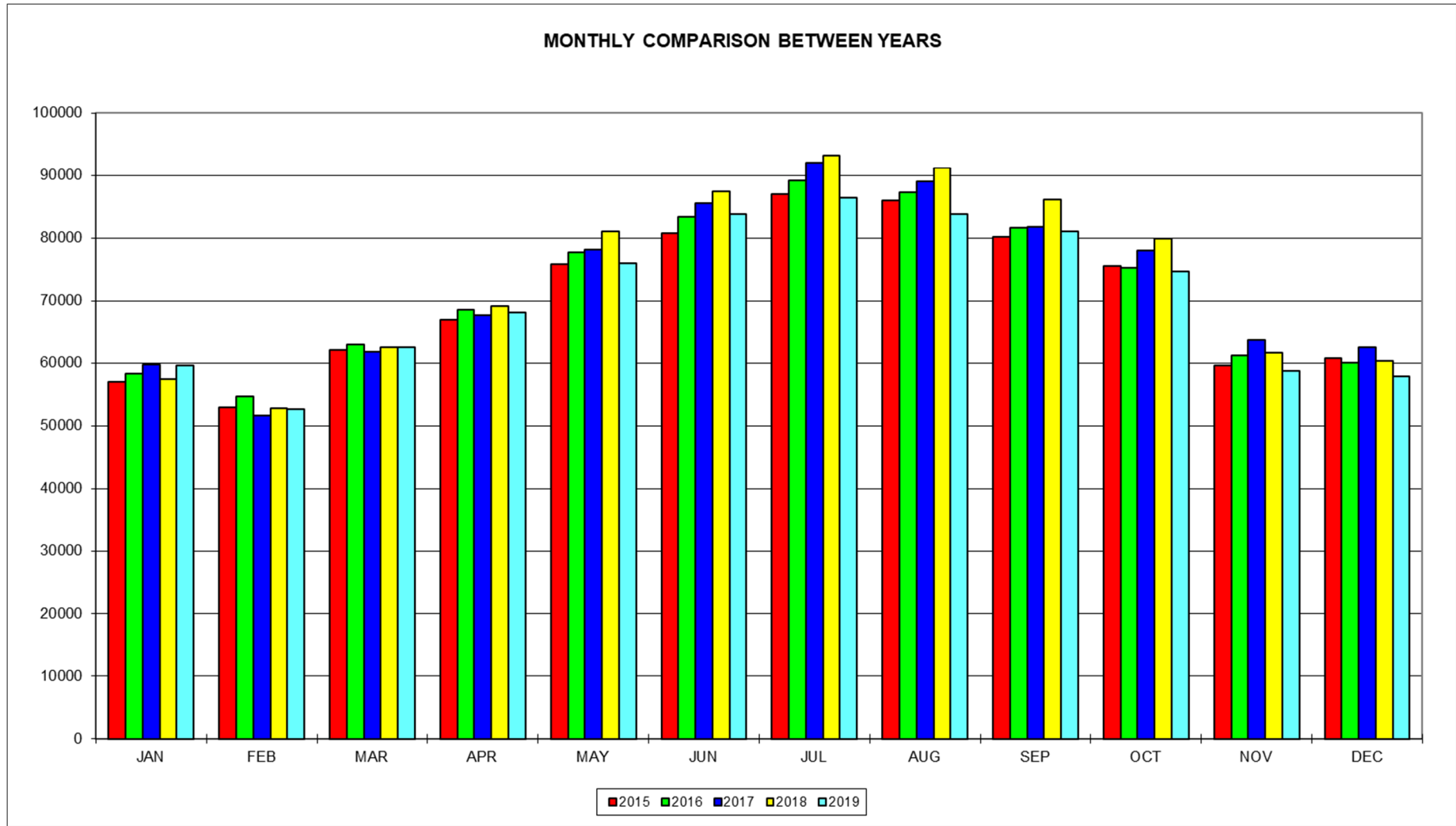
NAT Family "D"		
QD	41	0,07%
TD	10	0,02%
VD	54752	87,21%
XD	7237	11,53%
YD	741	0,00%
TOTAL	62781	100,00%

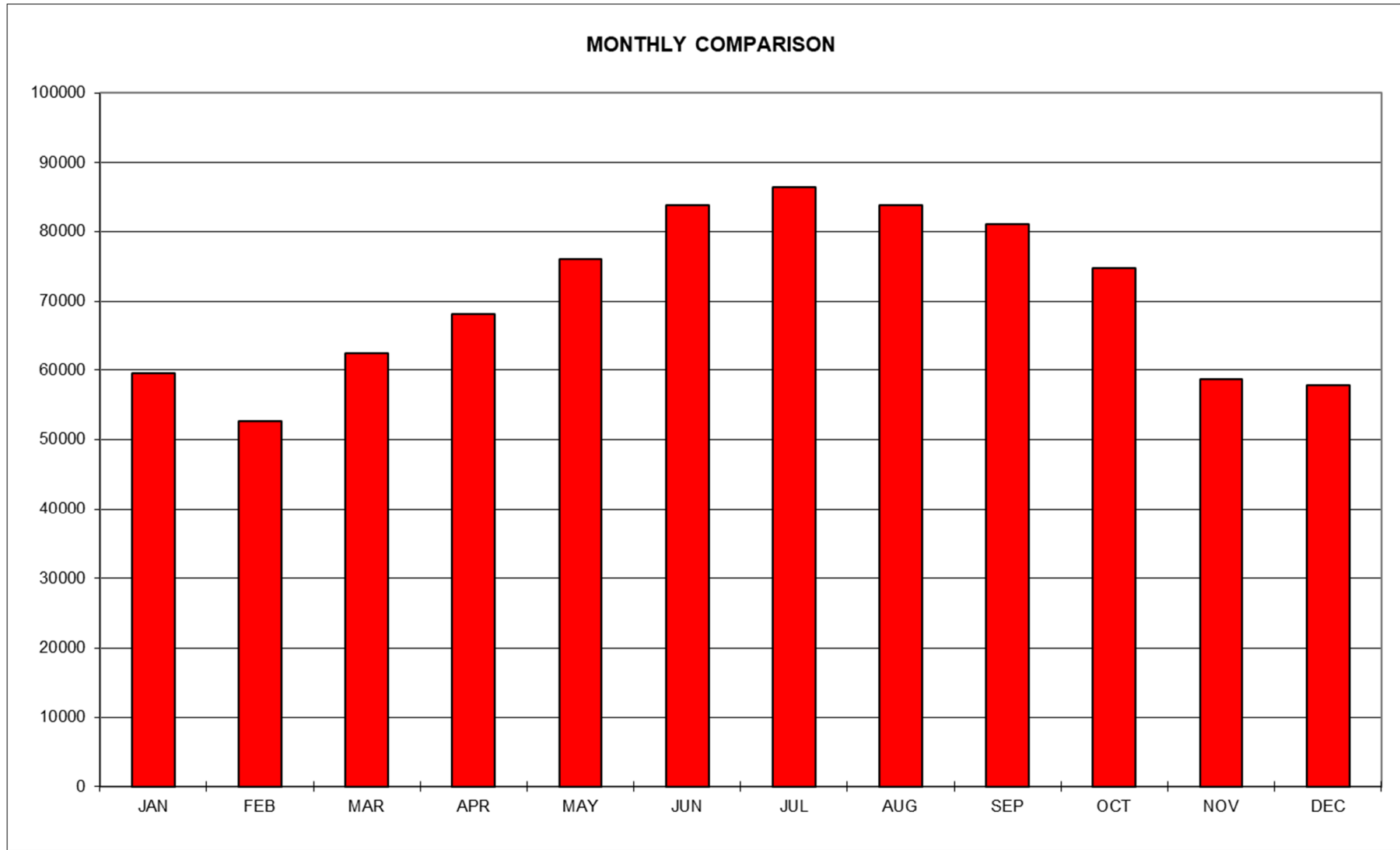
3.3 Appendix 3 - Gander

RT TRAFFIC COMPARISON

MONTH \ YEAR	2015	2016	2017	2018	2019
JANUARY	56984	58221	59731	57346	59568
FEBRUARY	52935	54668	51598	52829	52670
MARCH	62040	62856	61790	62542	62479
APRIL	66942	68583	67736	69110	68084
MAY	75799	77781	78187	81097	76011
JUNE	80711	83342	85565	87500	83772
JULY	86952	89141	92057	93228	86387
AUGUST	85936	87212	88999	91222	83851
SEPTEMBER	80133	81657	81727	86087	81067
OCTOBER	75587	75180	78000	79854	74686
NOVEMBER	59607	61122	63702	61657	58680
DECEMBER	60722	60056	62438	60336	57789
TOTAL	844348	859819	871530	882808	845044







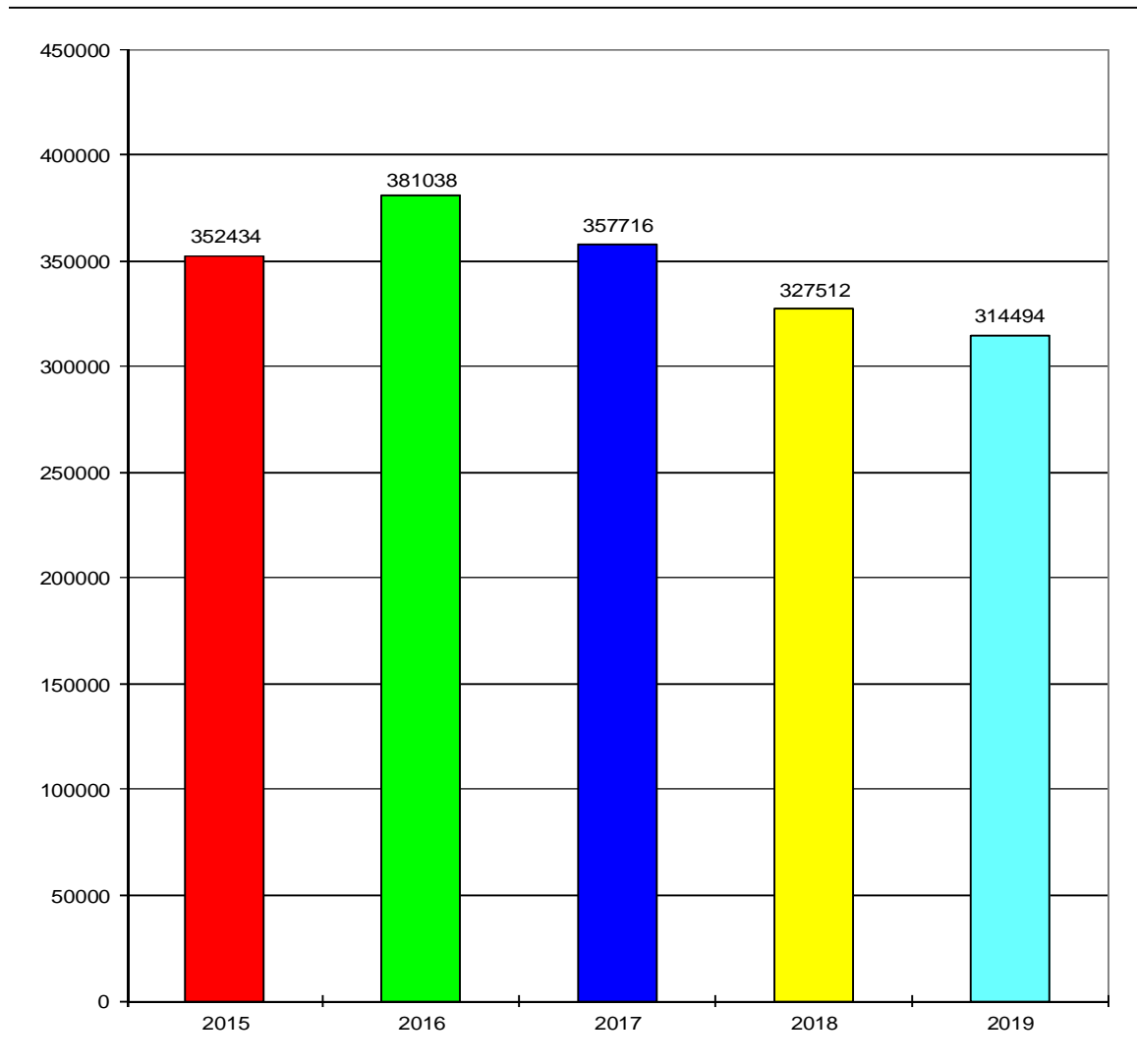
FAMILY	NAT Family A				NAT Family B				NAT Family C					NAT FAMILY "D"				NAT Family F				GP VHF										SP	TOTALS		
	FREQ	QA	TA	VA	YA	QB	TB	VB	YB	QC	TC	VC	XC	YC	QD	TD	VD	XD	QF	TF	VF	YF	20,55MH	22,375MH	23,75MH	24,82MH	26,9MH	27,1MH	27,9MH	34,47MH	34,95MH			19,85MH	35,35MH
MONTH	3016	5598	8906	13306	2899	5616	8864	13291	2872	5649	8879	11336	13306	2971	4675	8891	11279	3476	6622	8831	13291	120,55	122,375	123,75	124,82	126,9	127,1	127,9	134,47	134,95	119,85	135,35	ATC		
JANUARY	0	0	0	0	1780	8978	7282	0	0	1	2	385	0	3784	47	2076	0	1	106	9961	5904	1496	10482	1200	732	450	150	1044	304	14	1312	2020	4	73	59568
FEBRUARY	0	2	0	0	799	7931	6824	2	3	1	2	0	0	4387	7	2667	0	1	238	8254	5761	689	8757	789	435	378	427	1051	289	14	102	2788	5	67	52670
MARCH	0	7	0	0	2703	7411	7875	0	1	1	1	4	0	4612	18	2791	0	1	170	9648	6769	1028	11161	1282	615	112	735	1241	429	24	1463	2287	7	83	62479
APRIL	0	0	1	0	480	8761	8879	0	0	0	2	0	0	5763	29	3516	0	2	59	9900	8275	941	12246	1464	705	388	150	1647	548	28	755	3423	8	114	68084
MAY	0	0	0	0	209	10327	10570	2	0	2	1	635	0	5690	13	3969	0	0	146	10969	9656	980	12948	1527	792	429	600	1059	745	287	361	3998	28	68	76011
JUNE	0	0	0	0	16	12276	11614	0	0	0	2	1442	0	5323	5	3716	0	0	14	12288	10642	953	14622	1456	855	356	561	816	1107	689	1520	3408	15	76	83772
JULY	0	0	1	0	2985	13127	11567	0	1	2	1	3981	0	2795	1	885	0	0	39	13041	10217	1476	14958	1079	1268	158	378	1239	899	593	2113	3515	10	58	86387
AUGUST	0	1	0	0	1167	12775	10685	0	1	0	1	4173	0	4680	13	79	0	0	827	12240	9223	945	15383	1626	1091	124	447	1637	698	37	1034	4863	20	81	83851
SEPTEMBER	0	0	0	1	464	12183	10015	10	0	0	1	2633	1	5561	33	1216	0	0	60	12274	8697	1374	14670	1801	1191	1084	374	1776	623	32	1820	3048	15	110	81067
OCTOBER	0	0	1	0	527	11274	9854	0	0	1	0	2510	0	5238	20	1308	0	0	121	11047	8453	1313	13142	1413	676	1144	362	1745	453	24	855	3068	17	120	74686
NOVEMBER	0	2	0	0	1921	8039	6860	0	0	1	0	88	0	4327	7	2667	0	110	200	8973	5713	941	11175	818	335	1174	364	1423	413	57	1065	1905	10	92	58680
DECEMBER	0	0	0	0	2343	15077	3254	0	0	0	1	0	0	3450	1	279	0	1	195	9693	6178	1078	10246	680	536	590	0	1114	329	14	513	2114	49	54	57789
SUB-TOTALS	0	12	3	1	15394	128159	105279	14	6	9	14	15831	1	55610	194	25169	0	116	2175	128288	95488	13214	149790	15135	9231	6387	4548	15792	6837	1813	12913	36437	188	996	845044
PERCENT %	0,00%	0,00%	0,00%	0,00%	1,82%	15,17%	12,46%	0,00%	0,00%	0,00%	0,00%	1,87%	0,00%	6,58%	0,02%	2,98%	0,00%	0,01%	0,26%	15,18%	11,30%	1,56%	17,73%	1,79%	1,09%	0,76%	0,54%	1,87%	0,81%	0,21%	1,53%	4,31%	0,02%	0,12%	100,00%

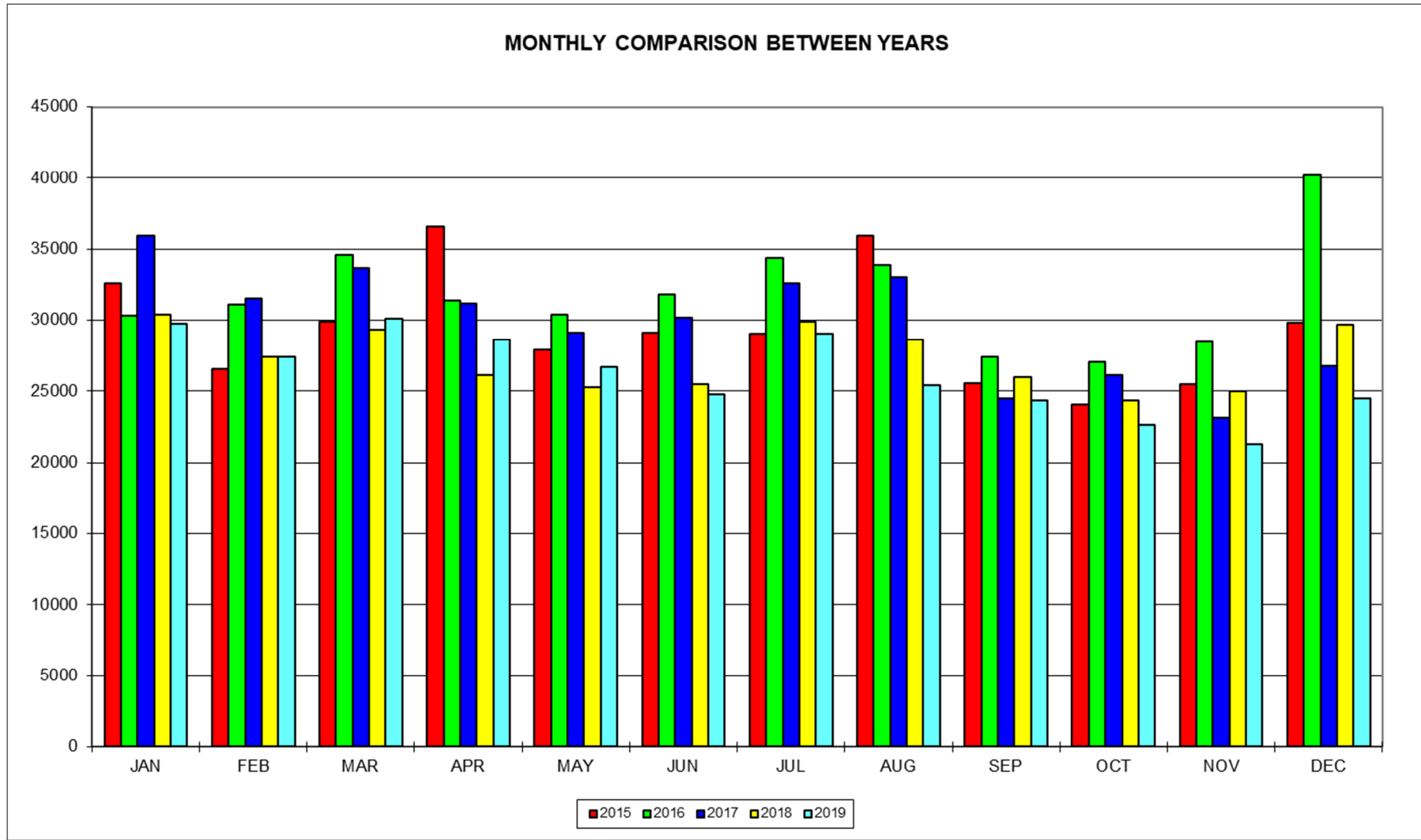
	NAT Family "A"		NAT Family "B"		NAT Family "C"		NAT Family "D"		NAT Family "F"		GP VHF		SP						
QA	0	0,00%	QB	15394	1,82%	QC	6	0,00%	QD	55610	6,58%	QF	116	0,01%	120,55	13214	1,56%	996	0,12%
TA	12	0,00%	TB	128159	15,17%	TC	9	0,00%	TD	194	0,02%	TF	2175	0,26%	122,375	149790	17,73%		
VA	3	0,00%	VB	105279	12,46%	VC	14	0,00%	VD	25169	2,98%	VF	128288	15,18%	123,75	15135	1,79%		
YA	1	0,00%	YB	14	0,00%	XC	15831	1,87%	XD	0	0,00%	YF	95488	11,30%	124,82	9231	1,09%		
						YC	1	0,00%							126,9	6387	0,76%		
															127,1	4548	0,54%		
															127,9	15792	1,87%		
															134,47	6837	0,81%		
															134,95	1813	0,21%		
															119,85	12913	1,53%		
															135,35	36437	4,31%		
															ATC	188	0,02%		
TOTAL	16	0,00%	TOTAL	248846	29,45%	TOTAL	15861	1,88%	TOTAL	80973	9,58%	TOTAL	226067	26,75%	TOTAL	272285	32,22%	996	0,12%

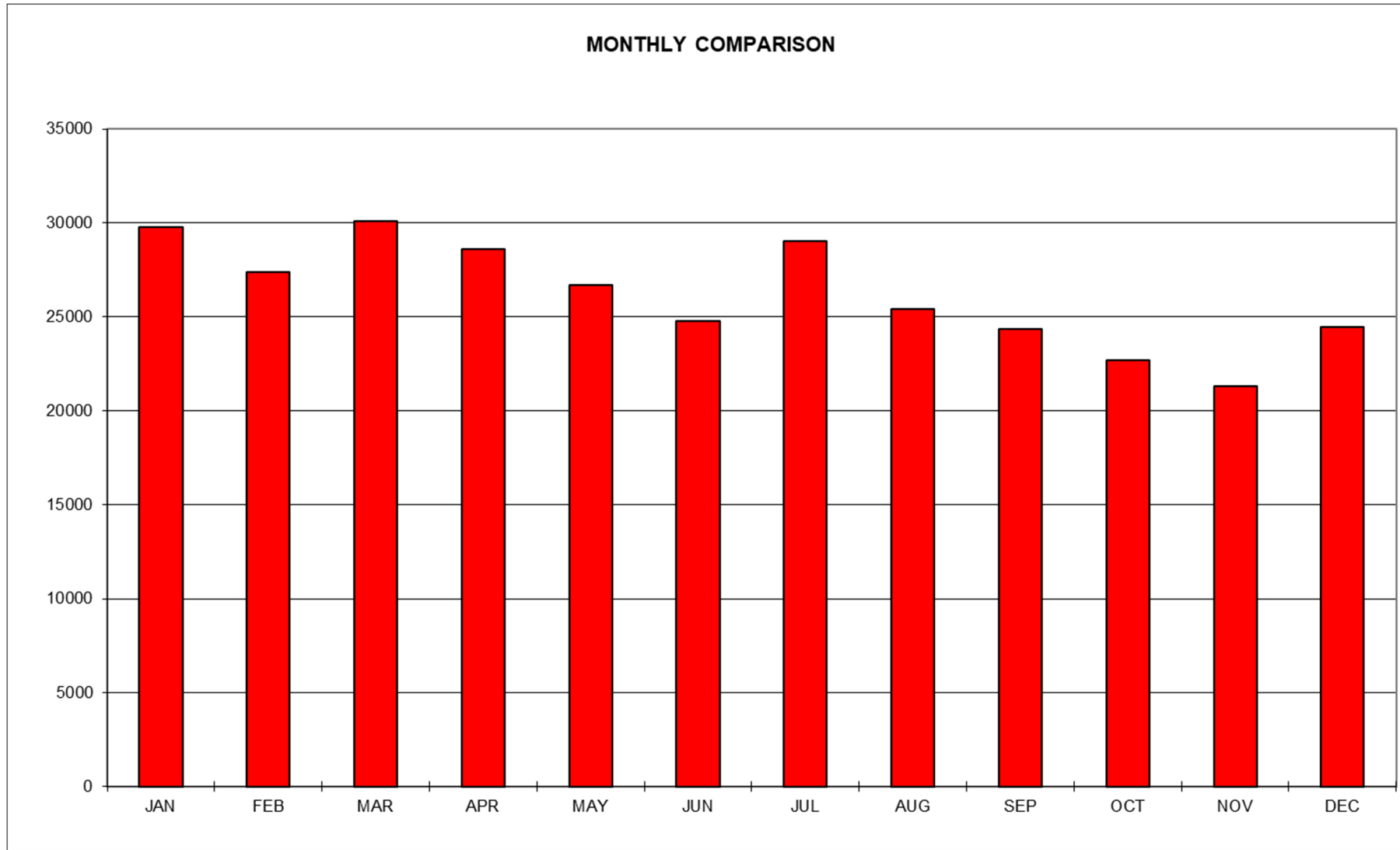
3.4 Appendix 4 - New York

RT TRAFFIC COMPARISON

MONTH \ YEAR	2015	2016	2017	2018	2019
JANUARY	32567	30303	35973	30399	29740
FEBRUARY	26551	31135	31494	27384	27400
MARCH	29869	34578	33653	29343	30100
APRIL	36561	31398	31177	26134	28616
MAY	27889	30410	29101	25284	26660
JUNE	29137	31788	30183	25491	24773
JULY	29052	34351	32588	29916	29005
AUGUST	35914	33875	32993	28604	25418
SEPTEMBER	25531	27434	24500	25957	24364
OCTOBER	24084	27068	26158	24369	22665
NOVEMBER	25458	28482	23117	24971	21285
DECEMBER	29821	40216	26779	29660	24468
TOTAL	352434	381038	357716	327512	314494







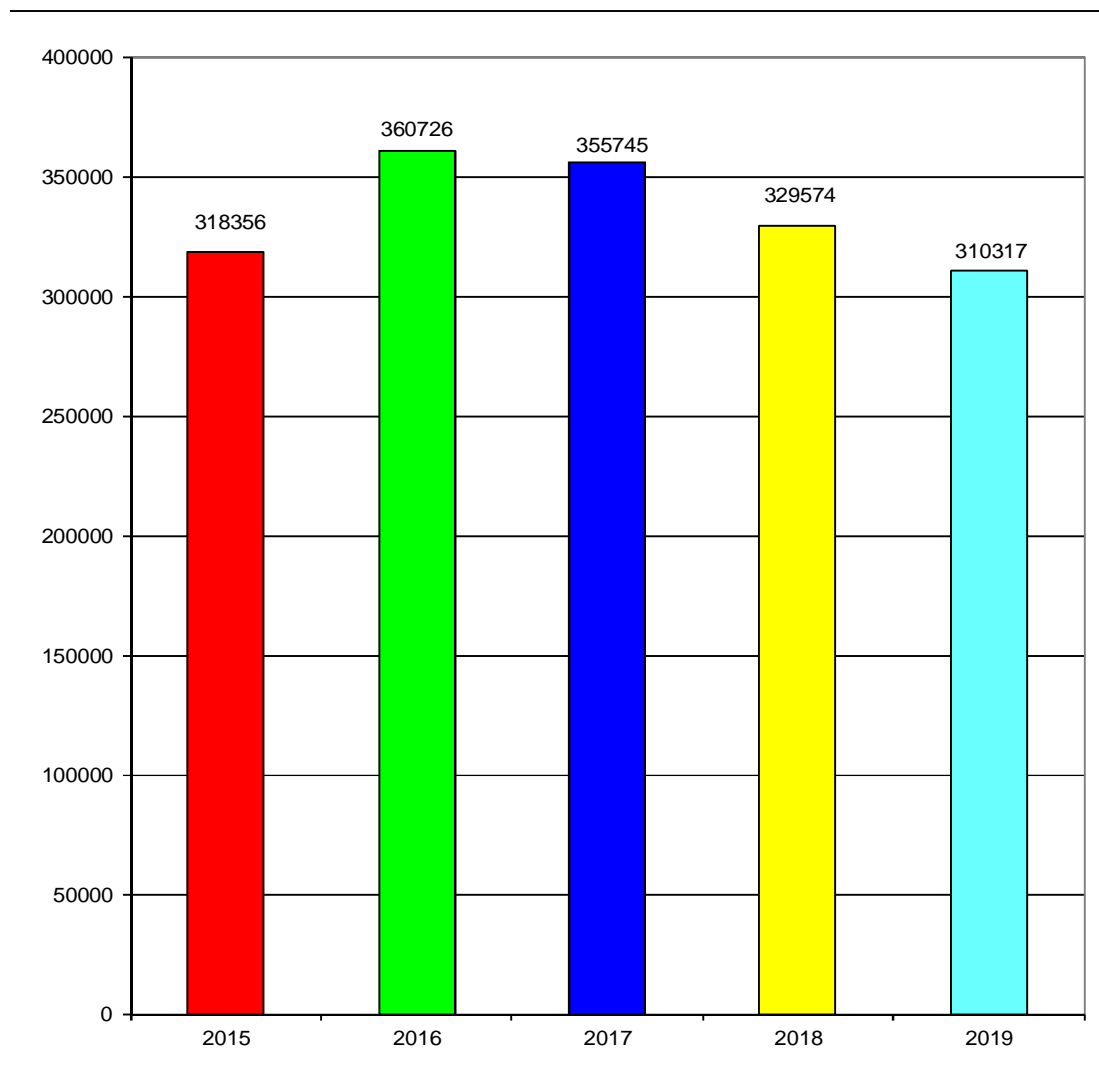
FAMILY	NAT Family "A"							NAT Family "E"						GP	SP	TOTALS
	FREQ	QA	TA	VA	XO	YA	ZA	PE/PT	QE	TE	VE	XE	YE	ZE		
MONTH	3016	5598	8906	11396	13306	17946	21964	2962	6628	8825	11309	13354	17952	129,9		
JANUARY	74	3899	1122	7174	677	4	1	12	2871	3414	4740	298	0	5306	148	29740
FEBRUARY	291	4294	799	5479	233	2	5	136	2512	2342	4486	561	1	6091	168	27400
MARCH	769	3891	882	6252	908	4	0	136	2589	3623	5389	53	0	5430	174	30100
APRIL	313	3805	1570	3476	3830	1	0	14	1645	2964	4471	1115	2	5252	158	28616
MAY	163	4668	1426	524	5248	87	0	1	438	2572	4432	0	71	6868	162	26660
JUNE	43	3062	2054	616	2235	4242	4	2	283	2538	4066	0	0	5491	137	24773
JULY	66	4063	1534	576	1470	6341	1	0	289	2390	5192	1445	30	5444	164	29005
AUGUST	143	4310	1354	756	4978	0	3	1	775	0	7132	0	6	5693	267	25418
SEPTEMBER	383	4071	899	764	7953	0	3	19	1369	0	4448	0	0	4230	225	24364
OCTOBER	150	4398	832	1125	5791	0	2	11	1712	0	4051	0	0	4430	163	22665
NOVEMBER	215	3783	516	2664	4781	0	0	2	2242	0	2843	0	0	4045	194	21285
DECEMBER	129	5362	1287	4819	1434	0	1	278	1532	0	2861	0	0	6616	149	24468
SUB-TOTALS	2739	49606	14275	34225	39538	10681	20	612	18257	19843	54111	3472	110	64896	2109	314494
PERCENT %	0,87%	15,77%	4,54%	10,88%	12,57%	3,40%	0,01%	0,19%	5,81%	6,31%	17,21%	1,10%	0,03%	20,64%	0,67%	100,00%

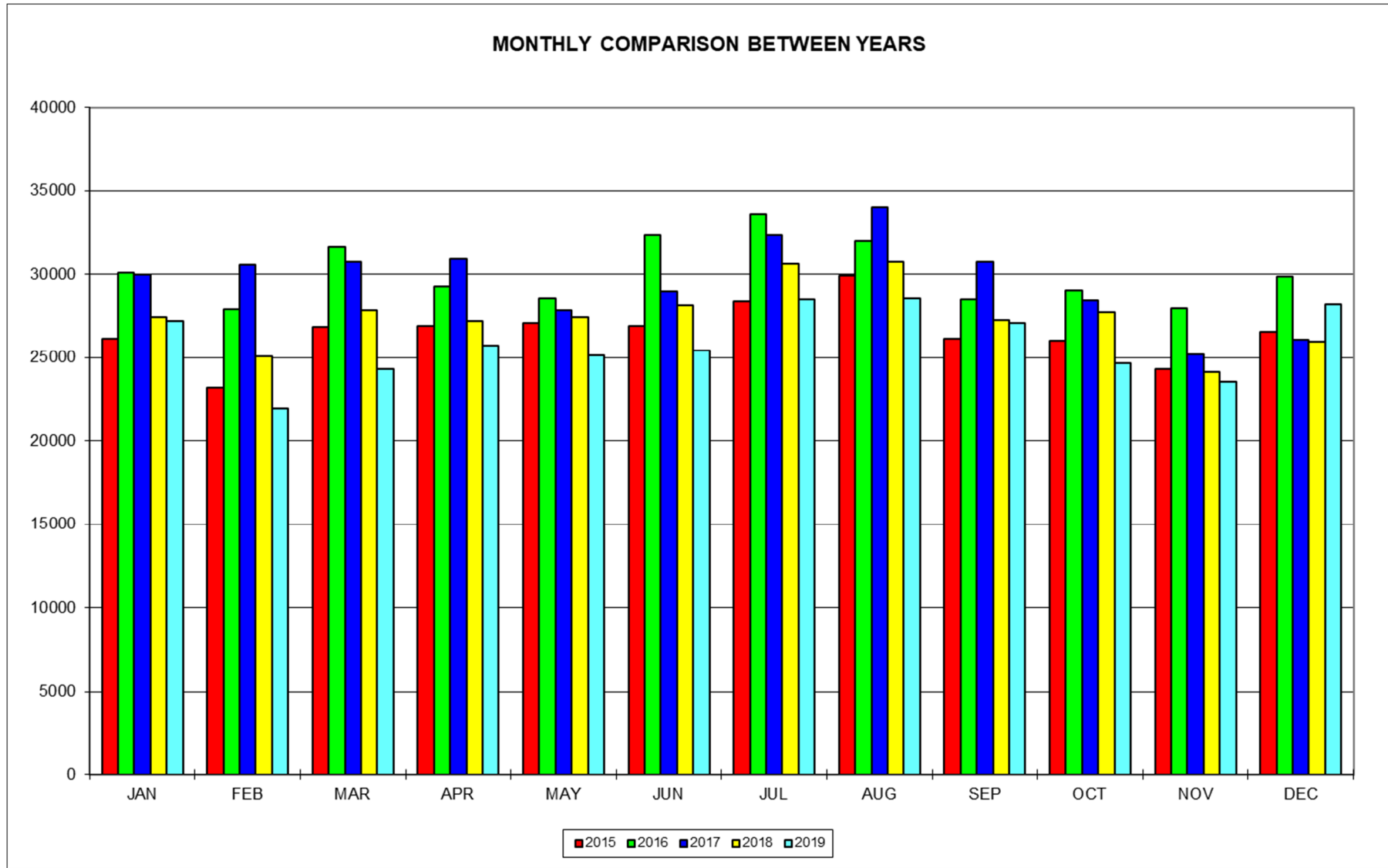
	NAT Family "A"		NAT Family "E"		GP VHF/SP		SP			
QA	2739	0,87%	QE	612	0,19%	129,9	64896	20,64%	2109	0,67%
TA	49606	15,77%	TE	18257	5,81%					
VA	14275	4,54%	VE	19843	6,31%					
XO	34225	10,88%	XE	54111	17,21%					
YA	39538	12,57%	YE	3472	1,10%					
ZA	10681	3,40%	ZE	110	0,03%					
PE/PT	20	0,01%								
TOTAL	151084	48,04%	TOTAL	96405	30,65%	TOTAL	64896	20,64%	2109	0,67%

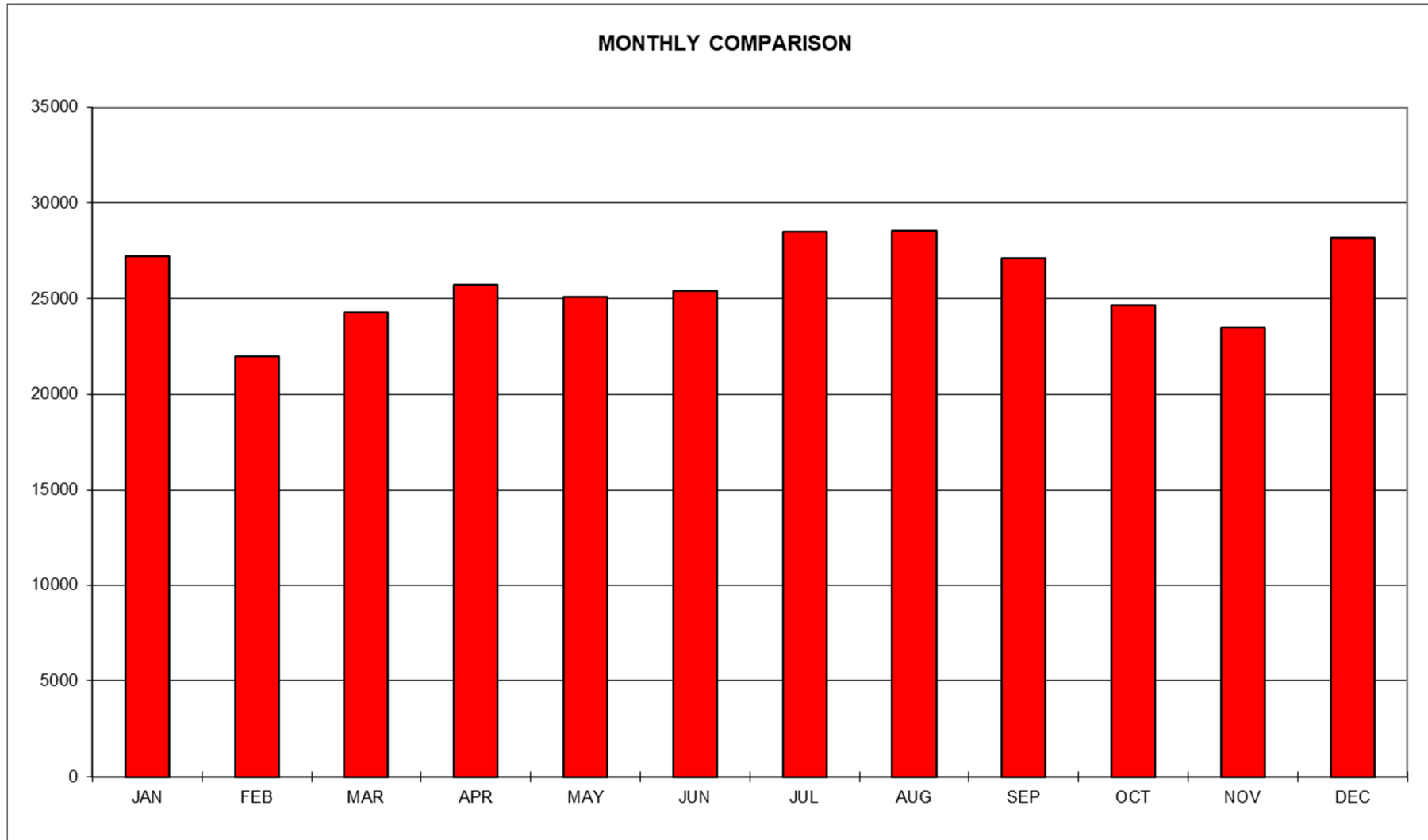
3.5 Appendix 5 - Santa Maria

RT TRAFFIC COMPARISON

MONTH \ YEAR	2015	2016	2017	2018	2019
JANUARY	26133	30111	29953	27457	27223
FEBRUARY	23164	27897	30583	25061	21953
MARCH	26865	31626	30774	27879	24321
APRIL	26904	29264	30913	27190	25720
MAY	27073	28568	27832	27421	25109
JUNE	26893	32343	28948	28155	25413
JULY	28386	33563	32333	30650	28519
AUGUST	29915	31996	33979	30726	28578
SEPTEMBER	26137	28508	30733	27279	27100
OCTOBER	26042	29023	28422	27728	24672
NOVEMBER	24295	27968	25209	24097	23518
DECEMBER	26549	29859	26066	25931	28191
TOTAL	318356	360726	355745	329574	310317







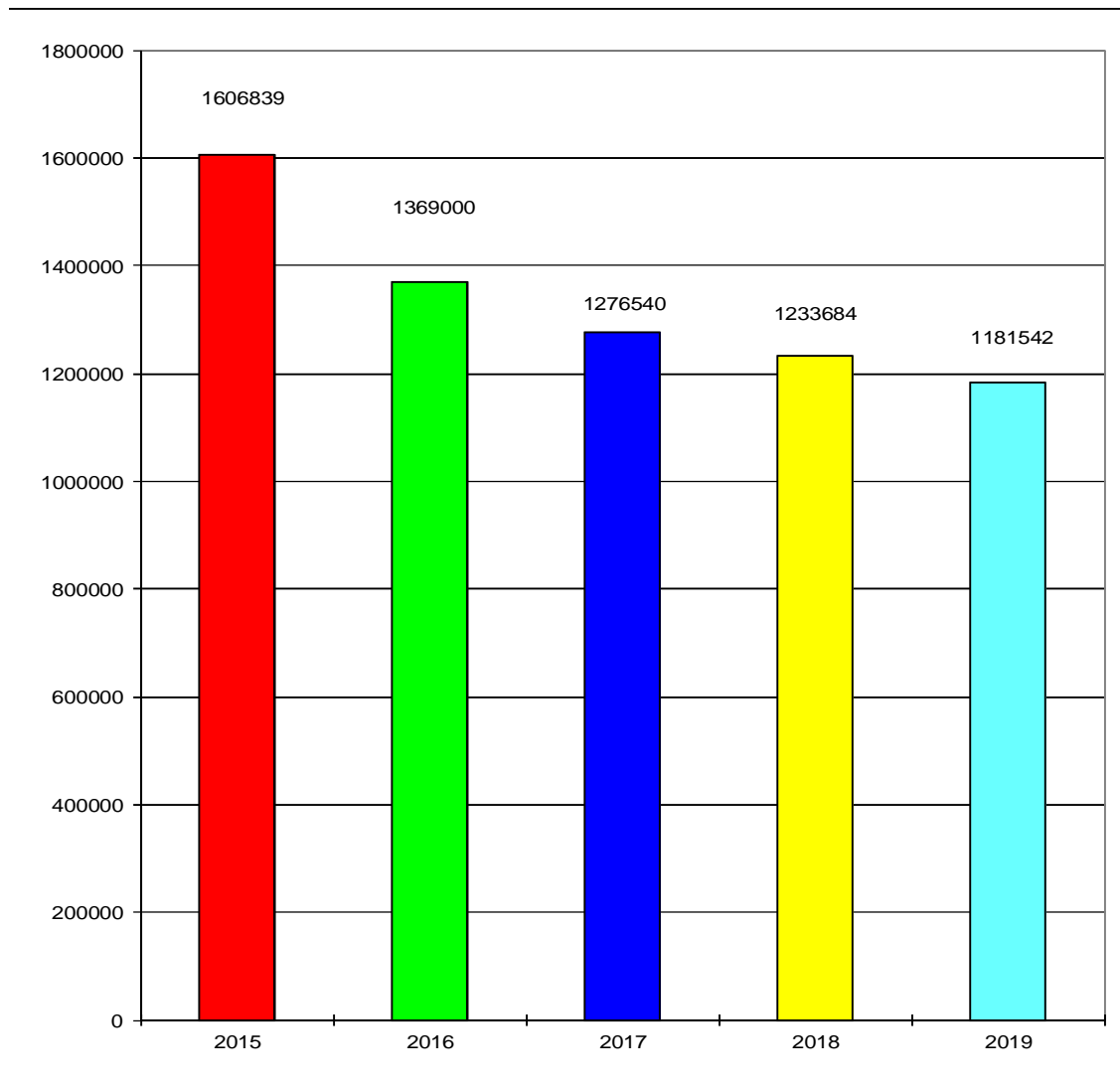
FAMILY	NAT Family A					NAT Family E					RDARA NAT H		GP		SP	TOTALS
	FREQ	QA	TA	VA	YA	ZA	QE	TE	VE	XE	YE	QH	TH	JK		
MONTH	3016	5598	8906	13306	17946	2962	6628	8825	11309	13354	3491	6667	127,9	132,075		
JANUARY	32	414	7191	0	0	1	12019	3499	5	0	2793	0	480	598	191	27223
FEBRUARY	94	2639	4325	0	0	777	4684	2833	9	0	1939	3551	311	534	257	21953
MARCH	72	3623	5082	0	0	72	3532	3300	6	0	3518	3872	409	605	230	24321
APRIL	372	4750	6119	0	0	1	7595	3732	331	0	1438	4	393	815	170	25720
MAY	723	842	3963	0	0	0	14051	4033	138	0	61	0	429	646	223	25109
JUNE	257	1155	7098	0	0	0	13183	2229	217	1	8	2	469	649	145	25413
JULY	271	714	8086	0	0	0	15547	2064	427	0	11	1	510	714	174	28519
AUGUST	535	1040	7295	0	0	0	15802	2327	58	0	21	0	504	758	238	28578
SEPTEMBER	1315	726	6485	0	0	7	15634	1487	12	0	115	2	418	668	231	27100
OCTOBER	2814	860	4991	0	0	4	13207	1514	11	0	62	2	412	535	260	24672
NOVEMBER	2179	955	5599	0	0	2	12301	1148	0	3	109	0	352	594	276	23518
DECEMBER	3192	3932	5685	0	0	4	12890	888	0	0	370	0	382	590	258	28191
SUB-TOTALS	11856	21650	71919	0	0	868	140445	29054	1214	4	10445	7434	5069	7706	2653	310317
PERCENT %	3,82%	6,98%	23,18%	0,00%	0,00%	0,28%	45,26%	9,36%	0,39%	0,00%	3,37%	2,40%	1,63%	2,48%	0,85%	100,00%

	NAT Family A		NAT Family E		RDARA NAT H		GP VHF		SP							
	QA	TA	VA	YA	ZA	QE	TE	VE	XE	YE	QH	TH	JK	JL	SP	TOTALS
	11856	21650	71919	0	0	868	140445	29054	1214	4	10445	7434	5069	7706	2653	310317
	3,82%	6,98%	23,18%	0,00%	0,00%	0,28%	45,26%	9,36%	0,39%	0,00%	3,37%	2,40%	1,63%	2,48%	0,85%	100,00%
TOTAL	105425	33,97%	171585	55,29%	17879	5,76%	12775	4,12%	2653	0,85%						

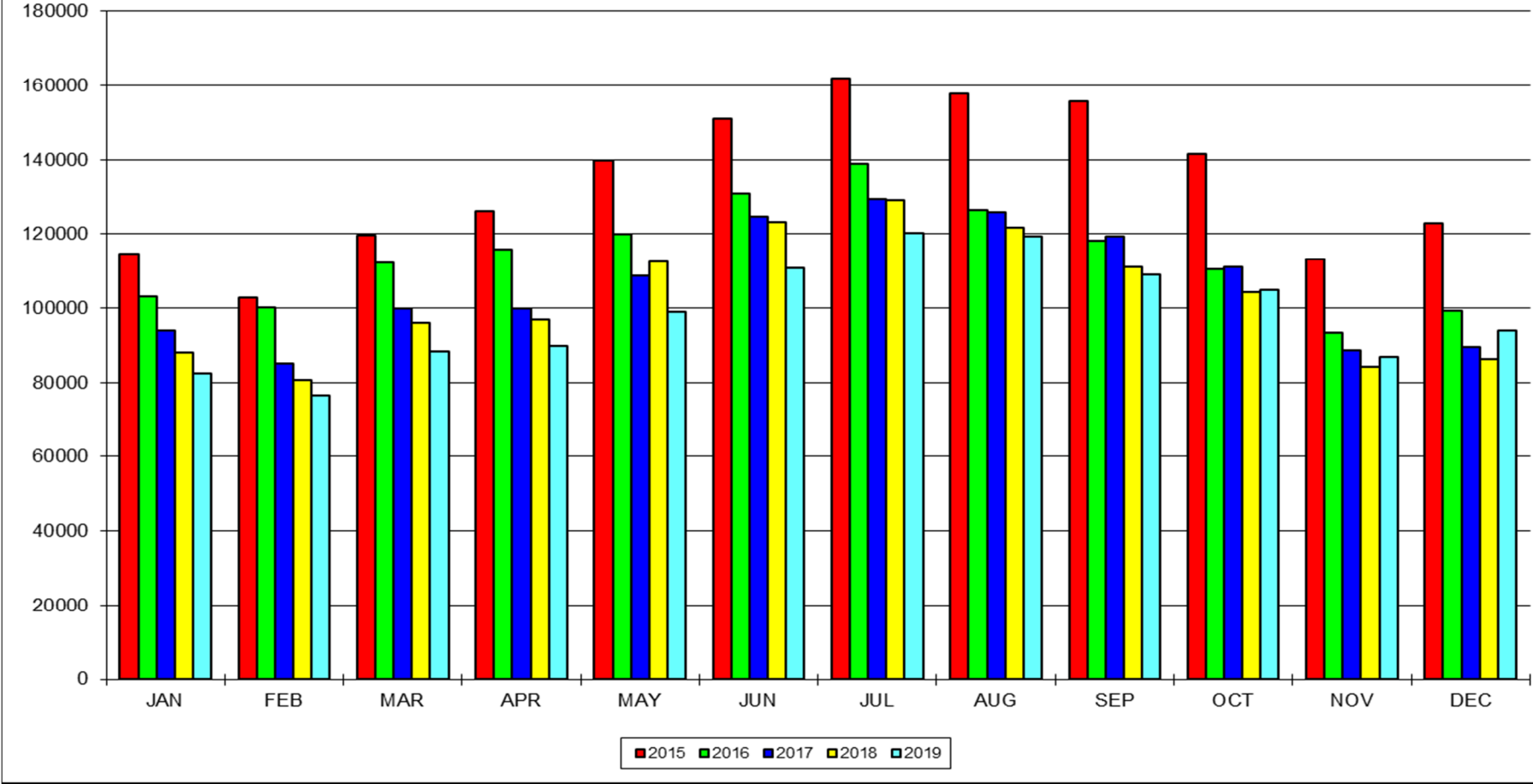
3.6 Appendix 6 – Shanwick and Iceland

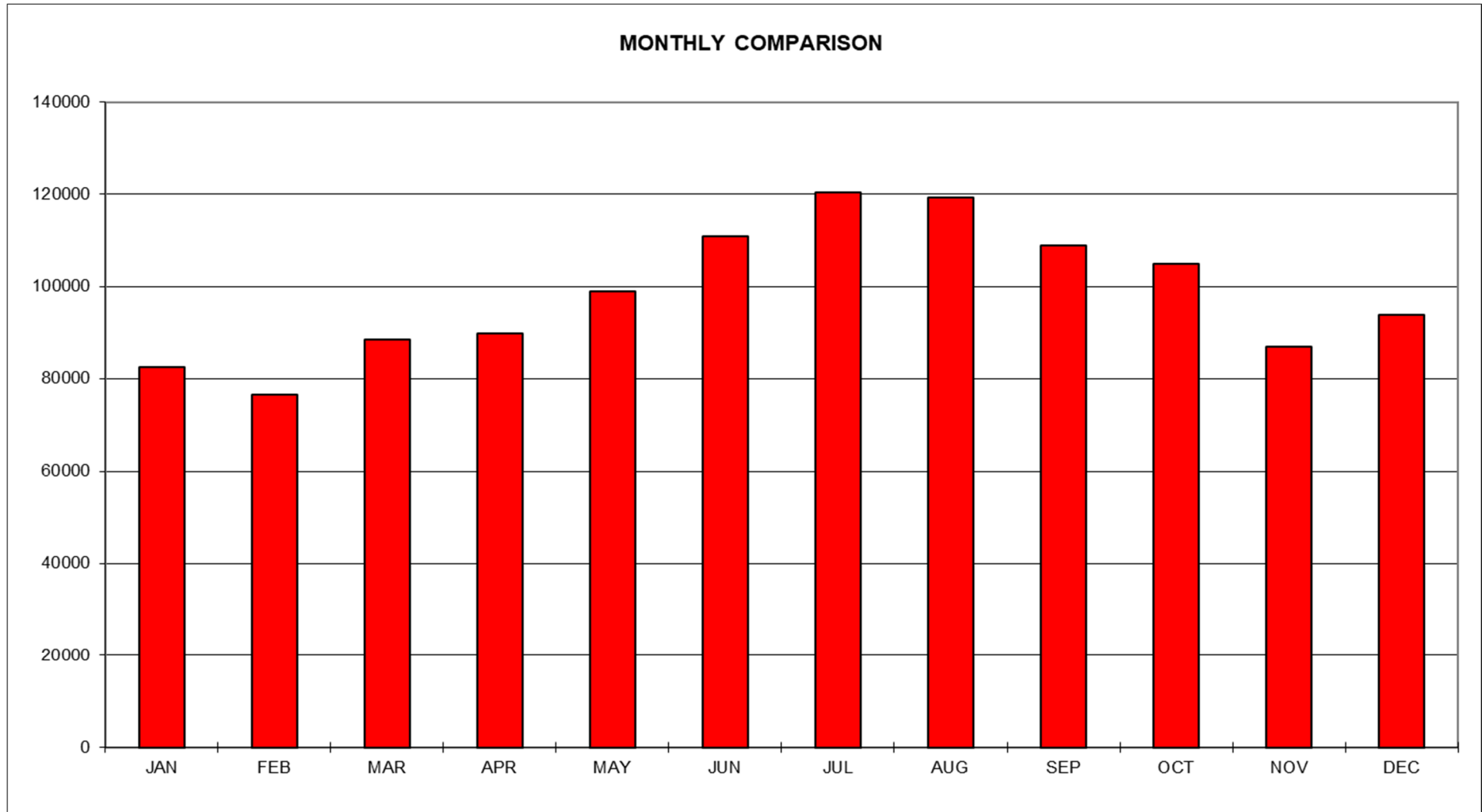
RT TRAFFIC COMPARISON

MONTH \ YEAR	2015	2016	2017	2018	2019
JANUARY	114678	103006	94094	88048	82582
FEBRUARY	102771	100171	85103	80756	76470
MARCH	119613	112298	99721	95905	88457
APRIL	126030	115904	99935	96928	89883
MAY	139829	120103	108798	112450	98974
JUNE	150958	130870	124684	123112	110933
JULY	162051	138919	129507	129106	120277
AUGUST	157684	126409	125967	121714	119232
SEPTEMBER	155696	118148	119403	111089	108972
OCTOBER	141621	110448	111147	104291	104938
NOVEMBER	113082	93392	88696	84076	86812
DECEMBER	122826	99332	89485	86209	94012
TOTAL	1606839	1369000	1276540	1233684	1181542



MONTHLY COMPARISON BETWEEN YEARS





FAMILY	NAT Family A				NAT Family B				NAT Family C				NAT Family D				NAT Family F				RDARA NAT FAMILY "H"				RDARA NAT FAMILY "I"				RDARA NAT FAMILY "J"				GP VHF					SP	TOTALS				
	FREQ	QA	TA	VA	YA	QB	TB	VB	YB/YD	QC	TC	VC	XC	QD	TD	VD	XD	ZA	QF	TF	VF	YF	QH	TH	VH	XH	TL	QI	TI	VI	XI	QL	QJ	TJ	VJ	QK	TK			124,175	126,550	127,850	127,900
MONTH	3016	5598	8906	13306	2899	5616	8864	13291	2872	5649	8879	11336	2971	4675	8891	11279	17946	3476	6622	8831	13291	3491	6667	8864	10021	5583	2890	6595	10066	2860	3446	6547	8954	2944	4651	124,175	126,550	127,850	127,900	129,625			
JANUARY	2	3538	2	0	1	95	2890	0	9965	5513	1812	0	4811	4701	3502	17	0	1179	1406	1	0	1	4	1	0	5089	0	0	1	0	1	3606	5828	0	2	7588	1447	3179	13584	1662	1056	98	82582
FEBRUARY	2	3200	4	0	12	175	2746	0	8975	5464	1976	0	3851	4488	2802	50	0	801	1091	2	0	1	21	0	0	5115	0	59	0	0	0	3153	5594	0	0	7152	1843	2965	12104	1568	1123	133	76470
MARCH	0	1744	3	0	62	2384	2443	0	8630	7467	2297	1	4330	4769	4114	26	0	291	1669	0	0	6	15	1	3	6516	0	96	2	0	0	2915	7538	0	751	7530	1670	3602	14111	1949	1353	169	88457
APRIL	0	1359	3	0	2	4026	2382	0	6206	9587	3293	0	3517	4122	3796	91	1	605	2026	5	0	2	1351	1	1525	6929	0	2	1	0	0	3438	7252	1	1	7565	1236	2940	12681	2588	1234	115	89883
MAY	0	1	4	0	120	4429	3392	0	3267	13057	3704	0	2290	4332	3616	65	0	800	3272	3	0	1886	201	0	2463	7985	0	3289	1	0	0	761	8474	1	1	8463	1449	3140	14475	2345	1575	113	98974
JUNE	0	2	6	4	0	542	4149	0	50	16345	4159	3	0	4986	3337	69	0	10	3925	1	0	2033	19	1	2438	14462	0	6106	3	0	1	1981	9674	2	0	8660	1453	4248	18032	2629	1500	103	110933
JULY	0	1	7	0	4	877	3928	0	151	17277	3667	1	0	5855	4773	62	0	2	3566	1	0	2186	17	1	2607	15624	0	5854	1	0	0	2115	9757	0	0	9166	1460	5075	20849	3030	2118	145	120277
AUGUST	0	3	4	0	0	777	3747	0	117	16604	3470	1	0	6800	4524	58	0	3	3378	2	0	2316	21	0	2477	14227	0	5533	0	0	0	2741	8638	0	0	10003	1436	5813	20520	3464	2224	131	119232
SEPTEMBER	2	2	2	0	0	19	3233	0	1277	15968	3122	0	0	5106	3609	50	0	9	3155	3	0	2566	18	0	2364	13223	0	4862	0	0	0	2775	8298	0	3	10726	1545	4629	17944	2649	1542	171	108972
OCTOBER	1	2126	2	0	1	149	3692	0	1749	12390	2869	1	0	5857	3408	24	0	100	2878	1	0	4576	10	1	1327	12427	0	4399	0	0	0	2982	7980	0	2	7509	1401	4124	17730	2450	2631	141	104938
NOVEMBER	0	3754	3	0	563	13	2789	0	8046	6433	1446	0	719	5806	2493	4	0	11	1661	4	0	7467	18	0	1	5574	1	0	0	0	1	4147	5989	0	3	4651	1823	4217	14650	2733	1679	113	86812
DECEMBER	1	3387	6	0	18	22	2536	0	11052	6260	2859	0	2159	5798	2738	18	2	10	1390	58	0	5943	15	1	3	5279	0	323	0	0	0	194	6160	0	3183	9639	2662	3982	14052	2518	1619	125	94012
SUB-TOTALS	8	19117	46	4	783	13508	37927	0	59485	132365	34674	7	21677	62620	42712	534	3	3821	29417	81	0	28983	1710	7	15208	112450	1	30723	9	0	3	30808	91382	4	3946	98652	19425	47914	190732	29585	19654	1557	1181542
PERCENT %	0,00%	1,62%	0,00%	0,00%	0,07%	1,14%	3,21%	0,00%	5,03%	11,20%	2,93%	0,00%	1,83%	5,30%	3,61%	0,05%	0,00%	0,32%	2,49%	0,01%	0,00%	2,45%	0,14%	0,00%	1,29%	9,52%	0,00%	2,60%	0,00%	0,00%	0,00%	2,61%	7,73%	0,00%	0,33%	8,35%	1,64%	4,06%	16,14%	2,50%	1,66%	0,13%	

	NAT Family A		NAT Family B		NAT Family C		NAT Family D		NAT Family F		RDARA NAT FAMILY "H"		RDARA NAT FAMILY "I"		RDARA NAT FAMILY "J"		GP VHF			SP																						
QA	8	0,00%	QB	783	0,07%	QC	59485	5,03%	QD	21677	1,83%	QF	3821	0,32%	QH	28983	2,45%	QI	1	0,00%	QJ	30808	2,61%	124,175	19425	1,64%	1557	0,13%														
TA	19117	1,62%	TB	13508	1,14%	TC	132365	11,20%	TD	62620	5,30%	TF	29417	2,49%	TH	1710	0,14%	TI	30723	2,60%	TJ	91382	7,73%	126,550	47914	4,06%																
VA	46	0,00%	VB	37927	3,21%	VC	34674	2,93%	VD	42712	3,61%	VF	81	0,01%	VH	7	0,00%	VI	9	0,00%	VJ	4	0,00%	127,850	190732	16,14%																
YA	4	0,00%	YB/YD	0	0,00%	XC	7	0,00%	XD	534	0,05%	YF	0	0,00%	XH	15208	1,29%	XI	0	0,00%	QK	3946	0,33%	127,900	29585	2,50%																
TOTAL	19175	1,62%	TOTAL	52218	4,42%	TOTAL	226531	19,17%	TOTAL	127546	10,79%	TOTAL	33319	2,82%	TOTAL	158358	13,40%	TOTAL	30736	2,60%	TOTAL	224792	19,03%	TOTAL	307310	26,01%	1557	0,13%														