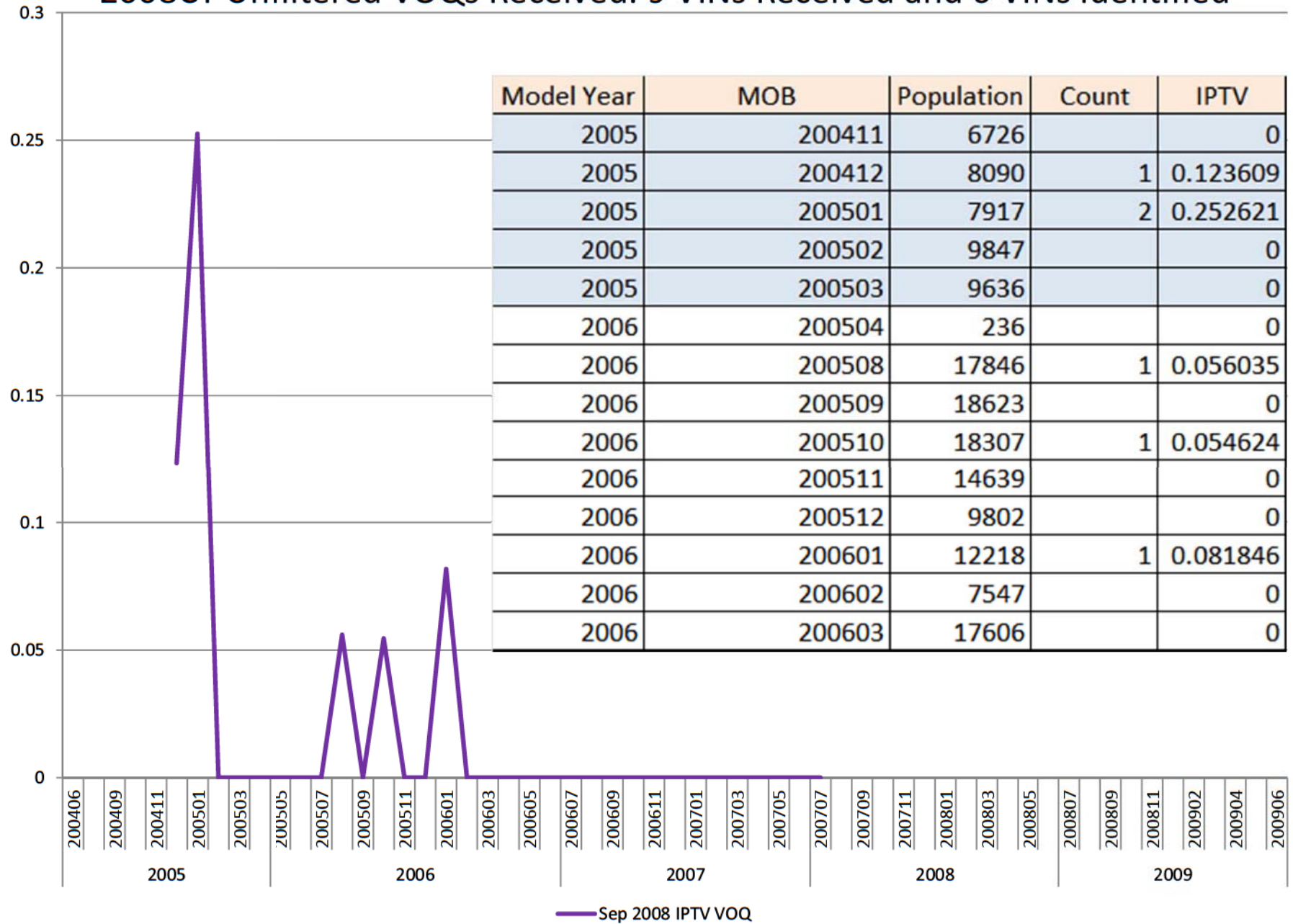
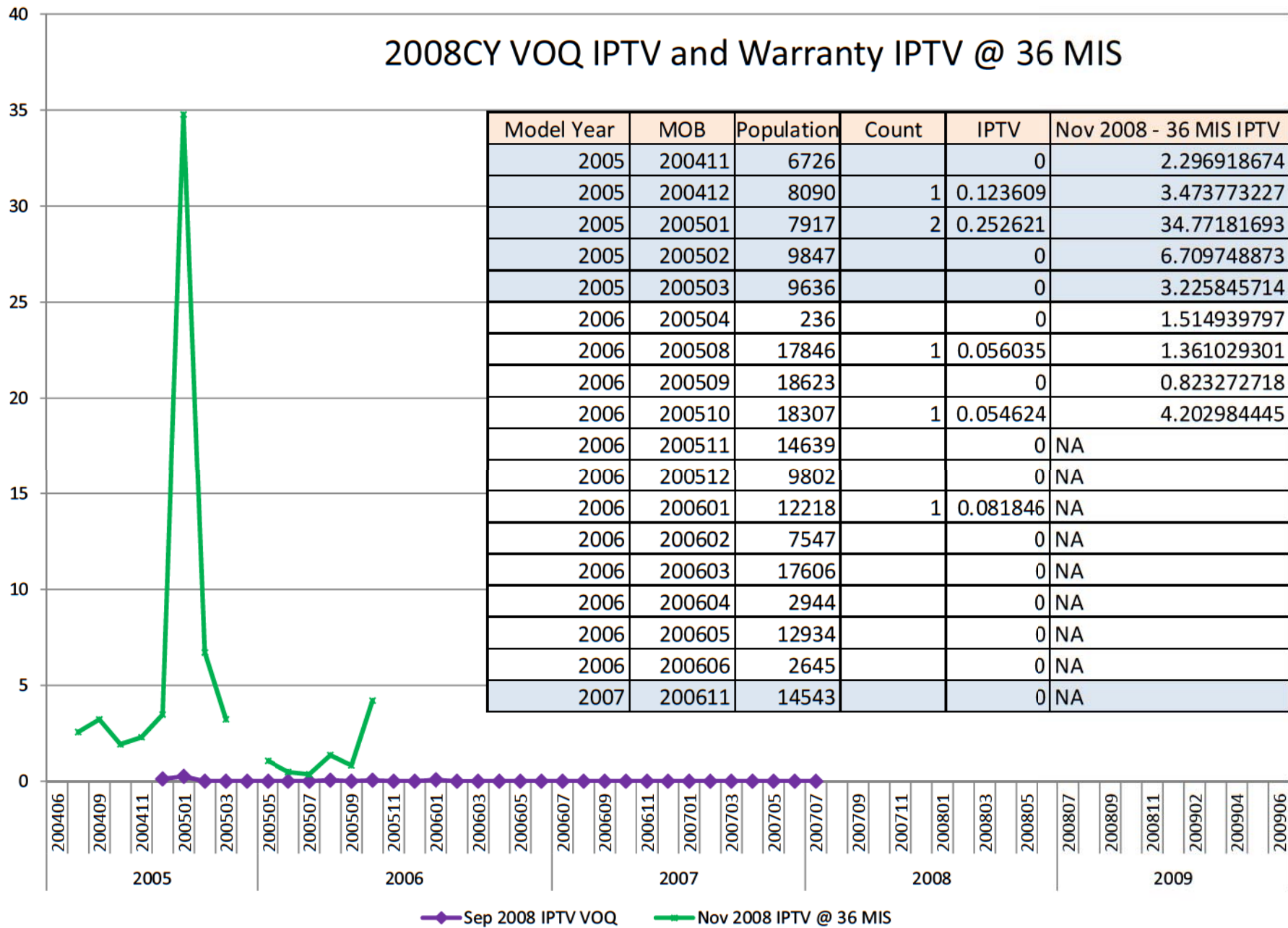


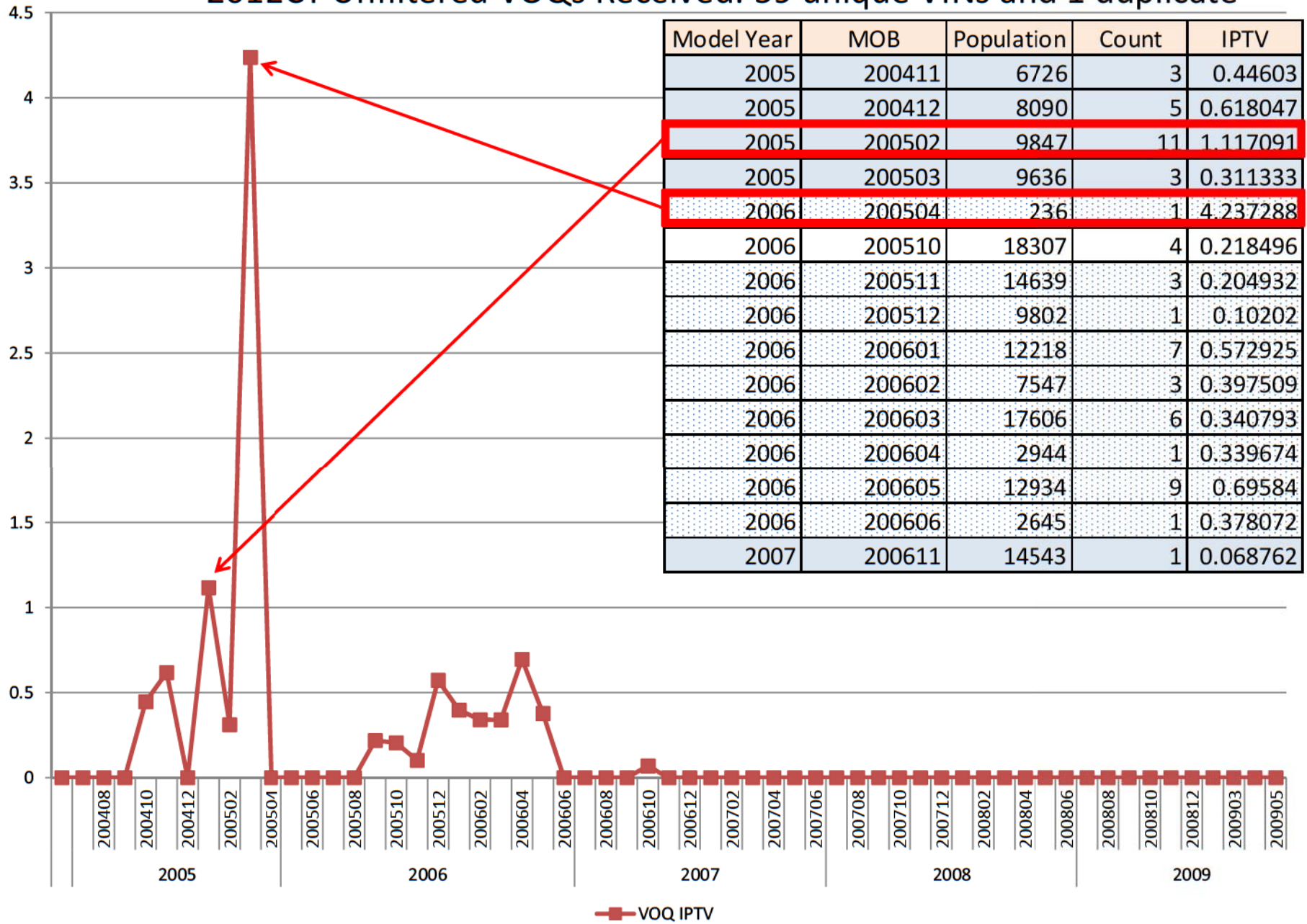
2008CY Unfiltered VOQs Received: 9 VINs Received and 6 VINs Identified



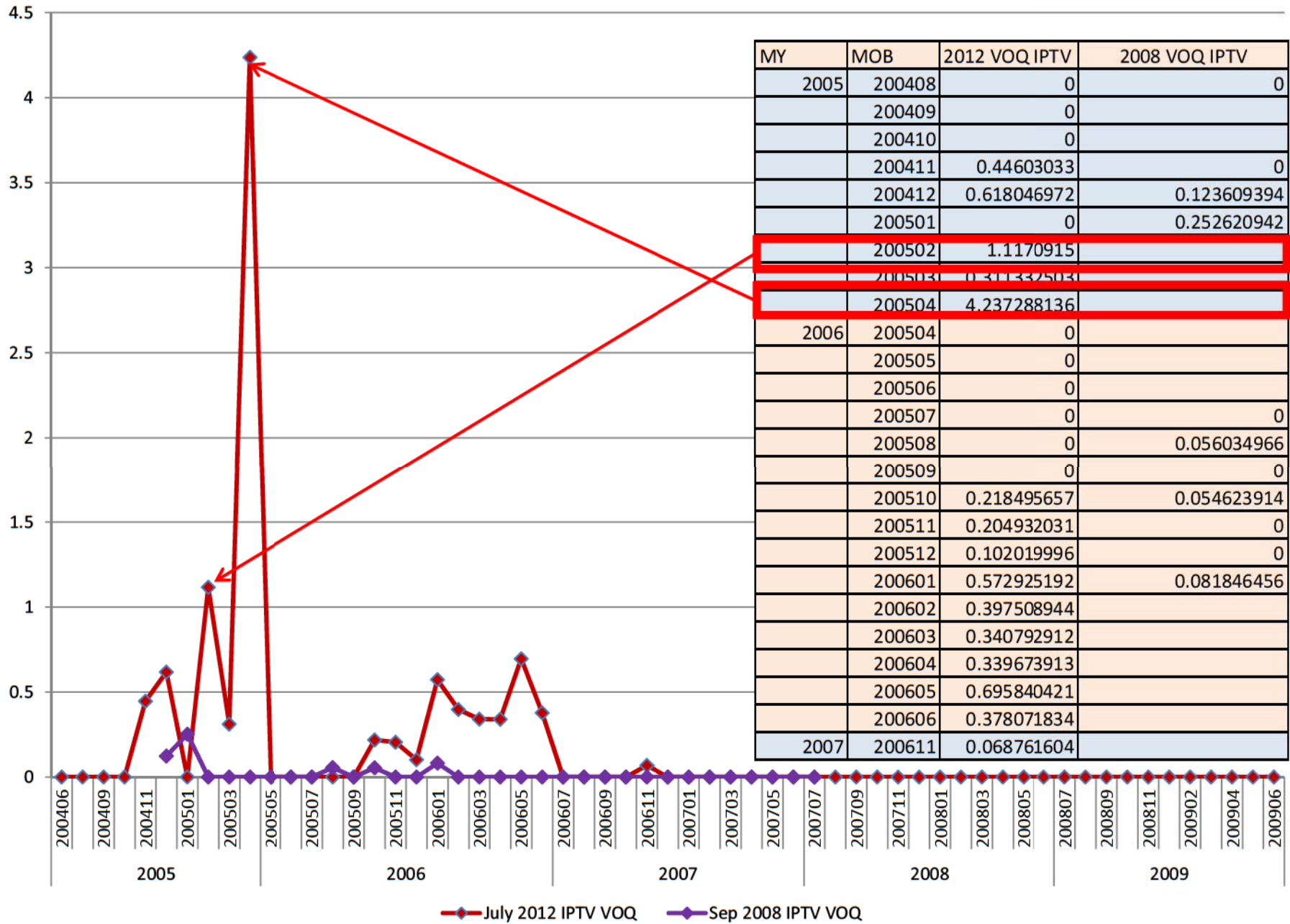
2008CY VOQ IPTV and Warranty IPTV @ 36 MIS



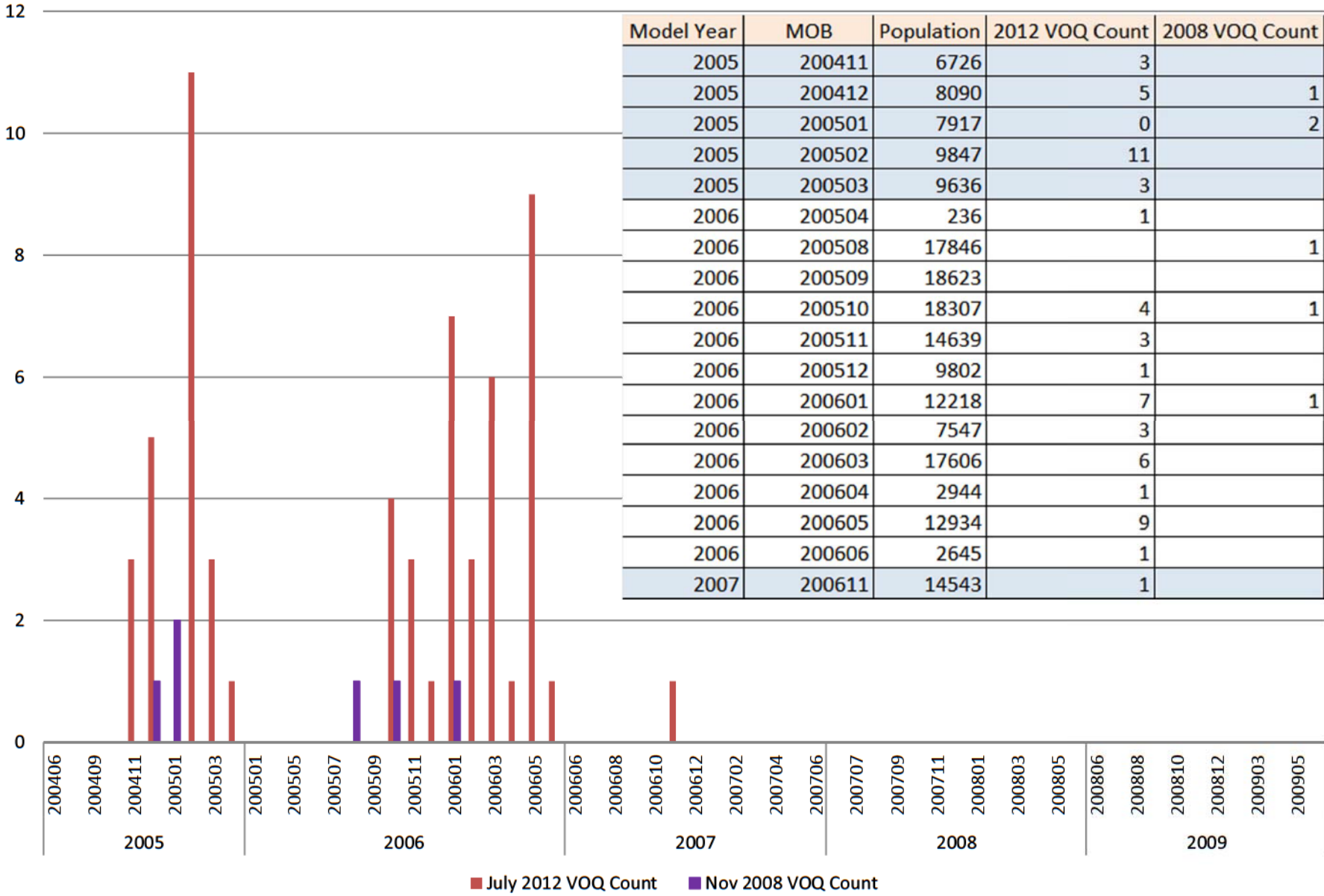
2012CY Unfiltered VOQs Received: 59 unique VINs and 1 duplicate



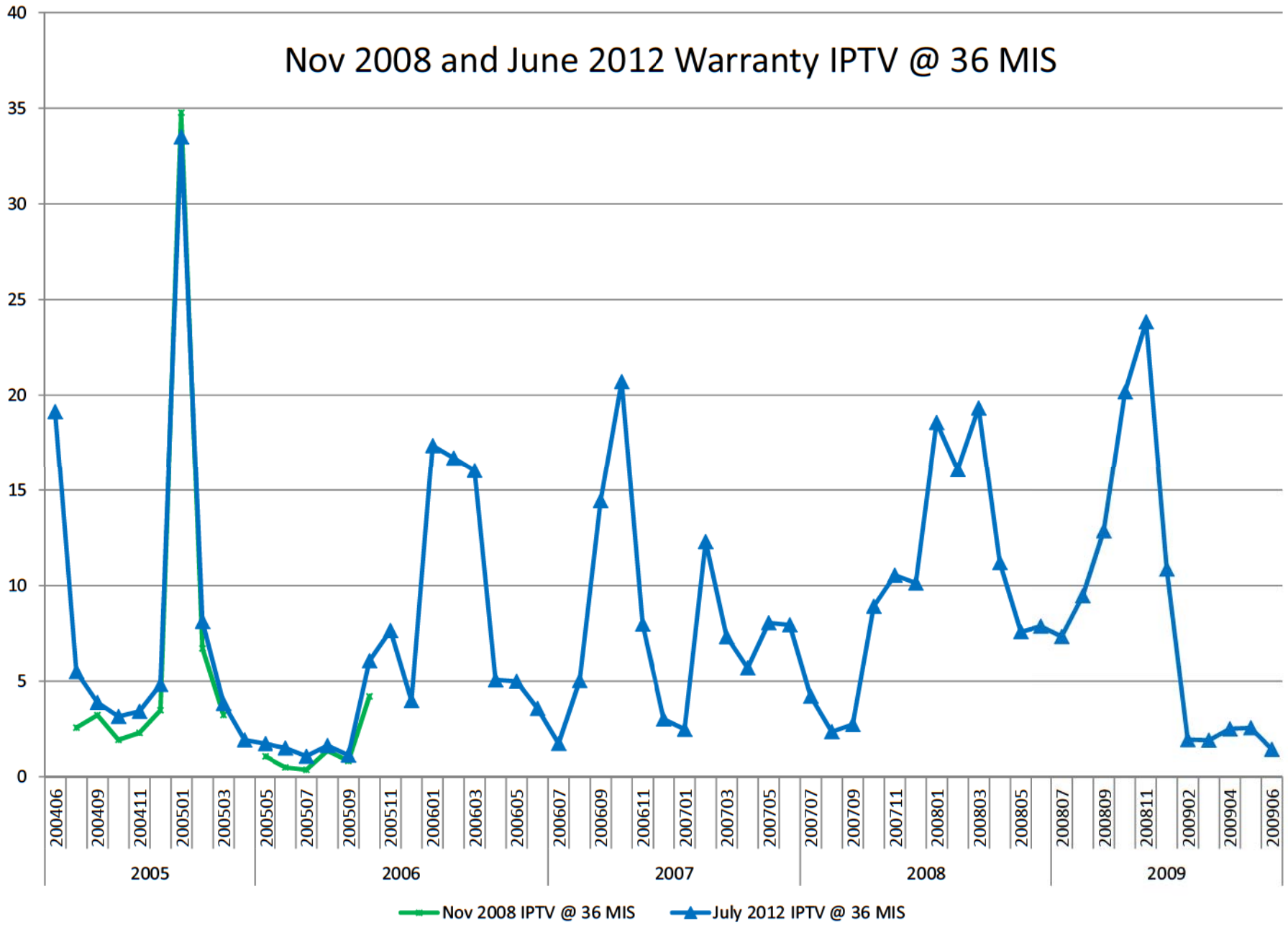
Nov 2008 and June 2012 VOQ IPTV



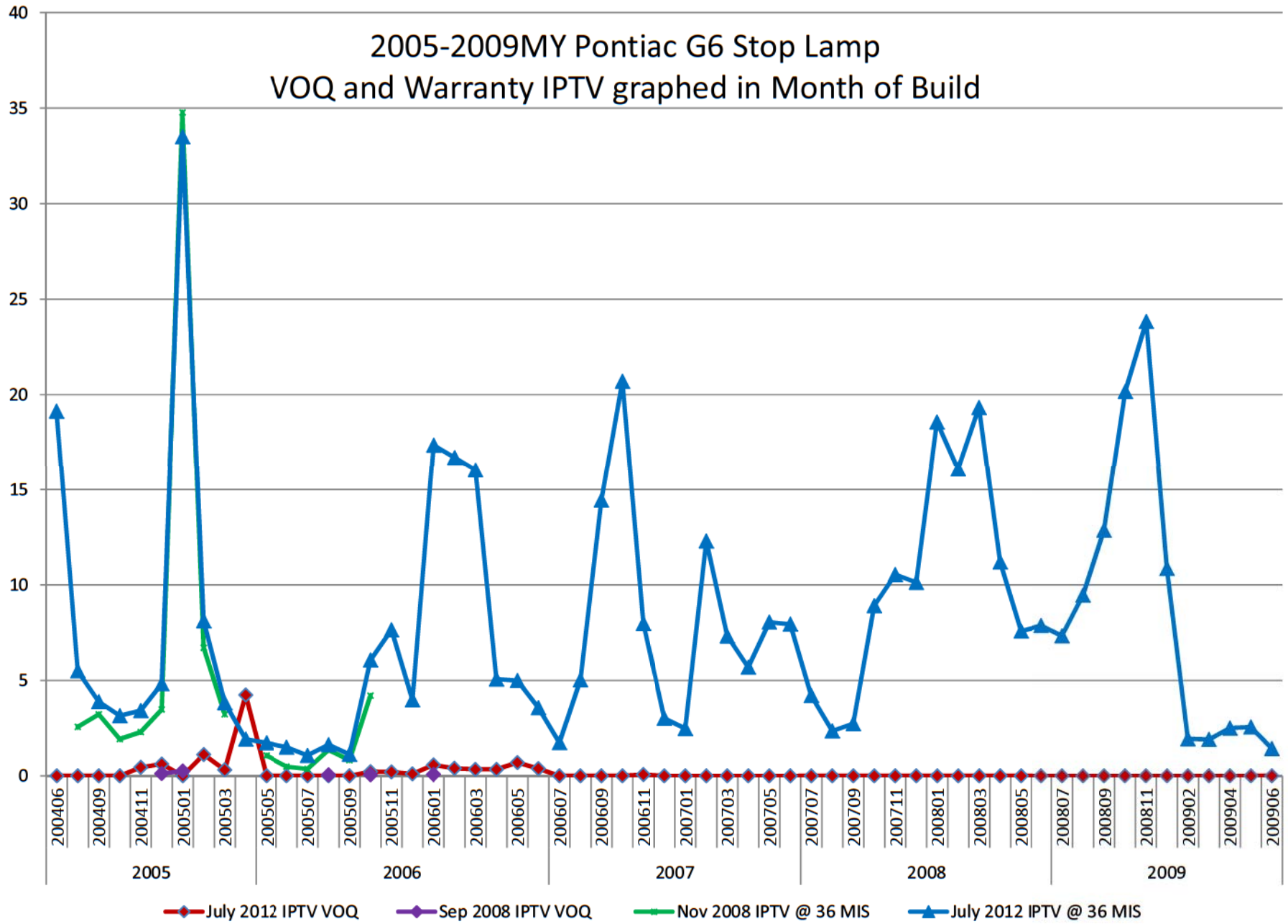
VOQ Count Comparison: 2008 (6) vs 2012 (59)



Nov 2008 and June 2012 Warranty IPTV @ 36 MIS



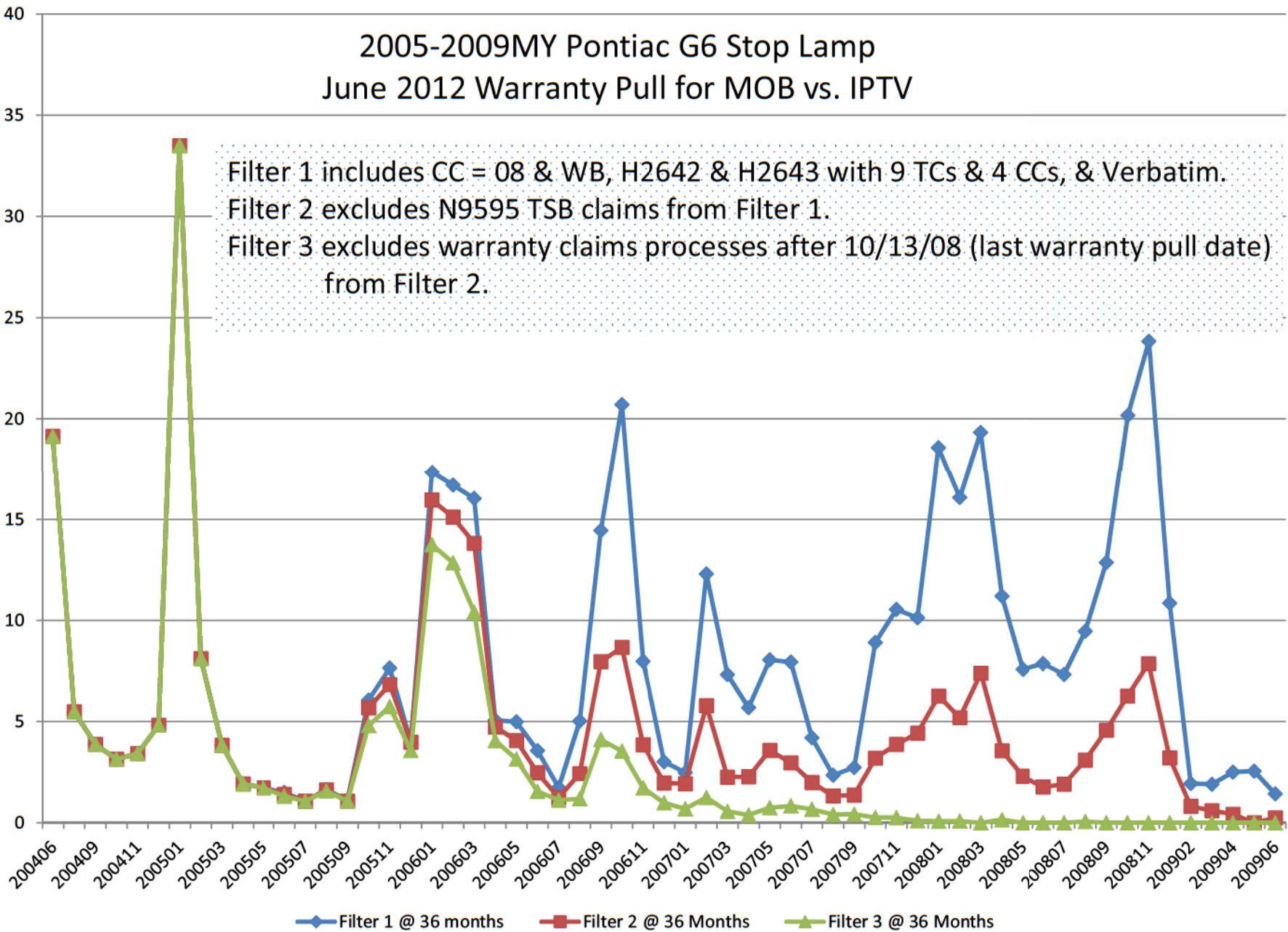
2005-2009MY Pontiac G6 Stop Lamp VOQ and Warranty IPTV graphed in Month of Build



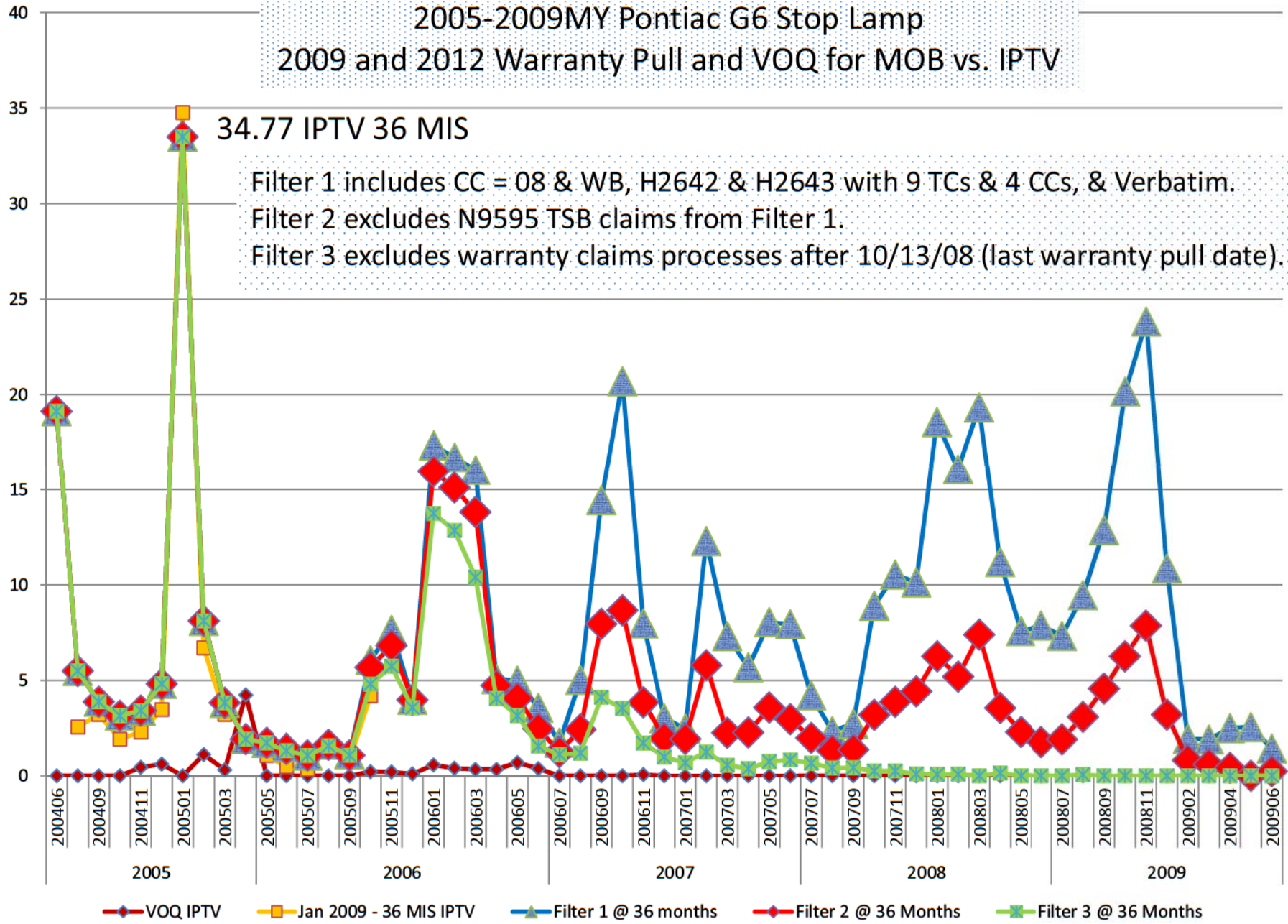
Back-up

2005-2009MY Pontiac G6 Stop Lamp June 2012 Warranty Pull for MOB vs. IPTV

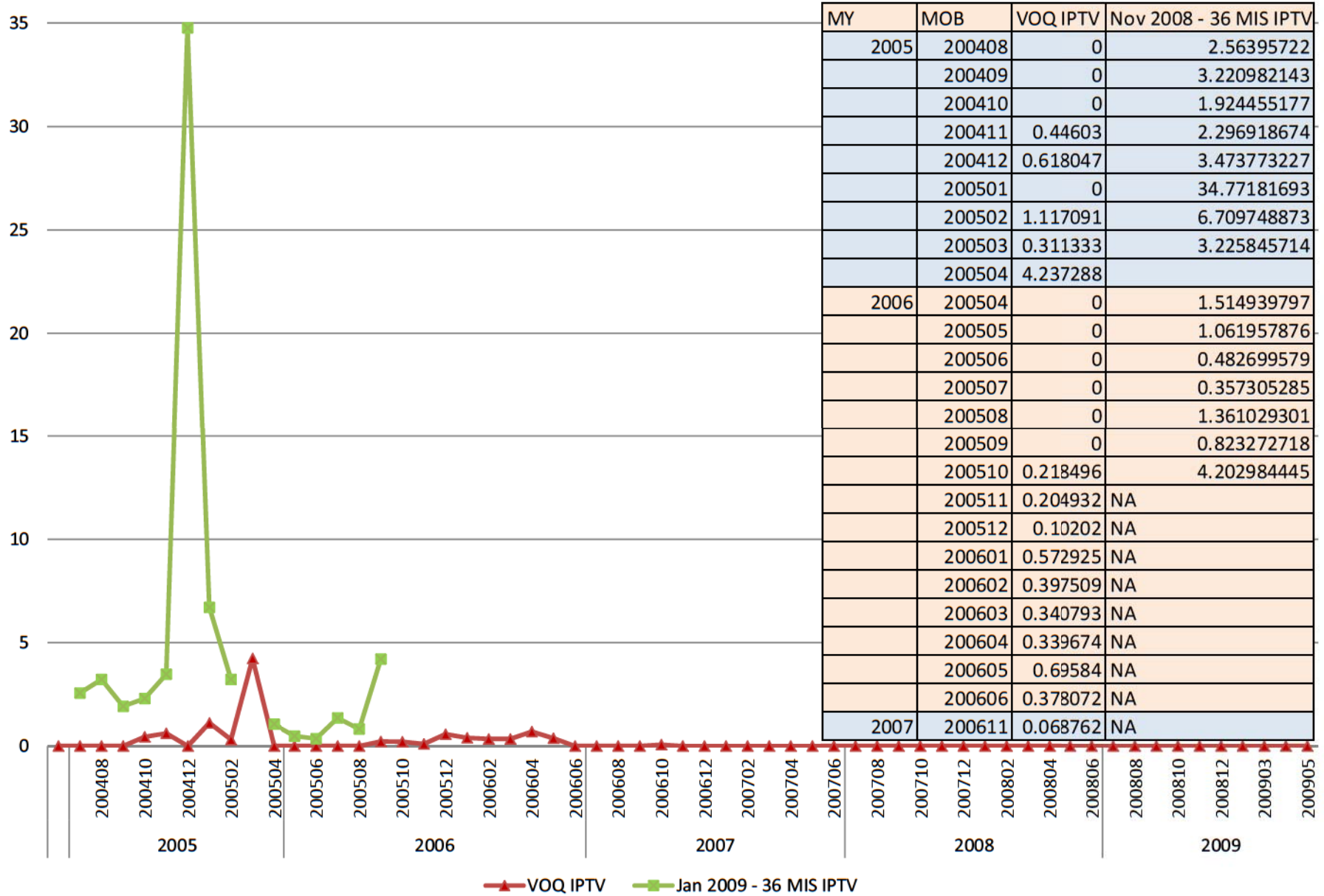
Filter 1 includes CC = 08 & WB, H2642 & H2643 with 9 TCs & 4 CCs, & Verbatim.
 Filter 2 excludes N9595 TSB claims from Filter 1.
 Filter 3 excludes warranty claims processes after 10/13/08 (last warranty pull date) from Filter 2.



2005-2009MY Pontiac G6 Stop Lamp
 2009 and 2012 Warranty Pull and VOQ for MOB vs. IPTV



2012 VOQ and Nov 08 Warranty IPTV @ 36MIS Trend line



2012CY Update of G6 Stop Lamp Warranty Claims

2012CY Warranty Methodology

Started with 27,821

11,852 had correction-verbatim (42.6%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 10,316 (37.1) | 363 (20.7) |
| H2642 Sensor, Brake Pedal | 4,643 (16.7) | 1,203 (68.6) |
| H2643 Sonsor, Brake & Accel | 420 (1.5) | 144 (8.2) |
| H2640 Pedal / Bushing | 418(1.5) | 7 (0.4) |
| H9991 Cust Concern NTF | 8,531(30.7) | 36 (2.1) |
| N9595 TSB | 3,493 (12.6) | 0 |
| Total | 27,821 | 1,753 (6.3) |

2012CY Warranty Methodology

27,821 including 243 same day repair duplicates

- A. All claims with labor code N9595 were determined to be responsive to the alleged condition.
- B. All claims with customer codes 08 (Operation: Won't Turn Off) and WB (Warning Lights-Brake Lights) were determined to be responsive to the alleged condition unless the verbatim text indicated that the claim was unrelated.
- C. Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 2.7 and customer codes in Table 2.8 were determined to be responsive unless the verbatim indicated that the claim was unrelated to the alleged condition.
- D. The verbatim of the remaining claims were then read and a claim was determined to be responsive if the verbatim related to loss/malfunction of the brake/stop lamps.
- E. The vehicle claims processed after 10/13/08 are excluded to compare with the original data.
- F. All claims for vehicles covered by General Motors recall 08317 were excluded.
6/25/12 Status Affected: 8,012 Completed: 5,707 % Completion: 71.2%

3,490

20,167

2,168

1,753

2009CY Update Methodology

Started with 8,978

2,362 had verbatim (26.3%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 6,758 (75.3) | 274 (17.5) |
| H2642 Sensor, Brake Pedal | 1,984 (22.1) | 1,157 (74) |
| H2643 Sonsor, Brake & Accel | 227 (2.5) | 125 (8) |
| H2640 Pedal / Bushing | 6 (0) | 6 (0.4) |
| H9991 Cust Concern NTF | 3 (0) | 3 (0.2) |
| Total | 8,978 | 1,565 (17.4) |

2009CY Update Methodology

For the subject vehicles, the regular warranty, goodwill warranty, and MIC service contract claims with stop lamp malfunction are summarized by model and model year in Table 5-1. For the subject vehicles the UWC service contract claims with indication of stop lamp malfunction are summarized by model and model year in Table 5-2. A summary of the warranty claims, including the information requested in 5(a-k), is provided on the ATT_1_GM disk; folder labeled "Q_05:" refer to the Microsoft Access 2000 file labeled "Q_05_WARRANTY DATA." A list of the labor codes, customer complaint codes and trouble codes used to collect the warranty data is provided in response to item No. 6.

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|---------|---------|---------|---------|-------|
| Pontiac G6 | Regular | 579 | 754 | 232 | 1,565 |
| Pontiac G6 | MIC | 43 | 25 | 2 | 70 |

TABLE 5-1: REGULAR WARRANTY AND MIC SERVICE CONTRACT CLAIMS WITH STOP LAMP MALFUNCTION

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|------|---------|---------|---------|-------|
| Pontiac G6 | UWC | 0 | 3 | 0 | 3 |

TABLE 5-2: UWC SERVICE CONTRACT CLAIMS

| SOURCE SYSTEM | LAST DATE GATHERED |
|-------------------------------|--------------------|
| GART - regular warranty | 13 Oct 08 |
| MIC - service contract claims | 14 Oct 08 |
| UWC - service contract claims | 23 Sept 08 |

TABLE 5-3: DATES PULLED

2009CY Update Methodology

8,969

The GM Global Analysis and Reporting Tool (GART-regular warranty) regular warranty database and the Motors Insurance Corp (MIC) service contract claims database were searched using the labor codes that may be related to the alleged defect, listed in Table 6-1. Universal Warranty Corporation (UWC) does not use labor codes or trouble codes.

The following process was used to sort these claims:

- 544 • All claims with customer codes shown in Table 6-2 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 6,800 • Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 6-3 and customer codes in Table 6-4 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 60 • The verbatims of the remaining claims were then read and the claim was determined to be responsive if the verbatim related to the alleged defect.

1,565

2009CY Update Methodology

| LABOR CODE | DESCRIPTION: |
|------------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp - Adjust |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

TABLE 6-1 LABOR CODES USED IN WARRANTY AND MIC SEARCH

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-----------------------------|
| O8 | OPERATION: WON'T TURN OFF |
| WB | WARNING LIGHTS: BRAKE LIGHT |

TABLE 6-2 CUSTOMER CODES USED IN WARRANTY AND MIC SORTING

| TROUBLE CODE | DESCRIPTION: |
|--------------|-------------------------------|
| 1D | BROKEN |
| 6C | COMPONENT-INOPERATIVE |
| 6D | COMPONENT -INTERMITTENT |
| 6F | COMPONENT -OPEN |
| 3A | MISADJUSTED |
| 9Z | NO TROUBLE FOUND |
| 3L | OUT OF CALIBRATION |
| 3X | REGISTERS INCORRECTLY |
| 6N | CONNECTOR - PARTIAL CONNECTED |

TABLE 6-3 TROUBLE CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-------------------------------------|
| OG | OPERATION: EXCESS EFF (EXCESS PLAY) |
| OJ | OPERATION: INOPERATIVE (HARSH) |
| OF | OPERATION: ENGAGE/DIS(EXCESS EFF) |
| O7 | OPERATION: NO MAINTAIN ADJ |

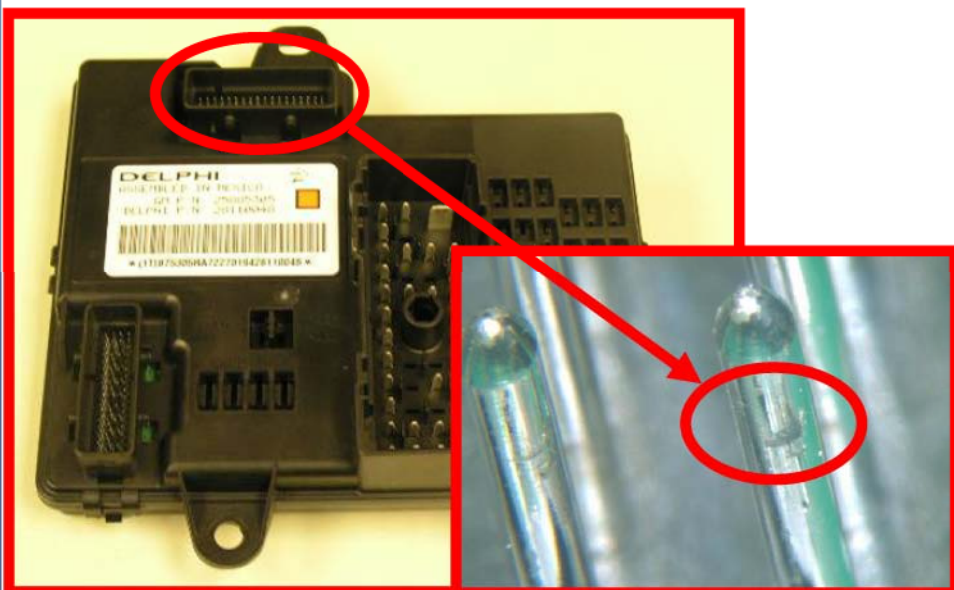
TABLE 6-4 CUSTOMER CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

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Rationale for 2009 Decision

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK or DRIVE. Additionally, the transmission converter clutch will not engage.

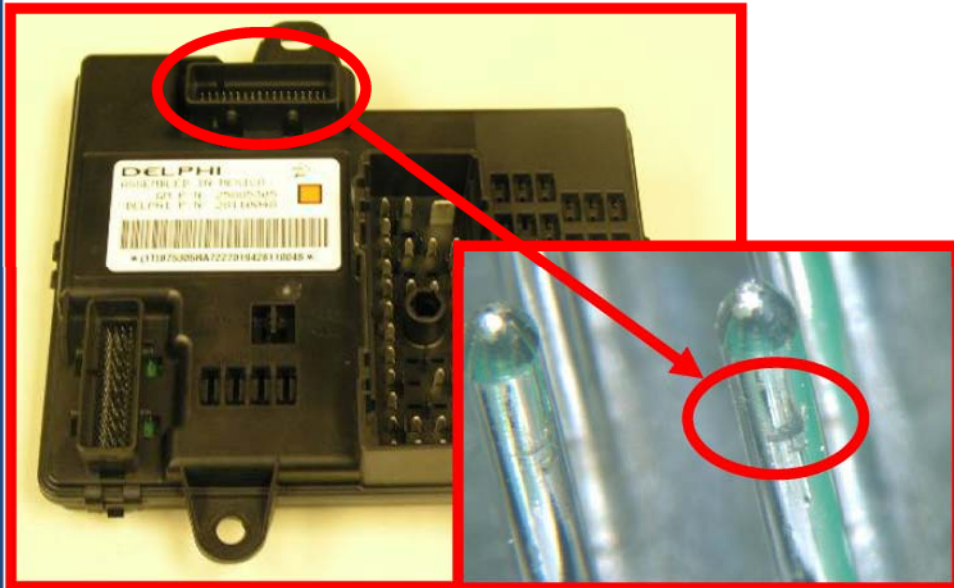


Model Years
2005 - 2006

Models
Pontiac G6

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



Model Years
2005 - 2006

Models
Pontiac G6

Field Action Category
TBD

Population Affected
9,423

Estimated Cost { ** }

Scope

2005 – 2006 Pontiac G6

| My year | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

Immediate Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Projected Frequency

2005 MY 36 MIS Overall = 8.0 IPTV

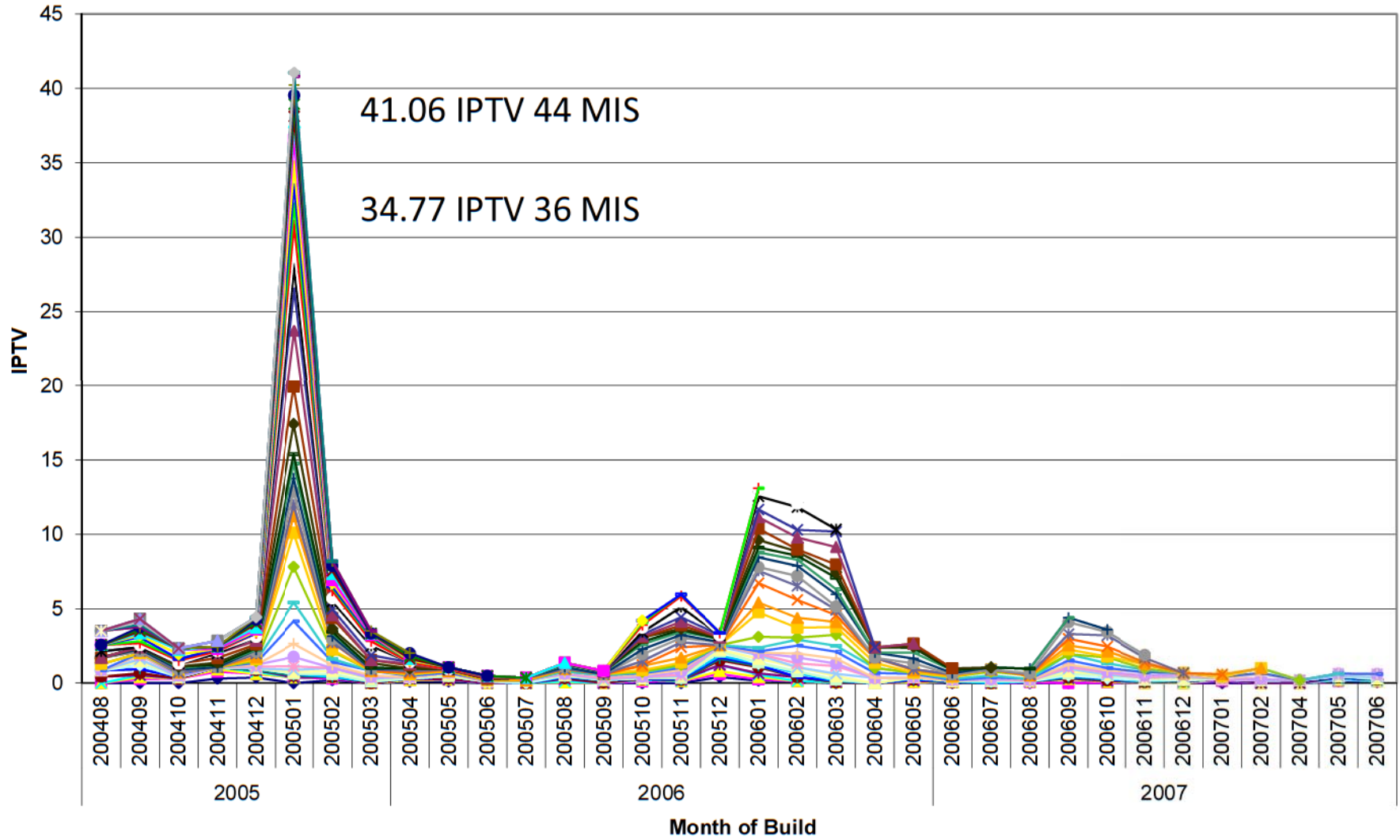
2006 MY 36 MIS Overall = 4.6 IPTV

Build of Month January 2005 36 MIS = 34.77 IPTV

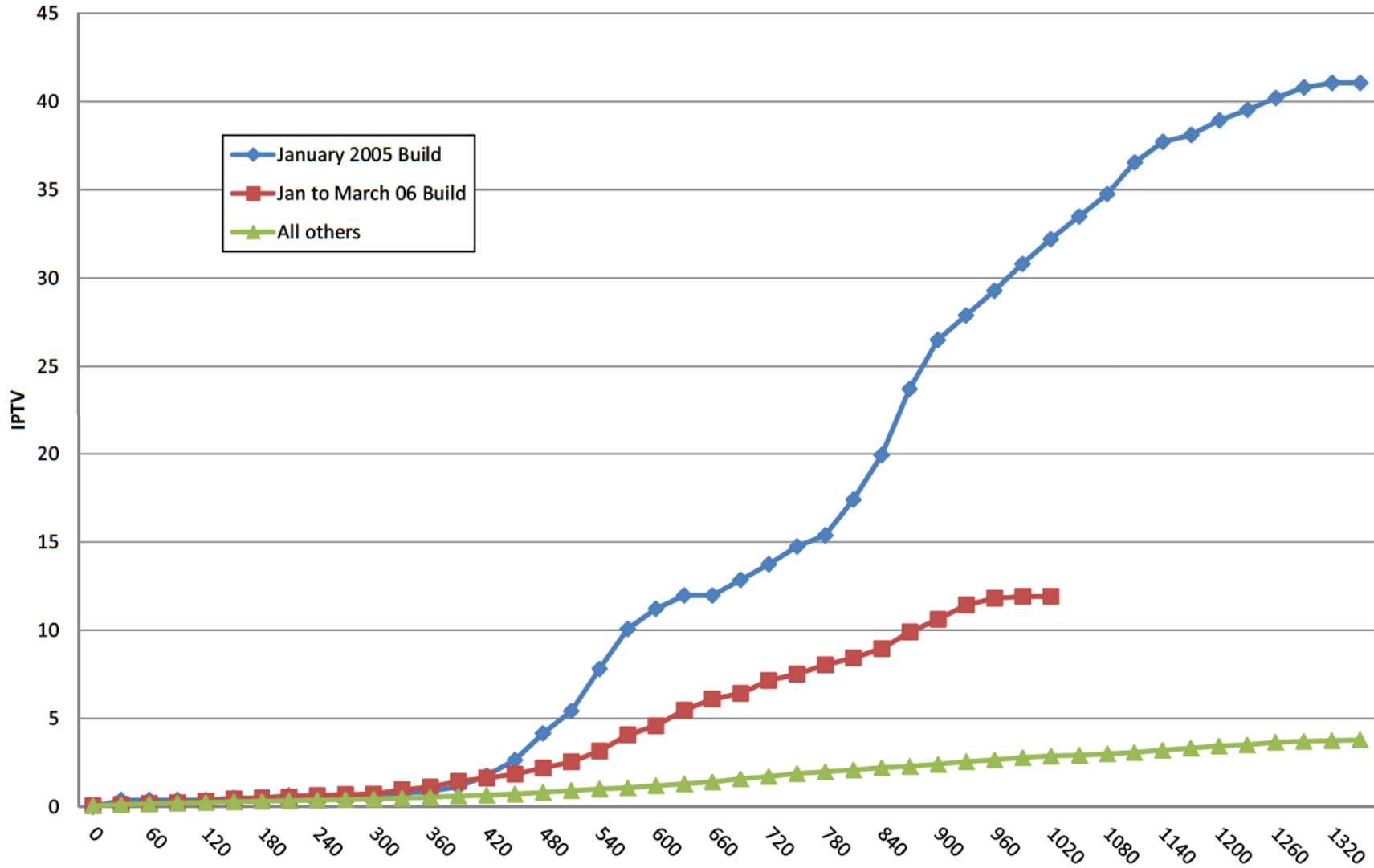
Build of Month January 2005 44 MIS = 41.06 IPTV

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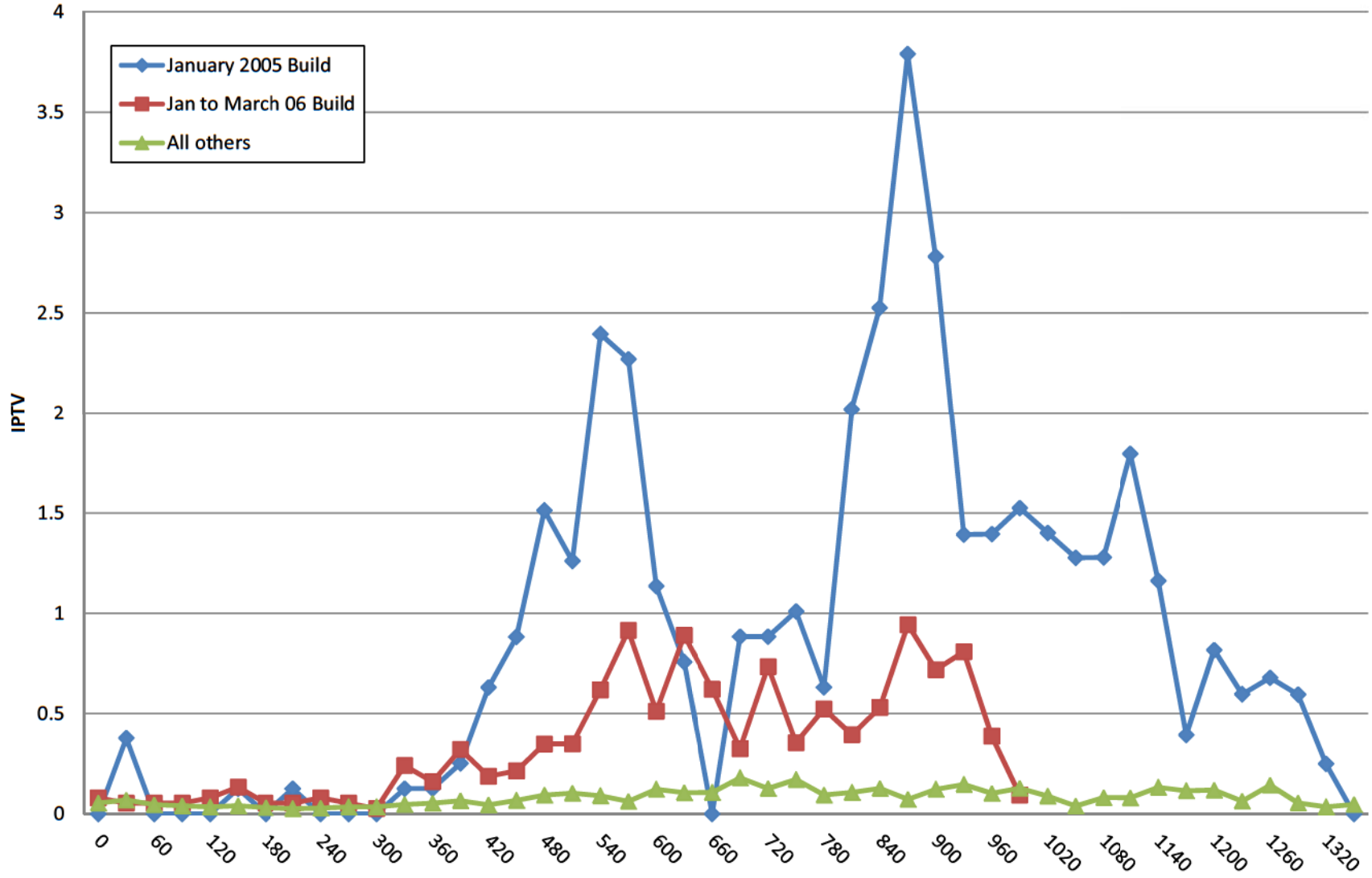
2005 - 2007 G6 Intermittent Stop Lamp Warranty



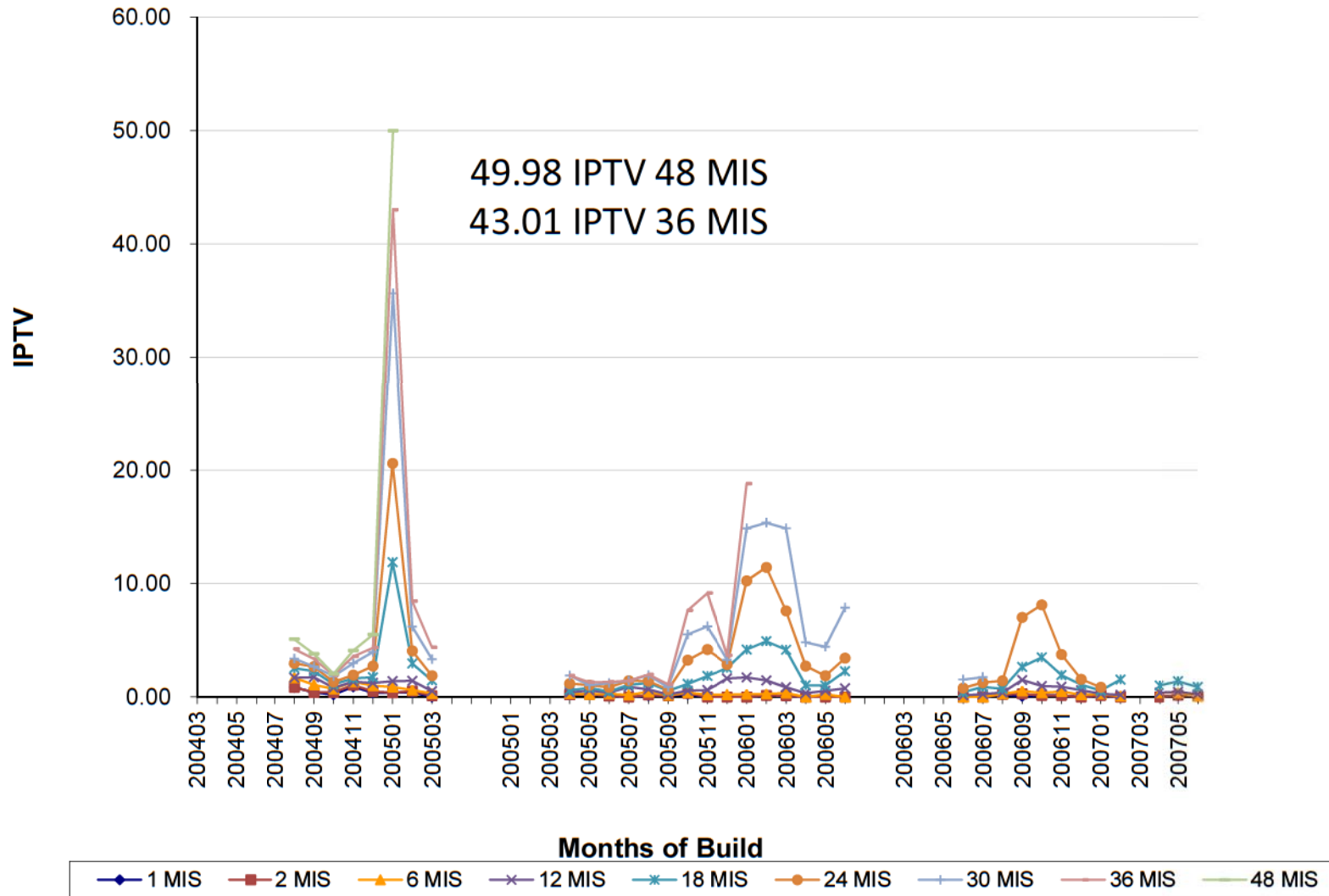
G6 Stop Lamp Warranty - Comparison of Select Months of Build



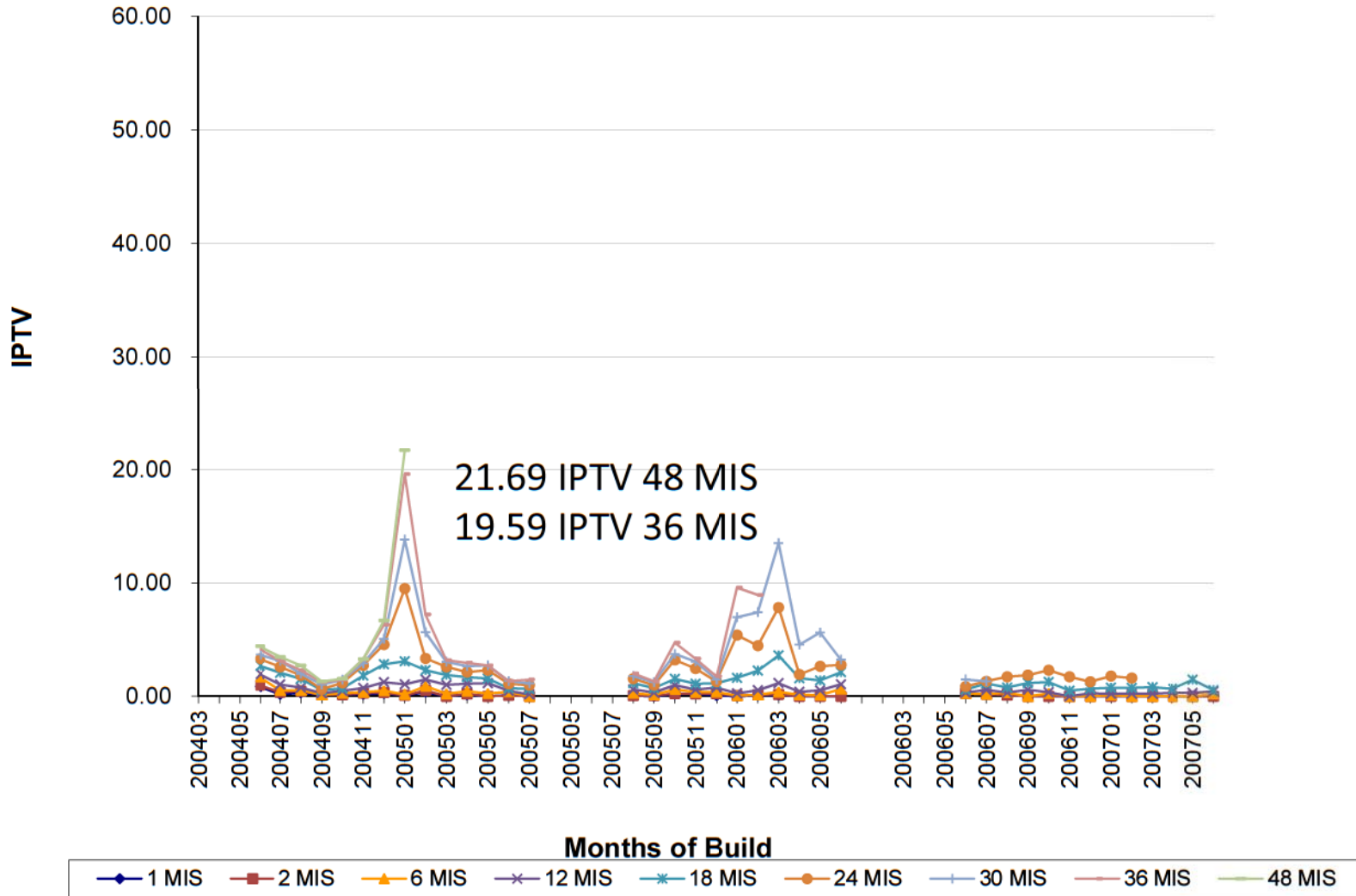
05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Production Improvement

Dielectric lubricant is applied by Cockpit supplier Inteva for G6 as of 11/18/2008.

The lubricant will be applied in the Delphi harness assembly plant in August 2009.

Potential Field Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Systematic Root Causes

Legacy connector system design with low terminal retention force and non-robust contact design.

Preventive Actions

All new module designs must use approved connector designs that pass the latest GMW specification requirements.











The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|----------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Cobalt, Corvette | |
| 2006MY | HHR, Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu | |

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{ * }

Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

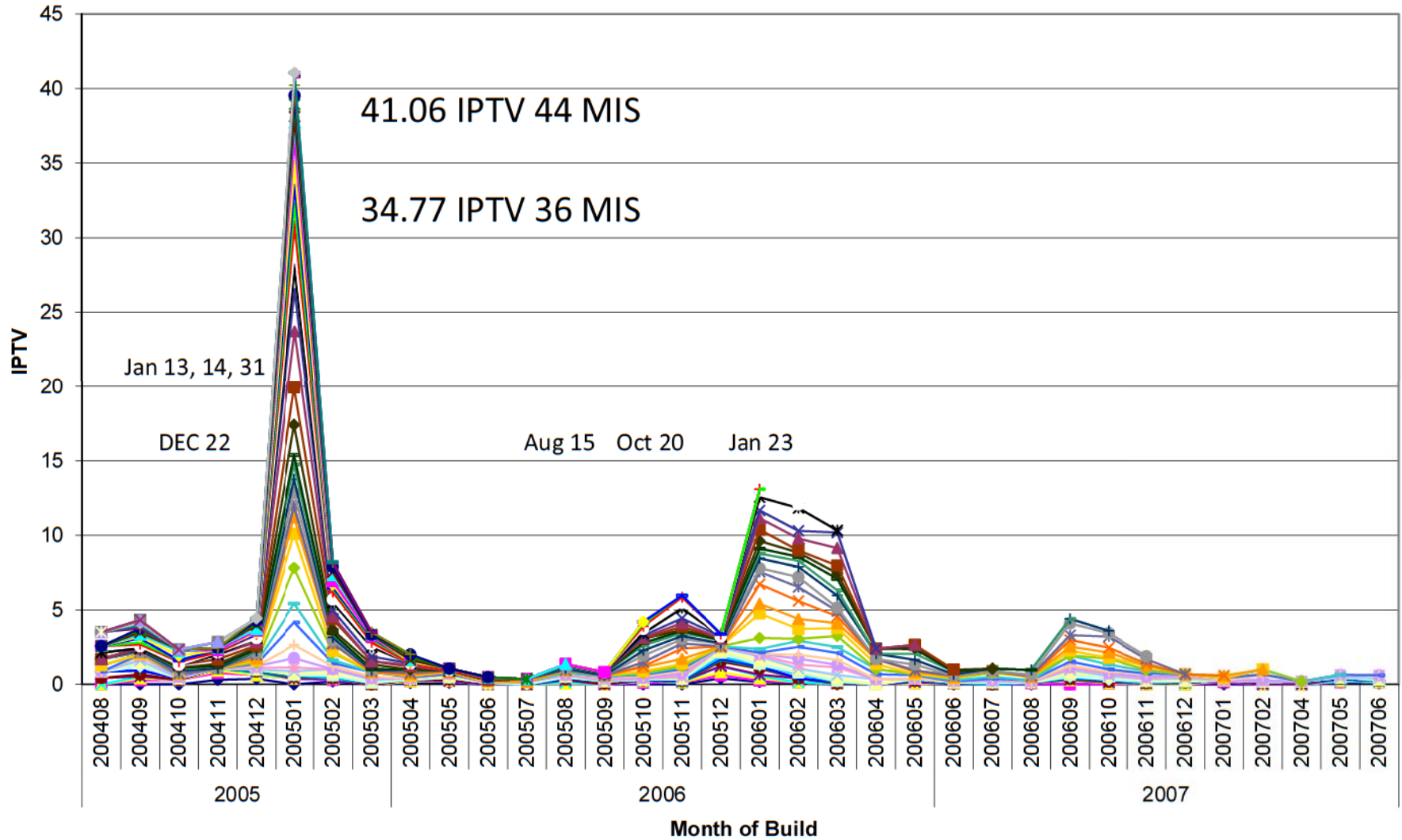
Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)



Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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2005 - 2007 G6 Intermittent Stop Lamp Warranty



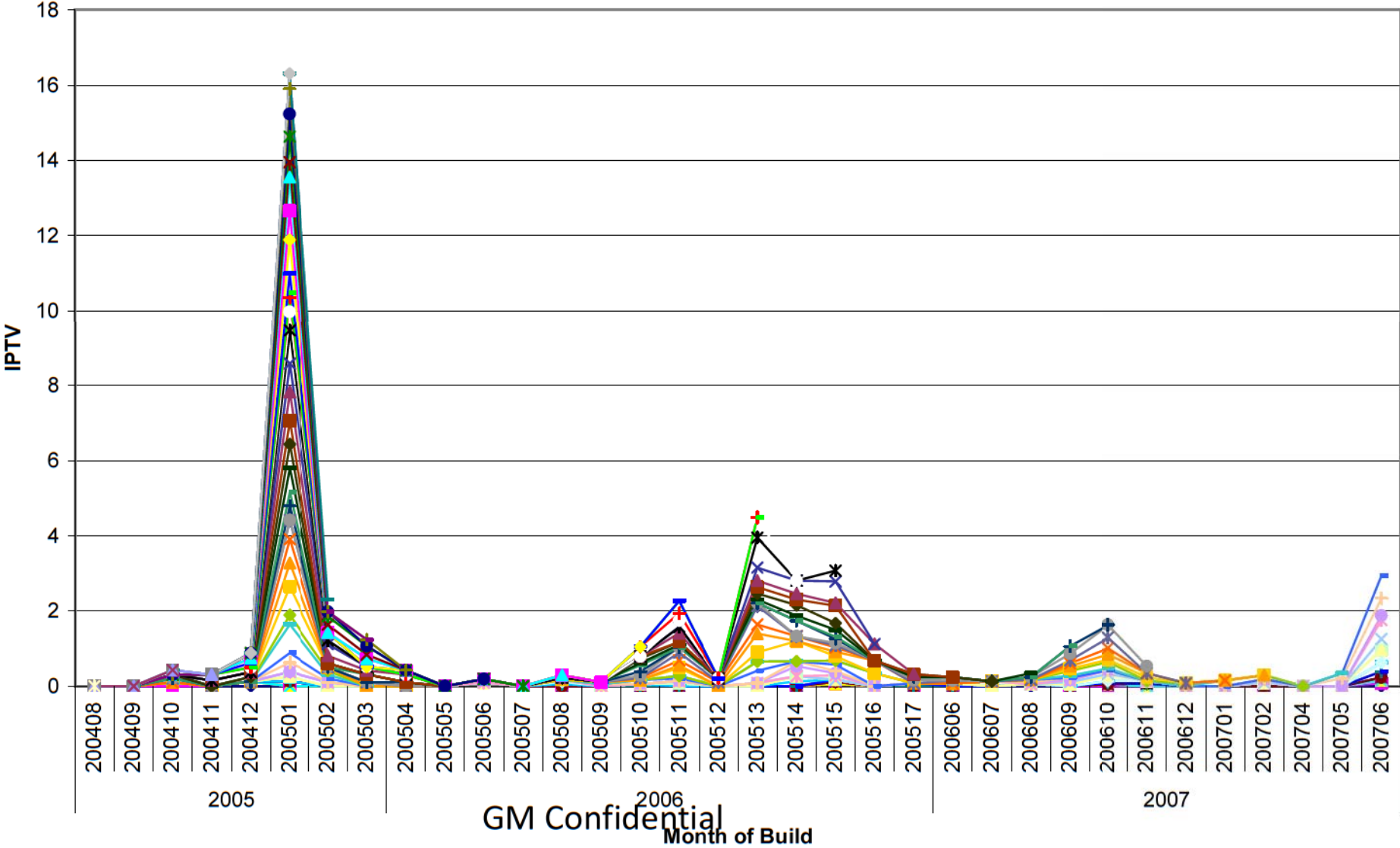
9 VOQs 2005MY: 4

2006MY: 4
GM Confidential

2007MY: 1

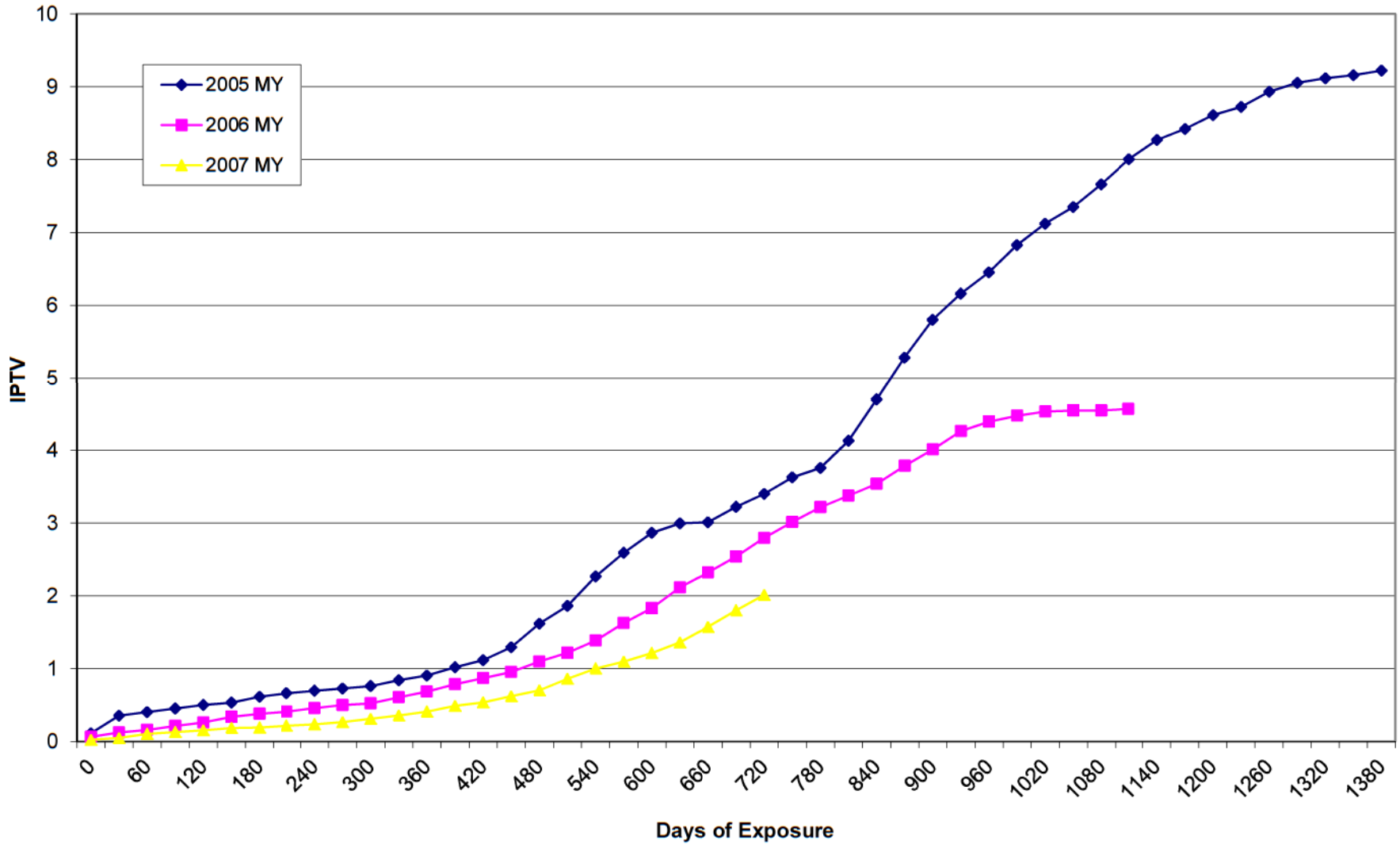
2005 - 2007 G6 BASS – TAC and CAC only

2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only

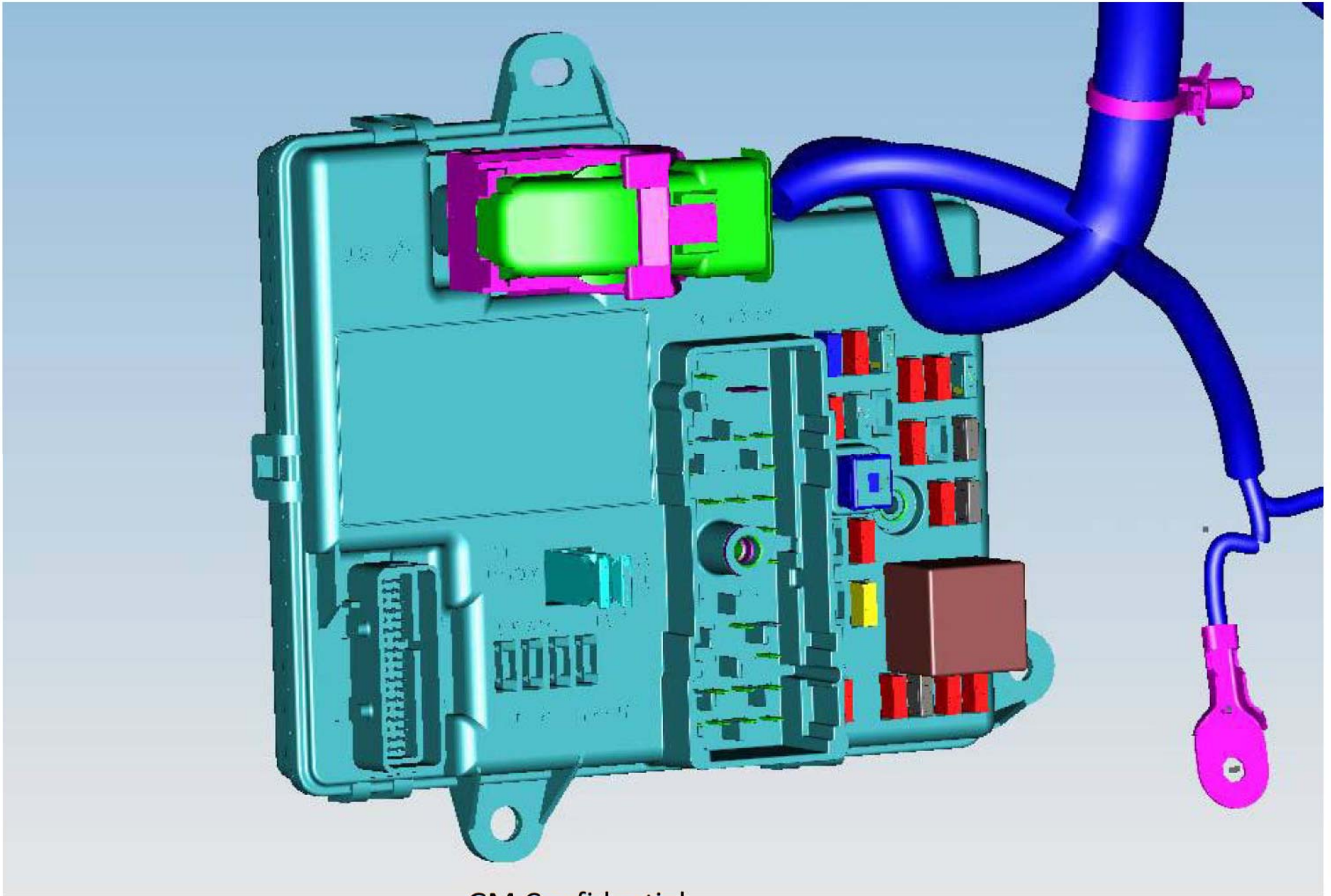


GM Confidential
Month of Build

2005 - 2007 G6 Intermittent Stop Lamp Warranty



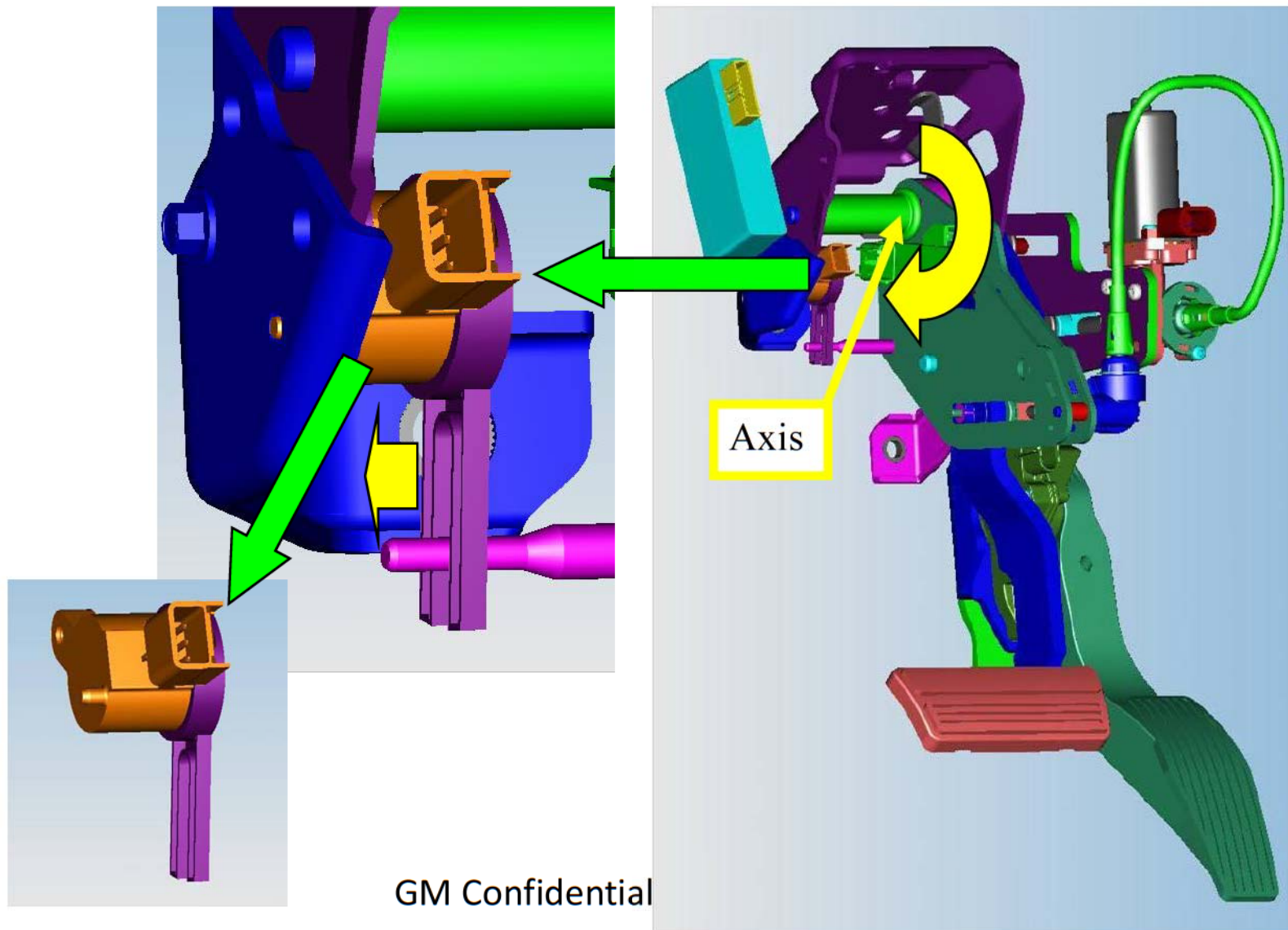
GM Confidential



GM Confidential

2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



Brake Lamps Malfunction due to BCM Connector

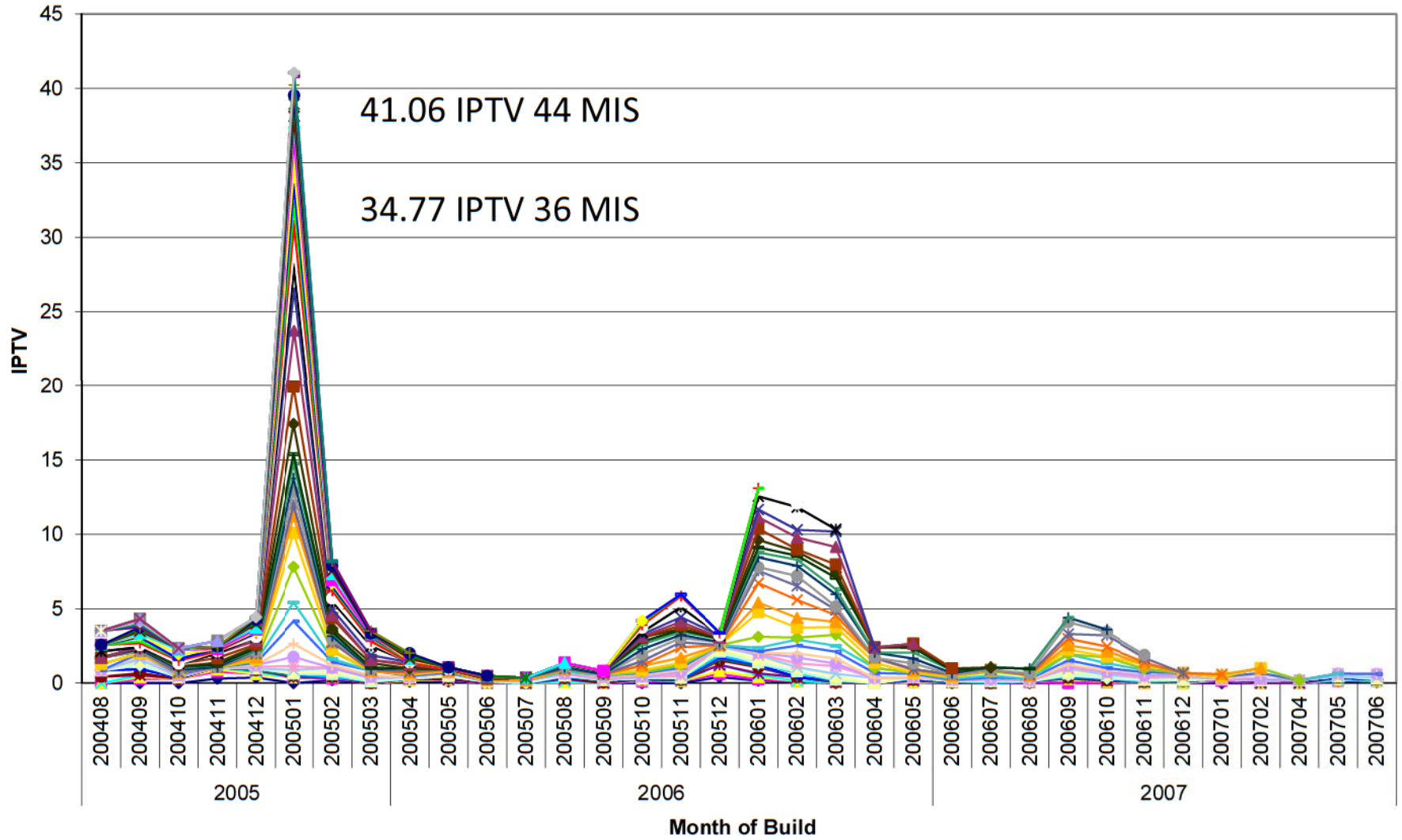
Chronology

- 9/15/2008 NHTSA ODI opened PE investigation with 9 VOQs
- 11/12/2008 GM responded and stated it is continuing its investigation
- 1/28/2009 GM notified NHTSA that GM is conducting safety campaign for 8,012 vehicles built in January 2005 for 2005MY and 2006MY.
- 1/30/2009 NHTSA closed the investigation stating that ODI's review of complaint rate for the January 2005 built month is 20 times greater than the remainder of the subject vehicle population and warranty rate is 11 times greater than the remainder of the subject vehicle population.
- 9/9/2011 TC requested GM to provide 2006MY G6 Brake Lamp Malfunction, Outside Recall information request including population noted in TSB 08-05-22-009.

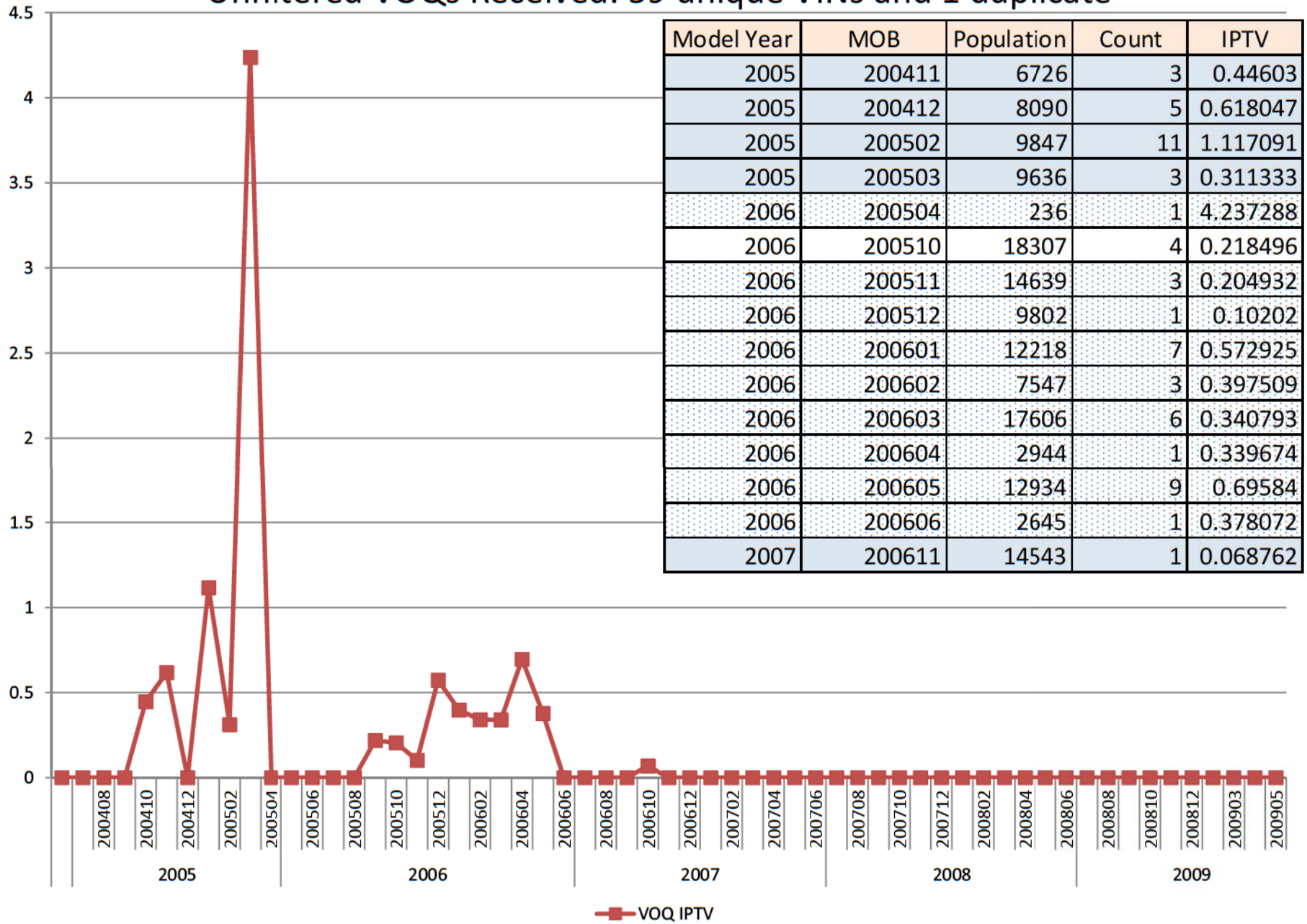


Closing Resume

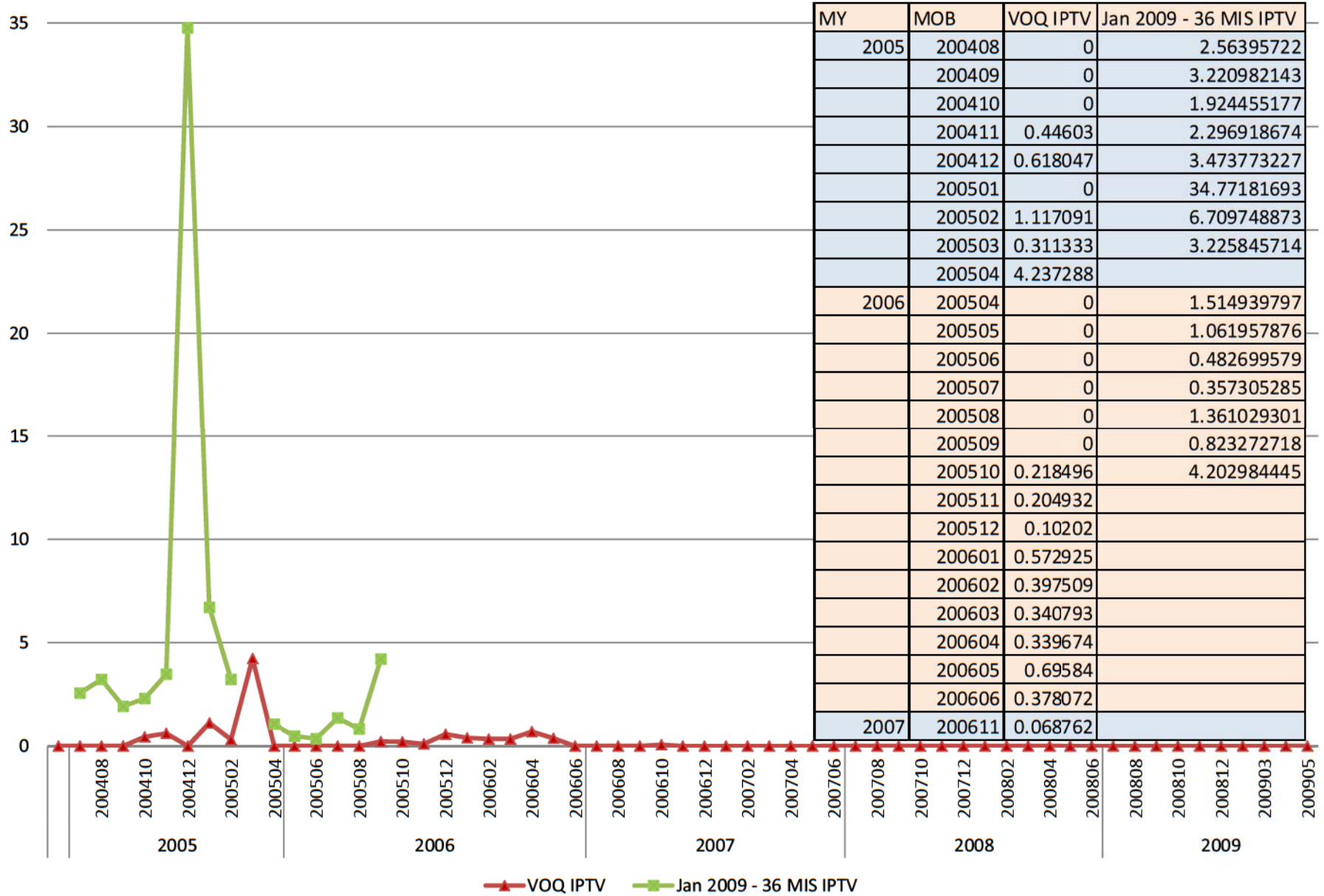
2005 - 2007 G6 Intermittent Stop Lamp Warranty



Unfiltered VOQs Received: 59 unique VINs and 1 duplicate

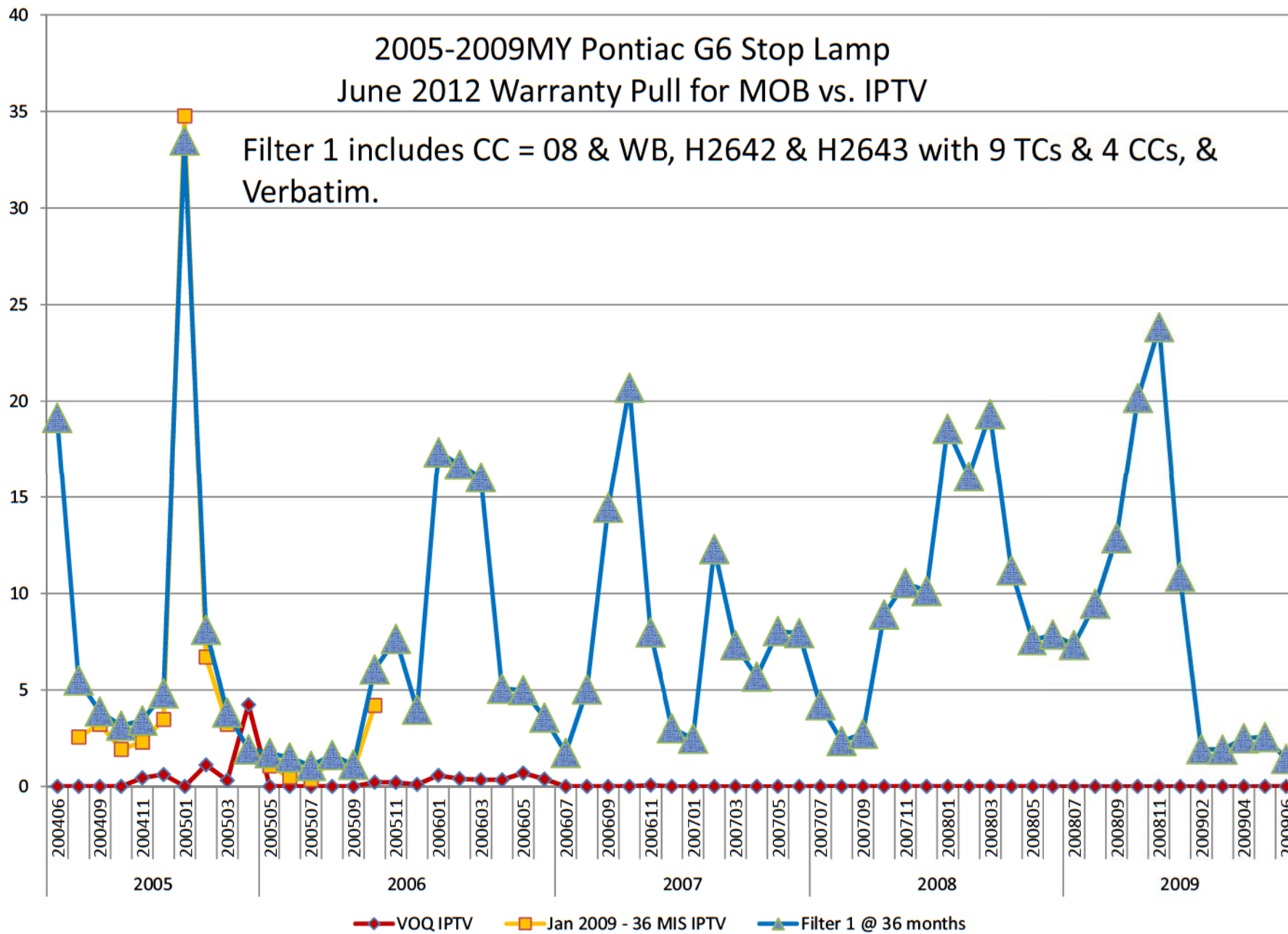


VOQ and Jan 09 Warranty 36MIS Trendline



2005-2009MY Pontiac G6 Stop Lamp June 2012 Warranty Pull for MOB vs. IPTV

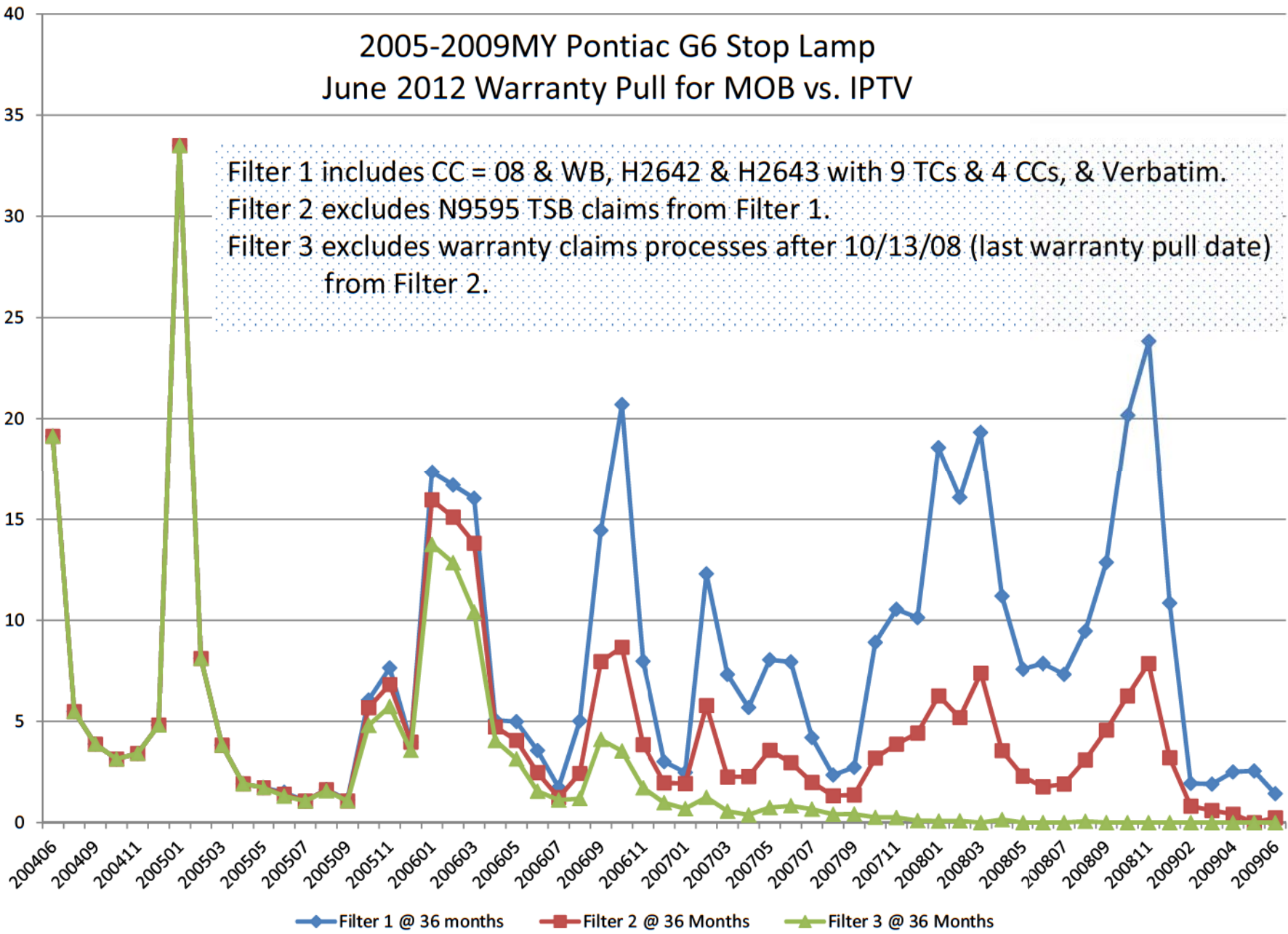
Filter 1 includes CC = 08 & WB, H2642 & H2643 with 9 TCs & 4 CCs, & Verbatim.



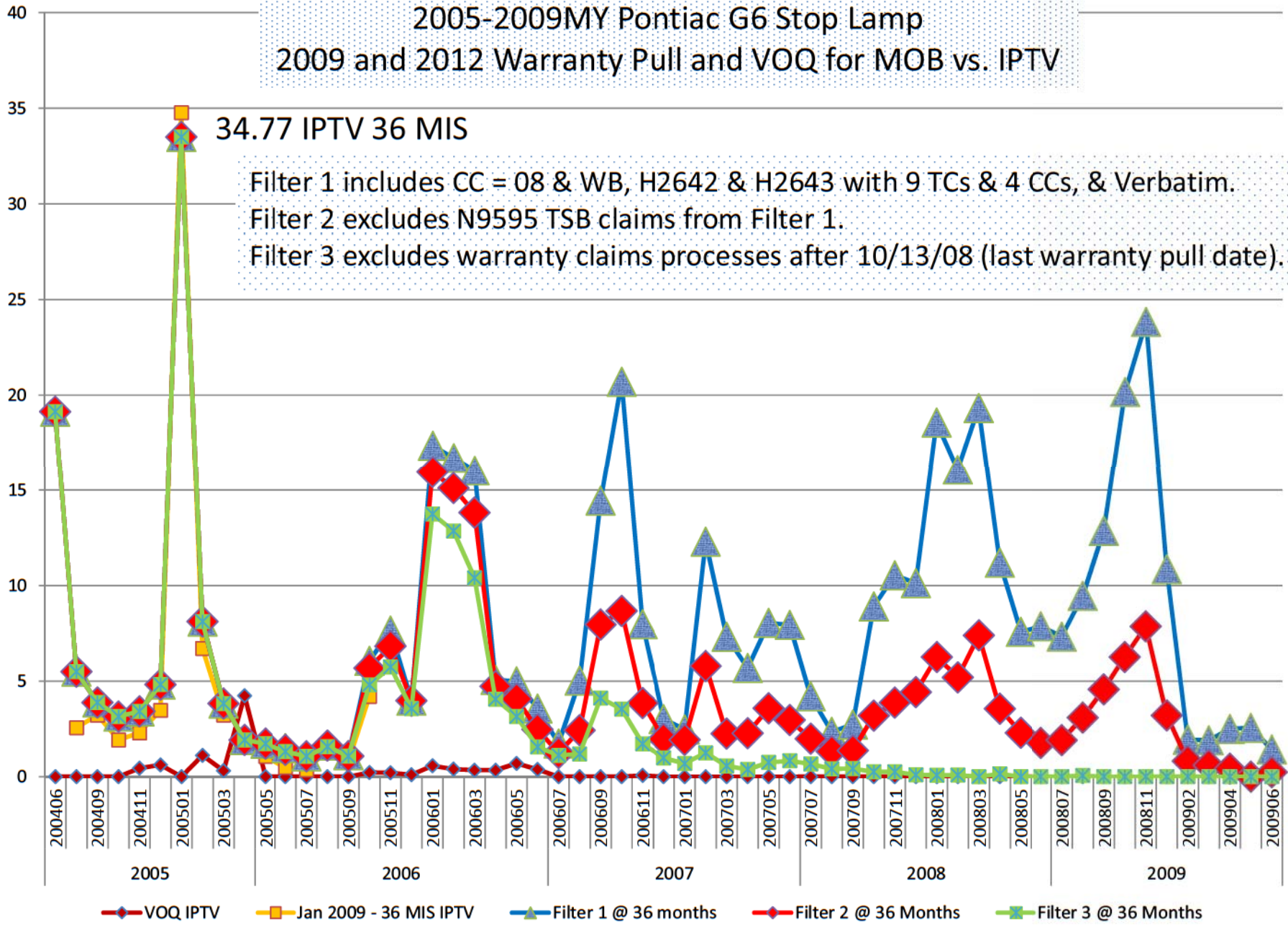
Back-up

2005-2009MY Pontiac G6 Stop Lamp June 2012 Warranty Pull for MOB vs. IPTV

Filter 1 includes CC = 08 & WB, H2642 & H2643 with 9 TCs & 4 CCs, & Verbatim.
 Filter 2 excludes N9595 TSB claims from Filter 1.
 Filter 3 excludes warranty claims processes after 10/13/08 (last warranty pull date) from Filter 2.



2005-2009MY Pontiac G6 Stop Lamp
 2009 and 2012 Warranty Pull and VOQ for MOB vs. IPTV



2012CY Update of G6 Stop Lamp Warranty Claims

2012CY Warranty Methodology

Started with 27,821

11,852 had correction-verbatim (42.6%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 10,316 (37.1) | 363 (20.7) |
| H2642 Sensor, Brake Pedal | 4,643 (16.7) | 1,203 (68.6) |
| H2643 Sonsor, Brake & Accel | 420 (1.5) | 144 (8.2) |
| H2640 Pedal / Bushing | 418(1.5) | 7 (0.4) |
| H9991 Cust Concern NTF | 8,531(30.7) | 36 (2.1) |
| N9595 TSB | 3,493 (12.6) | 0 |
| Total | 27,821 | 1,753 (6.3) |

2012CY Warranty Methodology

27,821 including 243 same day repair duplicates

- A. All claims with labor code N9595 were determined to be responsive to the alleged condition.
- B. All claims with customer codes 08 (Operation: Won't Turn Off) and WB (Warning Lights-Brake Lights) were determined to be responsive to the alleged condition unless the verbatim text indicated that the claim was unrelated.
- C. Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 2.7 and customer codes in Table 2.8 were determined to be responsive unless the verbatim indicated that the claim was unrelated to the alleged condition.
- D. The verbatim of the remaining claims were then read and a claim was determined to be responsive if the verbatim related to loss/malfunction of the brake/stop lamps.
- E. The vehicle claims processed after 10/13/08 are excluded to compare with the original data.
- F. All claims for vehicles covered by General Motors recall 08317 were excluded.
6/25/12 Status Affected: 8,012 Completed: 5,707 % Completion: 71.2%

3,490

20,167

2,168

1,753

2009CY Update Methodology

Started with 8,978

2,362 had verbatim (26.3%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 6,758 (75.3) | 274 (17.5) |
| H2642 Sensor, Brake Pedal | 1,984 (22.1) | 1,157 (74) |
| H2643 Sonsor, Brake & Accel | 227 (2.5) | 125 (8) |
| H2640 Pedal / Bushing | 6 (0) | 6 (0.4) |
| H9991 Cust Concern NTF | 3 (0) | 3 (0.2) |
| Total | 8,978 | 1,565 (17.4) |

2009CY Update Methodology

For the subject vehicles, the regular warranty, goodwill warranty, and MIC service contract claims with stop lamp malfunction are summarized by model and model year in Table 5-1. For the subject vehicles the UWC service contract claims with indication of stop lamp malfunction are summarized by model and model year in Table 5-2. A summary of the warranty claims, including the information requested in 5(a-k), is provided on the ATT_1_GM disk; folder labeled "Q_05:" refer to the Microsoft Access 2000 file labeled "Q_05_WARRANTY DATA." A list of the labor codes, customer complaint codes and trouble codes used to collect the warranty data is provided in response to item No. 6.

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|---------|---------|---------|---------|-------|
| Pontiac G6 | Regular | 579 | 754 | 232 | 1,565 |
| Pontiac G6 | MIC | 43 | 25 | 2 | 70 |

TABLE 5-1: REGULAR WARRANTY AND MIC SERVICE CONTRACT CLAIMS WITH STOP LAMP MALFUNCTION

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|------|---------|---------|---------|-------|
| Pontiac G6 | UWC | 0 | 3 | 0 | 3 |

TABLE 5-2: UWC SERVICE CONTRACT CLAIMS

| SOURCE SYSTEM | LAST DATE GATHERED |
|-------------------------------|--------------------|
| GART - regular warranty | 13 Oct 08 |
| MIC - service contract claims | 14 Oct 08 |
| UWC - service contract claims | 23 Sept 08 |

TABLE 5-3: DATES PULLED

2009CY Update Methodology

8,969

The GM Global Analysis and Reporting Tool (GART-regular warranty) regular warranty database and the Motors Insurance Corp (MIC) service contract claims database were searched using the labor codes that may be related to the alleged defect, listed in Table 6-1. Universal Warranty Corporation (UWC) does not use labor codes or trouble codes.

The following process was used to sort these claims:

- 544 • All claims with customer codes shown in Table 6-2 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 6,800 • Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 6-3 and customer codes in Table 6-4 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 60 • The verbatims of the remaining claims were then read and the claim was determined to be responsive if the verbatim related to the alleged defect.

1,565

2009CY Update Methodology

| LABOR CODE | DESCRIPTION: |
|------------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp - Adjust |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

TABLE 6-1 LABOR CODES USED IN WARRANTY AND MIC SEARCH

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-----------------------------|
| O8 | OPERATION: WON'T TURN OFF |
| WB | WARNING LIGHTS: BRAKE LIGHT |

TABLE 6-2 CUSTOMER CODES USED IN WARRANTY AND MIC SORTING

| TROUBLE CODE | DESCRIPTION: |
|--------------|-------------------------------|
| 1D | BROKEN |
| 6C | COMPONENT-INOPERATIVE |
| 6D | COMPONENT -INTERMITTENT |
| 6F | COMPONENT -OPEN |
| 3A | MISADJUSTED |
| 9Z | NO TROUBLE FOUND |
| 3L | OUT OF CALIBRATION |
| 3X | REGISTERS INCORRECTLY |
| 6N | CONNECTOR - PARTIAL CONNECTED |

TABLE 6-3 TROUBLE CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-------------------------------------|
| OG | OPERATION: EXCESS EFF (EXCESS PLAY) |
| OJ | OPERATION: INOPERATIVE (HARSH) |
| OF | OPERATION: ENGAGE/DIS(EXCESS EFF) |
| O7 | OPERATION: NO MAINTAIN ADJ |

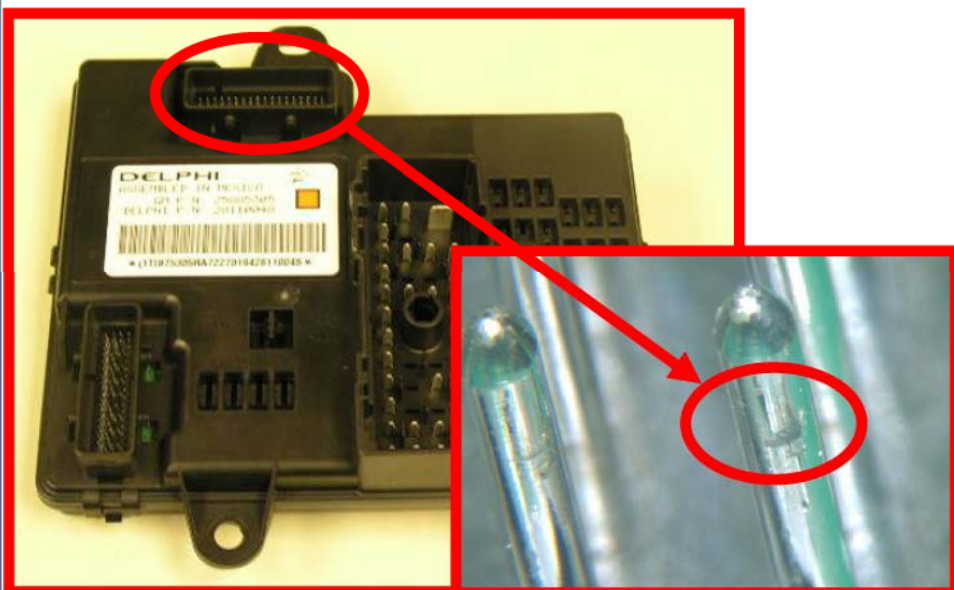
TABLE 6-4 CUSTOMER CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

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Rationale for 2009 Decision

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.

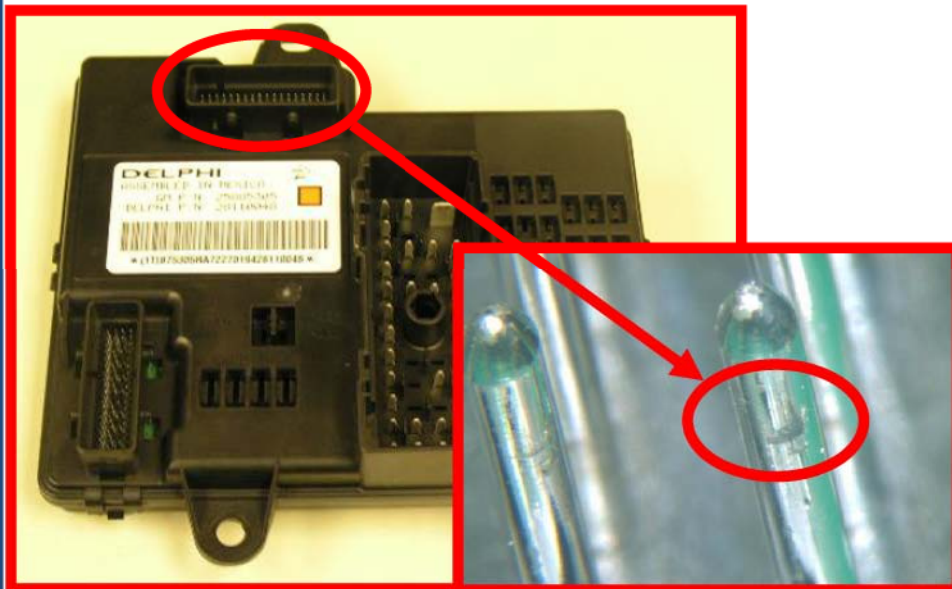


Model Years
2005 - 2006

Models
Pontiac G6

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



Model Years
2005 - 2006

Models
Pontiac G6

Field Action Category
TBD

Population Affected
9,423

Estimated Cost { ** }

Scope

2005 – 2006 Pontiac G6

| M year | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

Immediate Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Projected Frequency

2005 MY 36 MIS Overall = 8.0 IPTV

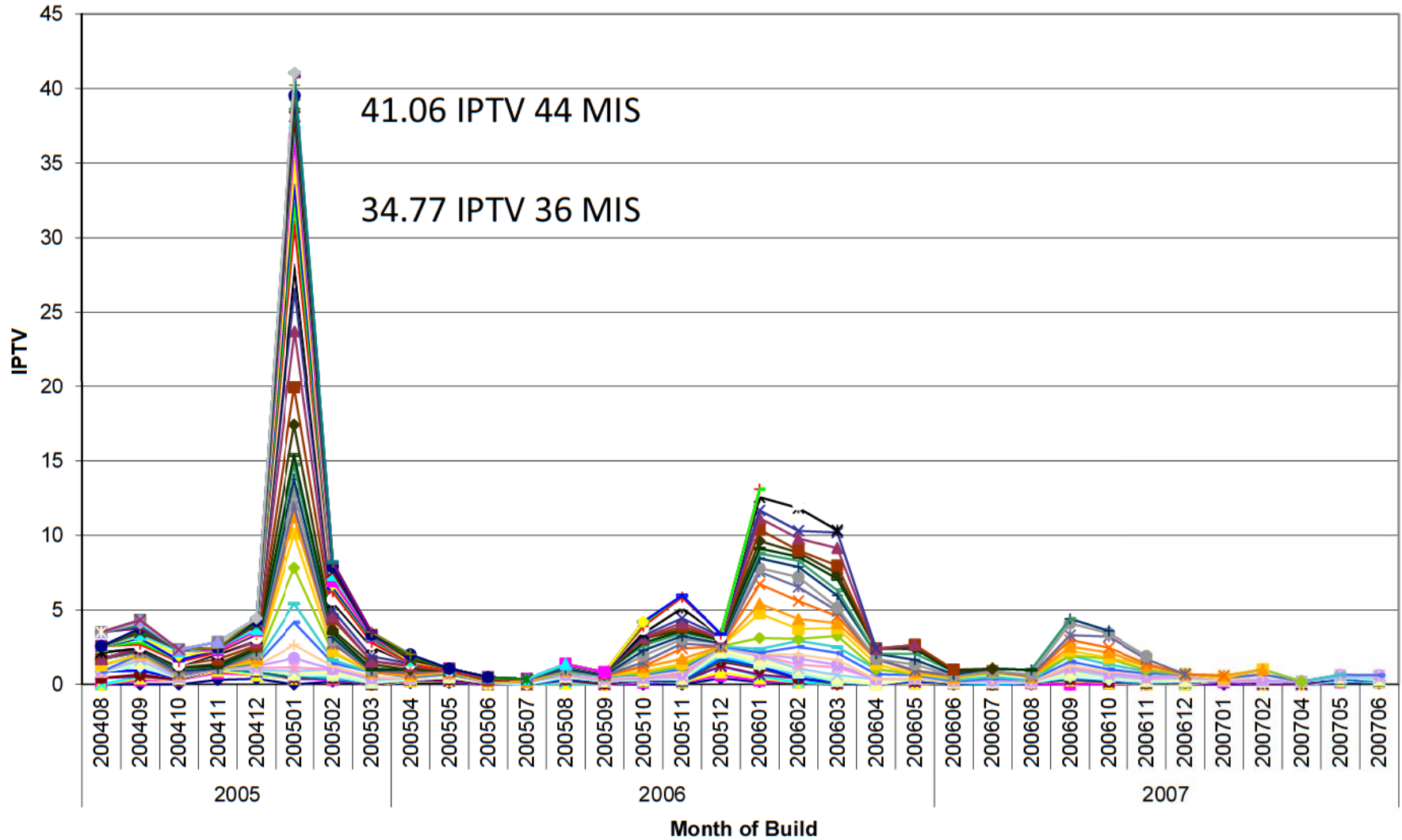
2006 MY 36 MIS Overall = 4.6 IPTV

Build of Month January 2005 36 MIS = 34.77 IPTV

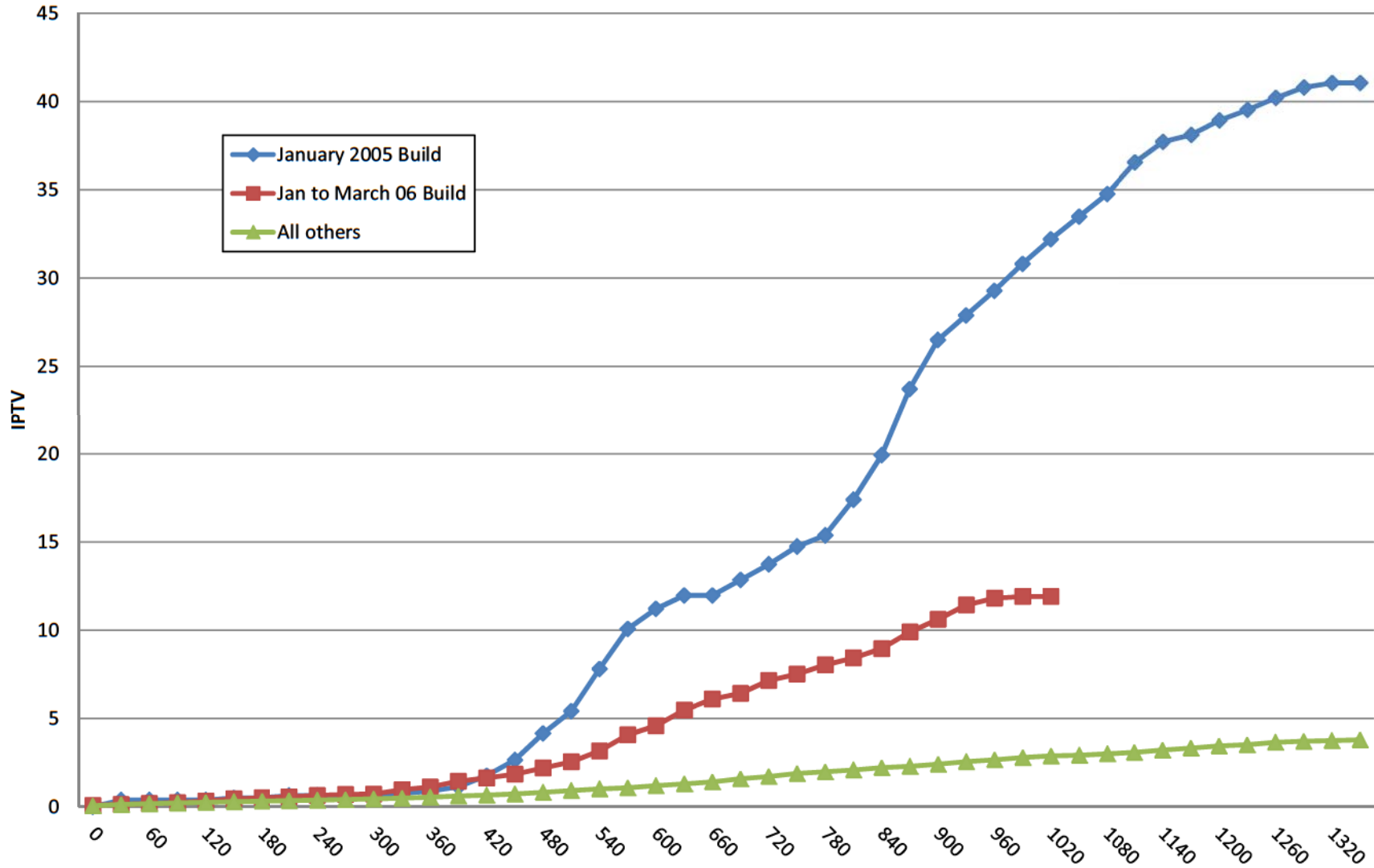
Build of Month January 2005 44 MIS = 41.06 IPTV

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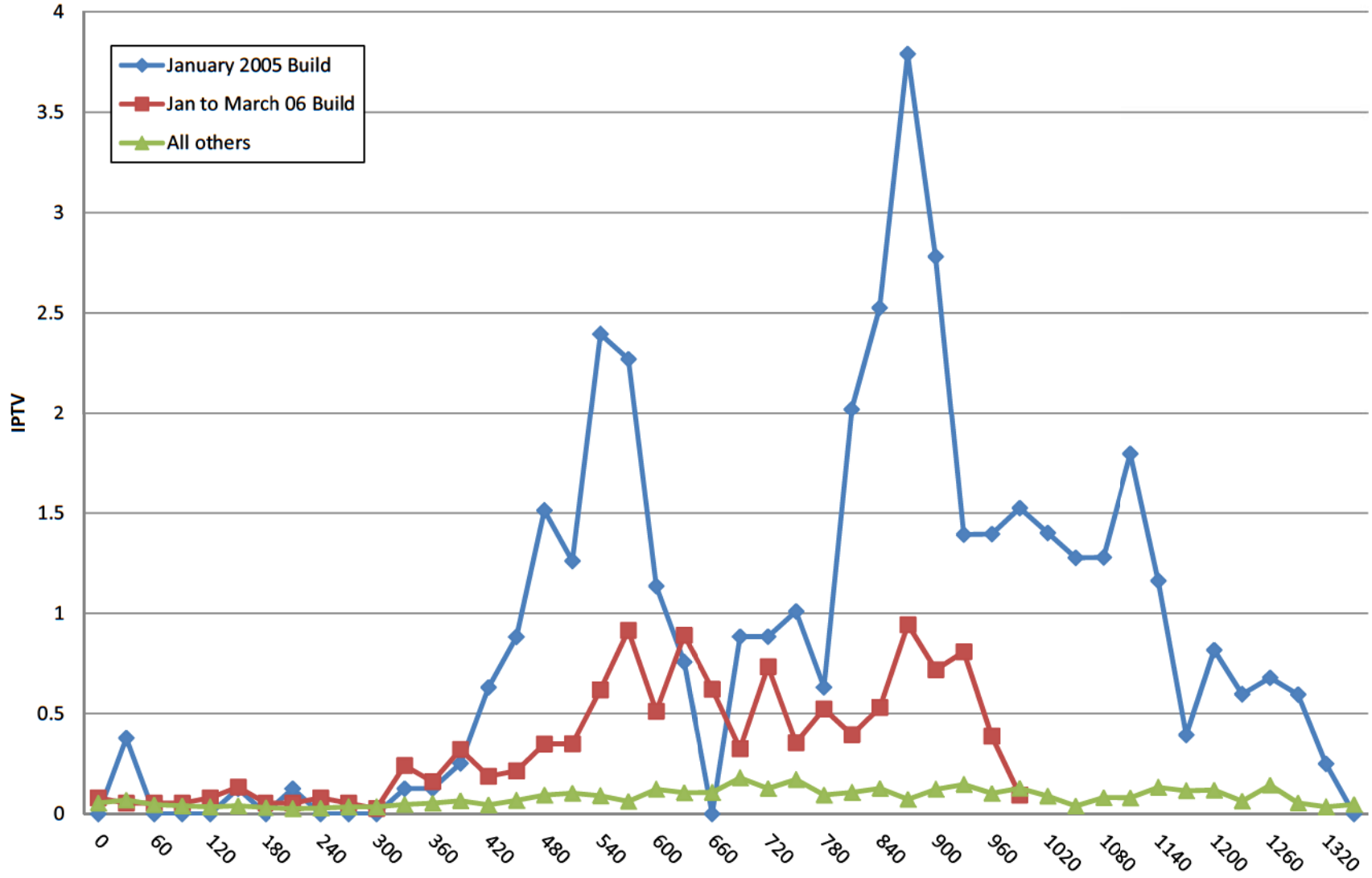
2005 - 2007 G6 Intermittent Stop Lamp Warranty



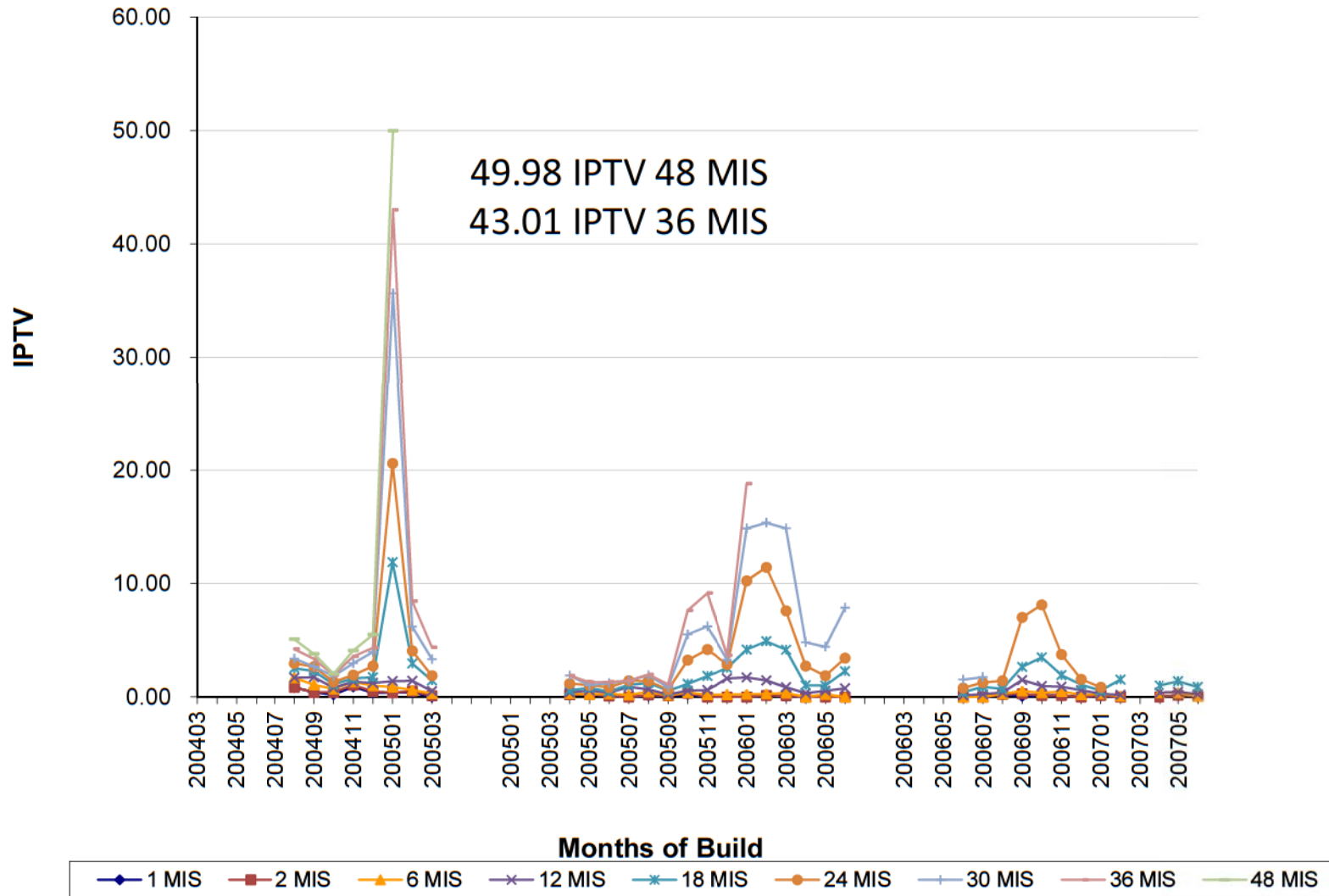
G6 Stop Lamp Warranty - Comparison of Select Months of Build



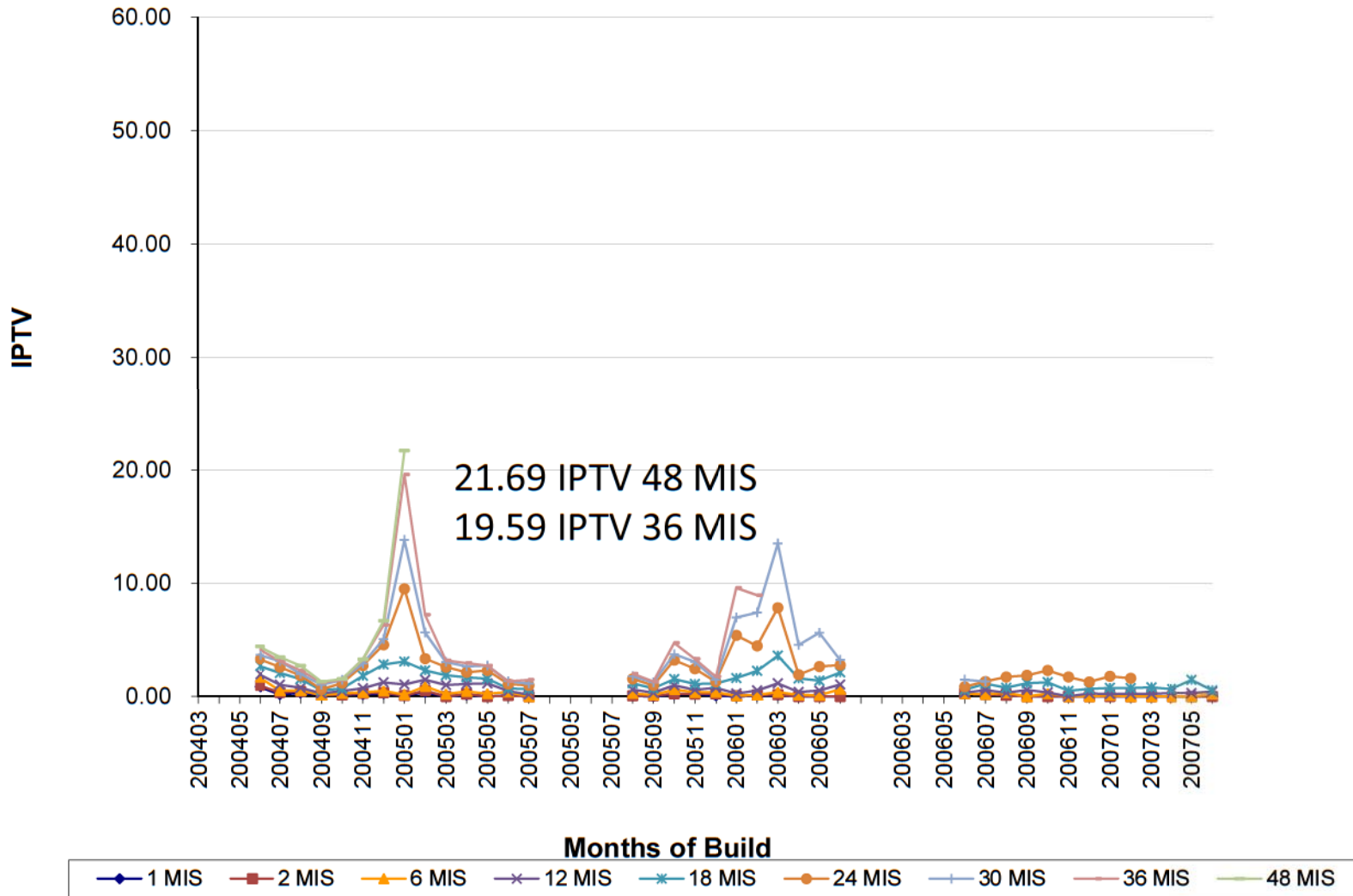
05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Historical Rate Comparison

| Rear lighting issues | | | | | | | |
|---|----------------------|---------------|--|--|--------------------|--|------------------|
| <u>Vehicle</u> | <u>Component</u> | <u>Recall</u> | <u>EOVP</u> | <u>IPTV</u> | <u>Reported by</u> | <u>Cause</u> | <u>Open Date</u> |
| 00 - 04 Saturn L Series | Stop/Tail/Park lamp | Safety | Loss of all brake lights or park/tail lights (one side) | As high as 365 IPTV at 36 months | TREAD | Circuit board arcing, blown fuses, loose sockets | 15-Feb-05 |
| 03 J car | Stop/tail/turn lamp | Safety | Loss of single stop/tail/turn lamp (CHMSL not affected) | 343 (12 months) | Bulletin review | Grease removed from production | 14-May-04 |
| 02-04 GMT360/370 | Stop lamp | Safety | Loss of single stop and/or tail lamp (CHMSL not affected) | 237 (13 months) 31% had lost function of both lamps (per survey) | TREAD | Loose bulb fit | 6-Apr-04 |
| 00-01 ST utilities and 01-02 Chevrolet Astro and GMC Safari | Multifunction Switch | Safety | Loss of all stop lamps (CHMSL not affected) | 214.3 (9 months) | NHTSA | Change from copper to brass for error proofing | 6-Sep-01 |
| 97-99 Malibu | Stop lamp | N | Loss of single stop lamp (CHMSL not affected) - Replace entire lamp assembly | 37 (36 months) - reduced to 4.6 | NHTSA | Stainless contacts | |
| 94 CK Truck | Brake Switch | Safety | Loss of all stop lamps and CHMSL | 33.78 (36 months) (up to 360 in durability) | Transport Canada | Reverse Polarity | |
| 04 - 05 Chevrolet Colorado, GMC Canyon, Isuzu I-280 | Brake Switch | Safety | Loss of all stop lamps and CHMSL | 31.3 (23 months) | NHTSA | Internal heat in switch | 2-Dec-05 |
| 98-04 Mercedes SLK/SLK 230 | Stop lamp | Safety | Loss of single stop lamp (CHMSL not affected) | 821 (over 36 months) | NHTSA | The base of the socket can be subject to thermal deformation over time | 22-Sep-05 |
| 95 Ford Villager, Nissan Quest, and Nissan Pickup | Stop/tail/turn lamp | Safety | Loss of single stop/tail/turn lamp (CHMSL not affected) | 250 (12 months) | Warranty study | Change in the material of the plastic socket housing | |
| 99 - 02 Volkswagen Jetta, New Beetle, Gulf | Brake Switch | Safety | Loss of all stop lamps and CHMSL or brake | 117 (12 months) | NHTSA | Brake switch malfunction | |

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Production Improvement

Dielectric lubricant is applied by Cockpit supplier Inteva for G6 as of 11/18/2008.

The lubricant will be applied in the Delphi harness assembly plant in August 2009.

Potential Field Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Systematic Root Causes

Legacy connector system design with low terminal retention force and non-robust contact design.

Preventive Actions

All new module designs must use approved connector designs that pass the latest GMW specification requirements.



Brake Lamps Malfunction due to BCM Connector



2004 -11MY Malibu, 2005 - 10MY G6, 2007 - 09MY Aura
Vehicle Population: 1,222,206 + 561,604 + 144,950 = 1,928,760
Cost Estimate: TBD

ETQ Nxxxxxx

Condition:

Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.

{ * }

Effect of the Condition:

A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK.

Additionally, the transmission converter clutch will not engage.

{ * }

Potential Field Action Category: TBD

Brake Lamps In-operation due to BCM Connector

Potential Field Remedy: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).

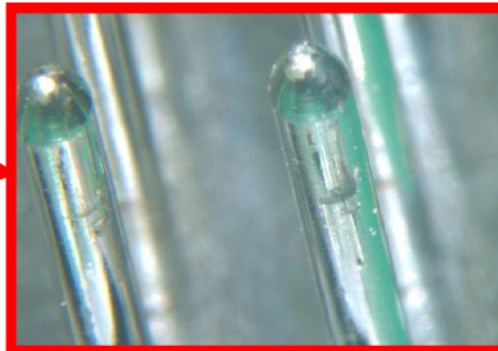
Current Status:

TC inquiry is due on 21OCT11.

GM draft response is completed.

Immediate Improvement /Containment:

Responsibility: Engineering



2011CY Warranty Status

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MY and Model

| | | |
|-----------|-------------------------------|----------|
| 2004-2008 | Chevrolet Malibu, Malibu Maxx | (GMX380) |
| 2008 | Chevrolet Malibu Classic | (GMX380) |
| 2008-2011 | Chevrolet Malibu | (GMX386) |
| 2005-2010 | Pontiac G6 | (GMX381) |
| 2007-2009 | Saturn AURA | (GMX384) |

Labor Op.

| | |
|-------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp – Adjust |
| N9595 | BCM C2 Connector Repair per TSB |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

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| Customer Code | Description: |
|---------------|-------------------------------|
| 08 | Operation: Won't Turn Off |
| WB | Warning Lights – Brake Lights |

| Trouble Code | Description: |
|--------------|-------------------------------|
| 1D | Broken |
| 6C | Component - Inoperative |
| 6D | Component - Intermittent |
| 6F | Component - Open |
| 3A | Misadjusted |
| 9Z | No Trouble Found |
| 3L | Out of Calibration |
| 3X | Registers Incorrectly |
| 6N | Connector – Partial Connected |

| Customer Code | Description: |
|---------------|-------------------------------------|
| 0G | Operation: Excess Eff (Excess Play) |
| 0J | Operation: Inoperative (Harsh) |
| 0F | Operation: Engage/Dis (Ecess Eff) |
| 07 | Operation: No Maintain Adj |

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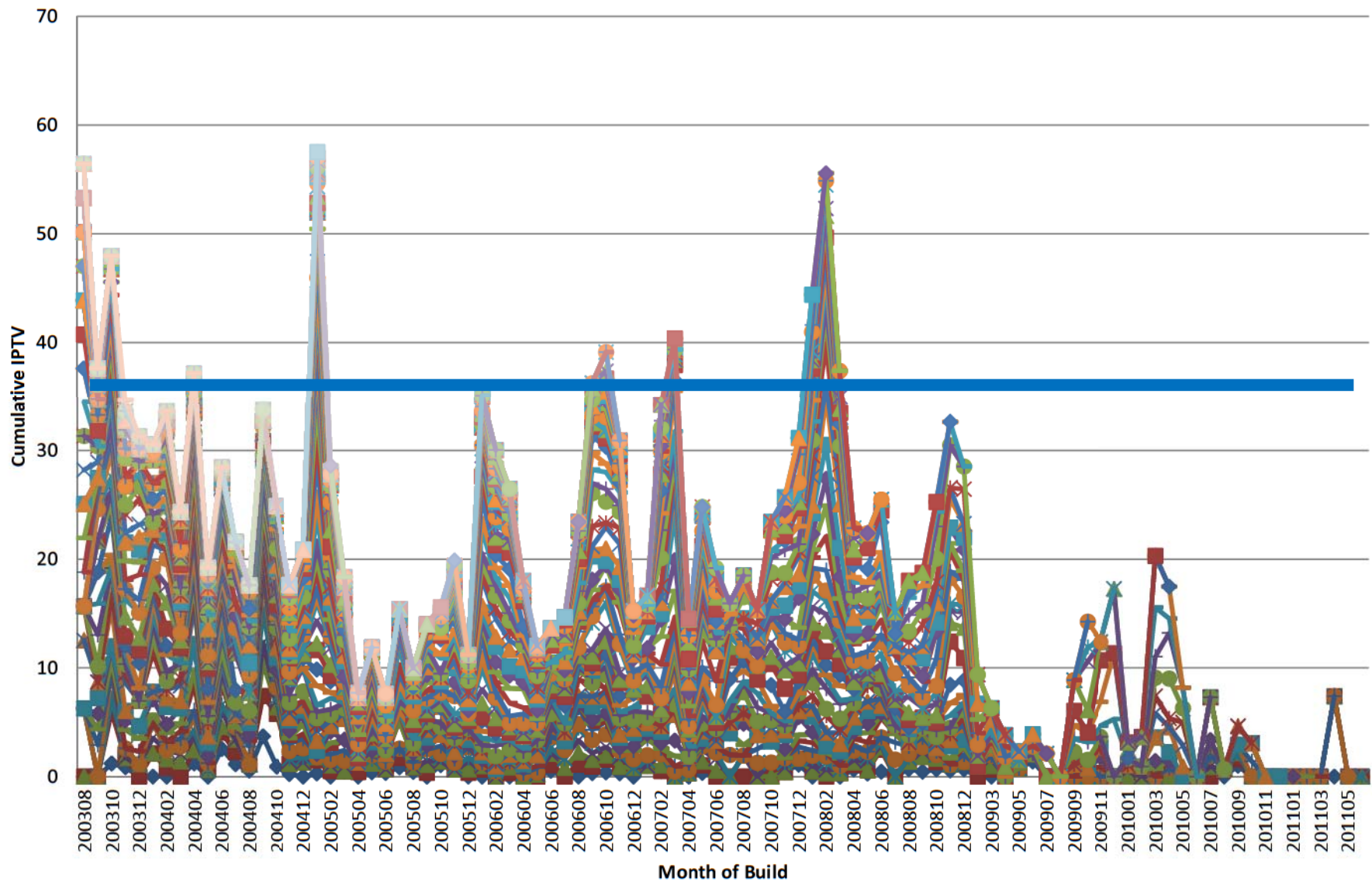
Canada Only Filtered Warranty

| Row Labels | Chevrolet | Pontiac | Saturn | Grand Total | |
|--------------------|-----------|-------------|-------------|-------------|-------------|
| in | | 1049 | 819 | 140 | 2008 |
| A (in) | | 75 | 62 | | 137 |
| B (in) | | 326 | 223 | 15 | 564 |
| C (in) | | 144 | 128 | 24 | 296 |
| D (in) | | 504 | 406 | 101 | 1011 |
| out | | 1949 | 1384 | 81 | 3414 |
| DUP | | 859 | 681 | 24 | 1564 |
| E (out) | | 1090 | 703 | 57 | 1850 |
| unknown | | 2014 | 1415 | 297 | 3726 |
| F (?) | | 2014 | 1415 | 297 | 3726 |
| Grand Total | | 5012 | 3618 | 518 | 9148 |

| | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| A | All L-Ops + Cust Codes 08 and WB | | | | | | | |
| B | H2642 & H2643 & TC 1D/3A/3L/3X/6C/6D/6F/6N/9Z & CC OG/OF/OJ/O7 (Tables 6-3 & 6-4 of PE 08-054) | | | | | | | |
| C | Remaining L-ops with Related Verbatims | | | | | | | |
| D | N9595 - TSB 08-05-22-009 | | | | | | | |
| E | OUT | | | | | | | |
| F | Unknown | | | | | | | |

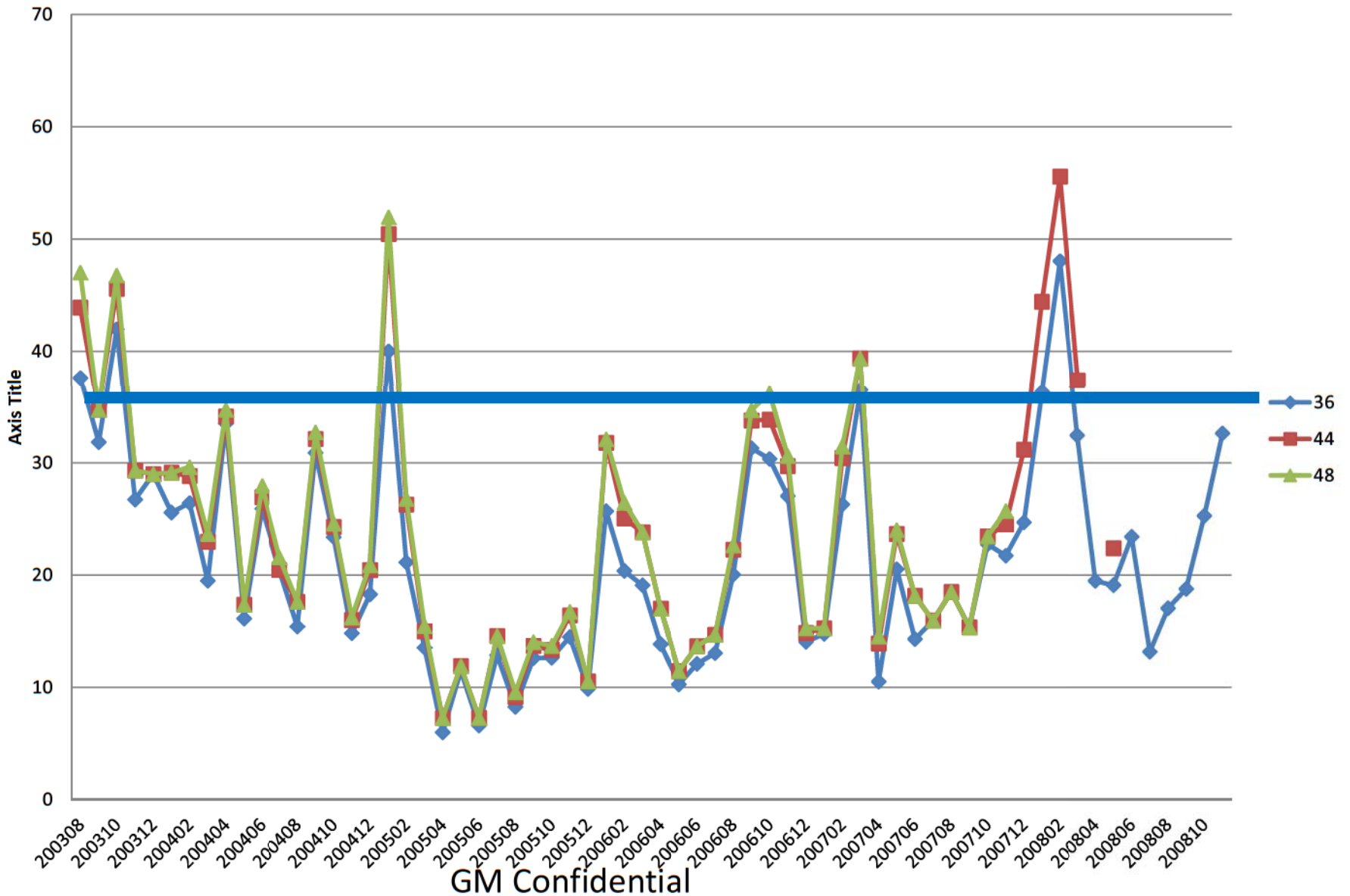
GM Confidential

2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records

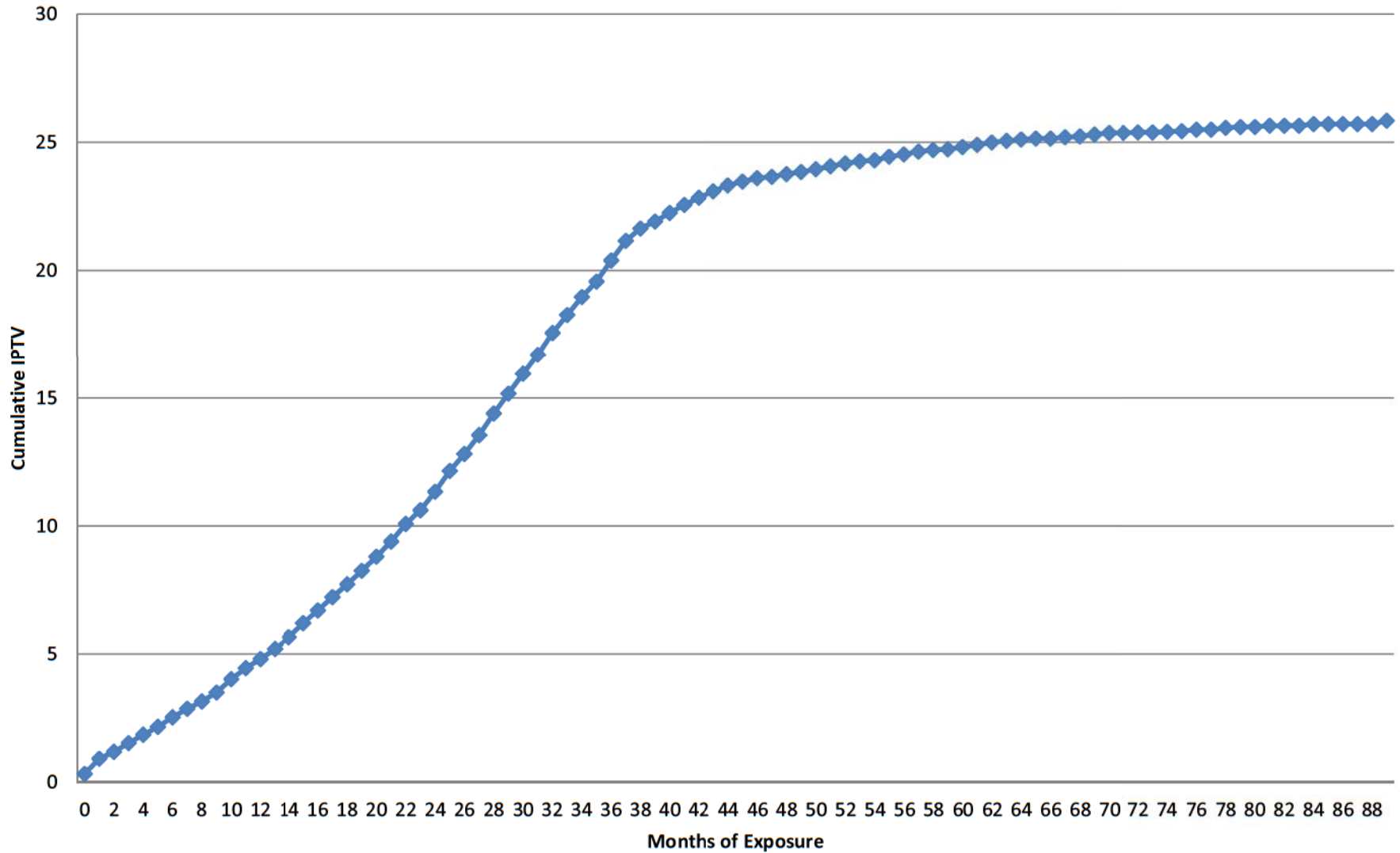


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2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records

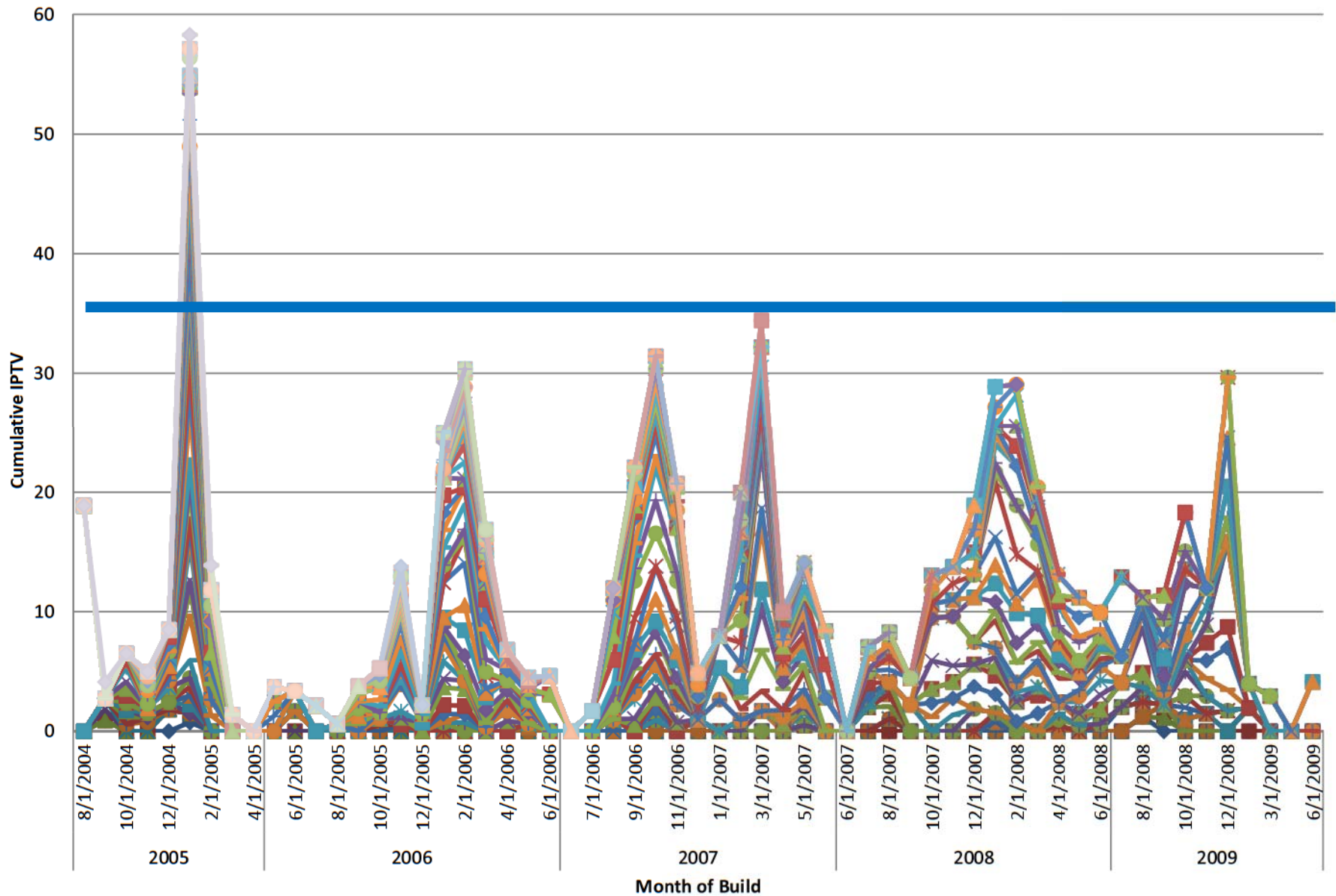


2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records



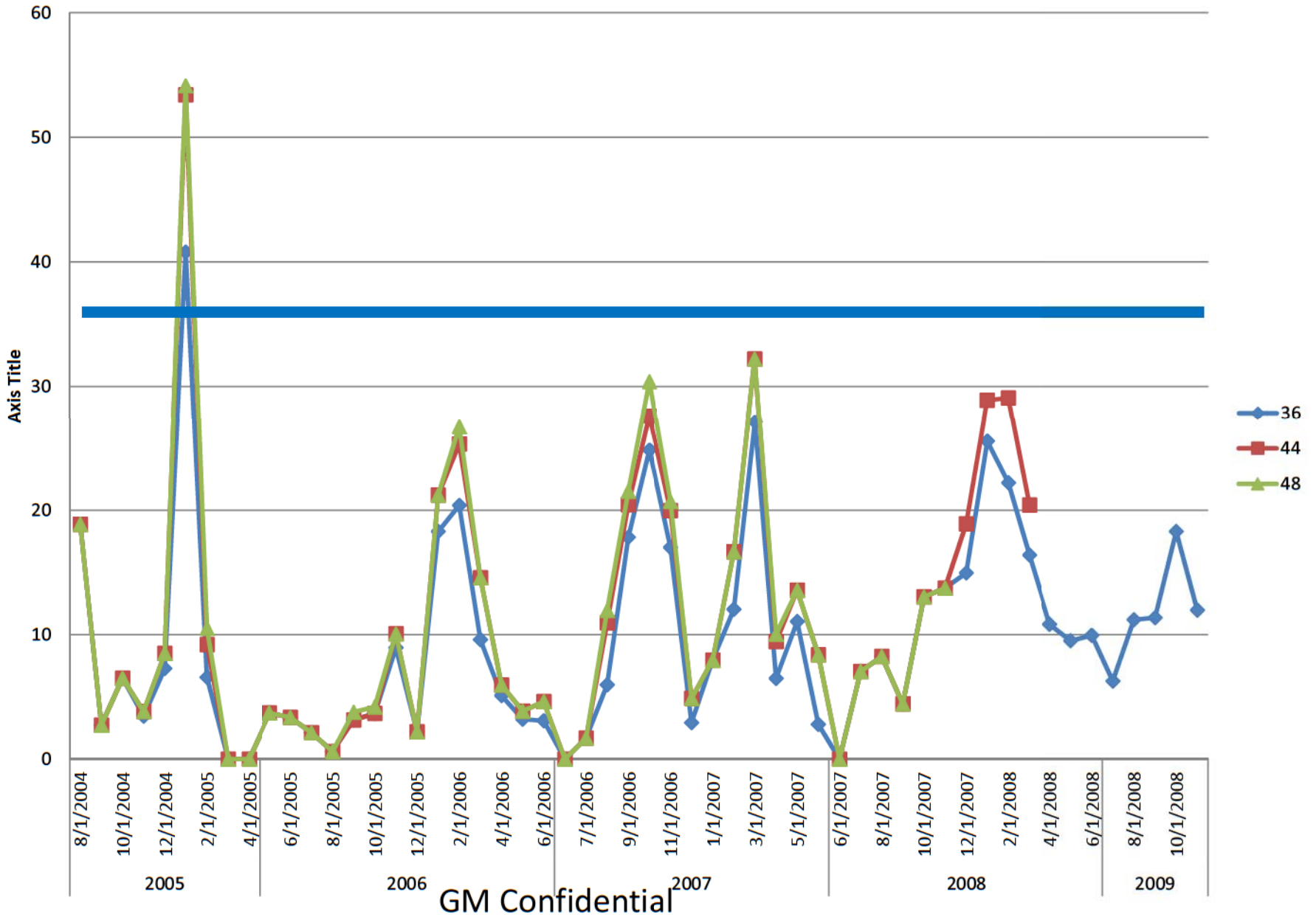
GM Confidential

2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)

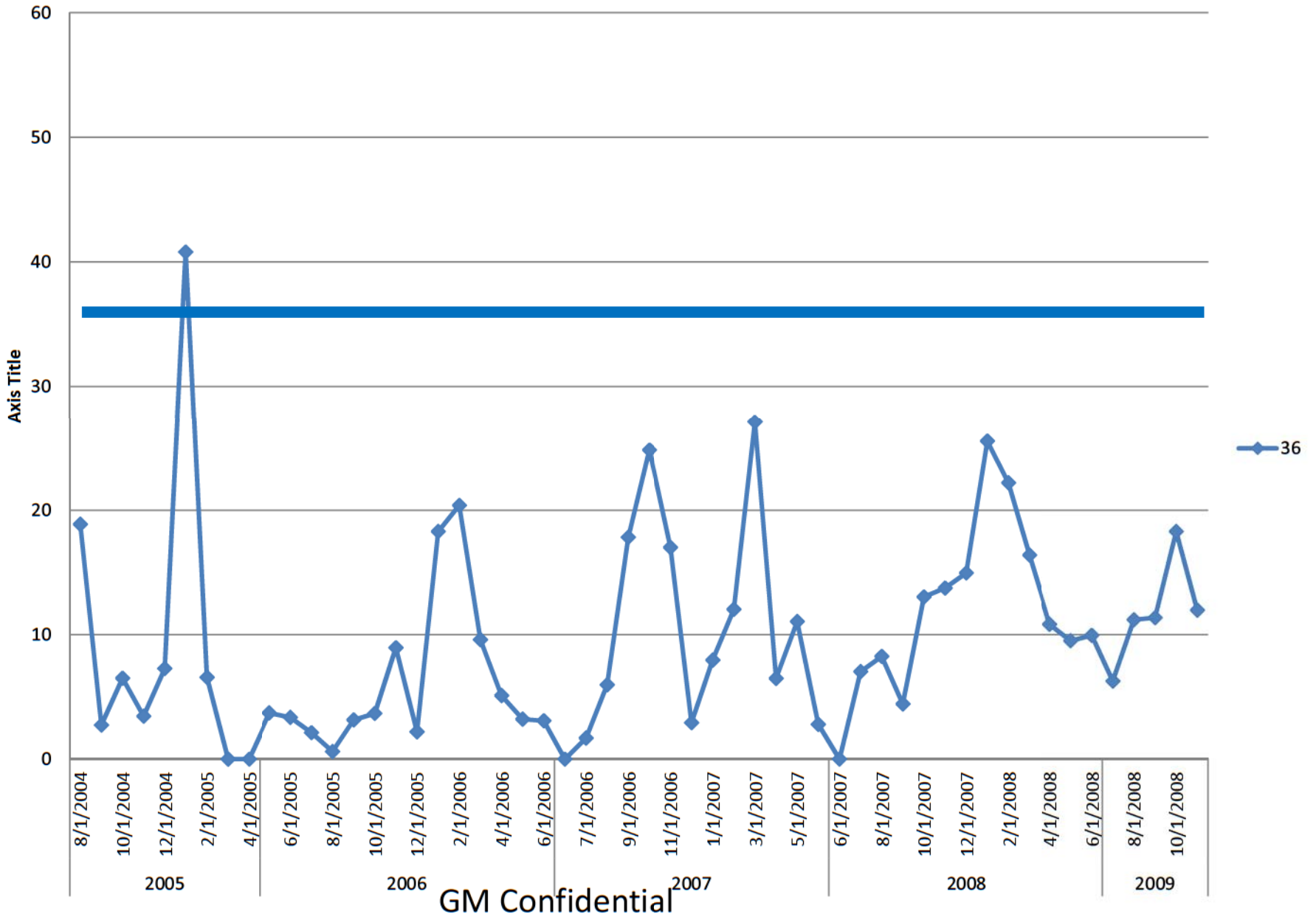


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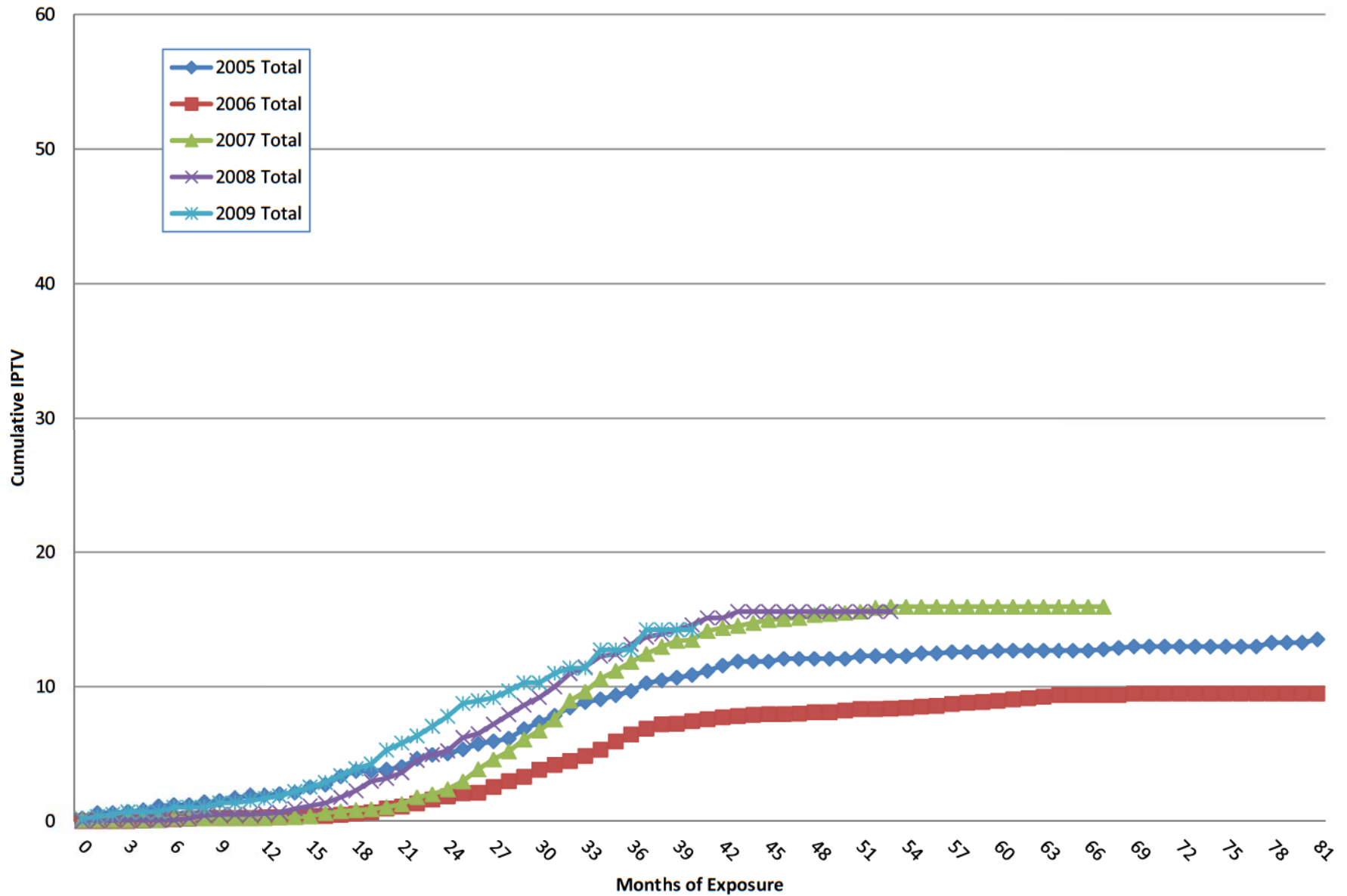
2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)



2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)

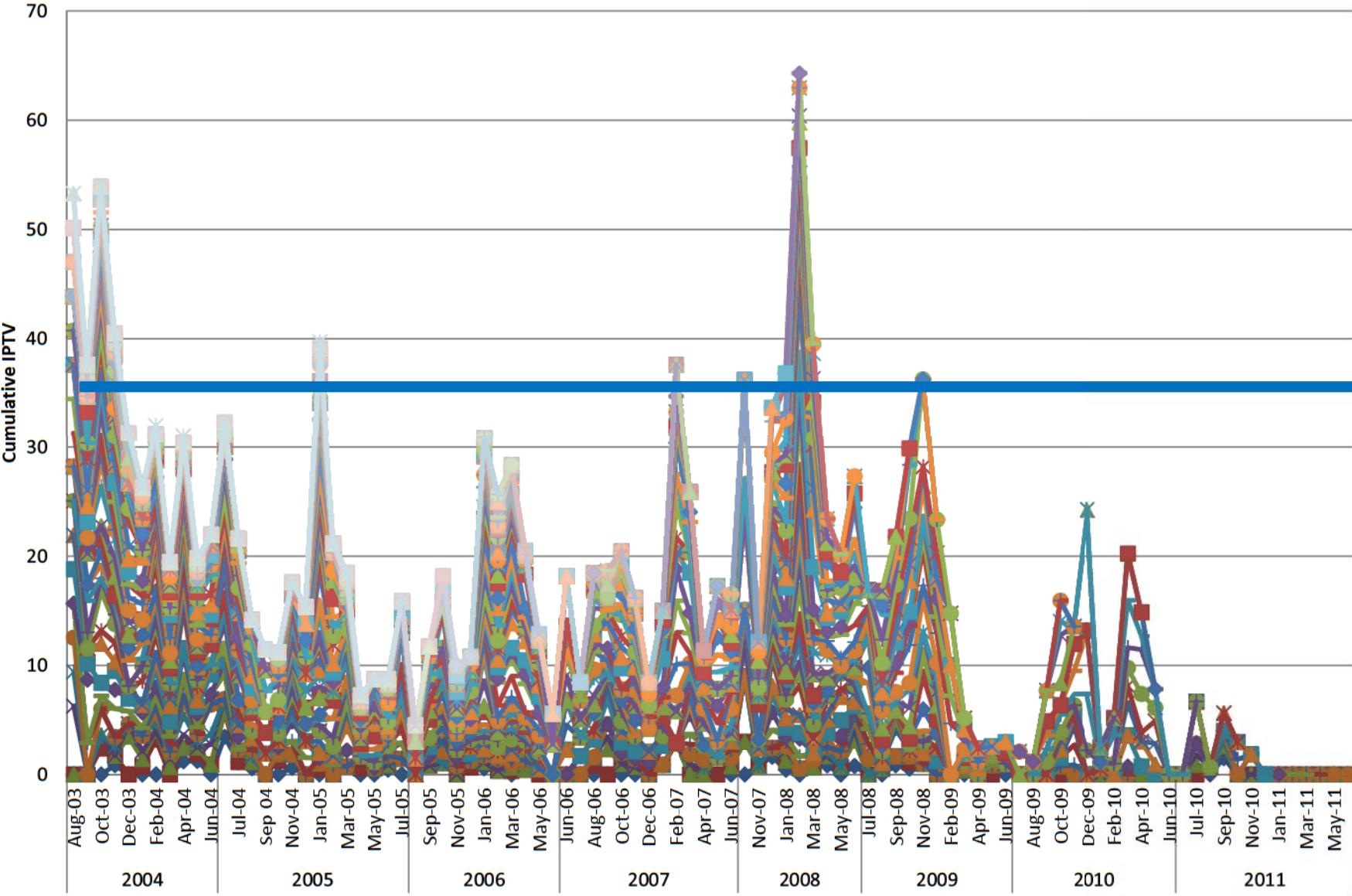


2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)



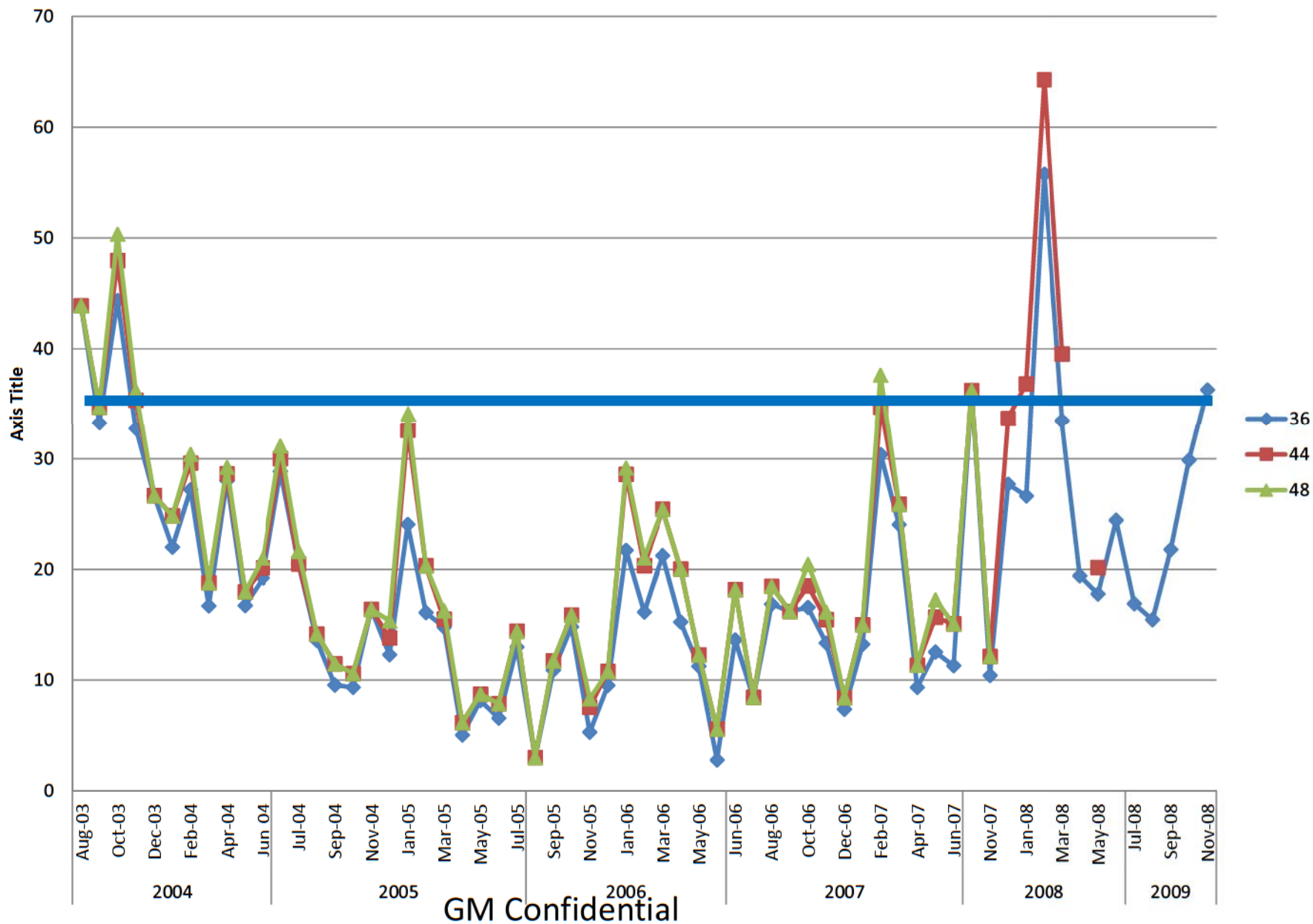
GM Confidential

2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)

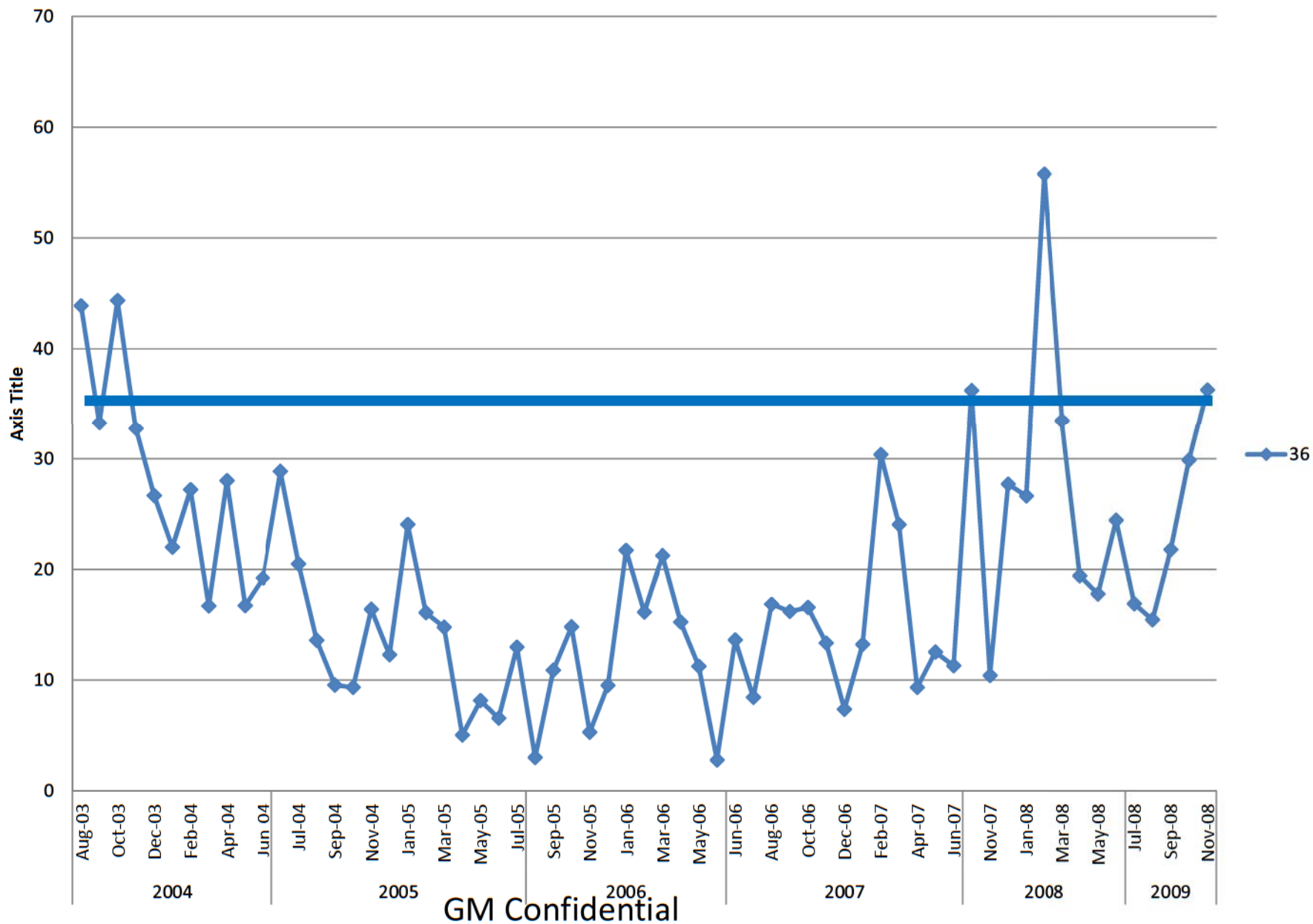


Month of Build
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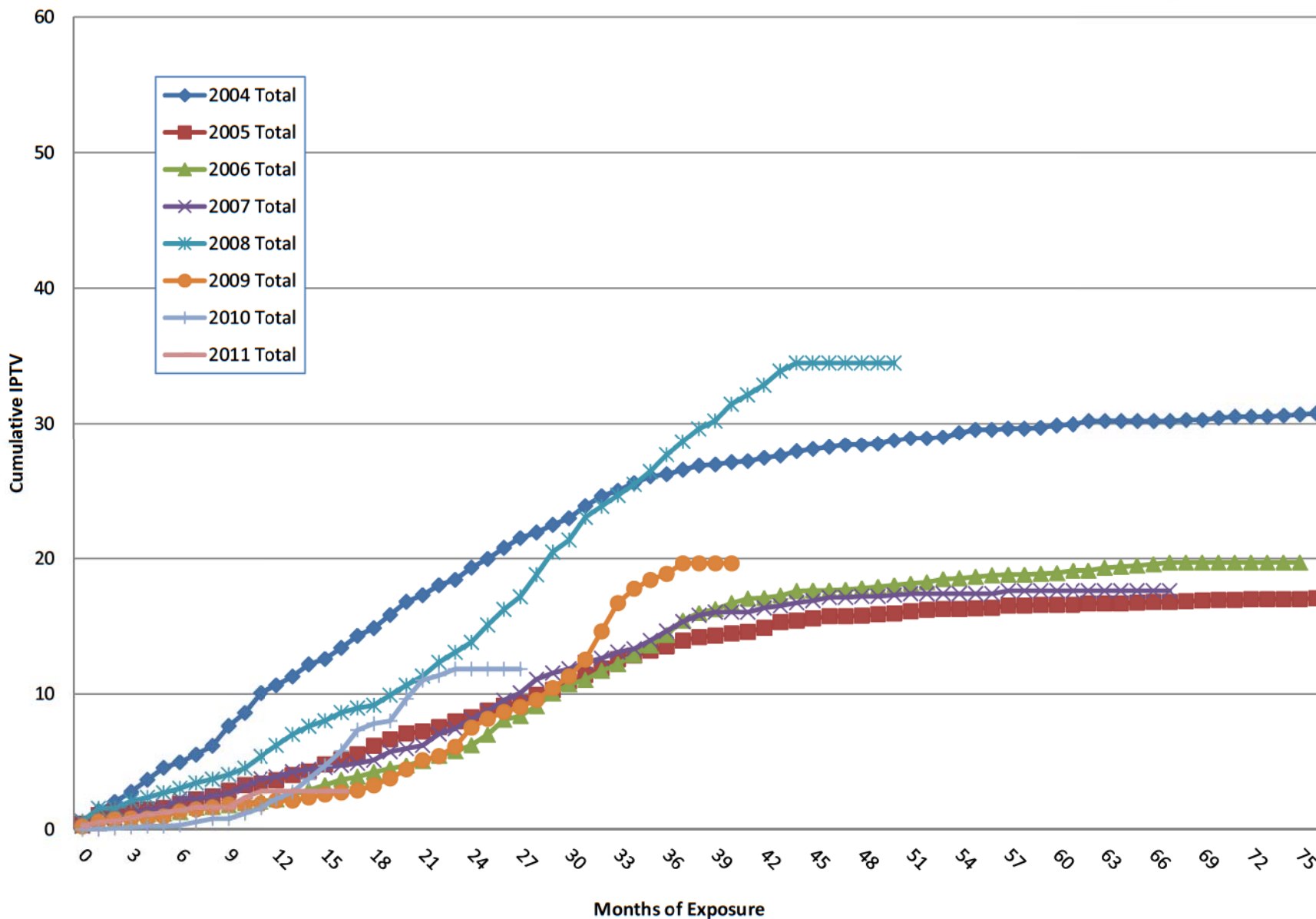
2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)



2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)

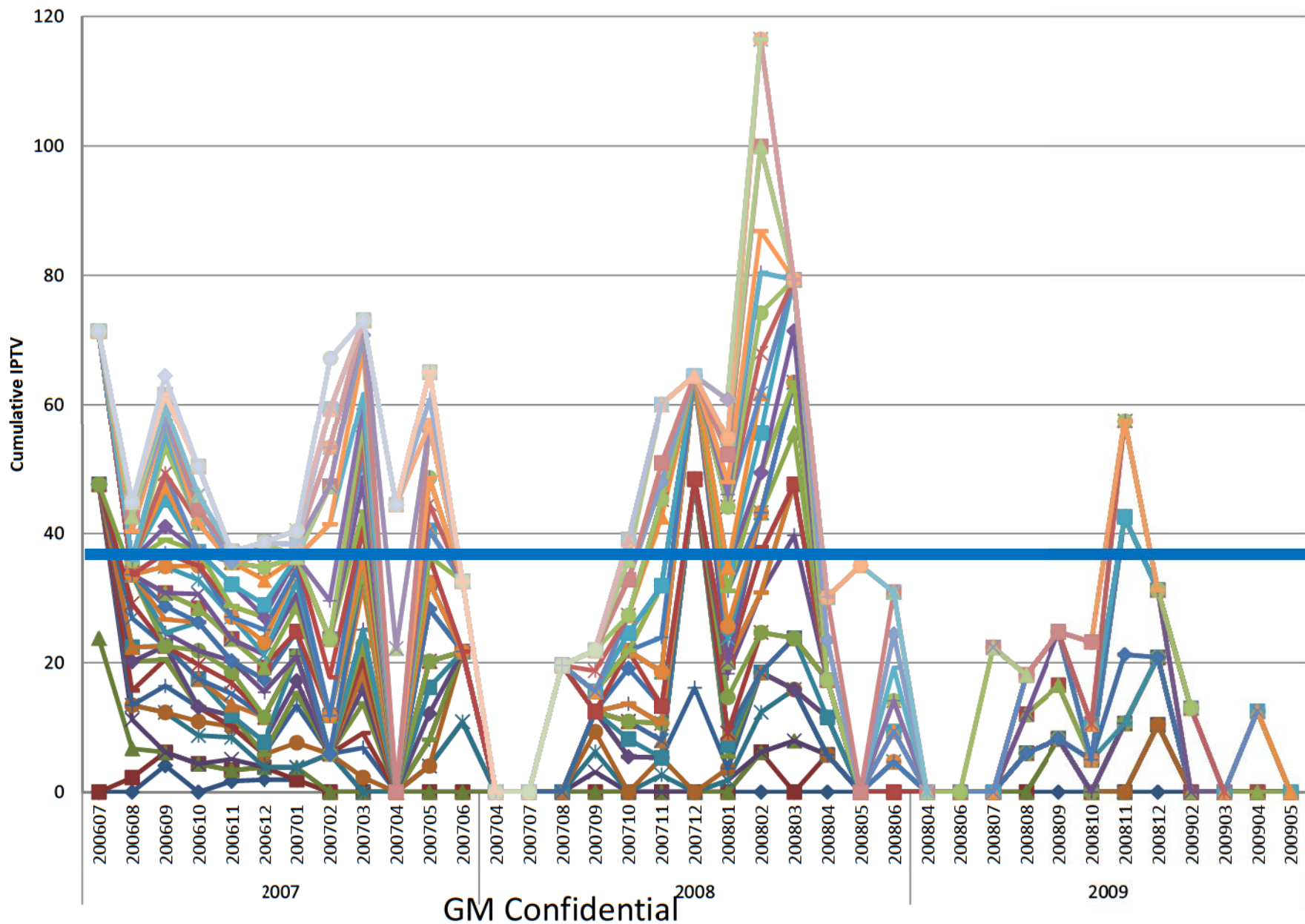


2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)

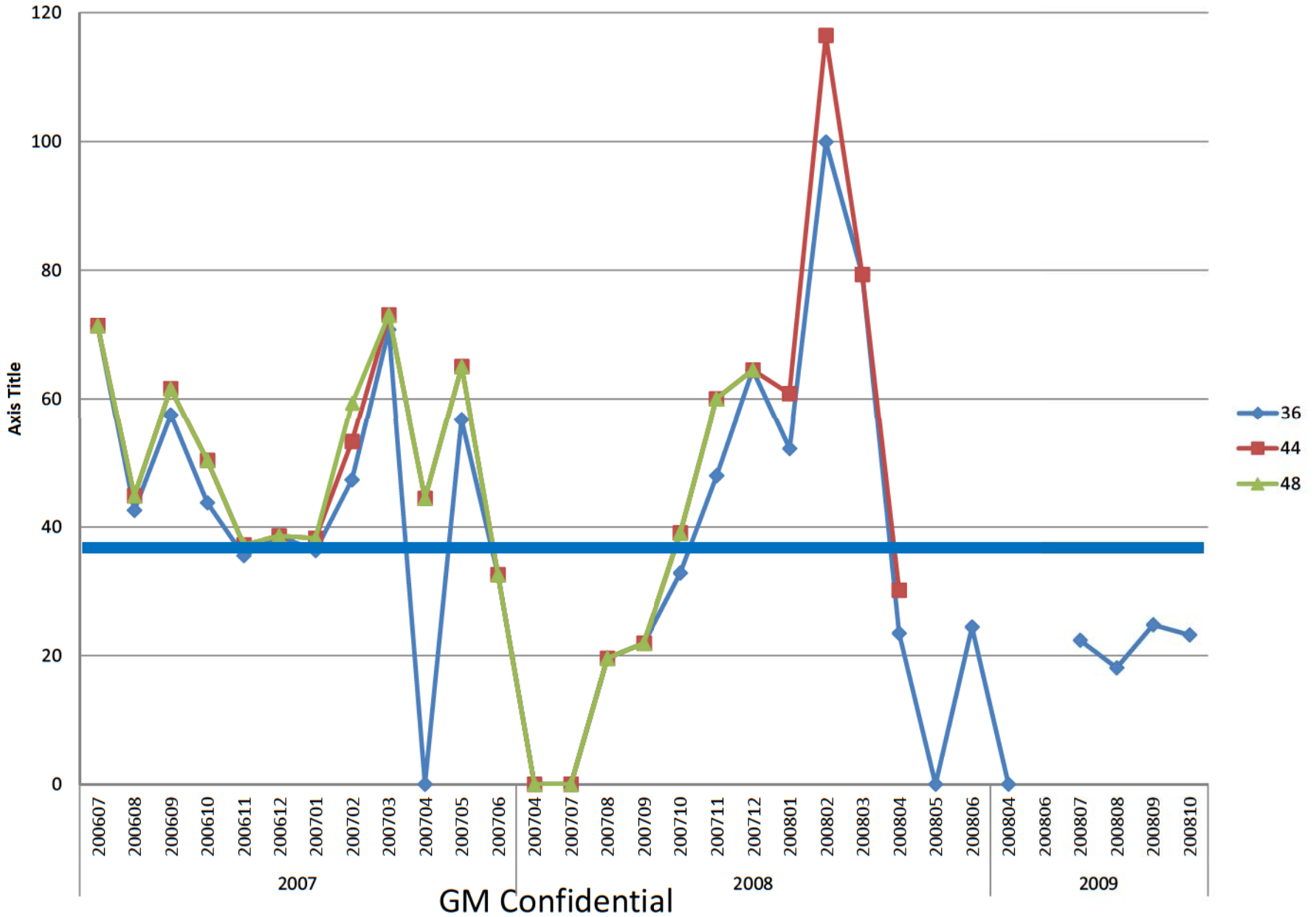


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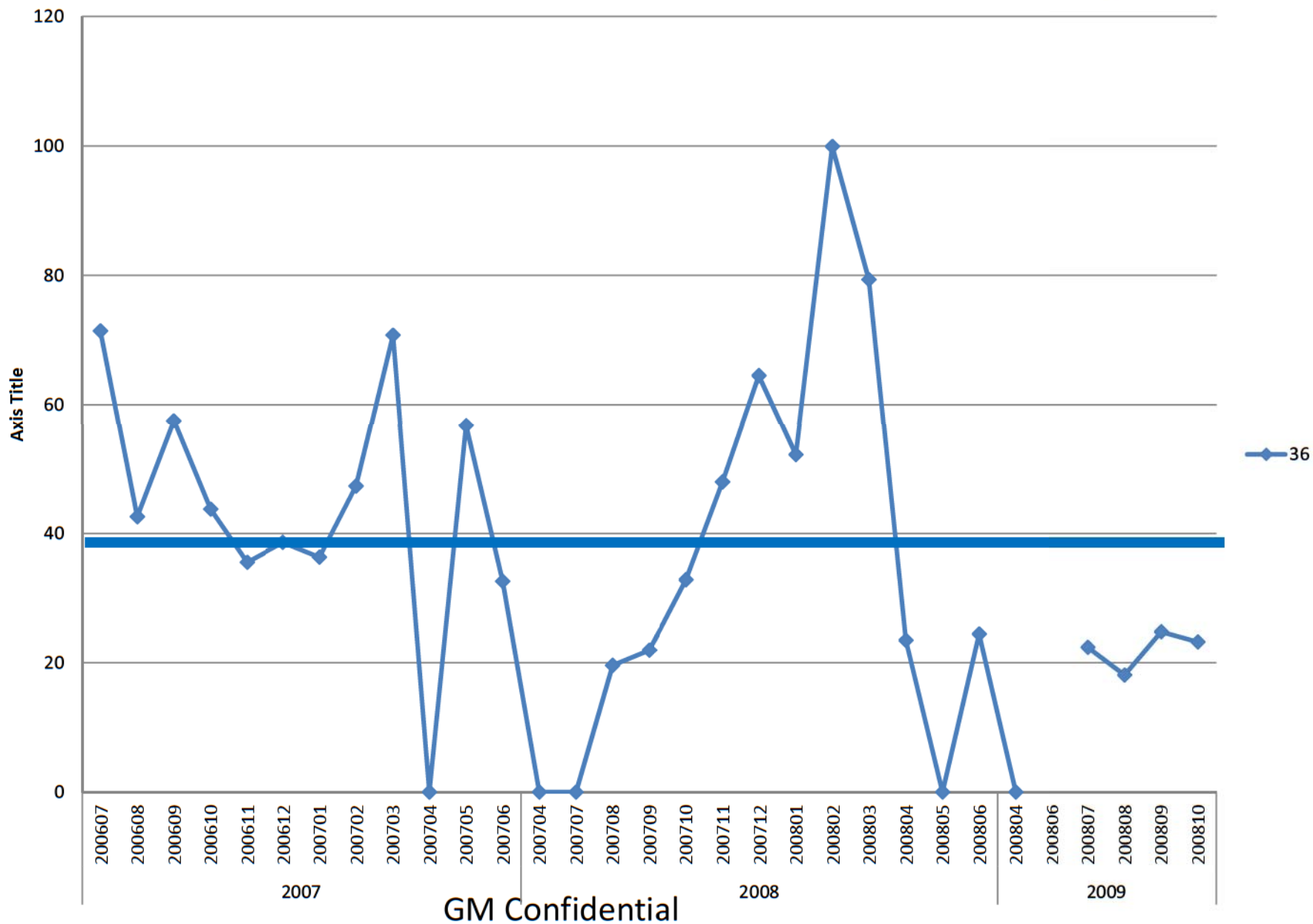
2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



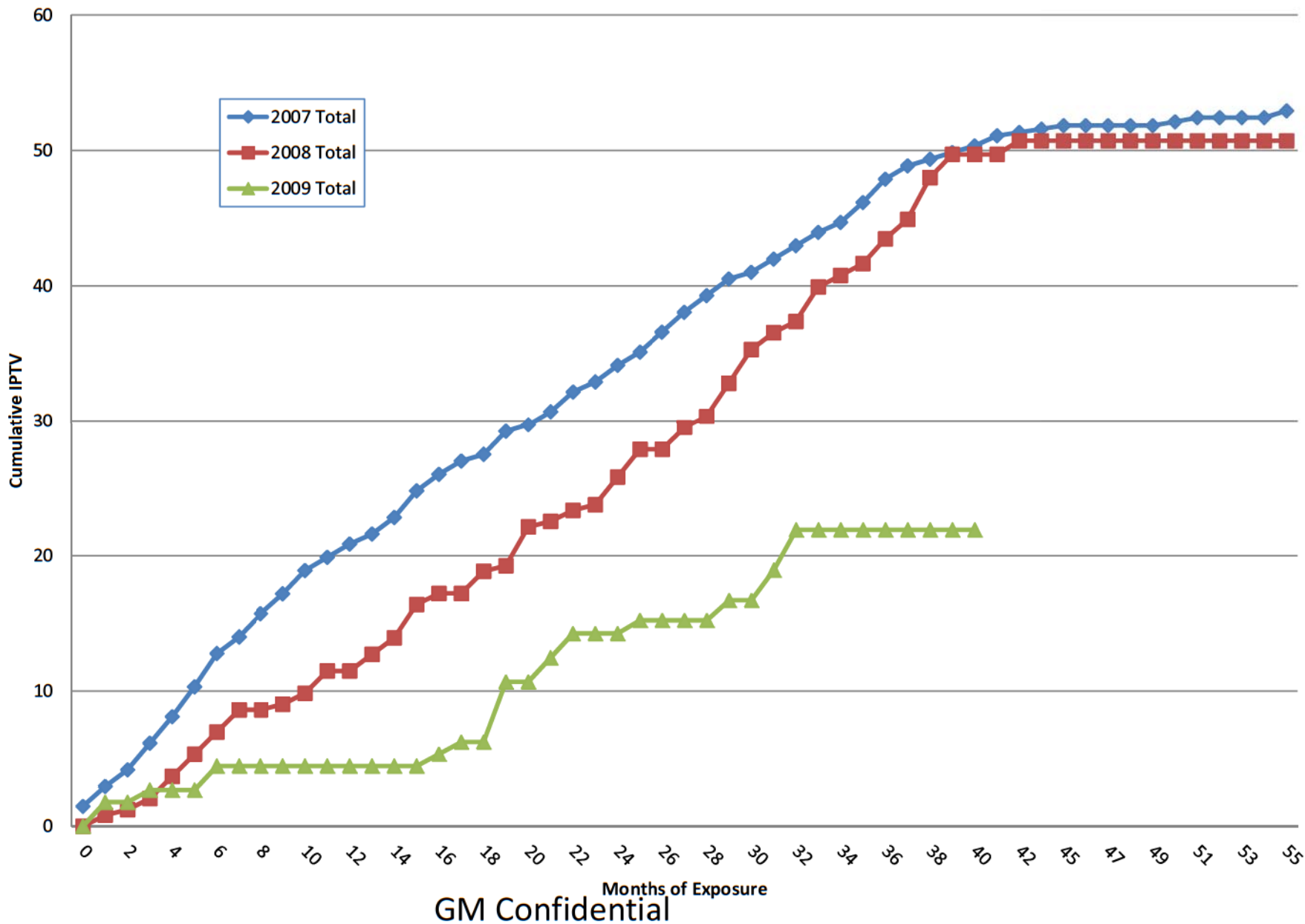
2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)







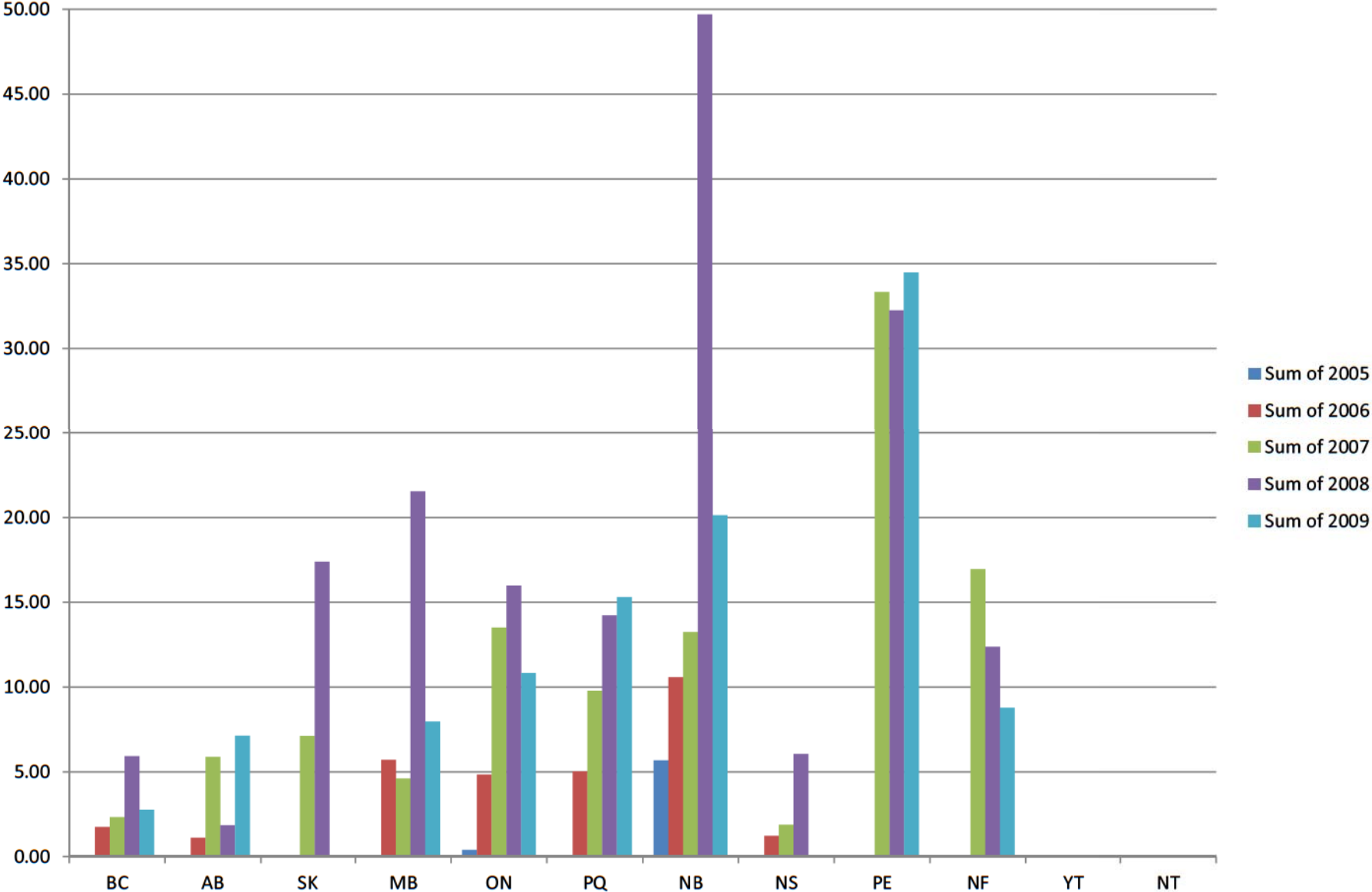


Individual State and Province IPTV

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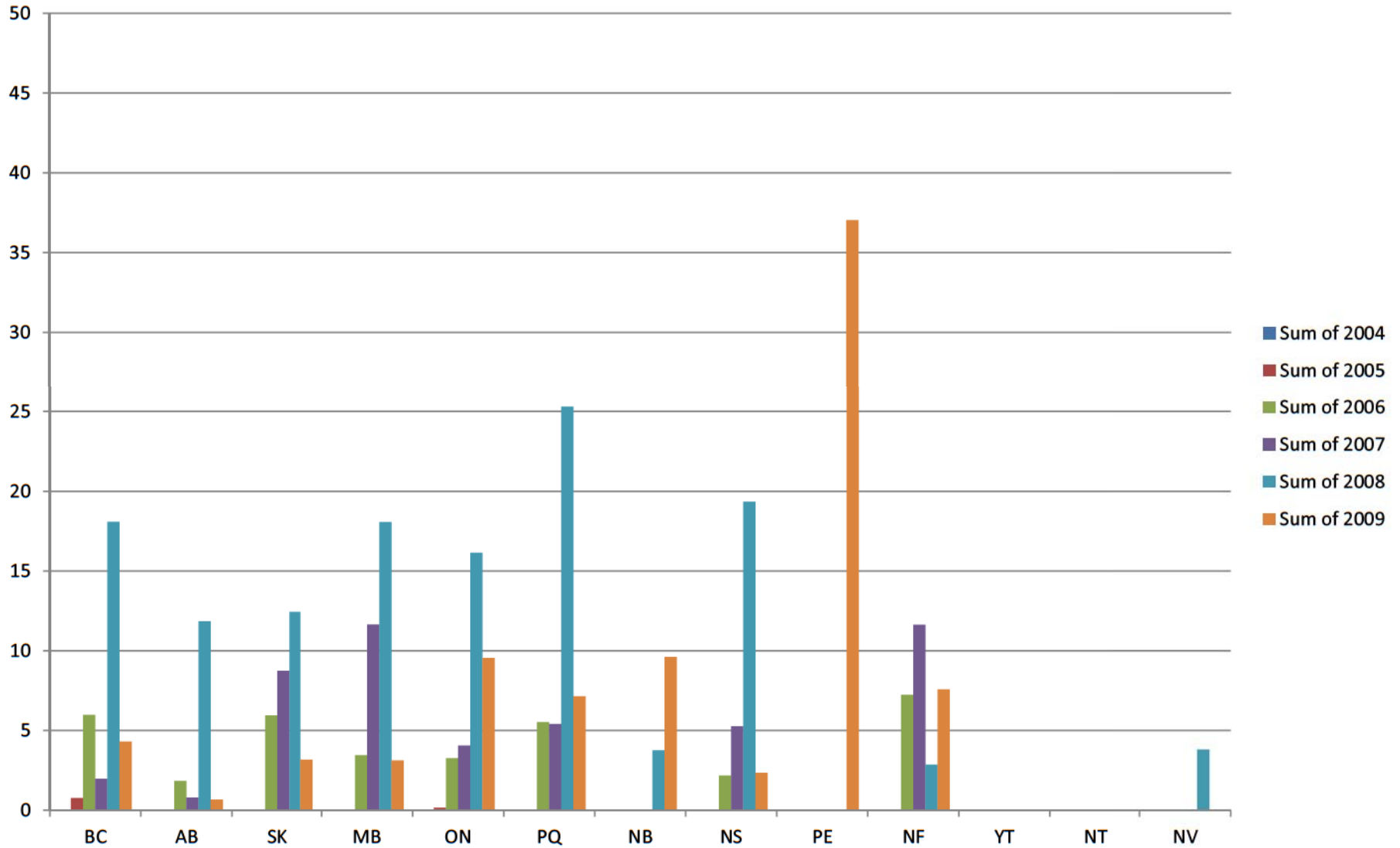


Province IPTV Ranking for G6



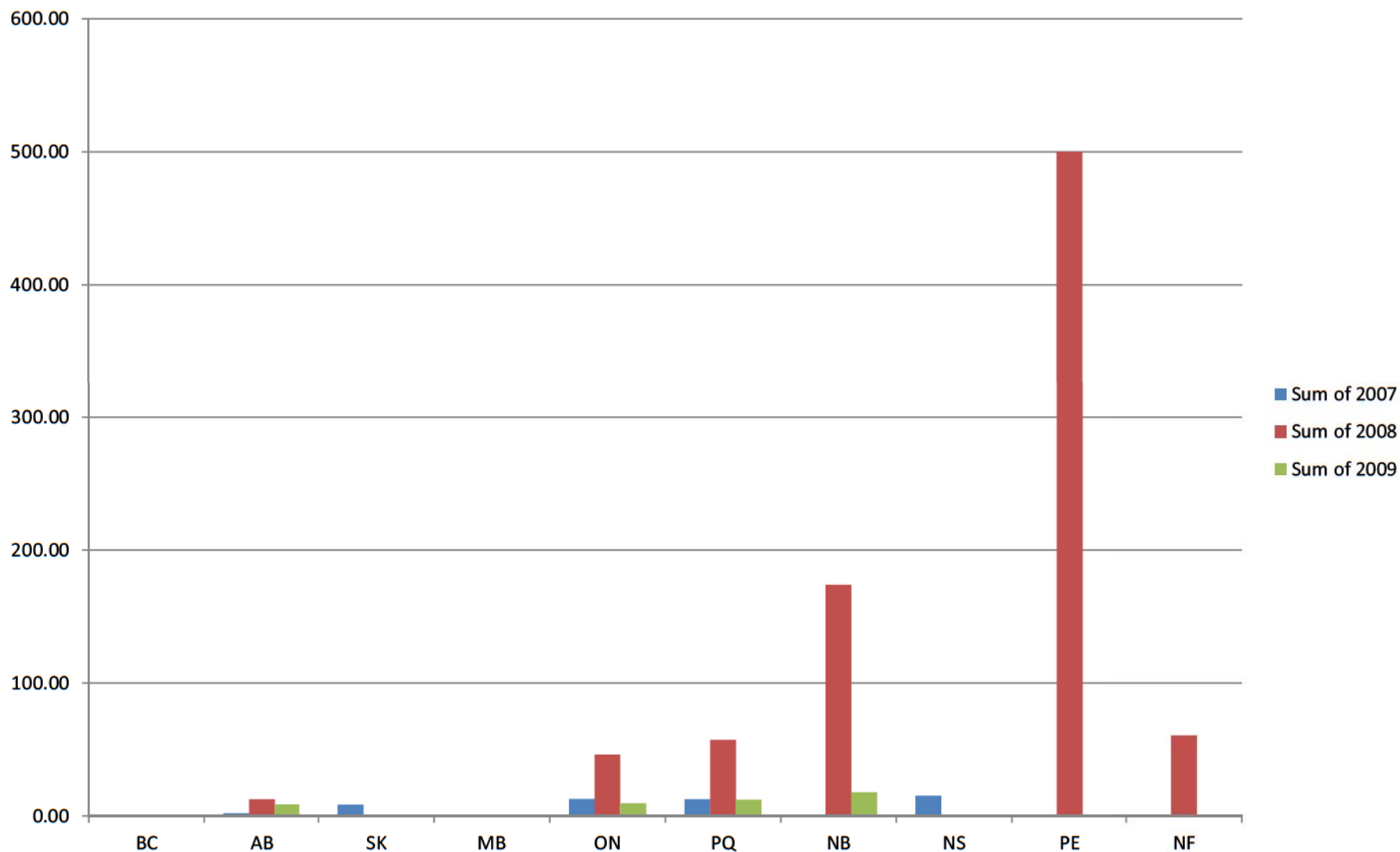
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Province IPTV Ranking for Malibu



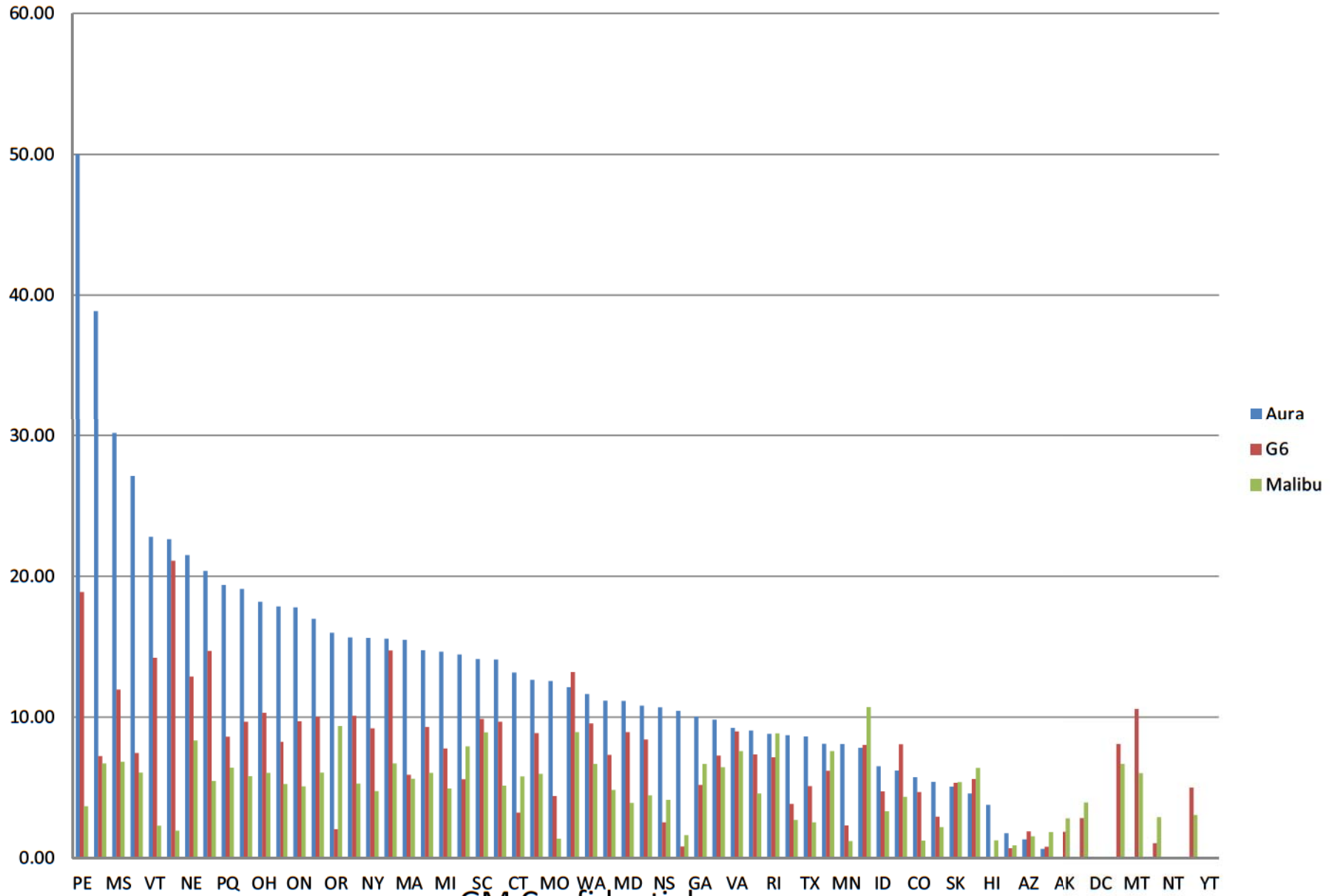
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Province IPTV Ranking for Aura



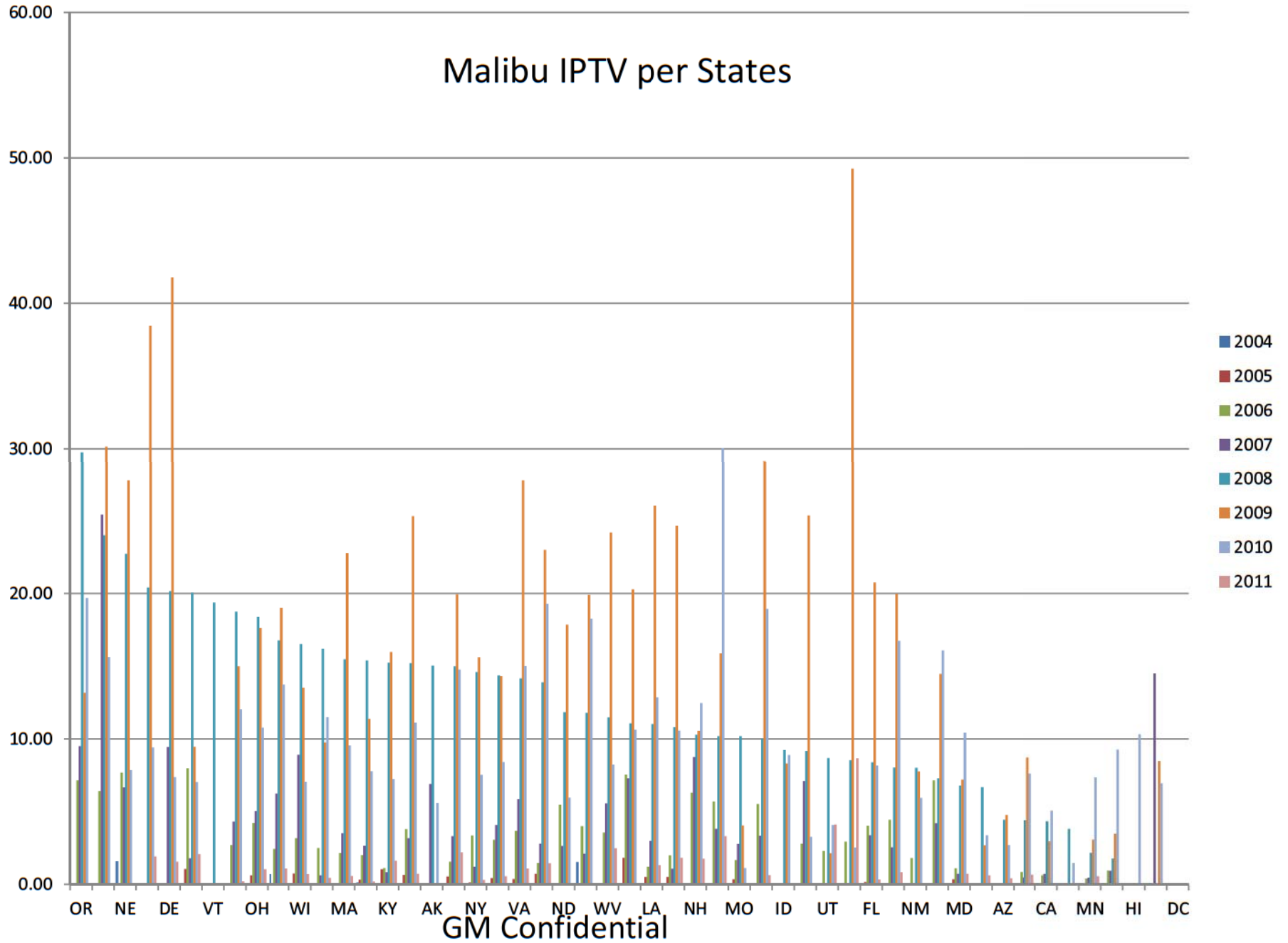
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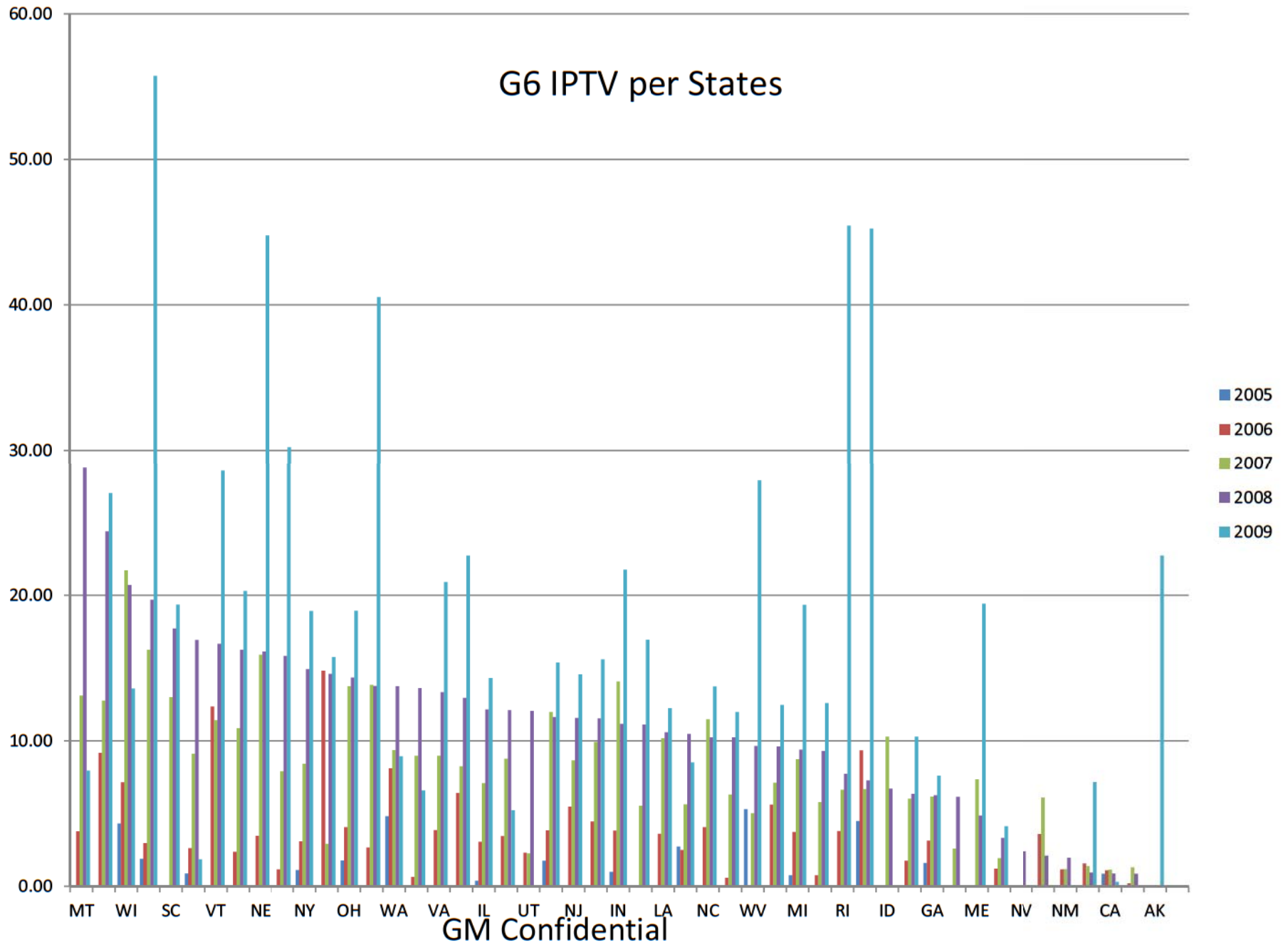
Average IPTV per State/Province

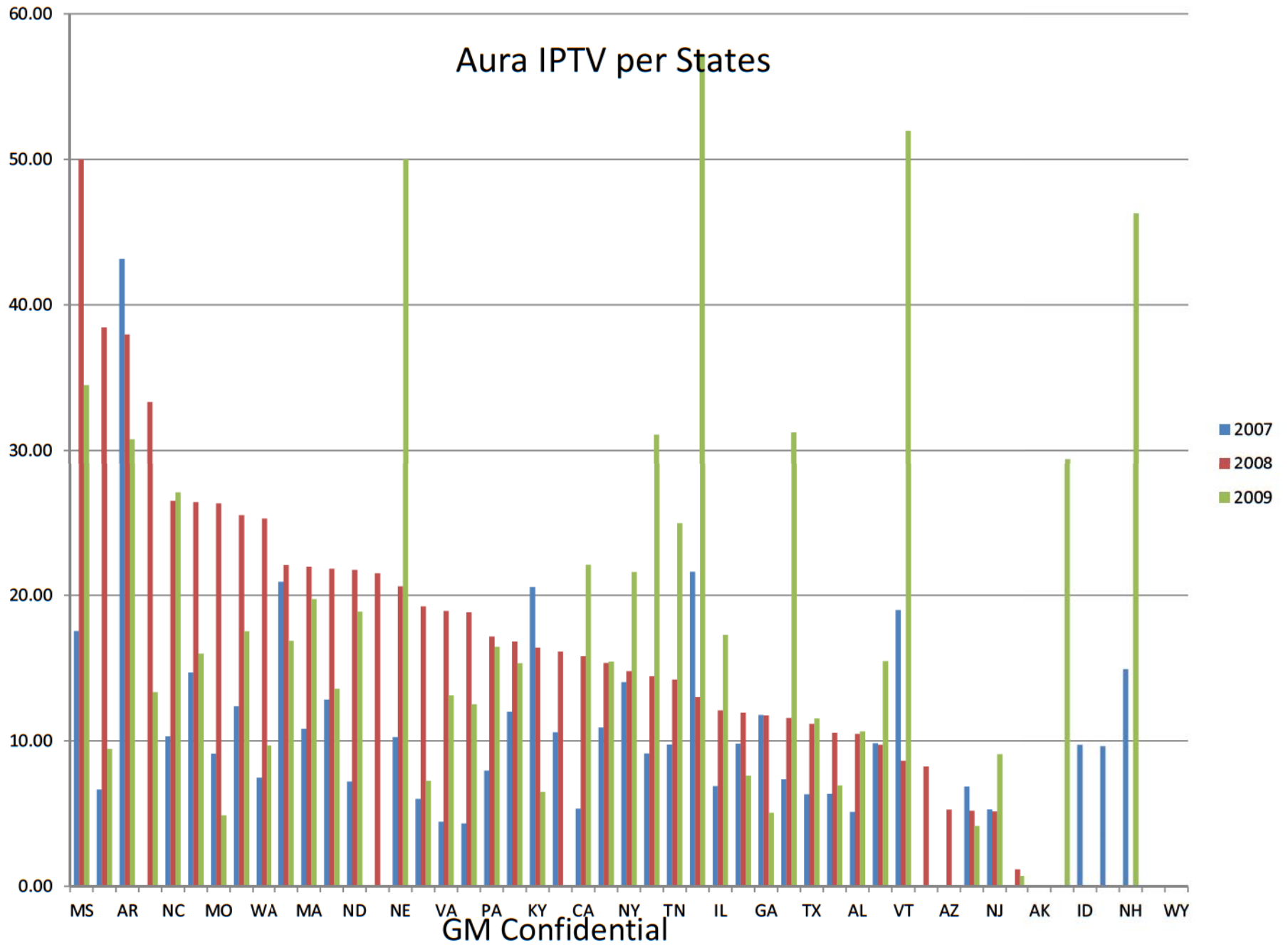


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Malibu IPTV per States









The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|----------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Cobalt, Corvette | |
| 2006MY | HHR, Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu | |

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Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

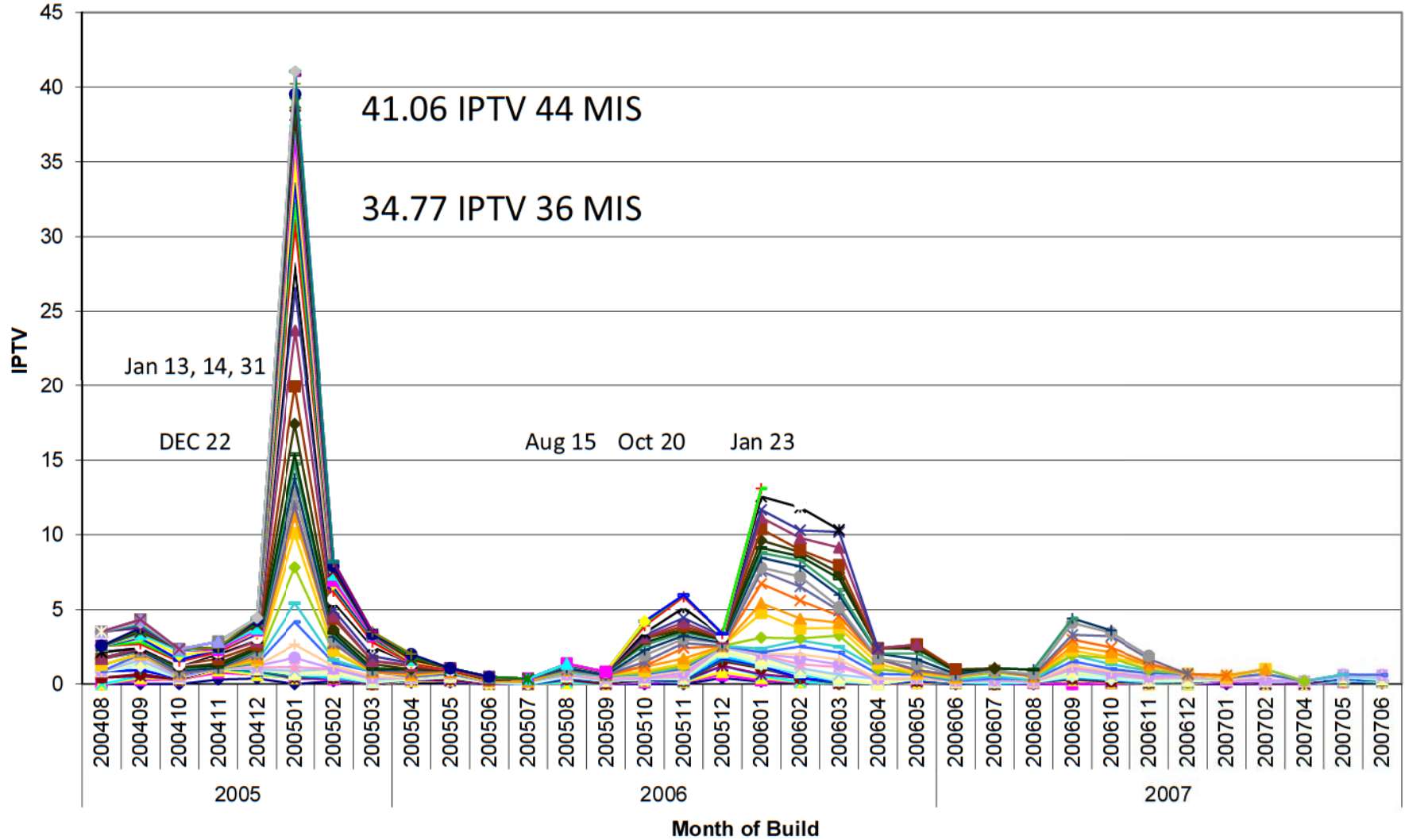
Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)



Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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2005 - 2007 G6 Intermittent Stop Lamp Warranty



9 VOQs 2005MY: 4
 20 VOQs 2005MY: 11

2006MY: 4
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 2006MY: 7

2007MY: 1
 2007MY: 2

Weekly Production Volume for the Month of January 2005: U.S. and Canada

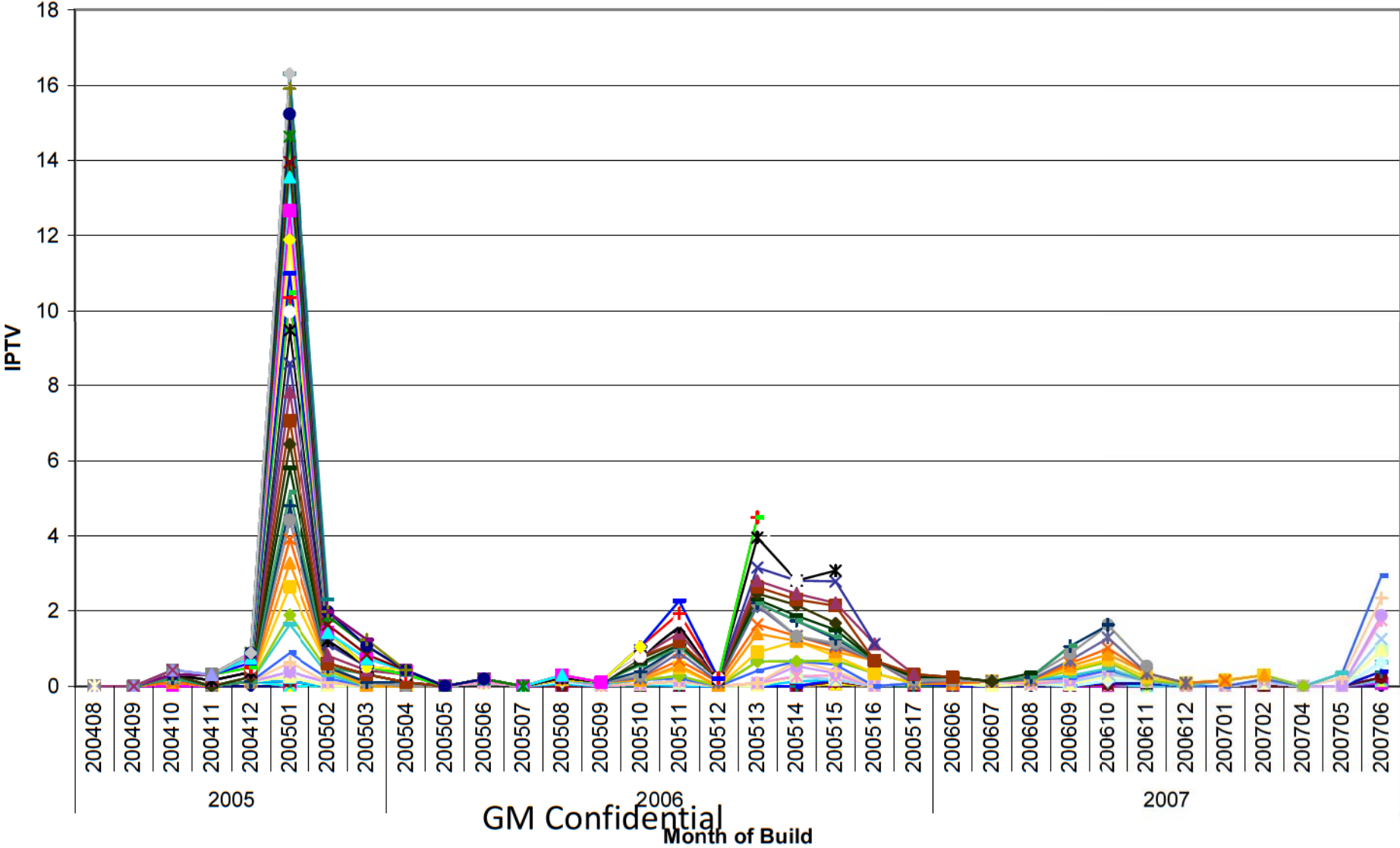
| MAKE/ MODEL | Week 03JAN05 | Week 10JAN05 | Week 17JAN05 | Week 24JAN05 | Day 31JAN05 | TOTAL |
|----------------|-----------------|-----------------|-----------------|-----------------|----------------|-------|
| Pontiac G6 | 2,374 | 2,334 | 1,826 | 2,272 | 475 | 9,281 |

| Myear | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

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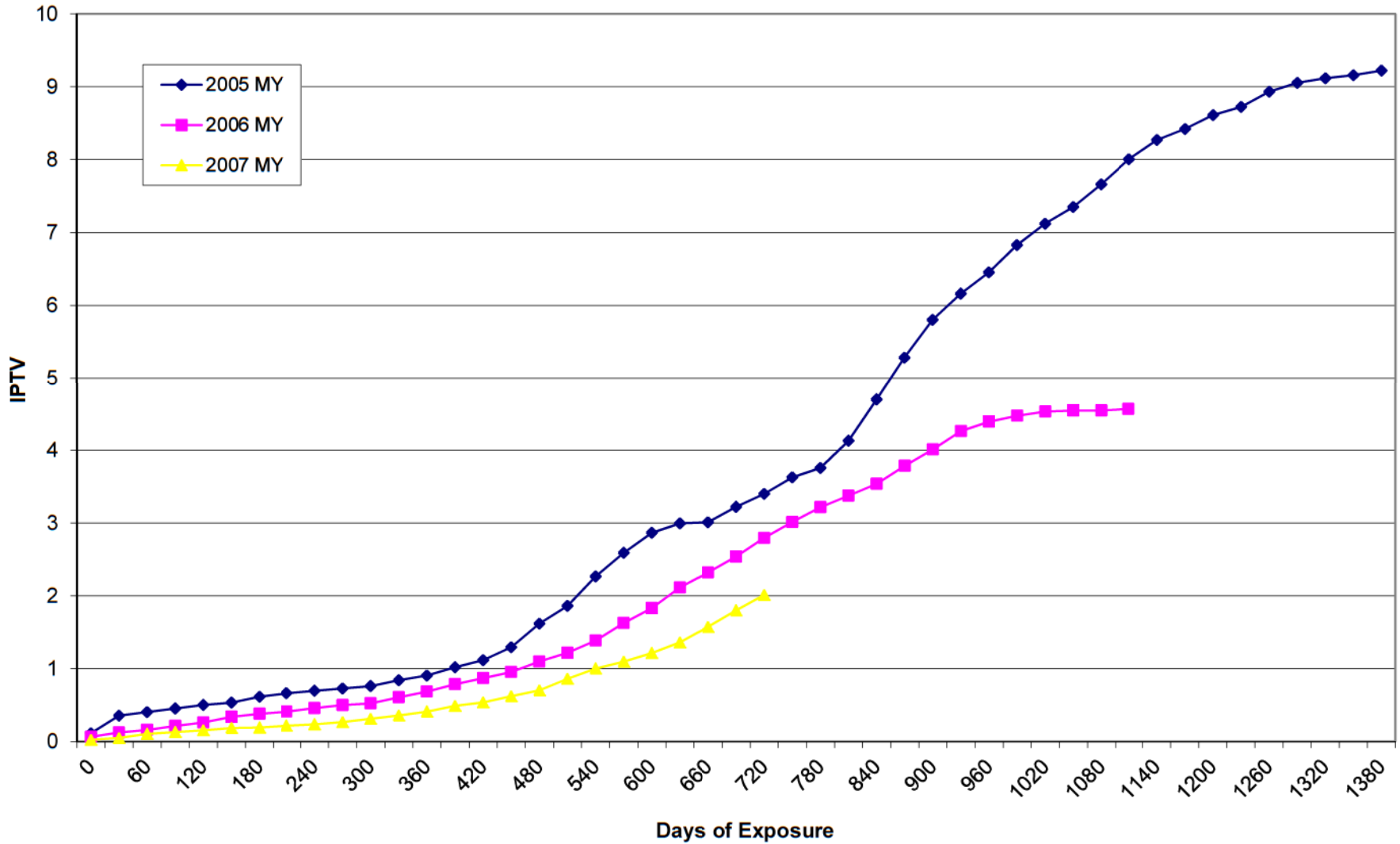
2005 - 2007 G6 BASS – TAC and CAC only

2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only

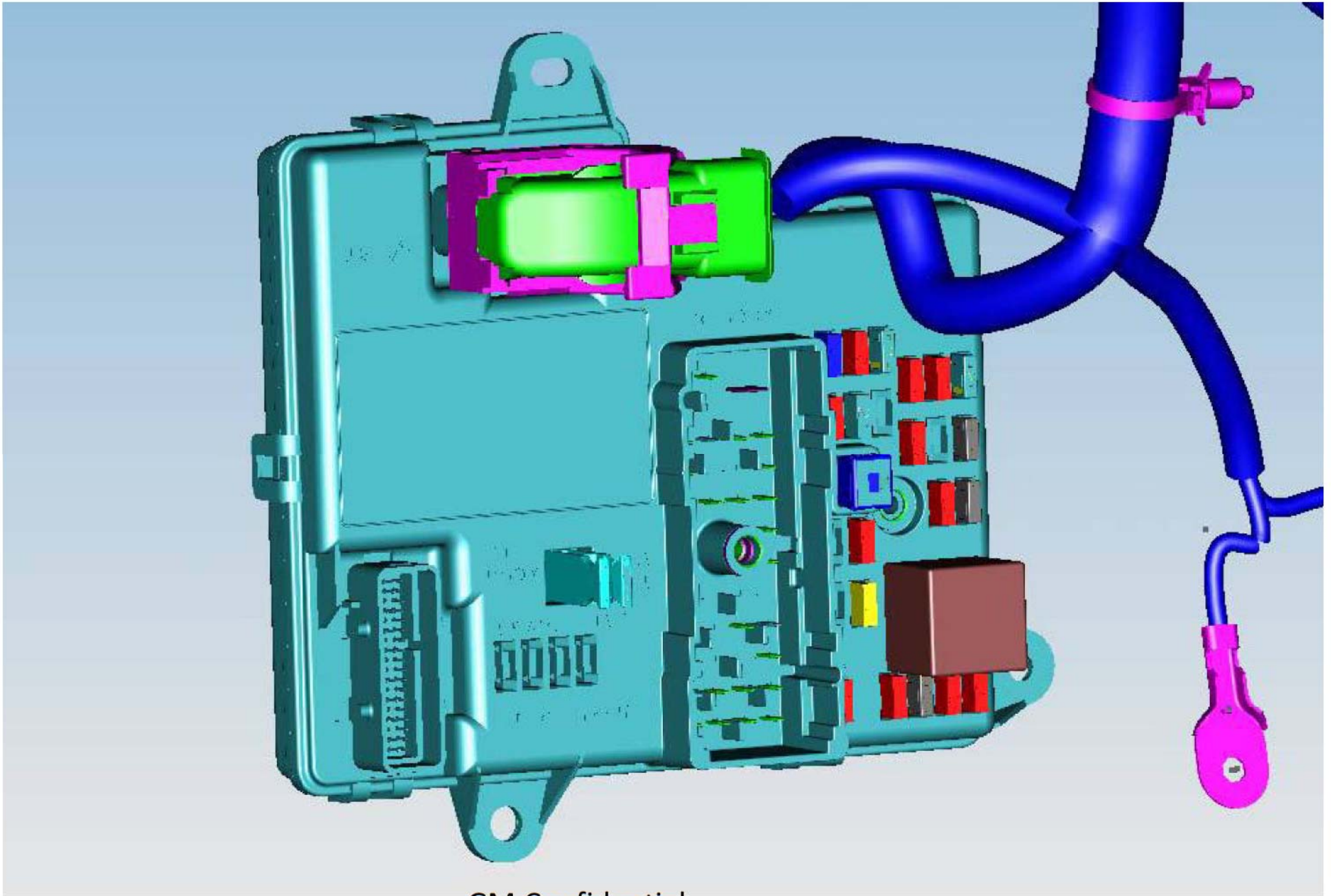


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2005 - 2007 G6 Intermittent Stop Lamp Warranty



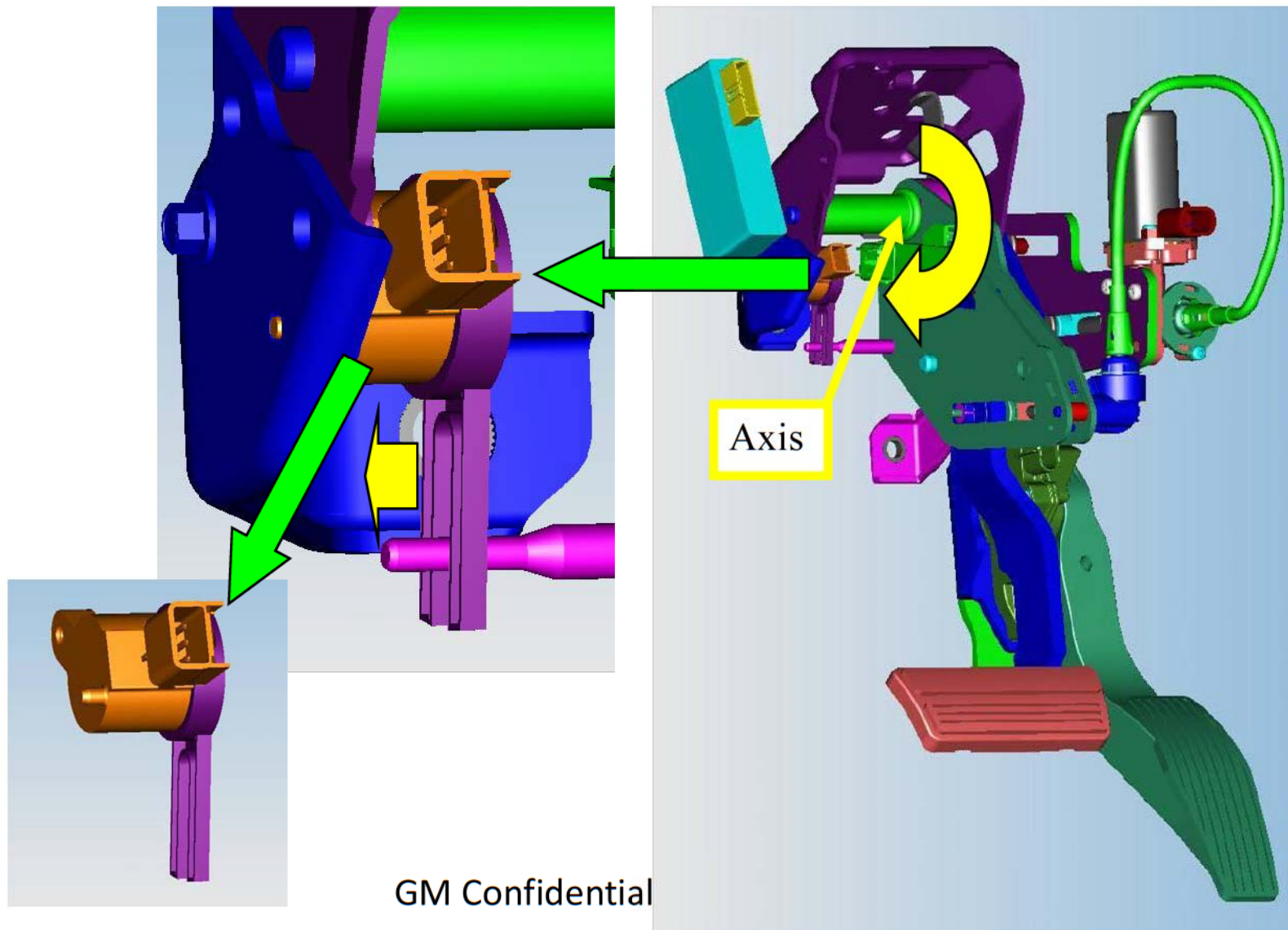
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2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



Brake Lamps Malfunction due to BCM Connector

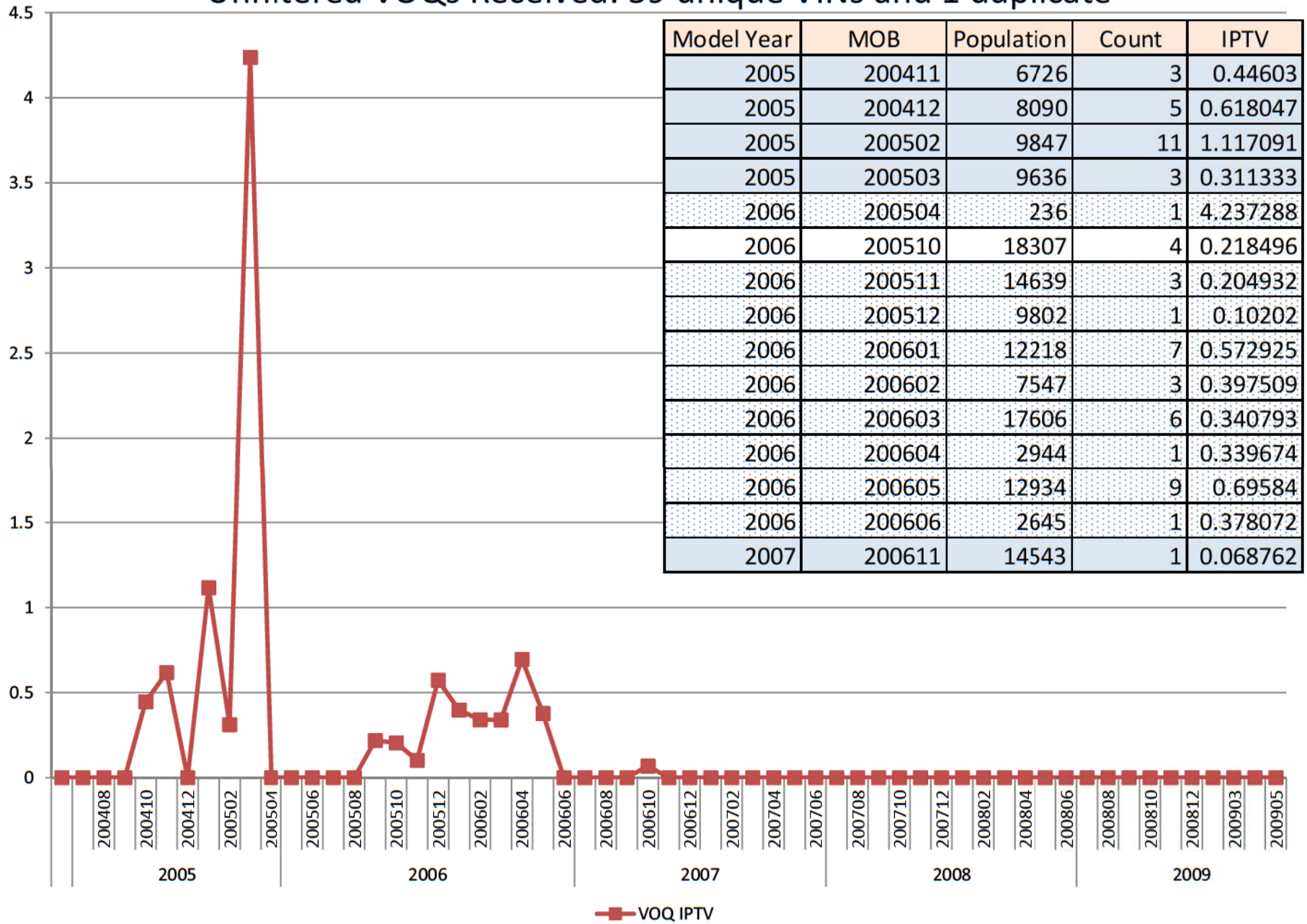
Chronology

- 9/15/2008 NHTSA ODI opened PE investigation with 9 VOQs
- 11/12/2008 GM responded and stated it is continuing its investigation
- 1/28/2009 GM notified NHTSA that GM is conducting safety campaign for 8,012 vehicles built in January 2005 for 2005MY and 2006MY.
- 1/30/2009 NHTSA closed the investigation stating that ODI's review of complaint rate for the January 2005 built month is 20 times greater than the remainder of the subject vehicle population and warranty rate is 11 times greater than the remainder of the subject vehicle population.
- 9/9/2011 TC requested GM to provide 2006MY G6 Brake Lamp Malfunction, Outside Recall information request including population noted in TSB 08-05-22-009.

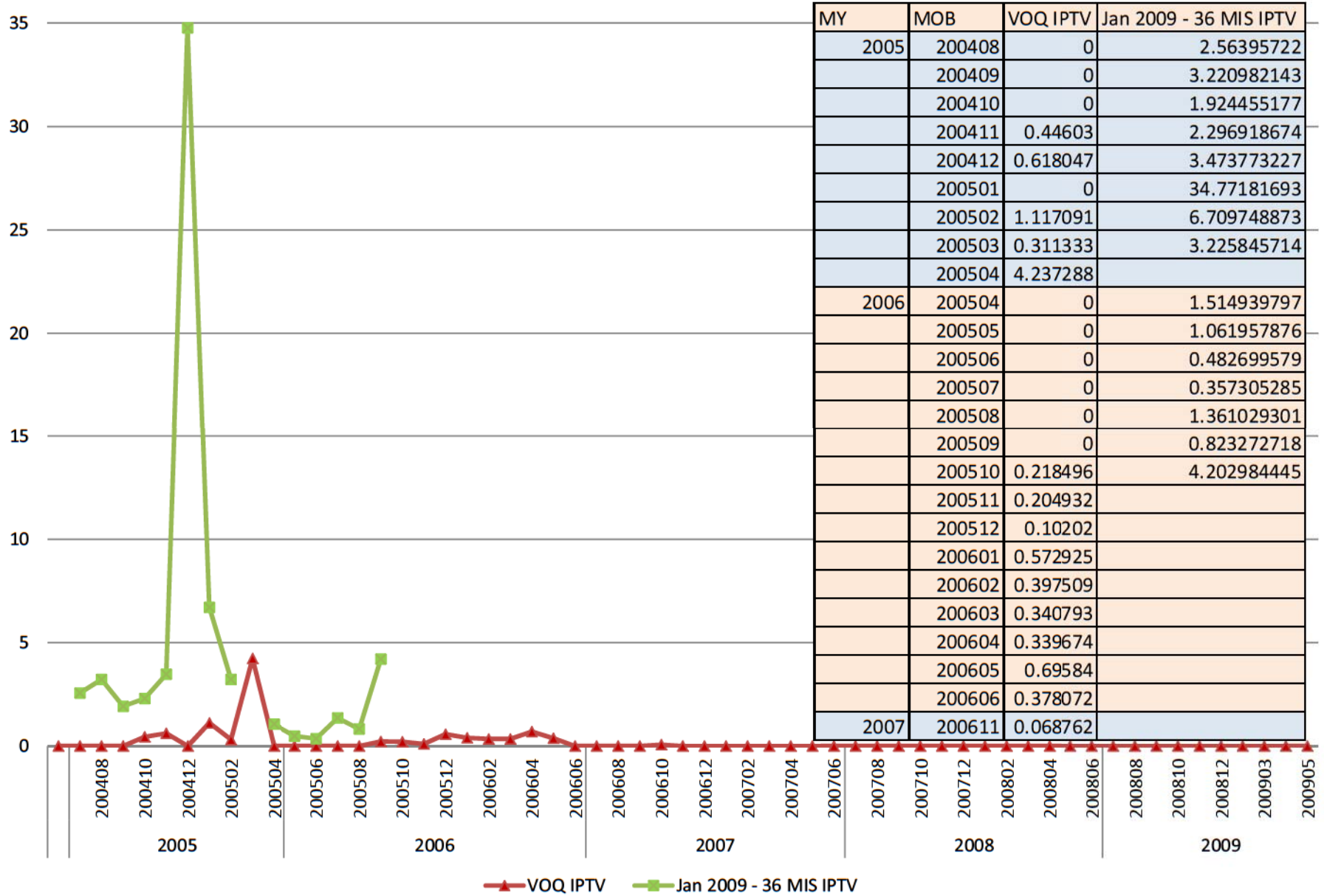


Closing Resume

Unfiltered VOQs Received: 59 unique VINs and 1 duplicate

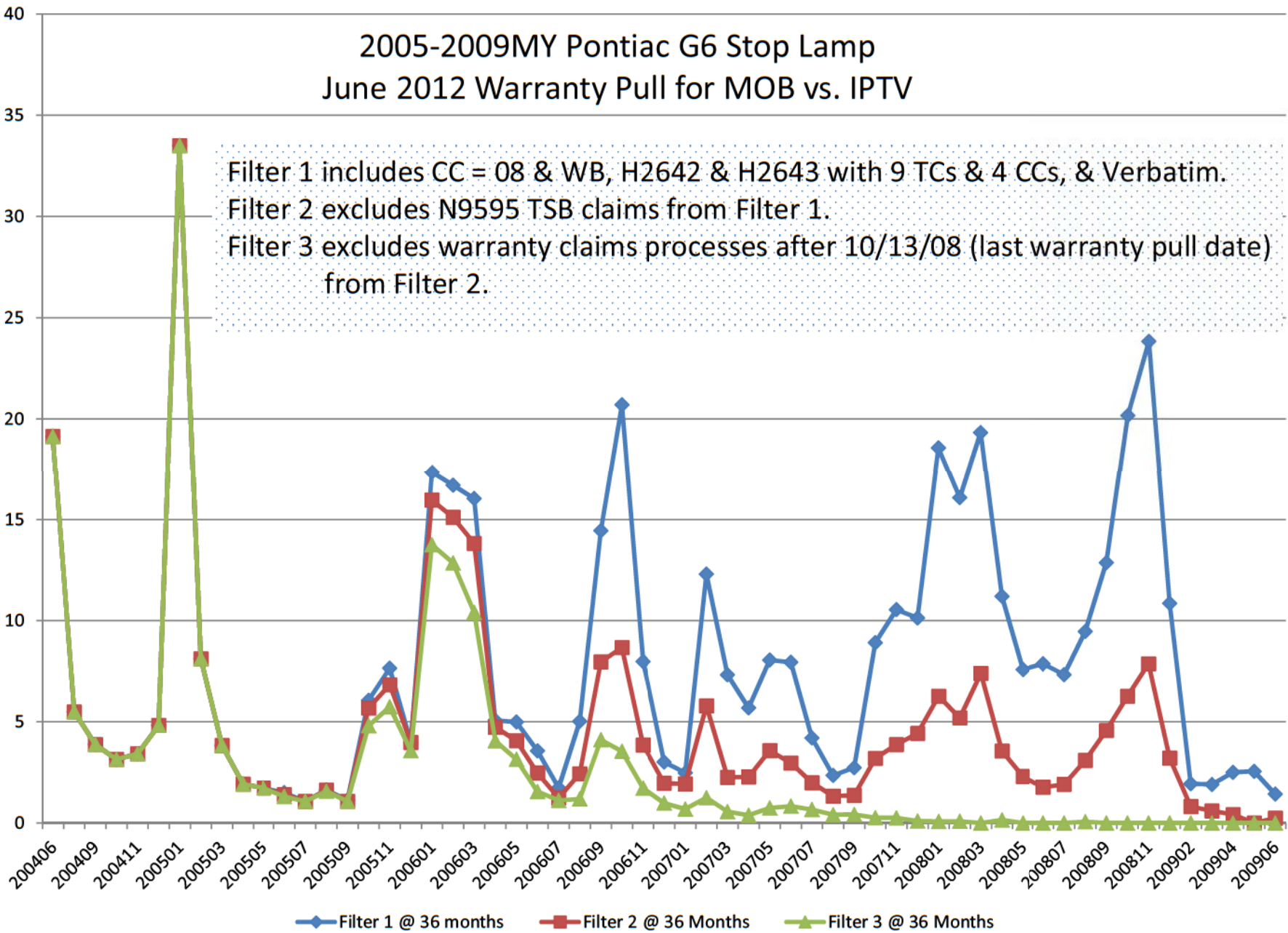


VOQ and Jan 09 Warranty 36MIS Trendline

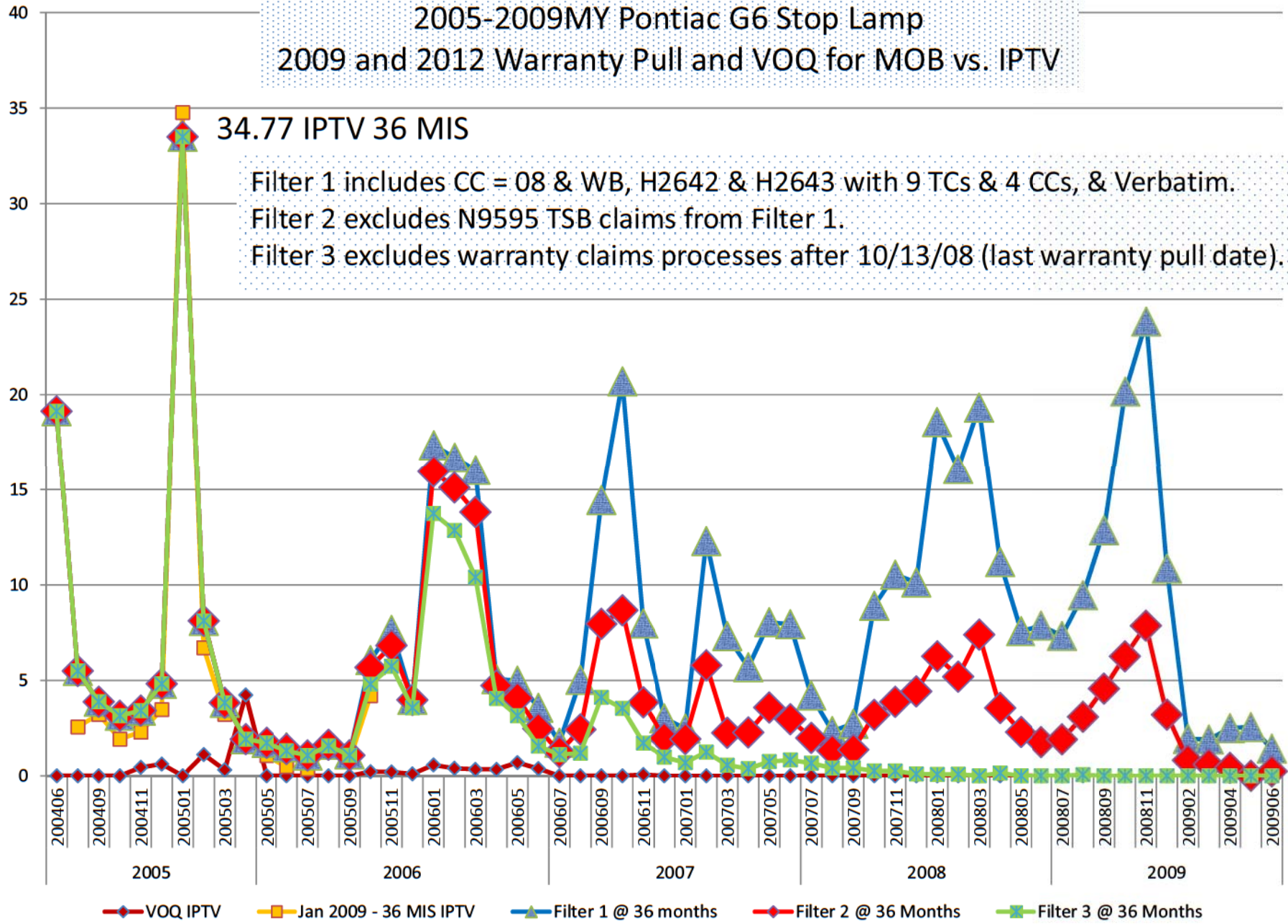


2005-2009MY Pontiac G6 Stop Lamp June 2012 Warranty Pull for MOB vs. IPTV

Filter 1 includes CC = 08 & WB, H2642 & H2643 with 9 TCs & 4 CCs, & Verbatim.
 Filter 2 excludes N9595 TSB claims from Filter 1.
 Filter 3 excludes warranty claims processes after 10/13/08 (last warranty pull date) from Filter 2.



2005-2009MY Pontiac G6 Stop Lamp
 2009 and 2012 Warranty Pull and VOQ for MOB vs. IPTV



Back-up

2012CY Update of G6 Stop Lamp Warranty Claims

2012CY Warranty Methodology

Started with 27,821

11,852 had correction-verbatim (42.6%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 10,316 (37.1) | 363 (20.7) |
| H2642 Sensor, Brake Pedal | 4,643 (16.7) | 1,203 (68.6) |
| H2643 Sensor, Brake & Accel | 420 (1.5) | 144 (8.2) |
| H2640 Pedal / Bushing | 418(1.5) | 7 (0.4) |
| H9991 Cust Concern NTF | 8,531(30.7) | 36 (2.1) |
| N9595 TSB | 3,493 (12.6) | 0 |
| Total | 27,821 | 1,753 (6.3) |

2012CY Warranty Methodology

27,821 including 243 same day repair duplicates

- A. All claims with labor code N9595 were determined to be responsive to the alleged condition.
- B. All claims with customer codes 08 (Operation: Won't Turn Off) and WB (Warning Lights-Brake Lights) were determined to be responsive to the alleged condition unless the verbatim text indicated that the claim was unrelated.
- C. Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 2.7 and customer codes in Table 2.8 were determined to be responsive unless the verbatim indicated that the claim was unrelated to the alleged condition.
- D. The verbatim of the remaining claims were then read and a claim was determined to be responsive if the verbatim related to loss/malfunction of the brake/stop lamps.
- E. The vehicle claims processed after 10/13/08 are excluded to compare with the original data.
- F. All claims for vehicles covered by General Motors recall 08317 were excluded.
6/25/12 Status Affected: 8,012 Completed: 5,707 % Completion: 71.2%

3,490

20,167

2,168

1,753

2009CY Update Methodology

Started with 8,978

2,362 had verbatim (26.3%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 6,758 (75.3) | 274 (17.5) |
| H2642 Sensor, Brake Pedal | 1,984 (22.1) | 1,157 (74) |
| H2643 Sonsor, Brake & Accel | 227 (2.5) | 125 (8) |
| H2640 Pedal / Bushing | 6 (0) | 6 (0.4) |
| H9991 Cust Concern NTF | 3 (0) | 3 (0.2) |
| Total | 8,978 | 1,565 (17.4) |

2009CY Update Methodology

For the subject vehicles, the regular warranty, goodwill warranty, and MIC service contract claims with stop lamp malfunction are summarized by model and model year in Table 5-1. For the subject vehicles the UWC service contract claims with indication of stop lamp malfunction are summarized by model and model year in Table 5-2. A summary of the warranty claims, including the information requested in 5(a-k), is provided on the ATT_1_GM disk; folder labeled "Q_05:" refer to the Microsoft Access 2000 file labeled "Q_05_WARRANTY DATA." A list of the labor codes, customer complaint codes and trouble codes used to collect the warranty data is provided in response to item No. 6.

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|---------|---------|---------|---------|-------|
| Pontiac G6 | Regular | 579 | 754 | 232 | 1,565 |
| Pontiac G6 | MIC | 43 | 25 | 2 | 70 |

TABLE 5-1: REGULAR WARRANTY AND MIC SERVICE CONTRACT CLAIMS WITH STOP LAMP MALFUNCTION

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|------|---------|---------|---------|-------|
| Pontiac G6 | UWC | 0 | 3 | 0 | 3 |

TABLE 5-2: UWC SERVICE CONTRACT CLAIMS

| SOURCE SYSTEM | LAST DATE GATHERED |
|-------------------------------|--------------------|
| GART - regular warranty | 13 Oct 08 |
| MIC - service contract claims | 14 Oct 08 |
| UWC - service contract claims | 23 Sept 08 |

TABLE 5-3: DATES PULLED

2009CY Update Methodology

8,969

The GM Global Analysis and Reporting Tool (GART-regular warranty) regular warranty database and the Motors Insurance Corp (MIC) service contract claims database were searched using the labor codes that may be related to the alleged defect, listed in Table 6-1. Universal Warranty Corporation (UWC) does not use labor codes or trouble codes.

The following process was used to sort these claims:

- 544 • All claims with customer codes shown in Table 6-2 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 6,800 • Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 6-3 and customer codes in Table 6-4 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 60 • The verbatims of the remaining claims were then read and the claim was determined to be responsive if the verbatim related to the alleged defect.

1,565

2009CY Update Methodology

| LABOR CODE | DESCRIPTION: |
|------------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp - Adjust |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

TABLE 6-1 LABOR CODES USED IN WARRANTY AND MIC SEARCH

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-----------------------------|
| O8 | OPERATION: WON'T TURN OFF |
| WB | WARNING LIGHTS: BRAKE LIGHT |

TABLE 6-2 CUSTOMER CODES USED IN WARRANTY AND MIC SORTING

| TROUBLE CODE | DESCRIPTION: |
|--------------|-------------------------------|
| 1D | BROKEN |
| 6C | COMPONENT-INOPERATIVE |
| 6D | COMPONENT -INTERMITTENT |
| 6F | COMPONENT -OPEN |
| 3A | MISADJUSTED |
| 9Z | NO TROUBLE FOUND |
| 3L | OUT OF CALIBRATION |
| 3X | REGISTERS INCORRECTLY |
| 6N | CONNECTOR - PARTIAL CONNECTED |

TABLE 6-3 TROUBLE CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-------------------------------------|
| OG | OPERATION: EXCESS EFF (EXCESS PLAY) |
| OJ | OPERATION: INOPERATIVE (HARSH) |
| OF | OPERATION: ENGAGE/DIS(EXCESS EFF) |
| O7 | OPERATION: NO MAINTAIN ADJ |

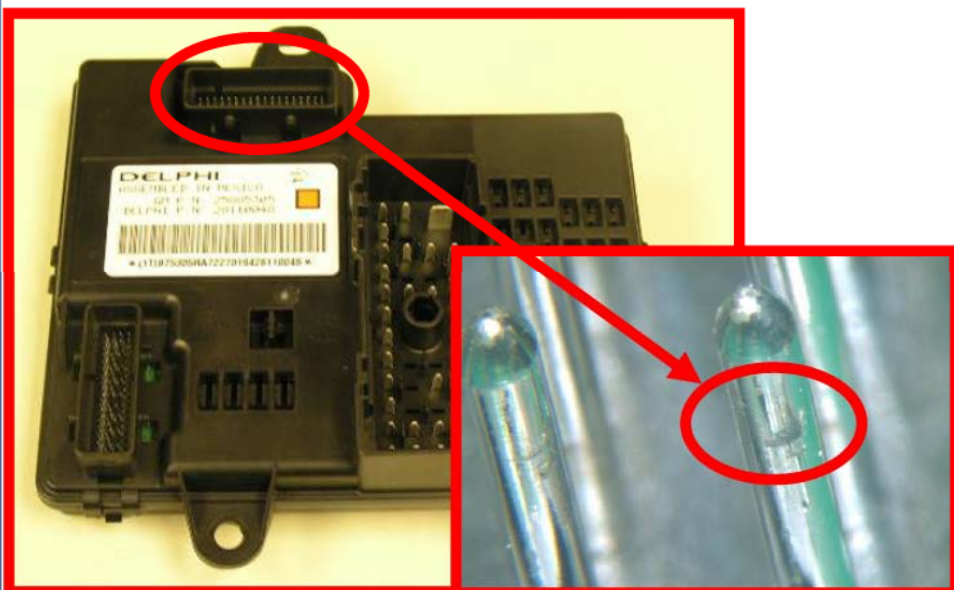
TABLE 6-4 CUSTOMER CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

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Rationale for 2009 Decision

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.

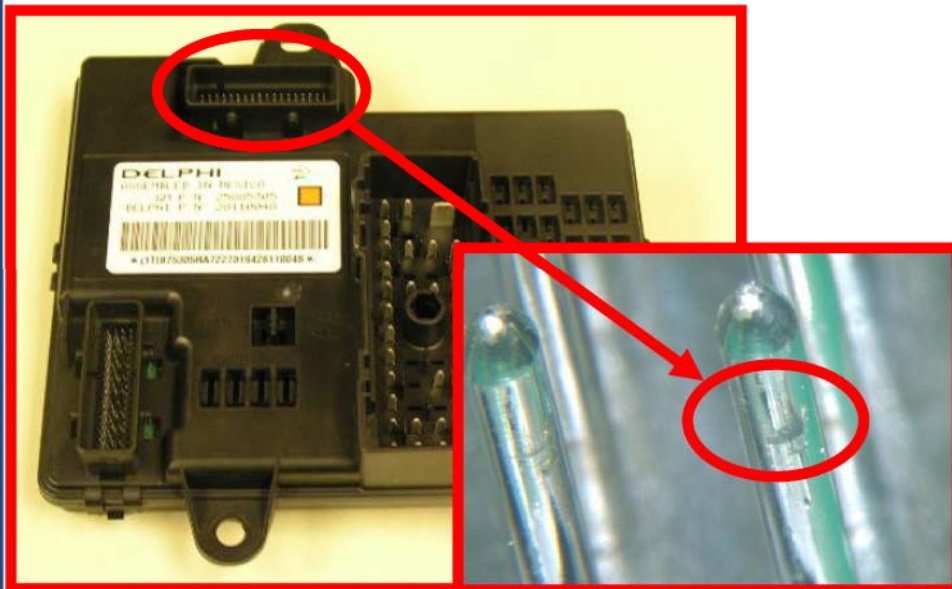


Model Years
2005 - 2006

Models
Pontiac G6

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



Model Years
2005 - 2006

Models
Pontiac G6

Field Action Category
TBD

Population Affected
9,423

Estimated Cost { ** }

Scope

2005 – 2006 Pontiac G6

| M year | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

Immediate Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Projected Frequency

2005 MY 36 MIS Overall = 8.0 IPTV

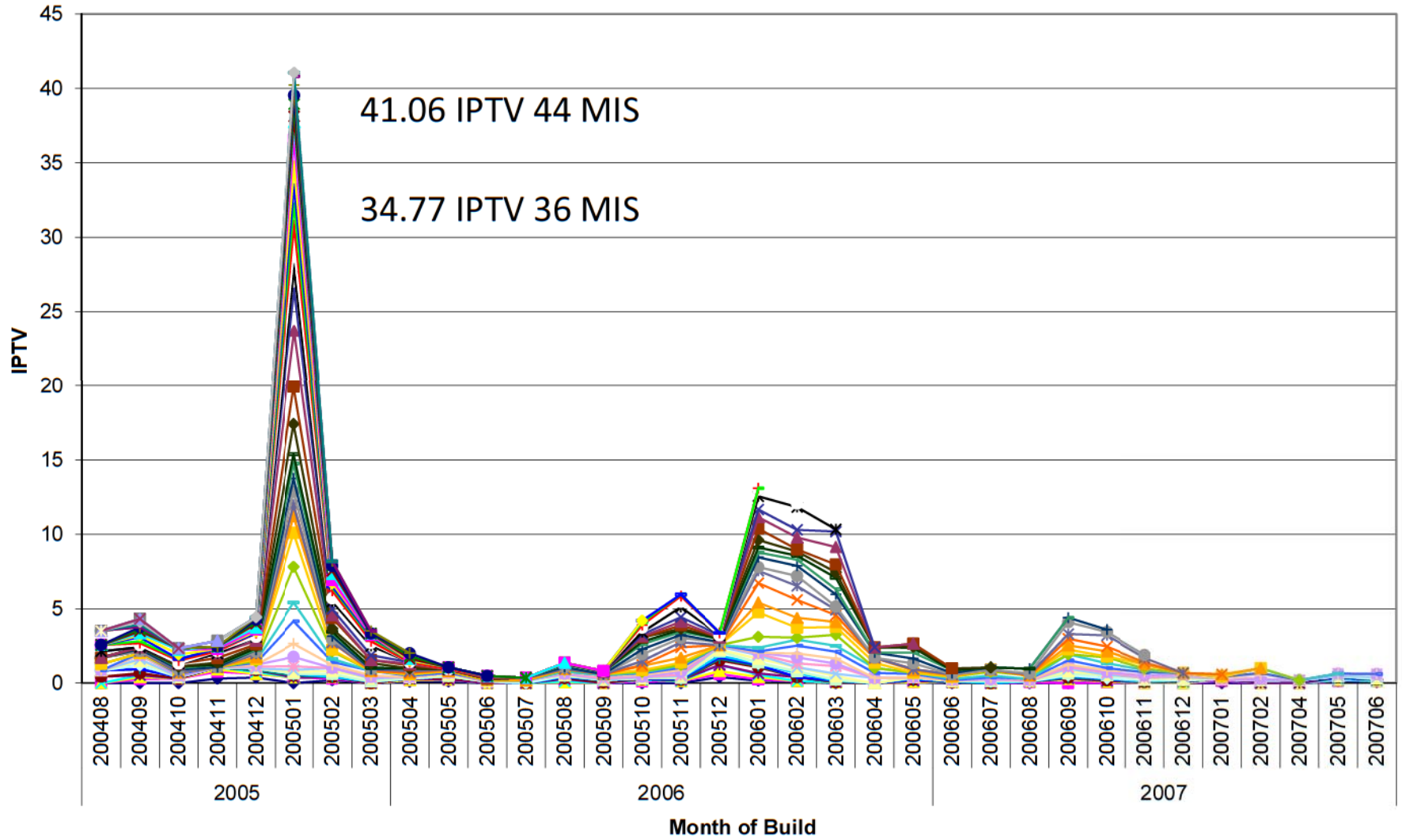
2006 MY 36 MIS Overall = 4.6 IPTV

Build of Month January 2005 36 MIS = 34.77 IPTV

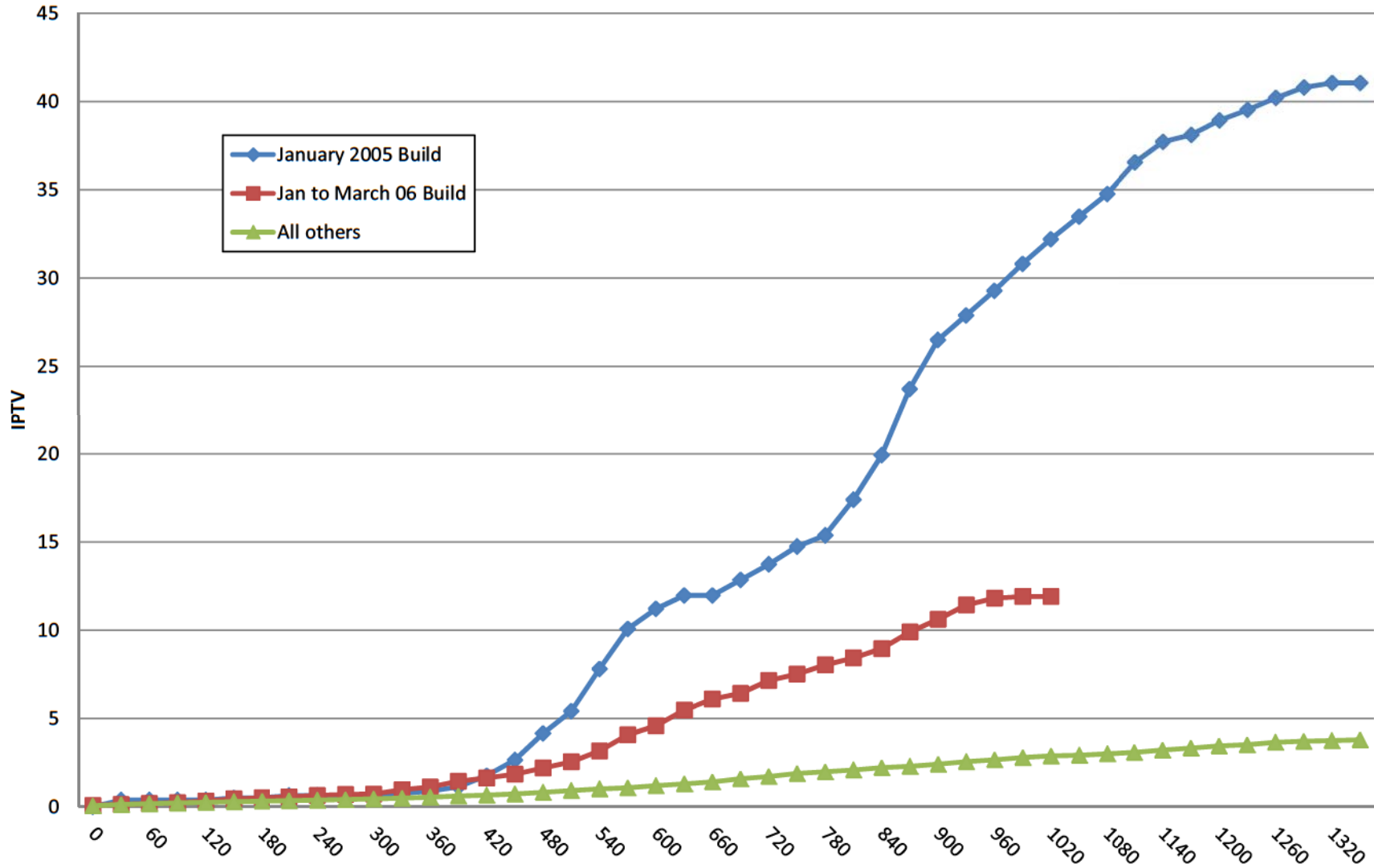
Build of Month January 2005 44 MIS = 41.06 IPTV

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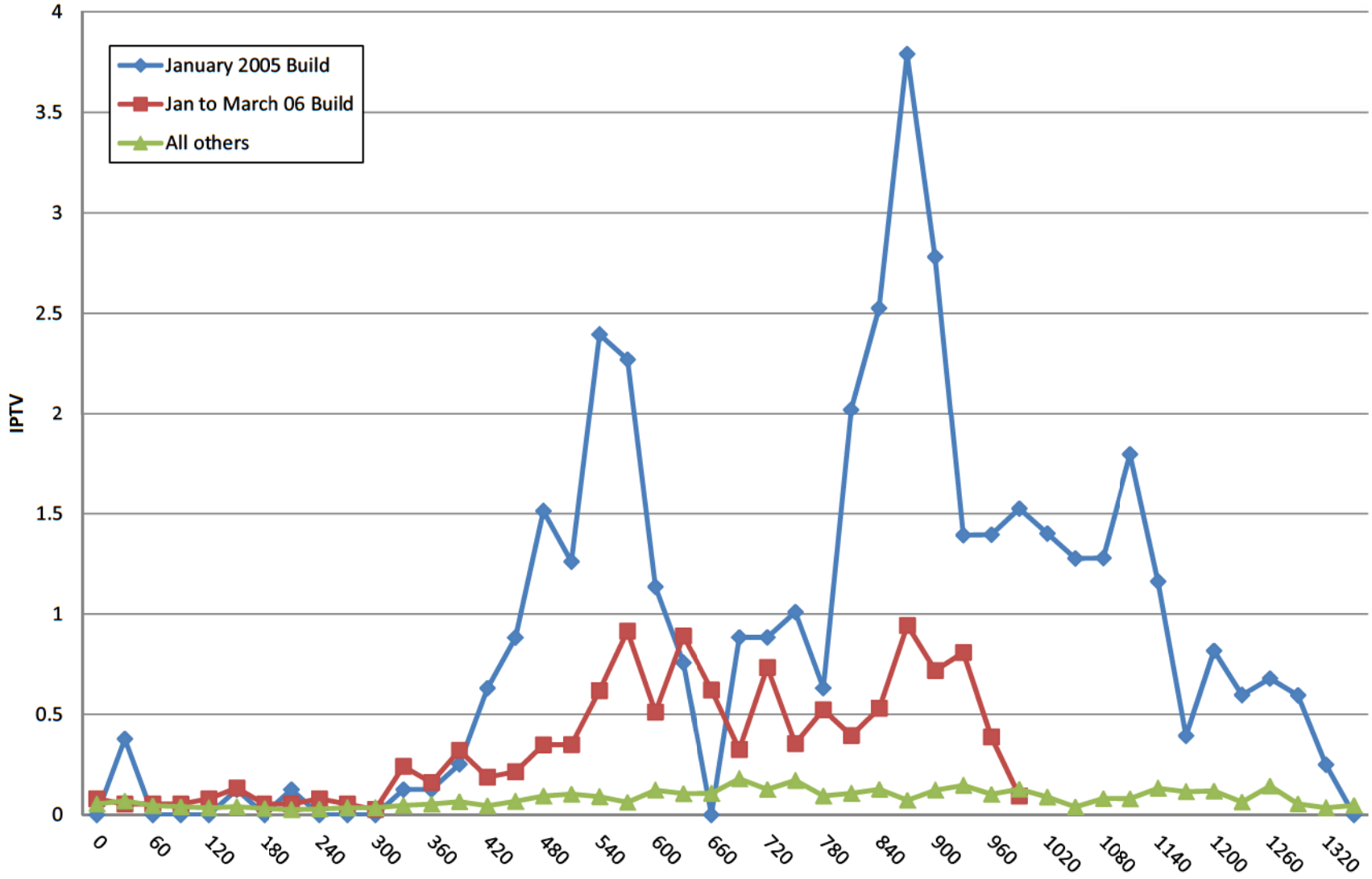
2005 - 2007 G6 Intermittent Stop Lamp Warranty



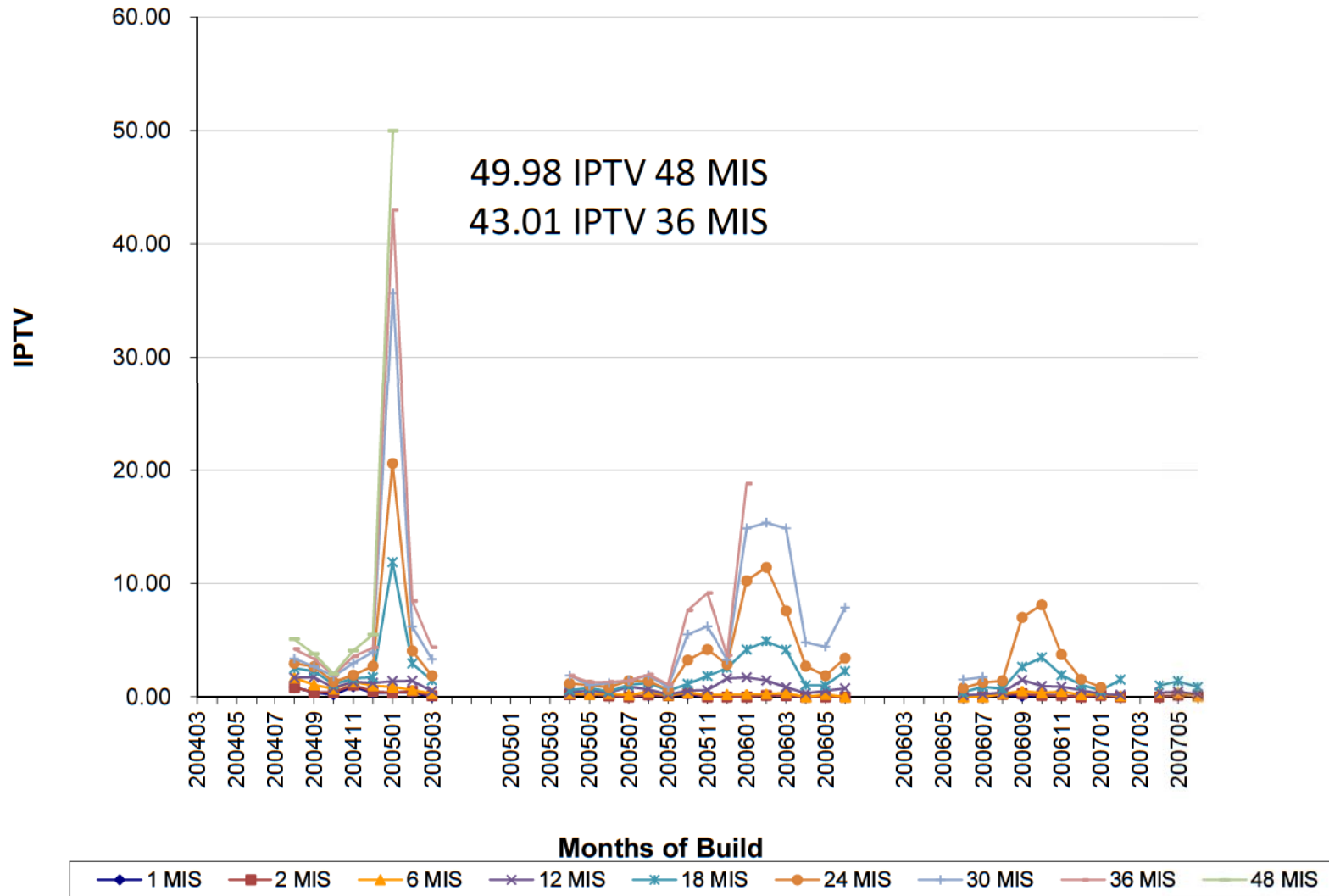
G6 Stop Lamp Warranty - Comparison of Select Months of Build



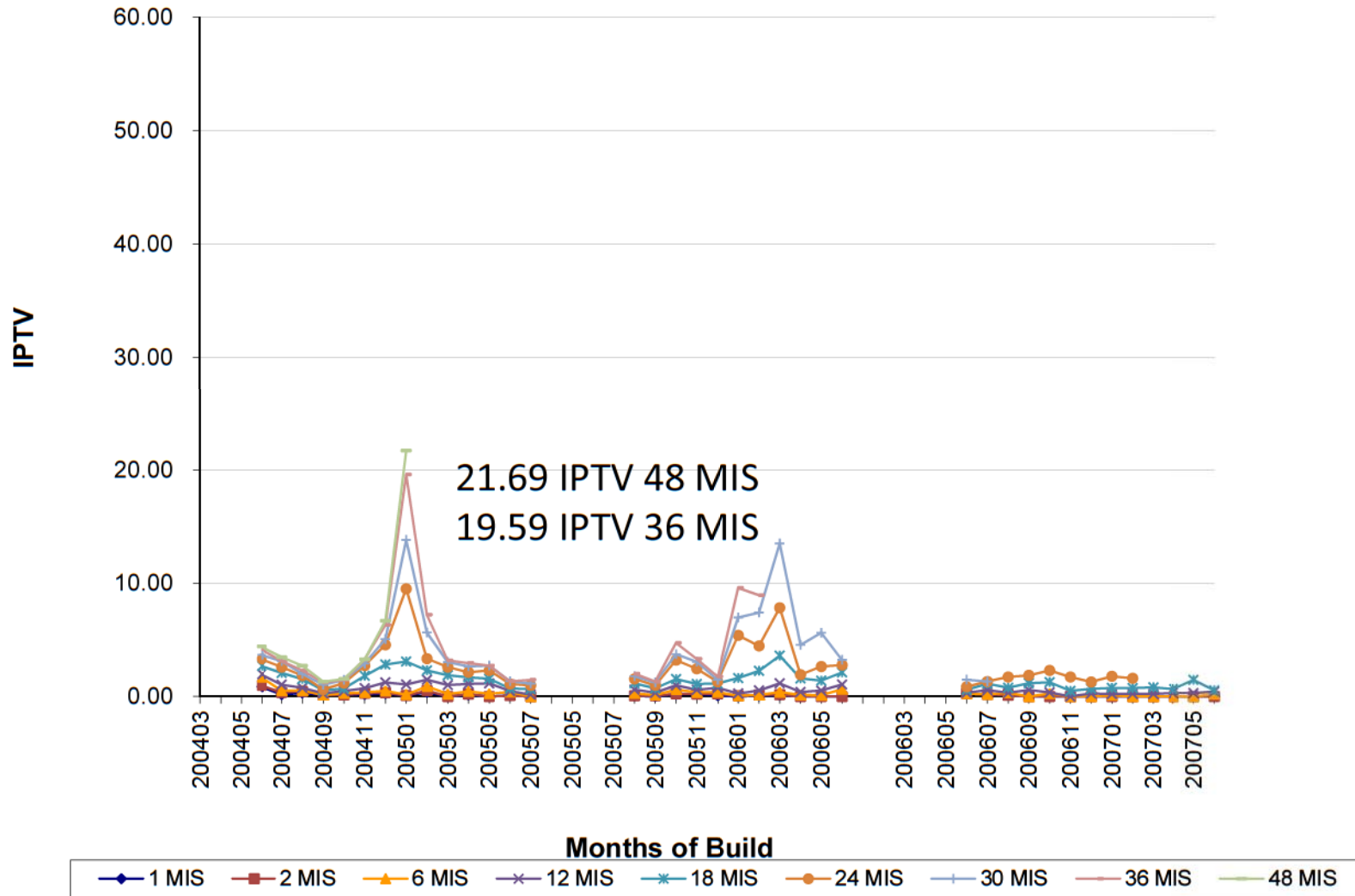
05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Historical Rate Comparison

| Rear lighting issues | | | | | | | |
|---|----------------------|---------------|--|--|--------------------|--|------------------|
| <u>Vehicle</u> | <u>Component</u> | <u>Recall</u> | <u>EOVP</u> | <u>IPTV</u> | <u>Reported by</u> | <u>Cause</u> | <u>Open Date</u> |
| 00 - 04 Saturn L Series | Stop/Tail/Park lamp | Safety | Loss of all brake lights or park/tail lights (one side) | As high as 365 IPTV at 36 months | TREAD | Circuit board arcing, blown fuses, loose sockets | 15-Feb-05 |
| 03 J car | Stop/tail/turn lamp | Safety | Loss of single stop/tail/turn lamp (CHMSL not affected) | 343 (12 months) | Bulletin review | Grease removed from production | 14-May-04 |
| 02-04 GMT360/370 | Stop lamp | Safety | Loss of single stop and/or tail lamp (CHMSL not affected) | 237 (13 months) 31% had lost function of both lamps (per survey) | TREAD | Loose bulb fit | 6-Apr-04 |
| 00-01 ST utilities and 01-02 Chevrolet Astro and GMC Safari | Multifunction Switch | Safety | Loss of all stop lamps (CHMSL not affected) | 214.3 (9 months) | NHTSA | Change from copper to brass for error proofing | 6-Sep-01 |
| 97-99 Malibu | Stop lamp | N | Loss of single stop lamp (CHMSL not affected) - Replace entire lamp assembly | 37 (36 months) - reduced to 4.6 | NHTSA | Stainless contacts | |
| 94 CK Truck | Brake Switch | Safety | Loss of all stop lamps and CHMSL | 33.78 (36 months) (up to 360 in durability) | Transport Canada | Reverse Polarity | |
| 04 - 05 Chevrolet Colorado, GMC Canyon, Isuzu I-280 | Brake Switch | Safety | Loss of all stop lamps and CHMSL | 31.3 (23 months) | NHTSA | Internal heat in switch | 2-Dec-05 |
| 98-04 Mercedes SLK/SLK 230 | Stop lamp | Safety | Loss of single stop lamp (CHMSL not affected) | 821 (over 36 months) | NHTSA | The base of the socket can be subject to thermal deformation over time | 22-Sep-05 |
| 95 Ford Villager, Nissan Quest, and Nissan Pickup | Stop/tail/turn lamp | Safety | Loss of single stop/tail/turn lamp (CHMSL not affected) | 250 (12 months) | Warranty study | Change in the material of the plastic socket housing | |
| 99 - 02 Volkswagen Jetta, New Beetle, Gulf | Brake Switch | Safety | Loss of all stop lamps and CHMSL or brake | 117 (12 months) | NHTSA | Brake switch malfunction | |

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Production Improvement

Dielectric lubricant is applied by Cockpit supplier Inteva for G6 as of 11/18/2008.

The lubricant will be applied in the Delphi harness assembly plant in August 2009.

Potential Field Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Systematic Root Causes

Legacy connector system design with low terminal retention force and non-robust contact design.

Preventive Actions

All new module designs must use approved connector designs that pass the latest GMW specification requirements.



Brake Lamps Malfunction due to BCM Connector



2004 -11MY Malibu, 2005 - 10MY G6, 2007 - 09MY Aura
Vehicle Population: 1,222,206 + 561,604 + 144,950 = 1,928,760
Cost Estimate: TBD

ETQ Nxxxxxx

Condition:

Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.

{ * }

Effect of the Condition:

A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK.

Additionally, the transmission converter clutch will not engage.

{ * }

Potential Field Action Category: TBD

Brake Lamps In-operation due to BCM Connector

Potential Field Remedy: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).

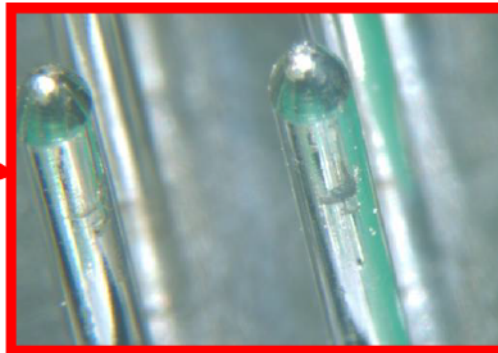
Current Status:

TC inquiry is due on 21OCT11.

GM draft response is completed.

Immediate Improvement /Containment:

Responsibility: Engineering



2011CY Warranty Status

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MY and Model

| | | |
|-----------|-------------------------------|----------|
| 2004-2008 | Chevrolet Malibu, Malibu Maxx | (GMX380) |
| 2008 | Chevrolet Malibu Classic | (GMX380) |
| 2008-2011 | Chevrolet Malibu | (GMX386) |
| 2005-2010 | Pontiac G6 | (GMX381) |
| 2007-2009 | Saturn AURA | (GMX384) |

Labor Op.

| | |
|-------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp – Adjust |
| N9595 | BCM C2 Connector Repair per TSB |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

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| Customer Code | Description: |
|---------------|-------------------------------|
| 08 | Operation: Won't Turn Off |
| WB | Warning Lights – Brake Lights |

| Trouble Code | Description: |
|--------------|-------------------------------|
| 1D | Broken |
| 6C | Component - Inoperative |
| 6D | Component - Intermittent |
| 6F | Component - Open |
| 3A | Misadjusted |
| 9Z | No Trouble Found |
| 3L | Out of Calibration |
| 3X | Registers Incorrectly |
| 6N | Connector – Partial Connected |

| Customer Code | Description: |
|---------------|-------------------------------------|
| 0G | Operation: Excess Eff (Excess Play) |
| 0J | Operation: Inoperative (Harsh) |
| 0F | Operation: Engage/Dis (Ecess Eff) |
| 07 | Operation: No Maintain Adj |

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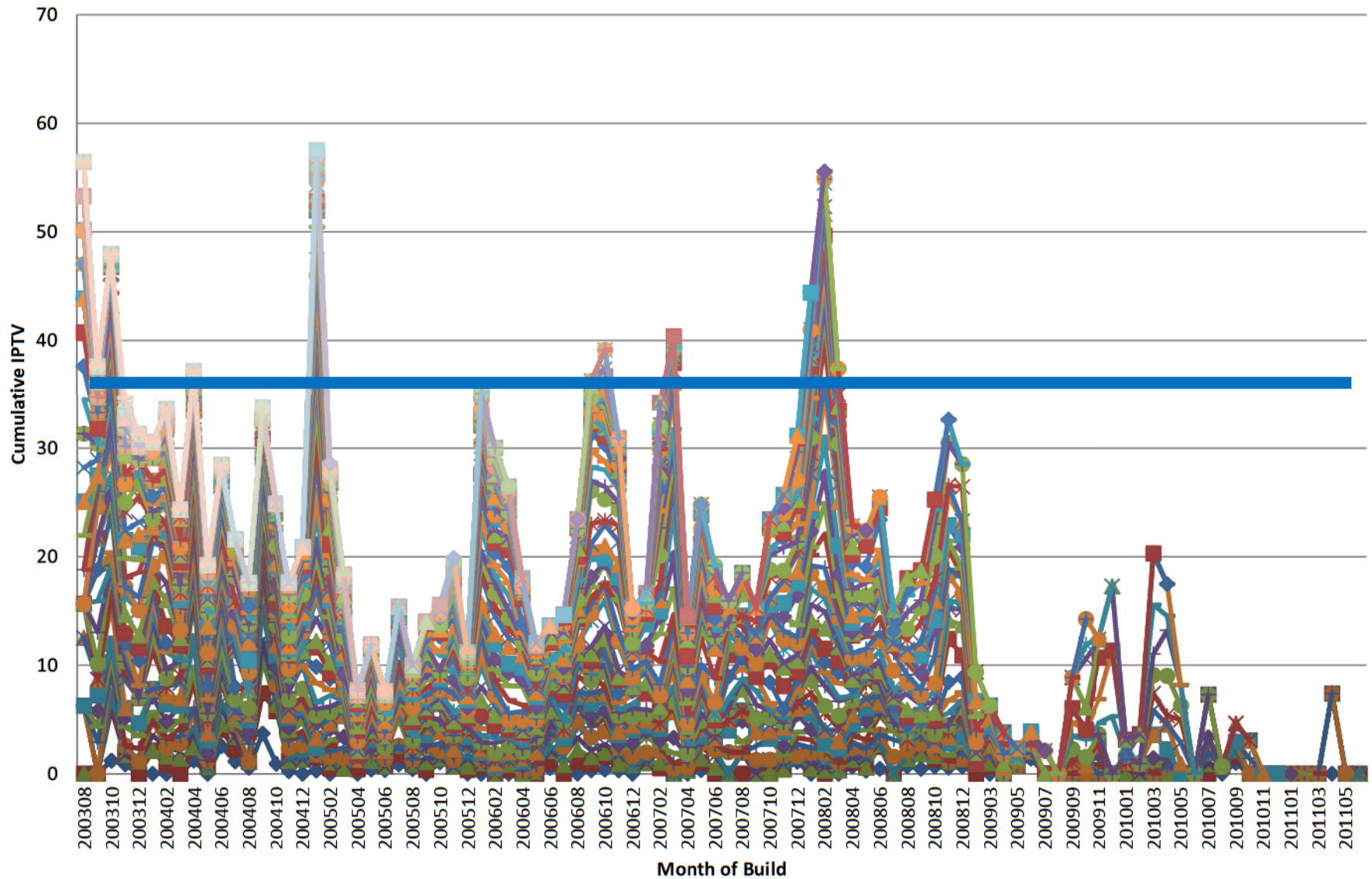
Canada Only Filtered Warranty

| Row Labels | Chevrolet | Pontiac | Saturn | Grand Total | |
|--------------------|-----------|-------------|-------------|-------------|-------------|
| in | | 1049 | 819 | 140 | 2008 |
| A (in) | | 75 | 62 | | 137 |
| B (in) | | 326 | 223 | 15 | 564 |
| C (in) | | 144 | 128 | 24 | 296 |
| D (in) | | 504 | 406 | 101 | 1011 |
| out | | 1949 | 1384 | 81 | 3414 |
| DUP | | 859 | 681 | 24 | 1564 |
| E (out) | | 1090 | 703 | 57 | 1850 |
| unknown | | 2014 | 1415 | 297 | 3726 |
| F (?) | | 2014 | 1415 | 297 | 3726 |
| Grand Total | | 5012 | 3618 | 518 | 9148 |

| | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| A | All L-Ops + Cust Codes 08 and WB | | | | | | | |
| B | H2642 & H2643 & TC 1D/3A/3L/3X/6C/6D/6F/6N/9Z & CC OG/OF/OJ/O7 (Tables 6-3 & 6-4 of PE 08-054) | | | | | | | |
| C | Remaining L-ops with Related Verbatims | | | | | | | |
| D | N9595 - TSB 08-05-22-009 | | | | | | | |
| E | OUT | | | | | | | |
| F | Unknown | | | | | | | |

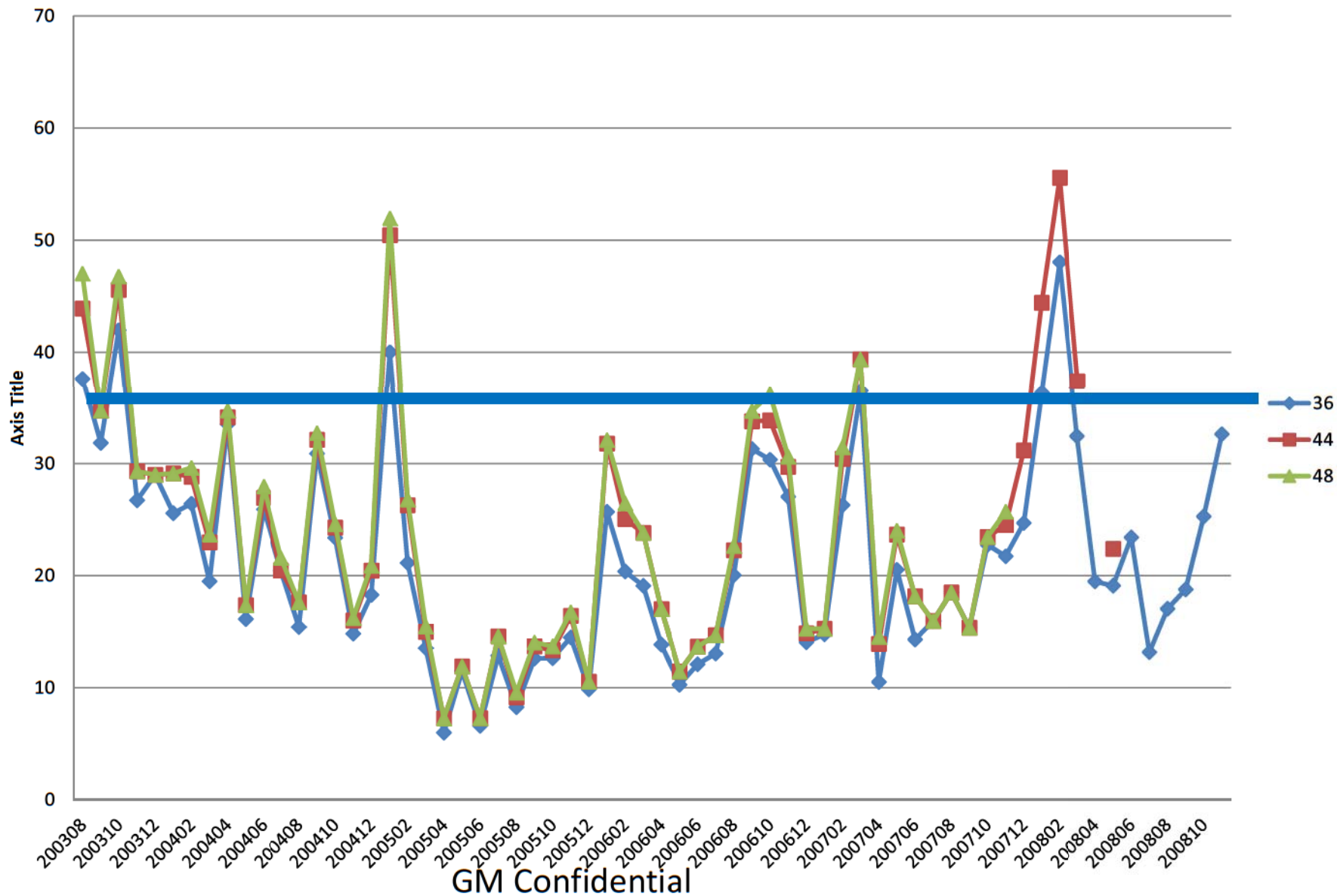
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2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records

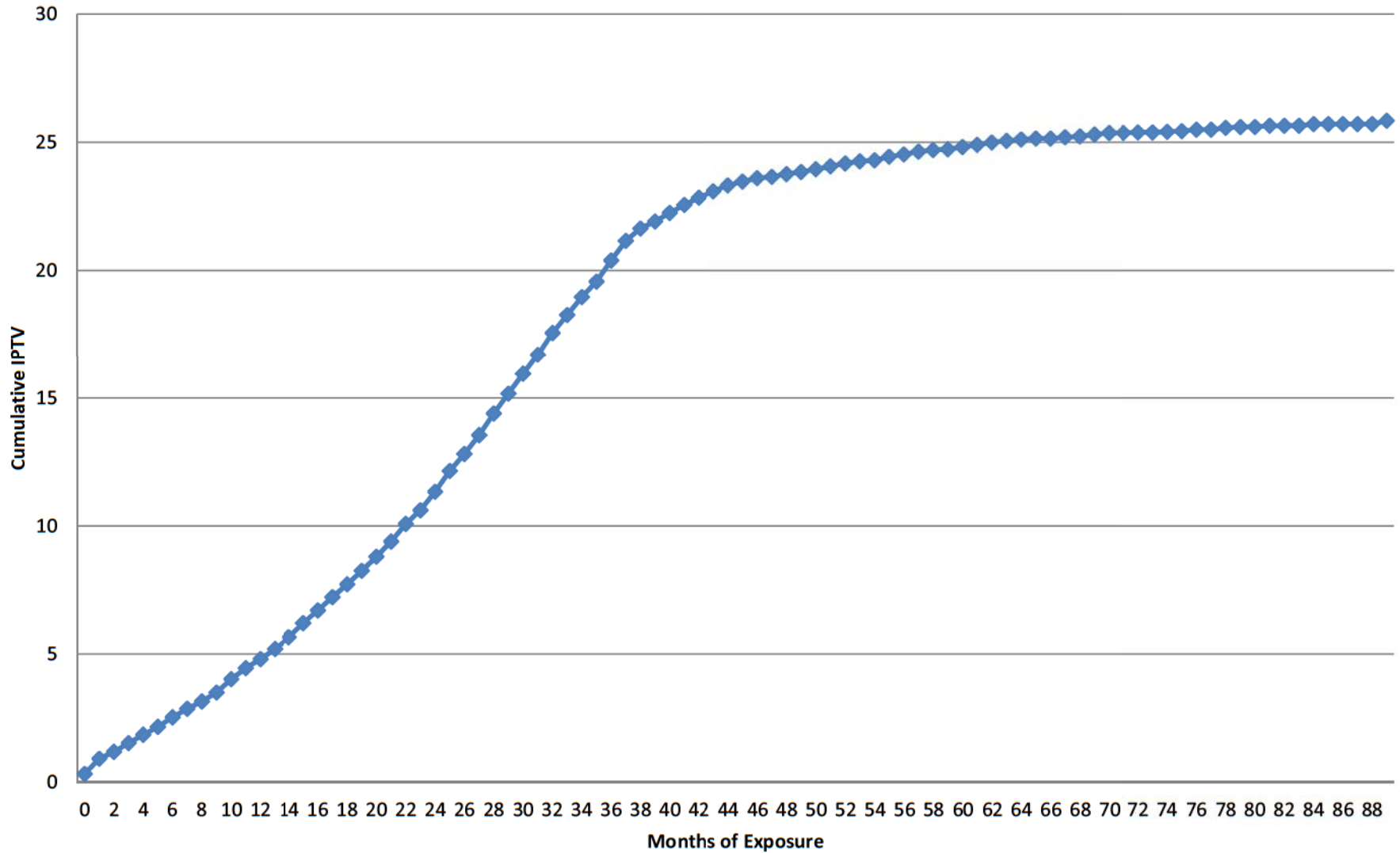


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2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records

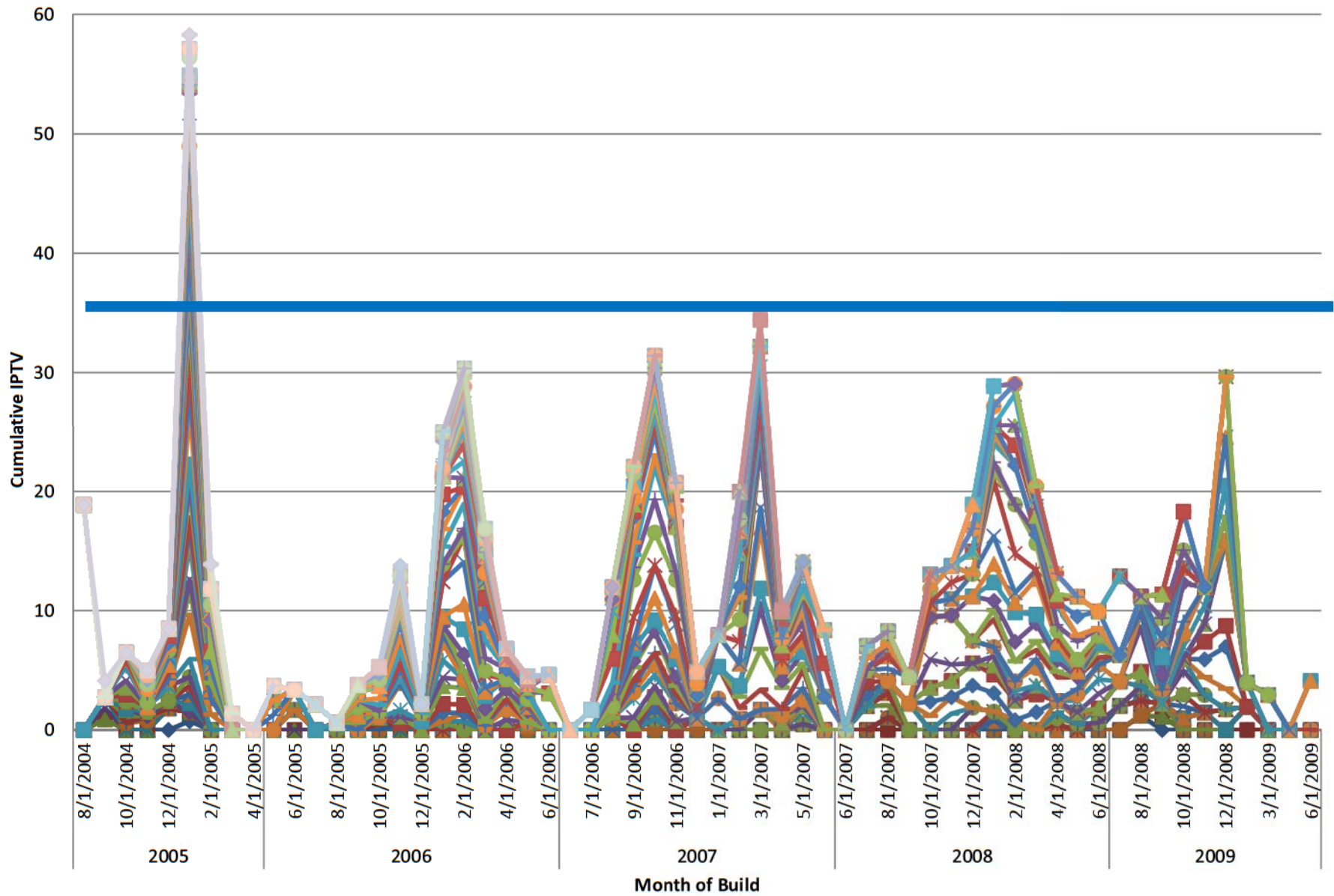


2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records



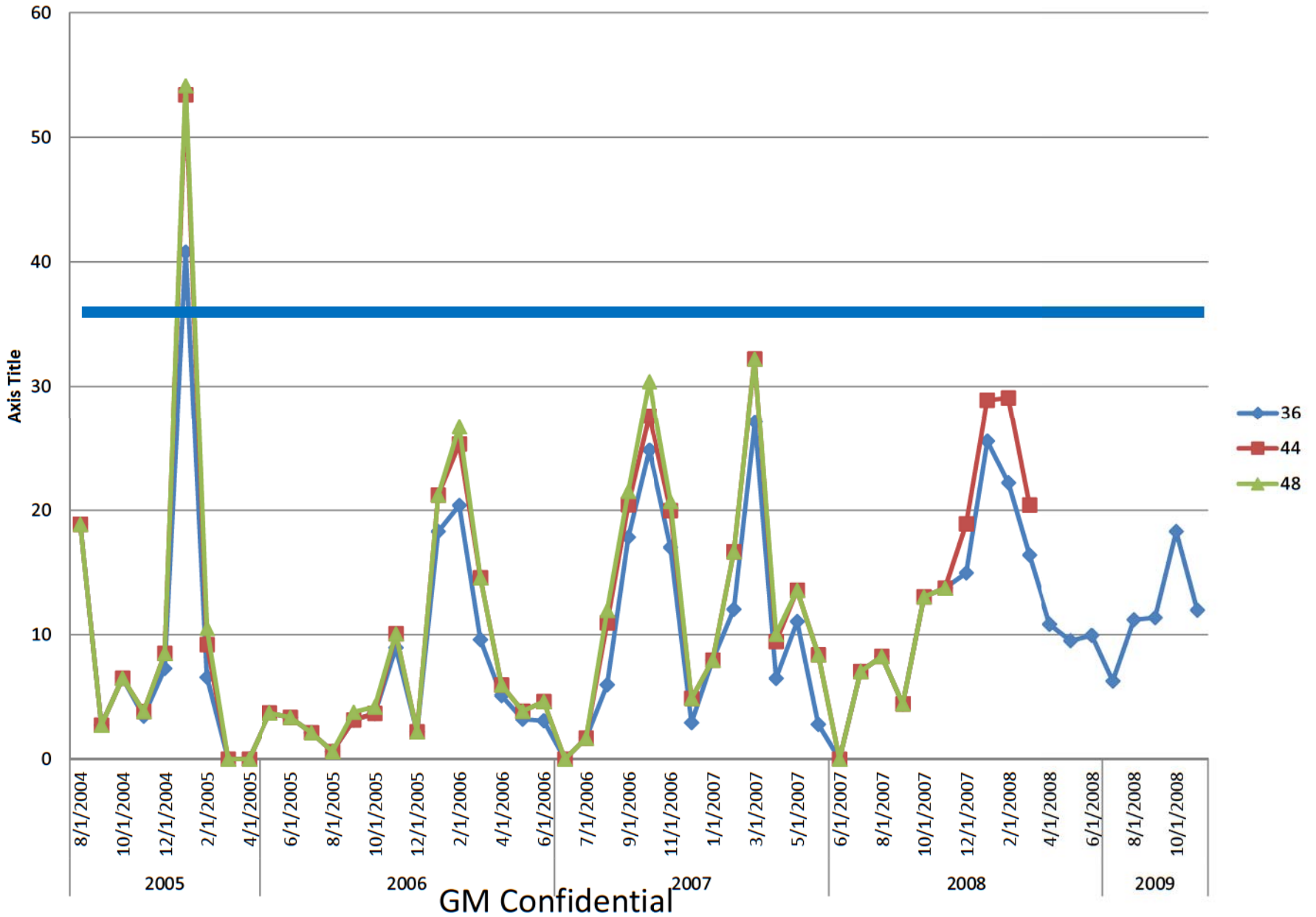
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2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)

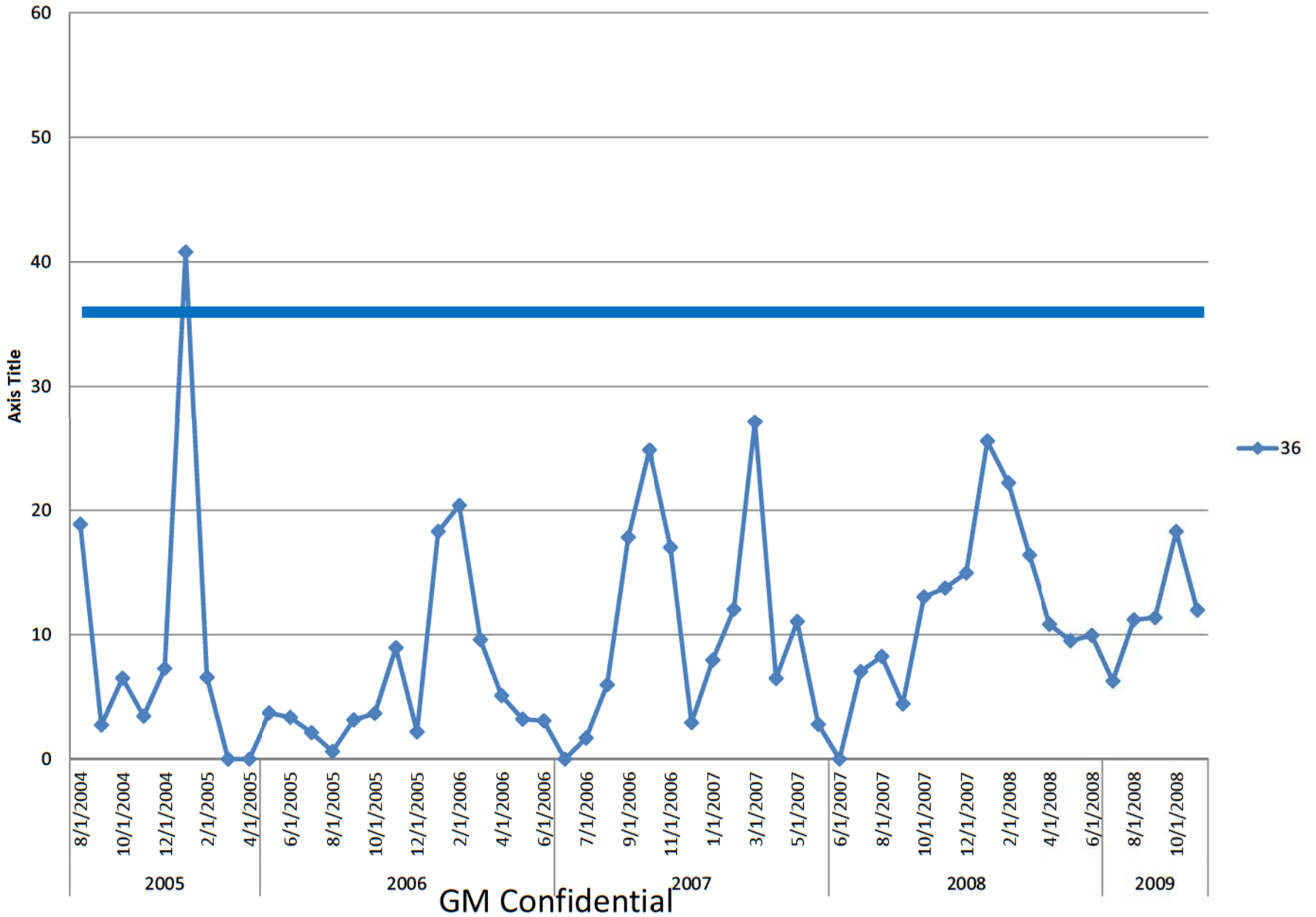


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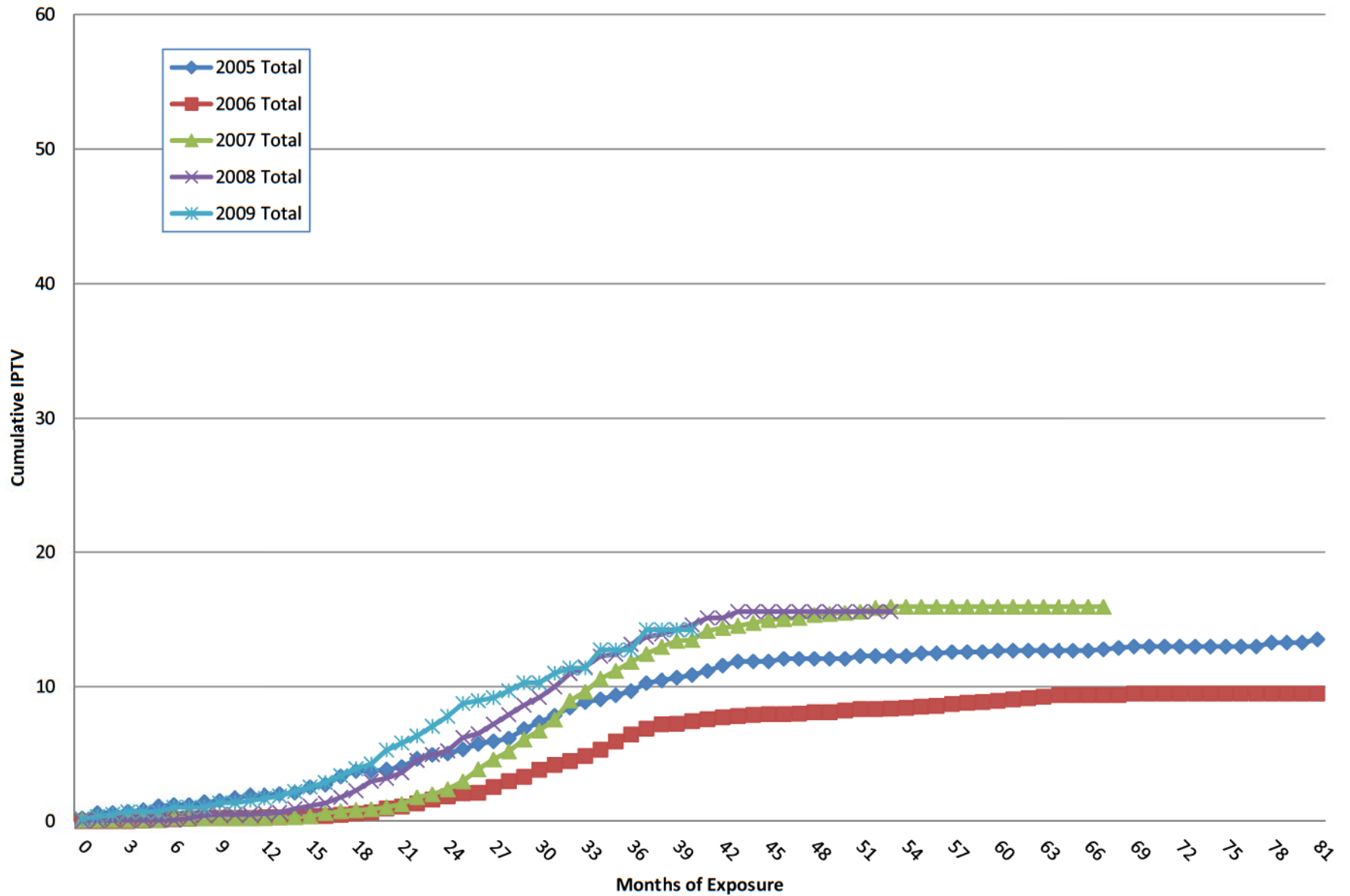
2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)



2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)

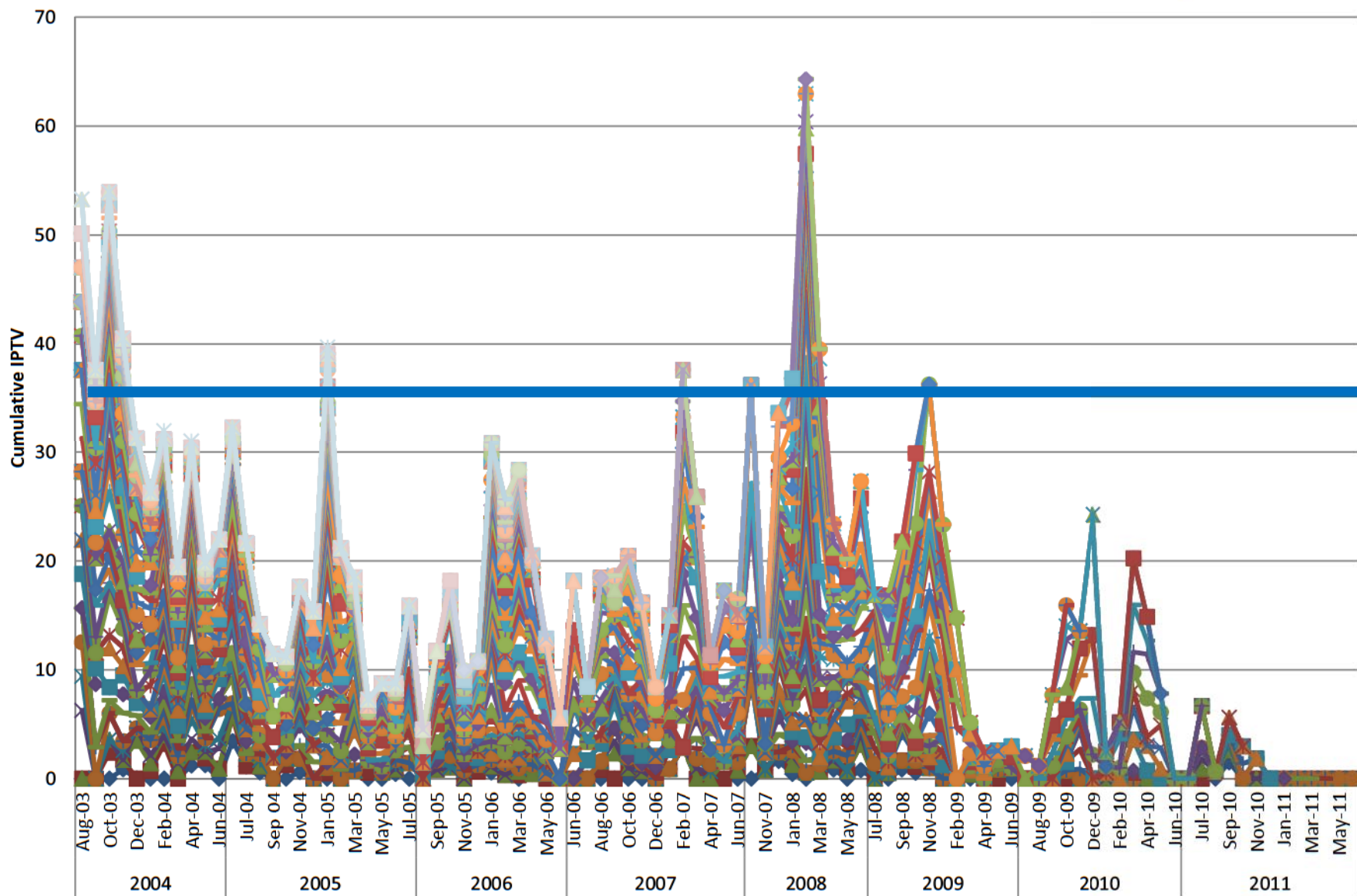


2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)



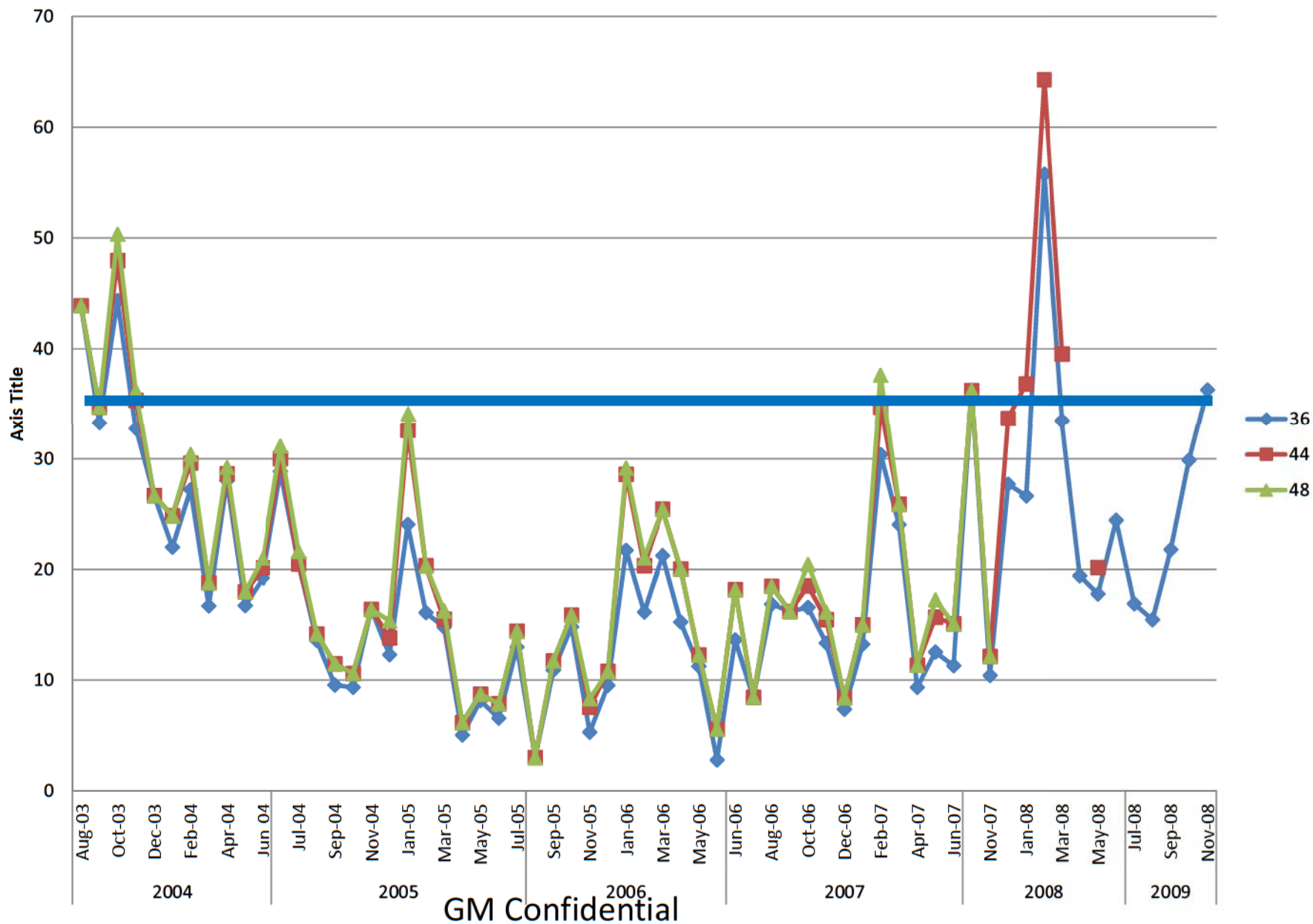
GM Confidential

2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)

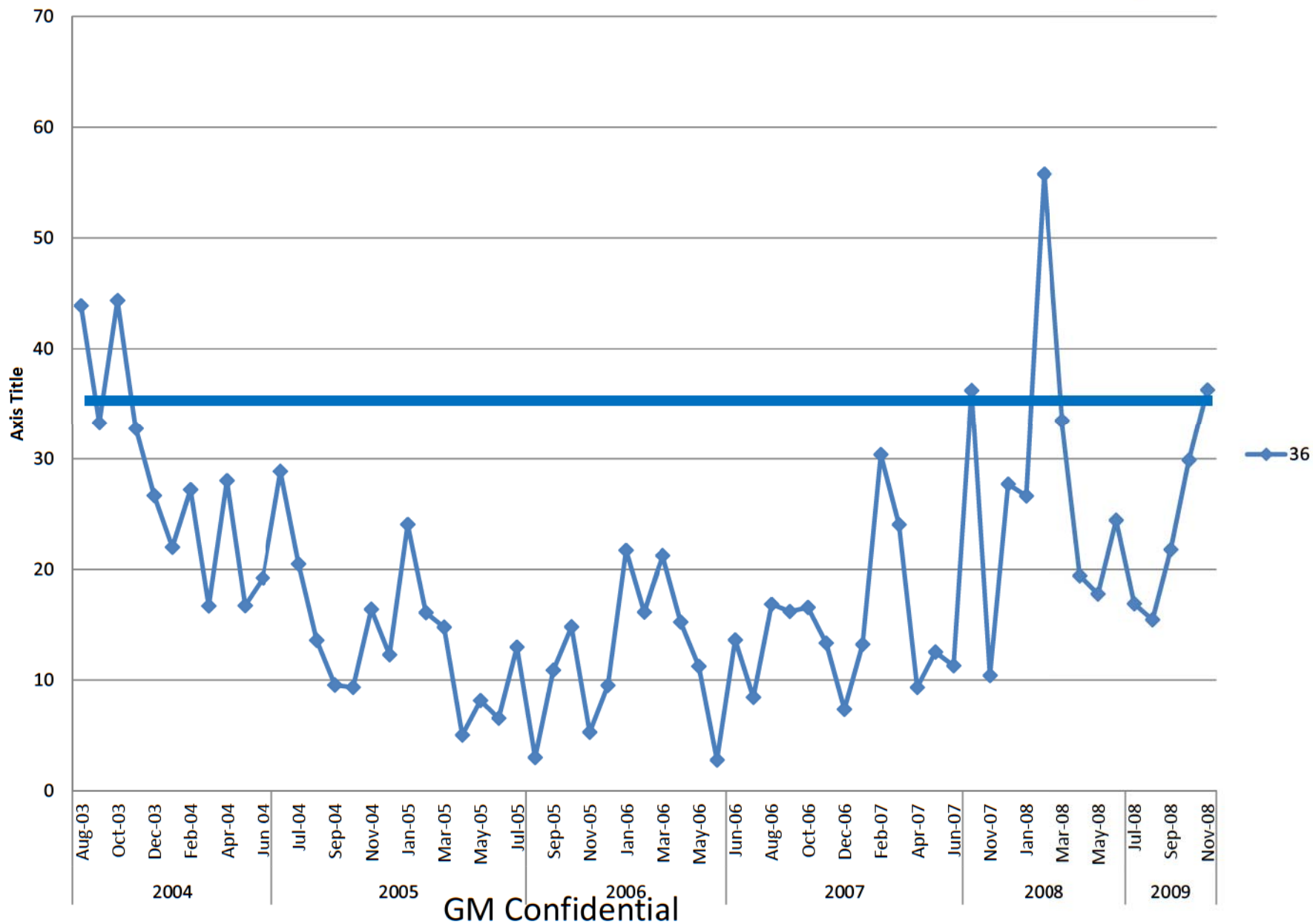


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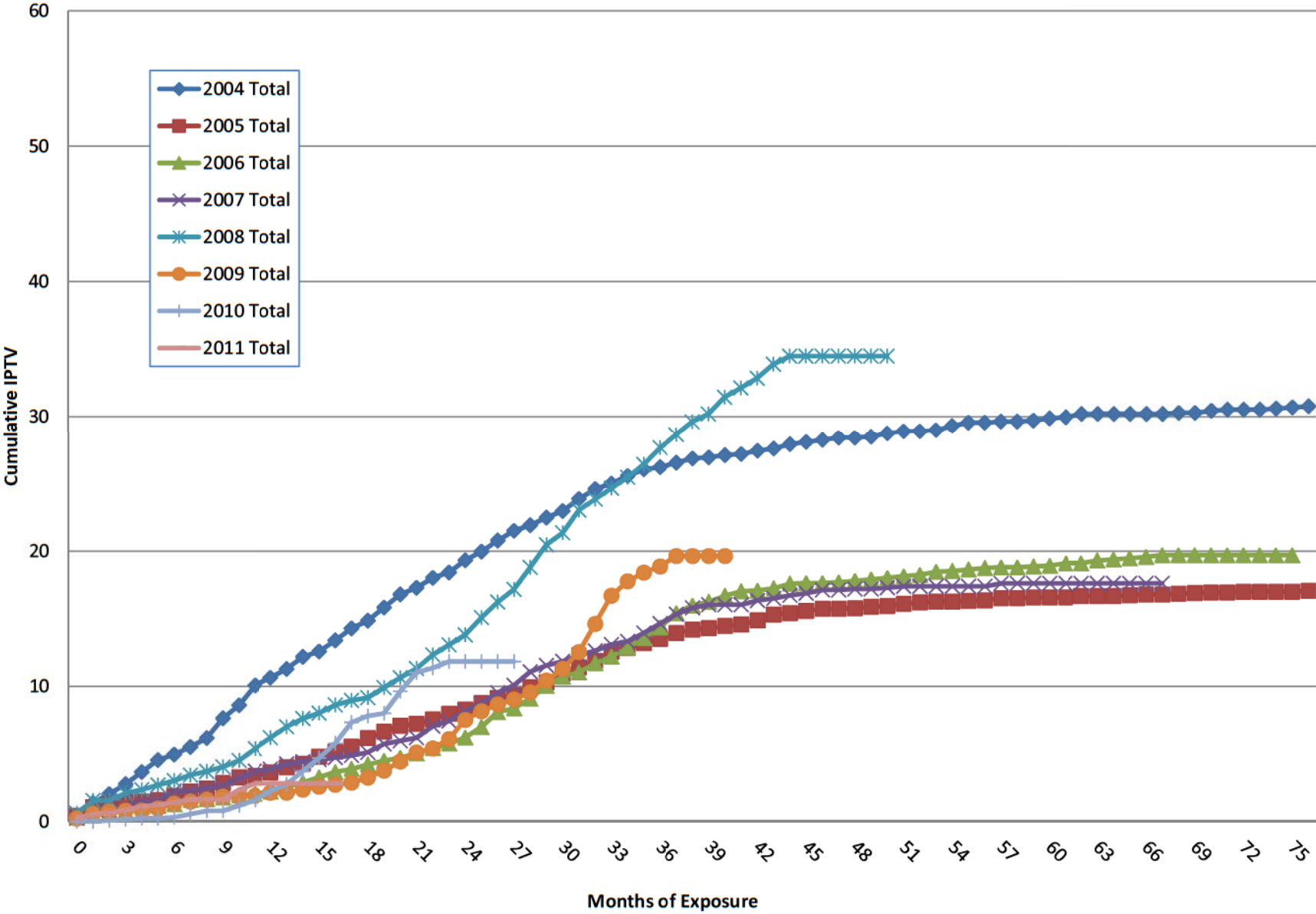
2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)



2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)

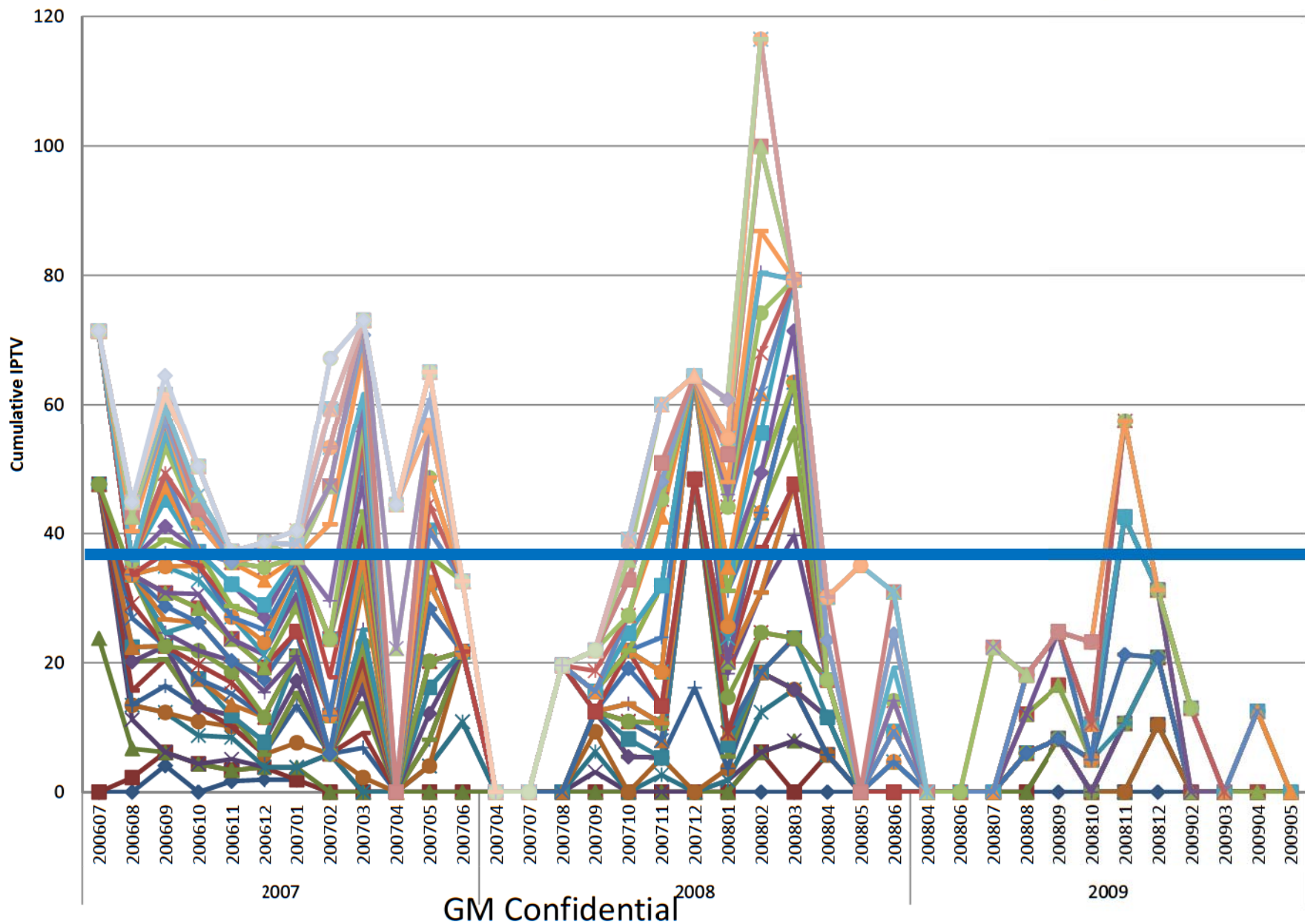


2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)

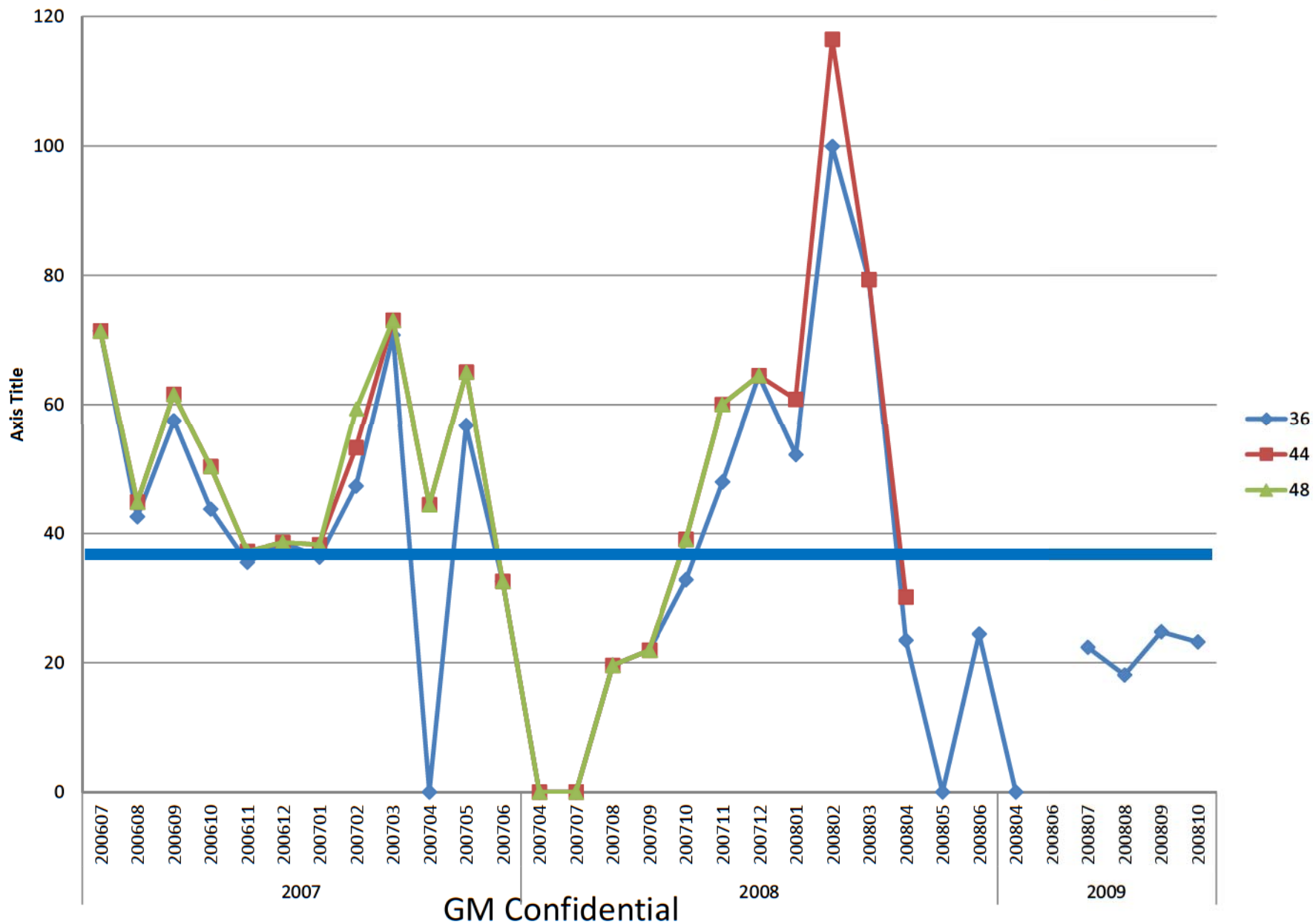


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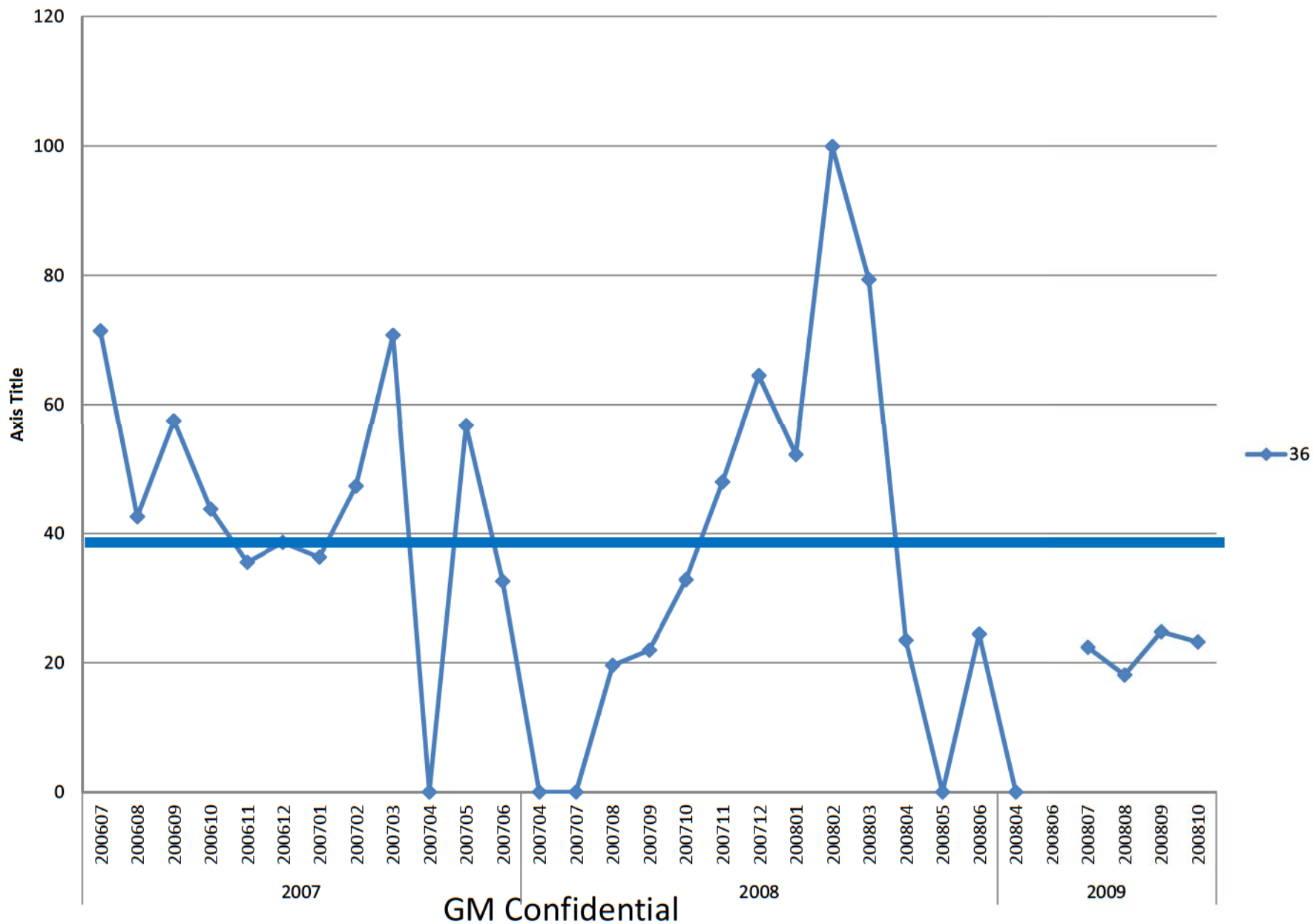
2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



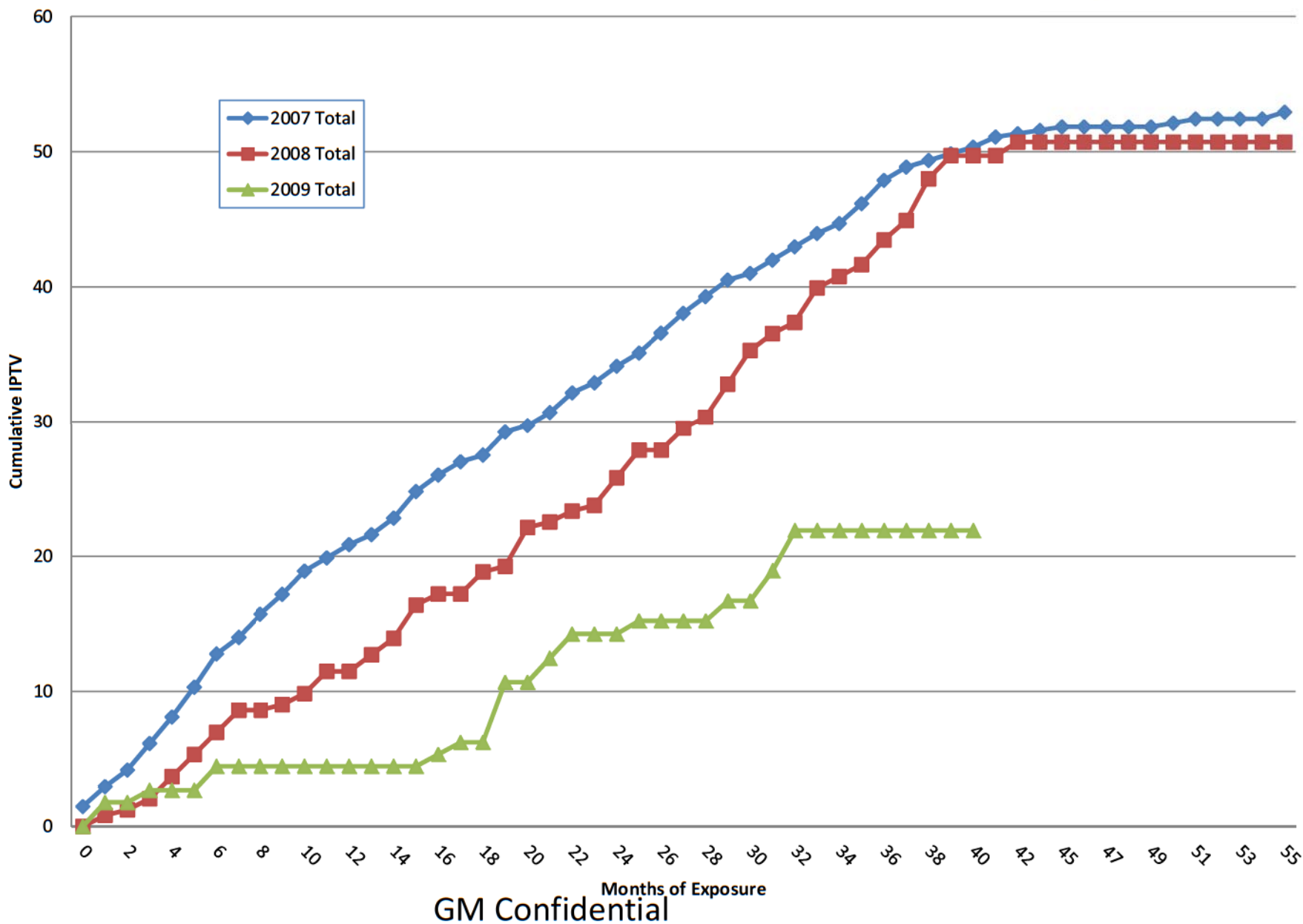
2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)







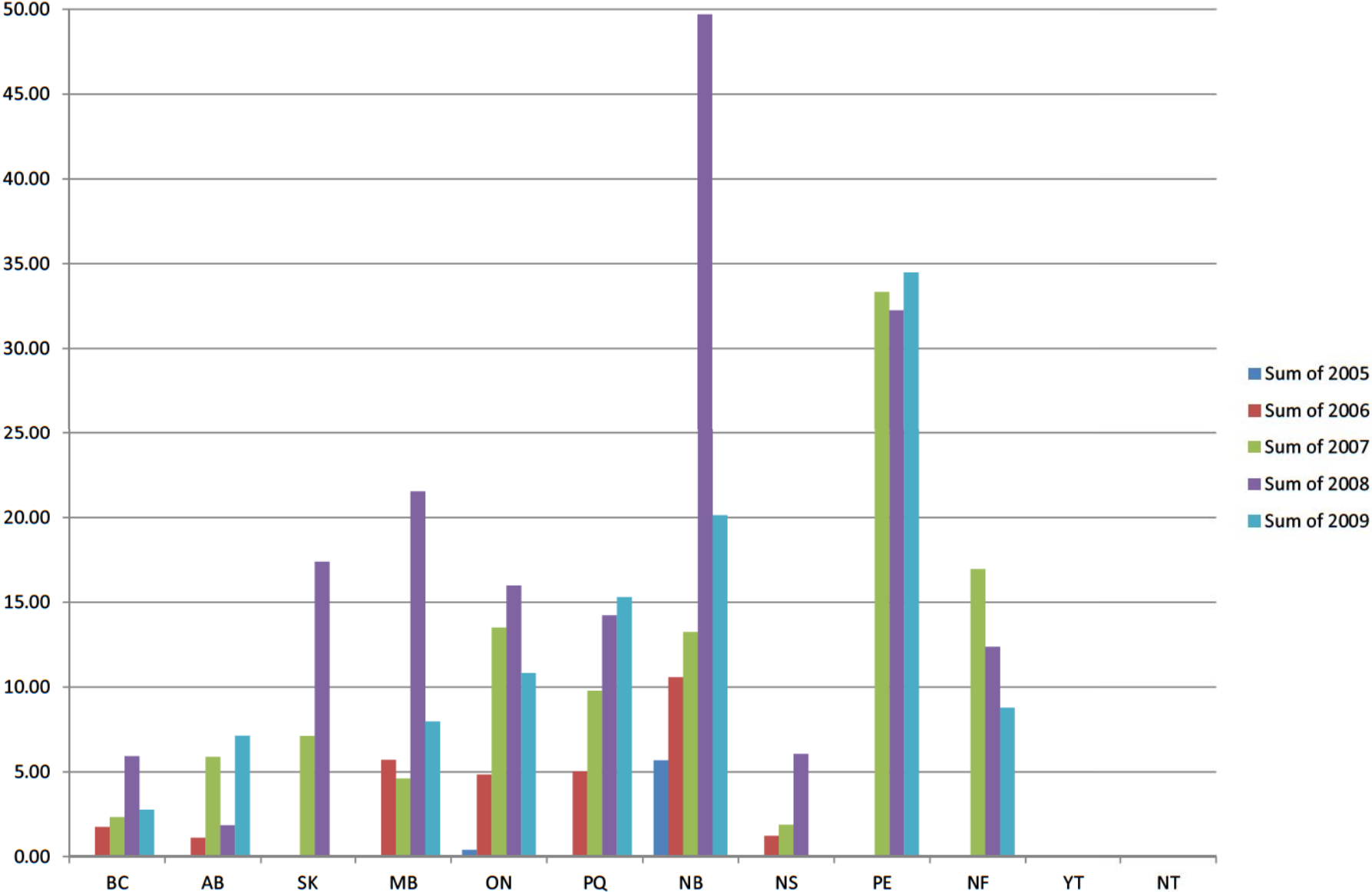


Individual State and Province IPTV

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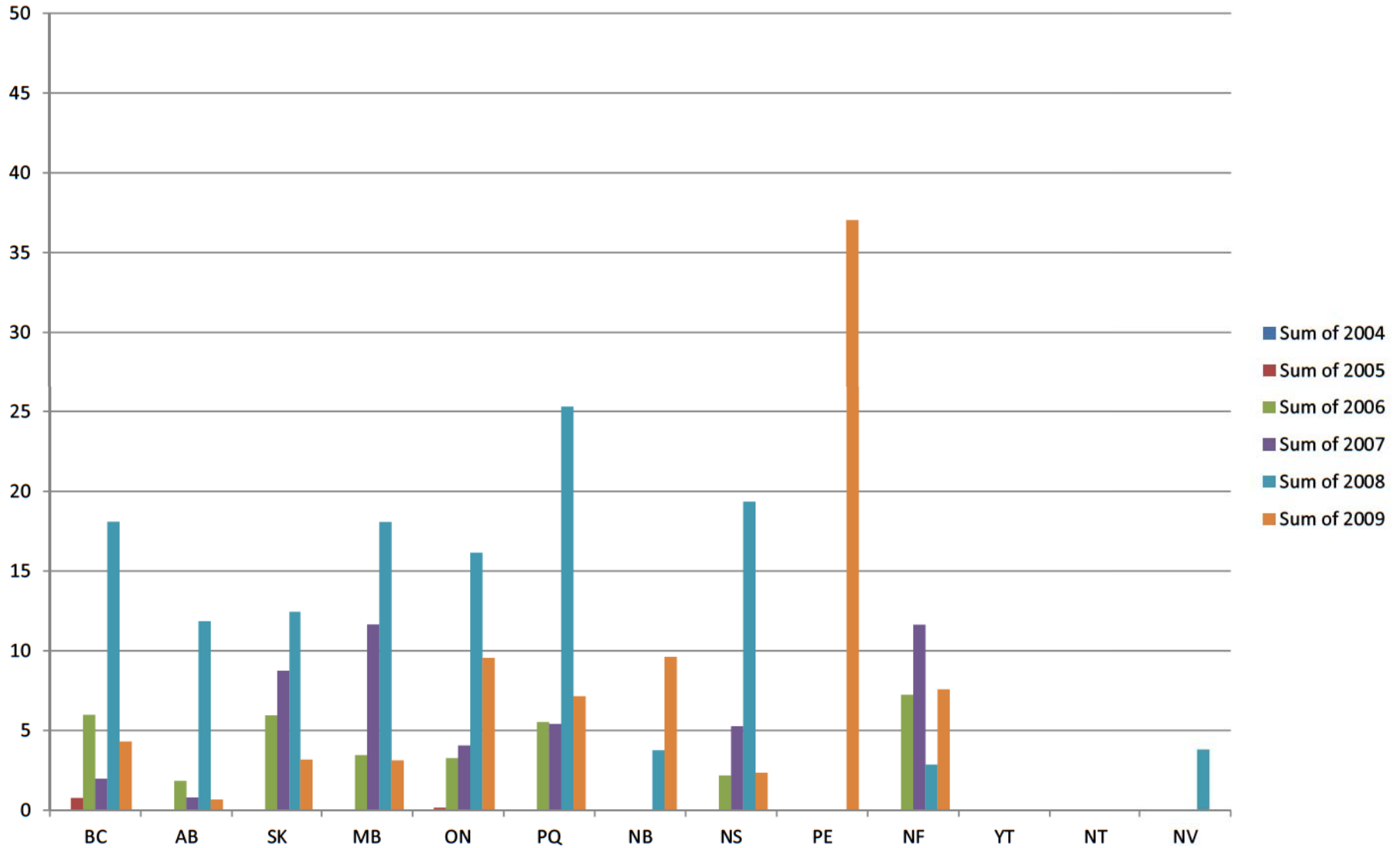


Province IPTV Ranking for G6



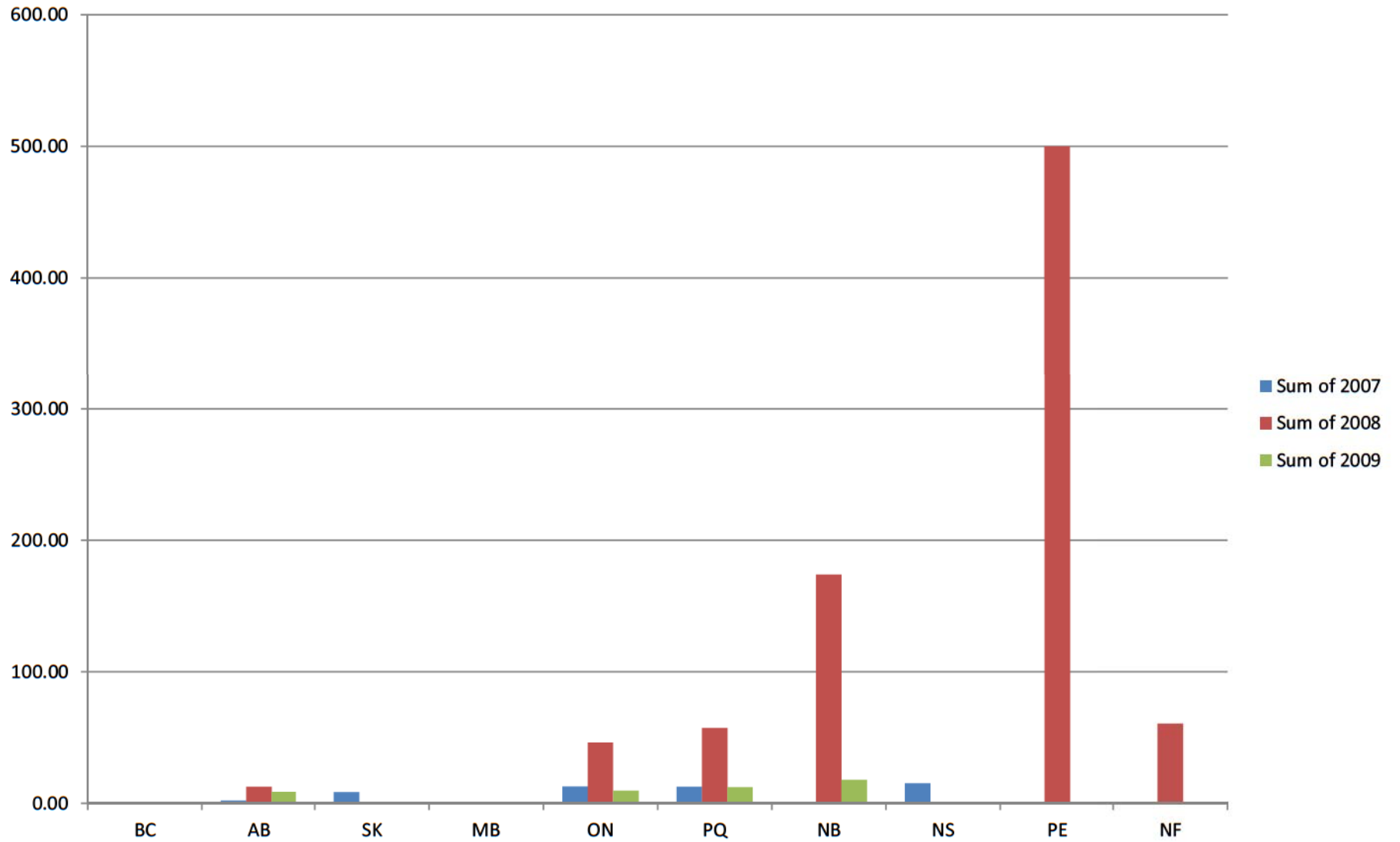
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Province IPTV Ranking for Malibu



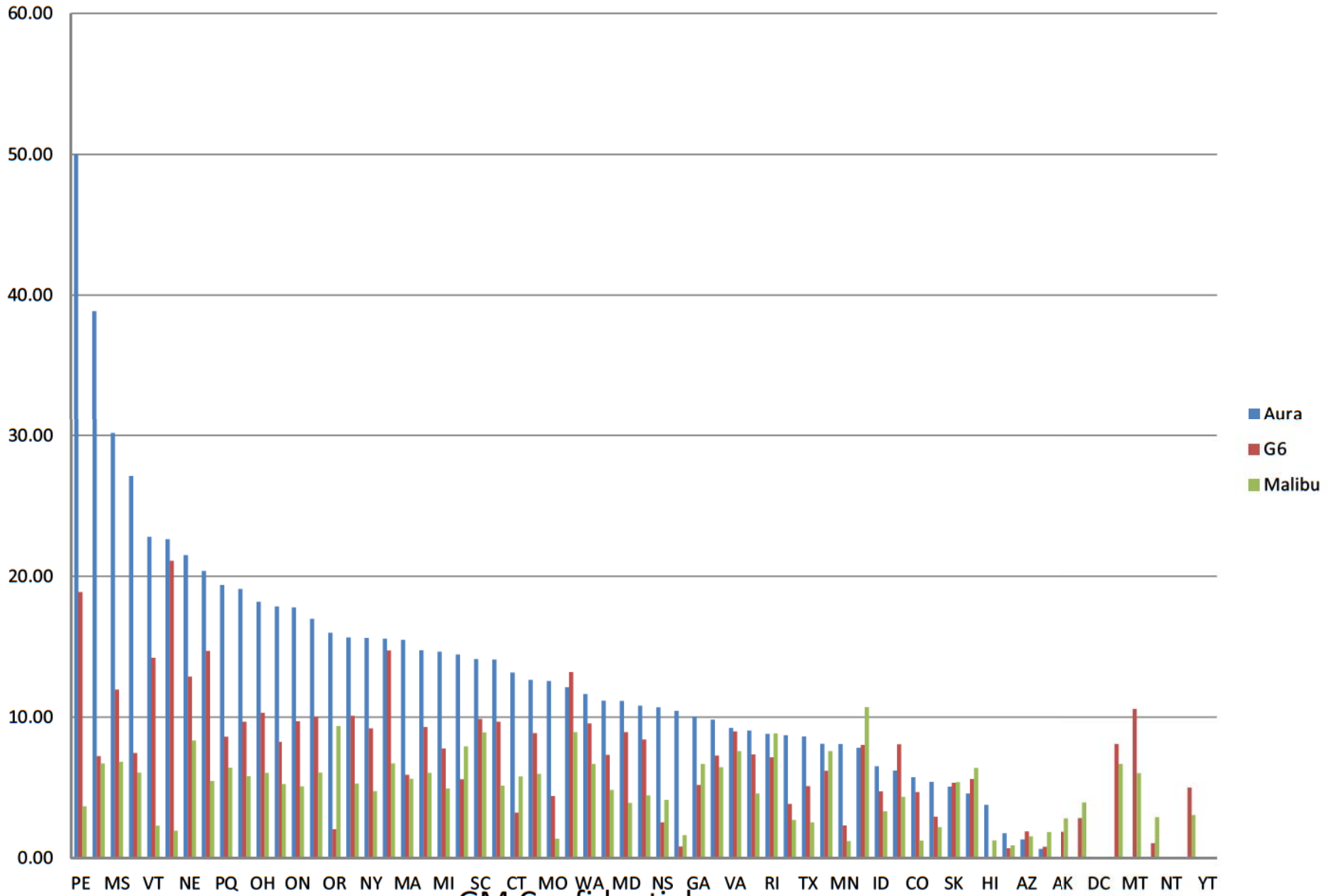
GM Confidential

Province IPTV Ranking for Aura



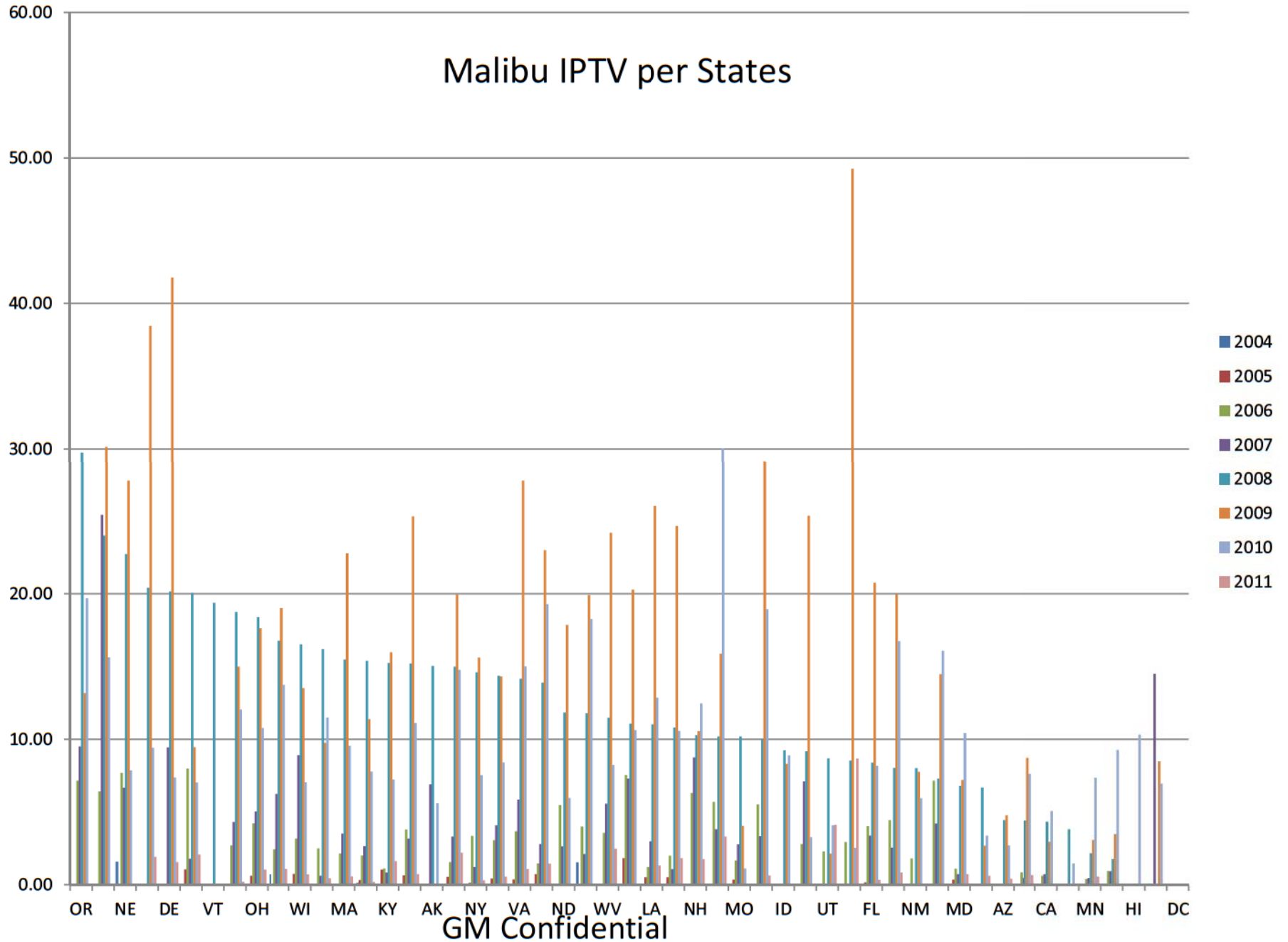
GM Confidential

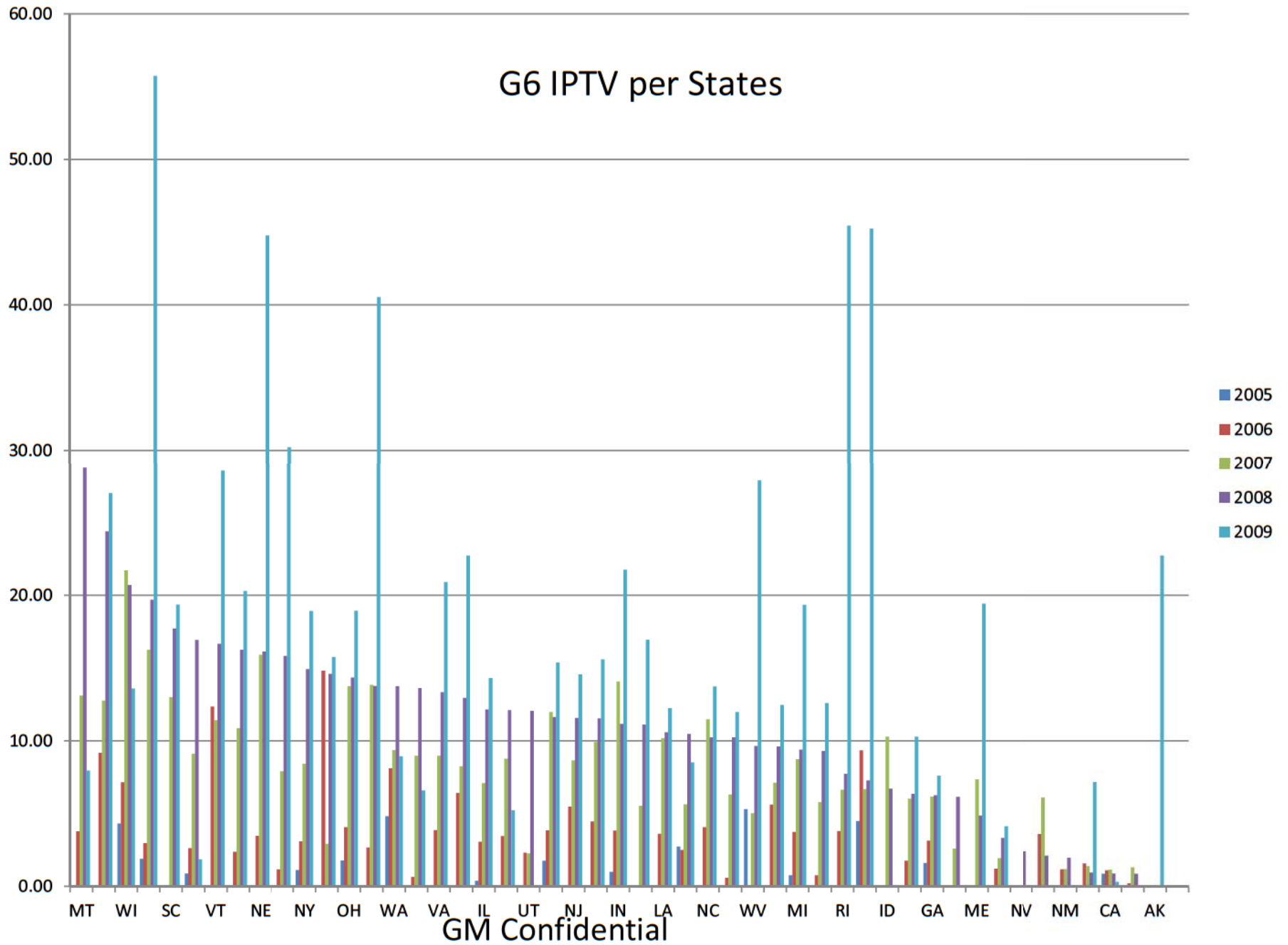
Average IPTV per State/Province

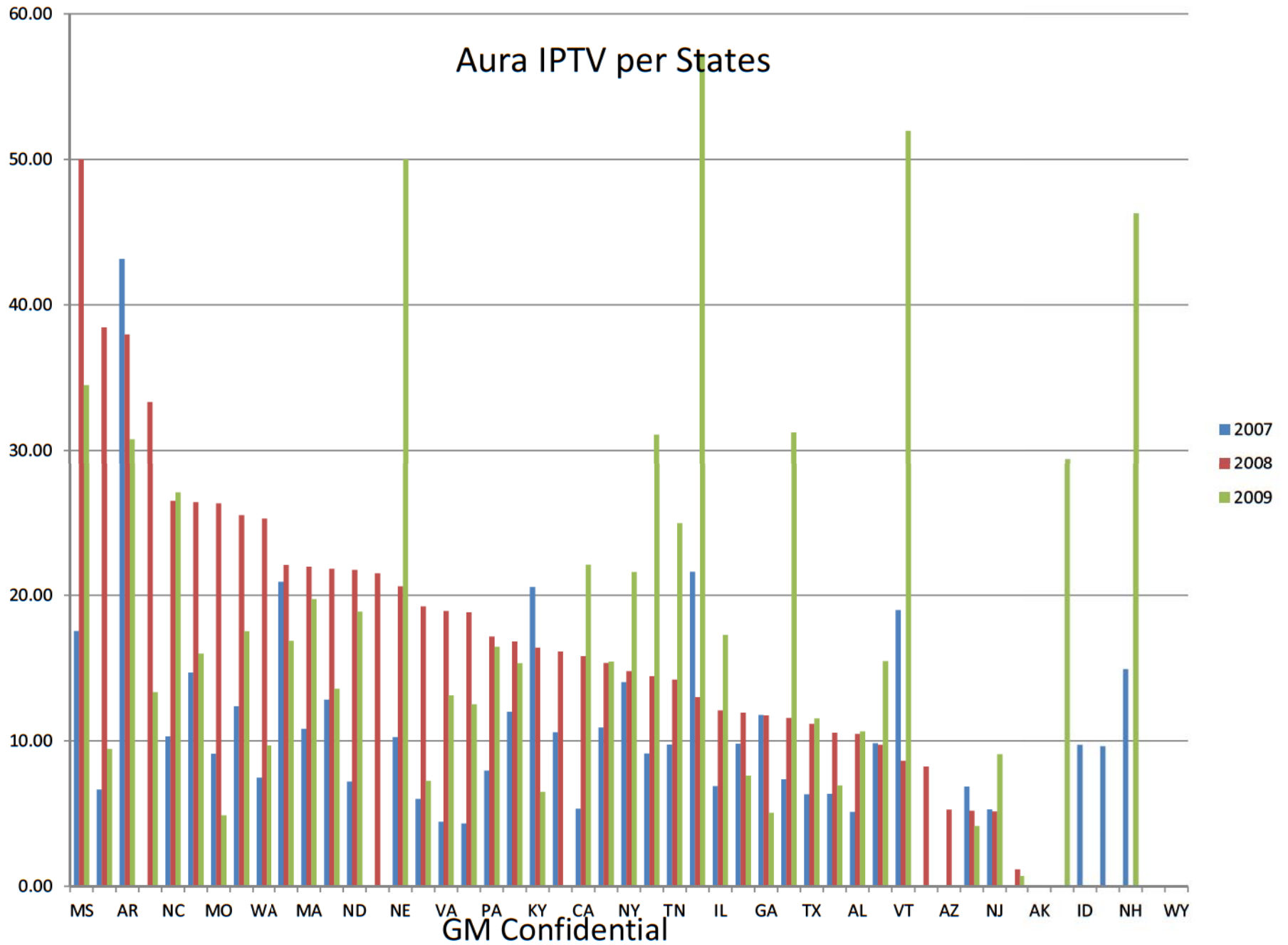


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Malibu IPTV per States









The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|----------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Cobalt, Corvette | |
| 2006MY | HHR, Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu | |

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Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

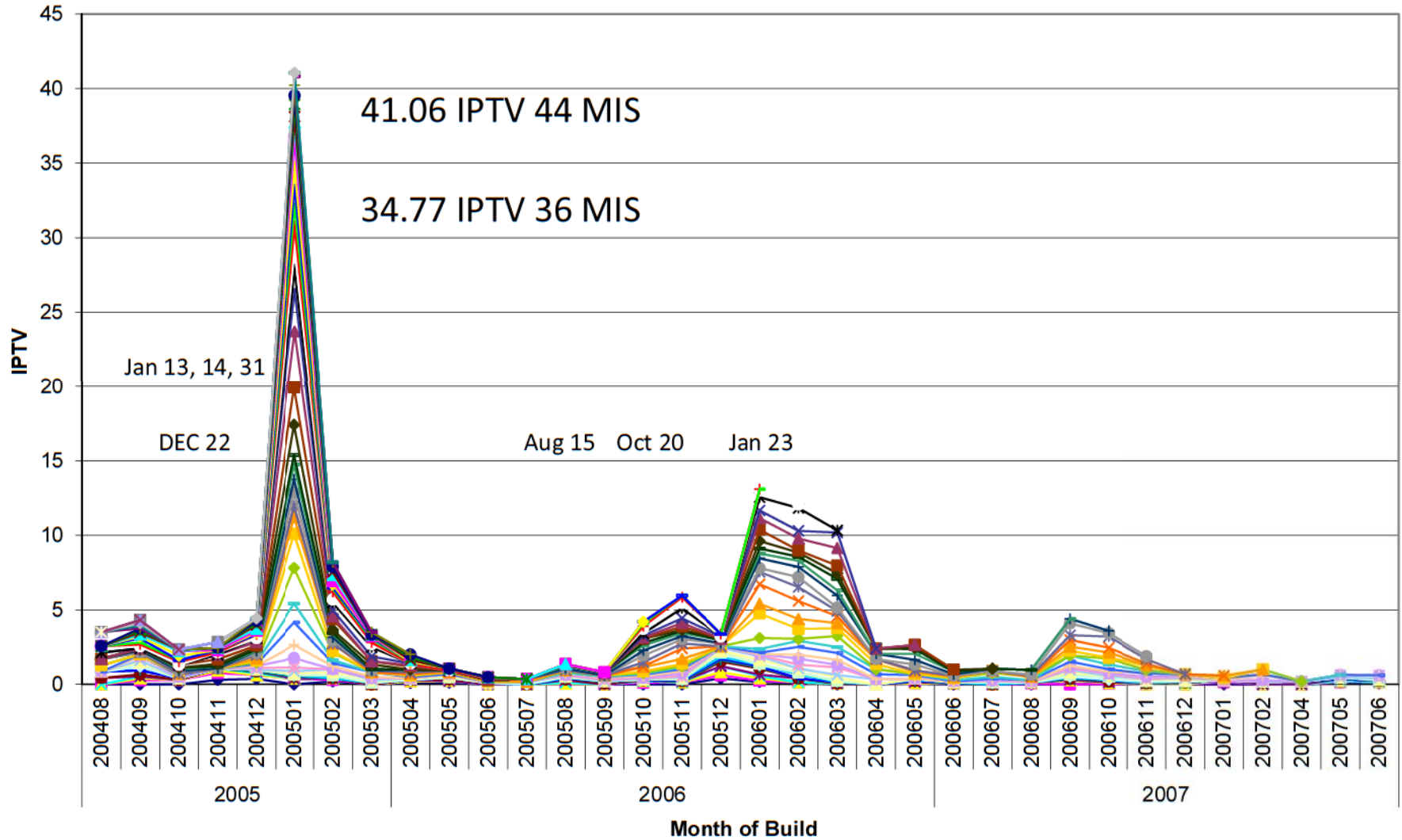
Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)



Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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2005 - 2007 G6 Intermittent Stop Lamp Warranty



9 VOQs 2005MY: 4
 20 VOQs 2005MY: 11

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 2006MY: 4
 2006MY: 7

2007MY: 1
 2007MY: 2

Weekly Production Volume for the Month of January 2005: U.S. and Canada

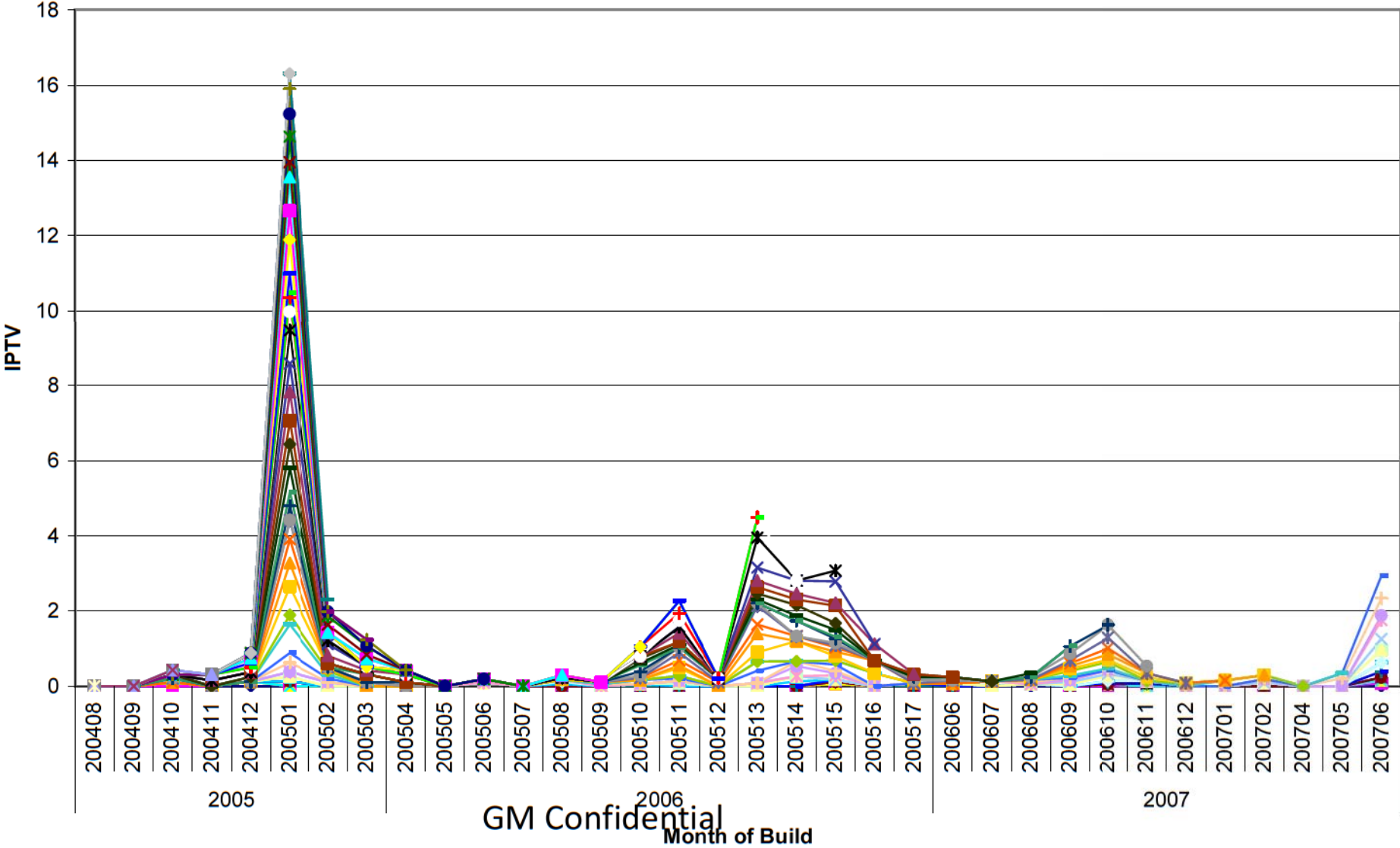
| MAKE/ MODEL | Week 03JAN05 | Week 10JAN05 | Week 17JAN05 | Week 24JAN05 | Day 31JAN05 | TOTAL |
|----------------|-----------------|-----------------|-----------------|-----------------|----------------|-------|
| Pontiac G6 | 2,374 | 2,334 | 1,826 | 2,272 | 475 | 9,281 |

| Myear | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

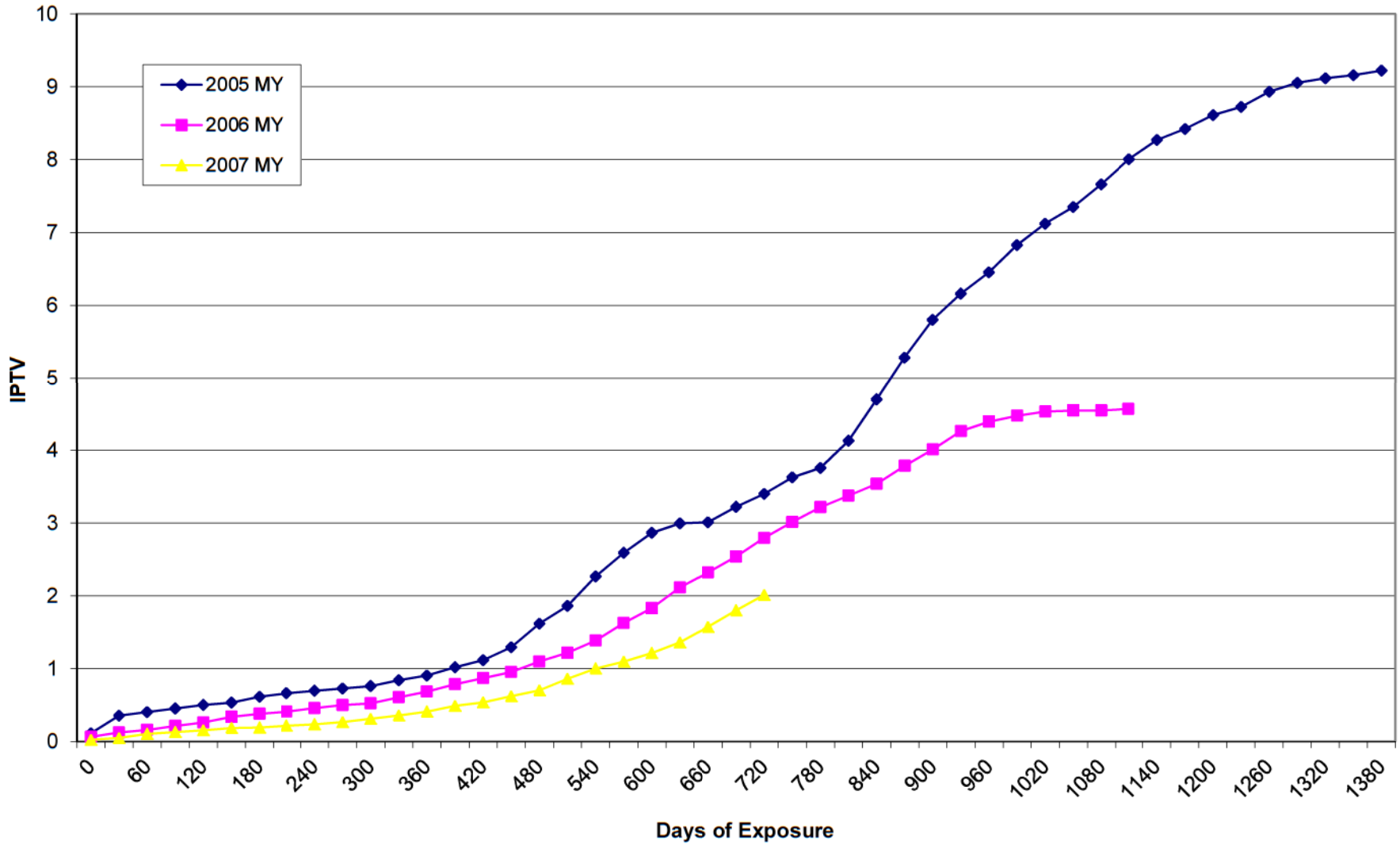
GM Confidential

2005 - 2007 G6 BASS – TAC and CAC only

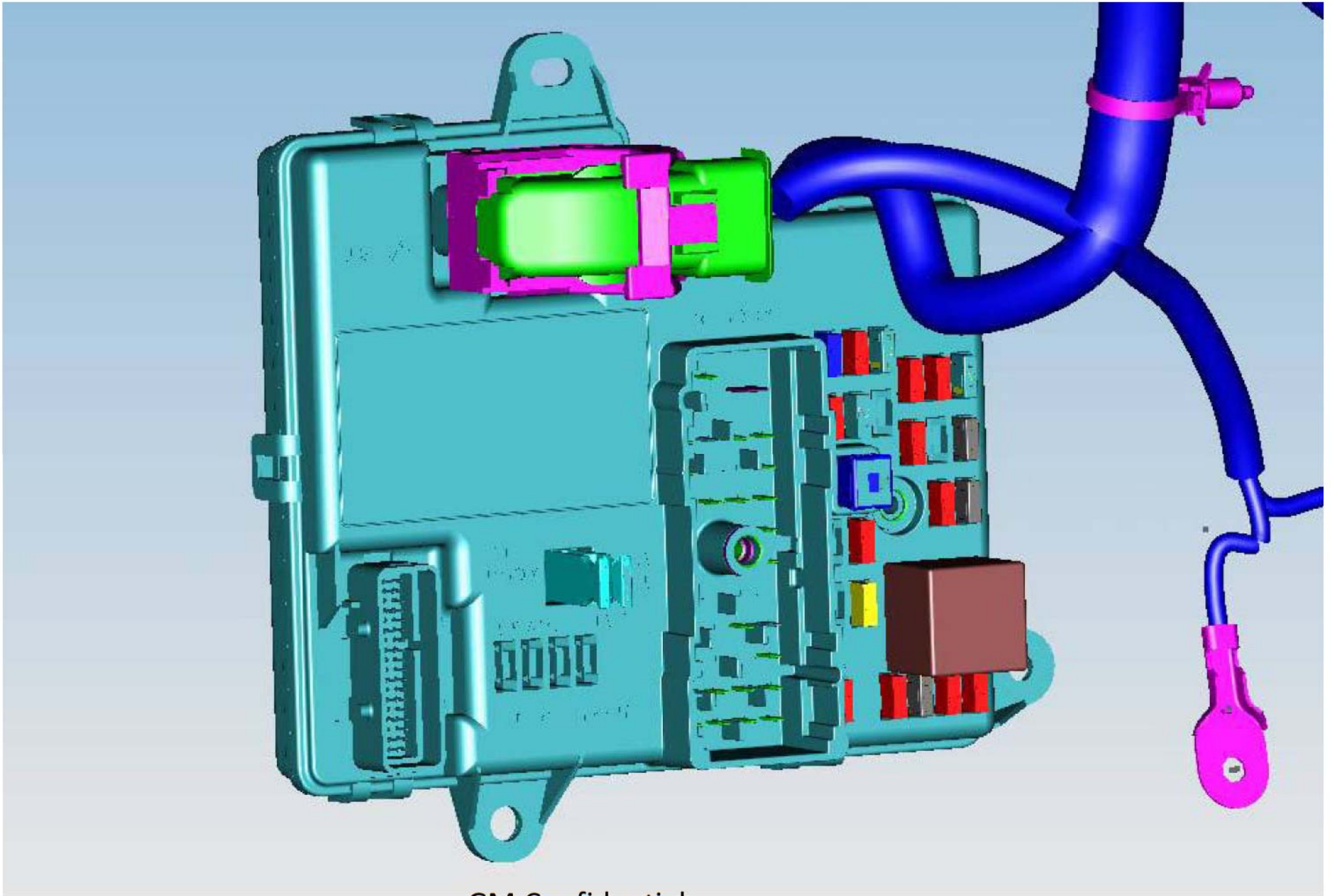
2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only



2005 - 2007 G6 Intermittent Stop Lamp Warranty



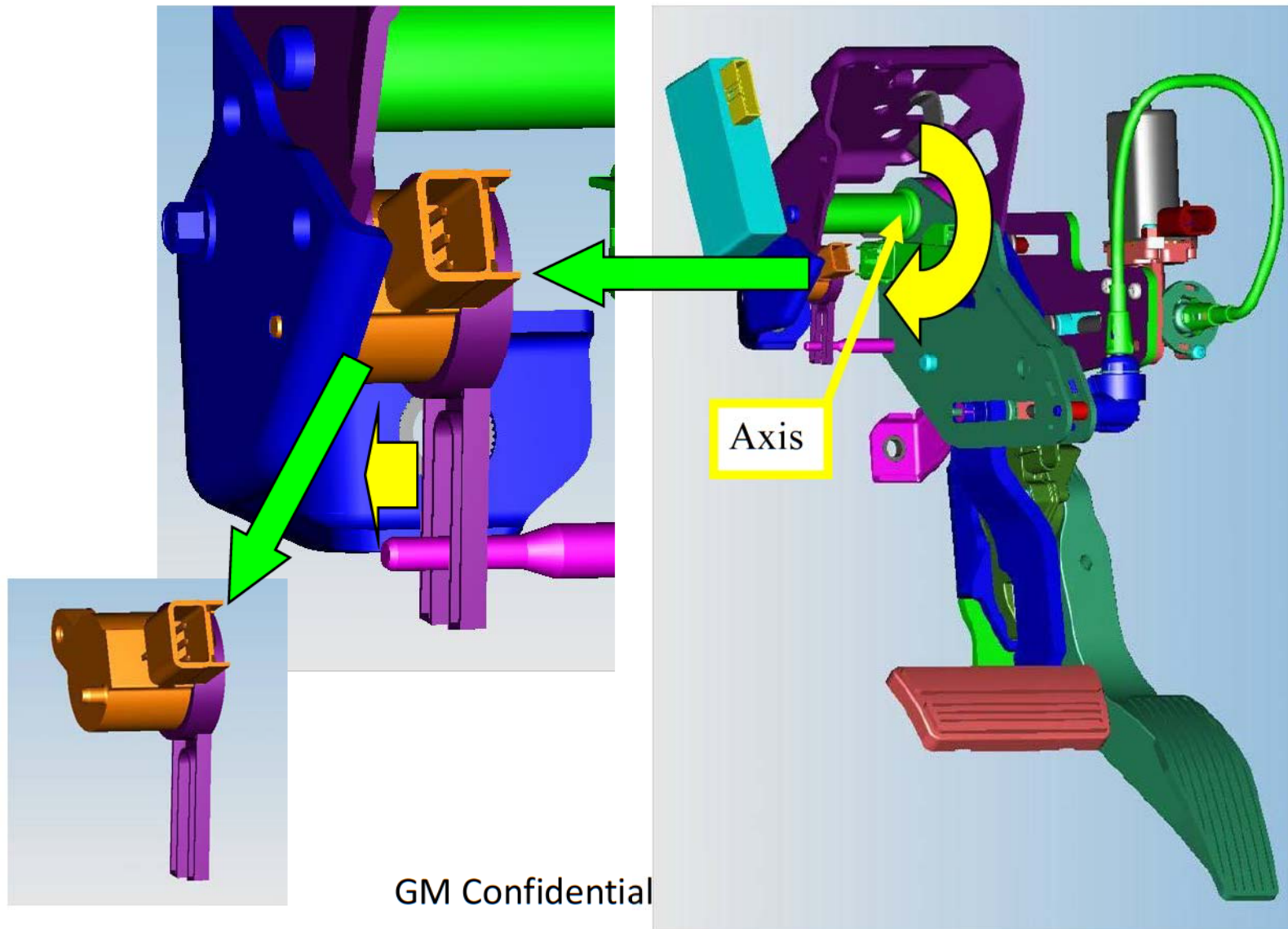
GM Confidential



GM Confidential

2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



Brake Lamps Malfunction due to BCM Connector

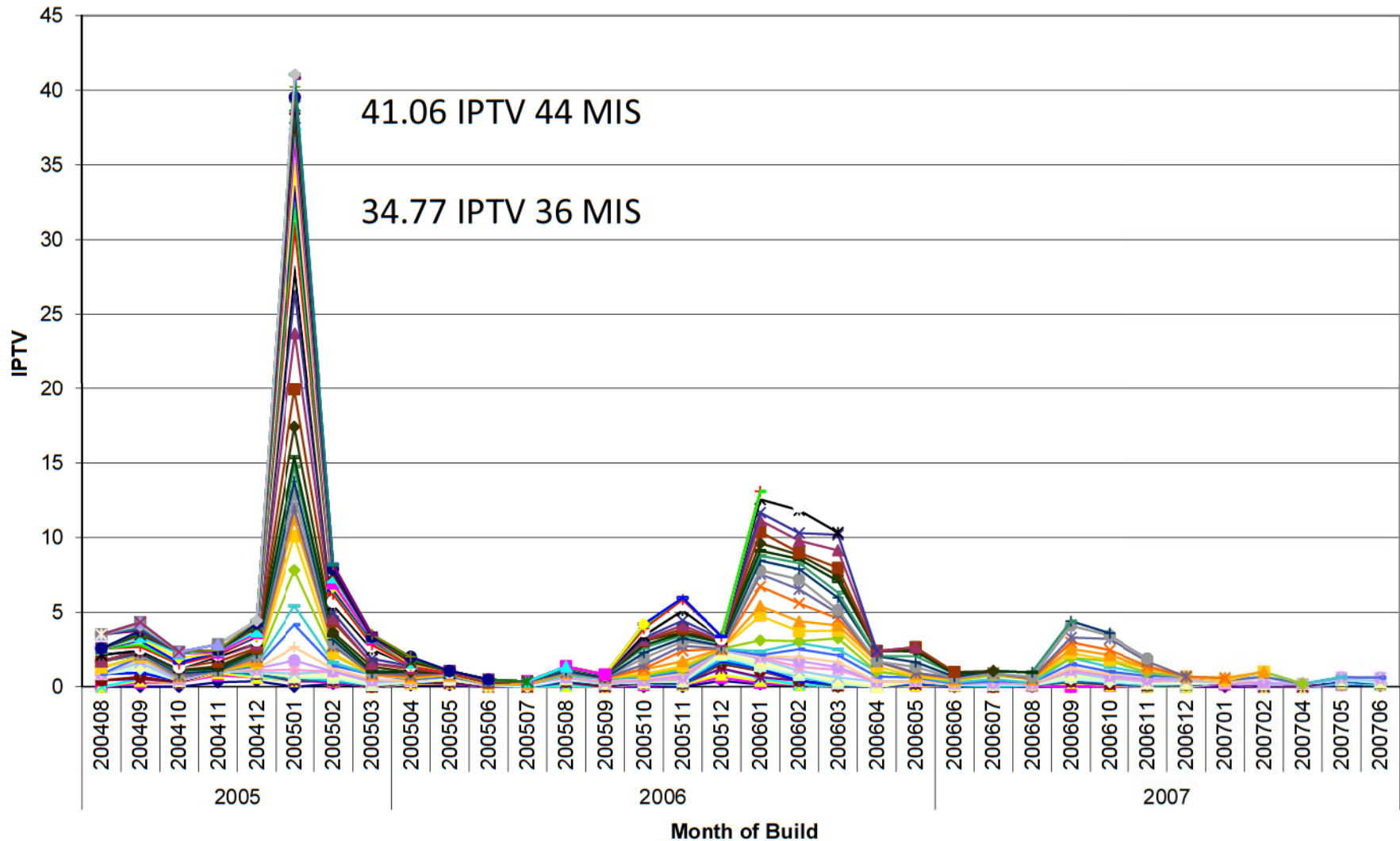
Chronology

| | |
|------------|--|
| 9/15/2008 | NHTSA ODI opened PE investigation with 9 VOQs |
| 11/12/2008 | GM responded and stated it is continuing its investigation |
| 1/28/2009 | GM notified NHTSA that GM is conducting safety campaign for 8,012 vehicles built in January 2005 for 2005MY and 2006MY. |
| 1/30/2009 | NHTSA closed the investigation stating that ODI's review of complaint rate for the January 2005 built month is 20 times greater than the remainder of the subject vehicle population and warranty rate is 11 times greater than the remainder of the subject vehicle population. |
| June 2012 | NHTSA requested GM to provide 2005-09MY G6 Brake Lamp Malfunction, Outside Recall information. |

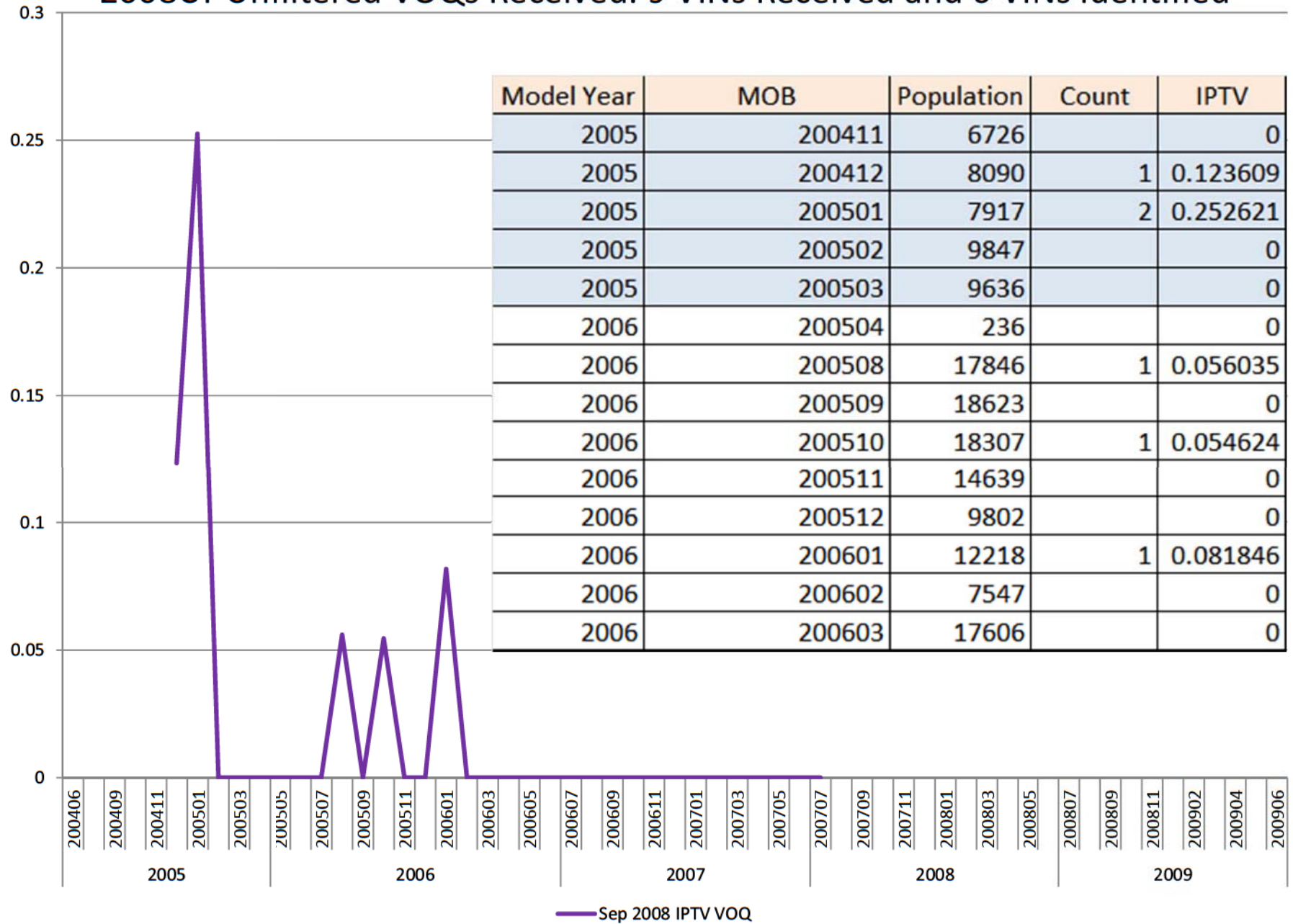


Closing Resume

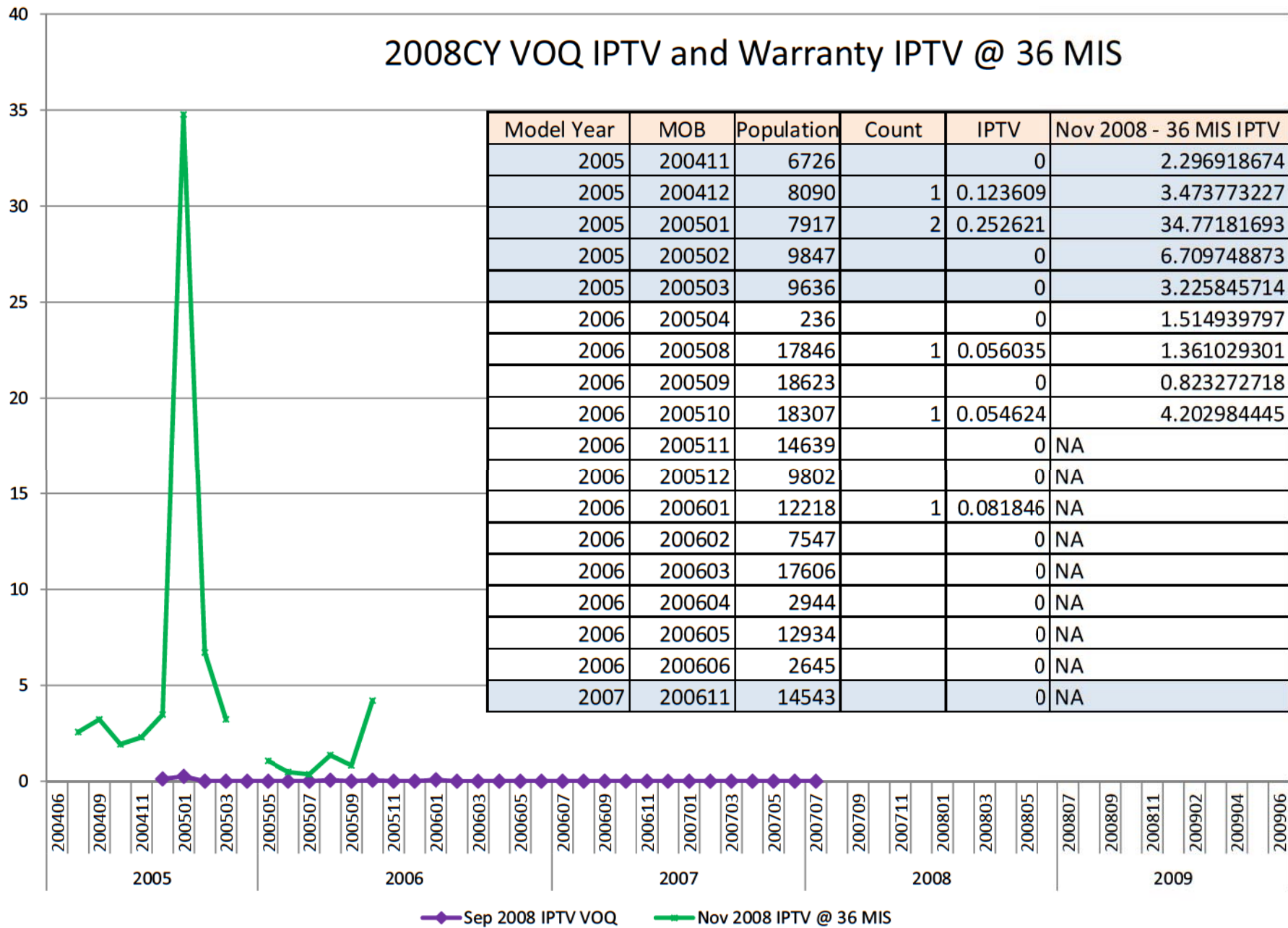
2005 – 2007MY G6 Intermittent Stop Lamp Warranty This was reviewed in November 2008



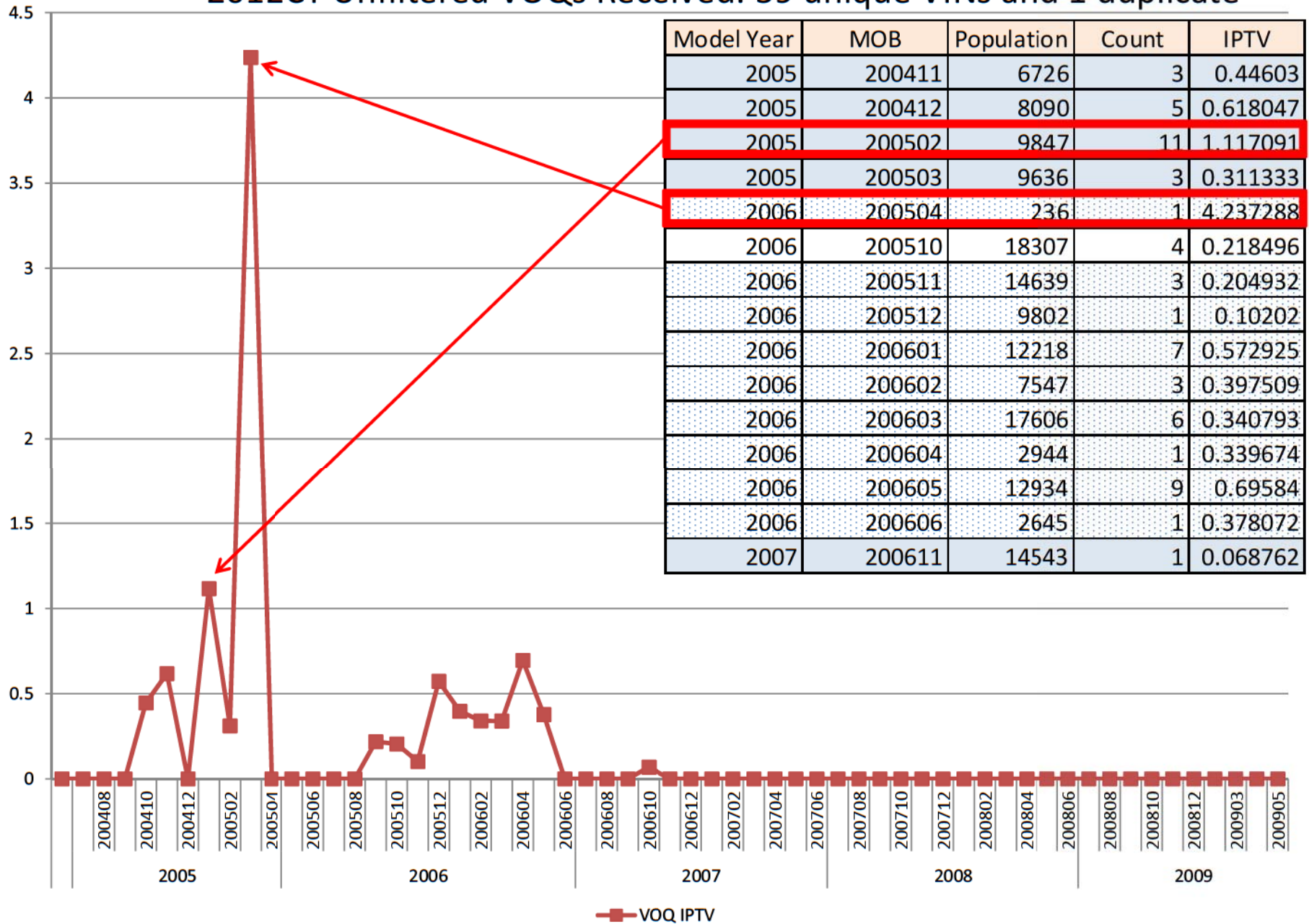
2008CY Unfiltered VOQs Received: 9 VINs Received and 6 VINs Identified



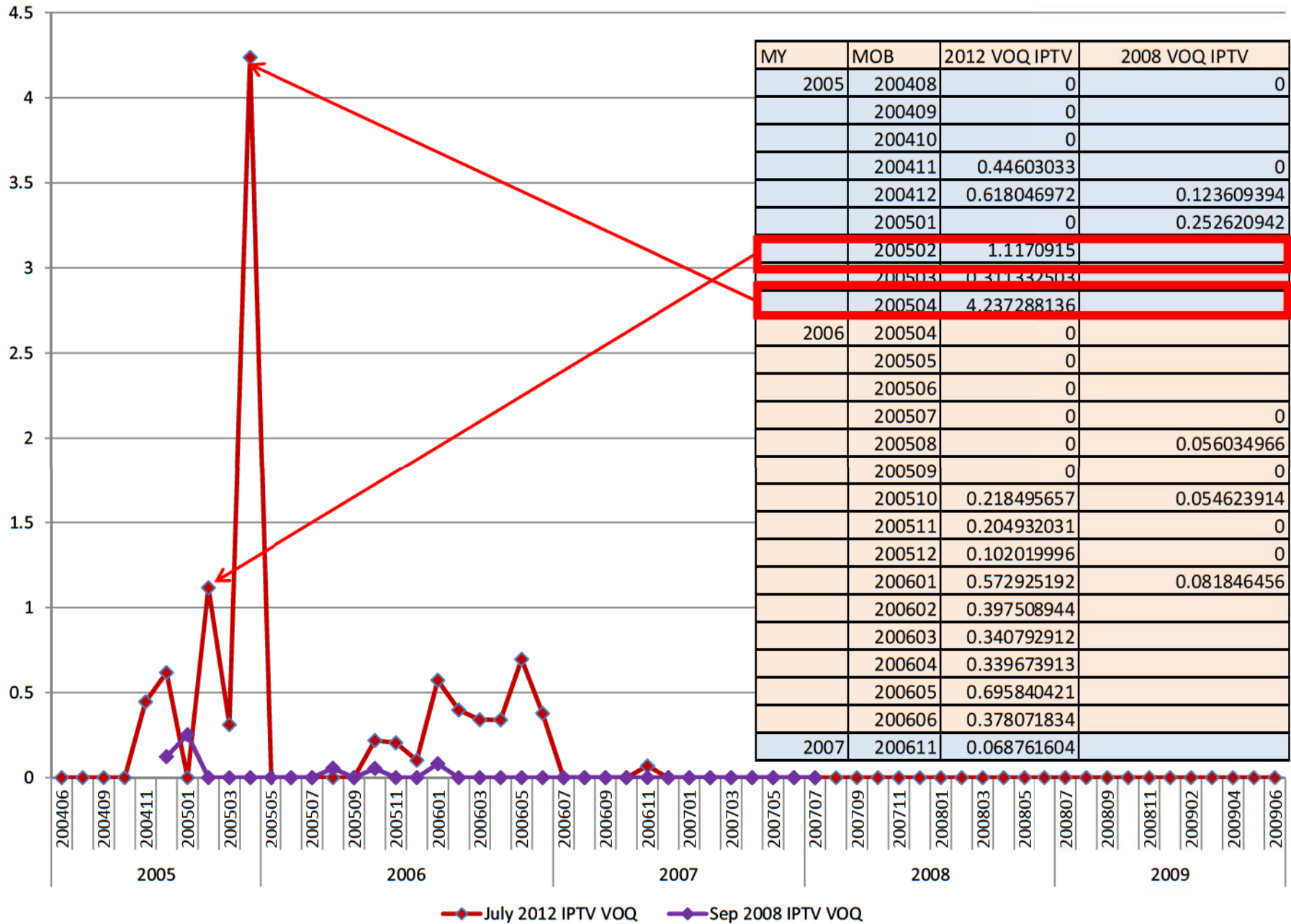
2008CY VOQ IPTV and Warranty IPTV @ 36 MIS



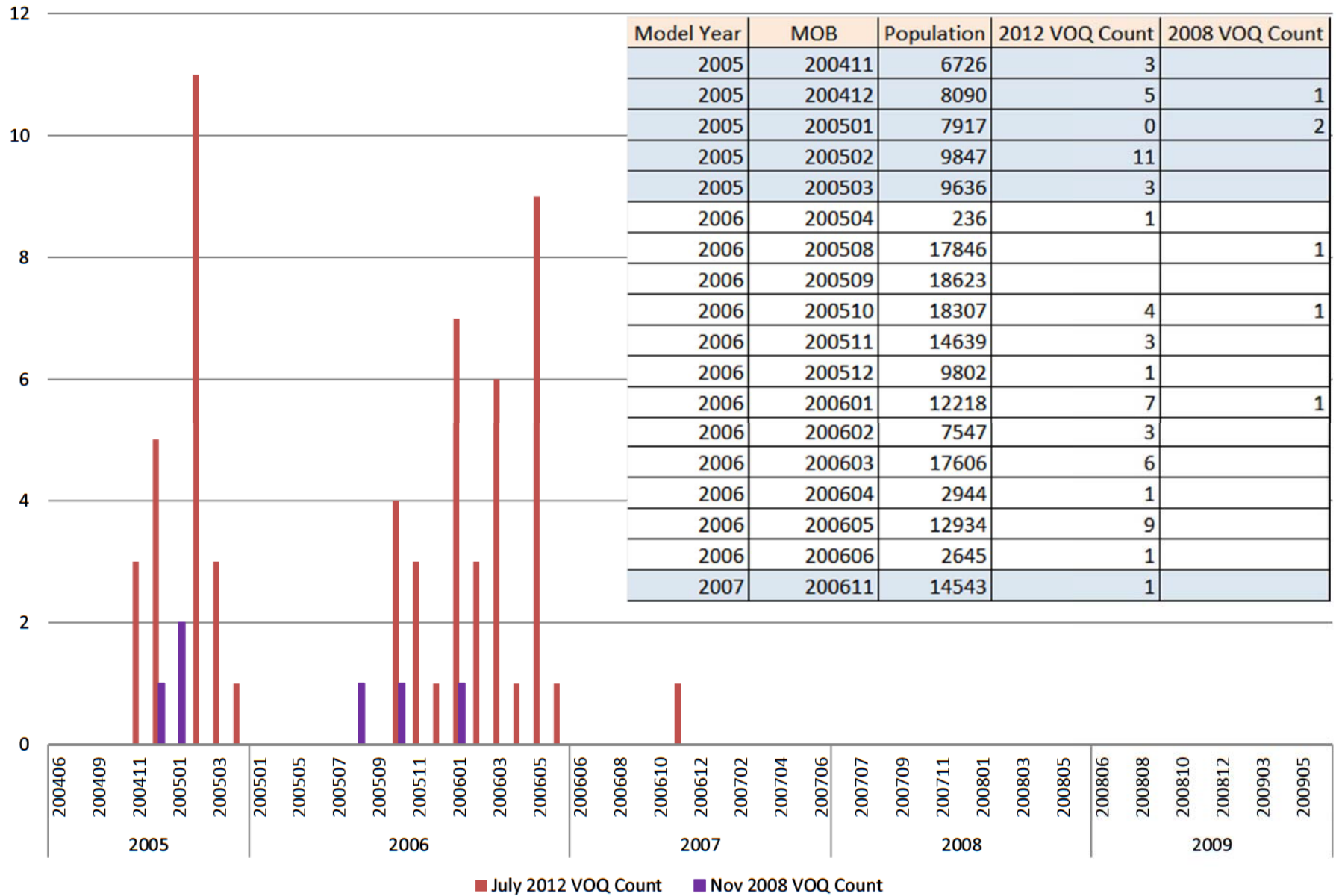
2012CY Unfiltered VOQs Received: 59 unique VINs and 1 duplicate



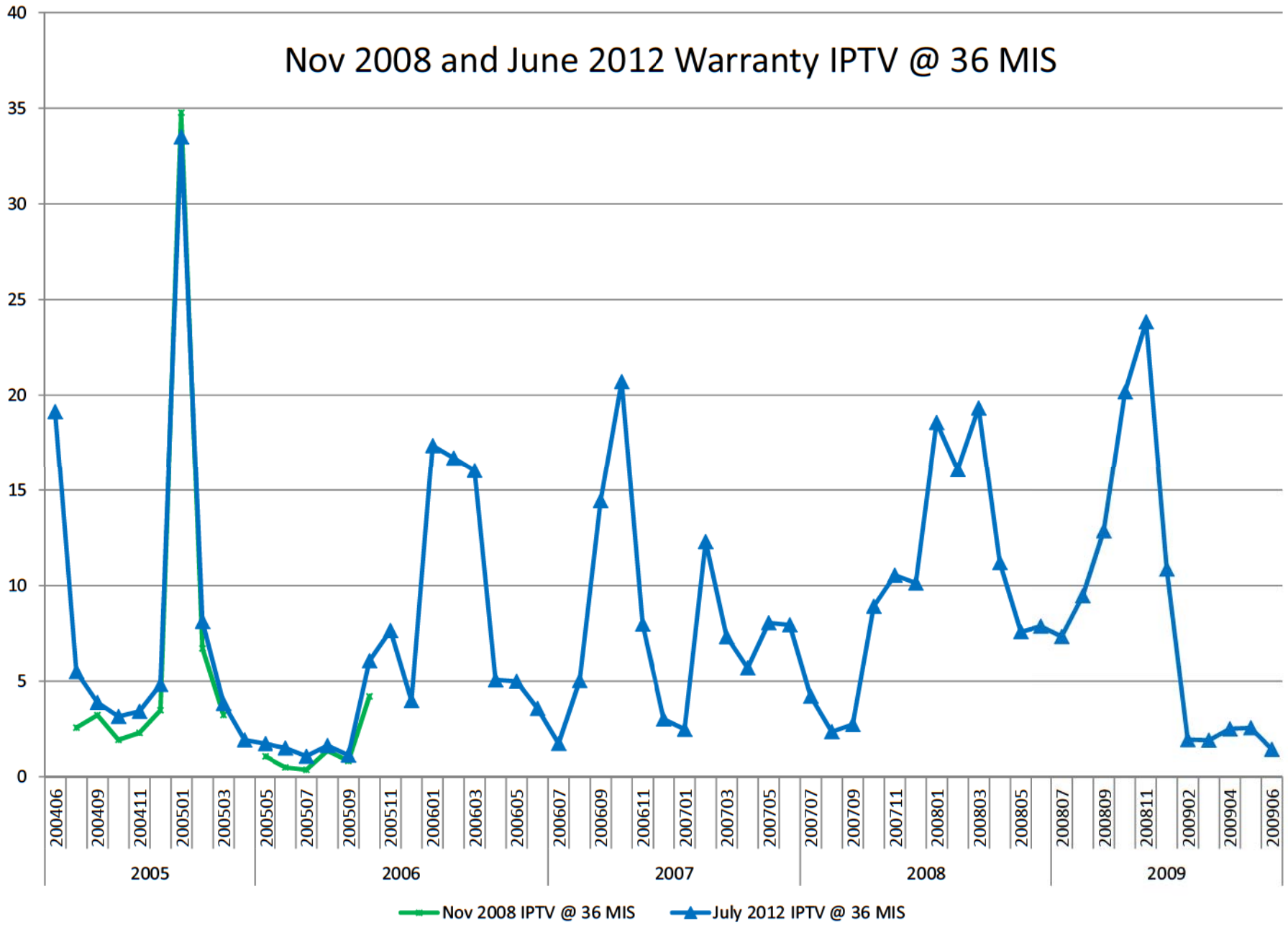
Nov 2008 and June 2012 VOQ IPTV



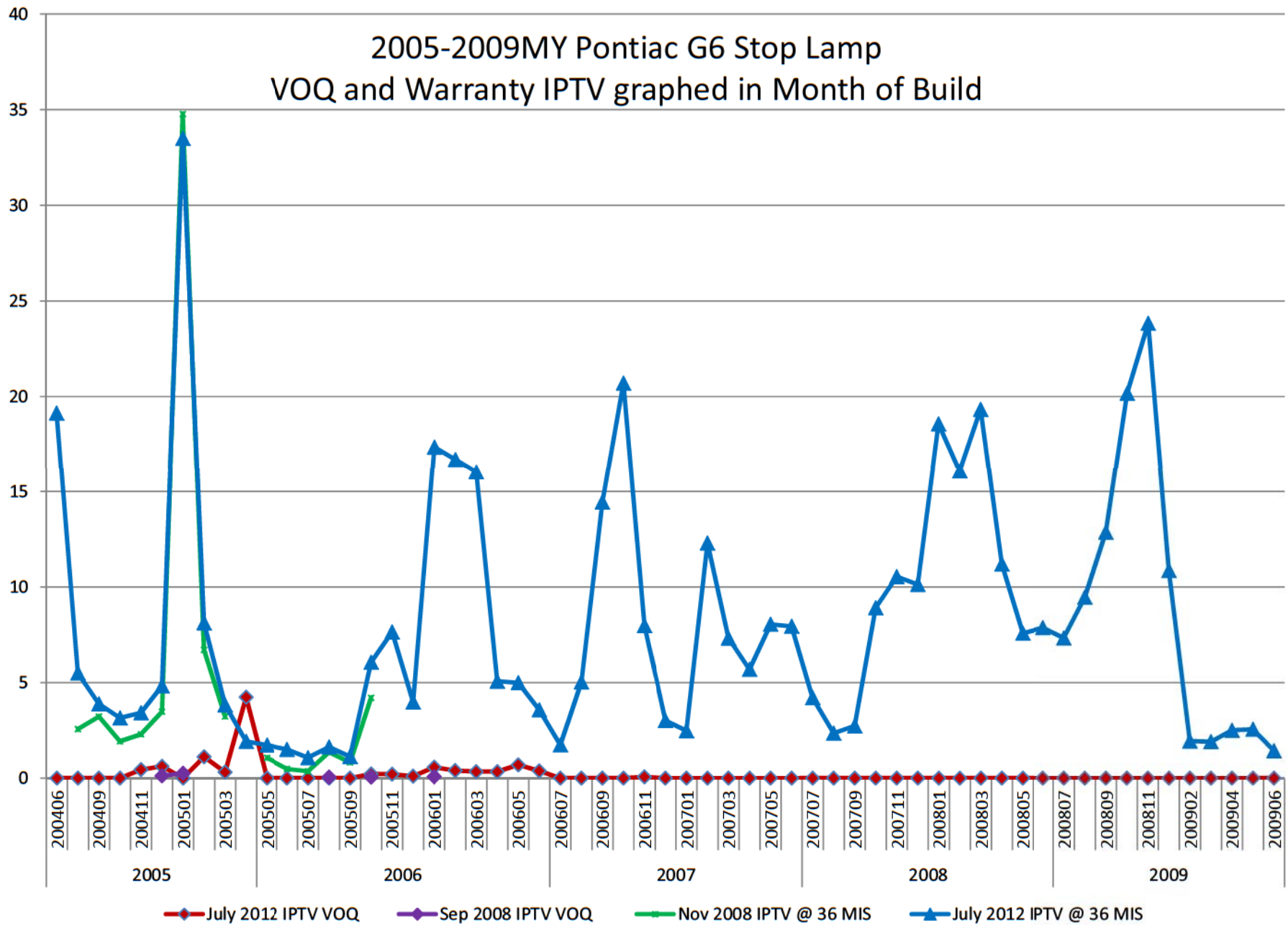
VOQ Count Comparison: 2008 (6) vs 2012 (59)



Nov 2008 and June 2012 Warranty IPTV @ 36 MIS



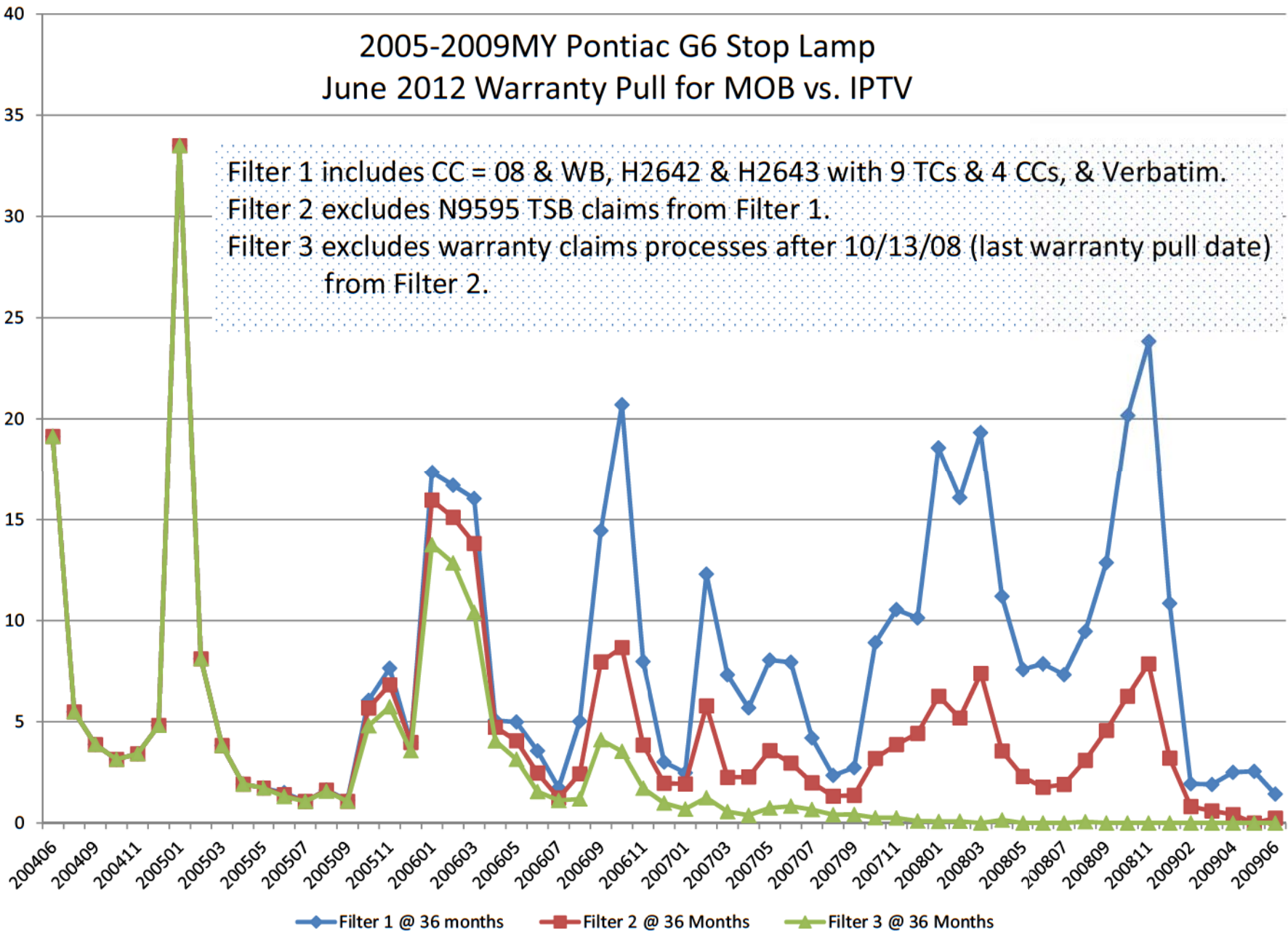
2005-2009MY Pontiac G6 Stop Lamp VOQ and Warranty IPTV graphed in Month of Build



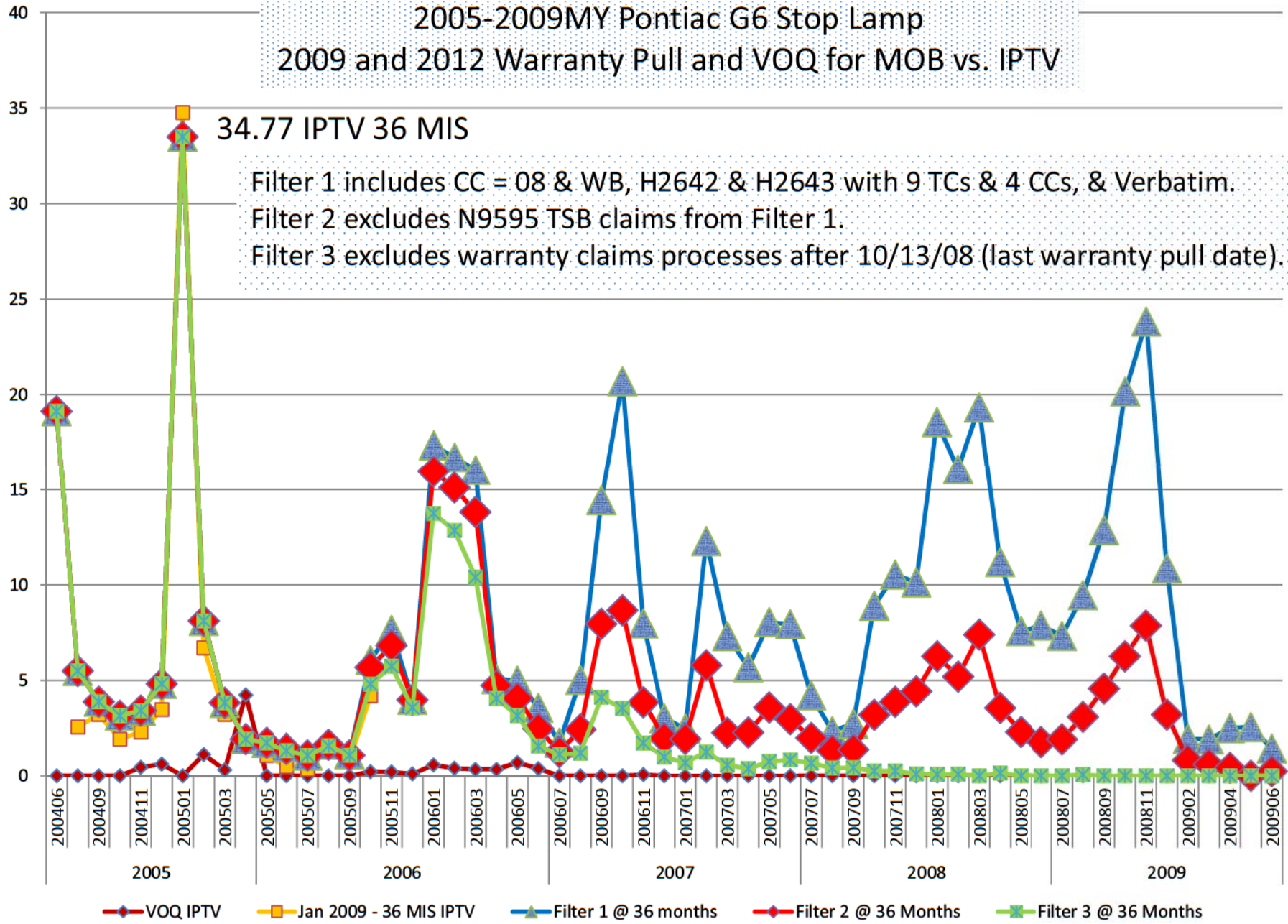
Back-up

2005-2009MY Pontiac G6 Stop Lamp June 2012 Warranty Pull for MOB vs. IPTV

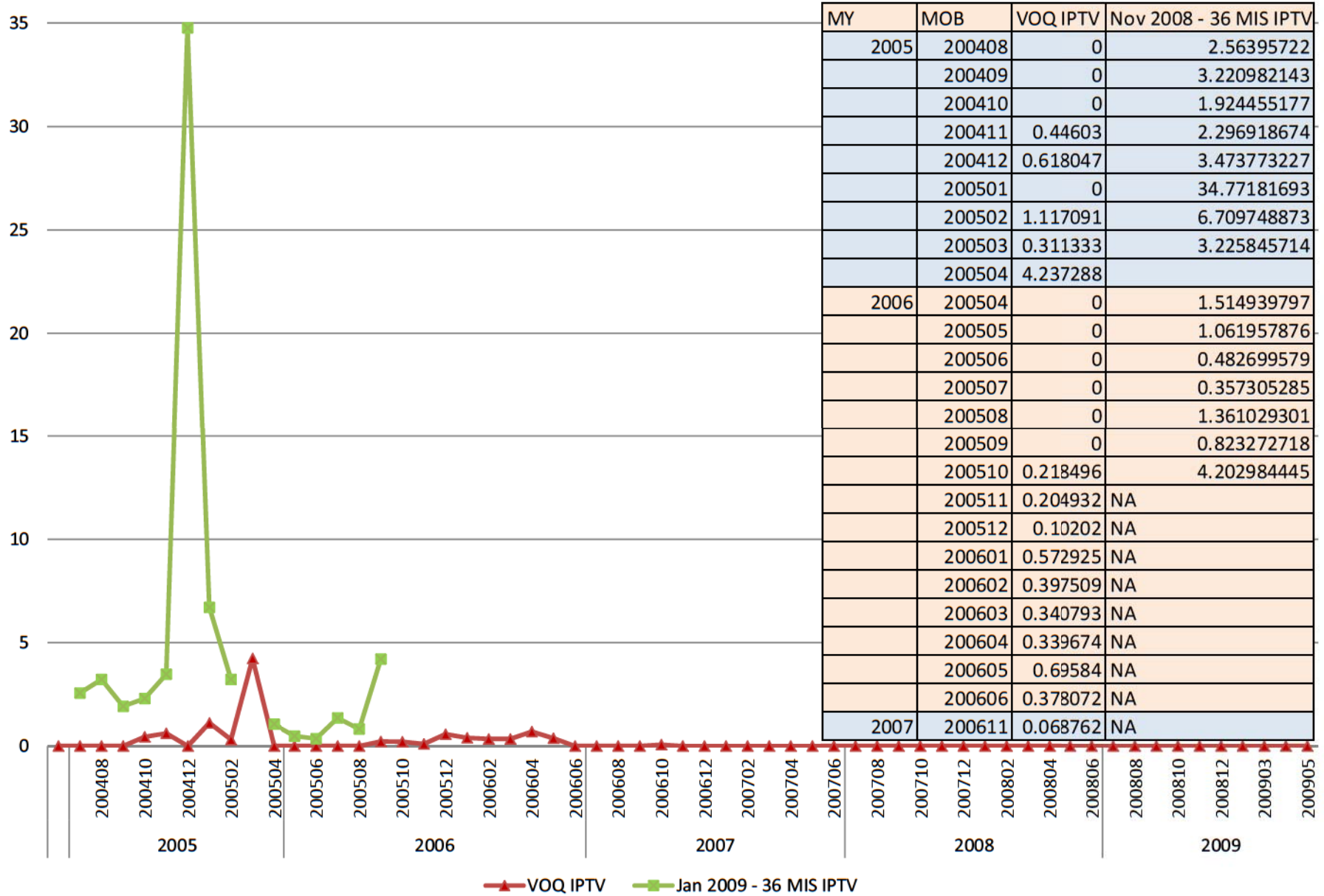
Filter 1 includes CC = 08 & WB, H2642 & H2643 with 9 TCs & 4 CCs, & Verbatim.
Filter 2 excludes N9595 TSB claims from Filter 1.
Filter 3 excludes warranty claims processes after 10/13/08 (last warranty pull date) from Filter 2.



2005-2009MY Pontiac G6 Stop Lamp
 2009 and 2012 Warranty Pull and VOQ for MOB vs. IPTV



2012 VOQ and Nov 08 Warranty IPTV @ 36MIS Trend line



2012CY Update of G6 Stop Lamp Warranty Claims

2012CY Warranty Methodology

Started with 27,821

11,852 had correction-verbatim (42.6%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 10,316 (37.1) | 363 (20.7) |
| H2642 Sensor, Brake Pedal | 4,643 (16.7) | 1,203 (68.6) |
| H2643 Sensor, Brake & Accel | 420 (1.5) | 144 (8.2) |
| H2640 Pedal / Bushing | 418(1.5) | 7 (0.4) |
| H9991 Cust Concern NTF | 8,531(30.7) | 36 (2.1) |
| N9595 TSB | 3,493 (12.6) | 0 |
| Total | 27,821 | 1,753 (6.3) |

2012CY Warranty Methodology

27,821 including 243 same day repair duplicates

- A. All claims with labor code N9595 were determined to be responsive to the alleged condition.
- B. All claims with customer codes 08 (Operation: Won't Turn Off) and WB (Warning Lights-Brake Lights) were determined to be responsive to the alleged condition unless the verbatim text indicated that the claim was unrelated.
- C. Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 2.7 and customer codes in Table 2.8 were determined to be responsive unless the verbatim indicated that the claim was unrelated to the alleged condition.
- D. The verbatim of the remaining claims were then read and a claim was determined to be responsive if the verbatim related to loss/malfunction of the brake/stop lamps.
- E. The vehicle claims processed after 10/13/08 are excluded to compare with the original data.
- F. All claims for vehicles covered by General Motors recall 08317 were excluded.

3,490

20,167

2,168

1,753

6/25/12 Status Affected: 8,012 Completed: 5,707 % Completion: 71.2%

2009CY Update Methodology

Started with 8,978

2,362 had verbatim (26.3%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 6,758 (75.3) | 274 (17.5) |
| H2642 Sensor, Brake Pedal | 1,984 (22.1) | 1,157 (74) |
| H2643 Sonsor, Brake & Accel | 227 (2.5) | 125 (8) |
| H2640 Pedal / Bushing | 6 (0) | 6 (0.4) |
| H9991 Cust Concern NTF | 3 (0) | 3 (0.2) |
| Total | 8,978 | 1,565 (17.4) |

2009CY Update Methodology

For the subject vehicles, the regular warranty, goodwill warranty, and MIC service contract claims with stop lamp malfunction are summarized by model and model year in Table 5-1. For the subject vehicles the UWC service contract claims with indication of stop lamp malfunction are summarized by model and model year in Table 5-2. A summary of the warranty claims, including the information requested in 5(a-k), is provided on the ATT_1_GM disk; folder labeled "Q_05:" refer to the Microsoft Access 2000 file labeled "Q_05_WARRANTY DATA." A list of the labor codes, customer complaint codes and trouble codes used to collect the warranty data is provided in response to item No. 6.

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|---------|---------|---------|---------|-------|
| Pontiac G6 | Regular | 579 | 754 | 232 | 1,565 |
| Pontiac G6 | MIC | 43 | 25 | 2 | 70 |

TABLE 5-1: REGULAR WARRANTY AND MIC SERVICE CONTRACT CLAIMS WITH STOP LAMP MALFUNCTION

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|------|---------|---------|---------|-------|
| Pontiac G6 | UWC | 0 | 3 | 0 | 3 |

TABLE 5-2: UWC SERVICE CONTRACT CLAIMS

| SOURCE SYSTEM | LAST DATE GATHERED |
|-------------------------------|--------------------|
| GART - regular warranty | 13 Oct 08 |
| MIC - service contract claims | 14 Oct 08 |
| UWC - service contract claims | 23 Sept 08 |

TABLE 5-3: DATES PULLED

2009CY Update Methodology

8,969

The GM Global Analysis and Reporting Tool (GART-regular warranty) regular warranty database and the Motors Insurance Corp (MIC) service contract claims database were searched using the labor codes that may be related to the alleged defect, listed in Table 6-1. Universal Warranty Corporation (UWC) does not use labor codes or trouble codes.

The following process was used to sort these claims:

- 544 • All claims with customer codes shown in Table 6-2 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 6,800 • Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 6-3 and customer codes in Table 6-4 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 60 • The verbatims of the remaining claims were then read and the claim was determined to be responsive if the verbatim related to the alleged defect.

1,565

2009CY Update Methodology

| LABOR CODE | DESCRIPTION: |
|------------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp - Adjust |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

TABLE 6-1 LABOR CODES USED IN WARRANTY AND MIC SEARCH

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-----------------------------|
| O8 | OPERATION: WON'T TURN OFF |
| WB | WARNING LIGHTS: BRAKE LIGHT |

TABLE 6-2 CUSTOMER CODES USED IN WARRANTY AND MIC SORTING

| TROUBLE CODE | DESCRIPTION: |
|--------------|-------------------------------|
| 1D | BROKEN |
| 6C | COMPONENT-INOPERATIVE |
| 6D | COMPONENT -INTERMITTENT |
| 6F | COMPONENT -OPEN |
| 3A | MISADJUSTED |
| 9Z | NO TROUBLE FOUND |
| 3L | OUT OF CALIBRATION |
| 3X | REGISTERS INCORRECTLY |
| 6N | CONNECTOR - PARTIAL CONNECTED |

TABLE 6-3 TROUBLE CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-------------------------------------|
| OG | OPERATION: EXCESS EFF (EXCESS PLAY) |
| OJ | OPERATION: INOPERATIVE (HARSH) |
| OF | OPERATION: ENGAGE/DIS(EXCESS EFF) |
| O7 | OPERATION: NO MAINTAIN ADJ |

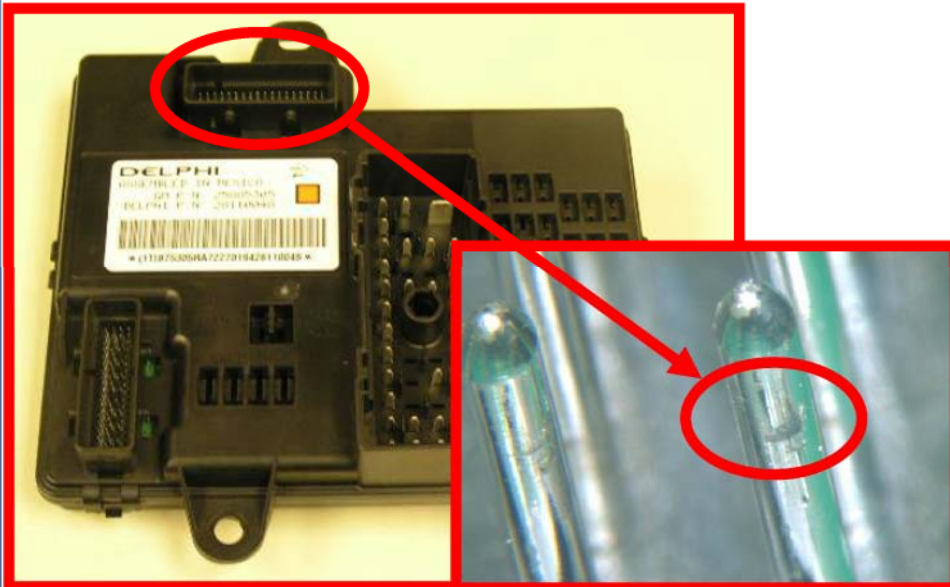
TABLE 6-4 CUSTOMER CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

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Rationale for 2009 Decision

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.

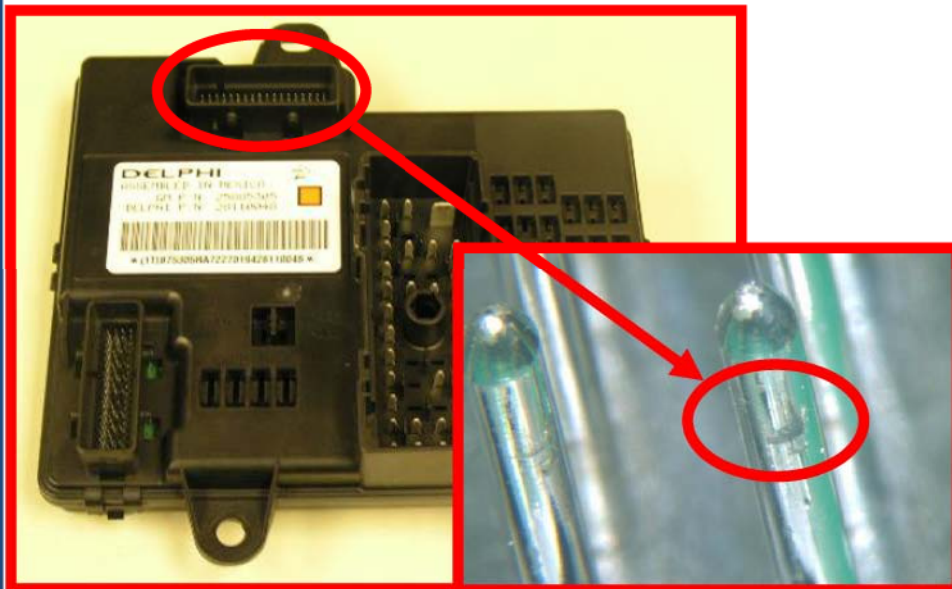


Model Years
2005 - 2006

Models
Pontiac G6

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



Model Years
2005 - 2006

Models
Pontiac G6

Field Action Category
TBD

Population Affected
9,423

Estimated Cost \$113,249

Scope

2005 – 2006 Pontiac G6

| My year | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

Immediate Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Projected Frequency

2005 MY 36 MIS Overall = 8.0 IPTV

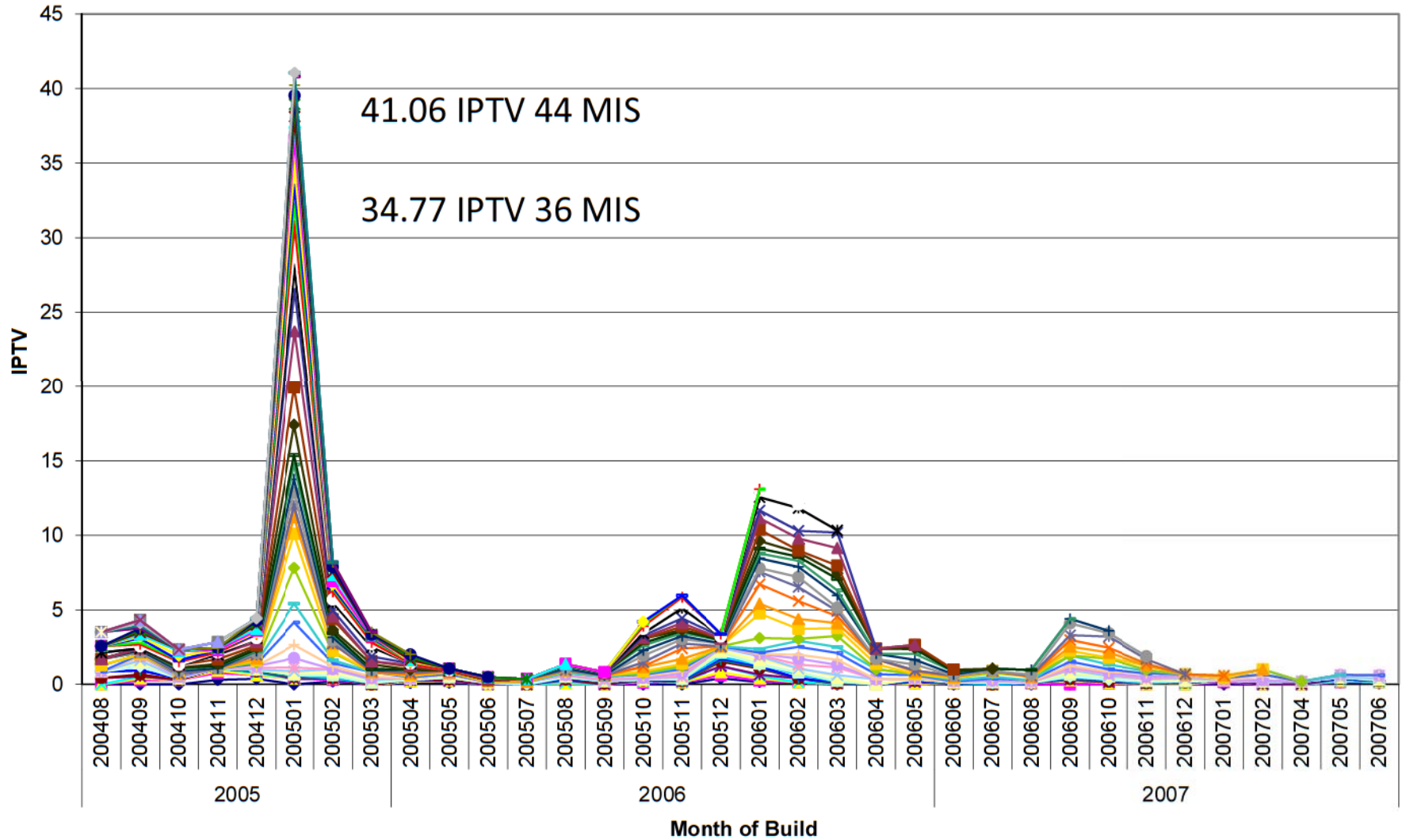
2006 MY 36 MIS Overall = 4.6 IPTV

Build of Month January 2005 36 MIS = 34.77 IPTV

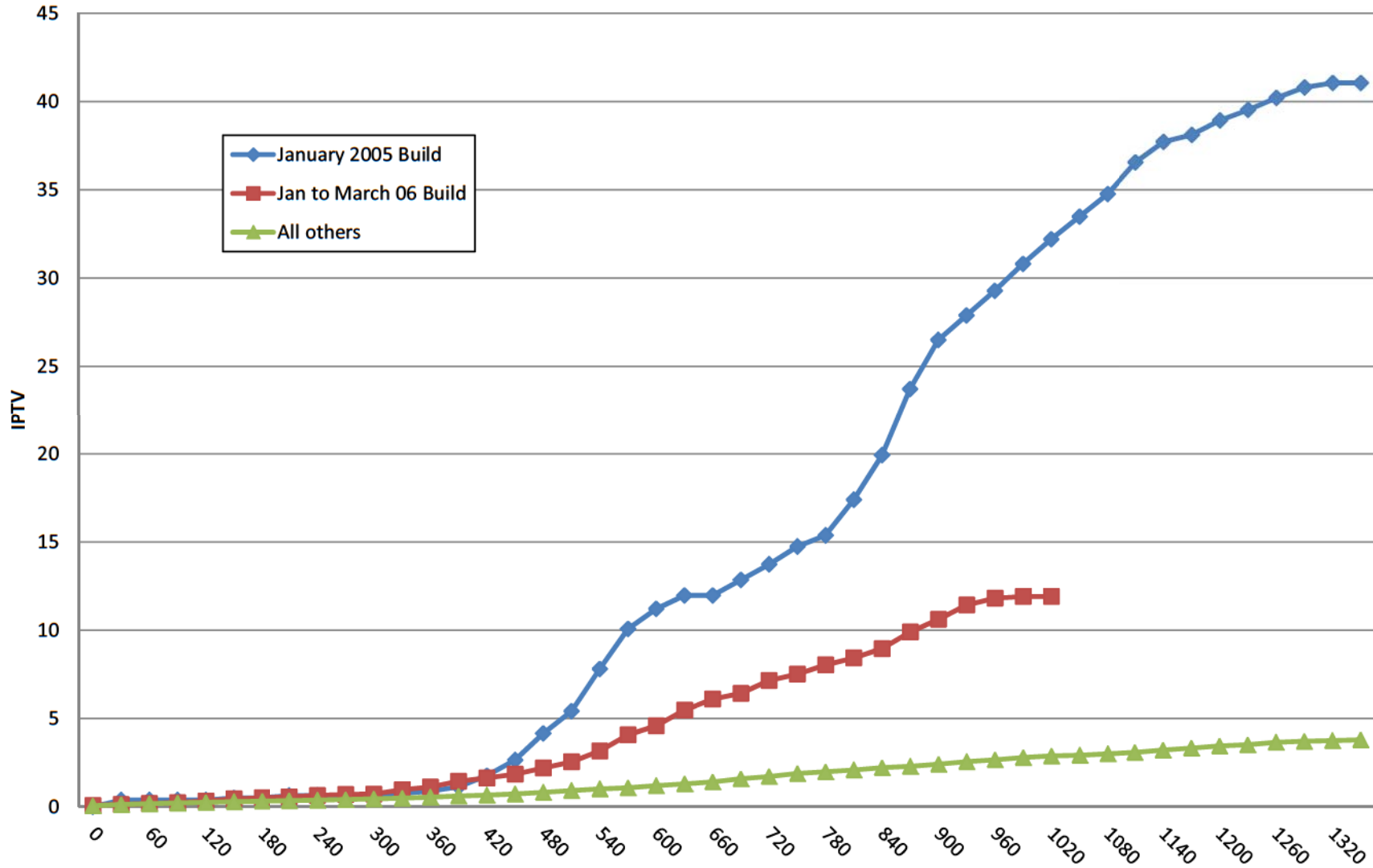
Build of Month January 2005 44 MIS = 41.06 IPTV

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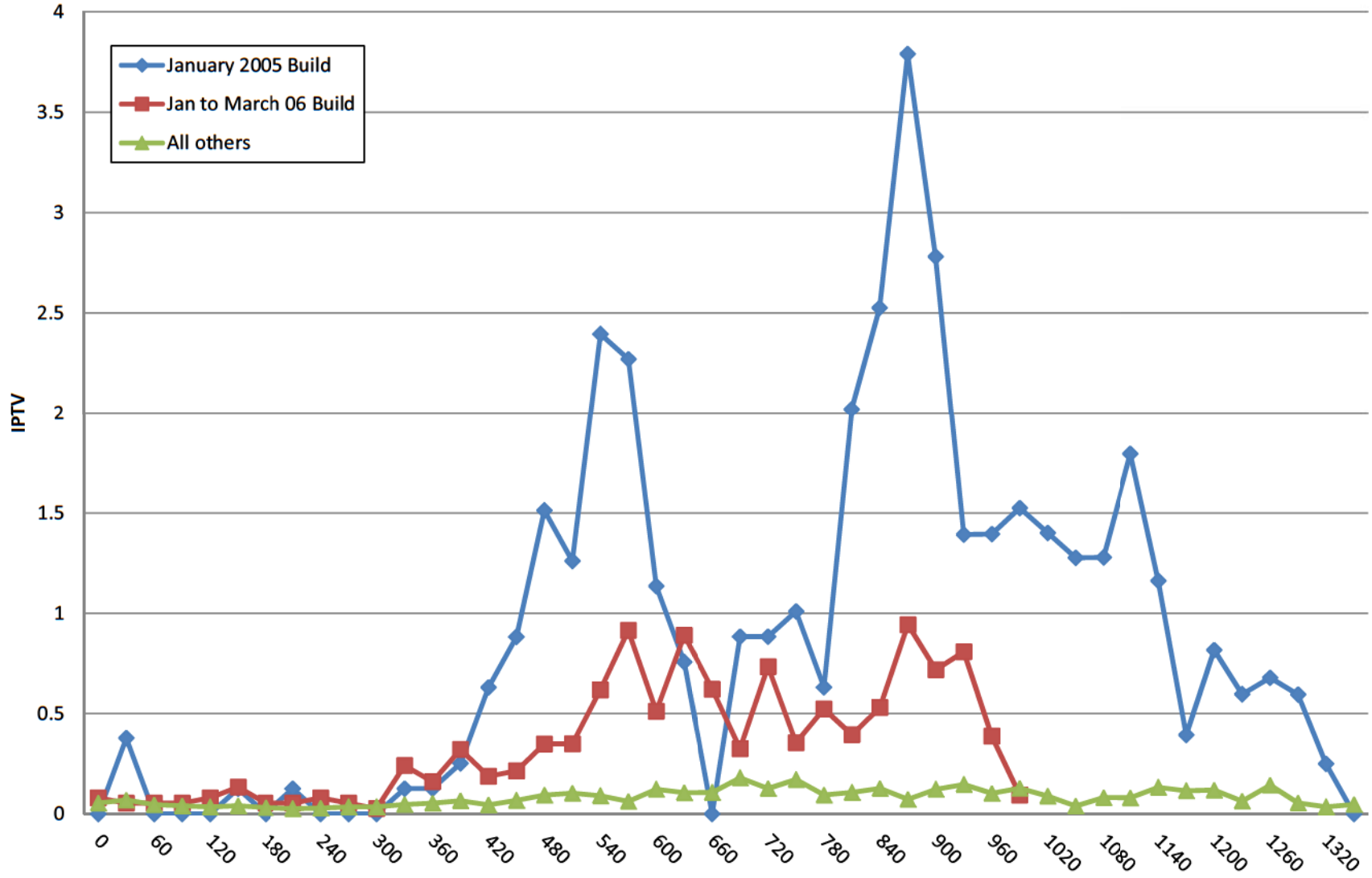
2005 - 2007 G6 Intermittent Stop Lamp Warranty



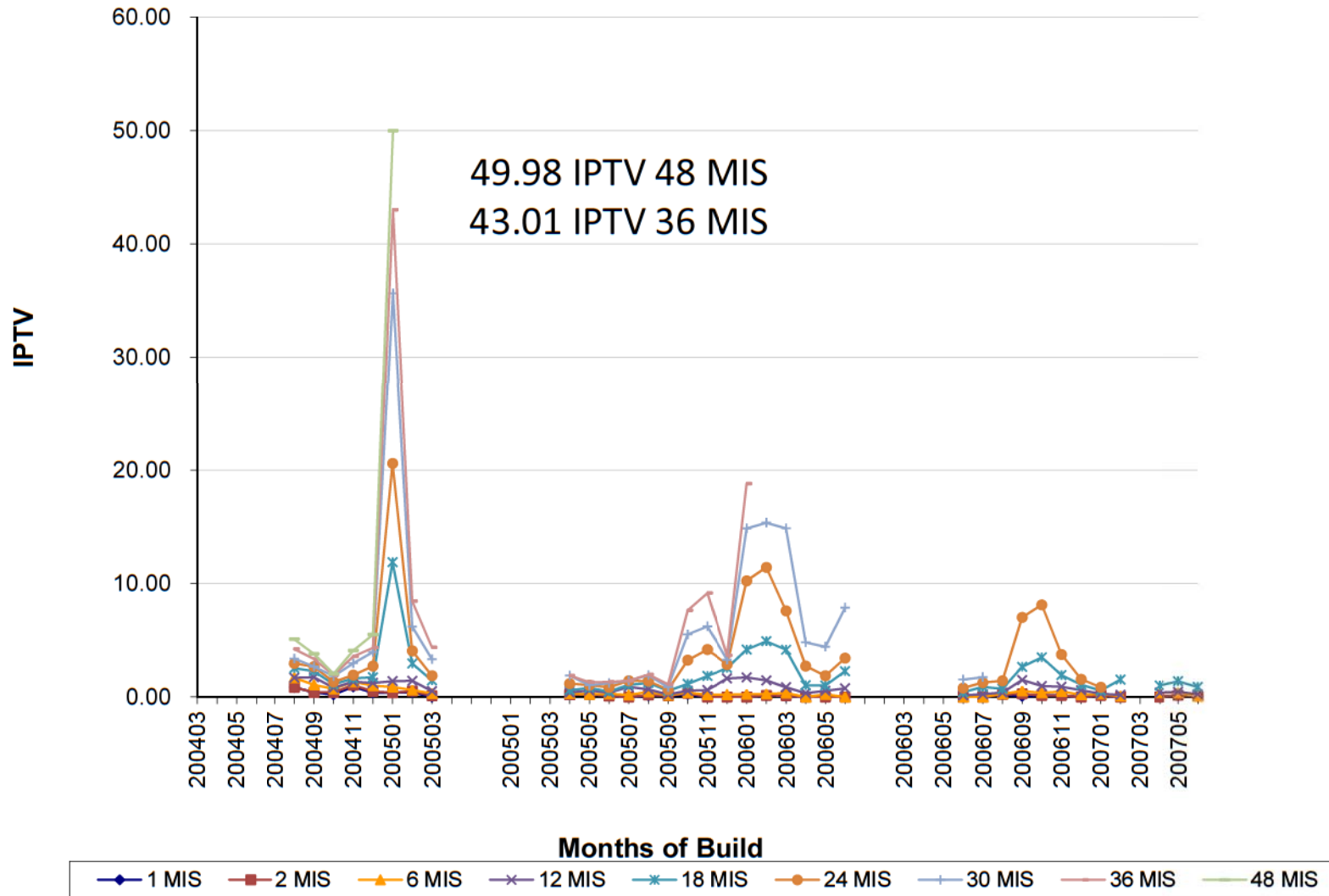
G6 Stop Lamp Warranty - Comparison of Select Months of Build



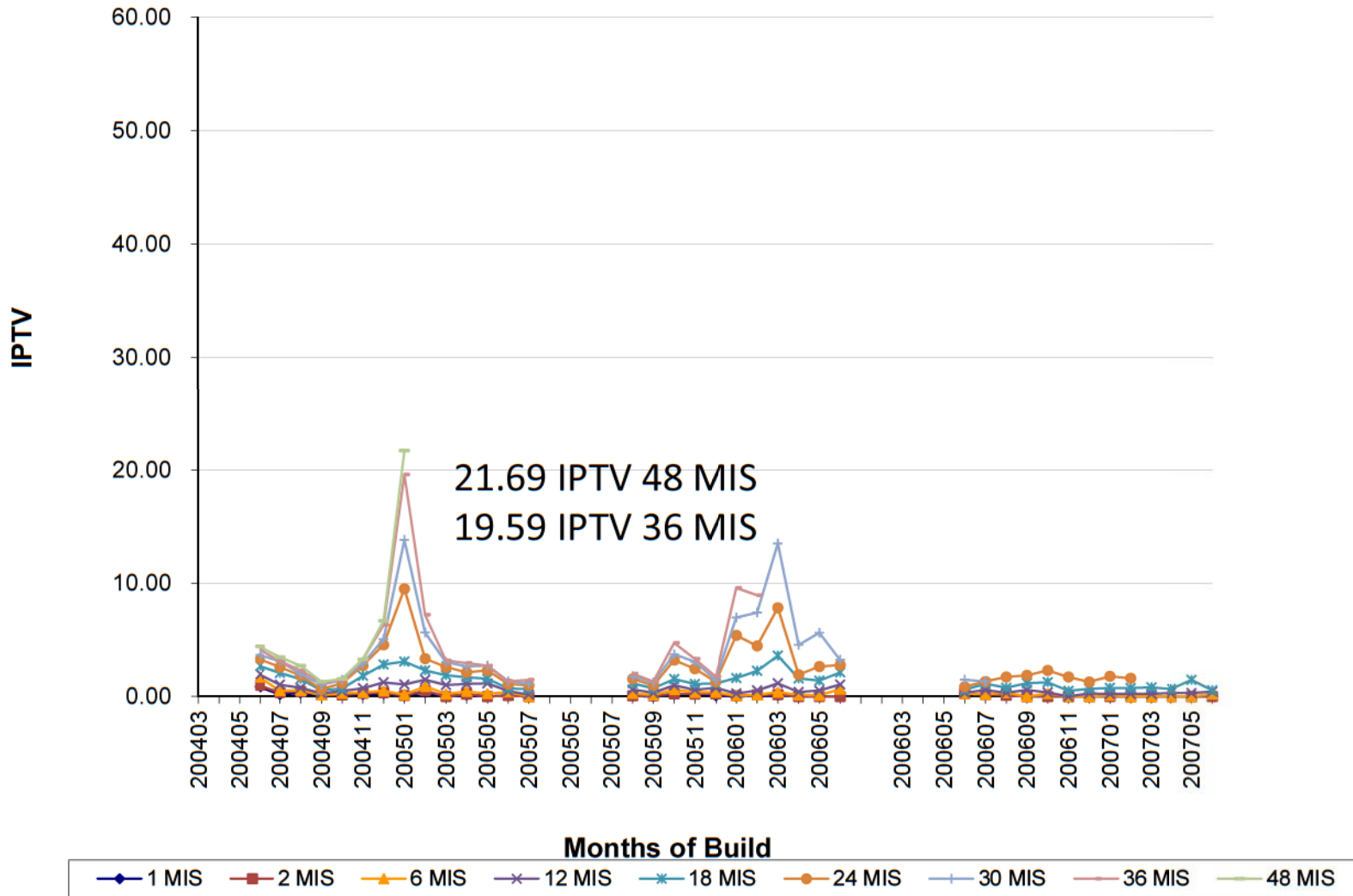
05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Production Improvement

Dielectric lubricant is applied by Cockpit supplier Inteva for G6 as of 11/18/2008.

The lubricant will be applied in the Delphi harness assembly plant in August 2009.

Potential Field Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Systematic Root Causes

Legacy connector system design with low terminal retention force and non-robust contact design.

Preventive Actions

All new module designs must use approved connector designs that pass the latest GMW specification requirements.











The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|----------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Cobalt, Corvette | |
| 2006MY | HHR, Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu | |

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Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

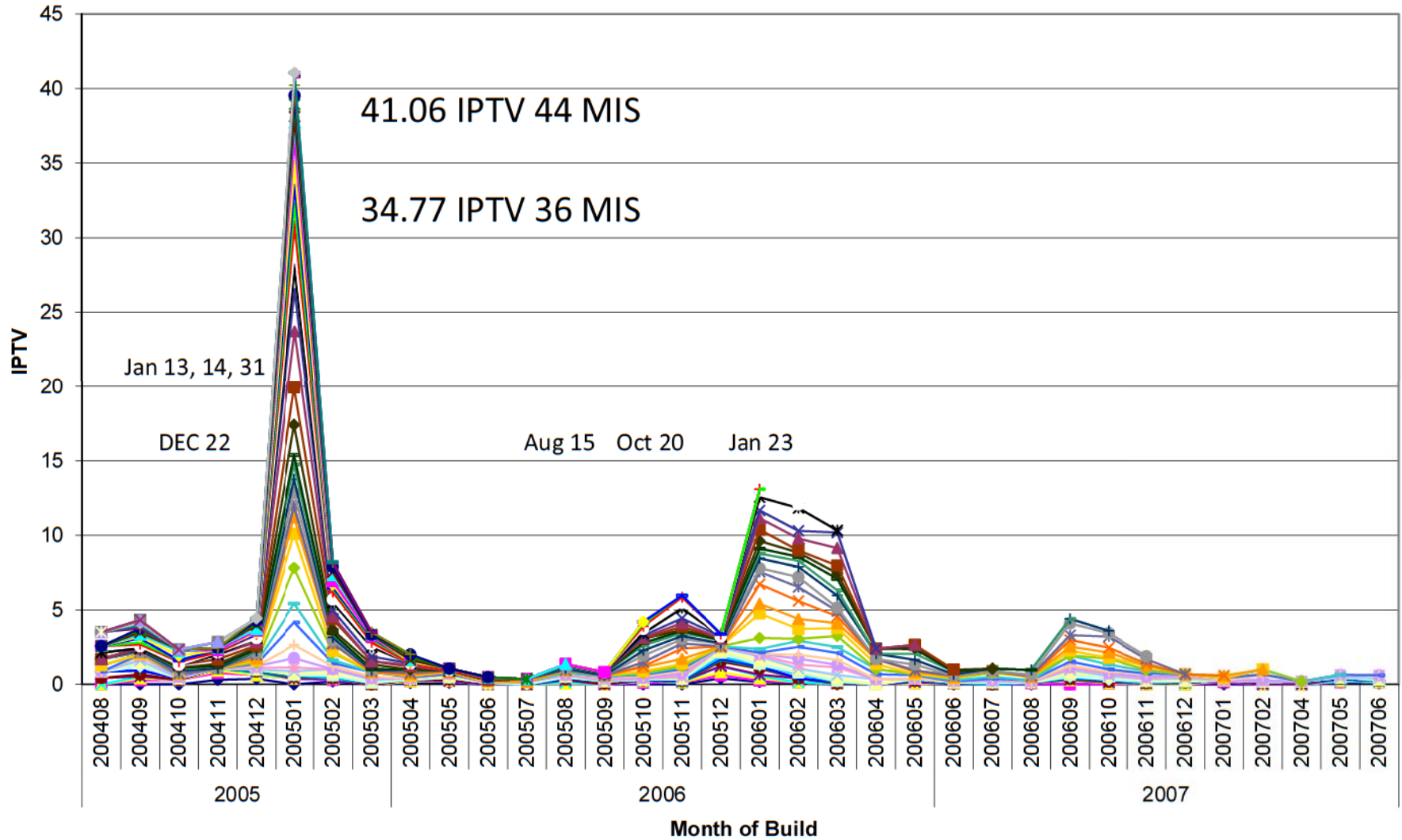
Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)



Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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2005 - 2007 G6 Intermittent Stop Lamp Warranty



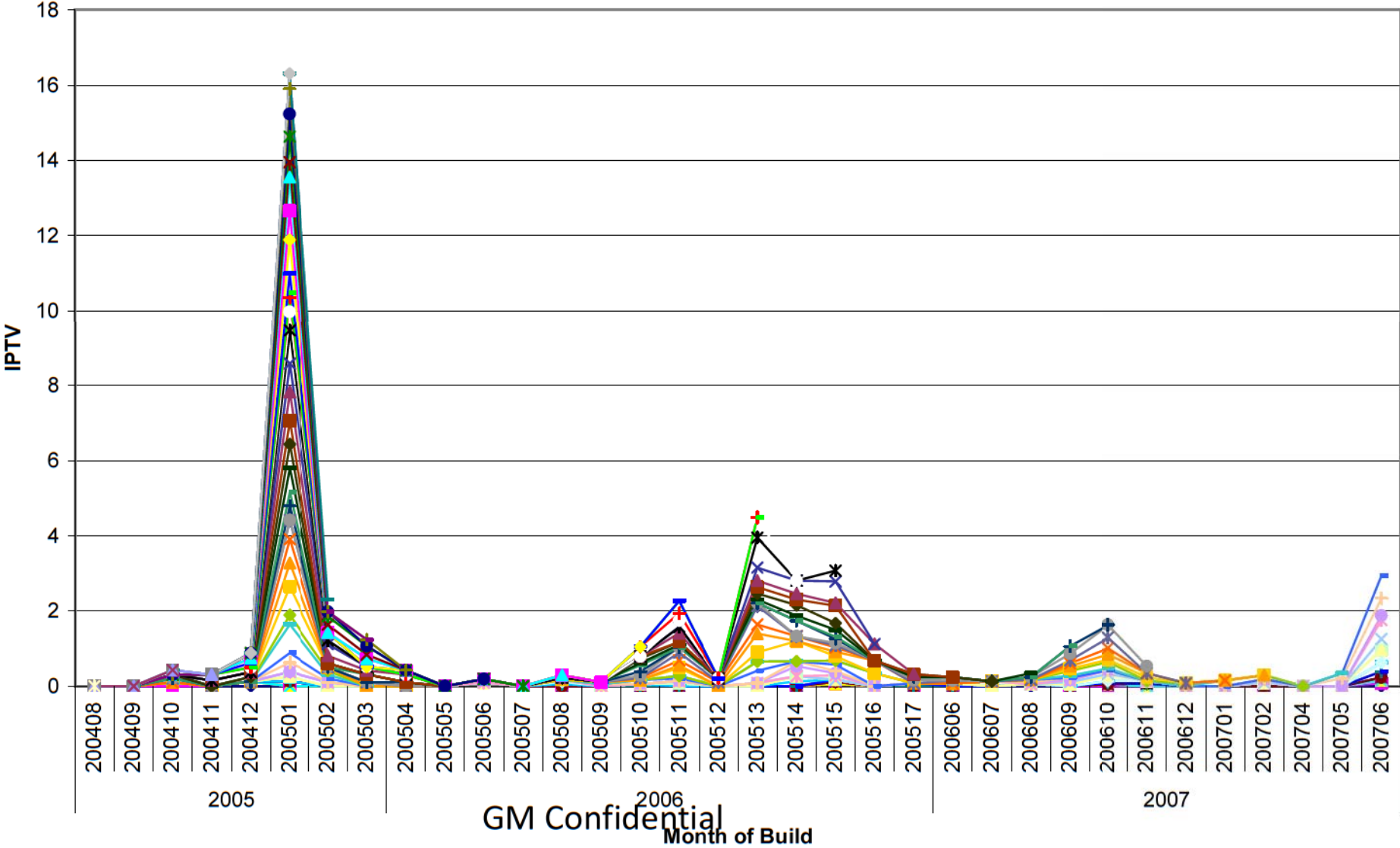
9 VOQs 2005MY: 4

2006MY: 4
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2007MY: 1

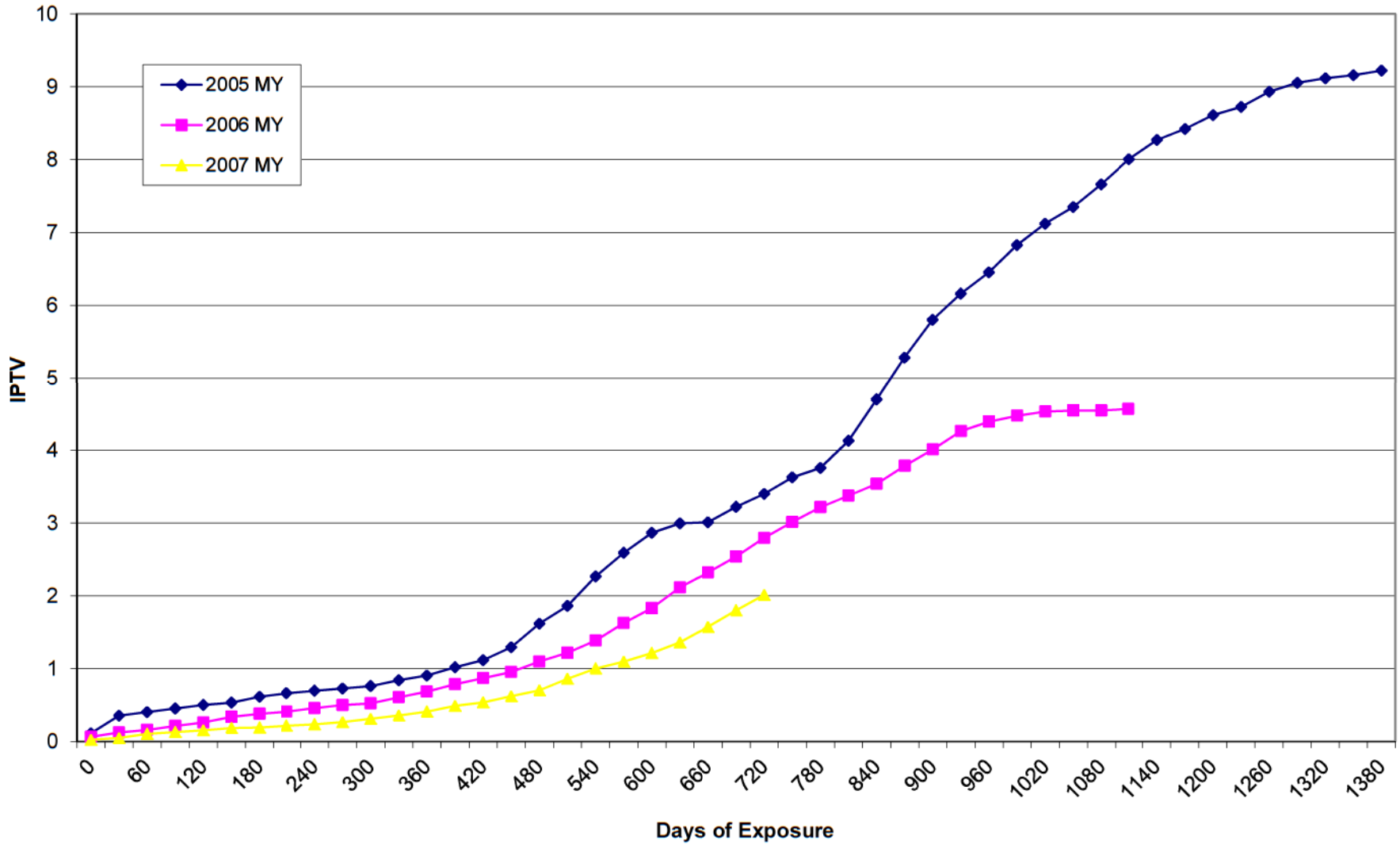
2005 - 2007 G6 BASS – TAC and CAC only

2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only

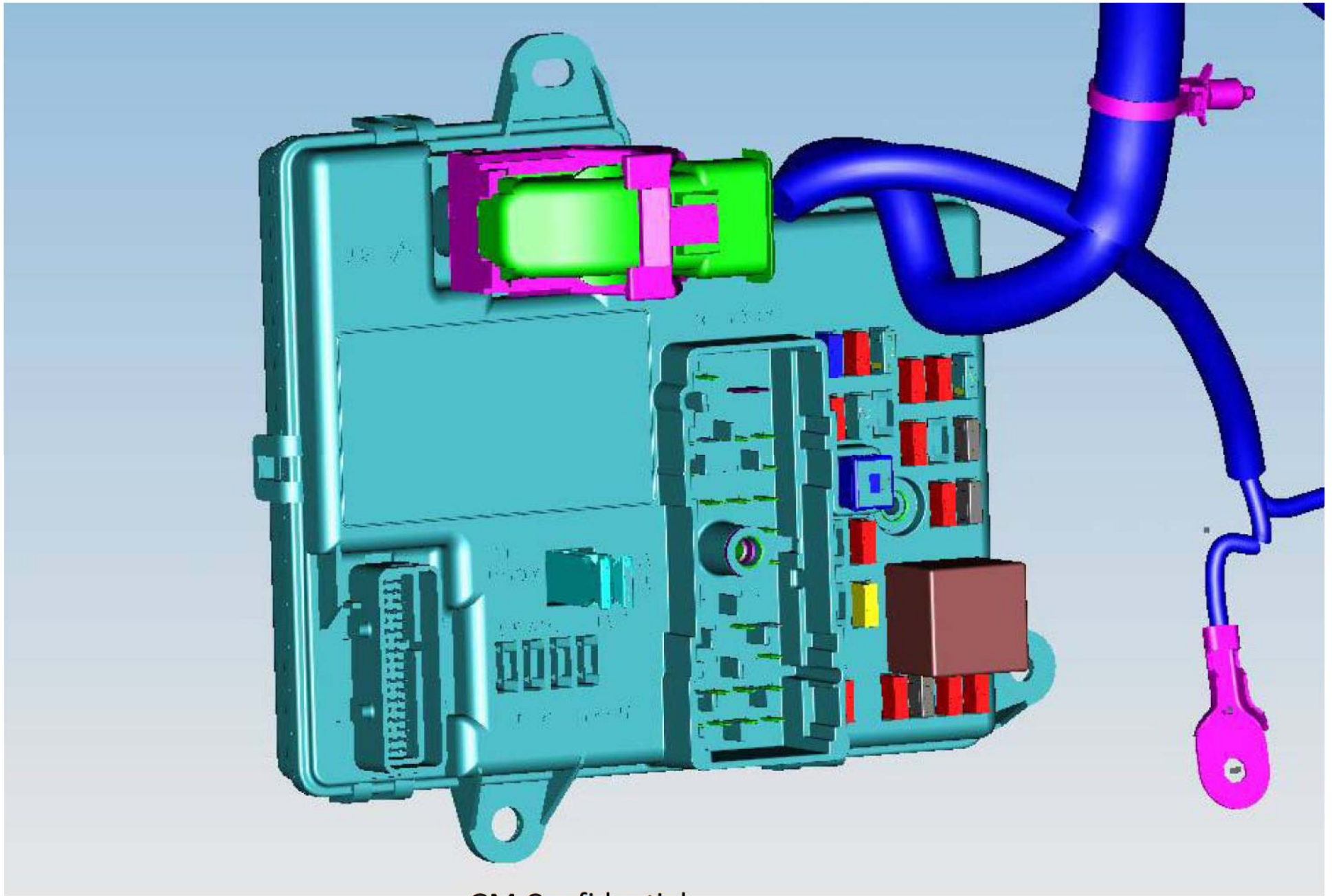


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2005 - 2007 G6 Intermittent Stop Lamp Warranty



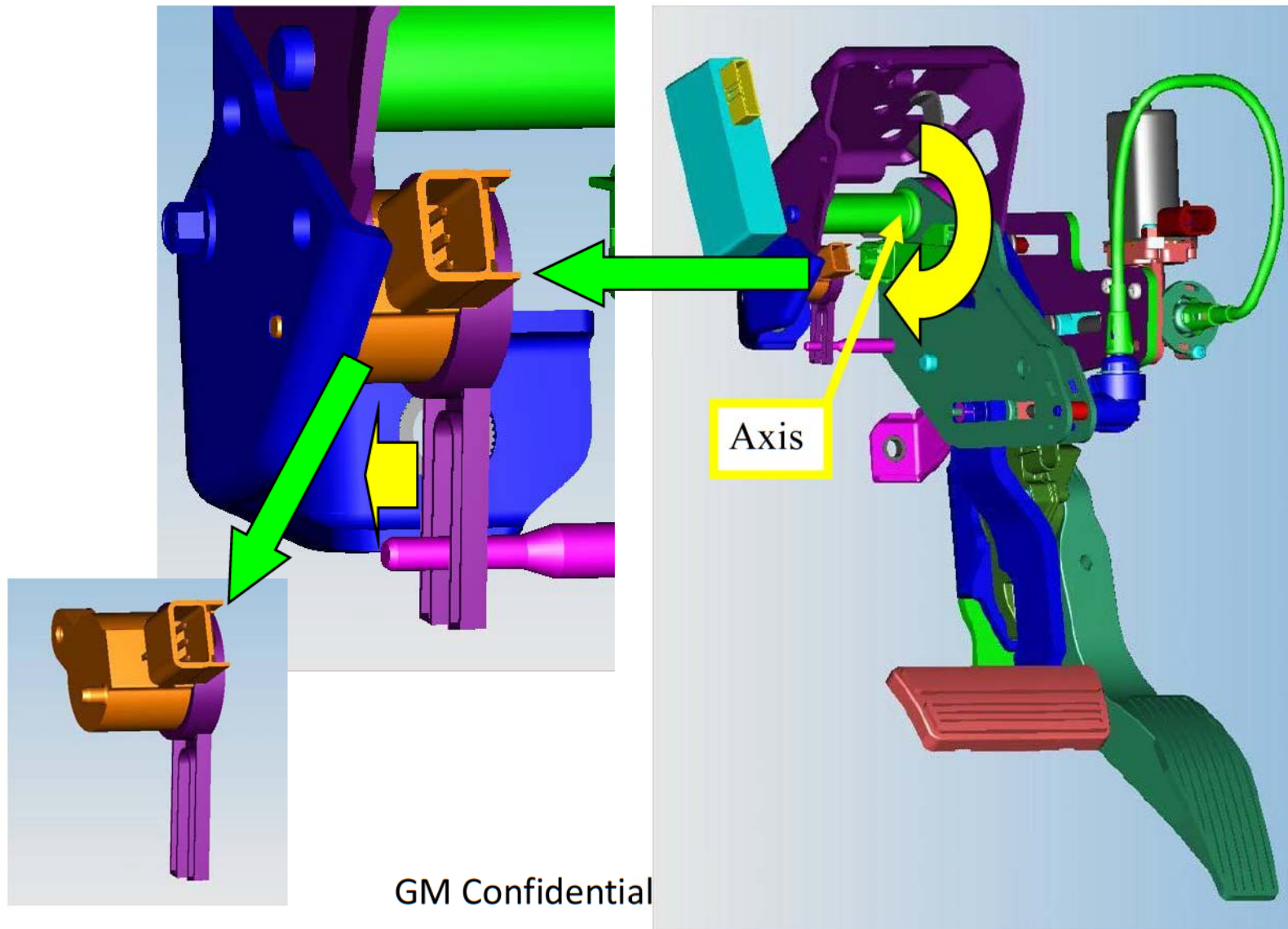
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2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



Intermittently Brake Lamps Do Not Function Correctly



2005-2009MY Pontiac G6

Est. Population: 620,000 (27MAY04 – 23DEC08 wo Campaign pop)

Est. Cost: \$TBD

Condition: Fretting corrosion in the Body Control Module connector (C2 or X2) causes an increase in resistance that results in a reduction of Brake Apply Sensing (BAS) signal voltage to the BCM. Brake pedal status information affects the operation of brake lamps, cruise control, brake shifter interlock, and stability control systems.

Effect of the Condition: This results in erratic brake pedal status information. A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.



Potential Field Action Category: TBD

Discovery On September 15, 2008, NHTSA ODI opened PE investigation with 9 VOQs. On January 28, 2009, GM notified NHTSA that GM is conducting safety campaign for 8,012 vehicles built in January 2005 for 2005MY and 2006MY.

Intermittently Brake Lamps Do Not Function Correctly

Potential Field Remedy: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).

Frequency:

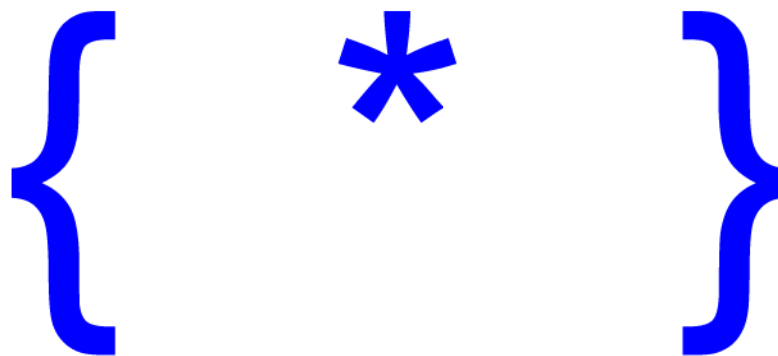
Month of Build January 2005 36 MIS = 34.8 IPTV Campaigned.

Other Months of Build for the subject population at 36 MIS = 5- 24 IPTV

See updated IPTV vs. MOB graph for non-campaigned vehicles.

Immediate Improvement /Containment

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

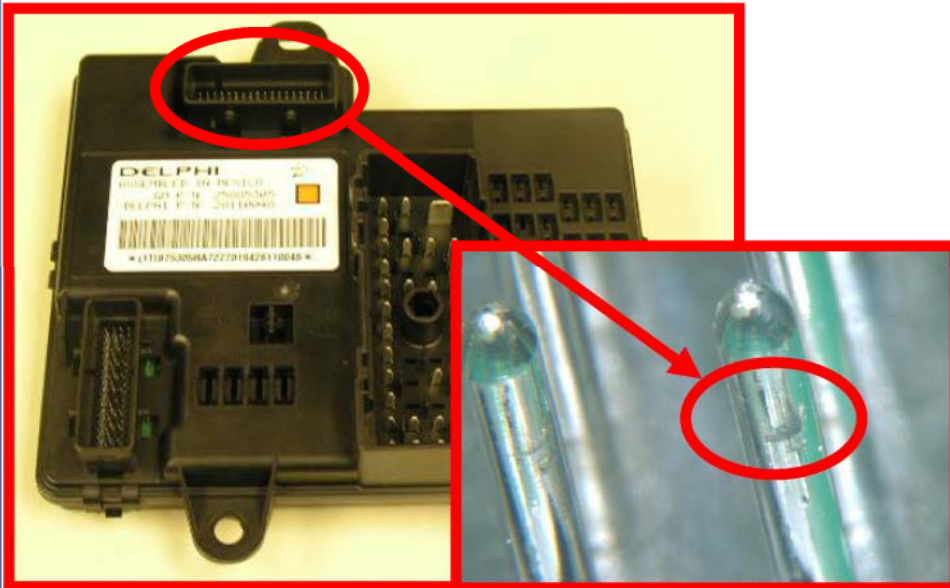


Responsibility

GM and Delphi Engineering

Intermittently Brake Lamps Do Not Function Correctly

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.

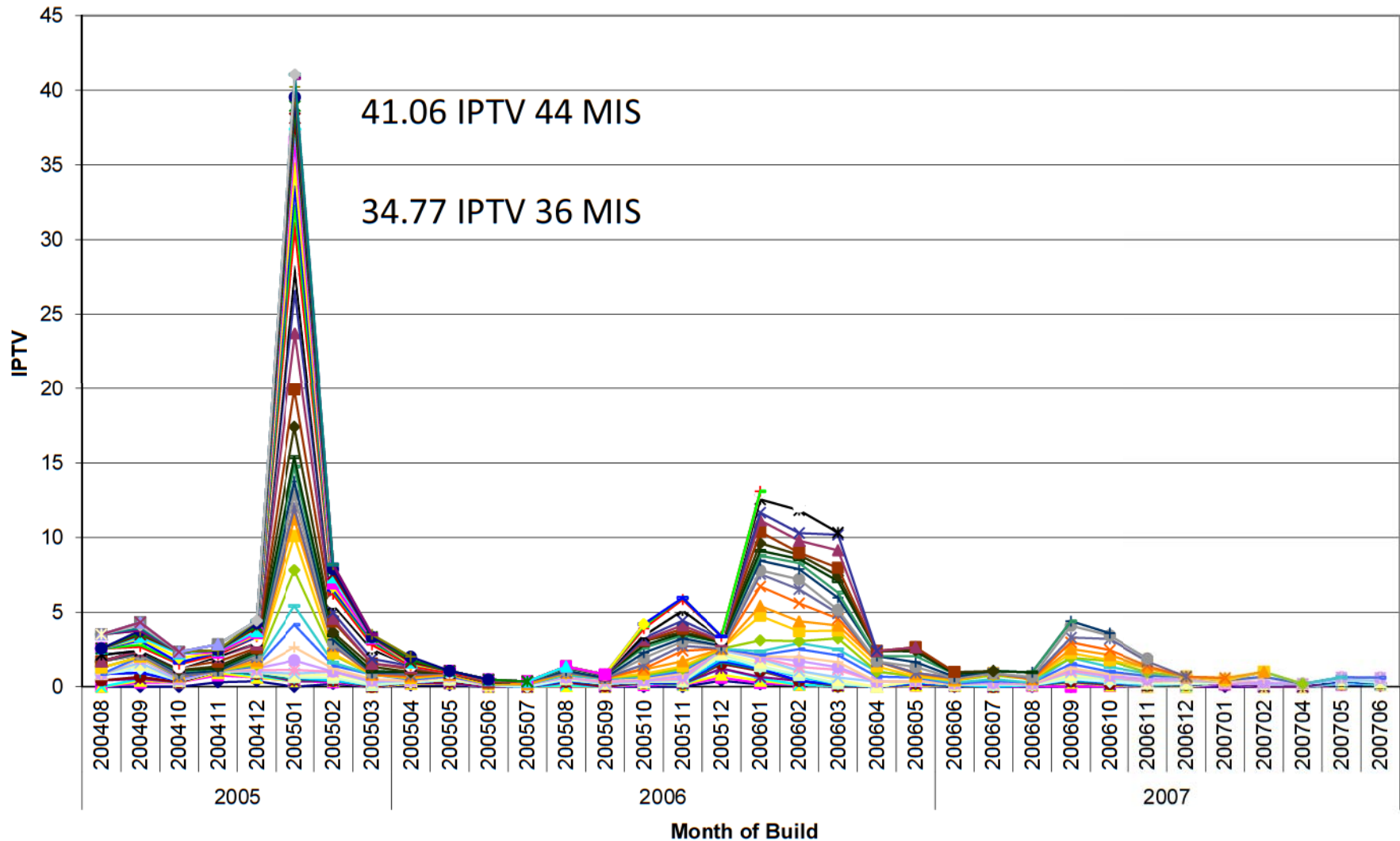


Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



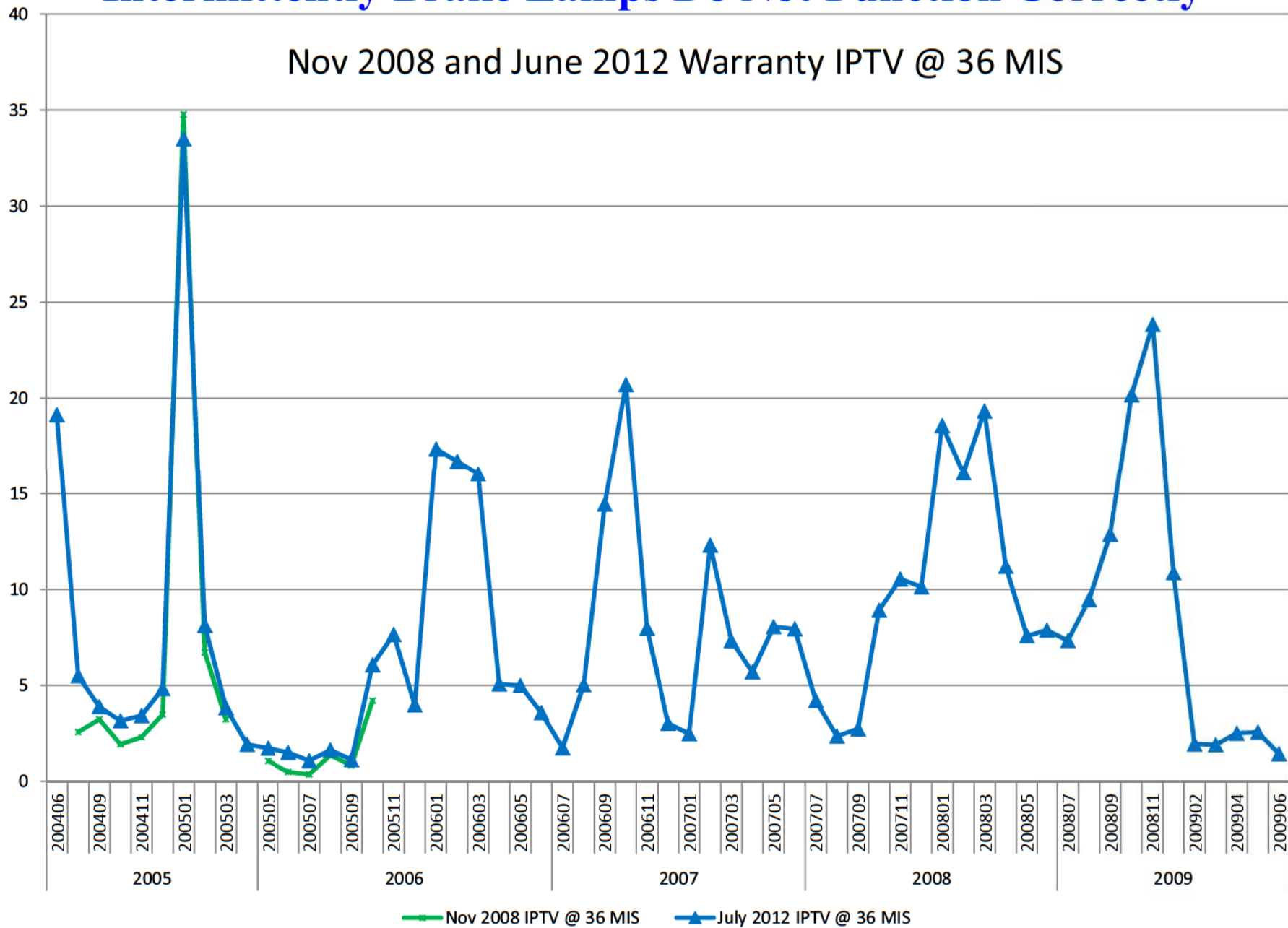
Intermittently Brake Lamps Do Not Function Correctly

2005 – 2007MY G6 Intermittent Stop Lamp Warranty
This was reviewed in November 2008



Intermittently Brake Lamps Do Not Function Correctly

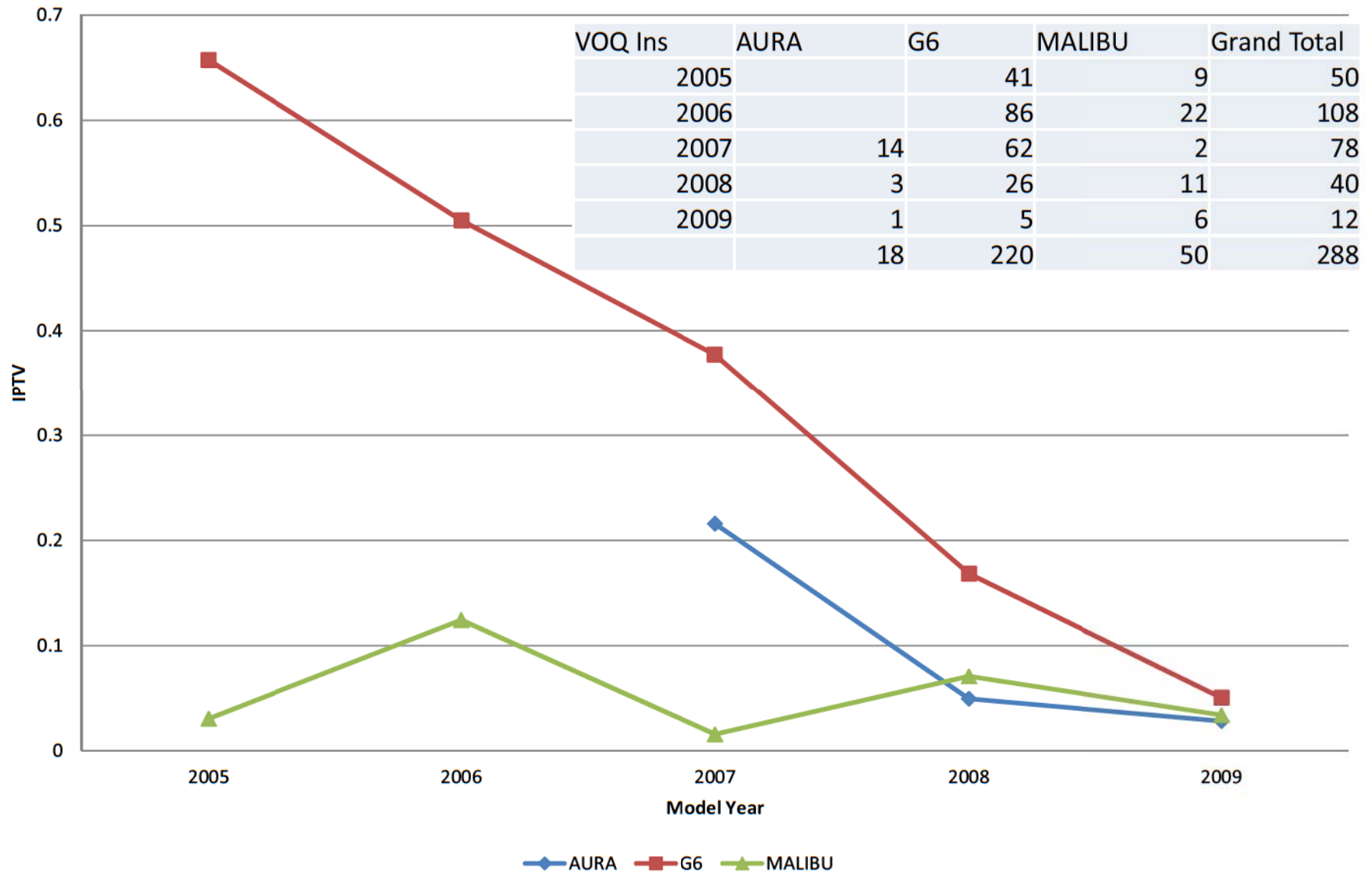
Nov 2008 and June 2012 Warranty IPTV @ 36 MIS



Intermittently Brake Lamps Do Not Function Correctly

2005-09MY G6, Mailbu and 2007-09MY Aura

Stop Lamp VOQ IPTV for US only

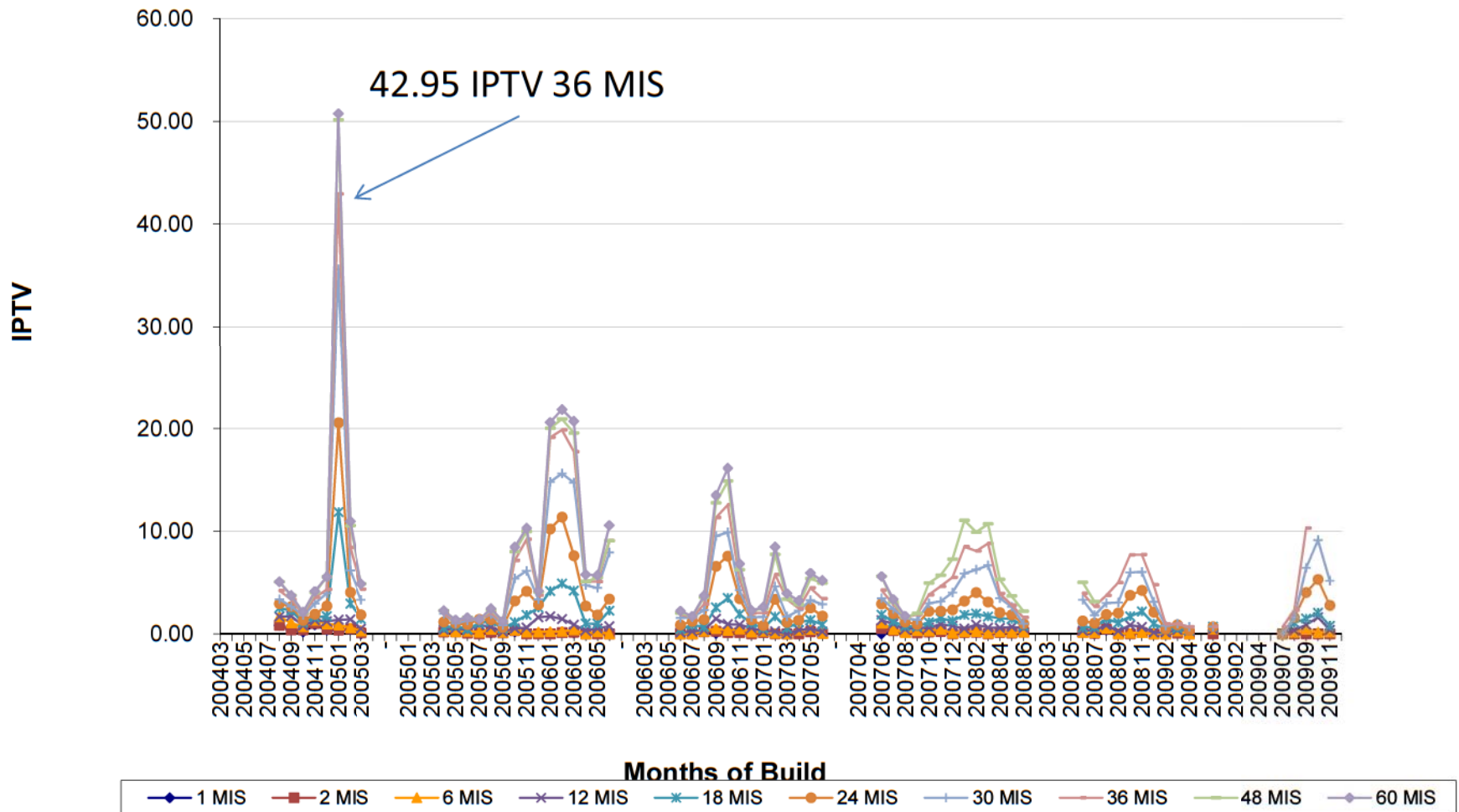


| VOQ Ins | AURA | G6 | MALIBU | Grand Total | |
|---------|------|----|--------|-------------|-----|
| 2005 | | | 41 | 9 | 50 |
| 2006 | | | 86 | 22 | 108 |
| 2007 | 14 | | 62 | 2 | 78 |
| 2008 | 3 | | 26 | 11 | 40 |
| 2009 | 1 | | 5 | 6 | 12 |
| | 18 | | 220 | 50 | 288 |

Intermittently Brake Lamps Do Not Function Correctly

2005-2009MY Pontiac G6 Stop Lamp

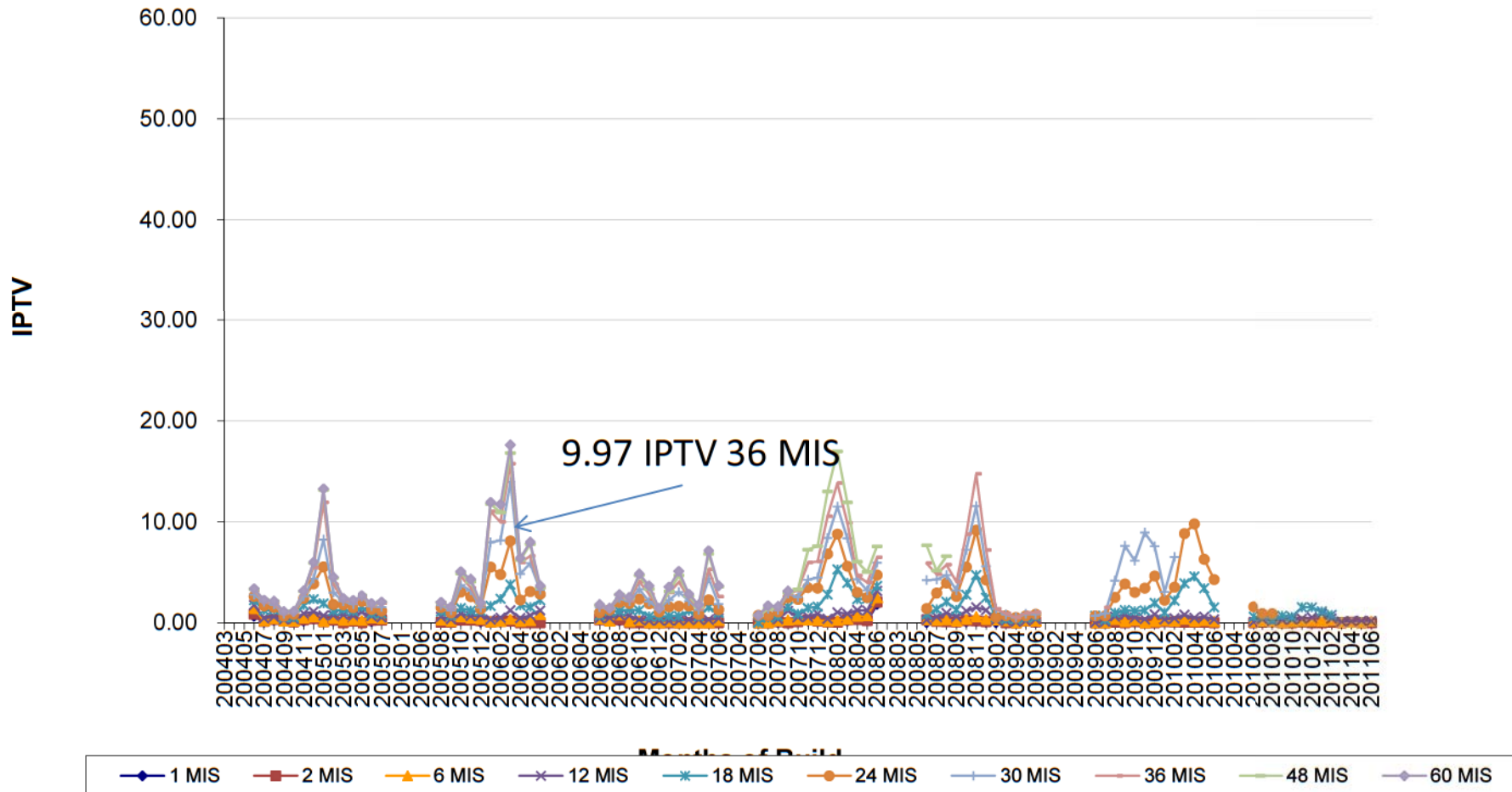
H2642 Brake Pedal Position Sensor Replacement Warranty IPTV in Month of Build



Intermittently Brake Lamps Do Not Function Correctly

2005-2011MY Chevrolet Malibu Stop Lamp

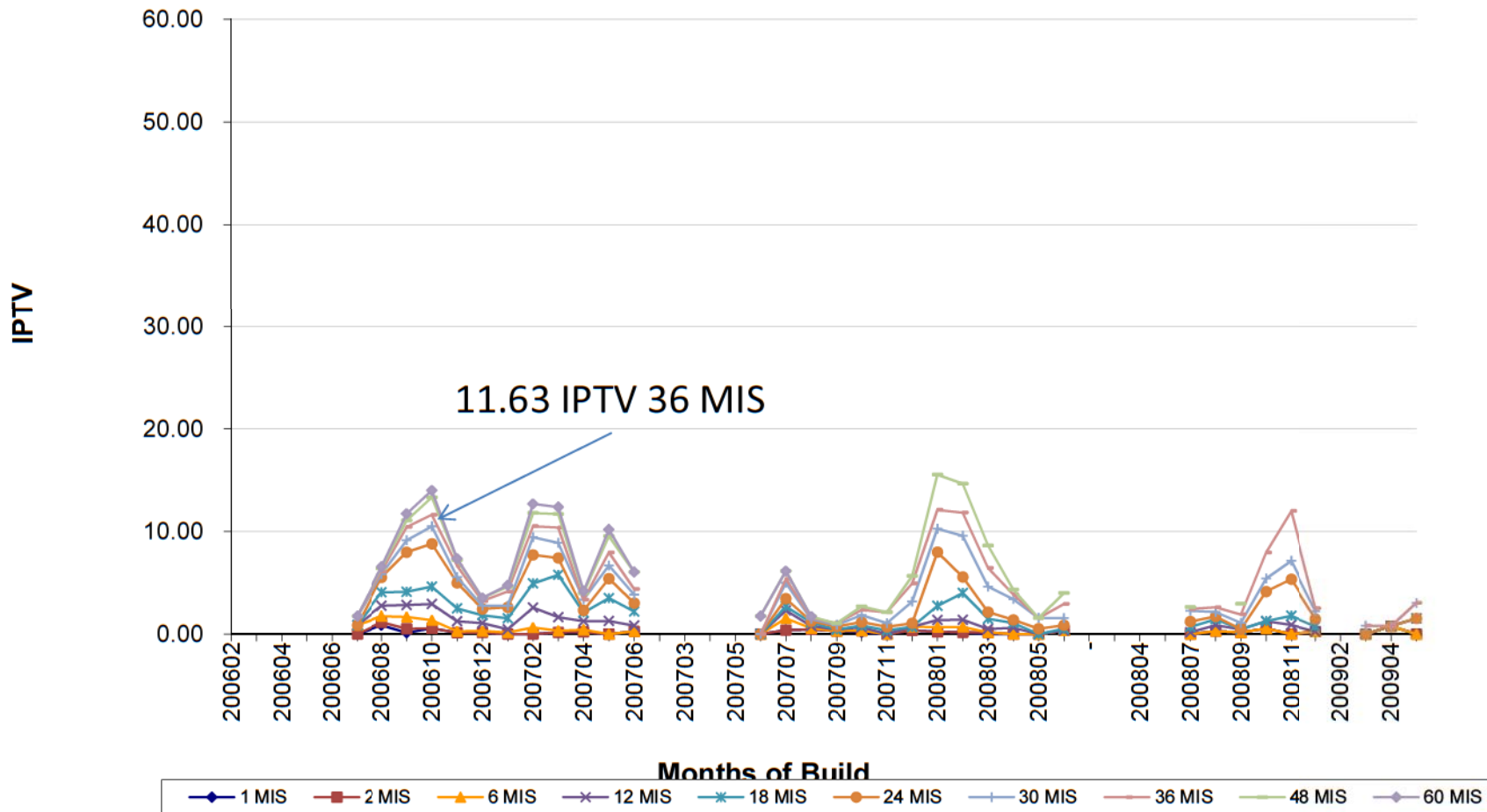
H2642 Brake Pedal Position Sensor Replacement Warranty IPTV in Month of Build



Intermittently Brake Lamps Do Not Function Correctly

2007-2009MY Saturn Aura Stop Lamp

H2642 Brake Pedal Position Sensor Replacement Warranty IPTV in Month of Build

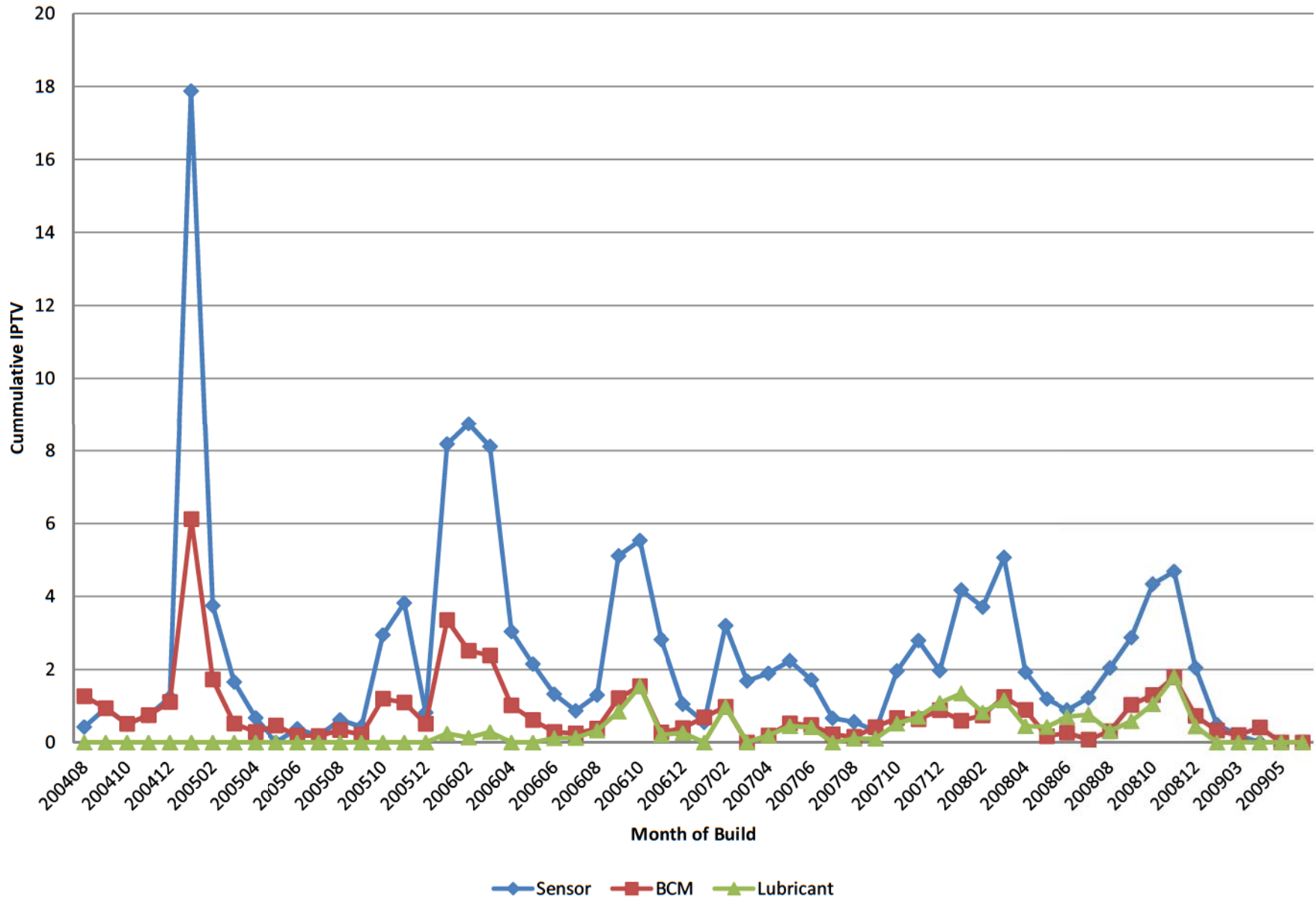


Back-up





G6 claims by part number in 36 MIS



Intermittently Brake Lamps Do Not Function Correctly Population

2005 – 2009MY Pontiac G6: 619,000

Excluding campaign population (Jan 2005) and vehicles built after February 2009 (grease applied).

| | |
|-------------|---------|
| 2005 | 54,443 |
| 2006 | 170,255 |
| 2007 | 164,260 |
| 2008 | 154,323 |
| 2009 | 75,484 |
| Grand Total | 618,765 |

2005 – 2009MY Epsilon: 1.7M

| Population | Aura | G6 | Malibu | Grand Total |
|------------|---------|---------|---------|-------------|
| 2005 | | 62,360 | 294,833 | 357,193 |
| 2006 | | 170,338 | 176,916 | 347,254 |
| 2007 | 64,847 | 164,260 | 127,660 | 356,767 |
| 2008 | 60,717 | 154,323 | 155,225 | 370,265 |
| 2009 | 35,472 | 99,216 | 176,689 | 311,377 |
| | 161,036 | 650,497 | 931,323 | 1,742,856 |

Intermittently Brake Lamps Do Not Function Correctly

Chronology

- 9/15/2008 NHTSA ODI opened PE investigation with 9 VOQs
- 11/12/2008 GM responded and stated it is continuing its investigation
- 1/28/2009 GM notified NHTSA that GM is conducting safety campaign for 8,012 vehicles built in January 2005 for 2005MY and 2006MY.
- 1/30/2009 NHTSA closed the investigation stating that ODI's review of complaint rate for the January 2005 built month is 20 times greater than the remainder of the subject vehicle population and warranty rate is 11 times greater than the remainder of the subject vehicle population.
- June 2012 NHTSA requested GM to provide 2005-09MY G6 Brake Lamp Malfunction, Outside Recall information.



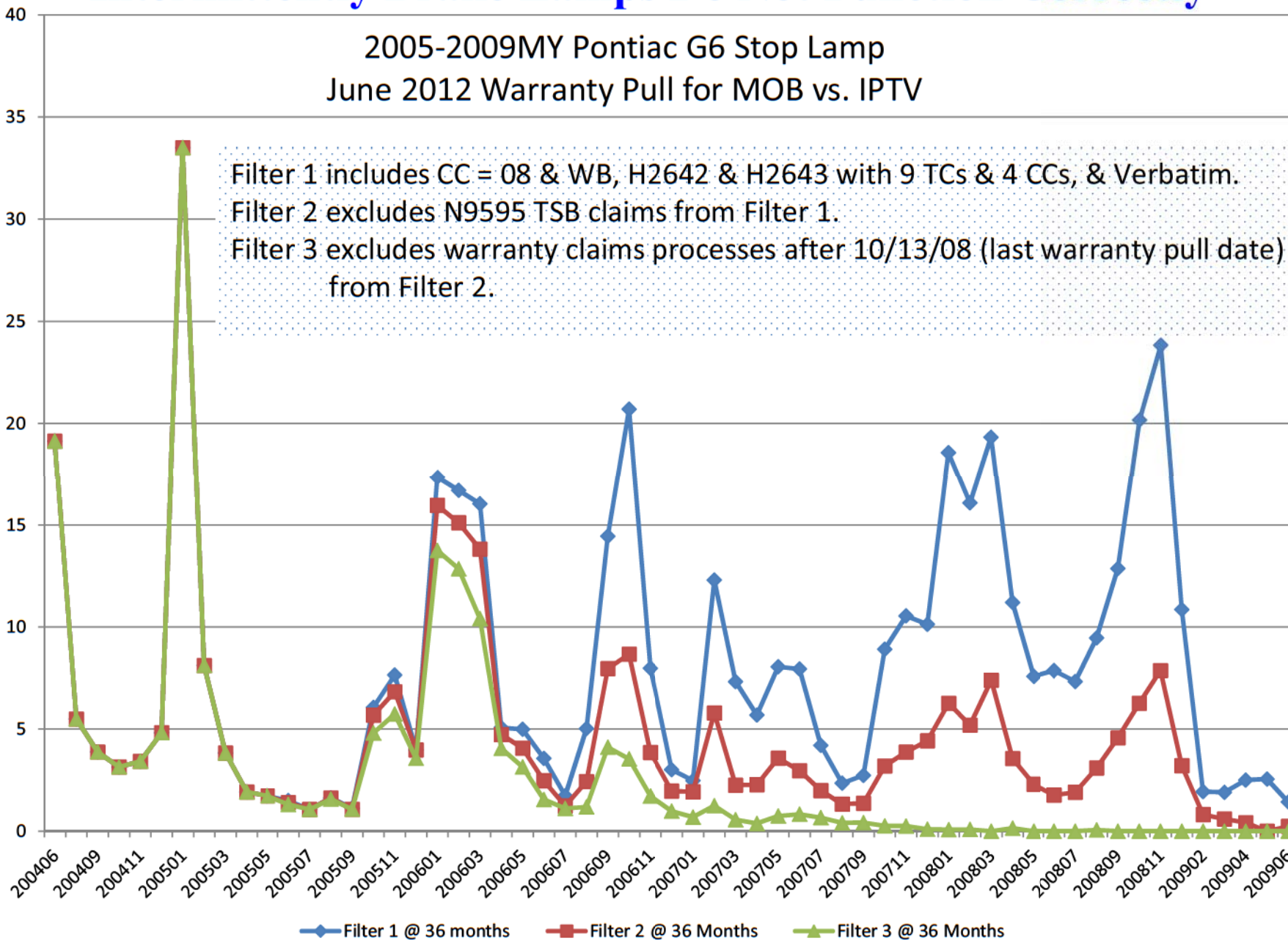
Closing Resume



Intermittently Brake Lamps Do Not Function Correctly

2005-2009MY Pontiac G6 Stop Lamp
June 2012 Warranty Pull for MOB vs. IPTV

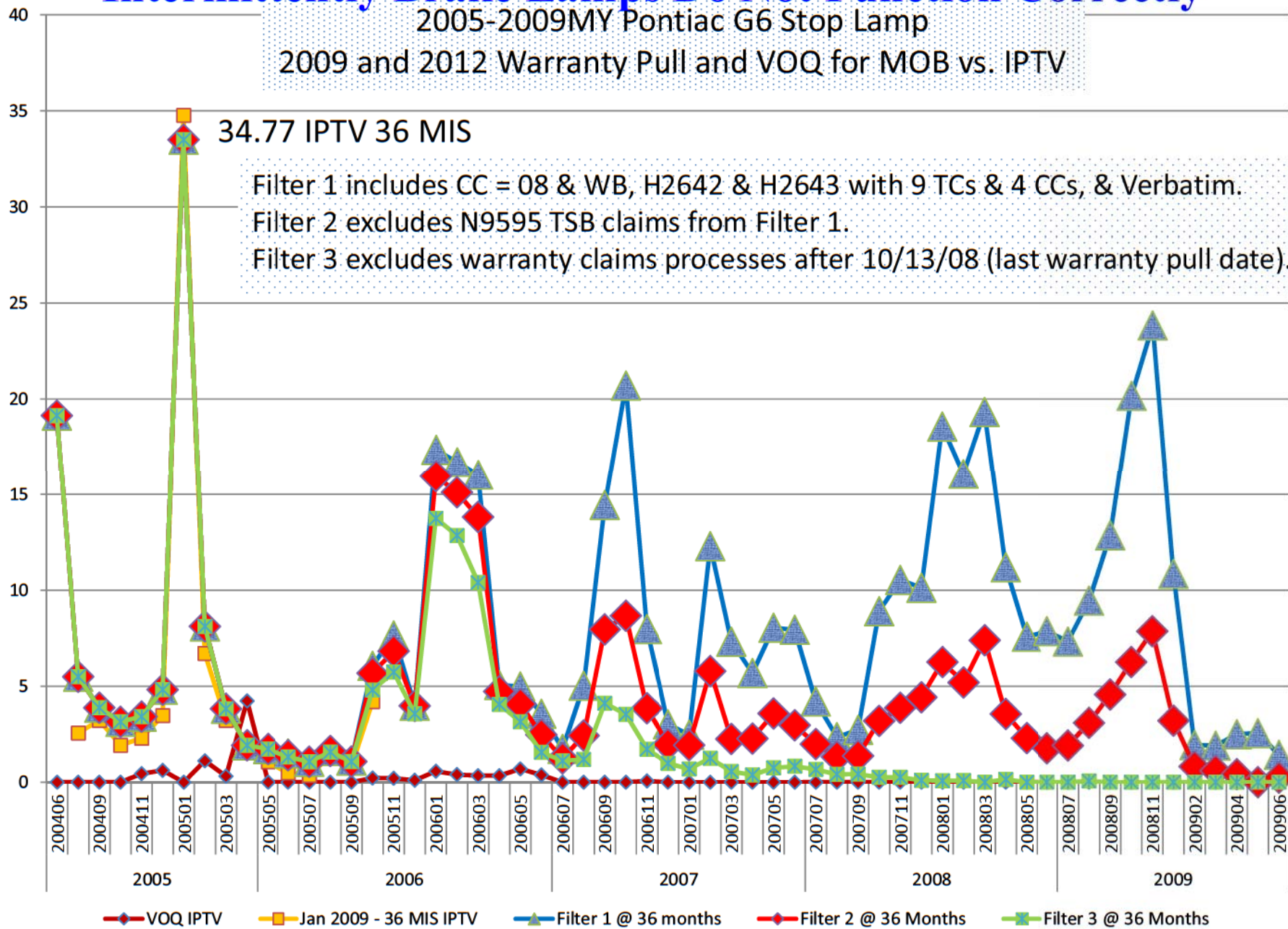
Filter 1 includes CC = 08 & WB, H2642 & H2643 with 9 TCs & 4 CCs, & Verbatim.
Filter 2 excludes N9595 TSB claims from Filter 1.
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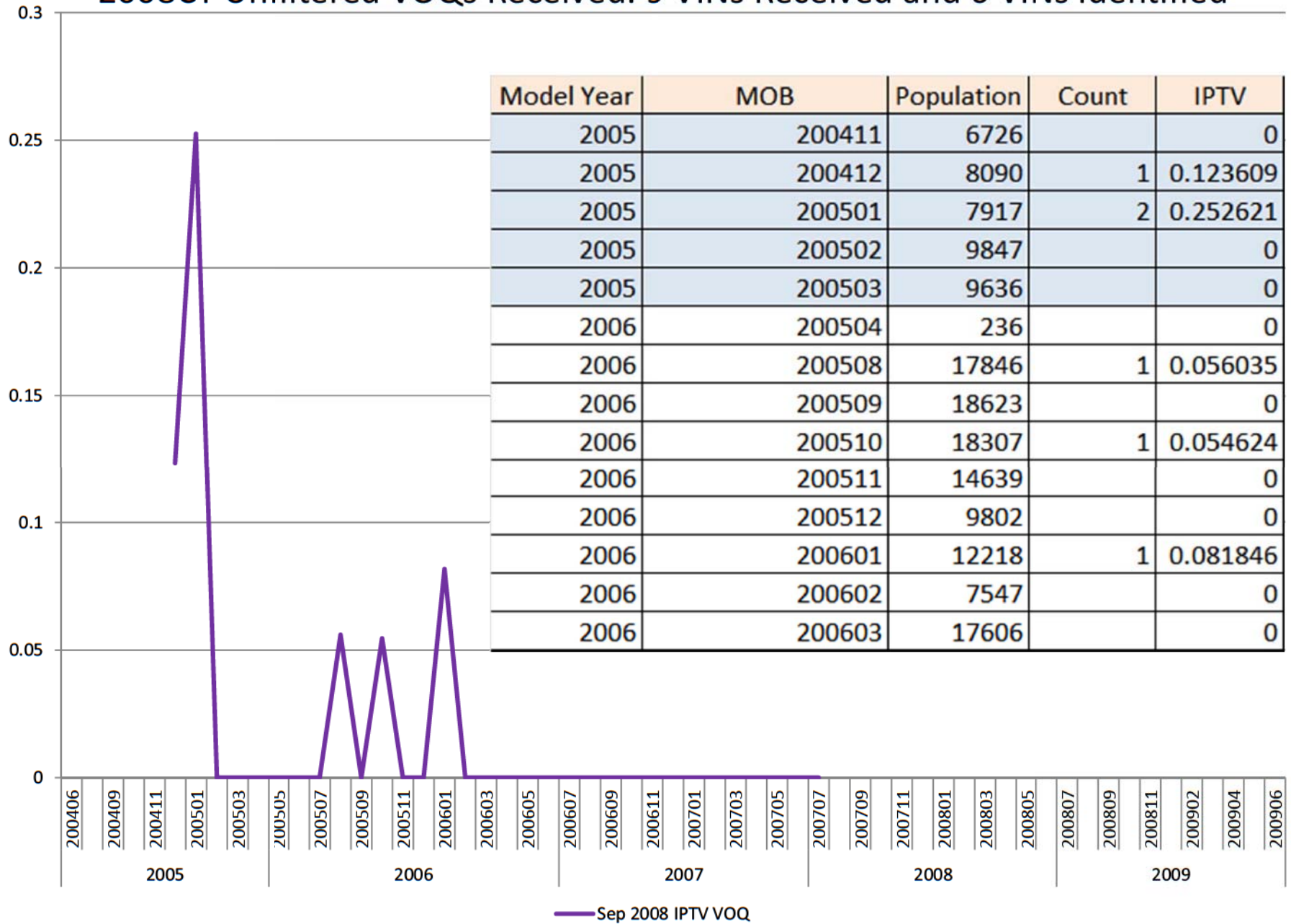
Intermittently Brake Lamps Do Not Function Correctly

2005-2009MY Pontiac G6 Stop Lamp

2009 and 2012 Warranty Pull and VOQ for MOB vs. IPTV

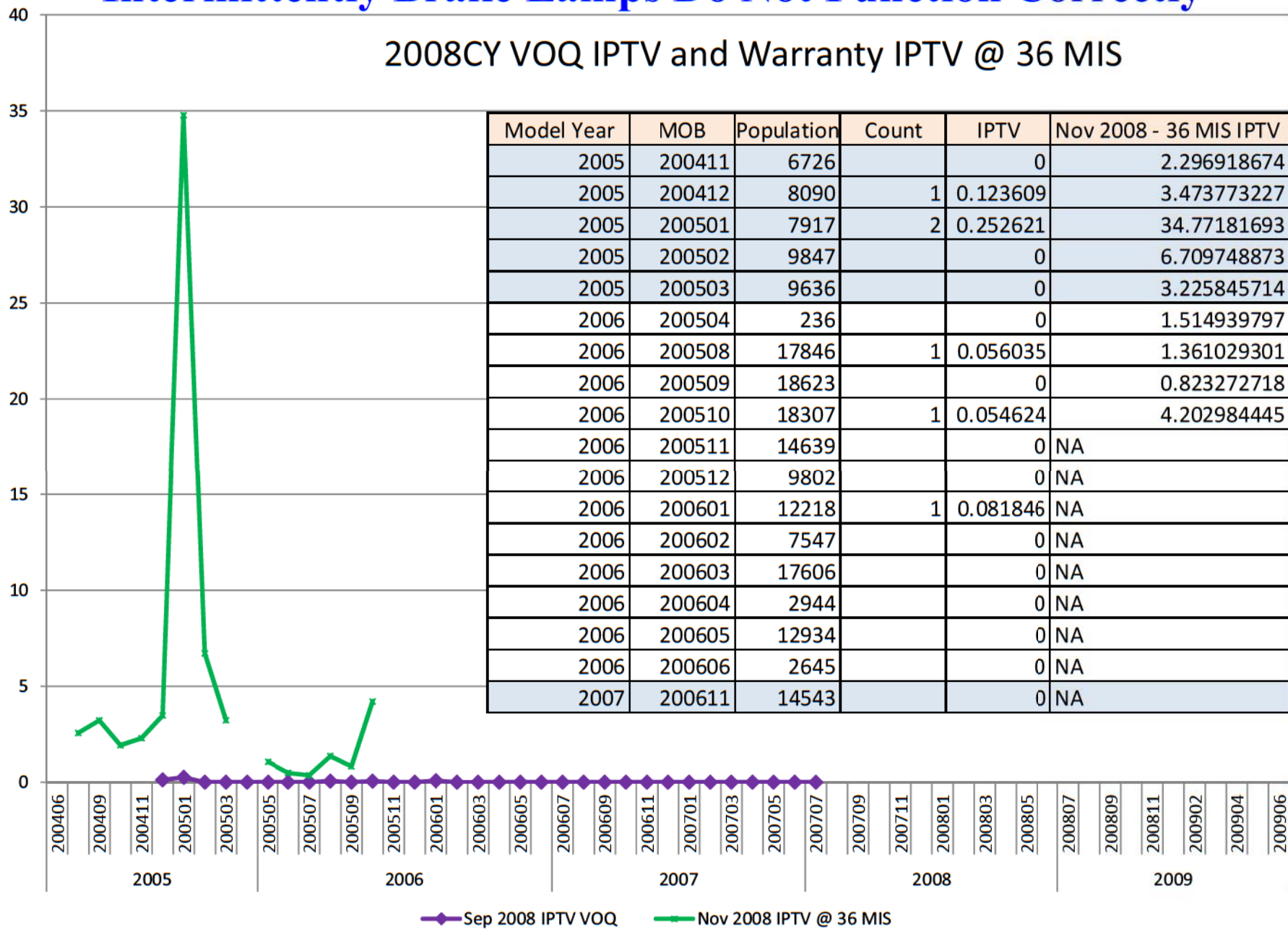


2008CY Unfiltered VOQs Received: 9 VINs Received and 6 VINs Identified



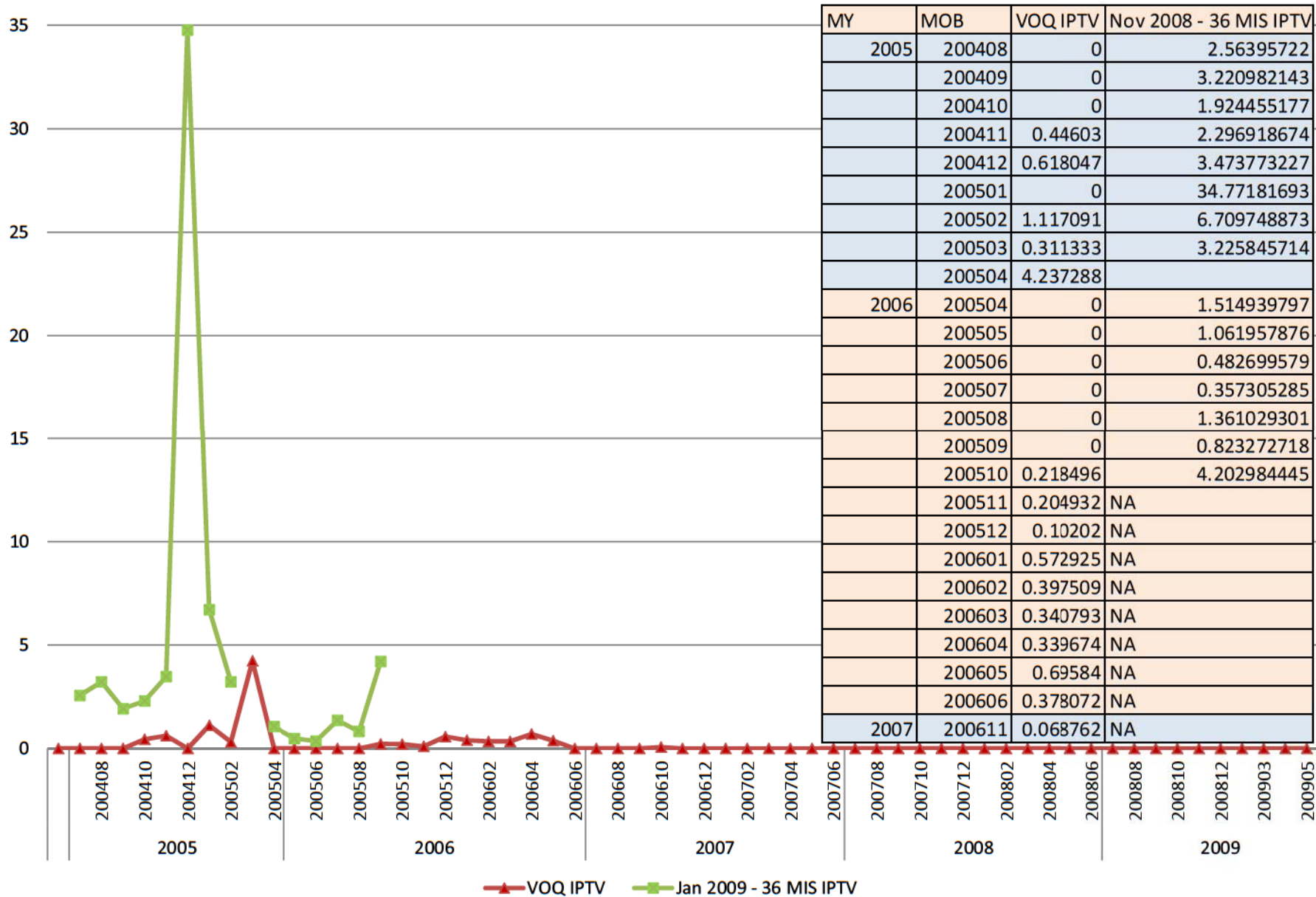
Intermittently Brake Lamps Do Not Function Correctly

2008CY VOQ IPTV and Warranty IPTV @ 36 MIS

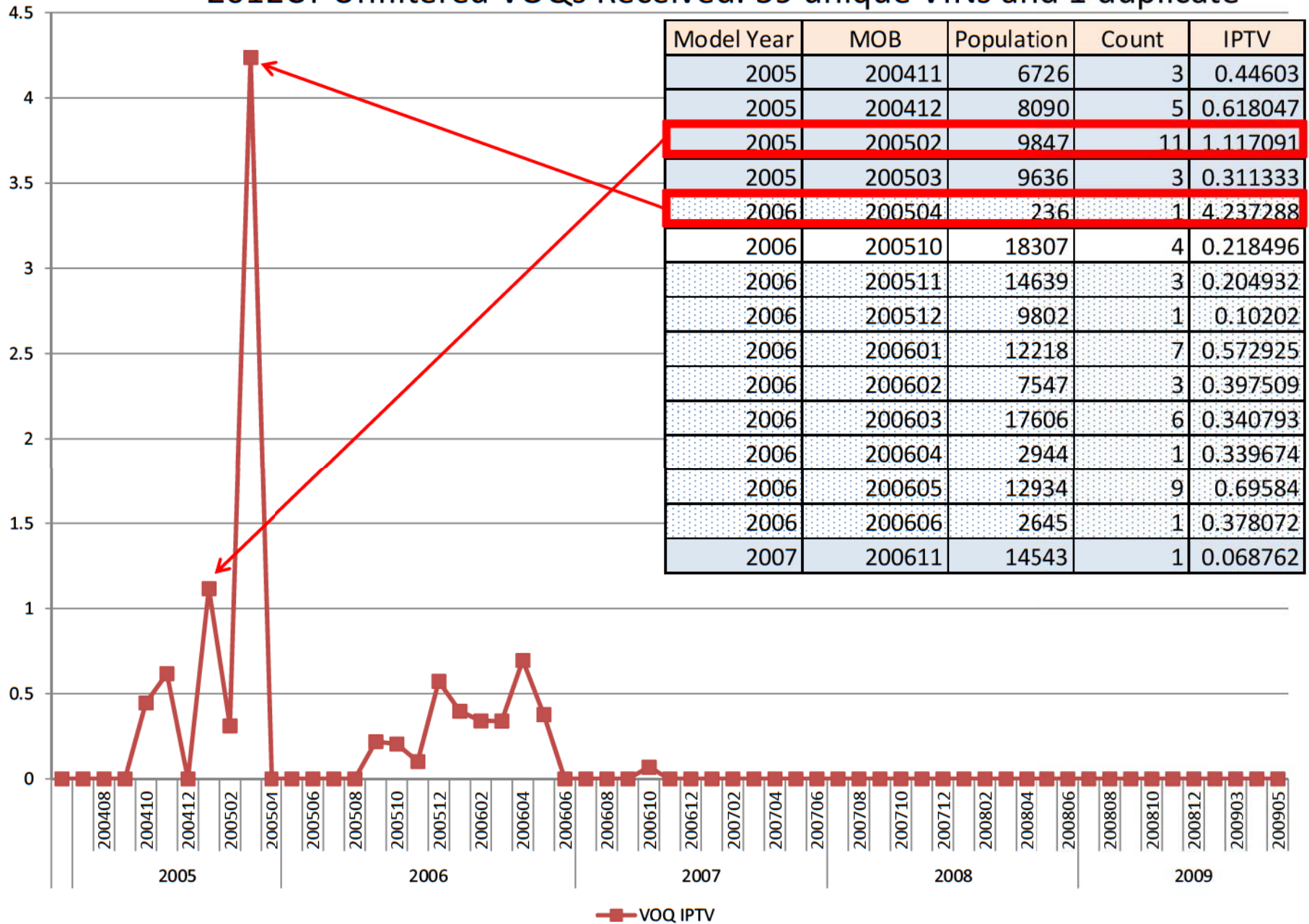


Intermittently Brake Lamps Do Not Function Correctly

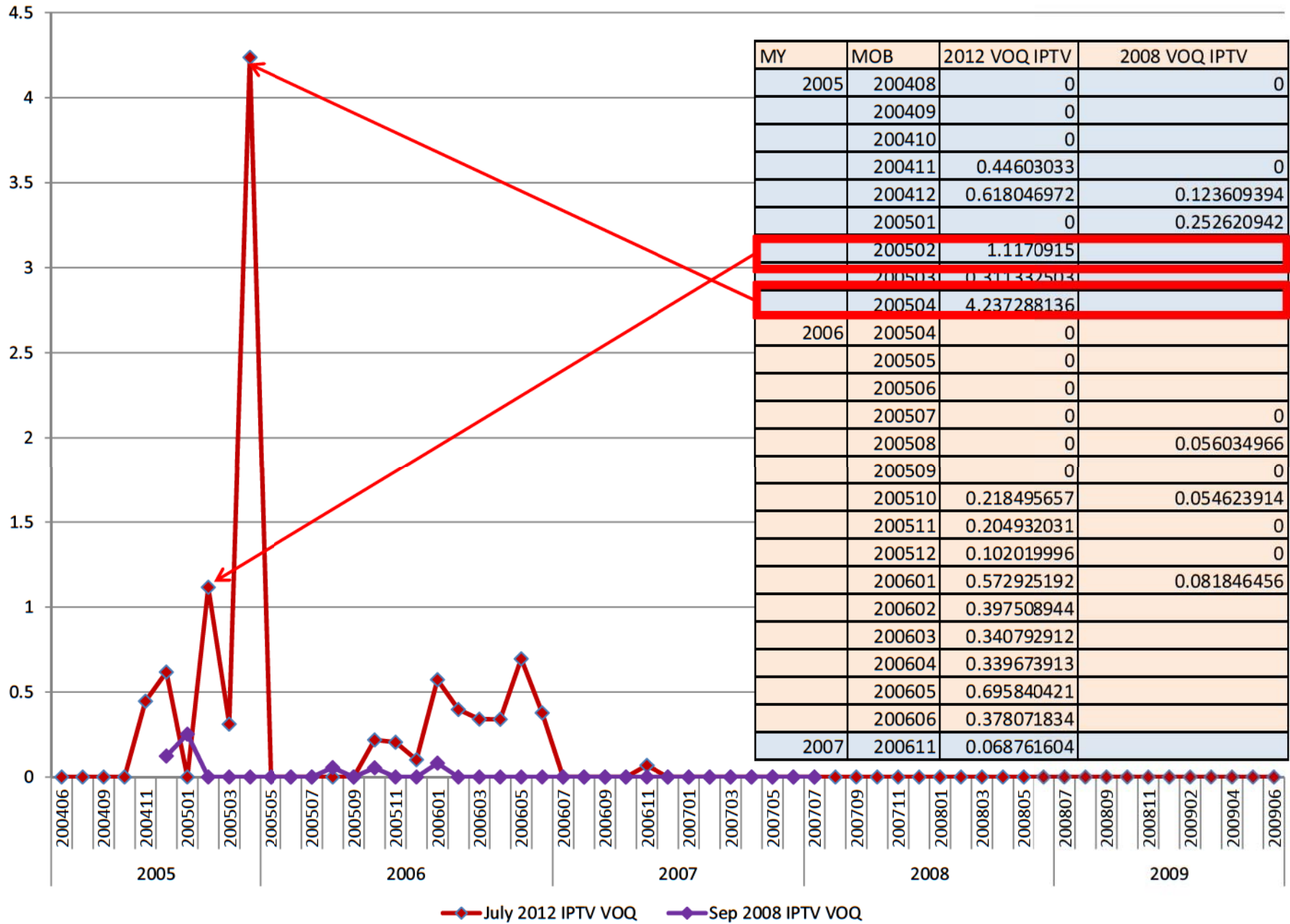
2012 VOQ and Nov 08 Warranty IPTV @ 36MIS Trend line



2012CY Unfiltered VOQs Received: 59 unique VINs and 1 duplicate

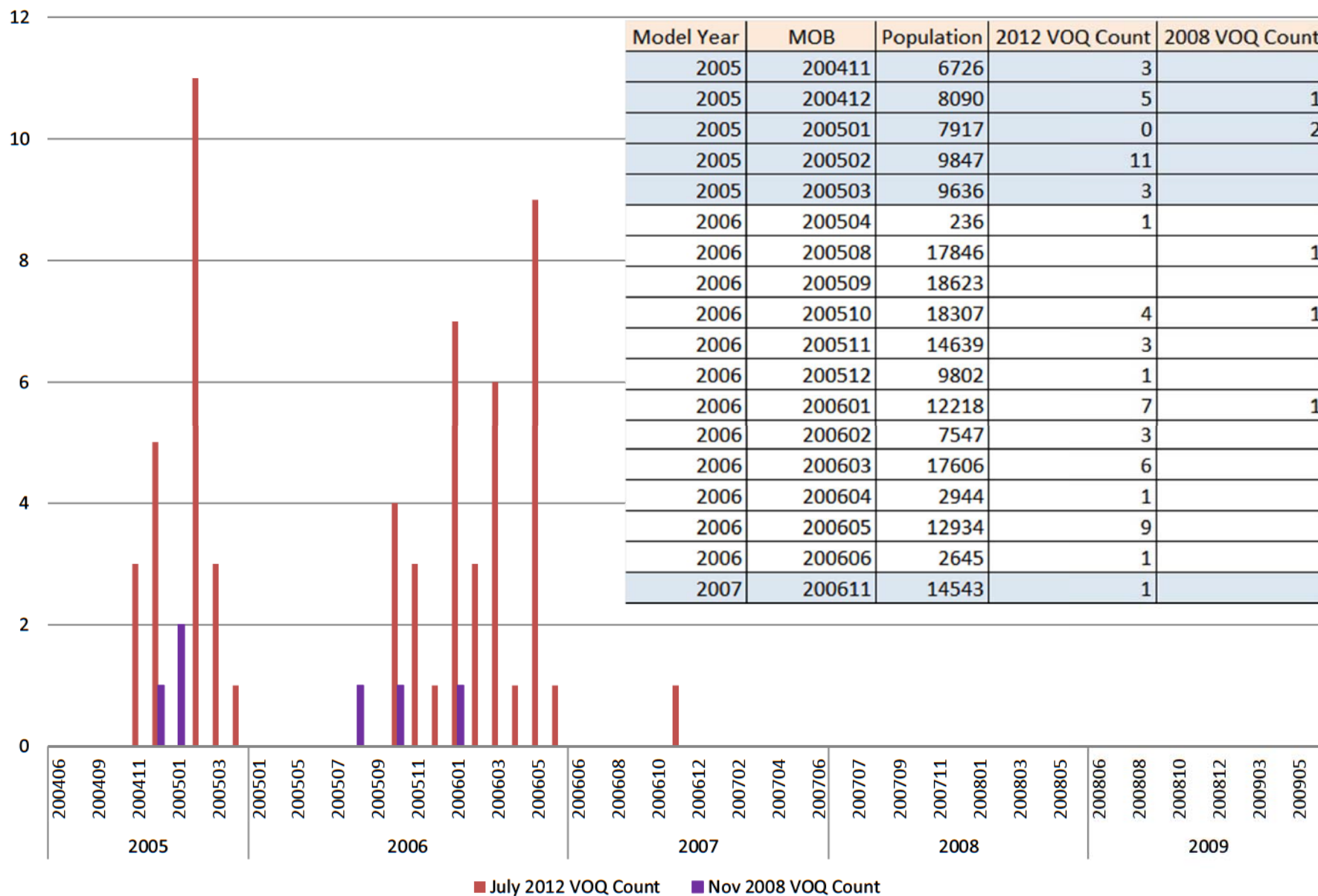


Nov 2008 and June 2012 VOQ IPTV

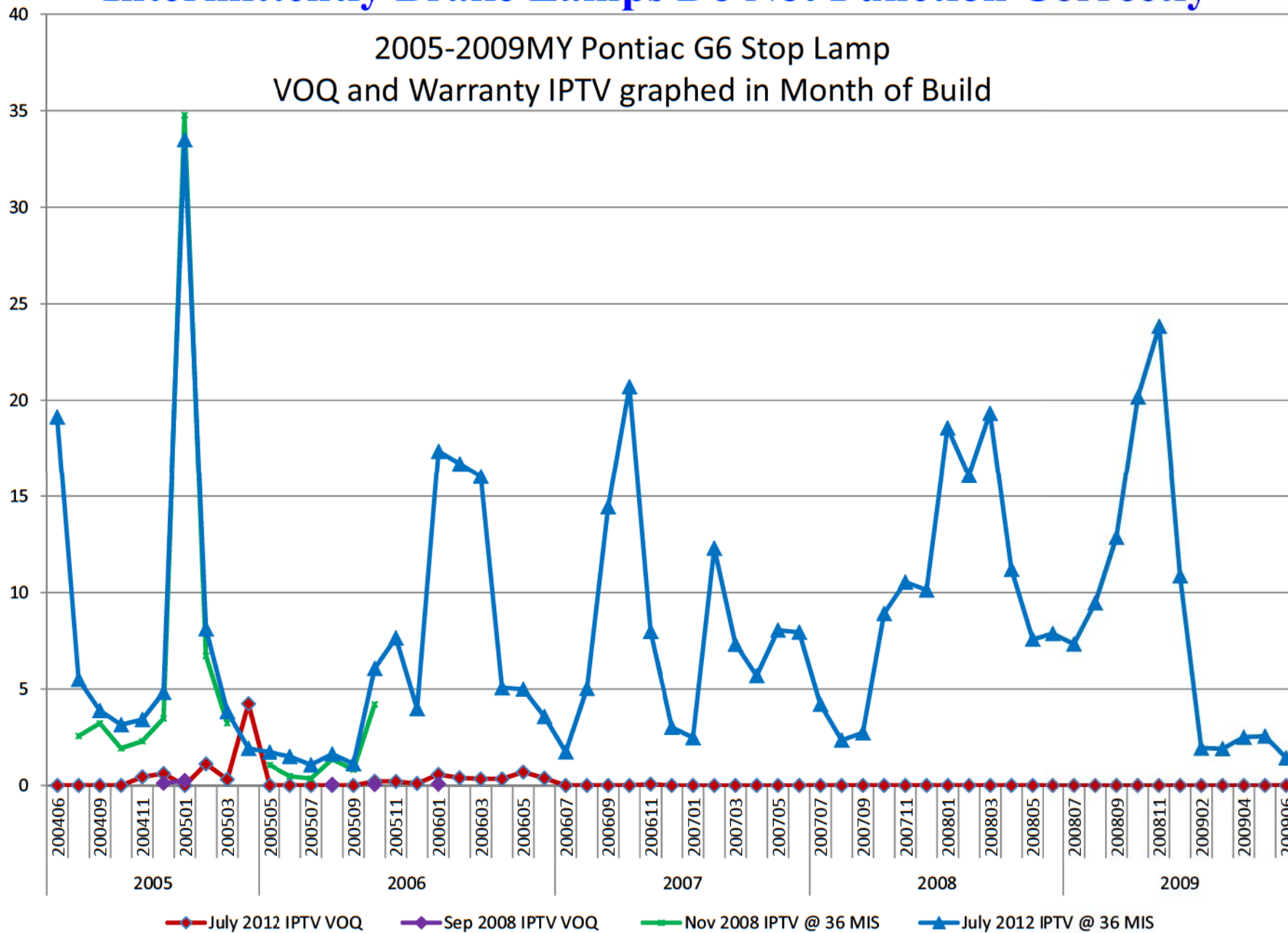


Intermittently Brake Lamps Do Not Function Correctly

VOQ Count Comparison: 2008 (6) vs 2012 (59)



Intermittently Brake Lamps Do Not Function Correctly



2012CY Update of G6 Stop Lamp Warranty Claims

2012CY Warranty Methodology

Started with 27,821

11,852 had correction-verbatim (42.6%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 10,316 (37.1) | 363 (20.7) |
| H2642 Sensor, Brake Pedal | 4,643 (16.7) | 1,203 (68.6) |
| H2643 Sensor, Brake & Accel | 420 (1.5) | 144 (8.2) |
| H2640 Pedal / Bushing | 418(1.5) | 7 (0.4) |
| H9991 Cust Concern NTF | 8,531(30.7) | 36 (2.1) |
| N9595 TSB | 3,493 (12.6) | 0 |
| Total | 27,821 | 1,753 (6.3) |

2012CY Warranty Methodology

27,821 including 243 same day repair duplicates

- A. All claims with labor code N9595 were determined to be responsive to the alleged condition.
- B. All claims with customer codes 08 (Operation: Won't Turn Off) and WB (Warning Lights-Brake Lights) were determined to be responsive to the alleged condition unless the verbatim text indicated that the claim was unrelated.
- C. Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 2.7 and customer codes in Table 2.8 were determined to be responsive unless the verbatim indicated that the claim was unrelated to the alleged condition.
- D. The verbatim of the remaining claims were then read and a claim was determined to be responsive if the verbatim related to loss/malfunction of the brake/stop lamps.
- E. The vehicle claims processed after 10/13/08 are excluded to compare with the original data.
- F. All claims for vehicles covered by General Motors recall 08317 were excluded.

3,490

20,167

2,168

1,753

2009CY Update Methodology

Started with 8,978

2,362 had verbatim (26.3%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 6,758 (75.3) | 274 (17.5) |
| H2642 Sensor, Brake Pedal | 1,984 (22.1) | 1,157 (74) |
| H2643 Sonsor, Brake & Accel | 227 (2.5) | 125 (8) |
| H2640 Pedal / Bushing | 6 (0) | 6 (0.4) |
| H9991 Cust Concern NTF | 3 (0) | 3 (0.2) |
| Total | 8,978 | 1,565 (17.4) |

2009CY Update Methodology

For the subject vehicles, the regular warranty, goodwill warranty, and MIC service contract claims with stop lamp malfunction are summarized by model and model year in Table 5-1. For the subject vehicles the UWC service contract claims with indication of stop lamp malfunction are summarized by model and model year in Table 5-2. A summary of the warranty claims, including the information requested in 5(a-k), is provided on the ATT_1_GM disk; folder labeled "Q_05:" refer to the Microsoft Access 2000 file labeled "Q_05_WARRANTY DATA." A list of the labor codes, customer complaint codes and trouble codes used to collect the warranty data is provided in response to item No. 6.

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|---------|---------|---------|---------|-------|
| Pontiac G6 | Regular | 579 | 754 | 232 | 1,565 |
| Pontiac G6 | MIC | 43 | 25 | 2 | 70 |

TABLE 5-1: REGULAR WARRANTY AND MIC SERVICE CONTRACT CLAIMS WITH STOP LAMP MALFUNCTION

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|------|---------|---------|---------|-------|
| Pontiac G6 | UWC | 0 | 3 | 0 | 3 |

TABLE 5-2: UWC SERVICE CONTRACT CLAIMS

| SOURCE SYSTEM | LAST DATE GATHERED |
|-------------------------------|--------------------|
| GART - regular warranty | 13 Oct 08 |
| MIC - service contract claims | 14 Oct 08 |
| UWC - service contract claims | 23 Sept 08 |

TABLE 5-3: DATES PULLED

2009CY Update Methodology

8,969

The GM Global Analysis and Reporting Tool (GART-regular warranty) regular warranty database and the Motors Insurance Corp (MIC) service contract claims database were searched using the labor codes that may be related to the alleged defect, listed in Table 6-1. Universal Warranty Corporation (UWC) does not use labor codes or trouble codes.

The following process was used to sort these claims:

- 544 • All claims with customer codes shown in Table 6-2 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 6,800 • Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 6-3 and customer codes in Table 6-4 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 60 • The verbatims of the remaining claims were then read and the claim was determined to be responsive if the verbatim related to the alleged defect.

1,565

2009CY Update Methodology

| LABOR CODE | DESCRIPTION: |
|------------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp - Adjust |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

TABLE 6-1 LABOR CODES USED IN WARRANTY AND MIC SEARCH

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-----------------------------|
| O8 | OPERATION: WON'T TURN OFF |
| WB | WARNING LIGHTS: BRAKE LIGHT |

TABLE 6-2 CUSTOMER CODES USED IN WARRANTY AND MIC SORTING

| TROUBLE CODE | DESCRIPTION: |
|--------------|-------------------------------|
| 1D | BROKEN |
| 6C | COMPONENT-INOPERATIVE |
| 6D | COMPONENT -INTERMITTENT |
| 6F | COMPONENT -OPEN |
| 3A | MISADJUSTED |
| 9Z | NO TROUBLE FOUND |
| 3L | OUT OF CALIBRATION |
| 3X | REGISTERS INCORRECTLY |
| 6N | CONNECTOR - PARTIAL CONNECTED |

TABLE 6-3 TROUBLE CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-------------------------------------|
| OG | OPERATION: EXCESS EFF (EXCESS PLAY) |
| OJ | OPERATION: INOPERATIVE (HARSH) |
| OF | OPERATION: ENGAGE/DIS(EXCESS EFF) |
| O7 | OPERATION: NO MAINTAIN ADJ |

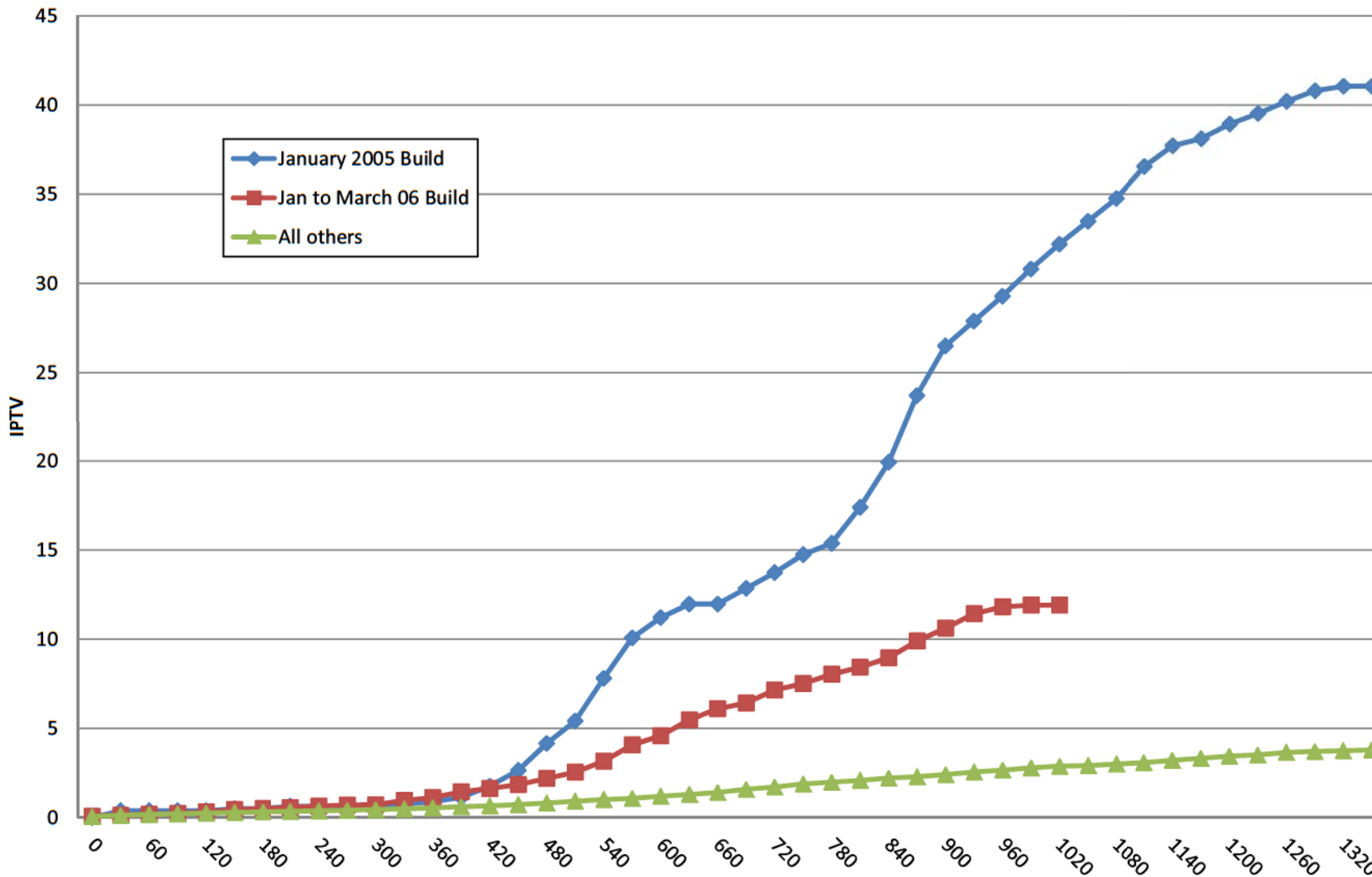
TABLE 6-4 CUSTOMER CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

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Rationale for 2009 Decision

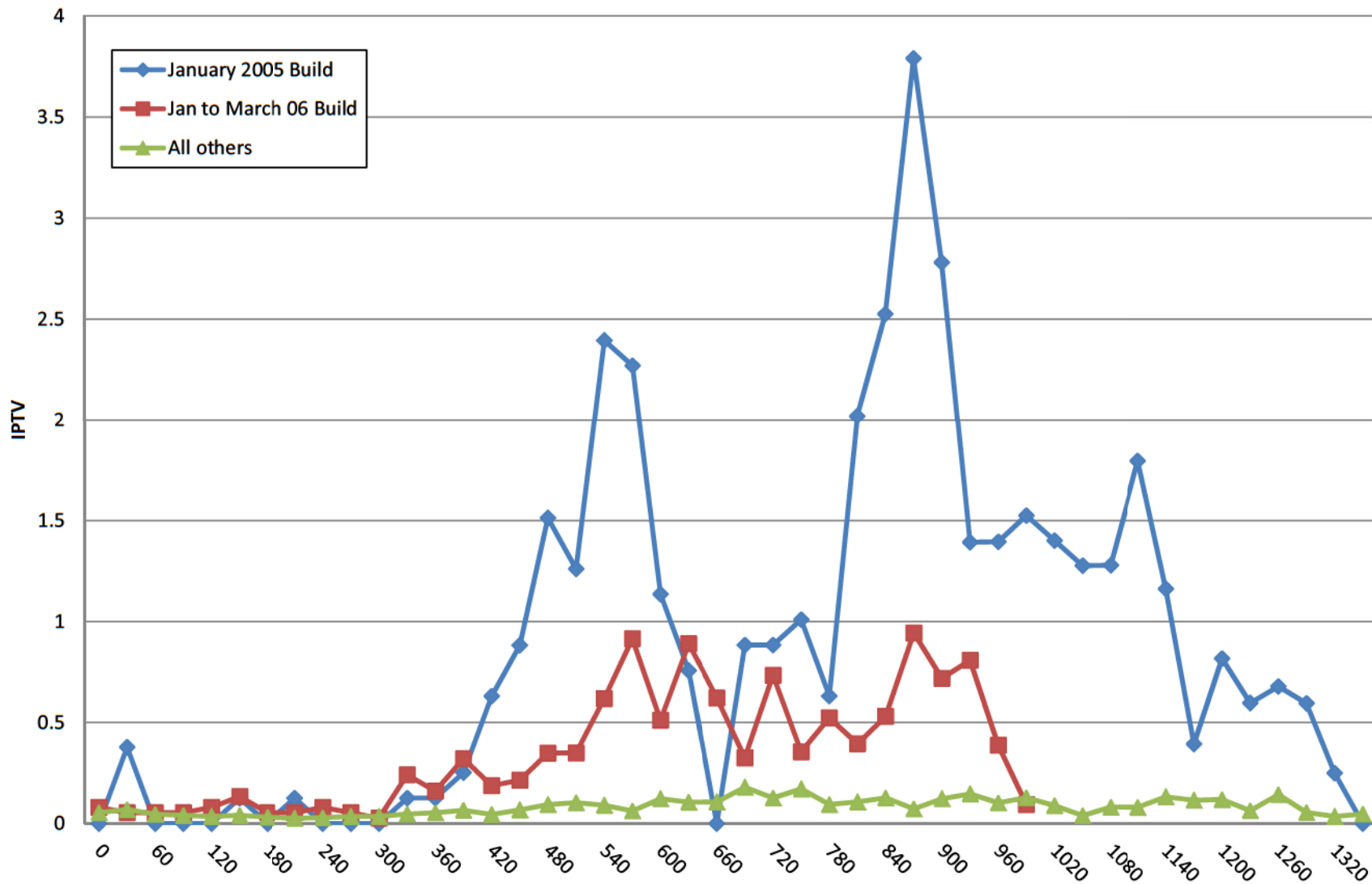
Intermittently Brake Lamps Do Not Function Correctly

G6 Stop Lamp Warranty - Comparison of Select Months of Build



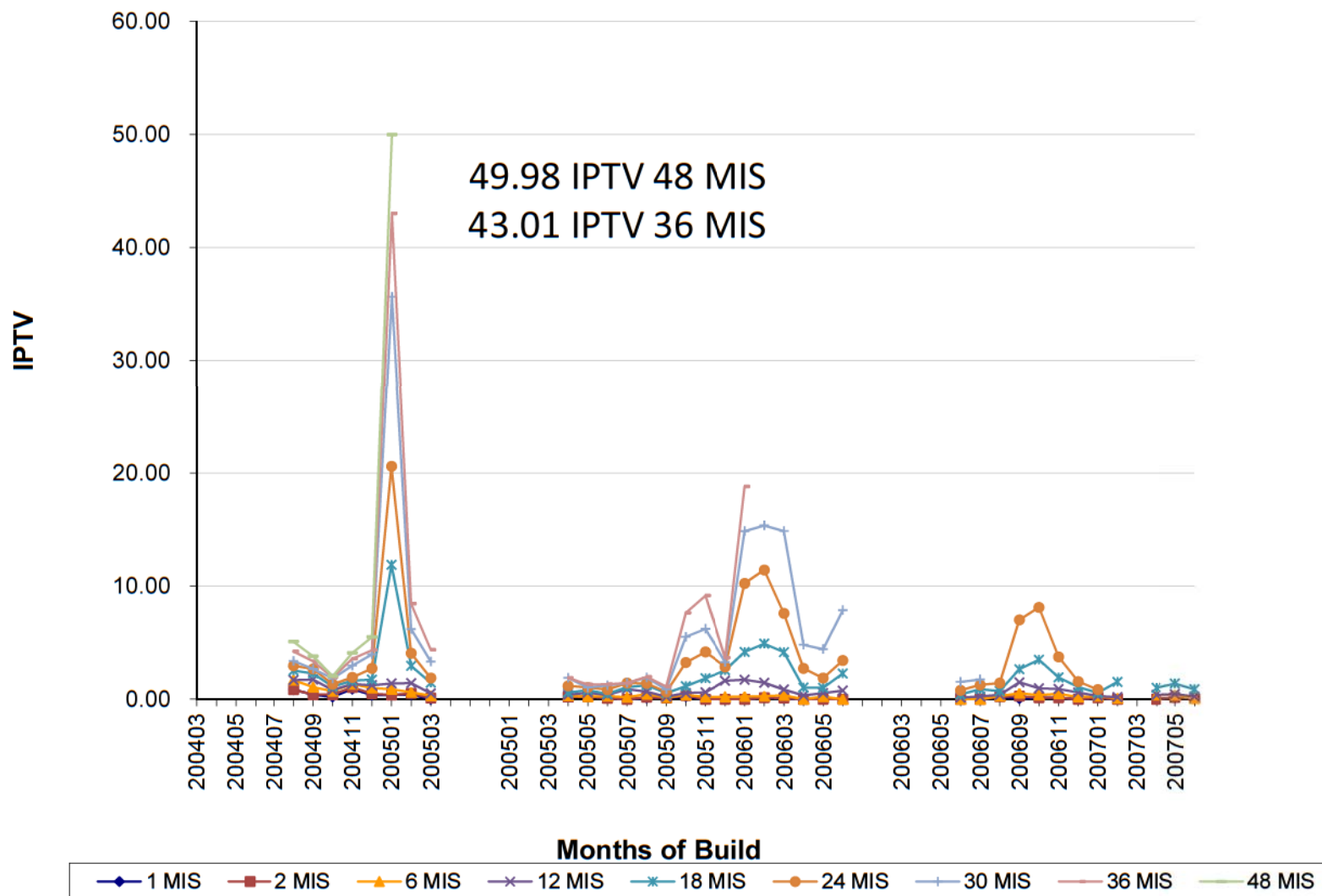
Intermittently Brake Lamps Do Not Function Correctly

05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



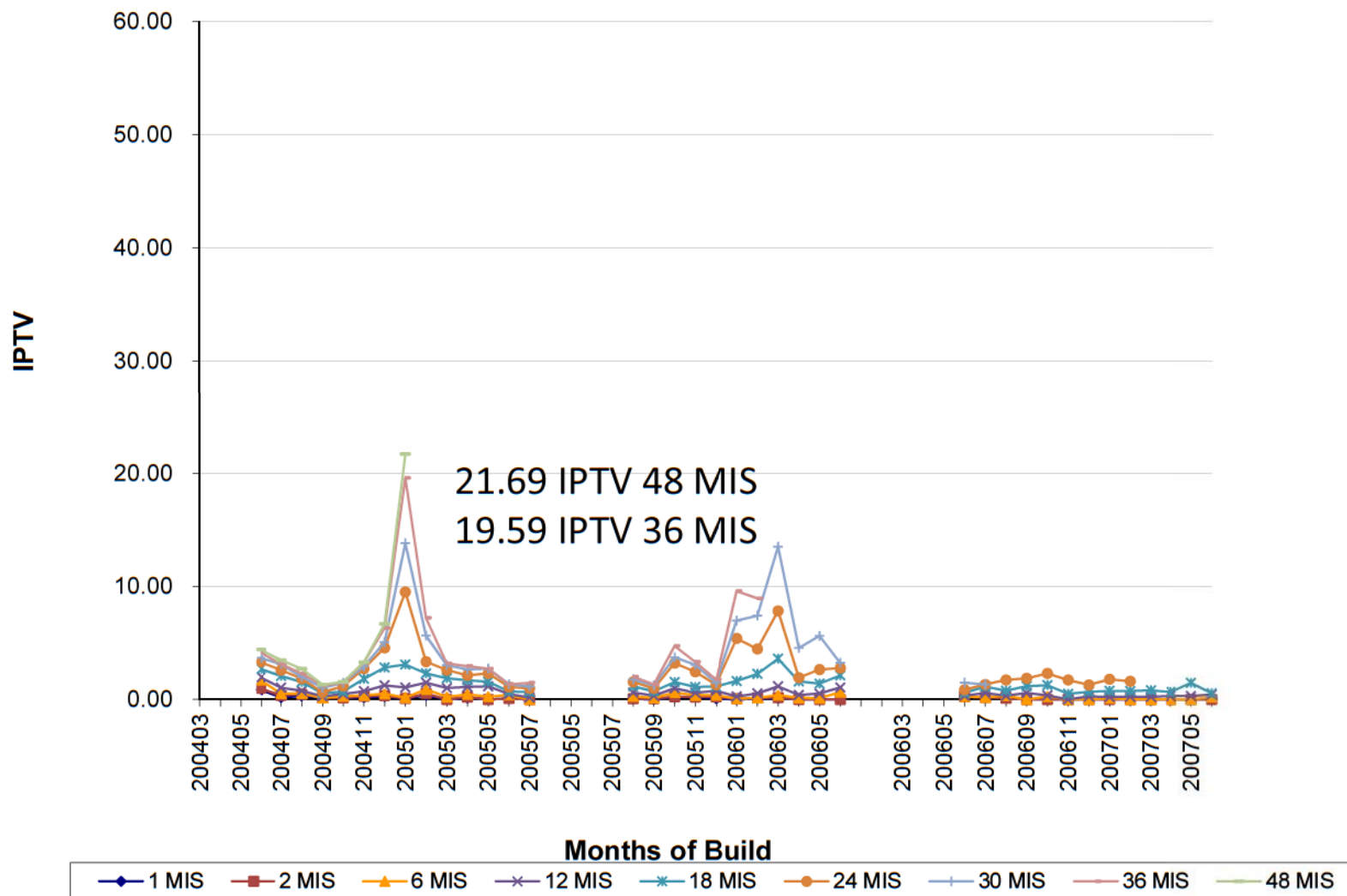
Intermittently Brake Lamps Do Not Function Correctly

Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



Intermittently Brake Lamps Do Not Function Correctly

Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



GM Confidential







Intermittently Brake Lamps Do Not Function Correctly

The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|----------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Cobalt, Corvette | |
| 2006MY | HHR, Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu | |

GM Confidential

Intermittently Brake Lamps Do Not Function Correctly

Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)

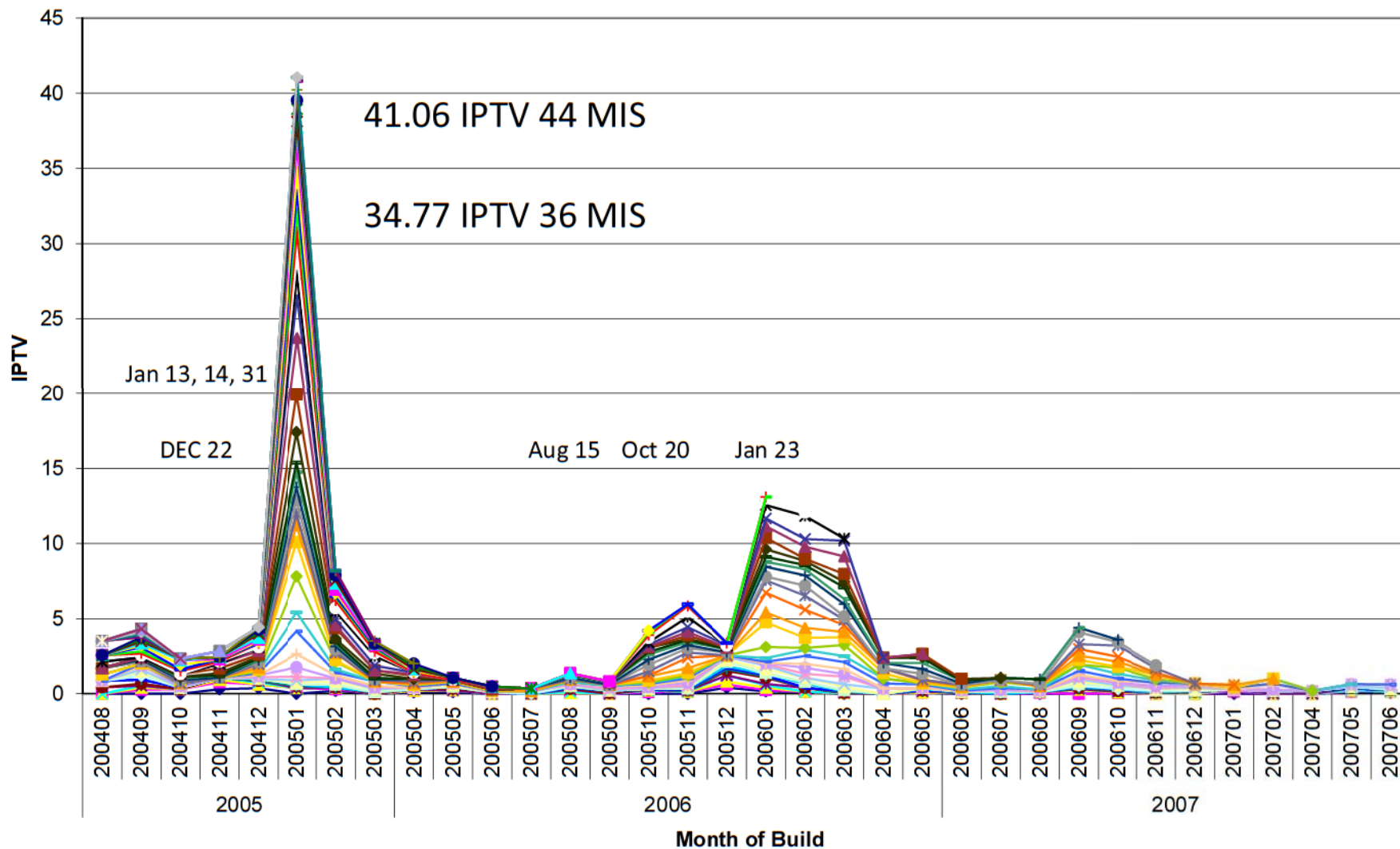


Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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Intermittently Brake Lamps Do Not Function Correctly

2005 - 2007 G6 Intermittent Stop Lamp Warranty



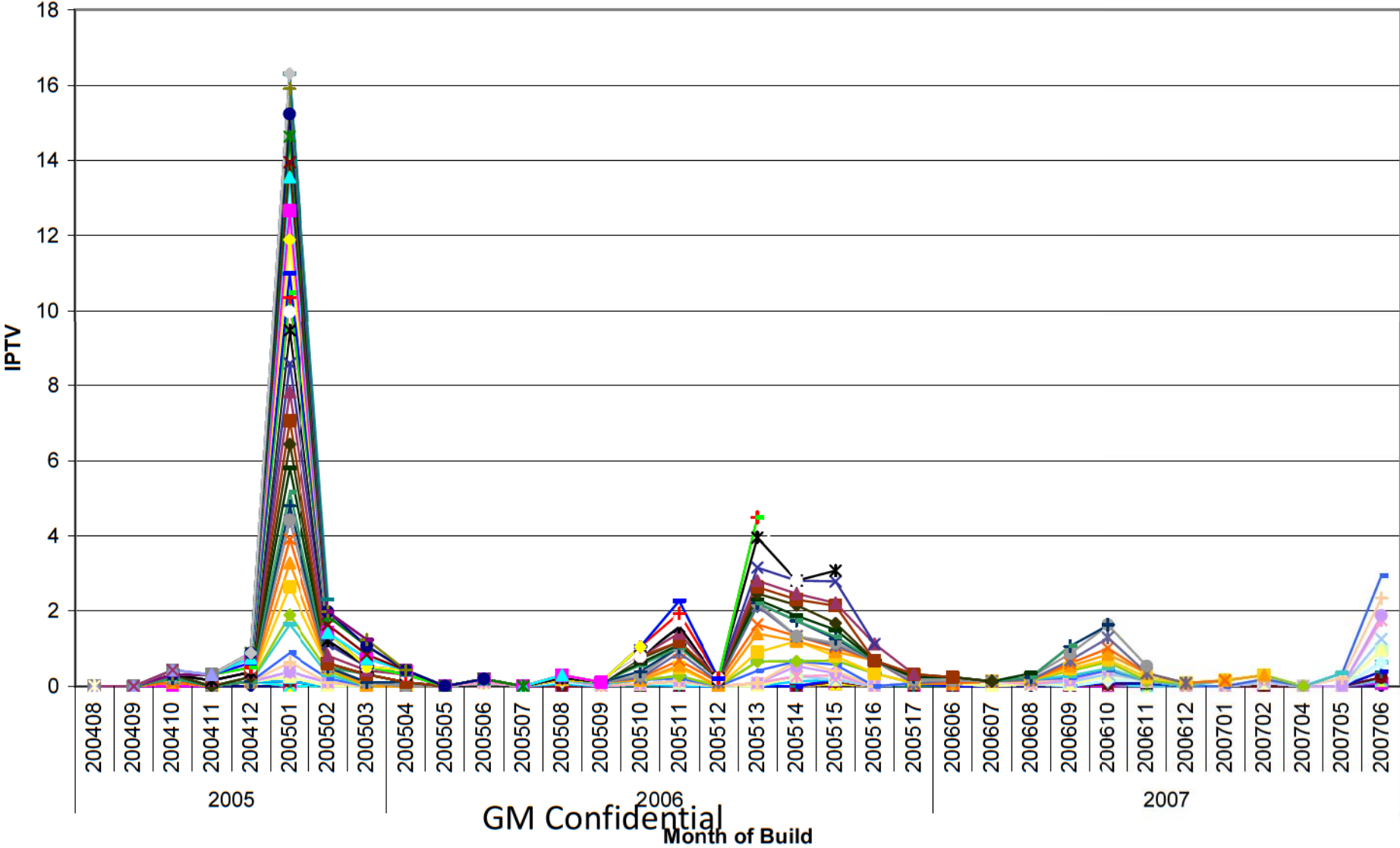
9 VOQs 2005MY: 4

2006MY: 4
GM Confidential

2007MY: 1

2005 - 2007 G6 BASS – TAC and CAC only

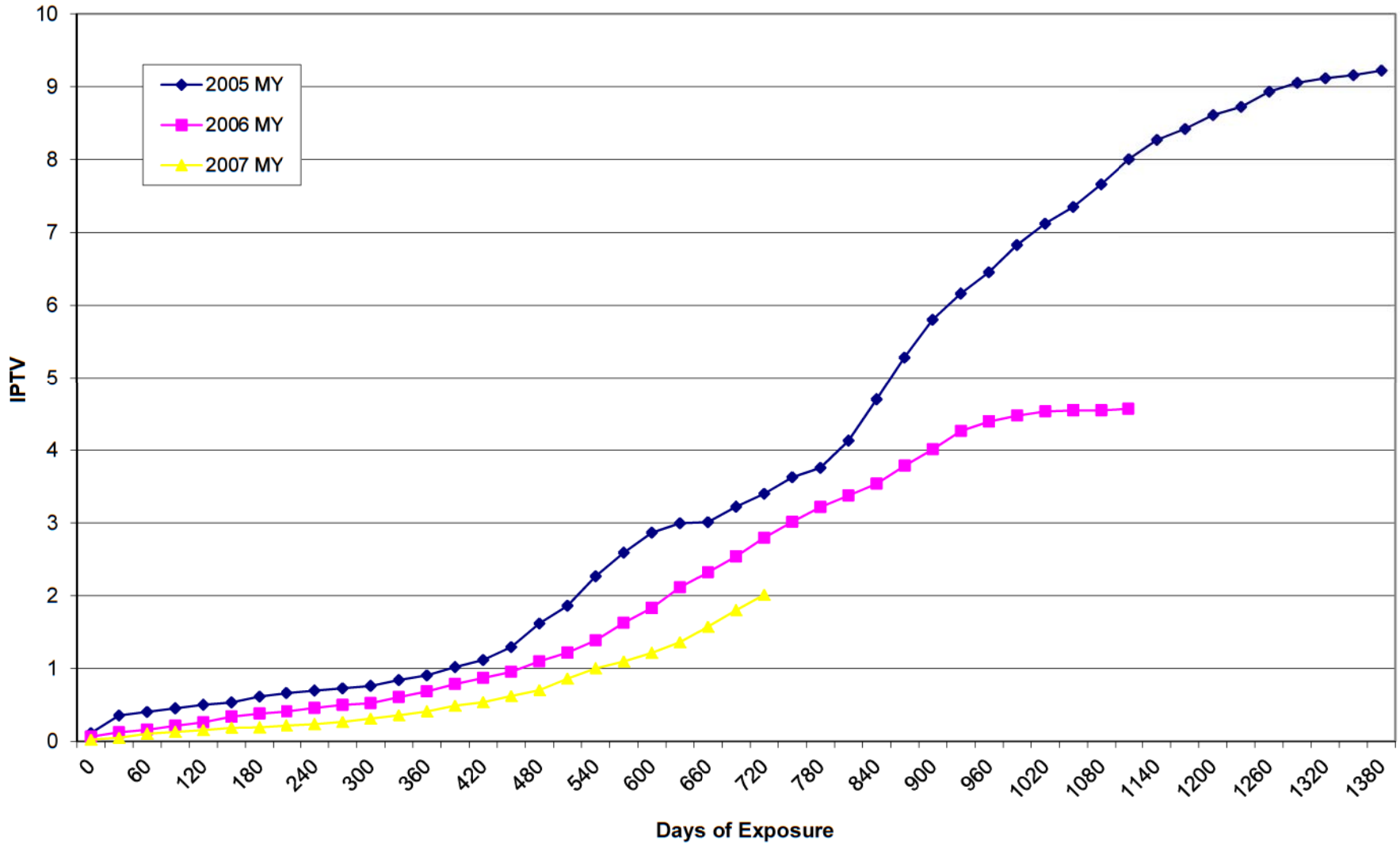
2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only



GM Confidential
Month of Build

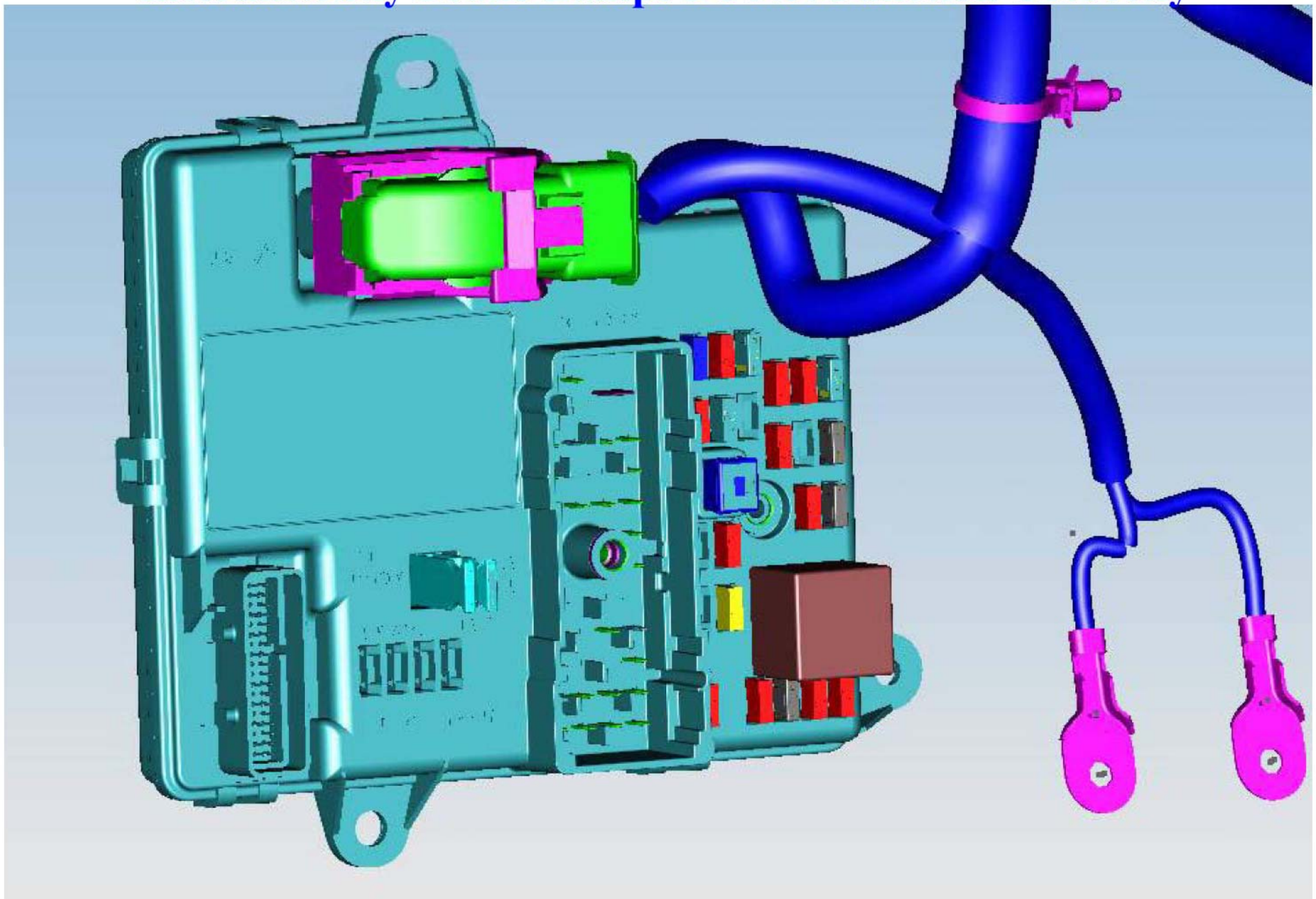
Intermittently Brake Lamps Do Not Function Correctly

2005 - 2007 G6 Intermittent Stop Lamp Warranty



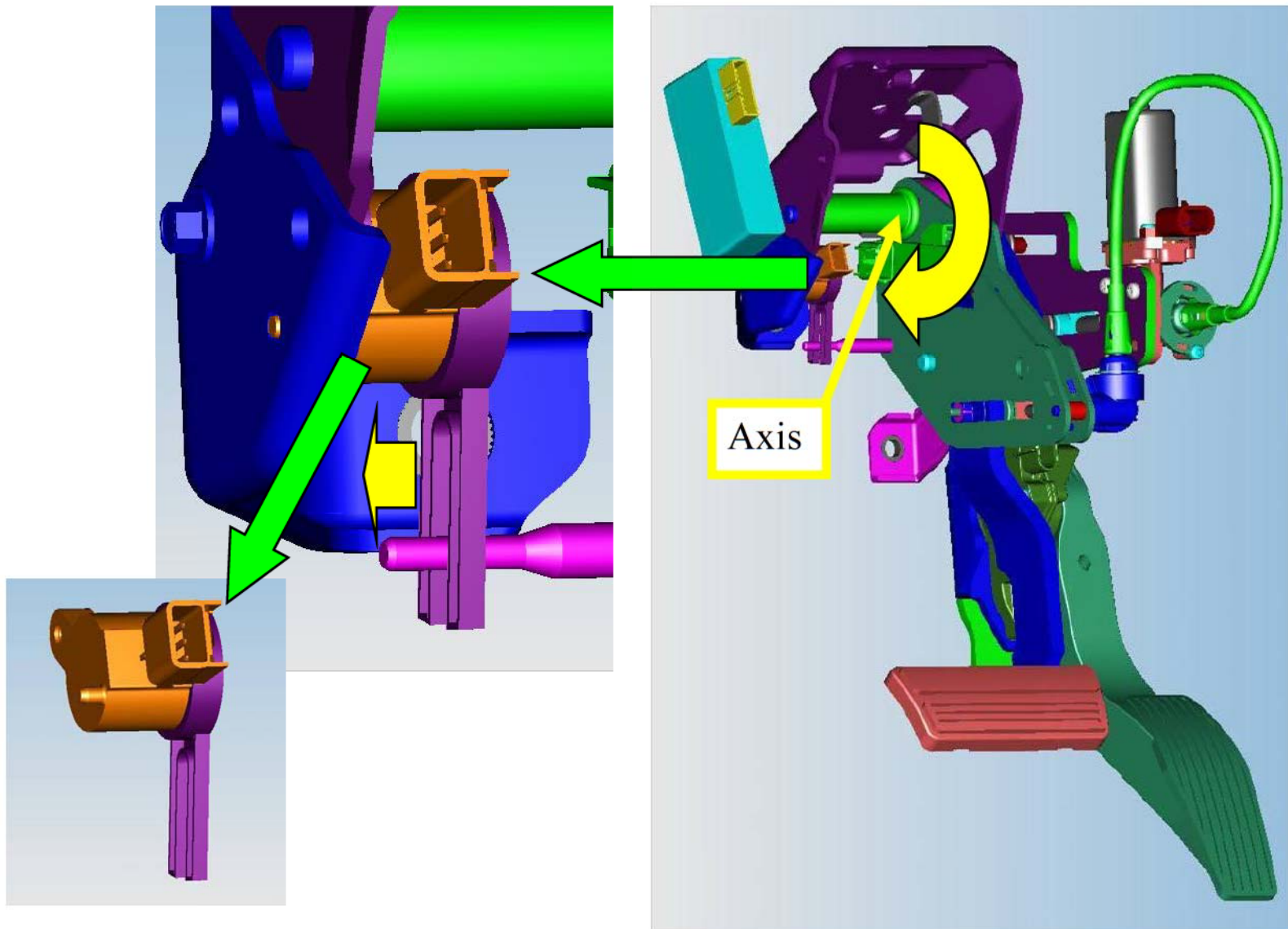
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Intermittently Brake Lamps Do Not Function Correctly



2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



Intermittently Brake Lamps Do Not Function Correctly



2005-2009MY Pontiac G6

Est. Population: 620,000 (27MAY04 – 23DEC08 wo Campaign pop)

Est. Cost: \$TBD

Condition: Fretting corrosion in the Body Control Module connector (C2 or X2) causes an increase in resistance that results in a reduction of Brake Apply Sensing (BAS) signal voltage to the BCM. Brake pedal status information affects the operation of brake lamps, cruise control, brake shifter interlock, and stability control systems.

Effect of the Condition: This results in erratic brake pedal status information A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.

{ * }

Potential Field Action Category: TBD

Discovery On September 15, 2008, NHTSA ODI opened PE investigation with 9 VOQs. On January 28, 2009, GM notified NHTSA that GM is conducting safety campaign for 8,012 vehicles built in January 2005 for 2005MY and 2006MY.

Intermittently Brake Lamps Do Not Function Correctly

Potential Field Remedy: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).

Frequency: See IPTV vs. MOB graph. 2005 MY 36 MIS Overall = 8.0 IPTV
Build of Month January 2005 36 MIS = 34.8 IPTV Campaigned.
See updated IPTV vs. MOB graph for non-campaigned vehicles.

Immediate Improvement /Containment

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

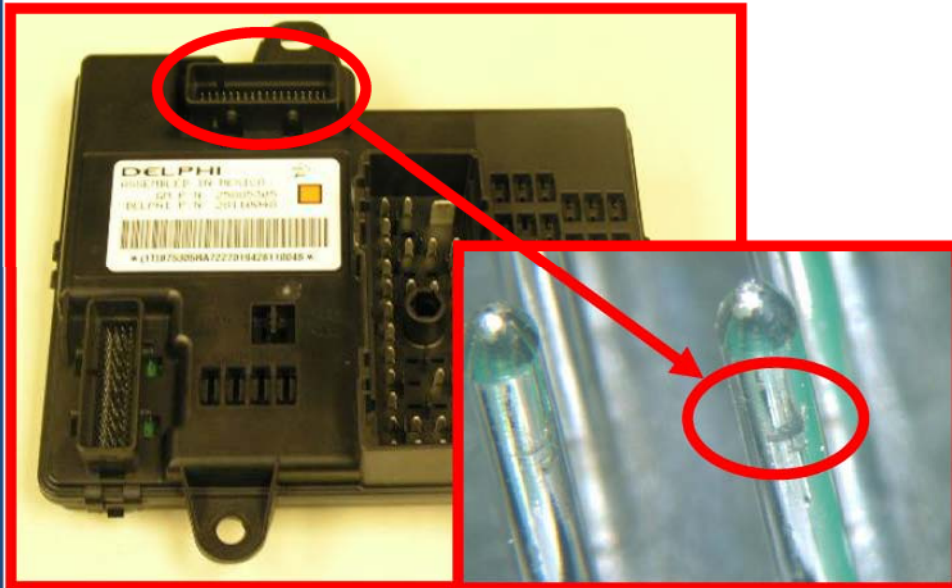
{ * }

Responsibility

GM and Delphi Engineering

Intermittently Brake Lamps Do Not Function Correctly

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.

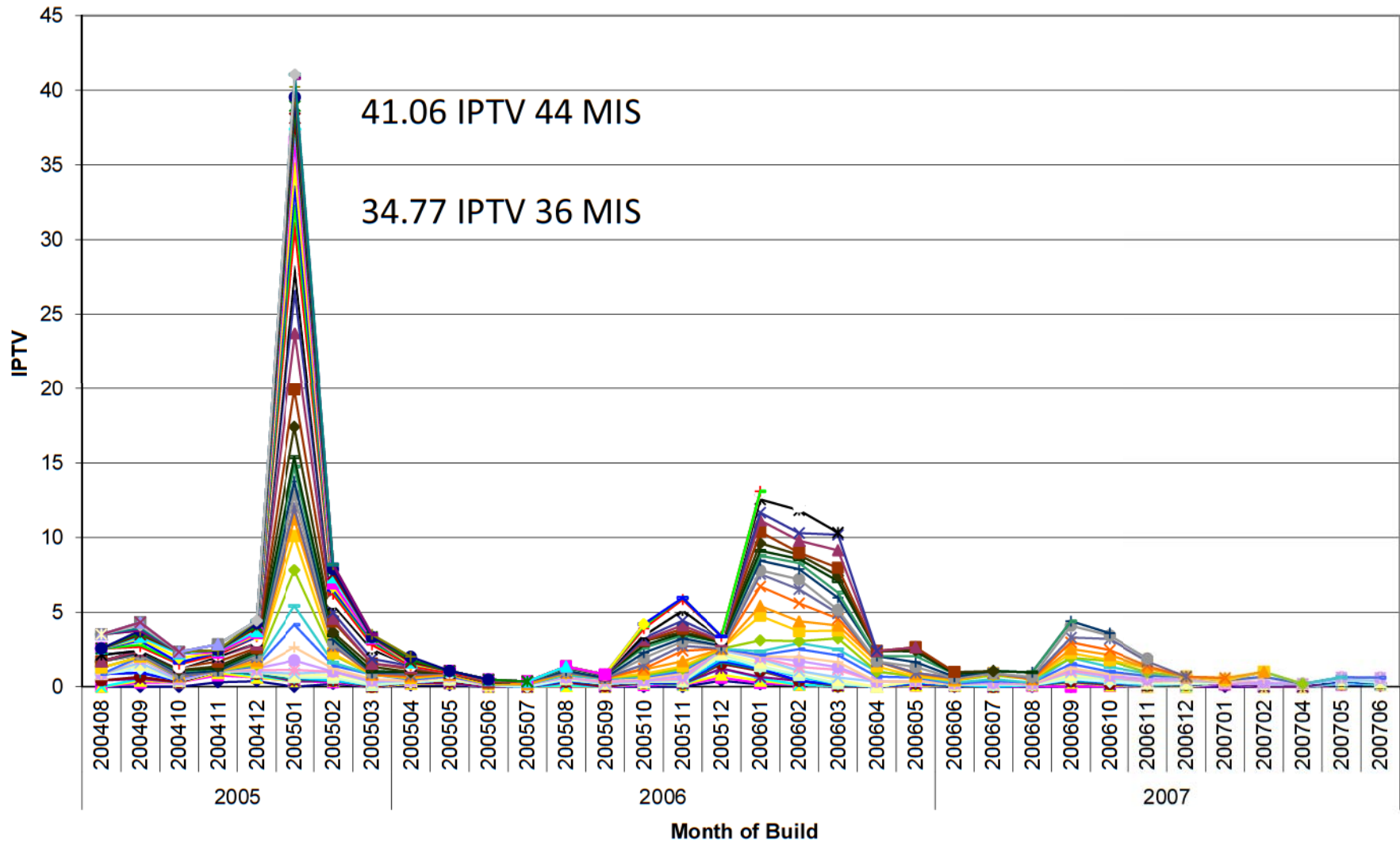


Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



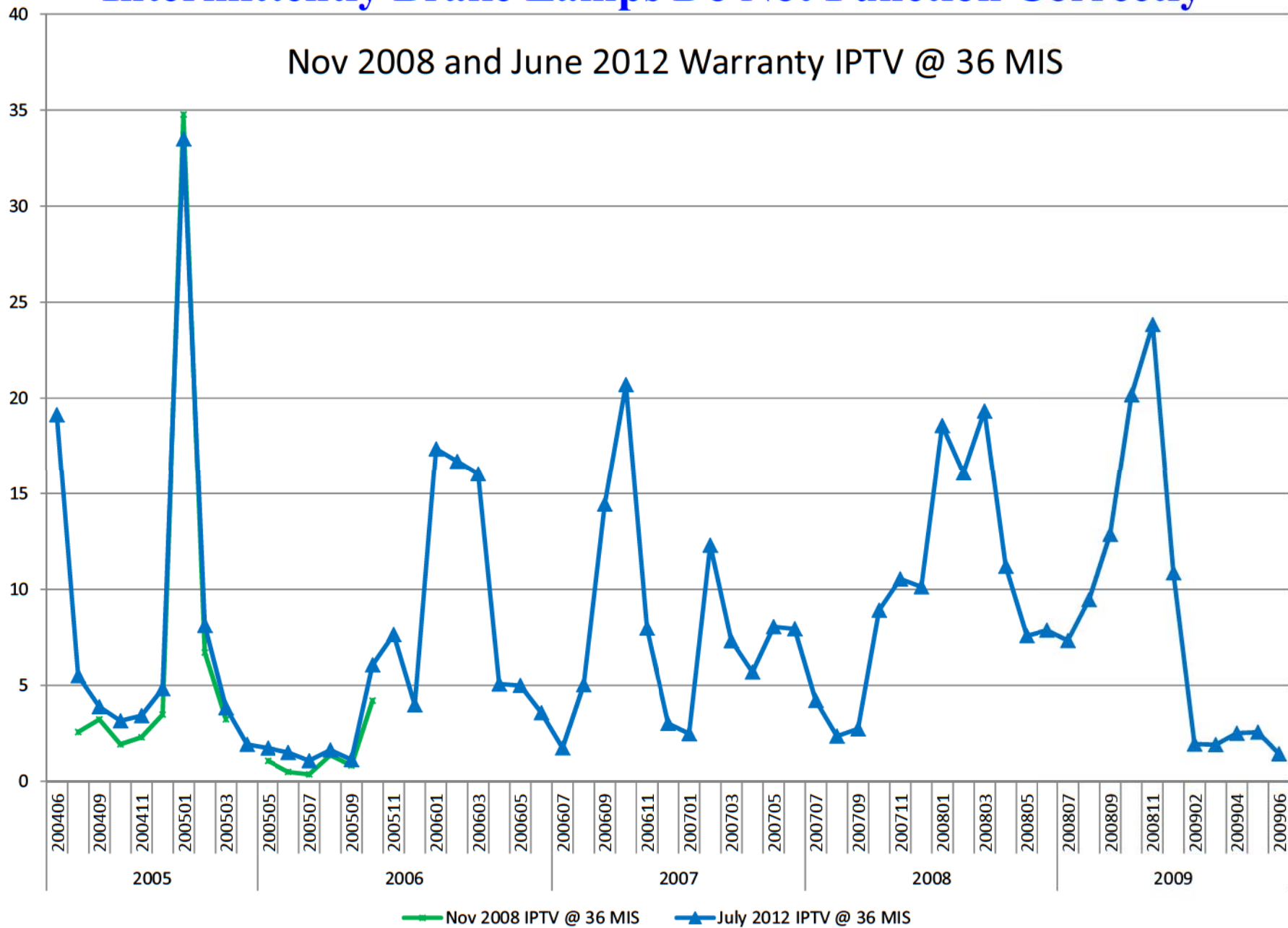
Intermittently Brake Lamps Do Not Function Correctly

2005 – 2007MY G6 Intermittent Stop Lamp Warranty
This was reviewed in November 2008



Intermittently Brake Lamps Do Not Function Correctly

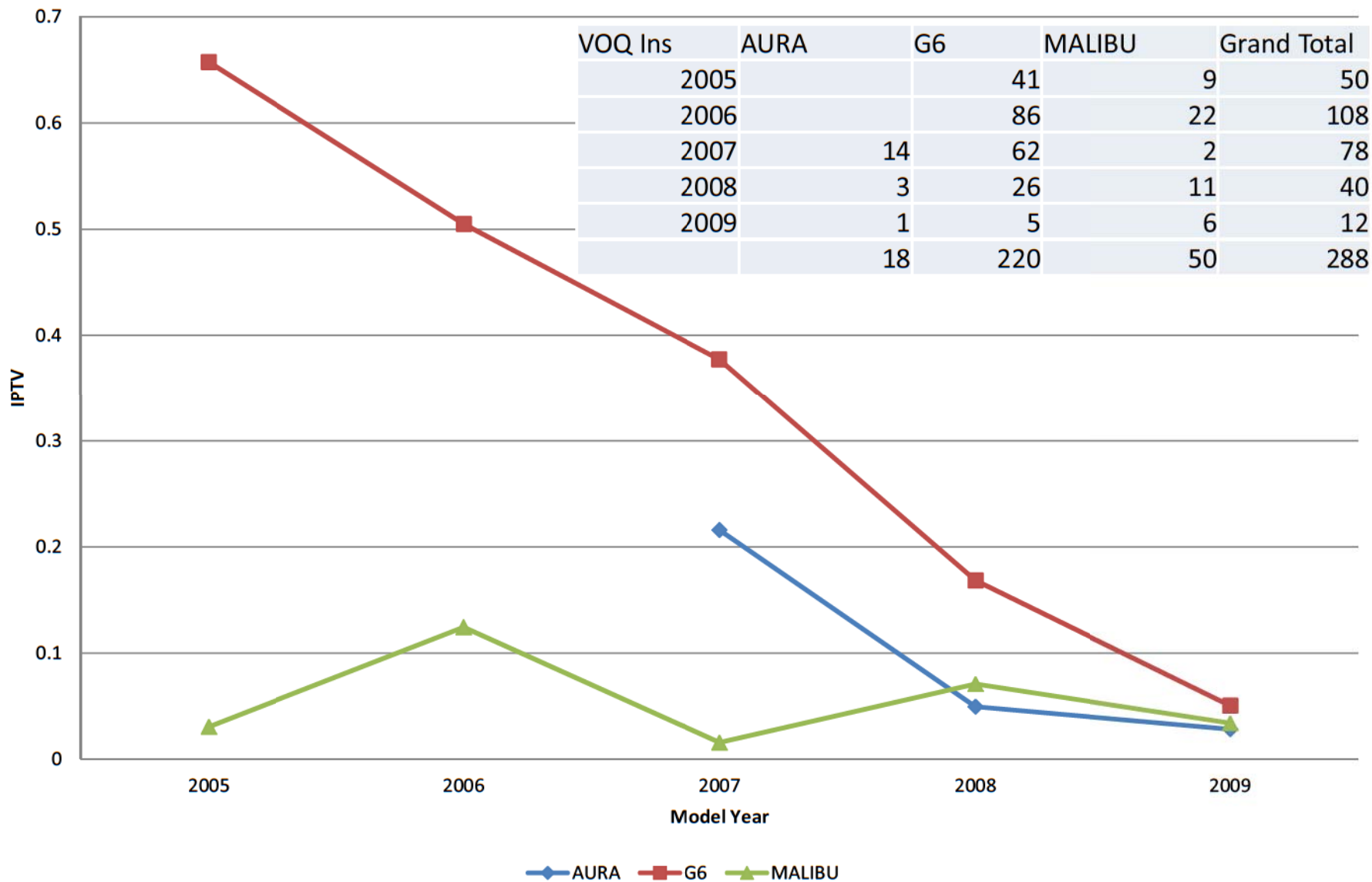
Nov 2008 and June 2012 Warranty IPTV @ 36 MIS



Intermittently Brake Lamps Do Not Function Correctly

2005-09MY G6, Mailbu and 2007-09MY Aura

Stop Lamp VOQ IPTV for US only

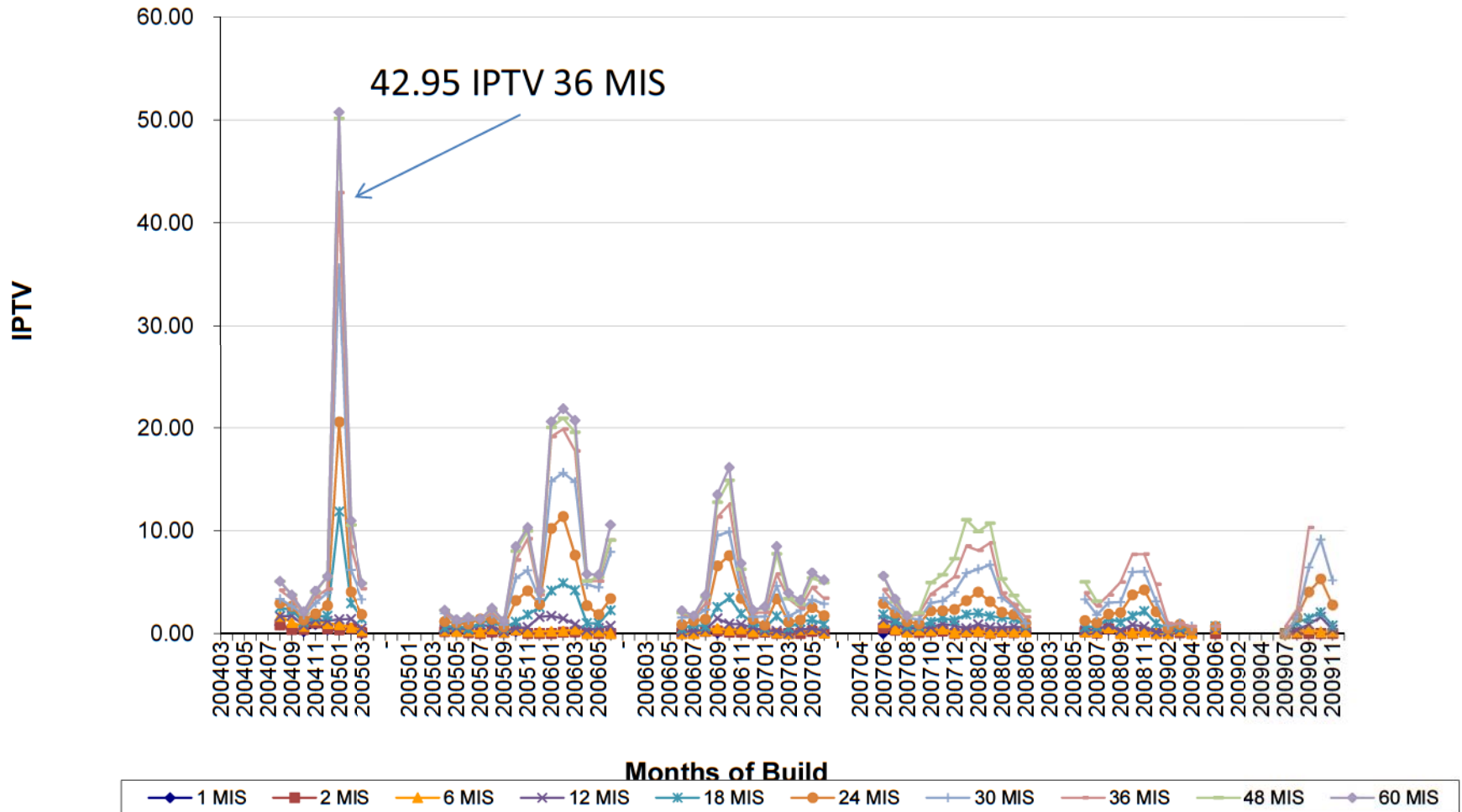


| VOQ Ins | AURA | G6 | MALIBU | Grand Total | |
|---------|------|----|--------|-------------|-----|
| 2005 | | | 41 | 9 | 50 |
| 2006 | | | 86 | 22 | 108 |
| 2007 | 14 | | 62 | 2 | 78 |
| 2008 | 3 | | 26 | 11 | 40 |
| 2009 | 1 | | 5 | 6 | 12 |
| | 18 | | 220 | 50 | 288 |

Intermittently Brake Lamps Do Not Function Correctly

2005-2009MY Pontiac G6 Stop Lamp

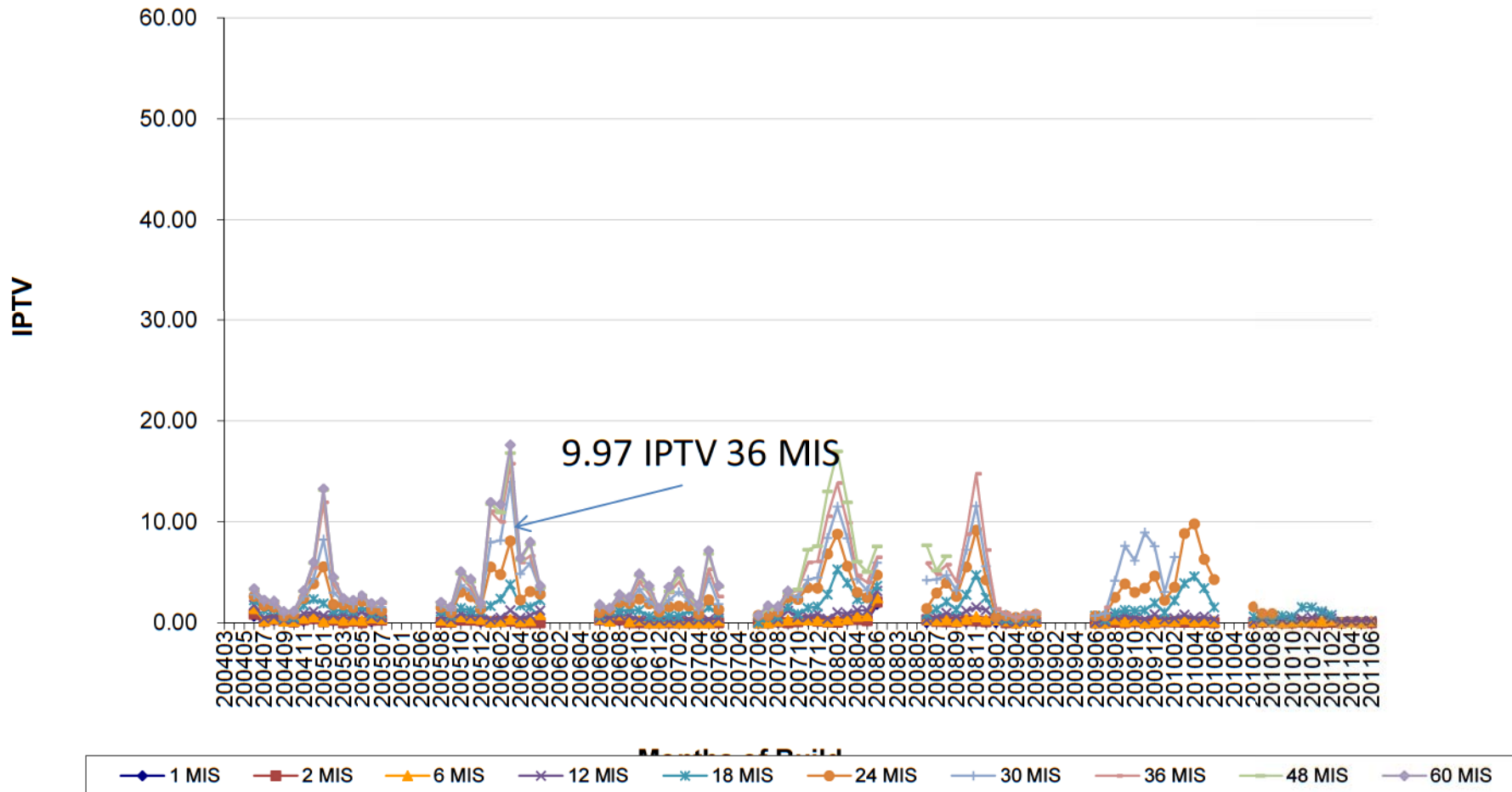
H2642 Brake Pedal Position Sensor Replacement Warranty IPTV in Month of Build



Intermittently Brake Lamps Do Not Function Correctly

2005-2011MY Chevrolet Malibu Stop Lamp

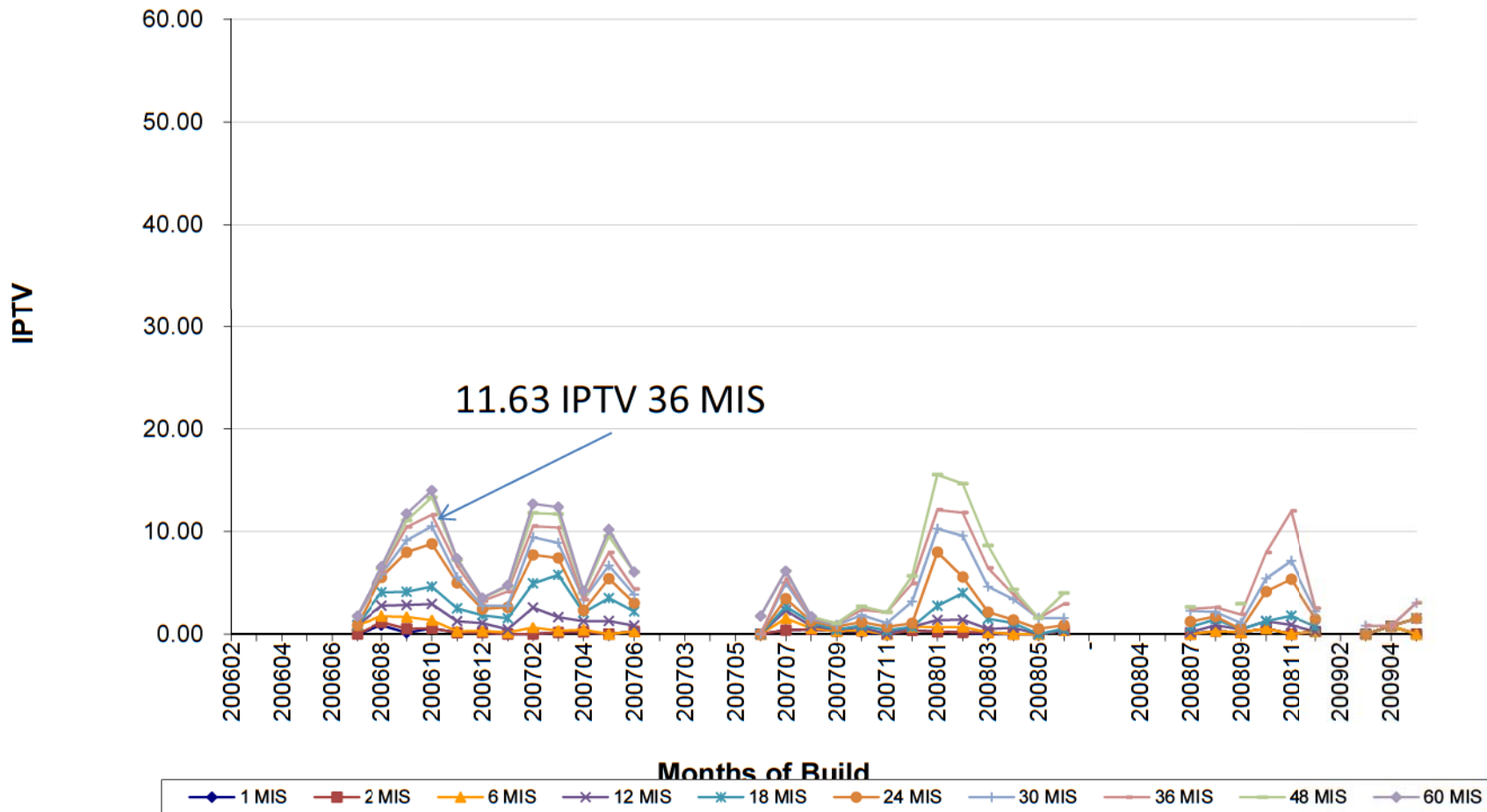
H2642 Brake Pedal Position Sensor Replacement Warranty IPTV in Month of Build



Intermittently Brake Lamps Do Not Function Correctly

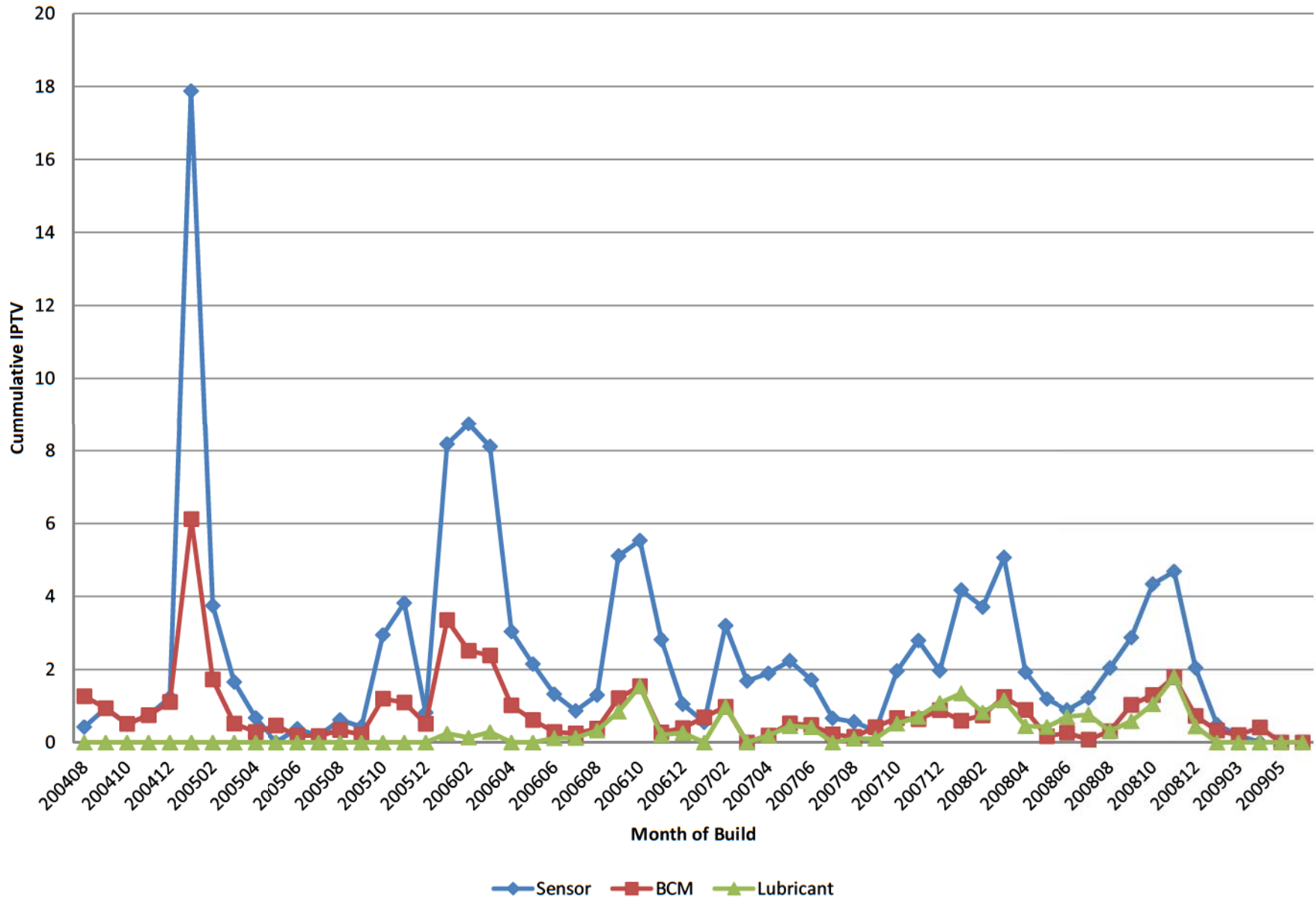
2007-2009MY Saturn Aura Stop Lamp

H2642 Brake Pedal Position Sensor Replacement Warranty IPTV in Month of Build



Back-up

G6 claims by part number in 36 MIS



Intermittently Brake Lamps Do Not Function Correctly Population

2005 – 2009MY Pontiac G6: 619,000

Excluding campaign population (Jan 2005) and vehicles built after February 2009 (grease applied).

| | |
|-------------|---------|
| 2005 | 54,443 |
| 2006 | 170,255 |
| 2007 | 164,260 |
| 2008 | 154,323 |
| 2009 | 75,484 |
| Grand Total | 618,765 |

2005 – 2009MY Epsilon: 1.7M

| Population | Aura | G6 | Malibu | Grand Total |
|------------|---------|---------|---------|-------------|
| 2005 | | 62,360 | 294,833 | 357,193 |
| 2006 | | 170,338 | 176,916 | 347,254 |
| 2007 | 64,847 | 164,260 | 127,660 | 356,767 |
| 2008 | 60,717 | 154,323 | 155,225 | 370,265 |
| 2009 | 35,472 | 99,216 | 176,689 | 311,377 |
| | 161,036 | 650,497 | 931,323 | 1,742,856 |

{ * }

Intermittently Brake Lamps Do Not Function Correctly

Chronology

| | |
|------------|--|
| 9/15/2008 | NHTSA ODI opened PE investigation with 9 VOQs |
| 11/12/2008 | GM responded and stated it is continuing its investigation |
| 1/28/2009 | GM notified NHTSA that GM is conducting safety campaign for 8,012 vehicles built in January 2005 for 2005MY and 2006MY. |
| 1/30/2009 | NHTSA closed the investigation stating that ODI's review of complaint rate for the January 2005 built month is 20 times greater than the remainder of the subject vehicle population and warranty rate is 11 times greater than the remainder of the subject vehicle population. |
| June 2012 | NHTSA requested GM to provide 2005-09MY G6 Brake Lamp Malfunction, Outside Recall information. |



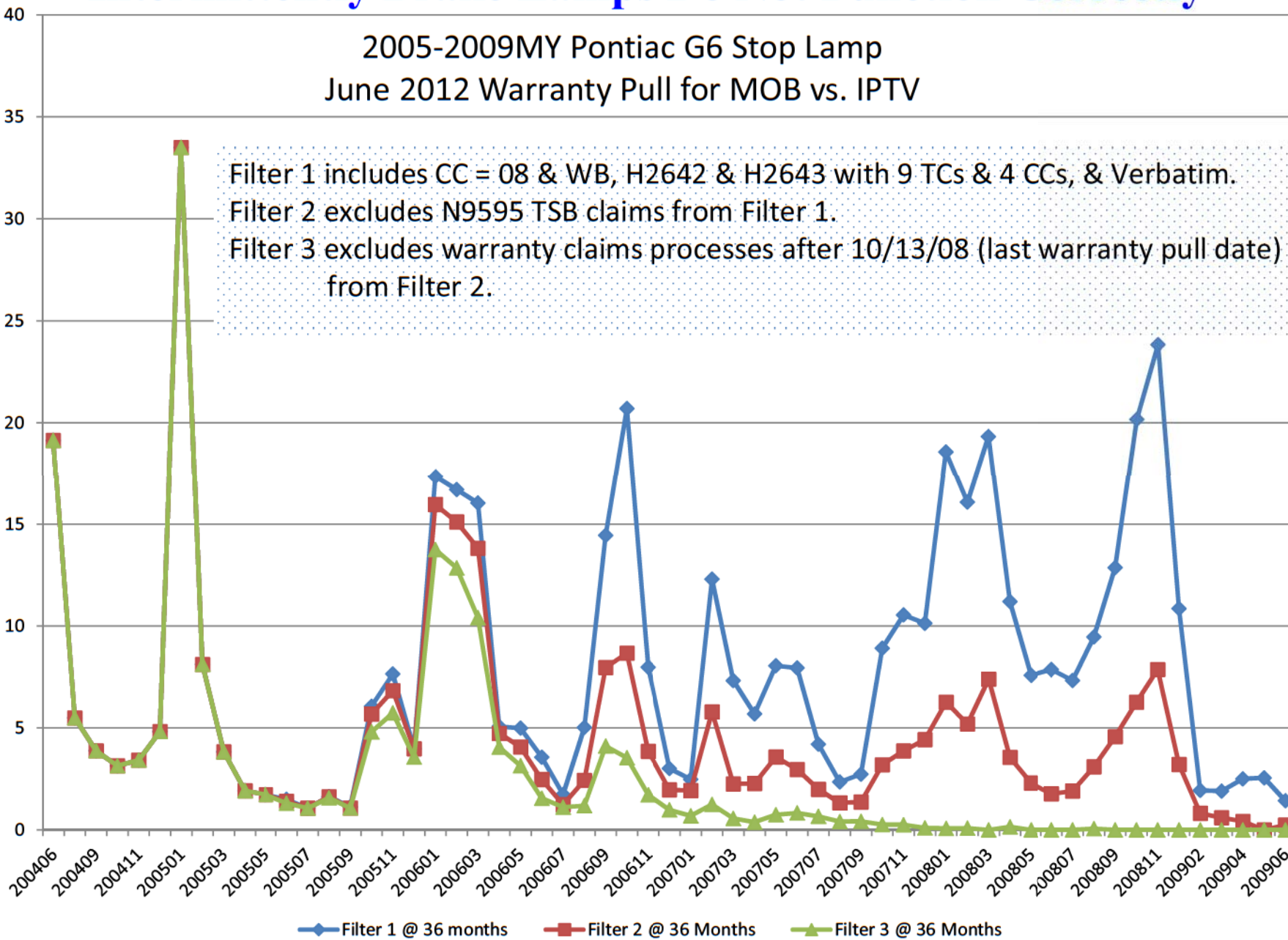
Closing Resume



Intermittently Brake Lamps Do Not Function Correctly

2005-2009MY Pontiac G6 Stop Lamp
June 2012 Warranty Pull for MOB vs. IPTV

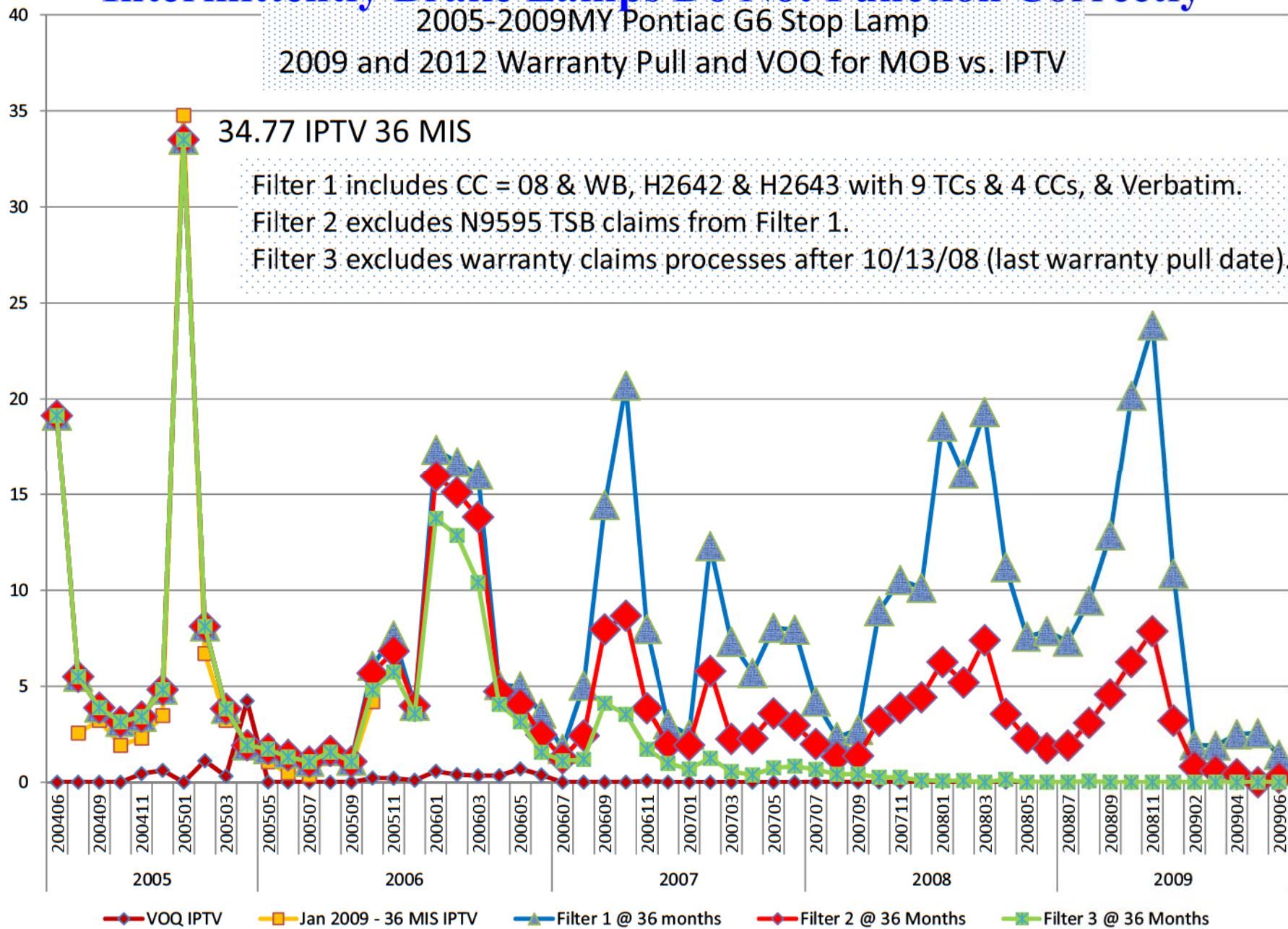
Filter 1 includes CC = 08 & WB, H2642 & H2643 with 9 TCs & 4 CCs, & Verbatim.
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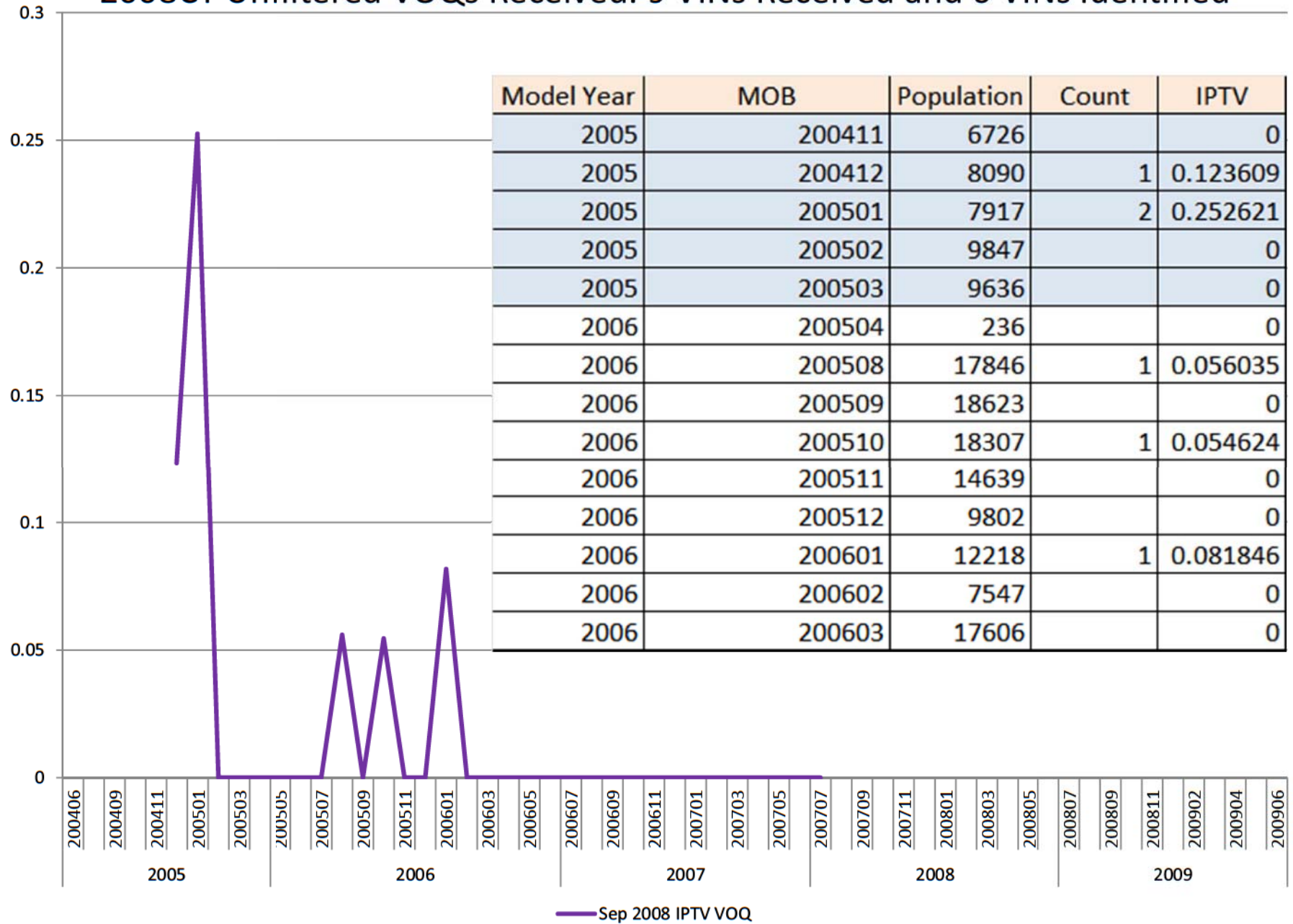
Intermittently Brake Lamps Do Not Function Correctly

2005-2009MY Pontiac G6 Stop Lamp

2009 and 2012 Warranty Pull and VOQ for MOB vs. IPTV

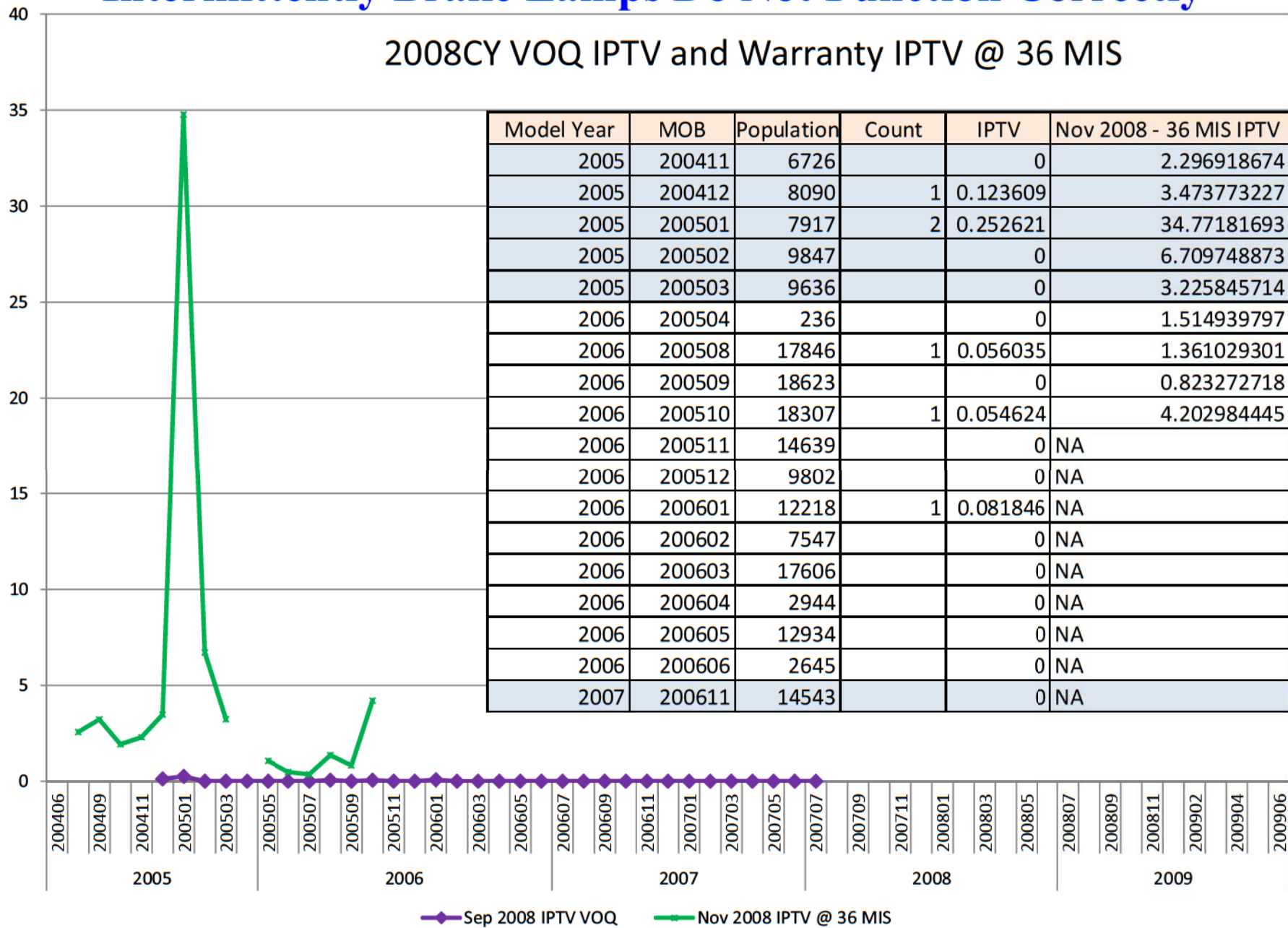


2008CY Unfiltered VOQs Received: 9 VINs Received and 6 VINs Identified



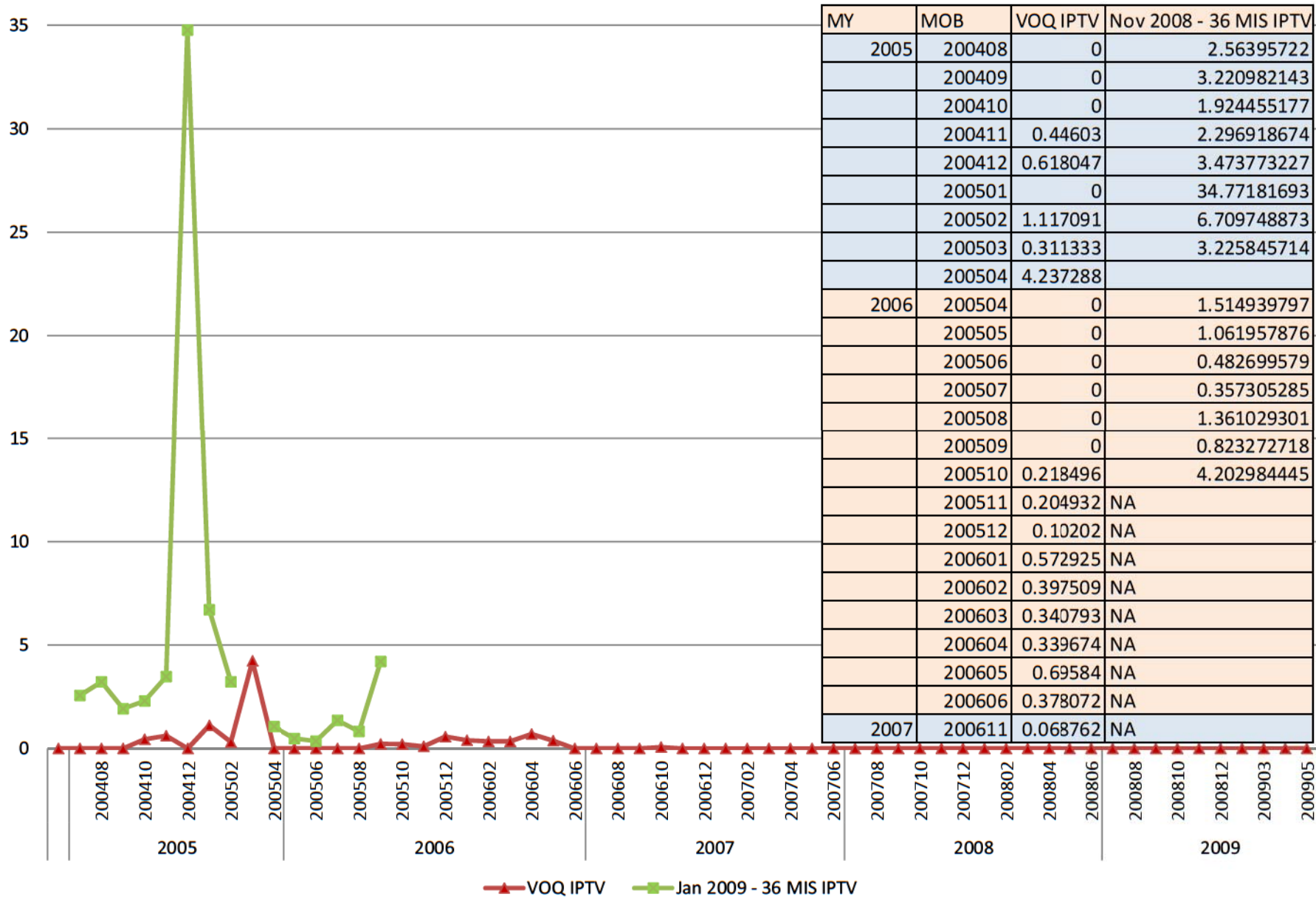
Intermittently Brake Lamps Do Not Function Correctly

2008CY VOQ IPTV and Warranty IPTV @ 36 MIS

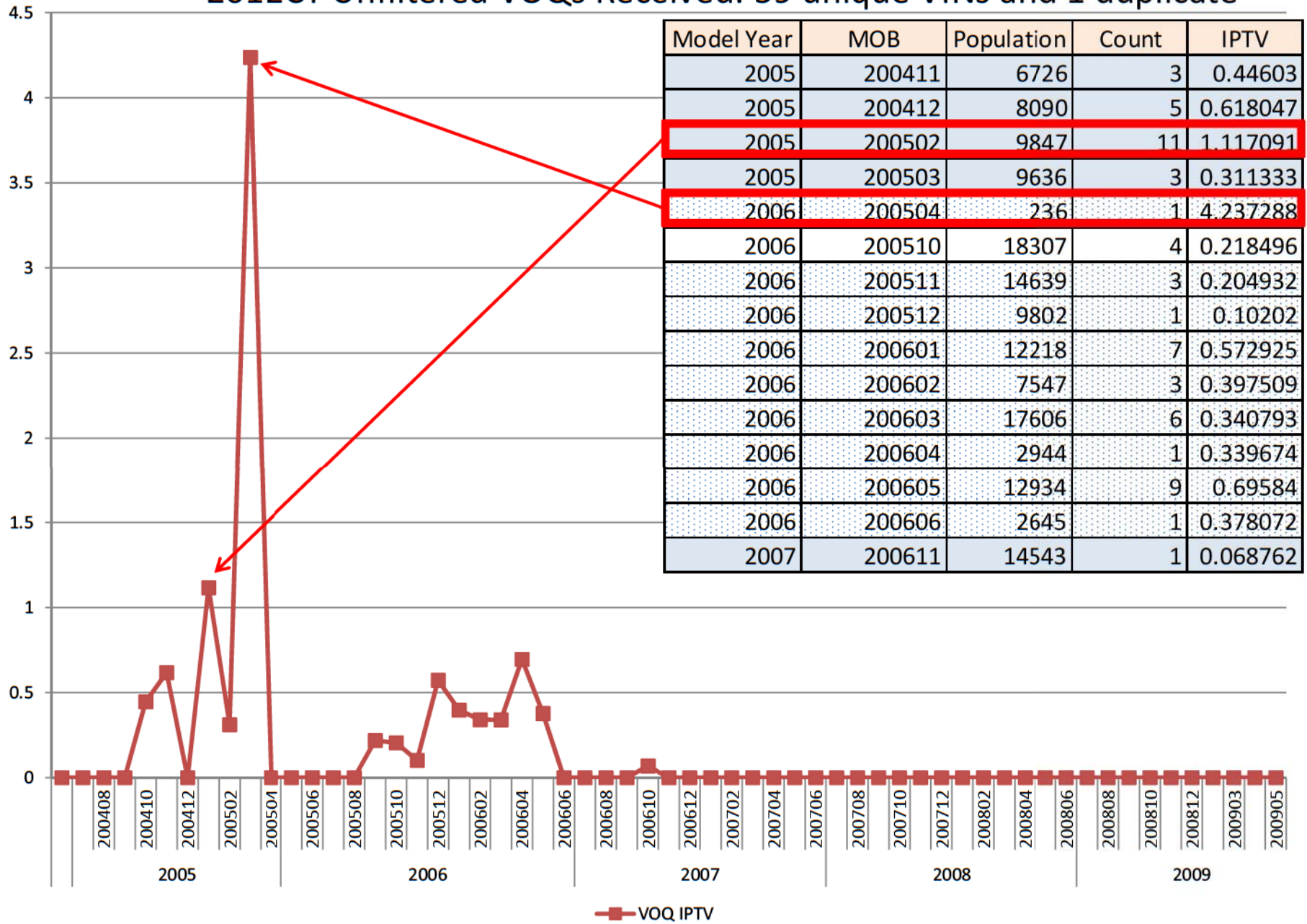


Intermittently Brake Lamps Do Not Function Correctly

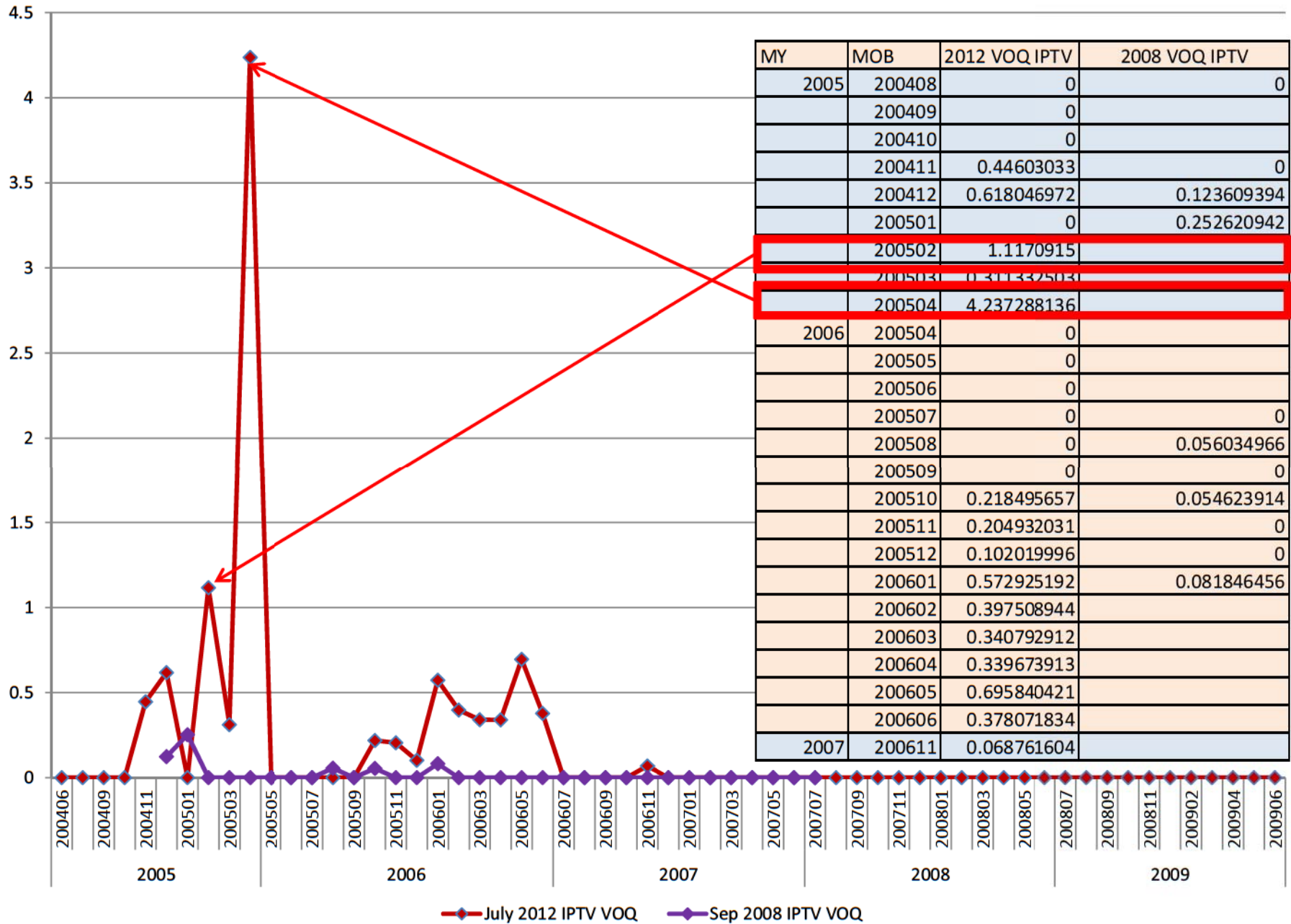
2012 VOQ and Nov 08 Warranty IPTV @ 36MIS Trend line



2012CY Unfiltered VOQs Received: 59 unique VINs and 1 duplicate

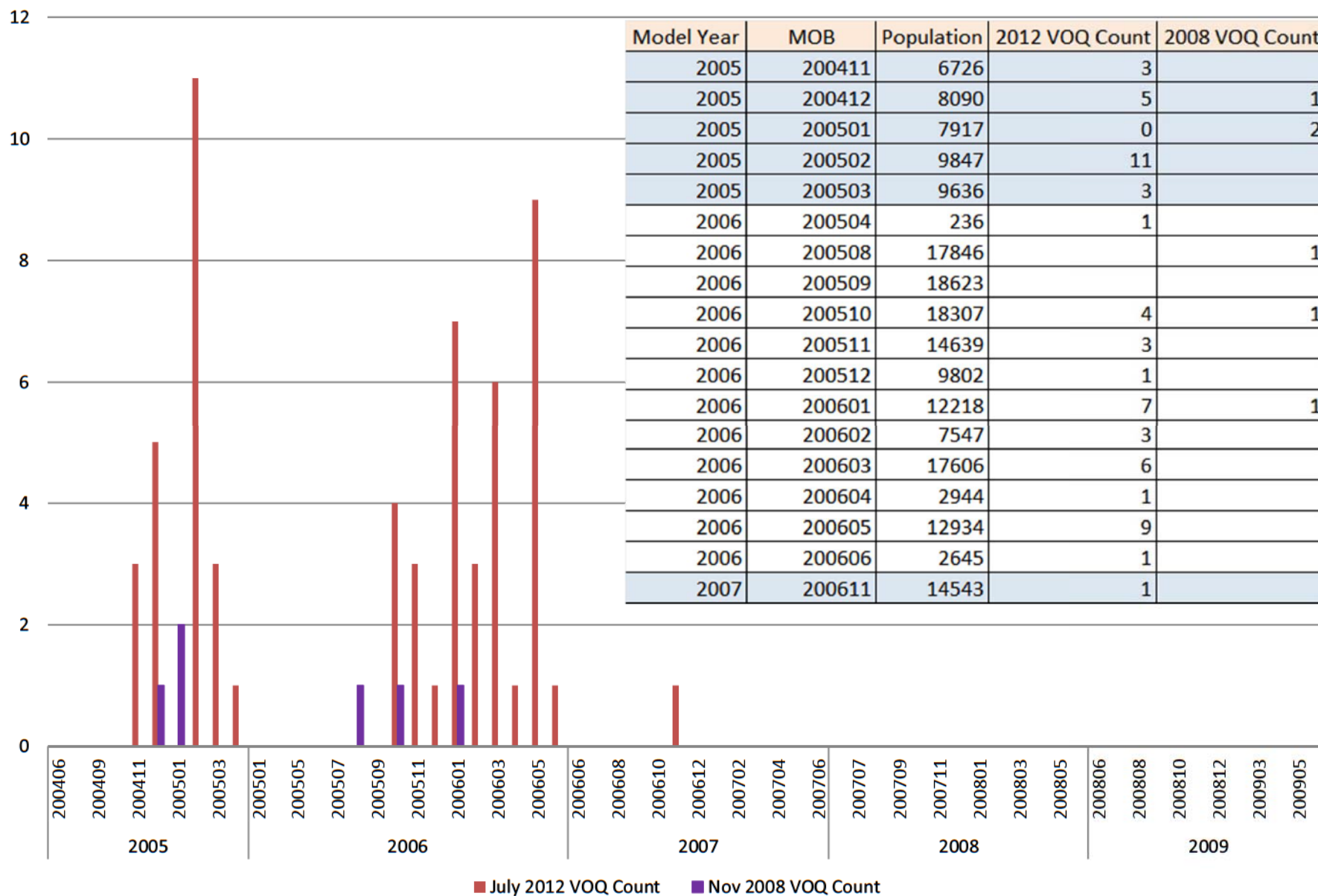


Nov 2008 and June 2012 VOQ IPTV

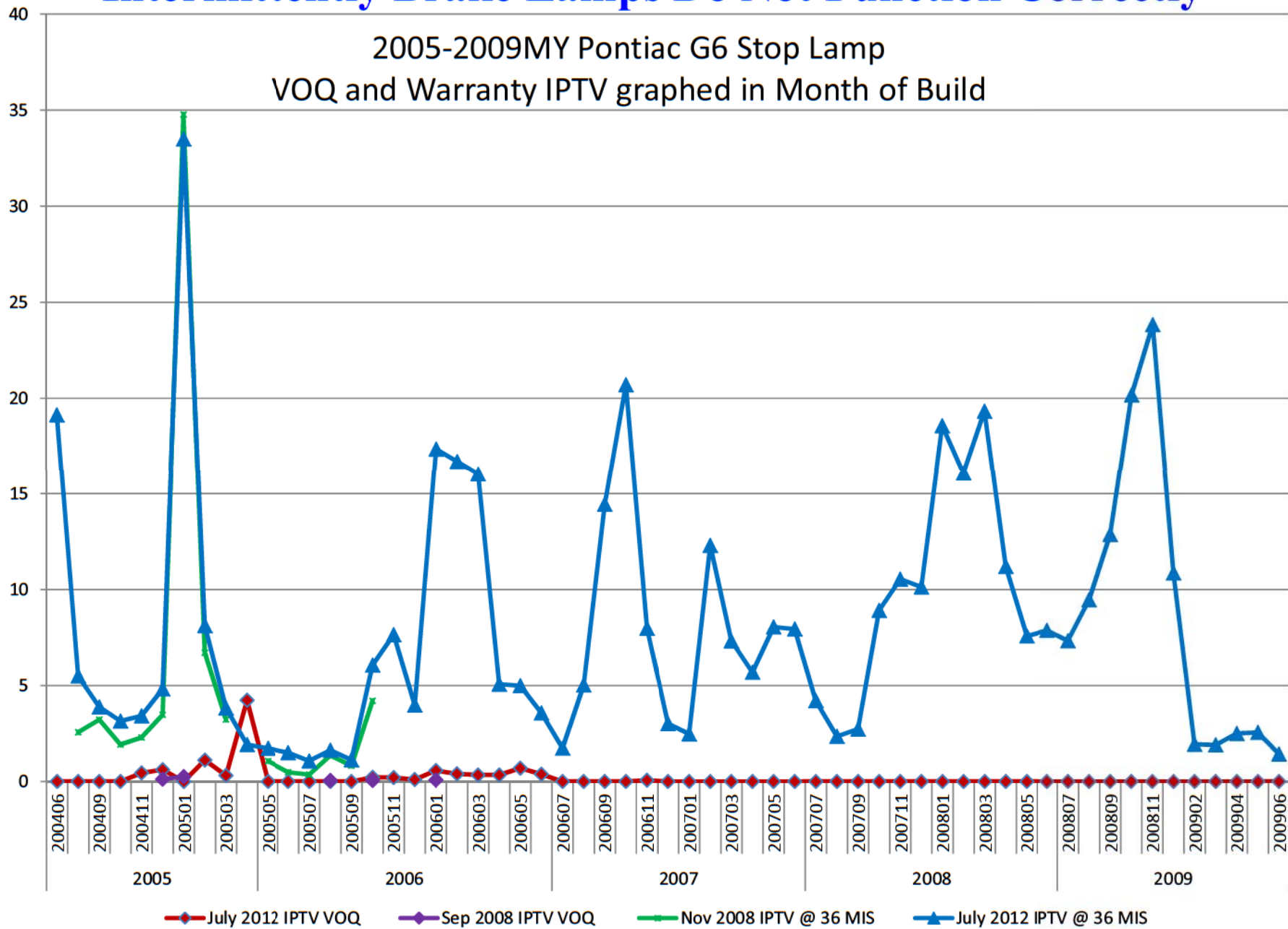


Intermittently Brake Lamps Do Not Function Correctly

VOQ Count Comparison: 2008 (6) vs 2012 (59)



Intermittently Brake Lamps Do Not Function Correctly



2012CY Update of G6 Stop Lamp Warranty Claims

2012CY Warranty Methodology

Started with 27,821

11,852 had correction-verbatim (42.6%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
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| H2640 Pedal / Bushing | 418(1.5) | 7 (0.4) |
| H9991 Cust Concern NTF | 8,531(30.7) | 36 (2.1) |
| N9595 TSB | 3,493 (12.6) | 0 |
| Total | 27,821 | 1,753 (6.3) |

2012CY Warranty Methodology

27,821 including 243 same day repair duplicates

3,490 A. All claims with labor code N9595 were determined to be responsive to the alleged condition.

B. All claims with customer codes 08 (Operation: Won't Turn Off) and WB (Warning Lights-Brake Lights) were determined to be responsive to the alleged condition unless the verbatim text indicated that the claim was unrelated.

20,167 C. Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 2.7 and customer codes in Table 2.8 were determined to be responsive unless the verbatim indicated that the claim was unrelated to the alleged condition.

D. The verbatim of the remaining claims were then read and a claim was determined to be responsive if the verbatim related to loss/malfunction of the brake/stop lamps.

2,168 E. The vehicle claims processed after 10/13/08 are excluded to compare with the original data.

F. All claims for vehicles covered by General Motors recall 08317 were excluded. 6/25/12 Status Affected: 8,012 Completed: 5,707 % Completion: 71.2%

1,753

2009CY Update Methodology

Started with 8,978

2,362 had verbatim (26.3%)

| <u>Labor Code</u> | <u>Started (%)</u> | <u>Filtered (%)</u> |
|-----------------------------|--------------------|---------------------|
| N4800 BCM | 6,758 (75.3) | 274 (17.5) |
| H2642 Sensor, Brake Pedal | 1,984 (22.1) | 1,157 (74) |
| H2643 Sensor, Brake & Accel | 227 (2.5) | 125 (8) |
| H2640 Pedal / Bushing | 6 (0) | 6 (0.4) |
| H9991 Cust Concern NTF | 3 (0) | 3 (0.2) |
| Total | 8,978 | 1,565 (17.4) |

2009CY Update Methodology

For the subject vehicles, the regular warranty, goodwill warranty, and MIC service contract claims with stop lamp malfunction are summarized by model and model year in Table 5-1. For the subject vehicles the UWC service contract claims with indication of stop lamp malfunction are summarized by model and model year in Table 5-2. A summary of the warranty claims, including the information requested in 5(a-k), is provided on the ATT_1_GM disk; folder labeled "Q_05:" refer to the Microsoft Access 2000 file labeled "Q_05_WARRANTY DATA." A list of the labor codes, customer complaint codes and trouble codes used to collect the warranty data is provided in response to item No. 6.

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|---------|---------|---------|---------|-------|
| Pontiac G6 | Regular | 579 | 754 | 232 | 1,565 |
| Pontiac G6 | MIC | 43 | 25 | 2 | 70 |

TABLE 5-1: REGULAR WARRANTY AND MIC SERVICE CONTRACT CLAIMS WITH STOP LAMP MALFUNCTION

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
|-------------|------|---------|---------|---------|-------|
| Pontiac G6 | UWC | 0 | 3 | 0 | 3 |

TABLE 5-2: UWC SERVICE CONTRACT CLAIMS

| SOURCE SYSTEM | LAST DATE GATHERED |
|-------------------------------|--------------------|
| GART - regular warranty | 13 Oct 08 |
| MIC - service contract claims | 14 Oct 08 |
| UWC - service contract claims | 23 Sept 08 |

TABLE 5-3: DATES PULLED

2009CY Update Methodology

8,969

The GM Global Analysis and Reporting Tool (GART-regular warranty) regular warranty database and the Motors Insurance Corp (MIC) service contract claims database were searched using the labor codes that may be related to the alleged defect, listed in Table 6-1. Universal Warranty Corporation (UWC) does not use labor codes or trouble codes.

The following process was used to sort these claims:

- 544 • All claims with customer codes shown in Table 6-2 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 6,800 • Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 6-3 and customer codes in Table 6-4 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- 60 • The verbatims of the remaining claims were then read and the claim was determined to be responsive if the verbatim related to the alleged defect.

1,565

2009CY Update Methodology

| LABOR CODE | DESCRIPTION: |
|------------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp - Adjust |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

TABLE 6-1 LABOR CODES USED IN WARRANTY AND MIC SEARCH

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-----------------------------|
| O8 | OPERATION: WON'T TURN OFF |
| WB | WARNING LIGHTS: BRAKE LIGHT |

TABLE 6-2 CUSTOMER CODES USED IN WARRANTY AND MIC SORTING

| TROUBLE CODE | DESCRIPTION: |
|--------------|-------------------------------|
| 1D | BROKEN |
| 6C | COMPONENT-INOPERATIVE |
| 6D | COMPONENT -INTERMITTENT |
| 6F | COMPONENT -OPEN |
| 3A | MISADJUSTED |
| 9Z | NO TROUBLE FOUND |
| 3L | OUT OF CALIBRATION |
| 3X | REGISTERS INCORRECTLY |
| 6N | CONNECTOR - PARTIAL CONNECTED |

TABLE 6-3 TROUBLE CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

| CUSTOMER CODE | DESCRIPTION: |
|---------------|-------------------------------------|
| OG | OPERATION: EXCESS EFF (EXCESS PLAY) |
| OJ | OPERATION: INOPERATIVE (HARSH) |
| OF | OPERATION: ENGAGE/DIS(EXCESS EFF) |
| O7 | OPERATION: NO MAINTAIN ADJ |

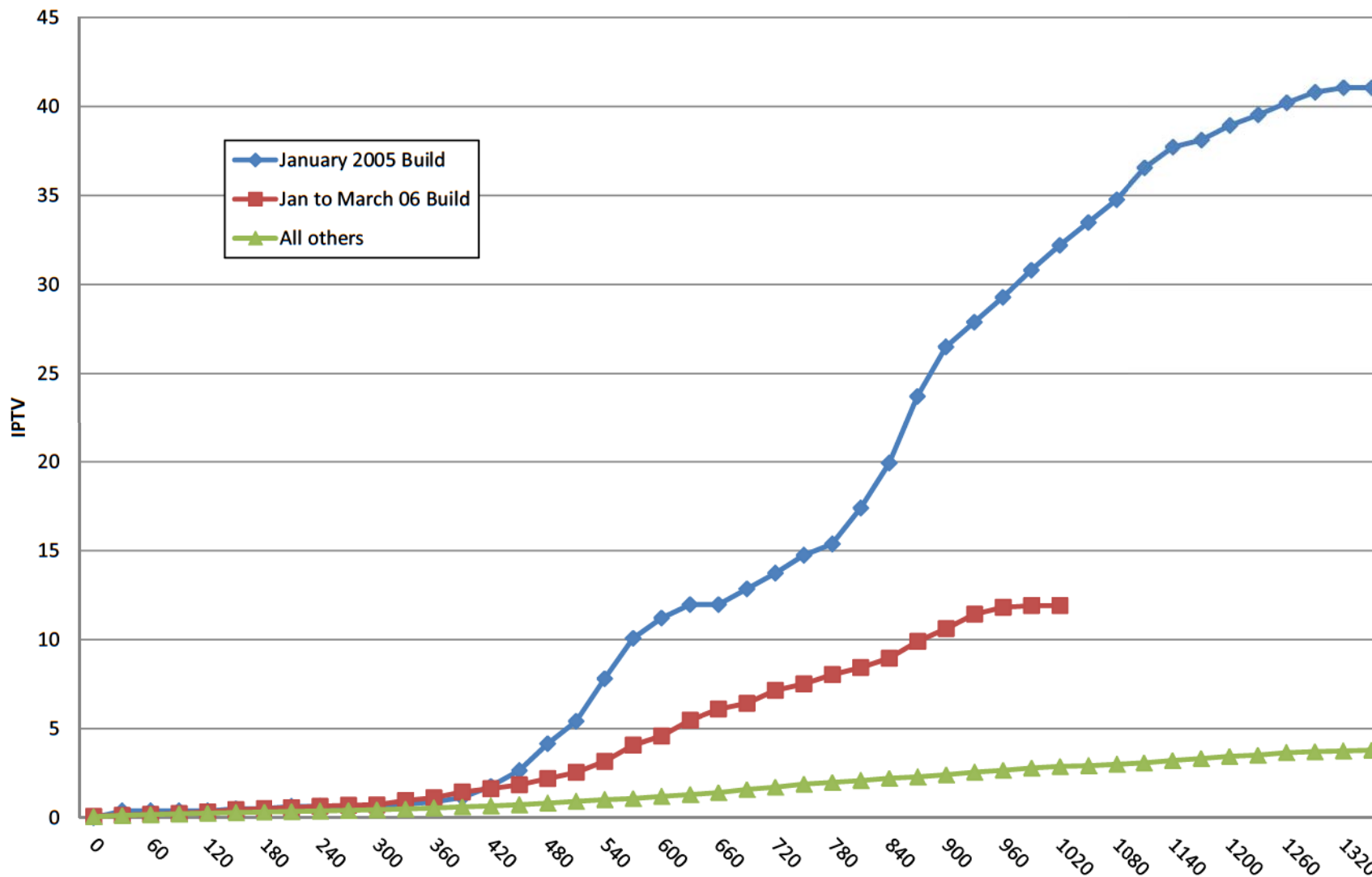
TABLE 6-4 CUSTOMER CODES USED IN LABOR CODE H2642 AND H2643 WARRANTY AND MIC SORTING

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Rationale for 2009 Decision

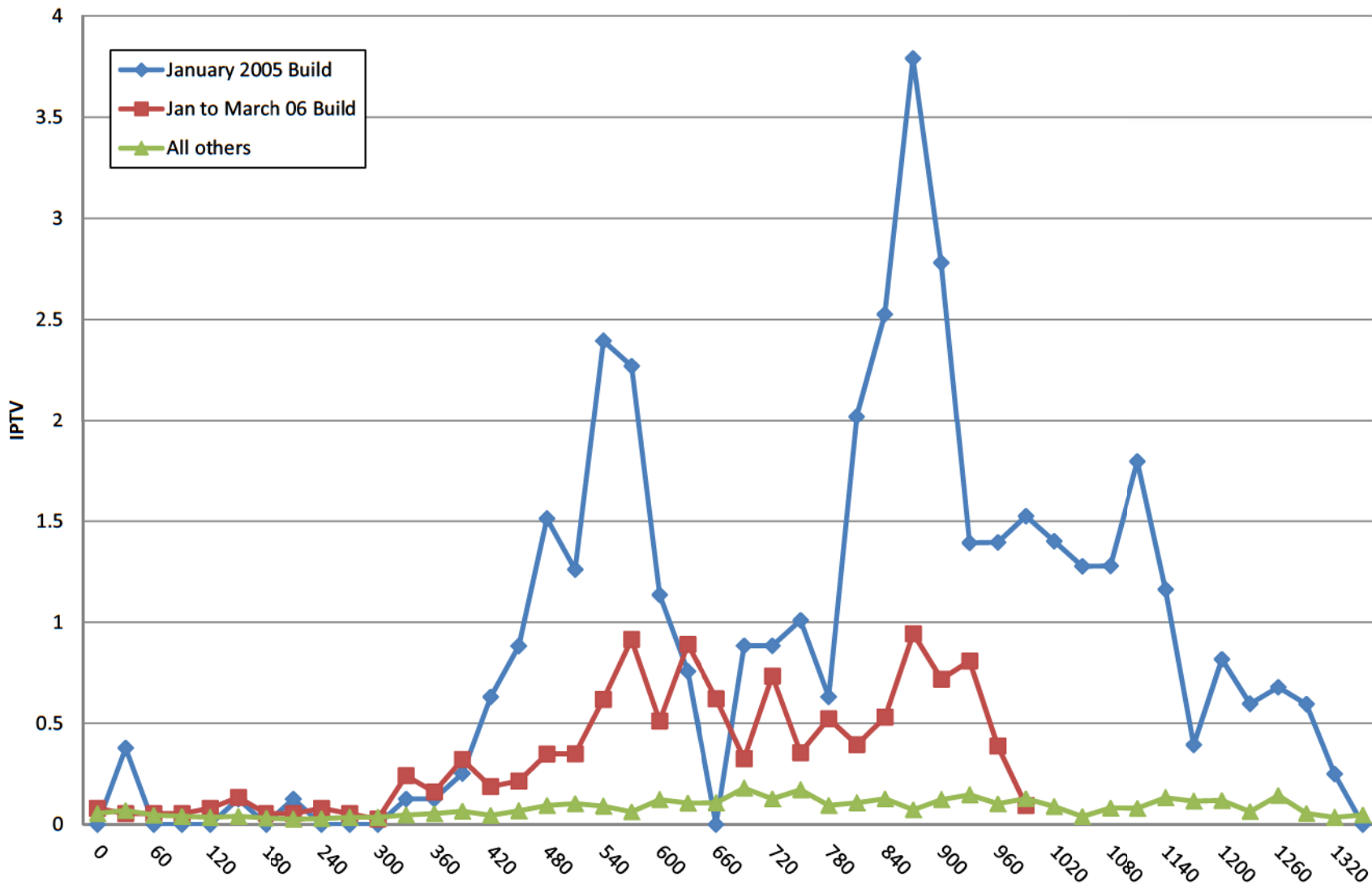
Intermittently Brake Lamps Do Not Function Correctly

G6 Stop Lamp Warranty - Comparison of Select Months of Build



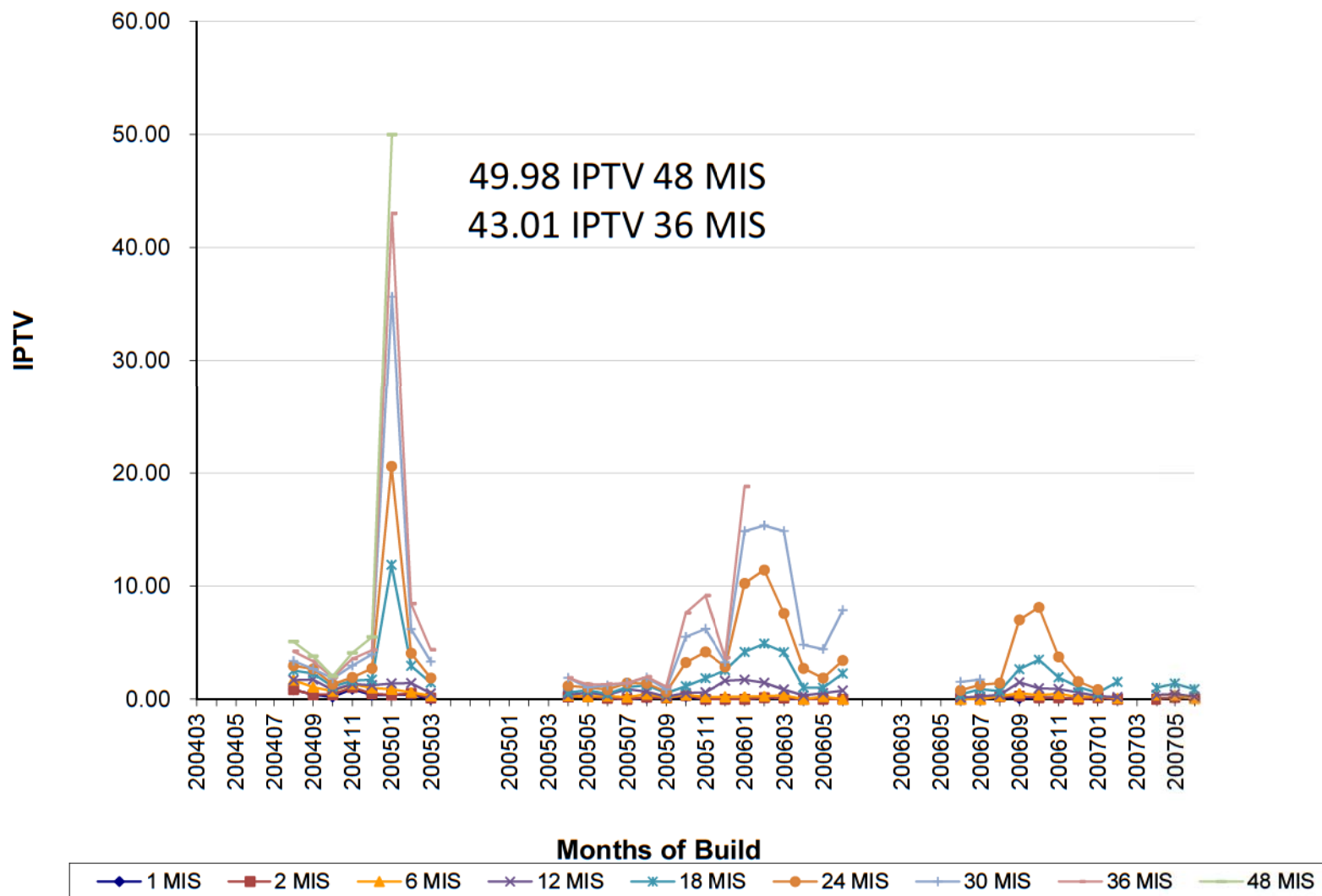
Intermittently Brake Lamps Do Not Function Correctly

05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



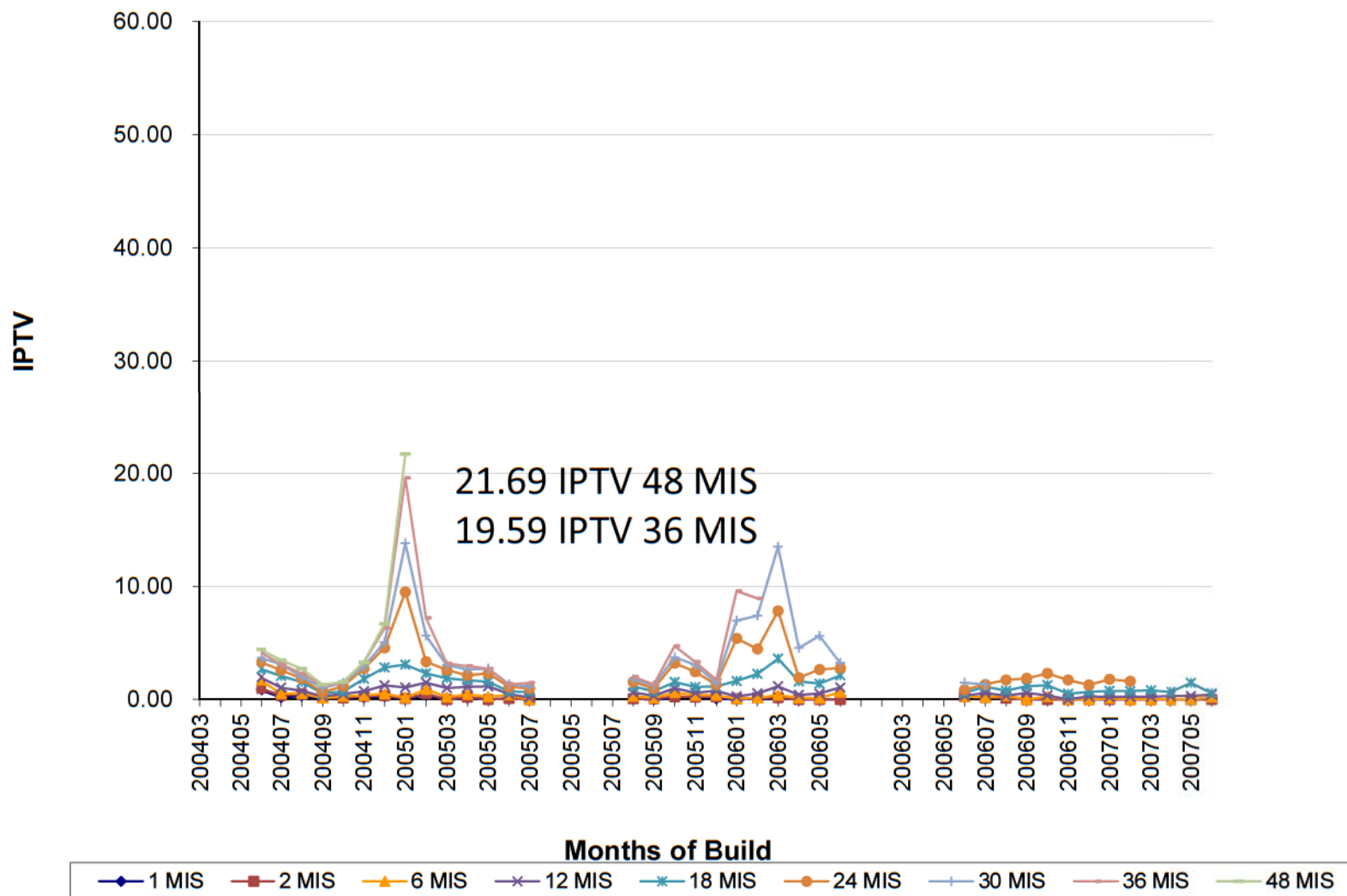
Intermittently Brake Lamps Do Not Function Correctly

Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



Intermittently Brake Lamps Do Not Function Correctly

Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Intermittently Brake Lamps Do Not Function Correctly

The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|----------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Cobalt, Corvette | |
| 2006MY | HHR, Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu | |

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Intermittently Brake Lamps Do Not Function Correctly

Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)

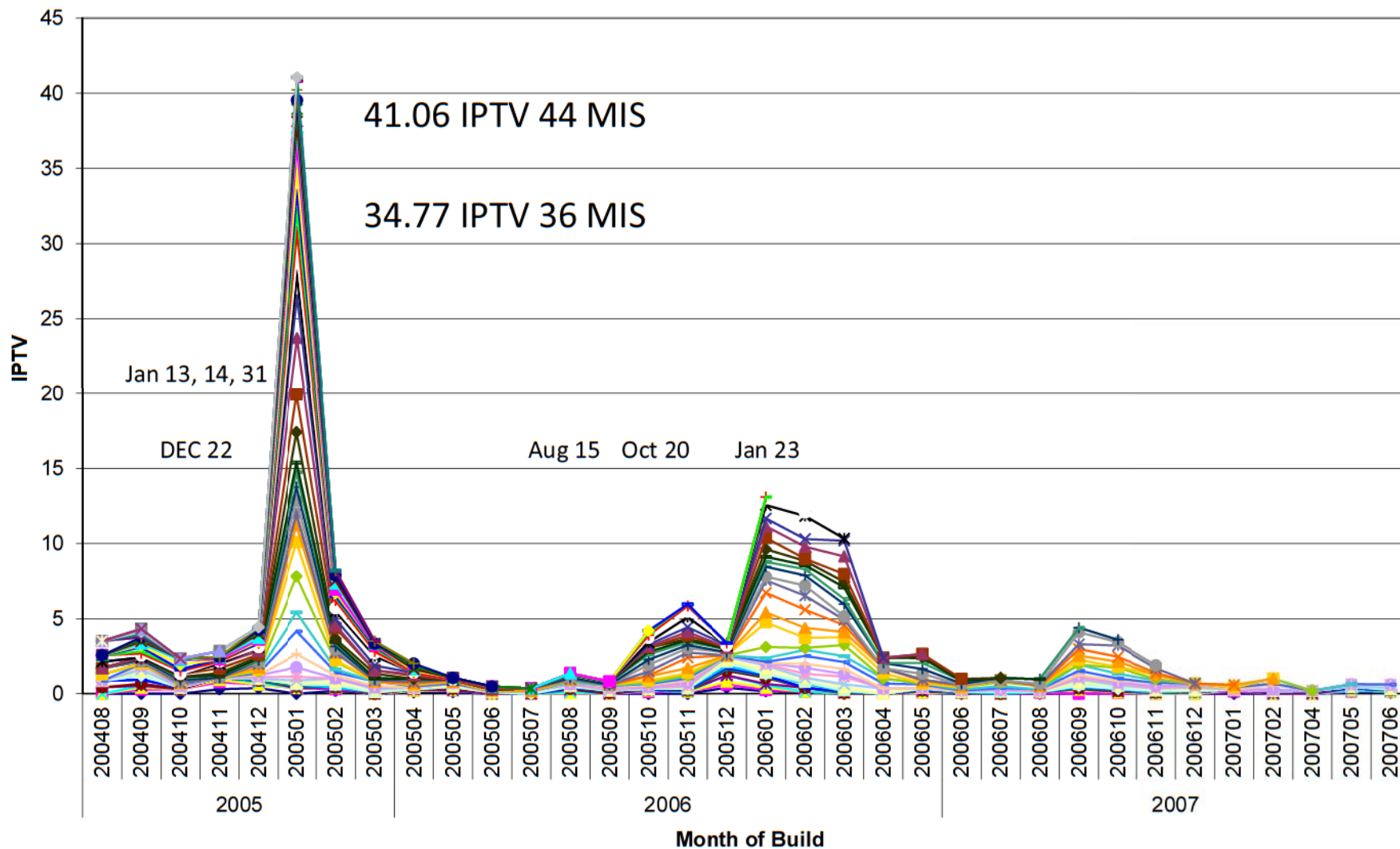


Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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Intermittently Brake Lamps Do Not Function Correctly

2005 - 2007 G6 Intermittent Stop Lamp Warranty



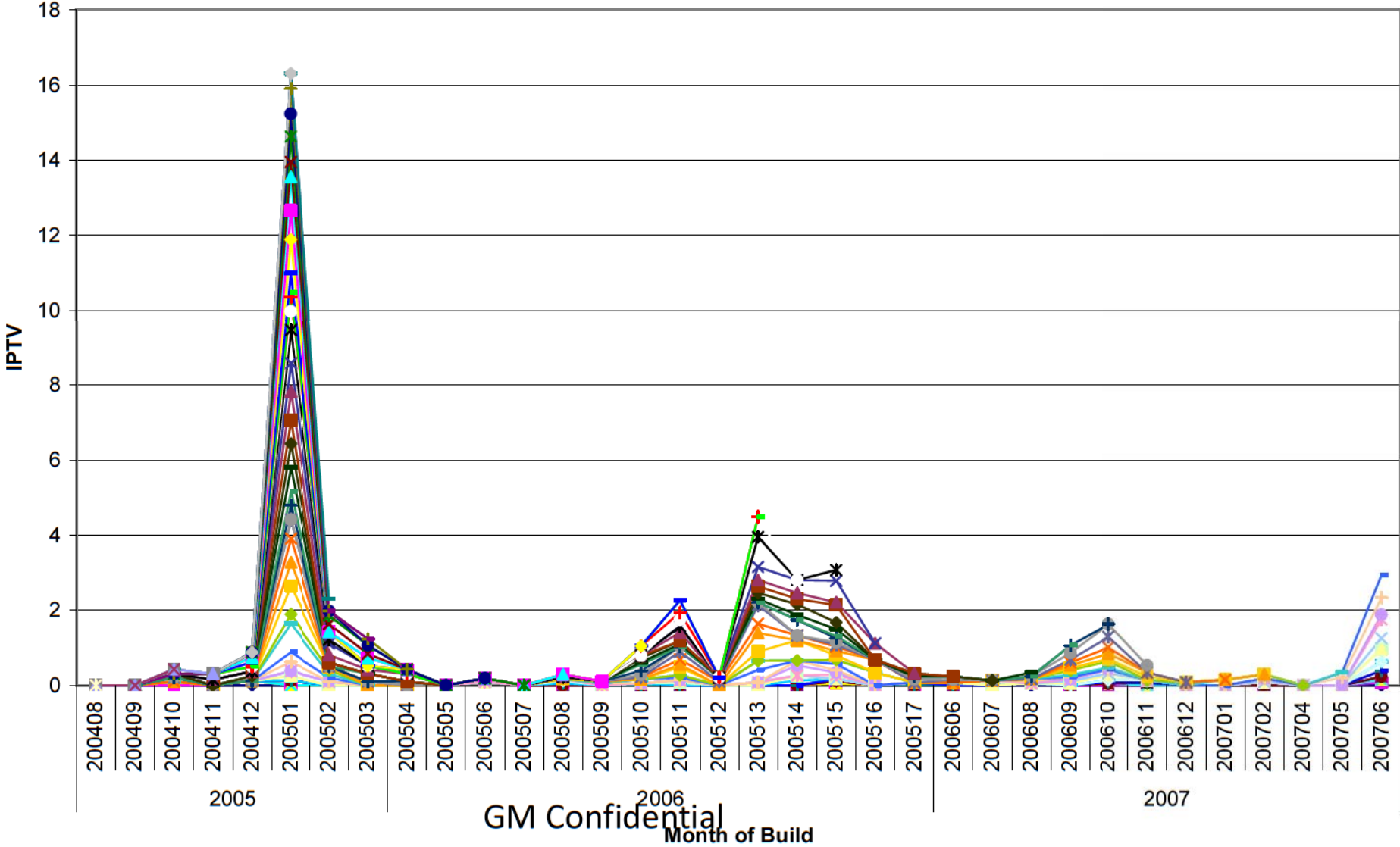
9 VOQs 2005MY: 4

2006MY: 4
GM Confidential

2007MY: 1

2005 - 2007 G6 BASS – TAC and CAC only

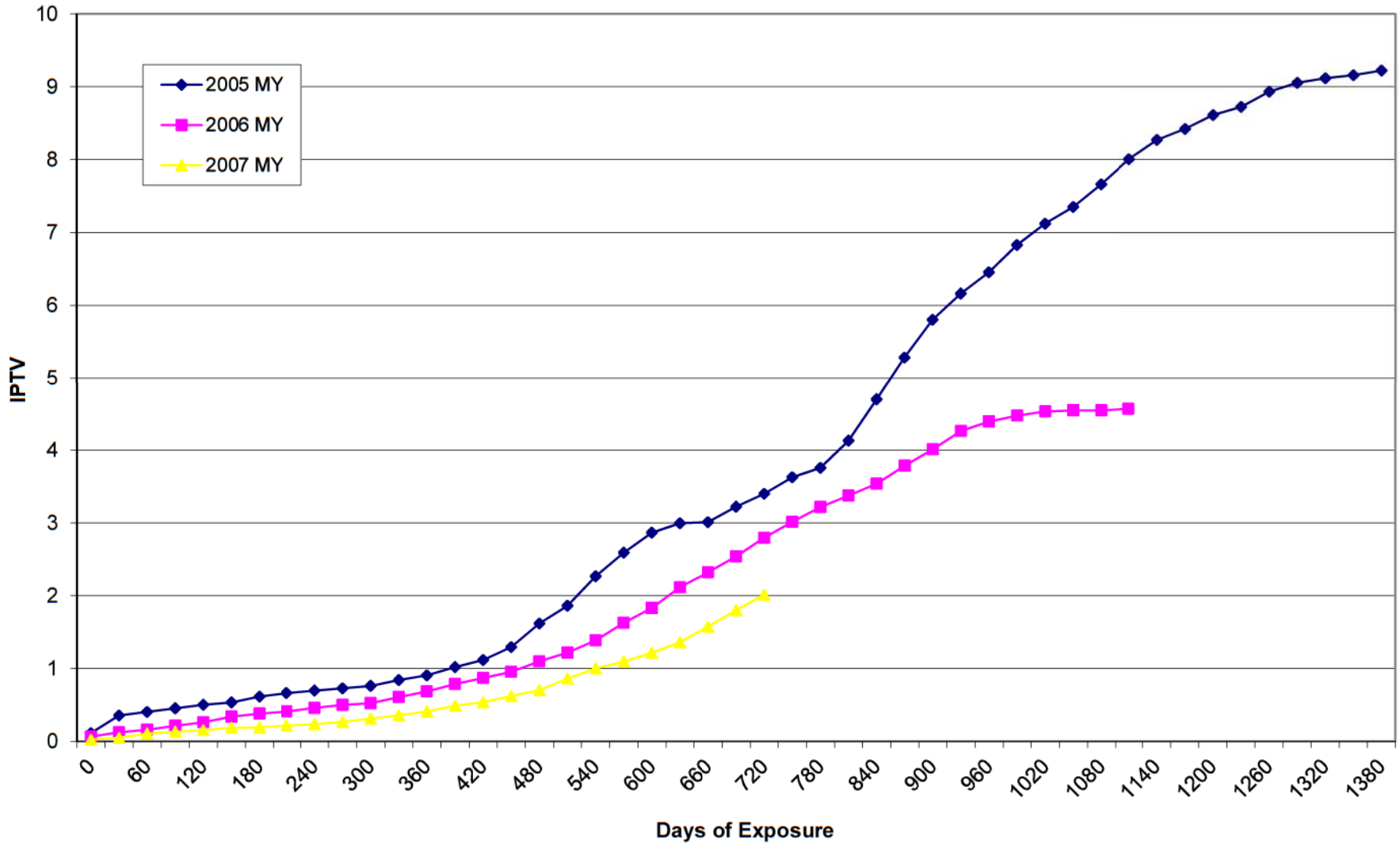
2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only



GM Confidential

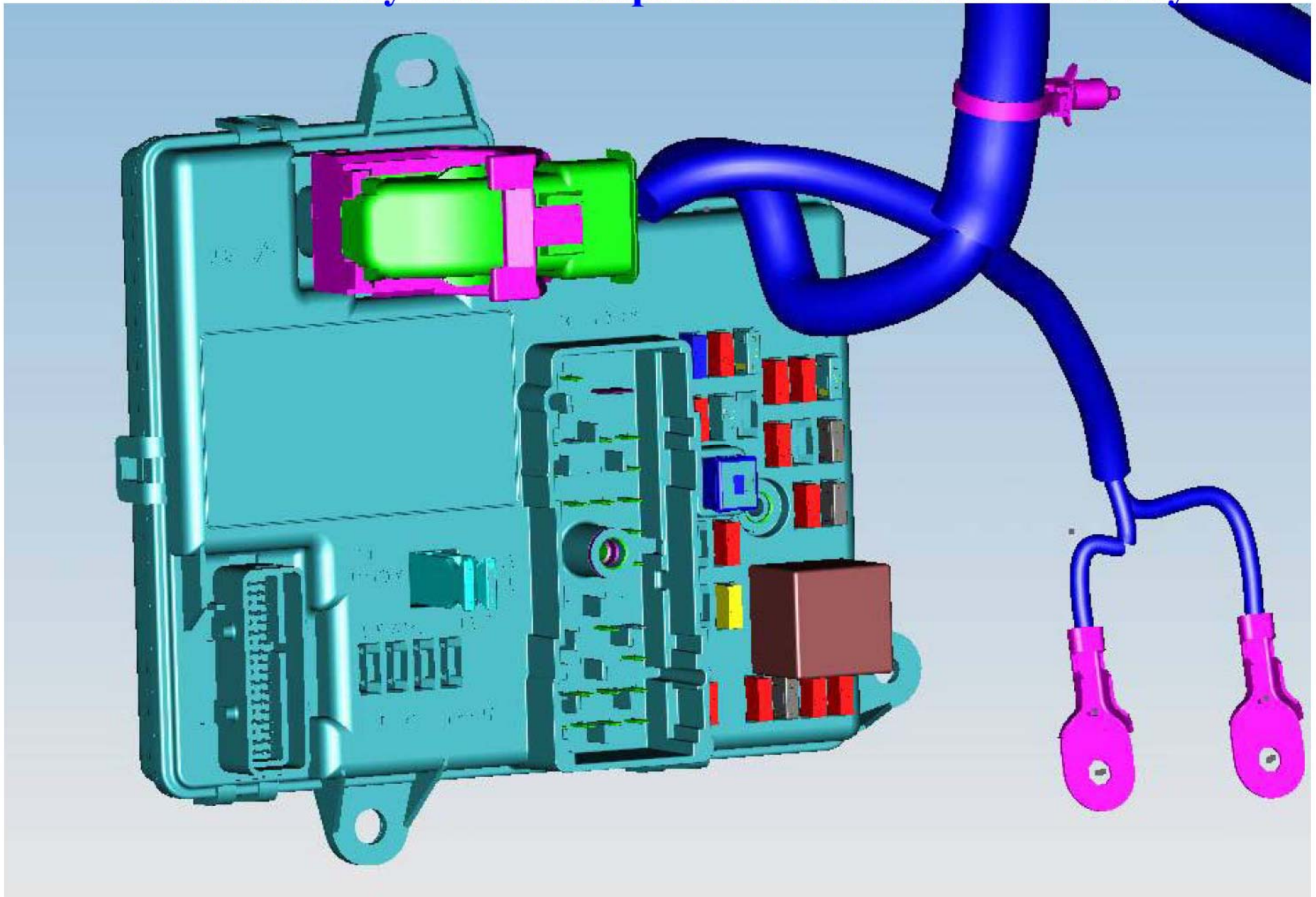
Intermittently Brake Lamps Do Not Function Correctly

2005 - 2007 G6 Intermittent Stop Lamp Warranty



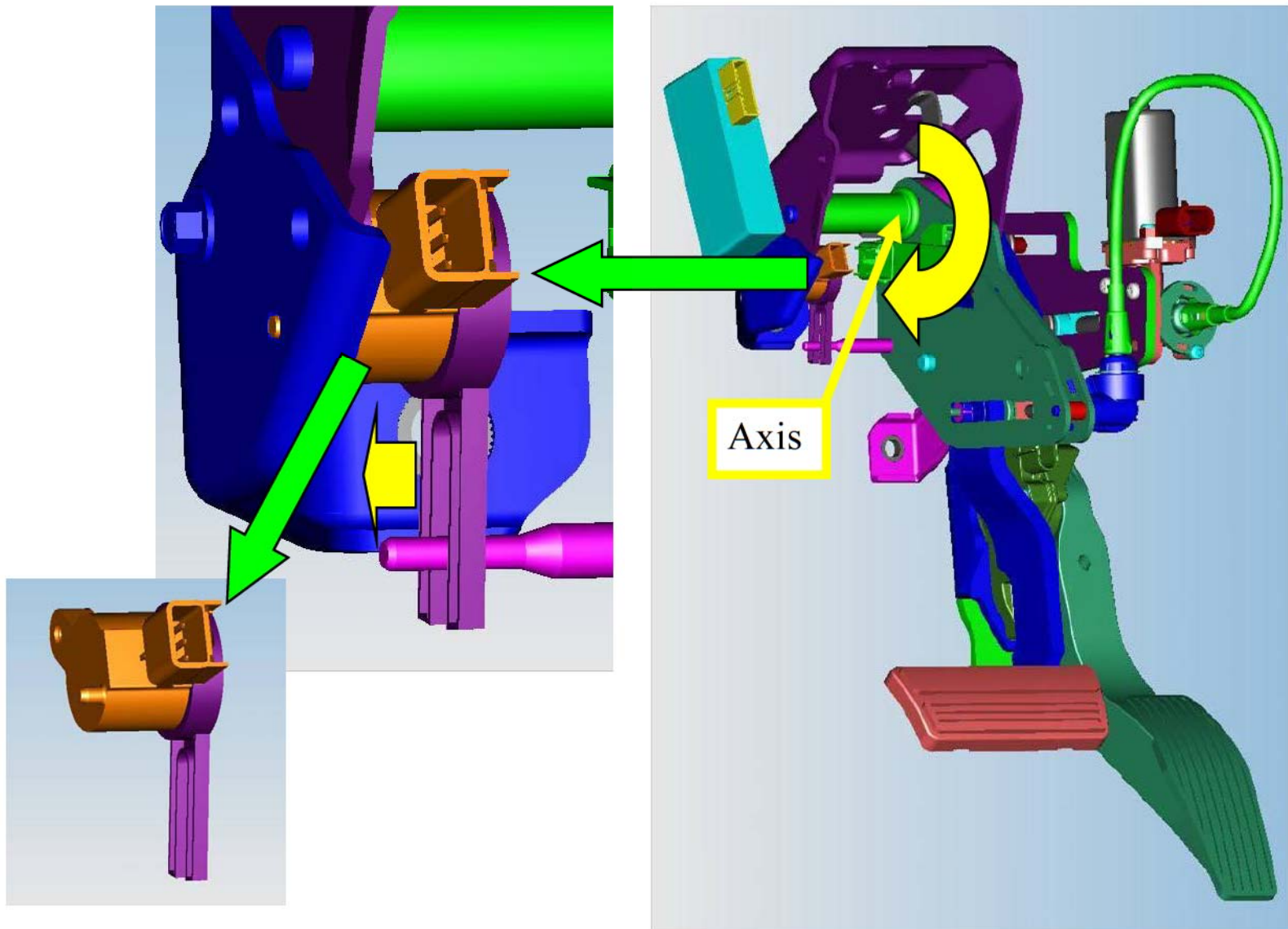
GM Confidential

Intermittently Brake Lamps Do Not Function Correctly

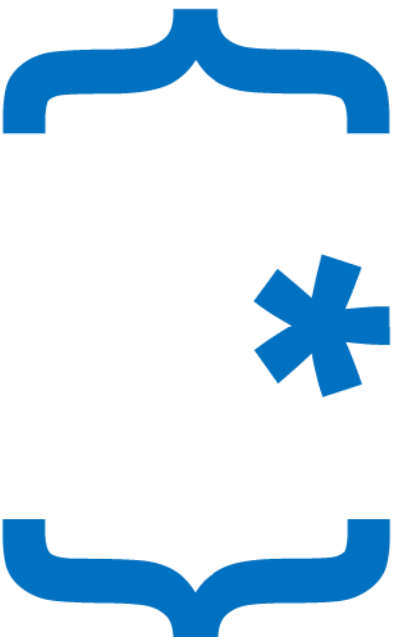


2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



{ * } Indicates GM Confidential Business Information Redacted



GM NORTH AMERICA
SUMMARY OF POTENTIAL FIELD ACTION
Vehicle Issue

SUBJECT: Brake Apply Sensing System

AFFECTED
BUSINESS UNIT: GMNA

VEHICLES: 2005-06 Pontiac G6

CONDITION: Fretting corrosion can occur in the body control module (BCM) C2 wiring connector that can cause an increase in resistance, which results in a lower brake apply sensing signal voltage to the body control module. Vehicles with this BCM connector corrosion may experience the following conditions:

- The brake lamps may illuminate when the brake pedal has not been depressed, or the lamps may not illuminate when the brake pedal is depressed,
- the cruise control may not engage,
- additional brake pedal travel would be required to remove the gear shift mechanism from PARK.

POTENTIAL
CORRECTION: Dealers could clean the body control module connector and apply a dielectric lubricant to prevent corrosion.

EST. NUMBER
OF VEHICLES: 9,416

{ ** }

RESPONSIBILITY: TBD

COMMENTS:

**VEHICLES POTENTIALLY AFFECTED BY SELLING DIVISION, MODEL, AND MODEL YEAR
PLUS INCLUSIVE DATES OF MANUFACTURE**

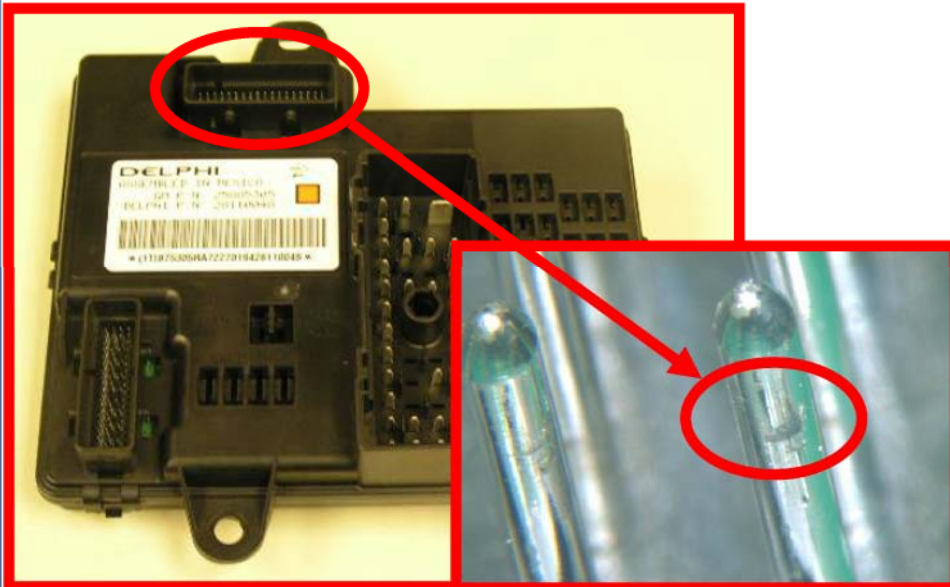
| Selling Division | Model (i.e. C/K, U) | Model Year | Number Involved | Inclusive Manufacturing Dates (From) | Inclusive Manufacturing Dates (To) | Other descriptive information to properly identify vehicles. | Est. No. w/condition |
|-------------------------|----------------------------|-------------------|------------------------|---|---|---|-----------------------------|
| Canada | | | | | | | |
| Pontiac | G6 | 2005 | 1,347 | 01/03/05 | 01/31/05 | | |
| | | 2006 | 8 | 01/11/05 | 01/31/05 | | |
| Total Canada = | | | <u>1,355</u> | | | | |
| | | | | | | | |
| Pontiac | G6 | 2005 | 7,927 | | | | |
| | | 2006 | 85 | | | | |
| Total Pontiac = | | | <u>8,012</u> | | | | |
| | | | | | | | |
| Mexico | | | | | | | |
| Pontiac | G6 | 2005 | 49 | | | | |
| | | | | | | | |
| Total Mexico = | | | <u>49</u> | | | | |
| TOTAL GM = | | | <u>9,416</u> | | | | |

{ * } Indicates GM Confidential Business Information Redacted



Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.



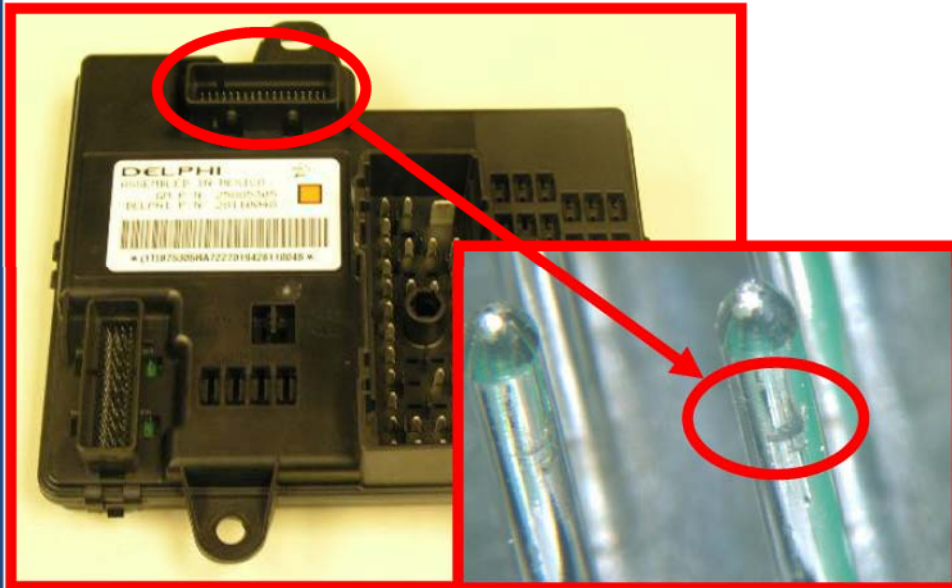
Model Years
2005 - 2006

Models
Pontiac G6

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Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



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Model Years
2005 - 2006

Models
Pontiac G6

Field Action Category
Safety Recall

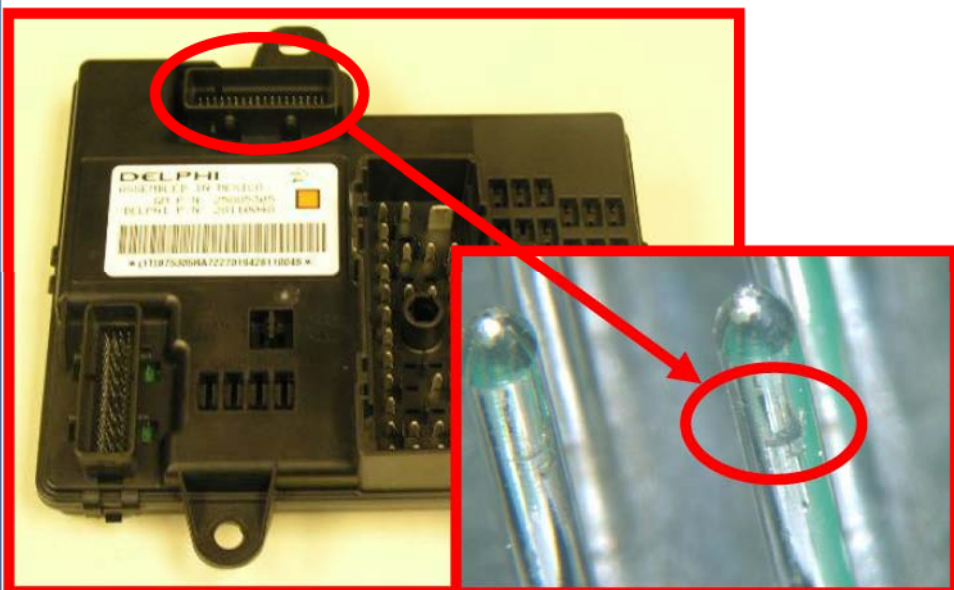
Population Affected
9,423

Estimated Cost \$113,249 2



Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.



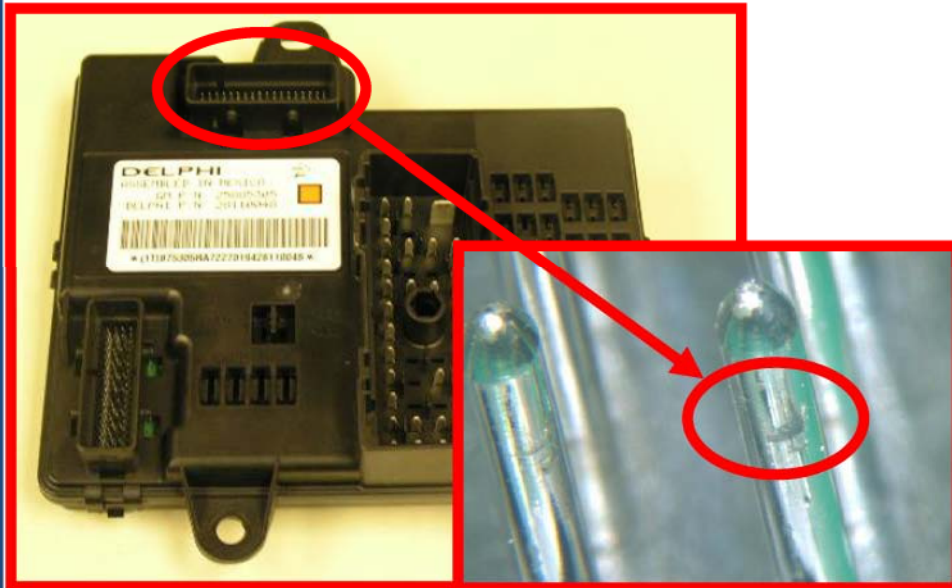
Model Years
2005 - 2006

Models
Pontiac G6

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Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



Model Years
2005 - 2006

Models
Pontiac G6

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Field Action Category
TBD

Population Affected
9,423

{ ** }

Scope

2005 – 2006 Pontiac G6

| M year | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

Immediate Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Projected Frequency

2005 MY 36 MIS Overall = 8.0 IPTV

2006 MY 36 MIS Overall = 4.6 IPTV

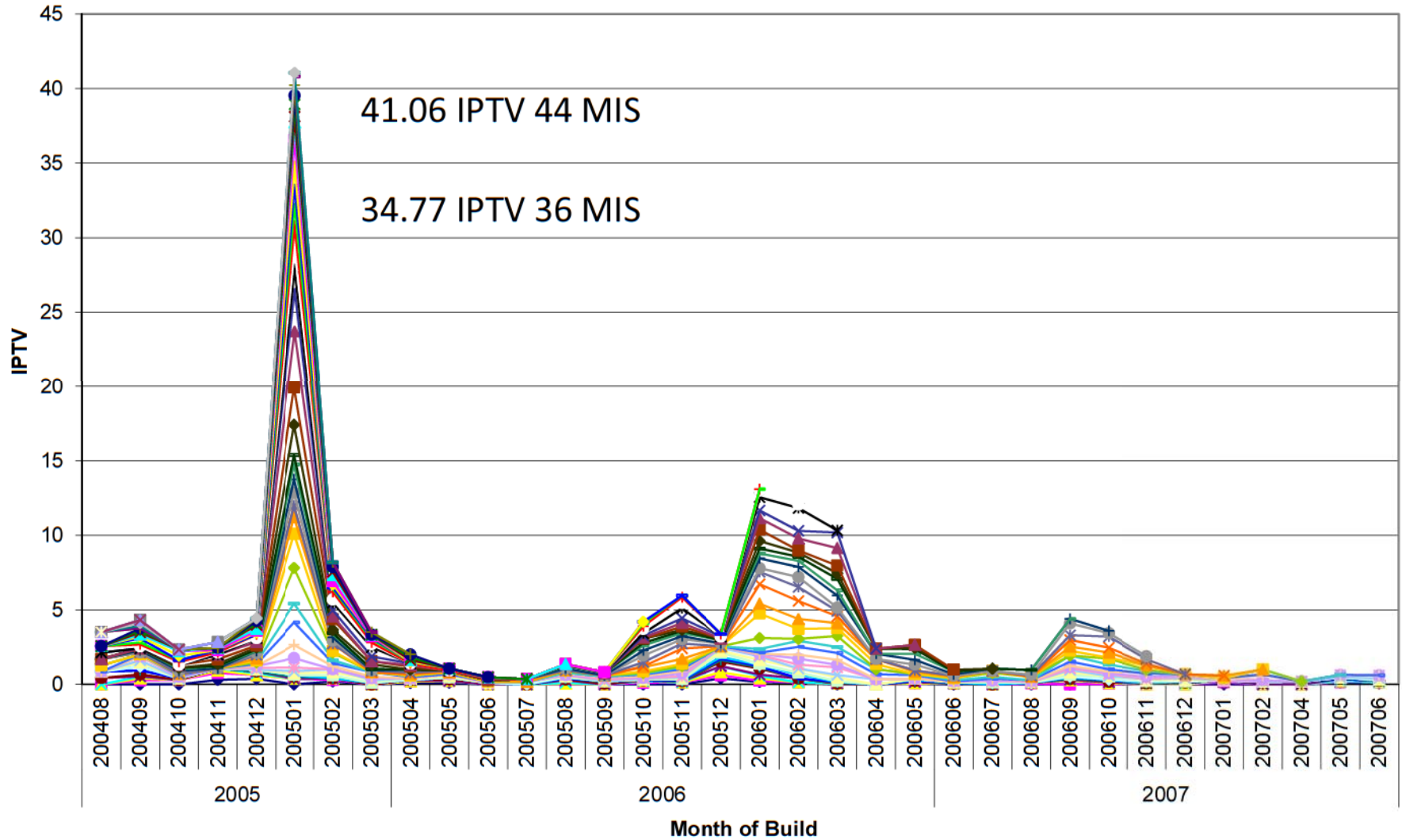
Build of Month January 2005 36 MIS = 34.77 IPTV

Build of Month January 2005 44 MIS = 41.06 IPTV

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2005 - 2007 G6 Intermittent Stop Lamp Warranty

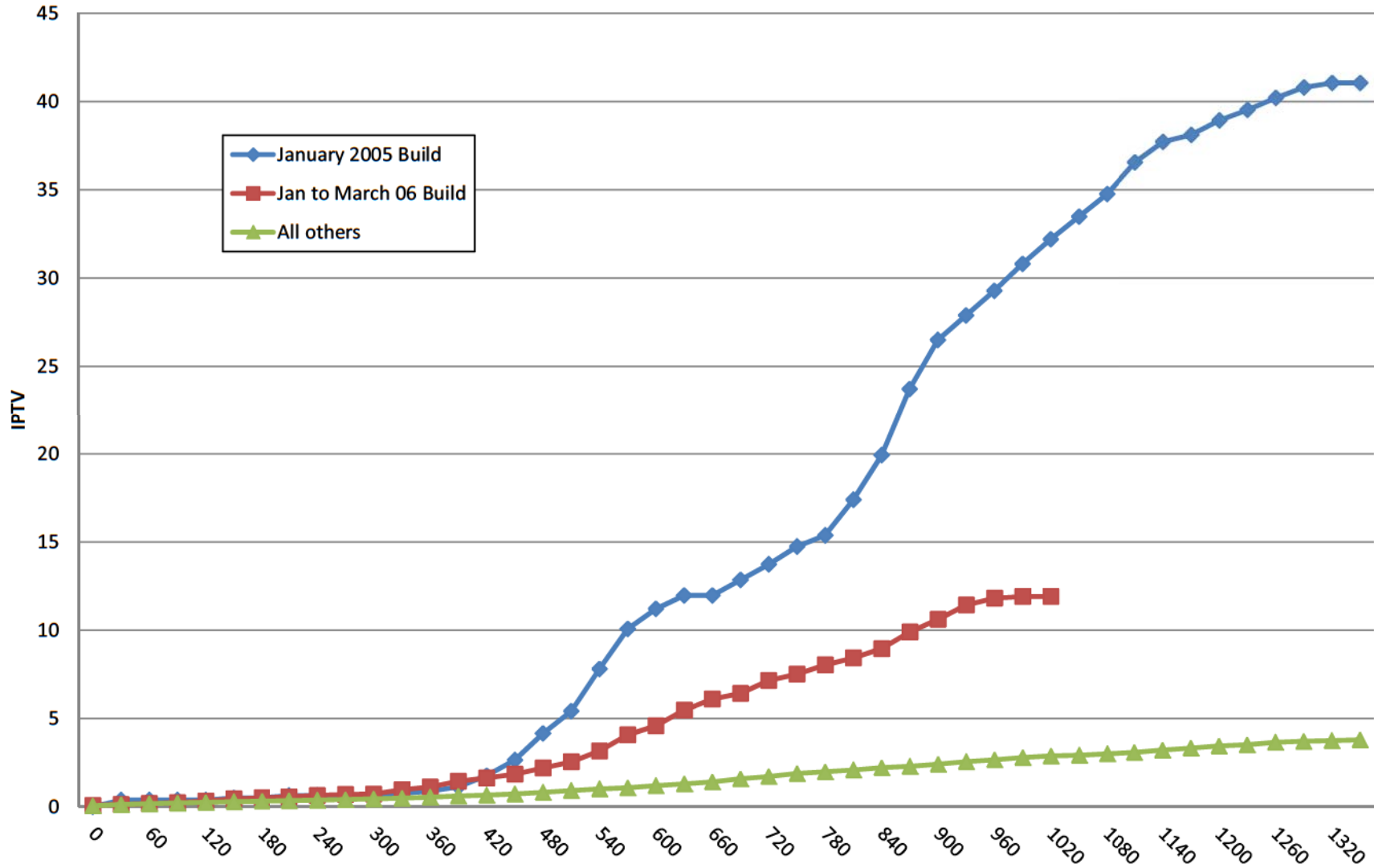


41.06 IPTV 44 MIS

34.77 IPTV 36 MIS

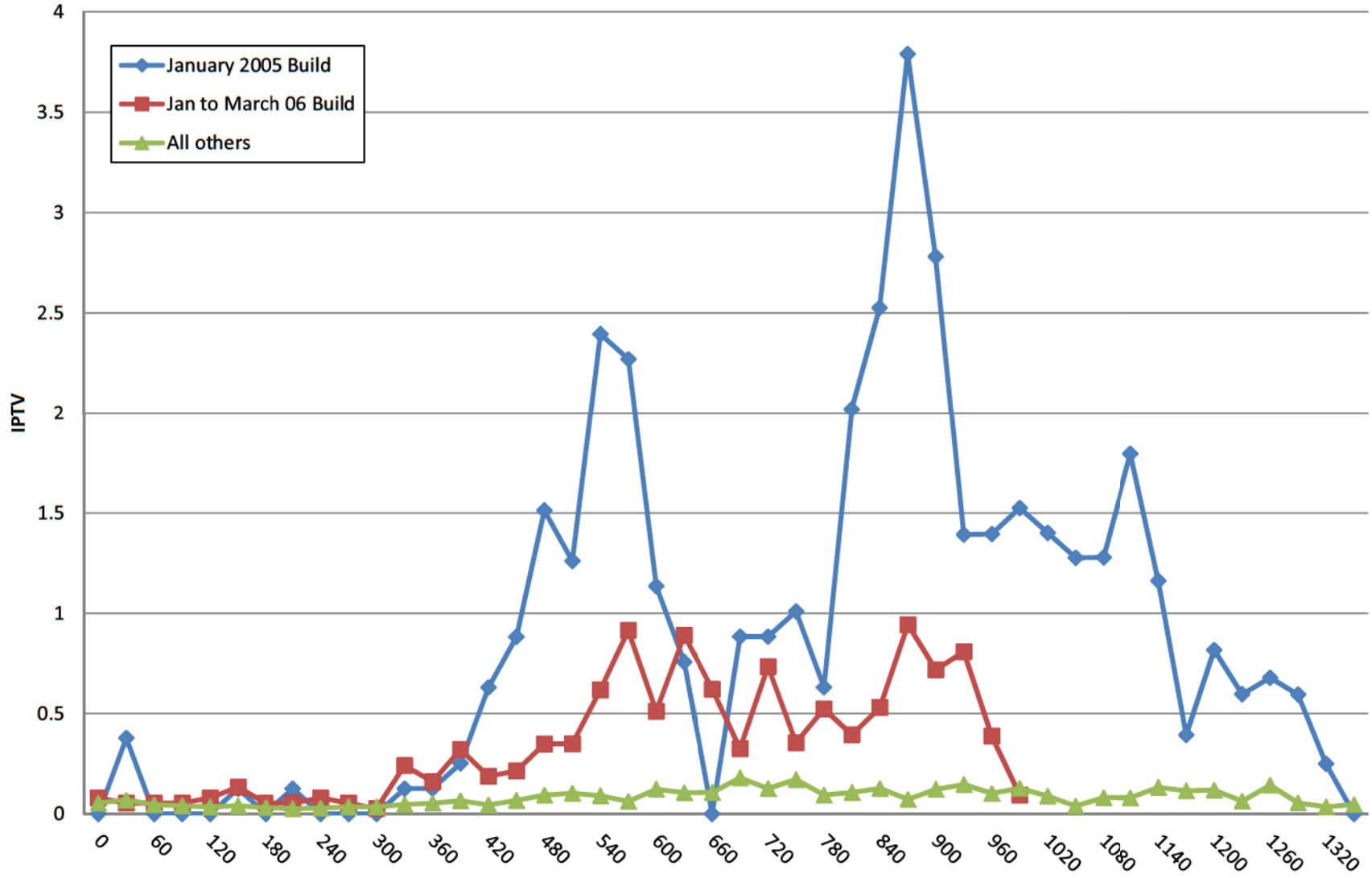
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G6 Stop Lamp Warranty - Comparison of Select Months of Build



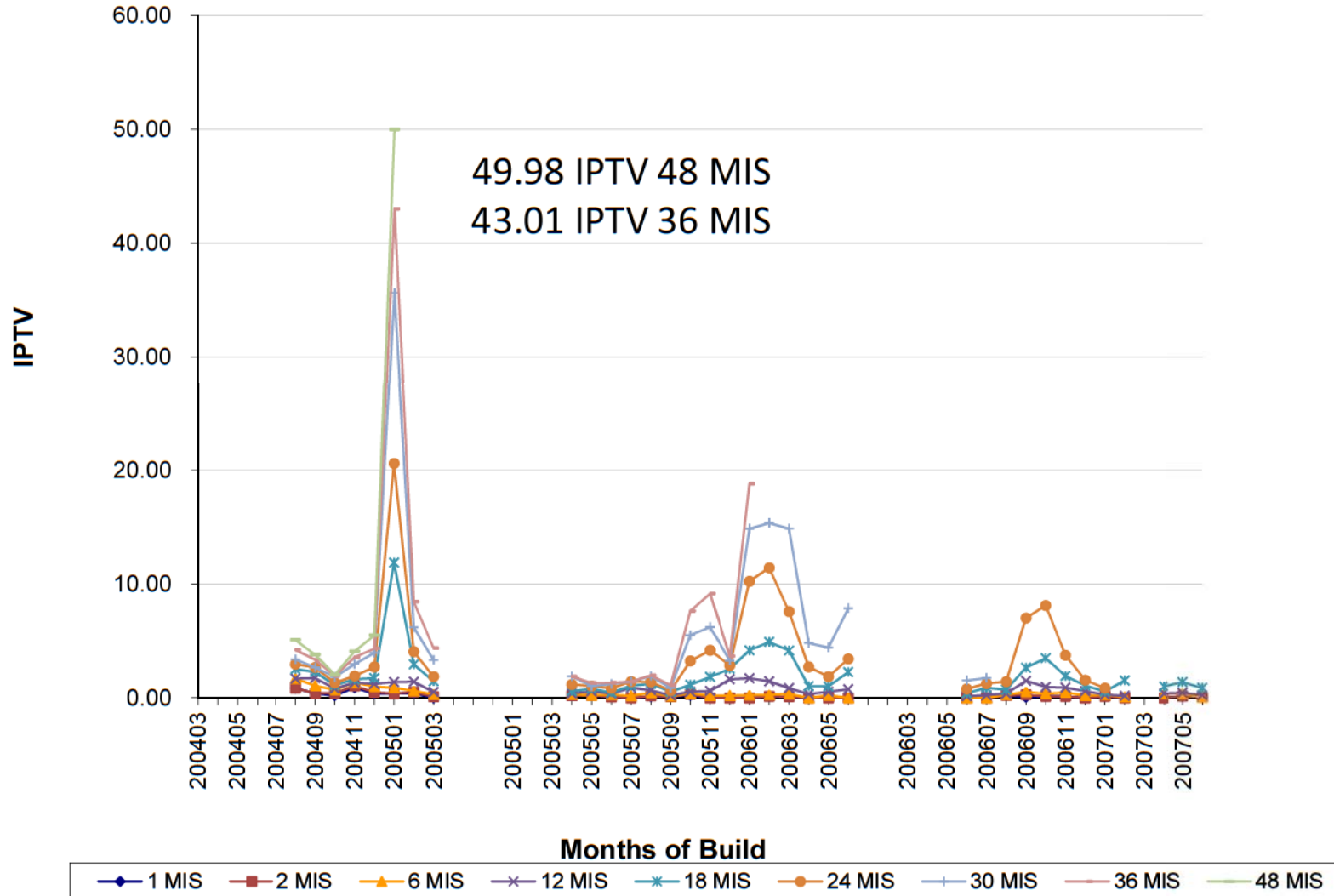
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05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



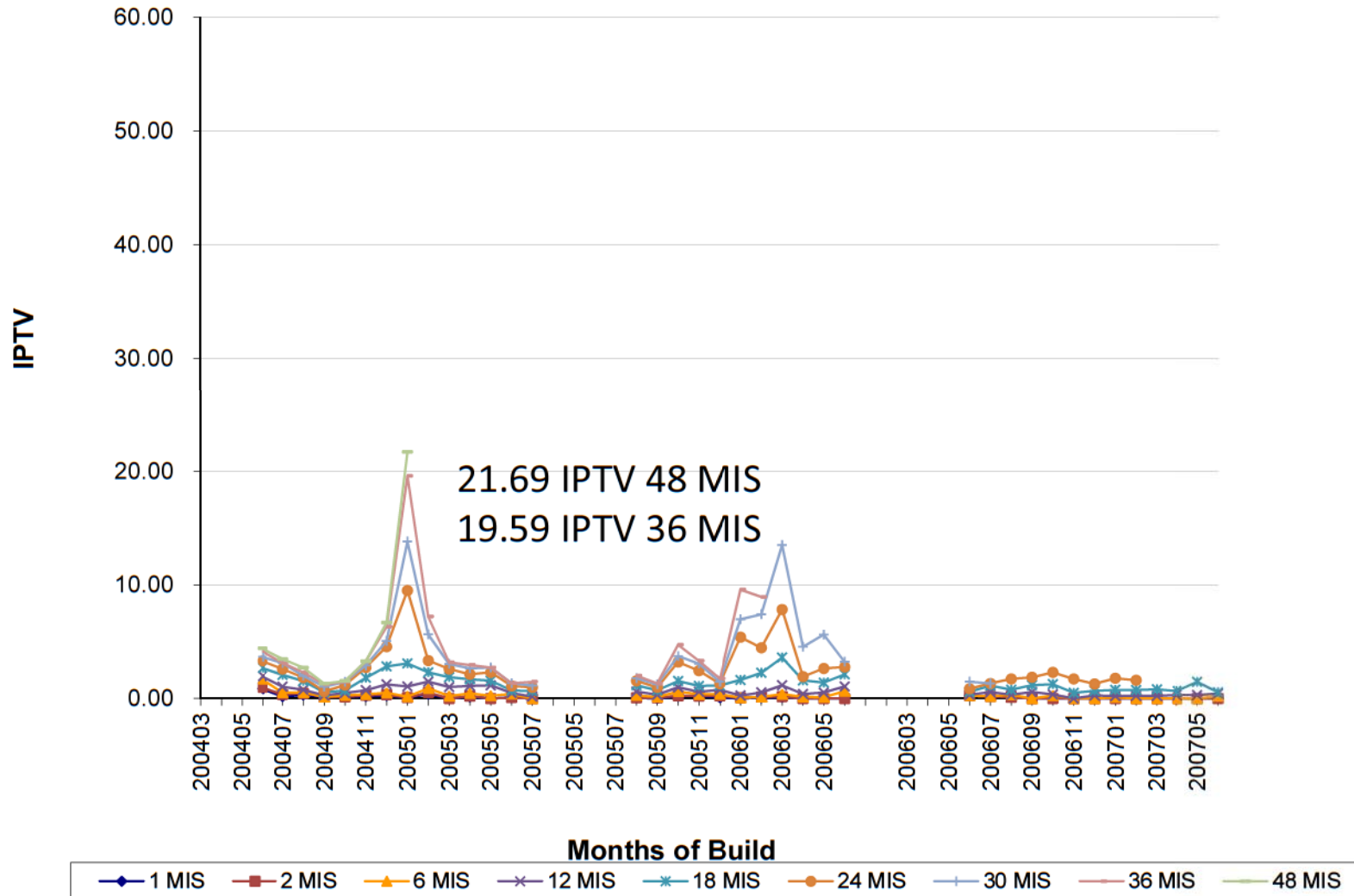
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Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Historical Rate Comparison

| Rear lighting issues | | | | | | | |
|---|----------------------|---------------|--|--|--------------------|--|------------------|
| <u>Vehicle</u> | <u>Component</u> | <u>Recall</u> | <u>EOVP</u> | <u>IPTV</u> | <u>Reported by</u> | <u>Cause</u> | <u>Open Date</u> |
| 00 - 04 Saturn L Series | Stop/Tail/Park lamp | Safety | Loss of all brake lights or park/tail lights (one side) | As high as 365 IPTV at 36 months | TREAD | Circuit board arcing, blown fuses, loose sockets | 15-Feb-05 |
| 03 J car | Stop/tail/turn lamp | Safety | Loss of single stop/tail/turn lamp (CHMSL not affected) | 343 (12 months) | Bulletin review | Grease removed from production | 14-May-04 |
| 02-04 GMT360/370 | Stop lamp | Safety | Loss of single stop and/or tail lamp (CHMSL not affected) | 237 (13 months) 31% had lost function of both lamps (per survey) | TREAD | Loose bulb fit | 6-Apr-04 |
| 00-01 ST utilities and 01-02 Chevrolet Astro and GMC Safari | Multifunction Switch | Safety | Loss of all stop lamps (CHMSL not affected) | 214.3 (9 months) | NHTSA | Change from copper to brass for error proofing | 6-Sep-01 |
| 97-99 Malibu | Stop lamp | N | Loss of single stop lamp (CHMSL not affected) - Replace entire lamp assembly | 37 (36 months) - reduced to 4.6 | NHTSA | Stainless contacts | |
| 94 CK Truck | Brake Switch | Safety | Loss of all stop lamps and CHMSL | 33.78 (36 months) (up to 360 in durability) | Transport Canada | Reverse Polarity | |
| 04 - 05 Chevrolet Colorado, GMC Canyon, Isuzu I-280 | Brake Switch | Safety | Loss of all stop lamps and CHMSL | 31.3 (23 months) | NHTSA | Internal heat in switch | 2-Dec-05 |
| 98-04 Mercedes SLK/SLK 230 | Stop lamp | Safety | Loss of single stop lamp (CHMSL not affected) | 821 (over 36 months) | NHTSA | The base of the socket can be subject to thermal deformation over time | 22-Sep-05 |
| 95 Ford Villager, Nissan Quest, and Nissan Pickup | Stop/tail/turn lamp | Safety | Loss of single stop/tail/turn lamp (CHMSL not affected) | 250 (12 months) | Warranty study | Change in the material of the plastic socket housing | |
| 99 - 02 Volkswagen Jetta, New Beetle, Gulf | Brake Switch | Safety | Loss of all stop lamps and CHMSL or brake lamps on GM Confidential | 117 (12 months) | NHTSA | Brake switch malfunction | |

Production Improvement

Dielectric lubricant is applied in Orion plant for G6 as of 11/8/2008.

The lubricant will be applied in the Delphi harness assembly plant in August 2009.

Potential Field Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.



Systematic Root Causes

Legacy connector system design with low terminal retention force and non-robust contact design.

Preventive Actions

All new module designs must use approved connector designs that pass the latest GMW specification requirements.





Back-up

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The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|----------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Cobalt, Corvette | |
| 2006MY | HHR, Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu | |

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Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

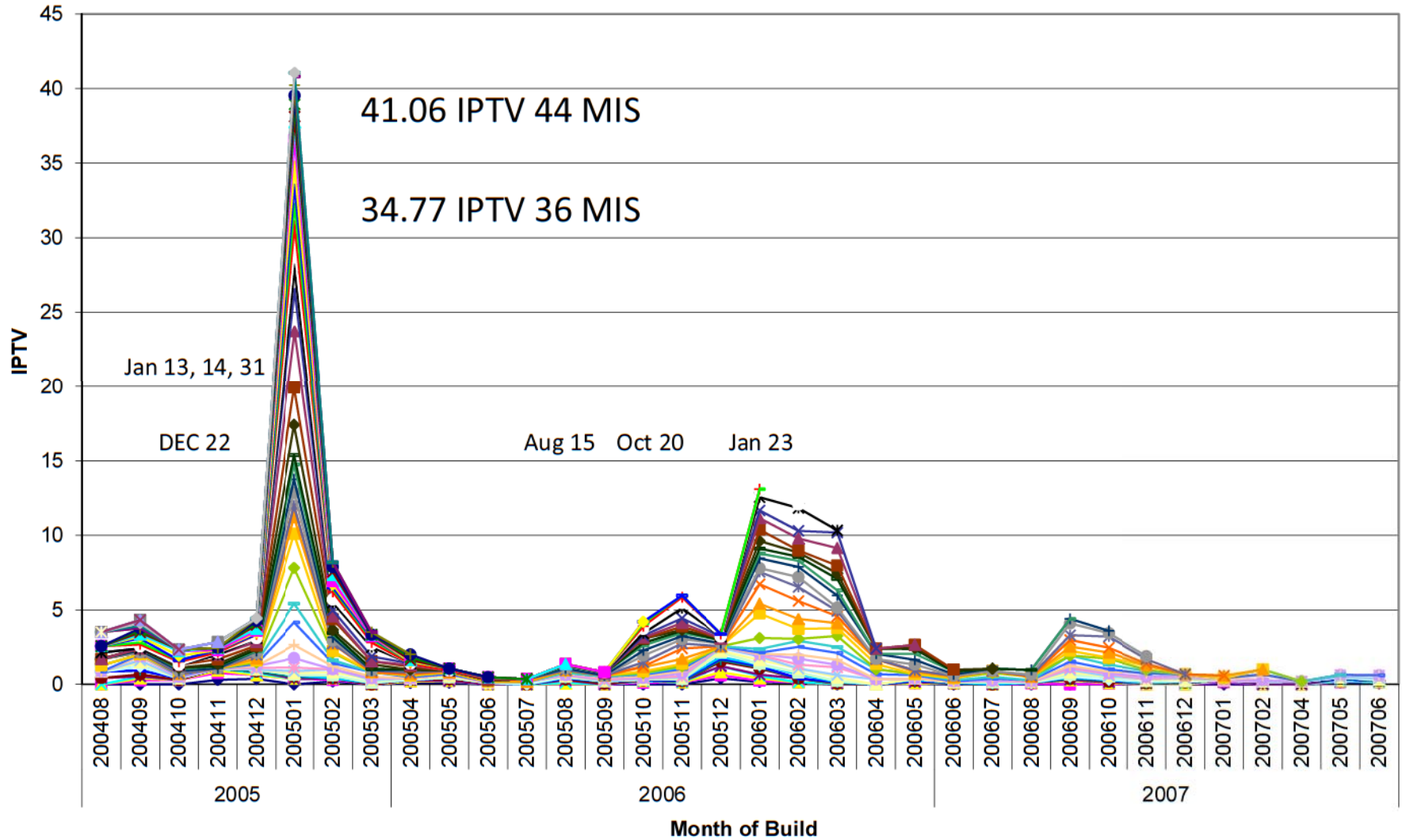
Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)



Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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2005 - 2007 G6 Intermittent Stop Lamp Warranty



9 VOQs 2005MY: 4
 20 VOQs 2005MY: 11

2006MY: 4
 2006MY: 7

2007MY: 1
 2007MY: 2

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Weekly Production Volume for the Month of January 2005: U.S. and Canada

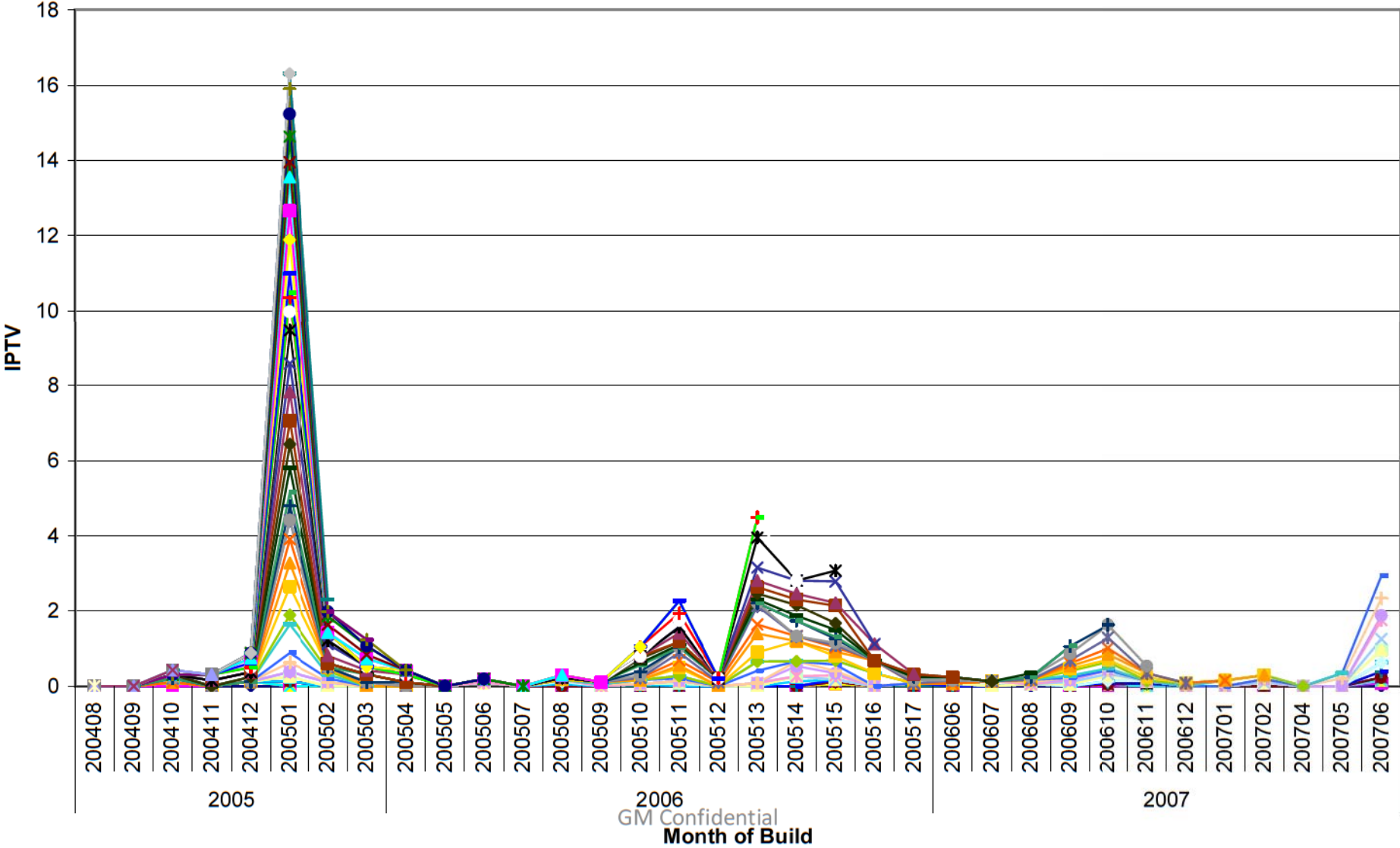
| MAKE/ MODEL | Week 03JAN05 | Week 10JAN05 | Week 17JAN05 | Week 24JAN05 | Day 31JAN05 | TOTAL |
|----------------|-----------------|-----------------|-----------------|-----------------|----------------|-------|
| Pontiac G6 | 2,374 | 2,334 | 1,826 | 2,272 | 475 | 9,281 |

| Myear | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

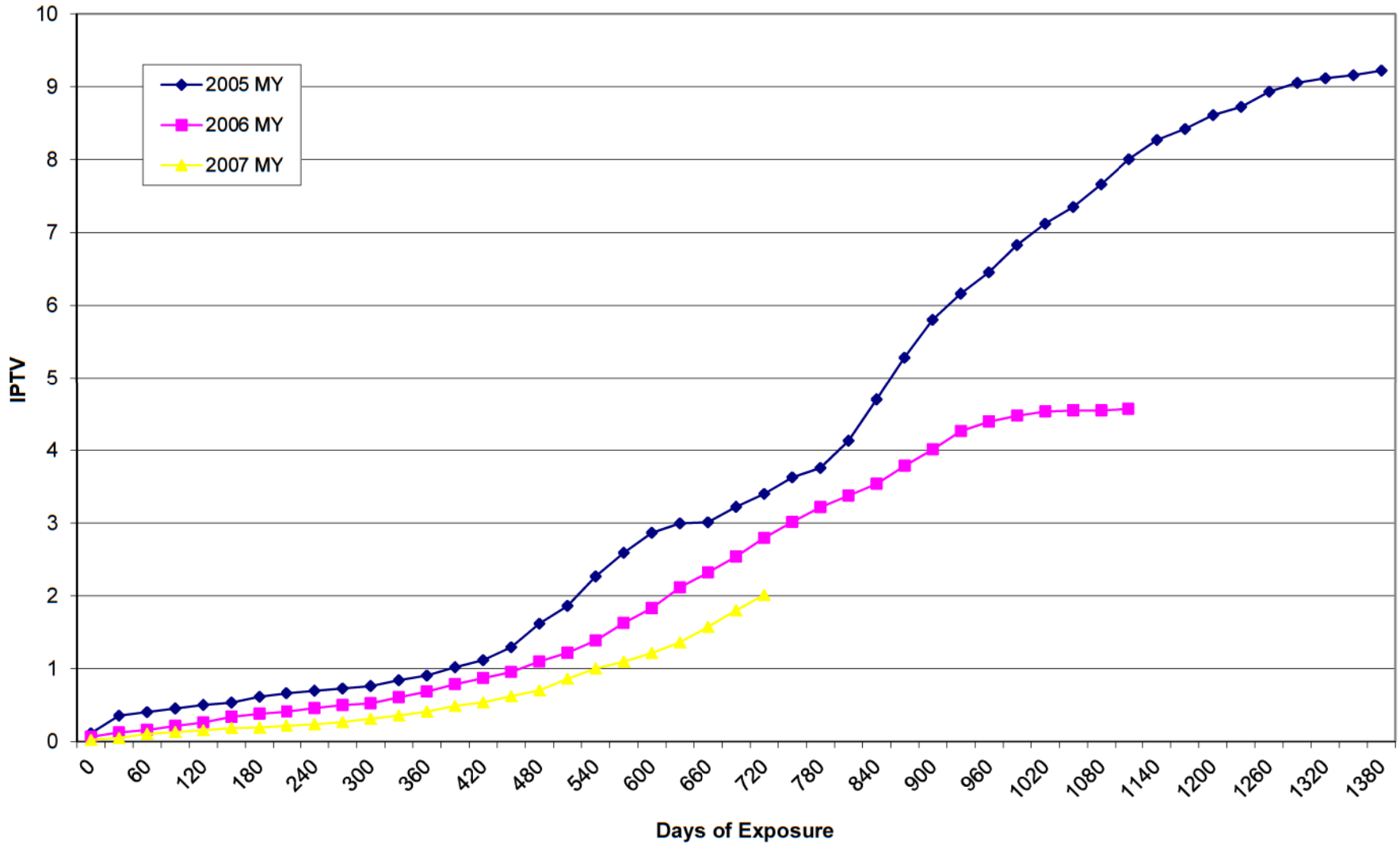
GM Confidential

2005 - 2007 G6 BASS – TAC and CAC only

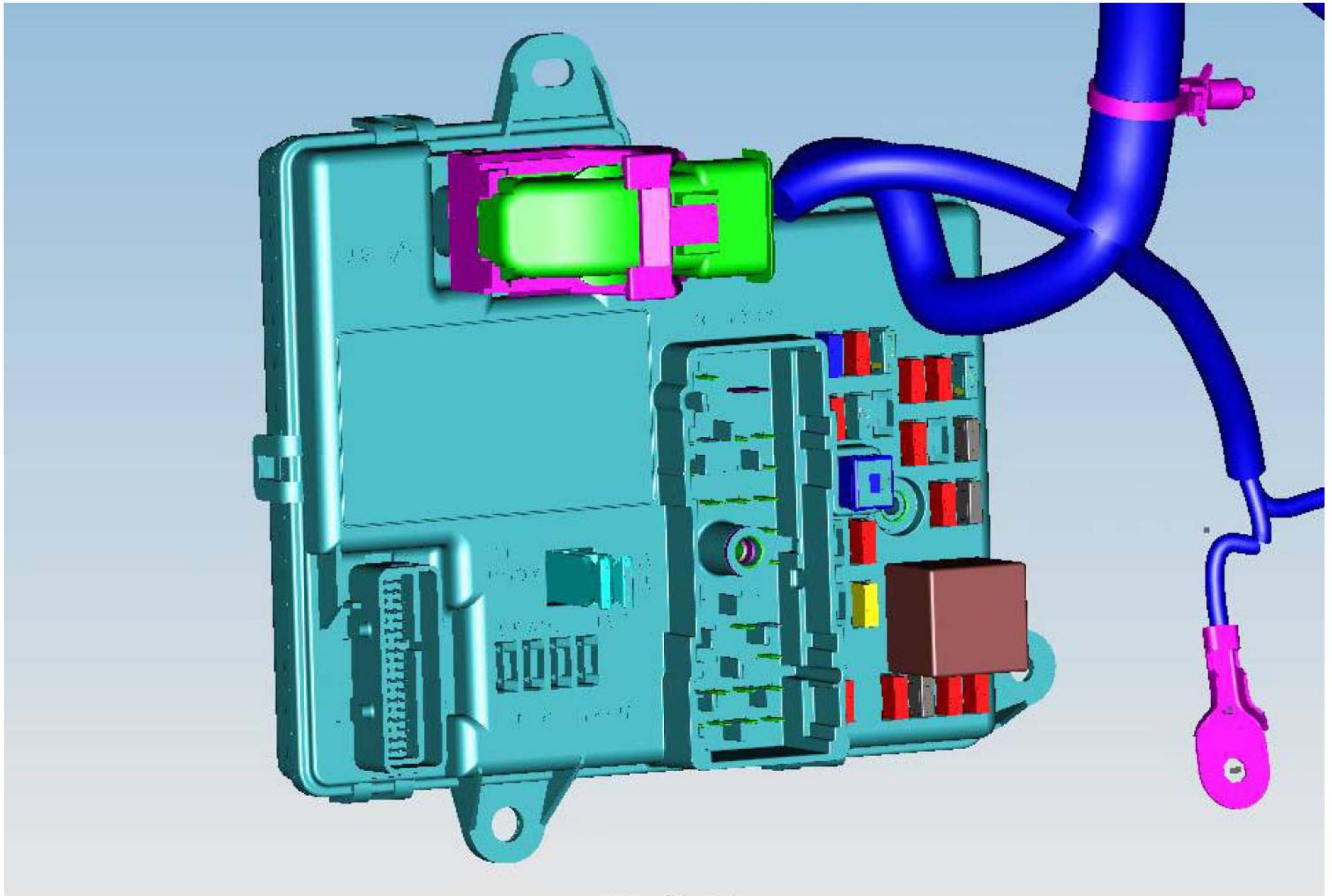
2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only



2005 - 2007 G6 Intermittent Stop Lamp Warranty



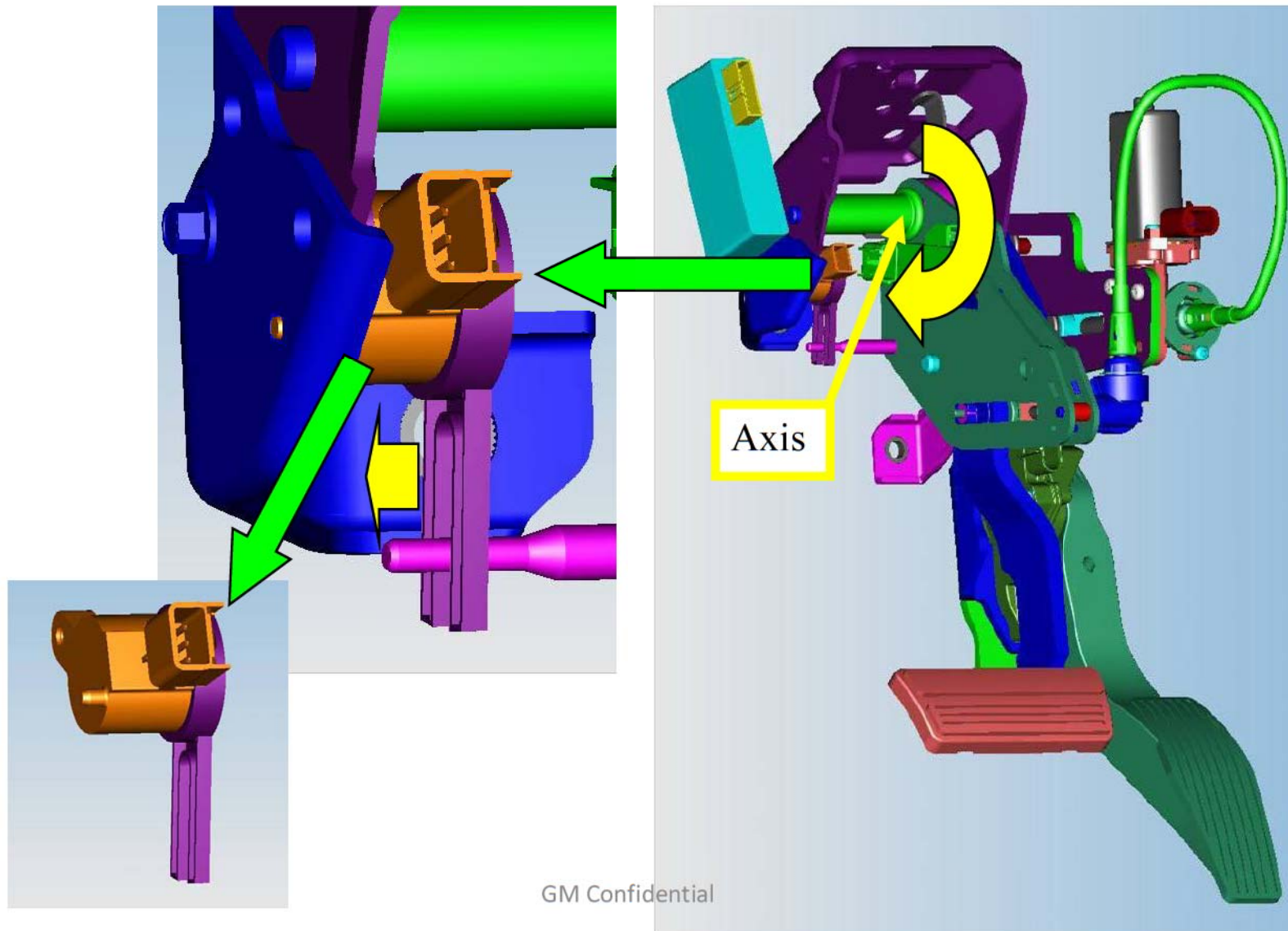
GM Confidential



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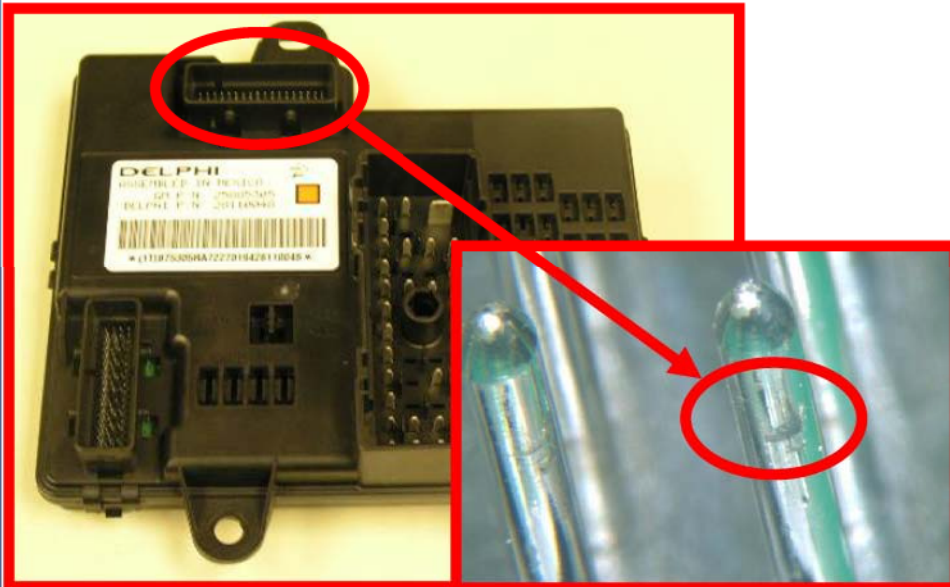
2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: The brake lamps may be activated while the brake pedal is at rest and deactivated when the brake pedal is depressed. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.



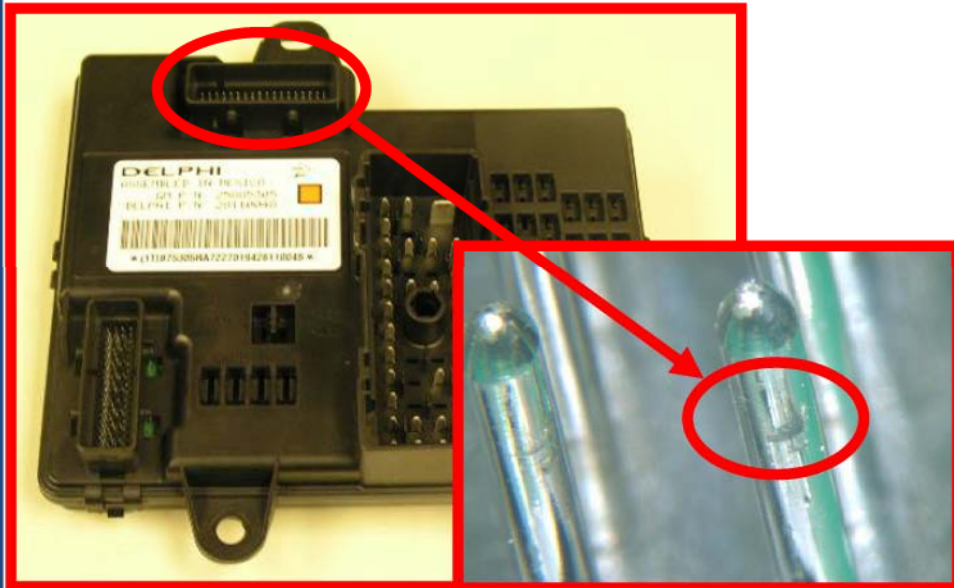
Model Years
2005 - 2007

Models
Pontiac G6

GM Confidential DRAFT

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



Model Years
2005 - 2007

Models
Pontiac G6

GM Confidential DRAFT

Field Action Category
TBD

Population Affected
9,281 – 444,774

Estimated Cost \$TBD

Scope

2005 – 2007 Pontiac G6

Immediate Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Projected Frequency

2005 MY 36 MIS Overall = 8.0 IPTV

2006 MY 36 MIS Overall = 4.6 IPTV

2007 MY 24 MIS Overall = 2.0 IPTV

Projected frequency is TBD

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Production Improvement

Dielectric lubricant is applied in Orion plant for G6 as of 11/8/2008.

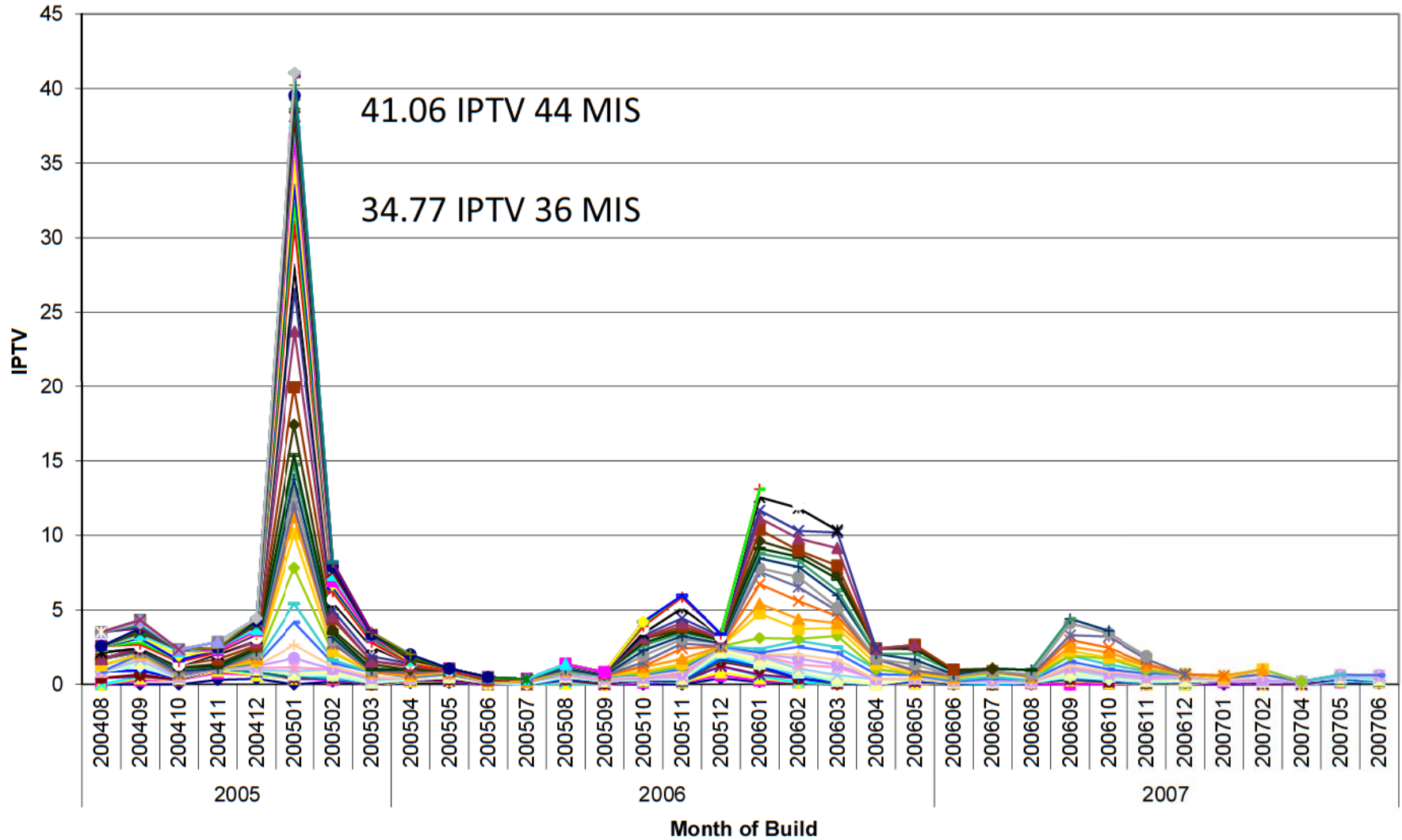
Potential Field Improvement

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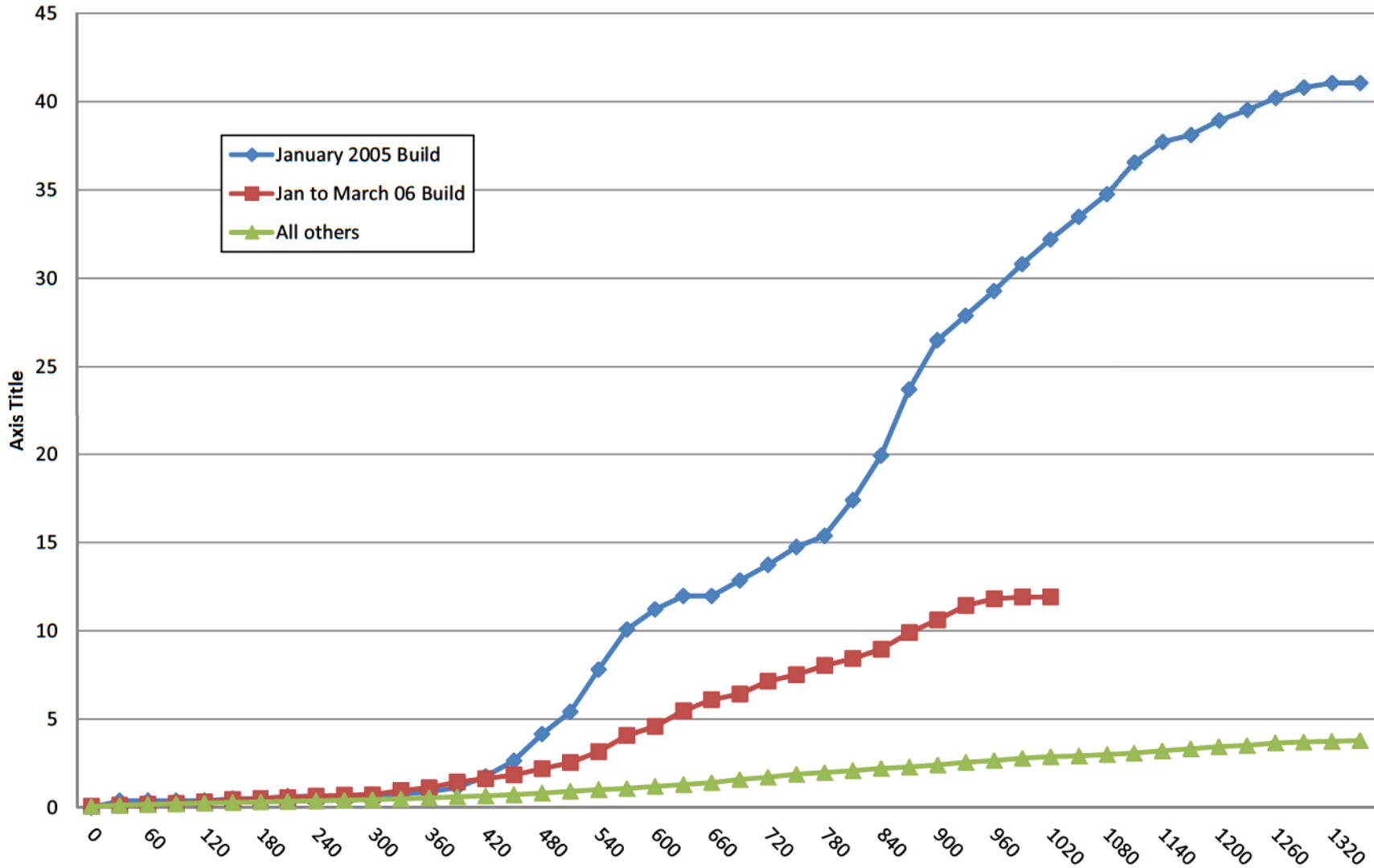


2005 - 2007 G6 Intermittent Stop Lamp Warranty



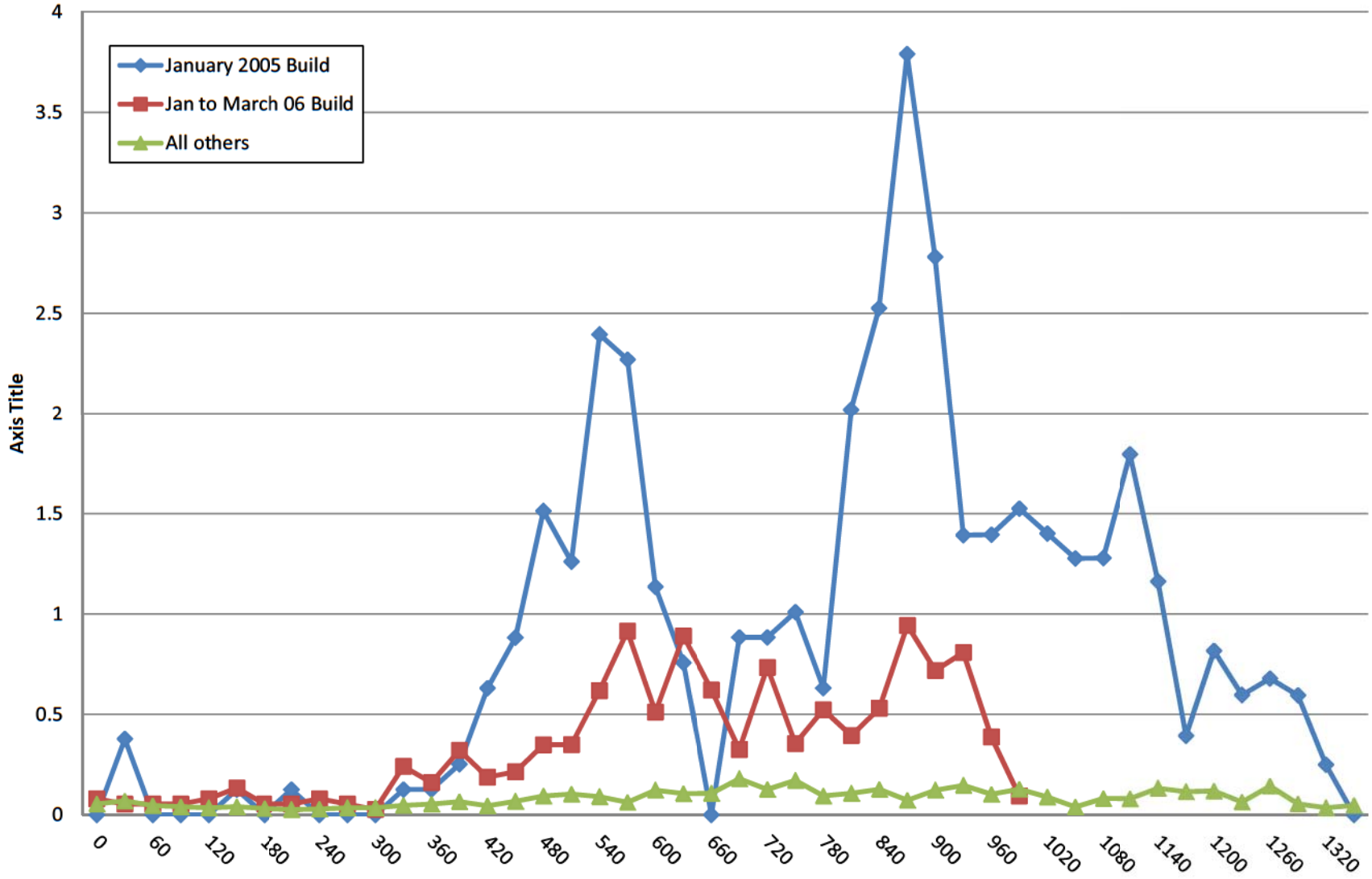
GM Confidential DRAFT

G6 Stop Lamp Warranty - Comparison of Select Months of Build



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05 to 07 G6 Stop Lamp - Incremental IPTV for Select Build Periods



GM Confidential DRAFT

Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)



Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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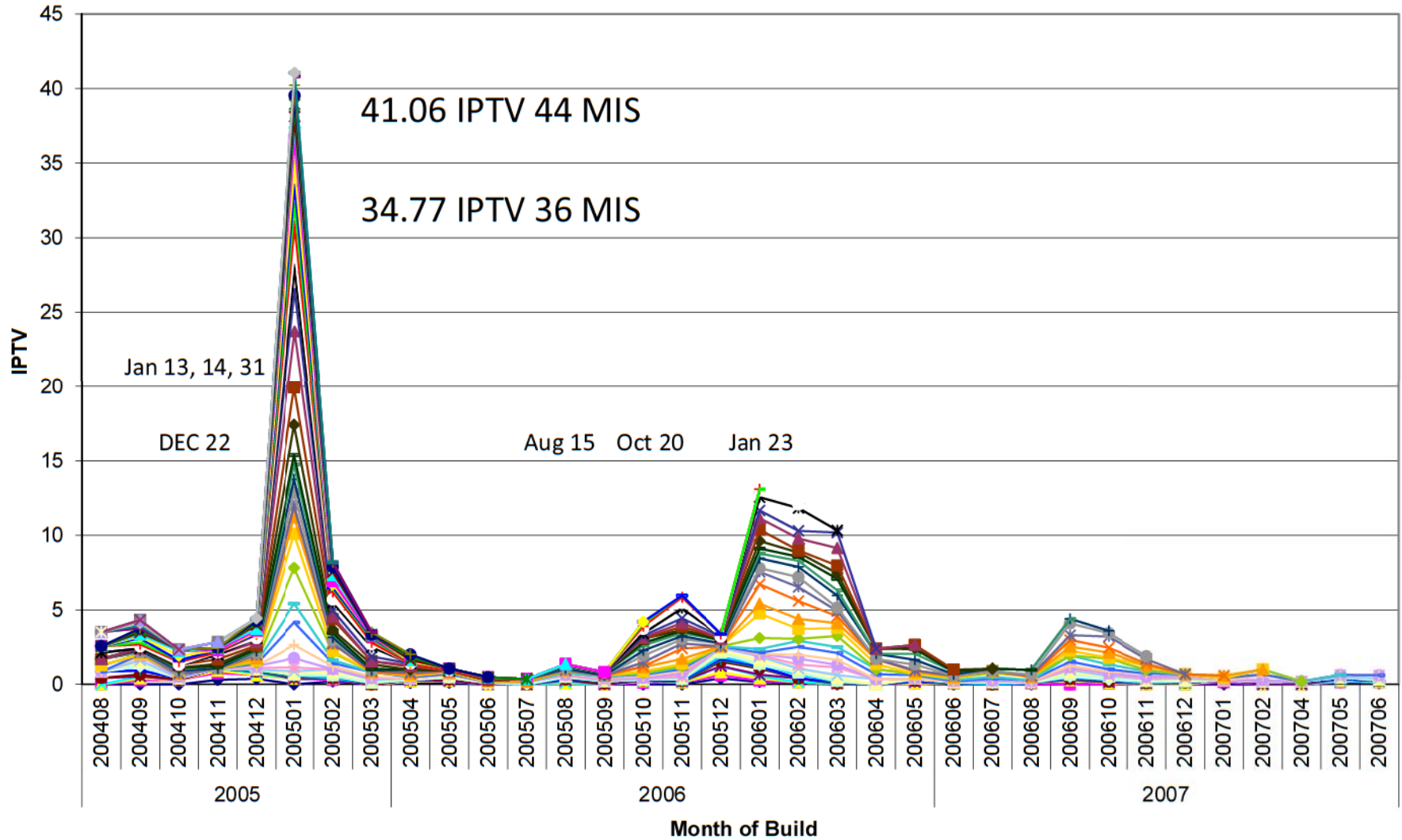




Back-up

GM Confidential DRAFT

2005 - 2007 G6 Intermittent Stop Lamp Warranty



9 VOQs 2005MY: 4
 20 VOQs 2005MY: 11

2006MY: 4
 2006MY: 7

2007MY: 1
 2007MY: 2

GM Confidential DRAFT

Weekly Production Volume for the Month of January 2005: U.S. and Canada

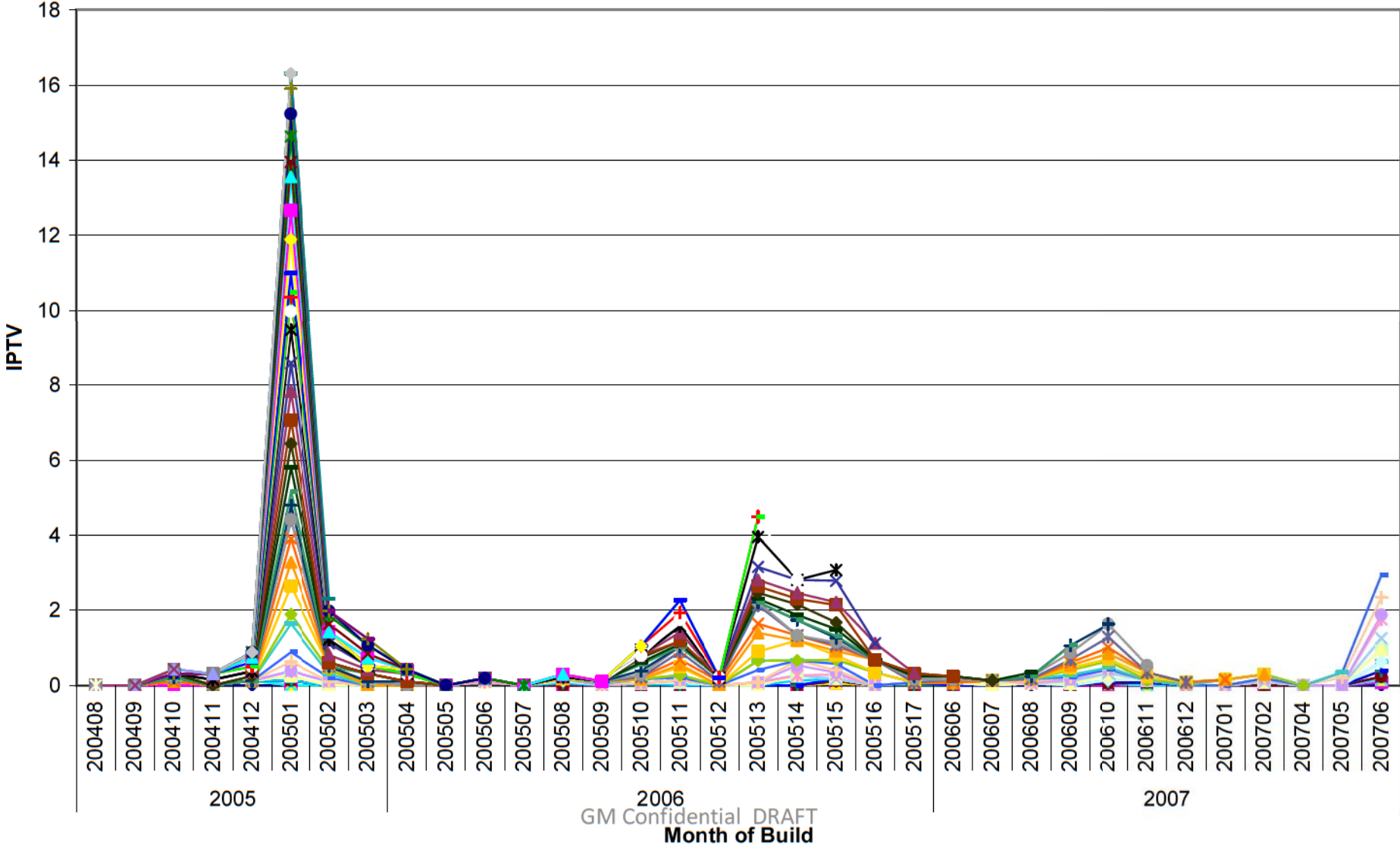
| MAKE/ MODEL | Week 03JAN05 | Week 10JAN05 | Week 17JAN05 | Week 24JAN05 | Day 31JAN05 | TOTAL |
|----------------|-----------------|-----------------|-----------------|-----------------|----------------|-------|
| Pontiac G6 | 2,374 | 2,334 | 1,826 | 2,272 | 475 | 9,281 |

| Myear | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
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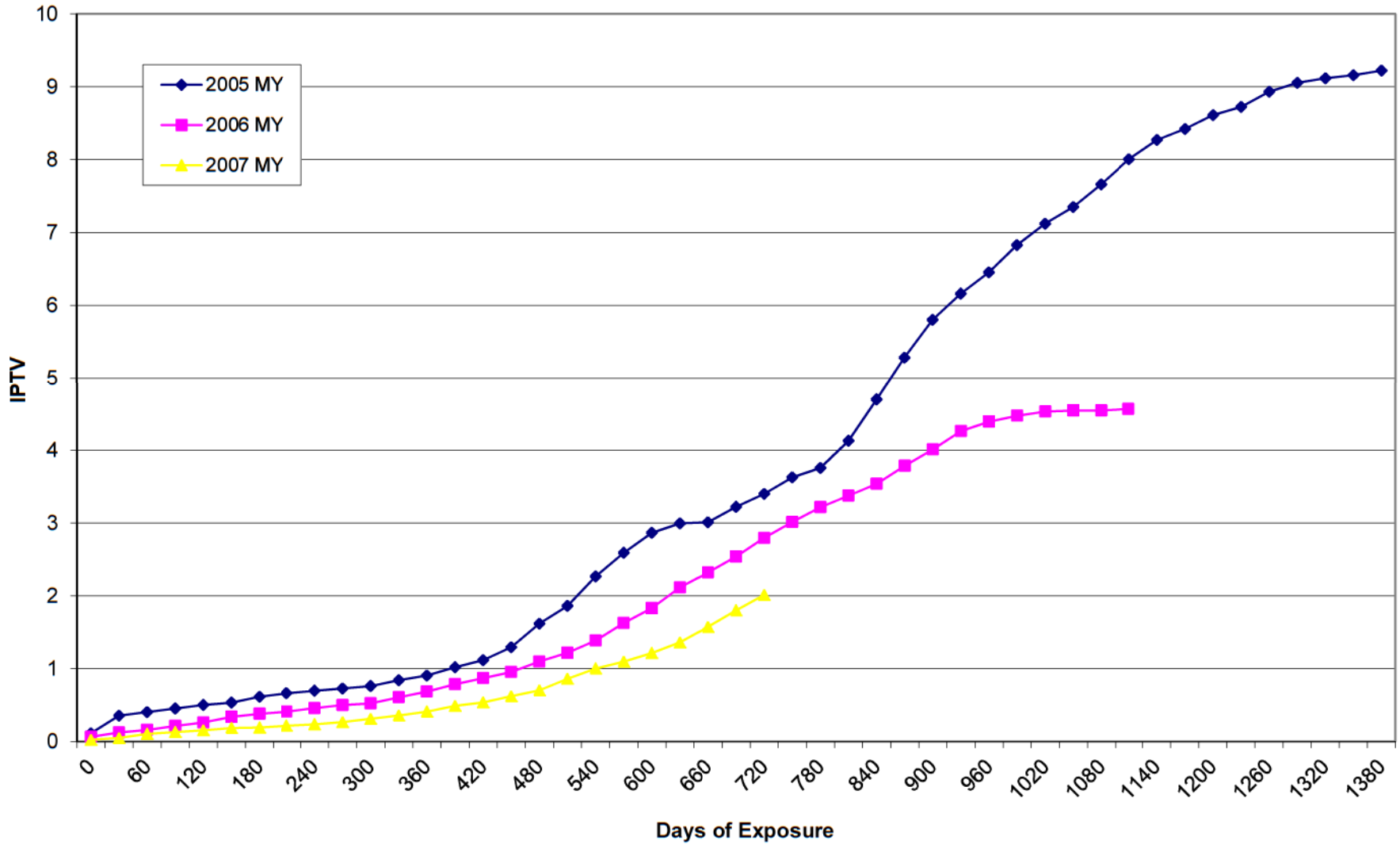
GM Confidential DRAFT

2005 - 2007 G6 BASS – TAC and CAC only

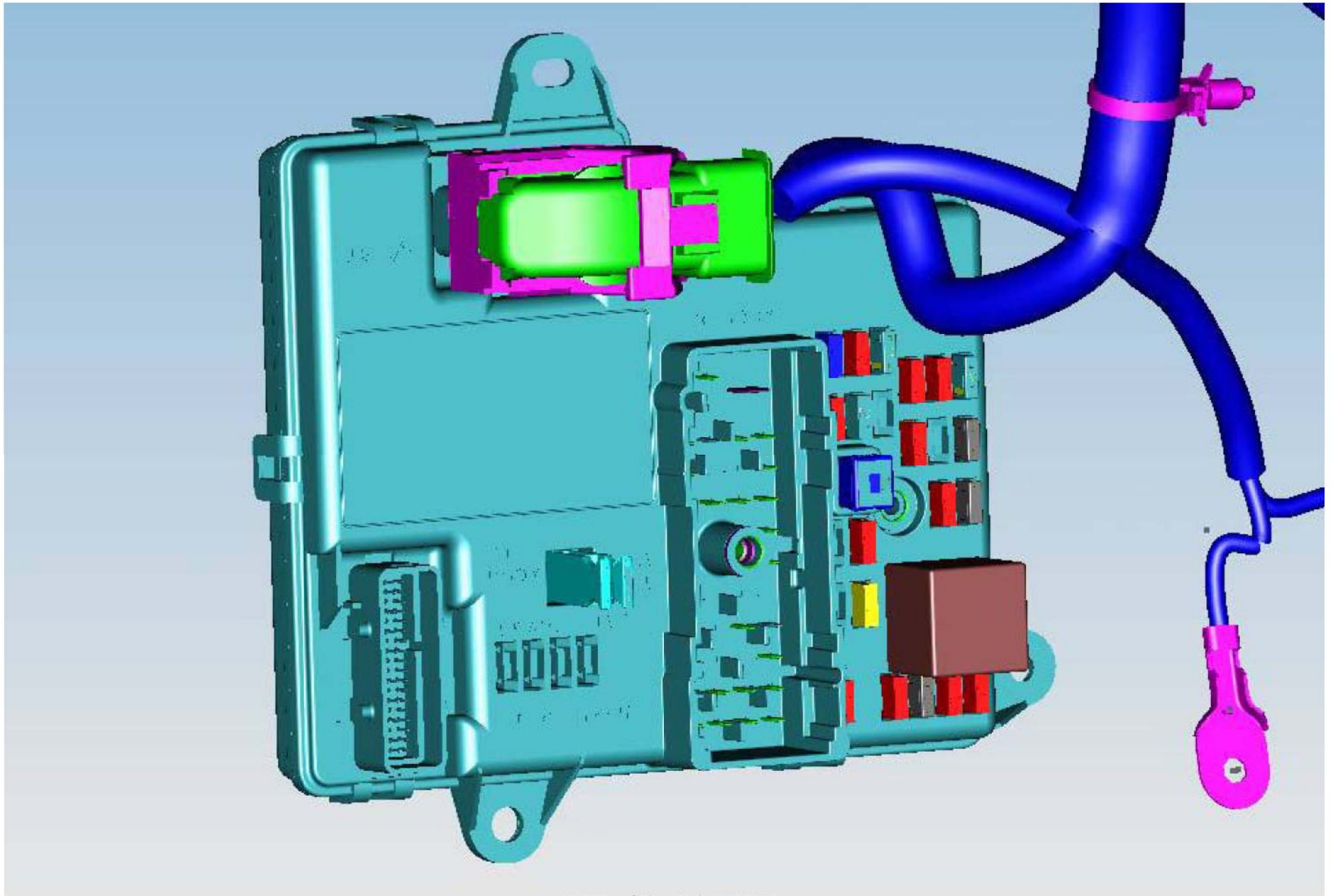
2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only



2005 - 2007 G6 Intermittent Stop Lamp Warranty



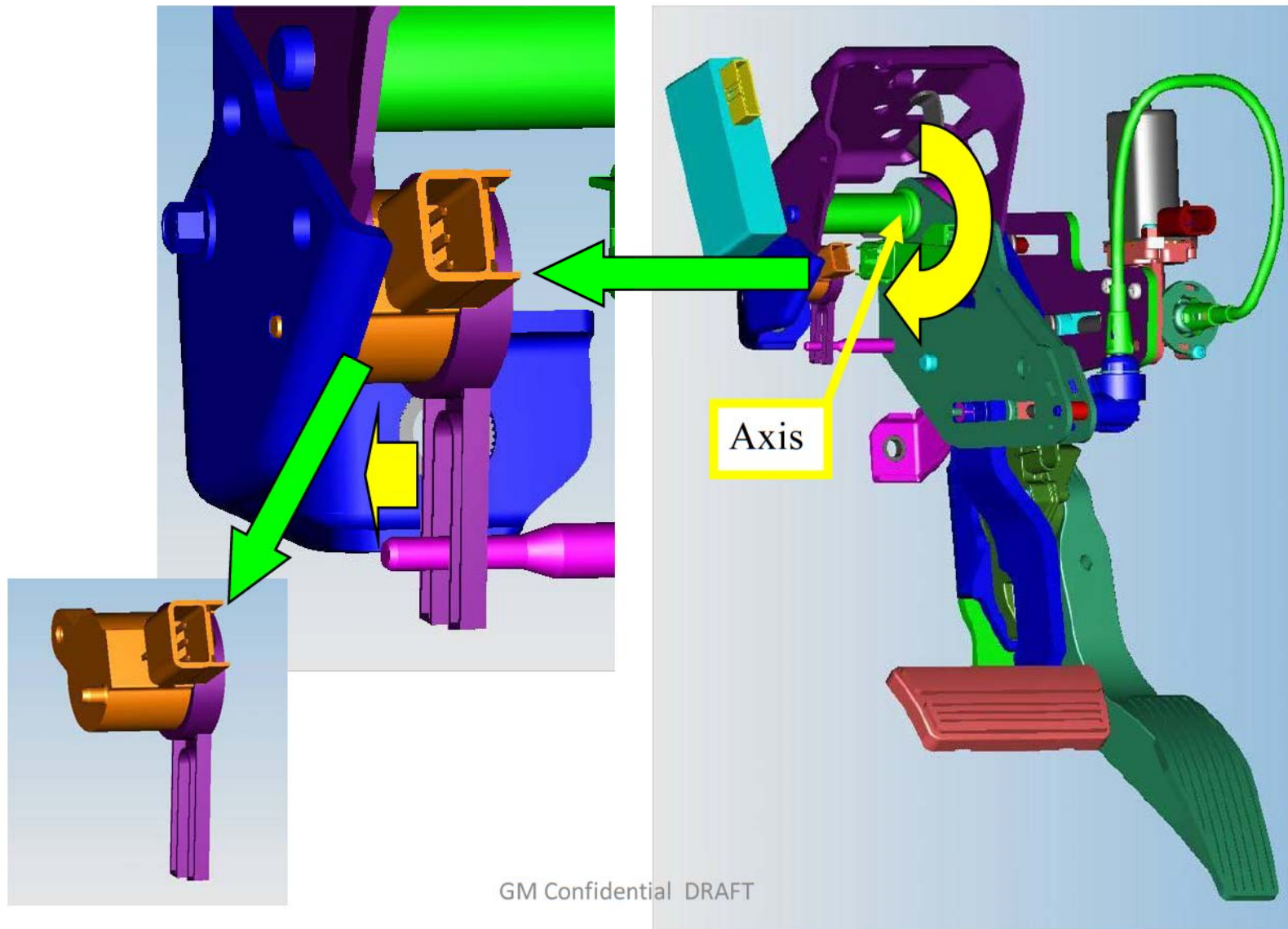
GM Confidential DRAFT



GM Confidential DRAFT

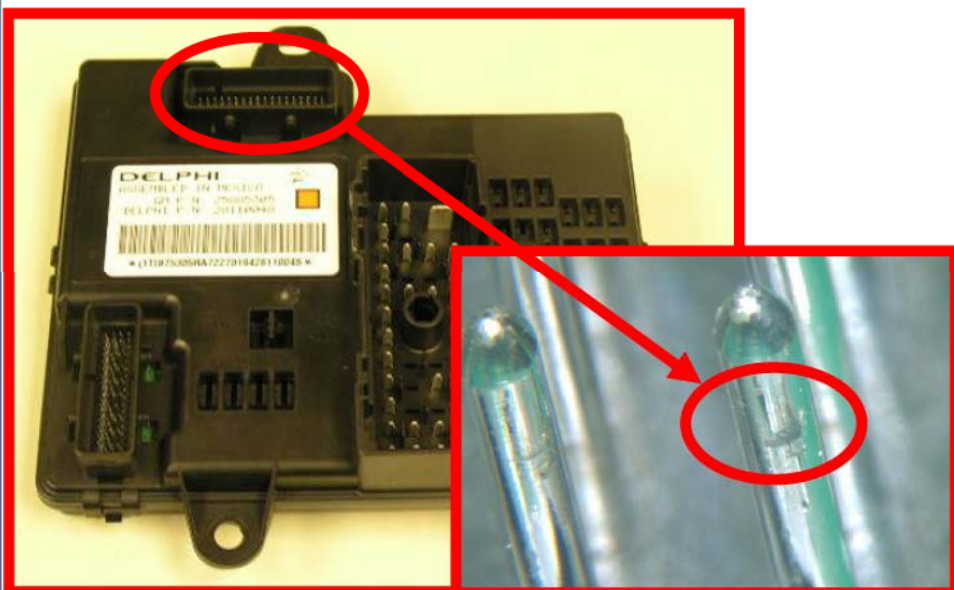
2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.



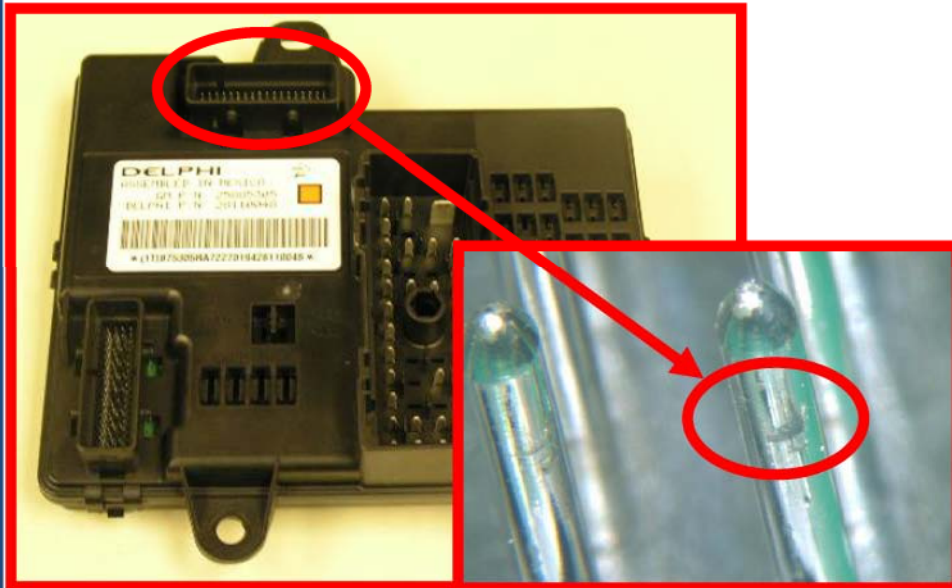
Model Years
2005 - 2006

Models
Pontiac G6

GM Confidential

Pontiac G6 Brake Apply Sensing System (BASS)

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Model Years
2005 - 2006

Models
Pontiac G6

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Field Action Category
TBD

Population Affected
9,423

{ ** }

Scope

2005 – 2006 Pontiac G6

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Immediate Improvement

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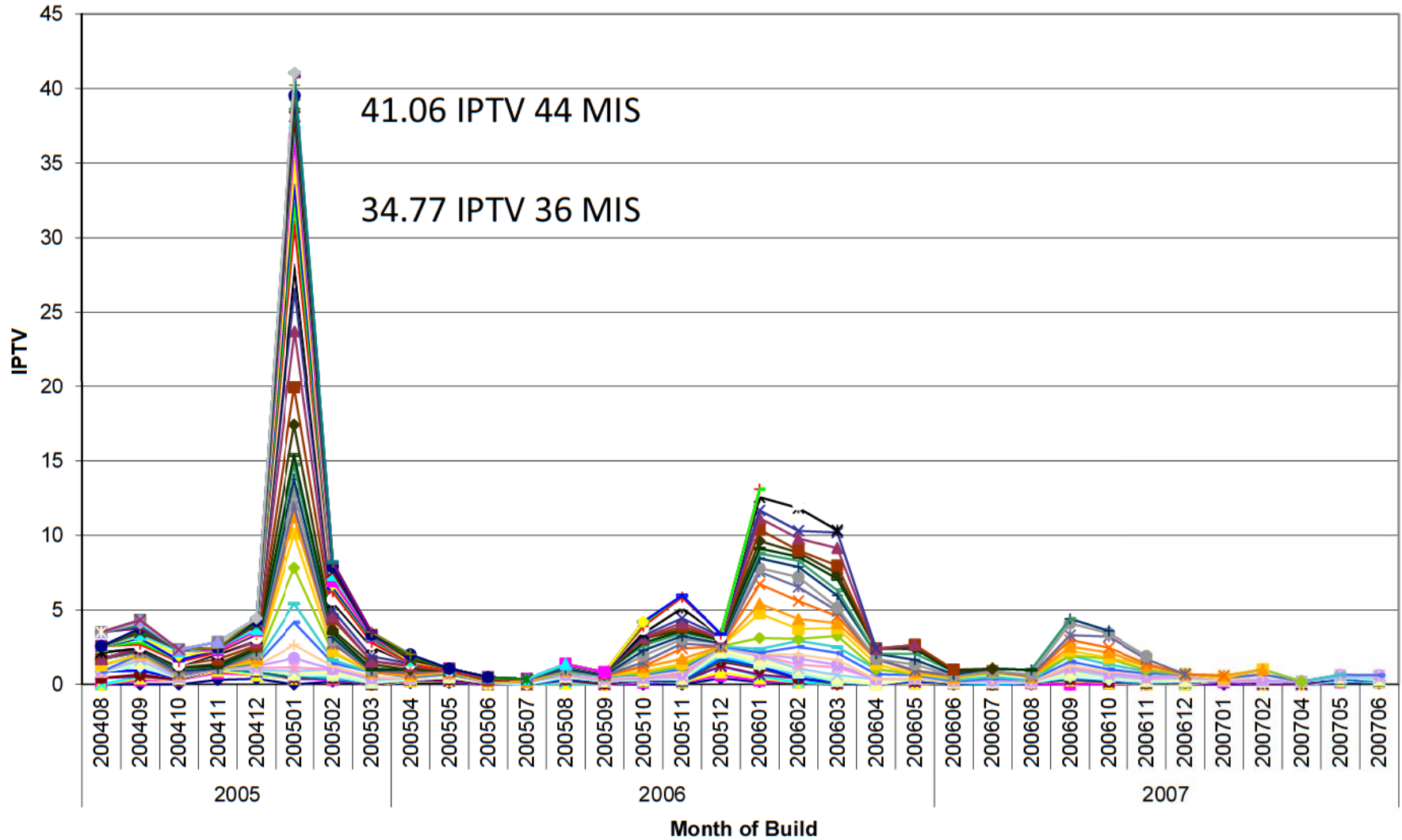
Build of Month January 2005 36 MIS = 34.77 IPTV

Build of Month January 2005 44 MIS = 41.06 IPTV

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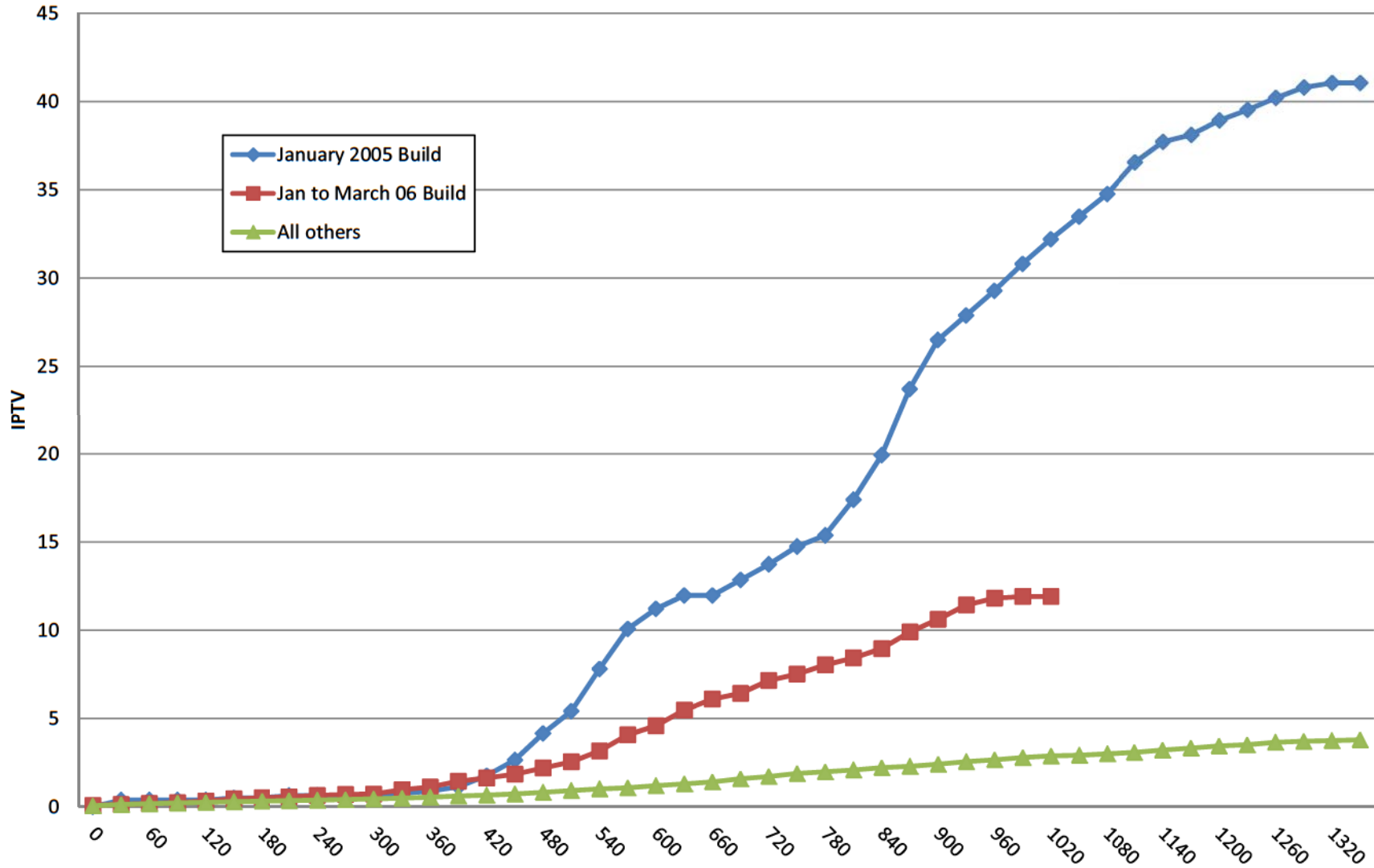
GM Confidential

2005 - 2007 G6 Intermittent Stop Lamp Warranty



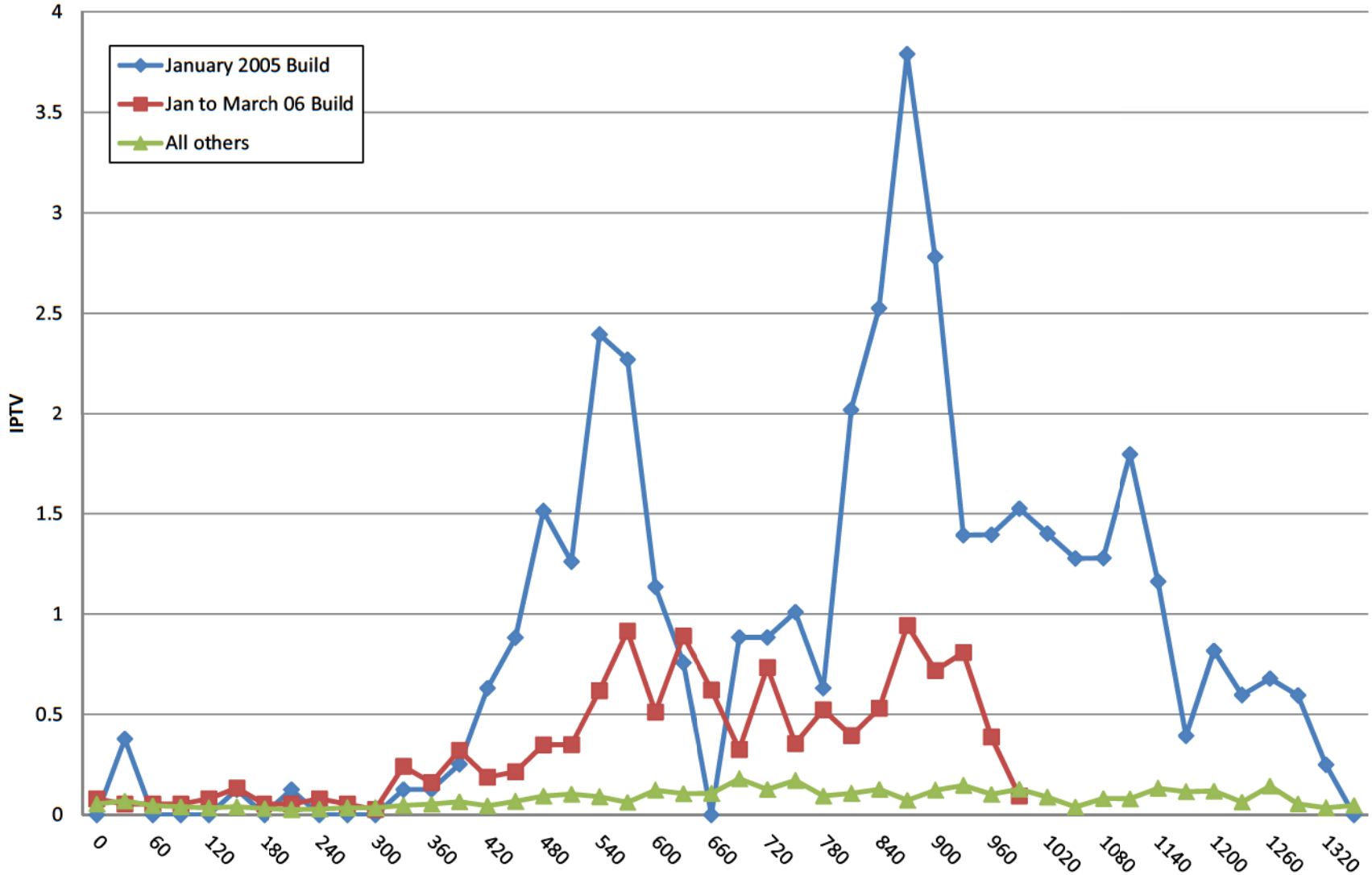
GM Confidential

G6 Stop Lamp Warranty - Comparison of Select Months of Build



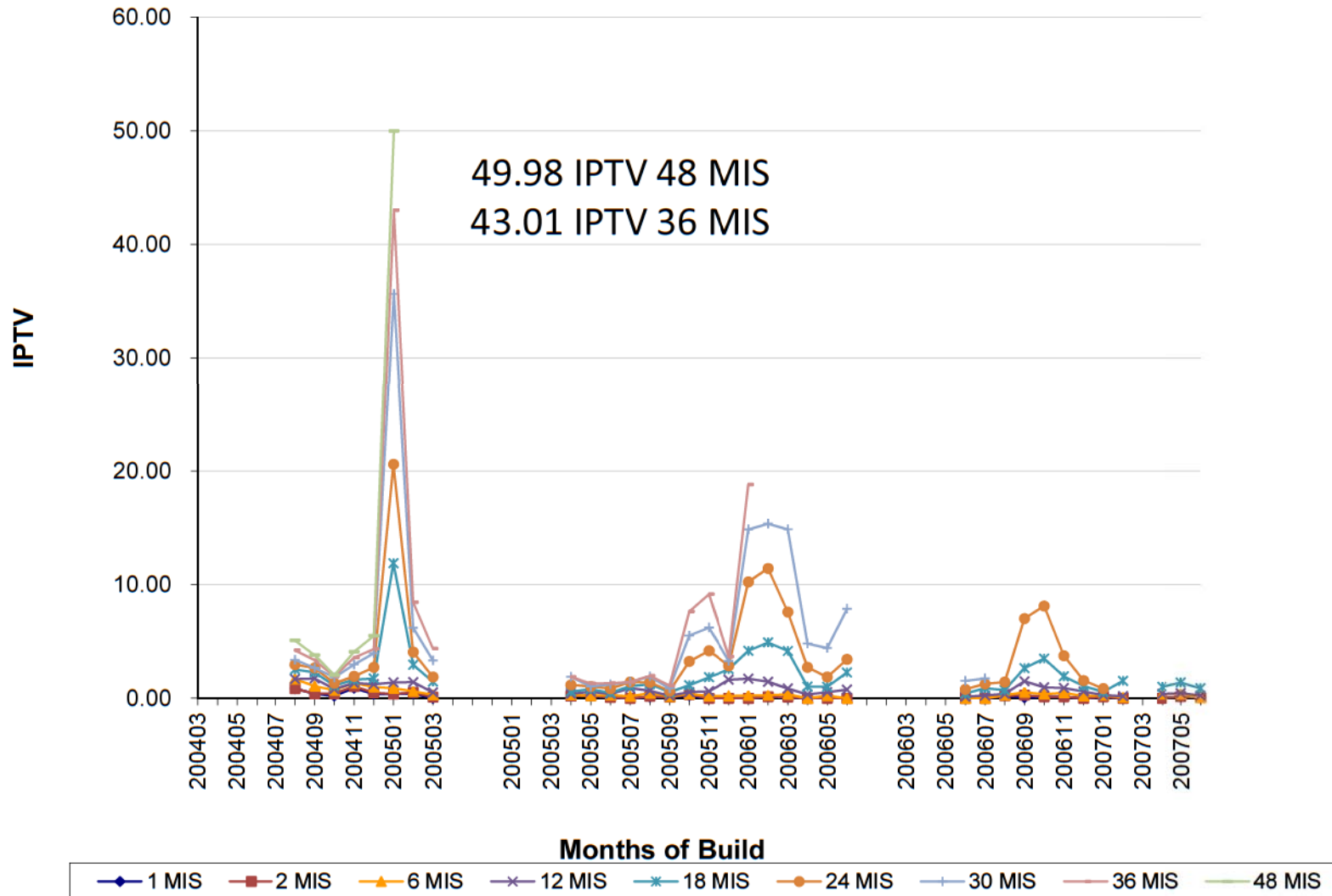
GM Confidential

05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



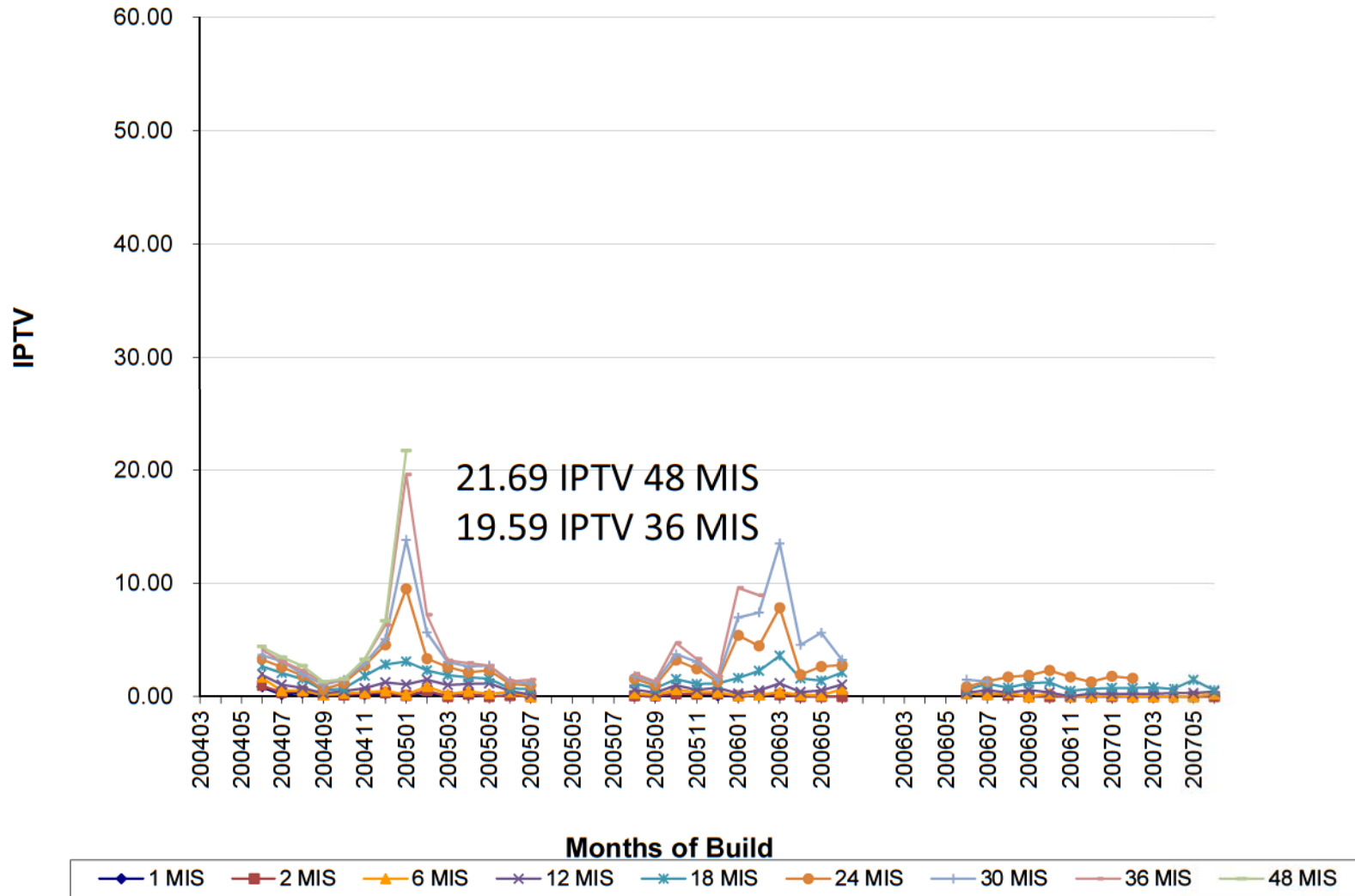
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Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



GM Confidential

Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Historical Rate Comparison

| Rear lighting issues | | | | | | | |
|---|----------------------|---------------|--|--|--------------------|--|------------------|
| <u>Vehicle</u> | <u>Component</u> | <u>Recall</u> | <u>EOVP</u> | <u>IPTV</u> | <u>Reported by</u> | <u>Cause</u> | <u>Open Date</u> |
| 00 - 04 Saturn L Series | Stop/Tail/Park lamp | Safety | Loss of all brake lights or park/tail lights (one side) | As high as 365 IPTV at 36 months | TREAD | Circuit board arcing, blown fuses, loose sockets | 15-Feb-05 |
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| 99 - 02 Volkswagen Jetta, New Beetle, Gulf | Brake Switch | Safety | Loss of all stop lamps and CHMSL or brake lamps on GM Confidential | 117 (12 months) | NHTSA | Brake switch malfunction | |

Production Improvement

Dielectric lubricant is applied in Orion plant for G6 as of 11/8/2008.

The lubricant will be applied in the Delphi harness assembly plant in August 2009.

Potential Field Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.







Back-up

GM Confidential



The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|-------------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Corvette | |
| 2006MY | Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu, Cobalt, HHR | |

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Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

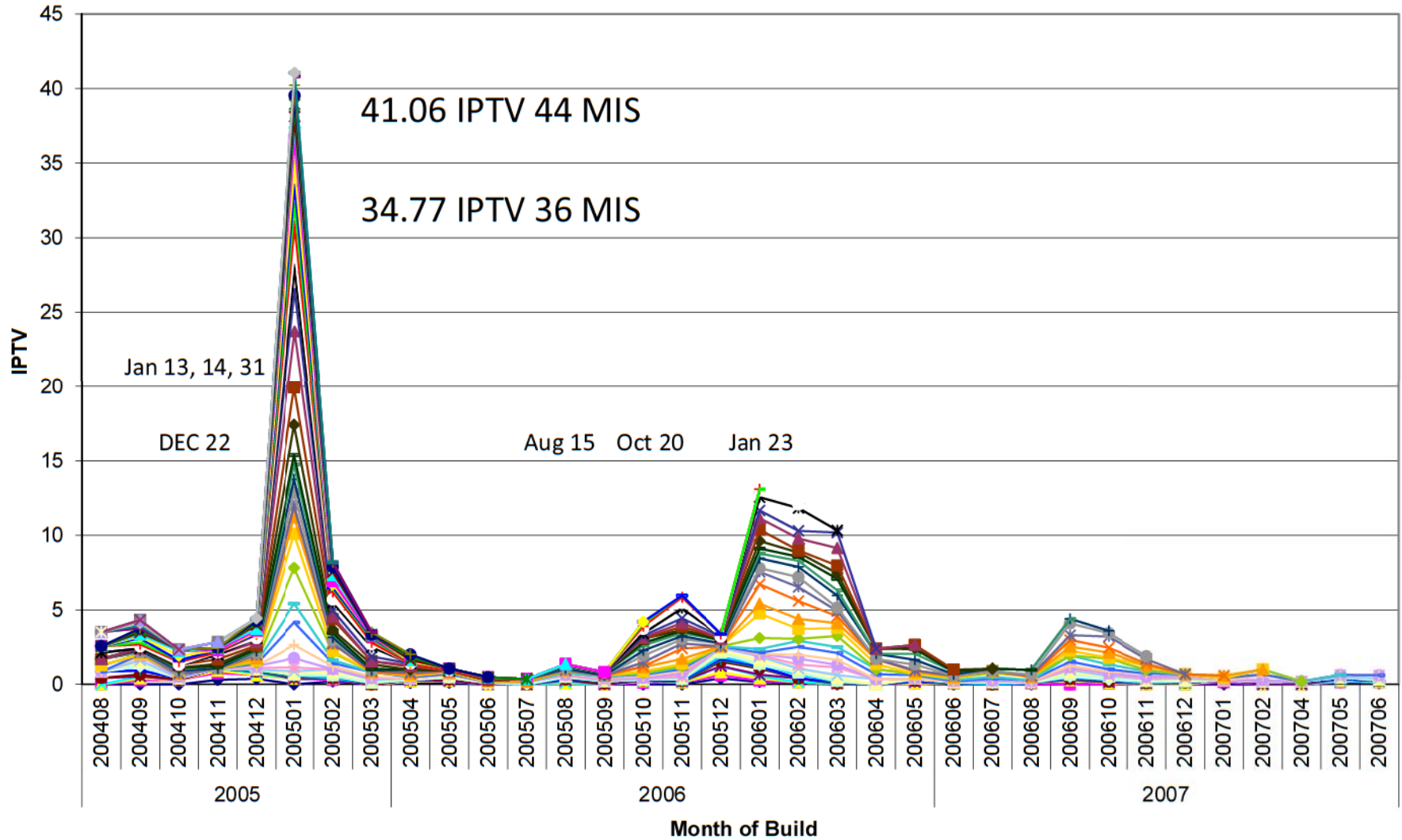
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2005 - 2007 G6 Intermittent Stop Lamp Warranty



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Weekly Production Volume for the Month of January 2005: U.S. and Canada

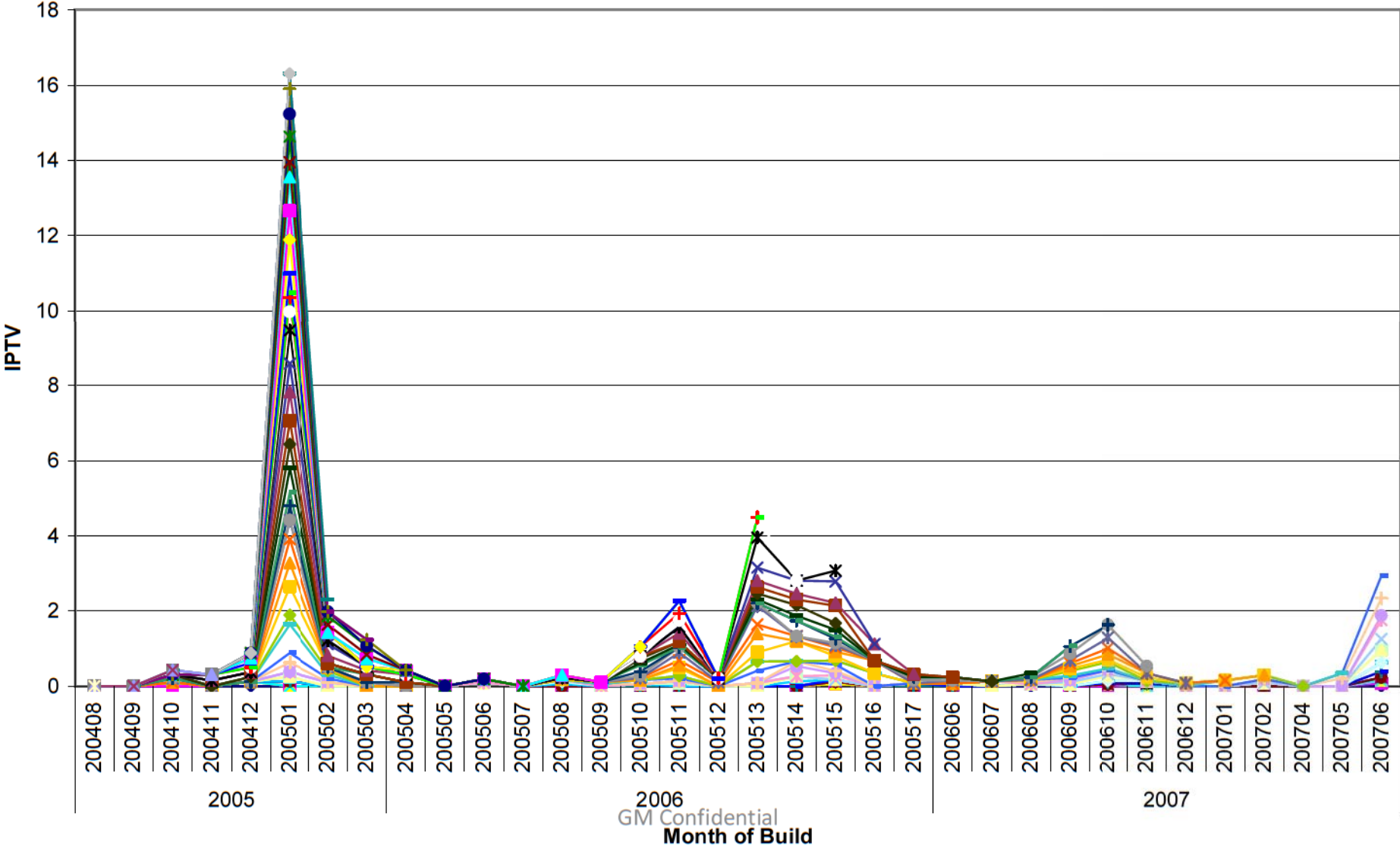
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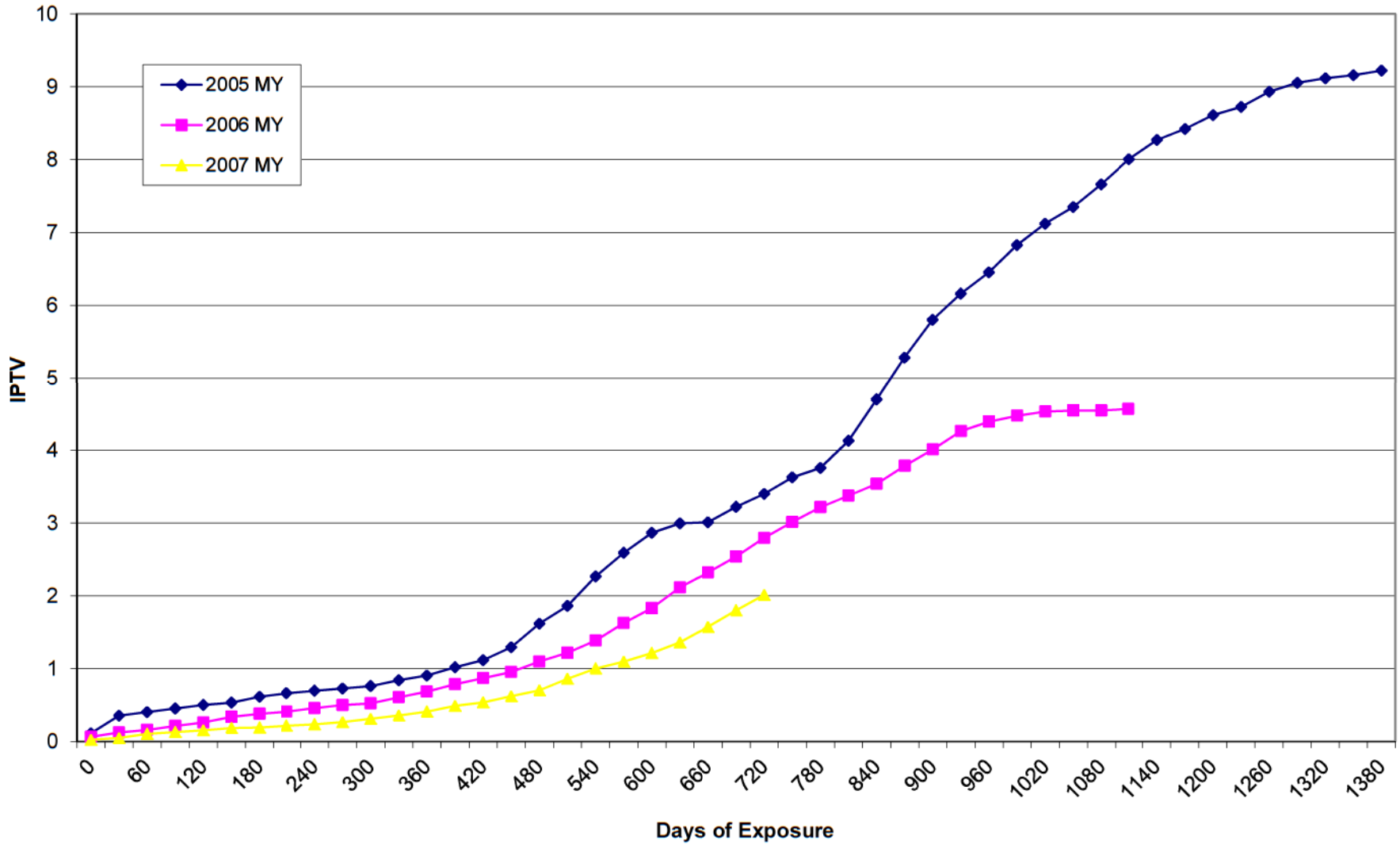
GM Confidential

2005 - 2007 G6 BASS – TAC and CAC only

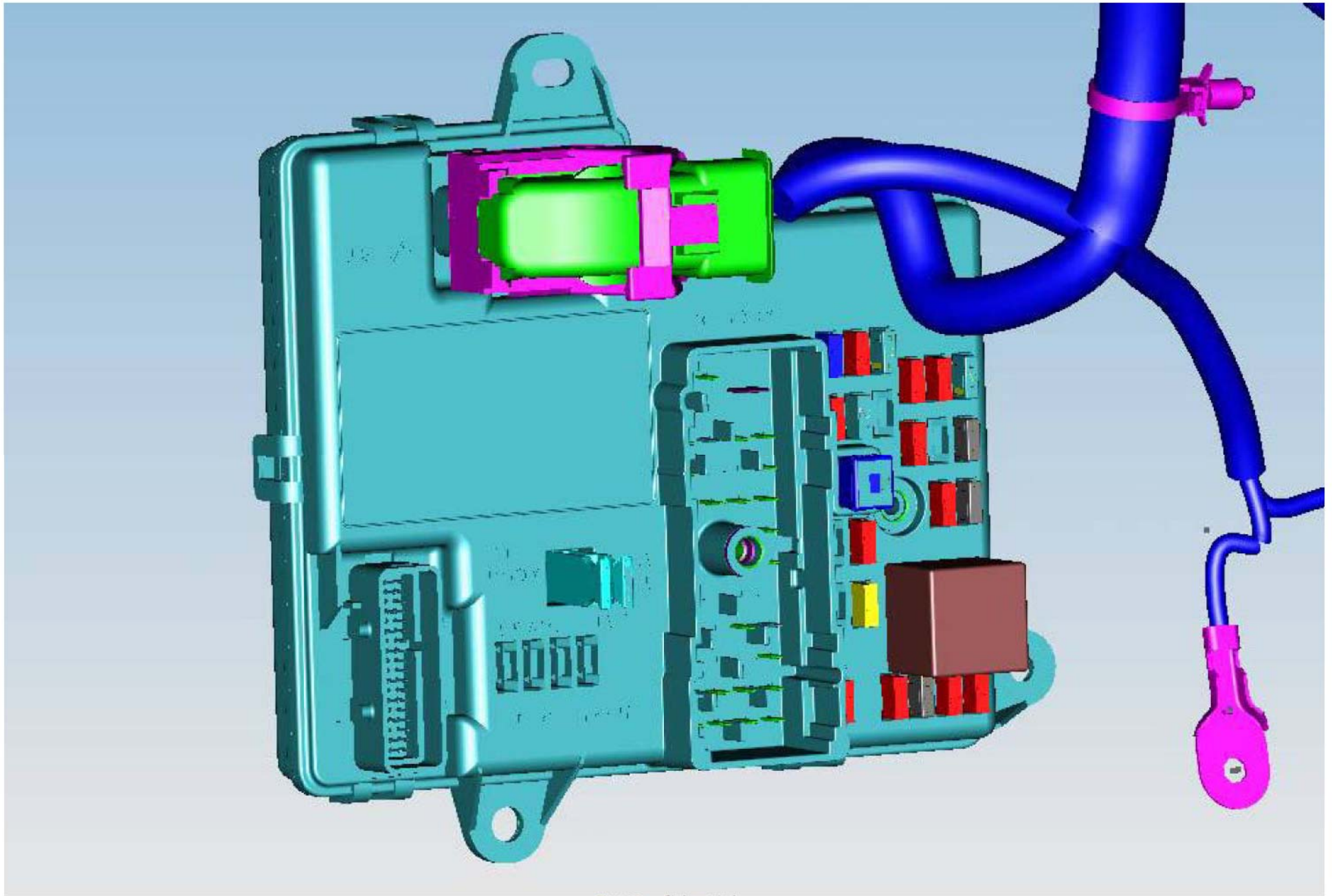
2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only



2005 - 2007 G6 Intermittent Stop Lamp Warranty



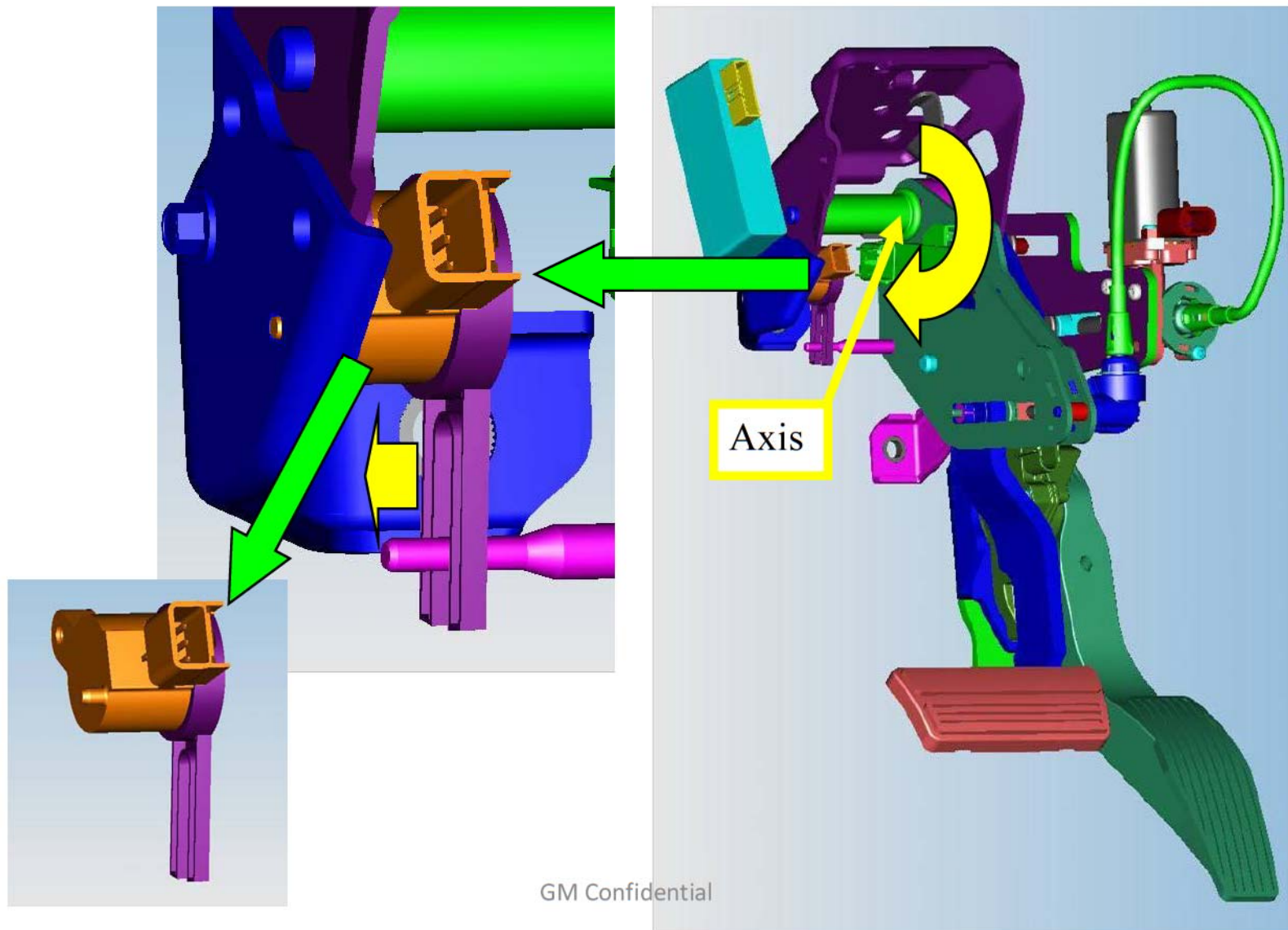
GM Confidential



GM Confidential

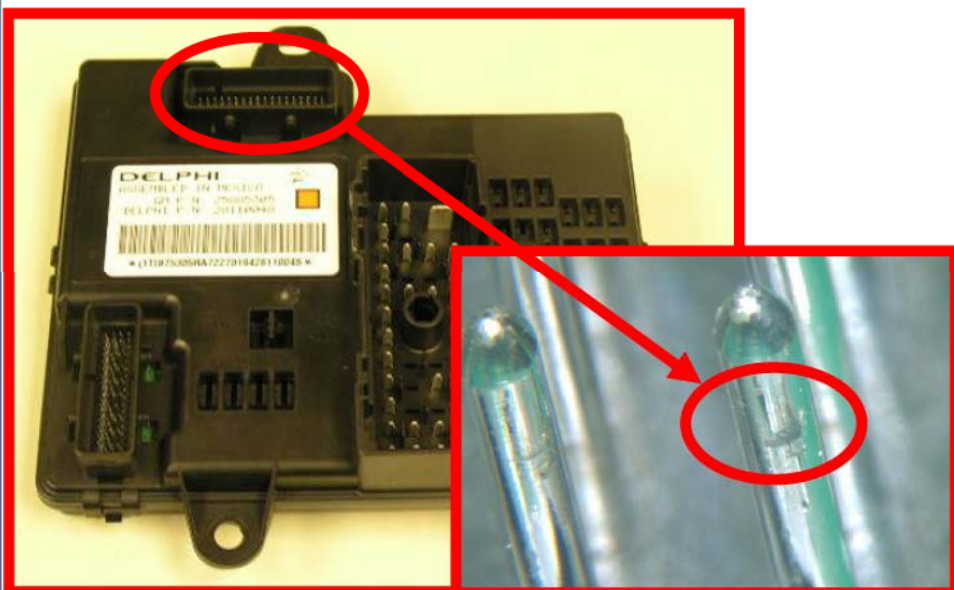
2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



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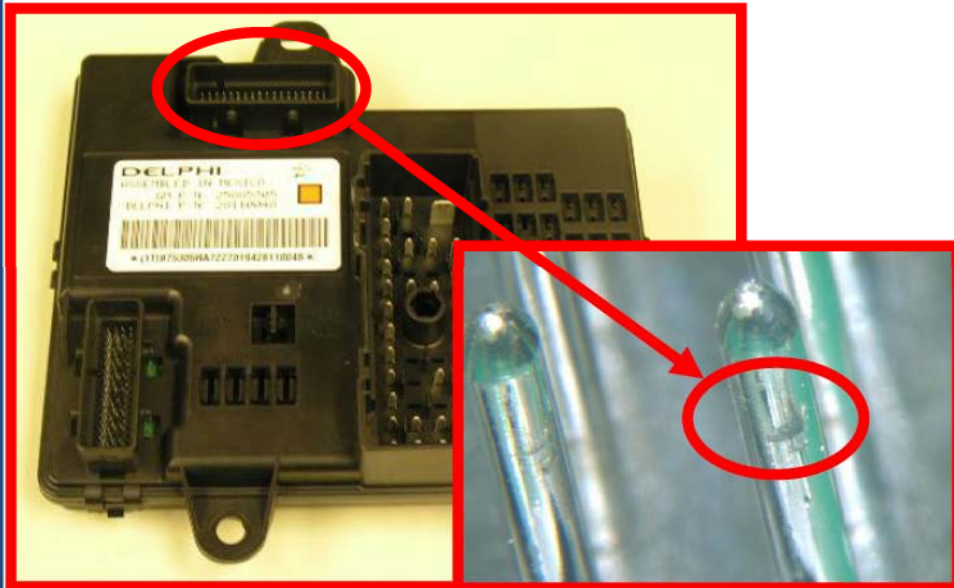
Model Years
2005 - 2007

Models
Pontiac G6

GM Confidential DRAFT

Pontiac G6 Brake Apply Sensing System (BASS)

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Model Years
2005 - 2007

Models
Pontiac G6

GM Confidential DRAFT

Field Action Category
TBD

Population Affected
9,423

Estimated Cost \$TBD

Scope

2005 – 2007 Pontiac G6

Immediate Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

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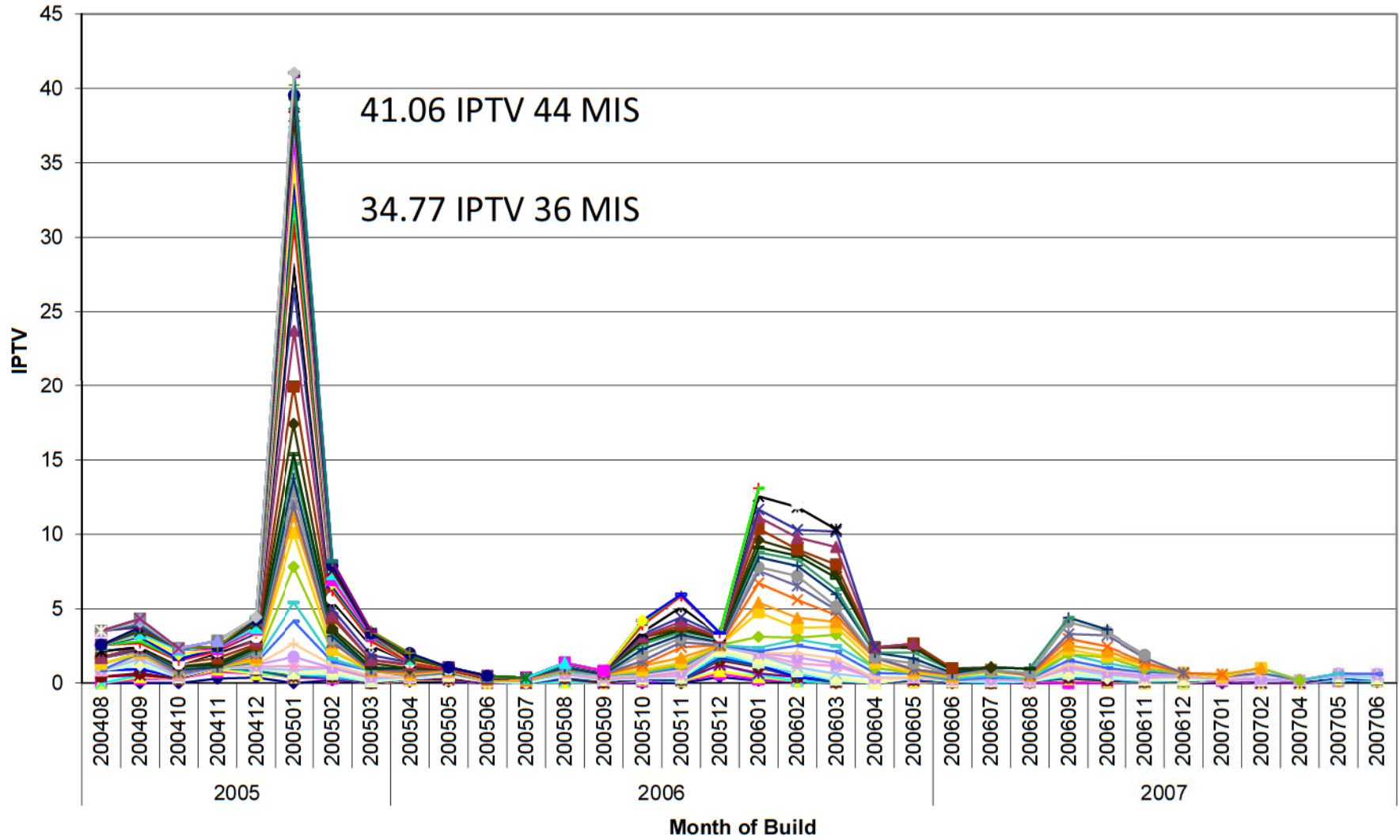
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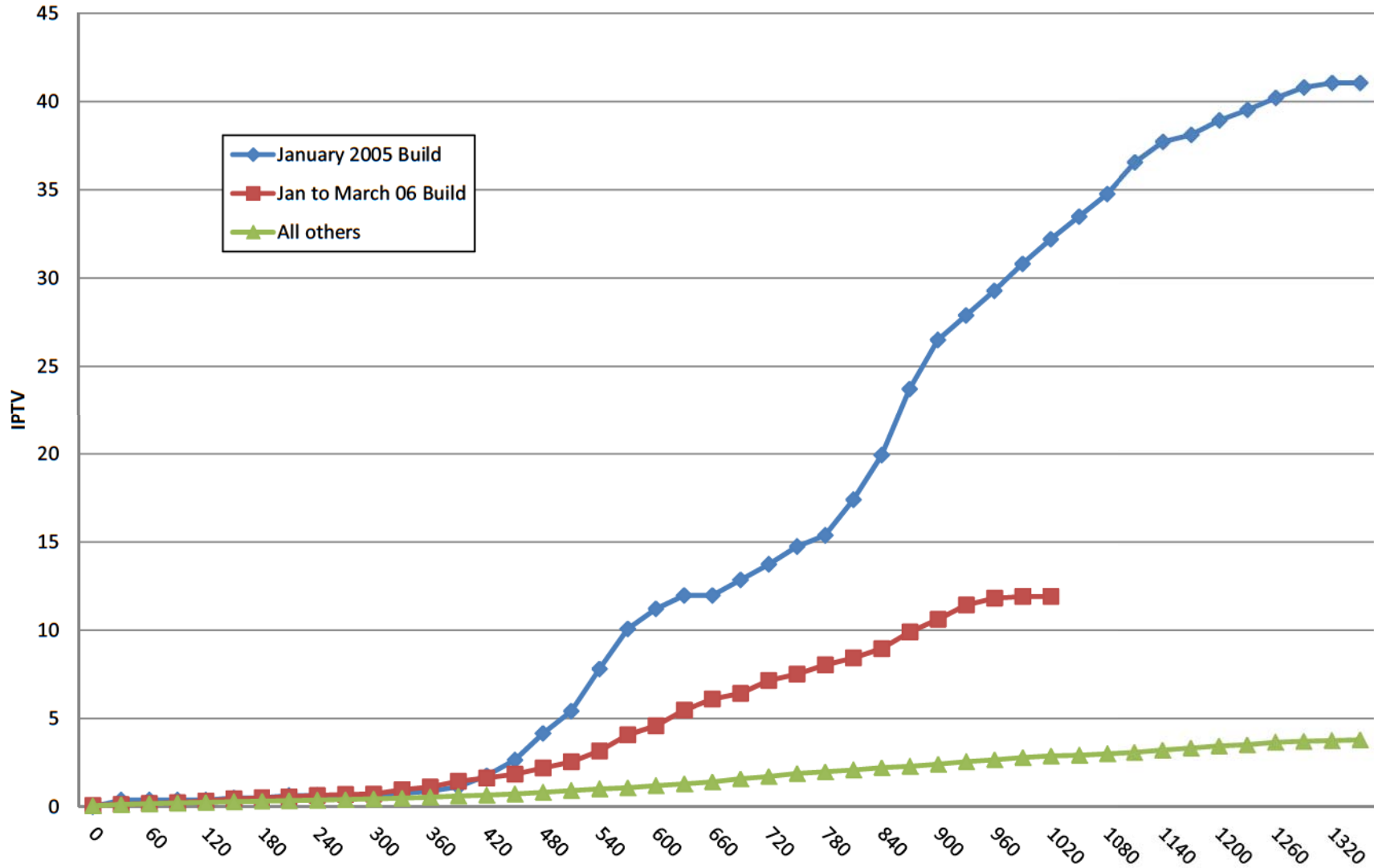
GM Confidential DRAFT

2005 - 2007 G6 Intermittent Stop Lamp Warranty



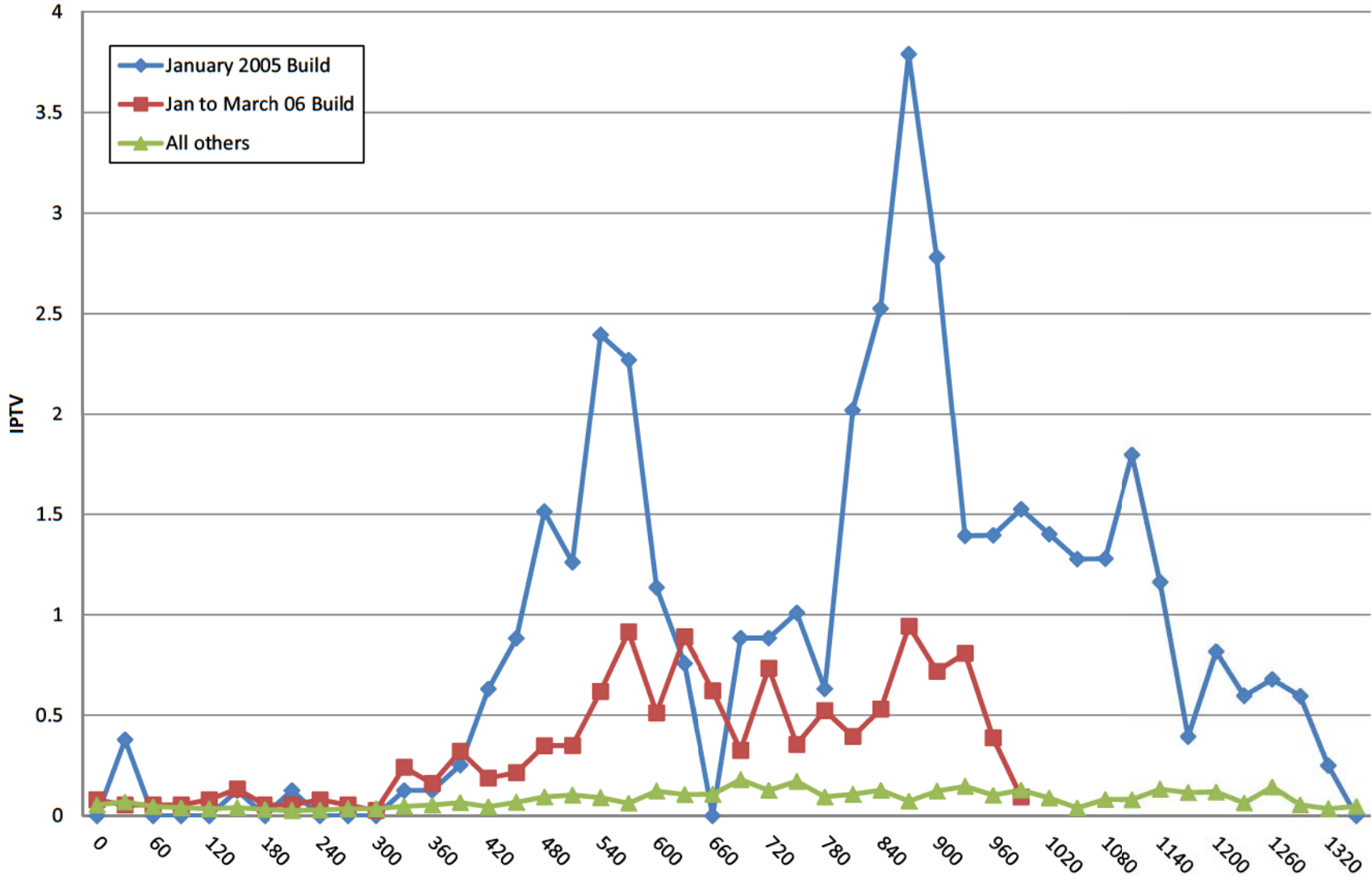
GM Confidential DRAFT

G6 Stop Lamp Warranty - Comparison of Select Months of Build



GM Confidential DRAFT

05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



GM Confidential DRAFT

Production Improvement

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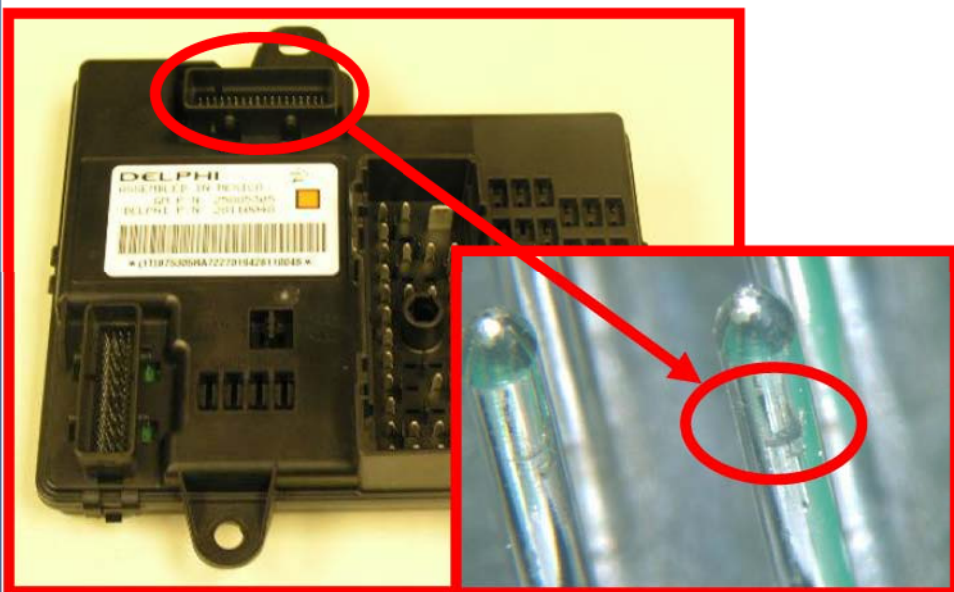
{ * }





Pontiac G6 Brake Apply Sensing System (BASS)

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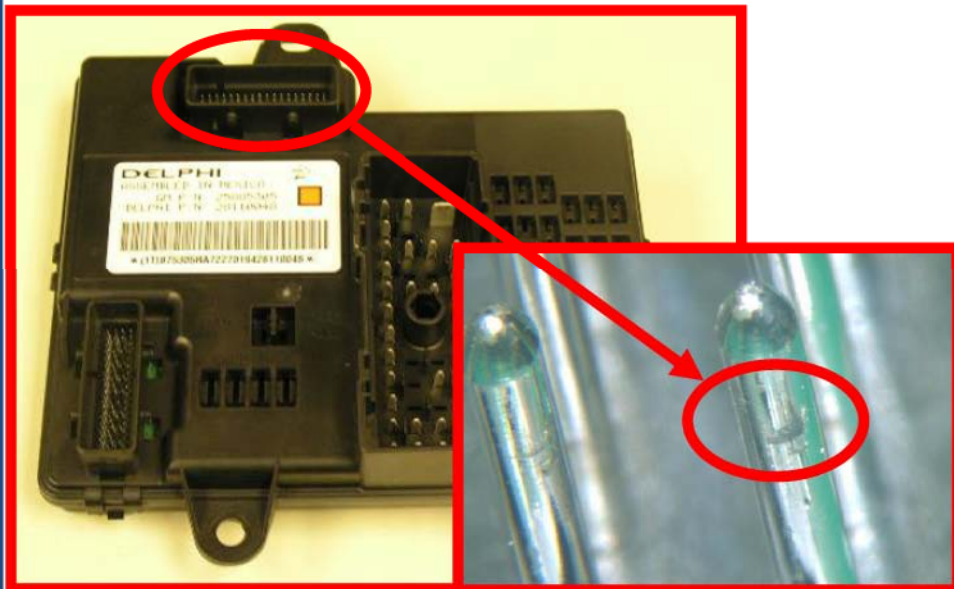
Model Years
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Models
Pontiac G6

GM Confidential DRAFT

Pontiac G6 Brake Apply Sensing System (BASS)

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Model Years
2005 - 2006

Models
Pontiac G6

GM Confidential DRAFT

Field Action Category
TBD

Population Affected
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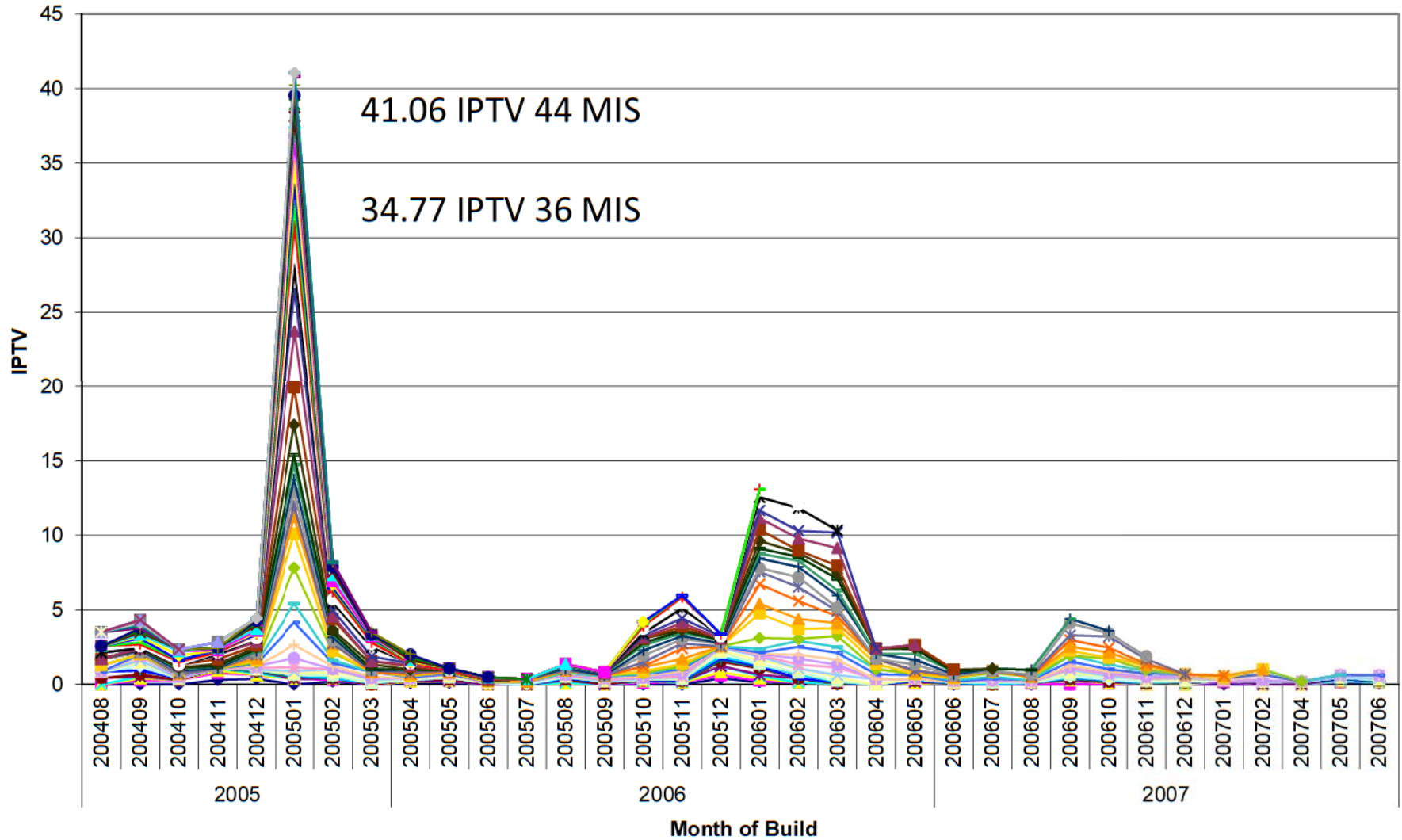
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GM CONFIDENTIAL

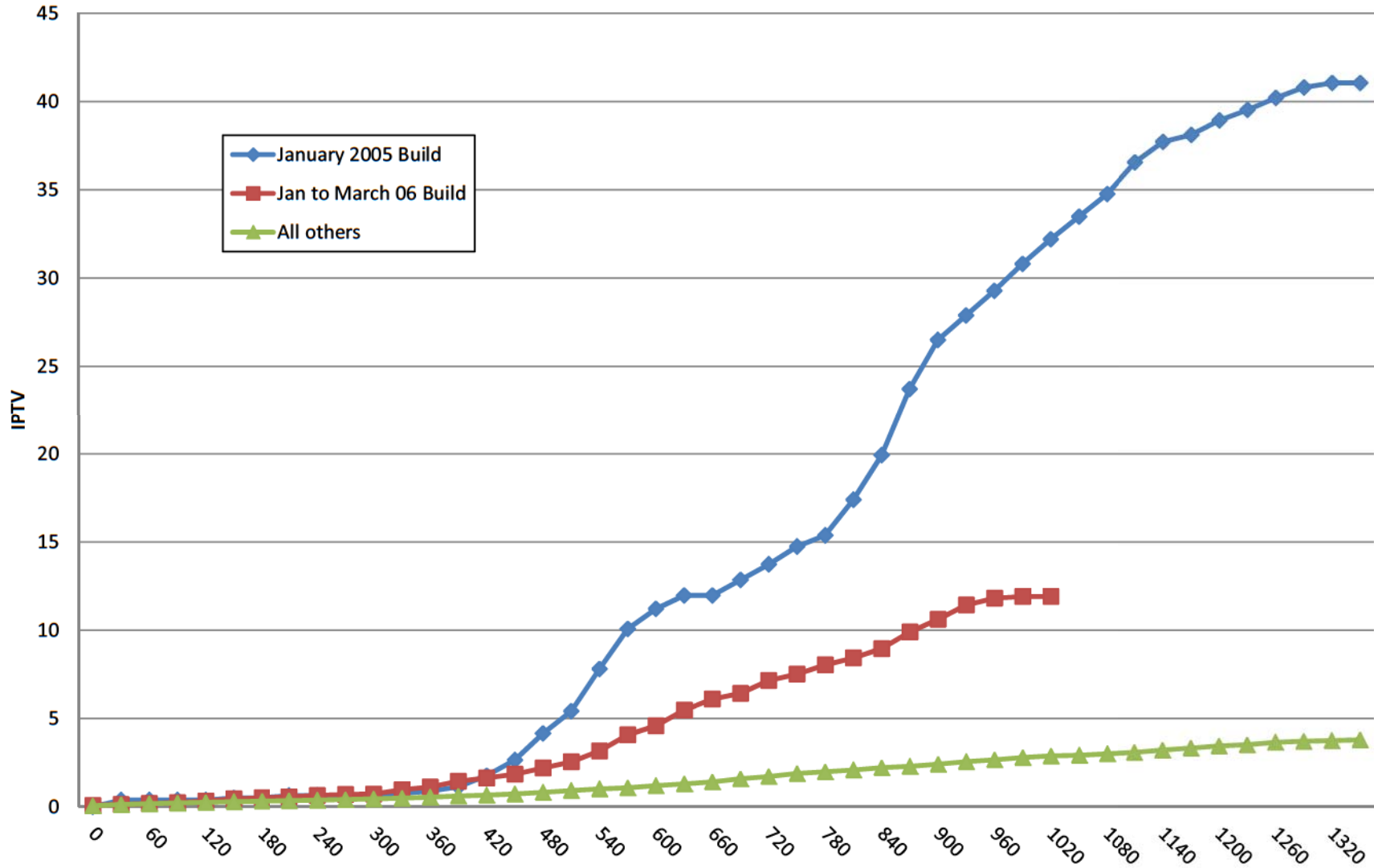
GM Confidential DRAFT

2005 - 2007 G6 Intermittent Stop Lamp Warranty



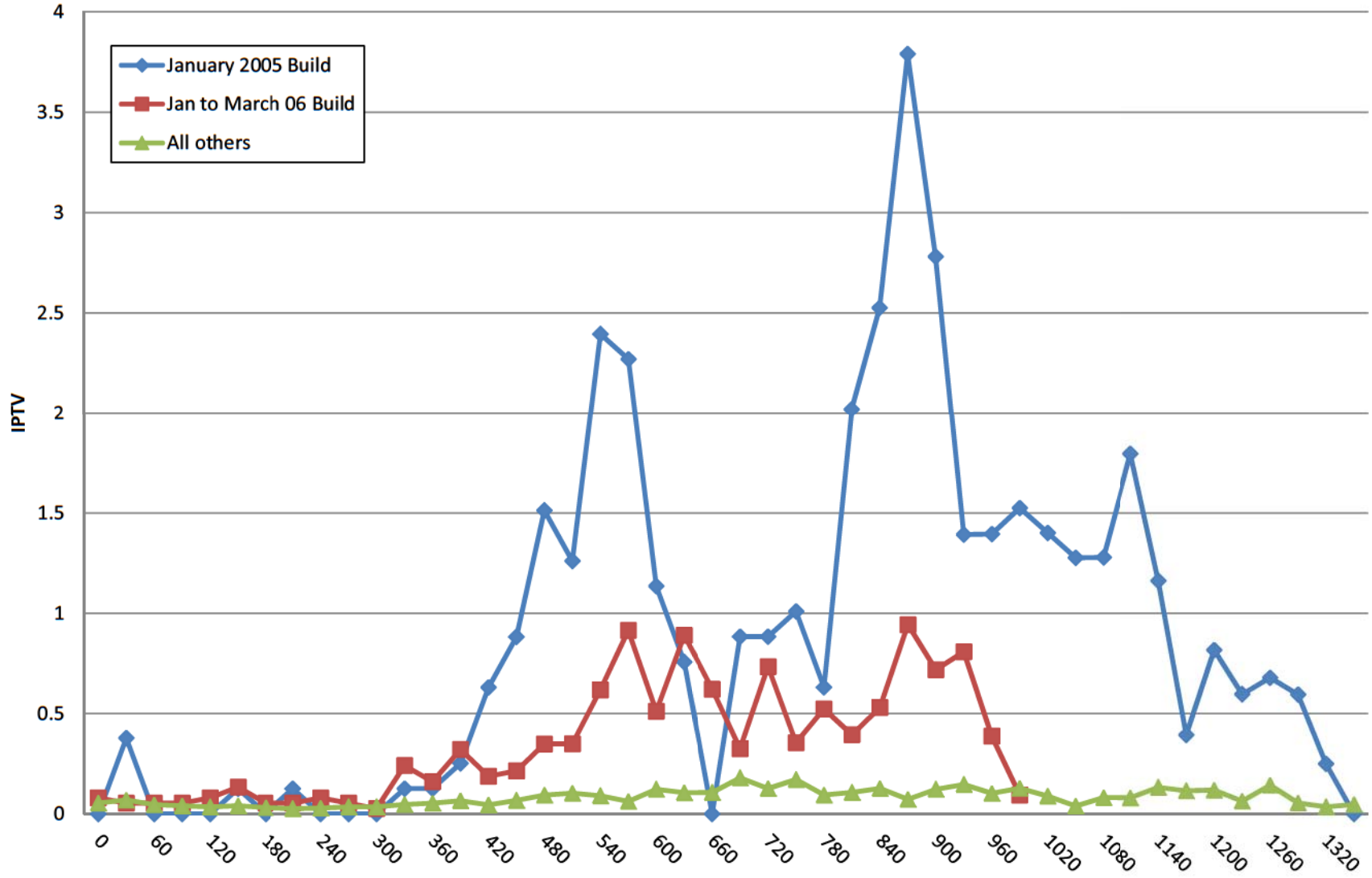
GM Confidential DRAFT

G6 Stop Lamp Warranty - Comparison of Select Months of Build



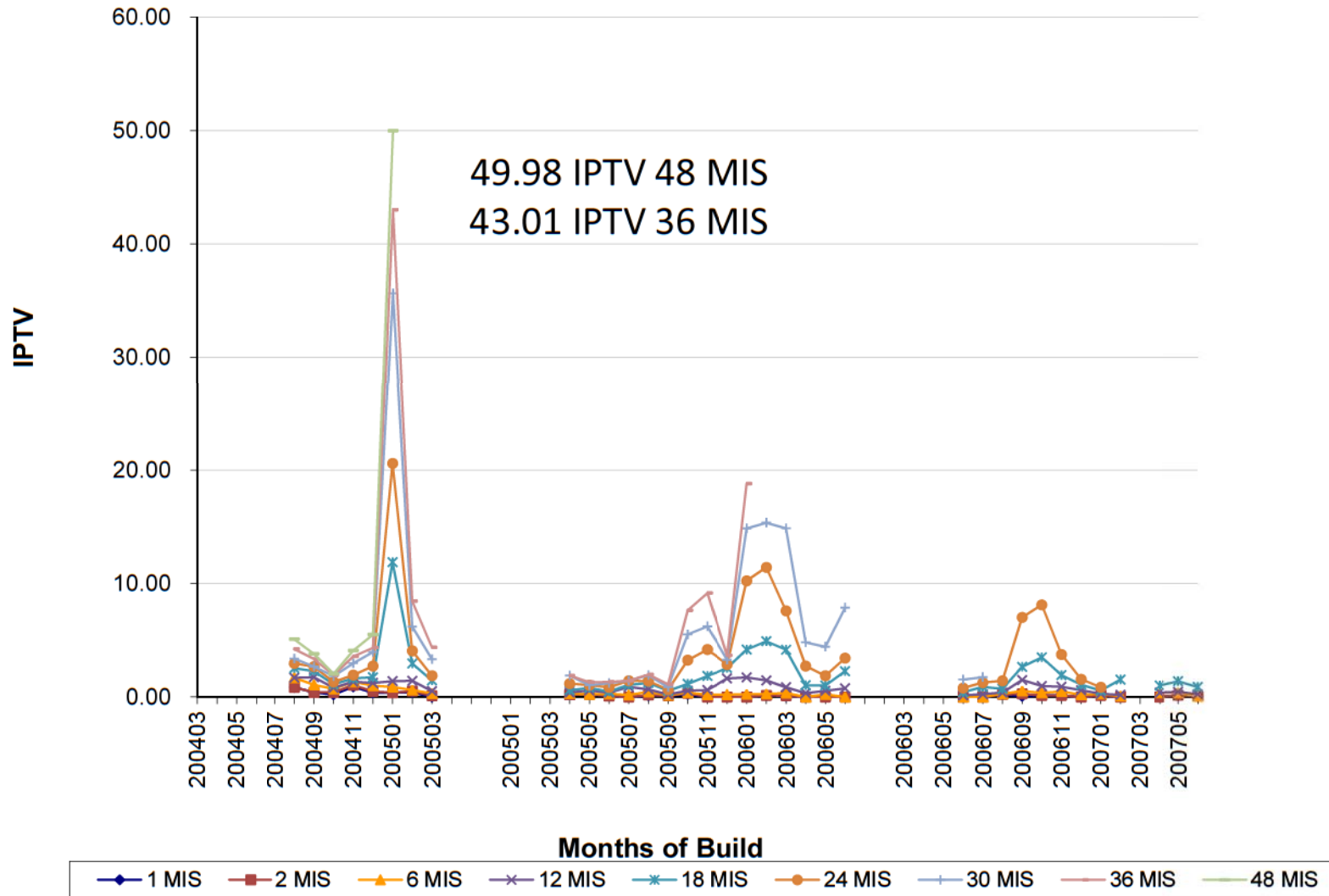
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05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



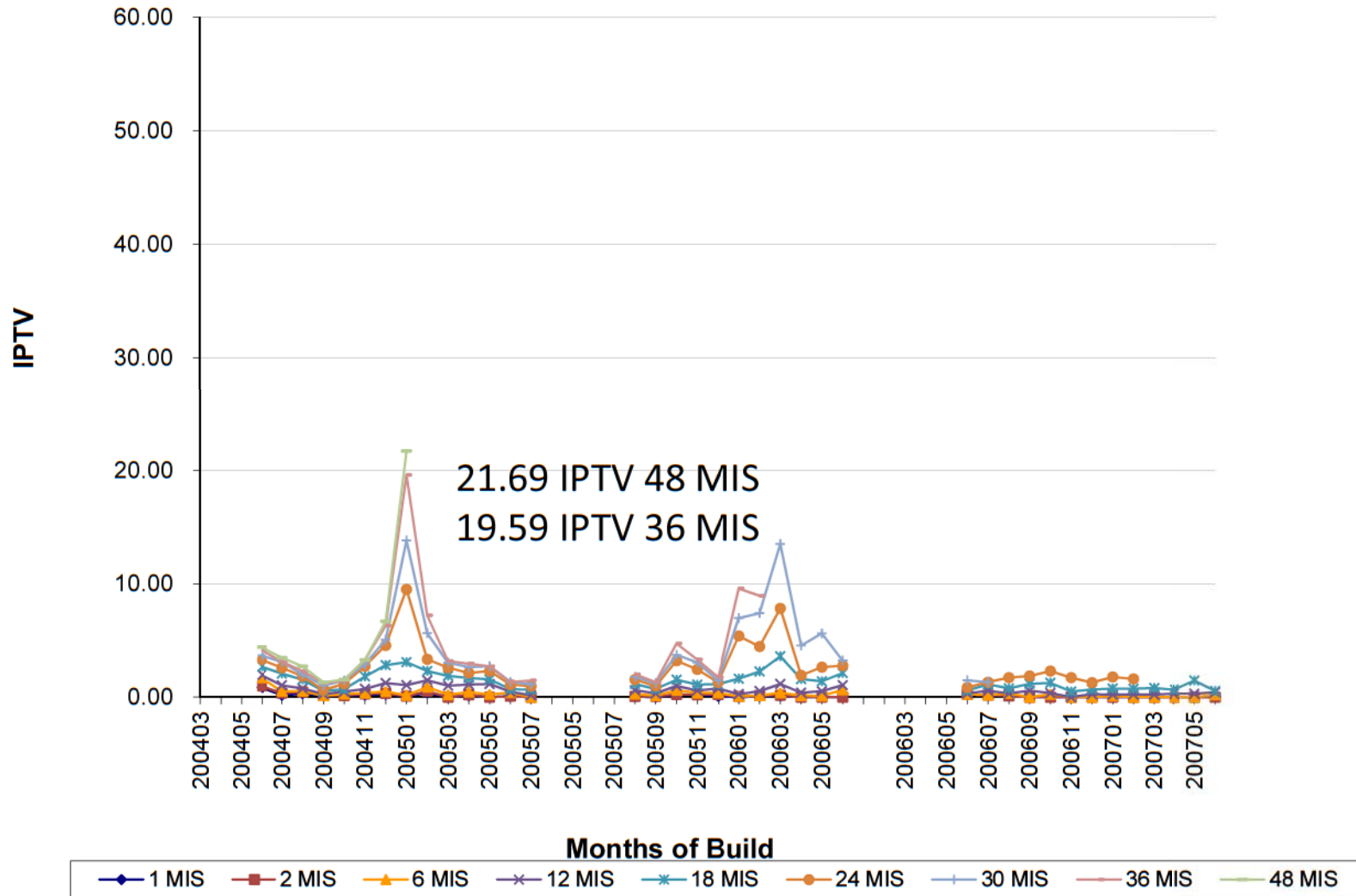
GM Confidential DRAFT

Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



GM Confidential DRAFT

Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Historical Rate Comparison

| Rear lighting issues | | | | | | | |
|---|----------------------|---------------|--|--|--------------------|--|------------------|
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Production Improvement

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Back-up

GM Confidential DRAFT





Technical Service Bulletin

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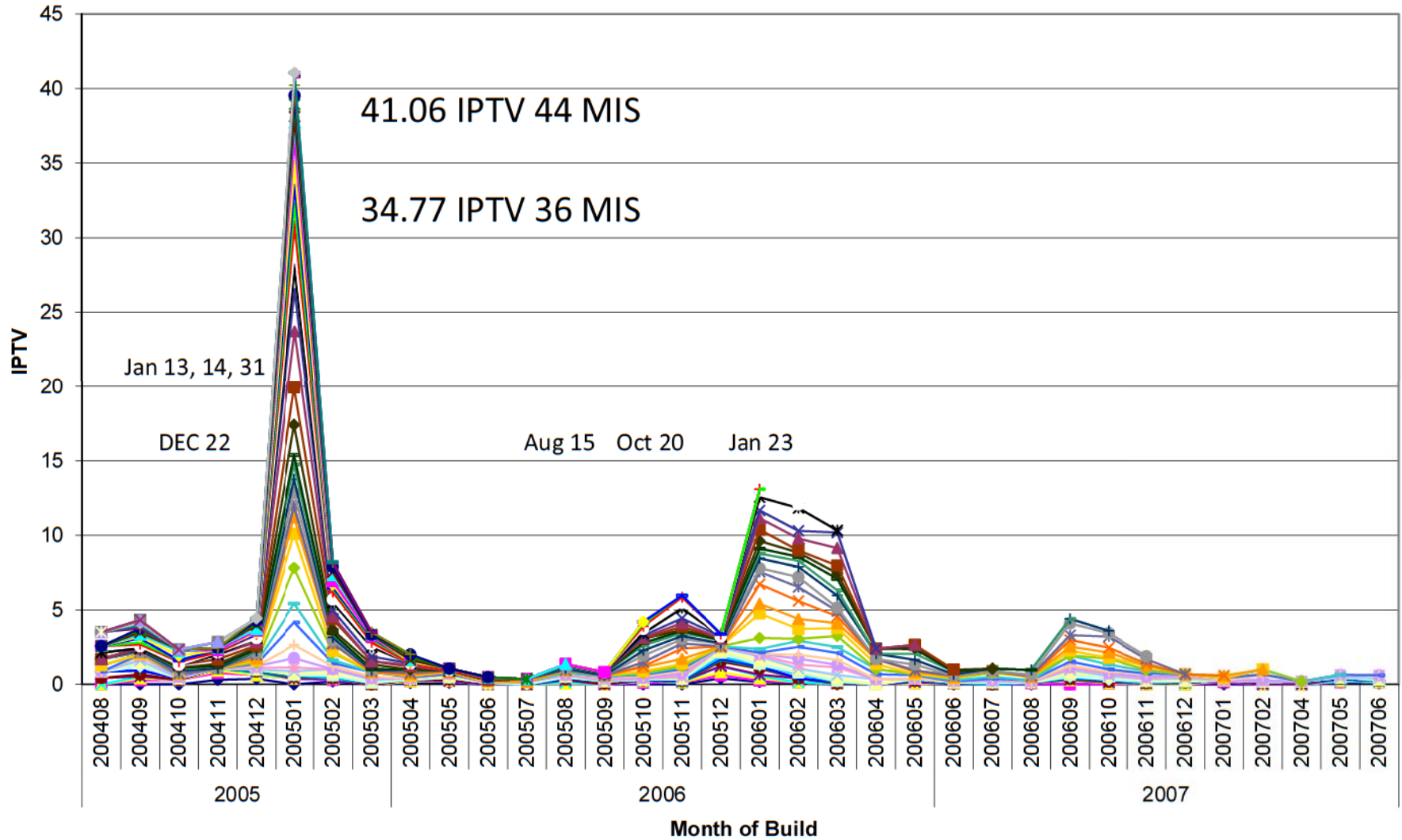
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GM Confidential DRAFT

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Weekly Production Volume for the Month of January 2005: U.S. and Canada

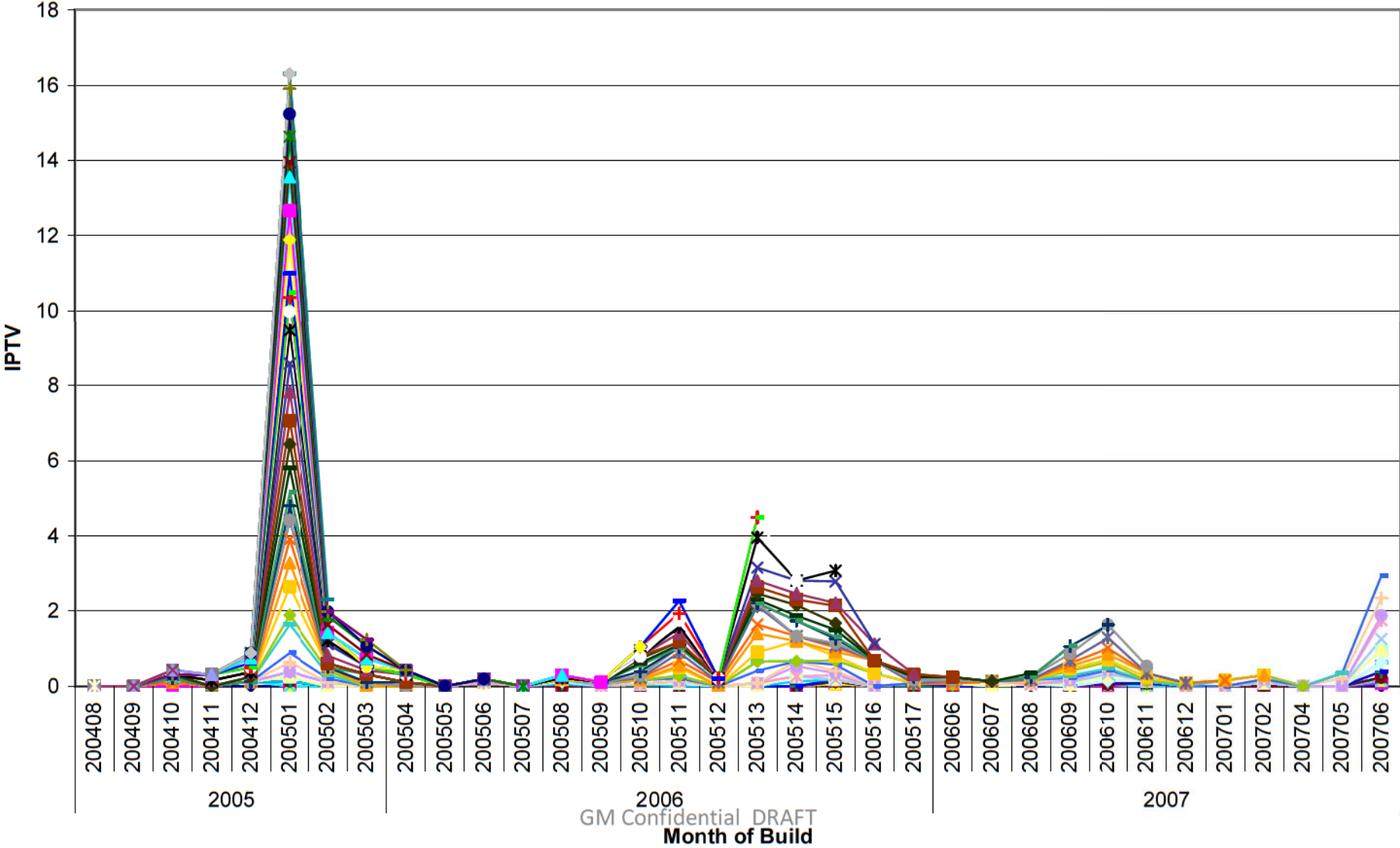
| MAKE/ MODEL | Week 03JAN05 | Week 10JAN05 | Week 17JAN05 | Week 24JAN05 | Day 31JAN05 | TOTAL |
|----------------|-----------------|-----------------|-----------------|-----------------|----------------|-------|
| Pontiac G6 | 2,374 | 2,334 | 1,826 | 2,272 | 475 | 9,281 |

| Myear | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
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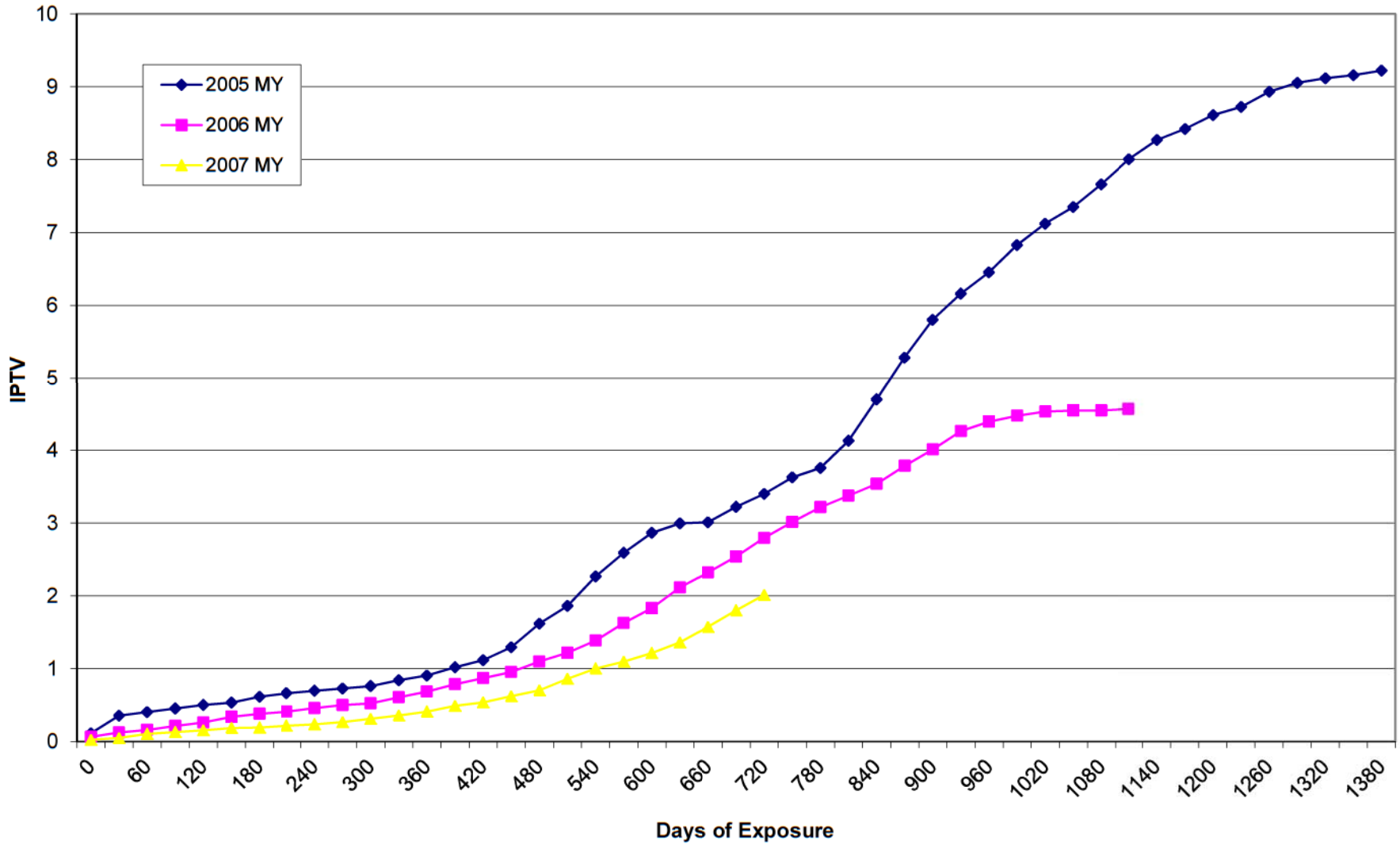
GM Confidential DRAFT

2005 - 2007 G6 BASS – TAC and CAC only

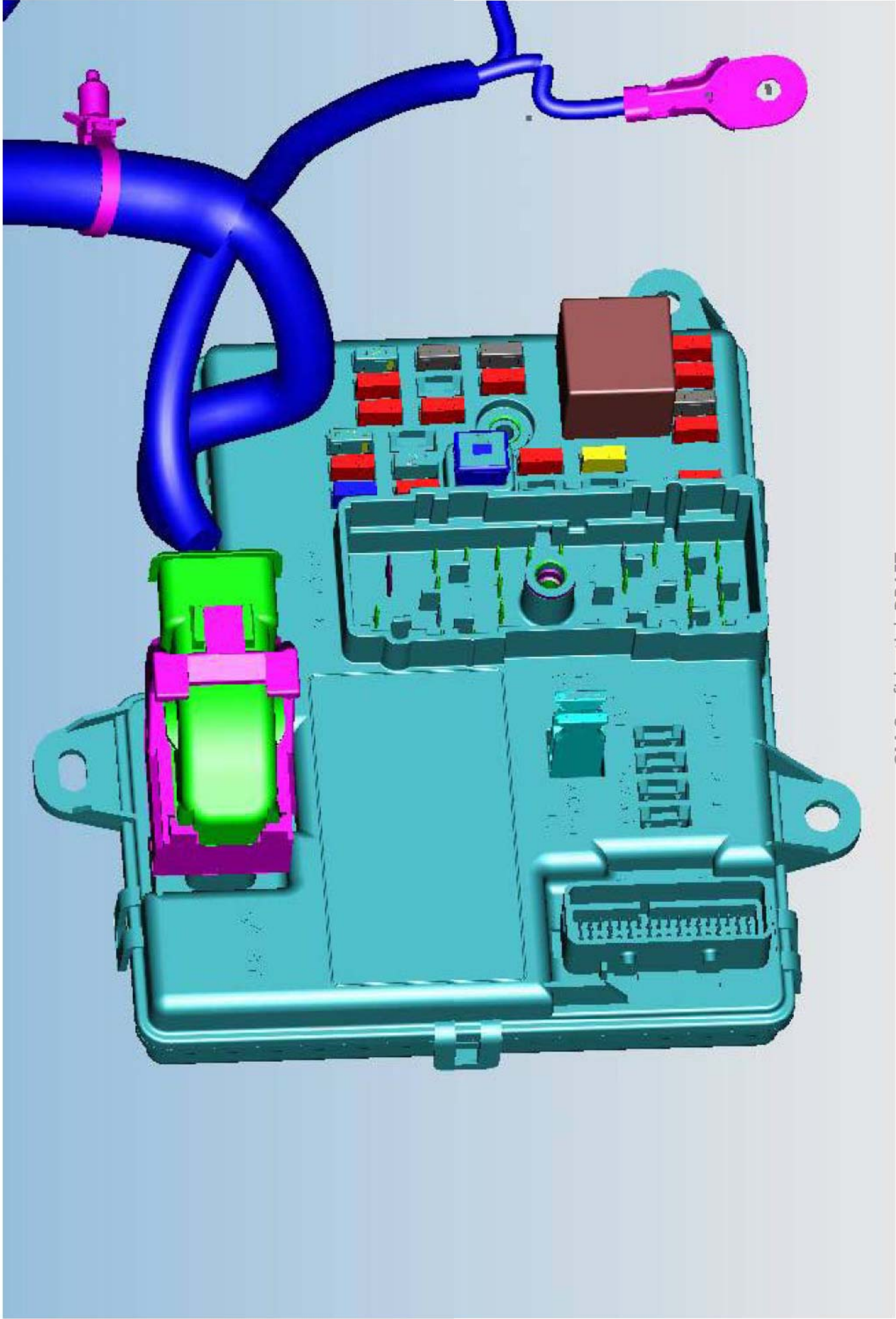
2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only



2005 - 2007 G6 Intermittent Stop Lamp Warranty



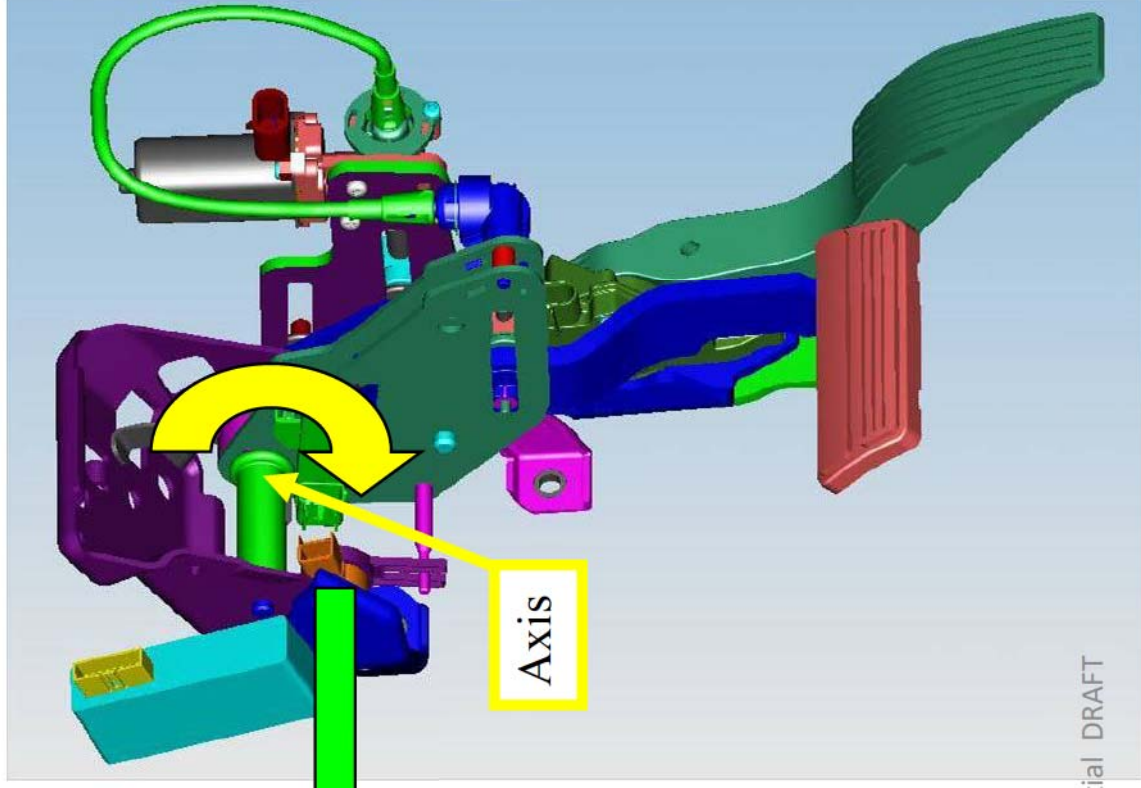
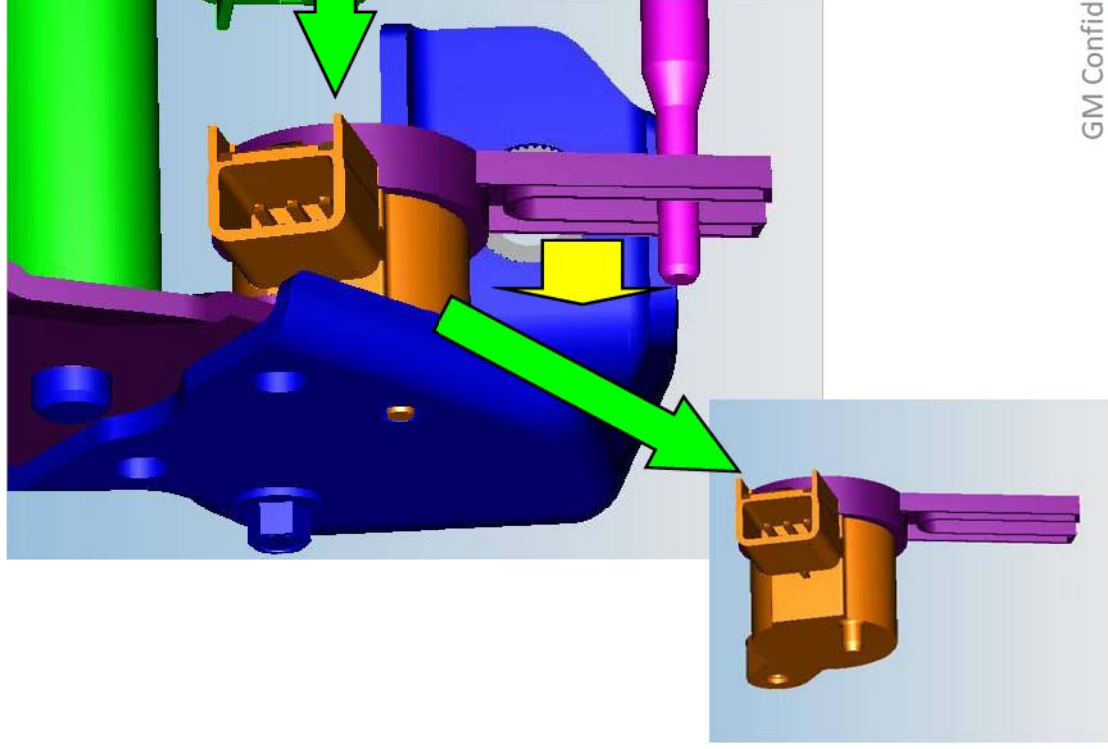
GM Confidential DRAFT



GM Confidential DRAFT

2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement



GM Confidential DRAFT

2005-2007 MY Pontiac G6 Body Control Module Brake Apply Sensing System

Condition Reported

The brake lamps may be activated while the brake pedal is at rest and deactivated when the brake pedal is depressed.

Effects of the Condition

Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.

Suspected or Known Cause of the Condition and Technical Explanation (Technical Root Cause)

The Body Control Module (BCM) receives a Brake Apply Sensor (BAS) signal voltage and uses that signal to activate or deactivate the brake lamps. The suspected failure mechanism is fretting corrosion at the terminal interface between the BCM and the instrument panel harness of the BAS circuits. Fretting corrosion causes an increase in resistance that results in a lower BAS signal voltage to the BCM.

Investigations and Analyses

Discovery

On September 15, 2008 GM received an investigation resume (PE08-054) from Office of Defects Investigation of National Highway Traffic Safety Administration (NHTSA). NHTSA received nine Vehicle Owner's Questionnaire (VOQ) reports alleging that the stop lamps on the subject vehicle do not function properly. Complaints allege that the stop lamps illuminate without depressing the brake pedal and in some cases the stop lamps turn off when the brake pedal is depressed.

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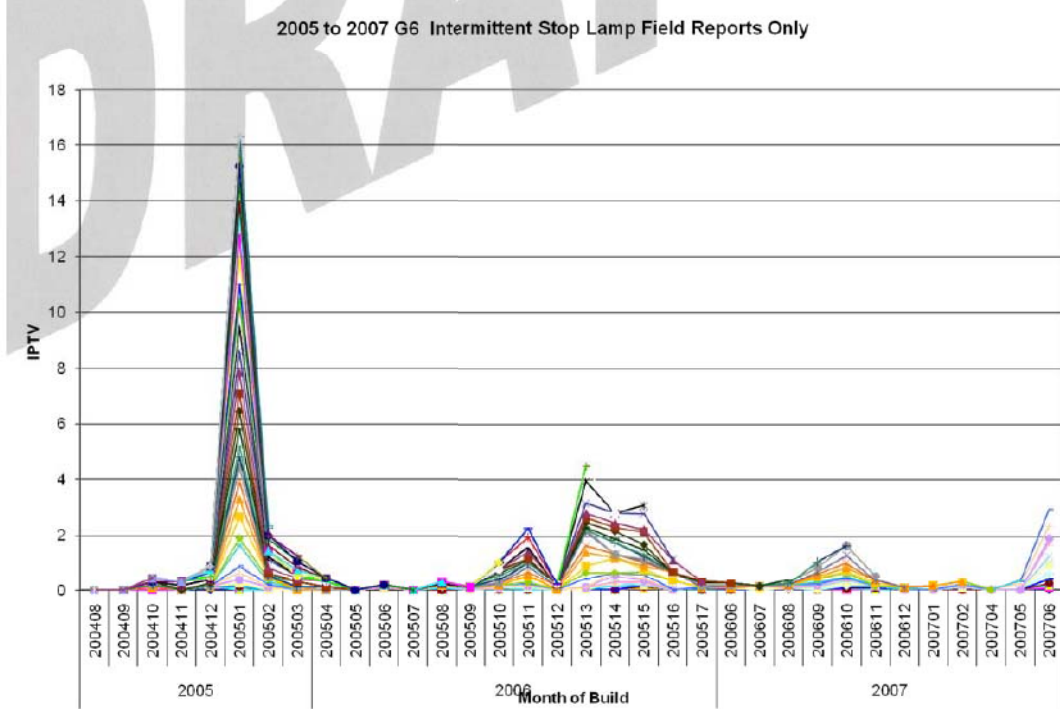
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| TYPE OF REPORT | GM REPORTS | SUBCATEGORIES | | | | |
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| | | CORRESPONDING TO NHTSA REPORTS | NUMBER WITH PROPERTY DAMAGE | NUMBER WITH CRASH | NUMBER WITH INJURIES/FATALITIES | NUMBER WITH FIRES |
| Owner Reports | 42 | 4 | 0 | 0 | 0 | 0 |
| Field Reports | 380 | 3 | 0 | 0 | 0 | 0 |
| Not-In-Suit Claims | 1 | 0 | 0 | 0 | 0 | 0 |
| Subrogation Claims | 0 | 0 | 0 | 0 | 0 | 0 |
| Third Party Arbitration Proceedings | 0 | 0 | 0 | 0 | 0 | 0 |
| Product Liability Lawsuits | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Reports (Including Duplicates) | 423 | 7 | 0 | 0 | 0 | 0 |
| Total Vehicles with Reports (Unique VIN) | 398 | 4 | 0 | 0 | 0 | 0 |

Table 2 Field Report Count Summary

Table 2 field report summary is graphed in Graph 1 below as Incident Per Thousand Vehicle (IPTV) over Month of Build:



Graph 1 Field Report Count IPTV over Month of Build

The warranty reports collected as of October 14, 2008 are summarized in the Tables 3 and 4 below:

| MAKE/ MODEL | Type | 2005 MY | 2006 MY | 2007 MY | TOTAL |
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| Pontiac G6 | Regular | 579 | 754 | 232 | 1,565 |
| Pontiac G6 | MIC | 43 | 25 | 2 | 70 |

Table 3 Regular Warranty and MIC Service Contract Claims Summary

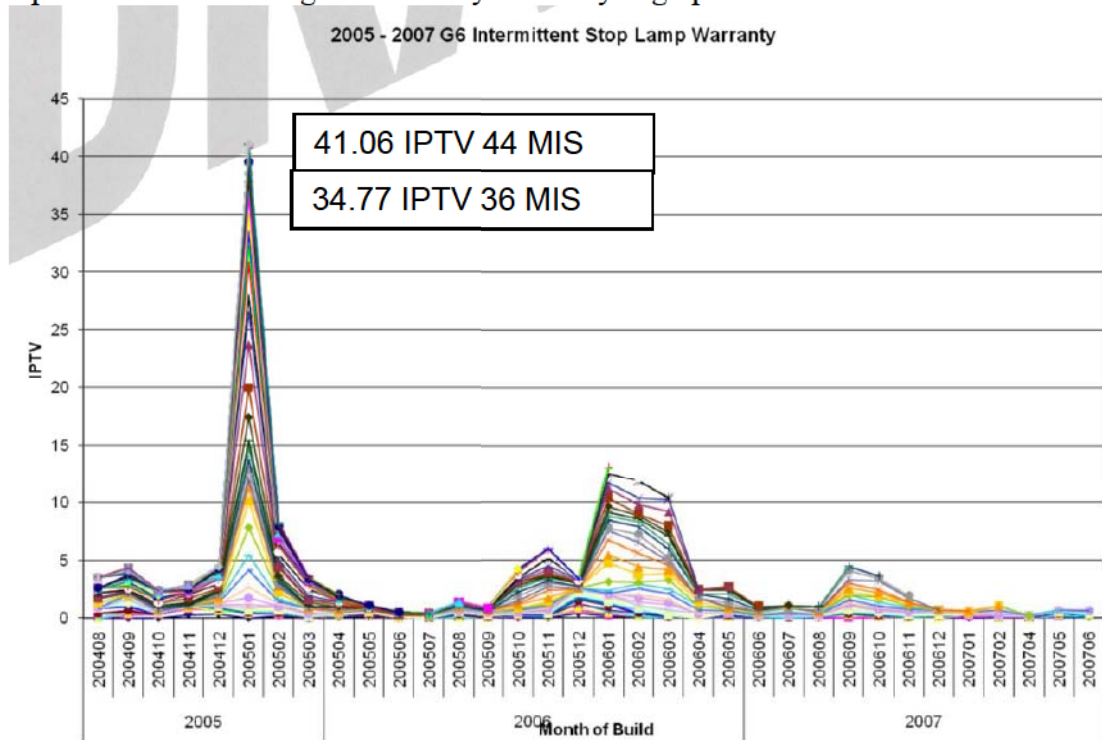
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| Pontiac G6 | UWC | 0 | 3 | 0 | 3 |

Table 4 UWC Service Contract Claims Summary

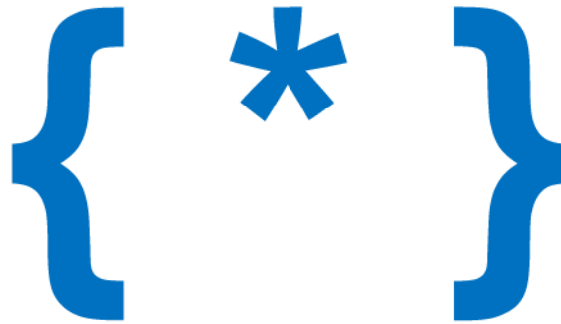
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Table 5 Labor Codes Regular Warranty and MIC Service Contract Claims Search

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Graph 2 Regular Warranty IPTV over Month of Build



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{ * }

Number of Documented Reports

There are total of 398 unique VIN field reports, 1,565 regular warranty, 70 MIC and 3 UWC service contracts. No PRTS was reported as of September 24, 2008.

Scope

Number of Vehicles Potentially Involved

The number of vehicles built for the investigation for US, Canada, and Mexico is 1,152,765 vehicle as follows:

| MAKE/ MODEL | 2004MY | 2005 MY | 2006 MY | 2007 MY | TOTAL |
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| Pontiac G6 | N/A | 72,987 | 193,185 | 178,602 | 444,774 |
| Chevrolet Malibu | 111,618 | 187,229 | 186,103 | 154,046 | 638,996 |
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The number of vehicles built for the surge in warranty and field report for US and Canada is as follows:

| MAKE/ MODEL | Week 03JAN05 | Week 10JAN05 | Week 17JAN05 | Week 24JAN05 | Day 31JAN05 | TOTAL |
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Description of Vehicles Potentially Involved

Pontiac G6 vehicles built in the month of January 2005 with the subject condition: the brake lamps may be activated while the brake pedal is at rest and deactivated when the brake pedal is depressed.

Improvements Implemented and Proposed

Immediate Improvement(s)

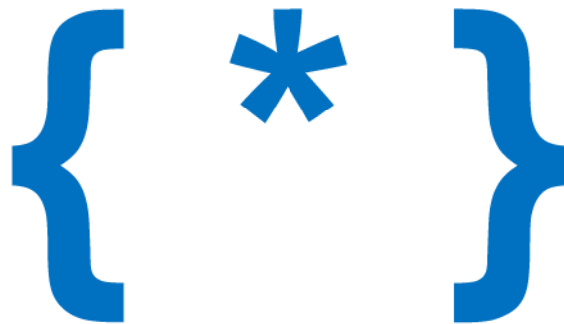
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Production Improvement(s)

Dielectric lubricant is applied in Orion plant for G6 as of 11/8/2008.

Potential Field Improvement(s)

TBD



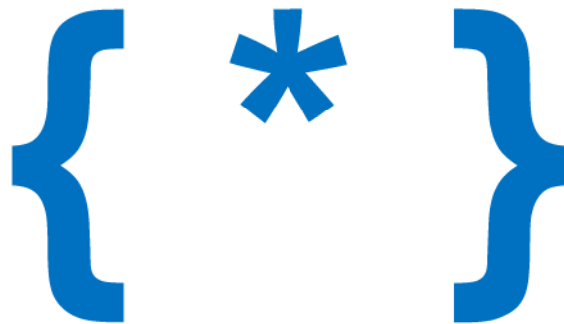


Potential Use of Parts, Systems, and Designs in Global Applications

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| 2008MY | New Malibu | |

Estimated Cost of Field Action



STANDARD DATA SOURCES USED IN THIS INVESTIGATION

| Data Source | Legal/ESIS | Product Development Quality | | | | |
|--------------|--------------------------------------|------------------------------------|------------------------------------|---------------------------------|------------------------|--------------------------------|
| | Lawpack / Not-In-Suit Matters (NISM) | Problem Resolution Tracking (PRTS) | Field Info Network Database (FIND) | Production Volume Counts (QWIK) | Production VINs (QWIK) | Regular Warranty Claims (QWIK) |
| No | | | | | | |
| Yes | x | x | x | x | x | x |
| Pull Date(s) | 10/2/08 | 9/24/08 | 9/24/08 | 10/1/08 | 10/1/08 | 10/13/08 |

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|--------------|------------------------|--------------------|---|
| | Bulletins / Advisories | Service Part Sales | Consumer Complaints (NHTSA VOQ) |
| No | | | <i>See P.I. home page for data owners</i> |
| Yes | x | x | x |
| Pull Date(s) | 11/11/08 | 10/28/08 | 1/13/09 |

2005-2007 MY Pontiac G6 Body Control Module Brake Apply Sensing System

Condition Reported

The brake lamps may be activated while the brake pedal is at rest and deactivated when the brake pedal is depressed.

Effects of the Condition

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The Body Control Module (BCM) receives a Brake Apply Sensor (BAS) signal voltage and uses that signal to activate or deactivate the brake lamps. The suspected failure mechanism is fretting corrosion at the terminal interface between the BCM and the instrument panel harness of the BAS circuits. Fretting corrosion causes an increase in resistance that results in a lower BAS signal voltage to the BCM.

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Discovery

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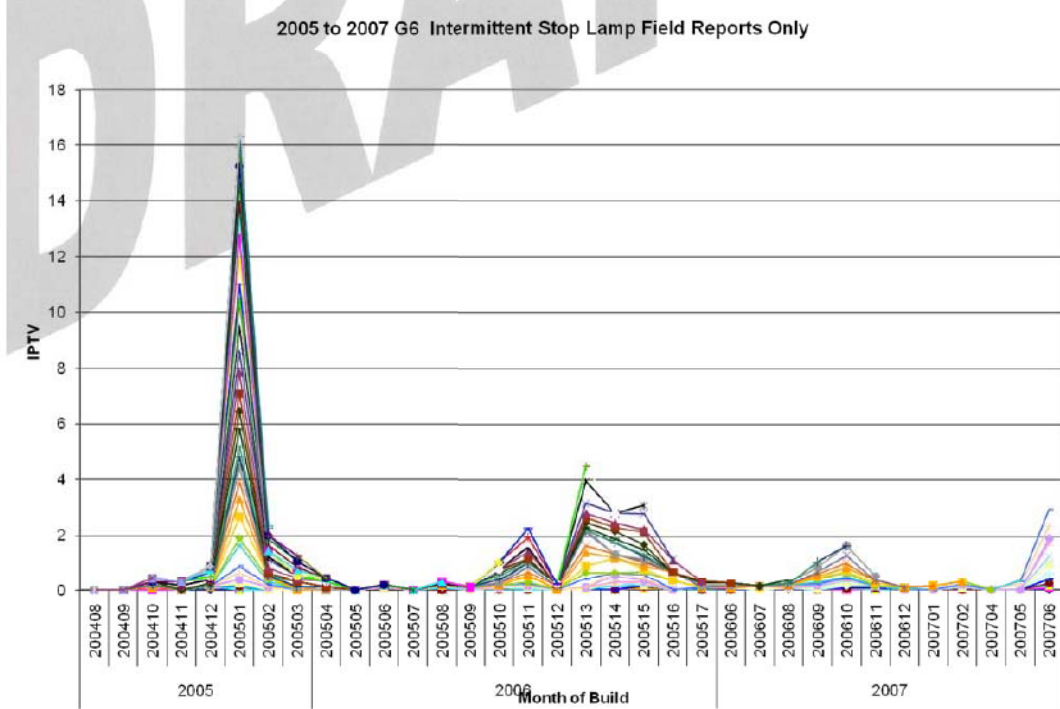
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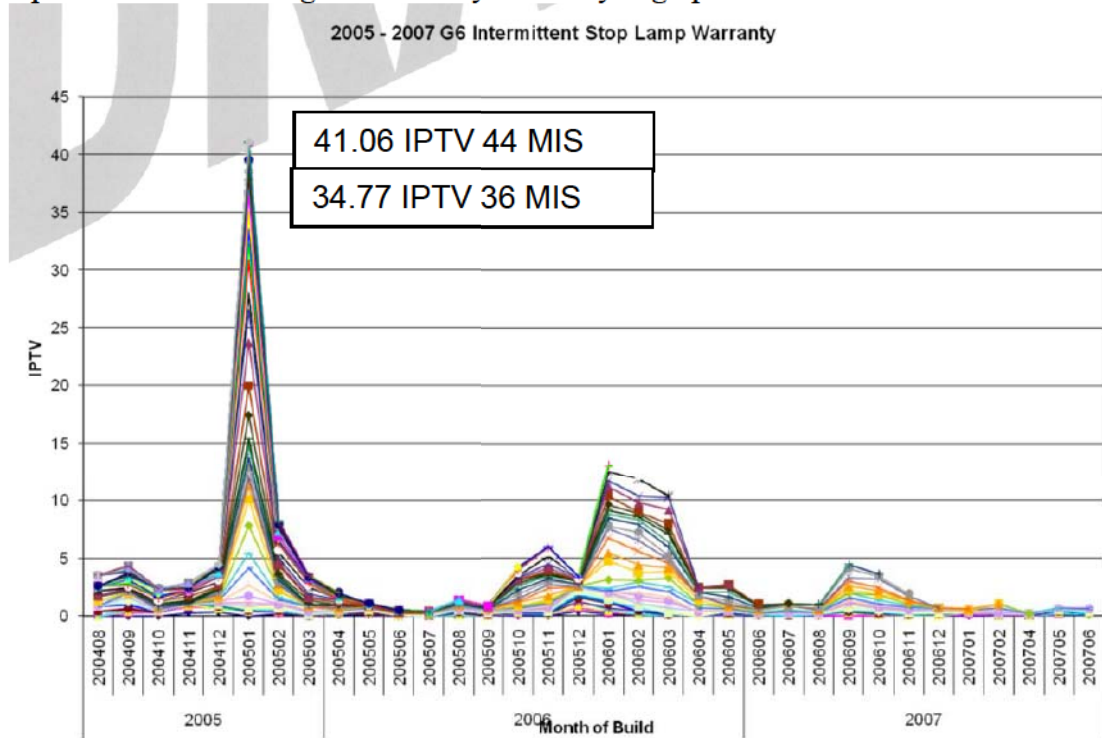
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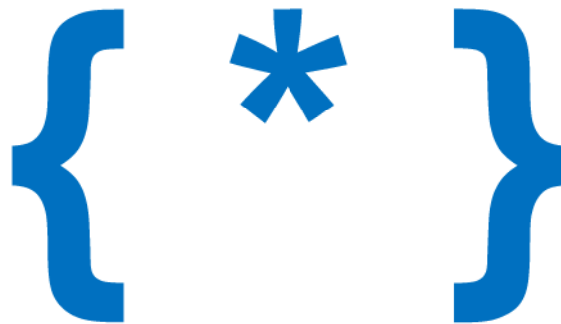
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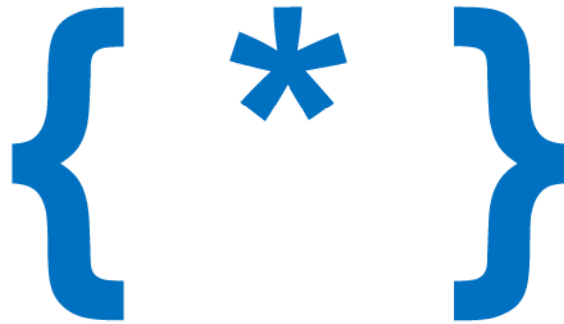
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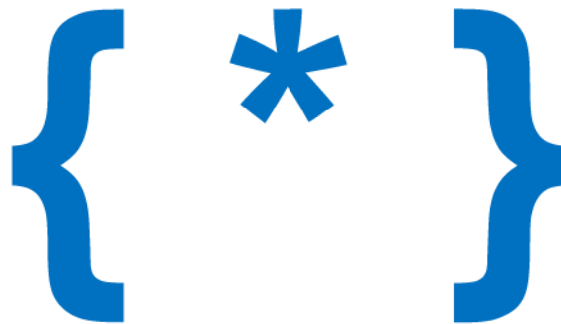
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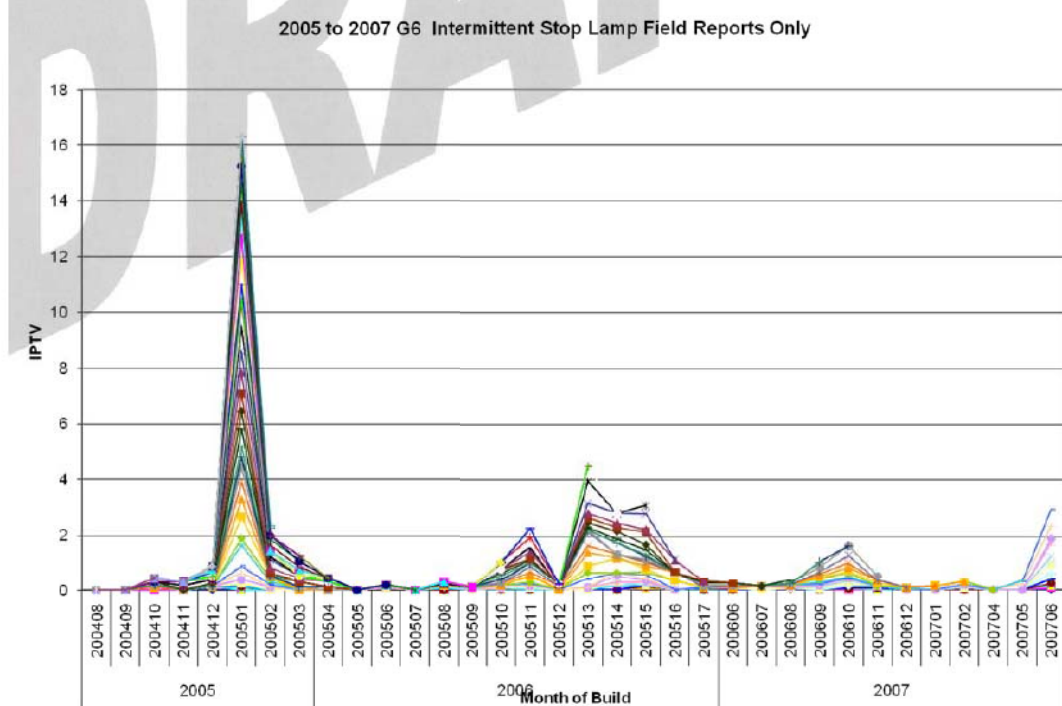
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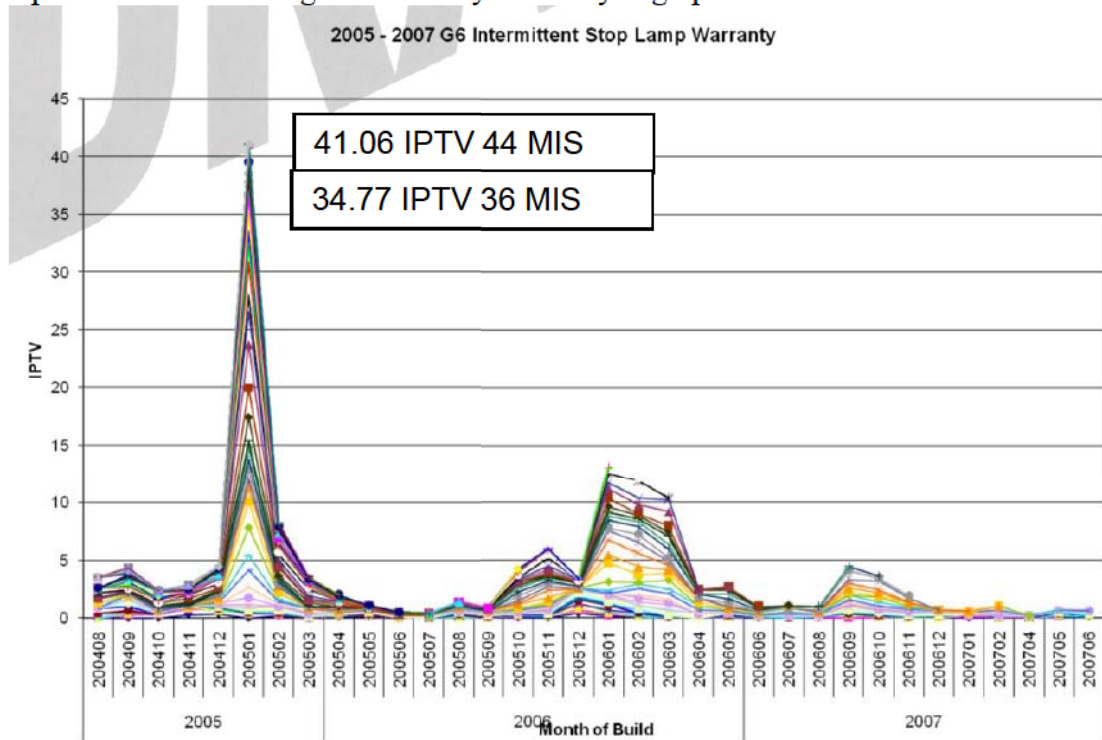
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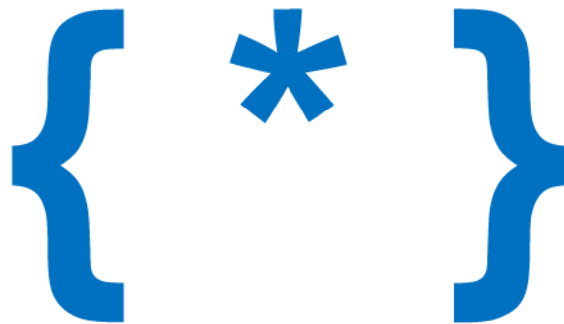
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| 2008MY | New Malibu, Cobalt, HHR | |

Estimated Cost of Field Action



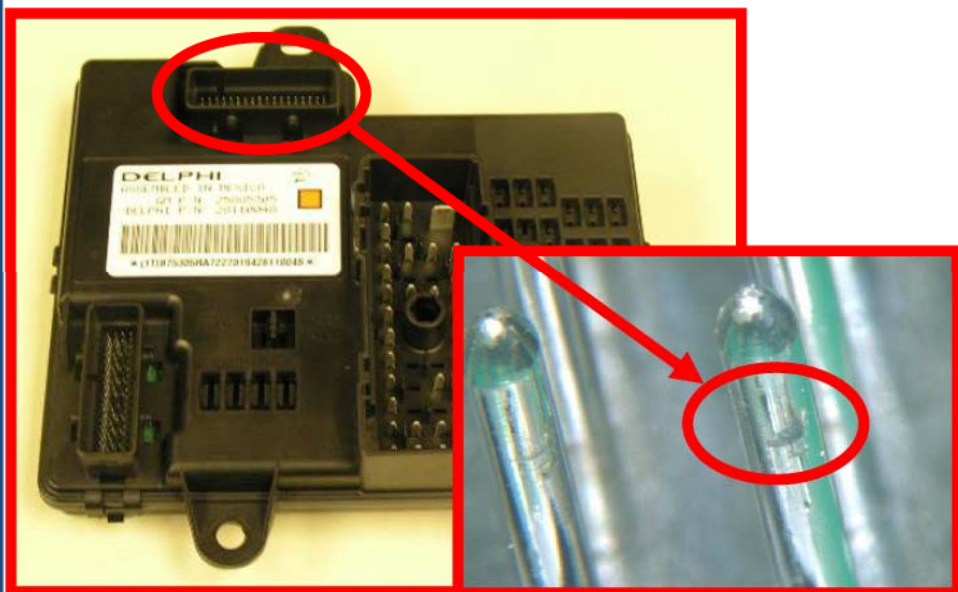
STANDARD DATA SOURCES USED IN THIS INVESTIGATION

| Data Source | Legal/ESIS | Product Development Quality | | | | |
|--------------|--------------------------------------|------------------------------------|------------------------------------|---------------------------------|------------------------|--------------------------------|
| | Lawpack / Not-In-Suit Matters (NISM) | Problem Resolution Tracking (PRTS) | Field Info Network Database (FIND) | Production Volume Counts (QWIK) | Production VINs (QWIK) | Regular Warranty Claims (QWIK) |
| No | | | | | | |
| Yes | x | x | x | x | x | x |
| Pull Date(s) | 10/2/08 | 9/24/08 | 9/24/08 | 10/1/08 | 10/1/08 | 10/13/08 |

| Data Source | VSSM (SPO) | | ODI | TREAD |
|--------------|------------------------|--------------------|---------------------------------|---|
| | Bulletins / Advisories | Service Part Sales | Consumer Complaints (NHTSA VOQ) | <i>See P.I. home page for data owners</i> |
| No | | | | x |
| Yes | x | x | x | |
| Pull Date(s) | 11/11/08 | 10/28/08 | 1/13/09 | |

Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).

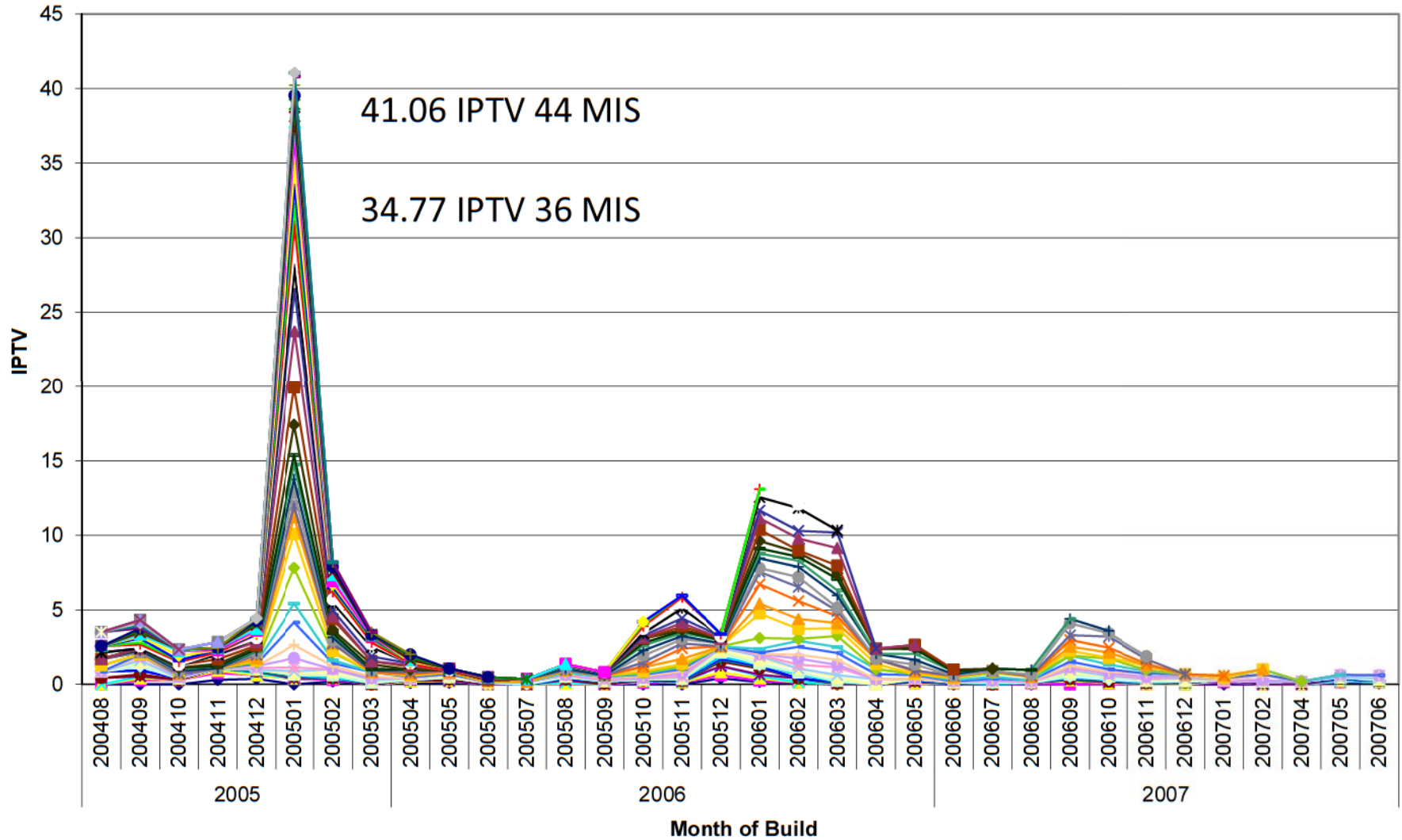


Model Years
2005 - 2006

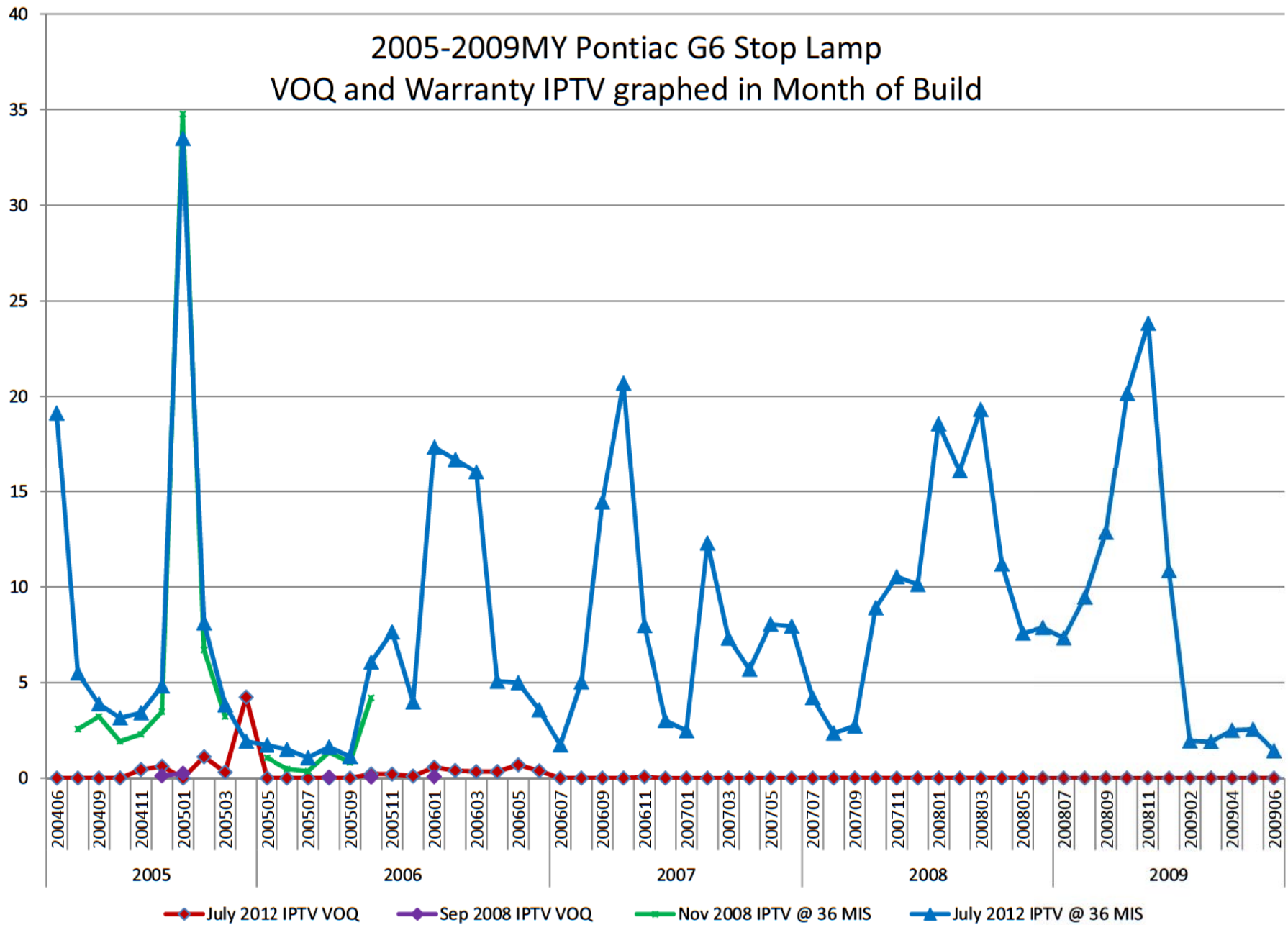
Models
Pontiac G6



**2005 – 2007MY G6 Intermittent Stop Lamp Warranty
This was reviewed in November 2008**



2005-2009MY Pontiac G6 Stop Lamp VOQ and Warranty IPTV graphed in Month of Build



The following process was used to sort these claims:

- The GM Global Analysis and Reporting Tool (GART-regular warranty) regular warranty database and the Motors Insurance Corp (MIC) service contract claims database were searched using the labor codes that may be related to the alleged defect, listed in Table 6-1. Universal Warranty Corporation (UWC) does not use labor codes or trouble codes.
- All claims with labor code N9595 (BCM C2 or X2 Connector Repair (TSB 08-05-22-009)) were determined to be responsive.
- All claims with customer codes shown in Table 6-2 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- Warranty under labor codes H2642 (Sensor, Brake Pedal Position – Replace) and H2643 (Brake and Accelerator Pedal Adjuster Switch Replacement) with the trouble codes in Table 6-3 and customer codes in Table 6-4 were determined to be responsive unless the verbatim indicated that the claim was unrelated.
- The verbatims of the remaining claims were then read and the claim was determined to be responsive if the verbatim related to the alleged defect.

| Labor Code | Description: |
|------------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp - Adjust |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |
| N9595 | BCM C2 or X2 Connector Repair (TSB 08-05-22-009) |

Table 6-1 Labor Codes used in Warranty and MIC Search

| Customer Code | Description: |
|---------------|-----------------------------|
| O8 | Operation: won't turn off |
| WB | Warning lights: brake light |

Table 6-2 Customer Codes used in Warranty and MIC Sorting

| Trouble Code | Description: |
|--------------|-------------------------------|
| 1D | Broken |
| 6C | Component - inoperative |
| 6D | Component - intermittent |
| 6F | Component - Open |
| 3A | Misadjusted |
| 9Z | No Trouble Found |
| 3L | Out of Calibration |
| 3X | Registers Incorrectly |
| 6N | Connector - Partial Connected |

Table 6-3 Trouble Codes used in labor code H2642 and H2643 Warranty and MIC Sorting

| Customer Code | Description: |
|---------------|-------------------------------------|
| OG | Operation: Excess Eff (Excess Play) |
| OJ | Operation: Inoperative (Harsh) |
| OF | Operation: Engage/Dis(Excess Eff) |
| O7 | Operation: No Maintain Adj |

Table 6-4 Customer Codes used in labor code H2642 and H2643 Warranty and MIC Sorting

Brake Lamps Malfunction due to BCM Connector

Chronology

- 9/15/2008 NHTSA ODI opened PE investigation with 9 VOQs
- 11/12/2008 GM responded and stated it is continuing its investigation
- 1/28/2009 GM notified NHTSA that GM is conducting safety campaign for 8,012 vehicles built in January 2005 for 2005MY and 2006MY.
- 1/30/2009 NHTSA closed the investigation stating that ODI's review of complaint rate for the January 2005 built month is 20 times greater than the remainder of the subject vehicle population and warranty rate is 11 times greater than the remainder of the subject vehicle population.
- 9/9/2011 TC requested GM to provide 2006MY G6 Brake Lamp Malfunction, Outside Recall information request including population noted in TSB 08-05-22-009.



Closing Resume

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Unfiltered VOQs as of 16OCT11

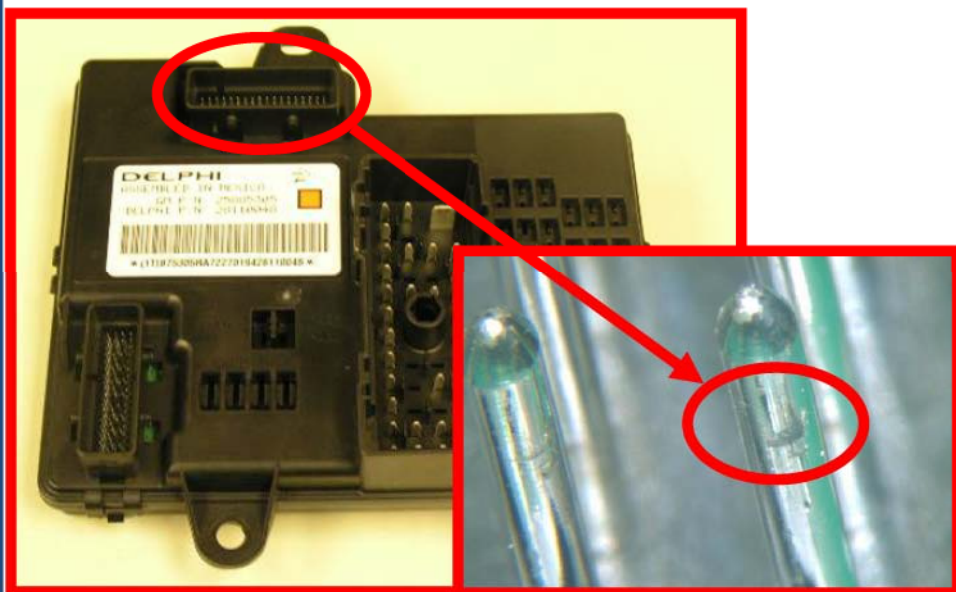
| Row Labels | CHEVROLET | PONTIAC | Grand Total |
|--------------------|-----------|-----------|-------------|
| 2004 | 1 | | 1 |
| 2005 | 2 | 9 | 11 |
| 2006 | 6 | 23 | 29 |
| 2007 | | 9 | 9 |
| 2008 | | 1 | 1 |
| Grand Total | 9 | 42 | 51 |

Rationale for 2009 Decision

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Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Effect of the Condition: A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK. Additionally, the transmission converter clutch will not engage.



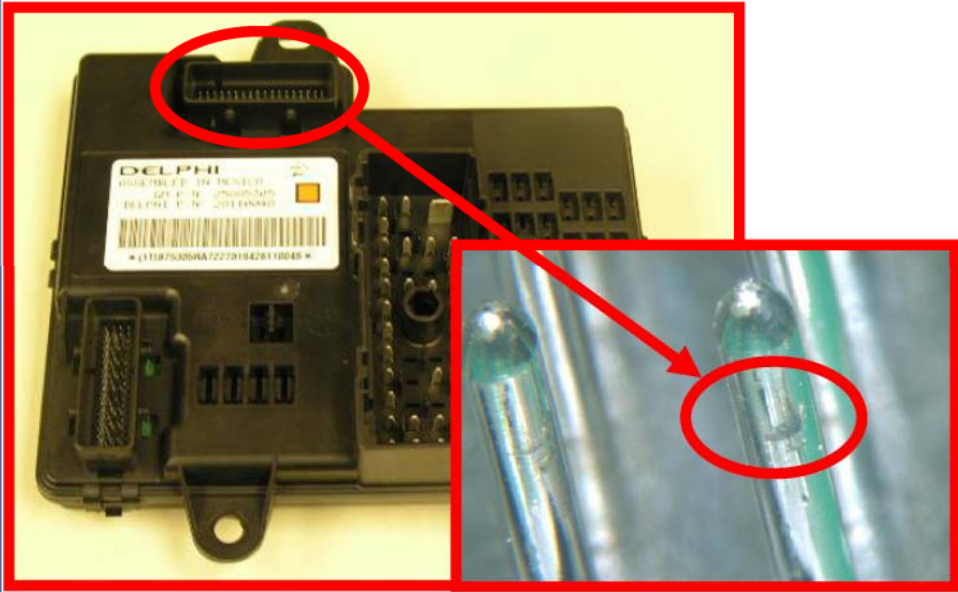
Model Years
2005 - 2006

Models
Pontiac G6

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Pontiac G6 Brake Apply Sensing System (BASS)

Condition: Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.



Potential Field Action: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).



Model Years
2005 - 2006

Models
Pontiac G6

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Field Action Category
TBD

Population Affected
9,423

Estimated Cost { ** }

Scope

2005 – 2006 Pontiac G6

| My year | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

Immediate Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Projected Frequency

2005 MY 36 MIS Overall = 8.0 IPTV

2006 MY 36 MIS Overall = 4.6 IPTV

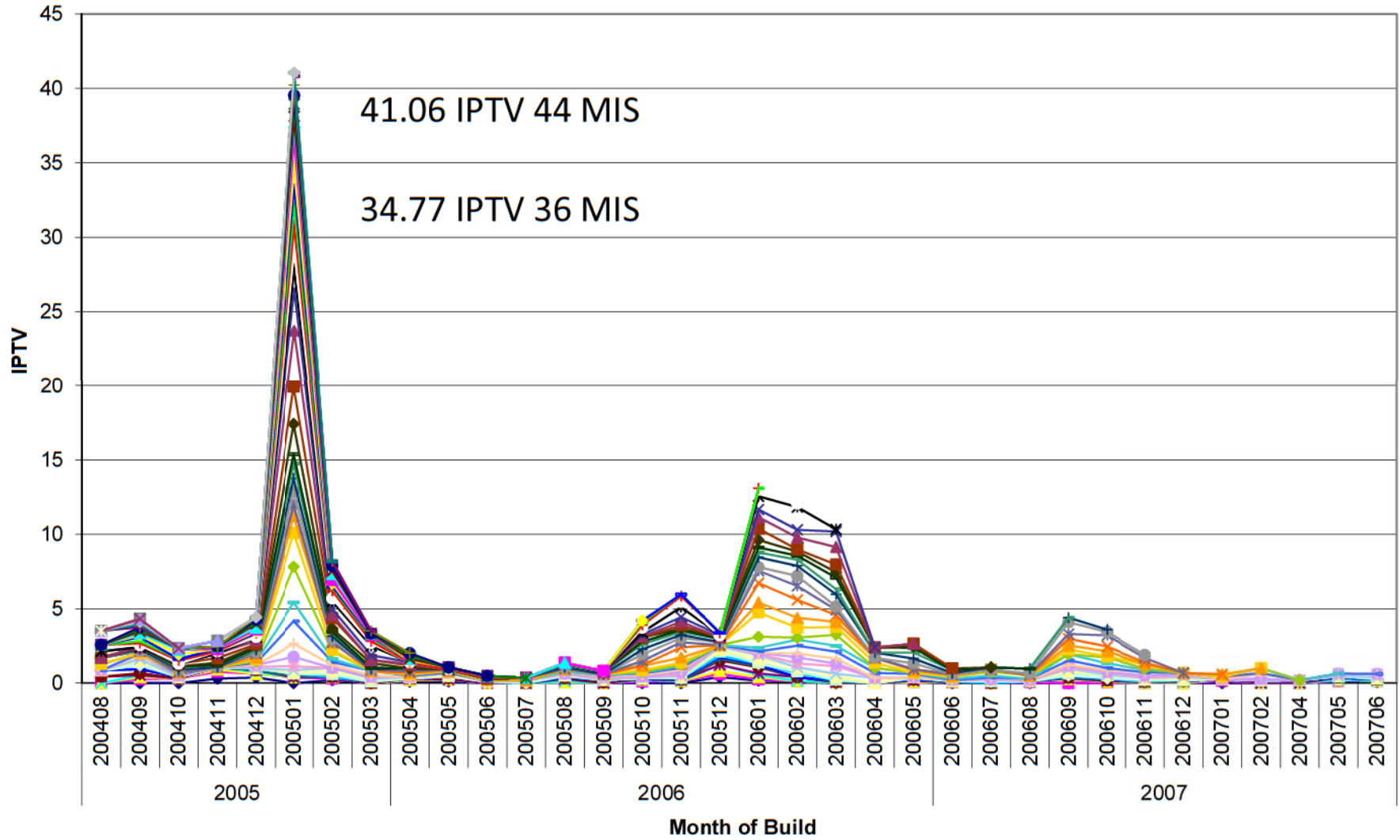
Build of Month January 2005 36 MIS = 34.77 IPTV

Build of Month January 2005 44 MIS = 41.06 IPTV

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2005 - 2007 G6 Intermittent Stop Lamp Warranty

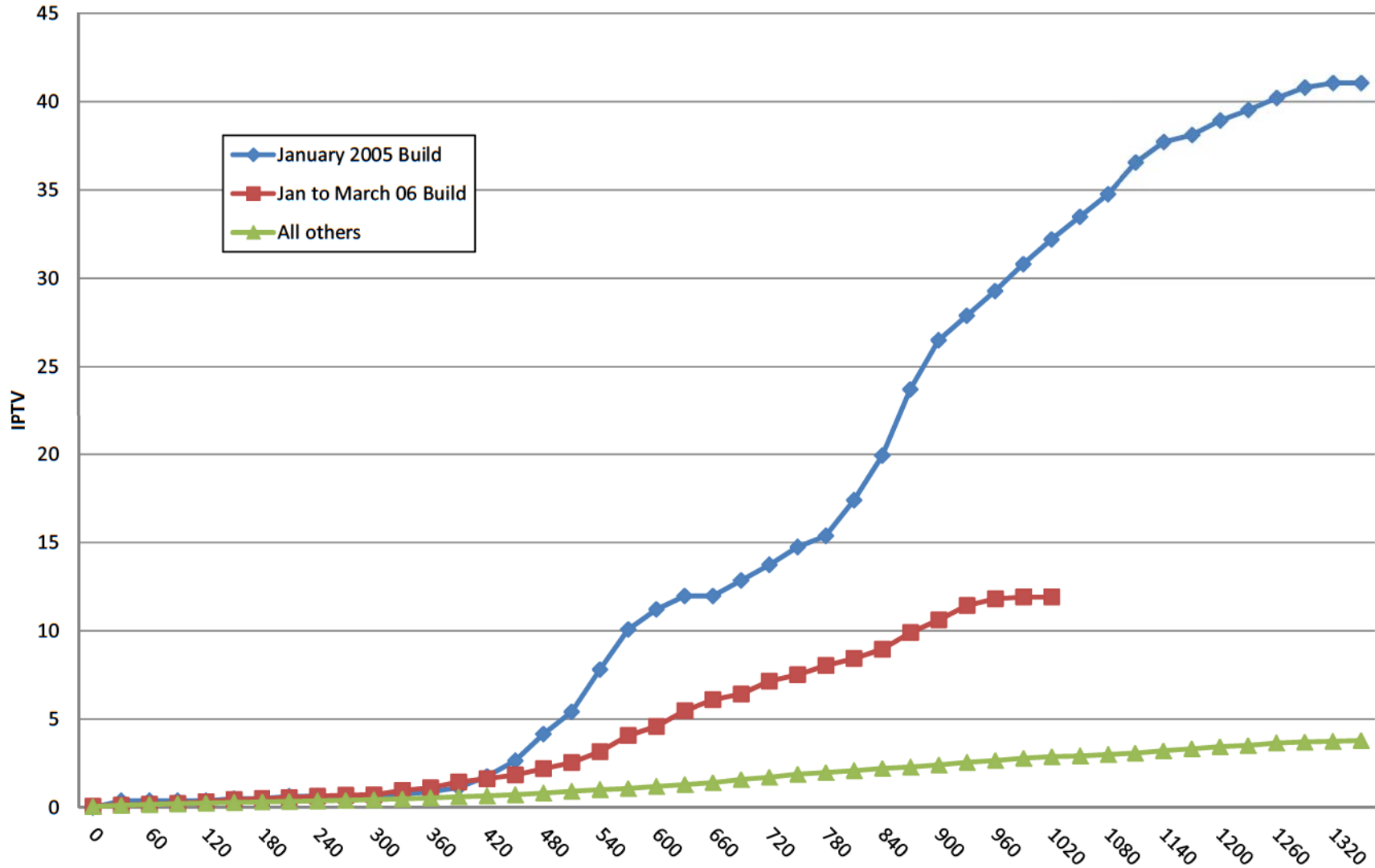


41.06 IPTV 44 MIS

34.77 IPTV 36 MIS

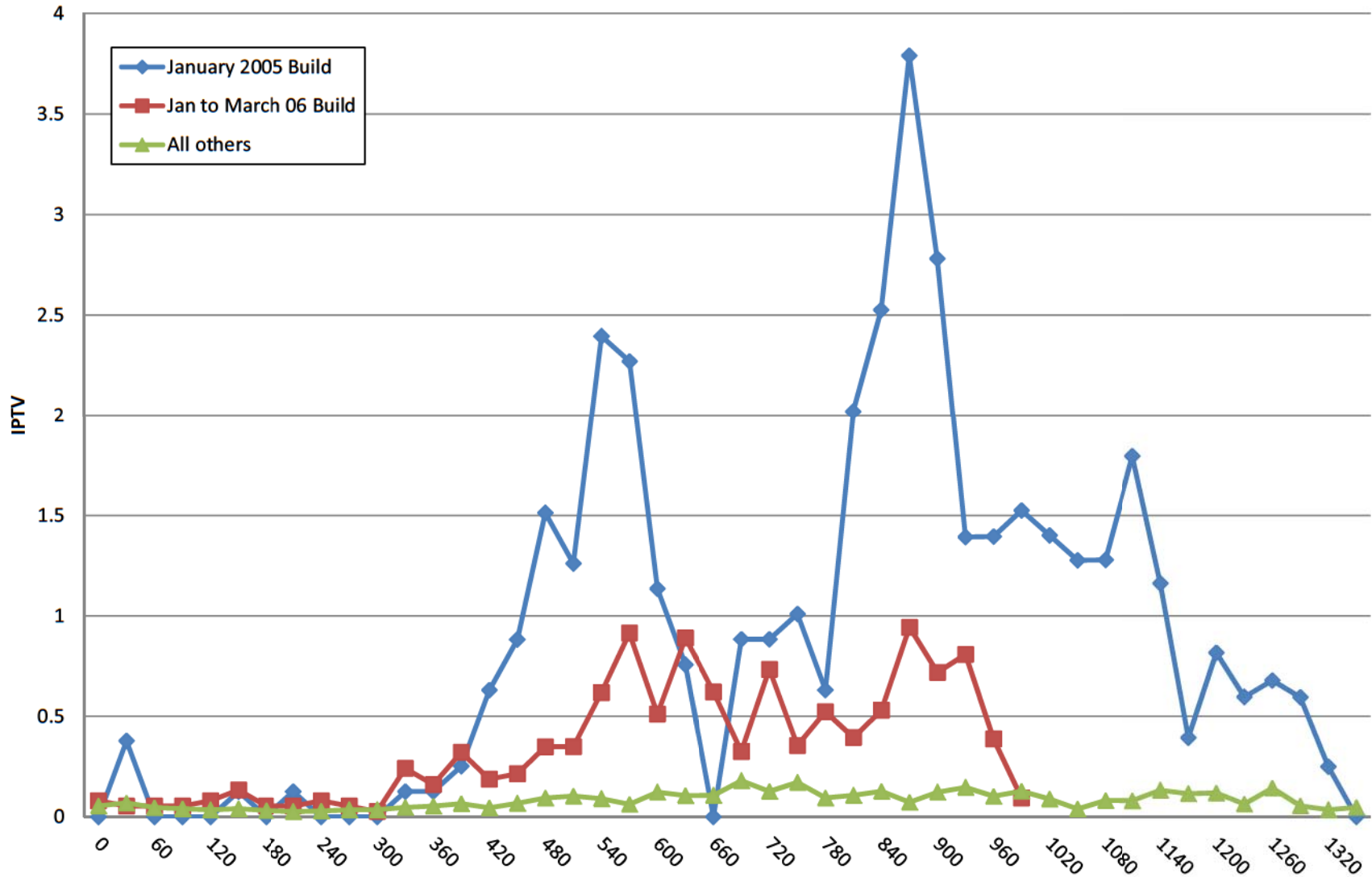
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G6 Stop Lamp Warranty - Comparison of Select Months of Build



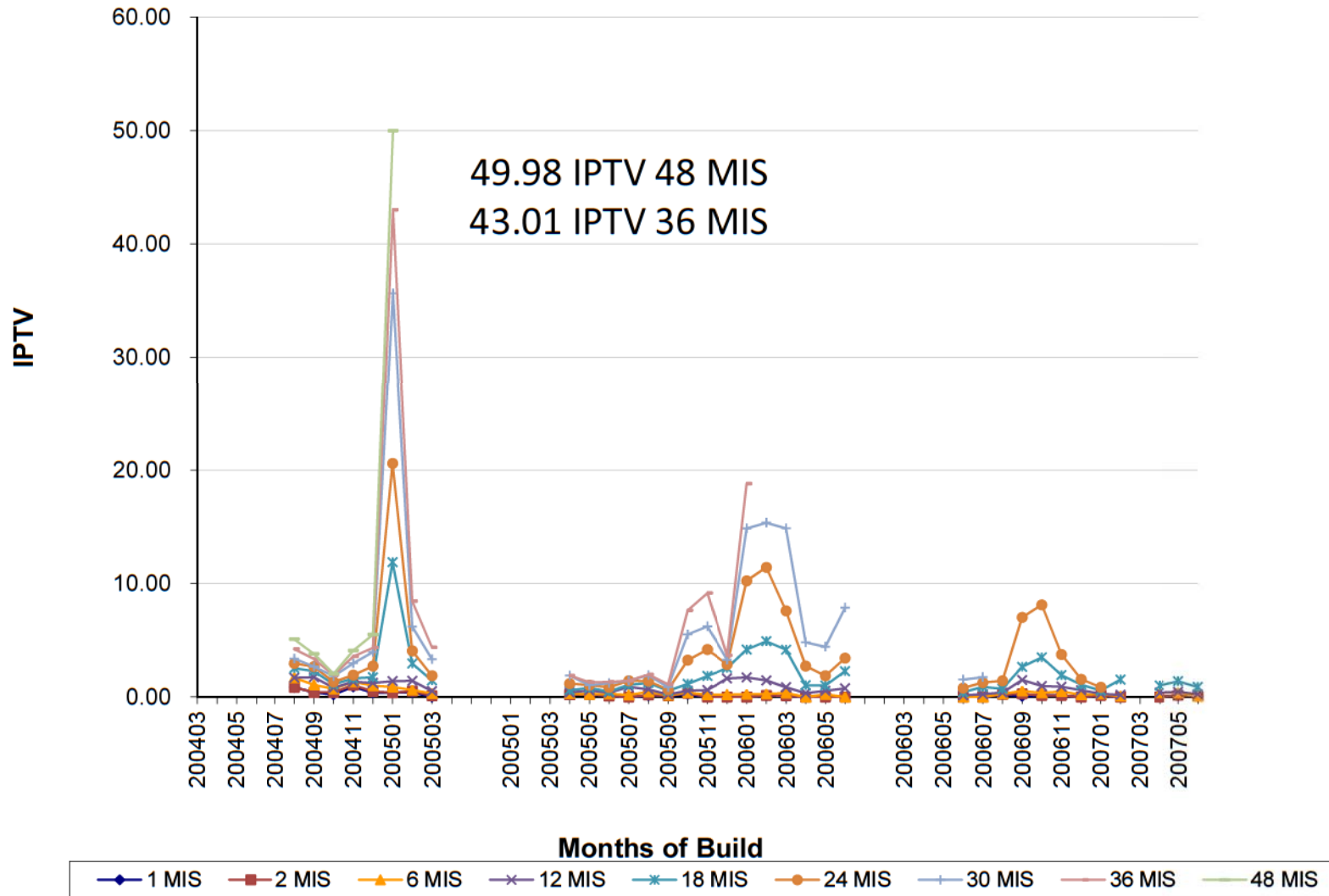
GM Confidential

05 to 07 G6 Stop Lamp - Month-to-Month IPTV for Select Build Periods



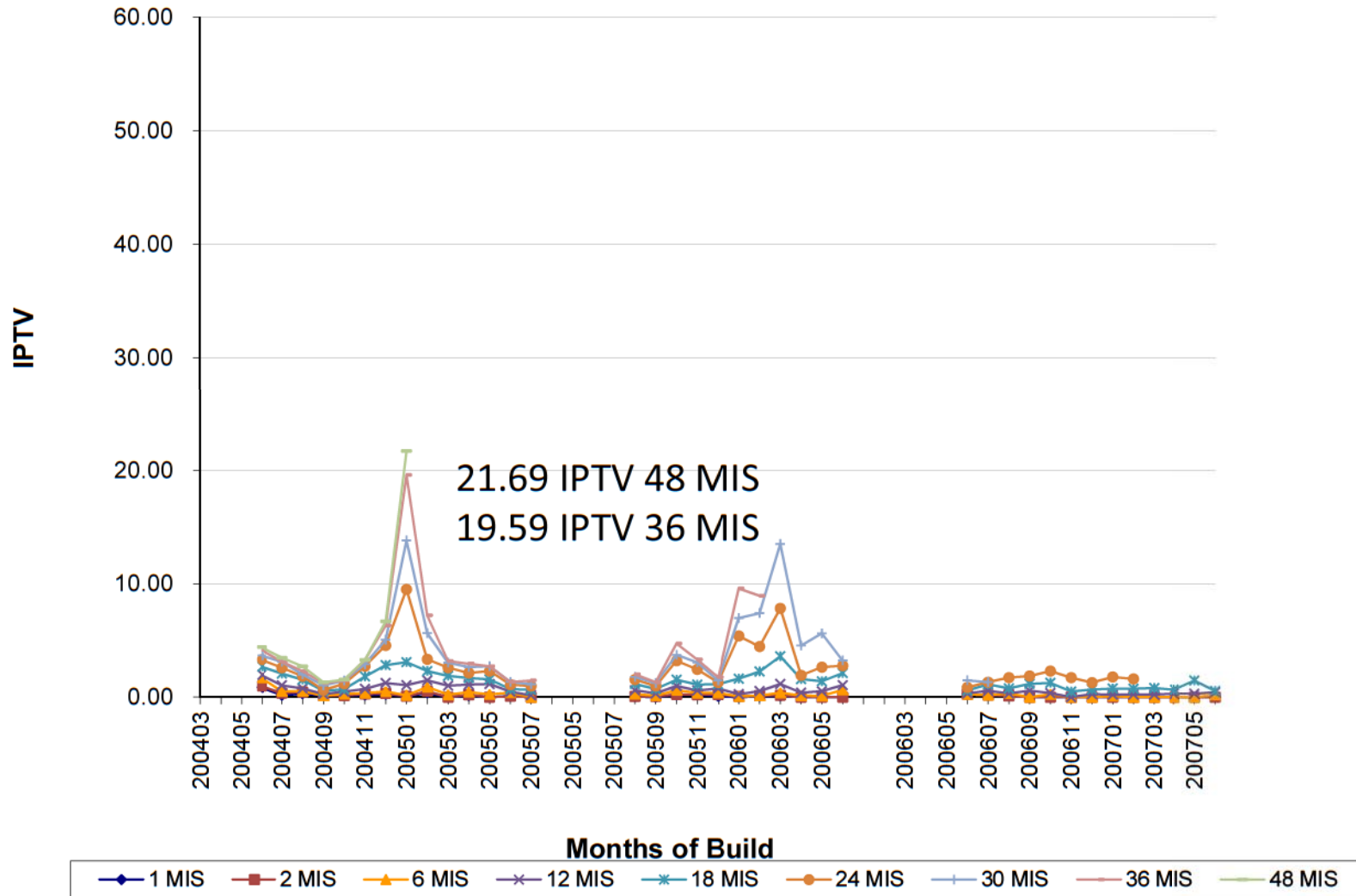
GM Confidential

Pontiac G6 Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Chevrolet Malibu Stop Lamp Warranty with Labor Op H2642 Brake Switch Only



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Historical Rate Comparison

| Rear lighting issues | | | | | | | |
|---|----------------------|---------------|--|--|--------------------|--|------------------|
| <u>Vehicle</u> | <u>Component</u> | <u>Recall</u> | <u>EOVP</u> | <u>IPTV</u> | <u>Reported by</u> | <u>Cause</u> | <u>Open Date</u> |
| 00 - 04 Saturn L Series | Stop/Tail/Park lamp | Safety | Loss of all brake lights or park/tail lights (one side) | As high as 365 IPTV at 36 months | TREAD | Circuit board arcing, blown fuses, loose sockets | 15-Feb-05 |
| 03 J car | Stop/tail/turn lamp | Safety | Loss of single stop/tail/turn lamp (CHMSL not affected) | 343 (12 months) | Bulletin review | Grease removed from production | 14-May-04 |
| 02-04 GMT360/370 | Stop lamp | Safety | Loss of single stop and/or tail lamp (CHMSL not affected) | 237 (13 months) 31% had lost function of both lamps (per survey) | TREAD | Loose bulb fit | 6-Apr-04 |
| 00-01 ST utilities and 01-02 Chevrolet Astro and GMC Safari | Multifunction Switch | Safety | Loss of all stop lamps (CHMSL not affected) | 214.3 (9 months) | NHTSA | Change from copper to brass for error proofing | 6-Sep-01 |
| 97-99 Malibu | Stop lamp | N | Loss of single stop lamp (CHMSL not affected) - Replace entire lamp assembly | 37 (36 months) - reduced to 4.6 | NHTSA | Stainless contacts | |
| 94 CK Truck | Brake Switch | Safety | Loss of all stop lamps and CHMSL | 33.78 (36 months) (up to 360 in durability) | Transport Canada | Reverse Polarity | |
| 04 - 05 Chevrolet Colorado, GMC Canyon, Isuzu I-280 | Brake Switch | Safety | Loss of all stop lamps and CHMSL | 31.3 (23 months) | NHTSA | Internal heat in switch | 2-Dec-05 |
| 98-04 Mercedes SLK/SLK 230 | Stop lamp | Safety | Loss of single stop lamp (CHMSL not affected) | 821 (over 36 months) | NHTSA | The base of the socket can be subject to thermal deformation over time | 22-Sep-05 |
| 95 Ford Villager, Nissan Quest, and Nissan Pickup | Stop/tail/turn lamp | Safety | Loss of single stop/tail/turn lamp (CHMSL not affected) | 250 (12 months) | Warranty study | Change in the material of the plastic socket housing | |
| 99 - 02 Volkswagen Jetta, New Beetle, Gulf | Brake Switch | Safety | Loss of all stop lamps and CHMSL or brake lamps on GM Confidential | 117 (12 months) | NHTSA | Brake switch malfunction | |

Production Improvement

Dielectric lubricant is applied in Orion plant for G6 as of 11/8/2008.

The lubricant will be applied in the Delphi harness assembly plant in August 2009.

Potential Field Improvement

Technical Service Bulletin 08-05-22-009 was issued to apply the lubricant on the BCM terminal as of 12/4/2008.

Systematic Root Causes

Legacy connector system design with low terminal retention force and non-robust contact design.

Preventive Actions

All new module designs must use approved connector designs that pass the latest GMW specification requirements.



Brake Lamps Malfunction due to BCM Connector



2004 -11MY Malibu, 2005 - 10MY G6, 2007 - 09MY Aura
Vehicle Population: 1,222,206 + 561,604 + 144,950 = 1,928,760
Cost Estimate: TBD

ETQ Nxxxxxx

Condition:

Certain fretting corrosion in the Body Control Module connector causes an increase in resistance that results in a lower BAS signal voltage to the BCM.

{ * }

Effect of the Condition:

A driver in a following vehicle may not be able to discern the braking status of the vehicle in front of them. Operators whose vehicles have this condition may notice that the cruise control will not engage and the brake pedal requires additional travel to remove the gear shift mechanism from PARK.

Additionally, the transmission converter clutch will not engage.

{ * }

Potential Field Action Category: TBD

Brake Lamps In-operation due to BCM Connector

Potential Field Remedy: Apply dielectric lubricant (clear gel) on all the BCM C2 connector pins. Apply with a one-inch nylon bristle brush. (this will treat the pins against fretting corrosion).

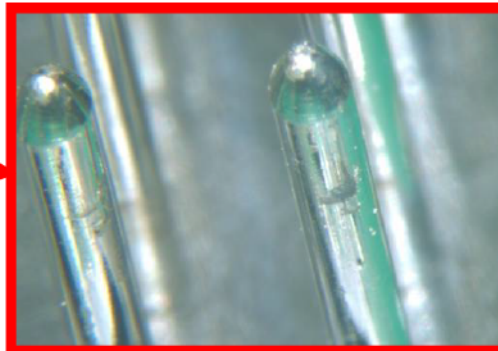
Current Status:

TC inquiry is due on 21OCT11.

GM draft response is completed.

Immediate Improvement /Containment:

Responsibility: Engineering



2011CY Warranty Status

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MY and Model

| | | |
|-----------|-------------------------------|----------|
| 2004-2008 | Chevrolet Malibu, Malibu Maxx | (GMX380) |
| 2008 | Chevrolet Malibu Classic | (GMX380) |
| 2008-2011 | Chevrolet Malibu | (GMX386) |
| 2005-2010 | Pontiac G6 | (GMX381) |
| 2007-2009 | Saturn AURA | (GMX384) |

Labor Op.

| | |
|-------|---|
| H2642 | Sensor, Brake Pedal Position - Replace |
| H2643 | Brake and Accelerator Pedal Adjuster Switch Replacement |
| N4800 | Body Control Module Replacement |
| H2640 | Pedal And/Or Bushing, Brake - R&R Or Replace |
| H9991 | Customer Concern Not Duplicated |
| N2700 | Switch, Stop Lamp – Adjust |
| N9595 | BCM C2 Connector Repair per TSB |
| Z1241 | Personal Property Damage |
| Z1242 | RPR/Reimbursement-Product Allegation |
| Z1243 | Inspection-Product Allegation Resolution |

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| Customer Code | Description: |
|----------------------|-------------------------------|
| 08 | Operation: Won't Turn Off |
| WB | Warning Lights – Brake Lights |

| Trouble Code | Description: |
|---------------------|-------------------------------|
| 1D | Broken |
| 6C | Component - Inoperative |
| 6D | Component - Intermittent |
| 6F | Component - Open |
| 3A | Misadjusted |
| 9Z | No Trouble Found |
| 3L | Out of Calibration |
| 3X | Registers Incorrectly |
| 6N | Connector – Partial Connected |

| Customer Code | Description: |
|----------------------|-------------------------------------|
| 0G | Operation: Excess Eff (Excess Play) |
| 0J | Operation: Inoperative (Harsh) |
| 0F | Operation: Engage/Dis (Ecess Eff) |
| 07 | Operation: No Maintain Adj |

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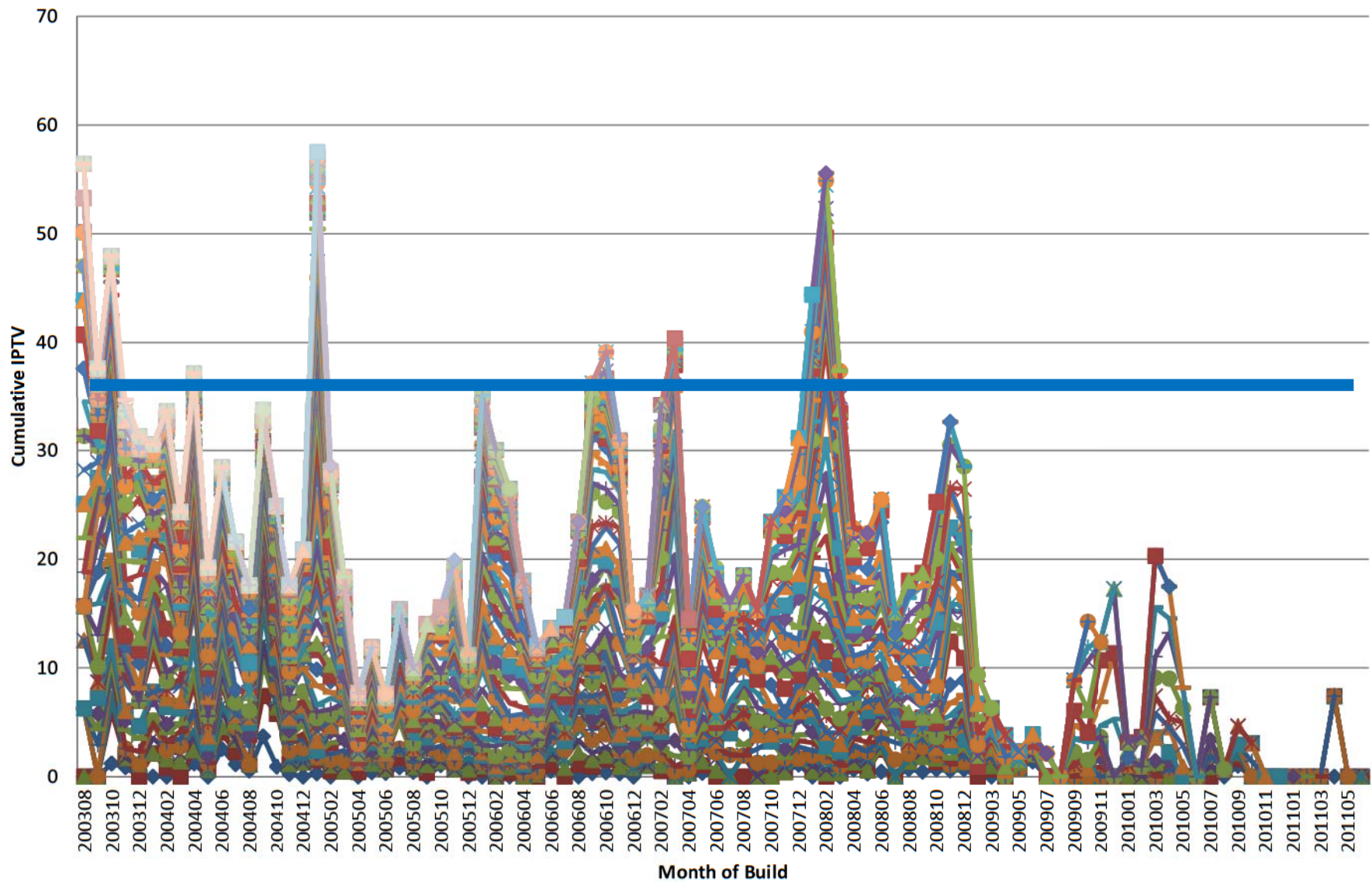
Canada Only Filtered Warranty

| Row Labels | Chevrolet | Pontiac | Saturn | Grand Total | |
|--------------------|-----------|-------------|-------------|-------------|-------------|
| in | | 1049 | 819 | 140 | 2008 |
| A (in) | | 75 | 62 | | 137 |
| B (in) | | 326 | 223 | 15 | 564 |
| C (in) | | 144 | 128 | 24 | 296 |
| D (in) | | 504 | 406 | 101 | 1011 |
| out | | 1949 | 1384 | 81 | 3414 |
| DUP | | 859 | 681 | 24 | 1564 |
| E (out) | | 1090 | 703 | 57 | 1850 |
| unknown | | 2014 | 1415 | 297 | 3726 |
| F (?) | | 2014 | 1415 | 297 | 3726 |
| Grand Total | | 5012 | 3618 | 518 | 9148 |

| | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| A | All L-Ops + Cust Codes 08 and WB | | | | | | | |
| B | H2642 & H2643 & TC 1D/3A/3L/3X/6C/6D/6F/6N/9Z & CC OG/OF/OJ/O7 (Tables 6-3 & 6-4 of PE 08-054) | | | | | | | |
| C | Remaining L-ops with Related Verbatims | | | | | | | |
| D | N9595 - TSB 08-05-22-009 | | | | | | | |
| E | OUT | | | | | | | |
| F | Unknown | | | | | | | |

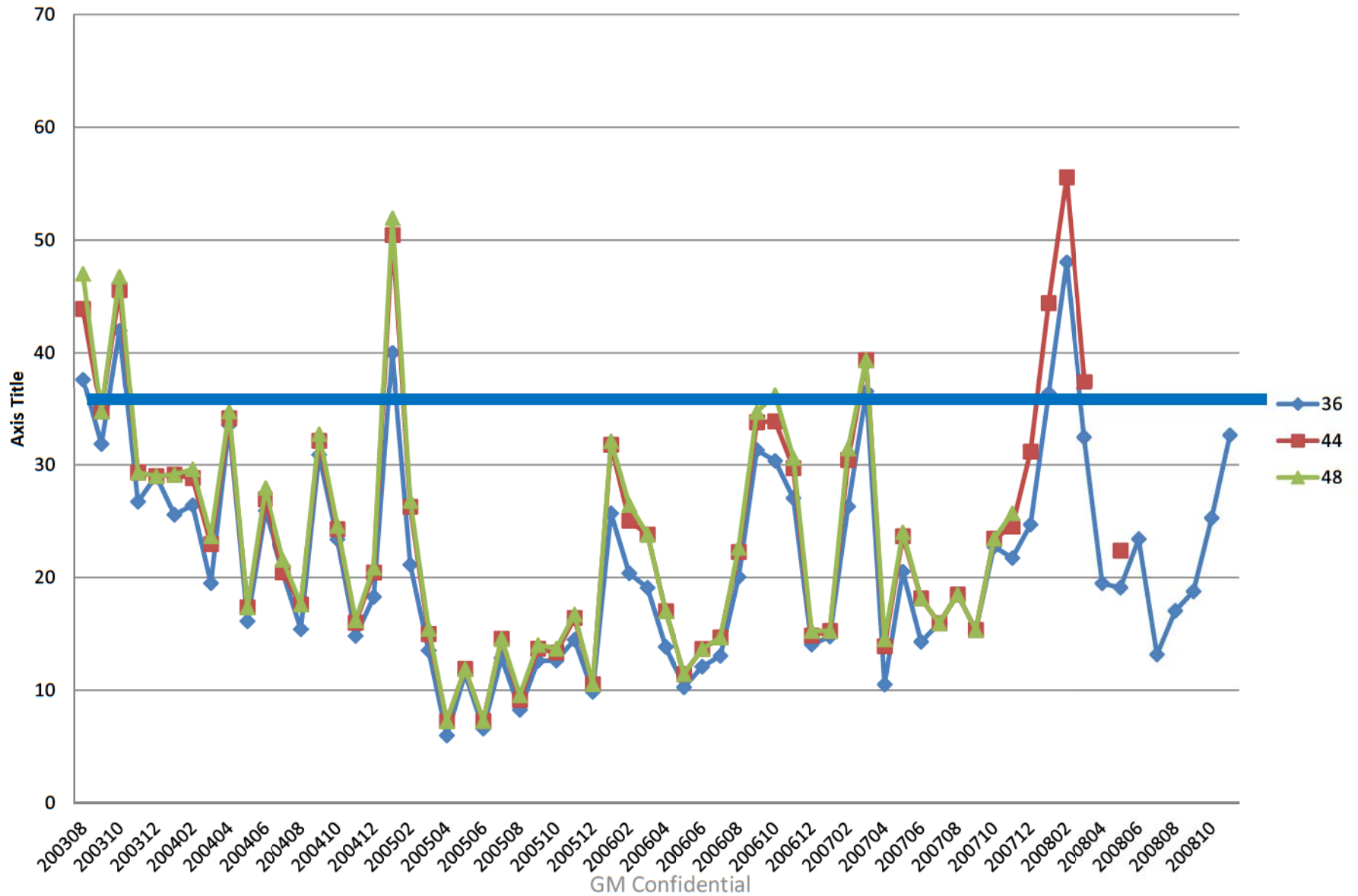
GM Confidential

2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records

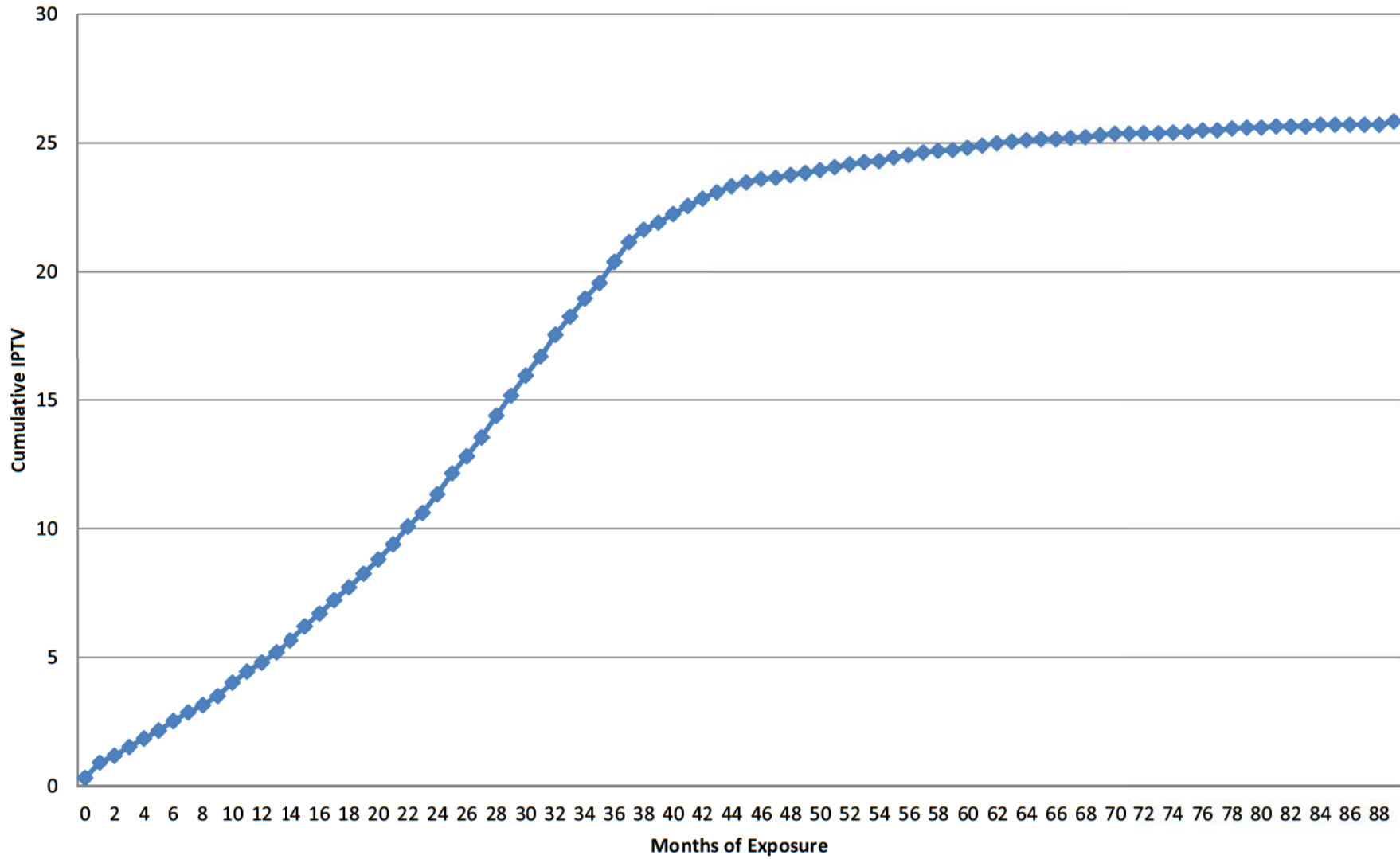


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2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records

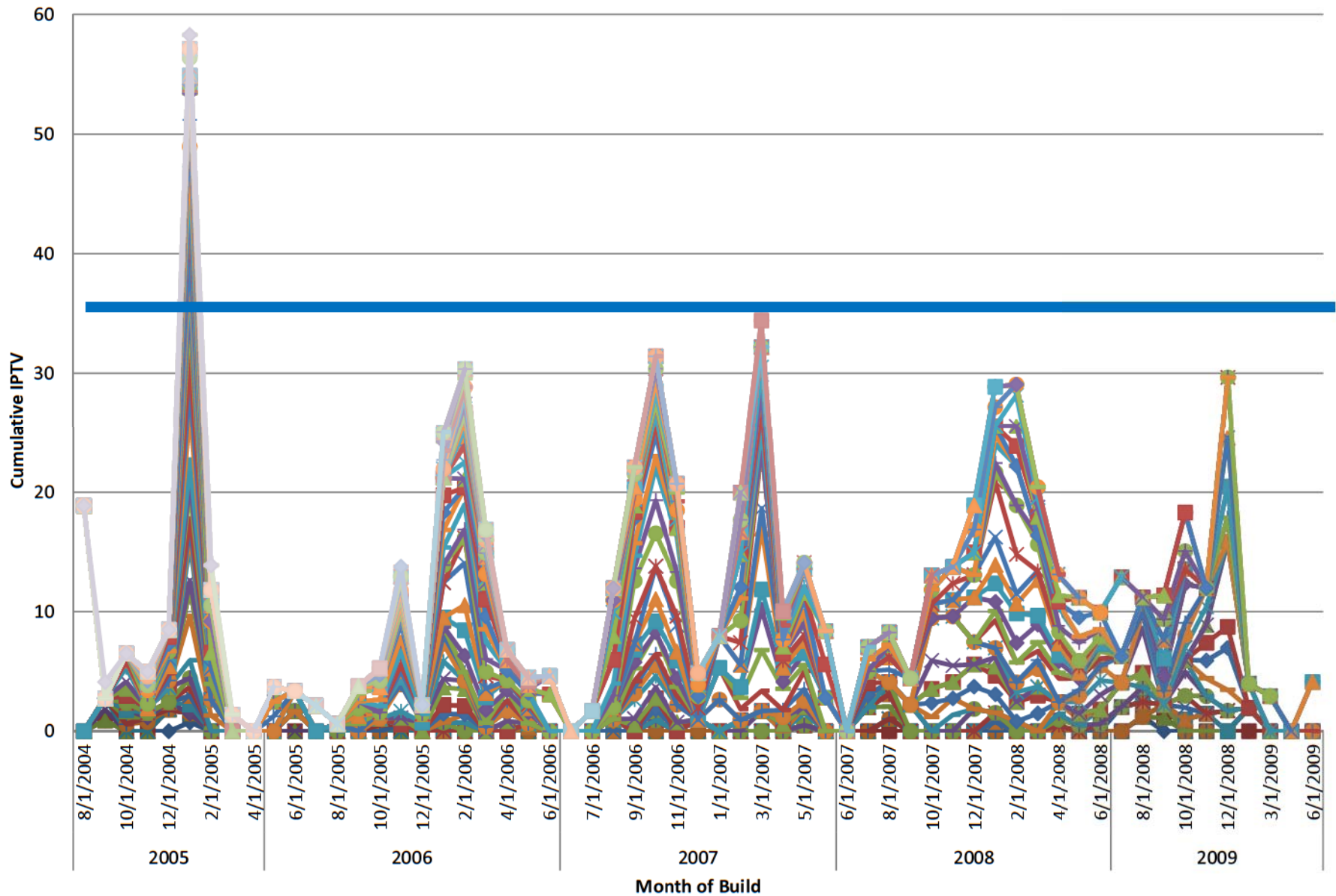


2004 to 2011 Epsilon - Filtered Brake Warranty Included: 52% Unknown Warranty Records



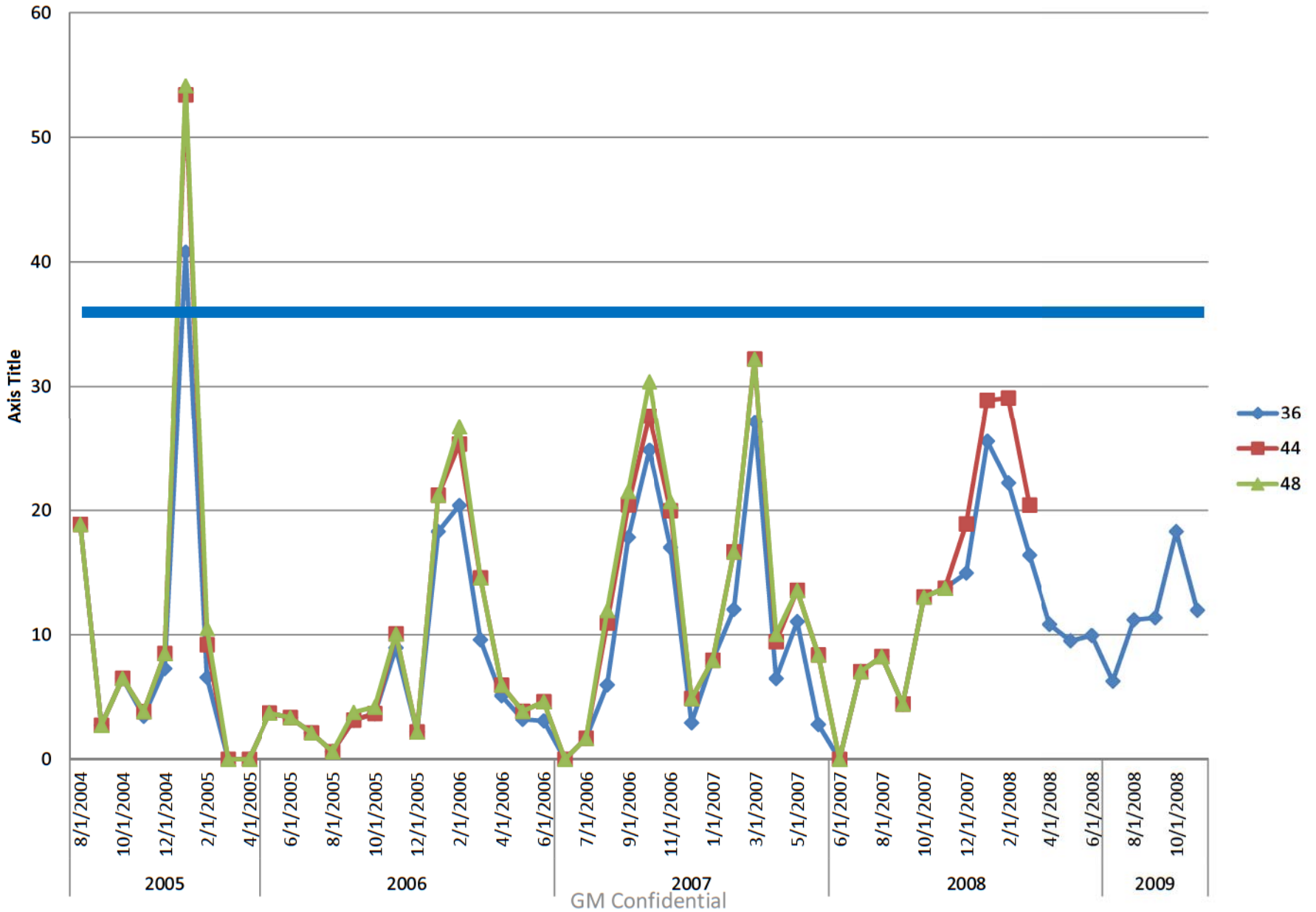
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2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)

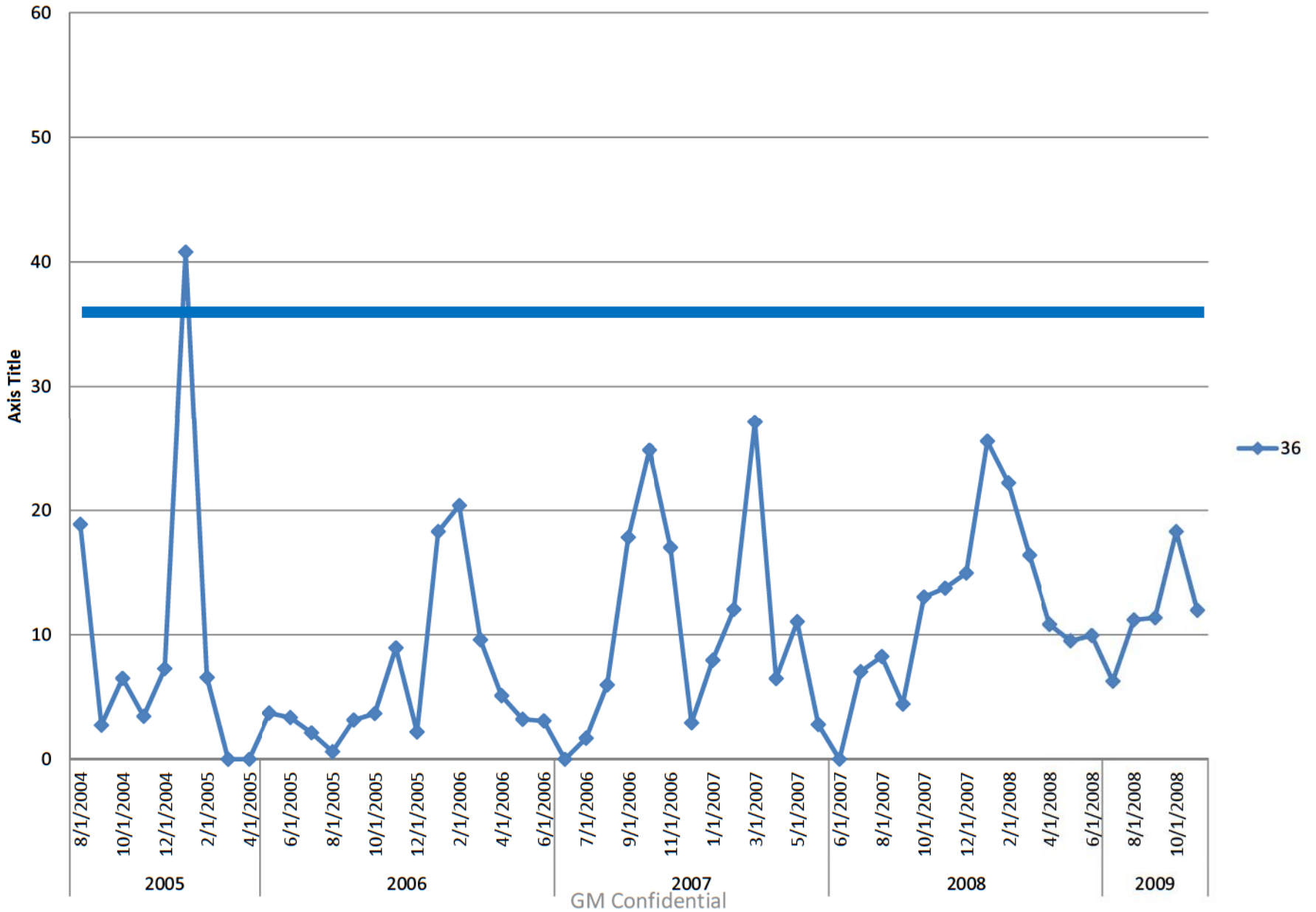


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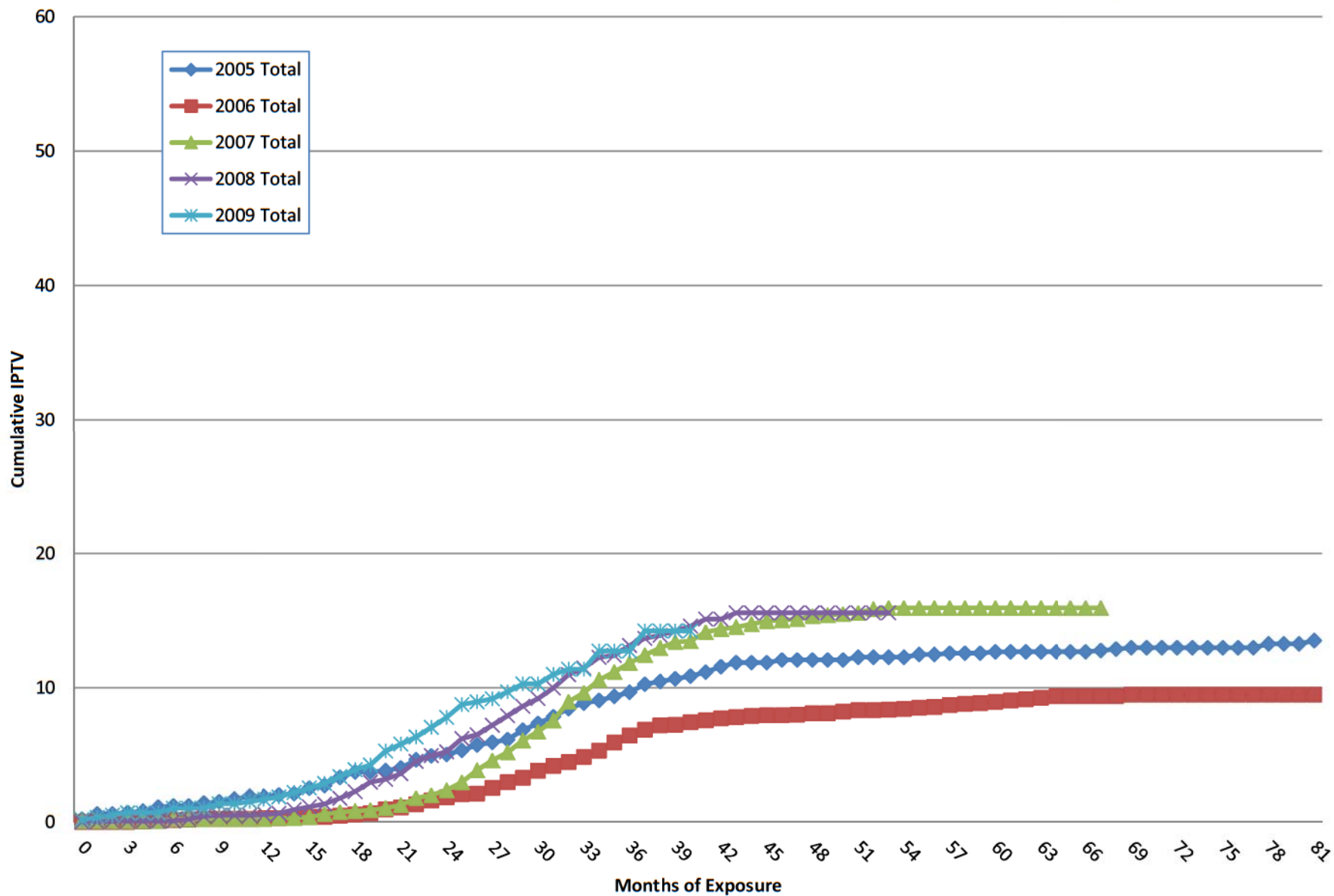
2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)



2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)

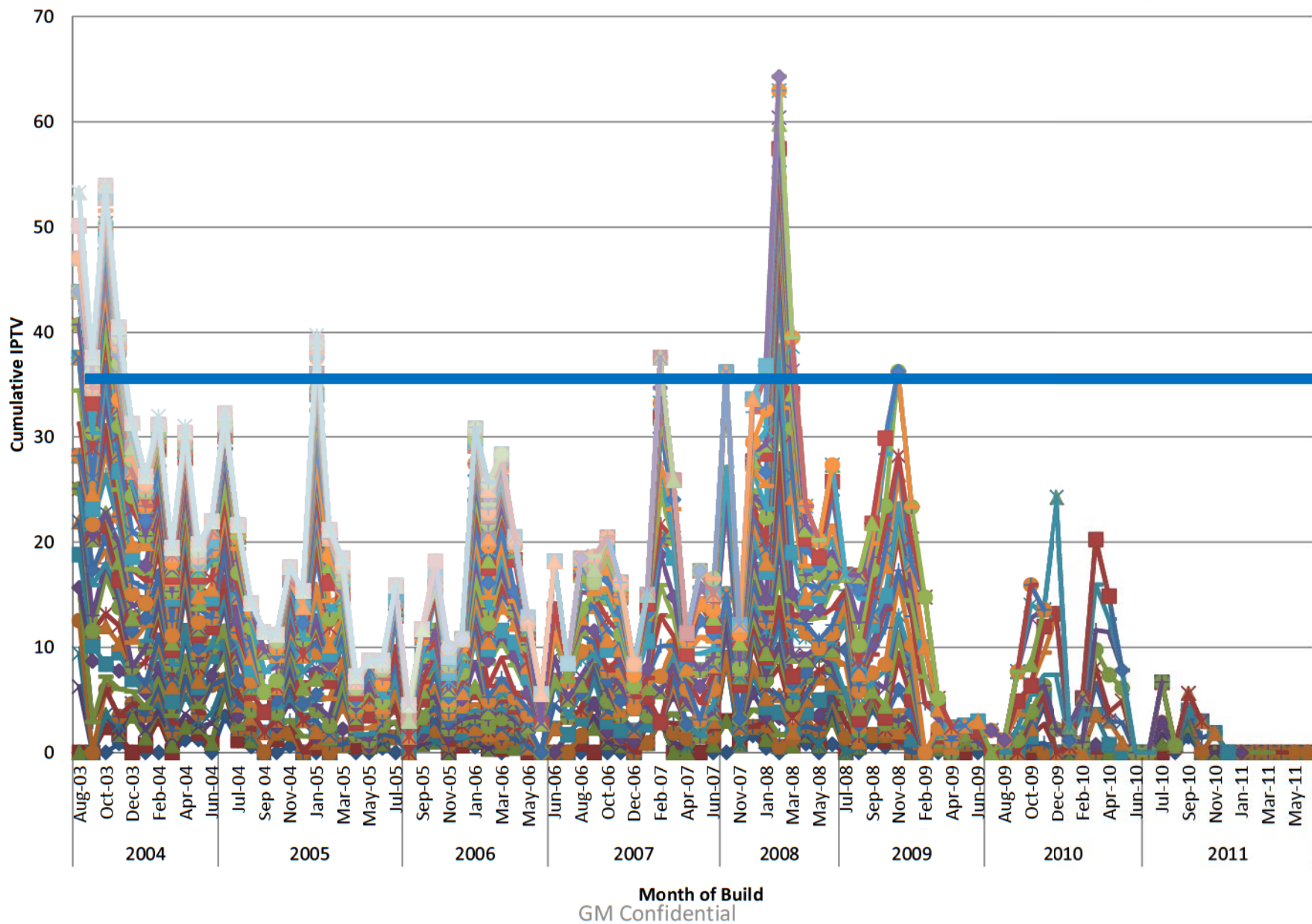


2005 to 2009 G6 Filtered Brake Warranty (Plus 54% Unknown)

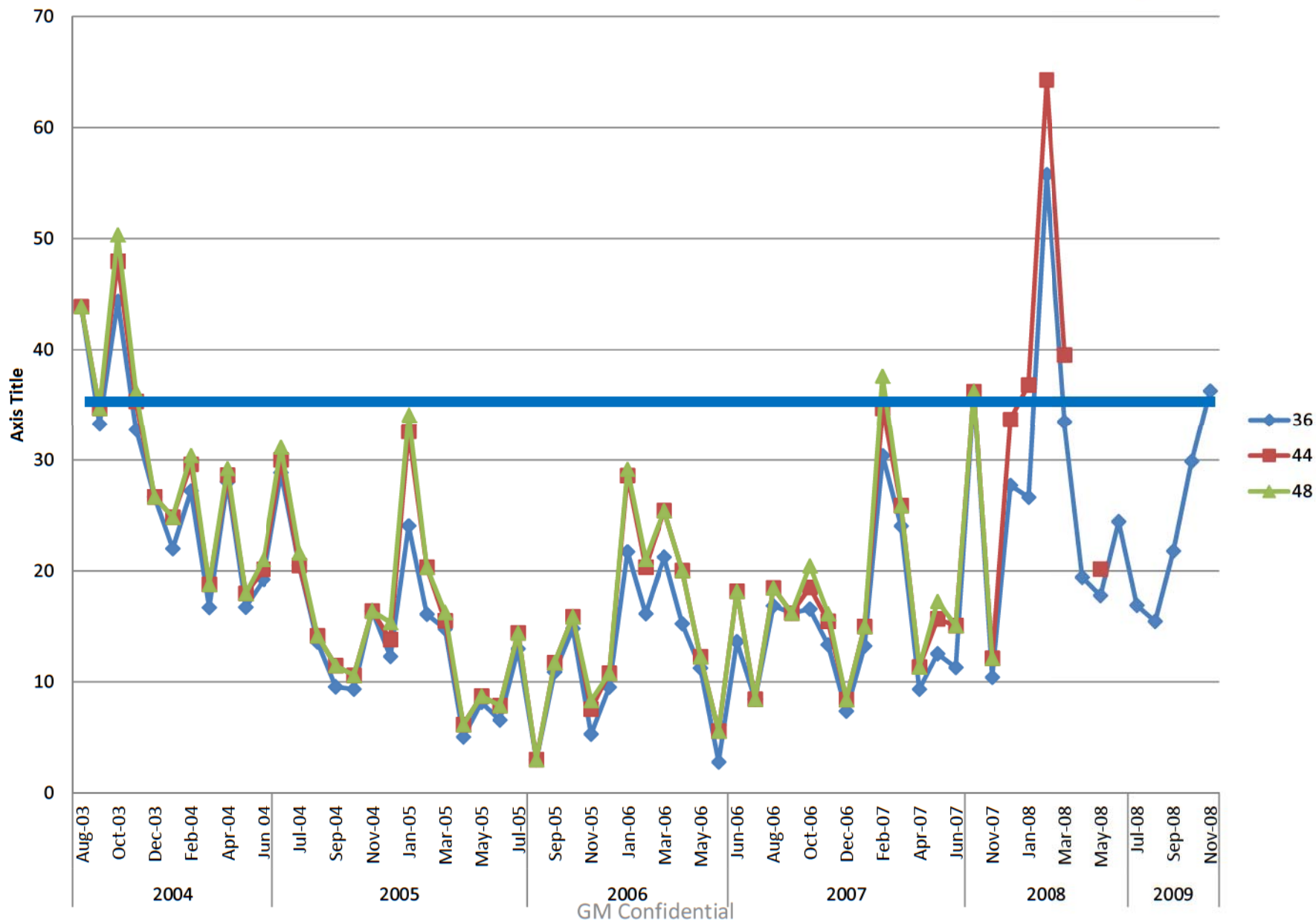


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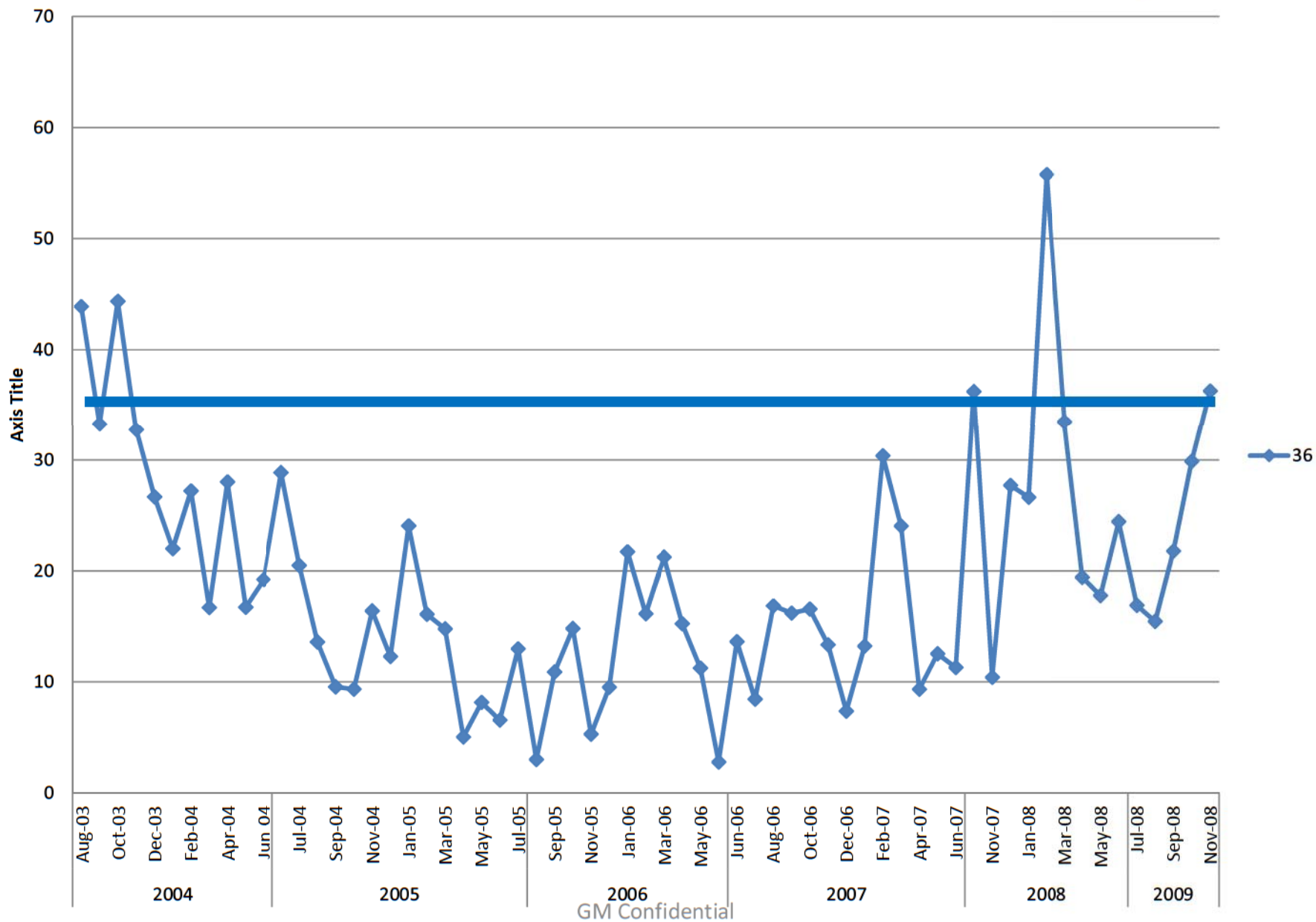
2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)



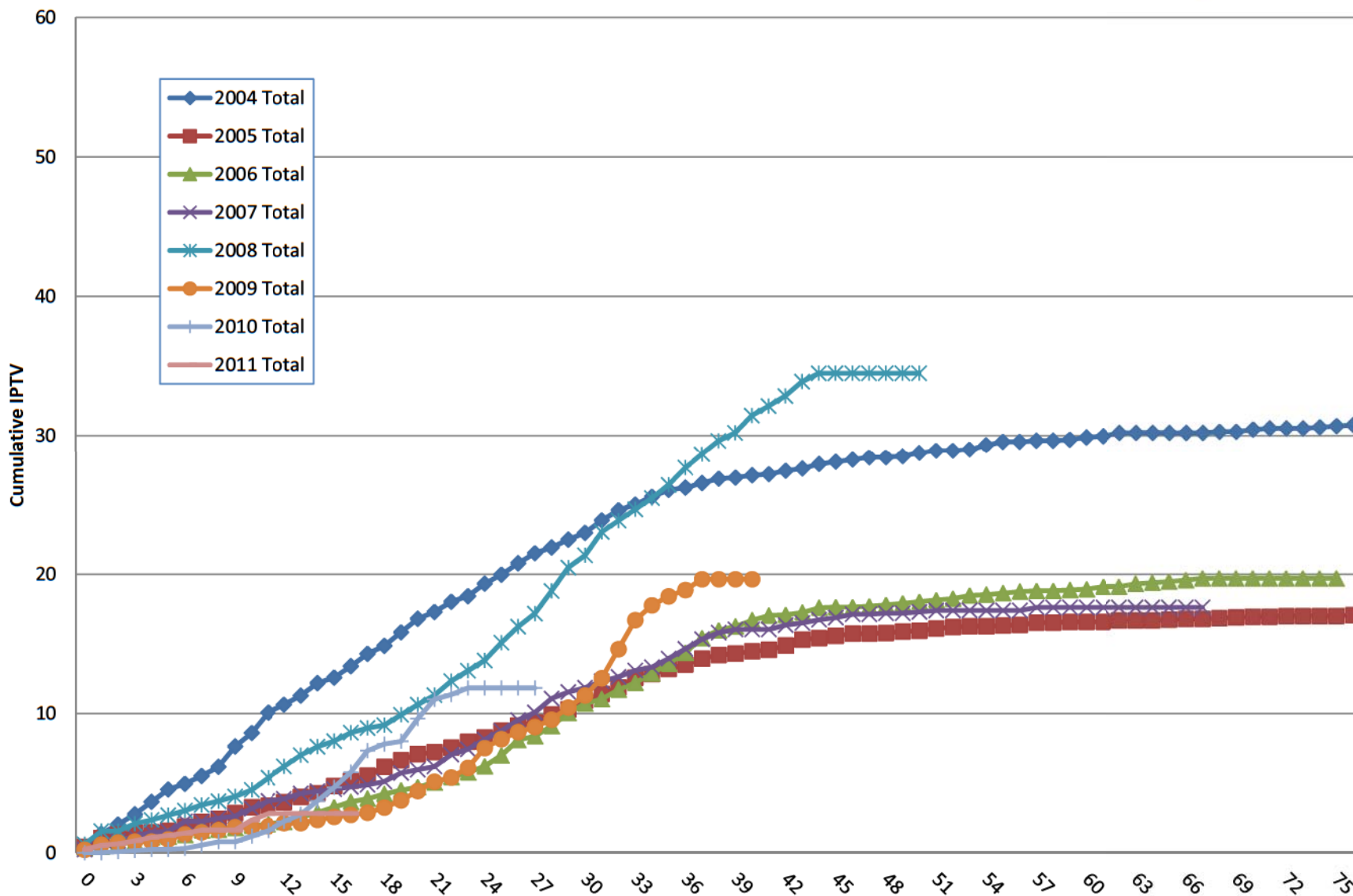
2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)



2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)

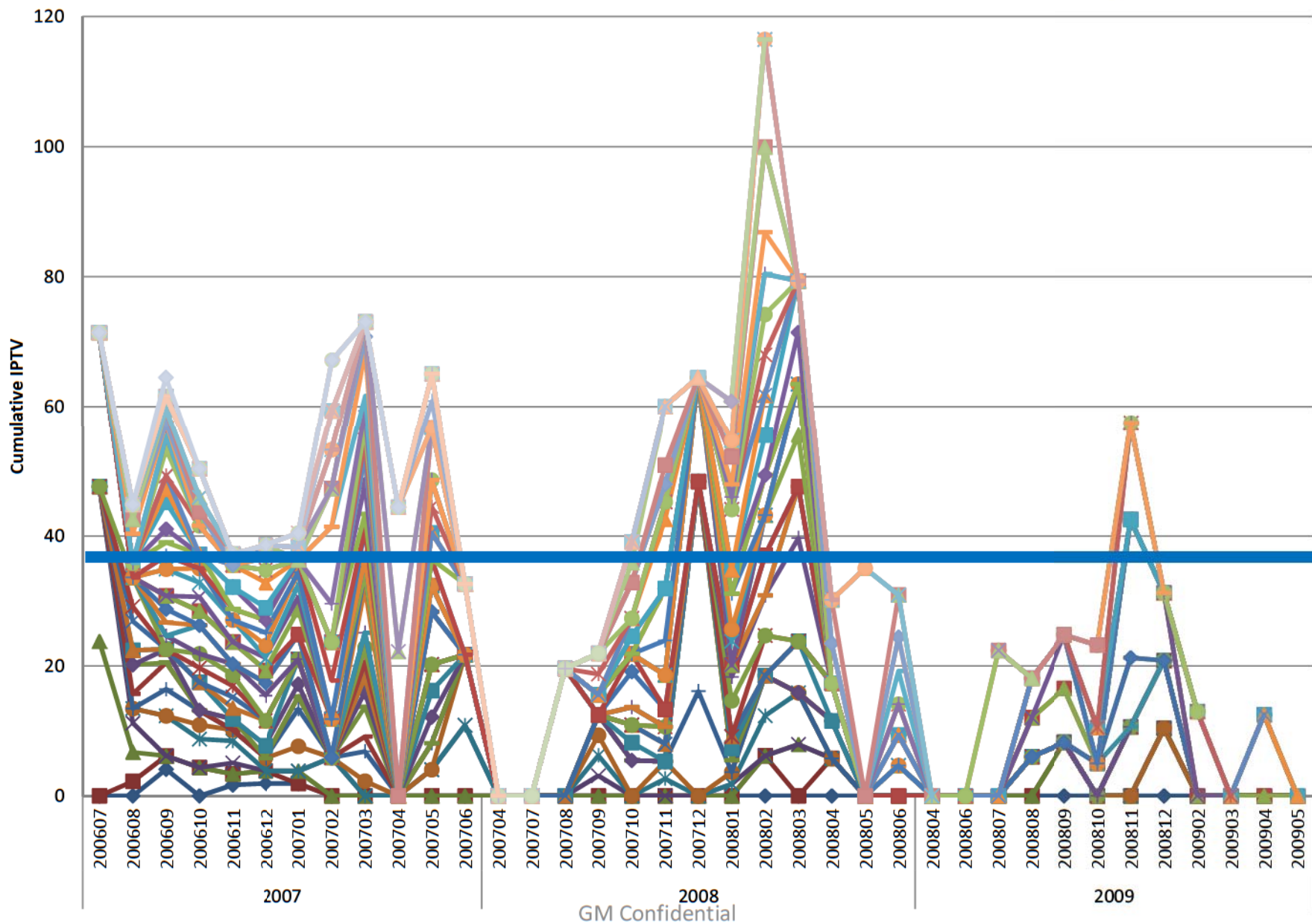


2004 to 2011 Malibu Filtered Brake Warranty (Plus 49% Unknown)

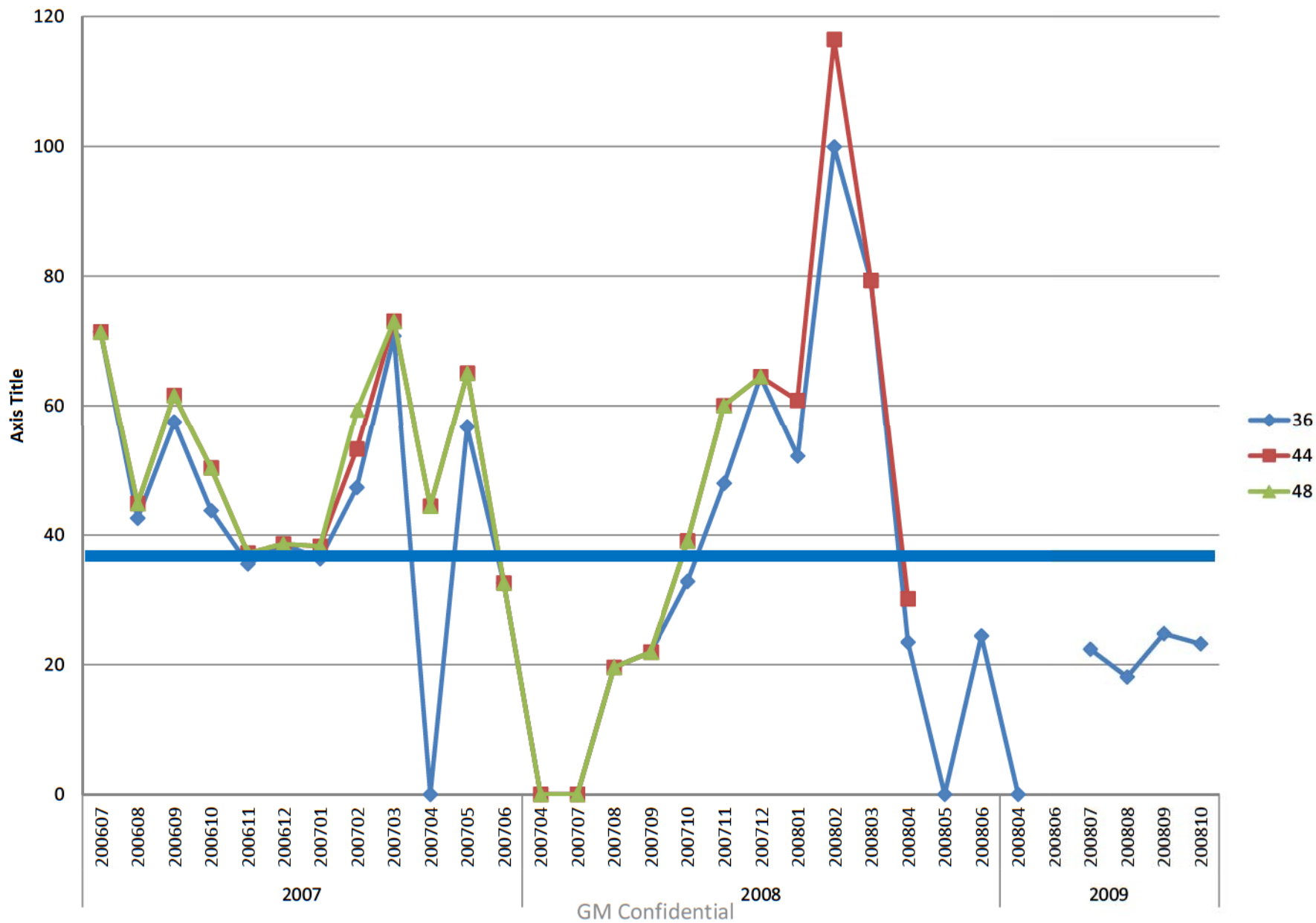


GM Confidential

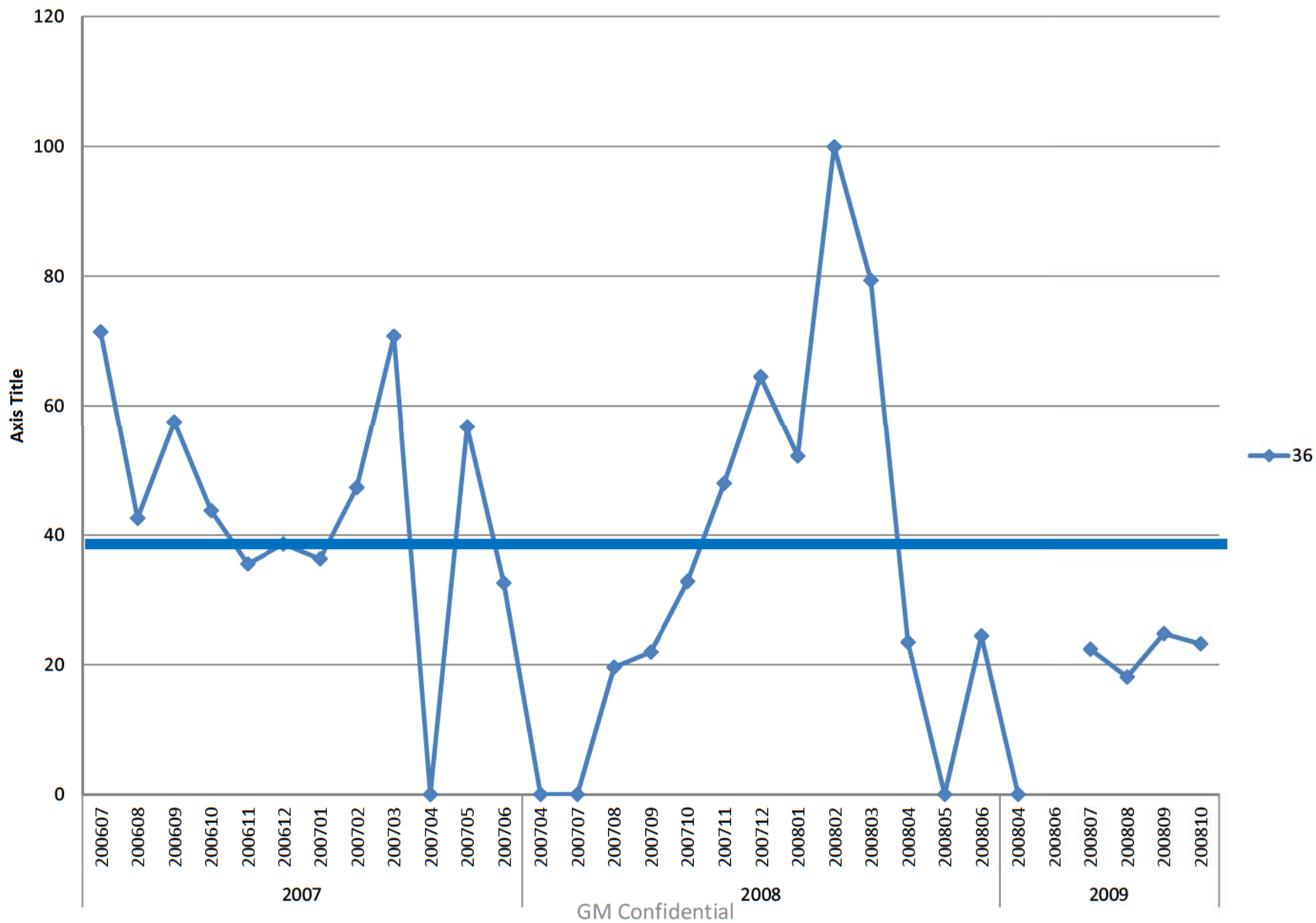
2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



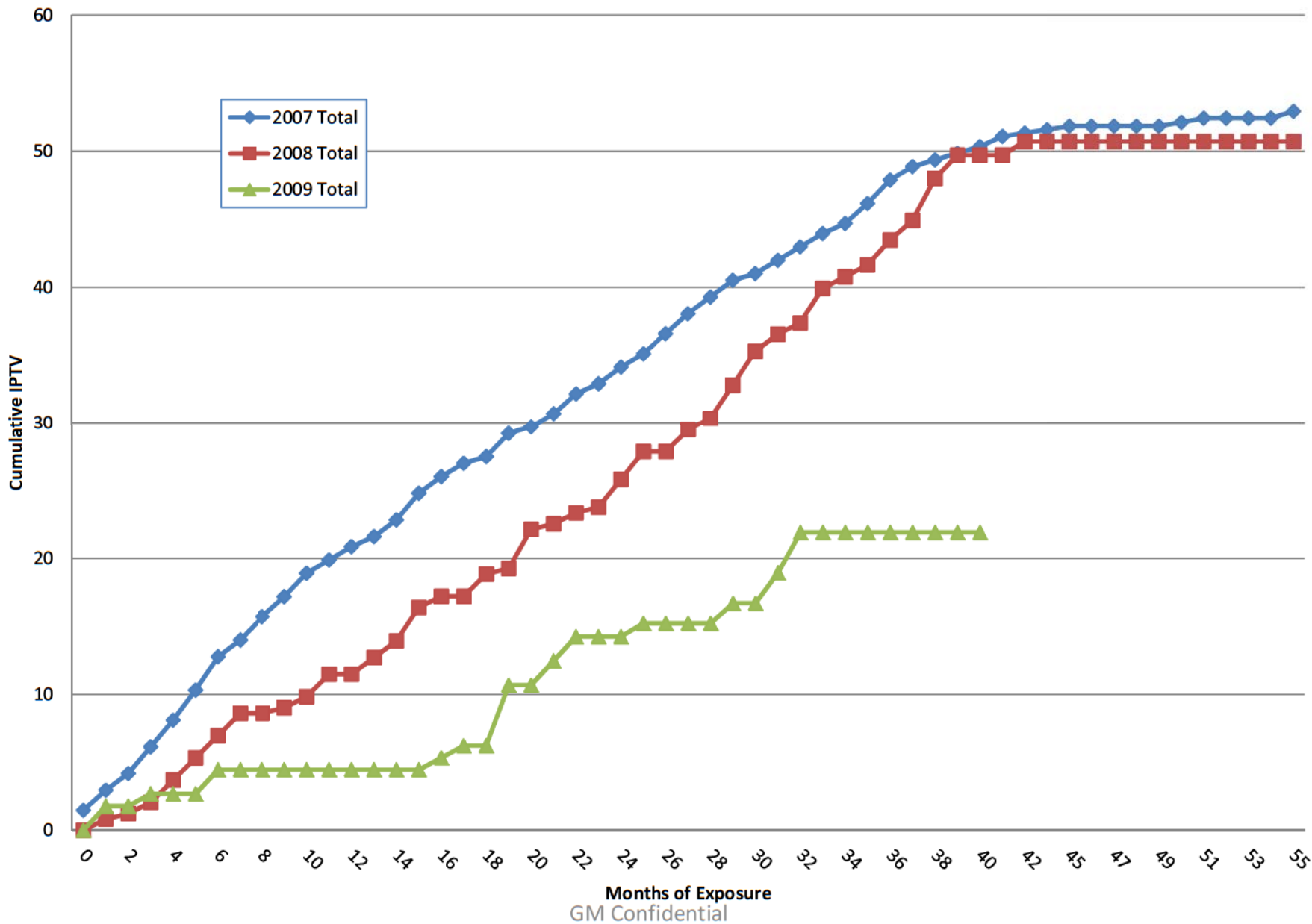
2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



2007 to 2009 Aura Filtered Brake Warranty (Plus 71% Unknown)



{ * }



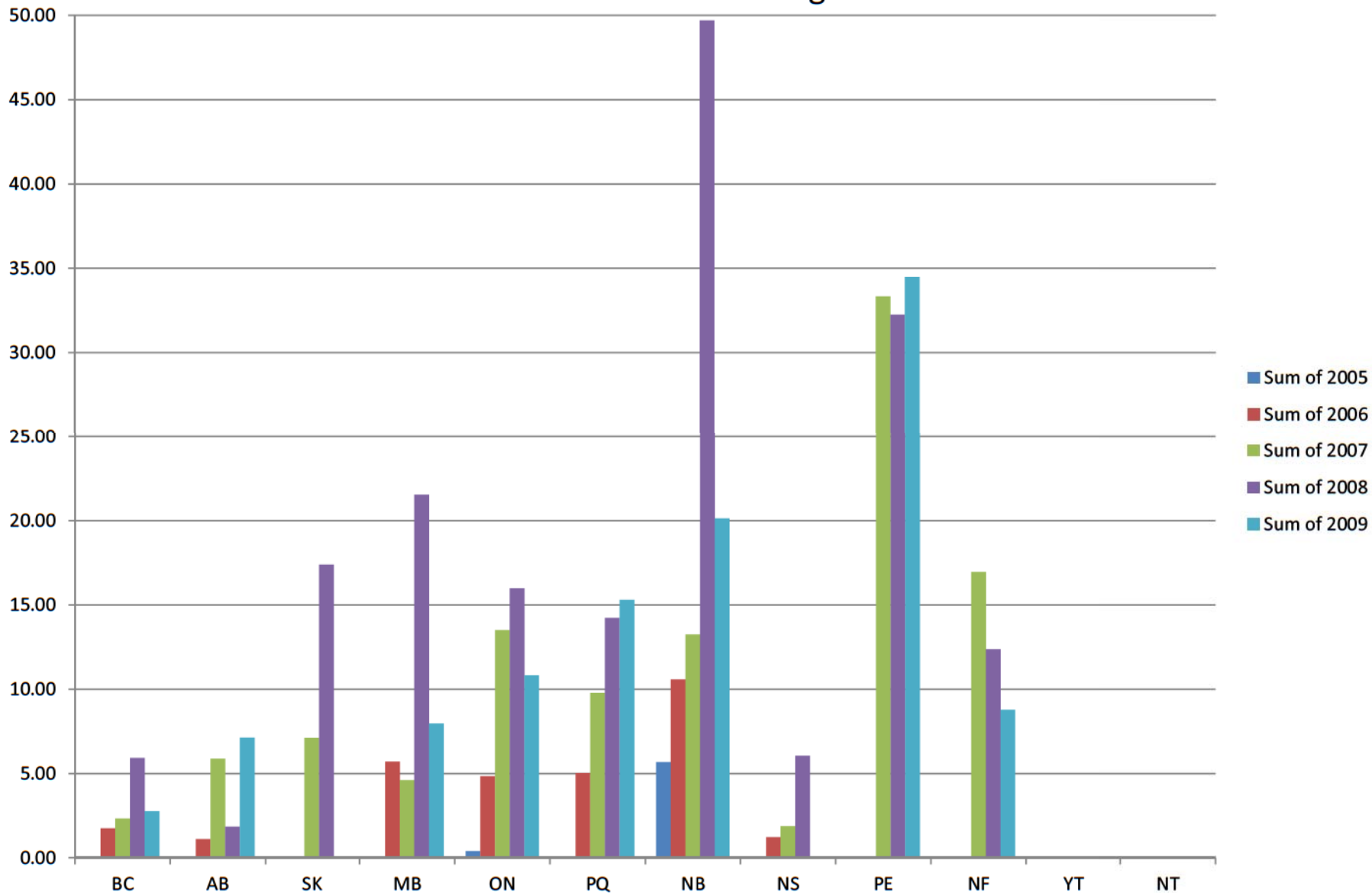
{ * }

Individual State and Province IPTV

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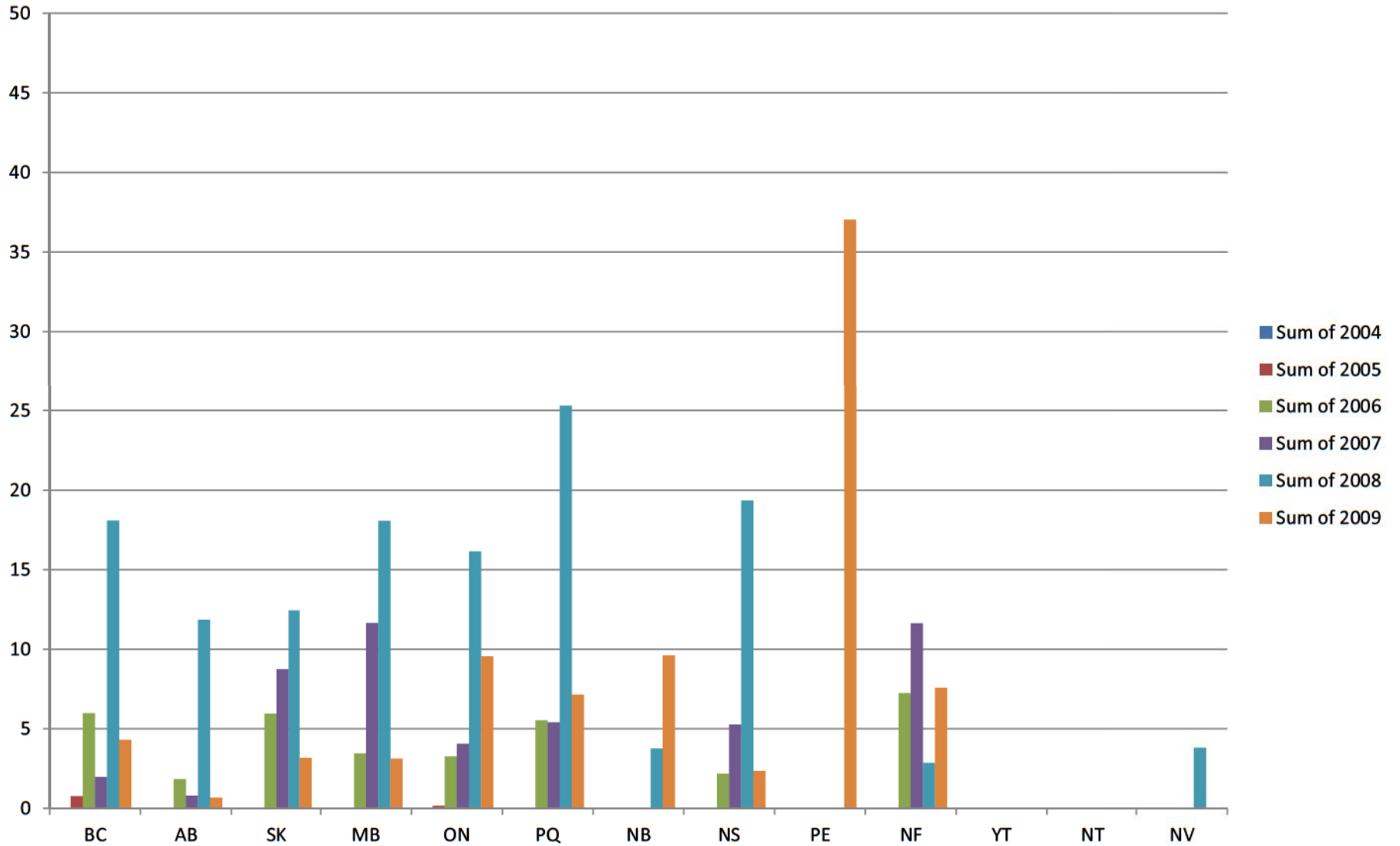
{ * }

Province IPTV Ranking for G6



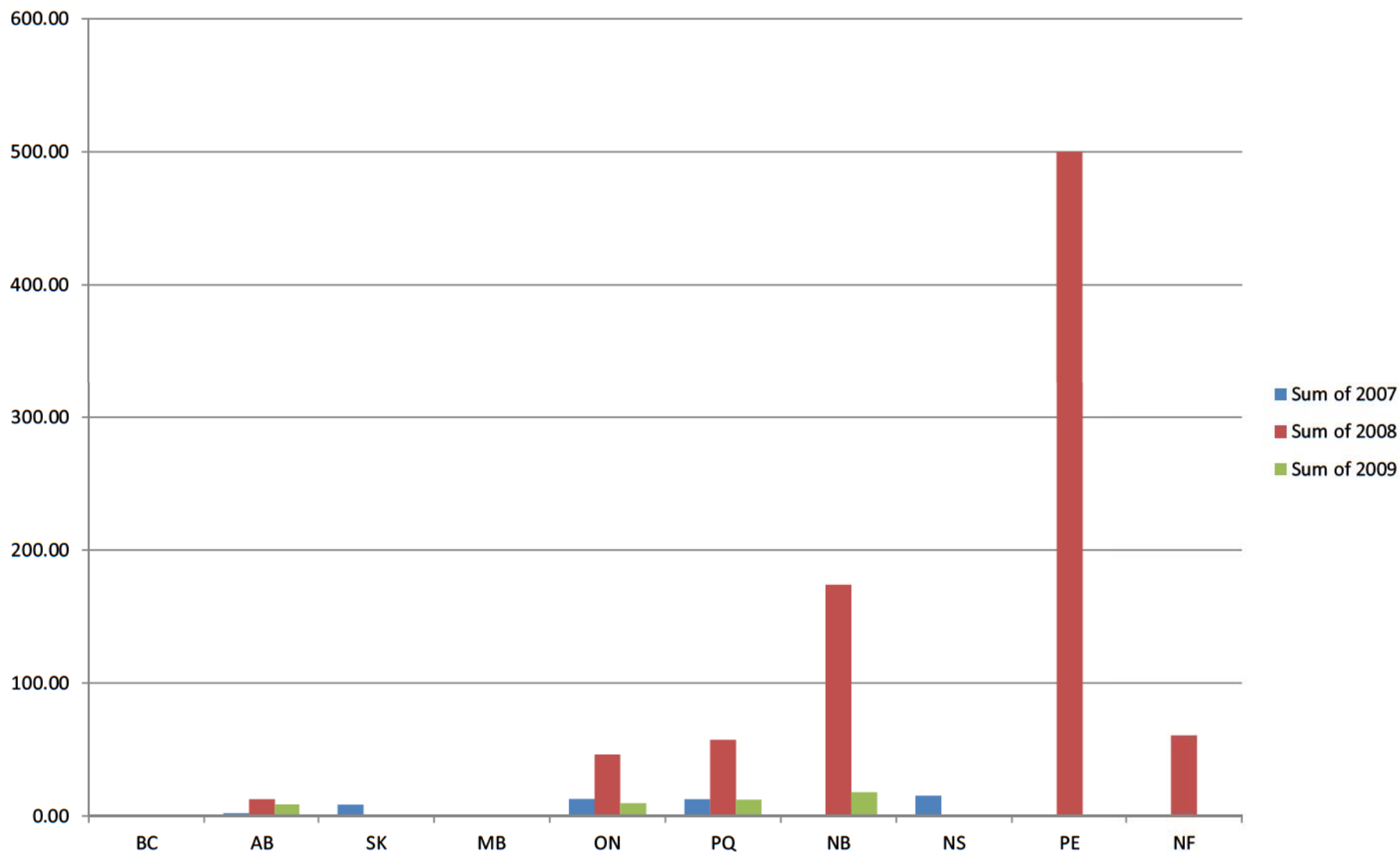
GM Confidential

Province IPTV Ranking for Malibu



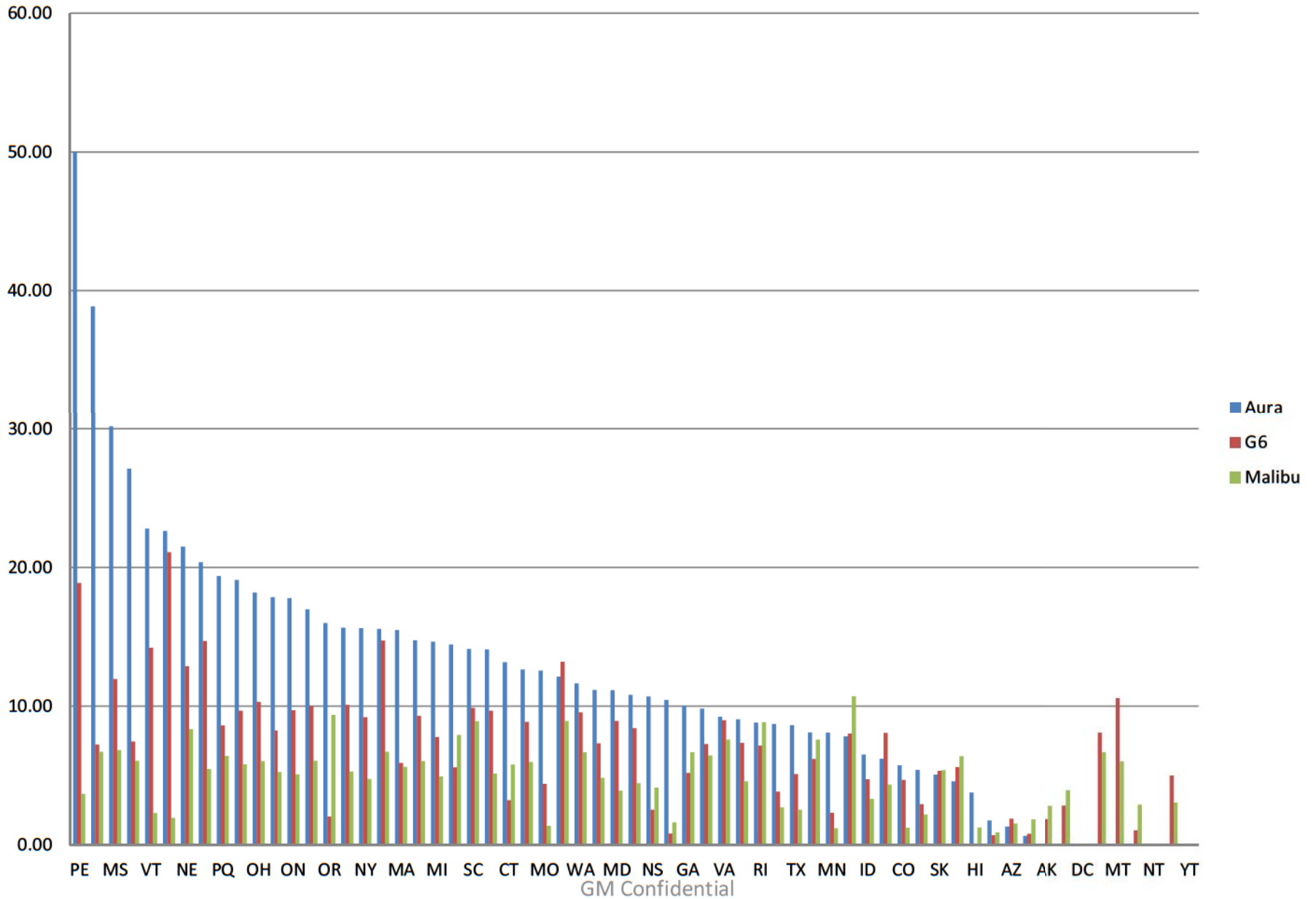
GM Confidential

Province IPTV Ranking for Aura

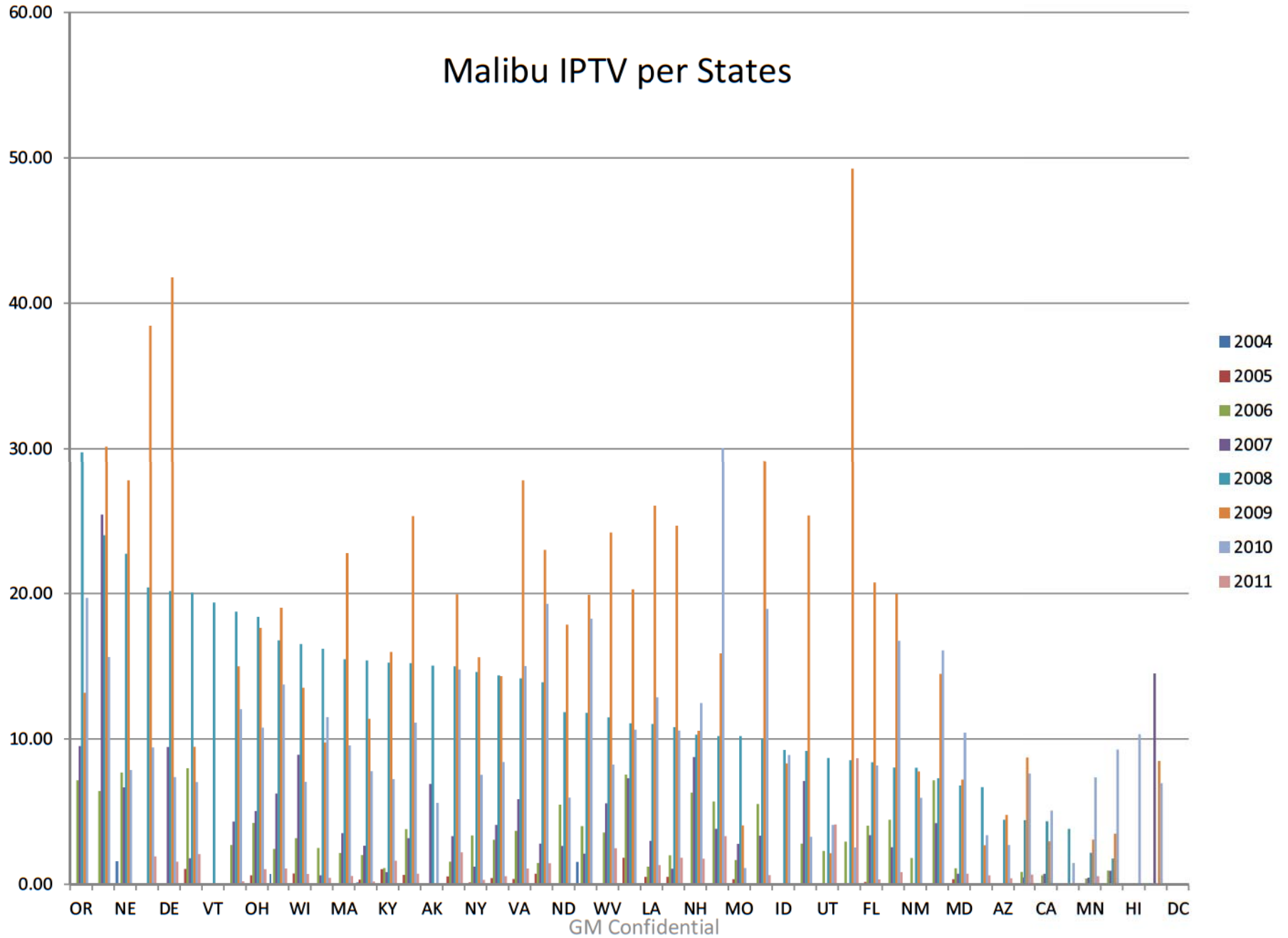


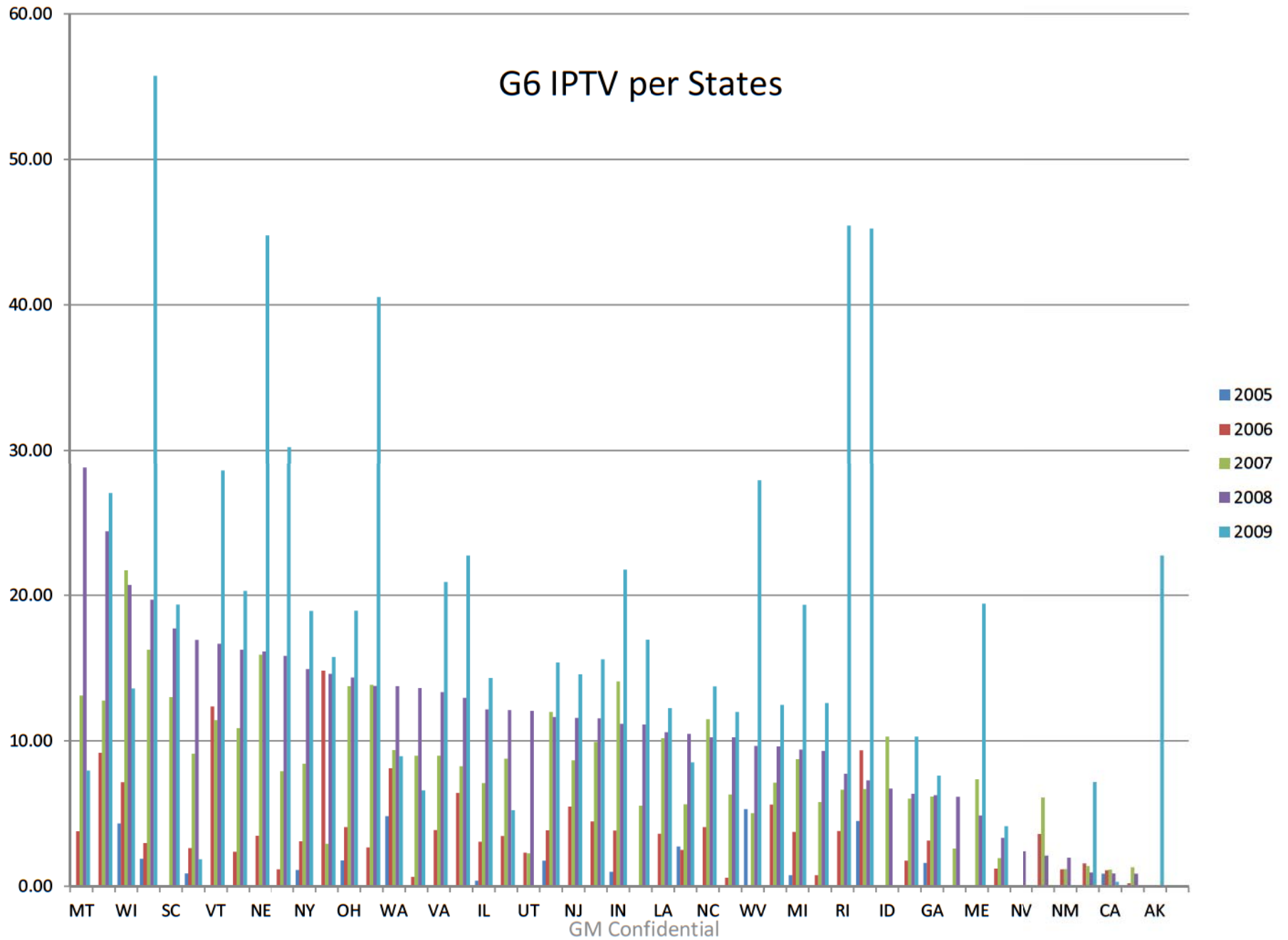
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Average IPTV per State/Province

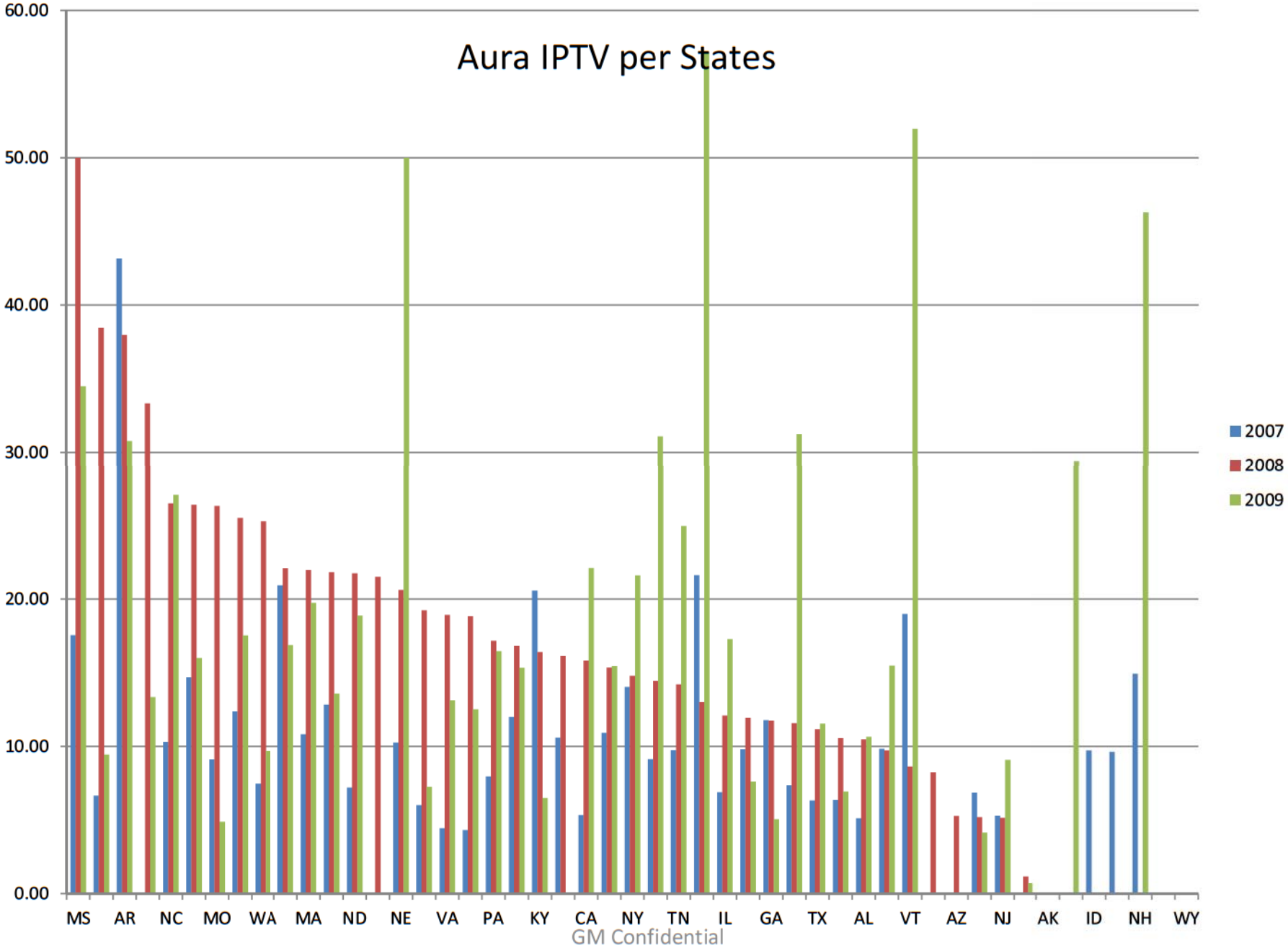


Malibu IPTV per States





Aura IPTV per States



Back-up

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The Body Control Module with different electrical harness architecture is used for the following platforms:

| | | |
|--------|----------------------|----------------------|
| 2004MY | Malibu, XLR | |
| 2005MY | G6, Cobalt, Corvette | |
| 2006MY | HHR, Solstice | |
| 2007MY | Sky, Opel GT, Aura | - NEW MICROPROCESSOR |
| 2008MY | New Malibu | |

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{ * }

Technical Service Bulletin

#08-05-22-009: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTC C0161/C0277 Set (Perform Repair as Outlined) - (Dec 4, 2008)

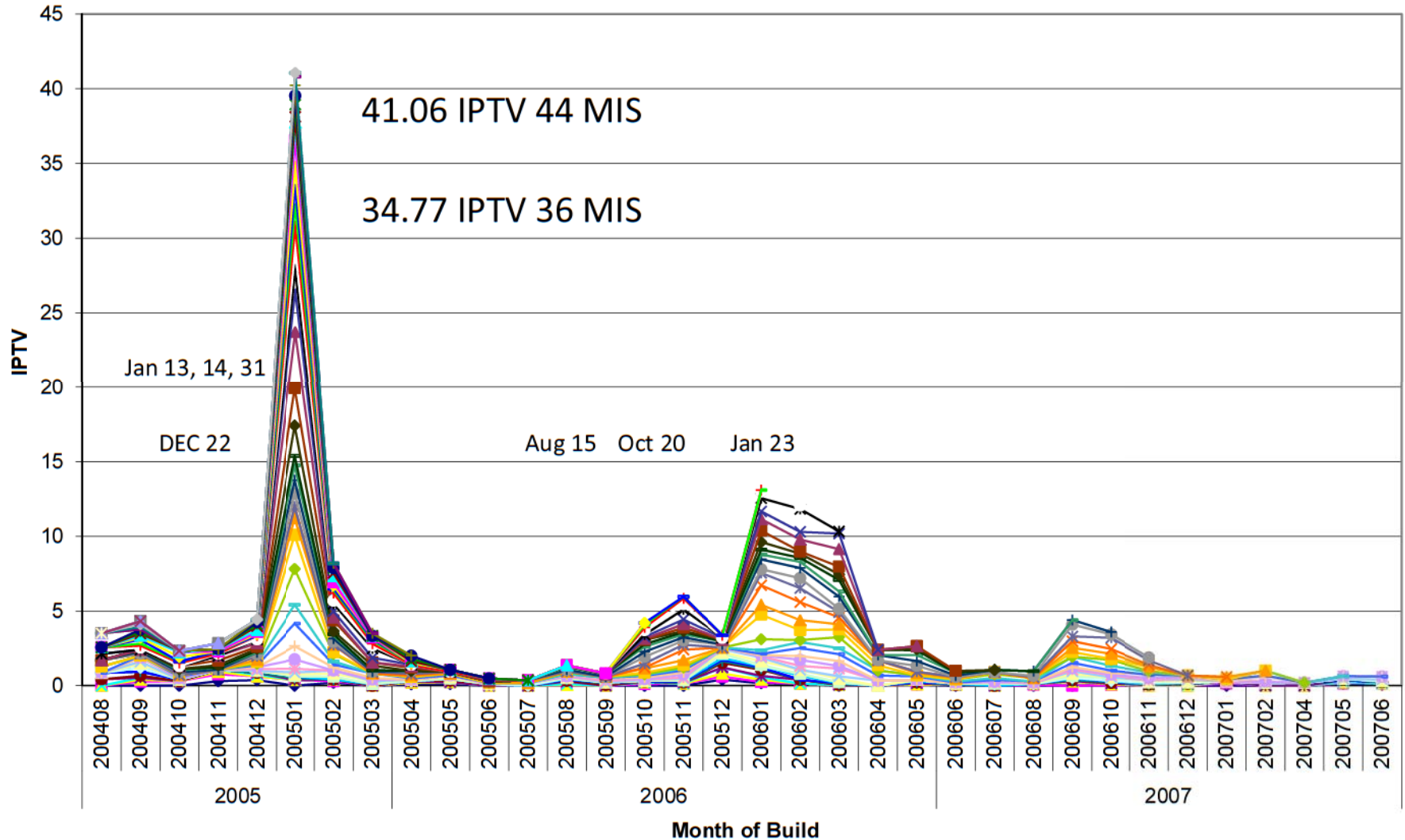
Subject: Intermittently Brake Lights (Stop Lamp) Do Not Function Correctly, Extended Travel to Shift Out of Park, Cruise Control Inoperative, DTCs C0161/C0277 Set (Perform Repair as Outlined)



Apply dielectric lubricant (clear gel) GM P/N 12377900 (In Canada, use P/N 10953529) on the BCM C2 pins (apply with a one-inch nylon bristle brush) on all the C2 connector pins (this will treat the pins against fretting corrosion).

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2005 - 2007 G6 Intermittent Stop Lamp Warranty



9 VOQs 2005MY: 4
 20 VOQs 2005MY: 11

2006MY: 4
 2006MY: 7

2007MY: 1
 2007MY: 2

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Weekly Production Volume for the Month of January 2005: U.S. and Canada

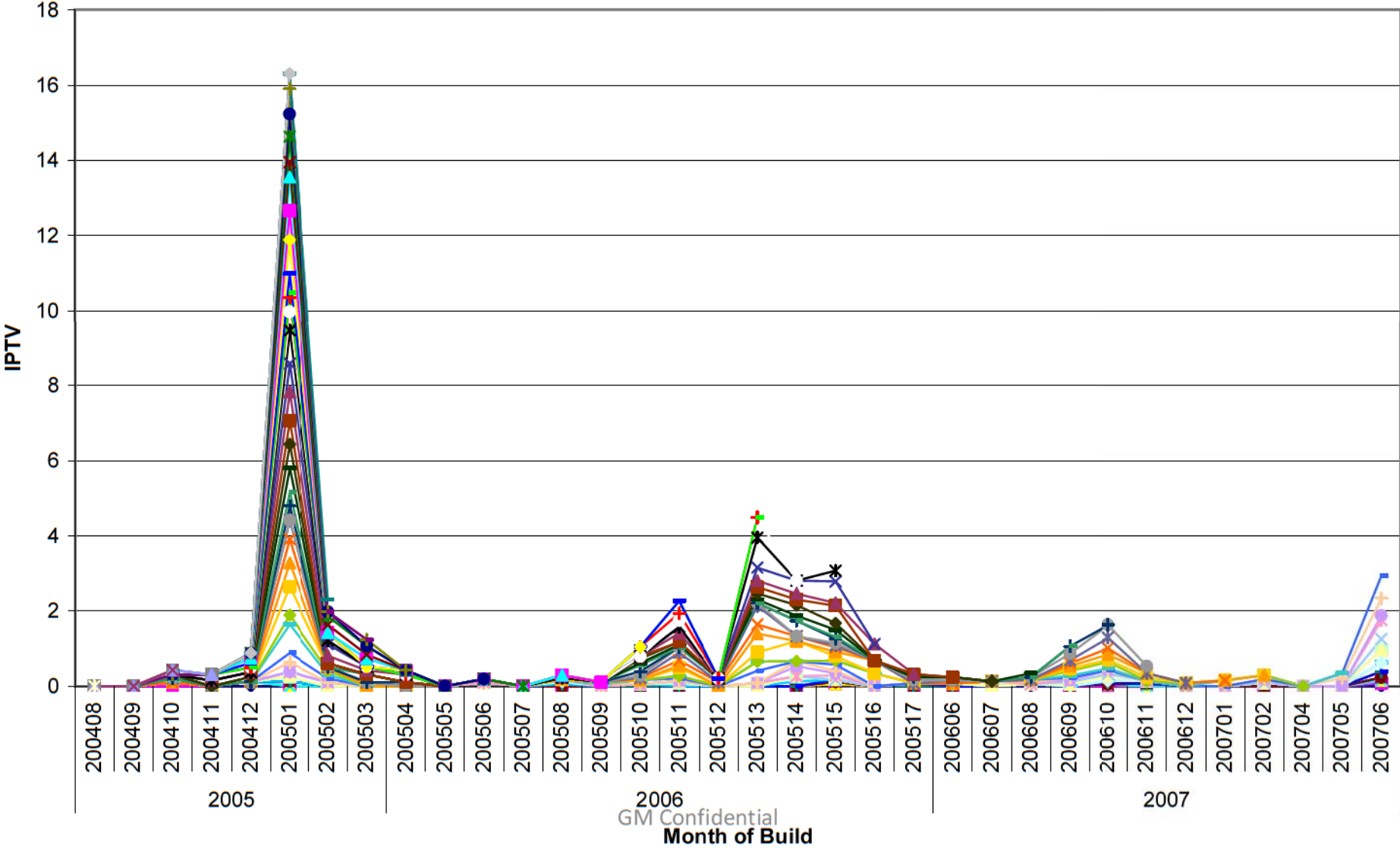
| MAKE/ MODEL | Week 03JAN05 | Week 10JAN05 | Week 17JAN05 | Week 24JAN05 | Day 31JAN05 | TOTAL |
|----------------|-----------------|-----------------|-----------------|-----------------|----------------|-------|
| Pontiac G6 | 2,374 | 2,334 | 1,826 | 2,272 | 475 | 9,281 |

| Myear | GM of Canada | GM of Mexico | Pontiac Domestic | Grand Total |
|-------------|--------------|--------------|------------------|-------------|
| 2005 | 1,348 | 49 | 7,933 | 9,330 |
| 2006 | 8 | | 85 | 93 |
| Grand Total | 1,356 | 49 | 8,018 | 9,423 |

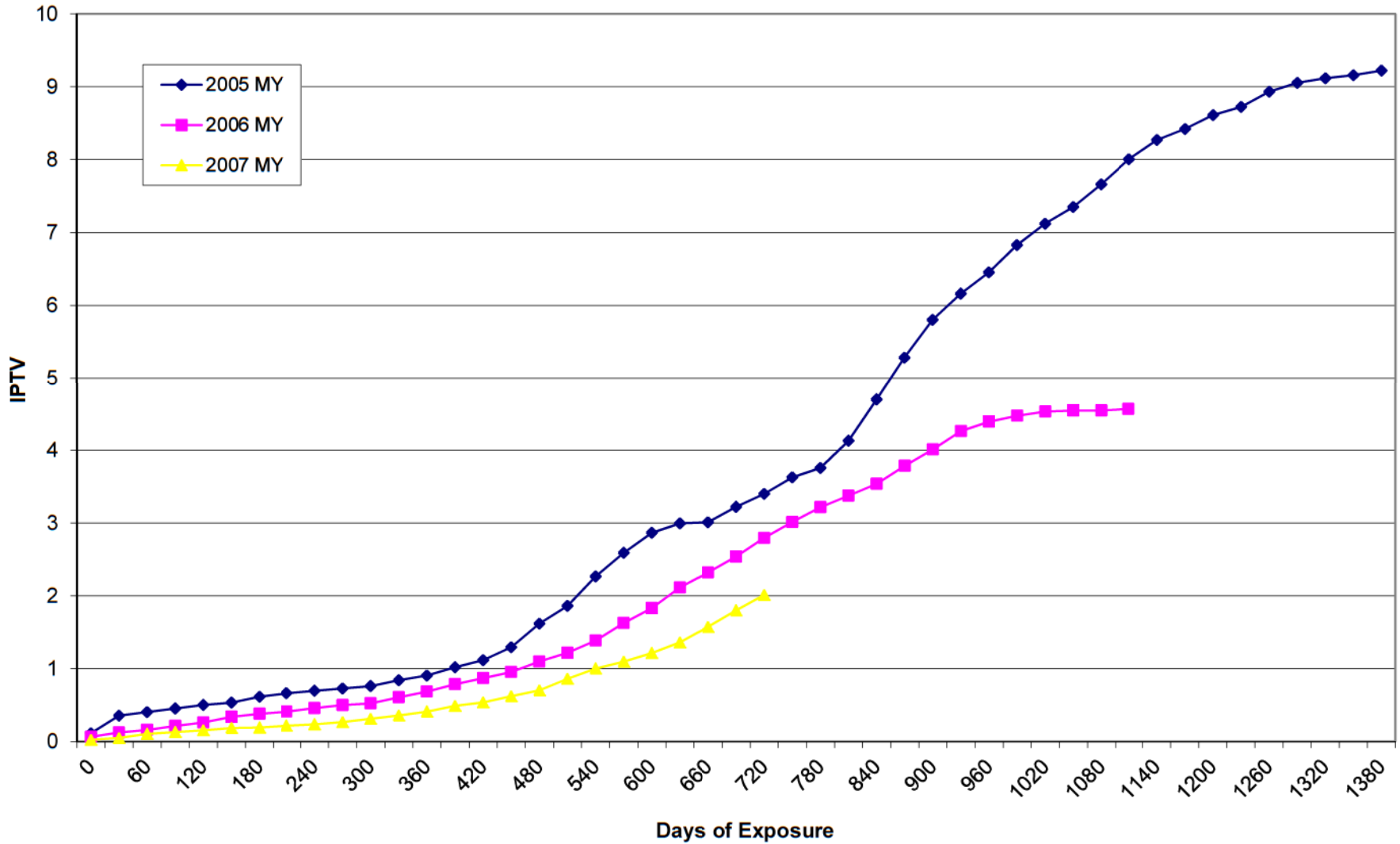
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2005 - 2007 G6 BASS – TAC and CAC only

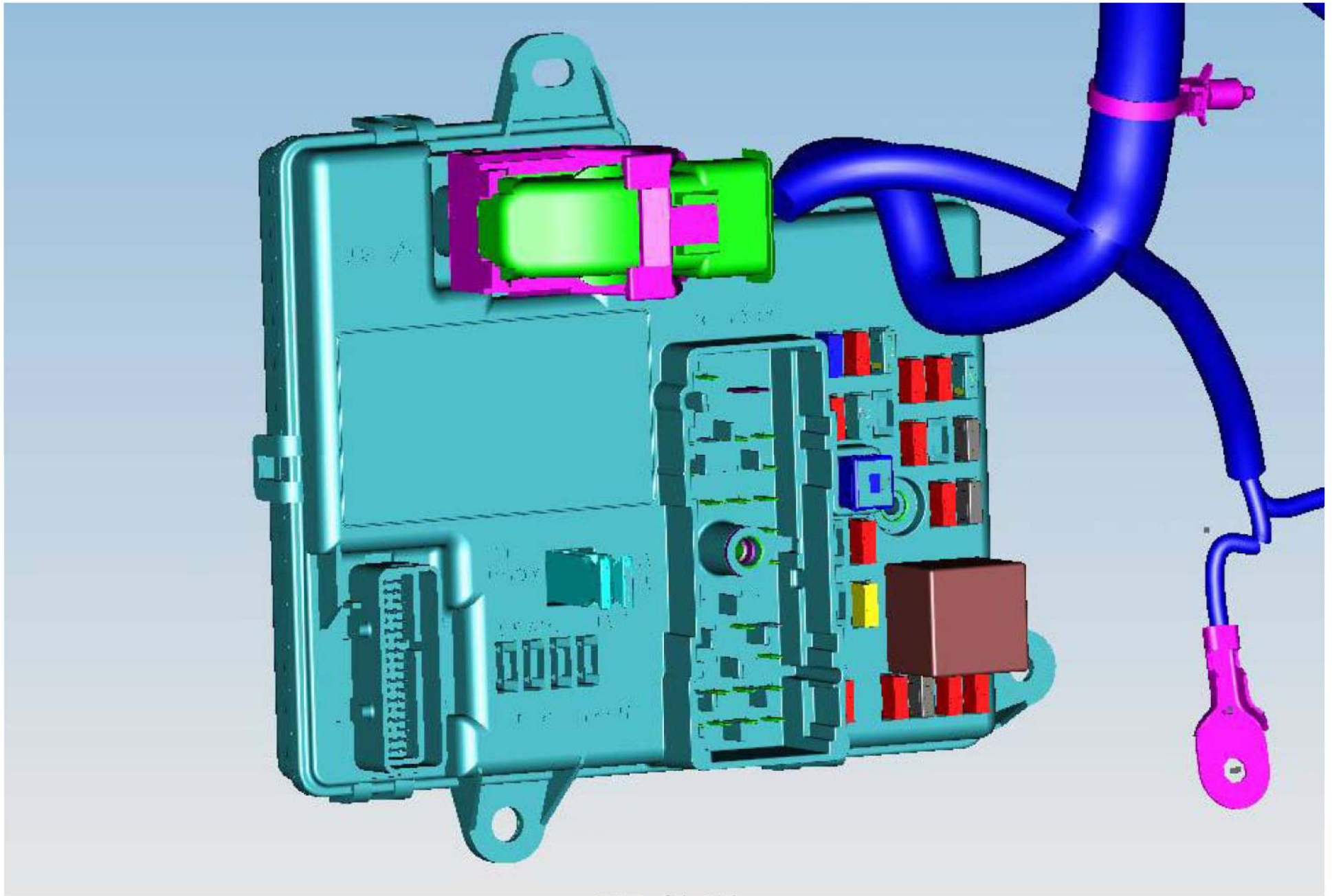
2005 to 2007 G6 Filtered Stop Lamp Field Reports Data Only



2005 - 2007 G6 Intermittent Stop Lamp Warranty



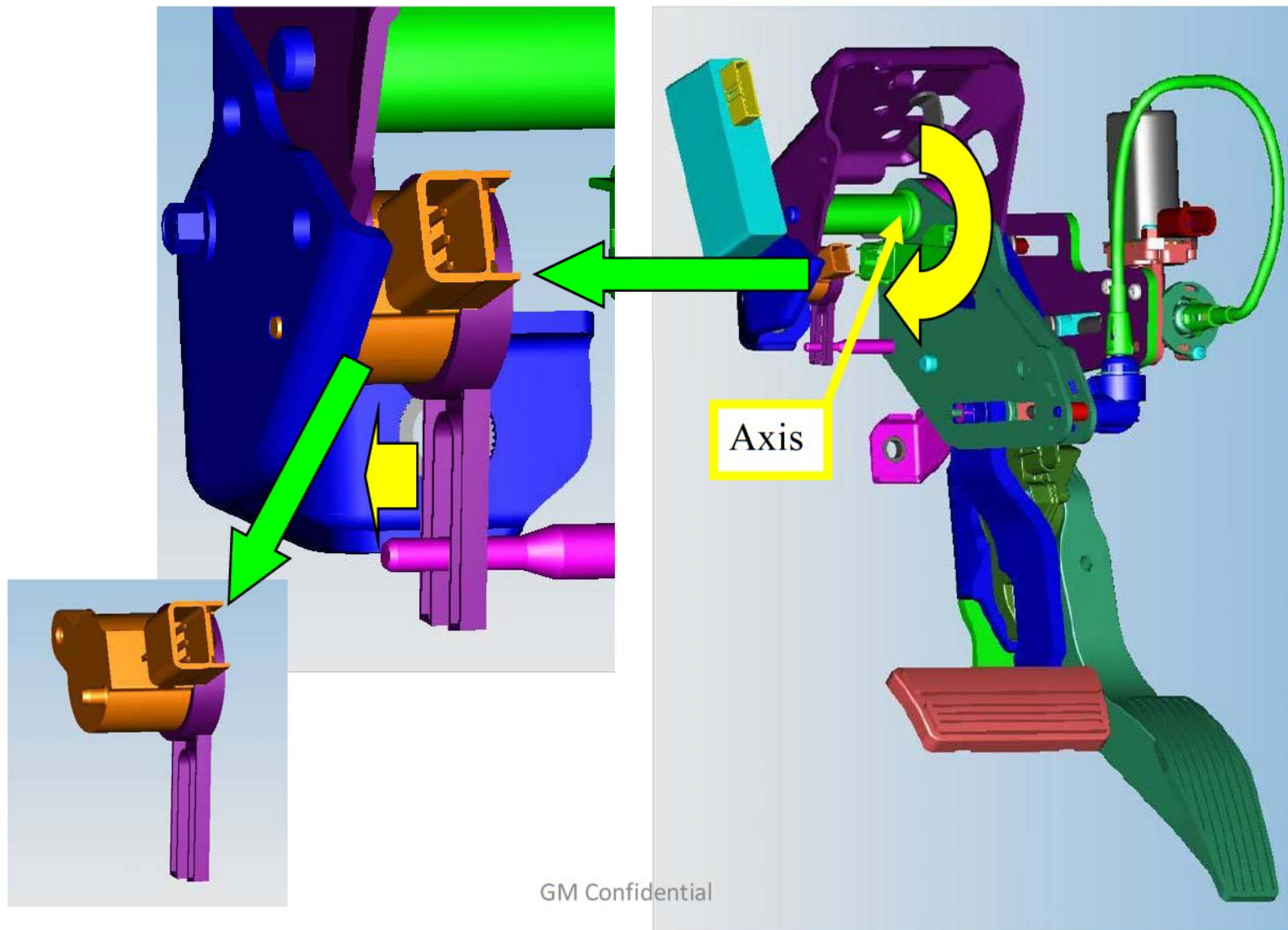
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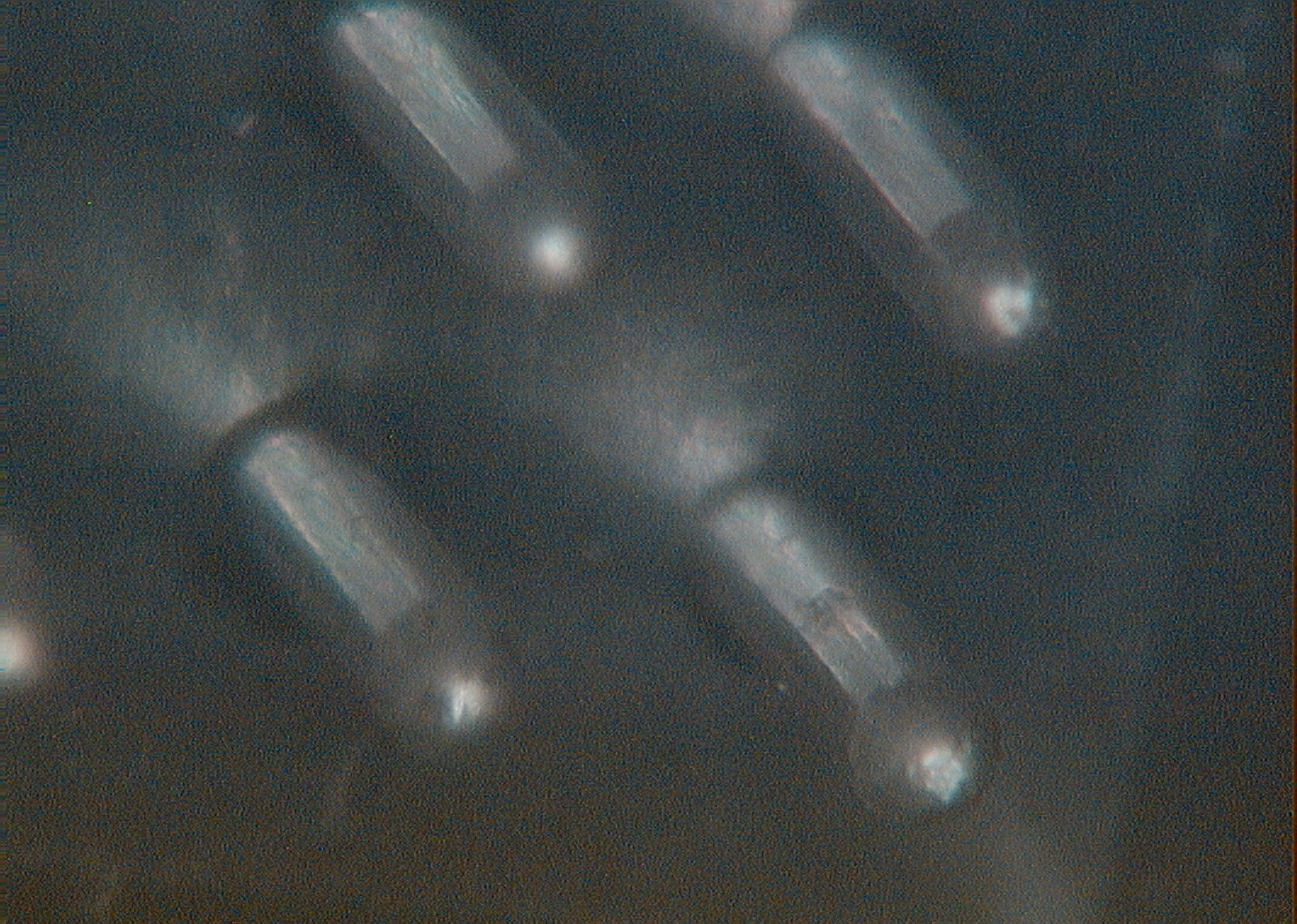


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2005 - 2007 G6 Brake Apply Sensing System

Pedal/Sensor Movement





w pin 18 v64201298 view 4pins

| | Total | TSB | Rest | Blanks |
|--|--------|-------------------|-------|---------------------|
| (Subject Component Warranty Ins) | | | | |
| Table 5.1: | 17,618 | 14,477 | 3,141 | TBD (LC, TC, CC) |
| (Subject Component and Alleged Defect Ins) | | | | |
| Table 5.2 | 16,613 | 14,477 (not true) | 2,136 | TBD (LC, TC, CC) |