WORLD SEMICONDUCTOR TRADE STATISTICS

SEMICONDUCTOR INDUSTRY GREEN BOOK 2018

Graphs from the Blue Book

Administered by
WSTS, Inc.

Compiled by
Moss Adams LLP in Campbell,
topserve.ch GmbH in Winterthur and
Grant ThorntonTaiyo in Tokyo

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The statistics presented in this report have been compiled on the basis of confidential data submitted by companies participating in the survey; estimates provided by WSTS, Inc. are included for nonparticipating companies worldwide. To adjust for non-receipt of any participant's data, Moss Adams LLP, topserve.ch GmbH and Grant Thornton Taiyo (GTT) will use that company's previously reported market share to compute its input data for the current month. The report reflects worldwide statistics for all non-captive semiconductor manufacturers worldwide.

Reported data include all monthly net billings (shipments) between semiconductor manufacturers and their end customers, authorized distributors and divisions or subsidiaries that manufacture end products.

All billings are reported according to customer shipment location. Actual sales prices (or comparable market prices for internal transfers) are used to value all billings.

Semiconductor companies participating in the survey should refer to the previously issued World Semiconductor Trade Statistics Participant Manual and the WSTS Product Classification for a more detailed description of the program, including detailed definitions of product categories. All participant inquiries with respect to the program, including the name of companies participating in the survey and the public sources used in compiling estimates, should be directed to the WSTS Administrator. All public inquiries concerning WSTS should be addressed to SIA in the Americas, Taiwan and China, to ESIA in Europe, to WSTS Japan Council in Japan and to KSIA in Asia Pacific (except for Taiwan and China).

Moss Adams LLP compiled the accompanying statistics from data submitted by participating companies, GTT in Tokyo, topserve.ch GmbH in Winterthur, and WSTS, Inc. in accordance with procedures described in the aforementioned participant manual. Because their work was limited to tabulating information furnished without audit, they can assume no responsibility for the accuracy of the underlying amounts.

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Changes in this Issue

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Definitions

Definition of regions:	see Product Classification
WW:	sum of regions

The following measures are all plotted on the most recent month:

3MMA:	3-Month Moving Average, sum of 3 months divided by 3.
12MMA:	12-Month Moving Average, sum of 12 months divided by 12.
3/12:	Percent change of a 3-month period to a similiar period 12 months previously.
12/12:	Percent change of a 12-month period to a similiar period 12 months previously.
Bill:	Shipments made and billed by ship-to location, including NRE.
Geographic Billing:	Dollar value of net billings into each region by ship-to location between non-captive semconductor manufacturers and their end customers, authorized distributors and divisions or subsidiaries that manufacture end products.
Price:	Actual sales price or comparable market price for internal transfers.

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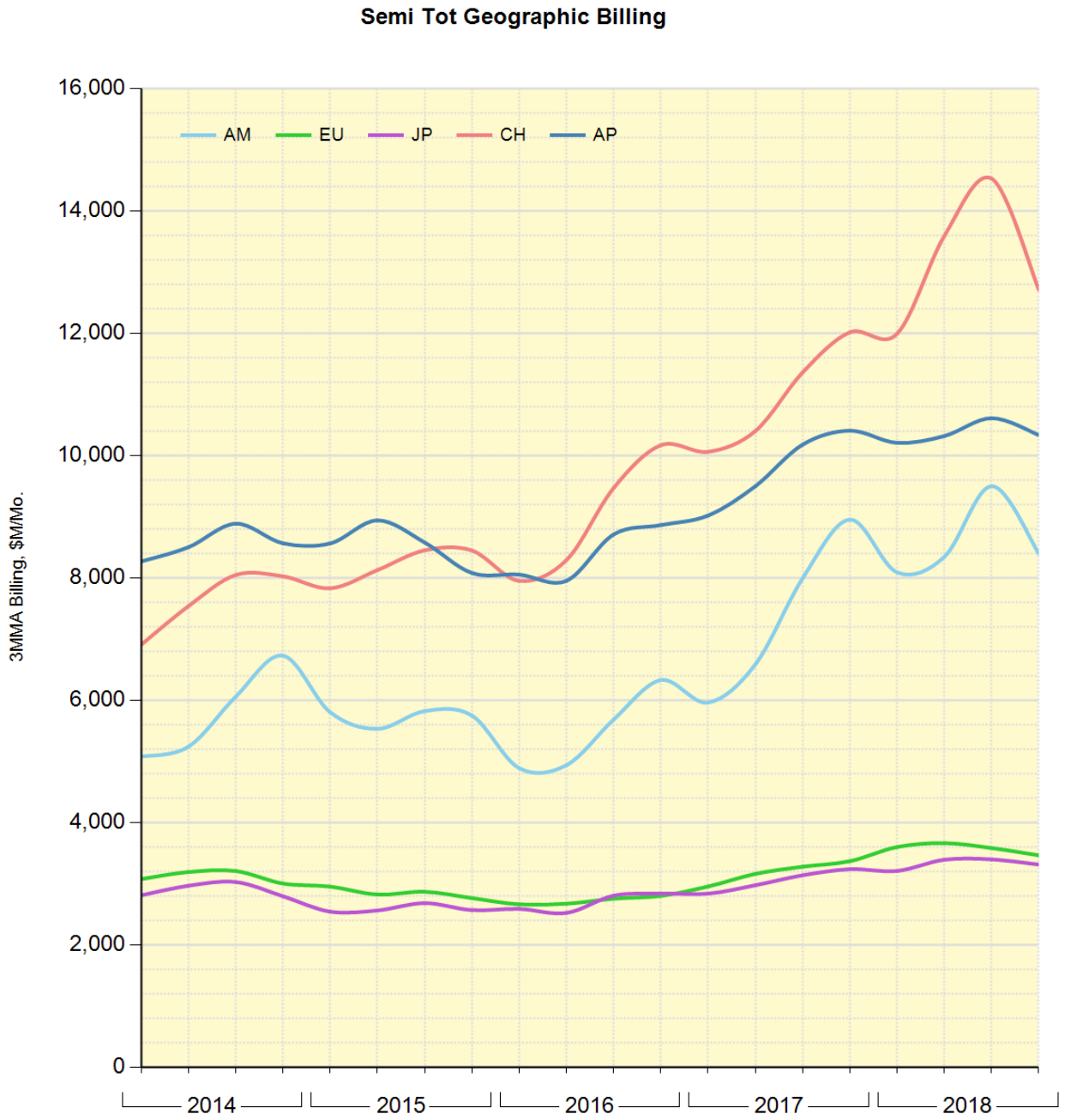
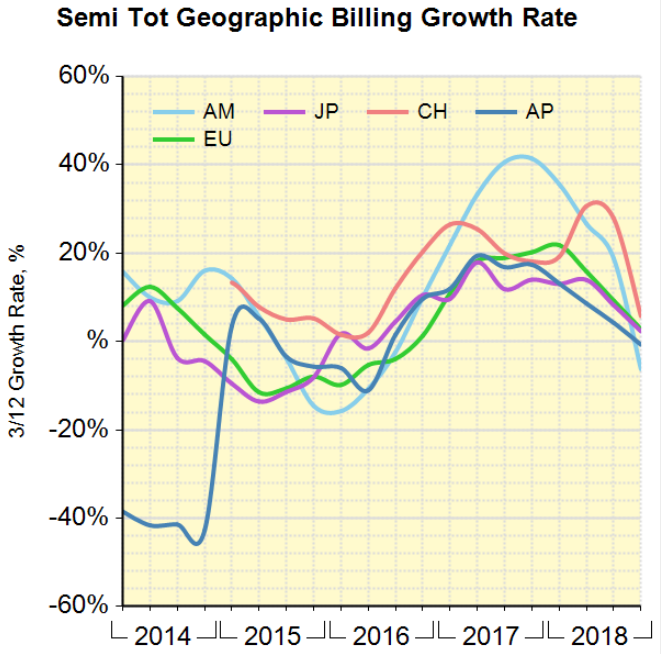
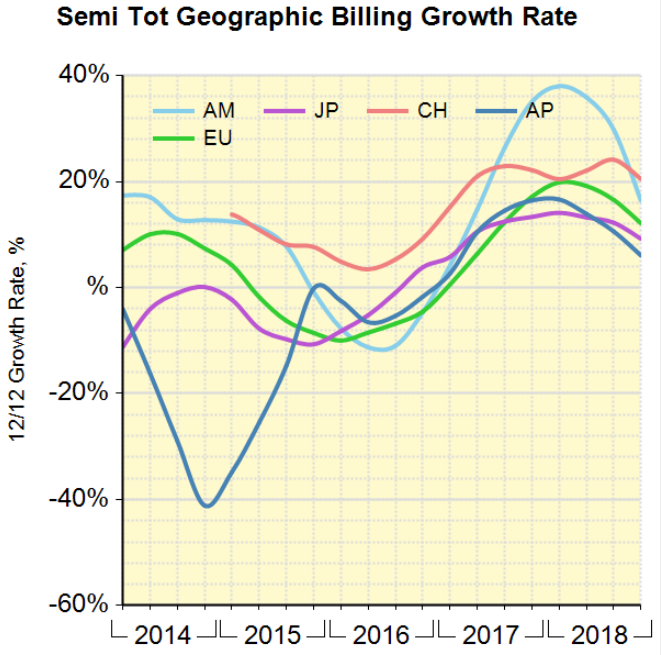
TOTAL SEMICONDUCTOR	T99
TOTAL MONOL INTEG CIRCUITS	S2
TOTAL DISCRETES	S3
DIODES	A99
SMALL SIGNAL TRANSISTORS	B99
POWER TRANSISTORS	C99
BIPOLAR & OTHER PWR TRANS	CA
INSULATED GATE BIPOLAR TRANS	CB
MOSFET POWER TRANSISTORS	CC
RECTIFIERS	D99
THYRISTORS	E99
DISPLAYS	F1
LAMPS	F2
COUPLERS/ISOLATORS & SWITCHES	F3
IMAGE SENSORS	F5
OTHER OPTOELECTRONICS	F6
INFRARED	F7
LASER PICKUP	F8
LASER TRANSMITTER	F9
LIGHT SENSORS	F10
TOTAL OPTOELECTRONICS	F99
ALL OTHER DISCRETE	G99
SENSORS & ACTUATORS	H99
GENERAL PURPOSE ANALOG	J0
INTERFACE	J4
POWER MANAGEMENT	J6
SIGNAL CONVERSION	J7
AMPLIFIERS/COMPARATORS (SIGNAL CONDITIONING)	J9
APPLICATION SPECIFIC ANALOG	JA
CONSUMER	JB
COMPUTER	JC
COMMUNICATIONS	JD
AUTOMOTIVE	JE
INDUSTRIAL & OTHERS	JF
TOTAL ANALOG	J99
DIGITAL BIPOLAR	L1
MOS GENERAL PURPOSE LOGIC	L2a
MOS GATE ARRAYS	L2b
MOS STANDARD CELLS	L2c
MOS DISPLAY DRIVERS	L3
MOS TOUCH SCREEN CONTROLLERS	L4
LOGIC, STANDARD	LS
CONSUMER	L5
COMPUTER & PERIPHERALS	L6
COMMUNICATION	L7
AUTOMOTIVE	L8
MULTIPURPOSE & OTHER	L9
MOS SPECIAL PURPOSE LOGIC	LA
TOTAL LOGIC	L99
TOTAL MOS DRAM	M1
TOTAL MOS SRAM	M2
MOS PSEUDO-SRAM	M2A
MOS SRAM	M2B
TOTAL OTHER MEMORY	M6
TOTAL FLASH MEMORY	M7
TOTAL NOR FLASH MEMORY	M7A
TOTAL NAND FLASH MEMORY	M7B
MOS MASK PROM & EPROM	M8
TOTAL MOS MEMORY	M99
MOS MPU	P1
MOS MCU	P2
MOS MCU	P20
GENERAL MCU	P5
GENERAL MCU	P50
SMART CARD MCU	P6
SMART CARD MCU	P60
MOS DIGITAL SIGNAL PROCESSORS	P4
TOTAL MOS MICRO	P99
TOTAL APPL SPEC IC	Q99
TOTAL SEMICONDUCTOR	UT99







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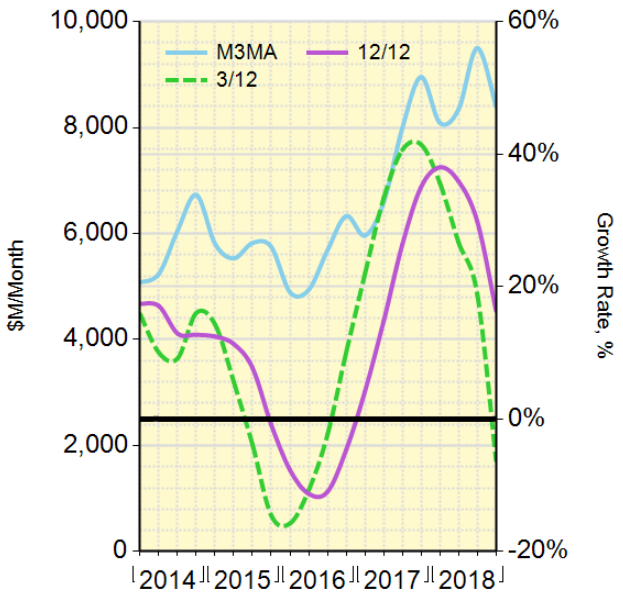
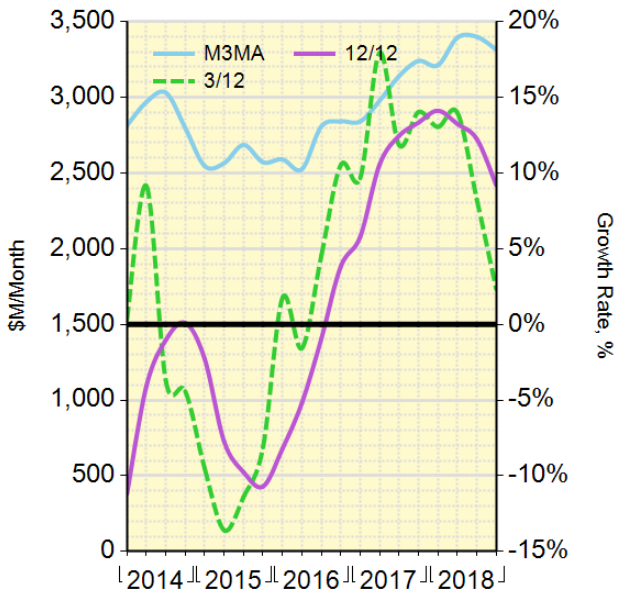
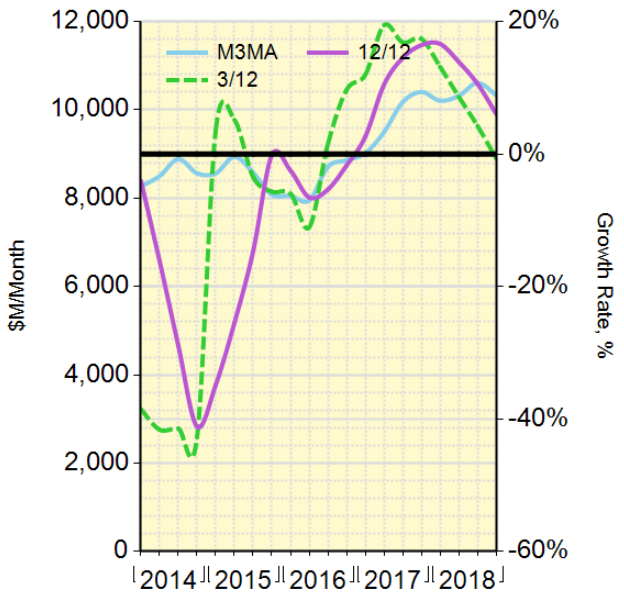
Americas Billing



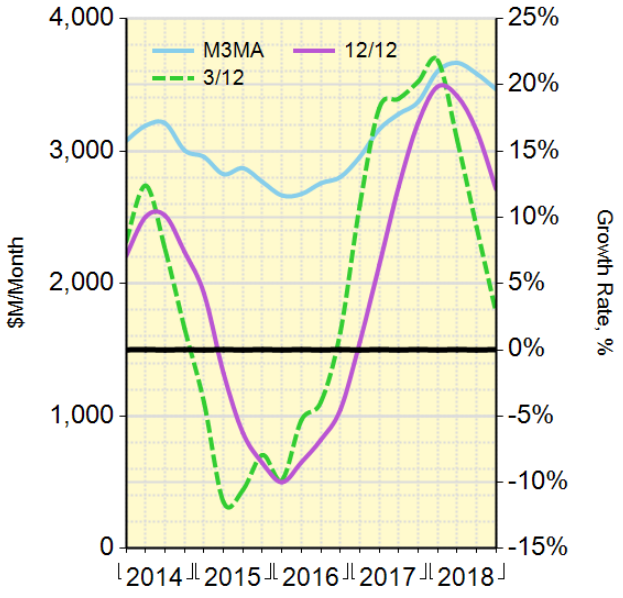
Japan Billing



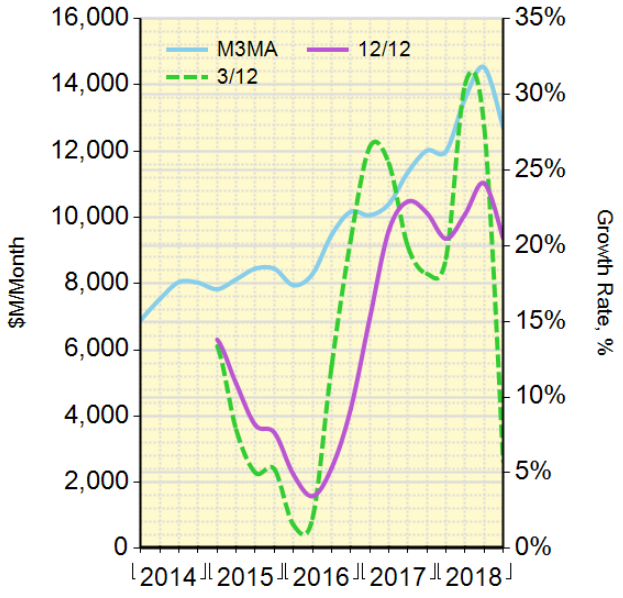
Asia Pacific/All Other Billing



Europe Billing



China Billing



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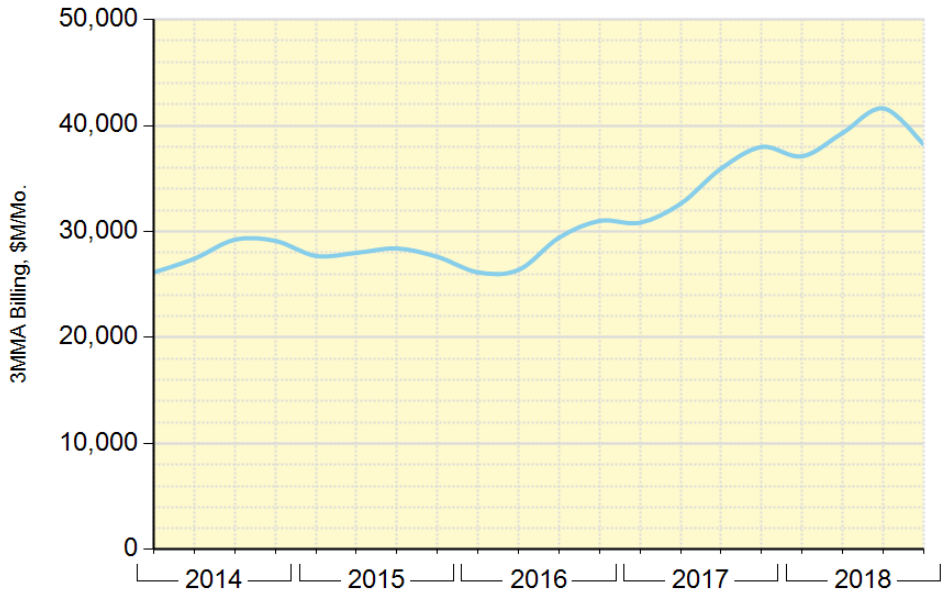
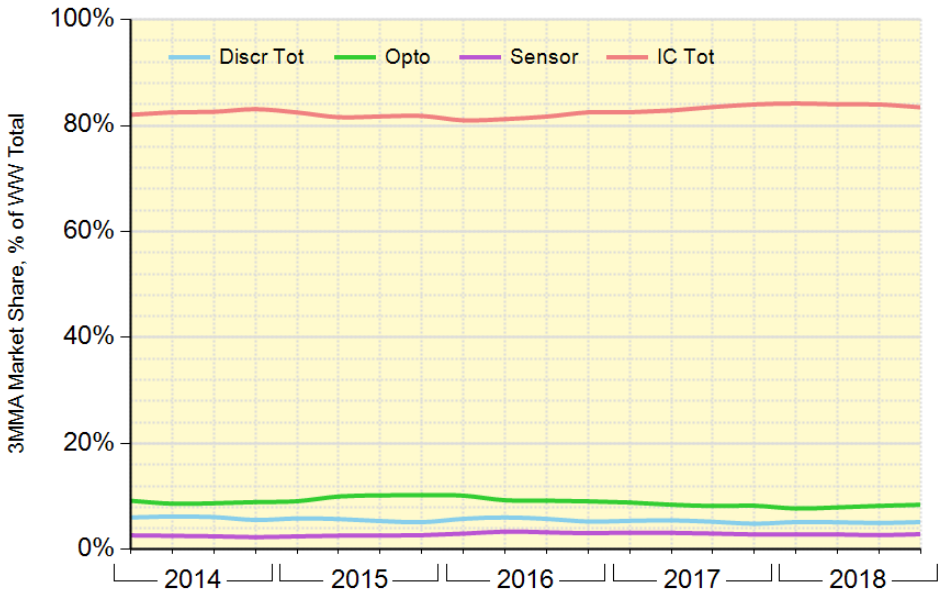
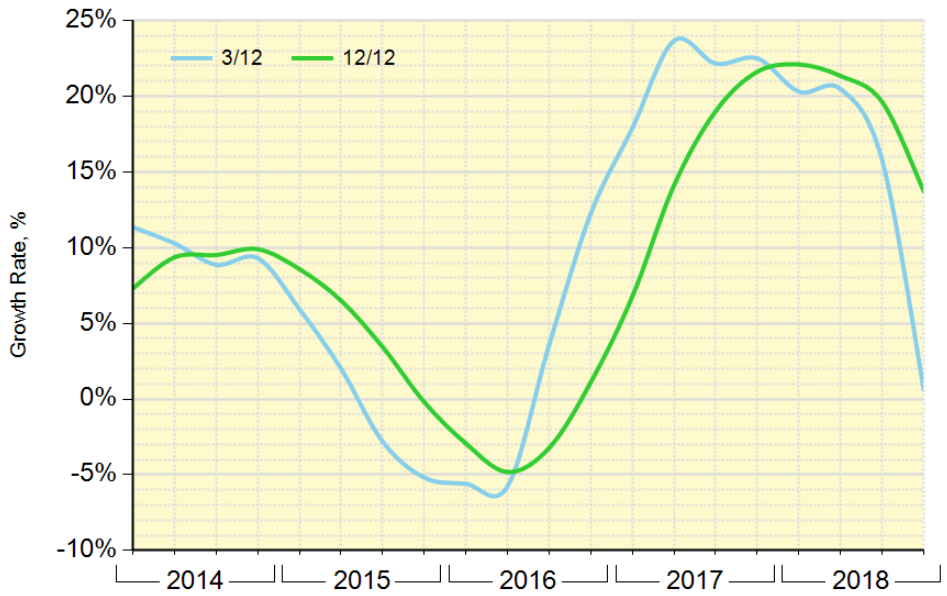
Semi Tot World Billing



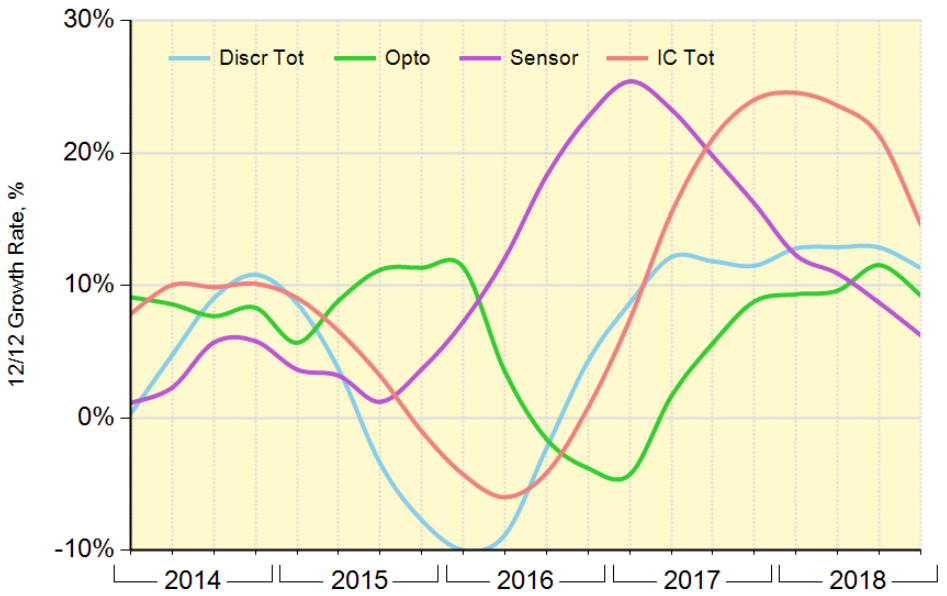
WW Market Share



World Billing Growth Rate



WW Growth Rate



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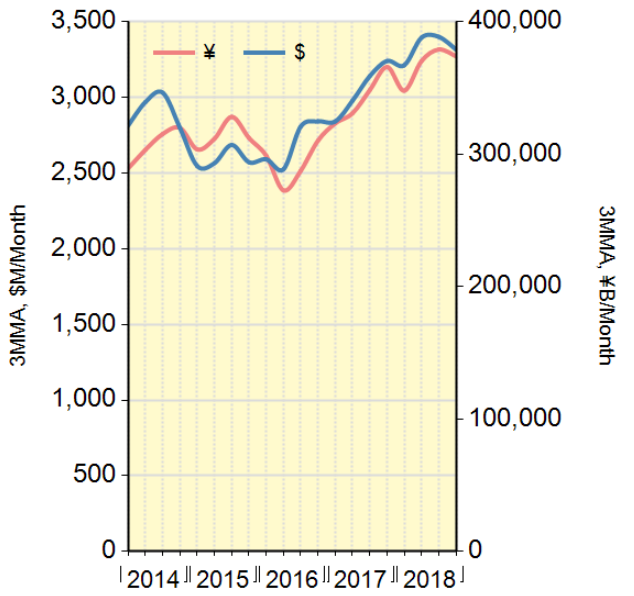
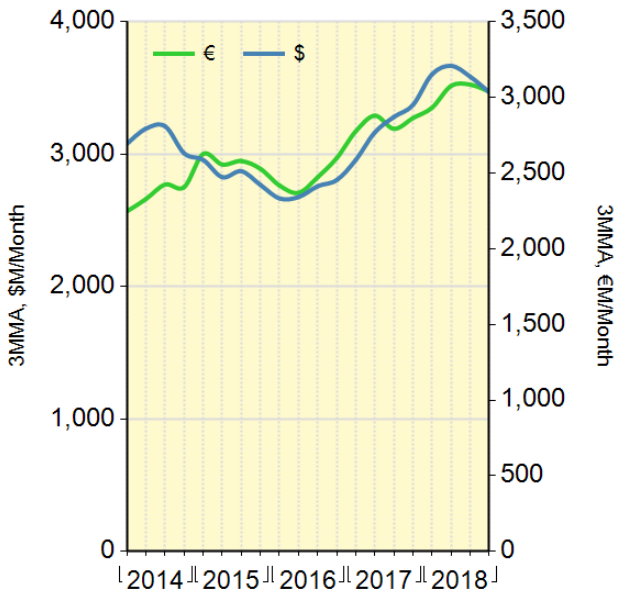
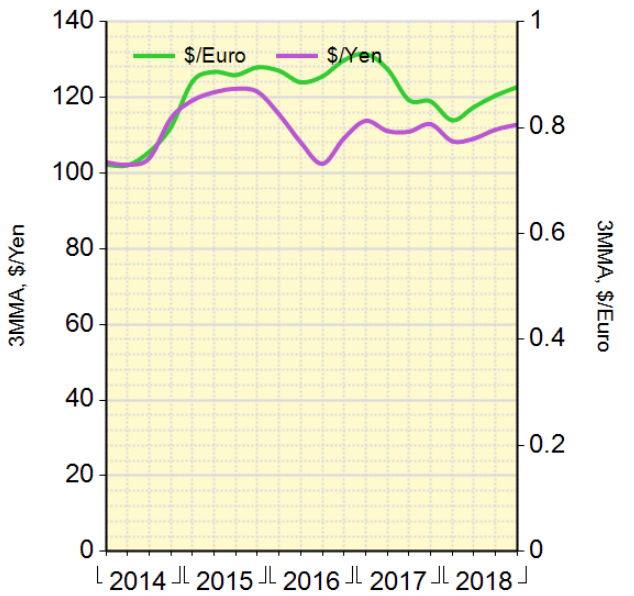
Japan Billing, $ and Yen



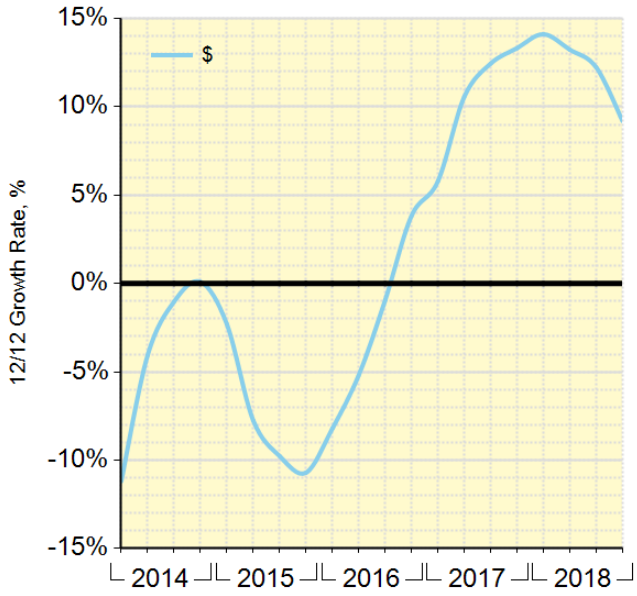
Europe Billing, $ and Euro



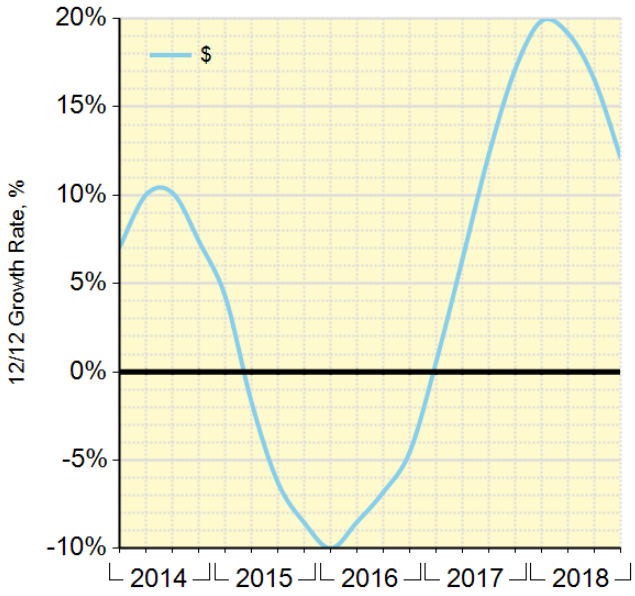
Yen, Euro Exchange Rates



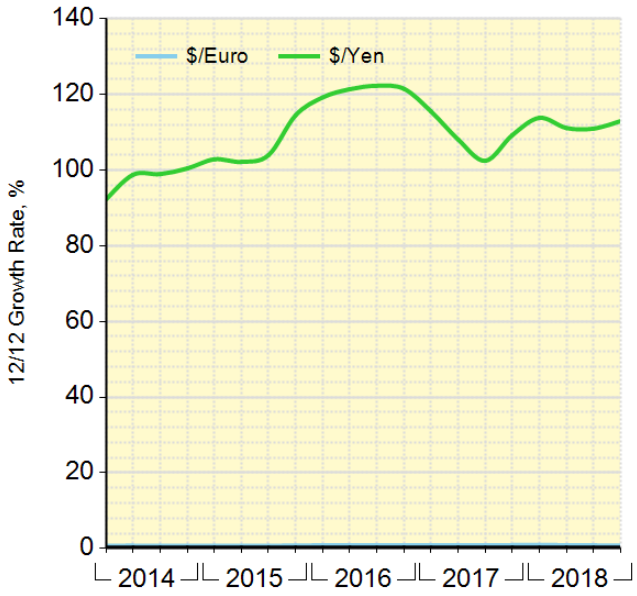
Japan Billing Growth Rate



Europe Billing Growth Rate



Exchange Rate Growth Rate



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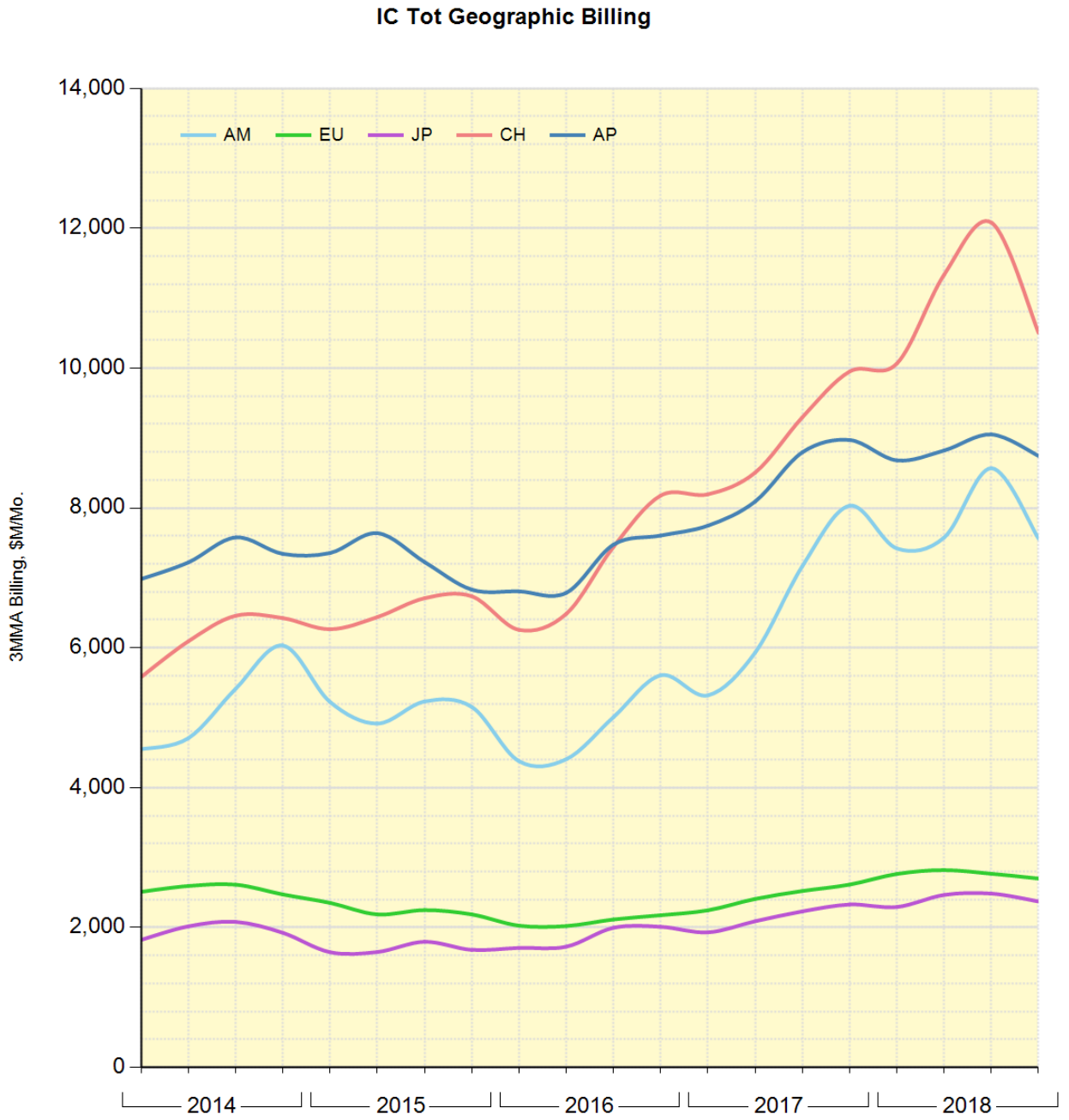

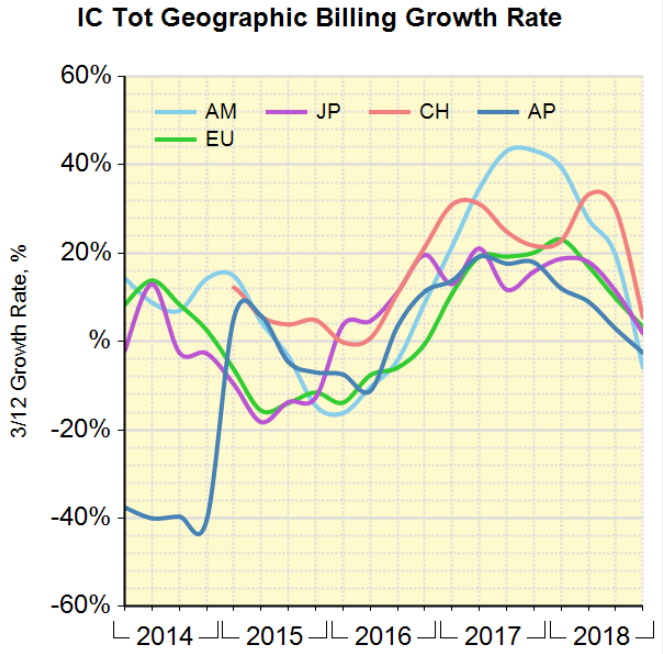

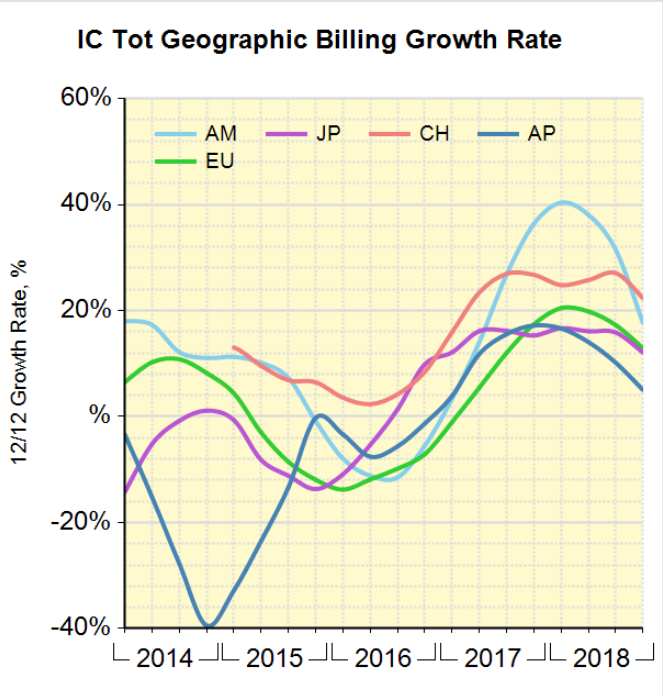

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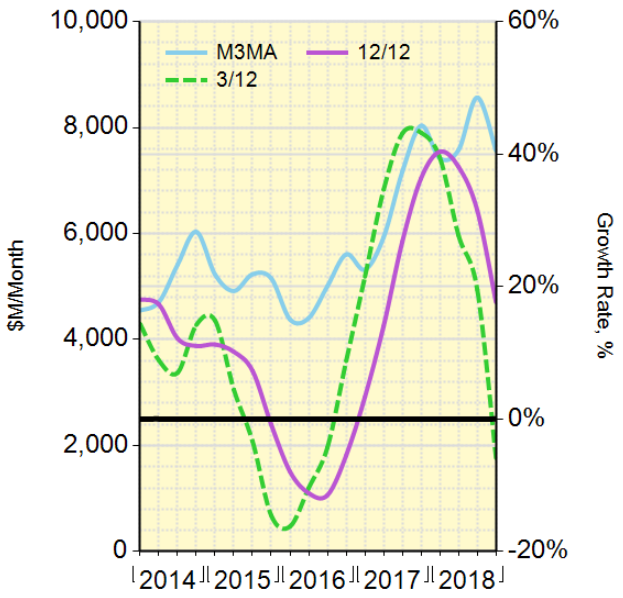
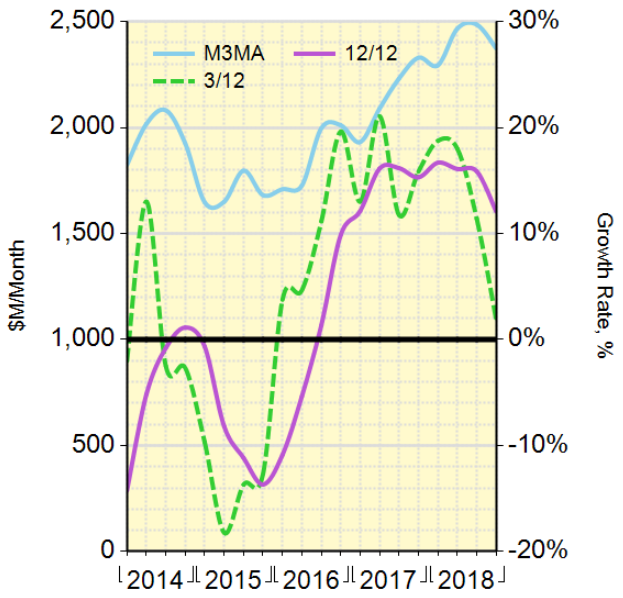
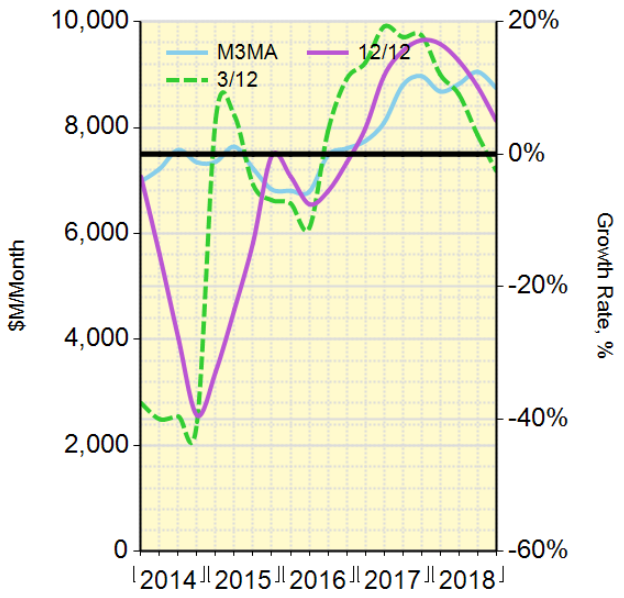
Americas Billing



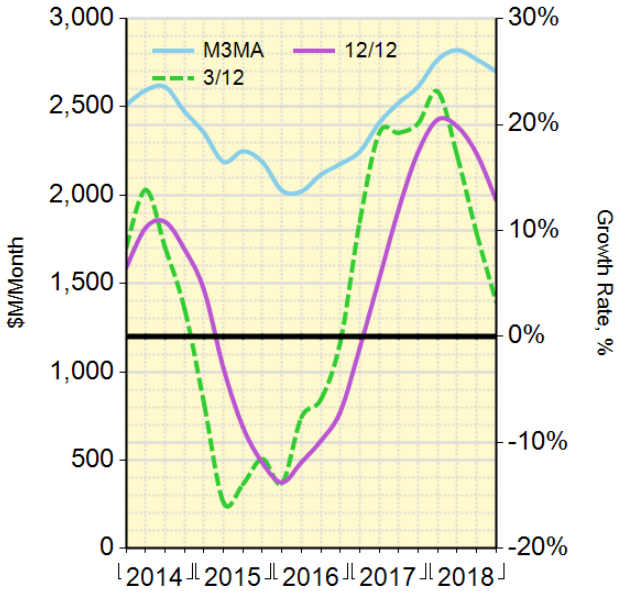
Japan Billing



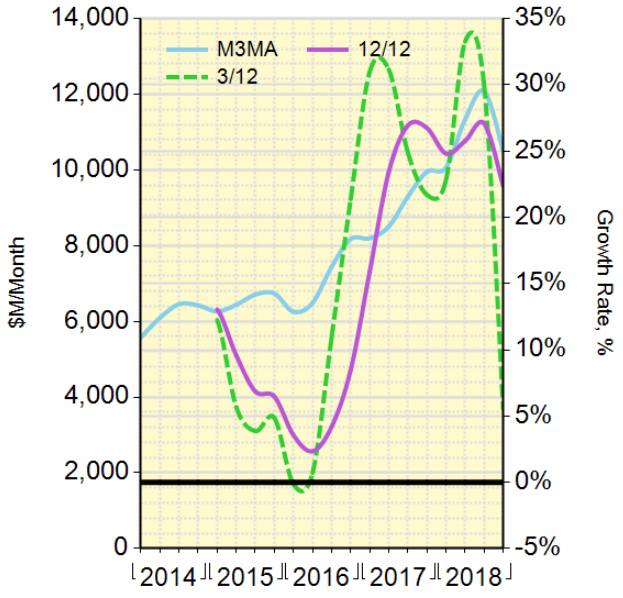
Asia Pacific/All Other Billing



Europe Billing



China Billing



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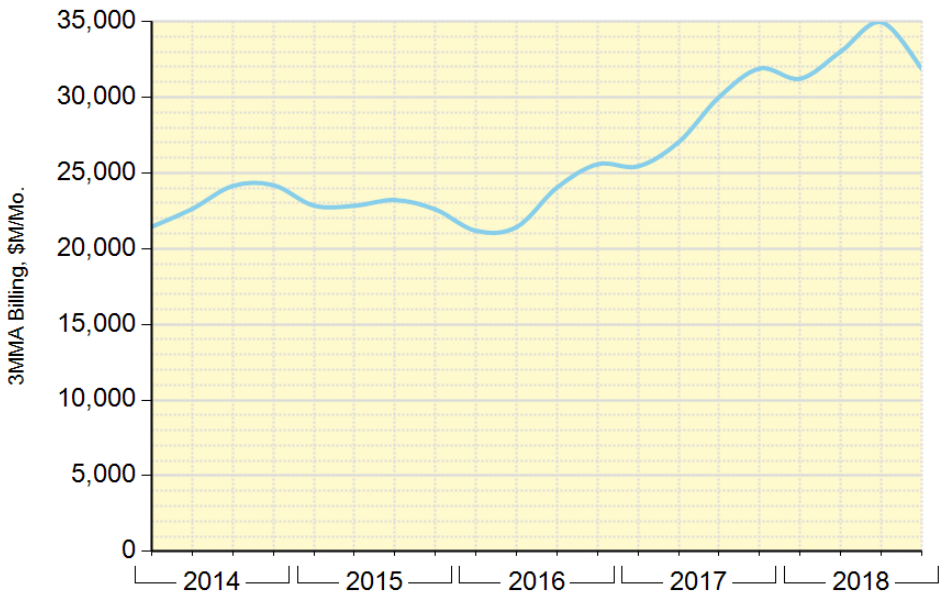
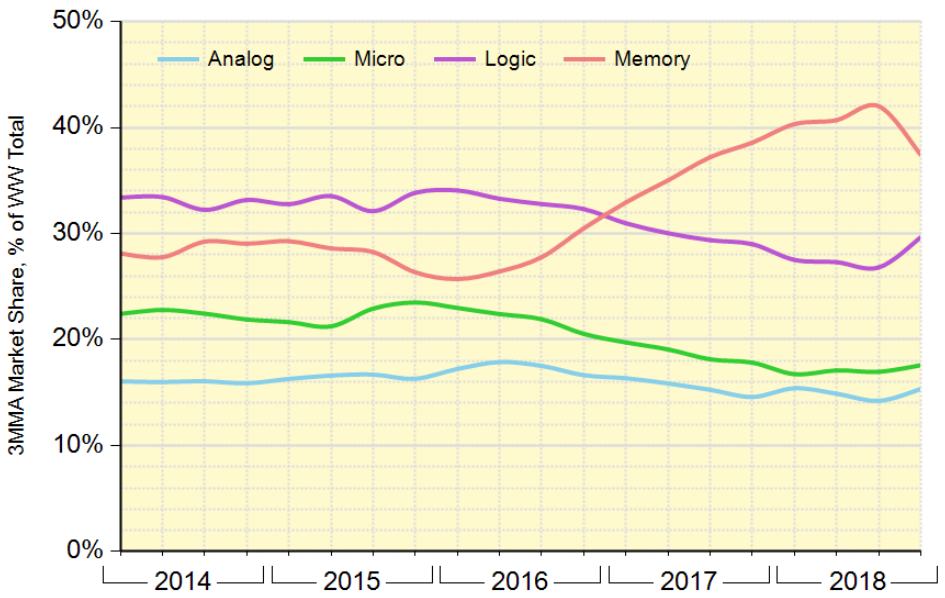
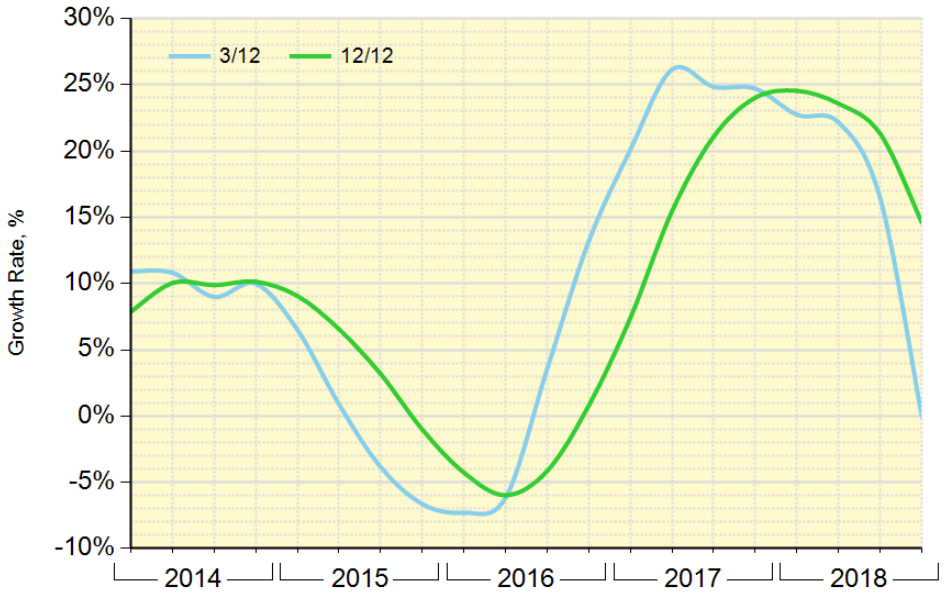
IC Tot World Billing



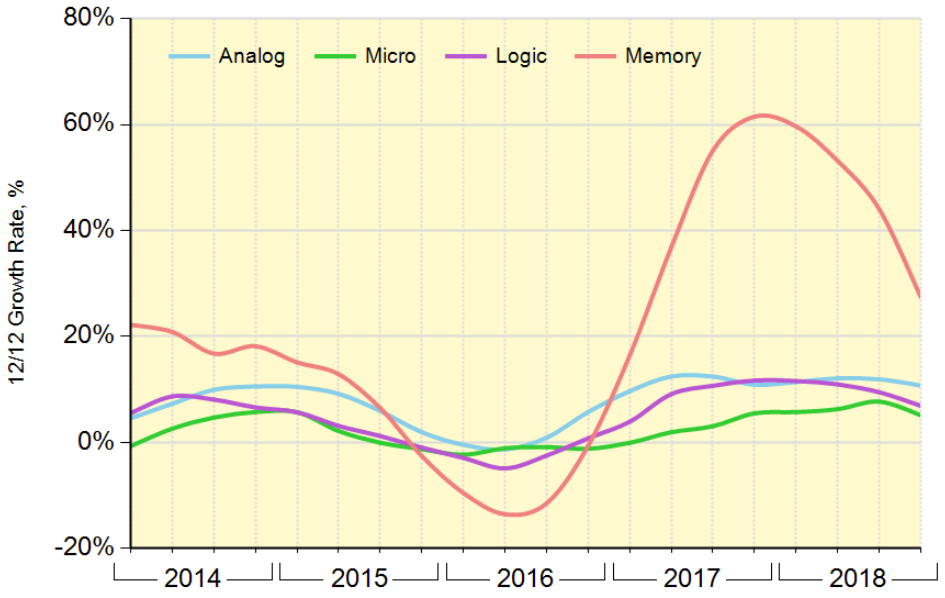
WW Market Share



World Billing Growth Rate



WW Growth Rate



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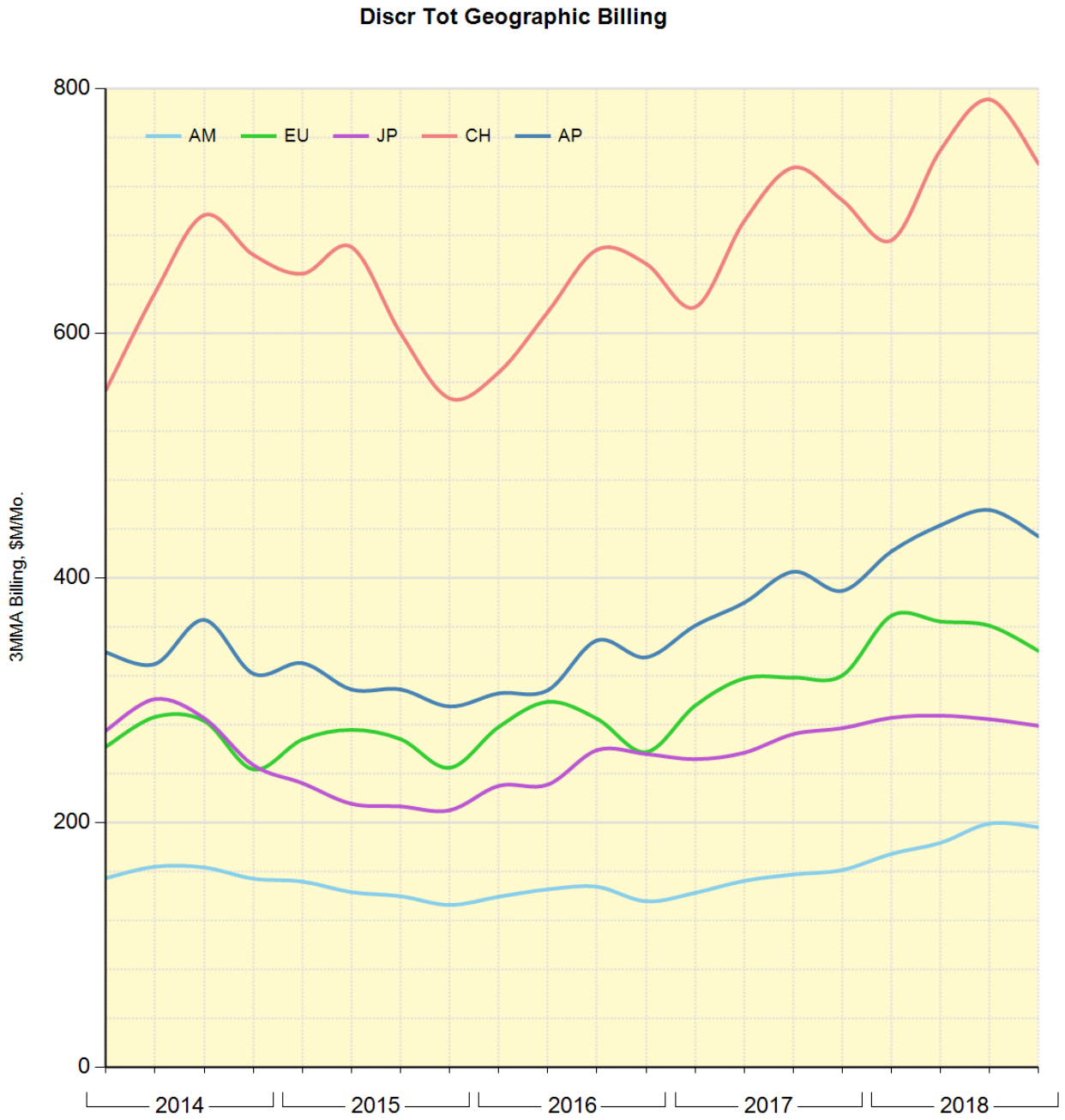

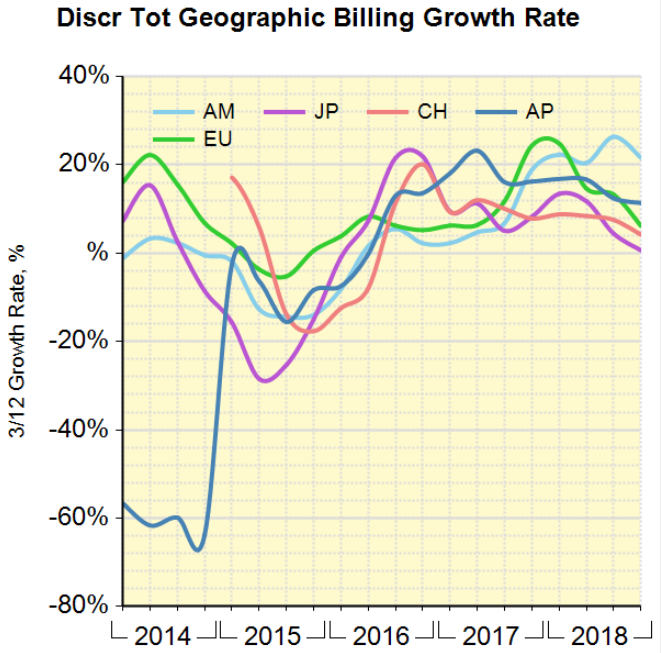

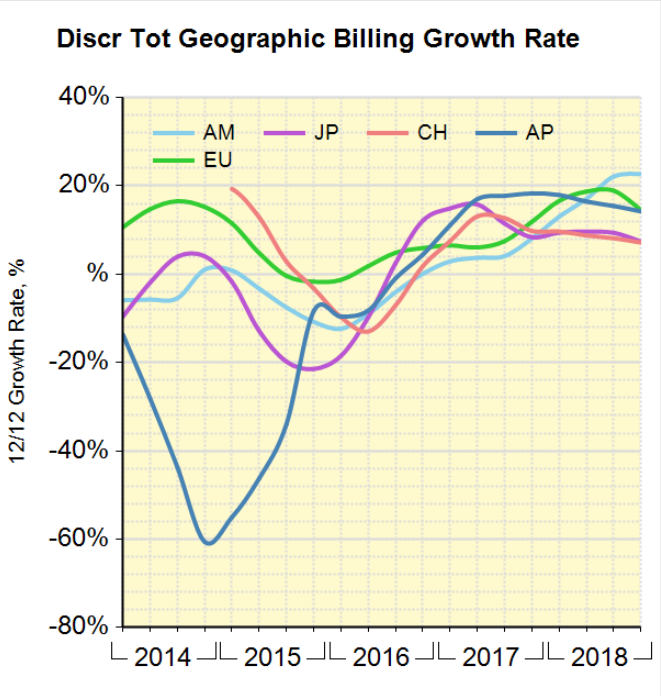

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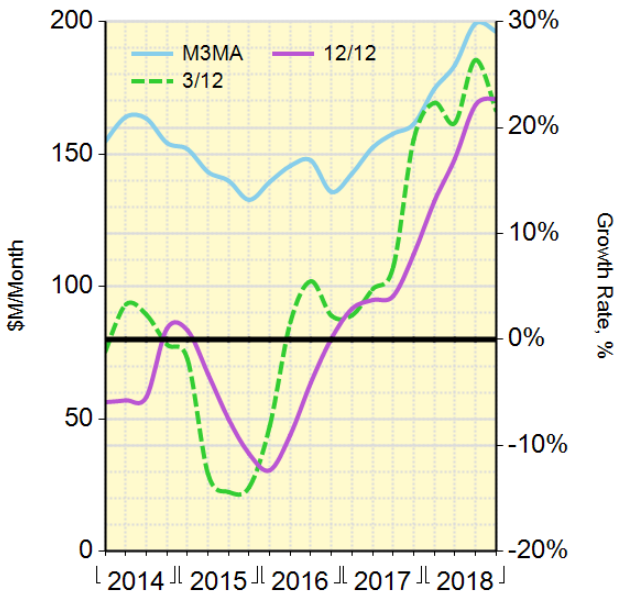
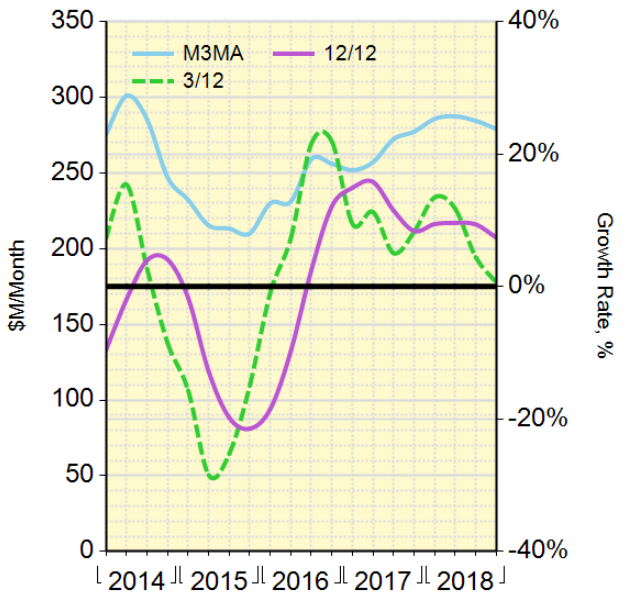
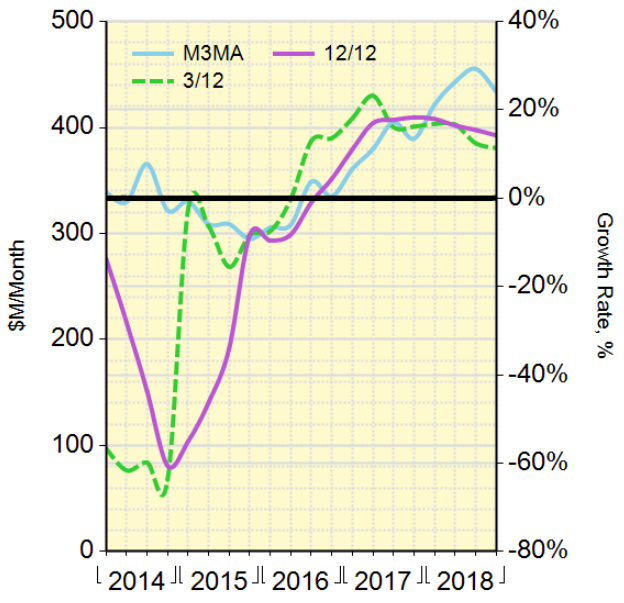
Americas Billing



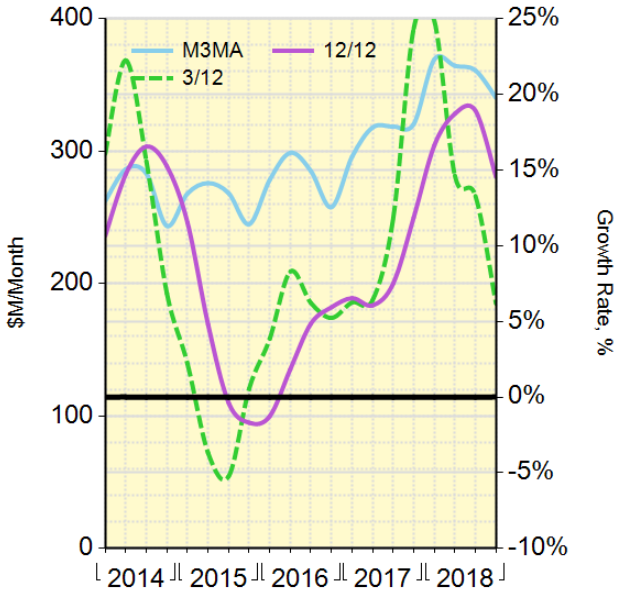
Japan Billing



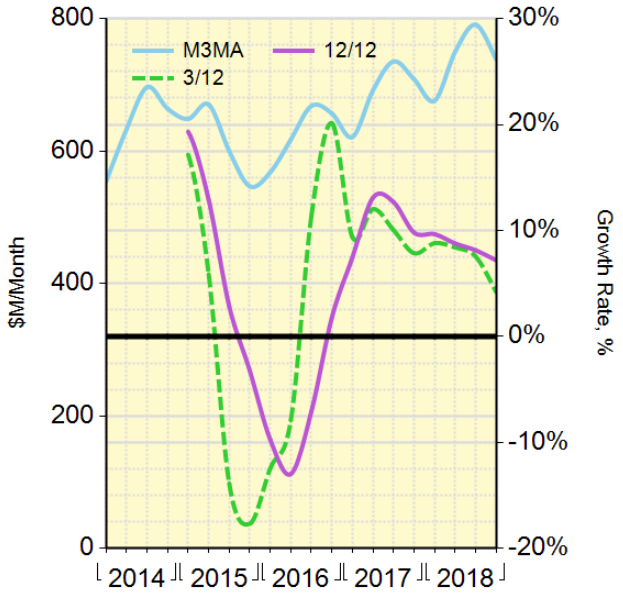
Asia Pacific/All Other Billing



Europe Billing



China Billing



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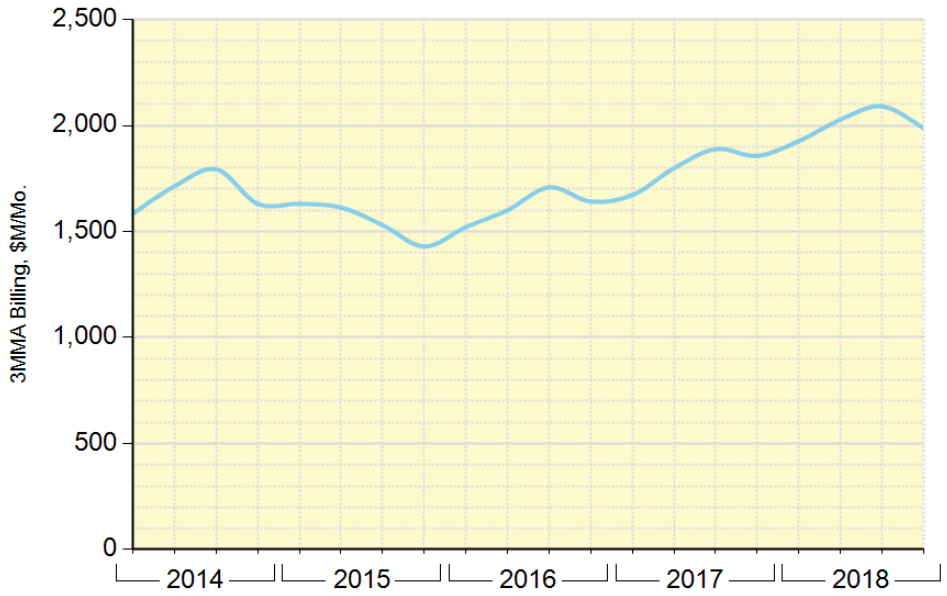
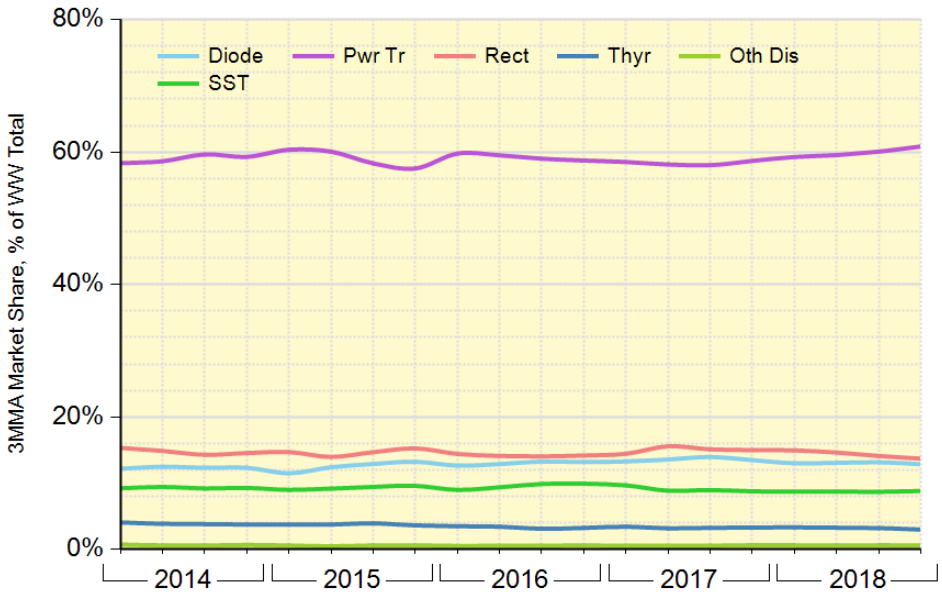
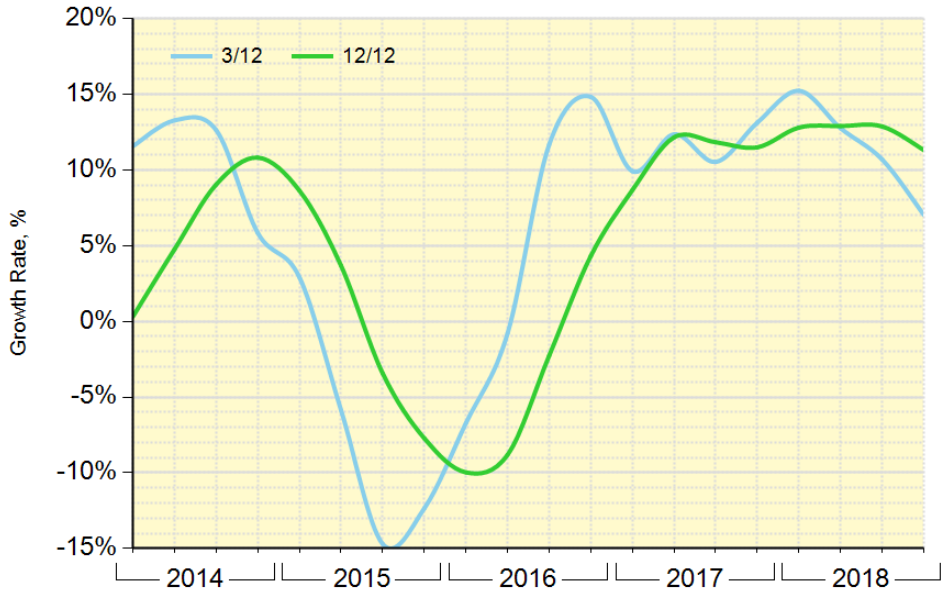
Discr Tot World Billing



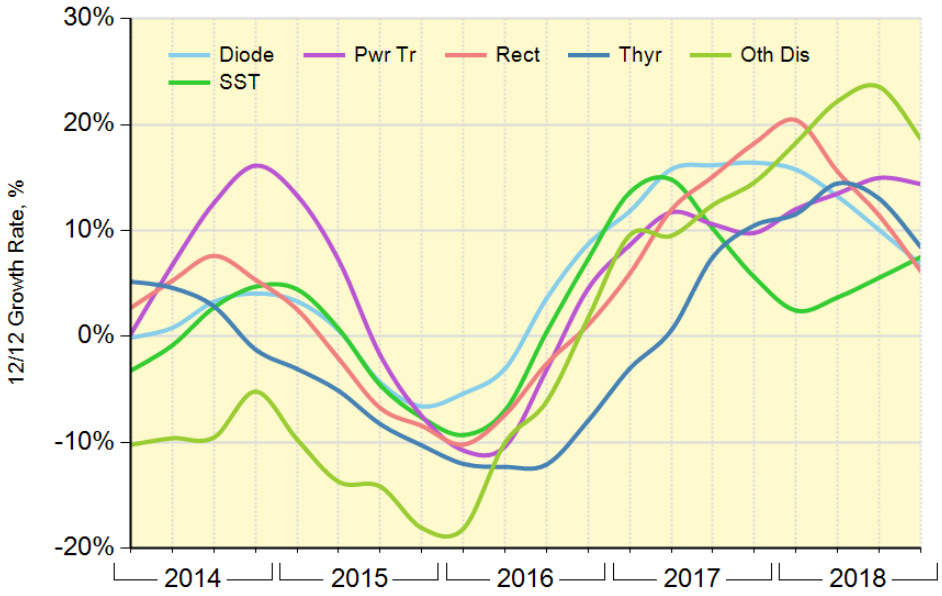
WW Market Share



World Billing Growth Rate



WW Growth Rate



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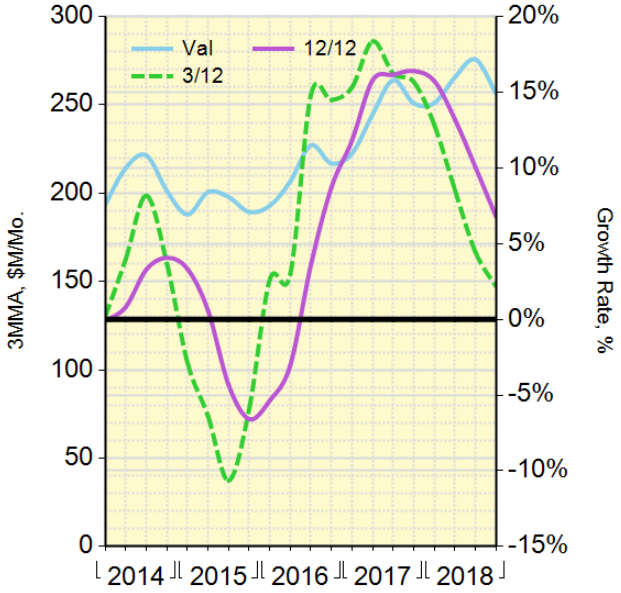
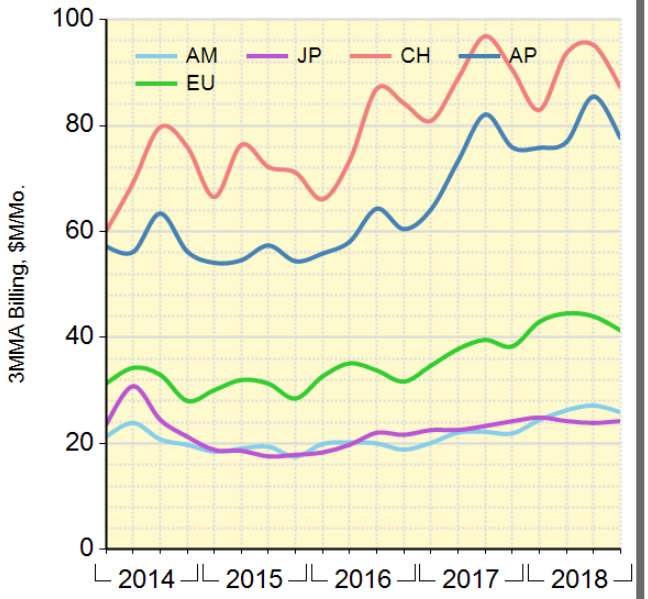
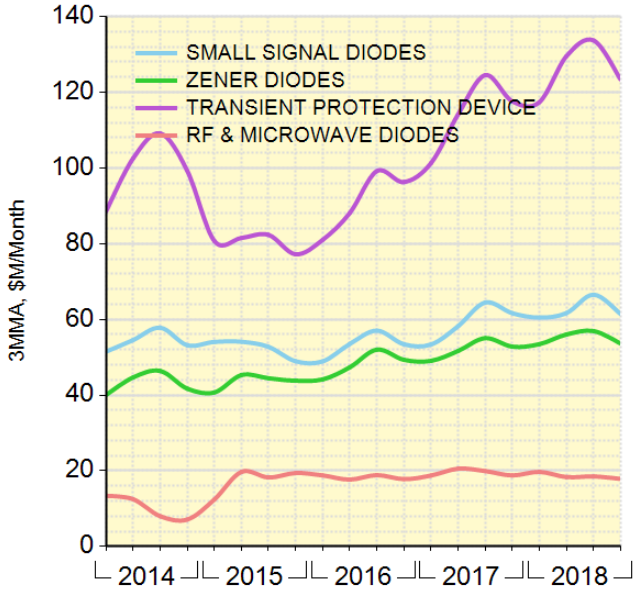
Diode Value



Diode Geographic Billing



Product Mix - Value



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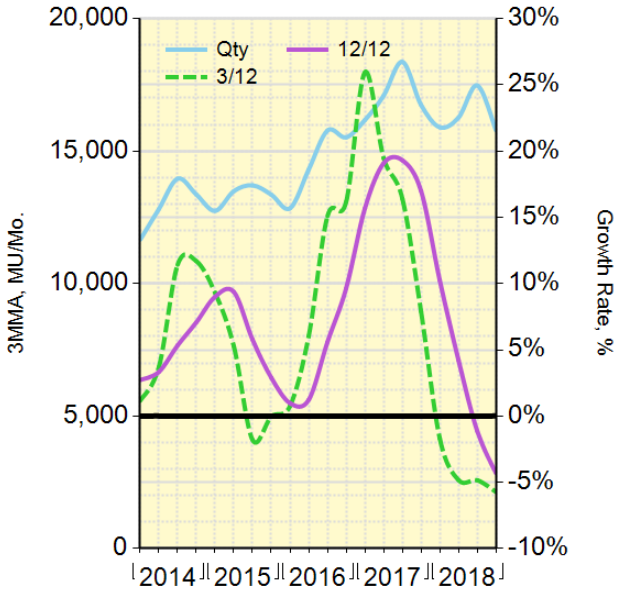

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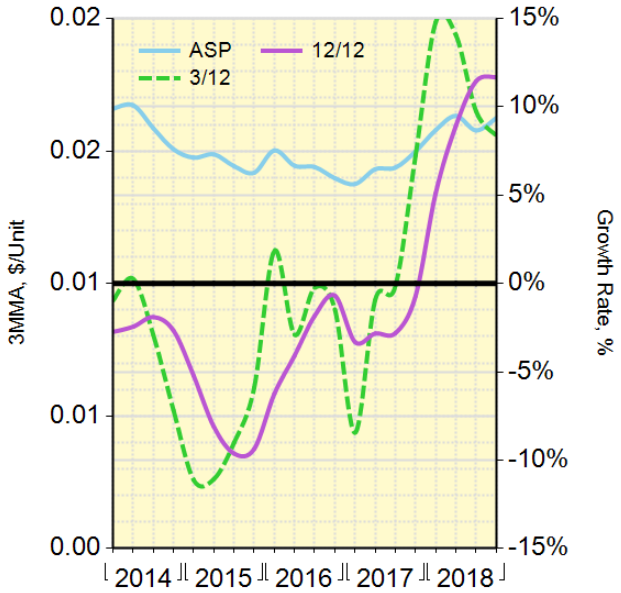
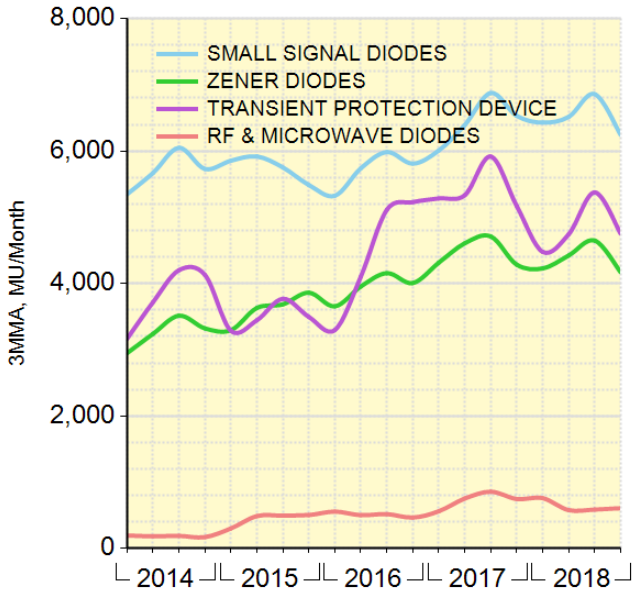


Product Mix - Quantity



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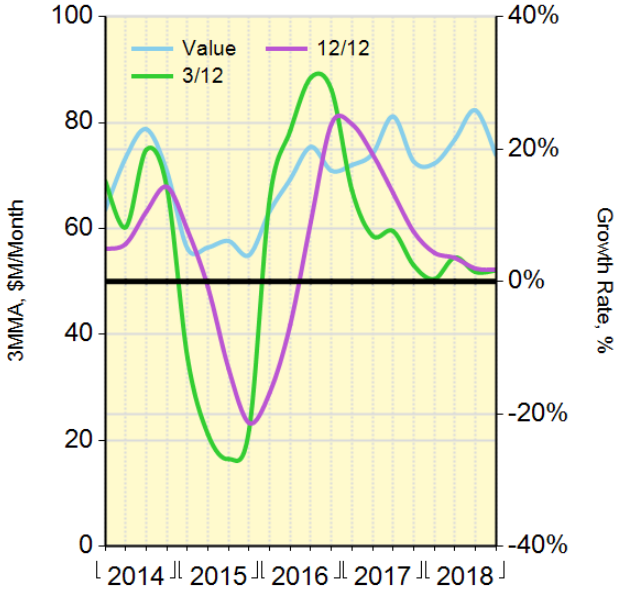
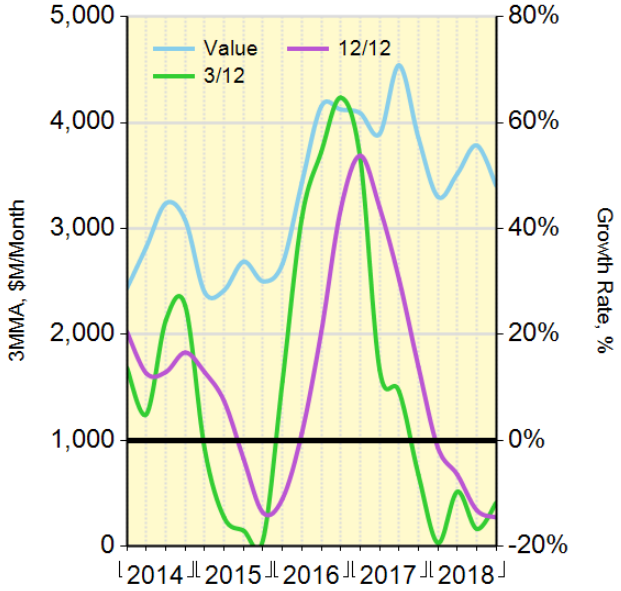
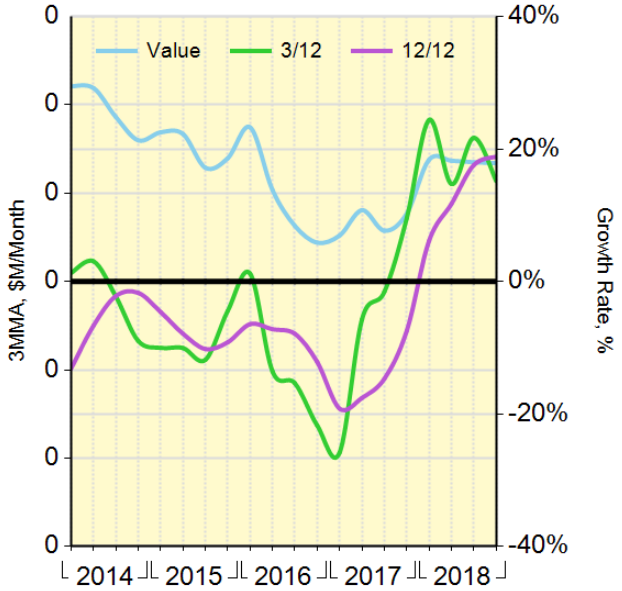
AVALANCHE BREAKDOWN DIODES Value



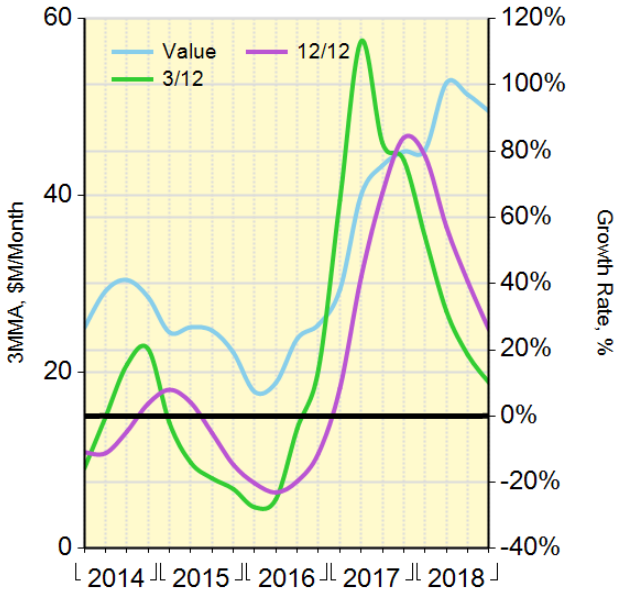
AVALANCHE BREAKDOWN DIODES Quantity



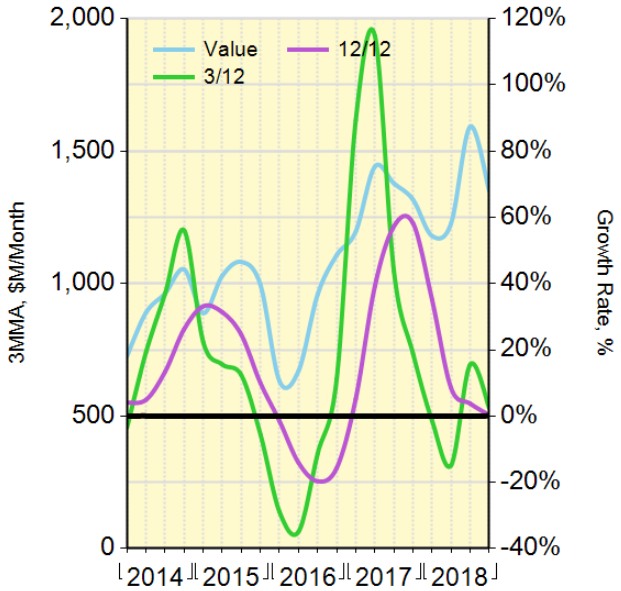
AVALANCHE BREAKDOWN DIODES ASP



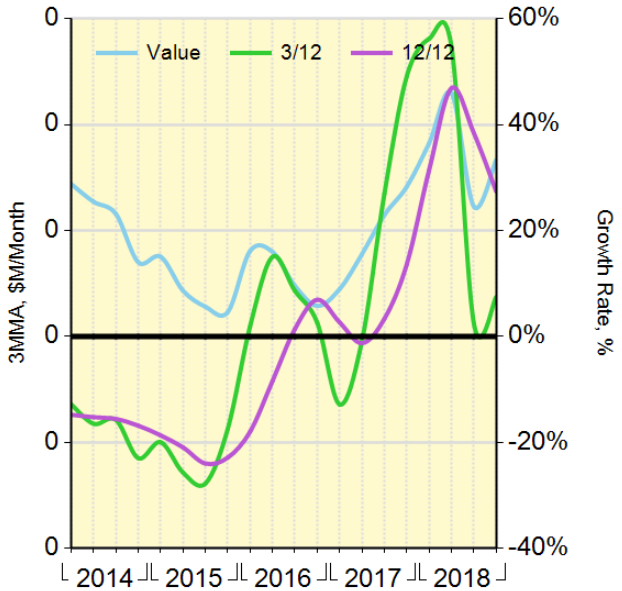
THYRISTOR SURGE SUPPRESSOR Value



THYRISTOR SURGE SUPPRESSOR Quantity



THYRISTOR SURGE SUPPRESSOR ASP



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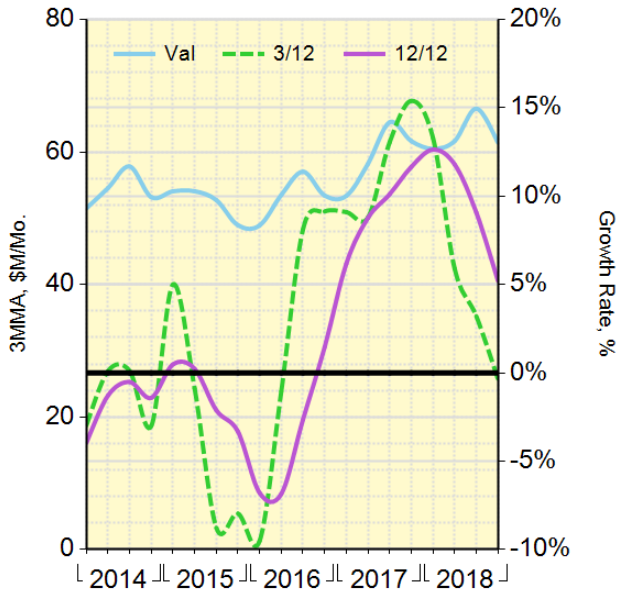
SMALL SIGNAL DIODES Value



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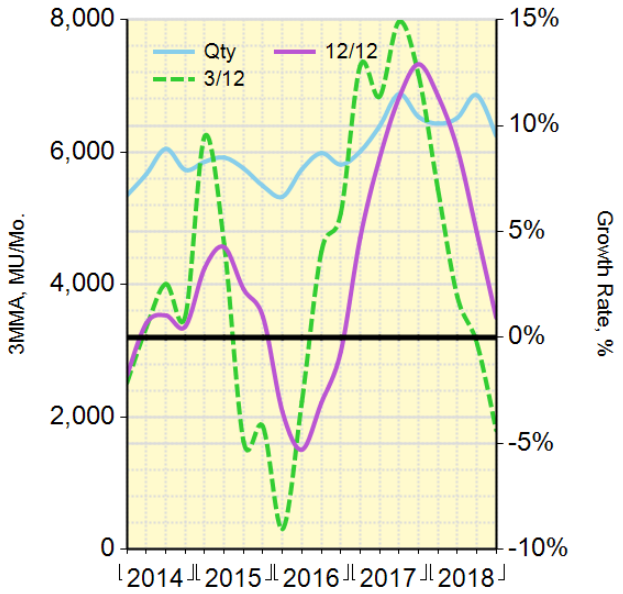

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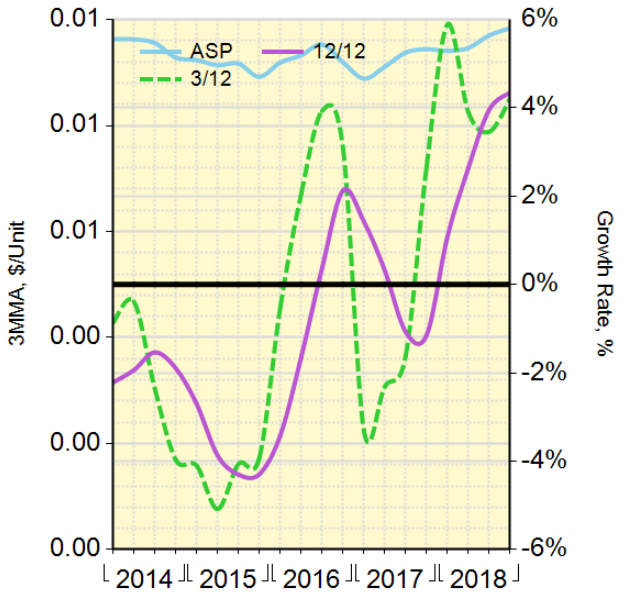

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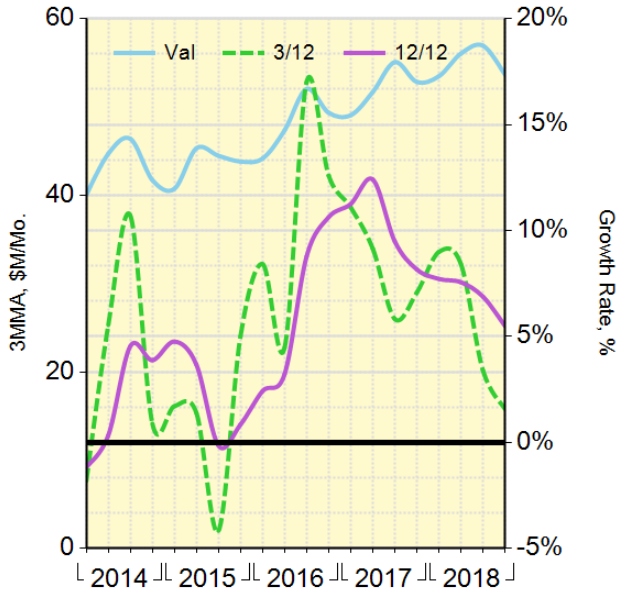

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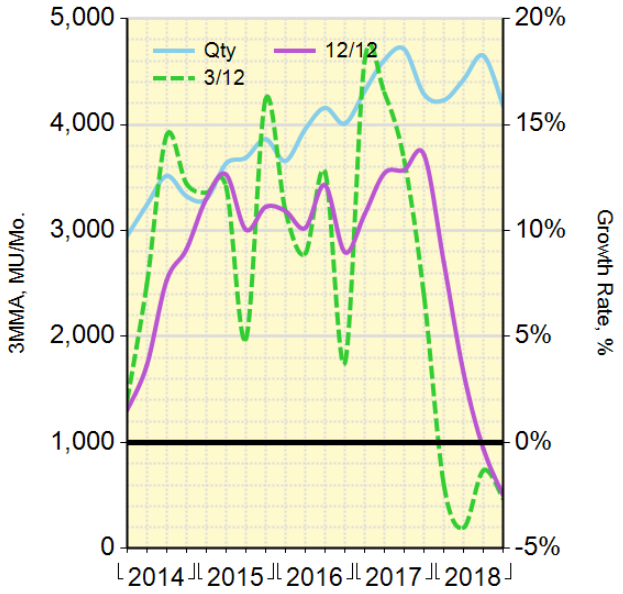

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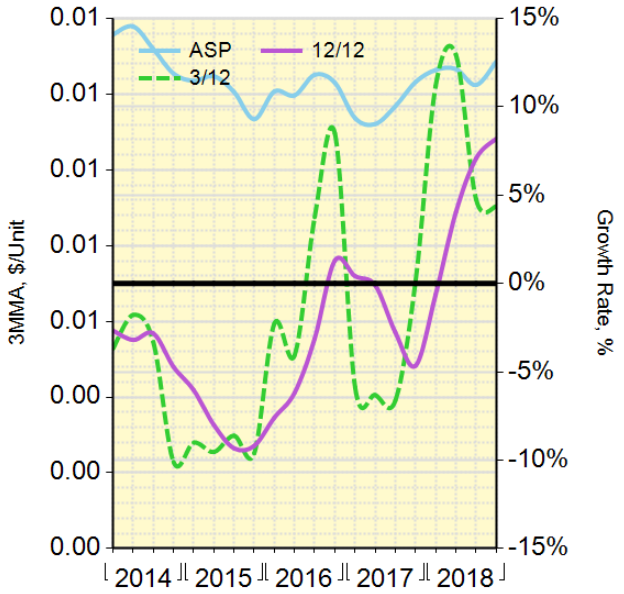

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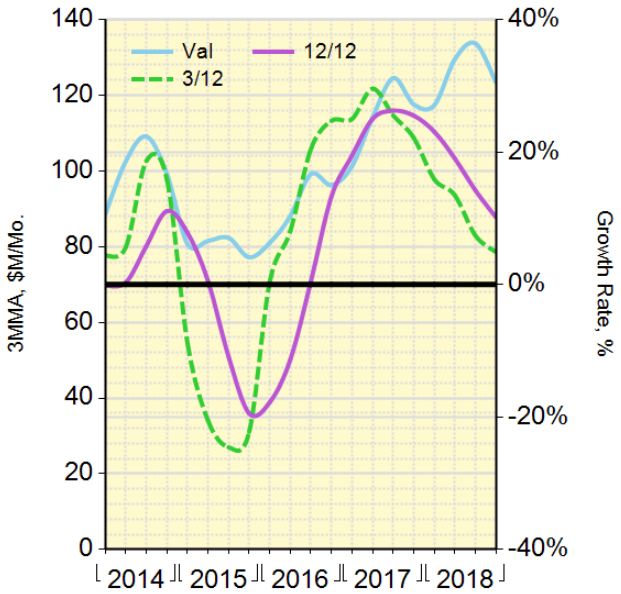
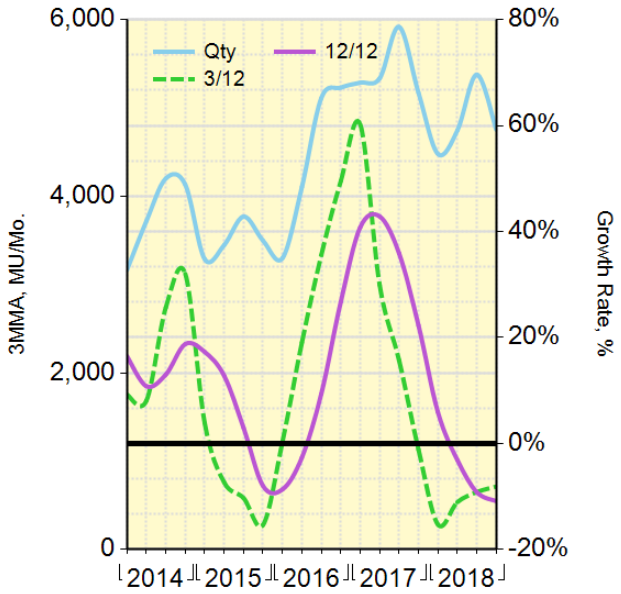
TRANSIENT PROTECTION DEVICE Value



TRANSIENT PROTECTION DEVICE Quantity



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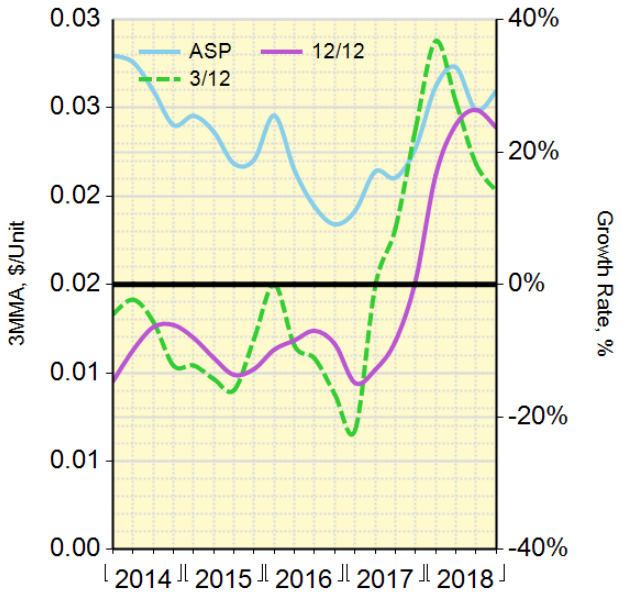
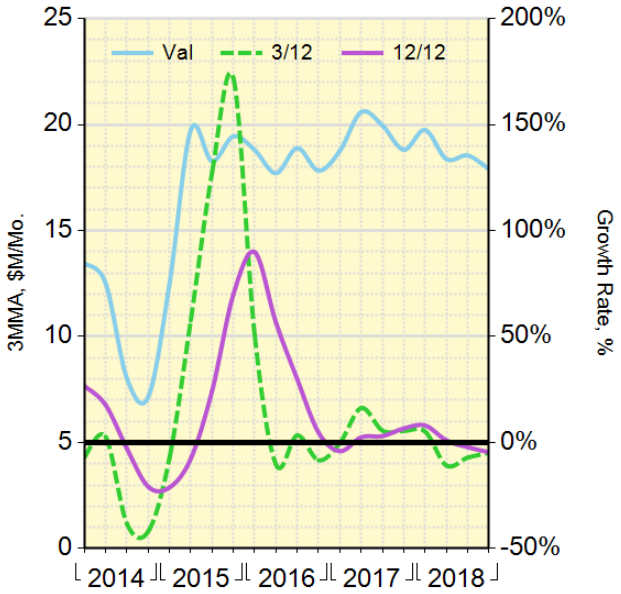


RF & MICROWAVE DIODES Value



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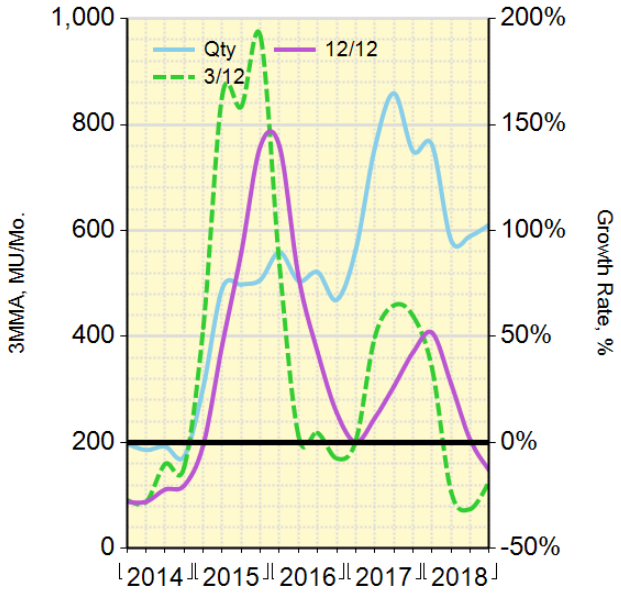

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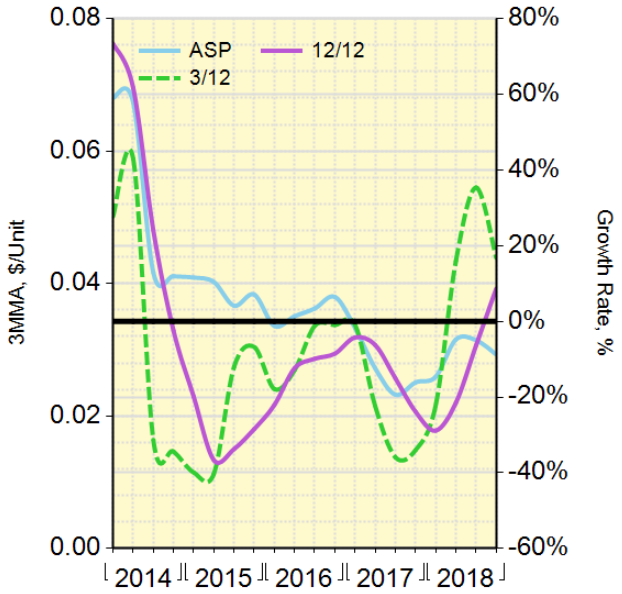

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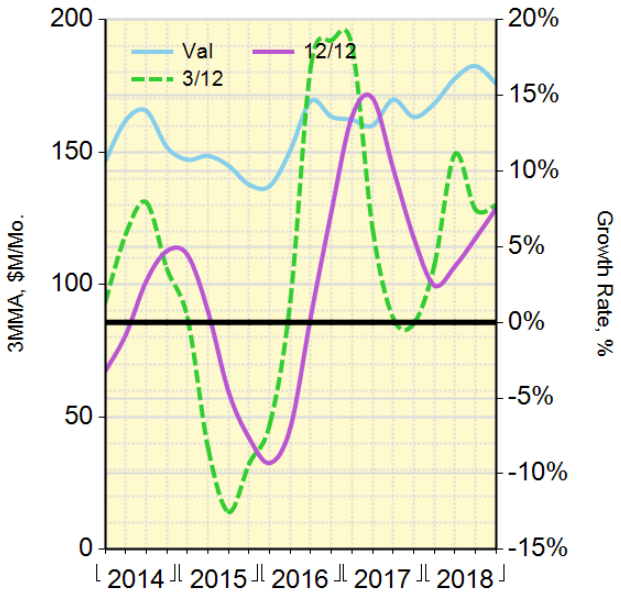
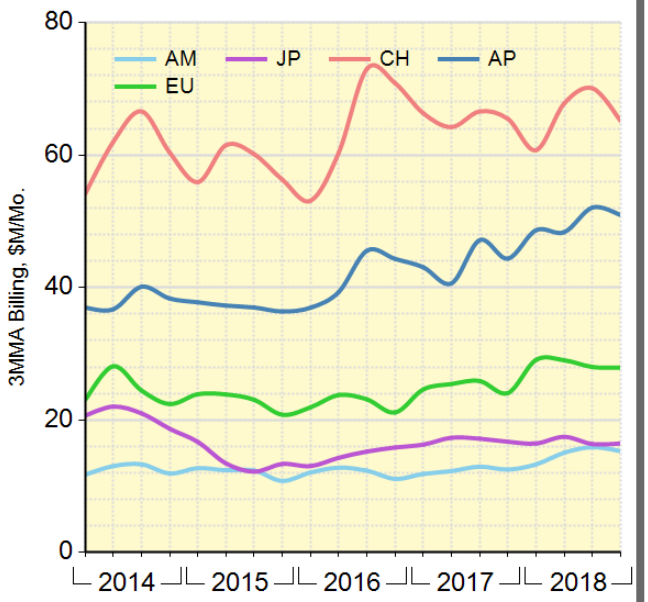
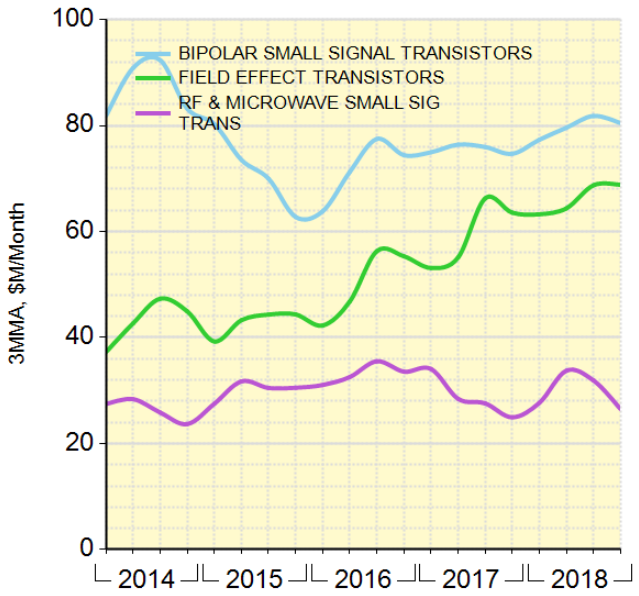
SST Value



SST Geographic Billing



Product Mix - Value



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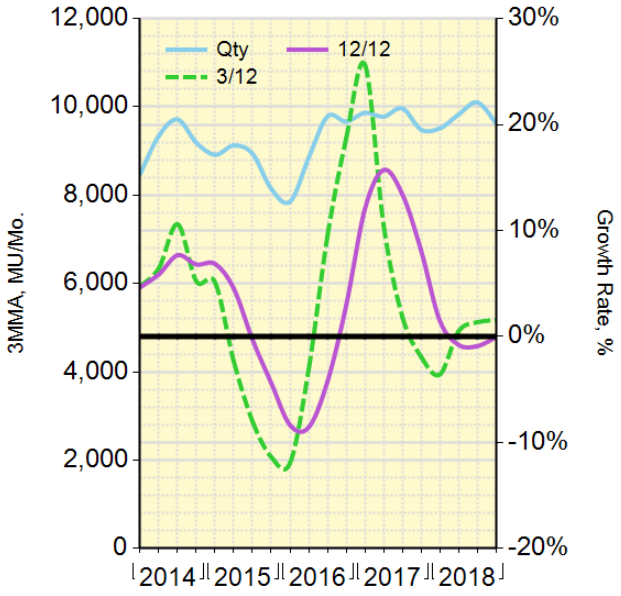

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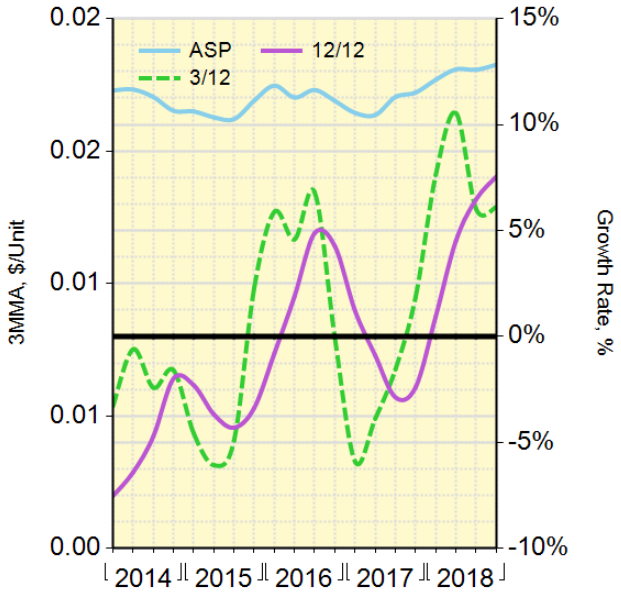
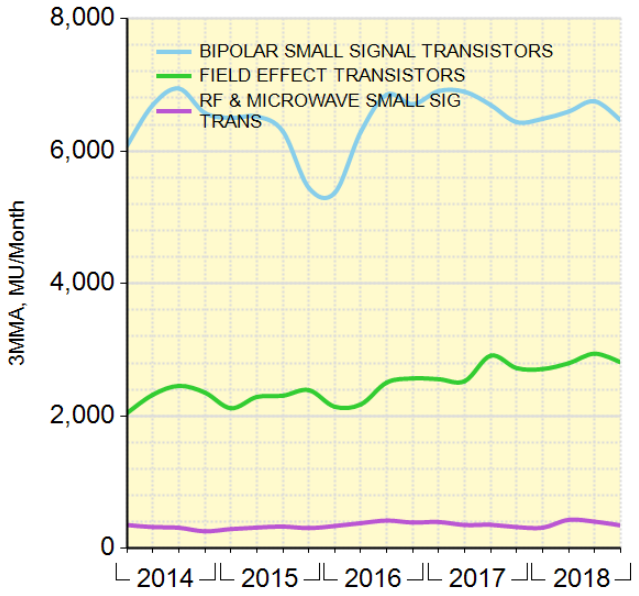


Product Mix - Quantity



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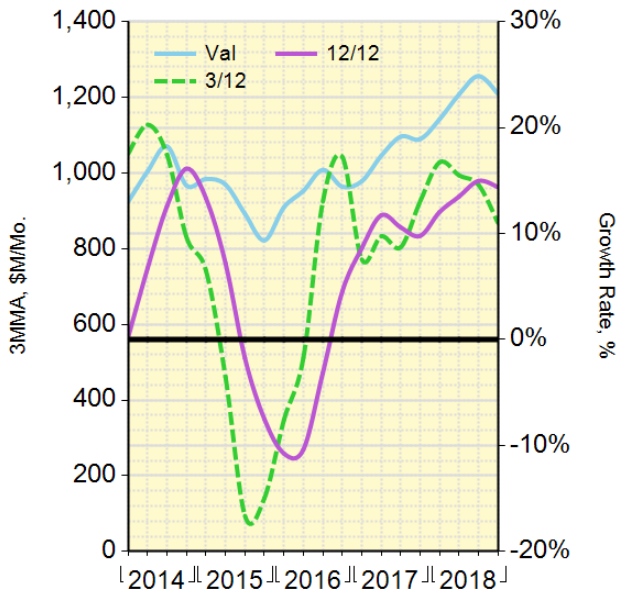
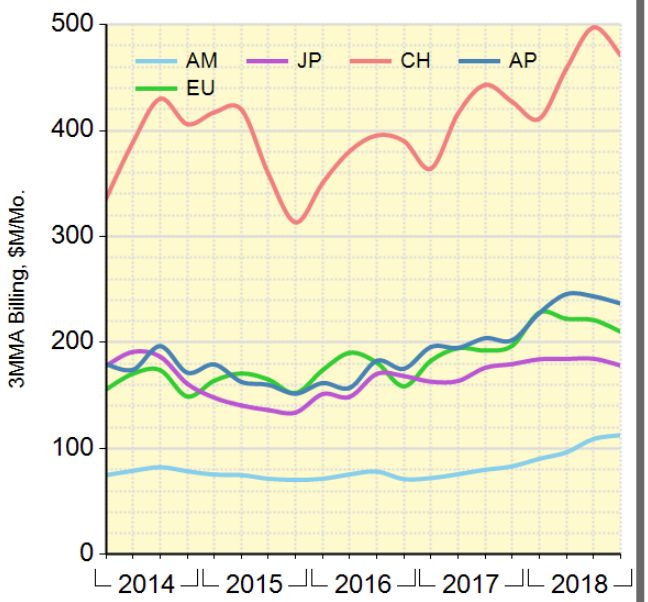
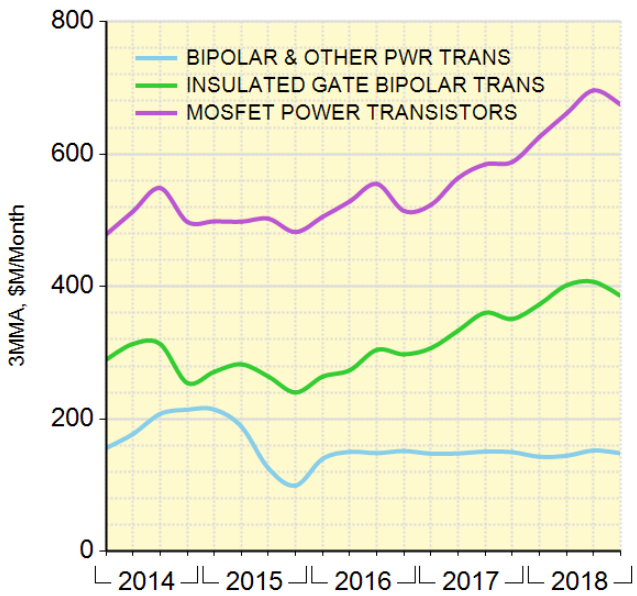
Pwr Tr Value



Pwr Tr Geographic Billing



Product Mix - Value



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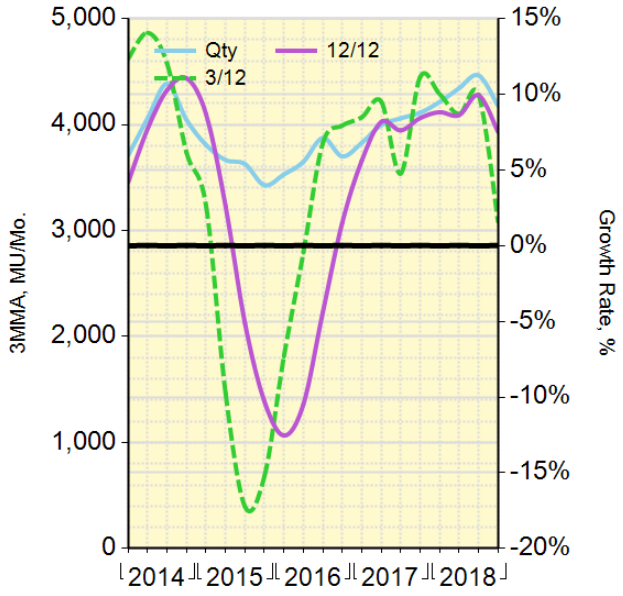

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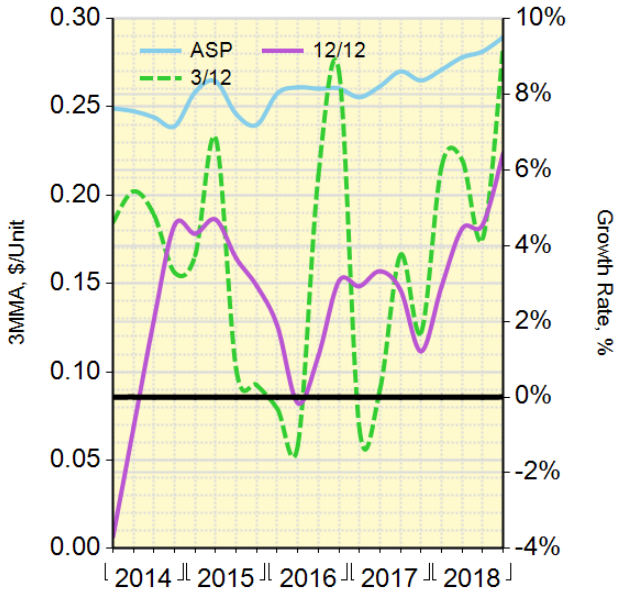
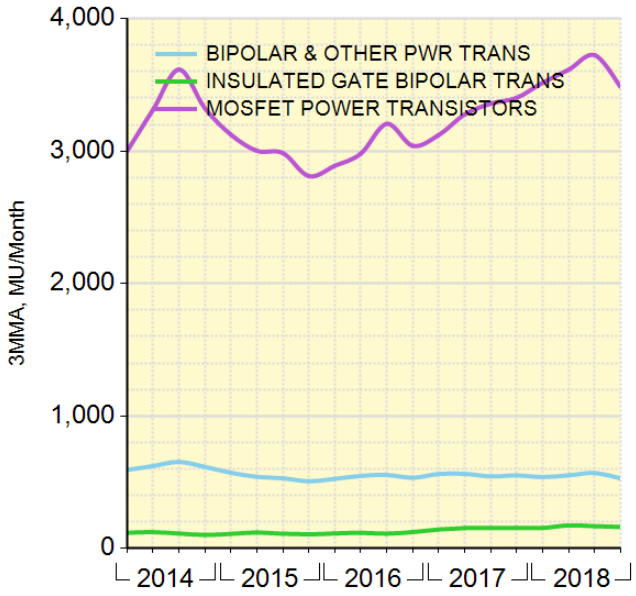


Product Mix - Quantity



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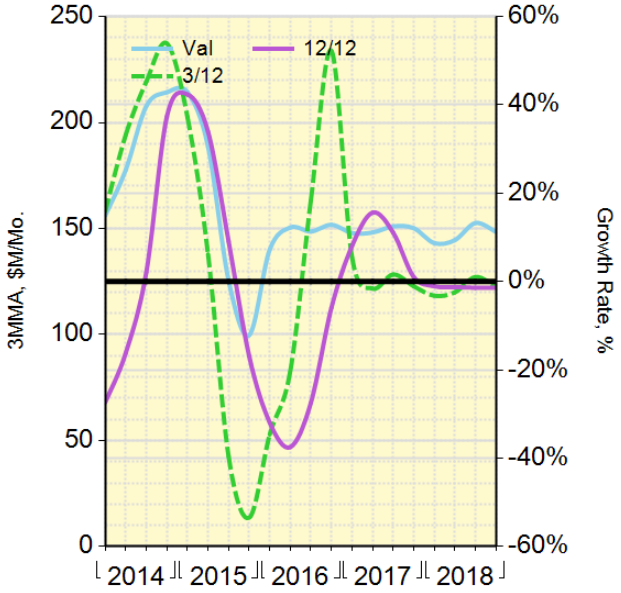
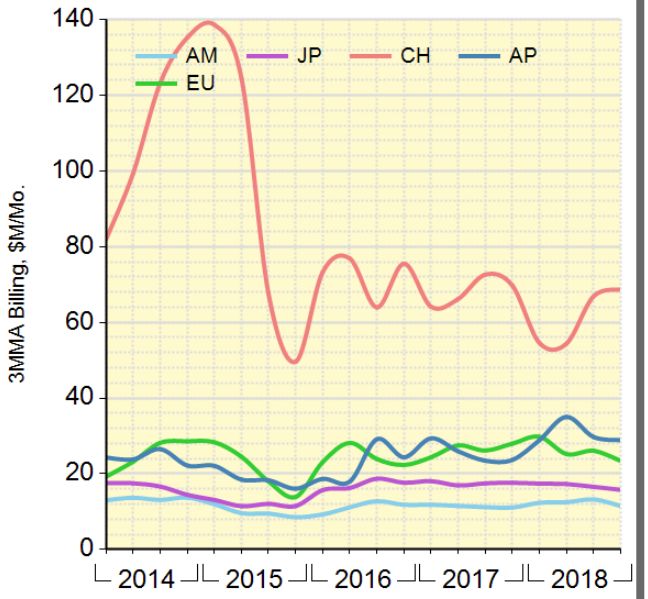
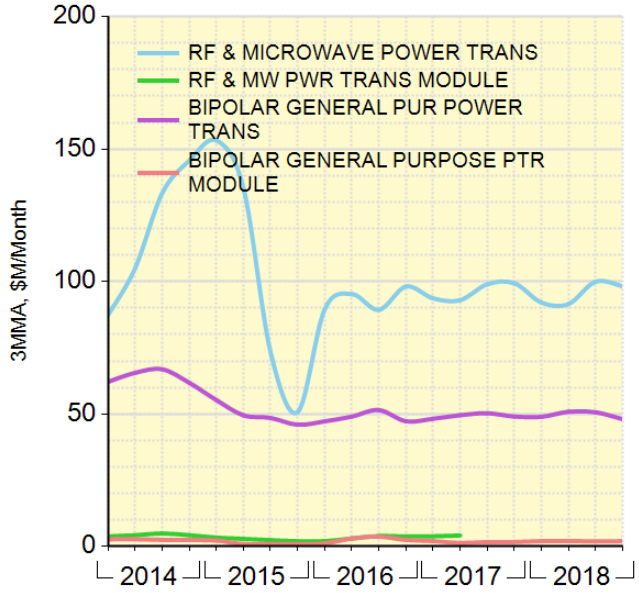
Bipol PwrTr Value



Bipol PwrTr Geographic Billing



Product Mix - Value



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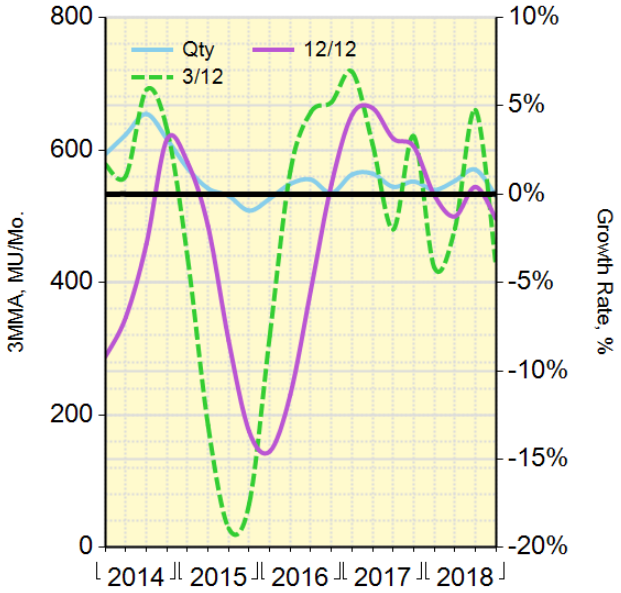

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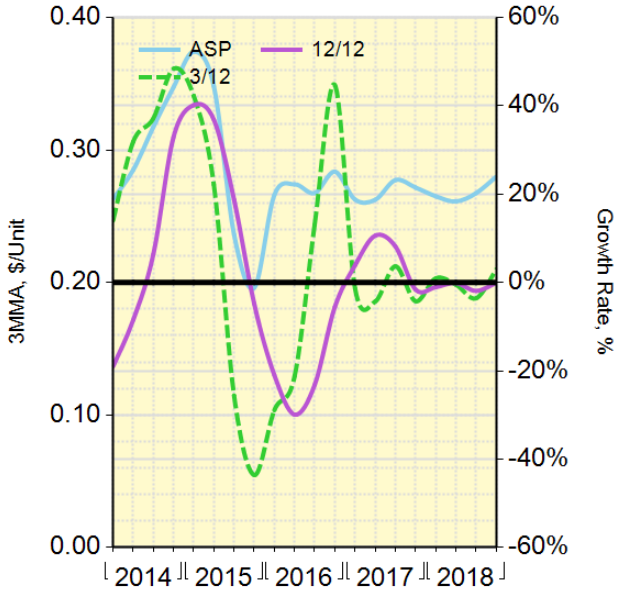

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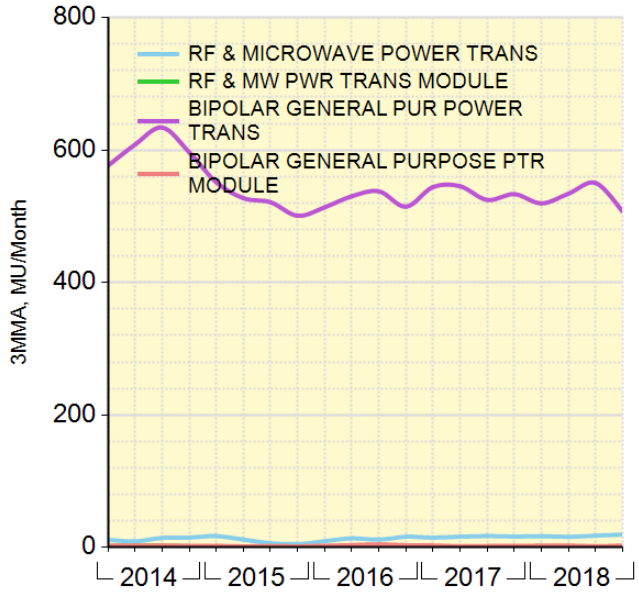

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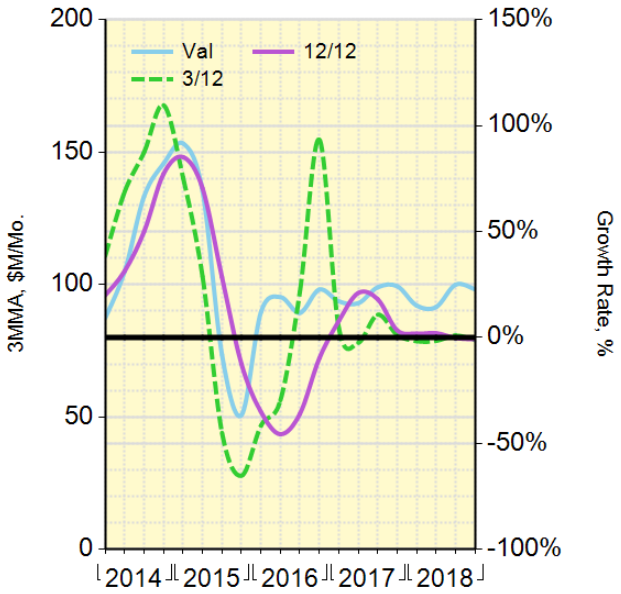
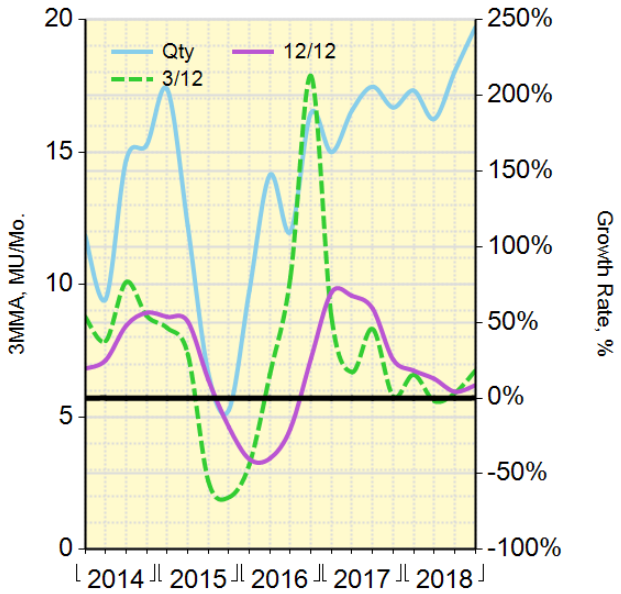
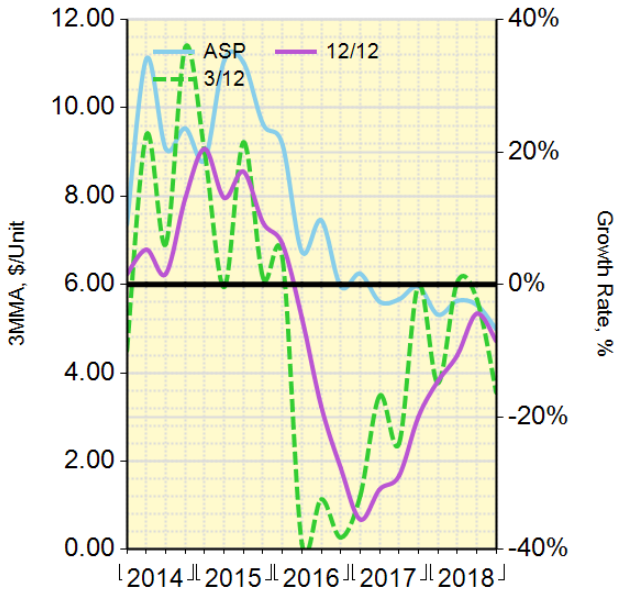
RF & MICROWAVE POWER TRANS Value



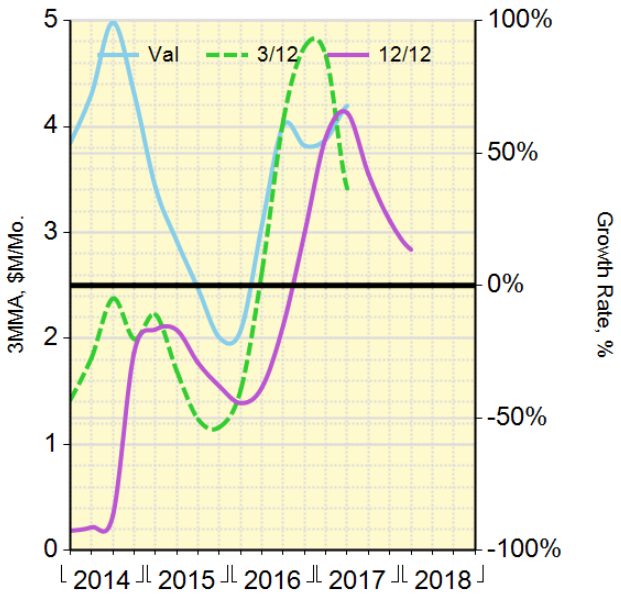
RF & MICROWAVE POWER TRANS Quantity



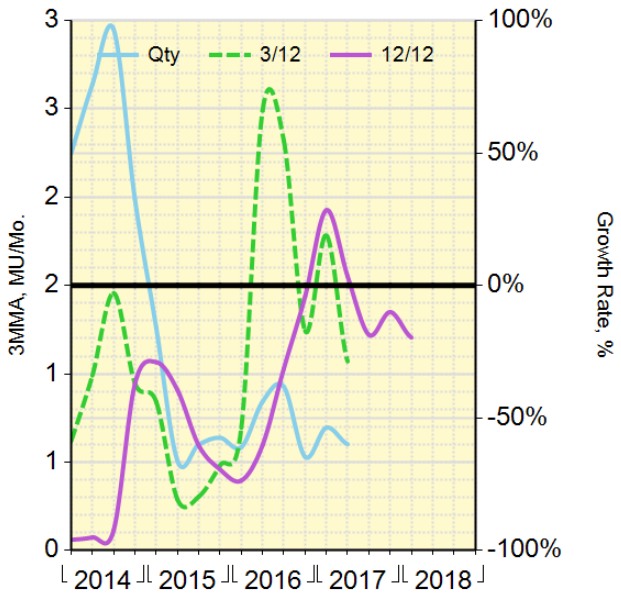
RF & MICROWAVE POWER TRANS ASP



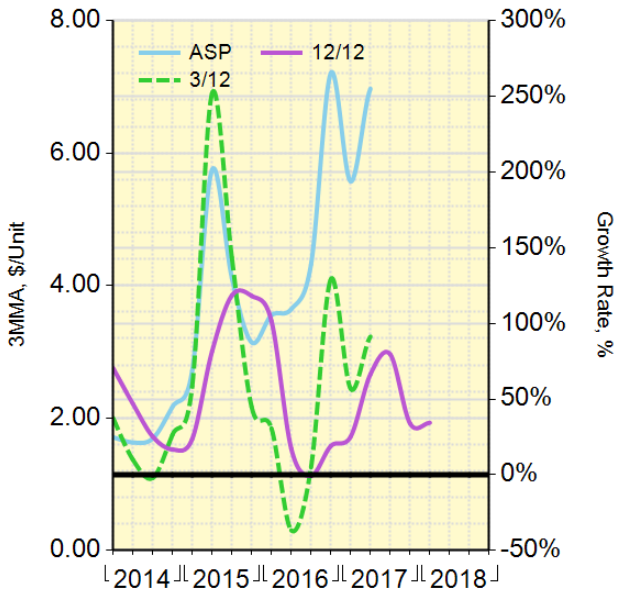
RF & MW PWR TRANS MODULE Value



RF & MW PWR TRANS MODULE Quantity



RF & MW PWR TRANS MODULE ASP



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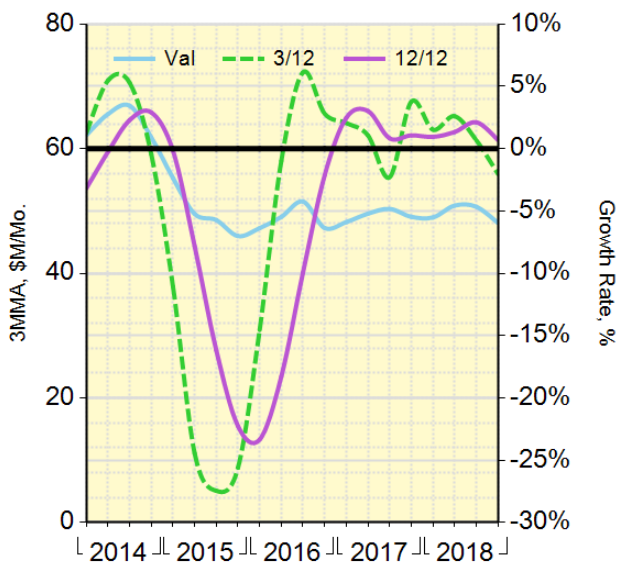
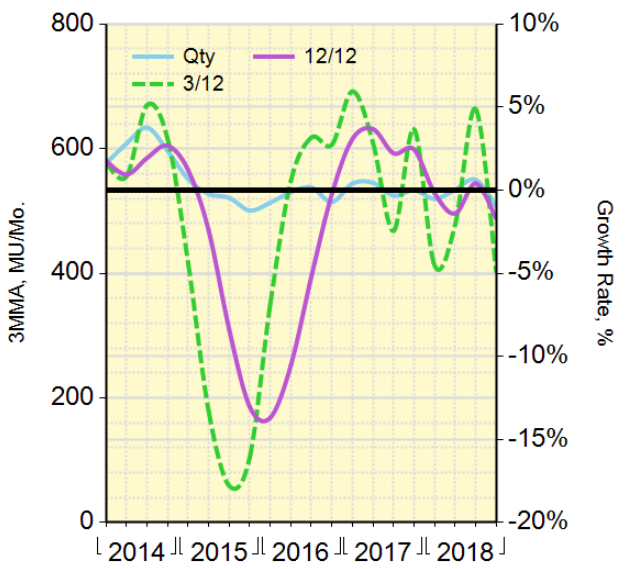
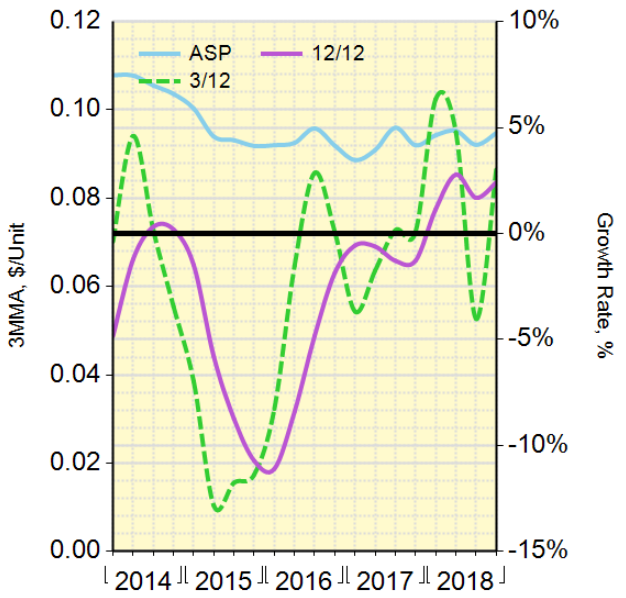
BIPOLAR GENERAL PUR POWER TRANS Value



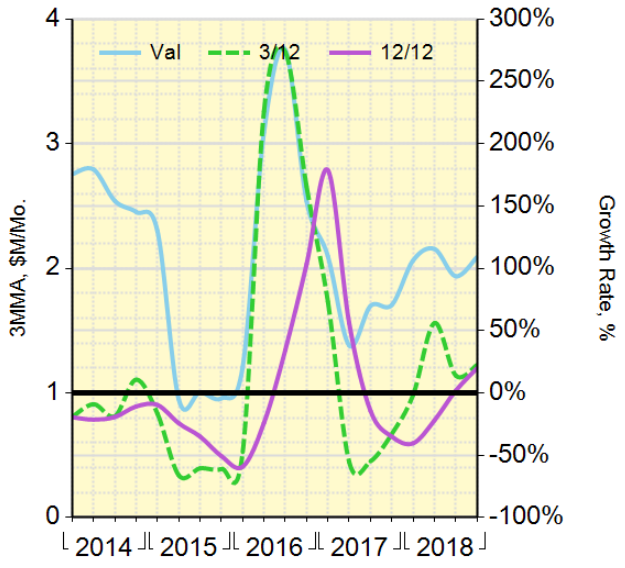
BIPOLAR GENERAL PUR POWER TRANS Quantity



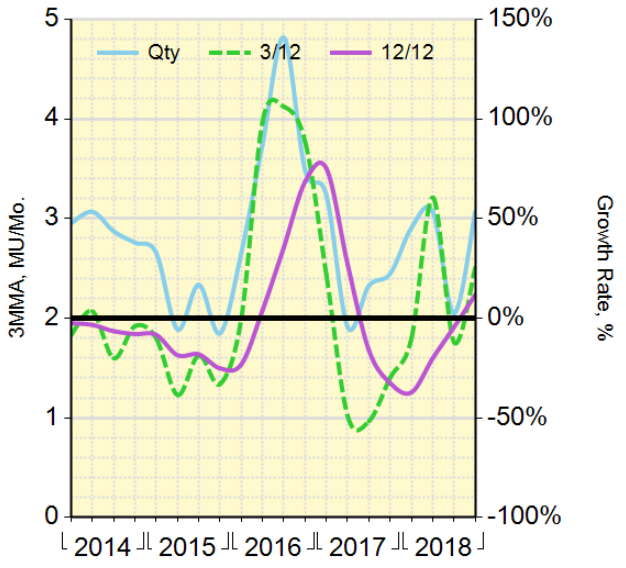
BIPOLAR GENERAL PUR POWER TRANS ASP



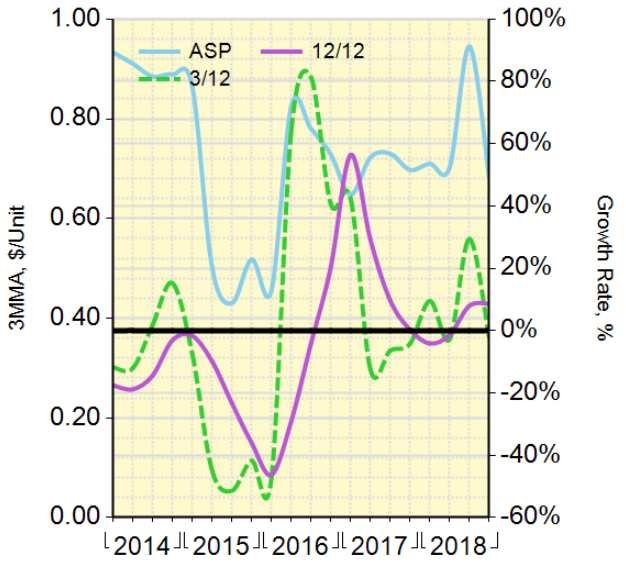
BIPOLAR GENERAL PURPOSE PTR MODULE Value



BIPOLAR GENERAL PURPOSE PTR MODULE Quantity



BIPOLAR GENERAL PURPOSE PTR MODULE ASP



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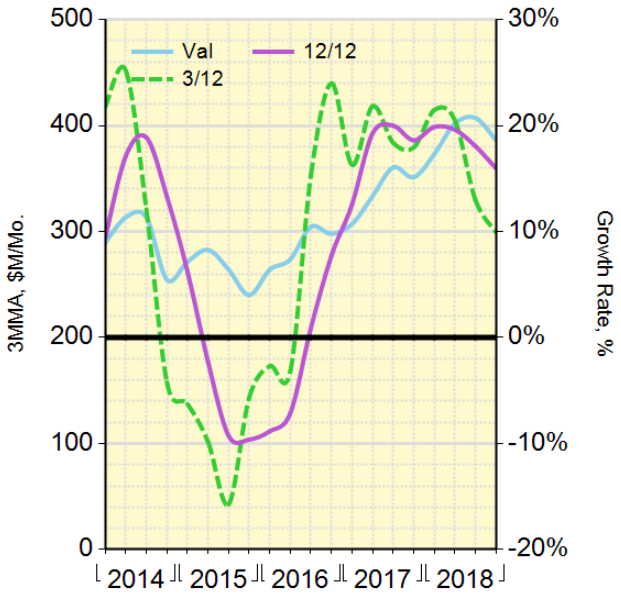
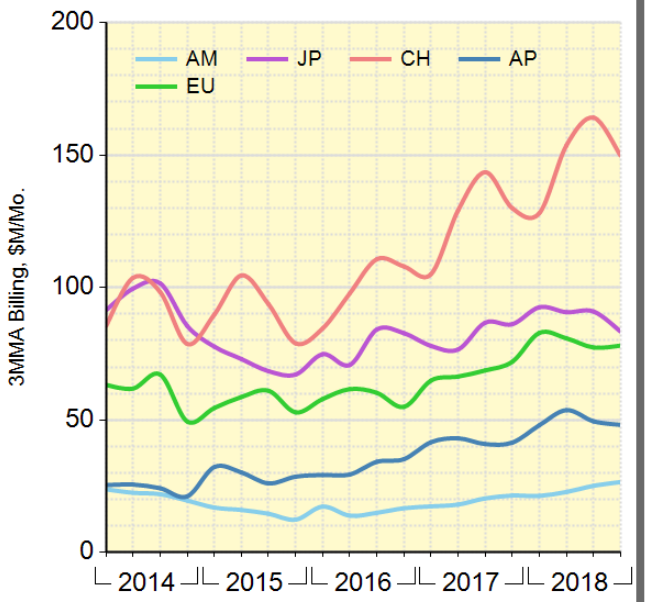
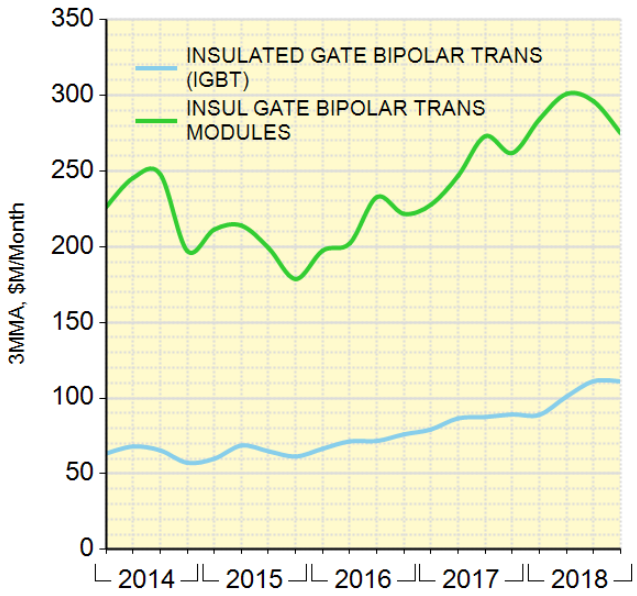
Insul Gate PT Value



Insul Gate PT Geographic Billing



Product Mix - Value



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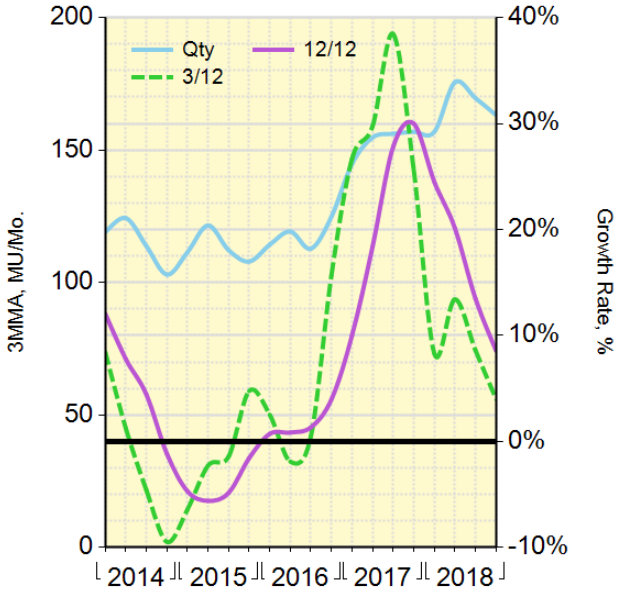

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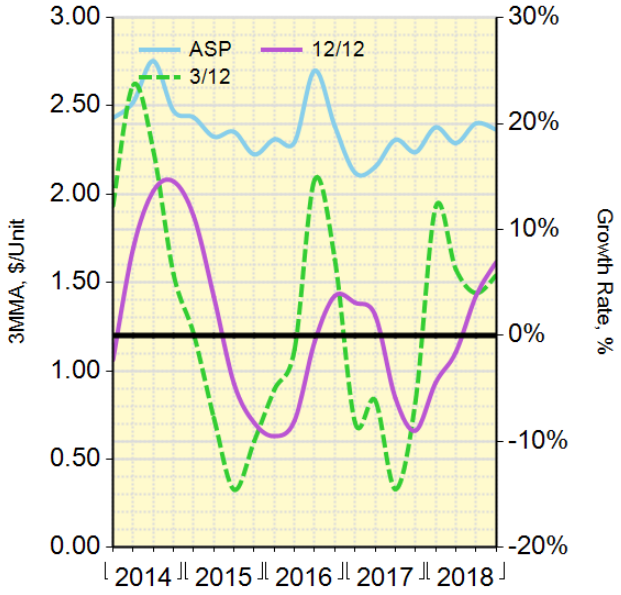

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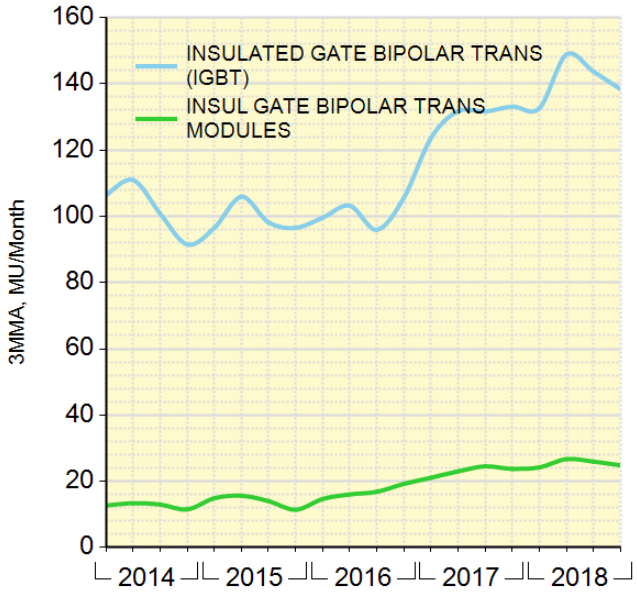

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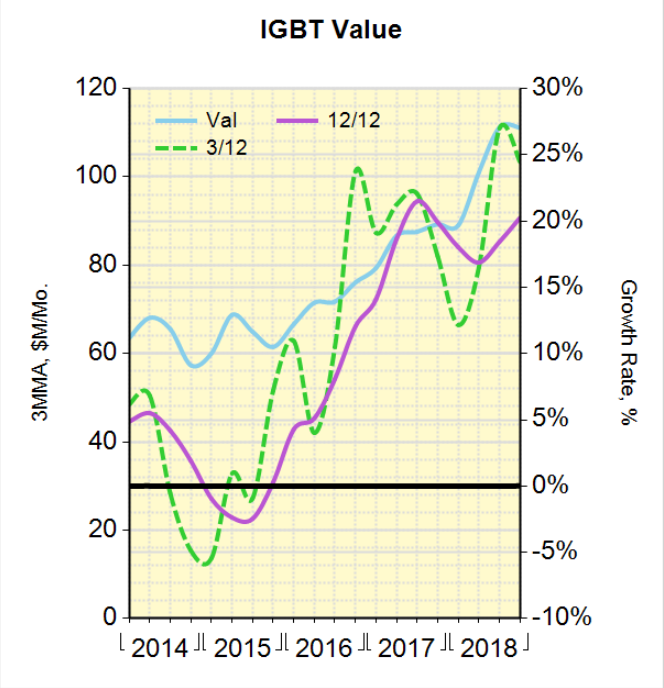

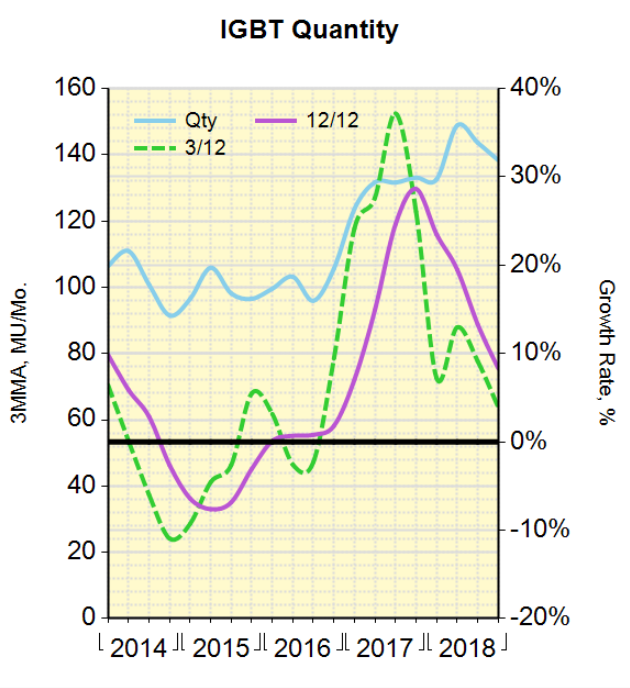

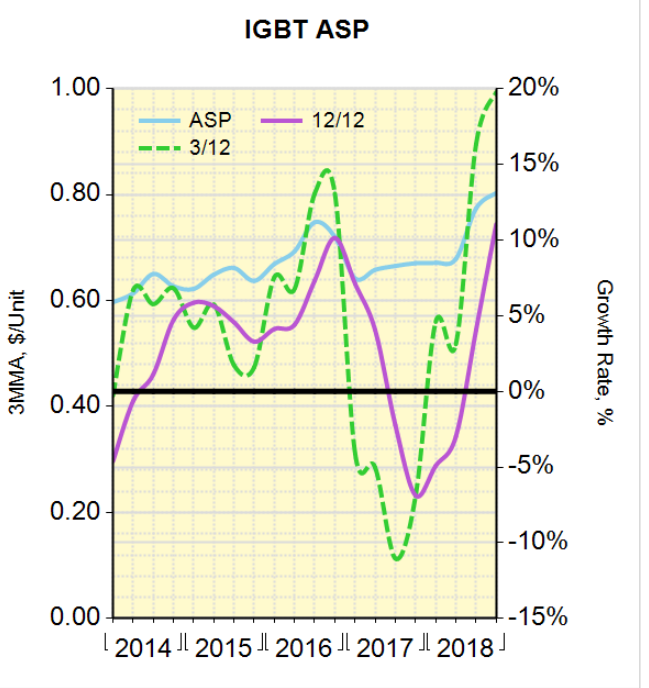

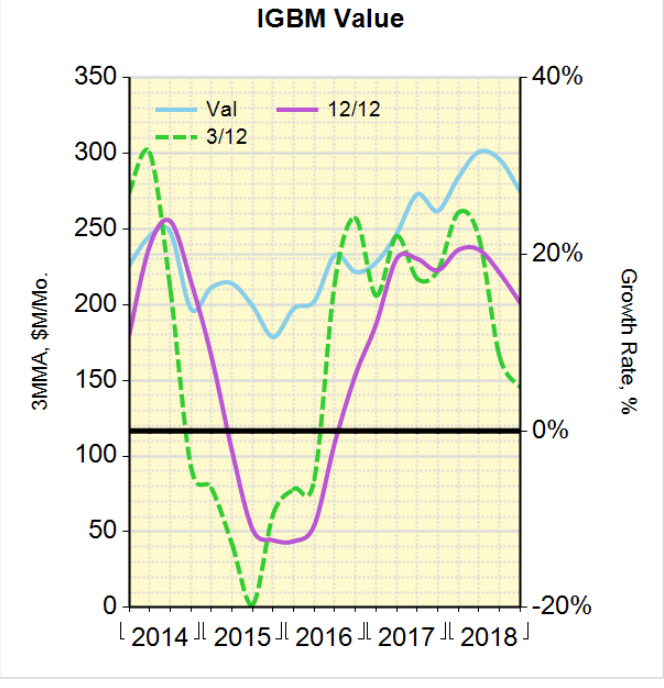

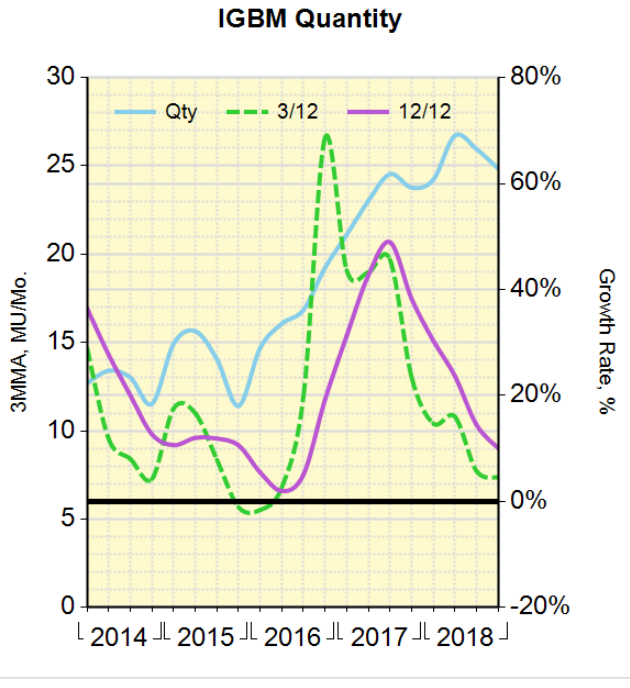

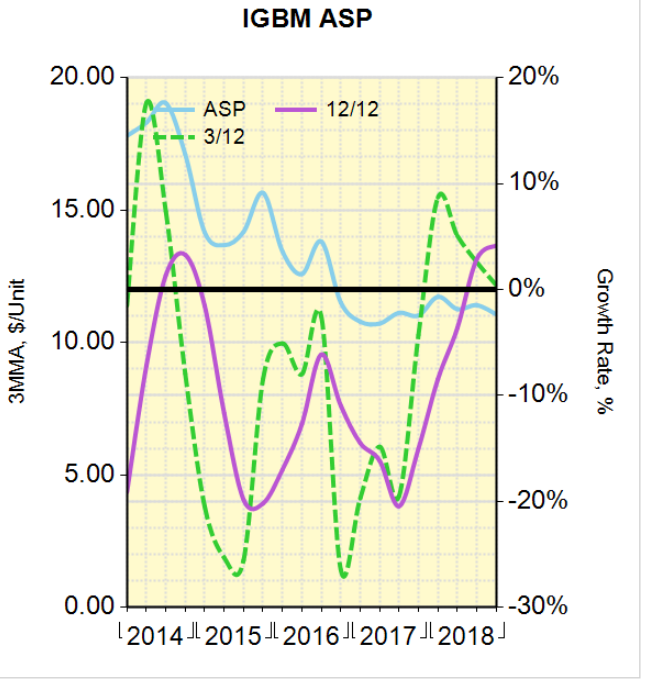

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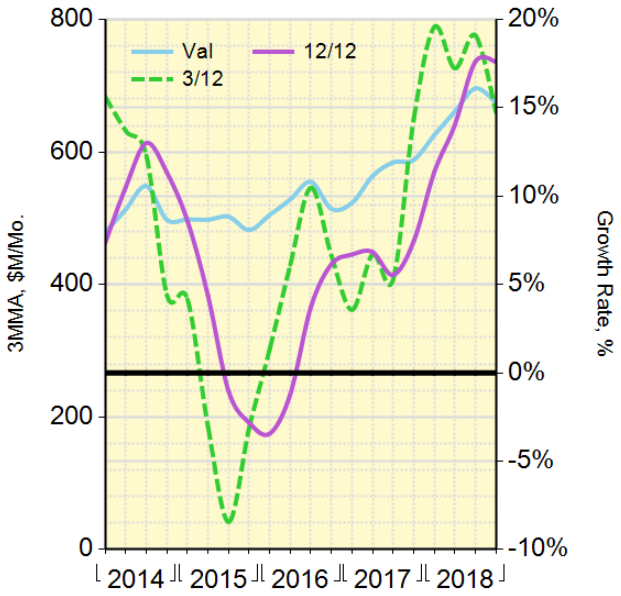

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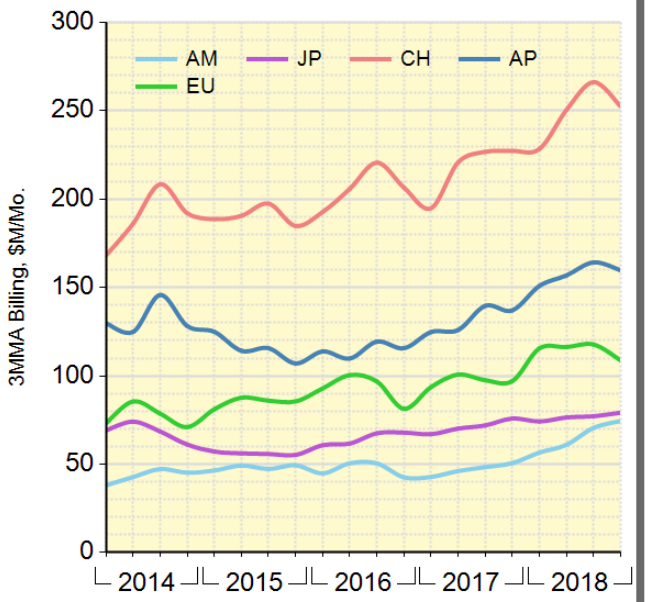

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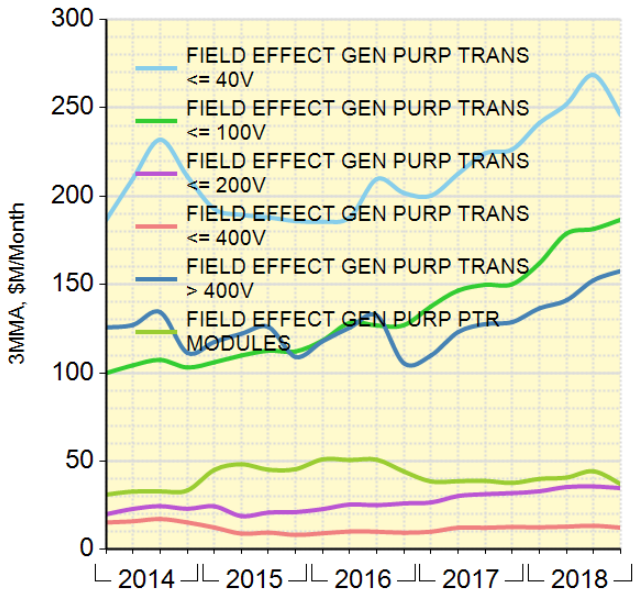

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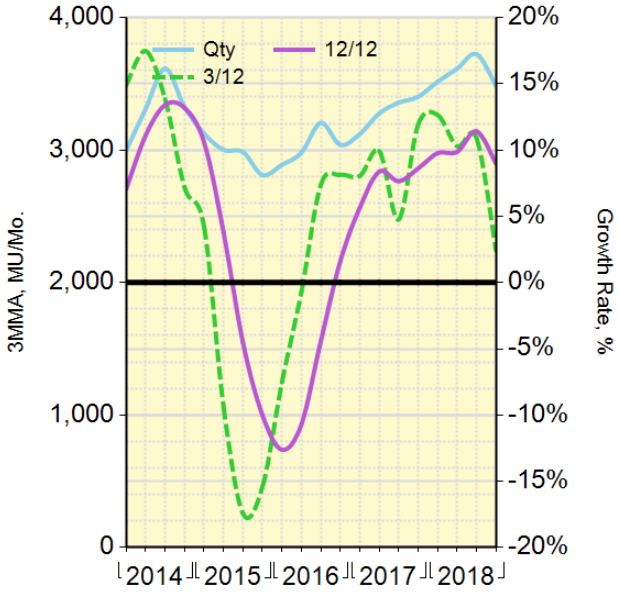

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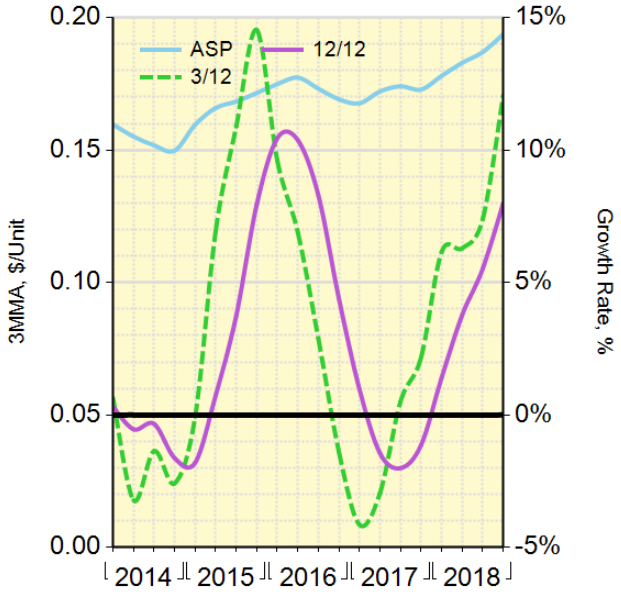

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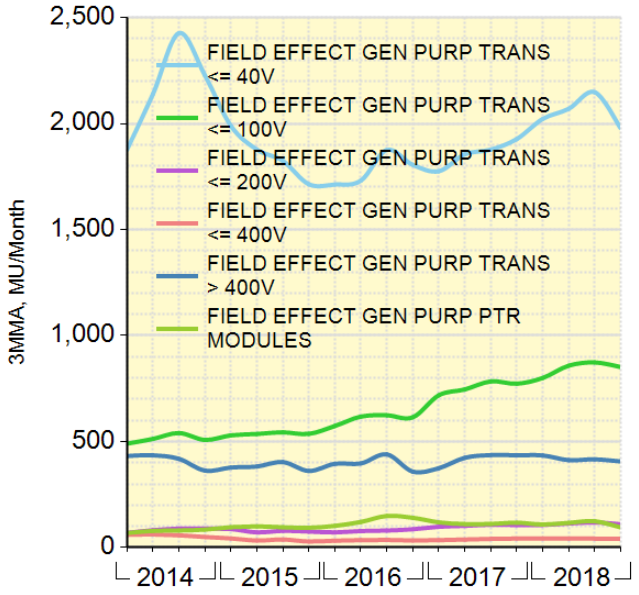

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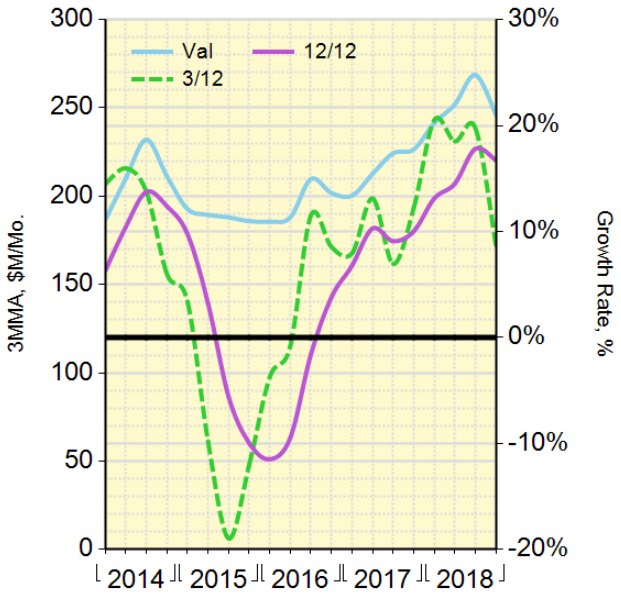

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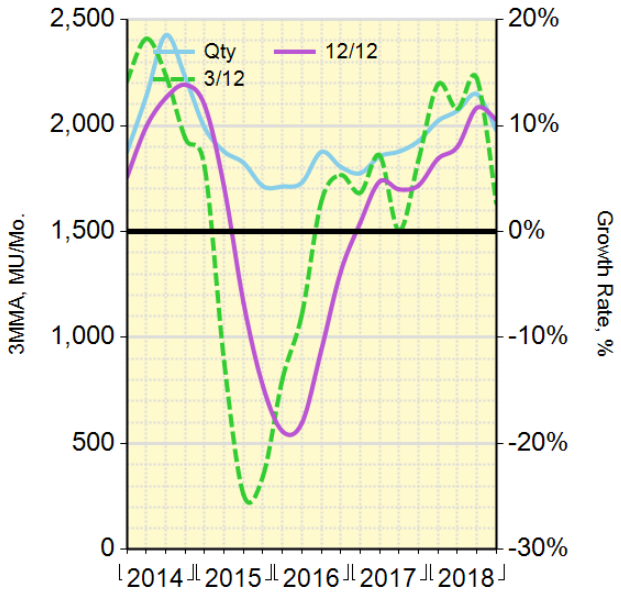

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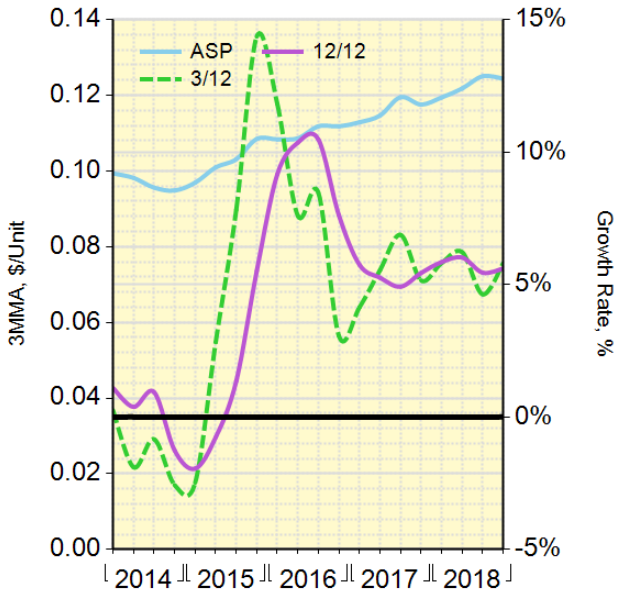

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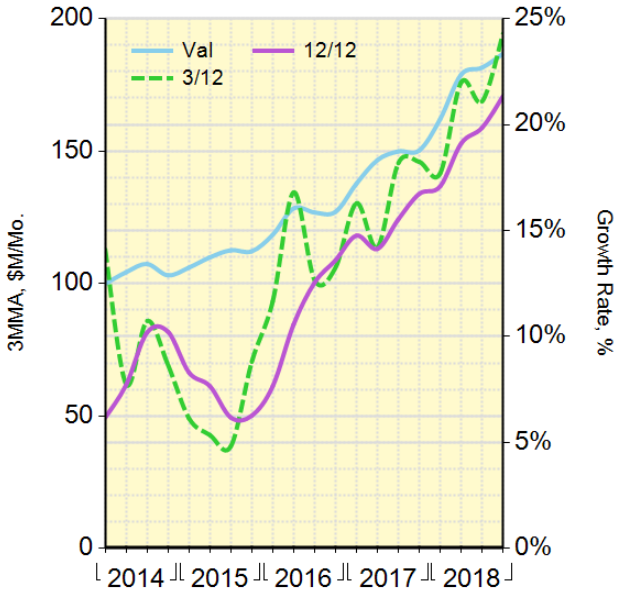

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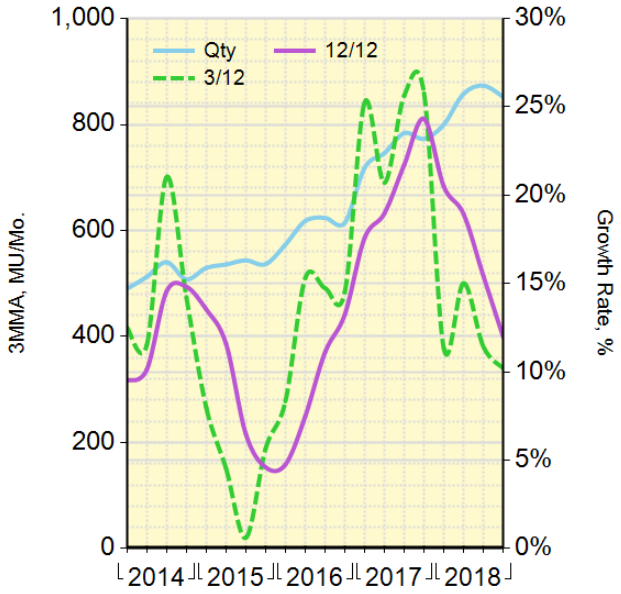

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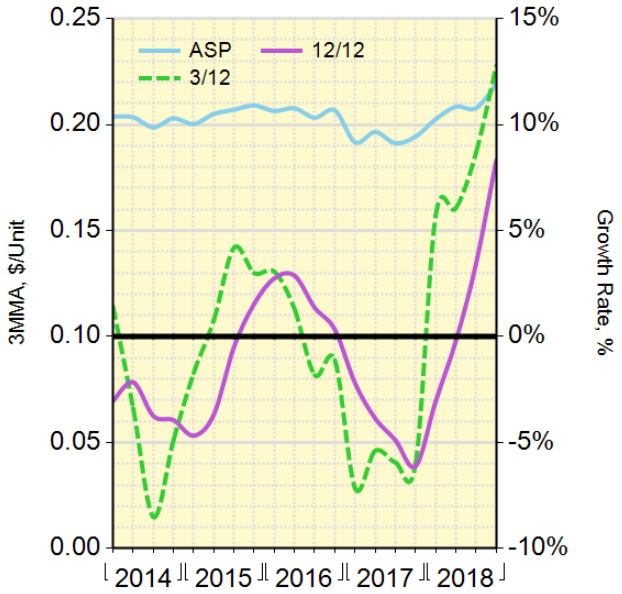

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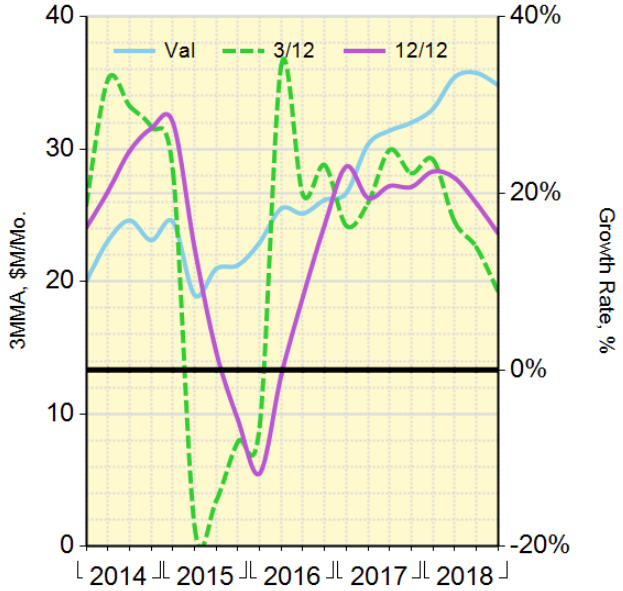

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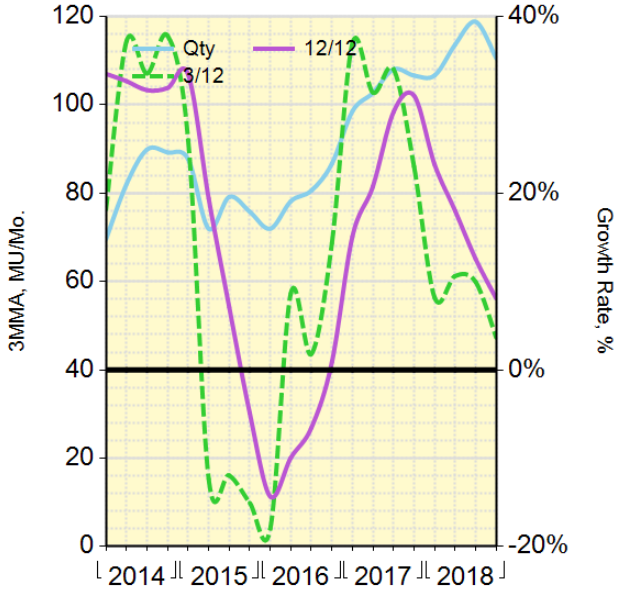

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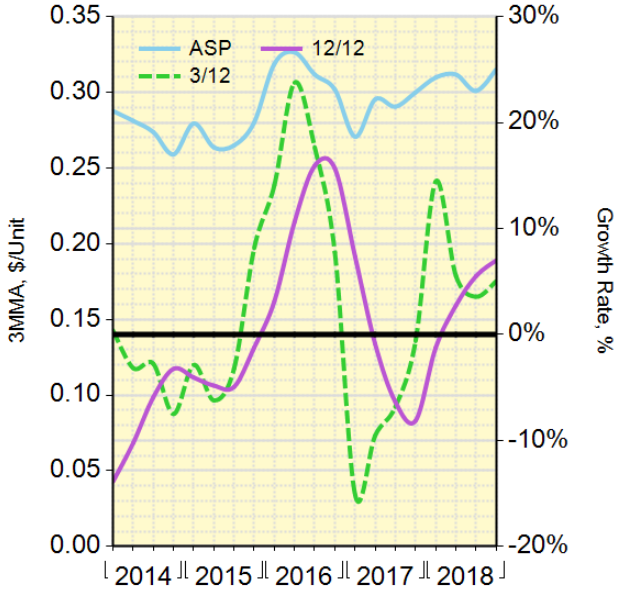

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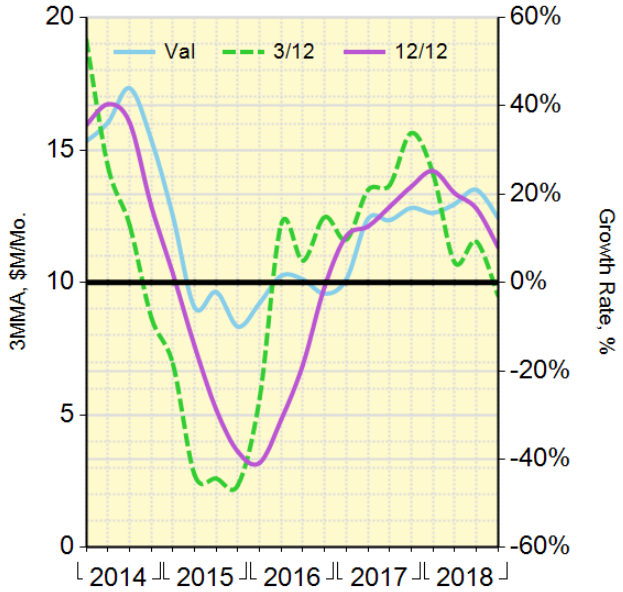

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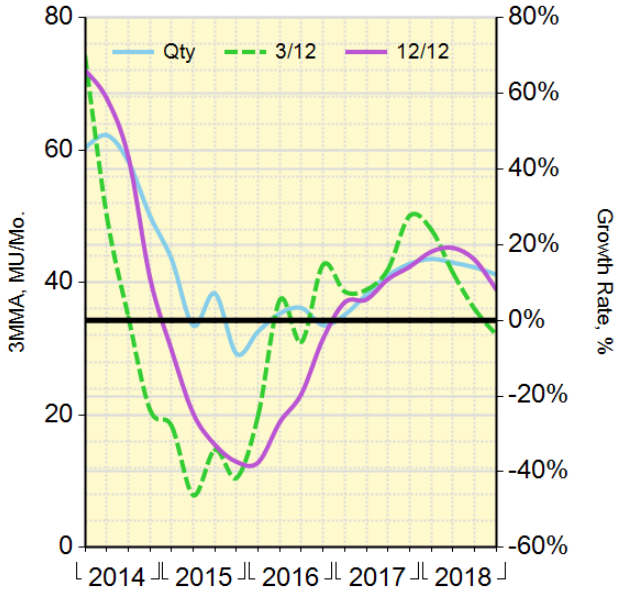

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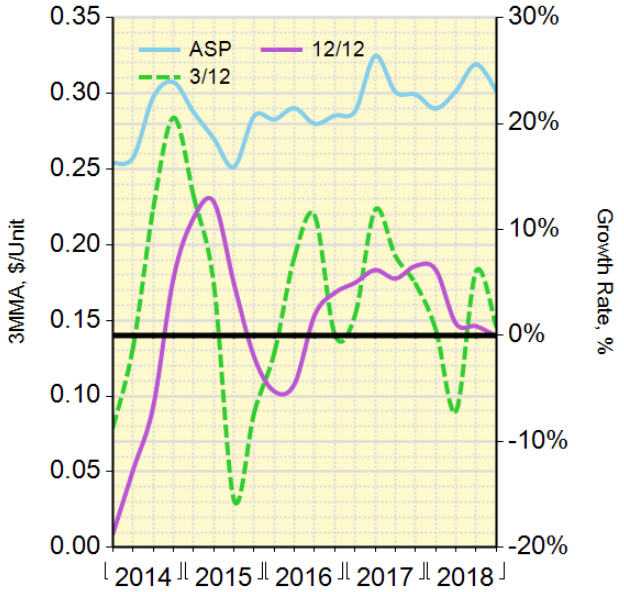

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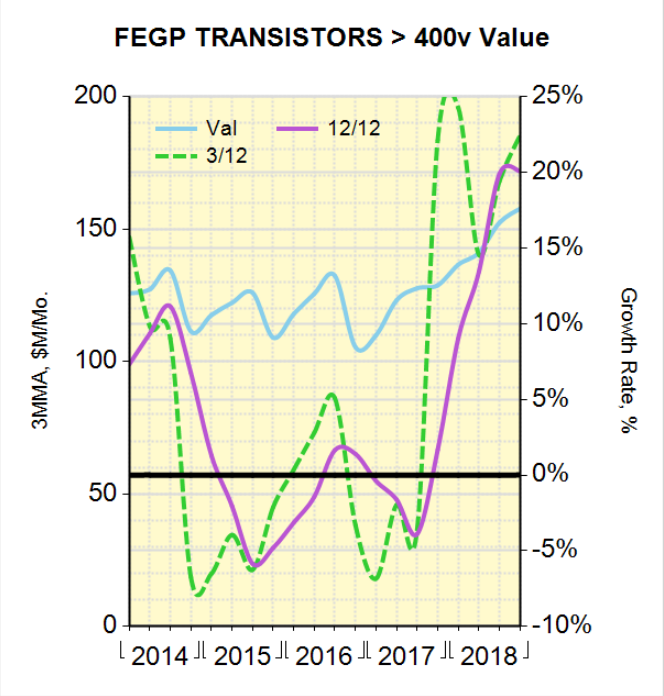

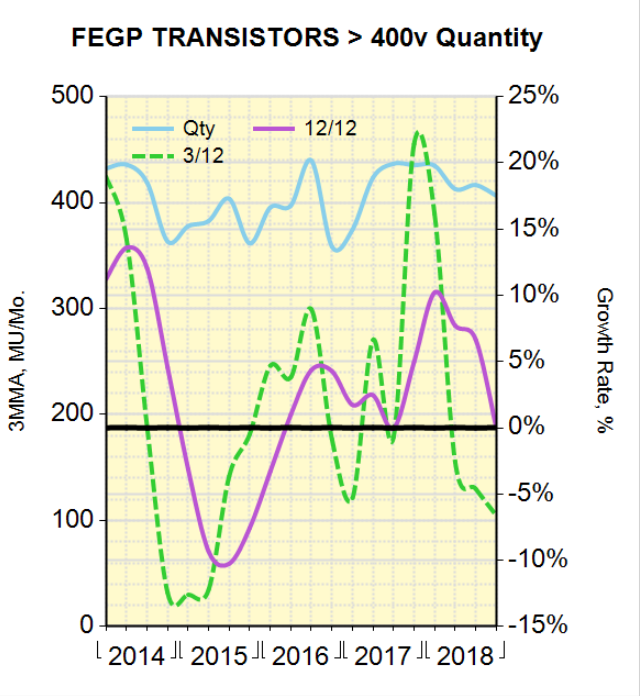

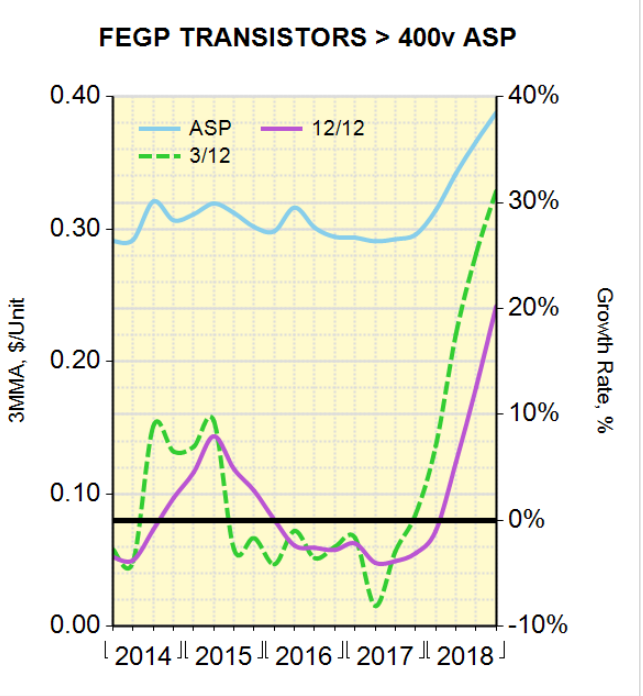

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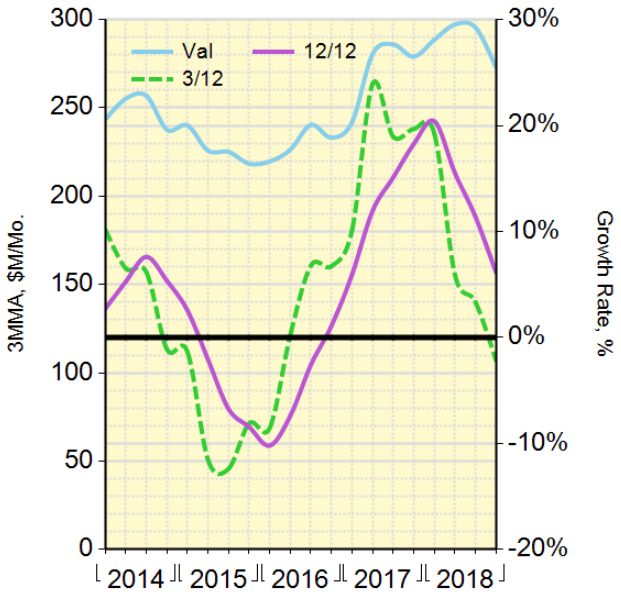
Rect Value



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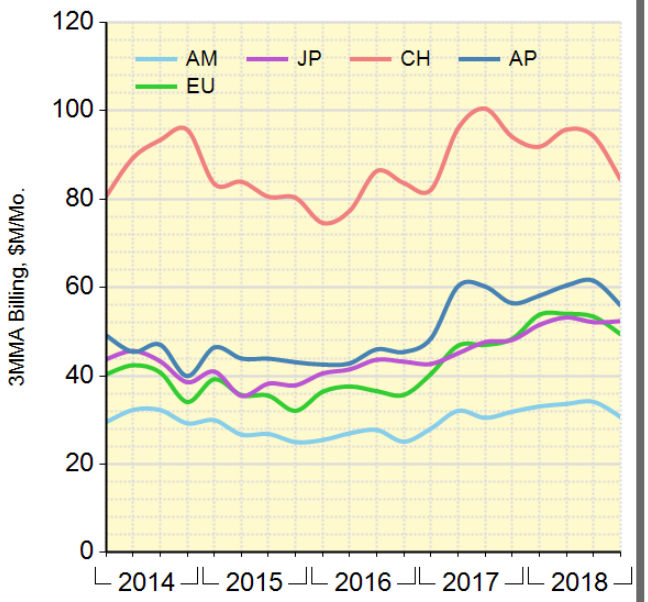
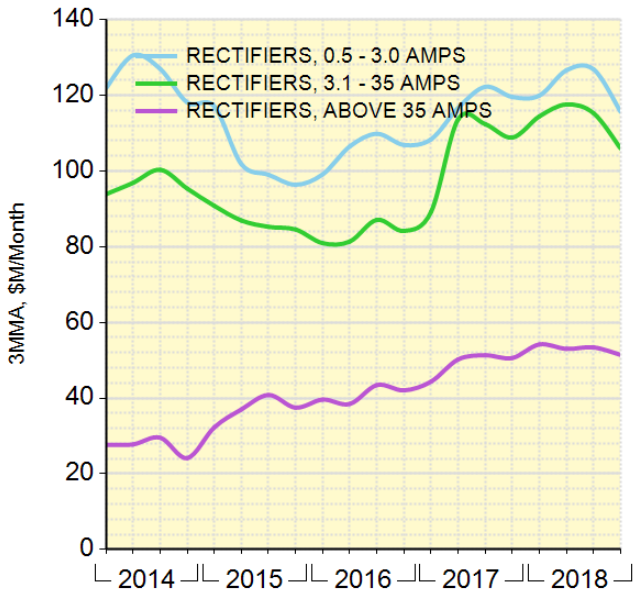


Product Mix - Value



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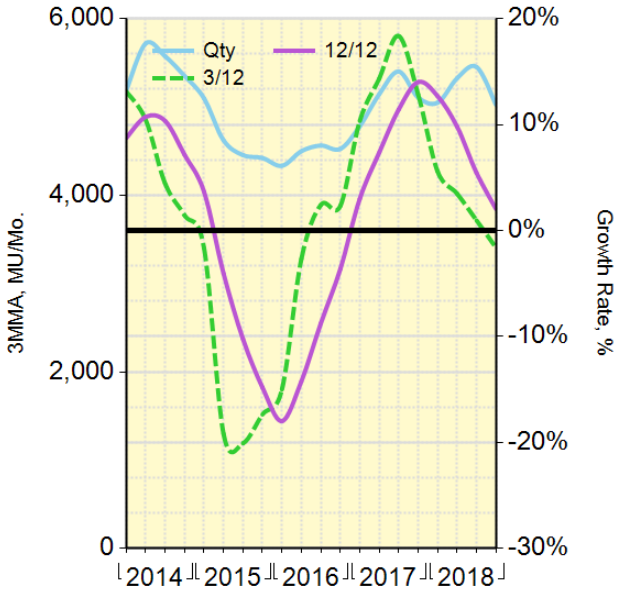

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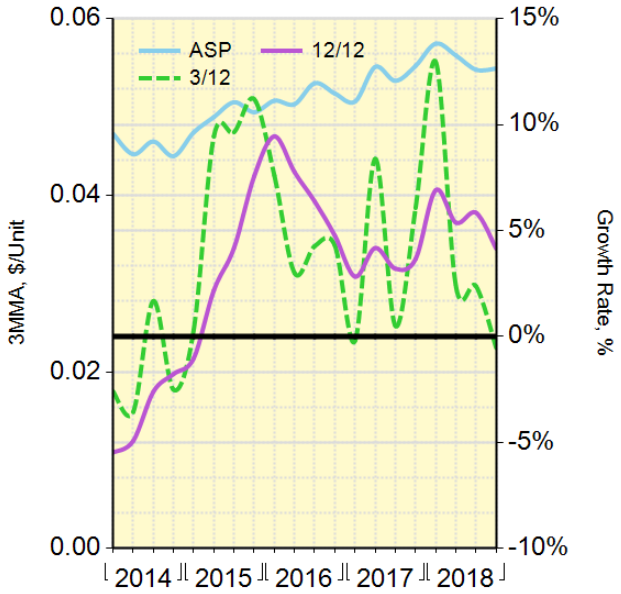
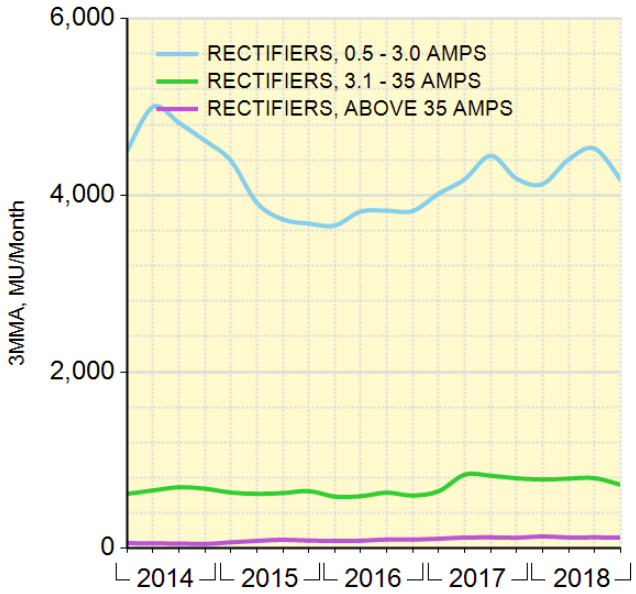


Product Mix - Quantity



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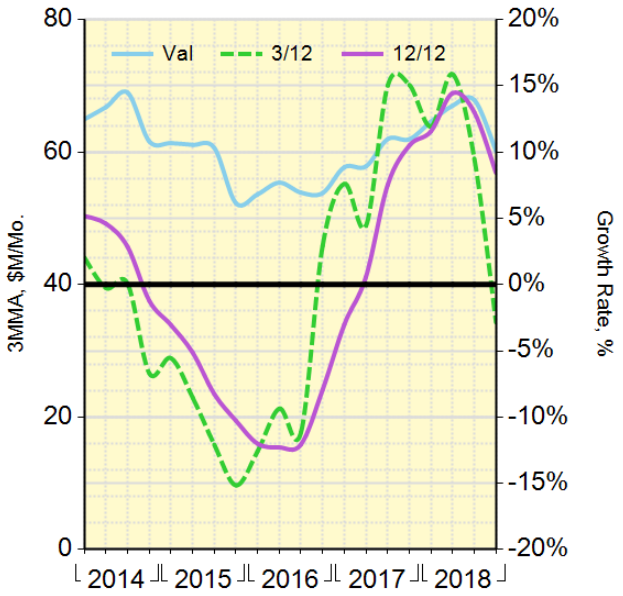
Thyr Value



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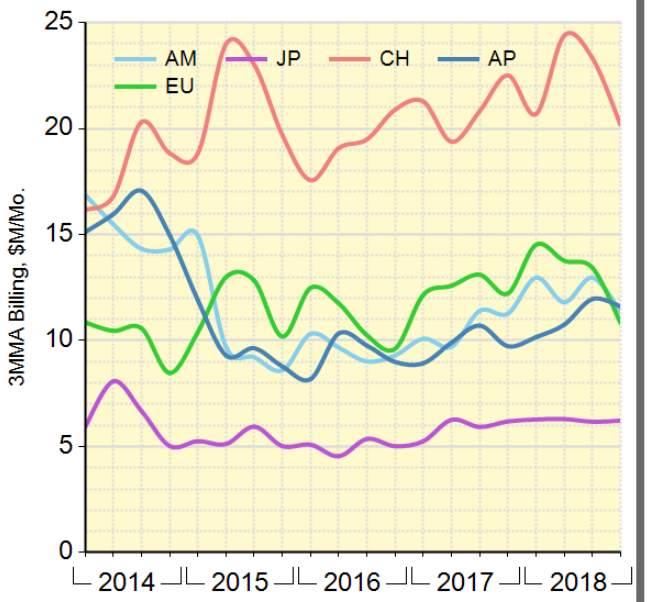
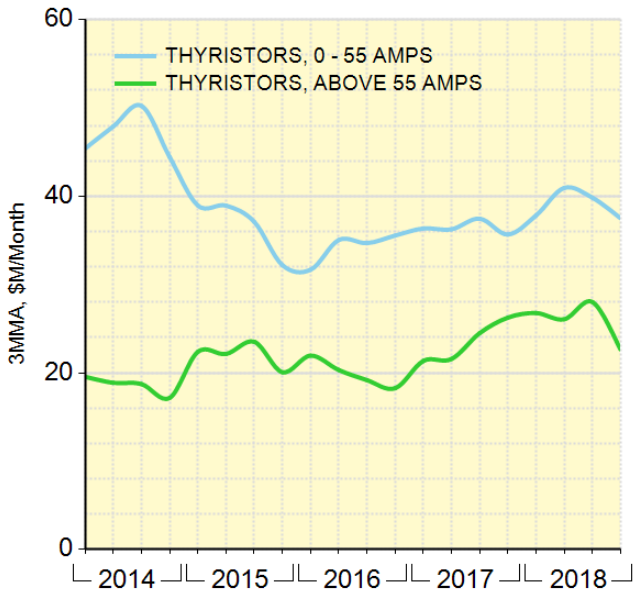


Product Mix - Value



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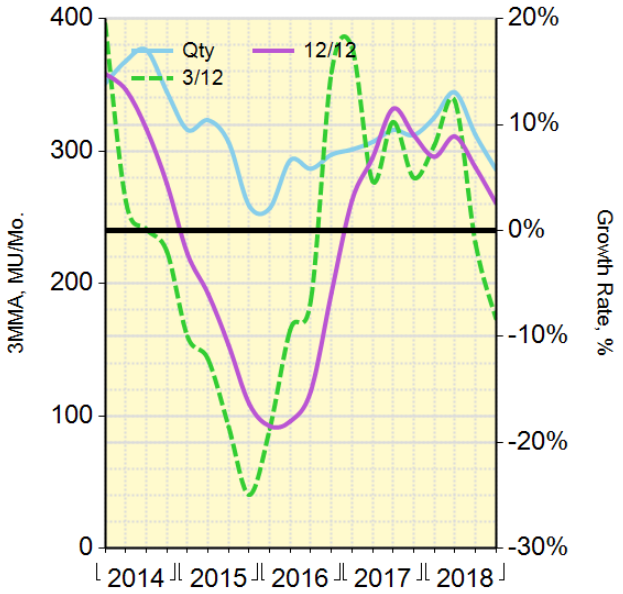

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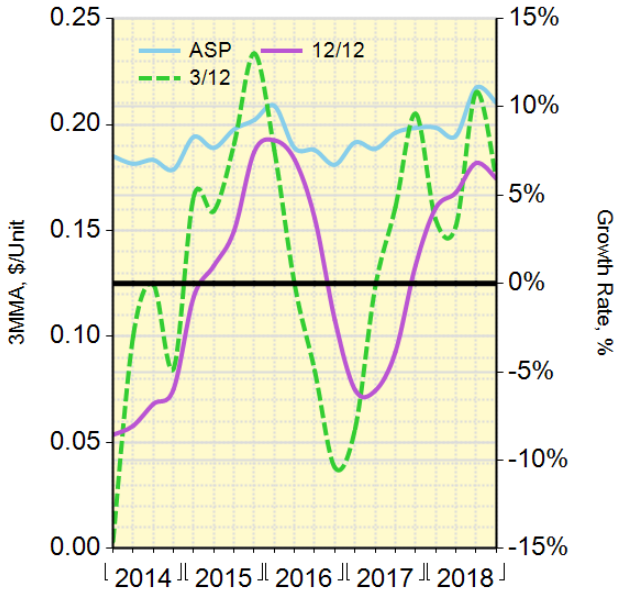

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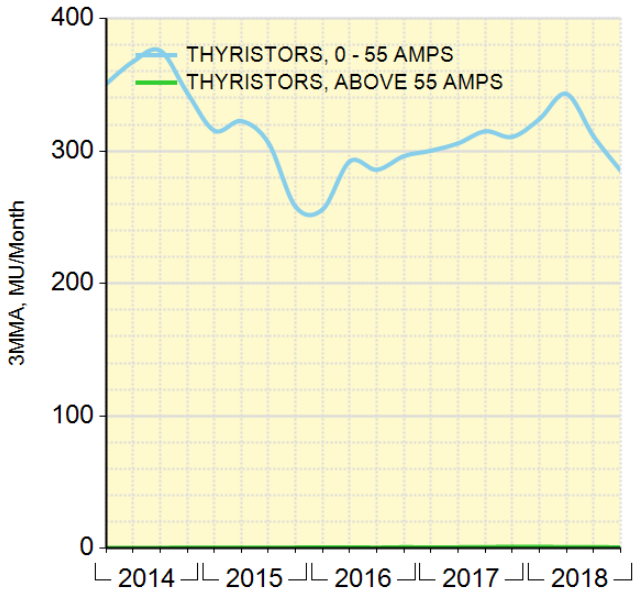

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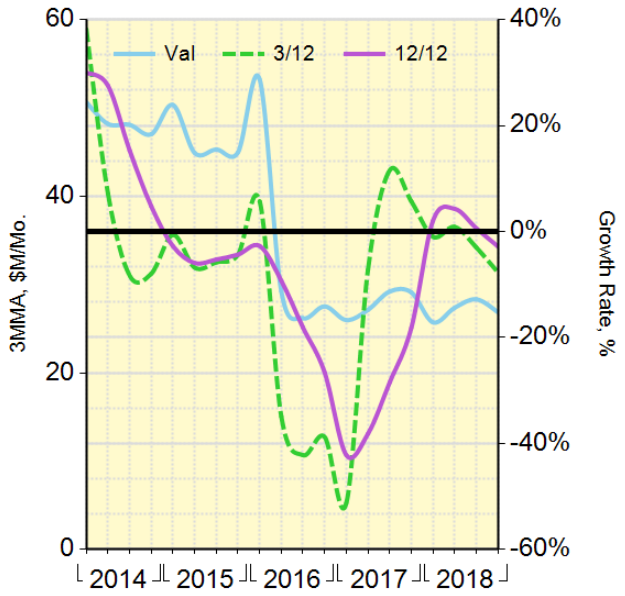
Displays Value



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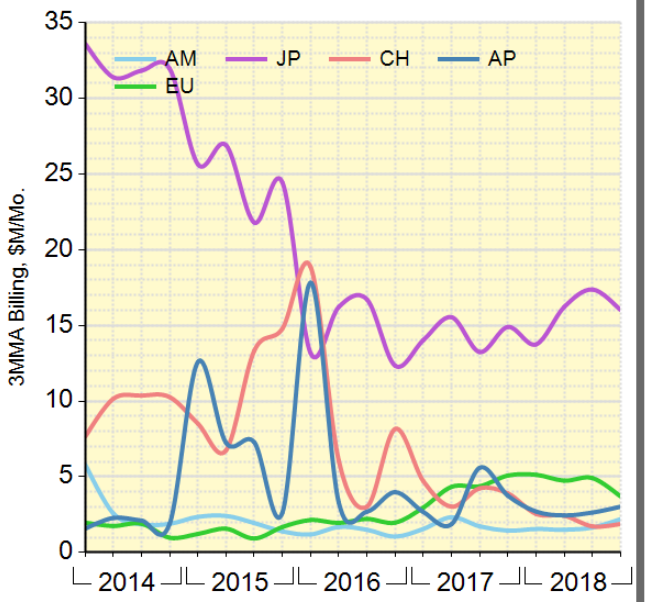

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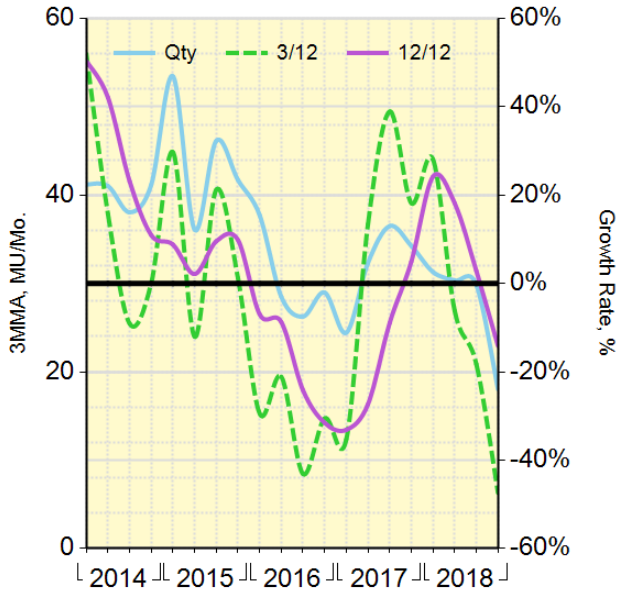
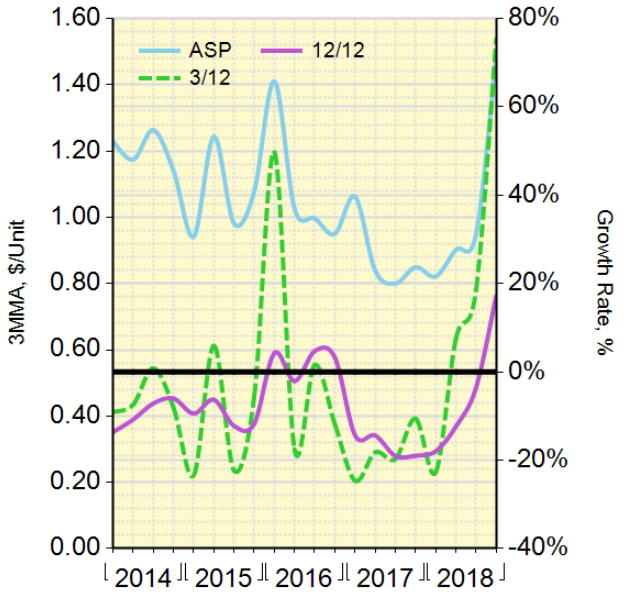


Displays ASP



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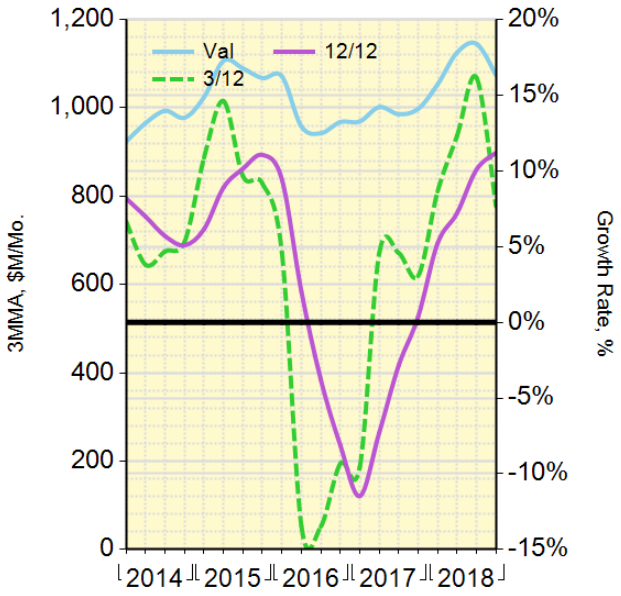
Lamps Value



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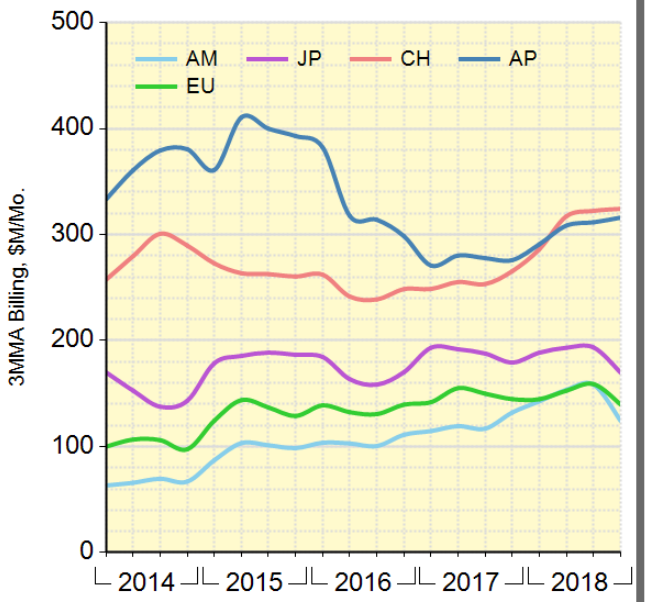

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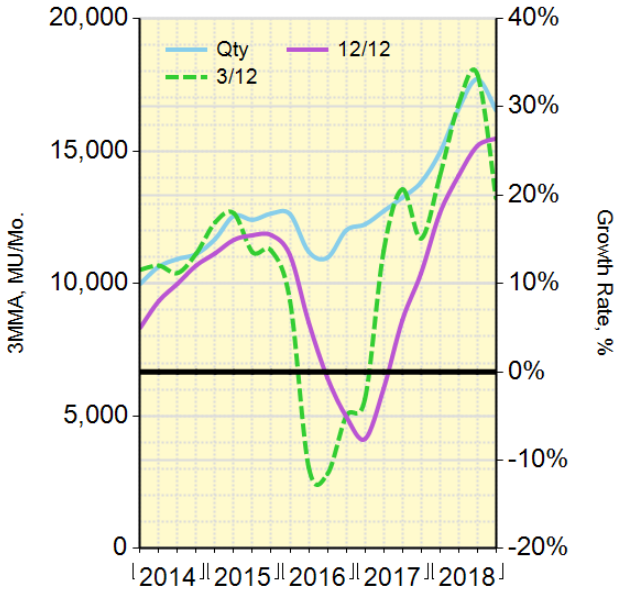
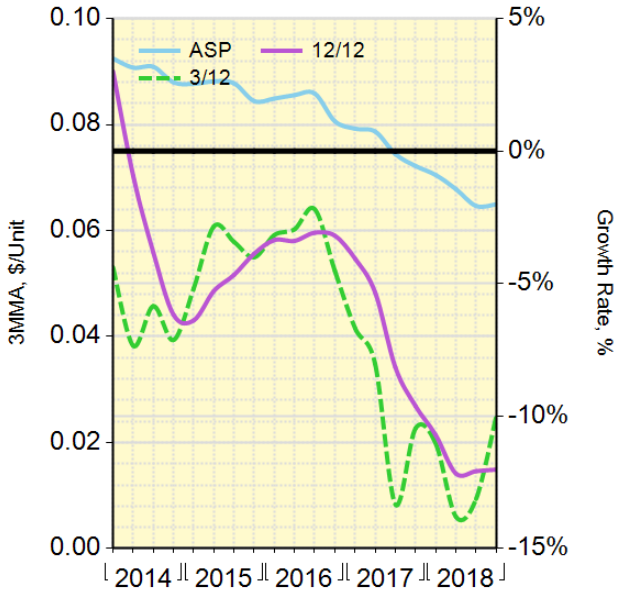


Lamps ASP



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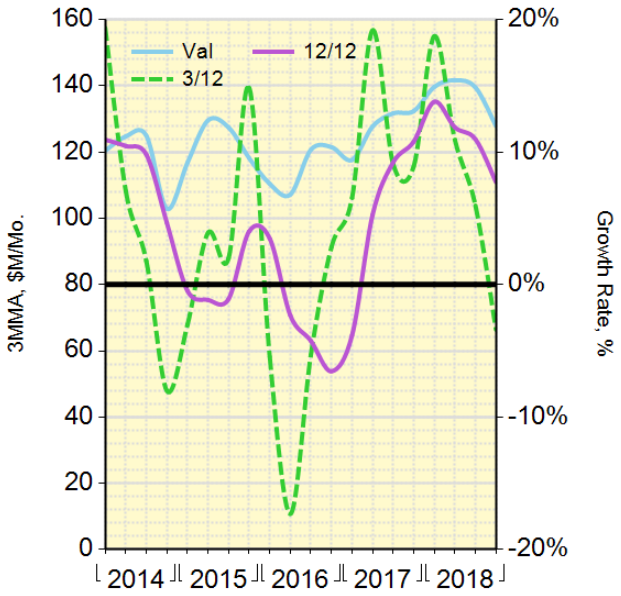
Couplers Value



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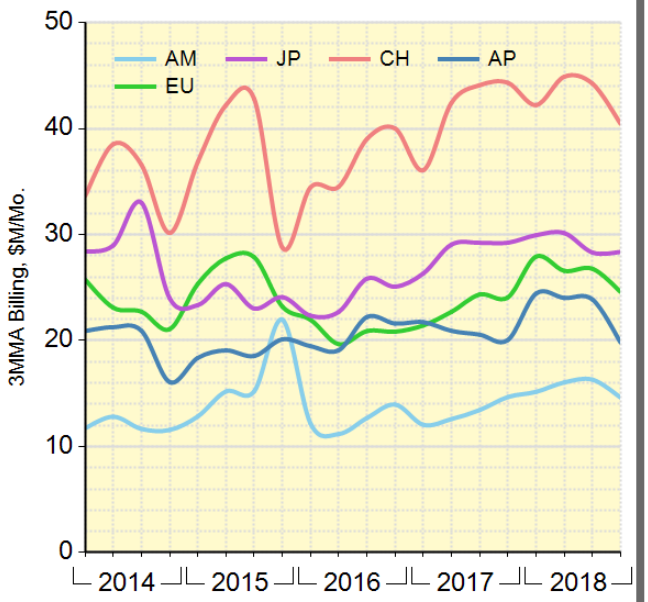
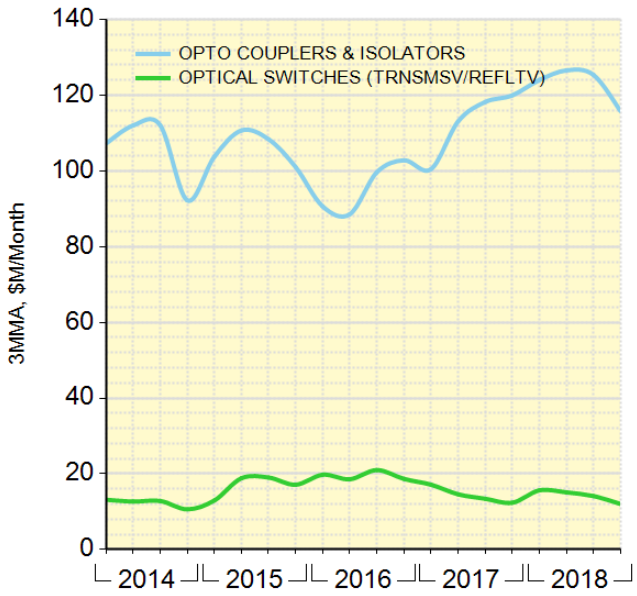


Product Mix - Value



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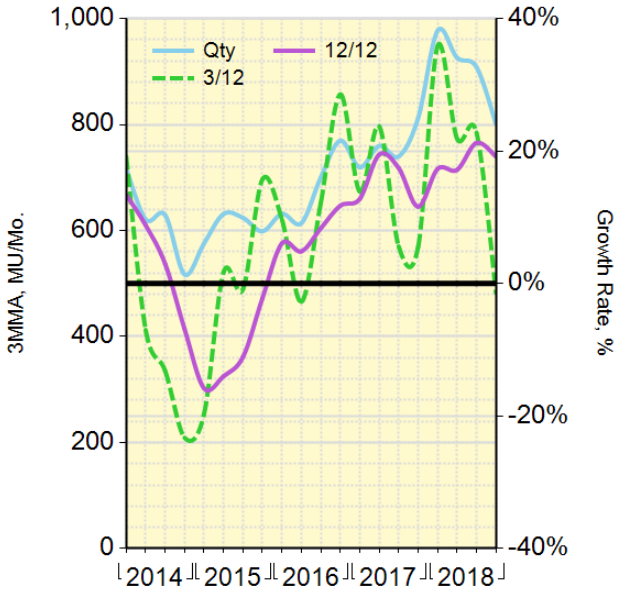

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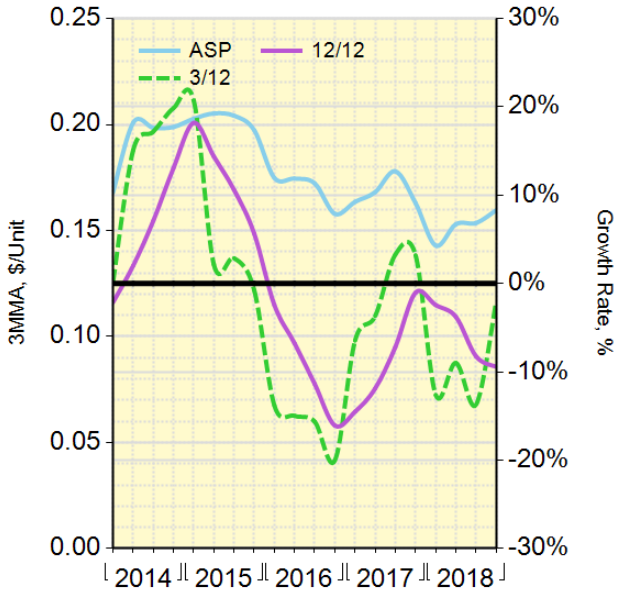

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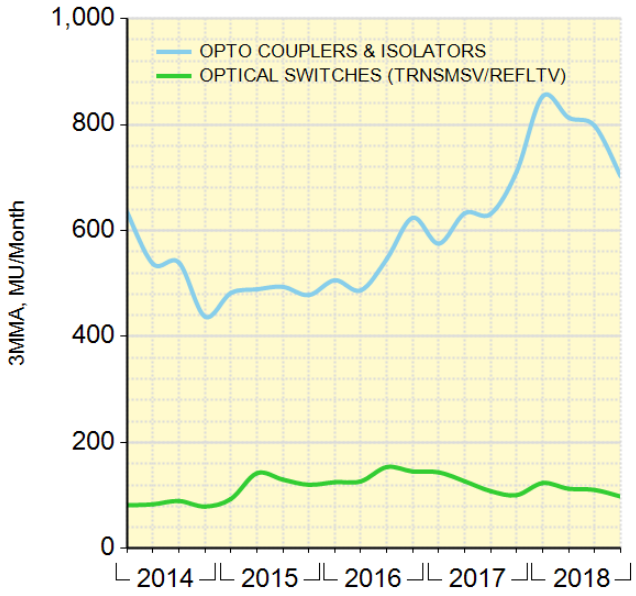

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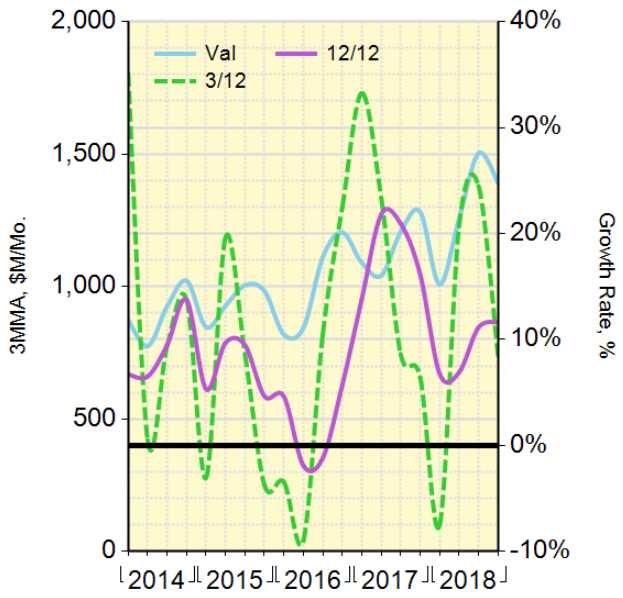

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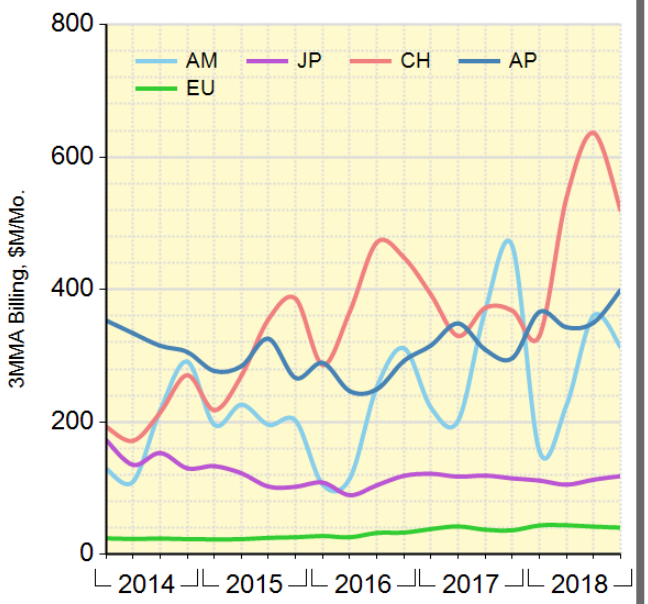

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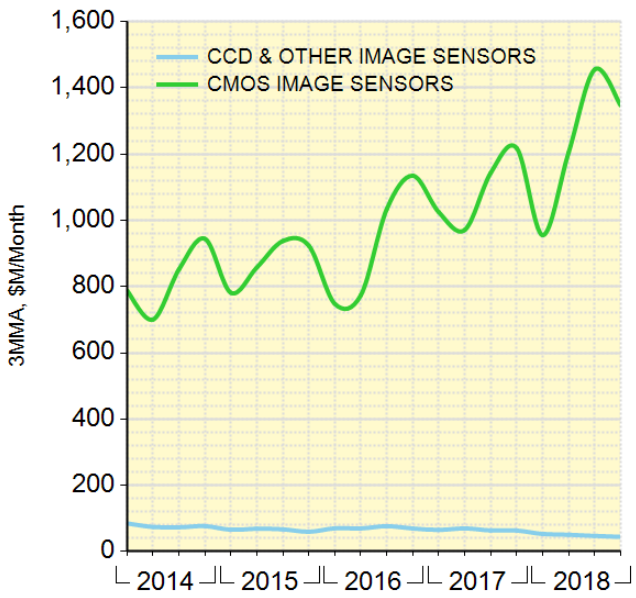

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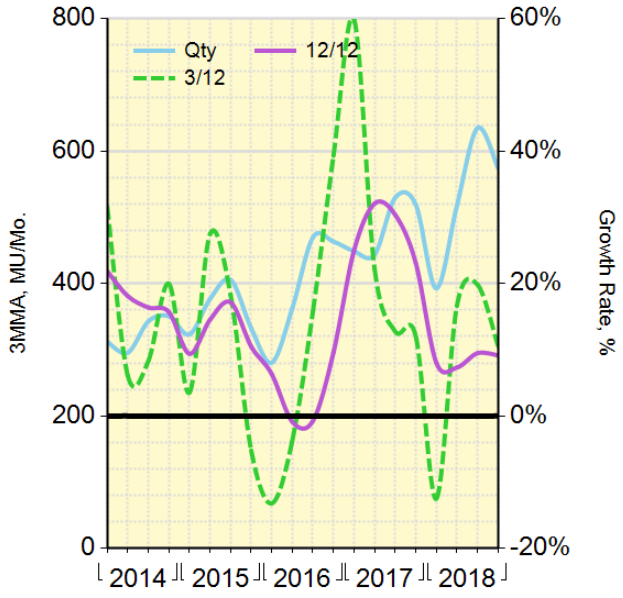

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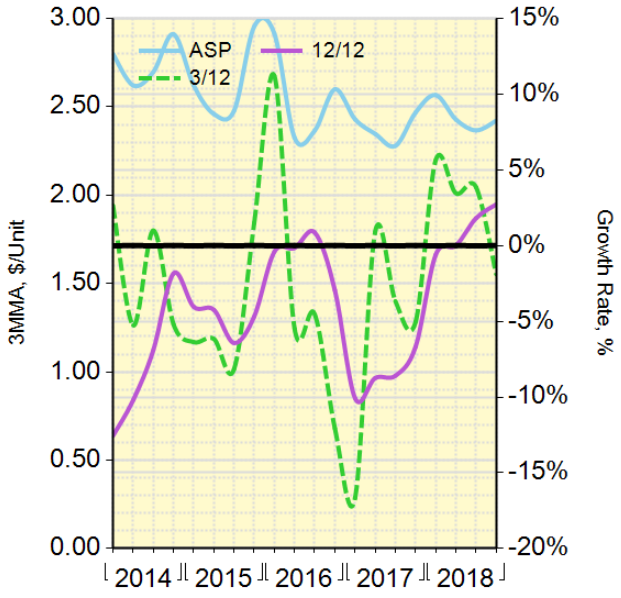

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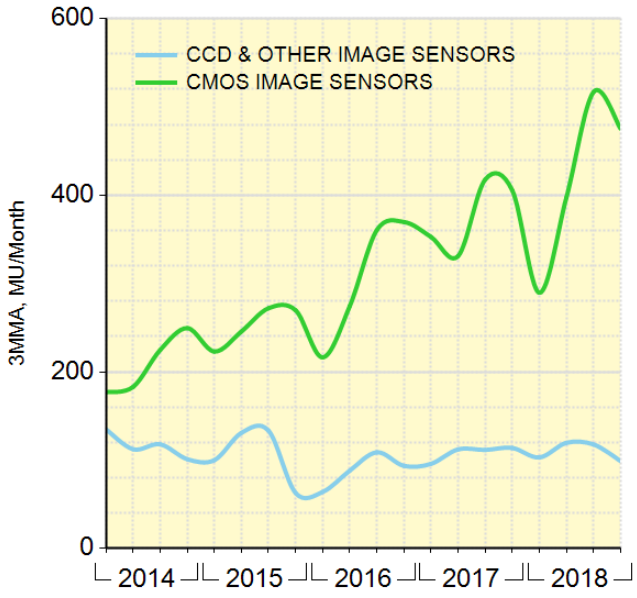

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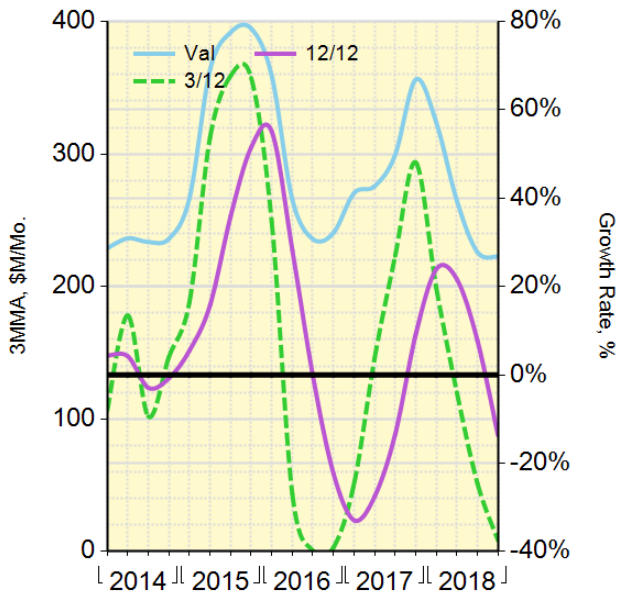

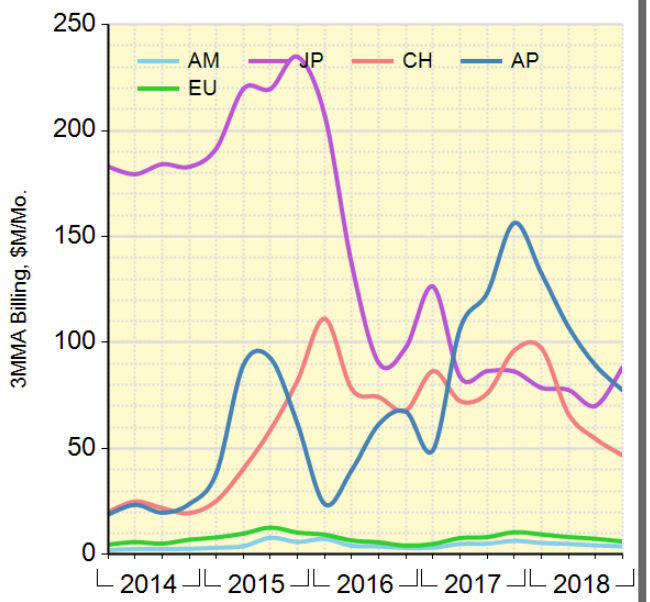

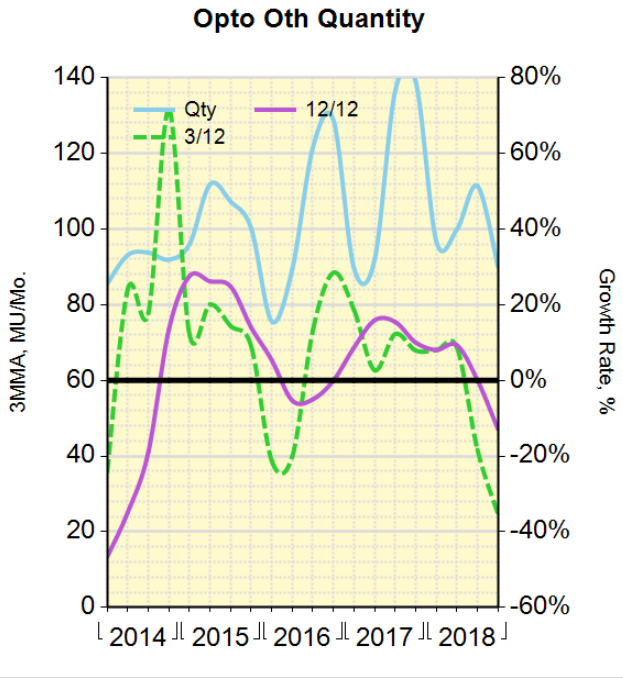

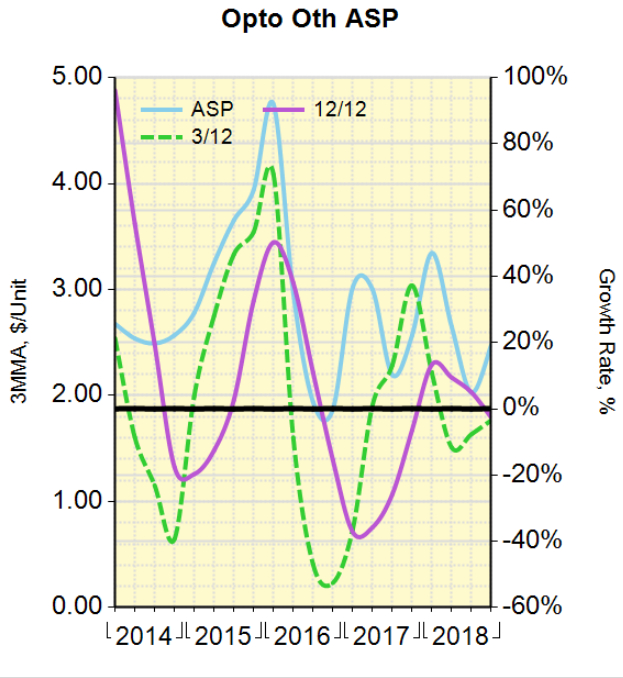

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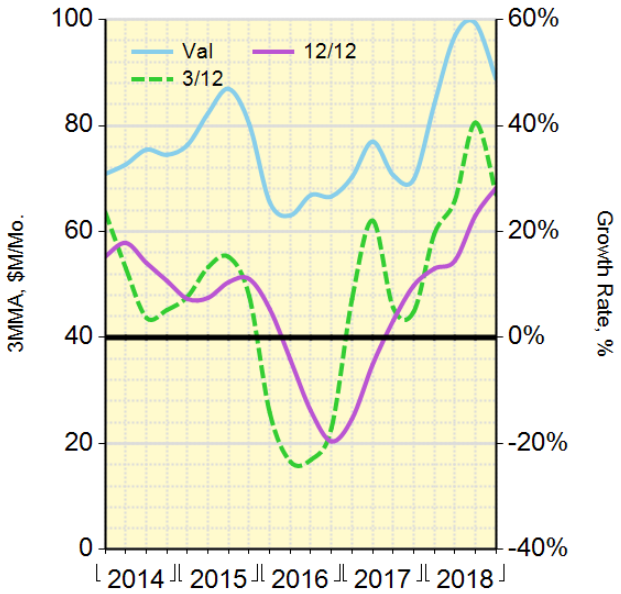
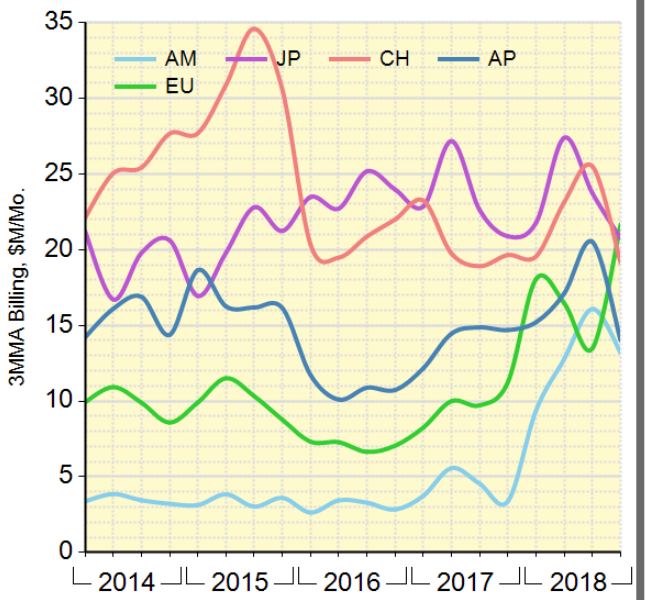
Infrared Value



Infrared Geographic Billing



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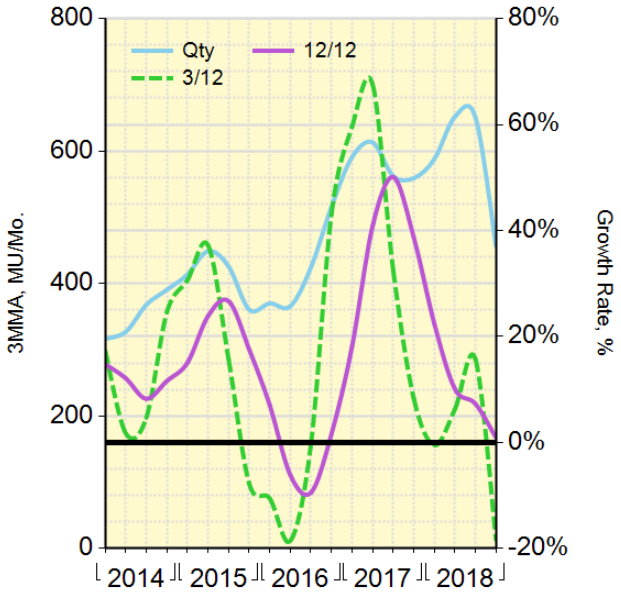

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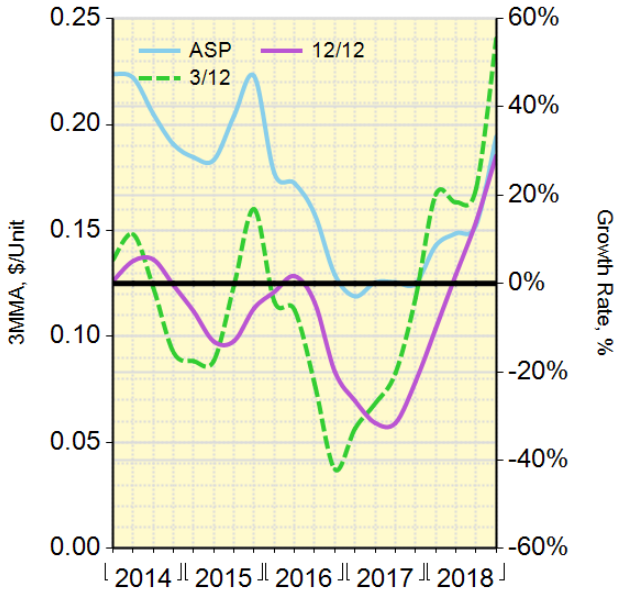

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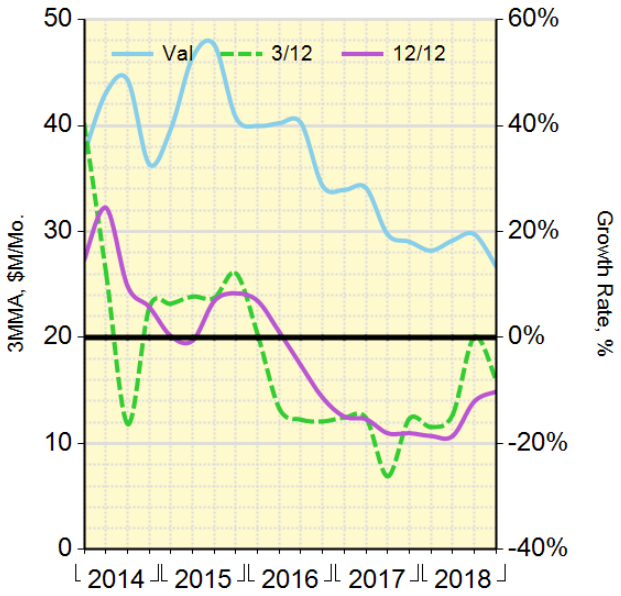
Laser PU Value



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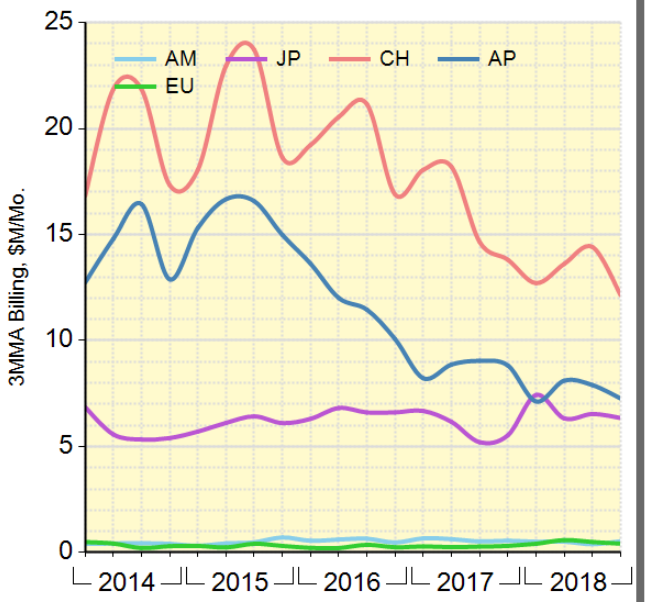

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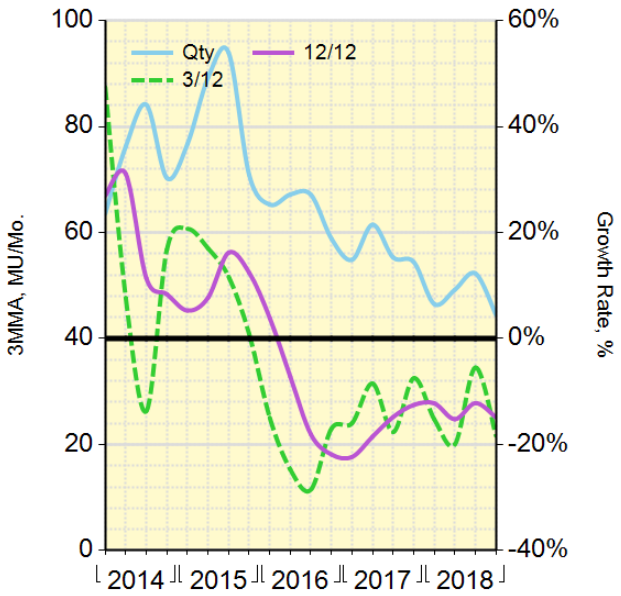

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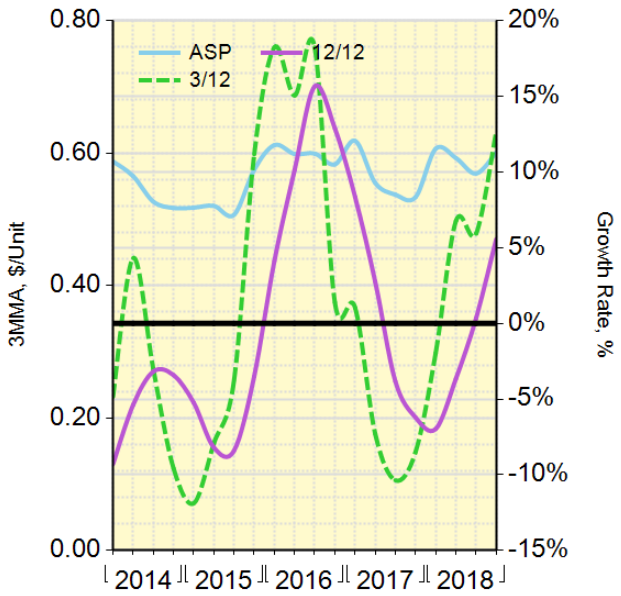

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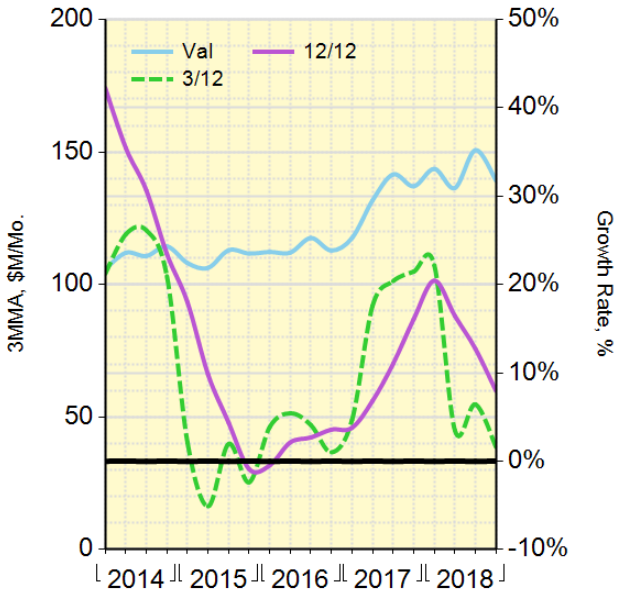

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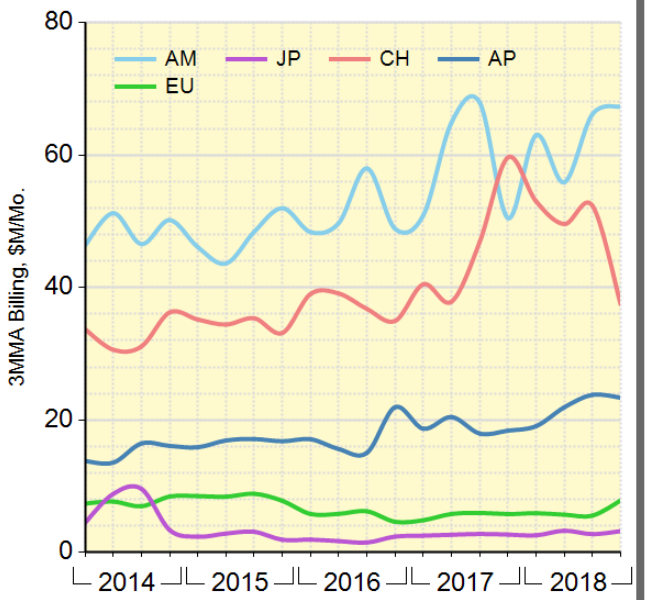

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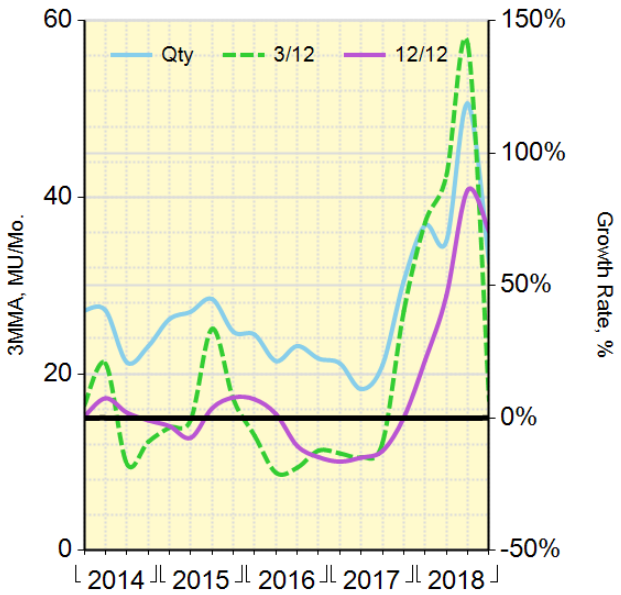

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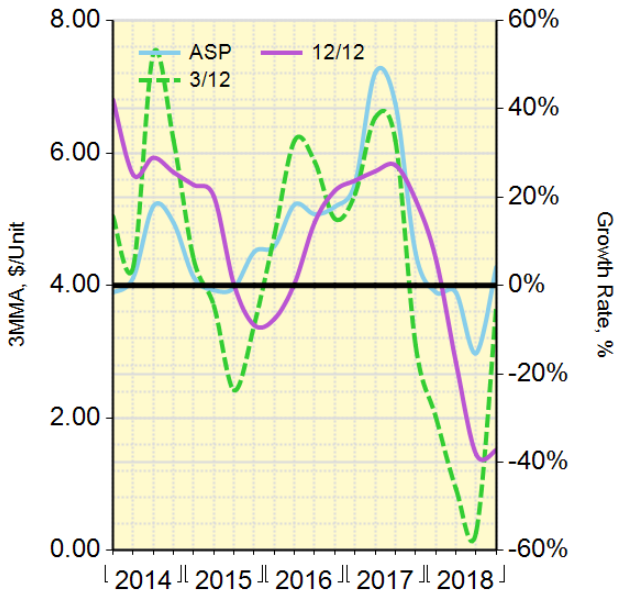

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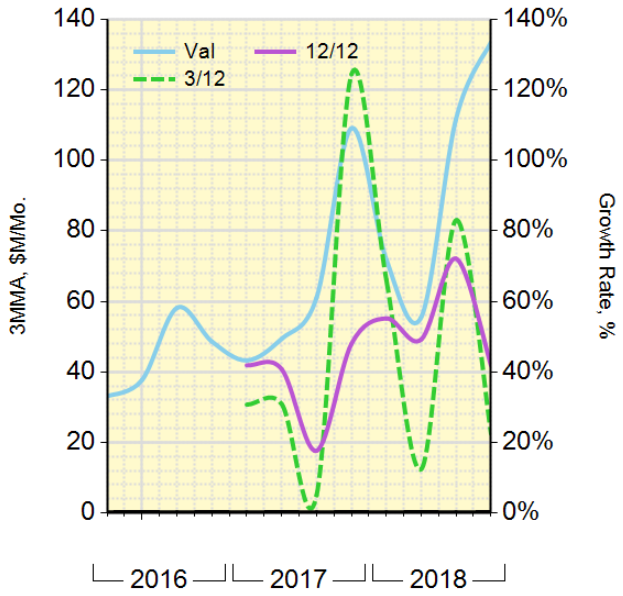
LIGHT SENSORS Value



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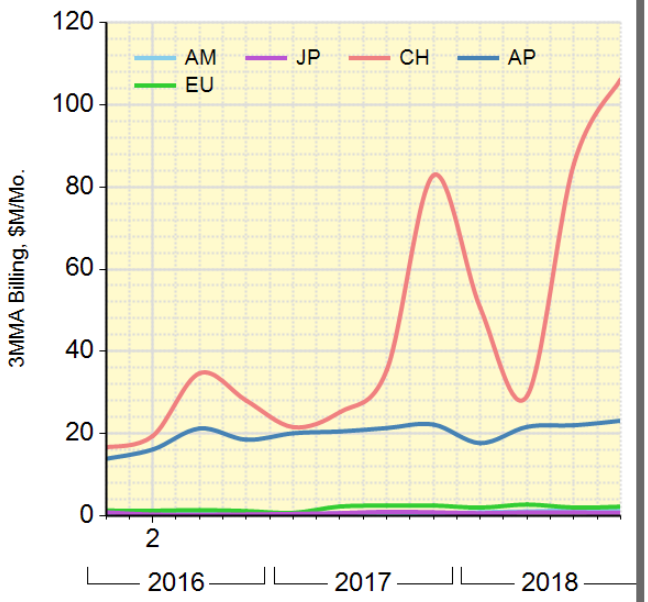

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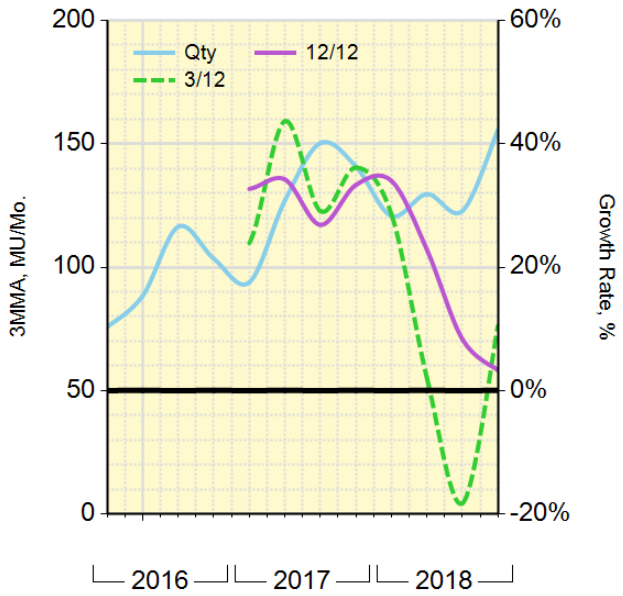

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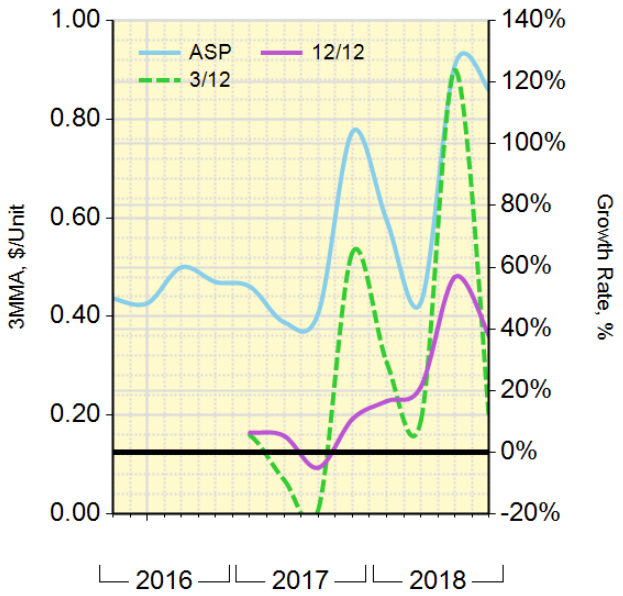

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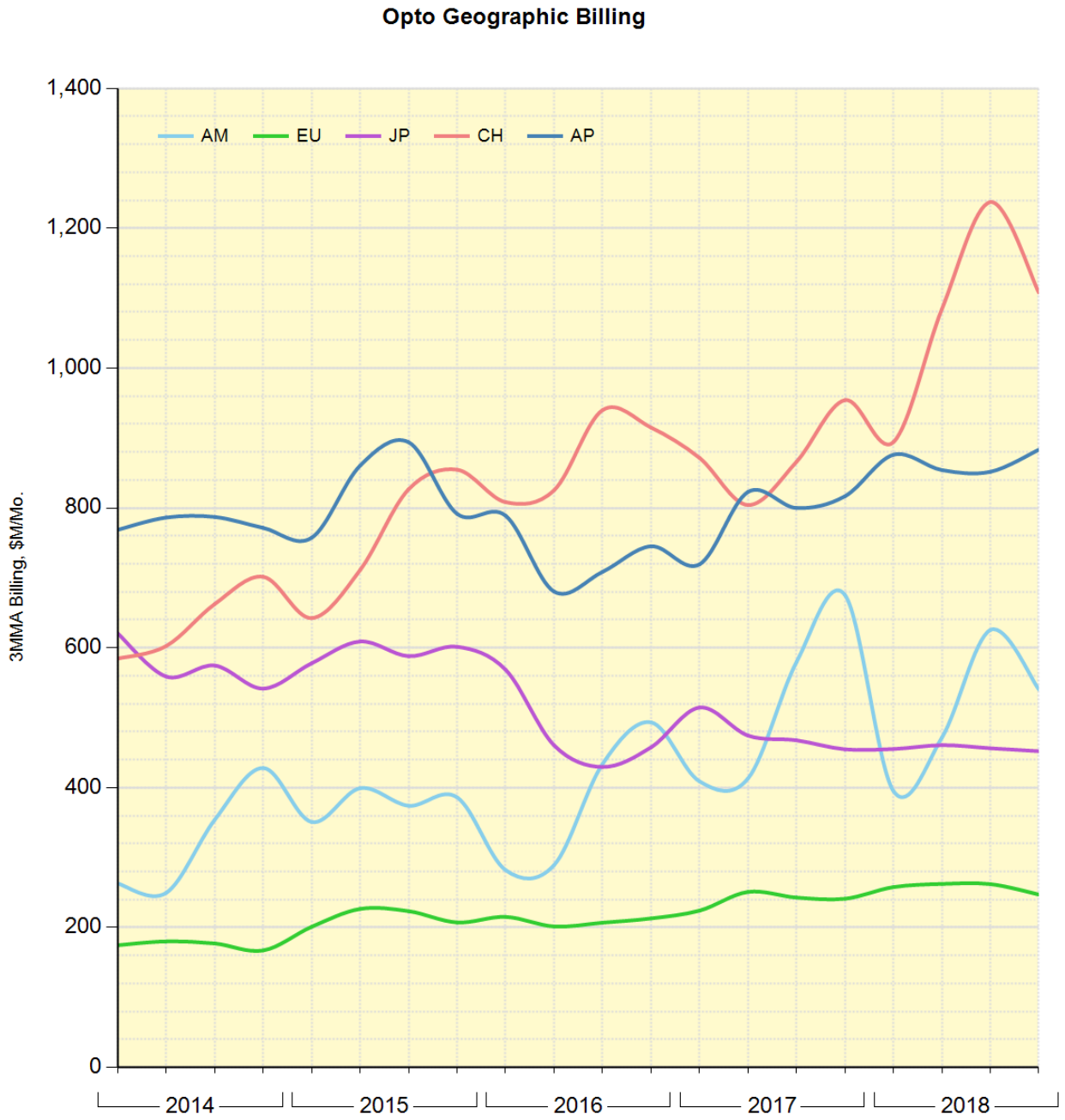

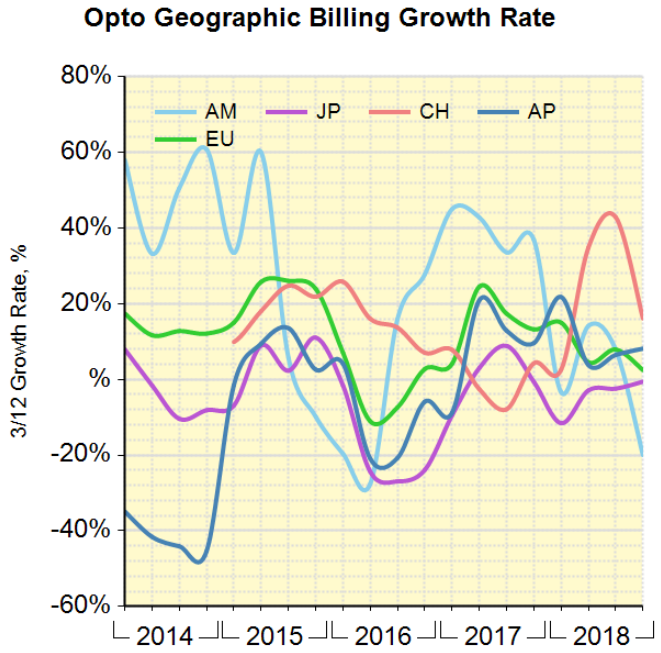

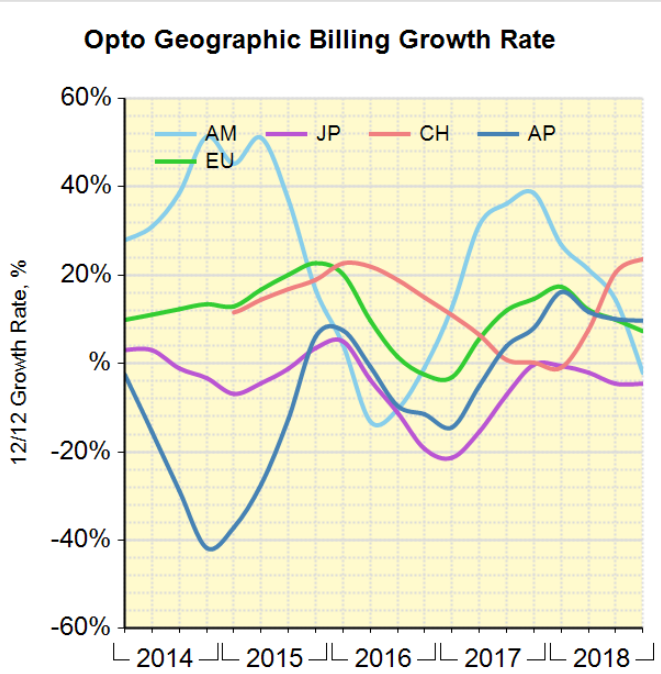

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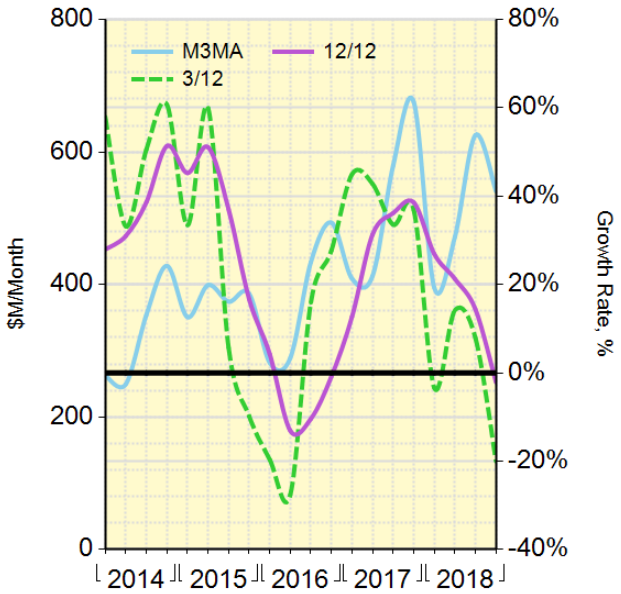
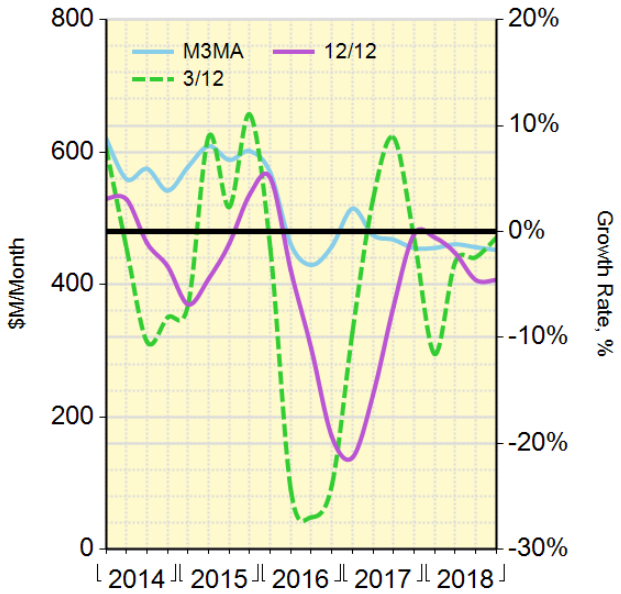
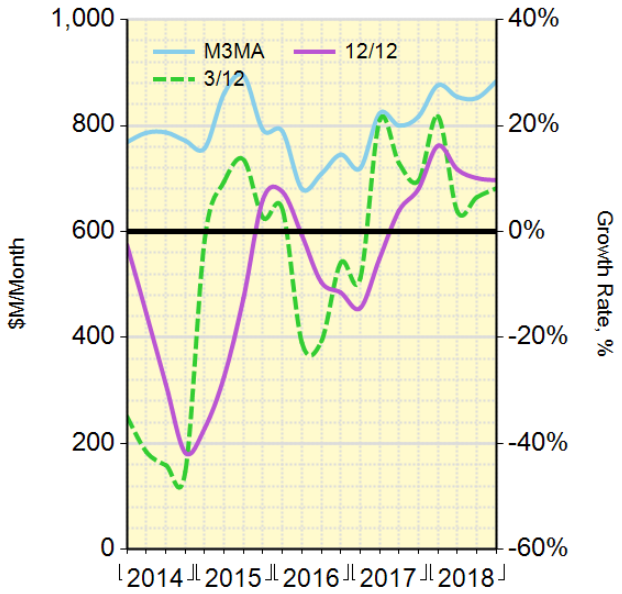
Americas Billing



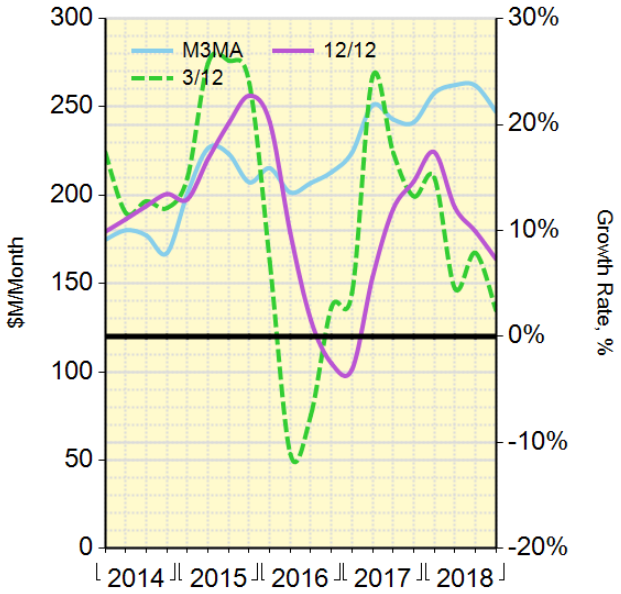
Japan Billing



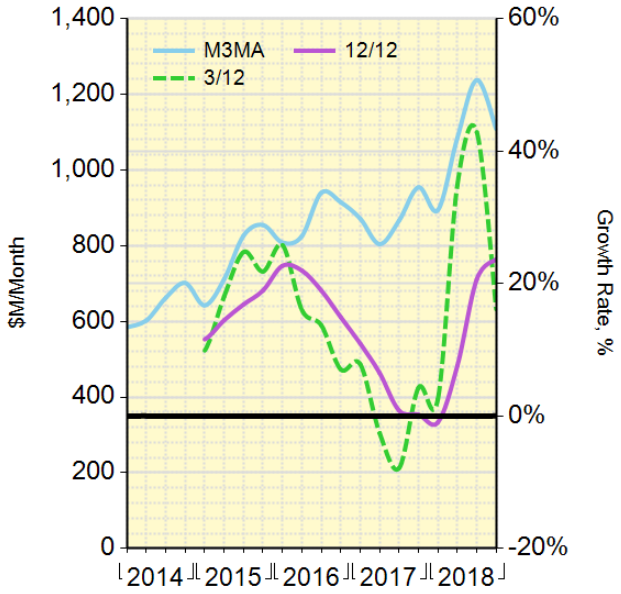
Asia Pacific/All Other Billing



Europe Billing



China Billing



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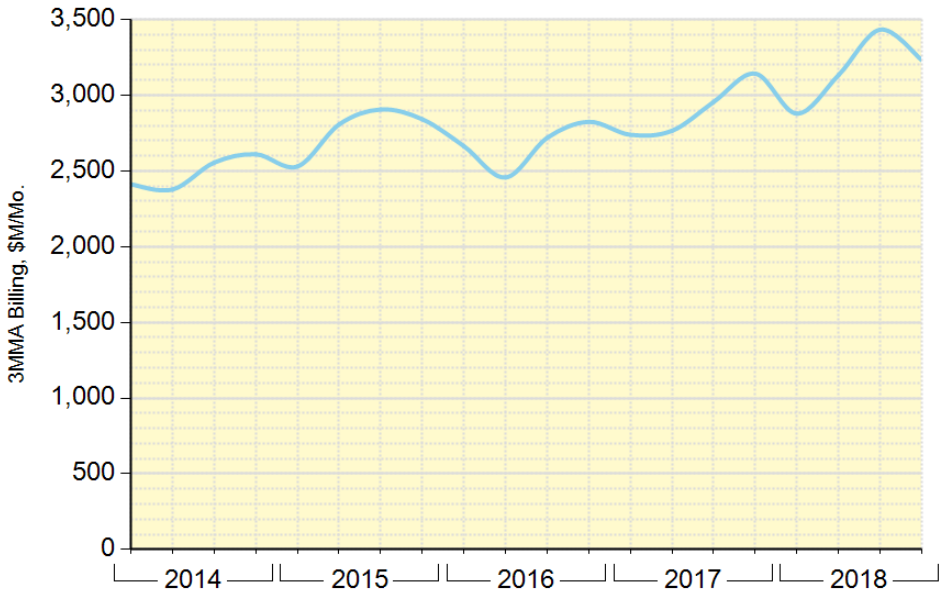
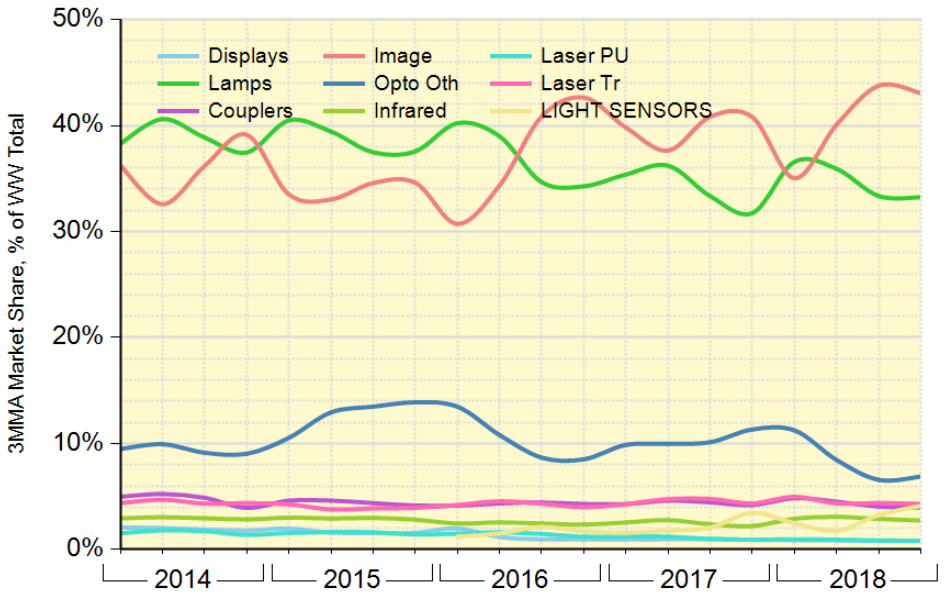
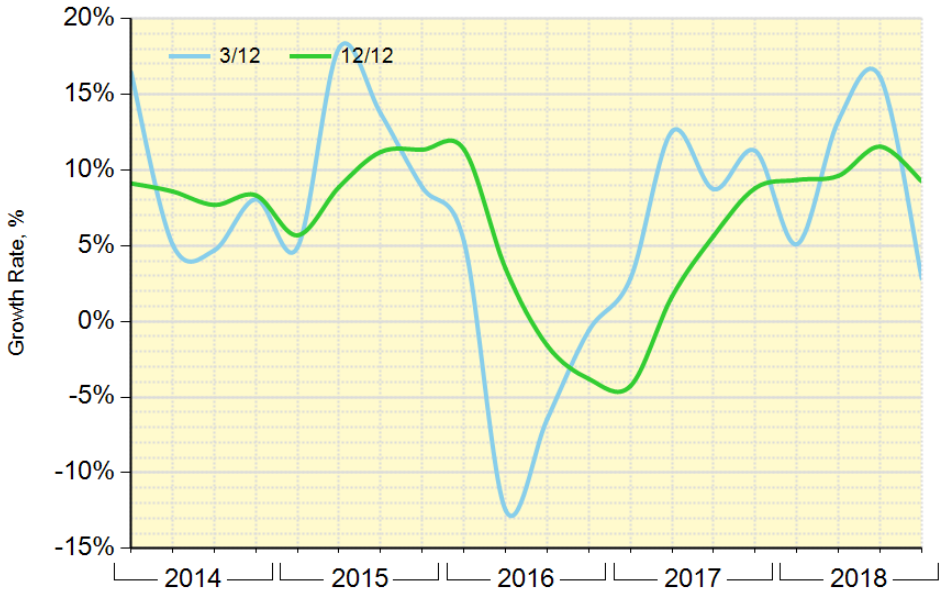
Opto World Billing



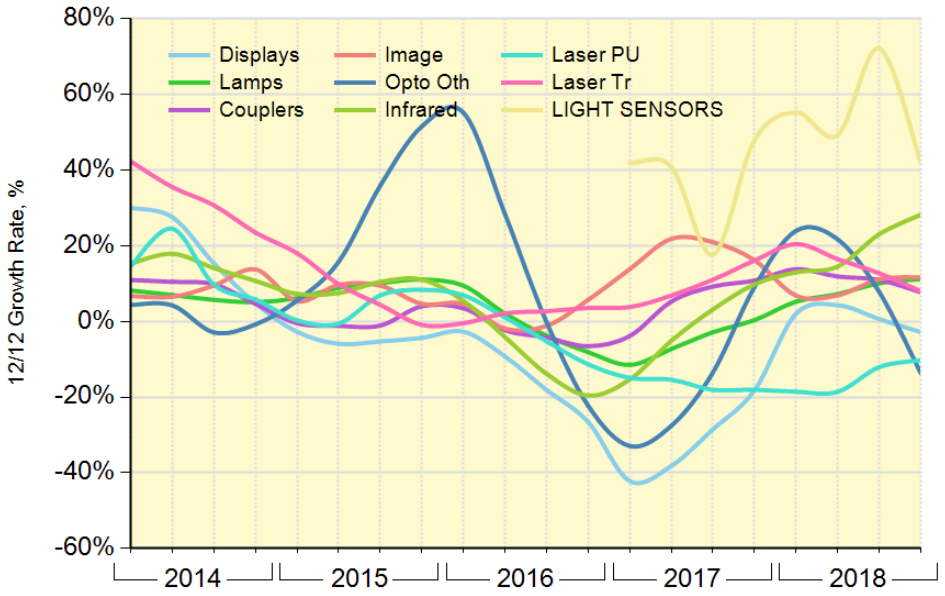
WW Market Share



World Billing Growth Rate



WW Growth Rate



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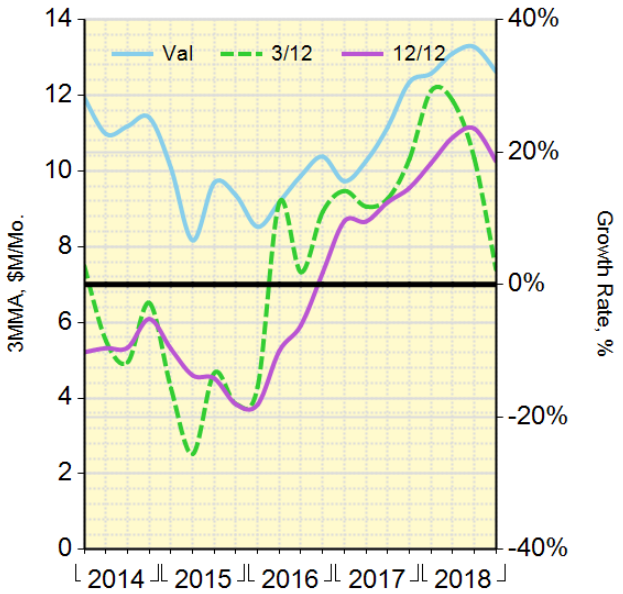
Oth Dis Value



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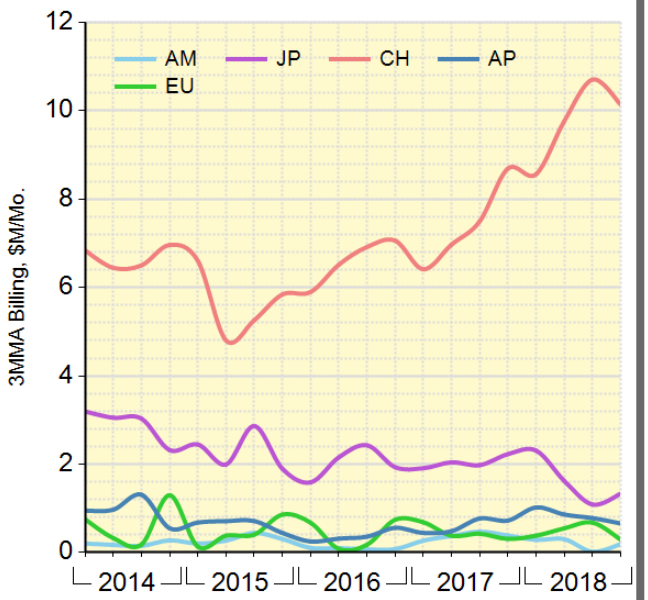

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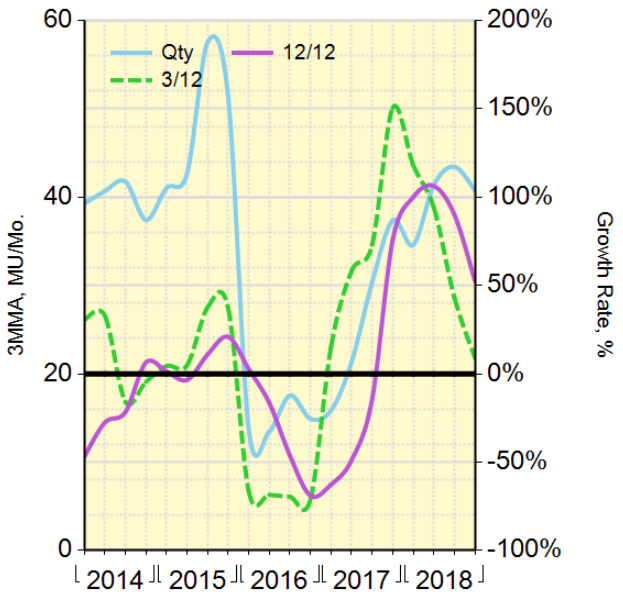

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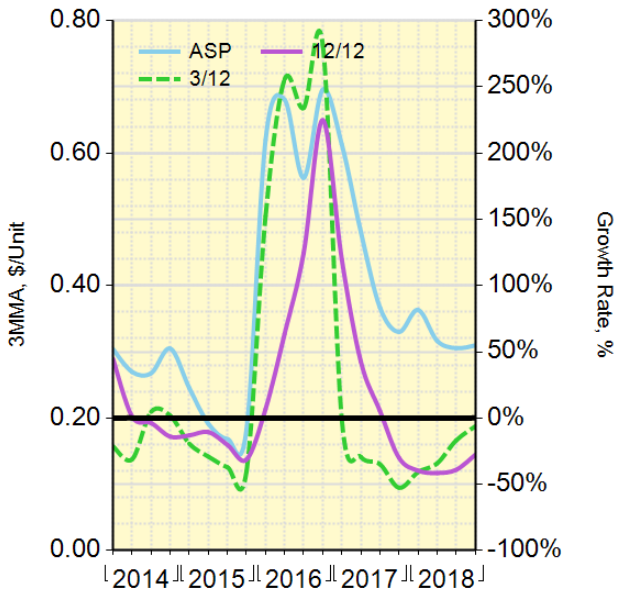

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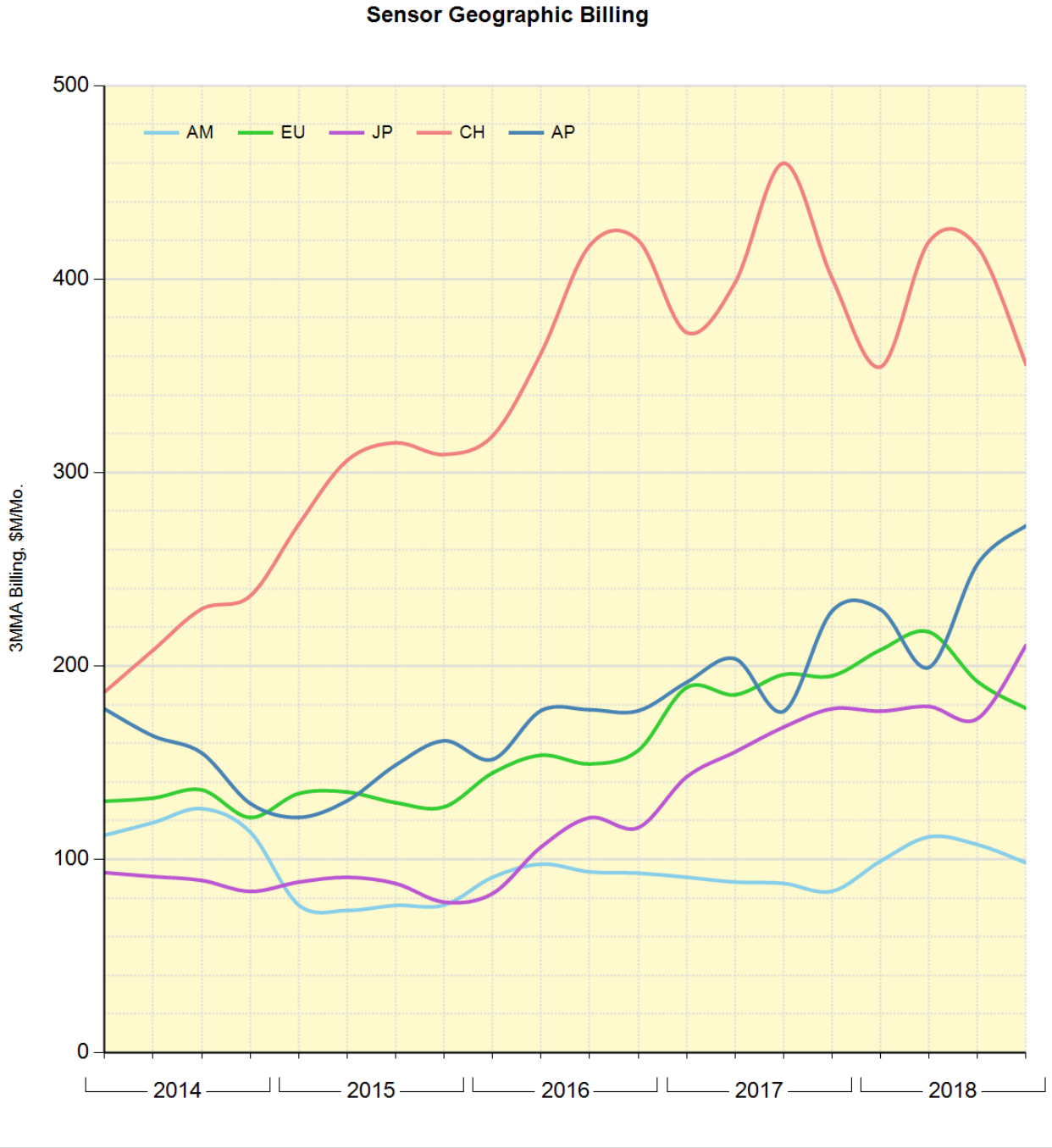

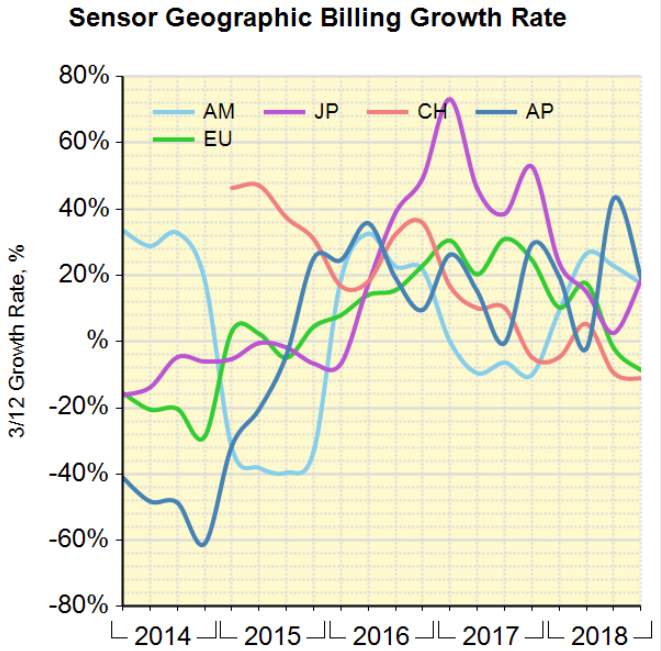

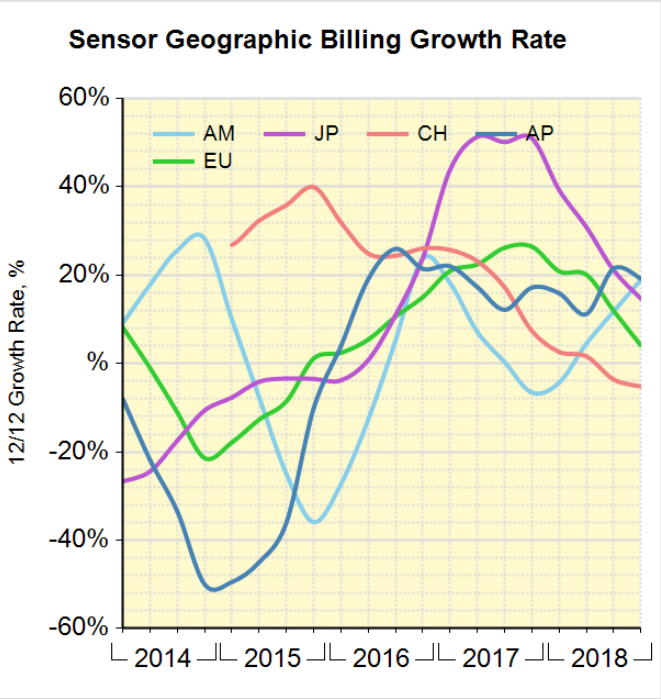

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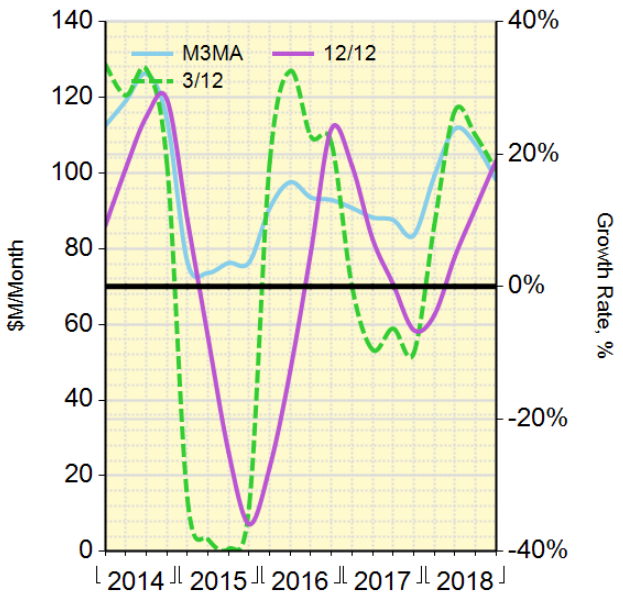
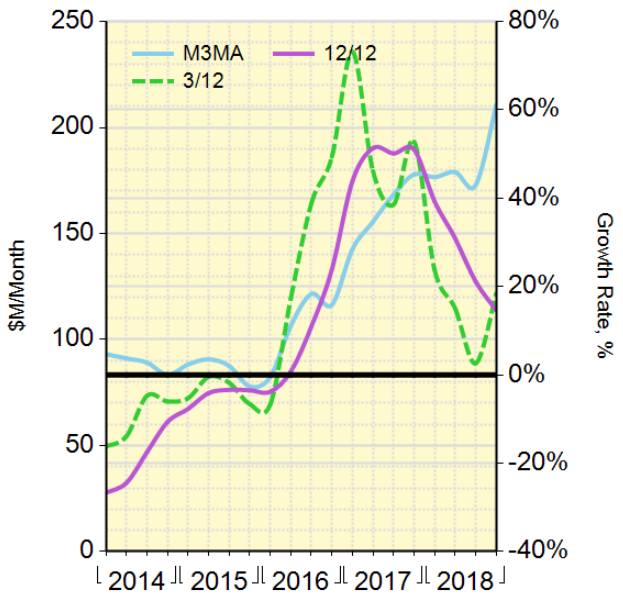
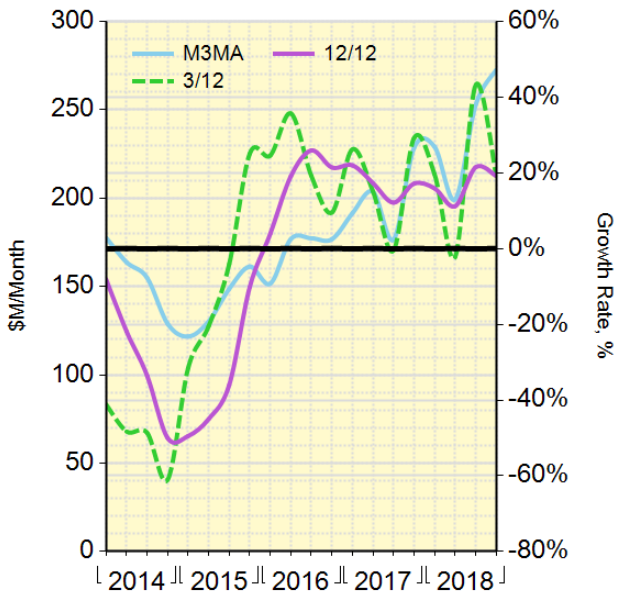
Americas Billing



Japan Billing



Asia Pacific/All Other Billing



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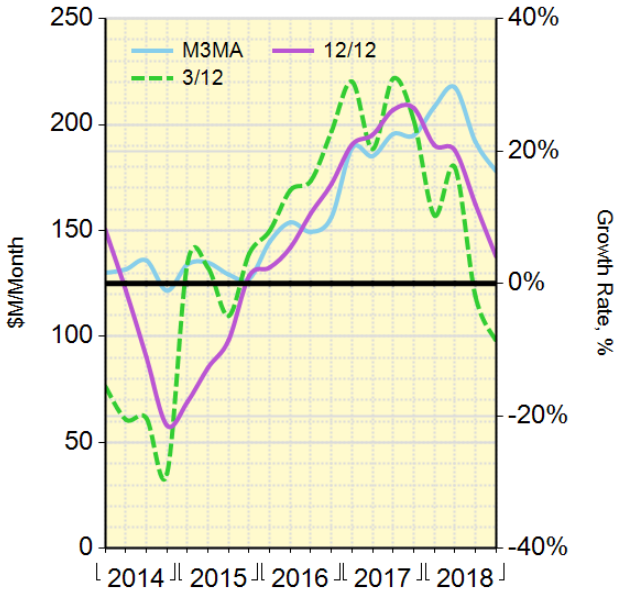

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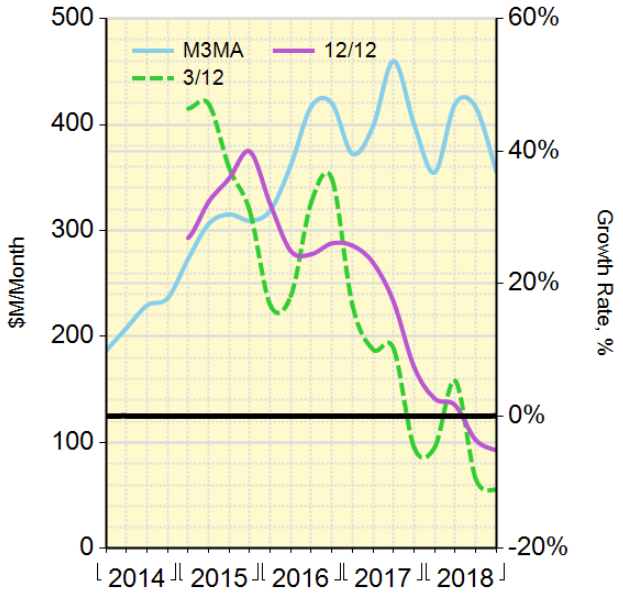

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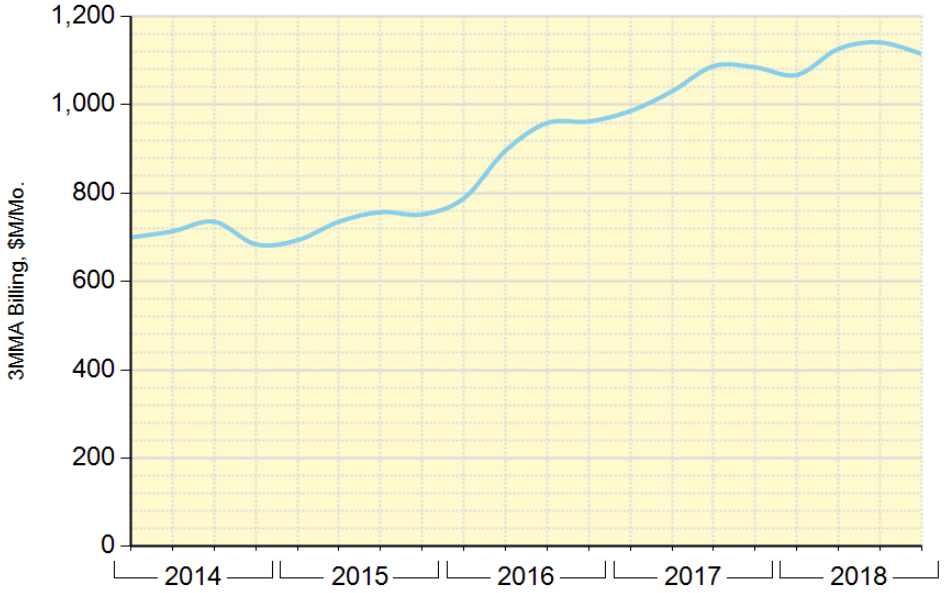
Sensor World Billing



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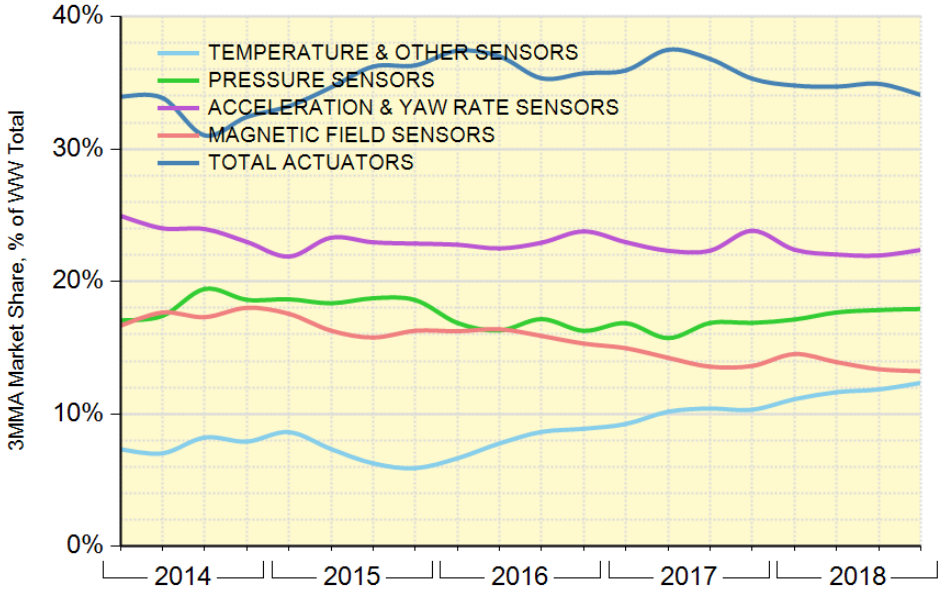
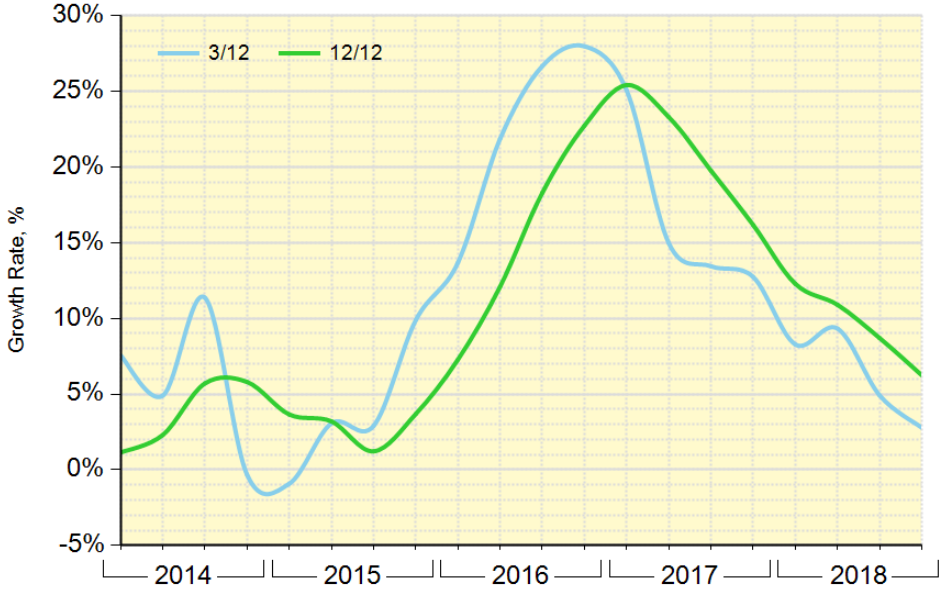
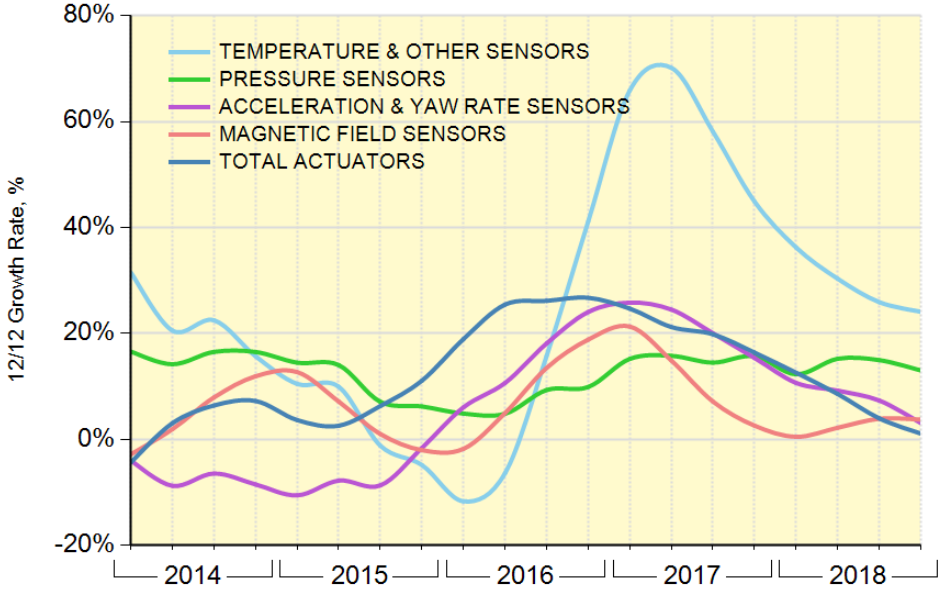


World Billing Growth Rate



WW Growth Rate



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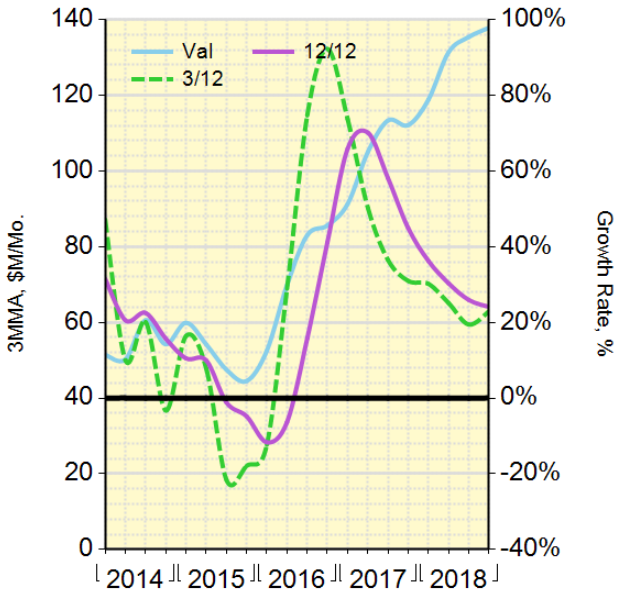
TEMPERATURE & OTHER SENSORS Value



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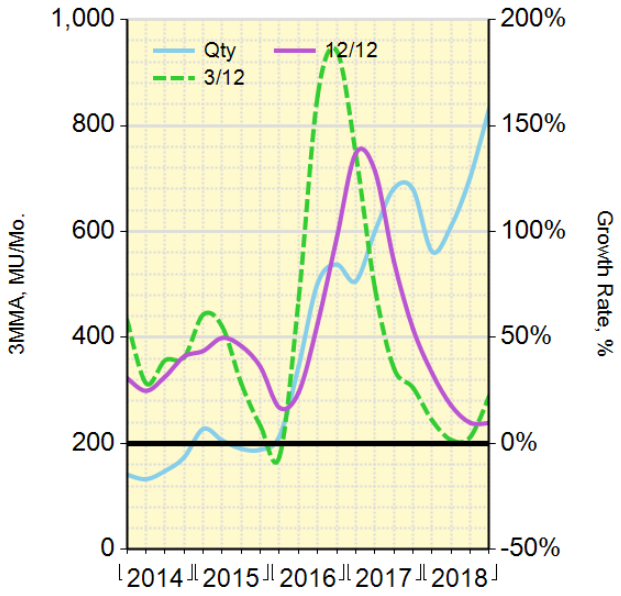

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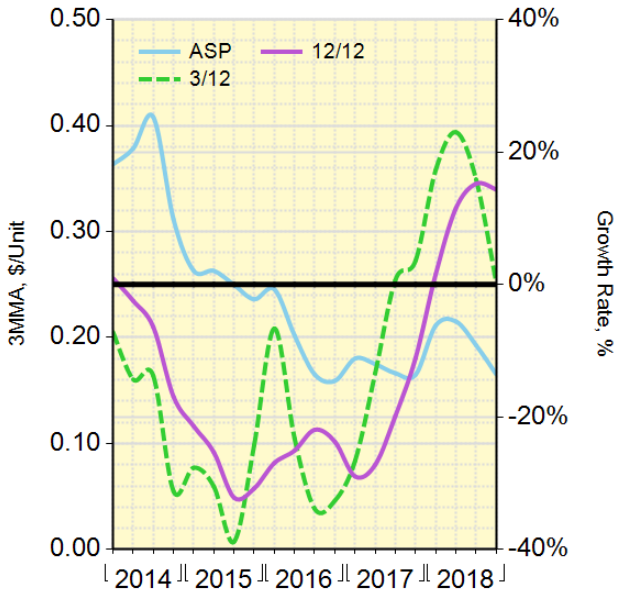
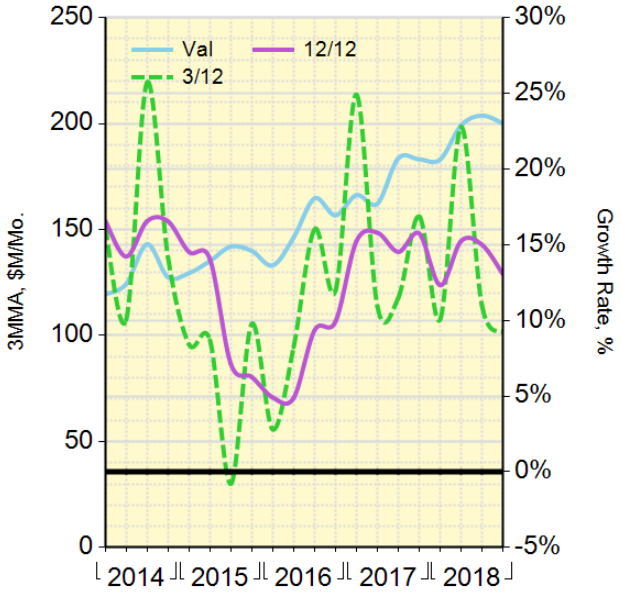


PRESSURE SENSORS Value



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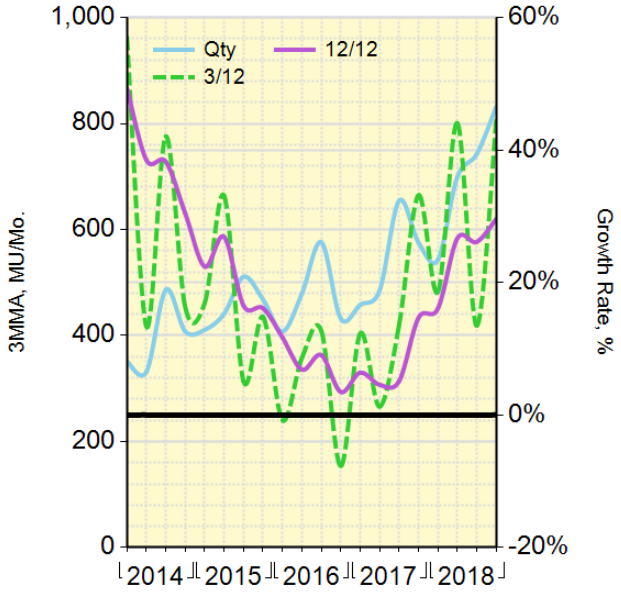

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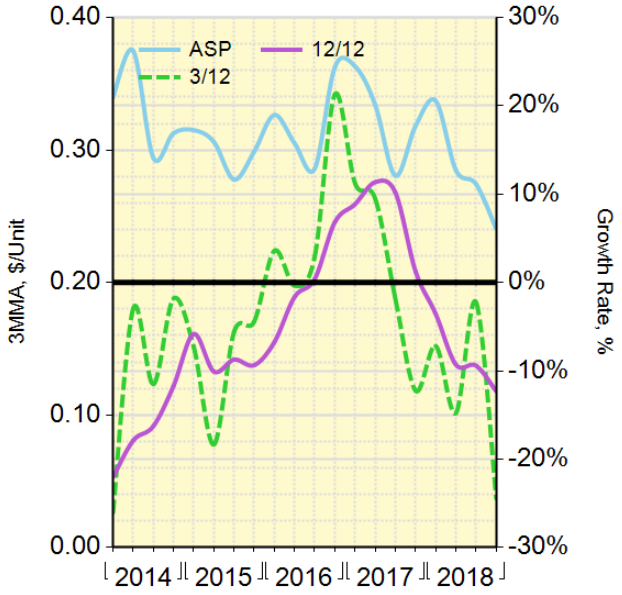

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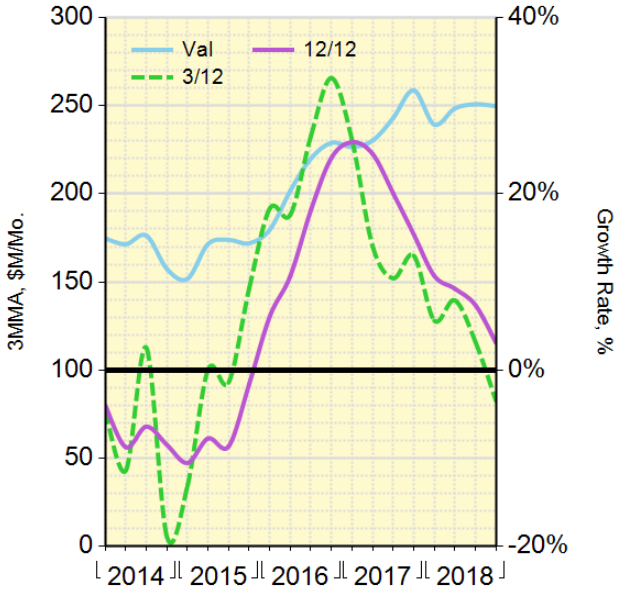

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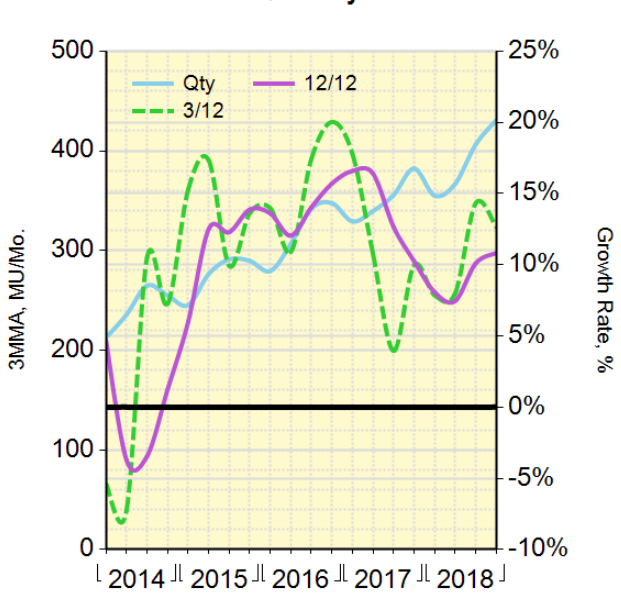

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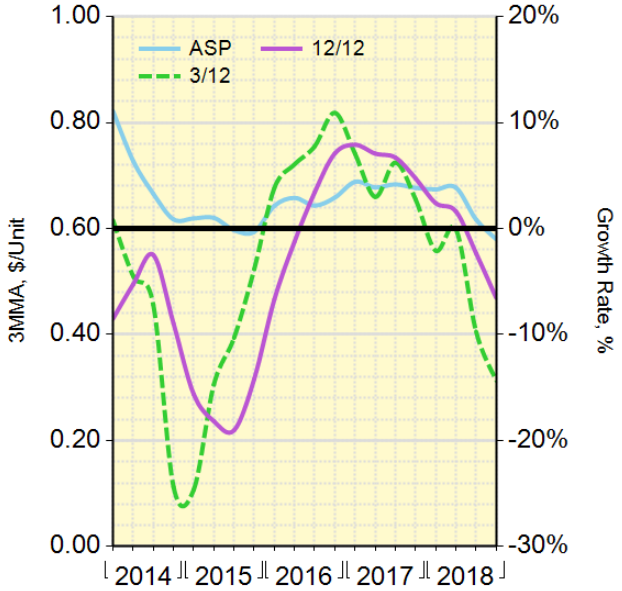

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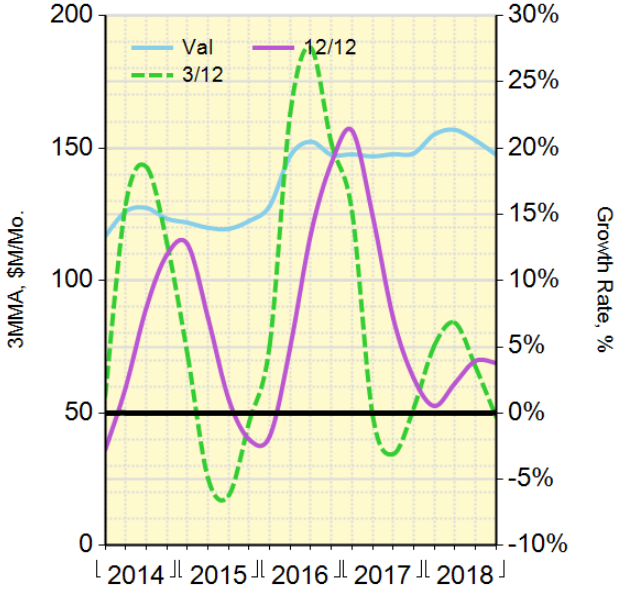

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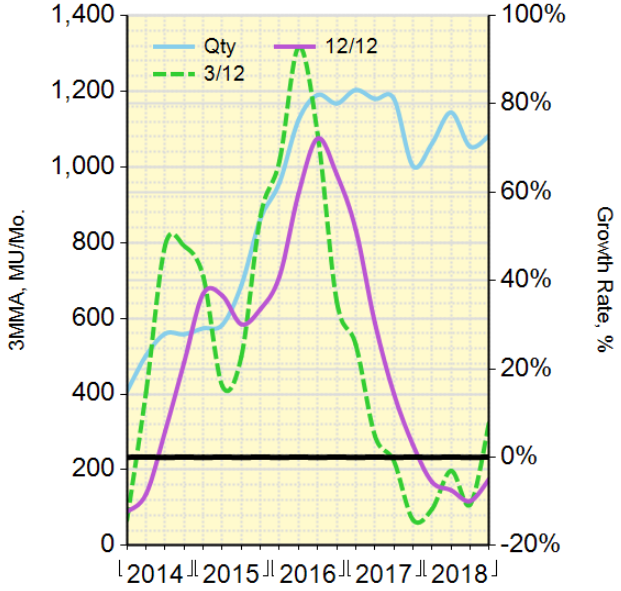

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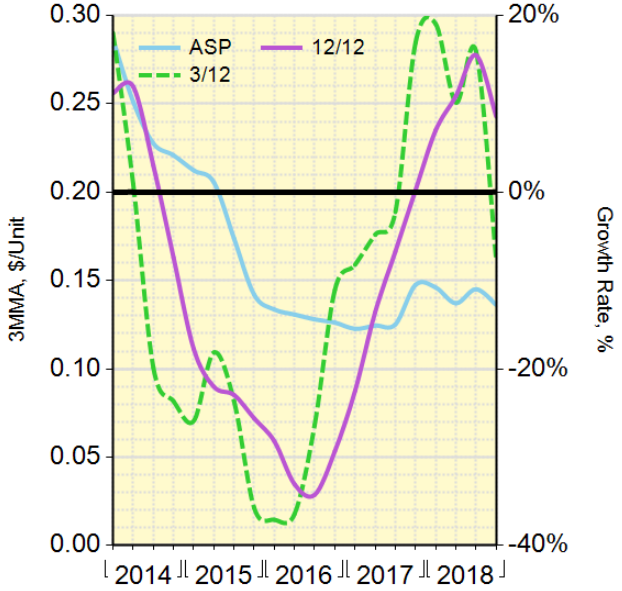

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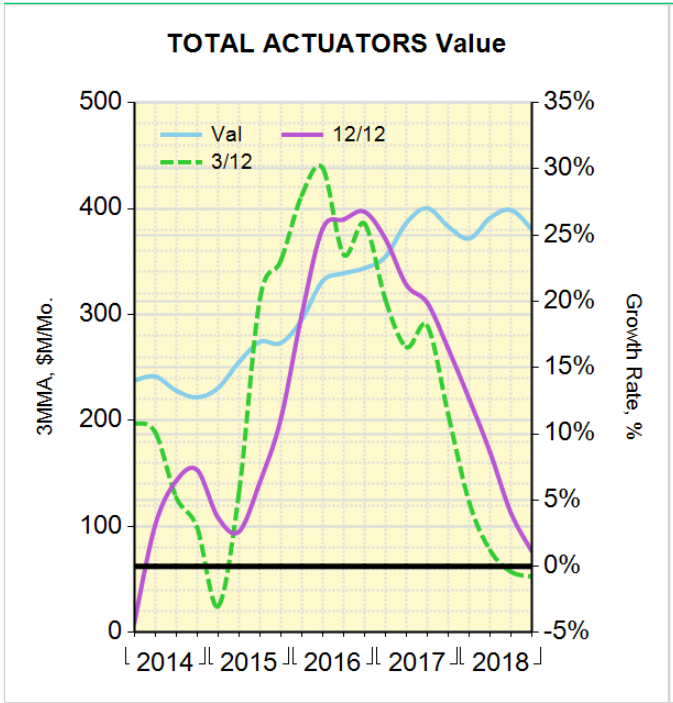

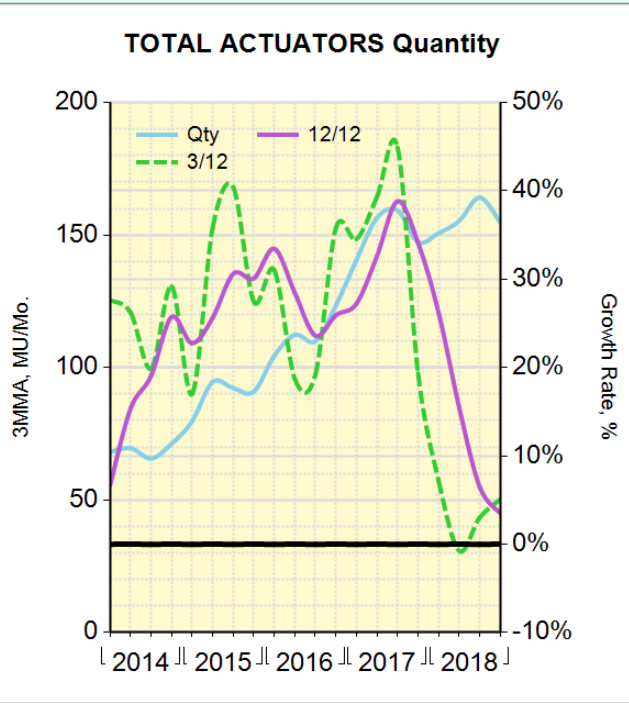

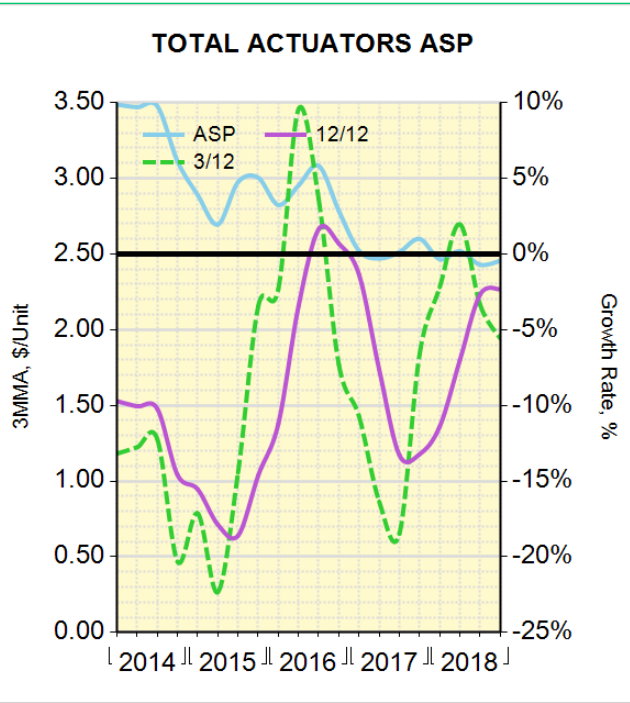

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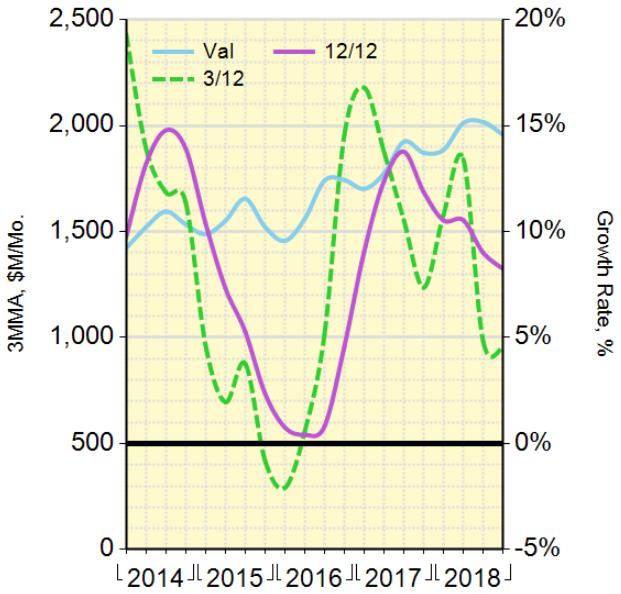
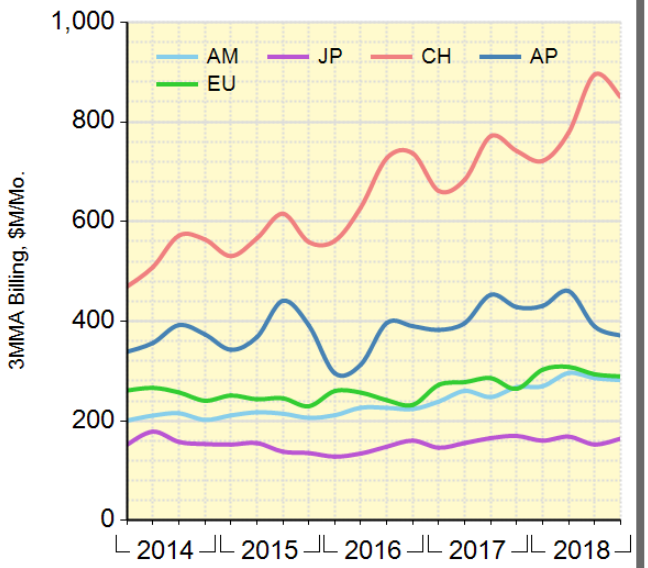
GENERAL PURPOSE ANALOG Value



GENERAL PURPOSE ANALOG Geographic Billing



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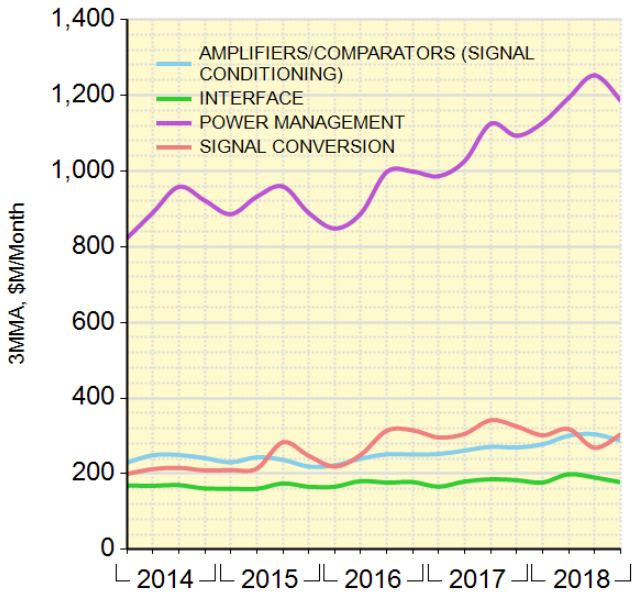

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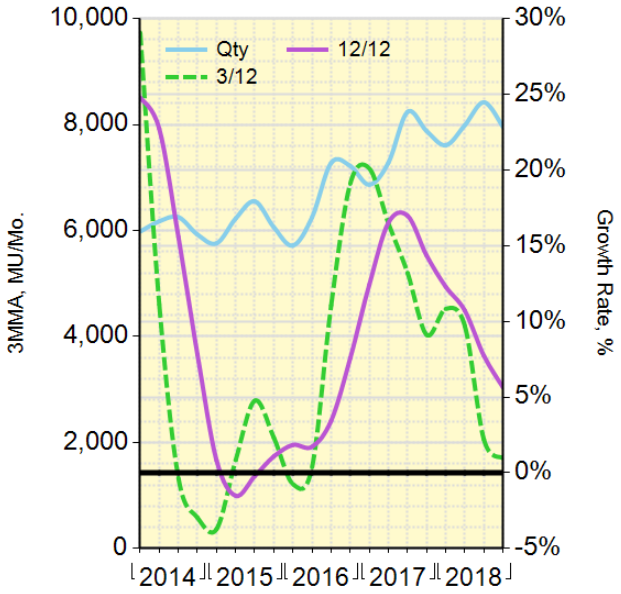

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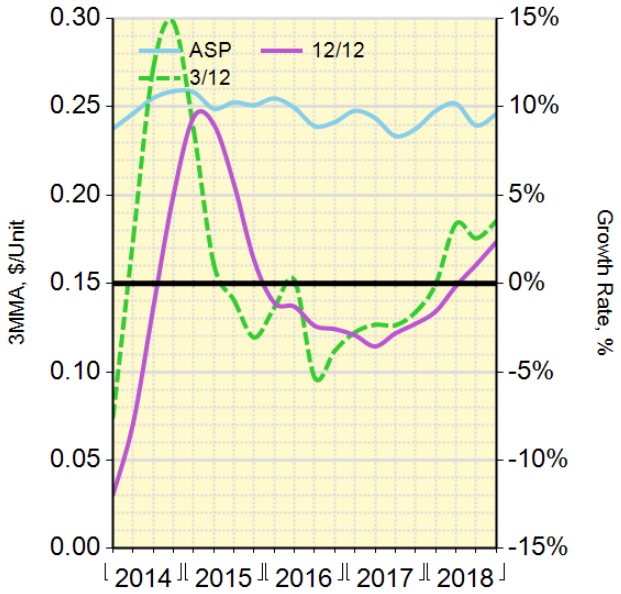

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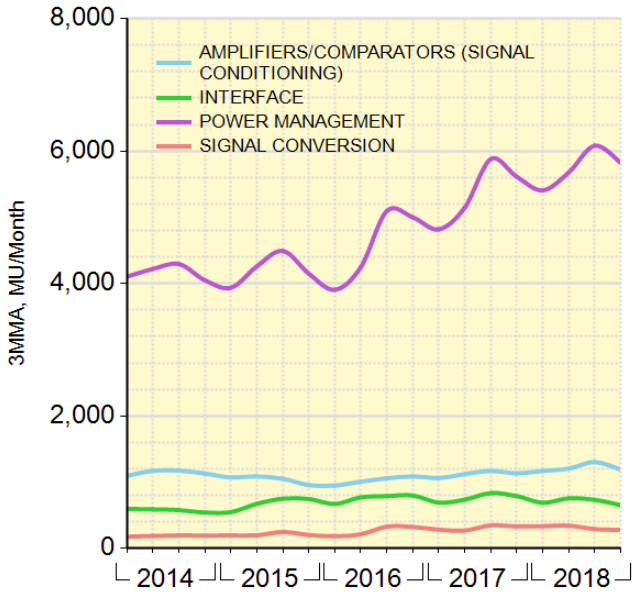

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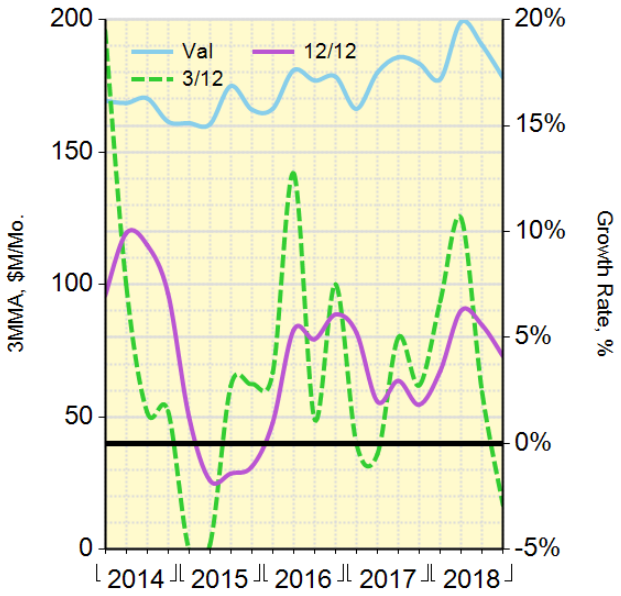
Interf Value



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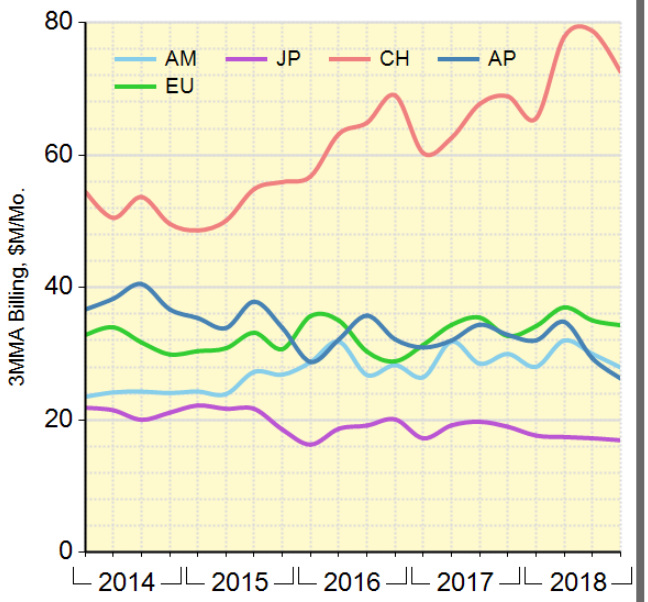

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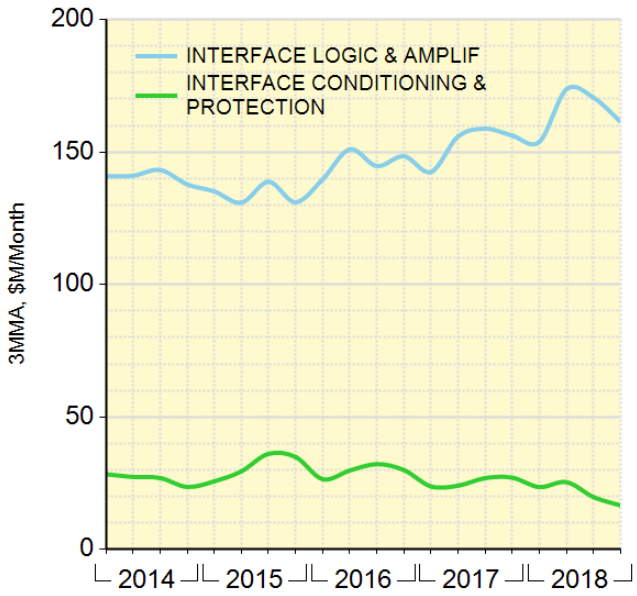

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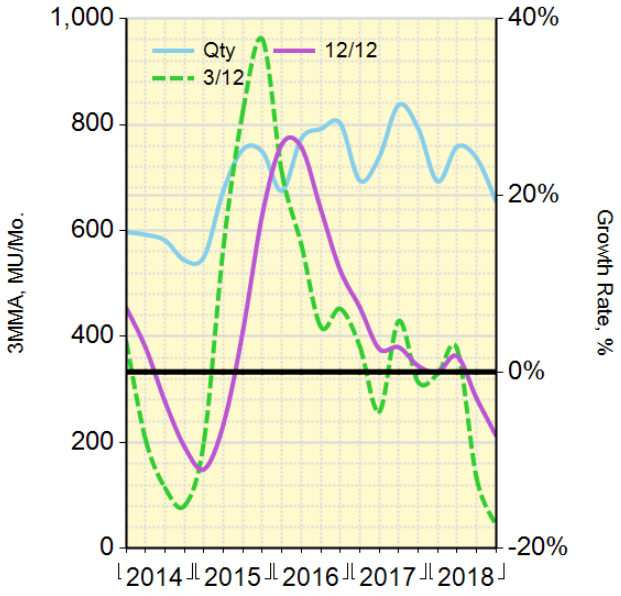

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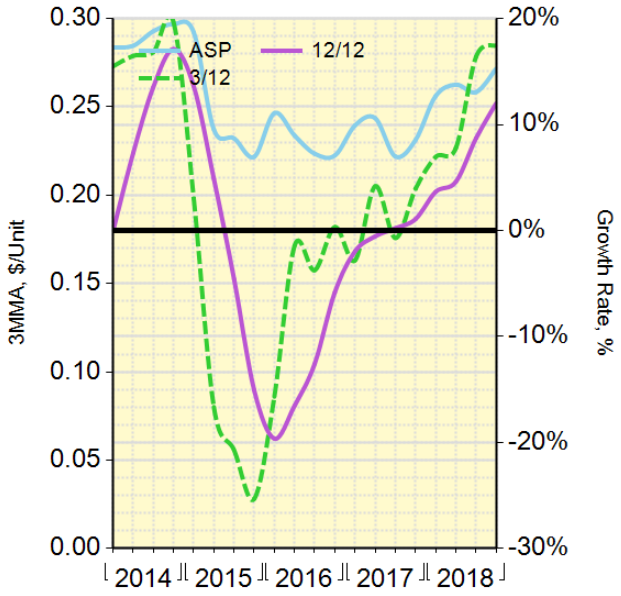

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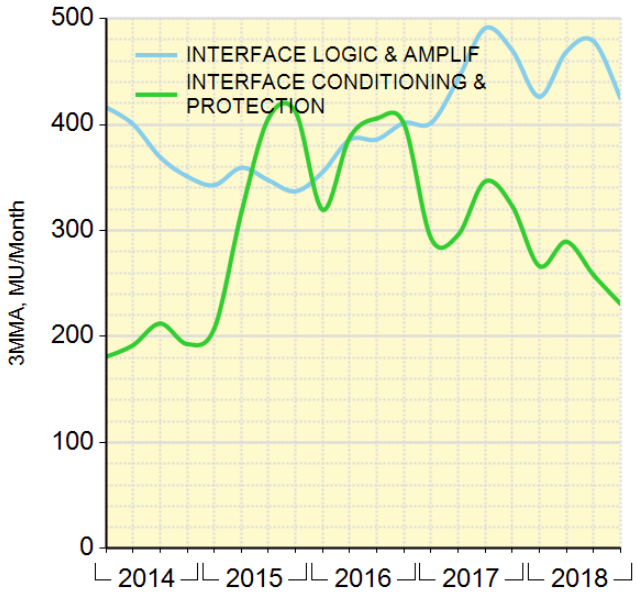

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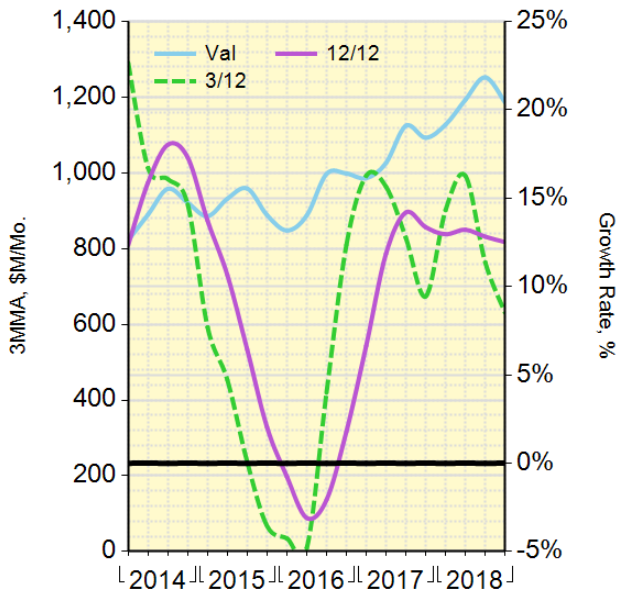

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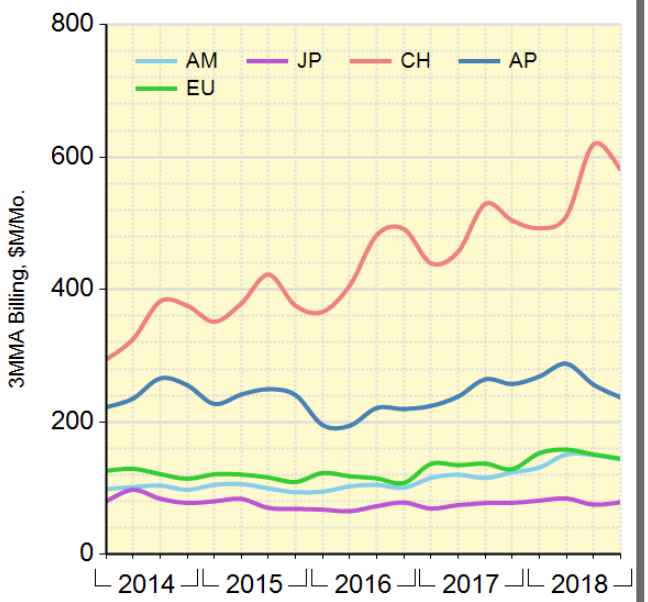

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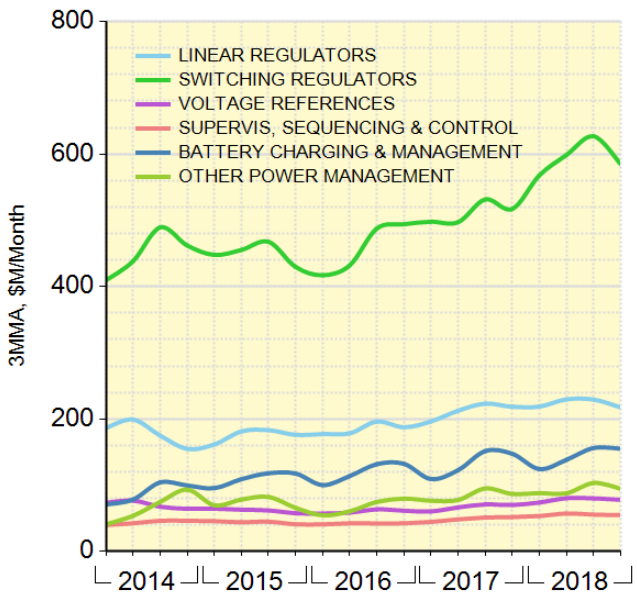

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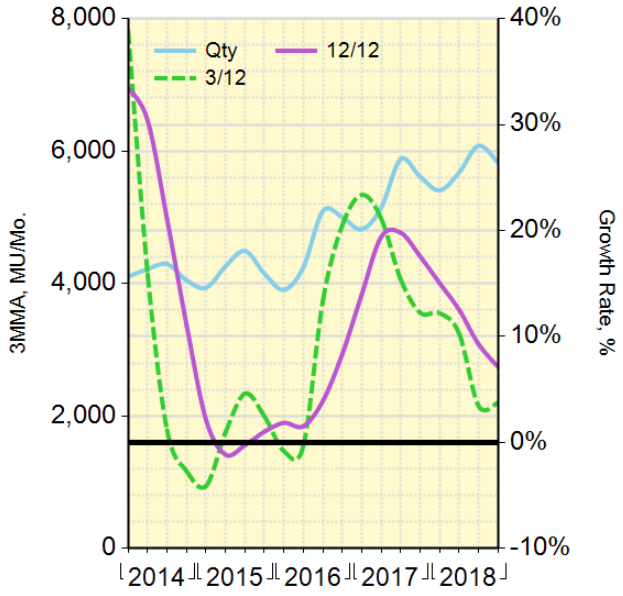

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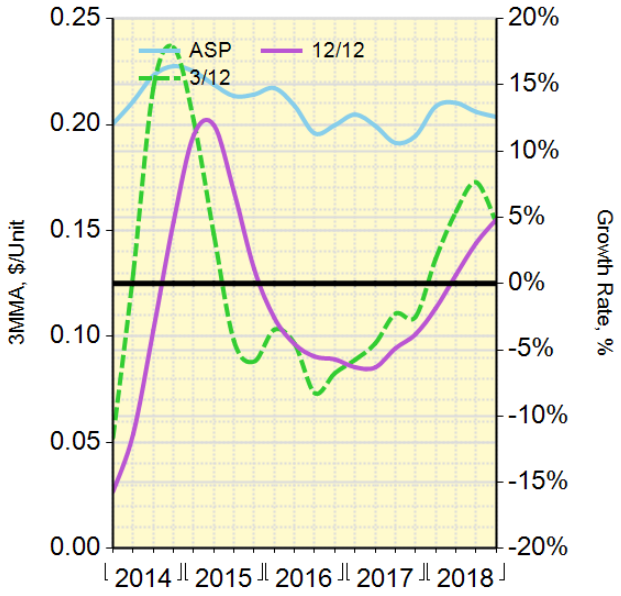
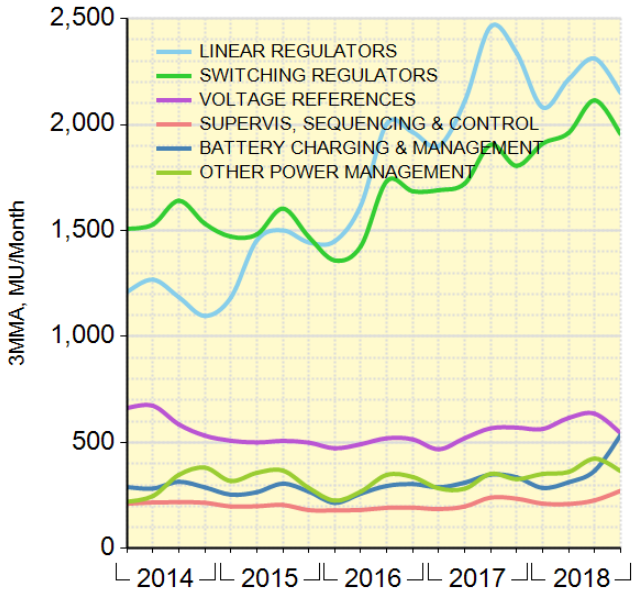


Product Mix - Quantity



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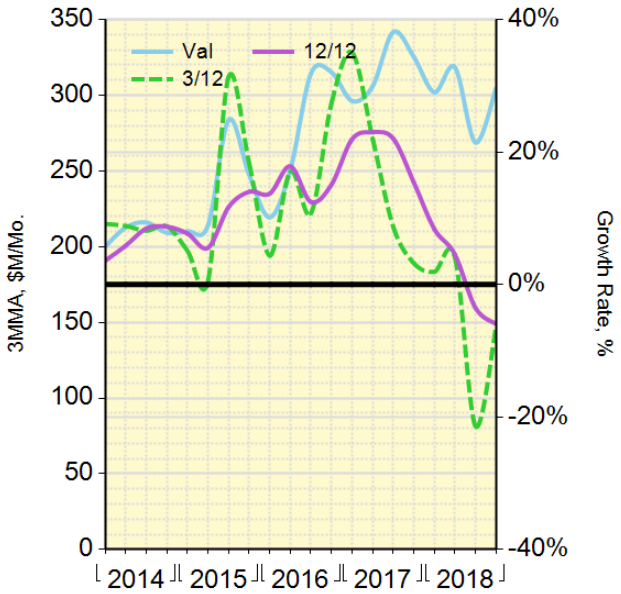
Sig Conv Value



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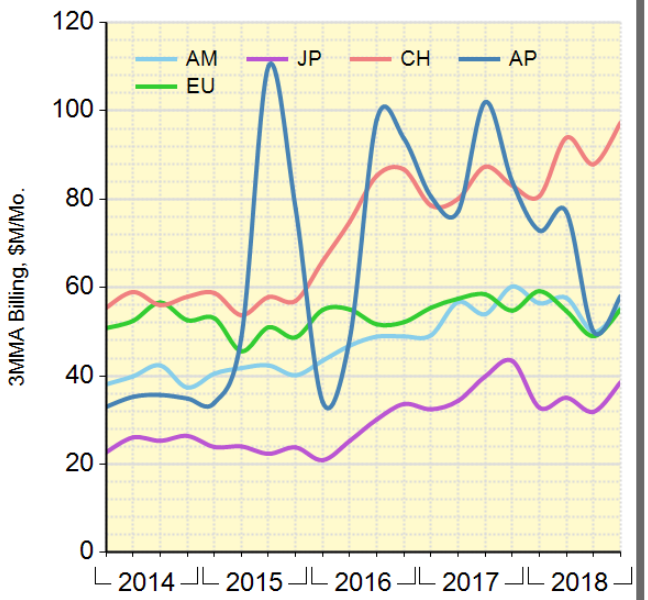

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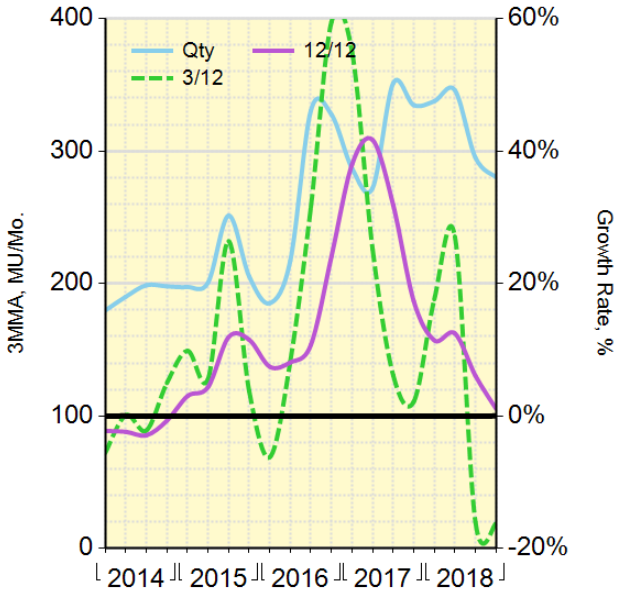

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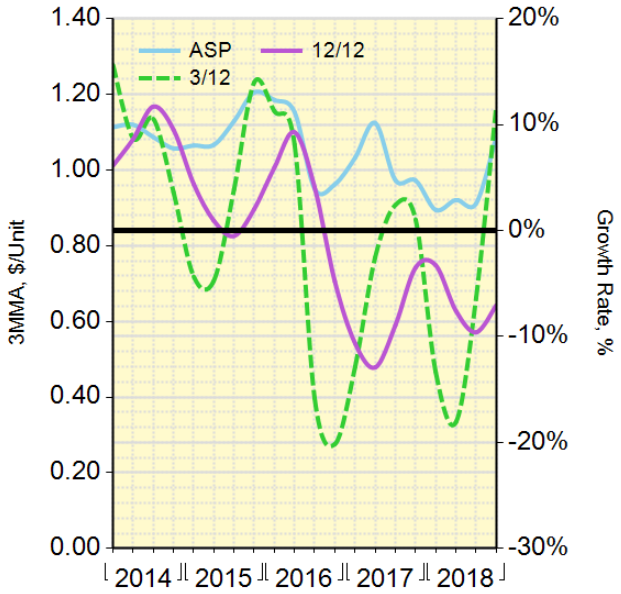

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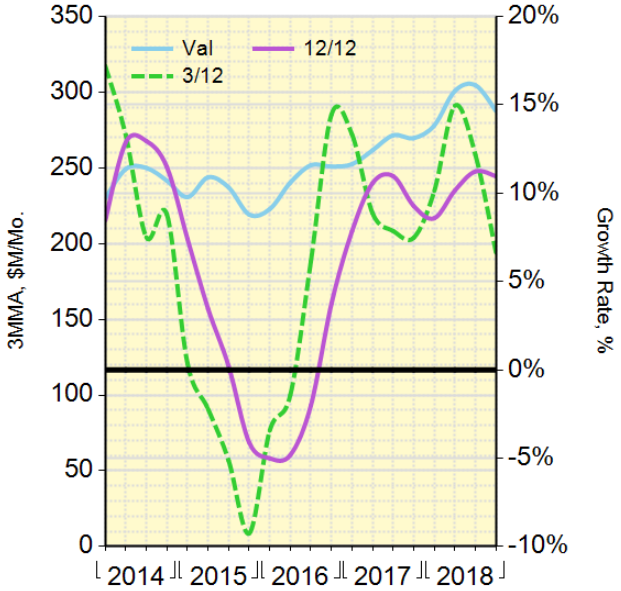
Amp & Com Value



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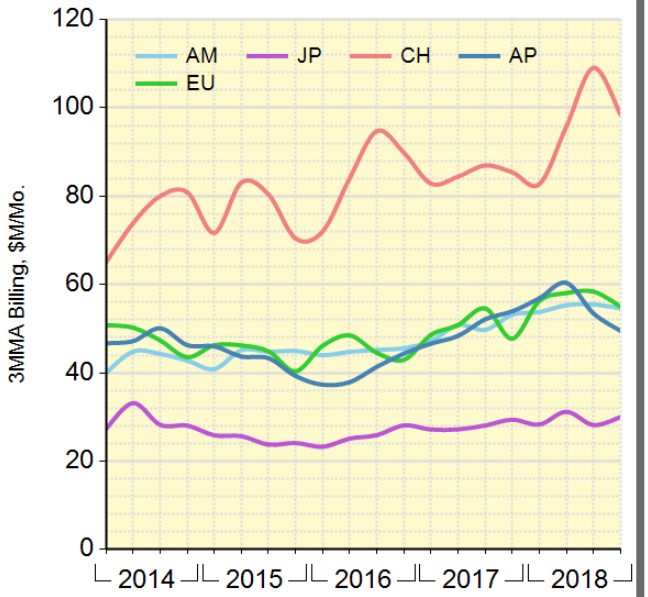

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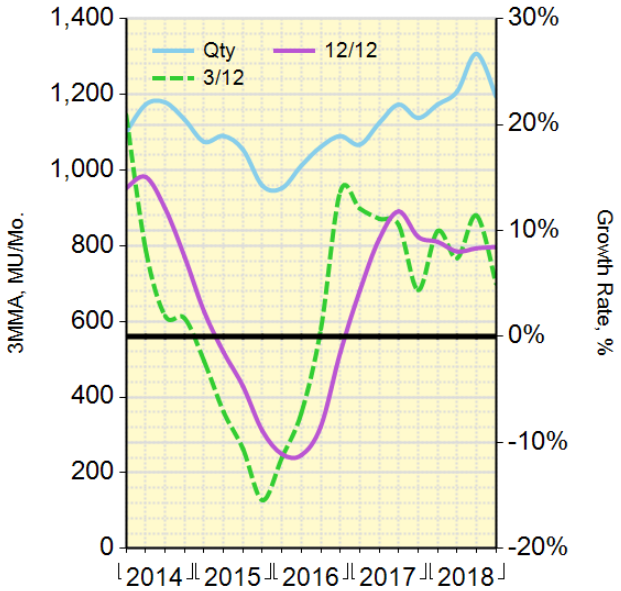

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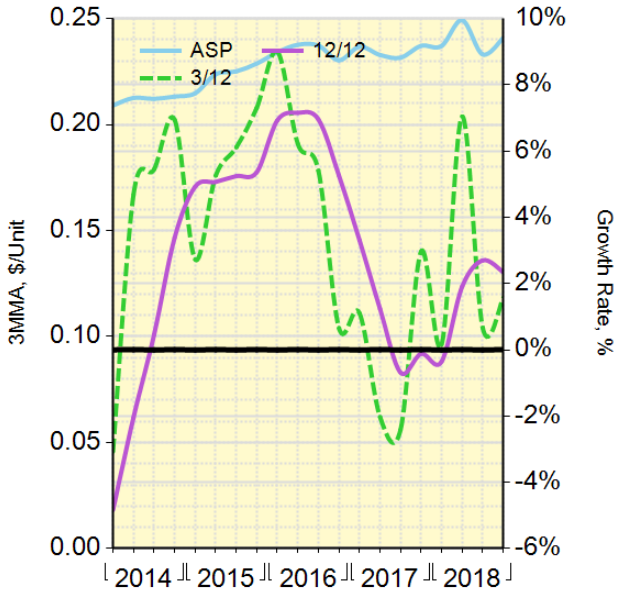

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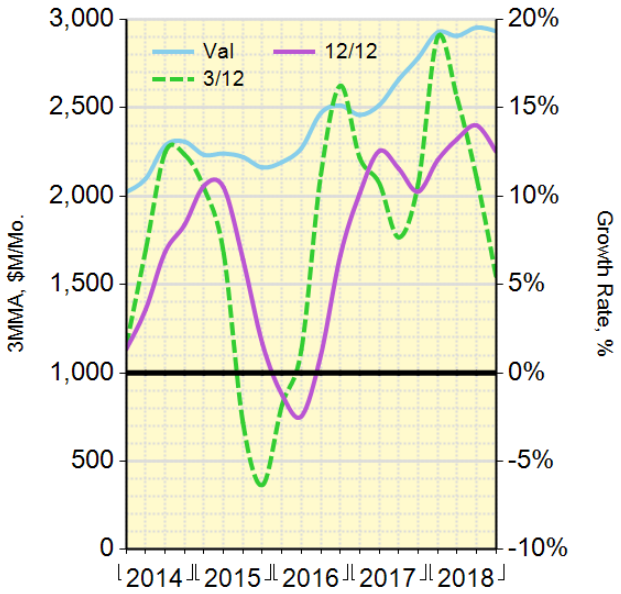
APPLICATION SPECIFIC ANALOG Value



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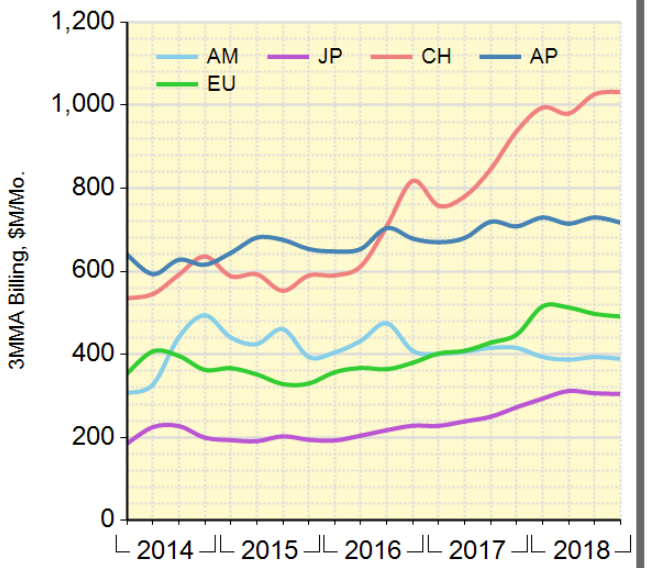
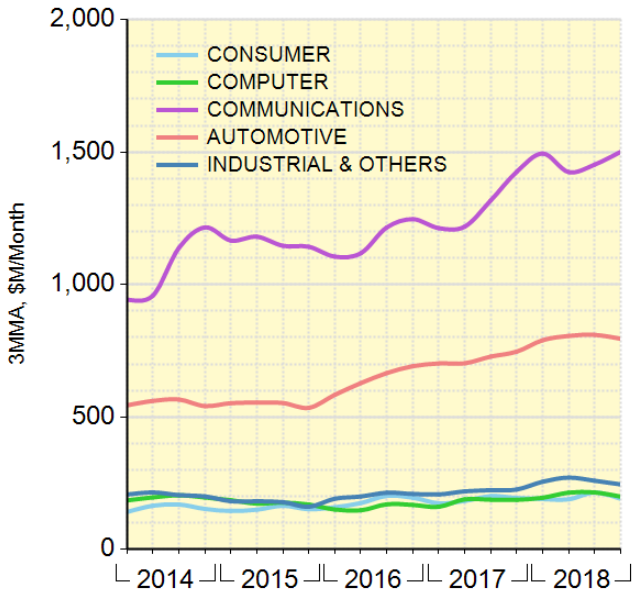


Product Mix - Value



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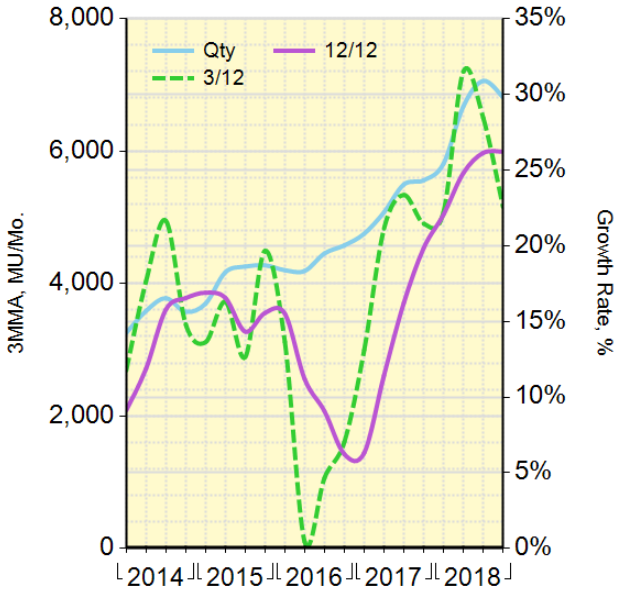
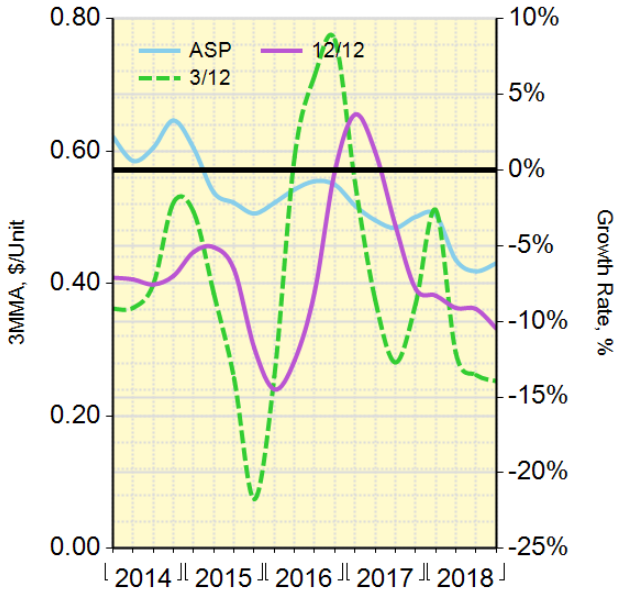
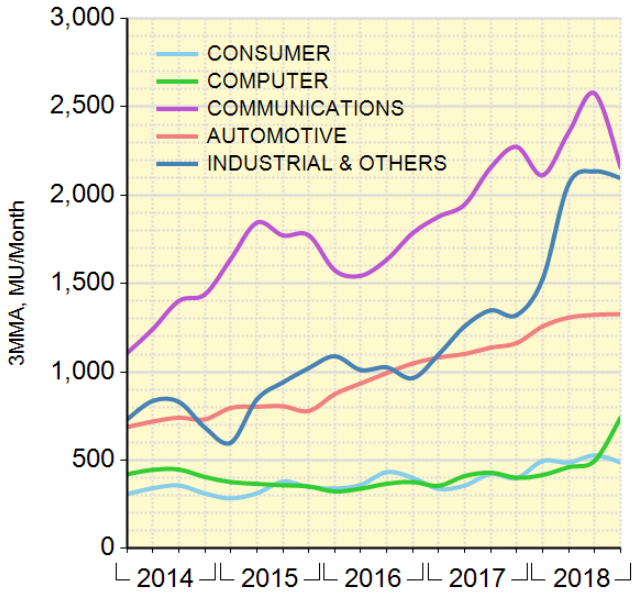


APPLICATION SPECIFIC ANALOG Price



Product Mix - Quantity



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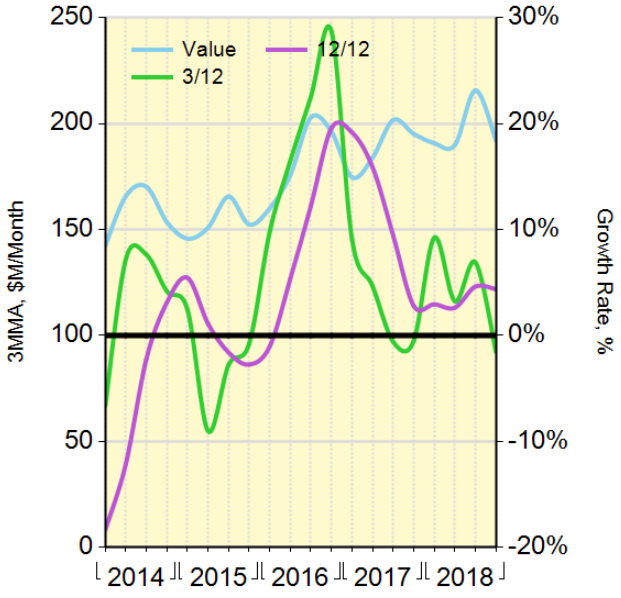
CONSUMER Value



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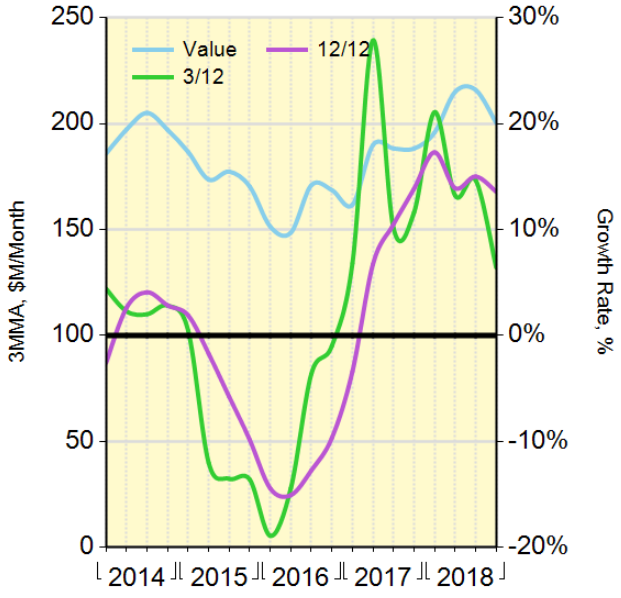

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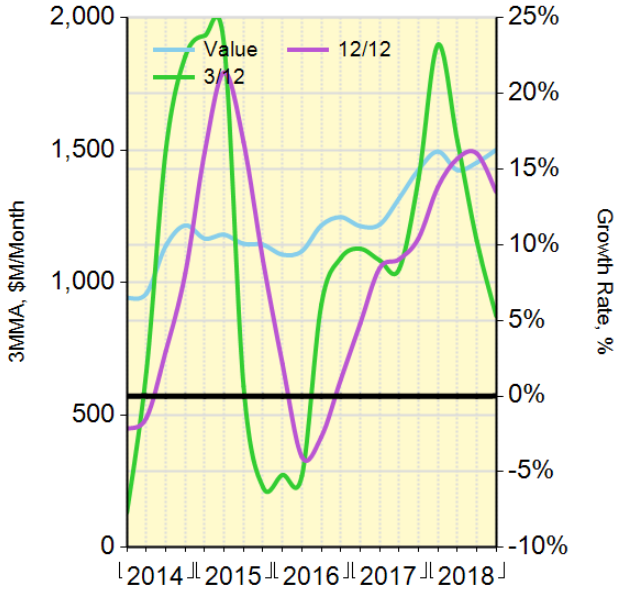

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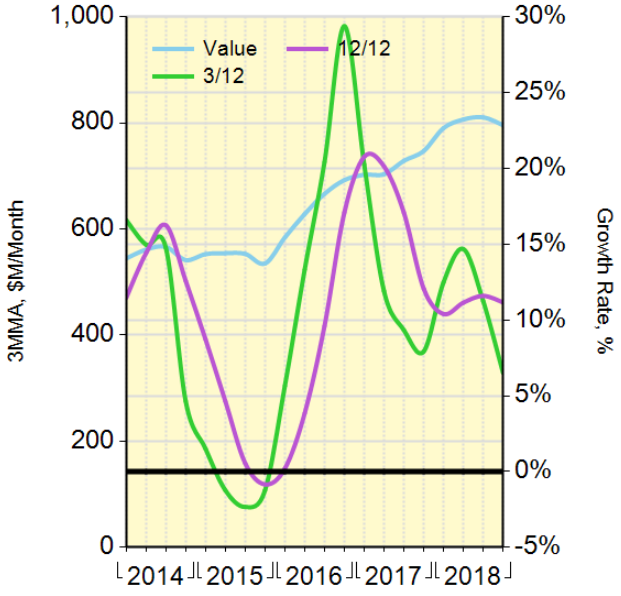
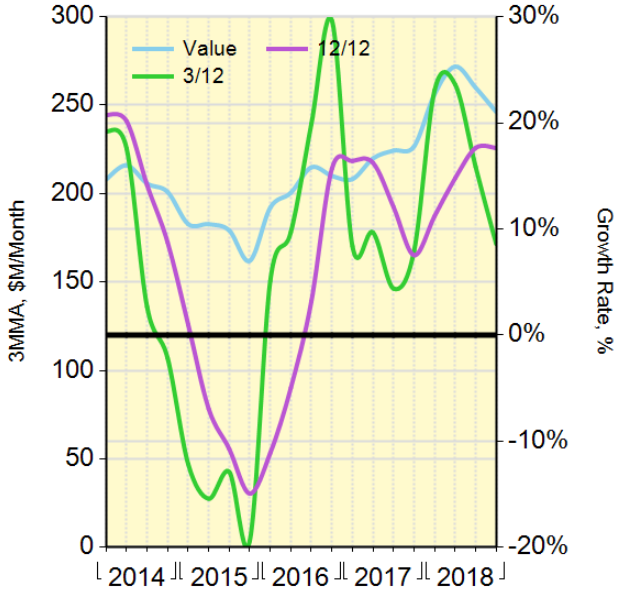


INDUSTRIAL & OTHERS Value



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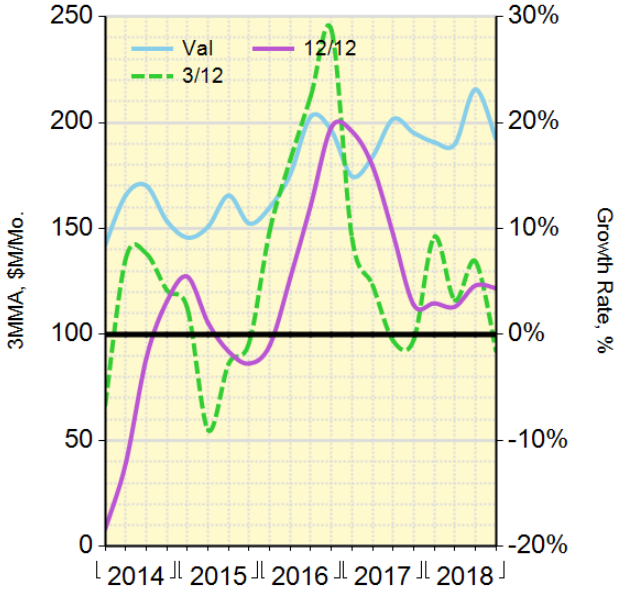

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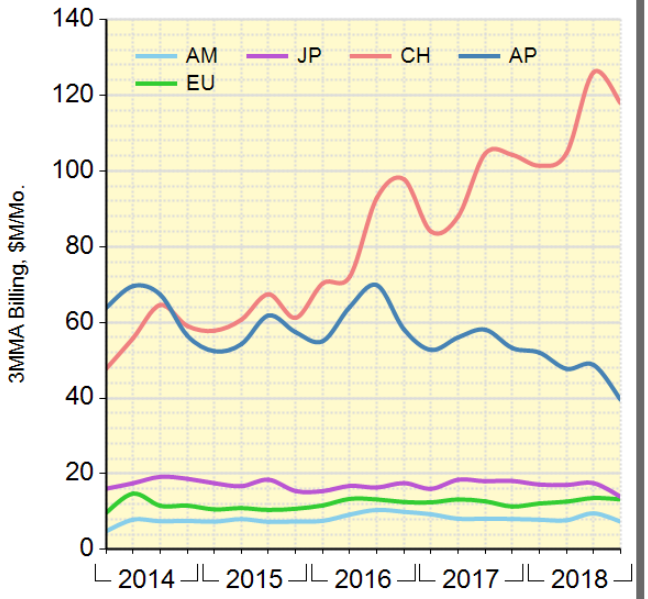

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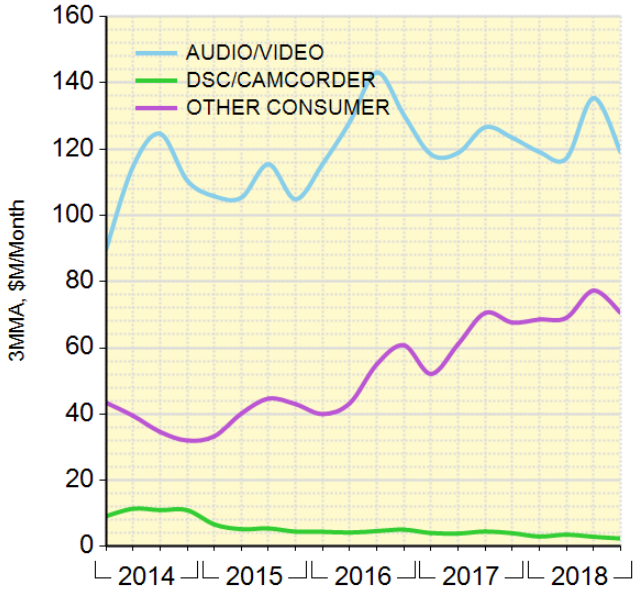

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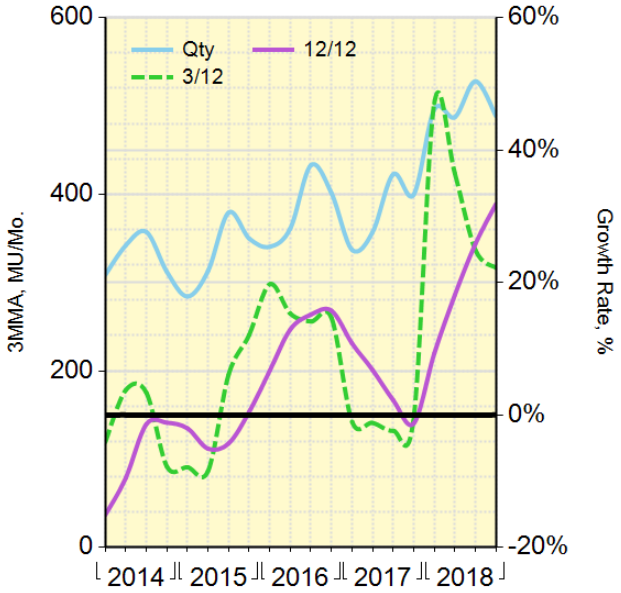

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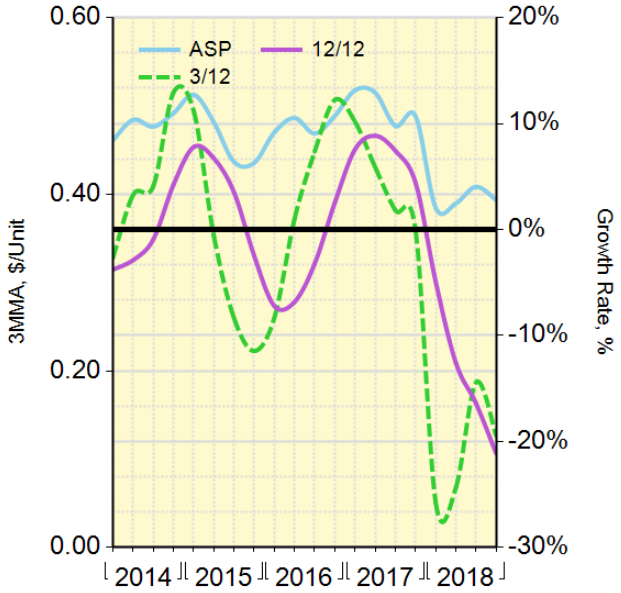

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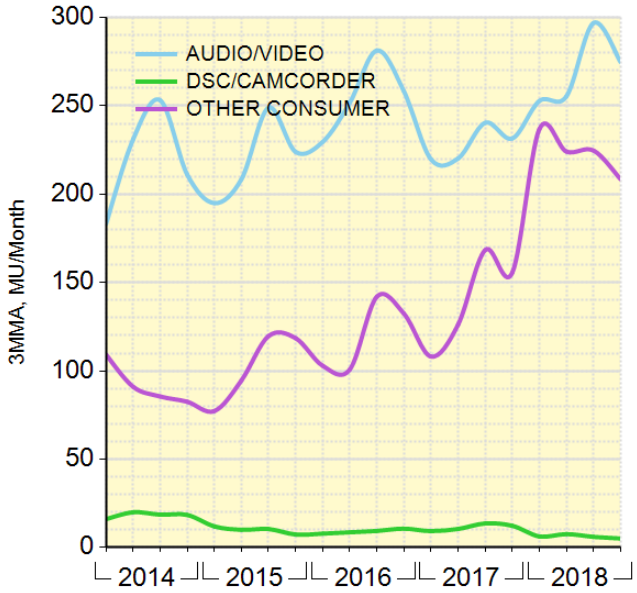

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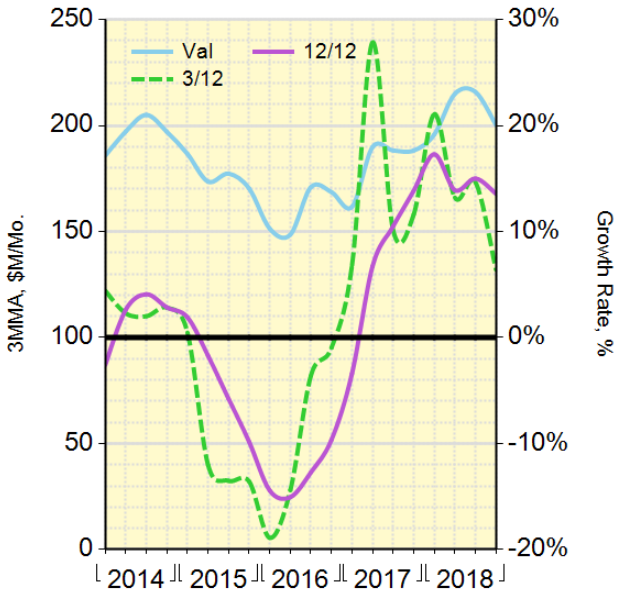
Comput Value



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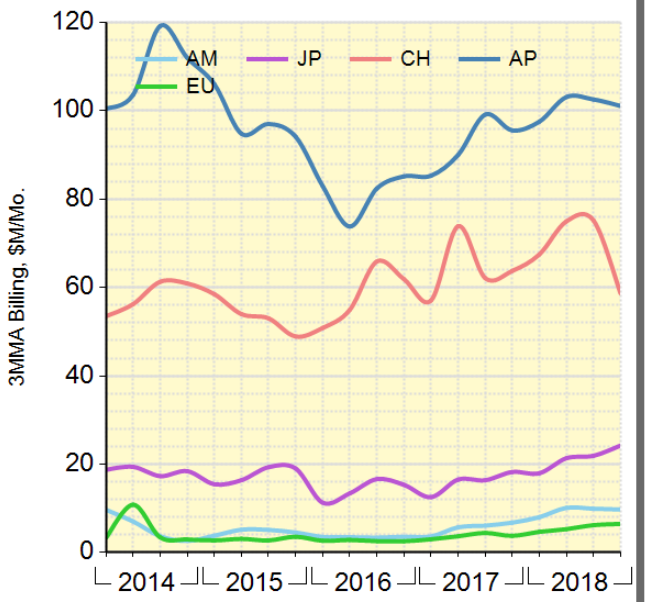

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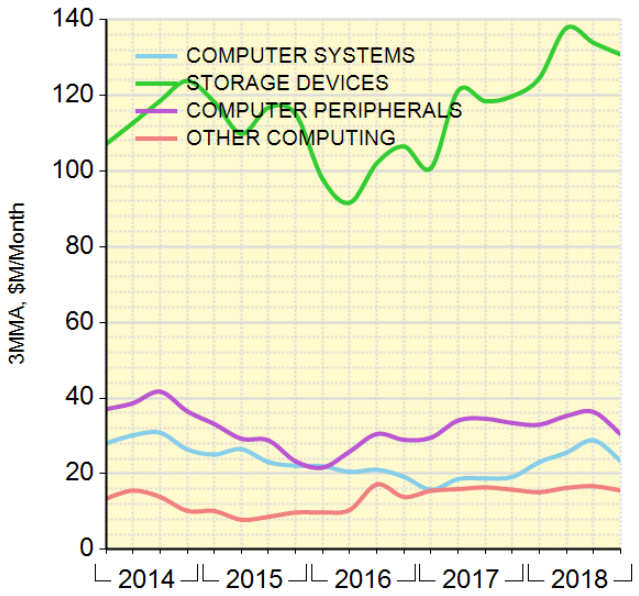

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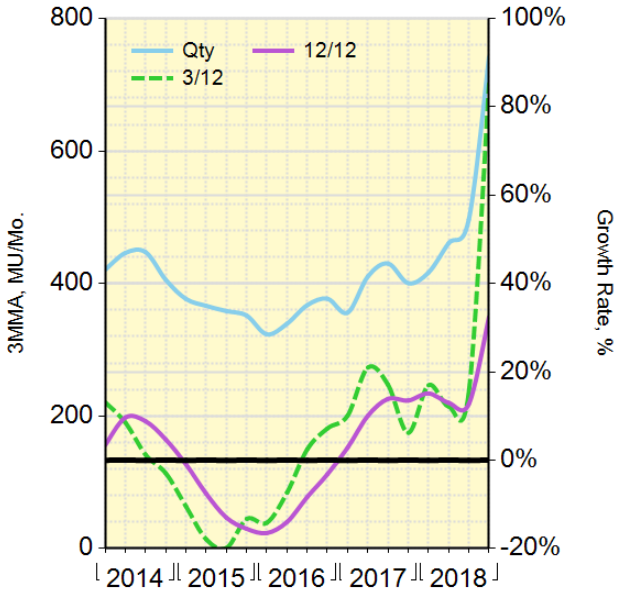

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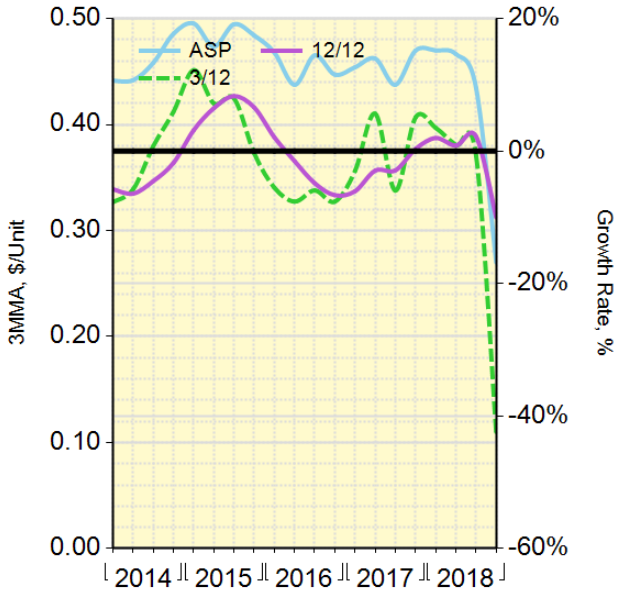

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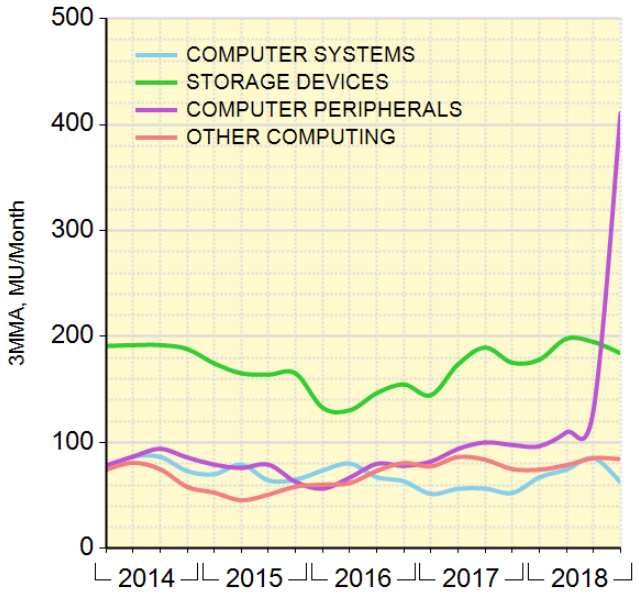

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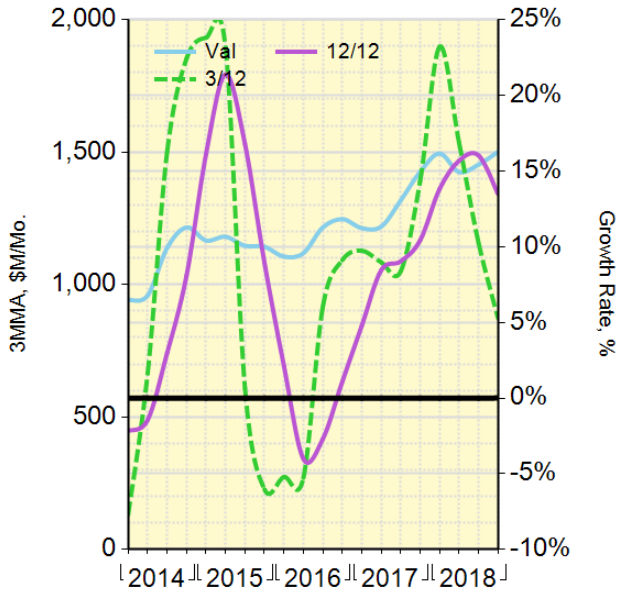

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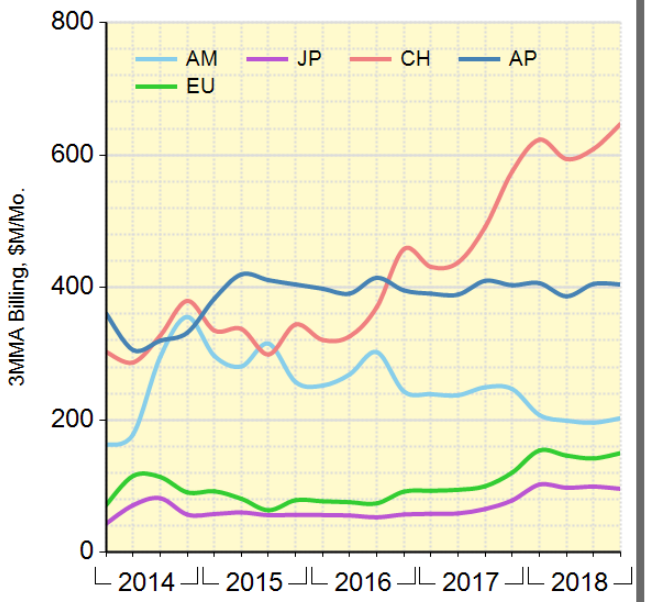

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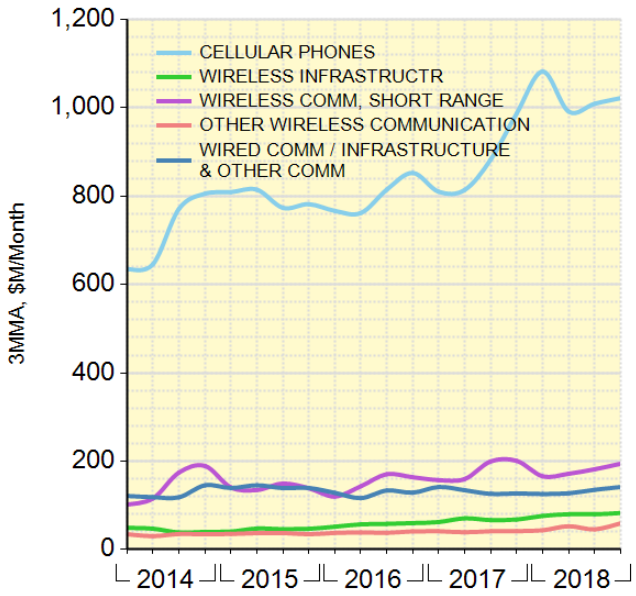

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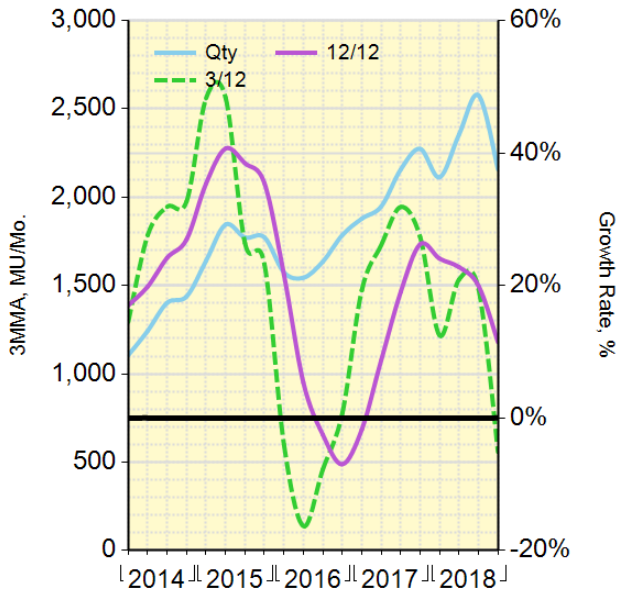

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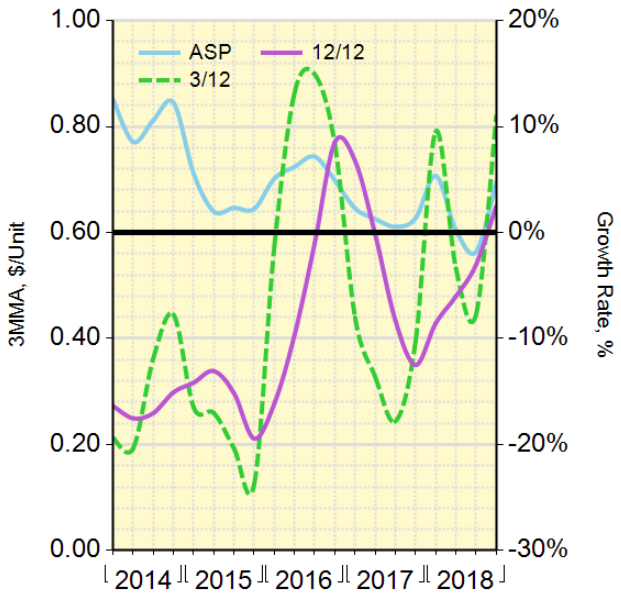

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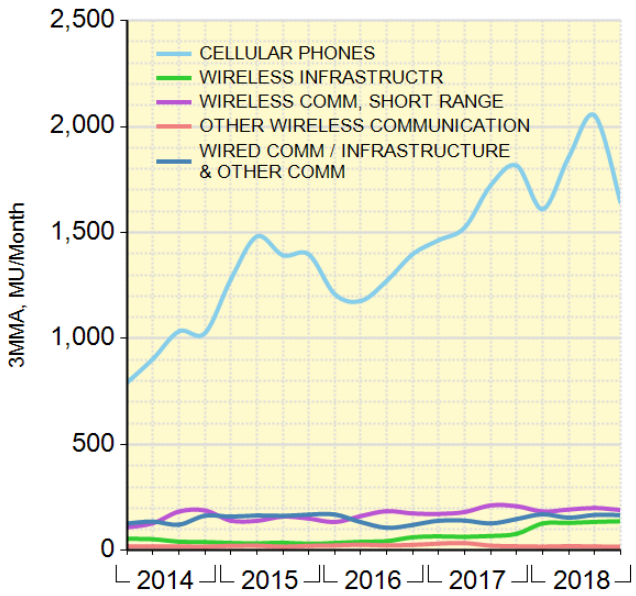

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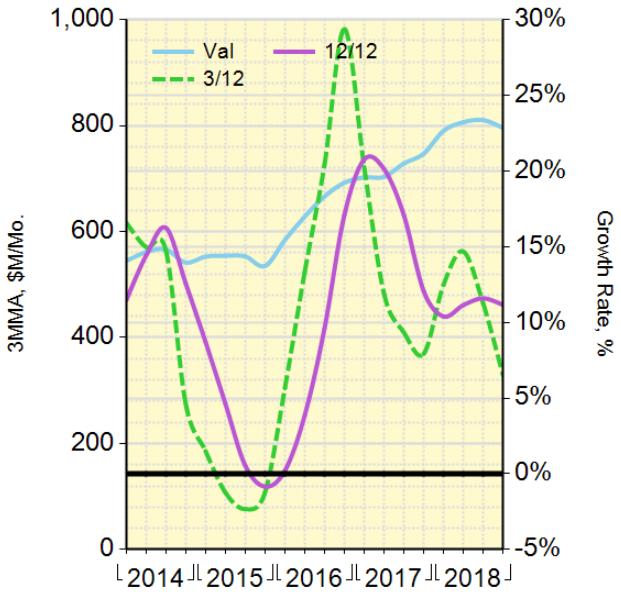

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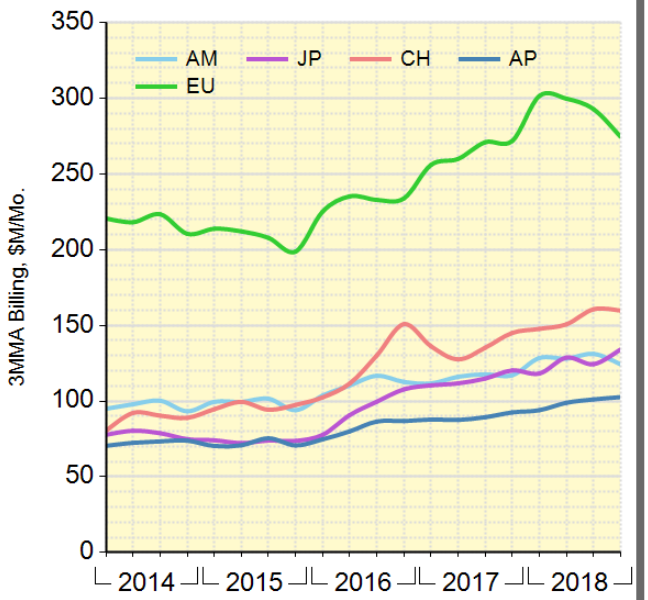

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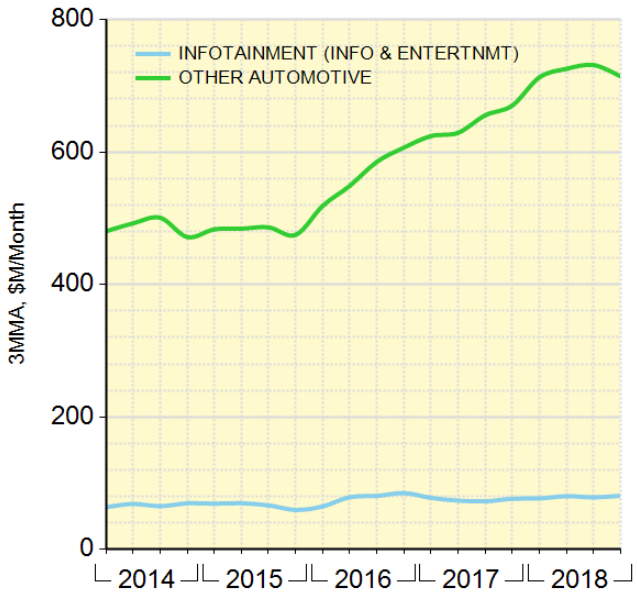

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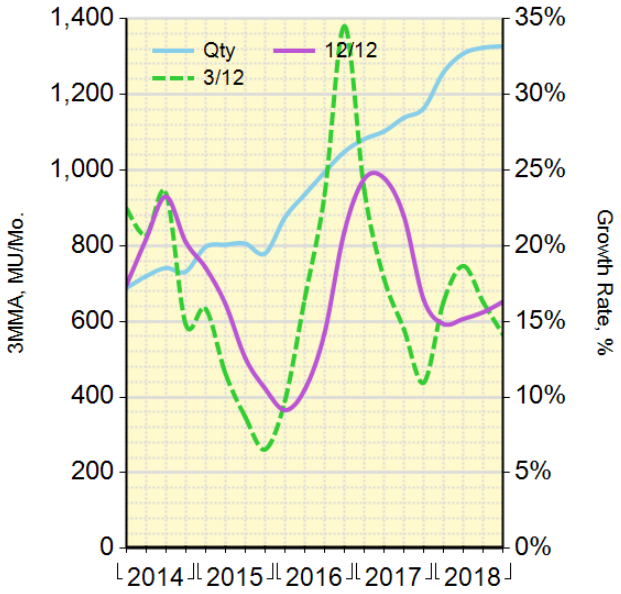

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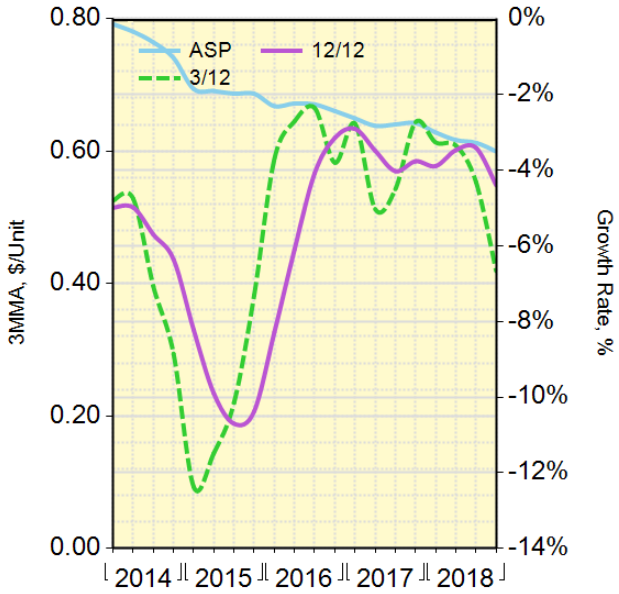

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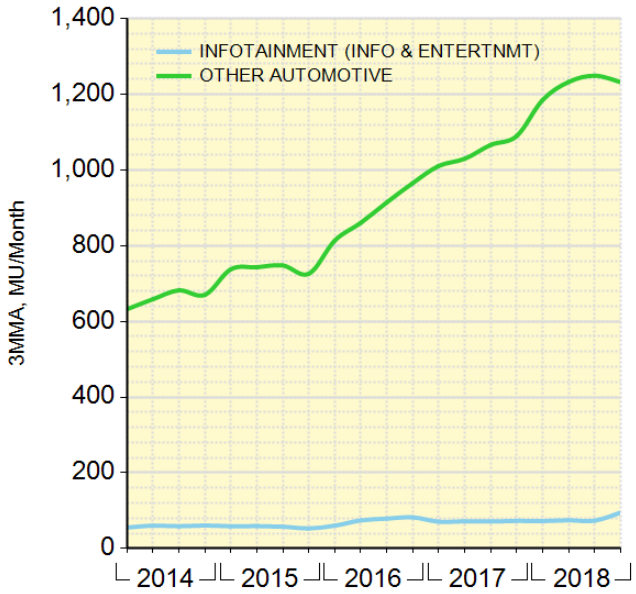

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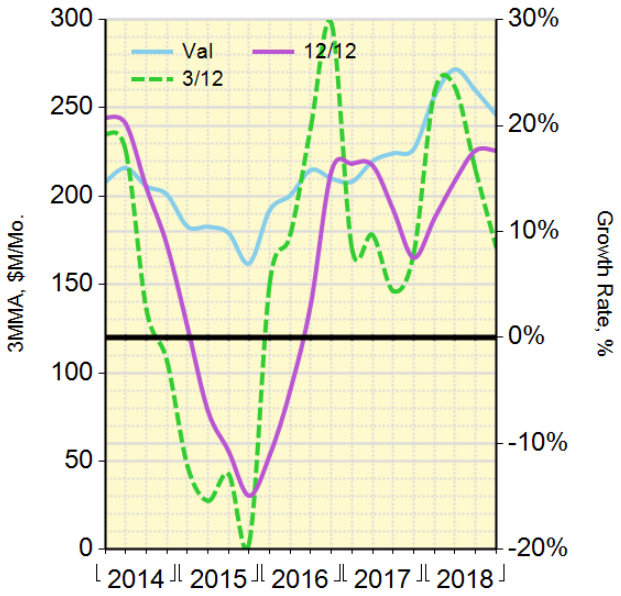

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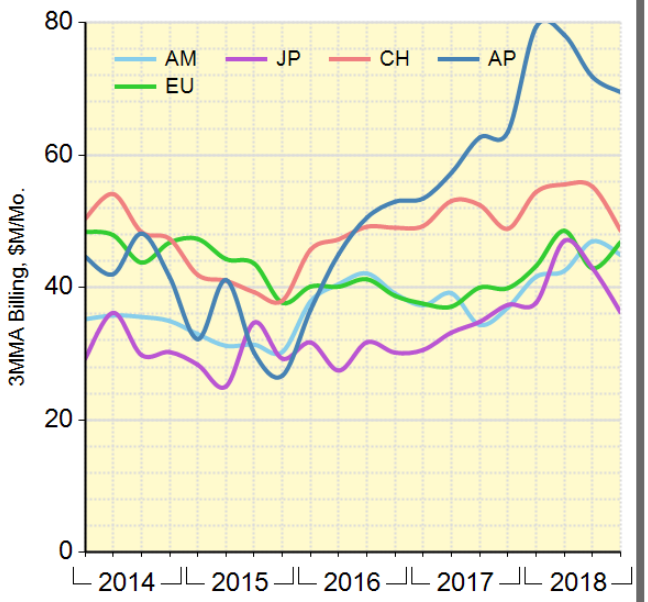

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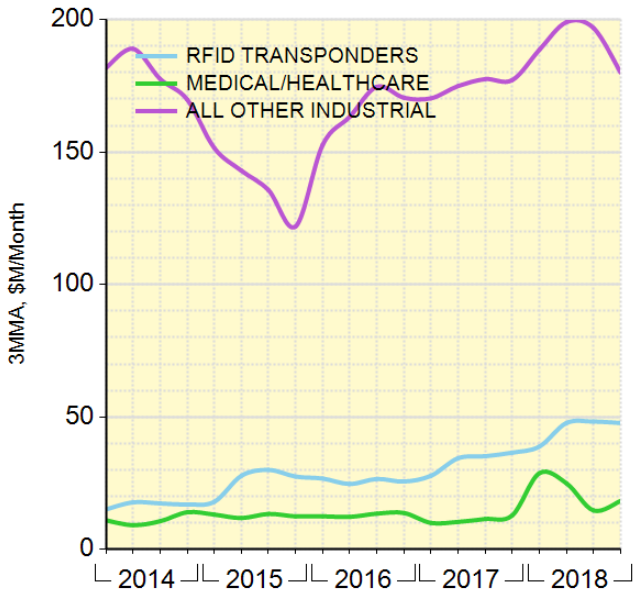

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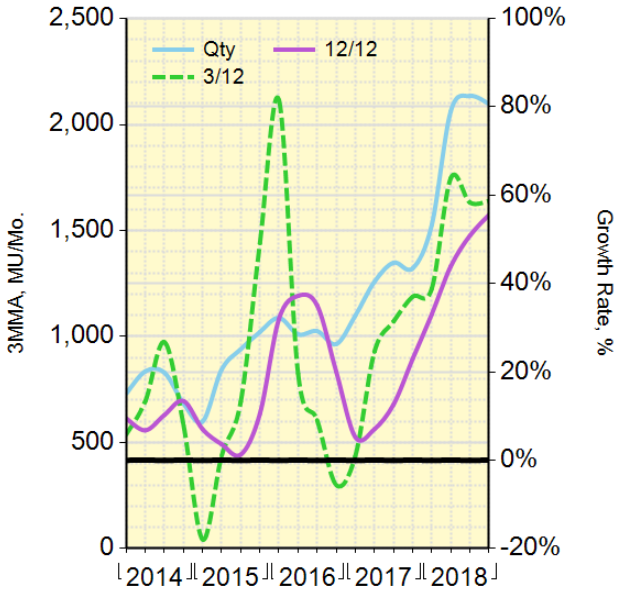

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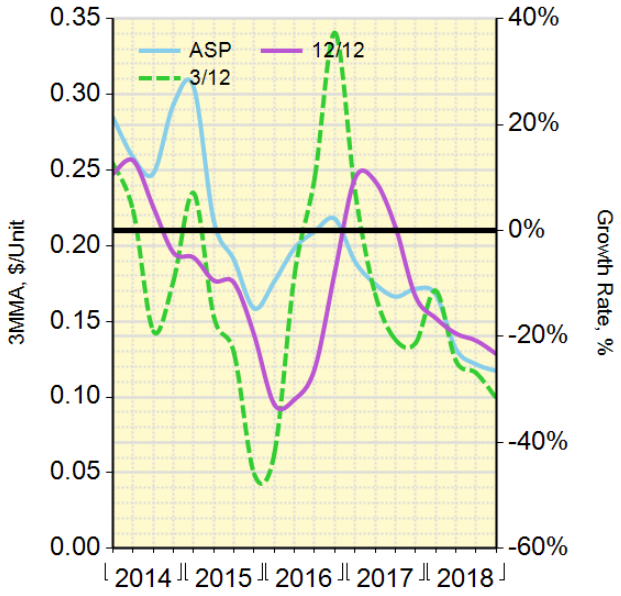

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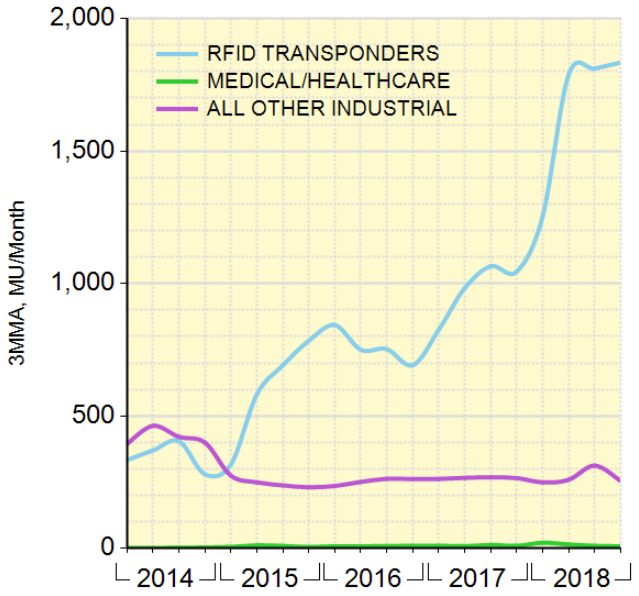

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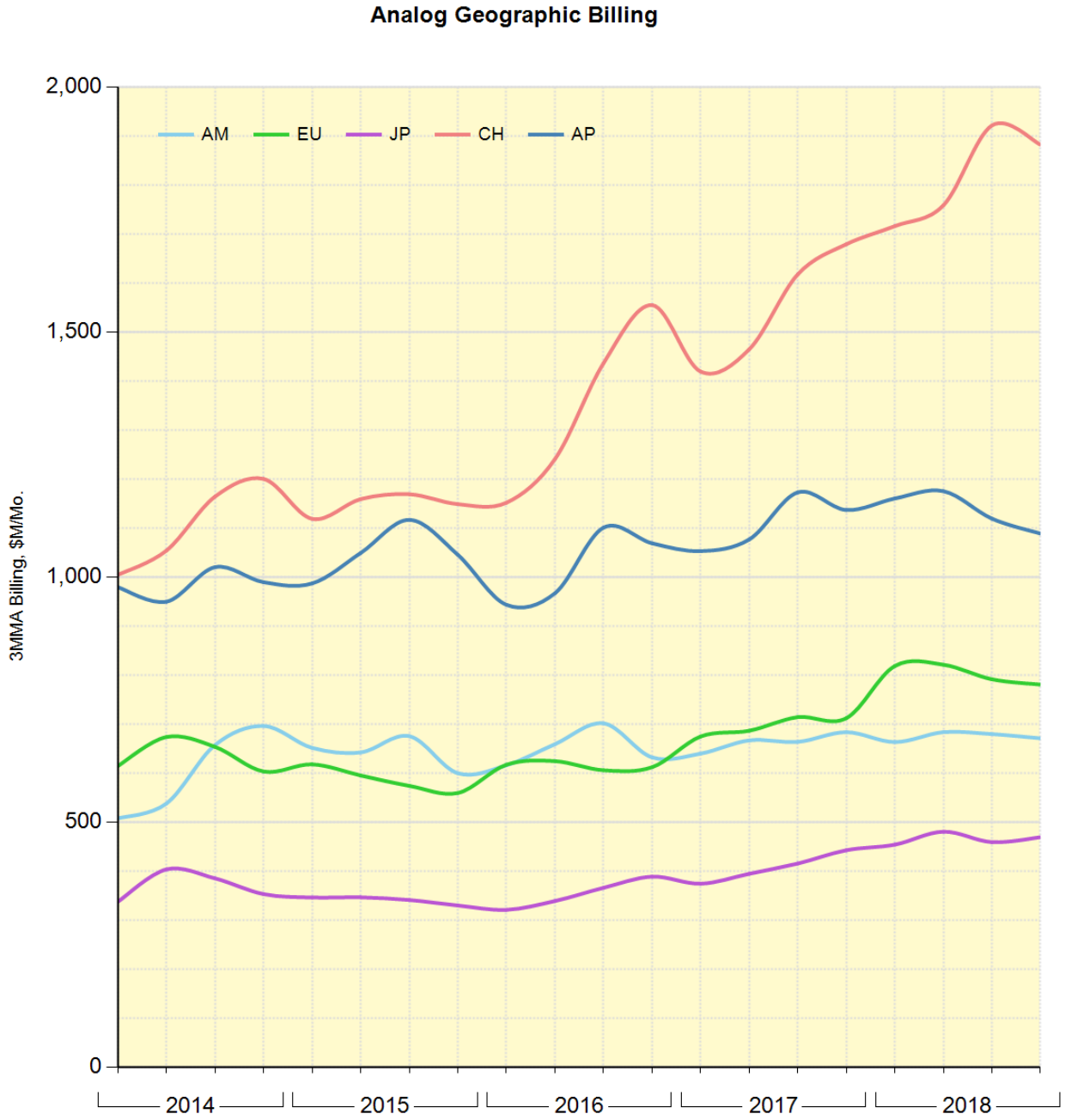

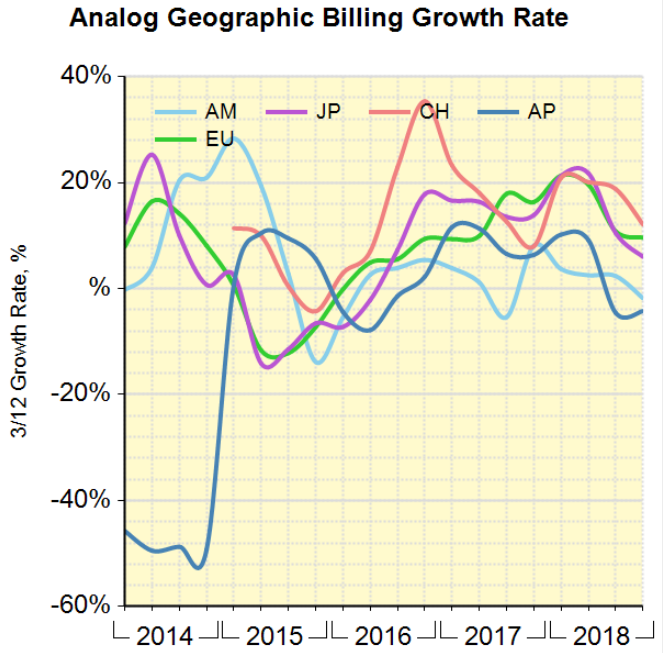

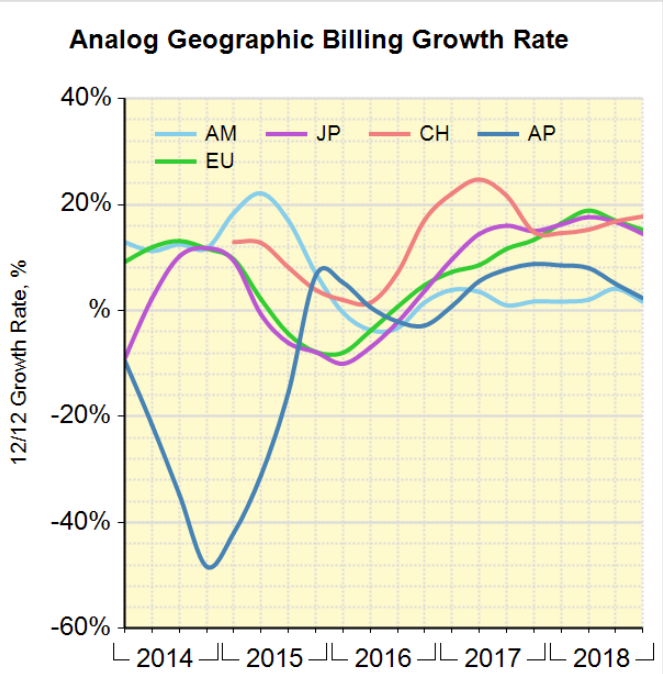

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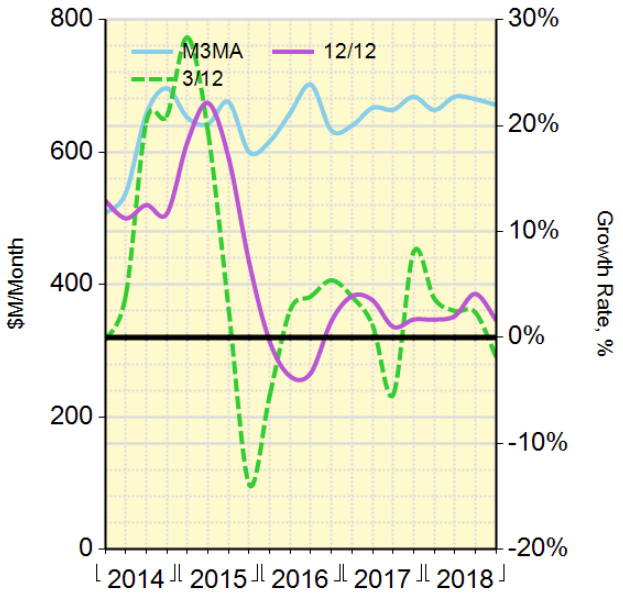
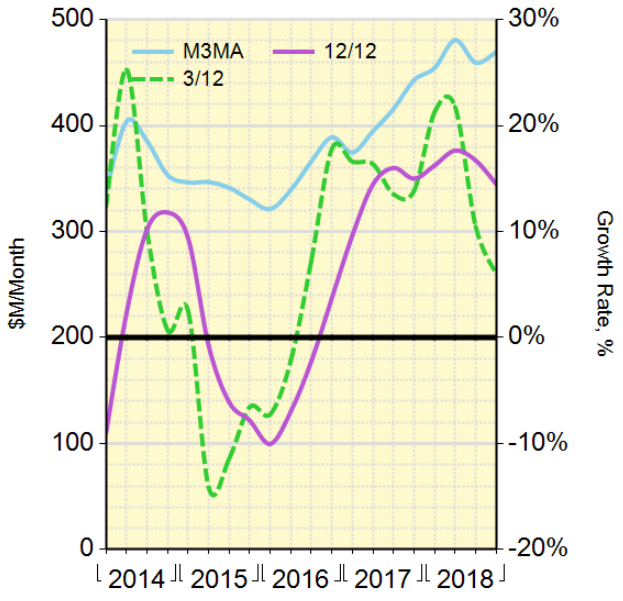
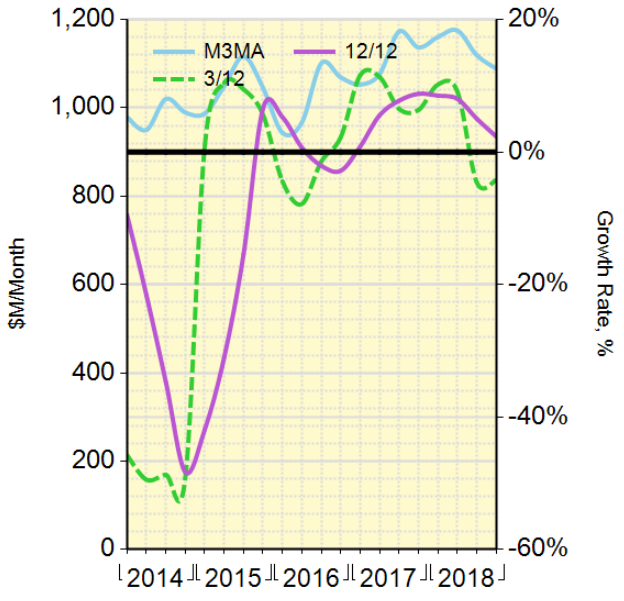
Americas Billing



Japan Billing



Asia Pacific/All Other Billing



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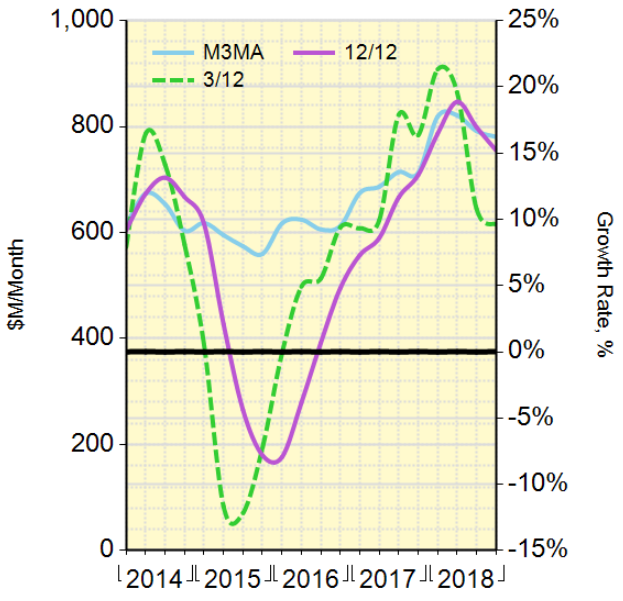
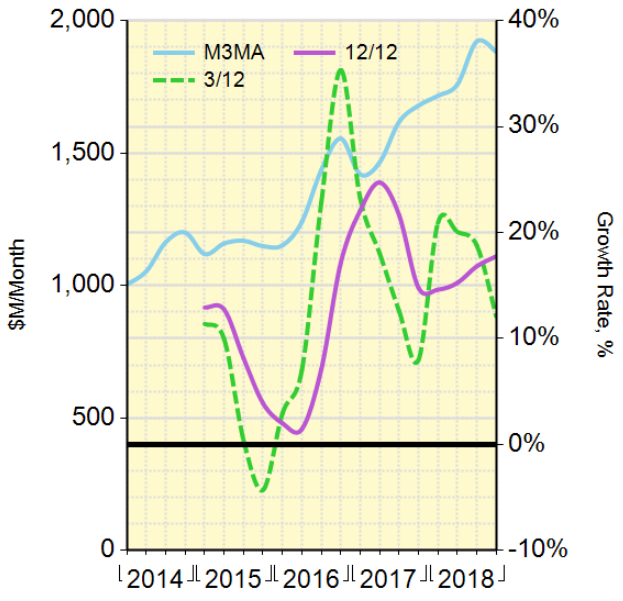


China Billing



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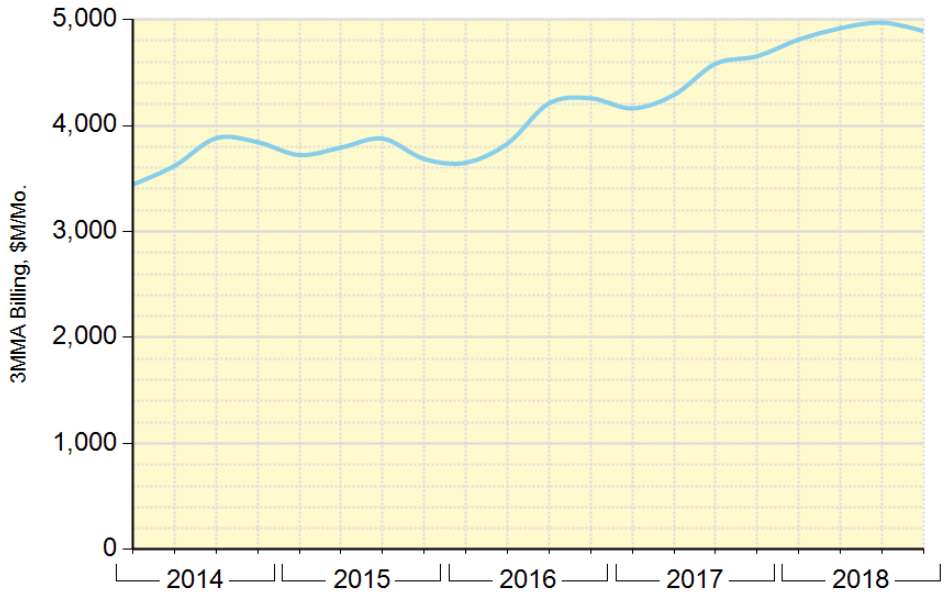
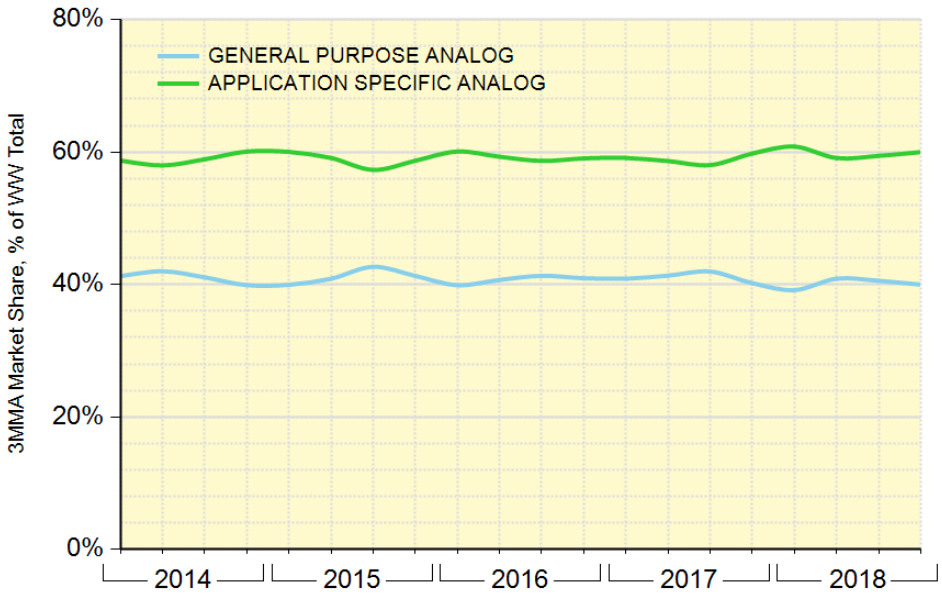
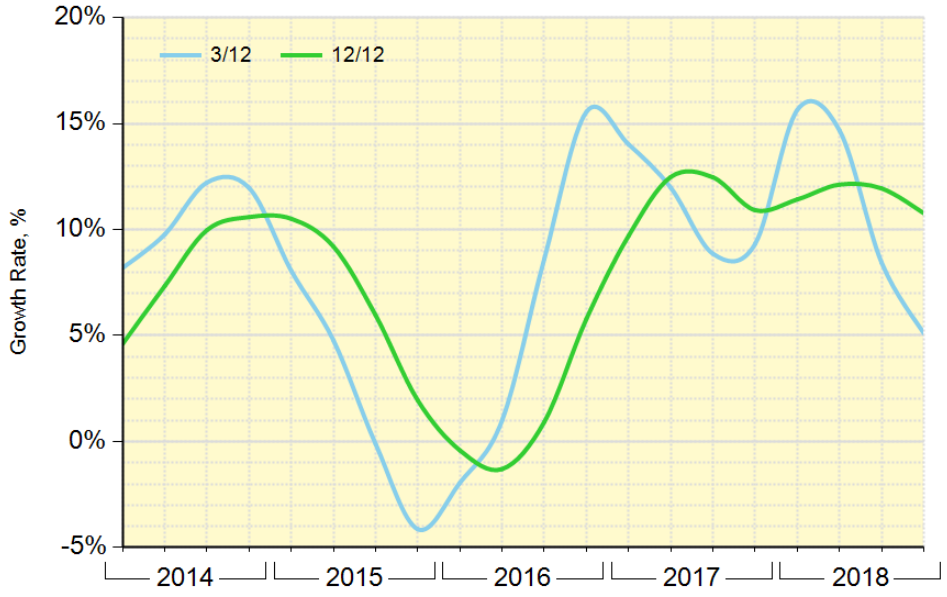
Analog World Billing



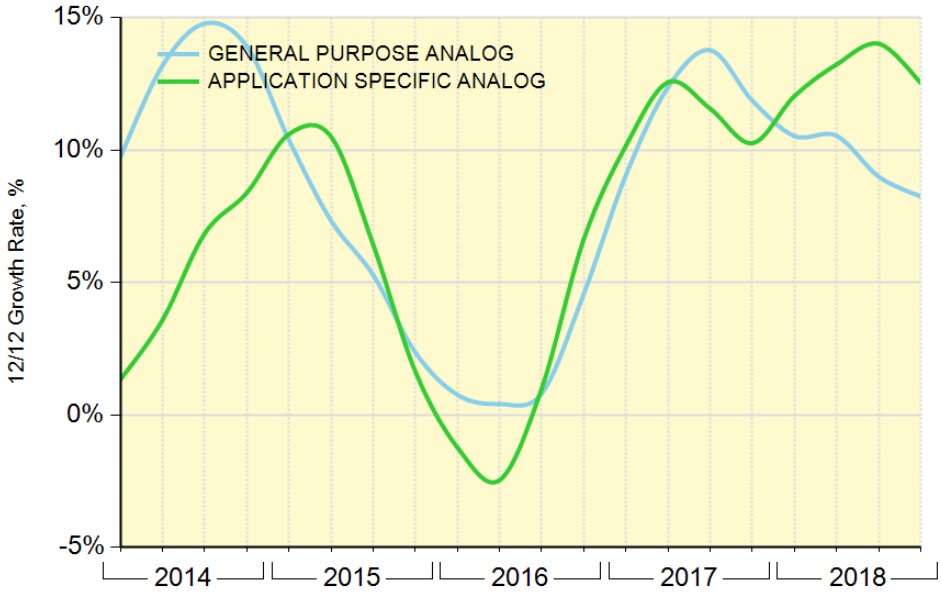
WW Market Share



World Billing Growth Rate



WW Growth Rate



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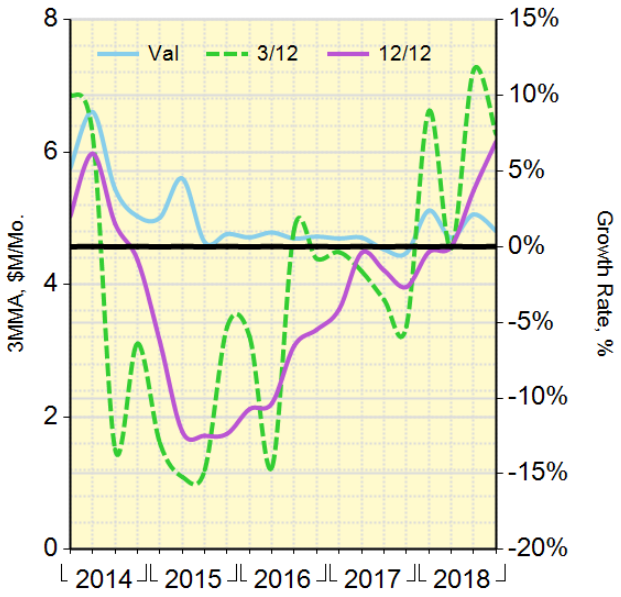
Bipol Dig Value



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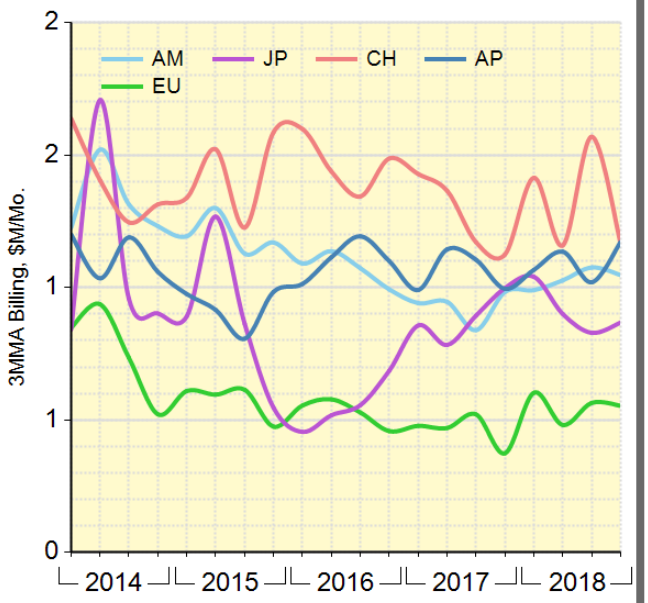

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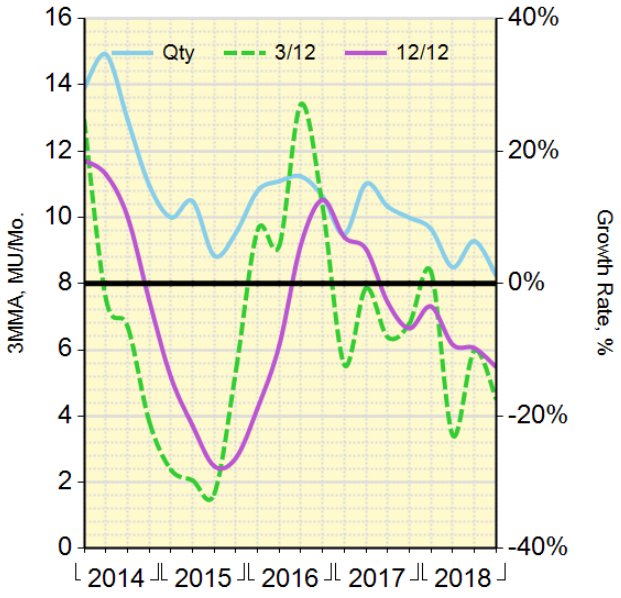

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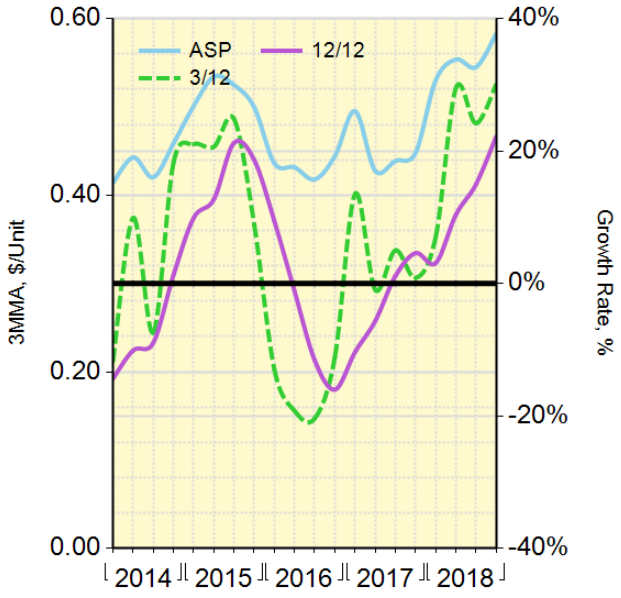

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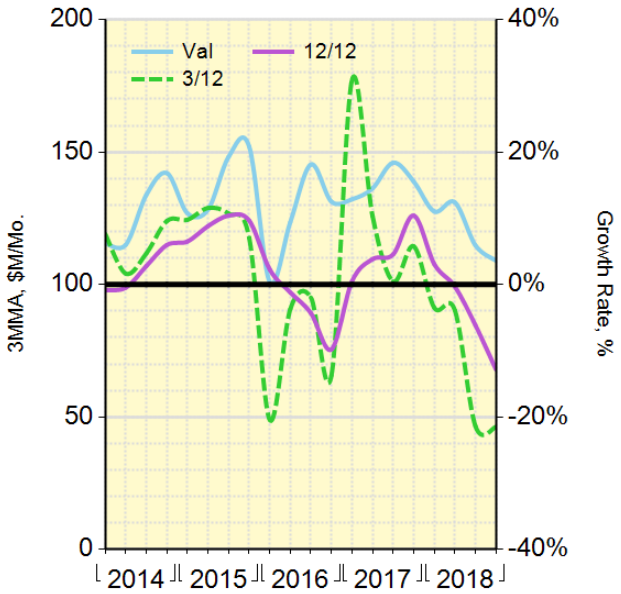
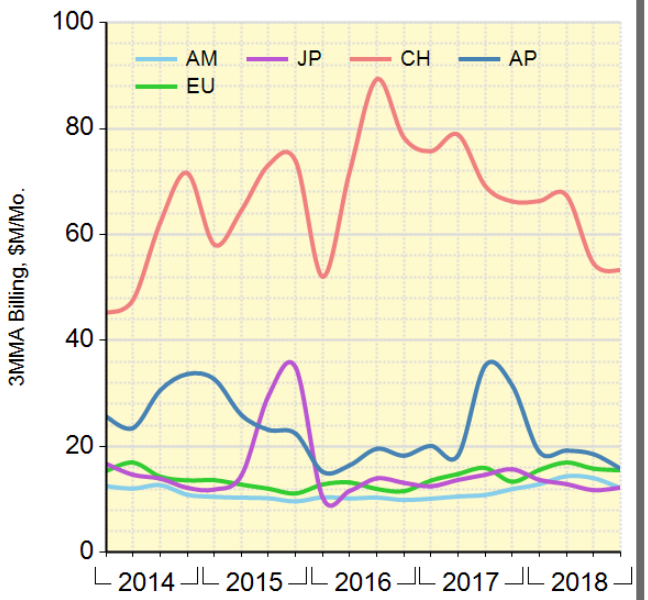
GP Logic Value



GP Logic Geographic Billing



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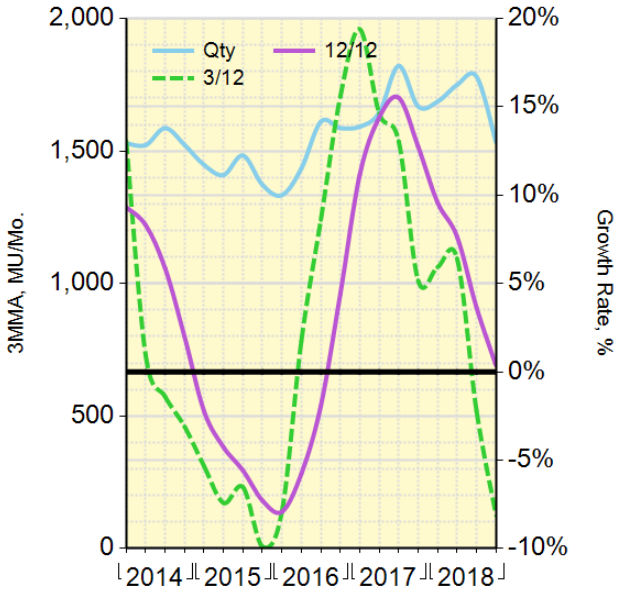
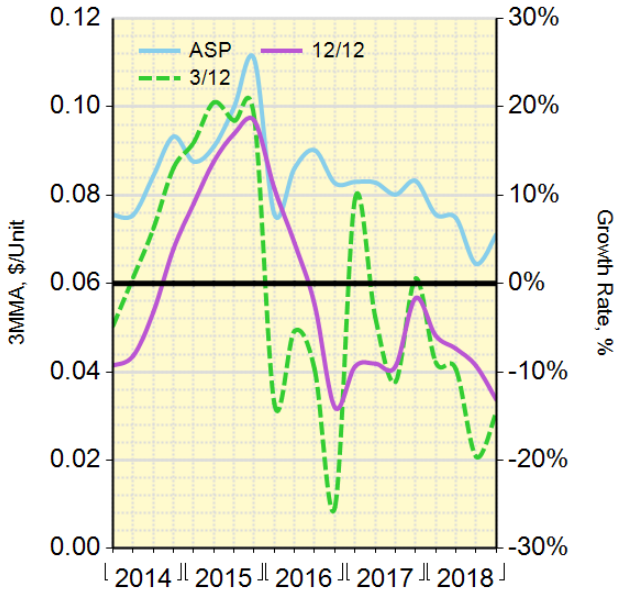


GP Logic ASP



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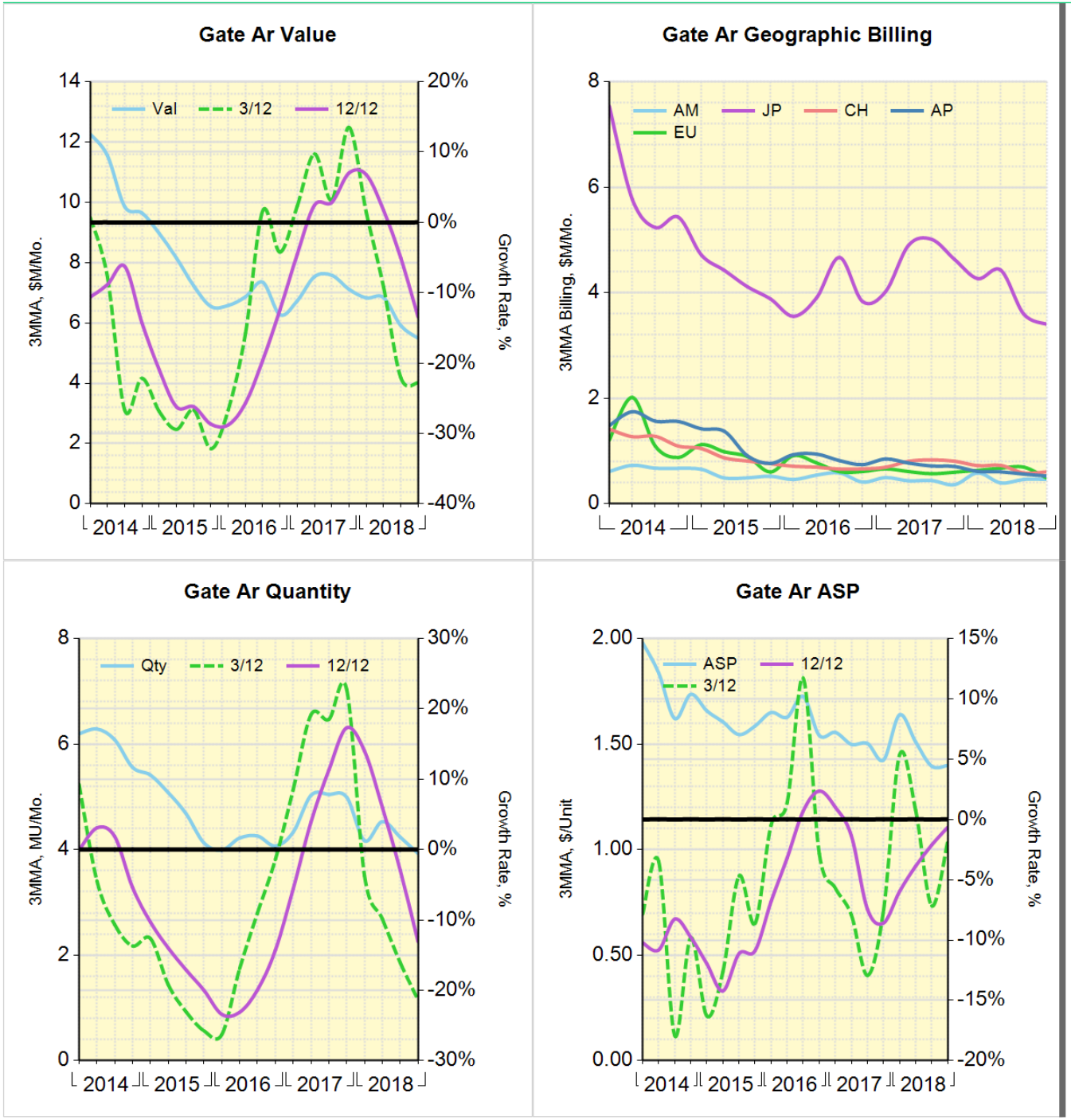

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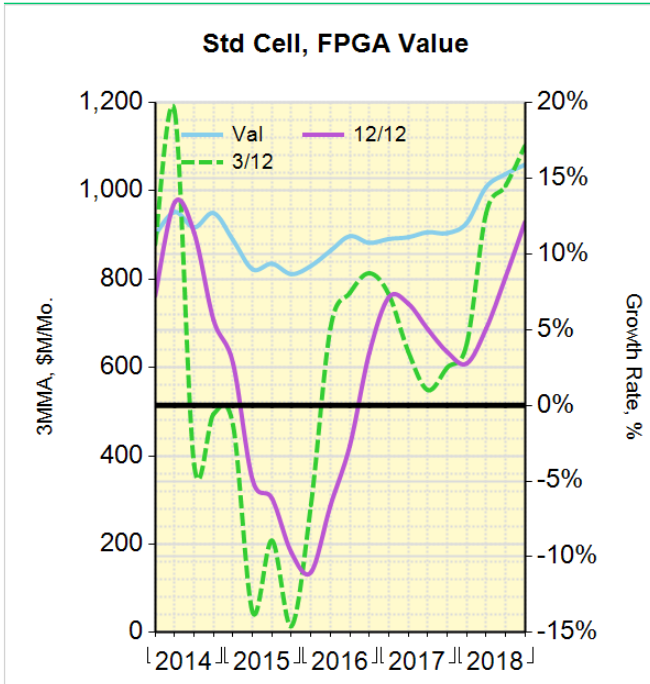

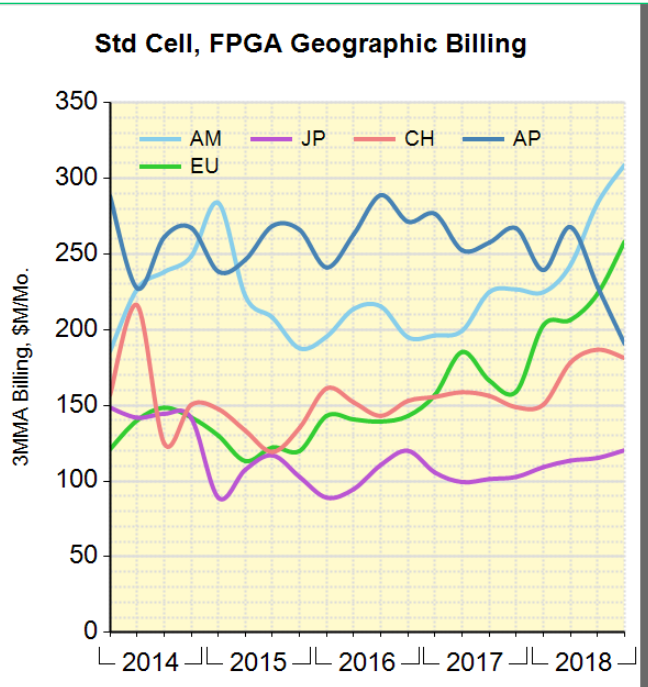

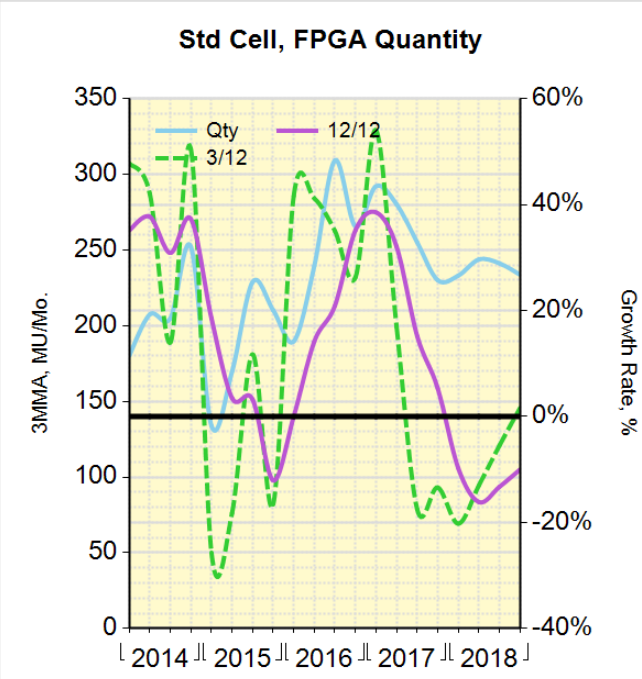

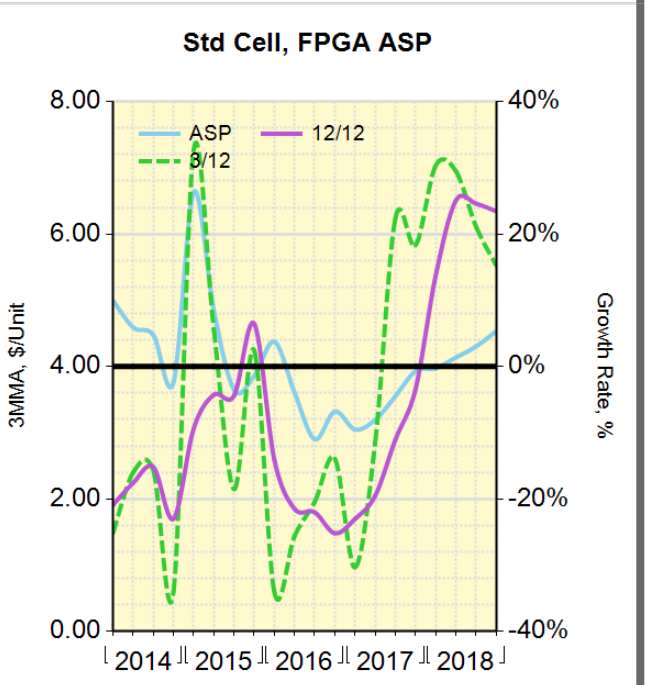

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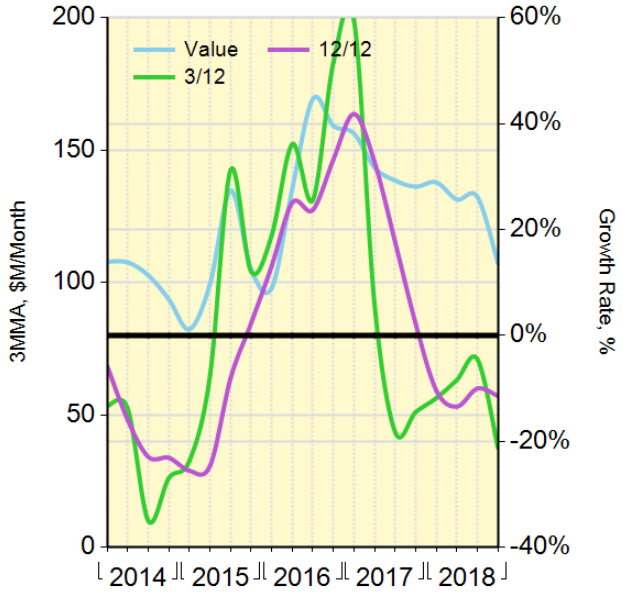
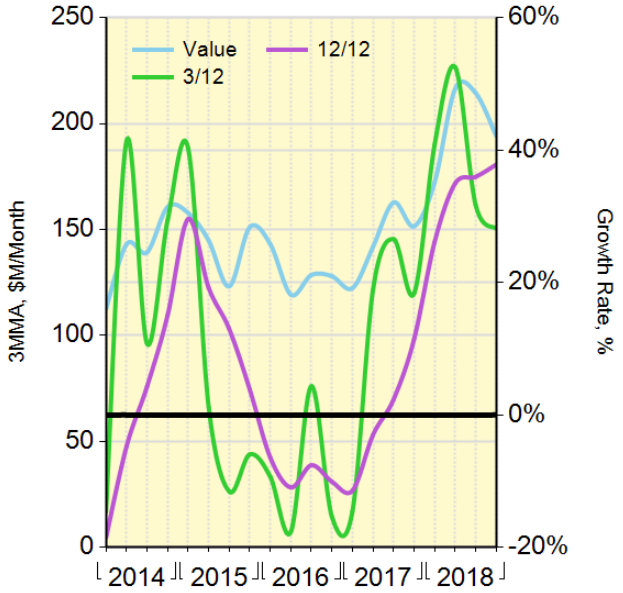
CONSUMER Value



COMPUTER & PERIPHERALS Value



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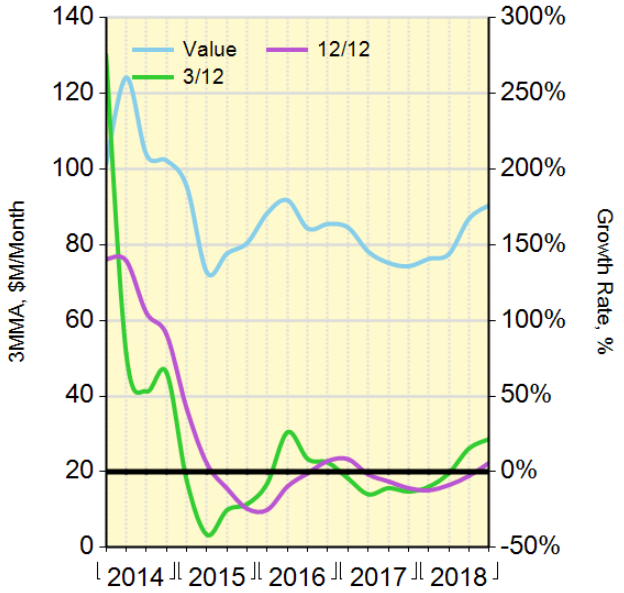

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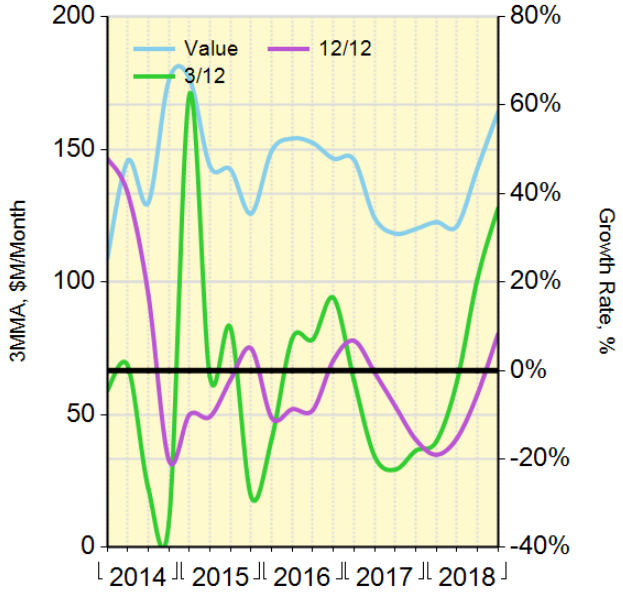

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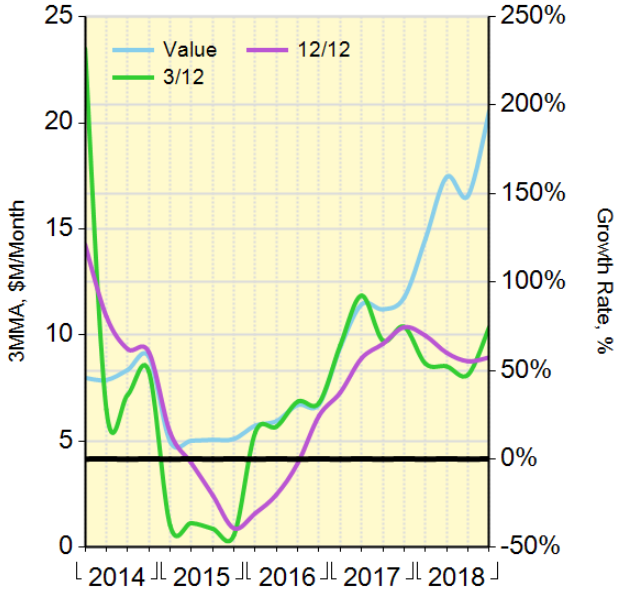

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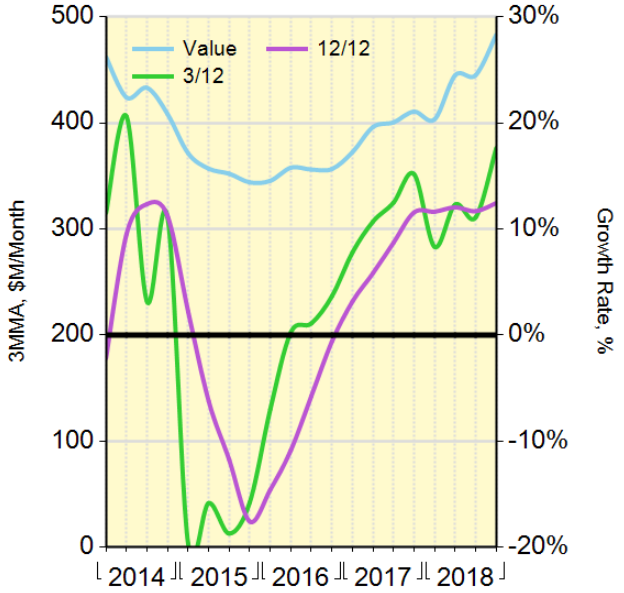

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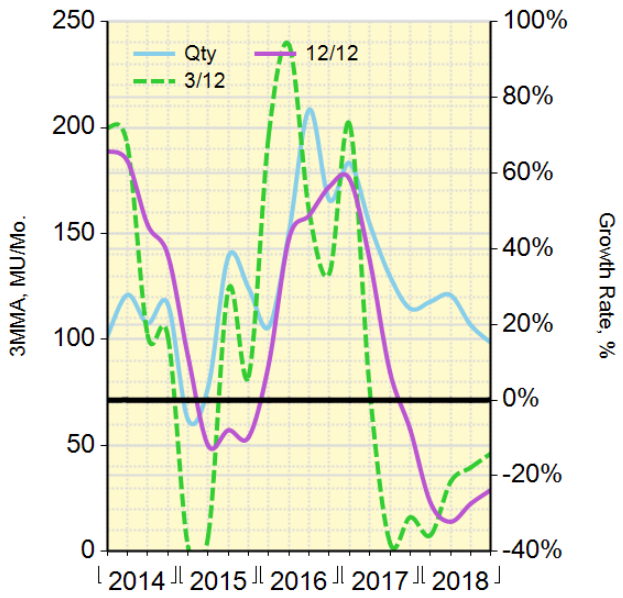
CONSUMER Quantity



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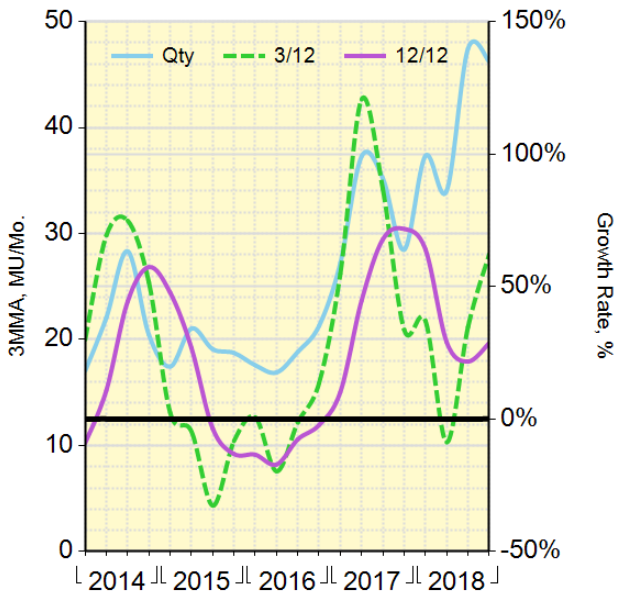

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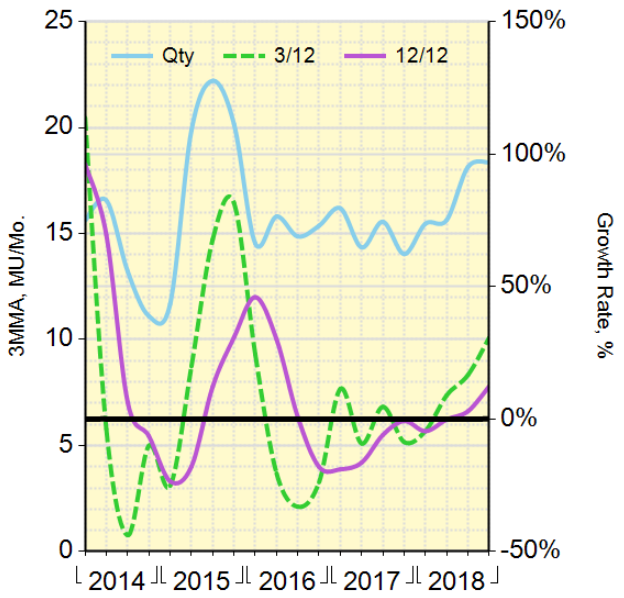

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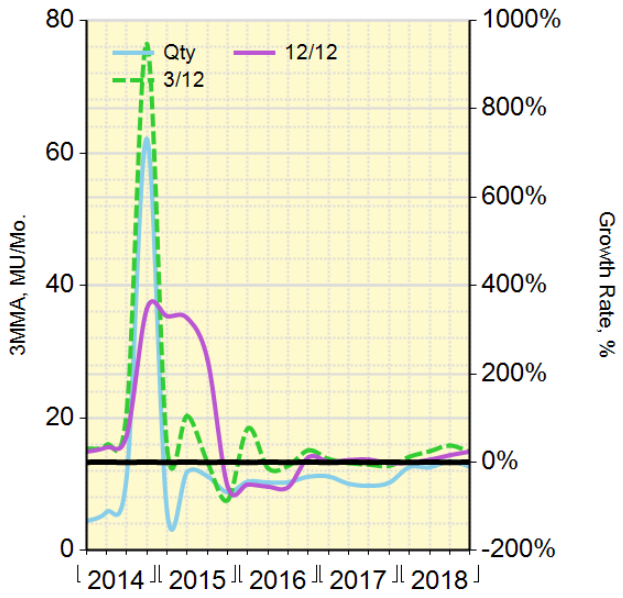

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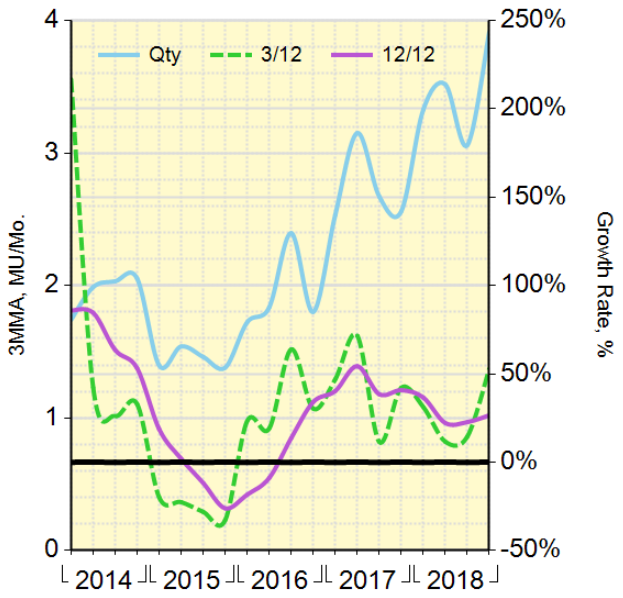

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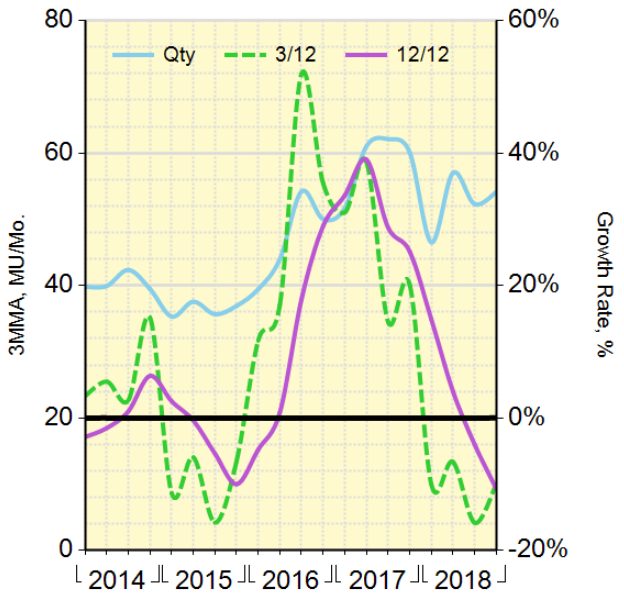

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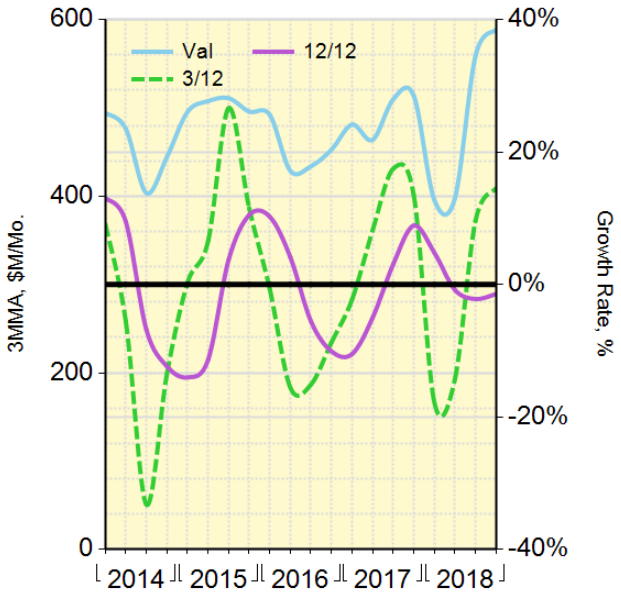
Displ Dr Value



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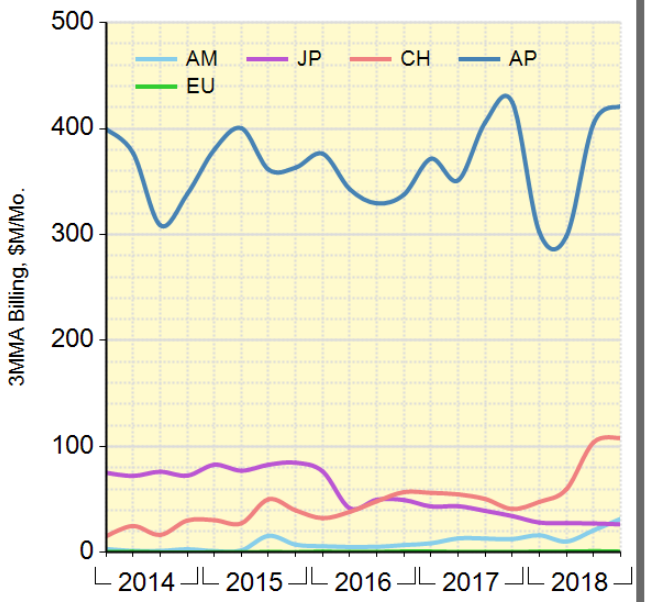
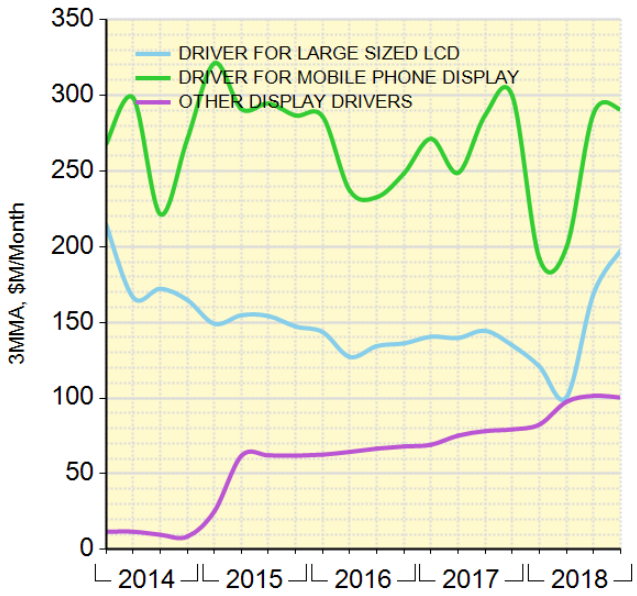


Product Mix - Value



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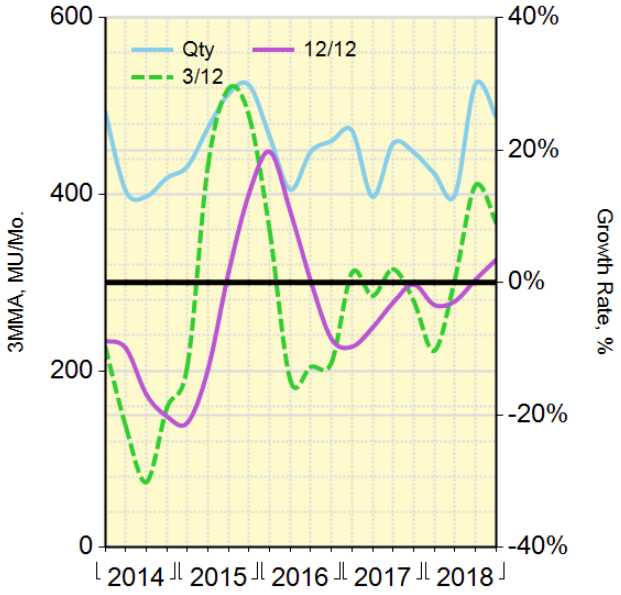

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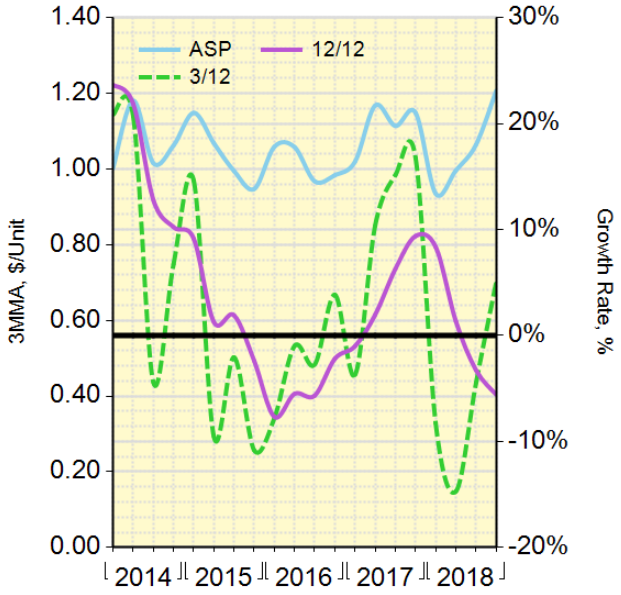
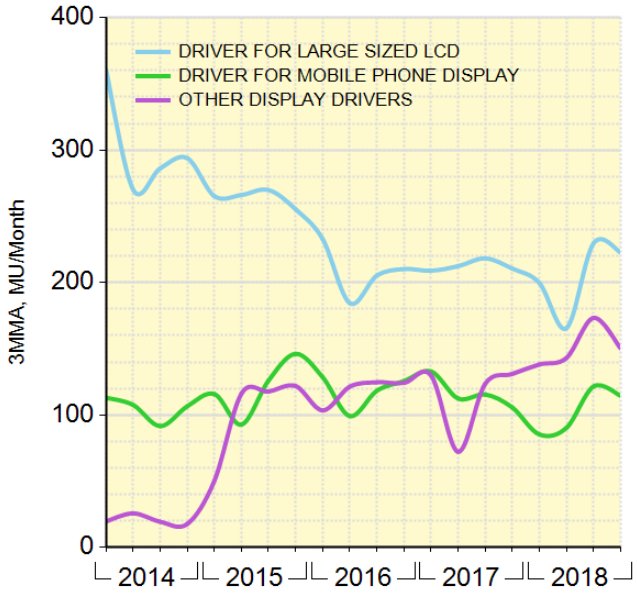


Product Mix - Quantity



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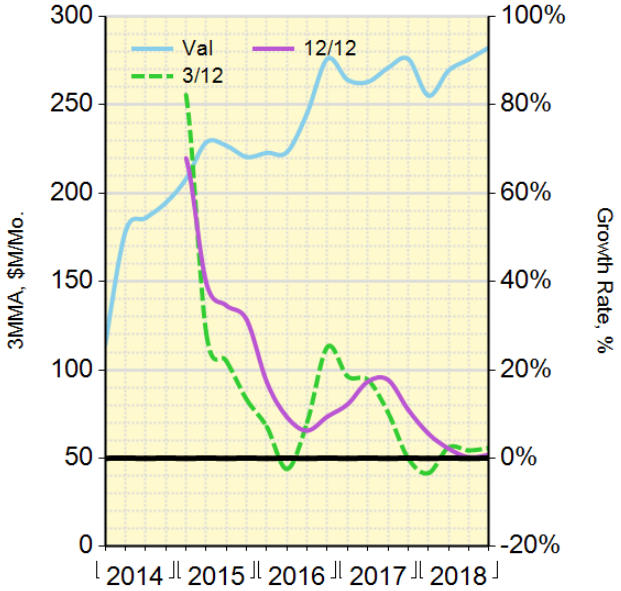
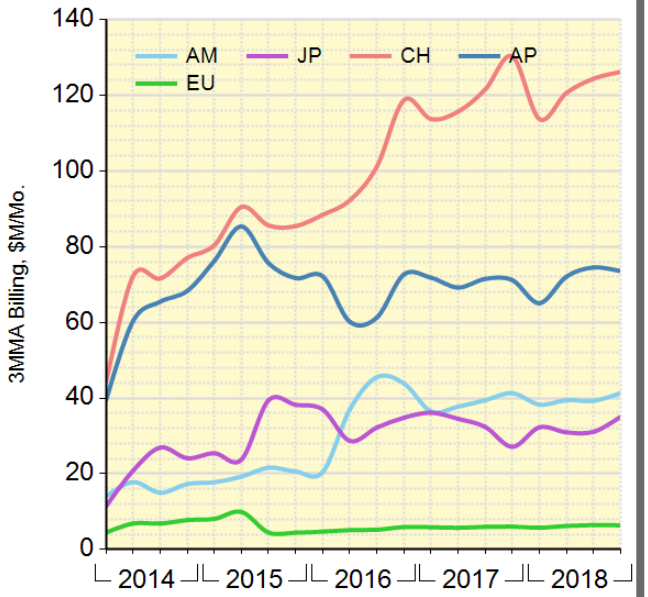
Touch Screen Contr. Value



Touch Screen Contr. Geographic Billing



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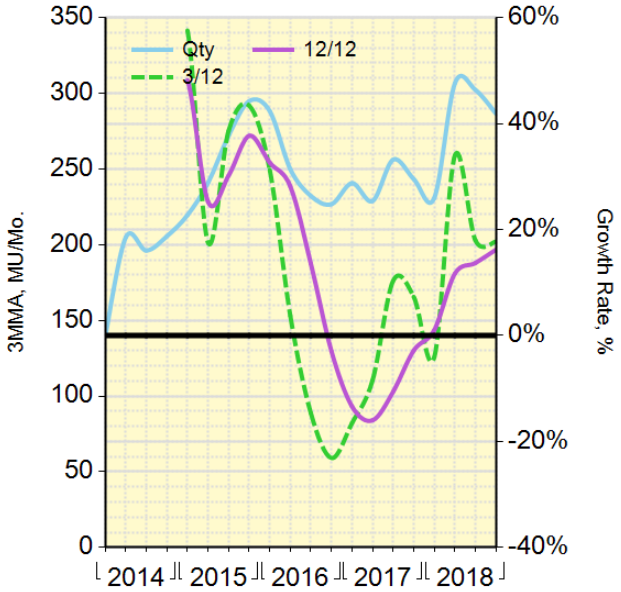

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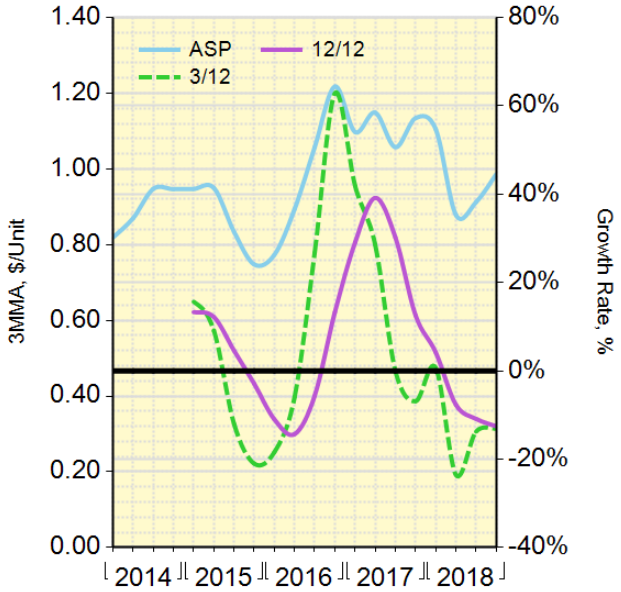

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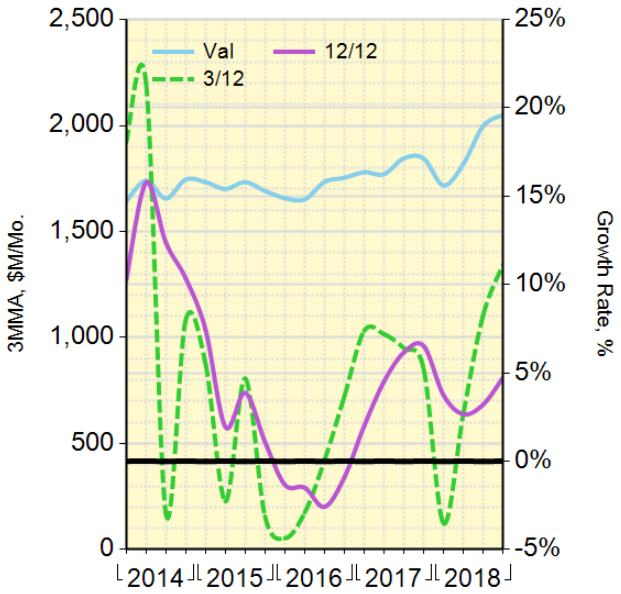
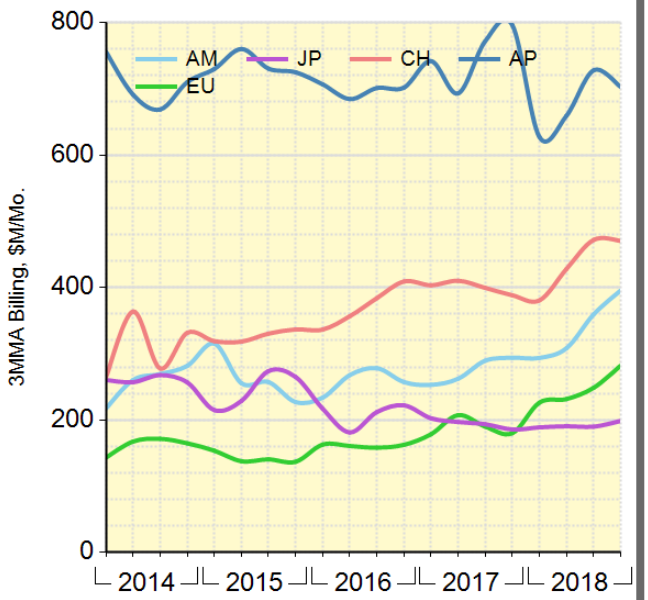
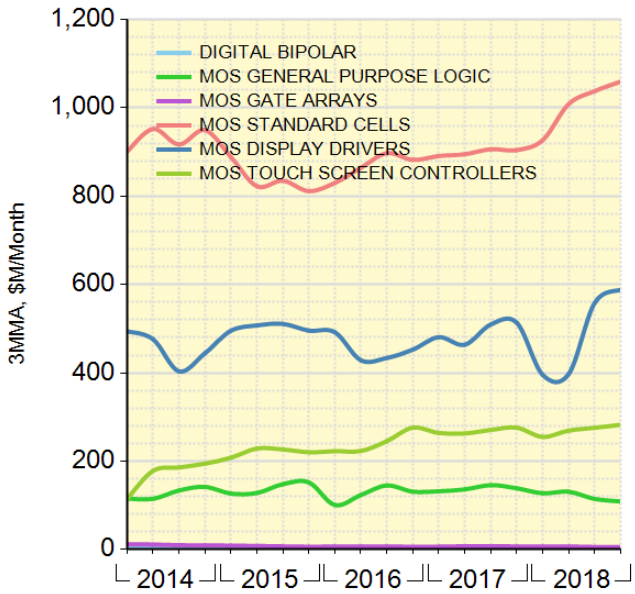
Std Logic Value



Std Logic Geographic Billing



Product Mix - Value



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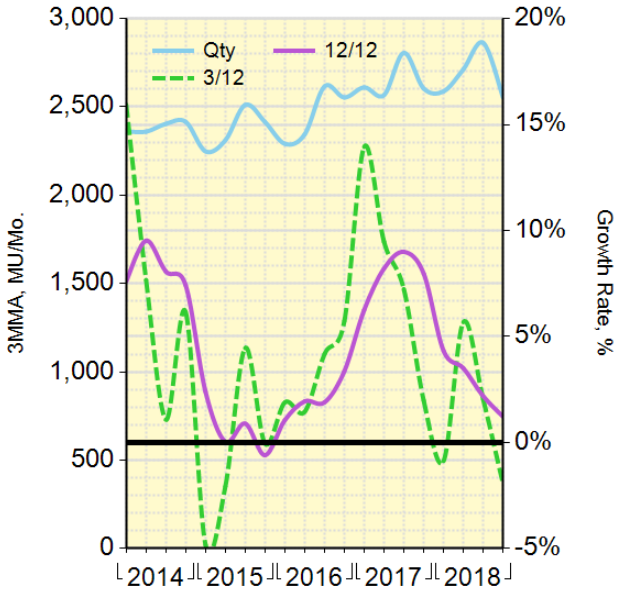

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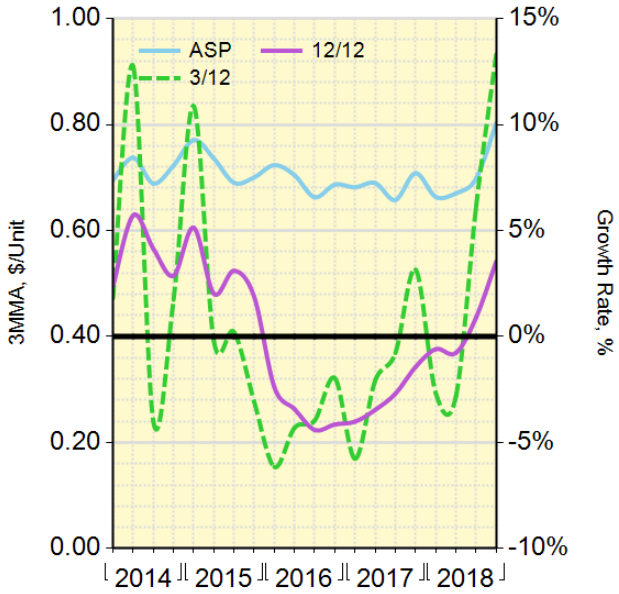
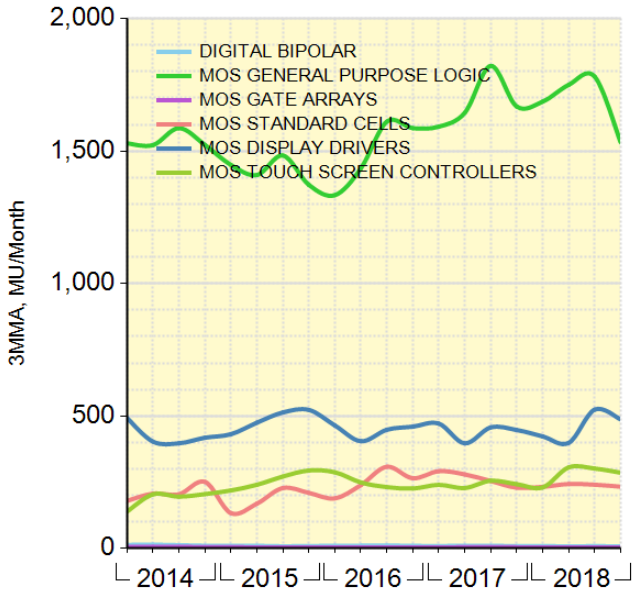


Product Mix - Quantity



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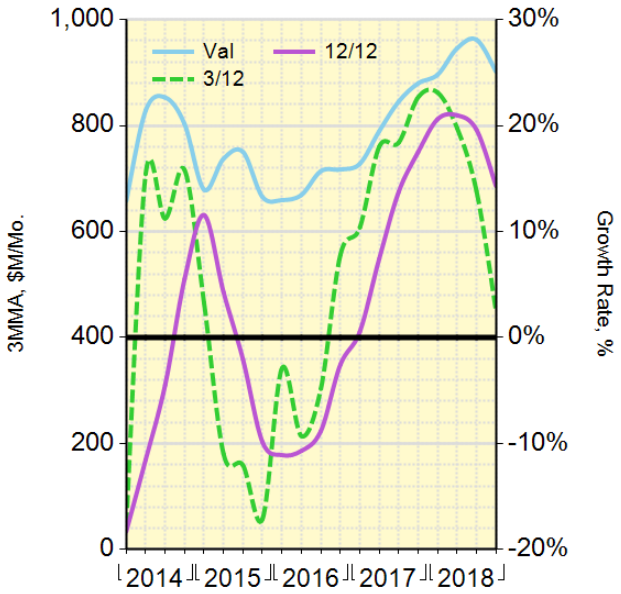
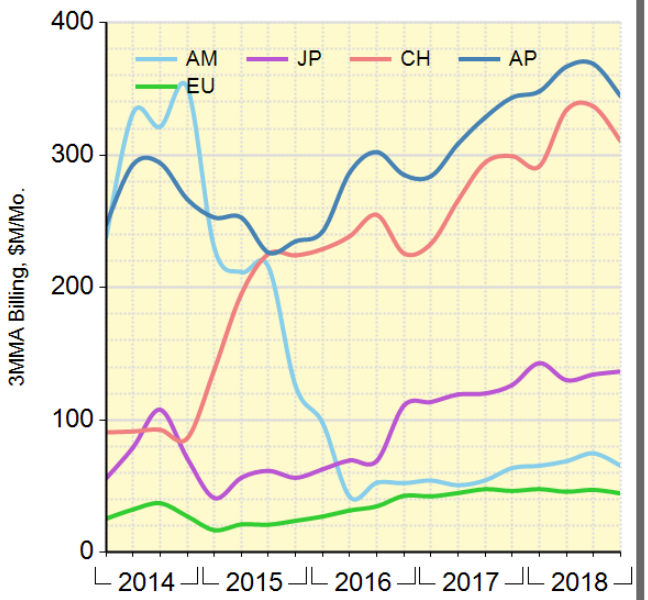
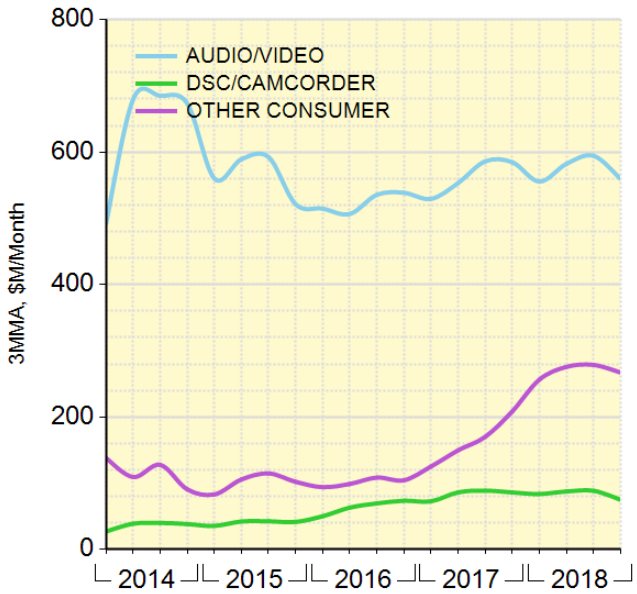
Consumer Value



Consumer Geographic Billing



Product Mix - Value



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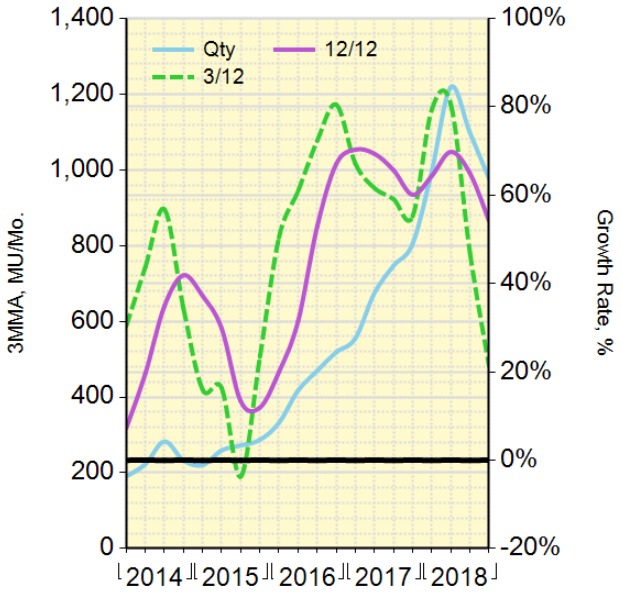

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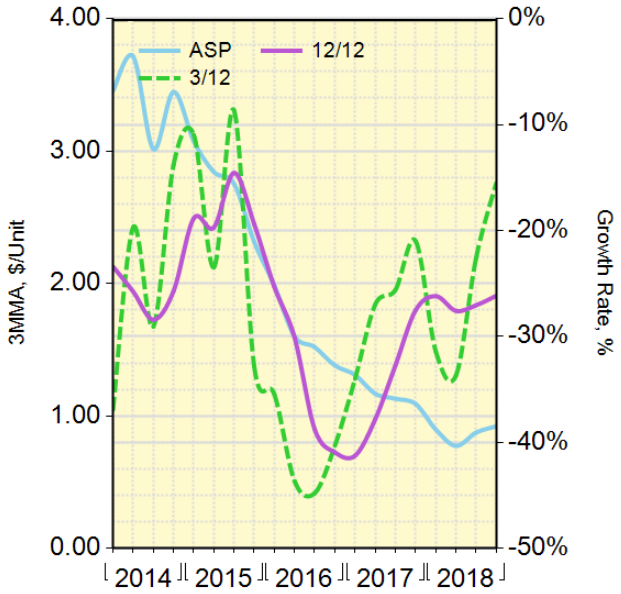
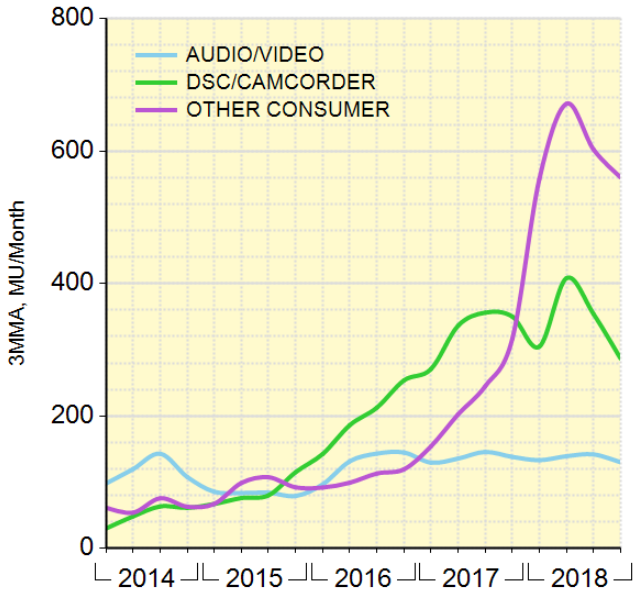


Product Mix - Quantity



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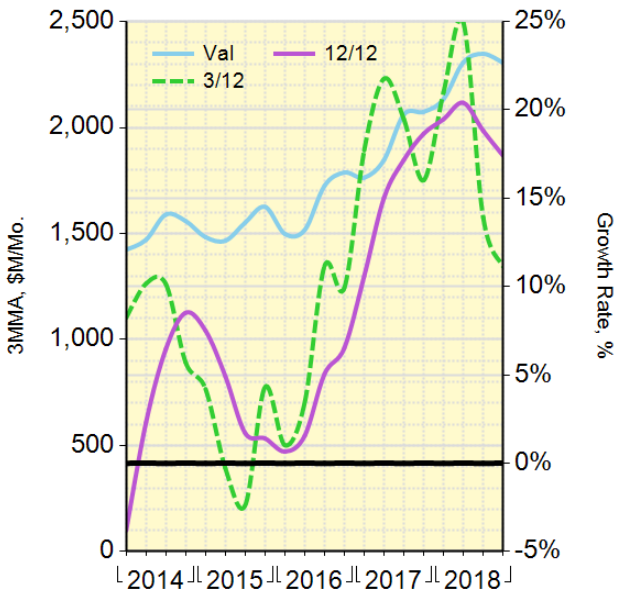
Computer Value



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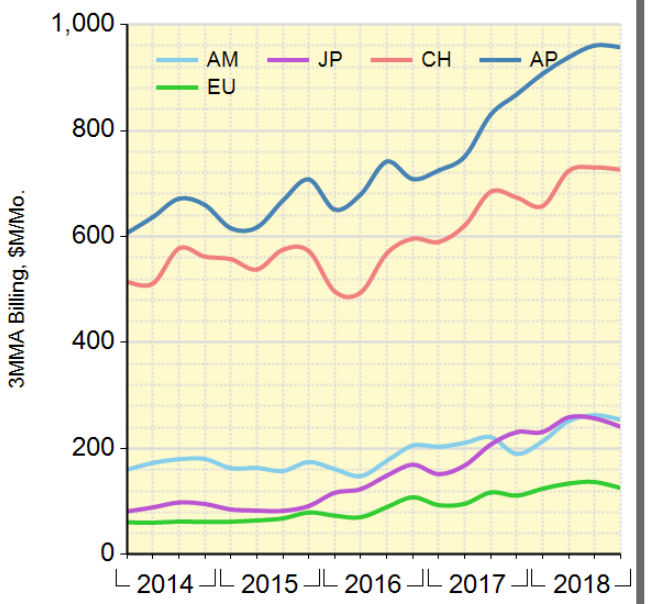
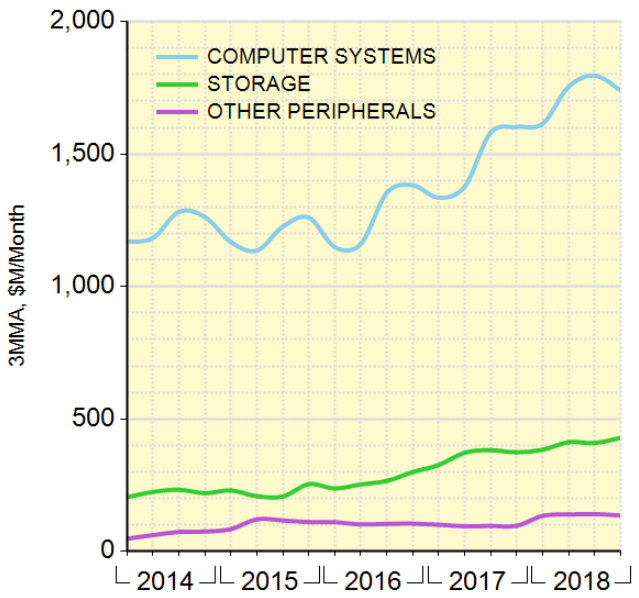


Product Mix - Value



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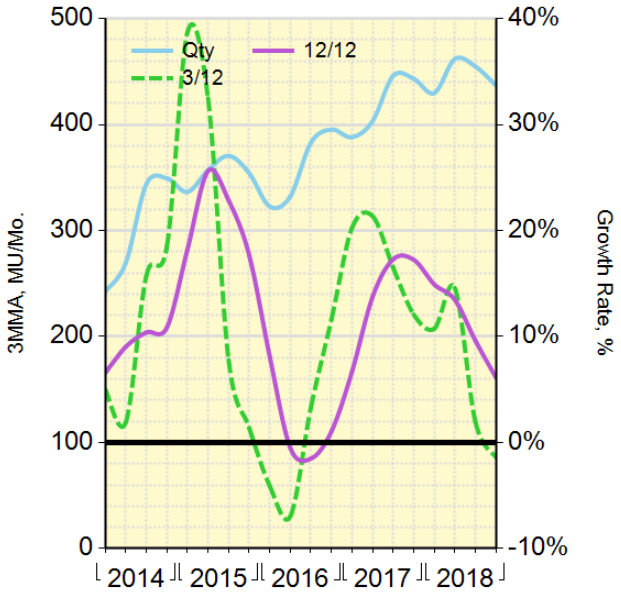

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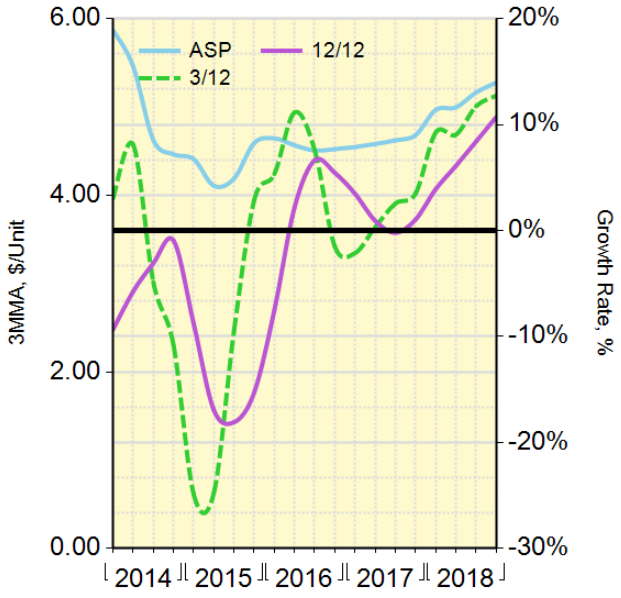
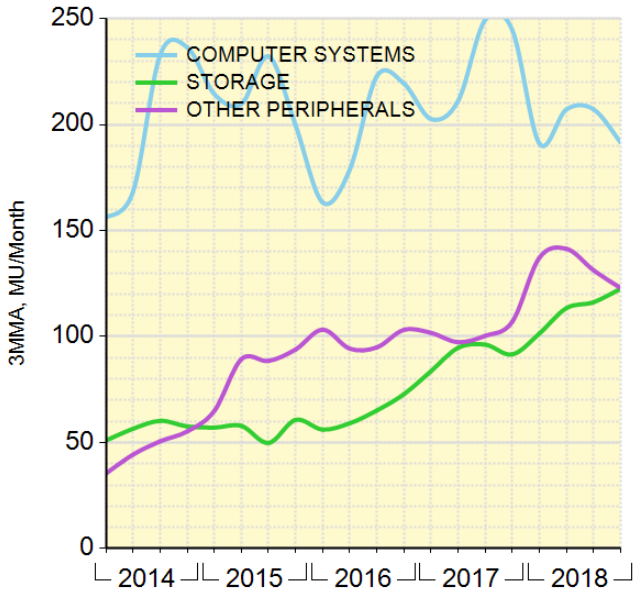


Product Mix - Quantity



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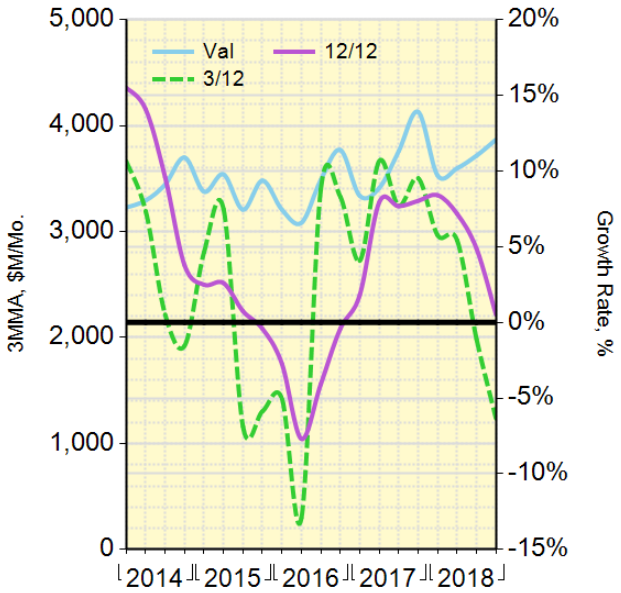
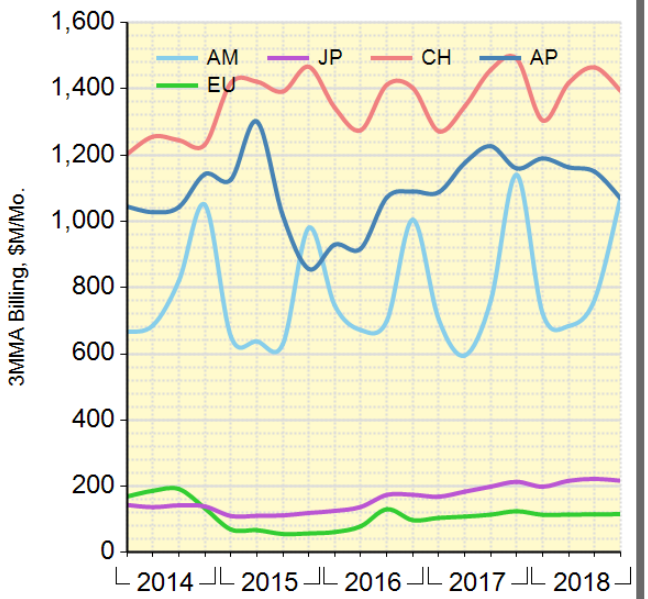
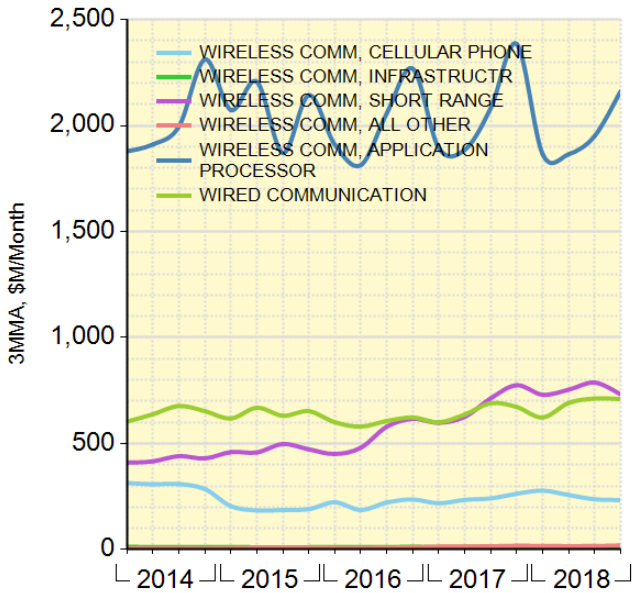
Communic Value



Communic Geographic Billing



Product Mix - Value



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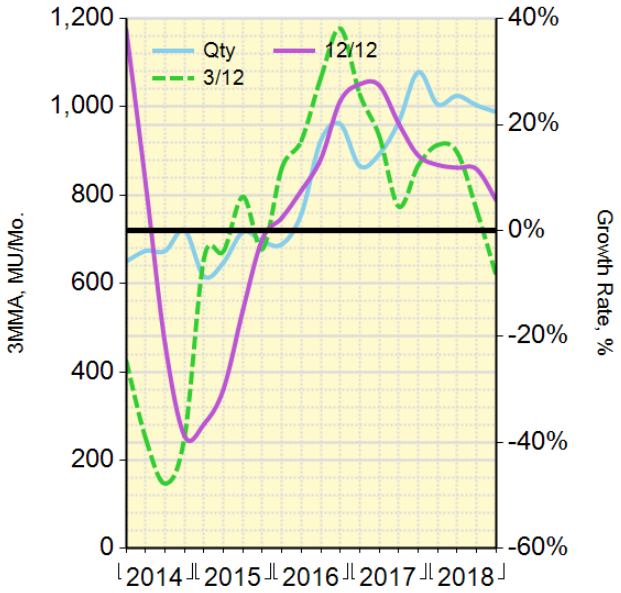

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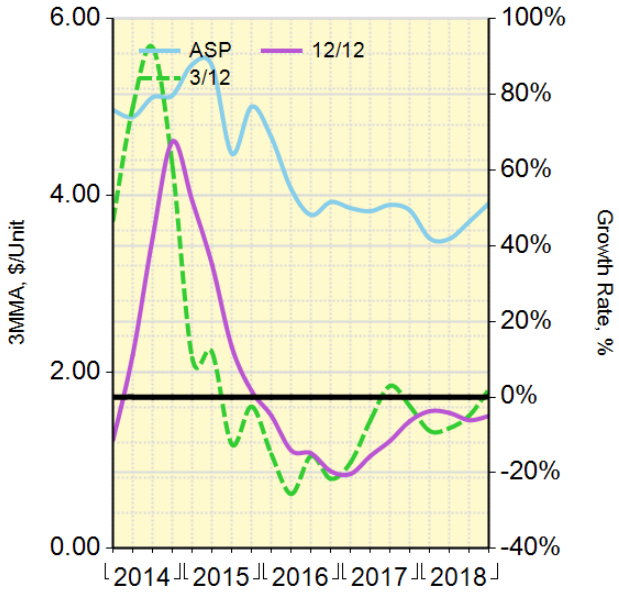
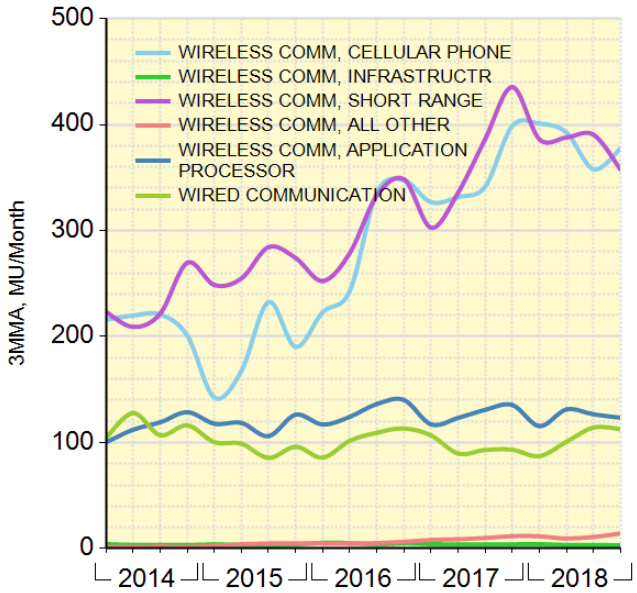


Product Mix - Quantity



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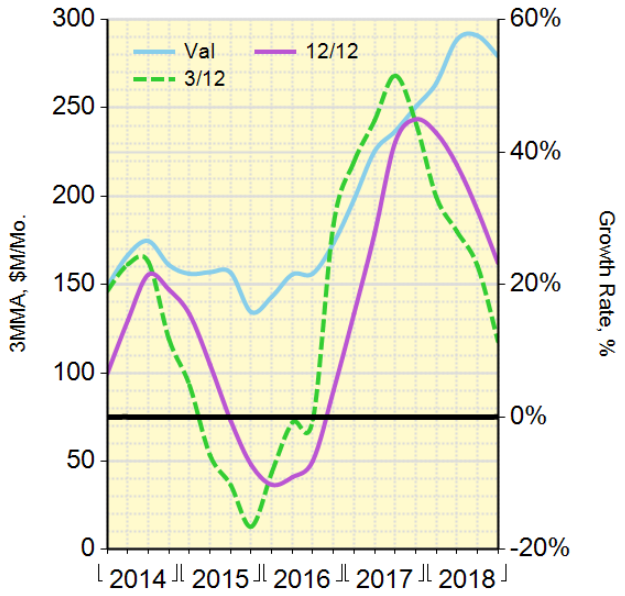
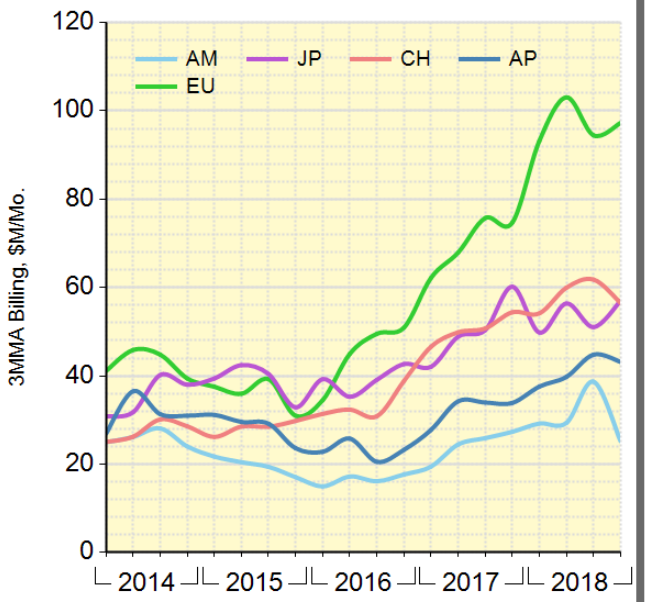
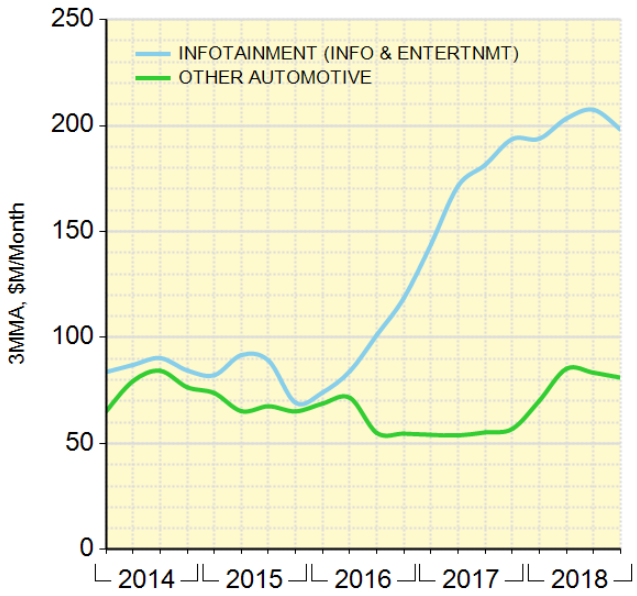
Automotive Value



Automotive Geographic Billing



Product Mix - Value



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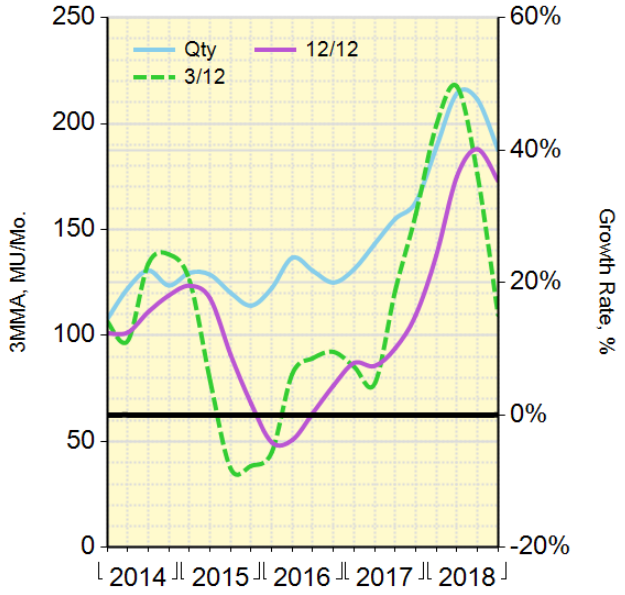

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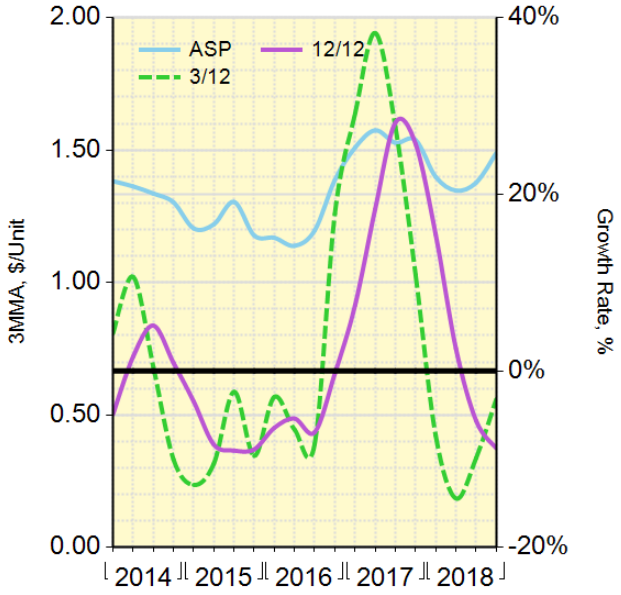
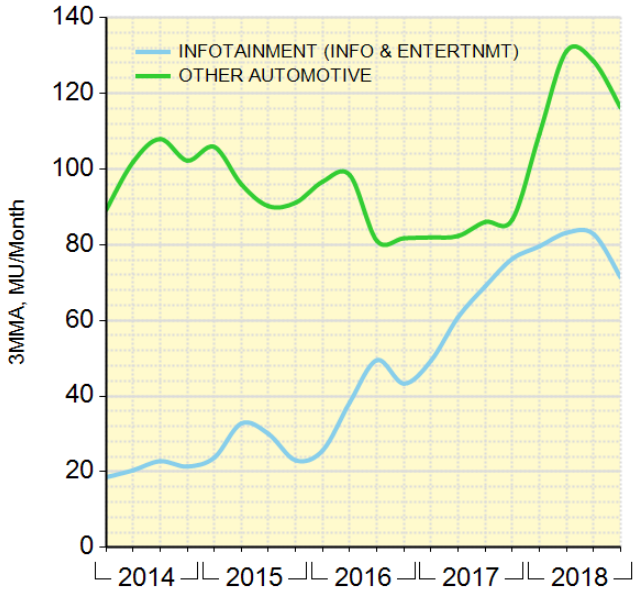


Product Mix - Quantity



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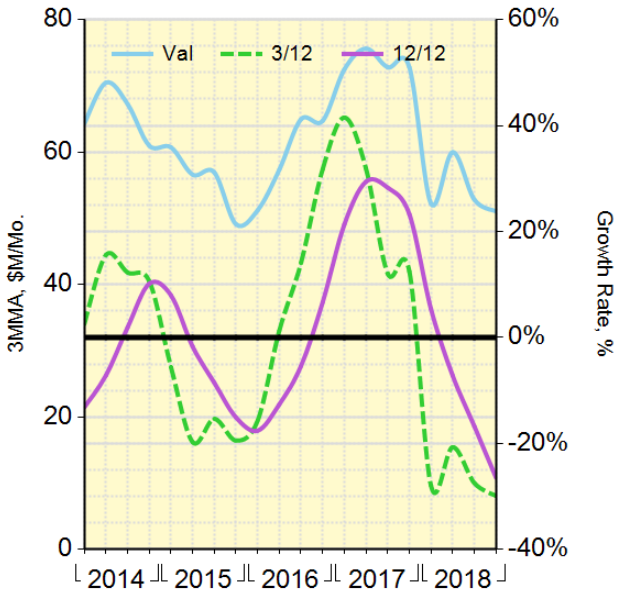
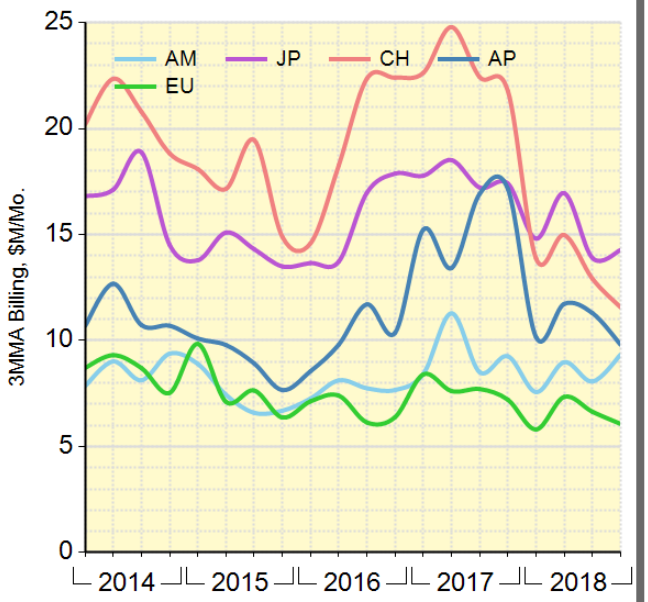
Multipur Value



Multipur Geographic Billing



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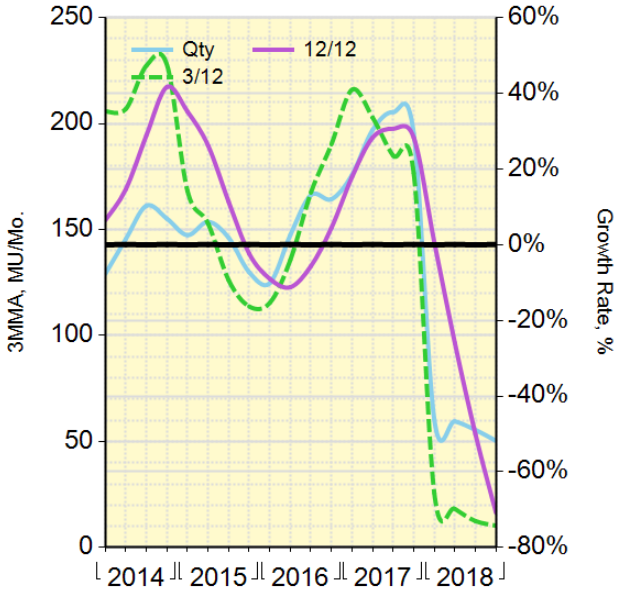
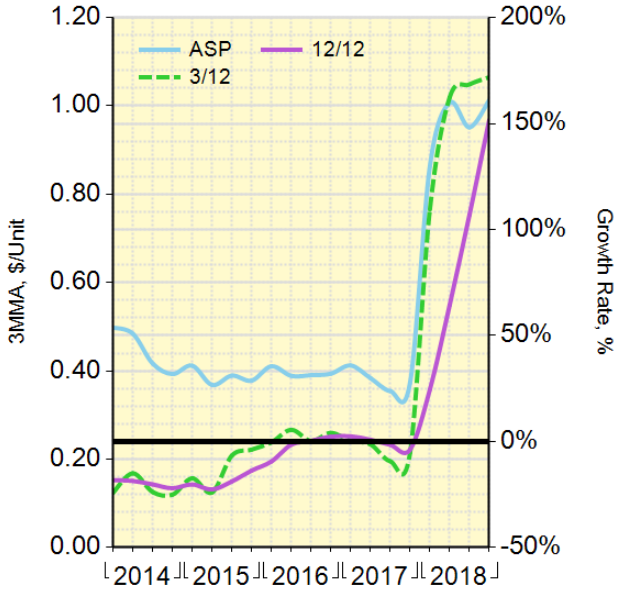


Multipur ASP



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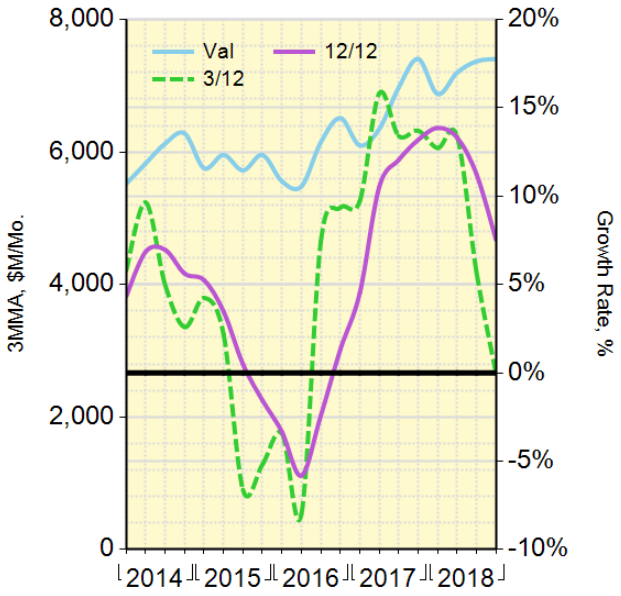
SP Logic Value



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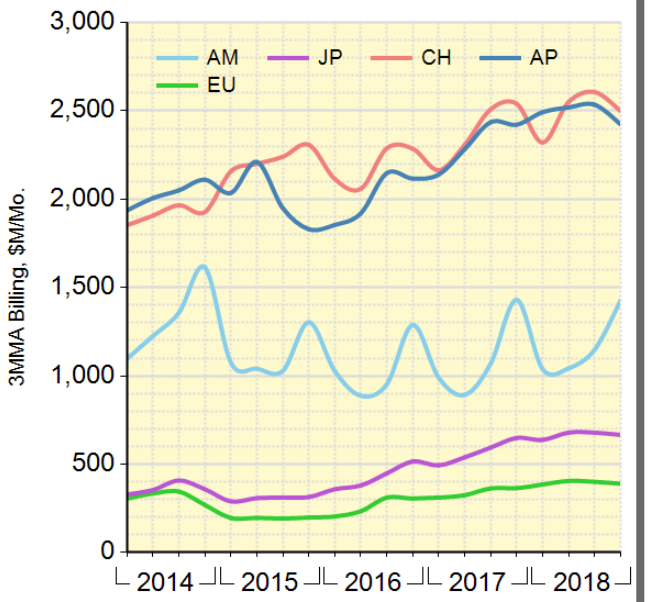
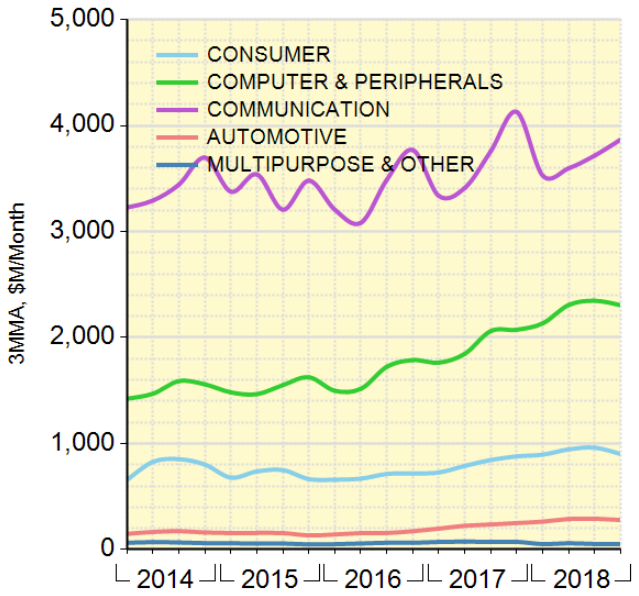


Product Mix - Value



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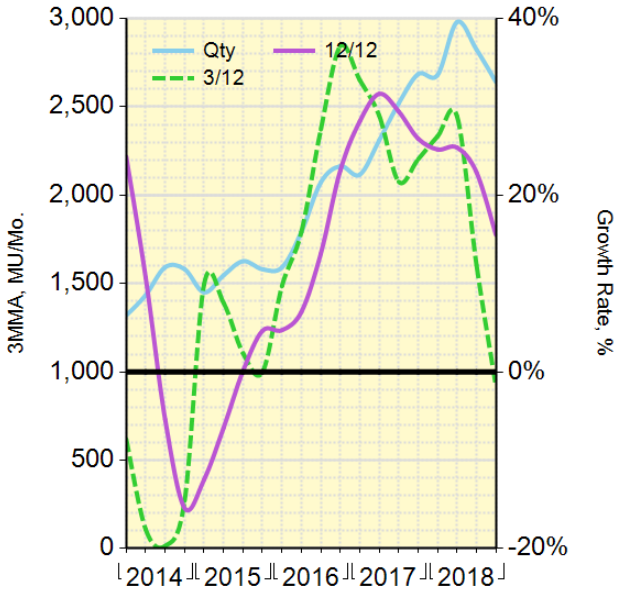

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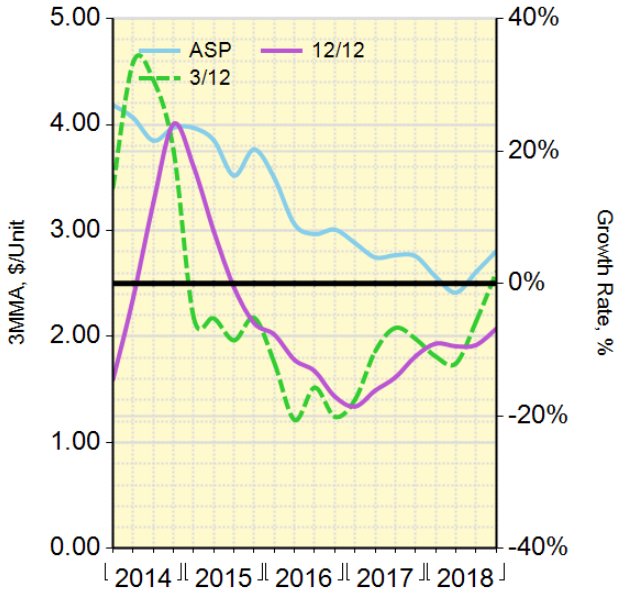
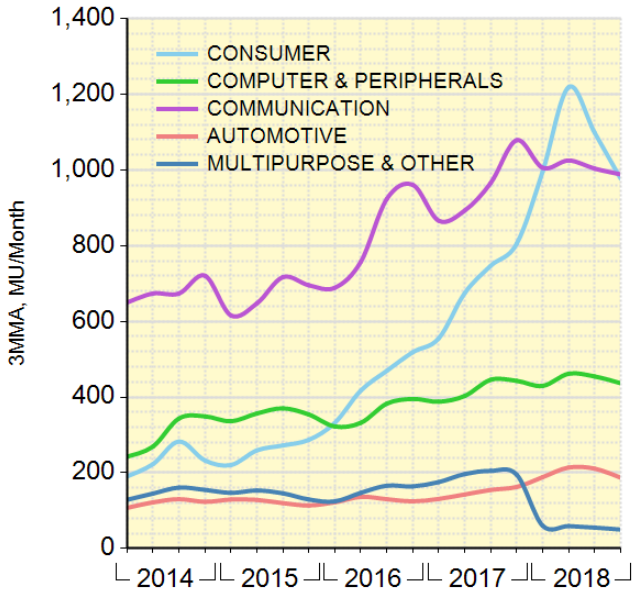


Product Mix - Quantity



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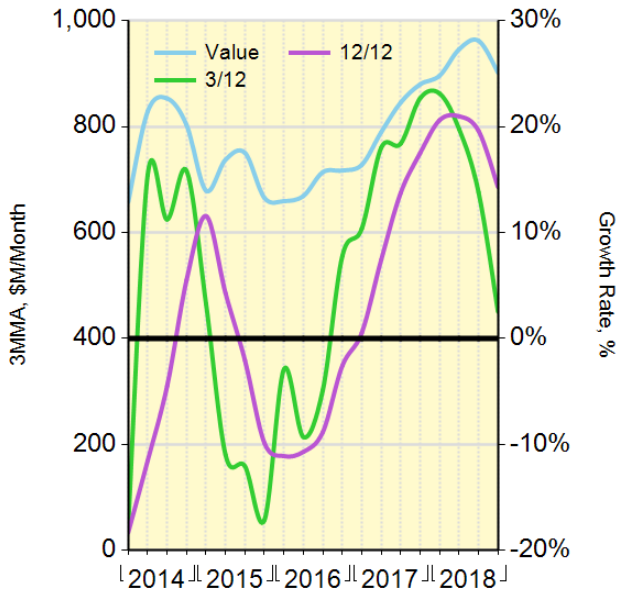
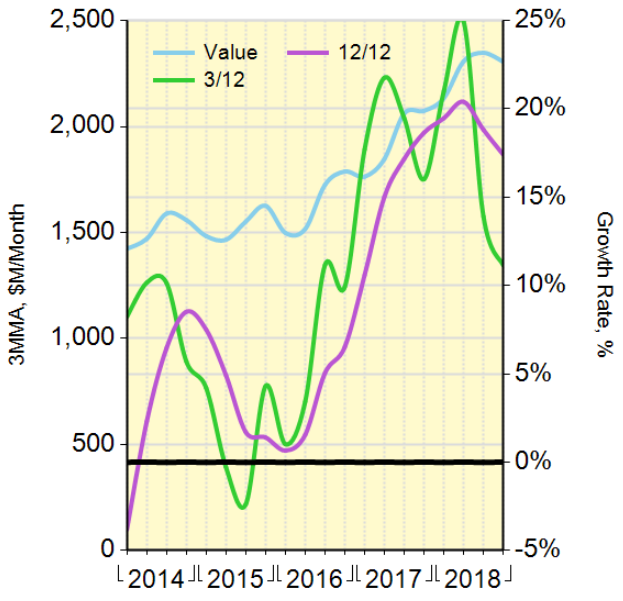
CONSUMER Value



COMPUTER & PERIPHERALS Value



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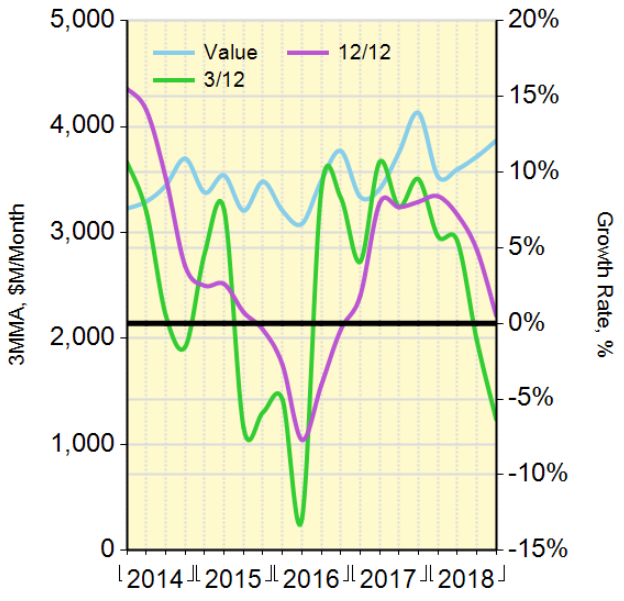

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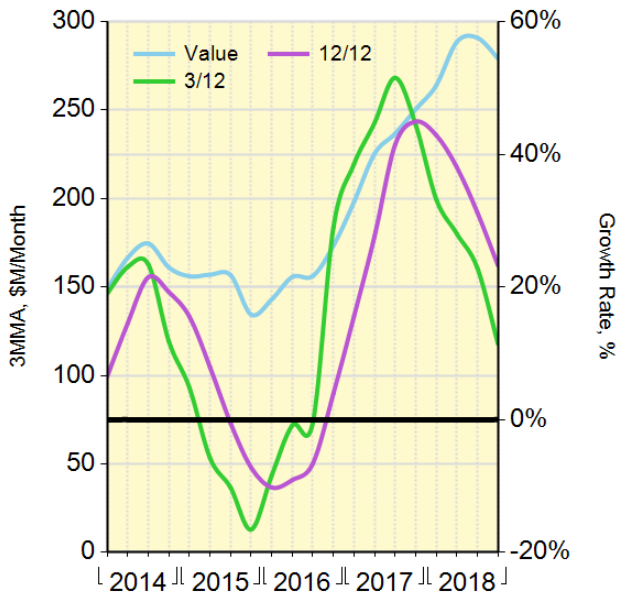
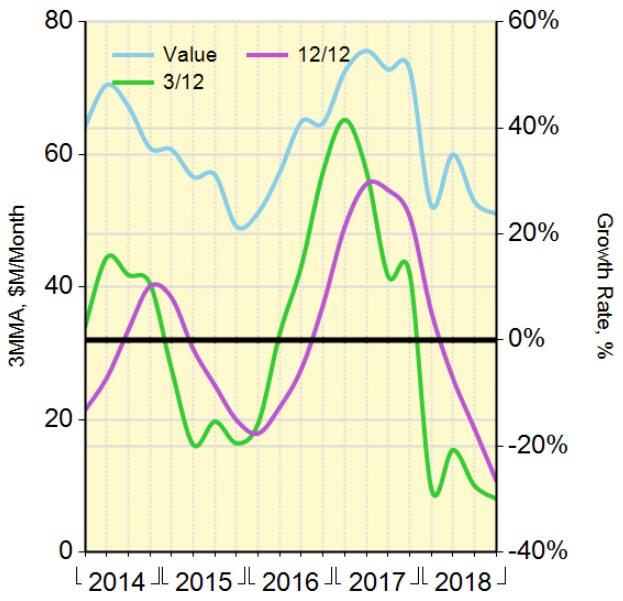


MULTIPURPOSE & OTHER Value



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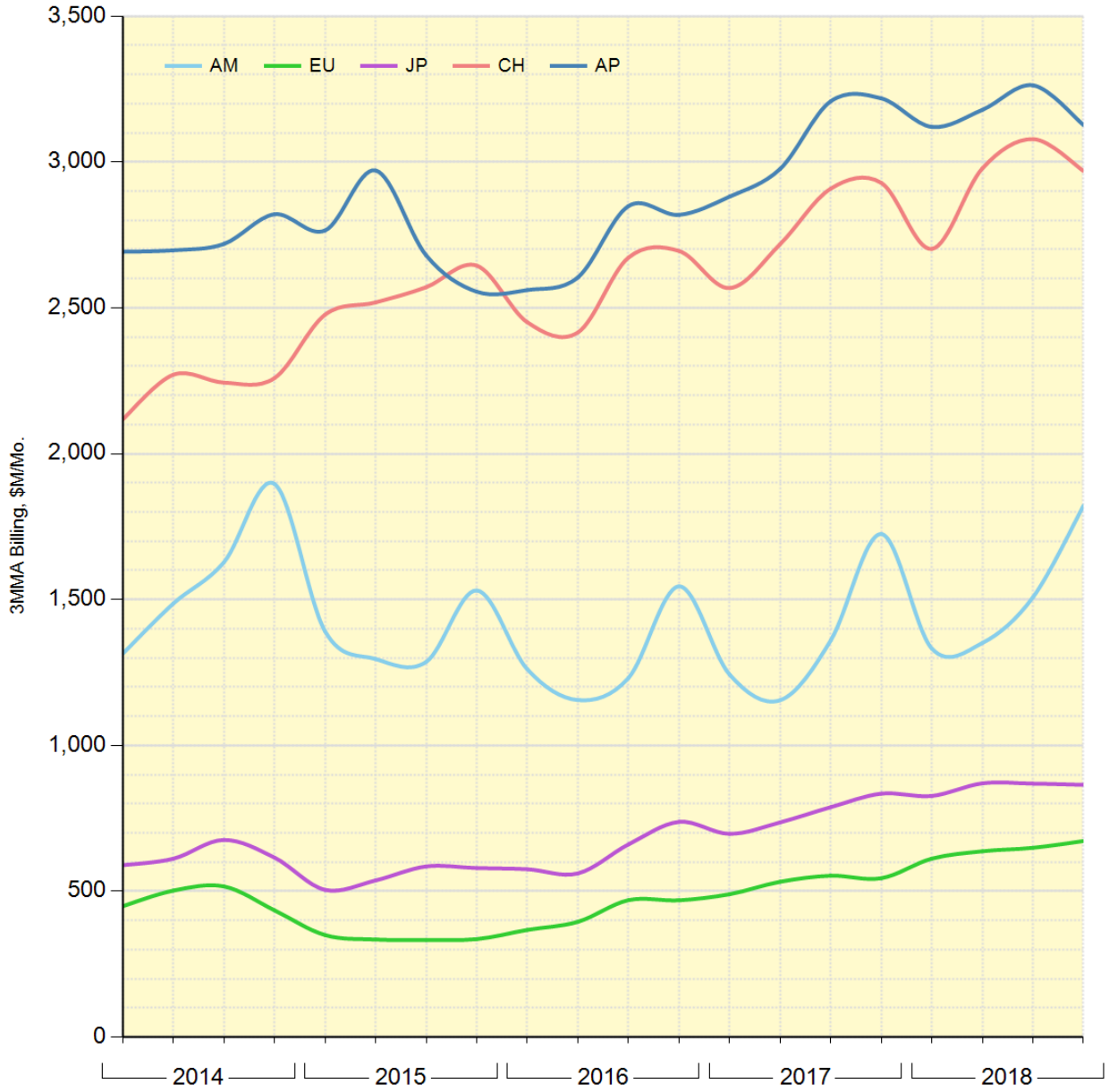
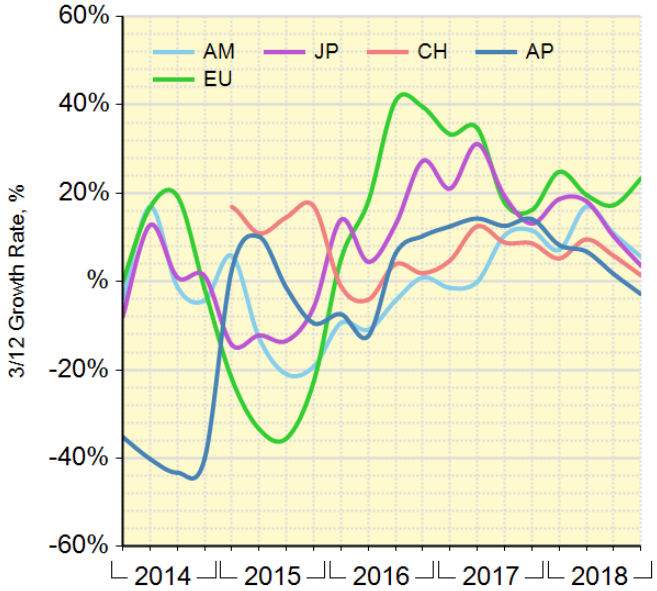
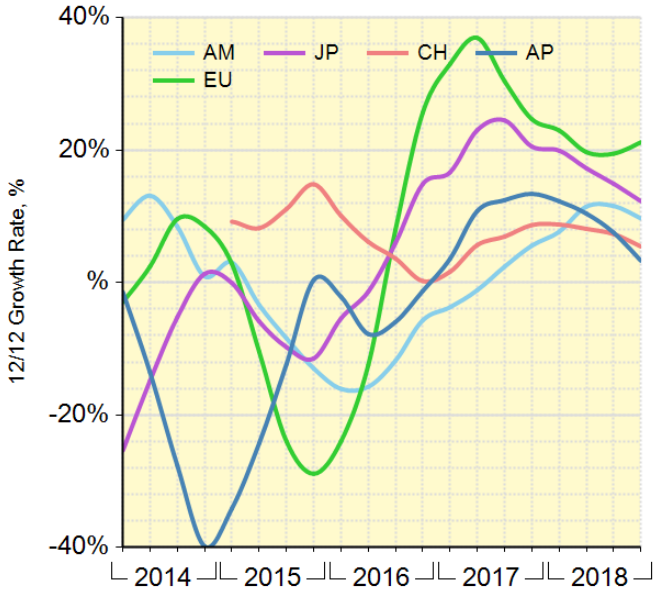
Logic Geographic Billing



Logic Geographic Billing Growth Rate



Logic Geographic Billing Growth Rate



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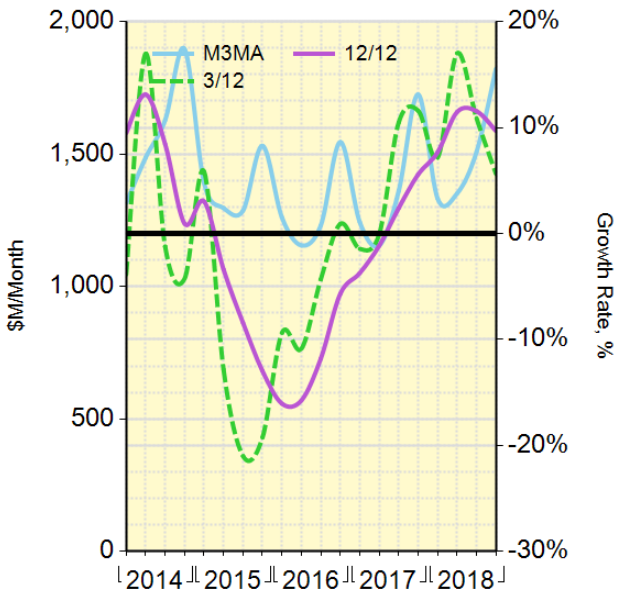
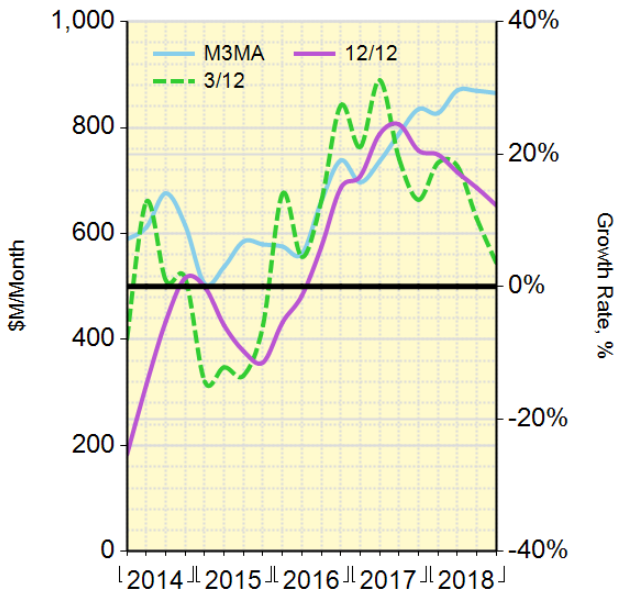
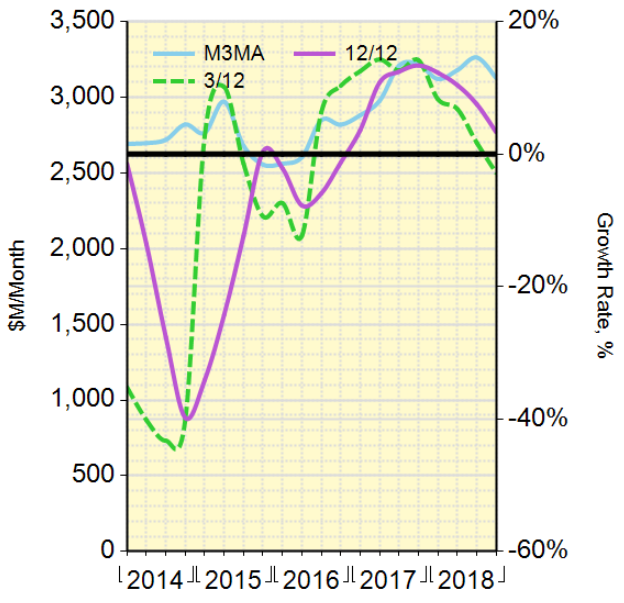
Americas Billing



Japan Billing



Asia Pacific/All Other Billing



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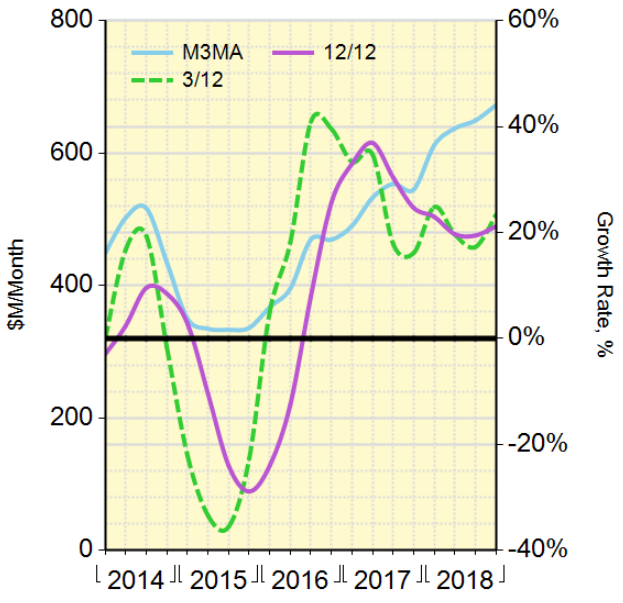

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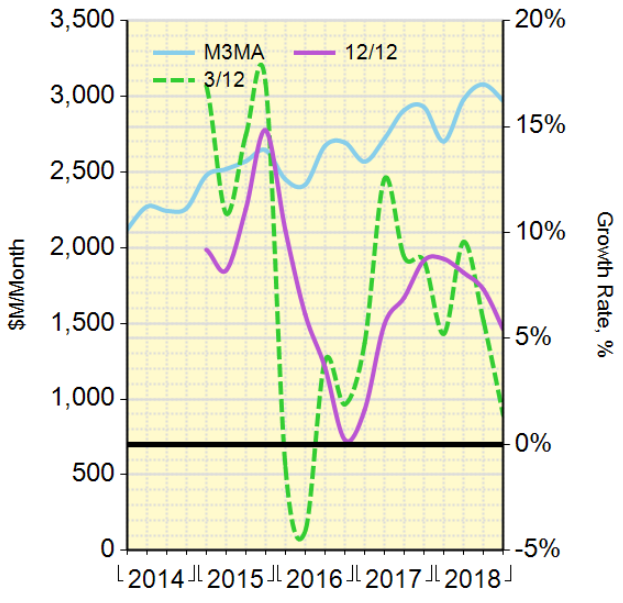

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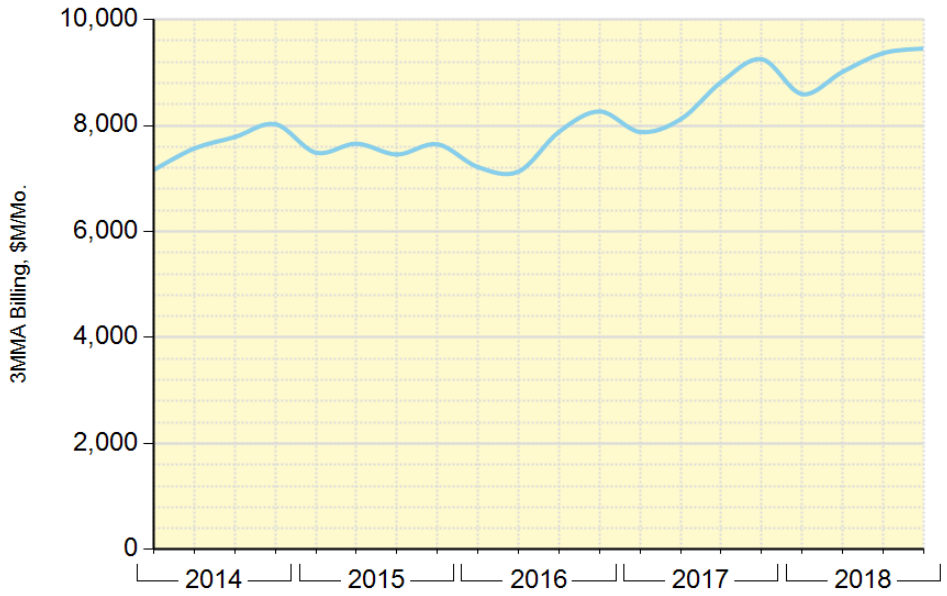
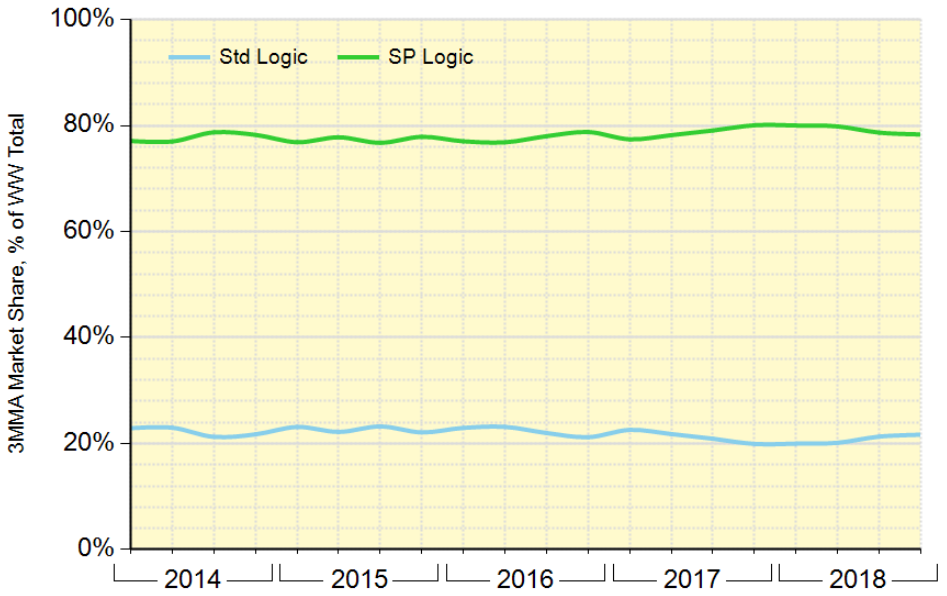
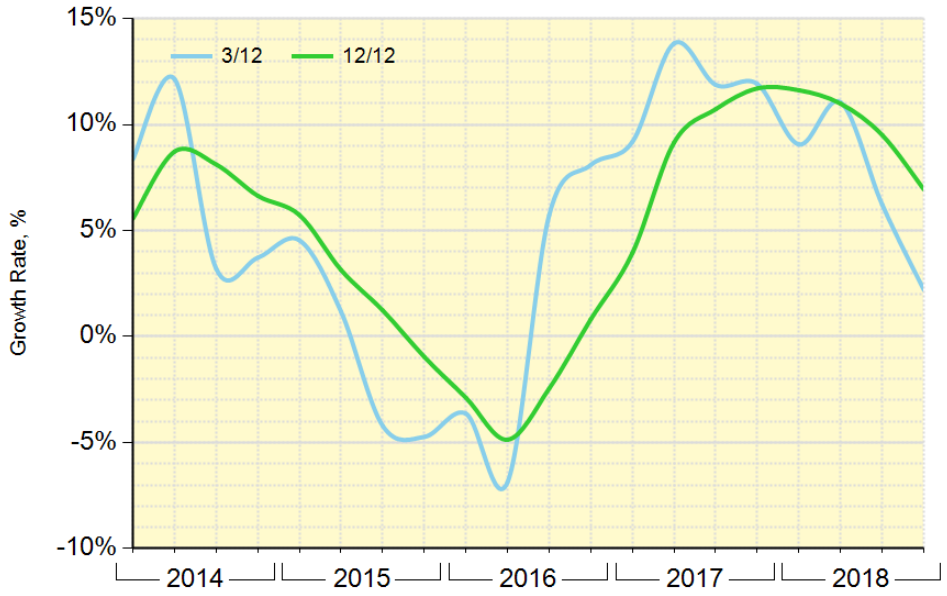
Logic World Billing



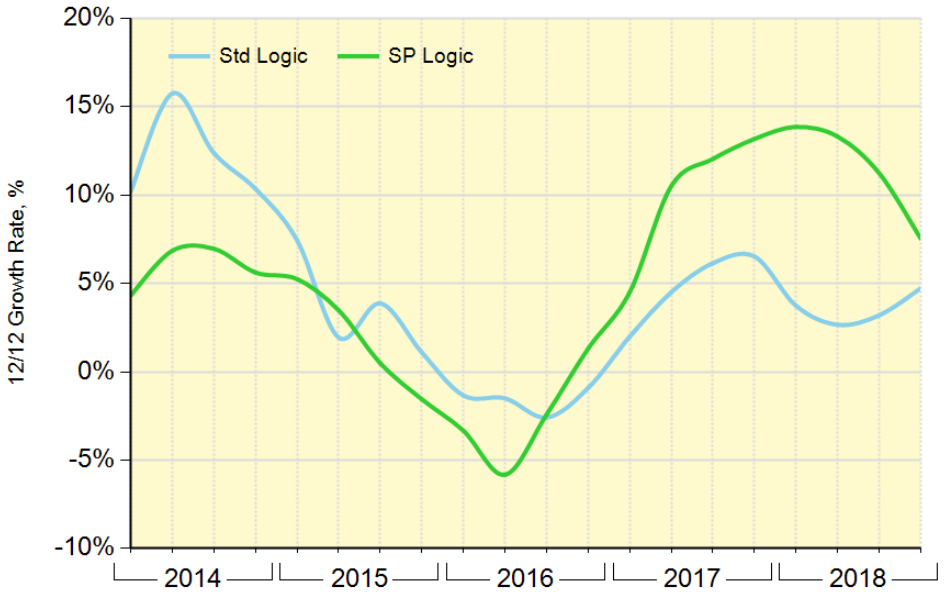
WW Market Share



World Billing Growth Rate



WW Growth Rate



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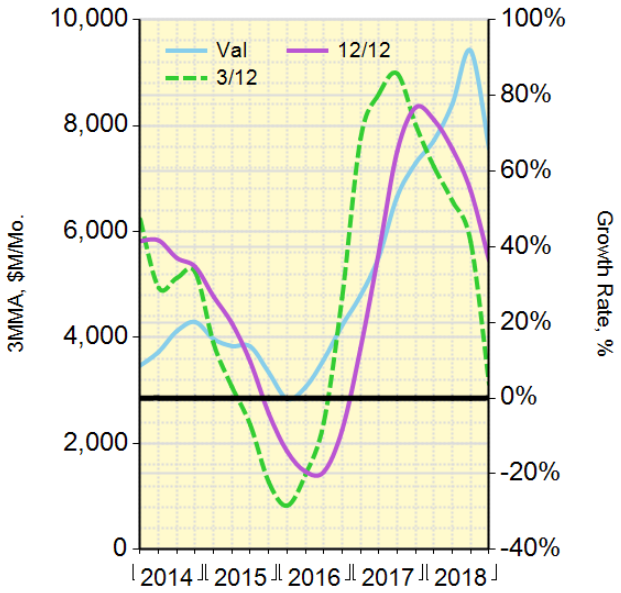
DRAM Value



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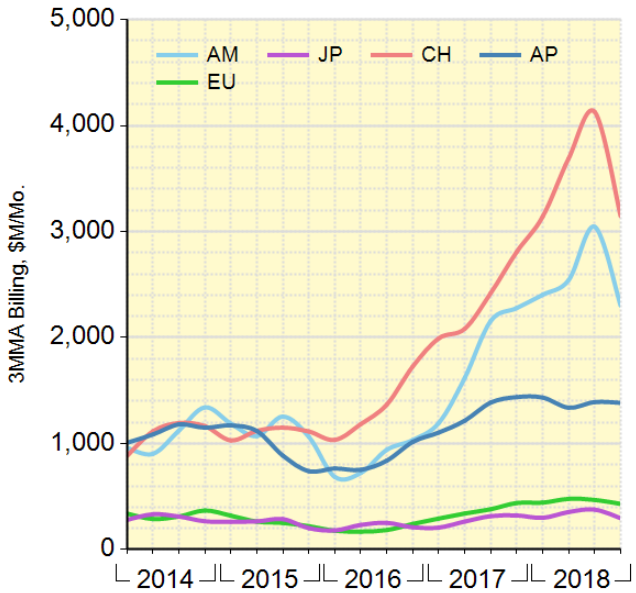
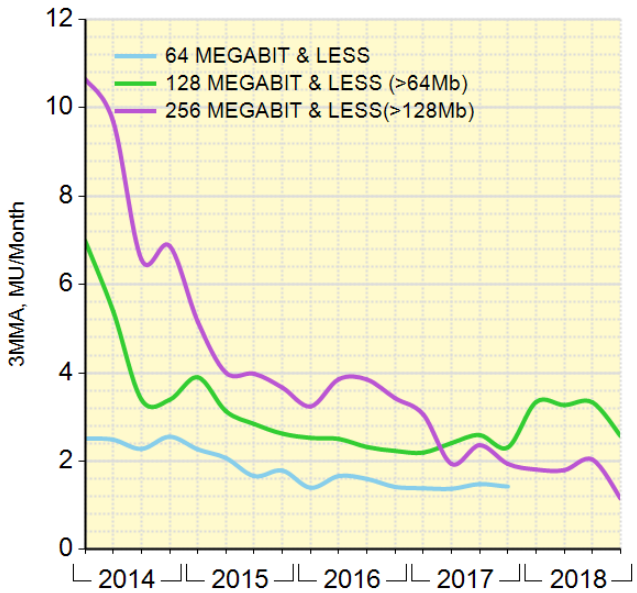


Product Mix - Quantity



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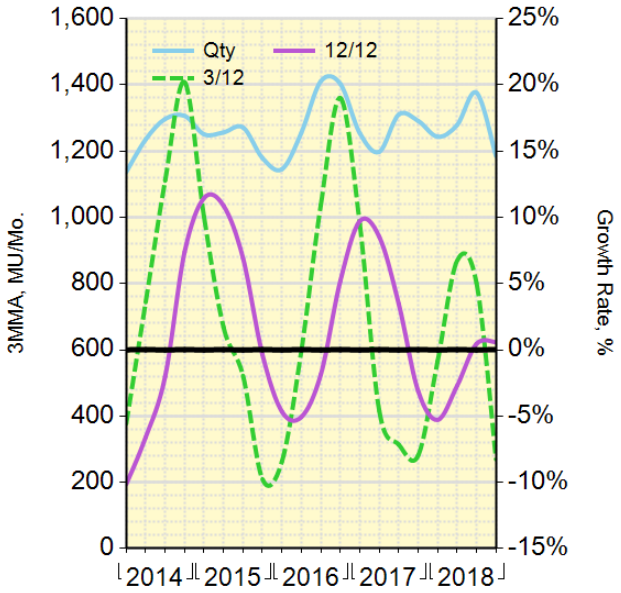

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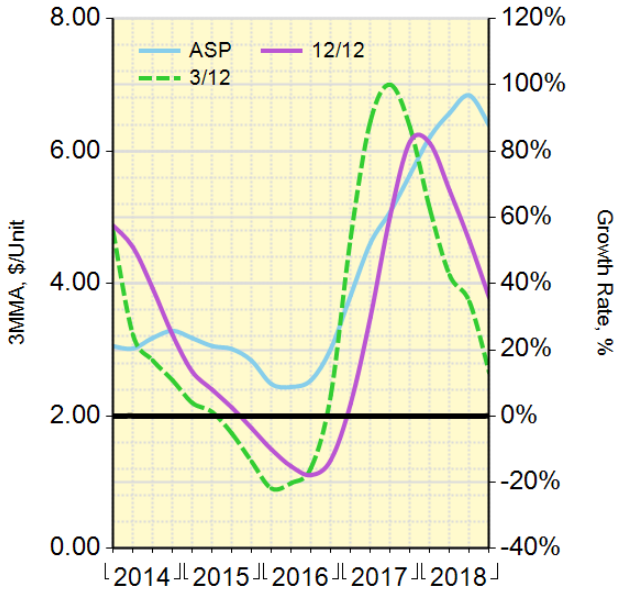
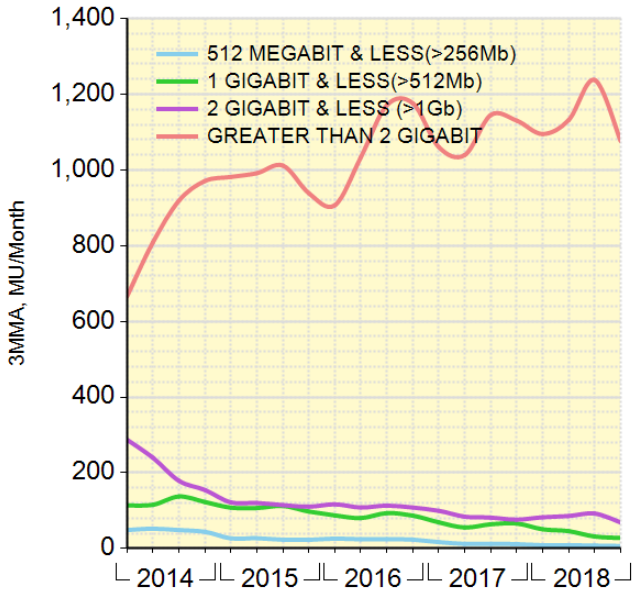


Product Mix - Quantity



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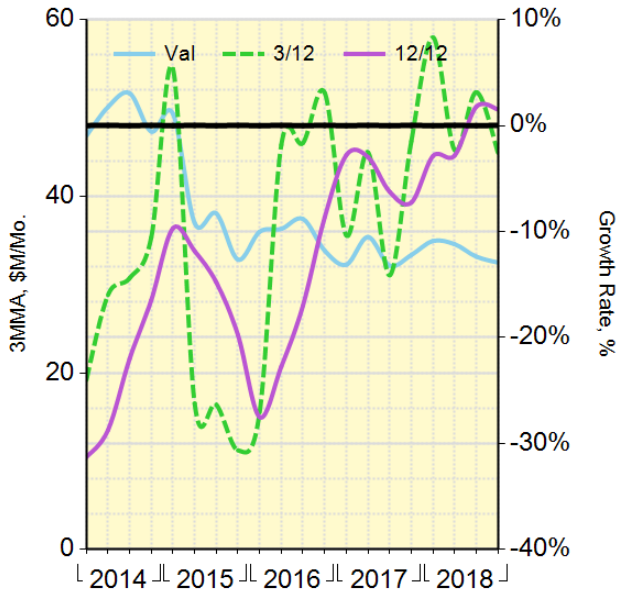
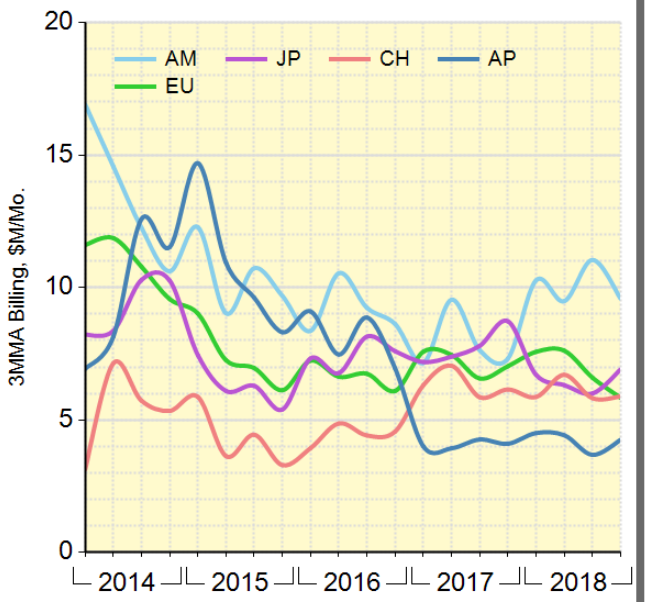
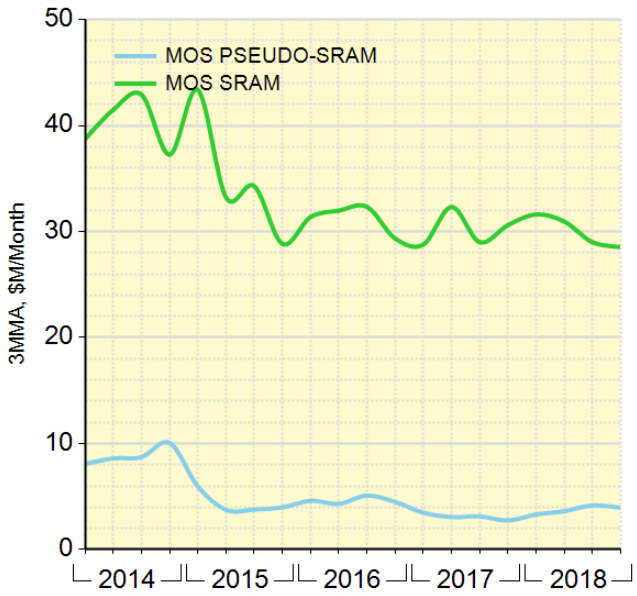
SRAM Value



SRAM Geographic Billing



Product Mix - Value



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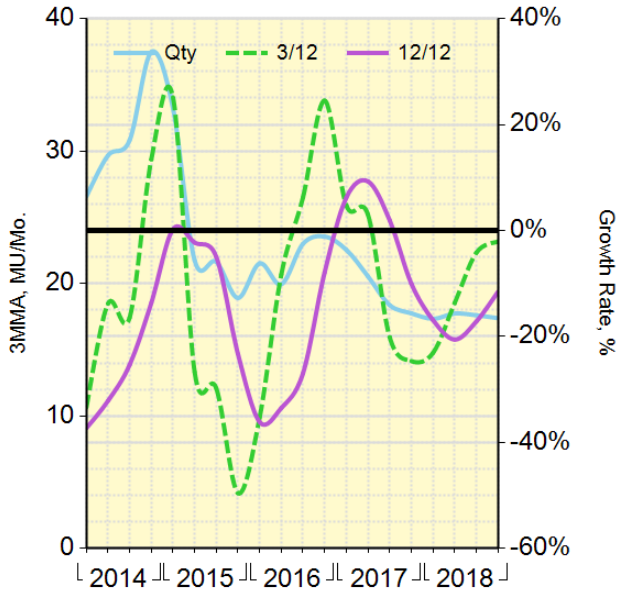

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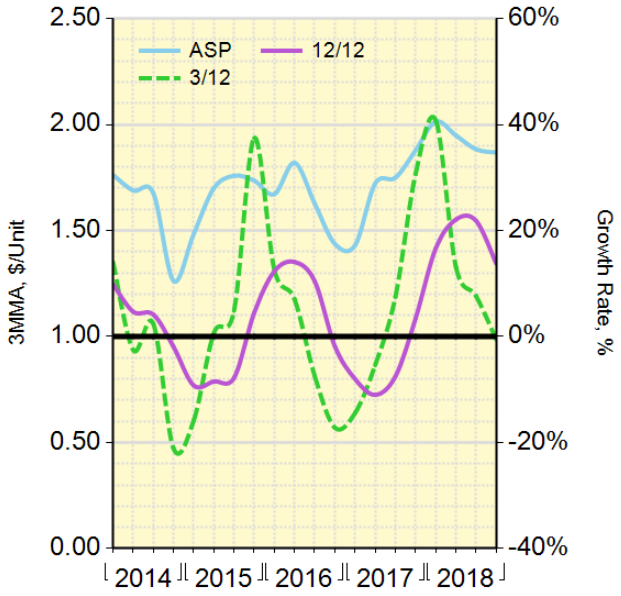
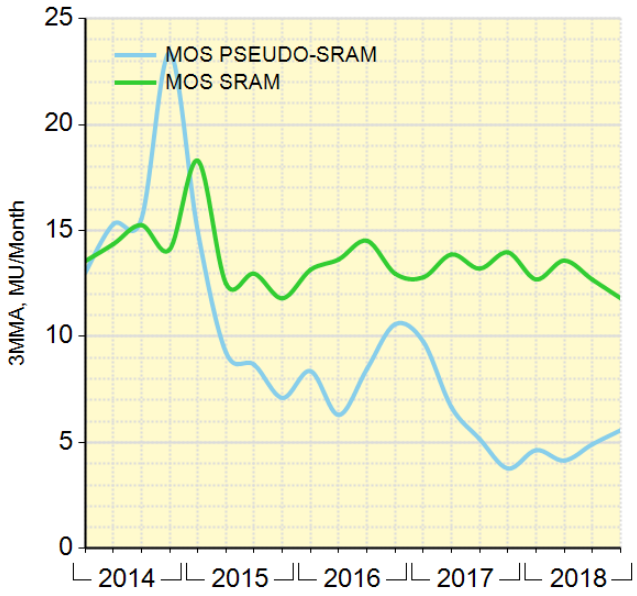


Product Mix - Quantity



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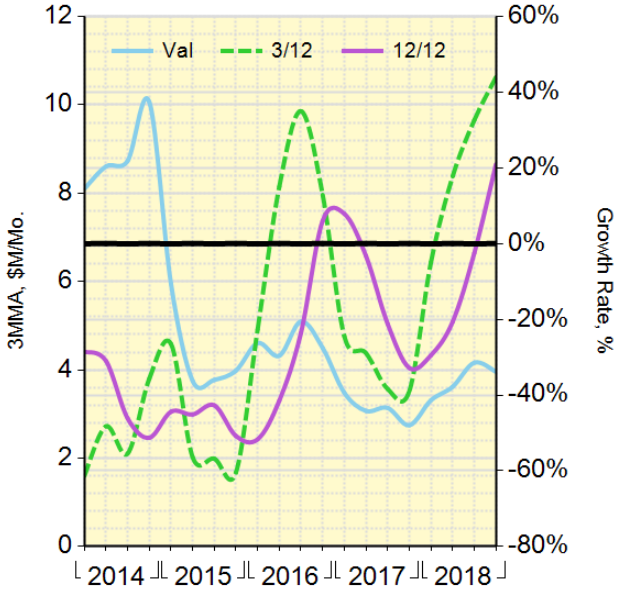
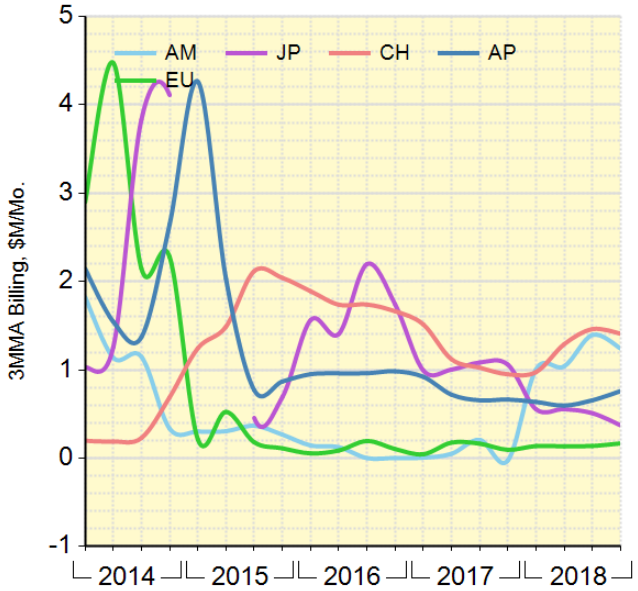
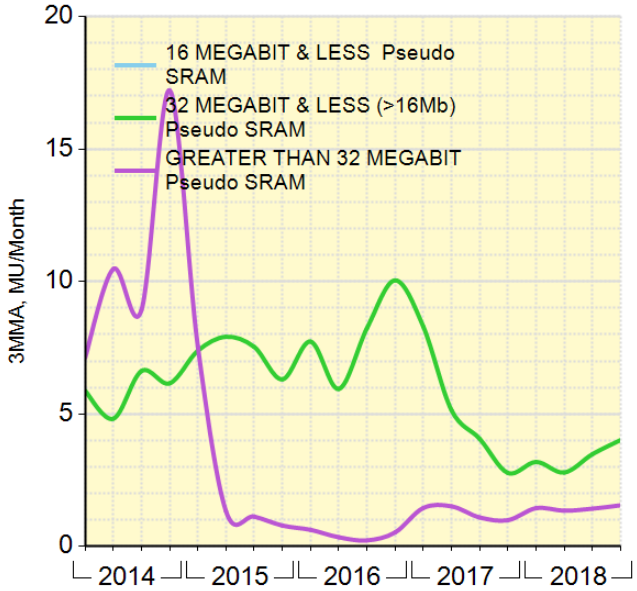
Pseudo SRAM Value



Pseudo SRAM Geographic Billing



Product Mix - Quantity



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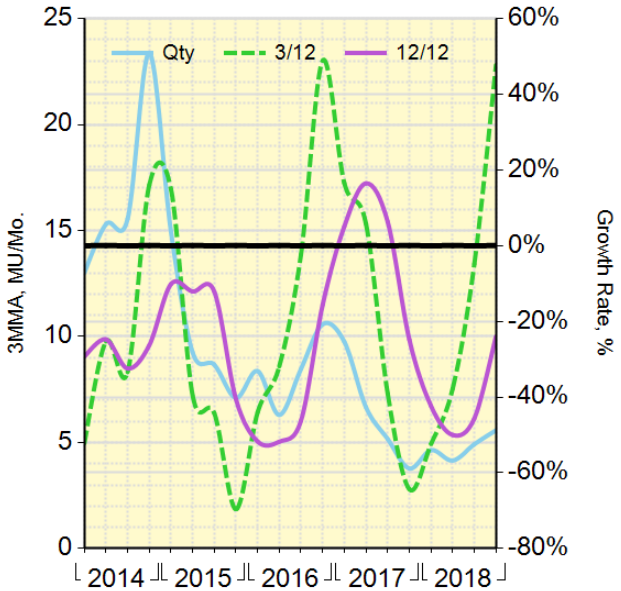

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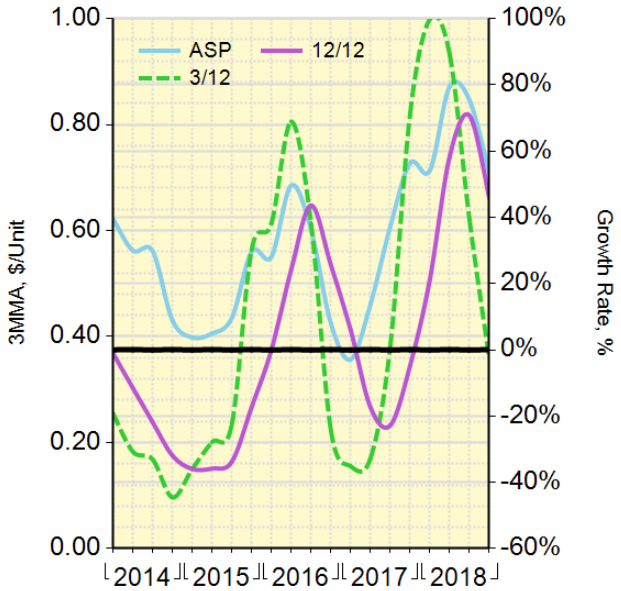

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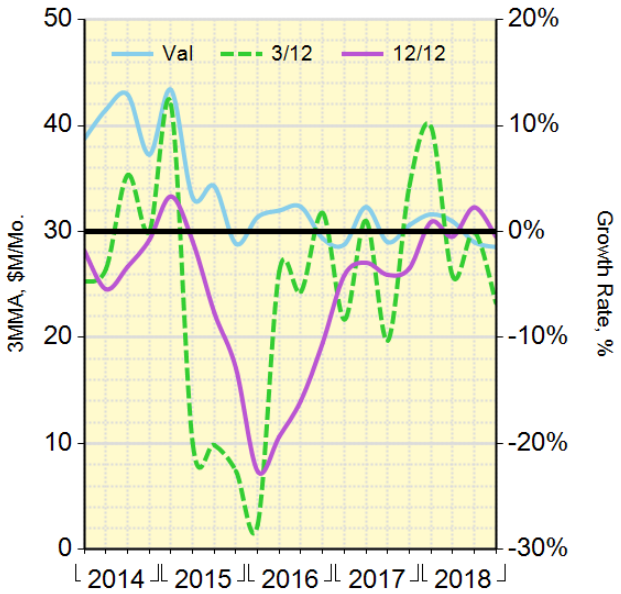
SRAM Value



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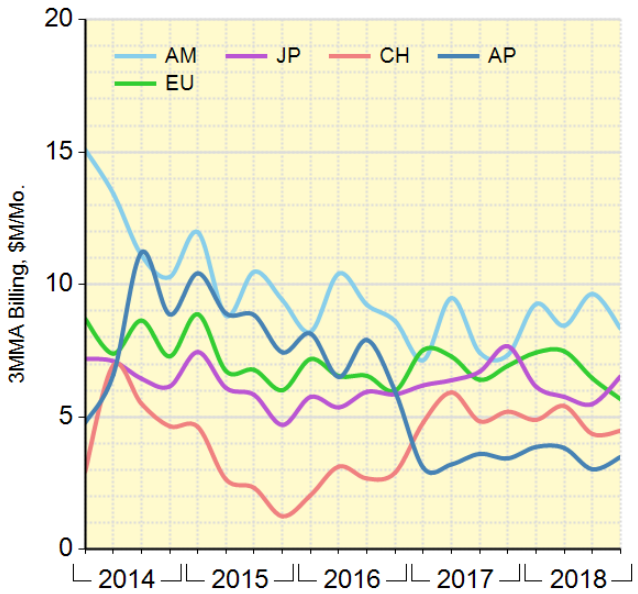
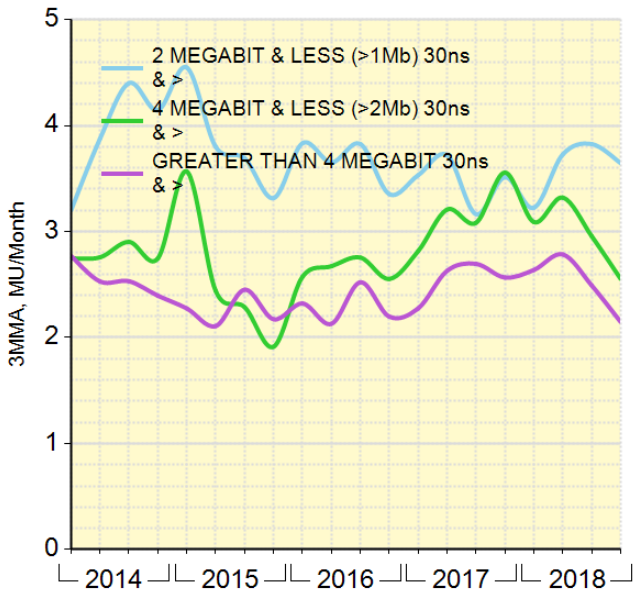


Product Mix - Quantity



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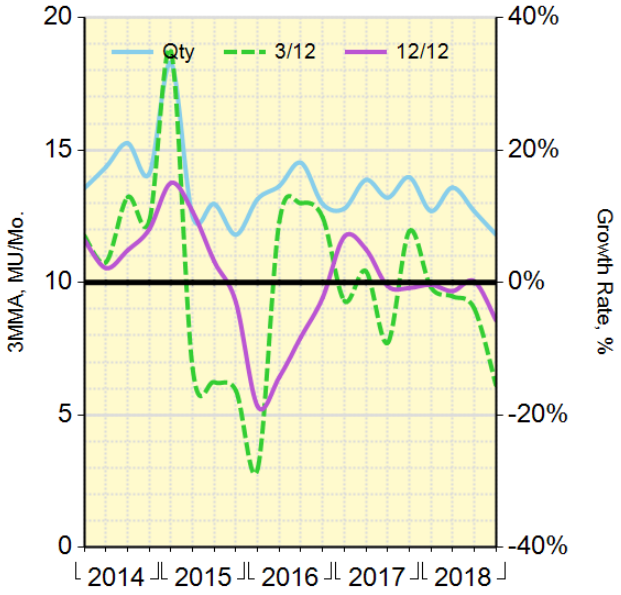

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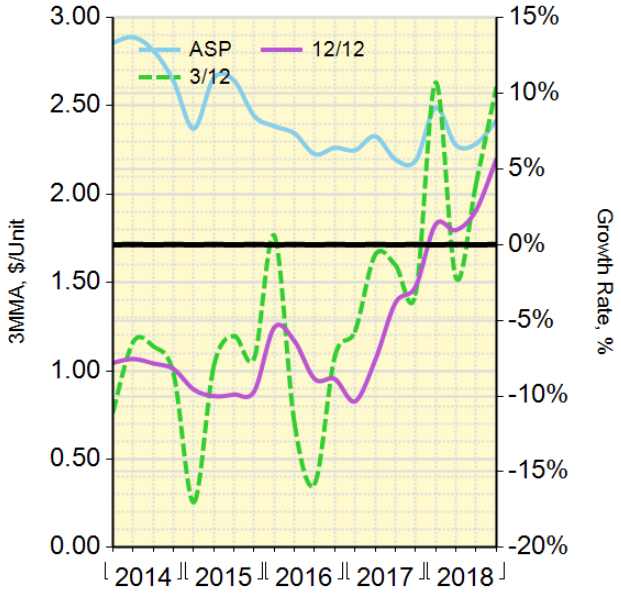

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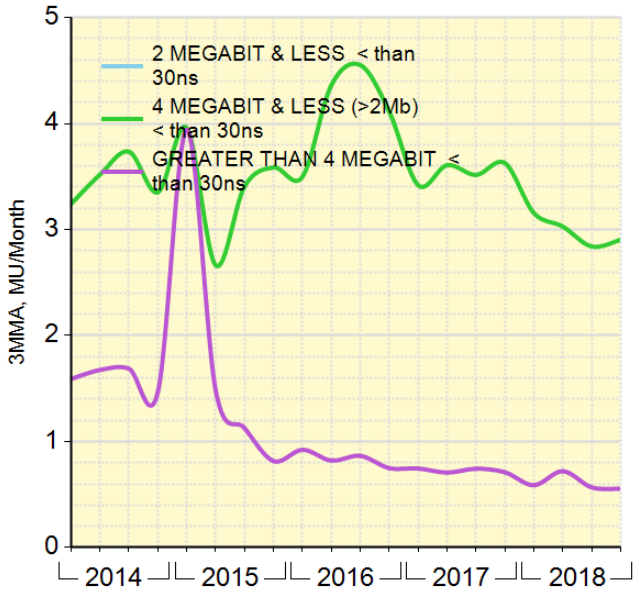

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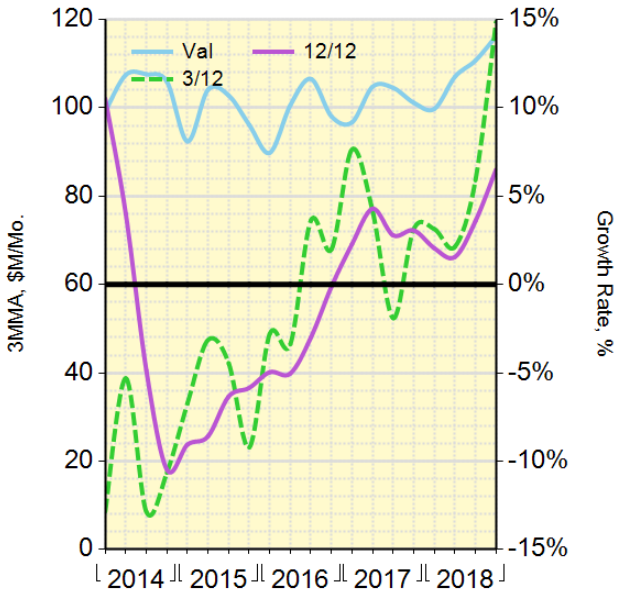
ROM, EPROM Value



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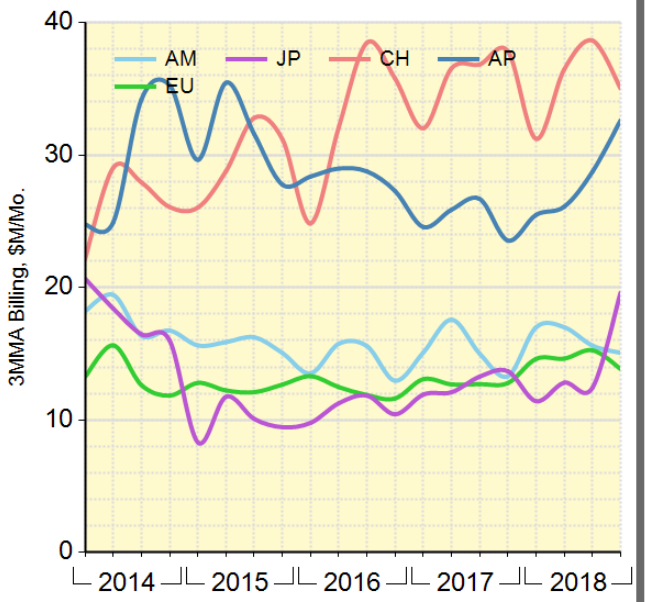
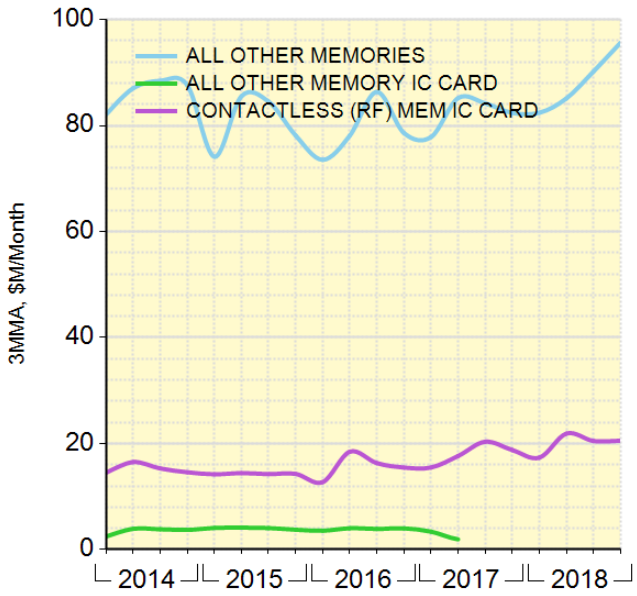


Product Mix - Value



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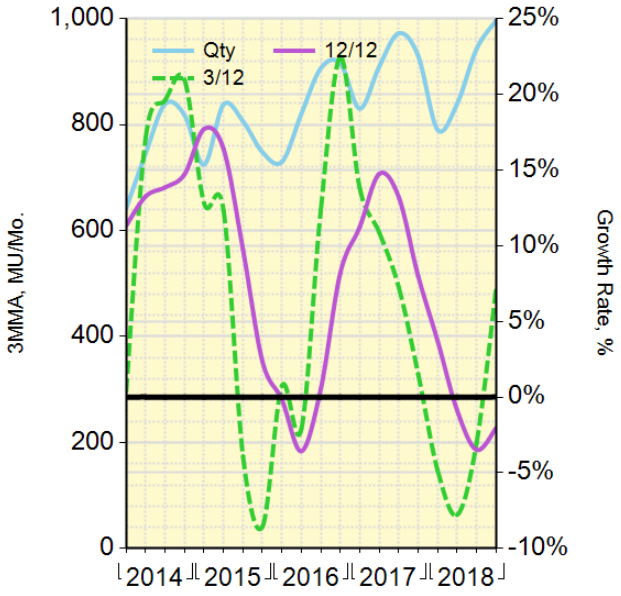

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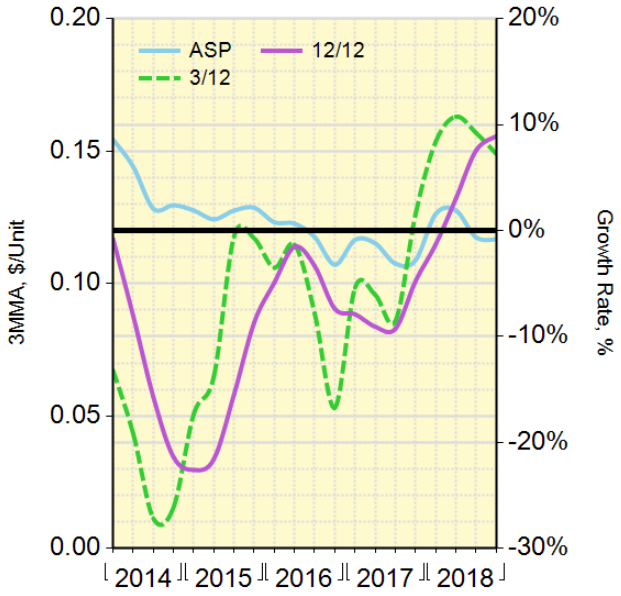
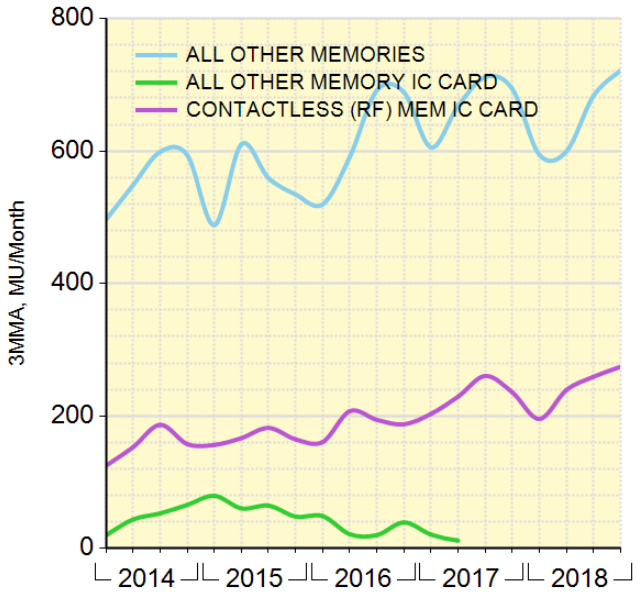


Product Mix - Quantity



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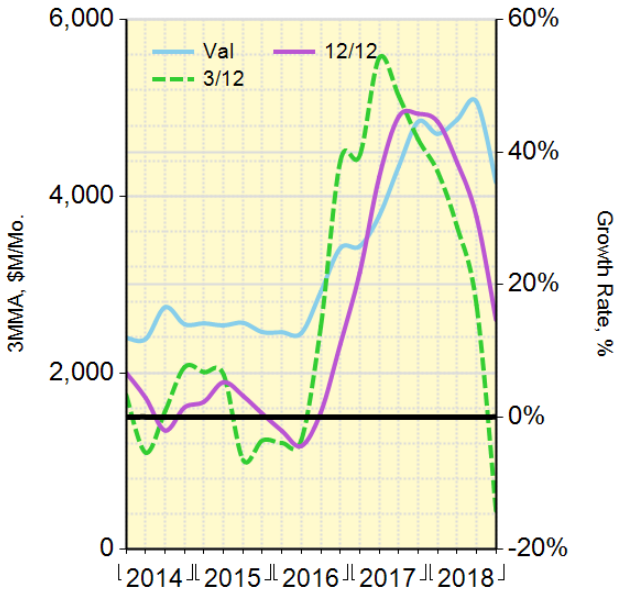
Flash Value



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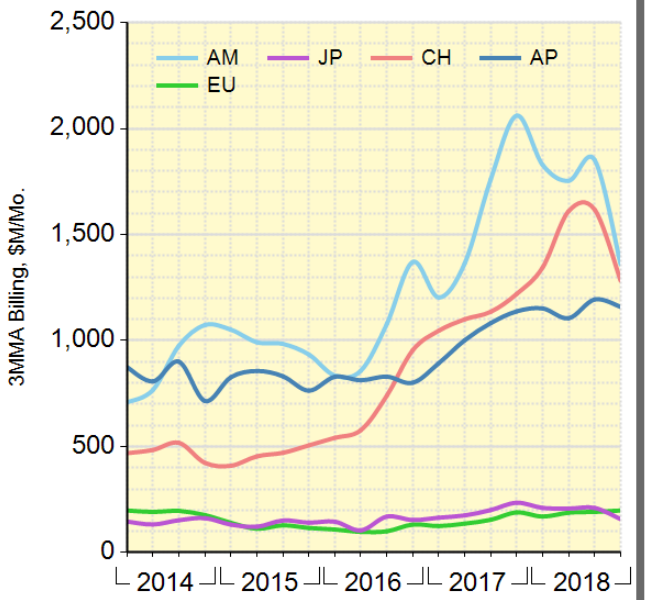

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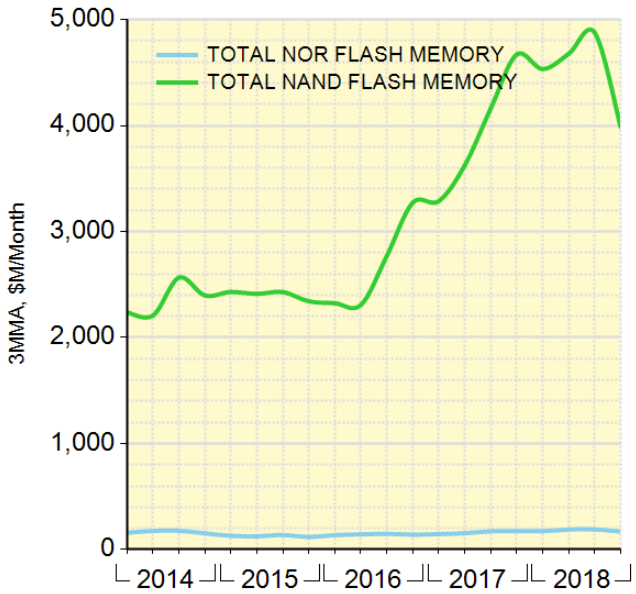

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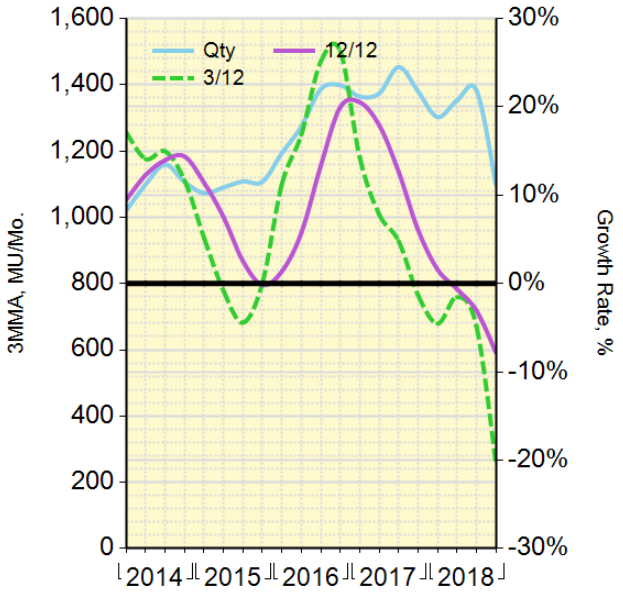

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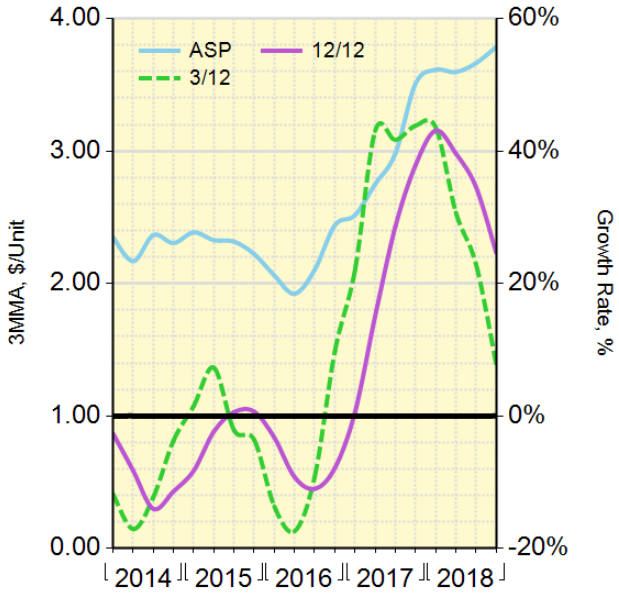

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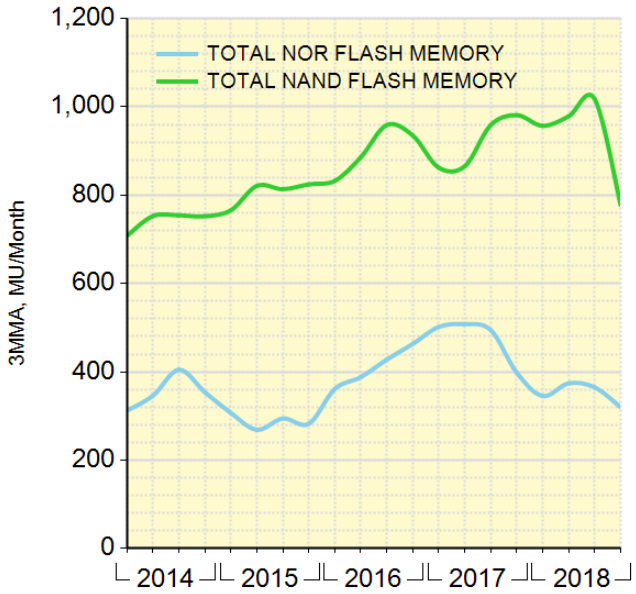

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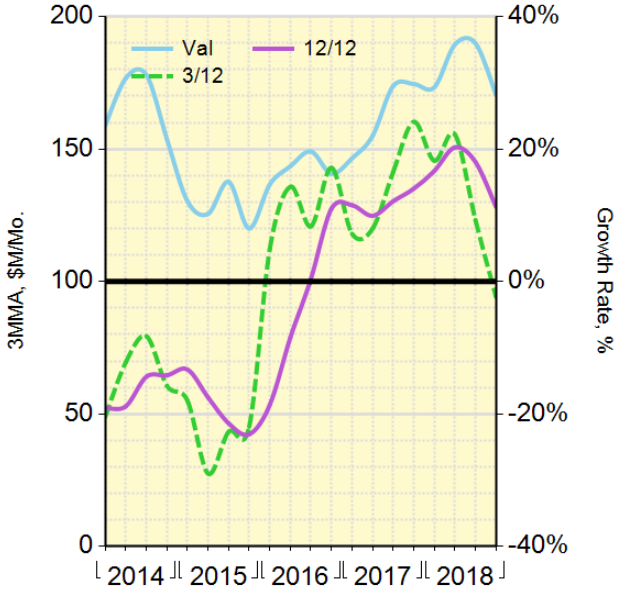
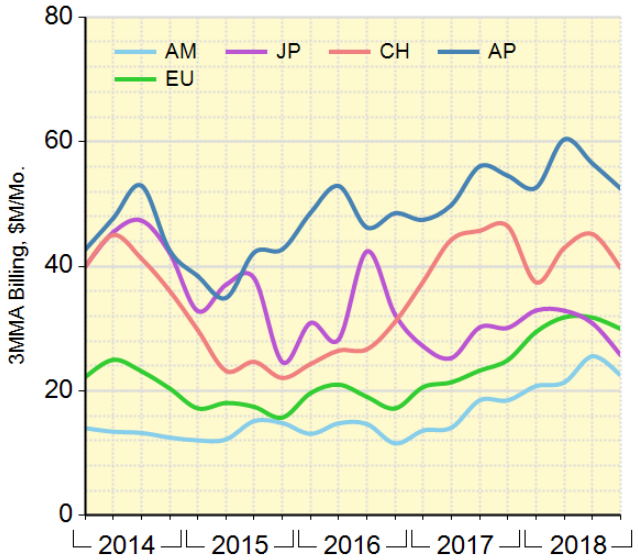
TOTAL NOR FLASH MEMORY Value



TOTAL NOR FLASH MEMORY Geographic Billing



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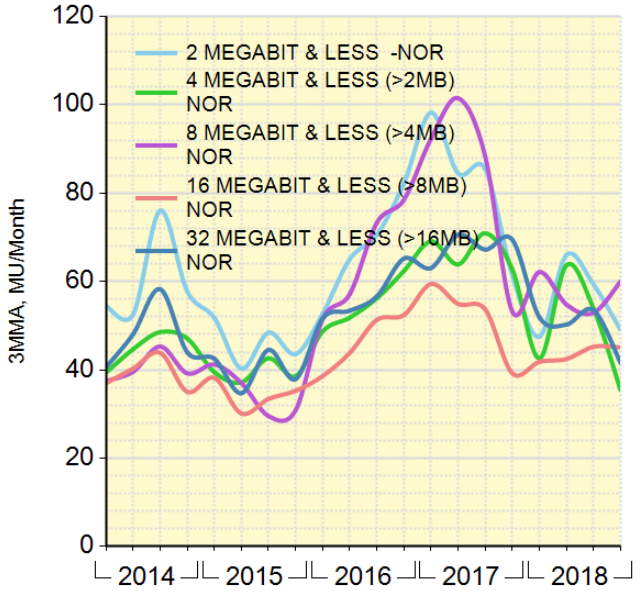

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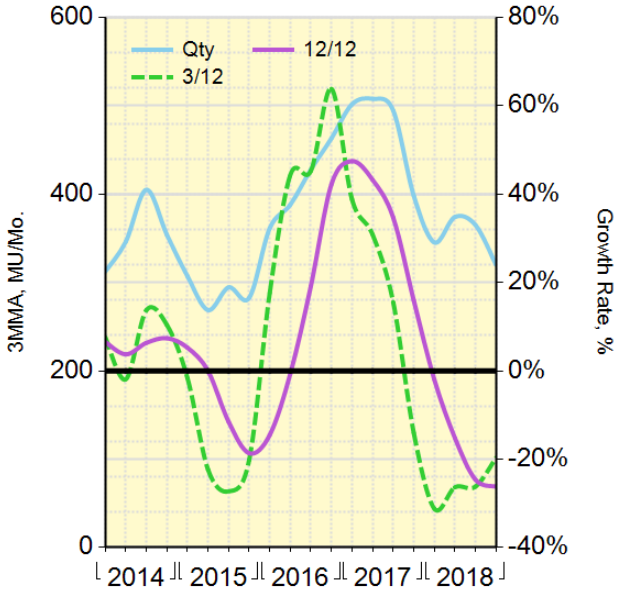

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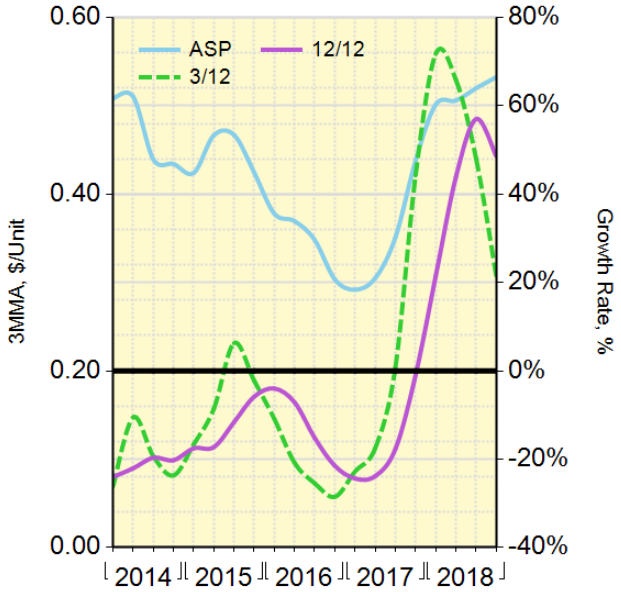

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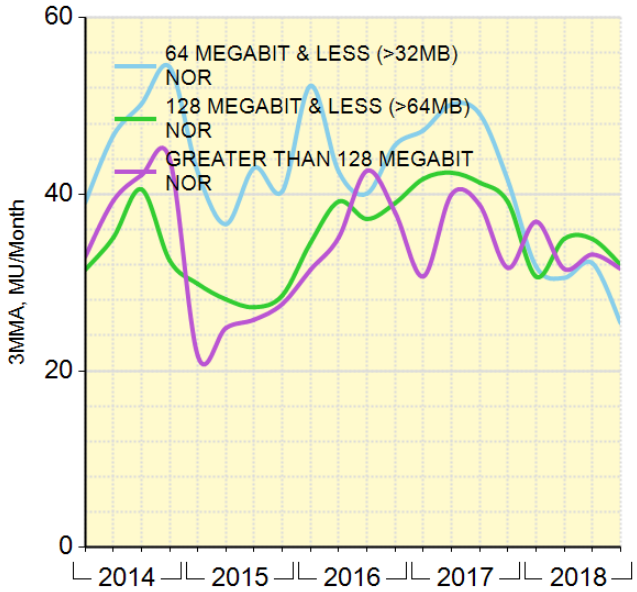

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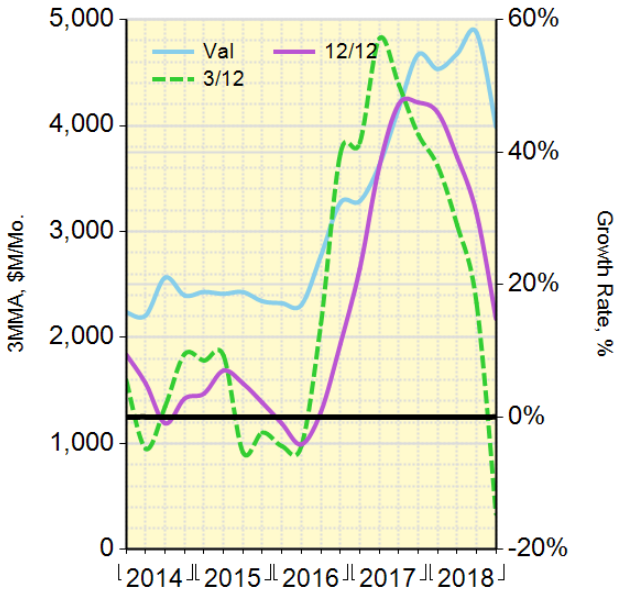
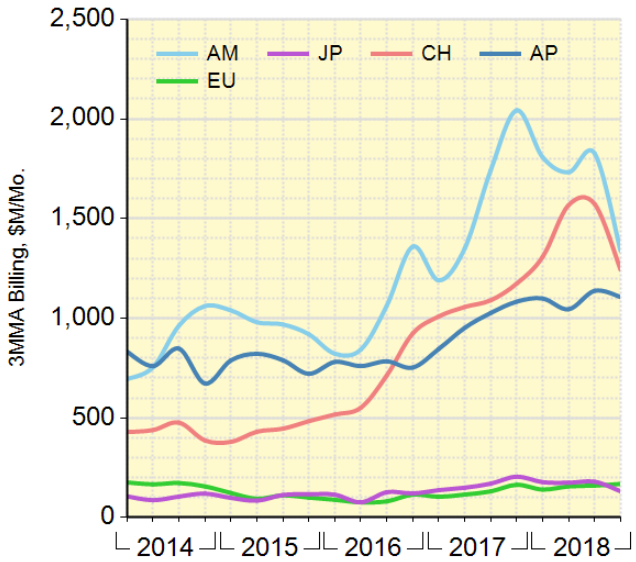
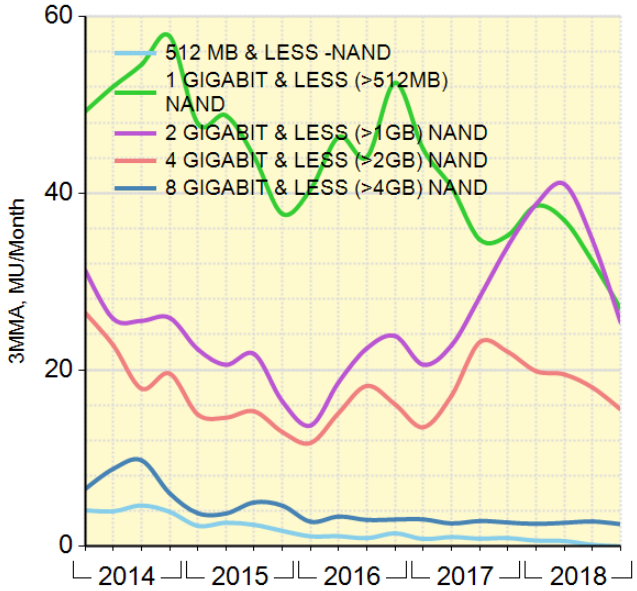
TOTAL NAND FLASH MEMORY Value



TOTAL NAND FLASH MEMORY Geographic Billing



Product Mix - Quantity



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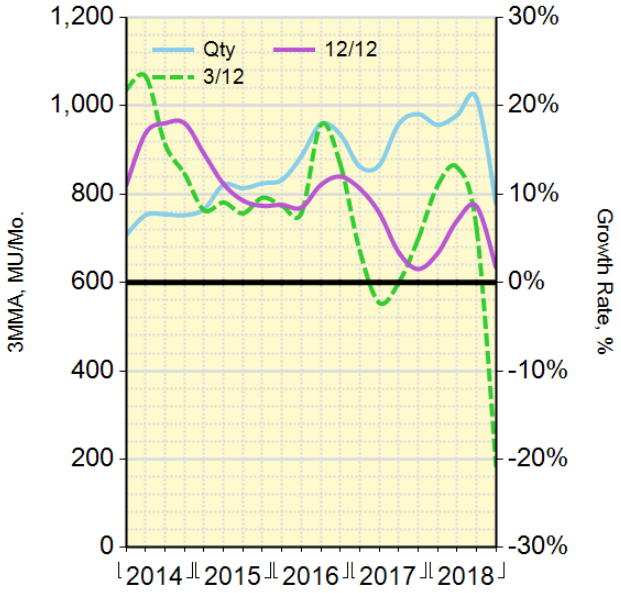

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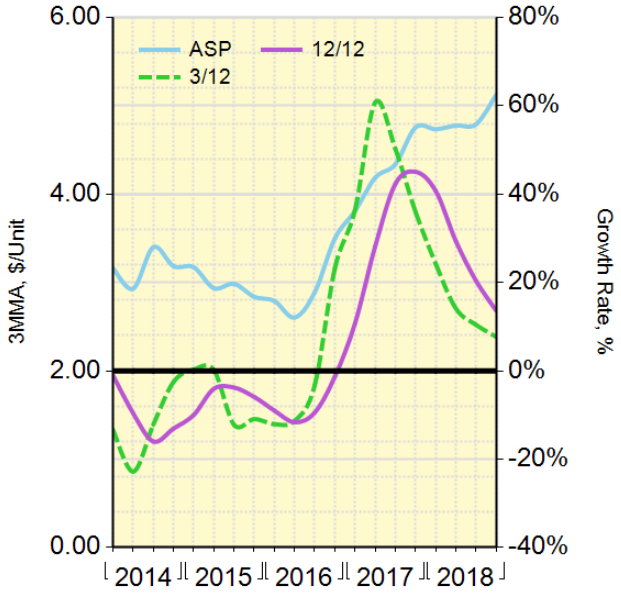
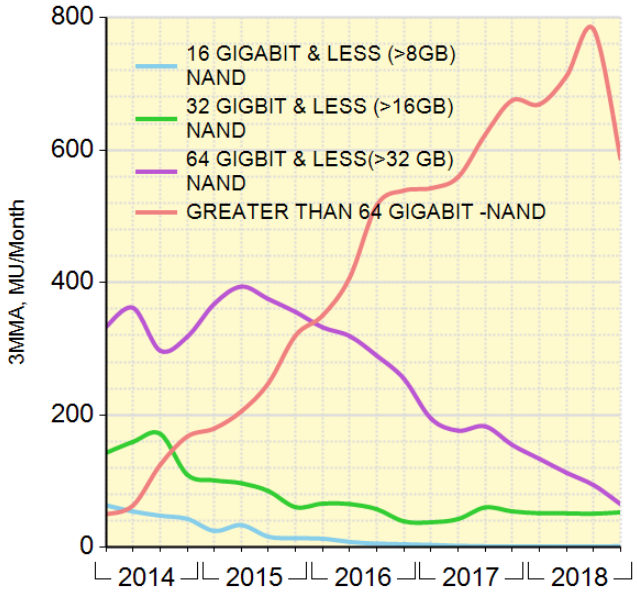


Product Mix - Quantity



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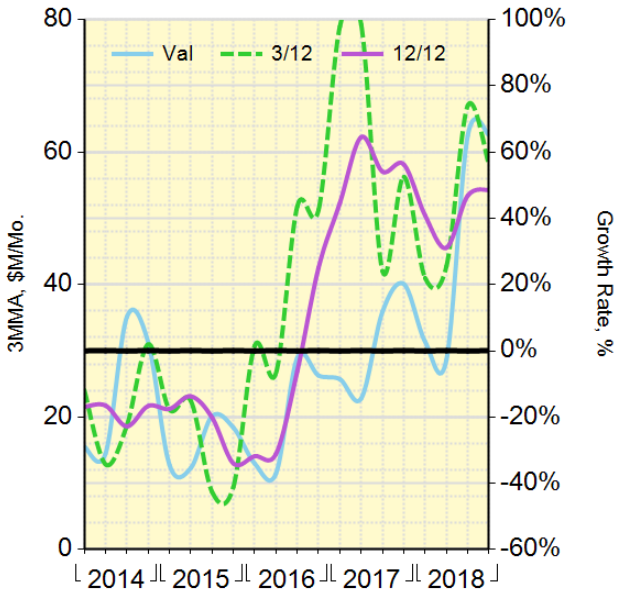
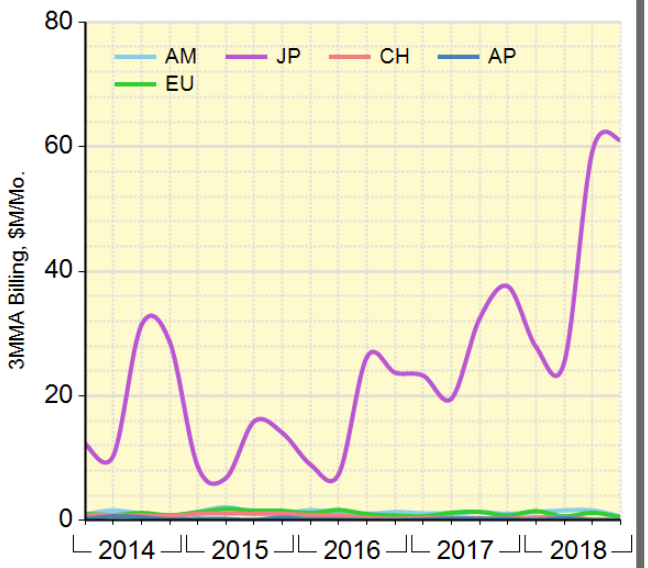
MOS MASK PROM & EPROM Value



MOS MASK PROM & EPROM Geographic Billing



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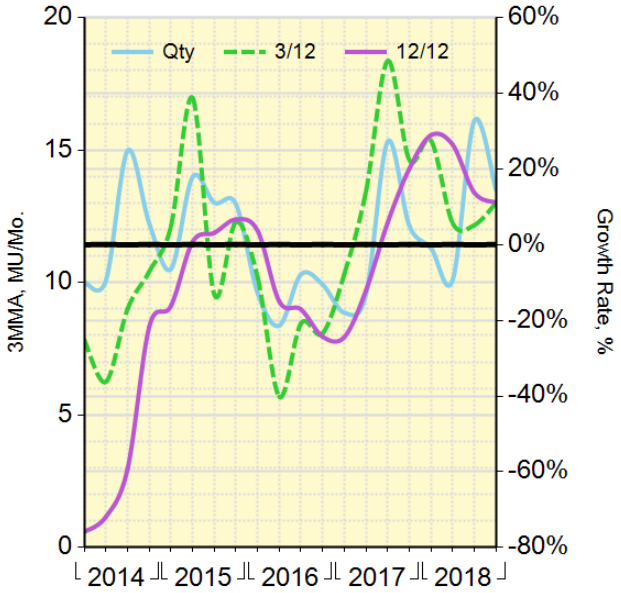

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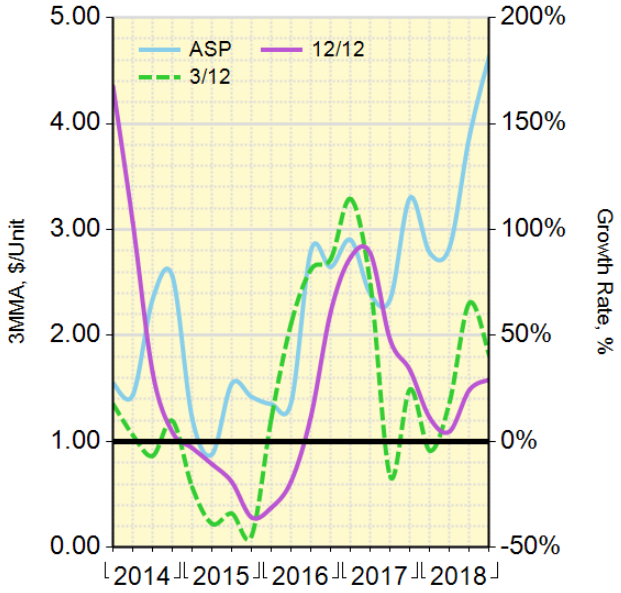

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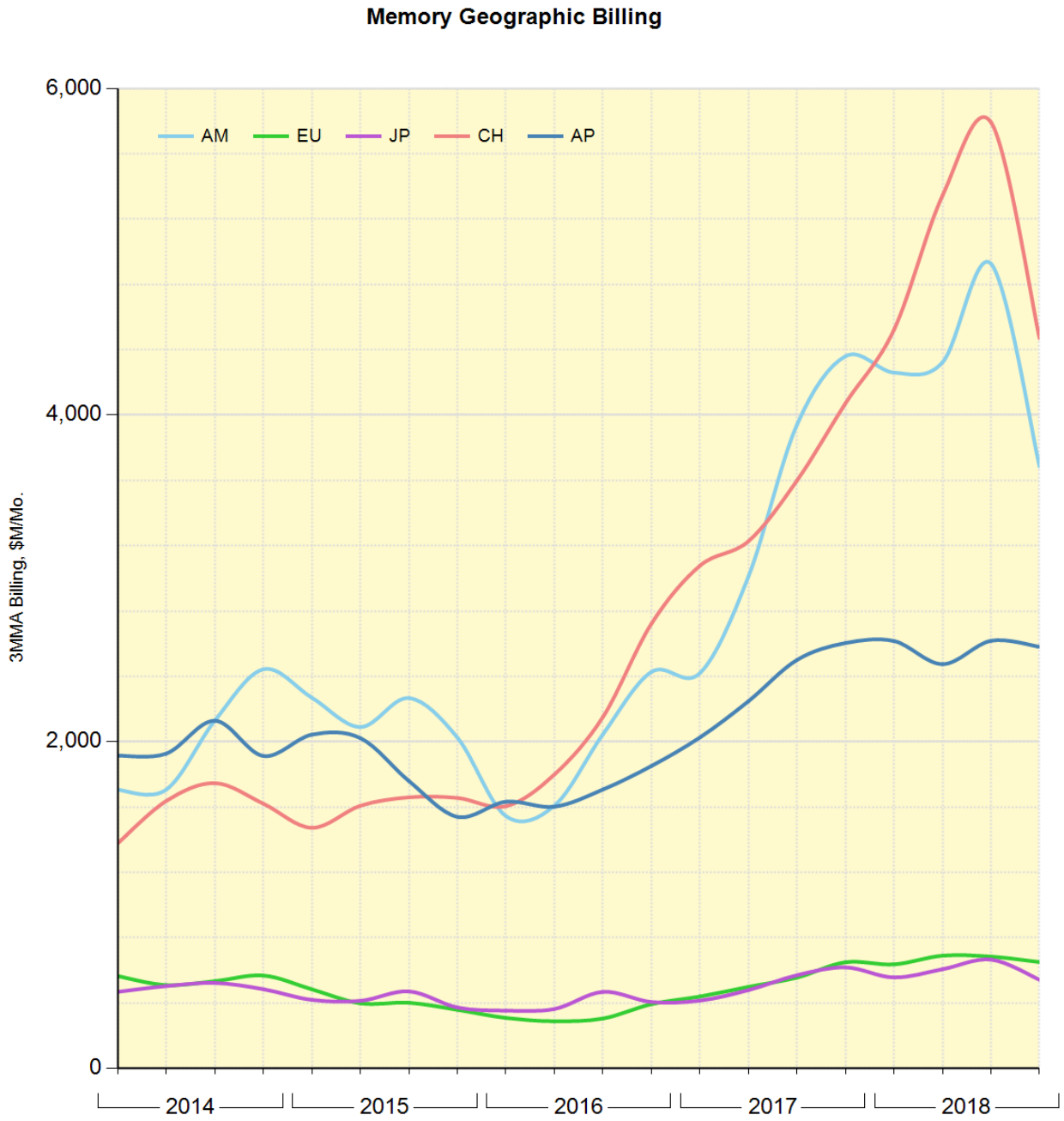
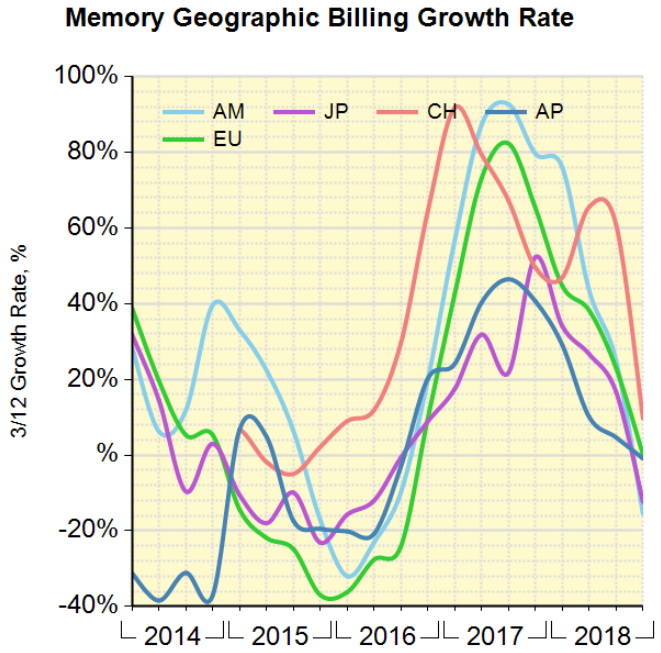
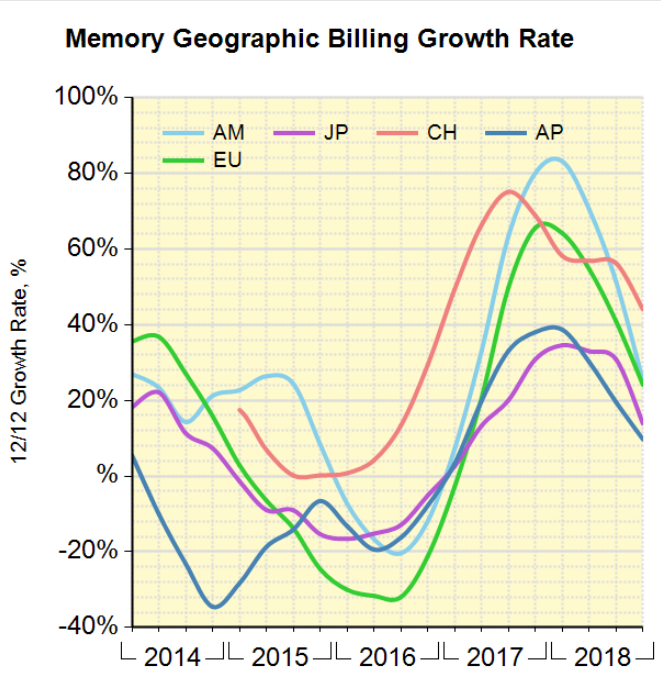
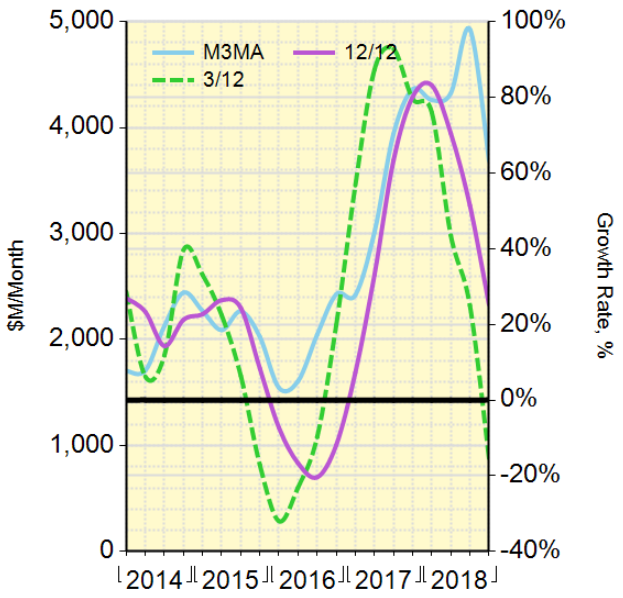

Memory Geographic Billing
3MMA Billing, $M/Mo.
6,000
4,000
2,000
0
AM
EU
JP
CH
AP
2014
2015
2016
2017
2018

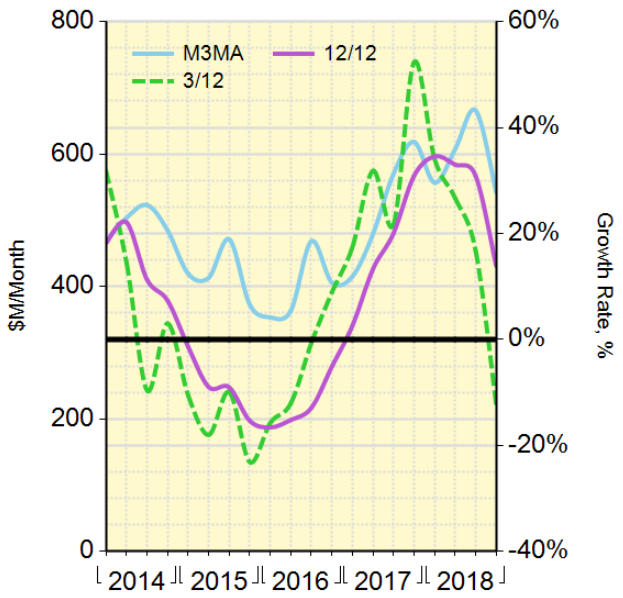

Memory Geographic Billing Growth Rate
3/12 Growth Rate, %
100%
80%
60%
40%
20%
%
-20%
-40%
AM
EU
JP
CH
AP
2014
2015
2016
2017
2018


Memory Geographic Billing Growth Rate
12/12 Growth Rate, %
100%
80%
60%
40%
20%
%
-20%
-40%
AM
EU
JP
CH
AP
2014
2015
2016
2017
2018

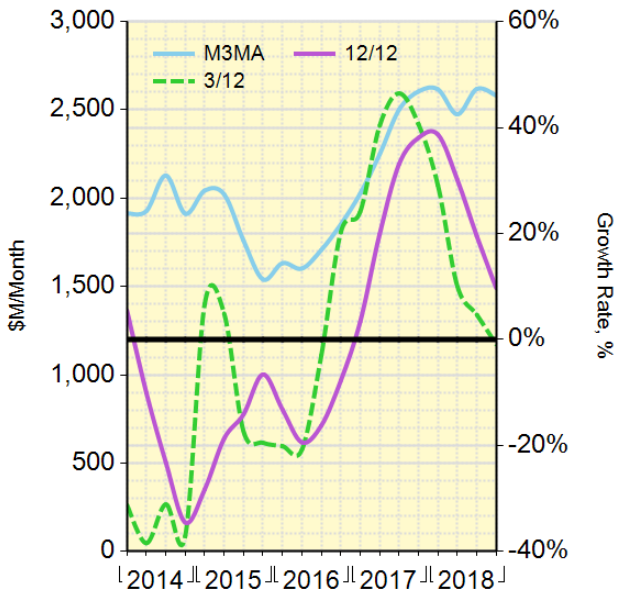
Americas Billing



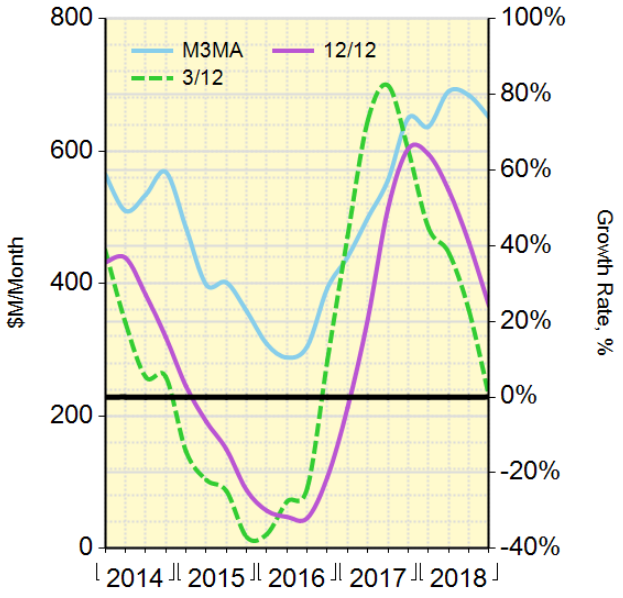
Japan Billing



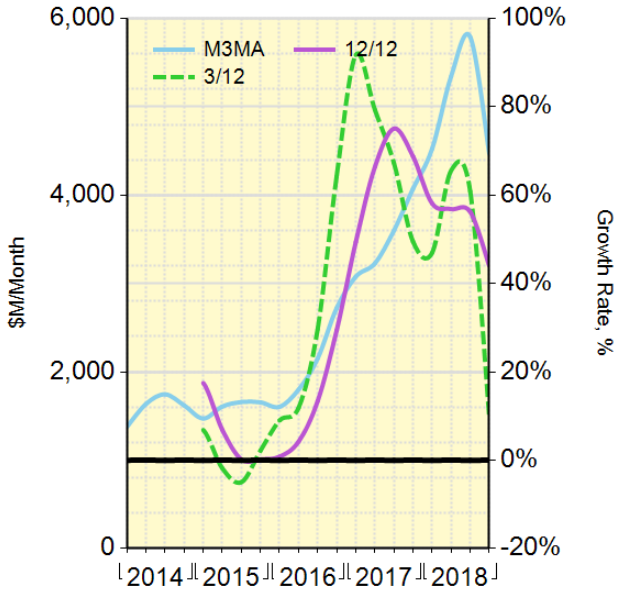
Asia Pacific/All Other Billing



Europe Billing



China Billing



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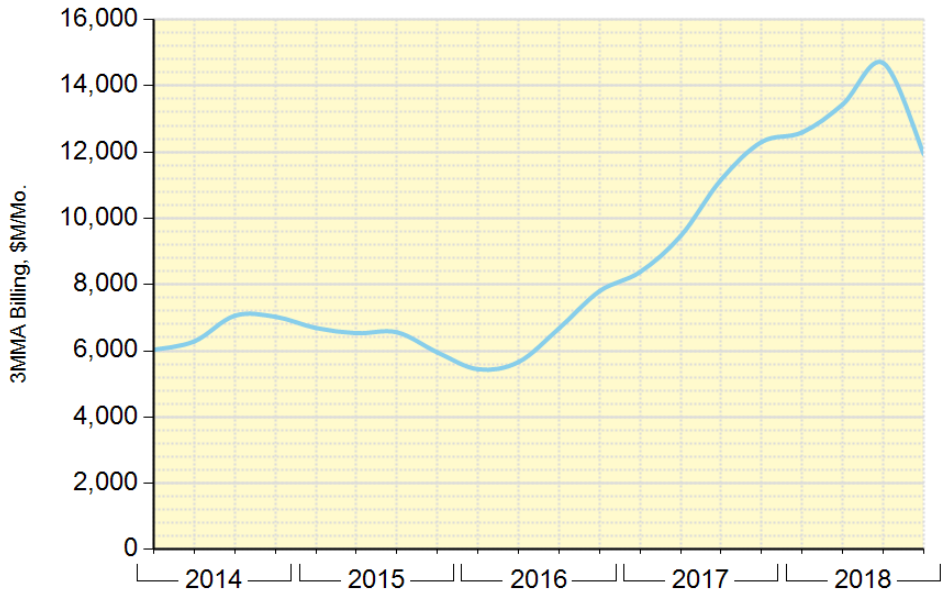
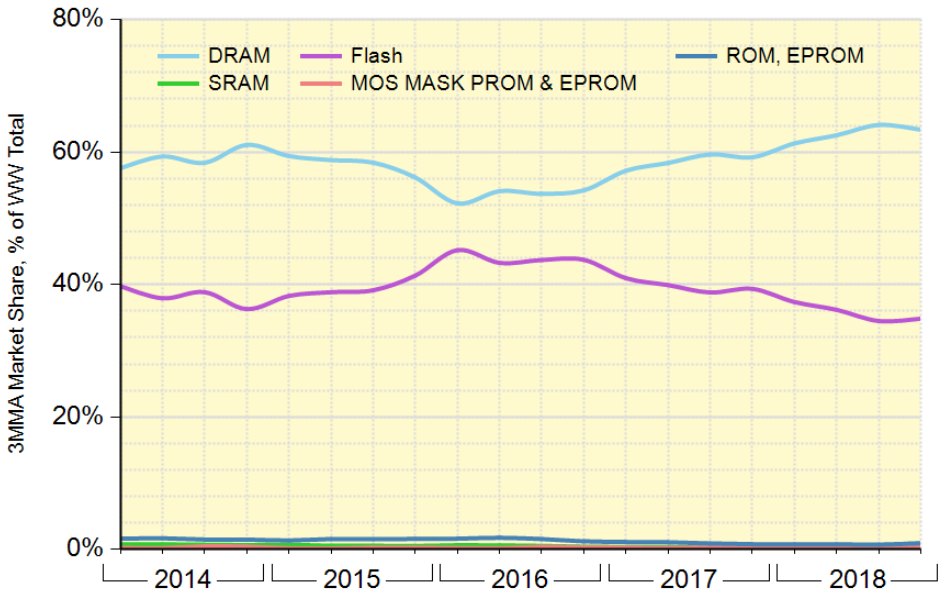
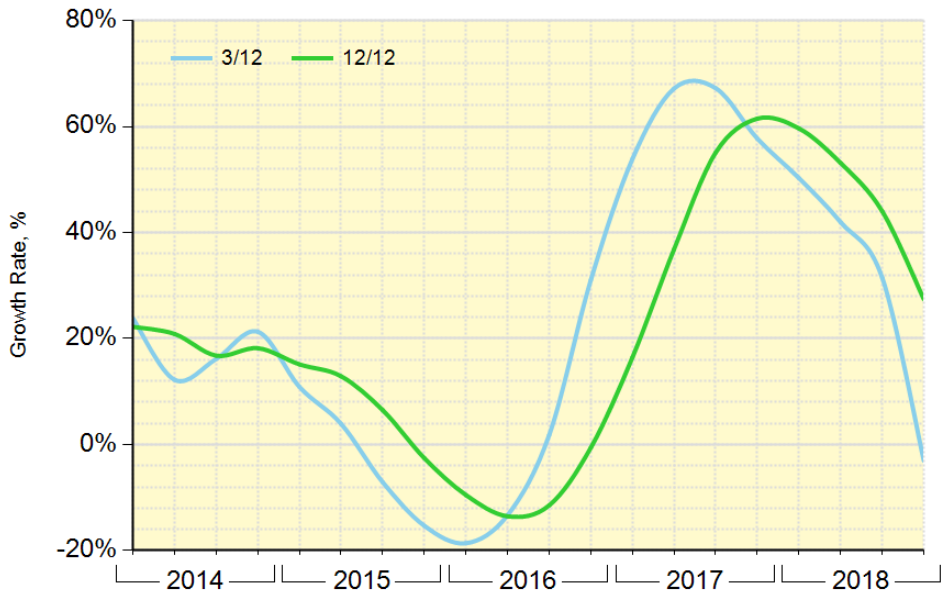
Memory World Billing



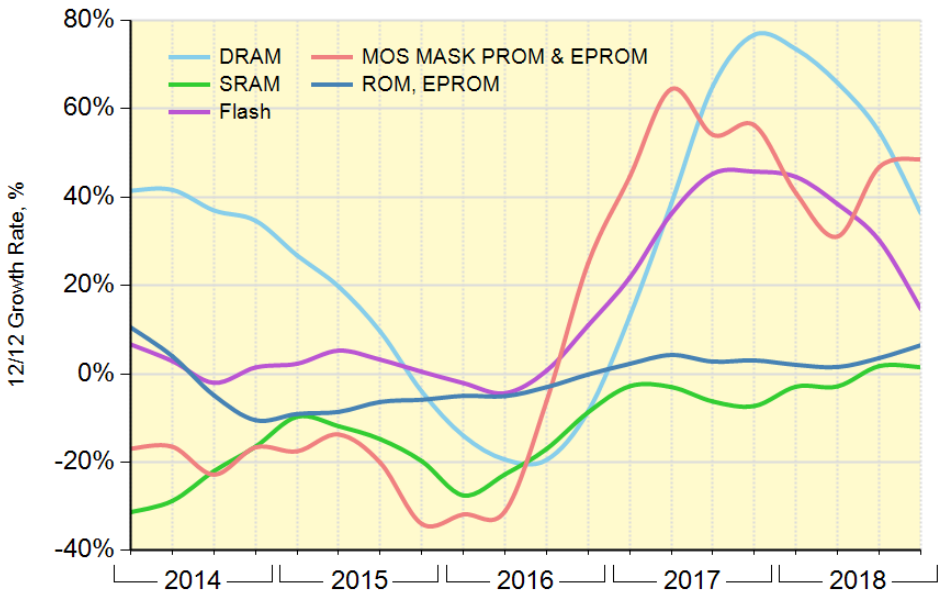
WW Market Share



World Billing Growth Rate



WW Growth Rate



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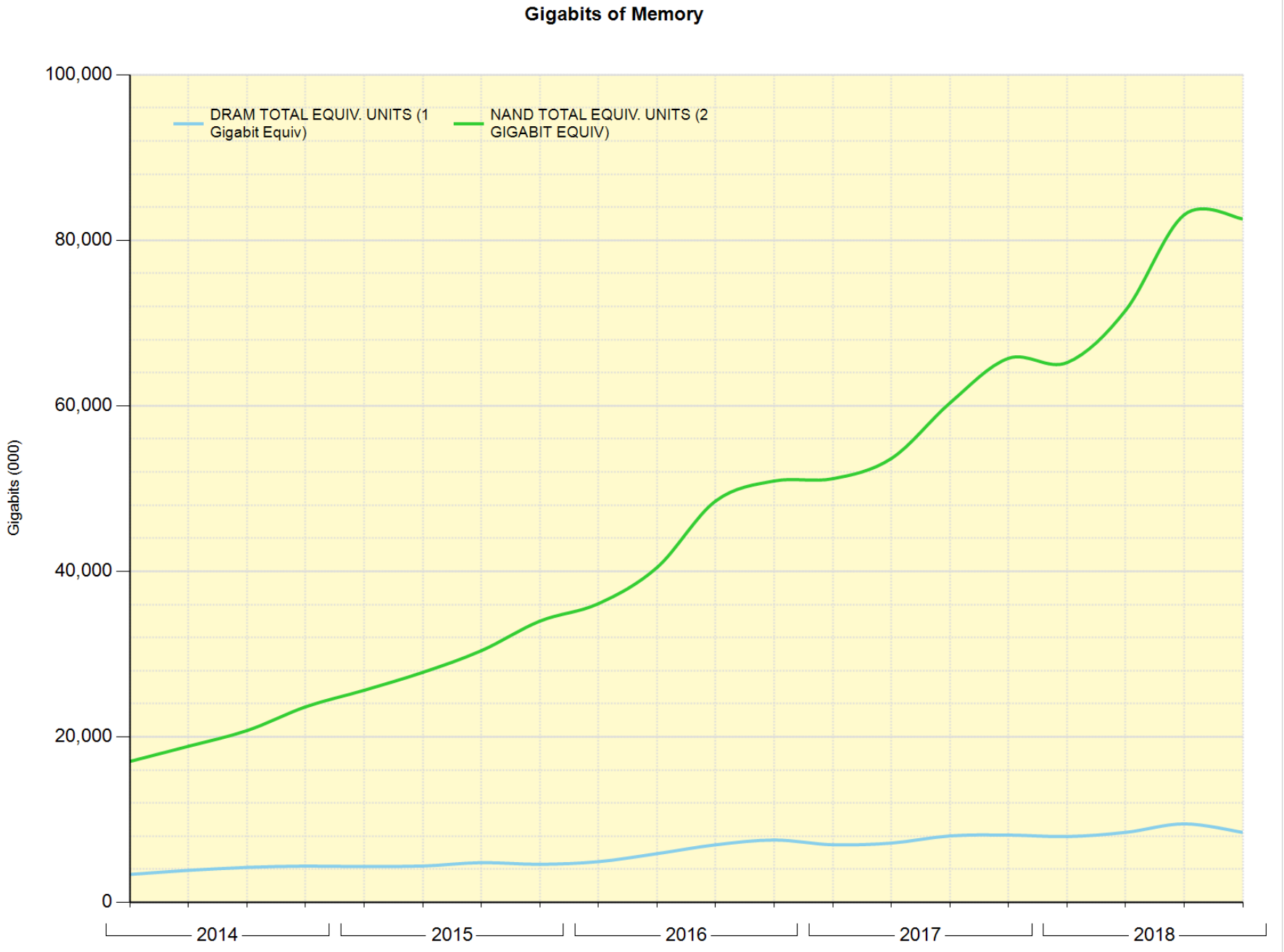

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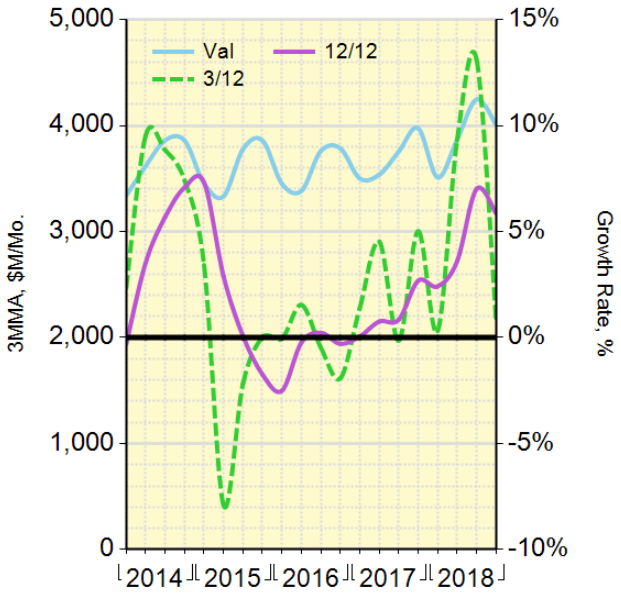
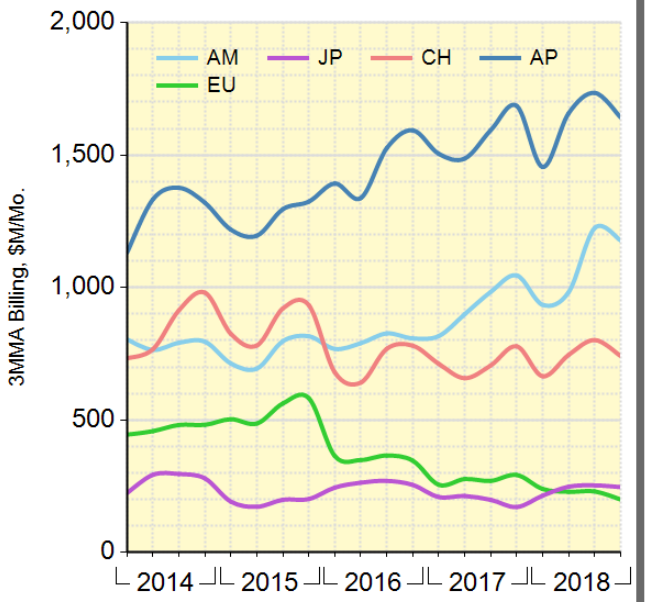
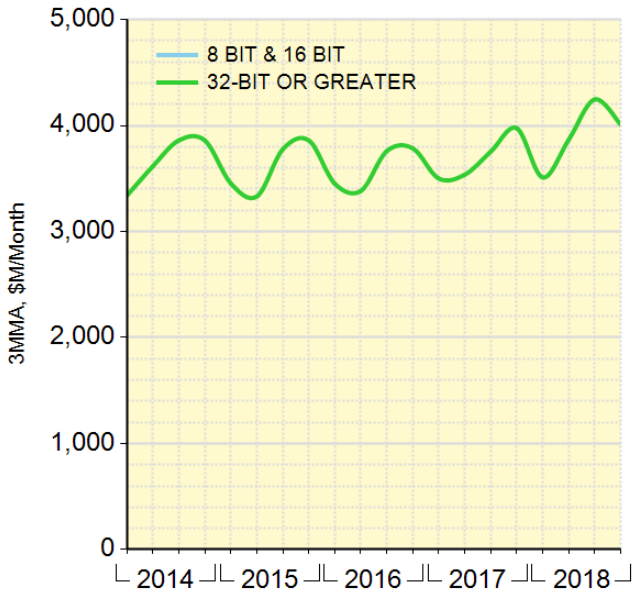
MPU Value



MPU Geographic Billing



Product Mix - Value



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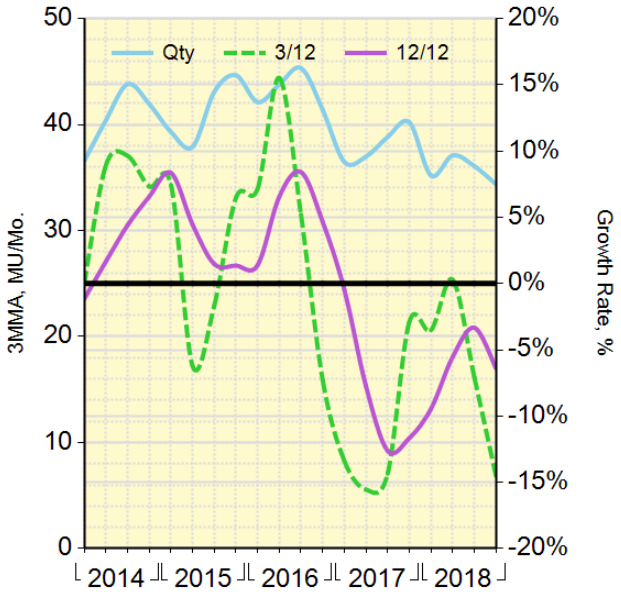

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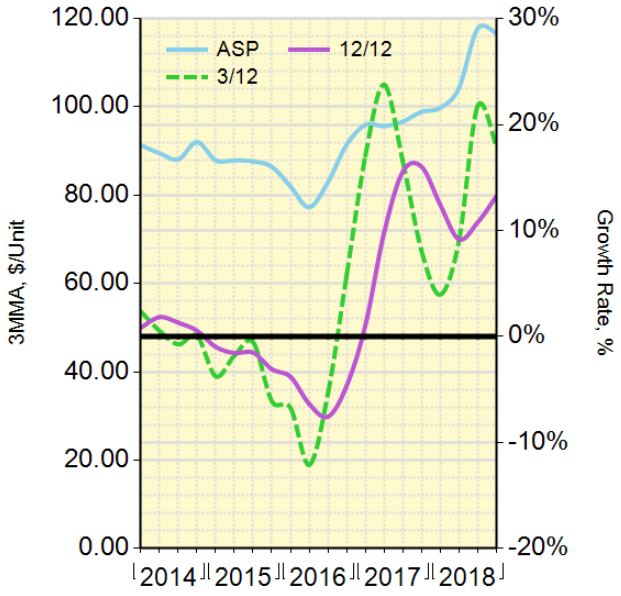
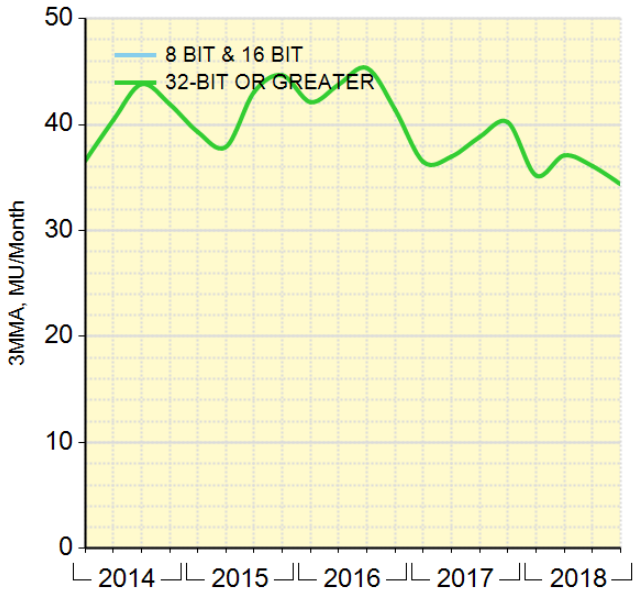


Product Mix - Quantity



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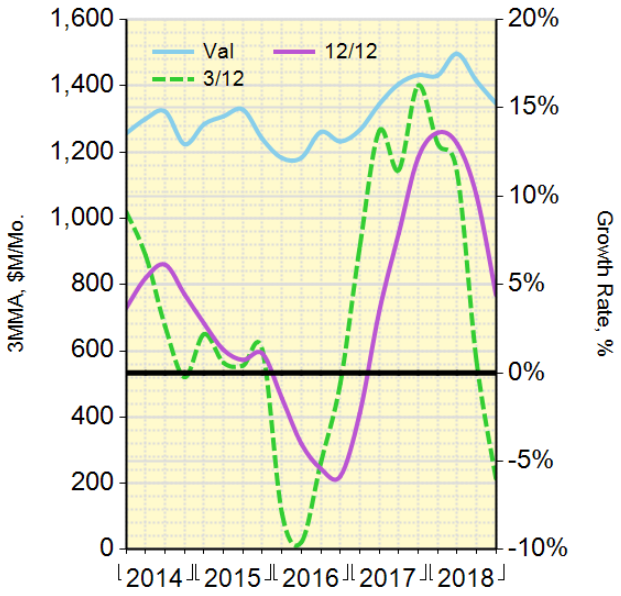
MCU Value



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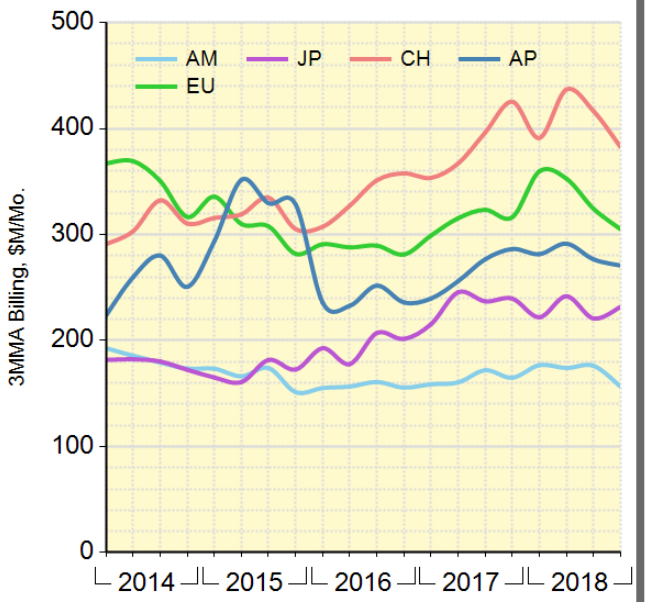
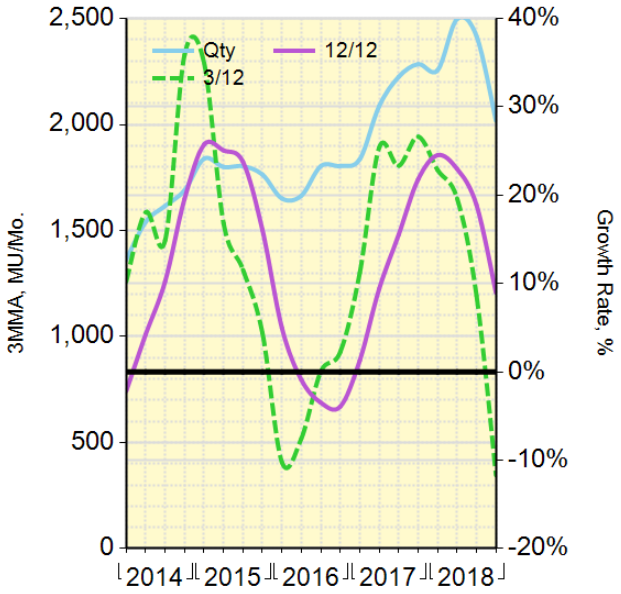


Product Mix - Value

No Data Available

MCU Quantity



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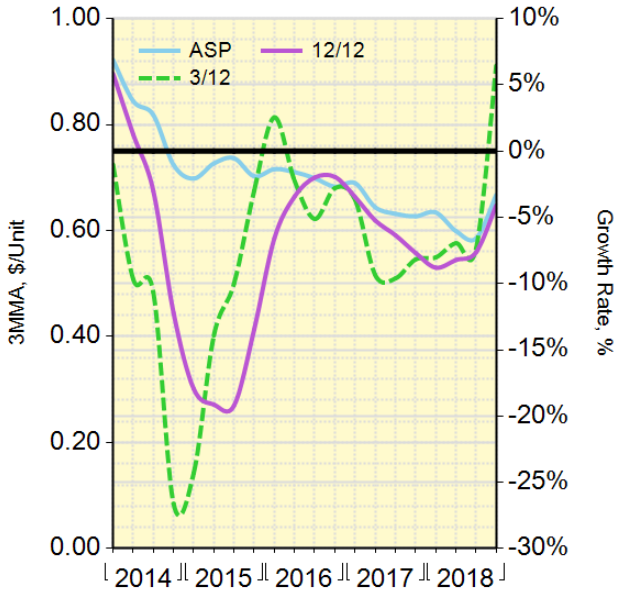

Product Mix - Quantity

No Data Available

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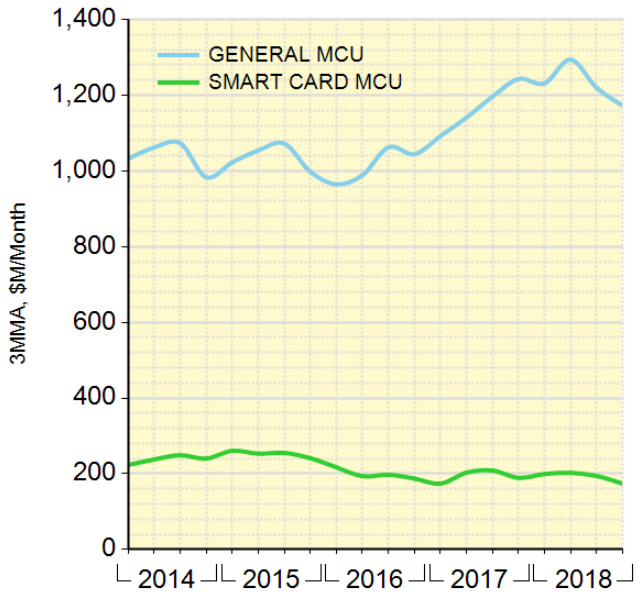
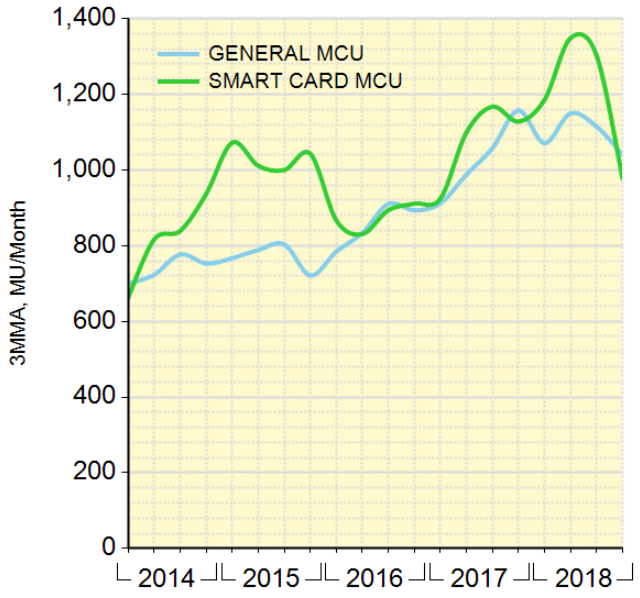
Product Mix - Value



Product Mix - Quantity



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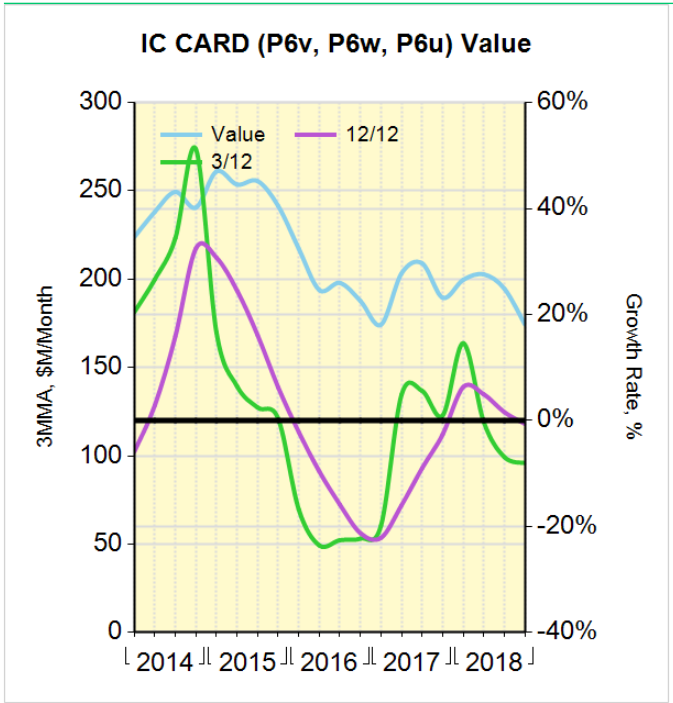

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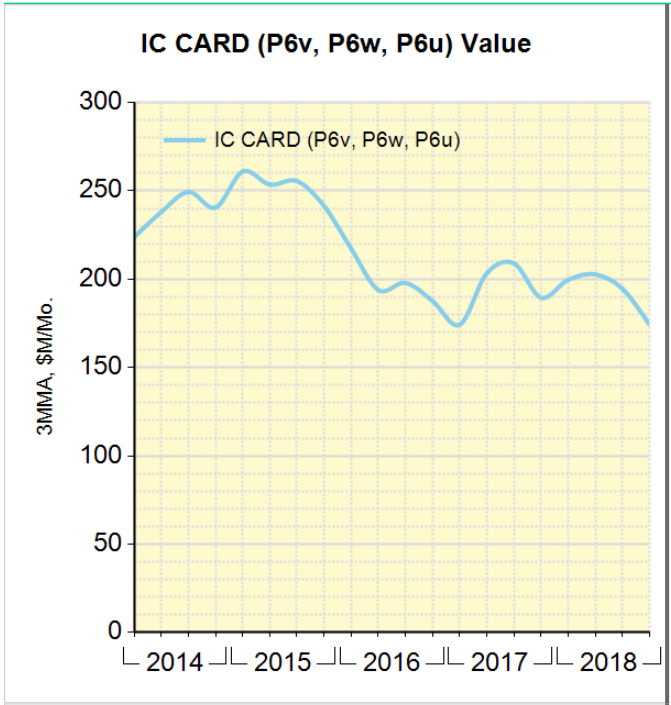
IC CARD (P6v, P6w, P6u) Value
IC CARD (P6v, P6w, P6u)
3MMA, $M/Mo.
300
250
200
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50
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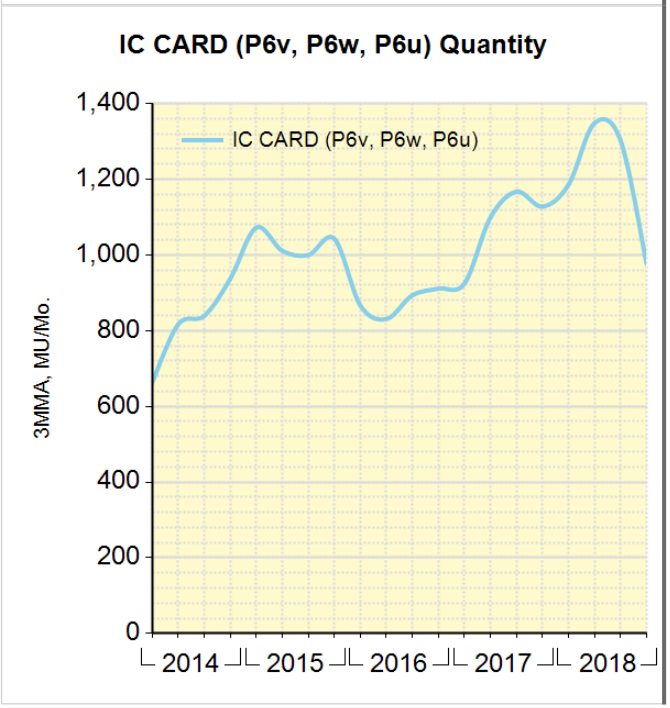
2014
2015
2016
2017
2018


IC CARD (P6v, P6w, P6u) Quantity
IC CARD (P6v, P6w, P6u)
3MMA, MU/Mo.
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1,200
1,000
800
600
400
200
0
2014
2015
2016
2017
2018

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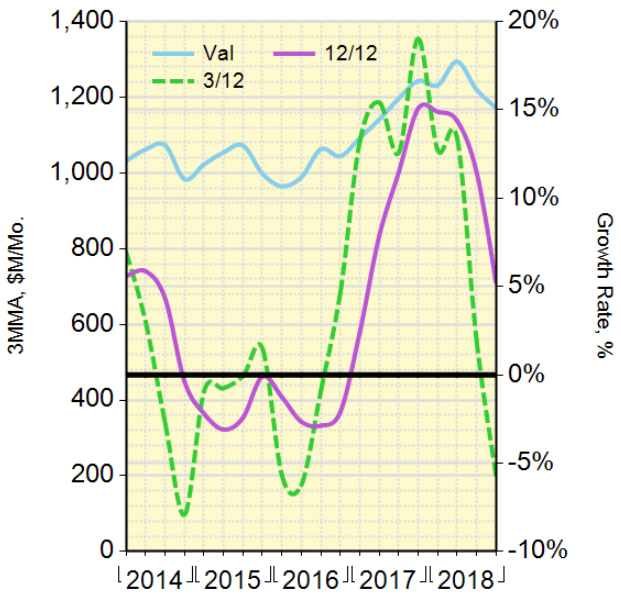
MCU Value



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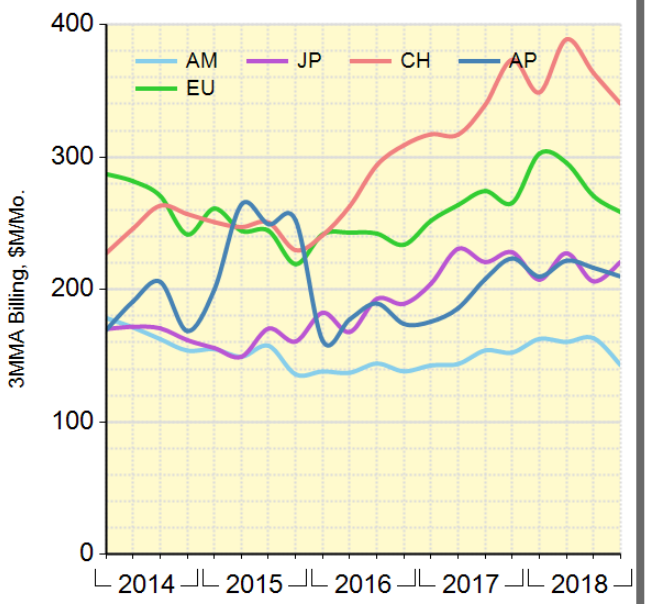
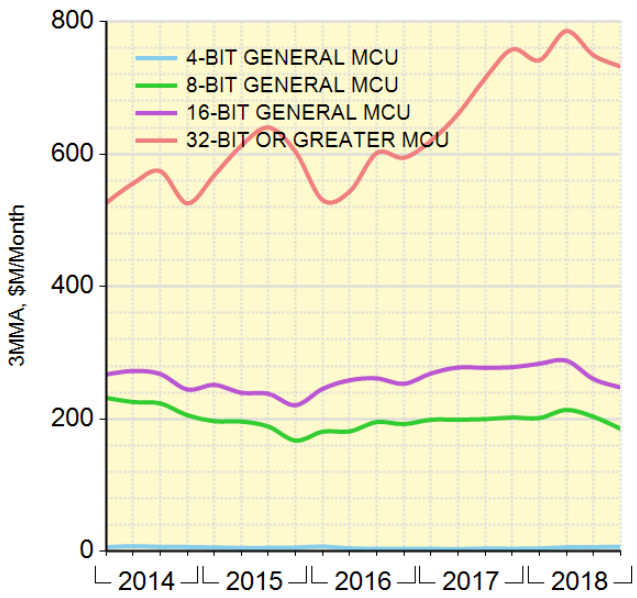
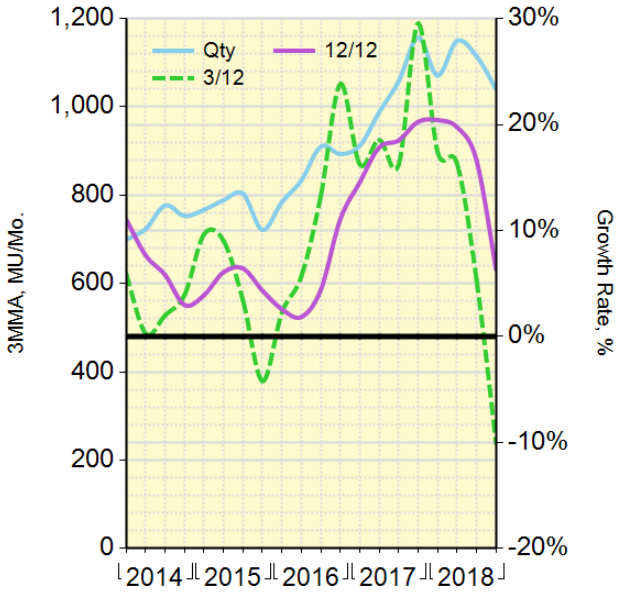


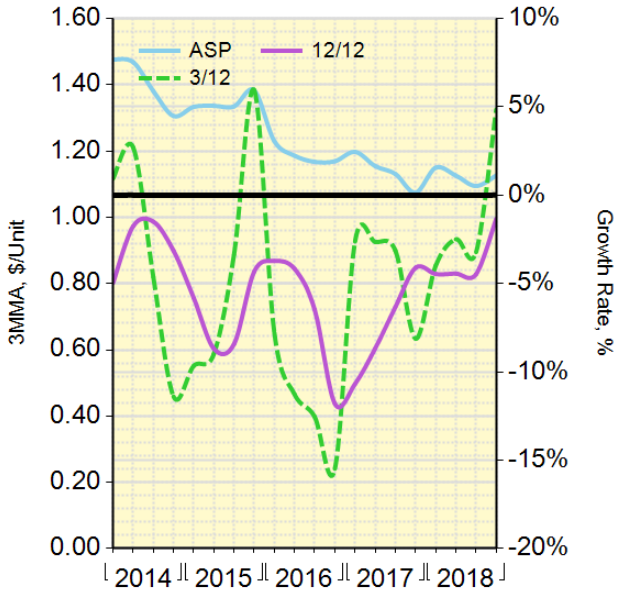
Product Mix - Value



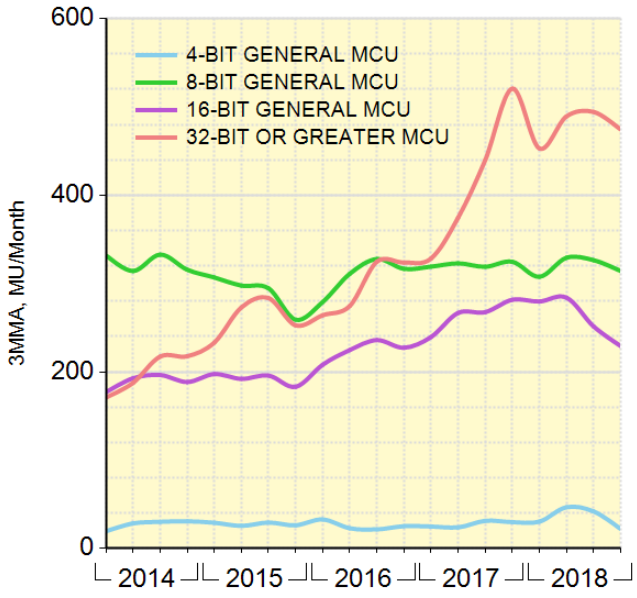
MCU Quantity



MCU Price



Product Mix - Quantity



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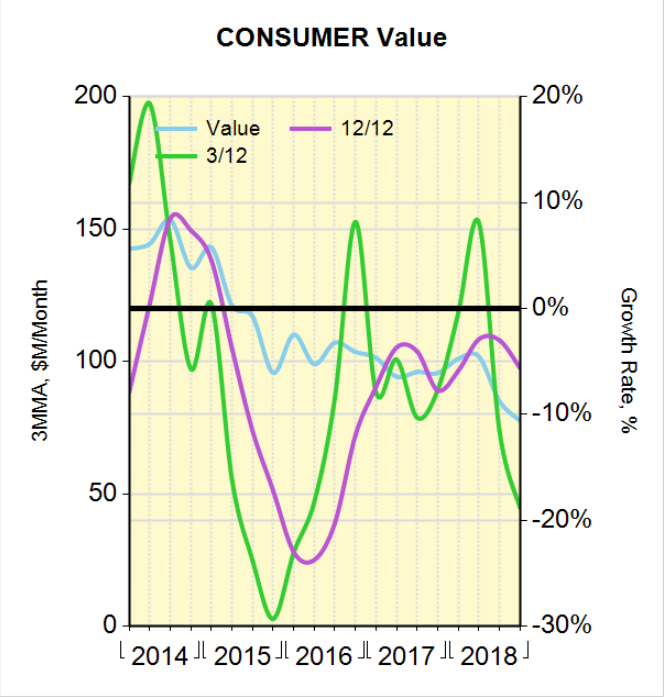

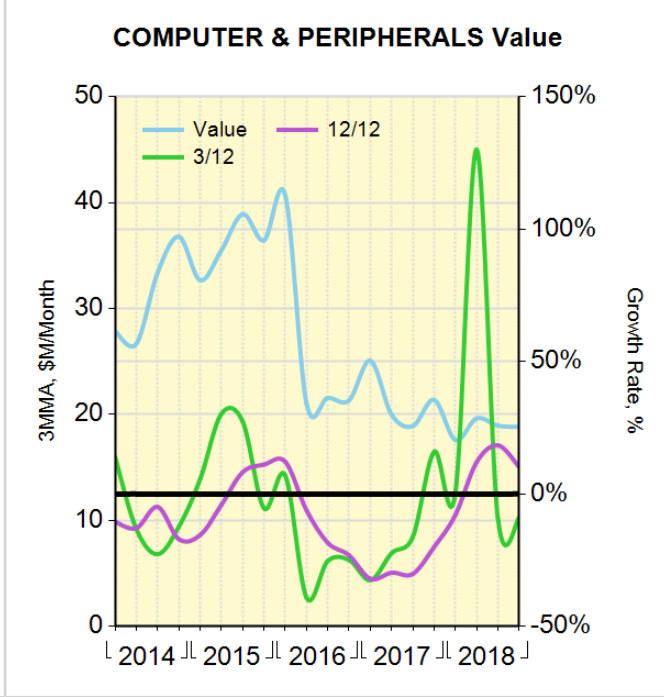

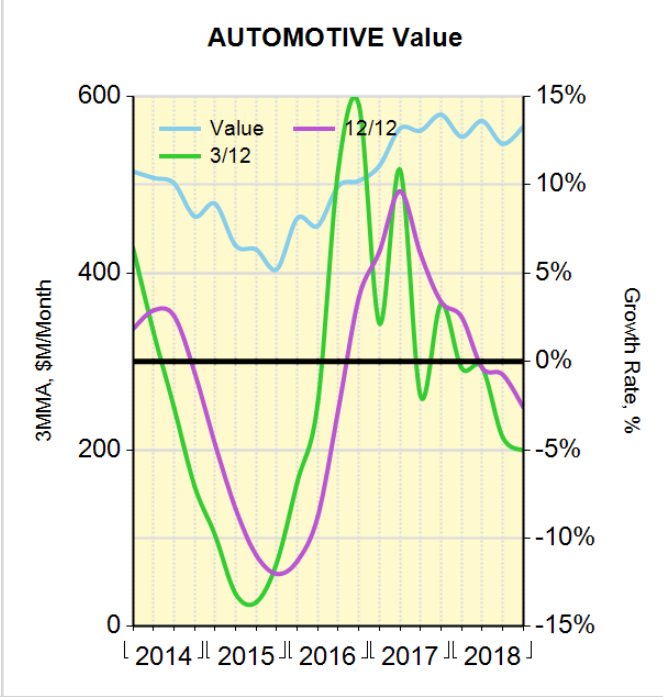

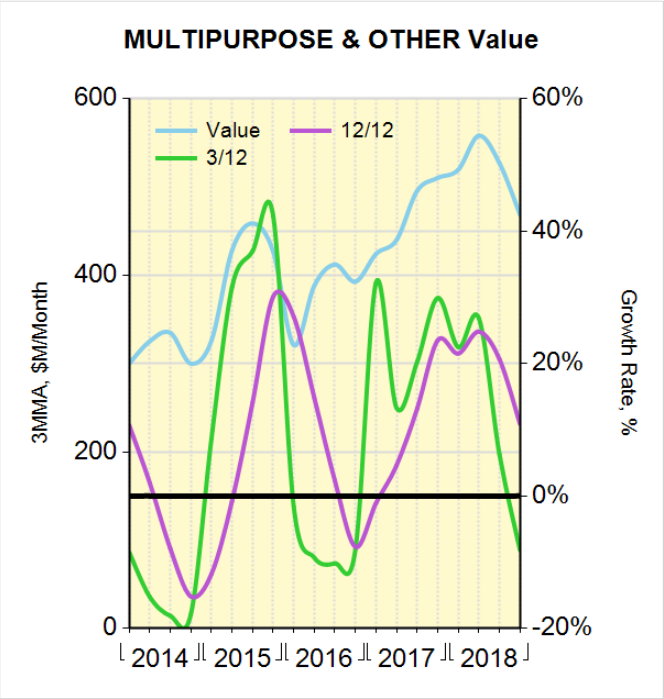

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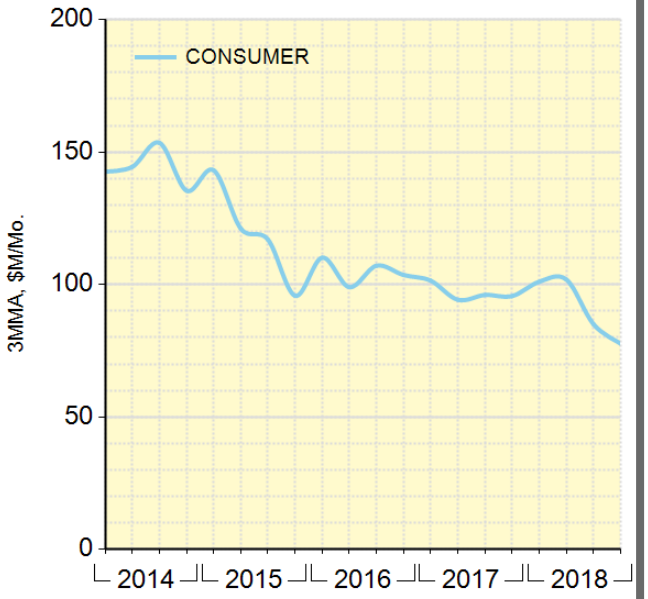
CONSUMER Value



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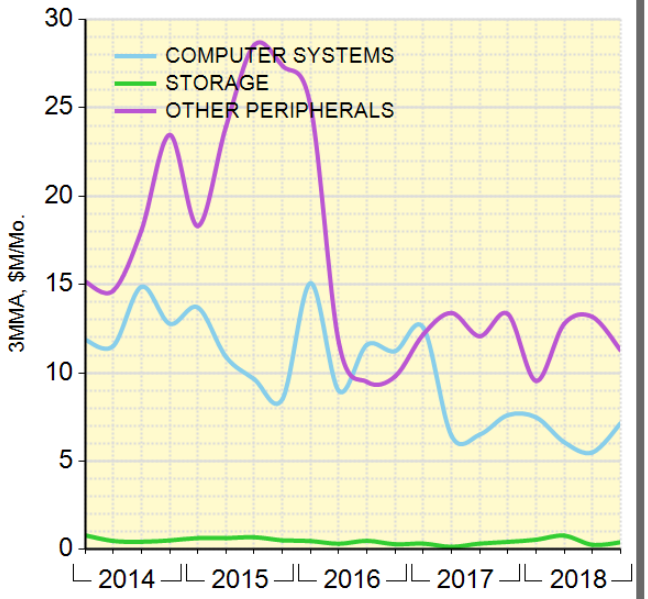

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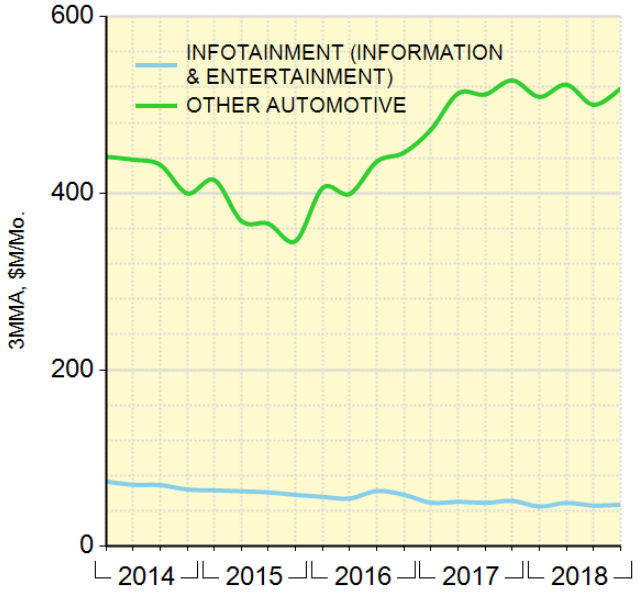

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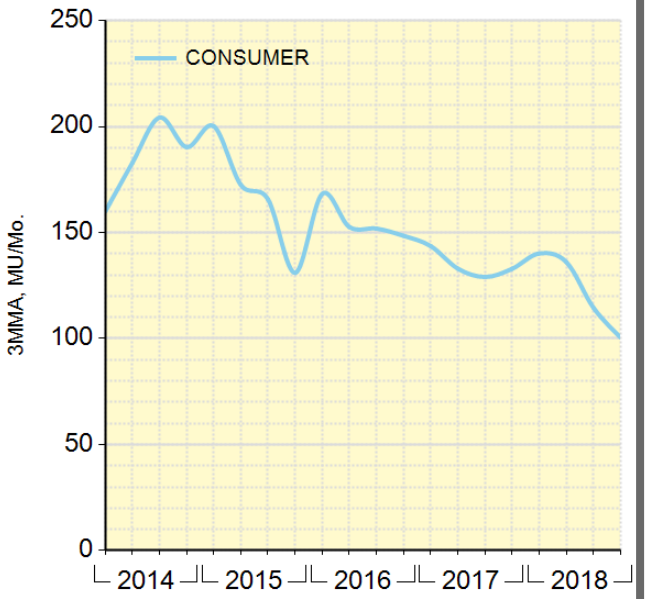

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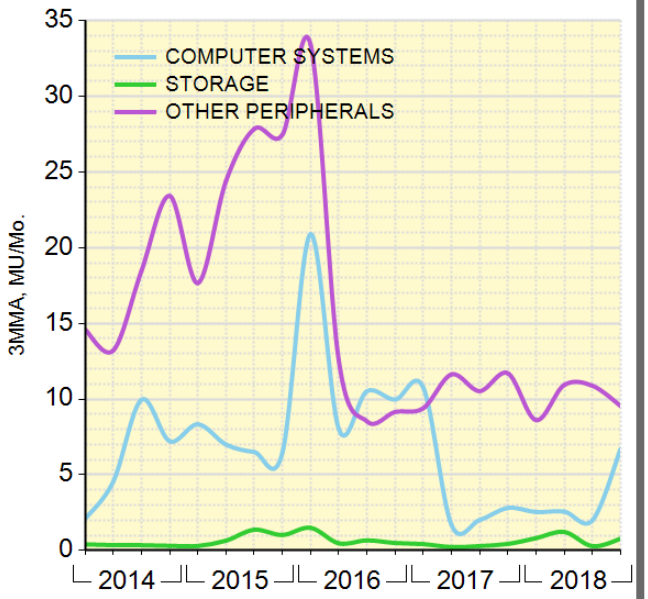

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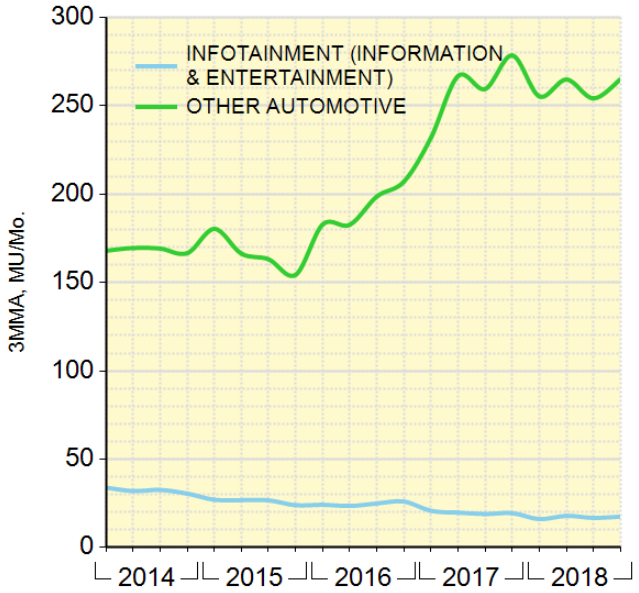

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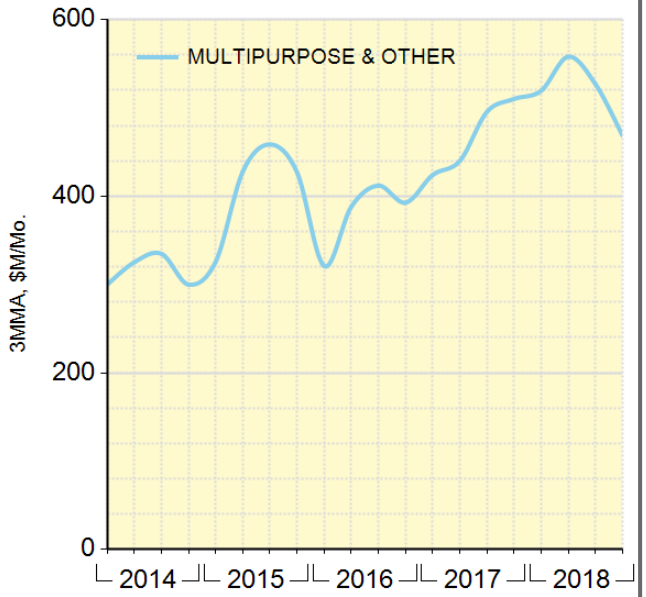
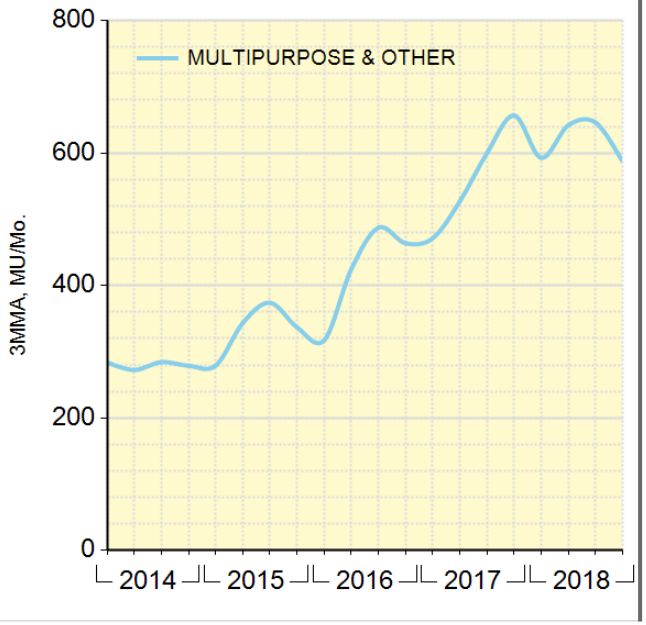
MULTIPURPOSE & OTHER Value



MULTIPURPOSE & OTHER Quantity



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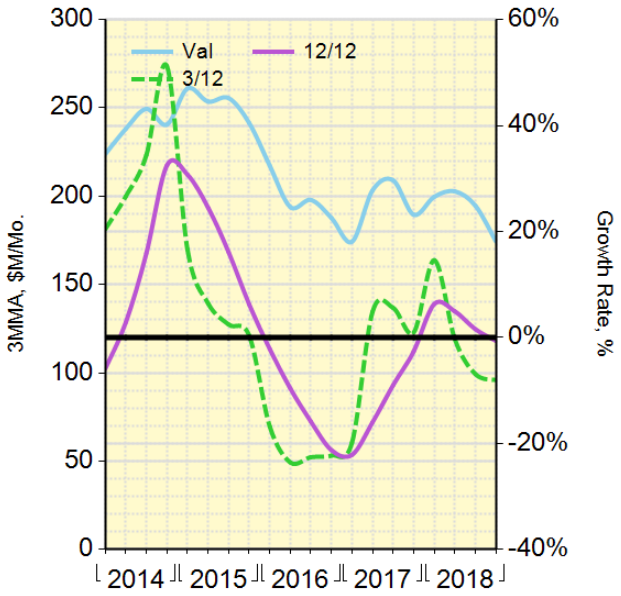
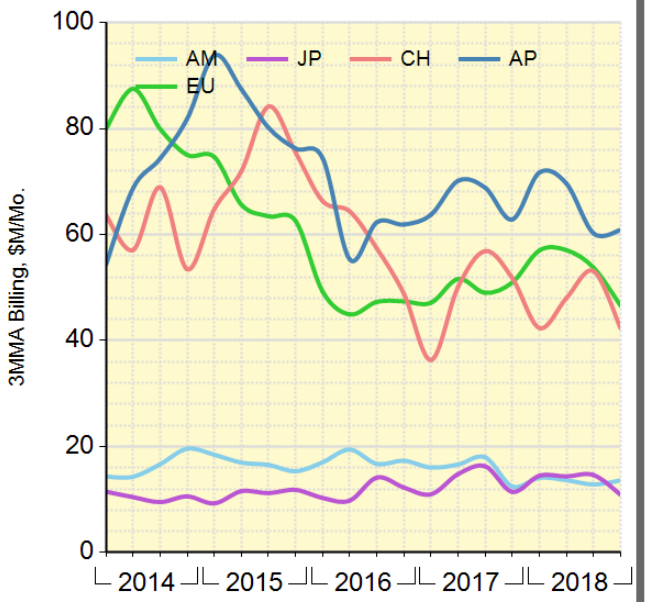
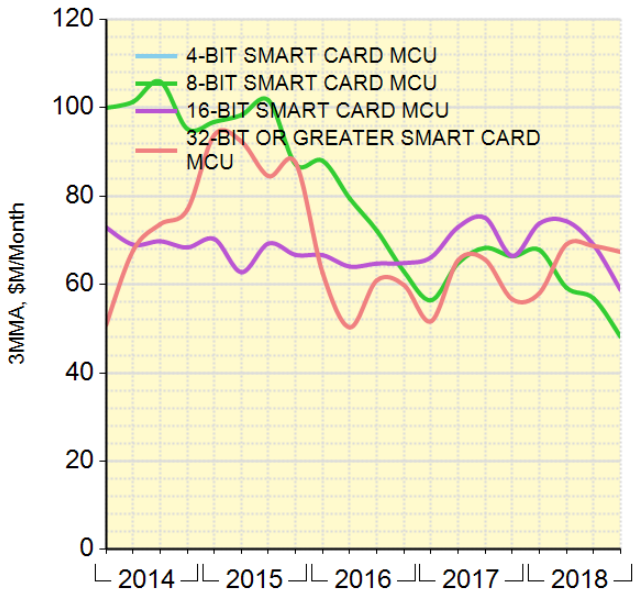
MCU Value



MCU Geographic Billing



Product Mix - Value



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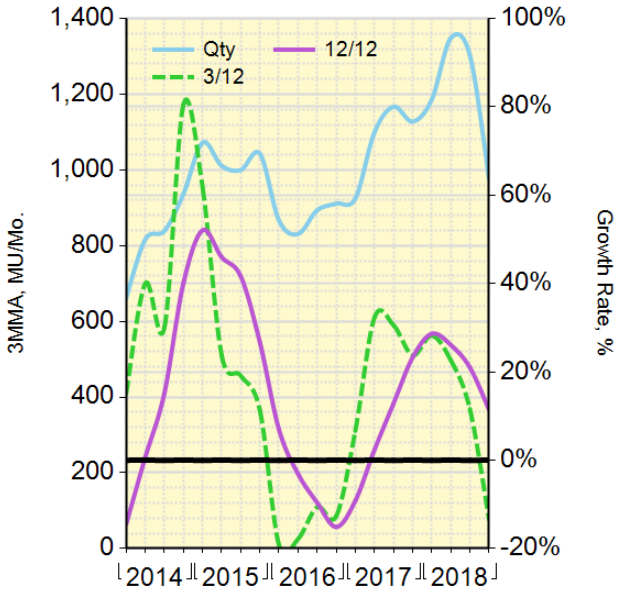
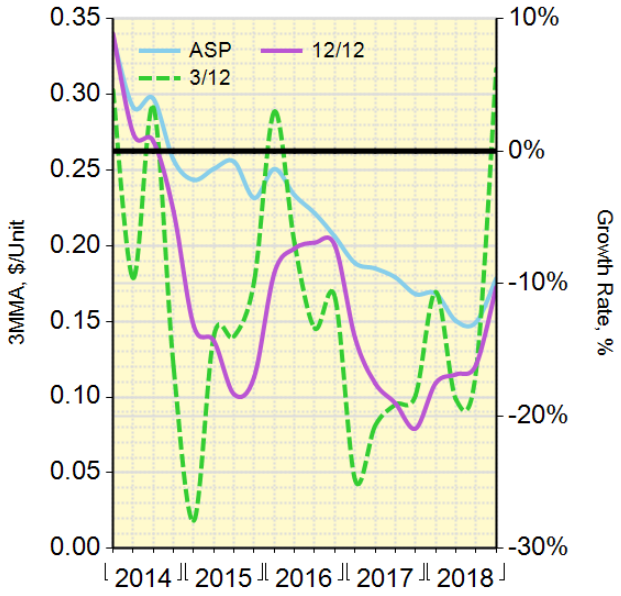
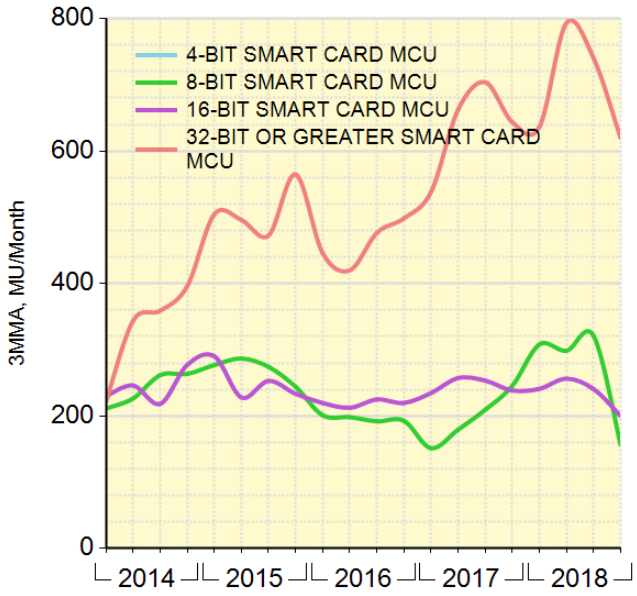


MCU Price



Product Mix - Quantity



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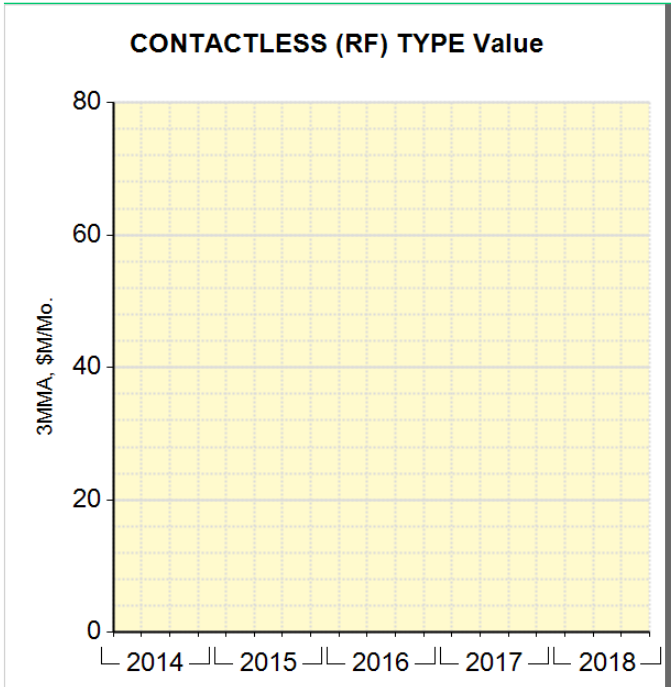

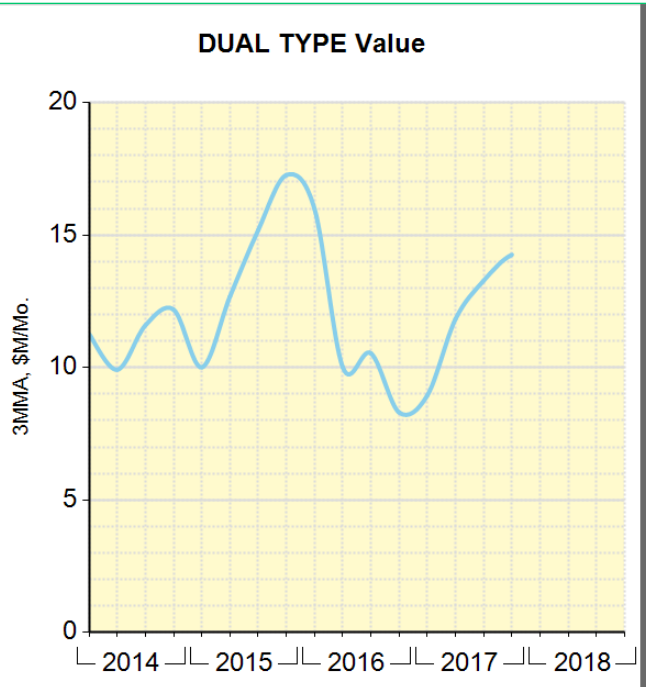

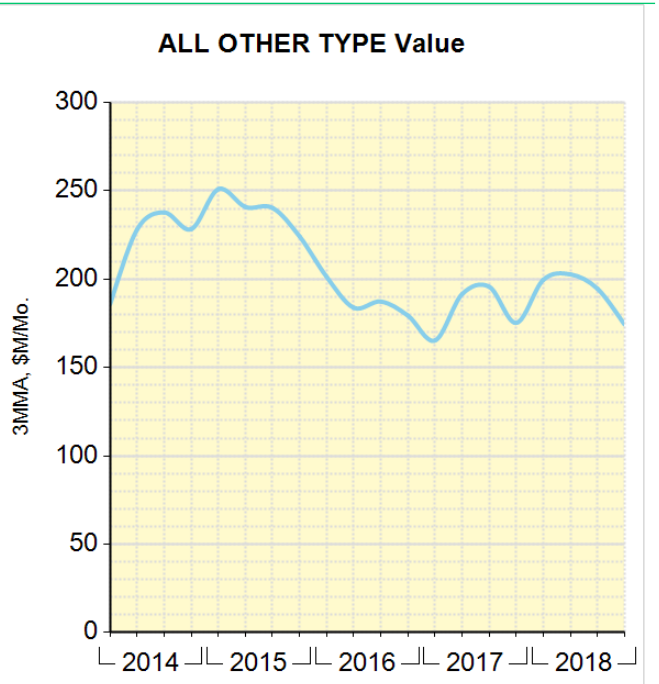

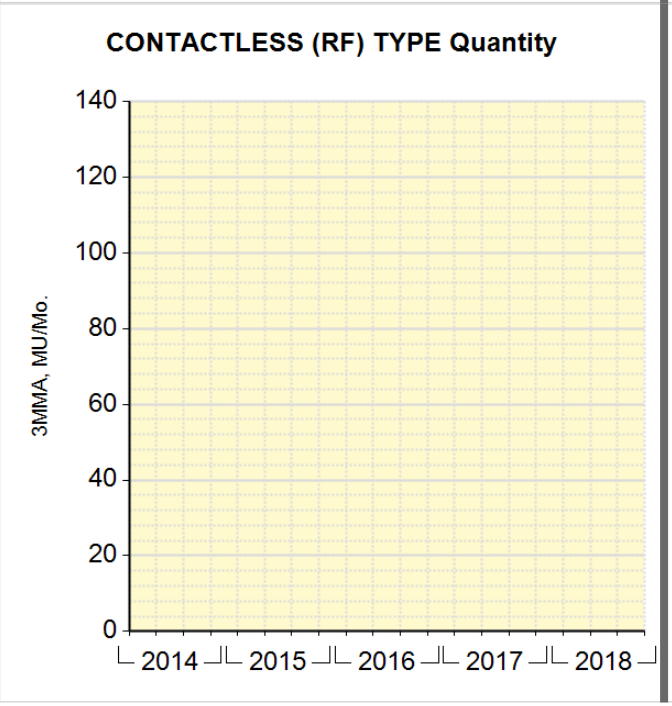

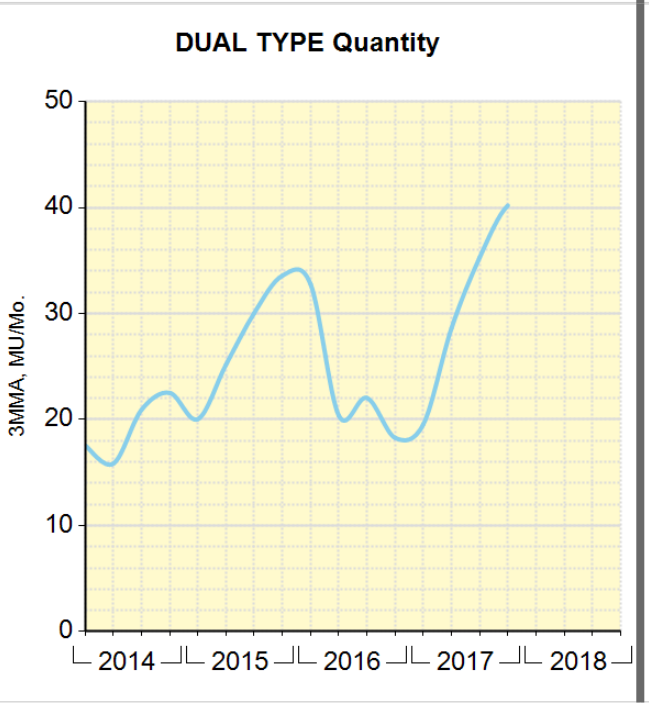

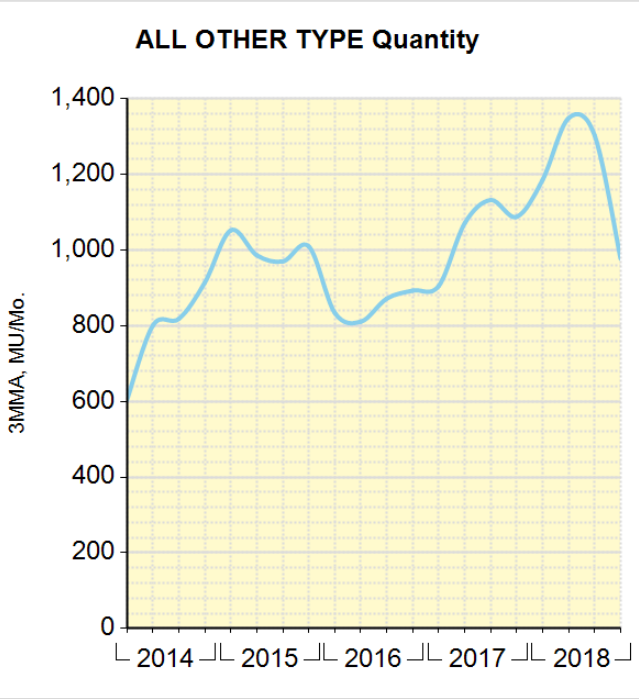

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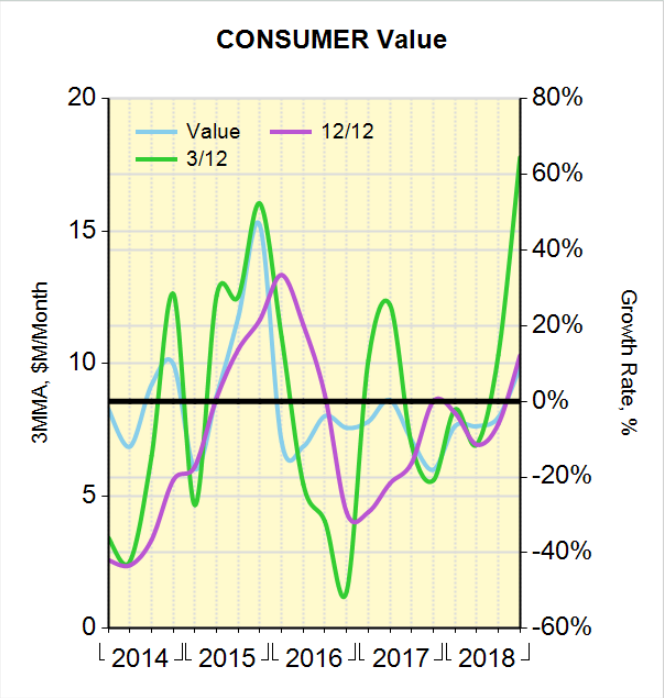

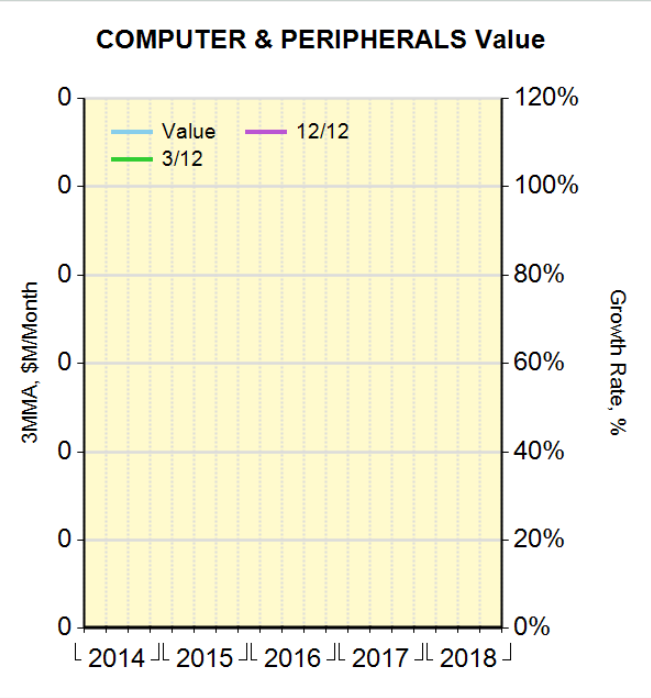

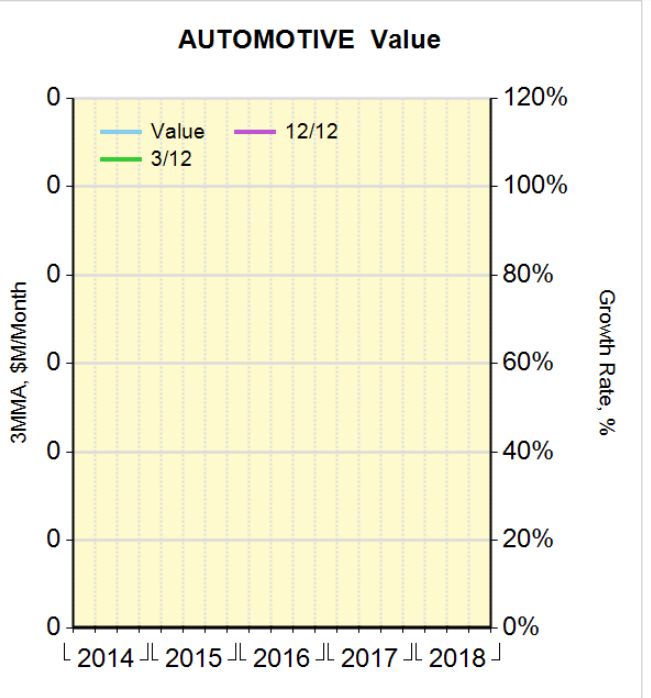

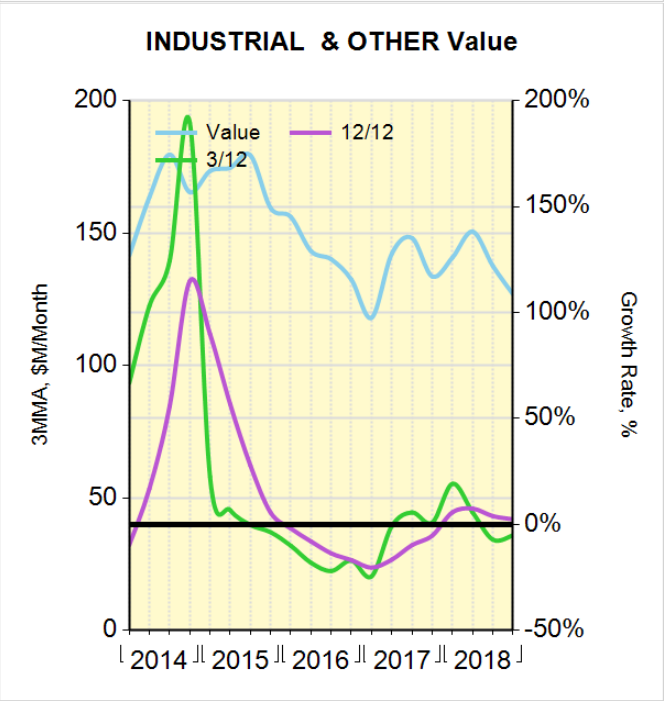

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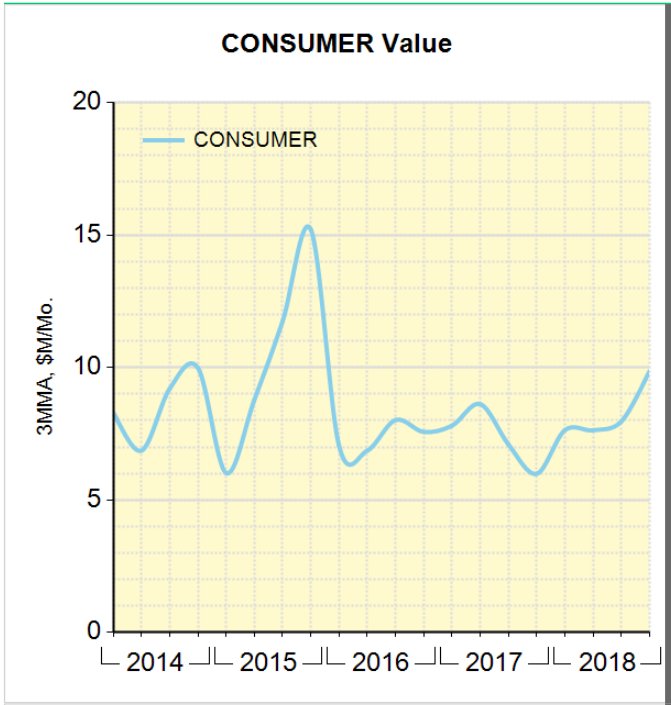

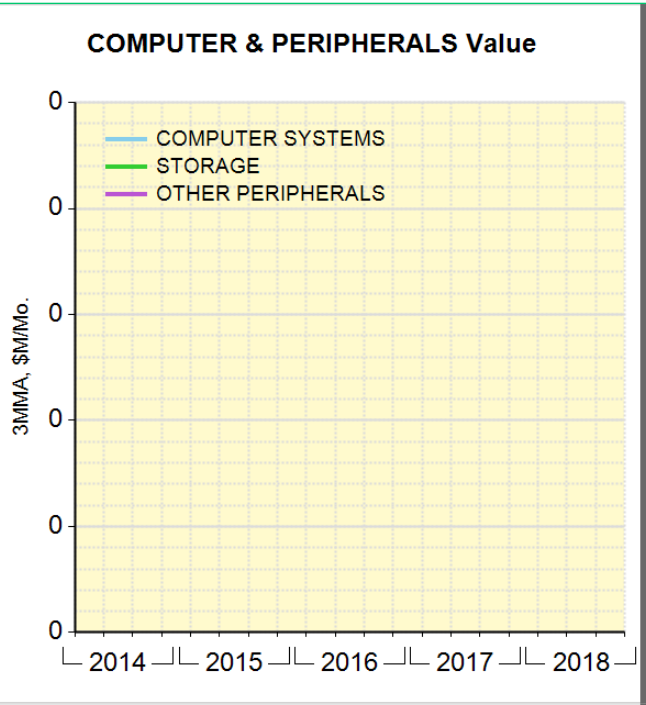

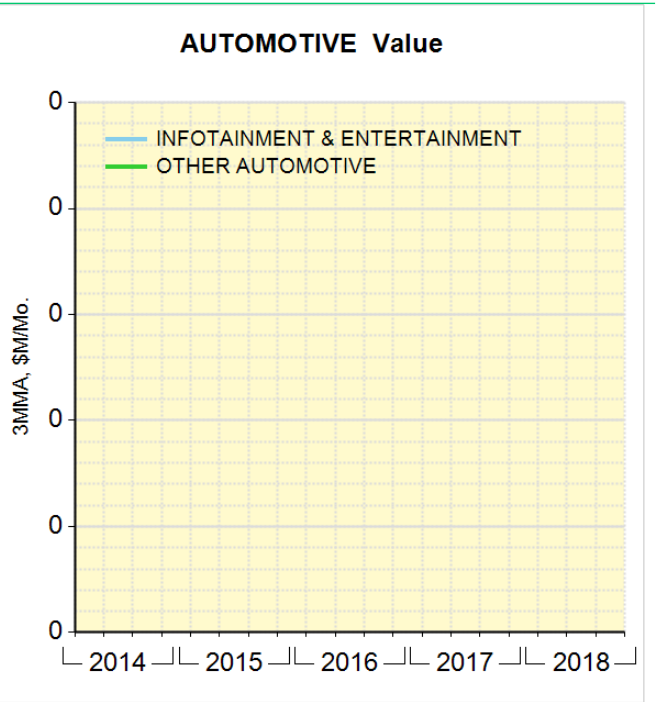

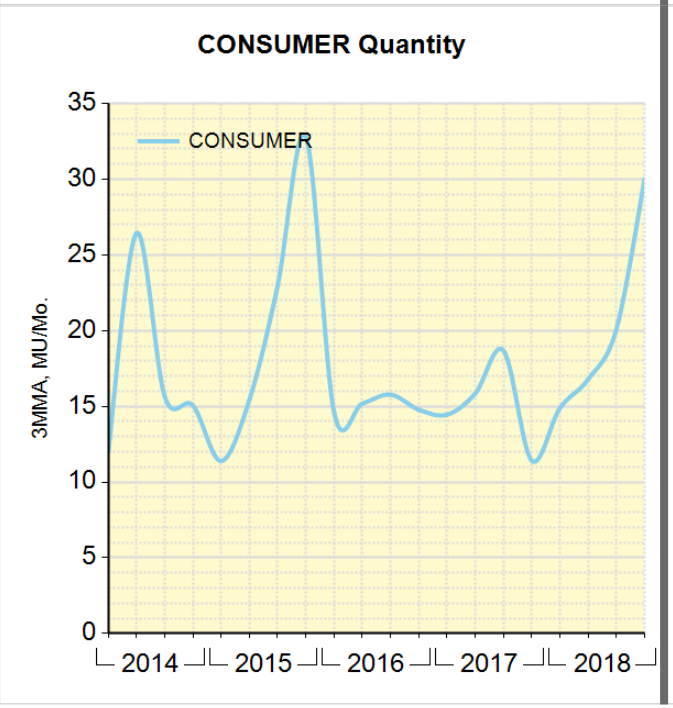

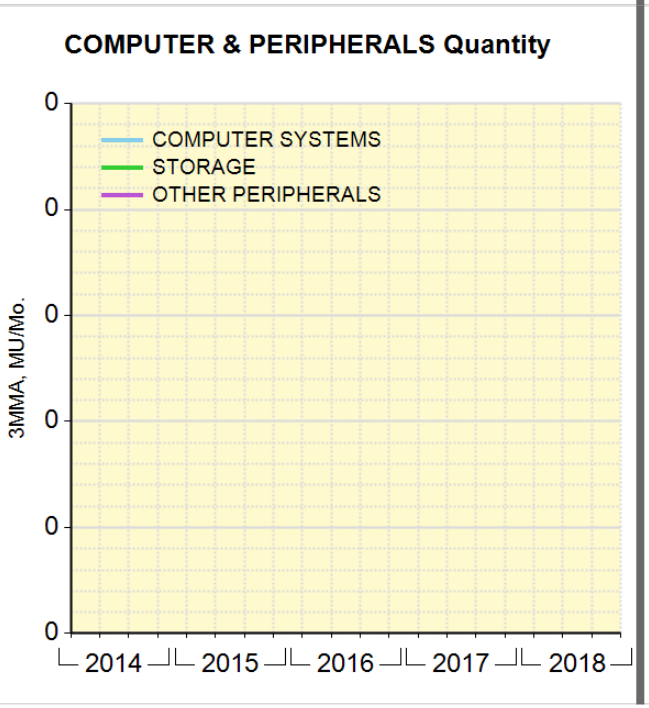

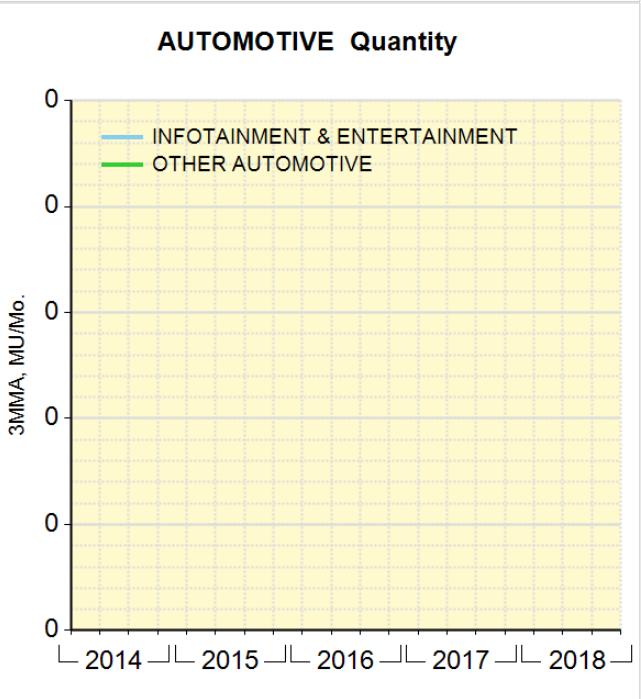

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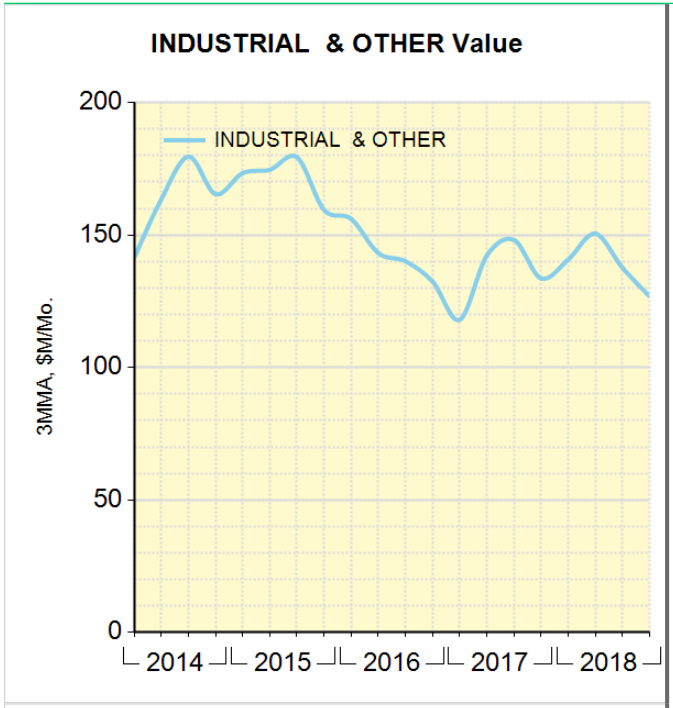

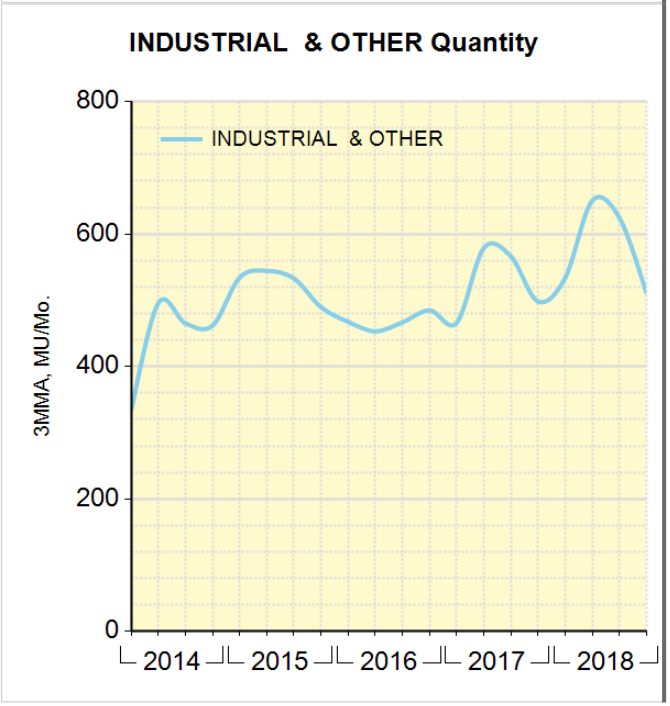

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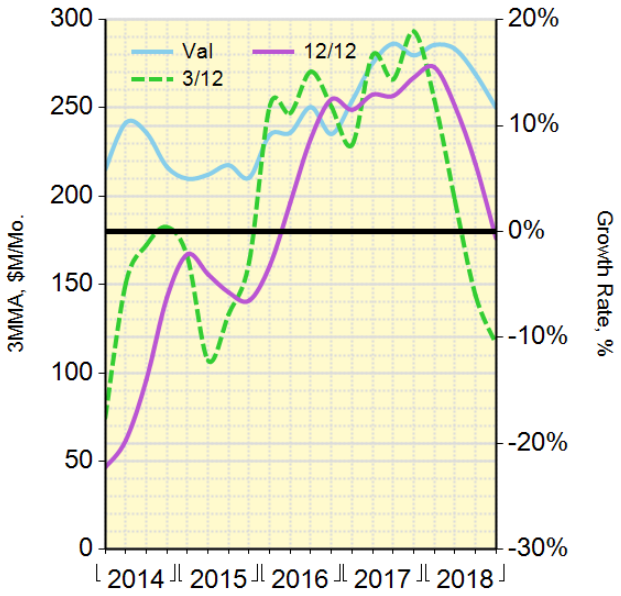
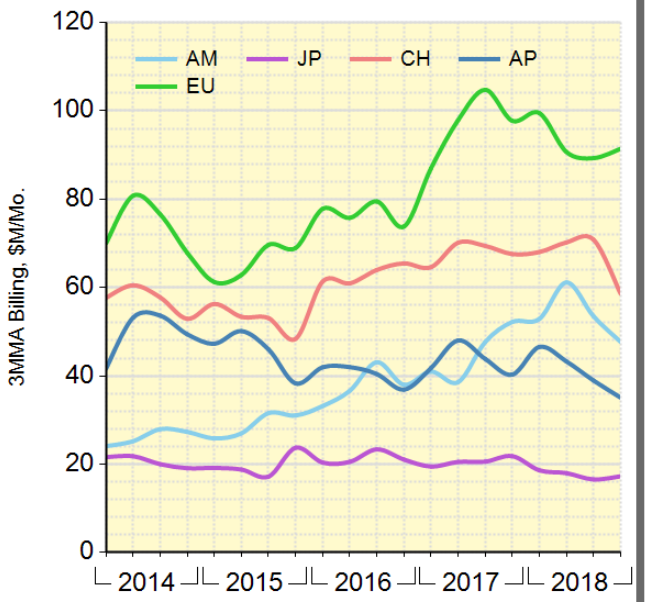
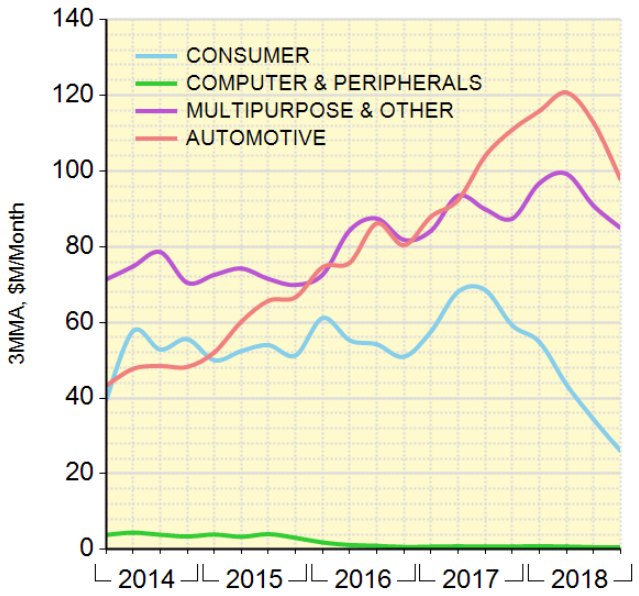
DSP Value



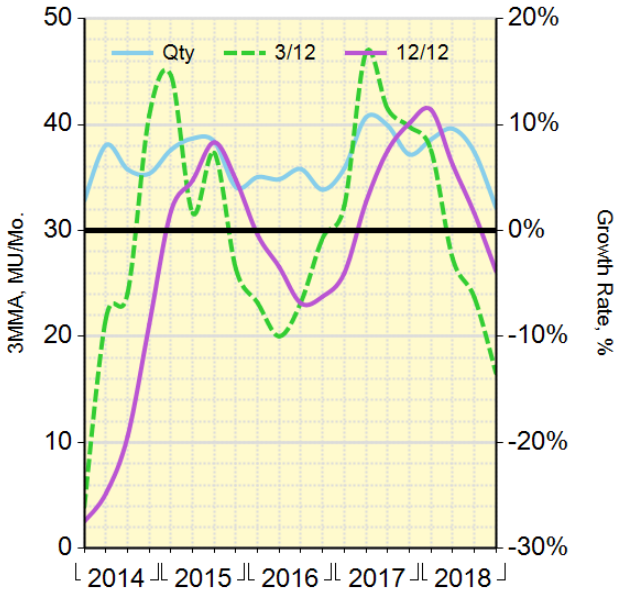
DSP Geographic Billing



Product Mix - Value



DSP Quantity



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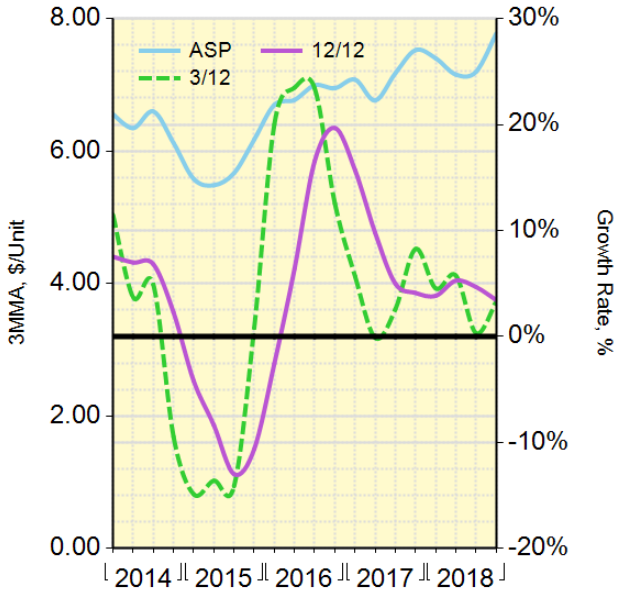
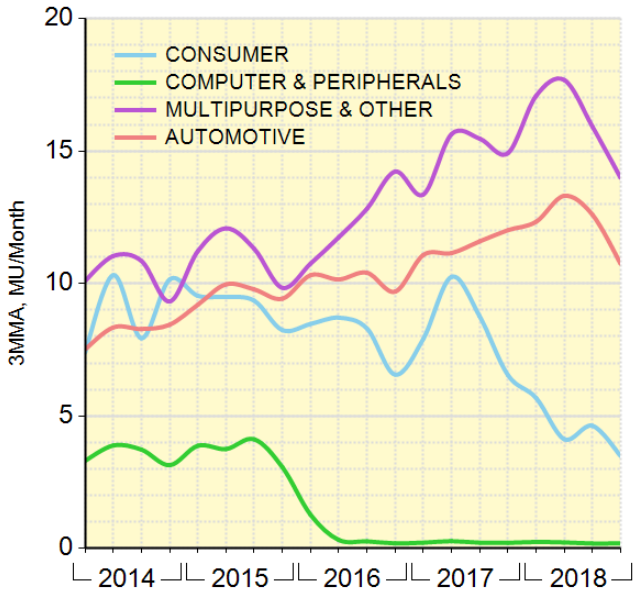


Product Mix - Quantity



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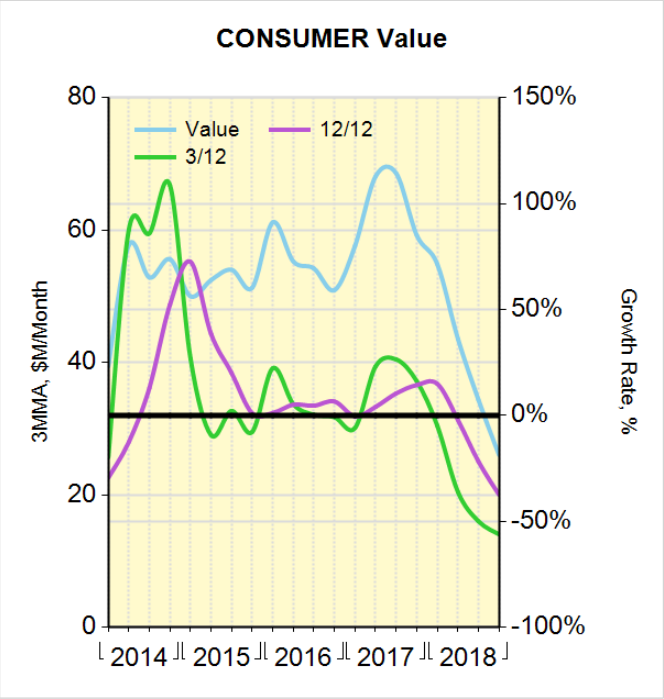

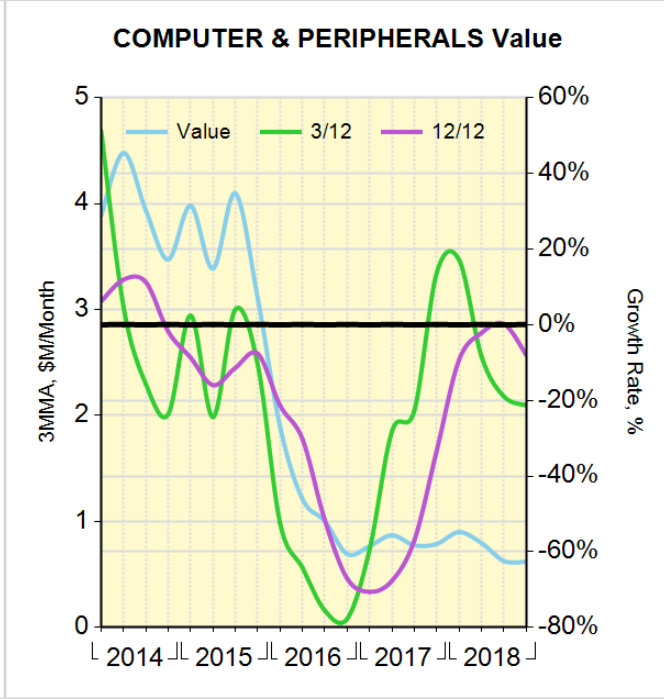

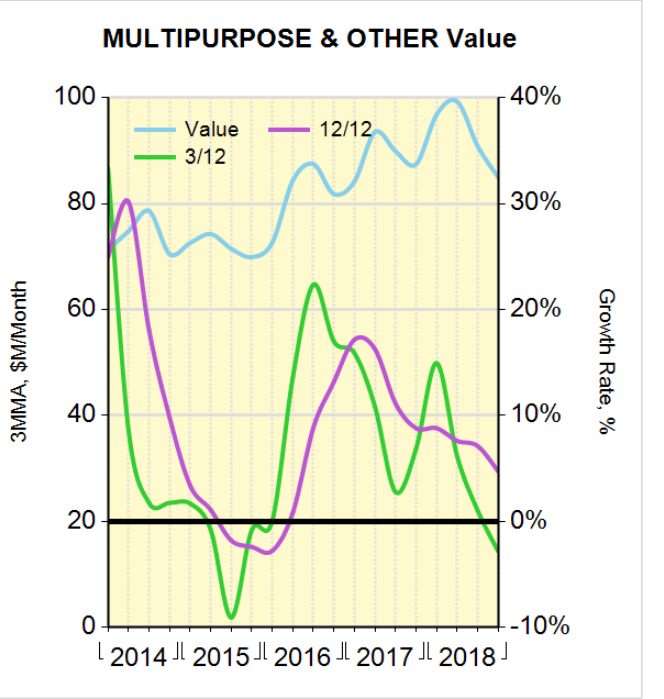

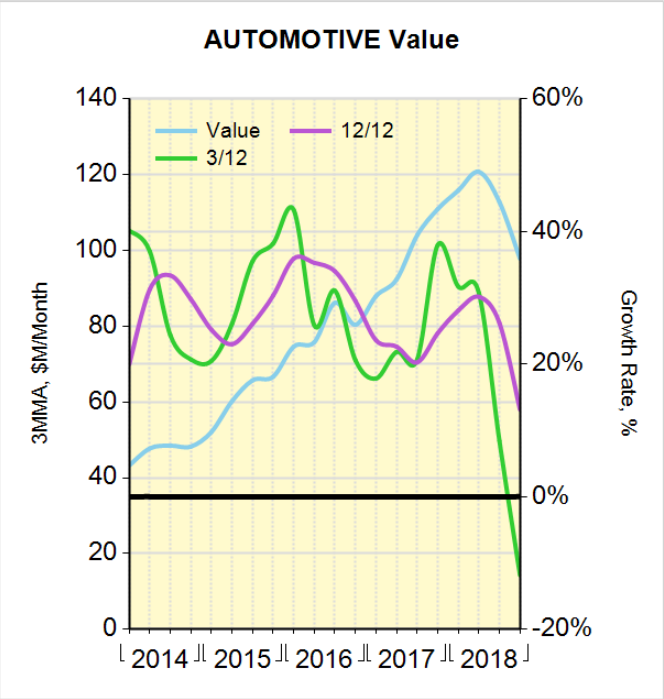

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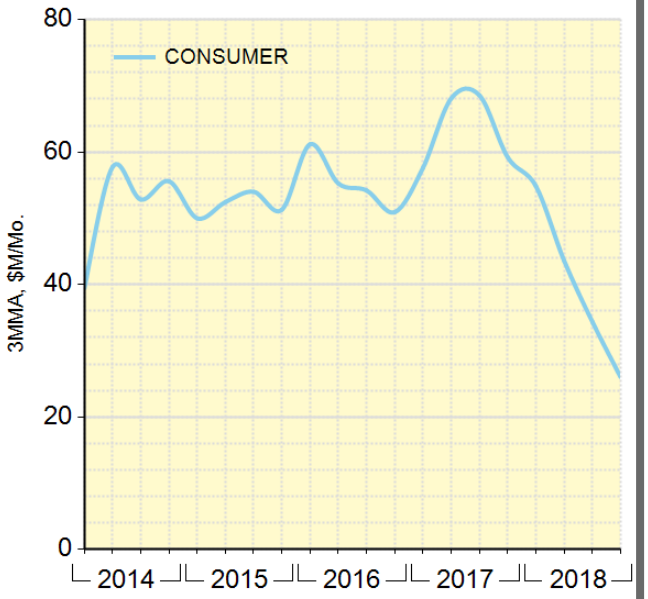
CONSUMER Value



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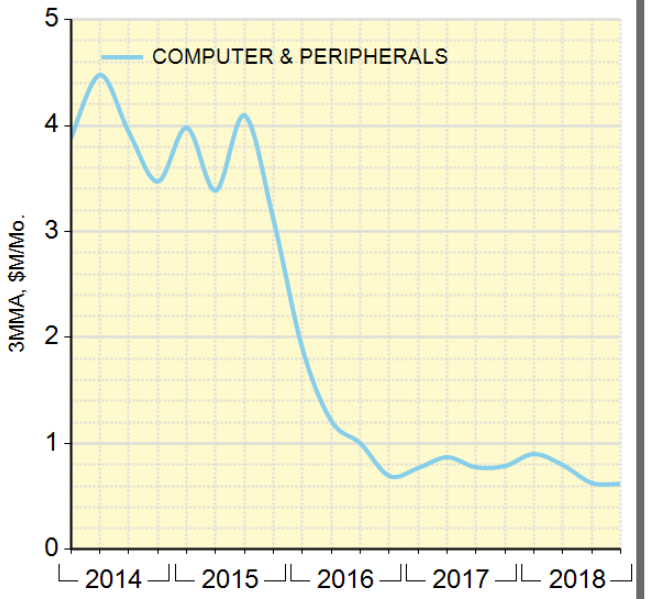

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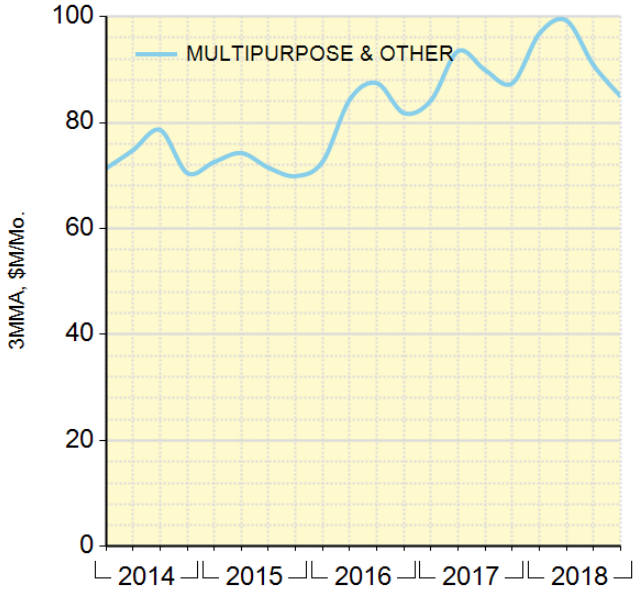

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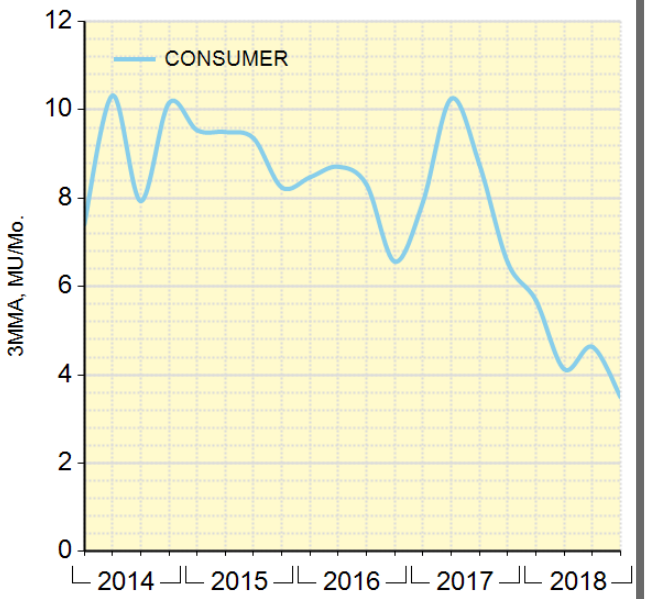

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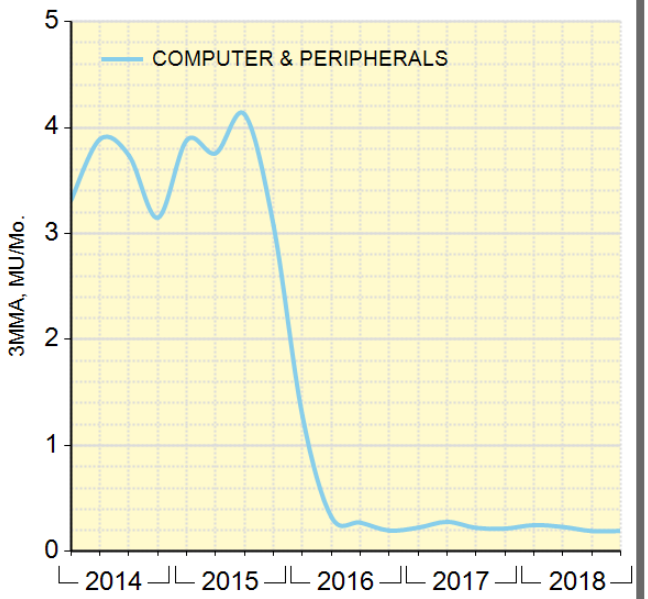

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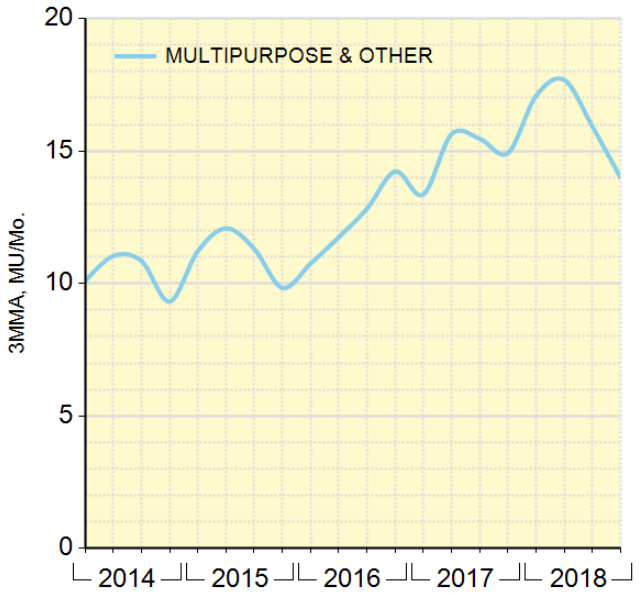

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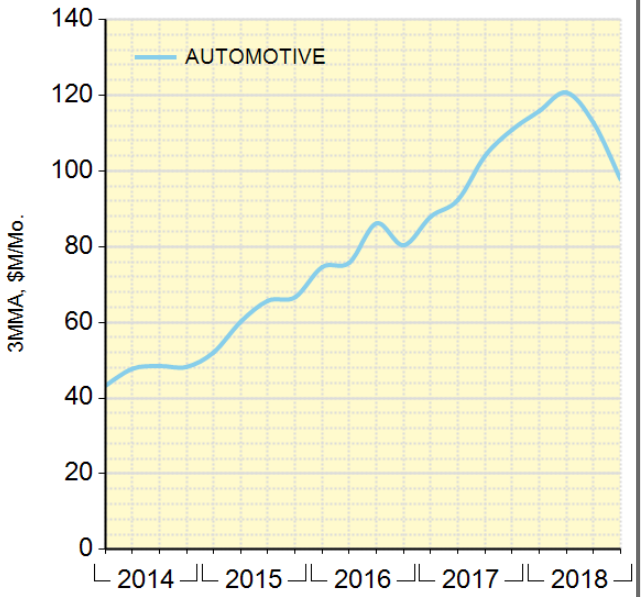

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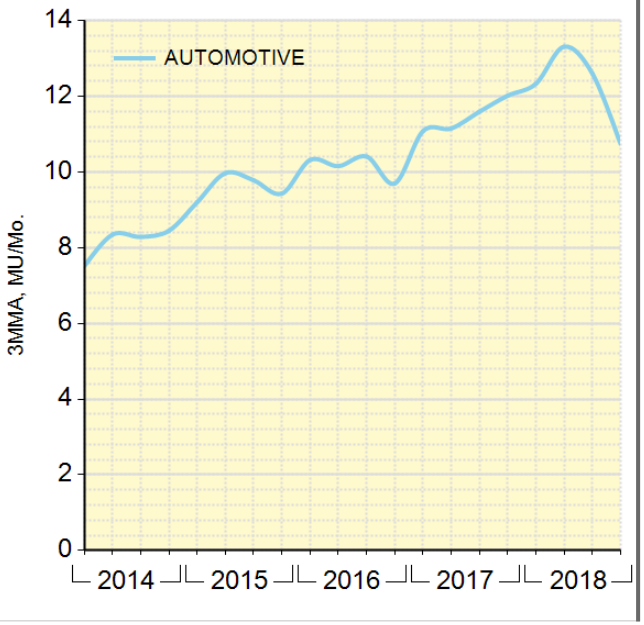

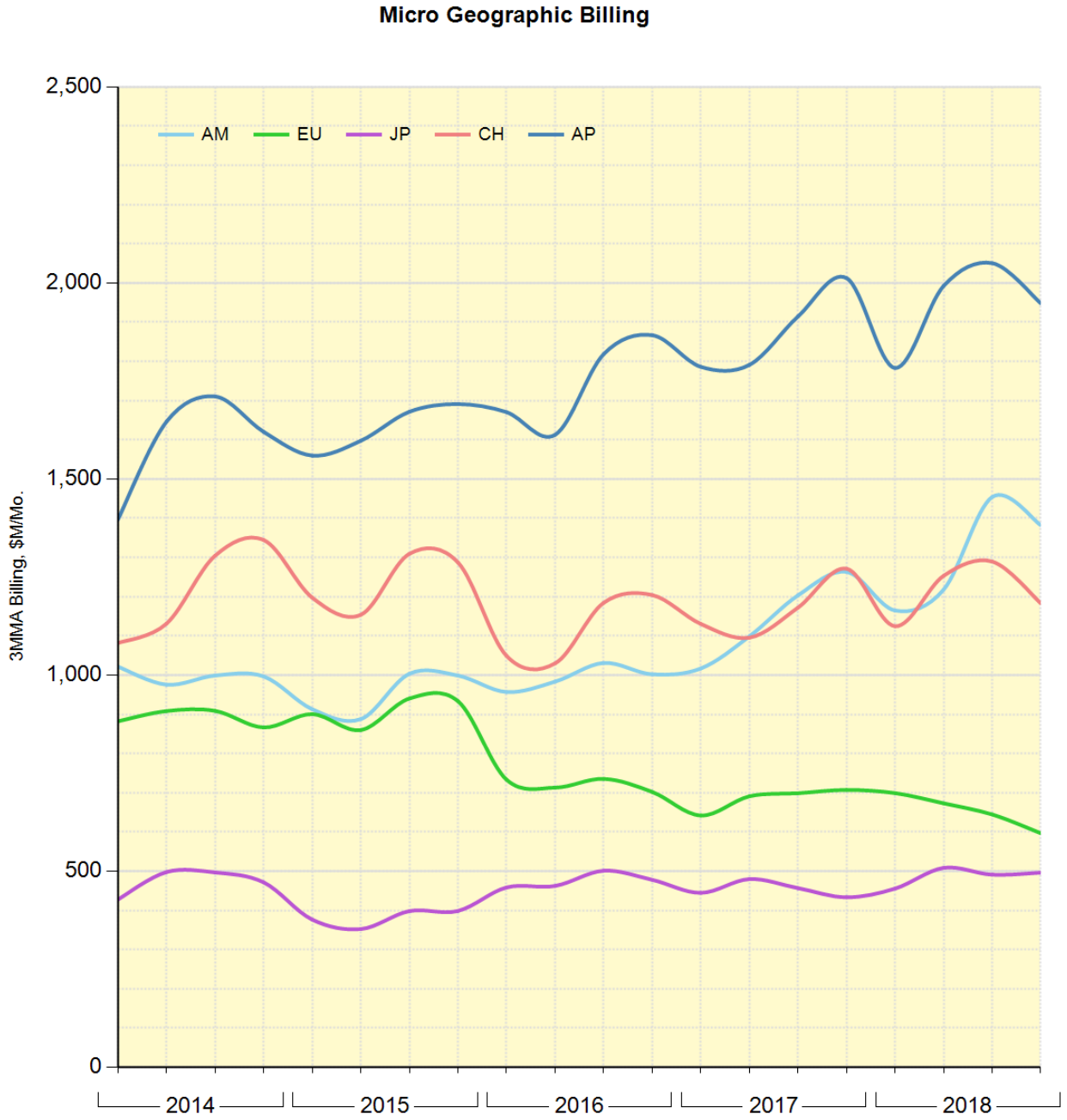

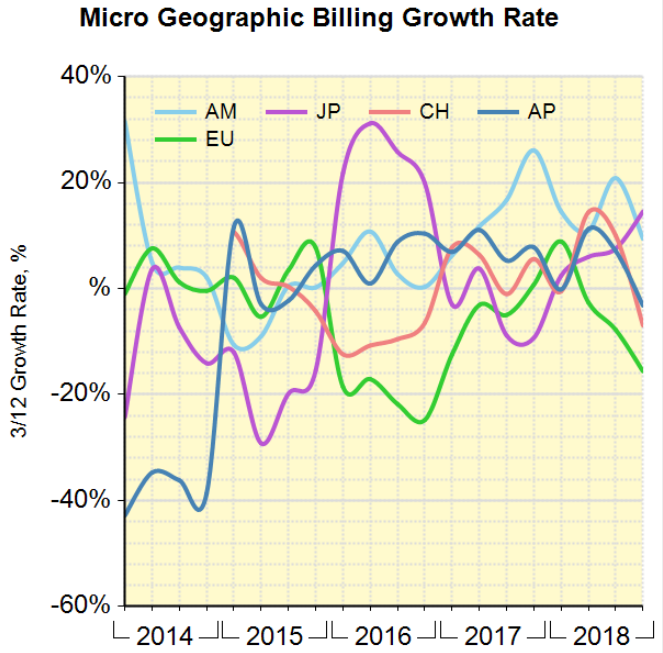

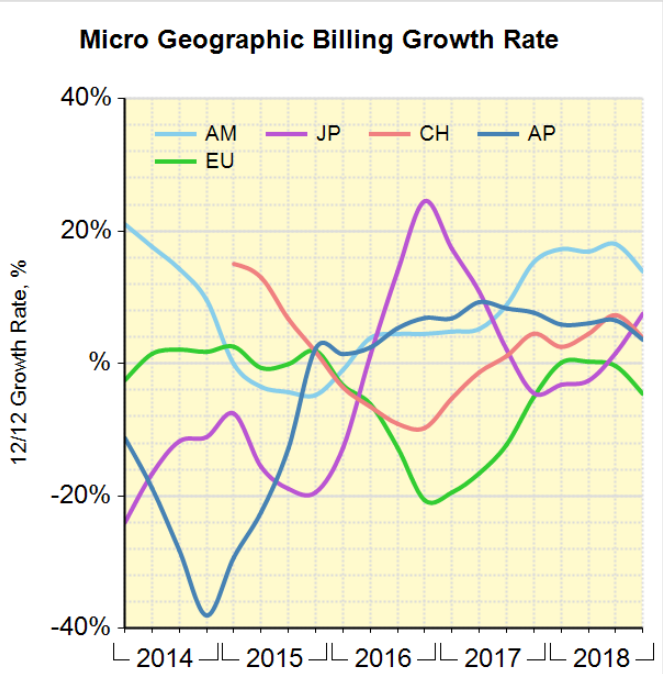

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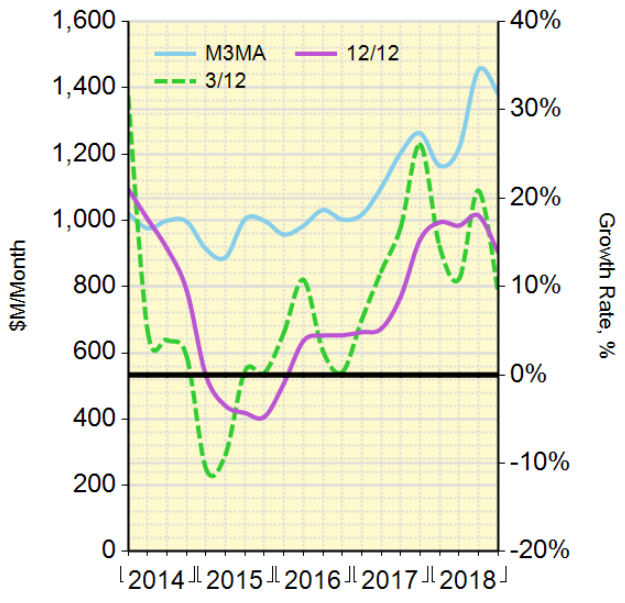
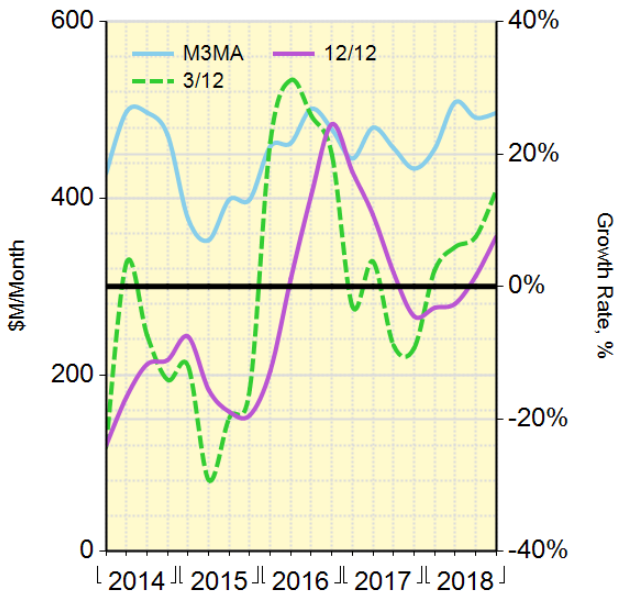
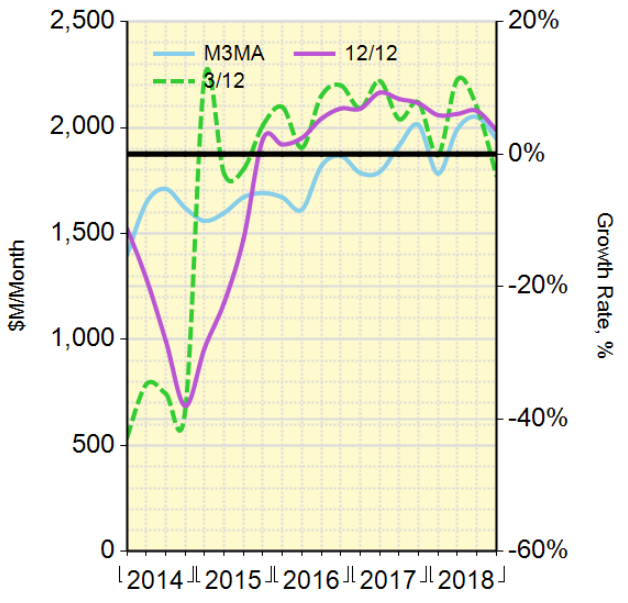
Americas Billing



Japan Billing



Asia Pacific/All Other Billing



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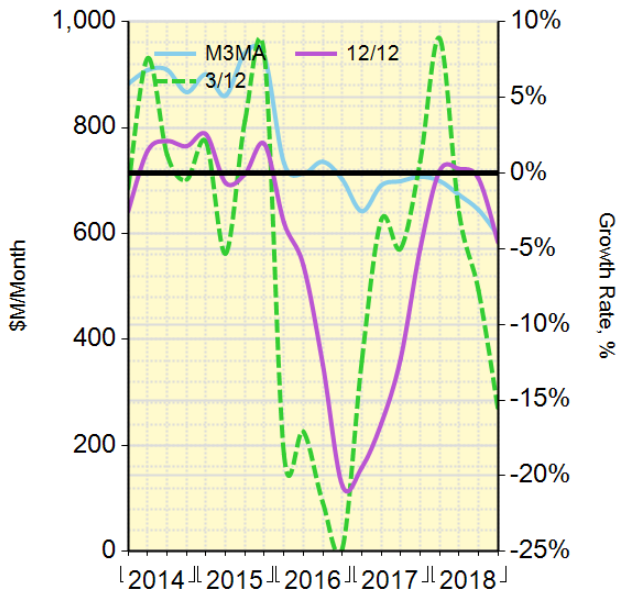

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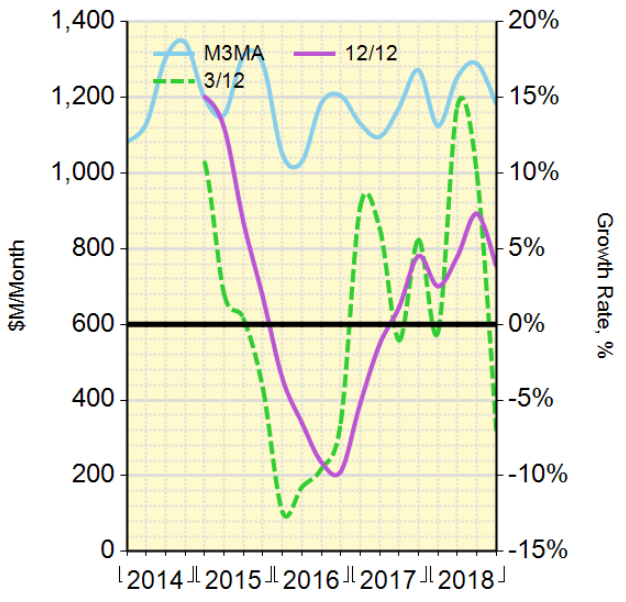

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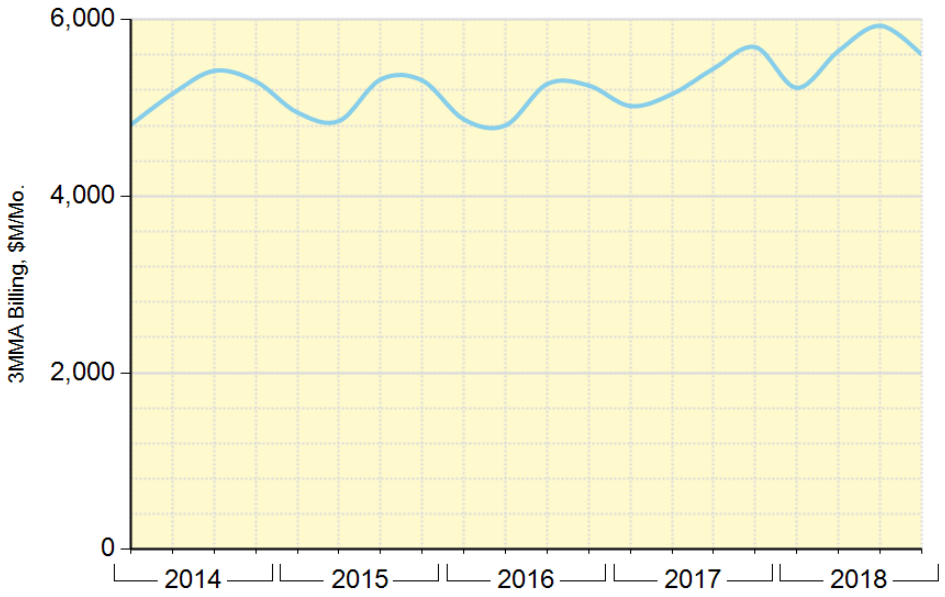
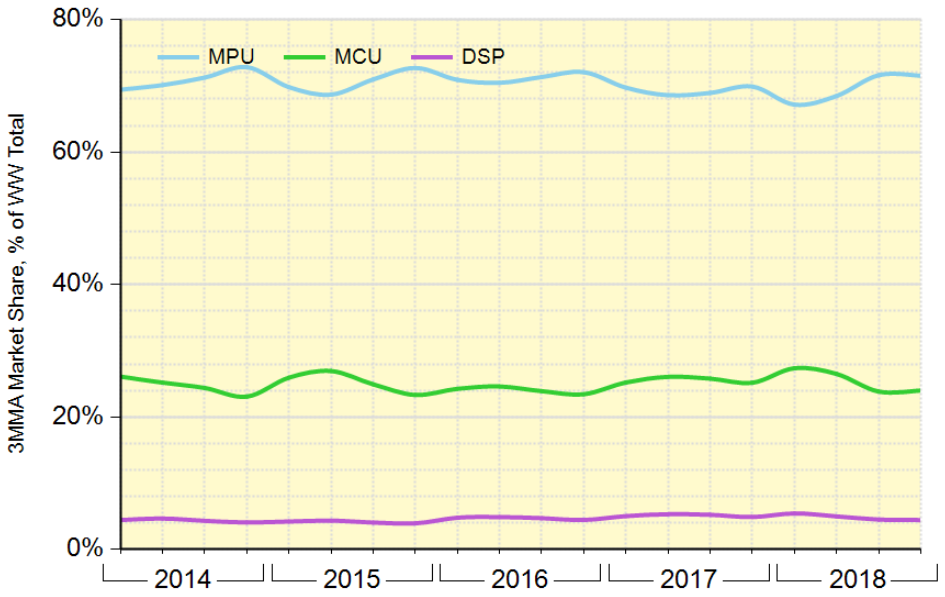
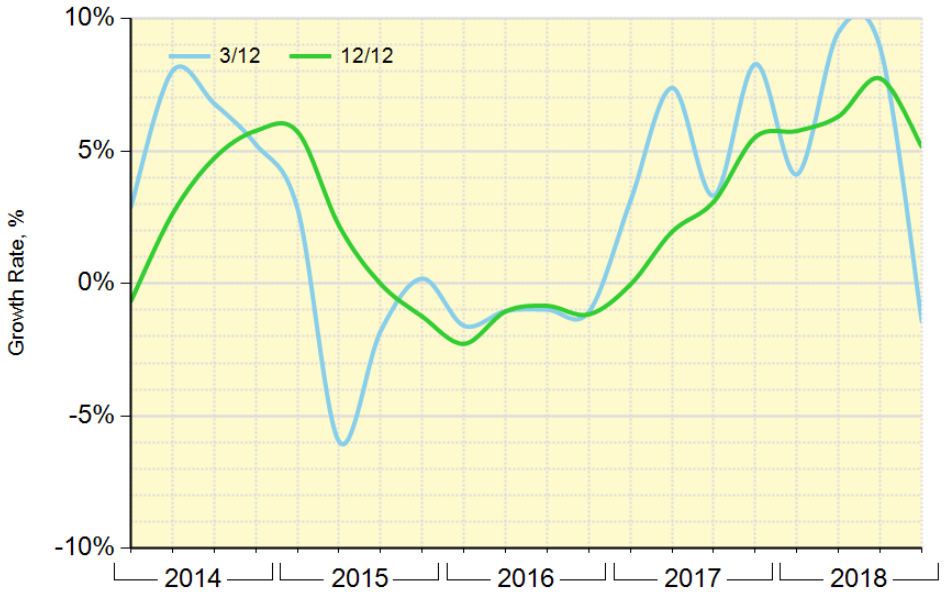
Micro World Billing



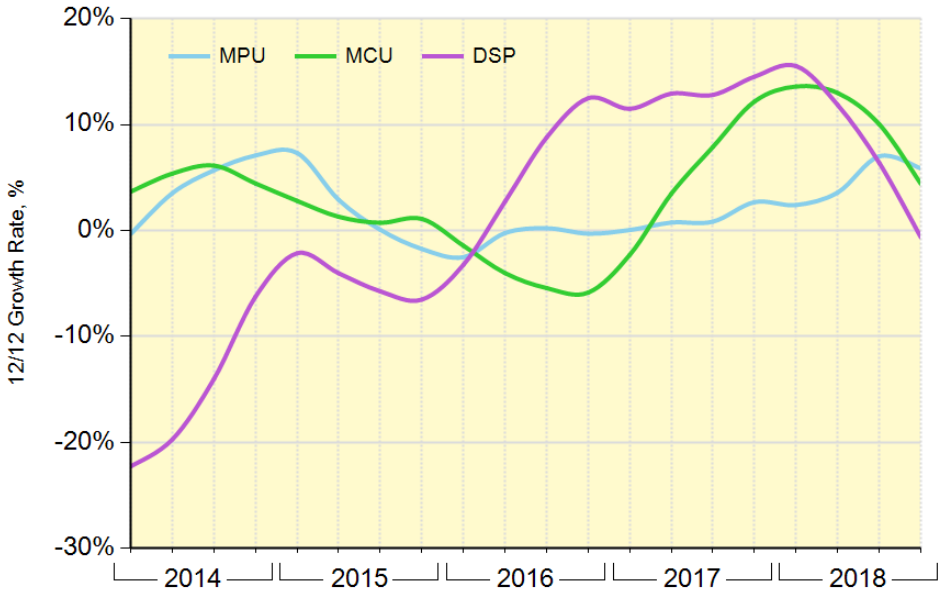
WW Market Share



World Billing Growth Rate



WW Growth Rate



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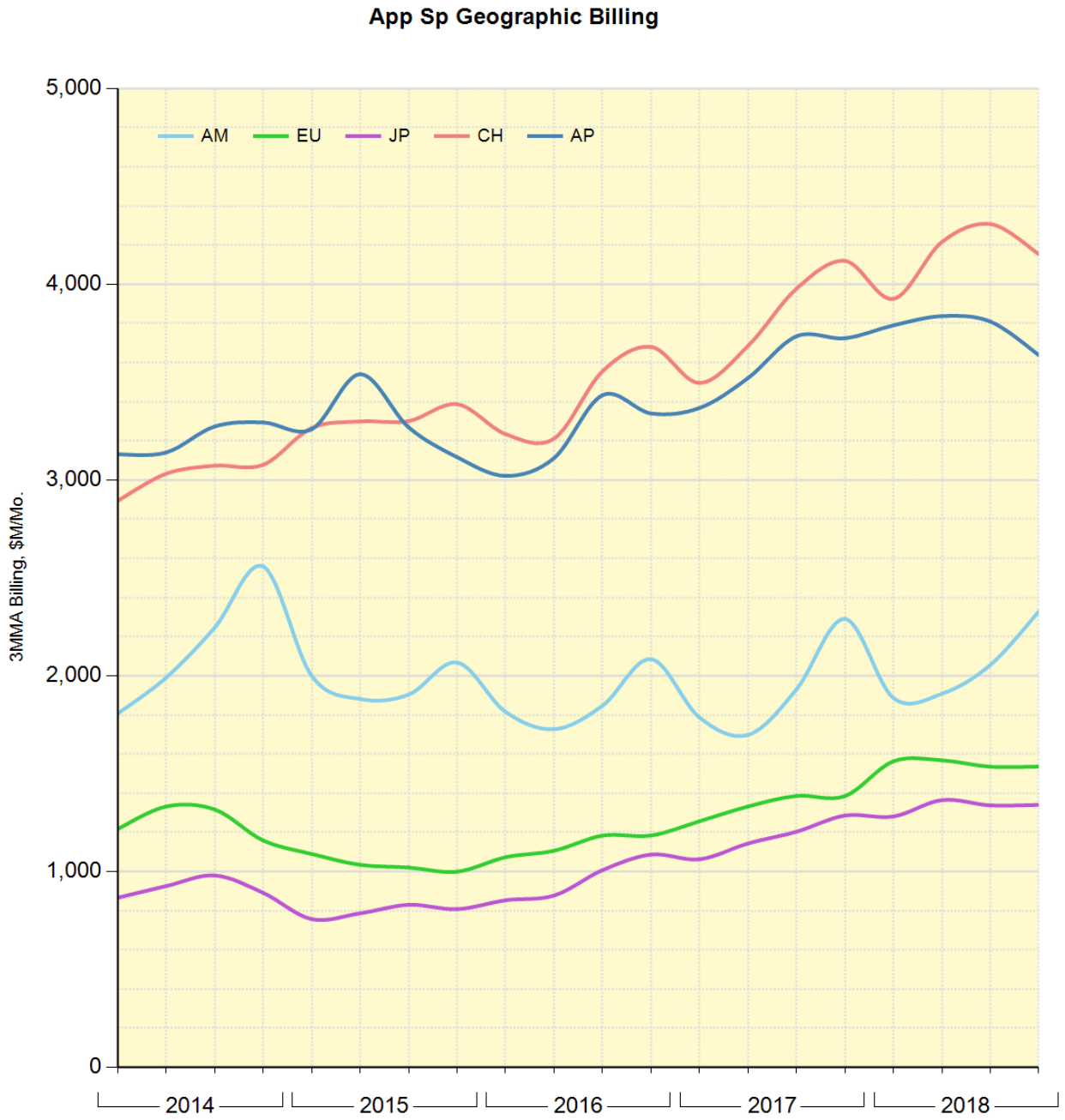

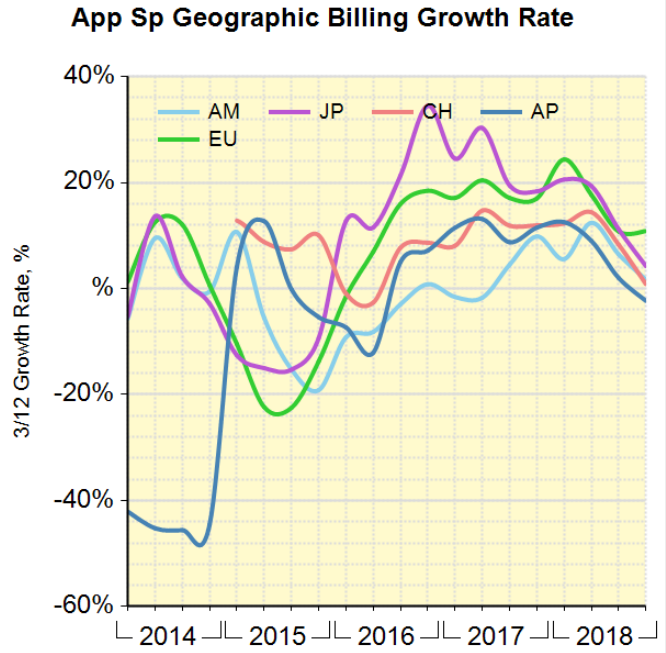

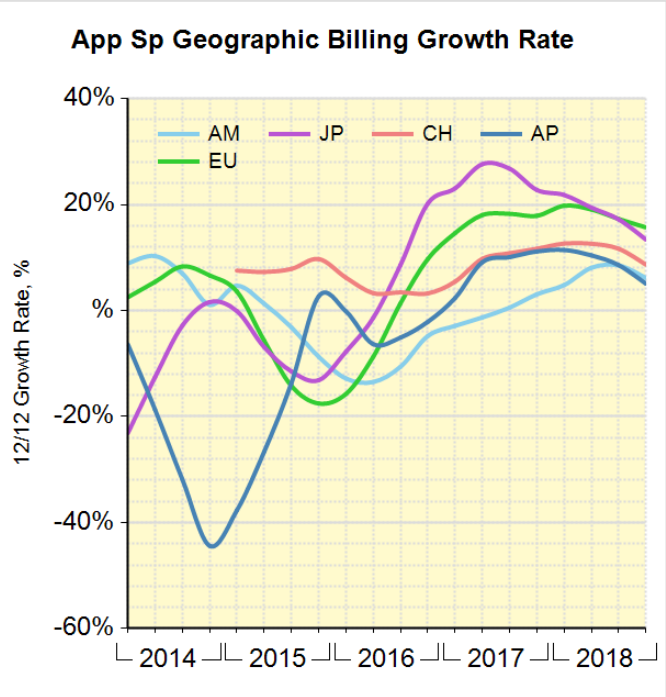

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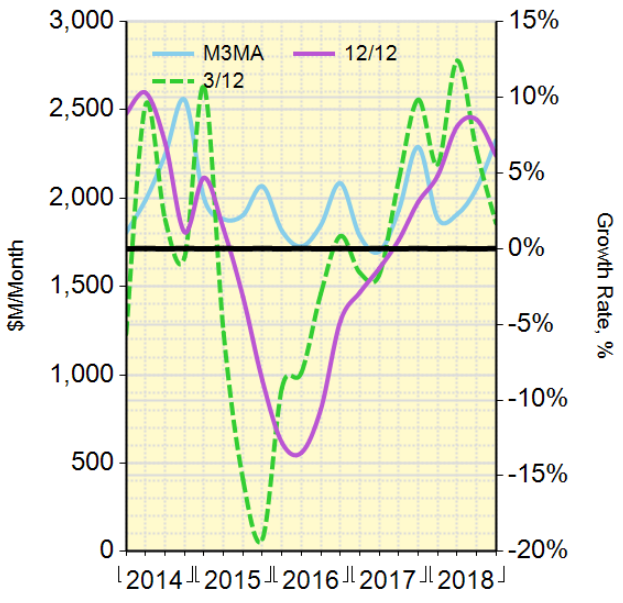
Americas Billing



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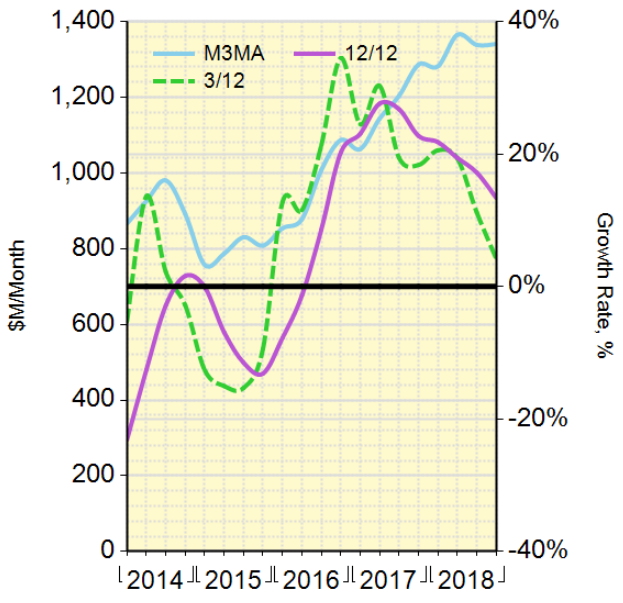
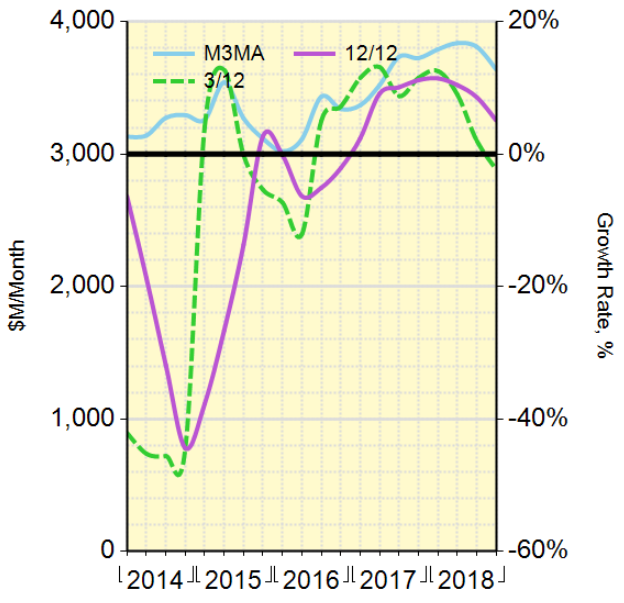


Asia Pacific/All Other Billing



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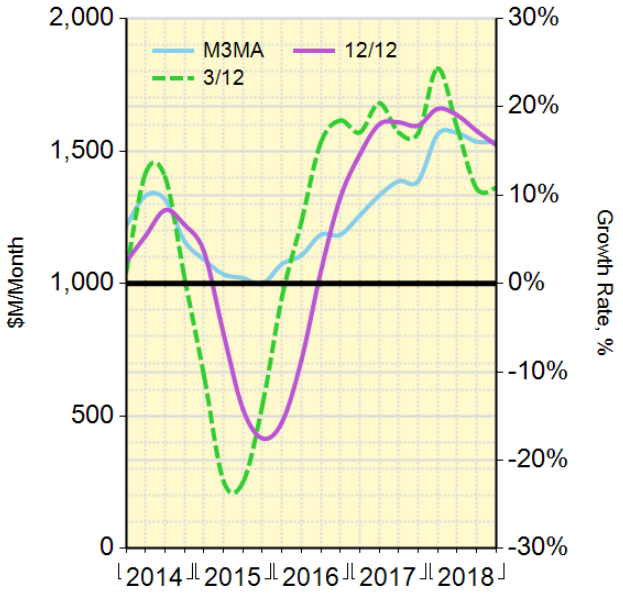
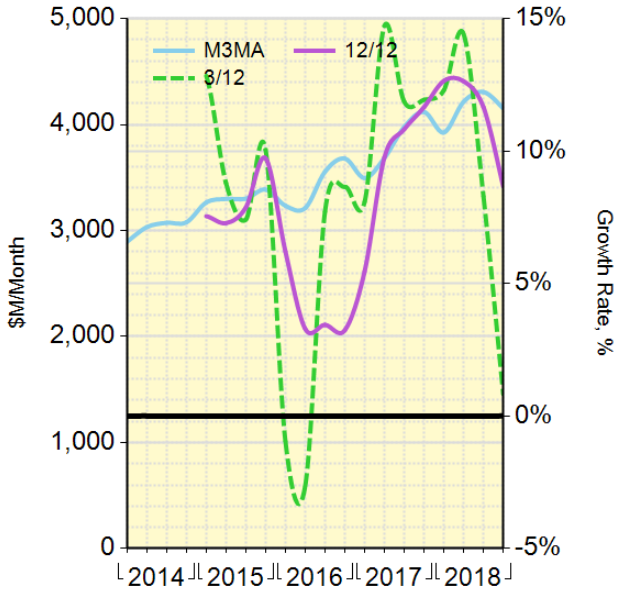


China Billing



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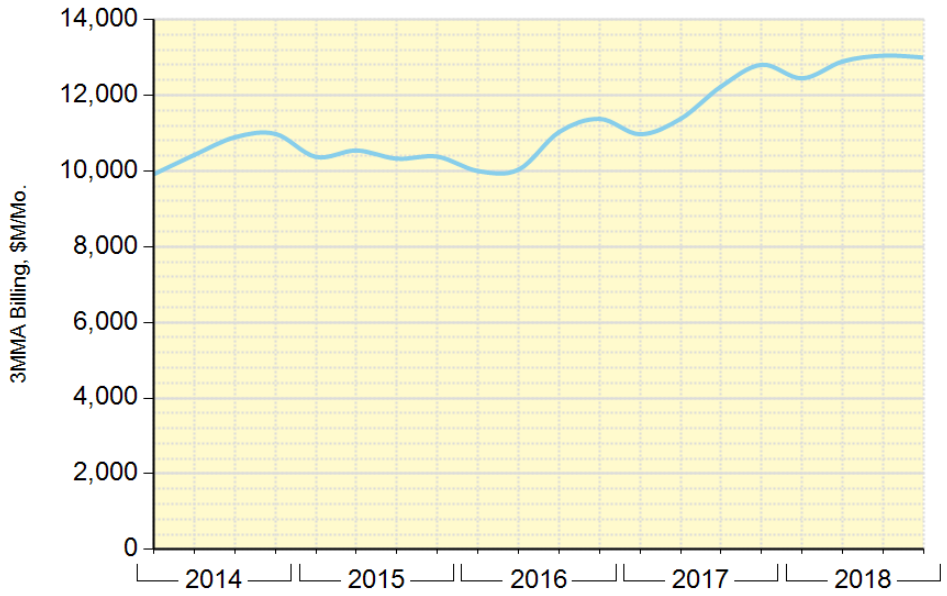
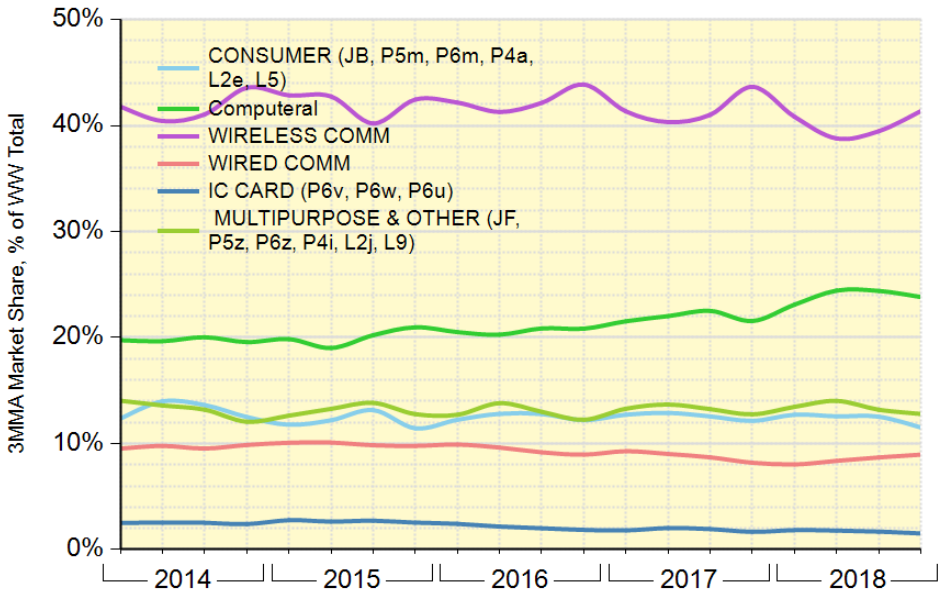
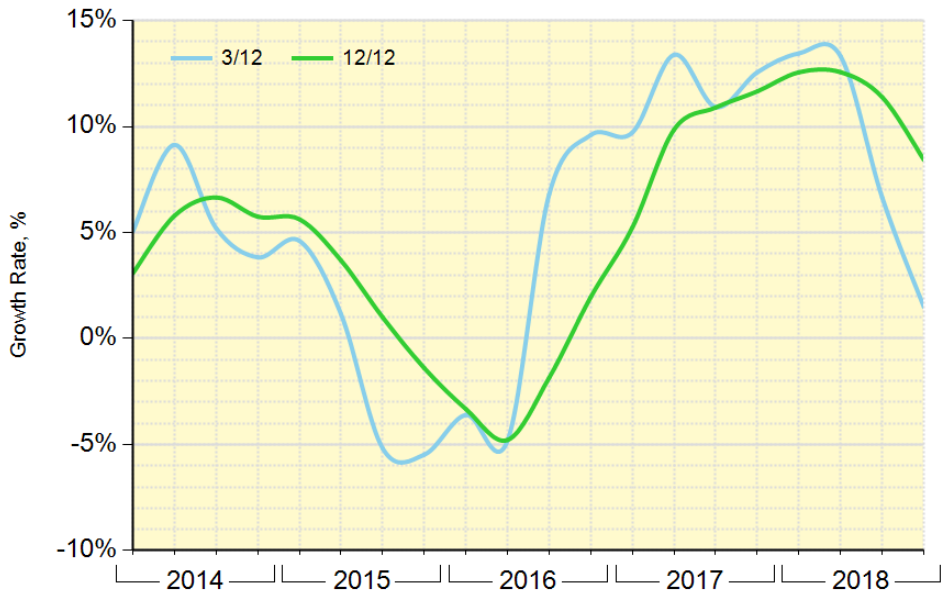
App Sp World Billing



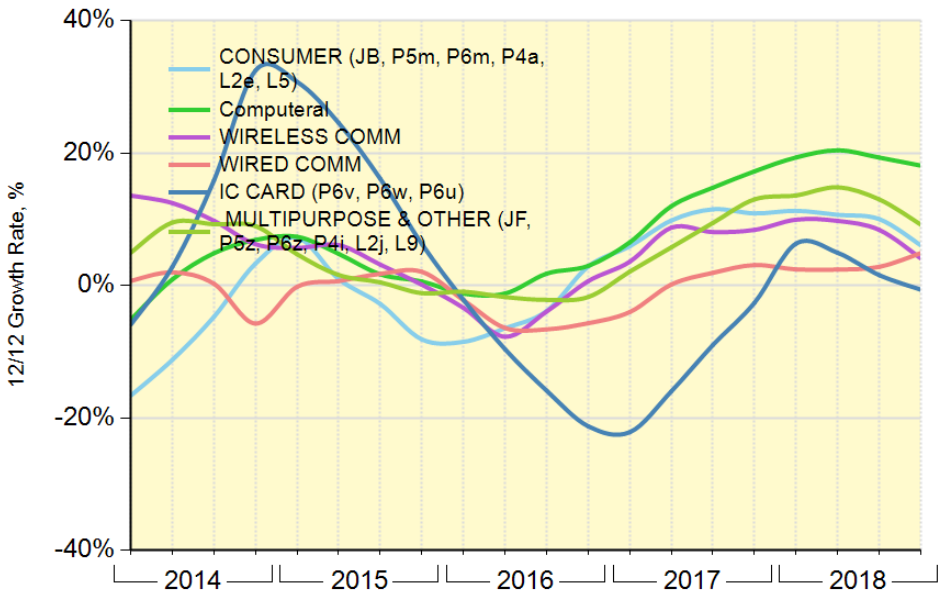
WW Market Share



World Billing Growth Rate



WW Growth Rate



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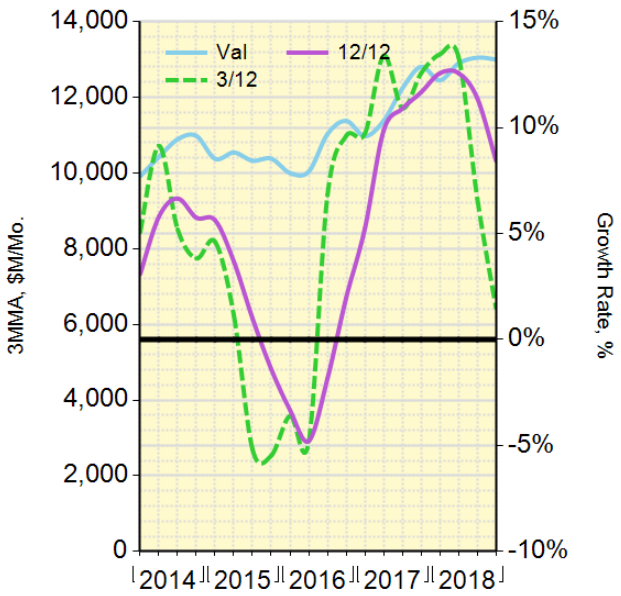

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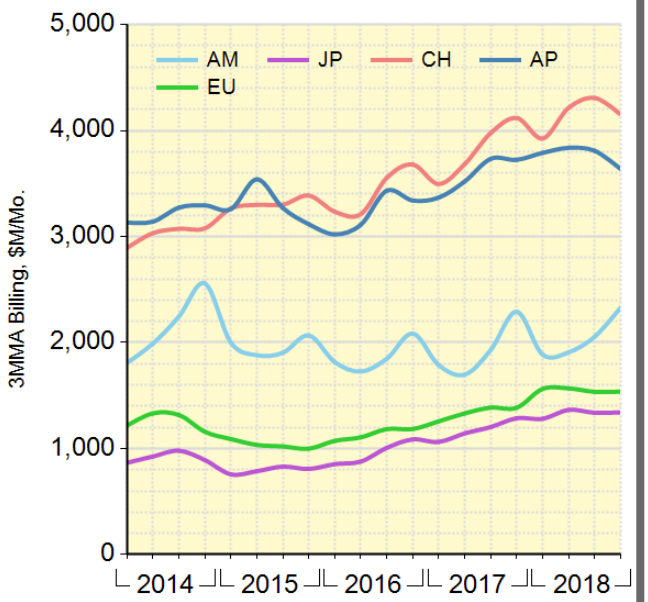
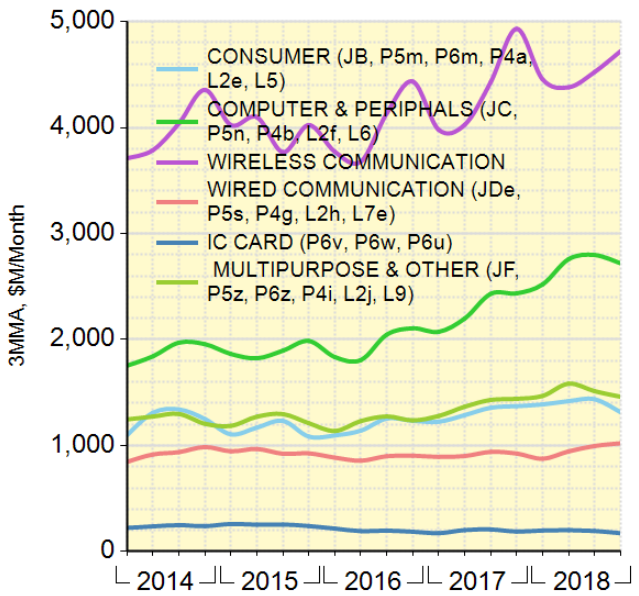


Product Mix - Value



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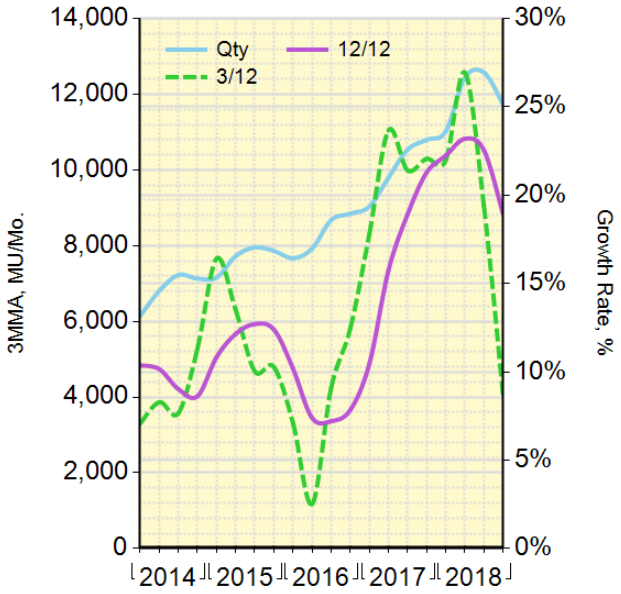

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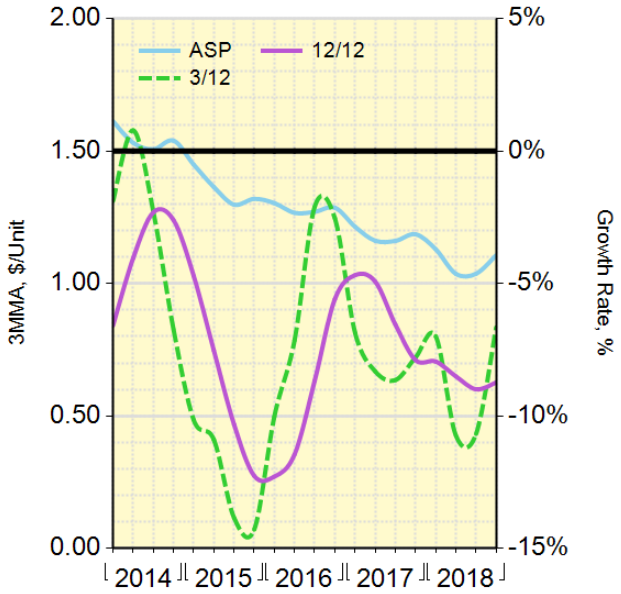
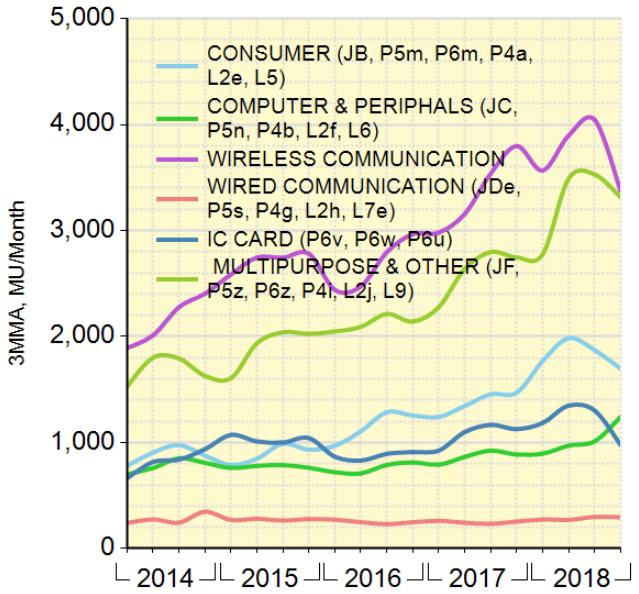


Product Mix - Quantity



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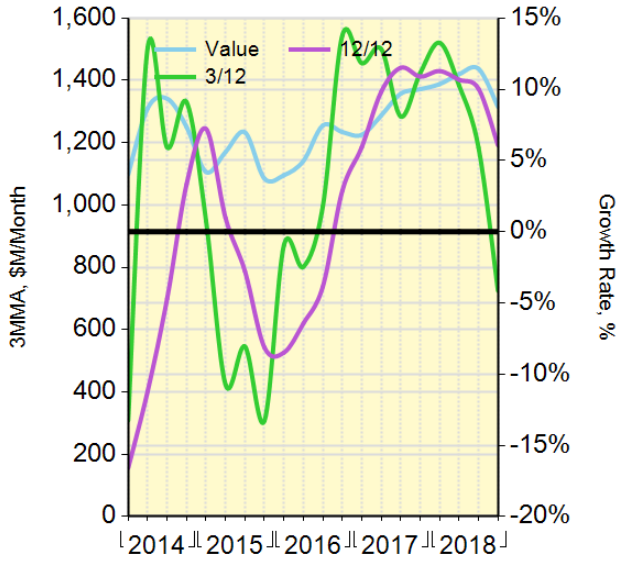
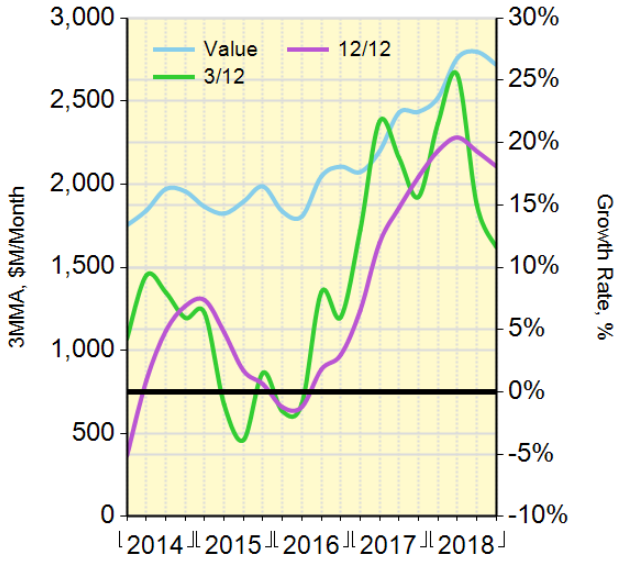
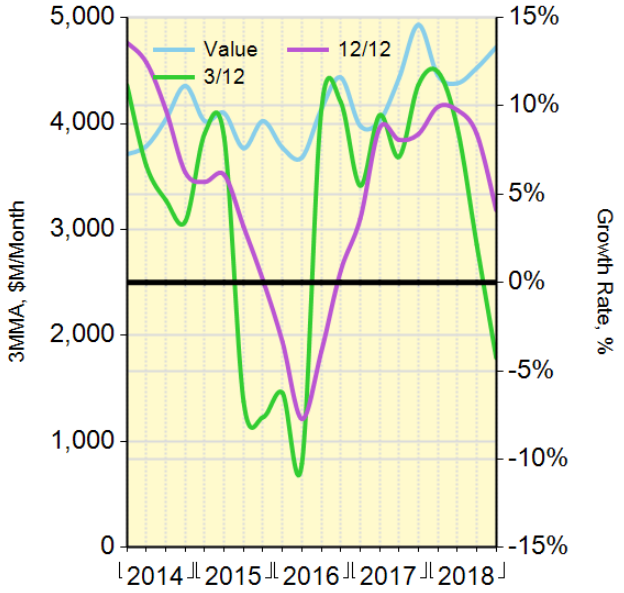
CONSUMER (JB, P5m, P6m, P4a, L2e, L5) Value



COMPUTER & PERIPHALS (JC, P5n, P4b, L2f, L6) Value



WIRELESS COMMUNICATION Value



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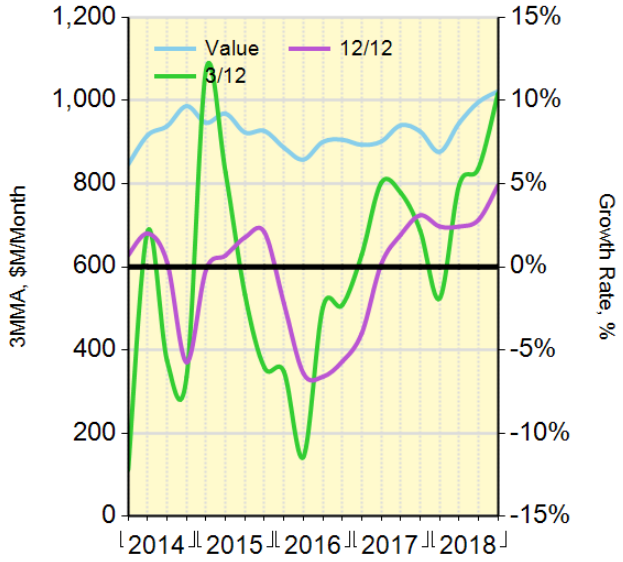
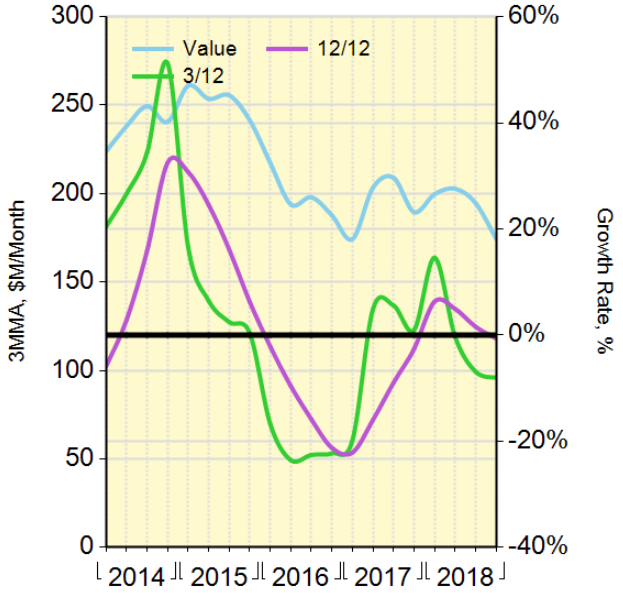
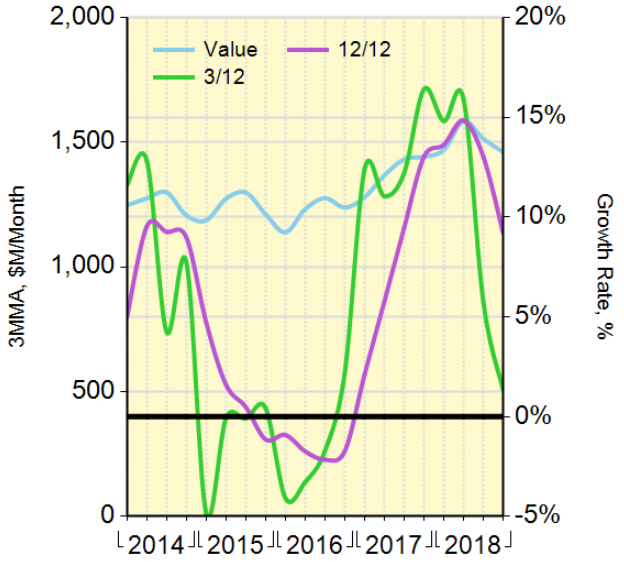


IC CARD (P6v, P6w, P6u) Value



MULTIPURPOSE & OTHER (JF, P5z, P6z, P4i, L2j, L9) Value



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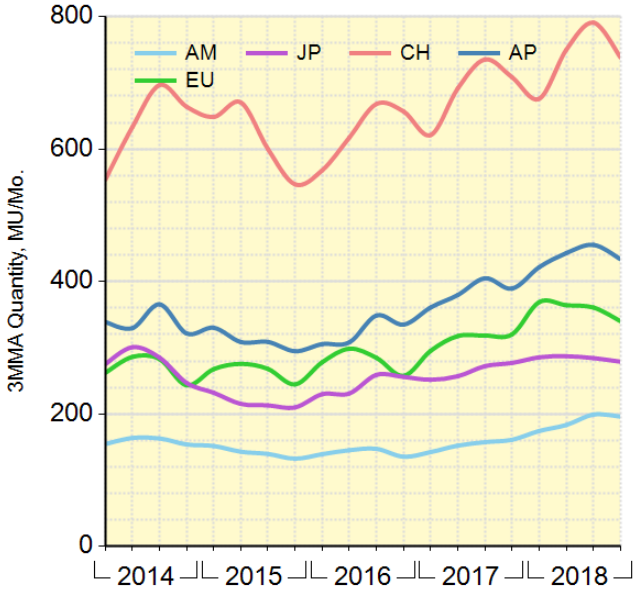
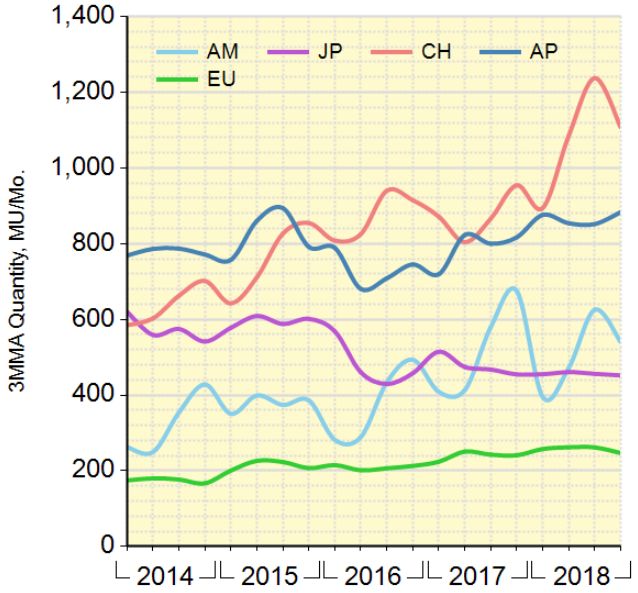
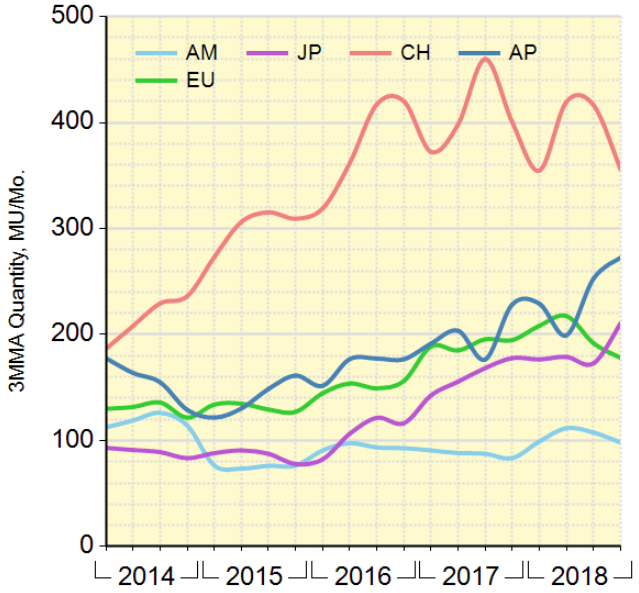
S3 Discr Tot Units by Region



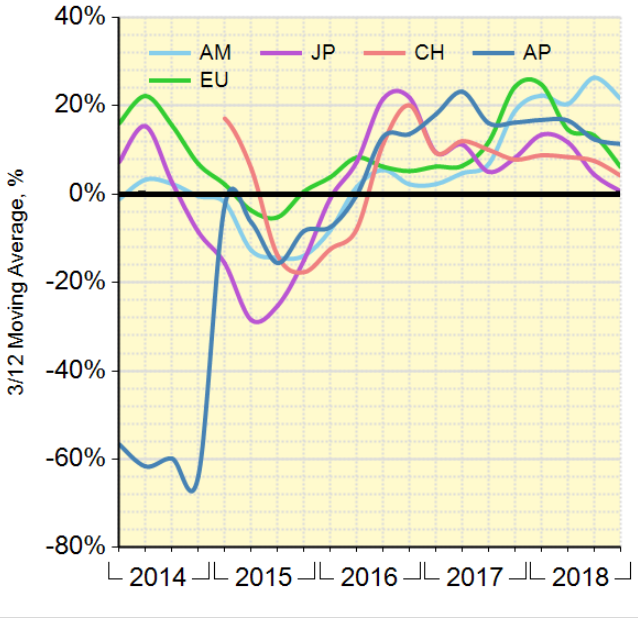
F99 Opto Units by Region



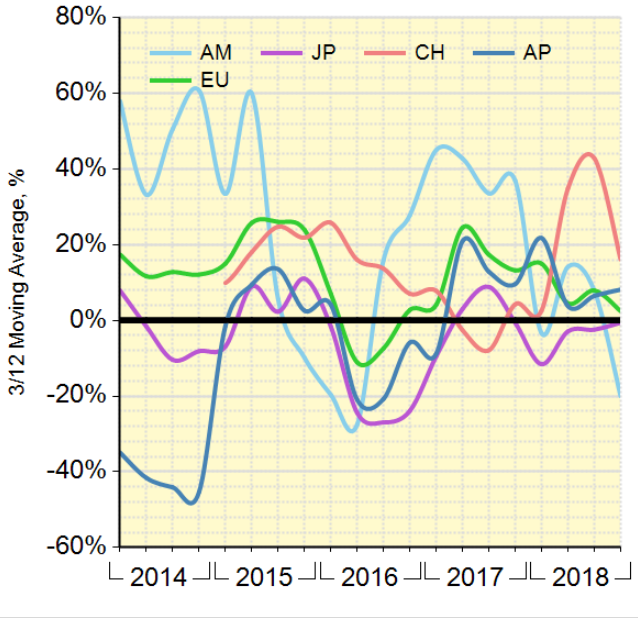
H99 Sensor Units by Region



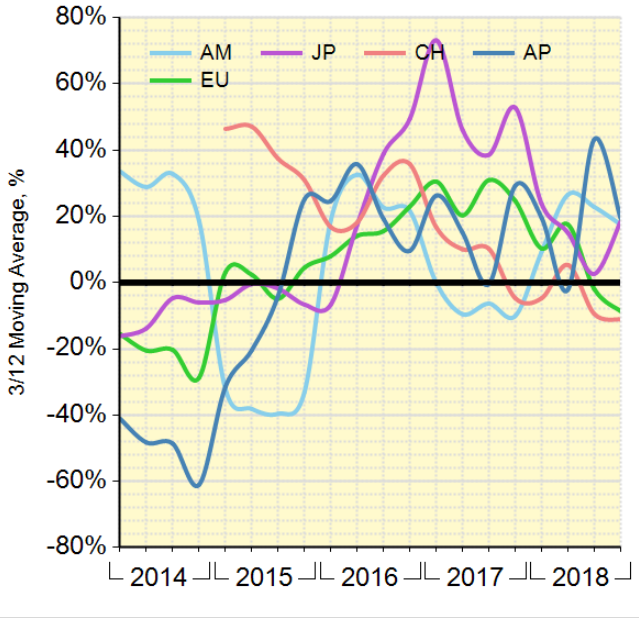
S3 Discr Tot Unit Growth Rate



F99 Opto Unit Growth Rate



H99 Sensor Unit Growth Rate



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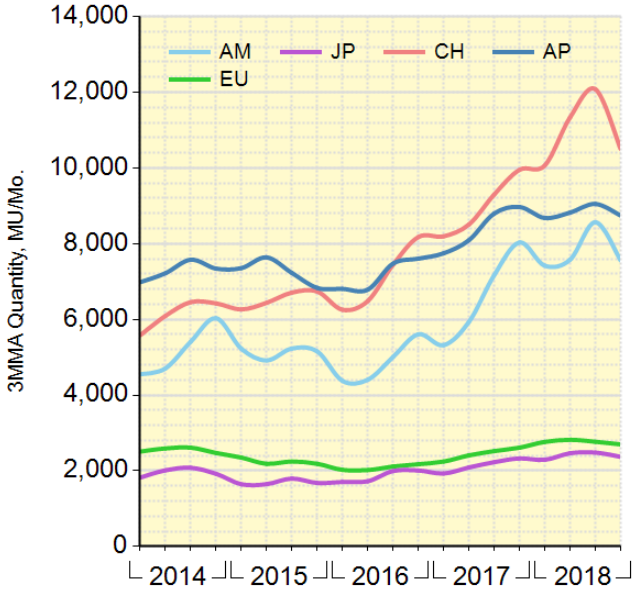
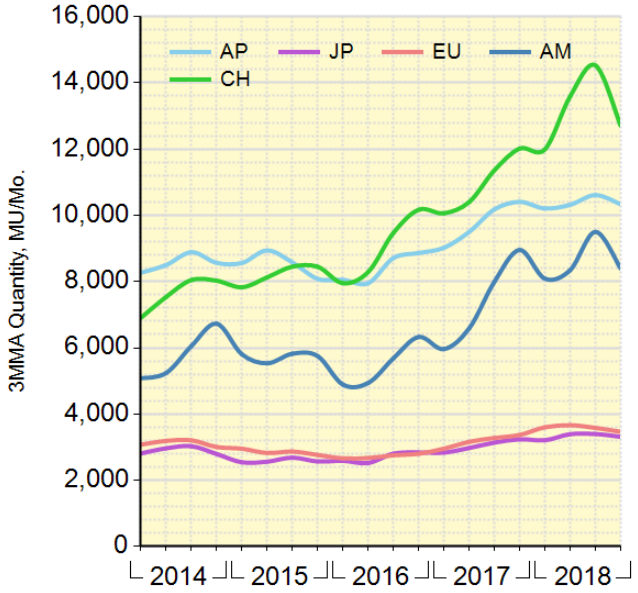
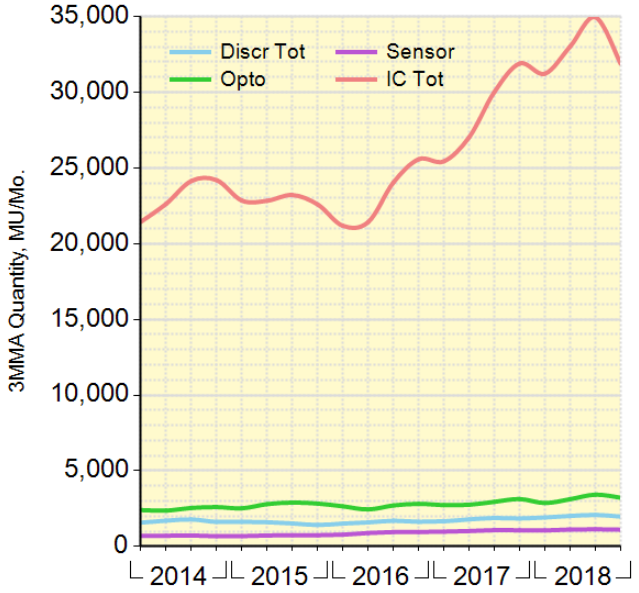
S2 IC Tot Units by Region



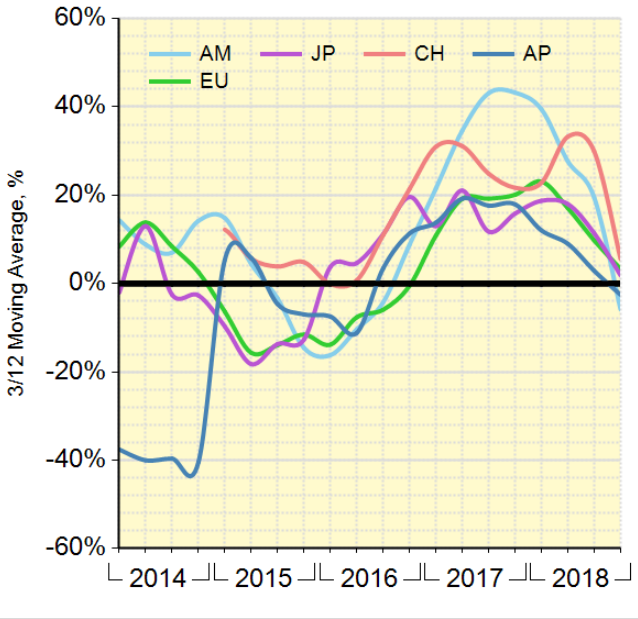
UT99 Units by Region



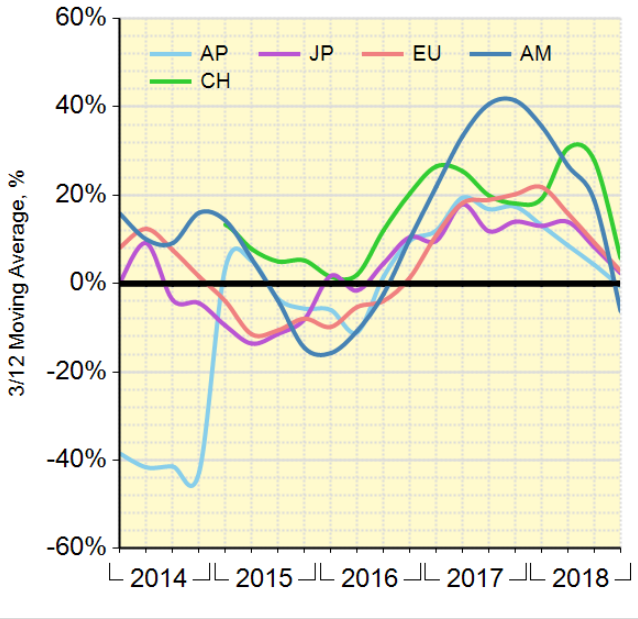
T99 Units by Product



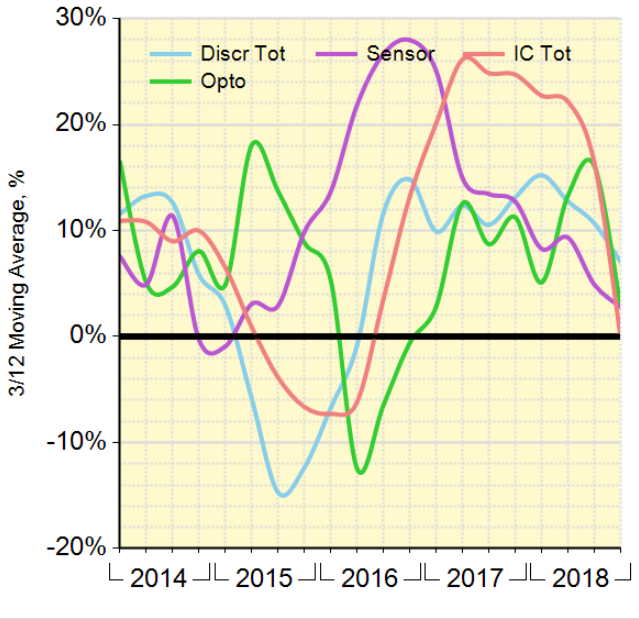
S2 IC Tot Unit Growth Rate



UT99 Unit Growth Rate by Region



T99 Unit Growth Rate by Product



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