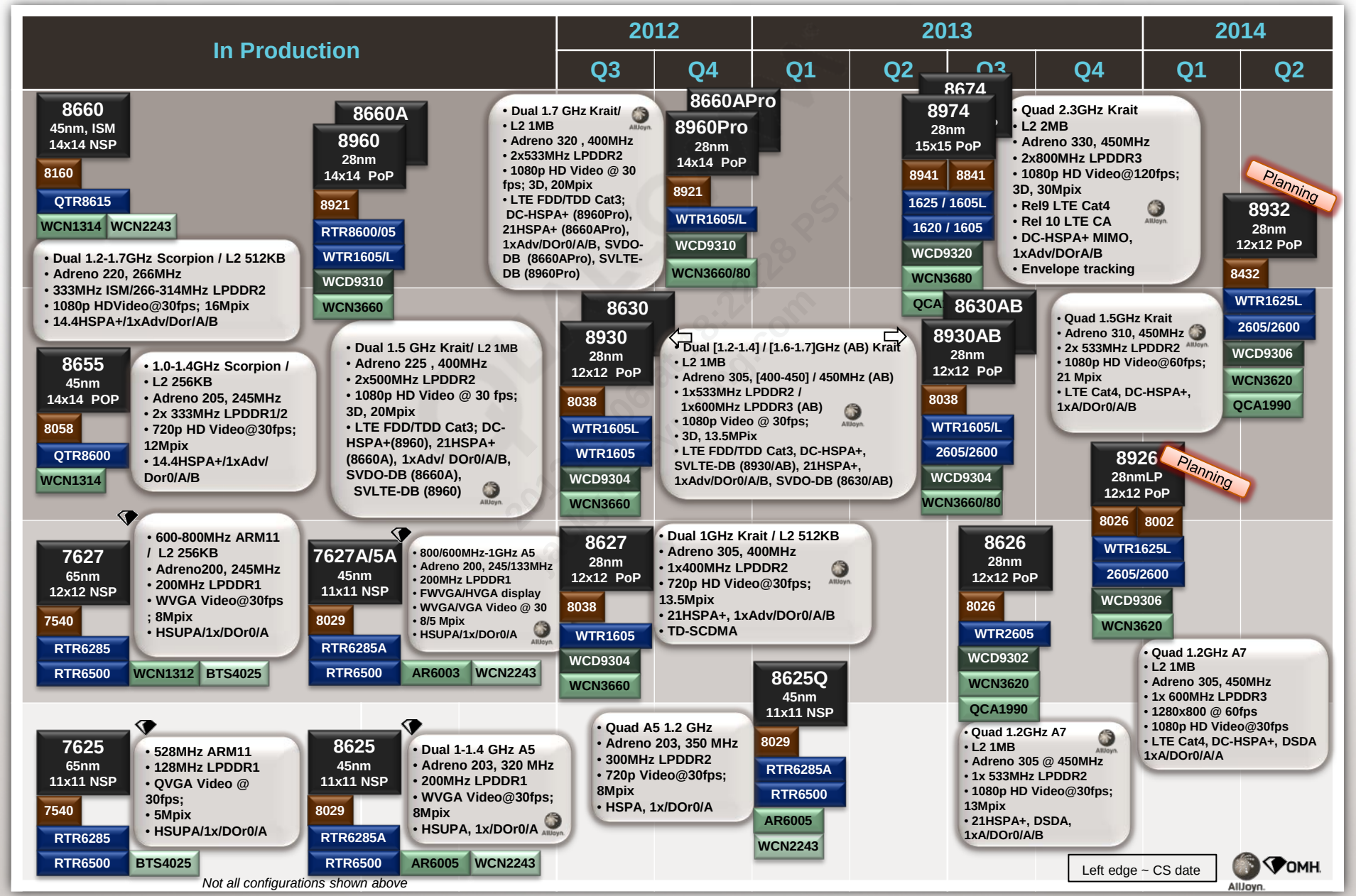
Qualcomm
TECHNOLOGIES, INC

QMC Chipset Product Roadmaps

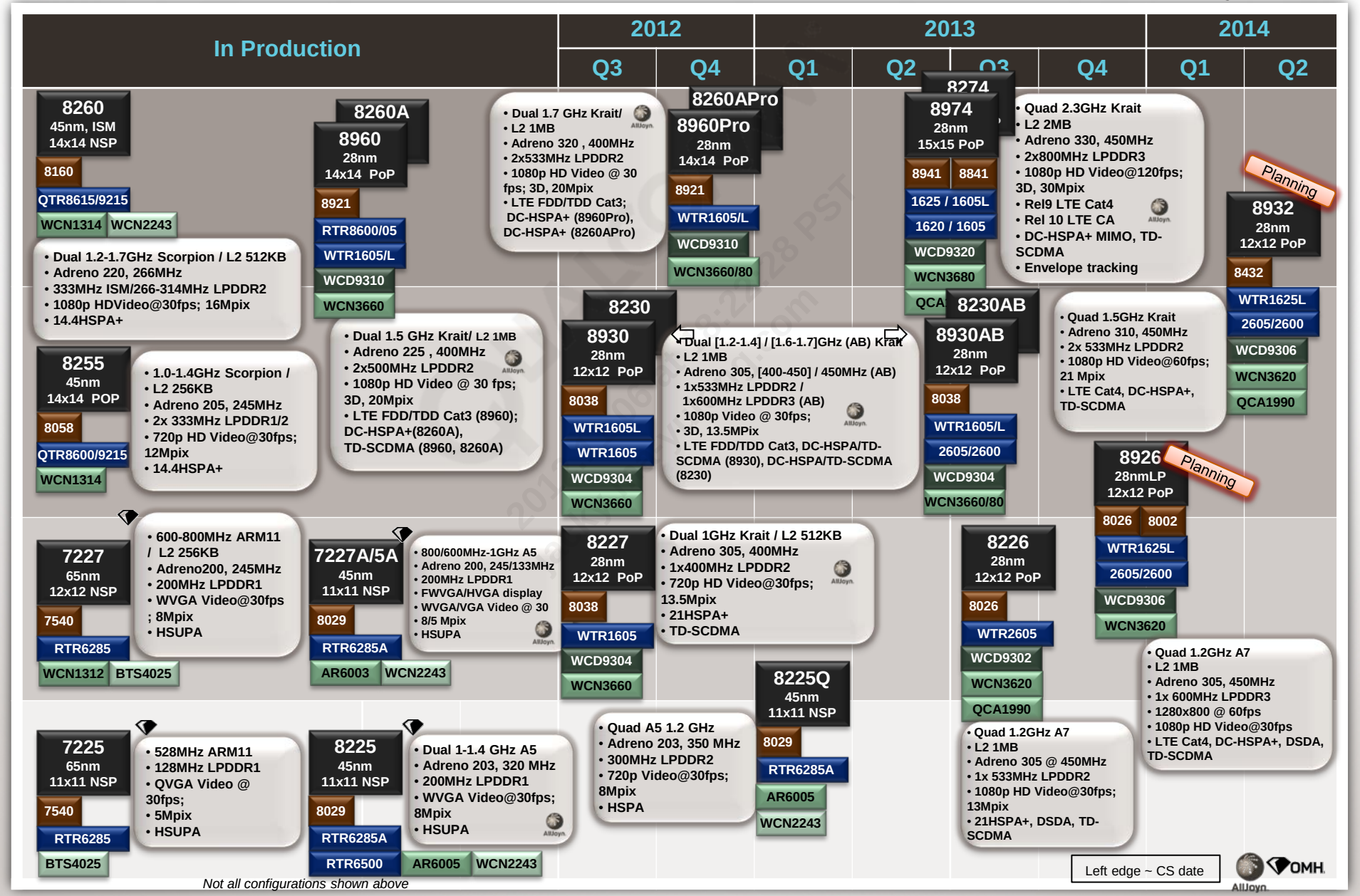
November 2012

(Disclosed Under NDA)

QMC MSM Smartphone Roadmap – CDMA/Multi-Mode

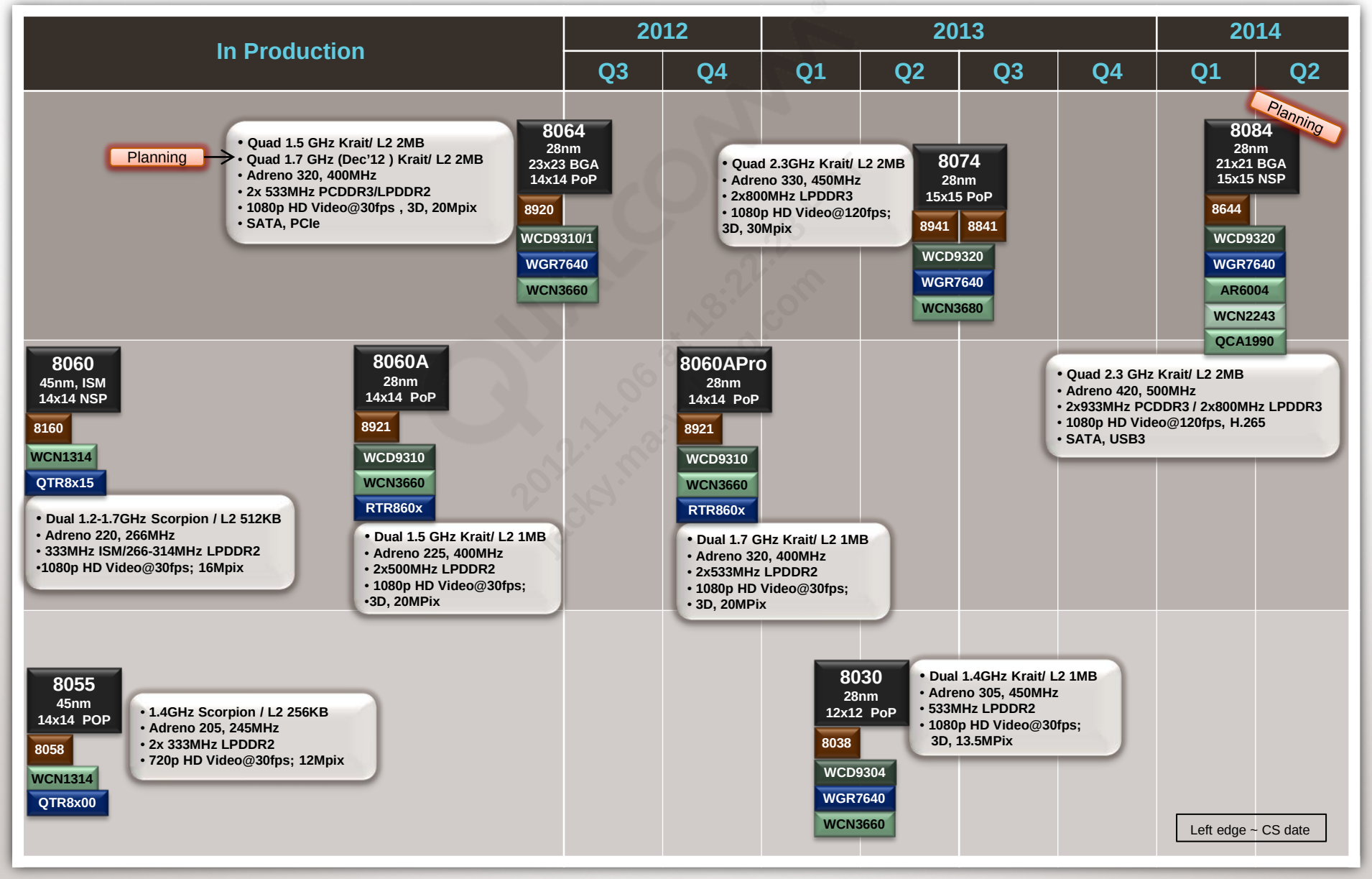


QMC MSM Smartphone Roadmap – LTE / UMTS



QMC Computing Roadmap

snapdragon by Qualcomm



Snapdragon Roadmap

Snapdragon System 1 Processors

2009
High Volume Smartphones

S1 Class includes:

QSD8650
QSD8250
MSM7627
MSM7227
MSM7625
MSM7225
MSM7627A
MSM7227A
MSM7625A
MSM7225A

Snapdragon System 2 Processors

2010
High Performance Smart Phones & Tablets

S2 Class includes:

MSM8655
MSM8255
APQ8055
MSM7630
MSM7230

Snapdragon System 3 Processors

2011
For Multi-tasking & Advanced Gaming

S3 Class includes:

MSM8660
MSM8260
APQ8060

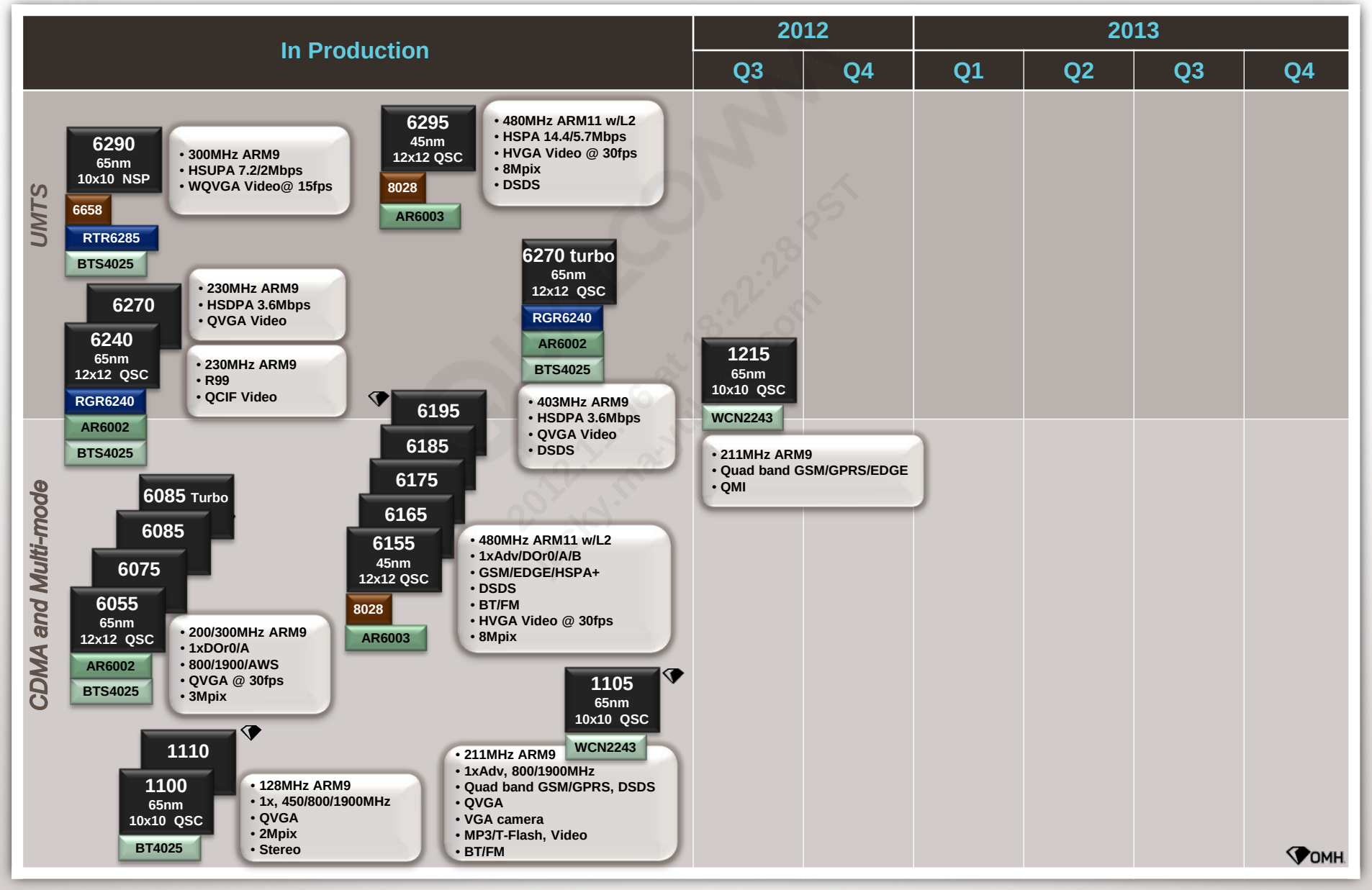
Snapdragon System 4 Processors

2012
Next Generation Devices in Multiple Segments

S4 Class includes:

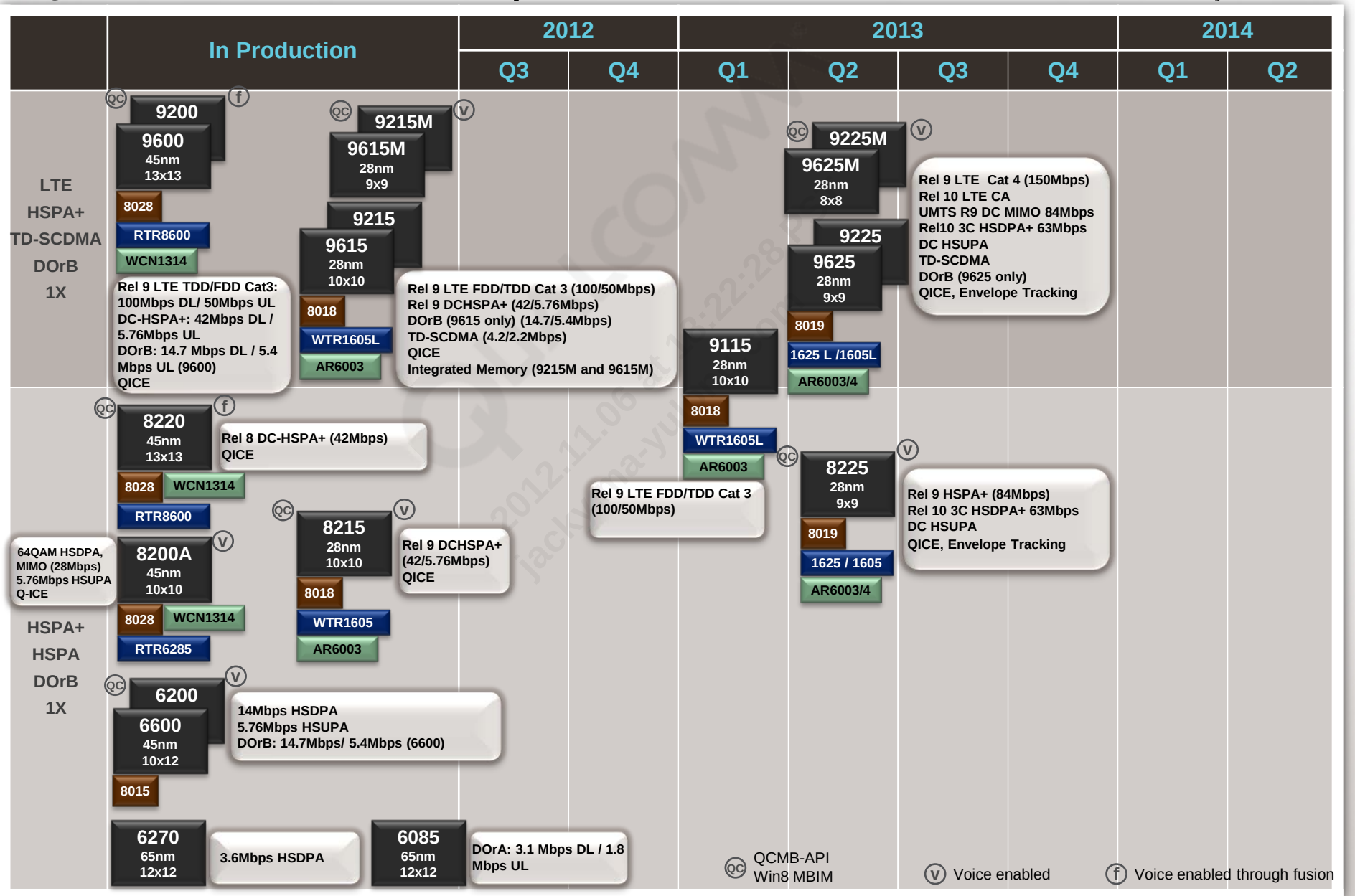
APQ8064
APQ8060A
MPQ8064
MSM8960Pro
MSM8960
MSM8660A
MSM8260A
APQ8030
MSM8930
MSM8630
MSM8230
MSM8627
MSM8227
MSM8625
MSM8225

QMC Feature Phone Roadmap



QMC MDM Roadmap

gobi by Qualcomm



New Gobi Brand and Roadmap

Leadership in 3G/4G Modem Technology

Product Tiers

Gobi ™ 4G LTE Advanced (150Mbps)
MDM9625*, MDM9225

Gobi™ 4G LTE (100Mbps)
MDM9600*, MDM9200, MDM9615*, MDM9215

Gobi™ 4G (42-84Mbps)
MDM8220, MDM8215, MDM8225

Gobi™ 3G (3-21Mbps)
MDM6085*, MDM6270, MDM6200, MDM6600*, MDM8200A

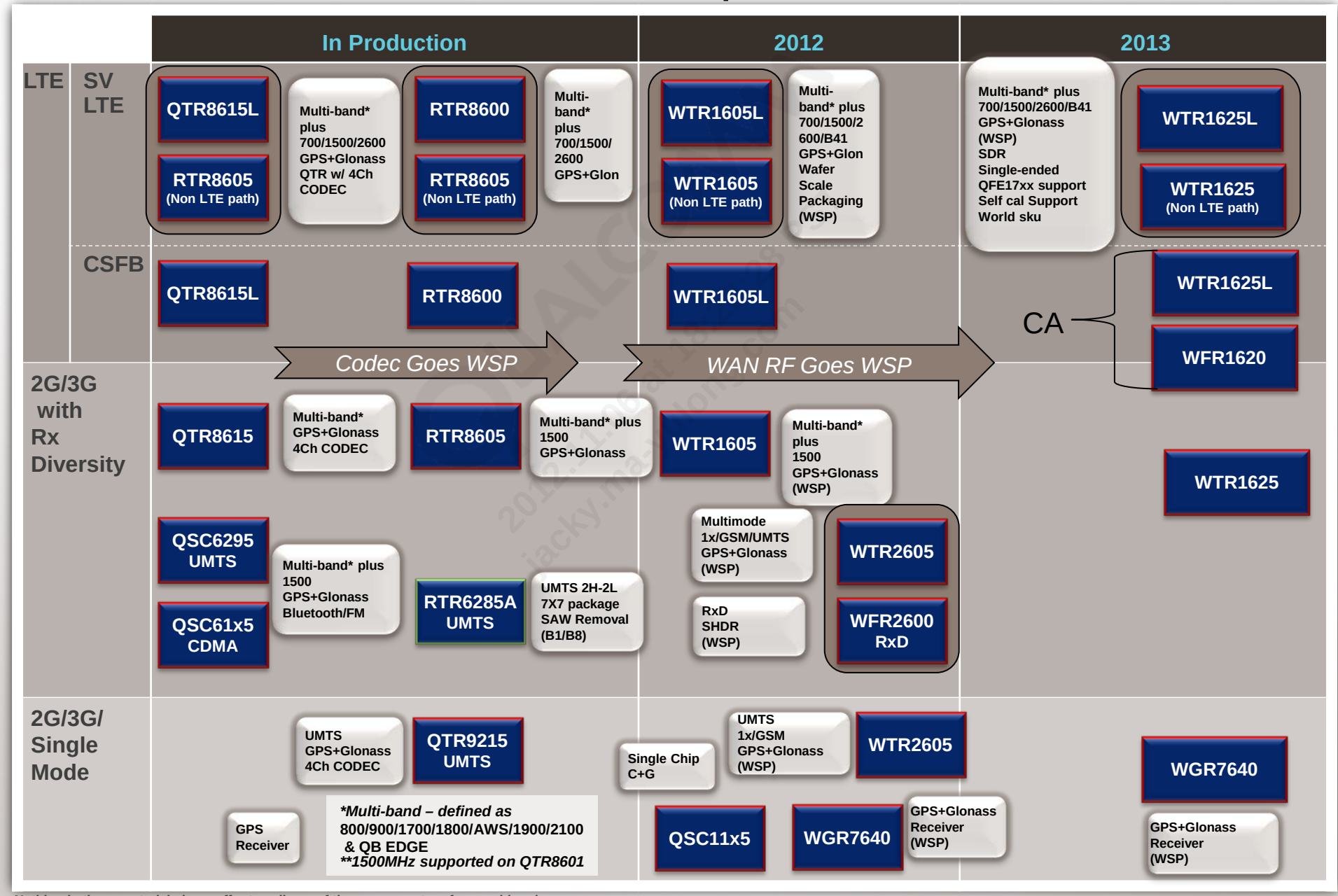
* Includes EVDO support

These chips include integrated GPS and offer best-in-class modem performance by incorporating the latest version of Qualcomm's Interference Cancellation & Equalization (Q-ICE) algorithm ** - leading to higher user data throughputs and increased network capacity.

** Q-ICE included in Gobi 4G and higher products

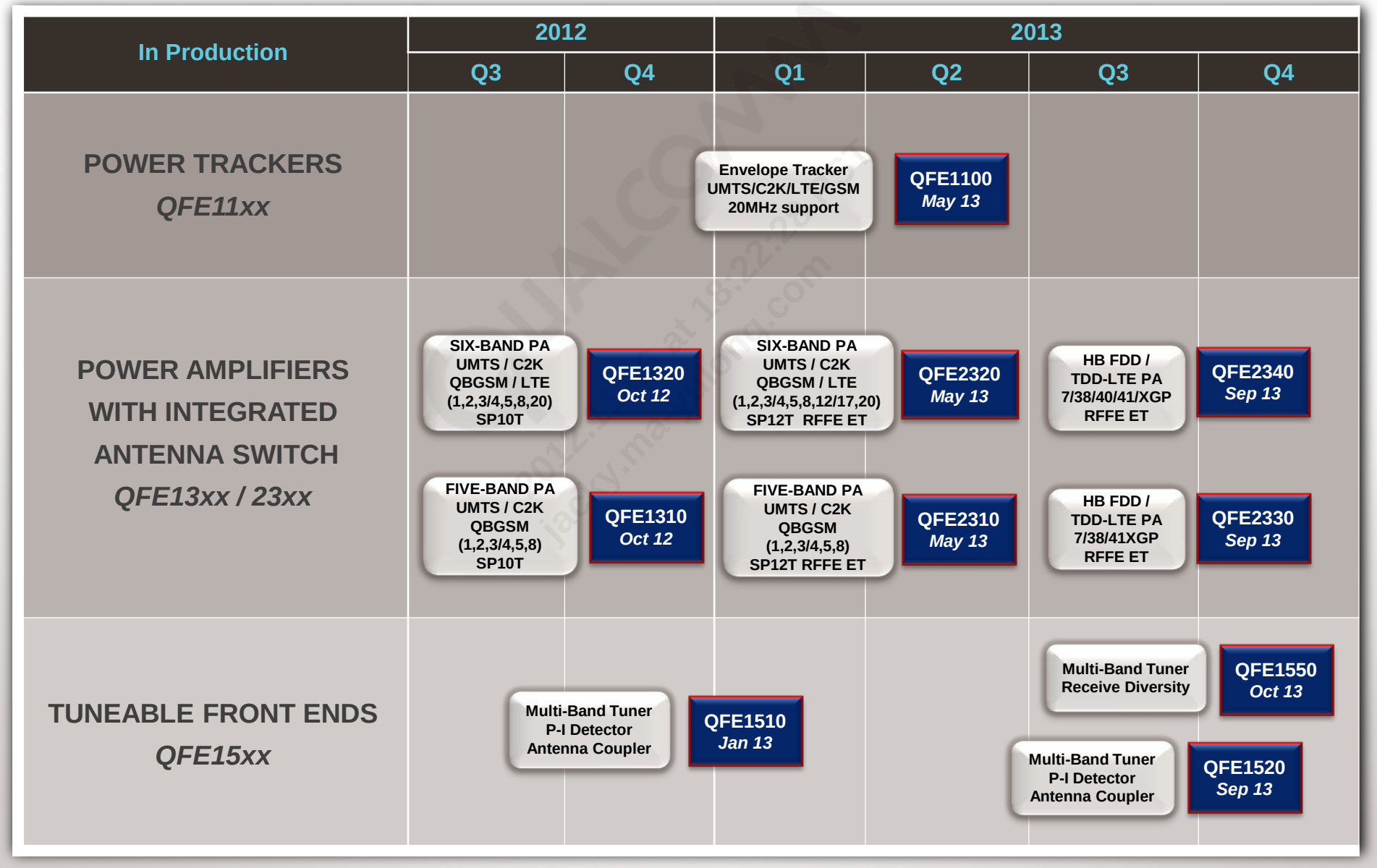
RF Product/Solutions Roadmap

0.18um RFCMOS 65nm RF CMOS

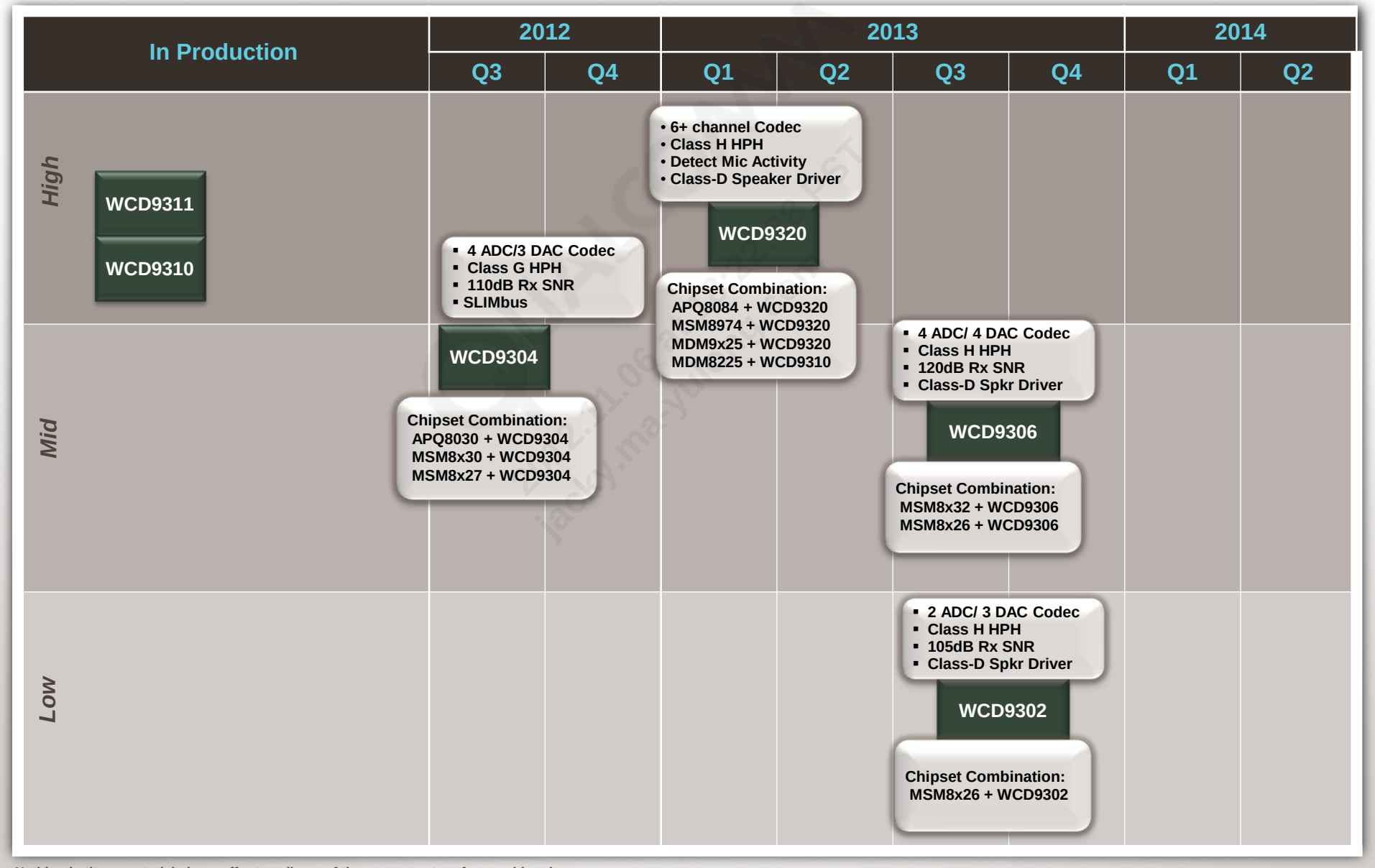


QFE Product / Solutions Roadmap

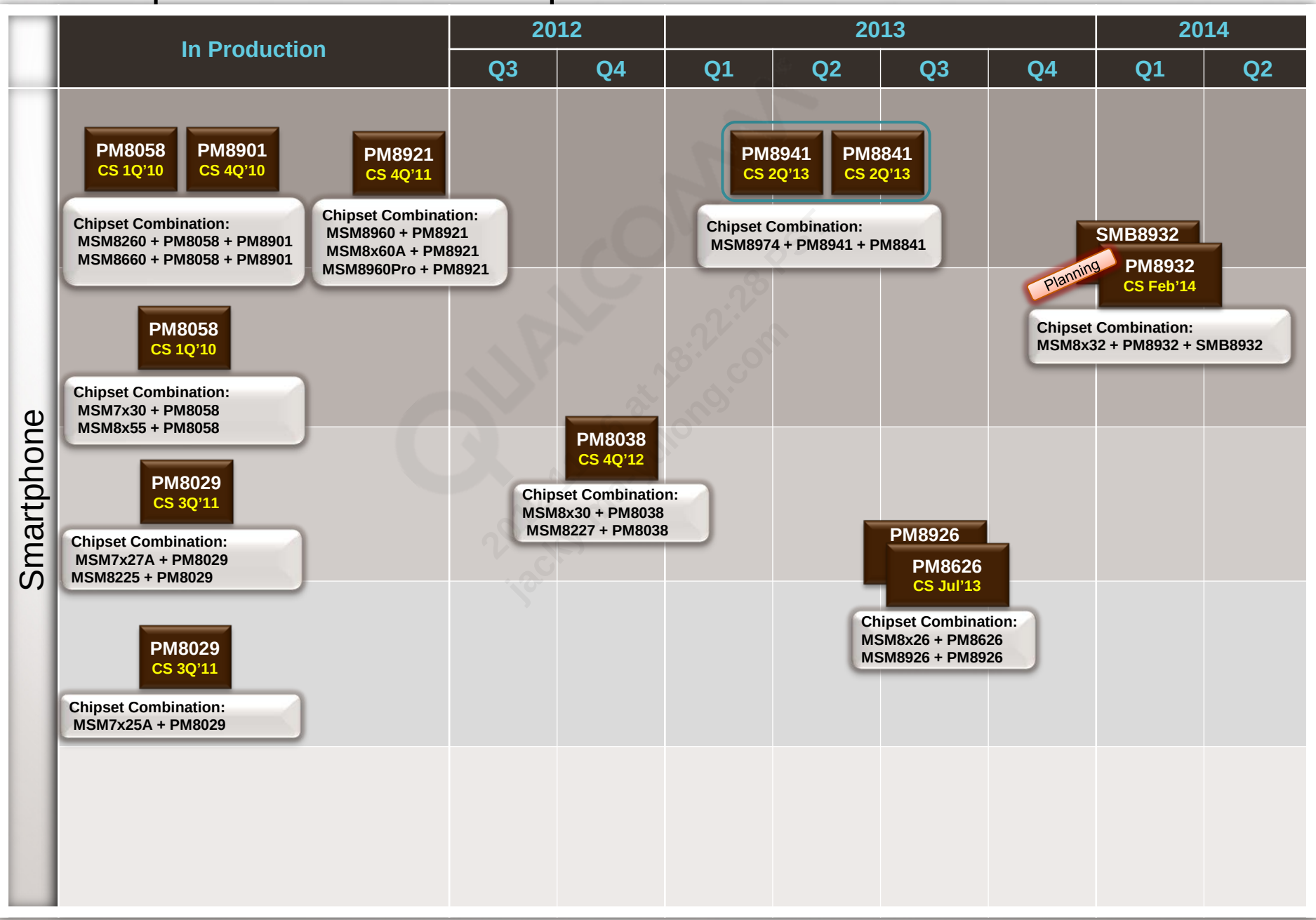
P/N
CS Date



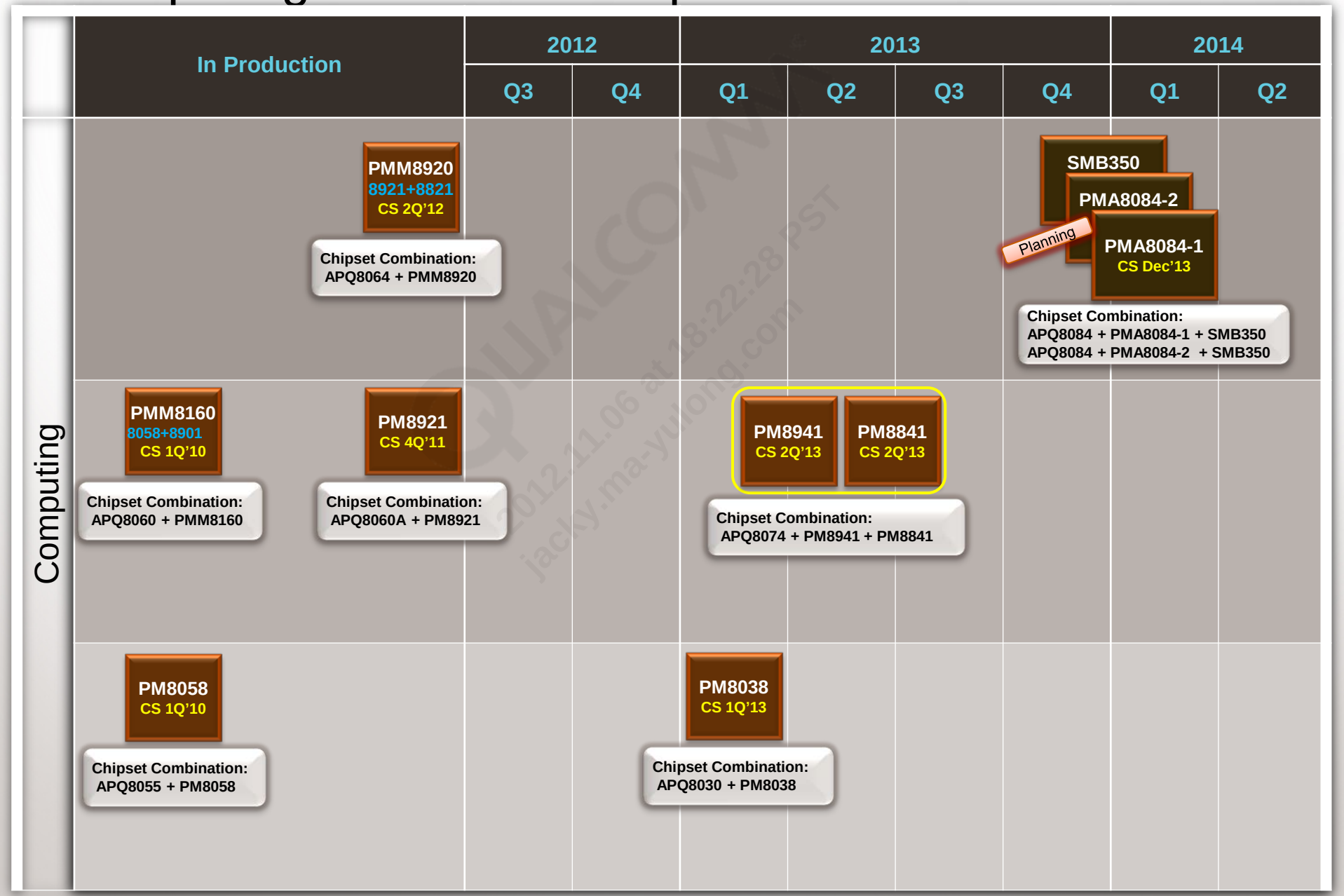
Codec Roadmap



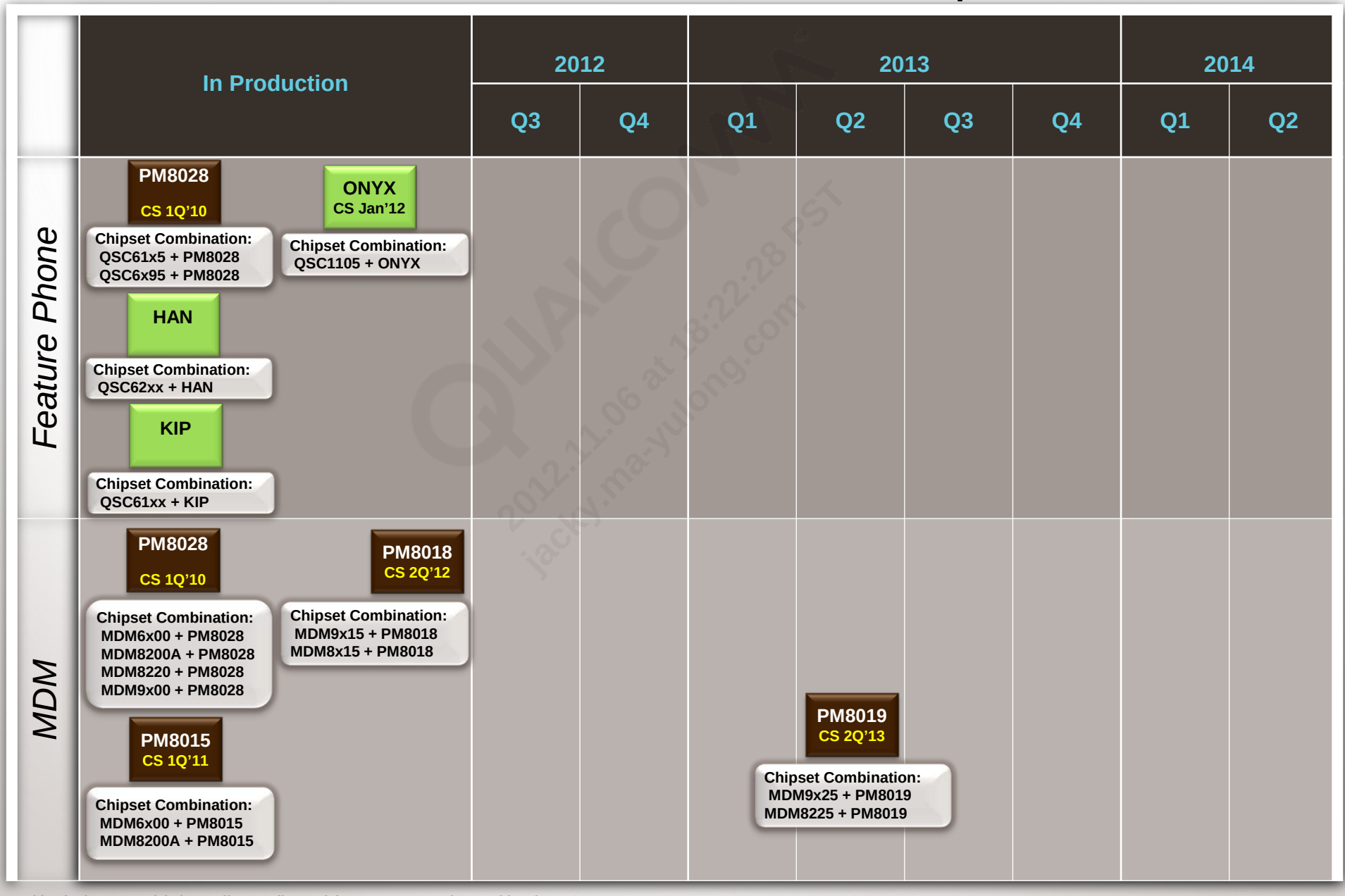
Smartphone PMIC Roadmap



Computing PMIC Roadmap

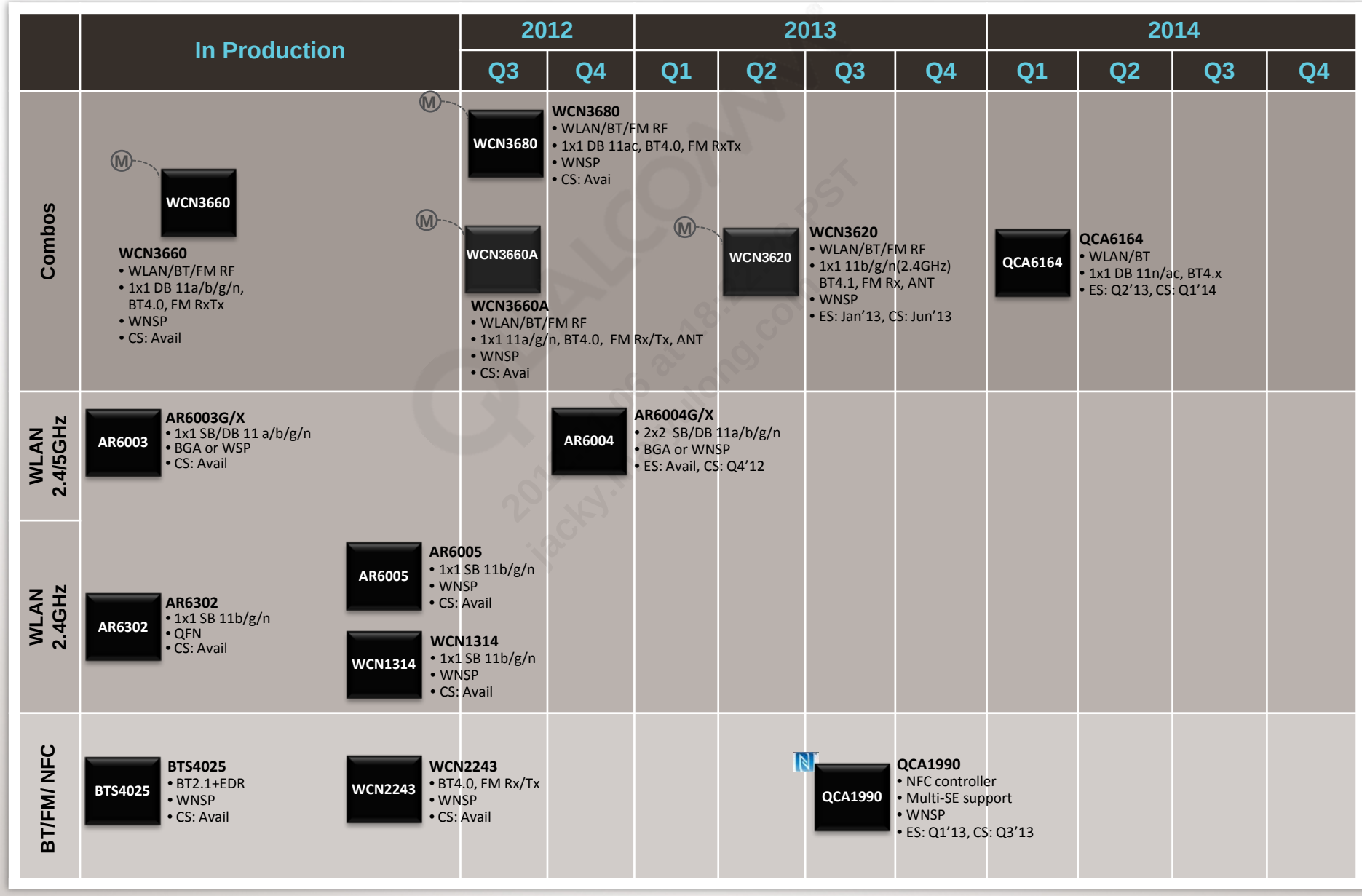


Feature Phone & MDM PMIC Roadmap

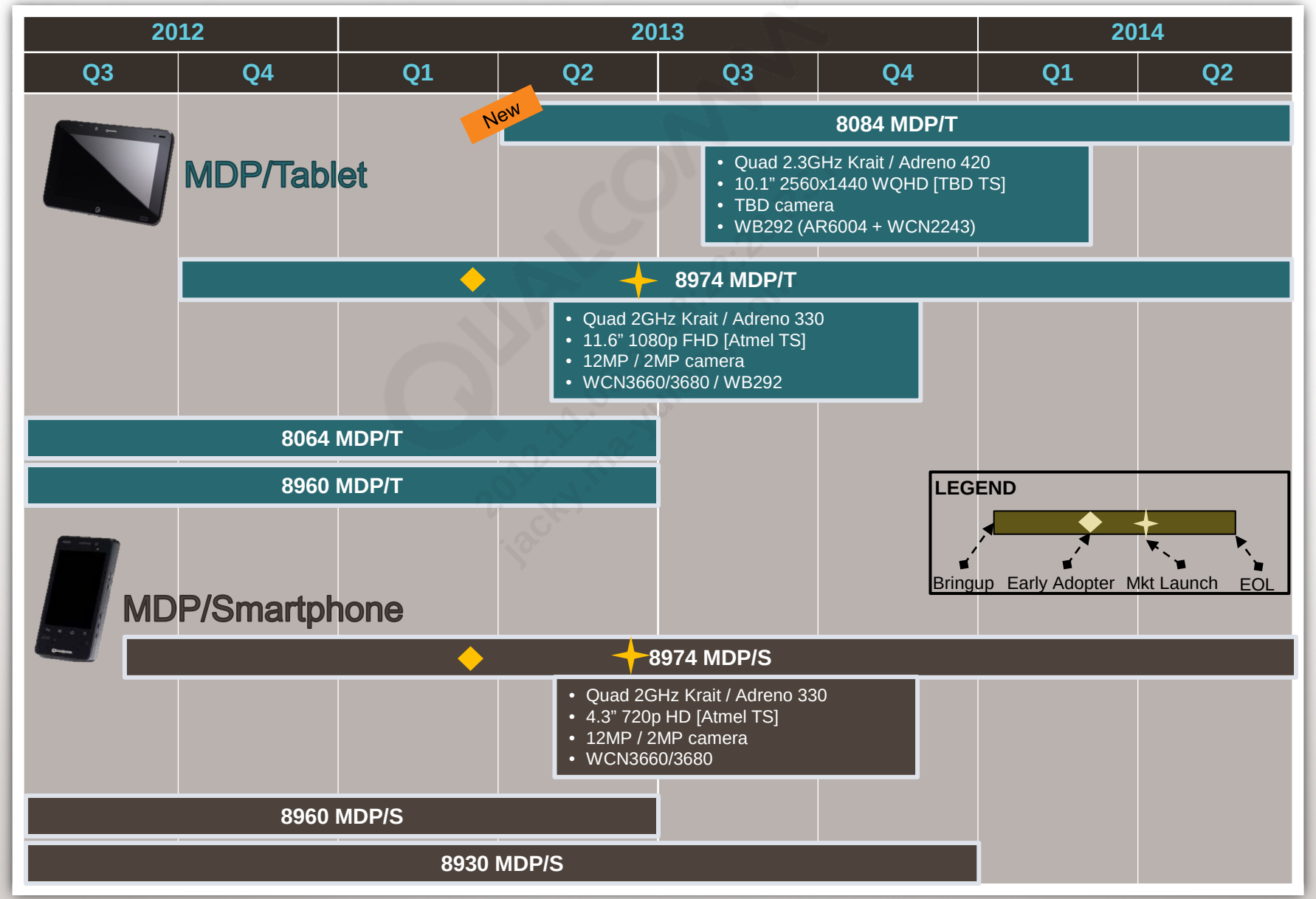


Mobile Phone Connectivity Roadmap

Ⓜ Interface to 28 nm baseband MSMs with integrated connectivity



Mobile Development Platforms Roadmap



Dragonboard Roadmap

In Production	2012		2013				2014	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2

Dragonboard

Planning

8074 Dragonboard [INTERNAL]

New

8064 Dragonboard [INFORCE]

8060A Dragonboard [INTRINSYC]

8060 Dragonboard [WNC/BSQR]

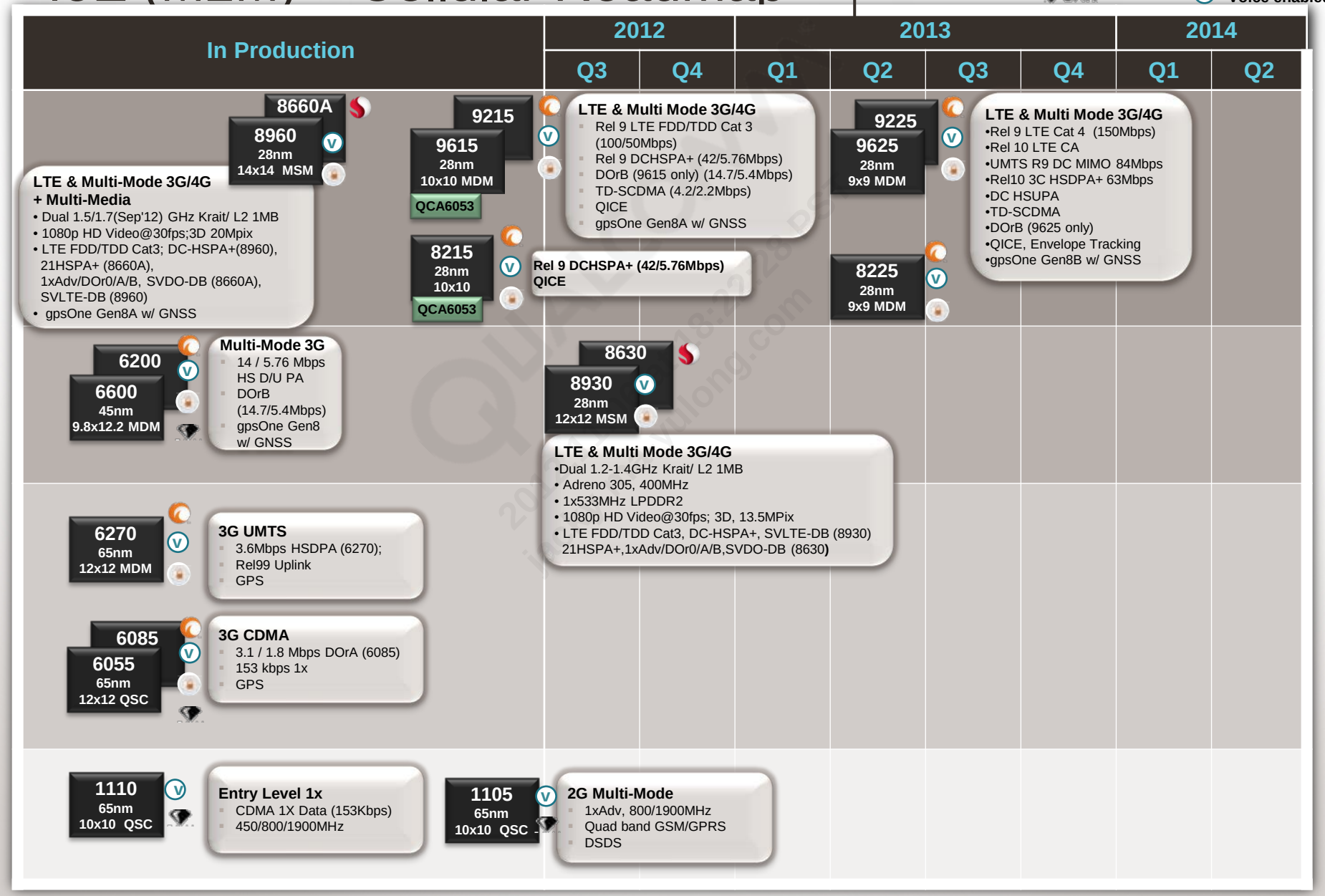
7x27A Dragonboard [WNC/BSQR]

LEGEND

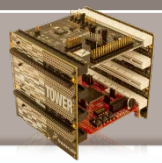
Kickoff Internal Avail External Avail

IoE (M2M) – Cellular Roadmap

gobi | snapdragon | SecureMSM™ | OMH | Voice enabled



IoE – WiFi Client Roadmap

	In Production	2012 Q1	2012 Q2	2012 Q3	2012 Q4	2013 1H	2013 2H
Silicon	AR4100 1x1 11n SB Wi-Fi SiP - FCC Certified Low Energy, SPI interface	AR4100P 1x1 11n SB Wi-Fi SiP - FCC Certified Low Energy, SPI interface **IPv4/6 on SIP**			QCA4002 1x1 11n SB Wi-Fi QFN- Zero Cal. Hostless support Expanded memory SiP option		
Software	**IWSR-1** ➢ Thin Driver & FW ➢ Fast wake/sleep ➢ FSCL MQX OS Support ➢ Security on SIP	**IWSR-1.4** ➢ WPS 2.0 ➢ WFA ASD ➢ FSCL OS Update HW : Freescale TWR-WIFI-AR4100	**IWSR-2.0** ➢ IPv4/6 on SIP ➢ MCU driver Portability ➢ Battery Operation ➢ Fast boot HW: ➢ SP137 ➢ Freescale TWR	**IWSR-2.01** ➢ OTA Updates & Manufacturing ➢ Wi-Fi Direct client ➢ OS Updates HW: ➢ SP137 ➢ Freescale TWR	**IWSR-3.0** ➢ WiFi-Direct ➢ SEP2.0 ➢ Enterprise Security ➢ Hostless battery HW: ➢ SP141 ➢ Freescale TWR		
Ref HW Designs	 ➢ Freescale Tower platform ➢ TWR-WIFI-AR4100 – WiFi card	**QCA – SP137** ➢ AR4100P + EFM32 MCU[Energy Micro]			**QCA – SP141** ➢ QCA 4002 QFN DVK ➢ Small/modular form factor ➢ MCU option		

* Milestones are RC/production

IoE – PLC Client Roadmap

	In Production	2012 Q1	2012 Q2	2012 Q3	2012 Q4	2013 1H	2013 2H
Silicon	INT6400 1x1 11n SB Wi-Fi SiP - FCC Certified Low Energy, SPI interface	QCA7000 HPGP SoC , QFN Integrated: MAC, PHY, Memory, AFE,PMU SPI/UART Low cost & Power Commercial Temp		QCA7000I Industrial Temp QCA7000	QCA7002 + IPv4/6 on SoC support PLANNING		
Software	**PL-14 SW-R1** ➢ QCA7000 SW driver & API ➢ Documentation	**HPGP-R1.0** ➢ Cert'd HPGP 1.1 ➢ BW Sharing ➢ Power Save ➢ SLAC ➢ UART&SPI Driver ➢ Priority Boosting ➢ MSTR/SLAVE ➢ Remote GPIO ➢ PTS HW: ➢ PL-16		**HPGP-R1.1** ➢ Transparent Mode ➢ Ethernet support ➢ Customer app option ➢ Advanced Power save in/out AV Networks HW: ➢ PL-16 & PL1x PLANNING	**HPGP-R2.0** ➢ IP on Chip ➢ SEP2.0 on chip ➢ MCU driver portability HW: ➢ PL-16 PLANNING		
Ref HW Designs	 PL-14 Pre-Si Emulation DVK	 PL-16 ➢ QCA7000					

* Milestones are RC/production

Qualcomm
TECHNOLOGIES, INC

QRD Product Roadmaps

November 2012
(Disclosed Under NDA)

QRD Roadmap

PCB Compatible

snapdragon by Qualcomm

In Production	2012		2013				2014			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

QRD8930

8930 TD LTE
2Q'13
- Android 4.1
- 3G+LTE (TD LTE)
- x.x" nHD
- TBD camera

QRD8x30

8x30 W/C+G DSDA
1Q'13
- Android 4.1
- UMTS, CDMA, GSM
- Dual SIM DSDA
- 4.7" 720p, 8MP Camera

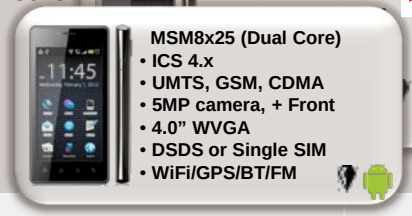
QRD8x26

8x26 DSDA
Sep'13
- Android x.x
- UMTS, CDMA, TD
- Dual SIM DSDA
- 4.7" 720p, 8MP camera
- Additional feature

- DSDA
- DSDS
- LTE
- CDMA
- UMTS
- TDSCDMA
- EDGE/GSM
- Global Markets
- Higher CPU
- Mid tier Products

QRD7x27-WP

QRD8625



MSM7x27A
- WP7.5

MSM8x25 (Dual Core)
- ICS 4.x
- UMTS, GSM, CDMA
- 5MP camera, + Front
- 4.0" WVGA
- DSDS or Single SIM
- WiFi/GPS/BT/FM

QRD8625 DSDA

8625 DSDA C+G
Oct'12
- Android 4.0
- CDMA + GS
- Dual SIM DS
- 4.5" qHD
- 8MP camera
- Additional f

8x25Q W/C+G
Q1'13
- Quad Core
- Android 4.1
- UMTS, CDMA, GSM
- Dual SIM DSDS/DSDA
- 4.x" 720p
- 8MP Camera

QRD8x25Q

QRD7x25A

QRD8225

MSM8x25 (Dual Core)
- ICS 4.x
- UMTS, QB GSM
- 3MP camera, + Front
- 3.5" HVGA
- DSDS or Single SIM
- WiFi/GPS/BT/FM

- 3MP camera, + VGA camera
- 3.5" HVGA or WQVGA
- DSDS or Single SIM
- WiFi/GPS/BT/FM

Entry Level QRD

Not all configurations shown above

QRD7kA + 8x25 Software Roadmap - Summary

8x25 Version 2.0 Feature Additions

Release: September 2012

- AMSS 2.0 MP / 4.0 AP
- Jellybean 4.1
- Camera enhancements
  - High dynamic range (HDR)
  - Burst mode
  - Continuous auto-focus
  - Resolution up-scale by software
- CSVT
- Factory Tools Improvements
  - Emergency boot via PIN Reset
  - Auto-detect some eMMC memory
  - Fast factory boot
  - SD card utils (auto-flash & QCN)
- BT4.0 Smartready
- HTTP Live Streaming
- Widevine L3
- Dual SIM Pin Lock

Recommended* QMSS Versions for 7kA

OS			
CDMA	1.1	2.0	N/A
UMTS	1.6	2.0	N/A
EDGE	1.6	N/A	N/A

* Recommended major version, minor releases also applicable

Recommended* QMSS Versions for 8x25

OS			
CDMA	N/A	1.0	2.0
UMTS	N/A	1.0	2.0
EDGE	N/A	N/A	2.0

Planned features being disclosed for discussion and are subject to change without notice. Not all planned features listed. Release dates subject to change without notice.

QRD7225A DSDS: W/G+G (option for C+G, G+G)

High Level Specifications

- MSM7x2xA, RTR6285A/RTR6500, WCN2243, AR6005, PM8029
- Android 2.3.5/4.0
- UMTS W/G+G DSDS solution (C+G DSDS and G+G options)
  - 7.2/5.7Mbps HSPA solution
  - 2100/1900/900/850MHz UMTS
  - QB GSM
  - (Option: 800MHz CDMA)
- 3.5” Capacitive HVGA Multi-Touch LCD
- 4Gb NAND, 4Gb LPDDR1 (MCP)
- microSD (SD, SDHC, SDXC)
- MP3/AAC/WMA/Real
- 3.5mm stereo headset jack
- Dual mic noise cancelation (Fluence)
- GPS
- FM Rx (RDS opt)
- Sensors – Proximity, Light, Accelerometer, E-compass
- USB2.0 (microUSB)
- BT2.1+EDR (later up to 4.0)
- WiFi 802.11b/g/n (2.4GHz)

Optimized Features

- Low power DSDS (w/ tuneaway)
- 2G Smartphone optimisation (via app note)
- CTA/China Unicom lab verified
- 2MP to 3MP image scaling

Differentiating Features

- 720p Video Playback (sw codec)
- Language translations (12-15 languages)
- Alljoyn peer-to-peer

Attributes

- 138.5x71.5x9.6mm
- BOM: <$53
- FOB <$80
- CS: Dec’11
- SKU 3-1

QRD8x25 DSDS: W/G+G (option for C+G)

Attributes

- 124.0 x 64.2 x 10.5mm
- BOM: <$83
- FOB <$97
- CS: Jun ’12
- SKU 5/6

High Level Specifications

- MSM8x25 (1.0, 1.2 or 1.4 GHz), RTR6285A/RTR6500, WCN2243, AR6005, PM8029
- Android 4.0/4.1
- UMTS W/G+G DSDS solution
  - 7.2/5.7Mbps HSPA solution
  - 2100/1900/850MHz UMTS
  - QB GSM
  - (Option: 800/1900MHz CDMA)
- 4.0” Capacitive WVGA Multi-Touch LCD
  - Option: qHD
- 5MP Rear Camera; VGA front camera
- 4GB eMMC, 4Gb LPDDR1 (eMCP)
- microSD (SD, SDHC, SDXC)
- MP3/AAC/WMA/Real
- 3.5mm stereo headset jack
- Dual mic noise cancelation (Fluence)
- GPS, FM Rx (RDS opt)
- Sensors – Proximity, Light, Accelerometer, E-compass, Gyro
- USB2.0 (microUSB)
- BT2.1+EDR (later up to 4.0)
- WiFi 802.11b/g/n (2.4GHz)

Optimized Features

- Improved Adreno 203 graphics @300MHz
- Slimmer and sleeker ID (10.5mm)
- Double sided L-shaped PCB
- CTA/China Unicom lab verified
- China Telecom lab verified

Differentiating Features

- 720p Video Playback (sw codec)
- Language translations (12-15 languages)
- Alljoyn peer-to-peer
- Content Adaptive Back Light (CABL)

QRD8x25 DSDA (Dual SIM, Dual Active)

Attributes

- 134 x 67.7 x 9.7 mm
- BOM: <$89
- FOB: <$TBD
- CS: Oct ’12
- SKU 9

High Level Specifications

- MSM8x25 (1.2 and 1.4 GHz), RTR6500, WCN2243, AR6005, PM8029
  - Spreadtrum 6610 (GSM)
- Android 4.0
- CDMA
  - 7.2/5.7Mbps HSPA solution
  - 800/1900MHz CDMA
  - Tri-GSM (900/1800/1900)
- 4.5” Capacitive qHD Multi-Touch LCD
- 8MP Rear Camera; 720p Front
- 4GB eMMC, 6Gb LPDDR1 (eMCP)
- MP3/AAC
- 3.5mm stereo headset jack
- Dual mic noise cancelation (Fluence)
- GPS
- FM Rx (RDS opt)
- Sensors – Proximity, Light, Accelerometer, E-compass, Gyro
- USB2.0 (microUSB)
- BT2.1+EDR (later up to 4.0)
- WiFi 802.11b/g/n (2.4GHz)

Optimized Features

- Slimmer and sleeker ID (9.7mm)
- CTA/China Telecom lab verified
- Content Adaptive Back Light (CABL)

Differentiating Features

- DSDA
- FMC 2.0
- 8MP Camera
- qHD Display

QRD8x25Q Quad Core DSDS: W/G+G (C+G Option)

Attributes

- TBD
- BOM: $TBD
- FOB: $TBD
- CS: Mar ’13
- SKU D

High Level Specifications

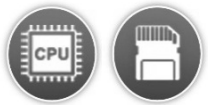
- MSM8x25Q (1.2 GHz), RTR6285A/RTR6500, WCN2243, AR6005, PM8029
- Android 4.1
- UMTS W/G+G DSDS solution
  - 7.2/5.7Mbps HSPA solution
  - 2100/1900/850MHz UMTS
  - QB GSM
  - (Option: 800/1900MHz CDMA)
- 4.5” Capacitive qHD Multi-Touch LCD
- 5MP Rear Camera; VGA front camera
- 4GB eMMC, 8Gb LPDDR2 (eMCP)
- microSD (SD, SDHC, SDXC)
- MP3/AAC/WMA/Real
- 3.5mm stereo headset jack
- Dual mic noise cancelation (Fluence)
- GPS, FM Rx (RDS opt)
- Sensors – Proximity, Light, Accelerometer, E-compass, Gyro
- USB2.0 (microUSB)
- BT2.1+EDR (later up to 4.0)
- WiFi 802.11b/g/n (2.4GHz)

Optimized Features

- Improved Adreno 203 graphics @350MHz
- 4-Lane MIPI display support
- China Unicom lab verified
- China Telecom lab verified

Differentiating Features

- Quad Core
- LPDDR2 memory



*Final feature set still under review

QRD8x30 DSDA: W/G+G & C/G+G

High Level Specifications

- MSM8x30, WTR2605, WCD9304, WCN3660, PM8038, SC6610
- Android 4.1 JB
- UMTS W/G+G & CDMA C/G+G DSDA
  - 21/5.7Mbps HSPA+ solution
  - 2100,1900,900/850MHz UMTS
  - Quad-band GSM
  - 800MHz CDMA
- 4.7” Multi-Touch 720p Display
- 8MP rear camera
- 8GB eMMC, 1GB LPDDR2 12x12PoP
- microSD
- GPS
- BT4.0; WiFi 802.11 b/g/n; FM
- USB2.0
- Sensors – Proximity, Light, Accelerometer, Gyro, E-compass
- MIDI/MP3/AAC/etc.
- 3.5mm stereo headset jack
- Dual-mic noise cancelation (Fluence)
- 2000 mAhr battery

Optimized Features

- Premium (HD) Display, Imaging, Audio Solution
- Thickness reduction design (9.6mm)
- Dual SIM / Dual Active
- PC Browsing Experience
- Full China Unicom/Telecom support

Differentiating Features

- HD 4.7” 720p display
- HD 1080p30 Video capture/playback
- HD 720p30 front camera
- HD 8MP rear camera
- Graphics: Adreno305 450MHz

Attributes

- 139.8x69.6x9.65mm
- BOM: <$95
- FOB <$135
- CS: Mar/Apr’13
- SKU 1 / 2

QRD8x26 DSDA: W/G+G (option for C/G+G)

Attributes

- 138.5x71.5x9.6mm
- BOM: <$82
- FOB <$115
- CS: Sep'13
- SKU 1

High Level Specifications

- MSM8x26, WTR2605x2, WCD9302, WCN3620, PM8026
- Android x.x
- UMTS W/G+G DSDA solution (C/G+G DSDA option)
  - 21/5.7Mbps HSPA+ solution
  - 2100/1900/900/850MHz UMTS
  - QB GSM
  - (Option: 800MHz CDMA)
- 4.7" Capactive Multi-Touch 720p Display
- 8GB eMMC, 1GB LPDDR2 PoP
- microSD
- MP3/AAC/WMA/Real
- 3.5mm stereo headset jack
- Dual mic noise cancelation (Fluence)
- GPS
- FM
- Sensors – Proximity, Light, Accelerometer, Gyro, E-Compass
- USB2.0
- BT4.0
- WiFi 802.11b/g/n

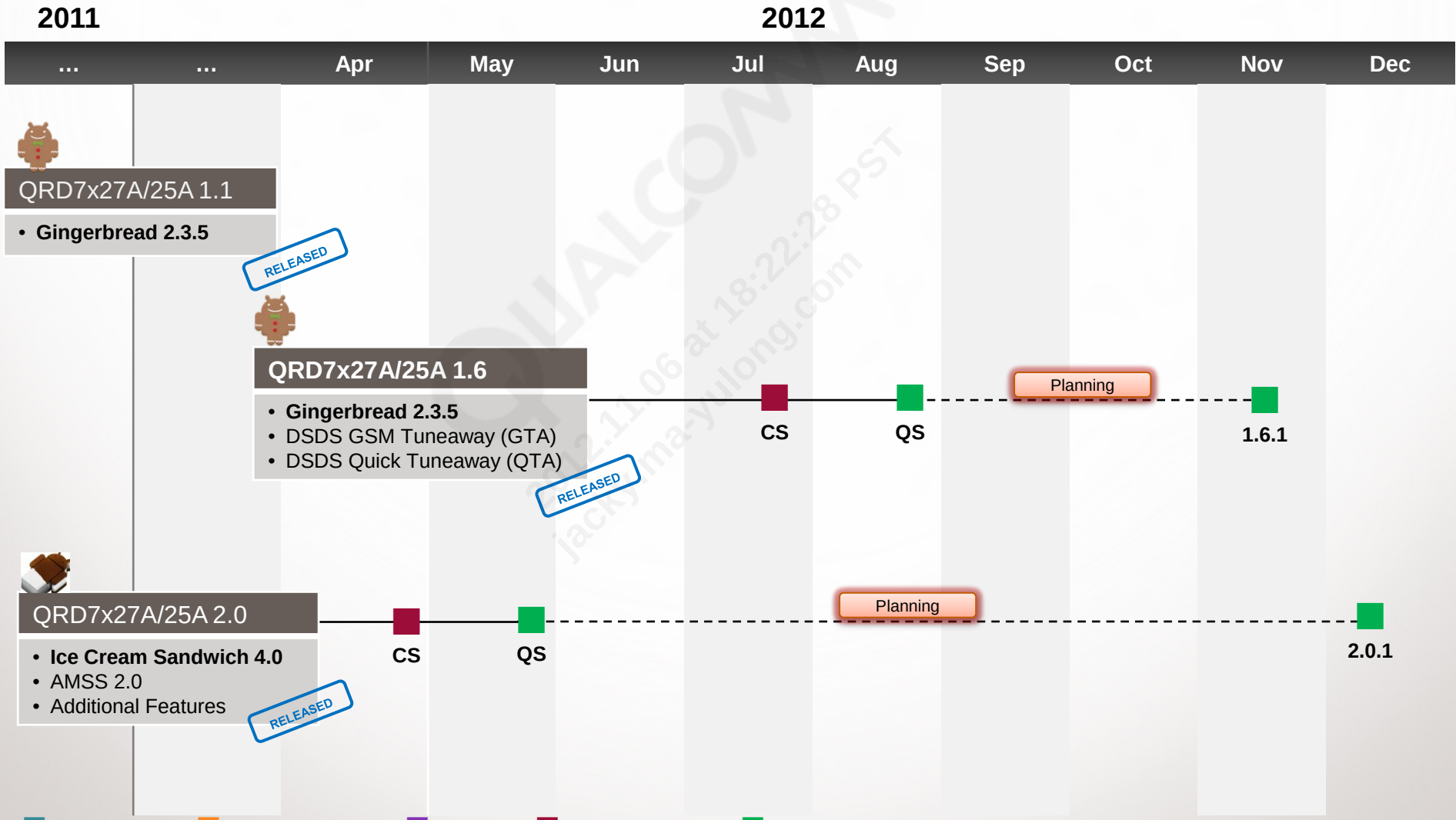
Optimized Features

- Premium (HD) Display, Imaging, Audio Solution
- Thickness reduction design (9.6mm)
- Dual SIM / Dual Active
- PC Browsing Experience
- Full China Unicom/Telecom support

Differentiating Features

- HD 4.7" 720p display
- HD 1080p30 Video capture/playback
- HD 720p30 front camera
- HD 8MP Camera (w/ Premium solution)
- Image stabilization

QMSS 7x27A Roadmap

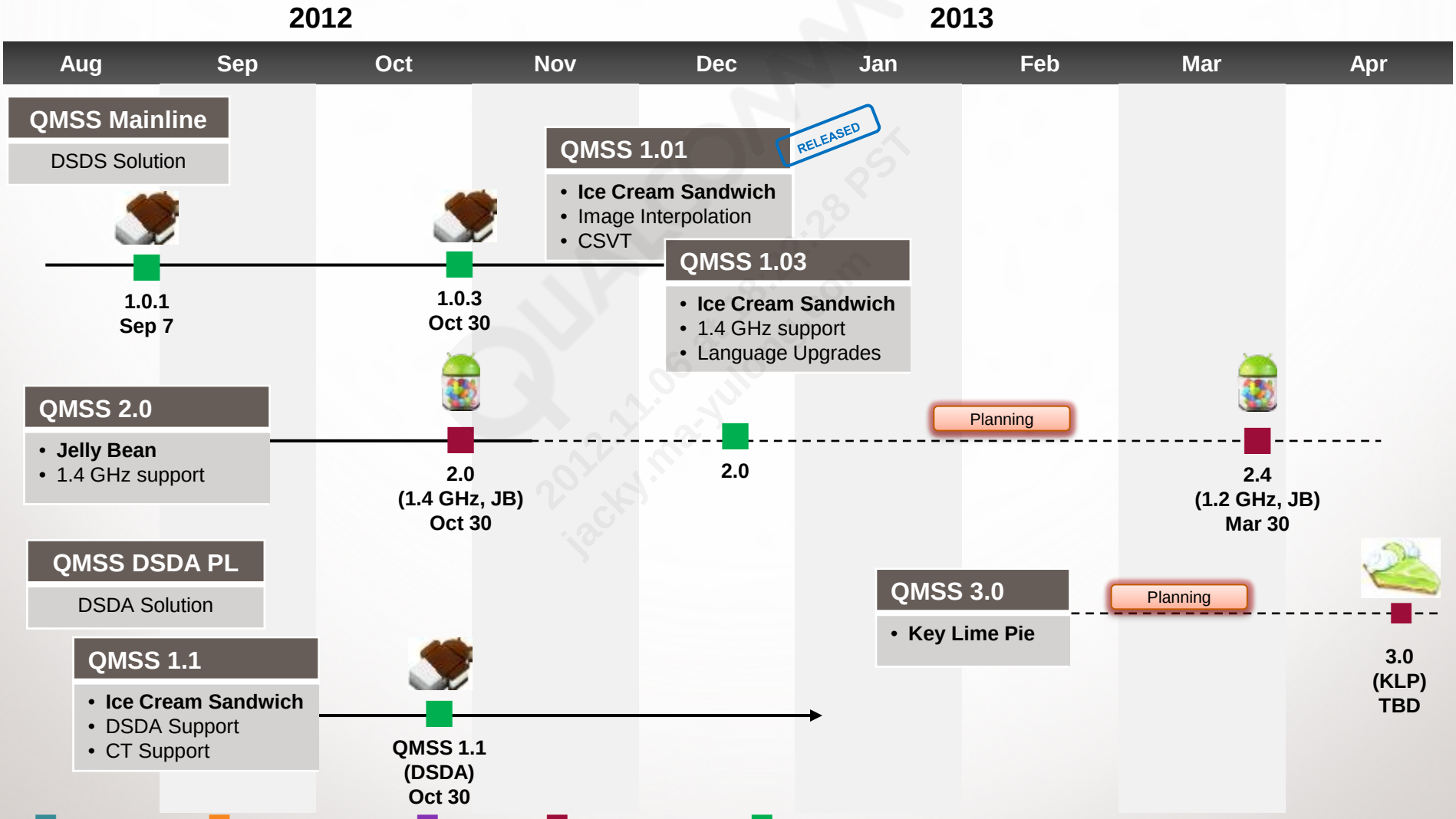


All dates are end of month unless noted. Dates have dependencies, including Google deliverables, and are subject to change without notice.

***** ICS release date dependent on date of Google public push and scope of changes in ICS

NOTE: Not all features listed

QMSS 8x25 Roadmap



All dates are end of month unless noted. Dates have dependencies, including Google deliverables, and are subject to change without notice.

***** ICS release date dependent on date of Google public push and scope of changes in ICS

NOTE: Not all features listed

QRD7x2xA Software Roadmap (delta)

Version 1.1 Feature Additions

Released: February 2012

- AMSS 1.5 MP / 1.0 AP
- Gingerbread 2.3.5
- CDMA + GSM DSDS
- DSDS Power Reduction
  - Unified Paging Firmware (UMTS)
  - Wake Up Manager (EVDO)
- HD Video playback (720p)
- China Unicom Requirements
  - Handset specifications (UI + Modem)
  - Pre-tested ISV apps
  - Custom features
- AllJoyn (P2P)
- Content Adaptive Backlighting
- SRS Audio Post –processing
- General UI Enhancements
  - 12 Language translation packs
  - Contacts
  - Dialing
  - Power on/off
  - Performance

Version 2.0 Feature Additions

Released: May 2012

- AMSS 2.0
- Ice Cream Sandwich
- WiFi Direct
- FOTA

Version 1.6 Feature Additions

Release: August 2012

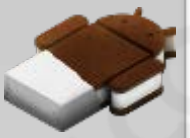
- AMSS 1.6 / 1.0 AP
- Gingerbread 2.3.5
- DSDS Improvements
  - GSM Tuneaway (GTA)
  - Quick Tuneaway (QTA)
  - Dual Stack IPv4/IPv6
- QRD7225A 1GHz CPU support

Planned features being disclosed for discussion and are subject to change without notice. Not all planned features listed. Release dates subject to change without notice.

QRD8x25 Software Roadmap

Version 1.0 Feature

Release: June 2012



- AMSS 1.0 MP / 1.0 AP
- Ice Cream Sandwich 4.x
- WCDMA + GSM DSDS
  - UMTS Optimized Design
- DSDS Power Reduction
- HD Video playback (720p)
- Flash11
- China Unicom Requirements
  - Handset specifications (UI + Modem)
  - Pre-tested ISV apps
  - Custom features
- SRS Audio Post –processing
- General UI Enhancements
  - Contacts
  - Dialing
  - Power on/off
  - Performance
- Globalization
  - 12 Languages

Version 1.1 Feature

Release: July 2012

- AMSS 1.0 MP / 1.0 AP
- Multi-mode Configuration
- Double-sided PCBA design
- Video Chat
- Camera Enhancements
  - Facial Processing
  - High Dynamic Range Mode
  - Panorama Mode
- Increased Graphics Performance
  - Adreno 203
- China Telecom Requirements
  - Handset specifications (UI + Modem)
  - Pre-tested ISV apps
  - Custom features
- WiFi Direct
- Globalization
  - 12 Languages

Planned features being disclosed for discussion and are subject to change without notice. Not all planned features listed. Release dates subject to change without notice.

Qualcomm
TECHNOLOGIES, INC

Chipset Features Overview

November 2012

Feature Comparison – Smartphones

FEATURES	MSM7x25A	MSM7x27	MSM7x27A	MSM8x25	MSM8x25Q
Part Numbers	MSM7625A (CDMA/Multimode) MSM7225A (UMTS)	MSM7627 (CDMA/Multimode) MSM7227 (UMTS)	MSM7627A (CDMA/Multimode) MSM7227A (UMTS)	MSM8625 (CDMA/Multimode) MSM8225 (UMTS)	MSM8625Q (CDMA/Multimode) MSM8225Q (UMTS)
Process Tech.	45nm	65nm	45nm	45nm	45nm
Package	576 NSP, 11x11x1.05mm (0.4mm pitch)	560 NSP, 12x12x1.05mm (0.4mm pitch)	576 NSP, 11x11x1.05mm (0.4mm pitch)	576 NSP, 11x11x1.05mm (0.4mm pitch)	576 NSP, 11x11x1.05mm
Processor	ARM Cortex A5/L2– 600MHz-1GHz ARM926 – 400MHz ADSP QDSP5 – 350MHz mDSP QDSP4 – 128MHz	ARM11/L2 – 600MHz ARM926-400MHz ADSP QDSP5-320MHz mDSP QDSP4-128MHz **TURBO:** ARM11/L2 – 800MHz	ARM Cortex A5/L2 – 0.8-1GHz ARM926 – 400MHz ADSP QDSP5 – 350MHz mDSP QDSP4 – 128MHz	Dual ARM Cortex A5/L2 – 1-1.4 GHz ARM926 – 400MHz ADSP QDSP5 – 350MHz mDSP QDSP4 – 128MHz	Quad ARM Cortex A5/L2 - 1.2GHz ARM926 – 400MHz ADSP QDSP5 – 384MHz mDSP QDSP4 – 128MHz
MODEM	1X Rev. A, (7625A) 1xEV-DO Rev. A (7625A) GSM/GPRS/EDGE HSPA	1X Rev. A, (7627) 1xEV-DO Rev. A (7627) GSM/GPRS/EDGE HSPA	1X Rev. A, (7627A) 1xEV-DO Rev. A (7627A) GSM/GPRS/EDGE HSPA	1X Rev. A, (8625) 1xEV-DO Rev. A (8625) GSM/GPRS/EDGE HSPA	1X Rev. A, (8625) 1xEV-DO Rev. A (8625) GSM/GPRS/EDGE HSPA
Peak Data Rates UL/DL	**HSPA**:DL 7.2Mbps/UL 5.76Mbps **DO**: DL 3.1 Mbps / UL 1.8 Mbps **1x**: DL / UL 307.2 kbps	**HSPA**: DL 7.2 Mbps / UL 5.76 Mbps **DO**: DL 3.1 Mbps / UL 1.8 Mbps **1x**: DL / UL 307.2 kbps	**HSPA**: DL 7.2 Mbps / UL 5.76 Mbps **DO**: DL 3.1 Mbps / UL 1.8 Mbps **1x**: DL / UL 307.2 kbps	**HSPA**: DL 7.2 Mbps / UL 5.76 Mbps **DO**: DL 3.1 Mbps / UL 1.8 Mbps **1x**: DL / UL 307.2 kbps	**HSPA**: DL 7.2 Mbps / UL 5.76 Mbps **DO**: DL 3.1 Mbps / UL 1.8 Mbps **1x**: DL / UL 307.2 kbps
Modem Enhancements	Equalizer with Rx Diversity (Type 3i), 4GV (EVRC-B), HDOn, SAIC Dual SIM, Dual Standby	Equalizer with Rx Diversity (Type 3i), 4GV (EVRC-B), SAIC Dual SIM, Dual Standby	Equalizer with Rx Diversity (Type 3i), 4GV (EVRC-B), HDOn, SAIC Dual SIM, Dual Standby	Equalizer with Rx Diversity (Type 3i), 4GV (EVRC-B), HDOn, SAIC Dual SIM, Dual Standby	Equalizer with Rx Diversity (Type 3i), 4GV (EVRC-B), HDOn, SAIC Dual SIM, Dual Standby
Frequency Support	**CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900
RF+PMIC Chipset	RTR6500/RTR6285A + PM8029	RTR6500/RTR6285 + PM7540	RTR6500/RTR6285A + PM8029	RTR6500/RTR6285A + PM8029	RTR6500/RTR6285A + PM8029+external SMPS
Memory	200MHz LPDDR1	200MHz LPDDR1	200MHz LPDDR1	200MHz LPDDR1, eMMC	297MHz LPDDR2, eMMC
LCD Support	16/18/24-bit, HVGA (320x480)	16/18/24-bit, FWVGA (864x480)	16/18/24-bit, FWVGA (864x480)	16/18/24-bit, qHD (960x540)	16/18/24-bit, 720p (1280x720)
MDDI / MIPI	MIPI	Type I, MDDI v1.1	2 lane MIPI	2 lane MIPI	4 lane MIPI
Bluetooth	External BT 3.0 over Fast UART (WCN2243)	External BT2.1 EDR (BTS4025)	External BT 3.0 over Fast UART (WCN2243)	External BT 3.0 over Fast UART (WCN2243)	External BT 3.0 over Fast UART (WCN2243)
WLAN	802.11b/g/n AR6003	802.11b/g/n WCN1312	802.11b/g/n AR6003	802.11b/g/n AR6005	802.11b/g/n AR6005
USB	USB2.0 HS Peripheral or Host	USB2.0 HS Peripheral or Host	USB2.0 HS Peripheral or Host	USB2.0 HS Peripheral or Host	USB2.0 HS Peripheral or Host
Proximity P2P Networking			AllJoyn	AllJoyn	AllJoyn

Specifications subject to change without notice. Not all features may be available upon 1st commercial software release.

Feature Comparison – Smartphones (cont.)

FEATURES	MSM7x25A	MSM7x27	MSM7x27A	MSM8x25	MSM8x25Q
Graphics	**Adreno 200, 133MHz**	**Adreno 200, 245MHz**	**Adreno 200, 245MHz**	**Adreno 203, 320MHz**	**Adreno 203, 350MHz (target 400Mhz)**
Video Decode	**Playback**: 30fps VGA (MPEG-4/H.263 / H.264 / DivX4 / VP6 / VP8) 30fps VGA (WMV-9) 30fps VGA spark **Streaming**: 30fps VGA (MPEG-4/H.263 / H.264 / VP6 / VP8) 30fps VGA (WMV-9)	**Playback**: 30fps WVGA (MPEG-4/H.263 / H.264) 30fps VGA Divx 3.11/4 30fps VGA (WMV-9) 30fps HVGA VP6 30fps D1 spark **Streaming**: 15fps VGA (H.263, H.264, MPEG-4)	**Playback**: 30fps FWVGA (MPEG-4/H.263 / H.264 / DivX4 / VP6 / VP8) 30fps VGA (WMV-9) 30fps D1 spark **Streaming**: 30fps FWVGA (MPEG-4/H.263 / H.264 / VP6 / VP8) 30fps VGA (WMV-9)	**Playback**: 30fps 720p (MPEG-4/H.264) 30fps FWVGA (MPEG-4/H.263 / H.264 / DivX4 / VP6 / VP8) 30fps VGA (WMV-9) 30fps D1 spark **Streaming**: 28fps 720p (MPEG-4/H.264) 30fps FWVGA (MPEG-4/H.263 / H.264 / VP6 / VP8) 30fps VGA (WMV-9)	**Playback**: 30fps 720p (MPEG-4/H.264) 30fps FWVGA (MPEG-4/H.263 / H.264 / DivX4 / VP6 / VP8) 30fps VGA (WMV-9) 30fps D1 spark **Streaming**: 28fps 720p (MPEG-4/H.264) 30fps FWVGA (MPEG-4/H.263 / H.264 / VP6 / VP8) 30fps VGA (WMV-9)
Offline Video Encoding	30fps VGA (MP4, H.263, H.264)	15fps WVGA (MP4, H.263, H.264)	30fps FWVGA (MP4, H.263, H.264)	15fps 720p (H.264) 30fps FWVGA (MP4, H.263, H.264)	24fps 720p (H.264) (target 30fps) 30fps FWVGA (MP4, H.263, H.264)
Qcamera	5M Pixel	8M Pixel	8M Pixel	8M Pixel	8M Pixel
Audio	Enhanced Echo Cancellation FLUENCE (Noise cancellation)	Enhanced Echo Cancellation FLUENCE (Noise cancellation)	Enhanced Echo Cancellation FLUENCE (Noise cancellation)	5.1 Surround Playback Enhanced Echo Cancellation FLUENCE (Noise cancellation)	5.1 Surround Playback Enhanced Echo Cancellation FLUENCE (Noise cancellation)
GPS	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w
Security and DRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG;	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG;

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Feature Comparison – Smartphones

FEATURES	MSM8x26	MSM8x55	MSM8x30/AB	MSM8x27
Part Numbers	MSM8626 (CDMA/UMTS) MSM8226 (UMTS/TD-SCDMA)	MSM8655 (CDMA/UMTS) MSM8255 (UMTS)	MSM8930/AB (LTE/CDMA/UMTS) MSM8630/AB (CDMA/UTMS) MSM8230/AB (UMTS/TD-SCDMA)	MSM8627 (CDMA/UTMS) MSM8227 (UMTS/TD-SCDMA)
Process Tech.	28nm	45nm	28nm	28nm
Package	12x12 PoP	904NSP PoP,14x14mm(0.4mm pitch) PoP1 = Dual-channel LPDDR2 PoP2 = LPDDR1 + Flash mem.	745NSP PoP 12x12x1.05mm (0.4mm pitch)	745NSP PoP 12x12x1.05mm (0.4mm pitch)
Processor	Quad Cortex A7 – 1.2 GHz, 1 MB - L2	Scorpion – 1.0/1.2/1.4GHz ARM11 + L2 – 480MHz ADSP QDSP5 - 256MHz mDSP QDSP4 – 147MHz	Dual Core Krait 1.2/1.4GHz (-AA) / 1.6-1.7 GHz (AB) w/L2 1MB ADSP QDSP6V4 – 500MHz mDSP 2xQDSP6V4 +L2– 500MHz	Dual Core Krait 1.0GHz w/L2 512kB ADSP QDSP6V4 – 500MHz mDSP 2xQDSP6V4 +L2– 500MHz
MODEM	1X Advanced (8626) 1xEV-DO Rev. 0/A/B (8626) 21HSPA+ , TD-SCDMA (8626/8226) GSM/GPRS/EDGE (8626/8226)	1x Advanced (8655) 1xEV-DO RevA/B (8655) HSPA+ GSM/GPRS/EDGE	1x Advanced (8930/8630) 1xEV-DO RevA/B (8930/8630) HSPA+ DC 42Mbps (8930/8230) HSPA+ 21Mbps (8630/8230) LTE Cat 3 /TD-LTE(8930) TD-SCDMA (8230) GSM/GPRS/EDGE (8930/8630/8230)	1x Advanced (8627) 1xEV-DO RevA/B (8627) HSPA+ 21Mbps (8627/8227) TD-SCDMA (8227) GSM/GPRS/EDGE (8627/8227)
Peak Data Rates UL/DL	**HSPA**: DL 21 Mbps / UL 5.76 Mbps **DO**: DL 14.7 Mbps / UL 5.4 Mbps **1x**: DL / UL 307.2 kbps	**HSPA+:** DL 14.4 Mbps / UL 5.76 Mbps **DO**: DL 14.7 Mbps / UL 5.4 Mbps **1x**: DL / UL 307.2 kbps	**LTE**: 100Mbps DL / 50Mbps UL (cat 3) **HSPA+**: DL 42 Mbps / UL 5.76 Mbps **DO**: DL 14.7 Mbps / UL 5.4 Mbps **1x**: DL / UL 307.2 kbps	**HSPA+**: DL 21 Mbps /UL 5.76 Mbps **DO**: DL 14.7 Mbps / UL 5.4 Mbps **1x**: DL / UL 307.2 kbps
Modem Enhancements	QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, Equalizer with Rx Diversity (Type 3i), SAIC, Integrated DSDS and DSDA	1x Adv, QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, Equalizer with Rx Diversity (Type 3i), Int Equal., SAIC	1xAdv, QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, HDOn, Equalizer with Rx diversity (Type 3i), SVDO, SVLTE, SAIC, ZUC	1xAdv, QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, HDOn, Equalizer with Rx diversity (Type 3i), SVDO, SAIC
Frequency Support	**CDMA:** BC0, BC10, BC1, BC14, BC4, BC6, BC15 **UMTS:** B1, B2, B3, B4, B5, B6, B8 **TDSCDMA:** B34 / B39 / B40 **GSM:** Quad Band	**CDMA:** 800MHz (BCO/BC10&JCDMA), 1700MHz (KPCS), 1900MHz (PCS+Block G), 1700MHz/2100MHz(AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**LTE:** B1/2/4/5/13/17/ 7/19/21/11/12/18/3/8/20 **CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), S and L bands, 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), S and L bands, 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900
RF+PMIC Chipset	WTR2605 + PM8026+WCD9302	QTR8600/8615 (RxD)/9215 (UMTS no RxD) + PM8058	WTR1605/L + WCD9304 + PM8038 (SVLTE + WTR1605)	WTR1605 + WCD9304 + PM8038 WTR2605 (CS2)
Memory	1 x 533 MHz LPDDR2	2x 333MHz LPDDR1/2	1x 500-533MHz LPDDR2 / 1x 600MHz LPDDR3 (AB)	1x 400MHz LPDDR2
LCD Support	16/18/24-bit, WXGA (1280x800) at 60 fps	16/18/24-bit XGA (1024x768)	16/18/24-bit, (-AA/AB) – WXGA 60 fps 16/18/24-bit, (1.2GHz) – 720p 30 fps	16/18/24-bit, QHD (940x540) 60fps
Bluetooth	WCN3620	- BT 3.0 + HS, FM Rx/Tx (int QTR8200) - WCN2243 BT 4.0, FM Rx/Tx	WCN3660	WCN3660
WLAN	802.11b/g/n WCN3620	802.11b/g/n WCN1314, WCN1312	802.11 a/b/g/n/ac WCN3660/80	802.11 a/b/g/n WCN3660
USB	USB 2.0 All Speed Peripheral or Host	USB2.0 HS Peripheral or Host	USB2.0 HS Peripheral or Host	USB2.0 HS Peripheral or Host
Proximity P2P Networking	AllJoyn		AllJoyn	AllJoyn

Specifications subject to change without notice. Not all features may be available upon 1st commercial software release.

Feature Comparison – Smartphones (cont.)

FEATURES	MSM8x26	MSM8x55	MSM8x30/AB	MSM8x27
Graphics	**Adreno 305, 450MHz**	**Adreno 205, 245MHz**	**Adreno 305, 400MHz (-AA/AB) - Adreno 305, 450MHz**	**Adreno 305, 400MHz**
Video Decode	**Playback**: 30fps 1080p (MPEG-4 / H.264 / VC-1 / WMV-9 / DivX 4/5/6) 30fps D1 (Sorenson Spark / On2 VP6) **Streaming**: 30fps 720p (MPEG-4 / H.264 / VC-1, WMV-9)	**Playback**: 30fps 720p (MPEG-4 / H.264 / VC-1/ DivX, / WMV-9) 30fps D1 (DivX 3.11 / Sorenson Spark) 30fps HVGA (On2 VP6) **Streaming**: 30fps 720p (MPEG-4 / MPEG-2 / H.264 / VC-1) 30fps FWVGA (H.263)	**Playback**: 30fps 1080p (H.264/MPEG-4/ VC-1/H.263) 30fps D1 (VP6) **Streaming**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / VC-1 / WMV-9 / VP-8) 30fps FWVGA (H.263)	**Playback**: 30fps 720p (H.264/MPEG-4/ VC-1/H.263) 30fps D1 (VP6) 30fps 720p (VP8-planning) **Streaming**: 30fps 720p (MPEG-4 / MPEG-2 / H.264 / VC-1 / WMV-9 / VP-8) 30fps FWVGA (H.263)
Offline Video Encoding	30fps 1080p (H.264/MPEG-4)	30fps 720p (MP4, H.264) 30fps FWVGA (H.263)	30fps 1080p (H.264/MPEG-4)	30fps 720p (H.264/MPEG-4)
Qcamera	13M Pixel	12M Pixel	13.5M Pixel; 3D camera 3 MIPI CSI	13.5M Pixel; 3D camera 2 MIPI CSI
Audio	5.1 Surround Playback & Camcorder Low Power Audio Core DSP Post-Proc programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)	Low Power Audio Core Enhanced Echo Cancellation FLUENCE (Noise cancellation)	5.1 Surround Playback & Camcorder Low Power Audio Core DSP Post-Proc programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)	5.1 Surround Playback & Camcorder Low Power Audio Core DSP Post-Proc programmability Enhanced Echo Cancellation FLUENCE Pro(Noise cancellation)
GPS	**Gen 8B** with Glonass/Beidou Standalone, Assisted, XTRA, 3dB sens. imprv. vs. Gen 7	**Gen 8** with Glonass Standalone, Assisted, XTRA, 3dB improvement vs. Gen 7	**Gen 8A** with Glonass Standalone, Assisted, XTRA, 3dB sens. imprv. vs. Gen 7	**Gen 8A** with Glonass Standalone, Assisted, XTRA, 3dB sens. imprv. vs. Gen 7
Security and DRM	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; HW enhanced PlayReady DRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HW enhanced PlayReady DRM; Widevine DRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HW enhanced PlayReady DRM; Widevine DRM

* Feature support and peak performance may vary by operating system

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Feature Comparison – Smartphones

FEATURES	MSM8x60	MSM8x60A/Pro	MSM8960/Pro	MSM8974
Part Numbers	MSM8660 (CDMA/Multimode) MSM8260 (UMTS)	MSM8660A (CDMA/Multimode)/-AB MSM8260A (UMTS)/-AB	MSM8960 (Multimode)/-AB	MSM8974
Process Tech.	45nm	28nm	28nm	28nm HPm
Package	976 NSP 14x14x1.4mm (0.4mm pitch)	756 NSP PoP, 14x14mm (0.4mm pitch)	756 NSP PoP, 14x14mm (0.4mm pitch)	994 NSP PoP 15x15mm (0.4mm pitch)
Processor	Dual Scorpion–1.2/1.5/1.7GHz (Apps) ARM11 + L2 – 490MHz (Modem) QDSP6V3 – 400MHz (Apps) QDSP4 – 147MHz (Modem)	Dual Core Krait–1.5 / 1.7GHz (Apps) QDSP6V4 – 500MHz (Apps) 2XQDSP6 V4 +L2– 500MHz (Modem)	Dual Core Krait– 1.5 / 1.7GHz (Apps) QDSP6V4 – 500MHz (Apps) 2XQDSP6 V4 +L2– 500MHz (Modem)	Quad Core Krait 2.3GHz / L2 2MB QDSP6 V5A – 600 MHz (Apps) QDSP6 V5H (Modem)
MODEM	1X Advanced (8660) 1xEV-DO RevA/B (8660) HSPA+ GSM/GPRS/EDGE	1xA, DOrA/B, EGAL, 21HSPA+(**8660A**) DC-HSPA+ , TD-SCDMA (**8260A**) GSM/GPRS/EDGE	1X Advanced, 1xEV-DO Rev. A/B, EGAL (Enhanced Geostationary Air Link), GSM/GPRS/EDGE, Rel9 DC- HSPA+, LTE CAT 3, TD-SCDMA	1X Advanced, 1xEV-DO Rev. A/B, GSM/GPRS/EDGE Release 10 HSPA+ Release 9 LTE Cat 4, Rel 10 LTE CA TD-SCDMA
Peak Data Rates UL/DL	**HSPA+:** DL 14.4 Mbps / UL 5.76 Mbps **DO**: DL 14.7 Mbps / UL 5.4 Mbps **1x**: DL / UL 307.2 kbps	**1x** - FL/RL: 307.2 / 307.2 kbps **DO** - FL/RL: 14.7 / 5.4 Mbps **DC-HSPA+** - FL/RL: 42 / 5.76 Mbps	**1x** - FL/RL: 307.2 / 307.2 kbps **DO** - FL/RL: 14.7 / 5.4 Mbps **DC-HSPA+** - FL/RL: 42 / 5.76 Mbps **LTE** FDD - FL/RL: 100 / 50 Mbps (Cat 3) **LTE** TDD - FL/RL: 68 / 17 Mbps (Cat 3)	**1x** - FL/RL: 307.2 / 307.2 kbps **DO** - FL/RL: 14.7 / 5.4 Mbps **DC-HSPA+** - FL/RL: 84 / 11 Mbps **LTE** - FL/RL: 150 / 50 Mbps (Cat 4)
Modem Enhancements	1xAdv, QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, HDOn, Equalizer with Rx Div (Type 3i), SAIC	1xAdv, QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, HDOn, Q-ICE (Type 3i), SVDO, SVLTE, Rx Div, SAIC	1xAdv, QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, HDOn, Q-ICE(Type 3i), SVDO, SVLTE, Rx Div, SAIC	1xAdv, QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, HDOn, Q-ICE (Type 3i), SVDO, SVLTE, Rx Div, SAIC, Envelope Tracking
Frequency Support	**CDMA:** 800MHz (BCO/BC10&JCDMA), 1700MHz (KPCS), 1900MHz (PCS+Block G), 1700MHz/2100MHz(AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**LTE:** B1/2/4/5/13/17/ 7/19/21/11/12/18/3/8/20 **CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900	**LTE:** B1/2/4/5/13/17/7/19/21/11/12/18/3/8/20 **CDMA:** 800MHz(BCO/BC10&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) **UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB 850/900/1800/1900
RF+PMIC Chipset	QTR8615(RxD) or QTR9215(UMTS no RxD) + PMM8160 (or PM8058+PM8901)	RTR8600/1/5 + WCD9310+ PM8921 WTR1605 + WCD9310+ PM8921	RTR8600 + WCD9310 + PM8921 (SVLTE + RTR8605) WTR1605/L + WCD9310 + PM8921 (SVLTE + WTR1605)	WTR1625L / WTR1605/L + WCD9320 + PM8941 + PM8841 (SVLTE + 1625/1605)
Memory	333MHz ISM, 266-314MHz LPDDR2	2x500/533 MHz LPDDR2	2x500/533 MHz LPDDR2	2x800 MHz LPDDR3
LCD Support	24-bit, WSXGA (1440x900)	Primary: 1920x1200 + 960x540 + 1080p external; 1xHDMI, 1x Composite, 2xDSI (4-lane & 3-lane)	Primary: 1920x1200 + 960x540 + 1080p external; 1xHDMI, 1x Composite, 2xDSI (4-lane & 3-lane)	2560x2048 + 1080p external ; 1920x1200 + 960x540 + 1080p external; 2xDSI 4-lane & 4-lane) , eDP , HDMI
Bluetooth	BT 3.0 + HS, BT4.0/LE FM Rx/Tx (integrated in WCN2243)	BT3.x + HS, BT4.0/LE FM Rx/Tx (WCN3660)	BT3.x + HS, BT4.0/LE FM Rx/Tx (WCN3660)	BT3.x + HS, BT4.0/LE, FM Rx/Tx (WCN3660)
WLAN	802.11b/g/n WCN1314	802.11a/b/g/n WCN3660/80	802.11a/b/g/n WCN3660/80	802.11a/b/g/n/ac WCN3660/80
USB	USB2.0 High Speed OTG (480Mbps)	USB2.0 High Speed OTG (480Mbps)	USB2.0 High Speed OTG (480Mbps)	1x USB 3.0 SS 5 Gbps, 1xUSB 2.0 HS
Proximity P2P Networking	AllJoyn	AllJoyn	AllJoyn	AllJoyn

Specifications subject to change without notice. Not all features may be available upon 1st commercial software release.

Feature Comparison – Smartphones (cont.)

FEATURES	MSM8x60	MSM8x60A/Pro	MSM8960/Pro	MSM8974
Graphics	**Adreno 220, 266MHz**	**Adreno 225, 400MHz** (MSM8x60A) **Adreno 320, 400MHz** (MSM8x60APro)	**Adreno 225, 400MHz** (MSM8960) **Adreno 320, 400MHz** (MSM8960Pro)	**Adreno 330, 450MHz**
Video Decode	**Playback**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / DivX / VC-1 / WMV-9) 30fps D1 (Sorenson Spark, On2 VP6) **Streaming**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / DivX / VC-1 / WMV-9) 30fps D1 (VP6 / Spark)	**Playback**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / H.263 / DivX / VC-1 / WMV-9) 30fps @ FWVGA (H.263) 30fps D1 (Sorenson Spark, On2 VP6/VP8) **Streaming**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / DivX / VC-1 / WMV-9) 30fps D1 (H.263 / VP6 / VP8 / Spark	**Playback**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / H.263 / DivX / VC-1 / WMV-9) 30fps @ FWVGA (H.263) 30fps D1 (Sorenson Spark, On2 VP6/VP8) **Streaming**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / DivX / VC-1 / WMV-9) 30fps D1 (H.263 / VP6 / VP8 / Spark	**Playback:** 30fps 4K x 2K (H264/ VP8) 120fps 1080p (H264/MP4/MP2/WMV9/VC1/VP8/ DivX / XVID) 30fps D1 (H.263/Sorenson Spark) 60 fps 1080p 2-view: MVC
Offline Video Encoding	30fps @1080p (MP4/H.264) 30fps @ FWVGA (H.263)	30fps @1080p (MP4/H.264) 30fps @ FWVGA (H.263)	30fps @1080p (MP4/H.264) 30fps @ FWVGA (H.263)	30fps 4Kx2K (H264/VP8) 120fps 1080p (H264/MP4/VP8) 30fps D1 (H.263) 60fps 1080p 2-view: MVC
Qcamera	16MPix S3D camera 3 Cameras support	21 MPix S3D camera 3 Cameras support	21MPix S3D cameras 3 Cameras support	55MPix (w/ 2 ISPs) Dual S3D cameras Dual ISP (21MP, 13.5MP) 4 Cameras support
Audio	Low Power Audio Core DSP Programmability Enhanced Echo Cancellation FLUENCE Pro(Noise cancellation)	7.1 Surround Playback 5.1 Surround Camcorder Ultrasound Low Power Audio Core DSP Programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)	7.1 Surround Playback 5.1 Surround Camcorder Ultrasound Low Power Audio Core DSP Programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)	7.1 Surround Playback 5.1 Surround Camcorder Ultrasound Low Power Audio Core DSP Programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)
GPS	**Gen 8** with Glonass Standalone, Assisted, XTRA, 3dB improvement vs. Gen 7	**Gen 8A** with Glonass Standalone, Assisted, XTRA, Lower power 3dB improvement vs. Gen 7	**Gen 8A** with Glonass Standalone, Assisted, XTRA, Lower power 3dB improvement vs. Gen 7	**Gen 8B** with Glonass/Beidou Standalone, Assisted, XTRA, Lower power 3dB improvement vs. Gen 7
Security and DRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HDCP1.3-TX; HW enhanced PlayReady DRM; Widevine DRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HDCP1.3-TX; HDCP2.1-TX ; HW enhanced PlayReady DRM; Widevine DRM; CPRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HDCP1.3-TX; HDCP2.1-TX ; HW enhanced PlayReady DRM; Widevine DRM; CPRM, HW ZUC support (Pro)	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HDCP1.3-TX; HDCP2.1-TX ; HW enhanced PlayReady DRM; Widevine DRM; CPRM

* Feature support and peak performance may vary by operating system

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Feature Comparison – APQ

FEATURES	APQ8060A/Pro	APQ8064	APQ8074	APQ8084
Process Tech.	28nm LP	28nm LP	28nm HPm	28nm HPm
Package	756 NSP PoP, 14x14mm (0.4mm pitch)	784 BGA 23x23mm (0.8mm pitch) 839 NSP PoP 14x14mm (0.4mm pitch)	994 NSP PoP 15x15mm (0.4mm pitch)	BGA 21x21mm NSP 15x15mm
Processor	Dual Core Krait–1.5-1.7GHz(v4) (Apps) QDSP6V4 – 500MHz (Apps) 2XQDSP6 V4 +L2– 500MHz (Modem)	Quad Core Krait–1.5-1.7GHz (Apps) QDSP6V4 – 500MHz (Apps)	Quad Core Krait 2.3GHz / L2 2MB QDSP6 V5A – 600 MHz (Apps) QDSP6 V5H (Modem)	Quad Core Krait 2.3GHz / L2 2MB QDSP6 V5A – 600 MHz (Apps)
PMIC, Codec , GPS Chipset	PM8921, WCD9310, RTR860x	PM8920, WCD9310/1	PM8941/PM8841, WCD9320	PM8644, WCD9320
Memory	2x500MHz LPDDR2 (APQ8060A) 2x533MHz LPDDR2 (APQ8060APro)	2x533MHz LPDDR2 / PCDDR3	2x800 MHz LPDDR3	2x800 MHz LPDDR3 64-bit 2x933 MHz PCDDR3/3L 64 bit
LCD Support	Primary: 1920x1200 + 960x540 + 1080p external; 1xHDMI, 1x Composite, 2xDSI (4-lane & 3-lane)	Primary: 24-bit QXGA(2048x1536); Dual: 24-bit QHD (960x540) panel 1xHDMI, 1x DSI (4-lane)	2560x2048 + 1080p external ; 1920x1200 + 960x540 + 1080p external; 2xDSI 4-lane & 4-lane) , eDP , HDMI	2560x2048 + 1080p external ; 1920x1200 + 960x540 + 1080p external; 2xDSI 4-lane & 4-lane) , eDP , HDMI
Bluetooth	BT3.x + HS, BT4.0/LE FM Rx/Tx (WCN3660)	BT3.x + HS, BT4.0/LE FM Rx/Tx (WCN3660 or WCN2243 BT)	BT3.x + HS, BT4.0/LE, FM Rx/Tx (WCN3660)	BT3.x + HS, BT4.0/LE (WCN2243 BT)
WLAN	802.11a/b/g/n WCN3660	11a/b/g/n (WCN3660) ac (WCN3680) or WB292 2x2 11n MoB (AR6004 + WCN2243)	802.11a/b/g/n/ac WCN3660/80	WB292 2x2 11n MoB (AR6004 + WCN2243) 1x1/2x2 11ac (QCA6164/6174)
USB	USB2.0 High Speed OTG (480Mbps)	3 x USB2.0	USB 3.0	2x USB3.0 & 2x USB 2.0

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Feature Comparison – APQ (cont.)

FEATURES	APQ8060A/Pro	APQ8064	APQ8074	APQ8084
Graphics	**Adreno 225, 400MHz** (APQ8060A) **Adreno 320, 400MHz** (APQ8060APro)	**Adreno 320, 400MHz**	**Adreno 330, 450MHz**	**Adreno 420, 500MHz**
Video Decode	**Playback**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / H.263 / DivX / VC-1 / WMV-9) 30fps @ FWVGA (H.263) 30fps D1 (Sorenson Spark, On2 VP6/VP8) **Streaming**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / DivX / VC-1 / WMV-9) 30fps D1 (H.263 / VP6 / VP8 / Spark	**Playback**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / H.263 / DivX / VC-1 / WMV-9) 30fps @ FWVGA (H.263) 30fps D1 (Sorenson Spark, On2 VP6/VP8) **Streaming**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / DivX / VC-1 / WMV-9) 30fps D1 (H.263 / VP6 / VP8 / Spark	**Playback:** 30fps 4K x 2K (H264/ VP8) 120fps 1080p (H264/MP4/MP2/WMV9/VC1/VP8/ DivX / XVID) 30fps D1 (H.263/Sorenson Spark) 60 fps 1080p 2-view: MVC	**Playback:** **H.265 DECODE only** 30fps 4K x 2K (H265/H264/ VP8) 120fps 1080p (H265/H264/MP4/MP2/WMV9/VC1/VP8 / DivX / XVID) 30fps D1 (H.263/Sorenson Spark) 60 fps 1080p 2-view: MVC
Offline Video Encoding	30fps @1080p (MP4/H.264) 30fps @ FWVGA (H.263)	30fps @1080p (MP4/H.264) 30fps @ FWVGA (H.263)	30fps 4Kx2K (H264/VP8) 120fps 1080p (H264/MP4/VP8) 30fps D1 (H.263) 60fps 1080p 2-view: MVC	30fps 4Kx2K (H264/VP8) 120fps 1080p (H264/MP4/VP8) 30fps D1 (H.263) 60fps 1080p 2-view: MVC
Qcamera	20 MP, 8MP S3D	20 MP, 8MP S3D	30MP, 16 MP S3D 12MP, 8MP	30MP, 16 MP S3D 12MP, 8MP
Audio	7.1 Surround Playback 5.1 Surround Camcorder Ultrasound Low Power Audio Core DSP Post-Proc programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)	7.1 Surround Playback 5.1 Surround Camcorder Ultrasound Low Power Audio Core DSP Programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)	7.1 Surround Playback 5.1 Surround Camcorder Ultrasound Low Power Audio Core DSP Programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)	7.1 Surround Playback 5.1 Surround Camcorder Ultrasound Low Power Audio Core DSP Programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)
GPS	**Gen 8A** with Glonass Standalone, Assisted, XTRA, Lower power 3dB improvement vs. Gen 7	**Gen 8A** with Glonass Standalone, Assisted, XTRA, Lower power 3dB improvement vs. Gen 7	**Gen 8B** with Glonass/Beidou Standalone, Assisted, XTRA, Lower power 3dB improvement vs. Gen 7	**Gen 8B** with Glonass/Beidou Standalone, Assisted, XTRA, Lower power 3dB improvement vs. Gen 7
Security and DRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HDCP1.3-TX; HDCP2.1-TX ; HW enhanced PlayReady DRM; Widevine DRM; CPRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HDCP1.3-TX; HDCP2.1-TX ; HW enhanced PlayReady DRM; Widevine DRM; CPRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HDCP1.3-TX; HDCP2.1-TX ; HW enhanced PlayReady DRM; Widevine DRM; CPRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HDCP1.3-TX; HDCP2.1-TX ; HW enhanced PlayReady DRM; Widevine DRM; CPRM

* Feature support and peak performance may vary by operating system

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Feature Comparison – APQ (cont.)

FEATURES	APQ8030			
Process Tech.	28nm LP			
Package	745NSP PoP 12x12x1.05mm (0.4mm pitch)			
Processor	Dual Core Krait 1.4GHz w/L2 1MB ADSP QDSP6V4 – 500MHz mDSP 2xQDSP6V4 +L2– 500MHz			
PMIC, Codec , GPS Chipset	PM8038, WCD9304			
Memory	1x500-533MHz LPDDR2			
LCD Support	16/18/24-bit, WXGA (1280x800) 60 fps			
Bluetooth	WCN3660			
WLAN	802.11 a/b/g/n/ac WCN3660			
USB	USB2.0 HS Peripheral or Host			

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Feature Comparison – APQ (cont.)

FEATURES	APQ8030			
Graphics	**Adreno 305, 450MHz**			
Video Decode	**Playback**: 30fps 1080p (H.264/MPEG-4/ VC-1/H.263) 30fps D1 (VP6) **Streaming**: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / VC-1 / WMV-9 / VP-8) 30fps FWVGA (H.263)			
Offline Video Encoding	30fps 1080p (H.264/MPEG-4)			
Qcamera	13.5M Pixel S3D camera 3 Cameras Support			
Audio	5.1 Surround Playback & Camcorder Low Power Audio Core DSP Post-Proc programmability Enhanced Echo Cancellation FLUENCE Pro (Noise cancellation)			
GPS	**Gen 8A** with Glonass Standalone, Assisted, XTRA, 3dB sens. imprv. vs. Gen 7			
Security and DRM	Secure Boot, Secure code signing service, Cryptographic accelerator and HW RNG; TrustZone SEE; HW enhanced PlayReady DRM; Widevine DRM			

* Feature support and peak performance may vary by operating system

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Adreno GPU

GPU	Adreno 200	Adreno 203	Adreno 205	Adreno 220	Adreno 225	Adreno 305	Adreno 320	Adreno 330	Adreno 420
Chipsets	**QSD8x50 MSM7x27 MSM7x27A**	**MSM8x25**	**MSM8x55**	**MSM8x60**	**MSM8960 MSM8x60A**	**MSM8x30 MSM8x27 MSM8x26**	**MSM8960Pro APQ8064**	**MSM8974**	**APQ8084**
Relative OpenGL ES 2.0 Performance (Avg. Estimate across all hw/sw factors)	**~1X**	**~2X**	**~2X**	**~5x**	**~7.5X**	**~8X**	**~23X**	**~30x**	**TBD**
Native APIs Supported	OpenGL ES 1.1	OpenGL ES 1.1	OpenGL ES 1.1	OpenGL ES 1.1	OpenGL ES2.0	OpenGL ES3.0	OpenGL ES3.0	OpenGL ES3.0	OpenGL ES3.0
	OpenGL ES 2.0	OpenGL ES 2.0	OpenGL ES 2.0	OpenGL ES 2.0	OpenGL ES1.1	OpenGL ES2.0	OpenGL ES2.0	OpenGL ES2.0	OpenGL ES2.0
	OpenVG 1.1	WebGL 1.0	OpenVG 1.1	OpenVG 1.1	OpenVG 1.1	OpenGL ES1.1	OpenGL ES1.1	OpenGL ES1.1	OpenGL ES1.1
	WebGL 1.0	Renderscript	WebGL 1.0	WebGL 1.0	WebGL 1.0	WebGL 1.0	WebGL 1.0	WebGL 1.0	WebGL 1.0
	SVG Tiny 1.2	DX9.0	SVG Tiny 1.2	SVG Tiny 1.2	OpenCL 1.1 (CPU)	OpenCL 1.2e	OpenCL 1.2e	OpenCL 1.2e	OpenCL 1.2 Full Profile
	Renderscript		Renderscript	Renderscript	Renderscript	Renderscript	Renderscript	Renderscript	Renderscript
	DX9.0		DX9.0	DX9.0	DX9.3	DX9.3	DX9.3	DX9.3	DX11.1/Compute
Pixel Fill rate	**245 Mpix/s**	**245 Mpix/s**	**245 Mpix/s**	**532 Mpix/s**	**800 Mpix/s**	**800 Mpix/s**	**3200 Mpix/s**	**3600 Mpix/s**	**4000 Mpix/s**

Feature Comparison – Feature Phones CDMA

FEATURES	QSC1100/10	QSC1105	QSC6055	QSC6155
Process Technology	65nm	65nm	65nm	45nm
Package	284 CSP 10x10x1.05mm (0.5mm pitch)	289 CSP, 10x10x1.05mm (0.5mm pitch)	424 CSP, 12x12x1.05mm (.5mm pitch)	669NSP, 12.6x12.6x1.05mm (0.4mm pitch)
Processor	ARM926EJS- 96 MHz ADSP - 96 MHz mDSP - 48 MHz	ARM926EJS - 211MHz/316MHz ADSP - 96 MHz/144MHz mDSP – 96MHz/144MHz	ARM926EJS-192MHz ADSP - 96MHz mDSP - 96MHz	ARM11w/L2-480MHz ADSP - 160MHz
MODEM	1X Rel.0	1X / GSM/GPRS	1X Rev. A	1X Advanced GSM/GPRS/EDGE
Peak Data Rates UL/DL	1x: DL / UL 14.4 kbps (1100) 1x: DL / UL 153.6 kbps (1110)	1x: DL / UL 153.6 kbps	1x: DL / UL 153.6 kbps	1x: DL / UL 307.2 kbps
Modem Enhancements	QLIC, 4GV (EVRC-B, EVRC-WB)	1xAdv, QLIC, 4GV (EVRC-B, EVRC-WB), AMR C+G Dual SIM dual Standby	QLIC, 4GV (EVRC-B, EVRC-WB), RxDiv	1xAdv, QLIC, 4GV (EVRC-B, EVRC-WB), Rx Div, Dual SIM, Dual Standby
Frequency Support	450MHz(A-L), 800MHz(Cell), 1900MHz(PCS)	800MHz(Cell), 1900MHz(PCS), Quad-GSM (850, 900, 1800, 1900)	800MHz(BCO/BC10), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT)	450MHz, 700 MHz, 800MHz (BCO/BC10), 1700/2100MHz (AWS), 1900MHz Quad-GSM (850, 900, 1800, 1900)
RF+PMIC Chipset	QSC	QSC	QSC	QSC + PM8028
LCD Support	16/18-bit QCIF(176x144) (1100) 16/18-bit QVGA(320x240) (1110)	16/18-bit QVGA(320x240) (1105)	16/18-bit, QCIF (176x144)	24-bit, QVGA (320x240)
Bluetooth	External BT 2.1 EDR (BTS4025) (1110 only)	External BT3.0 (WCN2243)	External 2.1 EDR BTS402x	Integrated BT 3.0 EDR
WLAN			802.11b/g (AR6002)	802.11b/g (AR6003)
USB	USB 2.0 FS Integrated Transceiver	USB 2.0 FS Integrated Transceiver	USB2.0 FS Peripheral or Host	Integrated High Speed USB2.0 w/OTG
Video Decode	15 fps QCIF (1110 only)	15fps@QVGA (1105)		Playback: 30fps QVGA
Offline Video Encoding	15fps QCIF (1110 only)			15fps QVGA, 384 kbps
Qcamera	2.0 M Pixel (1110 only)	VGA camera (1105)	1.3 M Pixel	2.0 M Pixel
Audio	32-Voice Polyphony Wavetable MIDI 72-poly (CMX) Qconcert (1110 only)	32 -Voice Polyphony Wavetable MIDI 72-poly (CMX)	72-Voice Polyphony Qconcert Enhanced Echo Cancellation	128-Voice Polyphony
Graphics	N/A	N/A	N/A	2D Gfx Only
GPS	N/A	N/A	**Gen 7** Standalone, Assisted, XTRA, 1 dB sens. imprv. vs. Gen 6c	**Gen 8 with Glonass** Standalone, Assisted, XTRA, 3 dB sens. Imprv. vs. Gen 7

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Feature Comparison – Feature Phones CDMA

FEATURES	QSC6075	QSC6085	QSC6165	QSC6175/85/95
Process Technology	65nm	65nm	45nm	45nm
Package	424 CSP, 12x12x1.05mm (.5mm pitch)	424 CSP, 12x12x1.05mm (.5mm pitch)	669NSP, 12.6x12.6x1.05mm (0.4mm pitch)	669NSP, 12.6x12.6x1.05mm (0.4mm pitch)
Processor	ARM926EJS-192MHz ADSP - 96MHz mDSP - 96MHz **TURBO:** ARM926EJS-312MHz ADSP - 180MHz mDSP - 180MHz	ARM926EJS-192MHz ADSP - 96MHz mDSP - 96MHz **TURBO:** ARM926EJS-312MHz ADSP - 180MHz mDSP - 180MHz	ARM11w/L2-480MHz ADSP - 160MHz	ARM11w/L2-480MHz ADSP - 160MHz
MODEM	1X Rev. A, 1xEV-DO Rel.0	1X Rev. A, 1xEV-DO Rev. A	1X Advanced GSM/GPRS/EDGE	1X Advanced 1xEV-DO Rel. 0 (**6175**) 1xEV-DO Rev. A (**6185**) 1xEV-DO Rev. B (**6195**) GSM/GPRS/EDGE (all)
Peak Data Rates UL/DL	1x: DL / UL 153.6 kbps DO: DL 2.4 Mbps / UL 153.6 kbps	1x: DL / UL 153.6 kbps DO: DL 3.1 Mbps / UL 1.8 Mbps	1x: DL / UL 307.2 kbps	1x: DL / UL 307.2 kbps DO: DL 14.7 Mbps / UL 5.4 Mbps
Modem Enhancements	QLIC, 4GV (EVRC-B, EVRC-WB), Rx Div, Equalizer	QLIC, 4GV (EVRC-B, EVRC-WB), Rx Div, Equalizer	QLIC, 4GV (EVRC-B, EVRC-WB), Rx Div, Equalizer, 1x Adv Dual SIM, Dual Standby	QLIC, 4GV (EVRC-B, EVRC-WB), EVRC-NW, Rx Div, Equalizer, 1x Adv Dual SIM, Dual Standby
Frequency Support	800MHz(BCO/BC10), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT)	800MHz(BCO/BC10), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT)	450MHz(A-K), 700 MHz, 800MHz(BCO/BC10l&JCDMA), 1700MHz (KPCS), 1700/2100MHz (AWS), 1900MHz(PCS+Block G), 2100 (IMT), Quad-GSM (850, 900, 1800, 1900)	450MHz(A-K), 700 MHz, 800MHz(BCO/BC10&JCDMA), 1700MHz (KPCS), 1700/2100MHz (AWS), 1900MHz(PCS+Block G), 2100 (IMT), Quad-GSM (850, 900, 1800, 1900)
RF+PMIC Chipset	QSC	QSC	QSC + PM8028	QSC + PM8028
LCD Support	16/18-bit, QVGA (320x240)	16/18-bit, QVGA (320x240)	24-bit, WQVGA (400x240)	24-bit, WQVGA (400x240)
Bluetooth	external BT 2.0 EDR (BTS4020) external BT 2.1 EDR (BTS4021;Rel 3.3P1) (BTS4025;Rel 4.3)	external BT 2.0 EDR (BTS4020) external BT 2.1 EDR (BTS4021;Rel 3.3P1) (BTS4025;Rel 4.3)	integrated BT 3.0 EDR	integrated BT 3.0 EDR
WLAN	802.11b/g (AR6002)	802.11b/g (AR6002)	802.11b/g (AR6003)	802.11b/g (AR6003)
USB	USB2.0 FS Peripheral or Host	USB2.0 FS Peripheral or Host	USB2.0 HS OTG	USB2.0 HS OTG

Specifications subject to change without notice. Not all features may be available upon 1st commercial software release.

Feature Comparison – Feature Phones CDMA (cont.)

(continued)	QSC6075	QSC6085	QSC6165	QSC6175/85/95
Video Decode	**Playback**: 15fps QVGA 30fps QVGA (Turbo) **Streaming**: 15fps QCIF 15fps QVGA (Turbo)	**Playback**: 15fps QVGA 30fps QVGA (Turbo) **Streaming**: 15fps QCIF 15fps QVGA (Turbo)	**Playback**: 30fps HVGA (MPEG-4/H.264/H.263) 30fps QVGA (WMV-9) **Streaming**: 15fps WQVGA (MPEG-4/H.263/H.264/WMV-9)	**Playback**: 30fps HVGA (MPEG-4/H.264/H.263) 30fps QVGA (WMV-9) **Streaming**: 15fps WQVGA (MPEG-4/H.263/H.264/WMV-9)
Offline Video Encoding	15fps QCIF, 128 kbps	15fps QCIF, 128 kbps	15fps WQVGA, 384 kbps	15fps WQVGA, 384 kbps
Qcamera	3M Pixel	3M Pixel	8M Pixel	8M Pixel
Audio	72-Voice Polyphony	72-Voice Polyphony	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)
Graphics	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)	Max LCD: WQVGA - Triangle/s: 600K peak - 3D Pixels/s: 90M peak APIs: OpenGL ES 1.1, OpenVG1.1, SVG Tiny 1.2, BREW 2D	Max LCD: WQVGA - Triangle/s: 600K peak - 3D Pixels/s: 90M peak APIs: OpenGL ES 1.1, OpenVG1.1, SVG Tiny 1.2, BREW 2D
GPS	**Gen 7** Standalone, Assisted, XTRA, 1 dB sens. imprv. vs. Gen 6c	**Gen 7** Standalone, Assisted, XTRA, 1 dB sens. imprv. vs. Gen 6c	**Gen 8 with Glonass** Standalone, Assisted, XTRA, 3 dB sens. Imprv. vs. Gen 7	**Gen 8 with Glonass** Standalone, Assisted, XTRA, 3 dB sens. imprv. vs. Gen 7
Security and DRM	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)

Specifications subject to change without notice. Not all features may be available upon 1st commercial software release.

Feature Comparison – Feature Phones UMTS

FEATURES	QSC6240	QSC6270
Process Technology	65nm	65nm
Package	424 CSP, 12x12x1.05mm (0.5mm pitch)	424 CSP, 12x12x1.05mm (0.5mm pitch)
Processor	ARM926EJS - 230MHz ADSP - 115MHz	ARM926EJS - 230MHz **TURBO** ARM926EJS- 403MHz (Imp. UI performance) ADSP - 115MHz
MODEM	WCDMA GSM / EGPRS	HSDPA GSM / EGPRS
Peak Data Rates UL/DL	**WCDMA:** DL/UL: 384kbps	**HSDPA:** DL 3.6Mbps / UL 384kbps
Modem Enhancements	**UMTS:** Equalizer **GSM:** SAIC Dual SIM Dual stanby	**UMTS:** Equalizer **GSM:** SAIC Dual SIM Dual stanby
Frequency Support	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC Chipset	(Integrated Baseband, RF, PMIC)	(Integrated Baseband, RF, PMIC)
LCD Support	24-bit QVGA (320x240)	24-bit WQVGA (400x240)
Bluetooth	external BT 2.0 EDR (BTS4020) external BT 2.1 EDR (BTS4021)	external BT 2.0 EDR (BTS4020) external BT 2.1 EDR (BTS4021)
WLAN	802.11b/g (AR6002)	802.11b/g (AR6002)
USB	USB 2.0 HS Peripheral and Host	USB 2.0 HS Peripheral and Host
Video Decode	**Playback:** 15fps QCIF (MPEG-4/H.263/H.264/WMV-9) **RTSP Streaming:** 15fps QCIF (MPEG-4/H.263/H.264/WMV-9)	**Playback:** 30fps QVGA (MPEG-4/H.263/H.264) 15fps QVGA (WMV-9) **RTSP Streaming:** 15fps QVGA (MPEG-4/H.263/H.264) 15fps QCIF (WMV-9)
Offline Video Encoding	15 fps @ QCIF (MPEG-4 / H.263)	15fps QVGA (MPEG-4/H.263/H.264)
Qcamera	2M Pixel YUV, 3M Pixel Bayer	5M Pixel
Audio	72-Voice Polyphony Qconcert	128-Voice Polyphony QconcertPlus, Enhanced Echo Cancellation FLUENCE Noise Cancellation (with ext. SADC)
Graphics	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)
GPS	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w
Security and DRM	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)

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Feature Comparison – Feature Phones UMTS

FEATURES	MSM6290	QSC6295
Process Technology	65nm	45nm
Package	384 NSP, 10x10x1.05mm (0.5mm pitch)	669NSP, 12.6x12.6x1.05mm (0.4mm pitch)
Processor	ARM926EJS-297.6MHz ADSP - 148.8MHz	ARM11w/L2-480MHz ADSP - 160MHz
MODEM	HSPA GSM/EGPRS	HSPA+ GSM/EGPRS
Peak Data Rates UL/DL	**HSPA:** DL 7.2Mbps / UL 5.76Mbps	**HSPA+**: DL 14Mbps / UL 5.76Mbps
Modem Enhancements	**UMTS:** Rx Diversity with Equalizer (Type 3i) **GSM**: SAIC	**UMTS**: SCH-IC, Rx Diversity with Equalizer (Type 3i), Enhanced F-DPCH, DTX, DRX, HDOn **GSM:** Improved SAIC Dual SIM, Dual Standby
Frequency Support	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/900/1500/1700/1800/ AWS1700/2100 **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC Chipset	RTR6285 + PM6653/PM6658	Integrated RF + PM8028
LCD Support	24-bit WQVGA (400X240)	24-bit, HVGA (400x240)
Bluetooth	BT 2.1 via external SoC over fast UART	integrated BT 2.1 + EDR
WLAN	802.11b/g (AR6002)	802.11b/g (AR6003)
USB	USB 2.0 High Speed peripheral or host (PHY integrated in MSM)	integrated BT 3.0 EDR
Video Decode	**Playback**: 30fps QVGA (MPEG-4/H.263/H.264) 15fps QVGA (WMV-9) **RTSP Streaming:** 15fps QVGA (MPEG-4/H.263/H.264) 15fps QCIF (WMV-9)	**Playback:** 30fps HVGA (MPEG-4/H.264/H.263) 30fps QVGA (WMV-9) **RTSP Streaming:** 15fps WQVGA (MPEG-4/H.263/H.264) 15fps QVGA (WMV-9)
Offline Video Encoding	15fps QVGA	15fps WQVGA, 384 kbps
Qcamera	5M Pixel	8M Pixel
Audio	72-Voice Polyphony Qconcert Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)
Graphics	Hardware (WQVGA) OpenGL ES 1.1, OpenVG, SVG - 600K triangles/sec peak - 90M pixels/sec peak - BREW 2D	Hardware (WQVGA) OpenGL ES 1.1, OpenVG, SVG - 600K triangles/sec peak - 90M pixels/sec peak - BREW 2D
GPS	**Gen 6w** Standalone, Assisted, XTRA	**Gen 8 with Glonass** Standalone, Assisted, XTRA, 3dB improvement over Gen 7
Security and DRM	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)	Secure Boot, Secure code signing service, Microsoft WMDRM10 (Brew only)

Specifications subject to change without notice. Not all features may be available upon 1st commercial software release.

Feature Comparison – Data Modem CDMA

Features	MDM6600	MDM9600	MDM9615/M	MDM9625/M
Process Technology	45nm	45nm	28nm	28nm
Package	486 NSP, 12.2x9.8x1mm (0.4mm pitch)	504 CSP, 13x13x1.4mm (0.5mm pitch)	424 NSP 10x10mm – MDM9615 383 NSP 9x9mm – MDM9615M	384 NSP 9x9 – MDM9625 333 NSP 8x8 – MDM9625M
Processor	ARM11w/L2-390MHz ADSP - 130MHz	ARM926-256MHz Dual QDSP6-600MHz	ARMv7 Cortex-A5 -550MHz Dual QDSP6-600MHz	ARMv7 Cortex-A5 QDSP6-600MHz
MODEM	1X Advanced 1xEV-DO Rev. A/B GSM/GPRS/EDGE HSPA+	1X Advanced, 1xEV-DO Rev. A/B, EGAL (Enhanced Geostationary Air Link), GSM/GPRS/EDGE Release 9 DC-HSPA+ Release 9 LTE	1X Advanced, 1xEV-DO Rev. A/B, EGAL (Enhanced Geostationary Air Link), GSM/GPRS/EDGE Release 9 DC-HSPA+ Release 9 LTE TD-SCDMA	1X Advanced, 1xEV-DO Rev. A/B, EGAL (Enhanced Geostationary Air Link), GSM/GPRS/EDGE Release 10 HSPA+ Release 9 LTE Cat 4, Rel 10 LTE CA TD-SCDMA
Peak Data Rates UL/DL	1x: FL / RL 307.2 kbps DO: FL 14.7 Mbps / RL 5.4 Mbps HSPA+: FL 14.4 Mbps /RL 5.76Mbps	1x - FL/RL: 307.2 / 307.2 kbps DO - FL/RL: 14.7 / 5.4 Mbps EGPRS - FL/RL: 236.8/ 236.8kbps (MSC12) DC-HSPA+ - FL/RL: 42 / 5.76 Mbps LTE FDD - FL/RL: 100 / 50 Mbps (Cat 3) LTE TDD - FL/RL: 68 / 17 Mbps (Cat 3)	1x - FL/RL: 307.2 / 307.2 kbps DO - FL/RL: 14.7 / 5.4 Mbps EGPRS - FL/RL: 236.8/ 236.8kbps (MSC12) DC-HSPA+ - FL/RL: 42 / 5.76 Mbps LTE FDD - FL/RL: 100 / 50 Mbps (Cat 3) LTE TDD - FL/RL: 68 / 17 Mbps (Cat 3)	1x - FL/RL: 307.2 / 307.2 kbps DO - FL/RL: 14.7 / 5.4 Mbps EGPRS - FL/RL: 236.8/ 236.8kbps (MSC12) HSPA+ - FL/RL: 84 / 11 Mbps LTE - FL/RL: 150 / 50 Mbps (Cat 4)
Modem Enhancements	CDMA: QLIC, Rx Div, Equalizer, Int Equalizer, 1x Adv GSM:SAIC, UMTS: SCH-IC, Rx Diversity with Equalizer (Type 3i), Enhanced F-DPCH, DTX, DRX	CDMA: QLIC, Equalizer, Rx Diversity, Int Equalizer, 1x Adv GSM: SAIC UMTS: RxD, EQ, SCH-IC, Q-ICE (Type 3i), 2x2 DL MIMO LTE: 2x2 DL SU-MIMO	CDMA: QLIC, Equalizer, Rx Diversity, Int Equalizer, 1x Adv, EVRC-NW, HDOn GSM: SAIC UMTS: RxD, EQ, SCH-IC, Q-ICE (Type 3i), 2x2 DL MIMO LTE: 2x2 DL SU-MIMO	CDMA: QLIC, Equalizer, Rx Diversity, Int Equalizer, 1x Adv, EVRC-NW, HDOn GSM: SAIC UMTS: RxD, EQ, SCH-IC, Q-ICE (Type 3i) LTE: 2x2 DL SU-MIMO Envelope Tracking
Voice support	Integrated	Through fusion with MSM	Integrated	Integrated
Frequency Support	450MHz(A-K), 700 MHz, 800MHz(BCO/BC10 &JCDMA), 1700MHz (KPCS), 1700/2100MHz (AWS), 1900MHz(PCS+Block G), 2100 (IMT), Quad-GSM (850, 900, 1800, 1900), UMTS (900, 2100)	3GPP2 : 700 MHz, 800MHz(BCO/BC10 &JCDMA), 1800MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz (AWS), 2100MHz (IMT), 2500 MHz, S and L bands 3GPP: 700 MHz (B12,B13,B17), 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300MHz, 2600 MHz	3GPP2 : 700 MHz, 800MHz(BCO/BC10 &JCDMA), 1800MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz (AWS), 2100MHz (IMT), 2500 MHz, S and L bands 3GPP: 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300MHz, 2600 MHz	3GPP2 700 MHz, 800MHz(BCO/BC10 &JCDMA), 1800MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz (AWS), 2100MHz (IMT), 2500 MHz, S and L bands 3GPP: 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300MHz, 2600 MHz
RF+PMIC Chipset	(Int. Baseband and RF) + PM8028 or PM8015	RTR8600 + PM8028	WTR1605 + PM8018	WTR1625L / WTR1605L + PM8019
WLAN	---	Soft AP support (WCN1314)	Soft AP support (AR6003)	Soft AP support (AR6003 and AR6004)
USB	USB2.0 HS OTG	USB 2.0 All Speed Peripheral or Host	USB 2.0 All Speed Peripheral or Host	USB 2.0 All Speed Peripheral or Host
GPS	Gen 8 with Glonass Standalone, Assisted, XTRA, 3dB improvement vs. Gen 7	Gen 8 with Glonass Standalone, Assisted, XTRA, 3dB improvement vs. Gen 7	Gen 8A with Glonass Standalone, Assisted, XTRA, 3dB improvement vs. Gen 7	Gen 8B with Glonass,Beidou Standalone, Assisted, XTRA, 3dB improvement vs. Gen 7

Specifications subject to change without notice. Not all features may be available upon 1st commercial software release.

Feature Comparison – Data Modem UMTS

FEATURES	MDM6270	MDM6200	MDM8200	MDM8200A
Process Technology	65nm	45nm	65nm	45nm
Package	424 CSP 12x12x1.05mm (0.5mm pitch)	486 NSP, 9.8x12.2x1.05mm (0.4mm pitch)	608 CSP, 14x14x1.4mm (0.5mm pitch)	408 NSP, 10x10x1.05mm (0.4mm pitch)
Processor	ARM926EJS - 184MHz ADSP - 92MHz	ARM11w/L2-390MHz ADSP - 130MHz	ARM926-256MHz Dual QDSP6-450MHz	ARM926-256MHz Dual QDSP6-450MHz
MODEM	HSDPA GSM / EGPRS	HSPA+ GSM/EGPRS	HSPA+ GSM/EGPRS	HSPA+ GSM/EGPRS
Peak Data Rates UL/DL	**HSDPA:** DL 3.6Mbps / UL 384kbps	**HSPA+:** DL 14Mbps / UL 5.76Mbps	**HSPA+:** DL 28Mbps / UL 5.76 Mbps	**HSPA+:** DL 28Mbps / UL 5.76 Mbps
Modem Enhancements	**UMTS:** Equalizer **GSM:** SAIC	**UMTS**: SCH-IC, Rx Diversity with Equalizer (Type 3i), Enhanced F-DPCH, DTX, DRX **GSM:** Improved SAIC	**UMTS:** RxD, EQ, SCH-IC, Q-ICE (Type 3i), 2x2 DL MIMO **GSM:** SAIC	**UMTS:** RxD, EQ, SCH-IC, Q-ICE (Type 3i), 2x2 DL MIMO **GSM:** SAIC
Voice support	---	Integrated	---	Integrated
Frequency Support	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/900/1500/1700/1800/ AWS1700/2100 **GSM:** QB EGPRS (850, 900,1800, 1900)\	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC Chipset	(Integrated RF+PMIC)	(Int. Baseband and RF) + PM8028 or PM8015	RTR6285 + PM7540	RTR6285 + PM8028 or PM8015
WLAN	---	---	---	Soft AP support (WCN1314)
USB	USB 2.0 HS Peripheral and Host	USB2.0 HS OTG	USB 2.0 All Speed Peripheral or Host	USB 2.0 HS Peripheral or Host
GPS	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w	**Gen 8** with Glonass Standalone, Assisted, XTRA, 3dB improvement vs. Gen 7	N/A	**Gen 7** Standalone, Assisted, XTRA, 2dB sens. imprv. vs. Gen 6w

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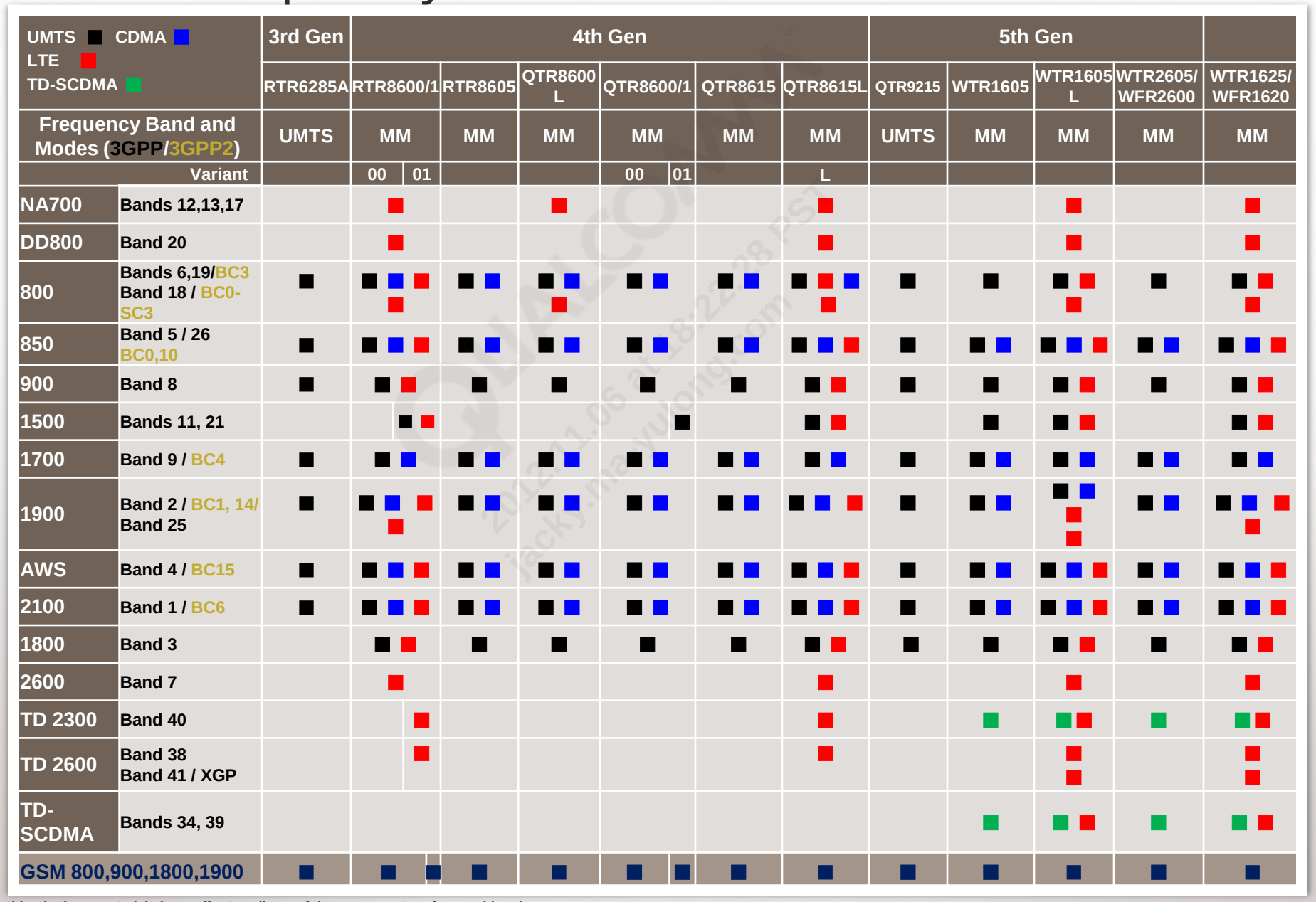
Feature Comparison – Data Modem UMTS

FEATURES	MDM8215	MDM8220	MDM9200	MDM9215/M	MDM9225/M
Process Tech.	28nm	45nm	45nm	28nm	28nm
Package	10x10mm (0.4mm pitch)	504 CSP, 13x13x1.4mm (0.5mm pitch)	504 CSP, 13x13x1.4mm (0.5mm pitch)	424 NSP 10x10mm – MDM9215 383 NSP 9x9mm – MDM9215M	384 NSP 9x9 – MDM9625 333 NSP 8x8 – MDM9625M
Processor	ARMv7 Cortex-A5 550MHz Dual QDSP6-TBDMHz	ARM926-256MHz Dual QDSP6-600MHz	ARM926-256MHz Dual QDSP6-600MHz	ARMv7 Cortex-A5 550MHz Dual QDSP6-TBDMHz	ARMv7 Cortex-A5 Dual QDSP6-600MHz
MODEM	Release 8 DC-HSPA+ GSM/EGPRS	Release 8 DC-HSPA+, GSM/EGPRS	Release 8 LTE Release 8 DC-HSPA+ GSM/EGPRS	Release 9 DC-HSPA+ Release 9 LTE TD-SCDMA GSM/GPRS/EDGE	Release 10 HSPA+ Release 9 LTE Cat 4, Rel10 LTE CA TD-SCDMA GSM/GPRS/EDGE
Peak Data Rates UL/DL	**DC-HSPA+:** DL 42Mbps / UL 5.76Mbps	**DC-HSPA+**: DL 42Mbps / UL 5.76 Mbps	**EGPRS** - FL/RL: 236.8 / 236.8 kbps (MSC12) **DC-HSPA+:** DL 42Mbps / UL 5.76Mbps **LTE FDD:** DL 100Mbps / UL 50 Mbps (Cat 3) **LTE TDD**: DL 68Mbps / UL 17 Mbps (Cat 3)	**EGPRS** - FL/RL: 236.8 / 236.8kbps (MSC12) **DC-HSPA+** - FL/RL: 42 / 5.76 Mbps **LTE FDD** - FL/RL: 100 / 50 Mbps (Cat 3) **LTE TDD** - FL/RL: 68 / 17 Mbps (Cat 3)	EGPRS - FL/RL: 236.8/ 236.8kbps (MSC12) HSPA+ - FL/RL: 84 / 11 Mbps LTE - FL/RL: 150 / 50 Mbps (Cat 4)
Modem Enhancements	**UMTS:** RxD, EQ, SCH-IC, Q-ICE (Type 3i), 2x2 DL MIMO **GSM:** SAIC	**UMTS**: RxD, EQ, SCH-IC, Q-ICE (Type 3i), 2x2 DL MIMO **GSM:** SAIC	**UMTS:** RxD, EQ, SCH-IC, Q-ICE (Type 3i), 2x2 DL MIMO **LTE:** 2x2 DL SU-MIMO with SIC **GSM:** SAIC	**UMTS**: RxD, EQ, SCH-IC, Q-ICE (Type 3i), 2x2 DL MIMO, HDOn **LTE**: 2x2 DL SU-MIMO **GSM**: SAIC	**UMTS**: RxD, EQ, SCH-IC, Q-ICE (Type 3i) **LTE**: 2x2 DL SU-MIMO **GSM**: SAIC Envelope Tracking
Voice support	Integrated	Through fusion with MSM	Through fusion with MSM	Integrated	Integrated
Frequency Support	**UMTS**: 3GPP: 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300MHz, 2600 MHz **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1700 (AWS), 1800 MHz, 1900 MHz, 2100 MHz **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS**: 3GPP: 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300MHz, 2600 MHz **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS**: 3GPP: 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300MHz, 2600 MHz **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 3GPP: 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300MHz, 2600 MHz **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC chipset	WTR1605 + PM8018	RTR8600 + PM8028	RTR8600 + PM8028	WTR1605L + PM8018	WTR1625 / WTR1605 + PM8019
WLAN	Soft AP support (AR6003)	Soft AP support (WCN1314)	Soft AP support (WCN1314)	Soft AP support (AR6003)	Soft AP support (AR6003, AR6004)
USB	USB 2.0 All Speed Peripheral or Host	USB 2.0 HS Peripheral or Host	USB 2.0 All Speed Peripheral or Host	USB 2.0 All Speed Peripheral or Host	USB 2.0 All Speed Peripheral or Host
GPS	**Gen 8A** with Glonass Standalone Assisted, XTRA, 3dB improvement vs. Gen 7	Gen 8 with Glonass Standalone Assisted, XTRA, 3dB improvement vs. Gen 7	**Gen 8** with Glonass Standalone Assisted, XTRA, 3dB improvement vs. Gen 7	**Gen 8A** with Glonass Standalone, Assisted, XTRA, 3dB improvement vs. Gen 7	**Gen 8B** with Glonass, BeiDou Standalone Assisted, XTRA, 3dB improvement vs. Gen 7

Specifications subject to change without notice. Not all features may be available upon 1st commercial software release.

RF Band Capability – 2G/3G/4G



RF Feature Support

	3rd Gen	4th Gen						5th Gen				
	RTR6285A	RTR8600/1	RTR8605	QTR8600L	QTR8600/1	QTR8615	QTR8615L	QTR9215	WTR1605	WTR1605L	WTR2605	WTR1625
	UMTS	MM	MM	MM	MM	MM	MM	UMTS	MM	MM	MM	MM
Variant		00 / 01			00 / 01							
WAN TECHNOLOGY												
Rx Diversity/ DL MIMO	■	■	■	■	■	■	■		■	■	*With WFR2600*	■
HSPA+	■	■	■	■	■	■	■	■	■	■	■	■
DC HSPA+		■		■			■		■	■	*With WFR2600*	■
DOrB		■			■		■		■	■	*With WFR2600*	■
LTE CSFB		■		■			■			■		■
SV-LTE: LTE ■ 3G/2G ■		■	■	■			■		■	■		■
Average Power Tracking	■	■	■	■	■	■	■	■	■	■	■	■
CA										*With 2x WTR1605L*		*With WFR1620*
CONNECTIVITY												
GPS ■ GPS+Glonass ■	■	■	■	■	■	■	■	■	■	■	■	■
BT/FM				■	■							
2CH Codec ■ 4CH Codec ■				■	■	■	■	■				
PACKAGING	7x7 137CSP	6.8x7.2 196NSP	6.2x7.2 196NSP	6.2x12.6 308NSP	6.2x12.6 308NSP	6.2x11 268NSP	6.2x11 268NSP	5.4x8.8 204NSP	4.9x5.4 WSP	4.9x5.4 WSP	3.5 x 3.20 WSP	5.47 x 5.47 WSP

Standalone CODEC Feature Comparison

	WCD9320	WCD9310	WCD9304	WCD9306	WCD9302
MSM	MSM8974	MSM8960	MSM8x30	MSM8x32/26	MSM8x26
# Tx ADC / #Rx DAC	6/7	6/7	3/4	6/6	4/6
# Analog Input / # PA Output	6/8	6/8	3/5	5/6	3/6
# Digital Mic	6	6	4	4(1)	2(1)
Rx SNR (dB) / Tx SNR (dB)	120 / 100	110 / 100	110 / 100	120/100	105/100
Headphone Amplifier	Class-H	Class-G	Class-G	Class H	Class H
MP3 Power (mW)[2]	6.5	7.5	7.5	6.5	6.5
Class D Speaker Amp	Yes	No	No	Yes	Yes
Line Out Single-Ended (Vrms)	1.0	0.6	1.0	1.0	1.0
Max Sample Rate (kHz)	192	192	96	192	48
Active Noise Cancellation	Yes	Yes	Yes	Yes	No
Mic Activity Detect	Y	N	N	N	N
Ultrasonic/Force	Yes	Yes	No	Yes	No
Vbatt detection	Yes	No	No	No	No
Digital Interface	SLIMbus / I2S	SLIMbus / I2S	SLIMbus/I2S	SLIMbus/I2S	SLIMbus/I2S
WLP Package (mm2)	15	11.8	7.75	9.8	9.8
PCB Stackup Requirement	2-N-2	2-N-2	2-N-2	1-N-1	1-N-1

[1]: Shared with Analog MIC

[2]: @0.1mW x 2 stereo headphone output power

Product Variants

Note: MSM8960-x-AB = “MSM8960Pro” (similarly: MSM8x60A-x-AB = “MSM8x60APro”)

Family	Variant	ES	CS	Description
MSM8960	-0	Production		LTE CAT3/DC-HSPA+ 42Mbps/DOrB Baseband plus dual core AP at 1.5GHz, without HDCP
	-0-AB	Aug’12	Oct’12	LTE CAT3/DC-HSPA+ 42Mbps/DOrB Baseband plus dual core AP at 1.7GHz, without HDCP
	-1	Production		LTE CAT3/DC-HSPA+ 42Mbps/DOrB Baseband plus dual core AP at 1.5GHz, with HDCP
	-1-AB	Aug’12	Oct’12	LTE CAT3/DC-HSPA+ 42Mbps/DOrB Baseband plus dual core AP at 1.7GHz, with HDCP
	-2	Production		LTE CAT3/DC-HSPA+ 42Mbps Baseband plus dual core AP at 1.5GHz, without HDCP
	-2-AB	Aug’12	Oct’12	LTE CAT3/DC-HSPA+ 42Mbps Baseband plus dual core AP at 1.7GHz, without HDCP
	-3	Production		LTE CAT3/DC-HSPA+ 42Mbps Baseband plus dual core AP at 1.5GHz, with HDCP
	-3-AB	Aug’12	Oct’12	LTE CAT3/DC-HSPA+ 42Mbps Baseband plus dual core AP at 1.7GHz, with HDCP
	-6	Apr’12	Oct’12	LTE CAT3/DC-HSPA+ 42Mbps/TD-SCDMA Baseband plus dual core AP at 1.5GHz, without HDCP
	-6-AB	Aug’12	Oct’12	LTE CAT3/DC-HSPA+ 42Mbps/TD-SCDMA Baseband plus dual core AP at 1.7GHz, without HDCP
	-7	April’12	Oct’12	LTE CAT3/DC-HSPA+ 42Mbps/TD-SCDMA Baseband plus dual core AP at 1.5GHz, with HDCP
	-7-AB	Aug’12	Oct’12	LTE CAT3/DC-HSPA+ 42Mbps/TD-SCDMA Baseband plus dual core AP at 1.7GHz, with HDCP
MSM8660A	-0	Production		HSPA+ 21Mbps/DOrB Baseband plus dual core AP at 1.5GHz, without HDCP
	-0-AB	Aug’12	Oct’12	HSPA+ 21Mbps/DOrB Baseband plus dual core AP at 1.7GHz, without HDCP
	-1	Production		HSPA+ 21Mbps/DOrB Baseband plus dual core AP at 1.5GHz, with HDCP
	-1-AB	Aug’12	Oct’12	HSPA+ 21Mbps/DOrB Baseband plus dual core AP at 1.7GHz, with HDCP
MSM8260A	-0	Production		DC-HSPA+ 42Mbps Baseband plus dual core AP at 1.5GHz, without HDCP
	-0-AB	Aug’12	Oct’12	DC-HSPA+ 42Mbps Baseband plus dual core AP at 1.7GHz, without HDCP
	-1	Production		DC-HSPA+ 42Mbps Baseband plus dual core AP at 1.5GHz, with HDCP
	-1-AB	Aug’12	Oct’12	DC-HSPA+ 42Mbps Baseband plus dual core AP at 1.7GHz, with HDCP
	-2	Production		HSPA+ 21Mbps Baseband plus dual core AP at 1.5GHz, without HDCP
	-2-AB	Aug’12	Oct’12	HSPA+ 21Mbps Baseband plus dual core AP at 1.7GHz, without HDCP
	-3	Production		HSPA+ 21Mbps Baseband plus dual core AP at 1.5GHz, with HDCP
	-3-AB	Aug’12	Oct’12	HSPA+ 21Mbps Baseband plus dual core AP at 1.7GHz, with HDCP
	-4	Apr’12	Oct’12	HSPA+ 21Mbps/TD-SCDMA Baseband plus dual core AP at 1.5GHz, without HDCP
	-4-AB	Aug’12	Oct’12	HSPA+ 21Mbps/TD-SCDMA Baseband plus dual core AP at 1.7GHz, without HDCP
	-5	Apr’12	Oct’12	HSPA+ 21Mbps/TD-SCDMA Baseband plus dual core AP at 1.5GHz, with HDCP
	-5-AB	Aug’12	Oct’12	HSPA+ 21Mbps/TD-SCDMA Baseband plus dual core AP at 1.7Hz, with HDCP
APQ8060A	-0	Production		Dual core AP at 1.5GHz, without HDCP
	-0-AB	Aug’12	Oct’12	Dual core AP at 1.7GHz, without HDCP
	-1	Production		Dual core AP at 1.5GHz , with HDCP
	-1-AB	Aug’12	Oct’12	Dual core AP at 1.7GHz , with HDCP

Product Variants

Family	Variant	ES	CS	Description
MSM8974	MSM8974-0	Sept ‘12	May ‘13	LTE CAT4/DC-HSPA+ 84Mbps/DOrB/TD-SCDMA Baseband plus AP, without HDCP
	MSM8974-1	Sept ‘12	May ‘13	LTE CAT4/DC-HSPA+ 84Mbps/DOrB/TD-SCDMA Baseband plus AP, with HDCP
	MSM8974-2	Sept ‘12	May ’13	LTE CAT4/DC-HSPA+ 84Mbps/DOrB Baseband plus AP, without HDCP
	MSM8974-3	Sept ‘12	May ’13	LTE CAT4/DC-HSPA+ 84Mbps/DOrB Baseband plus AP, with HDCP
	MSM8974-6	Sept ‘12	May ‘13	LTE CAT4/DC-HSPA+ 84Mbps/TD-SCDMA Baseband plus AP, without HDCP
	MSM8974-7	Sept ‘12	May ‘13	LTE CAT4/DC-HSPA+ 84Mbps/TD-SCDMA Baseband plus AP, with HDCP
MSM8674	MSM8674-0	Sept ‘12	May ‘13	HSPA+ 21Mbps/DOrB Baseband plus AP, without HDCP
	MSM8674-1	Sept ‘12	May ‘13	HSPA+ 21Mbps/DOrB Baseband plus AP, with HDCP
MSM8274	MSM8274-0	Sept ‘12	May ’13	DC-HSPA+ 84Mbps/TD-SCDMA Baseband plus AP, without HDCP
	MSM8274-1	Sept ‘12	May ’13	DC-HSPA+ 84Mbps/TD-SCDMA Baseband plus AP, with HDCP
	MSM8274-2	Sept ‘12	May ‘13	HSPA+ 21Mbps/TD-SCDMA Baseband plus AP, without HDCP
	MSM8274-3	Sept ‘12	May ‘13	HSPA+ 21Mbps/TD-SCDMA Baseband plus AP, with HDCP
APQ8074	APQ8074-0	Sept ‘12	May ‘13	Quad core AP, without HDCP
	APQ8074-1	Sept ‘12	May ‘13	Quad core AP, with HDCP

Product Variants (cont.)

Family	Variant	ES	CS	Description
MSM8930	-0	Apr'12	Jul'12	LTE CAT3/DC-HSPA+ 42Mbps/DOrB Baseband plus AP, without HDCP
	-0-AA		Jul'12	LTE CAT3/DC-HSPA+ 42Mbps/DOrB Baseband plus AP 1.4GHz, without HDCP
	-1		Jul'12	LTE CAT3/DC-HSPA+ 42Mbps/DOrB Baseband plus AP, with HDCP
	-1-AA		Jul'12	LTE CAT3/DC-HSPA+ 42Mbps/DOrB Baseband plus AP 1.4GHz, with HDCP
	-2		Jul'12	LTE CAT3/DC-HSPA+ 42Mbps Baseband plus AP, without HDCP
	-2-AA		Jul'12	LTE CAT3/DC-HSPA+ 42Mbps Baseband plus AP 1.4GHz, without HDCP
	-3		Jul'12	LTE CAT3/DC-HSPA+ 42Mbps Baseband plus AP, with HDCP
	-3-AA		Jul'12	LTE CAT3/DC-HSPA+ 42Mbps Baseband plus AP 1.4GHz, with HDCP
	-6		Nov'12	LTE CAT3/DC-HSPA+ 42Mbps/TD-SCDMA Baseband plus AP, without HDCP
	-6-AA		Nov'12	LTE CAT3/DC-HSPA+ 42Mbps/TD-SCDMA Baseband plus AP 1.4GHz, without HDCP
	-7		Nov'12	LTE CAT3/DC-HSPA+ 42Mbps/TD-SCDMA Baseband plus AP, with HDCP
	-7-AA		Nov'12	LTE CAT3/DC-HSPA+ 42Mbps/TD-SCDMA Baseband plus AP 1.4GHz, with HDCP
MSM8630	-0		Jul'12	HSPA+ 21Mbps/DOrB Baseband plus AP, without HDCP
	-0-AA		Aug'12	HSPA+ 21Mbps/DOrB Baseband plus AP 1.4GHz, without HDCP
	-1		Jul'12	HSPA+ 21Mbps/DOrB Baseband plus AP, with HDCP
	-1-AA		Aug'12	HSPA+ 21Mbps/DOrB Baseband plus AP 1.4GHz, with HDCP
MSM8230	-0		Jul'12	DC-HSPA+ 42Mbps Baseband plus AP, without HDCP
	-0-AA		Aug'12	DC-HSPA+ 42Mbps Baseband plus AP 1.4GHz, without HDCP
	-1		Jul'12	DC-HSPA+ 42Mbps Baseband plus AP, with HDCP
	-1-AA		Aug'12	DC-HSPA+ 42Mbps Baseband plus AP 1.4GHz, with HDCP
	-2		Jul'12	HSPA+ 21Mbps Baseband plus AP, without HDCP
	-2-AA		Aug'12	HSPA+ 21Mbps Baseband plus AP 1.4GHz, without HDCP
	-3		Jul'12	HSPA+ 21Mbps Baseband plus AP, with HDCP
	-3-AA		Aug'12	HSPA+ 21Mbps Baseband plus AP 1.4GHz, with HDCP
	-4		Nov'12	HSPA+ 21Mbps/TD-SCDMA Baseband plus AP, without HDCP
	-4-AA		Nov'12	HSPA+ 21Mbps/TD-SCDMA Baseband plus AP 1.4GHz, without HDCP
	-5		Nov'12	HSPA+ 21Mbps/TD-SCDMA Baseband plus AP, with HDCP
	-5-AA		Nov'12	HSPA+ 21Mbps/TD-SCDMA Baseband plus AP 1.4GHz, with HDCP

Product Variants (cont.)

Family	Variant	ES	CS	Description
MSM8627	-0		Aug'12	HSPA+ 21Mbps/DOrB Baseband plus AP
MSM8227	-0	Jun'12	Aug'12	HSPA+ 21Mbps Baseband plus AP
	-1		Nov'12	HSPA+ 21Mbps/TD-SCDMA Baseband plus AP
APQ8030	-0-AA		Feb'13	Dual core AP 1.4GHz, without HDCP
	-1-AA		Feb'13	Dual core AP 1.4GHz, with HDCP

Product Variants (cont.)

Family	Variant	ES	CS	Description
MSM8660	-0	Production		DOrB/HSPA+ Baseband with integrated AP at 1.2GHz, without HDCP
	-1	Production		DOrB/HSPA+ Baseband with integrated AP at 1.2GHz, with HDCP
	-0-AA	Production		DOrB/HSPA+ Baseband with integrated AP at 1.5GHz, without HDCP
	-1-AA	Production		DOrB/HSPA+ Baseband with integrated AP at 1.5GHz, with HDCP
	-0-AB	Production		DOrB/HSPA+ Baseband with integrated AP at 1.7GHz, without HDCP
	-1-AB	Production		DOrB/HSPA+ Baseband with integrated AP at 1.7GHz, with HDCP
MSM8260	-0	Production		HSPA+ Baseband + AP at 1.2GHz, without HDCP
	-1	Production		HSPA+ Baseband + AP at 1.2GHz, with HDCP
	-0-AA	Production		HSPA+ Baseband + AP at 1.5GHz, without HDCP
	-1-AA	Production		HSPA+ Baseband + AP at 1.5GHz, with HDCP
	-0-AB	Production		HSPA+ Baseband + AP at 1.7GHz, without HDCP
	-1-AB	Production		HSPA+ Baseband + AP at 1.7GHz, with HDCP
APQ8060	-0	Production		Dual core AP at 1.2GHz, without HDCP
	-1	Production		Dual core AP at 1.2GHz, with HDCP
	-0-AA	Production		Dual core AP at 1.5GHz, without HDCP
	-1-AA	Production		Dual core AP at 1.5GHz, with HDCP
	-0-AB	Production		Dual core AP at 1.7GHz, without HDCP
	-1-AB	Production		Dual core AP at 1.7GHz, with HDCP
APQ8064	-0	Mar'12	NA	Quad Core AP @ 1.5GHz, PCDDR3, 23x23, without HDCP
	-1	Mar'12	NA	Quad Core AP @ 1.5GHz, PCDDR3, 23x23, with HDCP
	-2	Feb'12	June'12	Quad Core AP @ 1.5GHz, LPDDR2, 14x14 PoP, without HDCP
	-3	Feb'12	June'12	Quad Core AP @ 1.5GHz, LPDDR2, 14x14 PoP, with HDCP
	-0-AB	Dec'12	Feb'13	Quad Core AP @ 1.7GHz, PCDDR3, 23x23, without HDCP
	-1-AB	Dec'12	Feb'13	Quad Core AP @ 1.7GHz, 23x23, with HDCP
	-2-AB	Oct'12	Dec'12	Quad Core AP @ 1.7GHz, 14x14 PoP, without HDCP
	-3-AB	Oct'12	Dec'12	Quad Core AP @ 1.7GHz, LPDDR2, 14x14 PoP, with HDCP

Product Variants (cont.)

Family	Variant	ES	CS	Description
MSM7627	-0	Production		1x/DOrA, GSM/EDGE/HSPA
	-0-BB	Production		1x/DOrA, GSM/EDGE/HSPA, 800MHz TURBO mode (“7627T”)
	-2	Production		1x/DOr0, GSM/EDGE
	-2-BB	Production		1x/DOr0, GSM/EDGE, 800MHz TURBO mode (“7627T”)
MSM7227	-0	Production		WEDGE, HSPA
	-0-BB	Production		WEDGE, HSPA, 800MHz TURBO mode (“7227T”)
	-1	Production		WEDGE, HSDPA
	-1-BB	Production		WEDGE, HSDPA, 800MHz TURBO mode (“7227T”)
MSM7225A	-0-AA	Production		WEDGE, HSPA 7.2/5.76 Mbps, 800MHz
	-1	Production		WEDGE, HSDPA 7.2 Mbps, 600MHz
	-1-AA	Production		WEDGE, HSDPA 7.2 Mbps, 800MHz
	-0-AB	Production		WEDGE, HSPA 7.2/5.76 Mbps, 1GHz
	-1-AB	Production		WEDGE, HSDPA 7.2Mbps, 1GHz
MSM7625A	-0-AA	Production		1x/DOrA, GSM/EDGE/HSPA 7.2/5.76 Mbps, 800MHz
	-0-AB	Production		1x/DOrA, GSM/EDGE/HSPA 7.2/5.76 Mbps, 1 GHz
MSM7227A	-0	Production		WEDGE, HSPA 7.2/5.76 Mbps, 800MHz
	-0-AA	Production		WEDGE, HSPA 7.2/5.76 Mbps, 1GHz
	-1	Production		WEDGE, HSDPA 7.2 Mbps, 800MHz
	-1-AA	Production		WEDGE, HSDPA 7.2 Mbps, 1GHz
MSM7627A	-0	Production		1x/DOrA, GSM/EDGE/HSPA 7.2/5.76 Mbps, 800MHz
	-0-AA	Production		1x/DOrA, GSM/EDGE/HSPA 7.2/5.76 Mbps, 1GHz

Product Variants (cont.)

Family	Variant	Die rev.		Description
		2.0	2.1	
MSM7230	-0	BTO	--	PoP Dual-channel LPDDR2; HSPA+(14.4/5.76), 800MHz
	-1	BTO	--	PoP LPDDR1+ Flash memory; HSPA+(14.4/5.76), 800MHz
MSM8255	-0	BTO	Production	PoP Dual-channel LPDDR2; HSPA+(14.4/5.76), 1.0GHz
	-0-AA	--	Production	PoP Dual-channel LPDDR2; HSPA+(14.4/5.76), 1.2GHz
	-0-AB	--	Production	PoP Dual-channel LPDDR2; HSPA+(14.4/5.76), 1.4GHz
	-1	BTO	Production	PoP LPDDR1+ Flash memory; HSPA+(14.4/5.76), 1.0GHz
	-1-AA	--	Production	PoP LPDDR1+ Flash memory; HSPA+(14.4/5.76), 1.2GHz
MSM7630	-0	BTO	--	PoP Dual-channel LPDDR2; DOrB, HSPA+(14.4/5.76), 800MHz
	-1	BTO	--	PoP LPDDR1+ Flash memory; DOrB, HSPA+(14.4/5.76), 800MHz
MSM8655	-0	BTO	Production	PoP Dual-channel LPDDR2; DOrB, HSPA+(14.4/5.76), 1.0GHz
	-0-AA	--	Production	PoP Dual-channel LPDDR2; DOrB, HSPA+(14.4/5.76), 1.2GHz
	-0-AB	--	Production	PoP Dual-channel LPDDR2; DOrB, HSPA+(14.4/5.76), 1.4GHz
	-1	BTO	Production	PoP LPDDR1+ Flash memory; DOrB, HSPA+(14.4/5.76), 1.0GHz
	-1-AA	--	Production	PoP LPDDR1+ Flash memory; DOrB, HSPA+(14.4/5.76), 1.2GHz
APQ8055	-0	--	BTO	PoP Dual-channel LPDDR2; 1.0GHz
	-0-AB	--	Production	PoP Dual-channel LPDDR2; 1.4GHz
	-1	BTO	--	PoP LPDDR1+ Flash memory; 1.0GHz

MSM7x30 rev 2.0 and MSM8x55 rev 2.0 are Built-to-order (BTO) effective Aug'11
APQ8055 variants are Built-to-Order (BTO) only

Product Variants (cont.)

Family	Variant	ES	CS	Description
MDM9615	-0	1Q'12	April'12	LTE/DOrB/HSPA+/TD-SCDMA/GERAN Baseband , 10x10mm package
MDM9215	-0	1Q'12	April'12	LTE/HSPA+/TD-SCDMA/GERAN Baseband , 10x10mm package
MDM9615M	-0	1Q'12	June'12	LTE/DOrB/HSPA+/TD-SCDMA/GERAN Baseband , 9x9mm package with integrated memory
MDM9215M	-0	1Q'12	June'12	LTE/HSPA+/TD-SCDMA/GERAN Baseband , 9x9mm package with integrated memory
MDM8215	-0	1Q'12	April'12	HSPA+/GERAN Baseband , 10x10mm package
MDM8215M	-0	1Q'12	April'12	HSPA+/GERAN Baseband , 9x9mm package, integrated memory
MDM9625	-0	Q4'12	June'13	LTE/DOrB/HSPA+/TD-SCDMA/GERAN Baseband, 9x9mm package
MDM9225	-0	Q4'12	June'13	LTE/HSPA+/TD-SCDMA/GERAN Baseband , 9x9mm package
MDM9625M	-0	Q4'12	June'13	LTE/DOrB/HSPA+/TD-SCDMA/GERAN Baseband , 8x8mm package with integrated memory
MDM9225M	-0	Q4'12	June'13	LTE/HSPA+/TD-SCDMA/GERAN Baseband , 8x8mm package with integrated memory
MDM8225	-0	Q4'12	June'13	HSPA+/GERAN Baseband , 9x9mm package

Product Variants (cont.)

Family	Variant	ES	CS	Description
QSC6075/85	-0	Production		1x/EVDO multi-band QSC
	-0-AA	Production		1x/EVDO multi-band QSC, TURBO mode
QSC6085	-1	Production		1x/EVDO dual-band (800MHz/2100MHz only) QSC
MDM6085	-0	Production		1x/EVDO multi-band datacard chipset
	-1	Production		1x/EVDO dual-band (800MHz/2100MHz only) datacard chipset
QSC6195	-0	Production		1x/EVDO multi-band QSC
	-2	Production		1x/EVDO single-band (800MHz) QSC
QSC6295	-0	Production		HSPA multi-band QSC typical configuration
	-2	Production		HSPA multi-band QSC Japanese PDC support
MSM8225	-0	Production		WEDGE, HSPA 7.2/5.76 Mbps, dual-core AP at 1GHz
	-0-AA	Production		WEDGE, HSPA 7.2/5.76 Mbps, dual-core AP at 1.2GHz
	-0-AB	Production		WEDGE, HSPA 7.2/5.76 Mbps, dual-core AP at 1.4GHz
MSM8625	-0	Production		1x/DOrA, GSM/EDGE/HSPA 7.2/5.76 Mbps, dual-core AP at 1GHz
	-0-AA	Production		1x/DOrA, GSM/EDGE/HSPA 7.2/5.76 Mbps, dual-core AP at 1.2GHz
	-0-AB	Production		1x/DOrA, GSM/EDGE/HSPA 7.2/5.76 Mbps, dual-core AP at 1.4GHz
MSM8225Q	-0-AA	1Q'13		WEDGE, HSPA 7.2/5.76 Mbps, quad-core AP at 1.2GHz
MSM8625Q	-0-AA	1Q'13		1x/DOrA, GSM/EDGE/HSPA 7.2/5.76 Mbps, quad-core AP at 1.2GHz

Packaging Roadmap

	RoHS Compliant	BrCl-free	15x15mm	14x14mm	13x13mm	12.6x12.6mm	12.2x9.6mm	12x12mm	11x11mm	10x10mm	9x9mm	8.2x8.6mm
MSM6246	✓									385 NSP		
MSM6260/6280	✓			409 CSP								
MSM6290	✓									385 NSP		
MSM6800A/6575	✓			409 CSP					432 NSP			
MSM7200A/500A/7600	✓		543 CSP ISM									
MSM7225/7625	✓								456 NSP			
MSM7225A/7625A	✓	✓							576 NSP			
MSM7227/7627	✓	✓						560 NSP				
MSM7227A/7627A	✓	✓							576 NSP			
MSM8225/8625	✓	✓							576 NSP			
MSM8x30/8x27	✓	✓						745 NSP PoP				
MSM8255/8655	✓	✓		904 PoP NSP								
MSM8260/8660	✓	✓		976 NSP ISM								
MSM8260A/8660A	✓	✓		756 NSP PoP								
MSM8960	✓	✓		756 NSP PoP								
QSC6010/20/30	✓		351 MSP									
QSC1100/1110	✓	✓								284 CSP		
QSC1105	✓	✓								289 CSP		
QSC6055/75/85	✓	✓						424 CSP				
QSC61x5/6295/6695	✓	✓				669 NSP						
QSC6240/70	✓	✓						424 CSP				
QSD8250/8650/A	✓		603 CSP ISM									
MDM6085/6270	✓	✓						424 CSP				
MDM6200/6600	✓	✓					482 NSP					
MDM8200	✓									408 NSP		
MDM8200A	✓	✓								408 NSP		
MDM8215	✓	✓								424 NSP		
MDM8220	✓	✓			504 CSP ISM							
MDM9200/9600	✓	✓			504 CSP ISM							
MDM9615/9215	✓	✓								424 NSP		
MDM9615M/9215M	✓	✓									383 NSP	
MDM9625/9225/8225	✓	✓									384 NSP	
MDM9625M/9225M	✓	✓										333 NSP

CSP – Chip Scale Packaging
NSP – Nano Scale Packaging
PoP – Package-on-Package (PoP)
ISM – Integrated System Memory

✓RoHS: EU Restriction on Hazardous Substances Directive compliant
✓BrCl-free: Br < 900ppm, Cl < 900ppm and Br+Cl <1500 ppm

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Detailed SW Development Schedules

November 2012

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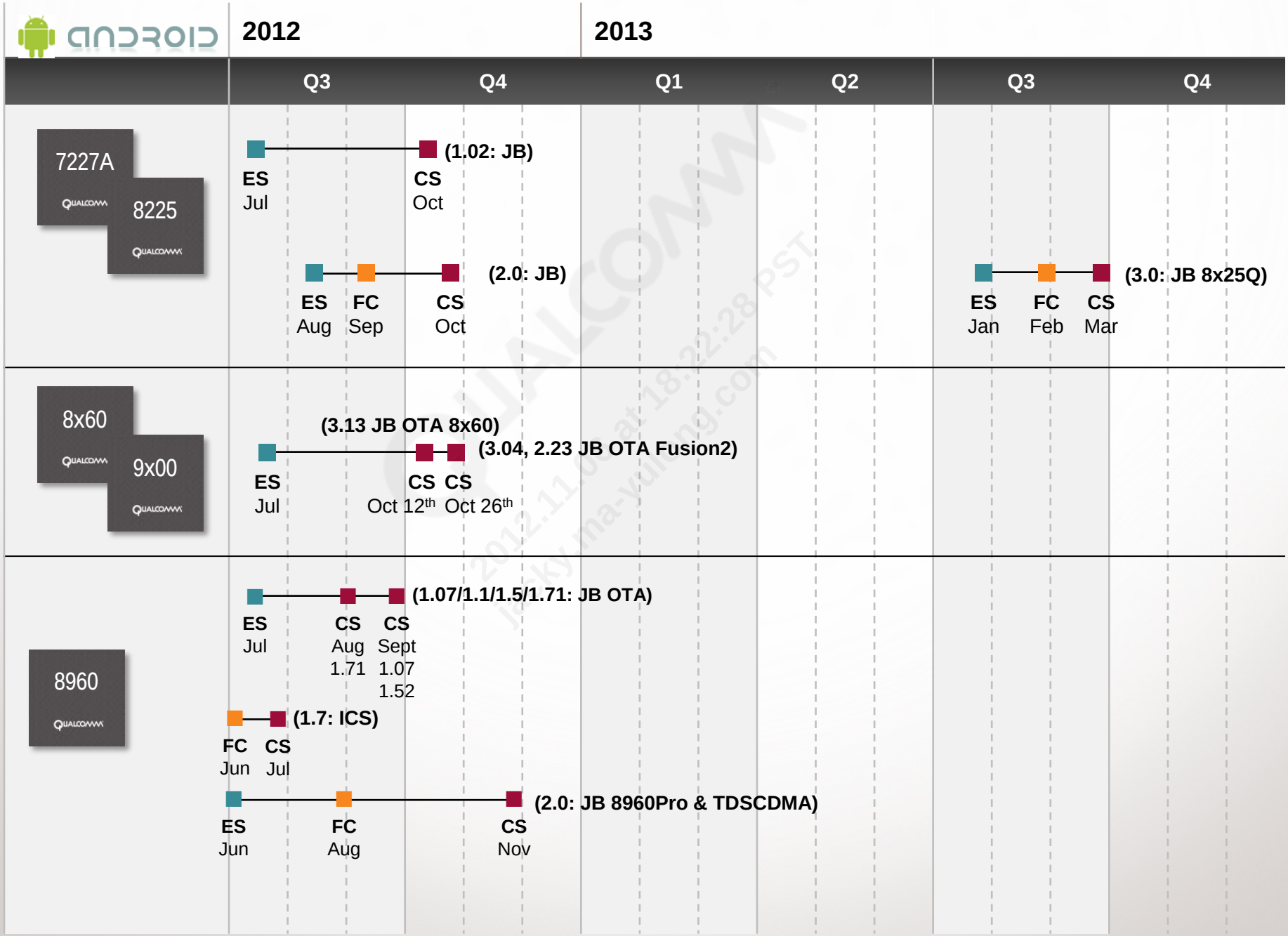
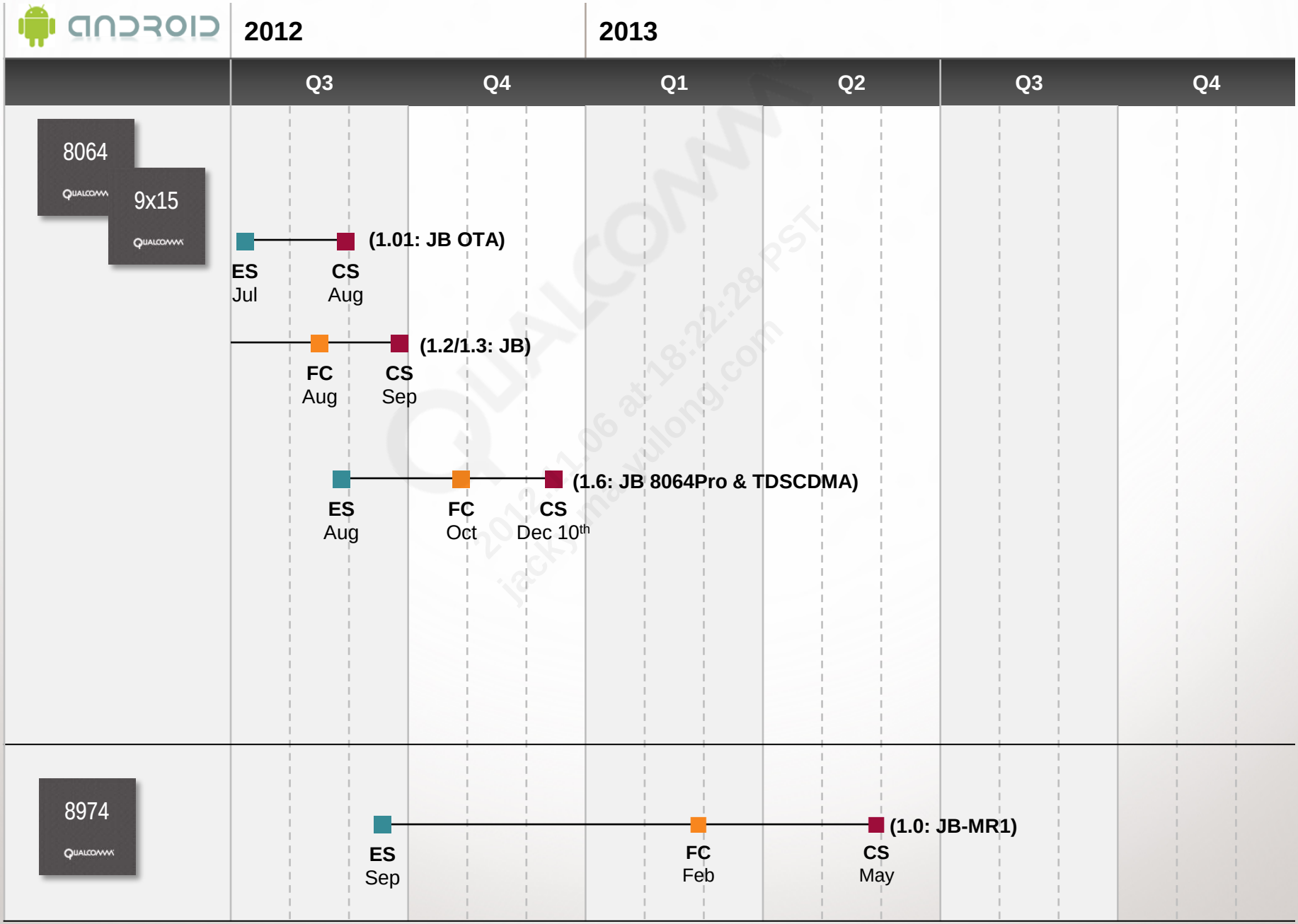
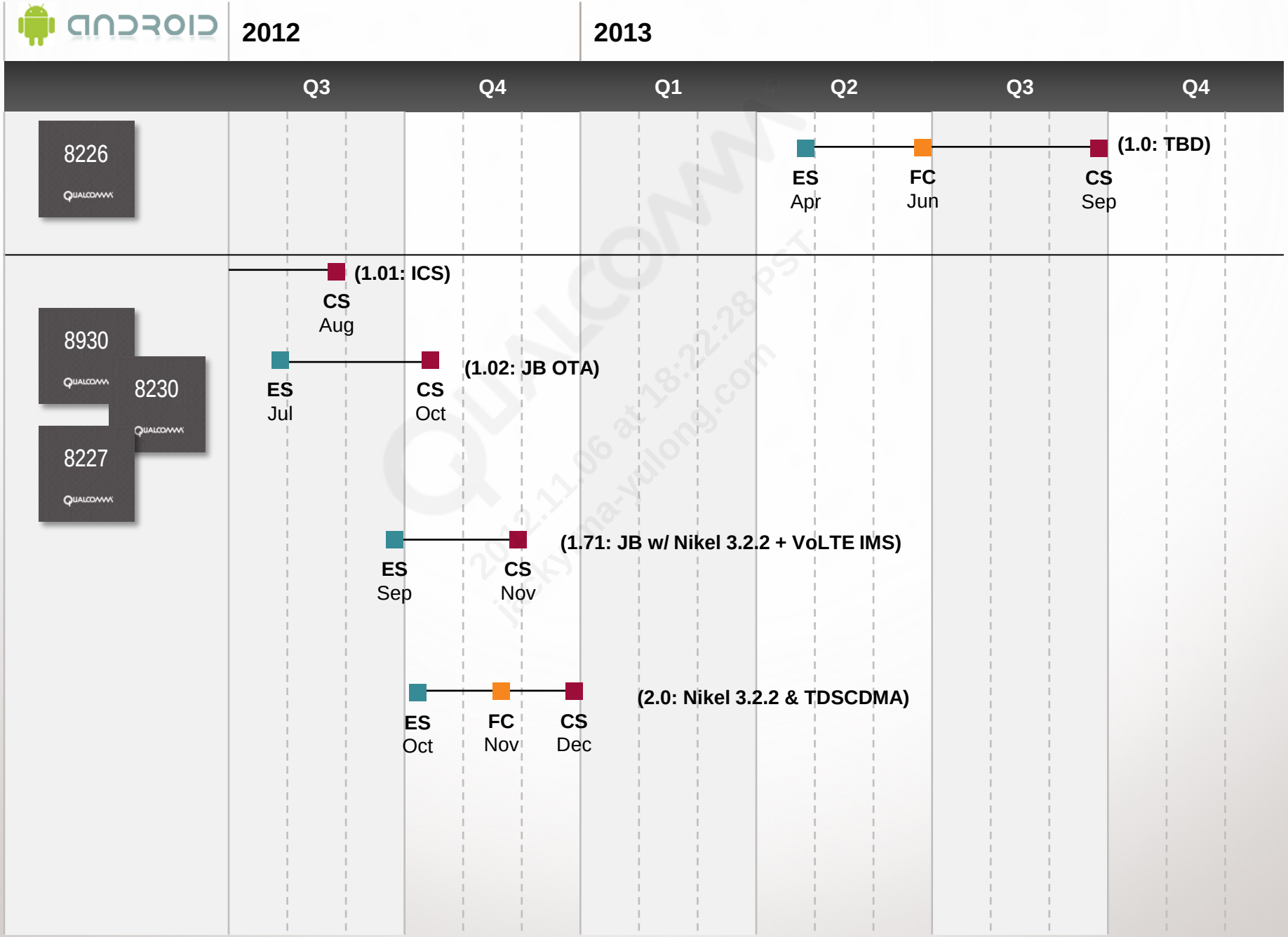
Android Release Plan

November 2012







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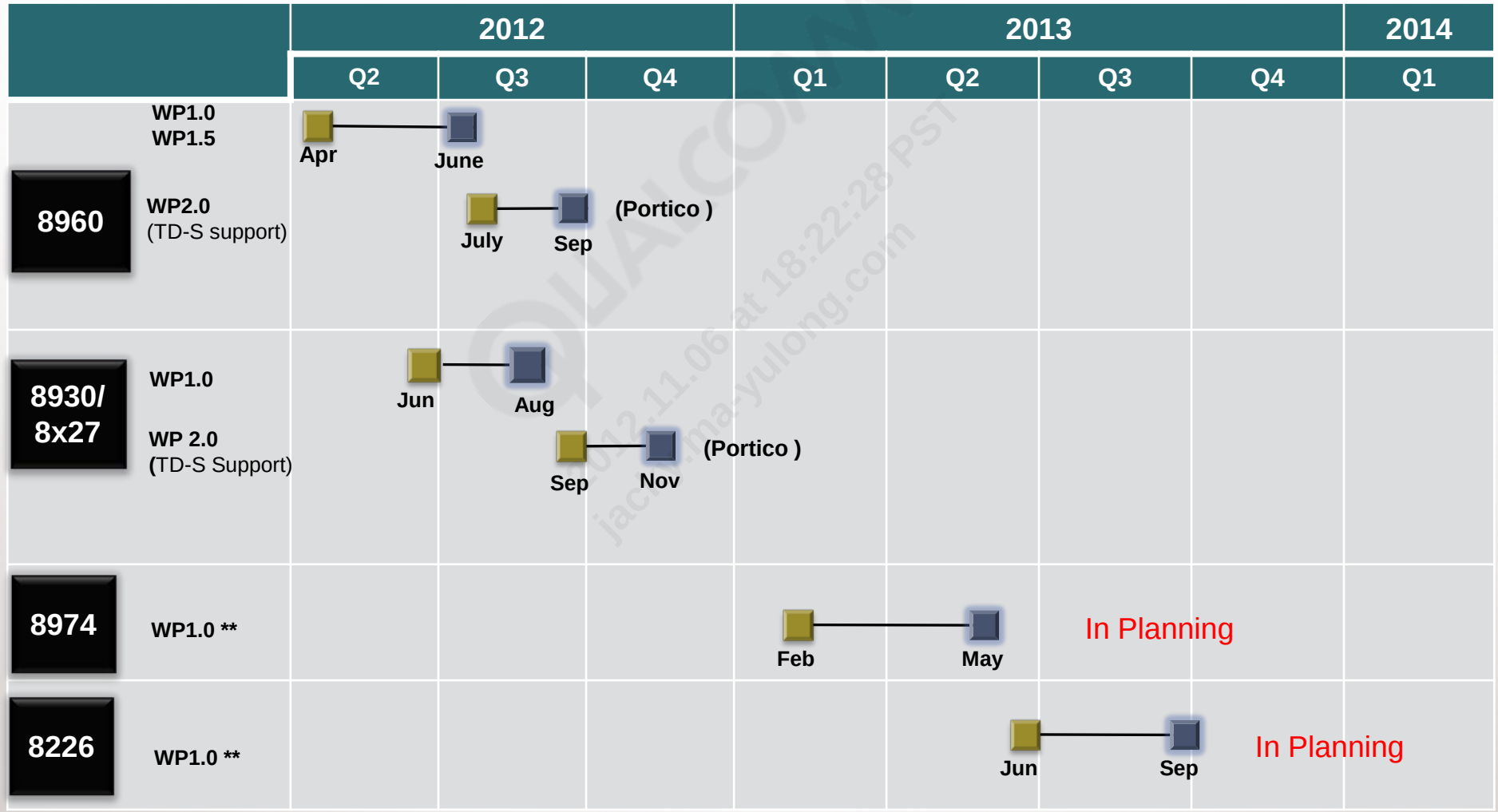
Windows Phone Release Plan

Apollo Roadmap Summary



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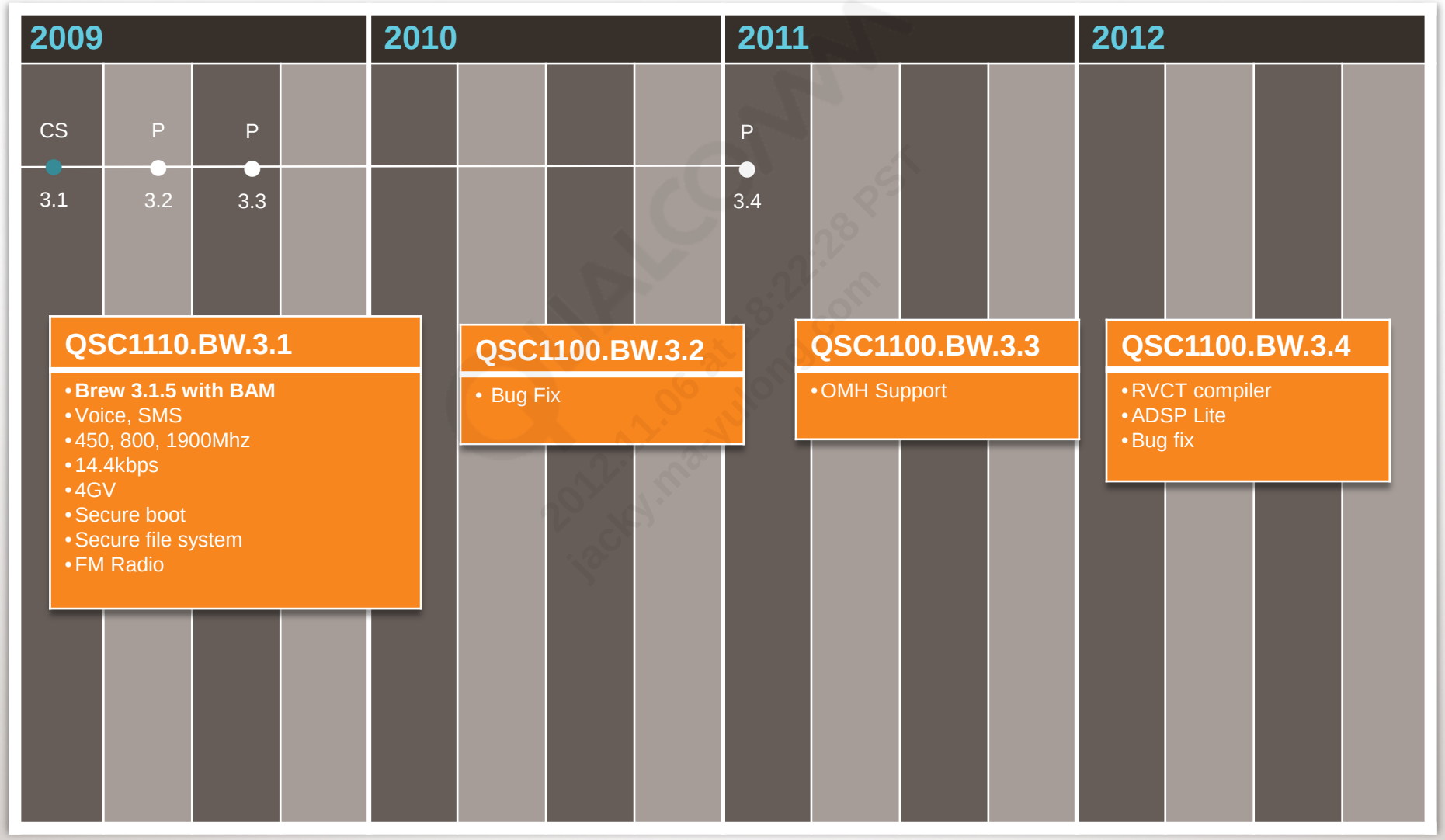
Brew Software Release Plan

November 2012

Brew Chipset Support Matrix

		BREW3	BREW4	Brew MP 1.0.2	Brew MP 1.0.3	Brew MP 1.0.4
UMTS	QSC 6240 / 6270		■	■	■	■
	QSC 6295				■	
CDMA	QSC 6155 / 75 / 85 / 6695				■	■
	QSC 6055 / 75 / 85	■		■		
	QSC 1105	■				
	QSC 11x0	■				

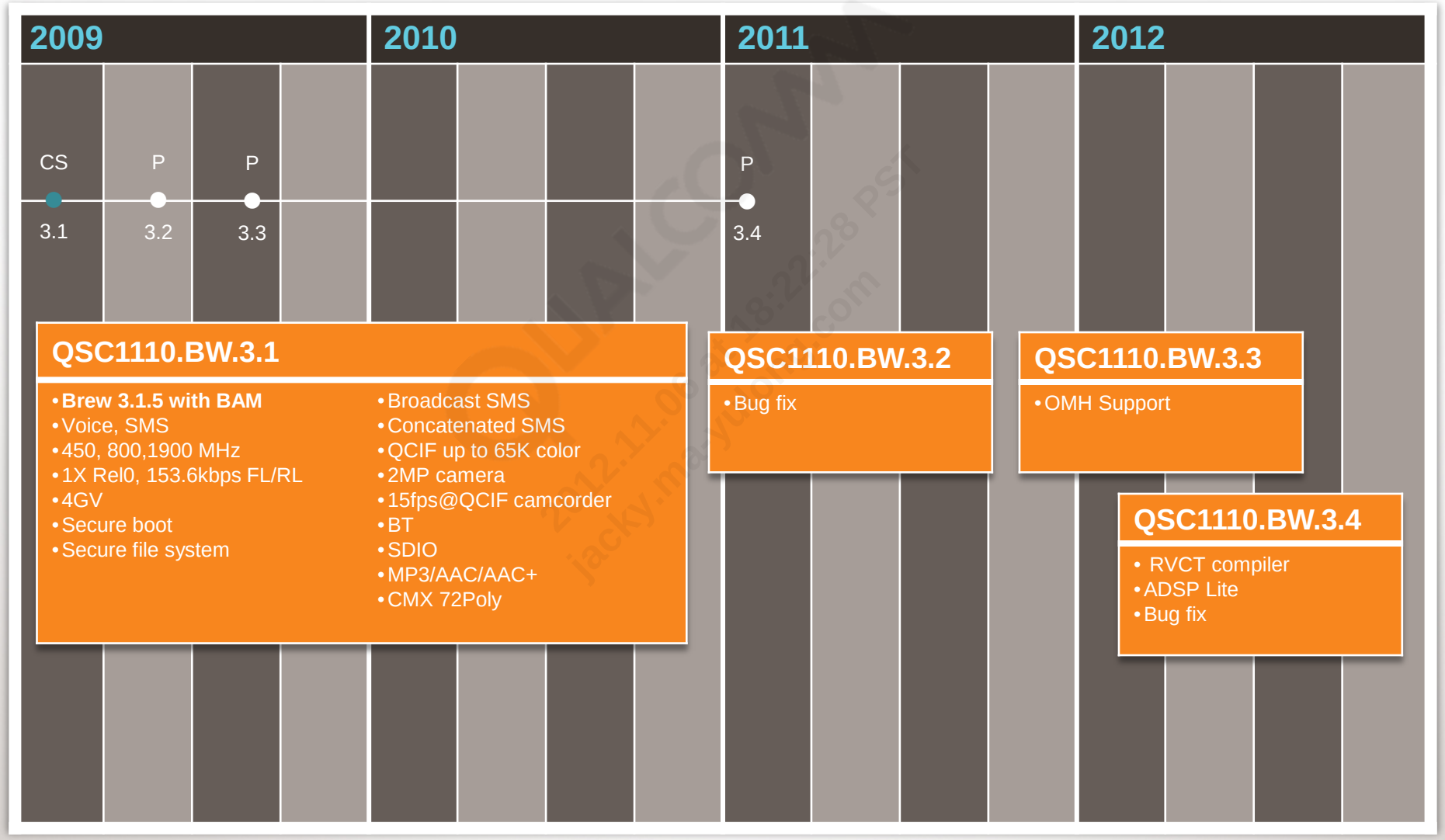
QSC1100 Release Plan



NOTE: Not all features listed

Early Sample | Feature Complete | Pre-CS | Commercial Sample | Post-CS Patch

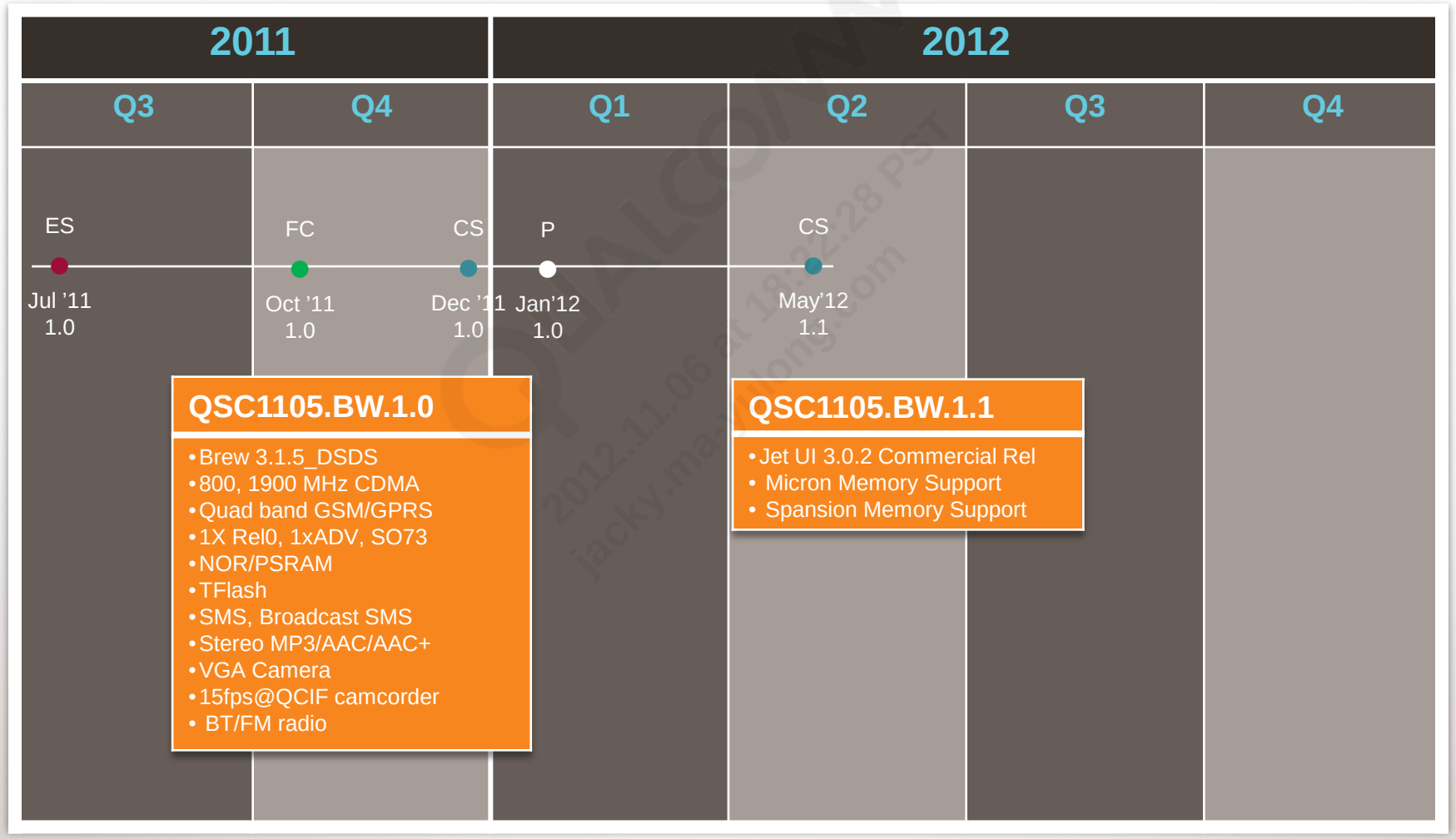
QSC1110 Release Plan



NOTE: Not all features listed

Early Sample | Feature Complete | Pre-CS | Commercial Sample | Post-CS Patch

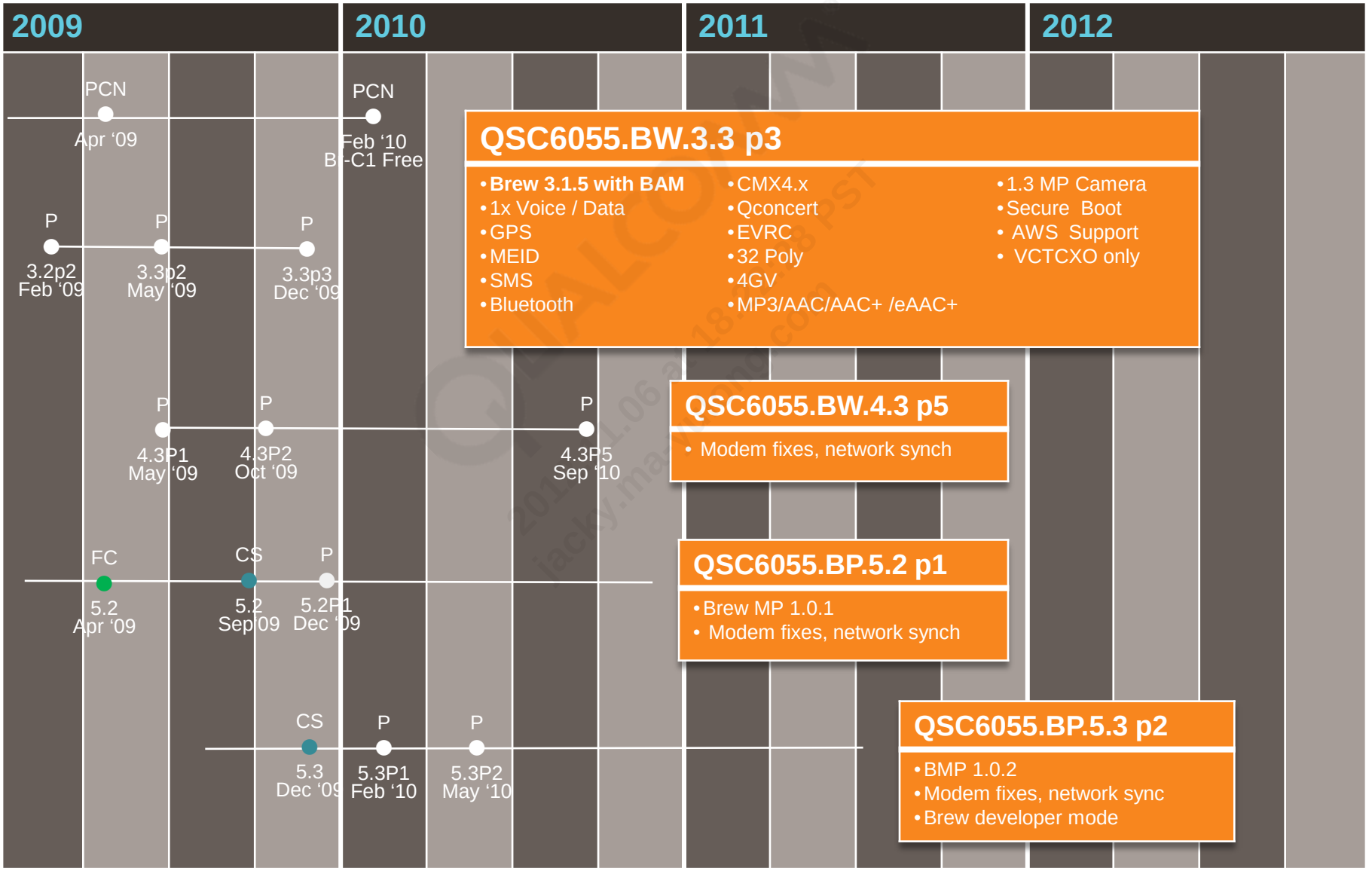
QSC1105 Release Plan



NOTE: Not all features listed

Early Sample | Feature Complete | Pre-CS | Commercial Sample | Post-CS Patch

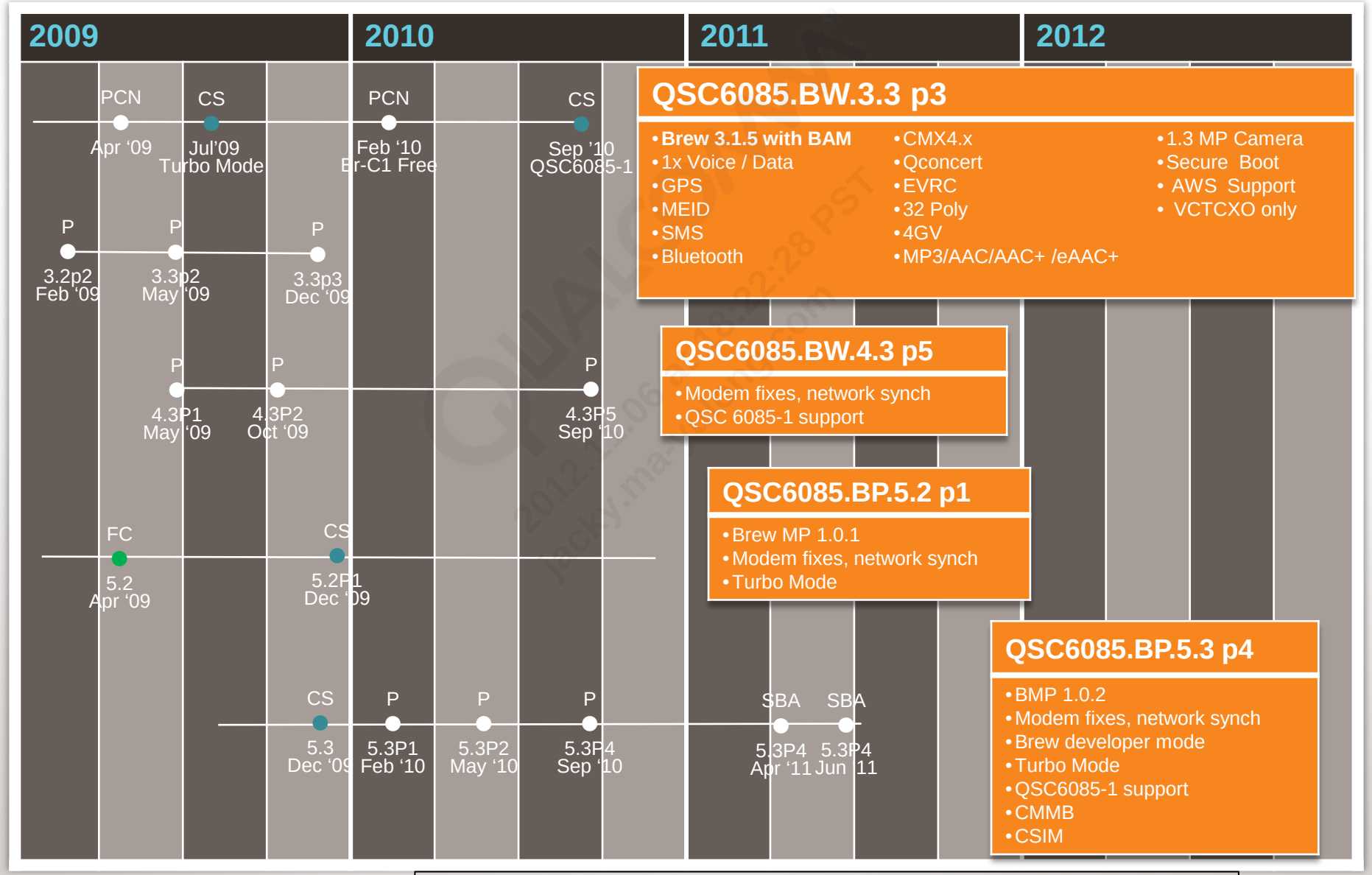
QSC6055 Release Plan



NOTE: Not all features listed

Early Sample | Feature Complete | Pre-CS | Commercial Sample | Post-CS Patch

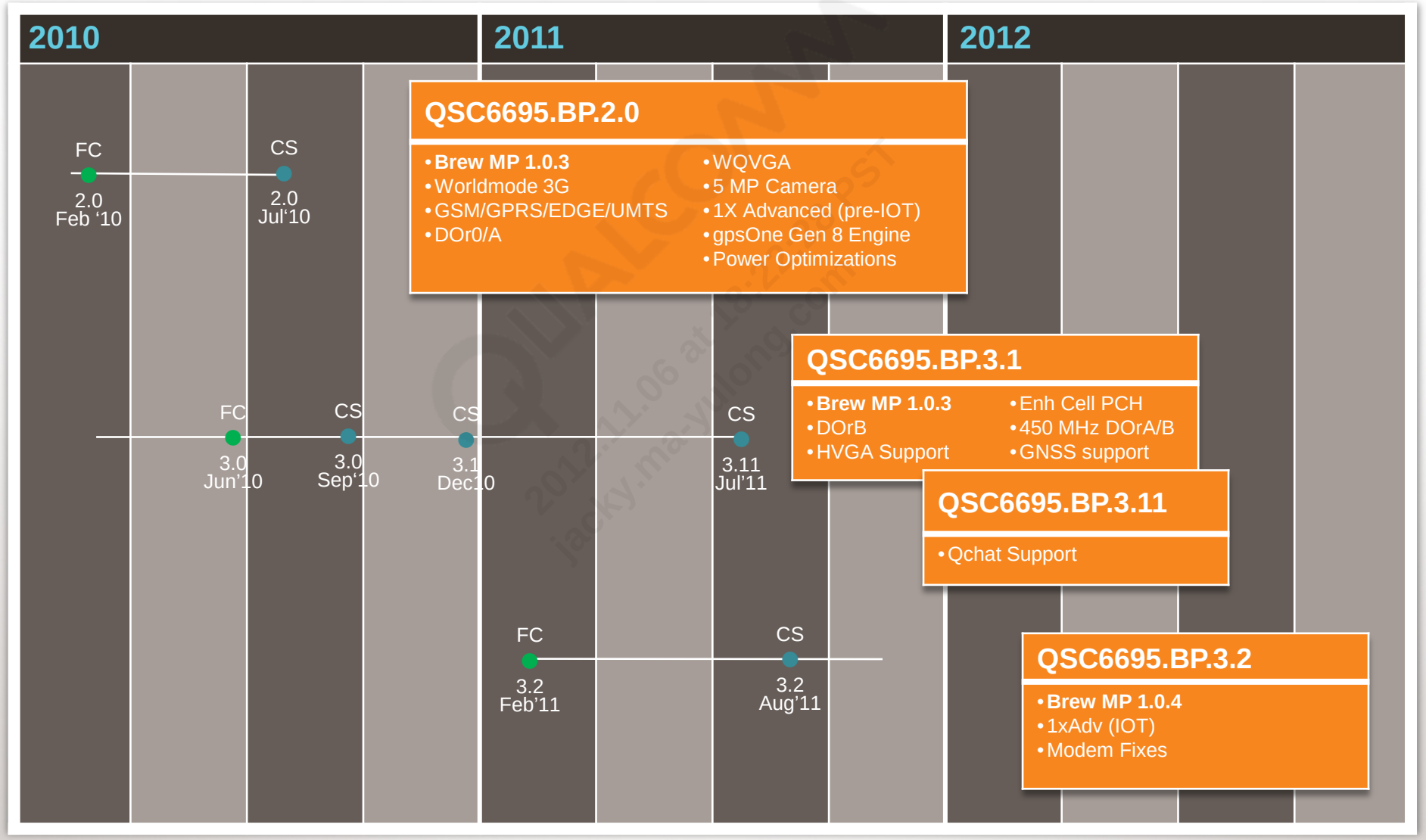
QSC6065/75/85 Release Plan



NOTE: Not all features listed

Early Sample | Feature Complete | Pre-CS | Commercial Sample | Post-CS Patch

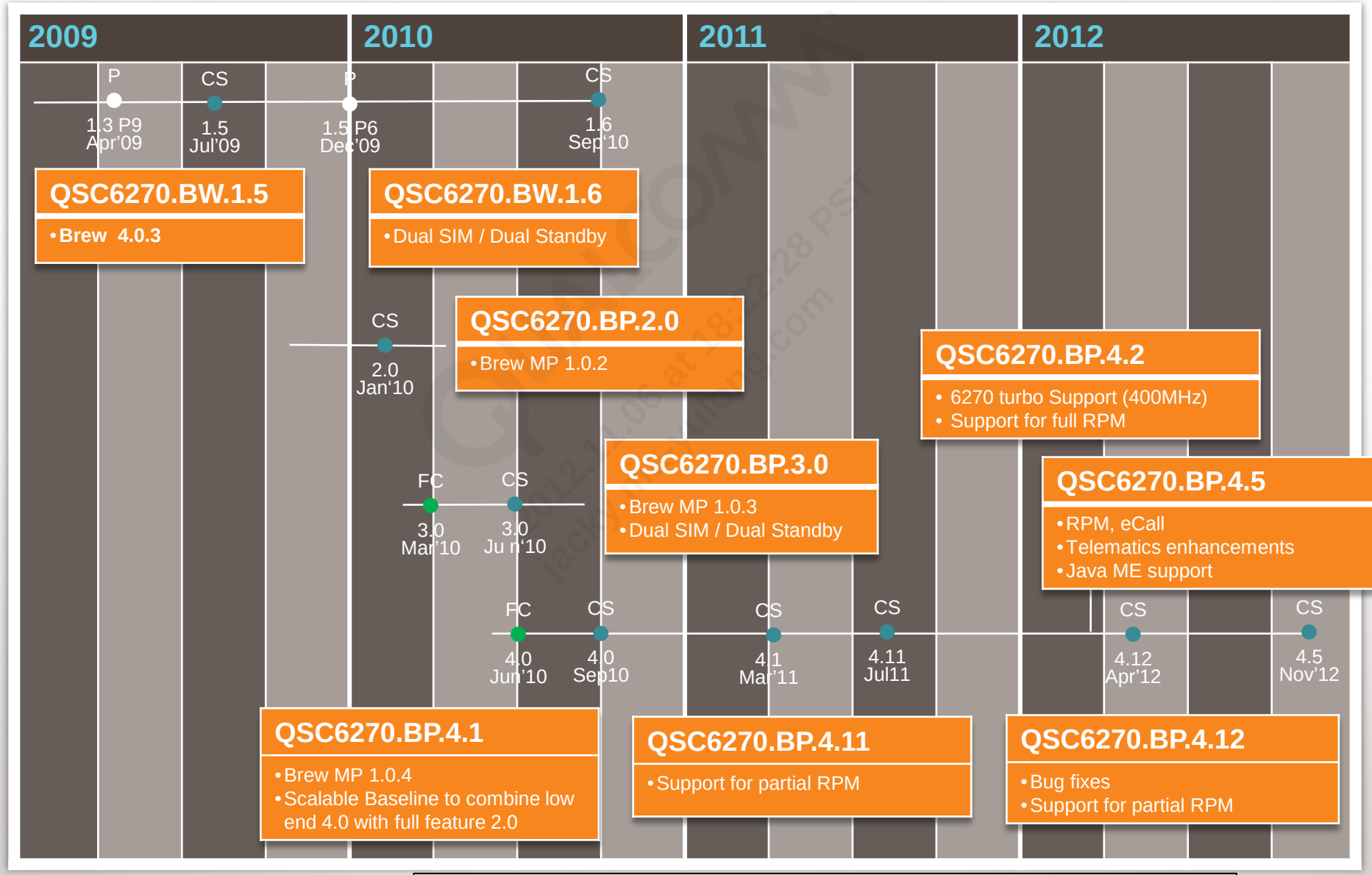
QSC61x5/6695 Release Plan



NOTE: Not all features listed

Early Sample | Feature Complete | Pre-CS | Commercial Sample | Post-CS Patch

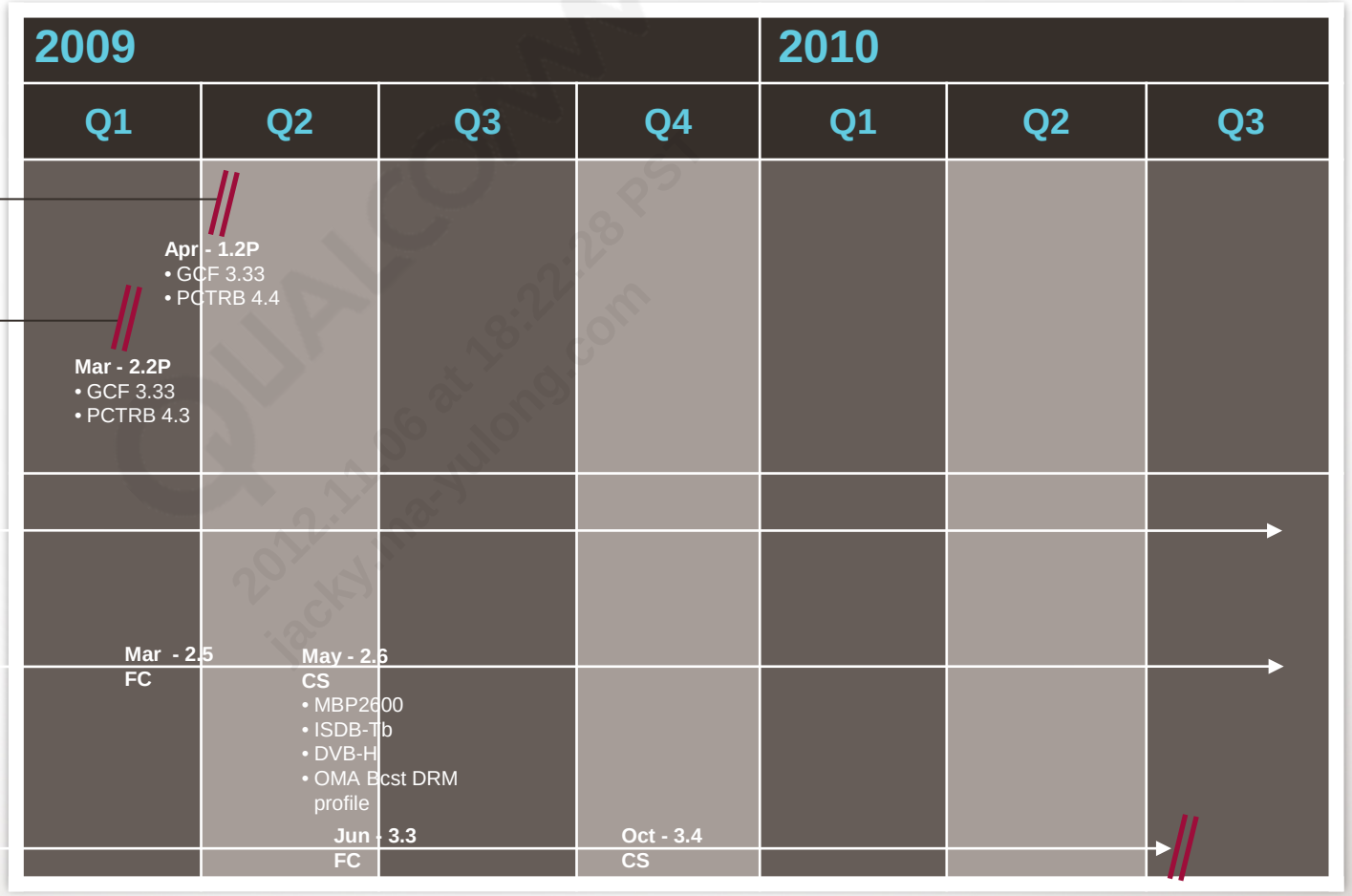
QSC6240/6270 Release Plan



NOTE: Not all features listed

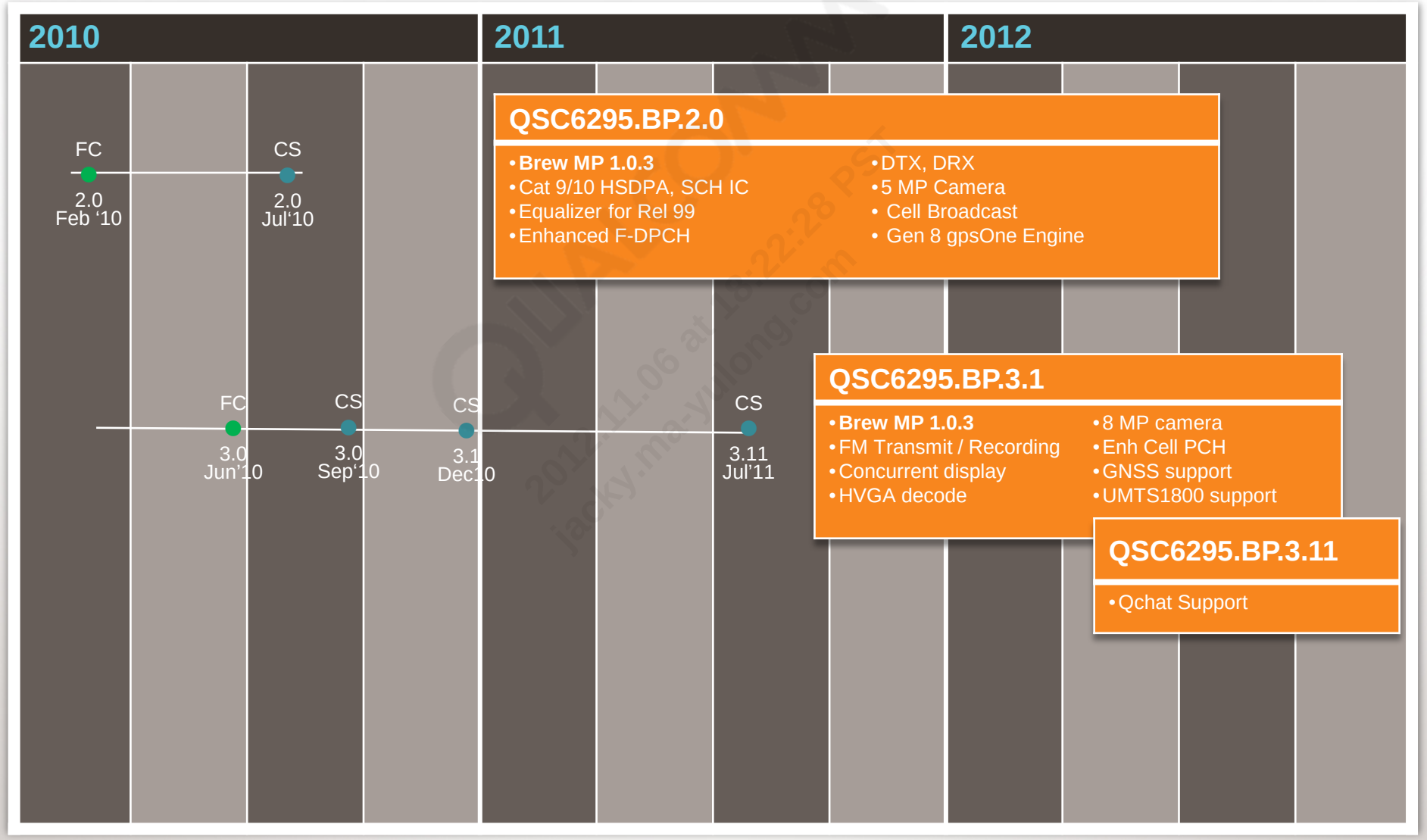
Early Sample | Feature Complete | Pre-CS | Commercial Sample | Post-CS Patch

MSM6290 Release Plan



CS: Commercial Samples

QSC6295 Release Plan



NOTE: Not all features listed

Early Sample | Feature Complete | Pre-CS | Commercial Sample | Post-CS Patch

Qualcomm
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Thin Modem Release Plan

MDM6085 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2010				2011	
	Q1	Q2	Q3	Q4	Q1	Q2
HW	**Mar** • MDM6085 CS		**Sep** • MDM6085-1 CS			
SW	**Mar – 3.3p4** **Commercial** • DOrA (MDM6085) • MEID • GPS **Mar – 4.3p3** **Commercial** • DOrA (MDM6085) • MEID • GPS		**Sep – 4.3p6** **Commercial** • MDM6085-1 support			

NOTE: Not all features listed

MDM6600 Development Schedule

ES: Eng. samples and α SW
CS: Commercial release

API enabled

	2010			2011
	Q2	Q3	Q4	
HW		**June** • MDM6600 PCN		**2011 Q1** • MDM6600 PCN • PM8015
SW	**1.X Baseline** **May 28th – 1.5** **Commercial** Multimode 3G (1xDOrA + HSPA) + 1X/EDGE/GSM Gen8, w/AGPS, Standalone GPS & XTRA 3GPP/3GPP2 Voice Support Data QMI & HS-USB			
	2.X Baseline **June end – 2.0 CS** **Commercial** QMI Enhancements BrewMP M2M support Telematics Enhancements + Features in 6600 1.5 CS			
	3.X Baseline	**July 2nd – 3.0** **Feature Complete**	**Sep – 3.0 CS** **Commercial** 1x-EVDOrevB + Features in 6x00 2.0 CS	**Dec – 3.1 CS** **Commercial** CSIM IPv6 Gen8, +Glonass +BC5* 450MHz DOrB + Features in 6x00 3.0 CS	**Jan4, 12 – 3.3 CS** **Commercial** Dual IP (IPv4/IPv6) Dual IPv6 Fallback, RPM 1X Advanced Windows8 USB Mobile Broadband Class driver* +Features 3.1 CS

NOTE: Not all features listed

MDM6600 Development Schedule

ES: Eng. samples and α SW
CS: Commercial release

API enabled

3.31 Baseline

Feb[nd] – 3.31
Feature Complete

March– 3.31CS
Commercial
Additionaal Win8 class driver Compatiblity
+ Features in 6x00 3.3 CS

3.4 Baseline

March12 – 3.4
Feature Complete

June, 12 – 3.4CS
Commercial
Telematics features
IPv6 over PPP, DHCPv6
Sample Rate Conversion
ROHC (DOrB)
+Features 3.31CS

NOTE: Not all features listed

MDM6200 Development Schedule

ES: Eng. samples and α SW
CS: Commercial release

gobi™ API enabled

	2010			2011
	Q2	Q3	Q4	
HW		**June** • MDM6200 PCN		**2011 Q1** • MDM6200 PCN • PM8015
SW	**1.X Baseline** **May 28th – 1.5** **Commercial** HSPA + GSM/EDGE Gen8, w/AGPS, Standalone GPS & XTRA 3GPP Voice Support Data QMI & HS-USB			
	2.X Baseline **June end – 2.0 CS** **Commercial** QMI Enhancements BrewMP M2M support Telematics Enhancements +U1500 RF band + Features in 6200 1.5 CS			
	3.X Baseline	**July 2nd – 3.0** **Feature Complete**	**Sep – 3.0 CS** **Commercial** Rel7 CPC DRX + Features in 6200 2.0 CS	**Dec – 3.1 CS** **Commercial** IPv6 Gen8, +Glonass + U1800 RF band + Features in 6200 3.0 CS **Jan 4, 2012 – 3.3 CS** **Commercial** Dual IP (IPv4/IPv6) Dual IPv6 Fallback, RPM Windows8 USB Mobile Broadband Class driver* +Features 3.1 CS

NOTE: Not all features listed

MDM6200 Development Schedule

ES: Eng. samples and α SW
CS: Commercial release

API enabled

3.31 Baseline

Feb[nd] – 3.31
Feature Complete

March– 3.31CS gobi
Commercial
Additional Win 8 Class driver support
+ Features in 6x00 3.3 CS

3.4 Baseline

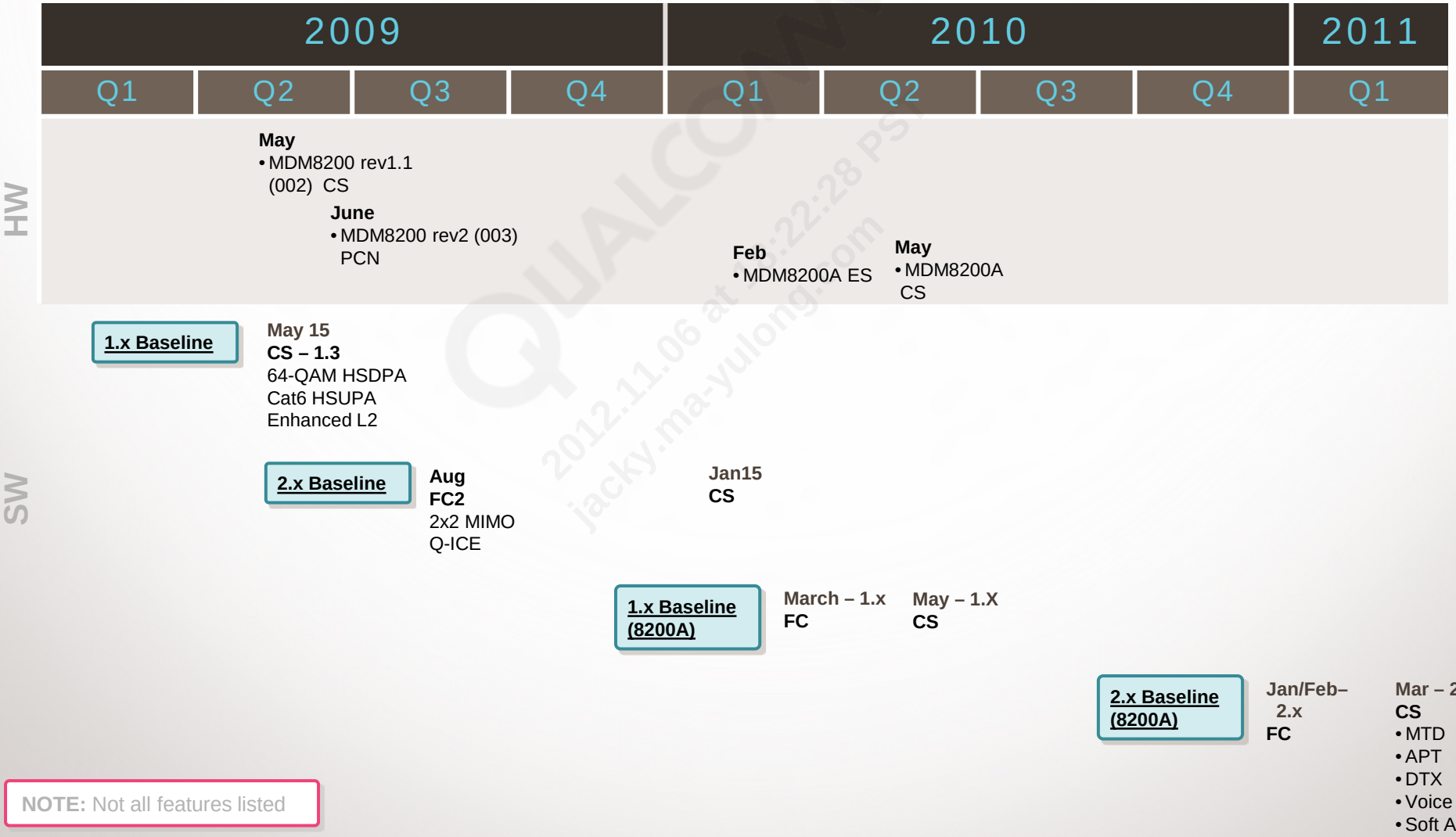
March12 – 3.4
Feature Complete

June, 12 – 3.4CS gobi
Commercial
Telematics features
IPv6 over PPP, DHCPv6
Sample Rate Conversion
+Features 3.31CS

NOTE: Not all features listed

MDM8200/8200A Development Schedule

ES: Engineering Samples, CS: Commercial Samples



NOTE: Not all features listed

MDM8200/8200A Development Schedule – 3.x

ES: Engineering Samples, CS: Commercial Samples

NOTE: Not all features listed

MDM8220 Development Schedule ES: Engineering Samples, CS: Commercial Samples

2009		2010				2011
Q3	Q4	Q1	Q2	Q3	Q4	Q1

HW

Sep
- MDM8220ES1
- RTR860x ES1
- PMIC8028 ES1

Dec
- MDM8220ES2

March 31
- MDM8220 ES3
- RTR860x pre-CS
- PMIC8028 pre-CS

Jun
- MDM8220**CS**
- RTR860x **CS**
- PMIC8028 **CS**

SW

R0.5.0.0 **Sep '09**

Bring up
- Boot
- Diag
- HS-USB

R0.8.0.0 **Nov '09**

WCDMA
- R99

R1.0.1.0 **Dec '09**

DC-HSPA+
- Single cell
- HSUPA 10ms TTI

GPRS
- Loopback

R1.0.1.1 **Mid-Jan '10**

Stability fixes

R1.0.1.2 **Feb '10**

WCDMA DC-HSPA+ with mobiity

GPRS
- Additional functionaly

R1.0.1.3 **Mar '10**

WCDMA
- -Inter-Freq mobility, compressed mode
- Type 2

GPRS
- DTM
- RFACCH, R-SACCH
- Sleep

GPS
- RF Dev.

R1.0.1.4 **Apr'10**

2G/3G
- Rel 8 DC-HSPA+
- UMTS/GERAN inter-RAT
- 2 ms HSUPA (5.76 Mbps)
- Compressed Mode with DC-HSPA+
- Inter-RAT Handovers
- E-FDPCH
- F-DPCH

GPS
- Standalone

R1.0.2.0 **May'10** FC
- Adv Rx Type3

R1.0.2.1 **Jun'10**

R1.0.3.0 **July'10 Commercial**

2.x Baseline

July– 2.0.2.0 FC

Oct – 2.0.3.0 CS
- AGPS
- QICE
- SoftAP

2.4 Baseline

Nov– 2.4.2.0 FC

Jan – 2.4.3.0 CS
- APT B9 proof of concept

MDM8220 SW Development Schedule – 3.x

ES: Engineering Samples,
CS: Commercial Samples

2010			2011		
Q2	Q3	Q4	Q1	Q2	Q3

3.x PL

(incr. feature set to 2.x baseline)

R3.0.2.0
Jan'10

FC

- DTX
- DC B8(900), B3(1800),
- Enhanced SoftAP feature set
- SoftAP WCN1314(10 clients)
- Gobi Anywhere API
- aGPS for all modes (SUPL2..0)

R3.0.3.0
Mar'11

Commercial

3.3 PL

(incr. feature set to 3.x baseline)

R3.3.2.0
Apr'11

FC

- DRX
- MIMO + 16 QAM
- MIMO + 64-QAM
- EAP-SIM

R3.3.3.0
Jun'11

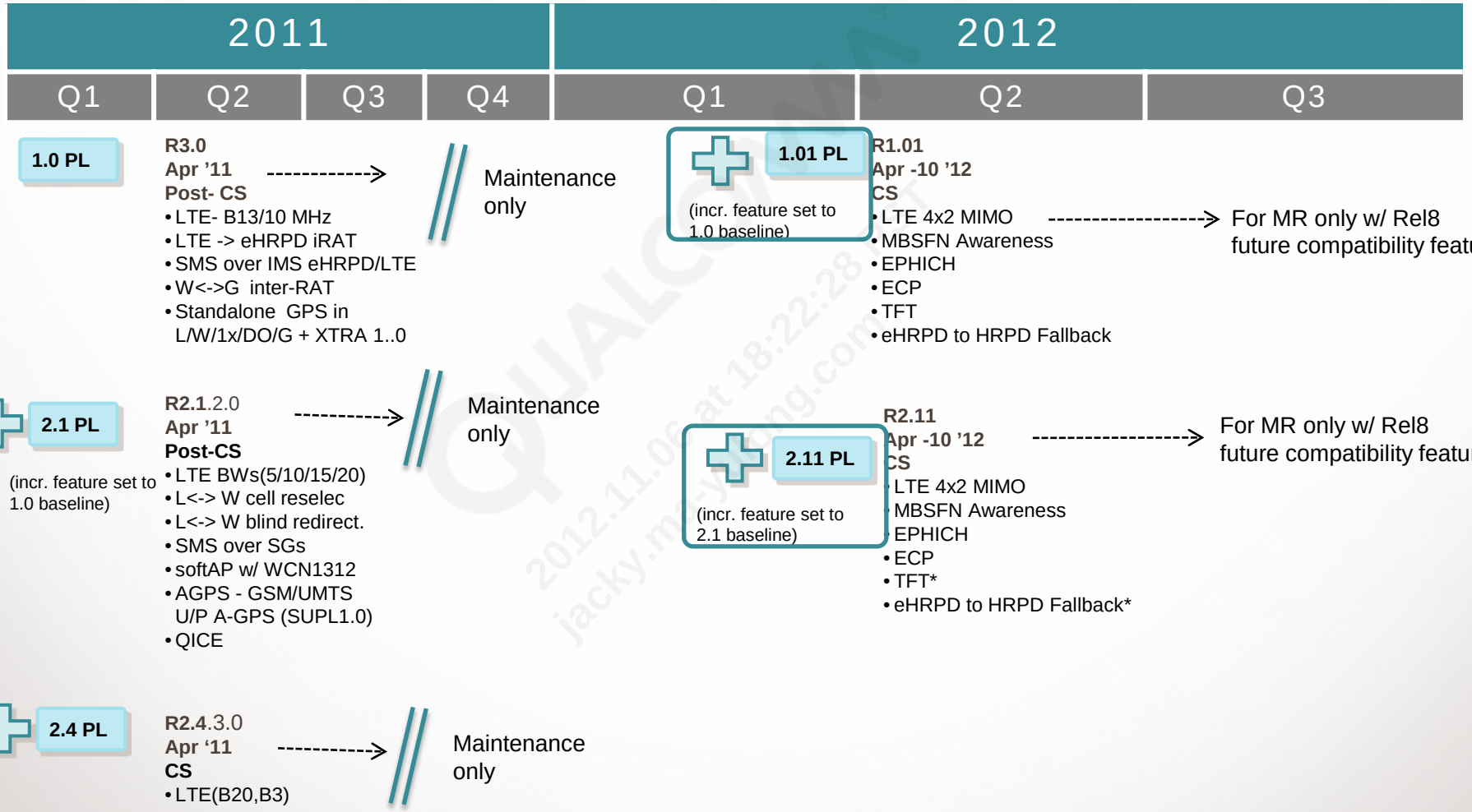
Commercial

SW

Not all features listed

MDM9x00 SW Development Schedule – 3.x

ES: Engineering Samples,
CS: Commercial Samples



Not all features listed

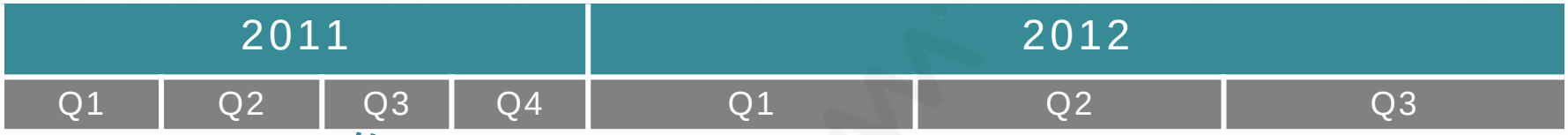
- C2k and LTE/C2k iRAT features are applicable to MDM9600 only.
- * applies to 9600 only

Not for new designs ⟸ // ⟹ Available for new designs

Releases recommeded for new designs

MDM9x00 SW Development Schedule – 3.x

ES: Engineering Samples,
CS: Commercial Samples



3.0 PL

(incr. feature set to 2.x PL)

R3.0
Mar'11
CS
- SUPL2..0
- SoftAP WCN1314
- LTE (B5,B8, B2)
- L<->G iRAT w/o meas.
- IFREQ con. mobility
- Gobi Anywhere API
- SON/ANR inter-freq

Maintenance only

3.3 PL

(incr. feature set to 3.0 baseline)

R3.3
Jun'11
CS
- L2W PS HO w/ measurements
- L<->W redirection w/ measurements
- L2G w/ SI tunneling
- ISR

Maintenance only

3.5 PL

(incr. feature set to 3.3 baseline)

R3.5
Oct'11
CS
LTE (B25,B12)

Maintenance only

3.53 PL

(incr. feature set to 3.x baseline)

R3.53
May -10 '12
CS
- LTE 4x2 MIMO
- MBSFN Awareness
- EPHICH
- ECP
- TFT*
- eHRPD to HRPD Fallback*
- **MBIM for Win8**

For MR only w/ Rel8 future compatibility features

Not for new designs ⟸ // ⟹ Available for new designs

Releases recommeded for new designs

Not all features listed

- C2k and LTE/C2k iRAT features are applicable to MDM9600 only.
- * applies to 9600 only

MDM9x00 SW Development Schedule –4.x

ES: Engineering Samples,
CS: Commercial Samples

2011		2011		
Q3	Q4	Q1	Q2	Q3

4.0 PL

R4.0.3.0
Jul'11

CS
- Unified TDD/FDD
- LTE-TDD(B38,B40)
- L <-> W/G redirection w/o measurements(TDD)
- L->DO/1x redirection w/o measurements(TDD)
- L<->G idle cell reselections(TDD)
- LTE TDD <->W cell reselections

Maintenance only

4.01 PL

(incr. feature set to 4.0 baseline)

For MR only w/ Rel8 future compatibility features

R4.01
Jun '12
CS
- LTE TDD 4x2 MIMO
- LTE TDD MBSFN Awareness
- LTE TDD EPHICH

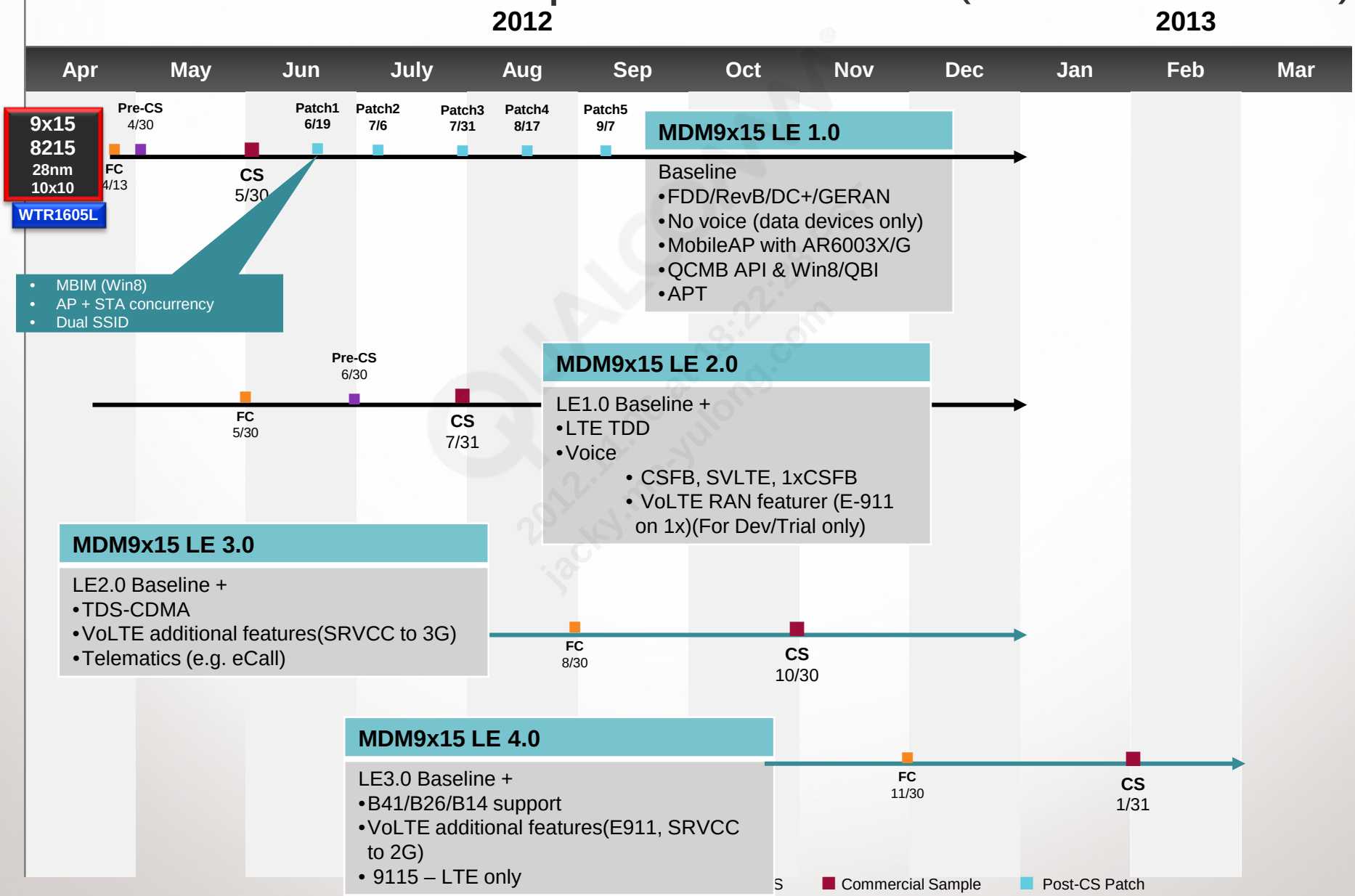
Not all features listed

- C2k and LTE/C2k iRAT features are applicable to MDM9600 only.

Not for new designs ⟸ // ⟹ Available for new designs

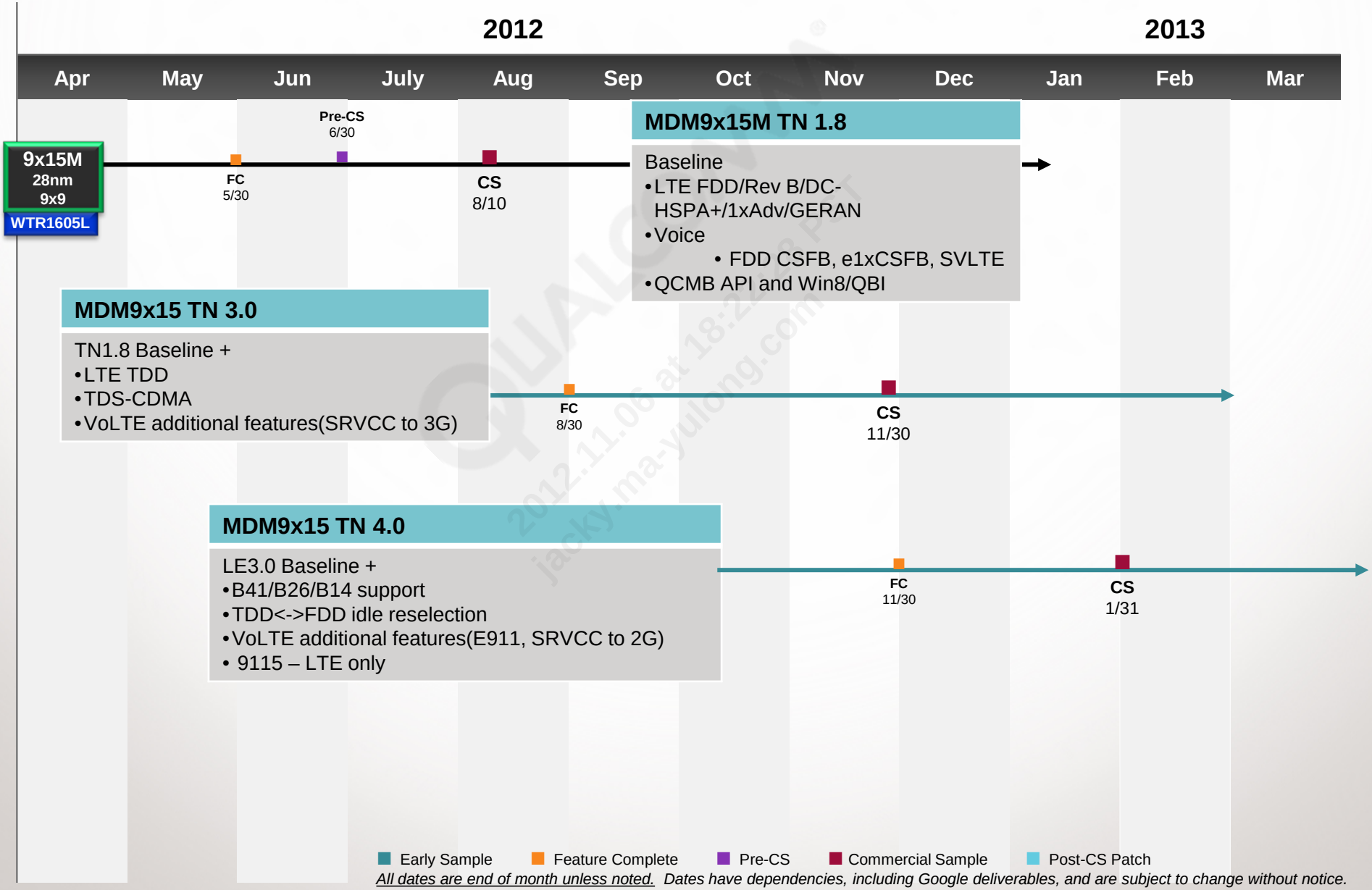
Releases recommeded for new designs

MDM9x15 SW Development Schedule (non stacked mem)



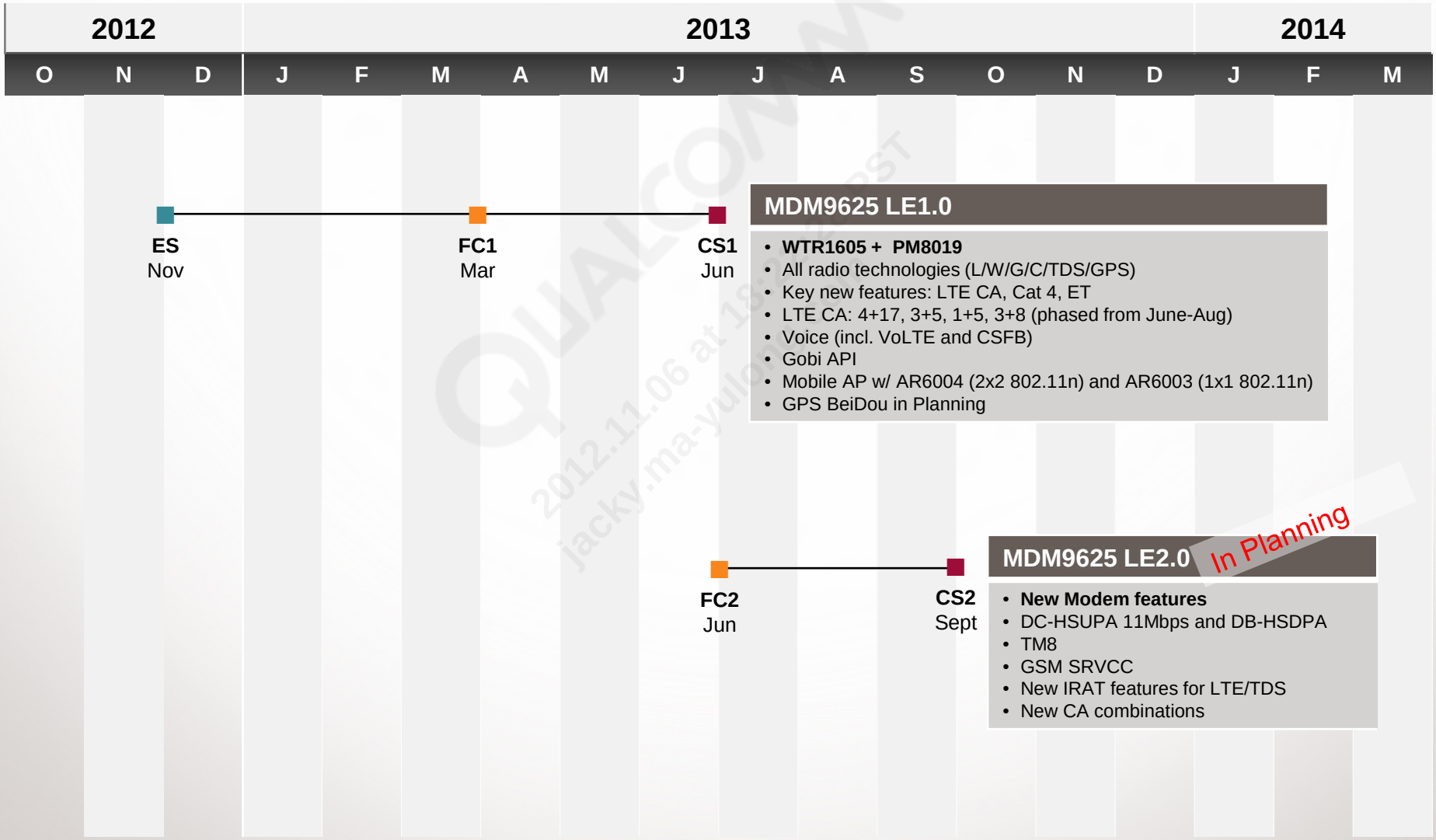
All dates are end of month unless noted. Dates have dependencies, including Google deliverables, and are subject to change without notice.

MDM9x15 SW Development Schedule (stacked mem)



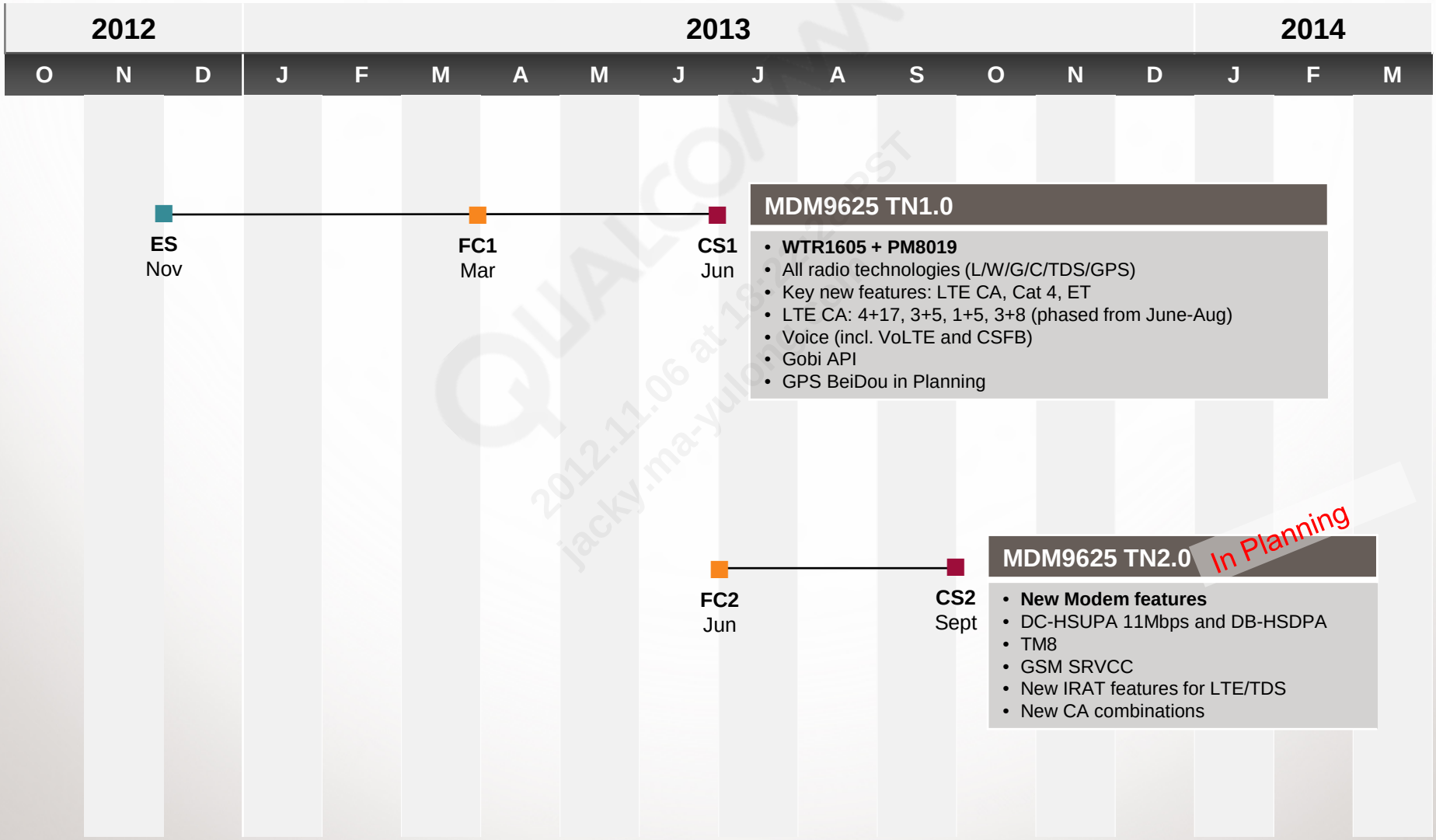
All dates are end of month unless noted. *Dates have dependencies, including Google deliverables, and are subject to change without notice.*

MDM9625 Software Release Plan (LE)



All dates are end of month unless noted. *Dates have dependencies, and are subject to change without notice.*

MDM9625 Software Release Plan (TN)



All dates are end of month unless noted. *Dates have dependencies, and are subject to change without notice.*

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Advanced Optional Software Technologies

November 2012

Roadmap features*

Solution	Product	2012				2013
		Q1	Q2	Q3	Q4	Q2
Multi-media	**Wi-Fi Display:** Display of mobile content via Wi-Fi to external devices	8060A, 8960	8064	8x27, 8x30		8x74
Multi-media	**2D to 3D conversion:** Real time 2D to stereoscopic 3D conversion of video and games.	8060A, 8960	8064	8x27, 8x30		8x74
Multi-media	**FluencePro :** Enhanced Fluence Package that offers voice capabilities and audio capture utilizing three (3) or more microphones or three (3) or more ADC channels, and interface support for ultrasonic digital stylus technologies	8060A, 8960	9x15, 8064	8x27, 8x30		8x74
Camera	**Snapdragon digital camera:** Face detection & tracking, full facial processing, and facial recognition. Full facial processing component includes Blink Detection, Smile Degree, Gaze Estimation, and Facial Outline/Contour.	8060A, 8960	8064, 8x25	8x27, 8x30		8x74
Connectivity	**Qualcomm Mobile Access Point**: Provides networking features that allow multiple WiFi enabled devices to acquire network connectivity using a MDM		9x15			
Connectivity	**Qualcomm Connectivity Engine Software PRO:** Intelligently manages various aspects of device connectivity and data applications to deliver improved power consumption and optimized user experience			8x27, 8x30, 8064, 8060A, 8x25, 8960		8x74

**Individual feature support may vary by OS and SW Release Schedule.*
- Features and performance are subject to change without notice

Roadmap features*

snapdragon by Qualcomm

Solution	Product	2012				2013
		Q1	Q2	Q3	Q4	Q2
Location	**IZat Premium:** Enhanced Location Software offering incorporates the following features: • Global Terrestrial Positioning – Enhanced Cell ID and beyond • Global Terrestrial Positioning - WiFi • Sensor-Assisted Positioning 2.0 and beyond • Precise Indoor Positioning 2.0 and beyond			8x30 8060A 8064 8960		8x74
Security	**Widevine:** QUALCOMM's Widevine extensions designed to enable playback of content protected using Google Widevine technology	8060A 8960	8064 8x25	8x27 8x30		8x74
Security	**Mobicore****: Mobicore is a platform for unifying different security functionalities such as user authentication, content protection, mobile payment, and banking by G&D			8x27 8x30 8064 8060A 8960		8x74
Connectivity	**IMS PRO:** Basic IMS Framework including SMS over 3G or LTE, the "VoLTE/VT Package" which includes VoLTE, VT, SR-VCC, Emergency Call, Basic Presence, eAMR and AMR/EVRC Family of Codecs, and the "RCS/RCSe Package" which includes Presence, IM, Multi-Chat, Image/Video Share, File Transfer, and Conferencing over 3G or 4G network.			8X27 8X30 8960		8x74
Camera	**Image processing:** using Qualcomm's DSPS • **Shake detection:** Camera module marks each frame in Burst mode (ZSL) with no shake or shake detected using the sensor input • **Perspective Correction:** From the sensor input camera module knows the angle of tilt and corrects the distorted image				8064 8960	8x74

**OEMs license product directly from vendor

Individual feature support may vary by OS and SW Release Schedule.

- Features and performance are subject to change without notice

Roadmap features*

Solution	Product	2012				2013
		Q1	Q2	Q3	Q4	Q2
Multi-media	**SRS****: TruMedia and OpenSL	8060A, 8960	8064, 8x25	8x27, 8x30		8x74
Multi-media	**Electronic Image Stabilization:** Image stabilization feature for video using Qualcomm's DSPS			8064, 8960		8x74
Gestures	**Gestures:** capable of detecting both static poses and dynamic motion gestures. Snapdragon Gesture SW includes, but is not limited to, the following features: 2D single front face camera gesture recognition and multi-mic ultrasound enabled gesture recognition.			8060A, 8064, 8960	8x30	8x74
Multi-media	**EPOS****: Mobile messaging note taking, on screen and off.		8064	8060A, 8960		8x74

**OEMs license product directly from vendor

*Individual feature support may vary by OS and SW Release Schedule.
- Features and performance are subject to change without notice

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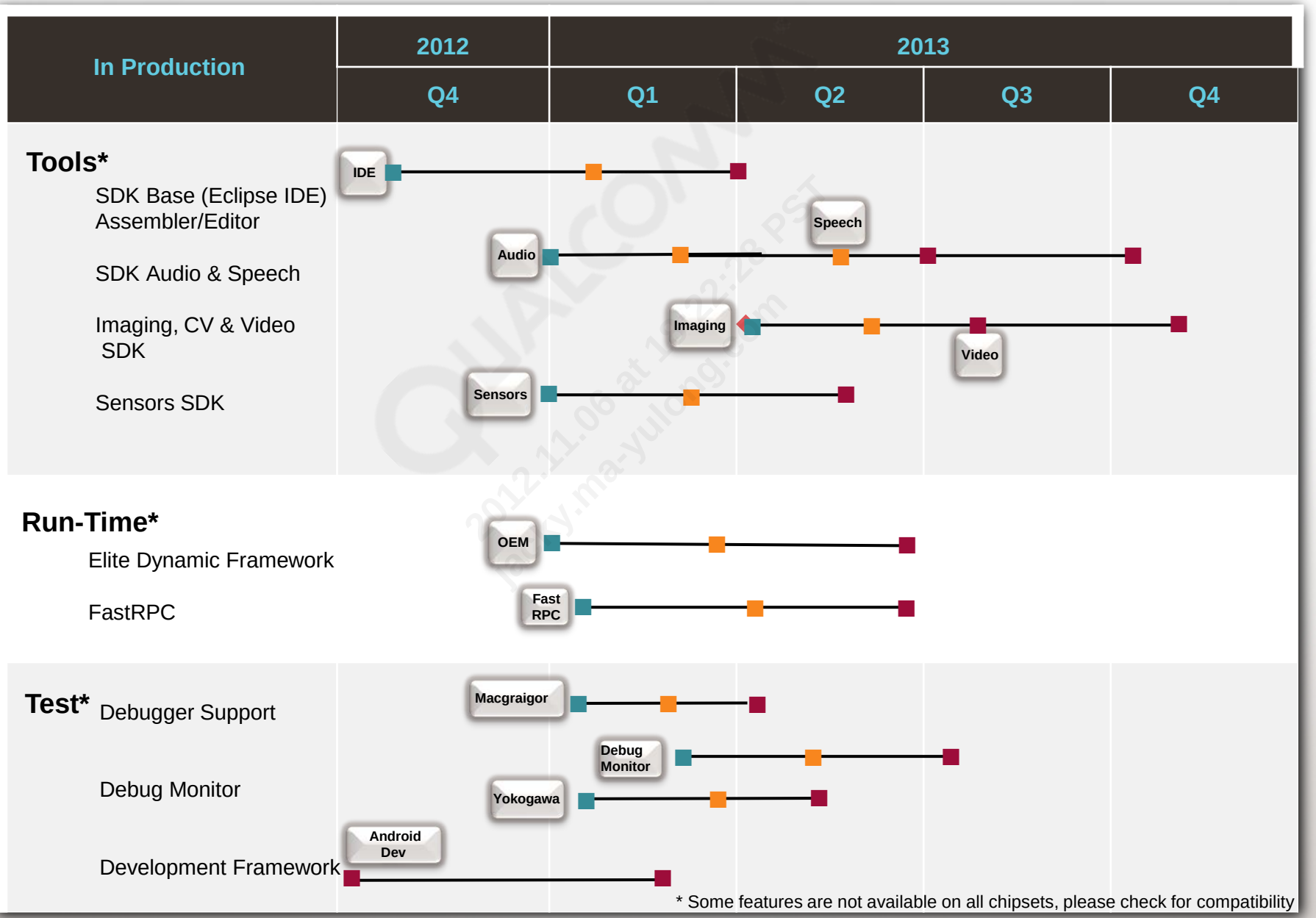
DSP Access Roadmap

November 2012

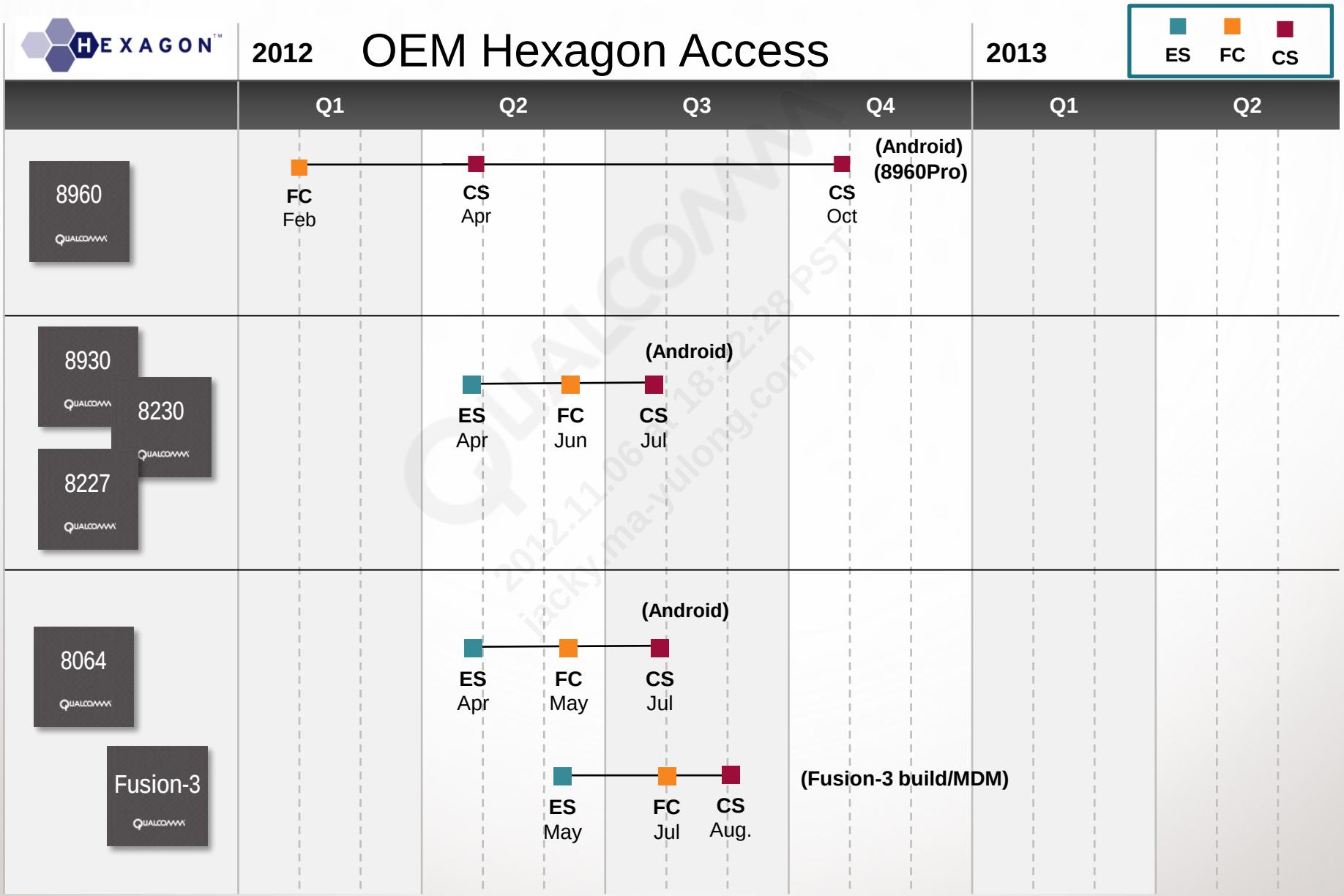
Hexagon Access SW Roadmap

ES FC CS

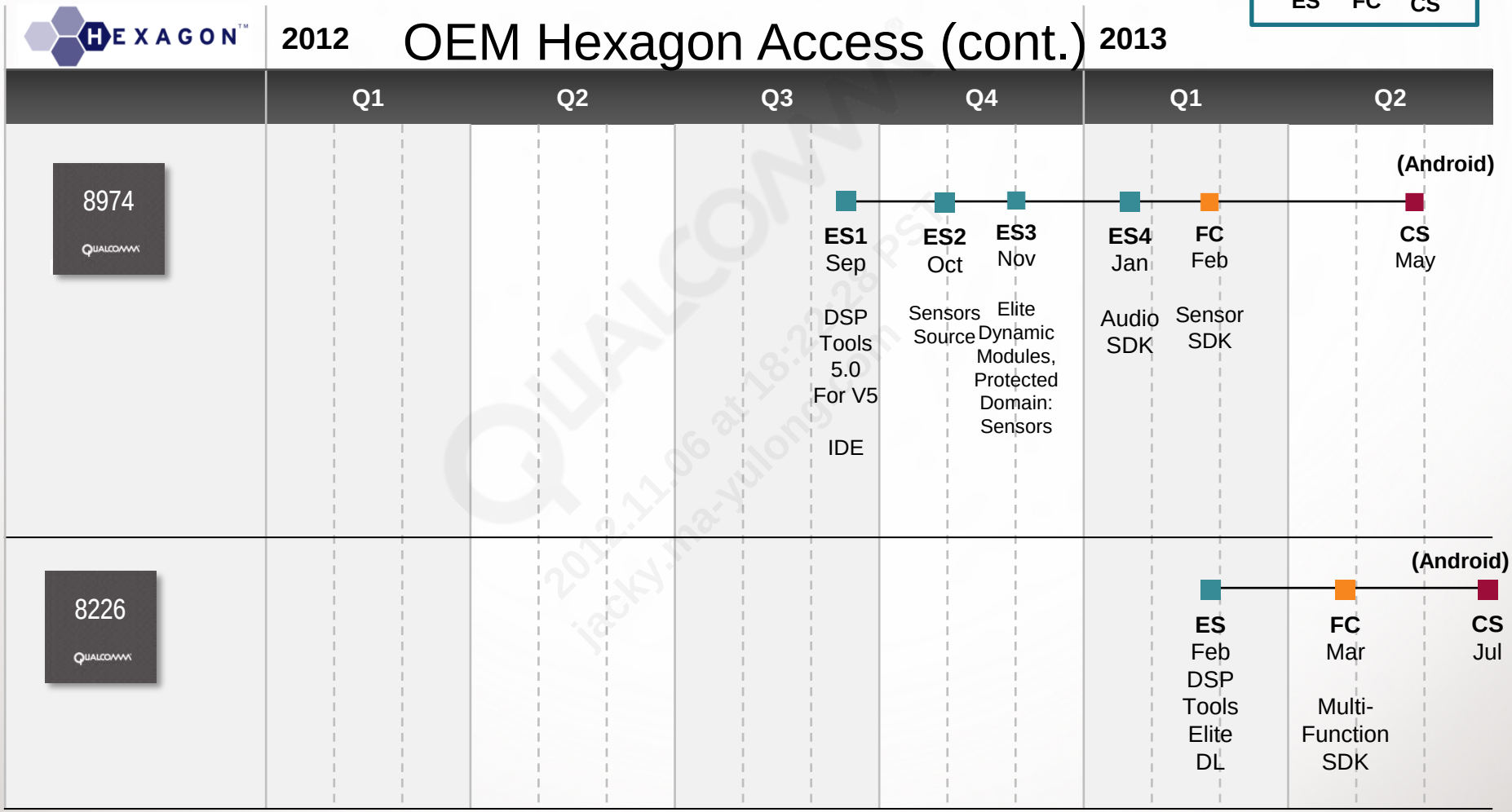


* Some features are not available on all chipsets, please check for compatibility

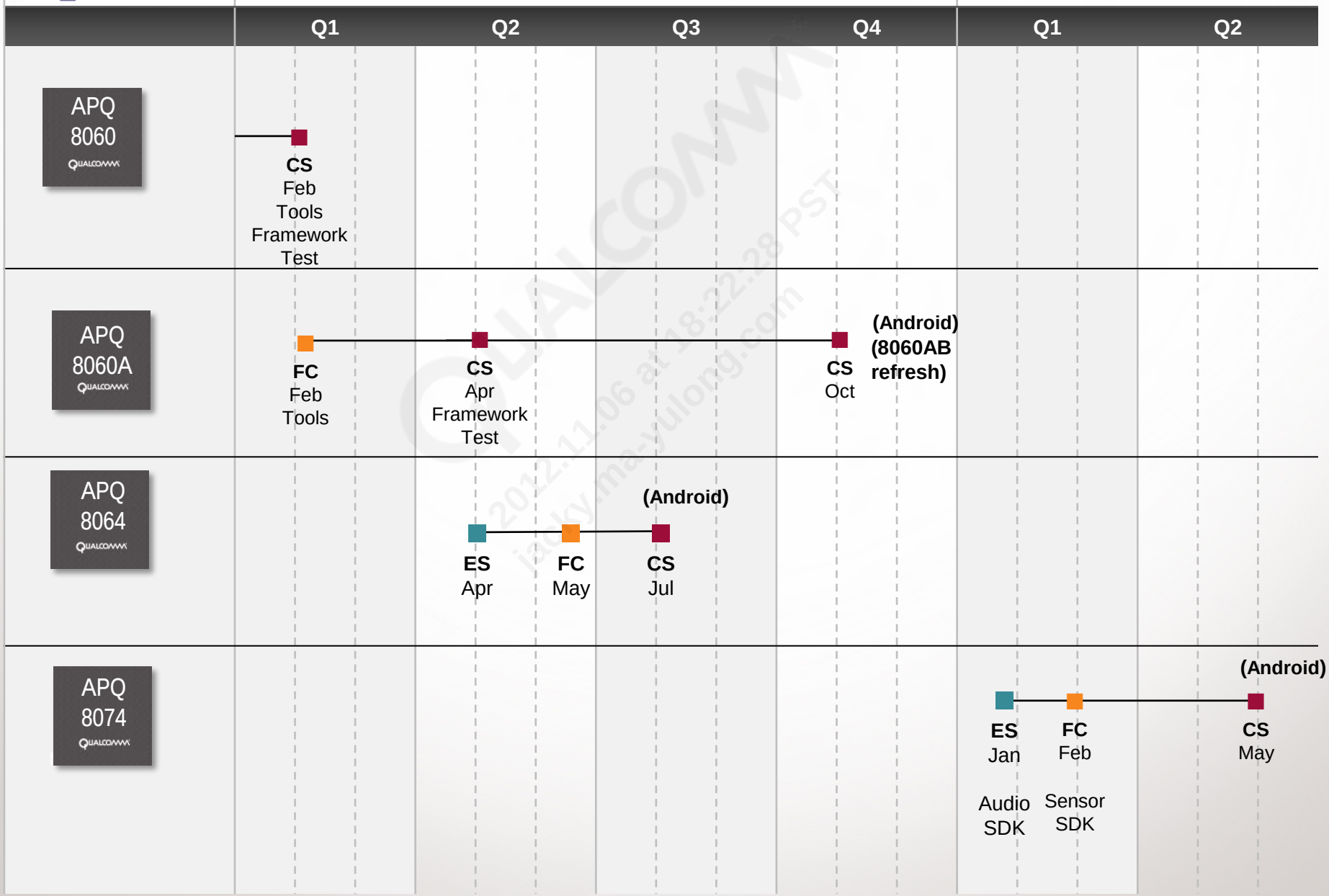
OEM Hexagon Access



OEM Hexagon Access (cont.)



ISV Hexagon Access



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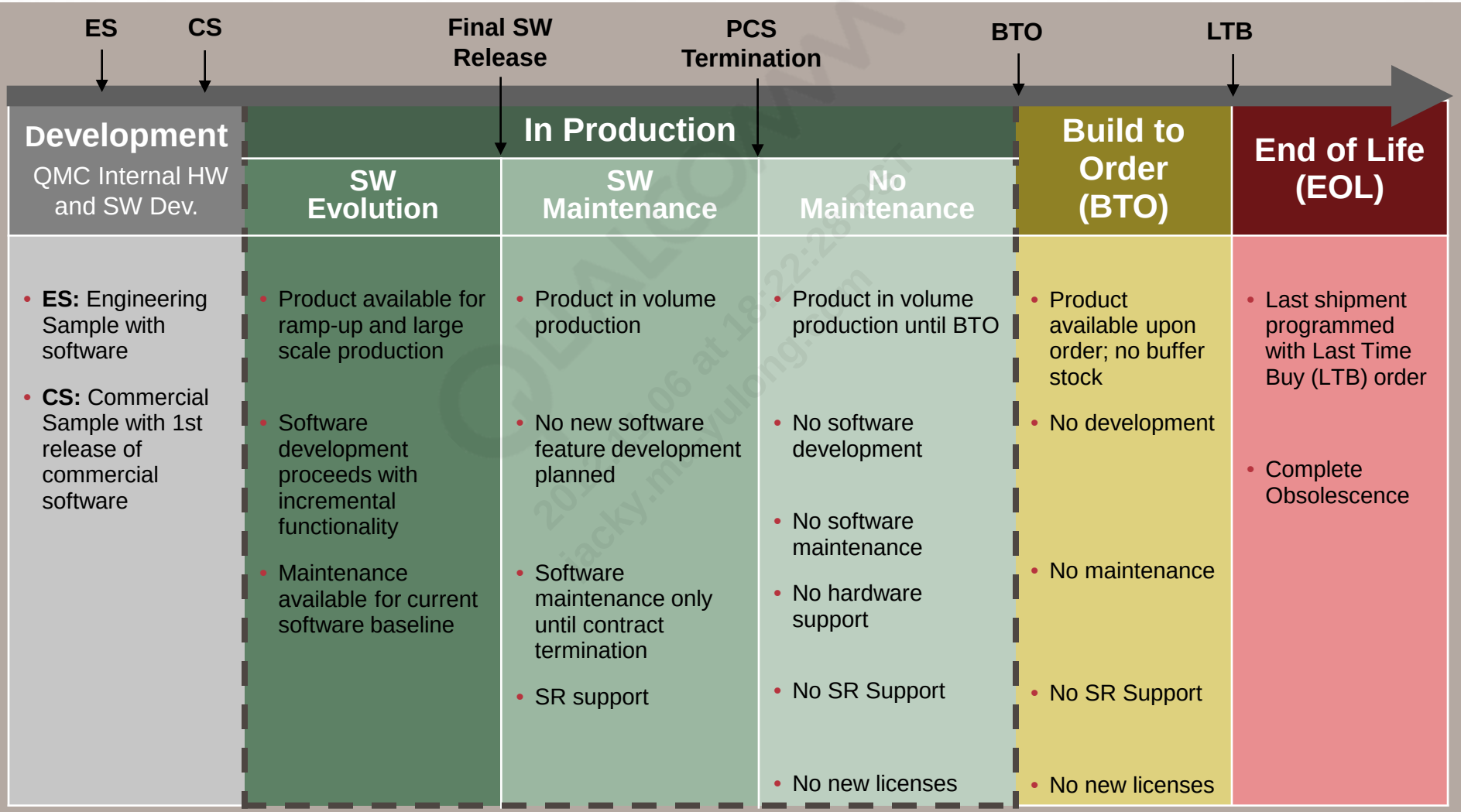
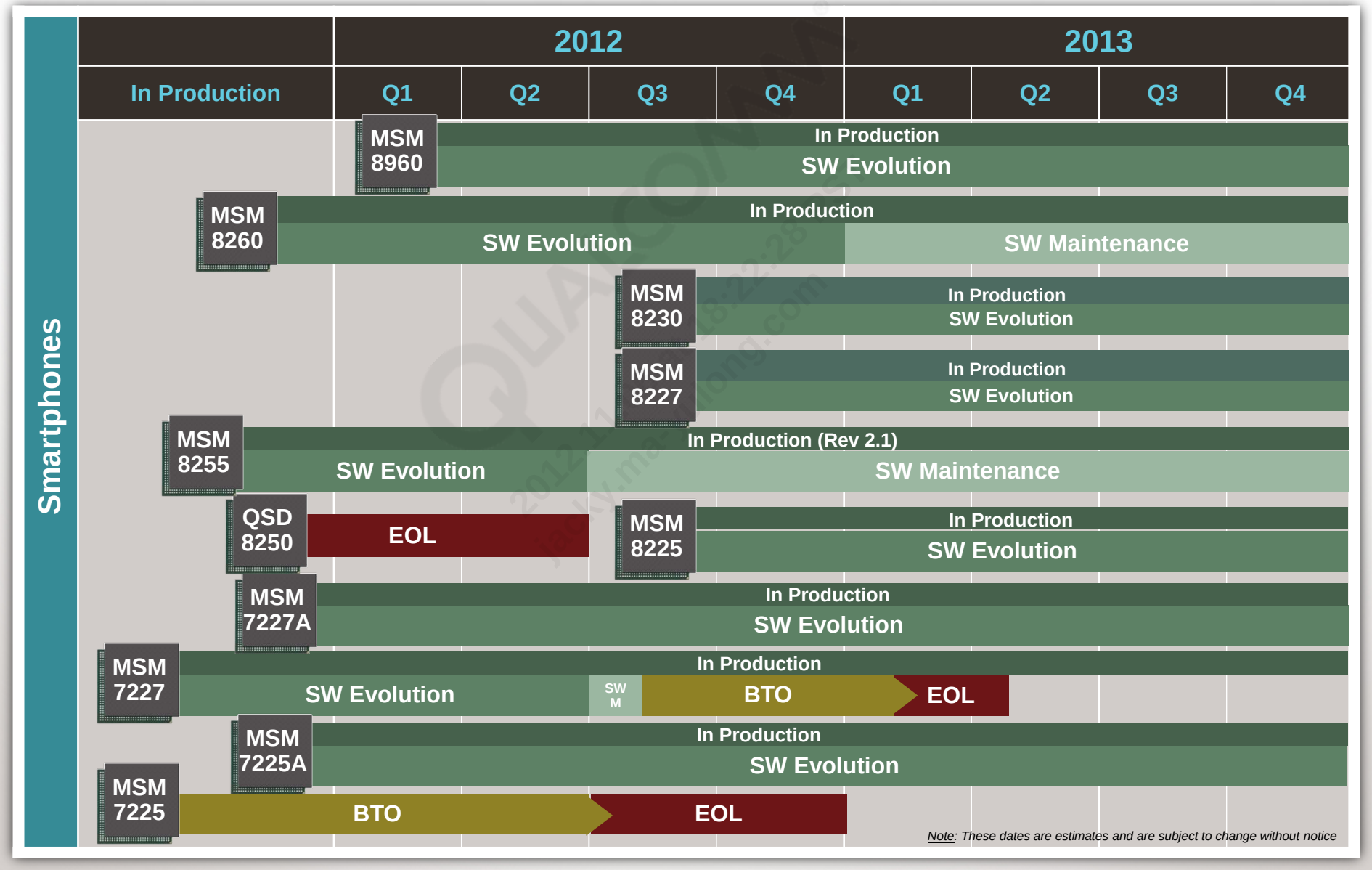
Life Cycle Plan

November 2012

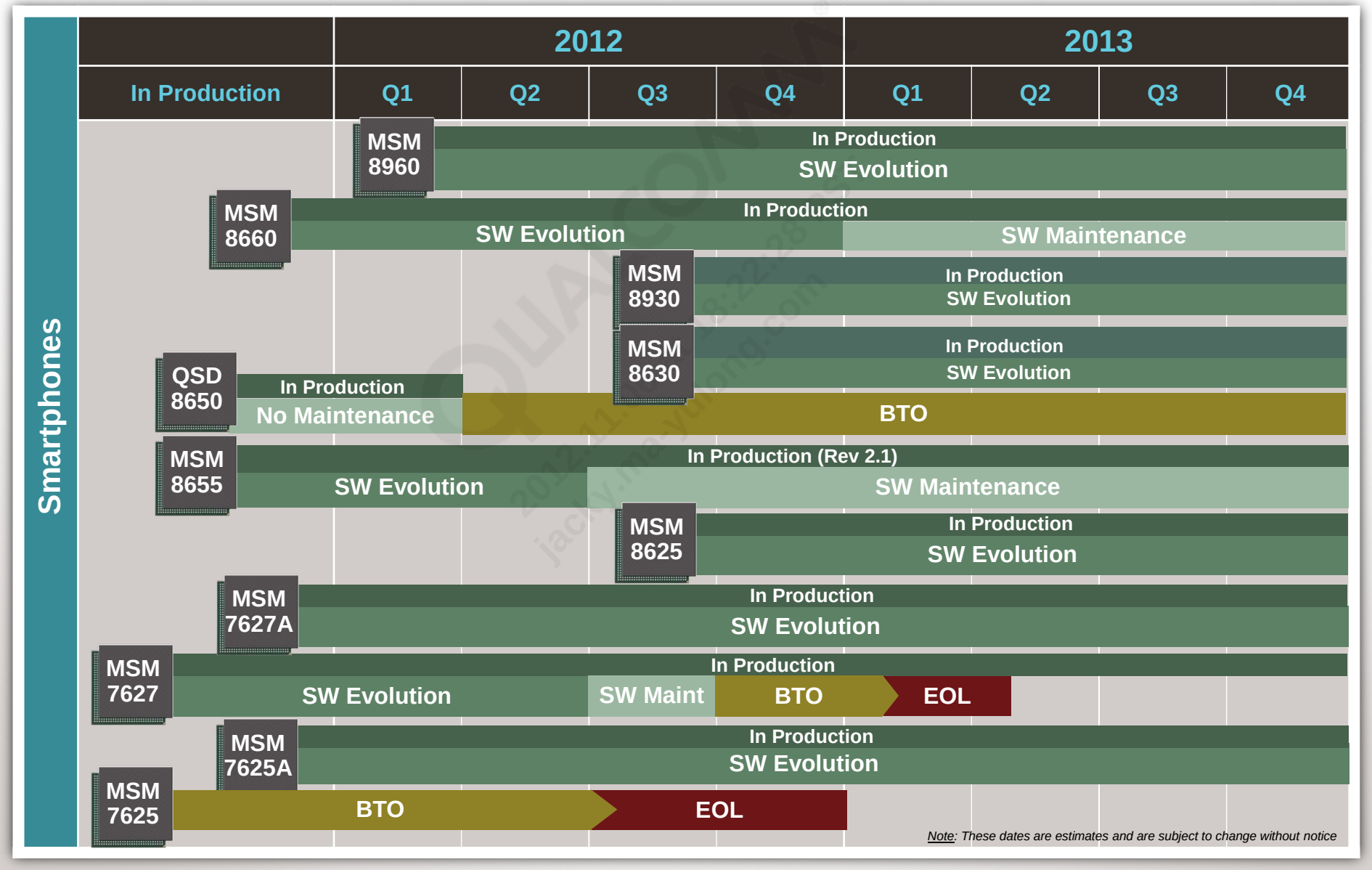
QMC Product Life Cycle



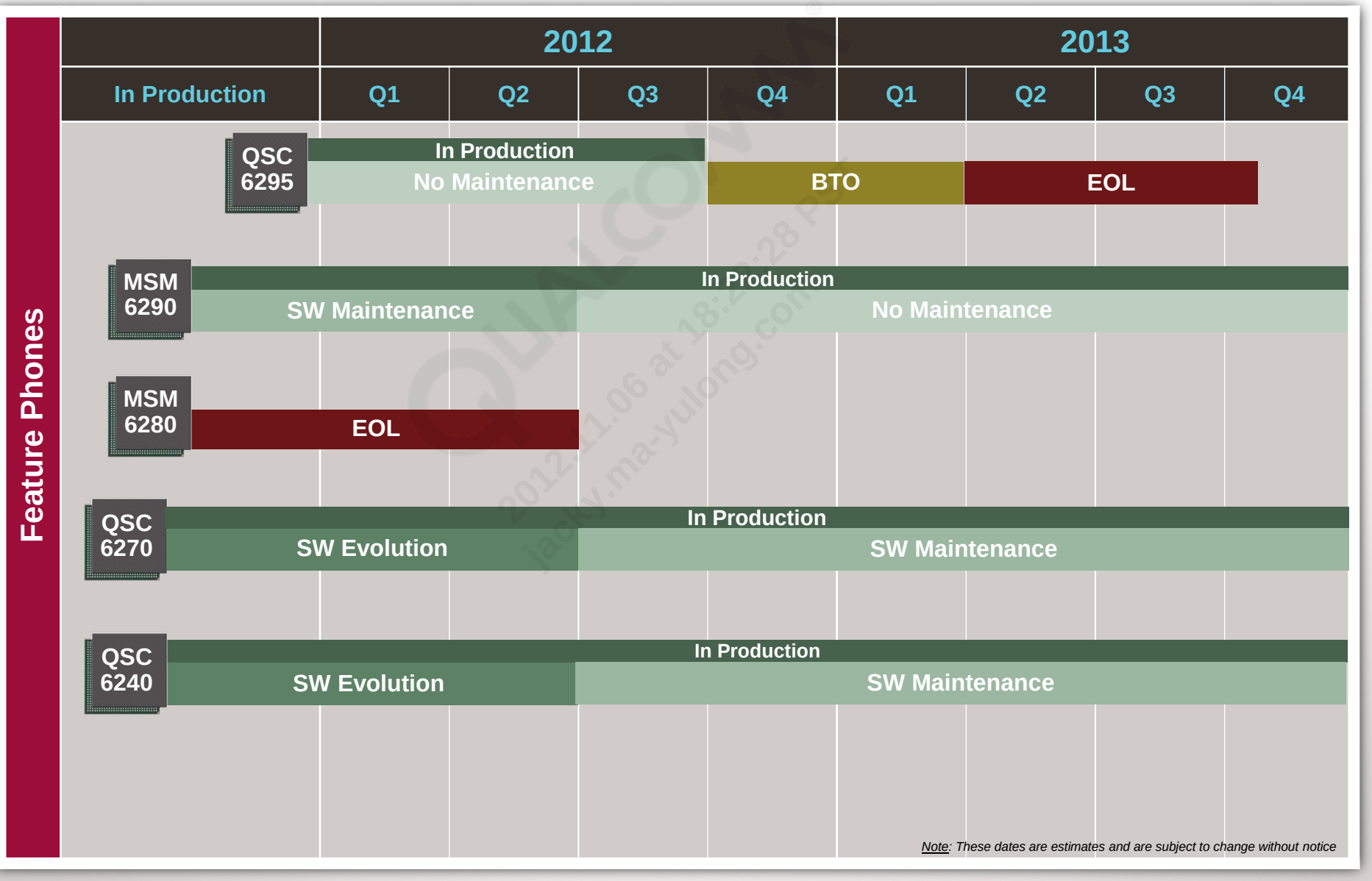
Life Cycle – Smartphones UMTS



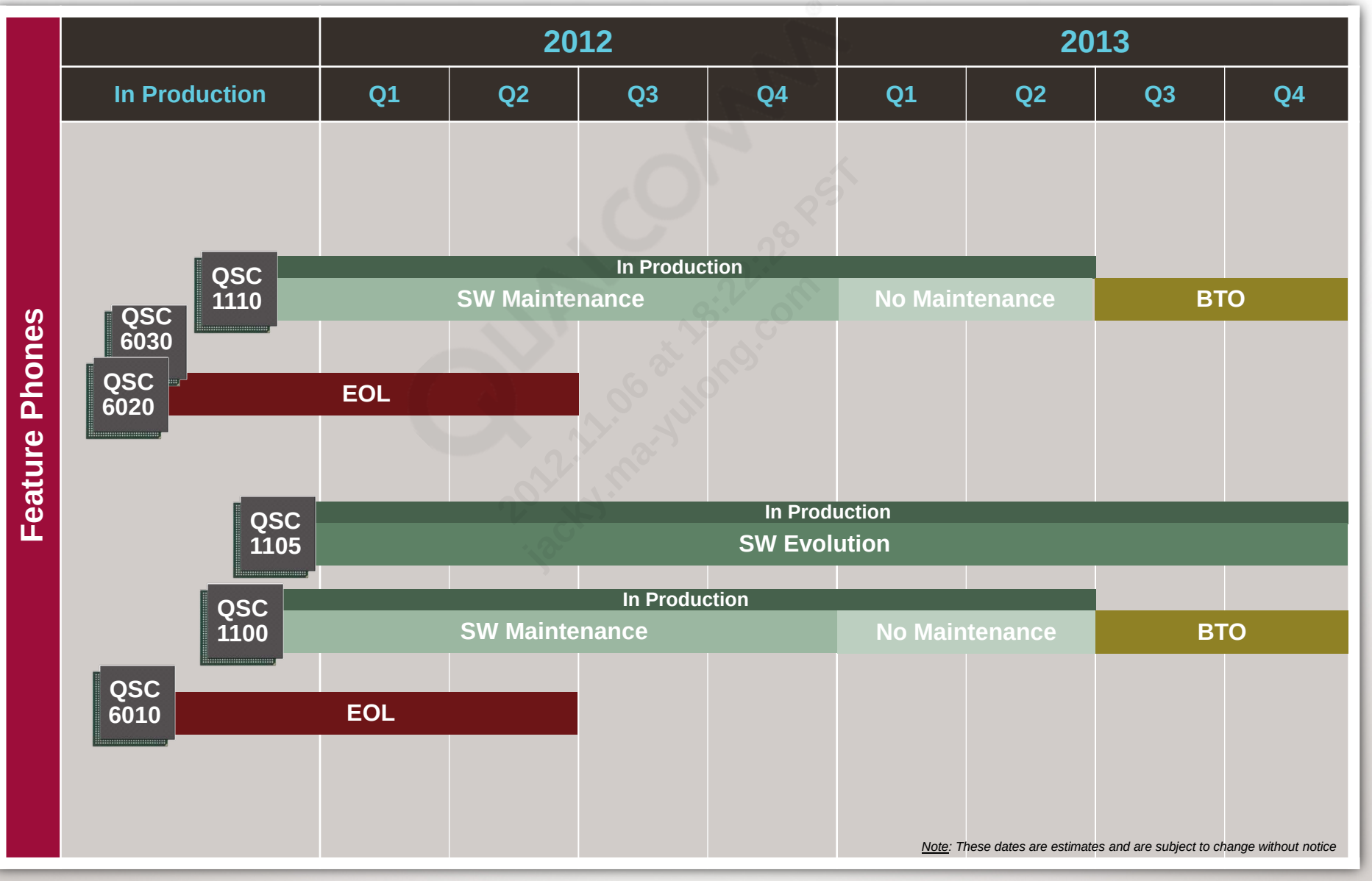
Life Cycle – Smartphones LTE/CDMA/Multimode



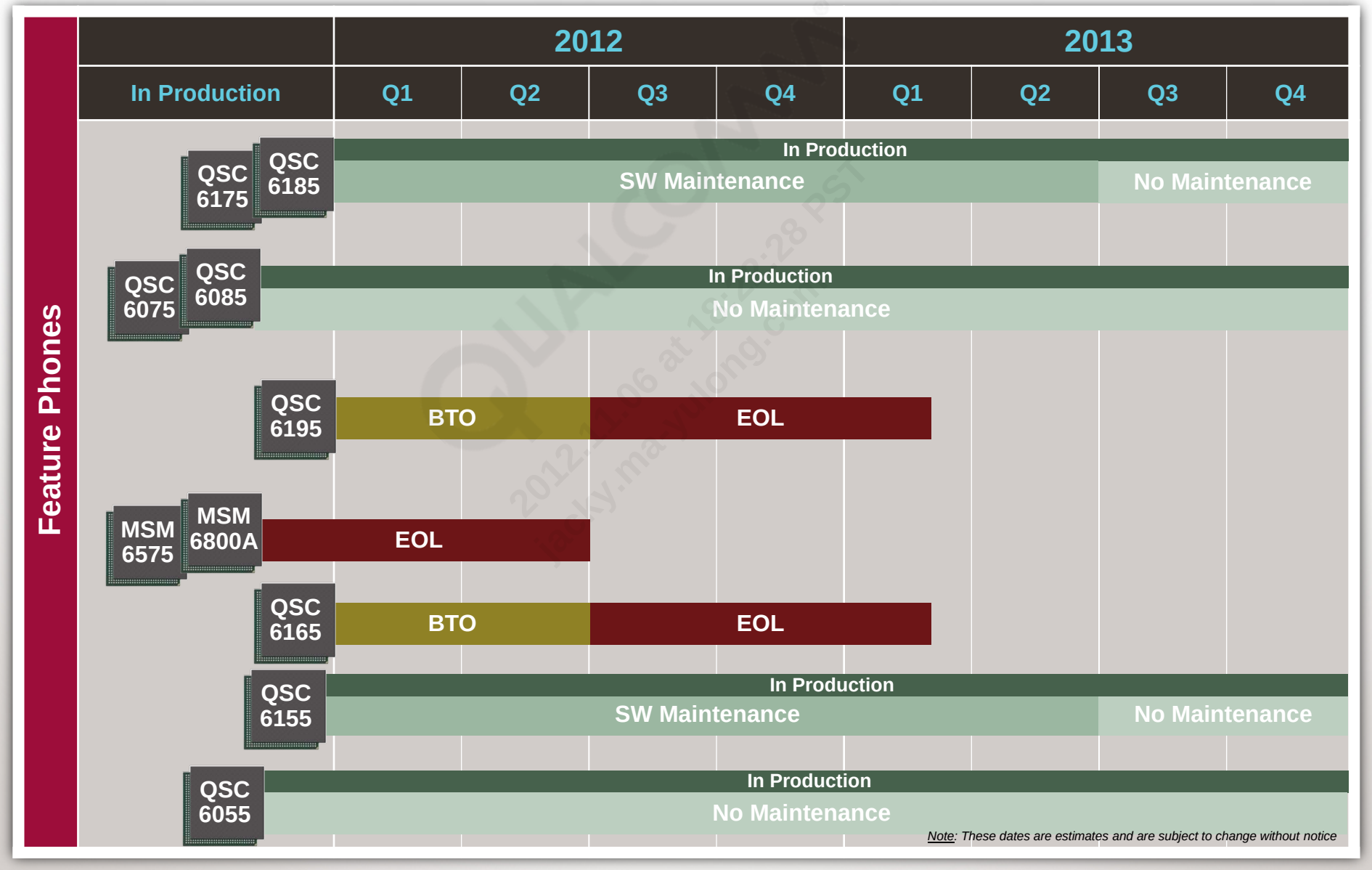
Life Cycle – Feature Phones UMTS



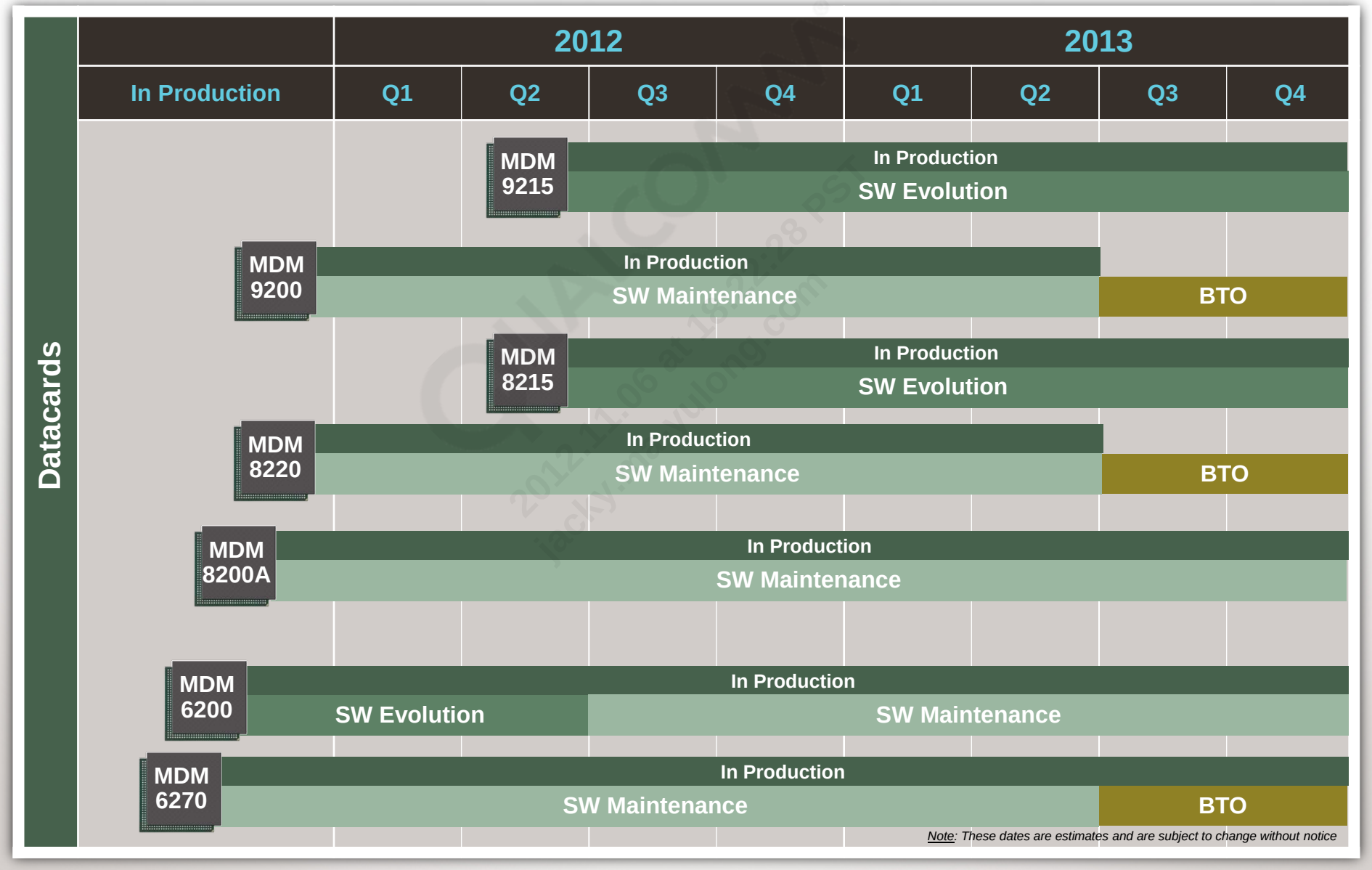
Life Cycle – Feature Phones CDMA



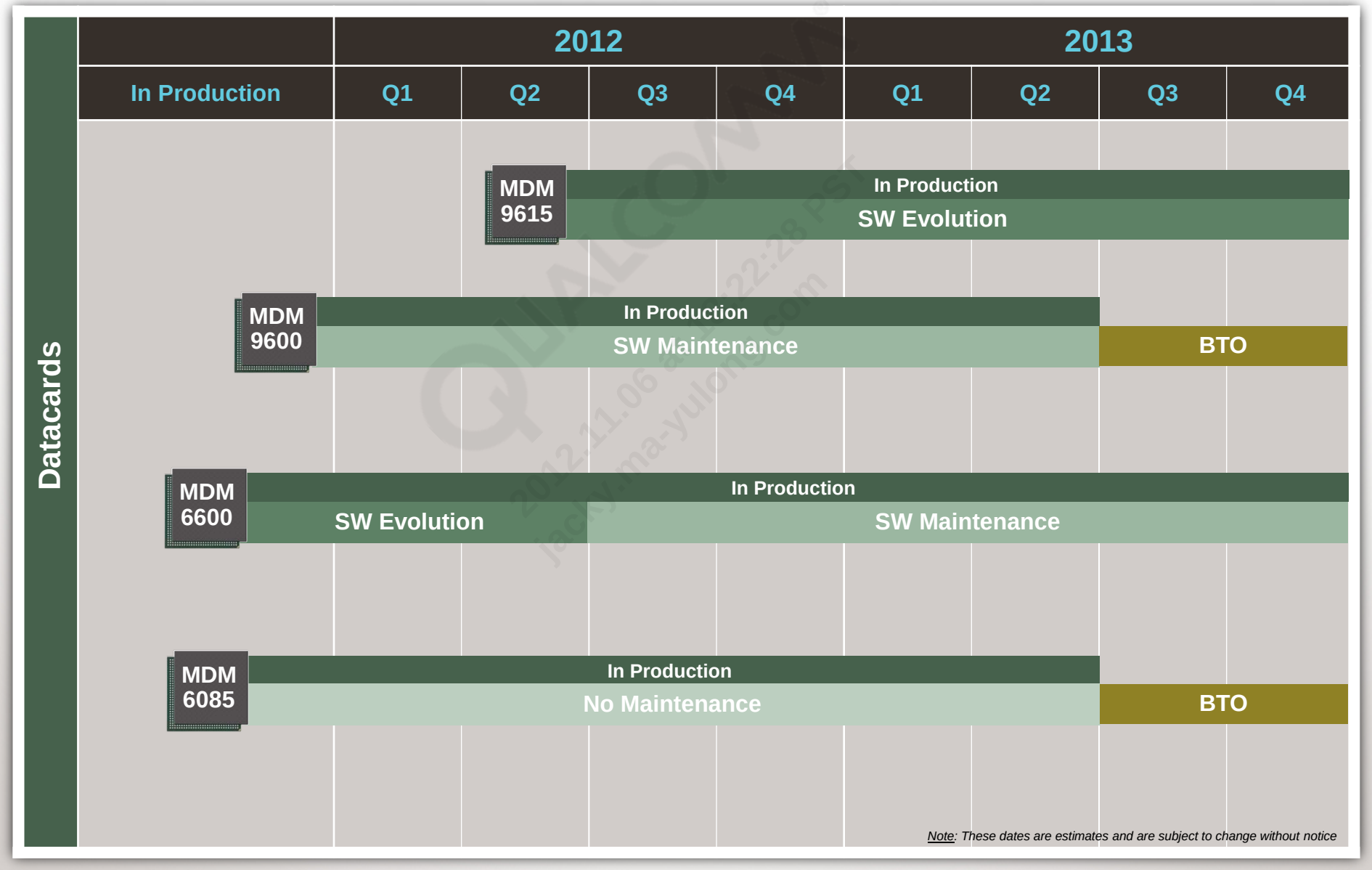
Life Cycle – Feature Phones CDMA



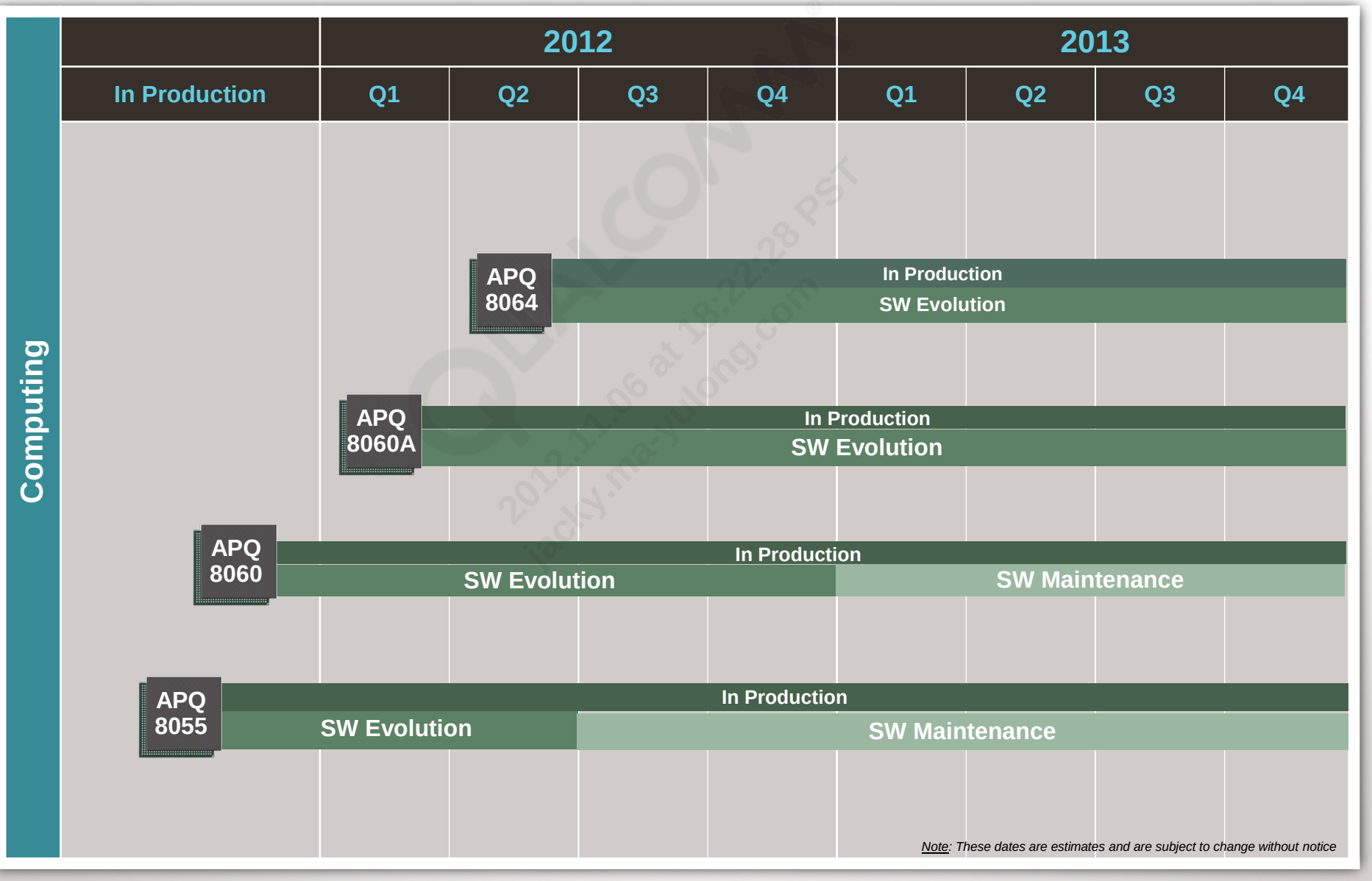
Life Cycle – MDMs UMTS



Life Cycle – MDMs CDMA



Life Cycle – Computing - APQ



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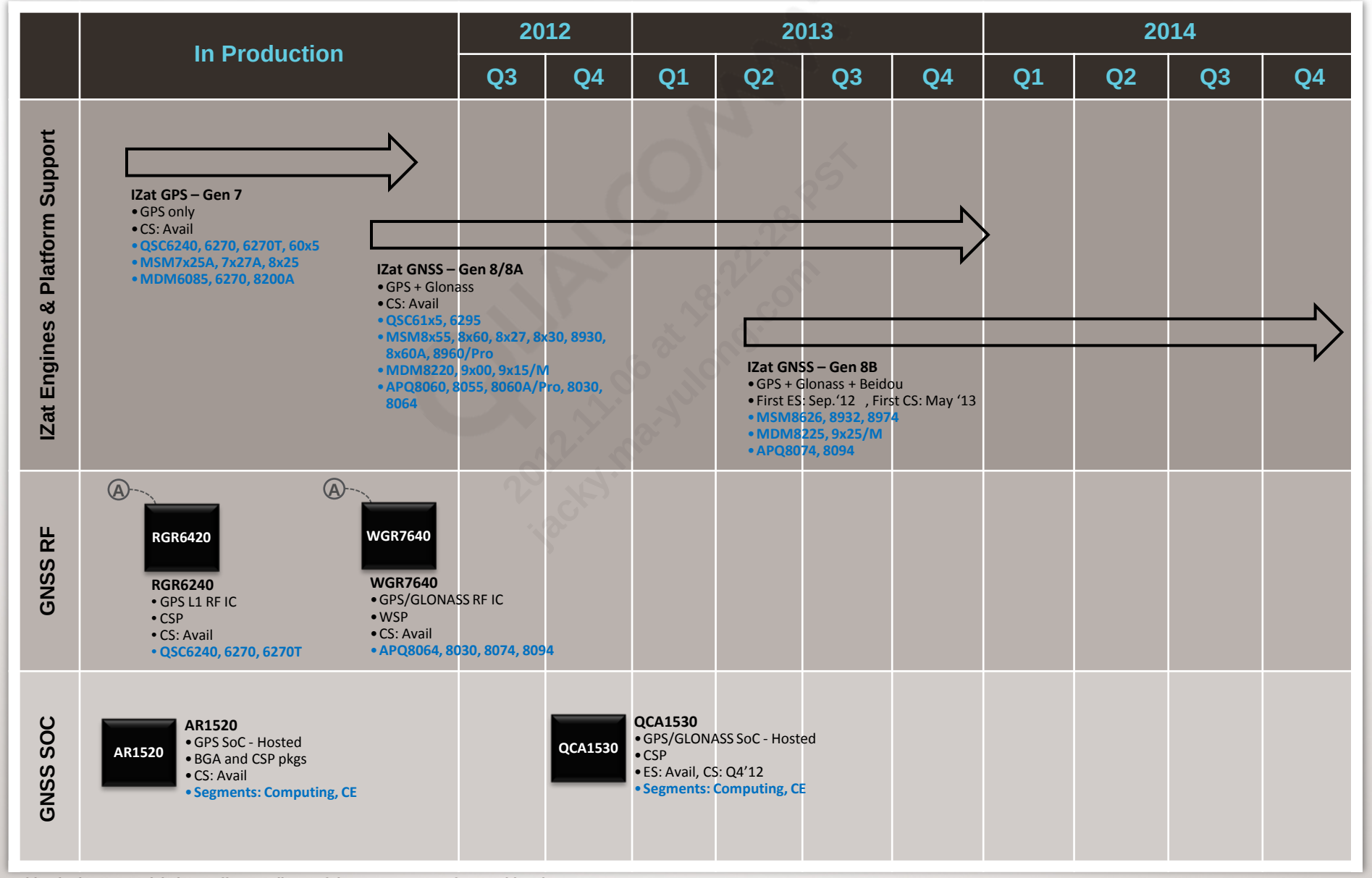
Connectivity Roadmaps

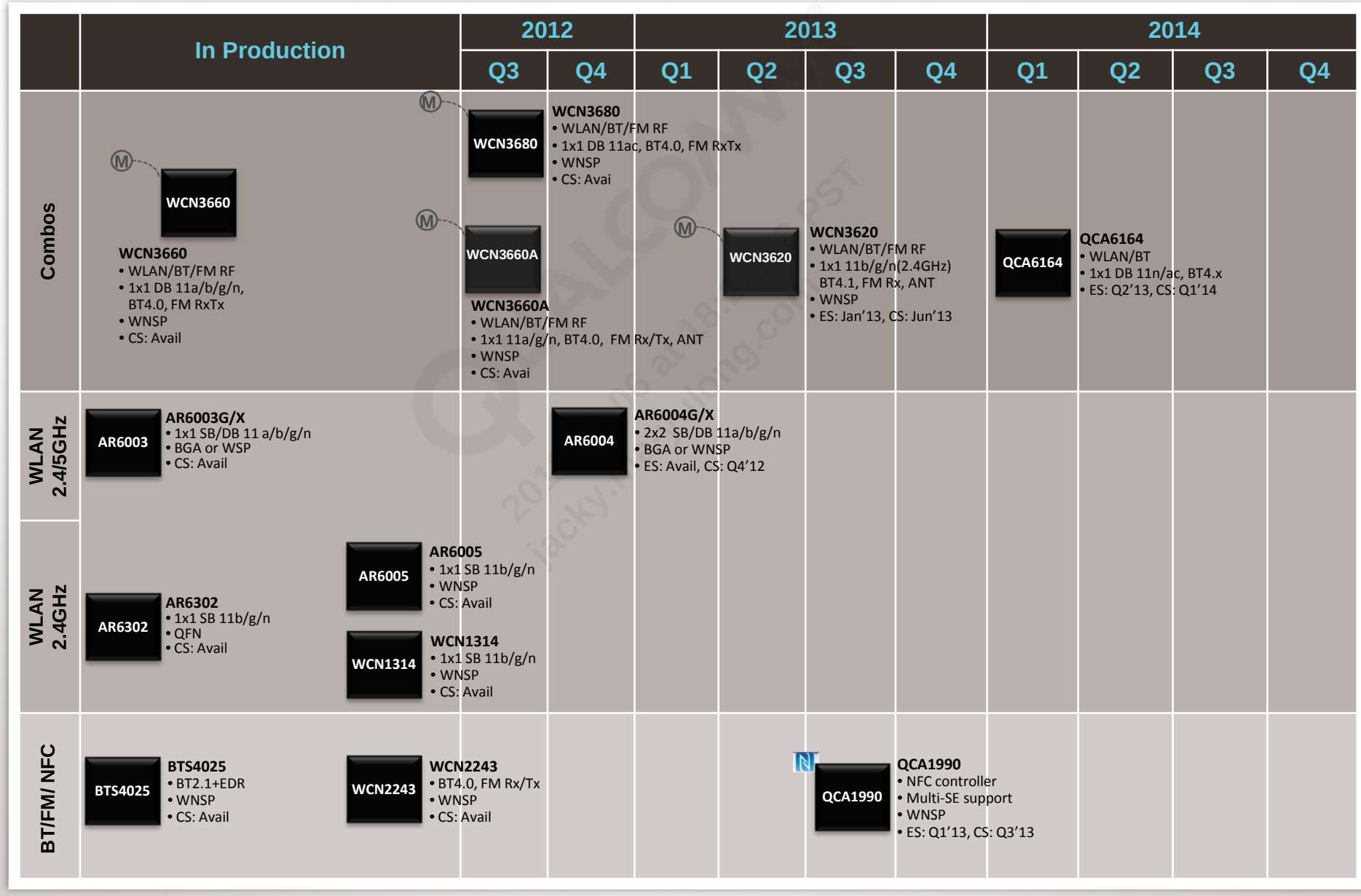
GNSS Roadmap

Ⓐ Interface to Qualcomm QSC & APQ solutions with integrated GPS/GNSS



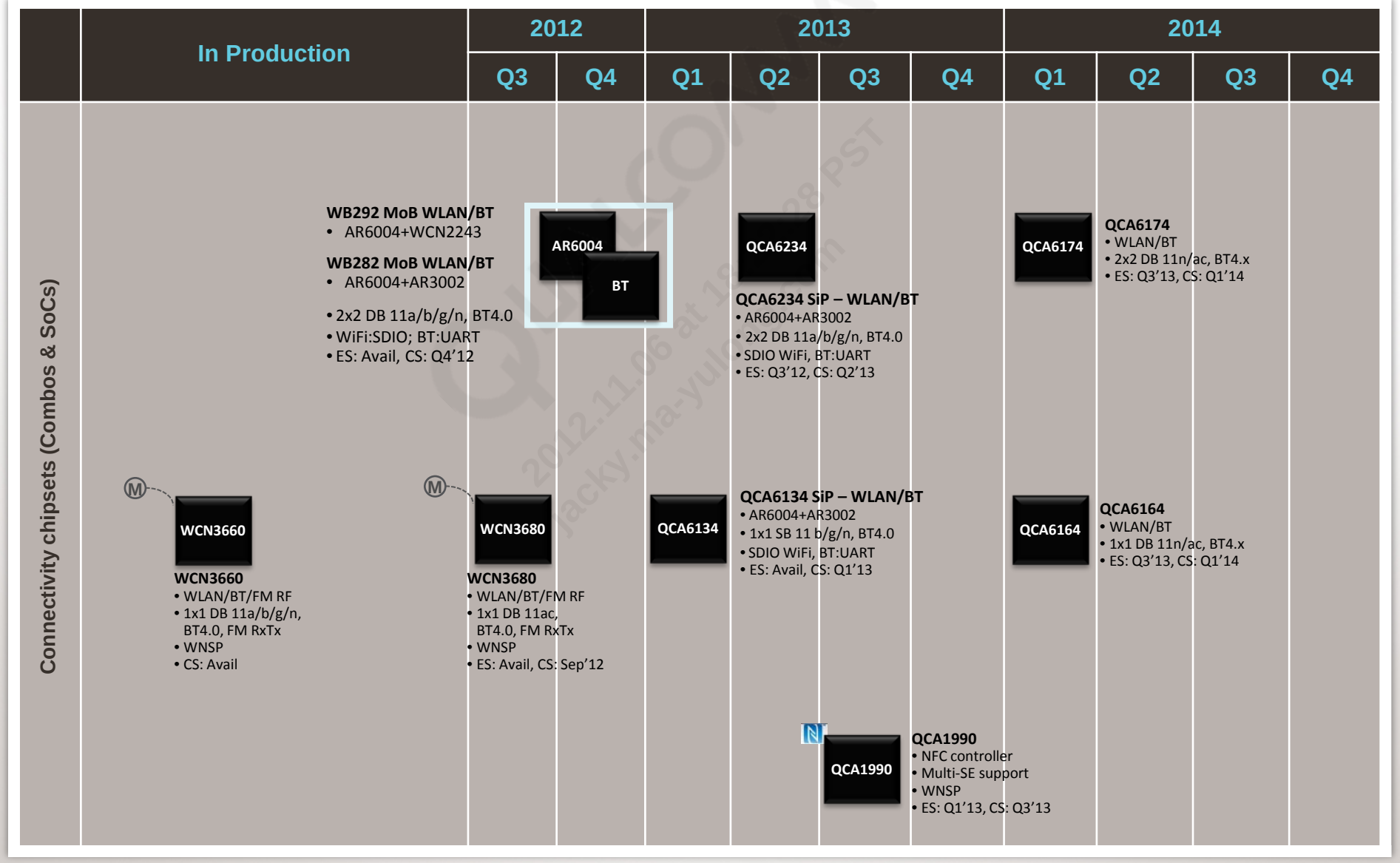
Mobile Phone Connectivity Roadmap

Ⓜ Interface to 28 nm baseband MSMs with integrated connectivity



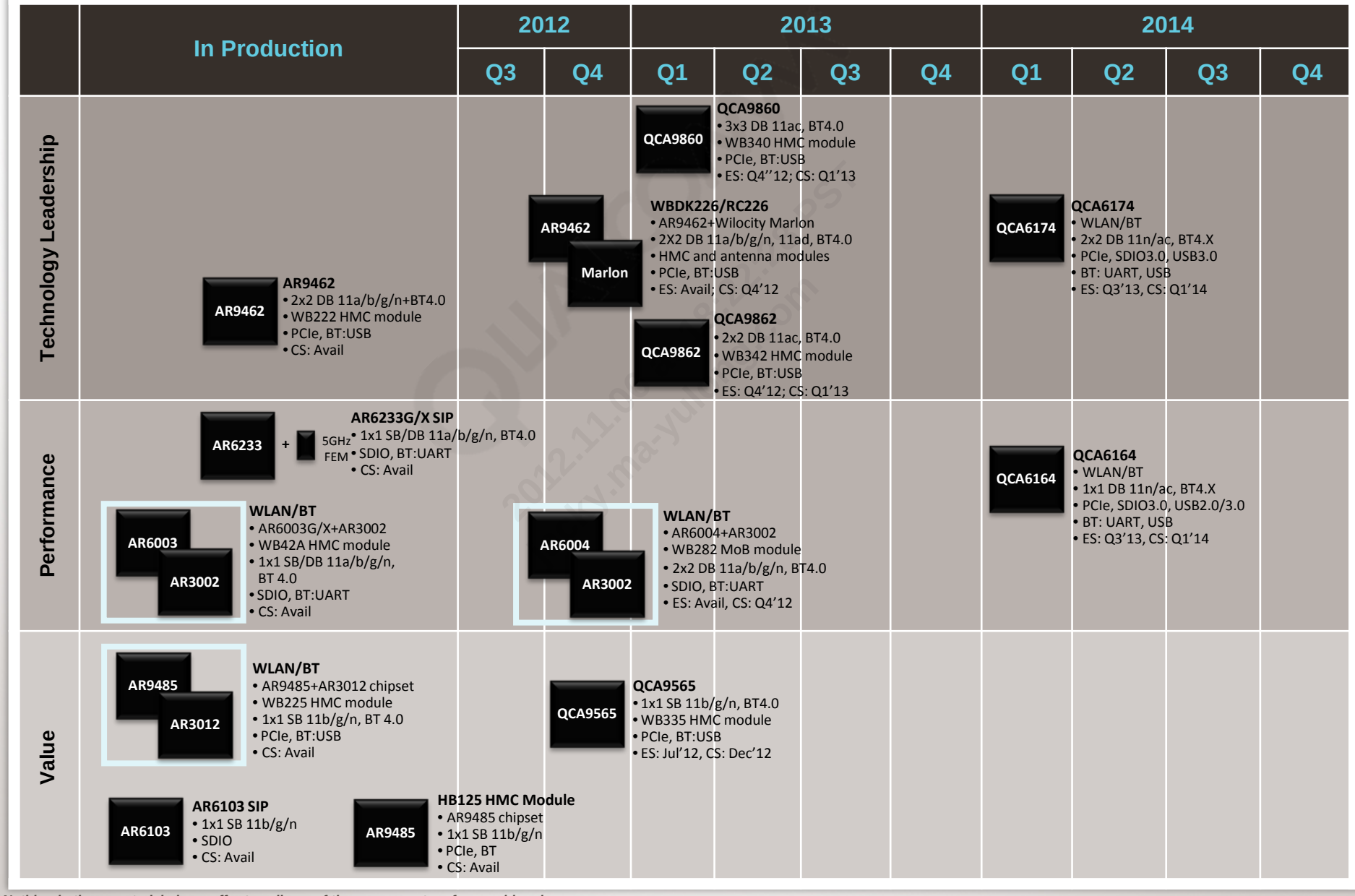
Tablets Connectivity Roadmap

Ⓜ Interface to 28 nm baseband MSMs with integrated connectivity

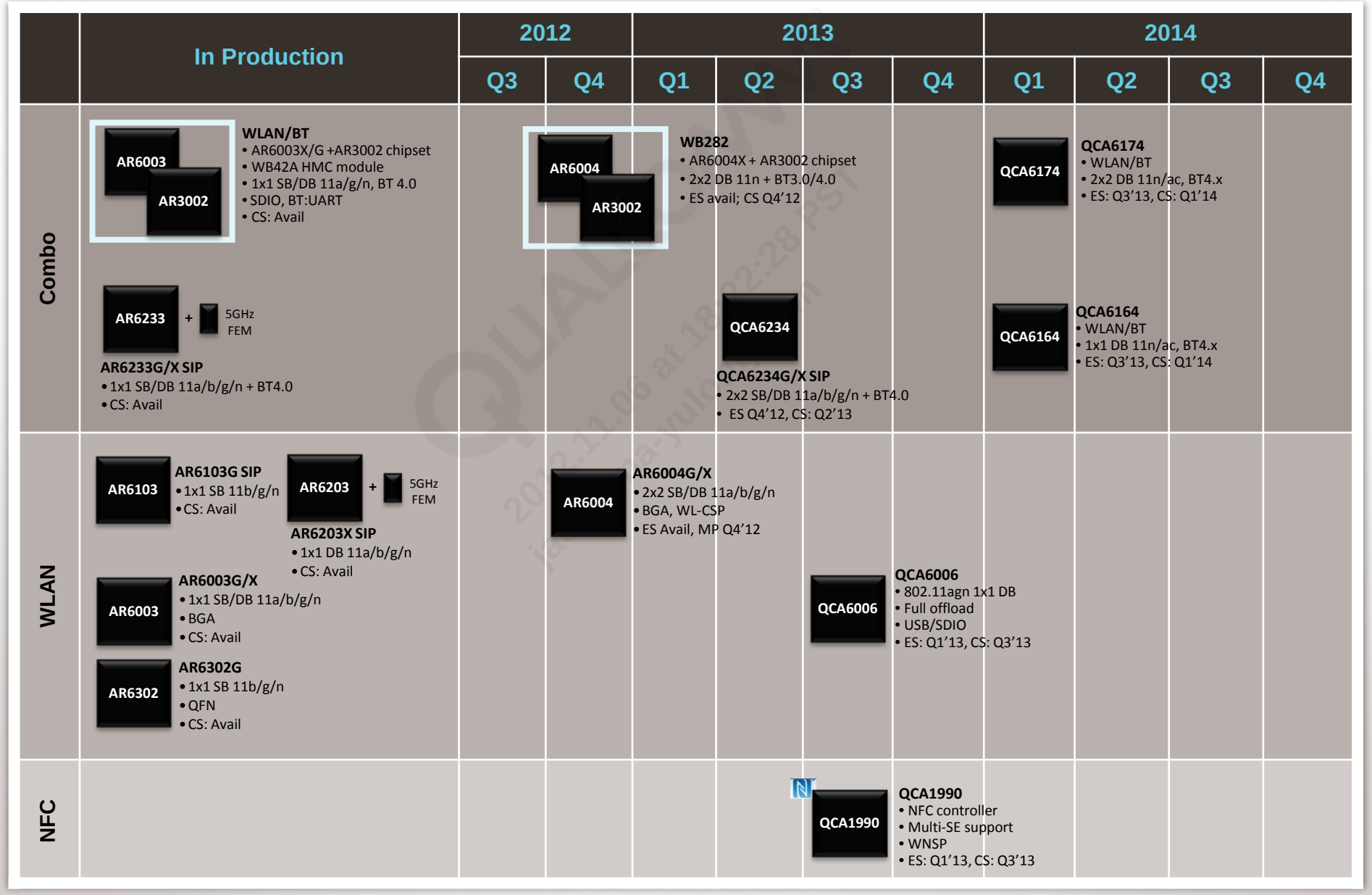


Computing Connectivity Roadmap

Notebook/Netbook & AIO Desktops



Mobile Consumer Connectivity Roadmap



Fixed CE Connectivity Roadmap

	In Production	2012		2013				2014			
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Technology Leadership	 **AR9342 + AR9485** • 2x2 + 1x1 DBDC • Full offload; Scalable Memory • USB/xMII/PCIe I/F • CS: Avail							 **QCA6174** • WLAN/BT • 2x2 DB 11n/ac, BT4.x • ES: Q3'13, CS: Q1'14			
Performance	 **AR9342** • Single chip 2x2 DB • Integrated 4+1 FE Switch • USB/xMII/PCIe • CS: Avail  **AR9374** • Single chip 2x2 DB • USB • CS: Avail							 **QCA6164** • WLAN/BT • 1x1 DB 11n/ac, BT4.x • ES: Q3'13, CS: Q1'14			
Value	 **AR9331** • 1x1 SB 11b/g/n • Integrated 4+1 FE Switch • USB/xMII • CS: Avail  **AR9271 (K2)** • 1x1 SB 11b/g/n • USB • CS: Avail  **AR6003X** • 1x1 DB 11a/b/g/n • SDIO • CS: Avail					 **QCA4002** • 802.11agn 1x1 DB • Full offload • USB/SDIO • ES: Q1'13, CS: Q3'13				

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Detailed Platform Connectivity Support & Software Roadmaps

Android Smartphone Chipset Support Matrix

WLAN

	Ice Cream Sandwich	JellyBean Sep-Oct 2012	K Release 2Q 2013(1)
8974	-	-	WCN3660A (2) WCN3680
8064	WCN3660	WCN3660 WCN3660A WCN3680	WCN3660 WCN3660A WCN3680
8960PRO	-	WCN3660A WCN3680	WCN3660A WCN3680
8960/8x60A	WCN3660	WCN3660	WCN3660
8x60	AR6003/5	AR6003/5	-
8x55	WCN1314 AR6003/5	WCN1314	WCN36x0
8x30/8x27	-	WCN3660	WCN3660
8x25	AR6005 WCN1314	AR6005 WCN1314	AR6005
7x27(5)A	AR6005 WCN1314	AR6005	AR6005
7x27(T)	AR6003/5	-	-

■ Default WLAN solution (integrated in PL) ■ Maintenance mode ■ Option

1 Estimated Google release dates *2 JM-MR1 or K-release*

Windows Phone Chipset Support Matrix

BT & BT/FM

	WP7	WP7 Mango	WP7 Tango1	WP7 Tango2	WP8	Windows 8 on Arm
8x50	BTS4025	BTS4025	-	-	-	-
7x30, 8x55	-	-	-	-	-	-
Next Generation Chipsets						
7x27A, 7x25A	-	-	-	WCN2243	-	-
8960, 8x60A, 8260A	-	-	-	-	WCN3660	WCN3660
8930, 8230, 8x27	-	-	-	-	WCN3660	-
APQ8064	-	-	-	-	-	WCN2243
8x25	-	-	-	-	-	-

■ Default WLAN solution (integrated in PL) ■ Option (supported on customer platform)

[1] *Estimated Microsoft release dates*

Windows Chipset Support Matrix

WLAN

	WP7	WP7 Mango	WP7 Tango2	WP8	Windows 8 on ARM
8x50	AR6003	AR6003/5	-	-	-
7x30, 8x55	-	AR6003/5	-	-	-
Next Generation Chipsets					
7x27A, 7x25A	-	-	AR6003/5	-	-
8960, 8x60A, 8260A	-	-	-	WCN3660	WCN3660
8930, 8230, 8x27	-	-	-	WCN3660	-
APQ8064	-	-	-	-	AR6004
8x25	-	-	-	-	-

■ Default WLAN solution (integrated in PL)

Brew/BMP Chipset Support Matrix

BT & BT/FM

	Brew	Brew MP
MSM7x25	BTS4025	-
MSM7x27	-	BTS4025
QSC6270	BTS4025	-
QSC6695	-	Marimba
Next Generation Chipsets		
QSC1105	WCN2243 BTS4025*	-
QSC1115	WCN2243 BTS4025	-

■ Default BT/FM solution (integrated in PL) platform)

■ Option (supported on customer

* *Support provided outside of mainline*

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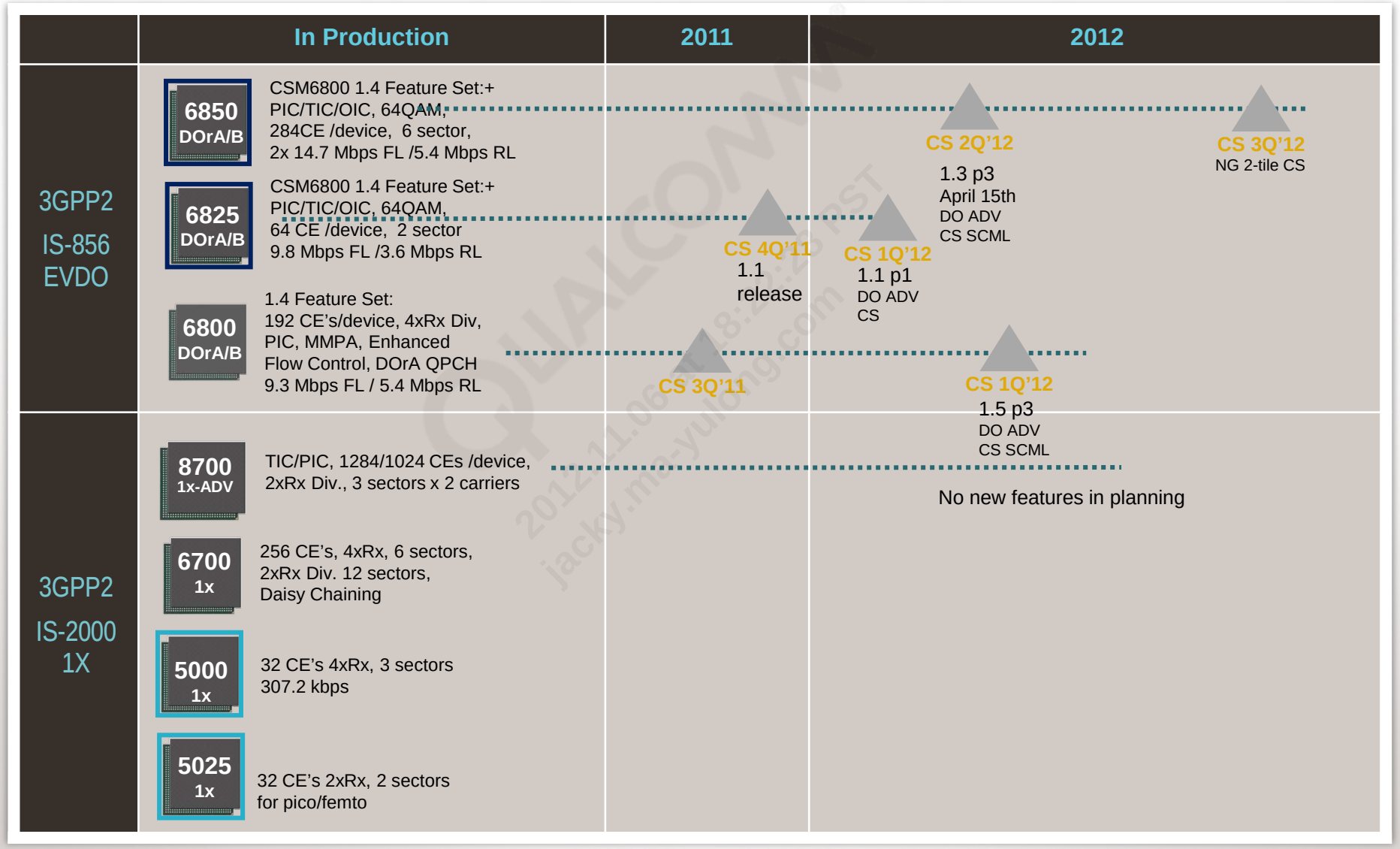
QMC CSM Product Roadmaps

November 2012
(Disclosed Under NDA)

QMC CSM Roadmap

Pin, SW API & RF compatible



CSM6800/25/50 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2011			2012			
	Q2	Q3	Q4	Q1	Q2	Q3	
HW	• CSM6800 production • CSM6850 production • CSM6825 production					• CSM6850 ROHS 6/6 ES (Q4 CS) • CSM6825 ROHS 6/6 ES (Q4 CS) • CSM8700 ROHS 6/6 ES (Q4 CS)	
SW	**Apr. '11** **6850 Rel. 1.3p1** **Features:** DO-Advanced **Alpha:** Single-Carrier Multi-Link (SCML) w/Enhanced Feedback Multiplexing (EFM)	**June '11** **6800 Rel. 1.4 p11** **Bug fix** **June. '11** **6850 Rel. 1.3 p2** **bug fix**	**Aug. '11** **6800 Rel. 1.5p2** **Features:** DO-Advanced **Commercial:**	**December'11** **6825 Rel. 1.1** **Features:** Bug-fixes DO-Adv API compatibility **Commercial:** Fix for the 165 day counter-rollover issue	**Feb '12** **6825 Rel. 1.1 p1** **Features:** DO-Advanced **Commercial:** Operational Metrics Smart Networks *Network Load Balancing *Distributed Network Scheduler *Smart Carrier Management	**Feb. '12** **6850 Rel. 1.3p3** **Features:** DO-Advanced **Commercial:** Single-Carrier Multi-Link (SCML)	**Apr. '12** **6800 Rel. 1.5p3** **Features:** DO-Advanced **Commercial:** Single-Carrier Multi-Link (SCML) Access channel enhancement for Q-Chat	**Sept'12** **6850 Rel. 2.1** **Features:** 2 Tile CS Operational **Commercial:** 2 Tile R1.3 p3 feature-set on the multi-core next gen platform

NOTES: NDA Use Only
- Not all features listed

DO-Advanced Infra Feature Support*

DO Advanced Features	CSM Feature Support and Availability		
Basestation ASIC	CSM 6800	CSM 6825	CSM 6850
Network Load Balancing (legacy) & (new)	Aug.10	Feb. 12	Dec. 10
Distributed Network Scheduler	Aug. 10	Feb. 12	Dec. 10
Single Carrier Multi-Link	Mar. 12	Feb. 12	Feb. 12
Smart Carrier Management	Aug.10	Feb. 12	Dec. 10
Access Dimensions x4	Not Supported	Feb. 12	Dec. 10

*DO Advanced Infra deployed features supported on most legacy handset devices;
Consult device roadmaps for advanced mobile features (e.g. NLB-new)

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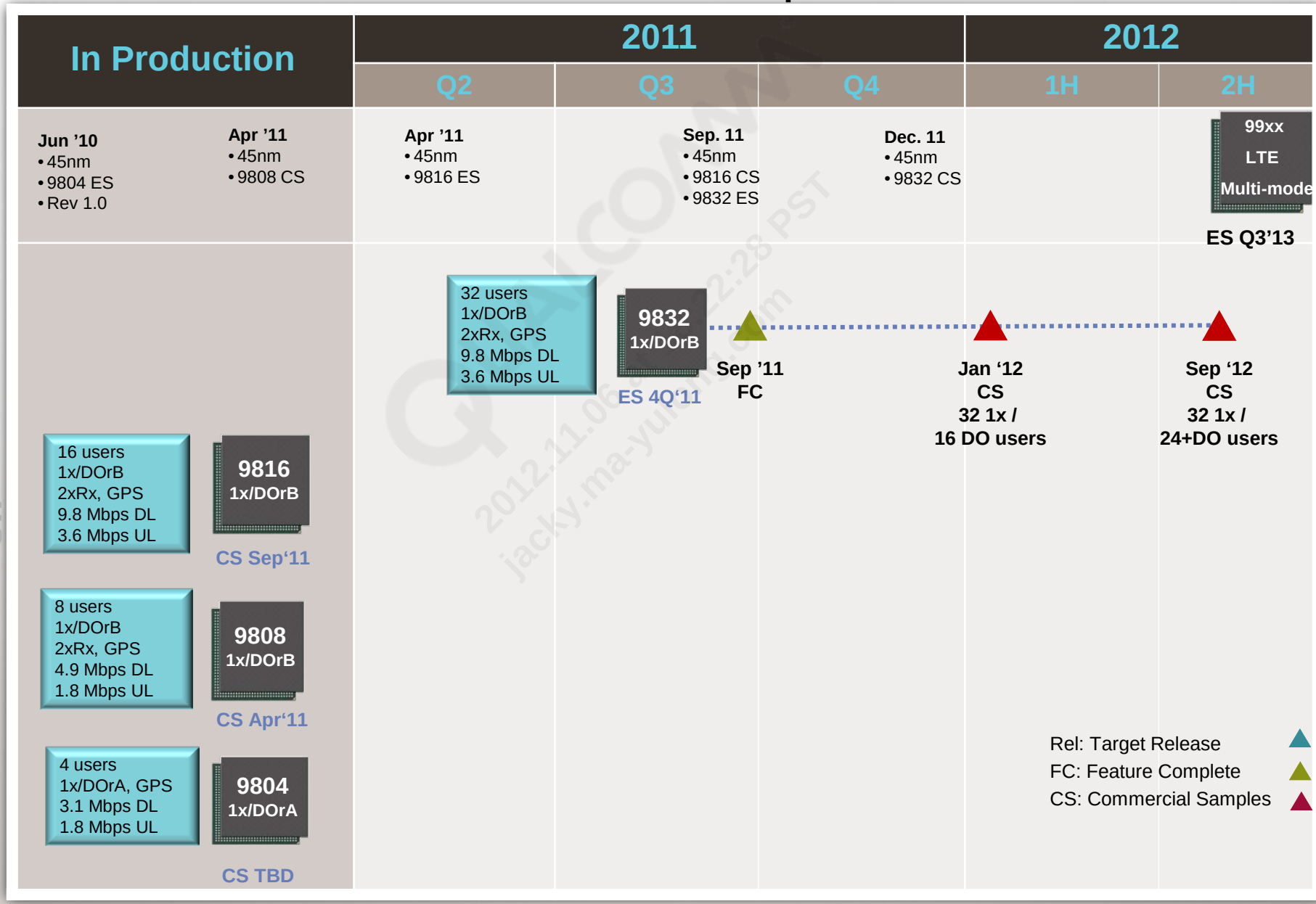
QMC FSM Product Roadmaps

November 2012

(Disclosed Under NDA)

FSM9808/16/32 3GPP2 Development Schedule



3GPP2 Femto Software Roadmap

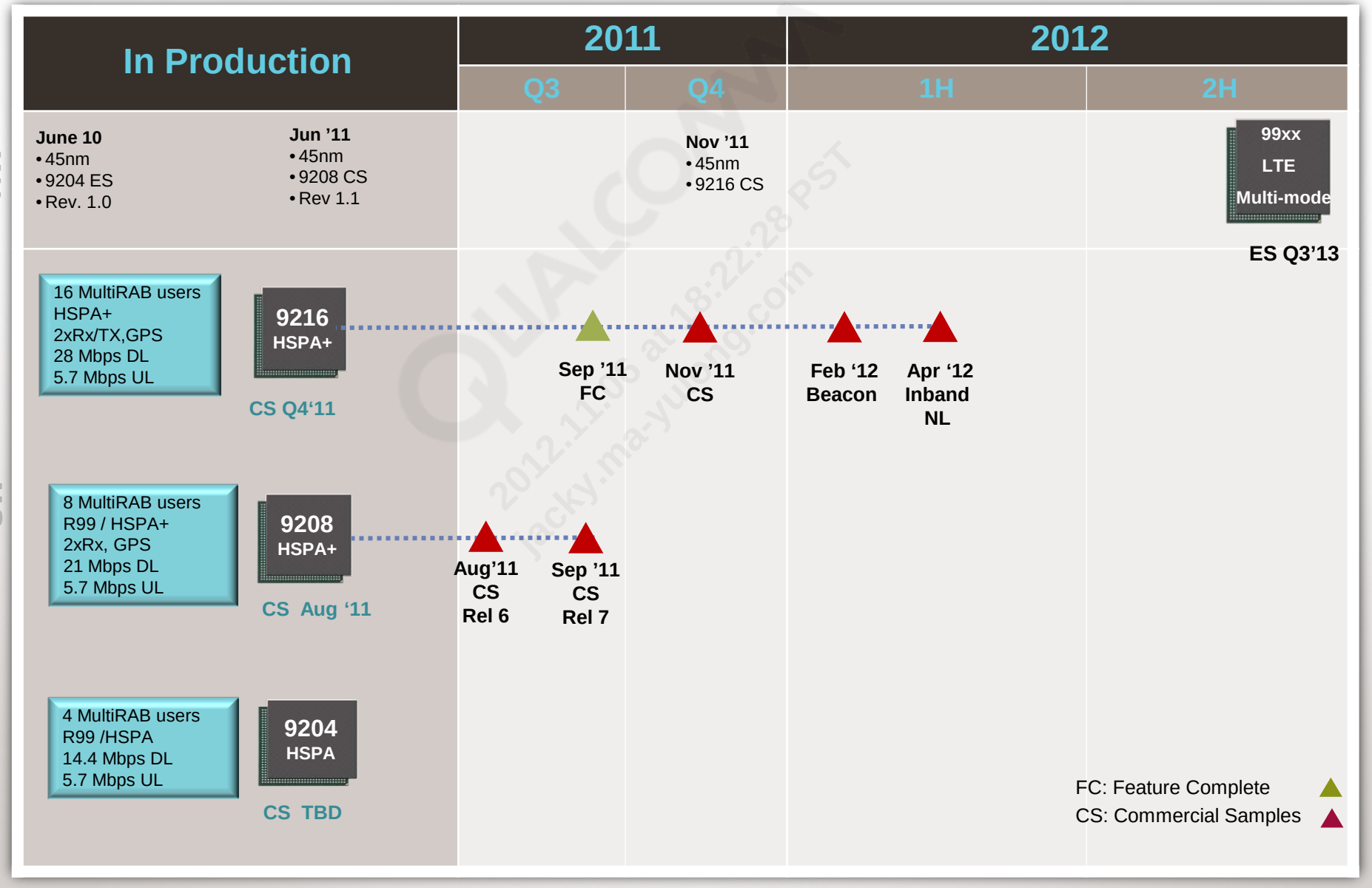
2011		2012	
1H	1H	1H	2H
V1.2 Release Apr '11	V1.3 Release Sep'11	V1.5 Release Jan'12	V1.5 Release Mar'12	V1.5 Release Sep'12
FC Release Rx Diversity	**FC Release** **9832 FC** 32 1x or 16 DO users EVDO Rev A	**FC Release**	**FC Release** **TBD**	**FC Release** **TBD**
CS Features **9808 CS** 8 1x / DO users DO Rev A 3.1Mbps / 1,8Mbps Security: (OTA / IPSEC) Sync / Timing: (GPS) Location: A-GPS Network Listen (2G/3G)[1]	**CS Features** **9816 CS** 16 1x / DO users 3.1Mbps / 1.8Mbps DO Rev A Tx/Rx Div Security: (OTA / IPSEC) Sync / Timing: (GPS) Location: A-GPS Network Listen (2G/3G)[1]	**CS Features** **9832 CS** 32 1x / 16 DO Users 3.1Mbps / 1.8Mbps DO Rev A Tx / Rx Div SD card Support Soft Handoff Security: (OTA / IPSEC) Sync / Timing: (GPS) Location: A-GPS Network Listen (2G/3G)[1]	**CS Features** Timing: NTP/PTP	**CS Features** **9832 CS** 24+ DO Rev A users

SW

Alpha Target Release
FC: Feature Complete
CS: Commercial Release

[1]Network Listen for macro Overhead channel decode and Interference Mgmt
[2]NTP/PTP related TFCS API support only; Customer responsible for full timing solution including NTP/PTP protocol stack

FSM9204/08/16 3GPP Development Schedule



3GPP Femto Software Roadmap

2011		2012	
Q3	Q4	Q1	Q2
V1.2 Release Aug'11	V1.3 Release Sep'11	V1.4 Release Nov'11	V1.5 Release Jan'12	V1.5 Release Apr'12
Alpha Features 8 R99 users HSPA+ 21/2.1	**Alpha Feaures** Tx/Rx Diversity	**Alpha Features** Beacon	**Alpha Features**	**Alpha Features** TBD
FC Release Rx Diversity	**FC Release** **9216 FC** 16 Multi-RAB users HSPA+ 21Mbps DL	**FC Release** SYNC: 2G/3G NL		
CS Features **9208 CS** HSDPA 14.4/2.1 8 R99 8 HSPA users Multi-RAB Security: (OTA / IPSEC) Timing: (GPS, NTP/PTP*) Location: A-GPS Network Listen (2G/3G)	**CS Features** **9208 CS** HSPA+ 14.4/5.76 Rx Div	**CS Features** **9216 CS** 16 Multi-RAB users HSPA+ 21/5.76 Tx/Rx Diversity	**CS Features** Beacon SYNC: 2G/3G NL	**CS Features** NL STX EUL Scheduler

SW

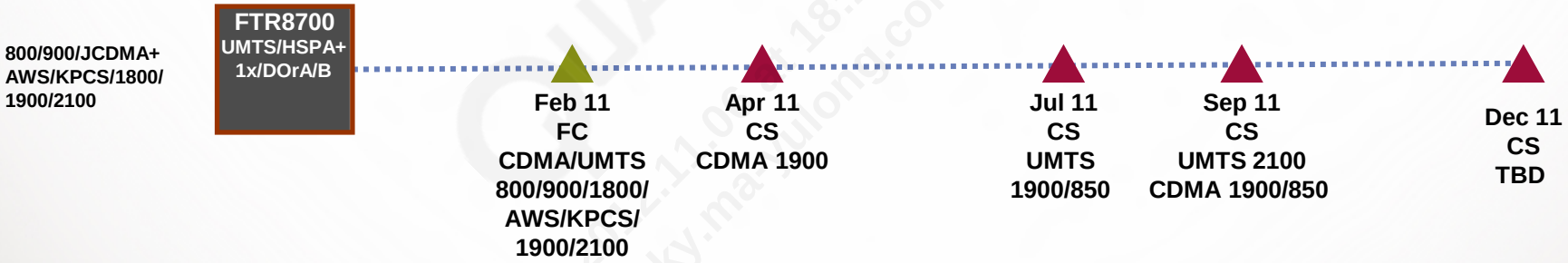
Alpha Target Release
FC: Feature Complete
CS: Commercial Release

*Note: NTP/PTP API support only; Customer responsible for full timing solution including NTP/PTP protocol stack

Multimode Femto RF Roadmap

65nm RF CMOS

In Production	2011			
	Q1	Q2	Q3	Q4
•65 nm •RTR 8605		**April 11** •65nm •FTR 8700 CS •Rev. 2.0		



RTR8605

UMTS/
DOrB/
GPS

Multi-band*

Multi-band – defined as 700/800/900/1500/1700/1800/AWS/1900/2100/GPS+Glonass plus QB EDGE

Rel: Target Release
FC: Feature Complete
CS: Commercial Samples

Specifications are subject to change

Thank You

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