

# HAMAMATSU

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## HAMAMATSU Virtual Patent Marking – September 3, 2026

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Items listed below may be sold individually or as part of a combination product.

### qCMOS™ Camera

| Patented Products                     | Associated Patent Number(s)                                                                                                                                      |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ORCA-Quest<br>(C15550-20UP series)    | US9,423,601 US10,142,566 US10,362,245 US10,602,087<br>US11,204,432 US11,215,717 US11,656,374 US11,835,667<br>US11,921,245 US12,513,432 US12,078,767 US12,574,662 |
| ORCA-Quest 2<br>(C15550-22UP series)  | US9,423,601 US10,142,566 US10,362,245 US10,602,087<br>US11,204,432 US11,215,717 US11,656,374 US11,835,667<br>US11,921,245 US12,513,432 US12,078,767 US12,574,662 |
| ORCA-Quest IQ<br>(C15550-23UP series) | US9,423,601 US10,142,566 US10,362,245 US10,602,087                                                                                                               |
| ORCA-Halo<br>(C17440-20U series)      | US9,423,601 US10,142,566 US10,362,245 US10,602,087                                                                                                               |

**CMOS Camera**

| Patented Products                        | Associated Patent Number(s)                                                    |
|------------------------------------------|--------------------------------------------------------------------------------|
| ORCA-Fire<br>(C16240-20UP series)        | US9,423,601 US10,142,566 US10,362,245 US10,602,087                             |
| ORCA-Fusion BT<br>(C15440-20UP series)   | US9,423,601 US10,142,566 US10,362,245 US10,602,087                             |
| ORCA-Fusion<br>(C14440-20UP series)      | US9,423,601 US10,142,566 US10,362,245 US10,602,087                             |
| ORCA-Flash4.0 V3<br>(C13440-20CU series) | US9,423,601 US10,142,566 US10,362,245 US10,602,087<br>US9,995,920 US10,684,459 |
| ORCA-Lightning<br>(C14120-20P series)    | US9,423,601 US10,142,566 US10,362,245 US10,602,087                             |

**MEMS confocal unit**

| Patented Products     | Associated Patent Number(s)            |
|-----------------------|----------------------------------------|
| MAICO (C15890 series) | US12,117,600 US12,216,263 US12,078,789 |
| MAICO (C17290 series) | US12,117,600 US12,216,263 US12,078,789 |

**X-ray TDI camera**

| Patented Products | Associated Patent Number(s)                                                   |
|-------------------|-------------------------------------------------------------------------------|
| C15400 Series     | US8,723,129 US8,829,449 US9,279,890 US10,101,469<br>US10,746,884 US10,859,715 |

**X-ray line scan camera**

| Patented Products | Associated Patent Number(s)                                                 |
|-------------------|-----------------------------------------------------------------------------|
| C8133 Series      | US8,223,922 US8,280,005 US8,600,005 US8,964,939<br>US9,594,031 US10,393,676 |
| C14300 Series     | US10,267,751                                                                |
| C11800 Series     | US10,267,751                                                                |
| C14960 Series     | US10,267,751                                                                |
| C15600 Series     | US10,267,751                                                                |
| C15949 Series     | US12,584,867                                                                |
| C17300 Series     | US12,584,867                                                                |

**Digital slide scanner**

| Patented Products | Associated Patent Number(s)                                                                                                                                                                              |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NanoZoomer S360   | US8,107,770 US9,911,028 USD848,434 USD848,433<br>US10,422,987 USD866,555 USD886,830 USD892,811<br>USD893,505 USD897,351 US10,969,570 US11,022,621<br>US11,249,297 US11,280,991 US11,698,519 US12,385,934 |
| NanoZoomer S360MD | US8,107,770 US9,911,028 US10,422,987 USD866,555<br>USD886,830 USD892,811 USD893,505 USD897,351<br>US10,969,570 US11,249,297 US11,280,991 US11,698,519                                                    |
| NanoZoomer S210   | US8,107,770 US9,911,028 US10,422,987 US11,280,991<br>US11,698,519                                                                                                                                        |
| NanoZoomer S60    | US8,107,770 US9,911,028 US10,422,987 US11,280,991<br>US11,698,519                                                                                                                                        |
| NanoZoomer S20    | US8,107,770 US9,911,028 US10,422,987 US11,249,297<br>US11,280,991 US11,698,519                                                                                                                           |
| NanoZoomer-SQ     | US8,107,770 US9,911,028 US10,088,659 US10,422,987<br>US11,280,991 US11,698,519                                                                                                                           |

**Drug screening system**

| Patented Products | Associated Patent Number(s) |
|-------------------|-----------------------------|
| FDSS/ $\mu$ Cell  | US10,180,525 US10,495,804   |
| EFS pacing system | US9,778,189                 |

**Light-Sheet Microplate Cytometer**

| Patented Products | Associated Patent Number(s)                                                                                                                                                          |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CYTOQUBE          | US10,809,509 US11,169,092 US11,131,839<br>US11,391,934 US11,709,350 US11,852,792<br>USD1,015,566 USD1,010,154 USD1,015,567<br>US11,822,066 US12,140,742 US12,455,241<br>US12,189,108 |

**Luminescence efficiency measurement system**

| Patented Products                         | Associated Patent Number(s)                                                                                                                                              |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Absolute PL quantum<br>yield spectrometer | US8,324,561 US8,462,337 US8,525,989 US8,587,779<br>US8,643,839 US9,423,339 US10,094,779 US10,209,189<br>US11,150,178                                                     |
| Quantaaurus-QY                            | US8,462,337 US8,587,779 US8,592,780 US8,643,839<br>US8,916,836 US9,024,278 US9,423,339 US10,094,779<br>US11,150,178                                                      |
| Quantaaurus-QY Plus<br>UV-NIR             | US8,462,337 US8,525,989 US8,587,779 US8,592,780<br>US8,643,839 US8,916,836 US9,024,278 US9,423,339<br>US9,952,101 US10,036,706 US10,094,779<br>US10,222,332 US10,928,246 |
| ODPL measurement<br>system                | US12,442,775 US12,392,724                                                                                                                                                |

**Fluorescence lifetime/transient absorption analysis system**

| Patented Products                                        | Associated Patent Number(s) |
|----------------------------------------------------------|-----------------------------|
| Quantaaurus-Tau<br>Fluorescence lifetime<br>spectrometer | US10,962,932                |

**Molecular orientation characteristic measurement system**

| Patented Products                                             | Associated Patent Number(s) |
|---------------------------------------------------------------|-----------------------------|
| Molecular orientation<br>characteristic<br>measurement system | US11,920,921                |

**Micro LED inspection system**

| Patented Products                         | Associated Patent Number(s) |
|-------------------------------------------|-----------------------------|
| MiNY PL Micro LED PL<br>inspection system | US11,694,324                |

**Spectrometer**

| Patented Products                                 | Associated Patent Number(s)            |
|---------------------------------------------------|----------------------------------------|
| OPAL - Luxe High<br>dynamic range<br>spectrometer | US11,892,352 US11,828,653 US12,174,072 |

**Thickness measurement system**

| Patented Products                          | Associated Patent Number(s) |
|--------------------------------------------|-----------------------------|
| HyperGauge Thickness<br>measurement system | US12,467,740                |

**Failure analysis system**

| Patented Products                                     | Associated Patent Number(s)                                                                                                                                                                                          |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PHEMOS Series                                         | US11,402,200 US11,714,120                                                                                                                                                                                            |
| iPHEMOS Series                                        | US11,402,200 US11,714,120 US12,347,718 US12,117,480                                                                                                                                                                  |
| EO Probing unit                                       | US9,099,350 US9,562,944 US9,588,175 US9,618,563<br>US10,060,975 US10,101,383 US10,139,447 US10,191,104<br>US10,330,615 US10,508,996 US10,591,427 US10,705,139<br>US11,047,792 US12,360,056 US12,044,729 US12,320,842 |
| High power Incoherent<br>Light source for<br>EOP/EOFM | US9,099,350 US10,408,874                                                                                                                                                                                             |
| Laser marker unit                                     | US10,312,166 US10,586,743 US10,607,900 US10,923,404<br>US12,117,480 US12,510,591                                                                                                                                     |
| Laser scan system<br>C10656 Series                    | US9,733,297                                                                                                                                                                                                          |
| Laser scan system<br>C14432 Series                    | US9,733,297 US9,557,377 US11,209,476                                                                                                                                                                                 |
| MOCI unit                                             | US10,139,370 US10,564,126 US10,656,187 US10,698,006<br>US10,976,284 US11,009,531 US11,243,113 US11,733,091                                                                                                           |
| Semishop failure<br>analysis software                 | US7,752,594 US9,536,300 US9,734,571 US10,371,746<br>US11,009,531 US12,094,138 US12,211,199 US12,203,974<br>US12,340,504                                                                                              |
| SIL cap                                               | US7,414,800 US7,423,816 US8,094,389 US8,582,202<br>US10,545,309 US10,558,010 US11,256,079 US11,913,888                                                                                                               |

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|                      |                                                   |
|----------------------|---------------------------------------------------|
| SIL cap              | US11,841,393 US12,235,433 US12,163,900            |
| Thermal lock-in unit | US9,575,020 US9,658,116 US10,365,324 US10,371,746 |
| Mirror Baffle        | US9,411,143 US10,663,709, US10,048,483            |
| OBIRCH Analysis      | US11,573,251 US11,927,626                         |

**Photomultiplier tubes (PMTs)**

| Patented Products               | Associated Patent Number(s)                                       |
|---------------------------------|-------------------------------------------------------------------|
| Head-on type                    | US9,293,308 US9,437,406 US11,302,522 US11,688,592<br>US11,955,325 |
| Photomultiplier tube assemblies | US9,293,308 US9,437,406 US9,607,814 US11,688,592<br>US9,607,814   |

**Terahertz (THz) sensors**

| Patented Products | Associated Patent Number(s) |
|-------------------|-----------------------------|
| THz PMT           | US11,776,798 US12,261,010   |
| THz PMT module    | US11,776,798 US12,261,010   |

**Electron & ion sensors**

| Patented Products             | Associated Patent Number(s)                                                                                                                     |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Electron multipliers<br>(EMs) | US9,514,920 US9,892,892 US10,037,871 US10,522,334<br>US10,629,418 US10,818,484 US11,011,358 US11,417,505<br>US11,640,902                        |
| CERARION                      | US9,514,920 US9,892,892 US10,037,871 US10,522,334<br>US10,629,418 US10,818,484 US11,011,358 US11,417,505                                        |
| Microchannel plates<br>(MCPs) | US8,508,110 US9,064,677 US9,117,640 US9,543,129<br>US9,934,952 US10,312,068 US10,818,484 US11,011,358<br>US11,139,153 US11,170,983 US11,315,772 |

**Ionization-Assisting Substrates**

| Patented Products | Associated Patent Number(s) |
|-------------------|-----------------------------|
| Transfer Plate    | US11,251,032 US11,735,406   |

**Laser-Driven Light Sources (LDLS)**

| Patented Products | Associated Patent Number(s)                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------|
| EQ series         | US11,367,989 US11,664,211 US11,670,497 US11,676,809<br>US11,682,548 US11,862,922 US11,972,931 |

**Excimer lamp light sources**

| Patented Products | Associated Patent Number(s) |
|-------------------|-----------------------------|
| EX-PEN            | US11,508,568                |

**Lamps**

| Patented Products | Associated Patent Number(s)          |
|-------------------|--------------------------------------|
| Xenon flash lamps | US8,304,973 US9,704,702 US10,514,142 |

**UV-LED light sources**

| Patented Products                                                   | Associated Patent Number(s)                                         |
|---------------------------------------------------------------------|---------------------------------------------------------------------|
| LIGHTNINGCURE<br>LC-L5G:<br>Linear irradiation type<br>UV-LED units | US10,865,971 US11,298,959 US11,353,207 US11,806,687<br>US11,959,624 |

**Microfocus X-ray sources**

| Patented Products | Associated Patent Number(s)                                                                                                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Open type         | US9,449,779 US10,923,307 US11,101,098 US11,145,481<br>US11,164,713 US11,183,356                                                                                                                         |
| Sealed type       | USD882,091 USD913,940 US10,825,638 US10,825,640<br>US10,825,641 US10,910,191 US10,943,759 US11,004,646<br>US11,039,526 US11,129,264 US11,147,148 US11,166,360<br>US11,721,515 US11,728,121 US11,875,965 |

**X-Ray sensors**

| Patented Products   | Associated Patent Number(s)                                                                                                                                                                                                 |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scintillator Plates | US10,061,035 US10,261,198 US10,379,229<br>US10,514,470 US10,571,581 US10,983,224 US11,092,699<br>US11,099,283 US11,275,184 US11,480,694 US11,506,799<br>US11,536,859 US11,598,889 US11,644,581 US11,762,110<br>US11,953,631 |