GE HealthCare

LOGIQ Totus R4.5.x HDU

Product Specification Sheet

Last updated on: 2024-08-27

1	**General Specifications**	
2	**Dimensions and Weight** **(Dimensions given with floating keyboard stowed and display tilted for transport)**	
3	Height	1460 – 1860 mm, 57.5 – 73.2"
4	Width	490 mm, 19.3" (Caster), 565 mm, 22.2" (Monitor)
5	Depth	835 mm (32.9")
6	Weight	73 kg (160.9 lbs)
7	**Electrical Power**	
8	Voltage: 100 – 240 Vac	
9	Frequency: 50/60 Hz	
10	Power consumption maximum of 0.9 kVA with peripherals	
11	**Console Design**	
12	4 active physical probe ports	
13	Wireless probe connection, capable of connecting Vscan Air wireless and linear probes	
14	Integrated SSD (1 TB)	
15	On-board storage of thermal printer	
16	Integrated speaker	
17	Integrated locking mechanism that provides rolling lock and caster swivel lock	
18	Integrated cable management	
19	Front and rear handles	
20	Easily removable air filters	
21	Windows 10 IoT Enterprise 2019 LTSC	
22	**User Interface**	
23	**Operator Keyboard**	
24	Full-sized, backlit alphanumeric keyboard	
25	Operating keyboard adjustable in height and rotation	
26	Ergonomic hard key layout	
27	Interactive back-lighting	
28	Integrated recording keys for remote control of up to 4 peripheral devices or DICOM® devices	
29	Integrated gel warmer	
30	**Touch Screen**	
31	14" High-resolution, color, touch, display screen	
32	Interactive dynamic software menu	
33	User-configurable layout	
34	Haptic function	
35	**Monitor**	
36	23.8" Wide screen high-resolution HDU display	
37	Display translation (independent of console)	
38	350 mm, (13.7 in) horizontal (both directions)	
39	150 mm, (5.9 in) vertical	
40	90° swivel (both directions)	
41	Fold-down and lock mechanism for transportation	
42	Resolution: 1920 X 1080	
43	Anti-glare	
44	Viewing angle 89/89/89/89°	
45	Contrast Ratio: >200,000:1	
46	**System Overview**	
47	**Applications**	
48	Abdominal	
49	Obstetrical	
50	Gynecological	

51	Breast
52	Small Parts
53	Peripheral Vascular
54	Transcranial (adult and neonatal)
55	Pediatric and neonatal
56	Musculoskeletal (general and superficial)
57	Urological
58	Cardiac (adult and pediatric)
59	Pleural
60	**Operating Modes**
61	B-Mode
62	M-Mode
63	Color Flow Mode (CFM) and Microvascular Imaging (MVI)
66	Power Doppler Imaging (PDI)
65	B-Flow (Option)
66	Extended Field of View (LOGIQView)
67	PW Doppler
68	CW Doppler (Option)
69	Volume Modes (3D/4D) (Option)
70	Anatomical M-Mode
71	Contrast Imaging (Option)
72	B-Steer+ (Option)
73	Strain elastography (Option)
74	Shear wave elastography (Option)
75	UGAP (Option) - Ultrasound Guided Attenuation Parameter Imaging
76	**Scanning Methods**
77	Electronic sector
78	Electronic convex
79	Electronic linear
80	Mechanical volume sweep
81	**Probe Types**
82	Sector/Phased array
83	Curved Linear array
84	Microcurved linear array
85	Linear array
86	Matrix array (Linear)
87	Volume probes (4D)
88	Split crystal
89	**System Standard Features**
90	Advanced user interface with high-resolution 14" display touch panel
91	Automatic optimization
92	CrossXBeam™ compounding
93	Speckle Reduction Imaging (SRI-HD, Advanced SRI Type 1)
94	Fine angle steer
95	Coded harmonic imaging
96	Virtual convex
97	Patient information database
98	Voice Control
99	Image archive on hard drive and removable USB
100	Advanced 3D
101	Real-time automatic Doppler calculations
102	OB calculations
103	Fetal trending
104	Multi gestational calculations
105	Hip dysplasia calculations
106	Gynecological calculations
107	Vascular calculations
108	Urological calculations
109	Renal calculations
110	Cardiac calculations
111	InSite™ capability
112	On-board electronic documentation
113	Auto Doppler Assist
114	Privacy and security, including user and rights management

115	LOGIQView	
116	External USB printer connection	
117	Network printer support	
118	HDMI output (available for compatible devices)	
119	App Launchpad	
120	**System Options**	
121	DICOM	
122	B-Flow	
123	Compare Assistant	
124	Auto IMT	
125	Scan Assistant	
126	Breast productivity package	
127	Thyroid productivity package	
128	OB measure assistant	
129	Quantificative Flow Analysis available with Color Flow/PDI	
130	Breast Measure Assistant	
131	B Steer+ (Option)	
132	Strain elastography	
133	Elastography Quantification	
134	Advanced privacy and security (vulnerability scan)	
135	Battery Pack	
136	Battery Pack extended	
137	Storage bins	
138	Shear wave Elastography	
139	Volume Navigation	
140	UGAP	
141	Hepatic Assistant	
142	Coded Contrast Imaging	
143	Stress echo	
144	Cardiac Strain (Automatic Function Imaging)	
145	On-board reporting	
146	TVI	
147	Wireless LAN	
148	CW	
149	DVR	
150	Tablet tools	
151	Breast Assistant, Powered by Koios DS™	
152	Thyroid Assistant, Powered by Koios DS™	
153	SonoNT SonoIT	
154	Advanced SRI Type 2	
155	RF Data Capture	
156	Auto Preset Assistant	
157	Auto Abdominal Color Assistant	
158	Raw Data Streaming	
159	**Peripheral Options**	
160	Integrated Digital B&W thermal Printer	
161	Digital color thermal printer	
162	Digital A6 color thermal printer	
163	Foot switch, with programmable functionality	
164	CRF-200U card reader support (Japan Only)	
165	USBee1000A barcode reader (for Japan)	
166	LOGIQ smart device apps	• Photo Assistant • Remote Control
167	Vscan Air™ On-System Charger	
168	**Display Modes**	
169	Live and stored display format	• Full size and split screen – both w/ thumbnails. For still and CINE
170	Review image format	• 4x4, and thumbnails. For still and CINE
171	Time line display	• Independent Dual B or CrossXBeam/PW Display • CW • Display formats top/bottom selectable format • Side/side selectable format
172	Virtual convex	
173	**Simultaneous capability**	
174	B or CrossXBeam/PW	

175	B or CrossXBeam/CW (Option)	
176	B or CrossXBeam/CFM or PDI	
177	B/M	
178	B/CrossXBeam	
179	B-Flow/PW	
180	Real-time Triplex Mode - B or CrossXBeam + CFM or PDI/PW	
181	**Selectable alternating modes**	
182	B or CrossXBeam/PW	
183	B or CrossXBeam + CFM (PDI)/PW	
184	B/CW (Option)	
185	**Multi-image (split/quad screen)**	
186	Live and/or frozen	
187	B or CrossXBeam + B or CrossXBeam/CFM or PDI or B-Flow (Option)	
188	PW/M	
189	Independent Cine playback	
190	**Display Annotation**	
191	Patient name: first, last and middle	
192	Patient ID	
193	Alternate patient ID	
194	Age, sex and date of birth	
195	Hospital name	
196	Date format: three types selectable	• MM/DD/YY • DD/MM/YY • YY/MM/DD
197	Time format: 2 types selectable	• 24 hours • 12 hours
198	Gestational age from	• LMP • GA • EDD • BBT
199	Probe name	
200	Map names	
201	Probe orientation	
202	Depth scale marker	
203	Lateral scale marker	
204	Focal zone markers	
205	Image depth	
206	Zoom depth	
207	B-Mode	• Gain • Dynamic range • Imaging frequency • Frame averaging • Gray map • SRI
208	M-Mode	• Gain • Dynamic range • Time scale
209	Doppler Mode	• Gain • Angle • Sample volume depth and width • Wall filter • Velocity and/or frequency scale • Spectrum inversion • Time scale • PRF • Doppler frequency

210	Color Flow Doppler Mode	• Line density • Frame averaging • Color scale, 3 types: Power, directional PDI and symmetrical velocity imaging • Color velocity range and baseline • Color threshold marker • Color gain • PDI • Spectrum inversion • Doppler frequency
211	Digital TGC with 8 independent controls	
212	Acoustic frame rate	
213	CINE gauge, image number/frame number	
214	Body pattern: multiple human and animal types	
215	Application name	
216	Measurement results	
217	Operator message	
218	Displayed acoustic output	• TIS: Thermal Index Soft Tissue • TIC: Thermal Index Cranial (Bone) • TIB: Thermal Index Bone • MI: Mechanical Index
219	% of maximum power output	
220	Biopsy guide line and zone	
221	Heart rate	
222	**General System Parameters**	
223	**System Setup**	
224	Pre-programmable categories	
225	User programmable preset capability	
226	Factory default preset data	
227	Languages: English, French, German, Spanish, Italian, Portuguese, Russian, Greek, Swedish, Danish, Dutch, Finnish, Norwegian	
228	OB Report Formats including Tokyo Univ., Osaka Univ., USA, Europe and ASUM and WHO	
229	User defined annotations	
230	Body patterns	
231	Customized comment home position	
232	EZ Imaging: Simplified user interface for high volume workflow	
233	**Complete user manual available on board through Help (F1)**	
234	User manual and service manual are included in USB stick with each system. A printed manual is available upon request.	
235	**CINE Memory/Image Memory**	
236	1 GB of CINE memory	
237	Selectable CINE sequence for CINE review	
238	Prospective CINE mark	
239	Measurements/calculations and annotations on CINE playback	
240	Scrolling timeline memory	
241	Dual Image CINE display	
242	Quad Image CINE display	
243	CINE gauge and CINE image number display	
244	CINE review loop	
245	CINE review speed	
246	**Image Storage**	
247	On-board database of patient information from past exams	
248	Storage formats: DICOM	• Compressed/uncompressed • Single/multi-frame • Enhanced (3D/4D) • With/without raw data
249	Exportable DICOM viewer	
250	Export BMP, JPEG, JPEG 2000, PNG, AVI, MP4, WMV formats	
251	Storage devices:	• USB memory stick: 64 MB to 64 GB (for exporting individual images/clips) • Hard drive image storage: ~760 GB
252	Compare previous exam images with current exam	
253	Reload of archived date sets	
254	B-mode image storage: 6781 sec maximum	
255	M-mode image storage: 6781 sec maximum	
256	Color-mode image storage: 9224 sec maximum	
257	3D/4D imaging: 142 volume per sec maximum	

258	**Connectivity**	
259	Ethernet network connection	
260	Wireless LAN 802.11ac/a/b/g/n (Option)	
261	DICOM 3.0	• Verify • Print • Store • Modality worklist • Storage commitment • Modality performed procedure step (MPPS) • Media exchange • Off network/mobile storage queue • Query/retrieve
262	Public SR template	
263	Structured Reporting – compatible with vascular and OB, cardiac and breast standard	
264	InSite capability	
265	Advanced privacy and security (Option)	
266	**Physiological input panel (Option)**	
267	Physiological input	• ECG, 1 channel • Dual R-Trigger • Pre-settable ECG R delay time • Pre-settable ECG position • Adjustable ECG gain control
268	Automatic heart rate display	
269	**Report writer (Option)**	
270	On-board reporting package automates report writing	
271	Formats various exam results into a report suitable for printing or reviewing on a standard PC	
272	Exam results include patient info, exam info, measurements, calculations, images, and comments Standard templates provided	
273	Customizable templates	
274	**Scanning Parameters**	
275	cSound™ Imageformer: Infinite number of effective channels	
276	Maximum Frame Rate: 2,468 Hz maximum	
277	Displayed imaging depth: 0 – 100 cm	
278	Minimum depth of field: 0 – 2 cm (zoom) (probe dependent)	
279	Maximum depth of field: 0 – 100 cm (probe dependent)	
280	Continuous dynamic receive focus	
281	Continuous dynamic receive aperture	
282	Adjustable dynamic range, inifinite upper level	
283	Composite dynamic range, Max 431 dB	
284	Adjustable field of view (FOV)	
285	System Frequency Range: 0.7-24 MHz, Unrelated with probe bandwidth, only pure system bandwidth is ranging in 1 - 25 MHz	
286	Image reverse: right/left	
287	Image rotation of 0°, 90°, 180°, 270°	
288	PW PRF: 0.4-35.5 KHz	
289	Doppler Velocity: 2,870 cm/s maximum	
290	8 bits stored per color	
291	256 shades of gray	
292	256 color tones	
293	M-Mode simultaneous: 1958 Hz maximum	
294	Color Doppler Frame Rate: 640 Hz Maximum	
295	B Flow Frame Rate: 1033Hz Maximum	
296	CW PRF: 57.5 KHz Maximum	
297	**Digital B-Mode**	

298	Adjustable	• Acoustic power: 2-100% • Gain: 0-90 dB, 1 dB/step • Dynamic range: 36 - 96 dB / 16 steps • Frame averaging: 8 steps • Gray scale map: 11 types • Frequency: up to 7 selectable depending on the probe • Speed of sound (application dependent) • Framerate: 2,468 Hz (Max) • Scanning size (FOV or Angle) – Depending on the probe, see probe specifications • CrossXBeam: up to 9 angles selectable • B colorization • Rejection: 6 steps • Suppression: 6 steps • SRI: up to 6 selections
299	**Digital M-Mode**	
300	Adjustable	• Acoustic power: 20-100% • Gain: -60 - 30 dB • Dynamic range • Gray scale map: 9 types • Frequency • Sweep speed: 0-7, 8 steps • M colorization: 9 types • M display format: 6 types • Rejection: 6 steps
301	**Anatomical M-Mode**	
302	M-mode cursor adjustable at any plane	
303	Can be activated from a CINE loop from a live or stored image	
304	M & A capability	
305	Available with Color Flow Mode	
306	**Digital Spectral Doppler Mode**	
307	Adjustable	• Acoustic power: 1-100% • Gain: 0 - 85 dB, 1 dB/ step • Dynamic range: • Gray scale map: 8 types • Transmit frequency: up to 8 selectable depending on the probe • Wall filter: 5.5 - 5000 Hz/ 27 steps • PW colorization: 6 types • Velocity scale range: 10 - 558 cm/s/ 24 steps • Sweep speed: 0 - 7 / 8 steps • Sample volume length: 0.5 - 20 mm depending on the probe • Angle correction: -90 to 90 degrees, 1 degree/ step • Steered linear: -20 - 20/ 7 steps • Spectrum inversion: on/off • Trace method: 3 steps • Baseline shift: 5-95 %/ 11 steps • Doppler auto trace: 3 steps • Time resolution • Compression: 0.5 - 2.4 dB / 9 steps • Trace direction: 3 steps • Trace sensitivity: 21 steps • Max frame rate in Duplex: 1050 Hz • PRFs: 35.5 kHz
308	**Digital Color Flow Mode**	

309	Adjustable	• Acoustic power: 5-100% • Color maps, including velocity-variance maps: 23 types depending on the probe and preset • Gain: -20 to 30 dB / 101 steps • Velocity scale range: 2 - 150 cm/s/ 21 steps depending on the probe and preset • Wall filter: 0 - 3 / 4 steps • Packet size: 5, 6, 7, 8, 10, 12, 14, 16, 20, 24 / 10 steps • Line density: 5 steps • Spatial filter: 6 steps • Steering angle: -20, -15, -10, 0, 10, 15, 20 degree • Baseline shift: 0 - 100 % / 11 steps • Frame average: 0 - 10 / 11 steps • Threshold: 0 - 100 % / 11 steps • Max. Frame Rate: 640 Hz • Max Frame Rate in Triplex: 139 Hz • PRFs: 17.9 kHz • Auto ROI placement and steering on linear • Accumulation mode: 8 steps • Flash suppression: 5 steps • Shortcuts
310	**Digital Power Doppler Imaging**	
311	Adjustable	• Acoustic power: 5-100% • Color maps: 17 types • Gain: -20 to 30 dB / 101 steps • Velocity scale range: 2 - 150 cm/s/ 21 steps • Wall filter: 0 - 3 / 4 steps • Packet size: 5, 6, 7, 8, 10, 12, 14, 16, 20, 24 / 10 steps depending on the probe and preset • Max. Frame Rate: 640Hz • PRFs: 17.9 kHz • Line density: 5 steps • Spatial filter: 6 steps • Steering angle: -20, -15, -10, 0, 10, 15, 20 degree • Frame average: 0 - 10 / 11 steps • Threshold: 0 - 100 % / 11 steps • Accumulation mode: 8 steps • Flash suppression: 5 steps • Shortcuts
312	**Continuous Wave Doppler (Option)**	
313	Available on M5Sc-D, 6S-D, P2D, P6D and 12S-D probes	
314	Steerable CW mode included	
315	Adjustable	• Acoustic power: 1-100% • Gain: 0-85dB, 1dB/step • Dynamic range • Gray scale map: 8 types • Transmit frequency up to 3 selectable depending on the probe • Wall filter: 5.5-5000 Hz/ 27 steps, depending on the probe • CW colorization: 6 types • Velocity scale range: 10-558 cm/s/ 24 steps, depending on the probe • Max velocity: 2120 cm/s • PRFs: 17.9 kHz • Sweep speed: 8 steps • Angle correction: ± 90 degrees, 1 degree / step • Spectrum inversion: On/Off • Trace method • Baseline shift: 5-95%/ 11 steps • Doppler auto trace • Compression: 0.5-2.4 dB/ 9 steps • Trace direction: 3 steps • Trace sensitivity: 21 steps
316	**Automatic Optimization**	
317	Optimize B-Mode image to help improve contrast resolution with one button press	
318	Selectable amount of contrast resolution improvement (low, medium, high)	
319	CTO (Continuous Tissue Optimization) – continuously adjusts B-Mode axial and lateral gain uniformity and overall gain level suppressing the noise	
320	Auto-spectral optimize – adjusts baseline, invert, PRF (on live image), and angle correction with one button press	

321	Auto CF and PW positioning – adjusts ROI position, sample volume position and steering with one button press	
322	**Coded Harmonic Imaging**	
323	Available on all 2D and 4D probes	
324	**B-Flow (Option)**	
325	Available on the following probes: C1-6-D, C1-6VN-D, C2-7-D, C2-7VN-D, C3-10-D, IC5-9-D, L3-12-D, M5Sc-D, ML6-15-D, RAB6-D, RIC5-9-D, 9L-D	
326	Background: 4 steps	
327	Sensitivity/PRI: 1-40/ 19 steps	
328	Acoustic power	
329	Frequency: up to 5 selectable	
330	Line density: 5 steps	
331	Frame average: 7 steps	
332	Gray scale map: 9 types	
333	Tint map: 9 types	
334	Dynamic range: 36-96 dB/ 16 steps	
335	Rejection: 5 steps	
336	Gain: 0-90 dB, 1 dB/ step	
337	Suppression	
338	SRI: 0-4/ 5 steps	
339	Accumulation: 8 steps	
340	Visualization	
341	**Radiant*flow*™**	
342	Easy, fast visualization of tiny vessels, displaying as a 3D effect	
343	Available in Color Doppler, Power Doppler and MVI	
344	**B Steer+ (Option)**	
345	Available on the following probes: C1-6-D, L3-12-D, ML6-15-D, L6-24-D and 9L-D	
346	**Coded contrast imaging (Option)**	
347	2 contrast timers	
348	Timed updates: 0.05 – 10 seconds	
349	Accumulation mode, seven levels	
350	Maximum enhance mode	
351	Flash	
352	Time intensity curve (TIC) analysis	
353	Parametric imaging	
354	Ability to save still image during clip acquisition	
355	The LOGIQ Totus is designed for compatibility with most commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use. Contrast related product features are enabled only on systems for delivery to an authorized country or region of use.	
356	**LOGIQView**	
357	Extended field of view Imaging	
358	Up to 160 cm (63") scan length	
359	Available on all 2D imaging probes	
360	For use in B-Mode	
361	CrossXBeam is available on linear probes	
362	Auto detection of scan direction	
363	Pre-or post-process zoom	
364	Rotation	
365	Auto best fit on monitor	
366	Measurements in B-Mode	
367	**3D**	
368	Allows unlimited rotation and planar translation	
369	3D reconstruction from CINE sweep	
370	Easy 3D available on all probes	
371	**Advanced 3D**	
372	Acquisition of color data	
373	Automatic rendering	
374	3D landscape technology	
375	3D movie	
376	**Real-time 4D (Option)**	
377	Acquisition modes	• Real Time 4D • Spatio-Temporal Image Correlation (Option) • Static 3D

378	Visualization modes	• 3D rendering (diverse surface and intensity projection modes) • Sectional planes (3 section planes perpendicular to each other) • Omniview • Volume contrast imaging – Static • Volume contrast imaging – Omniview • Tomographic ultrasound imaging • Volume Analyses – VOCAL: semi-auto/manual segmentation tool (segmentation using touch screen), – 3D Static only – Threshold Volume: measure volume below and above a threshold
379	Render mode	• Surface texture, surface smooth, max-, min- and X-ray (average intensity projection), mix mode of two render modes • HD*live* ™
380	SonoRender*live*	
381	Curved 3 point Render start	
382	3D Movie	
383	Scalpel: 3D cut tool	
384	Display format:	• Quad: A-/B-/C-Plane/3D • Dual: A-Plane/3D • Single: 3D or A- or B- or C-Plane
385	Automated Volume Calculation – VOCAL II	
386	Betaview	
387	Maximum Volume Rate (3D/4D): 142 volume per sec maximum	
388	**Volume navigation (Option)**	
389	Available on the following probes: C1-6VN-D, C2-7VN-D, C3-10-D, ML6-15-D, IC5-9-D, M5Sc-D, 9L-D	
390	Sensor-based acquisition	
391	Position markers	
392	Needle tip tracking	
393	Virtual tracking	
394	Auto image registration	
395	Tru3D feature includes	
396	Render modes: gray surface, texture, min-, max-, average-intensity	
397	Measurements: distance, angle, area, volume	
398	3D Movie	
399	**Scan assistant (Option)**	
400	Factory programs	
401	User-defined programs	
402	Steps include image annotations, mode transitions, basic imaging controls and measurement initiation	
403	**Compare Assistant (Option)**	
404	Allows side-by-side comparison of previous ultrasound and other modality exams during live scanning	
405	**Breast productivity package**	
406	Auto measurement	
407	Worksheet summary includes measurements and locations for lesions and lymph nodes	
408	Feature assessment	
409	BI-RADS™ assessment	
410	User editable	
411	**Thyroid productivity package (Option)**	
412	Auto measurement	
413	Worksheet summary includes measurements and locations for nodule, parathyroid and lymph nodes	
414	Feature assessment	
415	TI-RADS™ assessment	
416	User editable	
417	**Start Assistant**	
418	Automatically select category, probe, preset, or scan assistant from worklist exam description	
419	Learn the category, probe, preset, and scan assistant based on exam description	
420	**Shear Wave Elastography (Option)**	
421	Available on the following probes: C1-6-D, C1-6VN-D, IC5-9-D, L3-12D, ML6-15-D, L6-24-D and 9L-D	
422	User programmable measurement display in kPa and meters per second • Measurement range in m/s (Min. – Max.): 0 – 15 m/s • Measurement range in kPa (Min. – Max.): 0 – 675 kPa	
423	Single and dual view display	
424	Applications: Abdominal, Breast, Musculoskeletal, Small Parts, Prostate	

425	**Strain elastography (Option)**	
426	Relative analysis tool • E index: 9 maximum • E ratio: 8 maximum	
427	Applications: Abdominal, Breast, Musculoskeletal, Small Parts, Prostate, Thyroid	
428	**UGAP (Option)**	
429	Available on the following probes: C1-6-D, C1-6VN-D	
430	Measures liver attenuation* (attenuation coefficient [dB/cm/MHz]) by auto measure algorithm with reference B-mode • 0.1 db/cm/MHz to 2.0 db/cm/MHz	
431	Simple and 2D color map (attenuation color map and Measurement Position Indicator Map)	
432	**Quantitative flow analysis (Option)**	
433	Available in color and power Doppler	
434	**TVI (Option)**	
435	Available on the following probes: M5Sc-D, 6S-D, 12S-D probes	
436	Myocardial Doppler imaging with color overlay on tissue image	
437	Tissue color overlay can be removed to show just the 2D image, still retaining the tissue velocity information	
438	Curved anatomical M-Mode: free (curved) drawing of M-Mode generated from the cursor independent from the axial plane	
439	Q-Analysis: multiple time-motion trace display from selected points in the myocardium	
440	**Stress echo (Option)**	
441	Advanced and flexible stress echo examination capabilities	
442	Provides exercise and pharmacological protocol templates	
443	6 default templates	
444	Template editor for user configuration of existing templates or creation of new templates	
445	Reference scan display during acquisition for stress level comparison (dual screen)	
446	Baseline level/previous level selectable	
447	Raw data continuous capture	
448	Over 100 sec. available	
449	Wall motion scoring (bulls-eye and segmental)	
450	Smart stress: Automatically set up various scanning parameters (e.g. geometry, frequency, gain) according to same projection on previous level	
451	**Auto EF (Option)**	
452	Allows semi-automatic measurement of the global EF (Ejection Fraction)	
453	User editable	
454	**Cardiac AFI (Option)**	
455	Allows assessment of the complete left ventricle with all segments at a glance by combining three longitudinal views into one comprehensive bulls-eye view	
456	2D strain based data moves into clinical practice	
457	**App Launchpad**	
458	The App Launchpad is a tab available on the Utilities+ screen – when selected, various applications (“Apps”) can be launched. This is hidden if no apps are installed.	
459	Only validated and released Apps are supported	
460	3rd-party Apps can be purchased through an AppStore on a GE Healthcare (GEHC) website	
461	Consult with a GE Healthcare (GEHC) representative for more details	
462	**Raw Data Streaming (Option)**	
463	Provides streaming of raw data out to 3rd-party devices designed to process this data	
464	**Virtual Convex**	
465	Provides a convex field of view	
466	Compatible with CrossXBeam	
467	Available on all linear and sector probes	
468	**SRI-HD and Advanced SRI**	
469	Speckle reduction imaging	
470	Provides multiple levels of speckle reduction	
471	Compatible with side-by-side DualView display	
472	Advanced SRI: two types selectable	• Type 1 – Compatible with all linear, convex and sector probes • Type 2 (Option) – Compatible with OB/GYN application
473	**CrossXBeam**	
474	Provides variable angle spatial compounding	
475	Live side-by-side DualView display	
476	Compatible with	• Color mode • PW • SRI • Coded harmonic imaging • Virtual convex
477	Available on all curved and linear probes	

478	**Controls available while “live”**	
479	Magnification Zoom: Magnifies the entire image on the screen without zoom ROI, 20x maximum zoom factor	
480	Pan Zoom: Magnifies the display of the data within the ROI	
481	HD Zoom: Magnifies the image within the zoom ROI, with higher spatial resolution than original images	
482	B/M/CrossXBeam-Mode	• Gain • TGC • Dynamic range • Acoustic output • Framerate control • Sweep speed for M-Mode • CrossXBeam angle
483	PW-Mode	• Gain • Dynamic range • Acoustic output • Transmission frequency • PRF • Wall filter • Spectral averaging • Sample volume gate: length, depth • Velocity scale
484	Color Flow-Mode	• CFM gain • CFM velocity range • Acoustic output • Wall echo filter • Packet size • Frame rate control • CFM spatial filter • CFM frame averaging • CFM line resolution • Frequency/velocity baseline shift
485	**Controls available on “freeze” or recall**	
486	Automatic optimization	
487	SRI	
488	CrossXBeam – display non-compounded and compounded image simultaneously in split screen	
489	3D reconstruction from a stored CINE loop	
490	B/M/CrossXBeam-Mode	• Gray map optimization • TGC • Colorized B and M • Frame average (loops only) • Dynamic range
491	Anatomical M-Mode	
492	Magnification zoom	
493	Pan zoom	
494	Maximum read zoom to 8x	
495	Baseline shift	
496	Sweep speed	
497	PW mode	• Gray map • Post gain • Baseline shift • Sweep speed • Invert spectral wave form • Compression • Rejection • Colorized spectrum • Display format • Doppler audio • Angle correct • Quick angle correct • Auto angle correct
498	Color flow	• Overall gain (loops and stills) • Color map • Transparency map • Frame averaging (loops only) • Flash suppression • CFM display threshold • Spectral invert for color/Doppler

499	Anatomical M-Mode on cine loop	
500	4D	• Gray map, colorize • Post gain • Change display – single, dual, quad sectional or rendered
501	**Measurements/Calculations**	
502	**General B-Mode**	
503	Depth and distance	
504	Circumference (ellipse/trace)	
505	Area (ellipse/trace)	
506	Volume (ellipsoid)	
507	% Stenosis (area or diameter)	
508	Angle between two lines	
509	Dual B-mode capability	
510	**General M-Mode**	
511	M-Depth	
512	Distance	
513	Time	
514	Slope	
515	Heart rate	
516	**General Doppler measurements/calculations**	
517	Velocity	
518	Time	
519	A/B ratio (velocities/frequency ratio)	
520	PS (Peak Systole)	
521	ED (End Diastole)	
522	PS/ED (PS/ED Ratio)	
523	ED/PS (ED/PS Ratio)	
524	AT (Acceleration Time)	
525	ACCEL (Acceleration)	
526	TAMAX (Time Averaged Maximum Velocity)	
527	Volume flow (TAMEAN and vessel area)	
528	Heart rate	
529	PI (Pulsatility Index)	
530	RI (Resistivity Index)	
531	**Real-time Doppler Auto Measurements/Calculations**	
532	PS (Peak Systole)	
533	ED (End Diastole)	
534	MD (Minimum Diastole)	
535	PI (Pulsatility Index)	
536	RI (Resistivity Index)	
537	AT (Acceleration Time)	
538	ACC (Acceleration)	
539	PS/ED (PS/ED Ratio)	
540	ED/PS (ED/PS Ratio)	
541	HR (Heart Rate)	
542	TAMAX (Time Averaged Maximum velocity)	
543	PVAL (Peak Velocity value)	
544	Volume flow (TAMEAN and vessel area)	
545	**Abdominal measurements/calculations**	
546	Shear Elasto velocity	
547	Shear Elasto stiffness	
548	Attenuation rate	
549	Attenuation coefficient	
550	Summary reports	
551	**Small Parts measurements/calculations**	
552	Breast Lesion	
553	Thyroid	
554	Parathyroid	
555	Lymph Node	
556	Nodule	
557	Isthmus AP	
558	Shear Elasto velocity	
559	Shear Elasto stiffness	
560	Summary reports	

561	**OB measurements/calculations**	
562	Gestational age by	• GS (Gestational Sac) • CRL (Crown Rump Length) • FL (Femur Length) • BPD (Biparietal Diameter) • AC (Abdominal Circumference) • HC (Head Circumference) • APTD x TTD (Anterior/Posterior Trunk Diameter by Transverse Trunk Diameter) • FTA (Fetal Trunk Cross-sectional Area) • HL (Humerus Length) • BD (Binocular Distance) • FT (Foot Length) • OFD (Occipital Frontal Diameter) • TAD (Transverse Abdominal Diameter) • TCD (Transverse Cerebellum Diameter) • THD (Thorax Transverse Diameter) • TIB (Tibia Length) • ULNA (Ulna Length) • OOD (Outer Orbital Diameter) • IOD (Inner Orbital Diameter) • FIB (Fibula length) • Radius (Radius length) • LV (Lateral Ventricle width) (= SL)
563	Estimated Fetal Weight (EFW) by:	• AC, BPD • AC, BPD, FL • AC, BPD, FL, HC • AC, FL • AC, FL, HC • AC, HC • BPD, APTD, TTD, FL • BPD, APTD, TTD, SL
564	Fetal graphical trending	
565	Growth percentiles	
566	Multi-gestational calculations (4)	
567	Fetal qualitative description (anatomical survey)	
568	Fetal environmental description (biophysical profile)	
569	Programmable OB tables	
570	Over 20 selectable OB calculations	
571	Expanded worksheets	
572	Summary Reports	
573	**OB Calculations and ratios**	
574	FL/BPD	
575	FL/AC	
576	FL/HC	
577	HC/AC	
578	CI (Cephalic Index)	
579	AFI (Amniotic Fluid Index)	
580	CTAR (Cardio-Thoracic Area Ratio)	
581	Measurements/calculations by: Alexander, ASUM, ASUM 2001, Bahlmann, Baschat, Berkowitz, Bertagnoli, Brenner, Campbell, CFEF, Chervenak, Chitty, Doubilet, Ebing, Eik-Nes Goldstein, Hadlock, Hansmann, Hellman, Hill, Hohler, Jeanty, JSUM, Kramer, Kurmanavicius, Kurtz, Mari, Mayden, Mercer, Merz, Moore, Nelson, Osaka University, Paris, Pexsters, Rempen, Robinson, Shepard, Shepard/Warsoff, Sonek, Tokyo University, Tokyo/Shinozuka, WHO, Williams, Yarkoni	
582	**OB measure assistant**	
583	Allows automatic measurement of BPD, HC, FL and AC	
584	User editable	
585	**SonoNT and SonoIT**	
586	SonoNT measures the contour detection of the NT border	
587	SonoIT is a system supported measurement for Intracranial Translucency	
588	**GYN measurements/calculations**	
589	Right ovary length, width, height	
590	Left ovary length, width, height	
591	Uterus length, width, height	
592	Cervix length, trace	
593	Ovarian volume	

594	ENDO (Endometrial thickness)	
595	Ovarian RI	
596	Uterine RI	
597	Follicular measurements	
598	Fibroid measurements	
599	Qualitative description (anatomical survey)	
600	Mean Uterine Artery (Gomez) Doppler Measurement	
601	Summary reports	
602	**Vascular measurements/calculations**	
603	SYS DCCA (Systolic Distal Common Carotid Artery)	
604	DIAS DCCA (Diastolic Distal Common Carotid Artery)	
605	SYS MCCA (Systolic Mid Common Carotid Artery)	
606	DIAS MCCA (Diastolic Mid Common Carotid Artery)	
607	SYS PCCA (Systolic Proximal Common Carotid Artery)	
608	DIAS PCCA (Diastolic Proximal Common Carotid Artery)	
609	SYS DICA (Systolic Distal Internal Carotid Artery)	
610	DIAS DICA (Systolic Distal Internal Carotid Artery)	
611	SYS MICA (Systolic Mid Internal Carotid Artery)	
612	DIAS MICA (Diastolic Mid Internal Carotid Artery)	
613	SYS PICA (Systolic Proximal Internal Carotid Artery)	
614	DIAS PICA (Diastolic Proximal Internal Carotid Artery)	
615	SYS DECA (Systolic Distal External Carotid Artery)	
616	DIAS DECA (Diastolic Distal External Carotid Artery)	
617	SYS PECA (Systolic Proximal External Carotid Artery)	
618	DIAS PECA (Diastolic Proximal External Carotid Artery)	
619	VERT (Systolic Vertebral Velocity)	
620	SUBCLAV (Systolic Subclavian Velocity)	
621	Auto IMT (Option)	
622	Summary reports	
623	**Urological measurements/calculations**	
624	Bladder volume	
625	Prostate volume	
626	Left/right renal volume	
627	Generic volume	
628	Post-void bladder volume	
629	Pelvic floor measurements	
630	Summary reports	
631	**TCD measurements/calculations**	
632	MCA, ACA, PCA, ICA	
633	AComA, PCom A	
634	Vert	
635	Basilar	
636	MCA/ICA Ratio	
637	Summary reports	
638	**Pediatric and Neonatal measurements/calculations**	
639	Hip angle	
640	Hip orientation	
641	Summary reports	
642	**Probes (All Options)**	
643	**6S-D, sector probe**	
644	Applications	Pediatric cardiac, pediatric abdomen
645	Bandwidth	2.0 – 8.0 MHz
646	Number of elements	96
647	Field of view (max.)	115°
648	Physical foot print	15 x 9 mm
649	B-Mode frequency	4.0, 4.2, 5.0, 5.5, 6.5 MHz
650	Harmonic frequency	4.7, 4.9, 5.3, 5.7, 6.1, 6.3 MHz
651	PW Doppler frequency	2.8, 3.1, 3.6, 4.2 MHz
652	Color Doppler frequency	2.7, 3.1, 4.2, 5.0 MHz
653	**12S-D, sector probe**	
654	Applications	Pediatrics, pediatric cardiac, neonatal cardiac
655	Bandwidth	4.0 – 12.0 MHz
656	Number of elements	96
657	Field of view (max.)	90°
658	Physical foot print	9.3 x 5.5 mm

659	B-Mode frequency	6.0, 7.0, 8.0, 9.0 MHz
660	Harmonic frequency	6.0, 7.0, 8.0, 9.0 MHz
661	PW Doppler frequency	5.0, 6.3, 8.3 MHz
662	Color Doppler frequency	4.9, 5.4, 6.3, 7.3 MHz
663	**C1-6-D, XDclear convex probe**	
664	Applications	Abdomen, OB/GYN, pediatric, peripheral vascular, general musculoskeletal
665	Biopsy guide	Multi-angle, disposable with a reusable bracket (H4917VB)
666	Bandwidth	1.0 – 6.0 MHz
667	Number of elements	192
668	Field of view (max.)	80°
669	Physical foot print	67 x 11 mm
670	B-Mode frequency	2.0, 2.5, 3.0, 4.0 MHz
671	Harmonic frequency	1.5, 2.5, 3.0, 4.5, 6.0, 6.5 MHz
672	PW Doppler frequency	1.7, 2.1, 2.5, 3.6 MHz
673	Color Doppler frequency	1.8, 2.1, 2.5, 2.8, 3.0 MHz
674	**C1-6VN-D, VNav inside XDclear convex probe**	
675	VNav sensor inside probe for Volume Navigation tracking without sensor cables	
676	Applications	Abdomen, OB/GYN, pediatric, peripheral vascular, general musculoskeletal
677	Biopsy guide	Multi-angle, disposable with a reusable bracket (H4917VB)
678	Bandwidth	1.0 – 6.0 MHz
679	Number of elements	192
680	Field of view (max.)	80°
681	Physical foot print	67 x 11 mm
682	B-Mode frequency	2.0, 2.5, 3.0, 4.0 MHz
683	Harmonic frequency	1.5, 2.5, 3.0, 4.5, 6.0, 6.5 MHz
684	PW Doppler frequency	1.7, 2.1, 2.5, 3.6 MHz
685	Color Doppler frequency	1.8, 2.1, 2.5, 2.8, 3.0 MHz
686	**C2-7-D, micro convex biopsy probe**	
687	Applications	Abdomen, pediatric
688	Biopsy guide	Multi-angle, disposable with a reusable bracket (H40482LK), Multi-Angle, reusable stainless bracket (H40482LL)
689	Bandwidth	1.0 – 6.0 MHz
690	Number of elements	144
691	Field of view (max.)	110°
692	Physical foot print	31 x 10 mm
693	B-Mode frequency	2.5, 4.0, 6.0 MHz
694	Harmonic frequency	3.0, 4.0, 5.0, 6.0 MHz
695	PW Doppler frequency	1.8, 2.1, 2.5, 3.1 MHz
696	Color Doppler frequency	2.1, 2.4, 3.1, 3.7 MHz
697	**C2-7VN-D, VNav inside micro convex biopsy probe**	
698	VNav sensor inside probe for Volume Navigation tracking without sensor cables	
699	Applications	Abdomen, pediatric
700	Biopsy guide	Multi-angle, disposable with a reusable bracket (H40482LK), Multi-Angle, reusable stainless bracket (H40482LL)
701	Bandwidth	1.0 – 6.0 MHz
702	Number of elements	144
703	Field of view (max.)	110°
704	Physical foot print	31 x 10 mm
705	B-Mode frequency	2.5, 4.0, 6.0 MHz
706	Harmonic frequency	3.0, 4.0, 5.0, 6.0 MHz
707	PW Doppler frequency	1.8, 2.1, 2.5, 3.1 MHz
708	Color Doppler frequency	2.1, 2.4, 3.1, 3.7 MHz
709	**C3-10-D, XDclear micro convex probe**	
710	Applications	Abdomen, neonatal, pediatric, peripheral vascular, neonatal transcranial, small parts
711	Bandwidth	2.0 – 11.0 MHz
712	Number of elements	192
713	Field of view (max.)	95°
714	Physical foot print	26 x 5 mm
715	B-Mode frequency	4.0, 6.0, 8.0 MHz
716	Harmonic frequency	6.0, 8.0, 10.0 MHz
717	PW Doppler frequency	3.1, 4.2, 6.3, 7.1 MHz
718	Color Doppler frequency	3.9, 5.3, 6.6 MHz
719	**IC5-9-D, micro convex probe**	
720	Applications	OB/GYN, urology

721	Biopsy guide	Single angle, disposable with a disposable bracket (E8385MJ) or reusable bracket (H40412LN)
722	Bandwidth	3.0 – 10.0 MHz
723	Number of elements	192
724	Field of view (max.)	179°
725	Physical foot print	26 x 6 mm
726	B-Mode frequency	3.9, 4.5, 5.0, 5.5, 6.0, 7.0, 8.0 MHz
727	Harmonic frequency	5.0, 7.0, 9.0 MHz
728	PW Doppler frequency	3.6, 4.2, 5.0 MHz
729	Color Doppler frequency	4.6, 5.9, 6.7 MHz
730	**9L-D, linear probe**	
731	Applications	Peripheral vascular, small parts, general musculoskeletal, superficial musculoskeletal, pediatric, abdomen, OB/GYN, neonatal, neonatal transcranial
732	Biopsy guide	Multi-angle, disposable with a reusable bracket (H4906BK)
733	Bandwidth	2.0 – 8.0 MHz
734	Number of elements	192
735	Field of view (max.)	44 mm
736	Physical foot print	44 x 6 mm
737	B-Mode frequency	4.0, 4.5, 5.0, 6.0, 7.0 MHz
738	Harmonic frequency	5.0, 6.0, 7.0, 8.0, 9.0, 9.4 MHz
739	PW Doppler frequency	3.6, 4.2, 5.0, 5.6, 6.3 MHz
740	Color Doppler frequency	3.5, 4.5, 5.1, 5.8 MHz
741	**L3-12-D, linear probe**	
742	Applications	General musculoskeletal, superficial musculoskeletal, small parts, vascular, neonatal, neonatal transcranial, pediatrics, abdomen, OB
743	Biopsy guide	Multi-angle, disposable with a reusable bracket (H48302AA)
744	Bandwidth	3.0 – 11.0 MHz
745	Number of elements	256
746	Field of view (max.)	51 mm
747	Physical foot print	51 x 4 mm
748	B-Mode frequency	6.0, 8.0, 10.0, 12.0 MHz
749	Harmonic frequency	4.0, 6.0, 8.0, 10.0, 12.0 MHz
750	PW Doppler frequency	4.2, 5.0, 6.3, 8.3 MHz
751	Color Doppler frequency	4.3, 4.9, 5.4, 6.1, 7.2, 8.0 MHz
752	**L6-24-D, linear probe**	
753	Applications	General musculoskeletal, superficial musculoskeletal, small parts, neonatal abdomen, neonatal transcranial
754	Bandwidth	6.0 – 20.0 MHz
755	Number of elements	192
756	Field of view (max.)	26 mm
757	Physical foot print	32 x 8 mm
758	B-Mode frequency	12.0, 16.0, 21.0 MHz
759	Harmonic frequency	12.0, 18.0, 20.0, 24.0 MHz
760	PW Doppler frequency	8.3, 10.0, 12.5 MHz
761	Color Doppler frequency	9.2, 11.2, 12.2 MHz
762	**M5Sc-D, XDclear sector probe**	
763	Applications	Adult cardiac, pediatric cardiac, adult cephalic, abdominal
764	Biopsy guide	Multi-angle, disposable with a reusable bracket (H45561FC)
765	Bandwidth	1.0 – 5.0 MHz
766	Number of elements	240
767	Field of view (max.)	120°
768	Physical foot print	28 x 18 mm
769	B-Mode frequency	2.0, 2.5, 3.5, 4.5 MHz
770	Harmonic frequency	2.4, 3.0, 3.2, 3.3, 3.7, 4.0, 4.5 MHz
771	PW Doppler frequency	1.6, 1.7, 1.8, 1.9, 2.1, 2.5, 3.1, 3.6 MHz
772	Color Doppler frequency	1.7, 1.8, 1.9, 2.2, 2.4, 2.5, 3.0, 3.1, 3.7, 3.8 MHz
773	**ML6-15-D, matrix array linear probe**	
774	Applications	Abdomen, small parts, peripheral vascular, neonatal, pediatric, neonatal transcranial, general musculoskeletal, superficial musculoskeletal
775	Biopsy guide	Multi-angle, disposable with a reusable bracket (H40432LJ)
776	Bandwidth	4.0 – 16.0 MHz
777	Number of elements	1008

778	Field of view (max.)	50.4 mm
779	Physical foot print	50.4 x 6 mm
780	B-Mode frequency	7.0, 9.0, 10.0, 11.0, 12.0, 15.0, 17.0 MHz
781	Harmonic frequency	10.0, 12.0, 14.0, 15.0 MHz
782	PW Doppler frequency	5.0, 6.3, 8.3 MHz
783	Color Doppler frequency	5.1, 6.1, 7.3, 8.2, 9.2, 10.3, 11.4, 12.4 MHz
784	**P2D, CW split crystal probe**	
785	Applications	Adult cardiac, pediatric cardiac, peripheral vascular, adult cephalic
786	Frequency	2.1 MHz
787	**P6D, CW split crystal probe**	
788	Applications	Adult cardiac, pediatric cardiac, peripheral vascular, adult cephalic
789	Frequency	6.3 MHz
790	**RAB6-D, convex volume probe**	
791	Applications	Abdomen, OB/GYN, pediatric, neonatal
792	Biopsy guide	Multi angle biopsy start kit (H48681ML)
793	Bandwidth	2.0 – 8.0 MHz
794	Number of elements	192
795	Field of view (max.)	80°
796	Physical foot print	62 x 34 mm
797	B-Mode frequency	3.5, 5.0, 8.0 MHz
798	Harmonic frequency	4.0, 5.0, 6.5, 8.0 MHz
799	PW Doppler frequency	3.1, 4.2, 5.0 MHz
800	Color Doppler frequency	2.8, 3.5, 3.8 MHz
801	**RIC5-9-D, convex volume probe**	
802	Applications	OB/GYN, urology
803	Biopsy guide	Single angle, reusable (H46721R)
804	Bandwidth	3.0 – 10.0 MHz
805	Number of elements	192
806	Field of view (max.)	179°
807	Physical foot print	32 x 27 mm
808	B-Mode frequency	3.9, 5.0, 5.5, 6.0, 6.5, 7.0, 8.0 MHz
809	Harmonic frequency	5.0, 7.0, 9.0 MHz
810	PW Doppler frequency	3.6, 4.2, 5.0 MHz
811	Color Doppler frequency	4.3, 6.1, 7.3 MHz
812	**Vscan Air CL, Convex probe**	
813	Applications	Abdomen, OB, peripheral vascular, general musculoskeletal, superficial musculoskeletal, cardiac, pleural
814	Bandwidth	2 - 5 MHz
815	Number of elements	128
816	Field of view (max.)	60°
817	Physical foot print	64 x 16 mm
818	B-Mode frequency	3.3, 4.4 MHz
819	Harmonic frequency	4.0, 4.4 MHz
820	PW Doppler frequency	Not Supported
821	Color Doppler frequency	1.9, 2.3 MHz
822	**Vscan Air CL, Linear probe**	
823	Applications	Peripheral Vascular, small parts, nerves, general musculoskeletal, superficial musculoskeletal, pleural (lung), neohead
824	Bandwidth	3 - 12 MHz
825	Number of elements	192
826	Field of view (max.)	38.4 mm
827	Physical foot print	38 x 4 mm
828	B-Mode frequency	8.0, 12.5 MHz
829	Harmonic frequency	8.5 MHz
830	PW Doppler frequency	Not Supported
831	Color Doppler frequency	4.5, 5.1, 6.0 MHz
832	**External Inputs and outputs (not including on-board peripherals)**	
833	HDMI	
834	Ethernet	
835	Multiple USB 3.0 ports	
836	Universal Video Converter	
837	**Safety Conformance**	
838	**The LOGIQ Totus is:**	

839	Classified to ANSI/AAMI ES60601-1 Medical Electrical Equipment, Part 1: General Requirements for Safety by a Nationally Recognized Test Lab	
840	Certified to CSA CAN/CSA-C22.2 NO. 60601-1 General requirements for safety	
841	CE Marked to Regulation (EU) 2017/745 on Medical Devices Conforms to the following standards for safety	
842	IEC/EN 60601-1 Medical electrical equipment – Part 1: General requirements for basic safety and essential performance	
843	Conforms to the following standards for safety (including national deviations)	• IEC/EN 60601-1-2 Medial electrical equipment – Part 1-2: General requirements for safety – Collateral Standard: Electromagnetic compatibility – requirements and tests • IEC/EN 60601-1-6 Medical electrical equipment Part 1 -6: General requirements for basic safety and essential performance – Collateral Standard: Usability • IEC/EN 60601-1-9 Medical electrical equipment Part 1 -9: General requirements for basic safety and essential performance –Collateral Standard: Requirements for environmentally conscious design • IEC/EN 60601-2-37 Medical electrical equipment – Part 2-37: Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment • IEC/EN 62366-1 Application of usability engineering to medical devices • IEC/EN 62304 Software Life Cycle Processes • IEC/EN 62359 Ultrasonic - Field characterization - Test methods for the determination of thermal and mechanical indices related to medical diagnostic ultrasonic fields
844	**Supplement: cardiac measurements/calculations**	
845	**B-Mode measurements**	
846	Aorta	• Aortic Root Diameter (Ao Root Diam) • Aortic Arch Diameter (Ao Arch Diam) • Ascending Aortic diameter (Ao Asc) • Descending Aortic Diameter (Ao Desc Diam) • Aorta Isthmus (Ao Isthmus) • Aorta (Ao st junct)
847	Aortic valve	• Aortic Valve Cusp Separation (AV Cusp) • Aortic Valve Area Planimetry (AVA Planimetry) • (Trans AVA)
848	Left atrium	• Left Atrium Diameter (LA Diam) • LA Length (LA Major) • LA Width (LA Minor) • Left Atrium Diameter to AoRoot Diameter Ratio (LA/Ao ratio) • Left Atrium Area (LAA(d), LAA(s)) • Left Atrium Volume, Single Plane, Method of Disk (LAEDV A2C, LAESV A2C) (LAEDV A4C, LAESV A4C), (LAEDV A-L, LAEDV Index A-L, LAESV A-L, LAESV Index A-L)
849	Left ventricle	• Left Ventricle Mass (LVPWd, LVPWs) • Left Ventricle Volume, Teichholz/Cubic (LVIDd, LVI Ds) • Left Ventricle Internal Diameter (LVIDd, LVI Ds) Left Ventricle Length (LVLd, LVLs) • Left Ventricle Outflow Tract Diameter (LVOT Diam) • Left Ventricle Posterior Wall Thickness (LVPWd, LVPWs) • Left Ventricle Length (LV Major) • Left Ventricle Width (LV Minor) • Left Ventricle Outflow Tract Area (LVOT) • Left Ventricle Area, Two Chamber/Four Chamber/Short Axis (LVA (d), LVA (s)) • Left Ventricle Endocardial Area, Width (LVA (d), LVA(s)) • Left Ventricle Epicardial Area, Length (LVAepi (d), LVAepi (s)) • Left Ventricle Mass Index (LVPWd, LVPWs) • Ejection Fraction, Teichholz/Cube (LVIDd, LVIDs)

850	Left ventricle continued	• Left Ventricle Posterior Wall Fractional Shortening (LVPWd, LVPWs) • Left Ventricle Stroke Index, Teichholz/Cube (LVIDd, LVIDs and Body Surface Area) • Left Ventricle Fractional Shortening (LVIDd, LVIDs) • Left Ventricle Stroke Volume, Teichholz/Cubic (LVIDd, LVIDs) • Left Ventricle Stroke Index, Single Plane, Two Chamber, Method of Disk (LVI Dd, LVIDs, LVSd, LVSs) • Left Ventricle Stroke Index, Single Plane, Four Chamber, Method of Disk (LVI Dd, LVIDs, LVSd, LVSs) • Left Ventricle Stroke Index, Bi-Plane, Bullet, Method of Disk (LVAd, LVAs) • Interventricular Septum (IVS) • Left Ventricle Internal Diameter (LVI D) • Left Ventricle Posterior Wall Thickness (LVPW)
851	Mitral valve	• Mitral Valve Annulus Diameter (MV Ann Diam) • E-Point-to-Septum Separation (EPSS) • Mitral Valve Area Planimetry (MVA Planimetry)
852	Pulmonic valve	• Pulmonic Valve Area (PV Planimetry) • Pulmonic Valve Annulus Diameter (PV Annulus Diam) • Pulmonic Diameter (Pulmonic Diam)
853	Right atrium	• Right Atrium Diameter, Length (RAD Ma) • Right Atrium Diameter, Width (RAD Mi) • Right Atrium Area (RAA) • Right Atrium Volume, Single Plane, Method of Disk (RAAd) • Right Atrium Volume, Systolic, Single Plane, Method of Disk (RAAs)
854	Right ventricle	• Right Ventricle Outflow Tract Area (RVOT Planimetry) • Left Pulmonary Artery Area (LPA Area) • Right Pulmonary Artery Area (RPA Area) • Right Ventricle Internal Diameter (RVIDd, RVIDs) • Right Ventricle Diameter, Length (RVD Ma) • Right Ventricle Diameter, Width (RVD Mi) • Right Ventricle Wall Thickness (RVAWd, RVAWs) • Right Ventricle Outflow Tract Diameter (RVOT Diam) • Left Pulmonary Artery (LPA) • Main Pulmonary Artery (MPA) • Right Pulmonary Artery (RPA)
855	System inferior vena cava	• Systemic Vein Diameter (Systemic Diam) • Patent Ductus Arterosis Diameter (PDA Diam) • Pericard Effusion (PEs) • Patent Foramen Ovale Diameter (PFO Diam) • Ventricular Septal Defect Diameter (VSD Diam) • Interventricular Septum (IVS) Fractional Shortening (IVSd, IVSs)
856	Tricuspid valve	• Tricuspid Valve Area (TV Panimetry) • Tricuspid Valve Annulus Diameter (TV Annulus Diam)
857	**M-Mode measurements**	
858	Aorta	• Aortic Root Diameter (Ao Root Diam) • Aortic Valve • Aortic Valve Diameter (AV Diam) • Aortic Valve Cusp separation (AV Cusp) • Aortic Valve Ejection Time (LVET)
859	Left atrium	• Left Atrium Diameter to AoRoot Diameter Ratio (LA/Ao Ratio) • Left Atrium Diameter (LA Diam)
860	Left ventricle	• Left Ventricle Volume, Teichholz/Cubic (LVIDd, LVI Ds) • Left Ventricle Internal Diameter (LVIDd, LVI Ds) • Left Ventricle Posterior Wall Thickness (LVPWd, LVPWs) • Left Ventricle Ejection Time (LVET) • Left Ventricle Pre-Ejection Period (LVPEP) • Interventricular Septum (IVS) • Left Ventricle Internal Diameter (LVI D) • Left Ventricle Posterior Wall Thickness (LVPW)
861	Mitral valve	• E-Point-to-Septum Separation (EPSS) • Mitral Valve Leaflet Separation (D-E Excursion) • Mitral Valve Anterior Leaflet Excursion (D-E Excursion) • Mitral valve D-E Slope (D-E Slope) • Mitral Valve E-F Slope (E-F Slope) • Mitral Annular Plane Systolic Excursion (MAPSE)

862	Pulmonic valve	• QRS Complex to End of Envelope (Q-PV close)
863	Right ventricle	• Right Ventricle Internal Diameter (RVIDd, RVIDs) • Right Ventricle Wall Thickness (RVAWd, RVAWs) • Right Ventricle Outflow Tract Diameter (RVOT Diam) • Right Ventricle Ejection Time (RVET) • Right Ventricle Pre-Ejection Period (RVPEP)
864	System	• Pericard Effusion (PE (d))
865	Tricuspid valve	• QRS Complex to End of Envelope (Q-TV close) • Tricuspid Annular Plane Systolic Excursion (TAPSE)
866	**Doppler Mode measurements**	
867	Aortic valve	• Aortic Insufficiency Mean Pressure Gradient (AR Trace) • Aortic Insufficiency Peak Pressure Gradient (AR Vmax) • Aortic Insufficiency End Diastole Pressure Gradient (AR Trace) • Aortic Insufficiency Mean Velocity (AR Trace) • Aortic Insufficiency Velocity Time Integral (AR Trace) • Aortic Valve Mean Velocity (AV Trace) • Aortic Valve Velocity Time Integral (AV Trace) • Aortic Valve Mean Pressure Gradient (AV Trace) • Aortic Valve Peak Pressure Gradient (AR Vmax) • Aortic Insufficiency Peak Velocity (AR Vmax) • Aortic Insufficiency End-Diastolic Velocity (AR Trace) • Aortic Valve Peak Velocity (AV Vmax) • Aortic Valve Peak Velocity at Point E (AV Vmax)
868	Aortic valve continued	• Aorta Proximal Coarctation (Coarc Pre-Duct) • Aorta Distal Coarctation (Coarc Post-Duct) • Aortic Valve Insufficiency Pressure Half Time (AR PHT) • Aortic Valve Flow Acceleration (AV Trace) • Aortic Valve Pressure Half Time (AV Trace) • Aortic Valve Acceleration Time (AV Acc Time) • Aortic Valve Deceleration Time (AV Dec Time) • Aortic Valve Ejection Time (AVET) • Aortic Valve Acceleration to Ejection Time Ratio (AV Acc Time, AVET) • Aortic Valve Area(VTI): AVA (Vmax)
869	Left ventricle	• Left Ventricle Outflow Tract Peak Pressure Gradient (LVOT Vmax) • Left Ventricle Outflow Tract Peak Velocity (LVOT Vmax) • Left Ventricle Outflow Tract Mean Pressure Gradient (LVOT Trace) • Left Ventricle Outflow Tract Mean Velocity (LVOT Trace) • Left Ventricle Outflow Tract Velocity Time Integral (LVOT Trace) • Left Ventricle Ejection Time (LVET)
870	Mitral valve	• E' Early diastolic mitral valve annular velocity (E') • E' Avg Averaged early diastolic mitral valve annular velocity (E' Avg) • E' Lat Early diastolic mitral valve lateral annular velocity (E' Lat) • E' Medial Early diastolic mitral valve medial annular velocity (E' Medial) • E' Sept Early diastolic mitral • Mitral inflow E velocity to E' ratio (E/E') • Mitral inflow E velocity to E' Avg ratio (E/E' Avg) • Mitral inflow E velocity to E' Lat ratio (E/E' Lat) • Medial Mitral inflow E velocity to E' Medial ratio (E/E') • Mitral inflow E velocity to E' Sept ratio (E/E' Sept) • Mitral Valve Regurgitant Flow Acceleration (MR Trace) • Mitral Valve Regurgitant Mean Velocity (MR Trace)
871	Mitral valve continued	• Mitral Regurgitant Mean Pressure Gradient (MR Trace) • Mitral Regurgitant Velocity Time Integral (MR Trace) • Mitral Valve Mean Velocity (MV Trace) • Mitral Valve Velocity Time Integral (MV Trace) • Mitral Valve Mean Pressure Gradient (MV Trace) • Mitral Regurgitant Peak Pressure Gradient (MR Vmax) • Mitral Valve Peak Pressure Gradient (MV Vmax) • Mitral Regurgitant Peak Velocity (MR Vmax) • Mitral Valve Peak Velocity (MV Vmax) • Mitral Valve Velocity Peak A (MV A Velocity) • Mitral Valve Velocity Peak E (MV E Velocity)

872	Mitral valve continued	• Mitral Valve Area According to PHT (MV PHT) • Mitral Valve Flow Deceleration (MV DecT) • Mitral Valve Pressure Half Time (MV PHT) • Mitral Valve Flow Acceleration (MV AccT) • Mitral Valve E-Peak to A-Peak Ratio (A-C and D-E) (MV E/ARatio) • Mitral Valve Acceleration Time • (MV Acc Time) • Mitral Valve Deceleration Time (MV Dec Time) • Mitral Valve Ejection Time ((MVET) • Mitral Valve A-Wave Duration (MV A Dur) • Mitral Valve Time to Peak (MV TTP) • Mitral Valve Acceleration Time/Deceleration Time Ratio (MVAcc/Dec Time) • Stroke Volume Index by Mitral Flow (MVA Planimetry, MVTrace)
873	Pulmonic Valve	• Pulmonic Insufficiency Peak Pressure Gradient (PR Vmax) • Pulmonic Insufficiency End-Diastolic Pressure Gradient (PRTrace) • Pulmonic Valve Peak Pressure Gradient (PV Vmax) • Pulmonic Insufficiency Peak Velocity (PR Vmax) • Pulmonic Insufficiency End-Diastolic Velocity (Prend Vmax) • Pulmonic Valve Peak Velocity (PV Vmax) • Pulmonary Artery Diastolic Pressure (PV Trace) • Pulmonic Insufficiency Mean Pressure Gradient (PR Trace)
874	Pulmonic valve continued	• Pulmonic Valve Mean Pressure Gradient (PV Trace) • Pulmonic Insufficiency Mean Square Root Velocity (PR Trace) • Pulmonic Insufficiency Velocity Time Integral (PR Trace) • Pulmonic Valve Mean Velocity (PV Trace) • Pulmonic Valve Velocity Time Integral (PV Trace) • Pulmonic Insufficiency Pressure Half Time (PR PHT) • Pulmonic Valve Flow Acceleration (PV Acc Time) • Pulmonic Valve Acceleration Time (PV Acc Time) • Pulmonic Valve Ejection Time (PVET) • QRS Complex to End of Envelope (Q-to-PV Close) • Pulmonic Valve Acceleration to Ejection TIme Ratio (PV Acc Time, PVET)
875	Right ventricle	• Right Ventricle Outflow Tract Peak Pressure Gradient (RVOT Vmax) • Right Ventricle Outflow Tract Peak Velocity (RVOT Vmax) • Right Ventricle Outflow Tract Velocity Time Integral (RVOTTrace) • Right Ventricle Ejection Time (RV Trace) • Stroke Volume by Pulmonic Flow (RVOT Planimetry, RVOTTrace) • Right Ventricle Stroke Volume Index by Pulmonic Flow (RVOT Planimetry, RVOT Trace)
876	System	• Pulmonary Artery Peak Velocity (PV Vmax) • Pulmonary Vein Velocity Peak A (Reverse) (P Vein A) • Pulmonary Vein Peak Velocity (P Vein D, P Vein S) • Systemic Vein Peak Velocity (PDA Diastolic, PDA Systolic) • Ventricular Septal Defect Peak Velocity (VSD Vmax) • Atrial Septal Defect (ASD Diastolic, ASD Systolic) • Pulmonary Vein A-Wave Duration (P Vein A Dur) • IsoVolumetric Relaxation Time (IVRT) • IsoVolumetric Contraction Time (IVCT) • Pulmonary Vein S/D Ratio (P Vein D, P Vein S) • Ventricular Septal Defect Peak Pressure Gradient (VSD Vmax) • Pulmonic-to-Systemic Flow Ratio (Qp/Qs)
877	Tricuspid valve	• Tricuspid Regurgitant Peak Pressure Gradient (TR Vmax) • Tricuspid Valve Peak Pressure Gradient (TV Vmax) • Tricuspid Regurgitant Peak Velocity (TR Vmax) • Tricuspid Valve Peak Velocity (TV Vmax) • Tricuspid Valve Velocity Peak A (TV A Velocity) • Tricuspid Valve Velocity Peak E (TV E Velocity) • Tricuspid Regurgitant Mean Pressure Gradient (TR Trace) • Tricuspid Valve Mean Pressure Gradient (TV Trace)

878	Tricuspid valve continued	• Tricuspid Regurgitant Mean Velocity (TR Trace) • Tricuspid Regurgitant Velocity Time Integral (TR Trace) • Tricuspid Valve Mean Velocity (TV Trace) • Tricuspid Valve Velocity Time Integral (TV Trace) • Tricuspid Valve Time to Peak (TV TTP) • Tricuspid Valve Ejection Time (TV Acc/Dec Time) • Tricuspid Valve A-Wave Duration (TV A Dur) • QRS Complex to End of Envelope (Q-TV Close) • Tricuspid Valve Pressure Half Time (TV PHT) • Stroke Volume by Tricuspid Flow (TV Planimetry, TV Trace) • Tricuspid Valve E-Peak to A-Peak Ratio (TV E/A Velocity)
879	**Color Flow Mode measurements**	
880	Aortic valve	• Proximal Isovelocity Surface Area: Regurgitant Orifice Area (AR Radius) • Proximal Isovelocity Surface Area: Radius of Aliased Point (AR Radius) • Proximal Isovelocity Surface Area: Regurgitant Flow (AR Trace) • Proximal Isovelocity Surface Area: Regurgitant Volume Flow (AR Trace) • Proximal Isovelocity Surface Area: Aliased Velocity (AR Vmax)
881	Mitral valve	• Proximal Isovelocity Surface Area: Regurgitant Orifice Area (MR Radius) • Proximal Isovelocity Surface Area: Radius of Aliased Point (MR Radius) • Proximal Isovelocity Surface Area: Regurgitant Flow (MR Trace) • Proximal Isovelocity Surface Area: Regurgitant Volume Flow (MR Trace) • Proximal Isovelocity Surface Area: Aliased Velocity (MR Vmax)
882	**Combination Mode measurements**	
883	Aortic valve	• Aortic Valve Area (Ao Root Diam, LVOT Vmax, AV Vmax) • Aortic Valve Area by Continuity Equation by Peak Velocity (Ao Root Diam, LVOT Vmax, AV Vmax) • Stroke Volume by Aortic Flow (AVA Planimetry, AV Trace) • Cardiac Output by Aortic Flow (AVA Planimetry, AV Trace, HR) • Aortic Valve Area by Continuity Equation VTI (Ao Root Diam, LVOT Vmax, AV Trace)
884	Left ventricle	• Cardiac Output, Teichholz/Cubic (LVIDd, LVI Ds, HR) • Cardiac Output Two Chamber, Single Plane, Area-Length/Method of Disk (Simpson) (LVAd, LVAs, HR) • Cardiac Output Four Chamber, Single Plane, Area-Length/Method of Disk (Simpson) (LVAd, LVAs, HR) • Ejection Fraction Two Chamber, Single Plane, Area-Length/Method of Disk (Simpson) (LVAd, LVAs) • Ejection Fraction Four Chamber, Single Plane, Area-Length/Method of Disk (Simpson) (LVAd, LVAs) • Left Ventricle Stroke Volume, Single Plane, Two Chamber/Four Chamber, Area-Length (LVAd, LVAs)
885	Left ventricle continued	• Left Ventricle Stroke Volume, Single Plane, Two Chamber/Four Chamber, Method of Disk (Simpson) (LVIDd, LVIDs, LVAd, LVAs) • Left Ventricle Volume, Two Chamber/Four Chamber, Area-Length (LVAd, LVAs) • Ejection Fraction, Bi-Plane, Method of Disk (LVAd, LVAs, 2CH, 4CH) • Left Ventricle Stroke Volume, Bi-Plane, Method of Disk (LVAd, LVAs, 2CH, 4CH) • Left Ventricle Volume, Bi-Plane, Method of Disk (LVAd, LVAs, 2CH, 4CH) • Left Ventricle Stroke Index, Single Plane, Two Chamber/Four Chamber, Area-Length (LVSd, LVSs and BSA) • Left Ventricle Volume, Single Plane, Two Chamber/Four Chamber, Method of Disk (LVAd, LVAs) • Left Ventricle Volume, Apical View, Long Axis, Method of Disk (LVAd, LVAs)

886	Mitral valve	• Stroke Volume by Mitral Flow (MVA Planimetry, MV Trace) • Cardiac Output by Mitral Flow (MVA Planimetry, MV Trace, HR)
887	Pulmonic valve	• Stroke Volume by Pulmonic Flow (PV Planimetry, PV Trace) • Cardiac Output by Pulmonic Flow (PV Planimetry, PV Trace, HR)
888	Tricuspid valve	• Cardiac Output by Tricuspid Flow (TV Planimetry, TV Trace, HR)
889	**Combination Mode measurements**	
890	Parameter: lists the mode, the measurement folder and the specific measurement	
891	Measured Value: Up to six measurement values for each item. Average, maximum, minimum or last	
892	**Generic study in cardiology**	
893	Stroke Volume (SV)	
894	Cardiac Output (CO)	

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