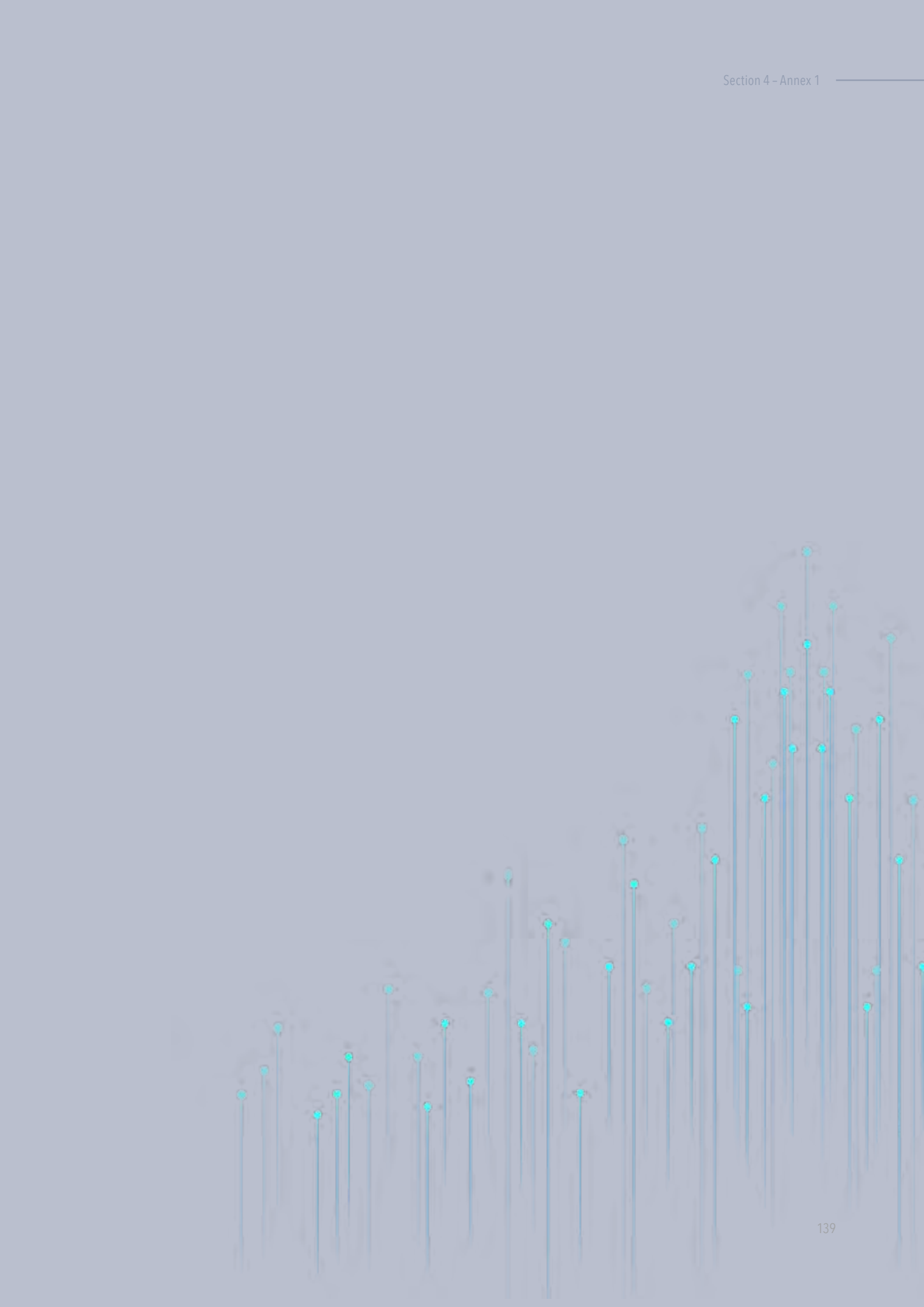
40	Maintenance tasks	N/A	
41	Type of service contract	N/A	
42	Spare parts availability post-warranty	N/A	
43	Software / Hardware upgrade availability	N/A	
DOCUMENTATION			
44	Documentation requirements	• Instructions for use and service manuals to be provided (including procedures for decontamination). • User language preference prioritized, English is mandatory. • Contact details of manufacturer, supplier and local agent.	
DECOMMISSIONING			
45	Estimated Life Span	N/A	
SAFETY AND STANDARDS			
46	Risk Classification	US FDA: Device Class 1 for metal speculum EU: Class I	US FDA: Device Class 2 for non-metal speculum EU: Class I
47	Regulatory Approval / Certification	Compliance to (where applicable, but not limited to): • National Regulatory Agency/Authority (NRA) requirements compliance • Approval by regulatory body of country of manufacturer (if applicable) And at least one of: • FDA 510k clearance (US FDA) • CE mark (EU), with indication of Notifying Body (when applicable) • Other regulatory body in an IMDRF founding member country such as Australia, Canada, or Japan.	

<table>
<tr><td rowspan="2">48</td><td rowspan="2">International standards</td><td colspan="2">Compliant with active version of the following standards (or equivalent):</td></tr>
<tr><td>For reusable products:

• ISO 7153-1: Surgical instruments – Materials -- Part 1: Stainless steel
• ISO 13402: Surgical and dental hand instruments -- Determination of resistance against autoclaving, corrosion and thermal exposure.</td><td>For singe-use products, supplied as sterile:

• ISO 17664: Processing of health care products – Information to be provided by the medical manufacturer for the processing of medical devices
• ISO 11135: Sterilization of health-care products - Ethylene oxide
• ISO 11137: Sterilization of health care products - Radiation
• ISO 11607: Packaging for terminally sterilized medical devices</td></tr>
<tr><td>49</td><td>Reginal / Local Standards</td><td colspan="2">Country-specific and regional standards may apply</td></tr>
<tr><td>50</td><td>Regulations</td><td colspan="2">US regulations:
21 CFR part 820 Quality System Regulation
21 CFR part 878.1800 - Speculum and accessories.

EU regulations:
European Commission Regulation (EU) No. 2017/745 (replacing 93/42/EEC) "</td></tr>
</table>



Annex 2A
Clinical and analytical performance details for HPV NAT IVDs

Clinical Performance

The sensitivity and specificity of an HPV IVD must be based on a clinically relevant endpoint to ensure that significant disease is not missed and also that transient HPV infection is not detected resulting in over-management of women with HPV detectable results. For HPV NAT IVDs that are used as a screening assay in a cancer prevention programme, the sensitivity must be high enough to initially identify all women who are at risk of having or developing high grade precancerous lesions (CIN2 or greater), yet not too analytically sensitive to identify infection that is not likely to progress to disease. To optimize disease detection over transient HPV detection, clinical assays will generally select a cut-off for a "positive"/"negative" result based on detection of CIN 2 or greater. This cut-off may not be the same as the analytical limit of detection (LoD).

To ensure reliable clinical performance, performance criteria have been developed for the validation of an HPV NAT. The most widely accepted criteria require favourable comparison to an HPV NAT IVD designated as the standard comparator. The HPV NAT IVD designated as the standard comparator should demonstrate superior sensitivity to cytology for the detection of precancerous lesions and should have met stringent regulatory standards from multiple regulatory agencies,[1] as well as approval by at least one of the founding members of IMDRF (International Medical Devices Regulators Forum). [2]

HPV NATs under consideration for use in screening programmes should have been validated by independent studies using the following criteria for clinical sensitivity and clinical specificity:

Table 13: Clinical sensitivity and specificity criteria

Performance Parameter	Sample Specification	Performance
Sensitivity	At least 60 cervical specimens from a population-based screening cohort of women ≥30 years with histologically confirmed CIN2 or greater	At least 90% of the sensitivity of the standard comparator for detection of CIN2 or greater
Specificity	At least 100 cervical specimens from a population-based screening cohort of women ≥30 years with histologic confirmation of no CIN2 or greater present	At least 98% of the specificity of the standard comparator for detection of CIN2

These criteria require that a candidate IVD must be evaluated for the performance parameters of sensitivity, specificity and intra- and inter-laboratory reproducibility. For sensitivity, clinical performance has been set to at least 90% of that of the standard comparator test for detection of CIN2 or greater in women ≥30 years. In addition, the candidate IVD should have a clinical specificity for CIN2 or greater of at least 98% of that of the standard comparator in women ≥30 years of age.

The criteria for an HPV NAT also specify that the specimens originate from a population-based screening cohort. For the sensitivity assessment, it is estimated that at least 60 cervical specimens derived from women with histologically confirmed CIN2 or greater should be tested. To confirm non-inferiority of specificity, specimens obtained from at least 100 women with histologic confirmation that CIN2 or greater is not present are required.

Analytical Performance

Unlike clinical performance, there are no accepted criteria for analytical performance of HPV NAT IVDs. A range of analytical sensitivities (expressed as LoD) can be considered, but it should be noted that the sensitivity will depend on the HPV genotype detected, the various technologies that are used in the IVDs, and the characteristics of the specific IVD. Analytical sensitivity or limit of detection is generally expressed as viral copies per reaction or per millilitre:

Table 14: Analytical sensitivity criteria

	Copies/reaction	Copies/ml
Range of Analytic Sensitivity[3]	24-7500	50-5000
Performance Parameter	Sample Specification	Performance

Alternatively, the analytical sensitivity or detection limit for NAT assays shall be expressed by the 95 % positive cut-off value. This is the analyte concentration where 95 % of test runs give positive results following serial dilutions of an international reference material, for example a WHO standard or calibrated reference material[112].

Analytic specificity is determined by evaluating an HPV NAT IVD for cross-reactivity with a panel of bacteria, fungi and viruses, including those commonly found in the female urogenital tract; the low-risk HPV genotypes are also included to ensure that a detectable HPV result will not lead to over-management/treatment of women who do not have one of the high-risk genotypes. Specificity is further confirmed by assessing the effects of endogenous (leukocytes, whole blood, cervical mucous) and exogenous (contraceptive and feminine hygiene products) interfering substances that can be found in cervical specimens. The manufacturer's instructions for use provide

information on both the microorganisms and interfering substances that have been evaluated.

Intra- and inter-laboratory reproducibility is addressed by demonstrating an agreement with a lower confidence bound not less than 87%. It is recommended that at least 500 specimens be evaluated, at least 30% of which tested positive in a reference laboratory using a clinically validated assay.

Table 15: Intra- and inter-laboratory reproducibility criteria

Intra- and Inter-Laboratory Reproducibility[5]	At least 500 samples 30% of which tested positive for HPV in a reference laboratory using a clinically validated assay	Lower bound of agreement not less than 87%

References

[1] World Health Organization (2018). Technical Specifications Series for submission to WHO Prequalification – Diagnostic Assessment. TSS-4: In vitro diagnostic medical devices (IVDs) used for the detection of high-risk human papillomavirus (HPV) genotypes in cervical cancer screening. Geneva, Switzerland: World Health Organization. http://apps.who.int/iris/bitstream/handle/10665/272282/9789241513814-eng.pdf?ua=1

[2] Founding members of IMDRF include Australia, Canada, European Union, Japan and USA.

[3] Burd, E. (2016). Human Papillomavirus laboratory testing: the changing paradigm. Clinical Microbiology Reviews; 29: 291-319.

[4] Decision of 3 February 2009 amending Decision 2002/364/EC on common technical specifications for in vitro-diagnostic medical device (notified under document number C(2009) 565)). https://eur-lex.europa.eu/eli/dec/2009/108(1)/oj

[5] Meijer CJ, Berkhof J, Castle PE, H et al. Guidelines for human papillomavirus DNA test requirements for primary cervical cancer screening in women 30 years and older. Int J Cancer. 2009; 124: 516-520.

Annex 2B
Technical Specifications for HPV NAT IVDs

In Vitro Diagnostic Medical Device (IVD) SPECIFICATION (including information on the following where relevant/appropriate, but not limited to)		
i	**Version No.**	**1**
ii	**Date of initial version**	**December 2019**
iii	**Date of last modification**	
iv	**Date of publication**	**February 2020**
v	**Completed / submitted by**	**WHO**
NAME, CATEGORY AND CODING		
1	WHO Category / Code	Under development
2	Generic name	HPV NAT to be used at point of care
3	Specific type or variation (optional)	n/a
INTENDED USE		
14	Test purpose	For screening. To detect nucleic acid for high-risk HPV genotypes including HPV 16 and HPV 18.
15	Specific disorder/condition or risk factor of interest	Certain subtypes of HPV as the causative agent of cervical and other anogenital carcinomas.

16	Testing population	Females over 30 years of age at risk of cervical cancer
17	Level of the health system	IVDs for use at point of care should be able to be used in settings without laboratory infrastructure, e.g. no or intermittant electricity, no reagent grade water, no specialised specimen collection available, no specialised laboratory staff available. Level I, Level II, Level III, Level IV health facilities.
18	Intended user	Specimen collection - trained healthcare worker or self test procedure - trained healthcare worker
PERFORMANCE CHARACTERISTICS		
19	Clinical sensitivity	See TSS-4: IVDs used for the detection of high-risk HPV types in cervical cancer screening for performance requirements
21	Analytical sensitivity	
22	Clinical specificity	
23	Invalid/unreturnable rate	
OPERATIONAL CHARACTERISTICS		
24	Detection type	Qualitative detection of DNA with PV gene target (L1, E1 ORF).

25	Genotype detection	Relevant genotypes to be detected are HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 (with 66, 68 acceptable but not preferable) as optional pooled result. Detection of HPV 16 or HPV 16 and 18 is required at a minimum. Individual targeted genotyping as a reflex test or concurrent (preferred) with pooled results; if reporting out individual genotypes, must have the ability to distinguish between genotypes.
26	Specimen type	Cervical or vaginal, generally using device and specimen transport medium validated and supplied by the manufacturer of IVD. The required specimen volume for testing must be specified.
27	Specimen throughput	For IVDs used at POC, throughput varies based on product design, but is usually no more than 8 specimens per 8 hour shift per operator.
28	Time to first results (including hands-on time)	Specimens per run, total run time, hands-on-time and walk-away time must be specified.
29	Displayed parameters	HPV 16 detected/not detected HPV 18 detected/not detected HPV 16 or 18 detected/not detected Pooled result, if performed
30	Internal quality control	Essential, amplification control Desirable, positive and negative controls Desirable, sample adequacy control (human housekeeping gene)
31	Compatibility with external quality control material	Desirable (e.g. SeraCare, Acrometrix, Bio-rad)
32	Shelf life upon manufacture (months)	Shelf-life must be specified.
33	Guaranteed shelf life upon delivery	Must have a minimum of 80% of the guaranteed shelf life at the time of delivery, where guaranteed shelf life may be less than shelf life upon manufacture. Note: the guaranteed shelf life is highly dependent on INCOTERMs as stipulated in procurement contracts.

34	Stability of reagents (temperature and humidity)	Transport (room temperature; 17 to 27 °C) Storage (2 to 30 °C) On-board (2 to 30 °C). Manufacturer must provide duration for on-board stability. In-use (2 to 30 °C)
35	Stability for specimen collection media	Transport (room temperature; 17 to 27 °C) Storage (2 to 30 °C) In-use (2 to 30 °C)
36	Stability for controls/calibrators	Transport (room temperature; 17 to 27 °C) Storage (2 to 30 °C) On-board (2 to 30 °C). Manufacturer must provide duration for on-board stability. In-use (2 to 30 °C)
37	Operating conditions for analysers (temperature and humidity)	Manufacturer must provide required operating conditions for the IVD (temperature and humidity)
PHYSICAL/CHEMICAL CHARACTERISTICS		
38	Components(if relevant)	HPV NAT IVDs will normally have the following essential components: 1. Specimen collection device and transportation media 2. Reagent kit(s) or cartridge 3. Analyser(s) for extraction, amplification and detection, separate or combined.
39	Footprint (cubic m3)	No more than size of average room.
40	Weight (kg) and volume	Must be able to be placed on a non-reinforced table or else come with own stand.
INFRASTRUCTURE REQUIREMENTS		
41	Electricity	Constant electrical supply required with access to an uninterrupted power supply (UPS), or battery powered.
42	Water (reagent grade)	Required/not required
43	Refrigeration or cold chain	No cold chain for IVDs used at POC.

ACCESSORIES, CONSUMABLES, SPARE PARTS, OTHER COMPONENTS		
44	Consumables / reagents (if relevant)	HPV NATs come in different designs and therefore requirements are dependent on manufacturer specifications. HPV NATs will normally require the following consumables for each test: 1. Specimen collection device 2. Reagents contained within a test kit or a cartridge
45	Items required but not provided	Specimen collection devices and transport media Specimen racks Bleach 70% ethanol Paper towel Powder-free gloves Pipettes and plugged pipette tips Waste disposal For provider-collected specimens, an exam table with stirrups, adjustable exam light and vaginal speculum are also required.
46	Other auxiliary laboratory equipment	Vortex
LABELLING		
47	Instructions for use	IFU submitted must relate to regulatory version registered for sale and use in country of supply.
48	Certificate of analysis	Must be submitted with each consignment of reagents shipped.
ENVIRONMENTAL AND BIOSAFETY REQUIREMENTS		
49	Hazardous classification	Hazardous goods classification, including material safety data sheet (MSDS)
50	Disposal requirements	Biohazard receptacles are required for disposal of any biological specimen, including amplified genetic material contained within test kits, cartridges, or collection devices.
TRAINING, INSTALLATION AND UTILISATION		
51	Installation and calibration	Any substantive calibration to be conducted by the supplier (should not be separately charged). Only minimal calibration to be conducted by testing provider.

52	Training of users	Pre-service and in-service
WARRANTY AND MAINTENANCE		
53	Warranty	Minimum 24 months.
54	Preventive maintenance	Expected minimal maintenance to be conducted by testing provider should be stated. Frequency of servicing based on fixed time periods or based on the number of tests the instrument processes.
55	Corrective maintenance	Major fixes and/or replacements, the response and resolution times are governed by the service level agreement.
56	Type of service contract	Must cover labour, repair, spare parts, loaner instrument, shipping and logistics costs, and training
57	Spare parts availability, post-warranty	To be covered in service level agreement.
DECOMMISSIONING		
58	Estimated Life Span	No less than 2 years.
QUALITY AND REGISTRATION		
59	Global regulatory approvals	Careful consideration should be taken to ensure that the selected products have been assessed to an appropriate stringency level based on the risk classification for HPV NAT IVDs.
60	Free sale certificate	Provide valid certification for export from country of origin
61	WHO prequalification status	Desirable. Provide valid WHO PQ Public Report and current WHO list of prequalified IVDs.
62	International standards	Compliant with active version of the following standards (or equivalent):
63	National registration	Essential. Provide valid certification.

64	Post-market surveillance	Essential, respond to customer complaints in timely manner and notify NRA for serious and moderate adverse events according to their timelines.
65	Field safety corrective actions	Essential, inform affected customers of any FSCA (such as recall or change in labelling) in a timely manner and notify NRA for all FSCA.
64	Replacement of defective product	Desirable, depending on root cause of issue.

In Vitro Diagnostic Medical Device (IVD) SPECIFICATION		
i	**Version No.**	**1**
ii	**Date of initial version**	**December 2019**
iii	**Date of last modification**	
iv	**Date of publication**	**February 2020**
v	**Completed / submitted by**	**WHO**
NAME, CATEGORY AND CODING		
1	WHO Category / Code	Under development
2	Generic name	HPV NAT to be used in laboratory setting.
3	Specific type or variation (optional)	n/a
INTENDED USE		
14	Test purpose	For screening. To detect nucleic acid for high-risk HPV genotypes including HPV 16 and HPV 18, or for the detection of mRNA transcripts coding for E6/E7.
15	Specific disorder/condition or risk factor of interest	Certain subtypes of HPV as the causative agent of cervical and other anogenital carcinomas.
16	Testing population	Females over 30 years of age at risk of cervical cancer
17	Level of the heallth system	IVDs for use in laboratory settings, e.g. with stable or intermittent electricity, reagent grade water, specialised specimen collection and processing available, specialised laboratory staff available. Level II, Level III, Level IV health facilities
18	Intended user	Specimen collection - trained healthcare worker or self Test procedure - trained laboratory technician for laboratory-based IVDs

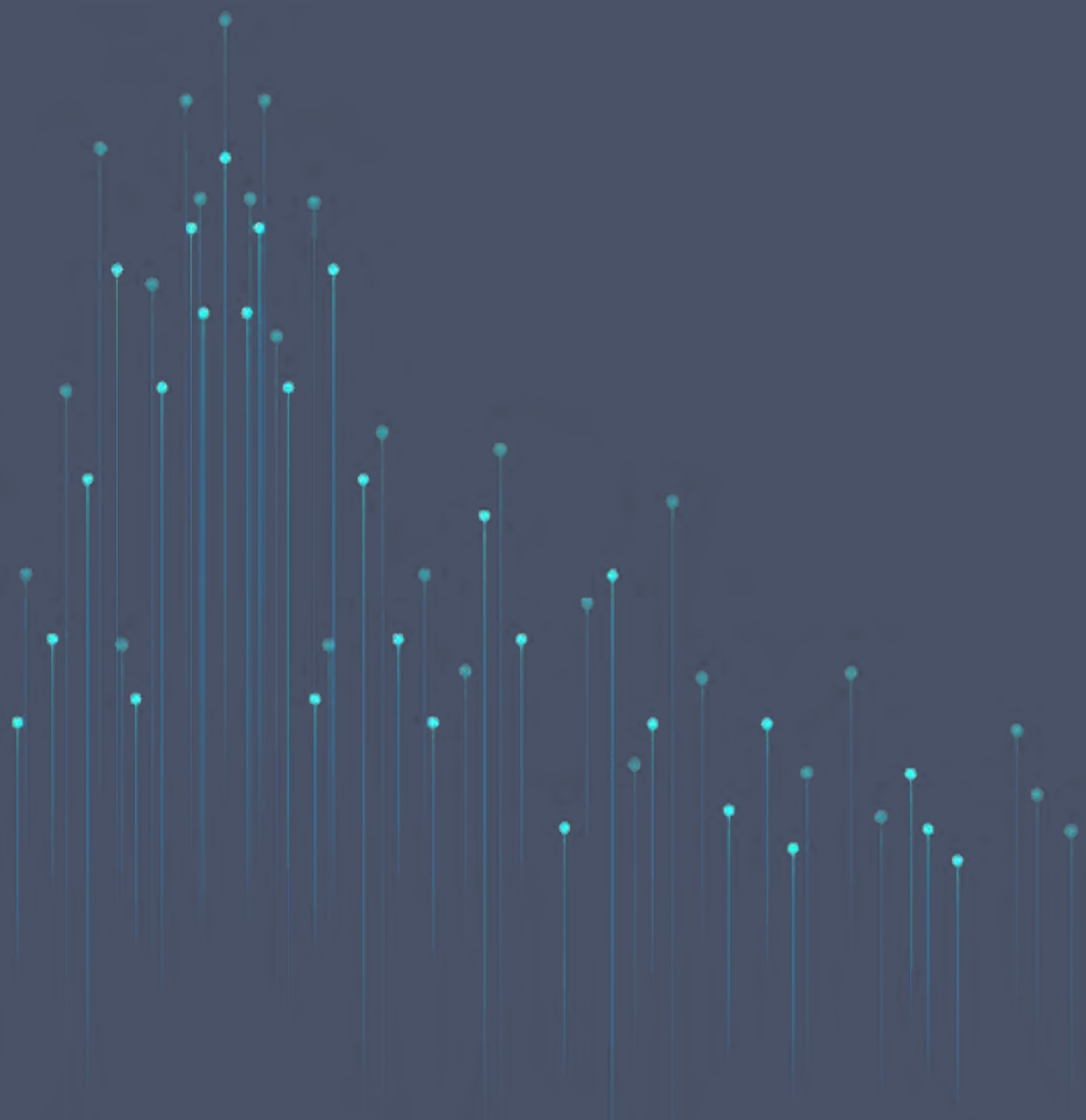
PERFORMANCE CHARACTERISTICS		
19	Clinical sensitivity	See TSS-4: IVDs used for the detection of high-risk HPV types in cervical cancer screening for performance requirements
21	Analytical sensitivity	
22	Clinical specificity	
23	Invalid/unreturnable rate	
OPERATIONAL CHARACTERISTICS		
24	Detection type	Qualitative detection of DNA or RNA with HPV gene target (L1, E6, E7, E1 ORF).
25	Genotype detection	Relevant genotypes to be detected are HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 with 66, 68 optional as pooled result. Detection of HPV 16 or HPV 16 and 18 is required at a minimum. Individual targeted genotyping as a reflex test or concurrent (preferred) with pooled results; if reporting out individual genotypes, must have the ability to distinguish between genotypes.
26	Specimen type	Cervical or vaginal, generally using device and specimen transport medium validated and supplied by the manufacturer of IVD. The required specimen volume for testing must be specified.
27	Specimen throughput	For laboratory-based IVDs, throughput is usually no more than 94 specimens per run per operator.
28	Time to first results (including hands-on time required)	For manual test systems, the hands-on-time, the specimens per run and overall time must be specified. For automated test systems, the specimens per run, total run time, hands-on-time and walk-away time must be specified.
29	Displayed parameters	HPV 16 detected/not detected HPV 18 detected/not detected HPV 16 or 18 detected/not detected Pooled result, if performed

30	Internal quality control	Essential, amplification control Desirable, positive and negative controls Desirable, sample adequacy control (human housekeeping gene)
31	Compatibility with external quality control material	Desirable (e.g. SeraCare, Acrometrix, Bio-rad)
32	Shelf life upon manufacture (months)	
33	Guaranteed shelf life upon delivery	Reagents must have a minimum of 80% of the guaranteed shelf-life at the time of delivery, where guaranteed shelf-life may be less than shelf-life upon manufacture. Note: the guaranteed shelf-life is highly dependent on INCOTERMs as stipulated in procurement contracts.
34	Stability of reagents (temperature and humidity)	Transport (room temperature; 17 to 27 °C) Storage (2 to 30 °C) On-board (2 to 30 °C). Manufacturer must provide duration for on-board stability. In-use (2 to 30 °C)
35	Stability for specimen collection media	Transport (room temperature) Storage (2 to 30 °C) In-use (2 to 30 °C)
36	Stability for controls/calibrators	Transport (room temperature) Storage (2 to 30 °C) On-board (2 to 30 °C). Manufacturer must provide duration for on-board stability. In-use (2 to 30 °C)
37	Operating conditions for analysers (temperature and humidity)	Manufacturer must provide required operating conditions for the IVD (temperature and humidity)
PHYSICAL/CHEMICAL CHARACTERISTICS		
38	Components(if relevant)	HPV NAT IVDs will normally have the following essential components: 1. Specimen collection device and transportation media 2. Reagent kit(s) or cartridge 3. Analyzer(s) for extraction, amplification and detection, separate or combined.

39	Footprint (cubic m3)	Varies based on throughput and product design.
40	Weight (kg) and volume	Must be able to be placed on a non-reinforced table or else come with own stand.
INFRASTRUCTURE REQUIREMENTS		
41	Electricity	Constant electrical supply required with access to an uninterrupted power supply (UPS). Desirable to have battery operation option in case of power outage to finish the in-process run.
42	Water (reagent grade)	Required/not required.
43	Refrigeration or cold chain	2 to 8 °C
ACCESSORIES, CONSUMABLES, SPARE PARTS, OTHER COMPONENTS		
44	Consumables / reagents (if relevant)	HPV NATs come in different designs and therefore requirements are dependent on manufacturer specfications. HPV NATs will normally require the following consummables for each test: 1. Specimen collection device 2. Reagents contained within a test kit or a cartridge
45	Items required but not provided	Specimen collection devices and transport media Specimen racks Bleach 70% ethanol Paper towel Powder-free gloves Pipettes and plugged pipette tips Waste disposal For provider-collected specimens, an exam table with stirrups, adjustable exam light and vaginal speculum are also required.
46	Other auxiliary laboratory equipment	Vortex
LABELLING		
47	Instructions for use	IFU submitted must relate to regulatory version registered for sale and use in country of supply.
48	Certificate of analysis	Must be submitted with each consignment of reagents shipped.

ENVIRONMENTAL AND BIOSAFETY REQUIREMENTS		
49	Hazardous classification	Hazardous goods classification, including material safety data sheet (MSDS)
50	Disposal requirements	Biohazard receptacles are required for disposal of any biological specimen, including amplified genetic material contained within test kits, cartridges, or collection devices.
TRAINING, INSTALLATION AND UTILISATION		
51	Installation and calibration	Any substantive calibration to be conducted by the supplier (should not be seperately charged). Only minimal calibration to be conducted by testing provider.
52	Training of users	Pre-service and in-service
WARRANTY AND MAINTENANCE		
53	Warranty	Minimum 24 months.
54	Preventive maintenance	Expected minimal maintenance to be conducted by testing provider should be stated. Frequency of servicing based on fixed time periods or based on the number of tests the instrument processes.
55	Corrective maintenance	Major fixes and/or replacements, the response and resolution times are governed by the service level agreement.
56	Type of service contract	Must cover labour, repair, spare parts, loaner instrument, shipping and logistics costs, and training
57	Spare parts availability, post-warranty	To be covered in service level agreement.

DECOMMISSIONING		
58	Estimated Life Span	No less than 2 years.
QUALITY AND REGISTRATION		
59	Global regulatory approvals	Careful consideration should be taken to ensure that the selected products have been assessed to an appropriate stringency level based on the risk classification for HPV NAT IVDs.
60	Free sale certificate	Provide valid certification for export from country of origin
61	WHO prequalification status	Desirable. Provide valid WHO PQ Public Report and current WHO list of prequalified IVDs.
62	International standards	Compliant with active version of the following standards (or equivalent): • ISO 13485: Medical devices–Quality management systems (must provide certification) • ISO 14971: Medical devices–Application of risk management to medical devices • ISO 23640: In vitro diagnostic medical devices–Evaluation of stability of in vitro diagnostic reagents • ISO 18113-1: In vitro diagnostic medical devices -- Information supplied by the manufacturer (labelling) -- Part 1: Terms, definitions and general requirements
63	National registration	Essential. Provide valid certification.
64	Post-market surveillance	Essential, respond to customer complaints in timely manner and notify NRA for serious and moderate adverse events according to their timelines.
65	Field safety corrective actions	Essential, inform affected customers of any FSCA (such as recall or change in labelling) in a timely manner and notify NRA for all FSCA.
66	Replacement of defective product	Desirable, depending on root cause of issue.



Annex 3
Technical Specifications for Acetic Acid for VIA

MEDICAL DEVICE SPECIFICATION		
i	**Version No.**	**1**
ii	**Date of initial version**	**December 2019**
iii	**Date of last modification**	
iv	**Date of publication**	**February 2020**
v	**Completed / submitted by**	**WHO**
NAME, CATEGORY AND CODING		
1	WHO Category / Code	N/A
2	Generic name	Acetic acid
3	Specific type or variation (optional)	Glacial acetic acid
10	Alternative name/s (optional)	Glacial acetic acid; Methanecarboxylic acid; Ethanoic acid; Vinegar acid; glacial/ alcohol of vinegar; carboxylic acid C2; ethanoic acid; ethylic acid; methanecarboxylic acid; pyroligneous acid.

11	Alternative code/s (optional)	CAS No : 64-19-7; Formula : $C_2H_4O_2$ UN 2789, class 8: Acetic acid, glacial or Acetic acid solution, with more than 80 percent acid, by mass UN 2790, class 8: Acetic acid solution, not less than 50 percent but not more than 80 percent acid, by mass or Acetic acid solution, with more than 10 percent and less than 50 percent acid, by mass IUPAC Name: acetic acid MDL Number: MFCD00036152;
12	Keywords (optional)	Acetic Acid
PURPOSE OF USE		
14	Clinical or other purpose	Visual inspection with acetic acid (VIA) is a direct visual assessment of the cervix using a 3-5% acetic acid solution to visibly whiten cervical lesions, which temporarily produces what is known as an acetowhite lesion.
15	Level of use (if relevant)	Hospital, clinic, or health post
16	Clinical department/ward (if relevant)	Family medicine; gynaecology; obstetrics; outpatient clinic; outreach.
17	Overview of functional requirements	Acetic acid solution shall be 3-5%, by volume, acetic acid in a solution of distilled water.

TECHNICAL CHARACTERISTICS		
18	Detailed requirements	• 3-5% Acetic acid solution required • Dilutions to be made, with distilled water, to 3-5% Acetic acid by volume. • If diluting from a higher concentration, to be made fresh daily: - Use only under a chemical fume hood. - Use explosion-proof equipment. - Keep away from open flames, hot surfaces and sources of ignition. - Do not breathe vapours or spray mist. - Avoid contact with eyes. - Avoid direct contact with skin. - Avoid spilling on clothing. - Take precautionary measures against static discharges. • Unused dilutions to be discarded at the end of the day
19	Displayed parameters	N/A
20	User adjustable settings	N/A
PHYSICAL/CHEMICAL CHARACTERISTICS		
21	Components (if relevant)	Acetic Acid, distilled water
22	Mobility, portability (if relevant)	N/A
23	Raw Materials (if relevant)	Glacial acid, or higher than 5% acetic acid to be diluted with distilled water to 3-5% acetic acid, by volume.
UTILITY REQUIREMENTS		
24	Electrical, water and/or gas supply (if relevant)	N/A

ACCESSORIES, CONSUMABLES, SPARE PARTS, OTHER COMPONENTS		
25	Accessories (if relevant)	If diluting glacial (water-free) or high-percentage acetic acid, use: gloves, goggles, apron, graduated cylinder, syringe/small cylinder, storage container with lid, and distilled water. Speculum Light
26	Sterilization process for accessories (if relevant)	N/A
27	Consumables / reagents (if relevant)	N/A
28	Spare parts (if relevant)	N/A
29	Other components (if relevant)	N/A
PACKAGING		
30	Sterility status on delivery (if relevant)	N/A
31	Shelf life (if relevant)	• Solutions in original packaging to respect indicated storage conditions and best-before date. • Dilutions: one day (due to potential for evaporation or contamination).

32	Transportation and storage (if relevant)	**Storage area:** - Clean, dust-free, dry, cool, out of direct sunlight, well-lit, ventilated (floor level) and vermin-proof. - Fireproof, frost-proof store-room in detached building. - Keep store-room locked. - Provide for a tub to collect spills. - Provide the tank with earthing. **Storage:** - Keep concentrated, starting or mother solution in original packaging on a shelf or in a storage cabinet. - Keep containers labelled and tightly closed - Keep away from open flames, hot surfaces and sources of ignition or flammables area. - Store separately from oxidizing materials and alkaline substances. - acetic acid should be able to withstand storage temperatures ranging from 15°C to 30°C, relative humidity ≤ 60% (non-condensing). Packaging materials: suitable materials are aluminium and glass. MATERIAL TO AVOID: steel, iron, zinc, lead, copper, and bronze.
33	Labelling (if relevant)	Globally Harmonized System of Classification and Labelling of Chemicals (GHS) or equivalent. Labelling on the primary packaging should include the name and/or trademark of the manufacturer and should adhere to the most current version of ISO 15223 – 1: Medical devices -- Symbols to be used with medical device labels, labelling and information to be supplied -- Part 1: General requirements.
ENVIRONMENTAL REQUIREMENTS		
34	Context-dependent requirements	3-5% acetic acid is used under ambient conditions. Environmental conditions vary globally and can be extreme. It is the responsibility of the procurement body to ensure that the manufacturer's recommended operation and storage conditions are respected. If the product requires that the operating and/or storage environment be climate-controlled, appropriate temperature and humidity control systems, including monitoring, should be applied to avoid premature degradation of product.

TRAINING, INSTALLATION AND UTILISATION		
35	Pre-installation requirements (if relevant)	N/A
36	Requirements for commissioning (if relevant)	N/A
37	Training of user/s (if relevant)	Clinical staff training in vaginal examinations and targeted training for dilution preparation (if relevant)
38	User care (if relevant)	N/A
WARRANTY AND MAINTENANCE		
39	Warranty	N/A - Explicit expiry date on packaging of original solution, 3 years after date of manufacture
40	Maintenance tasks	N/A
41	Type of service contract	N/A
42	Spare parts availability post-warranty	N/A
43	Software / Hardware upgrade availability	N/A
DOCUMENTATION		
44	Estimated Life Span	• If using glacial acid, product must have a Drug Identification Number (DIN) from national or regional health authority. • User language prioritized for labelling, otherwise English is mandatory. • Contact details of manufacturer, supplier and local agent. • Supplier to describe any materials that are classified as hazardous under local regulations.
DECOMMISSIONING		
45	Estimated Life Span	N/A

SAFETY AND STANDARDS		
46	Risk Classification	Hazard pictograms (GHS): GHS02 GHS05 Signal word (GHS): Danger Hazard statements (GHS): H226 - Flammable liquid and vapour. H314 - Causes severe skin burns and eye damage. H402 - Harmful to aquatic life. Precautionary statements (GHS): P210 - Keep away from heat, sparks, open flames, hot surfaces. No smoking. P233 - Keep container tightly closed. P240 - Ground/bond container and receiving equipment. P241 - Use explosion-proof electrical, ventilating, lighting equipment. P242 - Use only non-sparking tools. P243 - Take precautionary measures against static discharge. P260 - Do not breathe mist, vapours, spray. P264 - Wash exposed skin thoroughly after handling. P273 - Avoid release to the environment. P280 - Wear protective clothing, protective gloves, eye protection, face protection. P301 + P330 + P331: IF SWALLOWED, rinse mouth. Do NOT induce vomiting. P303 + P361 + P353: IF ON SKIN (or hair), remove/take off all contaminated clothing immediately. Rinse skin with water/shower. P304 + P340: IF INHALED, remove victim to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338: IF IN EYES, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a poison centre or doctor/physician. P363 - Wash contaminated clothing before reuse. P370 + P378: In case of fire, use carbon dioxide (CO_2), powder, alcohol-resistant foam to extinguish. P403 + P235: Store in a well-ventilated place. Keep cool. P405 - Store locked up. P501 - Dispose of contents/container to comply with local, state and federal regulations.

47	Regulatory Approval / Certification	N/A
48	International standards	Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the Canadian DSL (Domestic Substances List) Listed on the Canadian IDL (Ingredient Disclosure List)
49	Reginal / Local Standards	Country-specific and regional standards may apply
50	Regulations	N/A

Annex 4
Technical Specifications for Colposcopes

MEDICAL DEVICE SPECIFICATION **(including information on the following where relevant/appropriate, but not limited to)**		
i	**Version No.**	**1**
ii	**Date of initial version**	**December 2019**
iii	**Date of last modification**	
iv	**Date of publication**	**February 2020**
v	**Completed / submitted by**	**WHO**
NAME, CATEGORY AND CODING		
1	WHO Category / Code	Colposcopes, XD2AZ1
2	Generic name	Colposcope
10	Alternative name/s (optional)	Colpomicroscopes, vaginoscopes
11	Alternative code/s (optional)	N/A
12	Keywords (optional)	surgical, gynaecology, magnification

PURPOSE OF USE		
14	Clinical or other purpose	A colposcope is a low magnification, light-illuminated visualization device for examining the cervix, across an area measuring approximately 20 to 30 mm in diameter, with enough distance between the colposcope lens and the cervix to accommodate the surgical instruments needed for the examination and/or treatment. It allows the examiner to view the epithelial tissues of the cervix and other anogenital areas.
15	Level of use (if relevant)	Clinic, health centre, (district) hospital, specialized clinic
16	Clinical department/ward (if relevant)	Family medicine; gynaecology; outpatient clinic; outreach; oncology; obstetrics; surgery; nursing services
17	Overview of functional requirements	Colposcope functional requirements: 1) the colposcope head housing the optics capable of magnification and focus 2) the light source and green light filters for improved visualization of vasculature 3) the body or stand to facilitate and optimises biopsy and excisional treatment.

TECHNICAL CHARACTERISTICS		
18	Detailed requirements	• Magnification: A range of optical magnification between 3x to 15x (either stepped or continuously variable) • Illumination: o Light sources shall be either halogen or LED to guarantee full-spectrum visible light (white light) - Halogen light: 15 V/150 W - LED: 20,000-35,000 LUX (at 300 mm working distance) o An illumination adjustment knob to change the intensity of light o A fan to cool the bulbs (if halogen bulbs are used) • Green light filters; however, blue filters are also acceptable but not the preferred option • Ingress protection rating: IPX2 (minimum)
19	Displayed parameters	N/A
20	User adjustable settings	- Coarse and fine optical magnification - Illumination
PHYSICAL / CHEMICAL CHARACTERISTICS		
21	Components (if relevant)	N/A
22	Mobility, portability (if relevant)	N/A
23	Raw Materials (if relevant)	N/A
UTILITY REQUIREMENTS		
24	Electrical, water and/or gas supply (if relevant)	• The unit is suggested to be connected to a reliable power source. • Electrical source requirements (based on country/setting of use): o Amperage: _____ o Voltage: _____ o Plug type: _____ .

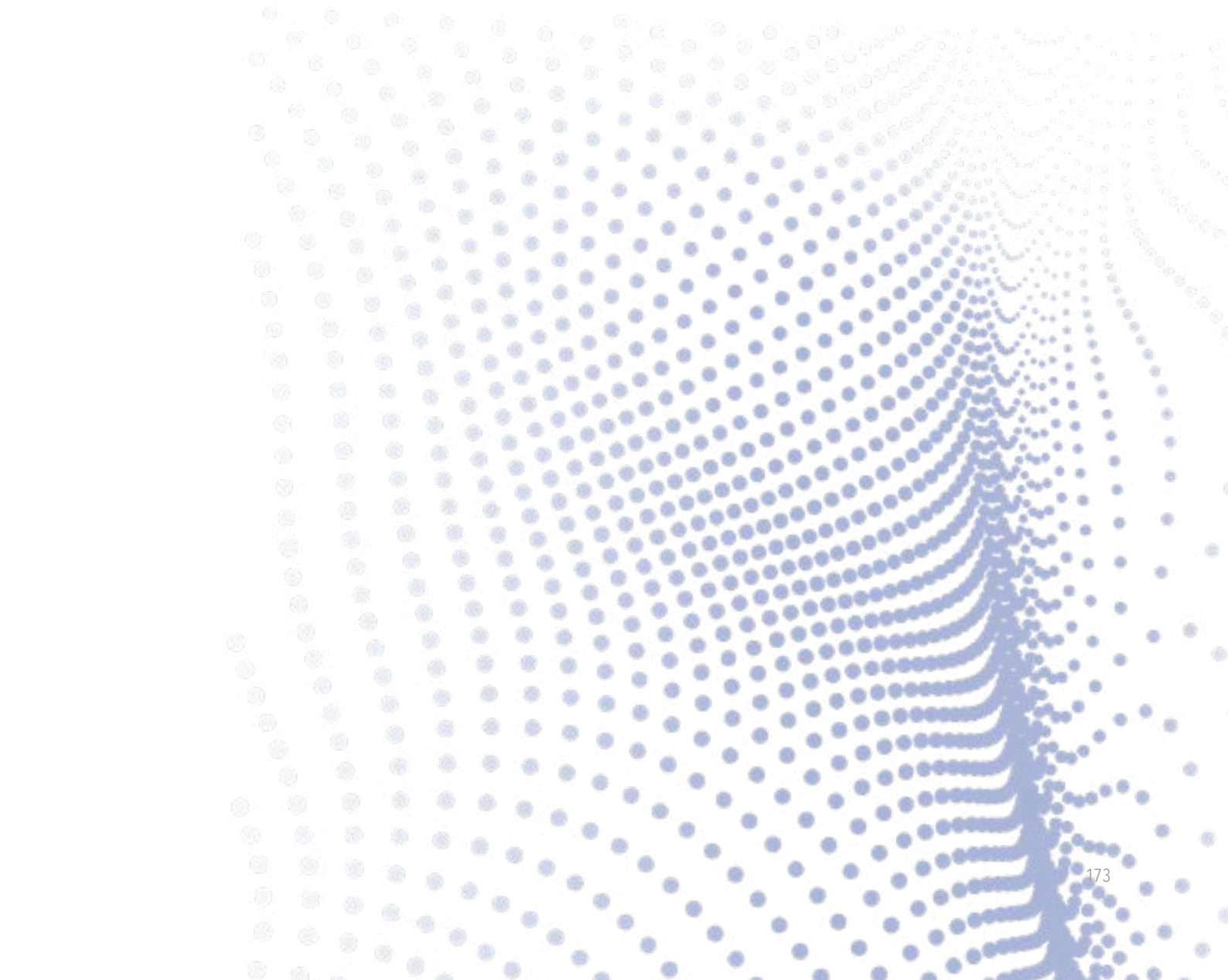
ACCESSORIES, CONSUMABLES, SPARE PARTS AND OTHER COMPONENTS		
25	Accessories (if relevant)	• Stand or mount to allow for hands-free operation • LED TV or medical grade monitor if not integrated (optional) • Single-use sheath (if using invasive portable model)
26	Sterilization process for accessories (if relevant)	N/A
27	Consumables / reagents (if relevant)	N/A
28	Spare parts (if relevant)	Lamp bulbs and fuses.
29	Other components (if relevant)	N/A
PACKAGING		
30	Sterility status on delivery (if relevant)	N/A
31	Shelf life (if relevant)	N/A
32	Transportation and storage (if relevant)	Storage area should be clean and dust-free, dry, cool, well-lit, ventilated and vermin-proof. Store device in original packaging on a shelf or on in a storage cabinet. Devices should be able to withstand storage temperatures ranging from 15°C to 30°C, relative humidity ≤ 85% (non-condensing), and be protected from dripping water (IPX2).
33	Labelling (if relevant)	Labelling on the primary packaging should include the name and/or trademark of the manufacturer and should adhere to the most current version of ISO 15223 – 1: Medical devices -- Symbols to be used with medical device labels, labelling and information to be supplied -- Part 1: General requirements.

ENVIRONMENTAL REQUIREMENTS		
34	Context-dependent requirements	Environmental conditions vary globally and can be extreme; however, the following are tenable: - Operating temperature: 15°C to 35°C - Operating relative humidity: ≤ 85%, non-condensing It is the responsibility of the procurement body to ensure that the manufacturer's recommended operation and storage conditions are respected. If the device requires that the operating and/or storage environment be climate-controlled, appropriate temperature and humidity control systems, including monitoring, should be applied to avoid premature material disintegration and/or device failure.
TRAINING, INSTALLATION AND UTILISATION		
35	Pre-installation requirements (if relevant)	N/A
36	Requirements for commissioning (if relevant)	N/A
37	Training of user/s (if relevant)	Training of users in operation and basic maintenance shall be provided. Clinical staff training in cervical precancer lesion treatment guidelines and device use to be provided.
38	User care (if relevant)	N/A
WARRANTY AND MAINTENANCE		
39	Warranty	Minimum one year. Specific inclusions and exclusions to be listed. Contact details of manufacturer, supplier and local service agent to be provided.
40	Maintenance tasks	Limited maintenance requirements. Standard colposcopes may require replacement of worn parts including lamps, eyepiece rings, light guides and fuses. Follow device-specific service manual, as instructions are specific to each colposcope model.
41	Type of service contract	N/A

42	Spare parts availability post-warranty	8 years minimum, starting from installation/commissioning
43	Software / Hardware upgrade availability	N/A
DOCUMENTATION		
44	Documentation requirements	• Instructions for use and service manuals to be provided (including procedures for decontamination) • User language preference prioritized, English is mandatory. • Contact details of manufacturer, supplier and local service agent. • Certificate of calibration and inspection to be provided (if applicable). • List to be provided of equipment and procedures required for local calibration and routine maintenance. • List to be provided of common spares and accessories, with part numbers.
DECOMMISSIONING		
45	Estimated Life Span	10 years
SAFETY AND STANDARDS		
46	Risk classification	US FDA: Device Class 2 EU: Class IIa
47	Regulatory Approval / Certification	Compliance to (where applicable, but not limited to): - National Regulatory Agency/Authority (NRA) requirements compliance - Approval by regulatory body of country of manufacturer (if applicable) And at least one of: - FDA 510k clearance (US FDA) - CE mark (EU), with indication of Notifying Body (when applicable) - Other regulatory body in an IMDRF founding member country such as Australia, Canada, or Japan.

48	International standards	Compliant with active version of the following standards (or equivalent): **General manufacturing:** • ISO 13485: Medical Devices - Quality Management Systems - Requirements for Regulatory Purposes • ISO 14971: Medical Devices - Application of Risk Management to Medical Devices • ISO 15223-1: Medical devices -- Symbols to be used with medical device labels, labelling and information to be supplied -- Part 1: General requirements **Safety & product standards:** • IEC 60601-1 - Medical electrical equipment - Part 1: General requirements for basic safety and essential performance • IEC 60601-1-2: Medical electrical equipment - Part 1-2 General requirements for basic safety and essential performance - Collateral Standard: Electromagnetic disturbances - Requirements and tests **For vaginally-inserted colposcopes:** • Biocompatibility: o ISO 10993-1: Biological evaluation of medical devices Part 1: Evaluation and testing within a risk management process o ISO 10993-5: Biological evaluation of medical devices Part 5: Tests for in vitro cytotoxicity o ISO 10993-10: Biological evaluation of medical devices Part 10: Tests for irritation and skin sensitization • Endoscopy (pertaining to inserted scope): o ISO 8600-1: Endoscopes – Medical endoscopes and endotherapy devices – Part 1: General requirements o ISO 8600-3: Optics and optical instruments – Medical endoscopes and endoscopic accessories – Part 3: Determination of field of view and direction of view of endoscopes with optics o ISO 8600-4: Endoscopes – Medical endoscopes and endotherapy devices – Part 4: Determination of maximum width of insertion portion o ISO 8600-5: Optics and photonics – Medical endoscopes and endotherapy devices – Part 5: Determination of optical resolution of rigid endoscopes with optics o ISO 8600-6: Optics and photonics – Medical endoscopes and endotherapy devices – Part 6: vocabulary
49	Regional / local standards	Country-specific and regional standards may apply

50	Regulations	US regulations: 21 CFR part 820 Quality System Regulation 21 CFR part 884.1630 - Colposcope EU regulations: European Commission Regulation (EU) No. 2017/745 (replacing 93/42/EEC)



Annex 5
Technical Specifications for Thermal Ablation Units

MEDICAL DEVICE SPECIFICATION		
i	**Version No.**	**1**
ii	**Date of initial version**	**December 2019**
iii	**Date of last modification**	
iv	**Date of publication**	**February 2020**
v	**Completed / submitted by**	**WHO**
NAME, CATEGORY AND CODING		
1	WHO Category / Code	
2	Generic name	Thermal ablation device
3	Specific type or variation (optional)	Portable, handheld thermal ablation device Benchtop thermal ablation device
10	Alternative name/s (optional)	Thermal coagulator; thermocoagulator; cold coagulator; Semm coagulator; thermoablation device
12	Keywords (optional)	Thermal ablation device; cervical precancer; destruction of abnormal human cervical tissue.

PURPOSE OF USE		
14	Clinical or other purpose	A thermal ablation device is a self-contained, electrically powered medical instrument with a probe tip heated to 100°C designed to destroy tissue of the uterine cervix.
15	Level of use (if relevant)	Handheld device: health posts, clinics or outreach, hospitals Benchtop device: hospitals or clinics with mains electricity
16	Clinical department/ward(if relevant)	Family medicine; gynaecology; outpatient clinic; outreach; oncology; obstetrics; surgery; nursing services
17	Overview of functional requirements	• Probe tip temperature controlled to reach 100°C • Visual and/or audible cues to ensure working temperature reached • Simple and easy to use, appropriate for all levels of care. • Handheld device has added feature of portability with rechargeable batteries.
TECHNICAL CHARACTERISTICS		
18	Detailed requirements	Portable, handheld thermal ablation device OR Benchtop thermal ablation device: • Probe tip temperature controlled to reach 100°C • Visual and/or audible cues to ensure working temperature reached • Simple and easy to use, appropriate for all levels of care. • Handheld device has added feature of portability with rechargeable batteries. • Rated IPX1 (console) and IPX7 (therapy probe and or instrument cable on benchtop)

19	Displayed parameters	User interface should provide audible and/or visual feedback: • Handheld: light/beep when temperature reached • Benchtop: display to indicate temperature.
20	User adjustable settings	Benchtop: user can adjust temperature between 60°-120°C
PHYSICAL / CHEMICAL CHARACTERISTICS		
21	Components(if relevant)	• Minimum of 2 probe tips required: o One probe must be flat. o The second probe can be either flat or can have a gentle nipple extrusion not exceeding 5mm (so as to anchor in centre of cervix but not to ablate endocervix). o Probes should not have any sharp edges. o Varying diameters, ranging from 8 mm to 25 mm o Biocompatible, material that will not adhere to cervix o Reusable and thus able to be decontaminated Approximate dimensions of the thermal ablation devices: - Handheld: 5 cm (W), 20 cm (H), 5 cm (D) and weighs <400g - Benchtop: 35 cm (W), 15 cm (H), 10 cm (D) and weighs 3.5 kg Both devices come with power adaptors Recommended extra battery for handheld unit
22	Mobility, portability (if relevant)	Handheld device Can be easily carried in a case or backpack, with all accessories, all totalling <2kg Benchtop device: Not intended for portability
23	Raw Materials (if relevant)	N/A
UTILITY REQUIREMENTS		
24	Electrical, water and/or gas supply (if relevant)	• The unit (either benchtop or handheld when charging) is suggested to be connected to a reliable power source • Handheld, battery operated device to have a minimum cumulative run-time of 1 hour on a single charge. • Electrical source requirements (based on country/setting of use): o Amperage: _____; o Voltage: _____; o Plug type: _____ .

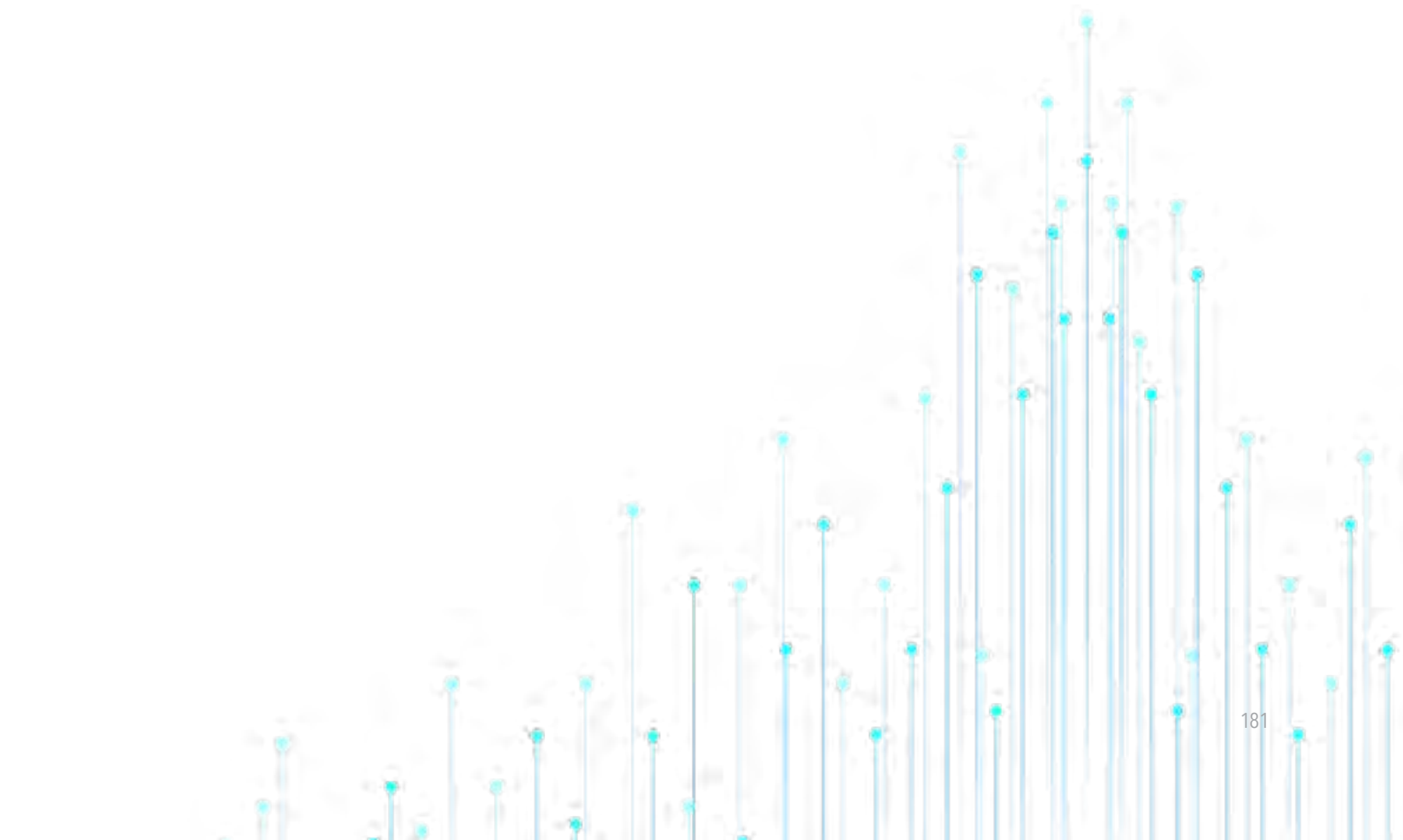
ACCESSORIES, CONSUMABLES, SPARE PARTS, OTHER COMPONENTS		
25	Accessories (if relevant)	• Speculum • Light source • Timer
26	Sterilization process for accessories (if relevant)	- Probes should withstand repeated cycles of decontamination, done so according to manufacturers' instructions. - Device handle, charging base, benchtop unit, power supply should be cleaned and decontaminated after each use according to manufacturer's instructions.
27	Consumables / reagents (if relevant)	N/A
28	Spare parts (if relevant)	• Consider extra probes to account for decontamination cycles and patient scheduling. • A backup battery pack is recommended for handheld devices. Note: probes and spares are not interchangeable between devices of different brands and models and can vary in their design and lifetime.
29	Other components (if relevant)	N/A
PACKAGING		
30	Sterility status on delivery (if relevant)	N/A
31	Shelf life (if relevant)	N/A
32	Transportation and storage (if relevant)	Storage area should be clean and dust-free, dry, cool, well-lit, ventilated and vermin-proof. Store device in original packaging on a shelf or on in a storage cabinet. Devices should be able to withstand storage temperatures ranging from 15°C to 30°C, relative humidity ≤ 60% (non-condensing), and be protected from dripping water.
33	Labelling (if relevant)	Labelling on the primary packaging should include the name and/or trademark of the manufacturer and should adhere to the most current version of ISO 15223 – 1: Medical devices -- Symbols to be used with medical device labels, labelling and information to be supplied -- Part 1: General requirements.

ENVIRONMENTAL REQUIREMENTS		
34	Context-dependent requirements	Environmental conditions vary globally and can be extreme; however, the following are tenable: - Operating temperature: 15°C to 35°C - Operating relative humidity: ≤ 85%, non-condensing It is the responsibility of the procurement body to ensure that the manufacturer's recommended operation and storage conditions are respected. If the device requires that the operating and/or storage environment be climate-controlled, appropriate temperature and humidity control systems, including monitoring, should be applied to avoid premature material disintegration and/or device failure.
TRAINING, INSTALLATION AND UTILISATION		
35	Pre-installation requirements (if relevant)	Handheld: no pre-installation requirements. Benchtop: if necessary, clear instructions/diagrams for assembly/reassembly must be included.
36	Requirements for commissioning (if relevant)	N/A
37	Training of user/s (if relevant)	Training of users in operation and basic maintenance shall be provided. Clinical staff training in cervical precancer lesion treatment guidelines and device use to be provided.
38	User care (if relevant)	Prior to use: • Inspect for visible damage to device (handle, probes, any connections). • Make sure that no parts are missing or loose. • Make sure that connecting elements between instruments function properly.
WARRANTY AND MAINTENANCE		
39	Warranty	Minimum one year. Specific inclusions and exclusions to be listed. Contact details of manufacturer, supplier and local service agent to be provided.
40	Maintenance tasks	Handheld device: no user-serviceable parts. Benchtop device: see manual or contact manufacturer for information

41	Type of service contract	Costs and types of post-warranty service contract available shall be described (if applicable).
42	Spare parts availability post-warranty	8 years minimum, starting from installation/commissioning
43	Type of service contract	Costs and types of post-warranty service contract available shall be described (if applicable).
DOCUMENTATION		
44	Documentation requirements	• Instructions for use and service manuals to be provided (including procedures for decontamination) • User language preference prioritized, English is mandatory. • Contact details of manufacturer, supplier and local service agent. • Certificate of calibration and inspection to be provided (if applicable). • List to be provided of equipment and procedures required for local calibration and routine maintenance. • List to be provided of common spares and accessories, with part numbers.
DECOMMISSIONING		
45	Estimated Life Span	Handheld device: 7 years (can vary) Benchtop main unit: approximately 10 years if maintenance and service requirements are met.
SAFETY AND STANDARDS		
46	Risk Classification	US FDA: Device Class 2 EU: Class IIa

47	Regulatory Approval / Certification	Compliance to (where applicable, but not limited to): - National Regulatory Agency/Authority (NRA) requirements compliance - Approval by regulatory body of country of manufacturer (if applicable) And at least one of: - FDA 510k clearance (US FDA) - CE mark (EU), with indication of Notifying Body (when applicable) - Other regulatory body in an IMDRF founding member country such as Australia, Canada, or Japan.
48	International standards	Compliant with active version of the following standards (or equivalent): **General manufacturing:** • ISO 13485: Medical Devices - Quality Management Systems - Requirements for Regulatory Purposes • ISO 14971: Medical Devices - Application of Risk Management to Medical Devices • ISO 15223-1: Medical devices - Symbols to be used with medical device labels, labelling and information to be supplied - Part 1: General requirements **Safety & product standards** • IEC 60601-1 - Medical electrical equipment - Part 1: General requirements for basic safety and essential performance • IEC 60601-1-2: Medical electrical equipment - Part 1-2 General requirements for basic safety and essential performance - Collateral Standard: Electromagnetic disturbances - Requirements and tests **Probe-specific requirements:** • ISO 10993-1: Biological evaluation of medical devices Part 1: Evaluation and testing within a risk management process • ISO 10993-5: Biological evaluation of medical devices Part 5: Tests for in vitro cytotoxicity • ISO 10993-10: Biological evaluation of medical devices Part 10: Tests for irritation and skin sensitization **Battery-operated only:** • IEC 62133 - Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells o Part 1: Nickel o Part 2: Lithium
49	Regional / Local Standards	Country-specific and regional standards may apply

50	Regulations	US regulations: 21 CFR part 820 Quality System Regulation EU regulations: European Commission Regulation (EU) No. 2017/745 (replacing 93/42/EEC)



Annex 6
Technical Specifications for Cryotherapy Units

MEDICAL DEVICE SPECIFICATION (Including information on the following where relevant/appropriate, but not limited to)		
i	**Version No.**	**1**
ii	**Date of initial version**	**December 2019**
iii	**Date of last modification**	
iv	**Date of publication**	**February 2020**
v	**Completed / submitted by**	**WHO**
NAME, CATEGORY AND CODING		
1	WHO Category / Code	Cryosurgery units, XD9LJ9
2	Generic name	Cryosurgical Unit, Gynaecological
10	Alternative name/s (optional)	Cryoprobes; Cryostats; Cryo Units; CSU; Probes,
12	Keywords (optional)	surgical, gynaecology, dermatology, cryotherapy, cryocautery, cryosurgery, "cryo"

PURPOSE OF USE		
14	Clinical or other purpose	Cryosurgical unit with a gas (carbon dioxide,CO2, or nitrous oxide, N_2O) cooled or electrically-cooled cryoprobe intended to destroy tissue of the uterine cervix with the application of extreme cold.
15	Level of use (if relevant)	Health posts, health centres, specialty clinics, hospitals
16	Clinical department/ward (if relevant)	Family medicine; gynaecology; outpatient clinic; outreach; oncology; obstetrics; surgery; nursing services
17	Overview of functional requirements	The metal probe head (cryotip) makes contact with epithelium to destroy tissue.
TECHNICAL CHARACTERISTICS		
18	Detailed requirements	• Cryosystems include the hand-held unit with use-specific cryotips: • Temperature at probe edge shall be no greater than -20 °C (can be colder, NOT warmer) • If gas-cooled: - either carbon dioxide (CO2) or nitrous oxide (N2O) is used - must be a closed system, whereby the cryogen circulates through probe head, and then back through shaft. • If electrically-cooled, an ethanol-based solution and electricity are necessary.
19	Displayed parameters	N/A
20	User adjustable settings	Pressure gauge (for gas-cooled units), cryogun trigger

PHYSICAL / CHEMICAL CHARACTERISTICS		
21	Components (if relevant)	• Minimum of 2 cryotips are required: - One cryotip must be flat. - The second cryotip can be either flat or can have a gentle nipple extrusion not exceeding 5mm (so as to anchor in centre of cervix but not to ablate endocervix). - Cryotip diameters ranging from 17 mm to 23 mm - Biocompatible, material that will not adhere to cervix - Reusable and thus able to be decontaminated • The overall length of the cryoshaft and cryotip assembly should be between 170 and 200 mm. Gas tank, pressure gauge, handheld unit with probe, scavenging/ suction system if using N2O
22	Mobility, portability (if relevant)	Can be portable or handheld.
23	Raw Materials (if relevant)	N/A
UTILITY REQUIREMENTS		
24	Electrical, water and/or gas supply (if relevant)	For gas-based: N2O or CO2 The N2O units should only be used with scavenging ability. For electrically cooled: • The unit is suggested to be connected to a continuous, reliable power source • Electrical source requirements (based on country/setting of use): o Amperage: _____ o Voltage: _____ o Plug type: _____ .

ACCESSORIES, CONSUMABLES, SPARE PARTS AND OTHER COMPONENTS		
25	Accessories (if relevant)	• Speculum • Light source • Timer
26	Sterilization process for accessories (if relevant)	- Probes should withstand repeated cycles of decontamination, done so according to manufacturers' instructions. - Device handle, charging base or gas tank and accessories (whichever applicable) to cleaned and decontaminated after each use according to manufacturer's instructions.
27	Consumables / reagents (if relevant)	Gas-based: N2O or CO2 gas Electrically cooled: ethanol-based solution
28	Spare parts (if relevant)	Consider extra probes to account for decontamination cycles and patient scheduling. Note: probes and spares are not interchangeable between devices of different brands and models and can vary in their design and lifetime.
29	Other components (if relevant)	N/A
PACKAGING		
30	Sterility status on delivery (if relevant)	N/A
31	Shelf life (if relevant)	N/A
32	Transportation and storage (if relevant)	Storage area should be clean and dust-free, dry, cool, well-lit, ventilated and vermin-proof. Store device in original packaging on a shelf or on in a storage cabinet. Devices should be able to withstand storage temperatures ranging from 15°C to 30°C, relative humidity ≤ 85% for gas-based systems or ≤ 60% for electrically cooled systems (both non-condensing), and be protected from dripping water. For compressed gases in cylinders (for gas-based system), both storage and transport can pose as a risk. Transport and storage shall adhere to local regulations; however, gases should never be stored at temperatures in excess of 30°C.

33	Labelling (if relevant)	Labelling on the primary packaging should include the name and/or trademark of the manufacturer and should adhere to the most current version of ISO 15223 – 1: Medical devices -- Symbols to be used with medical device labels, labelling and information to be supplied -- Part 1: General requirements.
ENVIRONMENTAL REQUIREMENTS		
34	Context-dependent requirements	Environmental conditions vary globally and can be extreme; however, the following are tenable: - Operating temperature: 15°C to 35°C - Operating relative humidity: ≤ 85%, non-condensing It is the responsibility of the procurement body to ensure that the manufacturer's recommended operation and storage conditions are respected. If the device requires that the operating and/or storage environment be climate-controlled, appropriate temperature and humidity control systems, including monitoring, should be applied to avoid premature material disintegration and/or device failure.
TRAINING, INSTALLATION AND UTILISATION		
35	Pre-installation requirements (if relevant)	N/A
36	Requirements for commissioning (if relevant)	Supply of either a gas (N2O or CO2) or ethanol-based solution a requisite for operations
37	Training of user/s (if relevant)	Training of users in operation and basic maintenance shall be provided. Clinical staff training in cervical precancer lesion treatment guidelines and device use to be provided.
38	User care (if relevant)	• The cryosurgical unit shall be decontaminated between patients. • Probes should be inspected regularly for mechanical integrity.
WARRANTY AND MAINTENANCE		
39	Warranty	Minimum one year. Specific inclusions and exclusions to be listed. Contact details of manufacturer, supplier and local service agent to be provided.

40	Maintenance tasks	- Routine check of probe and device mechanical integrity recommended (refer to user manual). - List shall be provided of equipment and procedures required for routine inspection. - Advanced maintenance tasks required are not recommended to be performed in the hospital due to safety concern.
41	Type of service contract	Costs and types of post-warranty service contract available shall be described (if applicable).
42	Spare parts availability post-warranty	8 years minimum, starting from installation/commissioning
43	Software / Hardware upgrade availability	N/A
DOCUMENTATION		
44	Documentation requirements	• Instructions for use and service manuals to be provided (including procedures for decontamination) • User language preference prioritized, English is mandatory. • Contact details of manufacturer, supplier and local service agent. • Certificate of calibration and inspection to be provided (if applicable). • List to be provided of equipment and procedures required for local calibration and routine maintenance. • List to be provided of common spares and accessories, with part numbers.
DECOMMISSIONING		
45	Estimated Life Span	10 years
SAFETY AND STANDARDS		
46	Risk Classification	US FDA: Device Class 2 EU: Class IIa

47	Regulatory Approval / Certification	**Compliance to (where applicable, but not limited to):** - National Regulatory Agency/Authority (NRA) requirements compliance - Approval by regulatory body of country of manufacturer (if applicable) **And at least one of:** - FDA 510k clearance (US FDA) - CE mark (EU), with indication of Notifying Body (when applicable) - Other regulatory body in an IMDRF founding member country such as Australia, Canada, or Japan.
48	International standards	Compliant with active version of the following standards (or equivalent): **General manufacturing:** • ISO 13485: Medical Devices - Quality Management Systems - Requirements for Regulatory Purposes • ISO 14971: Medical Devices - Application of Risk Management to Medical Devices • ISO 15223-1: Medical devices - Symbols to be used with medical device labels, labelling and information to be supplied - Part 1: General requirements **Safety and product standards for electrically-cooled systems:** • IEC 60601-1 - Medical electrical equipment - Part 1: General requirements for basic safety and essential performance • IEC 60601-1-2: Medical electrical equipment - Part 1-2 General requirements for basic safety and essential performance - Collateral Standard: Electromagnetic disturbances - Requirements and tests **Safety and product standards for gas-based systems:** • ISO 21969 High-pressure flexible connections for use with medical gas systems **Probe-specific requirements:** • ISO 10993-1: Biological evaluation of medical devices Part 1: Evaluation and testing within a risk management process • ISO 10993-5: Biological evaluation of medical devices Part 5: Tests for in vitro cytotoxicity • ISO 10993-10: Biological evaluation of medical devices Part 10: Tests for irritation and skin sensitization
49	Reginal / Local Standards	Country-specific and regional standards may apply

50	Regulations	US regulations: 21 CFR part 820 Quality System Regulation EU regulations: European Commission Regulation (EU) No. 2017/745 (replacing 93/42/EEC)

Annex 7
Technical Specifications for ESUs for LLETZ

MEDICAL DEVICE SPECIFICATION (Including information on the following where relevant/appropriate, but not limited to)		
i	**Version No.**	**1**
ii	**Date of initial version**	**December 2019**
iii	**Date of last modification**	
iv	**Date of publication**	**February 2020**
v	**Completed / submitted by**	**WHO**
NAME, CATEGORY AND CODING		
1	WHO Category / Code	Under development
2	Generic name	Electrosurgical Unit
3	Specific type or variation (optional)	LLETZ Electrosurgical generator
10	Alternative name/s (optional)	Bovies; Coagulators, Electrosurgical; Diathermy Units, Surgical; Electrocautery Units; Electrosurgical Generators; ESUs; Hyfrecators; Stimulators, Muscle; Surgical Diathermy Units; Surgical Units; electrosurgical; Surgical diathermy generator
11	Alternative code/s (optional)	N/A
12	Keywords (optional)	electrosurgical, ablation, surgery, cautery

PURPOSE OF USE		
14	Clinical or other purpose	Electrosurgical units (ESUs) are used in a variety of surgical procedures for surgical cutting and for the control of bleeding (coagulation). With respect to cervical cancer prevention, ESUs are used to carry out LLETZ (LEEP) procedures.
15	Level of use (if relevant)	Health Centre / District Hospital / Provincial Hospital / Specialized Hospital
16	Clinical department/ ward (if relevant)	Family medicine; gynaecology; outpatient clinic; oncology; obstetrics; surgery; nursing services
17	Overview of functional requirements	Devices intended for surgical cutting (wire electrodes) and for controlling bleeding (ball electrode) by causing coagulation (haemostasis) at the surgical site with the safe passage of electricity at a high frequency to and through tissue. ESUs require highly-trained clinicians and are meant for use at higher-level health facilities.

TECHNICAL CHARACTERISTICS		
18	Detailed requirements	• Control panel for adjusting and displaying power settings. • Hand or foot switch to activate different electrodes or settings. • Minimum 1 monopolar handpiece port, 1 monopolar return electrode port (with alarm when poor contact quality), 1 bipolar outlet (bipolar not required for LLETZ). • Radiofrequency range from 200,000 Hz to 5,000,000 Hz. **General ESU Modes:** • coagulation mode: up to 80 W / 150 Ω, • cutting mode: up to 110 - 200 W / 300 -400 Ω, • blended current mode optional; **LLETZ-specific setting:** • blended current option mandatory, • coagulation: 30 - 50 W settings available • cutting: 30 - 50 W settings available
19	Displayed parameters	Different modes, current output, bipolar/monopolar indicator, blended option, error status
20	User adjustable settings	Mode selection, current output, bipolar/monopolar selection, blended current.
PHYSICAL / CHEMICAL CHARACTERISTICS		
21	Components (if relevant)	- Electrodes: wired, various sizes and shapes, at a minimum has: electrode (3-5mm ball), square loop electrode (smaller), semicircular loop electrode (larger); and, return electrode (typically a pad). - Electrodes can be reusable or single-use. A contact quality monitor (CQM) as an added feature, with either alarm or current shut-off, is highly recommended for patient safety.
22	Mobility, portability (if relevant)	Models with battery to increase portability are available; however, such devices do not preclude need for electricity (for charging). All other feature requirements apply.
23	Raw Materials (if relevant)	Electrode should be made of stainless steel or tungsten wire.

UTILITY REQUIREMENTS		
24	Electrical, water and/or gas supply (if relevant)	• The unit is suggested to be connected to a continuous, reliable power source (leveraging facility UPS) • Electrical source requirements (based on country/setting of use): o Amperage: _____ o Voltage: _____ o Plug type: _____ .
ACCESSORIES, CONSUMABLES, SPARE PARTS AND OTHER COMPONENTS		
25	Accessories (if relevant)	Speculum Light
26	Sterilization process for accessories (if relevant)	- Electrodes are to be sterilized after each use and must be done so according to manufacturer's instructions (Single-use electrodes are to be disposed of according to medical waste management protocol) - Rest of device to be decontaminated according to the manufacturer's instructions.
27	Consumables / reagents (if relevant)	If single-use electrodes are used, a continuous supply is necessary.
28	Spare parts (if relevant)	Consider extra electrodes to account for decontamination cycles and patient scheduling. Manuals should list spare parts available for device (Note: spare parts are not interchangeable between devices of different brands and models and can vary in their design and lifetime).
29	Other components (if relevant)	N/A
PACKAGING		
30	Sterility status on delivery (if relevant)	N/A
31	Shelf life (if relevant)	N/A

32	Transportation and storage (if relevant)	Storage area should be clean and dust-free, dry, cool, well-lit, ventilated and vermin-proof. Store device in original packaging on a shelf or on in a storage cabinet. Devices should be able to withstand storage temperatures ranging from 15°C to 30°C, relative humidity ≤ 60% (non-condensing), and be protected from dripping water.
33	Labelling (if relevant)	Labelling on the primary packaging should include the name and/or trademark of the manufacturer and should adhere to the most current version of ISO 15223 – 1: Medical devices -- Symbols to be used with medical device labels, labelling and information to be supplied -- Part 1: General requirements.
ENVIRONMENTAL REQUIREMENTS		
34	Context-dependent requirements	Environmental conditions vary globally and can be extreme; however, the following are tenable: - Operating temperature: 15°C to 35°C - Operating relative humidity: ≤ 85%, non-condensing It is the responsibility of the procurement body to ensure that the manufacturer's recommended operation and storage conditions are respected. If the device requires that the operating and/or storage environment be climate-controlled, appropriate temperature and humidity control systems, including monitoring, should be applied to avoid premature material disintegration and/or device failure.
TRAINING, INSTALLATION AND UTILISATION		
35	Pre-installation requirements (if relevant)	N/A
36	Requirements for commissioning (if relevant)	The unit should be tested before commissioning. Electrical protection of the apparatus with an UPS is highly recommended.
37	Training of user/s (if relevant)	The electrosurgical unit should only be operated by a person who has received adequate training, typically surgeons.

38	User care (if relevant)	ESU can produce high current and can injure both patient and operator if not properly used. Follow safety use closely, clean electrode tip frequently, always use lowest possible generator setting that achieves desired surgical effect. • Ground plate must always be used • Do NOT use in the presence of flammable agents or in oxygen-enriched environments. • Patient must remove all jewellery • Patient with metal implants require specialist consultation prior to procedure • LLETZ should be performed with access to resuscitation facilities.
WARRANTY AND MAINTENANCE		
39	Warranty	Minimum one year. Specific inclusions and exclusions to be listed. Contact details of manufacturer, supplier and local service agent to be provided.
40	Maintenance tasks	• Routine check of unit for mechanical integrity recommended (refer to user manual) • List shall be provided of equipment and procedures required for local routine maintenance. • Advanced maintenance tasks required shall be documented. Routine maintenance recommended.
41	Type of service contract	Costs and types of post-warranty service contract available shall be described (if applicable).
42	Spare parts availability post-warranty	8 years at least, starting from installation and commissioning
43	Software / Hardware upgrade availability	Guaranteed time period of support availability post-warranty shall be described.

DOCUMENTATION		
44	Documentation requirements	• Instructions for use and service manuals to be provided (including procedures for decontamination) • User language preference prioritized, English is mandatory. • Contact details of manufacturer, supplier and local service agent. • Certificate of calibration and inspection to be provided (if applicable). • List to be provided of equipment and procedures required for local calibration and routine maintenance. • List to be provided of common spares and accessories, with part numbers.
DECOMMISSIONING		
45	Estimated Life Span	10 years
SAFETY AND STANDARDS		
46	Risk Classification	US FDA: Device Class 2 EU: Class IIb
47	Regulatory Approval / Certification	Compliance to (where applicable, but not limited to): - National Regulatory Agency/Authority (NRA) requirements compliance - Approval by regulatory body of country of manufacturer (if applicable) And at least one of: - FDA 510k clearance (US FDA) - CE mark (EU), with indication of Notifying Body (when applicable) - Other regulatory body in an IMDRF founding member country such as Australia, Canada, or Japan.

48	International standards	Compliant with active version of the following standards (or equivalent): **General manufacturing** o ISO 13485: Medical Devices - Quality Management Systems o ISO 14971: Medical Devices - Application of Risk Management to Medical Devices o ISO 15223-1: Medical devices - Symbols to be used with medical device labels, labelling and information to be supplied **Product-specific standards** o ISO 10993-1: Biological evaluation of medical devices Part 1: Evaluation and testing within a risk management process o ISO 10993-5: Biological evaluation of medical devices Part 5: Tests for in vitro cytotoxicity o ISO 10993-10: Biological evaluation of medical devices Part 10: Tests for irritation and skin sensitization o ISO 13402: Surgical and dental hand instruments -- Determination of resistance against autoclaving, corrosion and thermal exposure **Safety standards:** • IEC 60601-1 - Medical electrical equipment - Part 1: General requirements for basic safety and essential performance • IEC 60601-1-2: Medical electrical equipment - Part 1-2 General requirements for basic safety and essential performance - Collateral Standard: Electromagnetic disturbances - Requirements and tests • IEC 60601-2-2: Medical electrical equipment – Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories **If battery-powered:** • IEC 62133: Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells o Part 1: Nickel o Part 2: Lithium
49	Reginal / Local Standards	Country-specific and regional standards may apply
50	Regulations	US regulations: 21 CFR part 820 Quality System Regulation 21 CFR part 878.4400 - Electrosurgical cutting and coagulation device and accessories EU regulations: European Commission Regulation (EU) No. 2017/745 (replacing 93/42/EEC)

Annex 8
Glossary of terms

-A-

Acetowhite: A transient, white-appearing epithelium following the application of acetic acid during a VIA screening.

Active defrost: a mechanism within some cryosystems that accelerates the return of the cryotip towards ambient temperature.

-B-

Bar: a metric unit of pressure, not approved as part of the International System of Units, but commonly used. It is defined as exactly equal to 100,000 Pa (100 kPa).

Bodok seal: A particular type of washer/seal, comprising a circular metal casing with an embedded rubber washer that functions with the pin-index system for gas cylinders to ensures a gas-tight seal between the cylinder yoke and regulator set.

-C-

CE: From the French "Conformité Européenne" or "European Conformity". It is a specific mark on the label, instruction for use and on the product itself (CE marking). It indicates that the product complies with the essential or general requirements of the relevant European health, safety and environmental protection legislation (Directives or Regulations).

Cryotip: an interchangeable tip designed to fit a specific anatomical site (cervix) for the purpose of freezing the tissue. A closed cryotip will not vent gas or cryogen in the vicinity of the tissue. An open cryotip directly jets the gas or cryogen onto the tissue and is not appropriate for use in treating cervical lesions.

Compressed gas cylinder: a container that is specifically designed to store a gas or liquid under elevated pressure conditions.

Critical point: the end point of a phase equilibrium curve. The most prominent example is the liquid-vapour critical point, the end point of the pressure-temperature curve that designates conditions under which a liquid and its vapour can coexist.

Critical state: the state of a substance when it is at the critical point, i.e., at critical temperature (the temperature of a gas or vapour in its critical state. Above this temperature, a gas cannot be liquefied by pressure alone) and critical pressure (the pressure of a gas or vapour in its critical state).

Cryoadhesion: cryotip attachment to target tissue.

Cryogen: a substance, such as compressed gas or liquid, used to obtain reduced temperatures. Cryogens are usually classed by their boiling points and their grade. The most common cryogens for precancerous cervical lesions and their respective boiling points are as follows:

	Cryogen Boiling Point at STP (°C)
Carbon Dioxide (CO_2)	-78.6
Nitrous Oxide (N_2O)	-88.5

Cryonecrosis: destruction of tissue cells using cryogen (see clinical references for additional detail).

Cryoshaft: the component onto which the cryotip is attached. The cryoshaft may be detachable or fixed, and should be thermally insulated.

Cryosystem: collectively, all parts of a system necessary to apply cryogen therapeutically, for the treatment of cervical precancer. It excludes the gas and its tank, the compressed gas cylinder valve, and the adaptor.

Cytology: the examination of human cells under a microscope. Specific to the cervix, a Papanicolaou, Pap-smear, or simply "Pap" test is a cytology-based method for cervical cancer screening.

-D-

Desiccation: (or electrodessication) one of the four major modalities of electrosurgery and, along with fulguration, is one of the two monoterminal techniques. In this modality, the electrode touches the tissue directly and the amount of heat is such that superficial and subdermal tissue dries out, forming a coagulum. Electrodessication is not meant to take place during LLETZ (LEEP) and causes partial-thickness wounds. It occurs when cutting is attempted, not enough heat has been generated, and results in the formation of a dry patch of dead tissue.[114]

Diathermy: a surgical technique involving the production of heat in a part of the body by high-frequency electric currents, to stimulate the circulation, relieve pain, destroy unhealthy tissue, or cause bleeding vessels to clot.

-F-

Fasciculation: a brief, spontaneous contraction affecting a small number of muscle fibres, often causing a flicker of movement or "twitch" under the skin.

FDA: see US FDA

Fulguration: one of the four major modalities of electrosurgery and, along with electrodessication, is one of the two monoterminal techniques. In this modality, the electrode is held at a slight distance from the tissue to produce a sparking at the surface and more shallow tissue destruction (then in desiccation) occurs – thus the treatment area is more superficial.[114]

-G-

Gasket: a round, flat plastic or rubber ring (that looks like a washer), which is usually placed between the connector to the cryosystem and the compressed gas cylinder valve.

References

[114] Hainer, Barry L. "Electrosurgery for the skin." American family physician 66.7 (2002): 1259-1266. https://www.aafp.org/afp/2002/1001/p1259.html#sec-1

-H-

Haemostasis: the stopping of flow of blood (can be achieved via coagulation using electrosurgical units).

Hose assembly: polymer tubes that carry the cryogen from the regulator to the handle. In cryosystems, it is common to have an assembly in which there may be tubes inside a main hose.

HLD: High-level disinfectant. It is a type of germicide that acts as a "non selective agent" inactivating all microbes, human pathogens, and non-pathogens in (or on) a container for a short contact time.

-I-

Inner diameter: The length from one interior edge to the other of a circular shape.

In vitro diagnostic (IVD): tests done on human blood or tissue samples. IVDs can detect diseases or other conditions, and can be used to monitor overall health to prevent, diagnose, treat or monitor diseases.

-M-

Mechanical integrity: the ability of all components of a cryosystem to withstand the pressures and temperatures that may be encountered during use as recommended by the manufacturer.

Multiparous: referring to a woman who has given birth, more than once.

-N-

Notified Body: in relation to medical devices or in vitro diagnostic medical devices, an organization designated by a Competent Authority for Designation of a European Member State to determine whether a medical device meets the essential or general requirements of the European legislation (such as the medical device Directive 93/42/EEC and the in vitro diagnostic medical devices Directive 98/79/EC, as well as the new Regulations (EU) 2017/745 on medical devices and (EU) 2017/746 on in vitro diagnostic medical devices).

Nulliparous: referring to a woman who has no biological children (includes stillbirth).

-O-

O-ring: a ring of rubber or silicon usually inserted at a joint to ensure an effective seal to avoid leaking (i.e. of liquids or gases).

-P-

Passive defrost: a function of a cryosystem (without active defrost) to return towards ambient temperature. Passive defrost is typically a slower process of defrosting the cryotip than active defrost.

-R-

Regulator: a device for maintaining a constant gas pressure. Note that most cryosurgical devices are not equipped with a regulator.

-S-

Safety valve: a valve, usually a rupture disc, to release excessive pressure in the system. Can also be called a pressure relief valve.

Silicone: Class of synthetic materials based on chains of alternate silicon and oxygen atoms used to make rubber and plastics.

Single-use disposable: any device, which is designed to be discarded after one use.

Squamous dysplasia: Dysplasia is abnormal epithelial growth defined by a spectrum of cytologic, differentiation and architectural changes. Squamous dysplasia consists in altered epithelium with an increased likelihood of progression to squamous cell carcinoma. According to the entity of cytology modifications, "low" and "high" grades are defined.

-T-

Target tissue: the specific anatomical area of the cervix intended to be treated.

Thermal insulation: a material used to prevent unintended cryonecrosis, inflammatory responses, or cryoadhesion to non-target tissues.

Thermocouple: a junction of two dissimilar metals that produce an output voltage proportional to the temperature of the junction. The output is directly correlated to the temperature to which the sensing junction is exposed.

Tractive force: the level of attraction between the cryotip and the target tissue during cryoadhesion, i.e. when the tip freezes to the tissue.

Trigger mechanism: the mechanism that is activated (or squeezed, pressed, or pushed) to release the cryogen into the cryotip. Cryosystems may also include triggers for active defrosting.

-U-

US FDA: United States Food and Drug Administration, an agency within the U.S. Department of Health and Human Services that protects public health by assuring the safety, effectiveness, and security of human and veterinary drugs, vaccines and other biological products, medical devices, the food supply, cosmetics, dietary supplements, and products that give off radiation.

Annex 9
Declarations of Interest

Out of the 24 experts who participated in this work, 6 have declared an interest within 5 years from the review period related to cervical cancer. Although not all of these interests are specifically related to cervical cancer screening and treatment, they are nonetheless all disclosed and summarized below.

Name Affiliation	Conflict of Interest
Mohammed Ameel *NHRSC INDIA*	None
Partha Basu *IARC*	None
Paul Blumenthal *Stanford University and Populations Services International*	None
Eunice Lourenço *WHO consultant*	None
Miriam Cremer *Cleveland Clinic and Basic Health International*	None
Noni Gachuhi *Intellectual Ventures*	Employed by Intellectual Ventures/ Global Good Fund, which is funded by Gates Ventures and works on the subject in WHO's work. Intellectual Ventures has partnered with QuantuMDx in the development of a point of care PCR test for HPV (the investment is valued at over $5000 USD).

Babacar Gueye *MOH&SW, Senegal*	None
Karen Hariharan *CHAI*	None
Jose Jeronimo *Peruvian League Against Cancer/ Liga Contra el Cáncer, Peru*	Former employee of PATH, which has concluded collaborative research and development agreements for the development of a rapid HPV test with Qiagen (careHPV). Consulting: • For Qiagen Inc in 2017 and Q1 2018 on work related to the careHPV test; • Currently a member of Merck's Global HPV Vaccine Advisory Board in relation to facilitating global access to the vaccine; • Currently consulting with Global Good on works related to the validation of a new HPV test for LRS. Investment interests (>$5,000): • Until February 2017, owned shares of OncoPrev International, a health company in Peru providing cervical cancer prevention services, including HPV testing services for NGOs and private clinics. The company began commercialization of medical devices after shares sold.
Paolo Lago *Fondazione IRCCS Policlinico San Matteo – WHO Collaborating Centre*	None
Ricky Lu *JHPIEGO*	None
Mauricio Maza *Basic Health International*	None
Mona Mazgani *BC Cancer Clinic*	None
Miriam Mikhail *Rad-Aid International*	Hired as a consultant for DITTA for the 2017 calendar year to assist in their formal collaboration with the WHO as a non-state actor (<$10,000 USD). Currently contracted by the IAEA, another UN agency, in research: a Lancet commission on cancer imaging (<$10,000 USD).
Seloi Mogatle *UNFPA*	None

Raul Murillo *Centro Javeriano de Oncología – Hospital Universitario San Ignacio*	None
Raul Murillo *Centro Javeriano de Oncología – Hospital Universitario San Ignacio*	None
Nicolas Pallikarakis *INBIT Greece*	None
Groesbeck Parham *University of North Carolina, Chapel Hill*	None
Colin Pfaff *Baylor College of Medicine, Malawi*	None
Walter Prendiville *IARC*	• Royalties from Utah Medical <=$1,000 p.a.; • Introduced LLETZ (now also known as LEEP) into clinical practice in the 1980s; • Advised and helped in the design and development of the Liger thermal coagulator without receiving any financial reward for this; • Owns IP (patents, trademarks, and/or copyrights).
Silvia de San José *PATH*	None
Linda Serwaa *UNFPA*	None
Minna Soikkeli *UNFPA*	None
Dario Trapani *WHO Consultant*	None
Vivien Tsu *University of Washington*	Former employee of PATH, an international non-profit organization involved in the development and delivery of high-impact, low-cost tools for global health as a full-time staff. Ceasing employment in December 2018.

Dinsie Williams *WHO Consultant*	None
Laura Alejandra Velez Ruiz Gaitan *WHO Consultant*	None
Safina Yuma *Ministry of Health & Community Development, Gender, Elderly and Children, Tanzania*	None

Annex 10
WHO's 4th Global Forum on Medical Devices.
(December 2018)

During the 4th Global Forum on Medical Devices, which took place in Vishakaptnam, India, 13 to 15 December 2018, the technical specifications for precancerous cervical lesions were presented and discussed, among participants.
The forum had 1200 participants from 102 Member States.

The full report can be seen in: https://apps.who.int/iris/bitstream/handle/10665/312154/WHO-MVP-EMP-2019.04-eng.pdf

Different events to discuss the technologies for cervical cancer are presented below:

1. Workshop: Technologies for cervical cancer can be seen at: https://www.who.int/medical_devices/global_forum/4th_gfmd_Workshops/en/index11.html

2. Plenary session: Medical devices for non-communicable diseases:

   a. Cervical cancer an avoidable NCD with gross inequities can be seen at: https://www.who.int/medical_devices/global_forum/4th_gfmd_plenary_presentations/en/index5.html

These sessions help raise the awareness of the importance to have the appropriate technologies to tackle cervical cancer in all Member States, following the WHO call for action.

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