Time and Frequency, Ukraine, NSC IM (National Scientific Centre "Institute of Metrology")

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Comments	NMI Service Identifier
Quantity	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage factor	Level of Confidence	Is the expanded uncertainty a relative one?	Comments	NMI Service Identifier
Time scale difference	Local clock vs. UTC(UA)	Time interval measurement	-1	1	s	Pulse amplitude	> 1 V	2	ns	2	95%	No	Fractional part of modulo 1 second difference, integer part can be provided also Approved on 21 February 2013	1
						Averaging time	100 s							
Time scale difference	Local clock vs. UTC	Time interval measurement	-1	1	s	Pulse amplitude	> 1 V	48	ns	2	95%	No	Fractional part of modulo 1 second difference, integer part can be provided also. Prediction time 20 days after last published in BIPM *Circular T* Approved on 21 February 2013	2
						Prediction time	20 d							
Time scale difference	Remote clock vs. UTC(UA)	GPS multi-channel common view	-1	1	s	Averaging time	1 d	15	ns	2	95%	No	Fractional part of modulo 1 second difference, integer part can be provided also Approved on 21 February 2013	3
Time scale difference	Remote clock vs. UTC	GPS multi-channel common view	-1	1	s	Averaging time	1 d	50	ns	2	95%	No	Fractional part of modulo 1 second difference, integer part can be provided also. Prediction time 20 days after last published in BIPM *Circular T* Approved on 21 February 2013	4
						Prediction time	20 d							
Time scale difference	Remote clock vs. UTC(UA)	Portable clock	-1	1	s	Time of transportation	< 10 h	10	ns	2	95%	No	Fractional part of modulo 1 second difference, integer part can be provided also Approved on 21 February 2013	5
Frequency	Local frequency standard	Phase time measurement	5	5	MHz	Averaging time	1 d	2.0E-14	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	6
Frequency	Local frequency standard	Phase time measurement	5	5	MHz	Averaging time	1000 s	2.0E-13	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	7

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Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Comments	NMI Service Identifier
Quantity	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage factor	Level of Confidence	Is the expanded uncertainty a relative one?	Comments	NMI Service Identifier
Frequency	Local frequency standard	Phase comparator	5	5	MHz	Averaging time	1 s	1.0E-12	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	8
						Relative frequency difference	< 1.0E-10							
Frequency	Local frequency standard	Phase comparator	100	100	MHz	Averaging time	1 s	5.0E-13	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	9
						Relative frequency difference	< 1.0E-10							
Frequency	Local frequency standard	Phase comparator	5	5	MHz	Averaging time	100 s	5.0E-14	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	10
						Relative frequency difference	< 1.0E-10							
Frequency	Local frequency standard	Phase comparator	100	100	MHz	Averaging time	100 s	2.0E-14	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	11
						Relative frequency difference	< 1.0E-10							
Frequency	General frequency source	Direct frequency measurement	1.0E+04	1.0E+08	Hz	Averaging time	> 1 h	3.0E-11	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	12
Frequency	Remote frequency standard	GPS common view	1	1	Hz	Averaging time	> 1 d	2.0E-13	Hz/Hz	2	95%	Yes	1 Hz measurand level or range means 1 pps clock signal Approved on 21 February 2013	13
Frequency	Frequency counter	Direct frequency measurement	1.0E+04	1.0E+08	Hz	Averaging time	1000 s	1.0E-13	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	14

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Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						NMI Service Identifier
Quantity	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage factor	Level of Confidence	Is the expanded uncertainty a relative one?	Comments	
						Signal amplitude	> 1 V							
Time interval	Period source	Time interval meter	1.0E-08	1	s	Pulse amplitude	> 1 V	1.0E-10	s	2	95%	No	Approved on 21 February 2013	15
						Slew rate	≧0.5 V/ns							
						Gate rate	> 1 s							
Time interval	Time difference source	Double channel time interval meter	1.0E-08	1	s	Pulse amplitude	> 1 V	2	ns	2	95%	No	Approved on 21 February 2013	16
						Slew rate	≧0.5 V/ns							
Time interval	Pulse width meter	Time interval meter	1.0E-08	1	s	Pulse amplitude	> 1 V	2	ns	2	95%	No	Approved on 21 February 2013	17
						Slew rate	≧0.5 V/ns							
Time scale difference	Local clock vs. UTC	Time interval measurement, post processed	-1	1	s	Pulse amplitude	> 1 V	44	ns	2	95%	No	Fractional part of modulo 1 second difference, integer part can be provided also Approved on 21 February 2013	18
Time scale difference	Remote clock vs. UTC	GPS multi-channel common view, post processed	-1	1	s	Averaging time	1 d	46	ns	2	95%	No	Fractional part of modulo 1 second difference, integer part can be provided also Approved on 21 February 2013	19
Frequency	Local frequency standard	Phase time measurement	10	10	MHz	Averaging time	1 d	2.0E-14	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	20
Frequency	Local frequency standard	Phase time measurement	10	10	MHz	Averaging time	1000 s	1.5E-13	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	21
Frequency	Local frequency standard	Phase time measurement	100	100	MHz	Averaging time	1 d	3.0E-14	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	22
Frequency	Local frequency standard	Phase time measurement	100	100	MHz	Averaging time	1000 s	3.0E-13	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	23
Frequency	Local frequency standard	Phase comparator	10	10	MHz	Averaging time	1 s	1.0E-12	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	24
						Relative frequency difference	< 1.0E-10							

Calibration and Measurement Capabilities

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Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Comments	NMI Service Identifier
Quantity	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage factor	Level of Confidence	Is the expanded uncertainty a relative one?	Comments	NMI Service Identifier
Frequency	Local frequency standard	Phase comparator	10	10	MHz	Averaging time	100 s	5.0E-14	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	25
						Relative frequency difference	< 1.0E-10							
Frequency	Local frequency standard	Phase comparator	5	5	MHz	Averaging time	10000 s	1.0E-14	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	26
						Relative frequency difference	< 1.0E-10							
Frequency	Local frequency standard	Phase comparator	10	10	MHz	Averaging time	10000 s	1.0E-14	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	27
						Relative frequency difference	< 1.0E-10							
Frequency	Local frequency standard	Phase comparator	100	100	MHz	Averaging time	10000 s	1.0E-14	Hz/Hz	2	95%	Yes	Frequency instability measurement Approved on 21 February 2013	28
						Relative frequency difference	< 1.0E-10							
Frequency	General frequency source	Direct frequency measurement	2.0E+09	37.5E+09	Hz	Averaging time	> 1000 s	2.0E-09	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	29
Frequency	General frequency source	Direct frequency measurement	1.0E+10	7.83E+10	Hz	Averaging time	> 1000 s	1.0E-08	Hz/Hz	2	95%	Yes	Approved on 21 February 2013	30