

**PUBLIC INSTITUTION „NATIONAL SERVICE FOR THE RADIO FREQUENCIES
AND CYBER SECURITY MANAGEMENT”**

TECHNICAL REQUIREMENTS

**regarding to acquisition of Rubidium reference frequency signal source for the frequency
synchronization of the measuring instruments
(modified 20.07.2018)**

Elaborated:

Head of PCAD

Anatolie Guzun

Approved:

Technical director

Ovidiu SPĂTARU

Chişinău – 2018

CONTENTS

1. GENERAL NOTES	2
2. PURPOSE OF ACQUISITION	2
3. GENERAL SCOPE OF ACQUISITION	3
4. QUANTITY	3
5. DESCRIPTION	3
5.1 <i>Types of tests and measurements will be performed in the Laboratory</i>	3
5.2 <i>Laboratory chambers and rooms</i>	4
5.3 The list of the types of equipment which will be tested in the laboratory	4
6. COMPONENTENCE	5
7. THE MINIMAL PERFORMANCIES OF MEASUREMENT EQUIPMENT AND INSTRUMENTS	6
8. LABORATORY STAFF TRAINING	8
9. WARRANTY	9
10. POST-WARRANTY	9
11. THE OFFERS ASSESMENT MODE	9
12. ELIGIBILITY CRITERIA FOR BIDDERS	10

1. GENERAL NOTES	To be completed by the Bidder	
	Guaranteed Technical Specifications (GTS)	Deviation/ Remarks Specify if any
<p>The Technical Requirements is an integral part of the Awarding Tender Documentation and contains whole set of requirements which is the basis for Technical Proposal preparation by each bidder.</p> <p>The imposed requirements will be considered as a minimum and mandatory. In this order, any submitted tender offer, which deviates from these Technical Requirements, will be taken into consideration only if the Technical Proposal implies the ensuring a qualitative level superior to the minimum requirements of these Technical Requirements. The offer containing technical characteristics of products inferior to those specified in the Technical Requirements will be considered inconsistent and will be rejected.</p>		
2. PURPOSE OF ACQUISITION		
<p>The object of the acquisition procedure is:</p> <p>Supply, installation and commissioning of the Rubidium reference frequency signal source for the frequency synchronization of the measuring instruments used by IP SNMFRSC testing laboratory.</p> <p>Purpose of acquisition:</p> <p>The reference frequency signal source is intended to be used for the frequency synchronization of the measuring instruments used in the test laboratory (spectrum analyzer, measuring receivers, RF signal generators, etc.) and to reduce the measuring frequency uncertainty of the RF signals.</p> <p>The reference signal source is purchased for endowment of the IP SNMFRSC testing laboratory.</p> <p>Place of delivery:</p>		

<p>The place of delivery of the acquired measuring equipment is the IP SNMFRSC headquarter in or. Durlesti, str. N.Dimo 22.</p>		
<p>3. GENERAL SCOPE OF ACQUISITION</p>		
<ul style="list-style-type: none"> - To test the electromagnetic compatibility parameters of electronic and household electronics products in accordance with European standards in the field of electromagnetic compatibility and radio equipment - To perform testing of radio equipment regarding the efficient use of radio spectrum so that it does not cause harmful interference to prevent the proper use of the spectrum by license holders or end-users (the requirement of the Technical Regulation "Radio Equipment, Telecommunication terminal Equipment and the recognition of their conformity" approved by GD 1274 of 23.11.2007) - To facilitate the accreditation of the testing laboratory for the measurements necessary for product conformity assessment and product market surveillance 		

5.2 Description of Laboratory compartments where the tests will be performed		
<p>Laboratory has following main facility to perform the tests::</p> <p>a. The room for EMC measurements and tests : Room size: L= 4830mm; W= 2950mm; H=3285mm.</p> <p>b. The room for EMC measurements and tests: Room size: L= 6084mm; W= 3545mm; H= 3285mm.</p>		
5.3 The list of the types of equipment which will be tested in the laboratory		
<p>The non-exhaustive and non-limiting list of the types of equipment on which electromagnetic compatibility tests will be performed in the laboratory is as follows:</p> <ul style="list-style-type: none"> - Radiocommunication transmitters used in all governmental and non-governmental frequency bands (GSM, UMTS/CDMA 2000, TETRA, PMR/PAMR, WIMAX, LTE base station, radio transmitters, digital TV transmitters and receivers, etc.); - Radiocommunication receivers used in all governmental and non-governmental frequency bands; - All radio equipment used in all governmental and non-governmental frequency bands; - The multimedia and information technology terminal equipment; - The household appliance and electric tools - Sound and television broadcast receivers and associated equipment - Lighting equipment - Alarm and electronic security equipment <p>An exception to this list is equipment which, owing to its overall dimensions (larger than 1.5m(L) x 1.1m(W) x 2m(H), can not be measured in the Laboratory chambers</p>		
6. COMPONENCE		
<ul style="list-style-type: none"> • According to p.7 of the technical requirements. 		

7. THE MINIMAL PERFORMANCES OF MEASUREMENT EQUIPMENT AND INSTRUMENTS		
The reference frequency signal source based on Rubidium oscillator for frequency synchronization of RF measuring instruments used in the testing laboratory.		
<p>The reference frequency signal source/Frequency standard should generate the reference signal for frequency synchronization of RF measuring instruments (spectrum analyzer, measuring receivers, RF signal generators, etc.) and should improve the measuring frequency uncertainty of the RF signals.</p> <p>The reference frequency signal source should has following minimal technical requirements:</p> <ul style="list-style-type: none"> • The reference signal source should be designed for use in the testing and calibration laboratory • The frequency of generated reference analog signals – at least 10MHz frequency • Reference outputs: 5 x 10MHz outputs, 50Ohm, BNC connectors • Type of instrument – “benchtop” „Stand-alone” • Signal oscillator - Rubidium clock • Frequency stability Aging/month – 10^{-11} order • Frequency stability Aging /year – 10^{-9} order • Frequency stability at temperature variation (0°C....50°C) – 10^{-10} order • Range of operating temperatures - (0°C....50°C) • Power supply: 220 V/50 Hz. • The measuring instrument should be compliant to the applicable European technical regulations, safety requirements of the EN/IEC 61010 standard and shall comply with relevant EMC&EMI standards. • The measuring instrument should be supplied with the Calibration Certificate issued by the ILAC/EA/APLAC/IAAC (ISO 17025) accredited calibration laboratory. • Calibration certificate shall not be older than 2.5 months from date of delivery to IP SNMFRSC. 		

Accessories		
<p>The offer shall include all standard accessories, interconnecting cables, power supply cables, connectors etc.</p> <p>The offer shall include USB-GPIB interface converter and GPIB cables, in case the measuring instrument is remote controlled by IEEE-488 interface only.</p> <p>Both hard and soft copies of Safety manual, Installation manual and Operating manual shall be supplied. The manuals should be in at least one of following languages Romanian/English/Russian.</p>		
8. STAFF TRAINING		
<p>The bidder shall be responsible for the installation, commissioning and test-run of equipment. When the installation is complete, the bidder shall demonstrate that the supplied equipment meets the declared specifications and provide instruction to laboratory personnel on the following areas:</p> <ul style="list-style-type: none"> - Operation of the equipment; - Verification of the characteristics; - System maintenance & trouble shooting over view; - Testing procedures aspects; - Safety considerations during the operation and maintenance of the equipment - Preventive and corrective maintenance of the equipment. 		
9. WARRANTY		
<p>The warranty period shall be at least 24 months for all measuring equipment and shall start from the date of signature without objection of the equipment acceptance report.</p> <p>If different parts of the equipment are accepted by IP SNMFRSC over different periods of time, the warranty period for the entire equipment / measurement system will begin from the date of signature of the last acceptance report.</p>		
10. POST WARRANTY		
<p>The bidder has the obligation to ensure, after the expiry of the warranty period, under the terms of a subsequent contract, service and spare parts for a minimum period of 7 years for all offered equipment.</p>		

11. THE OFFERS ASSESSMENT MODE								
<p>Evaluation factors of bids are the following:</p> <table><tr><td>1. Offer price (financial score)</td><td>60%</td></tr><tr><td>2. Technical characteristics (technical score)</td><td>40%</td></tr><tr><td>Total</td><td>100%</td></tr></table> <p>Calculation algorithm:</p> <p>The total score for each offer is calculated based on the formula:</p> <p>P(total) = P(financial)*F% + P(technical)*T%, where:</p> <p>F% represents the weight of the financial score = 60%</p> <p>T% represents the weight corresponding to the technical score = 40%</p> <p>A. Financial score is granted as following:</p> <ul style="list-style-type: none">a) for the lowest offered - 50 points ;b) for a price other than that provided in subparagraph a) the points are granted as following: <p>Pn (financial) = (minimum price / price n) * 50</p> <p>B. The technical score is granted for the following evaluation factors according to following:</p> <ul style="list-style-type: none">1. The Frequency stability Aging/month - 10 points<ul style="list-style-type: none">a) for the best stability, 10 points are awarded,b) for the rest, this score is awarded:<p>Pn = (No. n /No. max)*10</p>2. The Frequency stability Aging /year - 10 points<ul style="list-style-type: none">a) for the best stability, 10 points are awarded,b) for the rest, this score is awarded:<p>Pn = (No. n /No. max)*10</p>3. The Frequency stability at temperature variation - 10 points<ul style="list-style-type: none">a) for the best stability, 10 points are awarded,b) for others, the score is given as follows:<p>Pn = (No. n / No. max)*10</p>4. The quantity of the reference outputs - 10 points<ul style="list-style-type: none">a) for the biggest quantity 10 points are awarded,b) for others, the score is given as follows:	1. Offer price (financial score)	60%	2. Technical characteristics (technical score)	40%	Total	100%		
1. Offer price (financial score)	60%							
2. Technical characteristics (technical score)	40%							
Total	100%							

<p>$P_n = (Nr.n / Nr.max) * 10$</p> <p>5. The granting higher warranty period for the equipment - 10 points</p> <p>a) for the highest warranty period - 10 points</p> <p>b) for others, the score is given as following:</p> <p>$P_n = (No. n / No. max) * 10$;</p> <p>The total score for each offer is calculated as following:</p> <p>$P(total) = P(financial) * 0.6 + P(technical) * 0.4$</p>		
12. ELIGIBILITY CRITERIA FOR BIDDERS		
<p>The bidder shall provide documents establishing experience and capability as follows:</p> <p>The bidder shall have minimum of 5 year's experience in supplying similar or higher system.</p> <ul style="list-style-type: none"> • The end users list whose facility has been accredited to ISO/IEC 17025 standard and purchased or use such instruments. • The bidder shall provide the copy of recommendation letters or feedback from 3 accredited European test laboratories which use such measuring instruments. <p>Note: The manufacturer's references for the required type of equipment are acceptable, in case the bidder is not the manufacturer of the equipment</p>		
<p>Note: Compliance to meeting all of the above technical specification requirements should be furnished in detail against each technical requirement in GTS column with supporting technical illustrations, schematics, diagrams, drawings, catalogues of proposed sub-equipment & instruments offered.</p>		