Calculation of the Standard Uncertainty according to the EN 14181:2004 QAL3 based on Performance Specifications of the prEN 15267-3:2005

Description of Gas Monitoring AMS

Automated Measuring System (AMS) based on	AO2000 Uras14 CO	
ABB order number	3-251407-4	
Intended for monitoring of	Large combustion plant	
Applicable EU directive	2001/80/EC	
Name of plant	Enipower Ravenna	
Identification of measuring point	TG501	
Gas to be measured	CO	
Smallest measurement range	75	mg/m^3
Largest measurement range (includes reference point)	75	mg/m^3

Field conditions of operation used in the uncertainty assessment

	Min. value	Max. value	
Ambient temperature range	5	30	°C
Ambient pressure range	980	1010	hPa
Flow range	50	90	l/h
Voltage range	190	250	V
Period of unattended operation, Zero point		7	day(s)
Period of unattended operation, Reference point		7	day(s)

Zero point performance specifications and resulting partial standard uncertainties

Drift		3%	of smallest range
	$u_{inst,0}$ =	1.30	mg/m^3
Shift due to ambient temperature change		5%	of smallest range
	$u_{temp,0}$ =	2.17	mg/m^3
Repeatability		2%	of smallest range
	$u_{others,0}$ =	0.87	mg/m^3

Zero point $s_{AMS} = (u_{inst,0}^2 + u_{temp,0}^2 + u_{others,0}^2)^{½}$

Zero point s_{AMS} =	**2.67**	**mg/m^3**

Reference point performance specifications and resulting partial standard uncertainties

Drift		3%	of largest range
	u_{inst} =	1.30	mg/m^3
Shift due to ambient temperature change		5%	of largest range
	u_{temp} =	2.17	mg/m^3
Effect of sample gas pressure		2%	of largest range for 3 kPa change
	u_{pres} =	0.43	mg/m^3
Effect of sample gas flow		1%	of largest range
	u_{flow} =	0.43	mg/m^3
Voltage effect		2%	of largest range
	u_{volt} =	0.87	mg/m^3
Repeatability		2%	of largest range
	u_{others} =	0.87	mg/m^3
Converter efficiency for NOx		0%	of largest range
	u_{ce} =	0.00	mg/m^3

Reference point $s_{AMS} = (u_{inst}^2 + u_{temp}^2 + u_{pres}^2 + u_{volt}^2 + u_{flow}^2 + u_{others}^2 + u_{ce}^2)^{½}$

Reference point s_{AMS} =	**3.00**	**mg/m^3**

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