



Exova Catalyst, Unit C6, Emery Court, The Embankment Business Park, Heaton Mersey, Stockport, SK4 3GL  
Your Exova Catalyst Contact: Toby Campbell (07825 130 074)  
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**Site Specific Protocol (SSP) Commissioned by**  
Meggitt Aircraft Braking Systems

**Installation Name & Address**  
Meggitt Aircraft Braking Systems  
Holkbrook Lane  
Coventry  
West Midlands  
CV6 4AA

PPC Permit: PPC/156

**Dates of the Proposed Monitoring Campaign**  
16th November 2017

**SSP Reference Number**  
CAT-SSP-3579

Release Point References	
Plating shop Main Stack	

<b>Report Written by</b>
Anees Shafiq, MCERTS Level 1

<b>Report Date &amp; Version</b>
20th October 2017, Version 1

<b>Report Approved by</b>
Harpreet Badwal Team Leader MCERTS Level 2 MM 03 149 TE1 TE2 TE3 TE4

<b>Signature of Report Approver (Catalyst)</b>

<b>Name of Client</b>
Joanne Peasley

I confirm that I have read and understood the sampling protocol contained in this report, that the sampling location complies with the requirements of all relevant UK legislation, and I am happy for the sampling to proceed.

<b>Date of Client Approval</b>

<b>Signature of Client (for SSP Approval)</b>

## SSP Part 1

### CONTACT DETAILS, MONITORING DATES & PERSONNEL

This SSP (Site Specific Protocol) will be updated, if required to include feedback from each visit.

#### Operator Contact Details

Operator Name	Meggitt Aircraft Braking Systems
Site Location	Coventry
Full Installation Address	Holkbrook Lane Coventry West Midlands CV6 4AA
PPC Permit	PPC/156

	Primary Site Contact	Alternative Site Contact
Contact Name	Joanne Peasley	N/A
Telephone Number	02476 666655	N/A
Fax Number	02476 668793	N/A
Mobile Phone Number	079448 41674	N/A
Email Address	joanne.peasley@meggitt.com	N/A

#### Monitoring Dates

Dates of Previous Campaign	15th Decemeber 2016
Job No. of Previous Campaign	CAT-3073
Planned Dates of Campaign	16th November 2017

*(If the Planned Dates of the Campaign change at late notice, the SSP will not be re-issued. The final test report will detail the actual monitoring dates.)*

#### Analysis Laboratories (with short name reference as referenced in Part 2 of the SSP)

Exova Catalyst (CAT)	ISO17025 Accreditation Number: 4279
RPS Laboratories Ltd (RPS)	ISO17025 Accreditation Number: 0605

#### Stack Emissions Monitoring Personnel

where SCM = Site Campaign Manager

	Position	Name	MCERTS Accreditation	MCERTS Number & Expiry Date	Technical Endorsements
SCM	Team Leader	Harpreet Badwal	MCERTS Level 2	MM03 149, September 2018	TE1 TE2 TE3 TE4
	Trainee	Lee Heaton	MCERTS Trainee	MM 17 1433, June 2022	None

#### Exova Catalyst Site Campaign Manager Contact Details

Name	Mobile Phone Number	Email Address
Harpreet Badwal	07808 364 715	harpreet.badwal@exova.com

#### Further Notes on Stack Emissions Monitoring Personnel

There may be, in exceptional circumstances, a need to change the personnel who will be performing the monitoring. If this was to occur, the sampling team sent to site will hold all the necessary MCERTS Technical Endorsements for the required tests. As this scenario would most likely happen at late notice, the SSP will not be re-issued. The names of the monitoring personnel will be available to the client on the day of sampling (or before if required for inductions / site security / permits to work). The names of the monitoring personnel along with their personal MCERTS accreditation details will also be detailed in the final test report.

DETAILS OF MONITORING: STACK AND LOCATION DETAILS

Release Point Reference	Plating shop Main Stack
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Sampling Location and Stack Photos



Operating & Process Information	Details
Type of Process	Electrolytic Plating
Batch or Continuous Process	Continuous
Feedstock / Fuel Type	Metal components / HF / Acid dipping
Load / Throughput / Continuous Rating of Plant	Standard Operating Capacity
Expected Velocity, Temperature & Moisture	8.9 m/s   21.1 °C   1.4 % v/v
Details of Abatement System	Wet Scrubber
Details of any CEMS Installed (including DCS)	N/A
Process Details Required	Operating conditions to be Provided by Site Contact
Reference Conditions 1	273K, 101.3kPa, without correction for water vapour content.
Reference Conditions 2	N/A

Sampling Location Details	Value	Details
Stack Type / Shape	Circular	
Diameter / Dimensions (m)	1.50	
Access	Ladder	
Platform Type and Location	Permanent	Outside - no shelter
Orientation of Duct	Vertical	
Sample Port Size / Diameter	4" BSP	
Sample Port Depth (cm)	9	
Sample Ports Correctly Located?	Yes	
Number of Sampling Lines Available	2	
Number of Sampling Lines to be Used	1	
Number of Sample Points to be Used (per line)	1	
Total Number of Sample Points to be Used	1	Centre point may be used for non-isokinetic sampling
EN 15259 / Homogeneity Representative Point/s	-	N/A
Availability of Utilities	<b>Power</b>	110V & 240V
	<b>Lighting</b>	No
	<b>Water</b>	Yes

EA Technical Guidance Note M1 / EN 15259 Platform Requirements	Value
Sufficient working area to manipulate probe and operate the measuring instruments	Yes
Platform has 2 levels of handrails (approx. 0.5m & 1.0m high)	Yes
Platform has vertical base boards (approx. 0.25m high)	Yes
Platform has chains / self closing gates at top of ladders	Yes
There are no obstructions present which hamper insertion of sampling equipment	Yes
Safe Access Available	Yes
Easy Access Available	Yes

Sampling Plane Validation Criteria		
Requirement	Value	Compliant
Lowest Differential Pressure (Pa)	21	Yes
Ratio of Gas Velocities (:1)	2.6	Yes
Maximum Angle of Swirl (°)	NM	No
No Local Negative Flow	Yes	Yes

Sampling Platform / Improvement Recommendations:
The sampling location meets all the requirements specified in EA Guidance Note M1 and EN 15259, and therefore there are no improvement recommendations.

DETAILS OF MONITORING: SAMPLING METHOD INFORMATION

Release Point Reference Plating shop Main Stack (continued)

In the "Units" column, <sup>1</sup> = Reference Conditions 1, <sup>2</sup> = Reference Conditions 2

PERIODIC SAMPLING: MANUAL METHODS															
Determinand	Number of Runs   Blanks		Units	Emission Limit	Expected Emission	Projected LOD	Standard Reference Method	Catalyst Technical Procedure	Absorption Media / Analysis Technique	Analysis Lab   ISO17025 status	Sample Duration (mins)	Sample Flowrate (ACTUAL) (l/min)	Sample Volume (REF) (m <sup>3</sup> )	Projected MU (%)	Status of Testing
Hydrogen Fluoride	1	1	<sup>1</sup> mg/m <sup>3</sup>	5	<0.03	0.045	ISO 15713	CAT-TP-10	NaOH / IC	CAT 17025	60	10	0.557	15%	MCERTS
Total Oxides of Nitrogen	1	1	<sup>1</sup> mg/m <sup>3</sup>	200	51.80	6.278	US EPA M7D	CAT-TP-35	KMNO <sub>4</sub> / IC	RPS 17025	60	0.5	0.028	20%	MCERTS
Water Vapour	1	N/A	<sup>1</sup> % v/v	N/A	1.40	0.100	EN 14790	CAT-TP-05	Gravimetric	CAT 17025	60	10	N/A	5%	MCERTS
Velocity	1	N/A	<sup>1</sup> m/s	N/A	8.90	3.000	EN ISO 16911-1	CAT-TP-41	Pressure & Temp	CAT 17025	N/A	N/A	N/A	10%	MCERTS

Velocity Profile - Source: Previous Testing Campaign

Pt	Line A			Line B		
	ΔP Pa	Temp °C	Velocity m/s	ΔP Pa	Temp °C	Velocity m/s
1	114.0	21.1	11.55	134.0	21.1	12.52
2	143.0	21.1	12.93	115.0	21.1	11.60
3	73.0	21.1	9.24	94.0	21.1	10.48
4	47.0	21.1	7.41	63.0	21.1	8.58
5	36.0	21.1	6.49	68.0	21.1	8.92
6	29.0	21.1	5.82	74.0	21.1	9.30
7	31.0	21.1	6.02	72.0	21.1	9.18
8	21.0	21.1	4.96	43.0	21.1	7.09

Monitoring Objectives / Unusual Occurrences / Comments / Health & Safety / Expected Deviations from Standard Reference Methods

1	Demonstrate compliance with a set of emission limit values (ELVs) as specified in the Site's Permit
2	Water Vapour (concurrent with Total Oxides of Nitrogen) - the measurement uncertainty for water vapour was greater than 20%. This was due to the low level of water vapour which was found to be present in the stack.
3	N/A
4	N/A

**DEVIATIONS FROM THE SSP THAT MAY HAVE OCCURED ON SITE DURING THE SAMPLING CAMPAIGN**

Make a note of any deviations from this SSP below:

*(Deviations may include: modification to a sampling duration, removal of a test, change to the number of sampling runs etc.)*

At the end of the sampling campaign, the Team Leader must select one of the statements below and complete the required boxes:

(1) I certify that all testing performed for this sampling campaign followed the testing programme as detailed in this SSP, and no deviations (unless specified in the original SSP and approved by the client) were required.

<input type="checkbox"/> (tick)	<b>Signature of Team Leader</b>	<b>Date of Signature</b>

(2) It was necessary to deviate from the testing programme as detailed in this SSP. All deviations are listed above. The client was informed of the deviations and was happy for the testing to proceed / continue on this basis.

*(A client signature MUST be obtained for Contract Review purposes)*

<input type="checkbox"/> (tick)	<b>Signature of Team Leader</b>	<b>Date of Signature</b>	<b>Signature of Client</b>	<b>Date of Signature</b>