Description	Description of CSV file produced by USB export of Archer.		
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Distribution	Users of the exported CSV files.		
Doc. History	**Revision**	**Date**	**Change**
	1	2021-11-03	Initial release for 8.14

1. What is the CSV export?

On page 2 of the SA menu system is a “USB Upload” option which allows users to export data from the database. The files discussed in this document are the four CSV (comma separated values) files named “reg_results.csv”, “results.csv”, “completed_batches.csv” and “results_peelply.csv”.

- The “reg_results.csv” file can be loaded into a text editor or imported into Microsoft Excel to utilize the data stored by the SA during inspections. This contains the most commonly used information about each inspection. This file will have different columns depending on the use of dyne configuration on the Surface Analyst.
- The “results.csv” file can be loaded into a text editor or imported into Microsoft Excel to utilize the data stored by the SA during inspections. This contains an extended amount of information about each inspection.
- The “completed_batches.csv” file is only used when batch mode is enabled on the device and contains summary data specific to batches which were run.
- The “results_peelply.csv” is only used when peel ply mode is enabled on the device and contains data related to the peel ply inspections performed.

2. Description of “reg_results.csv” columns (Non Dyne Systems – no Dyne profiles)

This section details the columns in the “reg_results.csv” file. As most users will be importing this file into Excel, the columns will be listed using letters which line up with Excel columns. Note that the letters may not line up for images as unused images are not listed in the export – use the column headers to be sure.

#	Column	Header	Description
1	A	username	The name of the logged in user. NOTE: The user “BTGLabs” is not in the user list but will be logged in by using the service login password.
2	B	Drop Note	The text of the Drop Note which can be entered on page 2 of the menu. NOTE: Commas in the Drop Note will be replaced with semicolon so the CSV will not have extra columns created if a user enters a comma.
3	C	ContactAngle	The measured contact angle which was displayed on the screen at the end of the measuring process. NOTE: A value of 999 indicates that there was an error in the measurement process and a contact angle could not be measured.

#	Column	Header	Description
7	D	profile	The name of the profile which was active when this measurement was taken.
8	E	minangle	Minimum pass value for the contact angle when dyne mode is not enabled (this is the standard mode). Note: When dyne mode is enabled this value will still be present in the export but was not used for pass/fail determination.
9	F	maxangle	Maximum pass value for the contact angle when dyne mode is not enabled (this is the standard mode). NOTE: When dyne mode is enabled this value will still be present in the export but was not used for pass/fail determination.
11	G	passorfail	This represents if the measurement was within the pass/fail limits. The values to be expected in this column are “Pass” or “Fail”. NOTE: Drops which have been rejected by the user (or automated methods) will not have a pass or fail value in this column. NOTE: This column will be blank when the default profile is selected or the pass/fail limits are disabled.
12	H	acceptedorrejected	This represents the user or automated drop acceptance. The values to be expected in this column are “accepted” or “rejected”
13	I	timestamp	The date and time value at the time the measurement was taken. This cell will be formatted “yyyy-mm-ddThh:mm:ss.nnn”. The individual values for month (mm), day (dd), hour (hh), minutes (mm) and seconds (ss) and milliseconds (nnn) will be padded with zeros if necessary. The hour is represented in 24-hour notation.
14	J	dropnumber	This is the measurement user drop number. NOTE: This number decrements on each measurement taken, and resets when the cartridge is replaced (to the maximum number of drops in the new cartridge). NOTE: For re-analyzed images the drop number from the original inspection will be used.
15	K	cartridgeserial	Serial number of the installed cartridge. Note: This field contains both the serial number entered by the user and the date when the cartridge was installed.
16	L	WettingImageNumber	Will be blank unless wetting is enabled. This gives the image number in a set.
17	M	WettingDelta	Difference in contact angle between the current inspection and the first image of the set. This will be 0 for the first image in a wetting analytics set.
18	N	WettingPassOrFail	Result of the wetting analysis (Pass/Fail). This will be blank except for the last image in a wetting analytics set.

#	Column	Header	Description
19	O	Type	Contains information about the type of inspection performed, there can be multiple types separated by the "|" pipe symbol. Measure for a measurement result. Wetting for a delta change type result. Reanalyze for a result which was re-processed and will include the previous date/time as well. Process for a result which is part of a process analytics set. PeelPly for a result which is part of a PeelPly set.
20	P	WarnLimit	Near Failure warning limit tolerance. If this is set to 0 then the warning is disabled. If the measured angle is within this tolerance of failing then the user will have had an orange indication that the inspection passed but was near the limit.
21	Q	resultimage	The relative path to the result image PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
22	R	subtractimage	The relative path to the subtraction image PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
23	S	subtractanalysis	The relative path to the subtraction image with overlaid analysis PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
24	T	resultanalysis	The relative path to the result image with overlaid analysis PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
25	U	dropimage	The relative path to the drop image PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
26	V	substrateimage	The relative path to the substrate image PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.

3. Description of "reg_results.csv" columns (Dyne Systems – with Dyne profiles)

This section details the columns in the "reg_results.csv" file. As most users will be importing this file into Excel, the columns will be listed using letters which line up with Excel columns. Note that the letters may not line up for images as unused images are not listed in the export – use the column headers to be sure.

#	Column	Header	Description
1	A	username	The name of the logged in user. NOTE: The user "BTGLabs" is not in the user list but will be logged in by using the service login password.

#	Column	Header	Description
2	B	Drop Note	The text of the Drop Note which can be entered on page 2 of the menu. NOTE: Commas in the Drop Note will be replaced with semicolon so the CSV will not have extra columns created if a user enters a comma.
3	C	ContactAngle	The measured contact angle which was displayed on the screen at the end of the measuring process. NOTE: A value of 999 indicates that there was an error in the measurement process and a contact angle could not be measured.
7	D	profile	The name of the profile which was active when this measurement was taken.
8	E	minangle	Minimum pass value for the contact angle when dyne mode is not enabled (this is the standard mode). Note: When dyne mode is enabled this value will still be present in the export but was not used for pass/fail determination.
9	F	maxangle	Maximum pass value for the contact angle when dyne mode is not enabled (this is the standard mode). NOTE: When dyne mode is enabled this value will still be present in the export but was not used for pass/fail determination.
10	G	Dyne	The measured dyne value using the contact angle to dyne conversion equation. NOTE: This cell will be blank when a non-dyne profile is loaded and producing measurements.
11	H	mindyne	Minimum pass value for the contact angle when dyne mode is enabled. Note: When dyne mode is not enabled this value will still be present in the export but was not used for pass/fail determination.
12	I	maxdyne	Maximum pass value for the contact angle when dyne mode is enabled. NOTE: When dyne mode is not enabled this value will still be present in the export but was not used for pass/fail determination.
13	J	passorfail	This represents if the measurement was within the pass/fail limits. The values to be expected in this column are “Pass” or “Fail”. NOTE: Drops which have been rejected by the user (or automated methods) will not have a pass or fail value in this column. NOTE: This column will be blank when the default profile is selected or the pass/fail limits are disabled.
14	K	acceptedorrejected	This represents the user or automated drop acceptance. The values to be expected in this column are “accepted” or “rejected”

#	Column	Header	Description
15	L	timestamp	The date and time value at the time the measurement was taken. This cell will be formatted “yyyy-mm-ddThh:mm:ss.nnn”. The individual values for month (mm), day (dd), hour (hh), minutes (mm) and seconds (ss) and milliseconds (nnn) will be padded with zeros if necessary. The hour is represented in 24-hour notation.
16	M	dropnumber	This is the measurement user drop number. NOTE: This number decrements on each measurement taken, and resets when the cartridge is replaced (to the maximum number of drops in the new cartridge). NOTE: For re-analyzed images the drop number from the original inspection will be used.
17	N	cartridgeserial	Serial number of the installed cartridge. Note: This field contains both the serial number entered by the user and the date when the cartridge was installed.
18	O	WettingImageNumber	Will be blank unless wetting is enabled. This gives the image number in a set.
19	P	WettingDelta	Difference in dyne between the current inspection and the first image of the set. This will be 0 for the first image in a wetting analytics set.
20	Q	WettingPassOrFail	Result of the wetting analysis (Pass/Fail). This will be blank except for the last image in a wetting analytics set.
21	R	Type	Contains information about the type of inspection performed, there can be multiple types separated by the “|” pipe symbol. Measure for a measurement result. Wetting for a delta change type result. Reanalyze for a result which was re-processed and will include the previous date/time as well. Process for a result which is part of a process analytics set. PeelPly for a result which is part of a PeelPly set.
22	S	WarnLimit	Near Failure warning limit tolerance. If this is set to 0 then the warning is disabled. If the measured angle is within this tolerance of failing then the user will have had an orange indication that the inspection passed but was near the limit.
23	T	resultimage	The relative path to the result image PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
24	U	subtractimage	The relative path to the subtraction image PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
25	V	subtractanalysis	The relative path to the subtraction image with overlaid analysis PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.

#	Column	Header	Description
26	W	resultanalysis	The relative path to the result image with overlaid analysis PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
27	X	dropimage	The relative path to the drop image PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.
28	Y	substrateimage	The relative path to the substrate image PNG file. NOTE: Will be missing if images are not configured to be saved, or if export does not include this image type.

4. Description of "results.csv" columns

This section details the columns in the "results.csv" file. As most users will be importing this file into Excel, the columns will be listed using letters which line up with Excel columns.

#	Column	Header	Description
1	A	username	The name of the logged in user. NOTE: The user "BTGLabs" is not in the user list but will be logged in by using the service login password.
2	B	Drop Note	The text of the Drop Note which can be entered on page 2 of the menu. NOTE: Commas in the Drop Note will be replaced with semicolon so the CSV will not have extra columns created if a user enters a comma.
3	C	ContactAngle	The measured contact angle which was displayed on the screen at the end of the measuring process. NOTE: A value of 999 indicates that there was an error in the measurement process and a contact angle could not be measured.
4	D	Dyne	The dyne equivalent for the measured contact angle. NOTE: This number will only be present if dyne mode has been enabled on the device and the device is currently measuring in dyne. The conversion parameters configured in the profile are used to convert from the measured contact angle into dyne.
5	E	mindyne	Minimum pass value for dyne when dyne mode is enabled. When dyne mode is disabled this value will still be present in the export but was not used for pass/fail determination.

#	Column	Header	Description
6	F	maxdyne	Maximum pass value for dyne when dyne mode is enabled. When dyne mode is disabled this value will still be present in the export but was not used for pass/fail determination.
7	G	profile	The name of the profile which was active when this measurement was taken.
8	H	minangle	Minimum pass value for the contact angle when dyne mode is not enabled (this is the standard mode). Note: When dyne mode is enabled this value will still be present in the export but was not used for pass/fail determination.
9	I	maxangle	Maximum pass value for the contact angle when dyne mode is not enabled (this is the standard mode). NOTE: When dyne mode is enabled this value will still be present in the export but was not used for pass/fail determination.
10	J	droparea	Area of the drop found represented in pixels. NOTE: This value has not been scaled by the optical calibration.
11	K	passorfail	This represents if the measurement was within the pass/fail limits. The values to be expected in this column are “Pass” or “Fail”. NOTE: Drops which have been rejected by the user (or automated methods) will not have a pass or fail value in this column. NOTE: This column will be blank when the default profile is selected or the pass/fail limits are disabled.
12	L	acceptedorrejected	This represents the user or automated drop acceptance. The values to be expected in this column are “accepted” or “rejected”
13	M	timestamp	The date and time value at the time the measurement was taken. This cell will be formatted “yyyy-mm-ddThh:mm:ss.nnn”. The individual values for month (mm), day (dd), hour (hh), minutes (mm) and seconds (ss) and milliseconds (nnn) will be padded with zeros if necessary. The hour is represented in 24-hour notation.
14	N	dropnumber	This is the measurement user drop number. NOTE: This number decrements on each measurement taken, and resets when the cartridge is replaced (to the maximum number of drops in the new cartridge). NOTE: For re-analyzed images the drop number from the original inspection will be used.
15	O	opticalcal	This is the camera calibration represented as the area (in pixels) of a 4mm diameter calibration target.
16	P	diamcorrectB	Diameter correction applied to measurements as a multiplier. A value of 1 indicates there is no correction.

#	Column	Header	Description
17	Q	illumination	Amount of power applied to the LED lights. This value will be an integer between 0 and 99.
18	R	pressure	Pressure in PSI used for the dispense.
19	S	numberofdroplets	The number of droplets which are used to create the larger drop used for the measurement.
20	T	valveSpikeTime	Time (in number of 30us processor ticks) a higher voltage is applied to the dispensing valve each time it is opened to speed up the valve opening. This value is not normally changed.
21	U	valveOpenTime	Time (in number of 30us processor ticks) for the valve to be open for an individual droplet.
22	V	valvePeriod	Time (in number of 30us processor ticks) between the start of successive droplet dispenses.
23	W	cartridgeserial	Serial number of the installed cartridge. Note: This field contains both the serial number entered by the user and the date when the cartridge was installed.
24	X	weightcal	The weight of the drop (milligrams). If parameters are not changed this value will remain the same. This is a calibrated entered value and is not measured for each dispense.
25	Y	blurPasses	Number of times the image will be blurred to remove noise and smooth the image.
26	Z	blurRadius	The amount of smoothing applied to the image (as a radius in pixels) to remove noise and smooth the image.
27	AA	nManualDropCenterXpercent	Expected location of the drop center as a percentage of the screen width.
28	AB	nManualDropCenterYpercent	Expected location of the drop center as a percentage of the screen height.
29	AC	nPass2FarMultiplier	The far pass multiplier for pass #2 which was applied during the measurement.
30	AD	nPass2NearMultiplier	The near pass multiplier for pass #2 which was applied during the measurement.
31	AE	nPass3FarMultiplier	The far pass multiplier for pass #3 which was applied during the measurement.
32	AF	nPass3NearMultiplier	The near pass multiplier for pass #3 which was applied during the measurement.
33	AG	nMaxDropRadiusPercent	Outer scan radius
34	AH	nMinDropRadiusPercent	Inner scan radius
35	AI	autodropcenter	Indicates if the auto drop center algorithm was used. This will have a value of “true” or “false”. NOTE: During a standard Excel import the results will be changed to upper case.
36	AJ	perimeter	The perimeter of the found drop in pixels. This is calculated from the 64 locations found around the drop.

#	Column	Header	Description
37	AK	compactness	A measure of how smoothly round the drop is. This value is used in the SmartDrop algorithm. This value represents the ratio of the perimeter of a circle of the same area as the drop divided by the found perimeter. NOTE: This number will always be a value of 1 or less. The higher the value the closer to a perfect circle the drop appears.
38	AL	exposure	The exposure setting for the camera. NOTE: A value of 0 indicates that the camera used an automatic exposure setting which corrects the exposure based upon the brightness of the image.
39	AM	resultimage	The relative path to the result image PNG file. NOTE: Will be empty if images are not configured to be saved, or if export does not include this image type.
40	AN	subtractimage	The relative path to the subtraction image PNG file. NOTE: Will be empty if images are not configured to be saved, or if export does not include this image type.
41	AO	subtractanalysis	The relative path to the subtraction image with overlaid analysis PNG file. NOTE: Will be empty if images are not configured to be saved, or if export does not include this image type.
42	AP	resultanalysis	The relative path to the result image with overlaid analysis PNG file. NOTE: Will be empty if images are not configured to be saved, or if export does not include this image type.
43	AQ	dropimage	The relative path to the drop image PNG file. NOTE: Will be empty if images are not configured to be saved, or if export does not include this image type.
44	AR	substrateimage	The relative path to the substrate image PNG file. NOTE: Will be empty if images are not configured to be saved, or if export does not include this image type.
45	AS	processReference	Process Analytics only: The reference text entered at the beginning of a process (for 8.6 and earlier databases). Changed in 8.10 to be the “Field1” data.
46	AT	processPassFail	Process Analytics only: The pass/fail result of the total process. This will contain the value “Pass” or “Fail”. NOTE: This value will only be present if it is the last measurement in a process.

#	Column	Header	Description
47	AU	processProductPassFail	Process Analytics only: Represents the pass/fail status of a product using the process pass/fail parameters. This value is not displayed on the instrument and this value is not used for the process pass fail determination. This is information only. NOTE: This value will only be present if it is the last measurement in a product.
48	AV	processAvg	Process Analytics only: The average measurement value of all of the measurements taken for all products in the process. NOTE: This value will only be present if it is the last measurement in a process.
49	AW	processStdDev	Process Analytics only: The standard deviation of all measurements taken for all products in the process. NOTE: This value will only be present if it is the last measurement in a process.
50	AX	processProductAvg	Process Analytics only: The average measurement value of all of the measurements taken for a single product. NOTE: This value will only be present if it is the last measurement in a product.
51	AY	processProductStdDev	Process Analytics only: The standard deviation of all measurements taken for a single product. NOTE: This value will only be present if it is the last measurement in a product.
52	AZ	processCurrentProduct	Process Analytics only: The current product that is being inspected. This will be a value starting at one and incrementing for each product. NOTE: This value will only be present if this measurement is part of a process.
53	BA	processCurrentMeasurement	Process Analytics only: The current measurement within a product that is being inspected. This will be a value starting at one and incrementing for each product. This will reset each time measurements are started on a new product. NOTE: This value will only be present if this measurement is part of a process.
54	BB	processNumberOfProducts	Process Analytics only: The total number of products which will be inspected. NOTE: This value will only be present if this measurement is part of a process.
55	BC	processMeasurementsPerProduct	Process Analytics only: The total number of measurements which will be inspected for each product. NOTE: This value will only be present if this measurement is part of a process.

#	Column	Header	Description
56	BD	processUpperLimit	Process Analytics only: The upper limit for the batch average value for a passing process. NOTE: This value will only be present if this measurement is part of a process.
57	BE	processLowerLimit	Process Analytics only: The lower limit for the process average value for a passing process. NOTE: This value will only be present if this measurement is part of a process.
58	BF	processStdDevLimit	Process Analytics only: The upper limit for the process standard deviation value for a passing process. NOTE: This value will only be present if this measurement is part of a process.
59	BG	processNumberOfWettingFailures	Process Analytics only: The number of wetting failures encountered during a process. NOTE: This value will only be present if this measurement is part of a process.
60	BH	processNumberOfWettingFailuresAllowed	Process Analytics only: The upper limit for the process wetting failures for a passing process. This allows a process to fail for wetting failure events. NOTE: This value will only be present if this measurement is part of a process.
61	BI	ProductName	Process Analytics only: The name given to the different individual products inspected during a process process. The term “Products” in use: Measure 5 points on 3 different products.
62	BJ	MeasurementName	Process Analytics only: The name given to the different individual measurements inspected during a process. The term “Measure” in use: Measure 5 points on 3 different products.
63	BK	Field1Name	Process Analytics only: The name given to this user definable field.
64	BL	Field1Data	Process Analytics only: The data entered by the user (or default data) for this user definable field.
65	BM	Field2Name	Process Analytics only: The name given to this user definable field.
66	BN	Field2Data	Process Analytics only: The data entered by the user (or default data) for this user definable field.
67	BO	Field3Name	Process Analytics only: The name given to this user definable field.
68	BP	Field3Data	Process Analytics only: The data entered by the user (or default data) for this user definable field.
69	BQ	Field4Name	Process Analytics only: The name given to this user definable field.
70	BR	Field4Data	Process Analytics only: The data entered by the user (or default data) for this user definable field.

#	Column	Header	Description
71	BS	Field5Name	Process Analytics only: The name given to this user definable field.
72	BT	Field5Data	Process Analytics only: The data entered by the user (or default data) for this user definable field.
73	BU	DynamicEnable	Flag to indicate Dynamic Detection is being used. If this flag is True then the Dynamic Detection parameters below are in use.
74	BV	DynamicWidthFilter	Filter size for the edge width for dynamic detection.
75	BW	DynamicLengthFilter	Filter size for the edge length for dynamic detection.
76	BX	DynamicCenterMin	Minimum center location item size allowed during dynamic detection.
77	BY	DynamicCenterMax	Maximum center location item size allowed during dynamic detection.
78	BZ	DynamicCenterMergeAll	Indicate all center location items (including satellites or other clutter) should be included in the center location during dynamic detection.
79	CA	DynamicCenterMergeDistance	Size of a merging operation for all center location items (including satellites or other clutter) during dynamic detection.
80	CB	DynamicPass1MinSize	Minimum found center size to be used for the first pass.
81	CC	DynamicPass1NoCenterSize	Size used for first pass when center finding fails or is set to manual.
82	CD	DynamicCenterBlurSize	Amount of blur applied during center finding operation.
83	CE	nPass1FarMultiplier	The far pass multiplier for pass #1 which was applied during the measurement.
84	CF	nPass1NearMultiplier	The near pass multiplier for pass #1 which was applied during the measurement.
85	CG	DynamicInvertFinding	Edge Detection searches for an inverted polarity drop.
86	CH	WettingImagesTotal	Total number of images to be taken in wetting analytics. Standard wetting analytics will use 2 images.
87	CI	WettingImageNumber	Current image number of this inspection (first image is for contact angle, last image is for calculating wetting delta)
88	CJ	WettingMsSinceFirst	Time in milliseconds for wetting images after the first image. This is the time from the first image to the current image.
89	CK	WettingDelta	The difference in contact angle between the first wetting image and the current wetting image.
90	CL	WettingfPassOrFail	Result of the wetting analytics, this field is only filled in for the last image of a wetting set.
91	CM	WettingDeltaTolerance	Tolerance configured in wetting analytics
92	CN	Stability	Stability of the pressure system right before the drop dispense.
93	CO	UnitSerialNumber	Serial number of the instrument

#	Column	Header	Description
94	CP	TempCorrection	Temperature correction values used during contact angle calculations. This field contains 5 numbers separated with the slash character: Angle without correction/ Angle with correction/ Temp correction used/ HFactor used/ Temperature used
95	CQ	PressureResponse	Value of the pressure response calculation of the last dispense. This relates to the pressure fluctuations during the dispense.
96	CR	Result_odometer	A running count of inspections taken since the last data reset.
97	CS	type	Contains information about the type of inspection performed, there can be multiple types separated by the "|" pipe symbol. Measure for a measurement result. Wetting for a delta change type result. Reanalyze for a result which was re-processed and will include the previous date/time as well. Process for a result which is part of a process analytics set. PeelPly for a result which is part of a PeelPly set.
98	CT	WarnLimit	Near Failure warning limit tolerance. If this is set to 0 then the warning is disabled. If the measured angle is within this tolerance of failing then the user will have had an orange indication that the inspection passed but was near the limit.

5. Special case for Wetting Analytics

When wetting analytics is enabled the database no longer has one row per drop dispensed (for the inspections which take place with wetting analytics turned on). There will be a row for the original drop detection followed by rows for the wetting analytics using the same drop number. The last row is the results from the final inspection which takes place after the wetting overall time. The lines differ by the following:

- Each of the rows generated during a wetting inspection will contain individual contact angle and results data from the individual pictures and calculations.
- The earliest row of the set in the CSV is the results from the main inspection and contains the reported contact angle for the drop. This is the only row of the set which contains a contact angle pass/fail
- The latest row of the set in the CSV also contains a contact angle but that contact angle is only used to determine the presence of wetting. This row is the only row to contain the wetting pass/fail value.
- The rows between the earliest and latest rows of the set in the CSV also contain contact angles, but the contact angle is not used for inspection results and is only reported in the export. These rows will not contain contact angle pass/fail results and will not contain wetting results.

6. Description of "completed_processes.csv" columns

This section details the columns in the "completed_processes.csv" file. All of the data in this file is also present in the "results.csv", the purpose of this file is to provide a summary of processes. In this file each row represents a complete process. There will be more or less columns depending on the number of products inspected in each

process. As most users will be importing this file into Excel, the columns will be sequenced using letters which line up with Excel columns.

#	Column	Header	Description
1	A	username	The name of the logged in user. NOTE: The user “BTGLabs” is not in the user list but will be logged in by using the service login password.
2	B	timestamp	The date and time value at the time the measurement was taken. This cell will be formatted “yyyy-mm-ddThh:mm:ss.nnn”. The individual values for month (mm), day (dd), hour (hh), minutes (mm) and seconds (ss) and milliseconds (nnn) will be padded with zeros if necessary. The hour is represented in 24-hour notation.
3	C	profile	The name of the profile which was active when this process was inspected.
4	D	processReference	The reference text entered at the beginning of a process (for 8.6 and earlier databases). Changed under 8.10 to be the “Field1” data.
5	E	processPassFail	The pass/fail result of the total process. This will contain the value “Pass” or “Fail”.
6	F	processAvg	The average measurement value of all of the measurements taken for all products in the process.
7	G	processStdDev	The standard deviation of all measurements taken for all products in the process.
8	H	processNumberOfProducts	The total number of products which will be inspected.
9	I	processMeasurementsPerProduct	The total number of measurements which will be inspected for each product.
10	J	processUpperLimit	The upper limit for the process average value for a passing process.
11	K	processLowerLimit	The lower limit for the process average value for a passing process.
12	L	processStdDevLimit	The upper limit for the process standard deviation value for a passing process.
13	M	processNumberOfWettingFailures	The number of wetting failures encountered during a process.
14	N	processNumberOfWettingFailuresAllowed	The upper limit for the process wetting failures for a passing process. This allows a process to fail for wetting failure events.
15	O	ProductName	The name given to the different individual products inspected during a batch process. The term “Products” in use: Measure 5 points on 3 different products.
16	P	MeasurementName	The name given to the different individual measurements inspected during a batch process. The term “Measure” in use: Measure 5 points on 3 different products.
17	Q	Field1Name	Name of user definable field
18	R	Field1Data	Data stored in user definable field
19	S	Field2Name	Name of user definable field
20	T	Field2Data	Data stored in user definable field
21	U	Field3Name	Name of user definable field

#	Column	Header	Description
22	V	Field3Data	Data stored in user definable field
23	W	Field4Name	Name of user definable field
24	X	Field4Data	Data stored in user definable field
25	Y	Field5Name	Name of user definable field
26	Z	Field5Data	Data stored in user definable field
The columns below will be repeated for each additional product inspected as part of a batch. The columns will be empty for products not inspected in a batch.			
27	AA…	productAvg1	The average measurement value of all of the measurements taken for the product (#1).
28	AB…	productStdDev1	The standard deviation of all measurements taken for the product (#1).

7. Description of "results_peelply.csv" columns

This section details the columns in the "results_peelply.csv" file. This file will only be created if the device has been used for peel ply inspections. Peel ply inspections are special inspections which do not dispense any fluid but instead inspect the characteristics of the substrate. This data is not present in the "results.csv", the purpose of this file is to provide detailed data for peel ply inspections. In this file each row represents an individual peel ply inspection that has been grouped in order of peel ply part name. This file does not capture inspections taken in peel ply raw mode through peel ply raw profiles. As most users will be importing this file into Excel, the columns will be sequenced using letters which line up with Excel columns.

#	Column	Header	Description
1	A	Part number	The part number of the customers individual part used to start the peel ply inspection session.
2	**B**	Session number	An index number for individual sessions associated with a specific part. Session numbers start at 1 for each part and count up. One or more measurements are part of each session. Each session will have an ID image associated with it.
3	C	Inspection number	An index number for individual peel ply measurements within a specific session. Inspection numbers start at 1 for each session and count up. When the inspection number is 1 there will be an associated session ID image stored.
4	D	Inspection type	The type of inspection (which will remain the same for the entire session). The two supported types of inspections are "Present" and "Absent" to represent the two peel ply inspection types.
5	E	Result	The result of the individual measurement. The four types of results are "Pass", "Fail", "Indeterminate", and "Override". An "Indeterminate" result indicates that the measurement score was not contained within the tolerances for either Present or Absent. An "Override" result indicates that the measurement was originally a "Fail" but an administrator has overridden this result. When a value of "Override" is found in the result column then the "Override explanation" column should be filled in.
6	F	username	The name of the logged in user

#	Column	Header	Description
7	G	Profile	The name of the profile which was active when this inspection was taken.
8	H	Timestamp	The date and time value at the time the measurement was taken. This cell will be formatted “yyyy-mm-ddThh:mm:ss.nnn”. The individual values for month (mm), day (dd), hour (hh), minutes (mm) and seconds (ss) and milliseconds (nnn) will be padded with zeros if necessary. The hour is represented in 24-hour notation.
9	I	Inspection raw value	The actual value of the peel ply inspection (which may not have been shown to the user).
10	J	PPP low value	The peel ply present low tolerance set for this inspection.
11	K	PPP high value	The peel ply present high tolerance set for this inspection.
12	L	PPA low value	The peel ply absence low tolerance set for this inspection.
13	M	PPA high value	The peel ply absence high tolerance set for this inspection.
14	N	Override explanation	The text entered by an administrator when they are overriding a failing inspection on the device.
15	O	Note	The text of the Drop Note which can be entered on page 2 of the menu.
16	P	Session Id Image	Path and name of the identifier image taken at the start of each session. This field will only be filled in for the first record of a session.
17	Q	Result Image	Path and name of the result image stored for the inspection.
18	R	Processed Image	Path and name of the black and white processed image used for scoring.
19	S	Substrate Image	Path and name of the raw original image taken for the inspection. This column will be blank if RAW images is not turned on in the “Image Saving” menu on page 5.

8. Changes in format from Archer 8.4 to 8.5

This section lists the changes made between the current version and the last major version of the Archer software. The numbering below is referenced to the current numbering in the 8.5 document.

- Columns 39-44 (AM-AR) will be blank if the export is performed without images. This is a new option.
- Columns 45-58 (AS-BF) have been added. Batch mode is a new operating mode introduced in this release.
- The file “completed_batches.csv” is new with this release. Batch mode is a new operating mode introduced in this release.

9. Changes in format from Archer 8.5 to 8.6

This section lists the changes made between the current version and the last major version of the Archer software. The numbering below is referenced to the current numbering in 8.6 document.

- “Results.csv”: Columns 59-60 (BG-BH) have been added. Surfactant detection during batch mode is a new operating mode introduced in this release.
- “completed_batches.csv”: Columns 15-16 (O-P) inserted. Addition of surfactant detection information

- "completed_batches.csv": Columns 17-20 (Q-T) inserted. Addition of spare columns for future use to allow for expansion without changing the location of the repeating columns.
- "completed_batches.csv": Columns 21-… (U-…) Repeating product columns moved down to make space for fixed columns.

10. Changes in format from Archer 8.6 to 8.10

This section lists the changes made between the current version and the last major version of the Archer software. The numbering below is referenced to the current numbering in the 8.10 document.

- "Results.csv": New Columns 61-72 (BI-BT) have been added. Expansion of batch mode allows for more user definable data to be entered and stored in the export.
- "completed_batches.csv": Old Columns 13-14 (M-N) from old export have been moved to 27-28 (AA-AB) in new export to place them next to the other product values.
- "completed_batches.csv": Old Columns 17-20 (Q-T) removed from export. There are no longer spare columns.
- "completed_batches.csv": New Columns 15-26 (O-Z) inserted. Addition of user definable fields (both their names and their data).
- New file output "results_peelply.csv" described.
- Update dropnumber field description to indicate that drop numbers will now decrement down from the maximum number of drops in the cartridge.

11. Changes in format from Archer 8.10 to 8.11

This section lists the changes made between the current version and the last major version of the Archer software. The numbering below is referenced to the current numbering in the 8.11 document.

- Addition of section for Dyne version of reg_result.csv.
- Update Pass/Fail column description to indicate that now this column will be blank if the drop has been rejected.

12. Changes in format from Archer 8.11 to 8.12

This section lists the changes made between the current version and the last major version of the Archer software. The changes are quite extensive and results both in changes to existing column headers and number of columns present. Existing users should carefully assess the impact by verifying their existing use against the new format. The numbering below is referenced to the current numbering in the 8.12 document.

- Rename column headers to match new naming.
  - Batch → Process
  - Surfactant → Wetting
- "Results.csv": Addition of new columns for Dynamic Detection, Wetting, and missing information. Columns 73-95 (BU-CQ).
- "Reg_Results.CSV" Non-Dyne: Addition of columns for Wetting 16-18 (L-M)
- "Reg_Results.CSV" Dyne: Addition of columns for Wetting 18-20 (O-Q)
- Update descriptions related to the new Wetting functionality

13. Changes in format from Archer 8.12 to 8.13

This section lists the changes made between the current version and the last major version of the Archer software. The changes are quite extensive and results both in changes to existing column headers and number of columns present. Existing users should carefully assess the impact by verifying their existing use against the new format. The numbering below is referenced to the current numbering in the 8.13 document.

- Changes to reg_results.csv
  - Change description of Drop Note (2) to remove reference to surfactant.
  - Change description of timestamp (13) to show ISO 8601 format now used.
  - Insert new type column "O" (19)
- Changes to reg_results.csv for dyne systems

    - Change description of timestamp (15) to show ISO 8601 format now used.
    - Insert new type column “R” (21)
- Changes to results.csv
    - Change description of timestamp (13) to show ISO 8601 format now used.
    - Insert new type column “R” (21)
    - Add new result_odometer column “CR” (96)
    - Add new type column “CS” (97)
- Changes to completed_processes.csv
    - Change description of timestamp (2) to show ISO 8601 format now used.
- Changes to results_peelply.csv
    - Change description of timestamp (8) to show ISO 8601 format now used.

14. Changes in format from Archer 8.13 to 8.14

This section lists the changes made between the current version and the last major version of the Archer software. The numbering below is referenced to the current numbering in the 8.14 document.

- Reg_results.csv for non Dyne: Insert warnLimit at 20 (P)
- Reg_results.csv for Dyne systems: Insert warnLimit at 22 (S)
- Results.csv: Add warnLimit at 98 (CT)