



Automate office files to PDF

Microsoft, LibreOffice or other?

OctoberPDFest
ONLINE

- “Office Open XML File Format” (Microsoft Office)
 - Standardized as ISO/IEC 29500-1:2016
 - Document creation, little guidance for rendering
- PDF is an essential part of all current digital processes
 - Reliable, robust rendering
 - Archiving
- How can you get from Office to PDF, preferably in an automated way?

The easy approach: Printer Driver



- Works for every application that has a printer interface
- Limitations
 - Unicode (not needed)
 - Tagging not possible
 - Metadata (not needed and not easily possible)
 - 2 conversions instead of one: To the printer language and from there to PDF
 - PostScript has a lot of limitations, transparency, page size, on an office printer that usually is not a problem, but in a digital file this becomes obvious

“Office Open XML Format” to PDF



- Most office files are created with Microsoft Office
 - Quality of conversion is defined by similarity of appearance to its results
- Automated conversion via Microsoft Office is possible (various solutions are around)
 - Requires
 - Handling of dialogues
 - Stabilize the application if running for hours or days
 - Bound to the Windows platform

Alternatives to Microsoft Office



- LibreOffice (Open Office)
- Standalone converters or libraries
various solutions available
- Rendering is not in the core of the “Office Open XML File Format” standard,
no alternative will exactly match Microsoft Office results
- But LibreOffice has gotten much closer in recent versions...

At first glance: Office files vs PDF



- **Text processors: Word, Writer**

- Text reflow on the fly

- **Spreadsheet: Excel, Calc**

- No pages at all
- Formulas

- **Slides: PowerPoint, Impress**

- Close to PDF

- **Email**

- Threads
- External content
- Header, Body, Attachments

- **Other**

- Visio, Project...

Text processors: Reflow on the fly



- PDF: (mostly) places each object independent from other objects
- This is not the case in a re-flowable format (Word / Writer, also HTML)
- PDF is faster at least for docs with various pages
 - PDF: Direct access to each page (independent from previous pages)
 - Office: Needs to render all previous pages

Test case: long texts

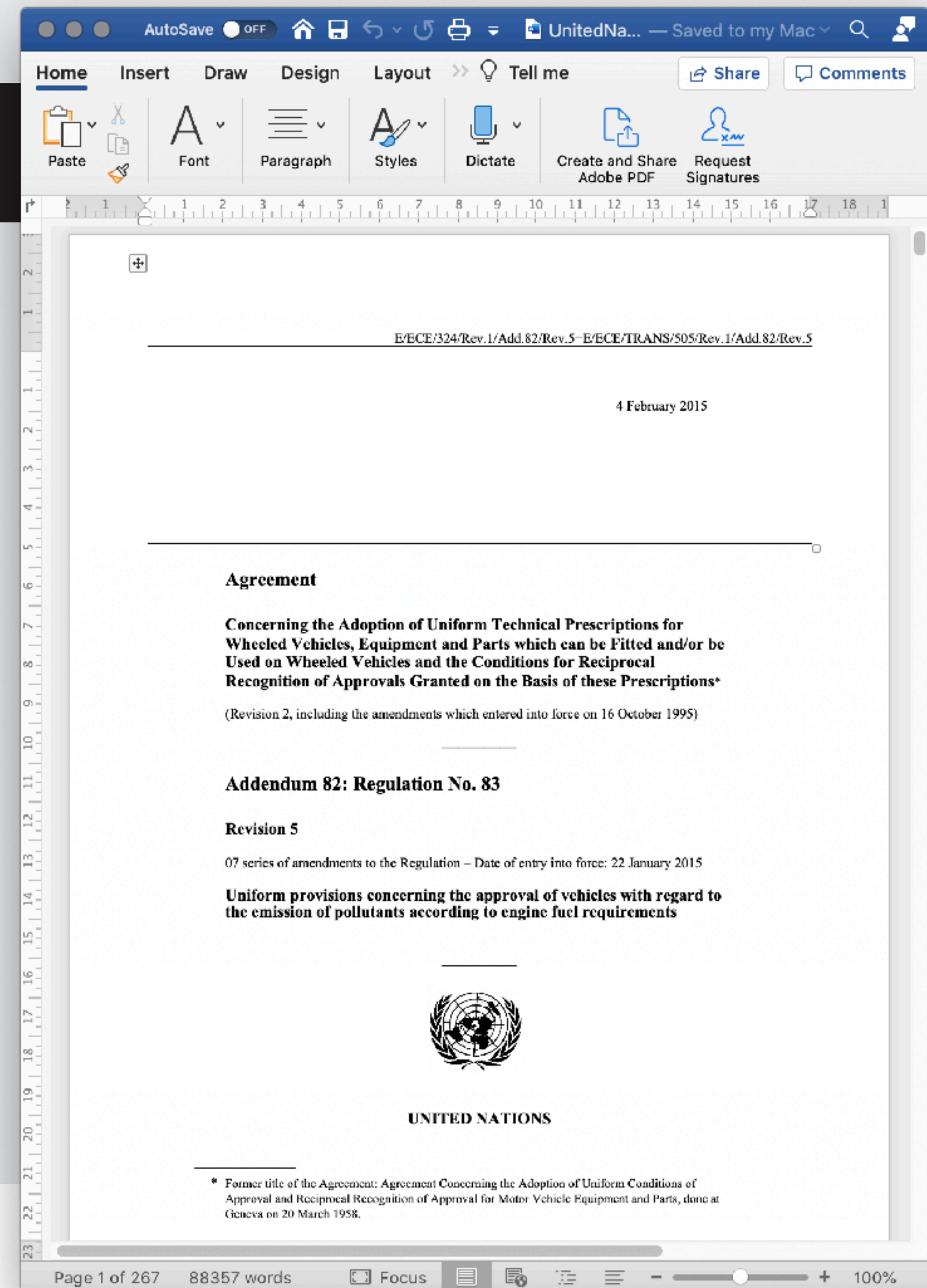
Longer texts from the same (MS Word) file

Slightly different text reflow results in:

MS Word 267 pages

LibreOffice 275 pages

Examples...



from the dates given in paragraphs 12.2.3. and 12.2.4. of this Regulation for new type approvals and new vehicles respectively are given in Table A11/1:

Table A11/1: Final OBD threshold limits

Category	Class	Reference mass (RM) (kg)	Mass of carbon monoxide		Mass of non-methane hydrocarbons		Mass of oxides of nitrogen		Mass of particulate matter ¹		Number of particulates ¹	
			(CO) (mg/km)		(NMHC) (mg/km)		(NO _x) (mg/km)		(PM) (mg/km)		(PN) (#/km)	
			PI	CI	PI	CI	PI	CI	PI	CI	CI	PI
M	—	All	1,900	1,750	170	290	90	140	12	12		
N ₁	I	RM < 1305	1,900	1,750	170	290	90	140	12	12		
	II	1305 < RM < 1760	3,400	2,200	225	320	110	180	12	12		
	III	1760 < RM	4,300	2,500	270	350	120	220	12	12		
N ₂	—	All	4,300	2,500	270	350	120	220	12	12		

Key PI Positive Ignition
CI Compression Ignition.

¹ Positive ignition particulate mass and number limits apply only to vehicles with direct injection engines

3.3.2.2. Until the dates specified in paragraphs 12.2.3. and 12.2.4. of this Regulation for new type approvals and new vehicles respectively, the OBD threshold limits in Table A11/2 shall be applied to vehicles that are type approved according to the emission limits set out in Table 1 in paragraph 5.3.1.4. of this Regulation, upon the choice of the manufacturer.

Table A11/2: Preliminary OBD threshold limits

Category	Class	Reference mass (RM) (kg)	Mass of carbon monoxide		Mass of non-methane hydrocarbons		Mass of oxides of nitrogen		Mass of particulate matter ¹	
			(CO) (mg/km)		(NMHC) (mg/km)		(NO _x) (mg/km)		(PM) (mg/km)	
			PI	CI	PI	CI	PI	CI	CI	PI
M	—	All	1,900	1,750	170	290	150	180	25	25
N ₁	I	RM < 1305	1,900	1,750	170	290	150	180	25	25
	II	1305 < RM < 1760	3,400	2,200	225	320	190	220	25	25
	III	1760 < RM	4,300	2,500	270	350	210	280	30	30
N ₂	—	All	4,300	2,500	270	350	210	280	30	30

Key PI Positive Ignition
CI Compression Ignition.

¹ Positive ignition particulate mass and number limits apply only to vehicles with direct injection engines

3.3.2.3. The OBD thresholds limits for compression ignition vehicles that comply with the emission limit values set out Table 1 in paragraph 5.3.1.4. of this Regulation and type-approved before the dates given in paragraph 12.2.1. of this Regulation are contained in the Table A11/3. These threshold limits shall cease to apply from the dates set out in paragraph 12.2.2. of this Regulation for new vehicles to be registered, sold or entered into service.

Table A11/1: Final OBD threshold limits

Category	Class	Reference mass (RM) (kg)	Mass of carbon monoxide		Mass of non-methane hydrocarbons		Mass of oxides of nitrogen		Mass of particulate matter ¹		Number of particulates ¹	
			(CO) (mg/km)		(NMHC) (mg/km)		(NO _x) (mg/km)		(PM) (mg/km)		(PN) (#/km)	
			PI	CI	PI	CI	PI	CI	CI	PI	CI	PI
M	—	All	1,900	1,750	170	290	90	140	12	12		
N ₁	I	RM < 1305	1,900	1,750	170	290	90	140	12	12		
	II	1305 < RM < 1760	3,400	2,200	225	320	110	180	12	12		
	III	1760 < RM	4,300	2,500	270	350	120	220	12	12		
N ₂	—	All	4,300	2,500	270	350	120	220	12	12		

Key PI Positive Ignition
CI Compression Ignition.

¹ Positive ignition particulate mass and number limits apply only to vehicles with direct injection engines

3.3.2.2. Until the dates specified in paragraphs 12.2.3. and 12.2.4. of this Regulation for new type approvals and new vehicles respectively, the OBD threshold limits in Table A11/2 shall be applied to vehicles that are type approved according to the emission limits set out in Table 1 in paragraph 5.3.1.4. of this Regulation, upon the choice of the manufacturer.

Table A11/2: Preliminary OBD threshold limits

Category	Class	Reference mass (RM) (kg)	Mass of carbon monoxide		Mass of non-methane hydrocarbons		Mass of oxides of nitrogen		Mass of particulate matter ¹	
			(CO) (mg/km)		(NMHC) (mg/km)		(NO _x) (mg/km)		(PM) (mg/km)	
			PI	CI	PI	CI	PI	CI	CI	PI
M	—	All	1,900	1,750	170	290	150	180	25	25
N ₁	I	RM < 1305	1,900	1,750	170	290	150	180	25	25
	II	1305 < RM < 1760	3,400	2,200	225	320	190	220	25	25
	III	1760 < RM	4,300	2,500	270	350	210	280	30	30
N ₂	—	All	4,300	2,500	270	350	210	280	30	30

Key PI Positive Ignition
CI Compression Ignition.

¹ Positive ignition particulate mass and number limits apply only to vehicles with direct injection engines

3.3.2.3. The OBD thresholds limits for compression ignition vehicles that comply with the emission limit values set out Table 1 in paragraph 5.3.1.4. of this Regulation and type-approved before the dates given in paragraph 12.2.1. of this Regulation are contained in the Table A11/3. These threshold limits shall cease to apply from the dates set out in paragraph 12.2.2. of this Regulation for new vehicles to be registered, sold or entered into service.

Table A11/3: Interim OBD threshold limits

Category	Class	Reference mass (RM) (kg)	Mass of carbon monoxide		Mass of non-methane hydrocarbons		Mass of oxides of nitrogen		Mass of particulate matter	
			(CO) (mg/km)		(NMHC) (mg/km)		(NO _x) (mg/km)		(PM) (mg/km)	
			CI		CI		CI		CI	
M	—	All	1,900		320		240		50	
N ₁	I	RM < 1305	1,900		320		240		50	
	II	1305 < RM < 1760	2,400		360		315		50	
	III	1760 < RM	2,800		400		375		50	
N ₂	—	All	2,800		400		375		50	

Key PI Positive Ignition
CI Compression Ignition.

Reflowable text and other objects

United Nations LO >201pages.pdf

HomeToolsDocument11 / 75Share

E/CE/TRANS/505/Rev.1/Add.82/Rev.5
Annex 9 – Appendix 3

Annex 9 - Appendix 3

Standard Road Cycle (SRC)

1. Introduction
The Standard Road Cycle (SRC) is a kilometre accumulation cycle. The vehicle may be run on a test track or on a kilometre accumulation dynamometer.
The cycle consists of 7 laps of a 6 km course. The length of the lap may be changed to accommodate the length of the mileage accumulation test track.

Standard road cycle

	Description	Typical acceleration rate m/s ²
	(start engine) idle 10 seconds	0
	Moderate acceleration to 48 km/h	1.79
	Cruise at 48 km/h for ¼ lap	0
	Moderate deceleration to 32 km/h	-2.23
	Moderate acceleration to 48 km/h	1.79
	Cruise at 48 km/h for ¼ lap	0
	Moderate deceleration to stop	-2.23
	Idle 5 seconds	0
	Moderate acceleration to 56 km/h	1.79
	Cruise at 56 km/h for ¼ lap	0
	Moderate deceleration to 40 km/h	-2.23
	Moderate acceleration to 56 km/h	1.79
	Cruise at 56 km/h for ¼ lap	0
	Moderate deceleration to stop	-2.23
2	Idle 10 seconds	0
2	Moderate acceleration to 64 km/h	1.34
2	Cruise at 64 km/h for ¼ lap	0
2	Moderate deceleration to 48 km/h	-2.23
2	Moderate acceleration to 64 km/h	1.34
2	Cruise at 64 km/h for ¼ lap	0
2	Moderate deceleration to stop	-2.23
2	Idle 5 seconds	0
2	Moderate acceleration to 72 km/h	1.34
2	Cruise at 72 km/h for ¼ lap	0
2	Moderate deceleration to 56 km/h	-2.23
2	Moderate acceleration to 72 km/h	1.34
2	Cruise at 72 km/h for ¼ lap	0
2	Moderate deceleration to stop	-2.23
3	Idle 10 seconds	0
3	Hard acceleration to 88 km/h	1.79
3	Cruise at 88 km/h for ¼ lap	0
3	Moderate deceleration to 72 km/h	-2.23
3	Moderate acceleration to 88 km/h	1.79
3	Cruise at 88 km/h for ¼ lap	0
3	Moderate deceleration to 72 km/h	-2.23

211

E/CE/324/Rev

HomeToolsDocument11 / 73Share

E/CE/324/Rev.1/Add.82/Rev.5
Annex 9 – Appendix 3

Annex 9 - Appendix 3

Standard Road Cycle (SRC)

1. Introduction
The Standard Road Cycle (SRC) is a kilometre accumulation cycle. The vehicle may be run on a test track or on a kilometre accumulation dynamometer.
The cycle consists of 7 laps of a 6 km course. The length of the lap may be changed to accommodate the length of the mileage accumulation test track.

Standard road cycle

Lap	Description	Typical acceleration rate m/s ²
1	(start engine) idle 10 seconds	0
1	Moderate acceleration to 48 km/h	1.79
1	Cruise at 48 km/h for ¼ lap	0
1	Moderate deceleration to 32 km/h	-2.23
1	Moderate acceleration to 48 km/h	1.79
1	Cruise at 48 km/h for ¼ lap	0
1	Moderate deceleration to stop	-2.23
1	Idle 5 seconds	0
1	Moderate acceleration to 56 km/h	1.79
1	Cruise at 56 km/h for ¼ lap	0
1	Moderate deceleration to 40 km/h	-2.23
1	Moderate acceleration to 56 km/h	1.79
1	Cruise at 56 km/h for ¼ lap	0
1	Moderate deceleration to stop	-2.23
2	Idle 10 seconds	0
2	Moderate acceleration to 64 km/h	1.34
2	Cruise at 64 km/h for ¼ lap	0
2	Moderate deceleration to 48 km/h	-2.23
2	Moderate acceleration to 64 km/h	1.34
2	Cruise at 64 km/h for ¼ lap	0
2	Moderate deceleration to stop	-2.23
2	Idle 5 seconds	0
2	Moderate acceleration to 72 km/h	1.34
2	Cruise at 72 km/h for ¼ lap	0
2	Moderate deceleration to 56 km/h	-2.23
2	Moderate acceleration to 72 km/h	1.34
2	Cruise at 72 km/h for ¼ lap	0
2	Moderate deceleration to stop	-2.23
3	Idle 10 seconds	0
3	Hard acceleration to 88 km/h	1.79
3	Cruise at 88 km/h for ¼ lap	0
3	Moderate deceleration to 72 km/h	-2.23
3	Moderate acceleration to 88 km/h	1.79
3	Cruise at 88 km/h for ¼ lap	0
3	Moderate deceleration to 72 km/h	-2.23

205

Libre Office

3	Moderate acceleration to 72 km/h	-2.23
3	Moderate acceleration to 88 km/h	0.89
3	Cruise at 88 km/h for ¼ lap	0

3	Moderate acceleration to 88 km/h	0.89
3	Cruise at 88 km/h for ¼ lap	0
3	Moderate deceleration to 72 km/h	-2.23

MS Office
one more line
on the same page

Type: NG/biomethane

Characteristics	Units	Basis	Limits		Test Method
			min.	max.	
Reference fuel G ₂₀					
Composition:					
Methane	per cent mole	100	99	100	ISO 6974
Balance ¹	per cent mole	-	-	1	ISO 6974
N ₂	per cent mole				ISO 6974
Sulphur content	mg/m ³ ²	-	-	10	ISO 6326-5
Wobbe Index (net)	MJ/m ³ ³	48.2	47.2	49.2	
Reference fuel G ₂₅					
Composition:					
Methane	per cent mole	86	84	88	ISO 6974
Balance ¹	per cent mole	-	-	1	ISO 6974
N ₂	per cent mole	14	12	16	ISO 6974
Sulphur content	mg/m ³ ²	-	-	10	ISO 6326-5
Wobbe Index (net)	MJ/m ³ ³	39.4	38.2	40.6	

- ¹ Inerts (different from N₂) + C₂ + C₃ + ...
² Value to be determined at 293.2 K (20 °C) and 101.3 kPa.
³ Value to be determined at 293.2 K (20 °C) and 101.3 kPa.

Type: NG/biomethane

Characteristics	Units	Basis	Limits		Test Method
			min.	max.	
Reference fuel G ₂₀					
Composition:					
Methane	per cent mole	100	99	100	ISO 6974
Balance ¹	per cent mole	-	-	1	ISO 6974
N ₂	per cent mole				ISO 6974
Sulphur content	mg/m ^{3 2}	-	-	10	ISO 6326-5
Wobbe Index (net)	MJ/m ^{3 3}	48.2	47.2	49.2	
Reference fuel G ₂₅					
Composition:					
Methane	per cent mole	86	84	88	ISO 6974
Balance ¹	per cent mole	-	-	1	ISO 6974
N ₂	per cent mole	14	12	16	ISO 6974
Sulphur content	mg/m ^{3 2}	-	-	10	ISO 6326-5
Wobbe Index (net)	MJ/m ^{3 3}	39.4	38.2	40.6	

- ¹ Inerts (different from N₂) + C₂ + C₃ + ...
² Value to be determined at 293.2 K (20 °C) and 101.3 kPa.
³ Value to be determined at 273.2 K (0 °C) and 101.3 kPa.

222

Libre Office

E/ECE/324/Rev.1/Add.82/Rev.5
E/ECE/TRANS/505/Rev.1/Add.82/Rev.5
Annex 10a

Characteristics	Units	Basis	Limits		Test Method
			min.	max.	
³ Value to be determined at 273.2 K (0 °C) and 101.3 kPa.					

1.3. Technical data of hydrogen for internal combustion engines

Type: hydrogen for internal combustion engines

Characteristics	Units	Limits		Test method
		minimum	maximum	
Hydrogen purity	% mole	98	100	ISO 14687-1
Total hydrocarbon	µmol/mol	0	100	ISO 14687-1
Water ¹	µmol/mol	0	²	ISO 14687-1
Oxygen	µmol/mol	0	²	ISO 14687-1
Argon	µmol/mol	0	²	ISO 14687-1
Nitrogen	µmol/mol	0	²	ISO 14687-1
CO	µmol/mol	0	1	ISO 14687-1
Sulphur	µmol/mol	0	2	ISO 14687-1
Permanent particulates ³				ISO 14687-1

- ¹ Not to be condensed
² Combined water, oxygen, nitrogen and argon: 1.900 µmol/mol.
³ The hydrogen shall not contain dust, sand, dirt, gums, oils, or other substances in an amount sufficient to damage the fuelling station equipment of the vehicle (engine) being fuelled.

1.4. Technical data of hydrogen for fuel cell vehicles

Type: Hydrogen for fuel cell vehicles

Characteristics	Units	Limits	Test method
-----------------	-------	--------	-------------

MS Office

E/ECE/324/Rev.1/Add.82/Rev.5
E/ECE/TRANS/505/Rev.1/Add.82/Rev.5
Annex 10

Type: Ethanol (E75)

Parameter	Unit	Limits ¹		Test method ²
		Minimum	Maximum	
Research octane number, RON		95	-	EN ISO 5164
Motor octane number, MON		85	-	EN ISO 5163
Density at 15 °C	kg/m ³	report		EN ISO 12185
Vapour pressure	kPa	50	60	EN ISO 1 30 16-1 (DVPE)
Sulphur content ^{3, 4}	mg/kg	-	10	EN ISO 20846 EN ISO 20884
Oxidation stability	minutes	360	-	EN ISO 7536
Existent gum content (solvent washed)	mg/100ml	-	4	EN ISO 6246
Appearance shall be determined at ambient temperature or 15 °C whichever is higher.		Clear and bright, visibly free of suspended or precipitated contaminants		Visual inspection
Ethanol and higher alcohols ⁷	% (V/V)	70	80	EN 1601 EN 13132 EN 1451 7
Higher alcohols (C ₃ - C ₈)	% (V/V)	-	2	
Methanol		-	0.5	
Petrol ⁵	% (V/V)	Balance		EN 228
Phosphorus	mg/l	0.3 ⁶		EN 15487 ASTM D 3231
Water content	% (V/V)	-	0.3	ASTM E 1064 EN 15 489

Simple formula

Libre Office

E/ECE/324/Rev.1/Add.82/Rev.5
E/ECE/TRANS/505/Rev.1/Add.82/Rev.5
Annex 11

- 2.11. A "warm-up cycle" means sufficient vehicle operation such that the coolant temperature has risen by a least 22 K from engine starting and reaches a minimum temperature of 343 K (70 °C).
- 2.12. A "Fuel trim" refers to feedback adjustments to the base fuel schedule. Short-term fuel trim refers to dynamic or instantaneous adjustments. Long-term fuel trim refers to much more gradual adjustments to the fuel calibration schedule than short-term trim adjustments. These long-term adjustments compensate for vehicle differences and gradual changes that occur over time.
- 2.13. A "Calculated load value" refers to an indication of the current airflow divided by peak airflow, where peak airflow is corrected for altitude, if available. This definition provides a dimensionless number that is not engine specific and provides the service technician with an indication of the proportion of engine capacity that is being used (with wide open throttle as 100 per cent);

$$CLV = \frac{\text{Current airflow}}{\text{Peak airflow (at sea level)}} \cdot \frac{\text{Atmospheric pressure (at sea level)}}{\text{Barometric pressure}}$$

- 2.14. "Permanent emission default mode" refers to a case where the engine management controller permanently switches to a setting that does not require an input from a failed component or system where such a failed component or system would result in an increase in emissions from the vehicle to a level above the limits given in paragraph 3.3.2. of this annex.
- 2.15. "Power take-off unit" means an engine-driven output provision for the purposes of powering auxiliary, vehicle mounted, equipment.
- 2.16. "Access" means the availability of all emission-related OBD data including all fault codes required for the inspection, diagnosis, servicing or repair of emissions-related parts of the vehicle, via the serial interface for the standard diagnostic connection (pursuant to paragraph 6.5.3.5. of Appendix 1 to this annex).
- 2.17. "Unrestricted" means:
- 2.17.1. Access not dependent on an access code obtainable only from the manufacturer, or a similar device; or
- 2.17.2. Access allowing evaluation of the data produced without the need for any unique decoding information, unless that information itself is standardised.

MS Office

E/ECE/324/Rev.1/Add.82/Rev.5
E/ECE/TRANS/505/Rev.1/Add.82/Rev.5
Annex 11

- 2.11. A "warm-up cycle" means sufficient vehicle operation such that the coolant temperature has risen by a least 22 K from engine starting and reaches a minimum temperature of 343 K (70 °C).
- 2.12. A "Fuel trim" refers to feedback adjustments to the base fuel schedule. Short-term fuel trim refers to dynamic or instantaneous adjustments. Long-term fuel trim refers to much more gradual adjustments to the fuel calibration schedule than short-term trim adjustments. These long-term adjustments compensate for vehicle differences and gradual changes that occur over time.
- 2.13. A "Calculated load value" refers to an indication of the current airflow divided by peak airflow, where peak airflow is corrected for altitude, if available. This definition provides a dimensionless number that is not engine specific and provides the service technician with an indication of the proportion of engine capacity that is being used (with wide open throttle as 100 per cent);

$$CLV = \frac{\text{Current airflow}}{\text{Peak airflow (at sea level)}} \cdot \frac{\text{Atmospheric pressure (at sea level)}}{\text{Barometric pressure}}$$

- 2.14. "Permanent emission default mode" refers to a case where the engine management controller permanently switches to a setting that does not require an input from a failed component or system where such a failed component or system would result in an increase in emissions from the vehicle to a level above the limits given in paragraph 3.3.2. of this annex.
- 2.15. "Power take-off unit" means an engine-driven output provision for the purposes of powering auxiliary, vehicle mounted, equipment.
- 2.16. "Access" means the availability of all emission-related OBD data including all fault codes required for the inspection, diagnosis, servicing or repair of emissions-related parts of the vehicle, via the serial interface for the standard diagnostic connection (pursuant to paragraph 6.5.3.5. of Appendix 1 to this annex).
- 2.17. "Unrestricted" means:
- 2.17.1. Access not dependent on an access code obtainable only from the manufacturer, or a similar device; or
- 2.17.2. Access allowing evaluation of the data produced without the need for any unique decoding information, unless that information itself is standardised.



Libre Office

E/ECE/324/Rev.1/Add.82/Rev.5
E/ECE/TRANS/505/Rev.1/Add.82/Rev.5
Annex 14

Annex 14

Emissions test procedure for Hybrid Electric Vehicles (HEV)

1. Introduction
 - 1.1. This annex defines the specific provisions regarding type-approval of a Hybrid Electric Vehicle (HEV) as defined in paragraph 2.21.2. of this Regulation.
 - 1.2. As a general principle, for the tests of Types I, II, III, IV, V, VI and OBD, hybrid electric vehicles shall be tested according to Annexes 4a, 5, 6, 7, 9, 8 and 11 to this Regulation respectively, unless modified by this annex.
 - 1.3. For the Type I test only, OVC vehicles (as categorized in paragraph 2. of this annex) shall be tested according to condition A and to condition B. The test results under both conditions A and B and the weighted values shall be reported in the communication form.
 - 1.4. The emissions test results shall comply with the limits under all specified test conditions of this Regulation.
2. Categories of hybrid electric vehicles

Vehicle charging	Off-vehicle charging ¹ (OVC)		Not off-vehicle charging ² (NOVC)	
	Without	With	Without	With
Operating mode switch				

¹ Also known as "externally chargeable"

² Also known as "not externally chargeable"

3. Type I test methods
 - 3.1. Externally chargeable (OVC HEV) without an operating mode switch
 - 3.1.1. Two tests shall be performed under the following conditions:
Condition A: Test shall be carried out with a fully charged electrical energy/power storage device.
Condition B: Test shall be carried out with an electrical energy/power storage device in minimum state of charge (maximum discharge of capacity).
The profile of the State Of Charge (SOC) of the electrical energy/power storage device during different stages of the Type I test is given in Appendix 1 to this annex.
 - 3.1.2. Condition A
 - 3.1.2.1. The procedure shall start with the discharge of the electrical energy/power storage device of the vehicle while driving (on the test track, on a chassis dynamometer, etc.):
 - (a) At a steady speed of 50 km/h until the fuel consuming engine of the HEV starts up;



MS Office

E/ECE/324/Rev.1/Add.82/Rev.5
E/ECE/TRANS/505/Rev.1/Add.82/Rev.5
Annex 14

Annex 14

Emissions test procedure for Hybrid Electric Vehicles (HEV)

1. Introduction
 - 1.1. This annex defines the specific provisions regarding type-approval of a Hybrid Electric Vehicle (HEV) as defined in paragraph 2.21.2. of this Regulation.
 - 1.2. As a general principle, for the tests of Types I, II, III, IV, V, VI and OBD, hybrid electric vehicles shall be tested according to Annexes 4a, 5, 6, 7, 9, 8 and 11 to this Regulation respectively, unless modified by this annex.
 - 1.3. For the Type I test only, OVC vehicles (as categorized in paragraph 2. of this annex) shall be tested according to condition A and to condition B. The test results under both conditions A and B and the weighted values shall be reported in the communication form.
 - 1.4. The emissions test results shall comply with the limits under all specified test conditions of this Regulation.
2. Categories of hybrid electric vehicles

Vehicle charging	Off-vehicle charging ¹ (OVC)		Not off-vehicle charging ² (NOVC)	
	Without	With	Without	With
Operating mode switch				

¹ Also known as "externally chargeable"

² Also known as "not externally chargeable"

3. Type I test methods
 - 3.1. Externally chargeable (OVC HEV) without an operating mode switch
 - 3.1.1. Two tests shall be performed under the following conditions:
Condition A: Test shall be carried out with a fully charged electrical energy/power storage device.
Condition B: Test shall be carried out with an electrical energy/power storage device in minimum state of charge (maximum discharge of capacity).
The profile of the State Of Charge (SOC) of the electrical energy/power storage device during different stages of the Type I test is given in Appendix 1 to this annex.
 - 3.1.2. Condition A
 - 3.1.2.1. The procedure shall start with the discharge of the electrical energy/power storage device of the vehicle while driving (on the test track, on a chassis dynamometer, etc.):
 - (a) At a steady speed of 50 km/h until the fuel consuming engine of the HEV starts up;

Vector objects

Identical (Vector graphics)

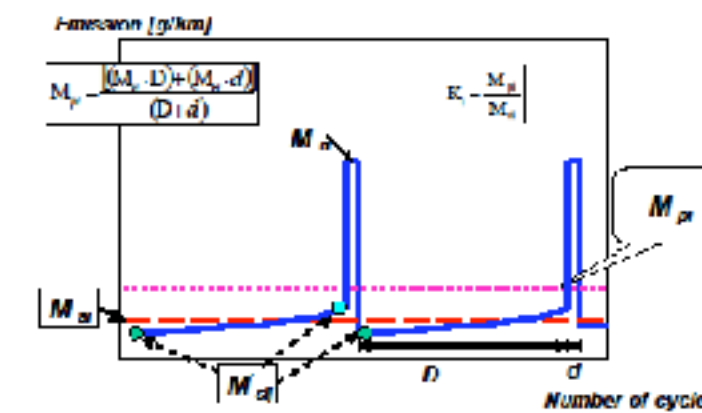
Libre Office

MS Office

Libre Office

MS Office

Figure A13/1
Parameters measured during emissions test during and between cycles where regeneration occurs (schematic example, the emissions during "D" may increase or decrease)



- 3.3.1 Calculation of the regeneration factor K for each pollutant (i) considered
 $K_i = M_{p,i} / M_{d,i}$
 $M_{d,i}$, $M_{p,i}$ and K_i results shall be recorded in the test report delivered by the Technical Service.
 K_i may be determined following the completion of a single sequence.
- 3.4 Calculation of combined exhaust emissions of multiple periodic regenerating systems

$$(1) \quad M_{d,i} = \frac{\sum_{j=1}^n M_{d,i,j}}{n_i} \quad n_i \geq 2$$

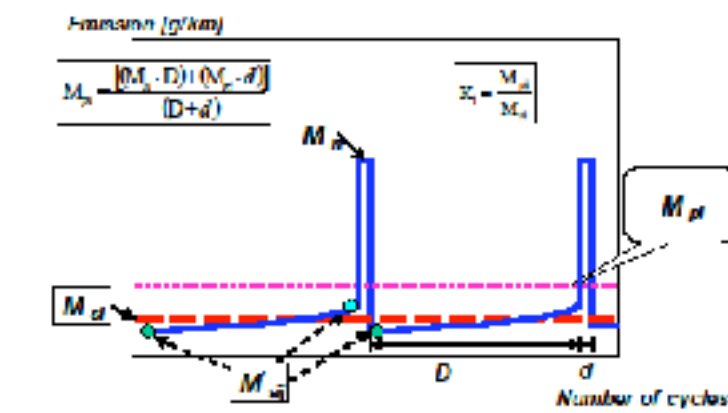
$$(2) \quad M_{d,i} = \frac{\sum_{j=1}^n M_{d,i,j}}{d_j}$$

$$(3) \quad M_{d,i} = \frac{\sum_{k=1}^n M_{d,i} \cdot D_k}{\sum_{k=1}^n D_k}$$

$$(4) \quad M_{d,i} = \frac{\sum_{k=1}^n M_{d,i} \cdot d_k}{\sum_{k=1}^n d_k}$$

257

Figure A13/1
Parameters measured during emissions test during and between cycles where regeneration occurs (schematic example, the emissions during "D" may increase or decrease)



- 3.3.1 Calculation of the regeneration factor K for each pollutant (i) considered
 $K_i = M_{p,i} / M_{d,i}$
 $M_{d,i}$, $M_{p,i}$ and K_i results shall be recorded in the test report delivered by the Technical Service.
 K_i may be determined following the completion of a single sequence.
- 3.4 Calculation of combined exhaust emissions of multiple periodic regenerating systems

$$(1) \quad M_{d,i} = \frac{\sum_{j=1}^n M_{d,i,j}}{n_i} \quad n_i \geq 2$$

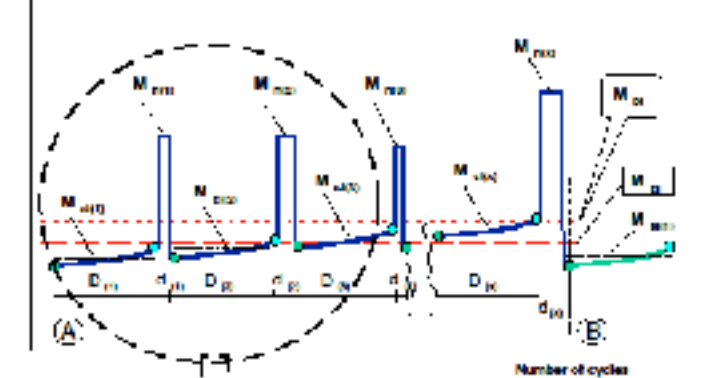
$$(2) \quad M_{d,i} = \frac{\sum_{j=1}^n M_{d,i,j}}{d_j}$$

$$(3) \quad M_{d,i} = \frac{\sum_{k=1}^n M_{d,i} \cdot D_k}{\sum_{k=1}^n D_k}$$

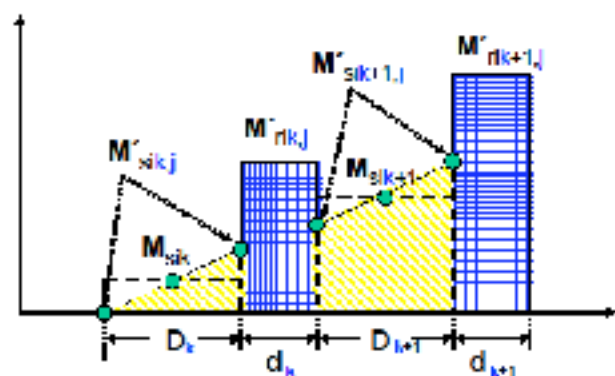
$$(4) \quad M_{d,i} = \frac{\sum_{k=1}^n M_{d,i} \cdot d_k}{\sum_{k=1}^n d_k}$$

249

For an illustration of measurement parameters see Figure A13/1
 Figure A13/2
 Parameters measured during emissions test during and between cycles where regeneration occurs (schematic example)

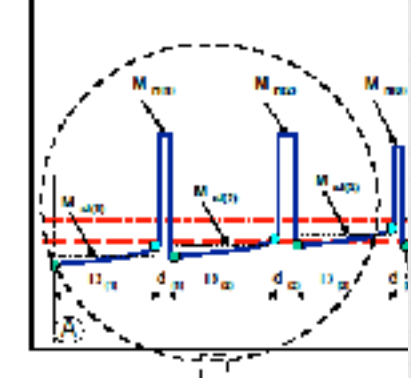


For more details of the schematic process see Figure A13/3
 Figure A13/3
 Parameters measured during emissions test during and between cycles where regeneration occurs (schematic example)

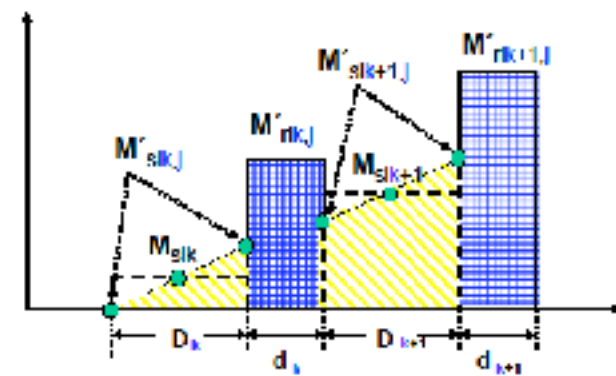


259

For an illustration of measurement parameters see Figure A13/1
 Figure A13/2
 Parameters measured during emissions test during and between cycles where regeneration occurs (schematic example)



For more details of the schematic process see Figure A13/3
 Figure A13/3
 Parameters measured during emissions test during and between cycles where regeneration occurs (schematic example)



261

Tagging

OctoberPDFest ONLINE

Works - if prepared
as needed

MS Office

Libre Office

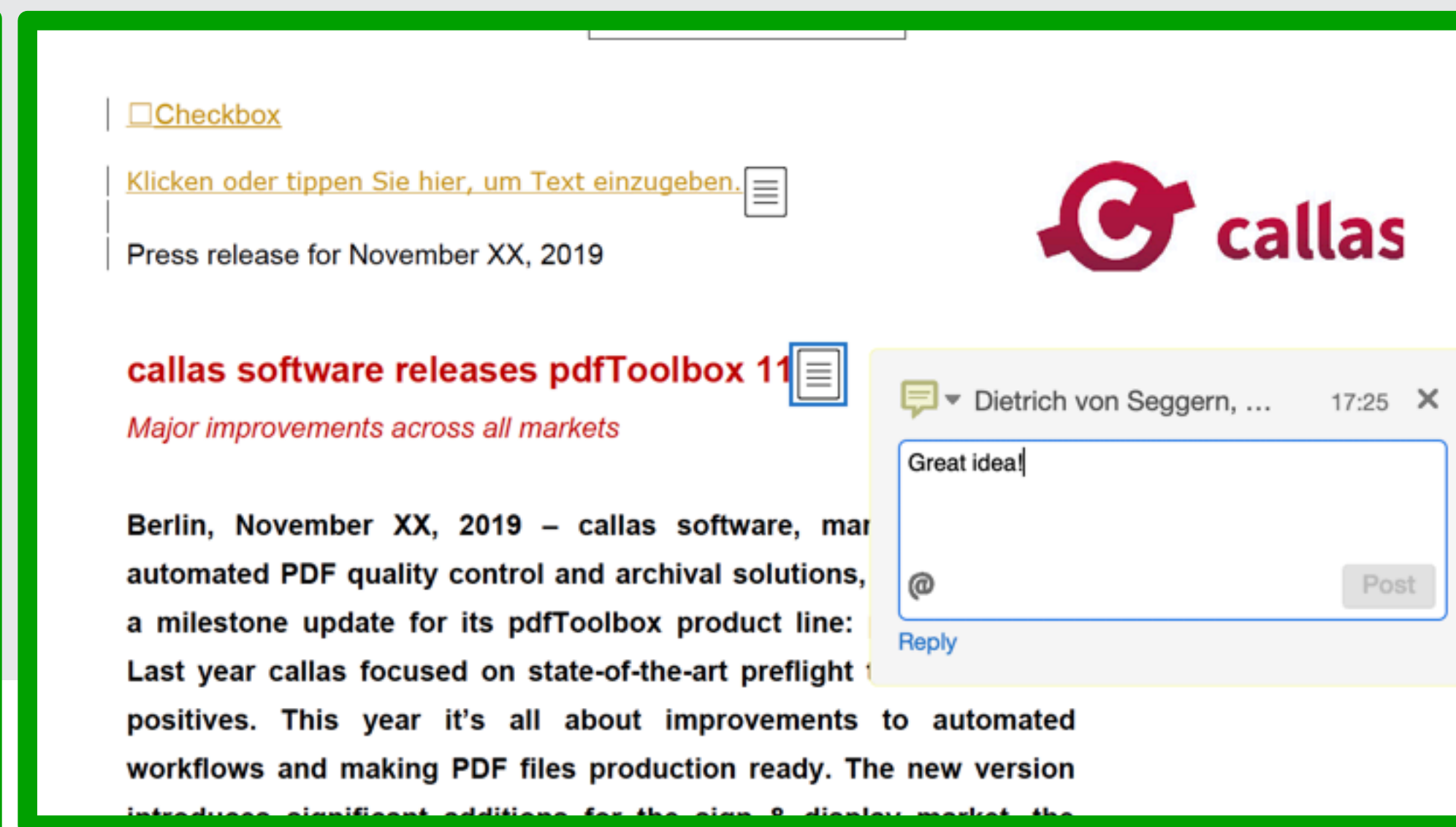
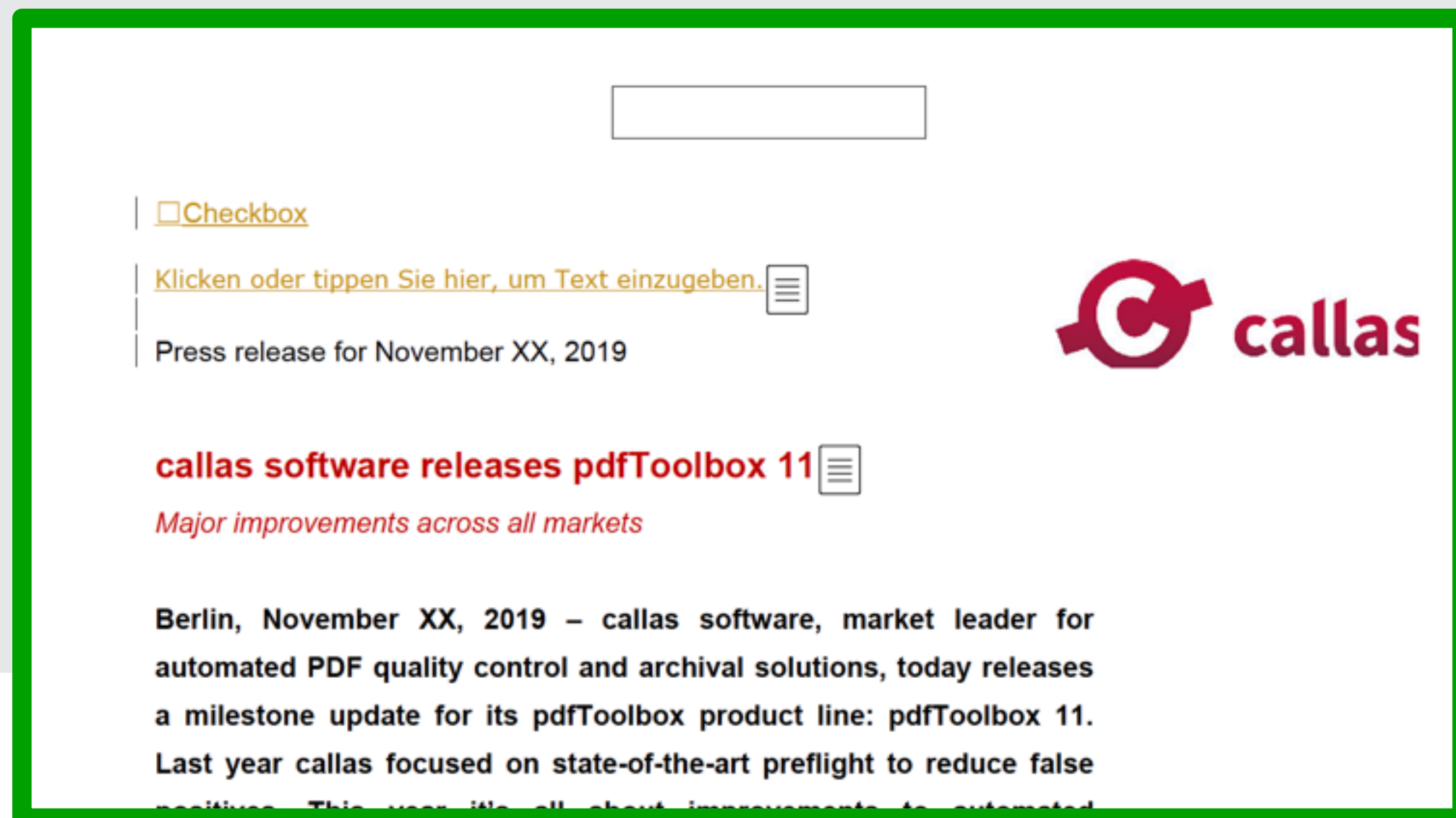
Table		Table	
TH	P Legislative Act	TH	P Requirements
TH	P The California Code of Regulations, Title 13, paragraphs 1961(a) and 1961(b)(1)(C)(1) applicable to 2001 and later model year vehicles, 1968.1, 1968.2, 1968.5, and 1975, published by Barclay's Publishing.	TD	P Type approval shall be granted under the California Code of Regulations applicable to the most recent model year of light duty vehicle.
TD	P Legislative Act	TD	P Requirements
TD	P The California Code of Regulations, Title 13, paragraphs 1961(a) and 1961(b)(1)(C)(1) applicable to 2001 and later model year vehicles, 1968.1, 1968.2, 1968.5, 1976 and 1975, published by Barclay's Publishing.	TD	P Type approval shall be granted under the California Code of Regulations applicable to the most recent model year of light duty vehicle.
P	The emissions tests for roadworthiness purposes set out in Annex 5 to this Regulation and the requirements for access to vehicle OBD information set out in paragraph 5. of Annex 11 to this Regulation shall still be required to obtain type approval with regard to emissions under this paragraph.		
P	The Type Approval Authority shall inform the other Type Approval Authorities of Contracting Parties of the circumstances of each type approval granted under this paragraph.		
P	5.1.General		
P	5.1.1.The components liable to affect the emission of pollutants shall be so designed, constructed and assembled as to enable the vehicle, in normal use, despite the vibration to which they may be subjected, to comply with the provisions of this Regulation.		

Annotations

- MS Word: Flattened
- LibreOffice: Optional as PDF annotations

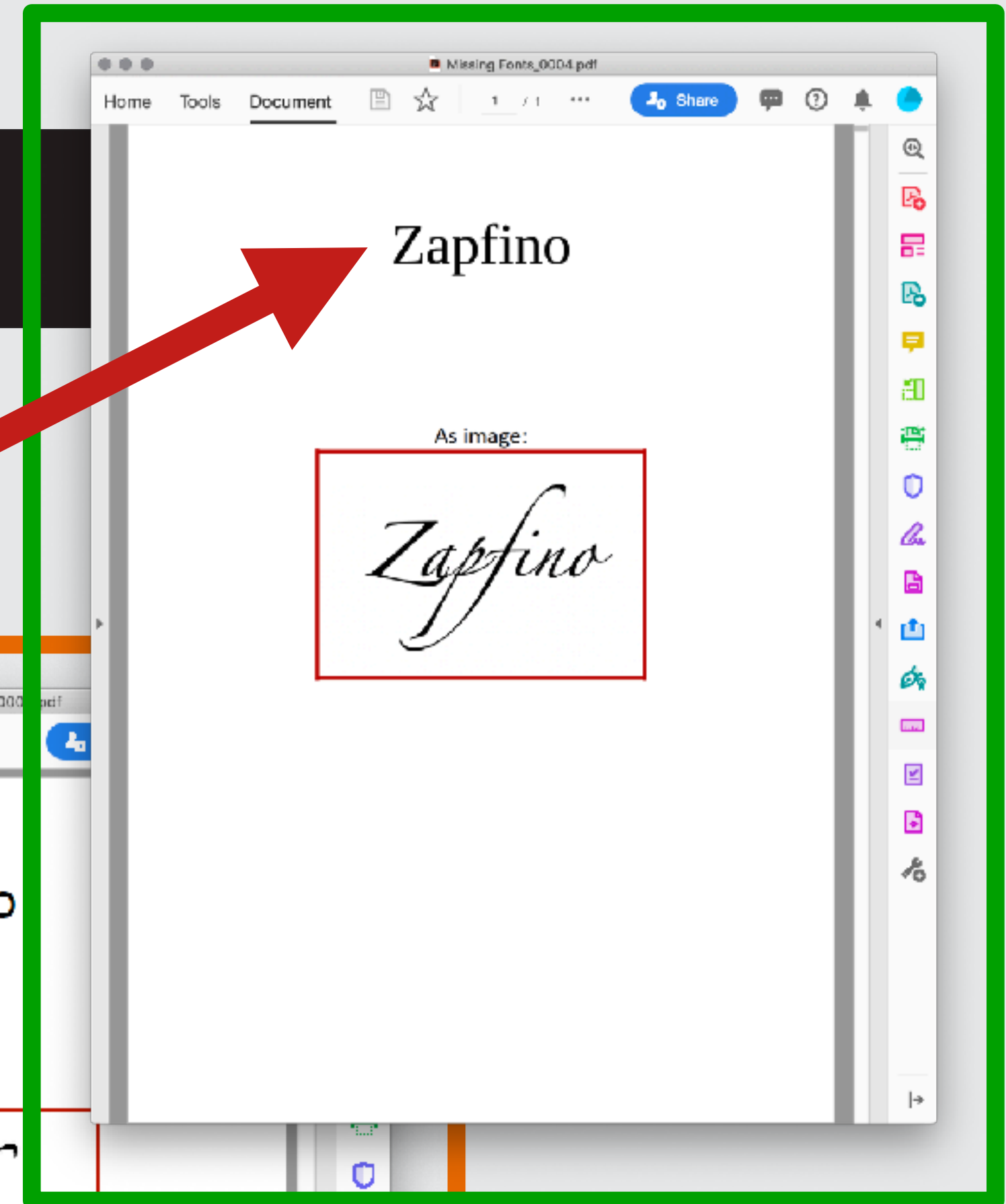
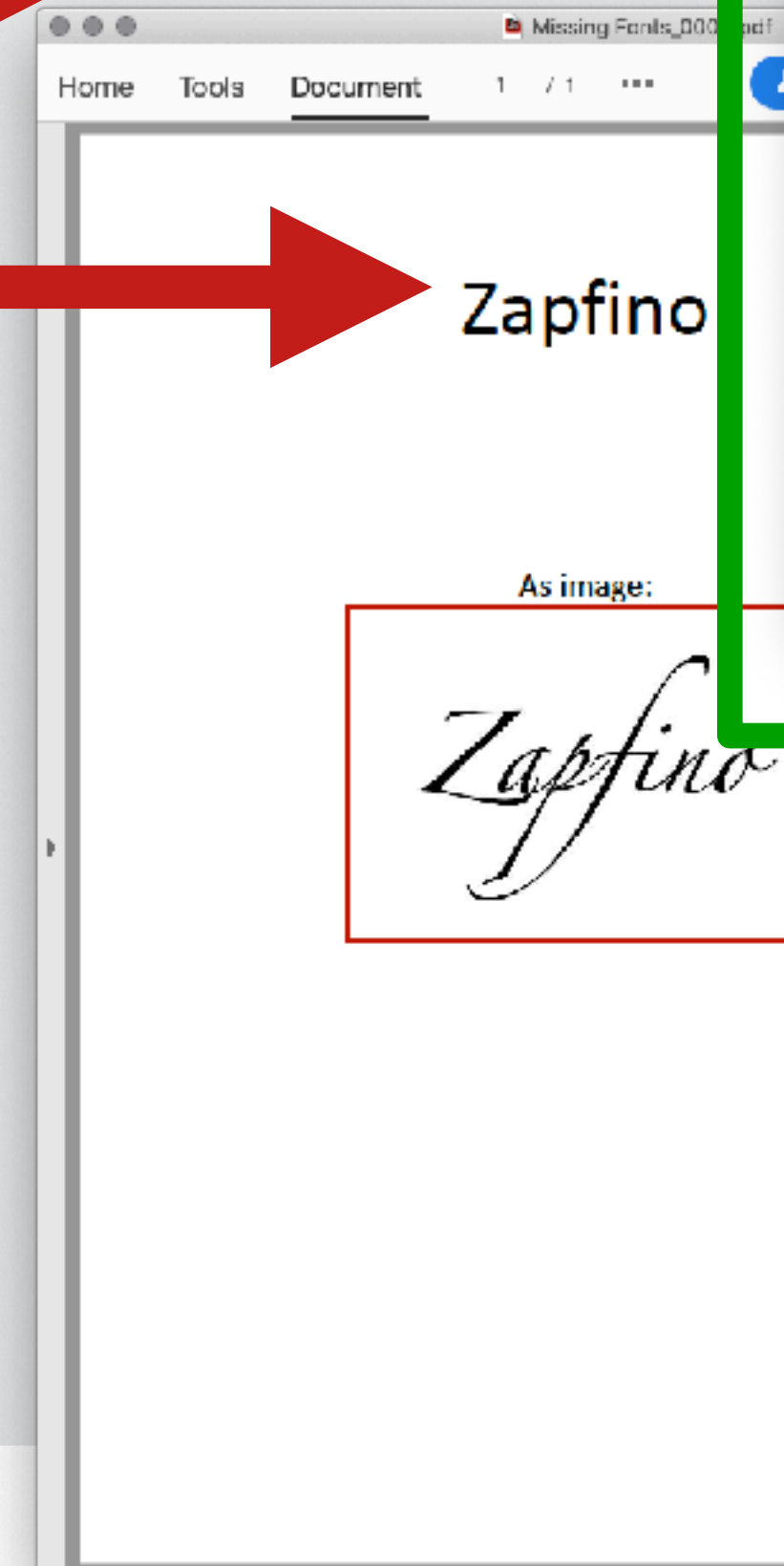
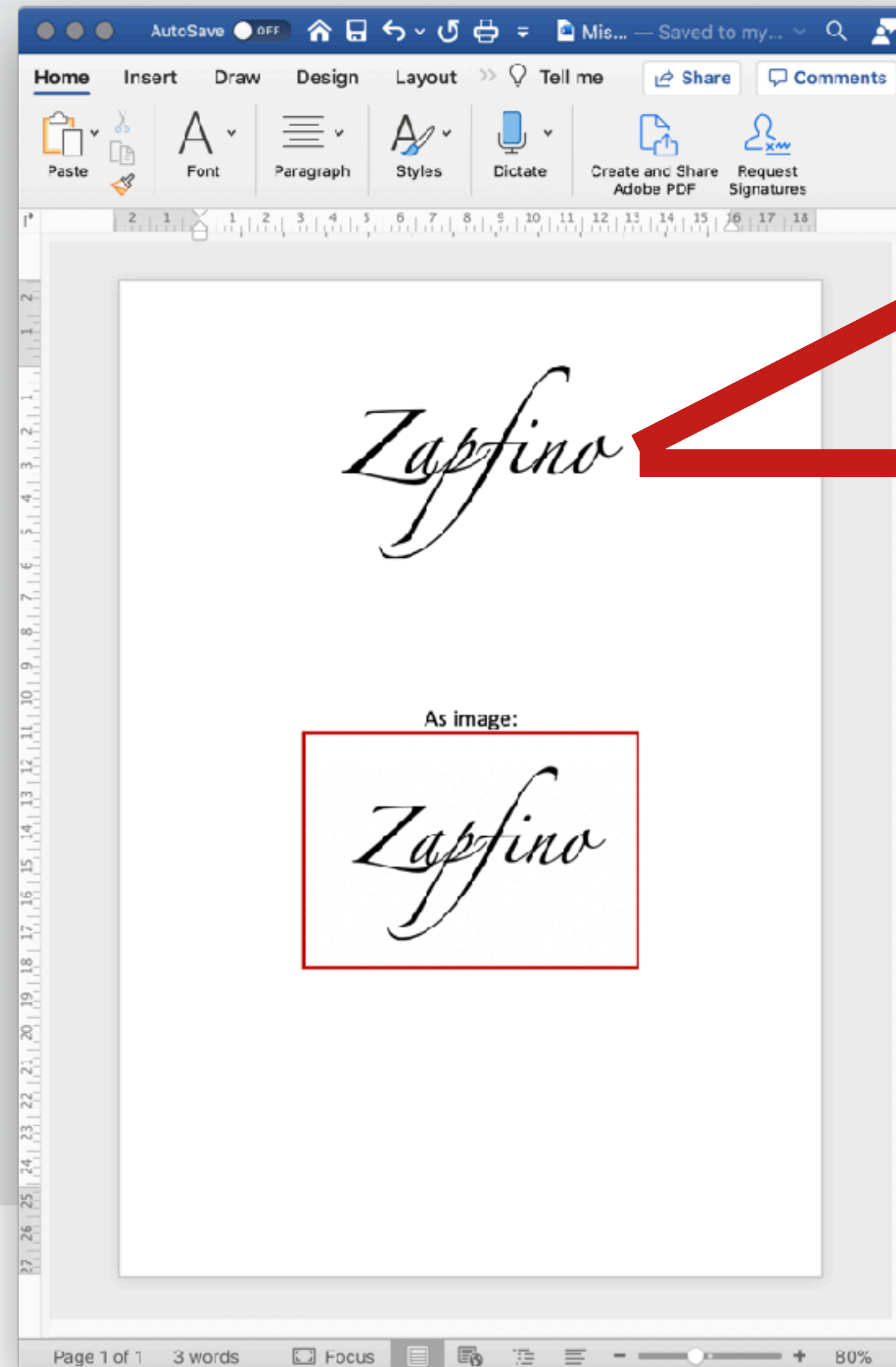


Libre Office



General problem: Missing fonts

No warnings
(without
special
developments)



Spreadsheets: No pages, formulas



No real page concept

Not a document similar to Word / Writer and PDF

Tagging to a certain degree

Document		Part		MS Office	
Table		Table		Libre Office	
TD	P	Maximum von Folgenanzahl	TD	P	Gemeinschaftsprojekt von ARD, ZDF und DLR, Zulieferung an BR
TD	P	Bereich	TD	P	1. Quartal 2018:
TD	P	110101	TD	P	25.-29.04.2018
TD			TD	P	Marketingleistungen für SWR 1 Pfänle sind Beschallung, Licht, Ton, Grafik,Übertragung der Bühnenshow auf die Videowand, Präsentation desProgramm SWR1 in Zelten
TD			TD	P	Termine: Juni
TD			TD	P	Die Festivals finden im folgenden Zeitraum statt:
TD	P	110101 Ergebnis	TD	P	- 11.02.2018 Produktion vor Ort
TD	P	110141	TD	P	10 Termine über das Jahr verteilt,
TD			TD	P	12 Kommunikationsssschwerpunkte, relativ gleichmäßig über das Jahr verteilt,
TD			TD	P	14.04.-22.04.
TD			TD	P	Termin: 20.1.2018
TD			TD	P	Termin: 9.9.18
TD			TD	P	4 mal Demokratieforum am Hambacher Schloss
TD			TD	P	11 Neuproduktionen à 45 Minuten
TD			TD	P	Freitag 21:00 Profil für 9 Neuproduktionen

Annotations

New Vendor Form.xlsx - Excel

Datei Start Einfügen Seitenlayout Formeln Daten Überprüfen Ansicht Hilfe DocsCorp

Einfügen Calibri 11 A A Standard

Zwischenablage Schriflart Ausrichtung Zahl

D17 Euskirchen

itelligence NTT DATA Business Solutions

NEW VENDOR FORM

Address

Company Name: Actino Software GmbH

Address 1: An der Vogelrute 39a

Address 2:

Address 3:

City: Euskirchen

Post Code: 53879

My test comment

Sheet1

Zelle D17: kommentiert vo...

New Vendor Form + comment.pdf Libre Office

Home Tools Document 1 / 1 Share

Credit Card Payment Form

itelligence NTT DATA Business Solutions

NEW VENDOR FORM

Address

Company Name: Actino Software GmbH

Address 1: An der Vogelrute 39a

Address 2:

Address 3:

City: Euskirchen

Post Code: 53879

Contact details

Phone Number: 02251-148

Fax Number: 02251-148

Finance email: karbe@actino.de

Bank Details

Bank Name: Commerzbank Hamburg

Account Name: Actino Software GmbH

Sort Code:

Account Number: 02251-1480-20

SWIFT: (If applicable) COBADEFFXXX

IBAN: (If applicable) DE13 2004 0000 0408 6070 00

VAT Reg No. DE812668536

Revised by Neil McNamee 10.01.2014

My test comment

October PDFTEST ONLINE MS Office

New Vendor Form.pdf

Credit Card Payment Form

itelligence NTT DATA Business Solutions

NEW VENDOR FORM

Actino Software GmbH

An der Vogelrute 39a

Euskirchen

53879

02251-1480-20

02251-1480-14

karbe@actino.de

Commerzbank Hamburg

Actino Software GmbH

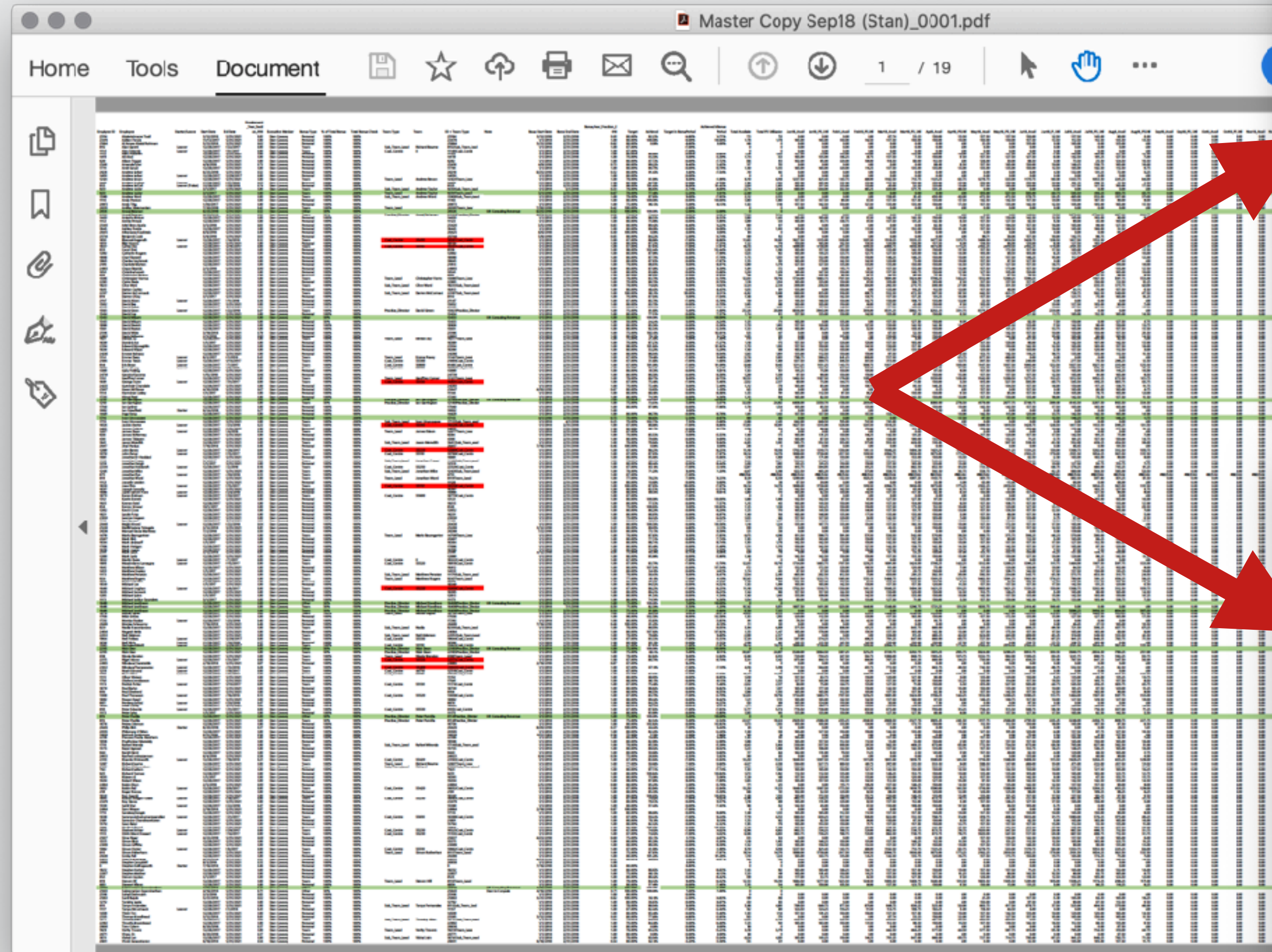
COBADEFFXXX

DE13 2004 0000 0408 6070 00

VAT Reg No. DE812668536

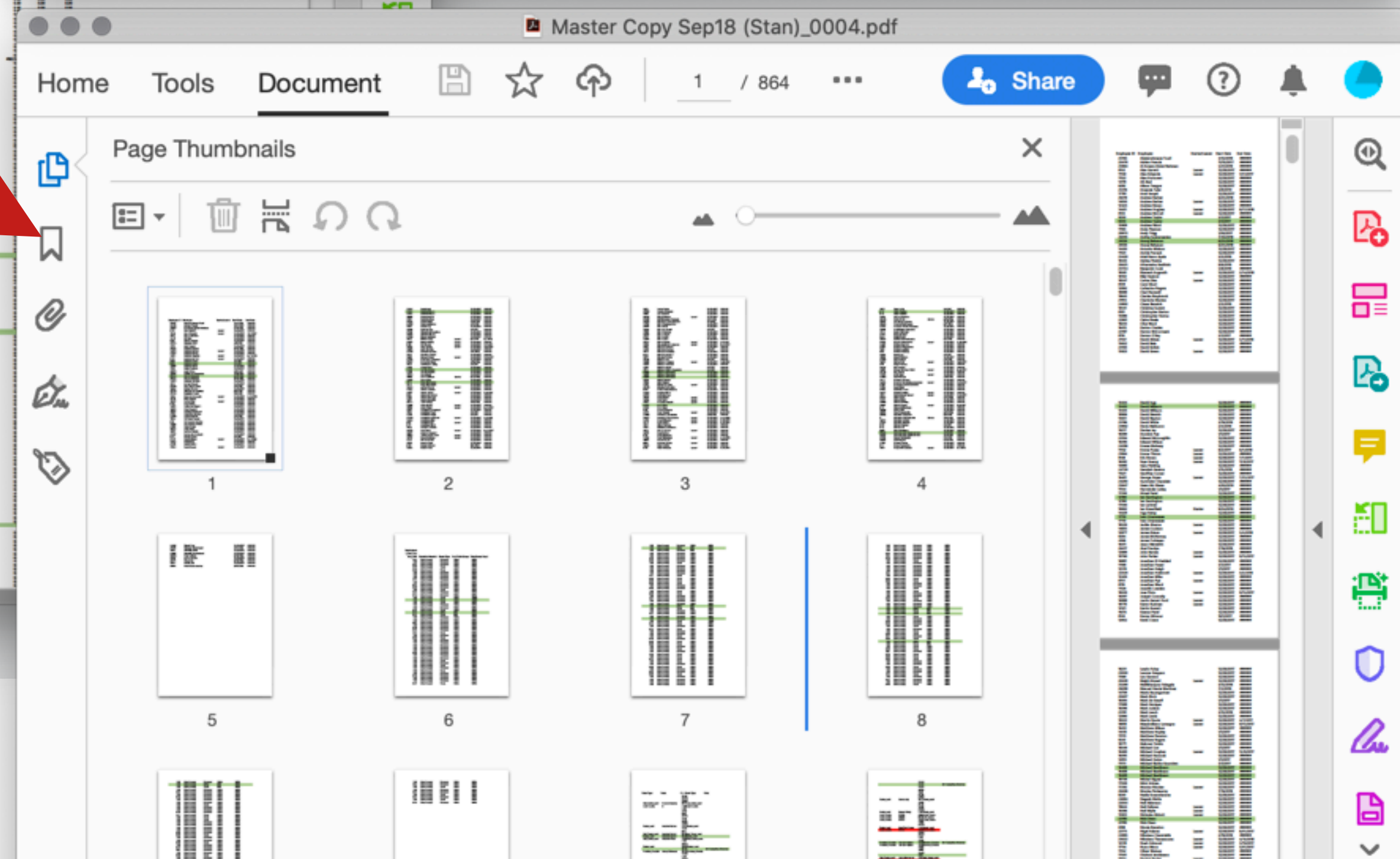
Revised by Neil McNamee 10.01.2014

General: Page breaks



This screenshot shows a PDF document titled "Master Copy Sep18 (Stan)_0001.pdf". It contains a table with employee data. The table is divided into sections by green horizontal lines, which represent page breaks. The document is viewed in a software interface with a sidebar on the left and a top menu bar.

Employee ID	Employee	Start/Leaver	Start Date	End Date	on_2018	Executive Member	Bonus Type	% of Total Bonus	Total Bonus Check	Team
25194	Abderrahmane Toul		3/12/2018	12/31/2021	0.81	Stan Cawsey	Personal	100%	100%	Team
23478	Adrian Francis		11/13/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
25564	Al Ameen Abdul Rahman		5/21/2018	12/31/2021	0.62	Stan Cawsey	Personal	100%	100%	Team
8152	Alan Garrett	Leaver	12/28/2017	9/22/2017	0.00	Stan Cawsey	Team	100%	100%	Sub_Te
11140	Alex Edwards	Leaver	12/28/2017	1/31/2017	0.00	Stan Cawsey	Team	100%	100%	Cost C
11122	Alex Huttunen		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
14119	Ali Akel		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
6282	Alison Teague		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
25416	Amanda Tyler		4/9/2018	12/31/2021	0.73	Stan Cawsey	Personal	100%	100%	Team
17781	Amit Sanyal		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
26218	Andrew Barber		6/25/2018	12/31/2021	0.52	Stan Cawsey	Personal	100%	100%	Team
14050	Andrew Barber	Leaver	12/28/2017	12/29/2017	0.00	Stan Cawsey	Personal	100%	100%	Team
12424	Andrew Boyan		12/28/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	100%	Team
14431	Andrew Hughes	Leaver	12/28/2017	8/17/2018	0.63	Stan Cawsey	Personal	100%	100%	Team
8135	Andrew McCall	Leaver (Future)	12/28/2017	9/28/2018	0.74	Stan Cawsey	Personal	100%	100%	Team
9250	Andrew Taylor		3/1/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	200%	Sub_Te
9250	Andrew Taylor		3/1/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	200%	Team
15009	Andrew Ward		12/28/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	100%	Sub_Te
11165	Andy Pearson		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
20973	Andy Triou		1/30/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
26195	Anitha Subramanian		7/31/2018	12/31/2021	0.42	Stan Cawsey	Team	100%	100%	Team
26126	Anool Behanan		6/25/2018	12/31/2021	0.52	Stan Cawsey	Other	50%	100%	Team
26126	Anool Behanan		6/25/2018	12/31/2021	0.52	Stan Cawsey	Team	50%	100%	Practic
14430	Anooj Minkov		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
11123	Archie Parrack		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
25420	Arif Bravo Ayala		3/5/2018	12/31/2021	0.83	Stan Cawsey	Personal	100%	100%	Team
18445	Ashley Pereira		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
26425	Aslanas Kosiksis		8/8/2018	12/31/2021	0.40	Stan Cawsey	Personal	100%	100%	Team
25744	Benjamin Cook		3/9/2018	12/31/2021	0.65	Stan Cawsey	Personal	100%	100%	Team
18581	Bhavesh Sugandh	Leaver	12/28/2017	2/14/2018	0.12	Stan Cawsey	Team	100%	100%	Cost
16150	Blair Hashmi		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
10347	Carlos Das	Leaver	12/28/2017	12/19/2017	0.00	Stan Cawsey	Team	100%	100%	Cost
8139	Carri Short		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
12892	Catherine Rogers		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
10088	Cheri Ranwell		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
19645	Charles Baybrook		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
21914	Charlotte Morten		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
24803	Chesle Beswick		2/5/2018	12/31/2021	0.80	Stan Cawsey	Personal	100%	100%	Team
10541	Christina Smith		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
8101	Christopher Barton		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
15086	Christopher Varma		12/28/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	100%	Team
22501	Claire Neale		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
18233	Clive Ward		12/28/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	100%	Sub_Te
16413	Damon Charles		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	Team
22187	Darren McCormack		12/28/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	100%	Sub_Te



General: hashes

Slight changes (e.g.
a different font used
for PDF conversion)
may result in slightly
longer texts which
will result in
hashes “#####”

	A	B	C	D	E	F	G	H	I	J	K
7	11122	Alex Huttunen		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
8	14119	Ali Akel		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
9	6282	Alison Teague		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
10	25416	Amanda Tyler		4/9/2018	12/31/2021	0.73	Stan Cawsey	Personal	100%	100%	
11	17781	Amit Sanyal		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
12	26218	Andrew Barber		6/25/2018	12/31/2021	0.52	Stan Cawsey	Personal	100%	100%	
13	14050	Andrew Barber	Leaver	12/28/2017	12/29/2017	0.00	Stan Cawsey	Personal	100%	100%	
14	12424	Andrew Bevan		12/28/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	100%	Team_Lead
15	14431	Andrew Hughes	Leaver	12/28/2017	8/17/2018	0.63	Stan Cawsey	Personal	100%	100%	
16	8135	Andrew McColl	Leaver	12/28/2017	9/28/2018	0.74	Stan Cawsey	Personal	100%	100%	
17	9250	Andrew Taylor		3/1/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	200%	Sub_Team_Lead
18	9250	Andrew Taylor		3/1/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	200%	Team_Lead
19	15909	Andrew Ward		12/28/2017	12/31/2021	1.00	Stan Cawsey	Team	100%	100%	Sub_Team_Lead
20	11165	Andy Pearson		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
21	20973	Andy Trigg		1/30/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
22	26395	Anitha Subramanian		7/30/2018	12/31/2021	0.42	Stan Cawsey	Team	100%	100%	Team_Lead
23	26126	Anooj Behanan		6/25/2018	12/31/2021	0.52	Stan Cawsey	Other	50%	100%	
24	26126	Anooj Behanan		6/25/2018	12/31/2021	0.52	Stan Cawsey	Team	50%	100%	Practice_Directo
25	14430	Antonio Minkov		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
26	11123	Archie Parrack		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
27	25420	Ariel Bravo Ayala		3/5/2018	12/31/2021	0.83	Stan Cawsey	Personal	100%	100%	
28	18445	Ashley Pereira		12/28/2017	12/31/2021	1.00	Stan Cawsey	Personal	100%	100%	
29	26425	Athanasios Kasilteis		8/6/2018	12/31/2021	0.40	Stan Cawsey	Personal	100%	100%	

Employment									
Employee ID	Employee	Starter/Leaver	Start Date	End Date	Year_Fraction	Executive Member	Bonus Type	% of	
25194	Abderrahmane Touil		3/12/2018	#####	0.81	Stan Cawsey	Personal	10	
23478	Adrian Francis		11/13/2017	#####	1.00	Stan Cawsey	Personal	10	
25864	Al Ameen Abdul Rahman		5/21/2018	#####	0.62	Stan Cawsey	Personal	10	
8152	Alan Garrett	Leaver	12/28/2017	9/22/2017	0.00	Stan Cawsey	Team	10	
11140	Alex Edwards	Leaver	12/28/2017	1/31/2017	0.00	Stan Cawsey	Team	10	
11122	Alex Huttunen		12/28/2017	#####	1.00	Stan Cawsey	Personal	10	
14119	Ali Akel		12/28/2017	#####	1.00	Stan Cawsey	Personal	10	
6282	Alison Teague		12/28/2017	#####	1.00	Stan Cawsey	Personal	10	
25416	Amanda Tyler		4/9/2018	#####	0.73	Stan Cawsey	Personal	10	
17781	Amit Sanyal		12/28/2017	#####	1.00	Stan Cawsey	Personal	10	
26218	Andrew Barber		6/25/2018	#####	0.52	Stan Cawsey	Personal	10	
14050	Andrew Barber	Leaver	12/28/2017	#####	0.00	Stan Cawsey	Personal	10	
12424	Andrew Bevan		12/28/2017	#####	1.00	Stan Cawsey	Team	10	
14431	Andrew Hughes	Leaver	12/28/2017	8/17/2018	0.63	Stan Cawsey	Personal	10	
8135	Andrew McColl	Leaver (Future)	12/28/2017	9/28/2018	0.74	Stan Cawsey	Personal	10	
9250	Andrew Taylor		3/1/2017	#####	1.00	Stan Cawsey	Team	10	
9250	Andrew Taylor		3/1/2017	#####	1.00	Stan Cawsey	Team	10	
15909	Andrew Ward		12/28/2017	#####	1.00	Stan Cawsey	Team	10	
11165	Andy Pearson		12/28/2017	#####	1.00	Stan Cawsey	Personal	10	
20973	Andy Trigg		1/30/2017	#####	1.00	Stan Cawsey	Personal	10	
26395	Anitha Subramanian		7/30/2018	#####	0.42	Stan Cawsey	Team	10	
26126	Anooj Behanan		6/25/2018	#####	0.52	Stan Cawsey	Other	50	
26126	Anooj Behanan		6/25/2018	#####	0.52	Stan Cawsey	Team	50	
14430	Antonio Minkov		12/28/2017	#####	1.00	Stan Cawsey	Personal	10	
11123	Archie Parrack		12/28/2017	#####	1.00	Stan Cawsey	Personal	10	
25420	Ariel Bravo Ayala		3/5/2018	#####	0.83	Stan Cawsey	Personal	10	

Slides: Close to PDF



- Has pages
- Mostly absolute positioning of objects

Power Point / Impress

OctoberPDFest ONLINE

- Not supported (in MS Office or LibreOffice)
- Tagging
- Slide transitions (to PDF transitions) →
- Metadata
- Layout templates
 - Presenter notes
 - Handout (several slides)

S	name	(Optional) The <i>transition style</i> that shall be used when moving to this page from another during a presentation. Default value: <i>R</i> .
	<i>Split</i>	Two lines sweep across the screen, revealing the new page. The lines may be either horizontal or vertical and may move inward from the edges of the page or outward from the centre, as specified by the Dm and M entries, respectively.
	<i>Blinds</i>	Multiple lines, evenly spaced across the screen, synchronously sweep in the same direction to reveal the new page. The lines may be either horizontal or vertical, as specified by the Dm entry. Horizontal lines move downward; vertical lines move to the right.
	<i>Box</i>	A rectangular box sweeps inward from the edges of the page or outward from the centre, as specified by the M entry, revealing the new page.
	<i>Wipe</i>	A single line sweeps across the screen from one edge to the other in the direction specified by the Di entry, revealing the new page.
	<i>Dissolve</i>	The old page dissolves gradually to reveal the new one.
	<i>Glitter</i>	Similar to <i>Dissolve</i> , except that the effect sweeps across the page in a wide band moving from one side of the screen to the other in the direction specified by the Di entry.
	<i>R</i>	The new page simply replaces the old one with no special transition effect; the D entry shall be ignored.
	<i>Fly</i>	(PDF 1.5) Changes are flown out or in (as specified by M), in the direction specified by Di , to or from a location that is offscreen except when Di is <i>None</i> .
	<i>Push</i>	(PDF 1.5) The old page slides off the screen while the new page slides in, pushing the old page out in the direction specified by Di .
	<i>Cover</i>	(PDF 1.5) The new page slides on to the screen in the direction specified by Di , covering the old page.
	<i>Uncover</i>	(PDF 1.5) The old page slides off the screen in the direction specified by Di , uncovering the new page in the direction specified by Di .
	<i>Fade</i>	(PDF 1.5) The new page gradually becomes visible through the old one.

Email conversion



- No support in Libre Office at all
- Microsoft Outlook very difficult to automate
- ➔ Preferably direct file format conversion

Email: A complex topic of its own



- Header: into XMP metadata of the PDF
- Body: the richest variant (HTML, RTF, Text) into PDF pages
 - What to do with external references?
- Attachments: As PDF attachments either converted to PDF if possible or not
 - Special problem: “digital only (XML) files”
(calendar attachments, vCard attachments)

Summary: Office to PDF



- **Text processors: Word, Writer**
 - No content missing
 - Differences in positioning/reflow
- **Spreadsheet: Excel, Calc**
 - Results good in both cases
 - General pagination problems

- **Slides: PowerPoint, Impress**
 - Results good in both cases
- **Email**
 - A complex topic of its own
 - Direct file format conversion



Automate office files to PDF

Microsoft, LibreOffice or other?

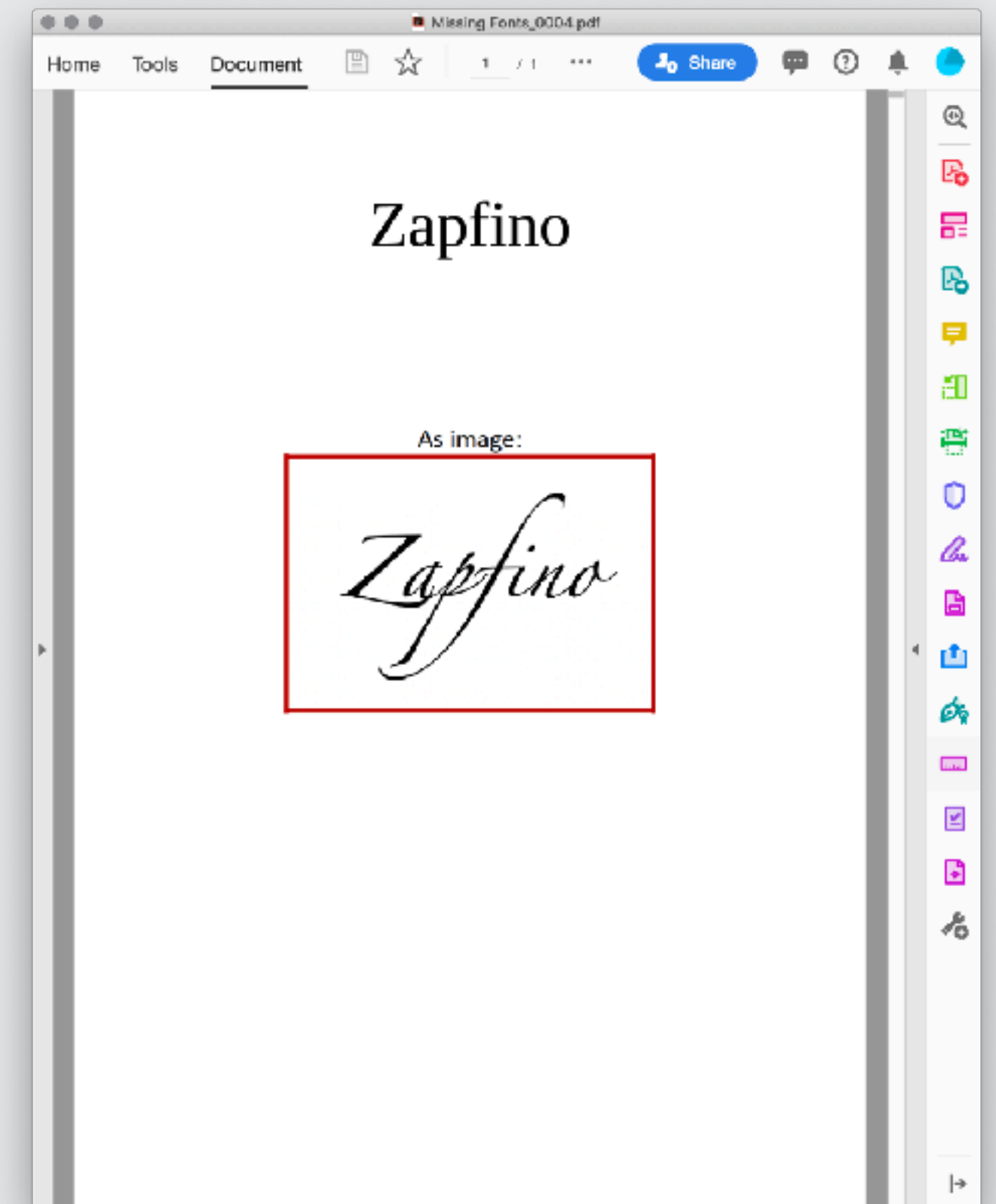
Office to PDF with callas pdfaPilot



- Select office application (MS Office or LibreOffice / OpenOffice) for conversion
- Create an as rich as possible intermediate result and post process result PDF
 - Support for PDF/A-4 right away
- Optionally embed original as PDF attachment

Special params: Text processors

- Log font substitutions
- Control whether or not to update fields
- Control quality (image resolution)
- Control comments



Special parameters: Spreadsheets



- One page per table in a spreadsheet: all filled cells on a single page or “use Excel page layout”
- Include hidden columns
- Shrink content in cells to fit cell dimensions (avoid #####)

Special parameters: Email

- Email parameters
 - Control remote content (for HTML emails)
 - Templates for page layout
 - Embed attachments
 - Original format
 - Converted to PDF
 - Both
- Add all header fields to PDF XMP metadata

MS Outlook



Apple Mail





Automate office files to PDF

Microsoft, LibreOffice or other?

General requirements



for PDF/A or other requirements it is often better to do additional PDF work, e.g. font embedding or transparency flattening

- Filesize of results
- Quality of PDF code
- Embedded originals
- Unicode

--topdf_parameter

Custom parameters, valid values are:

- Conversion / Automation

- Performance
- Platforms
- Unattended
- Parallel processing

ShowHiddenColumns (for MS Excel conversion only)

ShrinkToFit (for MS Excel conversion only)

PrintQualityAndComments (for MS Word conversion only)

UpdateChangedFields (for MS Word conversion only)

DoNotHideOffice (for MS Office only)

NoMemoryOptimization (for MS Office only)

CSV_IMPORT=FieldSeparator,TextDelimiter,ChararcterSet (for LibreOffice only)

FieldSeparator: Set field seperator as ASCII value, e.g. 44 for comma, 59 for semi-colon, 44/59 for both

TextDelimiter: Set TextDelimiter as ASCII value, e.g. 34 for double quotes and 39 for single quotes

ChararcterSet: Set character set. 0 = Unknown/System, 1 = Windows-1252, 9 = System Default, 11 = Ascii, 76 = UTF-8

NoBitmapMissingFonts (for MS Word conversion only)

Missing Fonts... are logged as return value so that an application can act on that information

Some tests (not representative)



- Filesize of results / Quality of PDF code
 - No differences found?
- Embedded originals
 - LibreOffice or PDF side
- Unicode
 - In general no problem, what about bullet points from Libre Office?
- Conversion / Automation
 - Performance
 - No differences found?
 - Platforms
 - LibreOffice and other converters are available on Linux, results are - other than for MS Office - the same on MacOS
- Unattended
 - Manageable (dialogue management, restart the app once in a while)
 - Without user context: Requires preparation
- Parallel processing
 - .NET easier

Requirement

- Ta
- Me
- /C
- /S
- An
- /ni
- /B
- Fo
- /B
- Lin
- /B
- “B

Zapfino

As image:



As image:



```
Serialization   Expiration Date 5/23/2022
Input   \\Mac\Home\Ppresentations\2010 OctoberPDFest\Office\Files\Word Writer\Missing Fonts.docx
Pages   1
Warning Fonts were missing and have been substituted
FontSubstitution   Zapfino Calibri
Output   \\Mac\Home\Ppresentations\2010 OctoberPDFest\Office\Files\Word Writer\Missing Fonts_0003.pdf
Finished \\Mac\Home\Ppresentations\2010 OctoberPDFest\Office\Files\Word Writer\Missing Fonts_0003.pdf
```

Some tests with .doc / .docx (not representative)

Some tests (not representative)

MS Word file

=> MS Word

=> LibreOffice

Problems

Longer text

Tables

Complex constructions

Conceptual requirements Word

Metadata

Annotations

Forms

Links

“Bugs”

Missing fonts

Fonts need to be present in the system for office files

If not: layout changes without notification

In PDF: Embedded

Page breaks

Conceptual requirements Excel

Tagging (no)

Metadata

Annotations

Pagination

“Bugs”

Cells that are too small

MS Excel file

=> MS Word

=> LibreOffice

Problems are the same with both Apps?

Control of pagination
with print output

Cells that are too small

(Foxit: LibreOffice is better for CSV
input)

Conceptual requirements Excel

- Tagging (no)

- Metadata

- Annotations

- Pagination

- “Bugs”

- Cells that are too small

--topdf_parameter

Custom parameters, via

ShowHiddenColumns (for MS Excel conversion only)

ShrinkToFit (for MS Excel conversion only)

CSV_IMPORT=FieldSeparator,TextDelimiter,ChararcterSet (for LibreOffice only)

FieldSeparator: Set field separator as ASCII value, e.g. 44 for comma, 59 for semi-colon, 44/59 for both

TextDelimiter: Set TextDelimiter as ASCII value, e.g. 34 for double quotes and 39 for single quotes

ChararcterSet: Set character set. 0 = Unknown/System, 1 = Windows-1252, 9 = System Default, 11 = Ascii,

Missing Fonts... are logged as return value so that an application can act on that information

Spreadsheets: Excel

something completely
no real page concept

AutoSave OFF bu_2018.xls - Compatibility Mode

Home Insert Draw Page Layout Formulas Data Review View Acrobat

C213 16 x Konfektionierungen Made in Südwest / Fahr mal hin / Mensch Leut

Maximum von Fol	Bereich	Bereichsbezeichnung	Bemerkung
110101	Intendant	HA Intendanz	(Leer)
Intendant Ergebnis			
110101 Ergebnis	110141	Presse + PR Ltg.	Januar - Zulieferung Bewegtbild (Schnitt) Januar / Februar 2018: Pressekonferenz mit Intendant (Fernsehstudio), Organisation bei Katja Mats Juli - Zulieferung Bewegtbild (Schnitt) Mai/Juni 2018: Pressegespräch mit Intendant Produktion von etwa 4 Trailern / Jahr Streaming verschiedener Dialogveranstaltungen, etwa 2 (Termine noch nicht bekannt) Streaming weiterer Pressekonferenzen (ca. 2 pro Jahr), Termin nicht vorherzusagen Termin: September 2018, Videoschnitt unterjährig Produktion von Trailern / Jahr
Presse + PR Ltg. Ergebnis			
110141 Ergebnis	110211	HA Kommunikation Leitung	Grafikleistungen Designentwicklung und Pflege für HA Kommunikation 2018 Grafikleistungen für HA Kommunikation 2018
HA Kommunikation Leitung Ergebnis			
110211 Ergebnis	110214	Medienkompetenz	Ausrollen der SWR Dschungeltour (Kinderführung im Studio) in Freiburg, mittlerer Aufwand Ausst. Gemeinschaftsprojekt von ARD, ZDF und DLR, Zulieferung an BR Geplant: 2 Videos mit je 2 Tage Dreh und Schnitt "sogehlt MEDIEN" Termin: Frühjahr 2018; Veranstaltung beim SWR in Mainz mit ca. 60 Kindern und Begleitung im Termin: Frühjahr 2018 / Veranstaltung im Studiosaal mit 100 Kindern und Begleitung (Ausstattung, Umsetzung Workshopreihe für Schulklassen beim SWR in Stuttgart, Thema "Nachrichtenkompetenz"
Medienkompetenz Ergebnis			
110214 Ergebnis	110251	Marketing Leitung	2 Termine SWR Aktuell Korrespondententalk (Veranstaltung) im ersten und vierten Quartal 2018 Erstes und zweites Quartal 2018: Einführungskommunikation: Konzeption, Produktion für vier sog. T (Leer)
Marketing Leitung Ergebnis			
110251 Ergebnis	110261	Markenführ/D übergr.	1. Quartal 2018: Multiplikatoren-Event (Catering, Projektion, Filmproduktion (1-Kamerateam)) 2. Quartal, Produktion Bewegtbild (Licht, Ausstattung, EB-Team, Schnitt) ganzjährig diverse Termine und Ort, Beschallung, Licht, Ausstattung ganzjährig, Dreh mit EB-Team, Schnitt, Ausstattung, Licht
Markenführ/D übergr. Ergebnis			

bu_2018 1pg.pdf

Home Tools Document 1 / 29 Share

Maximum von Folgenanzahl	Bereich	Bereichsbezeichnung	Bemerkung	Ergebnis
110101	Intendant	HA Intendanz	(Leer)	
Intendant Ergebnis				
110101 Ergebnis	110141	Presse - PR Ltg.	Januar - Zulieferung Bewegtbild (Schnitt) Januar / Februar 2018: Pressekonferenz mit Intendant (Fernsehstudio), Organisation bei Katja Mats Juli - Zulieferung Bewegtbild (Schnitt) Mai/Juni 2018: Pressegespräch mit Intendant Produktion von etwa 4 Trailern / Jahr Streaming verschiedener Dialogveranstaltungen, etwa 2 (Termine noch nicht bekannt) Streaming weiterer Pressekonferenzen (ca. 2 pro Jahr), Termin nicht vorherzusagen Termin: September 2018, Videoschnitt unterjährig Produktion von Trailern / Jahr	
Presse - PR Ltg. Ergebnis				
110141 Ergebnis	110211	HA Kommunikation Leitung	Grafikleistungen Designentwicklung und Pflege für HA Kommunikation 2018 Grafikleistungen für HA Kommunikation 2018	
HA Kommunikation Leitung Ergebnis				
110211 Ergebnis	110214	Medienkompetenz	Ausrollen der SWR Dschungeltour (Kinderführung im Studio) in Freiburg, mittlerer Aufwand Ausst. Gemeinschaftsprojekt von ARD, ZDF und DLR, Zulieferung an BR Geplant: 2 Videos mit je 2 Tage Dreh und Schnitt "sogehlt MEDIEN" Termin: Frühjahr 2018; Veranstaltung beim SWR in Mainz mit ca. 60 Kindern und Begleitung im Termin: Frühjahr 2018 / Veranstaltung im Studiosaal mit 100 Kindern und Begleitung (Ausstattung, Umsetzung Workshopreihe für Schulklassen beim SWR in Stuttgart, Thema "Nachrichtenkompetenz"	
Medienkompetenz Ergebnis				
110214 Ergebnis	110251	Marketing Leitung	2 Termine SWR Aktuell Korrespondententalk (Veranstaltung) im ersten und vierten Quartal 2018 Erstes und zweites Quartal 2018: Einführungskommunikation: Konzeption, Produktion für vier sog. T (Leer)	
Marketing Leitung Ergebnis				
110251 Ergebnis	110261	Markenführ/D übergr.	1. Quartal 2018: Multiplikatoren-Event (Catering, Projektion, Filmproduktion (1-Kamerateam)) 2. Quartal, Produktion Bewegtbild (Licht, Ausstattung, EB-Team, Schnitt) ganzjährig diverse Termine und Ort, Beschallung, Licht, Ausstattung ganzjährig, Dreh mit EB-Team, Schnitt, Ausstattung, Licht	
Markenführ/D übergr. Ergebnis				

Conversion via applications



Conceptual requirements Email

Header information (Metadata)

Referenced images

Attachments

Tagging (no)

“Bugs”

Pagination

winmail.dat (TNEF)

Some tests (not representative)

Email file

=> MS Word (Outlook)

=> LibreOffice

Outlook can't be as easily
accessed as the other MS Office
applications

More or less impossible

Only native converters

Compared to the other formats no
as strict design requirements

Biggest problems are attachments