

Manufacturer (trade mark):	Clover Germany	Type/Model OEM:	TN-321BK
Lot/Part number:	DPC TN321BE	Toner color(s):	BLACK
Main application:	To be used on the relevant printers according to remanufacturer instructions		
Intended yield:	2500		
	E73436J4J164806 / E73436J4J164814 / E73436J4J164807	Take over value of existing test protocol :	(box) Yes, from ISO19798
Test device:		Relative humidity:	45
Test climate:	23		
Deviations of the determined test conditions		Test location 2):	TRS EUROPE
Tester 1):	Aleksandar Kojic		
Test date:	4.2.2016		

1) If values are taken over from test protocol, the signing person is responsible, that the protocols, from which the values have been taken off, are plausible and correct.

2) Either testing place or place where the protocol is made

Test sample (A)	Type	Used for valuation	Charge/Serial number
1	2513	Yes	Sample 1
2	2510	Yes	Sample 2
3	2513	Yes We use for A1 the	Sample 3
4	2519	Yes MAX, for A2 the	Sample 4
5	2514	Yes MEDIAN and for A3 the	Sample 5
6	2513	Yes MIN value of the list at	Sample 6
7	2516	Yes left	Sample 7
8	2516	Yes	Sample 8
9	2512	Yes	Sample 9
Comparing Sample (B)	Type	Used for valuation	Charge/Serial number
1	2500	Yes/no Yes	OEM Sample/Spec
2	2500	Yes/no Yes	OEM Sample/Spec
3	2500	Yes/no Yes	OEM Sample/Spec
4		Yes/no	
5		Yes/no	

OEM data taken from OEMs own
ISO19752 or ISO19798 declarations of
yield

Administrative checking of health related attributes (5.2)

Is there an EG- Safety Data Sheet of the used toner?

Yes/no Yes

If there are no information of the AMES test in the EG Safety Data Sheet

Is there a test report about the AMES test of the used toner?

Yes/no Not Aplicable

If not: Description All MSDSs mention Ames test

Checking the influence of the toner module on the printer (5.3)

Is the toner leaking less than the original?

Yes/no Yes

Is the interaction between printer and toner module acceptable?

Yes/no Yes

If not: Description

Checking the initialization (5.4)

Is the print out acceptable right after the toner module has been inserted?

Yes/no Yes

If not: Describe fault

Checking the yield number (5.5)

BLACK

	1	2	3	Average ($\bar{A}$ or $\bar{V}$)
Yield A: $(A1+A2+A3)/3=\bar{A}$	2519	2513	2510	2514
Yield V: $(V1+V2+V3)/3=\bar{V}$	2500	2500	2500	2500

Alternative:

Yield A: Result of test after ISO/IEC 19752 $\bar{A}$

Reference to the test protocol:

Test date:

Yield V: Result of test after ISO/IEC 19752 $\bar{V}$

Reference to the test protocol:

Test date:

Result: $EZ=\bar{A}/\bar{V}$

Is the expected yield (EZ) reached?

Is the expected page yield reached?

Yes	No	Not Aplicable
YES		
YES		

Checking the black print/Color reproduction (5.6.2)

Average value of the 2 areas F test print A1: 21,7

Average value of the 2 areas F comparing print V1: 22,5

Difference is not higher than $\Delta \leq 5$ for Monochrome Not Aplicable

Color difference $\Delta E \leq 18$ for Color 0,8

Average value of the 2 areas F test print A2: 21

Average value of the 2 areas F comparing print V2: 21

Difference is not higher than $\Delta \leq 5$ for Monochrome Not Aplicable

Color difference $\Delta E \leq 18$ for Color 0

Average value of the 2 areas F test print A3: 20,2

Average value of the 2 areas F comparing print V3: 21,4

Yes/No/Not Aplicable Not Aplicable

Yes/No/Not Aplicable Yes

Yes/No/Not Aplicable Not Aplicable

Yes/No/Not Aplicable Yes

Difference is not higher than $\Delta \leq 5$ for Monochrome
Color difference $\Delta E \leq 18$ for Color

Not Aplicable
1,2

Yes/No/Not Aplicable
Yes/No/Not Aplicable

Not Aplicable
Yes

Checking the fade (5.6.3)

BLACK

Test print A1				
Color values 1 6 A F	1	6	A	F
after 50 pages	78,5	59,2	45,9	22,7
Color values 1 6 A F	1	6	A	F
The biggest deviation	3,3	7,1	6,2	2,3
Comparing print V1				
Color values 1 6 A F	1	6	A	F
after 50 pages	80,4	64,2	47,6	24,3
Color values 1 6 A F	1	6	A	F
The biggest deviation	1,1	7,8	4,5	2,9
Result determination				
Difference $\Delta L \leq 8$	1	6	A	F
	2,2	0,7	1,7	0,6
Difference within allowed parameters	YES	YES	YES	YES

Test print A2 BLACK				
Color values 1 6 A F	1	6	A	F
after 50 pages	75,2	54,6	42,6	21,5
Color values 1 6 A F	1	6	A	F
The biggest deviation	5,2	4,6	6,2	2,4
Comparing print V2				
Color values 1 6 A F	1	6	A	F
after 50 pages	80,1	63,4	46,4	23,2
Color values 1 6 A F	1	6	A	F
The biggest deviation	2	5,7	3,8	3,4
Result determination				
Difference $\Delta L \leq 8$	1	6	A	F
	3	1,1	2,4	1
Difference within allowed parameters	YES	YES	YES	YES

Test print A3 BLACK				
Color values 1 6 A F	1	6	A	F
after 50 pages	77,6	59,4	45,2	20,3
Color values 1 6 A F	1	6	A	F
The biggest deviation	4,5	8,2	6,6	0,3
Comparing print V2				
Color values 1 6 A F	1	6	A	F
after 50 pages	82,3	65,7	48,1	23,6
Color values 1 6 A F	1	6	A	F
The biggest deviation	2,8	6,8	4,7	3,4
Result determination				
Difference $\Delta L \leq 8$	1	6	A	F
	1,7	1,4	1,9	3,1
Difference within allowed parameters	YES	YES	YES	YES

Checking toner adhesion

Test process: visual (tape method):

Is the resistance in between the acceptable parameters? Yes
If not: Describe deviation

Checking the grey page/color uniformity (5.6.5)

Are the color differences in between the acceptable parameters (pattern B2-B5) $\Delta E \leq 8$? Yes
If not: Describe deviation

Checking the background (5.6.6)

Is the background smudge between the acceptable parameters (pattern B1-B5)? Yes
If not: Describe deviation

Checking the ghosting (5.6.7)

Is the repeating of the back rectangles in between the acceptable parameters (pattern B2-B5)? Yes
If not: Describe deviation

Checking toner miscibility (5.6.8)

Is the toner miscibility given? N/A
If not: Describe deviation

OVERALL RESULT: Passed