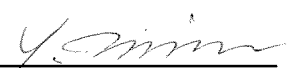




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<i>Test Report No.:</i>					
<b>Auftraggeber:</b>		<b>KYOCERA Document Solutions Inc.</b>			
<i>Client:</i>		<b>1-2-28 Tamatsukuri, Chuo-ku ,Osaka-shi,Osaka,540-8585 Japan</b>			
<b>Gegenstand der Prüfung: Facsimile Kit for Multi Function Printer</b>					
<i>Test item:</i>					
<b>Bezeichnung:</b>		<b>FAX System 10</b>		<b>Serien-Nr.:</b>	
<i>Identification:</i>				<b>Prototype</b>	
				<i>Serial No.:</i>	
<b>Wareneingangs-Nr.:</b>		<b>A000181838-001</b>		<b>Eingangsdatum: 2015-04-06</b>	
<i>Receipt No.:</i>				<i>Date of receipt:</i>	
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b>			<b>Prüfmuster vollständig und unbeschädigt</b>		
<i>Condition of the test item at delivery:</i>			<i>Test item complete and undamaged</i>		
<b>Prüfort:</b>		<b>TÜV Rheinland Japan Ltd.</b>			
<i>Testing location:</i>		<b>4-25-2, Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan</b>			
<b>Prüfgrundlage:</b>		<b>TBR 21 January 1998</b>			
<i>Test specification:</i>					
<b>Prüfergebnis:</b>		<b>Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).</b>			
<i>Test Result:</i>		<i>The test item passed the test specification(s).</i>			
<b>Prüflaboratorium:</b>		<b>TÜV Rheinland Japan Ltd.</b>			
<i>Testing Laboratory:</i>		<b>4-25-2, Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan</b>			
		<b>Phone:+81-45-914-0239 Fax:+81-45-914-3347 e-mail: telecom-lab@jpn.tuv.com</b>			
<b>geprüft/ tested by:</b>			<b>kontrolliert/ reviewed by:</b>		
2015-05-21, Y.Miura 			2015-05-21, M. Zietz 		
<b>Datum</b>	<b>Name/Stellung</b>	<b>Unterschrift</b>	<b>Datum</b>	<b>Name/Stellung</b>	<b>Unterschrift</b>
<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>	<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>
<b>Sonstiges/ Other Aspects:</b>					
Clause 4.7.1 is applied without the 60mA current limit.					
<b>Accredited Testing Laboratory under the terms of ISO 17025</b>					
<b>D-PL-12059-01-03</b>					
 <b>DAkkS</b> Deutsche Akkreditierungsstelle					
* Legende: 1 = sehr gut      2 = gut      3 = befriedigend      4 = ausreichend      5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n)      F(ail) = entspricht nicht o.g. Prüfgrundlage(n)      N/A = nicht anwendbar      N/T = nicht getestet Legend: 1 = very good      2 = good      3 = satisfactory      4 = sufficient      5 = poor P(ass) = passed a.m. test specification(s)      F(ail) = failed a.m. test specification(s)      N/A = not applicable      N/T = not tested					
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>					

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Summary Report .....	6
Appendix A: Measurement results .....	67 pages
Appendix B: Description of the equipment.....	1 pages
Appendix C: Circuit Diagrams.....	1 pages
Appendix D: Photographs .....	3 pages

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## Climatic conditions during testing

Temperature: 23 - 25 °C  
Air pressure: 1020 - 1020 hPa  
Humidity: 45 - 55 %

## Appliance documentation

Hardware: -  
Software: -  
User manual :FAX System 10 FAX Specification  
Circuit diagram:FAX SUB PCB(1/1)

## Test system configuration

Hardware: FAX System 10  
Software: 001.005

- ☒ During testing feeding conditions according to TBR21 where applied  
☐ Relaxation of feeding condition was applied: 3200Ω replaced by 2800Ω where applicable  
☐ Relaxation of feeding condition was applied: 2800Ω replaced by 2300Ω where applicable

Ref.	Condition	Status	Support (Y / N)	Comment
C.1.	Is the TE controlled by external device for origination and/or the reception of a call?	If Yes then M else N	No	
C.2.	Is the TE intended to have a connection to earth?	If Yes then M else N	Yes	Main
C.3.	Is the TE intended to be in loop state?	If Yes then M else N	Yes	Communication state
C.4.	Is the TE intended for call answer?	If Yes then M else N	Yes	
C.5.	Is the TE intended for call set-up?	If Yes then M else N	Yes	
C.6.	Is the TE intended for dialling with DTMF?	If Yes then M else N	Yes	
C.7.	Is the TE intended for automatic dialling without dial tone detection?	If Yes then M else N	Yes	
C.8.	Is the TE intended for automatic dialling with dial tone detection?	If Yes then M else N	Yes	
C.9.	Is the TE intended for use in receiving mode?	If Yes then M else N	Yes	
C.10.	Is the TE intended for use in transmitting mode?	If Yes then M else N	Yes	
C.11.	Is the TE intended for making internally generated automatically repeated call attempts?	If Yes then M else N	Yes	
C.12.	Is the TE intended for automatically controlled signalling tone duration?	If Yes then M else N	Yes	
C.13.	Is the TE intended for automatically controlled signalling pause duration?	If Yes then M else N	Yes	

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## Measurement equipment list

Measurement instrument	Identification	Calibration due date
Automatic Measurement System AMS from ESP-Telekom	TL-9000	2015-10-28
Outband Receiver and Ringer Amplifier ARE1000 from ESP-Telekom	TL-9101	2015-10-28
International Feeding Bridge ISB1000 from ESP-Telekom	TL-9002	2015-10-28
Fluke Digital True RMS Multimeter	TL-9108	2015-10-21
Tektronix Oscilloscope TDS1012B	TL-9119	2015-08-13
Tektronix / Voltage Probe I / II	TL-9125, TL-9126	2015-08-13
TRJ Connector Box	TL-9010	2016-02-12
TRJ Resistor Box	TL-9011	2016-02-12
TRJ Reference Impedance Zref-quer TBR21, Type 28	TL-9020, TL-9021	2016-02-12
TRJ Reference Impedance Zref-längs TBR21, Type 29	TL-9022	2016-02-12
TRJ Reference Impedance 150 Ohm crosswise, Type 50	TL-9033	2016-01-13

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## Measurement uncertainties

	Measuring	Measurement Uncertainty	k=2
4.4	Test methods		
4.4.1	DC resistance in quiescent state	DC Voltage : $\pm 0.81$ V Current : $\pm 1.5$ $\mu$ A	
4.4.2.1	Impedance of ringing devices	Impedance : $\pm 54$ $\Omega$	
4.4.2.2	Transient response	Time : $\pm 0.12$ ms Current : $\pm 0.28$ mA	
4.4.2.3	DC current during ringing	DC Voltage : $\pm 0.55$ V DC Current : $\pm 0.094$ mA	
4.4.3/4.7.4.1	Longitudinal conversion loss	Impedance unbalance: $\pm 1.1$ dB	
4.4.4	Resistance to earth	Resistance : $\pm 0.19$ M $\Omega$	
4.5	Ringing signal detector sensitivity	Voltage <sub>RMS</sub> : $\pm 0.28$ V	
4.6	Transition from quiescent to loop state		
4.6.1	Acceptance of breaks	Time : $\pm 5.8$ $\mu$ s Current : $\pm 0.17$ mA	
4.6.2	Loop current characteristics	Time : $\pm 5.8$ $\mu$ s Current : $\pm 0.17$ mA	
4.7	General loop steady state requirements		
4.7.1.1	DC characteristics	Voltage: $\pm 0.06$ V Current : $\pm 0.82$ mA	
4.7.2	Return loss	Return loss : $\pm 0.36$ dB	
	Impedance Z (f)	Impedance : $\pm 35$ $\Omega$	
4.7.3.1	Maximum mean sending level	Level : $\pm 1.0$ dB	
4.7.3.2	Maximum instantaneous voltage	Level: $\pm 0.28$ V	
4.7.3.3	Maximum voltage in 10Hz bandwidth	30Hz-200Hz: Level: $\pm 2.1$ dB 200Hz-4.3kHz: Level: $\pm 1.6$ dB	
4.7.3.4	Sending level above 4.3kHz	Level : $\pm 2.1$ dB	
4.7.4.1	Longitudinal conversion loss	LCL: $\pm 1.2$ dB	
4.7.4.2	Output Signal Balance	Level : $\pm 0.28$ dB	
4.7.5	Resistance to earth	Resistance : $\pm 120$ k $\Omega$	
4.8	Call attempt		
4.8.1.1/4.8.1.2	Dialing with / without dialtone detection	Time : $\pm 0.24$ ms	
4.8.2	DTMF signaling		
4.8.2.1/4.8.2.2	DTMF levels and frequencies	Frequency : $\pm 0.33$ Hz Voltage : $\pm 5.2$ mV	
4.8.2.3	DTMF unwanted frequencies auto	Level : $\pm 1$ dB	
4.8.2.4/4.8.2.5	DTMF Tone/Pause duration	Time : $\pm 0.27$ ms Voltage : $\pm 3.7$ mV	
4.9	Transition from loop to quiescent state	Time : $\pm 8.2$ $\mu$ s Current <sub>(10mA)</sub> : $\pm 0.12$ mA Current <sub>(0.5mA)</sub> : $\pm 0.006$ mA	

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## Summary Report

4 Requirement					
Requirements	N/A	N/T	fail	Pass	Appendix A
4.1 General Requirement Declaration of the manufacturer or supplier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
4.2 Physical characteristics of the connection to the PSTN Visual inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-

4.3 Requirements under all conditions								
Requirements				N/A	N/T	fail	Pass	Appendix A
4.3.1 Independence of Polarity				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-

4.4 General requirements in quiescent state					
Requirements	N/A	N/T	fail	Pass	Appendix A
4.4.1 DC resistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
4.4.2.1 Characteristics of TE for ringing signals - Impedance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2
4.4.2.2 Characteristics of TE for ringing signals - Transient response	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3
4.4.2.3 Characteristics of TE for ringing signals - DC current	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4-5

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Requirements	N/A	N/T	fail	Pass	Appendix A
<b>4.4.3 Impedance unbalance about earth</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6-7
<b>4.4.4 Resistance to earth</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8

<b>4.5 Ringing signal detector sensitivity</b>					
Requirements	N/A	N/T	fail	Pass	Appendix A
<b>4.5 Ringing signal detector sensitivity</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9
Measurement results:					
f					
25 Hz      1s on / 5s off      Ringing signal detected:				<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	
50 Hz      1s on / 5s off      Ringing signal detected:				<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	

<b>4.6 Transition from quiescent to loop state</b>					
Requirements	N/A	N/T	fail	Pass	Appendix A
<b>4.6.1 Acceptance of breaks in the loop in a call attempt</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10-11
<b>4.6.2 Loop current characteristics</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12-17

<b>4.7 General loop steady state requirements</b>					
Requirements	N/A	N/T	fail	Pass	Appendix A
<b>4.7.1 DC characteristics</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18-19
<b>4.7.2 Impedance</b>					
<b>200 Hz - 4000 Hz : Return loss</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20-23
<b>200 Hz - 300 Hz : Inductive component of impedance</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	24-27
<b>4.7.3.1 Sending level limitations - Mean sending level</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28-32
<b>4.7.3.2 Sending level limitations - Instantaneous voltage</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28-34
<b>4.7.3.3 Sending level limitations - Voltage level in a 10 Hz bandwidth</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	35-39
<b>4.7.3.4 Sending level limitations - Sending level above 4,3 kHz</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	40-46
<b>4.7.4.1 Impedance unbalance about earth - Longitudinal Conversion Loss</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	47-48
<b>4.7.4.2 Impedance unbalance about earth - Output Signal Balance</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	49-53

4.7 General loop steady state requirements					
Requirements	N/A	N/T	fail	Pass	Appendix A
4.7.5 Resistance to earth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	54

4.8 Call attempt								
Requirements				N/A	N/T	fail	Pass	Appendix A
4.8.1.1 Automatic dialling - Dialling without dial tone detection				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	55
Measurement results: Start dialling after <input checked="" type="checkbox"/> Fixed 4.04 s <input type="checkbox"/> Adjustable s - s								
4.8.1.2 Automatic dialling - Dialling with dial tone detection				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	56-57
Measurement results: Start dialling after f level Test 1 - Start dialling Test 2 - Start dialling 300 Hz -0.7 dBV 0.76 s 1.16 s 300 Hz -35.7 dBV 0.94 s 1.16 s 500 Hz -35.7 dBV 0.75 s 1.17 s 500 Hz -0.7 dBV 0.76 s 1.15 s								

Requirements	N/A	N/T	fail	Pass	Appendix A
<b>4.8.2.1 DTMF signalling - Frequency combinations</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	58-59
<b>4.8.2.2.1 DTMF signalling - Signalling levels - Absolute levels</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	58-59
<b>4.8.2.2.2 DTMF signalling - Signalling levels - Level difference</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	58-59
<b>4.8.2.3 DTMF signalling - Unwanted frequency components</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	60-61
<b>4.8.2.4 DTMF signalling - Tone duration</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	62-65
<b>4.8.2.5 DTMF signalling - Pause duration</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	62-65
<b>4.8.3 Automatically repeated call attempts</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	66
Measuring result: Time interval between two call attempts : 123.20 s Number of repeated call attempts : 15 times					

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4.9 Transition from loop to quiescent state					
Requirements	N/A	N/T	fail	Pass	Appendix A
4.9 Transition from loop to quiescent state  Measuring result: I <sub>f</sub> < 0.5 mA after 0 ms Automatic re-seizure for a new call I <sub>f</sub> < 0.5 mA for 1.5 s	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	67

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**Anlage A**

Appendix A

**Messergebnisse**

Measuring results

# Protocol for DC resistance quiescent condition

## TBR21 - 4.4.1 DC resistance in quiescent state

Model No. : FAX System 10  
 TEUT : Facsimile Kit for MFP Gain (internal) : +20.0 dB  
 Number of TEUT: 214060892  
 Manufacturer : KYOCERA DS Inc.  
 Date : 14.05.15  
 Time : 9:51.08

Data set : TBR21-4.4.1  
 Requirement : The current drawn by the TE shall not exceed that which would be drawn by a 1 MOhm resistor replacing the TE.

Remark : -

Verdict : PASS

Vt [V]	Rt [Ohm]	Polarity	Rl< [MOhm]	R [MOhm]			
25.0	1000	Normal	1.0	> 10	<	2.5	uA
25.0	1000	Inverted	1.0	> 10	<	2.5	uA
50.0	1000	Normal	1.0	> 10	<	5.0	uA
50.0	1000	Inverted	1.0	> 10	<	5.0	uA
100.0	1000	Normal	1.0	> 10	<	10.0	uA
100.0	1000	Inverted	1.0	> 10	<	10.0	uA

Protocol for Impedance of ringing devices

TBR21-4.4.2.1 Impedance of ringing devices

=====

Model No. : FAX System 10                      Feeding voltage : 50.0 V  
TEUT : Facsimile Kit for MFP                      Feeding resistor: 2050.0 Ohm  
Number of TEUT: 214060892  
Manufacturer : KYOCERA DS Inc.  
Date : 14.05.15  
Time : 9:55.25

Data set : TBR21-4.4.2.1  
Requirement : The impedance Z of the TE at frequencies of 25 Hz and 50 Hz shall not be less than 4.0 ... 999.0 kOhm when tested at 30 V rms.

Remark : -

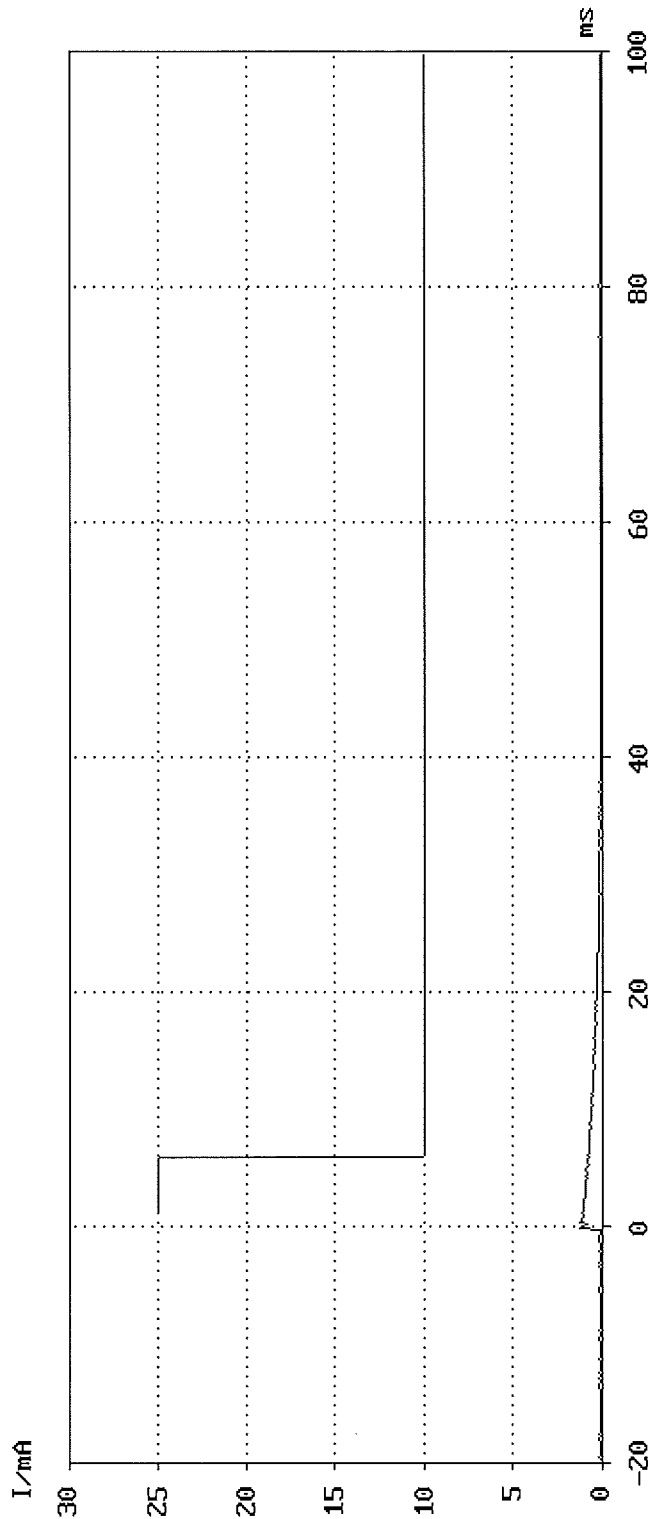
Verdict : PASS

f Hz	Ute V	Z kΩ
25	30.0	49.2
50	30.0	47.8

## TBR21 - 4.4.2.2 Transient response

Model No.	: FAX System 10	Feeding voltage	: 60.0 V	Trigger	: OK
TEUT	: Facsimile Kit for M&P	Current limitation	: 80.0 mA	I	[mA]: 0.5
Number of TEUT	: 214060892	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 200.0 Ohm	Delay [ms]	: - 20
Date	: 14.05.15	Requirement	: Current curve	Sample [ms]	: 0.2
Time	: 9:57.14	shall be	<= limit curve		
Remark	: -	Data set	: TBR21-4.4.2.2		

Mask violations : 0                      Verdict : PASS



# Protocol for DC current during ringing

## TBR21 - 4.4.2.3 DC current during ringing state

Model No. : FAX System 10 Feeding voltage : 60.0 V  
 TEUT : Facsimile Kit for MFP Feeding resistor: 850 Ohm  
 Number of TEUT: 214060892 Polarity : Normal  
 Manufacturer : KYOCERA DS Inc.  
 Date : 14.05.15  
 Time : 10:01.13

Data set : TBR21-4.4.2.3  
 Requirement : The resulting DC current during the ringing signal shall be less 0.60 mA.

Remark : -

Verdict : PASS

f Hz	Uac V	R kΩ	I mA
25	90.0	> 1Meg	< 0.06
50	90.0	> 1Meg	< 0.06

Protocol for DC current during ringing

TBR21 - 4.4.2.3 DC current during ringing state

=====

Model No.	: FAX System 10	Feeding voltage :	60.0 V
TEUT	: Facsimile Kit for MFP	Feeding resistor:	850 Ohm
Number of TEUT:	214060892	Polarity	: Inverted
Manufacturer	: KYOCERA DS Inc.		
Date	: 14.05.15		
Time	: 10:02.00		

Data set : TBR21-4.4.2.3  
Requirement : The resulting DC current during the ringing signal shall be less 0.60 mA.

Remark : -

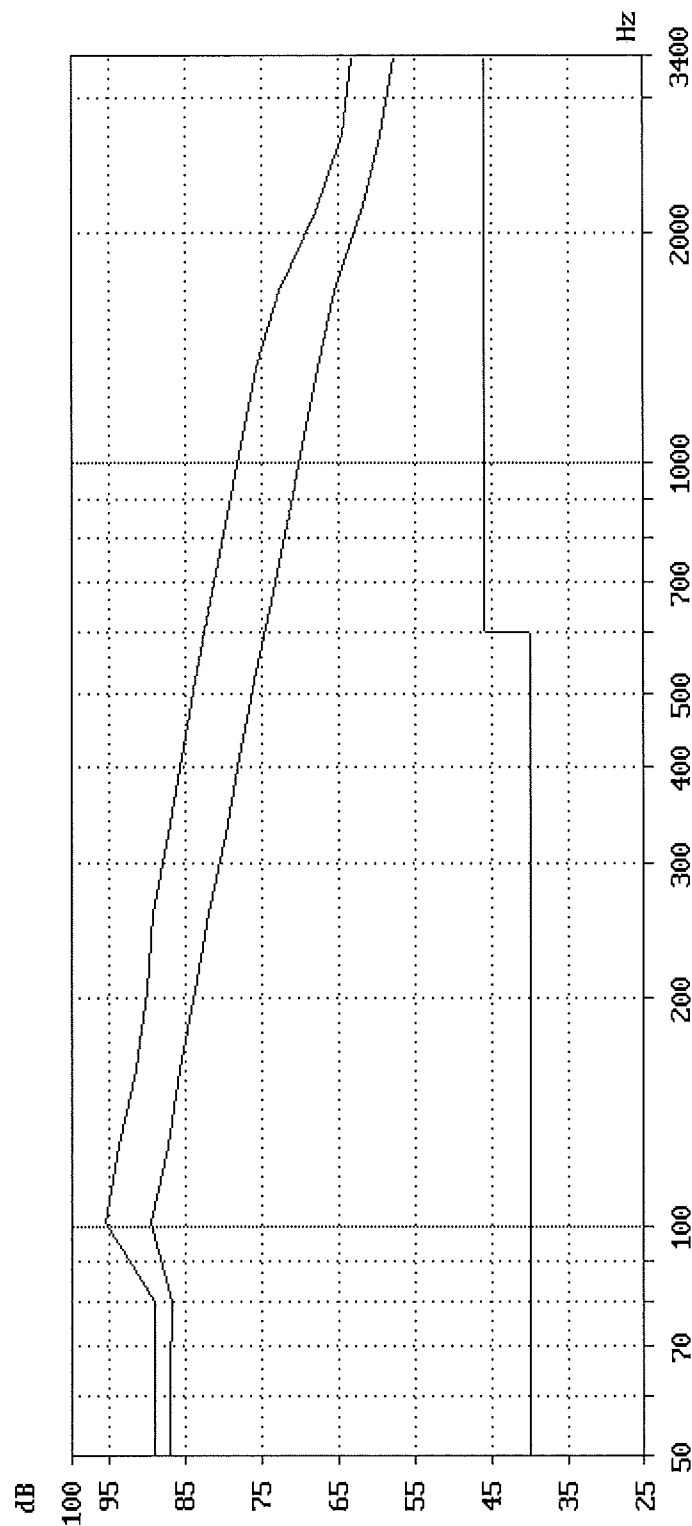
Verdict : PASS

f Hz	Uac V	R kΩ	I mA
25	90.0	> 1Meg	< 0.06
50	90.0	> 1Meg	< 0.06

# TBR21 - 4.4.3 Impedance unbalance about earth in quiescent state

Comission : 214060892  
 Printing time : 14.05.15 10:04.04  
 Graph 1 \_\_\_\_\_  
 Graph 2 \_\_\_\_\_

Requirement : Result curve  
 shall be  $\geq$  limit curve



Longitudinal conversion loss  
Comission : 214060892

Printing time : 14.05.15 10:04.04

	Graph 1	Graph 2
Model No.	FAX System 10	FAX System 10
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP
Number of TEUT	214060892	214060892
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.
Date	14.05.15	14.05.15
Time	10:03.15	10:03.39
Feeding Voltage	50.0 V	50.0 V
Current Limitation	80.0 mA	80.0 mA
Polarity	Normal	Inverted
Feeding resistor	230 Ohm	230 Ohm
Data set	TBR21-4.4.3	TBR21-4.4.3
Feeding Bridge	TBR21	TBR21
Level	+0.0 dB(0.775 V)	+0.0 dB(0.775 V)
Call setup	outgoing	outgoing
Verdict	PASS	PASS
Remark	-	-

# Protocol for Resistance to earth

## TBR21 - 4.4.4 Resistance to earth in quiescent state

=====

Model No. : FAX System 10  
 TEUT : Facsimile Kit for MFP Feeding bridge : TBR21  
 Number of TEUT: 214060892  
 Manufacturer : KYOCERA DS Inc.  
 Date : 14.05.15  
 Time : 10:04.31  
 Data Set : TBR21-4.4.4

Requirement : If a connection to earth is intended, the DC resistance between each line terminal of TE and earth shall be not less than 10 MOhm.  
 ("E" means the socket "Plane" on the front side of the ARE1000.)

Remark : -

Verdict : PASS

Uf V	Rf Ω	Polarity	Ut V	Rt Ω	Measure	Limit MΩ	Current uA	Resistance MΩ
50.0	230	Normal	100.0	10000	b - E	10	< 2.0	> 50
50.0	230	Normal	-100.0	10000	b - E	10	< 2.0	> 50
50.0	230	Normal	100.0	10000	a - E	10	< 2.0	> 50
50.0	230	Normal	-100.0	10000	a - E	10	< 2.0	> 50
50.0	230	Inverted	100.0	10000	b - E	10	< 2.0	> 50
50.0	230	Inverted	-100.0	10000	b - E	10	< 2.0	> 50
50.0	230	Inverted	100.0	10000	a - E	10	< 2.0	> 50
50.0	230	Inverted	-100.0	10000	a - E	10	< 2.0	> 50

# Protocol for Automatic answering function Auto

## TBR21 - 4.5 Ringing signal detector sensitivity (Automatic answering)

```

=====
Model No.      : FAX System 10      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP Current limitation: 40.0 mA
Number of TEUT : 214060892          Polarity          : Normal
Manufacturer    : KYOCERA DS Inc.    Feeding resistor  : 850.0 Ohm
Date            : 14.05.15           Trigger Event     : 1. pos. Edge
Time            : 10:08.22           Gain (internal)   : -30.0 dB

Data set       : TBR21-4.5
Requirement    : The TE shall be able to respond to ringing signals of 30 Vrms
                  at 25 Hz and 50 Hz with a cadence of 1 s ON and 5 s OFF,
                  superimposed on a 50 VDC feeding voltage.

Remark        : -
  
```

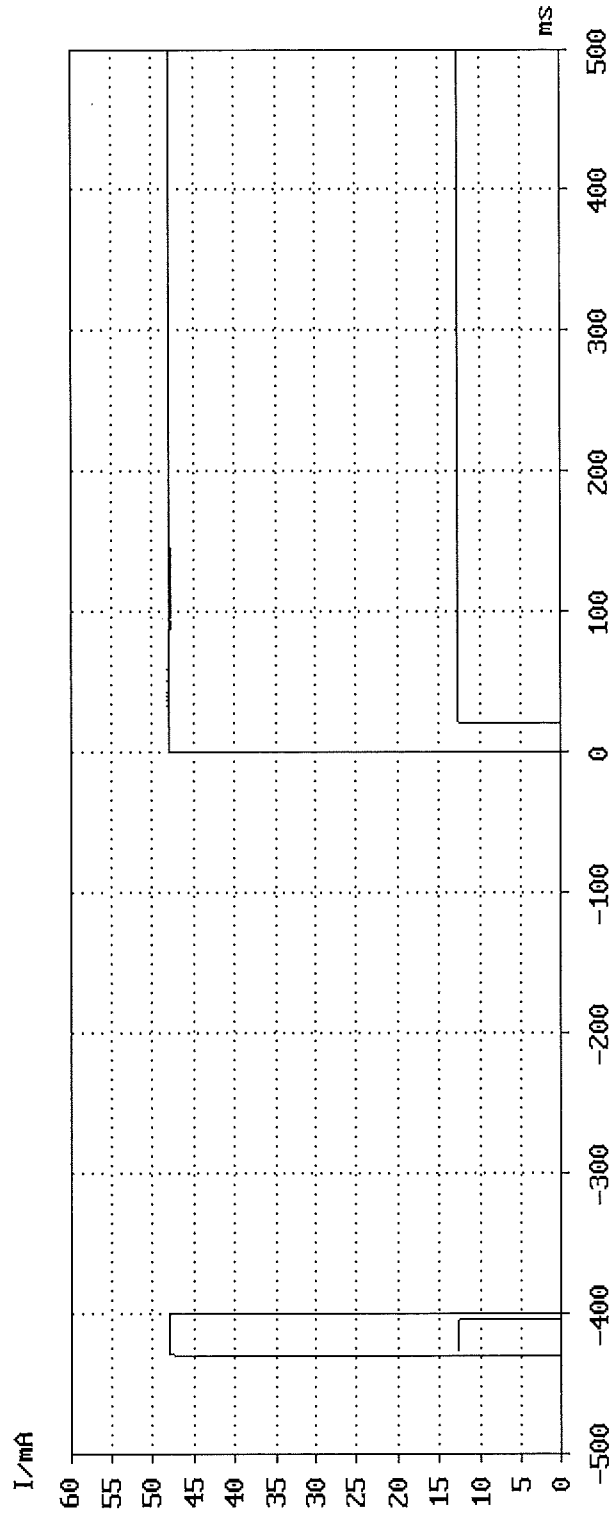
Verdict : PASS

Cycles	Frequency Hz	Ute V	1.Pulse ms	Pulse ms	Pause ms	Answering s
13	25.0	30.0	1000	1000	5000	7.07
13	50.0	30.0	1000	1000	5000	7.08

# TBR21 - 4.6.1 Acceptance of breaks in the loop state after 30ms feeding

Model No. : FAX System 10 Feeding voltage : 50.0 V Trigger : OK  
 TEUT : Facsimile Kit for FAXarity I [mA]: 13 mA  
 Number of TEUT: 214060892 Feeding resistor : 850.0 Ohm Event : 2. pos. Edge  
 Manufacturer : KYOCERA DS Inc. Break in the loop: after 30 ms for 400 ms  
 Date : 14.05.15 Requirement : Current curve Delay [ms]: - 500  
 Time : 10:10.42 shall be >= limit curve Sample [ms]: 0.2  
 Remark : - Data set : TBR21-4.6.1 30ms

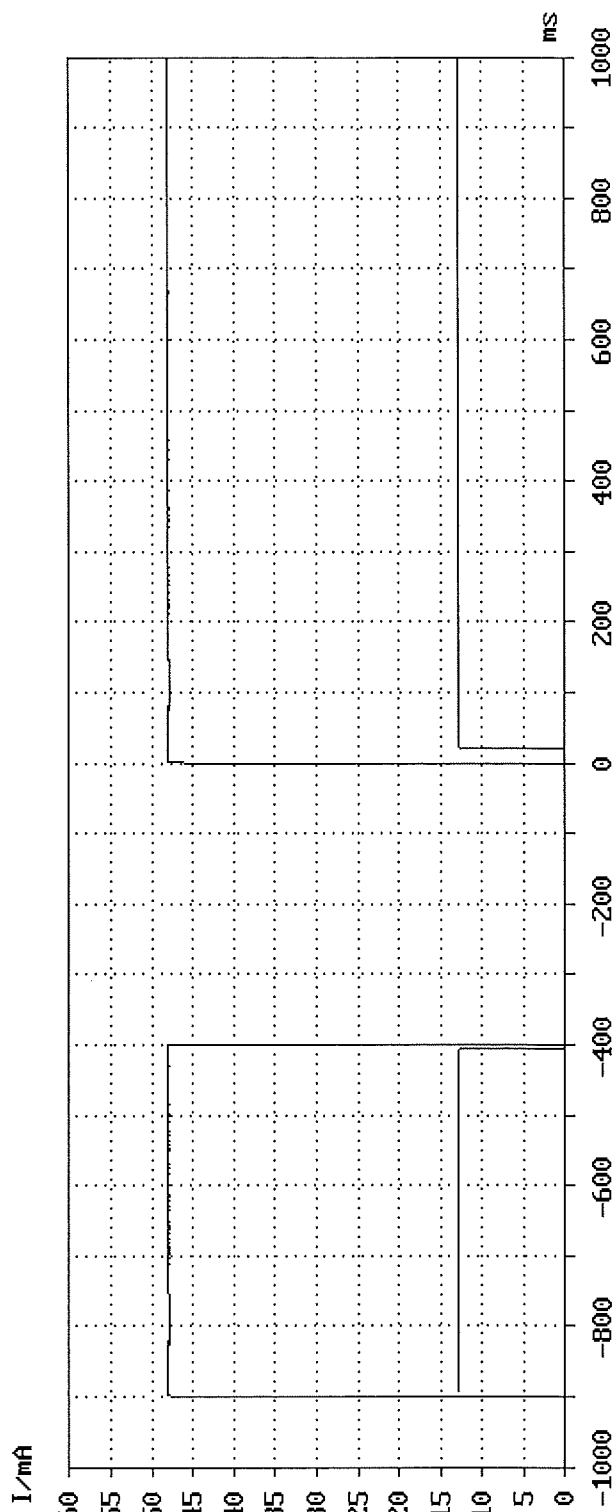
Mask violations : 0.0 ms Verdict : PASS



# TBR21 - 4.6.1 Acceptance of breaks in the loop state after 500ms feeding

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for XTarity	Normality	: Normal	I	[mA]: 13 mA
Number of TEUT	: 214060892	Feeding resistor	: 850.0 Ohm	Event	: 2. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Break in the loop	: after 500 ms for 400 ms		
Date	: 14.05.15	Requirement	: Current curve	Delay [ms]	: - 1000
Time	: 10:11.51	shall be	: >= limit curve	Sample [ms]	: 0.2
Remark	: -	Data set	: TBR21-4.6.1 500ms		

Mask violations : 0.0 ms Verdict : PASS

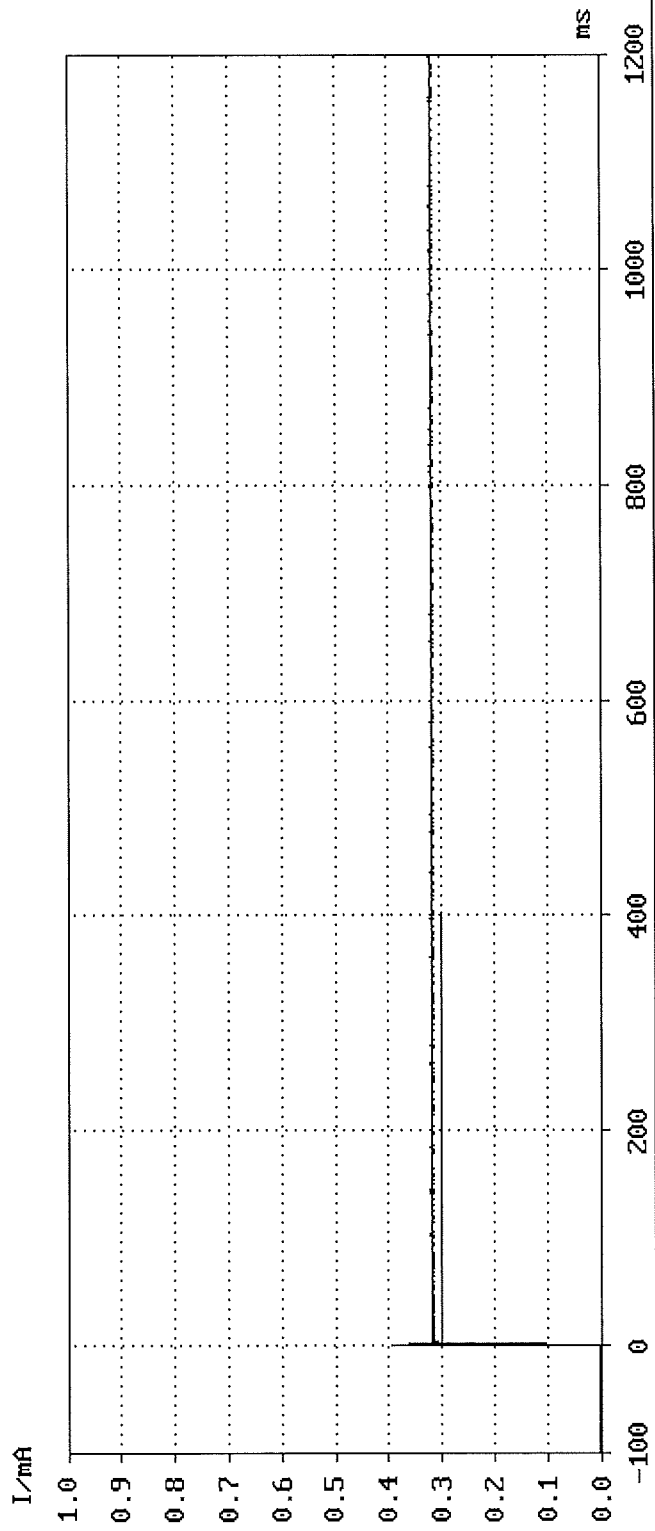


## TBR21-4.6.2 Loop current characteristics

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for KDD	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214060892	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 150000.0 Ohm	Delay [ms]	: - 100
Date	: 14.05.15	Requirement	: Current curve	Sample [ms]	: 0.2
Time	: 10:13.29	shall fulfil values of table 3	Limit td	: 7.0 ms	
Remark	: -	Data set	: TBR21-4.6.2 150k		

Tolerance mask violat: 0.0 ms

Verdict : PASS

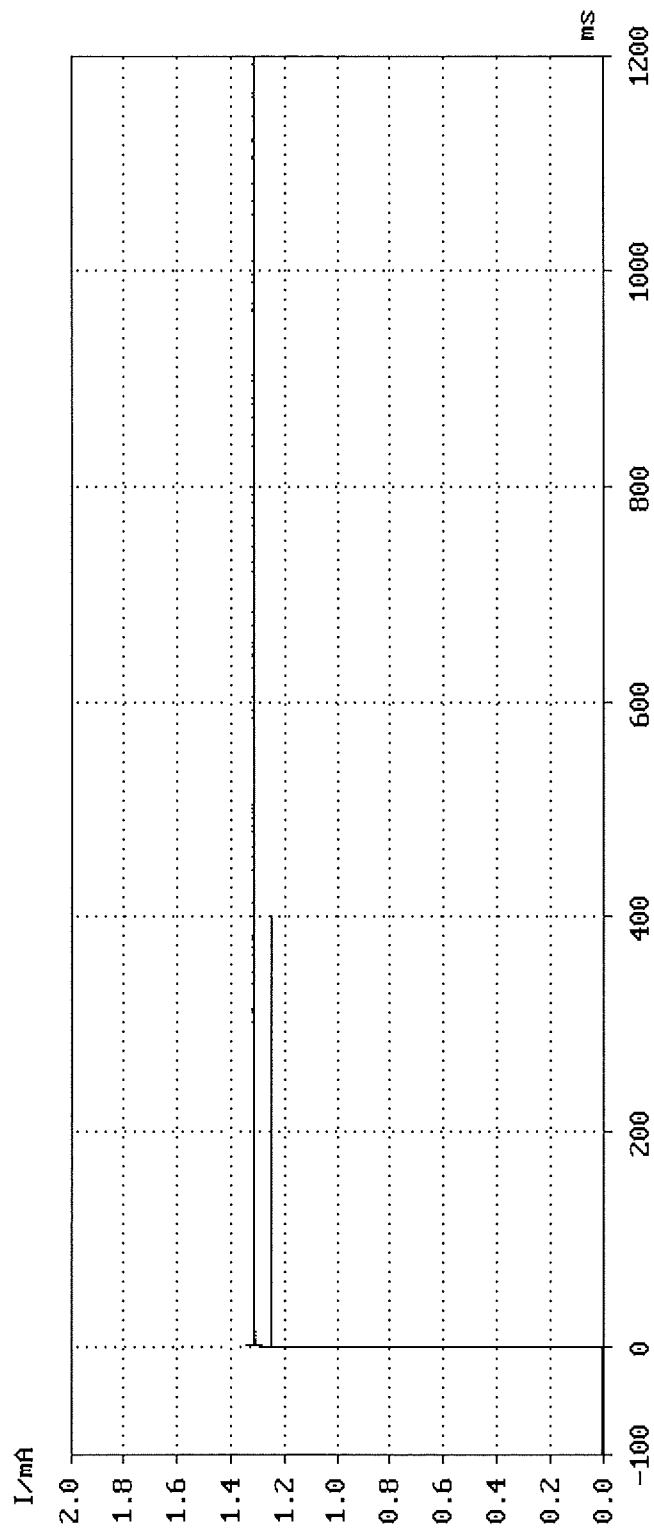


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for M&T	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214060892	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 36000.0 Ohm	Delay [ms]	: - 100
Date	: 14.05.15	Requirement	: Current curve	Sample [ms]	: 0.2
Time	: 10:14.41	shall fulfil values of table 3		Limit td	: 7.0 ms
Remark	: -	Data set	: TBR21-4.6.2 36k		

Tolerance mask violat: 0.0 ms

Verdict : PASS

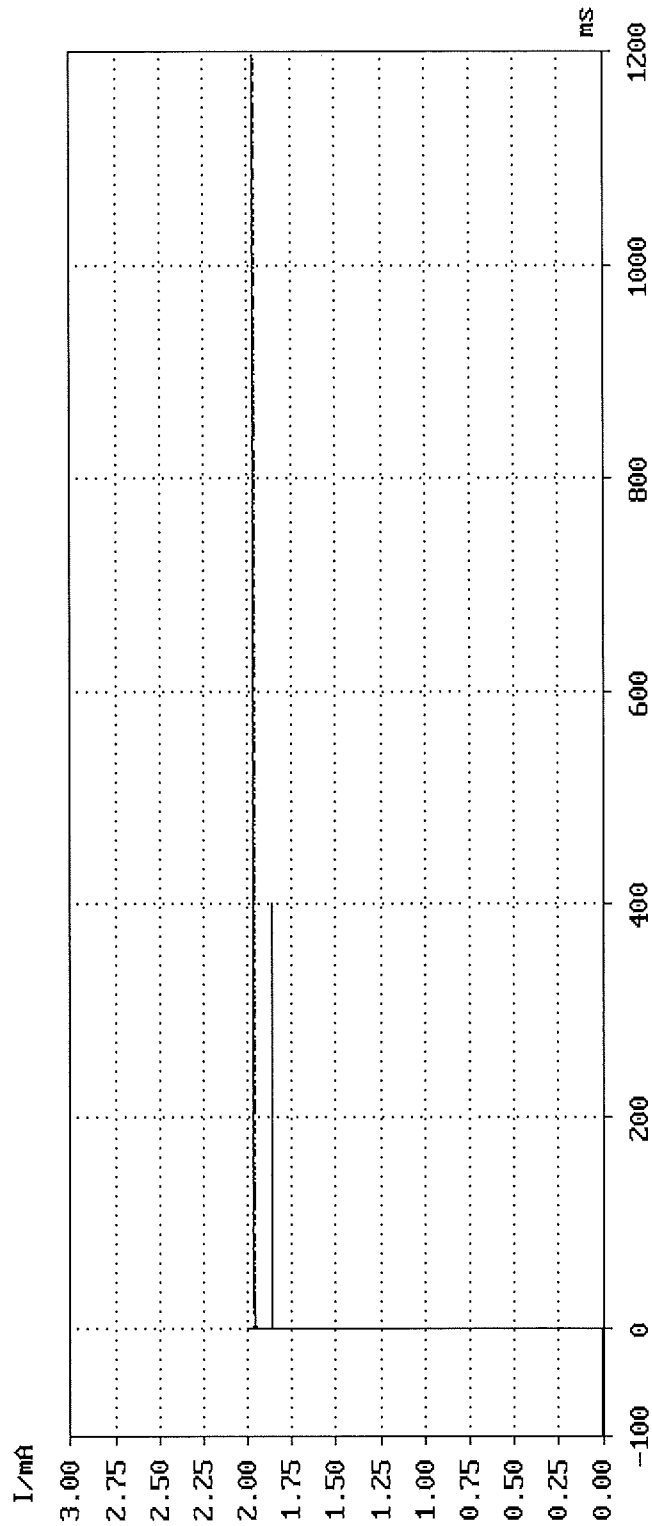


## TBR21 - 4.6.2 Loop current characteristics

Model No. : FAX System 10	Feeding voltage : 50.0 V	Trigger : OK
TEUT : Facsimile Kit for M2000	Current limitation: 100.0 mA	I [mA]: 0.1
Number of TEUT: 214060892	Polarity : Normal	Event : 1. pos. Edge
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 24000.0 Ohm	Delay [ms]: - 100
Date : 14.05.15	Requirement: Current curve	Sample [ms]: 0.2
Time : 10:15.53	shall fulfil values of table 3	Limit td : 7.0 ms
Remark : -	Data set : TBR21-4.6.2 24k	

Verdict : PASS

Tolerance mask violat.: 0.0 ms

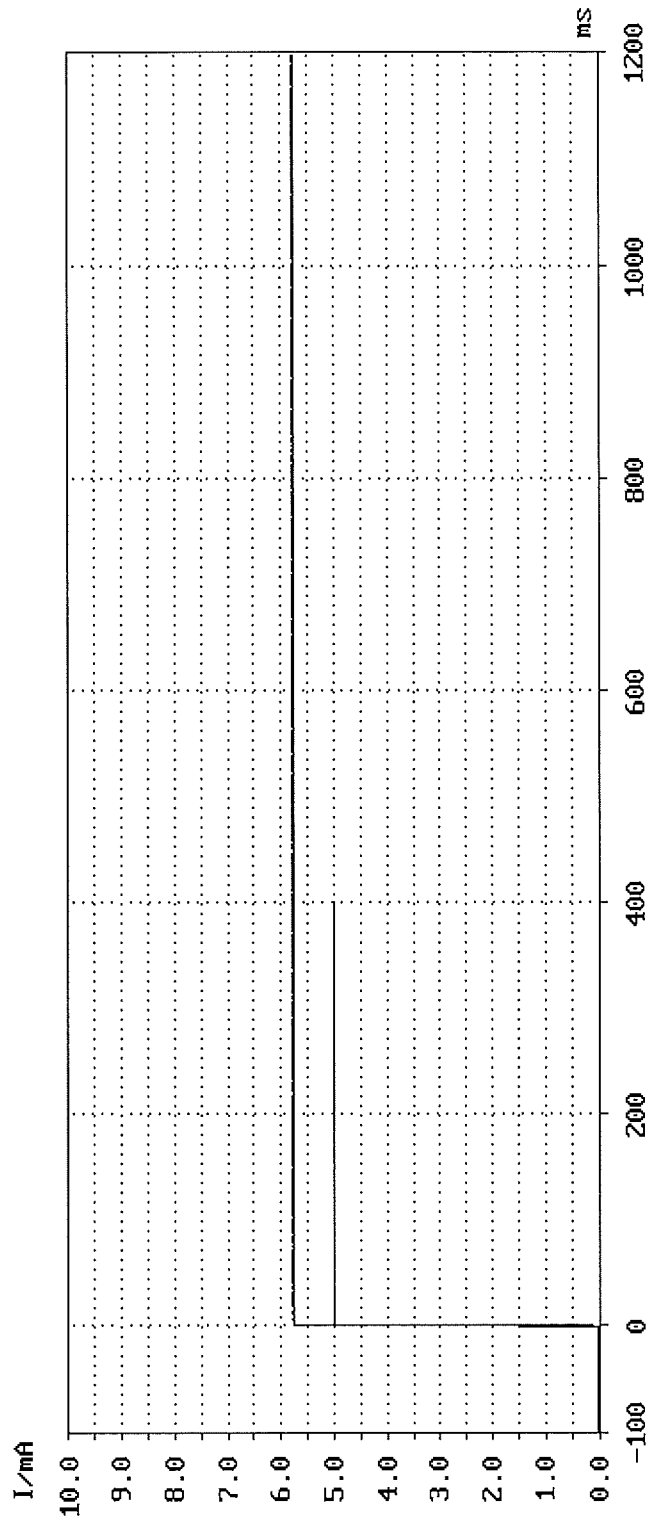


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for M200	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214060892	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 8000.0 Ohm	Delay	[ms]: - 100
Date	: 14.05.15	Requirement	: Current curve	Sample	[ms]: 0.2
Time	: 10:17.31	shall fulfil values of table 3		Limit td	: 7.0 ms
Remark	: -	Data set	: TBR21-4.6.2 8k		

Tolerance mask violat.: 0.0 ms

Verdict : PASS

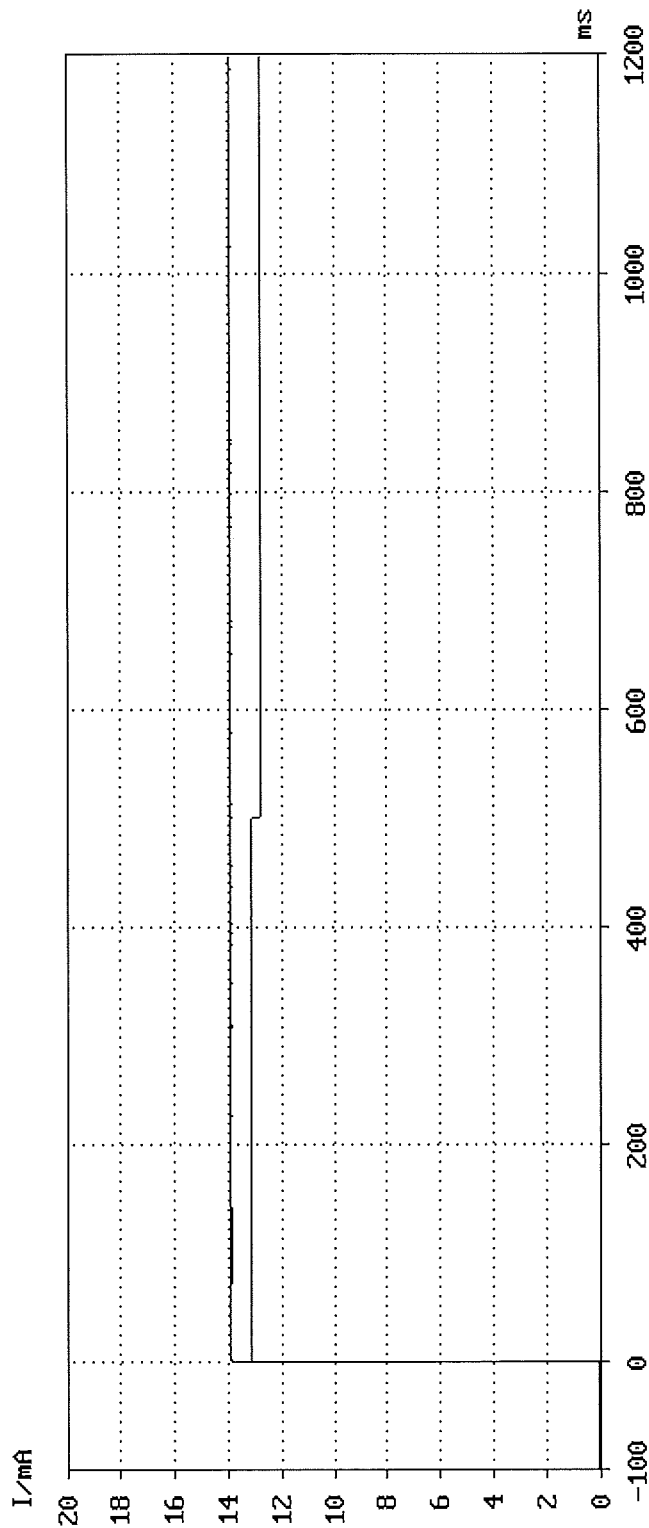


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for Mörrent	Limitation:	: 100.0 mA	I	[mA]: 0.1
Number of TEUT:	: 214060892	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200.0 Ohm	Delay [ms]:	: 100
Date	: 14.05.15	Requirement:	: Current curve	Sample [ms]:	: 0.2
Time	: 10:19.59	shall fulfil values of table 4		Limit td	: 7.0 ms
Remark	: -	Data set	: TBR21-4.6.2 3k2		

Tolerance mask violat.: 0.0 ms

Verdict : PASS

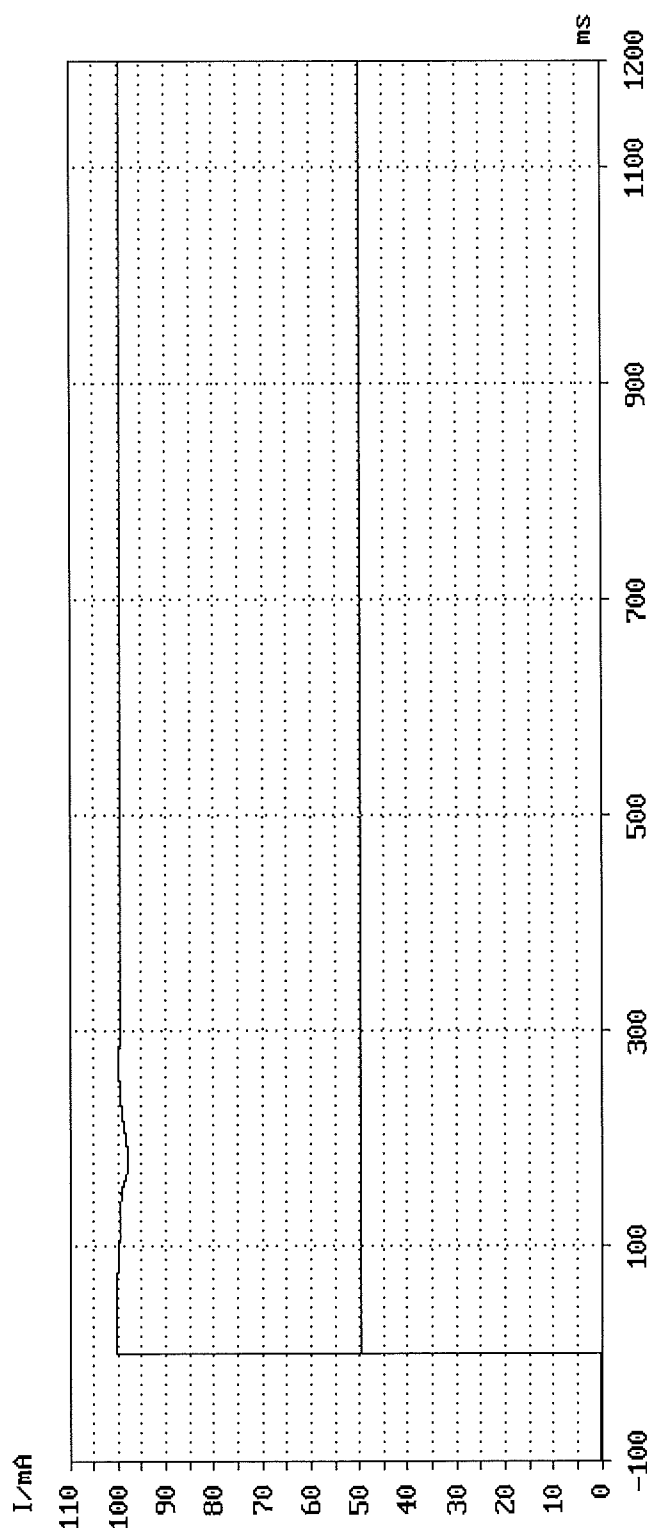


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for MUR	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214060892	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 230.0 Ohm	Delay [ms]	: - 100
Date	: 14.05.15	Requirement	: Current curve	Sample [ms]	: 0.2
Time	: 10:26.35	shall fulfil values of table 4		Limit td	: 7.0 ms
Remark	: -	Data set	: TBR21-4.6.2 230		

**Tolerance mask violat.: 0.0 ms**

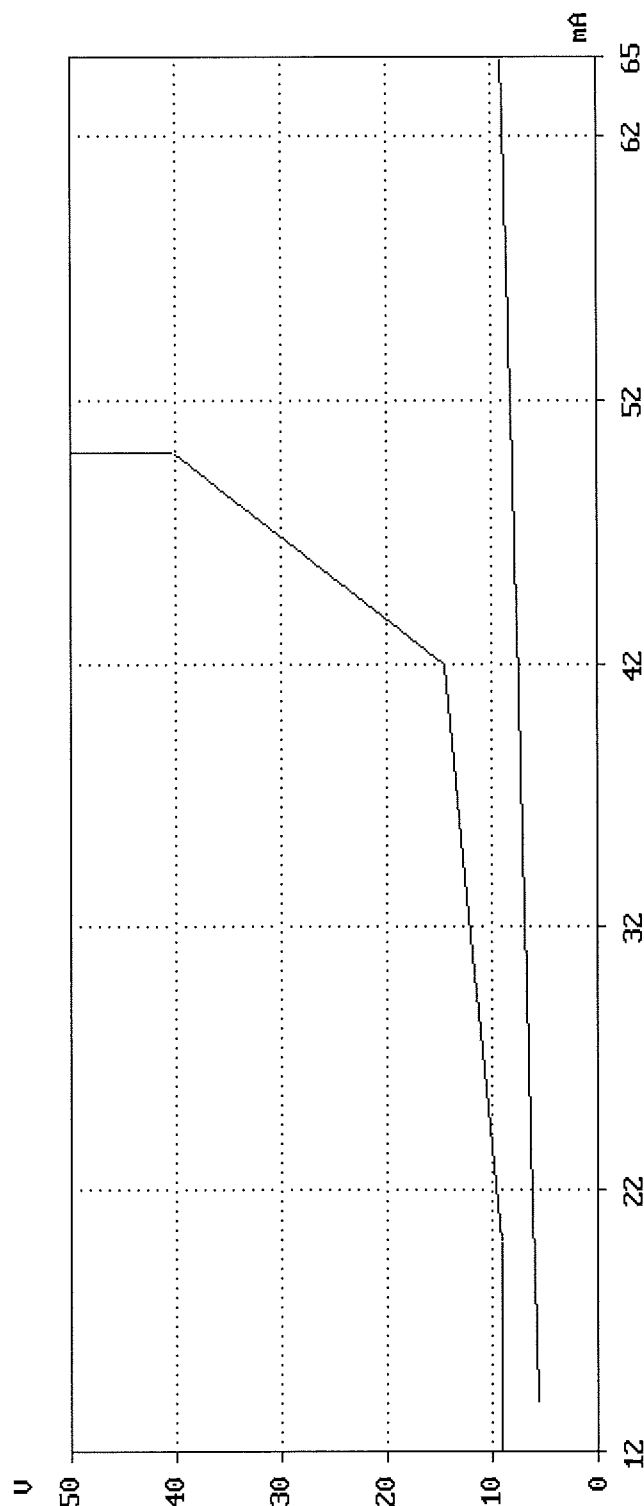
**Verdict : PASS**



## TBR21 - 4.7.1 DC characteristics

Model No. : FAX System 10 Feeding voltage : 50.0 V  
 TEUT : Facsimile Kit for M~~ag~~g~~et~~tling Time : 3.0 sec  
 Number of TEUT: 214060892 Feeding : 230/850/2050/3200 Ohm normal/inverted  
 Manufacturer : KYOCERA DS Inc. Requirement : The DC characteristics  
 Date : 14.05.15 shall not exceed the limits  
 Time : 10:32.27 Data set : TBR-21 Except 60mA N  
 Remark : -

Mask violations: 0 Verdict : PASS



## TBR21 - 4.7.1 DC characteristics

Model No. : FAX System 10 Feeding voltage : 50.0 V  
 TEUT : Facsimile Kit for Regtling Time : 3.0 sec  
 Number of TEUT: 214060892 Feeding : 230/850/2050/3200 Ohm normal/inverted  
 Manufacturer : KYOCERA DS Inc. Requirement : The DC characteristics  
 Date : 14.05.15 shall not exceed the limits  
 Time : 10:35.59 Data set : TBR-21 Except 60mA I  
 Remark : -

Verdict : PASS

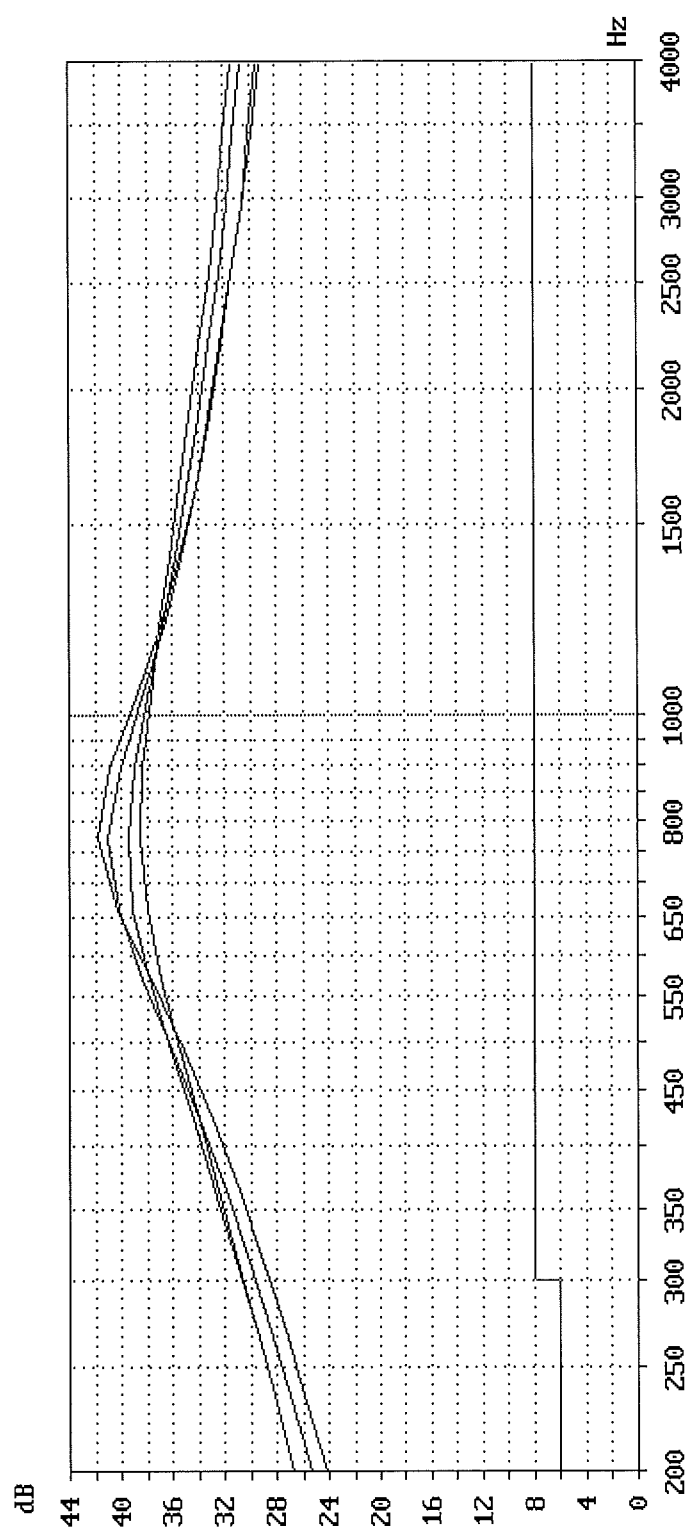
Mask violations: 0



# TBR21 - 4.7.2 Impedance - Return loss

Comission : 214060892  
 Printing time : 14.05.15 10:38.53  
 Graph 1  
 Graph 2  
 Graph 3  
 Graph 4

Requirement : The result curve  
 shall not be less than the limits

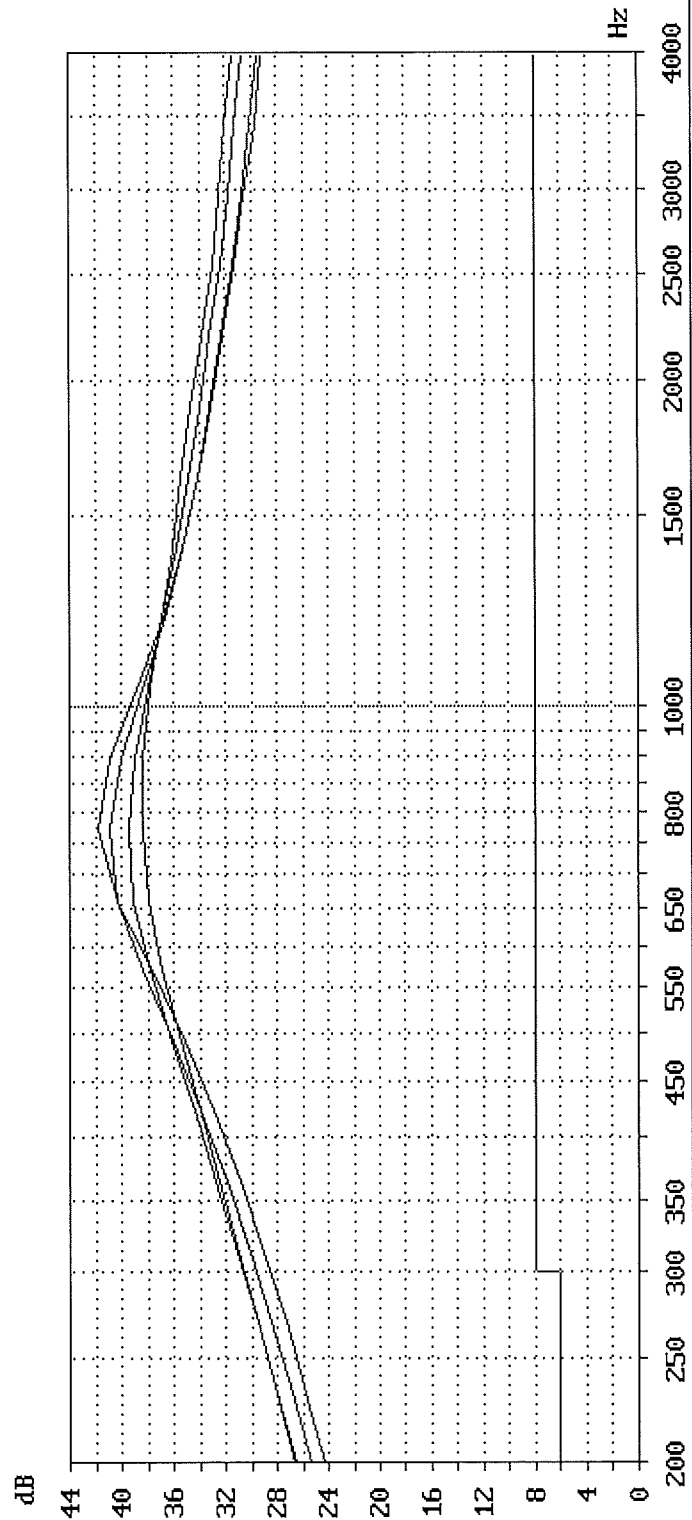


Return loss Comission : 214060892		Printing time : 14.05.15 10:38.53	
Graph 1		Graph 2	
Model No.	FAX System 10	FAX System 10	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214060892	214060892	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	14.05.15	14.05.15	
Time	10:36.44	10:37.09	
Feeding Voltage	50.0 V	50.0 V	
Current Limitation	80.0 mA	80.0 mA	
Polarity	Normal	Normal	
Feeding Resistor	230 $\Omega$	850 $\Omega$	
Data set	TBR21-4.7.2 N	TBR21-4.7.2 N	
Feeding bridge	TBR21	TBR21	
Level	-10.0 dBV	-10.0 dBV	
Ref.-imp. Zr	Zr TBR21	Zr TBR21	
Call setup	outgoing	outgoing	
Verdict	PASS	PASS	
Remark	-	-	
Graph 3		Graph 4	
Model No.	FAX System 10	FAX System 10	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214060892	214060892	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	14.05.15	14.05.15	
Time	10:37.32	10:37.54	
Feeding Voltage	50.0 V	50.0 V	
Current Limitation	80.0 mA	80.0 mA	
Polarity	Normal	Normal	
Feeding Resistor	2050 $\Omega$	3200 $\Omega$	
Data set	TBR21-4.7.2 N	TBR21-4.7.2 N	
Feeding bridge	TBR21	TBR21	
Level	-10.0 dBV	-10.0 dBV	
Ref.-imp. Zr	Zr TBR21	Zr TBR21	
Call setup	outgoing	outgoing	
Verdict	PASS	PASS	
Remark	-	-	

# TBR21 - 4.7.2 Impedance - Return loss

Comission : 214060892  
 Printing time : 14.05.15 10:41.37  
 Graph 1 \_\_\_\_\_  
 Graph 2 \_\_\_\_\_  
 Graph 3 \_\_\_\_\_  
 Graph 4 \_\_\_\_\_

Requirement : The result curve  
 shall not be less than the limits



Return loss Comission : 214060892		Printing time : 14.05.15 10:41.37	
Graph 1		Graph 2	
Model No.	FAX System 10	FAX System 10	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214060892	214060892	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	14.05.15	14.05.15	
Time	10:39.28	10:39.54	
Feeding Voltage	50.0 V	50.0 V	
Current Limitation	80.0 mA	80.0 mA	
Polarity	Inverted	Inverted	
Feeding Resistor	230 $\Omega$	850 $\Omega$	
Data set	TBR21-4.7.2 I	TBR21-4.7.2 I	
Feeding bridge	TBR21	TBR21	
Level	-10.0 dBV	-10.0 dBV	
Ref.-imp. Zr	Zr TBR21	Zr TBR21	
Call setup	outgoing	outgoing	
Verdict	PASS	PASS	
Remark	-	-	
Graph 3		Graph 4	
Model No.	FAX System 10	FAX System 10	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214060892	214060892	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	14.05.15	14.05.15	
Time	10:40.20	10:40.46	
Feeding Voltage	50.0 V	50.0 V	
Current Limitation	80.0 mA	80.0 mA	
Polarity	Inverted	Inverted	
Feeding Resistor	2050 $\Omega$	3200 $\Omega$	
Data set	TBR21-4.7.2 I	TBR21-4.7.2 I	
Feeding bridge	TBR21	TBR21	
Level	-10.0 dBV	-10.0 dBV	
Ref.-imp. Zr	Zr TBR21	Zr TBR21	
Call setup	outgoing	outgoing	
Verdict	PASS	PASS	
Remark	-	-	

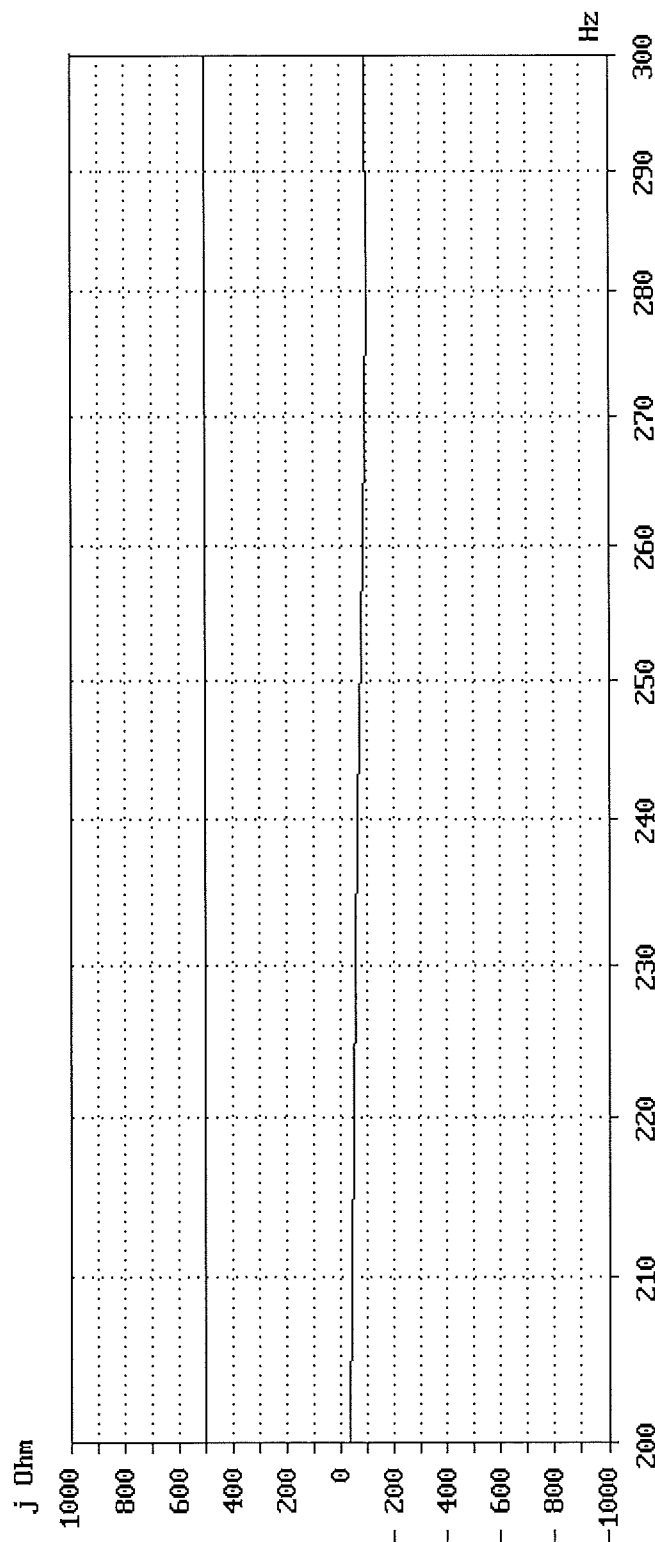
### TBR21 – 4.7.2 Impedance – inductive component of impedance

```
Model No.      : FAX System 10      Feeding voltage : 50.0 V      Feeding bridge: TBR21 Lf=5H
TEUT           : Facsimile Kit for PCPrent limitation: 80.0 mA      Level          : -10.0 dBV
Number of TEUT: 214060892          Polarity        : Normal       Call setup    : outgoing
Manufacturer   : KYOCERA DS Inc.    Feeding resistor: 230.0 Ohm  Display       : Reactance
Date           : 14.05.15            Requirement     : The result curve shall not be less than limits
Time           : 10:44.24
Data set       : TBR21-4.7.2 230 N
```

Remark 1:

Mask violations : 0

Verdict : PASS



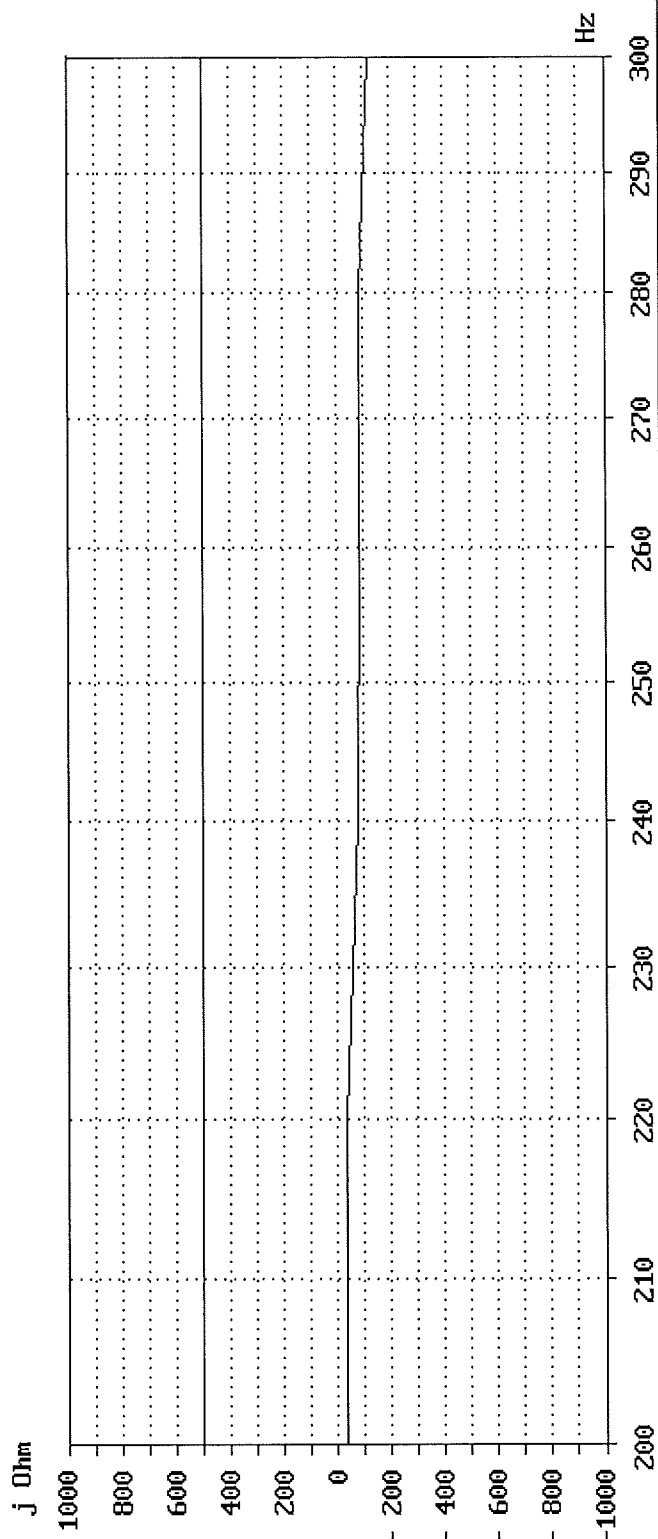
### TBR21 - 4.7.2 Impedance - inductive component of impedance

```
Model No.      : FAX System 10      Feeding voltage : 50.0 V      Feeding bridge: TBR21
TEUT           : Facsimile Kit for KX-FT7000 Level       : -10.0 dBV
Number of TEUT: 214060892          Polarity        : Inverted    Call setup   : outgoing
Manufacturer   : KYOCERA DS Inc.    Feeding resistor : 850.0 Ohm  Display      : Reactance
Date           : 14.05.15            Requirement     : The result curve shall not be less than the limits
Time           : 10:49.10
Data set       : TBR21-4.7.2 850 I
```

Remark

Mask violations : 0

Verdict : PASS



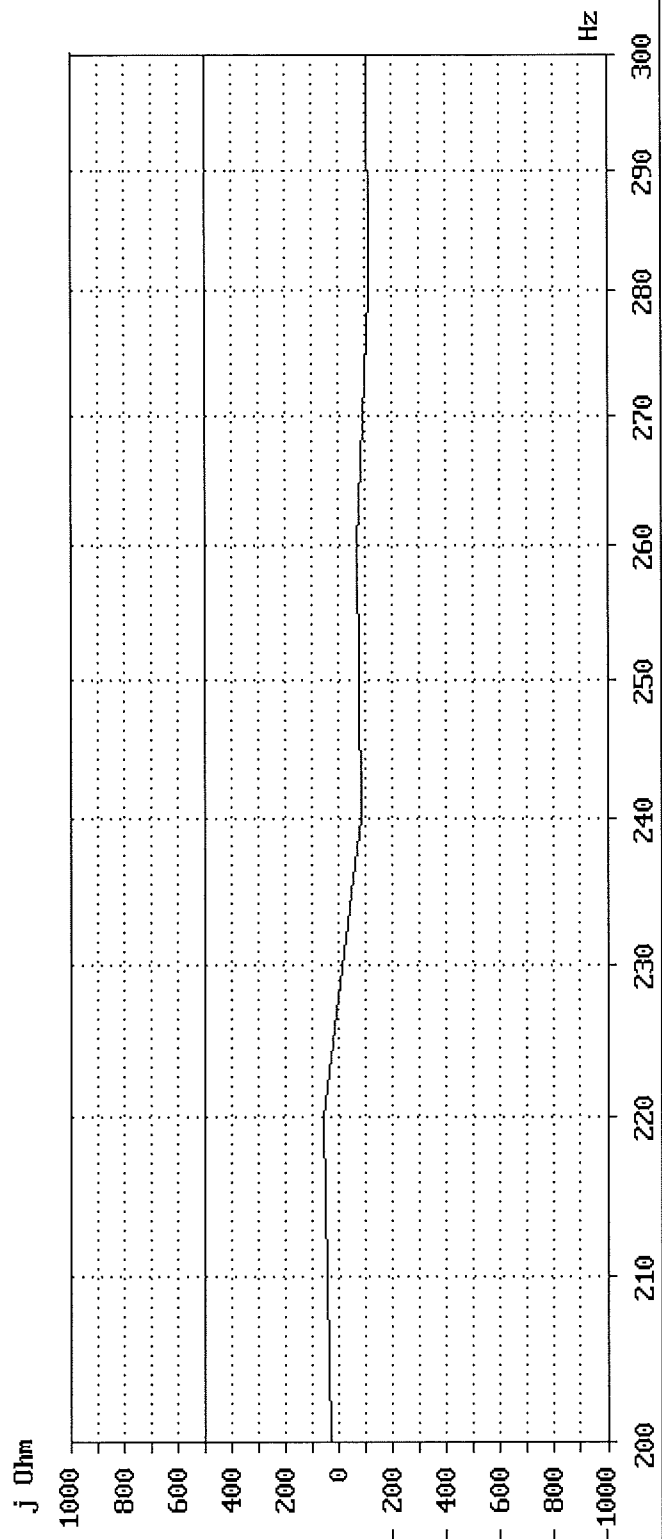
## TBR21 - 4.7.2 Impedance - inductive component of impedance

Model No. : FAX System 10 Feeding voltage : 50.0 V Feeding bridge: TBR21  
 TEUT : Facsimile Kit for NARrent limitation: 80.0 mA Level : -10.0 dBV  
 Number of TEUT: 214060892 Polarity : Normal Call setup : outgoing  
 Manufacturer : KYOCERA DS Inc. Feeding resistor : 2050.0 Ohm Display : Reactance  
 Date : 14.05.15 Requirement : The result curve  
 Time : 10:51.34 shall not be less the limits  
 Data set : TBR21-4.7.2 2050 N

Remark : -

Mask violations : 0

Verdict : PASS



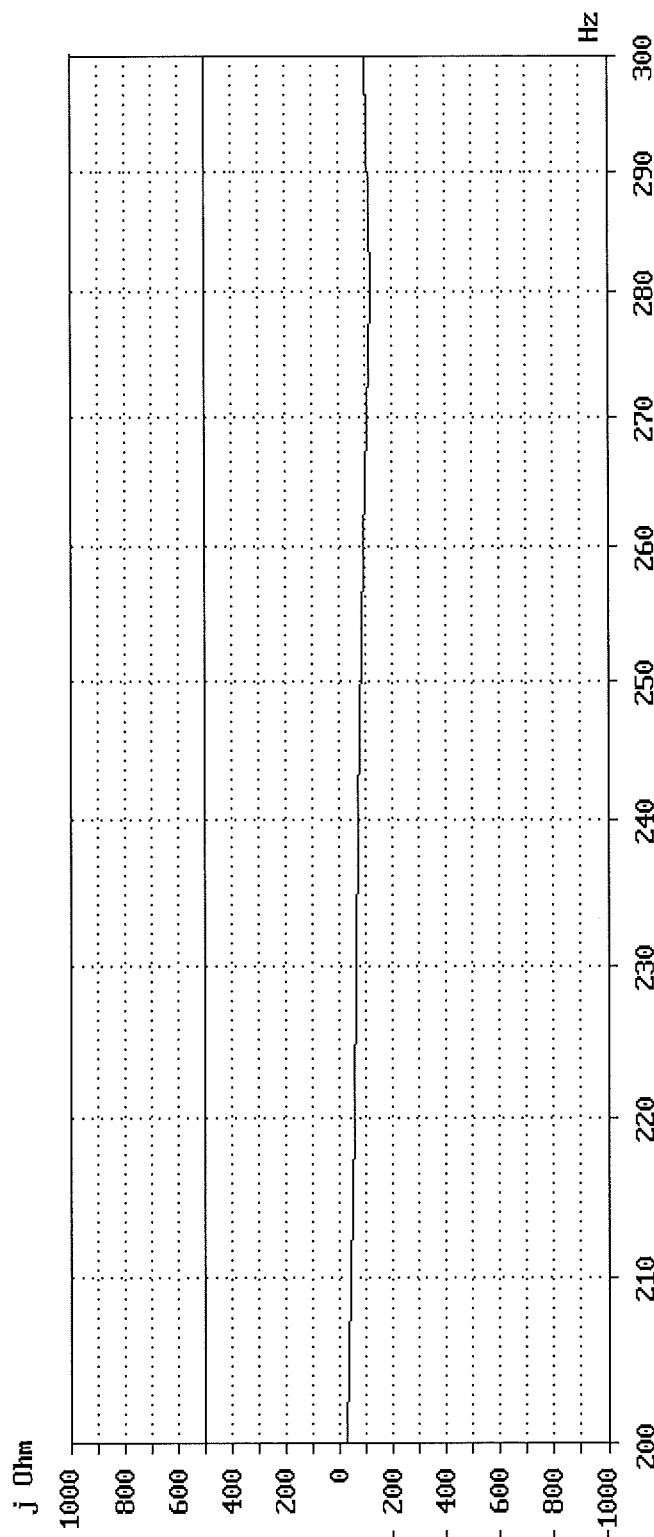
### TBRZ1 - 4.7.2 Impedance - inductive component of impedance

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Feeding bridge:	TBR21
TEUT	: Facsimile Kit for	Current limitation:	80.0 mA	Level	: -10.0 dBV
Number of TEUT:	214060892	Polarity	: Inverted	Call setup	: outgoing
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200.0 Ohm	Display	: Reactance
Date	: 14.05.15	Requirement	: The result curve		
Time	: 10:54.07		shall not be less the limits		
		Data set	: TBR21-4.7.2	3200 I	

Remark : —

Mask violations : 0

Verdict : PASS



Protocol for Maximum mean sending level

TBR21-4.7.3.1 Mean sending level / TBR21-4.7.3.2 Instantaneous voltage

```

=====
Model No.      : FAX System 10      Feeding voltage   : 50 V
TEUT           : Facsimile Kit for MFP Current limitation: 80 mA
Number of TEUT: 214060892          Polarity          : Normal
Manufacturer   : KYOCERA DS Inc.    Feeding resistor  : 230 Ω
Date           : 14.05.15           Trigger lev./delay: -12.0 dBV 10 msec
Time           : 10:56.31           Receiver impedance: Zr TBR21
                                           Receiver filter   : BP 200-3800 Hz
                                           Call setup        : outgoing
                                           Gain (internal)   : -6.0 dB
    
```

Data set : TBR21-4.7.3.1 230 N  
 Requirement : The mean sending level shall not be greater than -9.7 dBV  
 The instantaneous voltage shall not exceed 5.0 Vpp.

Comm. Signal : V.34 33600bps      Instantaneous Volt: 1.20      Vpp  
 Verdict : PASS

Mean level  
 dBV

- 13.1

Protocol for Maximum mean sending level

TBR21-4.7.3.1 Mean sending level / TBR21-4.7.3.2 Instantaneous voltage

```

=====
Model No.      : FAX System 10      Feeding voltage   : 50 V
TEUT           : Facsimile Kit for MFP Current limitation: 80 mA
Number of TEUT : 214060892          Polarity          : Inverted
Manufacturer   : KYOCERA DS Inc.    Feeding resistor  : 230 Ω
Date           : 14.05.15           Trigger lev./delay: -12.0 dBV 10 msec
Time           : 11:07.36           Receiver impedance: Zr TBR21
                                           Receiver filter   : BP 200-3800 Hz
                                           Call setup       : outgoing
                                           Gain (internal)  : -6.0 dB
    
```

Data set : TBR21-4.7.3.1 230 I  
 Requirement : The mean sending level shall not be greater than -9.7 dBV  
 The instantaneous voltage shall not exceed 5.0 Vpp.

Comm. Signal : V.17 14400bps      Instantaneous Volt: 1.14      Vpp  
 Verdict : PASS

Mean level  
 dBV

- 12.9

Protocol for Maximum mean sending level

TBR21-4.7.3.1 Mean sending level / TBR21-4.7.3.2 Instantaneous voltage

=====

Model No.	: FAX System 10	Feeding voltage	: 50 V
TEUT	: Facsimile Kit for MFP	Current limitation:	80 mA
Number of TEUT:	214060892	Polarity	: Normal
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200 $\Omega$
Date	: 14.05.15	Trigger lev./delay:	-12.0 dBV 10 msec
Time	: 13:57.03	Receiver impedance:	Zr TBR21
		Receiver filter	: BP 200-3800 Hz
		Call setup	: outgoing
		Gain (internal)	: -6.0 dB

Data set : TBR21-4.7.3.1 3200 N  
 Requirement : The mean sending level shall not be greater than -9.7 dBV  
 The instantaneous voltage shall not exceed 5.0 Vpp.

Comm. Signal : V.29 9600bps      Instantaneous Volt: 1.20      Vpp

Verdict : PASS

Mean level  
dBV

- 13.0

Protocol for Maximum mean sending level

TBR21-4.7.3.1 Mean sending level / TBR21-4.7.3.2 Instantaneous voltage

```
=====
Model No.      : FAX System 10      Feeding voltage   : 50 V
TEUT           : Facsimile Kit for MFP Current limitation: 80 mA
Number of TEUT : 214060892          Polarity          : Inverted
Manufacturer    : KYOCERA DS Inc.    Feeding resistor  : 3200 Ω
Date            : 14.05.15           Trigger lev./delay: -12.0 dBV 10 msec
Time            : 14:07.31           Receiver impedance: Zr TBR21
                                           Receiver filter   : BP 200-3800 Hz
                                           Call setup        : outgoing
                                           Gain (internal)   : -6.0 dB
=====
```

Data set : TBR21-4.7.3.1 3200 I  
Requirement : The mean sending level shall not be greater than -9.7 dBV  
The instantaneous voltage shall not exceed 5.0 Vpp.

Comm. Signal : V.27ter 4800bps      Instantaneous Volt: 0.82      Vpp  
Verdict : PASS

Mean level  
dBV

- 13.0

Protocol for Maximum mean sending level

TBR21-4.7.3.1 Mean sending level / TBR21-4.7.3.2 Instantaneous voltage

```

=====
Model No.      : FAX System 10      Feeding voltage   : 50 V
TEUT           : Facsimile Kit for MFP Current limitation: 80 mA
Number of TEUT: 214060892          Polarity          : Normal
Manufacturer   : KYOCERA DS Inc.    Feeding resistor  : 230 Ω
Date           : 14.05.15           Trigger lev./delay: -12.0 dBV 10 msec
Time           : 14:17.06           Receiver impedance: Zr TBR21
                                           Receiver filter   : BP 200-3800 Hz
                                           Call setup        : outgoing
                                           Gain (internal)   : -6.0 dB
    
```

Data set : TBR21-4.7.3.1 230 N  
 Requirement : The mean sending level shall not be greater than -9.7 dBV  
 The instantaneous voltage shall not exceed 5.0 Vpp.

Comm. Signal : V.21 300bps                      Instantaneous Volt: 0.68                      Vpp  
 Verdict : PASS

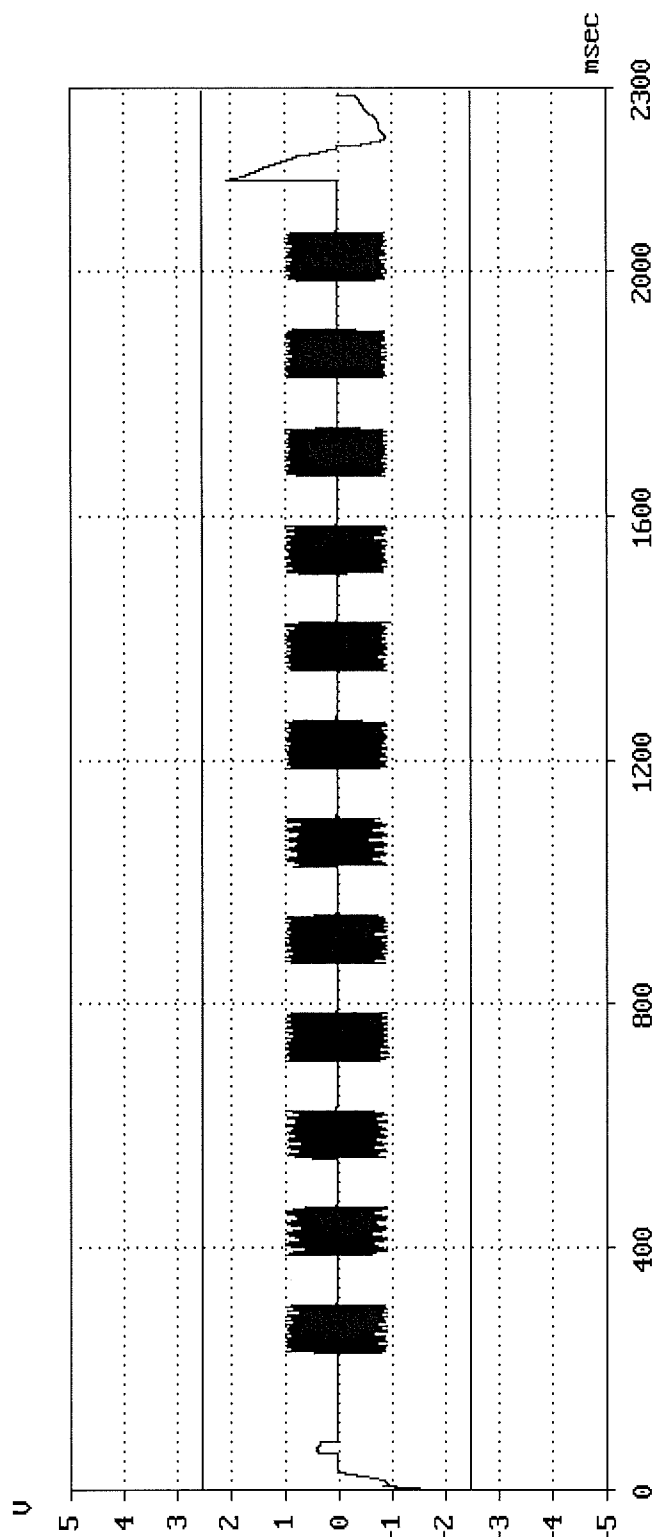
Mean level  
 dBV

- 13.0

## TBR21 - 4.7.3.2 Instantaneous voltage during DTMF signalling

Model No.	: FAX System 10	Feeding voltage : 50.0 V	Feeding bridge : TBR21
TEUT	: Facsimile Kit for F3Marity	: Normal	: OK
Number of TEUT	: 214060892	Feeding resistor: 230.0 Ohm	Trigger level : -12 dBV min. 1
Manufacturer	: KYOCERA DS Inc.	Receiver imped. : Zr TBR21	Gain (internal): -12.0 dB
Date	: 18.05.15	Requirement: The results shall	Filter : BP 200-3800 Hz
Time	: 16:02.09	be <= 5.0 Vpp for 0.0 msec	Dialtone : yes
Remark	: -	Data set	: TBR21-4.7.3.2 DTMF 230 N

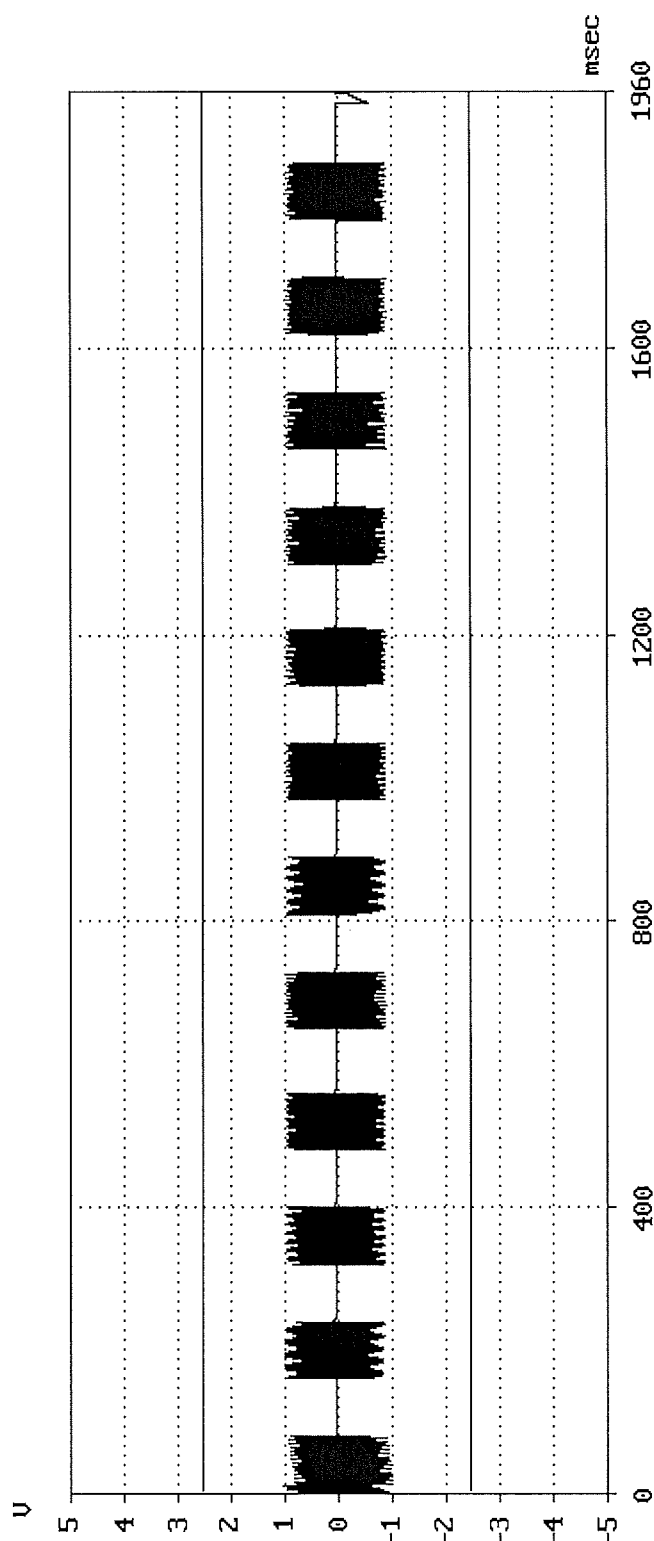
Mask violation : 0                      Verdict : PASS



## TBR21 - 4.7.3.2 Instantaneous voltage during DTMF signalling

Model No.	: FAX System 10	Feeding voltage : 50.0 V	Feeding bridge : TBR21
TEUT	: Facsimile Kit for N2Plarity	: Inverted	: OK
Number of TEUT	: 214060892	Feeding resistor: 3200.0 Ohm	Trigger level : -12 dBV min. 1
Manufacturer	: KYOCERA DS Inc.	Receiver imped.: 2r TBR21	Gain (internal): -12.0 dB
Date	: 18.05.15	Requirement: The results shall	Filter : BP 200-3800 Hz
Time	: 16:05.35	be <= 5.0 Vpp for 0.0 msec	Dialtone : yes
Remark	: -	Data set	: TBR21-4.7.3.2 DTMF 3200 I

Mask violation : 0                      Verdict : PASS

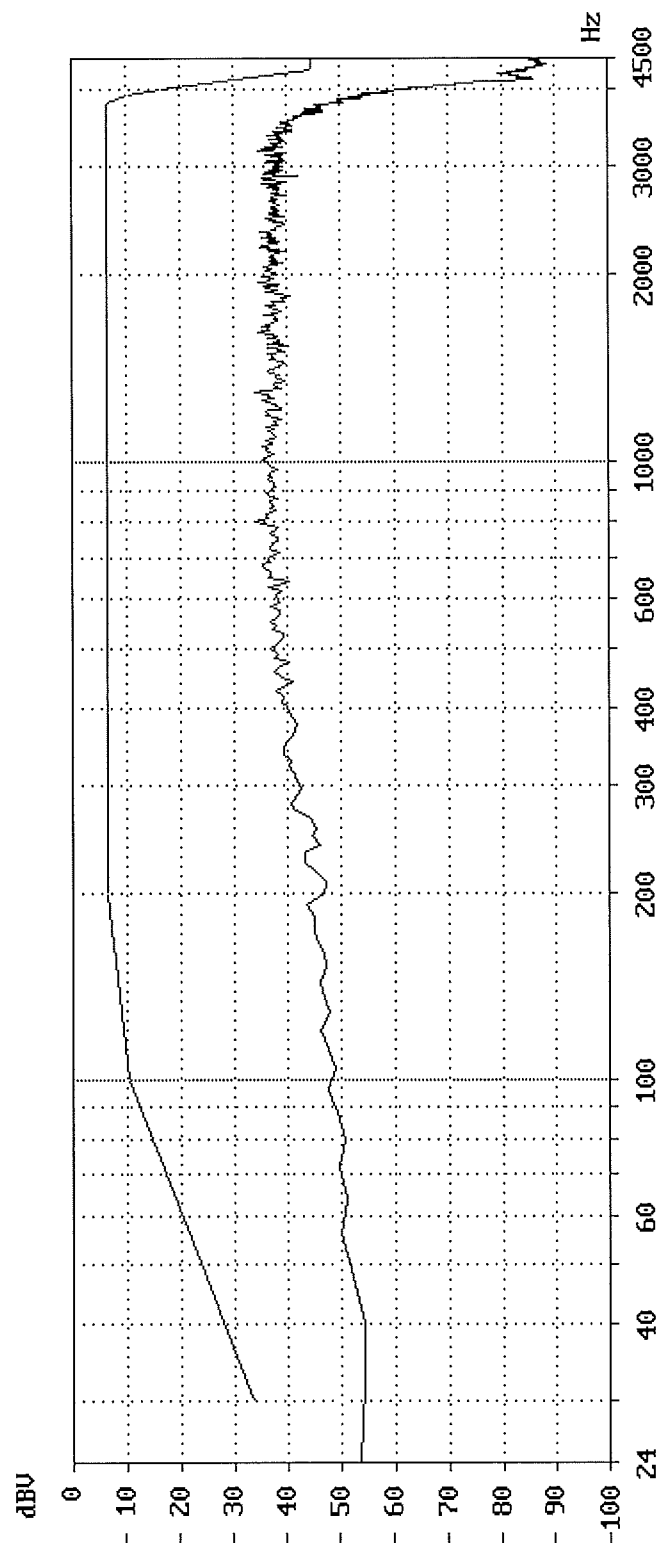


## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No. : FAX System 10	Feeding voltage : 50.0 V	Feeding bridge: TBR21
TEUT : Facsimile Kit for MURR	Current limitation: 80.0 mA	Max. Level : - 34.2 dBV
Number of TEUT: 214060892	Polarity : Normal	Frequency : 801 Hz
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 230.0 Ohm	Rx impedance : 2r TBR21
Date : 14.05.15	Requirement: The voltage shall not exceed the limits	Call setup : outgoing
Time : 10:58.15	Data set : TBR21-4.7.3.3 230 N	
Remark : U.34 33600bps		

Verdict : PASS

Mask violation: 0

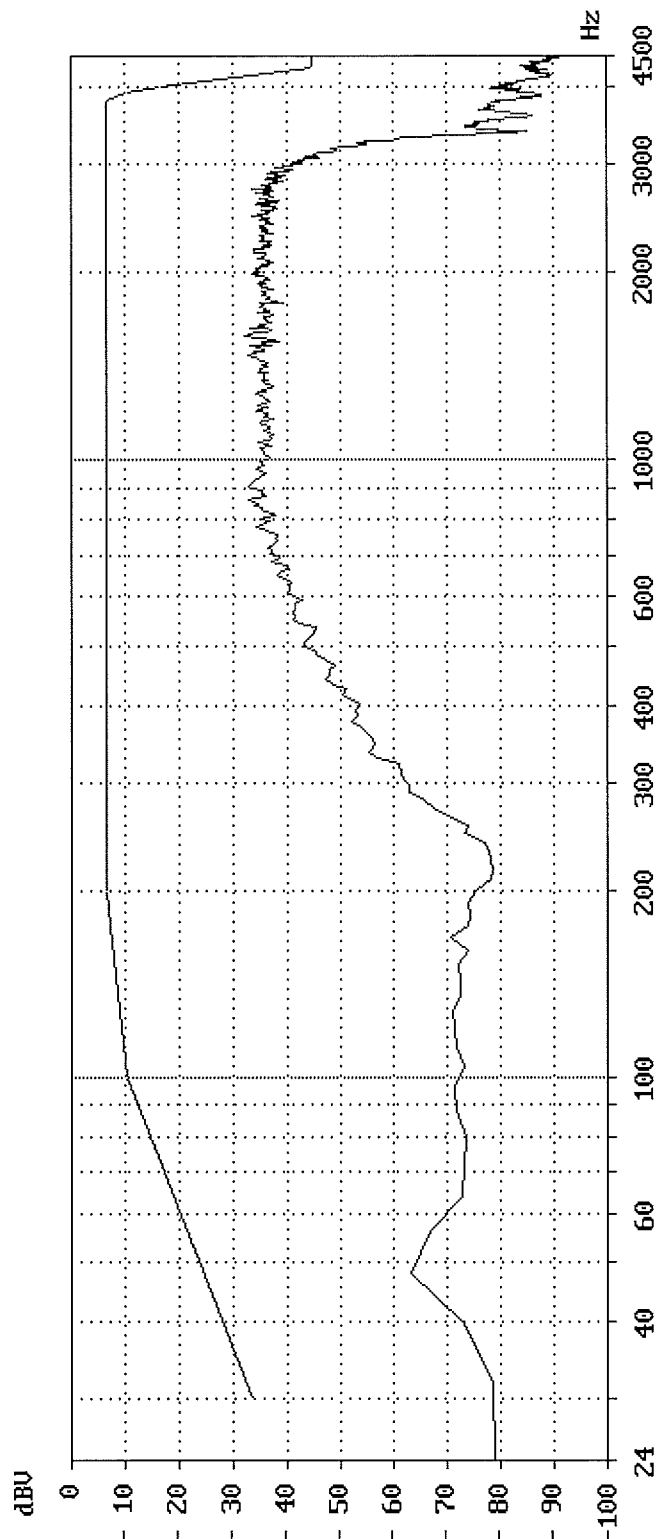


## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No. : FAX System 10	Feeding voltage : 50.0 V	Feeding bridge: TBR21
TEUT : Facsimile Kit for MPT	Current limitation: 80.0 mA	Max. Level : - 32.3 dBV
Number of TEUT: 214060892	Polarity : Inverted	Frequency : 1579 Hz
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 230.0 Ohm	Rx impedance : 2r TBR21
Date : 14.05.15	Requirement: The voltage shall not exceed the limits	Call setup : outgoing
Time : 11:08.56		
Remark : U.17 14400bps	Data set : TBR21-4.7.3.3 230 I	

Verdict : PASS

Mask violation: 0

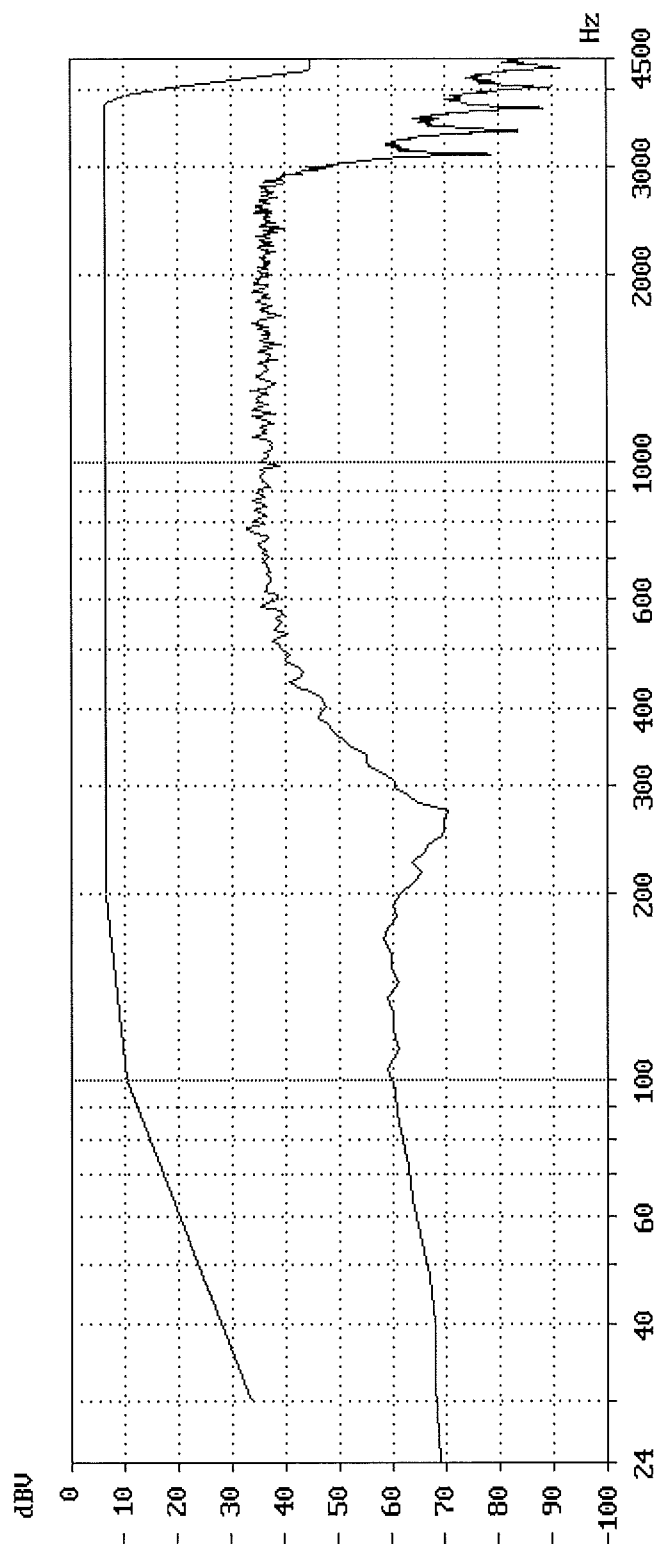


## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Feeding bridge:	TBR21
TEUT	: Facsimile Kit for MURR	Current limitation:	80.0 mA	Max. Level	: - 33.0 dBV
Number of TEUT:	214060892	Polarity	: Normal	Frequency	: 777 Hz
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200.0 Ohm	Rx impedance	: Zr TBR21
Date	: 14.05.15	Requirement:	The voltage shall not exceed the limits	Call setup	: outgoing
Time	: 13:58.16				
Remark	: 0.29 9600bps	Data set	: TBR21-4.7.3.3 3200 N		

Verdict : PASS

Mask violation: 0

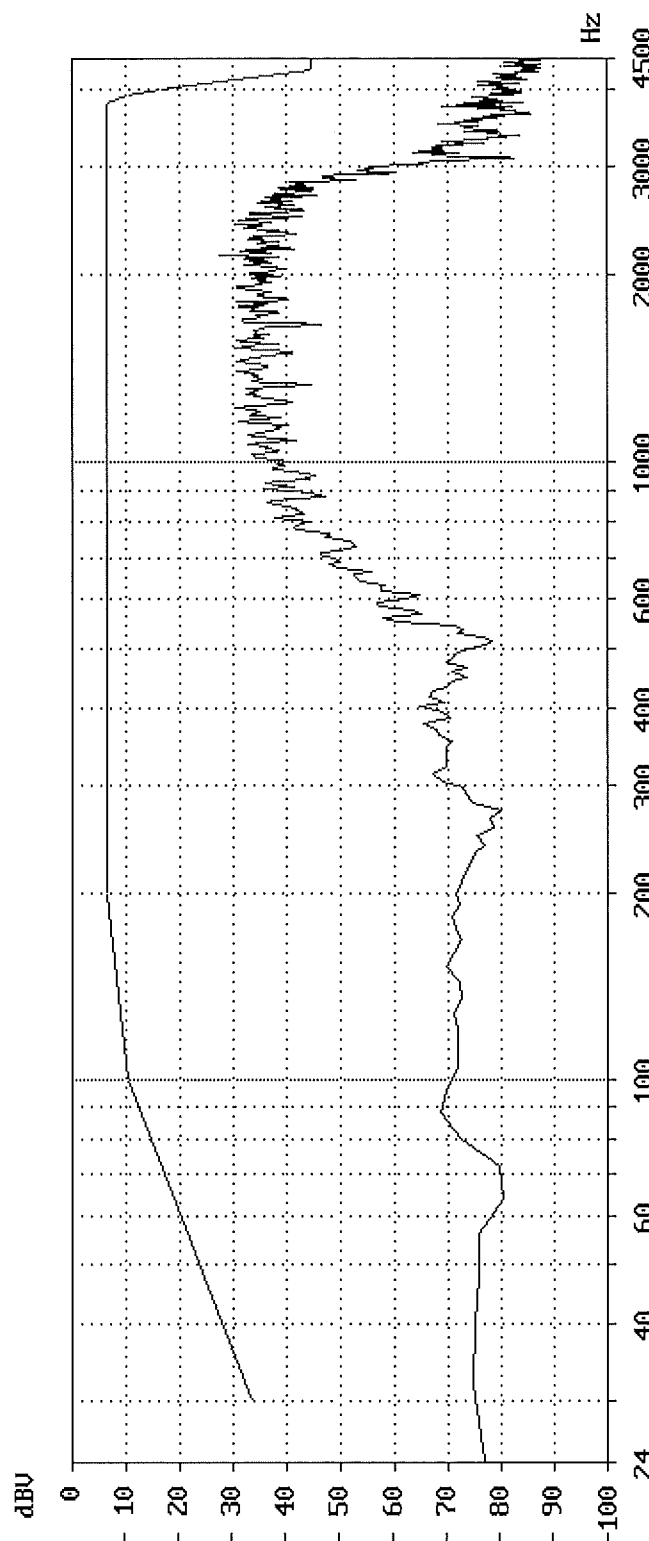


## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No. :	FAX System 10	Feeding voltage :	50.0 V	Feeding bridge:	TBR21
TEUT :	Facsimile Kit for FAX	Max. Level :	- 27.8 dBV		
Number of TEUT:	214060892	Polarity :	Inverted	Frequency :	2155 Hz
Manufacturer :	KYOCERA DS Inc.	Feeding resistor :	3200.0 Ohm	Rx impedance :	2r TBR21
Date :	14.05.15	Requirement:	The voltage shall not exceed the limits	Call setup :	outgoing
Time :	14:08.46				
Remark :	U.27ter 4800bps	Data set :	TBR21-4.7.3.3 3200 I		

Verdict : PASS

Mask violation: 0

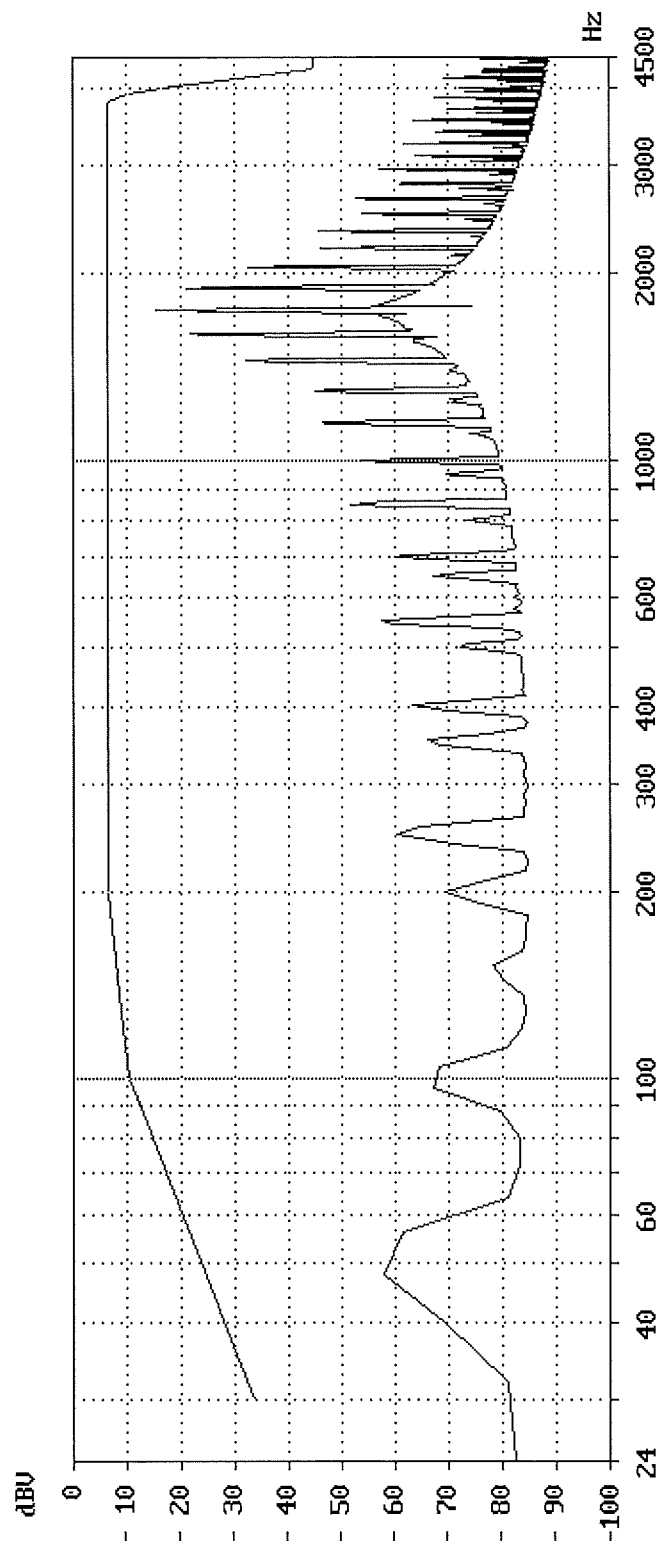


## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No. : FAX System 10	Feeding voltage : 50.0 V	Feeding bridge: TBR21
TEUT : Facsimile Kit for MURPHY	Current limitation: 80.0 mA	Max. Level : - 15.6 dBV
Number of TEUT: 214060892	Polarity : Normal	Frequency : 1747 Hz
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 230.0 Ohm	Rx impedance : 2r TBR21
Date : 14.05.15	Requirement: The voltage shall not exceed the limits	Call setup : outgoing
Time : 14:18.37		
Remark : U.21 300bps	Data set : TBR21-4.7.3.3 230 N	

Verdict : PASS

Mask violation: 0



## TBR21 - 4.7.3.4.1 Sending level above 4.3 kHz during DTMF dialling

Model No. : FAX System 10 Feeding voltage : 50.0 V  
 TEUT : Facsimile Kit for MFP Current limitation: 80.0 mA  
 Number of TEUT: 214060892 Polarity : Normal  
 Manufacturer : KYOCERA DS Inc. Feeding Resistor : 230.0 Ohm  
 Date : 18.05.15 Dial tone : Yes  
 Time : 16:08.59 Receiver impedance: Zr TBR21

Data set : TBR21-4.7.3.4.1 230 N  
 Requirement : 4.3kHz < f < 20kHz: < -35.7dBV  
 20kHz < f < 200kHz: < -40.7dBV

Remark : -

Verdict : PASS

Frequency kHz	range	Dial No.	Level dBV	Freq. kHz	Level dBV	Freq. kHz	Level dBV	Freq. kHz
4.3	20.0	357	- 75.5	4.37	- 74.9	4.56	- 77.7	4.51
20.0	30.0	357	- 88.5	20.04	- 89.3	20.04	- 90.3	20.04
30.0	40.0	357	- 81.4	40.0	- 81.6	40.0	- 81.6	40.0
40.0	50.0	357	- 92.2	48.84	- 89.1	48.79	- 93.3	49.18
50.0	60.0	357	- 87.9	53.51	- 91.1	54.95	- 89.7	53.51
60.0	70.0	357	- 99.4	66.82	-108.3	66.39	-107.7	66.34
70.0	80.0	357	-104.2	76.73	-108.4	79.47	-106.6	75.76
80.0	90.0	357	-104.4	83.02	-105.1	82.98	-102.9	82.98
90.0	100.0	357	-106.2	94.03	-106.9	98.46	-106.1	98.46
100.0	110.0	357	-100.6	105.38	-101.3	105.38	-100.3	105.38
110.0	120.0	357	-108.7	119.71	-109.2	115.62	-109.6	117.40
120.0	130.0	357	-108.2	120.52	-111.5	129.37	-108.1	126.73
130.0	140.0	357	-108.1	135.96	-109.5	130.72	-109.1	136.49
140.0	150.0	357	-107.5	146.29	-108.1	145.57	-109.2	146.15
150.0	160.0	357	- 99.3	158.07	- 98.4	158.07	- 98.6	158.07
160.0	170.0	357	-109.7	166.68	-108.9	165.24	-108.1	166.15
170.0	180.0	357	-107.8	176.58	-109.7	173.22	-109.9	174.47
180.0	190.0	357	-109.5	185.43	-109.2	185.28	-106.7	183.60
190.0	200.0	357	- 95.0	196.92	- 94.7	196.92	- 95.1	196.92

# Protocol for Maximum sending levels DTMF Auto

## TBR21 - 4.7.3.4.1 Sending level above 4.3 kHz during DTMF dialling

Model No. : FAX System 10 Feeding voltage : 50.0 V  
 TEUT : Facsimile Kit for MFP Current limitation: 80.0 mA  
 Number of TEUT: 214060892 Polarity : Inverted  
 Manufacturer : KYOCERA DS Inc. Feeding Resistor : 3200.0 Ohm  
 Date : 18.05.15 Dial tone : Yes  
 Time : 16:14.02 Receiver impedance: Zr TBR21

Data set : TBR21-4.7.3.4.1 3200 I  
 Requirement : 4.3kHz < f < 20kHz: < -35.7dBV  
 20kHz < f < 200kHz: < -40.7dBV

Remark : -

Verdict : PASS

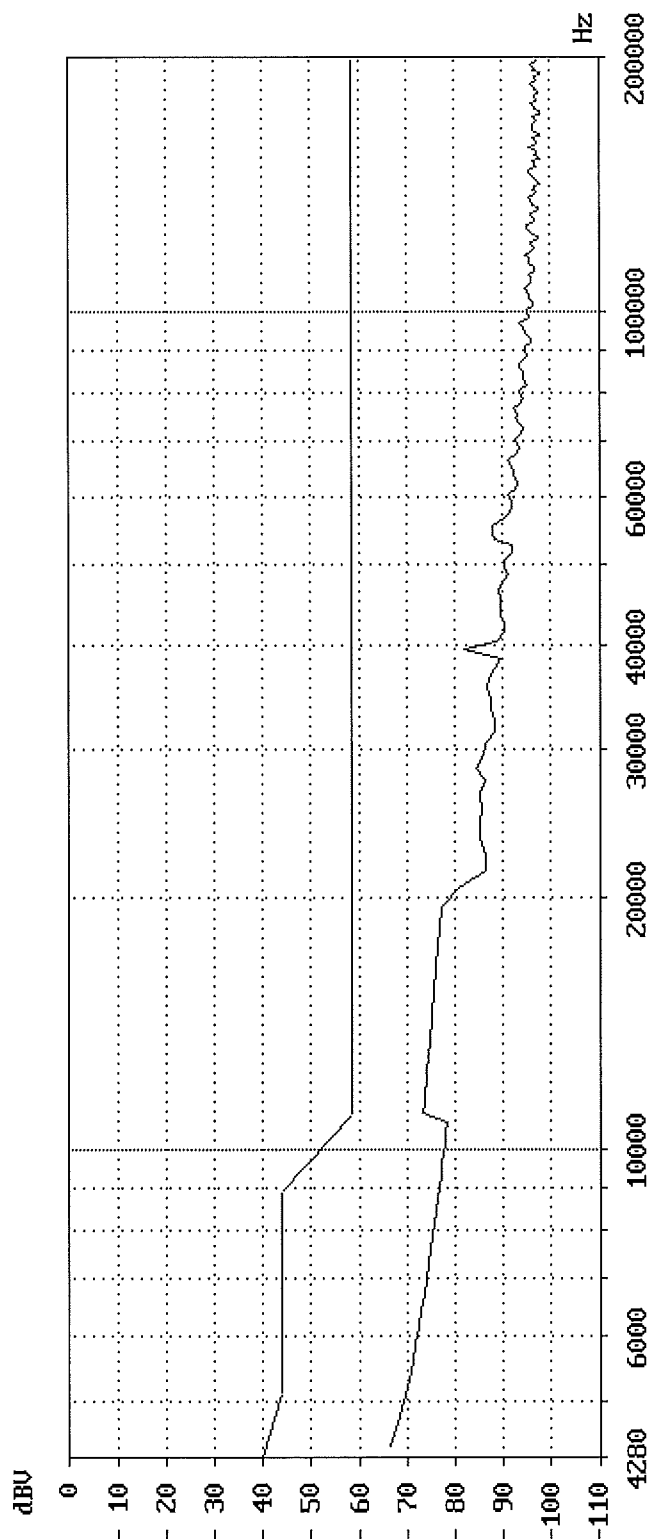
Frequency range kHz	Dial No.	Level dBV	Freq. kHz	Level dBV	Freq. kHz	Level dBV	Freq. kHz
4.3 20.0	570	- 58.6	4.32	- 55.2	4.37	- 67.0	4.51
20.0 30.0	570	- 81.3	20.24	- 85.8	20.52	- 82.8	21.01
30.0 40.0	570	- 80.3	40.0	- 80.2	40.0	- 82.1	40.0
40.0 50.0	570	- 83.4	48.84	- 85.7	48.84	- 86.8	48.79
50.0 60.0	570	- 84.0	52.69	- 82.1	52.69	- 83.0	52.69
60.0 70.0	570	- 90.1	61.63	- 90.8	63.60	- 89.1	65.24
70.0 80.0	570	- 89.3	76.73	- 92.6	76.49	- 91.6	73.12
80.0 90.0	570	- 92.5	80.09	- 82.1	81.82	- 82.5	81.82
90.0 100.0	570	- 93.9	90.76	- 92.0	95.96	- 95.3	96.58
100.0 110.0	570	- 96.4	106.58	- 95.8	105.33	- 93.9	100.09
110.0 120.0	570	- 95.9	115.76	- 95.8	119.47	- 96.6	113.94
120.0 130.0	570	- 97.2	126.05	- 98.0	125.0	- 96.3	126.63
130.0 140.0	570	- 95.2	135.24	- 97.6	136.53	- 99.0	130.67
140.0 150.0	570	- 98.3	144.47	- 95.9	143.60	- 98.0	149.61
150.0 160.0	570	- 96.8	158.02	- 99.4	158.07	- 97.0	158.07
160.0 170.0	570	- 98.5	164.37	- 98.4	166.63	- 97.9	165.96
170.0 180.0	570	- 98.8	172.64	- 93.3	179.23	- 99.9	176.53
180.0 190.0	570	- 99.5	185.96	-101.2	183.51	-102.0	189.51
190.0 200.0	570	- 98.6	190.33	-100.2	196.92	- 97.7	196.92

## TBR21 - 4.7.3.4.2 Sending level above 4.3 kHz during communication

Model No. : FAX System 10      Feeding voltage : 50.0 V      Max. Level : - 71.3 dBV  
 TEUT : Facsimile Kit for F211arity : Normal      at Frequency: 4279 Hz  
 Number of TEUT: 214060892      Feeding Resistor: 230.0 Ohm      Max. Level : - 64.8 dBV  
 Manufacturer : KYOCERA DS Inc.      Feeding Bridge : TBR21      Frequency : 4279 Hz  
 Date : 14.05.15      Requirement : The voltage level      Rx impedance: 2r TBR21  
 Time : 11:04.53      shall not exceed the limits  
 Signal : 0.34 33600bps      Data set : TBR21-4.7.3.4.2 230 N  
 Remark : -

Mask violations: 0

Verdict : PASS

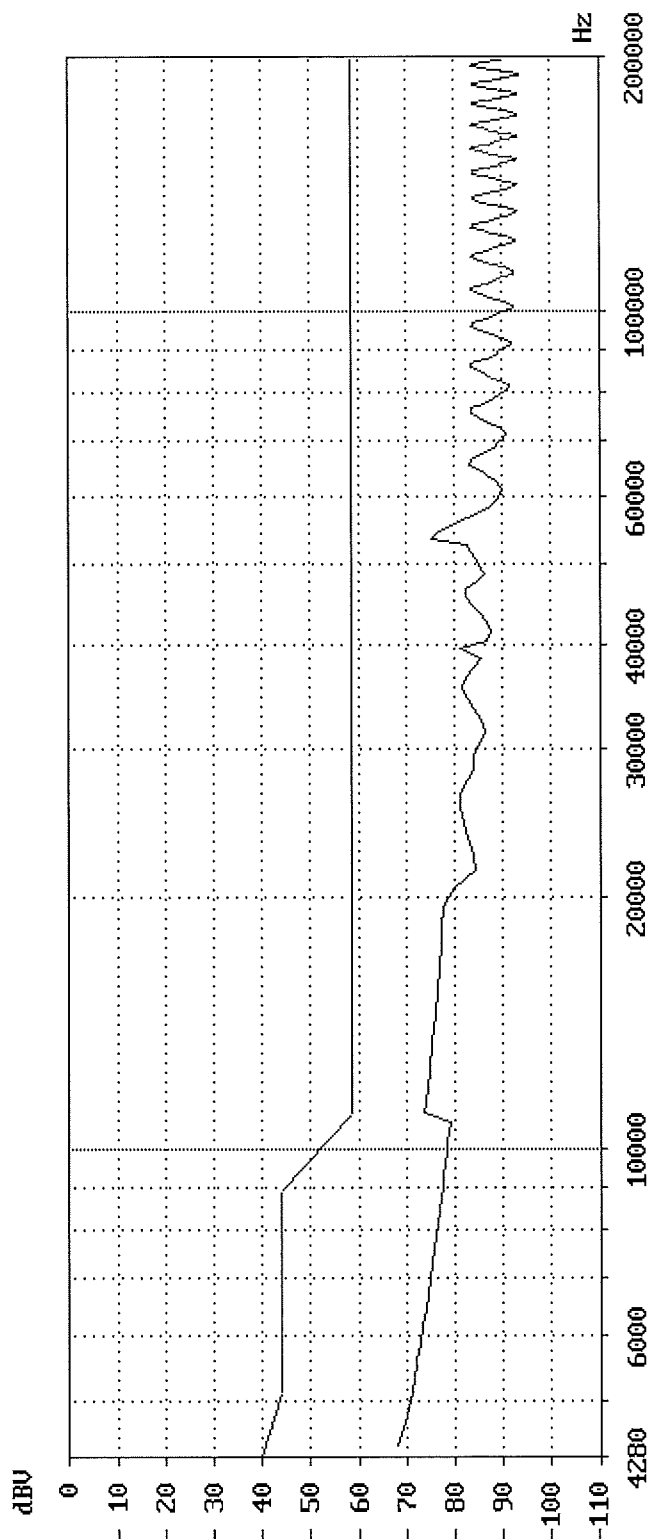


## TBR21 - 4.7.3.4.2 Sending level above 4.3 kHz during communication

Model No. : FAX System 10      Feeding voltage : 50.0 V      Max. Level : - 73.5 dBV  
 TEUT : Facsimile Kit for FaxModem      at Frequency: 4327 Hz  
 Number of TEUT: 214060892      Feeding Resistor: 230.0 Ohm      Max. Level : - 67.6 dBV  
 Manufacturer : KYOCERA DS Inc.      Feeding Bridge : TBR21      Frequency : 4279 Hz  
 Date : 14.05.15      Requirement : The voltage level      Rx impedance: 2r TBR21  
 Time : 11:15.30      shall not exceed the limits  
 Signal : 0.17 14400bps      Data set : TBR21-4.7.3.4.2 230 I  
 Remark : -

Verdict : PASS

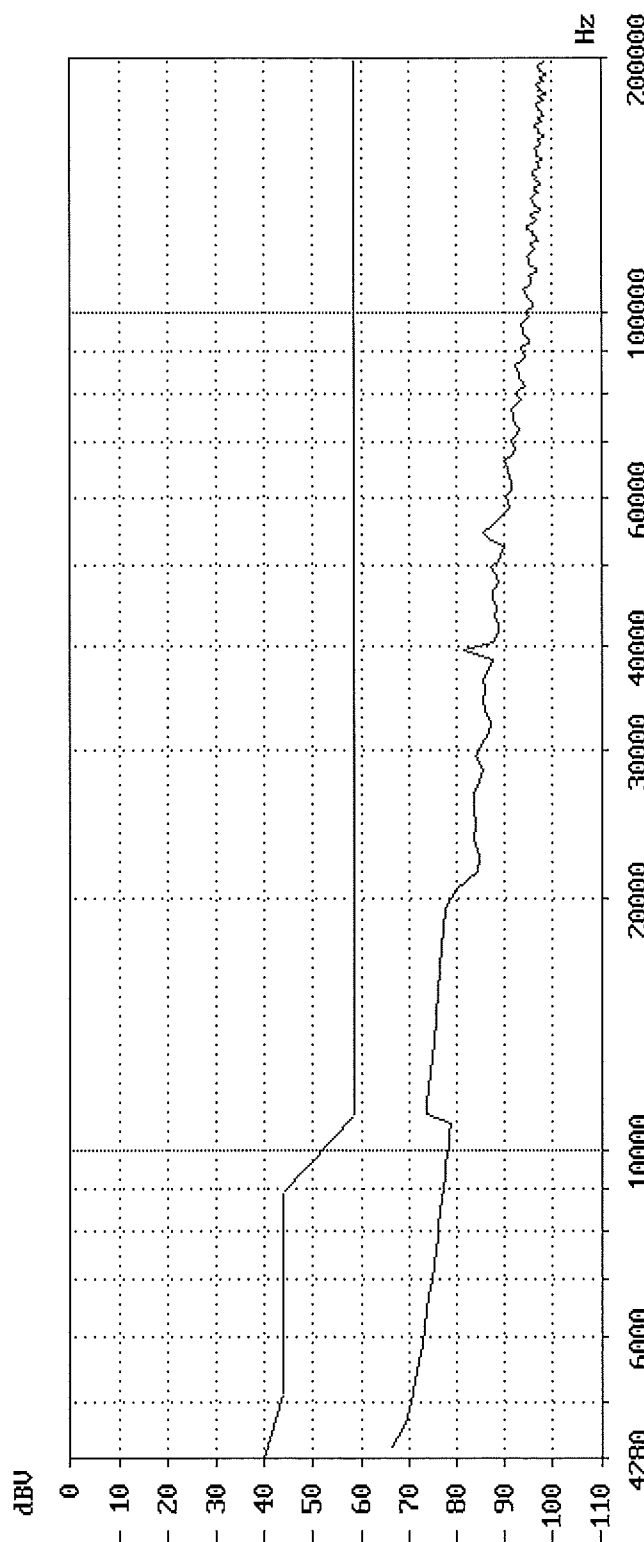
Mask violations: 0



## TBR21 - 4.7.3.4.2 Sending level above 4.3 kHz during communication

Model No.	: FAX System 10	Feeding voltage : 50.0 V	Max. Level : - 71.1 dBV
TEUT	: Facsimile Kit for FAX	Modulation : Normal	at Frequency: 4279 Hz
Number of TEUT:	214060892	Feeding Resistor: 3200.0 Ohm	Max. Level : - 63.4 dBV
Manufacturer	: KYOCERA DS Inc.	Feeding Bridge : TBR21	Frequency : 4279 Hz
Date	: 14.05.15	Requirement : The voltage level	Rx impedance: Zr TBR21
Time	: 14:04.28	shall not exceed the limits	
Signal	: V.29 9600bps	Data set	: TBR21-4.7.3.4.2 3200 N
Remark	: -		

Mask violations: 0                      Verdict : PASS

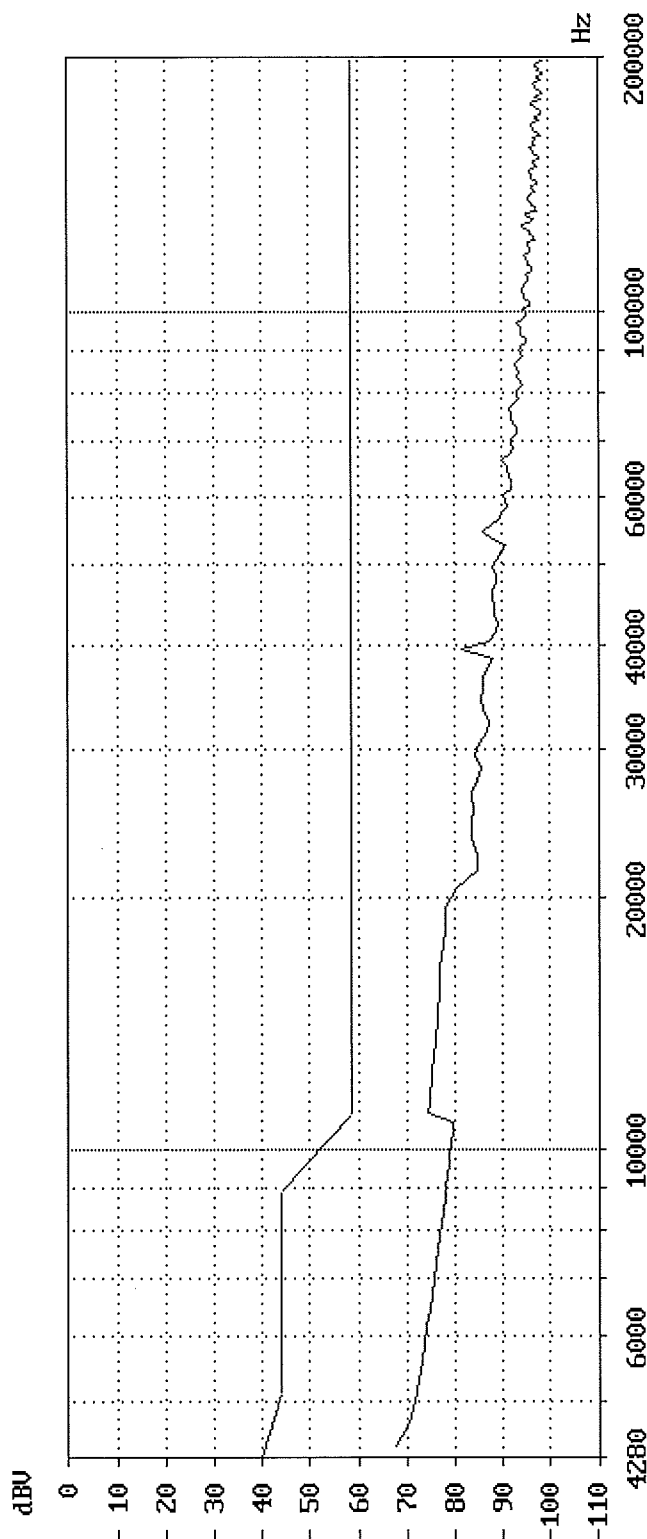


## TBR21 - 4.7.3.4.2 Sending level above 4.3 kHz during communication

Model No. : FAX System 10      Feeding voltage : 50.0 V      Max. Level : - 73.6 dBV  
 TEUT : Facsimile Kit for R21arity      at Frequency: 4375 Hz  
 Number of TEUT: 214060892      Feeding Resistor: 3200.0 Ohm      Max. Level : - 66.2 dBV  
 Manufacturer : KYOCERA DS Inc.      Feeding Bridge : TBR21      Frequency : 4279 Hz  
 Date : 14.05.15      Requirement : The voltage level      Rx impedance: 2r TBR21  
 Time : 14:15.00      shall not exceed the limits  
 Signal : 0.27ter 4800bps      Data set : TBR21-4.7.3.4.2 3200 I  
 Remark : -

Mask violations: 0

Verdict : PASS

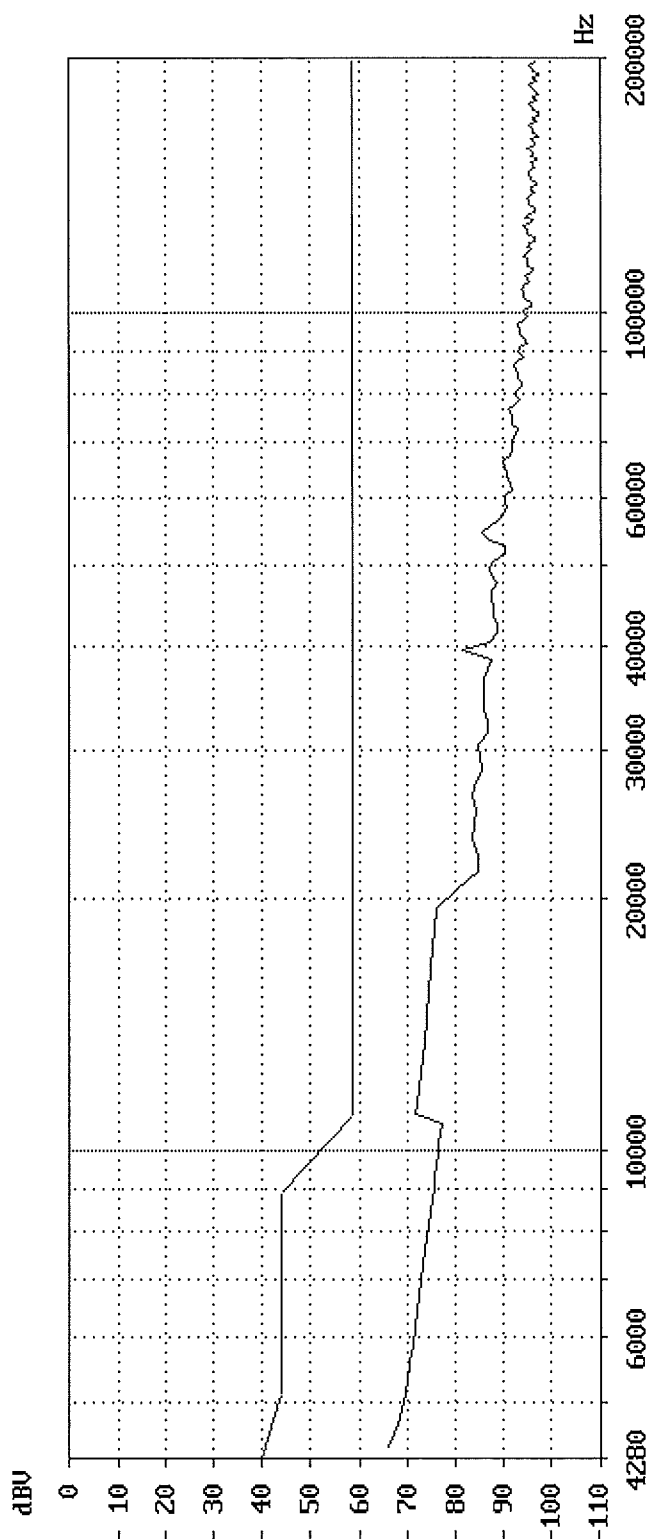


## TBR21 - 4.7.3.4.2 Sending level above 4.3 kHz during communication

Model No. : FAX System 10      Feeding voltage : 50.0 V      Max. Level : - 71.4 dBV  
 TEUT : Facsimile Kit for F21Marty      at Frequency: 4279 Hz  
 Number of TEUT: 214060892      Feeding Resistor: 230.0 Ohm      Max. Level : - 64.6 dBV  
 Manufacturer : KYOCERA DS Inc.      Feeding Bridge : TBR21      Frequency : 4279 Hz  
 Date : 14.05.15      Requirement : The voltage level      Rx impedance: 2r TBR21  
 Time : 14:25.10      shall not exceed the limits  
 Signal : 0.21 300bps      Data set : TBR21-4.7.3.4.2 230 N  
 Remark : -

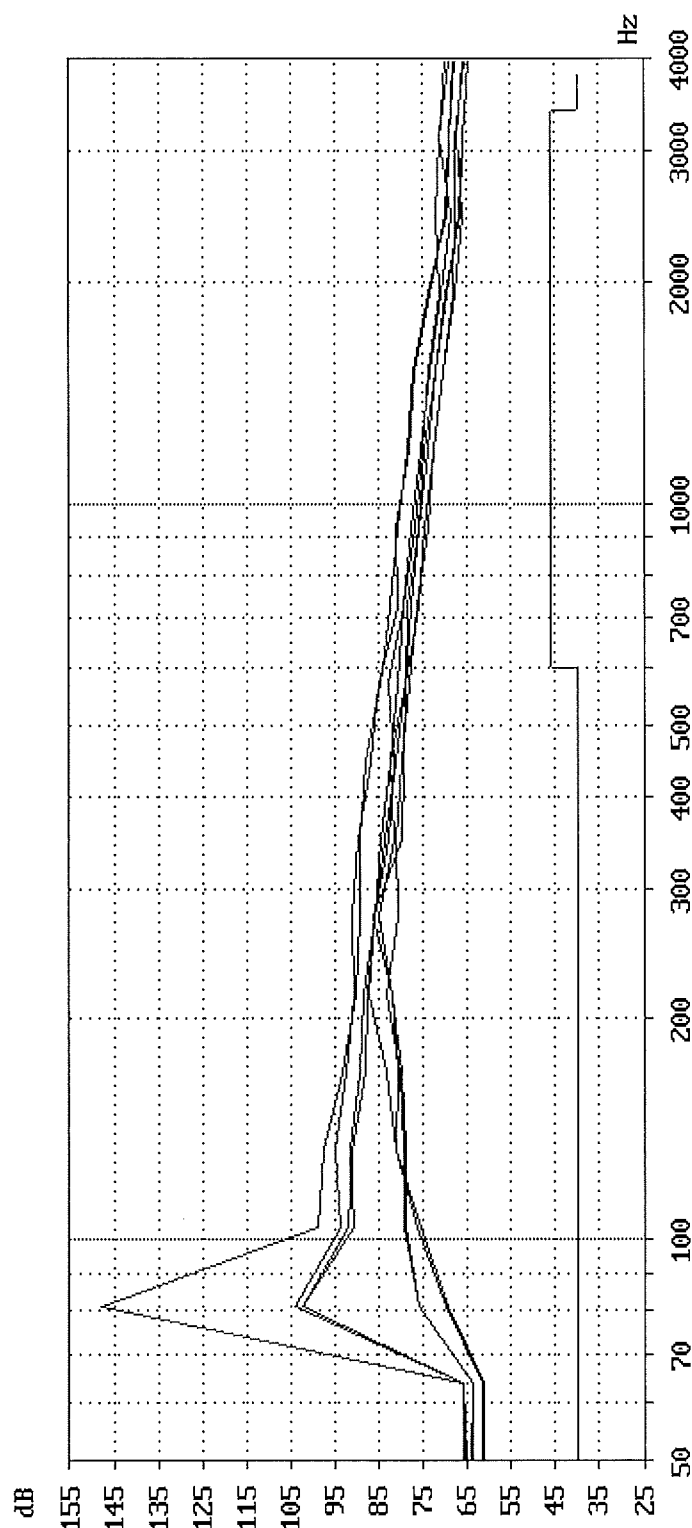
Mask violations: 0

Verdict : PASS



# TBR21 - 4.7.4.1 Longitudinal Conversion Loss in loop state

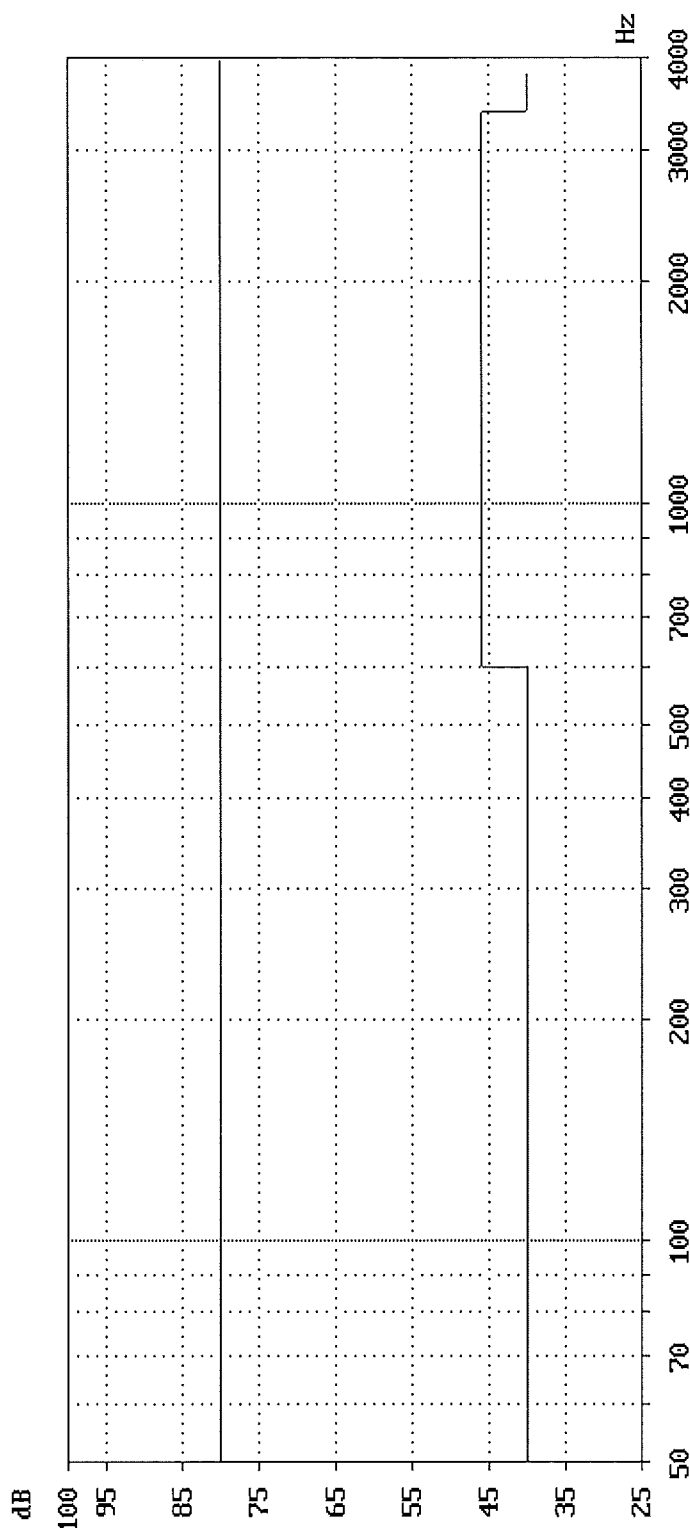
Comission : 214060892  
 Printing time : 18.05.15 16:30.18  
 Graph 1  
 Graph 2  
 Graph 3  
 Graph 4  
 Graph 5  
 Graph 6  
 Graph 7  
 Graph 8



Longitudinal conversion loss Comission : 214060892		Printing time : 18.05.15 16:30.18
Graph 1		Graph 2
Model No. TEUT Number of TEUT Manufacturer Date Time Feeding voltage Polarity Feeding resistor Feeding Bridge Data set Level Call setup Verdict Remark	FAX System 10 Facsimile Kit for MFP 214060892 KYOCERA DS Inc. 18.05.15 16:24.44 50.0 V Normal 230 Ohm TBR21 TBR21-4.7.4.1 +0.0 dB(0.775 V) outgoing PASS -	FAX System 10 Facsimile Kit for MFP 214060892 KYOCERA DS Inc. 18.05.15 16:25.04 50.0 V Inverted 230 Ohm TBR21 TBR21-4.7.4.1 +0.0 dB(0.775 V) outgoing PASS -
Graph 3		Graph 4
Model No. TEUT Number of TEUT Manufacturer Date Time Feeding voltage Polarity Feeding resistor Feeding Bridge Data set Level Call setup Verdict Remark	FAX System 10 Facsimile Kit for MFP 214060892 KYOCERA DS Inc. 18.05.15 16:25.24 50.0 V Normal 850 Ohm TBR21 TBR21-4.7.4.1 +0.0 dB(0.775 V) outgoing PASS -	FAX System 10 Facsimile Kit for MFP 214060892 KYOCERA DS Inc. 18.05.15 16:25.43 50.0 V Inverted 850 Ohm TBR21 TBR21-4.7.4.1 +0.0 dB(0.775 V) outgoing PASS -
Graph 5		Graph 6
Model No. TEUT Number of TEUT Manufacturer Date Time Feeding voltage Polarity Feeding resistor Feeding Bridge Data set Level Call setup Verdict Remark	FAX System 10 Facsimile Kit for MFP 214060892 KYOCERA DS Inc. 18.05.15 16:26.02 50.0 V Normal 2050 Ohm TBR21 TBR21-4.7.4.1 +0.0 dB(0.775 V) outgoing PASS -	FAX System 10 Facsimile Kit for MFP 214060892 KYOCERA DS Inc. 18.05.15 16:26.21 50.0 V Inverted 2050 Ohm TBR21 TBR21-4.7.4.1 +0.0 dB(0.775 V) outgoing PASS -
Graph 7		Graph 8
Model No. TEUT Number of TEUT Manufacturer Date Time Feeding voltage Polarity Feeding resistor Feeding Bridge Data set Level Call setup Verdict Remark	FAX System 10 Facsimile Kit for MFP 214060892 KYOCERA DS Inc. 18.05.15 16:26.40 50.0 V Normal 3200 Ohm TBR21 TBR21-4.7.4.1 +0.0 dB(0.775 V) outgoing PASS -	FAX System 10 Facsimile Kit for MFP 214060892 KYOCERA DS Inc. 18.05.15 16:26.58 50.0 V Inverted 3200 Ohm TBR21 TBR21-4.7.4.1 +0.0 dB(0.775 V) outgoing PASS -

## TBR21 - 4.7.4.2 Output Signal Balance

Model No. : FAX System 10	Feeding voltage : 50.0 V	Feeding Bridge: TBR21
TEUT : Facsimile Kit for MURR	Current limitation: 80.0 mA	Mask violation: 0
Number of TEUT: 214060892	Polarity : Normal	Min. level U <sub>0</sub> : -70.0 dBV
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 230.0 Ohm	Call setup : outgoing
Date : 14.05.15	Requirement : The curve of results shall be greater than the limits	
Time : 11:05.33	Data set : TBR21-4.7.4.2 230 N	
Remark : 0.34 33600bps	Verdict : PASS	

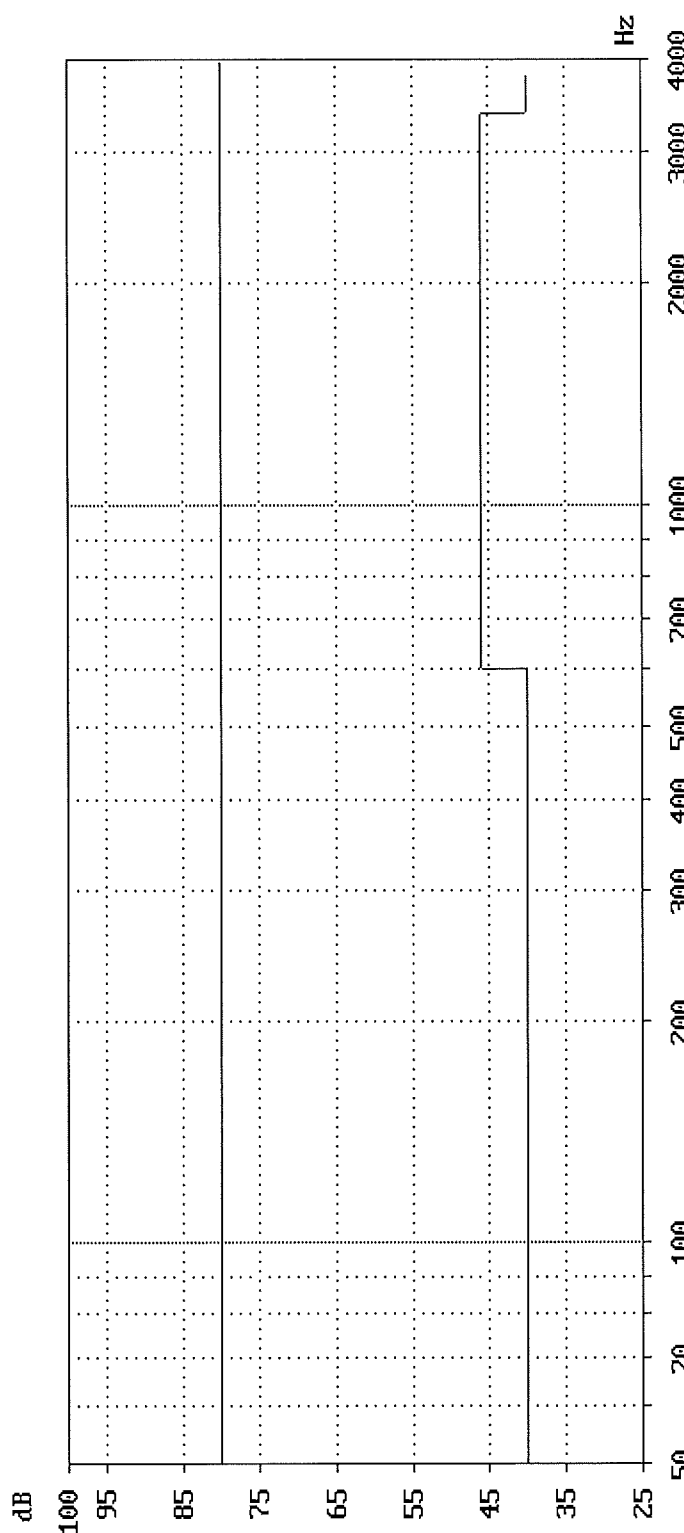


## TBR21 - 4.7.4.2 Output Signal Balance

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Feeding Bridge:	TBR21
TEUT	: Facsimile Kit for MURR	Current limitation:	: 80.0 mA	Mask violation:	: 0
Number of TEUT:	214060892	Polarity	: Inverted	Min. level U <sub>0</sub>	: -70.0 dBV
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 850.0 Ohm	Call setup	: outgoing
Date	: 14.05.15	Requirement	: The curve of results shall be greater than the limits		
Time	: 11:16.56	Data set	: TBR21-4.7.4.2 850 I		

Remark : U.17 14400bps

Verdict : PASS

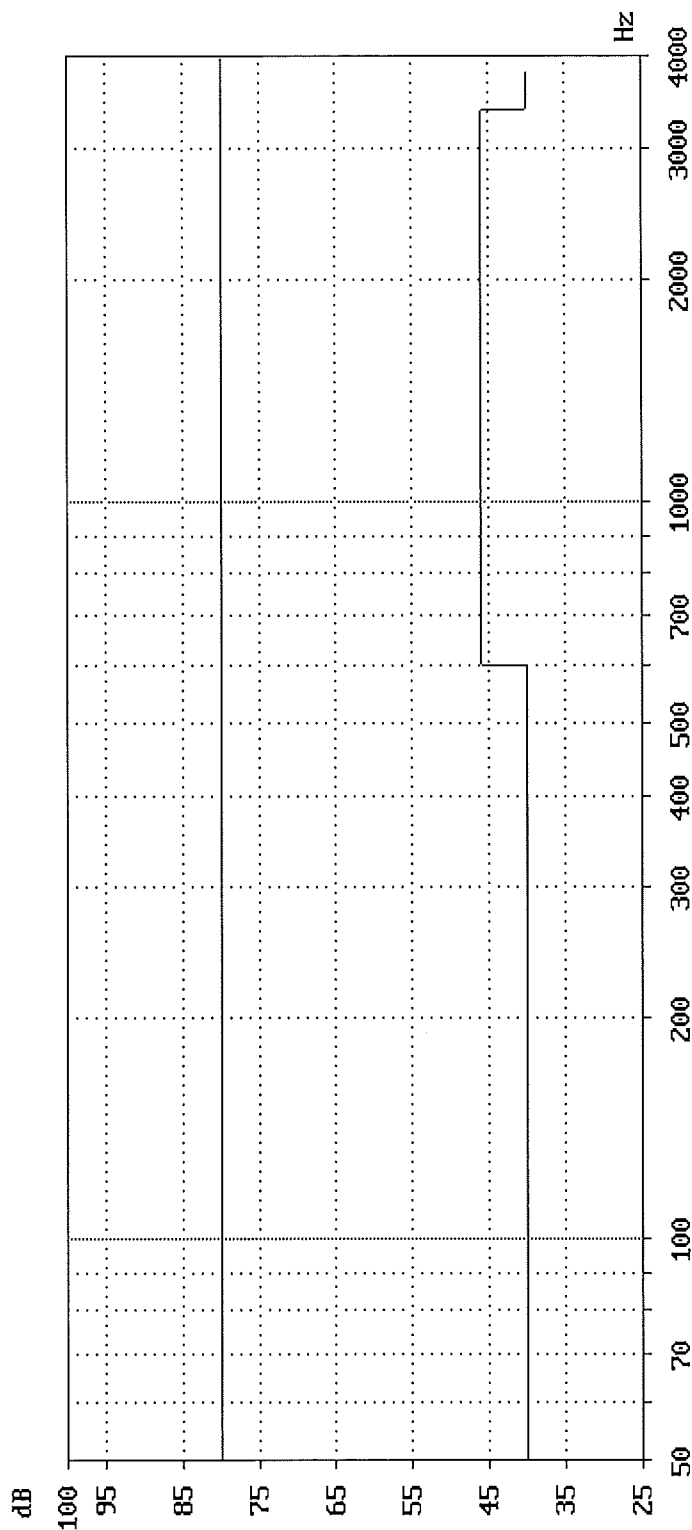


## TBR21 - 4.7.4.2 Output Signal Balance

Model No. :	FAX System 10	Feeding voltage : 50.0 V	Feeding Bridge: TBR21
TEUT :	Facsimile Kit for M&T	Current limitation: 80.0 mA	Mask violation: 0
Number of TEUT: 214060892	Polarity :	Normal	Min. level U <sub>0</sub> : -70.0 dBV
Manufacturer : KYOCERA DS Inc.	Feeding resistor :	2050.0 Ohm	Call setup : outgoing
Date : 14.05.15	Requirement : The curve of results shall be greater than the limits		
Time : 14:05.05	Data set : TBR21-4.7.4.2 2050 N		

Remark : 0.29 9600bps

Verdict : PASS

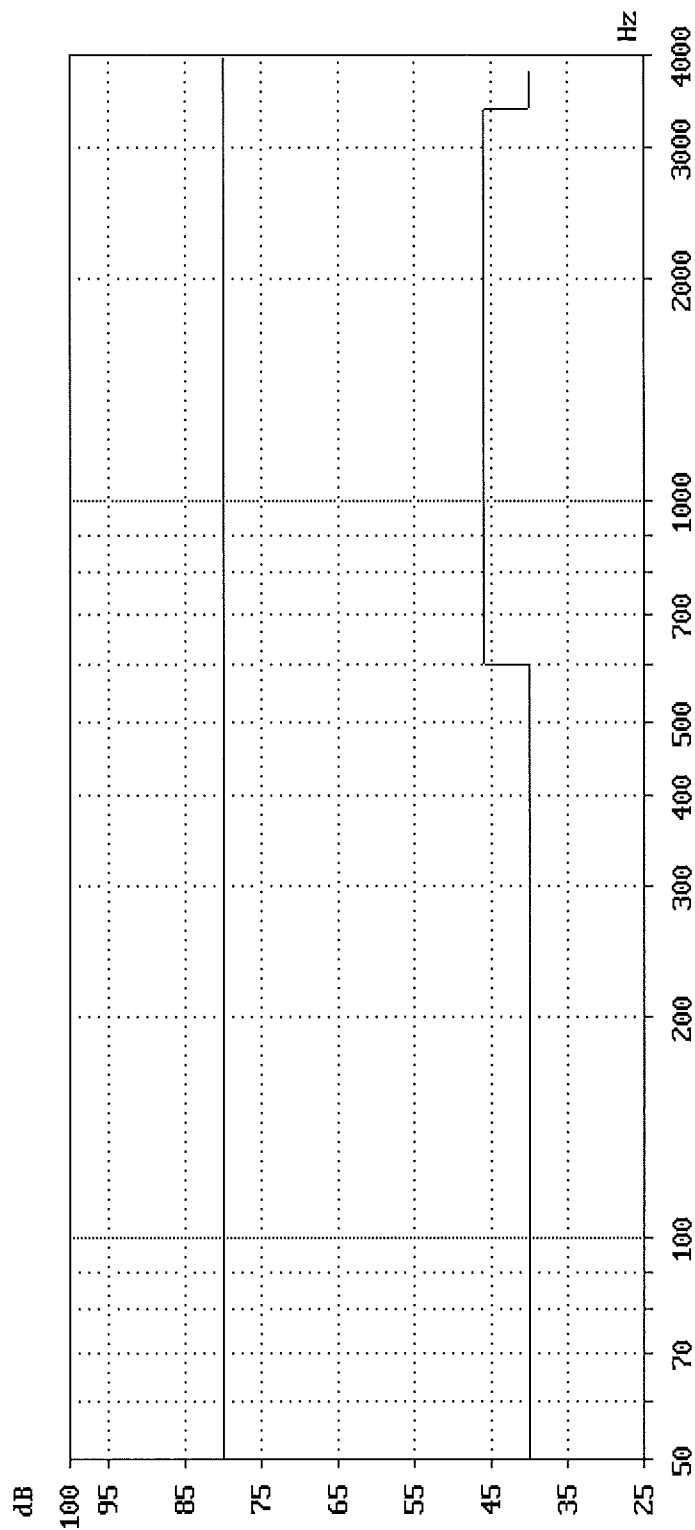


## TBR21 - 4.7.4.2 Output Signal Balance

Model No. : FAX System 10	Feeding voltage : 50.0 V	Feeding Bridge: TBR21
TEUT : Facsimile Kit for M&T	Current limitation: 80.0 mA	Mask violation: 0
Number of TEUT: 214060892	Polarity : Inverted	Min. level U <sub>0</sub> : -70.0 dBV
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 3200.0 Ohm	Call setup : outgoing
Date : 14.05.15	Requirement : The curve of results shall be greater than the limits	
Time : 14:15.37	Data set : TBR21-4.7.4.2 3200 I	

Remark : U.27ter 4800bps

Verdict : PASS

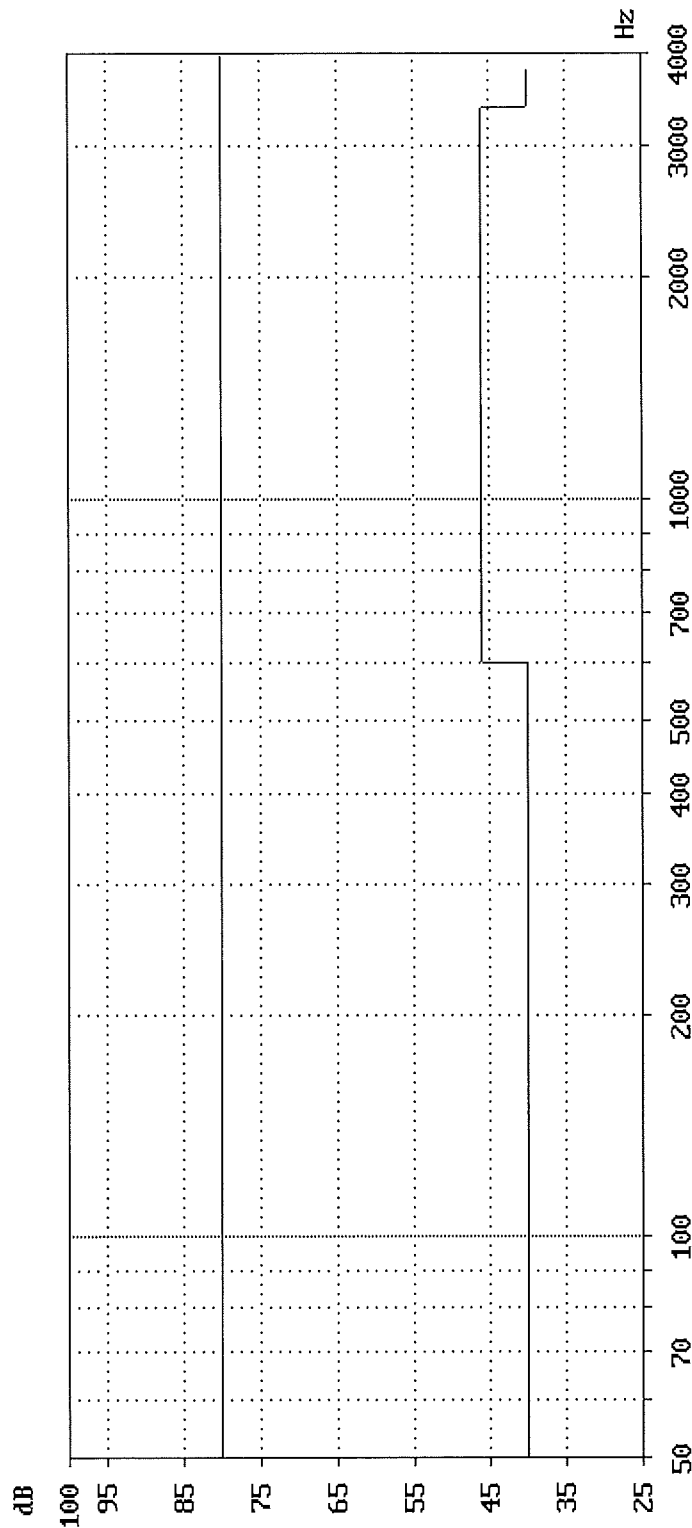


## TBR21 - 4.7.4.2 Output Signal Balance

Model No. : FAX System 10	Feeding voltage : 50.0 V	Feeding Bridge: TBR21
TEUT : Facsimile Kit for FAX	Mask violation: 0	
Number of TEUT: 214060892	Polarity : Normal	Min. level U <sub>0</sub> : -70.0 dBV
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 230.0 Ohm	Call setup : outgoing
Date : 14.05.15	Requirement : The curve of results shall be greater than the limits	
Time : 14:25.51	Data set : TBR21-4.7.4.2 230 N	

Remark : U.21 300bps

Verdict : PASS



# Protocol for Resistance to earth

## TBR21 - 4.7.5 Resistance to earth in loop state

Model No. : FAX System 10  
 TEUT : Facsimile Kit for MFP Feeding bridge : TBR21  
 Number of TEUT: 214060892 Current limit. : 60.0 mA  
 Manufacturer : KYOCERA DS Inc.  
 Date : 18.05.15  
 Time : 16:30.51

Data Set : TBR21-4.7.5

Requirement : If a connection to earth is intended, the DC resistance between each line terminal of TE and earth shall be not less than 1 MOhm.  
 ("E" means the socket "Plane" on the front side of the ARE1000.)

Remark : -

Verdict : PASS

Uf V	Rf Ω	Polarity	Ut V	Rt Ω	Measure	Limit MΩ	Current uA	Resistance MΩ
50.0	230	Normal	100.0	10000	b - E	1	< 2.0	> 50
50.0	230	Normal	-100.0	10000	b - E	1	< 2.0	> 50
50.0	230	Normal	100.0	10000	a - E	1	< 2.0	> 50
50.0	230	Normal	-100.0	10000	a - E	1	< 2.0	> 50
50.0	230	Inverted	100.0	10000	b - E	1	< 2.0	> 50
50.0	230	Inverted	-100.0	10000	b - E	1	< 2.0	> 50
50.0	230	Inverted	100.0	10000	a - E	1	< 2.0	> 50
50.0	230	Inverted	-100.0	10000	a - E	1	< 2.0	> 50

# Protocol for Automatic dialling

## TBR21 - 4.8.1.1 Dialling without dial tone detection

```

=====
Model No.      : FAX System 10      Feeding voltage : 50.0 V
TEUT           : Facsimile Kit for MFP  Polarity        : Normal
Number of TEUT: 214060892          Feeding resistor : 850.0 Ohm
Manufacturer   : KYOCERA DS Inc.    Feeding bridge  : TBR21
Date           : 18.05.15           Receiver impedance: Zr TBR21
Time           : 16:35.11           Gain (internal)  : +0.0 dB

Data set       : TBR21-4.8.1.1
Requirement    : The TE shall start dialling in the limits of  2.7 s ...  8.0s

Remark        : -
  
```

Verdict : PASS

Frequency Hz	Level dBV	T seize s	T dial s	Dialled
-----------------	--------------	--------------	-------------	---------

No dial tone		4.04	-	123?
--------------	--	------	---	------

# Protocol for Automatic dialling

## TBR21-4.8.1.2 Dialling with dial tone detection - Continuous dial tone -

```

=====
Model No.      : FAX System 10      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP  Polarity          : Normal
Number of TEUT : 214060892          Feeding resistor  : 850.0 Ohm
Manufacturer    : KYOCERA DS Inc.    Feeding bridge    : TBR21
Date            : 18.05.15           Receiver impedance: Zr TBR21
Time            : 16:36.47           Gain (internal)   : +0.0 dB

Data set       : TBR21-4.8.1.2 continuous
Requirement    : The TE shall start dialling in the limits of 0.0 s ... 8.0s

Remark        : -
  
```

Verdict : PASS

Frequency Hz	Level dBV	T seize s	T dial s	Dialled
300	- 0.7	3.74	0.76	123?
300	-35.7	3.88	0.94	123?
500	-35.7	3.73	0.75	123?
500	- 0.7	3.70	0.76	123?

# Protocol for Automatic dialling

TBR21 - 4.8.1.2 Dialling with dial tone detection - cadenced dial tone -

```

=====
Model No.      : FAX System 10      Feeding voltage : 50.0 V
TEUT           : Facsimile Kit for MFP  Polarity        : Normal
Number of TEUT : 214060892          Feeding resistor : 850.0 Ohm
Manufacturer   : KYOCERA DS Inc.     Feeding bridge   : TBR21
Date           : 18.05.15            Receiver impedance: Zr TBR21
Time           : 16:40.11            Gain (internal)  : +0.0 dB

Data set       : TBR21-4.8.1.2 cadenced
Requirement    : The TE shall start dialling in the limits of  0.0 s ...  8.0s

Remark         : -
  
```

Verdict : PASS

Frequency Hz	Level dBV	T seize s	T dial s	Dialled
300	- 0.7	4.14	1.16	123?
300	-35.7	4.10	1.16	123?
500	-35.7	4.14	1.17	123?
500	- 0.7	4.13	1.15	123?

# Protocol for DTMF Levels and Frequencies Auto

## TBR21 - 4.8.2.1 / 2 DTMF-Signalling frequencies and levels

```

=====
Model No.       : FAX System 10      Feeding voltage   : 50.0 V
TEUT            : Facsimile Kit for MFP Current limitation: 80.0 mA
Number of TEUT  : 214060892          Polarity          : Normal
Manufacturer    : KYOCERA DS Inc.     Feeding resistor  : 230.0 Ohm
Date            : 18.05.15            Trigger lev./delay: -12.0 dBV 0 msec
Time           : 16:44.19             Receiver impedance: Zr TBR21
                                           Gain (internal)   : +0.0 dB
  
```

```

Data set       : TBR21-4.8.2.1/2 230 N
Requirement    : The dial signal shall be in the following limits:
                  Limits of level f low      : -13.0 ... -8.5
                  Limits of level f high     : -11.5 ... -7.0
                  Limits Preemphasis        : 1.0 ... 4.0 dB
                  (Limit Frequency deviation: 1.5 % )
  
```

```

Remark        : -
Verdict       : PASS
  
```

F.lo Hz	Dev. %	P.lo dBV	F.hi Hz	Dev. %	P.hi dBV	P.tot dBV	Preemp. dB	Digit
697.0	+ 0.0	- 10.47	1209.0	+ 0.0	- 8.55	- 6.39	1.92	1
697.0	+ 0.0	- 10.47	1336.0	+ 0.0	- 8.57	- 6.41	1.9	2
697.0	+ 0.0	- 10.47	1477.1	+ 0.0	- 8.64	- 6.45	1.83	3
770.0	+ 0.0	- 10.53	1209.0	+ 0.0	- 8.56	- 6.42	1.97	4
769.9	+ 0.0	- 10.52	1336.0	+ 0.0	- 8.57	- 6.43	1.95	5
769.9	+ 0.0	- 10.52	1477.1	+ 0.0	- 8.64	- 6.47	1.88	6
852.0	+ 0.0	- 10.56	1209.0	+ 0.0	- 8.56	- 6.44	2.0	7
852.0	+ 0.0	- 10.56	1336.0	+ 0.0	- 8.57	- 6.44	1.99	8
852.0	+ 0.0	- 10.56	1477.1	+ 0.0	- 8.64	- 6.48	1.92	9
940.9	+ 0.0	- 10.58	1209.0	+ 0.0	- 8.56	- 6.44	2.02	*
940.9	+ 0.0	- 10.58	1336.0	+ 0.0	- 8.57	- 6.45	2.01	0
940.9	+ 0.0	- 10.58	1477.0	+ 0.0	- 8.64	- 6.49	1.94	#

# Protocol for DTMF Levels and Frequencies Auto

## TBR21 - 4.8.2.1 / 2 DTMF-Signalling frequencies and levels

```

=====
Model No.       : FAX System 10      Feeding voltage   : 50.0 V
TEUT            : Facsimile Kit for MFP Current limitation: 80.0 mA
Number of TEUT  : 214060892          Polarity          : Inverted
Manufacturer    : KYOCERA DS Inc.     Feeding resistor  : 3200.0 Ohm
Date            : 18.05.15            Trigger lev./delay: -12.0 dBV 0 msec
Time            : 16:45.31            Receiver impedance: Zr TBR21
                                           Gain (internal)   : +0.0 dB
  
```

```

Data set        : TBR21-4.8.2.1/2 3200 I
Requirement     : The dial signal shall be in the following limits:
                  Limits of level f low      : -13.0 ... -8.5
                  Limits of level f high     : -11.5 ... -7.0
                  Limits Preemphasis        : 1.0 ... 4.0 dB
                  (Limit Frequency deviation: 1.5 % )
  
```

```

Remark          : -
Verdict         : PASS
  
```

F.lo Hz	Dev. %	P.lo dBV	F.hi Hz	Dev. %	P.hi dBV	P.tot dBV	Preemp. dB	Digit
697.0	+ 0.0	- 10.65	1209.0	+ 0.0	- 8.72	- 6.57	1.93	1
697.0	+ 0.0	- 10.66	1336.0	+ 0.0	- 8.73	- 6.58	1.93	2
697.0	+ 0.0	- 10.65	1477.1	+ 0.0	- 8.79	- 6.61	1.86	3
769.9	+ 0.0	- 10.68	1209.0	+ 0.0	- 8.71	- 6.57	1.97	4
769.9	+ 0.0	- 10.7	1336.0	+ 0.0	- 8.73	- 6.59	1.97	5
769.9	+ 0.0	- 10.7	1477.1	+ 0.0	- 8.79	- 6.63	1.91	6
852.0	+ 0.0	- 10.73	1209.0	+ 0.0	- 8.72	- 6.6	2.01	7
852.0	+ 0.0	- 10.73	1336.0	+ 0.0	- 8.73	- 6.61	2.0	8
852.0	+ 0.0	- 10.73	1477.0	+ 0.0	- 8.79	- 6.64	1.94	9
940.9	+ 0.0	- 10.75	1209.0	+ 0.0	- 8.72	- 6.61	2.03	*
940.9	+ 0.0	- 10.75	1336.0	+ 0.0	- 8.72	- 6.61	2.03	0
940.9	+ 0.0	- 10.75	1477.1	+ 0.0	- 8.79	- 6.65	1.96	#

TBR21 - 4.8.2.3 DTMF-Unwanted frequency components

```

=====
Model No.      : FAX System 10      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP Current limitation: 80.0 mA
Number of TEUT : 214060892          Polarity          : Normal
Manufacturer    : KYOCERA DS Inc.    Feeding resistor  : 230.0 Ohm
Date            : 18.05.15           Trigger lev./delay: -12.0 dBV  40  msec
Time            : 16:46.54           Receiver impedance: Zr TBR21
                                           Gain (internal)   : +6.0 dB
    
```

```

Data set       : TBR21-4.8.2.3 230 N
Requirement    : The loss shall be at least 20.0 dB
                  with selected digits 3570
    
```

Remark : -

Verdict : PASS

p low dBV	p total dBV	Loss dB	Digit
- 10.4	- 6.6	30 dB	3
- 10.5	- 6.6	30 dB	5
- 10.8	- 6.6	24 dB	7
- 10.6	- 6.6	29 dB	0

## TBR21 - 4.8.2.3 DTMF-Unwanted frequency components

```

=====
Model No.      : FAX System 10      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP Current limitation: 80.0 mA
Number of TEUT : 214060892          Polarity          : Inverted
Manufacturer    : KYOCERA DS Inc.    Feeding resistor  : 3200.0 Ohm
Date            : 18.05.15           Trigger lev./delay: -12.0 dBV  40  msec
Time            : 16:48.32           Receiver impedance: Zr TBR21
                                           Gain (internal)   : +6.0 dB

```

```

Data set       : TBR21-4.8.2.3 3200 I
Requirement    : The loss shall be at least 20.0 dB
                  with selected digits 3570

```

```

Remark         : -

```

```

Verdict       : PASS

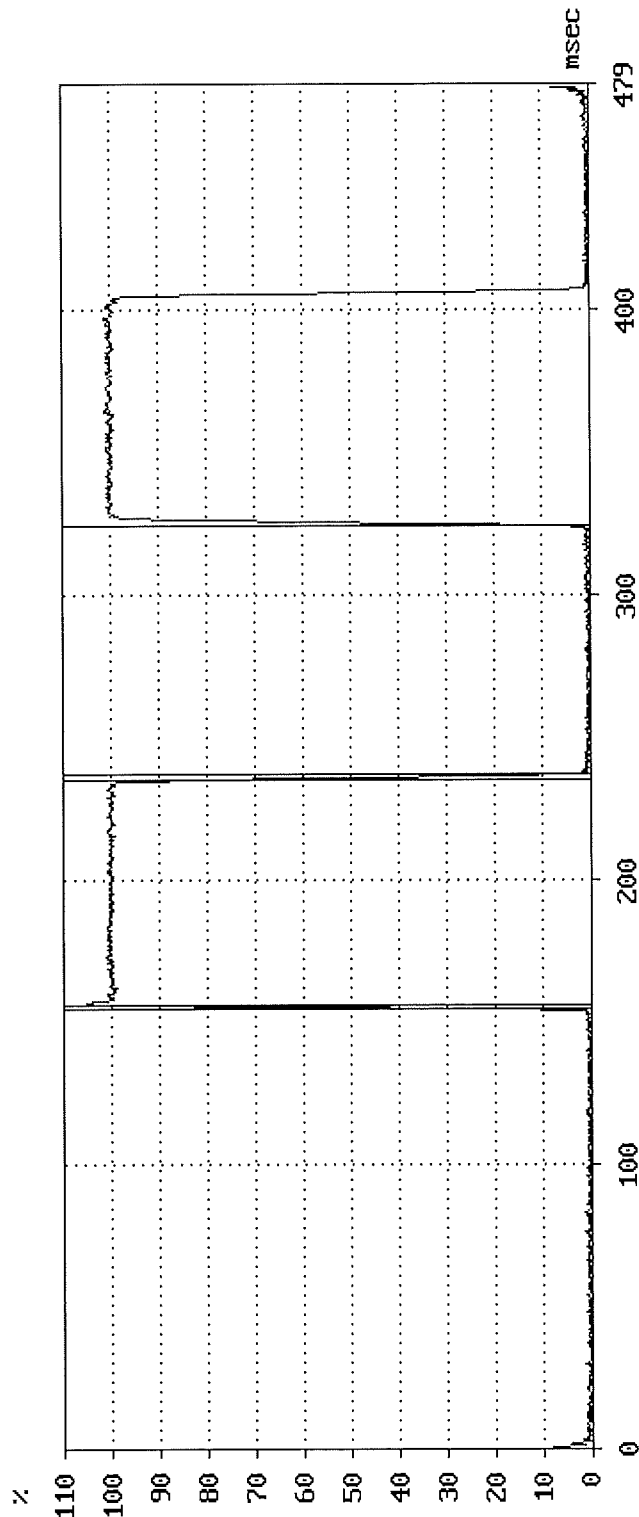
```

p low dBV	p total dBV	Loss dB	Digit
- 10.6	- 6.8	30 dB	3
- 10.7	- 6.8	30 dB	5
- 11.0	- 6.8	24 dB	7
- 10.8	- 6.8	28 dB	0

## TBR21 - 4.8.2.4/5 DMF-Tone and Pause duration

Model No.	: FAX System 10	Feeding voltage : 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for Ex21arity	: Normal	Level	: -58 dBV
Number of TEUT:	214060892	Feeding resistor: 850.0 Ohm	(of Pause)	( -40.0 dBV )
Manufacturer	: KYOCERA DS Inc.	Feeding bridge : TBR21	tr :	2 ms ( 99.0 ms )
Date	: 18.05.15	Requirement: The limits	tf :	2 ms ( 99.0 ms )
Time	: 16:49.43	are given in the brackets	tp :	88 ms ( 65.0 ... 6500.0 m
		Frequency group : upper	ts :	81 ms ( 65.0 ... 9999.0 m
Data set	: TBR21-4.8.2.4/5 digit 3			
Remark	: -			
		Rx impedance: 2r TBR21		

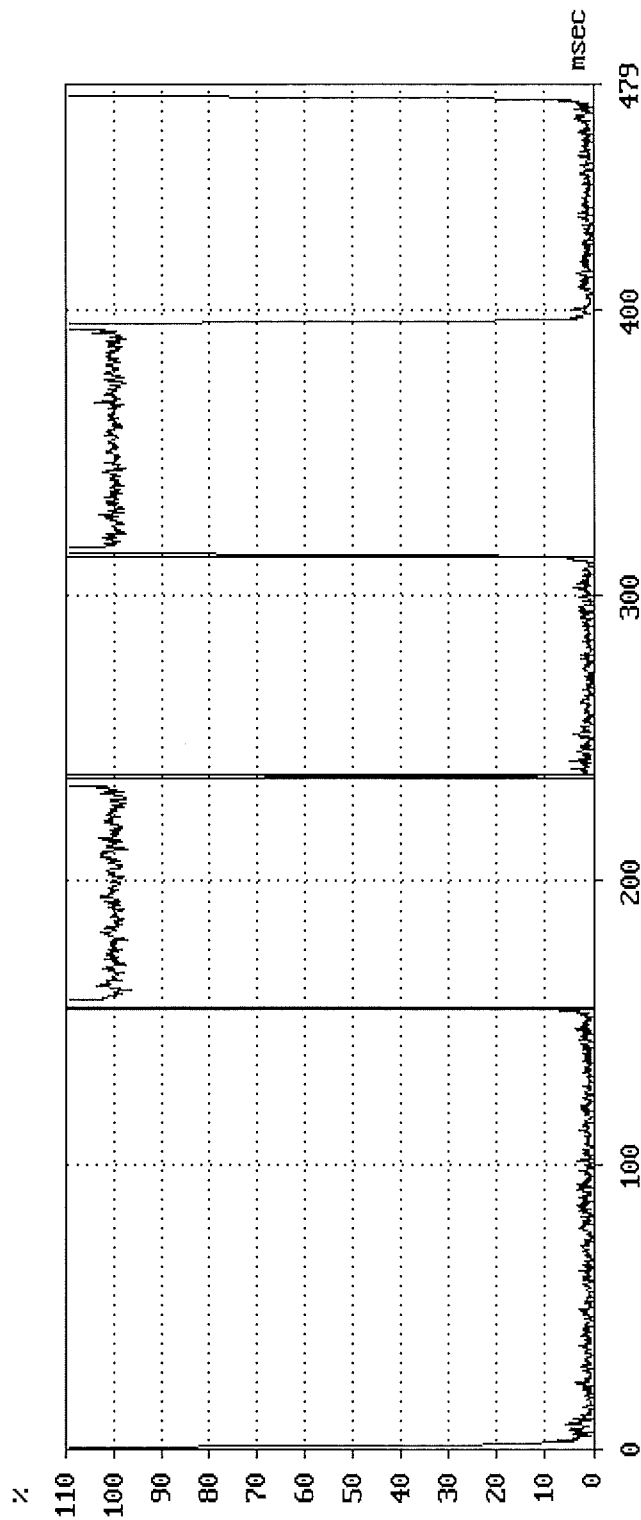
Verdict : PASS



## TBR21 - 4.8.2.4/5 DMF-Tone and Pause duration

Model No. : FAX System 10 Feeding voltage : 50.0 V Trigger : OK  
 TEUT : Facsimile Kit for FAXarity : Normal Level : -65 dBV  
 Number of TEUT: 214060892 Feeding resistor: 850.0 Ohm (of Pause) ( -40.0 dBV )  
 Manufacturer : KYOCERA DS Inc. Feeding bridge : TBR21 tr : 1 ms ( 99.0 ms )  
 Date : 18.05.15 Requirement: The limits tf : 1 ms ( 99.0 ms )  
 Time : 16:51.07 are given in the brackets tp : 77 ms ( 65.0 ... 6500.0 ms )  
 Data set : TBR21-4.8.2.4/5 digit 5 Frequency group : upper ts : 81 ms ( 65.0 ... 9999.0 ms )  
 Remark : - Rx impedance: 2r TBR21

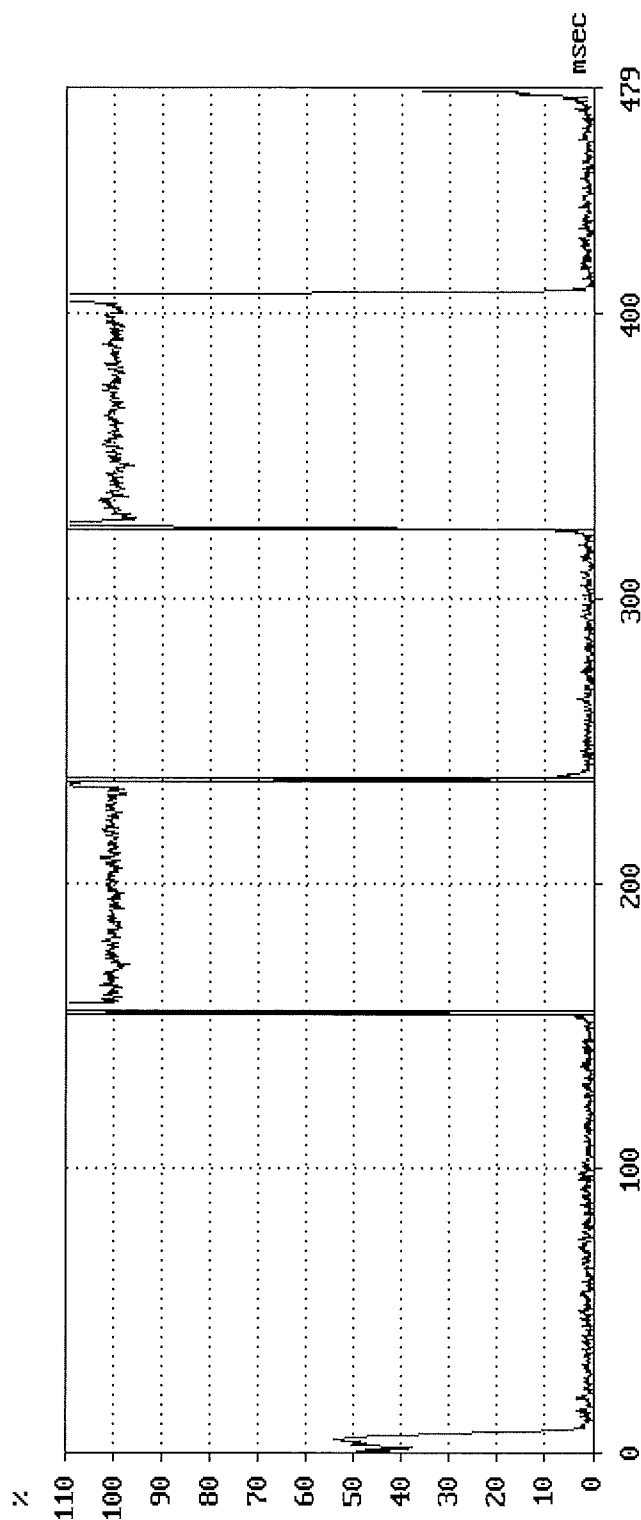
Verdict : PASS



## TBR21 - 4.8.2.4/5 DTMF-Tone and Pause duration

Model No. : FAX System 10	Feeding voltage : 50.0 V	Trigger : OK
TEUT : Facsimile Kit for FAX	Normal	Level : -62 dBV
Number of TEUT: 214060892	Feeding resistor: 850.0 Ohm	(of Pause) ( -30.0 dBV )
Manufacturer : KYOCERA DS Inc.	Feeding bridge : TBR21	tr : 1 ms ( 99.0 ms )
Date : 18.05.15	Requirement: The limits	tf : 1 ms ( 99.0 ms )
Time : 16:52.24	are given in the brackets	tp : 87 ms ( 65.0 ... 6500.0 ms )
	Frequency group : lower	ts : 82 ms ( 65.0 ... 9999.0 ms )
Data set : TBR21-4.8.2.4/5 digit 7		Rx impedance: 2r TBR21
Remark : -		

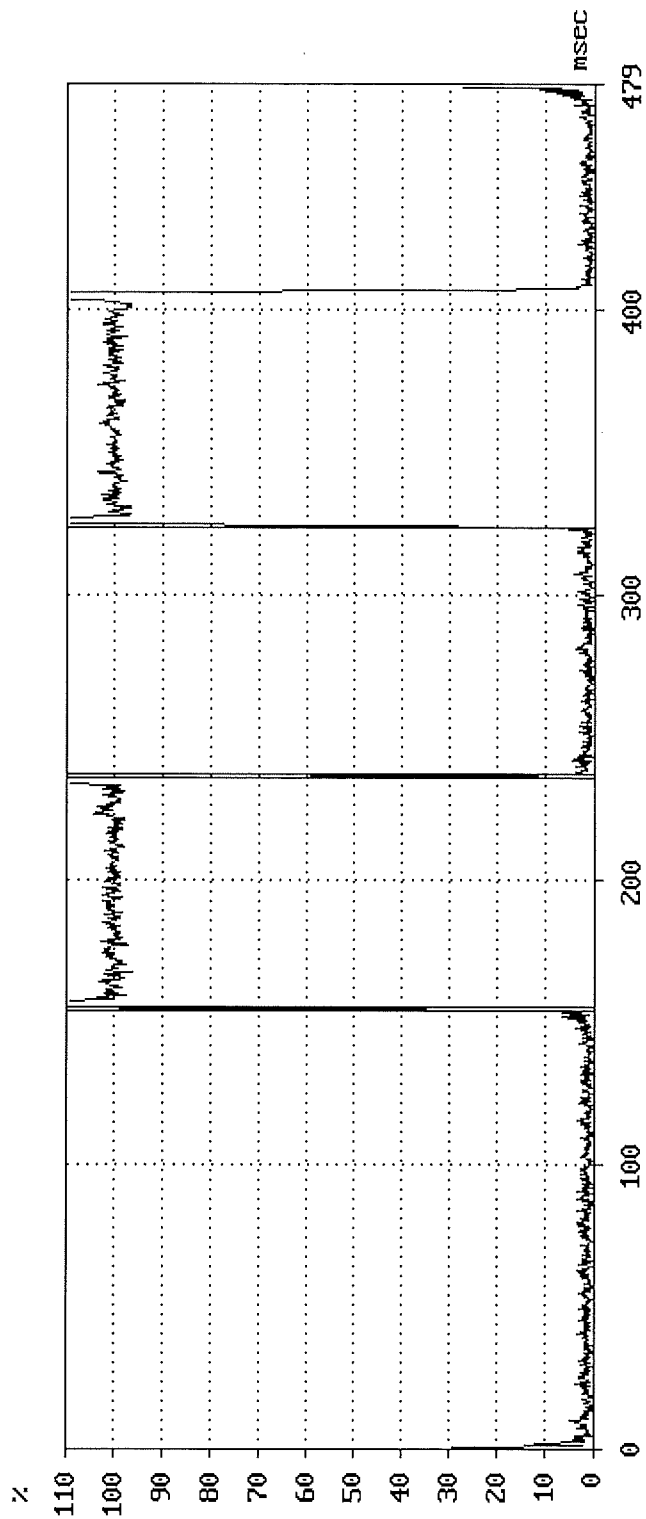
Verdict : PASS



**TBR21 - 4.8.2.4/5 DTF-Tone and Pause duration**

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for FAXarity	Feeding resistor	: Normal	Level	: -62 dBu
Number of TEUT:	214060892	Feeding bridge	: 850.0 Ohm	(of Pause)	: (-40.0 dBu)
Manufacturer	: KYOCERA DS Inc.	Requirement	: The limits	tr	: 1 ms ( 99.0 ms )
Date	: 18.05.15	are given in the brackets		tf	: 1 ms ( 99.0 ms )
Time	: 16:53.41	Frequency group	: upper	tp	: 87 ms ( 65.0 ... 6500.0 ms )
Data set	: TBR21-4.8.2.4/5 digit 0			ts	: 82 ms ( 65.0 ... 9999.0 ms )
Remark	: -			Rx impedance	: 2r TBR21

Verdict : PASS



# Protocol for Automatically repeated call attempts

## TBR21 - 4.8.3 Automatically repeated call attempts

```

=====
Model No.      : FAX System 10      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP  Polarity         : Normal
Number of TEUT : 214060892          Feeding resistor  : 850.0 Ohm
Manufacturer    : KYOCERA DS Inc.    Feeding bridge    : TBR21
Date            : 18.05.15           Receiver impedance: Zr TBR21
Time            : 16:56.03           Gain (internal)   : +0.0 dB
  
```

```

Data set       : TBR21 - 4.8.3 A
Requirement    : The TE shall not initiate a call attempts less than
                  5 s after the termination of the previous call attempt.
  
```

```

Remark         : PASS
  
```

Call No.	expected	Call received	Network tone	Limit [s]	Condition established	tq [s]
1	1	1?	BusyTone	0	Quiescent	17.15
2	1	1?	BusyTone	5	Quiescent	123.10
3	1	1?	BusyTone	5	Quiescent	123.20
4	1	1?	BusyTone	5	Quiescent	123.10
5	1	1?	BusyTone	5	Quiescent	123.05
6	1	1?	BusyTone	5	Quiescent	123.20
7	1	1?	BusyTone	5	Quiescent	123.20
8	1	1?	BusyTone	5	Quiescent	123.10
9	1	1?	BusyTone	5	Quiescent	123.10
10	1	1?	BusyTone	5	Quiescent	123.10
11	1	1?	BusyTone	5	Quiescent	123.10
12	1	1?	BusyTone	5	Quiescent	123.10
13	1	1?	BusyTone	5	Quiescent	123.10
14	1	1?	BusyTone	5	Quiescent	123.10
15	1	1?	BusyTone	5	Quiescent	123.10
16	1					

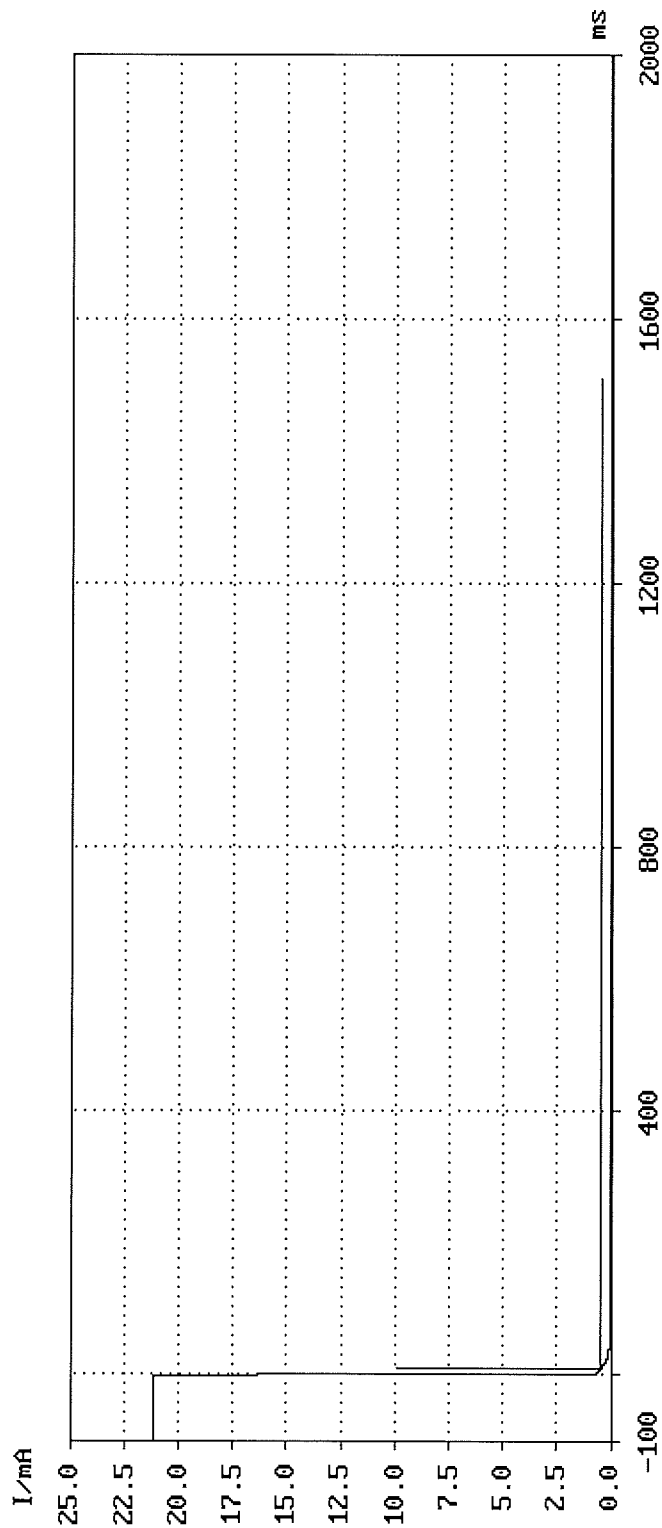
\*Abort

# TBR21 - 4.9 Transition from loop to quiescent state

Model No.	: FAX System 10	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for FAX	Polarity	: Normal	I [mA]	: 10.0
Number of TEUT	: 214060892	Drop resistor	: 2050.0 Ohm	Event	: 1. neg. Edge
Manufacturer	: KYOCERA DS Inc.			Delay [ms]	: 100
Date	: 18.05.15	Requirement	: The current shall	Sample [ms]	: 0.2
Time	: 17:28.50	drop not later than	20 ms		
Remark	: -	Data set	: TBR21-4.9		

Verdict : PASS

Transient times : 0.0 ms



---

**Prüfbericht - Nr.:**

**50027980 001**

*Test Report No.:*

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**Anlage B**  
Appendix B

**Produktbeschreibung**  
Description of Equipment

## FAX Specification

Type .....	Optional FAX kit
Compatibility .....	G3
Communication line .....	Subscriber telephone line
Transmission time .....	3 seconds or less (33600 bps, JBIG, ITU-T A4 #1 chart)
Transmission speed .....	33600/31200/28800/26400/24000/21600/19200/16800/14400/12000/9600/7200/ 4800/2400 bps
Coding scheme .....	JBIG/MMR/MR/MH
Error correction .....	ECM
Original size .....	Max. width: 8 1/2"/216 mm Max. length: 14"/356 mm
TX resolution .....	Horizontal x Vertical 200 x 100 dpi Normal (8 dot/mm x 3.85 line/mm) 200 x 200 dpi Fine (8 dot/mm x 7.7 line/mm) 200 x 400 dpi Super fine (8 dot/mm x 15.4 line/mm) 400 x 400 dpi Ultra fine (16 dot/mm x 15.4 line/mm) 600 x 600 dpi (only FAX System 10)
RX resolution .....	Max. 600 x 600 dpi (FAX System 10) Max. 400 x 400 dpi (16 dot/mm x 15.4 line/mm) (FAX System 11)
Gradations .....	256 shades (Error diffusion)
Multi-Station transmission .....	Max. 100 destinations
Image memory capacity .....	16 MB (standard) (for incoming faxed originals) (FAX System 10) 3.5 MB (standard) (for incoming faxed originals) (FAX System 11)
Report output .....	Sent result report, FAX RX result report, Activity report, Status page

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**Prüfbericht - Nr.:**

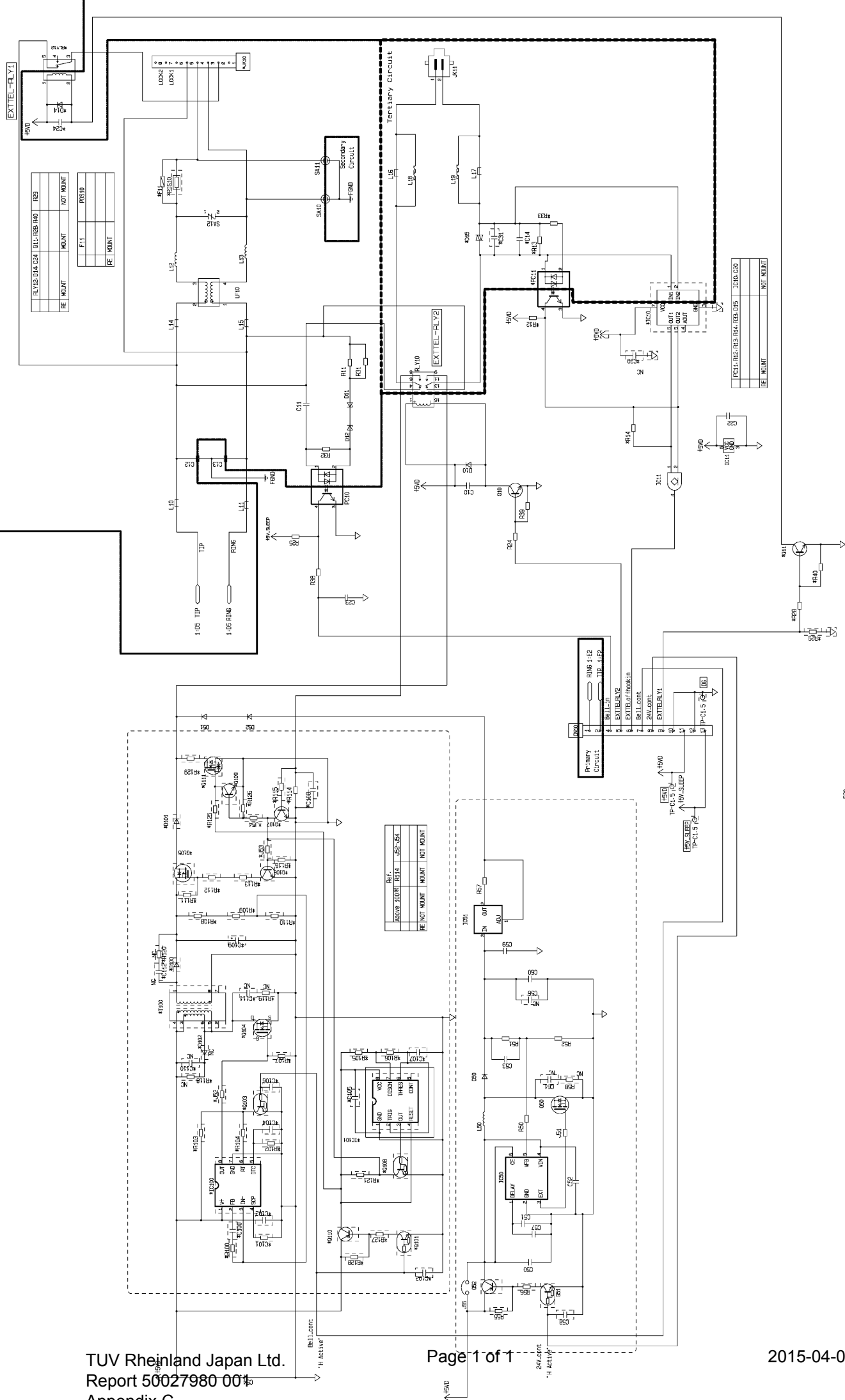
**50027980 001**

*Test Report No.:*

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**Anlage C**  
Appendix C

**Schaltpläne**  
Circuit diagrams



Circuit Diagram

1 / 1

FAX SUB PCB

Components marked with "NC" should not be mounted.

---

**Prüfbericht - Nr.:**

**50027980 001**

*Test Report No.:*

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**Anlage D**

Appendix D

**Fotos**

Photographs

**Prüfbericht - Nr.:**  
Test Report No.:

**50027980 001**

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Page 1 of 3

Host Front View



Host Rear View



**Prüfbericht - Nr.:**  
Test Report No.:

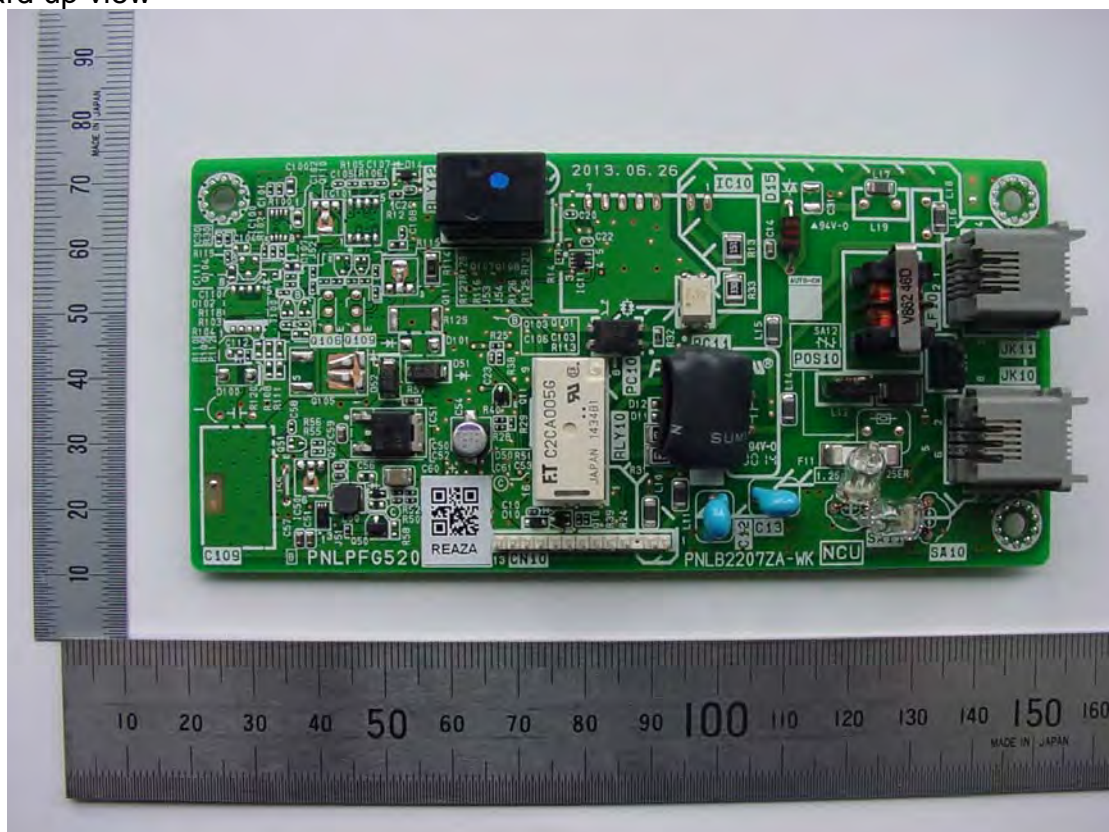
**50027980 001**

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FAX Kit View



NCU board up view



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NCU board back view

