

**Prüfbericht - Nr.: 50035644 001**  
Test Report No.:

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**Auftraggeber:** KYOCERA Document Solutions Inc.  
**Client:** 1-2-28 Tamatsukuri, Chuo-ku ,Osaka-shi,Osaka,540-8585 Japan

**Gegenstand der Prüfung:** Facsimile Kit for Multi Function Printer  
**Test item:**

**Bezeichnung:** FAX System 12  
**Identification:** **Serien-Nr.:** **Prototype**  
**Serial No.:**

**Wareneingangs-Nr.:** A000290906-001  
**Receipt No.:** **Eingangsdatum:** 2015-12-04  
**Date of receipt:**



**Zustand des Prüfgegenstandes bei Anlieferung:** Prüfmuster vollständig und unbeschädigt  
**Condition of the test item at delivery:** Test item complete and undamaged

**Prüfart:** TÜV Rheinland Japan Ltd.  
**Testing location:** 4-25-2, Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan

**Prüfgrundlage:** TBR 21 January 1998  
**Test specification:**

**Prüfresultat:** Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).  
**Test Result:** The test item passed the test specification(s).

**Prüflaboratorium:** TÜV Rheinland Japan Ltd.  
**Testing Laboratory:** 4-25-2, Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan  
Phone:+81-45-914-0239 Fax:+81-45-914-3347 e-mail: telecom-lab@jpn.tuv.com

<b>geprüft/ tested by:</b>			<b>kontrolliert/ reviewed by:</b>		
2015-12-25,	Y.Miura		2015-12-25,	T.Kuriyama	
Datum	Name/Stellung	Unterschrift	Datum	Name/Stellung	Unterschrift
Date	Name/Position	Signature	Date	Name/Position	Signature

**Sonstiges/ Other Aspects:**

Clause 4.7.1 is applied without the 60mA current limit.

**Accredited Testing Laboratory under the terms of ISO 17025**

D-PL-12059-01-03



\* 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

**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.**  
**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.**

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## Climatic conditions during testing

Temperature: 23 - 25 °C  
Air pressure: 1020 - 1020 hPa  
Humidity: 50 - 60 %

## Appliance documentation

Hardware: -  
Software: -  
User manual :FAX System 12 FAX Specification  
Circuit diagram:FAX SUB PCB(1/1)

## Test system configuration

Hardware: FAX System 12  
Software: 002.002

- ☒ 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	2016-08-21
Outband Receiver and Ringer Amplifier ARE1000 from ESP-Telekom	TL-9101	2016-08-21
International Feeding Bridge ISB1000 from ESP-Telekom	TL-9002	2016-08-21
Fluke Digital True RMS Multimeter	TL-9108	2016-10-29
Tektronix Oscilloscope TDS210	TL-9008	2016-05-12
Tektronix / Voltage Probe I / II	TL-9036, TL-9037	2016-05-12
TRJ Connector Box	TL-9010	2016-02-12
TRJ Resistor Box	TL-9011	2016-02-12
TRJ Reference Impedance Zref-quer TBR21, Type28	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 4.10 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 0.75 s 1.15 s 300 Hz -35.7 dBV 0.86 s 1.15 s 500 Hz -35.7 dBV 0.75 s 1.15 s 500 Hz -0.7 dBV 0.75 s 1.16 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 : 122.95 s Number of repeated call attempts : 15 times					



4.9 Transition from loop to quiescent state					
Requirements	N/A	N/T	fail	Pass	Appendix A
<b>4.9 Transition from loop to quiescent state</b>  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 12  
 TEUT : Facsimile Kit for MFP Gain (internal) : +20.0 dB  
 Number of TEUT: 214067793  
 Manufacturer : KYOCERA DS Inc.  
 Date : 15.12.15  
 Time : 10:57.49

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 12 Feeding voltage : 50.0 V  
TEUT : Facsimile Kit for MFP Feeding resistor: 2050.0 Ohm  
Number of TEUT: 214067793  
Manufacturer : KYOCERA DS Inc.  
Date : 15.12.15  
Time : 11:00.31

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

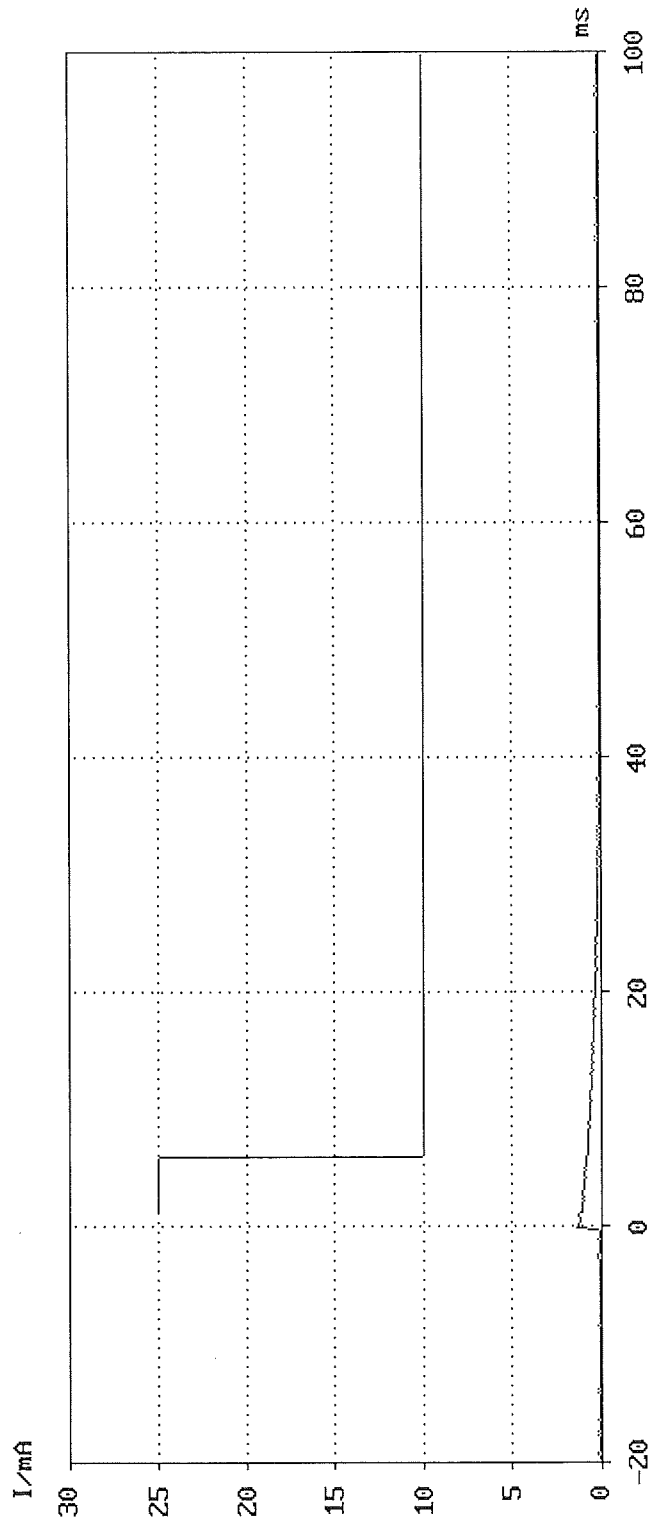
f Hz	Ute V	Z kΩ
25	30.0	49.2
50	30.0	47.9

## TBR21 - 4.4.2.2 Transient response

Model No. : FAX System 12 Feeding voltage : 60.0 V Trigger : OK  
 TEUT : Facsimile Kit for MEPPREnt limitation: 80.0 mA I [mA]: 0.5  
 Number of TEUT: 214067793 Polarity : Normal Event : 1. pos. Edge  
 Manufacturer : KYOCERA DS Inc. Feeding resistor : 200.0 Ohm Delay [ms]: - 20  
 Date : 15.12.15 Requirement : Current curve Sample [ms]: 0.2  
 Time : 11:05.34 shall be <= limit curve  
 Remark : - Data set : TBR21-4.4.2.2

Verdict : PASS

Mask violations : 0



# Protocol for DC current during ringing

## TBR21 - 4.4.2.3 DC current during ringing state

```

=====
Model No.      : FAX System 12      Feeding voltage : 60.0 V
TEUT           : Facsimile Kit for MFP Feeding resistor: 850 Ohm
Number of TEUT: 214067793          Polarity          : Normal
Manufacturer   : KYOCERA DS Inc.
Date           : 16.12.15
Time           : 18:15.20
    
```

```

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 12      Feeding voltage : 60.0 V
TEUT           : Facsimile Kit for MFP Feeding resistor: 850 Ohm
Number of TEUT: 214067793          Polarity          : Inverted
Manufacturer   : KYOCERA DS Inc.
Date           : 16.12.15
Time           : 18:16.49

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

Remark        : -
    
```

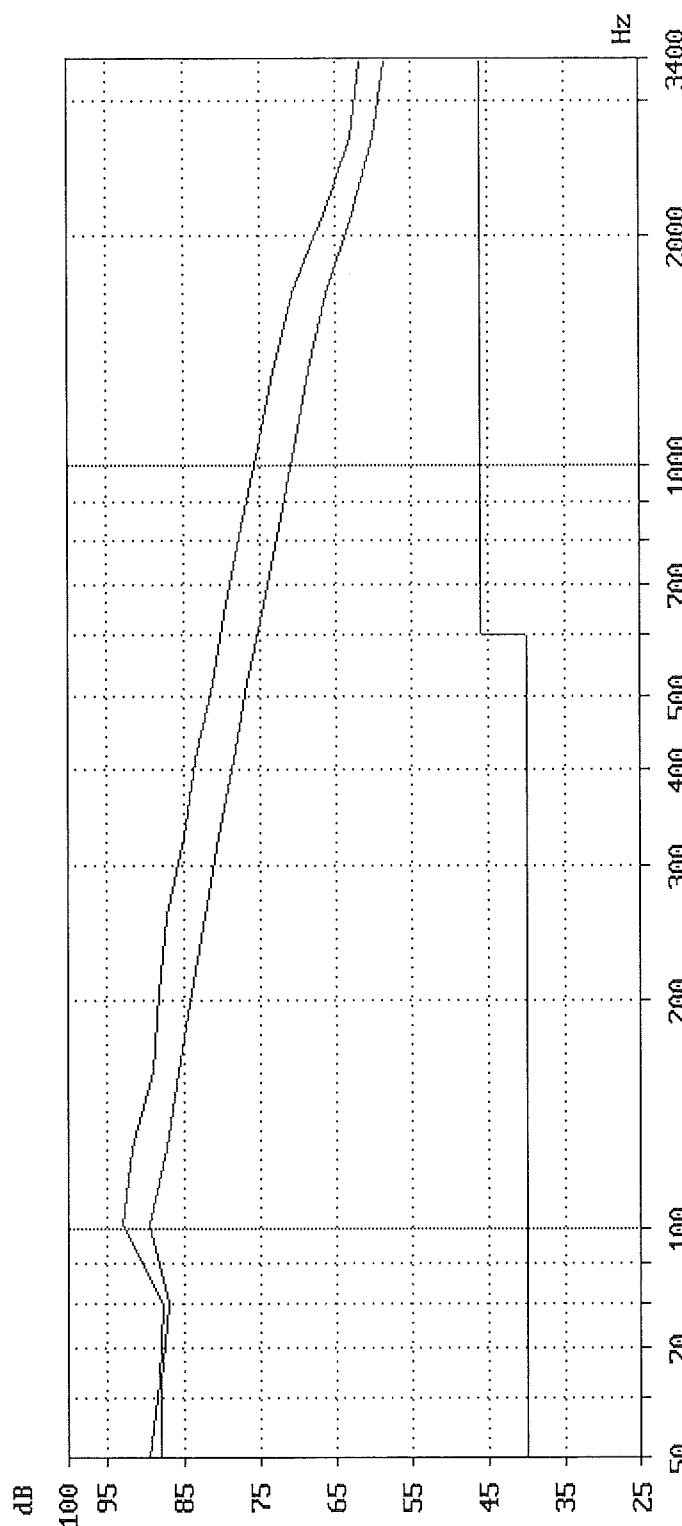
Verdict : PASS

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 : 214067793  
 Printing time : 15.12.15 11:14.05  
 Graph 1 \_\_\_\_\_  
 Graph 2 \_\_\_\_\_

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





Longitudinal conversion loss  
Comission : 214067793

Printing time : 15.12.15 11:14.05

	Graph 1	Graph 2
Model No.	FAX System 12	FAX System 12
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP
Number of TEUT	214067793	214067793
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.
Date	15.12.15	15.12.15
Time	11:13.15	11:13.39
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 12  
 TEUT : Facsimile Kit for MFP Feeding bridge : TBR21  
 Number of TEUT: 214067793  
 Manufacturer : KYOCERA DS Inc.  
 Date : 15.12.15  
 Time : 11:14.29  
 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 12      Feeding voltage  : 50.0 V
TEUT            : Facsimile Kit for MFP Current limitation: 40.0 mA
Number of TEUT : 214067793          Polarity         : Normal
Manufacturer    : KYOCERA DS Inc.    Feeding resistor : 850.0 Ohm
                                           Trigger Event    : 1. pos. Edge
                                           Gain (internal)  : -30.0 dB

Date            : 15.12.15
Time            : 11:18.08

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

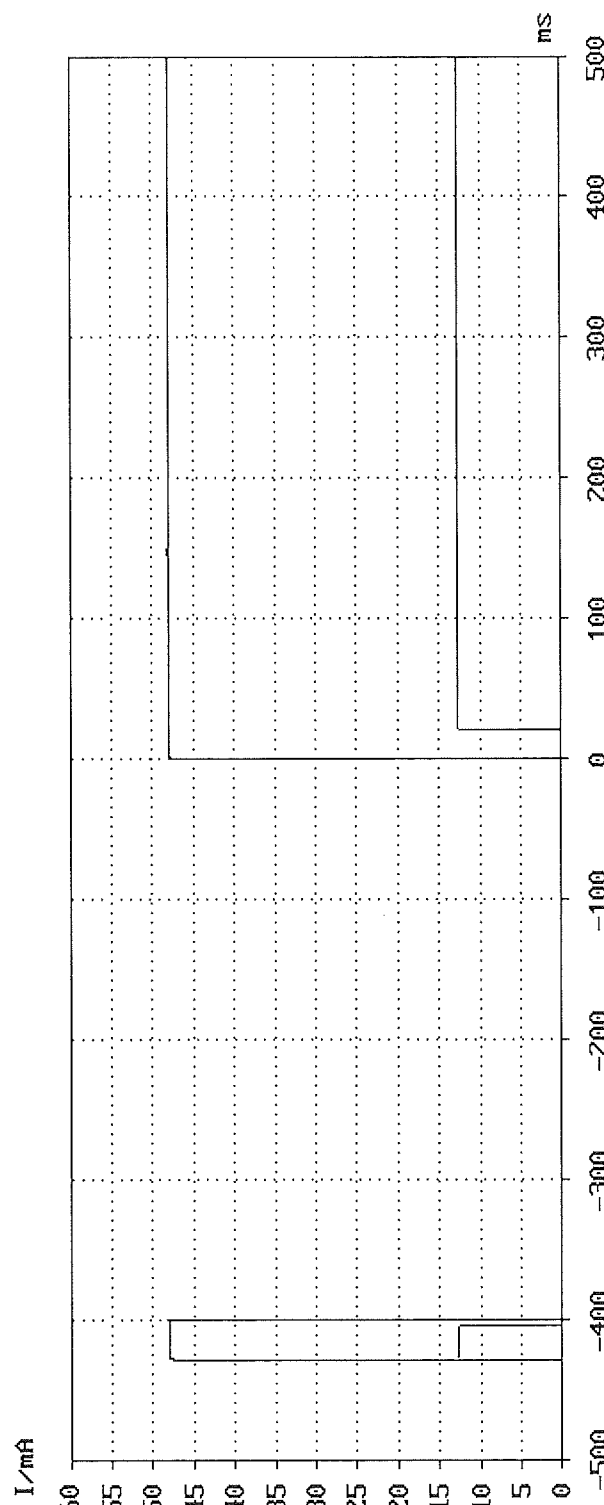
Cycles	Frequency Hz	Ute V	1.Pulse ms	Pulse ms	Pause ms	Answering s
13	25.0	30.0	1000	1000	5000	7.09
13	50.0	30.0	1000	1000	5000	7.10

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

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for FAX	Clarity	: Normal	I [mA]	: 13 mA
Number of TEUT	: 214067793	Feeding resistor	: 850.0 Ohm	Event	: 2. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Break in the loop	: after 30 ms for 400 ms		
Date	: 15.12.15	Requirement	: Current curve	Delay [ms]	: - 500
Time	: 11:21.59	shall be	: limit curve	Sample [ms]	: 0.2
Remark	: -	Data set	: TBR21-4.6.1 30ms		

Verdict : PASS

Mask violations : 0.0 ms

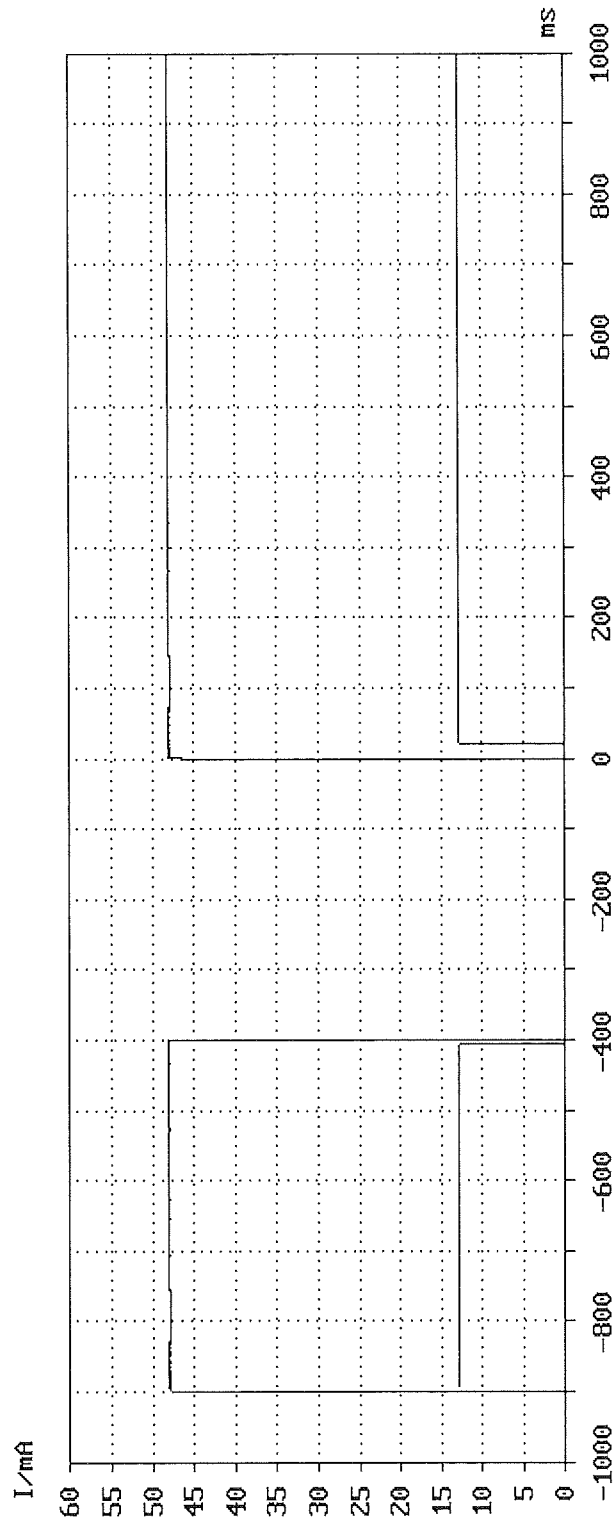


# TBR21 - 4.6.1 Acceptance of breaks in the loop state after 500ms feeding

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for FAX	Clarity	: Normal	I [mA]	: 13 mA
Number of TEUT	: 214067793	Feeding resistor	: 850.0 Ohm	Event	: 2. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Break in the loop	: after 500 ms for 400 ms		
Date	: 15.12.15	Requirement	: Current curve	Delay [ms]	: - 1000
Time	: 11:23.24	shall be	: limit curve	Sample [ms]	: 0.2
Remark	: -	Data set	: TBR21-4.6.1 500ms		

Verdict : PASS

Mask violations : 0.0 ms



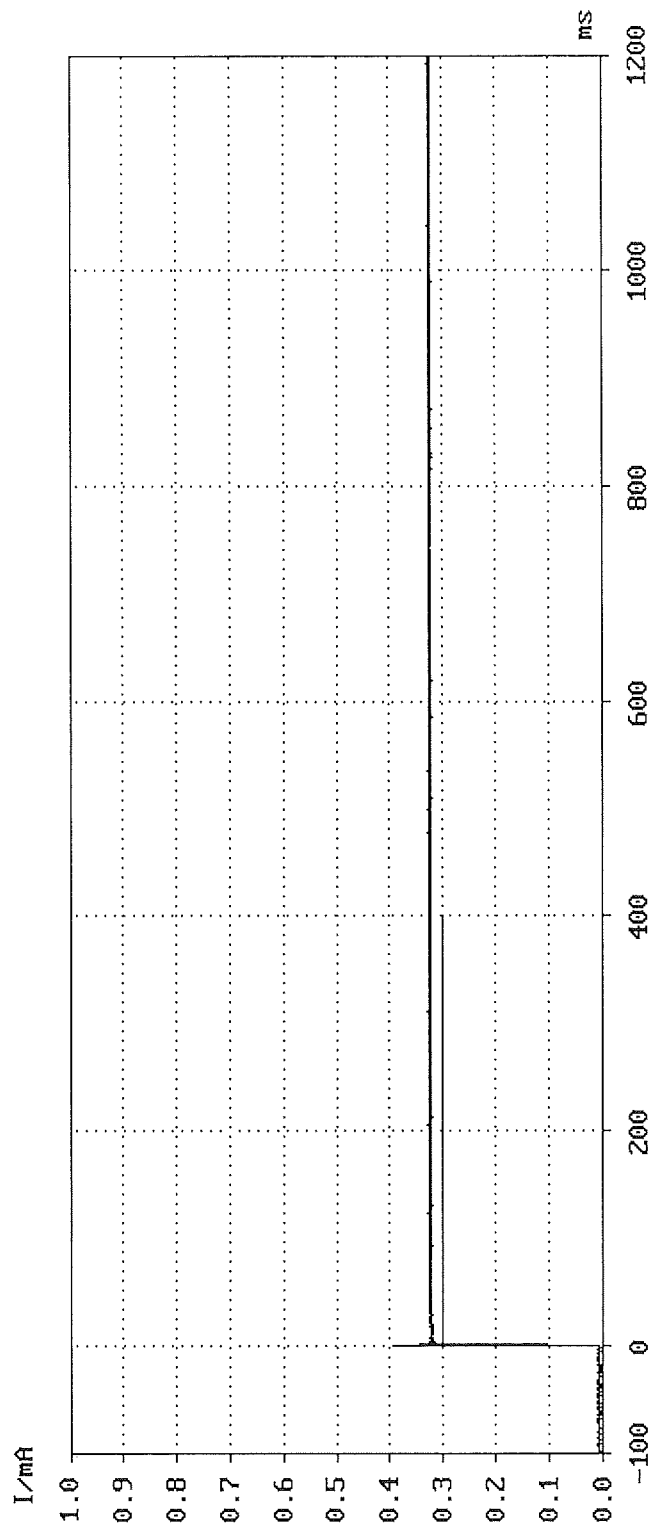
## TBR21-4.6.2 Loop current characteristics

Model No. : FAX System 12 Feeding voltage : 50.0 V Trigger : OK  
 TEUT : Facsimile Kit for M00Trent limitation: 100.0 mA I [mA]: 0.1  
 Number of TEUT: 214067793 Polarity : Normal Event : 1. pos. Edge  
 Manufacturer : KYOCERA DS Inc. Feeding resistor : 150000.0 Ohm Delay [ms]: - 100  
 Date : 15.12.15 Requirement: Current curve Sample [ms]: 0.2  
 Time : 11:25.13 shall fulfil values of table 3 Limit td : 7.0 ms  
 Data set : TBR21-4.6.2 150k

Remark : -

Verdict : PASS

Tolerance mask violat: 0.0 ms

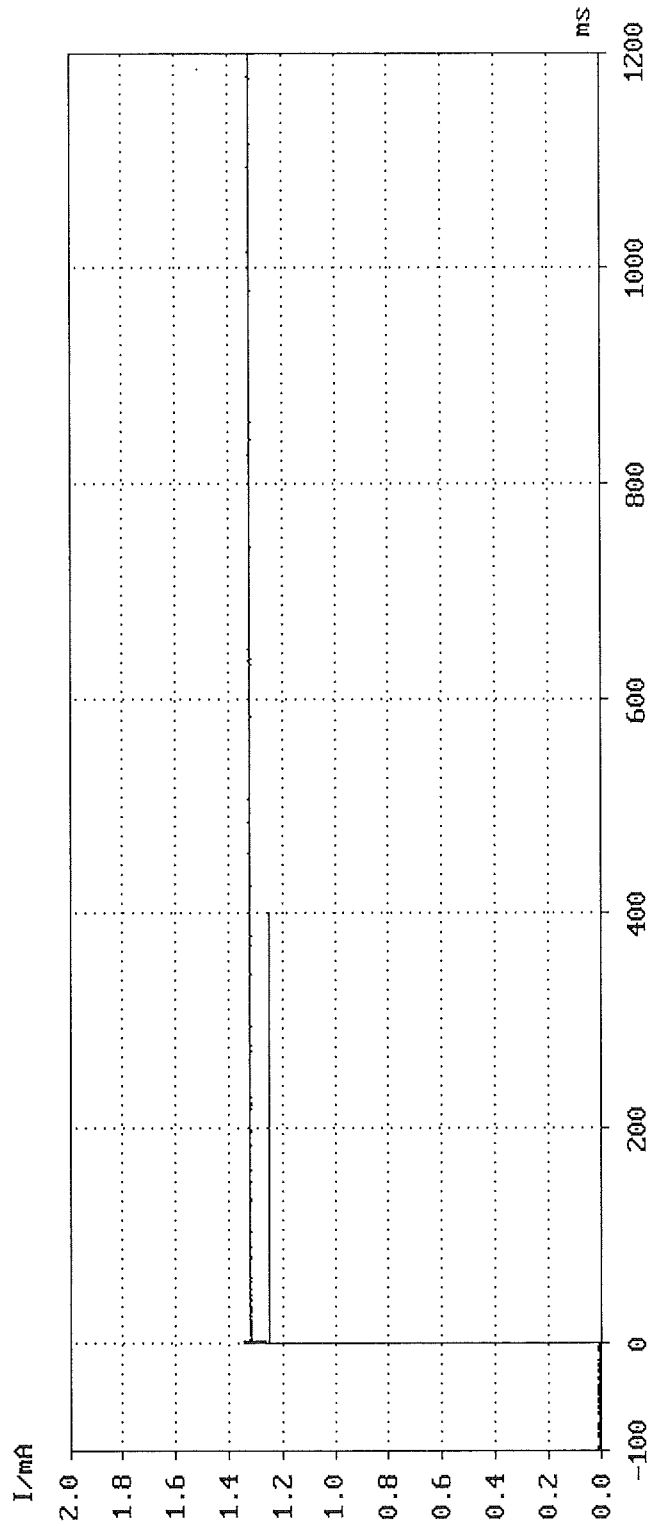


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for NEUTR	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214067793	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 36000.0 Ohm	Delay [ms]	: - 100
Date	: 15.12.15	Requirement	: Current curve	Sample [ms]	: 0.2
Time	: 11:26.59	shall fulfil values of table 3		Limit td	: 7.0 ms
Remark	: -	Data set	: TBR21-4.6.2 36k		

Verdict : PASS

Tolerance mask violat: 0.0 ms

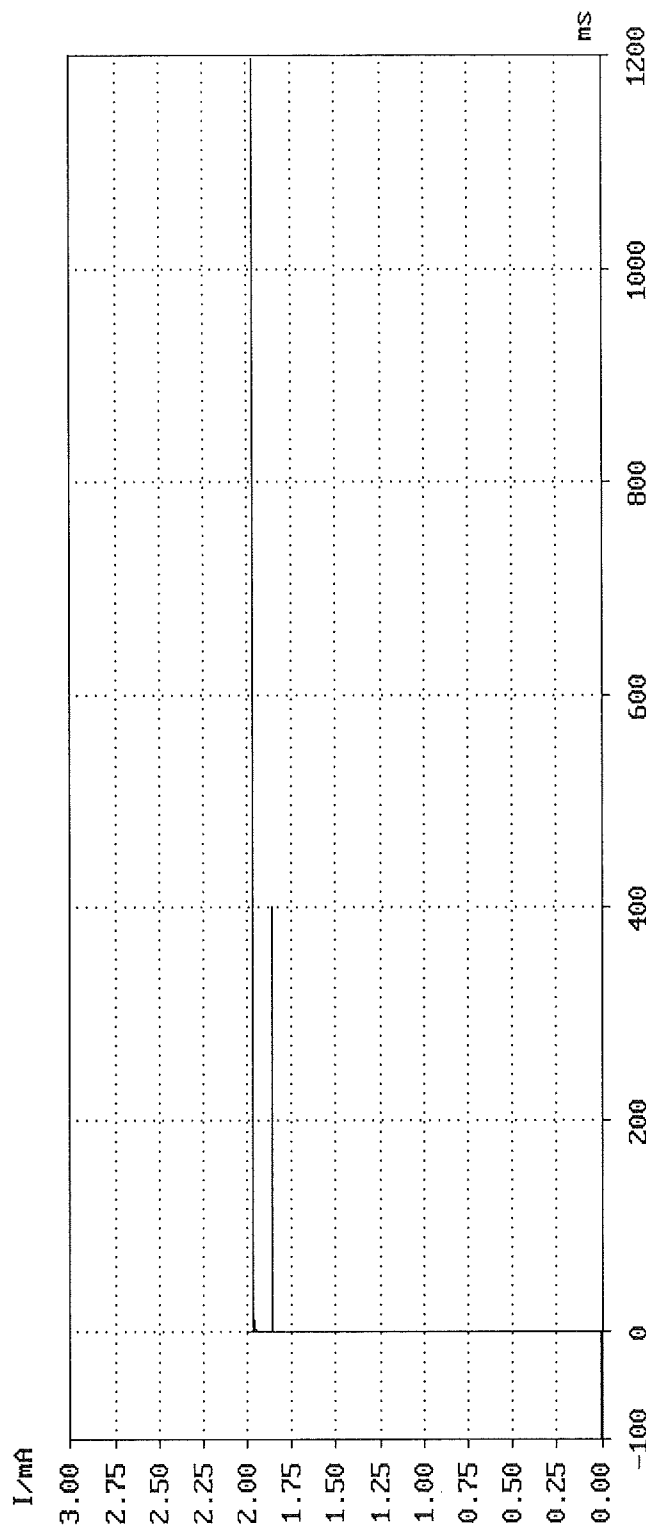


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214067793	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 24000.0 Ohm	Delay [ms]	: - 100
Date	: 15.12.15	Requirement	: Current curve	Sample [ms]	: 0.2
Time	: 11:28.13	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



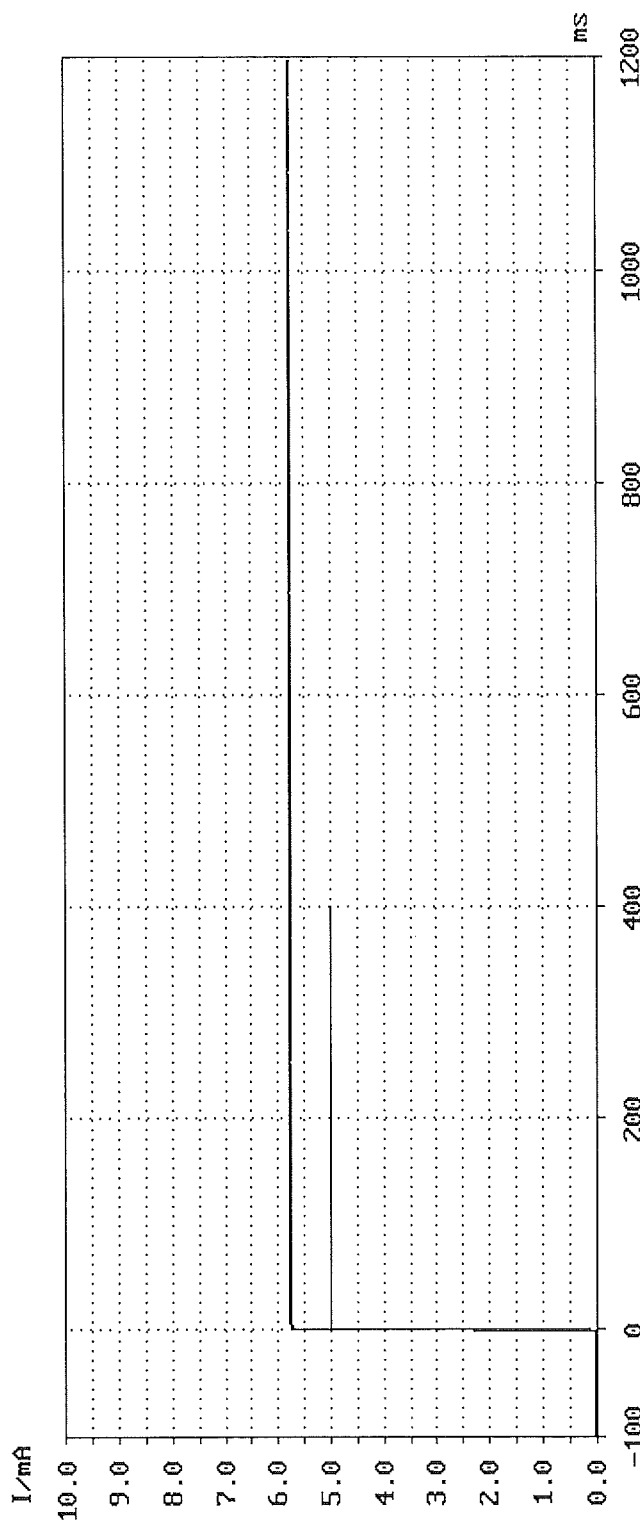


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214067793	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 8000.0 Ohm	Delay [ms]	: - 100
Date	: 15.12.15	Requirement	: Current curve	Sample [ms]	: 0.2
Time	: 11:30.01	shall fulfil values of table 3		Limit td	: 7.0 ms
Remark	: -	Data set	: TBR21-4.6.2 8k		

Verdict : PASS

Tolerance mask violat.: 0.0 ms

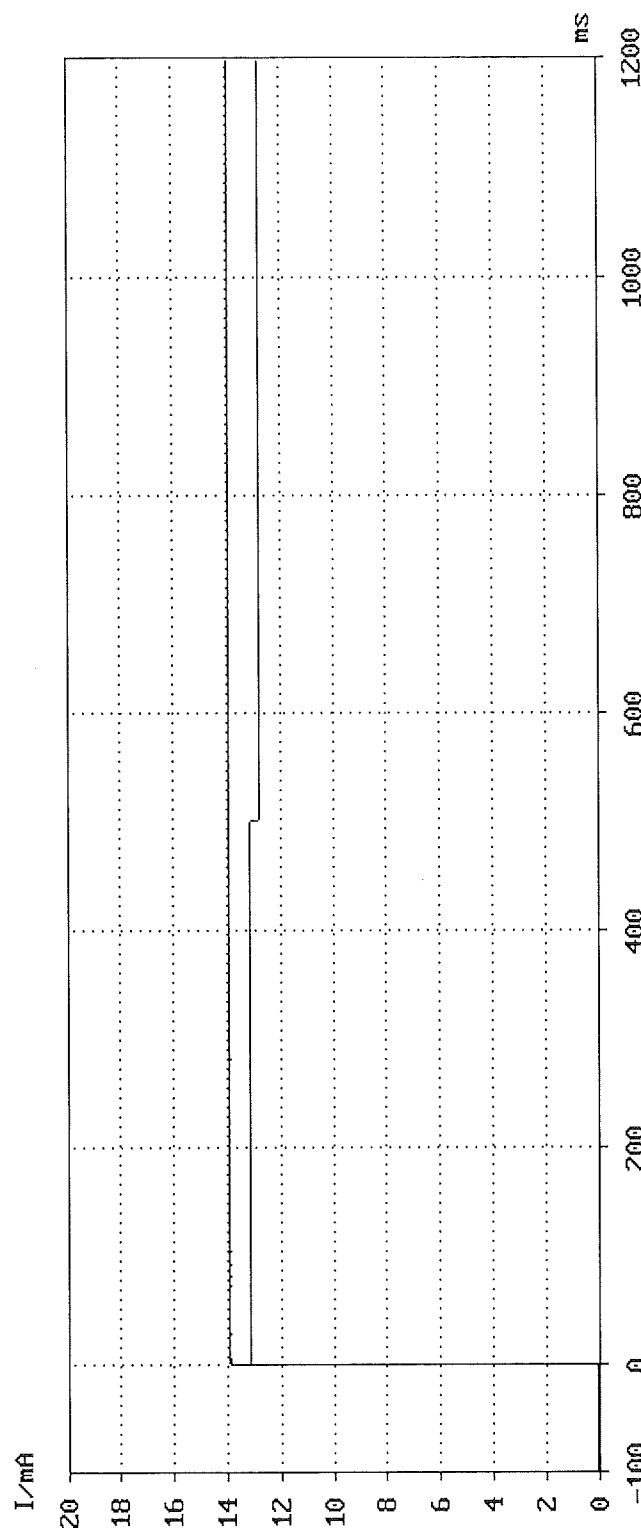


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for M	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214067793	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200.0 Ohm	Delay [ms]	: - 100
Date	: 15.12.15	Requirement	: Current curve	Sample [ms]	: 0.2
Time	: 11:31.42	shall fulfil values of table 4		Limit td	: 7.0 ms
Remark	: -	Data set	: TBR21-4.6.2 3K2		

Verdict : PASS

Tolerance mask violat.: 0.0 ms

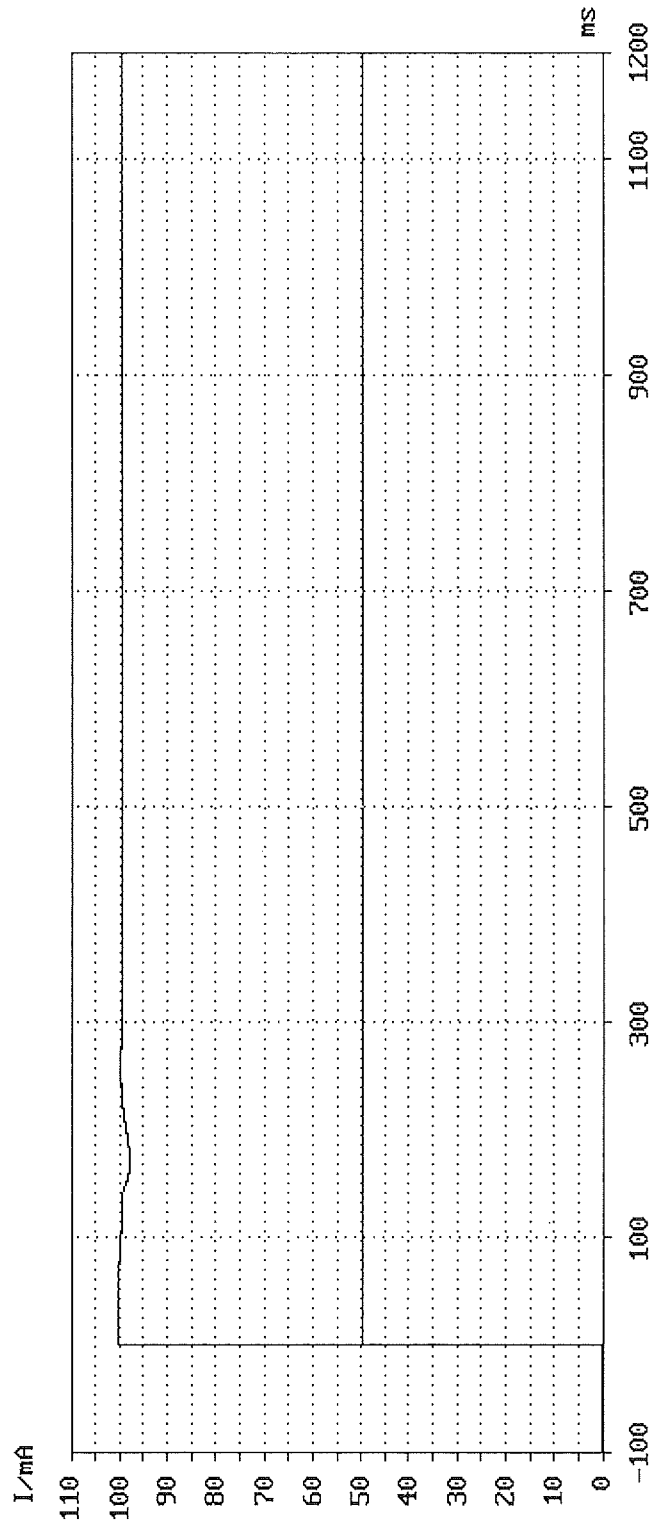


## TBR21 - 4.6.2 Loop current characteristics

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for MURR	Current limitation	: 100.0 mA	I	[mA]: 0.1
Number of TEUT	: 214067793	Polarity	: Normal	Event	: 1. pos. Edge
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 230.0 Ohm	Delay	[ms]: - 100
Date	: 15.12.15	Requirement	: Current curve	Sample	[ms]: 0.2
Time	: 11:33.04	shall fulfil values of table 4		Limit td	: 7.0 ms
Remark	: -	Data set	: TBR21-4.6.2 230		

Verdict : PASS

Tolerance mask violat.: 0.0 ms

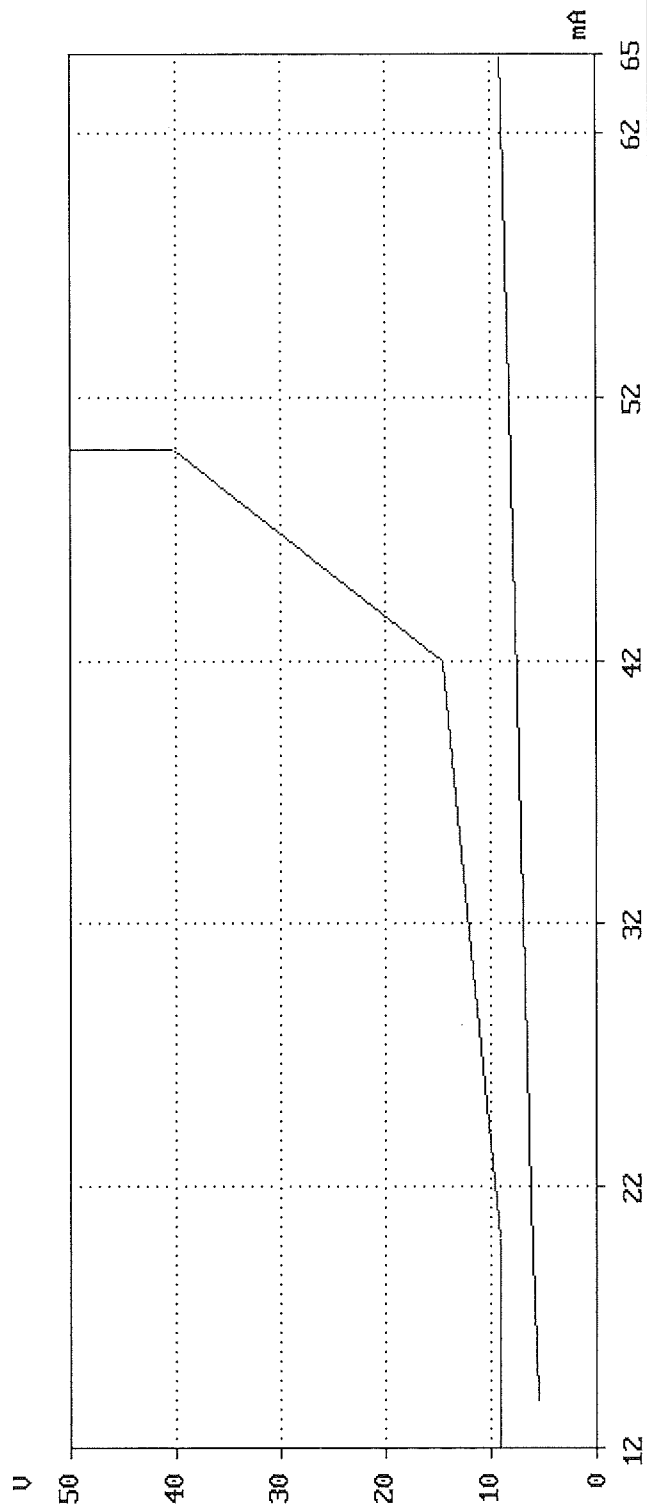


## TBR21 - 4.7.1 DC characteristics

Model No. : FAX System 12      Feeding voltage : 50.0 V  
 TEUT : Facsimile Kit for      Settling Time : 3.0 sec  
 Number of TEUT: 214067793      Feeding : 230/850/2050/3200 Ohm normal/inverted  
 Manufacturer : KYOCERA DS Inc.      Requirement : The DC characteristics  
 Date : 15.12.15      shall not exceed the limits  
 Time : 11:38.57      Data set : TBR-21 Except 60mA N  
 Remark : -

Verdict : PASS

Mask violations: 0

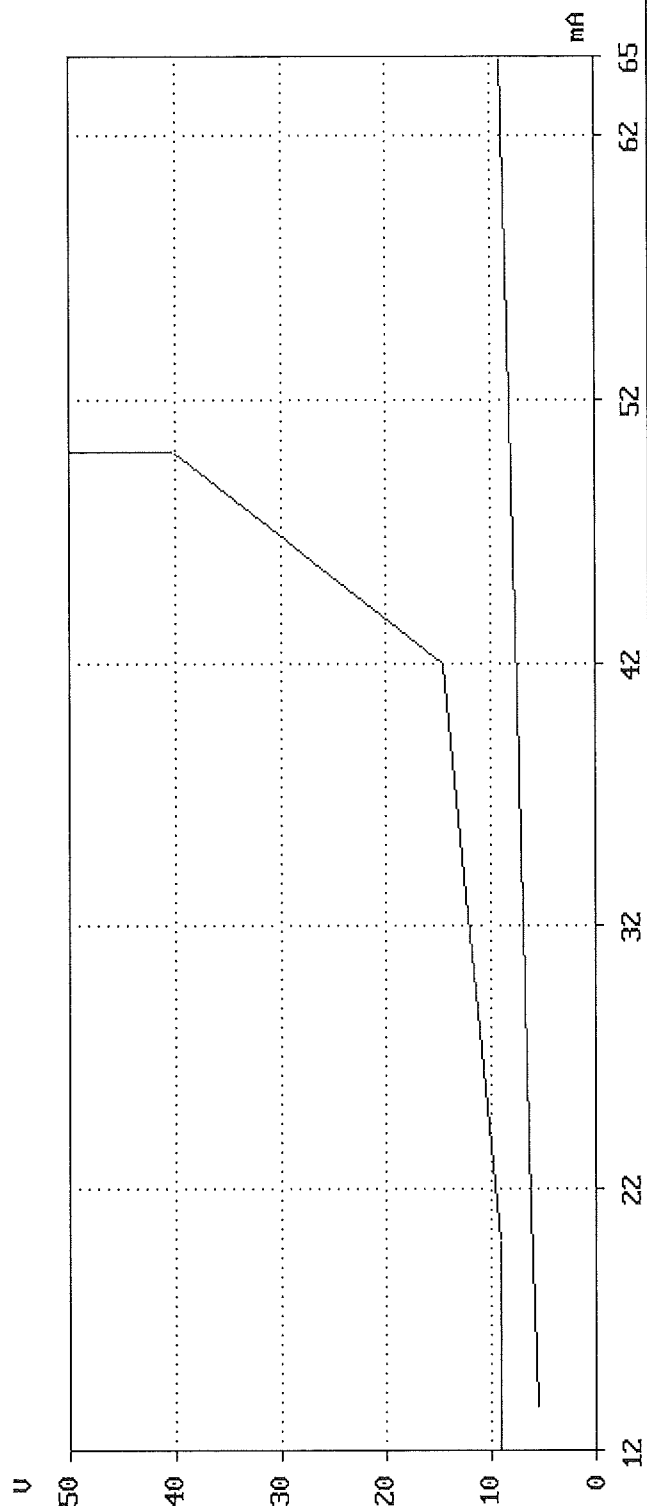


## TBR21 - 4.7.1 DC characteristics

Model No. : FAX System 12      Feeding voltage : 50.0 V  
 TEUT : Facsimile Kit for      Settling Time : 3.0 sec  
 Number of TEUT: 214067793      Feeding : 230/850/2050/3200 Ohm      normal/inverted  
 Manufacturer : KYOCERA DS Inc.      Requirement : The DC characteristics  
 Date : 15.12.15      shall not exceed the limits  
 Time : 11:43.51      Data set : TBR-21 Except 60mA I  
 Remark : -

Verdict : PASS

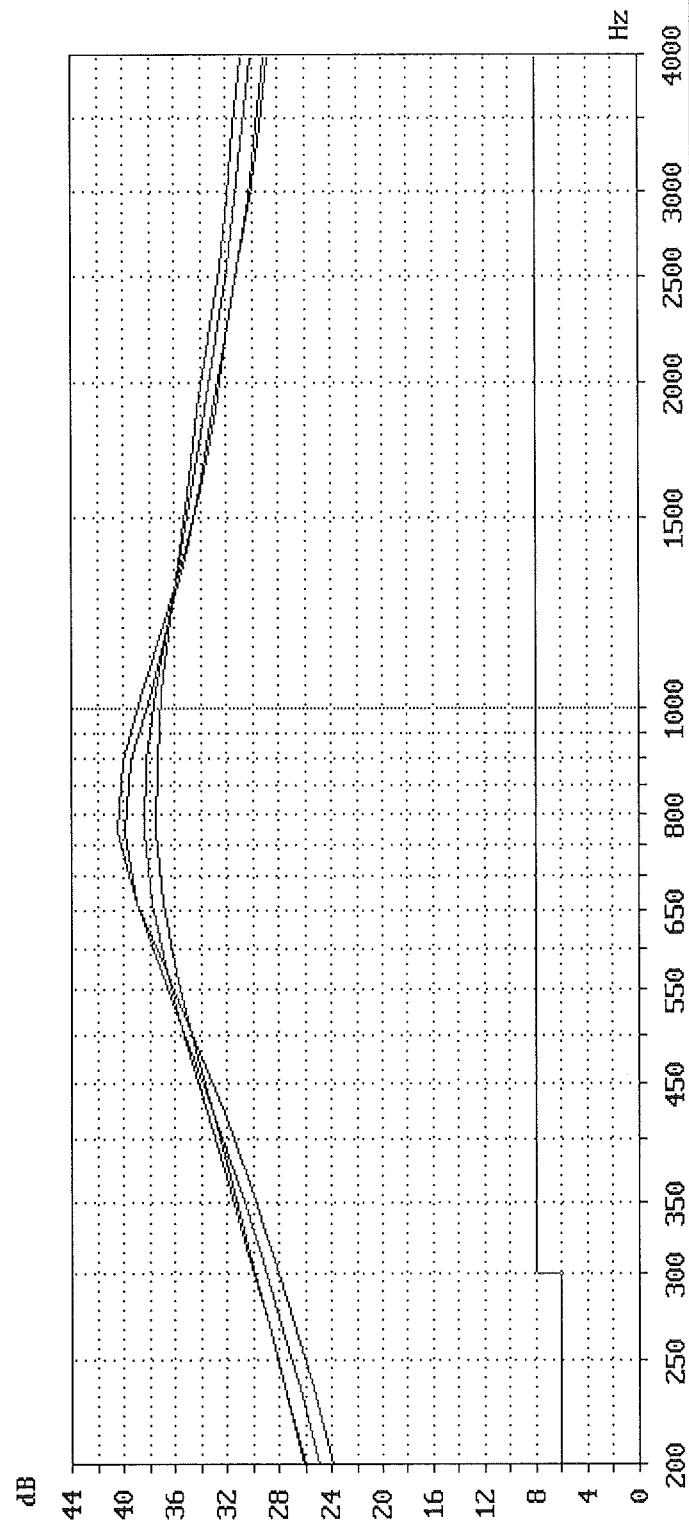
Mask violations: 0



# TBR21 - 4.7.2 Impedance - Return loss

Comission : 214067793  
 Printing time : 16.12.15 18:20.31  
 Graph 1  
 Graph 2  
 Graph 3  
 Graph 4

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

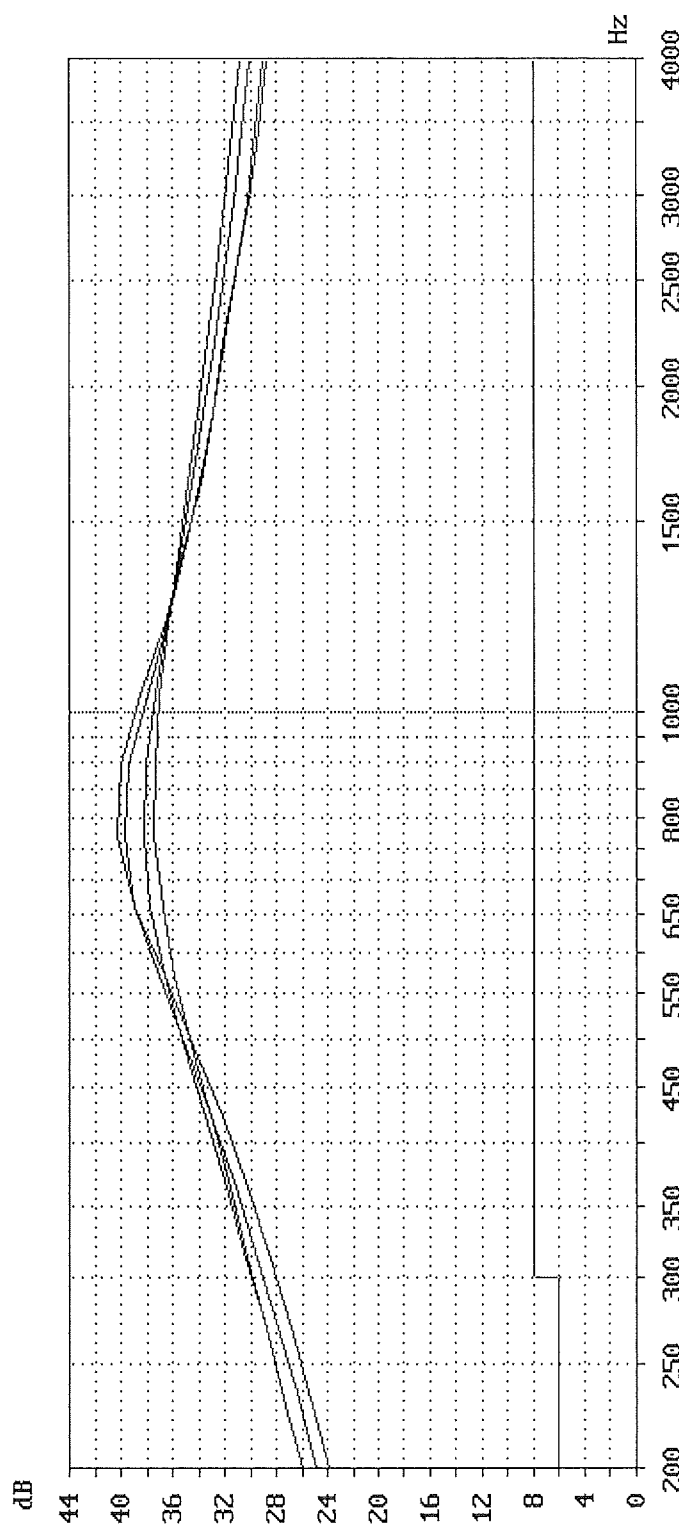


Return loss Comission : 214067793		Printing time : 16.12.15 18:20.31	
Graph 1		Graph 2	
Model No.	FAX System 12	FAX System 12	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214067793	214067793	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	16.12.15	16.12.15	
Time	18:18.04	18:18.29	
Feeding Voltage	50.0 V	50.0 V	
Current Limitation	80.0 mA	80.0 mA	
Polarity	Normal	Normal	
Feeding Resistor	230 Ω	850 Ω	
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 12	FAX System 12	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214067793	214067793	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	16.12.15	16.12.15	
Time	18:18.55	18:19.21	
Feeding Voltage	50.0 V	50.0 V	
Current Limitation	80.0 mA	80.0 mA	
Polarity	Normal	Normal	
Feeding Resistor	2050 Ω	3200 Ω	
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 : 214067793  
 Printing time : 16.12.15 18:22.54  
 Graph 1  
 Graph 2  
 Graph 3  
 Graph 4

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





Return loss Comission : 214067793		Printing time : 16.12.15 18:22.54	
Graph 1		Graph 2	
Model No.	FAX System 12	FAX System 12	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214067793	214067793	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	16.12.15	16.12.15	
Time	18:21.08	18:21.35	
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 12	FAX System 12	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214067793	214067793	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	16.12.15	16.12.15	
Time	18:22.01	18:22.23	
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	-	-	

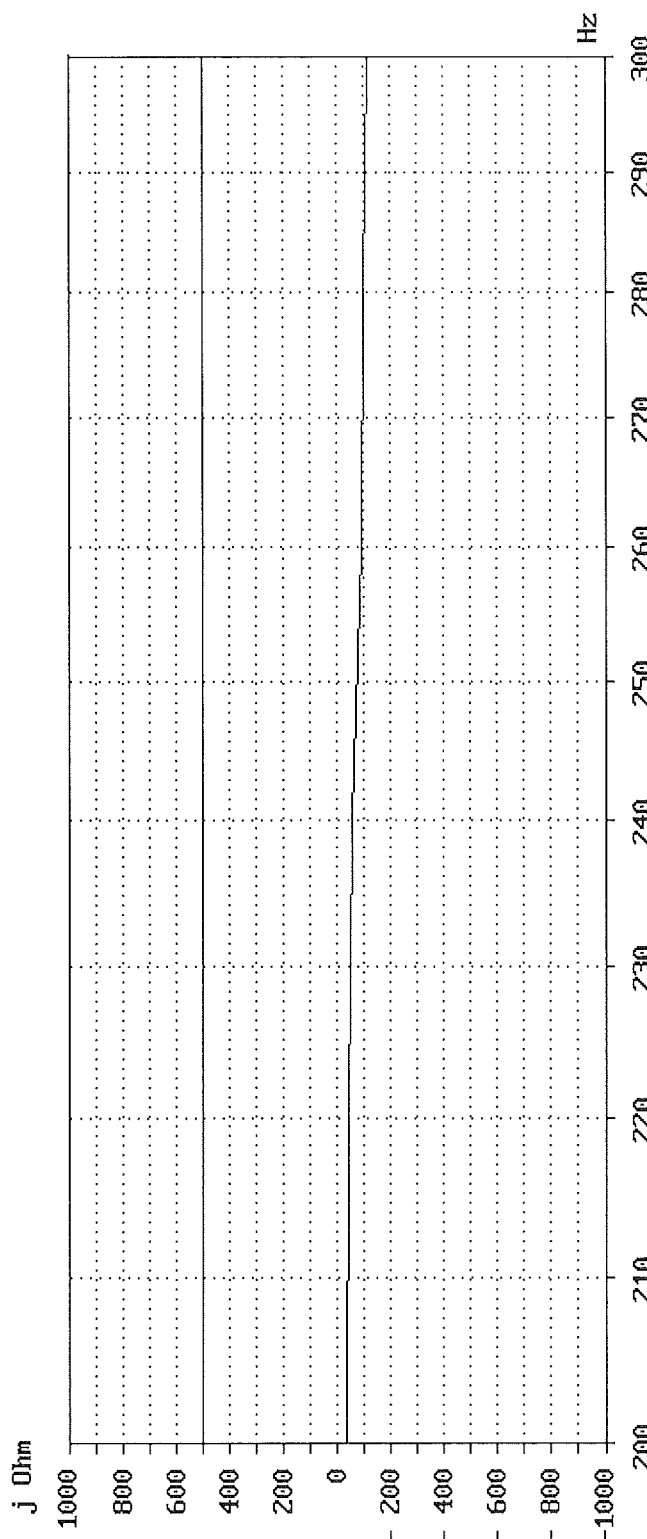
## TBR21 - 4.7.2 Impedance - inductive component of impedance

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Feeding bridge:	TBR21 Lf=5H
TEUT	: Facsimile Kit for M&T	Current limitation:	: 80.0 mA	Level	: -10.0 dBV
Number of TEUT:	214067793	Polarity	: Normal	Call setup	: outgoing
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 230.0 Ohm	Display	: Reactance
Date	: 15.12.15	Requirement	: The result curve shall not be less the limits		
Time	: 11:46.24	Data set	: TBR21-4.7.2 230 N		

Remark : -

Mask violations : 0

Verdict : PASS



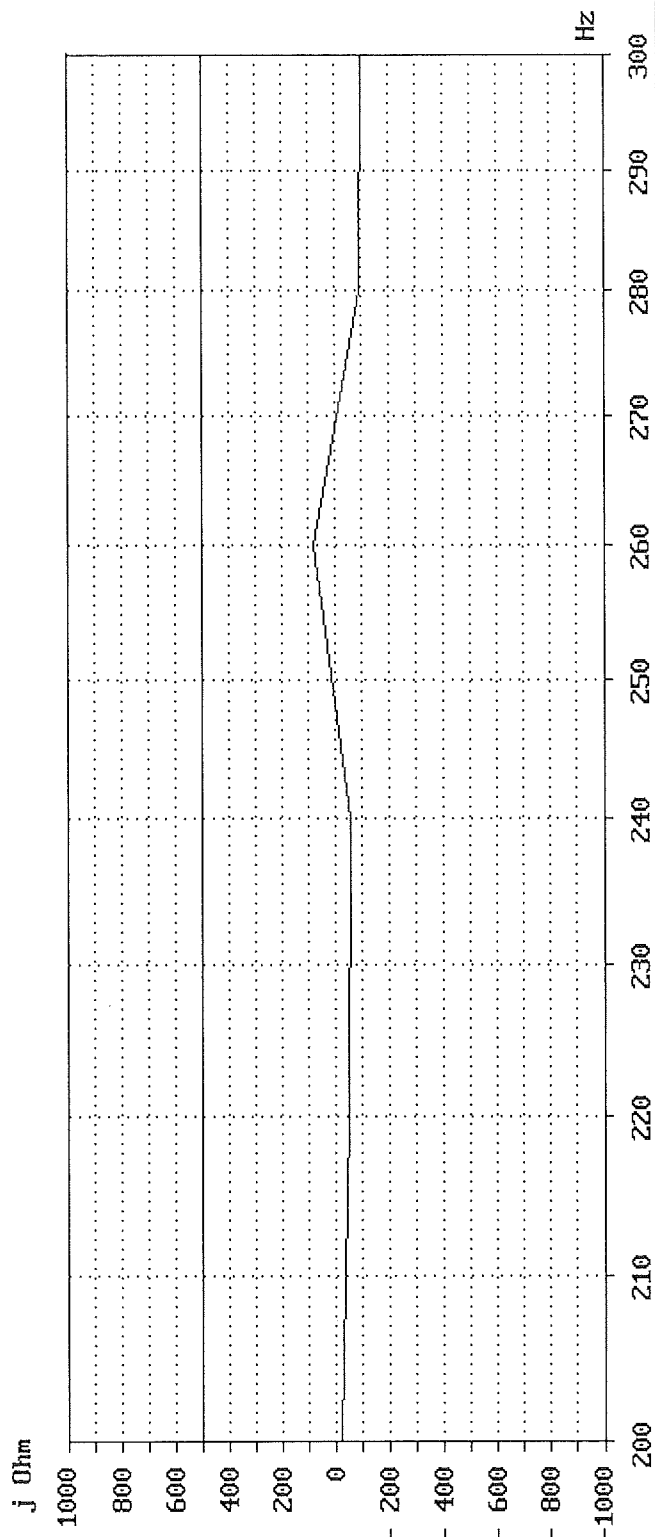
## TBR21 - 4.7.2 Impedance - inductive component of impedance

Model No. : FAX System 12 Feeding voltage : 50.0 V Feeding bridge: TBR21  
 TEUT : Facsimile Kit for M... Level : -10.0 dBV  
 Number of TEUT: 214067793 Polarity : Inverted Call setup : outgoing  
 Manufacturer : KYOCERA DS Inc. Feeding resistor : 850.0 Ohm Display : Reactance  
 Date : 15.12.15 Requirement : The result curve  
 Time : 11:48.50 shall not be less the limits  
 Data set : TBR21-4.7.2 850 I

Remark : -

Mask violations : 0

Verdict : PASS

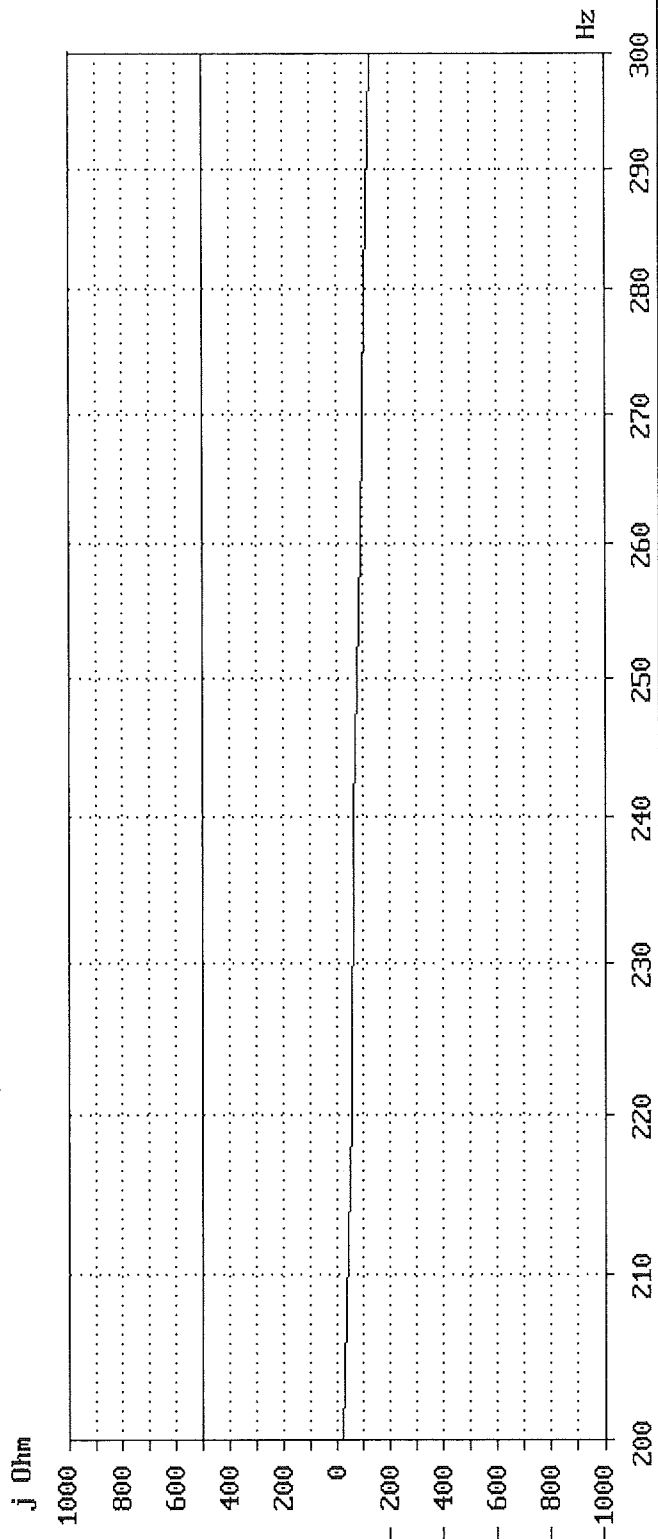


## TBR21 - 4.7.2 Impedance - inductive component of impedance

Model No. : FAX System 12      Feeding voltage : 50.0 V      Feeding bridge: TBR21  
 TEUT : Facsimile Kit for ~~Modem~~      Level : -10.0 dBV  
 Number of TEUT: 214067793      Polarity : Normal      Call setup : outgoing  
 Manufacturer : KYOCERA DS Inc.      Feeding resistor : 2050.0 Ohm      Display : Reactance  
 Date : 15.12.15      Requirement : The result curve shall not be less the limits  
 Time : 11:51.21      Data set : TBR21-4.7.2 2050 N

Remark : -

Mask violations : 0      Verdict : PASS



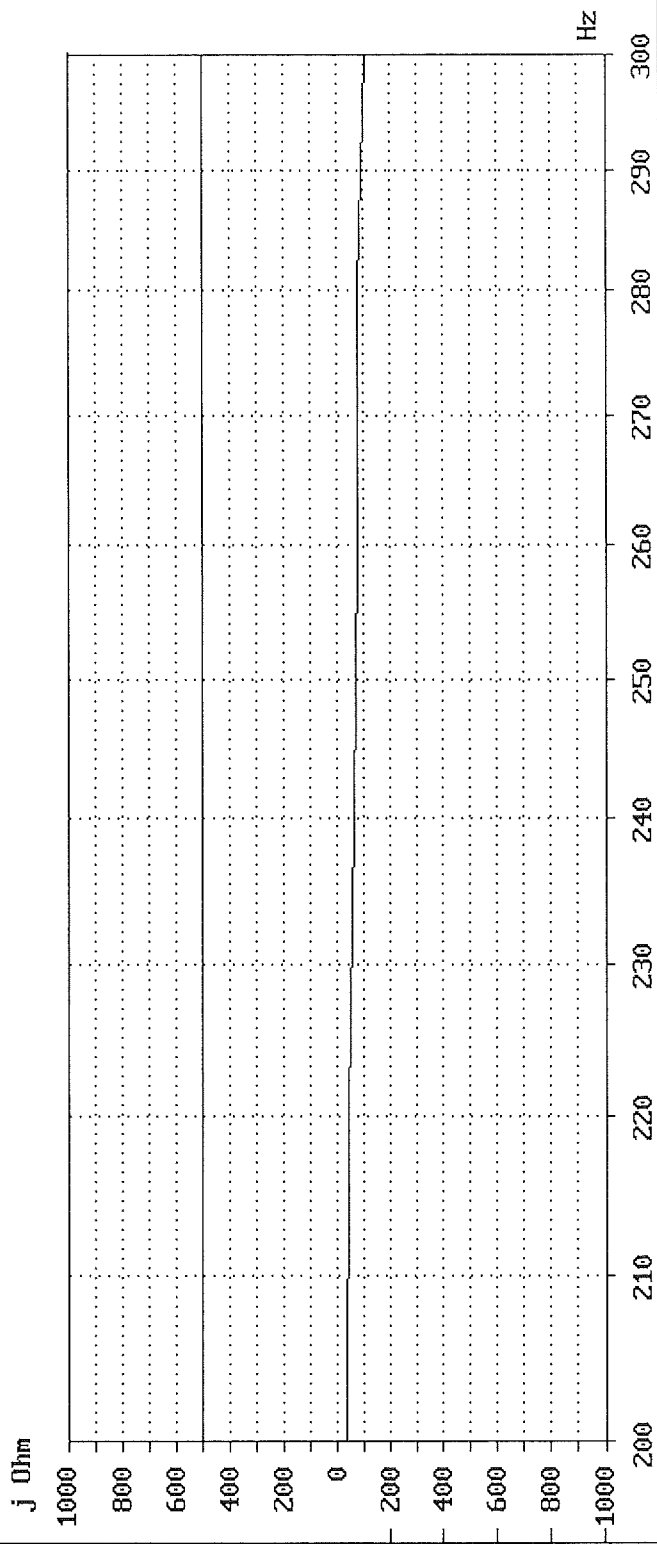
# TBR21 - 4.7.2 Impedance - inductive component of impedance

Model No. : FAX System 12 Feeding voltage : 50.0 V Feeding bridge: TBR21  
 TEUT : Facsimile Kit for MURRANT limitation: 80.0 mA Level : -10.0 dBV  
 Number of TEUT: 214067793 Polarity : Inverted Call setup : outgoing  
 Manufacturer : KYOCERA DS Inc. Feeding resistor : 3200.0 Ohm Display : Reactance  
 Date : 15.12.15 Requirement : The result curve  
 Time : 11:53.46 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 12	Feeding voltage	: 50 V
TEUT	: Facsimile Kit for MFP	Current limitation:	80 mA
Number of TEUT:	214067793	Polarity	: Normal
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 230 $\Omega$
Date	: 15.12.15	Trigger lev./delay:	-12.0 dBV 10 msec
Time	: 13:56.45	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: 1.33      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 12      Feeding voltage   : 50 V
TEUT           : Facsimile Kit for MFP Current limitation: 80 mA
Number of TEUT: 214067793          Polarity          : Inverted
Manufacturer   : KYOCERA DS Inc.    Feeding resistor  : 230 Ω
Date           : 16.12.15           Trigger lev./delay: -12.0 dBV 10 msec
Time           : 9:28.50            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: 1.11      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 12	Feeding voltage	: 50 V
TEUT	: Facsimile Kit for MFP	Current limitation:	80 mA
Number of TEUT:	214067793	Polarity	: Normal
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200 $\Omega$
Date	: 16.12.15	Trigger lev./delay:	-12.0 dBV 10 msec
Time	: 9:43.08	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: 1.15      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 12	Feeding voltage	: 50 V
TEUT	: Facsimile Kit for MFP	Current limitation:	80 mA
Number of TEUT:	214067793	Polarity	: Inverted
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200 $\Omega$
Date	: 16.12.15	Trigger lev./delay:	-12.0 dBV 10 msec
Time	: 10:08.21	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: 0.84 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 12      Feeding voltage   : 50 V
TEUT           : Facsimile Kit for MFP Current limitation: 80 mA
Number of TEUT : 214067793          Polarity          : Normal
Manufacturer   : KYOCERA DS Inc.    Feeding resistor  : 230 Ω
Date           : 16.12.15           Trigger lev./delay: -12.0 dBV 10 msec
Time           : 10:44.06           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

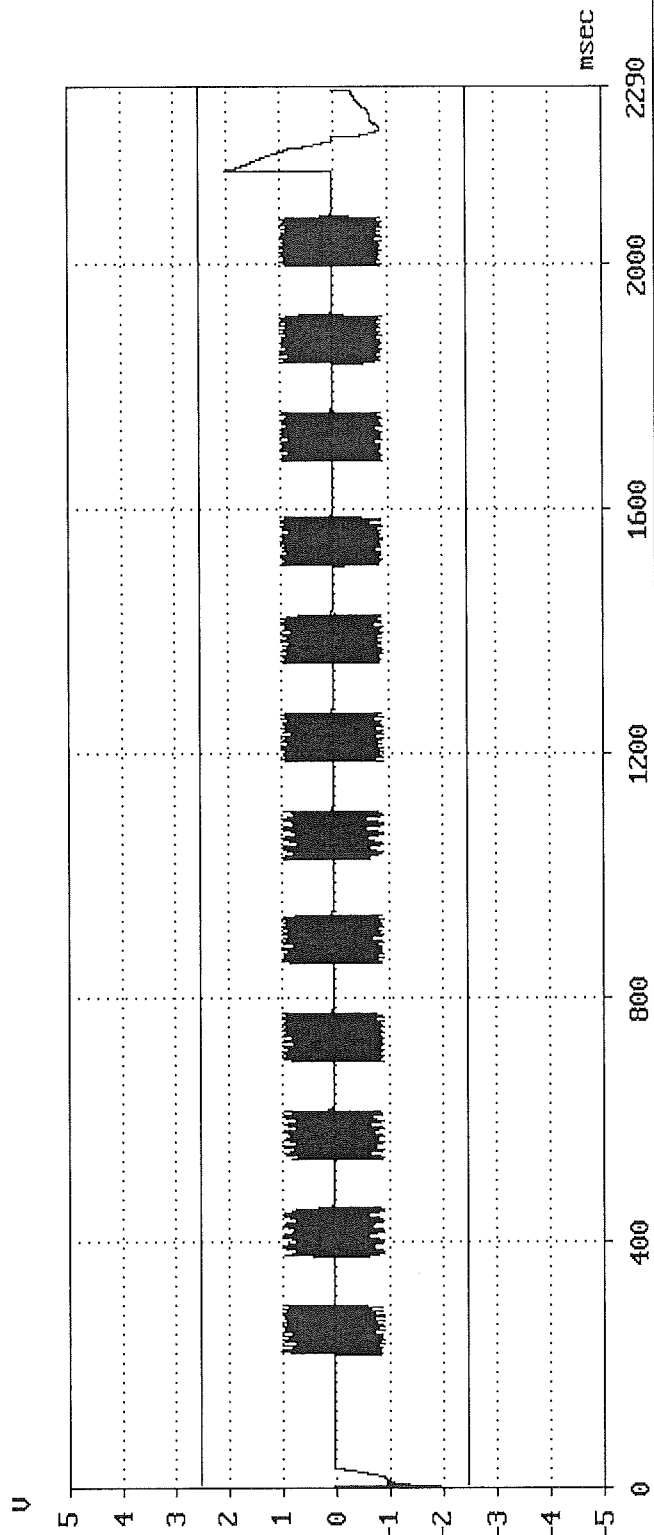
Mean level  
dBV

- 13.0

## TBR21 - 4.7.3.2 Instantaneous voltage during DTMF signalling

Model No.	: FAX System 12	Feeding voltage : 50.0 V	Feeding bridge : TBR21
TEUT	: Facsimile Kit for FAX	Modularity : Normal	Trigger : OK
Number of TEUT	: 214067793	Feeding resistor: 230.0 Ohm	Trigger level : -12 dBu min. 1
Manufacturer	: KYOCERA DS Inc.	Receiver imped. : Zr TBR21	Gain (internal): -12.0 dB
Date	: 16.12.15	Requirement: The results shall	Filter : BP 200-3800 Hz
Time	: 10:56.32	be <= 5.0 Vpp for 0.0 msec	Dialtone : yes
Remark	: -	Data set	: TBR21-4.7.3.2 DTMF 230 N

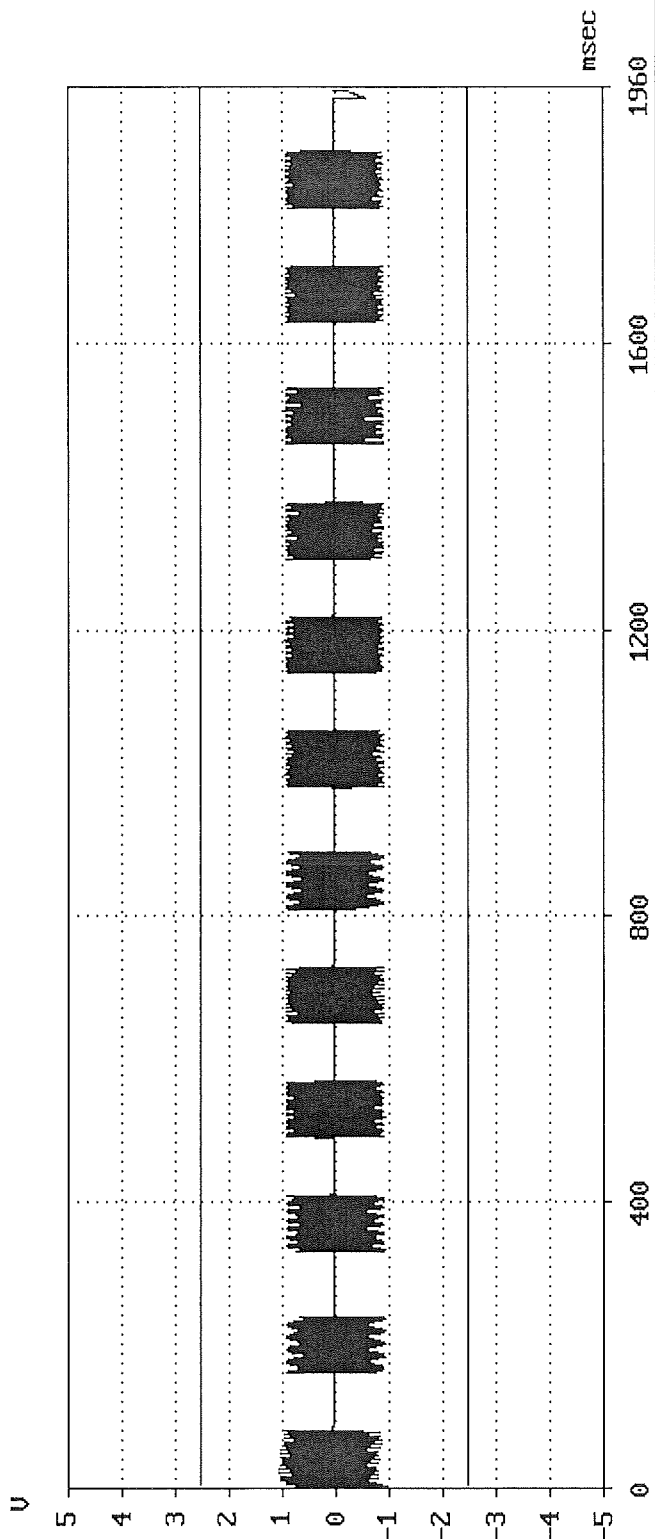
Mask violation : 0                      Verdict : PASS



## TBR21 - 4.7.3.2 Instantaneous voltage during DTMF signalling

Model No.	: FAX System 12	Feeding voltage : 50.0 V	Feeding bridge : TBR21
TEUT	: Facsimile Kit for FAX	: Inverted	: OK
Number of TEUT	: 214067793	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	: 16.12.15	Requirement: The results shall	Filter : BP 200-3800 Hz
Time	: 10:59.44	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



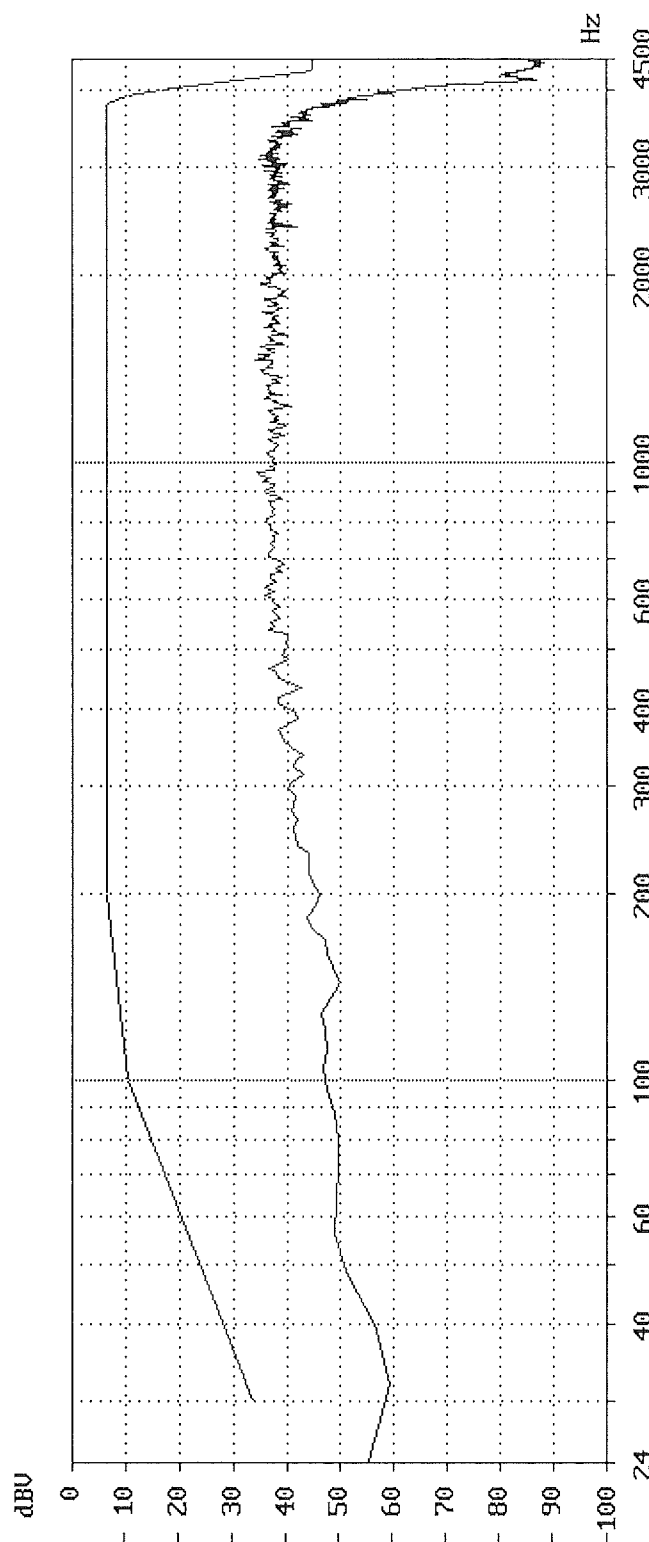
## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Feeding bridge	: TBR21
TEUT	: Facsimile Kit for MBR	Current limitation	: 80.0 mA	Max. Level	: - 34.2 dBV
Number of TEUT	: 214067793	Polarity	: Normal	Frequency	: 1466 Hz
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 230.0 Ohm	Rx impedance	: 2r TBR21
Date	: 15.12.15	Requirement	: The voltage shall not exceed the limits	Call setup	: outgoing
Time	: 13:59.21	Data set	: TBR21-4.7.3.3 230 N		

Remark : U.34 33600bps

Mask violation: 0

Verdict : PASS



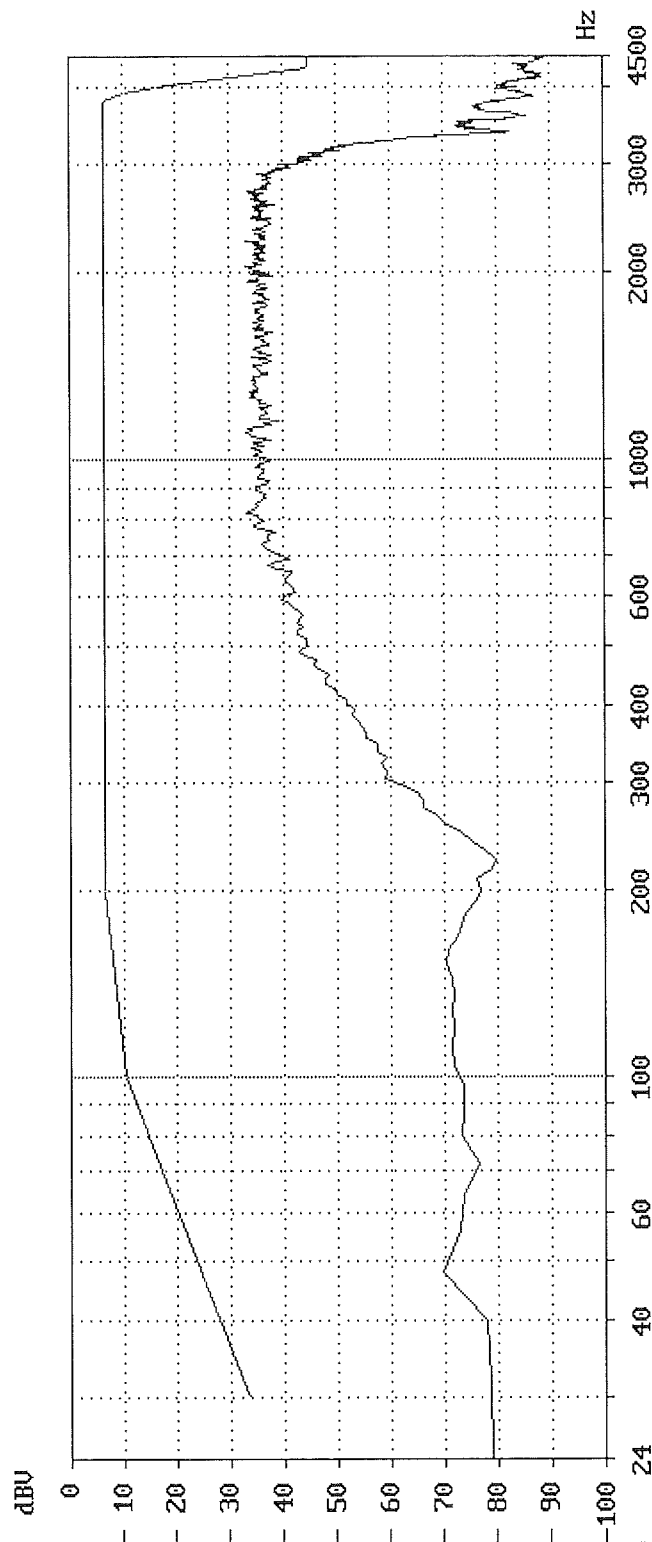
## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No. : FAX System 12	Feeding voltage : 50.0 V	Feeding bridge: TBR21
TEUT : Facsimile Kit for FAX	Current limitation: 80.0 mA	Max. Level : - 33.3 dBu
Number of TEUT: 214067793	Polarity : Inverted	Frequency : 2043 Hz
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 230.0 Ohm	Rx impedance : Zr TBR21
Date : 16.12.15	Requirement: The voltage	Call setup : outgoing
Time : 9:31.22	shall not exceed the limits	
	Data set : TBR21-4.7.3.3 230 I	

Remark : U.17 14400bps

Mask violation: 0

Verdict : PASS

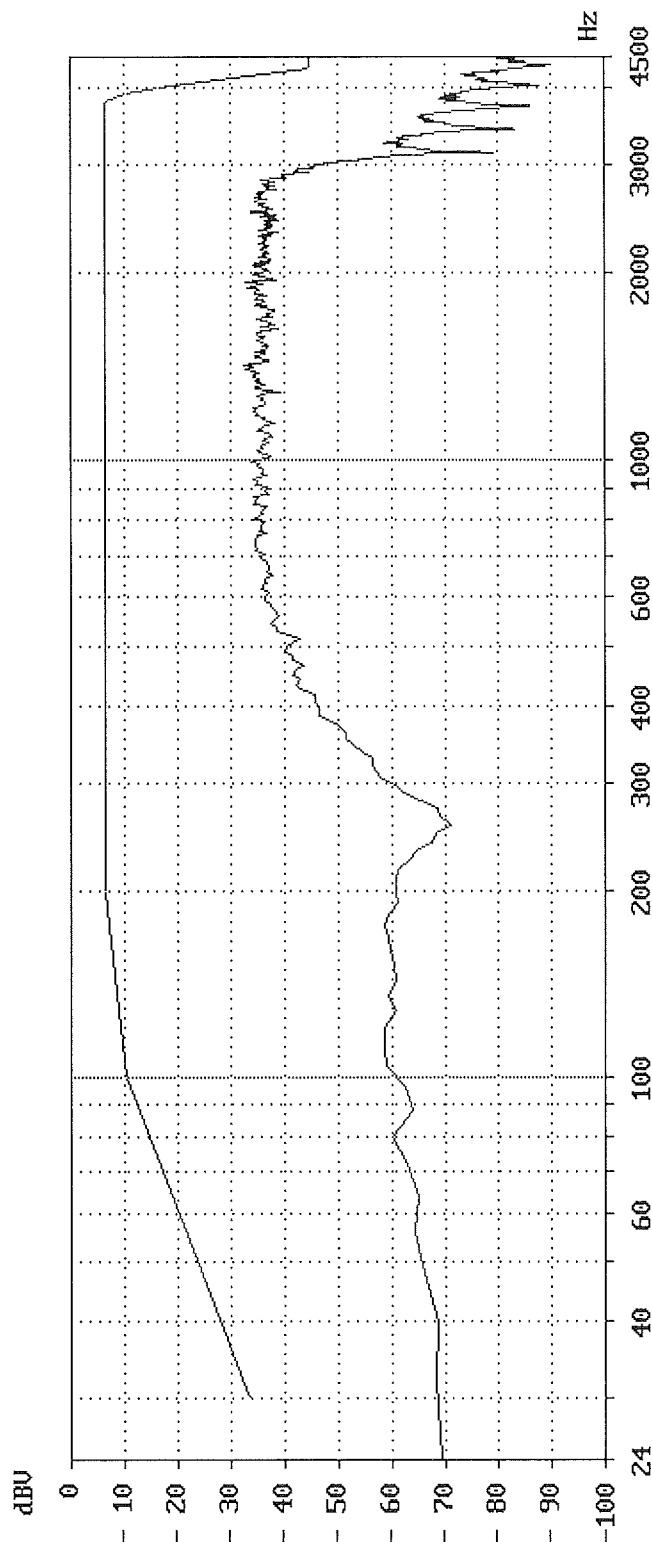


## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Feeding bridge:	TBR21
TEUT	: Facsimile Kit for	Current limitation:	: 80.0 mA	Max. Level	: - 32.8 dBu
Number of TEUT:	214067793	Polarity	: Normal	Frequency	: 1426 Hz
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200.0 Ohm	Rx impedance	: Zr TBR21
Date	: 16.12.15	Requirement:	The voltage	Call setup	: outgoing
Time	: 9:48.08	shall not exceed the limits			
Remark	Data set : TBR21-4.7.3.3 3200 N				

Remark : V.29 9600bps

Mask violation: 0      Verdict : PASS



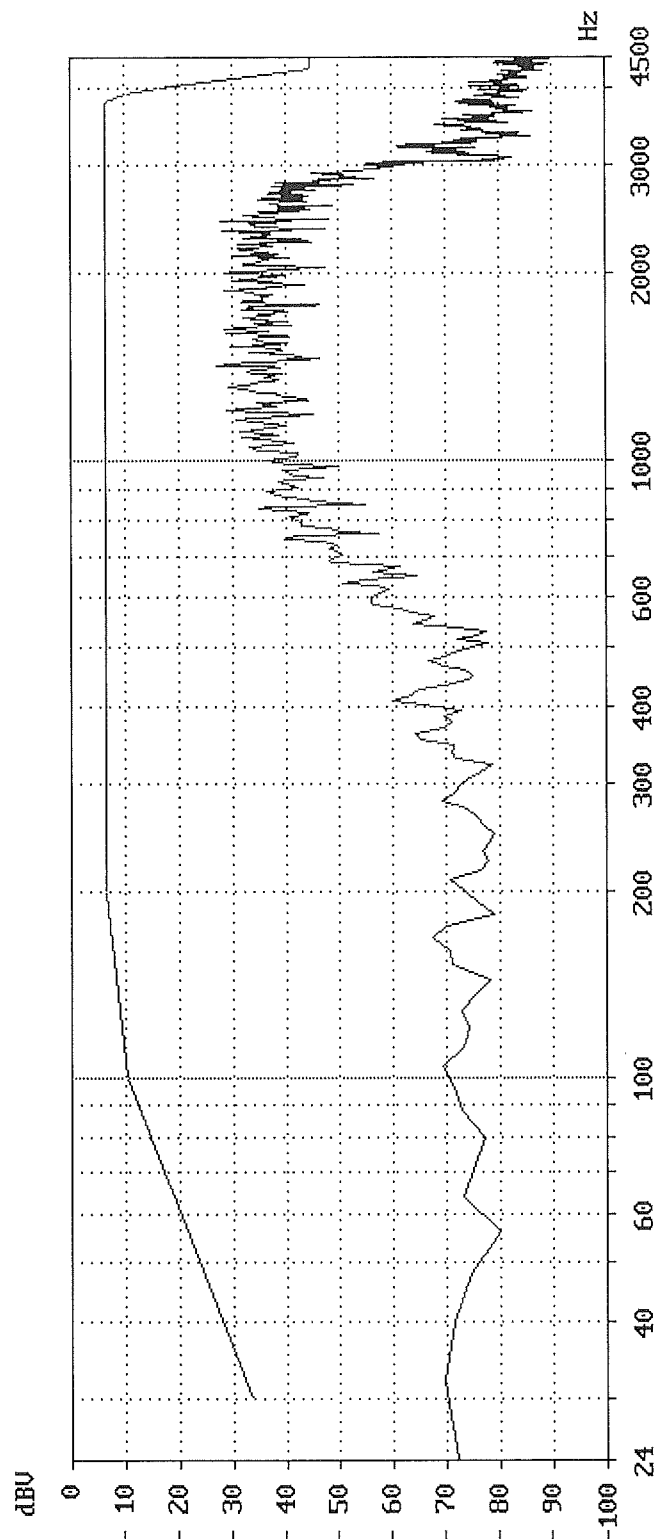
## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Feeding bridge:	TBR21
TEUT	: Facsimile Kit for	Maximum current limitation:	: 80.0 mA	Max. Level	: - 27.4 dBu
Number of TEUT:	214067793	Polarity	: Inverted	Frequency	: 1426 Hz
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200.0 Ohm	Rx impedance	: 2r TBR21
Date	: 16.12.15	Requirement:	The voltage shall not exceed the limits	Call setup	: outgoing
Time	: 10:10.36	Data set	: TBR21-4.7.3.3 3200 I		

Remark : U.27ter 4800bps

Mask violation: 0

Verdict : PASS



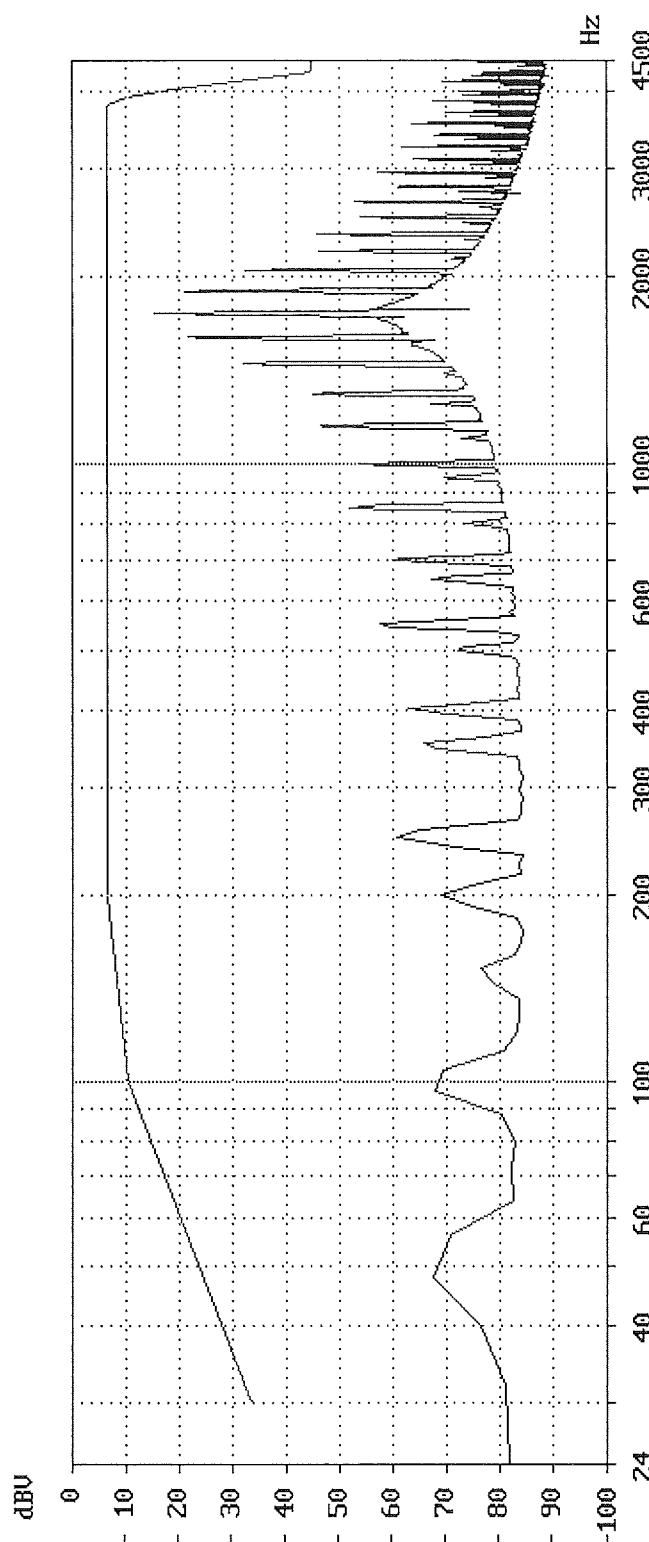


## TBR21 - 4.7.3.3 Sending level in a 10 Hz bandwidth

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Feeding bridge:	TBR21
TEUT	: Facsimile Kit for	Current limitation	: 80.0 mA	Max. Level	: - 15.6 dBV
Number of TEUT	: 214067793	Polarity	: Normal	Frequency	: 1747 Hz
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 230.0 Ohm	Rx impedance	: Zr TBR21
Date	: 16.12.15	Requirement	: The voltage shall not exceed the limits	Call setup	: outgoing
Time	: 18:25.49				
Remark	: U.21 300bps	Data set	: TBR21-4.7.3.3 230 N		

Mask violation: 0

Verdict : PASS



# 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 12 Feeding voltage : 50.0 V  
 TEUT : Facsimile Kit for MFP Current limitation: 80.0 mA  
 Number of TEUT: 214067793 Polarity : Normal  
 Manufacturer : KYOCERA DS Inc. Feeding Resistor : 230.0 Ohm  
 Date : 16.12.15 Dial tone : Yes  
 Time : 11:05.25 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 range kHz	Dial No.	Level dBV	Freq. kHz	Level dBV	Freq. kHz	Level dBV	Freq. kHz
4.3 20.0	357	- 76.1	4.37	- 74.7	4.32	- 83.9	4.42
20.0 30.0	357	- 88.4	20.04	- 90.2	20.04	- 90.0	20.04
30.0 40.0	357	- 81.2	40.0	- 81.5	40.0	- 81.1	40.0
40.0 50.0	357	- 92.0	48.84	- 89.8	48.79	- 95.3	49.66
50.0 60.0	357	- 99.1	52.78	- 98.3	52.78	- 98.0	53.55
60.0 70.0	357	-103.3	66.82	-107.6	66.63	-107.3	66.77
70.0 80.0	357	-102.7	76.73	-107.6	74.61	-107.4	76.68
80.0 90.0	357	-101.3	82.98	-101.8	82.98	-100.8	82.98
90.0 100.0	357	-107.5	91.58	-106.7	98.46	-107.9	94.85
100.0 110.0	357	- 99.6	105.38	-100.0	105.38	- 99.0	105.38
110.0 120.0	357	-108.1	119.80	-109.2	119.90	-110.6	117.21
120.0 130.0	357	-108.5	123.65	-109.9	125.91	-111.7	123.89
130.0 140.0	357	-107.5	136.15	-109.0	136.73	-109.2	138.51
140.0 150.0	357	-107.4	143.70	-108.6	143.70	-106.7	143.70
150.0 160.0	357	- 97.9	158.07	- 98.3	158.07	- 98.7	158.07
160.0 170.0	357	-108.6	166.49	-109.0	167.21	-110.4	165.38
170.0 180.0	357	-109.2	170.38	-107.2	171.97	-110.4	179.32
180.0 190.0	357	-111.2	189.18	-108.3	183.55	-109.4	183.99
190.0 200.0	357	- 95.8	196.92	- 96.5	196.92	- 96.3	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 12 Feeding voltage : 50.0 V  
 TEUT : Facsimile Kit for MFP Current limitation: 80.0 mA  
 Number of TEUT: 214067793 Polarity : Inverted  
 Manufacturer : KYOCERA DS Inc. Feeding Resistor : 3200.0 Ohm  
 Date : 16.12.15 Dial tone : Yes  
 Time : 11:58.56 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

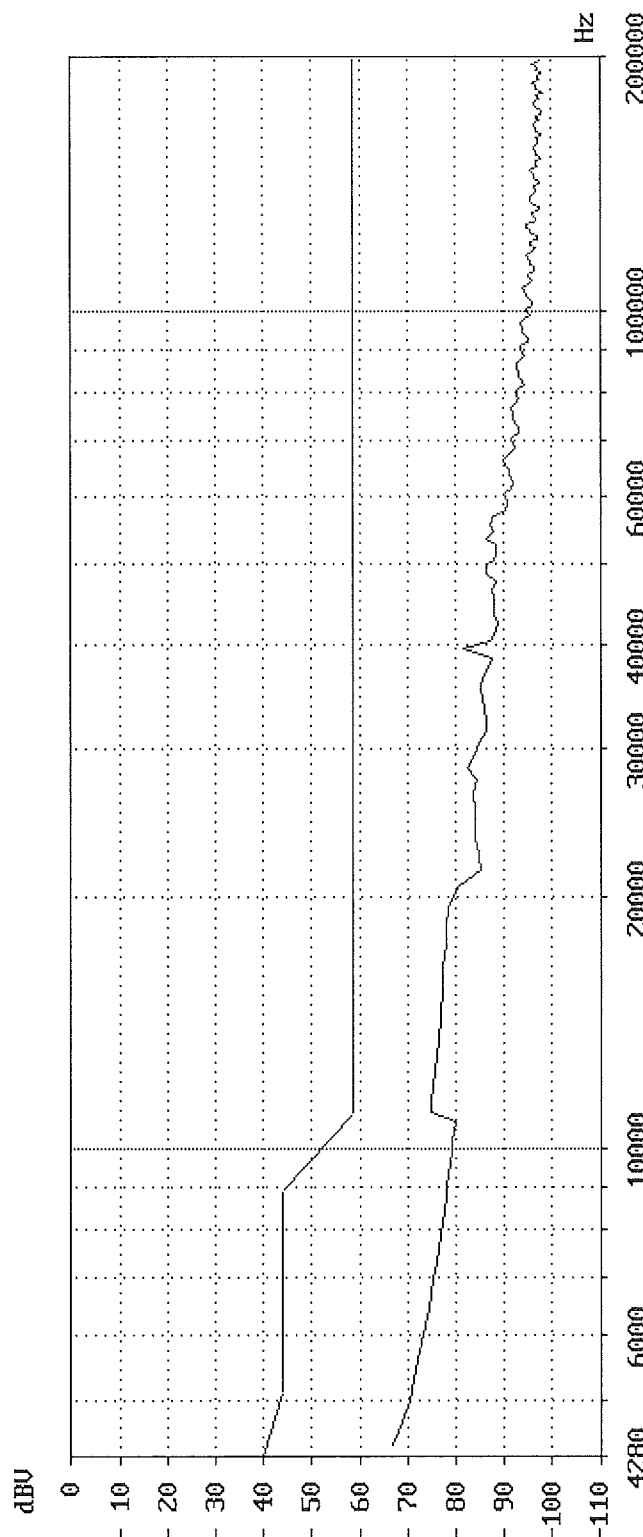
Frequency range kHz	Dial No.	Level dBV	Freq. kHz	Level dBV	Freq. kHz	Level dBV	Freq. kHz
4.3	20.0	570	- 53.9	4.37	- 86.2	15.86	- 64.8
20.0	30.0	570	- 82.1	24.32	- 84.2	23.99	- 84.3
30.0	40.0	570	- 80.9	40.0	- 80.8	40.0	- 81.6
40.0	50.0	570	- 88.2	47.74	- 88.8	46.49	- 87.5
50.0	60.0	570	- 87.3	53.79	- 88.3	55.91	- 88.7
60.0	70.0	570	- 90.9	64.32	- 91.3	63.26	- 92.5
70.0	80.0	570	- 91.9	76.68	- 93.7	79.37	- 92.3
80.0	90.0	570	- 94.2	87.01	- 83.1	81.82	- 83.3
90.0	100.0	570	- 94.0	97.26	- 95.6	96.01	- 94.8
100.0	110.0	570	- 94.8	106.15	- 92.4	105.38	- 93.9
110.0	120.0	570	- 95.3	115.19	- 98.7	119.47	- 98.3
120.0	130.0	570	- 95.9	123.94	- 99.2	127.5	- 98.7
130.0	140.0	570	- 97.3	134.08	-100.2	139.95	- 97.9
140.0	150.0	570	- 98.2	145.76	- 99.2	140.09	- 98.4
150.0	160.0	570	- 99.0	152.35	- 98.9	150.14	-100.1
160.0	170.0	570	-100.1	166.97	-100.2	160.28	-100.4
170.0	180.0	570	- 98.5	176.15	-101.3	172.74	-101.1
180.0	190.0	570	- 98.6	184.51	- 99.8	186.10	-100.8
190.0	200.0	570	- 99.5	199.37	- 97.3	196.92	- 94.9

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

Model No. : FAX System 12      Feeding voltage : 50.0 V      Max. Level : - 71.9 dBV  
 TEUT : Facsimile Kit for FAXarity : Normal      at Frequency: 4279 Hz  
 Number of TEUT: 214067793      Feeding Resistor: 230.0 Ohm      Max. Level : - 65.1 dBV  
 Manufacturer : KYOCERA DS Inc.      Feeding Bridge : TBR21      Frequency : 4279 Hz  
 Date : 15.12.15      Requirement : The voltage level      Rx impedance: 2r TBR21  
 Time : 14:05.29      shall not exceed the limits  
 Signal : U.34 33600bps      Data set : TBR21-4.7.3.4.2 230 N  
 Remark : -

Verdict : PASS

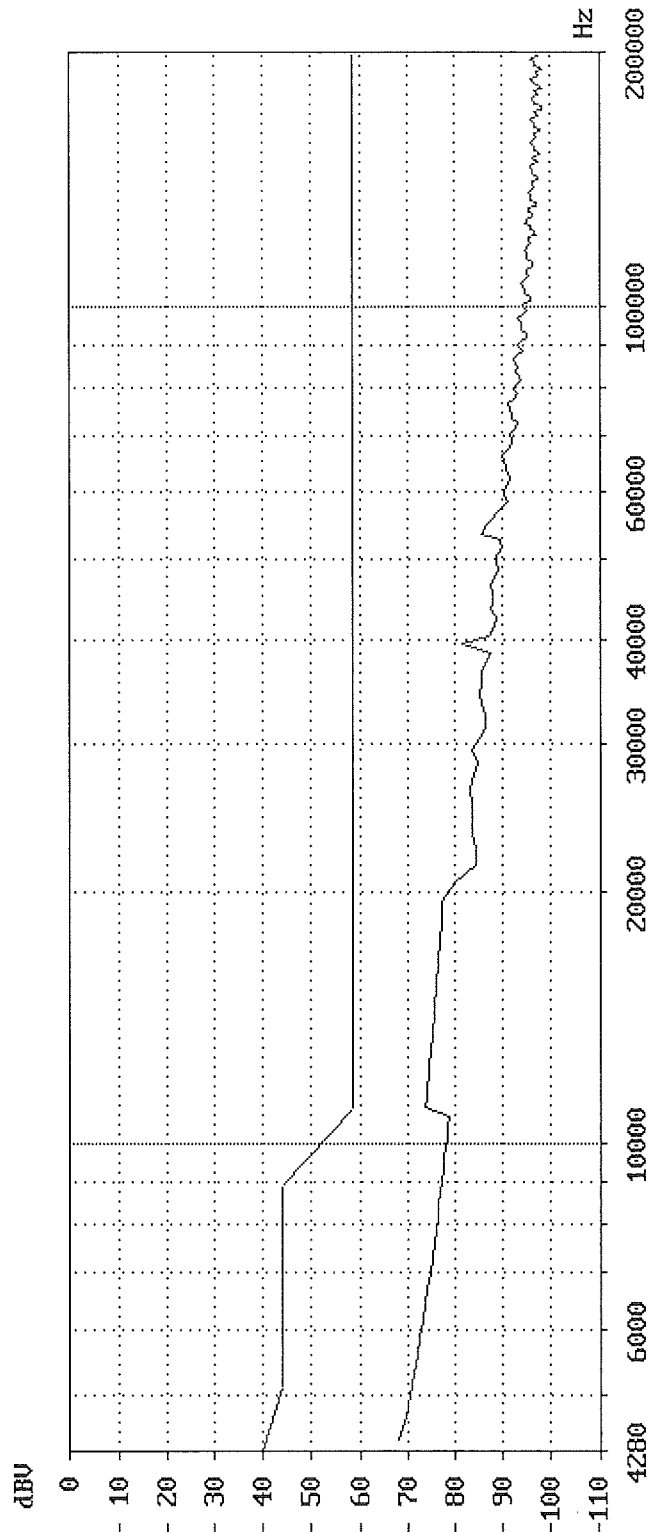
Mask violations: 0



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

Model No.	: FAX System 12	Feeding voltage : 50.0 V	Max. Level : - 73.8 dBu
TEUT	: Facsimile Kit for FAX	Parity : Inverted	at Frequency: 4279 Hz
Number of TEUT:	214067793	Feeding Resistor: 230.0 Ohm	Max. Level : - 67.4 dBu
Manufacturer	: KYOCERA DS Inc.	Feeding Bridge : TBR21	Frequency : 4279 Hz
Date	: 16.12.15	Requirement : The voltage level	Rx impedance: 2r TBR21
Time	: 9:37.53	shall not exceed the limits	
Signal	: V.17 14400bps	Data set	: TBR21-4.7.3.4.2 230 I
Remark	: -		

Mask violations: 0                      Verdict : PASS

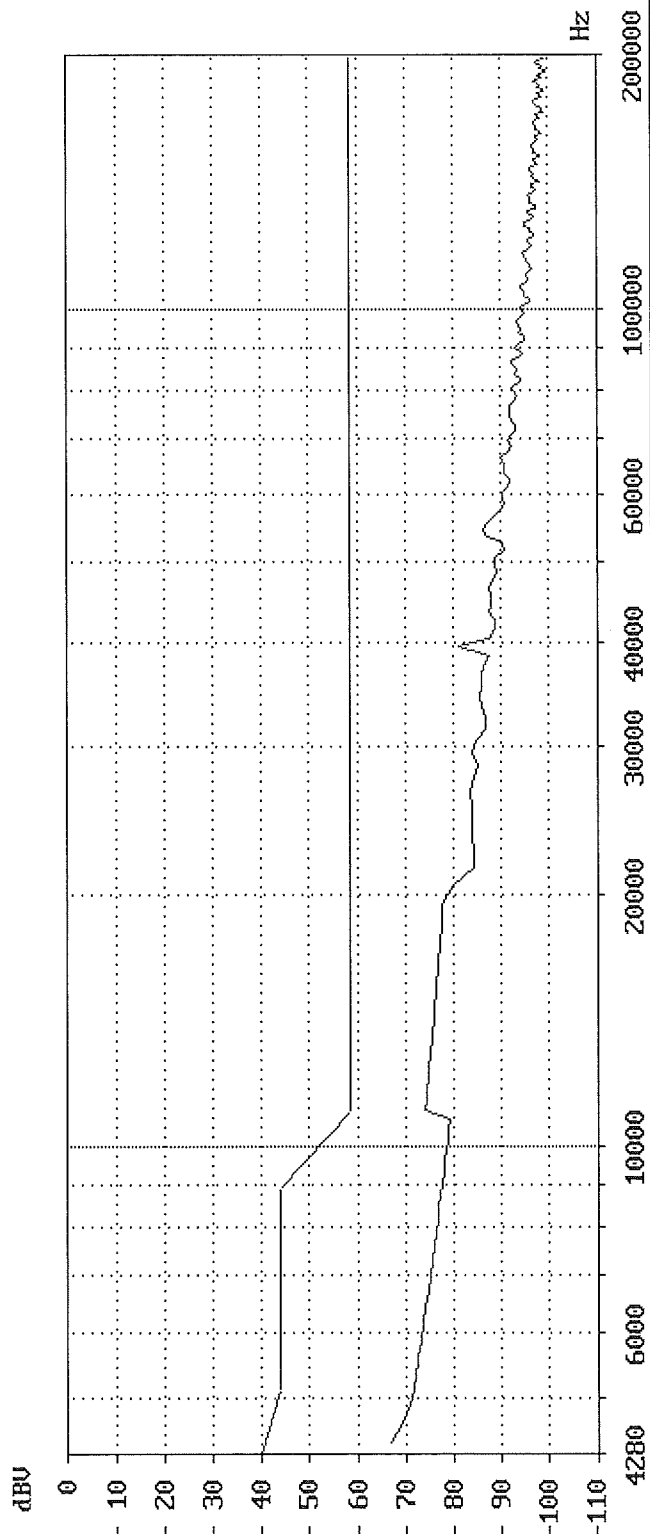


## TBR21 - 4.7.3.4.2 Sending level above 4.3 kHz during communication

Model No. :	FAX System 12	Feeding voltage :	50.0 V	Max. Level :	- 72.0 dBu
TEUT :	Facsimile Kit for FAX	Modulation :	Normal	at Frequency:	4471 Hz
Number of TEUT:	214067793	Feeding Resistor:	3200.0 Ohm	Max. Level :	- 64.3 dBu
Manufacturer :	KYOCERA DS Inc.	Feeding Bridge :	TBR21	Frequency :	4279 Hz
Date :	16.12.15	Requirement :	The voltage level	Rx impedance:	2r TBR21
Time :	10:00.17	shall not exceed the limits			
Signal :	U.29 9600bps	Data set	: TBR21-4.7.3.4.2 3200 N		
Remark :	-				

Verdict : PASS

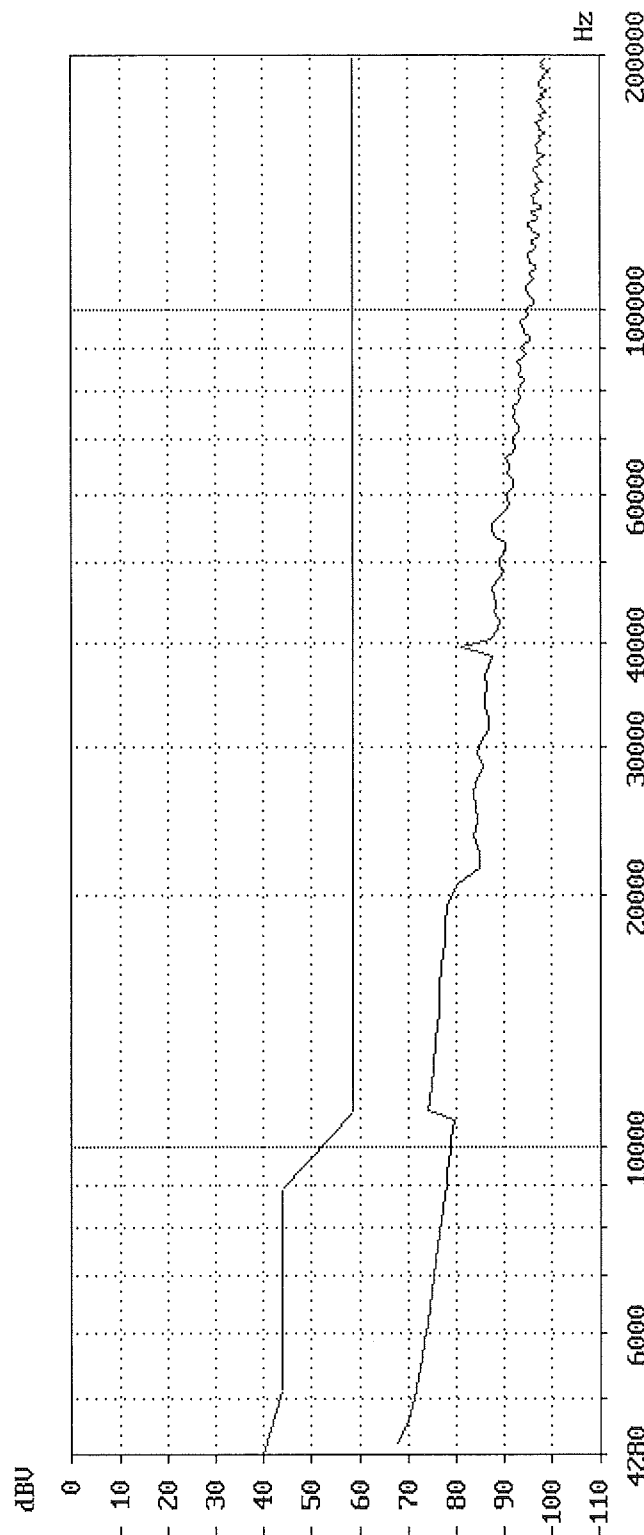
Mask violations: 0



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

Model No. : FAX System 12      Feeding voltage : 50.0 V      Max. Level : - 73.3 dBV  
 TEUT : Facsimile Kit for TBR21      at Frequency: 4423 Hz  
 Number of TEUT: 214067793      Feeding Resistor: 3200.0 Ohm      Max. Level : - 66.4 dBV  
 Manufacturer : KYOCERA DS Inc.      Feeding Bridge : TBR21      Frequency : 4279 Hz  
 Date : 16.12.15      Requirement : The voltage level      Rx impedance: 2r TBR21  
 Time : 10:20.37      shall not exceed the limits  
 Signal : U.27ter 4800bps      Data set : TBR21-4.7.3.4.2 3200 I  
 Remark : -

Mask violations: 0      Verdict : PASS

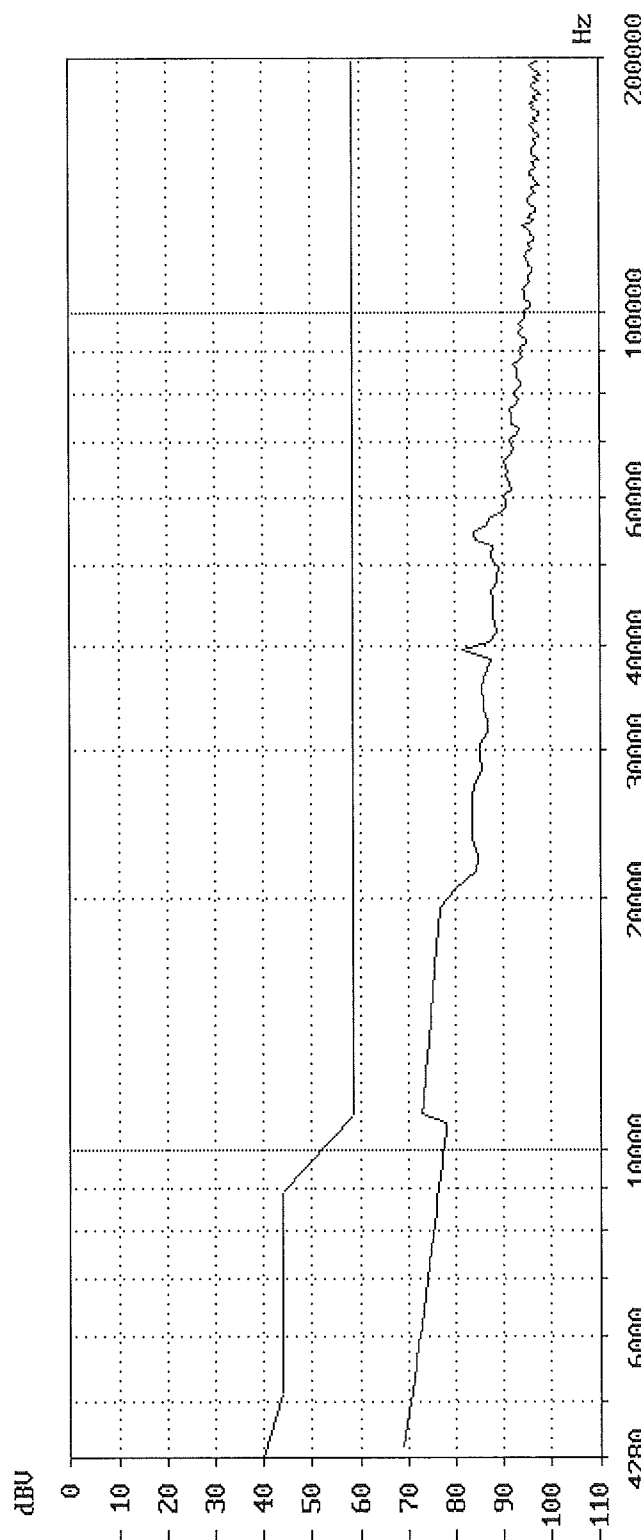


## TBR21 - 4.7.3.4.2 Sending level above 4.3 kHz during communication

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Max. Level	: - 75.0 dBV
TEUT	: Facsimile Kit for Normality			at Frequency:	4279 Hz
Number of TEUT:	214067793	Feeding Resistor:	230.0 Ohm	Max. Level	: - 68.5 dBV
Manufacturer	: KYOCERA DS Inc.	Feeding Bridge	: TBR21	Frequency	: 4279 Hz
Date	: 16.12.15	Requirement	: The voltage level shall not exceed the limits	Rx impedance:	2r TBR21
Time	: 10:52.17				
Signal	: U.21 300bps	Data set	: TBR21-4.7.3.4.2 230 N		
Remark	: -				

Mask violations: 0

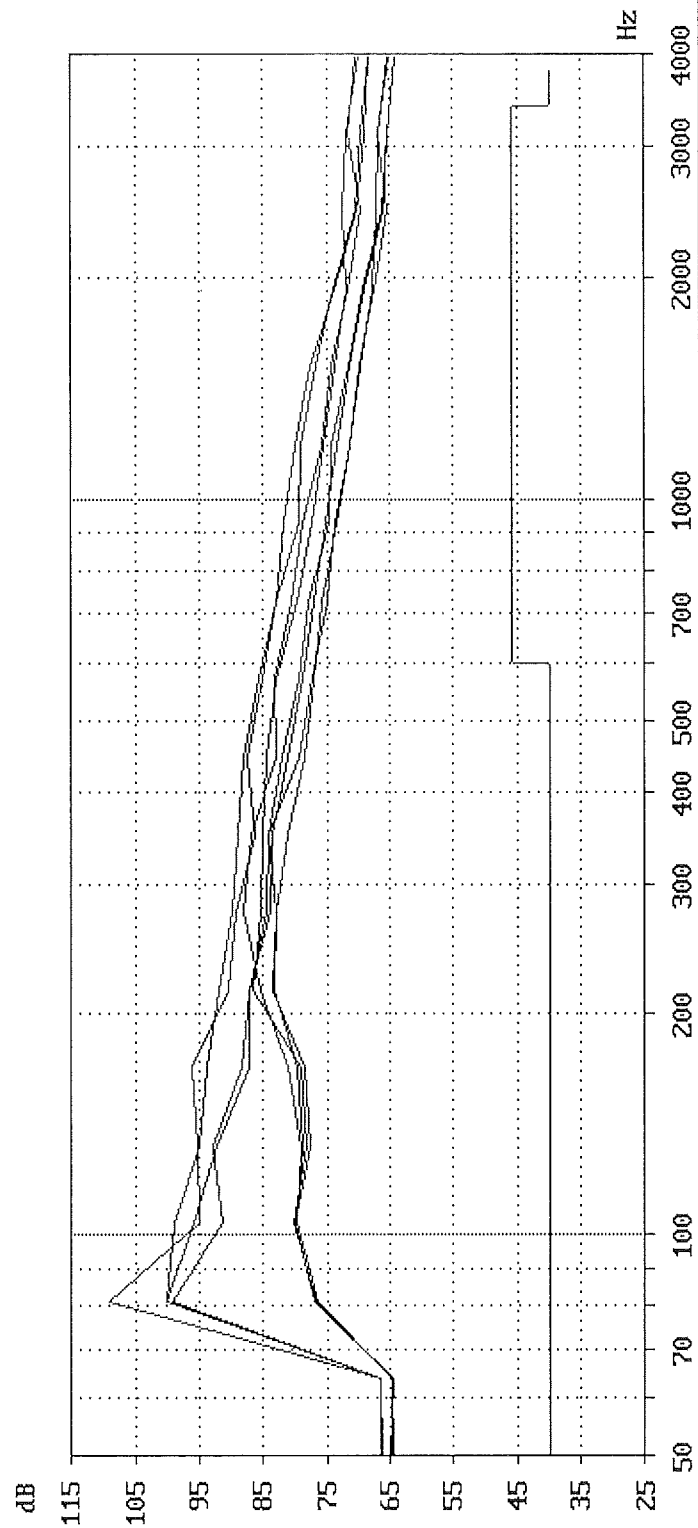
Verdict : PASS





# TBR21 - 4.7.4.1 Longitudinal Conversion Loss in loop state

Comission : 214067793  
 Printing time : 16.12.15 13:19.30  
 Graph 1  
 Graph 2  
 Graph 3  
 Graph 4  
 Graph 5  
 Graph 6  
 Graph 7  
 Graph 8



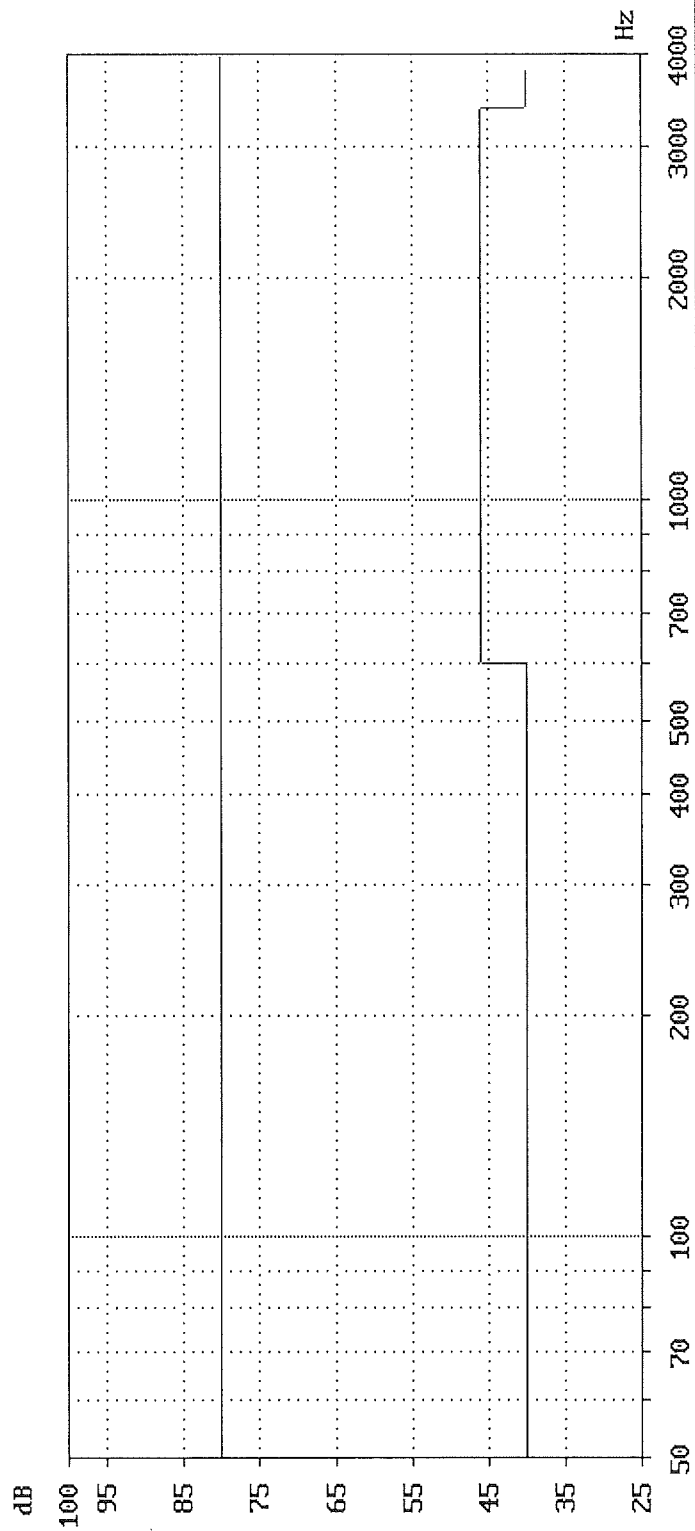
Longitudinal conversion loss Comission : 214067793		Printing time : 16.12.15 13:19.30	
Graph 1		Graph 2	
Model No.	FAX System 12	FAX System 12	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214067793	214067793	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	16.12.15	16.12.15	
Time	13:16.43	13:17.05	
Feeding voltage	50.0 V	50.0 V	
Polarity	Normal	Inverted	
Feeding resistor	230 Ohm	230 Ohm	
Feeding Bridge	TBR21	TBR21	
Data set	TBR21-4.7.4.1	TBR21-4.7.4.1	
Level	+0.0 dB(0.775 V)	+0.0 dB(0.775 V)	
Call setup	outgoing	outgoing	
Verdict	PASS	PASS	
Remark	-	-	
Graph 3		Graph 4	
Model No.	FAX System 12	FAX System 12	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214067793	214067793	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	16.12.15	16.12.15	
Time	13:17.24	13:17.43	
Feeding voltage	50.0 V	50.0 V	
Polarity	Normal	Inverted	
Feeding resistor	850 Ohm	850 Ohm	
Feeding Bridge	TBR21	TBR21	
Data set	TBR21-4.7.4.1	TBR21-4.7.4.1	
Level	+0.0 dB(0.775 V)	+0.0 dB(0.775 V)	
Call setup	outgoing	outgoing	
Verdict	PASS	PASS	
Remark	-	-	
Graph 5		Graph 6	
Model No.	FAX System 12	FAX System 12	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214067793	214067793	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	16.12.15	16.12.15	
Time	13:18.02	13:18.22	
Feeding voltage	50.0 V	50.0 V	
Polarity	Normal	Inverted	
Feeding resistor	2050 Ohm	2050 Ohm	
Feeding Bridge	TBR21	TBR21	
Data set	TBR21-4.7.4.1	TBR21-4.7.4.1	
Level	+0.0 dB(0.775 V)	+0.0 dB(0.775 V)	
Call setup	outgoing	outgoing	
Verdict	PASS	PASS	
Remark	-	-	
Graph 7		Graph 8	
Model No.	FAX System 12	FAX System 12	
TEUT	Facsimile Kit for MFP	Facsimile Kit for MFP	
Number of TEUT	214067793	214067793	
Manufacturer	KYOCERA DS Inc.	KYOCERA DS Inc.	
Date	16.12.15	16.12.15	
Time	13:18.41	13:19.00	
Feeding voltage	50.0 V	50.0 V	
Polarity	Normal	Inverted	
Feeding resistor	3200 Ohm	3200 Ohm	
Feeding Bridge	TBR21	TBR21	
Data set	TBR21-4.7.4.1	TBR21-4.7.4.1	
Level	+0.0 dB(0.775 V)	+0.0 dB(0.775 V)	
Call setup	outgoing	outgoing	
Verdict	PASS	PASS	
Remark	-	-	

## TBR21 - 4.7.4.2 Output Signal Balance

Model No. : FAX System 12	Feeding voltage : 50.0 V	Feeding Bridge: TBR21
TEUT : Facsimile Kit for MUR	Current limitation: 80.0 mA	Mask violation: 0
Number of TEUT: 214067793	Polarity : Normal	Min. level U <sub>0</sub> : -70.0 dBV
Manufacturer : KYOCERA DS Inc.	Feeding resistor : 230.0 Ohm	Call setup : outgoing
Date : 15.12.15	Requirement : The curve of results shall be greater than the limits	
Time : 14:06.44	Data set : TBR21-4.7.4.2 230 N	

Remark : U.34 33600bps

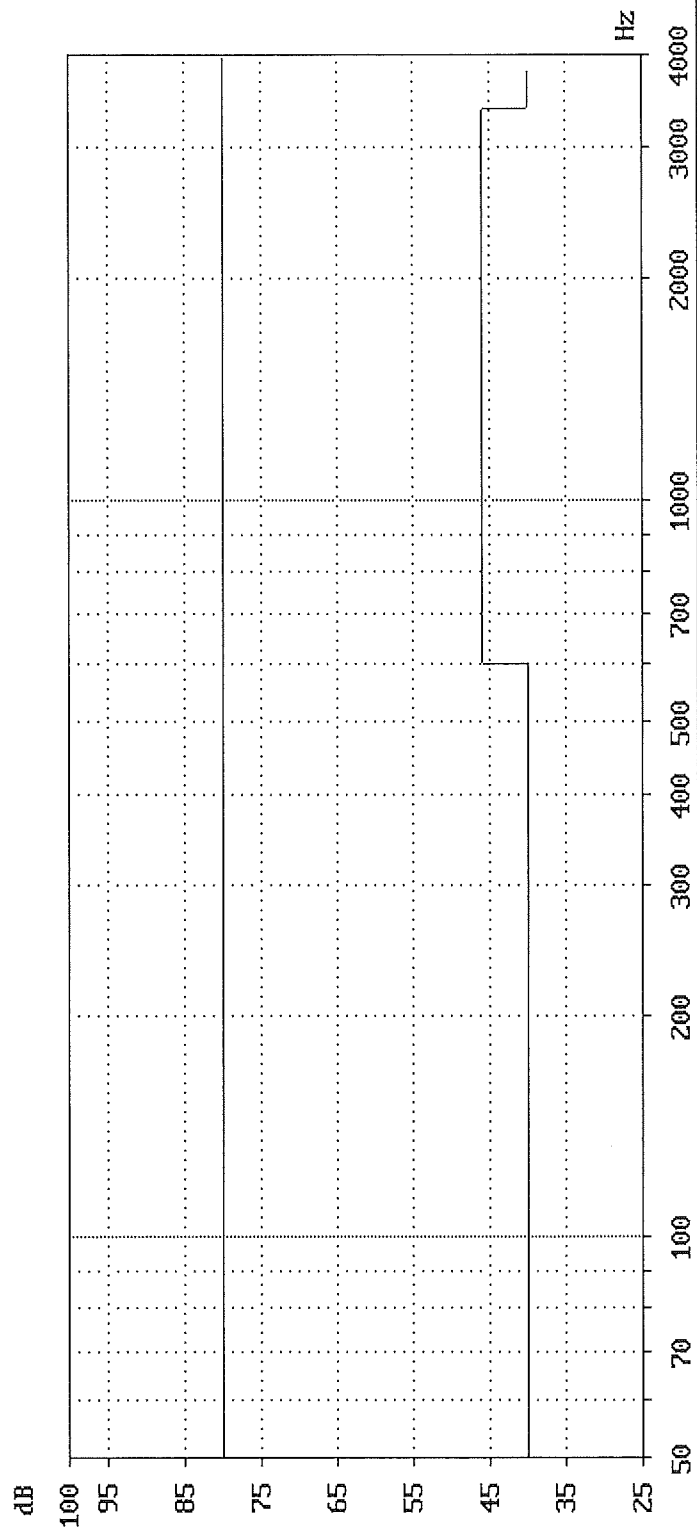
Verdict : PASS



## TBR21 - 4.7.4.2 Output Signal Balance

Model No. : FAX System 12      Feeding voltage : 50.0 V      Feeding Bridge: TBR21  
 TEUT : Facsimile Kit for MURPHY      Mask violation: 0  
 Number of TEUT: 214067793      Polarity : Inverted      Min. level U<sub>0</sub> : -70.0 dBV  
 Manufacturer : KYOCERA DS Inc.      Feeding resistor : 850.0 Ohm      Call setup : outgoing  
 Date : 16.12.15      Requirement : The curve of results  
 Time : 9:41.27      shall be greater than the limits  
 Remark : V.17 14400bps      Data set : TBR21-4.7.4.2 850 I

Verdict : PASS

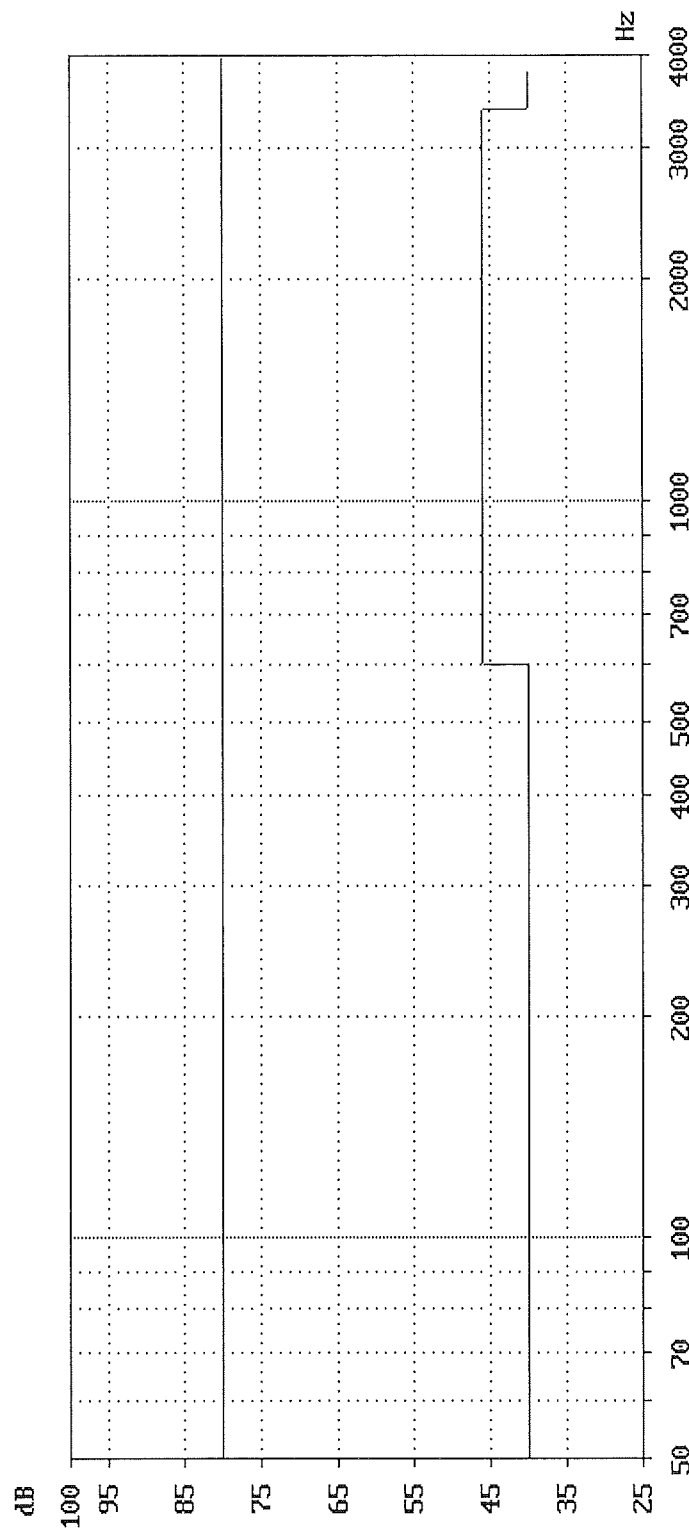


## TBR21 - 4.7.4.2 Output Signal Balance

Model No.	: FAX System 12	Feeding voltage	: 50.0 V	Feeding Bridge:	TBR21
TEUT	: Facsimile Kit for	Current limitation:	80.0 mA	Mask violation:	0
Number of TEUT:	214067793	Polarity	: Normal	Min. level U <sub>0</sub> :	-70.0 dBV
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 2050.0 Ohm	Call setup	: outgoing
Date	: 16.12.15	Requirement	: The curve of results shall be greater than the limits		
Time	: 10:03.04	Data set	: TBR21-4.7.4.2 2050 N		

Remark : U.29 9600bps

Verdict : PASS

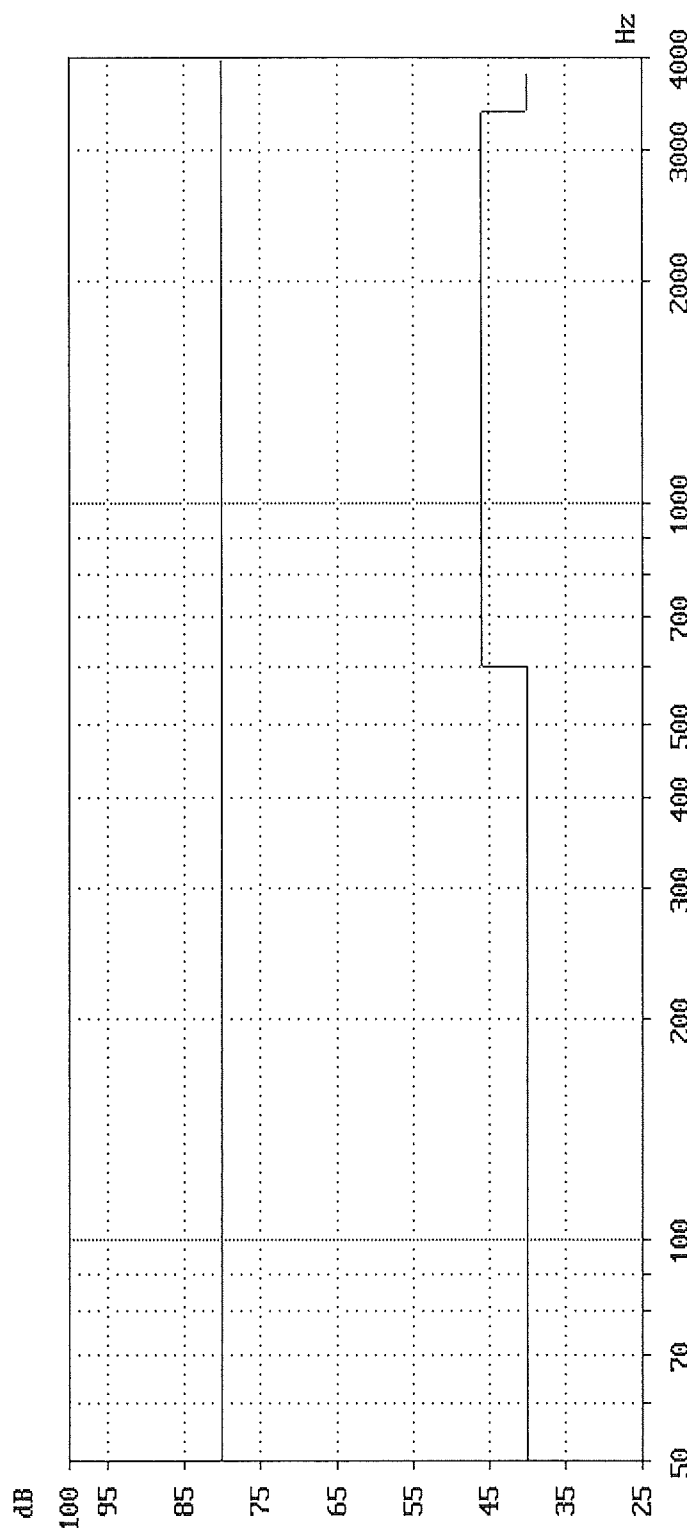


## TBR21 - 4.7.4.2 Output Signal Balance

Model No. :	FAX System 12	Feeding voltage : 50.0 V	Feeding Bridge: TBR21
TEUT :	Facsimile Kit for	Current limitation: 80.0 mA	Mask violation: 0
Number of TEUT: 214067793	Polarity :	Inverted	Min. level Uo : -70.0 dBu
Manufacturer : KYOCERA DS Inc.	Feeding resistor :	3200.0 Ohm	Call setup : outgoing
Date : 16.12.15	Requirement : The curve of results shall be greater than the limits		
Time : 10:41.06	Data set : TBR21-4.7.4.2 3200 I		

Remark : U.27ter 4800bps

Verdict : PASS

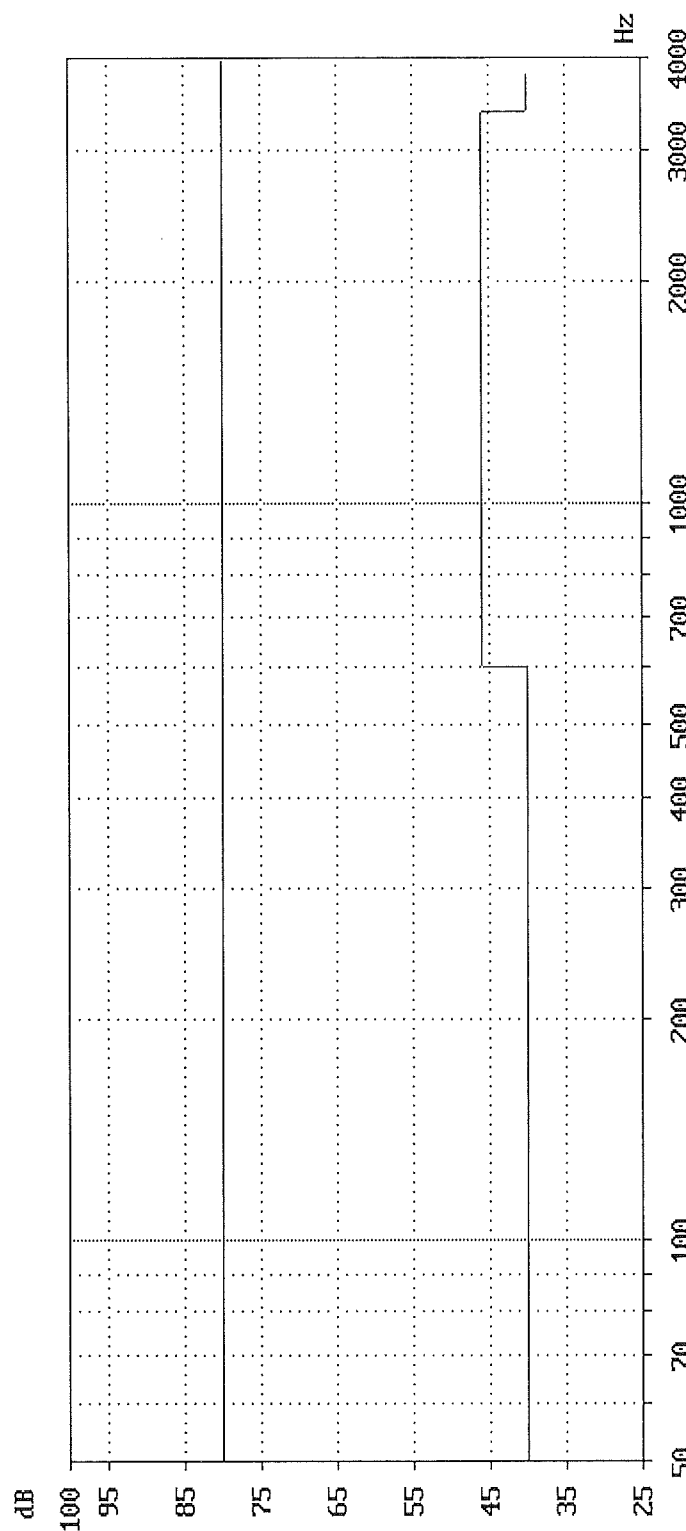


## TBR21 - 4.7.4.2 Output Signal Balance

Model No.	: FAX System 12	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:	214067793	Polarity	: Normal	Min. level Uo	: -70.0 dBU
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 230.0 Ohm	Call setup	: outgoing
Date	: 16.12.15	Requirement	: The curve of results shall be greater than the limits		
Time	: 10:53.44	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 12  
 TEUT : Facsimile Kit for MFP Feeding bridge : TBR21  
 Number of TEUT: 214067793 Current limit. : 60.0 mA  
 Manufacturer : KYOCERA DS Inc.  
 Date : 16.12.15  
 Time : 13:19.56

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 12      Feeding voltage : 50.0 V
TEUT           : Facsimile Kit for MFP  Polarity        : Normal
Number of TEUT : 214067793          Feeding resistor : 850.0 Ohm
Manufacturer   : KYOCERA DS Inc.     Feeding bridge   : TBR21
Date           : 16.12.15            Receiver impedance: Zr TBR21
Time           : 13:24.17            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		4.10	-	123?

# Protocol for Automatic dialling

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

```

Model No.      : FAX System 12      Feeding voltage : 50.0 V
TEUT           : Facsimile Kit for MFP  Polarity        : Normal
Number of TEUT : 214067793          Feeding resistor : 850.0 Ohm
Manufacturer    : KYOCERA DS Inc.    Feeding bridge   : TBR21
Date            : 16.12.15           Receiver impedance: Zr TBR21
Time            : 13:25.33           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	3.73	0.75	123?
300	-35.7	3.84	0.86	123?
500	-35.7	3.70	0.75	123?
500	- 0.7	3.70	0.75	123?

# Protocol for Automatic dialling

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

```

Model No.      : FAX System 12      Feeding voltage : 50.0 V
TEUT           : Facsimile Kit for MFP  Polarity        : Normal
Number of TEUT : 214067793          Feeding resistor : 850.0 Ohm
Manufacturer    : KYOCERA DS Inc.    Feeding bridge   : TBR21
Date            : 16.12.15           Receiver impedance: Zr TBR21
Time            : 13:35.58           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	4.13	1.15	123?
300	-35.7	4.13	1.15	123?
500	-35.7	4.10	1.15	123?
500	- 0.7	4.11	1.16	123?

# Protocol for DTMF Levels and Frequencies Auto

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

```

=====
Model No.      : FAX System 12      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP Current limitation: 80.0 mA
Number of TEUT: 214067793          Polarity          : Normal
Manufacturer   : KYOCERA DS Inc.    Feeding resistor  : 230.0 Ohm
Date           : 16.12.15           Trigger lev./delay: -12.0 dBV 0 msec
Time           : 13:50.40           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	- 10.46	1209.0	+ 0.0	- 8.55	- 6.39	1.91	1
697.0	+ 0.0	- 10.46	1336.0	+ 0.0	- 8.56	- 6.4	1.9	2
697.0	+ 0.0	- 10.46	1477.0	+ 0.0	- 8.63	- 6.44	1.83	3
770.0	+ 0.0	- 10.51	1209.0	+ 0.0	- 8.55	- 6.41	1.96	4
769.9	+ 0.0	- 10.51	1336.0	+ 0.0	- 8.56	- 6.42	1.95	5
769.9	+ 0.0	- 10.51	1477.0	+ 0.0	- 8.63	- 6.46	1.88	6
852.0	+ 0.0	- 10.55	1209.0	+ 0.0	- 8.55	- 6.43	2.0	7
852.0	+ 0.0	- 10.55	1336.0	+ 0.0	- 8.56	- 6.43	1.99	8
852.0	+ 0.0	- 10.55	1477.1	+ 0.0	- 8.63	- 6.47	1.92	9
940.9	+ 0.0	- 10.57	1209.0	+ 0.0	- 8.55	- 6.43	2.02	*
940.9	+ 0.0	- 10.57	1336.0	+ 0.0	- 8.56	- 6.44	2.01	0
940.9	+ 0.0	- 10.57	1477.0	+ 0.0	- 8.63	- 6.48	1.94	#

# Protocol for DTMF Levels and Frequencies Auto

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

```

=====
Model No.      : FAX System 12      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP Current limitation: 80.0 mA
Number of TEUT: 214067793          Polarity          : Inverted
Manufacturer   : KYOCERA DS Inc.    Feeding resistor  : 3200.0 Ohm
Date           : 16.12.15          Trigger lev./delay: -12.0 dBV 0 msec
Time           : 13:53.54          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	- 10.55	1209.0	+ 0.0	- 8.62	- 6.47	1.93	1
697.0	+ 0.0	- 10.55	1336.0	+ 0.0	- 8.63	- 6.47	1.92	2
697.0	+ 0.0	- 10.55	1477.1	+ 0.0	- 8.69	- 6.51	1.86	3
769.9	+ 0.0	- 10.6	1209.0	+ 0.0	- 8.61	- 6.48	1.99	4
769.9	+ 0.0	- 10.59	1336.0	+ 0.0	- 8.63	- 6.49	1.96	5
769.9	+ 0.0	- 10.59	1477.0	+ 0.0	- 8.69	- 6.53	1.9	6
852.0	+ 0.0	- 10.63	1209.0	+ 0.0	- 8.61	- 6.49	2.02	7
852.0	+ 0.0	- 10.63	1336.0	+ 0.0	- 8.62	- 6.5	2.01	8
852.0	+ 0.0	- 10.63	1477.0	+ 0.0	- 8.69	- 6.54	1.94	9
940.9	+ 0.0	- 10.65	1209.0	+ 0.0	- 8.61	- 6.5	2.04	*
940.9	+ 0.0	- 10.65	1336.0	+ 0.0	- 8.62	- 6.51	2.03	0
940.9	+ 0.0	- 10.65	1477.0	+ 0.0	- 8.69	- 6.55	1.96	#

## TBR21 - 4.8.2.3 DTMF-Unwanted frequency components

```

=====
Model No.      : FAX System 12      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP Current limitation: 80.0 mA
Number of TEUT: 214067793          Polarity          : Normal
Manufacturer    : KYOCERA DS Inc.    Feeding resistor  : 230.0 Ohm
Date            : 16.12.15           Trigger lev./delay: -12.0 dBV  40 msec
Time            : 13:58.27           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 12	Feeding voltage	: 50.0 V
TEUT	: Facsimile Kit for MFP	Current limitation:	80.0 mA
Number of TEUT:	214067793	Polarity	: Inverted
Manufacturer	: KYOCERA DS Inc.	Feeding resistor	: 3200.0 Ohm
Date	: 16.12.15	Trigger lev./delay:	-12.0 dBV 40 msec
Time	: 14:07.50	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 : -

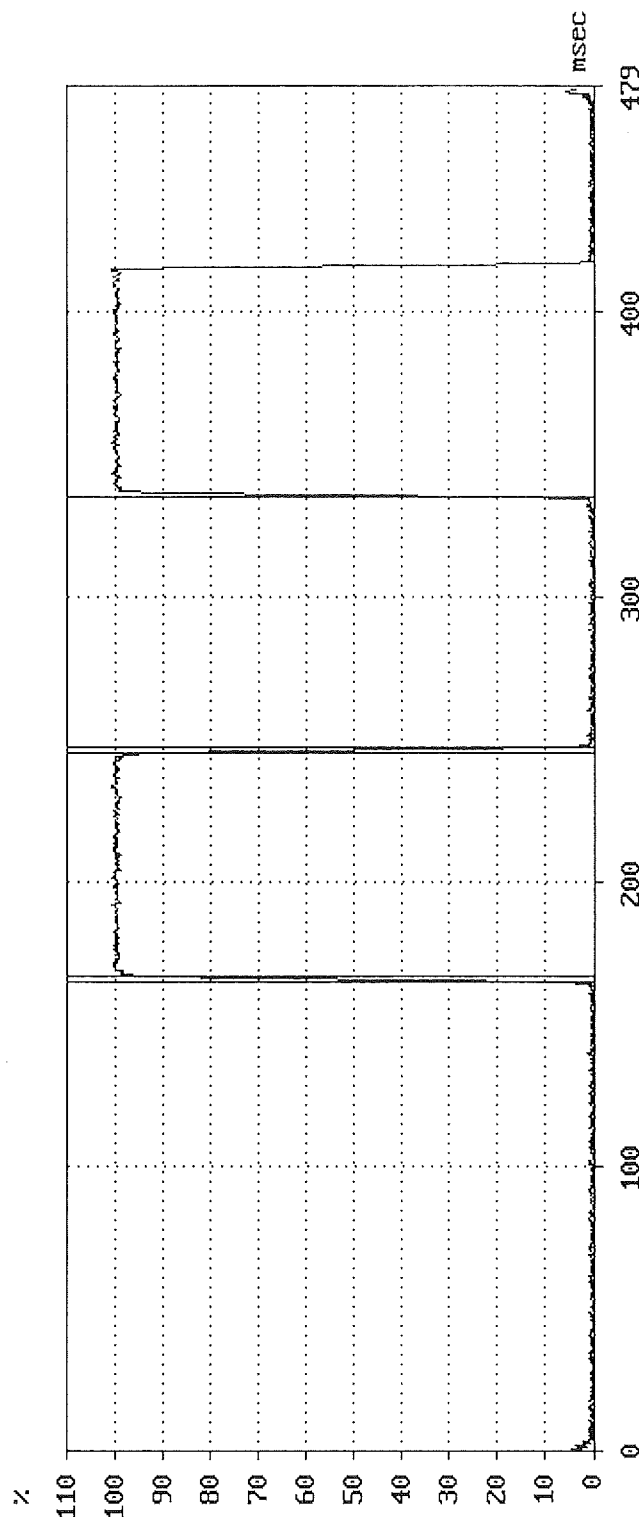
Verdict : PASS

p low dBV	p total dBV	Loss dB	Digit
- 10.5	- 6.6	29 dB	3
- 10.6	- 6.7	29 dB	5
- 10.9	- 6.7	24 dB	7
- 10.7	- 6.7	28 dB	0

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

Model No. : FAX System 12 Feeding voltage : 50.0 V Trigger : OK  
 TEUT : Facsimile Kit for FAX Feeding resistor: 850.0 Ohm Level : -61 dBV  
 Number of TEUT: 214067793 Feeding bridge : TBR21 (of Pause) ( -40.0 dBV )  
 Manufacturer : KYOCERA DS Inc. Requirement: The limits tr : 2 ms ( 99.0 ms )  
 Date : 16.12.15 are given in the brackets tf : 2 ms ( 99.0 ms )  
 Time : 14:10.32 Frequency group : upper tp : 88 ms ( 65.0 ... 6500.0 m  
 Data set : TBR21-4.8.2.4/5 digit 3 ts : 81 ms ( 65.0 ... 9999.0 m  
 Remark : - Rx impedance: Zr TBR21

Verdict : PASS

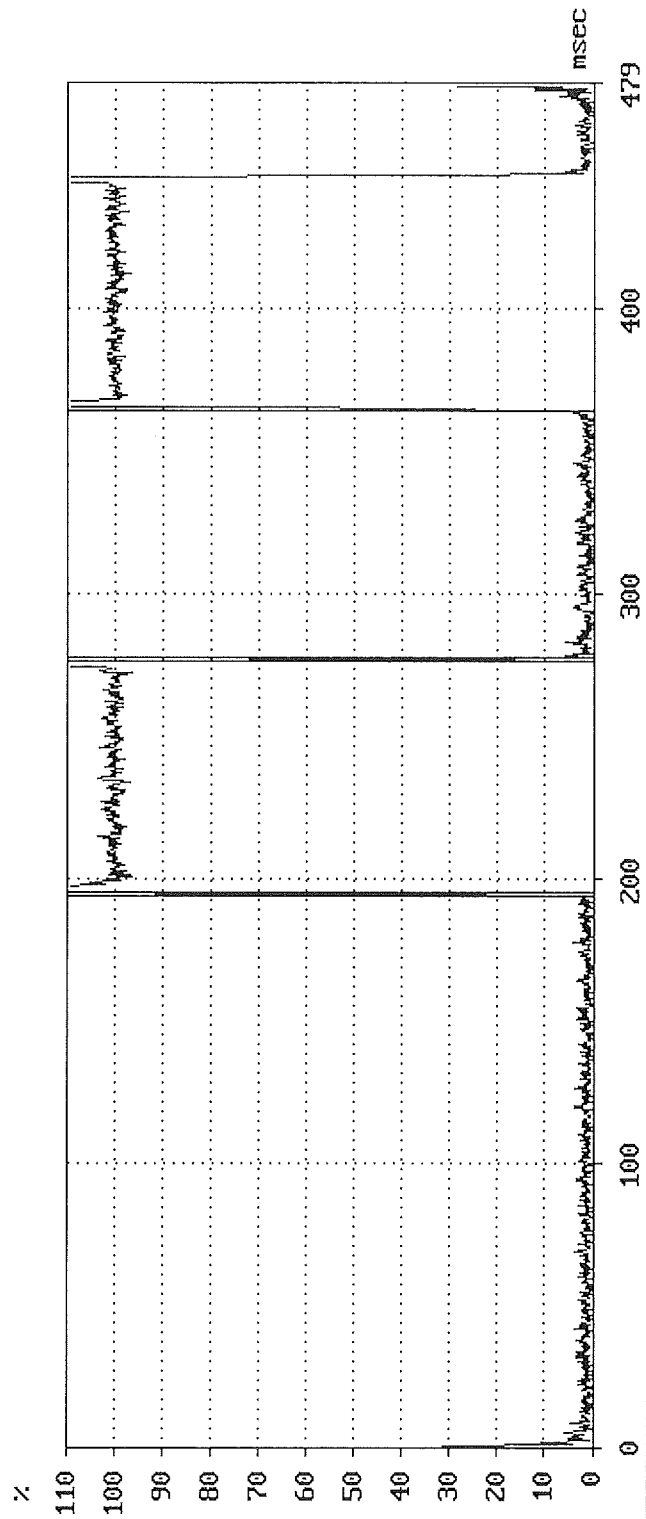




## TBR21 - 4.8.2.4/5 DTMF-Tone and Pause duration

Model No.	: FAX System 12	Feeding voltage : 50.0 V	Trigger	: OK
TEUT	: Facsimile Kit for FAX	Clarity : Normal	Level	: -63 dBV
Number of TEUT:	214067793	Feeding resistor: 850.0 Ohm	(of Pause)	( -40.0 dBV )
Manufacturer	: KYOCERA DS Inc.	Feeding bridge : TBR21	tr :	1 ms ( 99.0 ms )
Date	: 16.12.15	Requirement: The limits	tf :	1 ms ( 99.0 ms )
Time	: 14:13.37	are given in the brackets	tp :	87 ms ( 65.0 ... 6500.0 m
		Frequency group : upper	ts :	82 ms ( 65.0 ... 9999.0 m
Data set	: TBR21-4.8.2.4/5 digit 5			
Remark	: -			

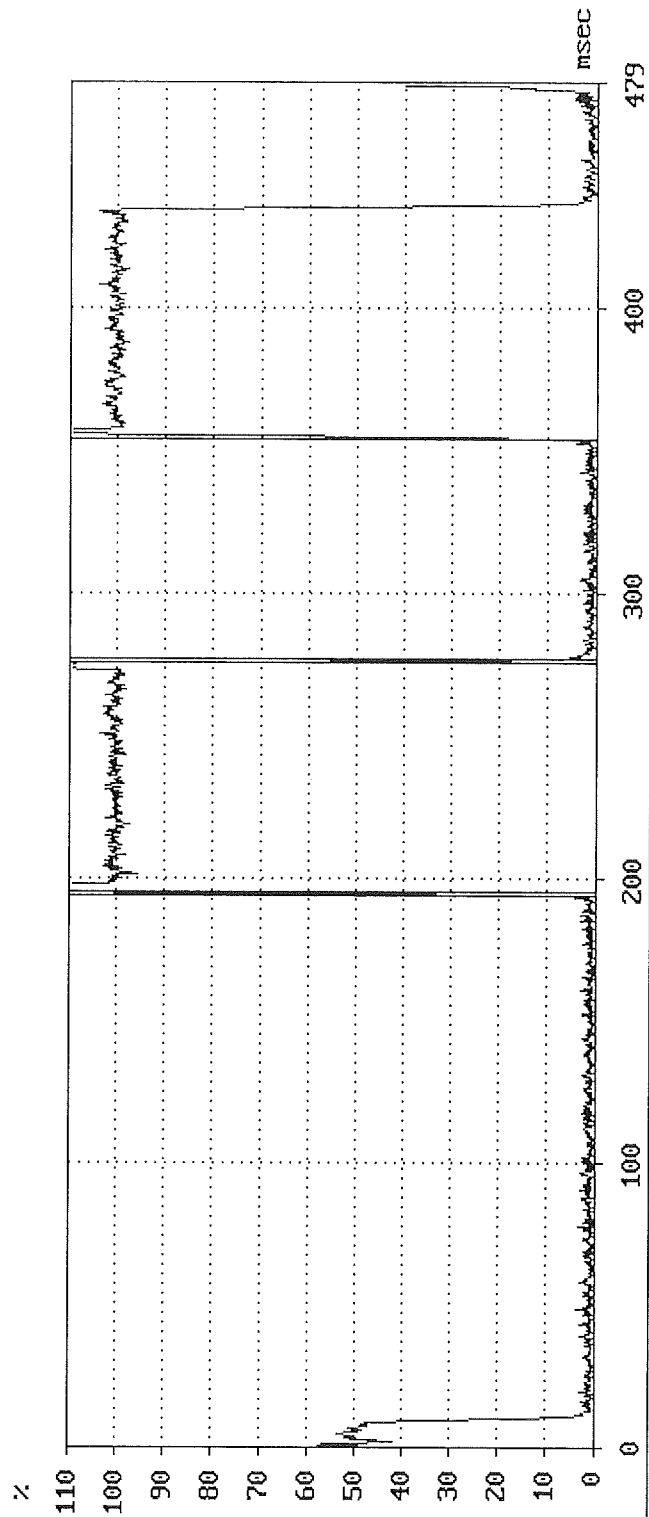
Verdict : PASS



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

Model No. : FAX System 12 Feeding voltage : 50.0 V Trigger : OK  
 TEUT : Facsimile Kit for FAX Parity : Normal Level : -64 dBV  
 Number of TEUT: 214067793 Feeding resistor: 850.0 Ohm (of Pause) ( -30.0 dBV )  
 Manufacturer : KYOCERA DS Inc. Feeding bridge : TBR21 tr : 1 ms ( 99.0 ms )  
 Date : 16.12.15 Requirement: The limits tf : 1 ms ( 99.0 ms )  
 Time : 14:14.52 are given in the brackets tp : 77 ms ( 65.0 ... 6500.0 m  
 Data set : TBR21-4.8.2.4/5 digit 7 ts : 82 ms ( 65.0 ... 9999.0 m  
 Remark : - Rx impedance: Zr TBR21

Verdict : PASS



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

Model No. : FAX System 12	Feeding voltage : 50.0 V	Trigger : OK
TEUT : Facsimile Kit for FAXarity	Normal	Level : -61 dBV
Number of TEUT: 214067793	Feeding resistor: 850.0 Ohm	(of Pause) ( -40.0 dBV )
Manufacturer : KYOCERA DS Inc.	Feeding bridge : TBR21	tr : 1 ms ( 99.0 ms )
Date : 16.12.15	Requirement: The limits	tf : 1 ms ( 99.0 ms )
Time : 14:16.10	are given in the brackets	tp : 87 ms ( 65.0 ... 6500.0 m
	Frequency group : upper	ts : 82 ms ( 65.0 ... 9999.0 m
Data set : TBR21-4.8.2.4/5 digit 0		Rx impedance: 2r TBR21
Remark : -		

**Verdict : PASS**

# Protocol for Automatically repeated call attempts

## TBR21 - 4.8.3 Automatically repeated call attempts

```

=====
Model No.      : FAX System 12      Feeding voltage   : 50.0 V
TEUT           : Facsimile Kit for MFP  Polarity          : Normal
Number of TEUT : 214067793          Feeding resistor  : 850.0 Ohm
Manufacturer    : KYOCERA DS Inc.    Feeding bridge    : TBR21
Date            : 16.12.15           Receiver impedance: Zr TBR21
Time            : 14:19.04           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

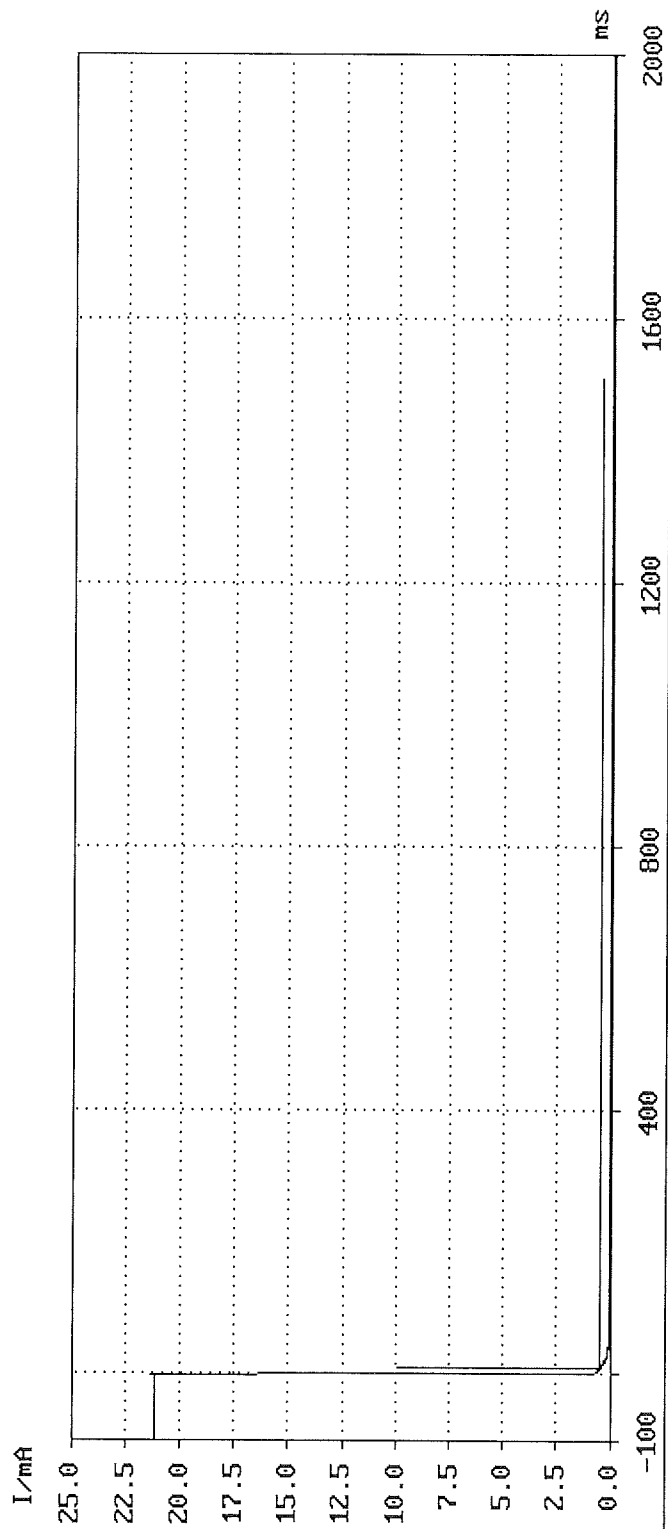
Call No.	Call expected	Call received	Network tone	Limit [s]	Condition established	tq [s]
1	1	1?	BusyTone	0	Quiescent	12.05
2	1	1?	BusyTone	5	Quiescent	123.00
3	1	1?	BusyTone	5	Quiescent	123.00
4	1	1?	BusyTone	5	Quiescent	124.05
5	1	1?	BusyTone	5	Quiescent	123.05
6	1	1?	BusyTone	5	Quiescent	123.05
7	1	1?	BusyTone	5	Quiescent	122.95
8	1	1?	BusyTone	5	Quiescent	123.05
9	1	1?	BusyTone	5	Quiescent	123.05
10	1	1?	BusyTone	5	Quiescent	123.05
11	1	1?	BusyTone	5	Quiescent	122.95
12	1	1?	BusyTone	5	Quiescent	122.95
13	1	1?	BusyTone	5	Quiescent	123.10
14	1	1?	BusyTone	5	Quiescent	122.95
15	1	1?	BusyTone	5	Quiescent	122.95
16	1					*Abort

## TBR21 - 4.9 Transition from loop to quiescent state

Model No. : FAX System 12	Feeding voltage : 50.0 V	Trigger : OK
TEUT : Facsimile Kit for FAX	Parity : Normal	I [mA]: 10.0
Number of TEUT: 214067793	Drop resistor : 2050.0 Ohm	Event : 1. neg. Edge
Manufacturer : KYOCERA DS Inc.		Delay [ms]: - 100
Date : 16.12.15	Requirement : The current shall drop not later than 20 ms	Sample [ms]: 0.2
Time : 14:56.52	Data set : TBR21-4.9	
Remark : -		

Verdict : PASS

Transient times : 0.0 ms



---

**Prüfbericht - Nr.:**

**50035644 001**

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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
RX resolution .....	Max. 600 x 600 dpi
Gradations .....	256 shades (Error diffusion)
Multi-Station transmission .....	Max. 100 destinations
Image memory capacity .....	16 MB (standard) (for incoming faxed originals)
Report output .....	Sent result report, FAX RX result report, Activity report, Status page

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**Anlage C**  
Appendix C

**Schaltpläne**  
Circuit diagrams





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**Prüfbericht - Nr.:**

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*Test Report No.:*

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**Anlage D**  
Appendix D

**Fotos**  
Photographs

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Host Front View



Host Rear View

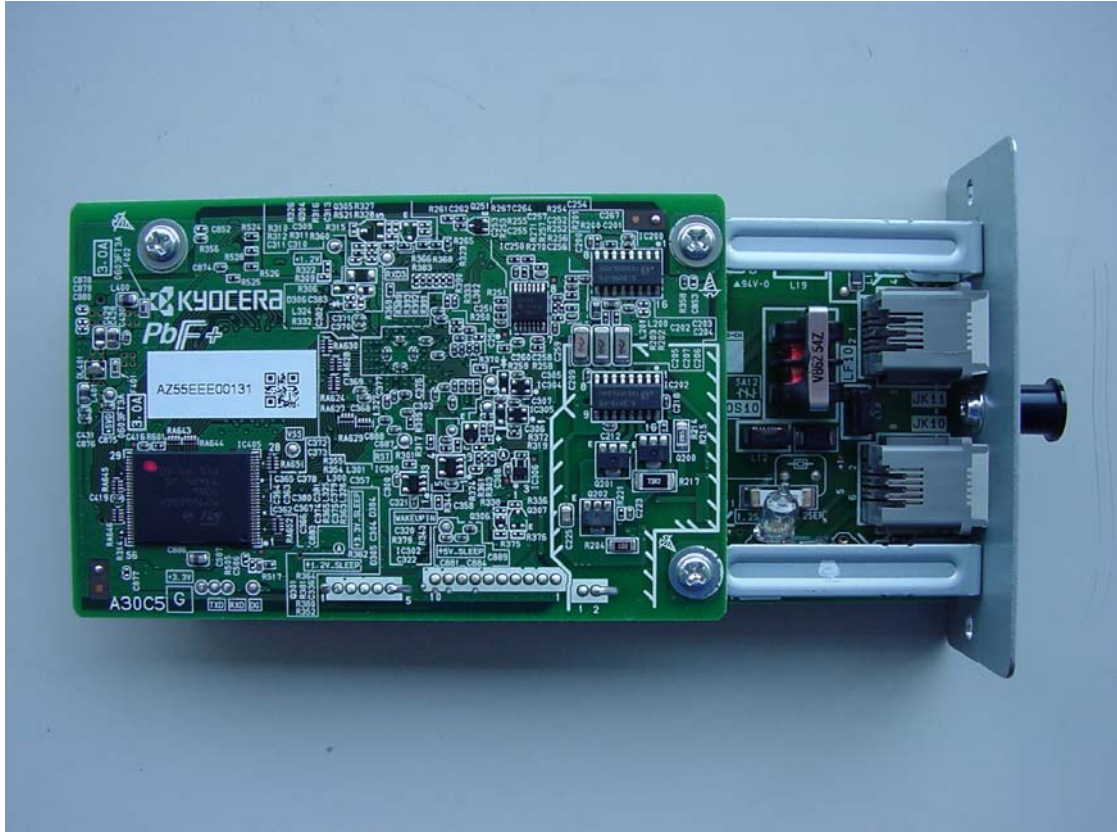


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Test Report No.:

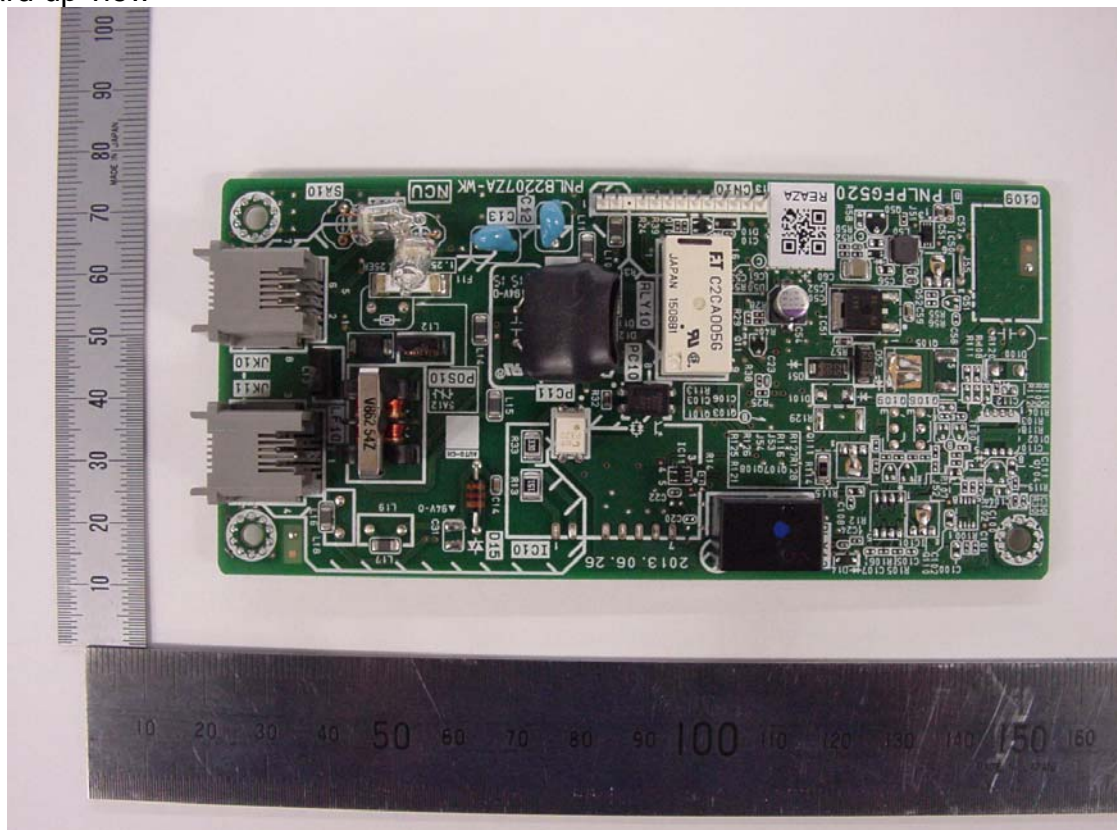
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FAX Kit View



NCU board up view



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NCU board back view

