



TEST REPORT

REPORT NUMBER : ANKK-804016

APPLICANT : DBTEL Inc.

MODEL NUMBER : DB-6645

REGULATION : FCC Part68

**Akzo Nobel K. K.
EMC Division
Kashima Site**

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SECTION 1. TEST CERTIFICATION**APPLICANT INFORMATION**

Company : DBTEL Inc.
Address : No.29, Tzu Chiang Street, Tu-Cheng, Taipei, Taiwan, R.O.C.
Telephone number : +886 2 8227 2270 ext 5335
Fax number : +886 2 8227 2271

DESCRIPTION OF TEST ITEM

Kind of equipment : Wireless IP Phone
Condition of equipment : Pre-production
Type : Handheld type
Trademark : DBTEL
Model number : DB-6645
Serial number : None

TEST PERFORMED

Location : Telecom Testing Room
EUT Received : March 24, 2004
Test started : March 24, 2004
Test completed : March 24, 2004
Regulation : FCC Part68
Test procedure : FCC Part68 Test Procedure Revision 6
Akzo Nobel Document number : 03-10-801 / Feb 8, 2002

TEST CONDITION

Temperature : 21.0 to 23.5
Humidity : 45 % to 52 %
Atmospheric : 101.0 kPa to 102.0 kPa
Voltage : DC 3.7 V
Frequency : None

- * This equipment complies with above standard or regulation under the test condition or test configuration shown on this test report.
- * Traceability to national or international standards of test result is achieved by means of calibration traceability to national or international standards.
- * The test result of this report is effective for equipment under test itself and under the test configuration described on the report.
- * This test report does not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.
- * This test report shall not be reproduced except in full, without issuer's permission.

Report issue date : April 5, 2004

Test engineer : Kazuo Gokita



Report approved by : Takaaki Inagaki



SECTION 2. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1. This equipment is a Wireless IP Phone that provides following function and interface.

* Wireless IP Phone

Wireless interface: IEEE 802.11b

Voice codec: G.711, G.729a

Signaling protocol: SIP(RFC 3261) +Expanded proprietary protocol

Encryption protocol: WEP(64bit/128bit), WPA

Phonebook

Mechanical specification

Size: 46 mm(W) x 126 mm(D) x 25 mm(H)

Mass: 123 g (include battery)

2 OPERATING CONDITION

2.1 Operating condition

Test and measurement were carried out under following condition.

(1) On-hook

EUT has following On-hook condition;

None

(2) Off-hook

EUT has following Off-hook condition;

Power On: Standby (No signal and speech send)

3. LOOP VOLTAGE AND LOOP CURRENT

DC Feed Voltage : 42.5 V or 56.5 V normal and reverse polarity

Loop Current : 24.8 mA (Min) to 99.5 mA (Max)

SECTION 3. SUMMARY OF TEST RESULTS**Electrical Tests**

Test Number	FCC Part 68 Section	Test description	Result
1	-	Method of Loop Current Calculation	Complied
2	68.312(d)-(f)	Ringer Equivalence Number (REN)	Not Applicable
3	68.314(a),(b)	On-hook Signal Call Duration and Requirements	Not Applicable
4	68.308(d)(e)(2)	Longitudinal Voltage - 0.1kHz to 6MHz	Not Applicable
5	68.308(b)(1)	Voiceband Metallic Signal Power	Not Applicable
6	68.308(b)(2)	Voiceband Signal Power - Network Control Signals	Not Applicable
7	68.308(b)(4)	Voiceband Signal Power - Data	Not Applicable
8	68.308(b)(5)(c)(2)	Through Transmission	Not Applicable
9	68.308(c)(1)	Signal Power 3995Hz - 4005Hz	Not Applicable
10	68.308(e)(1)	Metallic Voltage - 4kHz to 6MHz	Not Applicable
11	68.314(c)	Loop Current Requirements	Not Applicable
12	68.314(d)(1)	Signaling Interference	Not Applicable
13	68.310(b)	Transverse Balance	Not Applicable
14	68.312(b)(1)(b)(2),(b)(3)	DC Resistance and DC Current During Ringing	Not Applicable
15	68.312(b)(4)(b)(5)	AC Impedance During Ringing	Not Applicable
16	68.318 (b)	Automatic Dialing	Not Applicable
17	68.318 (d)	FAX Branding	Not Applicable
18	68.316	Hearing Aid Compatibility	Complied
19	68.317	Hearing Aid Compatibility Volume Control	Complied
20	68.306(a)	Hazardous Voltage Limitations - General	Not Applicable
21	68.306(b)	Connection of Non-Registered Equipment to Registered Terminal Equipment or Registered Protective Circuitry	Not Applicable
22	68.306(c)	Non-Hazardous Voltage Source	Not Applicable
23	68.304	Leakage Current Limitations	Not Applicable
24	68.306(e)	Intentional Paths to Ground	Not Applicable

Environmental Tests

Test Number	FCC Part 68 Section	Test description	Result
25	68.302(a)	Mechanical Shock	Not Applicable
26	68.302(c)(1)	Telephone Line Surge - Type B, Metallic	Not Applicable
27	68.302(c)(2)	Telephone Line Surge - Type B, Longitudinal	Not Applicable
28	68.302(b)(1)	Telephone Line Surge - Type A, Metallic	Not Applicable
29	68.302(b)(2)	Telephone Line Surge - Type A, Longitudinal	Not Applicable
30	68.302(d)(1)	Power Line Surge	Not Applicable

SECTION 4. TEST PLAN

All tests necessary to show compliance to the requirements of subpart D were performed both before and after the environmental conditioning stresses of Section 68.302.

Reference Documents

CFR 47 [October 1999]	Code of Federal Regulations Part 68 - Connection of Terminal Equipment to The Telephone Network Subpart D - Conditions for Registration
TSB31-B [February 1998]	Part 68 Rationale and Measurement Guidelines

SECTION 5. EQUIPMENT EVALUTION

TEST No. 1 : Method of Loop Current Calculation

Supply Voltage (V)	Setting Current Value (mA)	EUT Loop Current (mA)	
42.5	24.4	I1	24.8
56.5	141.2	I2	99.5

TEST No. 18 : Hearing Aid Compatibility (FCC Part 68.316)**(1) Axial Field Intensity at 1kHz;**

Frequency (Hz)	Output Level	Probe Coil Factor (dBA/m/V)	Calculated Level (dBA/m)	Limit (dB)	Result
	Measured Level (dBV)				
1kHz	-73.9	-61.3	-12.6	> -22.0	Pass

(2) Radial Field Intensity at 1kHz;

Radial Position (degrees)	Output Level	Probe Coil Factor (dBA/m/V)	Calculated Level (dBA/m)	Limit (dB)	Result
	Measured Level (dBV)				
0	-82.7	-61.3	-21.4	> -27.0	Pass
90	-82.9		-21.6		
180	-83.0		-21.7		
270	-83.1		-21.8		

(3) Magnetic Field Intensity Frequency Response;

Refer to next page				Result
				Pass

Comment : Volume Minimum**(1) Axial Field Intensity at 1kHz;**

Frequency (Hz)	Output Level	Probe Coil Factor (dBA/m/V)	Calculated Level (dBA/m)	Limit (dB)	Result
	Measured Level (dBV)				
1kHz	-58.6	-61.3	2.7	> -22.0	Pass

(2) Radial Field Intensity at 1kHz;

Radial Position (degrees)	Output Level	Probe Coil Factor (dBA/m/V)	Calculated Level (dBA/m)	Limit (dB)	Result
	Measured Level (mV)				
0	-68.3	-61.3	-7.0	> -27.0	Pass
90	-68.4		-7.1		
180	-67.3		-6.0		
270	68.0		-6.7		

(3) Magnetic Field Intensity Frequency Response;

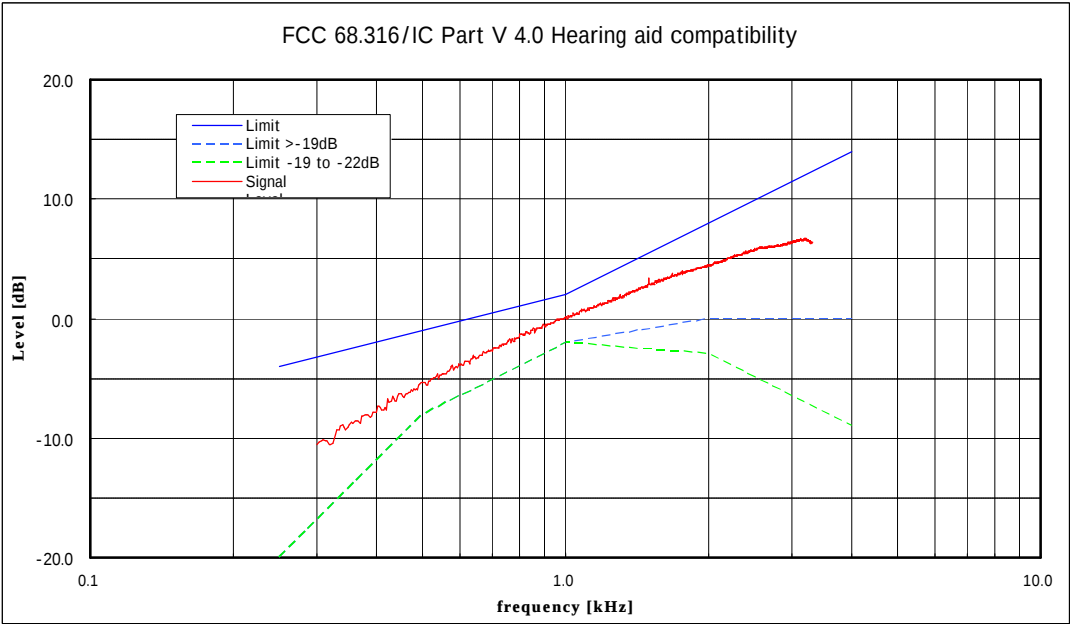
Refer to next page				Result
				Pass

Comment : Volume Maximum

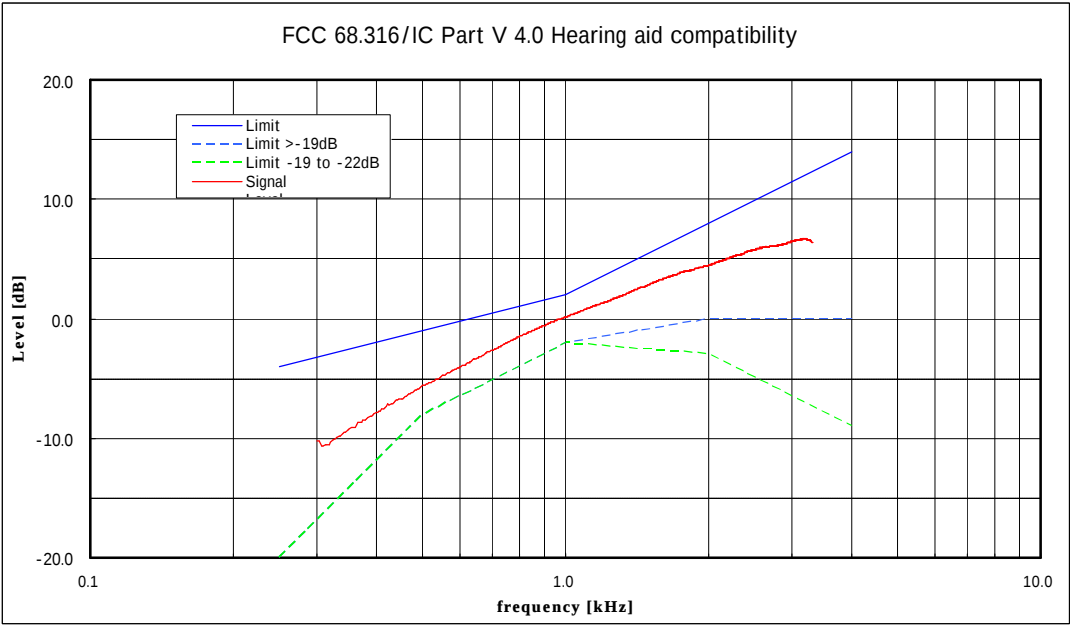
(Continued by TEST No. 18)

Magnetic Field Intensity Frequency Response

Test Condition : Vol. Min.



Test Condition : Vol. Max.



TEST No. 19 : Hearing Aid Compatibility Volume Control (FCC Part 68.317)

Test point		Loop Condition (km)	Measured Level (dB)	Limit (dB)	Result
	Min. receiver level (Gain -54dB)	0	47.18	41 to 51	Pass
		2.7	50.24	43 to 53	
		4.6	51.41	45 to 55	
	Max. receiver level (Gain -24dB)	0	32.07	N.A.	
		2.7	35.00		
		4.6	36.10		
-	Gain	0	15.11	12 to 18	
		2.7	15.24		
		4.6	15.31		

Comment : Loop Current :Min.

Test point		Loop Condition (km)	Measured Level (dB)	Limit (dB)	Result
	Min. receiver level (Gain -54dB)	0	47.17	41 to 51	Pass
		2.7	50.17	43 to 53	
		4.6	51.19	45 to 55	
	Max. receiver level (Gain -24dB)	0	32.00	N.A.	
		2.7	34.97		
		4.6	35.96		
-	Gain	0	15.17	12 to 18	
		2.7	15.20		
		4.6	15.23		

Comment : Loop Current :Max.

SECTION 6. UNCERTAINTY OF MEASUREMENT

Uncertainty of measurement

The measurement accuracy within 95% confidential level is not estimated beyond the following value.

Test Number	FCC Part 68 Section	Test description	Uncertainty
1	-	Method of Loop Current Calculation	$\pm 1.5\%$
2	68.312(d)-(f)	Ringer Equivalence Number (REN)	$\pm 1.5\%$
3	68.314(a),(b)	On-hook Signal Call Duration and Requirements	$\pm 1.0\text{dB}$
4	68.308(d),(e)(2)	Longitudinal Voltage - 0.1kHz to 6MHz	$\pm 6.0\%$
5	68.308(b)(1)	Voiceband Metallic Signal Power	$\pm 1.0\text{dB}$
6	68.308(b)(2)	Voiceband Signal Power - Network Control Signals	$\pm 3.0\%$
7	68.308(b)(4)	Voiceband Signal Power - Data	$\pm 1.0\text{dB}$
8	68.308(b)(5),(c)(2)	Through Transmission	$\pm 6.0\%$
9	68.308(c)(1)	Signal Power 3995Hz - 4005Hz	$\pm 1.5\%$
10	68.308(e)(1)	Metallic Voltage - 4kHz to 6MHz	$\pm 6.0\%$
11	68.314(c)	Loop Current Requirements	$\pm 1.2\%$
12	68.314(d)(1)	Signaling Interference	$\pm 1.0\text{dB}$
13	68.310(b)	Transverse Balance	$\pm 0.5\text{dB}$
14	68.312(b)(1),(b)(2),(b)(3)	DC Resistance and DC Current During Ringing	$\pm 1.5\%$
15	68.312(b)(4),(b)(5)	AC Impedance During Ringing	$\pm 1.5\%$
16	68.318 (b)	Automatic Dialing	Not Applicable
17	68.318 (d)	FAX Branding	Not Applicable
18	68.316	Hearing Aid Compatibility	$\pm 1.5\%$
19	68.317	Hearing Aid Compatibility Volume Control	$\pm 0.16\text{dB}$
20	68.306(a)	Hazardous Voltage Limitations - General	$\pm 1.5\%$
21	68.306(b)	Connection of Non-Registered Equipment to Registered Terminal Equipment or Registered Protective Circuitry	Not Applicable
22	68.306(c)	Non-Hazardous Voltage Source	$\pm 1.5\%$
23	68.304	Leakage Current Limitations	$\pm 1.5\%$
24	68.306(e)	Intentional Paths to Ground	$\pm 1.5\%$
25	68.302(a)	Mechanical Shock	Not Applicable
26	68.302(c)(1)	Telephone Line Surge - Type B, Metallic	Not Applicable
27	68.302(c)(2)	Telephone Line Surge - Type B, Longitudinal	Not Applicable
28	68.302(b)(1)	Telephone Line Surge - Type A, Metallic	Not Applicable
29	68.302(b)(2)	Telephone Line Surge - Type A, Longitudinal	Not Applicable
30	68.302(d)(1)	Power Line Surge	Not Applicable

SECTION 7. INSTRUMENTS USED FOR TEST

Instrument	Model No.	Serial No.	Manufacture	Last cal. Date	Period
MICROPHONE	4133	2050113	B&K	Dec. 03	1 year
ARTIFICIAL LINE	T240	None(TT001)	WILCOM	Nov. 03	1 year
ARTIFICIAL LINE	T240	None(TT001)	WILCOM	Nov. 03	1 year.
ARTIFICIAL LINE	3000Ft	None(TT004)	WILCOM	Nov. 03	1 year
ARTIFICIAL LINE	6000Ft	None(TT006)	WILCOM	Nov. 03	1 year
ARTIFICIAL LINE	6000Ft	None(TT008)	WILCOM	Nov. 03	1 year
REGULATED DC POWER SUPPLY	PAN250-2.5A	FG000122	KIKUSUI	N.A.	N.A.
TERMINATOR	600-3	None(TT041)	AKZO	Mar. 04	1 year
2 Channel Power Amplifier	WP-1100	510186	PANASONIC	N.A.	N.A.
PC	TTE-FCC	None(TT045)	AKZO	Jan. 04	1 year
MULTIMETER	34401A	3146A08906	HEWLETT PACKARD	Apr. 03	1 year
SPECTRUM ANALYZER	3585A	1750A07394	HEWLETT PACKARD	Oct. 03	1 year
HEARING AID DC FEED	HPA-100	YT0999910	COMPLIANCE DESIGN	Nov. 03	1 year
HEARING AID PROBE	HPA-100 SERIES	12188	COMPLIANCE DESIGN	Nov. 03	1 year
MEASURING AMPLIFIER	2636	1369339	B&K	Feb. 04	1 year
TELEPHONE TEST HEAD	4095	1427550	B&K	N.A.	N.A.
MEASURING AMPLIFIER	2636	1537607	B&K	Feb. 04	1 year
MEASURING AMPLIFIER	2636	1537605	B&K	Feb. 04	1 year
TELEPHONE INTERFACE	5906/WH2517	1550246	B&K	Feb. 04	1 year
MOUTH SIMULATOR	4227	1567023	B&K	N.A.	N.A.
SOUND LEVEL CALIBRATOR	4230	1577016	B&K	Dec. 03	1 year
DC FEEDING BRIDGE	FB-120	90015	EXCEL	Apr. 03	1 year
MICROPHONE PRE-AMPLIFIER	2639	1583906	B&K	N.A.	N.A.
RING TRANSFORMER	X-2.7S	YT0999988	HIRATA ELECTRIC ENG.	Feb. 04	1 year
MULTIMETER	34401A	3146A74566	HEWLETT PACKARD	Feb. 04	1 year
PC	8550-061	23-7697504	IBM	N.A.	N.A.
ATTENUATOR	CFA-01	None (AQA181026)	TAMAGAWA	Mar. 04	1 year

Note : Test instruments are calibrated according to Quality Manual and Calibration Rule of EMC division.