

CETECOM ICT Services GmbH

Radio Satellite Communication

Untertürkheimer Straße 6-10 . D-66117 Saarbrücken

Telefon: +49 (0)681 598-9100

Telefax: -9075

RSC14

issue test report consist of 10 Pages

Page 1 (10)



Accredited Bluetooth™ Test Facility (BQTF)

Addendum to Test report no.: 2_2690-C/01 FCC Part 2, 15, 90 U952T

CETECOM – ICT Services GmbH
Untertürkheimerstr. 6-10
66117 Saarbrücken, Germany

Telephone: + 49 (0) 681 / 598-0

Fax: + 49 (0) 681 / 9075

BLUETOOTH is a trademark owned by Bluetooth SIG, Inc. and licensed to CETECOM

Table of Contents

- 1 General information
 - 1.1 Notes
 - 1.2 Testing laboratory
 - 1.3 Details of applicant
 - 1.4 Application details
 - 1.5 Test item
 - 1.6 Test standards
- 2 Technical test
 - 2.1 Summary of test results
 - 2.2 Test report

- 1 General information
 - 1.1 Notes

The test results of this test report relate exclusively to the test item specified in 1.5. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

1.2 Testing laboratory
CETECOM ICT Services GmbH
Untertürkheimer Straße 6 - 10
66117 Saarbrücken
Germany
Telefon : + 49 681 598 - 9100
Telefax : + 49 681 598 - 9075
E-mail : Harro.Ames@ict.cetecom.de
Internet : www.cetecom.de

Accredited testing laboratory
DAR-registration number : TTI-P-G 166/98-20

Accredited Bluetooth™ Test Facility (BQTF)

[BLUETOOTH](#) is a trademark owned by Bluetooth SIG, Inc. and licensed to CETECOM

Equipment under test : U952T

Ambient temperature : 23°C

Relative humidity : 44%

1.3 Details of applicant

Name : Ascom Tateco AB
Street : Grimobodalen 2 , P.O.Box 8783
City : SE-40276 Göteborg
Country : Sweden
Telephone: +46 31 55 93 00
Telefax : +46 31 55 20 31
Contact : Mr. Arne Adrian
Telephone: +46 31 55 93 00

1.4 Application details

Date of receipt of application : 16.10.2001
Date of receipt of test item : 16.10.2001
Date of test : 16.-17.10.2001

1.5 Test item

Type of equipment : Personal paging system
Type designation : U952T (base station)
Manufacturer : applicant
Street :
City :
Country :
Serial number : 1352680006 / 1352680009 / 1352680001

Additional informations:
Frequency : 425 - 475 MHz
Type of modulation : 10K0F1D/F3E and 20K0F1D/F3E
Number of channels : 1
Antenna : TNC-socket
Power supply : 12.5V DC
RF output power : 2.0 W
Type of equipment : Temperature range : -30°C - +60°C

1.6 Test standards: FCC Part 2, 15, 90

Equipment under test : U952T

Ambient temperature : 23°C

Relative humidity : 44%

2 Technical test

2.1 Summary of test results

The radiated measurements were performed vertical and horizontal over the whole frequency range. We start at 1 m high with vertical receiving antenna and rotate the dish continuously. During rotation we use the antenna lift system to vary the high from 1 to 4 m. So we find maximum radiation output. At this points we do manual re-measurements. After this we do the same measurements in horizontal position of the receiving antenna. This (horizontal and vertical) is made for all the three planes of the test sample. We use the maximum received results. All measurements was done based on ANSI C63.4.

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

Final verdict : PASS

Technical responsibility for area of testing :

14.05.02 RSC 8411 Berg M.

Date Section Name


Signature

Technical responsibility for area of testing :

14.05.02 RSC8414 Ames H.

Date Section Name



Signature

Equipment under test : U952T

Ambient temperature : 23°C

Relative humidity : 44%

2.2 Testreport

TEST REPORT

Testreport no. : 2_2690-C/011

Equipment under test : U952T

Ambient temperature : 23°C

Relative humidity : 44%

TEST REPORT REFERENCE

LIST OF MEASUREMENTS

PARAMETER TO BE MEASURED		PAGE
RADIATED SPURIOUS EMISSION	§2.1053	7

Equipment under test : U952T

Ambient temperature : 23°C

Relative humidity : 44%

RADIATED SPURIOUS EMISSION

§2.1053

Measurement at MAXIMUM rated output power : 2,0W

EMISSION LIMITATIONS					
f (MHz)		amplitude of emission (dBm)	limit max. allowed emmision power (dBm)	actual attenuation below frequency of operation (dBc)	results
448,15					
448.15		32-90	-20 (52.9 dBc)		carrier
896,3		-38,1		71.0	complies
All other paeks are more than 20dB below limit !					
Measurement uncertainty		± 3.0dB			

All other measured peaks were more than 20 dB below limit.

LIMITS

SUBCLAUSE § 2.1053

Conducted spurious emissions shall be attenuated below the maximum level of emission of the carrier frequency in accordance with the following formula:

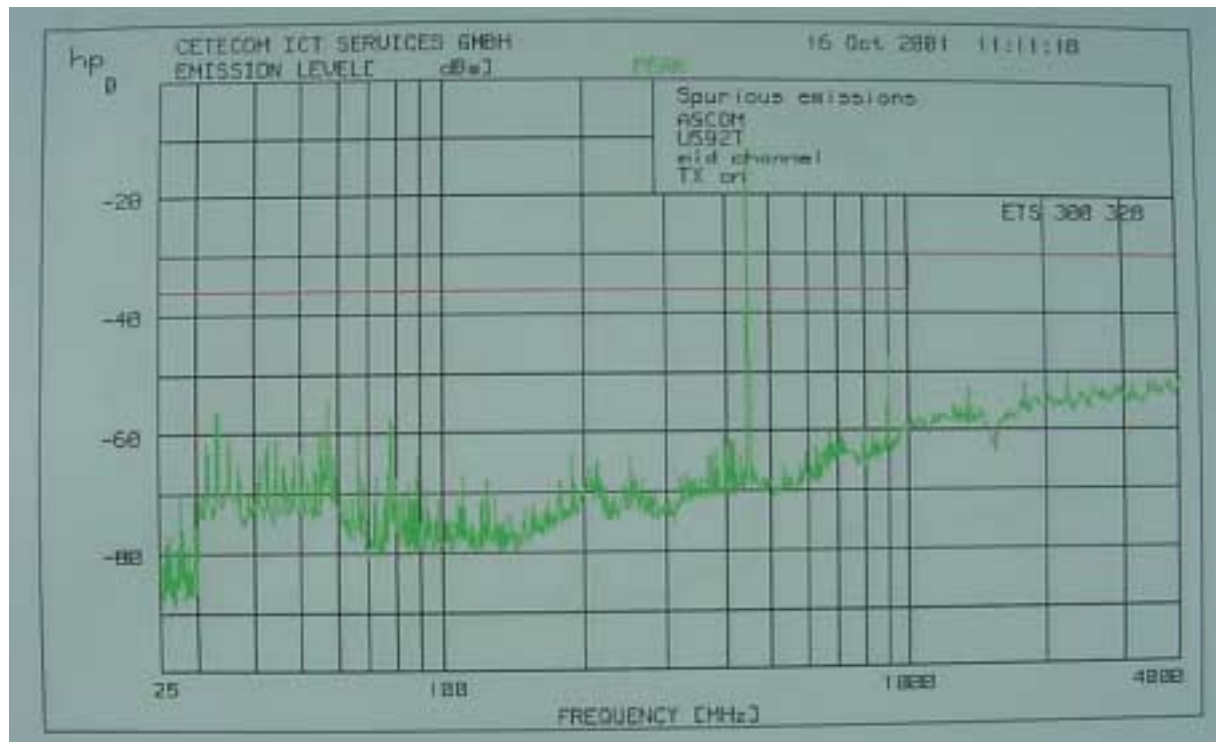
For 12.5 kHz channel bandwidth :

$$\text{Spurious attenuation in dB} = 50 + 10 \log_{10} (\text{Power output in watt})$$

Equipment under test : U952T

Ambient temperature : 23°C

Relative humidity : 44%



Above 4 GHz no peaks were found

TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

No	Instrument/Ancillary	Type	Manufacturer	Serial No.
01	Spectrum Analyzer	8566 A	Hewlett-Packard	1925A00257
02	Analyzer Display	8566 A	Hewlett-Packard	1925A00860
03	Oscilloscope	7633	Tektronix	230054
04	Radio Communication Analyzer	CMTA 54	Rohde & Schwarz	894 043/010
05	System Power Supply	6038 A	Hewlett-Packard	2848A07027
06	Signal Generator	8111 A	Hewlett-Packard	2215G00867
07	Signal Generator	8662 A	Hewlett-Packard	2224A01012
08	Function Generator	AFGU	Rohde & Schwarz	862 480/032
09	Regulating Transformer	MPL	Erfi	91350
10	LISN	NNLA 8120	Schwarzbeck	8120331
11	Relay-Matrix	PSU	Rohde & Schwarz	893 285/020
12	Power-Meter	436 A	Hewlett-Packard	2101A12378
13	Power-Sensor	8484 A	Hewlett-Packard	2237A10156
14	Power-Sensor	8482 A	Hewlett-Packard	2237A00616
15	Modulation Meter	9008	Racal-Dana	2647
16	Frequency Counter	5340 A	Hewlett-Packard	1532A03899
17	Anechoic Chamber	---	MWB	87400/002
18	Spectrum Analyzer	85660 B	Hewlett-Packard	2747A05306
19	Analyzer Display	85662 A	Hewlett-Packard	2816A16541
20	Quasi Peak Adapter	85650 A	Hewlett-Packard	2811A01131
21	RF-Preselector	85685 A	Hewlett-Packard	2833A00768
22	Biconical Antenna	3104	Emco	3758
23	Log. Per. Antenna	3146	Emco	2130
24	Double Ridged Horn	3115	Emco	3088
25	EMI-Testreceiver	ESAI	Rohde & Schwarz	863 180/013
26	EMI-Analyzer-Display	ESAI-D	Rohde & Schwarz	862 771/008
27	Biconical Antenna	HK 116	Rohde & Schwarz	888 945/013
28	Log. Per. Antenna	HL 223	Rohde & Schwarz	825 584/002
29	Relay-Switch-Unit	RSU	Rohde & Schwarz	375 339/002
30	Highpass Amplifier	HM985955 P42-GA29	FSY Microwave Tron-Tech	001 B 23602
32	Anechoic Chamber		Frankonia	
33	Control Computer	PSM 7	Rohde & Schwarz	834 621/004
34	EMI Test Receiver	ESMI	Rohde & Schwarz	827 063/010
35	EMI Test Receiver	Display	Rohde & Schwarz	829 808/010

TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

No	Instrument/Ancillary	Type	Manufacturer	Serial No.
36	Control Computer	HD 100	Deisel	100/322/93
37	Relay Matrix	PSN	Rohde & Schwarz	829 065/003
38	Control Unit	GB 016 A2	Rohde & Schwarz	344 122/008
39	Relay Switch Unit	RSU	Rohde & Schwarz	316 790/001
40	Power Supply	6032A	Hewlett Packard	2846A04063
41	Spectrum Monitor	EZM	Rohde & Schwarz	883 720/006
42	Measuring Receiver	ESH 3	Rohde & Schwarz	890 174/002
43	Measuring Receiver	ESVP	Rohde & Schwarz	891 752/005
44	Bicon Ant. 20-300MHz	HK 116	Rohde & Schwarz	833 162/011
45	Logger Ant. 0.3-1 GHz	HL 223	Rohde & Schwarz	832 914/010
46	Amplifier 0.1-4 GHz	AFS4	Miteq Inc.	206461
47	Logger Ant. 1-18 GHz	HL 024 A2	Rohde & Schwarz	342 662/002
48	Polarisation Network	HL 024 Z1	Rohde & Schwarz	341 570/002
49	Double Ridged Horn Antenna 1-26.5 GHz	3115	EMCO	9107-3696
50	Microw. Sys. Amplifier 0.5-26.5 GHz	8317A	Hewlett Packard	3123A00105
51	Audio Analyzer	UPD	Rohde & Schwarz	1030.7500.04
52	Controler	PSM 7	Rohde & Schwarz	883 086/026
53	DC V-Network	ESH3-Z6	Rohde & Schwarz	861 406/005
54	DC V-Network	ESH3-Z6	Rohde & Schwarz	893 689/012
55	AC 2 Phase V-Network	ESH3-Z5	Rohde & Schwarz	861 189/014
56	AC 2 Phase V-Network	ESH3-Z5	Rohde & Schwarz	894 981/019
57	AC-3 Phase V-Network	ESH2-Z5	Rohde & Schwarz	882 394/007
58	Power Supply	6032A	Rohde & Schwarz	2933A05441
59	RF-Test Receiver	ESVP.52	Rohde & Schwarz	881 487/021
60	Spectrum Monitor	EZM	Rohde & Schwarz	883 086/026
61	RF-Test Receiver	ESH3	Rohde & Schwarz	881 515/002
62	Relay Matrix	PSU	Rohde & Schwarz	882 943/029
63	Relay Matrix	PSU	Rohde & Schwarz	828 628/007
64	Spectrum Analyzer	FSIQ 26	Rohde & Schwarz	119.6001.27
65	Spectrum Analyzer	HP 8565E	Hewlett Packard	3473A00773
66				
67				
68				