

Straubing, 16 April 2003

TEST-REPORT

No. 56408-20820

for

AW-8P

Wireless Microphone Beltpack Transmitter

Applicant:SEKAKU Electron Industry Co. LtdPurpose of testing:To show compliance withFCC Code of Federal Regulations,
Part 74 Subpart H, section 74.861

Note:

The test data of this report relate only to the individual item which has been tested. This report shall not be reproduced except in full extent without the written approval of the testing laboratory.



Table of Contents

1.	. Administrative Data			
2.	lde	entification of Test Laboratory	4	
3.	Op	peration Mode of EUT	5	
4.	Со	nfiguration	6	
5.	Me	easuring Methods	7	
	5.1.	Maximum Transmitter Power (§ 2.1046 (a), 74.861 (e))	7	
	5.2.	Mean power of emissions 30 MHz – 1 GHz (§ 74.861.e.6.iii)	9	
	5.3.	Radiated Emission > 1 GHz (§ 74.861.e.6.iii)	10	
	5.4.	Emission Masks (Occupied Bandwidth) § 2.1049 (c) (1)	11	
	5.5.	Audio Frequency Response, 2.1047 (a)	12	
	5.6.	Modulation Limiting, § 2.1047 (b)	13	
	5.7.	Frequency Stability (Temperature Variation), § 2.1055 (a) (1)	14	
	5.8.	Frequency Stability (Voltage Variation), § 2.1055 (b) (1)	15	
6.	Ph	otographs Taken During Testing	16	
7.	Lis	t of Measurements	18	
8.	Re	ferenced Regulations	31	
CI	narts t	aken during testing	32	



1. Administrative Data

Test item (EUT)			
Type designation	AW-8P		
Serial number(s):	001		
Type of equipment:	Wireless Microphone Beltpack Transmitter		
Parts/accessories:			
FCC-ID:			
Technical data			
Frequency range	794 – 805 MHz		
Operational frequencies	794.300 MHz, 799.600 MHZ, 804.3 MHz		
Type of modulation	130KF3E		
Pulse frequency	N/A		
Pulse width	N/A		
Antenna	Integrated		
Power supply	9 V Battery		
Applicant: (full address)	SEKAKU Electron Industry Co. Ltd. No. 1 Lane 17, Sec. 2, Han Shi West Road Taichung 401, Taiwan, R.O.C.		
Contract identification:			
Contact person:	Joan Wu		
Manufacturer:	SEKAKU Electron Industry Co. Ltd.		
Application details			
Receipt of EUT:	16 December 2002		
Date of test:	February 2003		
Note:			
Responsible for testing:	Johann Roidt		
Responsible for test report:	Johann Roidt		



2. Identification of Test Laboratory

DETAILS OF THE TEST LABORATORY				
COMPANY NAME:	Senton GmbH EMI/EMC Test Center			
ADDRESS:	Aeussere Fruehlingsstrasse 45 D-94315 Straubing Germany			
LABORATORY ACCREDITATION:	DAR-Registration No. TTI-P-G 062/94-40			
FCC TEST SITE LISTING				
INDUSTRY CANADA TEST SITE REGISTRATION	IC 3050			
NAME FOR CONTACT PURPOSES:	Mr. Johann Roidt			
TELEPHONE: (+49) (0)9421 5522-0	FAX: (+49) (0)9421 5522-99			

PERSONNEL INVOLVED IN THIS TEST REPORT				
TECHNICAL DIRECTOR:	Mr. Johann Roidt			
RESPONSIBLE FOR TESTING:	Mr. Johann Roidt			
RESPONSIBLE FOR TEST REPORT:	Mr. Johann Roidt			

SUMMARY OF TEST RESULTS

The tested sample complies with the requirements set forth in the Code of Regulations Part 15 Subpart H, Section § 74.861 of the Federal Communication Commission (FCC.



3. Operation Mode of EUT

Transmitter operating continuously, full tests were performed on lowest, middle and highest RF channel.

With battery supply 9.00 V DC



4. Configuration

Configuration of the EUT

Not applicable

Cables connected to the EUT

Not applicable

Peripheral devices connected to the EUT

Not applicable



5. Measuring Methods

5.1. Maximum Transmitter Power (§ 2.1046 (a), 74.861 (e))

5.1.1. Conducted Maximum Transmitter Power

Rules and Specifications:	Sections 2.1046 (a)	
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.11	

Measurement Procedure:

A spectrum analyzer / EMI test receiver is connected to the output of the transmitter power amplifier (conducted measurement) via dummy load while EUT was operating in transmit mode using the assigned frequency.

The trace mode of the spectrum analyzer was set to max hold with:

RBW = 100 kHz, VBW = 100 kHz, span = 1 MHz, sweep = 20 ms (auto mode)





No.	Туре	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
08	Power Meter	NRVS	836856/015	Rohde & Schwarz
09	Power Sensor	NRV-Z52	837901/030	Rohde & Schwarz
18	Attenuator 20 dB	4776-20	9503	Narda
19	Attenuator 10 dB	4776-10	9412	Narda



5.1.2. Radiated Maximum Transmitter Power

Radiated Maximum Transmitter Power was measured with detector-function of the spectrum analyzer set to positive peak and trace mode max hold: RBW = 100 kHz, VBW = 100 kHz, span = 1 MHz, sweep = 15 s

For measurement setup and procedure see section 5.2



5.2. Mean power of emissions 30 MHz – 1 GHz (§ 74.861.e.6.iii)

Rules and Specifications:	Sections 2.1053	
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.11	

Measurement Procedure:

Radiated emissions were measured over the frequency range from 30 MHz to 1 GHz. For final testing the detector-function of the spectrum analyzer was set to positive peak and trace mode max hold: RBW = 3 kHz, VBW = 10 kHz, span = 20 kHz, sweep = 10 s

Measurements were made in both the horizontal and vertical planes of polarization in a fully anechoic room using a spectrum analyzer with the detector function set to peak and resolution bandwidth set to 100 kHz. All tests were performed at a test-distance of 3 meters. Hand-held or body-worn devices are rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit and therefore shall be used for final testing. For final testing an open-area test-site was used. During the tests the EUT was rotated all around and the receiving-antenna was raised and lowered from 1 meter to 4 meters to find the maximum levels of emissions. The cables and equipment were placed and moved within the range of position likely to find their maximum emissions.

Final testing was performed referring to substitution method as described in TIA/EIA-603, section 2.2.12 ("Radiated Spurious Emissions").



No.	Туре	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
113	Preamplifier	CPA9231A	3393	Schaffner
141	Biconical antenna	HK 116	829708/006	Rohde & Schwarz
143	Log. periodic antenna	3147	9112-1054	EMCO
003	Fully anechoic room	No. 2	1452	Albatross Projects



5.3. Radiated Emission > 1 GHz (§ 74.861.e.6.iii)

Rules and Specifications:	Sections 2.1053
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.11

Measurement Procedure:

Radiated emissions are measured in the frequency range 1 GHz to 8 GHz. Resolution and video bandwidth of the spectrum analyzer are set to 1 MHz. Hand-held or body-worn devices are rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit and therefore shall be used for final testing. Additional measurements are performed at critical frequencies with reduced span.

EUT is rotated all around and receiving antenna is raised and lowered to find the maximum levels of emission. The cables and equipment are placed and moved within the range of position likely to find their maximum emissions.

All tests are performed in a fully-anechoic chamber with a test-distance of 3 meters.

If required preamplifiers are used for the whole frequency range. Special care is taken to avoid overload in transmit mode (using appropriate attenuators and filters if necessary).



Fully anechoic chamber

No.	Туре	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
143	Log. periodic antenna	3147	9112-1054	EMCO
145	Horn antenna	3115	9508-4553	EMCO
146	Horn antenna set	3160-03/-09	9112-1003	EMCO
114	Preamplifier 1-8 GHz	AFS3-00100800- 32-LN	847743	Miteq
115	Preamplifier 8-18 GHz	ACO/180-3530	32641	СТТ
003	Fully anechoic room	No. 2	1452	Albatross Projects



5.4. Emission Masks (Occupied Bandwidth) § 2.1049 (c) (1)

Rules and Specifications:	Sections 2.1049 (c) (1),
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.11
Test Conditions:	As indicated below
Measurement Procedure:	1. The EUT and equipment were set up as shown below
	The audio signal was adjusted for 16 dB above 50 % of nominal modulation at the frequency of maximum response.
	The occupied bandwidth was measured with the Spectrum Analyzer set as shown on the test charts.

Test Setup



No.	Туре	Model	Serial Number	Manufacturer
108	Radio communication service monitor	CMS 54	838384/030	Rohde & Schwarz
102	Spectrum analyzer	FSP30	100036	Rohde & Schwarz
121	Attenuator	4776-10	9412	Narda
122	Attenuator	4776-20	9503	Narda
107	Audio analyzer	UPA	862954	Rohde & Schwarz



5.5. Audio Frequency Response, 2.1047 (a)

Rules and Specifications:	Sections 2.1047 (b),		
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.3		
Test Conditions:	As indicated below		
Measurement Procedure:	4. The audio signal was coupled to the microphone via a calibrated loudspeker.		
	 The audio signal was adjusted for 20 % nominal modulation at 1 kHz. this was taken as 0 dB reference. 		
	 With input levels held constant, the audiosignal was varied from 100 Hz to 30 kHz 		
	 The response was measured and recorded with a CMS 54 Radiocommunication Tester 		

Test Setup





No.	Туре	Model	Serial Number	Manufacturer	
108	Radio communication service monitor	CMS 54	838384/030	Rohde & Schwarz	
102	Spectrum analyzer	FSP30	100036	Rohde & Schwarz	
121	Attenuator	4776-10	9412	Narda	
122	Attenuator	4776-20	9503	Narda	
107	Audio analyzer	UPA	862954	Rohde & Schwarz	



5.6. Modulation Limiting, § 2.1047 (b)

Rules and Specifications:	Sections 2.1047 (b),		
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.3		
Test Conditions:	As indicated below		
Measurement Procedure:	8. The audio signal was coupled to the microphone via a calibrated loudspeker.		
	 The modulation response was measured for three frequencies including the frequency with maximum response found during "Audio Frequency Response Test". 		
	10. The input level was varied from 30 % modulation to 20 dB higher than the saturation point. The resulting deviation was measured with a CMS 54 Radiocommunication Tester.		
	11.Measurements were performed for positive and negative deviation.		

Test Setup

Radio Communication



No.	Туре	Model	Serial Number	Manufacturer	
108	Radio communication service monitor	CMS 54	838384/030	Rohde & Schwarz	
102	Spectrum analyzer	FSP30	100036	Rohde & Schwarz	
121	Attenuator	4776-10	9412	Narda	
122	Attenuator	4776-20	9503	Narda	
107	Audio analyzer	UPA	862954	Rohde & Schwarz	



5.7. Frequency Stability (Temperature Variation), § 2.1055 (a) (1)

Rules and Specifications:	Sections 2.1055 (a) (1), 74.861 (e) (4)		
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.2		
Test Conditions:	As indicated below		
Measurement Procedure:	12. The EUT and test equipment were set up as shown below		
	13.With all power removed, the temperatuere was decreased to –30 °C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.		
	14.With power OFF, the temperature was raised in 10 °C steps. The sample was permitted to stabilize at each step for at least half of an hour. Power was applied and the maximum frequency change was noted within one minute.		
	15. The temperature test were performed for worst case conditions.		



- 1 Base unit (EUT)
- 2 RF-antenna (EÚT)
- 3 Temperature test chamber
- 4 Spectrum analyzer
- 5 RF cable
- 6 Test probe

No.	Туре	Model	Serial Number	Manufacturer
102	Spectrum analyzer	FSP30	100036	Rohde & Schwarz
121	Attenuator	4776-10	9412	Narda
122	Attenuator	4776-20	9503	Narda
017	DC power supply	NGSM 32/10	203	Rohde & Schwarz
007	Temperature test chamber	HT4010	07065550	Heraeus



5.8. Frequency Stability (Voltage Variation), § 2.1055 (b) (1)

Rules and Specifications:	Sections 2.1055 (b) (1), 74.861 (e) (4)		
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.2		
Measurement Procedure:	16.The EUT and test equipment were set up as shown below		
	17.The temperature was set to 20 °C		
	18.The supply voltage was varied from 85% to 115% of the nominal voltage measuured at the input of the EUT.		
	19. The variation in frequency was measured for worst case conditions.		



- **1** Base unit (EUT)
- 2 RF-antenna (EUT)
- 3 Temperature test chamber
- 4 Spectrum analyzer
- 5 RF cable
- 6 Test probe

No.	Туре	Model	Serial Number	Manufacturer	
102	Spectrum analyzer	FSP30	100036	Rohde & Schwarz	
121	Attenuator	4776-10	9412	Narda	
122	Attenuator	4776-20	9503	Narda	
017	DC power supply	NGSM 32/10	203	Rohde & Schwarz	
020	Variable transformer	RT 5A	10387	Grundig	



6. Photographs Taken During Testing



Test setup for radiated emission measurement 30 MHz – 2 GHz (fully anechoic room)





7. List of Measurements

FCC Part 74 Subpart H						
Section(s):	Test	Page(s)	Result			
	Transmitter:					
74.861.e.1	Measured unmodulated carrier power	20	Pass			
74.861.e.6	Mean power of emissions 30 MHz - 1 GHz	21-22	Pass			
74.861.e.6	Mean power of emissions 1 GHz - 8.0 GHz	21-22	Pass			
74.861.e.5	Operating bandwidth	24-29	Pass			
74.861.e.4	Frequency tolerance	30-31	Pass			
	Receiver					
15.107	AC Powerline Emissions		Not applicable			
15.109	Radiated Spurious emissions		Not applicable			



Carrier Power Measurement

Rules and Specifications:	74.861 (e) (1) (i), 2.1046 (a)	
Guide:	ANSI/TIA/EIA-603-1992, § 2.2.1	
Limit:	The power of the measured unmodulated carrier power at the output of the transmitter power amplifier may not exceed 50 mW.	

Test Site:	Radio Lab.
Distance:	Conducted Measurement
Date of Test:	26 March 2003

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading	Correction Factor (dB)	Mean Power (dBm)	Limit (dBm)	Margin (dB)
			(dBm)				
794,300	AV	N/A	1	0	1	17,0	16
799,600	AV	N/A	0,9	0	0,9	17,0	16,1
804,300	AV	N/A	0,7	0	0,7	17,0	16,3

*** = No emissions above noise floor detected

Sample calculation of erp values:

Mean Power	(dBm) = Analy	zer Reading	g (dBm) +	Correction	Factor (dB)
------------	---------------	-------------	-----------	------------	-------------

Test Results:	
---------------	--

Pass



Spurious Radiation Measurement

Rules and Specifications:	74.861 (e) (6) (iii), 2.1053 (a),
Guide:	ANSI/TIA/EIA-603-1992, § 2.2.12
Limit:	The attenuation for any frequency removed from the operating frequency by more than 50% up to 100% of the authorized bandwidth must be at least 25 dB by more than 100% up to 250% of the authorized bandwidth must be at least 35 dB by more than 250% of the authorized bandwidth must be at least 43+10log(mean output power in watts)

Tested Frequency:	794,300 MHz
Test Site:	Fully anechoic chamber
Distance:	3 Meter

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBm)	Correction Factor (dB)	Mean Power (dBm)	Limit (dBm)	Margin (dB)
1588,600	AV	Ver	-87,5	42.17	-44,88	-13,00	31,9

*** = All emissions showed more than 20 dB margin to the limit

Sample calculation of erp values:

Mean Power (dBm) = Analyzer Reading (dBm) + Correction Factor (dB)

Test Results:

Pass



Spurious Radiation Measurement

Rules and Specifications:	2.1053 (a), 74.861 (e) (6) (i), (II), (iii)
Guide:	ANSI/TIA/EIA-603-1992, § 2.2.12
Limit:	The attenuation for any frequency removed from the operating frequency by more than 50% up to 100% of the authorized bandwidth must be at least 25 dB by more than 100% up to 250% of the authorized bandwidth must be at least 35 dB by more than 250% of the authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be authorized bandwidth must be at least 42 to 10 ar (must be at least

Tested Frequency:	799.600 MHz
Test Site:	Fully anechoic chamber
Distance:	3 Meter

Frequency	Detector	Antenna	Analyzer	Correction	Mean Power	Limit (dBm)	Margin (dB)
(MHz)		Polarization	Reading	Factor (dB)	(dBm)		
			(dBm)				
1600,000	AV	Ver	-89,1	42,3	-46,8	-13,0	33,8

*** = All emissions showed more than 20 dB margin to the limit

Sample calculation of erp values:

Mean Power (dBm) = Analyzer Reading (dBm) + Correction Factor (dB)

Test Results:	Pass	



Spurious Radiation Measurement

Rules and Specifications:	2.1053 (a), 74.861 (e) (6) (i), (II), (iii)
Guide:	ANSI/TIA/EIA-603-1992, § 2.2.12
Limit:	The attenuation for any frequency removed from the operating frequency by more than 50% up to 100% of the authorized bandwidth must be at least 25 dB by more than 100% up to 250% of the authorized bandwidth must be at least 35 dB by more than 250% of the authorized bandwidth must be at least 43+10log(mean output power in watts)

Tested Frequency:	804.300 MHz
Test Site:	Fully anechoic chamber
Distance:	3 Meter

Frequency	Detector	Antenna	Analyzer	Correction	Mean Power	Limit (dBm)	Margin (dB)
(MHz)		Polarization	Reading	Factor (dB)	(dBm)		
			(dBm)				
25-2000	AV	Hor/Ver	***				

*** = All emissions showed more than 20 dB margin to the limit

Sample calculation of erp values:

Mean Power (dBm) = Analyzer Reading (dBm) + Correction Factor (dB)

|--|



Measurement of Audio Frequency Response





Test Results:



Measurement of Emission Masks (Occupied Bandwidth





Comment A: UN20820 Occupied Bandwidth - 100 Hz Date: 16.APR.2003 20:40:27

Test Results:



Measurement of Emission Masks (Occupied Bandwidth



Date: 16.APR.2003 20:39:18

Test Results:



Measurement of Emission Masks (Occupied Bandwidth





Comment A: UN20820 Occupied Bandwidth - 10 kHz Date: 16.APR.2003 20:38:19

Test Results:



Measurement of Modulation Limiting

Rules and Specifications:	Sections 2.1047 (b) and 74.861					
Limits and Requirements:	The frequency deviation shall be < 75 kHz					
Nominal Frequency of EUT:	799,600 MHz					
Test Procedure:	According to TIA/EIA.603-1992, § 2.2.3					
	Note: The audio signal was coupled to the microphone input of the transmitter via a direct connection					



|--|



Type of Emission

Rules and Specifications:	Sections 74.861 (5) and 2.1049 (c) (1)
Limits and Requirements:	ANSI TIA/EIA-603-1992
Nominal Frequency of EUT:	799,600 MHz

Bn = 2M + 2DK
M =15 kHz
D =33 kHz
K =1
Bn = 2(15 kHz) + 2(33 kHz) = 30 + 66 = 96 kHz

Type of Emission = 96K0F3E



Measurement of Frequency Stability vs Temperature

Rules and Specifications:	Section 74.861 (e) (4), 2.1055					
Limits and Requirements:	The frequency tolerance of the transmitter shall be 0.005 %					
Nominal Frequency of EUT:	804.300 MHz					

Temperature (°C) **Nominal Frequency** Frequency Measured (MHz) Frequency Limit (ppm) (MHz) Tolerance (ppm) -30 804,300000 804,315980 19,87 50 -20 50 804,300000 804,316915 21,03 -10 804,316141 20,07 50 804,300000 0 804,300000 804,313730 17,07 50 10 804,300000 804,310700 13,30 50 20 804,300000 804,305690 7,07 50 30 804,300000 804,301220 1,52 50 40 804,300000 804,297340 -3,31 50 50 804,300000 804,293713 -7,82 50



Temperature Variation Table



Measurement of Frequency Stability vs Supply Voltage

Rules and Specifications:	Sections 74.861 (e) (4), 2.1055 (d)
Limits and Requirements:	The frequency tolerance of the transmitter shall be 0.005 $\%$
Nominal Frequency of EUT:	804,300 MHz
Battery end-point:	4.80 V

Voltage Variation Table

Supply Voltage (V)	Nominal Frequency (MHz)	Frequency Measured (MHz)	Frequency Tolerance (ppm)	Limit (ppm)
4,80	804,300000	804,305711	7,10	50
7,65	804,300000	804,305711	7,10	50
9	804,300000	804,305790	7,20	50
10,35	804,300000	804,305574	6,93	50
804 320000		I		·
004,320000				
804,315000				
804,310000				-
804,305000	++	+		-
804,300000				Reihe1
804,295000				
804,290000				
804,285000				F
	190 76	SE 0	10.25	_
	4,00 7,0	50 B	10,35	Ļ

Test Results: Pass



8. Referenced Regulations

All tests were performed with reference to the following regulations and standards:

\boxtimes	FCC Part 2	Code of Federal Regulations Part 2 Frequency allocationand radio treaty matters;	October 01, 1999
	FCC Part 15 Subpart A	General rules and regulations Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (ECC)	October 20, 1997
	FCC Part 15 Subpart B	Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of	October 20, 1997
	FCC Part 15 Subpart C	Code of Regulations Part 15 (Radio Frequency Devices), Subpart C (Intentional Radiators) of the	October 20, 1997
	FCC Part 74 Subpart H	Code of Regulations Part 15 (Radio Frequency Devices), Subpart H (Low Power Auxiliary Stations) of the Federal Communication	October 20, 1997
	ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment	October, 1992
	RSS-210	Radio Standards Specification RSS-210 Issue 2 for Low Power Licence-Exempt Radiocommuniction Devices of Industry Canada	February 24, 1996



Charts taken during testing

			Rad	diateo acc	d Po :. to	wer FCC	Tes [:] C Pa	t 2 rt 7	5 MI 4 Si	-Iz - Jbpa	200 I nrt H	MHz			
Model: AW-8P								Co - T	mment: X-Mo	de					
Serial no.:								- - (Chann	el: 79	4 300 N	ЛНz			
test samp Applicant:	le							-		01. 7 0	1.000				
Universal	Tech	nnologies Co	o. Ldt.												
Test site: Fully aneo	choic	room, cabii	n no. 2	2											
Tested on: Test dista Horizonta	nce (I Pol:	3 meters													
Date of test:	2		Opera	ator:											
Test perform	ed:		File n	ame:											
Detector: Peak								Lis 10	t of valu dB N	_{ies:} Iargin		50) Subrar	iges	
dBm								Li	mit1:	FCC §	§74.86 [°]	1 Trans	ducer: S	Substitu	ition (H)
0	1 1 1		1 1 1		1	1		1 1	i i	1	-				
-10	ہ ا		, , , , , , ,						, , , , ,						
	1 1 1					1			1 1 1	1					
-20	, , , ,-				; ;			- 	-						
	1 1 1								1 1 1						
-30						'-									
	1 1 1					1			1 1						
-40					- -						2 -				
	1 1 1					1 1 1			1 1 1						
-50	'-					'-		· · · ·	'-						
	1 1 1					1 1 1			1 1 1						
-60					е т.т. 1 1	,-				,-	,				
70	1 1 1					1			1 1 1	1					
-70															
-80	, , , , , ,		, , , ,- , - ,		, , ,	, , , , , , , , , , , , , , , , , , , ,			, , 1-		, , , , , ,				
	1				1 1	1 1 1									
-90	<u>```</u> ;		$\mathcal{N}_{\mathcal{M}}$	~~~~	<u>,</u> 	~~~``	h	<u>^-</u>	~^\M\		Mm M	www. _{in} mw	t Murihin	i whit when	Ward Marine
	· ·	\sim	1 1 1		1 1 1	1 1 1			1 1 1				v h	ψν	ητν.
-100				-				70							
25			40	Ę	50	60)	/0	80	90	100				200 MHz
Result:								Pro	ject file 408-2	: 0820			Page	of	Pages

Senton GmbH / Aeussere Fruehlingstrasse 45 / D-94315 Straubing / Germany / Tel. +49 (0)9421 5522-0 / Fax +49 (0)9421 5522-99

Model: Comment: AW-8P - TX-Mode Serial no.: - test sample - Applicant: -	
Serial no.: - test sample - Applicant: -	
Applicant:	
Universal Technologies Co. Ldt.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: Operator: 03/28/2003 M. Steindl	
Test performed: File name: automatically default.emi	
Detector:List of values:Peak10 dB Margin50 \$	Subranges
dBm Limit1: FCC §74.861 Transde	ucer: Substitution (V)
-10 -20	· · · · · · · · · · · · · · · ·
-40	
-50	
-60	
-70	
-80	
-90	in international internation in the second second
25 40 50 60 70 80 90 100 Result:	200 MHz

	Radiated acc	d Power Te . to FCC Pa	st 200 MHz art 74 Subpa	: - 1 GH art H	lz		
Model:			Comment:				
AW-8P			- TX-Mode				
test sample			- Channel: 79	4.300 MH	z		
Applicant:			-				
Universal Tecl	hnologies Co. Ldt.						
Test site: Fully anechoic	c room, cabin no. 2						
Tested on: Test distance	3 meters						
Horizontal Pol	Operator:						
03/28/2003	M. Steindl						
Test performed: automatically	File name: default.emi						
Detector: Peak			List of values: 10 dB Margin		50 Su	branges	
dBm			Limit1: FCC §	§74.861	Transduc	er: Substi	tution (H)
-10		· · · ·	, , , , , , , , , , , , , , , , , , ,			*	
00					1 1 1	1 1 1	
-20	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		<u>-</u>		
-30				, , , , , , , , , ,	, , , , , , , , ,		, , , , , , , , , , , , , , , , , , , ,
					1 1 1	1 1 1	
-40		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	 	· · · · · ·		
-50				· · · · · · · · ·			
-60				, , ,		, , , , , , , , , , , , , , , , , , ,	
					1 1 1		
-70	· · · · · · · · · · · · · · · · · · ·						
-80		 Л.мм	mmmmm	-h	Mr. han the Marin	www. Www.www	white March
-90	in the second se	~~~~^^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			, , ,	, , , ,	
					, , ,	1 1 1	
-100 200	300	400	500	600	700	800	900 100
Result: Limit kept			Project file: 56408-20820		Pac	le of	MH Pages

Senton GmbH / Aeussere Fruehlingstrasse 45 / D-94315 Straubing / Germany / Tel. +49 (0)9421 5522-0 / Fax +49 (0)9421 5522-99

		Radiated acc.	Power Te to FCC Pa	st 200 MHz art 74 Subpa	z - 1 GH art H	łz			
Mode	l:			Comment:					
AW-	·8P			- TX-Mode					
Serial	no.:			- - Channel: 794.300 MHz					
Applic	cant:			-					
Univ	versal Technologie	s Co. Ldt.		-					
Test s Fully	site: / anechoic room, c	abin no. 2							
Teste Test Vert	^{d on:} : distance 3 meters ical Polarization	3							
Date	of test:	Operator:							
03/2	8/2003	M. Steindl							
Test p auto	performed: matically	File name: default.emi							
Detec Peal	ctor: K			List of values: 10 dB Margin	1	50 Sı	ubranges		
dBm				Limit1: FCC	§74.861	Transduc	cer: Subst	itution (V)	
-10		, , , ,	 		 	, , , , , , ,	<u>¥</u>		
		, , ,							
-20				· · · · · · · · · · · ·	· · · · · · · ·			,	
-30		, , , , , , , , , , , , , , , , , , , ,	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		, , , , , , , , , , , , , , , , , , , ,			
-40									
-50			· · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	, 				
-60			, , , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , , ,		, , , , ,			
70									
-70		· · · · · · · · · · · · · · · · · · ·					 		
-80			mmmmmmmmm	whilewinner	Martinla	WWMinter the			
-90	h								
-100									
20		300	400	500	600	700	800	900 1000 MHz	
Resul	^{it:} t kept			Project file: 56408-20820	1	Pa	ge of	Pages	

		Radiated Power acc. to FCC	Test 1 GHz Part 74 Subp	- 4 GHz art H					
Model:			Comment:						
AW-8	3P		- TX-Mode						
Serial r	ו.c.: י		- - Channel: 7	94 3 MHz					
test s	ample								
	ersal Technologies	Co. Ldt.	- with high p	ass filtern WHKS1000-	10SS				
Test sit Fully	^{te:} anechoic room, ca	bin no. 2							
Tested Test of Horiz	on: distance 3 metres								
Date of	f test:	Operator:							
04/17	/2003	M. Steindl							
Test pe	erformed: natically	File name: default.emi							
Detecto Peak	or:		List of values: Selected by	hand					
dBm		Limit	1: FCC §74.861	Transducer: Substitut	on (EMCO 3115)				
-10	· · · · · · · · · · · · · ·								
-30 -40		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·						
-50		*		+ 	- www.www.www.www.				
			Maria Mandala	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
-60	wwwww	san manuting							
-70									
-80									
-90			· · · ¦ · · · · · · · · · ·						
-100 - 100	00		2000	3000	4000 MHz				
Limit	kept		Project file: 56408-2082) Page	of Pages				

Rac	diated Power Test 1 GH acc. to FCC Part 74 Sub	z - 4 GHz part H
Model:	Comment:	
AW-8P	- TX-Mode	
Serial no.:	- Channel:	794.3 MHz
Applicant:		
Universal Technologies Co. Ldt.	- with high	pass filtern WHKS1000-1055
Test site:		
Fully anechoic room, cabin no. 2		
Tested on:		
Vertical Polarization		
Date of test: Operator	:	
04/17/2003 M. Stei	indl	
Test performed: File name	e:	
Detector: Peak	List of values: Selected b	v hand
dBm	Limit1: FCC §74.861	Transducer: Substitution (EMCO 3115)
0		· · · · · · · · · · · · · · · · · · ·
-10		
-20		
		:
-30		
	1	:
-40	· · · · · · · · · · · · · · · · · · ·	
	*	*
-50		
		1 A MAN MANNAMAN MANNAMAN MANNAMANA
	mallingummingham	Mummun
-0U / ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ųν ≆ _* Y	
-70		·····
-80	· · · · · · · · · · · · · · · · · · ·	
		:
-90		
-100		
1000	2000	3000 4000 MHz
Result: Limit kept	Project file: 56408-208	20 Page of Pages

		Radiated Pow acc. to FC	ver Te CC Pa	st 4 GHz - 8 rt 74 Subpar	.2 GHz t H	
Mode	l:			Comment:		
AW-	8P			- TX-Mode		
Serial	no.:			-	3 МН7	
test	sample			- Channel. 794.		
Univ	ersal Technologies C	Co. Ldt.		- with high pass	ifiltern WHK/M3/13G-10S	S
Test s Fully	site: v anechoic room, cab	in no. 2				
Teste	d on: distance 3 metres					
Horiz	zontal Polarization					
04/1	of test: 7/2003	Operator: M. Steindl				
Test p	performed: matically	File name: default emi				
Detec	tor:			List of values:	50 Subrances	
dBm	<u> </u>		Limit1: F	CC §74.861	ransducer: Substitution (El	, MCO 3115)
0		1				;
		1				1
-10						
-20						
20						
-30						
-40				· · · · · · · · · · · ·		,
			Unorm MM	manymminman	www.williman.www.www.www.www.	₩~~~~~ ₩₩
-50	mar Mana mana mana mana mana mana mana mana	mmmmmmmmm a manuale				
		1				1
-60						
		1				· ·
70						
-70					· · · · · · · · · · · · · · · · · · ·	
-80						
-90						
-100		ı				
40	00	5000		6000	7000	8200 MHz
Resul Limit	^{t:} t kept			Project file: 56408-20820	Page o	f Pages

	Radiated Pow acc. to FC	er Test 4 GHz - 8.2 C Part 74 Subpart F	GHz					
Model:		Comment:						
AW-8P		- TX-Mode						
Serial no.:		 - Channel: 794.3 M	- - Channel: 794.3 MHz					
Applicant:		- with high page fil	torn W/UK/M2/12C 1055					
Universal Technolog	gies Co. Ldt.	- with high pass in						
Test site: Fully anechoic room	n, cabin no. 2							
Tested on:								
Vertical Polarization	res า							
Date of test:	Operator:							
04/17/2003	M. Steindl							
Test performed: automatically	File name: default.emi							
Detector: Peak		List of values: Selected by hand						
dBm	I	Limit1: FCC §74.861 Tran	sducer: Substitution (EM	CO 3115)				
0	1	1	1	1				
-10								
-20								
	I	 		 				
-30		· · · · · · · · · · · · · · · · · · ·						
10	, ,		, ,	1				
-40		· · · · ·	La war war war whith Mar war	en franking in the				
	1 . I want multiment more in more when	Mon man man mark maker man	Um ha have the second se					
-50 March Min March	имиин							
-60	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·					
-70								
-80								
-90		· · · · · · · · · · · · · · · · · · ·						
100	1 1		н 1	, ,				
4000	5000	6000	7000	8200 MHz				
Result: Limit kept		Project file: 56408-20820	Page of	Pages				

			Radiated acc	d Powe c. to F	er Test CC Pa	t 25 N rt 74 S	/Hz - Subpa	200 M rt H	Hz	
Mode AW-	l: ∙8P					Comme	^{nt:}			
Serial	l no.:					- - Char	nel: 79	9 600 MF	47	
Applic	sample					-	nici. 7 0.	5.000 101	12	
Univ	versal Teo	chnologies Co	. Ldt.			-				
Test s Fully	^{site:} / anechoi	c room, cabin	no. 2							
Teste Test	d on: t distance	3 meters								
Date	of test:	nanzalion	Operator:							
03/2	8/2003		M. Steindl							
auto	matically		default.emi	i						
Detector: List of values: Peak 10 dB Margin 50 Subranges							ges			
dBm						Limit	1: FCC {	§74.861	Transducer: S	Substitution (H)
0		1 1 1	1	1	1		, , , , , , , , , , , , , , , , , , ,			
-10							 			
		1 1		1 1	1		 			
-20			·							
		1		1	1	1	 			
-30				6 1 1						
		1 1			1		 			
-40										
		1			1		· ·			
-50		· · · · · · · · · · · · · · · · · · ·		 			' '- ' '			
~~		1 1 1		1 1	1		 			
-60		,		 - -			· · · · ·			
-70			, , 			· · ·				
10		1 1 1		1 1 1	1		 			
-80		1 1 1	, , ,	, , ,	- 1 - 1 - 1		 	, , , , , , , ,		
		1 1 1			1					
-90	~~~ <u>~</u>		- mm	inst -	MM		hunn	Mr. M. M.	en warden warden war	a with a win a with
				1 1	1 1 1		 			ал) va Mai к., о на с
-100		1					-			
2	25		40 5	50	60	70 8	0 90	100		200 MHz
Resul Limi ⁻	^{lt:} t kept					Project 1 56408	file: -20820		Page	of Pages

		Radia	ted Pov acc	ver Tes . to EN	t 25 300 2	MHz - 2 220-1	200 Mł	Ηz		
Mode AW-	l: ·8P				Comm	ent: Mode				
Serial	l no.:						COO MILI	_		
test	sample				- Cha	annei: 799	.600 IVIH	Z		
Univ	versal Technolo	ogies Co. Ldt.			-					
Test s	site:	m achin na 2								
Teste	d on:									
Test Vert	t distance 3 me ical Polarizatio	ters n								
Date	of test:	Operator:								
03/2	8/2003	M. Steir	ndl							
auto	matically	default.	emi							
Detec Peal	ctor: k				List of 10 dE	^{values:} 3 Margin		50 Subrar	iges	
dBm		Limit1:	EN 300 X	хх тх	Limit2:	EN 300 X	XX RX	Transducer: S	Substitut	ion (V)
0		1	1	1		· ·				
10				1		· ·	-			
-10				· · · · · ·						
00	, , , , , , , , , , , , , , , , , , ,	1	1	1		· ·				
-20		· · · · · · · · · · · · · · · · · · ·				· · ·				
20		, , , , , , , , , , , , , , , , , , ,								
-30										
-40	, , , , , , , , , , , , , , , , , , , ,	, , ,				· · ·				
-40			1			· ·				
-50	, '	, , 		, , , , , , , , , , , , , , , , , , , ,						
00			1	1		· · ·				
-60	,	, , ,	, , 	, , , , , , , , , , , ,	.,	· · ·	, , , , , , , , ,			
			1	1		· ·				
-70				!		· · · · · · · · · · · · · · · · · · ·				
		1	1	1	1					
-80		· · · · · · · · · · · · · · · · · · ·		, , , , , , , , , , , ,		· · ·				
				1		1 1 1 1 1 1				
-90		· · · · · · · · · · · · · · · · · · ·	- Y-wy	M	white the second	~~~~~~	mprov	- MAMMANTAN	. Mu	
	· · · · ·		1 1 1	1 1 1		1 1 1 1 1 1	1 1 1	.ү~ · ү	τω. <u>Τ</u> ωλις ΕΥ.	
-100			 		70		102			
2	25	40	50	60	70 8	80 90	100			200 MHz
Resul	lt: t kont				Project	t file:		Dere	c ⁴	Dears
LIMI	і керт				5640	0-20820		Page	Oľ	rages

	Radiated acc.	Power Te to FCC Pa	st 200 MHz art 74 Subpa	z - 1 GH art H	z		
Model:			Comment:				
AW-8P			- TX-Mode				
test sample			- Channel: 79	9.600 MH	Z		
Applicant:							
Universal Techno	ologies Co. Ldt.						
Test site: Fully anechoic ro	oom, cabin no. 2						
Tested on: Test distance 3 m Horizontal Polariz	neters zation						
Date of test: 03/28/2003	Operator: M. Steindl						
Test performed: automatically	File name: default.emi						
Detector: Peak			List of values: 10 dB Margin		50 Su	branges	
dBm			Limit1: FCC	§74.861	Transduc	er: Subs	titution (H)
-10 · · · · · · · · · · · · · · · · · · ·						* * * *	
-30							
-50		, , , , , ,		, , , , , ,			
-60							, , , , , , ,
-70			· · · · · · · · · · · · · · · · · · ·				
-80	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	MMM	MMM	-brandmilin	Now water	Mm Mummy	WMusin M
-90							
200	300	400	500	600	700	800	900 100 MH
Result: Limit kept			Project file: 56408-20820		Pag	je of	Pages

Senton GmbH / Aeussere Fruehlingstrasse 45 / D-94315 Straubing / Germany / Tel. +49 (0)9421 5522-0 / Fax +49 (0)9421 5522-99

	Radiated acc.	to FCC Pa	art 74 Subpa	art H	IZ		
Model:			Comment:				
AW-8P			- TX-Mode				
test sample			- Channel: 79	9.600 MH	Z		
Applicant:							
Universal Technolo	ogies Co. Ldt.						
Test site: Fully anechoic roor	m, cabin no. 2						
Tested on:	1010						
Vertical Polarizatio	eters In						
Date of test:	Operator:		-				
03/28/2003	M. Steindl						
Test performed: automatically	File name: default.emi						
Detector: Peak			List of values: 10 dB Margin		50 Su	branges	
dBm			Limit1: FCC	§74.861	Transduc	er: Substit	ution (V)
0	1	1	1	1	1	1	1
					1	1	
-10						* * * * * *	10 1 1 1 1 1
					1		
-20							
			i		1 1 1		
-30							
					1		
10	1			1	1		
-40	· · · · · · · · · · · · · · · · · · ·						-,
				-	1		
-50	· · · · · · · · · · · · · · ·						
				1	1		
-60					, 		, -,
					1		
70					1		
-70							
						Monto	Whime Mohan
-80	· · · · · · · · · · · · · · · · · · ·	 ΜΔΑΔ		MMM	MMK hin Mini hin i	WWW	
	, in which we want the second	1 . Mu Nimbe	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	· · · · · · · · · · · · · · · · · · ·	1	1	
-90			· · · · · · · · · · · · · · · · · · ·				
h		1	1	1	1		1 1
100	1 1	1	1 1	1 1	ı		
200	300	400	500	600	700	800	900 100 MH
Result:			Project file: 56408-20820		Pac	ie of	Page

Senton GmbH / Aeussere Fruehlingstrasse 45 / D-94315 Straubing / Germany / Tel. +49 (0)9421 5522-0 / Fax +49 (0)9421 5522-99

		Radiated Power acc. to FCC F	Test 1 GHz Part 74 Subp	- 4 GHz art H					
Mode	:		Comment:						
AW-	8P		- TX-Mode						
Serial	no.:		- Channel: 7						
test	sample								
Univ	cant: rersal Technologies C	Co. Ldt.	- with high pass filtern WHKS1000-10SS						
Test s Fully	site: / anechoic room, cab	in no. 2	_						
Teste	d on:								
Horiz	zontal Polarization								
Date	of test:	Operator:							
04/1	7/2003	M. Steindl	_						
Test p	performed:	File name: default emi							
Detec	tor:		List of values:	band					
dDm	n	L : :+4							
aBm 0		Limit1	: FCC §74.861	I ransducer: Substitutio	n (EMCO 3115)				
-10 -20		· · · · · · · · · · · · · · · · · · ·							
-30									
-40				· · · · · · · · · · · · · · · · · · ·					
-50		*	· · · · · · · · · · · ·	Al and rower	vinnenter				
			milim	MM Marken Mark					
-60	han har har how here								
-70									
-80			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·					
-90									
-100 10	00		2000	3000	4000 MHz				
Resul Limit	t kept		Project file: 56408-2082	0 Page	of Pages				

		Radiated Power T acc. to FCC Pa	est 1 GHz art 74 Subp	- 4 GHz art H				
Model	l:		Comment:					
AW-	8P		- TX-Mode					
Serial	no.:		- Channel: 799.6 MHz					
Applic	sample							
Univ	versal Technologies Co. Lo	dt.	- with high p	ass filtern WHKS1	000-1055			
Test s	site:							
Fully	v anechoic room, cabin no	. 2	-					
Teste	d on: diatanaa 2 matraa							
Verti	ical Polarization							
Date of	of test: O	perator:	-					
04/1	7/2003 M	I. Steindl						
Test p	performed: Fi	le name:						
auto	matically de	etault.emi						
Detec Peak	xtor: K		List of values: Selected by	hand				
dBm		Limit1:	FCC §74.861	Transducer: Sub	stitution (EMC	O 3115)		
-10 -20 -30		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · ·		· · · · · ·		
-40		*			*			
-50					. white when when when when when when when whe	Nm WMW		
			an 11 man - mar and	Mummum	hum			
-60	Man Man	manlin	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		, ,			
					1			
-70			· · · · · · · · · · · · · · · · · · ·		, , ,			
00					- - -			
-80					•			
-90					- - - 			
-100 10	00		2000	30	000	4000 MHz		
Resul Limit	^{t:} t kept		Project file: 56408-2082)	Page of	Pages		

		Radiated Pow acc. to FC	er Test 4 GHz - 8 C Part 74 Subpar	2 GHz : H	
Mode	:		Comment:		
AW-	8P		- TX-Mode		
Serial	no.:		- - Channel: 799.	6 MHz	
Applic	cant:		- with high page	filter WUK/M2/12C 1088	
Univ	ersal Technologies	s Co. Ldt.	- with high pass		
Test s Fully	site: / anechoic room, ca	abin no. 2			
Teste	d on:				
Horiz	zontal Polarization				
Date	of test:	Operator:			
04/1	7/2003	M. Steindl			
auto	matically	Hile name: default.emi			
Detec	tor:		List of values:	nd	
dBm	· · · · · · · · · · · · · · · · · · ·		_imit1: FCC §74.861	ansducer: Substitution (EN	/ICO 3115)
0		1			;
-10		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
-20			,		
20		1	1		1
20					
-30			· · · · · · · · · · · · · · · · · · ·		
					1 1
-40		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	, the low the man	with rider an and her Million
		he warmen han Muller	www.waynow.www.ike.www.www.www.www.	Muran Window	, , , , , , , , , , , , , , , , , , ,
-50	wermunghet man warden	WWWwww.rumer	$\frac{1}{2}$		
		1	1		
-60		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
-70					
80					
-00		1	1		
-90					
		1	1		
-100		5000	6000	7000	
40		5000	0000	7000	8200 MHz
Resul Limit	t: t kept		Project file: 56408-20820	Page of	Pages

		Radiated Po acc. to F	wer Te FCC Pa	st 4 GHz - rt 74 Subp	8.2 GHz art H			
Mode	l:			Comment:				
AW-	8P			- TX-Mode				
Serial	no.:			- - Channel: 7	99.6 MHz			
test				-			~~	
Univ	versal Technologies Co	o. Ldt.		- with high p	ass filter WHK/M	3/13G-10	SS	
Test s Fully	site: / anechoic room, cabi	n no. 2						
Teste	d on:							
Verti	ical Polarization							
Date	of test:	Operator:						
04/1	7/2003	M. Steindl						
Test p auto	performed: matically	File name: default.emi						
Detec Peal	xtor: K			List of values: Selected by	hand			
dBm			Limit1: F		Transducer: Su	Ibstitution	(EMCO	3115)
0						1		1
						1		
-10		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		, J		
				1		1		
-20				· · · · · · · · · · · · · · · · · · ·		, ,		
-				1		1		1
20				, , , , , , , , , , , , , , , , , , , ,				
-30				1		1		1
				1 1 1		1 1		
-40		· · · · · · · · · · · · · · · · · · ·		₇ '		 '		J. L. M.
			mmmmmmm	www.hullin.minh	MMM Mar Mar Mar Mar Mar Mar Mar Mar Mar	Mandalan	L. Mccolline and Mich	a. A wolf and
-50	MMymmummum	Mm/Mm/ MM/ Mar 100 000				2		
						1 1		
-60		· · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		, , , , , , , , , ,		,
						1 1		
70								
-70						1 1		
_						1		
-80		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·				
						1		
-90								
						1		
-100		1				1		
40	000	5000		6000	70	000		8200 MHz
Resul Limit	lt: t kept			Project file: 56408-20820)	Page	of	Pages

				Rad	diateo aco	d Po c. to	owe FC	r Te C P	st art	25 I 74	MH Sul	z - 2 opai	200 I t H	MHz			
Mode AW-	el: -8P									Comm - TX-l	ent: Mode	e					
Serial	l no.:									- - Cha	innel	: 804	.3 MH	Iz			
Applic	cant:									-				-			
Univ	versal Te	chno	logies Co	. Ldt.													
Fully	site: y anecho	ic ro	om, cabin	no. 2													
Teste Test Hori	ed on: t distance zontal Po	e 3 m olariz	eters ation														
Date	of test: 7/2003			Opera M. S	ator: Steindl												
Test performed: File name: automatically default.emi																	
Detec Peal	ctor: k									List of 10 dE	values 3 Ma	s: rgin		50 Su	branges		
dBm										Limit	t1: F	CC §	74.86	1 Transduc	er: Subs ⁻	titution	n (H)
0		i i				1 1 1		1 1 1			1 1 1						
-10		, , , , , ,		, , , , , , ,		, , , ,		, , ,			n Normal Normal		, , , , , ,				
		1 1 1				1 1 1					1 1 1						
-20		- - 		·		, , ,					, ,						
		1 1 1				1 1 1		1 1 1			1 1 1						
-30		- ' -		· · · · ·		 -		' '			1 12 - 2 1						
		i i				, ,		1 1 1			1 1 1						
-40		, , ,		 -		, , ,		 -			н 1711 - Т 1						
		1 1 1				1 1 1		1 1 1			1 1 1						
-50		- ' -		· <u>-</u>		1 - -		1 - -	' -		1 <u>-</u> - 1						
		1 1 1				1 1 1		1 1			1 1 1						
-60		- , ,		·		 - -		1 1 1	, -		1 1	,					
		1						1 1									
-70		· ·						 - -									
-80		, , ,									, ,						
00		1 1				1 1 1		1			1 1						
-90	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		,N	<u>^</u>	<u></u>	ý V_~~	~^^	hm	M	~~^^^	-mmm	M	W.W	Nor - Winner Maria Maria		ā. 1. ā. h	nu Nhubho
		ìn	\sim												www.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-14
-100																	
2	25			40		50	(60	70) 8	80	90	100				200 MHz
Resul	^{lt:} t kept									Project 5640	t file: 8-20	820		Pag	e of	P	ages

Senton GmbH / Aeussere Fruehlingstrasse 45 / D-94315 Straubing / Germany / Tel. +49 (0)9421 5522-0 / Fax +49 (0)9421 5522-99

			Radi	ated Por acc. to	wer Te FCC P	st 2 art 7	5 MH 4 Sul	z - 20 bpart	00 M H	Hz		
Mode	l: .8P					Сог	mment:	•				
Serial	no.:					-	X-IVIOU	e 1. 004 2	M⊔⇒			
Applic	sample						nanne	1. 004.3	IVITIZ			
Univ	ersal Teo	chnologies (Co. Ldt.									
Test s Fully	site: / anechoi	c room, cab	oin no. 2									
Teste Test Vert	d on: : distance ical Polar	3 meters ization										
Date	of test: 7/2003		Operate M Ste	or: eindl								
Test p auto	performed:		File nar defau	ne: It.emi								
Detec Peal	ctor: K					List 10	of value dB Ma	s: argin		50 Subran	ges	
dBm						Li	mit1: F	CC §74	1.861	Transducer: S	ubstitu	tion (V)
U							1 1 1					
-10							, , , , , , , , , , , , , , , , , , , ,					
					1							
-20												
		1 1			1		1		1			
-30		1 1.			· ' '	!			14 - 2 - 3 14 14			
40		1 1 1			1		1 1 1		1 1 1			
-40					· ·		, , ,					
-50					, , , '		, , , , , , ,		- - 			
00		1		1	1		1 1 1	1	1 1 1			
-60		, , ,	, , , , , , , ,		, , , ,		, , , _ ,		, ,			
		1		1	1		i i	1	1 1 1			
-70		· ·		·	·	!			- 			
							1 1 1					
-80		, ,		·		,						
				~~~\' _{^^}	n.	min .	, m.	Min 1	Å.	. N as A		
-90		 	$\sim$	: <u>*</u> */	/ <u>`</u> ⊻∕∽√√	:-WI	N = '	: - "-WW	' - WW	w www.www.howw.y.y.	www.	MUMANANAN
-100		V ~ ·					, , ,					
2	25		40	50	60	70	80	90 1	00			200 MHz
Resul Limi	^{lt:} t kept					Pro 56	ject file: 408-20	820		Page	of	Pages

	Radiated I	Power Te acc. to EN	st 200 MHz 300 220-1	2 - 1 GH	Z		
Model:			Comment:				
AW-8P			- TX-Mode				
Serial no.:			- - Channel:80/	1 300 MH7			
test sample				+.300 10112			
Applicant: Universal Technologi	es Co. Ldt.		_				
Test site: Fully anechoic room,	cabin no. 2						
Tested on:							
Test distance 3.5 met Horizontal Polarizatio	tres m						
Date of test:	Operator:						
03/28/2003	-						
Test performed: automatically	File name: default.emi						
Detector: Peak			List of values: 10 dB Margin	I	50 Su	branges	
dBm	Limit1: EN 30	0 XXX TX	Limit2: EN 300	XXX RX	Transduc	er: Subst	itution (H)
0	1	1		1		1	
	1	1		1	1	1	1
-10	· · · · · · · · · · · · · · · · · · ·				• • • • • • • • •	· \/	
						*	
	1	1		1	1	1	
-20	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · ·		·	· • ·		
		1		1	1	1	
	1	1		1	1	1	1
-30	· · · · · · · · · · · · · · · · · · ·			· · · · · · · ·			
	1	1		1	1	1	, ,
-40				, 	, 2		
				1		1	
	1	1		1	н 1	1	
-50							
-60							
	1		1		1		
	1. 1.				1	I I	1
-70							
		1			A A A A A A A A A A A A A A A A A A A	Marphet White	Latan Lithi John Market Market
	1	March Marthy NW	warmin Manna where a far far when when	instiductor and high particulations	We Man We We we	, , , , ,	Alder and a second s
-80	LAND LAND LAND AND AND AND AND AND AND AND AND AND	within the second se		1 1 1 1 1 1 1 1 1			,
1 and MARON WINN	MMC///////////////////////////////////			1	1	1	
-90	1 1					1 1	1 1
200	300	400	500	600	700	800	900 100 MH:
Result: Prescan			Project file: 56408-20820		Pag	e of	Pages

Senton GmbH / Aeussere Fruehlingstrasse 45 / D-94315 Straubing / Germany / Tel. +49 (0)9421 5522-0 / Fax +49 (0)9421 5522-99

		Radiated	Power Te acc. to EN	est 200 MHz 300 220-1	z - 1 GH	Z			
Mode	l: 			Comment:					
AW-	·8P			- TX-Mode					
test	sample			- Channel:80	4.300 MHz				
Applic	cant:	a   -14							
Univ Test s	site:	0. LOT.		-					
Fully	/ anechoic room, cabii	n no. 2							
Teste	d on:								
Verti	ical Polarization								
Date	of test:	Operator:							
03/2	8/2003	M. Steindl		-					
auto	matically	default.emi							
Detec Peal	ctor: K			List of values: 10 dB Margir	ı	50 Su	Ibranges	6	
dBm		Limit1: EN	300 XXX TX	Limit2: EN 300	XXX RX	Transduc	er: Sub	stitutio	n (V)
-20		1	1	1	1	1		1	
-25		· · ·	·	·		· · · · · ·			
		1 1		1	1				
-30								, -	
-35		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·					
		, ,			1				
-40									
-45		· · ·	· · · · · · · · · · · · · · · · · · ·						
50		1			1				
-50									
-55		· · ·							
~~									
-60									
-65		• • • • • • • • • • • • • • • • • • • •	·	· · · · · · · · · · · · · · · · · · ·	, ¹	· <u>-</u> ·			
70		1			1 1				
-70		1				1	J. M	AN MUNIMAM	Willin
-75		• • • • • • • • • • • •	·	·	Withman	Wmtwh		- ' '	
<u>_</u> 80		AM	Num	MALINIAM	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	, , 	, , 	, , 	
-00		W.	 - 					-	
-85	· · · · · · · · · · · · · · · · · · ·	· · · · .	·	·	!	· 4		) -	
-90	Mm	1	1	1	1	1	1	1	
20	00	300	400	500	600	700	800	900	1000 MHz
Resul Pres	lt: scan			Project file: 56408-20820	)	Pag	je o	f F	Pages

		Radiated Power acc. to FCC F	Test 1 GHz Part 74 Subp	- 4 GHz art H		
Mode	:		Comment:			
AW-	8P		- TX-Mode			
Serial	no.:		- Channal: 8	04 2 MH-		
test	sample					
Applic Univ	ersal Technologies (	Co. Ldt.	- with high p	ass filter HWKS1000	0-10SS	
Test s Fully	site: v anechoic room, cab	in no. 2				
Teste	d on: distance 3 metres					
Horiz	zontal Polarization					
Date of	of test:	Operator:				
04/1	7/2003	M. Steindl				
Test p	performed: matically	File name: default.emi				
Detec	tor:		List of values: Selected by	hand		
dBm	<u> </u>	Limit	1: FCC §74.861	Transducer: Subst	itution (EMCC	 D 3115)
0					Υ	,
-10						
-20						
-30						
-40						
-50		· · · · · · · · · · · · · · · · · · ·			*	www.ha
				Mummun	W WILL A COLUMN	
-60	in the Area	man man man man		· · · · · · · · · · · · · · · · · · ·		
-70				· · · · · · · · · · · · · · · · · · ·		
-80						
00						
-90						
-100 10	00		2000	3000	0	4000 MHz
Resul	^{t:} t kept		Project file: 56408-2082	) Pa	age of	Pages

Radiated P acc. to F	ower Test 1 GHz - 4 FCC Part 74 Subpart	GHz H
Model:	Comment:	
AW-8P	- TX-Mode	
Serial no.:	- Channel: 804.3	3 MHz
Applicant:	with high page	filter HWKS1000 1055
Universal Technologies Co. Ldt.	- with high pass	III.el HWKS1000-1035
Test site:		
Fully anechoic room, cabin no. 2		
Test distance 3 metres		
Vertical Polarization		
Date of test: Operator:		
04/17/2003 M. Steindl		
automatically default.emi		
Detector		
Peak	Selected by han	d
dBm	Limit1: FCC §74.861 Tra	ansducer: Substitution (EMCO 3115)
0	1	
	1	:
-10		
20	1 1	
-20		
	1	
-30		
-40		
*		*
-50		· · · · · · · · · · · · · · · · · · ·
		Mar and Martin
	man	
-60	- '	
-70	· · · · · · · · · · · · · · · · · · ·	
-80	· · · · · · · · · · · · · · · · · · ·	
	1	
-90		
-100		
1000	2000	3000 4000 MHz
Result:	Project file:	
Limit kept	56408-20820	Page of Pages

		Radiated Pow acc. to FC	ver Tes CC Pa	st 4 GHz - 8.2 rt 74 Subpart H	GHz	
Mode	·			Comment:		
AW-	8P			- TX-Mode		
Serial	no.:			- Channel: 004.2 M	AL 1-	
test	sample			- Channel: 804.3 M	/IHZ	
Applic Univ	cant: rersal Technologies (	Co. Ldt.		- with high pass filt	er WHK/M3/13G-10SS	
Test s Fully	site: v anechoic room, cat	bin no. 2				
Teste	d on:					
Horiz	zontal Polarization					
Date	of test:	Operator:				
04/1	7/2003	M. Steindl				
Test p auto	performed: matically	File name: default.emi				
Detec Peal	xtor: K			List of values: Selected by hand		
dBm			Limit1 · F	CC §74 861 Tran	sducer: Substitution (FM	ICO 3115)
0		1				· · ·
-10					, 	
10						
				1		
-20					· · · · · · · · · · · · · · · · · · ·	
-30					· · · · · · · · · · · · · · · · · · ·	
		1		1	1	1
-40				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
		1			and an an and the month war and the work of the	h
		www.m.m. m. www.m.m.m.m.m.m.m.m.m.m.m.m.	Mungellin	www.hauthander.hander.hander.hander.hander.hander.hander.hander.hander.hander.hander.hander.hander.hander.hande	e Maan Marina and an a	
-50	and the sea server and some walke	· · · · · · · · · · · · · · · · · · ·				
		1		1	1	1
-60				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
					1	
-70						
						1
-80					· · · · · · · · · · · · · · · · · · ·	
				· · · · · · · · · · · · · · · · · · ·		
-90						
-100		-				
40	00	5000		6000	7000	8200 MHz
Resul Limit	t: t kept			Project file: 56408-20820	Page of	Pages

	Radiated Pov acc. to F	ver Test 4 GHz - 8.2 CC Part 74 Subpart H	GHz	
Model:		Comment:		
AW-8P		- TX-Mode		
Serial no.:		- - Channel: 804 3 M	Hz	
test sample			112	
Universal Technolog	ies Co. Ldt.	- with high pass filt	er WHK/M3/13G-10SS	
Test site: Fully anechoic room	, cabin no. 2			
Tested on:				
Vertical Polarization	es			
Date of test:	Operator:			
04/17/2003	M. Steindl			
Test performed: automatically	File name: default.emi			
Detector: Peak		List of values: Selected by hand		
dBm		Limit1: FCC §74.861 Trans	sducer: Substitution (EMCO 31	15)
0	1		· · ·	
-10		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
	, ,			
-20				
	1 1			
-30				
-50	, ,			
-40		· · · · · · · · · · · · · · · · · · ·	ab and the Whellight when he was	
	. I	hannow have all war and have a second while	when when when when a prometic	
-50 more Manut	MMMMMMM	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
-60		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
-70	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
80			:	
-80			· · · · · · · · · · · · · · · · · · ·	
	1	:		
-90				
	1			
-100			7000	
4000	5000	6000	7000	8200 MHz
Result: Limit kept		Project file: 56408-20820	Page of P	ages