

Straubing, 09 May 2005

TEST-REPORT

No. 56408-30611-1

for

DMT-300 HD

Wireless Microphone Transmitter

Applicant: SEIKAKU Technical Group Ltd.

Purpose of testing: To show compliance with

FCC 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.



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1. Administrative Data

Test item (EUT)	
Type designation	DMT-300 HD
Serial number(s):	001
Type of equipment:	Wireless Microphone Transmitter
Parts/accessories:	
FCC-ID:	H38DMT-300HD
Technical data	
Frequency range	174-216 MHz
Operational frequencies	175.000 MHz, 199.820 MHz, 214.820 MHz
Type of modulation	96K0F3E
Pulse frequency	N/A
Pulse width	N/A
Antenna	Integrated
Power supply	1.5 V Alkaline Battery
Applicant: (full address)	SEIKAKU Technical Group Limited Unit 1107 Blk. A2 Yau Tong Industrial City No. 17, Ko Fai Road
Contract identification:	
Contact person:	Joan Wu
Manufacturer:	SEIKAKU Technical Group Limited
Application details	
Receipt of EUT:	17 September 2003
Date of test:	January 2004, May 2005
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. DAT-P-171/94-02

FCC TEST SITE REGISTRATION NUMBER 90926

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 74 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 2 x1.5 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)

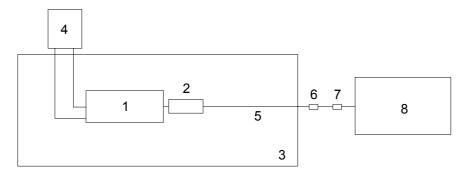


Figure 1: Measurement setup for testing on antenna connector

Test instruments used:

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

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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)

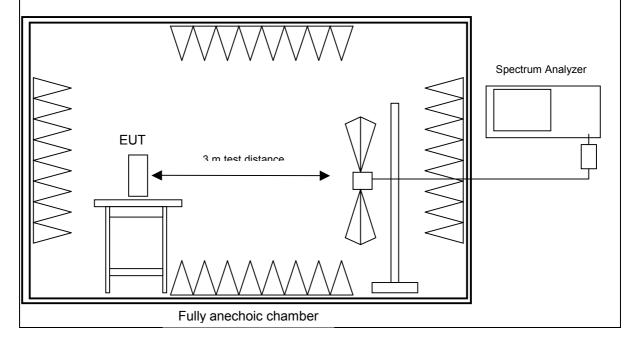
Rules and Specifications:	Sections 2.1053
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.11

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").



Test instruments used:

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

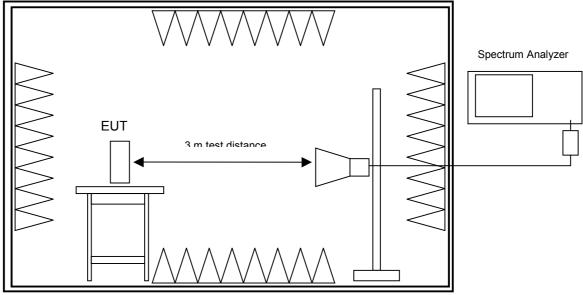
Measurement Procedure:

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

Test instruments used:

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	CTT
003	Fully anechoic room	No. 2	1452	Albatross Projects

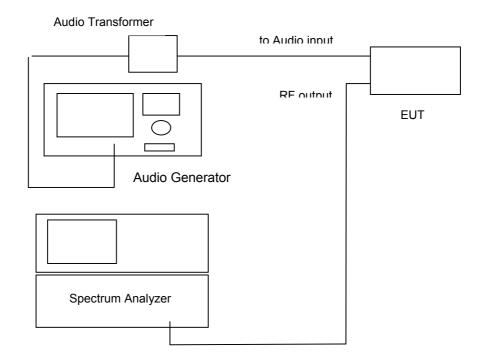
FCC-ID: H38DMT-300HD Test Report No. 56408-30611-1



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:	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



Test instruments used:

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

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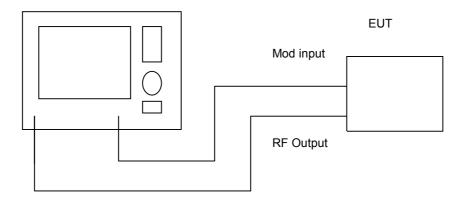
5.5. Audio Frequency Response, 2.1047 (a)

Rules and Specifications:	Sections 2.1047 (b),
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.3
Test Conditions:	As indicated below
Test Conditions.	As illulcated below

Measurement Procedure:	 The audio signal was coupled to the microphone via a temporary audio input connector replacing a microphone.
	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

Radio Communication Tester



Test instruments used:

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



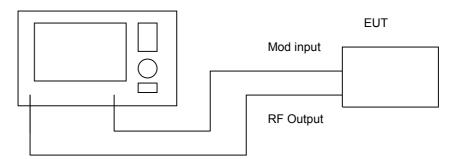
5.6. Modulation Limiting, § 2.1047 (b)

Rules and Specifications:	Sections 2.1047 (b),		
Guide:	ANSI/TIA/EIA-603-1992, Paragraph 2.2.3		
Test Conditions:	As indicated below		
Measurement Procedure:	The audio signal was coupled to the microphone via a temporary audio input connector replacing the microphone.		
	The modulation response was measured for three frequencies including the frequency with maximum response found during "Audio Frequency Response Test".		
	3. 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.		

4. Measurements were performed for positive and negative

Test Setup

Radio Communication Tester



deviation.

Test instruments used:

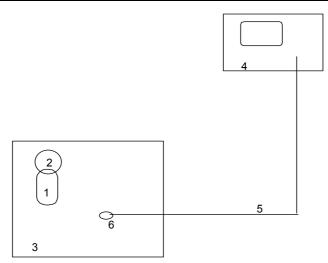
No.	Туре	Model	Serial Number	Manufacturer
108	Radio communication service monitor	CMS 54	838384/030	Rohde & Schwarz
102	Spectrum analyzer	FSP30	100036	Rohde & Schwarz
121	Attenuator	4776-10	9412	Narda
122	Attenuator	4776-20	9503	Narda
107	Audio analyzer	UPA	862954	Rohde & Schwarz



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:	The EUT and test equipment were set up as shown below
	 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.
	 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.
	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

Test instruments used:

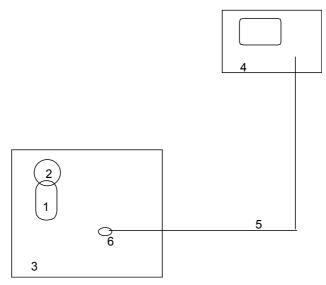
No.	Туре	Model	Serial Number	Manufacturer
102	Spectrum analyzer	FSP30	100036	Rohde & Schwarz
121	Attenuator	4776-10	9412	Narda
122	Attenuator	4776-20	9503	Narda
017	DC power supply	NGSM 32/10	203	Rohde & Schwarz
007	Temperature test chamber	HT4010	07065550	Heraeus

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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:	 The EUT and test equipment were set up as shown below The temperature was set to 20 °C The supply voltage was varied from 85% to 115% of the nominal voltage measured at the input of the EUT. The variation in frequency was measured 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

Test instruments used:

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
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Test setup for radiated emission measurement 30 MHz – 2.5 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 – 2.5 GHz	21	Pass
74.861.e.5	Operating bandwidth	25	Pass
74.861.e.4	Frequency tolerance	30	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:	10 January 2004

Frequency	Detector	Antenna	Analyzer	Correction	Mean Power	Limit (dBm)	Margin (dB)
(MHz)		Polarization	Reading	Factor (dB)	(dBm)		
			(dBm)				
175.000	AV	N/A	-17.8	0.0	-17.8	17.0	34.8
199.825	AV	N/A	-14.0	0.0	-14.0	17.0	31.0
214.820	AV	N/A	-14.8	0.0	-14.8	17.0	31.8

Sample calculation of erp values:

Test Results:	Pass	
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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:	175.000 MHz
Test Site:	Fully anechoic chamber
Distance:	3 Meter

Frequency	Antenna	Detector	Receiver	Correction	Final	Limit	Margin
	Polarization		Reading	Factor	Value		
(MHz)			(dBm)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
350.100	vertical	Peak	-92.8	29.3	-63.5	-23.0	40.5

Sample calculation of erp values:

Test Results:	Pass
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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:	199.820 MHz
Test Site:	Fully anechoic chamber
Distance:	3 Meter

No measurements above noise level detected

Sample calculation of erp values:

Test Results:	Pass
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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:	214.820 MHz
Test Site:	Fully anechoic chamber
Distance:	3 Meter

No measurement above noise level detected

Sample calculation of erp values:

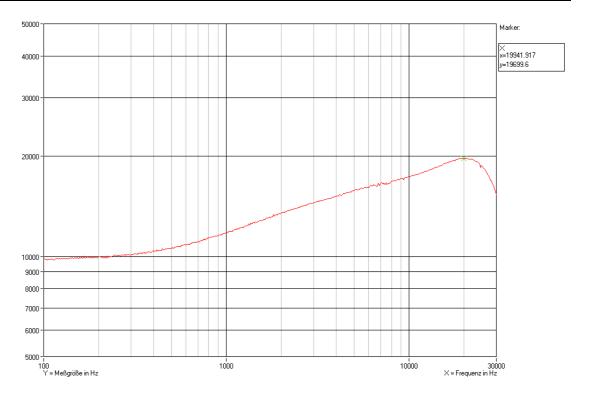
Test Results:	Pass
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Measurement of Audio Frequency Response

Rules and Specifications:	Sections 74.861 (5) and 2.1049 (c) (1)	
Limits and Requirements:		
Nominal Frequency of EUT:	199.82 MHz	

Test Procedure:	According to TIA/EIA.603-1992, § 2.2.6	
Took i Tooddalloi	Note: The audio signal was coupled to the microphone inputof the transmitter via an audio isolation transformer with sufficient bandwidth	



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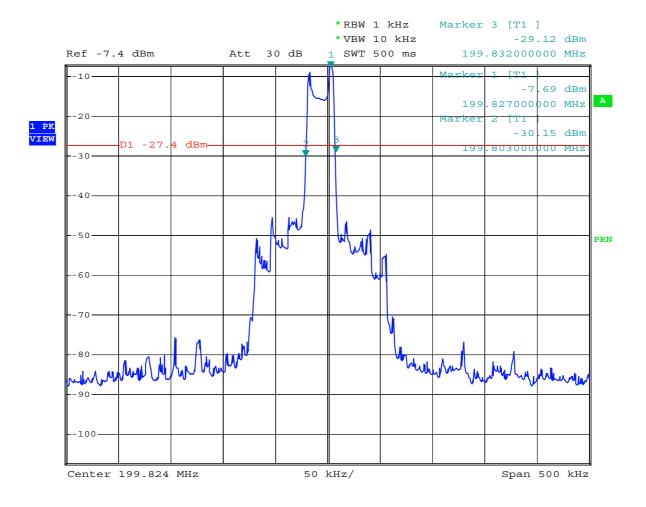
Test Results: See graph a	oove
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Measurement of Emission Masks (Occupied Bandwidth)

Rules and Specifications:	Sections 74.861 (5) and 2.1049 (c) (1)	
Limits and Requirements:	The operating bandwidth shall not exceed 200 kHz	
Nominal Frequency of EUT:	199.82 MHz	

Test Procedure:	According to TIA/EIA.603-1992, § 2.2.11
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Comment: UNI39611: Occupied Bandwidth - 100 Hz Date: 9.MAY.2005 16:42:34

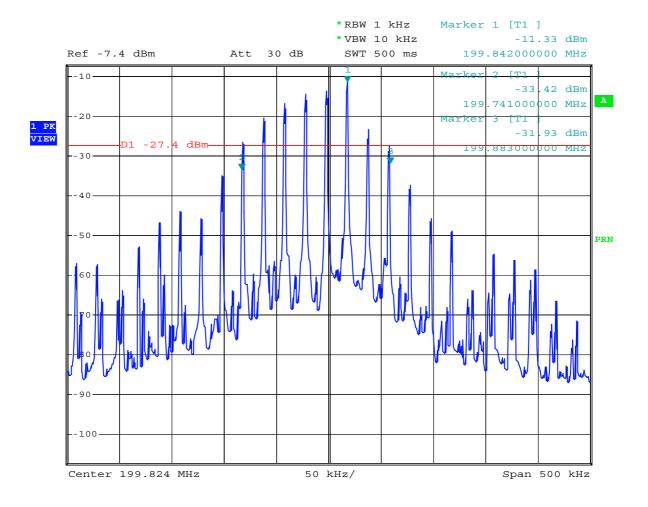
Test Results:	29 kHz	Pass
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Measurement of Emission Masks (Occupied Bandwidth

Rules and Specifications:	Sections 74.861 (5) and 2.1049 (c) (1)
Limits and Requirements:	The operating bandwidth shall not exceed 200 kHz
Nominal Frequency of EUT:	199.820 MHz

Test Procedure:	According to TIA/EIA.603-1992, § 2.2.11
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Comment: UNI39611: Occupied Bandwidth - 19.9 kHz Date: 9.MAY.2005 16:43:56

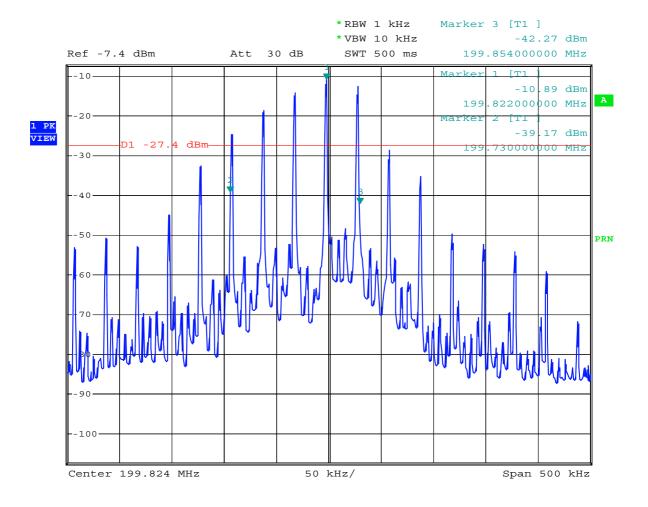
Test Results:	142 kHz	Pass
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Measurement of Emission Masks (Occupied Bandwidth

Rules and Specifications:	Sections 74.861 (5) and 2.1049 (c) (1)
Limits and Requirements:	The operating bandwidth shall not exceed 200 kHz
Nominal Frequency of EUT:	199.820 MHz

Test Procedure: According to TIA/EIA.603-1992, § 2.2.11	
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Comment: UNI39611: Occupied Bandwidth - 30 kHz Date: 9.MAY.2005 16:44:56

Test Results:	124 kHz	Pass
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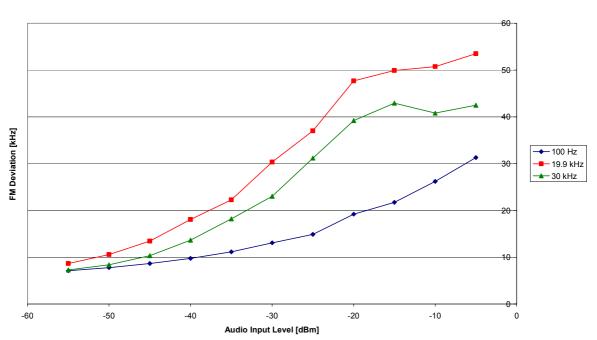


Measurement of Modulation Limiting

Rules and Specifications:	Sections 2.1047 (b) and 74.861
Limits and Requirements:	The frequency deviation shall be < 75 kHz
Nominal Frequency of EUT:	199.820 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

Modulation Limiting



Test Results:		Pass
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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:	199.820 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

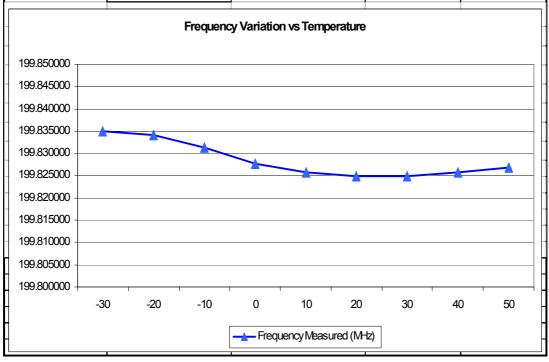
Rules and Specifications: Section 74.861 (e) (4), 2.1055

Limits and Requirements: The frequency tolerance of the transmitter shall be 0.005 %

Nominal Frequency of EUT: 199.820 MHz

Temperature Variation Table

Temperature (°C)	Nominal Frequency (MHz)			Limit (ppm)
-30	199.825000	199.834920	49.64	50
-20	199.825000	199.834220	46.14	50
-10	199.825000	199.831400	32.03	50
0	199.825000	199.827660	13.31	50
10	199.825000	199.825800	4.00	50
20	199.825000	199.824840	-0.80	50
30	199.825000	199.824880	-0.60	50
40	199.825000	199.825770	3.85	50
50	199.825000	199.826890	9.46	50



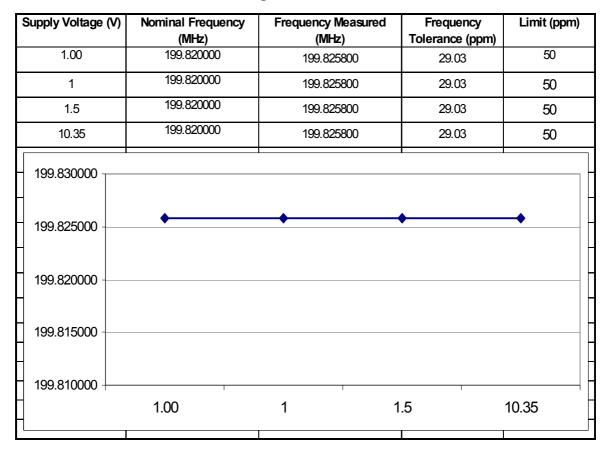
Test Results:	Pass
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Measurement of Frequency Stability vs Supply Voltage

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:	199.820 MHz
Battery end-point:	4.80 V

Voltage Variation Table



st Results:	Pass
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8. Referenced Regulations

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

	FCC Part 2	Code of Federal Regulations Part 2 Frequency allocation and radio treaty matters; General rules and regulations	October 01, 2001
	FCC Part 15 Subpart A	Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)	July 12, 2004
	FCC Part 15 Subpart B	Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of the Federal Communication Commission (FCC)	July 12, 2004
	FCC Part 15 Subpart C	Code of Regulations Part 15 (Radio Frequency Devices), Subpart C (Intentional Radiators) of the Federal Communication Commission (FCC)	July 12, 2004
	FCC Part 74 Subpart H	Code of Regulations Part 15 (Radio Frequency Devices), Subpart H (Low Power Auxiliary Stations) of the Federal Communication Commission (FCC)	July 12, 2004
	CFR 47 Part 95 Subpart C/E	Code of Federal Regulations Part 95 (Personal Radio Services), Subpart C/E (Radio Control(R/C) Radio Service) of the Federal Communication Commission (FCC)	October 1, 1998
	ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	December 11, 2003 (published January 30, 2004)
	RSS-210	Radio Standards Specification RSS-210 Issue 5 for Low Power Licence-Exempt Radiocommunication Devices (All Frequency	November 2001
	CISPR 22	Bands) of Industry Canada Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurement"	1997
	TIA/EIA-603	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	February 1993
\boxtimes	TIA/EIA-603-1	Addendum to TIA/EIA-603	March 4, 1998



Charts taken during testing

Radiated Power Test 30 MHz - 1 GHz acc. to FCC Part 74 Subpart H

Model: DMT-300 HD					ment: F in upright p	osition (P	1)			
Serial no.: 175 MHz					apg p	00.0001 (1	.,			
Applicant: Universal Techno	logies Co. Lt	d.								
Test site: Fully anechoic roo	om, cabin no	. 2								
Tested on: Test distance 3 m Horizontal Polariz										
Date of test: 05/03/2005		perator: I. Steind	I							
Test performed: automatically		le name: efault.er	ni							
Detector: Peak					of values: ected by han	d				
dBm 0					nit1: FCC §7		ransducer	r: Subst	(H) VU	JLB
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-60					, 		 		 	<u>-</u>
-70					 		 		 	
-80 -	mu my	<u></u>								
-90			Machine Mary	hammann-fall fall for the second	mht-milety to Japane to temper		 		 	
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-100 40	50 7	70	100	2	00 30	00 40	0 500	700)	1000 MHz
Result: Limit kept					ect file: 08-30611		Page	e of	——————————————————————————————————————	ages

Radiated Power Test 30 MHz - 1 GHz acc. to FCC Part 74 Subpart H

Model: DMT-300 HD										ment: Γ in upι	riaht n	ocitic	n /F) 1 \									
Serial no.:								EU	ın upi	rignt p	OSITIC	on (P	' 1)										
	MHz																						
Applio Univ	ersal	Tec	hnolo	gies	Co.	Lto	d.																
Test		- l !			h:		^																
Teste	d on:	SHOR	3 1001	II, Ca	DIN	110.																	
Test	dista																						
Date of test: Operator: 05/03/2005 M. Steindl																							
Test performed: File name: automatically default.emi																							
Detector: Peak									List of values: Selected by hand														
dBm 0												Limi	it1:	FCC §	74.86´	1 1	rans	sducer	: Subs	st (V)	VUL	_B9	163
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of

Pages

Radiated Power Test 1 GHz - 4 GHz acc. to FCC Part 74 Subpart H

Limit kept	56408-30611 Page of Pages
Result:	MHz Project file:
-100 L	2000 3000 4000
-90	
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-50	Manny Market Mar
-40	. <i>N</i> w
-30	
-20	
-10	
0	
	Limit1: FCC §74.861 Transducer: Subst (V) VULB 9163
Detector: Peak	List of values: 10 dB Margin 50 Subranges
Test performed: File name: automatically default.emi	
Test distance 3 metres Vertical Polarization Date of test: Operator: 05/03/2005 M. Steindl	
Tested on:	
Test site: Fully anechoic room, cabin no. 2	
Applicant: Universal Technologies Co. Ltd.	
Serial no.: 175 MHz	
Model: DMT-300 HD	Comment: EUT in upright position (P1)

Model:	: -300 HD			Comment: EUT in upright pos	sition (P1)			
Serial 175 N								
Applica Unive	_{ant:} ersal Technolo	gies Co. Ltd.						
Test si Fully	_{ite:} anechoic roon	n, cabin no. 2						
	^{d on:} distance 3 met zontal Polarizat							
Date 0	of test: 3/2005	Operator: M. Steindl						
1	erformed: matically	File name: default.emi						
Detect Peak				List of values: 10 dB Margin	50) Subran	ges	
dBm 0			Lim	it1: FCC §74.861	Transducer	: Subst	(H) VUL	.B 9163
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-60						 		
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-80				 		 		
-90				 		 		
-100 100	00		20	000	30	000		4000 MHz
Result Limit				Project file: 56408-30611		Page	of	Pages

Model: DMT-300 HD			Comment: EUT flat o	n table (P2)			
Serial no.: 175 MHz				,			
Applicant: Universal Technolog	gies Co. Ltd.						
Test site: Fully anechoic room	, cabin no. 2						
Tested on: Test distance 3 mete Horizontal Polarizati							
Date of test: 05/03/2005	Operator: M. Stein	dl					
Test performed: automatically	File name: default.e						
Detector: Peak			List of values Selected b				
dBm 0				CC §74.861	Transducer:	Subst (H)	VULB
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-80			A	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
-90				 			
-100 30 40 5	50 70	100	200	300 4	100 500	700	1000
Result:	. •		Project file:				MHz
Limit kept			56408-306	311	Page	of	Pages

Model: DMT-300 HD			Comr	ment:	(P2)			
Serial no.: 175 MHz					,			
Applicant: Universal Technolo	ogies Co. Ltd.							
Test site: Fully anechoic roor	m, cabin no. 2							
Tested on: Test distance 3 me Vertical Polarizatio								
Date of test: 05/03/2005	Operator: M. Steir							
Test performed: automatically	File name default.							
Detector: Peak				f values:				
dBm				CC §74.861	Transducer	: Subst (V) VULI	39163
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Result: Limit kept				ct file: 08-30611	F	Page	of	Pages

Model: DMT-300 HD		Comr	nent: flat on table	(P2)			
Serial no.: 175 MHz				` '			
Applicant: Universal Technologies Co.	. Ltd.						
Test site: Fully anechoic room, cabin	no. 2						
Tested on: Test distance 3 metres Vertical Polarization							
Date of test: 05/03/2005	Operator: M. Steindl						
Test performed: automatically	File name: default.emi						
Detector: Peak			f values: B Margin	50	Subran	ges	
dBm 0		Limit1: F	CC §74.861	Transducer	: Subst ((V) VUL	.B 9163
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1000		2000		30	000		4000 MHz
Result: Limit kept			ct file: 08-30611		Page	of	Pages

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-40				. Mary Market
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-10 -20				
Pea dBm 0	k		10 dB Margin Limit1: FCC §74.86	50 Subranges 1 Transducer: Subst (H) VULB 91
Test Fully Teste Tes Hori Date 05/0	site: y anechoic room, cabi ed on: t distance 3 metres izontal Polarization of test: 03/2005 performed: omatically		List of values:	
175 Appli	T-300 HD al no.: MHz icant: versal Technologies C	o. Ltd.	EUT flat on tabl	le (P2)

Model: DMT-300 HD			Comment:	on table (P3)			
Serial no.: 175 MHz							
Applicant: Universal Technological	gies Co. Ltd.						
Test site: Fully anechoic room	n, cabin no. 2						
Tested on: Test distance 3 met Horizontal Polarizat							
Date of test: 05/03/2005	Operator: M. Stein	dl					
Test performed: automatically	File name default.e						
Detector: Peak			List of value Selected		,		
dBm 0				FCC §74.861	Transducer:	Subst (H)	VULB
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-80							
-90			-	 			L
-100 30 40 5	50 70	100	200	300 4	100 500	700	1000
Result:			Project file:				MHz
Limit kept			56408-30)611	Page	of	Pages

											Саррс							
Model DMT	: -300 HD									Comr	nent: flat on ta	able (P3)					
Serial													,					
Applic	ant: ersal Tec	hnolog	ies Co	o. Lto	 d.													
Test s																		
Fully	anechoi	c room	, cabir	n no.	2													
Test	distance cal Polar		ers															
Date 0	of test: 3/2005				erato		l											
	erformed: natically				e nan efaul		ni											
Detect	tor:										f values:							
Peak	(cted by h							
dBm 0						1			Lir	nit1: F	FCC §74.	861 T	ransdu	ıcer: Sı	ubst (V)) VUI	_B91	163
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30	0 4	0 5	0	7	0		10	0		20	00	300	400	500	7	00		1000 MHz
Result Limit											ct file: 08-30611			Pag	je (of	Pε	ages

Model: DMT-30	0 HD		Comment: EUT flat on table (F	P3)		
Serial no.: 175 MHz	<u>z</u>					
Applicant: Universa	al Technologies Co. Ltd.					
Test site: Fully and	echoic room, cabin no. 2	2				
	ance 3 metres al Polarization					
Date of tes 05/03/20		erator: Steindl				
Test perfor		name: ault.emi				
Detector: Peak			List of values: 10 dB Margin	50 Subra	nges	
dBm 0		Lim	nit1: FCC §74.861	Transducer: Subst	(H) VUI	_B 9163
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-100 <u>1000</u>		2	000	3000		4000 MHz
Result:			Project file:			
Limit kep	ot		56408-30611	Page	of	Pages

Model: DMT-300 H		Comment: EUT flat on table (P3)	
Serial no.: 175 MHz			
Applicant: Universal	Гесhnologies Co. Ltd.		
Test site: Fully anech	hoic room, cabin no. 2		
Tested on: Test distan Vertical Po	nce 3 metres plarization		
Date of test: 05/03/2005	Operator: M. Steindl		
Test performe automatica			
Detector: Peak		List of values: 10 dB Margin 50 Subranges	
dBm 0	L	Limit1: FCC §74.861 Transducer: Subst (V) VULB 9163	,
-10		 	
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-50		my man	
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-90			
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1000		2000 3000 40 Mi	
Result: Limit kept		Project file: 56408-30611 Page of Page	 s

Model:			Comment						
DMT-300 HD Serial no.: 199.82MHz			EUT in u	upright position	(P1)				
Applicant:									
Universal Technolog	ies Co. Ltd.								
Fully anechoic room	, cabin no. 2								
Tested on: Test distance 3 mete Horizontal Polarizati									
Date of test: 05/03/2005	Operator: M. Stein	dl							
Test performed: automatically	File name:								
Detector: Peak			List of valu	ues: d by hand					
dBm				FCC §74.861	Trans	ducer: S	Subst (H) VU	LB
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-100 30 40 5	0 70	100	200	300	400	500	700	1 1	1000
Result:	-		Project file						MHz
Limit kept			56408-3			Page	of	Pa	ges

400.101001	art 74 Gubpart 11
Model: DMT-300 HD	Comment: EUT in upright position (P1)
Serial no.: 199.82MHz	
Applicant: Universal Technologies Co. Ltd.	
Test site:	
Fully anechoic room, cabin no. 2 Tested on:	
Test distance 3 meters	
Vertical Polarization	
Date of test: Operator: O5/03/2005 M. Steindl	
Test performed: File name:	
automatically default.emi	
Detector: Peak	List of values:
	Selected by hand
dBm 0 , , , , , , , , , , , , , , , , , , ,	Limit1: FCC §74.861 Transducer: Subst (V) VULB9163
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-70	
	and the state of t
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Mary was a many	Jan Walter
	Adar Managar Andrews A
-90	
-100 30 40 50 70 100	200 300 400 500 700 1000
55 45 56 76 166	200 300 400 300 700 1000 MHz
Result:	Project file:
Limit kept	56408-30611 Page of Pages

Model DMT	: -300 HD			Comment: EUT in upright pos	sition (P1)			
Serial 199.8	no.: 82MHz							
Applic Unive	_{ant:} ersal Technolo	gies Co. Ltd.						
Test s Fully	ite: anechoic roon	n, cabin no. 2						
	^{d on:} distance 3 me zontal Polariza							
Date 0	of test: 3/2005	Operator: M. Steindl						
	erformed: matically	File name: default.emi						
Detec				List of values: 10 dB Margin	50) Subran	ges	
dBm 0			Limi	t1: FCC §74.861	Transducer	: Subst	(H) VUL	B 9163
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-30				 				
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-60				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
-70				 		 		
-80				 		 		
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-100 10	00		20	00	30	000		4000 MHz
Result Limit	t: kept			Project file: 56408-30611		Page	of	Pages

Result: Limit kept	Project file: 56408-30611 Page of Pages
1000	2000 3000 4000 MHz
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-90	
-80	
-70	
-60	
-50	my man
	we shake who was a shake the shake t
-40	
-30	
-20	
-10	
	Limit1: FCC §74.861 Transducer: Subst (V) VULB 9163
Detector: Peak	List of values: 10 dB Margin 50 Subranges
Test performed: File name: automatically default.emi	
Date of test: Operator: 05/03/2005 M. Steindl	
Tested on: Test distance 3 metres Vertical Polarization	
Test site: Fully anechoic room, cabin no. 2	
Applicant: Universal Technologies Co. Ltd.	
Serial no.: 199.82MHz	
Model: DMT-300 HD	Comment: EUT in upright position (P1)
C	

Model: DMT-300 HD			Comment:	n table (P2)					
Serial no.: 199.82MHz				,					
Applicant: Universal Technolog	gies Co. Ltd.								
Test site: Fully anechoic room	n, cabin no. 2								
Tested on: Test distance 3 met Horizontal Polarizat									
Date of test: 05/03/2005	Operator: M. Stein	dl							
Test performed: automatically	File name: default.e	mi							
Detector: Peak			List of values						
dBm 0				CC §74.861	Trans	ducer: S	ubst (F	1) VL	JLB
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-90			-M-MMM		 		 		
-100 30 40 §	50 70	100	200	300	400	500	700	 	1000
Result: Limit kept			Project file: 56408-30	611		Page	of	—— P:	MHz

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Mode DMT	l: Γ-300	HD										ment: T flat on table	e (P2)						
Serial	no.: 82MH	z											,						
Applio Univ	cant: rersal	Тес	hnolo	ogie	s Co	o. Lte	d.												
Test	site:																		
Fully	/ anec	hoid	roor	m, c	abir	n no.	2												
Test	dista ical Po				3														
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Test p	perform	ed:				Fil	le nar	ne:											
Detec	matic	ally				u e	eiau	ıı.er	TII		Liet	of values:							
Peal												ected by han	d						
dBm 0										L	imit1:	FCC §74.86	1 Trans	sducer	: Subs	t (V)	VUL	_B91	163
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3	80	40)	50		7	0		10	00	2	00 3	00 40	00 5	00	70	00		1000 MHz
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L	imit1: FCC §74.861	Fransducer: Subst (H) VULB 9	9163
r:	List of values: 10 dB Margin	50 Subranges	
rformed: File name: atically default.emi			
test: Operator: 2005 M. Steindl			
on: istance 3 metres ontal Polarization			
nechoic room, cabin no. 2			
rsal Technologies Co. Ltd.			
2MHz			
0.:	EUT flat on table (P	2)	
nt: rsal Techi		nologies Co. Ltd.	

Model: DMT-3	300 HD			Comment: EUT flat on table (	P2)			
Serial n 199.82				· ·	,			
Applica Unive	^{nt։} rsal Technolog	gies Co. Ltd.						
Test site	e: anechoic room	ı, cabin no. 2						
	^{on:} listance 3 met al Polarization							
Date of 05/03/	/2005	Operator: M. Steindl						
1	rformed: natically	File name: default.emi						
Detecto Peak	or:			List of values: 10 dB Margin	50	) Subran	ges	
dBm 0 _			Lim	nit1: FCC §74.861	Transducer	: Subst	(V) VUL	.B 9163
				1 1 1 1		 		
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-100 100	0		20	000	30	000		4000 MHz
Result:	ĸept			Project file: 56408-30611		Page	of	Pages

Model: DMT-300 HD			Comment: EUT flat	on table (P3)					
Serial no.: 199.82MHz				, ,					
Applicant: Universal Technological	ogies Co. Ltd.								
Test site: Fully anechoic roo	m, cabin no. 2								
Tested on: Test distance 3 me Horizontal Polariza									
Date of test: 05/03/2005	Operator M. Ste								
Test performed: automatically	File nam								
Detector: Peak			List of valu	es: I by hand					
dBm 0				FCC §74.861	Trans	sducer: Su	ıbst (H)	) VUI	LB
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Result:		100	Project file		+00		100		MHz
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Model: DMT-300 HD				Comm	ent: flat on table	(P3)					
Serial no.: 199.82MHz						( - /					
Applicant: Universal Technol	ogies Co. Ltd.										
Test site: Fully anechoic roo	m, cabin no. 2										
Tested on: Test distance 3 movertical Polarization											
Date of test: 05/03/2005	Operator M. Ste										
Test performed: automatically	File nam default										
Detector: Peak				List of	values: eted by hand	1	,				
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dBm 0		Limi	t1: FCC §74.861	Transducer: S	Subst (H	I) VUL	B 9163
Detect Pea			List of values: 10 dB Margin	50 S	Subrang	es	
1	performed: File name:  matically default.emi	i					
05/0	of test: Operator: M. Steindl						
Test	ed on: t distance 3 metres zontal Polarization						
	y anechoic room, cabin no. 2						
	versal Technologies Co. Ltd.						
Seria 199.	l no.: 82MHz						
Mode DM	el: Γ-300 HD		Comment: EUT flat on table (I	P3)			

	<u> </u>	
Model: DMT-300 HD	Comment: EUT flat on table (P3)	
Serial no.: 199.82MHz		
Applicant: Universal Technologies Co. Ltd.		
Test site: Fully anechoic room, cabin no. 2		
Tested on: Test distance 3 metres Vertical Polarization		
Date of test: Operator: 05/03/2005 M. Steindl		
Test performed: File name: automatically default.emi		
Detector: Peak	List of values: 10 dB Margin 50 Subranges	3
dBm 0	Limit1: FCC §74.861 Transducer: Subst (V)	VULB 9163
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Result:	Project file: 56408-30611 Page c	
Limit kept	56408-30611 Page o	of Pages

Model:			Comm	ent:					
DMT-300 HD Serial no.:			EUT	in upright po	sition (P1	)			
214.82 MHz									
Applicant: Universal Technolog	gies Co. Ltd.								
Test site: Fully anechoic room	n, cabin no. 2								
Tested on:									
Test distance 3 met Horizontal Polarizati									
Date of test: 05/03/2005	Operator: M. Steindl								
Test performed:	File name:								
automatically	default.em	ni							
Detector: Peak				values: cted by hand					
dBm				it1: FCC §74		ansducer:	Subst (H	I) VUL	.B
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30 40 5	50 70	100	200	0 30	0 400	500	700	1	 1000 MHz
Result: Limit kept			Project	t file: 8-30611		Page	of	Pag	201

400.101.00	Tall 14 Subpart 11
Model: DMT-300 HD	Comment: EUT in upright position (P1)
Serial no.: 214.82 MHz	
Applicant: Universal Technologies Co. Ltd.	
Test site:	
Fully anechoic room, cabin no. 2  Tested on:	
Test distance 3 meters Vertical Polarization	
Date of test: Operator: 05/03/2005 M. Steindl	
Test performed: File name:	
automatically default.emi	
Detector: Peak	List of values:  10 dB Margin  50 Subranges
dBm	Limit1: FCC §74.861 Transducer: Subst (V) VULB9163
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Result:	Project file:
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Model: DMT-300 HD	Comment: EUT in uprigh	nt position (P1)
Serial no.: 214.82 MHz		, ,
Applicant: Universal Technologies Co. Ltd.		
Test site: Fully anechoic room, cabin no. 2		
Tested on: Test distance 3 metres Horizontal Polarization		
Date of test: Operator: 05/03/2005 M. Steindl		
Test performed: File name: automatically default.em	ni	
Detector: Peak	List of values:	50 Subranges
dBm 0	Limit1: FCC §74.8	361 Transducer: Subst (H) VULB 9163
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1000	2000	3000 4000 MHz
Result: Limit kept	Project file: 56408-30611	Page of Pages

Model: DMT-300 HD		Comment: EUT in upright pos	sition (P1)		
Serial no.: 214.82 MHz		, -	, ,		
Applicant: Universal Technologies Co. Ltd.					
Test site: Fully anechoic room, cabin no. 2					
Tested on: Test distance 3 metres Vertical Polarization					
	teindl				
Test performed: File na automatically defau	ame: ult.emi				
Detector: Peak		List of values: 10 dB Margin	50 Subra	nges	
dBm 0	Lim	nit1: FCC §74.861	Transducer: Subst	(V) VUL	_B 9163
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Model: DMT-300 HD			Comment: EUT flat on	table (P2)				
Serial no.: 214.82 MHz				,				
Applicant: Universal Technolog	gies Co. Ltd.							
Test site: Fully anechoic room	, cabin no. 2							
Tested on: Test distance 3 mete Horizontal Polarizati								
Date of test: 05/03/2005	Operator M. Stei							
Test performed: automatically	File name default							
Detector: Peak			List of values: Selected by	/ hand				
dBm 0				C §74.861	Trans	ducer: S	ubst (H	) VULB
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-100			 	 	 			
30 40 5	0 70	100	200	300	400	500	700	1000 MHz
Result: Limit kept			Project file: 56408-306	11		Page	of	Pages

Model: DMT-300 HD				omment: JT flat on table (	P2)			
Serial no.: 214.82 MHz				(	,			
Applicant: Universal Technolo	gies Co. Ltd.							
Test site: Fully anechoic roon	n, cabin no. 2							
Tested on: Test distance 3 me Vertical Polarization								
Date of test: 05/03/2005	Operator M. Stei							
Test performed: automatically	File name default.							
Detector: Peak				et of values: elected by hand				
dBm				: FCC §74.861	Transducer	: Subst (V	') VULE	39163
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tal Polarization st: 005	Operator: M. Steindl					
tance 3 metres						
echoic room, cabir	n no. 2					
al Technologies Co	o. Ltd.					
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00 HD		Comment: EUT flat of	on table (P2)			
1	MHz al Technologies Co echoic room, cabir tance 3 metres al Polarization et: 005	MHz al Technologies Co. Ltd. echoic room, cabin no. 2 tance 3 metres al Polarization st: Operator: 005 M. Steindl med: File name:	MHz al Technologies Co. Ltd. echoic room, cabin no. 2 tance 3 metres al Polarization bt: Operator: 005 M. Steindl rmed: File name: ically default.emi List of value 10 dB Ma	EUT flat on table (P2) MHz Al Technologies Co. Ltd. echoic room, cabin no. 2 tance 3 metres al Polarization st: Operator: 005 M. Steindl med: File name: ically default.emi List of values: 10 dB Margin	O HD MHz al Technologies Co. Ltd. echoic room, cabin no. 2 tance 3 metres al Polarization at: Operator: 1005 M. Steindl 11 med: File name: 11 ically default.emi List of values: 10 dB Margin 50 Subran Limit1: FCC §74.861 Transducer: Subst (EUT flat on table (P2) EUT flat on table (P2)

Resul Limit	t: kept		Project fi 56408-		Pa	ıge	of	Pages
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dBm 0			Limit1: FCC	S §74.861	Transducer: S	ubst (V) VUL	B 9163
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1	performed: matically	File name: default.emi						
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	d on: distance 3 metres cal Polarization							
	anechoic room, cabin	no. 2						
	ersal Technologies Co	o. Ltd.						
	82 MHz							
	-300 HD		Commer EUT fla	^{it:} at on table (P	2)			

Model: DMT-300 HD			Comment: EUT flat on	table (P3)				
Serial no.: 214.82 MHz				,				
Applicant: Universal Technolog	ies Co. Ltd.							
Test site: Fully anechoic room	, cabin no. 2							
Tested on: Test distance 3 mete Horizontal Polarization								
Date of test: 05/03/2005	Operator: M. Steine	lb						
Test performed: automatically	File name: default.e	mi						
Detector: Peak			List of values:					
dBm 0				CC §74.861	Trans	ducer: Si	ubst (H) VULB
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Model: DMT-300 HD			Comr	ment: flat on table ((P3)				
Serial no.: 214.82 MHz					()				
Applicant: Universal Technolog	ies Co. Ltd.								
Test site: Fully anechoic room	, cabin no. 2								
Tested on: Test distance 3 meter Vertical Polarization	ers								
Date of test: 05/03/2005	Operator: M. Steind	الا							
Test performed: automatically	File name: default.e	mi							
Detector: Peak				f values: ected by hand					
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Result:	MHz Project file:
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dBm L	imit1: FCC §74.861 Transducer: Subst (H) VULB 9163
Detector: Peak	List of values: 10 dB Margin 50 Subranges
Test performed: File name: automatically default.emi	
Date of test: Operator: 05/03/2005 M. Steindl	
Test distance 3 metres Horizontal Polarization	
Fully anechoic room, cabin no. 2 Tested on:	
Universal Technologies Co. Ltd. Test site:	
214.82 MHz Applicant:	
DMT-300 HD Serial no.:	EUT flat on table (P3)
Model:	Comment:

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Peal dBm	ζ	10 dB Margin Limit1: FCC §74.86	50 Subranges Transducer: Subst (V) VULB 9163
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05/0	of test: Opera 3/2005 M. St performed: File na	eindl	
	d on: distance 3 metres cal Polarization		
Test	ersal Technologies Co. Ltd. site: v anechoic room, cabin no. 2		
Applic			
Mode DM7	-300 HD	Comment: EUT flat on tab	le (P3)