



**DATE: 30 June 2013**

**I.T.L. (PRODUCT TESTING) LTD.**

**FCC Radio Test Report**

for

**AeroScout Ltd.**

Equipment under test:

**Kisses Tag for Wi-Fi Hugs**

**TAG-KSS-1000**

Written by:

R. Pinchuck, Documentation

Approved by:

A. Sharabi, Test Engineer

Approved by:

I. Raz, EMC Laboratory Manager

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This report relates only to items tested.



## Measurement/Technical Report for AeroScout Ltd.

### Kisses Tag for Wi-Fi Hugs

**TAG-KSS-1000**

**FCC ID: Q3HTAGKSS1000**

**IC: 5115A-TAGKSS1000**

This report concerns:	Original Grant: X
	Class I change:
	Class II change:
Equipment Type:	Part 15 Low Power Transmitter Below 1705 kHz
Limits used:	47CFR15 Section 15.209
Application for Certification prepared by:	Applicant for this device: (different from "prepared by")
Ishaishou Raz	Reuven Amsalem
ITL (Product Testing) Ltd.	AeroScout Ltd.
Kfar Bin Nun	3 Pekeris St.
D.N. Shimshon 99780	Einstein Entrance 4 <sup>th</sup> Floor
Israel	Rehovot 76702
e-mail Sraz@itl.co.il	Israel
	Tel: + 972 - 8 - 936 - 9393
	Fax: + 972 - 8- 936 - 8977
	e-mail: <a href="mailto:reuven.amsalem@aeroscout.com">reuven.amsalem@aeroscout.com</a>



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# 1. General Information

## 1.1 Administrative Information

Manufacturer:	AeroScout Ltd.
Manufacturer's Address:	3 Pekeris St. Einstein Entrance 4th Floor Rehovot 76702 Israel Tel: +972-8-9369393 Fax: +972-8-9365977
Manufacturer's Representative:	Dadi Matza
Equipment Under Test (E.U.T):	Kisses Tag for Wi-Fi Hugs
Equipment Model No.:	TAG-KSS-1000
Equipment Serial No.:	Not Designated
Date of Receipt of E.U.T:	20.05.13
Start of Test:	20.05.13
End of Test:	20.05.13
Test Laboratory Location:	I.T.L (Product Testing) Ltd. Kfar Bin Nun, ISRAEL 99780
Test Specifications:	FCC Part 15 Subpart C RSS-210, Issue 8, 2010



## **1.2 List of Accreditations**

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), Registration No. 90715.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) (Japan), Registration Numbers: C-1350, R-1285.
5. Industry Canada (Canada), IC File No.: 46405-4025; Site No. IC 4025B-1.
6. TUV Product Services, England, ASLLAS No. 97201.

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.



### **1.3 Product Description**

The Kisses tag is part of the Kisses mother/infant matching component of the Wi-Fi Hugs® and Kisses infant protection system. It is designed to confirm that the correct infant is matched with the correct mother each time they are brought together. The Hugs tag and Kisses tag do not come in pre-matched sets, and any Hugs tag can be used with any Kisses tag. This makes managing the tags much easier.

“Bonding” occurs by bringing the Kisses tag in close proximity to the Hugs tag – within one hour after the Hugs tag is applied to the infant. The kisses tag is then applied to the mother’s wrist using the Kisses band. The tags remain bonded throughout the mother’s and infant’s stay in the hospital.

Nurses are alerted with an audible indicator that immediately confirms the match or mismatch of infant and mother when the two are brought together, even if there are other infants in the room.

The Kisses tag must be put into service by the date printed on the package. The tag is light activated and operated for 90 days after it has been removed from the package. After 90 days, the tag will indicate a low battery.

The Kisses tag is light-weight and is applied with a single-patient –use disposable Kisses band. The Kisses tag and band are fully waterproof, and may be cleaned with a hospital approved disinfectant solution.

### **1.4 Test Methodology**

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

### **1.5 Test Facility**

The radiated emissions tests were performed at I.T.L.’s testing facility at Kfar Bin-Nun, Israel. This site is a FCC listed test laboratory (FCC Registration No. 90715, date of listing September 06, 2009).

I.T.L.’s EMC Laboratory is also accredited by A2LA, certificate No. 1152.01.

### **1.6 Measurement Uncertainty**

#### **Radiated Emission**

Radiated Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4) for open site 30-1000MHz:

Expanded Uncertainty (95% Confidence, K=2):

± 4.96 dB

#### **Conducted Emission**

Conducted Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4)

0.15 – 30 MHz:

Expanded Uncertainty (95% Confidence, K=2):

± 3.44 dB

## 2. System Test Configuration

### 2.1 *Justification*

Radiated emission screening was performed in 3 orthogonal orientations. The worst case orientation was the vertical position.

### 2.2 *Special Accessories*

No special accessories were needed to achieve compliance.

### 2.3 *Equipment Modifications*

No equipment modifications were required to achieve compliance.

### 2.4 *Configuration of Tested System*

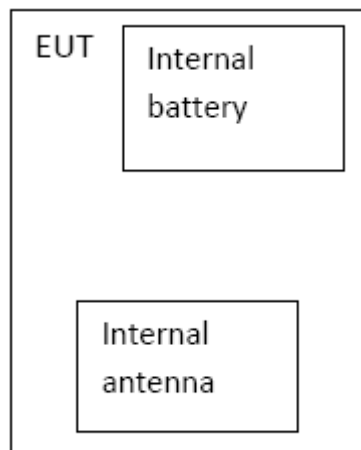


Figure 1. Configuration of Tested System

### 3. Test Set-up Photos



**Figure 2. Radiated Emission Test 9 kHz – 30 MHz**



**Figure 3. Radiated Emission Test 30 -1000 MHz**



## 4. 26dB Minimum Bandwidth

### 4.1 Test Specification

F.C.C. Part 15, Subpart C, part 2.1049

### 4.2 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters. The transmitter unit operated with normal modulation. The EMI receiver was set to 1 kHz resolution BW. The spectrum bandwidth of the transmitter unit was measured and recorded. The test was performed to measure the transmitter occupied bandwidth. The EUT was set up as shown in Figure 3, and its proper operation was checked. The transmitter occupied bandwidth was measured with the EMI receiver as frequency delta between reference points on modulation envelope. The E.U.T. was tested at 125 KHz.

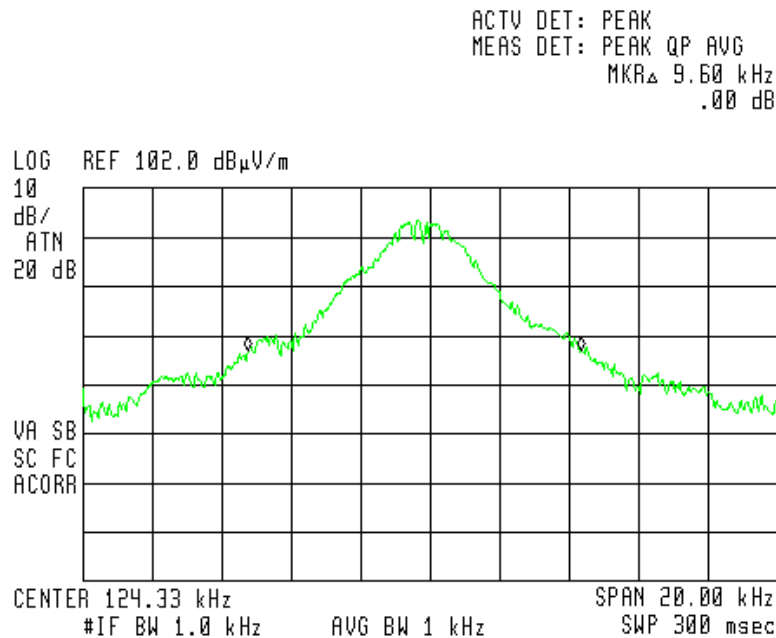


Figure 4. 125 KHz



### 4.3 Test Results

E.U.T Description: Kisses Tag for Wi-Fi Hugs

Model: TAG-KSS-1000


Serial Number: Not Designated

Operation Frequency (MHz)	Bandwidth Reading (MHz)
0.125	0.00960

Figure 5 Test Results

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 30.06 13

Typed/Printed Name: A. Sharabi



#### 4.4 Test Equipment Used.

<b>Instrument</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration</b>	<b>Period</b>
EMI Receiver	HP	85422E	3906A00276	February 26, 2013	1 year
RF Section	HP	85420E	3705A00248	February 26, 2013	1 year
Antenna Log Periodic	A.H. Systems	SAS-200/510	809	April 2, 2013	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

**Figure 6 Test Equipment Used**



## 5. Field Strength of Fundamental

### 5.1 Test Specification

F.C.C., Part 15, Subpart C, 15.209

### 5.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3.

The E.U.T. was placed on a non-conductive table, 0.8 meters above the O.A.T.S. ground plane.

The EMI receiver was set to the E.U.T. Fundamental Frequency (125 kHz) and Peak Detection.

The distance between the E.U.T. and test antenna was 3 meters.

The turntable and antenna were adjusted for maximum level reading on the EMI receiver. The loop antenna was rotated on its vertical axis. The antenna height (center of loop) was 1 meter.


### 5.3 Test Results

JUDGEMENT: Passed

The EUT met the FCC Part 15, Subpart C, Section 15.209 specification requirements.

The details of the highest emissions are given in *Figure 8*.

TEST PERSONNEL:

Tester Signature: 

Date: 30.06.13

Typed/Printed Name: A. Sharabi

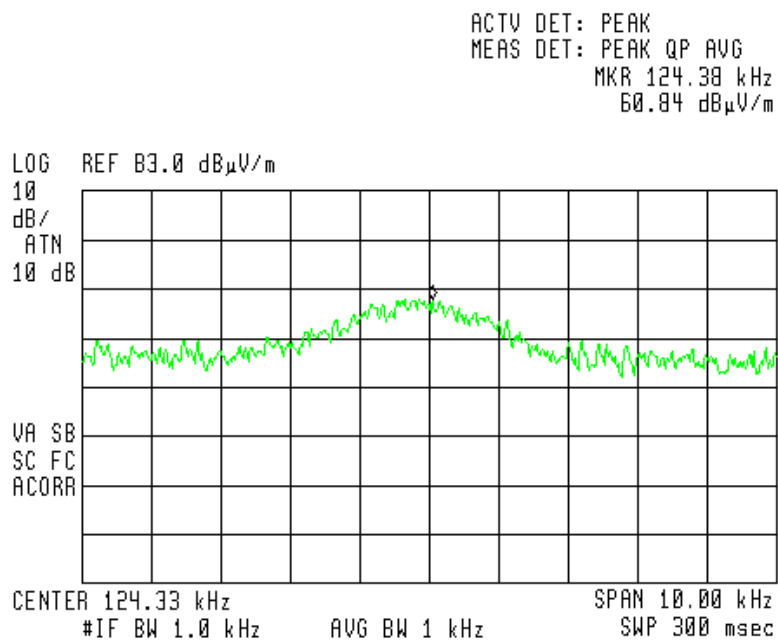
Reading (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
60.84	105.6	-44.76

Figure 7 Test Results



## Field Strength of Fundamental

E.U.T Description Kisses Tag for Wi-Fi Hugs  
Type TAG-KSS-1000  
Serial Number: Not Designated



**Figure 8. Field Strength of Fundamental.  
Detector: Peak**



#### 5.4 Test Equipment Used, Field Strength of Fundamental

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	February 26, 2013	1 year
RF Section	HP	85420E	3705A00248	February 26, 2013	1 year
Active Loop Antenna	EMCO	6502	9506-2950	October 21, 2012	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

Figure 9. Test Equipment Used



## 6. Radiated Emission, 9 kHz – 30 MHz

### 6.1 Test Specification

9 kHz-30 MHz, FCC, Part 15, Subpart C, Section 209

### 6.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 3.1.

The frequency range 9 kHz-30 MHz was scanned.

The emissions were measured using a computerized EMI receiver complying with CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 9 kHz-30MHz, the loop antenna was rotated on its vertical axis. The antenna height (center of loop) was 1 meter at a distance of 10 meters.

The E.U.T. was operated at the frequency of 125 kHz. This frequency was measured using a peak detector.

### 6.3 Test Results

JUDGEMENT: Passed

The EUT was tested and it met the requirements of the FCC Part 15, Subpart C, Section 209 specification.

All emissions were at least 20db below the specified limit.

TEST PERSONNEL:

Tester Signature: \_\_\_\_\_

Date: 30.06.13

Typed/Printed Name: A. Sharabi



#### 6.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	February 26, 2013	1 year
RF Section	HP	85420E	3705A00248	February 26, 2013	1 year
Active Loop Antenna	EMCO	6502	9506-2950	October 21 , 2012	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A

Figure 10. Test Equipment Used

#### 6.5 Field Strength Calculation

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$FS = RA + AF + CF$$

- FS: Field Strength [dB $\mu$ v/m]
- RA: Receiver Amplitude [dB $\mu$ v]
- AF: Receiving Antenna Correction Factor [dB/m]
- CF: Cable Attenuation Factor [dB]

Example: FS = 30.7 dB $\mu$ V (RA) + 14.0 dB (AF) + 0.9 dB (CF) = 45.6 dB $\mu$ V

No external pre-amplifiers are used.





## 7. Spurious Radiated Emission

### 7.1 Test Specification

30 - 1000 MHz, F.C.C., Part 15, Subpart C

### 7.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3. See Section 3.1 Justification of the System Test Configuration concerning the E.U.T. orientation for this test.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in *Figure 3*.

The signals from the list of the highest emissions were verified and the list was updated accordingly.

The levels of the emissions within the frequency ranges of the restricted bands (Section 15.205 of FCC Part 15) were compared to the limits of the table in Section 15.209 (a), General Requirements.

The emissions were measured using a computerized EMI receiver complying with CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization. Verification of the E.U.T emissions was based on the following methods: turning the E.U.T on and off; using a frequency span less than 10 MHz; observation of the signal level during turntable rotation. (Background noise is not affected by the rotation of the E.U.T.)

The emissions were measured at a distance of 3 meters.

### 7.3 Test Results

JUDGEMENT: Passed

The EUT met the requirements of the F.C.C. Part 15, Subpart C, specification.

TEST PERSONNEL:

Tester Signature: \_\_\_\_\_

Date: 30.06.13

Typed/Printed Name: A. Sharabi



Frequency (kHz)	Peak (dBuV/m)	Limit (dBuV/m)	Margin (dB)
50	44.5	113.6	-69.1
450	28.5	94.5	-66.0
800	25.9	69.5	-43.6
2000	14.6	69.5	-54.9
5000	5.3	69.5	-64.2
15000	12.9	69.5	-56.6

Figure 11. Spurious Radiated Emission Test Results

#### 7.4 Test Equipment Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	February 26, 2013	1 year
RF Section	HP	85420E	3705A00248	February 26, 2013	1 year
Antenna Biconical	EMCO	3104	2606	August 30, 2012	1 year
Antenna Log Periodic	ARA	LPD-2010/A	1038	April 2, 2013	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

Figure 12. Test Equipment Used



## 8. APPENDIX A - CORRECTION FACTORS

### 8.1 Correction factors for CABLE from EMI receiver to test antenna at 3 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)	FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3	1200.0	7.3
20.0	0.6	1400.0	7.8
30.0	0.8	1600.0	8.4
40.0	0.9	1800.0	9.1
50.0	1.1	2000.0	9.9
60.0	1.2	2300.0	11.2
70.0	1.3	2600.0	12.2
80.0	1.4	2900.0	13.0
90.0	1.6		
100.0	1.7		
150.0	2.0		
200.0	2.3		
250.0	2.7		
300.0	3.1		
350.0	3.4		
400.0	3.7		
450.0	4.0		
500.0	4.3		
600.0	4.7		
700.0	5.3		
800.0	5.9		
900.0	6.3		
1000.0	6.7		

**NOTES:**

1. The cable type is RG-214.
2. The overall length of the cable is 27 meters.
3. The above data is located in file 27MO3MO.CBL on the disk marked "Radiated Emission Tests EMI Receiver".



**8.2 Correction factors for CABLE**  
**from EMI receiver**  
**to test antenna**  
**at 3 meter range.**

FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.2
2.0	1.6
3.0	2.0
4.0	2.4
5.0	3.0
6.0	3.4
7.0	3.8
8.0	4.2
9.0	4.6
10.0	5.0
12.0	5.8

*NOTES:*

- 1. The cable type is RG-8.*
- 2. The overall length of the cable is 10 meters.*



### 8.3 Correction factors for LOG PERIODIC ANTENNA

#### Type LPD 2010/A at 3 and 10 meter ranges.

##### Distance of 3 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.1
250.0	10.2
300.0	12.5
400.0	15.4
500.0	16.1
600.0	19.2
700.0	19.4
800.0	19.9
900.0	21.2
1000.0	23.5

##### Distance of 10 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.0
250.0	10.1
300.0	11.8
400.0	15.3
500.0	15.6
600.0	18.7
700.0	19.1
800.0	20.2
900.0	21.1
1000.0	23.2

#### NOTES:

1. Antenna serial number is 1038.
2. The above lists are located in file number 38M30.ANT for a 3 meter range, and file number 38M100.ANT for a 10 meter range.
3. The files mentioned above are located on the disk marked "Radiated Emission Test EMI Receiver".



**8.4 Correction factors for BICONICAL ANTENNA  
Type BCD-235/B,  
at 3 meter range**

<b>FREQUENCY (MHz)</b>	<b>AFE (dB/m)</b>
20.0	19.4
30.0	14.8
40.0	11.9
50.0	10.2
60.0	9.1
70.0	8.5
80.0	8.9
90.0	9.6
100.0	10.3
110.0	11.0
120.0	11.5
130.0	11.7
140.0	12.1
150.0	12.6
160.0	12.8
170.0	13.0
180.0	13.5
190.0	14.0
200.0	14.8
210.0	15.3
220.0	15.8
230.0	16.2
240.0	16.6
250.0	17.6
260.0	18.2
270.0	18.4
280.0	18.7
290.0	19.2
300.0	19.9
310	20.7
320	21.9
330	23.4
340	25.1
350	27.0

**NOTES:**

- 1. Antenna serial number is 1041.*
- 2. The above list is located in file 19BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".*



### 8.5 Correction factors for ACTIVE LOOP ANTENNA

#### Model 6502

#### S/N 9506-2950

FREQUENCY (MHz)	Magnetic Antenna Factor (dB)	Electric Antenna Factor (dB)
.009	-35.1	16.4
.010	-35.7	15.8
.020	-38.5	13.0
.050	-39.6	11.9
.075	-39.8	11.8
.100	-40.0	11.6
.150	-40.0	11.5
.250	-40.0	11.6
.500	-40.0	11.5
.750	-40.1	11.5
1.000	-39.9	11.7
2.000	-39.5	12.0
3.000	-39.4	12.1
4.000	-39.7	11.9
5.000	-39.7	11.8
10.000	40.2	11.3
15.000	-40.7	10.8
20.000	-40.5	11.0
25.000	-41.3	10.2
30.000	42.3	9.2



## 9. APPENDIX B – Comparison of Industry Canada Requirements With FCC Requirements

<b>FCC Specification</b>	<b>FCC Standard</b>	<b>IC Standard</b>
Spurious Emission	47CFR15.209	RSS-210, Issue 8 Section 2.5