

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea Tel: +82-31-339-9970 Fax: +82-31-339-9855 www.e-ctk.com

# **TEST REPORT For FCC**

Test Report No. : CTK-2013-01842

Date of Issue : 2013-12-11

FCC ID : 2ABC3-RN300

Model/Type No. : RN300

Kind of Product : Wireless Temperature Humidity Sensor

Applicant : Dekist Co.,Ltd

Applicant Address : #303 465-1 Gimryangjang-dong Cheoin-gu, Yongin-si,

Gyeonggi-do, Korea

Manufacturer : Dekist Co.,Ltd

Manufacturer Address : #303 465-1 Gimryangjang-dong Cheoin-gu, Yongin-si,

Gyeonggi-do, Korea

Contact Person : Lee Mokhan / SW Engineer

Telephone : +82-70-7529-4359

Received Date : 2013-11-20

Test period : Start : 2013-11-20 End : 2013-12-09

The test results presented in this report relate only to the object tested.

Tested by

Won-Jae, Hwang Test Engineer Date: 2013-12-11 Reviewed by

Young-Joon, Park Technical Manager Date: 2013-12-11

Date: 2013-12-11

Test Report No.: CTK-2013-01842 Page 1 of 32 Date: 2013-12-11



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### REPORT REVISION HISTORY

Date	Revision	Page No
2013-12-11	Issued (CTK-2013-01842)	All

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Test Report No.: CTK-2013-01842 Page 2 of 32



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## **TABLE OF CONTENTS**

REPORT	REVISION HISTORY	
1.0	General Product Description	4
1.1	Tested Frequency	4
1.2	Device Modifications	5
1.3	Peripheral Devices	
1.4	Calibration Details of Equipment Used for Measurement	5
1.5	Test Facility	5
1.6	Laboratory Accreditations and Listings	6
2 Sur	nmary of tests	7
2.1 Tech	nnical Characteristic Test	8
2.1.	1 6dB Bandwidth	8
2.1.	2 Maximum peak Conducted Output Power	11
2.1.		
2.1.	4 Band - edge	17
2.1.	5 Field Strength of Emissions	22
2.1.		29
APPEND	IX A - Test Equipment Used For Tests	32

Test Report No.: CTK-2013-01842



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# 1.0 General Product Description

Equipment model name	RN300
Serial number	Prototype
EUT condition	Pre-production, not damaged
Frequency Range	2405 MHz – 2475 MHz
RF output power	-1.63 dBm
Number of channels	15
Transfer Rate	250 Kbps
Type of Modulation	DSSS
Channel Spacing	5 MHz
Duty cycle TX power	1.0
Power Source	3 Vdc, 6 Vdc
Antenna Type	PCB antenna Gain: 2.5 dBi

# 1.1 Tested Frequency

	LOW	MID	HIGH
Frequency (MHz)	2405	2440	2475

Page 4 of 32 Test Report No.: CTK-2013-01842



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### 1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable

### 1.3 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.
Note Computer	DELL INC.	Inspiron 6400	-
Switching Adapter2	DDongguang Lite Power 2nd Plant	LA65NS0-00	-
AC/DC Adapter	DAEYOU Electronic Co.,Ltd	DY-0610	-

### 1.4 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

### 1.5 Test Facility

The measurement facility is located at 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

Test Report No.: CTK-2013-01842 Page 5 of 32



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# **Laboratory Accreditations and Listings**

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 m & 10 m SAC and Conducted Test Site to perform FCC Part 15/18 measurements	FC 805871
JAPAN	VCCI	3 m & 10 m SAC and Conducted Test Site	<b>P</b> -948, C-986, T-1843
KOREA	ксс	EMI (10 m SAC and Conducted Test Site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and Interruptions)	No. 51, KR0025
International	KOLAS	EMC	KOLAS OF TESTING NO. 119 3H 31

Page 6 of 32 Test Report No.: CTK-2013-01842



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# 2 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
15.247(a)	6 dB Bandwidth	> 500 kHz		С
15.247(b)	Maximum Output Power	< 1 Watt		С
15.247(d)	Conducted Spurious emission	> 20 dBc	Conducted	С
15.247(d)	Band Edge	> 20 dBc		С
15.247(e)	Transmitter Power Spectral	< 8 dBm @ 3 kHz		С
	Density	_		С
15.209	Field Strength of Harmonics	15.209(a)	Radiated	С
15.207	AC Conducted Emissions	15.207(a)	Line Conducted	С

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

The sample was tested according to the following specification:

- FCC Part 15.247, ANSI C63.4-2003

The tests were performed according to the method of measurements prescribed in KDB No.558074

Test Report No.: CTK-2013-01842 Page 7 of 32



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### 2.1 Technical Characteristic Test

#### 2.1.1 6dB Bandwidth

#### **Procedure:**

The bandwidth at 6dB below the highest in-band spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 6dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is ( as close as possible to ) even with the reference marker level. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

#### The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz Span = 40 MHz

 $VBW = 100 \text{ kHz } (VBW \ge RBW)$  Sweep = auto

Trace = max hold Detector function = peak

### **Measurement Data:**

Frequency	Channel		Test Results	
(MHz)	No.	6dB Bandwidth (MHz)	Occupied Bandwidth (MHz)	Result
2405	11	1.519	2.376	Complies
2440	18	1.717	2.407	Complies
2475	25	1.647	2.485	Complies

#### **Minimum Standard:**

6 dB Bandwidth > 500kHz

See next pages for actual measured spectrum plots.

Test Report No.: CTK-2013-01842 Page 8 of 32

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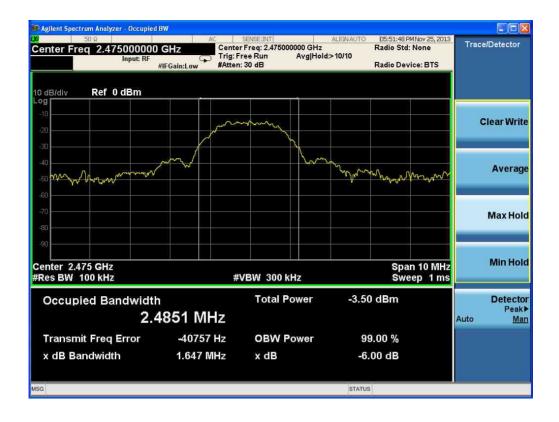




Test Report No.: CTK-2013-01842 Page 9 of 32



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Test Report No.: CTK-2013-01842 Page 10 of 32



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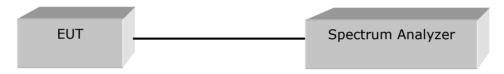
### 2.1.2 Maximum peak Conducted Output Power

#### **Test Location**

RF Test Room

### **Test Procedures**

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.



#### Limit

< 1 W

#### **Test Results**

Cable loss: 3.5 dB

Frequency (MHz)	Channel No.	Mesurement data (dBm)	Total Power (dBm)	Limit	Result
2405	11	-5.13	-1.63		Complies
2440	18	-6.99	-3.49	30dBm	Complies
2475	25	-8.92	-5.42		Complies

Test Report No.: CTK-2013-01842 Page 11 of 32

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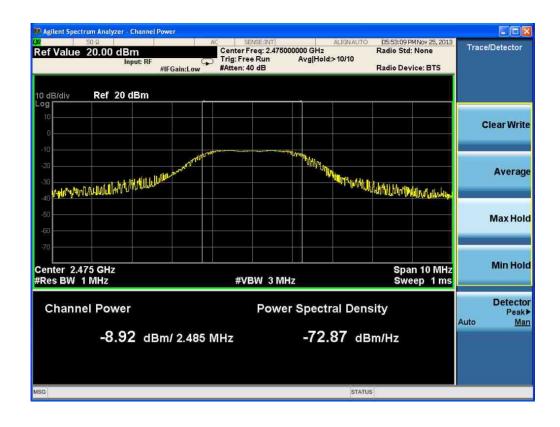


Test Report No.: CTK-2013-01842 Page 12 of 32

Date: 2013-12-11



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Test Report No.: CTK-2013-01842 Page 13 of 32



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## 2.1.3 Power Spectral Density

#### **Procedure:**

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

The spectrum analyzer is set to:

RBW = 3 kHz  $VBW = (VBW \ge RBW)$ 

Sweep = Auto Span = 5 MHz

#### **Test Results**

Frequency		Test Re	esults
(MHz)		dBm	Result
2405	11	-12.214	Complies
2440	18	-15.023	Complies
2475	25	-17.646	Complies

#### **Minimum Standard:**

Power Spectral Density	< 8dBm @ 3 kHz BW
------------------------	-------------------

See next pages for actual measured spectrum plots.

Test Report No.: CTK-2013-01842 Page 14 of 32 Date: 2013-12-11

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## **Power Density Measurement**





Test Report No.: CTK-2013-01842 Page 15 of 32

Date: 2013-12-11



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Test Report No.: CTK-2013-01842 Page 16 of 32



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### 2.1.4 Band - edge

#### **Procedure:**

The bandwidth at 20dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz VBW = 100 kHz

Span = 20 MHz Detector function = peak

Trace =  $\max$  hold Sweep = auto

#### **Measurement Data: Complies**

- All conducted emission in any 100 kHz bandwidth outside of the spread spectrum band was at least 20dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.

Minimum Standard:	> 20 dBc

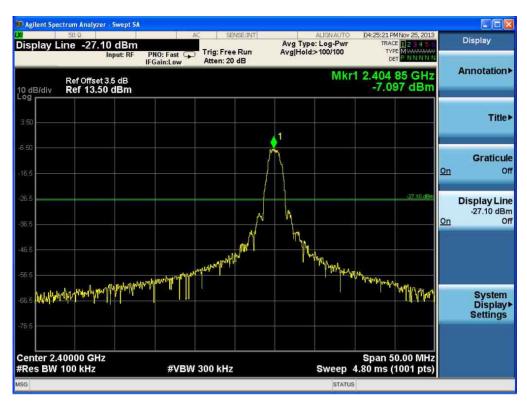
See next pages for actual measured spectrum plots.

Test Report No.: CTK-2013-01842 Page 17 of 32



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### **Band-edge Measurements**





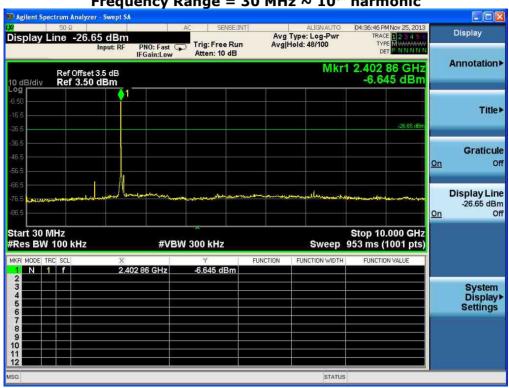
Test Report No.: CTK-2013-01842 Page 18 of 32

Date: 2013-12-11



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Band – edge (at 20 dB blow) – Low channel Frequency Range = 30 MHz  $\sim 10^{th}$  harmonic





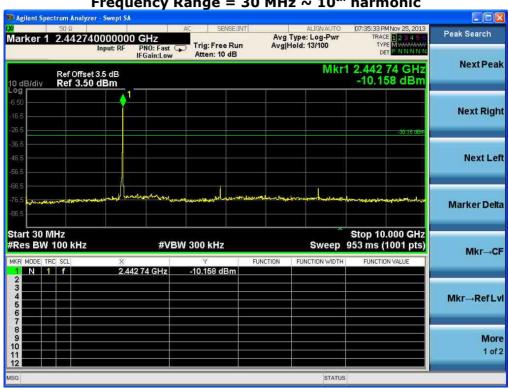
Test Report No.: CTK-2013-01842 Page 19 of 32

Date: 2013-12-11



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Band – edge (at 20 dB blow) – Mid channel Frequency Range = 30 MHz  $\sim 10^{th}$  harmonic





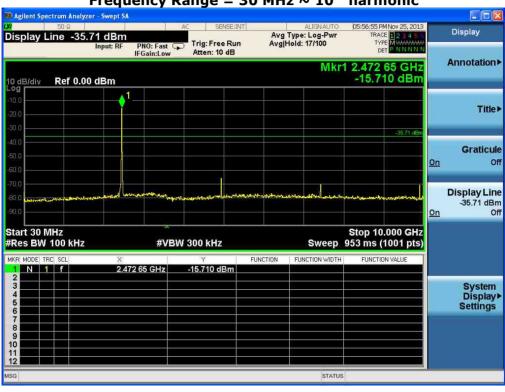
Test Report No.: CTK-2013-01842 Page 20 of 32

Date: 2013-12-11



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Band – edge (at 20 dB blow) – High channel Frequency Range = 30 MHz  $\sim 10^{th}$  harmonic





Test Report No.: CTK-2013-01842 Page 21 of 32



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### 2.1.5 Field Strength of Emissions

#### **Test Location**

 $\boxtimes$  10 m SAC (test distance :  $\square$  10 m,  $\boxtimes$  3 m)

□ 3 m SAC (test distance : 3 m)

#### **Test Procedures**

- 1) In the frequency range of 9 kHz to 30 MHz, magnetic field is measured with Loop Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- 2) In the frequency rage above 30 MHz, Bi-Log Test Antenna(30 MHz to 1 GHz) and Horn Test Antenna(above 1 GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is carried from 1m to 4m above the ground to determine the maximum value of the field strength. The emissions levels at both horizontal and vertical polarizations should be tested.

#### The spectrum analyzer is set to:

Frequency Range = 9 kHz  $\sim$  25 GHz (2.4 GHz  $10^{th}$  harmonic) RBW = 1 MHz for f  $\geq$  1 GHz, 100 kHz for f < 1 GHz, 9 kHz for f < 30 MHz VBW  $\geq$  RBW Sweep = auto

#### Limit

#### - 15.209(a)

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m	Deasurement Distance (meters)
0.009-0.490	· · · · · · · · · · · · · · · · · · ·		300
0.490-1.705	24000/F(kHz)	-	30
1.705-30	1.705-30 30		30
30-88	30-88 100** 88-216 150**		3
88-216			216 150** 43.5
216-960	216-960 200**		3
Above 960	500	54	3

<sup>\*\*</sup> Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

#### Note:

- 1) For above 1 GHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
- 2) For above 1 GHz, limit field strength of harmonics : 54 dBuV/m@3m (AV) and 74 dBuV/m@3m (PK)

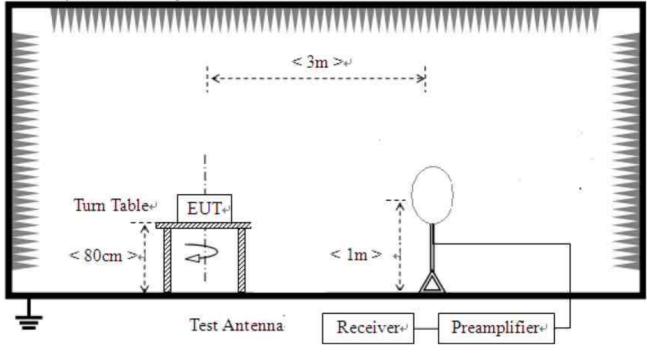
Test Report No.: CTK-2013-01842 Page 22 of 32



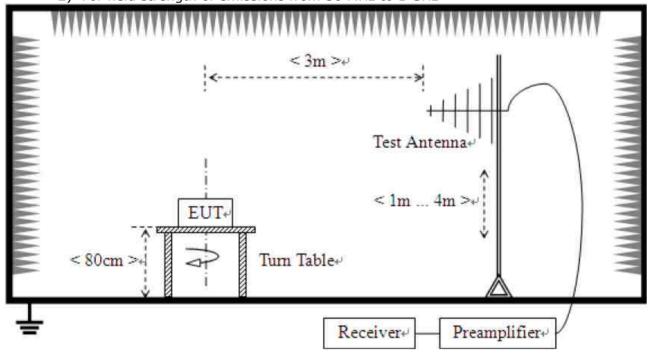
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### **Test Setup:**

1) For field strength of emissions from 9 kHz to 30 MHz



2) For field strength of emissions from 30 MHz to 1 GHz

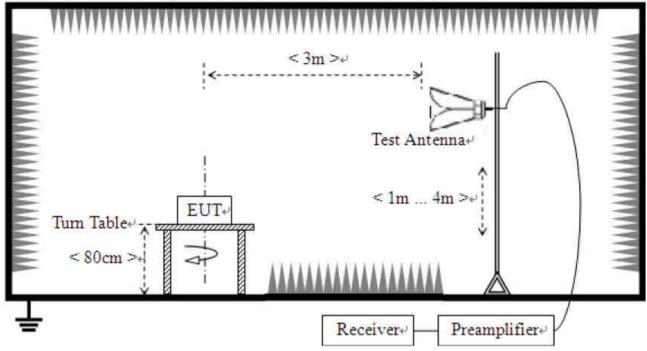


Test Report No.: CTK-2013-01842 Page 23 of 32



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3) For field strength of emissions above 1 GHz



### **Test Results** 1) 9 kHz to 30 MHz

EUT	Wireless Temperature Humidity Sensor	Measurement Detail		
Model	RN300	Frequency Range	9 kHz – 30 MHz	
Test mode	Ch.11 (Worst Case) _Battery, DC 6 V	Detector function	Quasi-Peak	

#### The requirements are:

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
-	-	-	See note

#### Note:

The amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB)

Test Report No.: CTK-2013-01842 Page 24 of 32

Date: 2013-12-11



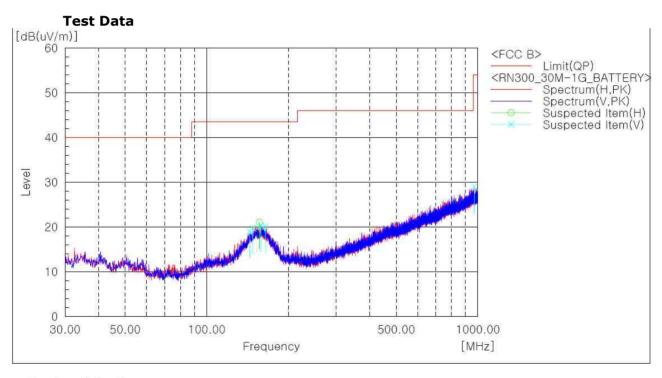
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### 2) 30 MHz to 1 GHz

EUT	Wireless Temperature Humidity	Measurement Detail	
	Sensor		
Model	RN300	Frequency Range	Below 1000MHz
Mode	Ch.11 (Worst Case)_Battery	Detector function	Quasi-Peak

### The requirements are:

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark	
156.464	21.1	22.4	Quasi-peak	



#### Spectrum Selection

No.	Frequency	(P)	Reading	c.f	Result PK	Limit QP	Margin QP	Height	Angle
	[MHz]		[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[cm]	[deg]
1	144.218	V	26.2	-7.2	19.0	43.5	24.5	400.0	156.0
2	147.976	V	26.0	-6.3	19.7	43.5	23.8	400.0	231.0
3	156.464	Н	26.9	-5.8	21.1	43.5	22.4	400.0	71.0
4	158.525	V	26.2	-5.9	20.3	43.5	23.2	194.0	178.0
5	164.588	V	26.4	-6.3	20.1	43.5	23.4	294.0	145.0
6	970.415	V	24.3	4.7	29.0	54.0	25.0	194.0	0.0

#### Remark:

1. The field strength of spurious emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(X axis) and the worst case was recorded.

Test Report No.: CTK-2013-01842 Page 25 of 32

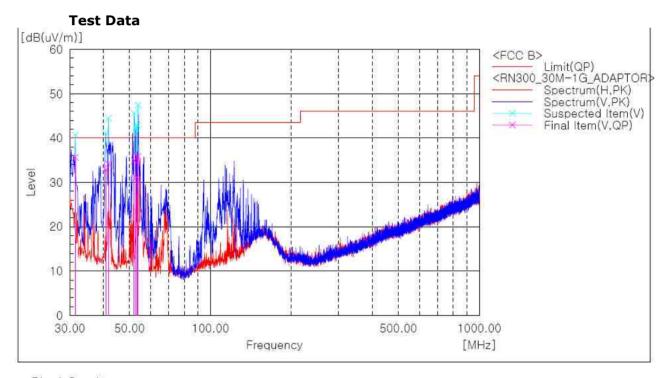


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EUT	Wireless Temperature Humidity	Measurement Detail	
	Sensor		
Model	RN300	Frequency Range	Below 1000MHz
Mode	Ch.11 (Worst Case)_DC 6 V	Detector function	Quasi-Peak

#### The requirements are:

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
53.836	35.9	4.1	Quasi-peak



Final Result

No.	Frequency	(P)	Reading QP	c.f	Result QP	Limit QP	Margin QP	Height	Angle
	[MHz]		[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[cm]	[deg]
1	31.455	V	48.4	-12.8	35.6	40.0	4.4	100.0	109.0
2	40.791	V	45.5	-12.7	32.8	40.0	7.2	292.0	145.0
3	41.761	V	47.2	-13.0	34.2	40.0	5.8	195.0	140.0
4	52.068	V	48.3	-13.4	34.9	40.0	5.1	100.0	298.0
5	52.916	V	44.5	-13.4	31.1	40.0	8.9	292.0	108.0
5	53.401	V	49.2	-13.5	35.7	40.0	4.3	292.0	108.0
7	53.836	٧	49.4	-13.5	35.9	40.0	4.1	100.0	336.0

#### Remark:

1. The field strength of spurious emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(X axis) and the worst case was recorded.

Test Report No.: CTK-2013-01842 Page 26 of 32



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### 3) Above 1 GHz

EUT	Wireless Temperature Humidity	Measurement Detail	
	Sensor		
Model	RN300	Frequency Range	1-25GHz
mode	Battery	Detector function	Average / Peak

#### Remarks

We have tested three mode (X, Y, Z). The worst mode (X axis) for final test.

The requirements are:

□ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2483.96	30.08	23.92	Average

#### **Test Data**

Ch.11(Low Channel)

Eroguency	Reading		Correction Factor		Limits	Result	Margin
Frequency	[dBuV/m]	Pol.	[dE	3]	[dBuV/m]	[dBuV/m]	[dB]
[MHz]	AV/Peak		Ant	CL+Amp	AV / Peak	AV / Peak	AV / Peak

No emissions were detected at a level greater than 20dB below limit.

#### Ch.18(Mid Channel)

Freque	requency	Reading		Correctio	n Factor	Limits	Result	Margin
	. equency	[dBuV/m]	Pol.	[di	3]	[dBuV/m]	[dBuV/m]	[dB]
	[MHz]	AV/Peak		Ant	CL+Amp	AV / Peak	AV / Peak	AV / Peak

No emissions were detected at a level greater than 20dB below limit.

#### Ch.25(High Channel)

Frequency	Reading		Correctio	n Factor	Limits	Result	Margin	
rrequency	[dBuV/m]	Pol.	[di	3]	[dBuV/m]	[dBuV/m]	[dB]	
[MHz]	AV/Peak		Ant	CL+Amp	AV / Peak	AV / Peak	AV / Peak	

No emissions were detected at a level greater than 20dB below limit.

### Restricted band edge test data

Measured frequency range: 2310-2390 MHz, 2483.5-2500 MHz

Frequency		Reading [dBuV/m]		Correction Factor [dB]		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
[MHz]	MHz] AV/Peak			Ant CL+Amp							
2483.96	25.00	43.90	Н	28.57	-23.49	54.00	74.00	30.08	48.98	23.92	25.02

Test Report No.: CTK-2013-01842 Page 27 of 32

Date: 2013-12-11

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EUT	Wireless Temperature Humidity	Measurement Detail	
	Sensor		
Model	RN300	Frequency Range	1-25GHz
mode	DC 6 V	Detector function	Average / Peak

#### **Remarks**

We have tested three mode (X, Y, Z). The worst mode (X axis) for final test.

#### The requirements are:

□ Complies

Frequency	Measured Data	Margin	Remark
(MHz)	(dBuV/m)	(dB)	Kelliaik
2484.89	30.18	23.82	Average

#### **Test Data**

Ch.11(Low Channel)

Frequen	Frequency	Reading		Correctio	n Factor	Limits	Result	Margin
	equelle,	[dBuV/m]	Pol.	[di	3]	[dBuV/m]	[dBuV/m]	[dB]
	[MHz]	AV/Peak		Ant	CL+Amp	AV / Peak	AV / Peak	AV / Peak

No emissions were detected at a level greater than 20dB below limit.

#### Ch.18(Mid Channel)

	Reading		Correctio	n Factor	Limits	Result	Margin
Frequency	[dBuV/m]	Pol.	[dB]		[dBuV/m]	[dBuV/m]	[dB]
[MHz]	AV/Peak		Ant	CL+Amp	AV / Peak	AV / Peak	AV / Peak

No emissions were detected at a level greater than 20dB below limit.

#### Ch.25(High Channel)

Frequency	Reading [dBuV/m]	Pol.	Correctio [di		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
[MHz]	AV/Peak		Ant	CL+Amp	AV / Peak	AV / Peak	AV / Peak

No emissions were detected at a level greater than 20dB below limit.

### Restricted band edge test data

Measured frequency range: 2310-2390 MHz, 2483.5-2500 MHz

Frequency Readin			Pol.	Correction Factor [dB]		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
[MHz]	Hz] AV/Peak			Ant CL+Am							
2484.89	25.10	43.70	Н	28.57	-23.49	54.00	74.00	30.18	48.78	23.82	25.22

Test Report No.: CTK-2013-01842 Page 28 of 32

Date: 2013-12-11

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### 2.1.6 AC Conducted Emissions

#### **Test Location**

Shielded Room

### **Frequency Range of Measurement**

150 kHz to 30 MHz

### **Instrument Settings**

IF Band Width: 9 kHz

#### **Test Procedures**

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

#### Limit

#### - 15.207(a)

<u> </u>							
Frequency	Conducted Limit (dBuV)						
(MHz)	Quasi-peak	Average					
0.15 ~ 0.5	66 to 56*	56 to 46*					
0.5 ~ 5	56	46					
5 ~ 30	60	50					

<sup>\*</sup> Decreases with the logarithm of the frequency.

#### **Test Results**

The requirements are:

#### **⊠** Complies

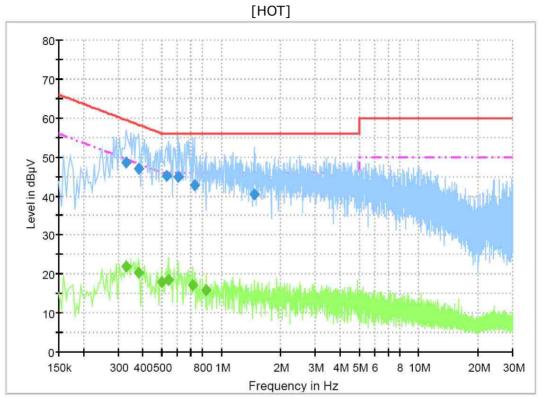
Frequency	Measured Data	Margin	Remark
(MHz)	(dBuV/m)	(dB)	
0.33	48.7	10.8	Quasi-peak

Test Report No.: CTK-2013-01842 Page 29 of 32



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### **Test Data**



# **Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.330000	48.7	1000.0	9.000	On	L1	10.1	10.8	59.5
0.379500	47.0	1000.0	9.000	On	L1	10.2	11.3	58.3
0.528000	45.2	1000.0	9.000	On	L1	10.2	10.8	56.0
0.604500	44.9	1000.0	9.000	On	L1	10.2	11.1	56.0
0.730500	42.7	1000.0	9.000	On	L1	10.1	13.3	56.0
1.473000	40.5	1000.0	9.000	On	L1	9.9	15.5	56.0

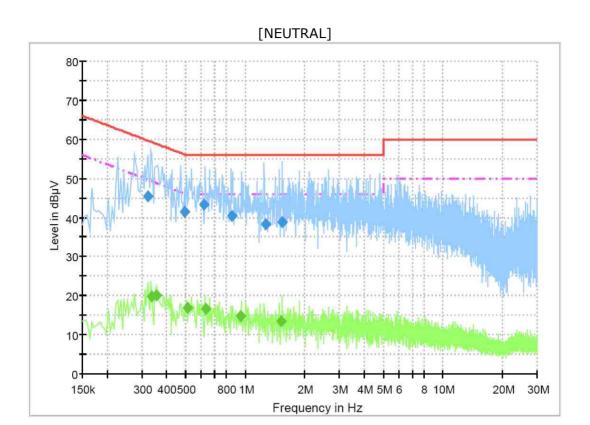
# **Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.330000	21.9	1000.0	9.000	On	L1	10.1	27.6	49.5
0.379500	20.4	1000.0	9.000	On	L1	10.2	27.9	48.3
0.501000	18.1	1000.0	9.000	On	L1	10.2	27.9	46.0
0.541500	18.4	1000.0	9.000	On	L1	10.2	27.6	46.0
0.712500	17.2	1000.0	9.000	On	L1	10.1	28.8	46.0
0.838500	15.8	1000.0	9.000	On	L1	10.1	30.2	46.0

Test Report No.: CTK-2013-01842



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# **Final Result 1**

That iteed it									
Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit	
(MHz)	(dBµV)	Time	(kHz)			(dB)	(dB)	(dBµV)	
		(ms)							
0.321000	45.5	1000.0	9.000	On	N	10.0	14.2	59.7	
0.496500	41.5	1000.0	9.000	On	N	10.2	14.6	56.1	
0.618000	43.2	1000.0	9.000	On	N	10.1	12.8	56.0	
0.861000	40.3	1000.0	9.000	On	N	10.0	15.7	56.0	
1.266000	38.4	1000.0	9.000	On	N	9.9	17.6	56.0	
1.536000	38.8	1000.0	9.000	On	N	9.9	17.2	56.0	

# Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.339000	19.7	1000.0	9.000	On	N	10.1	29.5	49.2
0.357000	20.1	1000.0	9.000	On	N	10.1	28.7	48.8
0.510000	17.0	1000.0	9.000	On	N	10.2	29.0	46.0
0.636000	16.7	1000.0	9.000	On	N	10.1	29.3	46.0
0.946500	14.7	1000.0	9.000	On	N	10.0	31.3	46.0
1.527000	13.6	1000.0	9.000	On	N	9.9	32.4	46.0

Test Report No.: CTK-2013-01842 Page 31 of 32



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# **APPENDIX A – Test Equipment Used For Tests**

	Name of Equipment	Manufacturer	Model No.	Serial No.	Cal Date	<b>Due Date</b>
1	Signal Analyzer	Agilent	N9020A	MY48011598	2013-11-08	2014-11-08
2	Spectrum Analyzer	Rohde & Schwarz	FSP-30	100994	2013-11-08	2014-11-08
3	EMI Test Receiver	Rohde & Schwarz	ESCI7	100814	2013-12-06	2014-12-06
4	EMI Test Receiver	Rohde & Schwarz	ESCI7	100816	2013-12-06	2014-12-06
5	Trilog Broadband Antenna	SCHWARZBECK	VULB 9161 SE	9161-4133	2012-06-11	2014-06-11
6	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-125	2012-06-06	2014-06-06
7	Attenuator	HP	8498A	1801A06913	2013-11-12	2014-11-12
8	EPM Series Power Meter	HP	E4418A	GB38272734	2013-11-08	2014-11-08
9	Power Sensor	HP	8487A	3318A03524	2013-07-06	2014-07-06
10	Audio Analyzer	HP	8903B	2747A03432	2013-11-08	2014-11-08
11	ESG-D Series Signal Generator	Agilent	E4432B	US40054094	2013-11-08	2014-11-08
12	SYNTHESIZED SWEEPER	HP	8341B	2819A01563	2013-11-08	2014-11-08
13	Attenuator	HP	8494A	3308A33351	2013-11-12	2014-11-12
14	Temp&Humi Chamber	Kunpoong	JT-TH-556-1	9QE5-002	2013-01-16	2014-01-16
15	DC POWER SUPPLY	Agilent	E3632A	MY40011638	2013-11-08	2014-11-08
16	Horn Antenna	ETS-Lindgren	3115	00078895	2013-02-28	2015-02-28
17	Horn Antenna	ETS-Lindgren	3116	00062916	2013-03-20	2015-03-20
18	OPT H64 AMPLIFIER	HP	8447F	3113A06814	2013-03-21	2014-03-21
19	PREAMPLIFIER	Agilent	8449B	3008A02307	2013-11-08	2014-11-08
20	Radio Communication Tester	Rohde & Schwarz	CMU200	106765	2013-02-04	2014-02-04
21	LISN	Rohde & Schwarz	ENV216	101235	2013-08-02	2014-08-02
22	LISN	Rohde & Schwarz	ENV216	101236	2013-08-02	2014-08-02
23	LISN	Rohde & Schwarz	ENV216	101151	2013-11-08	2014-11-08
24	DC POWER SUPPLY	Agilent	E3632A	MY40011638	2013-11-08	2014-11-08
25	EMI Test Receiver	Rohde & Schwarz	ESCI3	100032	2013-02-04	2014-02-04
26	6dB Attenuator	R&S	DNF	272.4110.50	2013-11-12	2014-11-12
27	AMPLIFIER	Sonoma Instrument Co.	310	291721	2013-03-21	2014-03-21
28	EMI Test Receiver	Rohde & Schwarz	ESU40	100336	2013-06-27	2014-06-27
29	Signal Generator	Rohde & Schwarz	SMBV100A	258008	2013-09-07	2014-09-07

Page 32 of 32 Test Report No.: CTK-2013-01842