



# TEST REPORT

## FCC ID:ZHSLHT65N

## IC:21459-LHT65N

**Report Number** ..... : ZKT-2206244311E-1

Date of Test ..... May.01, 2022 to Aug 01, 2022

Date of issue..... Aug 01, 2022

Total number of pages ..... 31

Test Result ..... PASS

**Testing Laboratory** ..... : **Shenzhen ZKT Technology Co., Ltd.**

Address ..... : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

**Applicant's name** ..... : **Dragino Technology Co., Limited**

Address ..... : Room 202, Block B, BCT Incubation Bases, No.8 CaiYunRoad LongCheng Street, LongGang District ; Shenzhen 518116,China

**Manufacturer's name** ..... : **Dragino Technology Co., Limited.**

Address ..... : Room 202, Block B, BCT Incubation Bases, No.8 CaiYunRoad LongCheng Street, LongGang District ; Shenzhen 518116,China

**Test specification:**

Standard ..... : FCC CFR Title 47 Part 15 Subpart C Section 15.247  
RSS-247 Issue 2, February 2017  
RSS-Gen Issue 5, Amendment 1, February 2021

Test procedure ..... : /

Non-standard test method ..... : N/A

**Test Report Form No.**..... : TRF-EL-110\_V0

**Test Report Form(s) Originator**.... : ZKT Testing

**Master TRF** ..... : Dated: 2020-01-06

This device described above has been tested by ZKT, and the test results show that the equipment under test (EUT) is in compliance with the FCC and IC requirements. And it is applicable only to the tested sample identified in the report.

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**Product name**..... : **LoRaWAN Temperature & Humidity Sensor**

Trademark ..... : DRAGINO

Model/Type reference ..... : LHT65N

Ratings ..... : DC 3V CR17450



**Testing procedure and testing location:**

**Testing Laboratory**.....: **Shenzhen ZKT Technology Co., Ltd.**

**Address**.....: 1/F, No. 101, Building B, No. 6, Tangwei Community  
Industrial Avenue, Fuhai Street, Bao'an District,  
Shenzhen, China

**Tested by (name + signature)**.....: Jim Liu

**Reviewer (name + signature)**.....: Tom Zou

**Approved (name + signature)**.....: Lake Xie





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**1.Version**

Report No.	Version	Description	Approved
ZKT-2206244311E-1	Rev.01	Initial issue of report	Aug 01, 2022



## 2. Test Summary

FCC Part 15.247, Subpart C RSS-247 Issue 2		
Test Item	Standard	Result
Antenna Requirement	15.203/15.247 (c) RSS-Gen 6.8	Pass
AC Power Line Conducted Emission	15.207 RSS-Gen 8.8	N/A
Conducted Peak Output Power	15.247 (b)(1) RSS-247 5.4 d)	Pass
-6dB Occupied Bandwidth	15.247 (a)(1) RSS-Gen 6.7 RSS-247 5.2 a)	Pass
Radiated Emission	15.205/15.209 RSS-Gen 8.9/8.10	Pass
Band Edge	15.247(d) RSS-247 5.5 RSS-Gen 8.9/8.10	Pass
Power Spectral Density	15.247 (e) RSS-247 5.2 b)	Pass

**NOTE:**

(1) "N/A" denotes test is not applicable in this Test Report



## 2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.

Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street,  
Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225

Designation Number: CN1299

IC Registered No.: 27033

CAB identifier: CN0110

## 2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(9KHz-30MHz)	U=4.5dB
2	3m chamber Radiated spurious emissio (30MHz-1GHz)	U=4.8dB
3	3m chamber Radiated spurious emission(1GHz-6GHz)	U=4.9dB
4	3m chamber Radiated spurious emission(6GHz-40GHz)	U=5.0dB
5	Conducted disturbance	U=3.2dB
6	RF Band Edge	U=1.68dB
7	RF power conducted	U=1.86dB
8	RF conducted Spurious Emission	U=2.2dB
9	RF Occupied Bandwidth	U=1.8dB
10	RF Power Spectral Density	U=1.75dB
11	humidity uncertainty	U=5.3%
12	Temperature uncertainty	U=0.59°C



### 3. General Information

#### 3.1 General Description of EUT

Product Name:	LoRaWAN Temperature & Humidity Sensor
Model No.:	LHT65N
Sample(s) Status:	Engineer sample
Serial No.:	HT65N490051
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	902MHz~928MHz
Channel numbers:	8
Channel separation:	600KHz for 500KHz bandwidth
Modulation type:	GFSK
Antenna Type:	Internal antenna
Antenna gain:	2dBi
Power supply:	DC 3V CR17450



600KHz for DTS:

Operation Frequency each of channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	903.00	4	907.80	7	912.60
2	904.60	5	909.40	8	914.20
3	906.20	6	911.00		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency(600KHz)
The lowest channel	903.00MHz
The middle channel	909.40MHz
The Highest channel	914.20MHz





### 3.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
<i>Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i>	

Test Software: FCC Tool; Power Setting: Default

### 3.3 Test Setup Configuration

Radiated Emission

EUT

Conducted Spurious

EUT

### 3.4 Support Equipment

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	LoRaWAN Temperature & Humidity Sensor	DRAGINO	LHT65N	N/A	EUT
A-1					

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

### 3.5 Test Instruments list

Radiation Test equipment



Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY45109572	Sep. 22, 2021	Sep. 21, 2022
2	Spectrum Analyzer (1GHz-40GHz)	Agilent	E4446A	100363	Sep. 22, 2021	Sep. 21, 2022
3	Test Receiver (9kHz-7GHz)	R&S	ESC17	101169	Sep. 22, 2021	Sep. 21, 2022
4	Bilog Antenna (30MHz-1400MHz)	Schwarzbeck	VULB9168	00877	Sep. 22, 2021	Sep. 21, 2022
5	Horn Antenna (1GHz-18GHz)	SCHWARZBEC K	BBHA9120D	1541	Sep. 22, 2021	Sep. 21, 2022
6	Horn Antenna (18GHz-40GHz)	A.H. System	SAS-574	588	Sep. 22, 2021	Sep. 21, 2022
7	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	N/A	Sep. 22, 2021	Sep. 21, 2022
8	Amplifier (1GHz-40GHz)	全聚达	DLE-161	097	Sep. 22, 2021	Sep. 21, 2022
9	Loop Antenna (9kHz-30MHz)	SCHWARZBEC K	FMZB1519B	014	Sep. 22, 2021	Sep. 21, 2022
10	RF cables1 (9kHz-30MHz)	N/A	9kHz-30MHz	N/A	Sep. 22, 2021	Sep. 21, 2022
11	RF cables2 (30MHz-1GHz)	N/A	30MHz-1GHz	N/A	Sep. 22, 2021	Sep. 21, 2022
12	RF cables3 (1GHz-40GHz)	N/A	1GHz-40GHz	N/A	Sep. 22, 2021	Sep. 21, 2022
13	CMW500 Test	R&S	CMW500	106504	Sep. 22, 2021	Sep. 21, 2022
14	ESG Signal Generator	Agilent	E4421B	GB40051203	Sep. 22, 2021	Sep. 21, 2022
15	Signal Generator	Agilent	N5182A	MY47420215	Sep. 22, 2021	Sep. 21, 2022
16	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
17	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

## Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	Sep. 22, 2021	Sep. 21, 2022
2	LISN	CYBERTEK	EM5040A	E185040014 9	Sep. 22, 2021	Sep. 21, 2022
3	Test Cable	N/A	C01	N/A	Sep. 22, 2021	Sep. 21, 2022
4	Test Cable	N/A	C02	N/A	Sep. 22, 2021	Sep. 21, 2022
5	EMI Test Receiver	R&S	ESRP3	101946	Sep. 22, 2021	Sep. 21, 2022
6	Absorbing Clamp	DZ	ZN23201	N/A	Sep. 22, 2021	Sep. 21, 2022



## 4 Test Items for DTS

### 4.1 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3) RSS-247 Issue 2																				
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02																				
Limit:	<table border="1"> <thead> <tr> <th colspan="5">FCC Part 15.247,Subpart C RSS-247 Issue 2</th> </tr> <tr> <th>Section</th> <th>Test Item</th> <th>Limit</th> <th>Frequency Range (MHz)</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>15.247(b)(3) RSS 247 Issue 2</td> <td>Output Power</td> <td>1 watt or 30dBm</td> <td>902-928</td> <td>PASS</td> </tr> <tr> <td>RSS-247</td> <td>EIRP</td> <td>4W</td> <td>902-928</td> <td>PASS</td> </tr> </tbody> </table>	FCC Part 15.247,Subpart C RSS-247 Issue 2					Section	Test Item	Limit	Frequency Range (MHz)	Result	15.247(b)(3) RSS 247 Issue 2	Output Power	1 watt or 30dBm	902-928	PASS	RSS-247	EIRP	4W	902-928	PASS
FCC Part 15.247,Subpart C RSS-247 Issue 2																					
Section	Test Item	Limit	Frequency Range (MHz)	Result																	
15.247(b)(3) RSS 247 Issue 2	Output Power	1 watt or 30dBm	902-928	PASS																	
RSS-247	EIRP	4W	902-928	PASS																	
Test setup:	<p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>																				
Test Instruments:	Refer to section 6.0 for details																				
Test mode:	Refer to section 5.2 for details																				
Test results:	Pass																				

### Measurement Data 600KHz Bandwidth:

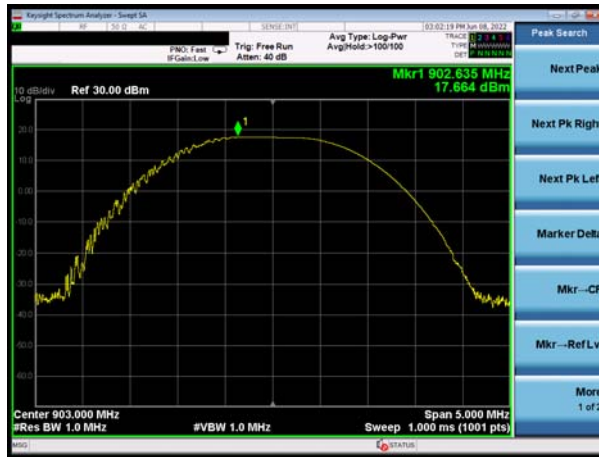
Test channel	Peak Output Power (dBm)	Limit(dBm)	Result
Lowest	17.664	30.00	Pass
Middle	18.001		
Highest	16.406		

Test channel	EIRP (dBm)	Antenna Gain (dBi)	Limit(dBm)	Result
Lowest	19.664	2.0	36.02	Pass
Middle	20.001	2.0		
Highest	18.406	2.0		

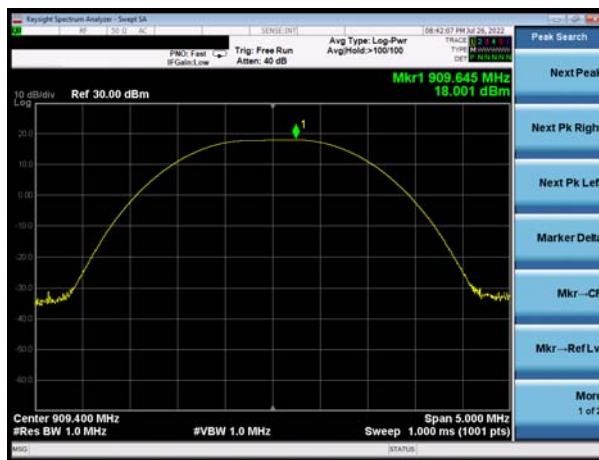
Note: The software has considered the factor of the duty cycle factor, so it is unnecessary to add it again.



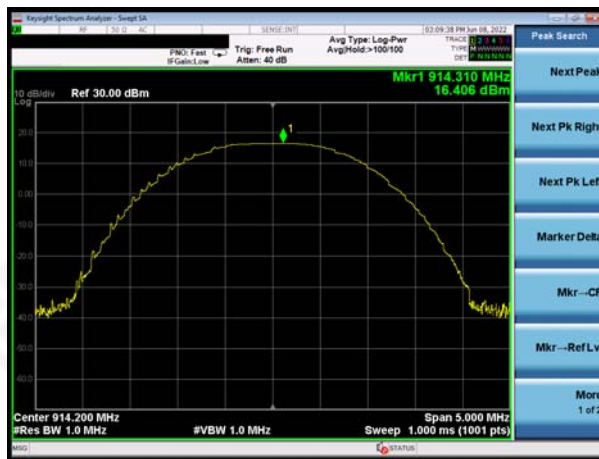
Test plot as follows:



Lowest channel



Middle channel



Highest channel



4.2 Channel Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2) RSS-Gen Clause 6.7
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	>500KHz
Test setup:	<p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

**Measurement Data**

**600KHz Bandwidth:**

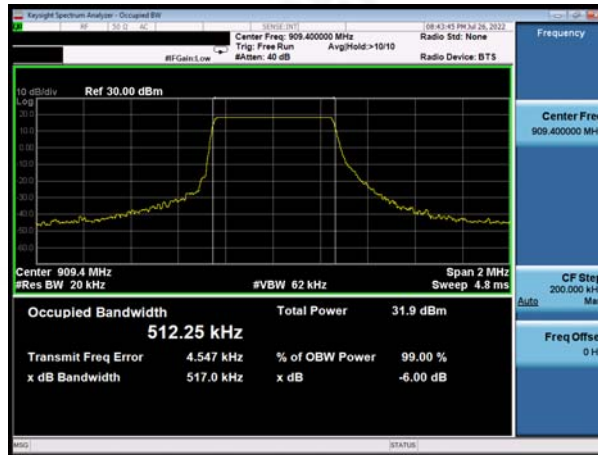
Test channel	-6dB Bandwidth (kHz)	99% Bandwidth (kHz)	Limit(KHz)	Result
Lowest	631.3	513.44	>500	Pass
Meddle	630.3	512.25		
Highest	629.2	512.81		



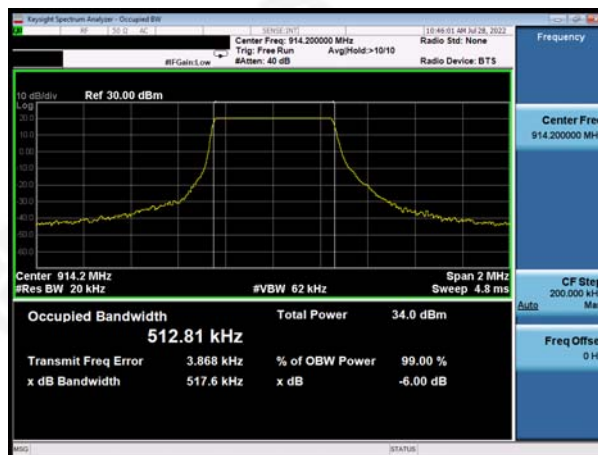
**99% Bandwidth**  
Test plot as follows:



Lowest channel



Meddle channel



Highest channel



-6% Bandwidth  
Test plot as follows:



Lowest channel



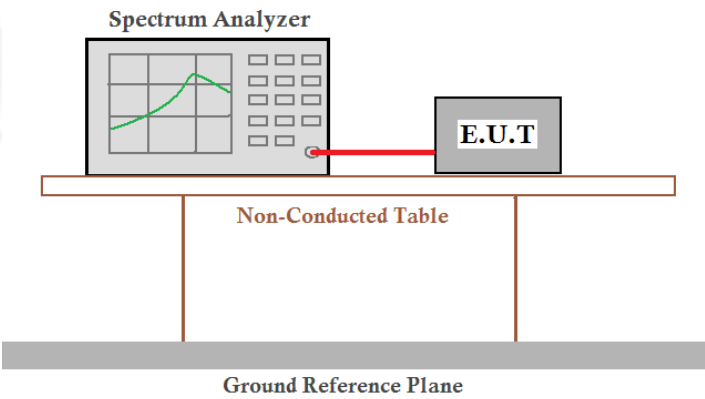
Meddle channel



Highest channel



### 4.3 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e) RSS-247 Issue 2
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	8dBm/3kHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

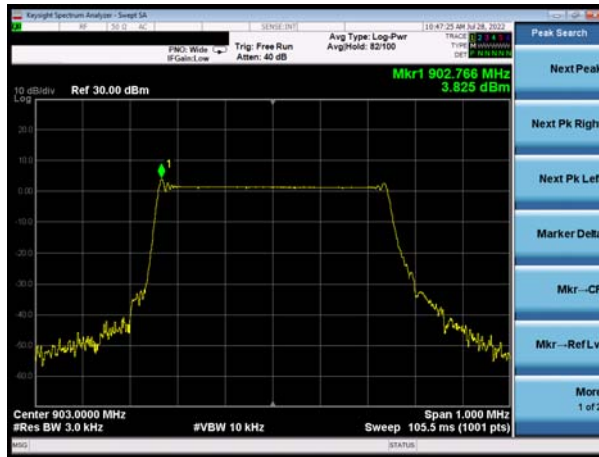
### Measurement Data

Test channel	Power Spectral Density (dBm/3kHz)	Limit(dBm/3kHz)	Result
Lowest	3.825	8.00	Pass
Middle	3.725		
Highest	5.863		





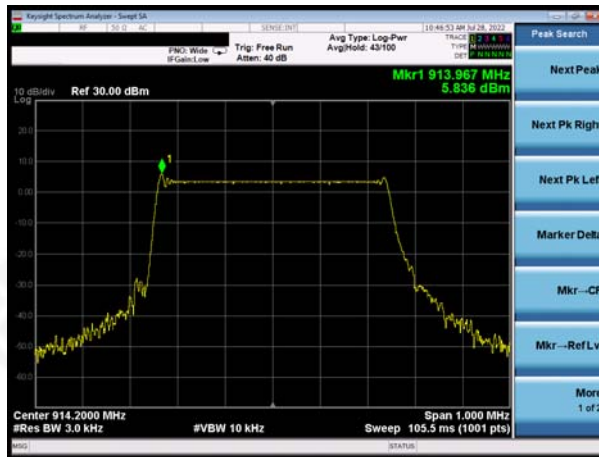
Test plot as follows:



Lowest channel



Medlle channel



Highest channel

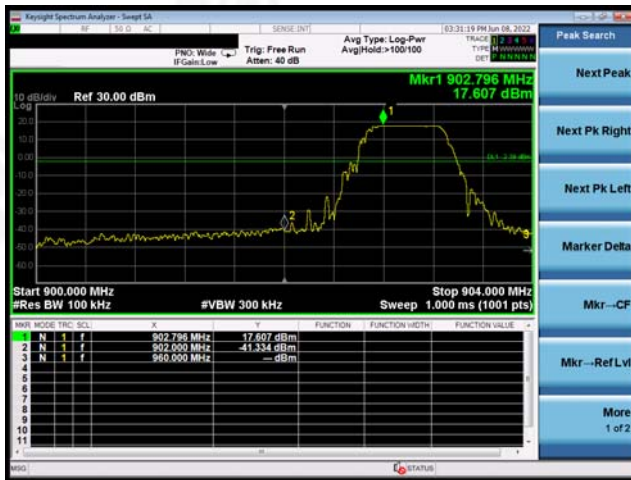


#### 4.4 Band edges

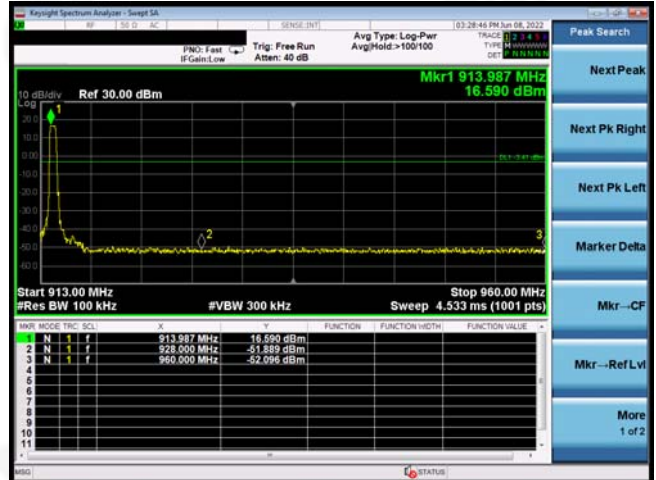
Test Requirement:	FCC Part15 C Section 15.247 (d) RSS-247 5.5
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	<p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass



Test plot as follows:



Lowest Channel



Highest Channel



**Measurement Data**

Test channel:	Lowest channel
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Quasi-peak:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
902.00	34.24	22.30	4.87	37.60	23.81	46.00	-22.19	Horizontal
902.00	35.24	22.30	4.87	37.60	24.81	46.00	-21.19	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
902.00	28.24	22.30	4.87	37.60	17.81	46.00	-28.19	Horizontal
902.00	28.76	22.30	4.87	37.60	18.33	46.00	-27.67	Vertical

Test channel:	Highest channel
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Quasi-peak :

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
928.00	37.12	22.41	4.96	37.57	26.92	46.00	-19.08	Horizontal
928.00	38.57	22.41	4.96	37.57	28.37	46.00	-17.63	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
928.00	32.01	22.41	4.96	37.57	21.81	46.00	-24.19	Horizontal
928.00	31.23	22.41	4.96	37.57	21.03	46.00	-24.97	Vertical

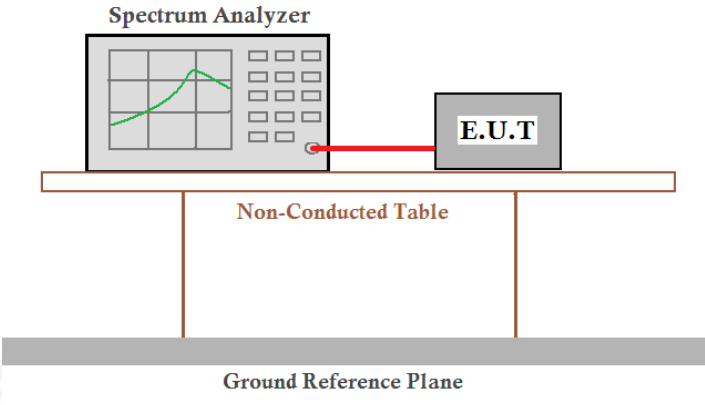
Remarks:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.



#### 4.5 Spurious Emission

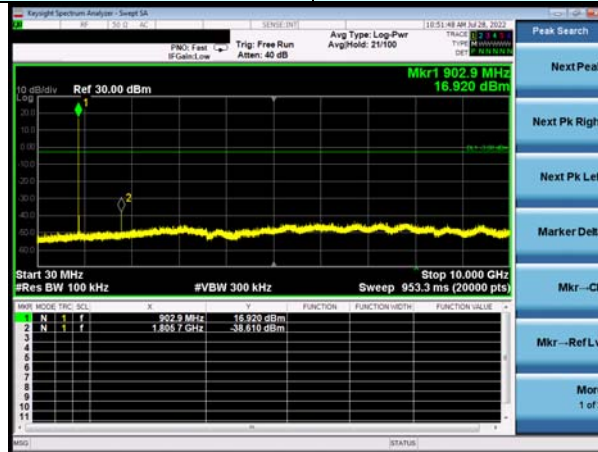
##### Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d) RSS-Gen 8.8
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v05r02
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>The diagram illustrates the test setup for conducted emission measurement. It shows a Spectrum Analyzer connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass



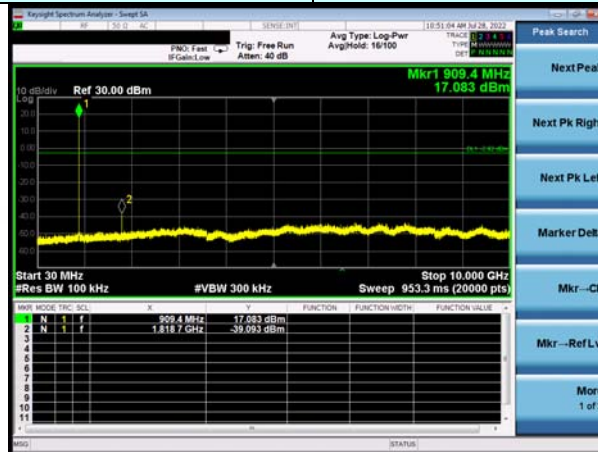
Test plot as follows:

Test channel: Lowest channel



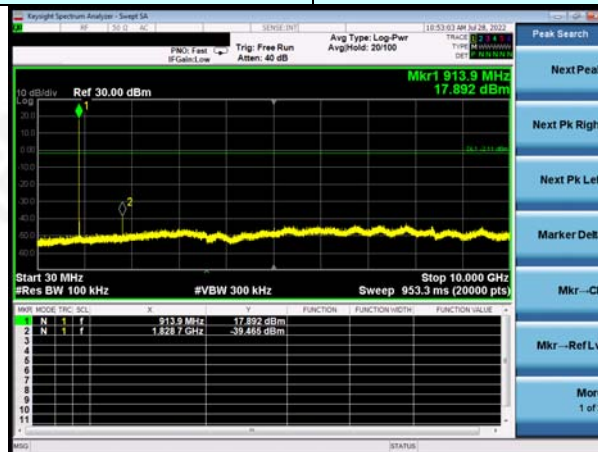
30MHz~10GHz

Test channel: Middle channel



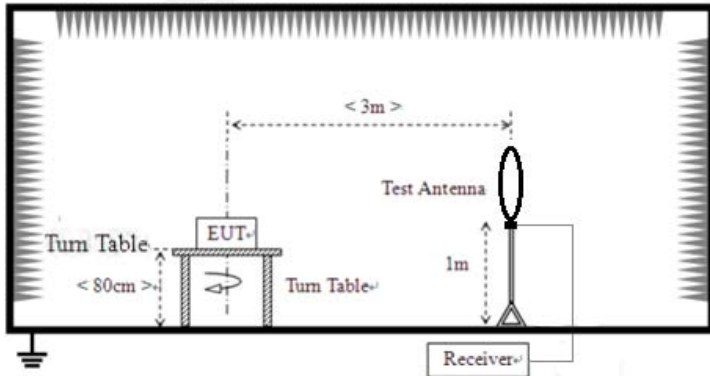
30MHz~10GHz

Test channel: Highest channel



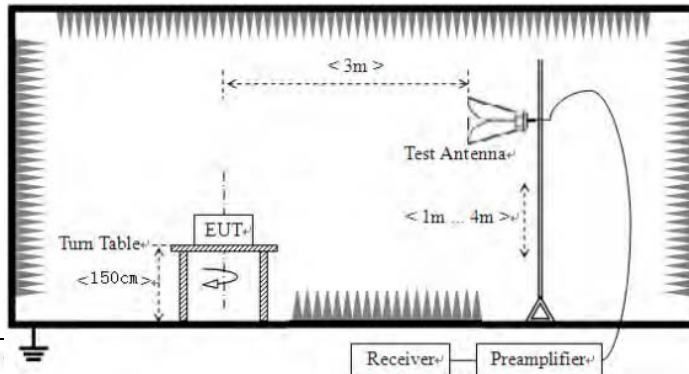
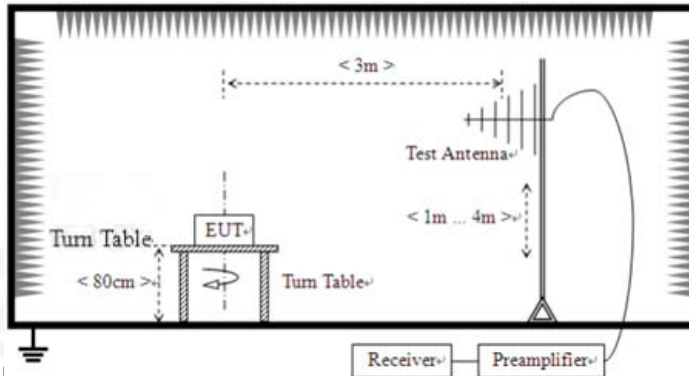


Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 RSS-Gen 8.9/8.10				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz	Average	
Limit:	Frequency	Limit (uV/m)	Value	Measurement Distance	
	0.009MHz-0.490MHz	2400/F(KHz)	QP	300m	
	0.490MHz-1.705MHz	24000/F(KHz)	QP	30m	
	1.705MHz-30MHz	30	QP	30m	
	30MHz-88MHz	100	QP	3m	
	88MHz-216MHz	150	QP		
	216MHz-960MHz	200	QP		
	960MHz-1GHz	500	QP		
	Above 1GHz	500	Average		
5000		Peak			
Test setup:	<p>For radiated emissions from 9kHz to 30MHz</p>  <p>The diagram illustrates the test setup for radiated emissions. An Equipment Under Test (EUT) is placed on a turn table, which is itself on another turn table. The EUT is positioned at a distance of less than 80 cm from the center of the turn table. A test antenna is positioned at a distance of less than 3 meters from the EUT. The antenna is mounted on a stand that is 1 meter high. The antenna is connected to a receiver. The entire setup is enclosed in a shielded chamber.</p>				



For radiated emissions from 30MHz to1GHz



Test Procedure:

1. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
2. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
3. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
4. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	DC 3V					
Test results:	Pass					





**Measurement data:**

*Remark:*

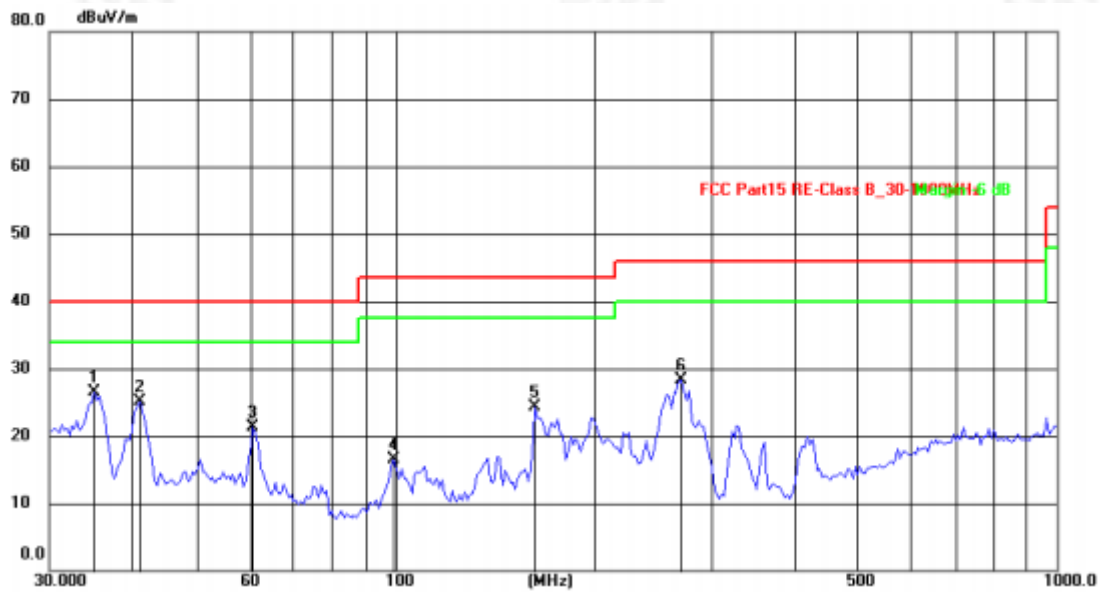
*Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.*

■ **9kHz~30MHz**

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.



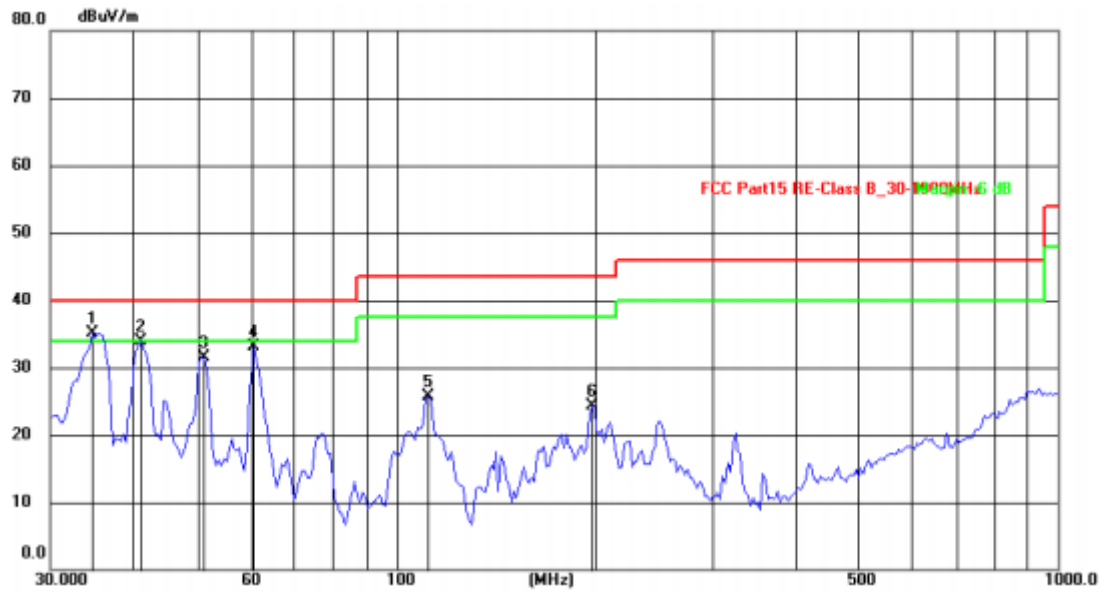
■ Below 1GHz  
Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	35.1276	41.47	-15.02	26.45	40.00	-13.55	QP
2	41.1319	39.23	-14.12	25.11	40.00	-14.89	QP
3	61.0243	35.81	-14.51	21.30	40.00	-18.70	QP
4	99.7026	36.31	-19.83	16.48	43.50	-27.02	QP
5	162.8959	41.34	-17.05	24.29	43.50	-19.21	QP
6	270.8491	44.87	-16.60	28.27	46.00	-17.73	QP



Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	34.8211	52.80	-17.64	35.16	40.00	-4.84	QP
2	41.1319	50.89	-16.91	33.98	40.00	-6.02	QP
3	51.2105	48.99	-17.41	31.58	40.00	-8.42	QP
4	61.0242	51.43	-18.42	33.01	40.00	-6.99	QP
5	111.7377	47.06	-21.43	25.63	43.50	-17.87	QP
6	197.5459	45.90	-21.56	24.34	43.50	-19.16	QP



■ Above 1GHz

Test channel:	Lowest channel
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**Peak value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1815.31	40.21	25.25	4.85	34.08	36.23	74.00	-37.77	Vertical
2721.00	39.56	28.12	5.66	33.68	39.66	74.00	-34.34	Vertical
3626.00	33.08	29.19	7.25	37.37	32.15	74.00	-41.85	Vertical
4518.00	*					74.00		Vertical
5427.00	*					74.00		Vertical
6325.00	*					74.00		Vertical
1812.21	35.67	25.25	4.85	34.08	31.69	74.00	-42.31	Horizontal
2721.00	35.73	28.12	5.66	33.68	35.83	74.00	-38.17	Horizontal
3626.00	32.35	29.19	7.25	37.37	31.42	74.00	-42.58	Horizontal
4518.00	*					74.00		Horizontal
5427.00	*					74.00		Horizontal
6325.00	*					74.00		Horizontal

**Average value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1812.21	30.23	25.25	4.85	34.08	26.25	54.00	-27.75	Vertical
2721.00	24.46	28.12	5.66	33.68	24.56	54.00	-29.44	Vertical
3626.00	25.14	29.19	7.25	37.37	24.21	54.00	-29.79	Vertical
4518.00	*					54.00		Vertical
5427.00	*					54.00		Vertical
6325.00	*					54.00		Vertical
1812.21	29.32	25.25	4.85	34.08	25.34	54.00	-28.66	Horizontal
2721.00	25.14	28.12	5.66	33.68	25.24	54.00	-28.76	Horizontal
3626.00	25.23	29.19	7.25	37.37	24.30	54.00	-29.70	Horizontal
4518.00	*					54.00		Horizontal
5427.00	*					54.00		Horizontal
6325.00	*					54.00		Horizontal

**Remarks:**

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. “\*”, means this data is the too weak instrument of signal is unable to test.



Test channel:	Highest
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**Peak value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1824.43	40.22	25.43	4.89	34.12	36.42	74.00	-37.58	Vertical
2753.40	36.72	28.34	5.68	33.57	37.17	74.00	-36.83	Vertical
3653.34	34.52	29.42	7.29	37.66	33.57	74.00	-40.43	Vertical
4564.14	*					74.00		Vertical
5487.67	*					74.00		Vertical
6413.58	*					74.00		Vertical
1824.43	40.13	25.43	4.89	34.12	36.33	74.00	-37.67	Horizontal
2753.40	34.25	28.34	5.68	33.57	34.70	74.00	-39.30	Horizontal
3653.34	36.42	29.42	7.29	37.66	35.47	74.00	-38.53	Horizontal
4564.14	*					74.00		Horizontal
5487.67	*					74.00		Horizontal
6413.58	*					74.00		Horizontal

**Average value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1824.43	30.42	25.43	4.89	34.12	34.12	54.00	-27.38	Vertical
2753.40	26.14	28.34	5.68	33.57	33.57	54.00	-27.41	Vertical
3653.34	25.63	29.42	7.29	37.66	37.66	54.00	-29.32	Vertical
4564.14	*					54.00		Vertical
5487.67	*					54.00		Vertical
6413.58	*					54.00		Vertical
1824.43	32.63	25.43	4.89	34.12	28.83	54.00	-25.17	Horizontal
2753.40	24.15	28.34	5.68	33.57	24.60	54.00	-29.40	Horizontal
3653.34	26.23	29.42	7.29	37.66	25.28	54.00	-28.72	Horizontal
4564.14	*					54.00		Horizontal
5487.67	*					54.00		Horizontal
6413.58	*					54.00		Horizontal

**Remarks:**

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *“\*” , means this data is the too weak instrument of signal is unable to test.*



## 5. Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c) RSS-Gen 6.8
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
EUT Antenna:	
The antenna is Internal antenna, the best case gain of the antennas is 2dBi, reference to the appendix II for details	



## 6. Test Setup Photo

Reference to the appendix I for details.

## 7. EUT Constructional Details

Reference to the appendix II for details.

\*\*\*\*\* END OF REPORT \*\*\*\*\*