



RADIO TEST REPORT

Report No.: STS2203176W01

Issued for

Shenzhen Huion Animation Technology Co.,Ltd.

1st Floor, Plant 1, Tengluo Factory Area, Zhoushi Road, Tangtou Community, Shiyan Street, Bao'an District, Shenzhen, China

Product Name:	Mini Keydial
Brand Name:	HLION
Model Name:	KD100
Series Model:	KD100B, KD110
FCC ID:	2AFEJ-HWT22A
Test Standard:	FCC Part 15.249

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APPROVAL



TEST RESULT CERTIFICATION

Applicant's Name	Shenzhen Huion Animation T	Technology Co.,Ltd.
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Community, Shiyan Street, Bao'an District, Shenzhen, China

Manufacture's Name Shenzhen Huion Animation Technology Co.,Ltd.

Community, Shiyan Street, Bao'an District, Shenzhen, China

Product Description

Product Name Mini Keydial

Brand Name

Model Name.....: KD100

Series Model KD100B, KD110

Test Standards...... FCC Part15.249

Test Procedure ANSI C63.10-2013

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

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Date of Test....:

Date of receipt of test item.....: 28 Mar. 2022

Date of performance of tests ..: 28 Mar. 2022 ~ 05 May 2022

Date of Issue 05 May 2022

Test Result Pass

Testing Engineer :

(Chris Chen)

Technical Manager:

(Sean she)

Authorized Signatory:

(Vita Li)



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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	05 May 2022	STS2203176W01	ALL	Initial Issue





1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 15.249 , Subpart C					
Standard Section	Test Item	Judgment	Remark		
15.207	Conducted Emission	Pass			
15.203	Antenna Requirement	Pass			
15.249	Radiated Spurious Emission	Pass			
15.249	Radiated Band Edge Emission	Pass			
15.249	Field Strength of fundamental	Pass			
15.215(c)	20dB Bandwidth	Pass			

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report.
- (2) All tests are according to ANSI C63.10-2013.



1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add.: A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ,

Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569 IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	RF output power, conducted	±0.87dB
2	Unwanted Emissions, conducted	±2.895dB
3	All emissions, radiated 9K-30MHz	±3.80dB
4	All emissions, radiated 30M-1GHz	±4.09dB
5	All emissions, radiated 1G-6GHz	±4.92dB
6	All emissions, radiated>6G	±5.49dB
7	Conducted Emission (9KHz-30MHz)	±2.73dB



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Mini Keydial		
Trade Name	HLION		
Model Name	KD100		
Series Model	KD100B, KD110		
Model Difference	Only different in model i	name.	
Product Description	The EUT is a Mini Keydial Operation Frequency: 2406~2476MHz Modulation Type: GFSK Antenna Designation: Please refer to the Note 3. Antenna Gain(Peak): 3.61dBi Based on the application, features, or specification exhibited in User Manual, the EUT is considered as ITE/Computing Device. More details of EUT technic specification, please refer to the User Manual.		
Channel List	Please refer to the Note	2.	
Battery	Rated Voltage: 3.7V Charge Limit Voltage: 4 Capacity: 1200mAh	.2V	
Hardware version number	REV02		
Software version number	210430		
Connecting I/O Port(s)	Please refer to the Note	:1.	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.

2.	Channel List					
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
	01	2406	07	2451	13	2417
	02	2424	08	2469	14	2436
	03	2447	09	2414	15	2459
	04	2467	10	2433	16	2476
	05	2411	11	2455		
	06	2429	12	2473		

3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	76835127 635	KD100	PCB	N/A	3.61dBi	Antenna

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.



2.2 DESCRIPTION OF THE TEST MODES

For conducted test items and radiated spurious emissions

Each of these EUT operation mode(s) or test configuration mode(s) mentioned below was evaluated respectively.

Pretest Mode	Description	Data/Modulation
Mode 1	TX Low channel(2406MHz)	GFSK
Mode 2	TX Mid channel(2447MHz)	GFSK
Mode 3	TX High channel(2476MHz)	GFSK

Note:

- (1) All above mode have been measurement, only worst data was reported.
- (2) We have be tested for all avaiable U.S. voltage and frequencies(For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V,50/60Hz is shown in the report.

For AC Conducted Emission

of 710 Contadolog El	THOSICIT
	Test Case
AC Conducted Emission	Mode 4 : Keeping TX

2.3 TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

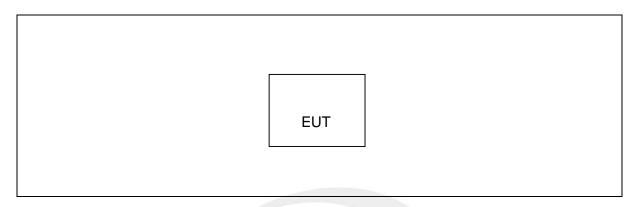
٠.						
	RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
	Other SRD	2.4G	GFSK	3.61	Default	The EUT has signal transmission when it is powered on



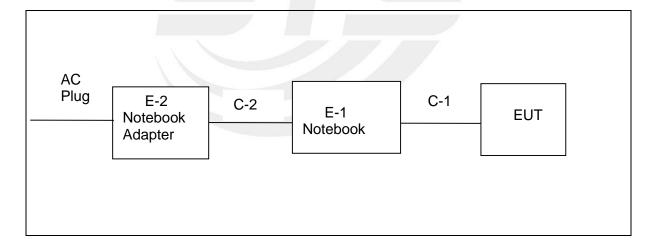
2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters.

Radiated Spurious Emission Test



Conducted Emission Test





2.5 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
C-1	USB Cable	N/A	N/A	155cm	NO

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
E-2	Notebook Adapter	LENOVO	ADLX45DLC3A	N/A	N/A
E-1	Notebook	LENOVO	Think Pad E470	N/A	N/A
C-2	USB Cable	N/A	N/A	150cm	NO

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.



2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Radiation rest equipment						
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	
Test Receiver	R&S	ESCI	101427	2021.09.30	2022.09.29	
Signal Analyzer	R&S	FSV 40-N	101823	2021.09.30	2022.09.29	
Active loop Antenna	ZHINAN	ZN30900C	16035	2021.04.11	2023.04.10	
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11	
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2021.10.11	2023.10.10	
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11	
Pre-Amplifier(0.1M-3 GHz)	EM	EM330	060665	2021.10.08	2022.10.07	
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2021.09.30	2022.09.29	
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2021.09.28	2022.09.27	
Temperature & Humidity	HH660	Mieo	N/A	2021.10.09	2022.10.08	
turn table	EM	SC100_1	60531	N/A	N/A	
Antenna mast	EM	SC100	N/A	N/A	N/A	
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)				

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2021.09.30	2022.09.29
LISN	R&S	ENV216	101242	2021.09.30	2022.09.29
LISN	EMCO	3810/2NM	23625	2021.09.30	2022.09.29
Temperature & Humidity	HH660	Mieo N/A 2021.10.09 2022.10.			
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 CE)			



RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
			MY55520005	2021.09.30	2022.09.29
Power Sensor	Kovojaht	U2021XA	MY55520006	2021.09.30	2022.09.29
	Keysight		MY56120038	2021.09.30	2022.09.29
			MY56280002	2021.09.30	2022.09.29
Signal Analyzer	Agilent	N9020A	MY51110105	2022.03.01	2023.02.28
Temperature & Humidity	HH660	Mieo	N/A	2021.10.09	2022.10.08
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			





3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 15.249 limit in the table below has to be followed.

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

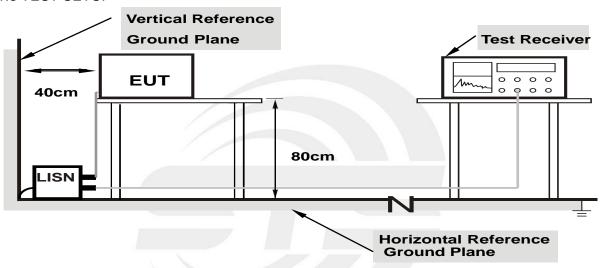
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz



3.1.2 TEST PROCEDURE

- a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

3.1.3 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



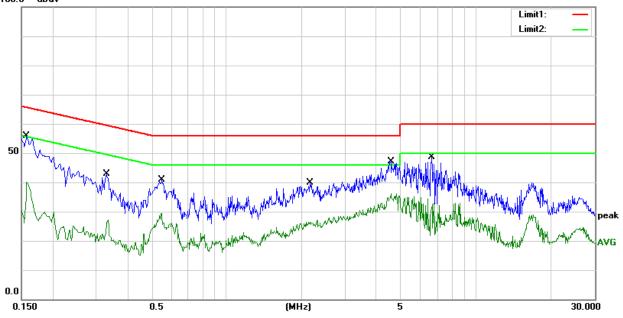
3.1.5 TEST RESULT

Temperature:	23.2(C)	Relative Humidity:	44%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 4		

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1580	35.62	20.33	55.95	65.57	-9.62	QP
2	0.1580	19.70	20.33	40.03	55.57	-15.54	AVG
3	0.3300	22.17	20.69	42.86	59.45	-16.59	QP
4	0.3300	6.49	20.69	27.18	49.45	-22.27	AVG
5	0.5500	20.27	20.49	40.76	56.00	-15.24	QP
6	0.5500	8.97	20.49	29.46	46.00	-16.54	AVG
7	2.1620	19.48	20.30	39.78	56.00	-16.22	QP
8	2.1620	7.62	20.30	27.92	46.00	-18.08	AVG
9	4.5660	26.73	20.44	47.17	56.00	-8.83	QP
10	4.5660	15.69	20.44	36.13	46.00	-9.87	AVG
11	6.6620	28.10	20.56	48.66	60.00	-11.34	QP
12	6.6620	14.52	20.56	35.08	50.00	-14.92	AVG

Remark:

- 1. All readings are Quasi-Peak and Average values.
- 2. Margin = Result (Result = Reading + Factor)-Limit



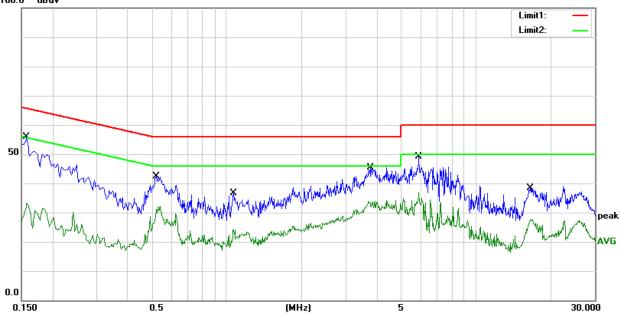


Temperature:	23.2(C)	Relative Humidity:	44%RH
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	Mode 4		

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1580	35.55	20.33	55.88	65.57	-9.69	QP
2	0.1580	12.77	20.33	33.10	55.57	-22.47	AVG
3	0.5220	21.97	20.52	42.49	56.00	-13.51	QP
4	0.5220	11.66	20.52	32.18	46.00	-13.82	AVG
5	1.0660	16.31	20.30	36.61	56.00	-19.39	QP
6	1.0660	3.93	20.30	24.23	46.00	-21.77	AVG
7	3.7820	24.98	20.39	45.37	56.00	-10.63	QP
8	3.7820	13.69	20.39	34.08	46.00	-11.92	AVG
9	5.9060	28.54	20.52	49.06	60.00	-10.94	QP
10	5.9060	16.32	20.52	36.84	50.00	-13.16	AVG
11	16.5420	16.34	22.09	38.43	60.00	-21.57	QP
12	16.5420	5.64	22.09	27.73	50.00	-22.27	AVG

Remark:

- 1. All readings are Quasi-Peak and Average values.
- 2. Margin = Result (Result = Reading + Factor)—Limit





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on Part 15.249 and the Part 15.209(a) limit in the table below has to be followed.

Standard FCC 15.209

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/meter)	(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3
Above 1000	Other:74.0 dB(µV)/m (Peak)	3
	54.0 dB(µV)/m (Average)	

Standard FCC 15.249

Frequency of Emission (MHz)	Field Strength of fundamental (millivolts /meter)	Field Strength of Harmonics (microvolts/meter)
900~928	50	500
2400~2483.5	50	500
5725~5875	50	500
24000~242500	250	2500

Notes:

(1) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Spectrum Parameter	Setting
Detector	Peak/AV
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB (emission in restricted band)	>20BW
VB (emission in restricted band)	=3xRB



Receiver Parameter	Setting
Attenuation	Auto
	9kHz~90kHz / RB 200Hz for PK & AV
	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
	490kHz~30MHz / RB 9kHz for QP
	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

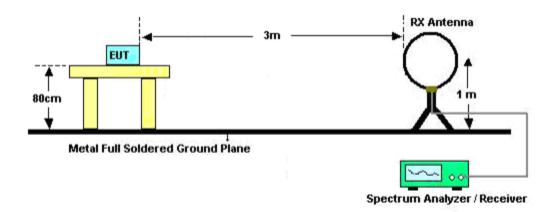
- a. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of arotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Below 1GHz)
- b. The measuring distance of 3m shall used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Above 1GHz)
- ^{C.} The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.
- d. The initial step in collecting radiated emission data is a receive peak detector mode.
 Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform (Below 1GHz)
- f. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak & AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(Above 1GHz)
- 9. For the actual test configuration, please refer to the related Item –EUT Test Photos. Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.3 DEVIATION FROM TEST STANDARD No deviation

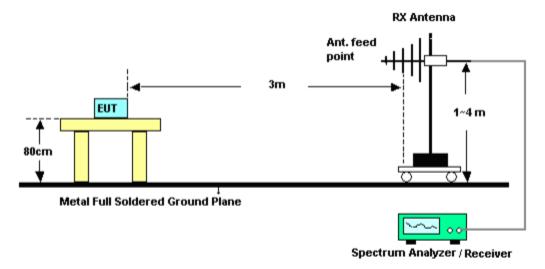


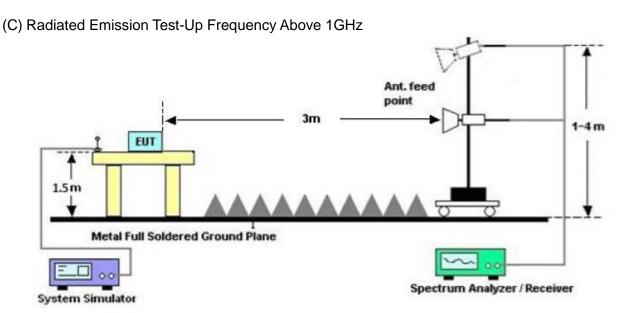
3.2.4 TEST SETUP

(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz







3.2.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

Margin=PL-PK L or AL- AV L; Margin only shown the worst case.

Where

PR = Peak Reading

AR = Average Reading

PL = Peak Level

AL = Average Level

AF = Antenna Factor

PK L = Peak Limit

AV L = AV Limit

For example

F	requency	PR	AR	AF	PL	AL	PK L	AV L	Margin
	(MHz)	(dBµV/m)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)
	2178	40.23	30.31	9.83	50.06	40.14	74.00	54.00	-13.86



3.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

Below 30 MHz

Temperature:	23.1(C)	Relative Humidity:	60%RH
Test Voltage:	DC 3.7V	Polarization:	
Test Mode:	TX Mode		

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
				PASS
				PASS

NOTE:

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

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

Limit line = specific limits(dBuv) + distance extrapolation factor.



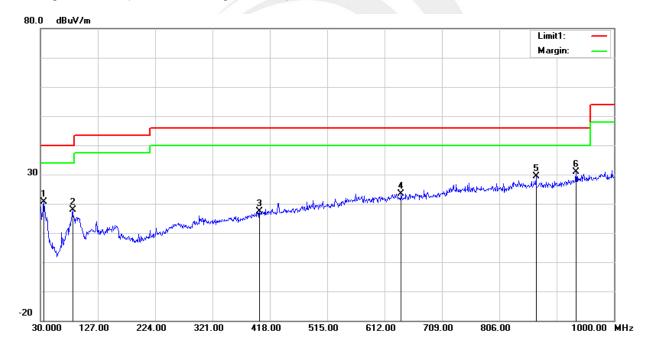
Between 30MHz - 1000 MHz Radiation Spurious

Temperature:	23.1(C)	Relative Humidity:	60%RH
Test Voltage:	DC 3.7V	Phase:	Horizontal
Test Mode:	Mode 1/2/3 (Mode 1 worst mo	ode)	

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	35.8200	36.46	-15.91	20.55	40.00	-19.45	peak
2	84.3200	40.21	-22.35	17.86	40.00	-22.14	peak
3	400.5400	28.51	-11.11	17.40	46.00	-28.60	peak
4	640.1300	28.30	-4.84	23.46	46.00	-22.54	peak
5	868.0800	29.81	-0.51	29.30	46.00	-16.70	peak
6	935.9800	29.79	1.04	30.83	46.00	-15.17	peak

Remark:

1. Margin = Result (Result = Reading + Factor)-Limit



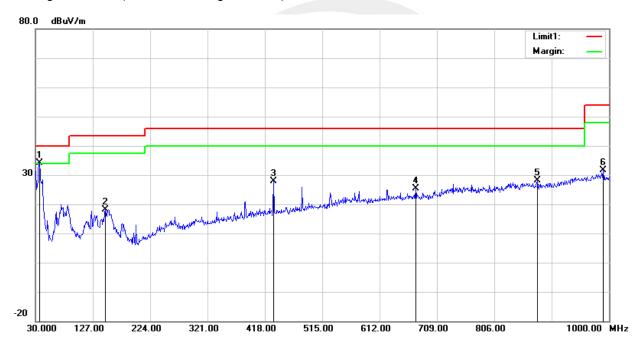


Temperature:	23.1(C)	Relative Humidity:	60%RH
Test Voltage:	DC 3.7V	Phase:	Vertical
Test Mode:	Mode 1/2/3 (Mode 1 worst mo	ode)	

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	36.7900	50.43	-16.39	34.04	40.00	-5.96	peak
2	148.3400	36.57	-18.46	18.11	43.50	-25.39	peak
3	432.5500	38.10	-10.13	27.97	46.00	-18.03	peak
4	673.1100	29.79	-4.48	25.31	46.00	-20.69	peak
5	878.7500	28.80	-0.64	28.16	46.00	-17.84	peak
6	990.3000	29.65	2.05	31.70	54.00	-22.30	peak

Remark:

1. Margin = Result (Result = Reading + Factor)-Limit





Above 1G Radiation Spurious

2406MHz PK

	Meter				Antenna	Orrected	Corrected	FCC F	Part	RX
Frequency	Reading	Detector	Amplifier	Loss	Factor	Factor	Amplitude	15.249/15.	209/205	Antenna
	Reading				1 actor	i actor	Amplitude	Limit	Margin	Polar
(MHz)	(dBµV/m)	(PK/QP/AV)	(dB)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(H/V)
4812.05	71.31	PK	50.33	8.84	31.22	-10.27	61.04	74	-12.96	Н
4812.05	70.42	PK	50.33	8.84	31.22	-10.27	60.15	74	-13.85	V
7217.97	68.38	PK	55.48	9.31	34.05	-12.12	56.26	74	-17.74	Н
7217.97	66.64	PK	55.48	9.31	34.05	-12.12	54.52	74	-19.48	V
9623.99	71.26	PK	59.13	9.89	36.99	-12.25	59.01	74	-14.99	Н
9623.99	70.53	PK	59.13	9.89	36.99	-12.25	58.28	74	-15.72	V

ΑV

Frequency	PK Reading	Duty cycle	AV Reading	Orrected Factor	Corrected Amplitude	FCC Part 15.249/15.209/205		RX Antenna
		factor				Limit	Margin	Polar
(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(H/V)
4812.05	71.31	-7.72	63.59	-10.27	53.32	54.00	-0.68	Н
4812.05	70.42	-7.72	62.70	-10.27	52.43	54.00	-1.57	V
7217.97	68.38	-7.72	60.66	-12.12	48.54	54.00	-5.46	Н
7217.97	66.64	-7.72	58.92	-12.12	46.80	54.00	-7.20	V
9623.99	71.26	-7.72	63.54	-12.25	51.29	54.00	-2.71	Н
9623.99	70.53	-7.72	62.81	-12.25	50.56	54.00	-3.44	V

AV = Peak +20Log10(duty cycle factor) =PK+(-7.72)



2447MHz PK

Frequency	Meter	Detector	Amplifier L	Loss	1 000	Orrected			Part 209/205	RX Antenna
. ,	Reading		•		Factor	Factor	Amplitude	Limit	Margin	Polar
(MHz)	(dBµV/m)	(PK/QP/AV)	(dB)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(H/V)
4894.17	71.47	PK	50.33	8.84	31.22	-10.27	61.20	74	-12.80	Н
4894.17	70.34	PK	50.33	8.84	31.22	-10.27	60.07	74	-13.93	V
7341.11	68.21	PK	55.48	9.31	34.05	-12.12	56.09	74	-17.91	Η
7341.11	66.85	PK	55.48	9.31	34.05	-12.12	54.73	74	-19.27	V
9788.06	71.25	PK	59.13	9.89	36.99	-12.25	59.00	74	-15.00	Н
9788.06	70.09	PK	59.13	9.89	36.99	-12.25	57.84	74	-16.16	V

ΑV

				, , , ,				
Frequency	PK Reading	Duty cycle factor	AV Reading	Orrected Factor	Corrected Amplitude	FCC F 15.249/15. Limit		RX Antenna Polar
(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(H/V)
4894.17	71.47	-7.72	63.75	-10.27	53.48	54.00	-0.52	Н
4894.17	70.34	-7.72	62.62	-10.27	52.35	54.00	-1.65	V
7341.11	68.21	-7.72	60.49	-12.12	48.37	54.00	-5.63	Н
7341.11	66.85	-7.72	59.13	-12.12	47.01	54.00	-6.99	V
9788.06	71.25	-7.72	63.53	-12.25	51.28	54.00	-2.72	Н
9788.06	70.09	-7.72	62.37	-12.25	50.12	54.00	-3.88	V

AV = Peak +20Log10(duty cycle factor) =PK+(-7.72)



2476MHz PK

Frequency	Meter	l latactor		Amplifier Loss			Corrected	FCC F 15.249/15.		RX Antenna
. 4	Reading				Factor	Factor	Amplitude	Limit	Margin	Polar
(MHz)	(dBµV/m)	(PK/QP/AV)	(dB)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(H/V)
4952.07	71.13	PK	50.33	8.84	31.22	-10.27	60.86	74	-13.14	Н
4952.07	70.51	PK	50.33	8.84	31.22	-10.27	60.24	74	-13.76	V
7427.91	68.21	PK	55.48	9.31	34.05	-12.12	56.09	74	-17.91	Η
7427.91	66.66	PK	55.48	9.31	34.05	-12.12	54.54	74	-19.46	V
9904.01	71.58	PK	59.13	9.89	36.99	-12.25	59.33	74	-14.67	Η
9904.01	70.06	PK	59.13	9.89	36.99	-12.25	57.81	74	-16.19	V

ΑV

Frequency	PK Reading	Duty cycle	AV Reading	Orrected Factor	Corrected Amplitude	FCC Part 15.249/15.209/205		RX Antenna
		factor			,p	Limit	Margin	Polar
(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(H/V)
4952.07	71.13	-7.72	63.41	-10.27	53.14	54.00	-0.86	Н
4952.07	70.51	-7.72	62.79	-10.27	52.52	54.00	-1.48	V
7427.91	68.21	-7.72	60.49	-12.12	48.37	54.00	-5.63	Н
7427.91	66.66	-7.72	58.94	-12.12	46.82	54.00	-7.18	V
9904.01	71.58	-7.72	63.86	-12.25	51.61	54.00	-2.39	Η
9904.01	70.06	-7.72	62.34	-12.25	50.09	54.00	-3.91	V

AV = Peak +20Log10(duty cycle factor) =PK+(-7.72)



Duty cycle



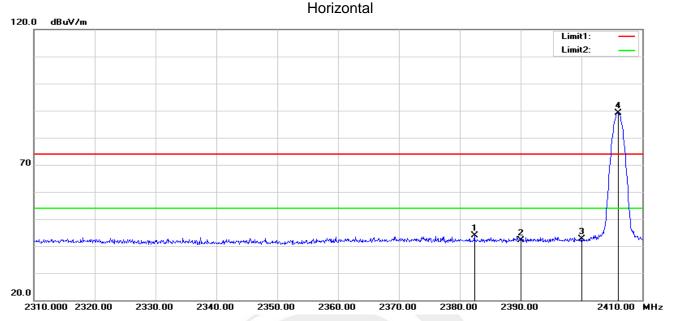
Ton	Тр	Duty cycle(%)	Duty factor(dB)
2.033	12.030	16.90%	7.72

Note: Duty Factor=20*LOG10(1/(Ton/Tp))



(Radiation Band edge)

Low channel

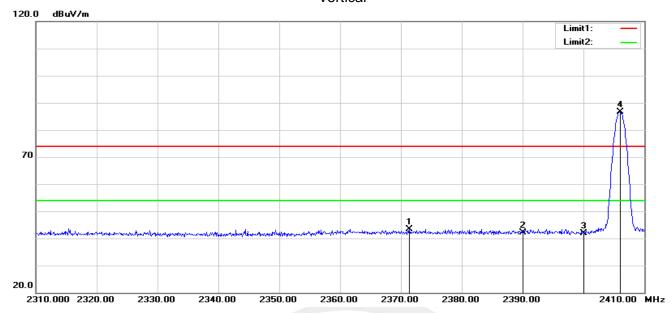


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2382.400	39.54	4.23	43.77	74.00	-30.23	peak
2	2390.000	37.83	4.34	42.17	74.00	-31.83	peak
3	2400.000	38.03	4.49	42.52	74.00	-31.48	peak

No.	Frequency	Reading	Correct	Duty cycle	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
4	2406.000	84.58	4.49	-	89.07	114.00	-24.93	peak
5	2406.000	84.58	4.49	7.72	81.35	94.00	-12.65	AVG



Vertical

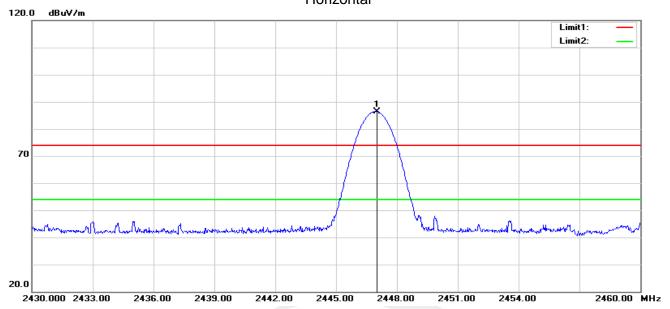


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2371.400	39.42	4.06	43.48	74.00	-30.52	peak
2	2390.000	37.78	4.34	42.12	74.00	-31.88	peak
3	2400.000	37.48	4.49	41.97	74.00	-32.03	peak

No.	Frequency	Reading	Correct	Duty cycle	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
4	2406.000	82.23	4.49	-	86.72	114.00	-27.28	peak
5	2406.000	82.23	4.49	7.72	79.00	94.00	-15.00	AVG



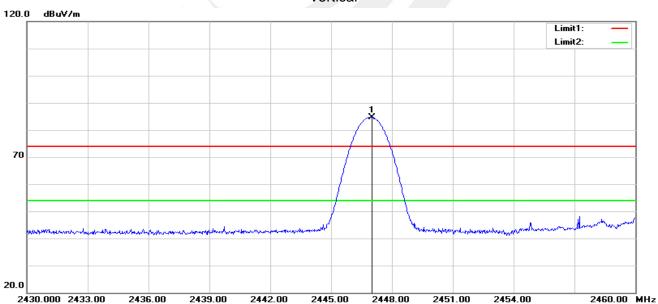
Mid channel Horizontal



Fundamental Frequency

No.	Frequency	Reading	Correct	Duty cycle	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2447.000	81.85	4.52	-	86.37	114.00	-27.63	peak
2	2447.000	81.85	4.52	7.72	78.65	94.00	-15.35	AVG

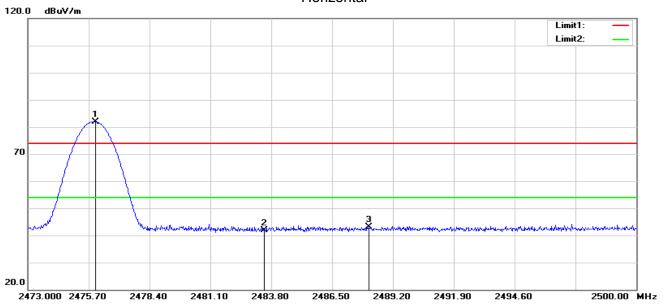




No.	Frequency	Reading	Correct	Duty cycle	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2447.000	80.16	4.52	-	84.68	114.00	-29.32	peak
2	2447.000	80.16	4.52	7.72	76.96	94.00	-17.04	AVG



High channel Horizontal

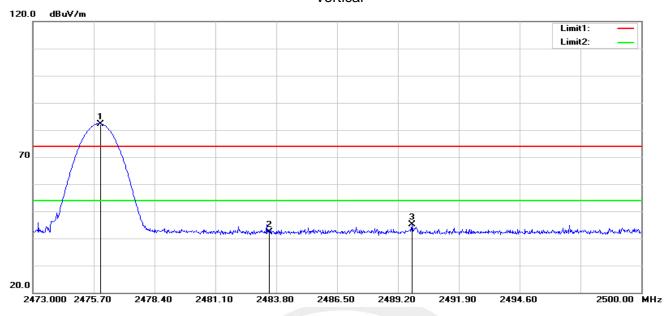


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
3	2483.500	37.20	4.60	41.80	74.00	-32.20	peak
4	2488.147	38.60	4.62	43.22	74.00	-30.78	peak

	No.	Frequency	Reading	Correct	Duty cycle	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	Factor(dB/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Ī	1	2476.000	77.33	4.59	-	81.92	114.00	-32.08	peak
	1	2476.000	77.33	4.59	7.72	74.20	94.00	-19.80	AVG



Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
3	2483.500	37.78	4.60	42.38	74.00	-31.62	peak
4	2489.821	40.38	4.63	45.01	74.00	-28.99	peak

No.	Frequency	Reading	Correct	Duty cycle	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2476.000	77.66	4.59	-	82.25	114.00	-31.75	peak
2	2476.000	77.66	4.59	7.72	74.53	94.00	-19.47	AVG



4. BANDWIDTH TEST

4.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting : RBW= 1% to 5% OBW, VBW≧RBW, Sweep time = Auto.

4.2 TEST SETUP

EUT	SPECTRUM
	ANALYZER

4.3 EUT OPERATION CONDITIONS TX mode.



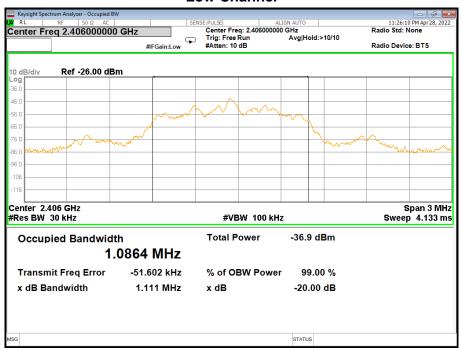


4.4 TEST RESULTS

Temperature:	25 ℃	Relative Humidity:	50%
Test Voltage:	DC 3.7V		

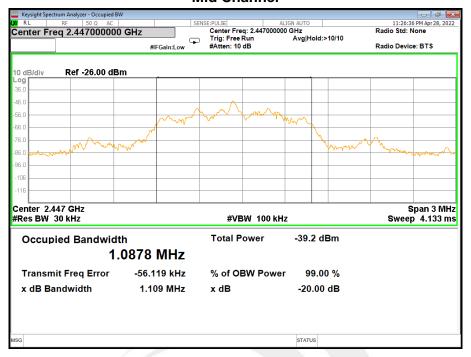
Test Channel	Frequency(MHz)	20 dB Bandwidth(MHz)	99% Bandwidth(MHz)
CH01	2406	1.111	1.0964
CH03	2447	1.109	1.0878
CH16	2476	1.100	1.1474

Low Channel

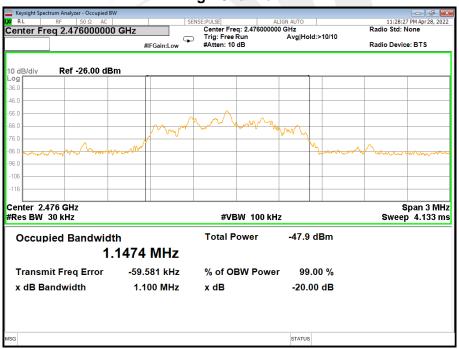




Mid Channel



High Channel





5. ANTENNA REQUIREMENT

5.1 STANDARD REQUIREMENT

According to the FCC Part 15 Paragraph 15.203, 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.

5.2 EUT ANTENNA

The EUT antenna is PCB Antenna.It conforms to the standard requirements.





APPENDIX- PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

* * * * * END OF THE REPORT * * * *

