

Applicant: Metadot Corporation

Product: Receiver

Model No.: Holosonic T1w

Trademark: Daskeyboard

Test Standards: FCC Part 15.249

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.10 & FCC Part 15 Subpart C,

Paragraph 15.249 regulations for the evaluation of

electromagnetic compatibility

Approved By

2, 8

Terry Tang

Manager

Dated: November 08, 2023

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

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Special Statement:

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

CAB identifier: CN0033

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Test Report Conclusion

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The report refers only to the sample tested and does not apply to the bulk.

7.6

8.0

9.0

10.0

11.0

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Band Edge Test Result.

Antenna Requirement.

20dB bandwidth measurement....

FCC ID Label.....

Photo of Test Setup and EUT View.....

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1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le

Village, Nanshan District, Shenzhen, China

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189 For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Metadot Corporation

Address: 9600 Great Hills Trail Suite 150W Austin, TX 78759

Telephone: +1512 637 9983

Fax: --

1.3 Description of EUT

Product: Receiver

Manufacturer: Metadot Corporation

Address: 9600 Great Hills Trail Suite 150W Austin, TX 78759

Trademark: Daskeyboard
Model Number: Holosonic T1w

Additional Model Name N/A

Rating: Input: DC5V

Hardware Version: TX-CX682D V1.1

Software Version: CX6821D-5ms-V21d0-X6-20230912_crc(740EC34C)

Serial No.: DKHOLOT1W23110001

Operation Frequency: 2402-2480MHz

Modulation Type: GFSK, Pi/4D-QPSK, 8DPSK

Number of Channels: 79 Channel Separation: 1MHz

Antenna Designation PCB antenna with gain 2.04dB maximum (Get from the antenna specification)

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

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1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty = 5%

Conducted Emissions Uncertainty =3.6dB

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

Print Name: Andy Xing

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2.0 Test Equipment								
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date			
ESPI Test Receiver	R&S	ESPI 3	100379	2023-07-14	2024-07-13			
LISN	R&S	EZH3-Z5	100294	2023-07-14	2024-07-13			
LISN	R&S	EZH3-Z5	100253	2023-07-14	2024-07-13			
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2023-07-14	2024-07-13			
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17			
Spectrum	R&S	FSIQ26	100292	2023-07-14	2024-07-13			
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17			
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2024-07-17			
Power meter	Anritsu	ML2487A	6K00003613	2023-07-14	2024-07-13			
Power sensor	Anritsu	MA2491A	32263	2023-07-14	2024-07-13			
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17			
9*6*6 Anechoic			N/A	2022-07-26	2025-07-25			
EMI Test Receiver	RS	ESVB	826156/011	2023-07-14	2024-07-13			
EMI Test Receiver	RS	ESCS 30	834115/006	2023-07-14	2024-07-13			
Spectrum	HP/Agilent	E4407B	MY50441392	2023-07-14	2024-07-13			
Spectrum	RS	FSP	1164.4391.38	2023-07-14	2024-07-13			
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2023-07-14	2024-07-13			
RF Cable	Zhengdi	7m		2023-07-14	2024-07-13			
Pre-Amplifier	Schwarebeck	BBV9743	#218	2023-07-14	2024-07-13			
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2023-07-14	2024-07-13			
LISN	SCHAFFNER	NNB42	00012	2023-07-14	2024-07-13			
ESPI Test Receiver	R&S	ESPI 3	100379	2023-07-14	2024-07-13			
LISN	R&S	EZH3-Z5	100294	2023-07-14	2024-07-13			

2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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3.0 Technical Details

3.1 Summary of test results

	The EUT has	been tested	according to	the following	specifications:
--	-------------	-------------	--------------	---------------	-----------------

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	Pass	Complies
FCC Part 15, Paragraph 15.209	Radiated Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	Pass	Complies
FCC Part 15.215(c)	20dB bandwidth	Pass	Complies

3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.249, ANSI C63.4:2014 and ANSI C63.10:2013

4.0 EUT Modification

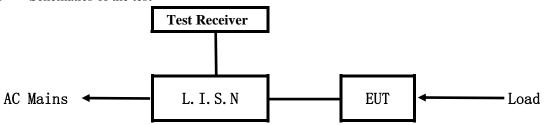
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

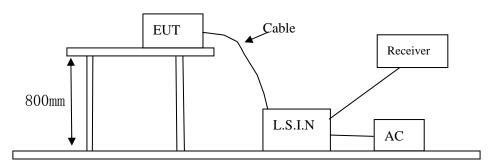


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

79 channels are provided to the EUT

A. EUT

Device	Manufacturer	Model	FCC ID
Receiver	Metadot Corporation	Holosonic T1w	2A9SZRECEIVER

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B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	Rating
PC	ThinkPad	R4	DC19.5V, 2.31A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency	Limits (dB μ V)					
(MHz)	Quasi-peak Level	Average Level				
0.15 ~ 0.50	66.0~56.0*	56.0~46.0*				
$0.50 \sim 5.00$	56.0	46.0				
5.00 ~ 30.00	60.0	50.0				

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results:

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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

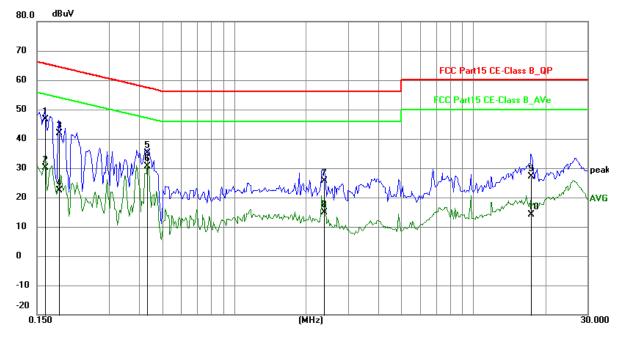
EUT Operating Environment

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Charging + Communication by BT

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1617	36.77	9.78	46.55	65.38	-18.83	QP	Р
2	0.1617	20.25	9.78	30.03	55.38	-25.35	AVG	Р
3	0.1850	32.10	9.76	41.86	64.26	-22.40	QP	Р
4	0.1850	12.60	9.76	22.36	54.26	-31.90	AVG	Р
5	0.4347	25.31	9.77	35.08	57.16	-22.08	QP	Р
6	0.4347	20.91	9.77	30.68	47.16	-16.48	AVG	Р
7	2.3808	15.93	9.82	25.75	56.00	-30.25	QP	Р
8	2.3808	5.01	9.82	14.83	46.00	-31.17	AVG	Р
9	17.4495	16.65	10.53	27.18	60.00	-32.82	QP	Р
10	17.4495	3.70	10.53	14.23	50.00	-35.77	AVG	Р

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

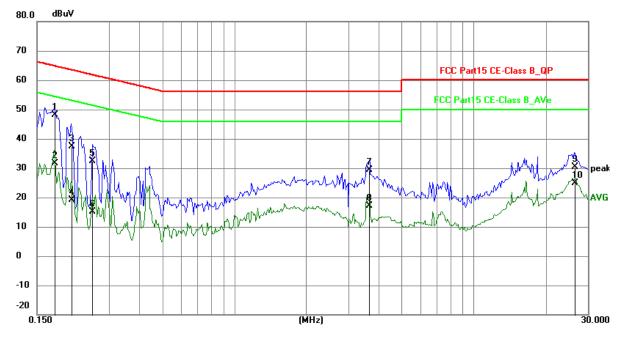
EUT Operating Environment

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Charging + Communication by BT

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1773	38.42	9.77	48.19	64.61	-16.42	QP	Р
2	0.1773	21.77	9.77	31.54	54.61	-23.07	AVG	Р
3	0.2085	27.70	9.75	37.45	63.26	-25.81	QP	Р
4	0.2085	9.31	9.75	19.06	53.26	-34.20	AVG	Р
5	0.2553	22.66	9.75	32.41	61.58	-29.17	QP	Р
6	0.2553	5.36	9.75	15.11	51.58	-36.47	AVG	Р
7	3.6474	19.44	9.87	29.31	56.00	-26.69	QP	Р
8	3.6474	7.20	9.87	17.07	46.00	-28.93	AVG	Р
9	26.3883	19.31	11.08	30.39	60.00	-29.61	QP	Р
10	26.3883	13.78	11.08	24.86	50.00	-25.14	AVG	Р

Date: 2023-11-08



6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 9kHz to 25 GHz was investigated. The frequency spectrum is set as follows:

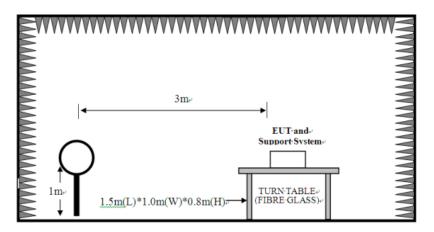
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
ADOVE IGHZ	Peak	1MHz	10Hz	Average

(Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.

- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

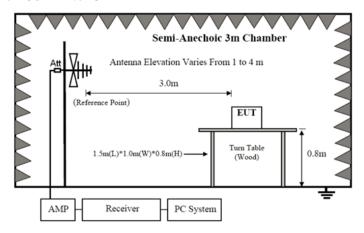
For radiated emissions from 9kHz to 30MHz



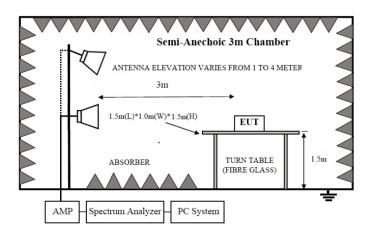
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



6.2 Configuration of the EUT Same as section 5.3 of this report

6.3 EUT Operating Condition Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

A FCC Part 15 Subpart C Paragraph 15.249(a) Limit

Fundamental Frequency	Field Stre	ength of Fundamental (3m)	Field Strength of Harmonics (3m)			
(MHz)	mV/m	dBuV/m	uV/m	dBuV/m		

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2400-2483.5 50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)
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Note:

- 1. RF Field Strength $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

		<u> </u>
Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.490	3	20log(2400/F(kHz)) +40log (300/3)
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)
1.705-30	3	69.5
30-80	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
- 5. The three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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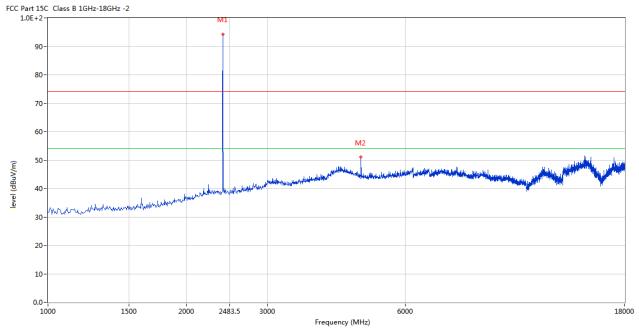


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2402MHz

Horizontal



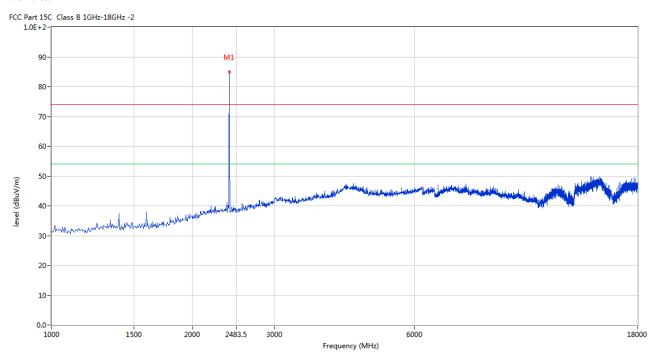
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	94.35	-3.57	114.0	-19.65	Peak	277.00	100	Horizontal	Pass
1**	2402	84.71	-3.57	94.0	-9.29	AV	277.00	100	Horizontal	Pass
2	4802.799	50.07	3.12	74.0	-23.93	Peak	81.00	100	Horizontal	Pass

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Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	86.88	-3.57	114.0	-27.12	Peak	28.00	100	Vertical	Pass

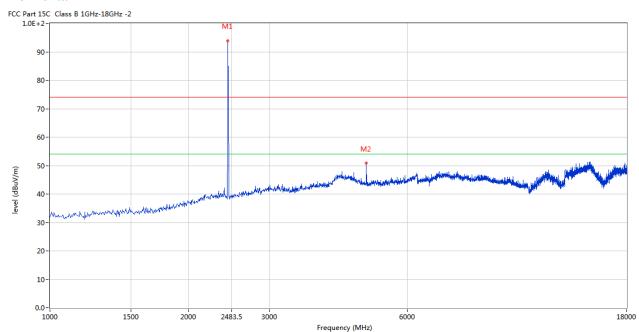
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Please refer to the following test plots for details: Middle Channel-2441MHz

Horizontal



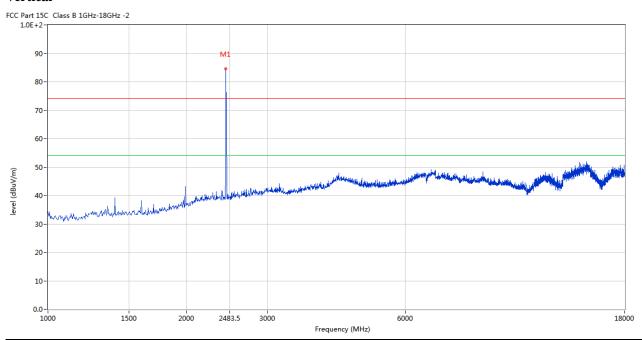
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	93.92	-3.57	114.0	-20.08	Peak	85.00	100	Horizontal	Pass
1**	2441	84.33	-3.57	94.0	-9.67	AV	85.00	100	Horizontal	Pass
2	4883.529	50.85	3.20	74.0	-23.15	Peak	96.00	100	Horizontal	Pass

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Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	84.64	-3.57	114.0	-29.36	Peak	197.00	100	Vertical	Pass

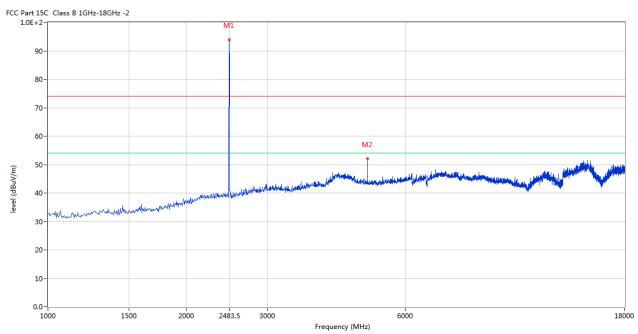
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Please refer to the following test plots for details: High Channel-2480MHz

Horizontal



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	93.96	-3.57	114.0	-20.04	Peak	260.00	100	Horizontal	Pass
1**	2480	84.30	-3.57	94.0	-9.70	AV	260.00	100	Horizontal	Pass
2	4960.010	52.02	3.36	74.0	-21.98	Peak	107.00	100	Horizontal	Pass

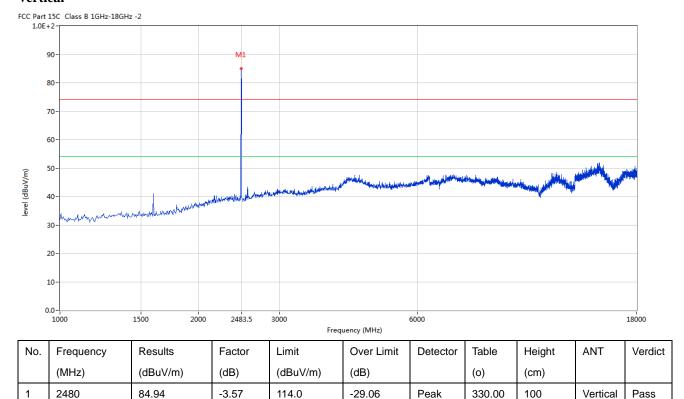
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Vertical



Note: (1) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

- (2) Margin=Emission-Limits
- (3) According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (4) For test purpose, keep EUT continuous transmitting
- (5) For emission above 18GHz and Below 30MHz, It is only the floor noise and less than the limit for more than 20dB. No necessary to take down.
- (6) the measured PK value less than the AV limit.

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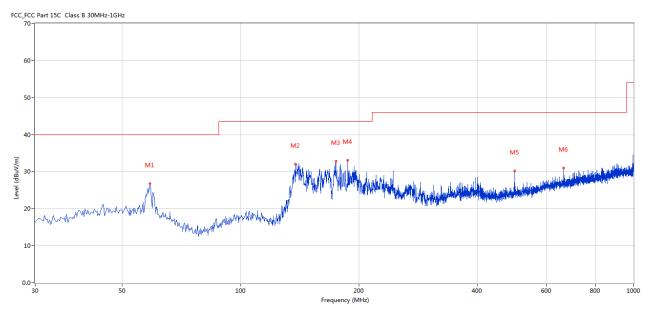


B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	58.850	26.75	-12.84	40.0	13.25	Peak	14.00	100	Horizontal	Pass
2	137.886	31.99	-17.28	43.5	11.51	Peak	265.00	100	Horizontal	Pass
3	174.736	32.77	-15.73	43.5	10.73	Peak	275.00	100	Horizontal	Pass
4	187.586	33.04	-14.54	43.5	10.46	Peak	307.00	100	Horizontal	Pass
5	498.635	30.20	-7.08	46.0	15.80	Peak	247.00	100	Horizontal	Pass
6	664.221	30.95	-4.37	46.0	15.05	Peak	265.00	100	Horizontal	Pass

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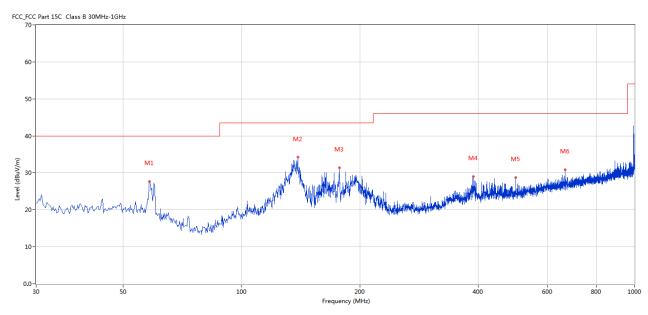


Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	58.365	27.74	-12.73	40.0	12.26	Peak	257.00	100	Vertical	Pass
2	139.098	34.21	-17.21	43.5	9.29	Peak	229.00	100	Vertical	Pass
3	177.403	31.38	-15.66	43.5	12.12	Peak	236.00	100	Vertical	Pass
4	388.810	29.03	-8.92	46.0	16.97	Peak	328.00	100	Vertical	Pass
5	498.635	28.70	-7.08	46.0	17.30	Peak	223.00	100	Vertical	Pass
6	666.403	30.81	-4.50	46.0	15.19	Peak	95.00	100	Vertical	Pass

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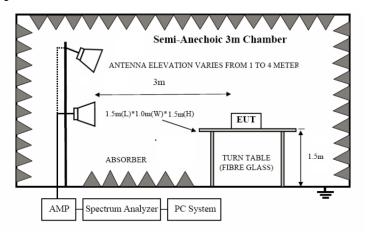


7. Band Edge

7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz, VBW=3MHz and Peak detector used for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

7. 2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing

7.3 Configuration of the EUT

Same as section 5.3 of this report

7.4 EUT Operating Condition

Same as section 5.4 of this report.

7.5 Band Edge Limit

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.

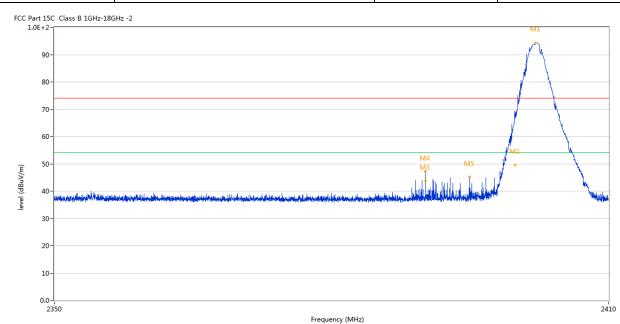
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7.6 Test Result

Product:	Receiver	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



Frequency Results Factor Limit Over Limit Detector Table Height ANT Verdict (dB) (dBuV/m) (dBuV/m) (dB) (MHz) (o) (cm) 2401.992 94.35 -3.57 74.0 Peak 98.00 100 N/A 1 20.35 Horizontal 2400.000 -8.44 2 65.56 -3.57 74.0 Peak 103.00 100 Horizontal **Pass** 2** 2400.000 49.83 -3.57 54.0 -4.17 ΑV 103.00 100 Horizontal Pass 3 2390.000 43.80 -3.53 74.0 -30.20 Peak 148.67 100 Horizontal Pass 4 2389.995 47.07 -3.53 74.0 -26.93 Peak 179.00 100 Horizontal Pass 5 2394.794 45.07 -3.55 74.0 -28.93 Peak 195.00 100 Horizontal **Pass**

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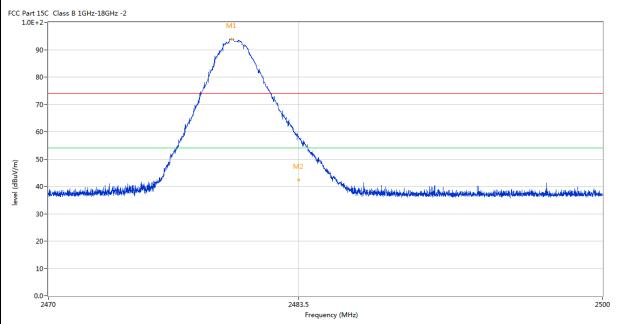


	Product:		Recei	iver		Detect	or		Vertical	
	Mode	K	eeping Tra	ansmitting		Test Voltage D			DC3.7V	
Te	mperature	perature		24 deg. C, Humidity					56% RH	
Те	est Result:		Pas	SS						
CC Part 1.0E	15C Class B 1GHz-18GH:	z -2]
	90-							M1		
	80-									
	70-							\rightarrow		
	60-									
						M4	M5	$\overline{}$	\ 	
	50-					الالبالله ومعا	ullia a de	M2		
	40-		and delegated the language for	named the Laddenia to the					Marchine	
	40 - Maria M	tendanyak seminikal kerdipi kepangahan mendak	Andreas Charles	ton parkinia i diadam i tidi.	ting para talifik in the plant of the state of				New House	
	diapelitain enimpagitidistidi	ng disamphan menjalah jada jaja jaja jaja jahan menjalah j	Andrews of the state of the sta	terrent distribution and the state of the st				,	News House	
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	30- 20- 10-	entenda servida per tenda per	A Surface in the Surface of the Surf	and the second of the second o	ency (MHz)				24	10
(30- 20- 10-	Results	Factor	and the second of the second o	i ang panganggang ang pangan ta manganggang pangangganggangganggangganggangganggangg	Detector	Table	Height	24	П
(20-	Results (dBuV/m)	gast i gast g garg (gir garg g)	Frequ	ency (MHz)	The state of the s	Table (o)	Height (cm)	T	П
No.	20- 10- 2350 Frequency		Factor	Frequ	ency (MHz) Over Limit	The state of the s			T	П
(No.	20- 10- 2350 Frequency (MHz)	(dBuV/m)	Factor (dB)	Frequ Limit (dBuV/m)	ency (MHz) Over Limit (dB)	Detector	(0)	(cm)	ANT	Verdi N/A
No.	Frequency (MHz) 2402.097	(dBuV/m) 84.24	Factor (dB)	Frequ Limit (dBuV/m) 74.0	ency (MHz) Over Limit (dB) 10.24	Detector Peak	(o) 335.00	(cm)	ANT Vertical	Verdi N/A Pass
No.	Frequency (MHz) 2402.097 2400.000	(dBuV/m) 84.24 56.21	Factor (dB) -3.57 -3.57	Frequ Limit (dBuV/m) 74.0 74.0	over Limit (dB) 10.24 -17.79	Detector Peak Peak	(o) 335.00 360.00	(cm) 100 100	ANT Vertical Vertical	Verdi
	Frequency (MHz) 2402.097 2400.000 2400.000	(dBuV/m) 84.24 56.21 43.39	Factor (dB) -3.57 -3.57	Frequ Limit (dBuV/m) 74.0 74.0 54.0	ency (MHz) Over Limit (dB) 10.24 -17.79 -10.61	Detector Peak Peak AV	(o) 335.00 360.00 360.00	(cm) 100 100	ANT Vertical Vertical Vertical	Verdi N/A Pass Pass

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Product:	Receiver	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2479.875	93.89	-3.57	74.0	19.89	Peak	99.00	100	Horizontal	N/A
2	2483.500	58.13	-3.57	74.0	-15.87	Peak	99.00	100	Horizontal	Pass
2**	2483.500	42.61	-3.57	54.0	-11.39	AV	99.00	100	Horizontal	Pass

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]	Product:		Rece	eiver		Detec	tor		Vertical	
	Mode]	Keeping Tr	ansmitting		Test Vo	ltage		DC3.7V	
Te	mperature		24 de	g. C,		Humio	dity		56% RH	
Te	est Result:		Pa	SS						
	rt 15C Class B 1GHz-1 DE+2-	.8GHz -2						•		
	90-		M	11						
	80-		Jan	- Variable Control of the Control of						
	70-		J. Market	1						
				V _u						
	60-		1	M2						
Œ/	50-		1	M2						
level (dBuV/m)	50-			M2	A Mary and the state of the sta			والمعادرة والمالية والمالية		e discourse del
level (dBuV/m)	50-	والمستعدد والمستعد والمستعدد والمستع		M2	No. of the state of		o bear water the order	here hill him with a		in the second by
level (dBuV/m)	40-	it daylad ikaladiylanda undurul		M2	Manufacto strikklima	oris had the mark has a shade in the second	or the state of th	. Lose of the same of the		
level (dBuV/m)	50- 40- 30-	والمستوادة		M2	Marilan Hillian	giri kadilisadi karahda istera	nigras ser deta pela e el la les es	land phillips, well a	Highlands Josef des Agrif	in Marcal III
level (dBuV/m)	30- 20-	ittellingsleby sklastiski planovi suvensky d		M2	Novel and all the		and the state of t	haddles add a		in Advanta Adi
level (dBuV/m)	30- 20-	italia, jelek ilkalitak jelanne sunnan k		M2	, , , , , , , , , , , , , , , , , , , ,	المراجعة العيمة المراجعة المر	The state of the s	Back of the Land of the Control of t		2500
o.	30- 20- 10-	Results	Factor	Mag	.5	Detector	Table	Height	ANT	2500
	30- 20- 10- 2470		Factor (dB)	2483	.5 Frequency (MHz)					
	30- 20- 10- 2470	Results		2483	.5 Frequency (MHz)		Table	Height		2500

Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.

2. For Restricted band test, the three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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8.0 Antenna Requirement

Applicable Standard

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 shall be considered sufficient to comply with the provisions of this section.

This product has a PCB antenna with gain 2.04dBi maximum. It fulfills the requirement of this section.

Test Result: Pass

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9.0 20dB Bandwidth Measurement

Test Configuration



Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Limit

N/A

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Test Result

Product:		Receiver			Test M	Iode:	Ke	eep transm	itting
Mode	Kee	ping Transmi	itting		Test Vo	oltage		DC3.7V	/
Temperature		24 deg. C,			Humi	dity		56% RI	I
Test Result:		Pass			Dete	ctor		PK	
20dB Bandwidth		888kHz							
Ref 10 d	Bm	*Att 20 d	В	*RBW 30 *VBW 10 *SWT 10	00 kHz	2	2.401862	.63 dBm 000 GHz	
10			1			ndB [T	.000000	I I	A
L PK MAXH						2	-19 2.401574	.22 dBm	
-10		T1		,	$\sqrt{\mathbb{T}^2}$	Temp 2		.49 dBm	
20					*	\.			
-30						4			
40						The state of the s	m/		3DB
50	<i>y</i>						7	many	
60									
-70									
80									
-90									
Center 2.	402 GHz		300	kHz/				an 3 MHz	

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Span 3 MHz

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Product:		Receiv	/er		Test	Mode:		Keep tran	nsmitting
Mode	K	eeping Tran		- -		Voltage		DC3	
Temperature		24 deg.				midity		56%	
Test Result:		Pass				tector		P	K
20dB Bandwidth		864kF	łz					_	_
Ref 10 d	Bm	*Att 2	0 dB	*RBW 30 *VBW 10 *SWT 10	0 kHz		1 [T1 1	.10 dBm	h
10			1			ndB [T BW 864	1] 20 .000000	.00 dB 000 kHz	A
1 PK			$\int \int \int \int \int dx$.440574	_	
10		T1~	~		T2	Temp 2	-18 -441438	.96 dBm	
-20		~~				ζ,			
-30		<i>A</i>				7			
-40						~	~~		3DB
50 							\tag{k}	mm	
60									
-70									
-80									
-90									

Center 2.441 GHz

300 kHz/

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Product:	Receiver		Test Mode:	Keep transmitting
Mode	Keeping Transmit	tting	Test Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
0dB Bandwidth	864kHz			
Ref 10 de	3m *Att 20 dE	*RBW 30 k *VBW 100 3 *SWT 10 m	kHz ns 2	1 [T1] 0.39 dBm .479862000 GHz
-0		1	Temp 1	1] 20.00 dB .0000000000 kHz [T1 ndR] -20.23 dBm .479574000 GHz
20		1	remp 2	
30			1	
40 50				3DB
-60				The same
70				
-90		300 kHz/		

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Product:			Receiv	er		Test M	Iode:	Kε	ep transmitting
Mode		Keep	oing Tran	smitting		Test Vo	oltage		DC3.7V
Temperatur	e		24 deg.	C,		Humi	idity		56% RH
Test Result	:		Pass			Dete	ctor		PK
0dB Bandwi	dth		1.254M	Hz			-		
Ref 1	LO dBm	*	Att 2	0 dB	*RBW 3 *VBW 1 *SWT 1	00 kHz	ndB [T	2.401862	.39 dBm 000 GHz
PK AXH10-				, N	m	MM_	Temp 1	[T1 nd: -19 2.401400 2.11 nd:	A .70 dBm .000 GHz
20			<u> </u>				T2 2	2.402654	
40	, r	Journ J					\ <u></u>	W.	/\ 3DB
-60	<i>,</i>								
70									
80									
-90									
Center	r 2.402 G	Hz		300	kHz/			Spa	an 3 MHz

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Pass Detector PK B Bandwidth 1.248MHz	Product:	Receiver	Test Mode:	Keep transmitting
Pass Detector PK B Bandwidth 1.248MHz	Mode	Keeping Transmitting	Test Voltage	DC3.7V
**RBW 30 kHz	Temperature	24 deg. C,	Humidity	56% RH
*RBW 30 kHz Marker 1 [T1] *VBW 100 kHz 0.46 dBm *Att 20 dB *SWT 10 ms 2.440862000 GHz 10 ndB [T1] 20 00 dB BW 1.248000000 MHz Temm 1 [T1 nds] -19 00 dBm 2.440400000 GHz Temm 2 [T1 nds] -19 15 dBm T2 2.441648000 GHz -30 -30 -40 -30 -30 -30 -30 -30	Test Result:	Pass	Detector	PK
*VBW 100 kHz	20dB Bandwidth	1.248MHz		
-80	Ref 10 d 10 -0 -10 -20 -30 -40 -60 -70	Bm *Att 20 dB	*VBW 100 kHz *SWT 10 ms 2 ndB [T BW 1 Temp 1	0.46 dBm .440862000 GHz 1] 20.00 dB .248000000 MHz [T1 nd8] -19.00 dBm .440400000 GHz [T1 nd8] -19.15 dBm .441648000 GHz
	-90 Center 2.	441 GHz 300 3	Hz/	Span 3 MHz

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Product:		Receiv	er		Test	Mode:		Keep tran	smitting
Mode	Ke	eping Tran	nsmitting		Test	Voltage		DC3	.7V
Temperature		24 deg.	C,		Hui	midity		56%	RH
Test Result:		Pass			De	tector		PI	ζ
20dB Bandwidth		1.254M	Hz						,
Ref 10 d	lBm	*Att 2	0 dB	*RBW 30 *VBW 10 *SWT 10	00 kHz	ndB [T BW 1 Temp 1	0 .479868 1] 20 .254000 [T1 nd -20	.32 dBm 000 GHz .00 dB	A
20				W/V		Temp 2	-19	B] .66 dBm)00 GHz	
40 						__\	W	~~~	3DB
60									
70									
-90									
Center 2.	48 GHz		300	kHz/		<u> </u>	Spa	an 3 MHz	

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Produ	ct:			Receiv	ver		Test M	Iode:	Ke	eep transm	itting
Mod	e		Kee	ping Trai	nsmitting		Test Vo	oltage		DC3.7V	7
Tempera	ature			24 deg.	. C,		Humi	idity		56% RH	[
Test Re	sult:			Pass	3		Dete	ctor		PK	
20dB Ban	dwidth			1.254M	IHz			-			
Ref	10 di	3m		*Att 2	:0 dB	*RBW 3 *VBW 1 *SWT 1	00 kHz		.401868	.37 dBm	
-0-					1	\		BW 1	.254000 [Tl nd -19	000 MHz <u>B]</u> .58 dBm	A
MAXH 10			:			νν ν	√\ <u>\</u>	Temp 2	1	B] .73 dBm	
20 30									. 102031		
4C		~~	_^^					\ <u>\</u>	m		
£-50		~ <i>J</i>									3DB
- -60											
- -70											
-90											
Cen	ter 2.	402 GH	Z		300	kHz/			Spa	an 3 MHz	

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Product:	Receiv	er	Test Mode:	Keep transmitting
Mode	Keeping Tran	smitting	Test Voltage	DC3.7V
Temperature	24 deg.		Humidity	56% RH
Test Result:	Pass		Detector	PK
OdB Bandwidth	1.248M	Hz		
Ref 10 d	.Bm *Att 20	*RBW 3 *VBW 1 O dB *SWT 1	00 kHz	1 [T1] 0.51 dBm 440862000 GHz
10		1	ndB [T] BW 1. Temp 1	248000000 MHz
MAXH10		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	$\frac{2}{\sqrt{1 \text{ remp } 2}}$	-19.10 dBm 440400000 GHz [T1 nds]
20		*	TO	-19.24 dBm 441648000 GHz
30				
40			L _m	00
150	~~			3DB
60				
70				
80				
-90				
Center 2.	441 GHz	300 kHz/	<u> </u>	Span 3 MHz

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Product:	ct: Receiver					Test Mode:		Keep transmitting		
Mode Keeping Transmitting					Test Voltage		DC3.7V			
Temperature 24 de			4 deg. C,			Humidity		56% RH		
Test Result:			Pas	SS		Detector		PK		
0dB Bandwidth			1.254MHz							
Ref 10 -0	dBm	9	* Att	20 dB	*RBW 30 *VBW 10 *SWT 10	00 kHz	ndB [T BW 1 Temp 1	0.479862 1] 20 .254000 [T1 nd -20 .479394	.26 dBm 0000 GHz .00 dB 000 MHz s] .36 dBm 000 GHz	A
30	20/		<u>,</u>			**	T2 2	-19 .480648	.64 dBm	
-60	land of the state							\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	~~	3DB
70										
-90										
Center 2	.48 GHz			300	kHz/			Spa	n 3 MHz	

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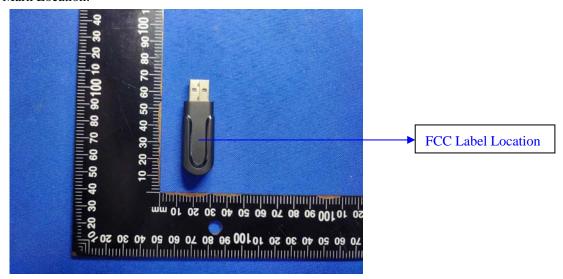


10.0 FCC ID Label

FCC ID: 2A9SZRECEIVER

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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11.0 Photo of testing

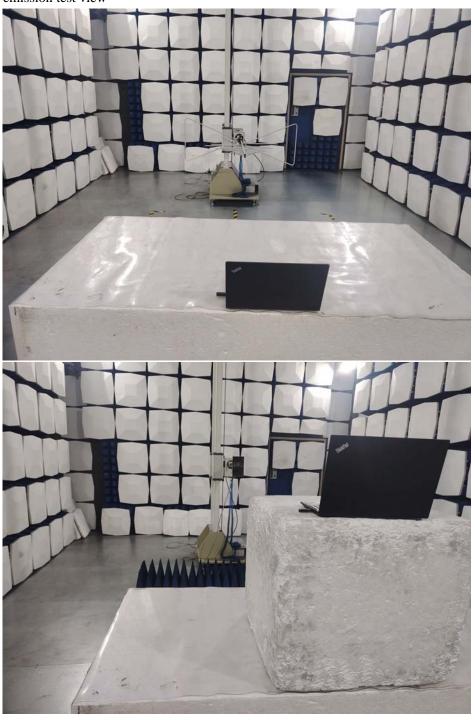
11.1 Conducted test View



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Radiated emission test view



11.2 Photographs – EUT

Please refer test report TW2309402-01E

-- End of the report--

The report refers only to the sample tested and does not apply to the bulk.

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