TECHNICAL REPORT

Report No.:	TW2103270E
File Reference No.:	2021-04-07
Applicant:	Shenzhen Zhongnuoneng Technology Co., Ltd
Product:	intercom
Brand Name:	SANZUCO
Model No.:	ZNNF60, F60, ZNN-F60B, F60B, ZNNF60C, F60C
Test Standards:	FCC Part 15 Subpart B
Test Result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 regulations for the evaluation of electromagnetic compatibility

Approved By:

Terry Tong

Manager

Dated: April 07, 2021

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 Email: info@timeway-lab.com

Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

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

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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

1.2 Applicant Details

Applicant:	Shenzhen Zhongnuoneng Technology Co., Ltd
Address:	Room 1618 Luqiao Building, 1122 Nigang East Road,Luohu District, Shenzhen, China
Telephone:	0755-36958701
Fax:	--

1.3 Description of EUT

Product:	intercom
Manufacturer:	Shenzhen Zhongnuoneng Technology Co., Ltd
Address:	Room 1618 Luqiao Building, 1122 Nigang East Road,Luohu District, Shenzhen, China
Brand Name:	SANZUCO
Model Number:	ZNNF60, F60, ZNN-F60B, F60B, ZNNF60C, F60C

Rating: Input: 5V, 1A,

Tx Frequency Range: 421-422.9875MHz and 445-446.9875MHz

Rx Frequency: Range: 421-422.9875MHz and 445-446.9875MHz

1.4 Submitted Sample: 2 Sample

1.5 Test Duration

Date of Receipt of Application: March 18, 2021

Date of Receipt of Test Item: March 18, 2021

Date of Test: March 18, 2021 ~ April 07, 2021

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

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

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1.7 Test Engineer

The sample tested by _____

Print Name: Leo Lau

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2.0 List of Measurement Equipment

2.1 Conducted Emission Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EMI Test Receiver	ESH3	860905/006	RS	2020.06.23	1Year
Spectrum Analyzer	ESA-L1500A	US37451154	HP	2020.06.23	1Year
PULSE LIMITER	ESH3-Z2	100281	RS	2020.06.23	1Year
LISN	NNB42	00012	SCHAFFNER	2021.01.06	1Year

2.2 Radiated electromagnetic disturbance test

Name	Model No	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EMI Test Receiver	ESPI 3	100379	RS	2020.06.23	1Year
Spectrum Analyzer	E4407B	MY50441392	HP/Agilent	2020.06.23	1Year
Amplifier	BBV9743	#218	HP/Agilent	2020.06.23	1Year
Bilog Antenna	VULB9163	9163/340	Schwarebeck	2018.07.04	3Year
Horn Antenna	BBHA 9120D	9120D-631	RS	2018.07.09	3Year
Amplifier	8449B	3008A00160	HP/Agilent	2020.06.23	1Year

2.3 Scanning Receivers and Frequency Converters used with Scanning Receivers

Name	Model No	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
Attenuator	30dB	--	Narda	2020.06.23	1Year
RF Communication test set	8920B	116	HP/Agilent	2020.06.23	1Year

2.4 Auxiliary Equipment

Device	Manufacturer	Model	Rating
N/A			

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3.0 Technical Details

3.1 Investigations Requested

Perform Electromagnetic Interference [EMI] tests for FCC Requirement.

3.2 Test Standards

FCC Part 15 Subpart B

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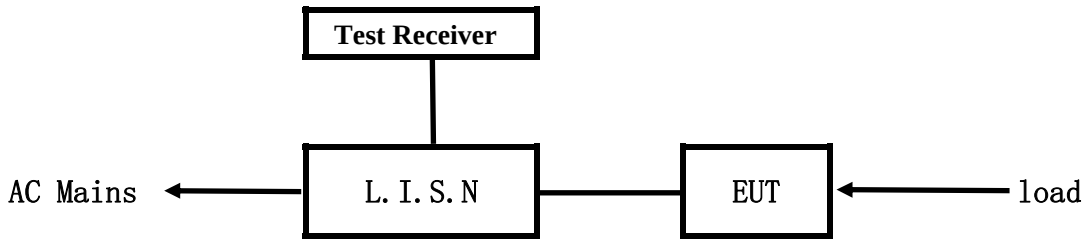
4.0 Conducted Power line Test

4.1 Schematics of the test



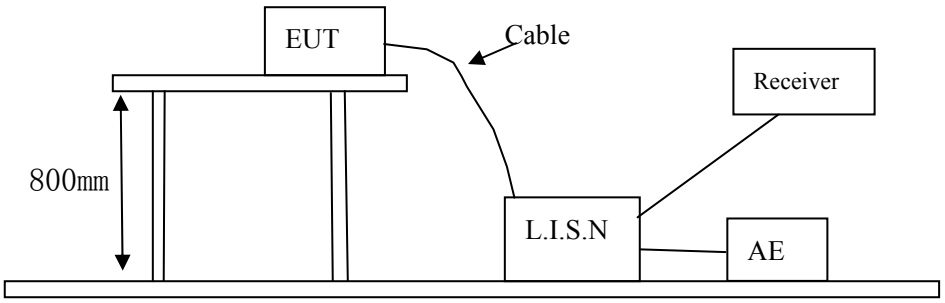
EUT: Equipment Under Test

4.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2014.The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2014.Cables and peripherals were moved to find the maximum emission levels for each frequency.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



4.3 Power line conducted Emission Limit

Frequency (MHz)	Class A Limits dB(μV)		Class B Limits dB(μV)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.00	66.00	66.00～56.00*	56.00～46.00*
0.50 ～ 5. 0	73.00	60.00	56.00	46.00
5.00 ～ 30.00	73.00	60.00	60.00	50.00

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

2. The tighter limit shall apply at the transition frequencies

4.4 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: for this report, only receiving mode was tested.

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

EUT Operating Environment

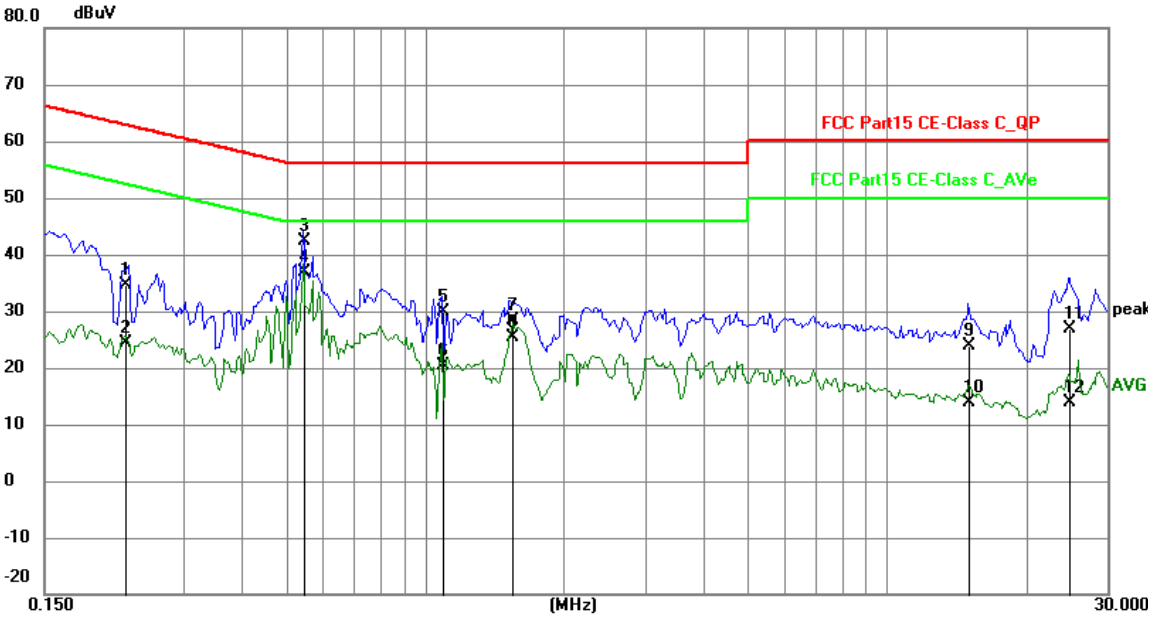
Temperature: 25℃ Humidity:65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Scanning Receiving Mode

Results: Pass

Equipment Level: Class B

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2241	24.82	9.75	34.57	62.67	-28.10	QP	P
2	0.2241	14.52	9.75	24.27	52.67	-28.40	AVG	P
3	0.5439	32.54	9.77	42.31	56.00	-13.69	QP	P
4	0.5439	27.04	9.77	36.81	46.00	-9.19	AVG	P
5	1.0899	20.01	9.79	29.80	56.00	-26.20	QP	P
6	1.0899	10.51	9.79	20.30	46.00	-25.70	AVG	P
7	1.5518	18.59	9.80	28.39	56.00	-27.61	QP	P
8	1.5518	15.58	9.80	25.38	46.00	-20.62	AVG	P
9	15.0003	13.50	10.38	23.88	60.00	-36.12	QP	P
10	15.0003	3.42	10.38	13.80	50.00	-36.20	AVG	P
11	24.7620	15.80	10.98	26.78	60.00	-33.22	QP	P
12	24.7620	2.95	10.98	13.93	50.00	-36.07	AVG	P

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

EUT Operating Environment

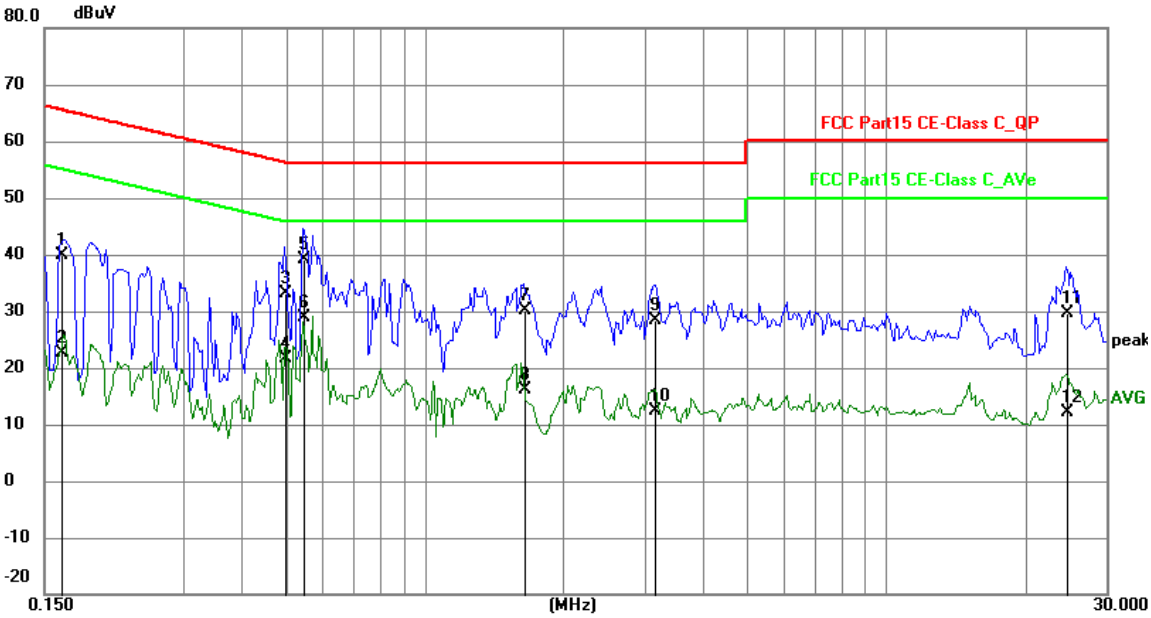
Temperature: 25℃ Humidity:65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Scanning Receiving Mode

Results: Pass

Equipment Level: Class B

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1641	30.11	9.78	39.89	65.25	-25.36	QP	P
2	0.1641	12.73	9.78	22.51	55.25	-32.74	AVG	P
3	0.4971	23.27	9.77	33.04	56.05	-23.01	QP	P
4	0.4971	11.83	9.77	21.60	46.05	-24.45	AVG	P
5	0.5439	29.28	9.77	39.05	56.00	-16.95	QP	P
6	0.5439	19.18	9.77	28.95	46.00	-17.05	AVG	P
7	1.6437	20.22	9.80	30.02	56.00	-25.98	QP	P
8	1.6437	6.42	9.80	16.22	46.00	-29.78	AVG	P
9	3.1521	18.64	9.85	28.49	56.00	-27.51	QP	P
10	3.1521	2.64	9.85	12.49	46.00	-33.51	AVG	P
11	24.6021	18.61	10.97	29.58	60.00	-30.42	QP	P
12	24.6021	1.28	10.97	12.25	50.00	-37.75	AVG	P

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

EUT Operating Environment

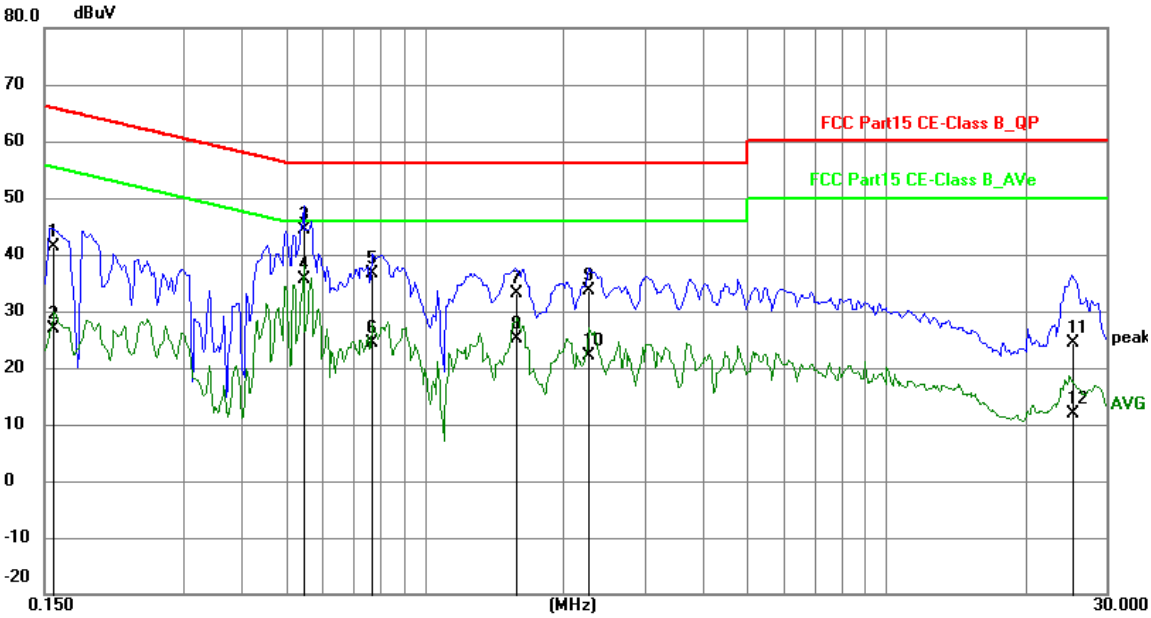
Temperature: 25℃ Humidity:65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Receiving Mode at 422.9875MHz

Results: Pass

Equipment Level: Class B

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1565	31.68	9.78	41.46	65.65	-24.19	QP	P
2	0.1565	17.04	9.78	26.82	55.65	-28.83	AVG	P
3	0.5478	34.50	9.77	44.27	56.00	-11.73	QP	P
4	0.5478	25.85	9.77	35.62	46.00	-10.38	AVG	P
5	0.7700	26.94	9.78	36.72	56.00	-19.28	QP	P
6	0.7700	14.54	9.78	24.32	46.00	-21.68	AVG	P
7	1.5696	23.29	9.80	33.09	56.00	-22.91	QP	P
8	1.5696	15.25	9.80	25.05	46.00	-20.95	AVG	P
9	2.2716	23.87	9.81	33.68	56.00	-22.32	QP	P
10	2.2716	12.38	9.81	22.19	46.00	-23.81	AVG	P
11	25.3002	13.30	11.01	24.31	60.00	-35.69	QP	P
12	25.3002	0.86	11.01	11.87	50.00	-38.13	AVG	P

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

EUT Operating Environment

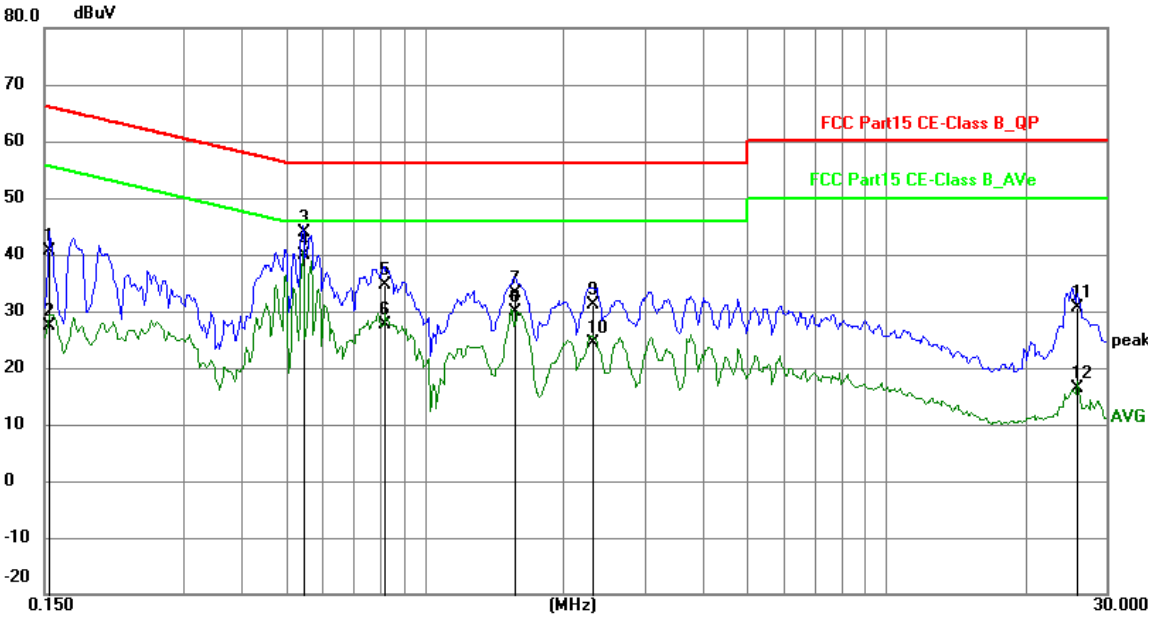
Temperature: 25℃ Humidity:65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Receiving Mode at 422.9875MHz

Results: Pass

Equipment Level: Class B

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1539	30.97	9.78	40.75	65.79	-25.04	QP	P
2	0.1539	17.51	9.78	27.29	55.79	-28.50	AVG	P
3	0.5439	34.00	9.77	43.77	56.00	-12.23	QP	P
4	0.5439	30.23	9.77	40.00	46.00	-6.00	AVG	P
5	0.8169	24.95	9.78	34.73	56.00	-21.27	QP	P
6	0.8169	17.93	9.78	27.71	46.00	-18.29	AVG	P
7	1.5657	23.35	9.80	33.15	56.00	-22.85	QP	P
8	1.5657	20.12	9.80	29.92	46.00	-16.08	AVG	P
9	2.2968	21.35	9.81	31.16	56.00	-24.84	QP	P
10	2.2968	14.45	9.81	24.26	46.00	-21.74	AVG	P
11	25.9983	19.59	11.05	30.64	60.00	-29.36	QP	P
12	25.9983	5.31	11.05	16.36	50.00	-33.64	AVG	P

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

EUT Operating Environment

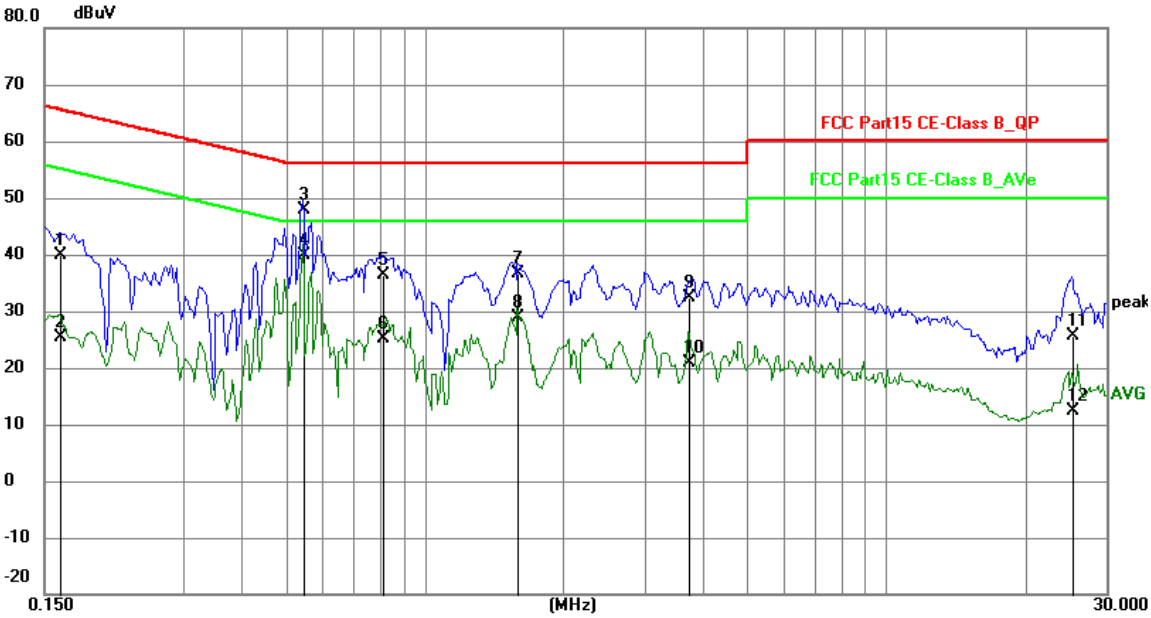
Temperature: 25℃ Humidity:65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Receiving Mode at 446.9875MHz

Results: Pass

Equipment Level: Class B

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	30.20	9.78	39.98	65.38	-25.40	QP	P
2	0.1617	15.67	9.78	25.45	55.38	-29.93	AVG	P
3	0.5439	38.17	9.77	47.94	56.00	-8.06	QP	P
4	0.5439	30.16	9.77	39.93	46.00	-6.07	AVG	P
5	0.8130	26.62	9.78	36.40	56.00	-19.60	QP	P
6	0.8130	15.34	9.78	25.12	46.00	-20.88	AVG	P
7	1.5852	26.71	9.80	36.51	56.00	-19.49	QP	P
8	1.5852	19.07	9.80	28.87	46.00	-17.13	AVG	P
9	3.7395	22.56	9.88	32.44	56.00	-23.56	QP	P
10	3.7395	11.05	9.88	20.93	46.00	-25.07	AVG	P
11	25.2534	14.69	11.01	25.70	60.00	-34.30	QP	P
12	25.2534	1.35	11.01	12.36	50.00	-37.64	AVG	P

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

EUT Operating Environment

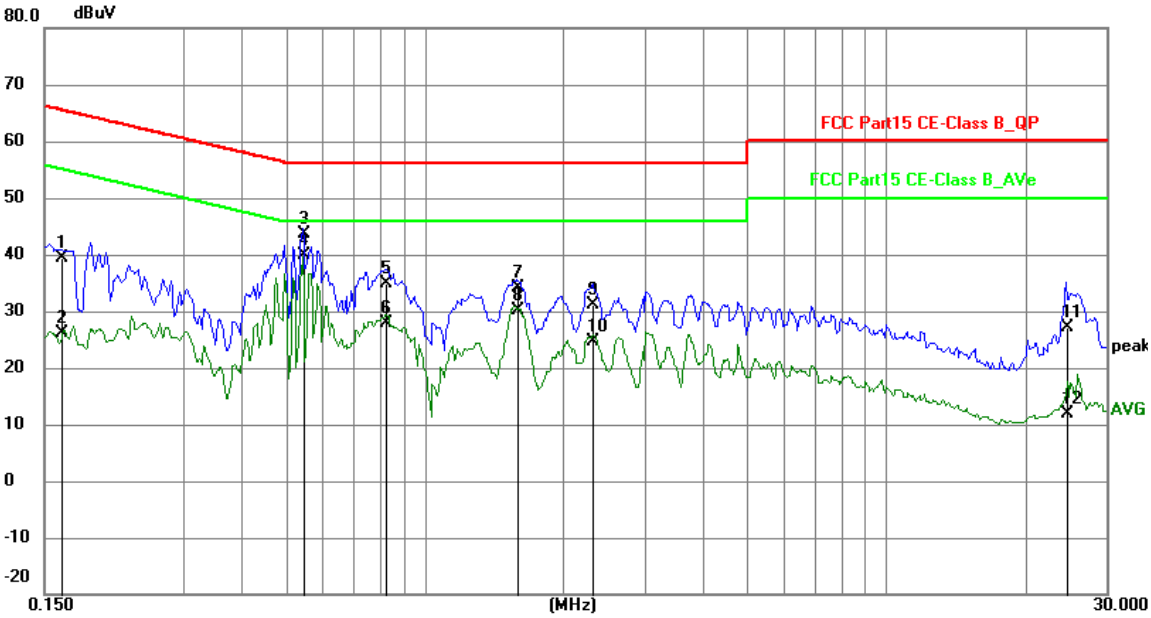
Temperature: 25℃ Humidity:65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Receiving Mode at 446.9875MHz

Results: Pass

Equipment Level: Class B

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1641	29.63	9.78	39.41	65.25	-25.84	QP	P
2	0.1641	16.26	9.78	26.04	55.25	-29.21	AVG	P
3	0.5439	33.94	9.77	43.71	56.00	-12.29	QP	P
4	0.5439	30.23	9.77	40.00	46.00	-6.00	AVG	P
5	0.8247	24.99	9.78	34.77	56.00	-21.23	QP	P
6	0.8247	18.18	9.78	27.96	46.00	-18.04	AVG	P
7	1.5852	24.26	9.80	34.06	56.00	-21.94	QP	P
8	1.5852	20.34	9.80	30.14	46.00	-15.86	AVG	P
9	2.3184	21.33	9.81	31.14	56.00	-24.86	QP	P
10	2.3184	14.81	9.81	24.62	46.00	-21.38	AVG	P
11	24.5631	16.26	10.96	27.22	60.00	-32.78	QP	P
12	24.5631	0.87	10.96	11.83	50.00	-38.17	AVG	P

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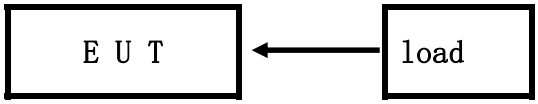
5.0 Radiated Disturbance Test

5.1 Schematics of the test

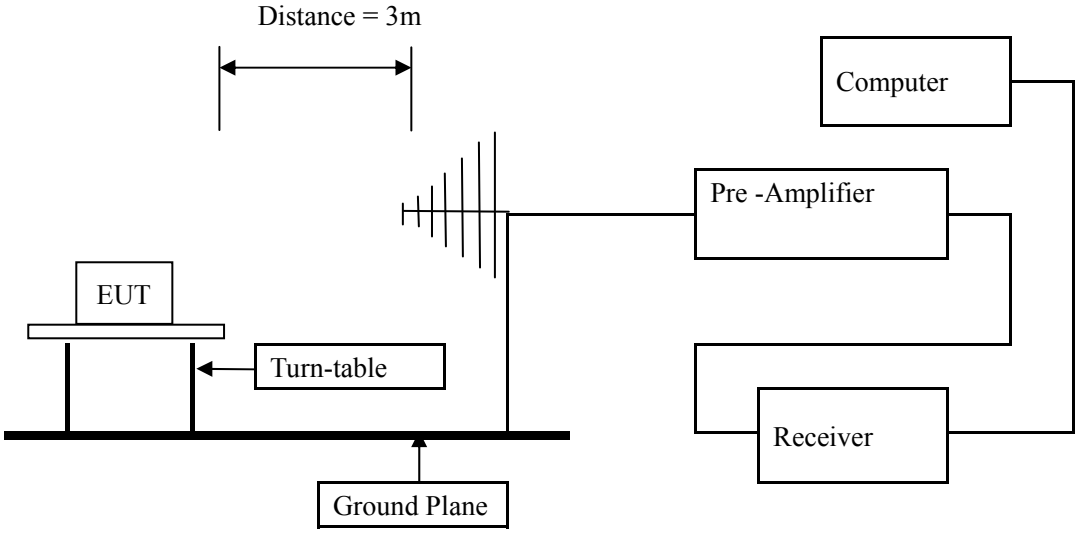


5.2 Test Method and test Procedure:

The EUT was tested according to ANSI C63.4 –2014; The frequency spectrum from 30MHz to 5GHz was investigated. All reading from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK

Actual Working Voltage and Frequency: 120V~, 60Hz

Block diagram of Test setup



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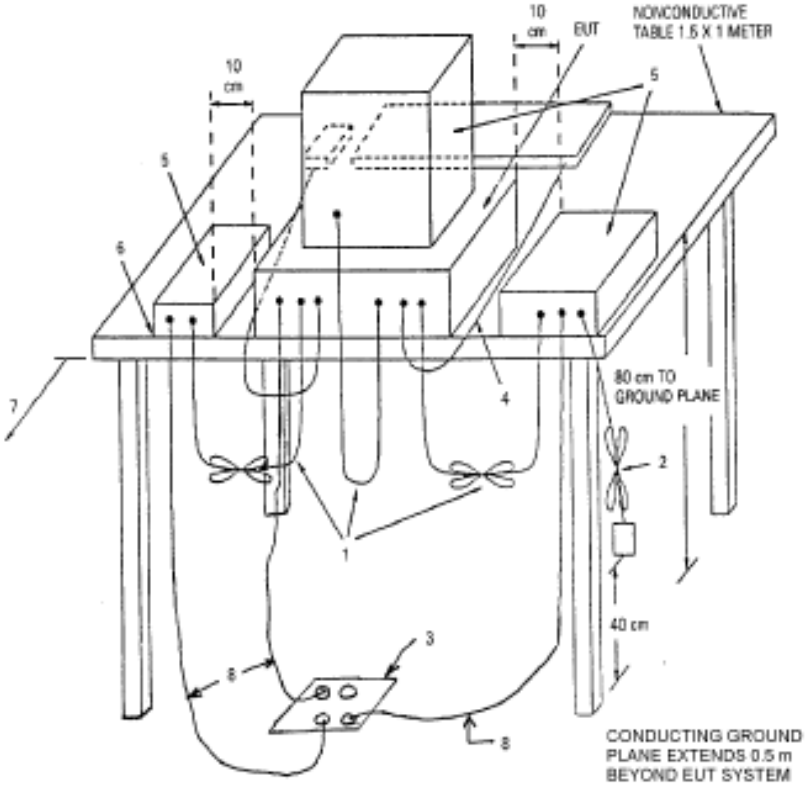

5.3 Radiated Emission Limit

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.00
88-216	3	43.50
216-960	3	46.00
Above 960	3	54.00

Note: The lower limit shall apply at the transition frequencies

5.4 Test result

The frequency spectrum from 30MHz to 5GHz was investigated. All reading from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK. Measurements were made at 3 meters.

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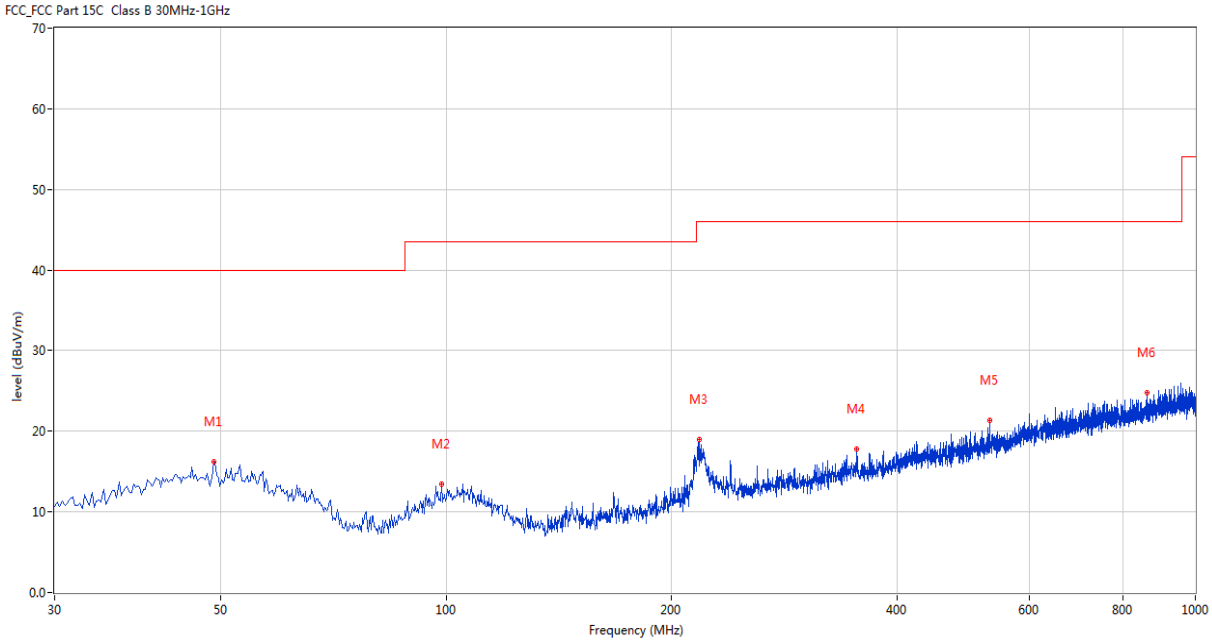
A: Radiated Disturbance (30MHz----1000MHz)

Project Number:	CASE1	Test Time:	2021-04-06_09.01.02
EUT Name:	intercom	Test Engineer:	HAVEN
Manufacturer:	Shenzhen Zhongnuoneng Technology Co., Ltd	Test Standard:	FCC Part 15C
Model:	ZNNF60	Work Addition:	Scanning Receiving Mode
Temp.(℃):	25	Load:	
Hum.:	65%	Remark:	



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	48.910	16.26	-11.21	40.0	-23.74	Peak	37.00	100	Horizontal	Pass
2	98.610	13.46	-13.70	43.5	-30.04	Peak	355.00	100	Horizontal	Pass
3	217.648	19.00	-13.45	46.0	-27.00	Peak	283.00	100	Horizontal	Pass
4	353.414	17.82	-9.48	46.0	-28.18	Peak	338.00	100	Horizontal	Pass
5	531.122	21.34	-6.46	46.0	-24.66	Peak	228.00	100	Horizontal	Pass
6	861.810	24.75	-2.28	46.0	-21.25	Peak	360.00	100	Horizontal	Pass

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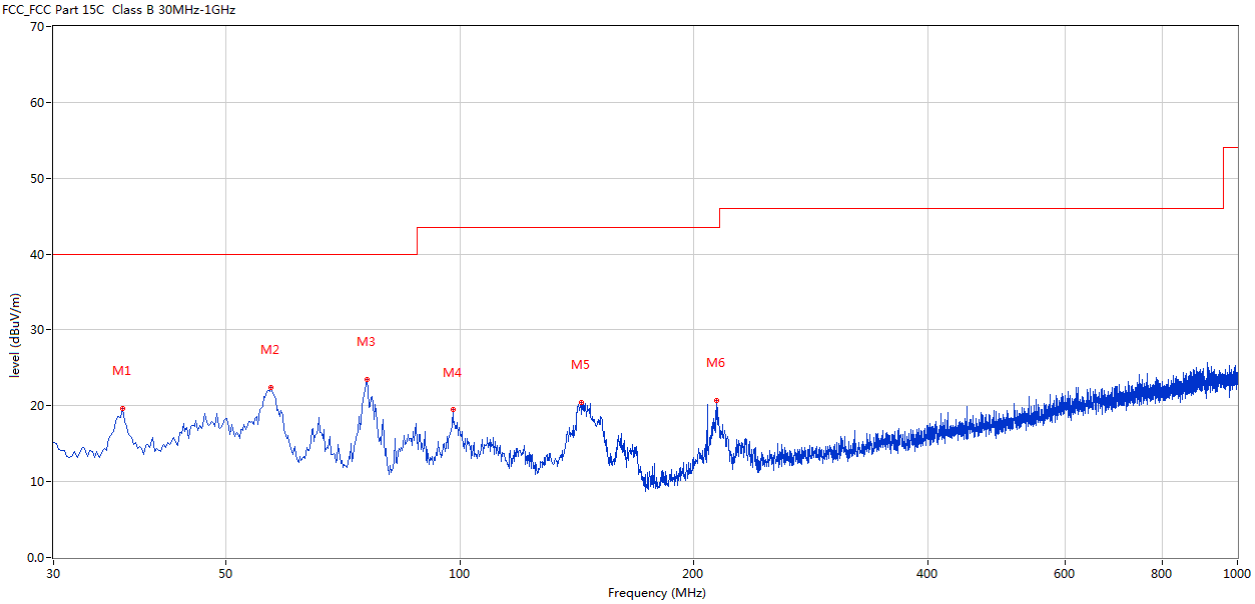
B: Radiated Disturbance (30MHz----1000MHz)

Project Number:	CASE1	Test Time:	2021-04-06_09.02.22
EUT Name:	intercom	Test Engineer:	HAVEN
Manufacturer:	Shenzhen Zhongnuoneng Technology Co., Ltd	Test Standard:	FCC Part 15C
Model:	ZNNF60	Work Addition:	Scanning Receiving Mode
Temp.(℃):	25	Load:	
Hum.:	65%	Remark:	



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	36.788	19.71	-13.31	40.0	-20.29	Peak	287.00	100	Vertical	Pass
2	57.153	22.47	-12.37	40.0	-17.53	Peak	274.00	100	Vertical	Pass
3	75.821	23.48	-17.51	40.0	-16.52	Peak	115.00	100	Vertical	Pass
4	97.883	19.45	-13.75	43.5	-24.05	Peak	58.00	100	Vertical	Pass
5	143.219	20.40	-17.22	43.5	-23.10	Peak	353.00	100	Vertical	Pass
6	213.527	20.73	-13.63	43.5	-22.77	Peak	316.00	100	Vertical	Pass

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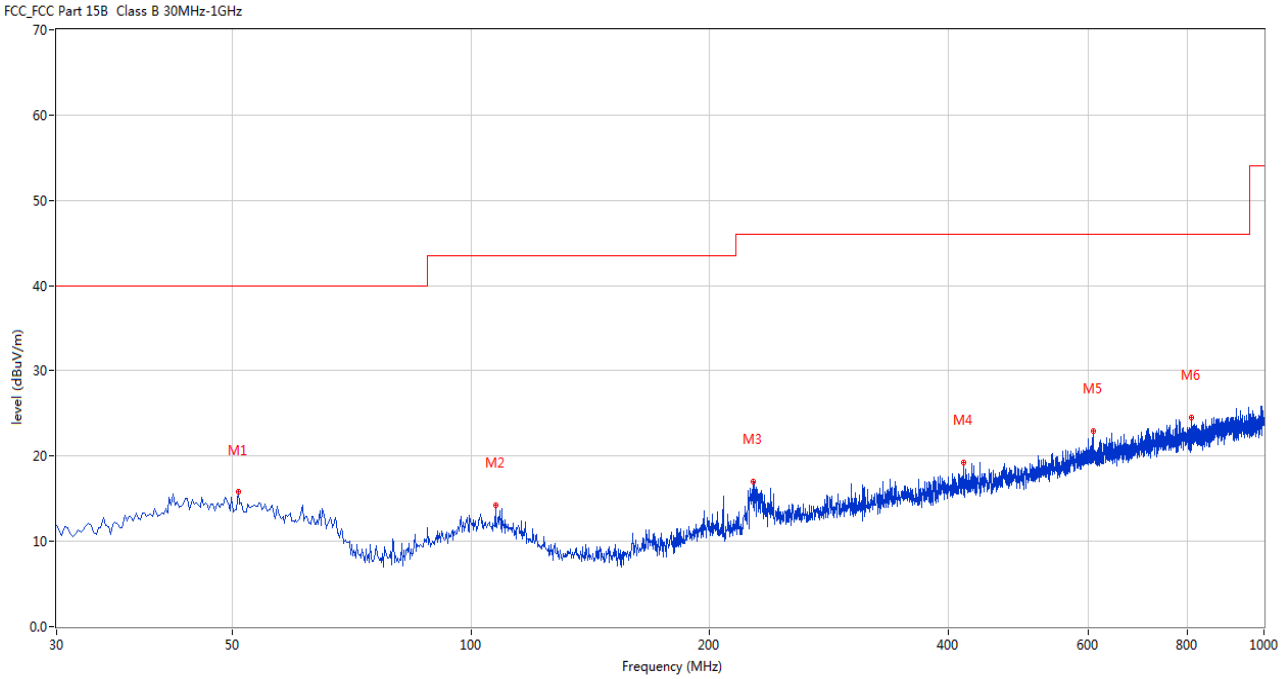
C: Radiated Disturbance (30MHz----1000MHz)

Project Number:	CASE1	Test Time:	2021-04-06_19.58.03
EUT Name:	intercom	Test Engineer:	HAVEN
Manufacturer:	Shenzhen Zhongnuoneng Technology Co., Ltd	Test Standard:	FCC Part 15C
Model:	ZNNF60	Work Addition:	Receiving Mode
Temp.(℃):	25	Load:	
Hum.:	65%	Remark:	Rx 422.9875MHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	50.850	15.76	-11.40	40.0	-24.24	Peak	305.00	100	Horizontal	Pass
2	107.338	14.19	-13.39	43.5	-29.31	Peak	357.00	100	Horizontal	Pass
3	227.103	17.05	-12.80	46.0	-28.95	Peak	79.00	100	Horizontal	Pass
4	417.661	19.20	-8.08	46.0	-26.80	Peak	79.00	100	Horizontal	Pass
5	608.460	22.95	-5.02	46.0	-23.05	Peak	73.00	100	Horizontal	Pass
6	808.958	24.56	-3.00	46.0	-21.44	Peak	273.00	100	Horizontal	Pass

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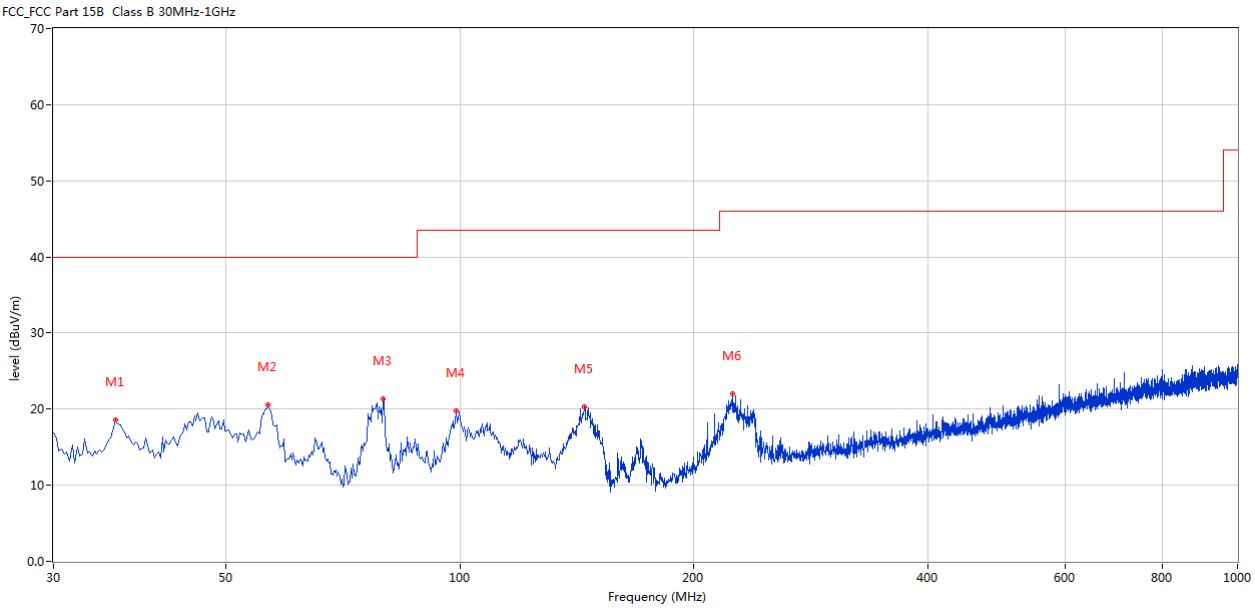
D: Radiated Disturbance (30MHz----1000MHz)

Project Number:	CASE1	Test Time:	2021-04-06_20.01.08
EUT Name:	intercom	Test Engineer:	HAVEN
Manufacturer:	Shenzhen Zhongnuoneng Technology Co., Ltd	Test Standard:	FCC Part 15C
Model:	ZNNF60	Work Addition:	Receiving Mode
Temp.(℃):	25	Load:	
Hum.:	65%	Remark:	Rx 422.9875MHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	36.061	18.63	-13.68	40.0	-21.37	Peak	9.00	100	Vertical	Pass
2	56.668	20.58	-12.22	40.0	-19.42	Peak	227.00	100	Vertical	Pass
3	79.700	21.32	-17.45	40.0	-18.68	Peak	109.00	200	Vertical	Pass
4	98.853	19.79	-13.68	43.5	-23.71	Peak	318.00	100	Vertical	Pass
5	144.674	20.30	-17.18	43.5	-23.20	Peak	0.00	100	Vertical	Pass
6	224.436	22.08	-13.00	46.0	-23.92	Peak	0.00	200	Vertical	Pass

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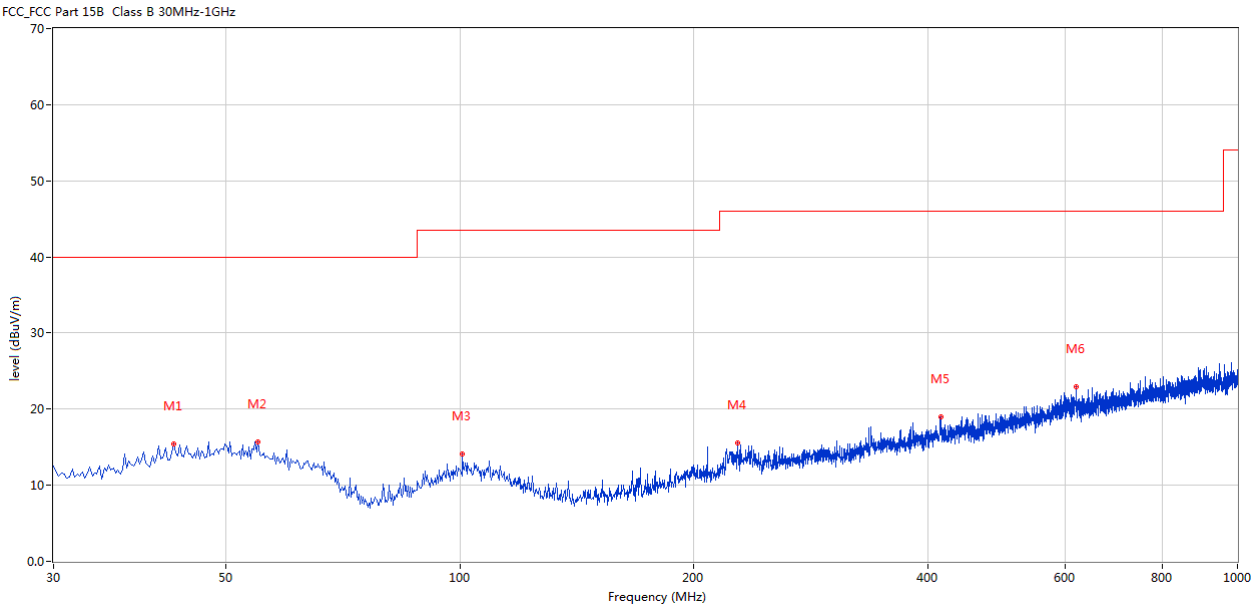
E: Radiated Disturbance (30MHz----1000MHz)

Project Number:	CASE1	Test Time:	2021-04-06_20.02.44
EUT Name:	intercom	Test Engineer:	HAVEN
Manufacturer:	Shenzhen Zhongnuoneng Technology Co., Ltd	Test Standard:	FCC Part 15C
Model:	ZNNF60	Work Addition:	Receiving Mode
Temp.(℃):	25	Load:	
Hum.:	65%	Remark:	Rx 446.9875MHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	42.849	15.40	-11.52	40.0	-24.60	Peak	251.00	100	Horizontal	Pass
2	54.971	15.74	-11.77	40.0	-24.26	Peak	111.00	100	Horizontal	Pass
3	100.792	14.11	-13.46	43.5	-29.39	Peak	39.00	100	Horizontal	Pass
4	227.831	15.52	-12.78	46.0	-30.48	Peak	33.00	100	Horizontal	Pass
5	415.964	19.00	-8.34	46.0	-27.00	Peak	1.00	100	Horizontal	Pass
6	620.097	22.97	-4.86	46.0	-23.03	Peak	303.00	100	Horizontal	Pass

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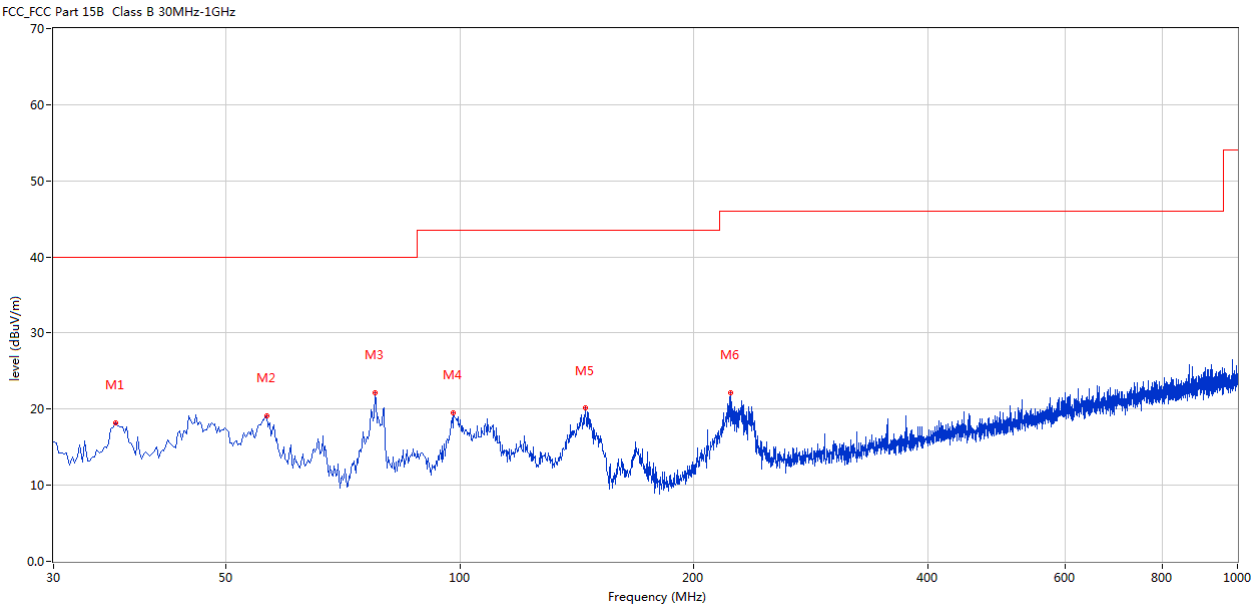
F: Radiated Disturbance (30MHz----1000MHz)

Project Number:	CASE1	Test Time:	2021-04-06_20.04.15
EUT Name:	intercom	Test Engineer:	HAVEN
Manufacturer:	Shenzhen Zhongnuoneng Technology Co.,Ltd	Test Standard:	FCC Part 15C
Model:	ZNNF60	Work Addition:	Receiving Mode
Temp.(℃):	25	Load:	
Hum.:	65%	Remark:	Rx 446.9875MHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	36.061	18.14	-13.68	40.0	-21.86	Peak	147.00	100	Vertical	Pass
2	56.426	19.16	-12.15	40.0	-20.84	Peak	213.00	100	Vertical	Pass
3	77.761	22.09	-17.54	40.0	-17.91	Peak	108.00	100	Vertical	Pass
4	98.125	19.54	-13.73	43.5	-23.96	Peak	356.00	100	Vertical	Pass
5	145.159	20.10	-17.26	43.5	-23.40	Peak	8.00	100	Vertical	Pass
6	222.739	22.18	-13.19	46.0	-23.82	Peak	8.00	100	Vertical	Pass

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G: Radiated Disturbance (1000MHz----5000MHz)

EUT Operating Environment

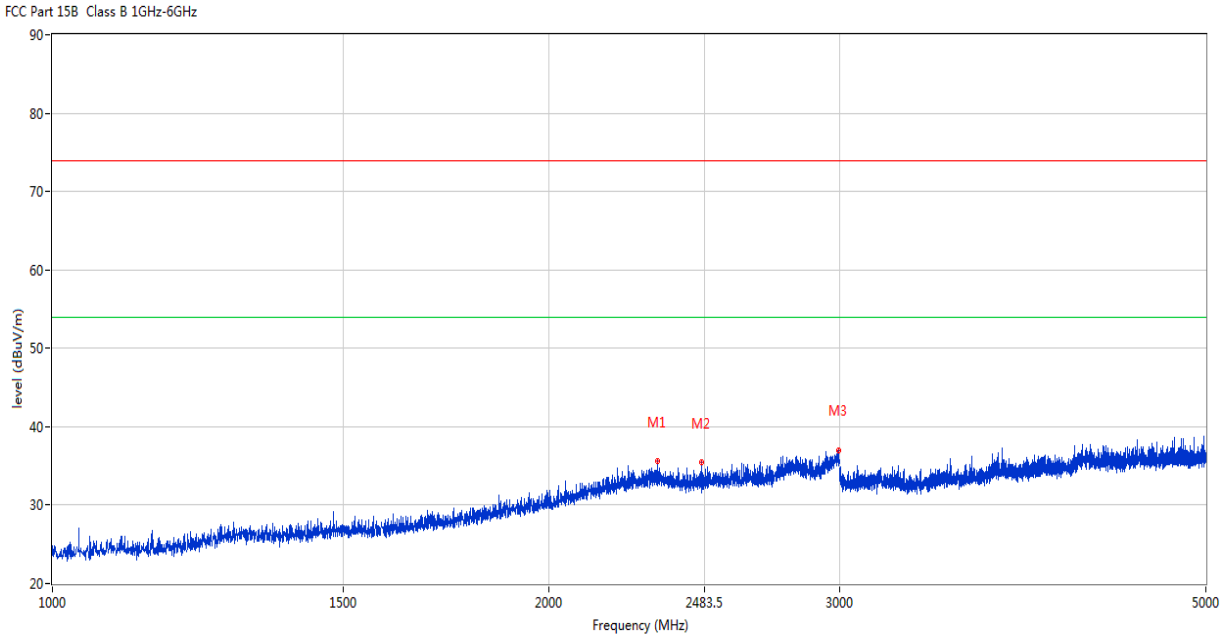
Temperature: 25℃ Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Receiving Mode at 421MHz

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2326.668	35.61	-3.29	74.0	-38.39	Peak	99.00	100	H	Pass
2	2473.132	35.42	-3.57	74.0	-38.58	Peak	62.00	100	H	Pass
3	2995.001	37.05	-2.64	74.0	-36.95	Peak	153.00	100	H	Pass

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H: Radiated Disturbance (1000MHz----5000MHz)

EUT Operating Environment

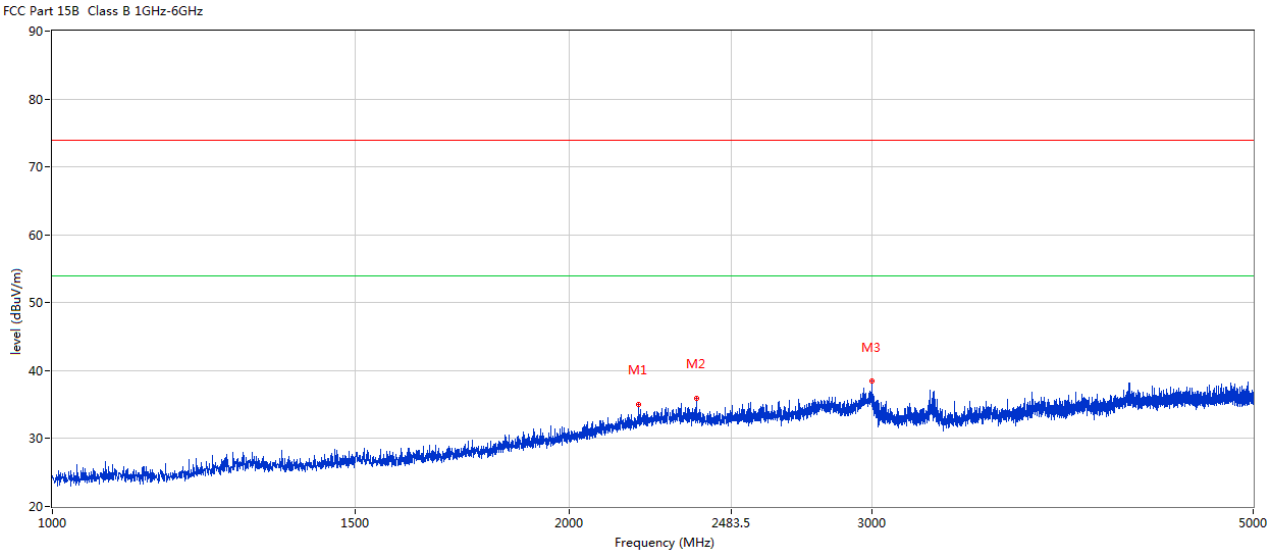
Temperature:25℃ Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Receiving Mode at 421MHz

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2195.201	35.09	-3.29	74.0	-38.91	Peak	342.00	100	V	Pass
2	2372.157	35.96	-3.46	74.0	-38.04	Peak	273.00	100	V	Pass
3	3000.000	38.44	-2.64	74.0	-35.56	Peak	30.00	100	V	Pass

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I: Radiated Disturbance (1000MHz----5000MHz)

EUT Operating Environment

Temperature: 25℃ Humidity: 65%RH Atmospheric Pressure: 101 kPa

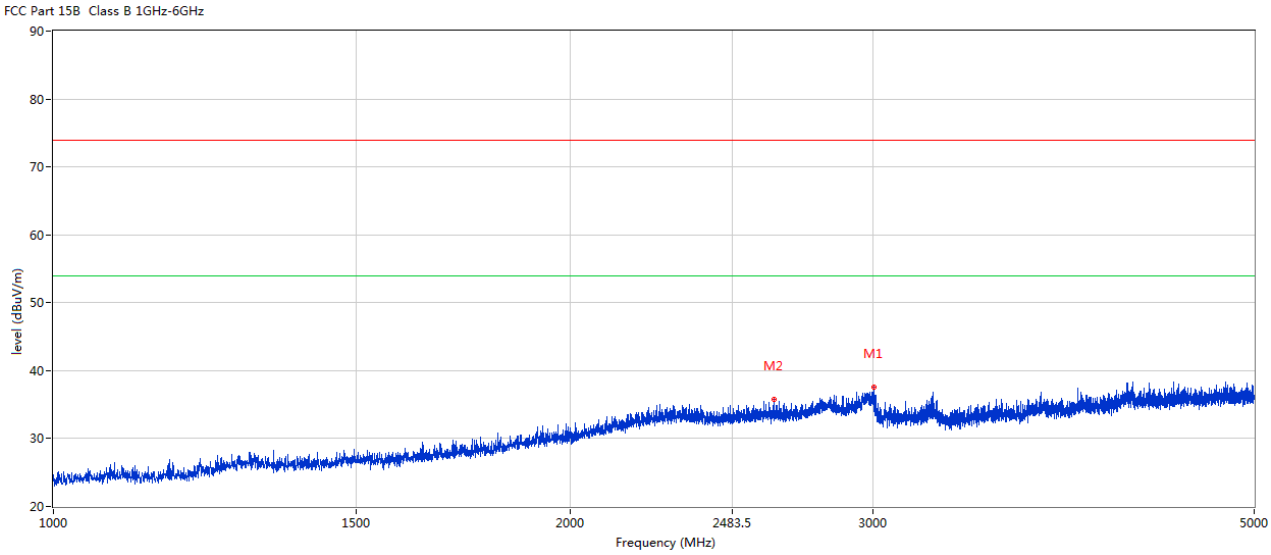
EUT set Condition: Receiving Mode at 422.9875MHz

Model: Mode 2

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	3002.999	37.52	-2.63	74.0	-36.48	Peak	22.00	100	H	Pass
2	2625.594	35.76	-3.23	74.0	-38.24	Peak	360.00	100	H	Pass

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J: Radiated Disturbance (1000MHz----5000MHz)

EUT Operating Environment

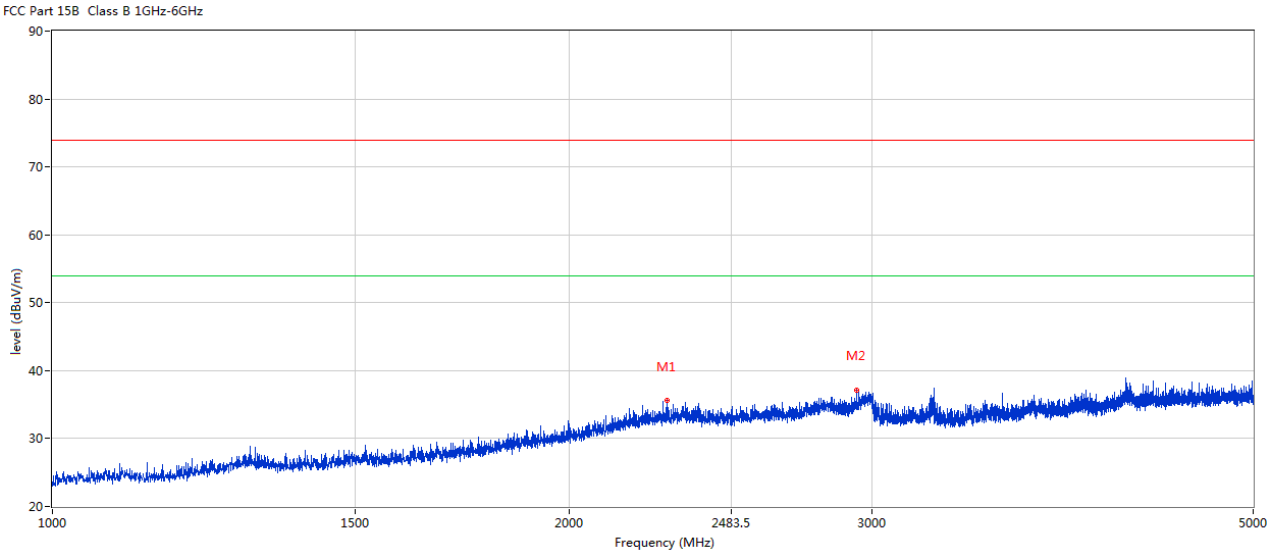
Temperature:25℃ Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Receiving Mode at 422.9875MHz

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2280.180	35.57	-3.20	74.0	-38.43	Peak	49.00	100	V	Pass
2	2937.516	37.20	-2.66	74.0	-36.80	Peak	86.00	100	V	Pass

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K: Radiated Disturbance (1000MHz----5000MHz)

EUT Operating Environment

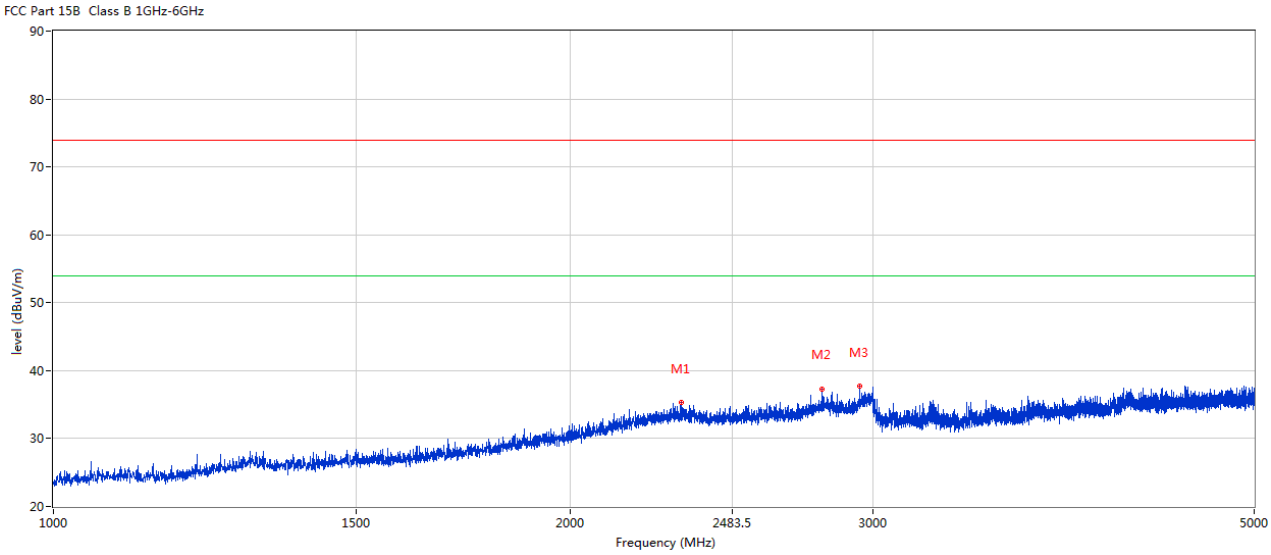
Temperature: 25℃ Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Receiving Mode at 446.9875MHz

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2319.170	35.30	-3.26	74.0	-38.70	Peak	297.00	100	H	Pass
2	2803.049	37.33	-2.70	74.0	-36.67	Peak	360.00	100	H	Pass
3	2946.013	37.68	-2.66	74.0	-36.32	Peak	360.00	100	H	Pass

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L: Radiated Disturbance (1000MHz----5000MHz)

EUT Operating Environment

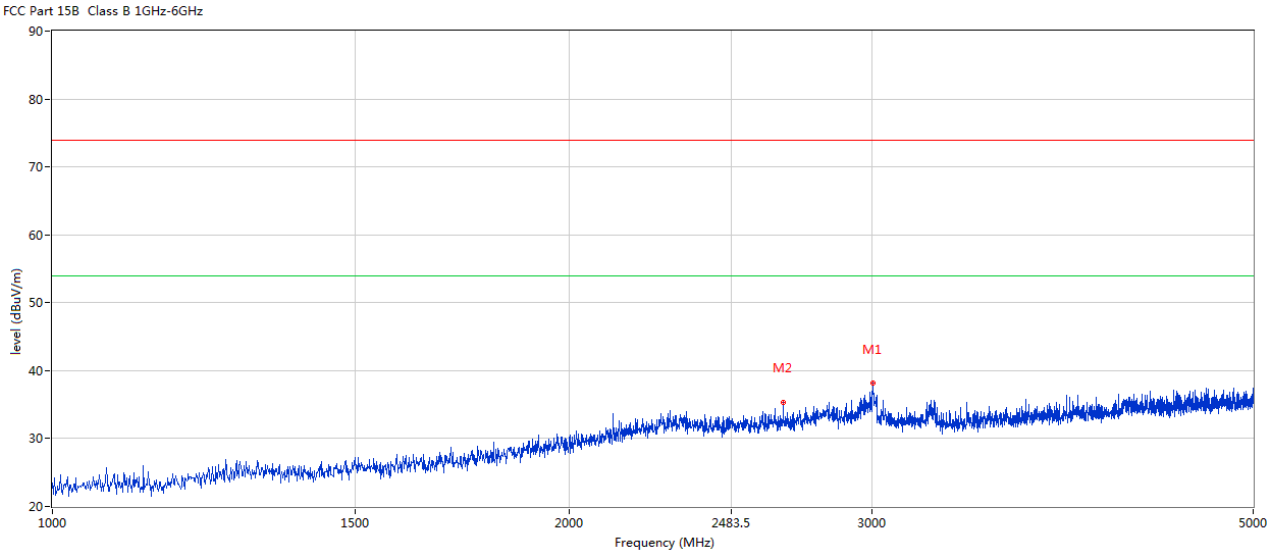
Temperature:25℃ Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Receiving Mode at 446.9875MHz

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	3003.249	38.14	-2.63	74.0	-35.86	Peak	27.00	100	V	Pass
2	2663.334	35.39	-3.09	74.0	-38.61	Peak	0.00	100	V	Pass

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6.0 Scanning Receivers and Frequency Converters used with Scanning Receivers

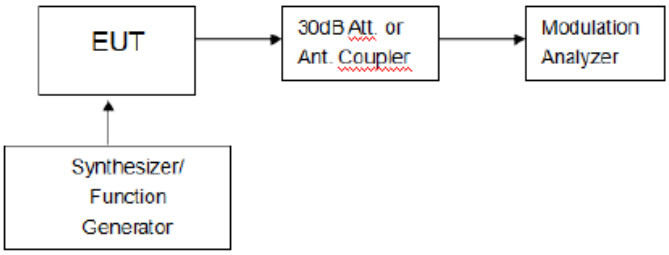
Applicable Standard

FCC Part15.121(b)

Limit

Except as provided in paragraph (c) of this section, scanning receivers shall reject any signals from the Cellular Radiotelephone Service frequency bands that are 38 dB or lower based upon a 12 dB SINAD measurement, which is considered the threshold where a signal can be clearly discerned from any interference that may be present.

EUT Setup



Test Procedure

1) Connected the EUT as shown in the above block diagram.

2) Apply a RF signal to the receiver input port at lowest, middle and highest channel frequencies of receiver operation band.

3) Adjust the audio output level of the receiver to it's rated value with the distortion less than 10%.

4) Adjust the RF Signal Generator Output Power to produce 12 dB SINAD without the audio output power dropping by more than 3 db. This output level of the RF SG at each channel frequency is the sensitivity of the receiver.

5) Select the lowest or worse-case sensitivity level for all of the bands as the reference sensitivity.

6) Adjust the RF Signal Generator output to a level of +60 dB above the reference sensitivity obtained in step 5) and its frequency to the frequency points in the cellular band.

7) Set the receiver in a scanning mode and allow it to scan through it's pre-set frequencies.

8) If the receiver unquenched or stopped on any frequency, receiving at this frequency, then adjust the signal generator output level until 12 dB SINAD is produced, this level is the spurious value and the difference between the reference sensitivity and the spurious value is the rejection ratio and must be at least 38dB

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Test Data:

Frequency Range (MHz)	Channel	Measurement Result (dB)	Limit (dB)
421-422.9875	Low	49	>38
421-422.9875	High	50	>38
445-446.9875	Low	51	>38
445-446.9875	High	50	>38

Note: 1. This device meets the requirements of FCC Part 15.121(b)

2. The test report only shows the worst test results

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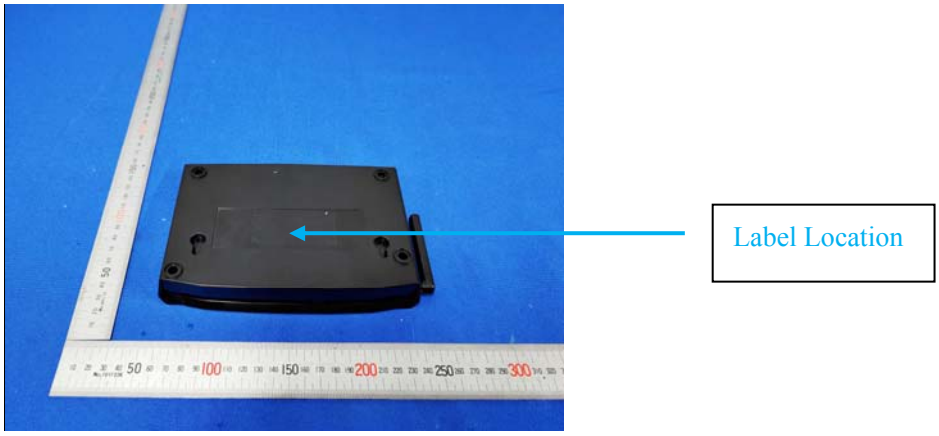
7.0 FCC Label

FCC ID: 2AS5R-ZNNF60

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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.



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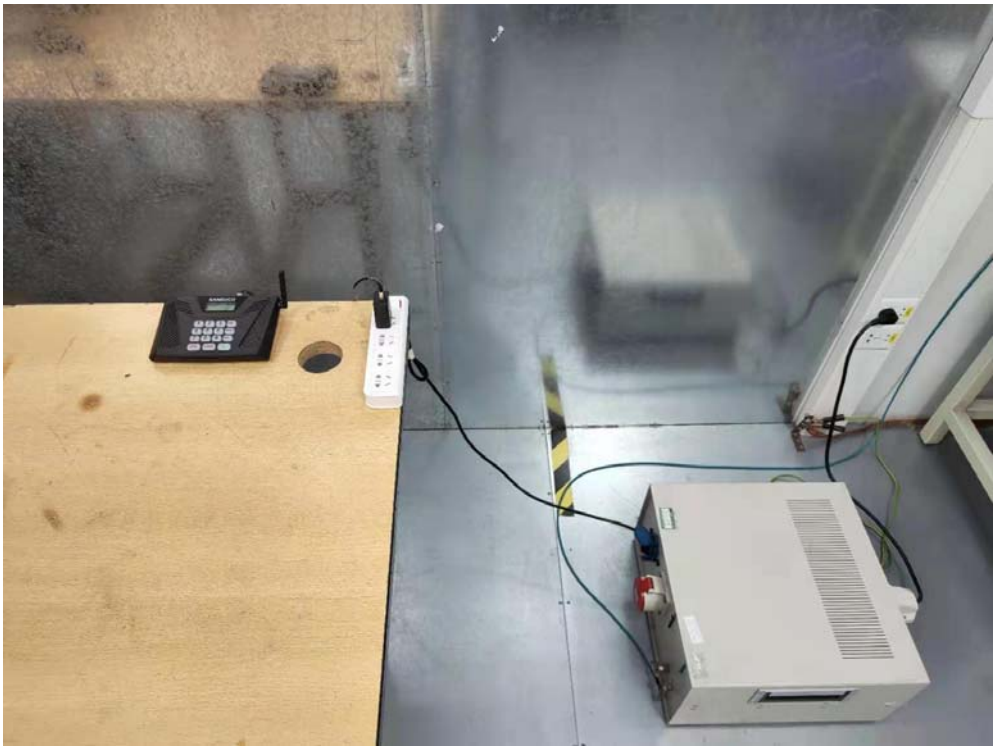
8.0 Photo of testing

Conducted Emissions



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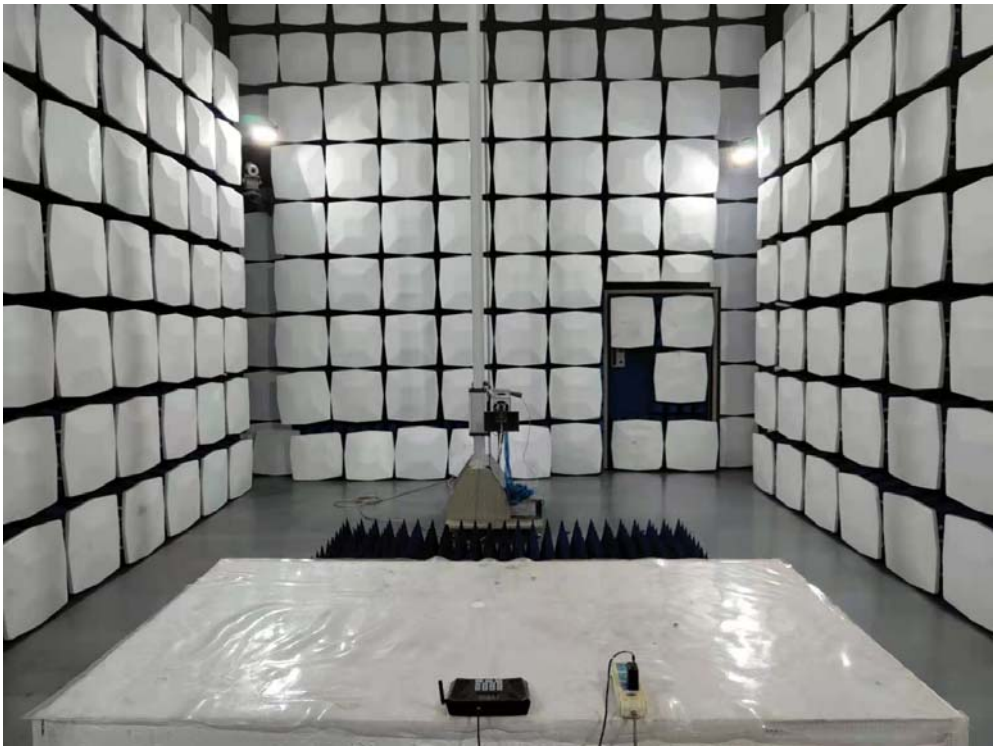
Radiated Emissions



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Photographs – EUT

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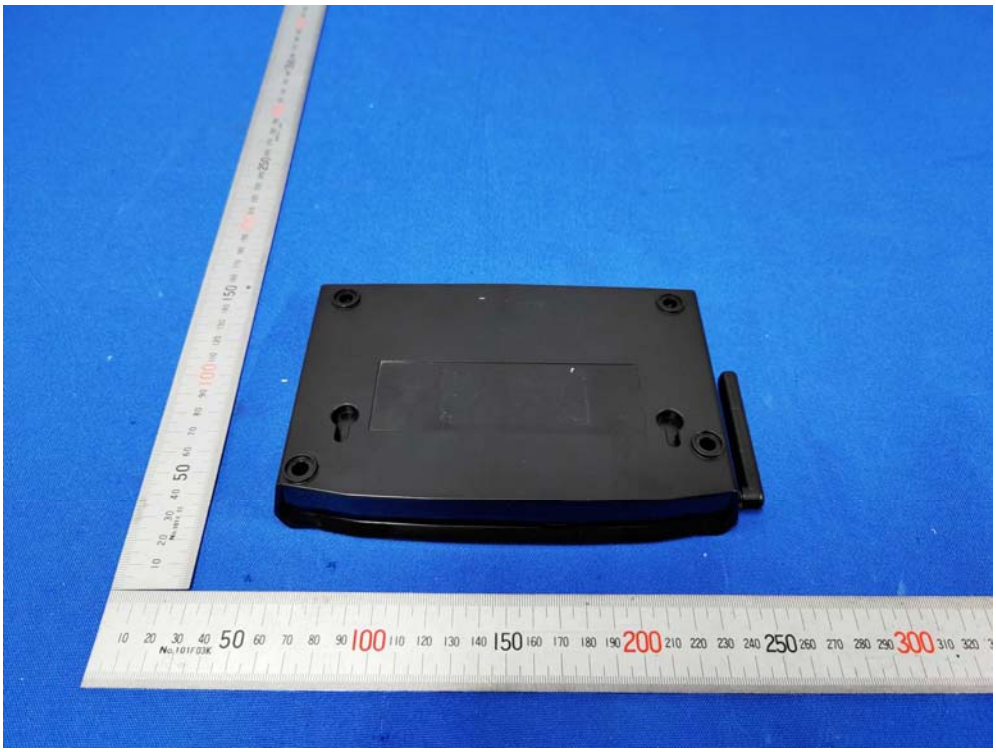

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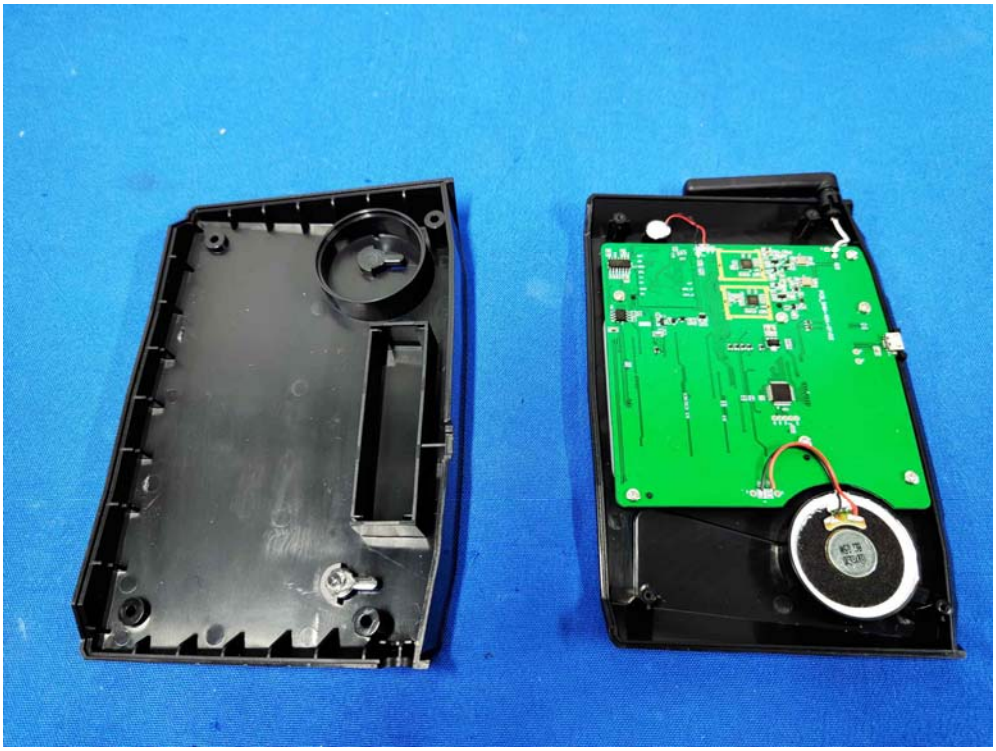

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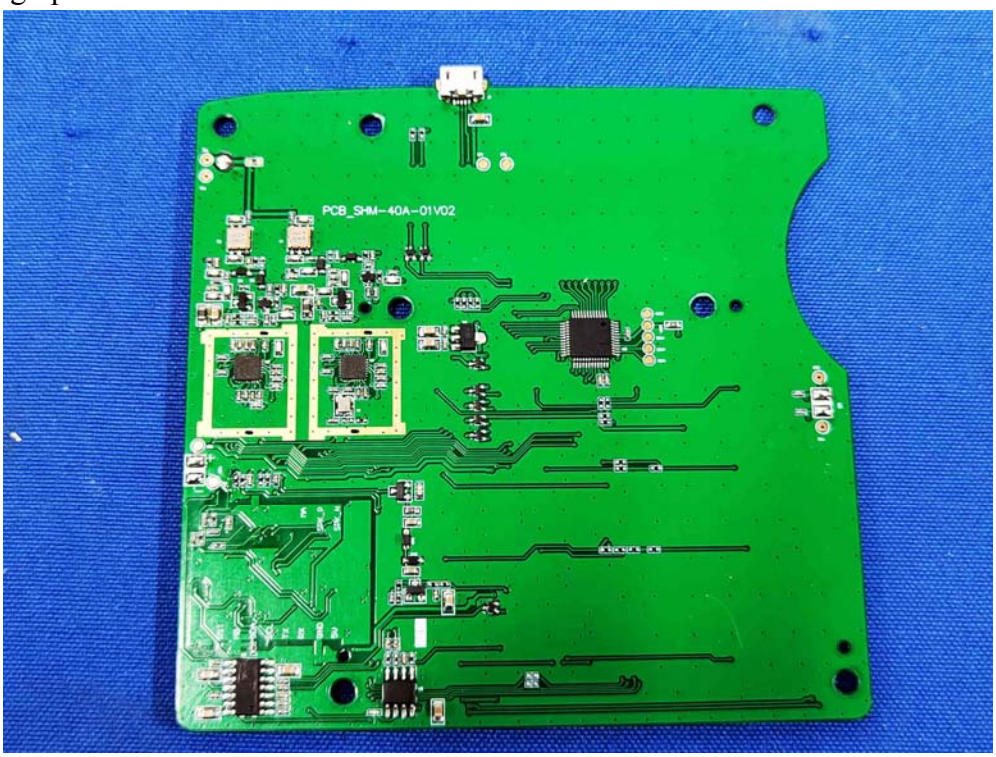

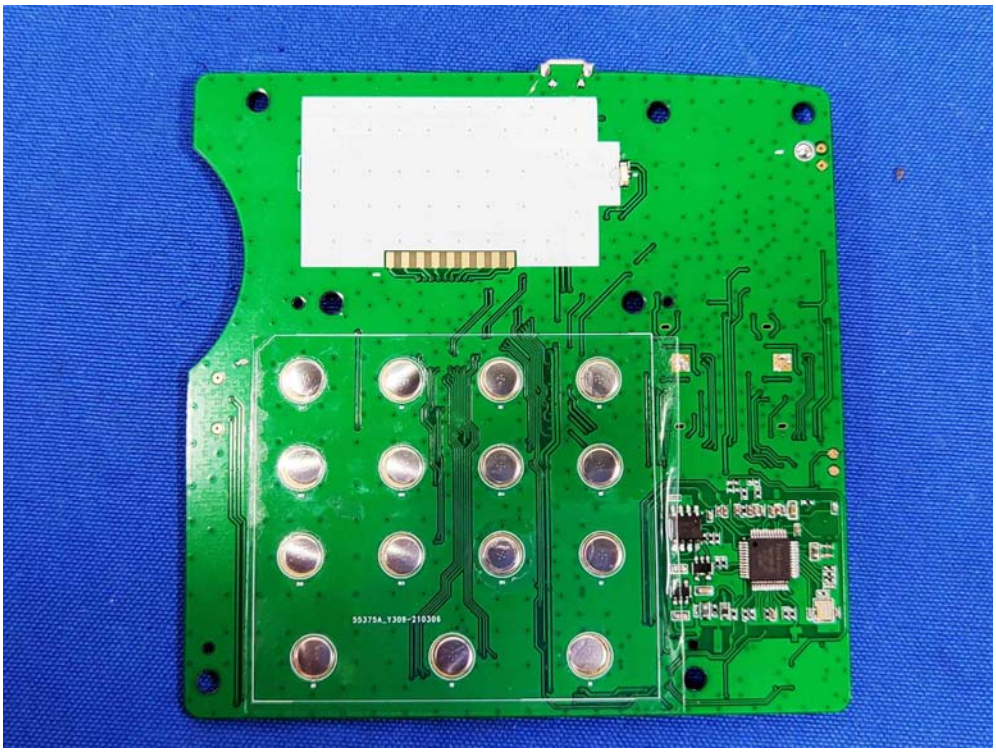

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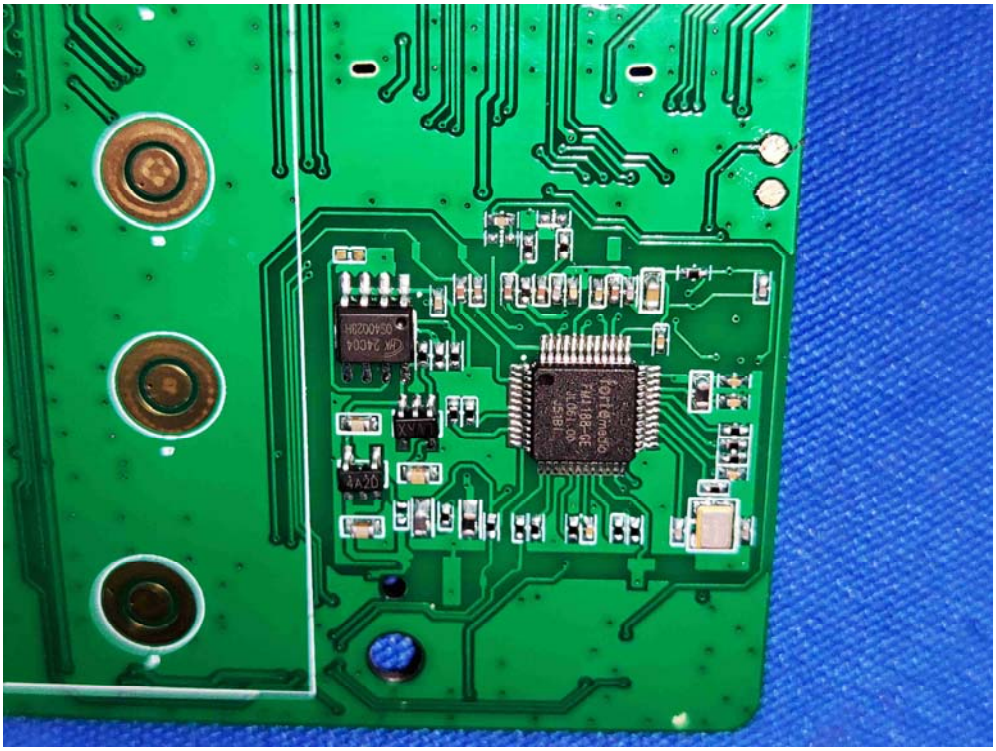

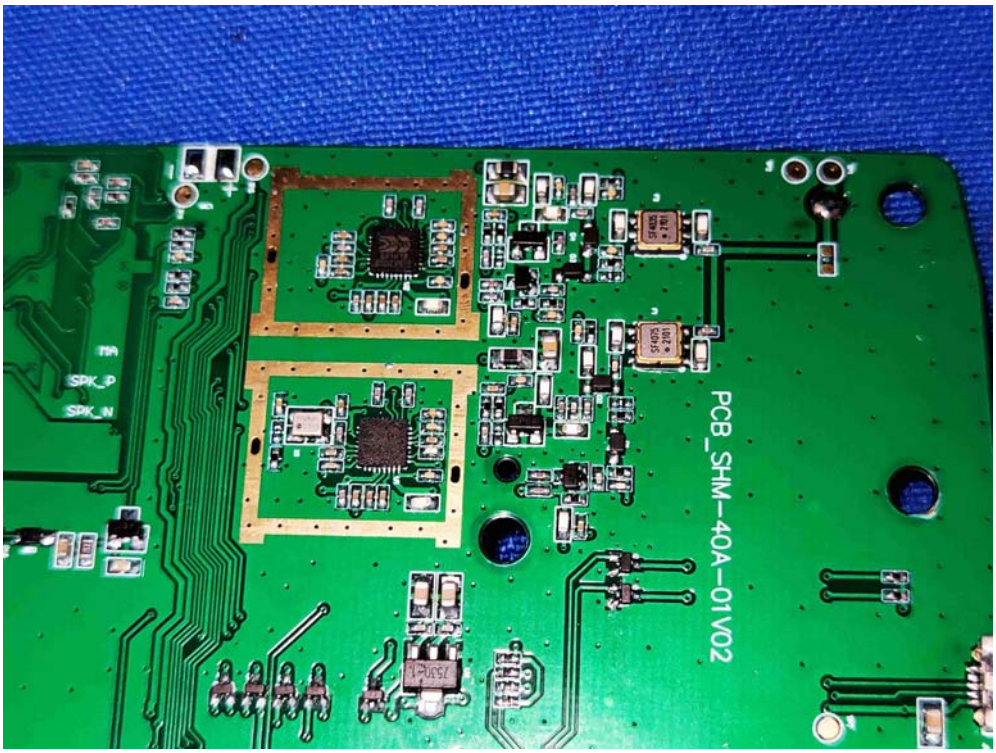

End of The Report

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